

Hanson Construction Materials Pty Ltd



Preliminary Site Investigation:  
Part of Lot 10 DP 1170710,  
Concrete Batching Plant (SSD 8544) at  
Glebe Island, Rozelle, NSW

ENVIRONMENTAL



WATER



WASTEWATER



GEOTECHNICAL



CIVIL



PROJECT  
MANAGEMENT



P1706122JR01V02  
February 2018

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All enquiries regarding this project are to be directed to the Project Manager.

## Executive Summary

### Overview

This Preliminary Site Investigation (PSI) has been prepared for Hanson Construction Materials Pty Ltd, to address specific requirements of SEARS No. 8544 for a construction of a concrete batching plant at Glebe Island, Rozelle, NSW ('the site'). The investigation area is located in the south eastern portion of Lot 10 DP 1170710.

The objectives of the investigation were to establish whether there are areas of environmental concern (AEC), and associated contaminants of potential concern (COPC) within the investigation area, provide comment on suitability of investigation area for future development use and where required, provide recommendations for additional investigations and/or remediation.

Scope of works included a walkover inspection to review current land use, potential contaminating activities and neighbouring land uses, review of site history including aerials and title search, and NSW Port Authority, EPA and SafeWork NSW records, and preparation of a report in general accordance with the relevant guidelines.

### Project Introduction

The proposed concrete batching and shipping terminal facilities will allow an efficient and ongoing supply of concrete and aggregates to Hanson (and Hymix) sites in the vicinity of the CBD and inner suburbs. The proposed batching facility is expected to operate 24 hours a day, seven days a week, and will be designed with a capacity to produce up to 1 million m<sup>3</sup> of concrete annually.

### Summary of Conclusions and Recommendations

Results of the site history aerial review indicates that the site has generally been used for port and maritime operations since at least 1930. The site has been underlain with artificial fill material of unknown quality and character, and additional fill was used to reclaim further land adjacent to the south eastern boundary of the investigation area some time between 1970 and 1986. The south western portion of the investigation area has been progressively regraded since some time after 1970. Various buildings have been constructed, and removed from within the investigation area over the years. Historical advice provided by the Port Authority of NSW indicates that the site has operated as a multipurpose port since the nineteenth century, and has, at various times, been used as an army depot, container ship berthing and container handling facility, new motor vehicle storage area, and more recently, as common user berths.

A SafeWork NSW dangerous goods search for underground storage tank information did not locate any records related to the site.

Potential contamination sources are summarised as:

- Former buildings may previously have stored fuel, oils or other chemicals, leading to hydrocarbon contamination. Lead based paints, fibrous cement sheeting containing asbestos (PACM), and galvanised steel may have been used during construction. Heavy metals or pesticides may have been used for pest control over the years.
- Imported fill materials may have introduced site contaminants such as heavy metals, hydrocarbons, OCP/OPP and asbestos to the soils/site.

Overall, the site has a number of identified low to high contamination risks associated with existing and former land use. Site development work proposed shall continue the existing commercial/industrial land use. The site is currently fully sealed providing separation between site users and any potential soil contamination beneath. As such the site is, and will continue to be provide hardstand is retained / reinstated, suitable for commercial / industrial uses without the need for remediation or other works.

The concrete batching plant development is not expected to require extensive excavation below existing hardstand, other than localised excavation for installation of drainage and other services infrastructure and footings for new structures.

For areas of the site where development requires no excavation, no additional assessment of underlying soils is required.

Where development works require temporary or permanent removal of hardstand, further preconstruction intrusive contamination investigations shall be required. This testing shall be undertaken to address AECs and associated COPCs identified in this report.

Any material excavated from underneath the existing hardstand is to be classified in accordance with NSW EPA (2014) Classifying Waste Guidelines prior to off-site disposal to an appropriately licensed landfill facility.

Provided the above recommendations are adhered to, we consider that the site shall be able to be made suitable for the proposed development.

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# 1 Overview

## 1.1 Introduction

This preliminary site investigation (PSI) is prepared for Hanson Construction Materials Pty Ltd, to address specific requirements of SEARS No. 8544 for a construction of a concrete batching plant at Glebe Island, Rozelle, NSW ('the site'). The investigation area is located in the south eastern portion of Lot 10 DP 1170710 (refer to Figure 1, Attachment A).

It is our understanding that the proposed site development shall include construction of a concrete batching plant, and is likely to include:

- Aggregate silos.
- Raw materials areas.
- Waste management areas.
- Loading areas.
- Truck/vehicle parking areas.
- Driver's lunch room and amenities.
- Office reception.

## 1.2 Objectives

Investigation objectives include:

- Identification of historic and current potentially contaminating site activities.
- Evaluation of areas of environmental concern (AEC) and associated contaminants of potential concern (COPC) within investigation area.
- Assess identified AECs and associated COPCs.
- Provide comment on suitability of investigation area for future development use, and where required, provide recommendations for additional investigations and/or remediation.

### 1.3 Project Scope

Scope of works includes:

- Walkover inspection to review current land use, potential contaminating activities and neighbouring land uses.
- Site history review using historical aerial photographs, title search, and where available, Port Authority of NSW records.
- Review NSW EPA notices under the Contaminated Land Management Act (1997), and undertake a SafeWork NSW dangerous goods search for the site.
- Preparation of a report in general accordance with the relevant sections of NSW OEH (2011) and ASC NEPM (1999, amended 2013) and DEC (2006).

### 1.4 Abbreviations

ACM – Asbestos containing material

AEC – Area of environmental concern

ASC NEPM – Assessment of Site Contamination - National Environmental Protection Measure (1999 amended 2013)

BA – Building application

BTEX – Benzene, toluene, ethyl benzene, xylene

COPC – Contaminants of potential concern

DA – Development application

DEC – NSW Department of Environment and Conservation

DP – Deposited plan

DSI – Detailed site investigation

EPA – NSW Environmental Protection Authority

HM – Heavy metals

IWC – Inner West Council

LGA – Local Government Area

LMC – Leichhardt Municipal Council

MA – Martens & Associates Pty Ltd

mAHD – Metres, Australian Height Datum

mbgl – Metres below ground level

OCP – Organochloride pesticides

OEH – NSW Office of Environment and Heritage

OPP – Organophosphate pesticides

PACM – Potential asbestos containing material

PAH – Polycyclic aromatic hydrocarbons

PBC - polychlorinated biphenyls

PSI – Preliminary site investigation

SAC – Site acceptance criteria

SEARS – Secretary's Environmental Assessment Requirements

SSD – State Significant Development

TRH – Total recoverable hydrocarbons

## **2      Project Introduction – Glebe Island Concrete Batching Facility**

Source: Ethos Urban (11 October, 2017)

## 1.0 Background

Hanson is seeking development consent to develop a new concrete batching plant at Glebe Island. The Site has been selected so as to facilitate the co-location of the concrete plant with aggregate shipping facilities, which in proximity to the Sydney CBD and Bays Precinct offers several logistical and environmental benefits. Hanson, and its subsidiary Hymix, already provide 30-35% of Sydney's concrete demand from the two nearby sites (Blackwattle Bay and Pyrmont). The proposed facility at Glebe Island will allow Hanson to continue its supply of concrete to a range of concrete intensive projects around Central Sydney, in a way that is efficient, reduces overall environmental impact and that minimises regional road traffic impacts by securing ongoing aggregate shipping terminal capability.


## 2.0 Description of Proposed Development FACIOL

### 2.1 Overview

Hanson propose to develop a new intermodal aggregate storage facility and concrete plant to be located adjacent to Glebe Island Berth one (GLB1 - legally described as Lot 10 in DP 1170710) (the Site), as shown in **Figure 1**. The plant will be designed with a capacity to produce up to 1 million cubic metres of concrete per annum and will supply aggregate to other Hanson sites in the vicinity. The proposed plant will serve two purposes:

- To act as a shipping facility that will support a number of Hanson (and Hymix) concrete batching plants by improving the delivery of aggregates into the city centre; and
- To operate as a concrete batching plant that can supply concrete for infrastructure and buildings in the CBD and inner suburbs.



 The Site, Glebe Island

**Figure 1- The Site**

The concrete batching plant will be supported by new aggregate shipping terminal facilities at GLB1 with the capacity to manage up to 1 million cubic metres of concrete aggregates per annum delivered by ship from the Hanson Bass Point

Quarry and other facilities if deemed viable. By facilitating delivery by ship, the proposed development will reduce the number of trucks required to haul aggregates into Sydney on the regional road network by up to 65,000 trips per annum.

## 2.2 Description of Process

### Operation

The proposed hours for the operation of the concrete batching plant are 24 hours a day, seven days a week. The proposed plant will employ approximately 67 full time equivalent employees. Three main types of commercial vehicles will operate at the plant:

- A total of 55 concrete agitator trucks – delivering concrete mixed at the plant on-site to building sites throughout the city. Some of these are standard rigid-axle agitator vehicles and some are articulated agitator vehicles.
- Cement tankers – delivering cement to the Site, this cement will most likely come from the Cement Australia Glebe Island facilities and therefore will not have to access the public road network.
- Aggregate trucks – two tipper trucks will be based at the Site, trucks based at other concrete batching plant facilities may also access the plant. Aggregate trucks dispatch aggregates and sand to other concrete batching plant facilities – including the Hymix plant at Blackwattle Bay. These are truck and dog trailer combinations.

Other on-site vehicles will include a forklift, a bobcat and two loaders. Deliveries are expected to be made by B-Double tankers. Concrete agitator trucks are usually parked on the Site overnight, day shift drivers will arrive to the Site in the morning between 5am and 8am to start the shift, leaving the Site between 3pm and 6pm in the evening. It is anticipated that the majority of staff will travel to the Site by car. All batching activities will take place within an enclosed building. A plan of the proposed plant is provided as **Figure 2**. A brief description of the batching process is provided below.

### Delivery

Delivery vehicles will access the Site from James Craig Road beneath the old Glebe Island Bridge abutment. Cement tankers will enter the building from the east and exit from the west. Aggregate trucks will deliver sand entering the building from the west and exit from the east. Cement and fly ash delivered to the Site will be stored in silos. All deliveries will take place within the enclosed building. Ships will deliver aggregate to the Site via GLB1. Aggregate and sand will be conveyed to the storage silos by overhead conveyors.

### Batching

Concrete agitator trucks will move from their holding area to within the enclosed building to receive the concrete for delivery. Concrete agitator trucks will enter the building from the east. Aggregate, sand, cement and fly ash will be transported from their storage silos via an enclosed conveyor system to a weigh hopper. From here, the ingredients will be transferred to an agitator truck within the enclosed building. The concrete agitator trucks will mix the ingredients before moving to the slump stand for final quality checking. Getting the correct consistency in the mix is important to ensure that the concrete is able to be transported to the required destination without drying out.

### Dispatch

Once the concrete is loaded into the concrete agitator trucks, they can depart from the west of the enclosed building. Concrete agitator trucks will exit the Site via James Craig Road and from there, travel to where their delivery is required. When the plant is operating at peak capacity, up to 120 concrete deliveries will be made from the plant each hour.

Aggregates not used in the batching of concrete on the Site will be dispatched from the storage silos by conveyor directly for loading to an aggregate truck for dispatch to another concrete batching plant.

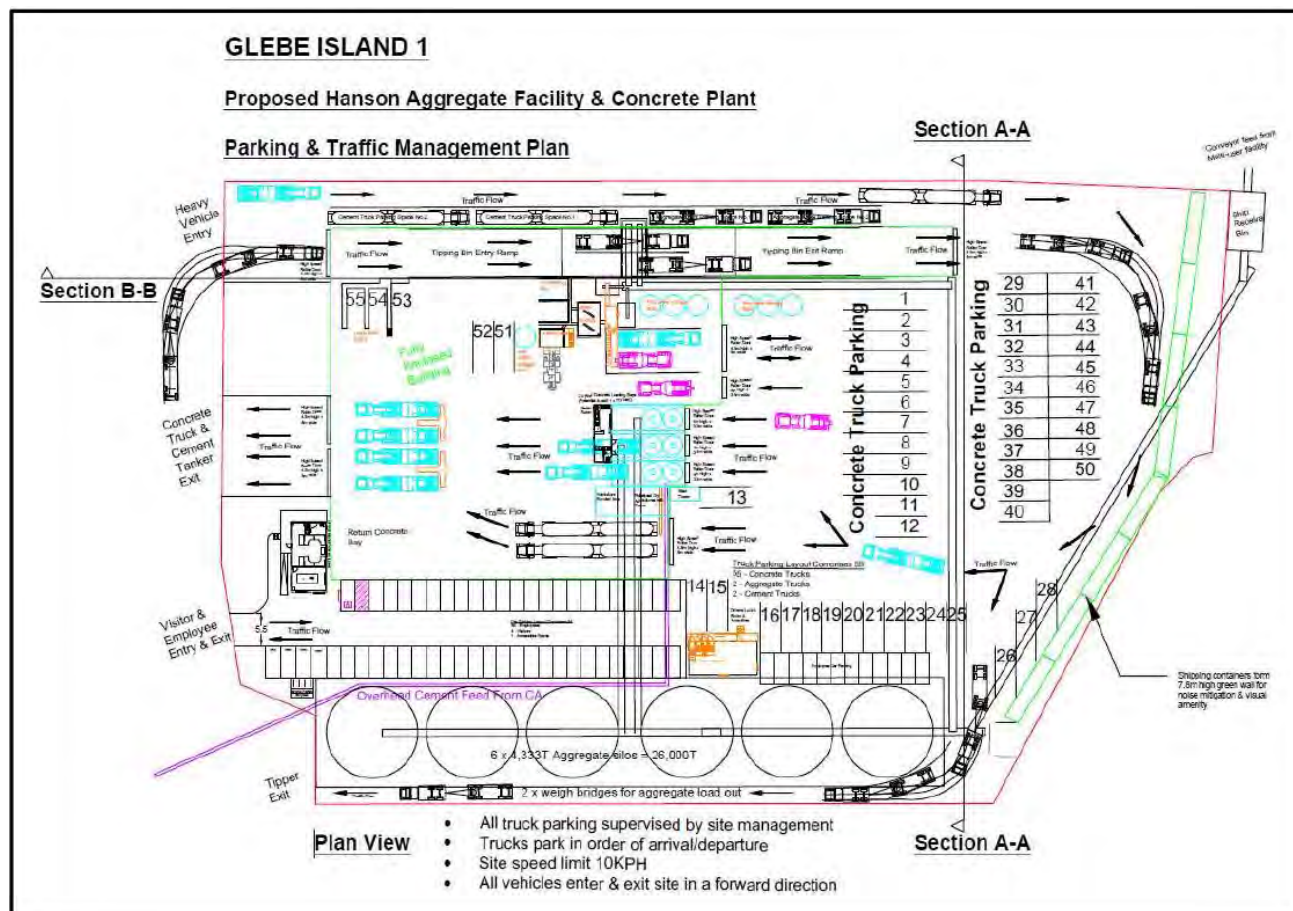
## 2.3 Physical Description

The plant is proposed to adopt a low profile design sympathetic to its surrounding environs. The majority of the batching activities will be undertaken in an enclosed area in order to limit the noise and air quality impacts of the proposed plant. The highest structures will be the cement silos which will be up to 35m tall, half the height of the adjoining heritage listed Glebe Island Silos.

- |  |                  |
|--|------------------|
| • Physical elements of the plant will include: | • Weigh hoppers; |
| • Cement silos;                                | • Slump stand;   |
| • Aggregate silos;                             | • Conveyors,     |
| • Sand silos;                                  | • Truck parking; |
| • Water tanks;                                 | • Car parking;   |

- Weigh bridges;
- Water tanks;
- Building enclosure; and
- Ancillary offices and staff areas.

Figure 2- Site layout



### 3 Site Description

#### 3.1 Site Location and Existing Land Use

Site information is summarised in Table 1, and site location and general surrounds shown in Figure 1, Attachment A.

Table 1: Site background information.

Item	Description / Detail
Investigation area address, lot/DP, and approximate area <sup>1</sup>	Part of Glebe Island, Rozelle, NSW (part of Lot 10 DP 1170710) Approximate area - 1.6 ha
Site management and jurisdiction	The site falls under the jurisdiction and management of the Port Authority of NSW. The site is situated within the Inner West Council (formerly Leichhardt Municipal Council) locality.
Current site identification and land use	The site is currently identified as part of a State Significant Development (SSD) site, within the Bays Precinct.
Proposed land use	Concrete batching plant
Site description	Glebe Island is mainly used for industrial and port activities, and accommodates warehouses, commercial office buildings, manufacturing plants, and vehicle parking areas. The investigation area is generally undeveloped, and incorporates at-grade vehicle parking.
Surrounding land uses	The site is bordered by White Bay to the north, Johnson Bay to the east, and Rozelle Bay to the south. Mainland Rozelle lies to the west.
Topography	The site is near level, at approximately 6 m AHD.
Expected geology	The Sydney 1:100,000 Geological Sheet 9130 (NSW Dept. of Mineral Resources, 1983) describes geology at the site being underlain by man-made fill, including dredged estuarine sand and mud, demolition rubble, and industrial and household waste.  The NSW Environment and Heritage eSPADE website identifies the site as having disturbed soils and artificial fill areas with sandy loam or compacted clay over fill or waste materials.
Environmental receptors	Site drainage is via overland flow to grated drains and the surrounding bays.
Sensitive receptors	Future site visitors and workers. Site workers during future construction works. Surrounding commercial/industrial site workers and visitors.

#### Notes

<sup>1</sup> NSW Planning Portal

### 3.2 Hydrogeology

Review of NSW Department of Primary Industries Water's database indicated no groundwater bores are located within 500 m of the investigation area (refer to Figure 2, Attachment A).

Given proximity to Johnson Bay and underlying fill, groundwater levels are likely to be within 1 to 2 m of the existing ground surface. Further investigations would be required to fully characterise site groundwater conditions.

## 4 Site Background Assessment

### 4.1 Historical Site Review

The site is administered under the jurisdiction and management of the Port Authority of NSW. Ricardo Prieto-Curiel (Senior Town Planner, Port Authority of NSW) (Attachment C) provided the following advice regarding the history of Glebe Island, and specifically for the proposed development location:

*The Glebe Island area has operated as a maritime precinct since the nineteenth century for various water-based transport and industrial uses. It has been a multipurpose port, owned and controlled by the NSW State Government since 1901.*

*During World War II, Glebe Island No.1 & 2 became the main US army depot in Sydney.*

*In the 1960's and 1970's when containerisation was introduced, saw the redevelopment of Glebe Island 1 to facilitate container ship berthing and container handling facility.*

*The increasing move to containerisation of cargoes, eventually saw the concentration of all container handling being moved to Port Botany, which saw the closure of container handling facilities at 1 Glebe Island in the 1990's.*

*The new vacant berths at Glebe Island were then repurposed into motor vehicle import and temporary storage of new cars prior to delivery to car yards across Sydney and NSW, this continued until the late 2000's, when the car import industry was moved to Port Kembla.*

*Currently Glebe Island 1 & 2 are used as common user berths, allowing short-term tenants to take advantage of the wharfs for setup of construction compounds for various Sydney harbour developments and also for setting up events such as Sydney New Year's eve and Australia Day fireworks.*

## 4.2 NSW EPA Records

The site is not listed in NSW EPA records under the Contaminated Land Management Act (1997) and the Environmentally Hazardous Chemicals Act (1985). Notice records for surrounding areas listed within Leichhardt Municipal Council area include:

- Former Unilever Detergent Factory, Hyam, Foy, Reynolds, Palmer and Booth Streets, Balmain (approximately 820 m north west). Contaminants identified include asbestos and polychlorinated biphenyls (PCB) wastes. Notices revoked 24 January 1997 after compliance achieved.
- Ampol Balmain, corner Reynolds Street and Buchanan Street, Rozelle (approximately 750 m north west). Contaminants identified include hydrocarbons and heavy metals. Notices revoked July 1994 after compliance achieved.
- Balmain Power Station, Terry Street, Rozelle (approximately 1.6 km north west). Contaminants identified include polychlorinated biphenyls (PCB) wastes. Notices revoked August 1997 after compliance achieved.
- Former Chemplex Factory, Terry Street, Rozelle (approximately 1.8 km north west). Contaminants identified include acids, alkalis and solvents. Notices revoked September 1997 after compliance achieved.
- Former Unilever Sulphonation Plant, corner Reynolds Street and Buchanan Street, Rozelle (approximately 600 m north west). Contaminants identified include heavy metals, polycyclic aromatic hydrocarbons, linear alkylbenzene and linear alkylbenzene sulphonate compounds. Notices revoked March 1997 after compliance achieved.
- White Bay Power Station, Robert Street, Rozelle (approximately 700 m west). Contaminants identified include asbestos and polychlorinated biphenyls (PCB) wastes. Notices revoked October 1998 after compliance achieved.

Five records for sites within Rozelle are identified on the list of NSW contaminated sites notified to the EPA (Table 2).

Table 2: Available EPA contaminated lands record information.

Suburb	Address	EPA Site Management Class	Distance/ Orientation From Site
Rozelle	Caltex Service Station, 121 Victoria Road	Regulation under CLM Act not required	1.6 km north west
Rozelle	Kennards Rozelle, 15-39 Wellington Street	Regulation under CLM Act not required	1.6 km north west
Rozelle	7-Eleven (former Mobil) Service Station, 178-180 (176-184) Victoria Road	Regulation under CLM Act not required	1.6 km north west
Rozelle	BP Service Station, Corner Darling Street and Thornton Street	Regulation under CLM Act not required	1.5 km north west
Rozelle	White Bay Power Station, Robert Street	Regulation under CLM Act not required	700 m west

Due to distance to the site and local hydrological characteristics, it is unlikely that the above sites would have caused groundwater or near surface site soil contamination at the investigation site at Glebe Island.

#### 4.3 SafeWork NSW Dangerous Goods Search

A SafeWork NSW dangerous goods search for underground storage tank information did not locate any records related to the site. Refer to Attachment D for SafeWork NSW correspondence.

#### 4.4 Title and Deed Search

To further clarify previous land uses, a title and deed search was conducted by Advance Legal Searchers Pty Ltd for Lot 10 DP 1170710. Results of the search are summarised in Table 3, and appended in Attachment E.

Table 3: Title and deed search information – Summary of proprietors for Lot 10 DP 1170710.

Lot ID	Years	Site Proprietor	Possible Business Operations
Lot 10 DP 1170710	2015 - current	Newcastle Port Corporation	Maritime and port operations.
Lot 10 DP 1065973	2015 - 2015	Newcastle Port Corporation	Maritime and port operations.
	2004 - 2015	Sydney Ports Corporation	Maritime and port operations.
	(2004 – 2015)	(various current leases shown on Folio Identifier 10/1065973)	Various unidentified leases (no additional information available).
	(2004 – 2015)	(various leases shown on Historical Folio Identifier 10/1065973)	Various unidentified leases (no additional information available).

Lot ID	Years	Site Proprietor	Possible Business Operations
Lot 2 DP 1017268	2001 - 2004	Sydney Ports Corporation	Maritime and port operations.
	(2001 – 2004)	(various leases shown on Historical Folio Identifier 2/1017268)	Various unidentified leases (no additional information available).
Lot 1 DP 879549	1998 - 2001	Sydney Ports Corporation	Maritime and port operations.
	(1998 – 2001)	(various leases shown on Historical Folio Identifier 1/879549)	Various unidentified leases (no additional information available).
Lot 1 DP 79332; Lot 1 DP 80063; and Lot 1 DP 80555 – A/C4414-63	1997 - 1998	Sydney Ports Corporation	Maritime and port operations.
	1988 - 1997	Maritime Services Board of New South Wales	Maritime and port operations.
Lot 1 DP 79332; Lot 1 DP 80063; and Lot 1 DP 80555 – Area 7 Acres 3 Roods 39 ¼ Perches – CTVol 4414 Fol 63	1936 - 1988	Maritime Services Board of New South Wales	Maritime and port operations.
	1930 - 1936	The Sydney Harbour Trust Commissioners	Maritime and port operations.
	(1930 – 1988)	(various leases shown on CTVol 4414 Fol 63)	Various unidentified leases (no additional information available).
(Part of Glebe Island Parish Petersham – Area 5 Acres 3 Roods 5 Perches – Government Gazette 13 <sup>th</sup> January 1926	1926 - 1930	The Sydney Harbour Trust Commissioners	Maritime and port operations.

Title records indicate that the Glebe Island precinct has generally been used for maritime and port operations since at least 1926. It is unknown when hardstand was constructed over the site/investigation area, or if it remained bare earth for at least some of that time.

#### 4.5 Historical Aerial Photograph Review

Historical aerial photographs taken of the site during 1930, 1943, 1951, 1961, 1970, 1986, 2007 and 2017 were reviewed to investigate historic site land uses (Table 5). Copies of aerial photographs are provided in Attachment B.

Aerial photos indicate that the investigation area has been used for maritime or port activities since at least 1930, primarily as storage or holding facilities. The ship dock area in the western was extended to present footprint some time between 1970 and 1986, and the south western portion of the investigation area has been progressively regraded since some time after 1970.

Table 4: Historic aerial photograph observations 1930 – current.

Year	Investigation Area on Glebe Island (Part of Lot 10 DP 1170710)	Surrounding Land Use
1930 <sup>1</sup>	Building located in eastern portion of site extending north to adjacent site, and adjacent building to west may encroach into western portion of investigation area. Ship dock located in eastern portion of investigation area. Image of poor quality, and difficult to observe any other infrastructure.	Buildings located to west, south west and north. Glebe Island Bridge and road access adjacent to southern boundary. Image of poor quality, and difficult to observe any other infrastructure.
1943	Buildings visible near southern boundary. Possible stockpiles/materials storage in north western portion of investigation area. Sommerville Road visible in western portion of investigation area. Landscaped area in south western portion of investigation area.	Buildings visible on surrounding lands.
1951	Buildings constructed in north western portion of investigation area, stockpiles no longer visible. Additional landscaped areas in western portion of investigation area. Central portion of investigation area used for vehicle parking or storage.	Buildings constructed or replacing previous structure to north and south west. Additional landscaped areas to north.
1961	Two buildings constructed near south eastern boundary, otherwise little change from 1951 photo.	Some buildings to north removed, otherwise little change from 1951 photo.
1970	Majority of buildings across the investigation area removed, except for buildings in north western and north eastern portions of investigation area. Majority of site generally hardstand and used for vehicle parking and storage. Reduction of landscaped area in west.	Additional buildings constructed to north west, some buildings to north removed. Widening of Glebe Island Bridge access road to south west.
1986	Previous buildings removed, building constructed in north western portion of investigation area. Ship docking area in east widened, similar to present. South western portion of investigation area appears to have been regraded. Majority of site used for storage of shipping containers and equipment. Remainder of landscaped area in west removed.	Buildings to north, south and south west removed, another building to north constructed, and additions to building to north west. Hardstand area to north used for storage of shipping containers.
2007 (Google Earth Maps)	Previous building in north western portion of investigation area removed, buildings constructed near southern boundary. Further regrading of south western portion of investigation area. Sommerville Road incorporated into hardstand design. Majority of investigation area used for storage of vehicles.	Glebe Island Bridge no longer in use, swing bridge remains open. Buildings to north, north west and west removed, additional buildings constructed to further west and south. Alterations to Sommerville Road to south west.
2017 (Nearmap)	One building near southern boundary removed. Majority of investigation area is vacant car park.	Small buildings or sheds visible to north. Buildings constructed to north west and south west, and buildings replacing previous buildings to south west. Boat storage to south.

Notes:

<sup>1</sup> 1930 image of poor quality.

#### 4.6 Site Walkover Inspection

Results of the site walkover inspection on 7 September, 2017 are summarised as:

- o Site currently covered by concrete and asphalt hardstand, surface generally in reasonable condition.
- o Two demountable metal sheds are located in the south western portion of the investigation area.

## 5 Potential for Contamination

### 5.1 Areas of Environmental Concern/Contaminants of Potential Concern

Our assessment of site AECs and COPCs (Table 5) for the investigation area is made on the basis of available site history, aerial photograph interpretation and site walkover.

Table 5: Areas of environmental concern and contaminants of potential concern within the investigation area.

AEC <sup>1</sup>	Potential for Contamination	COPC	Contamination Likelihood
AEC A – Former buildings, and including 1 m curtilage	Former buildings may have previously stored fuel, oils, asbestos sheeting (PACM), pesticides and/or been treated with heavy metals and pesticides (pest control). Building construction may have included ACM, zinc treated (galvanised) metals, and/or lead based paints.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos	Low - medium
AEC B – Site filling (entire site)	The site contains fill material of unknown origin and quality underneath the hardstand.	HM, TRH, BTEX, PAH, OCP/OPP and asbestos	High

### 5.2 Sensitive Receptors and Exposure Pathways

Table 6 provides a summary of identified sensitive receptors and potential exposure pathways connecting receptors to identified AECs and COPCs outlined in Table 5.

Table 6: Summary of receptors and potential pathways.

Receptor	Pathway
<u>Human Receptors:</u>	
<ul style="list-style-type: none"> <li>Future site visitors and workers.</li> <li>Site workers during future construction works.</li> <li>Surrounding commercial/industrial site workers and visitors.</li> </ul>	<ul style="list-style-type: none"> <li>Dermal contact.</li> <li>Oral ingestion of potentially contaminated soil.</li> </ul>
<u>Environmental Receptors</u>	
<ul style="list-style-type: none"> <li>Site drainage is via overland flow to the surrounding bays.</li> </ul>	<ul style="list-style-type: none"> <li>Migration of contaminated runoff.</li> </ul>

## 6 Conclusions and Recommendations

### 6.1 Conclusions

Results of the site history review indicates that the investigation area has generally been used for port and maritime operations since at least 1930. The site has been underlain with fill material of unknown quality and character. Additional fill was used to reclaim further land adjacent to the south eastern boundary of the investigation area some time between 1970 and 1986, and additional fill may also have been potentially imported to regrade or raise the site base over the years; review of site aerials since 1970 indicates that hardstand has been placed over land near the western boundary which has been progressively regraded. It is unknown when hardstand was constructed over the site and/or the investigation area, or if it remained bare earth for at least some of that time. Various buildings have been constructed, and removed from within the investigation area over the years.

Historical advice provided by the Port Authority of NSW indicates that the site has operated as a multipurpose port since the nineteenth century, and has, at various times, been used as an army depot, container ship berthing and container handling facility, new motor vehicle storage area, and more recently, as common user berths.

A SafeWork NSW dangerous goods search for underground storage tank information did not locate any records related to the site.

Potential contamination sources are summarised as:

- o Former buildings may have previously stored fuel, oils or other chemicals, leading to hydrocarbon contamination. Lead based paints, PACM (fibrous cement sheeting containing asbestos) and galvanised steel may have been used during construction. The building may have been treated with heavy metals or pesticides for pest control.
- o Imported fill materials may have introduced site contaminants such as heavy metals, hydrocarbons, OCP/OPP and asbestos to the soils/site.

Overall, the site has a number of identified low to high contamination risks associated with existing and former land use. Future site development works are proposed to continue the existing commercial/industrial land use, and do not seek to make permissible any sensitive land uses such as residential, schools or child care facilities. The concrete batching plant development is not expected to require

extensive excavation below the existing hardstand. Local excavation will be required for foundations, installation of drainage infrastructure, and some building elements. The identified risk of contamination is considered to be acceptably low to permit the proposed continued commercial / industrial land use, subject to the following recommendations.

## 6.2 Recommendations

For areas of the site where development requires no excavation, no additional assessment of site soils is required.

Where development works require temporary or permanent removal of hardstand, further site investigation and testing shall be required. We recommend further testing be undertaken including intrusive soil sampling to address material underlying hardstand to be disturbed. Testing is required to address COPCs associated with relevant AECs. The purpose of this testing is to ensure the appropriate management of construction works and disposal / management of generated spoil.

On completion of the works (i.e. construction or replacement of hardstand) the site will be returned to a fully sealed condition. Therefore, the development shall not alter the final environmental risk posed by any buried material and the site shall be suitable for the proposed development without the need for remediation.

The scope of the recommended pre-construction intrusive investigations is to be developed based on final development plans and with reference to NSW EPA (1995) *Sampling Design Guidelines* and a risk based assessment. Assessment shall address areas where works require hardstand removal and the relevant AEC and associated COPC (Table 5). Results of the site testing shall be assessed against site acceptance criteria (SAC) developed with reference to ASC NEPM (1999, amended 2013).

Any material excavated from underneath the existing hardstand is to be classified in accordance with NSW EPA (2014) *Classifying Waste Guidelines* prior to off-site disposal to an appropriately licensed landfill facility.

Provided the above recommendations are adhered to, we consider that the site shall be able to be made suitable for the proposed development.

## 7 Limitations Statement

The preliminary site investigation was undertaken in line with current industry standards.

It is important, however, to note that no land contamination study can be considered to be a complete and exhaustive characterisation of a site nor can it be guaranteed that any assessment shall identify and characterise all areas of potential contamination or all past potentially contaminating land-uses. Therefore, this report should not be read as a guarantee that no contamination shall be found on the site. Should material be exposed in future which appears to be contaminated or inconsistent with natural site soils, additional testing may be required to determine the implications for the site.

Martens & Associates Pty Ltd has undertaken this assessment for the purposes of the current development proposal. No reliance on this report should be made for any other investigation or proposal. Martens & Associates accepts no responsibility, and provides no guarantee regarding the characteristics of areas of the site not specifically studied in this investigation.

## 8

## References

ASC NEPM (1999, amended 2013) *National Environmental Protection Measure, 1999 (site contamination measure)*.

Ethos Urban (2017) *Project Introduction – Glebe Island Concrete Batching Facility*.

Google Maps (2007).

Nearmap – Aerial photographs (2017).

NSW DEC (2006) *2nd Ed. Contaminated Sites: Guidelines for the NSW Site Auditor Scheme*.

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NSW Department of Mineral Resources, (1983) *Sydney 1:100,000 Geological Sheet 9130*.

NSW DPI Water groundwater database, accessed 18 September, 2017, <http://allwaterdata.water.nsw.gov.au/water.stm>.

NSW EPA (2014) *Waste Classification Guidelines Part 1: Classifying Waste*.

NSW Land and Property Information (LPI) - Aerial photographs (1930, 1951, 1961, 1970, 1986).

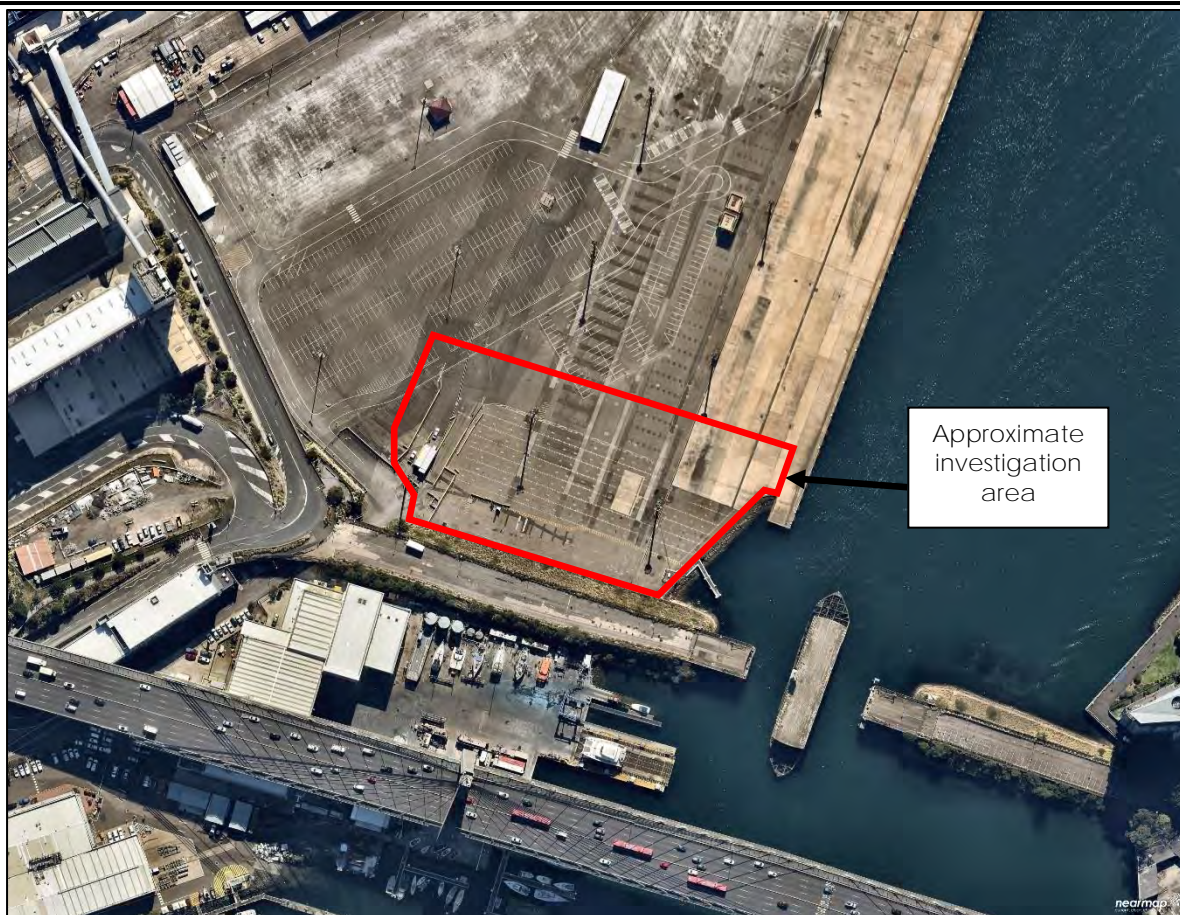
NSW OEH (2011) *Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites, 2<sup>nd</sup> Edition*.

NSW SIX – *Spatial Information Exchange – Land & Property Information*  
Aerial photograph (1943, 2017).  
<https://six.nsw.gov.au/wps/portal/>

Port Authority of NSW correspondence (2017).

SEPP 55 *Remediation of Land*.

## 9 Attachment A – Figures



Martens & Associates Pty Ltd    ABN 85 070 240 890		Environment   Water   Wastewater   Geotechnical   Civil   Management	
Drawn:	CS	Site Location Glebe Island, Rozelle, NSW (Lot 10 DP 1170710) Source: Nearmap, 2017 (top) and NSW SIX Viewer, 2017 (bottom)	Drawing No:
Approved:	AN		FIGURE 1
Date:	Oct 2017		
Scale:	Not to Scale		Job No: P1706122

# All Groundwater Map

All data times are Eastern Standard Time

Map Info

+

-

**Groundwater Bores**

- Groundwater works
- Telemetered bores
- Logged bores
- Manual bores

**Monitoring Bore Types**

Alluvial

Coastal Sands

Fractured Rock

Porous Rock

Great Artesian Basin



Discontinued



Martens & Associates Pty Ltd    ABN 85 070 240 890		Environment   Water   Wastewater   Geotechnical   Civil   Management	
Drawn:	CS	<div>Groundwater Bore Locations</div> <div>Glebe Island, Rozelle, NSW (Lot 10 DP 1170710)</div> <div>Source: NSW DPI Water Groundwater Database, 2017</div>	Drawing No:
Approved:	AN		Figure 2
Date:	Oct 2017		
Scale:	Not to Scale		Job No: P1706122

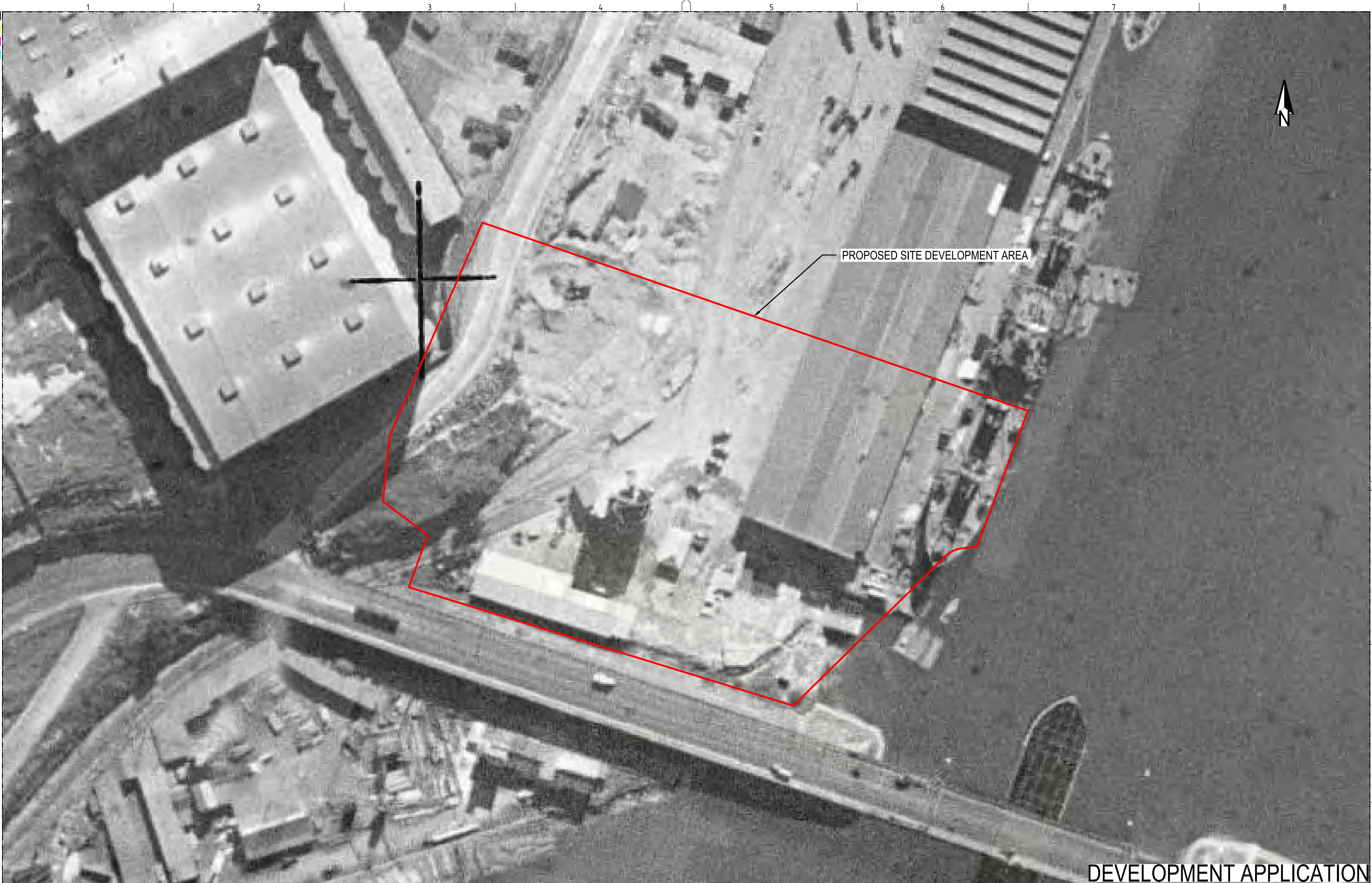
## 10      **Attachment B – Historical Aerial Photographs**



REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPROV'D	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	DRAWING TITLE						
A	INITIAL RELEASE	22/09/2017	KW	CS	AN	AN				AN	HANSON CONSTRUCTION MATERIALS PTY LTD	 Consulting Engineers Environment Water Geotechnical Civil	AERIAL PHOTOGRAPH 1930 SOURCE: LPI NSW					
														PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
														P1706122	PS01	R01	PS01-AZ01	A
														DRAWING ID: P1706122-PS01-R01-AZ01				
														DRAWING ID: P1706122-PS01-R01-AZ01				
							<p>DISCLAIMER &amp; COPYRIGHT</p> <p>This plan must not be used for construction unless printed and stamped by principal certifying authority.</p> <p>All measurements in millimetres unless otherwise specified.</p> <p>This drawing must not be reproduced in whole or part without prior written consent of Martens &amp; Associates Pty Ltd.</p> <p>(C) Copyright Martens &amp; Associates Pty Ltd</p>	PROJECT NAME/PLANSET TITLE		GLEBE ISLAND CONCRETE BATCH PLANT, ROZELLE LOT 10 DP 1170710		Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au						
							GLEBE ISLAND BATCH PLANT - WATER AND WASTE MANAGEMENT											

UNITED BR21016 - (USD) 16/01/2018

A1 / A3 LANDSCAPE (A1/LC\_v02.0.0)



DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	22/09/2017	KW	CS	AN	AN

SCALE
0 5 10 15 20 25 30 35 40 45 50 METRES
A1 (A3) 1:500 (1:1,000)

GRID	DATUM	PROJECT MANAGER	CLIENT
AN		AN	HANSON CONSTRUCTION MATERIALS PTY LTD
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PROJECT NAME/PLANSET TITLE
GLEBE ISLAND BATCH PLANT - WATER AND WASTE MANAGEMENT
GLEBE ISLAND CONCRETE BATCH PLANT, ROZELLE LOT 10 DP 1170710



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DRAWING TITLE				
AERIAL PHOTOGRAPH 1943 SOURCE: SIX VIEWER				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1706122	PS01	R01	PS01-AZ02	A

PRINTED: 26/01/2018 USER: NAWING