



Phase 1 Environmental Site Assessment

Government Property

Peat Island, Mooney Mooney, NSW

February 2013
JBS 42532 – 553028 (Rev 0)

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List of Abbreviations

A list of the common abbreviations used throughout this report is provided below.

ACM	Asbestos Containing Materials
AST	Above Ground Storage Tank
BA	Building Approval
bgs	Below ground surface, in metres
BTEX	benzene, toluene, ethylbenzene and xylenes
B(a)P	benzo(a)pyrene
DECCW	NSW Department of Environment, Climate Change and Water
DP	Deposited Plan
DQIs	Data Quality Indicators
DQOs	Data Quality Objectives
EPA	Environment Protection Authority
ESA	NSW Environmental Site Assessment
HIL	Health Investigation Level
LEP	Local Environmental Plan
LOR	Limit of Reporting
MAH	monocyclic aromatic hydrocarbon
OCP	organochlorine pesticide
OEHS	NSW Office of Environment and Heritage (includes EPA)
NOW	NSW Office of Water (formerly Department of Water and Energy, DWE)
PIL	Phytotoxicity Investigation Level
PAHs	polycyclic aromatic hydrocarbons
PCBs	polychlorinated biphenyls
PID	Photo-ionisation Detector
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percentage Difference
TCLP	Toxicity Characteristic Leaching Procedure
TPH	total Petroleum hydrocarbons (C ₆ -C ₉ and C ₁₀ -C ₃₆)
UST	Underground Storage Tank
VOCs	volatile organic compounds

Executive Summary

JBS Environmental Pty Ltd was engaged by Government Property NSW (formerly State Property Authority) to conduct a Preliminary Environmental Site Assessment (PESA) of properties at Peat Island and adjoining land (the site). This PESA assesses two areas identified in the request for proposal (RFP) provided by Government Property NSW. These two areas are identified as:

- Peat Island, Mooney Mooney, NSW and adjoining land (herein referred to as Area 1); and
- Department of Education and Communities (DEC) former school site, Point Road, Mooney Mooney, NSW (herein referred to as Area 2).

It is understood that the PESA for Area 1 and Area 2 is required to ensure Government Property NSW fulfil its obligations of disclosure in the sale of the properties and the PESA report will form part of the contract for sale.

The following scope of works was undertaken:

- Review of the available documents provided by the client.
- Review of available Council documentation, aerial photographs, legal title information, Workcover NSW records, Environment Protection Authority records and Heritage records to identify areas of environmental concern and associated contaminants of potential concern (COPCs).
- Review of Site setting including topography, hydrology, hydrogeology and geology.
- Preparation of this desktop PESA report.

The site comprises two areas, with Area 1 being divided into 9 separate portions, legally identified as Lots 2, 3 & 4 in Deposit Plan (DP) 239249; Lot 2 in DP 431999; Lot 2 in DP 597504; Lot 21 in DP 836628 and Lots 10 & 11 in DP 1157280. Area 1 occupies a total area of approximately 25 hectares (ha).

Area 2 contains a former school and rural fire service building and is legally identified as Lot 1 in DP 431780 and Lots 1 & 2 in DP 945014. Area 2 occupies a total area of approximately 1.3 ha.

Based on the site history, historical aerial photography and site inspection, several activities were identified as potential areas of environmental concern (AECs).

These include the presence of an above ground diesel storage (AST) tank, a former sewerage treatment system and a diesel AST on the adjoining land. During the historical review historical sources indicated the potential for human burial in the 1950s and 1960s on Peat Island, however no evidence of a cemetery or graveyard was observed during the site inspection. The sewerage treatment works appeared to be present in the southern area of Portion 2, however no evidence of this was observed in the site inspection.

A former large, laundry and stockpiled material was present in the northern portion of the land adjoining to Peat Island, with the foreshore along the Hawkesbury River observed to be reclaimed land. An underground storage tank (UST) was observed at the rear of the former laundry.

A vacant service station was present in the central portion of Area 1, with three USTs being observed. Along the eastern boundary foreshore of Area 1, oyster farms were observed.

The Dangerous Goods records indicated the presence of an AST adjacent to the church within Portion 6, USTs within Portion 2 and a bowser, UST and vent line adjacent to the Wharf area in Portion 5.

Area 2 containing the former school was observed to have a septic tank and associated fill material.

The potential AECs and associated contaminants are summarised in the Table below.

Site	Area of Environmental Concern	Contaminants of Potential Concern (COPCs)
Area 1		
Portion 1 Former Laundry, education and leisure centre	1. Generator 2. Former large Laundry 3. UST associated with Laundry 4. Potential Fill material 5. Hazardous building material associated with the buildings 6. Stockpiled material	Heavy metals, total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs) and asbestos and volatile hydrocarbons (VHCs), Chlorinated solvents Lead (paint), asbestos (construction materials) and polychlorinated biphenyl (PCBs)
Portion 2 Administration Building and Reclaimed Land	1. Above Ground Storage tank (diesel) 2. Reclaimed Land along water edge 3. Hazardous building material associated with the buildings 4. Former Sewerage treatment	TPH, BTEX and PAHs, Lead (paint), asbestos (construction materials) and PCBs. Bio hazard waste, nutrients.
Portion 3 Peat Island	1. Above Ground Storage Tanks (diesel) 2. Painters shed 3. Cleaners shed 4. Potential Fill material 5. Hazardous building material associated with the buildings 6. Underground Storage Tanks (Dangerous goods search) 7. Potential Burial of human remains on Peat Island	Heavy metals, TPH, BTEX, PAHs, OCPs, PCBs and asbestos. Lead (paint), asbestos (construction materials) and PCBs.
Portion 4 Western Foreshore	1. Potential Fill material associated with reclaimed Land along water edge	Heavy metals, TPH, PCBs and asbestos.
Portion 5 Wharf	1. Potential Fill material 2. Wood Preservatives 3. UST, bowser and vent line	Heavy metals, TPH, BTEX, PAHs, phenols/creosotes, PCBs and asbestos.
Portion 6 Church and Cottages and bushland	1. Hazardous building material associated with the buildings 2. AST of heating oil	Lead (paint), asbestos (construction materials) and PCBs
Portion 7 Service Station	1. Hazardous building material associated with the buildings 2. Underground Storage Tanks 3. Potential fill material	Lead (paint), asbestos (construction materials) and PCBs Heavy metals, TPH, BTEX, PAHs, asbestos, OCPs
Portion 8 Cottages	1. Hazardous building material associated with the buildings 2. Oyster Farms	Lead (paint), asbestos (construction materials) and PCBs PAHs, phenols/creosotes, TPH/BTEX
Area 2		
Portion 9 DEC School	1. Former Orchard 2. Septic Tank	OCPs, OPPs, Bio hazardous waste, metals and nutrients.
Portion 10 Cottages	1. Hazardous building material associated with the buildings 2. Oyster Farms	Lead (paint), asbestos (construction materials) and PCBs PAHs, phenols/creosotes, TPH/BTEX

Based on the findings of this PESA, and subject to the limitations in **Section 7**, there is potential for contamination to be present resulting from previous site activities associated with the identified AECs.

It is recommended that detailed site investigation be undertaken at the site in accordance with NSW Environment Protection Authority (EPA) made or endorsed guidelines to assess the nature and extent of potential contamination.

Additionally, it is recommend disused USTs at the site be decommissioned and validated in accordance with relevant regulations, standards and guidelines.

1 Introduction

1.1 Background

JBS Environmental Pty Ltd was engaged by Government Property NSW (formerly State Property Authority) to conduct a Preliminary Environmental Site Assessment (PESA) of properties at Peat Island and adjoining land, as shown in **Figure 1**. This PESA assesses two areas identified in the request for proposal (RFP) provided by Government Property NSW. These two areas are identified as:

- Peat Island, Mooney Mooney, NSW and adjoining land (herein referred to as Area 1); and
- Department of Education and Communities (DEC) former school site, Point Road, Mooney Mooney, NSW (herein referred to as Area 2).

It is understood that the PESA for Area 1 and Area 2 is required to ensure Government Property NSW may fulfil its obligations of disclosure in the sale of the properties and the PESA report will form part of the contract for sale.

Area 1 is divided into 9 separate portions, legally identified as Lots 2, 3 & 4 in Deposit Plan (DP) 239249; Lot 2 in DP 431999; Lot 2 in DP 597504; Lot 21 in DP 836628 and Lots 10 & 11 in DP 1157280. Area 1 occupies a total area of approximately 25 hectares (ha).

Area 2 contains a former school and rural fire service building and is legally identified as Lot 1 in DP 431780 and Lots 1 & 2 in DP 945014. Area 2 occupies a total area of approximately 1.3 ha.

The locations of the areas and portions are shown on **Figures 2** and **3**.

1.2 Objectives

The objectives of the investigation are to:

- Identify all past and present potentially contaminating activities;
- Identify potential contamination types;
- Discuss the site condition;
- Provide preliminary assessment of site contamination; and
- Assess the need for any further investigations.

1.3 Scope of Work

To achieve the objectives of the assessment, the following scope of works was undertaken:

- Review of the available documents provided by the client;
- Review of available Council documentation, aerial photographs, legal title information, Workcover NSW records, Environment Protection Authority records and Heritage records to identify areas of environmental concern and associated contaminants of potential concern (COPCs);
- Review of site setting including topography, hydrology, hydrogeology and geology; and
- Preparation of this desktop PESA report.

2 Site Condition & Surrounding Environment

2.1 Site Identification

The site comprises two areas (Areas 1 and 2) as described in **Section 1.1**. The site is currently owned by the Government Property NSW and is proposed to be divested.

The site details are summarised in **Table 2.1** and the site layout shown in **Figures 2** and **3** and described in detail in the following sections.

Table 2.1 Summary Site Details

Lot/DP	Lot 2 DP239249, Lot 2 DP2431999, Lot 2 DP 431999, Lot 10 DP 1157280, Lot 4 DP239249, Lot 6 DP597504, Lot 1 DP 107391, Lot 3 DP239249, Lot 21 DP 836628, Lot 2 DP 945014, Lot 1 DP 945014
Address	Peat Island, Mooney Mooney, NSW and Point Road, Mooney Mooney, NSW
Local Government Authority	Gosford City Council
MGA Coordinates (MGA 56) of approximate centre of the lot	E: 151.11.876 N: 33.313.730
Site Zoning	Zone No.5 (a) Special Use – Hospital and School
Current Use	Vacant.
Previous Use	Department of Education school, Mental Hospital
Site Area	Area 1 - approximately 25 ha, Area 2 - approximately 1.3 ha

2.2 Site Description

An inspection of the site was undertaken by JBS on 14 January 2013. At the time of the site inspection the majority of the buildings throughout both Areas 1 and 2 were vacant, with only the cottages and the church being occupied. The site details are provided in **Figure 3**.

The site inspection comprised the walkover of all ten portions, as shown in **Figure 2**. The description of each of these portions is summarised in **Table 2.2**.

Table 2.2 Site Inspection Summary

Areas 1 and 2	Lot/DP	Description	Photographs
Area 1 Portion 1 – Adjoining Land to Peat Island	Lot 2 DP239249	The topography of the adjoining land to Peat Island rises to the east and north, with reclaimed land along the western boundary with the Hawkesbury River. Five buildings are located up a single lane bitumen road, which was in poor condition to the north. All the buildings were vacant and in moderate condition, with an outside swimming pool located within the central portion. A generator and LPG gas tank was observed adjacent to five buildings to the north. One of the buildings was observed to be a large former laundry. An underground storage tank (UST) and vent line was observed at the rear of the laundry building. A disused pool and pool cleaning room was observed in the central portion of the area, between buildings. Adjacent to the former laundry, a void existed beneath one of the buildings, with a small stockpile of unknown material being observed.	Photographs 1-5
Area 1 Portion 2 - Adjoining Land to Peat Island	Lot 2 DP2431999 & Lot 2 DP 431999	A single lane road runs to the east which joins with the Pacific Highway. An administration building is adjacent to the entrance to the bridge leading to Peat Island. A 1000 L diesel above ground storage tank (AST)	Photographs 6-9

Areas 1 and 2	Lot/DP	Description	Photographs
		was observed to the south of the administration building. The tank was rusted and in poor condition and was located within a storage shed on a slope approximately 25 m from the Hawkesbury River. The AST was located on a concrete slab but was not bunded. The land along the western boundary consists of flat, reclaimed land, with bitumen, concrete, bricks and plastic observed being used as reclamation materials.	
Area 1 Portion 3 – Peat Island	Lot 10 DP 1157280	Access to Peat Island is located via a single lane bridge from the mainland to the eastern boundary of the site. A single lane, concrete road runs from the bridge to the north to a car park. Reclaimed land was observed on the southern portion of Peat Island. The foreshore all appeared to be reclaimed land. A total of 20 buildings were present on Peat Island. The buildings were all vacant, with the exception of one of the buildings on the southern boundary used by the local coastguards. An outside swimming pool was located adjacent to the coastguards building. The buildings were all in moderate condition. Adjacent to the bridge there were two LPG gas tanks and a bin storage area. A 1000 L diesel AST was observed adjacent to the road on the eastern boundary and was in poor condition. A fuel line extended west up slope to a boiler room in one of the buildings. Adjacent to the client accommodation in the northern most building there was a small brick shed structure which had a strong hydrocarbon odour inside, with minor black staining present on the concrete floor – Potentially a boiler room area but was unclear during the inspection. A rectangular, wooden cleaner's hut was observed in the central portion of the site, along the eastern boundary, which had various chemical storage signs. The building was in moderate condition.	Photographs 10-16
Area 1 Portion 4 - Adjoining Land to Peat Island	Lot 11 DP1157280	Vacant, vegetated area which consisted of flat, reclaimed land, with bitumen, concrete, bricks and plastic observed being used as reclamation materials.	Photographs 17
Area 1 Portion 5 – Wharf area	Lot 4 DP239249	A wharf utilised by the local ferries constructed from wood and steel. A car park is located adjacent to the ferry wharf to the east. The wharf was active at the time of inspection.	No Photograph
Area 1 Portion 6 – Hillside	Lot 6 DP597504 & Lot 1 DP 107391	Bushland, with a water tower located at the summit of the hill. The water tower was in good condition but is not part of the proposed development area. Adjacent to the Pacific Highway was a brick church. The church was in good condition. Adjacent to the church to the north west was a vacant accommodation building, which was in poor condition. A LPG Gas tank was observed adjacent to the building. A disused tennis court was present to the south of the accommodation.	Photographs 18 - 22
Area 1 Portion 7 – Service Station	Lot 3 DP239249	A vacant former service station. Access to the site was restricted, with a wire fence, in good condition extending around the whole site. Three USTs were observed at the site. From the site inspection there appeared to be 2x unleaded tanks and 1x diesel tank. Two bowsters were observed, one at the site front with a second located along the service stations western boundary. The surface of the forecourt appeared in moderate	Photographs 23 - 25 (photos taken outside of fence line)

Areas 1 and 2	Lot / DP	Description	Photographs
		condition and was a combination of bituminous concrete and concrete. The service station building consisted of a metal awning and a single, rectangular, wooden building that was in a moderate condition.	
Area 1 Portion 8 – Cottages along water	Lot 21 DP 836628	Access to the cottages was restricted due to the cottages being occupied. Along the waterfront there were oyster farms. It was not clear from site inspection whether activities associated with oyster farming were carried out within the site boundaries.	No Photographs
Area 2 Portion 9 DEC and Fire station	Lot 1 DP 431780	A single storey, brick fire station was located along Point Road, with two concrete underground water tanks located at the back of the property. Further to the south was located four wooden and brick school cabins. A playground was located within the central portion of school. A concrete toilet block was located at the southern boundary of the school, with a single, concrete septic tank located to the south east of the toilet block. To the east of the school the topography sloped down to the east approximately 2 m, with a sports field located adjacent to the school.	Photographs 26 - 29
Area 2 Portion 10 - Cottages	Lot 2 DP 945014 & Lot 1 DP 945014	Access to the cottages was restricted due to the cottages being occupied.	No Photographs

The Photographic log is shown in **Appendix A**.

2.3 Surrounding Land Use

The current land use of adjacent properties or properties across adjacent roads is shown in **Figures 2** and **3**. The summary below refers to Areas 1 and 2.

Area 1

- North – In the north east the site is bound by forest and bushland, with Mooney Mooney town directly north;
- East – The eastern boundary is bound by bushland and Mooney Mooney Creek is beyond;
- South – The site is bound to the south by bushland and the Hawkesbury River;
- West – The western boundary is bound by the Hawkesbury River.

Peat Island itself is bound on all sides by the Hawkesbury River, with a road bridge attached to the mainland.

The Pacific Highway and F3 Motorway transect through the central portion of Area 1, through portion 2, as shown on **Figure 2**.

Area 2

- North – Mooney Mooney town, with dwellings.
- East - Mooney Mooney town, with dwellings, with bushland and Mooney Mooney Creek beyond.
- West – Pacific Highway, with bushland beyond.
- South – Bushland.

2.4 Topography

A review of the regional topographic map (DNR, 1975¹) indicates that Peat Island (Portion 3) has an elevation of approximately 2 to 4 m Australian Height Datum (AHD), generally sloping to the south. On the mainland, in the northern portions of Areas 1 and 2 the topography rises to 62 m AHD towards the north west, with a water tower located on the peak of the hill.

Based on observations made during the site inspection, the topography of Peat Island (Portion 3) rises to the north approximately 4 m, with buildings located on the slopes.

The topography within Portions 1, 2, 4, 5, 7, 8, 9 and 10 is relatively flat. Within Portions 1, 2, 4, 5 there is a slight slope to the west, towards the Hawkesbury River. Portions 8, 9 and 10 are relatively flat, with the portions slightly sloping to the east towards Mooney Mooney Creek.

The F3 motorway is raised above Area 1 through the central area of the site.

A review of the regional soils map (SSC, 1983²) indicated that soils in the area are generally undulating to rolling rises and low hills on fine grained sandstones and claystones of the Narrabeen Group, with local relief to 60 m and slopes of <20 %.

2.5 Geology

A review of the regional 1:100 000 Sydney geological map, sheet series 9130 (1983)³ indicated that the site is underlain by Triassic interbedded laminite, shale, and quartz to lithic quartz sandstone from the Narrabeen Group.

A review of the regional soils map (SSC, 1983) indicated that soils in the area are generally moderately deep to deep yellow podzolic soils on sandstone crests.

2.6 Hydrology

Peat Island is surrounded by the Hawkesbury River, which is the closest surface water body to the majority of the site. Portions 1, 2, 4 and 5 are bounded on the western boundary by the Hawkesbury River. Surface water runoff is anticipated to flow in a westerly direction from this area of the mainland into the Hawkesbury River. Surface water runoff from Peat Island is anticipated to flow into the stormwater drains which feed into the Hawkesbury River from Peat Island.

The closest surface water body to Area 2 and Portions 7, 8, 9 and 10 of Area 1 is Mooney Mooney Creek, which is approximately 200 m to the east.

During heavy or prolonged rain periods, runoff is anticipated to follow the natural topography of these portions; with surface water runoff being anticipated to flow into the stormwater drains along adjacent roads.

Surface water runoff within Portion 7 which is the service station is anticipated to flow in an easterly direction into the stormwater drains located along the Pacific Highway.

¹ Department of Natural Resources (1975). National Topographic Map Series. Sydney Sheet 9130 (Ed 1).

² Department of land and water conservation (1983), Sydney Soils Landscape Series Sheet 9130

³ Department of Mineral Resources (1983). Sydney Geological Series Sheet 9130

2.7 Hydrogeology

A review of registered groundwater bore information from the NSW Natural Resource Atlas (NSW NRA, 2013⁴) indicated that there are no registered groundwater bores located within 1 km of the site (**Appendix B**).

Groundwater is anticipated to be underlying the site within the interbedded sandstones. The groundwater is anticipated to be in connectivity with the surface waters of the Hawkesbury River and Mooney Mooney Creek, which are tidal and consequently the groundwater is believed to be tidally influenced and undergoes partial mixing with the waters of the Rivers.

Groundwater flow direction is anticipated to be to the south west towards Hawkesbury River, based on the local topography. There also may be some groundwater flow towards Mooney Mooney Creek towards the east.

2.8 Acid Sulphate Soils

A review of the Cowan 1:25 000 Acid Sulfate Soil Risk Map Sheets 9130-N4⁵, indicated that the site is located within an area which has a "Disturbed terrain which may include filled areas, which often occur during reclamation for low lying swamps for urban development".

⁴ NSW Natural Resource Atlas www.nratlas.gov.nsw.au. Accessed on 3 January 2013

⁵ Department of land and water conservation (1983), Cowan Acid Sulphate Soils Series Sheet 9130-N4

3 Site History

3.1 Aerial Photographs

Aerial photographs from 1947, 1955, 1964, 1978, 1986, 1994 and 2005 were obtained from the Department of Lands. Copies of the aerial photographs are included in **Appendix C**.

Relevant information from the aerial photograph review is summarised as follows:

- **1947:** On Peat Island there appeared to be several buildings however the number of buildings is unclear due to the quality of the aerial photograph. A wharf extends from the mainland into the Hawkesbury River towards Peat Island. The mainland appeared to consist of bushland, with some agriculture occurring along the western foreshore (Portions 2 and 4). The Pacific Highway extends through the central portion of Area 1, with the small township of Mooney Mooney appearing to the north of Portion 10.
- **1955:** The site appeared similar to the previous aerial photograph with the exception of a road extending from the Pacific Highway to the western foreshore. The wharf originally here has become a bridge to Peat Island, with further buildings appearing to be present on Peat Island. Peat Island appeared to have extended to the south, with filling occurring.
- **1964:** The area as a whole appeared to be undergoing development. Within Portions 2 and 4, along the western foreshore adjoining to Peat Island a road way was constructed running along the foreshore. There appeared to be three rectangular buildings to the south of this road and a further two buildings to the north of the road. There appeared to be reclamation of land along the western foreshore, with filling occurring along the foreshore.

Major construction of the F3 Motorway appeared in the central portion of Area 1 and to the east of the Pacific Highway, with cut and fill works being completed.

The church and adjoining accommodation had been built within Portion 6, with cottages across the Pacific Highway also being constructed.

Within Area 2, the school appeared to be under construction, with what appeared to be a single building being present.

- **1978:** Peat Island appeared to have had further construction, with the adjoining land also having a further three rectangular buildings built in the north.

The F3 Motorway was now complete within the central portion of Area 1. The Mooney Mooney Returned and Services League (RSL) club had been built to the south east of the church across the Pacific Highway.

Further reclamation of land had occurred adjacent to the F3 Motorway, to the south of the site.

- **1986:** The site appeared similar to the previous aerial photograph. The surrounding areas are similar to the previous aerial photograph with increasing residential development to the north. In the southern area of Portion 2, the sewerage treatment plant appeared to have been constructed, with a large circular structure present, possibly one of the sewerage lagoons.

The water tower was present on the crest of the hill in Portion 6. The service station appeared to be present in Portion 7.

- **1994:** The site and surrounding areas were similar to the previous aerial photograph. The sewerage treatment works appeared to have been removed.
- **2005:** The site and surrounding areas were similar to the previous aerial photograph.

3.2 OEH Records

A search of the public register maintained by the NSW EPA under the *Protection of the Environment Operations Act 1997* was undertaken, and results are included in **Appendix D**.

The search identified that, for Peat Island, there were:

- A notice for Peat Island Sewage Treatment System, licence number 1034353, issued on the 3 March 2004, with a further licence issued in December 2004;
- The sewerage treatment system licences were surrendered in 2004, 2006 and 2008, with the licence numbers 1038198, 1062002 and 108970 issued respectively.

The Dangerous Goods records (**Section 3.5**) indicate that the sewerage treatment works was located in the southern area of Portion 2. It is noted that the Dangerous Goods records contains two maps with different locations indicated for the sewerage treatment works.

A search was also undertaken through the NSW EPA's public contaminated land register and NSW contaminated sites notified to NSW EPA list (**Appendix D**). The search identified that there have been no notices issued under the *Contaminated Land Management Act 1997* and no notification to EPA that the site is contaminated under the *Contaminated Land Management Act 1997*.

The remaining areas did not identify any notices under the POEO Act and no areas were notified on the NSW EPA registers.

3.3 Title Details

A historical title search was conducted for Peat Island (Portion 3) and the DEC School (Portion 10). The title certificates were not obtained for the remaining portions within Areas 1 and 2 due to the lack of development within these areas. The searches were completed by Jenners Title Searches Co. Copies of title records are included in **Appendix E**. The results of the title search are summarised below.

Table 3.1: Summary of Historical Title Holders

Date	Details of Title Holder
Peat Island - Lot 10 DP1157280	
1924	Crown Land
1979	Dedicated for Hospital Use
2011	Transferred to State of New South Wales
DEC School Property - Lot 1 DP 431780	
1867	George Peat of Sydney - Householder
1923	Alice Craft - Orchardist
1927	The Main Roads Board of New South Wales
1945	The Commissioner for Main Roads
1945	His most Gracious Majesty King George VI for the purposes of Public Instruction Act 1880
1994	Minister for Education

The title search indicated that Peat Island was Crown land up until 1979, where the land was dedicated to hospital use. However, the historical aerial photography suggests that the hospital was present on Peat Island prior to 1947. The DEC school property was privately owned until 1927, when it was transferred to the Main Roads Board. It then became Crown land in 1945 under the Public Instruction Act 1880 which introduced compulsory education. The site was then transferred to the DEC in 1994.

3.4 Council Records

3.4.1 Section 149 Certificates

Section 149 certificates were obtained for Peat Island (Portion 3) and the DEC School (Portion 10). The Section 149 certificates were not obtained for the remaining portions within Areas 1 and 2 due to the lack of substantial development within these areas.

Peat Island – Lot 10 DP1157280

Planning Information for each of the three sites is outlined below:

- Peat Island is zoned as Zone No.5 Special use "Hospital";
- Under the Gosford City *Councils Interim Development Order NO. 122*, 30 November 2012, the site can be developed within consent for recreation areas. Complying Developments also include Housing Alterations, commercial and industrial and subdivisions. Further information on the consent conditions is provided in the Section 149 certificates in **Appendix F**.
- Complying development under the General Housing Code may not be carried out on the land. The land is affected by specific land exemptions: The land is "excluded land identified under an environmental planning instrument" as defined under the SEPP (Exempt and Complying Development Codes) 2008;
- The Lot does not include or comprise critical habitat. The Lot is not within a conservation area. There are no items of environmental heritage identified on the Lot;
- The Lot is not affected by Section 38 or 39 of the *Coastal Protection Act 1979*;
- The Lot has not been proclaimed to be a mine subsidence district within the meaning of section 15 of The *Mine Subsidence Compensation Act, 1961*;

- The Lot is not affected by road widening/road realignment under Division 2 of Part 3 of the *Road Act 1993* and/or environmental planning instrument;
- The subject property has been identified as being Class 2 - (Works below the ground surface; Works by which the water table is likely to be lowered) on the Acid Sulfate Soil Planning Maps held by Council and is subject to slips;
- This land is identified as being affected by the draft Hawkesbury River Flood Study and *Council's Flood Management Policy (Min. No. 239/00 as amended)*. Restrictions to development may apply and land survey information may be required;
- The Lot has not been granted biodiversity certification within the meaning of the *Threatened Species Conservation Act, 1995*. Council has not been notified of the existence of a biodiversity agreement under the *Threatened Species Conservation Act, 1995*;
- The Lot is not subject to a Property Vegetation Plan under the provisions of the *Native Vegetation Act, 2003*;
- The Lot is not a declared investigation area or remediation site, or the subject of an investigation order or remediation order under the *Contaminated Land Management (CLM) Act 1997*. The Lot is not the subject of a voluntary investigation or remediation proposal or a site audit statement within the meaning of the *CLM Act 1997*;
- A tree preservation Order applies to all trees having a height of 3 m from the ground and certain other native species, including River Mangrove and Grey Mangrove irrespective of their heights; and
- Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

DEC School – Lot 1 DP431780

- The Lot is zoned as Zone No.5 Special use "School";
- Complying development under the General Housing Code may not be carried out on the land. The land is affected by specific land exemptions: The land is in a "foreshore area" as defined under the SEPP (Exempt and Complying Development Codes) 2008;
- The Lot does not include or comprise critical habitat. The Lot is not within a conservation area. There are no items of environmental heritage identified on the Lot;
- The Lot is not affected by Section 38 or 39 of the *Coastal Protection Act 1979*;
- The Lot has not been proclaimed to be a mine subsidence district within the meaning of section 15 of The *Mine Subsidence Compensation Act, 1961*;
- The property is adjacent to a State Road under the control of Roads and Maritime Services (RMS) and may be affected by an existing road widening scheme;
- The subject property has been identified as being Class 2 - (Works below the ground surface; Works by which the water table is likely to be lowered) on the Acid Sulfate Soil Planning Maps held by Council and is subject to slips;

- This land is identified as being affected by the draft Hawkesbury River Flood Study and *Council's Flood Management Policy (Min. No. 239/00 as amended)*. Restrictions to development may apply and land survey information may be required;
- The Lot has not been granted biodiversity certification within the meaning of the *Threatened Species Conservation Act, 1995*. Council has not been notified of the existence of a biodiversity agreement under the *Threatened Species Conservation Act, 1995*;
- All or part of the Lot is shown as bushfire prone;
- The Lot is not subject to a Property Vegetation Plan under the provisions of the *Native Vegetation Act, 2003*;
- The Lot is not a declared investigation area or remediation site, or the subject of an investigation order or remediation order under the *Contaminated Land Management (CLM) Act 1997*. The Lot is not the subject of a voluntary investigation or remediation proposal or a site audit statement within the meaning of the *CLM Act 1997*;
- A tree preservation Order applies to all trees having a height of 3 m from the ground and certain other native species, including River Mangrove and Grey Mangrove irrespective of their heights; and
- Council has fixed a foreshore building line on all lands fronting any harbour, bay, ocean, lake, estuary, lagoon or tidal river and creek.

3.4.2 DA/BA Records

Copies of Development Application (DA) / Building Application (BA) records were not made available in time for inclusion in this report.

3.5 WorkCover Dangerous Goods Licences

WorkCover information was obtained for Peat Island (Portion 3), the DEC School (Portion 10) and the service station (Portion 7). The WorkCover information was not obtained for the remaining portions within Areas 1 and 2 due to the lack of development within these areas and lack of evidence of dangerous goods storage from the site inspection. The WorkCover information and the site inspection completed at the site identified several areas that contained dangerous goods storage infrastructure. These are outlined in **Table 3.2** and the figures showing the locations of the Dangerous Goods are provided in **Appendix G**.

It is noted that the site inspection did not observe several of items recorded in the dangerous goods records; these include two USTs present on Peat Island, an AST present adjacent to the church and fuel infrastructure associated with the Wharf. It should also be noted that the site inspection observed dangerous goods that were not listed in the records, specifically fuel infrastructure associated with the service station.

The Dangerous Goods records also indicated that a number of items are listed to be decommissioned and removed from the site.

Table 3.2 Evidence of Dangerous Goods Storage

Location	General Area	Goods
Dangerous Goods Search		
Area 1		
Portion 1	Former Laundry, education and leisure centre.	1x 2.2 L LPG tank
Portion 2	Sewerage treatment works on adjoining Peat Island land	Sewerage treatment plant
Portion 3	On Peat Island adjacent to the bridge	1x 5250 L Petrol UST 1x 2250 L Petrol UST 1 x Compressed Chlorine Gas 2x LPG gas tanks 1x 4000 L diesel AST
Portion 4	Wharf area?	Pump, vent line and 2280 L UST
Portion 6	Adjacent to the church	1 x LPG gas tank 1 x 500 L AST for heating oil
Offsite	Associated with the Serviceman's club to the south of Portion 8.	1x 205 L Turpentine
Area 2		
Portion 9	Adjacent to the school along Point Road	1x 1000 L LPG gas tank
Site Inspection		
Area 1		
Portion 1	Former Laundry, education and leisure centre. A UST and vent line was observed at the rear of the laundry	1x Generator 1x UST and vent line
Portion 2	Within a brick storage shed, a 1000 litre diesel above ground storage tank.	1x 1000 L diesel AST, in poor condition
Portion 7	Service Station	3 x USTs

It should be noted that the Dangerous Goods records indicate that the sewerage treatment works are in different areas. No observation of a sewerage treatment works was observed during the site inspection. However, the historical aerial photography (**Section 3.1**) suggests the sewerage treatment works were located in the southern area of Portion 2.

The Dangerous Goods records indicate that a vent line, pump and UST was located at the end of a Wharf for boat launches. It is unclear from the records as to the location of the UST and fuel infrastructure, however it is believed to be located within Portion 4, adjacent to the Wharf.

3.6 Australian and NSW Heritage Register

A search of the Australian Heritage Trust database and the NSW Heritage Inventory did not reveal any Heritage listed items at the site (**Appendix H**).

3.7 Previous Investigations

JBS is not aware of any previous investigation completed at the site.

3.8 Other Historical Sources

A search of online information relating to Peat Island revealed the following information regarding the potential for human burial on Peat Island and nearby locations:

- An article in the Telegraph (2011⁶) reported that more than half of 601 boys admitted to the hospital between 1911 and 1930 "...died there and were buried in unmarked paupers' graves...". It is considered the article implies the graves were on the island, however the article does not clearly state this, and no evidence of such numbers of graves was noted during the site inspection;

⁶ <http://www.dailytelegraph.com.au/news/peat-island-in-the-hawkesbury-to-be-reinvented-as-a-residential-community/story-e6freuy9-1226056289621>. Vikki Campion, Urban Affairs Reporter, The Daily Telegraph May 16, 2011. Accessed 3 January 2013.

- An email/article on Ancestry.com (2011⁷) indicates the Brooklyn Cemetery contains "...buried under it (sic) grass without (sic) any makers are hundreds of residents from Peat and Milson Island Lunatic Asylum in paupers graves often two to a grave...". The author of this email/article (included only as "Elizabeth") goes on to suggest that they thought "Peat and Milson Island may have set up their own cemetery in the 1950s -60s after they stopped burying people in Brooklyn Cemetery", which "probably did not have markers given what happened in Brooklyn...";
- Another email/article on Ancestry.com by Elizabeth A Roberts (1998)⁸ indicates that until the Asylum "established its own cemetery (sic) in 1950 a total of approximately 600 persons died at Peat [Island], 304 of [them] are buried in the Cof E section of the Brooklyn Cemetery (sic)".

As noted, no visible evidence of unmarked grave sites was noted during inspection of the Peat Island site. However, while the majority of people who died on the island were reportedly buried in Brooklyn Cemetery there is the potential for subsequent burials (after 1950) to have occurred on the island itself. The archives are shown in **Appendix I**.

3.9 Site History Summary

A summary of the site histories is provided in **Table 3.3**

Table 3.3 Summary Site History

Period	Activity	Source
Prior to 1945	Peat Island was being used as a mental hospital at least from 1901 and was owned by the Crown from at least 1924. The DEC school property was privately owned and used as an orchard until 1927 when the main roads of NSW acquired the land.	Title Deeds and News Article
1945	DEC Land acquired by the Crown	Title Deeds
1947	The south western area appeared to have agriculture occurring.	Aerial Photograph (1947)
1950s-1960s	Potential burial of humans on Peat Island	Other (online) sources
1964	The F3 Motorway was being constructed, with reclamation of land occurring along the southern and western foreshores	Aerial Photograph (1964)
1978	Further reclamation of land along the southern foreshore	Aerial Photograph (1978).
1979	Peat Island dedicated to hospital use	Title Deeds
1986	Service Station built	Aerial Photograph (1986).
1994	The DEC school site was transferred from Crown land to the Minister of Education	Title Deeds

3.10 Integrity Assessment

Title details, zoning certificates and aerial photograph imagery provide a reasonably clear indication of the historical land use which is sufficient for the purposes of this investigation.

The information obtained from the remaining historical sources reviewed has been found to be in general agreement. It should be noted that the site inspection observed dangerous goods not listed within the Dangerous Goods Records and further infrastructure was not observed during the site inspection that was within the Dangerous

⁷ <http://archiver.rootsweb.ancestry.com/th/read/AUS-NSW-HILLS-HAWKESBURY-HUNTER-VALLEY/2011-11/1322090671>. Ancestry.com. Accessed 11 February 2013.

⁸ <http://archiver.rootsweb.ancestry.com/th/read/AUSTRALIA/1998-10/0908810799>. Ancestry.com. Accessed 11 February 2013.

Goods Records. However, it is considered that the information provided in this historical assessment has an acceptable level of accuracy.

4 Conceptual Site Model (CSM)

4.1 Potential Areas of Environmental Concern

Based on the desktop study and site inspection, the numbers of areas of environmental concern (AECs) and associated contaminants of potential concern (COPCs) have been identified and are presented in **Table 4.1**. The site portions and AECs are shown in **Figures 2 and 3**.

Table 4.1 Areas of Environmental Concern and Associated Contaminants of Potential Concern

Site	Area of Environmental Concern	Contaminants of Potential Concern (COPCs)
Area 1		
Portion 1 Former Laundry, education and leisure centre	1. Generator 2. Former large Laundry 3. UST associated with Laundry 4. Potential Fill material 5. Hazardous building material associated with the buildings 6. Stockpiled material	Heavy metals, total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene and xylenes (BTEX), polycyclic aromatic hydrocarbons (PAHs), organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs) and asbestos and volatile hydrocarbons (VHCs), Chlorinated solvents. Lead (paint), asbestos (construction materials) and polychlorinated biphenyl (PCBs)
Portion 2 Administration Building and Reclaimed Land	1. Above Ground Storage tank (diesel) 2. Reclaimed Land along water edge 3. Hazardous building material associated with the buildings 4. Former Sewerage treatment	TPH, BTEX and PAHs, Lead (paint), asbestos (construction materials) and PCBs. Bio hazard waste, nutrients
Portion 3 Peat Island	1. Above Ground Storage Tanks (diesel) 2. Underground Storage Tanks (Dangerous Goods Search) 3. Painters shed 4. Cleaners shed 5. Potential Fill material 6. Hazardous building material associated with the buildings 7. Potential burial of human remains on Peat Island	Heavy metals, TPH, BTEX, PAHs, OCPs, PCBs and asbestos. Lead (paint), asbestos (construction materials) and PCBs.
Portion 4 Western Foreshore	Potential Fill material associated with reclaimed Land along water edge	Heavy metals, TPH, PCBs and asbestos.
Portion 5 Wharf	1. Potential Fill material 2. Wood Preservatives 3. UST, vent line, Bowser	Heavy metals, TPH, BTEX, PAHs, phenols/creosotes, PCBs and asbestos.
Portion 6 Church and Cottages and bushland	1. Hazardous building material associated with the buildings 2. AST containing heating oil	Lead (paint), asbestos (construction materials) and PCBs Heavy metals, TPH, BTEX, PAHs
Portion 7 Service Station	1. Hazardous building material associated with the buildings 2. USTs (multiple) 3. Potential fill material	Lead (paint), asbestos (construction materials) and PCBs Heavy metals, TPH, BTEX, PAHs, asbestos, OCPs
Portion 8 Cottages	1. Hazardous building material associated with the buildings 2. Oyster Farms	Lead (paint), asbestos (construction materials) and PCBs PAHs, phenols/creosotes, TPH/BTEX
Area 2		
Portion 9 DEC School	1. Former Orchard 2. Septic Tank	OCPs, OPPs, Bio hazardous waste, metals and nutrients.
Portion 10 Cottages	1. Hazardous building material associated with the buildings 2. Oyster Farms	Lead (paint), asbestos (construction materials) and PCBs PAHs, phenols/creosotes, TPH/BTEX

Sensitive receptors at the site are considered to include: site workers and visitors who may come into contact with potentially contaminated media within the site and future site users from inhalation pathways. The surface water and groundwater are also considered to be sensitive receptors due to the close proximity to petroleum based products and other COPCs.

4.2 Potentially Contaminated Media

Potentially contaminated media present at the site include:

- fill material;
- natural soils;
- groundwater; and
- surface water.

The site history and site inspection indicates the potential for fill material underlying the current buildings/structures, within reclaimed land fill material along the western boundary with the Hawkesbury River and from potential fill material used to raise the topography. Fill materials are sourced from an unknown location and may have originated from industrial activities. Fill materials are therefore considered a potentially contaminated medium. Potential fill material used as part of the Pacific Highway and F3 construction could also contain COPCs.

Based on the potential leachability of contaminants within fill material, vertical migration of contamination from the fill/surface soils into the underlying natural soils may occur.

Due to the presence of petroleum storage on Peat Island and its adjoining land, the Wharf, the church and at the service station there is the potential for contaminating activities to have occurred. This includes spillage/leakage and general site activities may have resulted in migration of contaminants through the former/current building pavements and via subsurface soils surrounding ASTs and USTs. As a result, subsurface soils and shallow groundwater were considered to be potentially contaminated media.

Surface water is potentially contaminated medium due to the close proximity of the surface water body (Hawkesbury River) to petroleum based contaminants and the EPA notices indicated sewerage discarded into the River from Peat Island.

Groundwater at the site is a potentially contaminated medium based on the presence of several sources of contamination including former ASTs, USTs, former laundry and reclaimed land.

4.3 Potential for Migration, Exposure Pathways and Receptors

Contaminants generally migrate from site via a combination of windblown dusts, rainwater infiltration, groundwater migration and surface water runoff. The potential for contaminants to migrate is a combination of:

- The nature of the contaminants (solid/liquid and mobility characteristics);
- The extent of the contaminants (isolated or widespread);
- The location of the contaminants (surface soils or at depth); and
- The site topography, geology, hydrology and hydrogeology.

The site is predominantly vegetated or sealed with bituminous concrete which significantly reduces the potential for windblown contaminants to migrate from the site.

The potential for contaminants to migrate via surface water runoff from the site is high, as precipitation onsite is likely to enter the Hawkesbury River or Mooney Mooney Creek via stormwater or directly.

There is potential for contaminants to migrate via groundwater due to historical uses of the site (including the USTs, ASTs, former laundry, and unknown fill). In the event that significant soil contamination is identified, the potential for groundwater contamination will need to be reassessed.

5 Discussion

As discussed in **Section 4**, several potential AECs have been identified in Areas 1 and 2. These AECs are further discussed below:

Petroleum Storage

The operation of machinery, storage of petroleum products in ASTs and USTs on Peat Island, adjoining lands, adjacent to the church, Wharf and at the former service station may have resulted in the contamination of surface, subsurface soils, surface waters and groundwater. A total of two ASTs containing diesel fuel were observed within Portions 2 and 3, with a further UST observed near the laundry building within Portion 1.

It was noted in the Dangerous Goods records that several of the USTs and ASTs recorded were to be decommissioned and removed from the site. As several of the USTs were not observed during the site inspection, it is possible that these have been removed, however, it is unclear.

The service station was observed to contain at least three USTs, with the contents and size of the USTs being unknown (however, potentially unleaded and diesel due to colouring on bowsers present). The current contents and status of the USTs is not known.

Adjacent to Portion 8, in the south, the dangerous goods records indicated the presence of storage of turpentine.

Sewage Treatment Works

Review of the NSW EPA registers and dangerous good search indicated the presence of sewage treatment in the adjoining lands to Peat Island. Potential cracks in the sewer lines, blockages, pumping failure or extended periods of rain can result in sewage pollution in surrounding water bodies. Contamination from sewage can include increased nutrients resulting in algal blooms and impacts to local vegetation from increased weed growth, increased dissolved solids, chemical detergents and pathogens such as giardia and cryptosporium which can pose potential risks to human health.

Former Laundry

The large, former laundry was constructed at a similar time to the original buildings. It was a single storey brick building with a metal covered roof.

During the site inspection the floor of the former laundry was observed to comprise a concrete slab, with chemical staining. Based on the possibility the laundry was used as part of the hospital there is potential for biohazard waste and chemical waste and therefore there is potential for microbiological contaminants associated with the former laundry to be present in soil at the site.

A vent line and UST were observed at the rear of the former laundry. There is a potential for the laundry to have included dry cleaning practices. Therefore, there is a potential that inorganic and organic contaminants including potential volatile solvents, chlorinated solvents, volatile hydrocarbons (e.g. kerosene) and semi volatile hydrocarbons (e.g. naphthalene) to have been used at the site which can pose a potential risk to human health and the environment.

Burial of Human Remains

The risks associated with biohazardous waste can be classified into two main groups: microbiological and chemical. The site history review indicated the potential for buried human remains on the island in the 1950s and 1960s. The site inspection could not find

any evidence of graves or a cemetery at the site. Given the elapsed time and limited space available for large-scale burials, it is considered there is a low potential risk for microbiological contaminants associated with biohazards to be present in soil and groundwater at the site.

Hazardous Building Materials

A hazardous materials (hazmat) survey is to be completed for the site and will address the potential for hazardous materials to be within the buildings across the site. Typical hazardous materials issues relating to contamination of land can include asbestos and lead paint around structures, former structures, waste burial pits and filled areas.

Other AECs

The site inspection indicated the presence of reclaimed land along the western foreshore and southern foreshore of Peat Island. Fill material of unknown origin could contain potential COPCs that are a risk to the environment or human health. Building rubble was observed within the reclaimed land and therefore there is potential for hazardous materials (e.g. asbestos) in the fill material.

The title deeds for the former DEC school indicate that the site was potentially used for an orchard. Orchards can be a source for various pesticides and insecticides and inorganic contaminants which can pose a risk to human health and the environment.

A cleaner's shed was located on Peat Island, along the eastern boundary of the island. The shed was a rectangular, wooden building, which was in moderate condition. Chemical signs were present on and in the building including corrosive signage. It is unknown what chemicals were stored within the shed or used at the site, however hydrogen peroxide was observed within a plastic bottle. Potential chemicals used at the site include lead paint, various solvent based chemicals such as degreasers and acid and/or alkaline based chemicals used to attack rust or clean the swimming pools located at the site.

6 Conclusions and Recommendations

Based on the results of the assessment, and subject to the limitations in **Section 7**, several activities were identified as potential AECs based on the site history, historical aerial photography and site inspection.

There is potential for contamination to be present resulting from previous site activities associated with the identified AECs, mainly in the form of above and below ground fuel storage, hazardous materials within the buildings (asbestos and lead) and reclaimed filled land. There have been other miscellaneous potentially contaminating activities identified, including the large former laundry, with associated UST and sewerage treatment. Consequently, it is recommended that detailed site investigation be undertaken at the site in accordance with EPA made or endorsed guidelines to assess the nature and extent of potential contamination, particularly targeting the identified AECs.

Additionally the presence of the USTs at the service station (Portion 7), Wharf (Portion 5), Peat Island (Portion 3), Church (Portion 6) and former laundry (Portion 1) will require management under the *Protection of the Environment Operations Act, 1997 (POEO Act)*⁹ and *Underground Petroleum Storage Systems (UPSS) Regulation, 2008 (UPSS Regulation)*¹⁰. The UPSS Regulation indicates disused USTs must be decommissioned, preferably by removed where practicable. It is recommended the USTs be decommissioned in accordance with the UPSS Regulation and associated standards, guidelines and other regulatory requirements including appropriate work health and safety. It is recommended an appropriately experienced environmental consultant validate the decommissioning in accordance with the UPSS Regulation guidelines and other relevant guidelines.

⁹ *Protection of the Environment Operations Act, 1997 (POEO Act 1997)*.

¹⁰ *Underground Petroleum Storage Systems, 2008 (UPSS 2008)*

7 Limitations

This report has been prepared for use by the client who commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties. The report has been prepared specifically for the client for the purposes of the commission, including use by the Site Auditor acting as an agent of the client in this respect. No warranties, express or implied, are offered to any third parties and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS Environmental Pty Ltd.

Limited sampling and laboratory analyses were undertaken as part of the investigations reviewed, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS Environmental Pty Ltd reserves the right to review the report in the context of the additional information.

Figures



Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, accessed 22-01-2013

**Figure 1: Site Location**

Client: State Property Authority

Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532_01

0 250 500 1,000 m

Scale: 1:25,000

Datum: GDA 1984 MGA Zone 56 - AHD

Legend:

 Approximate Site Boundary

 Area 1

 Area 2

A4

A

Original Issue - R01

SE

29-01-2013

Rev Description

Drm

Date:

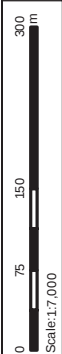


Source: Base Image - © SIX Maps www.maps.six.nsw.gov.au, imagery date 13-02-2011, accessed 22-01-2013

© 2013 JBS Environmental Pty Ltd

Legend:

- Legend:
-  Approximate Site Boundary
 -  Approximate Portion Boundary



A4				
A	Original Issue - R01	SE	22-01-2013	
Rev	Description	Drn:	Date:	

Figure 2: Site Layout



Client: State Property Authority

Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532_02

Appendix A
Photographic Log

Site Photographs –14 January 2013



Photograph 1 – Former Laundry building



Photograph 2 – Inside the laundry building



Photograph 3 – Stockpiled material beneath the building.



Photograph 4 – Disused UST at rear of former laundry on mainland



Photograph 5 – Generator on mainland



Photograph 6 – Disused AST on mainland



Photograph 7 – Disused AST on mainland shed



Photograph 8 – Reclaimed Land along western foreshore of adjoining land



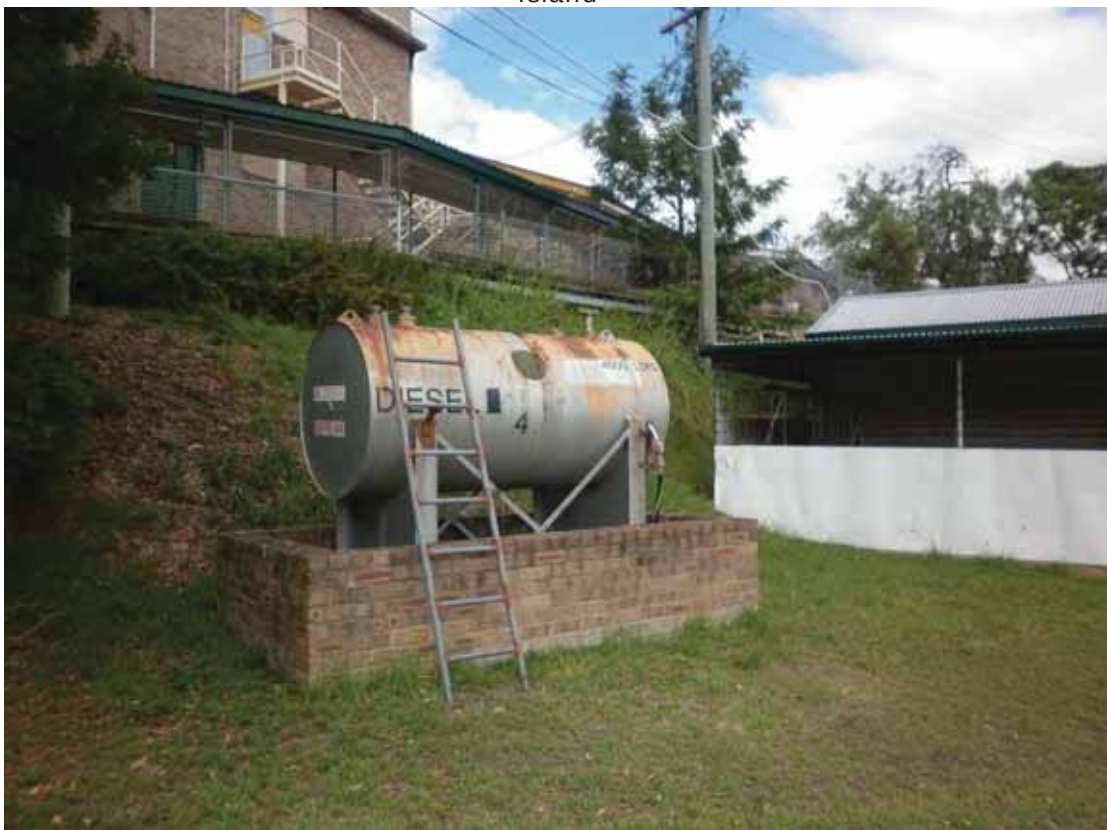
Photograph 9– Reclaimed Land along western foreshore of adjoining land



Photograph 10 - LPG Gas tanks on Peat Island



Photograph 11 – Former Boiler Room on Peat Island



Photograph 12 – Diesel AST on Peat Island



Photograph 13 – Fill material on Peat Island



Photograph 14- Reclaimed land on southern end of Peat Island



Photograph 15 – View looking west at entrance to site



Photograph 16 – Cleaners property



Photograph 17 – Reclaimed Land



Photograph 18– The Church



Photograph 19– Accommodation to the north west of the church



Photograph 20– LPG Gas tank adjacent to the accommodation



Photograph 21– Illegal dumping of machinery



Photograph 22 – Former Tennis Court



Photograph 23 – View looking west at the Former Service Station



Photograph 24 – View looking south at the Former Service Station



Photograph 25 – View looking south at the Former Service Station



Photograph 26 – View looking south at the Former School



Photograph 27 – View looking south at the Former School



Photograph 28 – View looking south at the septic tank

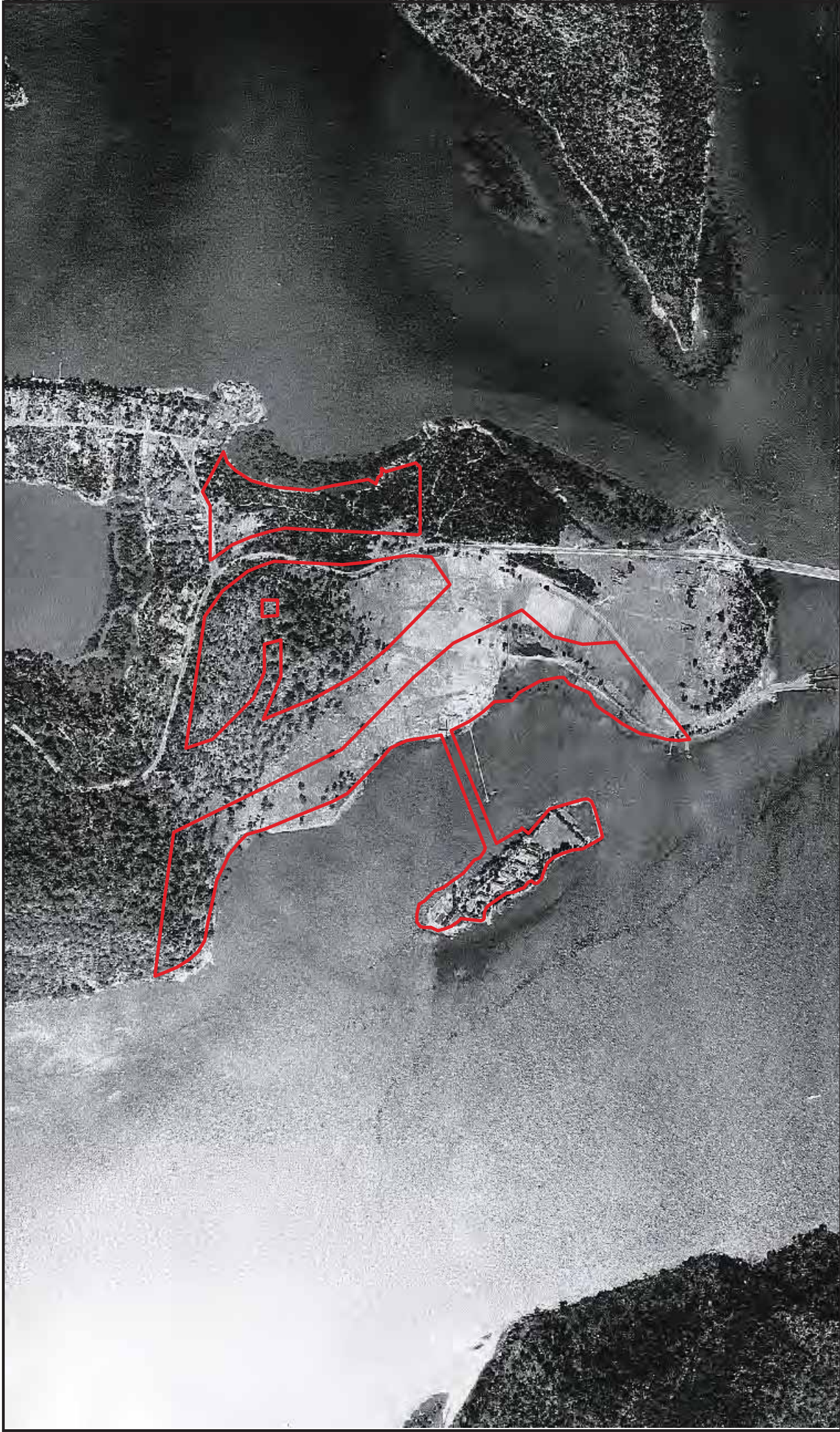


Photograph 29 – View looking west at the raised school site

Appendix B
Registered Bore Search



Appendix C
Aerial Photos



Source: Base Image - © Department of Lands, Broken Bay, 01-1947, Run 48



Figure: Peat Island, January 1947, Run 48

© 2013 JBS Environmental Pty Ltd

Client: State Property Authority

Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532_1947

Legend:

Approximate Site Boundary

0 105 210 420 m

Scale: 1:10,000

Datum: GDA 1994 MGA Zone 56 - A HD

A4			
A	Original Issue - Aerials	SE	15-01-2013
Rev	Description	Drm.	Date:



Source: Base Image - © Department of Lands, Broken Bay, 27-07-1955, Run 2



Legend:
 Approximate Site Boundary

A4				
A	Original Issue - Aerials	SE	15-01-2013	
Rev	Description	Drm.	Date:	



Figure: Peat Island, July 1955,
Run 2

Client: State Property Authority

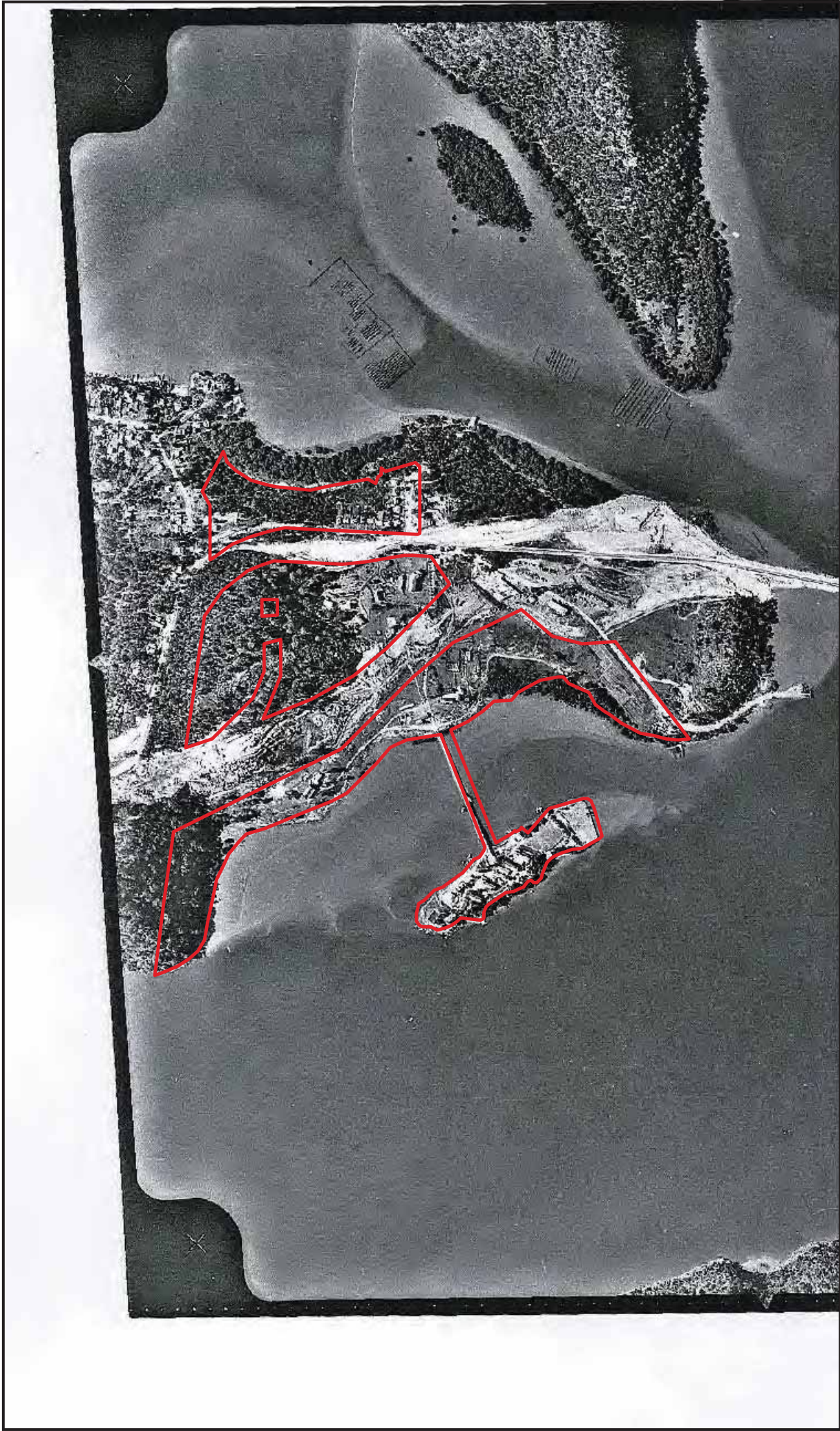
Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532_1955



© 2013 JBS Environmental Pty Ltd



Source: Base Image - © Department of Lands, Gosford Shire, 05-1964, Run 11

0 105 210 420 m

Scale: 1:10,000

Datum: GDA 1994 MGA Zone 56 - A HD

A4			
A	Original Issue - Aerials	SE	15-01-2013
Rev	Description	Drm.	Date:

Legend:

Approximate Site Boundary

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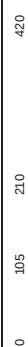
JBS ENVIRONMENTAL **Figure: Peat Island, May 1964, Run 11**

Client: State Property Authority

Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532_1964



Scale: 1:10,000

Datum: GDA 1994 MGA Zone 56 - AHD

A4				
A	Original Issue - Aerials	SE	15-01-2013	
Rev	Description	Drn:	Date:	

Legend:



Approximate Site Boundary



Figure: Peat Island, March 1978,
Run 1

Client: State Property Authority

Project: Peat Island, NSW - Phase 1 ESA

Job No: 42532

File Name: 42532 1978