





29 October 2012

Sergio Famiano
Project Manager
LandCorp
Level 3 Wesfarmers House, 40 The Esplanade
Fremantle WA 6000

Our ref: 61/25038/08/125962
Your ref:

Dear Serge,

Cockburn Coast Urban Redevelopment Local Structure Plan Response

LandCorp submitted a Proposed Scheme Amendment (No. 89) to the City of Cockburn Town Planning Scheme No. 3 (Cockburn Coast Development Area). The City of Cockburn subsequently resolved to adopt the Cockburn Coast District Structure Plan Part 2 for the purposes of providing a guiding document to inform the preparation of future Local Structure Plans within the District Structure Plan area subject to certain modifications.

The modifications included requirements to be addressed in the Local Structure Plans (LSP) related to contaminated sites for the Cockburn Coast Redevelopment (Item 3.19). GHD has prepared the following responses to be included in the LSPs for Robb Jetty (Precinct 2 and 8) and Hilltop and Emplacement Crescent (Precinct 3 and 7) for the Cockburn Coast Redevelopment related to contaminated sites.

These responses are subject to, and must be read in conjunction with, the limitations set out in Attachment 1 and the assumptions and qualifications contained throughout the responses.

If you have any queries regarding these responses, please do not hesitate to contact the undersigned.

Yours sincerely,

A handwritten signature in blue ink that reads 'Simon French' with a stylized flourish at the end.

Simon French
Principal Scientist
6222 8203



Attachment 1: Disclaimer

This Local Structure Plan Response (“LSP Response”) for the Cockburn Coast Urban Redevelopment document has been prepared by GHD for LandCorp and may only be used and relied on by LandCorp for the purpose agreed between GHD and LandCorp.

GHD otherwise disclaims responsibility to any person other than LandCorp arising in connection with the LSP Response. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing the LSP Response were limited to providing responses to the three City of Cockburn modifications requested for contaminated sites in the Cockburn Coast District Structure Plan Part 2 (Section 3.19) and are subject to the limitations stated in this disclaimer. The services undertaken by GHD were carried out in accordance with the existing GHD/LandCorp Panel Contract (2007/03).

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

The opinions, conclusions and any recommendations in the LSP Response are based on assumptions made by GHD described in the LSP Response. GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared the LSP Response on the basis of information provided the Department of Environment and Conservation (DEC) and Landgate, which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the LSP Response which were caused by errors or omissions in that information.

GHD has not been involved in the preparation of the Local Structure Plan and has had no contribution to, or review of the Local Structure Plan other than in the LSP Responses, provided herein. GHD shall not be liable to any person for any error in, omission from, or false or misleading statement in, any other part of the Local Structure Plan.

The LSP Response must be read in full and no excerpts are taken to be representative of the findings of the LSP Response.



Attachment 2: Local Structure Plan Response Robb Jetty (Precinct 2 and 8) and Hilltop and Emplacement Crescent (Precinct 3 and 7)

Describe how contaminated sites will be (or have been) suitably dealt with across the whole Local Structure Plan area in accordance with the Contaminated Sites Act 2003.

The *Contaminated Sites Act 2003* (CS Act) provides for the “*identification, recording, management and remediation of contaminated sites*”. The CS Act is administered by the Department of Environment and Conservation (DEC). The CS Act is supported by the *Contaminated Sites Regulations 2006* and the *Contaminated Sites Management Series Guidelines*. The CS Act is the main mechanism for identification of known and suspected contaminated sites in Western Australia and reporting of known or suspected contaminated sites is a mandatory requirement under the CS Act for:

- An owner or occupier;
- Person who caused, or contributed to, the contamination; and
- A contaminated sites auditor engaged to report on the site in accordance with the CS Act.

Contamination is an important issue for the Cockburn Coast Urban Redevelopment, particularly as development may introduce generally more sensitive land uses than currently exist in the Local Structure Plan (LSP) areas. Contaminated sites have been addressed in each of the LSPs in accordance with the CS Act (and relevant regulations and guidelines) as summarised in the Preliminary Assessment undertaken as part of LSP consideration or are to be addressed using a staged approach to investigation and management. Further details of these are provided below.

Local Structure Plan (LSP) Consideration

Awareness of the potential for contaminated sites issues has been raised at consultation meetings with stakeholders during the District Structure Plan (DSP) consultation process and will also receive appropriate consideration in the forthcoming LSP consultation process.

As required by DSP modifications and as recommended in relevant guidelines¹, GHD has undertaken a Preliminary Assessment of all lots within the LSP areas to identify known and suspected contaminated sites that have been reported to the DEC in accordance with the CS Act (presented at Attachment 3). This Preliminary Assessment comprised a review of the Basic Summary of Records (BSR) information provided by the DEC to determine if a site had been reported to DEC as a known or suspected contaminated site, review of previous investigations undertaken by GHD and, where no investigations have been undertaken, a review of available historical aerial photographs to determine if there are any further indications of potentially contaminating land uses/activities at lots within the LSP area.

The LSP process including provision of the Preliminary Assessment described above will therefore assist in informing stakeholders, including land owners, of possible contaminated sites issues for land to be brought forward for development so that these can be suitably dealt with in accordance with the CS Act and relevant guidelines.

¹ Contaminated Sites and the Landuse Planning Process, Department of Environment, Government of Western Australia, Contaminated Sites Management Series, April 2006.



Staged Approach to Contaminated Site Investigations and Management

Relevant guidelines including those published by the DEC recommend a staged approach² be adopted for investigation and management of potential or known contamination issues which provides for the following:

- Preliminary Site Investigation (e.g. collecting background knowledge, such as historical, geographical, geological and hydrogeological information to determine if past or present land uses have or have potential to have caused contamination);
- Detailed Site Investigation (e.g. investigation to collect soil, groundwater, gas/vapour samples at a site to determine if contamination is present, substance types, concentrations, extent and assessment of risks posed to human health and the environment);
- Site Management Plan (development of an effective and practical management strategy to address the risks posed by contamination); and
- Remediation, validation, ongoing management (e.g. remediation by methods such as on site or off site treatment of contamination, off-site disposal and subsequent testing to demonstrate the remediation has been effective, or other management measures such as modification of proposed land uses or controls on access via management plans or Memorial On Title).

This staged approach ensures that each stage of work is appropriately informed, provides greater opportunity to characterise sites in sufficient detail and allows appropriate action to be taken (where necessary) to address identified contamination issues in accordance with the CS Act.

As an example, GHD has been commissioned by LandCorp to undertake staged contaminated sites investigations at each of its owned lots within the LSP areas to determine if any potential contamination exists that would restrict proposed development and determine requirements for further action (such as remediation) to address identified issues. These investigations have been undertaken with reference to the CS Act and associated regulations and guidelines. Furthermore, LandCorp has commissioned a DEC accredited Contaminated Sites Auditor to undertake an independent and critical review of each of the investigations undertaken by GHD. A summary of these investigations is provided in Tables 1 and 2 of Attachment 3.

As identified in the Preliminary Assessment for this LSP response, similar investigation and management activities have previously been or are being undertaken by some other landowners in the LSP areas to ensure contamination issues are suitably addressed in accordance with the CS Act. Consideration of contamination issues within the LSP process as described above will further assist stakeholders such as landowners in determining requirements for investigation and management activities area to ensure contamination issues are suitably addressed in accordance with the CS Act.

As acknowledged in relevant guidelines¹ the planning process, which operates in parallel with the CS Act, is a key method for addressing unknown contaminated sites, whereby contamination is considered before planning decisions are made and conditions are imposed for further investigation where necessary to allow decisions to be made. In conjunction with consideration under the LSP process and subsequent actions by relevant stakeholders, the planning process, in addition to the CS Act provides a

² Staged approach to site assessments, Department of Environment and Conservation Contaminated Sites Fact Sheet 2.



key part of the overall framework to ensure that contaminated sites are suitably dealt with in accordance with the CS Act.

Describe how the land use plan responds to issues of contamination across the whole Local Structure Plan area.

The land use plan responds to issues of contamination across the LSP areas according knowledge gained from a staged approach to investigation and management that has already been implemented for a number of key land holdings throughout the area. In the staged approach to assessment, consideration of known and potential contamination issues has been undertaken for these land holdings and their surroundings with respect to proposed forms of development and potential or actual risks these may pose for such development.

From current information, contamination issues have not however been identified to impose constraints requiring widespread land use responses across the LSP areas. Where contamination issues have been identified at particular land holdings, consideration has been given to the severity, extent and possible management options to address them where deemed necessary in accordance with a risk based approach. Consideration of land use has been part of this process where locating forms of land use at/near known contamination which are suitable from a risk perspective can offer a more sustainable management option than undertaking remediation work. For example, in a location where a historic bunker oil leak has resulted in contamination at depth below ground level, the land use plan has been revised to ensure that no buildings are located over the known impacted area.

It is expected that development proposals will be further refined where needed in response to contamination issues by informed stakeholders. This will either as part of work already being undertaken, consideration in the LSP process and future work to be undertaken to bring sites forward for development in accordance with a staged approach to investigation and management of contaminated sites.

While recognising the obligations for landowners under the Contaminated Sites Act 2003, list for each lot contained within the whole Local Structure Plan area as part of the Local Structure Plan report, whether any investigation of contaminated sites have been undertaken. Where no investigation has been considered warranted also list details of previous and historic land uses to assert the conclusion the site is not potentially contaminated. Where sites have been reported to DEC as a potentially contaminated site, also list the details of the referral and if available the outcome of the referral.

As required by DSP modifications GHD has undertaken a Preliminary Assessment of all lots within the LSP areas to identify known and suspected contaminated sites that have been reported to DEC in accordance with the CS Act.

This Preliminary Assessment comprised a review of the Basic Summary of Records (BSR) information provided by the DEC to determine if a site had been reported to DEC as a known or suspected contaminated site, review of previous investigations undertaken by GHD and, where no investigations have been undertaken, a review of available historical aerial photographs to determine if there are any further indications of potentially contaminating land uses/activities at lots within the LSP area.



GHD has prepared tables for Robb Jetty (Precinct 2 and 8) and Hilltop and Emplacement Crescent (Precinct 3 and 7), which summarise the current status of contaminated sites investigations, known to GHD, at each of the lots contained within the LSP areas. These tables are presented in Attachment 3.



Table 1 Robb Jetty (Precinct 2 and 8)

Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
1946 Rollinson Rd	LR3099 / 951		<p><u>DEC BSR (DEC12478)</u></p> <p>Classification: 22/05/2012 - Report not substantiated</p> <p>Reason for Classification:</p> <p><i>The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by May 2007.</i></p> <p><i>The site was used as a wastewater pump station for the Water Corporation and as a suspected affected site. DEC understands that no indications of possible contamination have been observed or are known at this time.</i></p> <p><i>The site was reported because an internal risk assessment identified that the site could be affected by contamination from nearby industrial sites. No groundwater investigations have been carried out and the quality of soil and groundwater beneath the site is unknown.</i></p> <p><i>Based on the information provided, the site appears suitable for continued use as a wastewater pump station, but may not be suitable for more sensitive land uses, such as residential housing and child care centres.</i></p> <p><i>The report of a known or suspected contaminated site, in conjunction with DEC enquiries, has provided insufficient grounds to indicate that possible contamination of the site is present from the current or historical land use or surrounding land uses. As such, the site is classified as 'report not substantiated'.</i></p> <p><u>Aerial Photographs</u></p> <p>Aerial photographs indicate that the site has been used as a wastewater pump station since the mid-1990s. Prior to this the site appears to be used for agricultural purposes.</p> <p><u>Conclusion</u></p> <p>The site may have limited contamination present due to the use as a wastewater pump station and former nearby industrial sites, however the potential likelihood of this is considered low. The site appears suitable for ongoing use as a wastewater pump station.</p>
2017 Cockburn Rd	LR3146 / 795		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>The site appears to have been occupied entirely by part of an industrial building, potentially associated with the nearby former railway yard to the west or the former abattoir to the north, during 1953. This onsite building was removed in 1974 and a row of trees were planted as a road barrier. A small building was additionally built on the western boundary of the site in 1979. The site has remained unchanged to present.</p> <p><u>Conclusion</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs, there appears to be limited potential only for contamination at this site subject to confirmation of former use of the building present onsite from 1953-1974.</p>
2082 Bennett Ave	LR3100 / 667		<p><u>DEC BSR (DMO 3355)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Aerial photographs indicate the site was used for agricultural purposes from the 1950s to the 1980s. The site has remained vacant with no buildings evident in any of the available aerial photographs. There is evidence of ad hoc use as for laydown of materials from the adjacent sites from 1999 onwards.</p> <p><u>Conclusion</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
1 Bennett Ave	2059 / 330		<p><u>DEC BSR (DEC4369)</u></p> <p>Classification: 02/11/2007 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Chromium is present in surface soils at isolated locations. Heavy metals and nutrients are present in groundwater in a plume that extends below the entire site.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by September 2007.</p> <p>A limited contamination assessment was carried out to provide a baseline level of soil and groundwater contaminants prior to a new tenant occupying the premises.</p> <p>The site was reported under section 11 of the Act because the assessment found that chromium was present in soils at contaminations exceeding Ecological Investigation Levels, but below Health Investigation Levels as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003).</p> <p>Heavy metals were present in groundwater at contaminations exceeding Australian Drinking Water and Marine Aquatic Ecosystem Guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003).</p> <p>Concentrations of contaminants have been found to exceed adopted assessment levels. A Screening Risk Assessment has therefore indicated that further investigation is required to determine the risk to human health, the environment and environmental values.</p> <p>As there are grounds to indicate possible contamination of the site, further investigation of soil and groundwater and risk assessment are required to determine the contamination status of the site, the site is therefore classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p><u>Aerial Photographs</u></p> <p>Prior to the 1980s the site appears to be used for agricultural purposes, with evidence of stock yard in the south of the site during this period. The site was developed as an industrial facility some time between 1981 and 1995 (including operation by Gosh Leather). The site subsequently currently operated as a waste recycling facility until closure following loss of the building structure due to a fire.</p> <p><u>Conclusion</u></p> <p>This site has the potential to be contaminated due to past use, including the presence of a livestock yard. Potential contamination associated with the more recent use is likely to be mitigated by the significant lateral extent of the building footprint. Loss of the building structure to a fire may have caused surficial/limited depth contamination of surrounding ground at the site.</p>
1 Darkan Ave	2175 / 172		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Between 1999 and 1995 the site was developed, with the construction of a large warehouse. GHD understands this warehouse is currently used by Harvey Industries Processing Centre for food processing. Prior to 1995 the site was vacant and appeared to be covered by sparse coastal vegetation.</p> <p><u>Conclusions</u></p> <p>Review of DEC BSR information and historic aerial photographs indicates there is limited potential only for contamination at this site.</p>
3 Garston Way	2049 / 131		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965 the site was vacant and appeared to be covered by sparse coastal vegetation. Between 1965 and 1981 the site appears to be used for stock grazing. From 1981 onwards the site has remained vacant. There is some evidence of vehicle movement (i.e. tracks) across the site between 1981 and currently.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
5 Garston Way	2049 / 132		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965 the site was vacant and appeared to be covered by sparse coastal vegetation. Between 1965 and 1981 the site appears to be used for stock grazing. From 1981 onwards the site has remained vacant, with laydown of building materials from the adjacent site.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
7 Garston Way	2049 / 133		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was used for agricultural purposes, with evidence of stock grazing. Between 1981 and 2003 the site was vacant. In 2003 a large warehouse was constructed at the site. GHD understands that this warehouse is occupied by Complete Electrical Services.</p> <p><u>Conclusions</u></p> <p>Review of DEC BSR information and historic aerial photographs indicates there is limited potential only for contamination at this site.</p>
15 Garston Way	2049 / 137		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. The site comprised the centre corner of three adjacent lots. Around 1995, the site was completely cleared aligned with Garston Way and became the lot as it appears today. Following 1995, the site remained vacant, with evidence of vehicle movement (i.e. tracks) across the site until present.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
17 Garston Way	2049 / 138		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. The majority of the site comprised part of one lot, with a small portion of the northern and southern lots encroaching on the north-west and south-east corners of the site. Around 1995, the site was completely cleared, aligned with Garston Way and became the lot as it appears today. Following 1995, the site remained vacant, with evidence of vehicle movement (i.e. tracks) across the site until 2010, where the site appears to have been bitumised and used as a laydown/storage area for trucks, machinery and metal pipes, to present.</p> <p><u>Conclusions</u></p> <p>A review of DEC BSR information and historic aerial photographs indicates there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
19 Garston Way	2049 / 139		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. The site comprised half of one lot and half of another, separated horizontally in a north-east to south-west orientation. Around 1995, the site was completely cleared, aligned with Garston Way and became the lot as it appears today. Following 1995, the site remained vacant, with evidence of vehicle movement (i.e. tracks) across the site until present.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
2102 Garston Way	LR3098 / 736		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. The site comprised sections of several adjacent lots. Around 1995, the site was completely cleared aligned with Garston Way and became the lot as it appears today. Following 1999, the site remained vacant, with evidence of vehicle movement (i.e. tracks) across the site until present.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
20 Darkan Ave	2049 / 423		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1999 the site was vacant, cleared and appeared to be used for stock grazing. Around 1999, an electrical pad-mount TX transformer unit was installed on the site, which appears to have remained unchanged to the present day.</p> <p><u>Conclusions</u></p> <p>Western Power has indicated that oils used in their transformers have not contained polychlorinated biphenyls (PCBs) since 1980, when they were phased out on all Western Power equipment. As this unit appears to have been installed around 1999, it is unlikely that this transformer unit would contain PCBs. Due to the small size of the transformer there appears to be limited potential only for contamination at this site.</p>
2 Garston Way	2052 / 864		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. During 1995, further vegetation clearance appears to have occurred. During 1999, vehicular movements and an unsealed track are apparent around the boundary of the site. Between 1999 and 2000, a small area in the south-west corner of the site is cleared, potentially for parking purposes. In 2000, a crane and other construction vehicles are onsite associated with the construction of the adjacent site in this cleared parking area. The site appears otherwise to have remained relatively unchanged to present, with the exception of occasional vehicular movements and car parking onsite. A sign advertising the lease of this land for use as four hardstand sites for a short term lease of 5 years is noted in the south-eastern corner of the site since 2010. Between September 2011 and December 2011, a hardstand was poured across the entire site. Minor vehicle movements and car parking were noted until approximately April 2012, where the site is utilised as a laydown area to present.</p> <p><u>Conclusions</u></p> <p>Review of DEC BSR information and historic aerial photographs indicates there is a limited potential for contamination at this site, most likely limited to temporary parking of vehicles/materials prior to hardstanding construction.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
1 Garston Way	2052 / 865		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1974 the site was vacant, cleared and appeared to be used for stock grazing. During 1974, the site appears to have been cleared. Between 1995 and 1999 a warehouse and car-parking hardstand has been constructed onsite. The site has remained unchanged to present, but displays frequent vehicle movements (e.g. cars and trucks visiting site). GHD understands that this warehouse is occupied by Hempel Paints Marine and Industrial Services.</p> <p><u>Conclusions</u></p> <p>Review of DEC BSR information and historic aerial photographs indicates a low potential only for warehousing of paint products increasing to moderate or high potential should manufacturing, blending or mixing of paint also have taken place.</p>
2103 Cockburn Rd	2691 / 399	SKM (1994) Robb Jetty Abattoir Site, Hamilton Hill, Phase I Contaminated Site Assessment Draft Report. November 1994.	<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of these sites, as part of the Robb Jetty Abattoir, had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor..</p> <p>2103 Cockburn Rd, 69 Bennett Ave & 79 Bennett Ave: Based on the results of the onsite investigations it was concluded that the provisional exclusion zone relating to a historic bunker oil impact at 82 Bennett Ave impinges upon a small part of 2103 Cockburn Rd, 69 Bennett Ave and 79 Bennett Ave and there should therefore be no groundwater abstraction or recharge within this provisional exclusion zone (note that the zone is provisional as this is subject to amendment). The investigation also identified the presence of localised Asbestos Containing Material (ACM) at 2103 Cockburn Rd. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a Construction Environment Management Plan (CEMP) be developed to manage any future ACM that may be identified during the development works at 2103 Cockburn Rd, 69 Bennett Ave or 79 Bennett Ave. As long as these issues are addressed these sites are considered suitable for proposed mixed use development.</p> <p>2109 McTaggart Cove & 27 Bennett Ave: Based on the results of the onsite investigations it was concluded that these sites were suitable for the proposed development, which includes open space and road reserve. It is noted that ACM was identified on some of the adjacent lots and therefore management measures should be put in place, such as development of a CEMP, to ensure that if ACM is identified during the site development works it is managed appropriately.</p> <p>49 Bennett Ave: Following the onsite investigation it was concluded that this site was suitable for the proposed development, which includes low density residential and road reserve. It is noted that ACM was identified on some of the adjacent lots and therefore management measures should be put in place, such as development of a CEMP, to ensure that if ACM is identified during the site development works it is managed appropriately.</p>
2109 McTaggart Cove	2108 / 146		
27 Bennett Ave	2125 / 967	SKM (2000) Robb Jetty Contamination Study: Final. July 2000.	
49 Bennett Ave	2125 / 971		
69 Bennett Ave	2125 / 974	SKM (2004) Former Robb Jetty Abattoir Site, Groundwater Monitoring Event. January 2004.	
79 Bennett Ave	2125 / 975	GHD (2004) North Coogee Master Plan Area, Groundwater Data Review. GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006. GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Services Phase 2: Desk Based Review, Package 2 – Former Abattoir Area. September 2007. GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010. GHD (2010) Cockburn Coast Detailed Site Investigation, Package 2, Former Abattoir Area, North Coogee. November 2010.	



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
2108 Bennett Ave	2124 / 082	<p>GHD (1996) Robb Jetty Marshalling Yards: Stage III Sampling. April 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards: Site Assessment – Current Status. May 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards Site Assessment: Methodology for Risk Assessment. August 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards – Site Assessment: assessment Report – Part 1. August 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards: Proposed Methodology for Determination of Remediation (or Clean-Up) Goals and Requirements (Part 2). September 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards – Site Assessment: Assessment Report – Part 1. October 1996.</p> <p>GHD (1996) Robb Jetty Clean Up – Part 1: Validation Results. November 1996.</p> <p>GHD (1996) Robb Jetty Marshalling Yards – Site Assessment: Assessment Report – Part 2. December 1996.</p> <p>GHD (1997) Robb Jetty Marshalling Yards – Site Assessment: Addendum to Part 2 Report. April 1997.</p> <p>GHD (1997) Former Robb Jetty Marshalling Yards: Site Management Plan. June 1997.</p> <p>GHD (1998) Robb Jetty: Further Information. January 1998.</p> <p>GHD (1998) Robb Jetty: Groundwater Monitoring. May 1998.</p> <p>GHD (2012) Report for Lot 2108 Bennett Avenue, North Coogee (Part of Former WAGR Marshalling Yards): Preliminary Site Investigation. February 2012.</p> <p>GHD (2012) Report for Lot 2108 Bennett Avenue, North Coogee (Part of Former WAGR Marshalling Yards): Sampling and Analysis Plan. May 2012.</p>	<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p><i>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</i></p> <p>Reason for Classification:</p> <p><i>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</i></p> <p><i>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</i></p> <p><i>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</i></p> <p><i>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</i></p> <p><i>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</i></p> <p><i>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</i></p> <p><i>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</i></p> <p><i>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</i></p> <p><i>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</i></p> <p><i>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</i></p> <p>Action Required:</p> <p><i>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</i></p> <p><u>Onsite Investigations</u></p> <p>GHD has been commissioned to undertake ongoing contaminated sites investigations at Lot 2108 to determine the suitability for the proposed development. These investigations are being audited by a DEC accredited contaminated sites auditor. Onsite investigations have commenced and are expected to be complete by end 2012.</p> <p>GHD is currently undertaking onsite investigations to determine the current status of contamination at the site, however as part of the Preliminary Site Investigation (PSI), GHD undertook a review of all previous investigations that have been undertaken at the site. Previous investigations undertaken at the site identified the presence of two types of contamination at the site:</p> <ul style="list-style-type: none">• A series of small, isolated hot-spots of relatively low level contamination scattered across the site, which were excavated and disposed of to landfill; and• The western portion of the site, which showed significantly elevated levels of principally heavy metal and metalloid contaminants. This contamination was isolated by perimeter fencing and hydromulching of the soil surface. <p>GHD is currently in the process of further assessing the extent of this contamination with respect to suitability for the proposed land use and requirements for further action.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
35 Bennett Ave (Lot 62 Bennett Ave)	2125 / 968		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965 the site was vacant, cleared and appeared to be used for stock grazing. During 1974, the site appears to have been cleared and approximately half of the site was covered by unsealed blue metal gravel until 1999 for car parking purposes, with the other half remaining vacant land. During 1999, the car parking area has been removed and the site remained vacant land. Between January 2002 and October 2003, a commercial building was constructed onsite, including two large sheds and a bitumised car parking area and is understood to have been used for food processing with associated offices and a cold store. The site remains unchanged to present, with the exception of vehicular movement onsite.</p> <p><u>Conclusions</u></p> <p>The DEC does not list food processing as a potentially contaminating activity and potential for contamination associated with stock grazing appears limited. Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
41 Bennett Ave (Lot 63 Bennett Ave)	2125 / 969		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965 the site was vacant, cleared and appeared to be used for stock grazing. During 1974, the site appears to have been cleared and covered by unsealed blue metal gravel from until 1999, for car parking purposes. During 1999, the car parking area has been removed and the site remained vacant land until January 2001, when a white building was constructed onsite. During January 2002, a sealed bitumen car park was constructed along the northern boundary of the site. Following April 2011, the eastern portion of the site appears to have been used as a laydown and vehicle parking area. The site remains unchanged to present, with the exception of vehicular movement. GHD understands that the site is currently occupied by Marine and General Constructions.</p> <p><u>Conclusions</u></p> <p>Potential for contamination associated with stock grazing appears limited. Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
45 Bennett Ave (Lot 64 Bennett Ave)	2125 / 970		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965 the site was vacant, cleared and appeared to be used for stock grazing. During 1974, the site appears to have been cleared and covered by unsealed blue metal gravel until 1999, for car parking purposes. Between February 1995 and May 1999, a green corrugated iron building was constructed in the south-eastern corner of the site and a sealed bitumised car park was constructed in the north-western portion of the site. Landscaping has been introduced on the north and south-western corners of the site and the north-eastern corner remains unsealed yellow sand. During January 2009, sections of the landscaping area are in the process of being removed and by August 2010, it appears that the site is being used as a laydown area for industrial vehicles. The site remains unchanged to present, with the exception of vehicular movements. It is understood this site is operated by ERS Equipment, a plant hire company with limited on site fabrication and sales of bespoke plant/equipment trailers.</p> <p><u>Conclusions</u></p> <p>Potential for contamination associated with stock grazing appears limited. Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
57 Bennett Ave	2125 / 972		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953 the site was vacant, cleared and appeared to be used for stock grazing. During 1965, the site appeared to have two small buildings, located near the eastern boundary and in the centre of the site, with unsealed vehicular tracks leading to the structures. The site remains relatively unchanged until May 1999. The site remains unchanged until October 2003, when a white shed was constructed in the centre of the site, with associated sealed, bitumised car parking area located along the western boundary of the site. The site remains unchanged (with the exception of vehicular movements) until December 2007, where it appears that the site is occupied by Don Vica Gourmet Olives, due to the presence of shipping containers and large orange olive barrels. The site remains unchanged to present, with the exception of movement of shipping containers, olive barrels and vehicles. GHD understands that Don Vica Gourmet Olives currently occupy the site.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
61 Bennett Ave	2125 / 973	<p>SKM (1994) Robb Jetty Abattoir Site, Hamilton Hill, Phase I Contaminated Site Assessment Draft Report. November 1994.</p> <p>SKM (2000) Robb Jetty Contamination Study: Final. July 2000.</p> <p>SKM (2004) Former Robb Jetty Abattoir Site, Groundwater Monitoring Event. January 2004.</p> <p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Services Phase 2: Desk Based Review, Package 2 – Former Abattoir Area. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Cockburn Coast Detailed Site Investigation, Package 2, Former Abattoir Area, North Coogee. August 2012.</p>	<p><u>DEC BSR (DEC3279)</u></p> <p>Awaiting classification.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site, as part of the Robb Jetty Abattoir, had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>Based on the results of the onsite investigations, the site requires limited management in the form of remediation of a localised area of elevated lead concentrations. Management will be implemented as part of the works commissioned by LandCorp to render the site suitable for the proposed development. The onsite investigation also identified the presence of localised Asbestos Containing Materials (ACM). GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works. As long as these issues are addressed the site is considered suitable for the proposed development, which includes low density residential, activity centre and road reserve.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
76 Bennett Ave 82 Bennett Ave	2125 / 976 2125 / 982	<p>SKM (1994) Robb Jetty Abattoir Site, Hamilton Hill, Phase I Contaminated Site Assessment Draft Report. November 1994.</p> <p>SKM (2000) Robb Jetty Contamination Study: Final. July 2000.</p> <p>SKM (2004) Former Robb Jetty Abattoir Site, Groundwater Monitoring Event. January 2004.</p> <p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Services Phase 2: Desk Based Review, Package 2 – Former Abattoir Area. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Cockburn Coast Detailed Site Investigation, Package 2, Former Abattoir Area, North Coogee. August 20</p>	<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p><i>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</i></p> <p>Reason for Classification:</p> <p><i>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</i></p> <p><i>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</i></p> <p><i>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</i></p> <p><i>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</i></p> <p><i>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</i></p> <p><i>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</i></p> <p><i>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</i></p> <p><i>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</i></p> <p><i>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</i></p> <p><i>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</i></p> <p>Action Required:</p> <p><i>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</i></p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of these sites, as part of the Robb Jetty Abattoir, had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>76 Bennett Ave: Based on the results of the onsite investigations, it was concluded that the visual exclusion zone relating to a historic bunker oil impact at 82 Bennett Ave impinges upon part of 76 Bennett Ave and there should therefore be no groundwater abstraction or recharge within this provisional exclusion zone (note that the zone is provisional as this is subject to amendment). The onsite investigation also identified the presence of localised Asbestos Containing Material (ACM) at 76 Bennett Ave. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works at 76 Bennett Ave. As long as these issues are addressed these sites are considered suitable for the proposed development, which includes activity centre, road reserve and open space.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
			<p>82 Bennett Ave: Based on the results of the onsite investigations, it was concluded that a historic bunker oil impact is located at 82 Bennett Ave. Given the presence of this bunker oil impact, GHD was commissioned to undertake additional investigations to confirm the extent of the bunker oil impact and a quantitative risk assessment to identify if the bunker oil impact posed a risk to the identified receptors. The additional investigations concluded that the bunker oil impact is not likely to pose a risk to the identified receptors providing that management measures are implemented with respect to prevention of groundwater abstraction or reinjection within an influencing distance of the bunker oil impact and adoption of appropriate construction/maintenance mitigation measures and materials.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
66 Bennett Ave	2125 / 977	<p>GHD (2010) 66 Bennett Avenue, North Coogee: Preliminary Site Investigation. July 2010.</p> <p>GHD (2010) 66 Bennett Avenue, North Coogee: Hazardous Materials Report. July 2010.</p> <p>GHD (2010) 66 Bennett Avenue, North Coogee: Pre-Demolition Sampling Results. July 2010.</p> <p>GHD (2011) 66 Bennett Avenue, North Coogee: Sampling and Analysis Plan. February 2011.</p> <p>GHD (2011) 66 Bennett Avenue, North Coogee: Detailed Site Investigation. November 2011.</p>	<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p><i>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</i></p> <p>Reason for Classification:</p> <p><i>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</i></p> <p><i>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</i></p> <p><i>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</i></p> <p><i>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</i></p> <p><i>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</i></p> <p><i>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</i></p> <p><i>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</i></p> <p><i>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</i></p> <p><i>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</i></p> <p><i>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</i></p> <p>Action Required:</p> <p><i>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</i></p> <p><u>Onsite Investigations</u></p> <p>Given that this site was formerly used as part of the Robb Jetty Abattoir and Robb Jetty Marshalling Yards, GHD were commissioned by LandCorp to undertake contaminated sites investigations to determine if the former site uses had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>Following the onsite investigations it was concluded that the site was suitable for mixed residential (including residential, parks, recreational open space and/or playing fields), commercial and light industrial land uses. Based on the conclusions of the report, GHD made the following recommendations:</p> <ul style="list-style-type: none">• Should remnant underground services of asbestos construction be identified during the development, management measures including preparation and implementation of a Site Management Plan (SMP) should be undertaken; and• For any groundwater abstraction proposed for development use at the site, consideration of saline intrusion should be included in relevant assessment.



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
50 Bennett Ave	2125 / 978	<p>GHD (1996) Robb Jetty Marshalling Yards – Site Assessment Report Part 1 and 2, report for Westrail.</p> <p>GHD (1997) Robb Jetty Marshalling Yards – Site Management Plan, report for Westrail.</p> <p>GHD (2002) Groundwater Monitoring Robb Jetty: Report of Findings, report for Western Australian Government Railways Commission.</p> <p>GHD (2003) Robb Jetty Marshalling Yards Groundwater Monitoring Report, report for Public Transport Authority.</p> <p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 1 – Lot 111. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Report for Cockburn Coast Detailed Site Investigation: Package 1, Lot 111 Bennett Avenue, North Coogee. May 2012.</p>	<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p><i>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</i></p> <p>Reason for Classification:</p> <p><i>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</i></p> <p><i>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</i></p> <p><i>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</i></p> <p><i>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</i></p> <p><i>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</i></p> <p><i>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</i></p> <p><i>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</i></p> <p><i>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</i></p> <p><i>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</i></p> <p><i>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</i></p> <p>Action Required:</p> <p><i>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</i></p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site, as part of the Robb Jetty Marshalling Yard, had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>Based on the results of the onsite investigations, the site requires limited management in the form of remediation of a localised area of elevated mercury concentrations. Management will be implemented as part of the works commissioned by LandCorp to render the site suitable for the proposed development. The onsite investigation also identified the presence of localised Asbestos Containing Materials (ACM). GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works. As long as these issues are addressed the site is considered suitable for the proposed mixed use development.</p>



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Lot 2120 on plan 22416 (Lot 2120 Bennett Avenue)	LR3112 / 771		<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</p> <p>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</p> <p>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</p> <p>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</p> <p>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</p> <p>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</p> <p>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</p> <p>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</p> <p>Action Required:</p> <p>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</p> <p><u>Aerial Photographs</u></p> <p>During 1953, the site was utilised as a railway yard, with several tracks and trains with carriages intersecting the site. Train tracks dominated the western portion of the site, whilst part of a building was constructed in the eastern portion of the site in 1965. The railway yard and associated infrastructure was removed between 1995 and 2000, and the site had remained vacant to present, with minimal sparse coastal vegetation present onsite.</p> <p><u>Conclusions</u></p> <p>The DEC BSR listed this site as "the site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant." The historical aerial photographs indicate that this site was utilised as a railway prior to 1953 until its decommissioning during 1995 to 2000. The DEC list railways as a potentially contaminating activity, additionally a review of DEC BSR information and historic aerial photographs indicates that there appears to be potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
74 Bennett Ave	2125 / 979		<p data-bbox="1243 331 1472 359"><u>DEC BSR (11/90/102)</u></p> <p data-bbox="1243 373 2006 401">Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p data-bbox="1243 415 1635 443">Nature and Extent of Contamination:</p> <p data-bbox="1243 457 2237 485"><i>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</i></p> <p data-bbox="1243 499 1525 527">Reason for Classification:</p> <p data-bbox="1243 541 2671 590"><i>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</i></p> <p data-bbox="1243 604 2653 680"><i>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</i></p> <p data-bbox="1243 695 2689 770"><i>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</i></p> <p data-bbox="1243 785 2689 945"><i>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</i></p> <p data-bbox="1243 959 2683 1035"><i>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</i></p> <p data-bbox="1243 1050 2674 1098"><i>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</i></p> <p data-bbox="1243 1113 2555 1140"><i>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</i></p> <p data-bbox="1243 1155 2683 1230"><i>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</i></p> <p data-bbox="1243 1245 2662 1272"><i>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</i></p> <p data-bbox="1243 1287 2671 1335"><i>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</i></p> <p data-bbox="1243 1350 1427 1377">Action Required:</p> <p data-bbox="1243 1392 2674 1470"><i>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</i></p> <p data-bbox="1243 1484 1436 1512"><u>Aerial Photographs</u></p> <p data-bbox="1243 1526 2674 1602"><i>Prior to May 1999, the site remained a part of the abattoir infrastructure. It is unclear whether there are only trees or the electrical pad-mount TX transformer unit onsite from 1999 to 2001, however by January 2002; the electrical pad-mount TX transformer unit is clearly visible in the better quality aerial. The site remained unchanged to present.</i></p> <p data-bbox="1243 1617 1368 1644"><u>Conclusions</u></p> <p data-bbox="1243 1659 2674 1766"><i>The DEC BSR listed this site as "the site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant)." However, the site actually formed part of the former abattoir infrastructure, rather than the railway yard.</i></p> <p data-bbox="1243 1780 2689 1885"><i>Western Power has indicated that oils used in their transformers have not contained polychlorinated biphenyls (PCBs) since 1980, when they were phased out on all Western Power equipment. As this unit appears to have been installed around 1999, it is unlikely that this transformer unit would contain PCBs. Furthermore, site investigations undertaken at 66 Bennett Ave (located to the north of 74 Bennett Ave) included targeted sampling within the vicinity of this transformer. This sampling did not detect any contamination associated with the electrical transformer.</i></p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
48 Bennett Ave	2125 / 980		<p data-bbox="1243 327 2674 380">Based on review of DEC BSR information and historic aerial photographs there appears to be very limited potential only for contamination at this site.</p> <p data-bbox="1243 401 1472 426"><u>DEC BSR (DMO 1475)</u></p> <p data-bbox="1243 443 1887 468">Not reported to DEC as a known or suspected contaminated site.</p> <p data-bbox="1243 485 1436 510"><u>Aerial Photographs</u></p> <p data-bbox="1243 527 2674 600">Prior to 1953, the site was vacant, cleared and appeared to be used for stock grazing. From 1965, the site became a part of the Bennett Avenue road reserve. This site is located next to a railway yard, with several tracks and trains with carriages intersecting the site. Around May 1999, an electrical pad-mount TX transformer unit was constructed onsite. The site remained unchanged to present.</p> <p data-bbox="1243 617 1368 642"><u>Conclusions</u></p> <p data-bbox="1243 659 2674 732">Western Power has indicated that oils used in their transformers have not contained polychlorinated biphenyls (PCBs) since 1980, when they were phased out on all Western Power equipment. As this unit appears to have been installed around 1999, it is unlikely that this transformer unit would contain PCBs. Due to the small size of the transformer there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
Lot 2121 on plan 22417	LR3112 / 772		<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</p> <p>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</p> <p>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</p> <p>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</p> <p>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</p> <p>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</p> <p>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</p> <p>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</p> <p>Action Required:</p> <p>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was mostly cleared and vacant land, with a building present on the western boundary of the site. During 1965, there was evidence of development of a railway corridor in and around the site. By 1974, it appeared that the building on the western boundary had been removed and replaced with a new building on the southern boundary during 1977. Growth of vegetation along the northern portion of the site was observed in 1979 and during 1985 that part of the site was used for storage. The site was cleared between 1995 and 2000. By 2006, a drain/bund area for surface water runoff was constructed, which appears to be lined with soil material (possibly clay) and is fenced off with the only entrance being on the northern fence via a locked gate. The site remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>The DEC BSR listed this site as "the site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant." The historical aerial photographs indicate that this site was utilised as a railway prior to 1953 until its decommissioning during 1995 to 2000. The DEC list railways as a potentially contaminating activity, additionally a review of DEC BSR information and historic aerial photographs indicates that there appears to be potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
14 Bennett Ave	2125 / 993		<p><u>DEC BSR (DMO 3355)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1974, the site was vacant, cleared and appeared to be used for stock grazing. From 1981, the site became a part of the Bennett Avenue road reserve. Around May 1999, an electrical pad-mount TX transformer unit was constructed onsite. The site remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>Western Power has indicated that oils used in their transformers have not contained polychlorinated biphenyls (PCBs) since 1980, when they were phased out on all Western Power equipment. As this unit appears to have been installed around 1999, it is unlikely that this transformer unit would contain PCBs. Due to the small size of the transformer there appears to be limited potential only for contamination at this site.</p>
3 Darkan Ave	2186 / 665		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant and appeared to be covered by sparse coastal vegetation. In the 1981 aerial photograph the site appears to be used for stock grazing. The site appears to be undergoing earthworks in the 1995 aerial photograph. Construction of a warehouse has commenced in the 2000 aerial photograph. This warehouse is evident in all subsequent aerial photographs. GHD understands this warehouse is currently used by Fremantle City Cold Stores.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
13 Rollinson Rd	2689 / 288		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981, the site was vacant and appeared to be covered by sparse coastal vegetation. The site was cleared of vegetation in 1995. The site remains vacant to present, the only notable changes being that the vegetation has slowly grown sparse coastal vegetation, vehicular movements across the site (in the form of tracks) and minor illegal dumping onsite near the tracks.</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>
16 Garston Way	2689 / 289		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1974, the site was vacant and appeared to be covered by sparse coastal vegetation. The site appears to have been partially cleared for agricultural use in 1974, until 1995, where vegetation was completely cleared. During 1999, the site was aligned to Garston Way and Darkan Avenue, which were constructed and bitumised during this time. The site remains vacant to present, the only notable changes being that the vegetation has slowly grown sparse coastal vegetation and vehicular movements across the site (in the form of tracks).</p> <p><u>Conclusions</u></p> <p>Based on a review of DEC BSR information and historic aerial photographs there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
43 Rollinson Rd (Lot 69 Rollinson Rd)	2689 / 286		<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</p> <p>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</p> <p>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</p> <p>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</p> <p>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</p> <p>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</p> <p>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</p> <p>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</p> <p>Action Required:</p> <p>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</p> <p><u>Aerial Photographs</u></p> <p>In 1953, there majority of the site remains sparse coastal vegetation, with a building in the south-east corner of the site. In 1965, an additional building appears onsite in the north-west corner of the site. The site appears to be being utilised as a railway marshalling yard, with several railway tracks located across the site and a train with carriages is present near south-eastern building. There are also stock yards evident in the eastern portion of the site in this photograph. During 1974, the onsite building in the north-west corner appear to have been removed, with trains and carriages remaining stored or in use onsite. During 1981, there appears to be multiple train lines visible intersecting the site, with two small buildings south-eastern corner. By May 1999, all onsite railways appear to have been removed and the site has been cleared (with the main railway remaining to the west of the site). The site has remained cleared to present, with sparse coastal vegetation growing back.</p> <p><u>Conclusions</u></p> <p>The DEC BSR listed this site as "the site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant." The historical aerial photographs indicate that this site was utilised as a railway prior to 1953 until its decommissioning during 1995 to 2000. The DEC list railways as a potentially contaminating activity, additionally a review of DEC BSR information and historic aerial photographs indicates that there appears to be potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
Lot 70 Bennett Ave (Lot 70 on plan 55128)	2689 / 287		<p><u>DEC BSR (11/90/102)</u></p> <p>Classification: 16/07/2012 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Metals and hydrocarbons are present in soils and groundwater at various locations beneath the site.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC prior to the commencement of the Contaminated Sites Act 2003 and portions of it were reported again in May 2007, after the commencement of the Act. The classification is based on information submitted to DEC by May 2007.</p> <p>The site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant.</p> <p>The site was reported because contamination assessments carried out in the 1900s to 2007 found soil and groundwater were contaminated with metals and hydrocarbons from historical land uses at the site. Reports for investigations carried out up to 1998 have been submitted to DEC. DEC understands that additional desktop investigations were carried out in 2006 and 2007; and further site investigations are currently underway.</p> <p>Contaminated fill soils were reportedly imported to the site in the 1970s and 1980s. Soil investigations found that metals (arsenic, manganese, lead, zinc and copper) were present in soils at concentrations exceeding Health-based Investigation Levels for residential land use and exceeding Ecological Investigation Levels, as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment and Conservation, 2010). Lead was present in soils at concentrations exceeding Health-based Investigation Levels for commercial/industrial land use. Hydrocarbons (such as from fuel oil) are present in soils at concentrations potentially exceeding Health-based Investigation Levels for all land uses and exceeding Ecological Investigation Levels (DEC, 2010).</p> <p>Groundwater investigations carried out up to 1998 found copper, zinc and lead were present in groundwater at concentrations exceeding aquatic ecosystems – marine guidelines, as published in 'Assessment Levels for Soil, Sediment and Water' (DEC, 2010). Hydrocarbons (such as from petrol/diesel/oil) were also present in groundwater.</p> <p>DEC understands that some remedial works have been carried out at the site, such as capping contaminated soils onsite; however, evidence of the success of remedial works in a suitable validation report is yet to be submitted to DEC.</p> <p>As the site has only been partially investigated, a comment cannot be made on the suitability of the site as a whole for any land use.</p> <p>As there are grounds to indicate possible contamination of the site and soil and groundwater have not been fully investigated, and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p>A memorial stating the site's classification has been placed on the certificate of title, and will notify any prospective owners of the contamination status of the site.</p> <p>Action Required:</p> <p>Further soil and groundwater investigations are required to adequately delineate and characterise the nature and extent of soil and groundwater contamination across the site. Investigations should meet the standards outlined in the DEC's Contaminated Sites Management Series of guidelines.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was already utilised as a railway corridor in the central and eastern portions of the site, with the western portion remaining undeveloped and covered with sparse, coastal vegetation. During 1965, there was evidence of development of a railway corridor intersecting the site. Railway lines intersect the central portion of the site, whilst railway cars are visible on railway lines in the eastern portion of the site. There are also stock yards evident in the eastern portion of the site in this photograph. By 1974, it appeared that the majority of buildings surrounding the site have been removed and replaced with new buildings between 1974 and 1977. The site was utilised as a railway corridor for the next approximately 20 years, with minor changes to infrastructure. The railway was decommissioned and cleared between 1995 and 2000, and has remained vacant land to present.</p> <p><u>Conclusions</u></p> <p>The DEC BSR listed this site as "the site was used as a railway yard, which is a land use that has the potential to cause contamination as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). DEC understands that the site is proposed for redevelopment and is currently vacant." The historical aerial photographs indicate that this site was utilised as a railway prior to 1953 until its decommissioning during 1995 to 2000. The DEC list railways as a potentially contaminating activity, additionally a review of DEC BSR information and historic aerial photographs indicates that there appears to be potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
11 Garston Way	2689 / 290		<p><u>DEC BSR (DEC4271)</u></p> <p>Classification: 08/02/2008 - Report not substantiated</p> <p>Nature and Extent of Contamination:</p> <p>Landfill comprising of seaweed and shells have been identified on the site's surface.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by 18 May 2007.</p> <p>The site has historically been used for cattle grazing.</p> <p>Soil and groundwater investigations have not been carried out and the quality of soil and groundwater beneath the site are unknown.</p> <p>As a risk assessment has not been carried out, DEC cannot comment on the suitability of the Site for the proposed residential use.</p> <p>A site inspection was performed by Golder Associates which reported the visual identification of landfill comprising seaweed and shells on the surface.</p> <p>Based on a preliminary site investigation, there is no evidence to suggest that soils or groundwater/surface water of the site are potentially contaminated.</p> <p>The report of a known or suspected contaminated site, in conjunction with DEC enquiries of the site, provides insufficient grounds to indicate that possible contamination of the site is present from the current or historical land use. As such, the site is classified as 'report not substantiated'.</p> <p><u>Aerial Photographs</u></p> <p>The site appears to be used for agricultural purposes during the 1950s to the 1980s, with possible fencing and stock evident in some aerial photographs. The site has been disused since the mid-1990s. There is some evidence of vehicle movement (i.e. tracks) across the site in the 2004 to 2009 aerial photographs. There are no other notable features in any of the aerial photographs available for review.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs there appears to be limited potential only for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
9 Garston Way	2689 / 291		<p><u>DEC BSR (DEC4271)</u></p> <p>Classification: 08/02/2008 - Report not substantiated</p> <p>Nature and Extent of Contamination:</p> <p>Landfill comprising of seaweed and shells have been identified on the site's surface.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by 18 May 2007.</p> <p>The site has historically been used for cattle grazing.</p> <p>Soil and groundwater investigations have not been carried out and the quality of soil and groundwater beneath the site are unknown.</p> <p>As a risk assessment has not been carried out, DEC cannot comment on the suitability of the Site for the proposed residential use.</p> <p>A site inspection was performed by Golder Associates which reported the visual identification of landfill comprising seaweed and shells on the surface.</p> <p>Based on a preliminary site investigation, there is no evidence to suggest that soils or groundwater/surface water of the site are potentially contaminated.</p> <p>The report of a known or suspected contaminated site, in conjunction with DEC enquiries of the site, provides insufficient grounds to indicate that possible contamination of the site is present from the current or historical land use. As such, the site is classified as 'report not substantiated'.</p> <p><u>Aerial Photographs</u></p> <p>The site appears to be used for agricultural purposes during the 1950s to the 1980s, with possible fencing and stock evident in some aerial photographs. The site has been disused since the mid-1990s. There is some evidence of vehicle movement (i.e. tracks) across the site in the 2004 to 2009 aerial photographs. There are no other notable features in any of the aerial photographs available for review.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs there appears to be limited potential only for contamination at this site.</p>
2016 Cockburn Rd	LR3146 / 794		<p><u>DEC BSR (DMO 1475)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1981 the site was vacant, cleared and appeared to be used for stock grazing. During 1985, there is evidence of soil disturbance and by 1995, it is appears that the site was being utilised as a drain/bund area for surface water runoff. It appears to have been lined with a soil material (possibly clay). The site remains unchanged to present, the only exception being the dense regrowth of coastal vegetation.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs there appears to be limited potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
Lot 1957 on plan 205558 Lot 1818 on plan 205891 Lot 1759 on plan 240202	LR3139 / 029 LR3139 / 028 LR3139 / 027	<p>ENV (2007) Initial Investigation of Point Catherine Dunes North Coogee. February 2007.</p> <p>ENV (2009) Part of WAPC Reserve 44945, North Coogee, WA: Detailed Site Investigation. June 2009.</p> <p>360 Environmental Pty Ltd (2009) WAPC Reserve 44945, North Coogee, WA: Tier 2 Health Risk Assessment. October 2009.</p> <p>RPS (2020) Robb Road Soils Investigation. March 2010.</p> <p>RPS (2010) Robb Road Groundwater Reinjection Pipeline, North Coogee: Construction Phase. May 2010.</p> <p>RPS (2010) Groundwater Interception Drain 2009-21010 Monitoring Report: Port Coogee Project. October 2010.</p> <p>GHD (2011) Report for North Coogee: Preliminary Site Investigation. March 2011.</p> <p>GHD (2011) Report for North Coogee: Sampling and Analysis Plan. March 2011.</p> <p>GHD (2012) Report for 24787R McTaggart Cover and 2110L Bennett Avenue, North Coogee: Detailed Site Investigation. May 2012.</p>	<p><u>DEC BSR (DEC5859)</u></p> <p>Awaiting classification.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by the City of Cockburn to undertake contaminated sites investigations to determine if the former use of these sites had resulted in contamination. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>This investigation identified the presence of isolated elevated lead concentrations within the surface and subsurface soils at the site. The elevated concentrations were generally associated with slag material associated with the former ANI Bradken Foundry. Asbestos Containing Material (ACM) fragments were also identified at the site. During onsite investigations, <i>E.coli</i> was identified within groundwater beneath the site, which may limit the use of groundwater. Based on the results of the onsite investigations, GHD recommended that a Site Management Plan (SMP) be prepared to address potential human health risks associated with contamination at the site and that groundwater use be managed to limit the exposure to <i>E.coli</i>.</p>
2064 Robb Rd	LR3093 / 698	<p>ENV (2007) Initial Investigation of Point Catherine Dunes North Coogee. February 2007.</p> <p>ENV (2009) Part of WAPC Reserve 44945, North Coogee, WA: Detailed Site Investigation. June 2009.</p> <p>360 Environmental Pty Ltd (2009) WAPC Reserve 44945, North Coogee, WA: Tier 2 Health Risk Assessment. October 2009.</p> <p>RPS (2020) Robb Road Soils Investigation. March 2010.</p> <p>RPS (2010) Robb Road Groundwater Reinjection Pipeline, North Coogee: Construction Phase. May 2010.</p> <p>RPS (2010) Groundwater Interception Drain 2009-21010 Monitoring Report: Port Coogee Project. October 2010.</p> <p>GHD (2011) Report for North Coogee: Preliminary Site Investigation. March 2011.</p> <p>GHD (2011) Report for North Coogee: Sampling and Analysis Plan. March 2011.</p> <p>GHD (2012) Report for 24787R McTaggart Cover and 2110L Bennett Avenue, North Coogee: Detailed Site Investigation. May 2012.</p>	<p><u>DEC BSR (DMO 7241)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by the City of Cockburn to undertake contaminated sites investigations to determine if the former use of these sites had resulted in contamination. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>This investigation identified the presence of isolated elevated lead concentrations within the surface and subsurface soils at the site. The elevated concentrations were generally associated with slag material associated with the former ANI Bradken Foundry. Asbestos Containing Material (ACM) fragments were also identified at the site. During onsite investigations, <i>E.coli</i> was identified within groundwater beneath the site, which may limit the use of groundwater. Based on the results of the onsite investigations, GHD recommended that a Site Management Plan (SMP) be prepared to address potential human health risks associated with contamination at the site and that groundwater use be managed to limit the exposure to <i>E.coli</i>.</p>



Lot ID	Certificate of Title (Volume / Folio)	Contaminated Sites Investigation	Previous/Known Information
Lot 2110 on plan 219369	2124 / 083	<p>ENV (2007) Initial Investigation of Point Catherine Dunes North Coogee. February 2007.</p> <p>ENV (2009) Part of WAPC Reserve 44945, North Coogee, WA: Detailed Site Investigation. June 2009.</p> <p>360 Environmental Pty Ltd (2009) WAPC Reserve 44945, North Coogee, WA: Tier 2 Health Risk Assessment. October 2009.</p> <p>RPS (2020) Robb Road Soils Investigation. March 2010.</p> <p>RPS (2010) Robb Road Groundwater Reinjection Pipeline, North Coogee: Construction Phase. May 2010.</p> <p>RPS (2010) Groundwater Interception Drain 2009-21010 Monitoring Report: Port Coogee Project. October 2010.</p> <p>GHD (2011) Report for North Coogee: Preliminary Site Investigation. March 2011.</p> <p>GHD (2011) Report for North Coogee: Sampling and Analysis Plan. March 2011.</p> <p>GHD (2012) Report for 24787R McTaggart Cover and 2110L Bennett Avenue, North Coogee: Detailed Site Investigation. May 2012.</p>	<p><u>DEC BSR (11/90/110 and 2011/9783)</u></p> <p>Classification: 09/09/2009 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Hydrocarbons including fuel oils, and heavy metals including cadmium, copper and zinc were identified in surface soils to the west of Robb Road, extending approximately 200 m north of McTaggart Cover. Heavy metals, including arsenic, chromium, copper, lead, manganese, nickel and zinc were also identified in soils north of Rollinson Road.</p> <p>Reason for Classification:</p> <p>The site was originally reported to the DEC prior to the commencement of the Contaminated Sites Act 2003. A portion of the site, north of Rollinson Road, was reported again on 26 March 2009. The site classification is based on information submitted to DEC by August 2009.</p> <p>The site comprises Lot 2106, a portion of railway reserve extending north from McTaggart Cover for approximately 1.2 km, as well as Lot 2110, which lies directly west of the railway reserve, and includes Robb Road.</p> <p>Part of the site was historically occupied by the Robb Jetty Marshalling Yards, and stormwater drainage from an abattoir further east was also discharged to the site. Railway yards and abattoirs are land uses that have the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).</p> <p>The then Department of Commerce and Trade commissioned a soil investigation of the site in 1996 to provide information for its redevelopment for passive recreational purposes including a dual use pedestrian and cycle path, access road and car park. The soil investigation identified that hydrocarbons (such as fuel oils and combustion residues) were present in surface soils near the railway tracks at concentrations exceeding Ecological Investigation Levels (EILs) and Health-based Investigation Levels for parks and recreational land use (HIL-E), as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003). Hydrocarbons, cadmium, copper and zinc were also present in near surface soils at the former abattoir stormwater discharge and rail wagon washdown areas at concentrations exceeding EILs.</p> <p>DEC was informed in March 2009 that metals had been identified in soil in the northern portion of Lot 2110, north of Rollinson Road, at concentrations exceeding EILs and, in some cases, HIL-E. DEC understands that further soil investigations are underway in this area, and is awaiting submission of the relevant reports.</p> <p>Soil sampling undertaken within the railway reserve (Lot 2106) just north of Rollinson Road in August 2008 and March 2009 identified lead in soil exceeding EILs but below Health-based Investigation Levels for commercial/industrial land use (HIL-F).</p> <p>Groundwater investigations have not been carried out, and the quality of groundwater beneath the Site is unknown.</p> <p>The 1996 investigation report proposed that the identified impacted soils be excavated and sent for off-site disposal to an appropriately licenced landfill facility and that validation of the resultant excavations be carried out prior to backfilling. By the date of classification, DEC had not received a suitable validation report confirming that the proposed remedial actions had been successfully implemented.</p> <p>As there are grounds to indicate possible contamination of the site, and since further investigation of soil and groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value are required to determine the contamination status of the site, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by the City of Cockburn to undertake contaminated sites investigations to determine if the former use of these sites had resulted in contamination. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>This investigation identified the presence of isolated elevated lead concentrations within the surface and subsurface soils at the site. The elevated concentrations were generally associated with slag material associated with the former ANI Bradken Foundry. Asbestos Containing Material (ACM) fragments were also identified at the site. During onsite investigations, <i>E.coli</i> was identified within groundwater beneath the site, which may limit the use of groundwater. Based on the results of the onsite investigations, GHD recommended that a Site Management Plan (SMP) be prepared to address potential human health risks associated with contamination at the site and that groundwater use be managed to limit the exposure to <i>E.coli</i>.</p>



Table 2 Hilltop and Emplacement Crescent

Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
136 Cockburn Rd	1205 / 021		<p><u>DEC BSR</u></p> <p>Awaiting results of BSR search.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1974, vehicular movement onsite are visible (car tracks). The site remains unchanged until 1995, where it appears that vegetation in the western portion of the site has been burnt. The site remains unchanged again until 2001, where it has been cleared of all vegetation. Construction is underway in 2002, with the concrete pads of building visible and movement of sand. In 2003, there appears to be three 'pits' in the western portion of the site, and two buildings onsite. A large industrial shed dominates the central portion of the site and a smaller, presumably administration building resides along the eastern boundary. There are at least two electrical towers located onsite. The entire site is bitumised and car parking bays are visible. A small red brick building appears in the north-western corner of the site in 2007 and the 'pits' become vegetated around the edges. By 2009, an extension has been constructed on the central shed, extending the shed to the northern boundary. The site remains unchanged to present. Quickstep Holdings Ltd and Quickstep Technology Pty Ltd are the current site occupiers, which is an accredited manufacturing facility for the production engineering, manufacture and testing of advanced composite components to aerospace and defence-quality standards.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be potential for contamination at this site. Further investigation would be required to determine level, if any, of contamination present at the site.</p>
21 Cockburn Rd (142 Cockburn Rd)	1275 / 714		<p><u>DEC BSR</u></p> <p>Awaiting results of BSR search.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, the site has been cleared of vegetation and there is evidence of excavations onsite. Minor infrastructure has been constructed on the western portion of the site in 1974, in addition to a bunded or retained area near the western boundary of the site. The 1977 aerial features an excavation in the eastern portion of the site. During 1981, the western portion of the site appears to have been used as a tip site, with dumped waste or materials dominating the western portion of the site. The majority of these materials have been removed by 1985, with only minor materials present around the infrastructure. The eastern portion of the site appears to have been covered in small sand piles, potentially to refill the excavated sand. The 1995 aerial reinforces this notion, as the eastern portion of the site appears to have been refilled to the surface level of the remainder of the site. The entire site appears to have been utilised for sparse, surficial dumping in 2000, however by 2001, the eastern portion of the site has been cleared and by 2003, the entire site has been cleared. During 2009, there was vehicular activity onsite (car parking). A building was constructed onsite during 2010, two buildings were constructed on the south-western boundary and one building was constructed near the north-western boundary (all with blue roofs). A small building was added to the west of the two buildings on the south-western boundary in late 2010.</p> <p>The current and historical land uses of the site are unknown.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR Information and aerial photographs, there appears to be potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
146 Cockburn Rd (Lot 22 Cockburn Rd)	1277 / 291		<p data-bbox="1389 331 1611 359"><u>DEC BSR (DEC5596)</u></p> <p data-bbox="1389 373 1611 401">Awaiting classification.</p> <p data-bbox="1389 415 1581 443"><u>Aerial Photographs</u></p> <p data-bbox="1389 449 2543 604">Prior to 1953, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, the western portion of the site is partially cleared and a building appears to have been constructed near Cockburn Road. By 1974, one large and two medium sized industrial buildings have been constructed onsite. An additional medium-sized building has been constructed to the east of the other buildings. During 1995, the site has been partially bitumised including car parking areas near Cockburn Road. Evidence of the site being used as a laydown area is visible during 2004. The site remains unchanged to present.</p> <p data-bbox="1389 619 2543 722">SCHÜTZ DSL Group (Coogee Drums) are the current site occupiers, which are a leading international producer of high-quality packaging systems, offering a range of products for liquid and dry filling goods, such as intermediate bulk containers, stainless steel units and mild grease units, drums, small volume refillable containers and reconditioned steel drums.</p> <p data-bbox="1389 737 1670 764"><u>City of Cockburn Information</u></p> <p data-bbox="1389 770 2543 848">Information provided by the City of Cockburn indicates that this site has been occupied by SCHÜTZ DSL Group for a number of years and is used for drum storage and cleaning. The use of this site may have resulted may have resulted in some chemical spillages.</p> <p data-bbox="1389 863 1516 890"><u>Conclusions</u></p> <p data-bbox="1389 896 2543 1029">The DEC list the current land use of chemical manufacturing, blending or mixing (plastics), drum or tank re-conditioning or recycling facility and steel works as potentially contaminating activities. Based on a review of the DEC BSR information and aerial photographs, there appears to be a moderate potential for contamination at this site, however GHD understands that the current site owners have commissioned WSP to undertake contaminated site investigations and remediation at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
25 Cockburn Rd	1369 / 924		<p data-bbox="1389 331 1611 357"><u>DEC BSR (DEC3281)</u></p> <p data-bbox="1389 373 2154 399">Classification: 15/05/2012 – Possibly contaminated – investigation required</p> <p data-bbox="1389 415 1783 441">Nature and Extent of Contamination:</p> <p data-bbox="1389 457 1911 483">Soils at the site have been impacted with brine salts.</p> <p data-bbox="1389 499 1670 525">Reason for Classification:</p> <p data-bbox="1389 541 2481 594">The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by May 2007.</p> <p data-bbox="1389 611 2525 684">The site has historically been used as a tannery since the 1970s. This is a land use that has the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).</p> <p data-bbox="1389 701 2531 774">The site was reported because groundwater impacts were suspected to have originated from the evaporation pond that has been located on the eastern part of the site for more than 30 years. The report also cited visual indications that brine salts, such as are used in the tanning process, had impacted soil at the site.</p> <p data-bbox="1389 791 2510 844">No soil or groundwater investigations have been carried out, and the quality of soil and groundwater beneath the site are unknown.</p> <p data-bbox="1389 861 2519 934">A risk assessment has not been carried out to determine the potential risk posed by the substances of concern at the site to human health, the environment or any environmental value. As a risk assessment has not been carried out, DEC cannot comment on the suitability of the site for any use.</p> <p data-bbox="1389 951 2531 1056">As there are grounds to indicate possible contamination of the site, and since suitable investigation of soil and groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, further works are required to determine the contamination status of the site and the site is therefore classified as 'possibly contaminated – investigation required'.</p> <p data-bbox="1389 1073 2525 1125">When the results of soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p data-bbox="1389 1142 1584 1167"><u>Aerial Photographs</u></p> <p data-bbox="1389 1184 2531 1425">Prior to 1953, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, the western portion of the site is partially cleared and an industrial building appears to have been constructed near Cockburn Road. By 1981, development of the industrial building is apparent, with a bitumised area now around the edge of the building. There appears to be a bunded area towards the central to eastern portion of the site. This bunded area appears to hold liquid and in the 1995 aerial, there appears to be a disturbance in the bunded liquid, potentially due to the addition of liquid or other soil materials. Additionally, there also appear to be trucks onsite. By 2005, this blue bunded water now appears to be brown whereas in 2009, it appears to be white before returning to blue in 2010. The site remains unchanged to present, apart from the bunded area being disturbed and changing colour. Perth Hide and Skin Exports are the current site occupiers, which consists of a tannery for cattle and sheep skins.</p> <p data-bbox="1389 1442 1679 1467"><u>City of Cockburn Information</u></p> <p data-bbox="1389 1484 2496 1537">Information provided by the City of Cockburn indicates that this site has operated as a skin and hide processing business for a number of years.</p> <p data-bbox="1389 1554 1516 1579"><u>Conclusions</u></p> <p data-bbox="1389 1596 2490 1669">The DEC list the current land use of a tannery as a potentially contaminating activity. Based on a review of the DEC BSR information and aerial photographs, there appears to be moderate potential for contamination at this site. Further investigation would be required to determine level, if any, of contamination present at the site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
15 Cockburn Rd	357 / 75A		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1977, there is evidence of vehicular movement in the eastern portion of the site and in 1979, a large track is apparent near the western boundary of the site, running in a north to south orientation and by 1995, there are a few additional tracks intersecting the site. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be limited potential only for contamination at this site.</p>
29 Cockburn Rd	1220 / 271		<p><u>DEC BSR (DEC1446)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, two large buildings have been constructed in the centre of the site and the western portion of the site has been subjected to clearing. The use of the buildings is unknown. In 1981, two smaller buildings have been constructed on either side of one of the existing buildings. It also appears that an area to the front of the western building has been cleared (presumably for car parking purposes). It appears that the buildings have been decommissioned and removed by 1995. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Due to the relatively small scale of development indicated at this site the potential for contamination to be present may be limited in terms of potential scale and severity, however as the nature of use is not known, this is uncertain. Further investigation would be required to determine level, if any, of contamination present at the site.</p>
17 Cockburn Rd	1203 / 190		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, the site has evidence of vehicular movement across the western portion. An industrial building has been constructed in the centre of the site, in a north to south orientation. GHD understands that this building was part of the former Kreglinger Tannery. During 1977, a car parking area in the western portion of the site has been constructed. Extensive clearing in the western portion of the site is noted in 1995. The site remains unchanged to present, with the exception of the regrowth of coastal vegetation in the eastern portion of the site. This site appears to be currently inside the same fence as the neighbouring property to the north, Inside Out Direct Pty Ltd, which manufacture non-upholstered wood household furniture. Potentially, this industrial building may be associated with this company, due to them sharing a fence and also due to the orientation of the building and its distance from Cockburn Rd.</p> <p><u>Conclusions</u></p> <p>Former use of the site includes a tannery. The DEC list the current land use of a tannery as a potentially contaminating activity. Based on a review of available information and aerial photographs, there appears to be moderate potential for contamination at this site. Further investigation would be required to determine level, if any, of contamination present at the site.</p>



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Lot 18 on diagram 15317	1301 / 640		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1977, there is evidence of vehicular movement onsite and by 1995, the site has been partially cleared. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be limited potential only for contamination at this site.</p>
32 Cockburn Rd 31 Cockburn Rd	1272 / 721 1258 / 802	<p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 3 – Land East of Cockburn Road. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2011) Report for Cockburn Coast Detailed Site Investigation, Package 3: Lot 126 Emplacement Crescent and Lots 31 and 32 Cockburn Road, North Coogee. October 2011.</p>	<p><u>DEC BSR (DEC3277)</u></p> <p>Awaiting classification.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>The onsite investigation also identified the presence of localised Asbestos Containing Material (ACM) at 32 Cockburn Rd. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a Construction Environment Management Plan (CEMP) be developed to manage any future ACM that may be identified during the development works at 32 Cockburn Rd and 31 Cockburn Rd. As long as these issues are addressed these sites are considered suitable for the proposed development, which includes terraced house/detached, low density residential, medium to high density residential and road reserve.</p>
30 Cockburn Rd	1267 / 155		<p><u>DEC BSR (DEC1446)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, a building has been constructed in the centre of the site, with four small, vertical trenches appearing in the western portion of the site. With the exception of increased vehicular movement, there are no observable changes until 1995, where the buildings onsite appear to have been removed and the site becomes vacant. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Due to the relatively small scale of development indicated at this site the potential for contamination to be present may be limited in terms of potential scale and severity, however as the nature of use is not known, this is uncertain. Further investigation would be required to determine level, if any, of contamination present at the site.</p>
208 Cockburn Rd	1883 / 623		<p><u>DEC BSR (DMO 4045)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site remains vacant and undeveloped, consisting of sparse coastal vegetation. By 1965, there is evidence of vehicular movement onsite, as well as some vehicles being parked onsite. With the exception of increased vehicular movement, there are no observable changes until 1985, where a track situated parallel and close to the northern boundary had been bitumised, leading to the industrial buildings to the north of the site. A small car parking area near the centre of the site has additionally been bitumised. During 1995, the western half of this site appears to have been burnt and the building to the north of this site has been removed. It is assumed that the bitumen onsite is now disused. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Due to the relatively small scale of development indicated at this site the potential for contamination to be present may be limited in terms of potential scale and severity, however as the nature of use is not known, this is uncertain. Further investigation would be required to determine level, if any, of contamination present at the site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
123 Cockburn Rd	2052 / 986		<p data-bbox="1389 331 1620 359"><u>DEC BSR (DMO 1476)</u></p> <p data-bbox="1389 373 2036 401">Not reported to DEC as a known or suspected contaminated site.</p> <p data-bbox="1389 415 1584 443"><u>Aerial Photographs</u></p> <p data-bbox="1389 457 2534 590">A building is present onsite in 1953, potentially associated with the adjacent railway reserve. By 1965, this building has been replaced with another building, consisting of four adjoining buildings (three orientated west to east and one orientated north to south). GHD understands that this building was part of the former Kreglinger Tannery. The site has remained unchanged to present, with the exception of the eastern portion of the site being mostly cleared in 1995 and experiencing regrowth in subsequent years.</p> <p data-bbox="1389 604 2534 709">This site is currently occupied by Inside Out Direct Pty Ltd, which manufacture non-upholstered wood household furniture. It is unknown how long they have been the site occupants. Potentially, Inside Out Direct Pty Ltd may be associated the building to the south of this site, due it being located inside the same fence as the neighbouring property and also due to the orientation of the of the neighbouring building and its distance from Cockburn Road.</p> <p data-bbox="1389 724 1516 751"><u>Conclusions</u></p> <p data-bbox="1389 766 2534 869">Former use of the site includes a tannery. The DEC list the current land use of a tannery as a potentially contaminating activity. Based on a review of available information and aerial photographs, there appears to be moderate potential for contamination at this site. Further investigation would be required to determine level, if any, of contamination present at the site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
Lot 2106 on plan 219339 (314 McTaggart Cove, North Coogee)	LR3037 / 854		<p><u>DEC BSR (11/90/110)</u></p> <p>Classification: 09/09/2009 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>Hydrocarbons including fuel oils were identified in surface soils within the railway reserve along the eastern edge of Robb Road, extending approximately 500 m north of McTaggart Cove. Lead was identified in surface soils within the railway reserve north of Rollinson Road and west of the railway line.</p> <p>Reason for Classification:</p> <p>The site was originally reported to the DEC prior to the commencement of the Contaminated Sites Act 2003. A portion of the site, north of Rollinson Road, was reported again on 26 March 2009. The site classification is based on information submitted to DEC by August 2009.</p> <p>The site comprises Lot 2106, a portion of railway reserve extending north from McTaggart Cover for approximately 1.2 km, as well as Lot 2110, which lies directly west of the railway reserve, and includes Robb Road.</p> <p>Part of the site was historically occupied by the Robb Jetty Marshalling Yards, and stormwater drainage from an abattoir further east was also discharged to the site. Railway yards and abattoirs are land uses that have the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).</p> <p>The then Department of Commerce and Trade commissioned a soil investigation of the site in 1996 to provide information for its redevelopment for passive recreational purposes including a dual use pedestrian and cycle path, access road and car park. The soil investigation identified that hydrocarbons (such as fuel oils and combustion residues) were present in surface soils near the railway tracks at concentrations exceeding Ecological Investigation Levels (EILs) and Health-based Investigation Levels for parks and recreational land use (HIL-E), as published in 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003). Hydrocarbons, cadmium, copper and zinc were also present in near surface soils at the former abattoir stormwater discharge and rail wagon washdown areas at concentrations exceeding EILs.</p> <p>DEC was informed in March 2009 that metals had been identified in soil in the northern portion of Lot 2110, north of Rollinson Road, at concentrations exceeding EILs and, in some cases, HIL-E. DEC understands that further soil investigations are underway in this area, and is awaiting submission of the relevant reports.</p> <p>Soil sampling undertaken within the railway reserve (Lot 2106) just north of Rollinson Road in August 2008 and March 2009 identified lead in soil exceeding EILs but below Health-based Investigation Levels for commercial/industrial land use (HIL-F).</p> <p>Groundwater investigations have not been carried out, and the quality of groundwater beneath the Site is unknown.</p> <p>The 1996 investigation report proposed that the identified impacted soils be excavated and sent for off-site disposal to an appropriately licenced landfill facility and that validation of the resultant excavations be carried out prior to backfilling. By the date of classification, DEC had not received a suitable validation report confirming that the proposed remedial actions had been successfully implemented.</p> <p>As there are grounds to indicate possible contamination of the site, and since further investigation of soil and groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value are required to determine the contamination status of the site, the site is classified as 'possibly contaminated – investigation required'.</p> <p>When the results of further soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p><u>Aerial Photographs</u></p> <p>The area to the east of the site was utilised as a railway prior to 1953. During 1965, there was a building built across the northern part of the site. The site has been cleared during 1974 and by 1977, a railway ran the entire length of the site. The site has remained unchanged to present.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
221 Cockburn Rd	2155 / 380		<p><u>Conclusions</u></p> <p>The DEC BSR indicated that part of the site was reported as being historically occupied by the Robb Jetty Marshalling Yards, and stormwater drainage from an abattoir further east was also discharged to the site, both land have the potential to cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004). The historical aerials confirm use of the site as a railway and railway reserve since 1953. Further investigation would be required to determine the current status of contamination.</p> <hr/> <p><u>DEC BSR (DEC9229)</u></p> <p>Classification: 03/10/2008 – Possibly contaminated – investigation required</p> <p>Nature and Extent of Contamination:</p> <p>No sampling results are currently available to confirm the presence or extent of any possible contamination.</p> <p>Reason for Classification:</p> <p>The site was reported to the DEC as per reporting obligations under section 11 of the Contaminated Sites Act 2003. The classification is based on information submitted to DEC by September 2008.</p> <p>The site was reported because it has historically and is currently being used as an animal skin processing plant, a land use that has the potential for cause contamination, as specified in the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).</p> <p>A Preliminary Site Investigation (reported in January 2008) identified potential sources of contamination, including evidence of spills/losses. The report recommended soil investigations to determine the contamination status of soil at the site. DEC understands that limited groundwater monitoring has been undertaken at the site, however, the results have not been forwarded to DEC.</p> <p>As there are grounds to indicate possible contamination of the site, and since a suitable investigation of soil and/or groundwater and a risk assessment to determine the risk to human health, the environment, or any environmental value has not been carried out, further works are required to determine the contamination status of the site, and the site is therefore classified as 'possibly contaminated – investigation required'.</p> <p>When the results of soil and groundwater investigations are submitted to DEC, these will be reviewed, and the site may be re-classified.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site remained undeveloped, covered by sparse coastal vegetation. By 1965, industrial development had commenced onsite, as a large industrial building with 'Waycop' written on the roof was constructed. This building consisted of five thin, horizontal buildings, orientated east to west. By 1995, four of the five sheds appear to have rusted rooves. In December 2011, these rooves appear to have been replaced or fixed. The site has remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>This site was reported to the DEC as it was historically and is currently being used as an animal skin processing plant, a land use that has the potential for cause contamination (DoE, 2004). Based on a review of the DEC BSR information and aerial photographs, there appears to be potential for contamination at this site. Further investigation would be required to determine level, if any, of contamination present at the site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
152 Cockburn Rd (Lots 221 and 222 Cockburn Rd)	2155 / 379		<p><u>DEC BSR (DEC5596)</u></p> <p>Awaiting classification.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site remained undeveloped, covered by sparse coastal vegetation. By 1965, two small sheds have been constructed in the western portion of the site, with a laydown area present in the centre of the site and a small pond present just east of the laydown area. By 1974, the two small sheds in the western portion of the site have been replaced by one larger building and two small industrial buildings are now located in the north-eastern portion of the site. In 1981, it is possible to discern the area near the western boundary has been lowered (dug out), the laydown area in the centre of the site has been extended and there appears to be an evaporation pond or pit in the south-eastern corner. By 1995, the laydown area extends to the western boundary. The dug out area in the north-eastern portion of the site also appears to have been levelled. By 1999, there is an increase in laydown in the eastern portion of the site. In 2004, the laydown are appears to have been reorganised and reduced in size. Between 2006 and 2007, the laydown materials in the south-eastern corner have been removed and three bunded pits have been dug again. In April 2011, one of the ponds in the south-eastern corner appears to be filled with a liquid. The site has remained unchanged to present.</p> <p>This site is currently occupied by SCHÜTZ DSL Group (Coogee Drums), which are a leading international producer of high-quality packaging systems, offering a range of products for liquid and dry filling goods, such as intermediate bulk containers, stainless steel units and mild grease units, drums, small volume refillable containers an reconditioned steel drums. This site is assumed to be a part of 146 Cockburn Road, which is also occupied by SCHÜTZ DSL Group.</p> <p><u>City of Cockburn Information</u></p> <p>Information provided by the City of Cockburn indicates that this site has been occupied by SCHÜTZ DSL Group for a number of years and is used for drum storage and cleaning. The use of this site may have resulted may have resulted in some chemical spillages. Furthermore, it is understood that an evaporation pond is present at the site and that there is potential for leakages from this pond.</p> <p><u>Conclusions</u></p> <p>The DEC list the current land use of chemical manufacturing, blending or mixing (plastics), drum or tank re-conditioning or recycling facility and steel works as potentially contaminating activities. Based on a review of the DEC BSR information and aerial photographs, there appears to be a moderate potential for contamination at this site, however GHD understands that the current site owners have commissioned WSP to undertake contaminated site investigations and remediation at this site.</p>
Lot 252 on plan 26401	2217 / 015		<p><u>DEC BSR</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>From 1953 to present, the site appears to have been used as road for vehicles next to the railway reserve (scattered vegetation strip). The track became a bitumised road between 1995 and 2000.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination.</p>
Lot 55 on plan 20584	2037 / 286		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>The site appears to be a road reserve. Prior to 1953, the site remained undeveloped, covered by sparse coastal vegetation. By 1979, the site has been cleared and in 1981, the site forms part of the Cockburn Road reserve. The site remains unchanged to present, with the exception of vegetation regrowth.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
9906 Cockburn Rd	2622 / 391	<p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 4 – South Cockburn Area. September 2007.</p> <p>GHD (2008) Fisherman's Cooperative Sampling, Pre-Demolition Sampling Results. July 2008.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Report for Cockburn Coast Detailed Site Investigation, Package 4: South Cockburn Area, North Coogee. March 2012.</p>	<p><u>DEC BSR (DEC12104)</u></p> <p>Awaiting classification.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>The onsite investigation also identified the presence of localised Asbestos Containing Materials (ACM) associated with remnant service infrastructure at 9906 Cockburn Rd. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works at 9906 Cockburn Rd. As long as these issues are addressed this site is considered suitable for the proposed mixed land use development.</p>
9907 Cockburn Rd	2622 / 392	<p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 4 – South Cockburn Area. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Report for Cockburn Coast Detailed Site Investigation, Package 4: South Cockburn Area, North Coogee. March 2012.</p>	<p><u>DEC BSR (DMO 7254)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>The onsite investigations identified an isolated hydrocarbon impact and the presence of localised ACM. Management measures will be implemented as part of the works commissioned by LandCorp to render the site suitable for the proposed development. GHD recommended that hydrocarbon impacted soils and known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works. As long as these issues are addressed the site is considered suitable for the proposed mixed use development.</p>
9908 Cockburn Rd 26 Cockburn Rd	2622 / 393 1382 / 584	<p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 4 – South Cockburn Area. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2012) Report for Cockburn Coast Detailed Site Investigation, Package 4: South Cockburn Area, North Coogee. March 2012.</p>	<p><u>DEC BSR (DEC3280)</u></p> <p>Awaiting classification.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>The onsite investigation also identified the presence of localised ACM associated with fly-tipping. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works. As long as these issues are addressed these sites are considered suitable for the proposed mixed use development.</p>



Lot ID **Certificate of Title** **CS Investigation**
(Volume / Folio)

Lot 9909 on plan 47039 LR3156 / 937

Previous/Known Information

DEC BSR (11/90/522 and DEC11225)

Classification: 12/11/2009 – Decontaminated

Nature and Extent of Contamination:

Following remediation, no contamination remains at the Site.

Reason for Classification:

Background:

The site was reported to the DEC as part of the approvals process for residential subdivision of the site. The site classification is based on information submitted to DEC by November 2009.

The site forms part of the Port Coogee Development Area, Cockburn Road, North Coogee WA 6163.

The site was historically used for industrial and commercial purposes including animal carcass processing works and tanneries. These are land uses that have the potential to cause contamination as per the guideline 'Potentially Contaminating Activities, Industries and Landuses' (Department of Environment, 2004).

Soil Investigations:

The site was subject to soil and groundwater investigations and remediation works between 2005 and 2008. Soil investigations identified the presence of heavy metals, organochlorine pesticides, hydrocarbons (i.e. from petrol or diesel) and asbestos contamination within near surface soils across the site. The contaminant concentrations exceeded Health Investigation Levels for residential land uses (as published in guideline 'Assessment Levels for Soil, Sediment and Water', Department of Environment, 2003).

Soil contamination was remediated by excavation and off-site disposal and validated following the completion of the remediation works. Soil remediation and validation works concluded in May 2007.

Groundwater Investigations:

An initial groundwater investigation identified the widespread presence of nutrient contamination at concentrations exceeding Marine Water Ecosystems assessment criteria as published in guideline 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003), within the superficial aquifer underlying the site.

A risk assessment demonstrated that the presence of elevated nutrients within shallow groundwater represented a risk to the quality of the water within the proposed marina developments to the west of the site, which would give rise to eutrophication and algal blooms.

Groundwater monitoring data accompanied by a Mandatory Auditor's Report prepared by an accredited Contaminated Sites Auditor, was submitted to DEC in 2008, following two years of groundwater monitoring across the site.

The groundwater investigation was carried out in accordance with the standards set out in DEC's 'Contaminated Sites Management Series' of guidelines. The investigation identified the presence of heavy metals, organochlorine pesticides and nutrients exceeding ANZECC 2000 Marine Water Ecosystems Criteria as set out in the guideline 'Assessment Levels for Soil, Sediment and Water' (Department of Environment, 2003).

On 17 August 2009 DEC received information confirming the extent of the groundwater plume and identifying the cadastral lots impacted by groundwater contamination. The extent of the groundwater contamination plume was further refined in new information presented to the DEC on 4 November 2009.

The site's remediation management program requires the design and operation of a Groundwater Interception Drain (GID) to intercept and depress groundwater levels to minimise the recharge of contaminated groundwater entering the proposed marina development. The ongoing management of abstraction from the GID is subject to a 5C Licence to Abstract Water issued and regulated by the Department of Water.

Conclusions:

A screening risk assessment has demonstrated that after successful completion of soil remediation works, the site is suitable for the proposed residential, public open space and the commercial uses and groundwater is suitable for domestic garden irrigation uses. The operation and management of the GID will minimise the risk to the marina environment.

As the site was known to be contaminated but has been subject to remediation works and risk assessment that has shown that the site is suitable for the proposed residential, public open space and the commercial land uses, the site has been classified as 'decontaminated'.



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
			<p><i>In accordance with Department of Health advice if groundwater is being, or is proposed to be, abstracted DEC recommends that analytical testing should be carried out to determine whether the groundwater is suitable for its intended use.</i></p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site appears to have been used for cleared agriculture/stock grazing. In 1965, there is evidence of vehicular movement (car tracks) across a small portion of the site. There were no significant changes onsite until 1981, where the central portion of the site appears to have undergone excavation activities. In 1985, it appears that there is a pond in the excavation area. By 1995, the excavation area has been levelled and is covered by sparse coastal vegetation. Between January and July 2008, Spearwood Avenue is constructed onsite and intersects the site in an east-west orientation. The site remains unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very low potential for contamination following the remediation of the site and the site appears suitable for the proposed mixed use.</p>
51 Cockburn Rd	1117 / 087		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site appears to have been mostly cleared, with a completely cleared square area in the centre of the site and the remainder covered by sparse coastal vegetation. There is evidence of vehicular movement in 1974 across the centre of the site. There are no noticeable changes until 1981, where the site appears to have received illegal dumping of waste in the centre of the site. By 1985, there is increased, sparse dumping of materials onsite. In 1995, the western portion of the site is completely cleared. By 2000, the vegetation onsite has regrown, the potentially burnt vegetation in the eastern portion of the site. In 2001, the vegetation has regrown to form low lying grasses and bushes, with evidence of vehicular movement around the perimeter of the site. The site has remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination at this site.</p>
980 Cockburn Rd	1117 / 087		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site appears to have been covered by sparse coastal vegetation. There is evidence of vehicular movement in 1974 across the south-western corner of the site. There are no noticeable changes until 1981, where the site appears to have increased vehicular activity. By 1985, there is a major track running in a north-south orientation intersecting the centre of the site. By 2000, there is evidence of potentially burnt vegetation in the western portion of the site. In 2001, the vegetation has regrown to form low lying grasses and bushes, with evidence of vehicular movement across the centre of the site. The site has remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential for contamination at this site.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
52 Cockburn Rd	1117 / 087		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site appears to have been mostly cleared, with the remainder covered by sparse coastal vegetation. There are no noticeable changes until 1981, where the site appears to have increased vehicular activity and clearing. By 1985 placement of materials on the site to the north is encroaching on this site, however this appears to be very minor. In 1995, the western portion of the site is completely cleared. By 2000, the vegetation onsite has regrown, the potentially burnt vegetation in the eastern portion of the site. In 2001, the vegetation has regrown to form low lying grasses and bushes, with evidence of vehicular movement around the perimeter of the site. The site has remained unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>
Lot 4197 on plan 20584	LR3038 / 208		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>During 1953, the northern portion of the site is covered by sparse coastal vegetation, the central portion of the site comprises excavations (possibly quarrying activities) and the southern portion of the site comprises dense vegetation. By 1977, there are tracks present throughout all sections of the site. By 1981, there appears to be vegetation growth throughout the site, in particular, the central part of the site where the excavations were. During 1995, the majority of the site and surrounds have been completely cleared, with limited vegetation remaining in the central and southern portions of the site. By 2000, vegetation has regrown in the central portion of the site. Tracks are visible throughout the site. The site has remained relatively unchanged to present.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be generally limited potential only for contamination on this site, with the possible exception of former excavation locations (possible localised quarry/backfill activities which have potential to contain contamination, albeit localised).</p>
25 Emplacement Cr	2037 / 273		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the majority of the site was covered by dense vegetation. By 1974, there is a track onsite, located in an east to west orientation, in the northern portion of the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the western portion of the site, with associated car parking located north of the building. The eastern portion of the site remains vacant land. A second industrial building has been constructed to the east of the original building in 2008, and the car parking area has been extended to the eastern boundary. This area to the east is being used as a storage area for boats. The site has remained relatively unchanged to present.</p> <p>Currently, the site operates as:</p> <ul style="list-style-type: none">• Unit 1: Lazco Engineering; and• Unit 2: formerly All Marine Services (now vacant and available for lease). <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site (e.g leaks/spills/ washing down activities causing substances to enter drains) due to extensive site coverage with a building and sealed surfacing.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
4199 Cockburn Rd	LR3106 / 264		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation. The site remained unchanged until 1981, where it has been partially cleared. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2008, vegetation has regrown onsite and there is evidence of vehicular movements. The site has remained relatively unchanged to present.</p> <p>Currently, this lot resides as vacant land surrounded by a limestone retaining wall. There appears to be illegal dumping/ vehicular movement onsite (eg. cars).</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site, most likely to be related to illegal surface dumping.</p>
4195 Cockburn Rd	LR3106 / 260		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953 to 1981, the site comprised cleared and vacant land. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2008, vegetation has regrown onsite. The site has remained relatively unchanged to present.</p> <p>Currently, this lot resides as vacant land surrounded by a limestone retaining wall.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination on this site most likely to be related to illegal surface dumping.</p>
15 Emplacement Cr (1/15 Emplacement Cr) (2/15 Emplacement Cr) (3/15 Emplacement Cr)	2142 / 066 2142 / 067 2142 / 068		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation, with a building bordering the site to the north and a dark shadow indicative of a quarry face, bordering the site to the south. By 1965, the building bordering the site to the south appears to have been removed and the probable quarry activity extended to the south-east of the site. By 1974, a small track is apparent intersecting the site across the north-western corner and vegetation onsite has regrown. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located in the centre of the site, with associated car parking located west of the building and a laydown/storage area located east of the building. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, this lot resides as three different businesses, being</p> <ul style="list-style-type: none">• Gymnastics Western Australia - Hamilton Hill (formerly located here)• E Bauwerk Werkstatt- potentially BAUWERK Paint• Livestock Express• Cotech <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there is potential for contamination to be present at the site associated with quarry/infill activity prior to construction of the current form of development.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
7 Emplacement Cr	2037 / 265		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site was mostly cleared, with the remainder covered by sparse coastal vegetation. By 1974, a track is present onsite, running from north-west corner and passing through the centre of the southern boundary of the site. The site has been cleared in the centre during 1981, leaving a large circle of what appears to be gravel surfacing, leading to a small track intersecting the southern boundary of the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the south-eastern corner of the site, with associated car parking located north and west of the building. The site has been demolished in 2012 following a fire at the site, with just the concrete pad and bitumised surface remaining. The site has remained relatively unchanged to present.</p> <p>Currently, the site resides as FSL Systems (Fremantle Steam Laundry), which are a supplier of work wear and linen hire, including services in uniform rental, dust control mats, continuous towels, recycling of protective clothing and rag supply.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a potential for contamination on this site based on chemicals likely to have been used at the site and destruction of the main building by fire. However, given the protection afforded by sealed surfacing at the site and potential for dilution/limited persistence the potential for contamination by be limited. Further investigation would be required to determine level, if any, of contamination present at the site.,</p>
5 Emplacement Cr			<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953 until 1979, the site was covered by sparse coastal vegetation, becoming denser in subsequent years. During 1981, a track was constructed onsite, running in a north to south orientation through the centre of the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located in the centre of the site, with associated car parking located south, west and east of the building. In 2008, there appears to be small red brick buildings attached to the main building and an extension of the main building towards the northern boundary. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <ul style="list-style-type: none">• Units 2, 3, 4 and 5 are all vacant and available for lease.• Currently, the site is occupied by Rags to Riches Op Shop and formerly by Aqua Dearborn (water treatment). <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>
(1/5 Emplacement Cr)	2101 / 437		
(2/5 Emplacement Cr)	2101 / 438		
(3/5 Emplacement Cr)	2101 / 439		
(4/5 Emplacement Cr)	2101 / 440		
(5/5 Emplacement Cr)	2101 / 441		



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1 Emplacement Cr	2037 / 263		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was partly cleared, with the remainder covered by sparse coastal vegetation. By 1965, a track is present running north to south near the western boundary of the site. The City of Cockburn also identified the presence of military infrastructure at this site, however GHD understands that this military infrastructure was never operational and therefore is not considered to pose a risk of contamination. By 1977, dense vegetation has regrown in the eastern portion of the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located in the centre of the site, with associated car parking located south, west and east of the building. There appears to be an extension of the main building along the northern boundary in 2008. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>The site is currently occupied by:</p> <ul style="list-style-type: none">• Tradelink- bathroom products and service• Stepping Stones Wellness Clinic- pain relief system• Inside Out Health Lounge- natural health practitioner <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination on this site, based on the above land uses.</p>
23 Emplacement Cr	2037 / 272		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the majority of the site was covered by dense vegetation, with a small portion in the north-eastern corner comprising cleared land. During 1965, the site has undergone clearing and comprises sparse, coastal vegetation. By 1974, most of the vegetation onsite appears to have regrown. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the southern portion of the site, with associated car parking located north of the building. The site has remained relatively unchanged to present.</p> <p>This site is currently occupied by PK Print, an environmentally certified printing company.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination on this site, based on the above land use.</p>



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21 Emplacement Cr	2037 / 271		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation, with partially cleared land in the north portion of the site. The site has undergone clearing in 1965, with the majority of the site now free of vegetation. By 1974, vegetation has regrown along the northern and southern boundaries and a track is present in the centre of the site, located in an east to west orientation. In 1977, there is a second track visible onsite, located parallel and north of the original track. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located in the centre portion of the site, with associated car parking located west of the building and a laydown/storage area located east of the building. In 2008, there is potentially the addition of a few small sheds or trucks onsite. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>The site is currently occupied by Metro Ice, manufacturers of tube, flake, bulk and block ice.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination on this site, based on the above land use.</p>
19 Emplacement Cr			
(1/19 Emplacement Cr)	2099 / 924		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site was covered by sparse coastal vegetation, with partially cleared land in the north portion of the site. By 1974, vegetation has regrown over the majority of the site, and a track is visible running from the centre of the southern boundary to the north-western corner of the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the eastern portion of the site, with associated car parking located west and south of the building. During 2008, the main building has been extended to the eastern boundary. Two small red rooves have been added to the front of the main building in 2012. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by:</p> <ul style="list-style-type: none">• Dale and Waters- online plus size clothing• Bella Furniture• CABA Australia – life support system engineers <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>
(2/19 Emplacement Cr)	2099 / 925		
(3/19 Emplacement Cr)	2099 / 926		



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17 Emplacement Cr	2037 / 269		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the south-eastern portion of the site was cleared, there was a possible quarry located near the northern boundary of the site and what appears to be a building in the north-western corner of the site. The remainder of the site was covered by sparse coastal vegetation. By 1965, the quarry near the northern boundary of the site has moved offsite to the east. In 1974, the quarry appears to be partially onsite in the north-eastern corner. The building in the north-western corner remains present onsite, as does the sparse coastal vegetation for the remainder of the site. By 1977, there appears to be potentially piles of disturbed sand or light coloured vegetation in the centre of the site. The quarry appears to be getting larger in size by 1981. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the eastern portion of the site, with associated car parking located west of the building. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by Flowserve, which is a manufacturer and aftermarket service provider of flow control products and services.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there is potential for contamination to be present at the site associated with quarry/infill activity prior to construction of the current form of development.</p>
13 Emplacement Cr	2037 / 267		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation, with a track intersecting the site in a north-east to south-westerly orientation and a building present on the southern boundary of the site. By 1965, the building on the southern boundary has been removed. In 1974, a second track is present onsite, branching off from the original track in a north-eastern orientation. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the eastern portion of the site, with associated car parking located west of the building. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by:</p> <ul style="list-style-type: none">• Eco Max- wastewater treatment services• -Reodrain- leach drain for disposal of wastewater via infiltration and evaporation <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site restricted to use prior to the current form of development.</p>



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11 Emplacement Cr	2037 / 266		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site was covered by sparse coastal vegetation. By 1974, a track is present intersecting the site in a north to south orientation through the centre of the site and the vegetation has regrown. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the eastern portion of the site, with associated car parking located west of the building. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by:</p> <ul style="list-style-type: none">• Marlin Marine Solutions- provide a full range of vessel and marina docking products, designed to simplify mooring• Canna- producer of nutrients and growing mediums for the cultivation of fast growing plants <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site restricted to use prior to the current form of development.</p>
16 Emplacement Cr	2037 / 276		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation, with a track intersecting the site in a north-east to south-westerly orientation. By 1965, the site appears to have been cleared of the majority of vegetation onsite. During 1974, a major track is visible in the south-western corner, in addition to the original track. There appears to be a disturbance in the centre of the site during 1981. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the south-western corner of the site, with associated car parking located north, south and west of the building. The rest of the site remains vacant land until 2008, where it has been bitumised and used as a laydown/storage area. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by Southern Trading Australia, which supply specialised seafood products.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site, based on the above land use.</p>
12 Emplacement Cr	2037 / 278		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, there was evidence of small infrastructure, such as a building, shed or water tank, present on cleared land located near the centre of the site. There is a track present running east to west near the southern boundary of the site and the remainder of the site is covered by sparse coastal vegetation. The onsite infrastructure has been removed by 1974 and by 1977, the site appears to be a thoroughfare for vehicles, as there are multiple tracks intersecting the site. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, there appears to be a trench onsite from the southern boundary to the centre of the site. There also appear to be a concrete pad near the northern boundary. The building is present in 2008 along the northern boundary, with associated car parking along the eastern boundary. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by Early Bird Seafood and Bait.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site, based on the above land use.</p>



Lot ID	Certificate of Title (Volume / Folio)	CS Investigation	Previous/Known Information
8 Emplacement Cr (1/8 Emplacement Cr) (2/8 Emplacement Cr) (3/8 Emplacement Cr) (4/8 Emplacement Cr) (5/8 Emplacement Cr) (6/8 Emplacement Cr)	2733 / 822 2733 / 823 2733 / 824 2733 / 825 2733 / 826 2733 / 827		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site comprises cleared land in the centre of the site, with evidence of small infrastructure, such as a building, shed or water tank, located on cleared land near the western boundary of the site. The remainder of the site is covered by sparse coastal vegetation. The small infrastructure on the western boundary of the site has been removed by 1974. Two tracks, forking to form a 'Y' shape, are present onsite during 1981. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2008, a building has been constructed in the south-western corner of the site and associated car parking is located to the north and east of the building. The entire site has been bitumised. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by:</p> <ul style="list-style-type: none">• So Cal Limos- car hire services• Stazo Marine Accessories Australia- manufacturing and distributing marine equipment <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site, based on the above land uses.</p>
2 Emplacement Cr	2037 / 282		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation. By 1965, there is a track intersecting the site in a north-south orientation located near the western boundary. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located on the eastern portion of the site, with associated car parking located north and west of the building and a laydown/storage area located south of the building. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>The site is currently in use by Alba Oils (a refiner of high quality vegetable oils and fats).</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site most likely to be restricted to minor leaks/spills from non-vegetable oil/fat related ancillary processes/equipment (if present).</p>
6 Emplacement Cr (Lot 119 Emplacement Cr)	2037 / 281		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1965, the site was covered by sparse coastal vegetation, with evidence of small infrastructure, such as a building, shed or water tank, located on cleared land on the eastern boundary of the site. Information provided by the City of Cockburn indicates that this infrastructure may have been associated with military operations within the area. GHD understands that this military infrastructure was never operational and therefore is not considered to pose a risk of contamination. This infrastructure was removed between 1965 and 1974. Regrowth of vegetation is visible by 1977. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. There is evidence of vehicular movements onsite during 2008 and by 2012, the entire site has been bitumised and a small building is located in the north-western corner. The site has remained relatively unchanged to present.</p> <p>The current land use is vacant land.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a very limited potential only for contamination on this site.</p>



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4196 Emplacement Cr (City of Cockburn Reserve 43945R)	LR3038 / 206		<p><u>DEC BSR (1103/05)</u></p> <p>Awaiting classification.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, there was evidence of small infrastructure onsite. This is listed by the City of Cockburn Local Government Inventory as <i>South Beach Battery (remains) is evidence of the importance of defending the Western Australian coastline, and in particular Fremantle Harbour and Cockburn Sound (Mitchell, 2009).</i></p> <p>This infrastructure was installed in 1944 and housed land based, single barrel versions of a dual purpose gun mounted in twin turrets in Royal Navy Anti Aircraft cruisers, intended to provided high level anti aircraft and coast artillery cover for Fremantle Harbour and the Sound (Mitchell, 2009). The Battery at South Beach was never finished and never became operational and therefore is not considered to pose a risk to contamination at the site. The entire installation was destroyed except for the excavated remains now visible (Mitchell, 2009).</p> <p>The site now operates as an unsealed park, vested in the City of Cockburn.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>
14 Emplacement Cr (Lot 115 Emplacement Cr)	2037 / 277		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, there was evidence of small infrastructure, such as a building, shed or water tank, located on cleared land was located near the near the centre of the site. Information provided by the City of Cockburn indicates that this infrastructure may have been associated with military operations within the area. GHD understands that this military infrastructure was never operational and therefore is not considered to pose a risk of contamination. A track intersected the site in an east to west orientation and the remainder of the site was covered by sparse to dense coastal vegetation. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is in the process of being constructed on the southern portion of the site. The building is present onsite during 2008 and associated car parking located to the south and west of the building. The entire site has been bitumised. Apart from vehicular movements and an increase in use of the laydown area, the site has remained relatively unchanged to present.</p> <p>Currently, the site is utilised by Ricciardi Seafoods and Cold stores as a Seafood Processing Facility.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>
31 Emplacement Cr	2172 / 918		<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Aerial Photographs</u></p> <p>Prior to 1953, the site was covered by sparse coastal vegetation, with dense vegetation in the north-eastern corner and a track intersecting the site in a north-east to south-easterly orientation. By 1965, there is an additional track onsite orientated in a north-west to south-east direction, which becomes more pronounced in 1974. Another track is located nearby the original north-east to south-west track. The site remained unchanged until 1995, where it has been completely cleared of all vegetation. By 2000, a building is located in the centre of the site, with associated car parking located all around the building, with a section of concrete pad extending to the eastern boundary. Apart from vehicular movements, the site has remained relatively unchanged to present.</p> <p>Currently, the site is occupied by Far West Scallops Industries, which is a scallop food processing facility.</p> <p><u>Conclusions</u></p> <p>Based on a review of the DEC BSR information and aerial photographs, there appears to be a limited potential only for contamination on this site.</p>



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27 Emplacement Cr	2712 / 919	<p>GHD (2004) North Coogee Master Plan Area, Groundwater Data Review.</p> <p>GHD (2006) Cockburn Coast Urban Redevelopment, Phase 1: Project Inception Report. October 2006.</p> <p>GHD (2007) Cockburn Coast Urban Redevelopment, Environmental Service Phase 2: Desk Based Review, Package 3 – Land East of Cockburn Road. September 2007.</p> <p>GHD (2010) Cockburn Coast Urban Redevelopment, Sampling and Analysis Plan. January 2010.</p> <p>GHD (2011) Report for Cockburn Coast Detailed Site Investigation, Package 3: Lot 126 Emplacement Crescent and Lots 31 and 32 Cockburn Road, North Coogee. October 2011.</p>	<p><u>DEC BSR (DMO 1476)</u></p> <p>Not reported to DEC as a known or suspected contaminated site.</p> <p><u>Onsite Investigations</u></p> <p>GHD was commissioned by LandCorp to undertake contaminated sites investigations to determine if the former use of the site had resulted in contamination that restricted the proposed development. These investigations have been subject to review by a DEC accredited contaminated sites auditor.</p> <p>The onsite investigation also identified the presence of localised Asbestos Containing Material (ACM) at 27 Emplacement Cr. GHD recommended that the known locations of ACM be removed as part of the Remediation and Validation Plan (to be developed) and that a CEMP be developed to manage any future ACM that may be identified during the development works. As long as these issues are addressed these sites are considered suitable for proposed mixed use development.</p>