05

Studies (Part 1)

Aboriginal Cultural Heritage Assessment Report

Local Aboriginal Land Council
DARKINJUNG

Proposed Rezoning and Sub-division for Residential Development
15 Mulloway Road
Chain Valley Bay
Lot273 DP755266

Report for
Optima Developments Pty Ltd

October 2016

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(Google Maps)

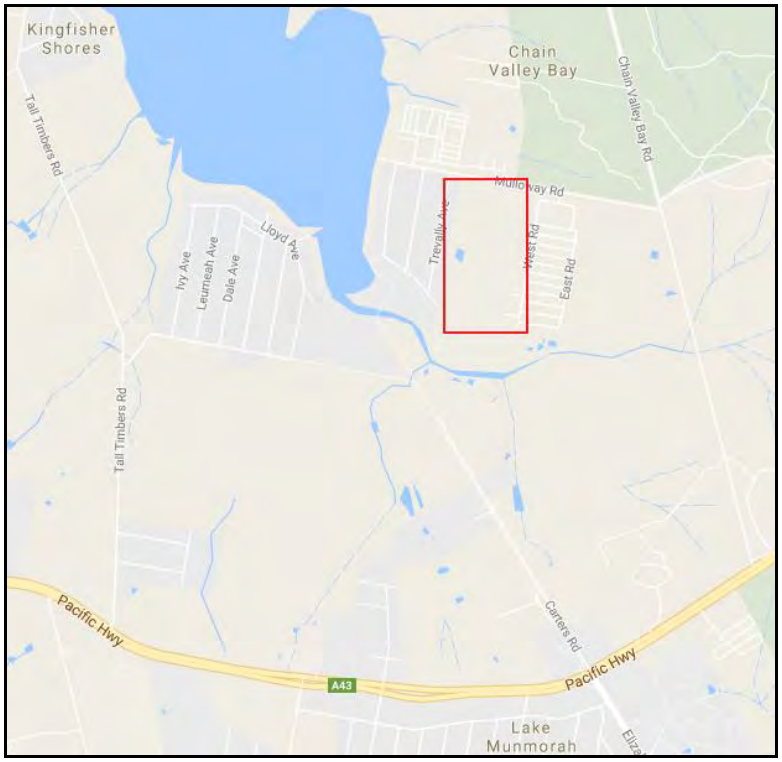

Figure 2: Approximate location of the assessment site within Chain Valley Bay.

(Google Maps)

1. Introduction

This assessment report has been prepared as part of an initial Aboriginal Cultural Heritage Assessment by Darkinjung Local Aboriginal Land Council (DLALC) for Optima Developments Pty Ltd. The assessment was undertaken on Tuesday 18th October 2016.

The aim of the assessment was to inspect the property at 15 Mulloway Road, Chain Valley Bay in support for a planning proposal to Central Coast Council (CCC) for the rezoning of the land to accommodate residential subdivision (refer Figures 2 and 4). The inspection was required so that any Aboriginal cultural heritage material or sites located within the area could be assessed, protected and properly managed.

The inspection was also to identify any Aboriginal cultural heritage, places or objects of significance to the Aboriginal community, for the purpose of the sites' developer to meet the statutory obligations and requirements under the *National Parks and Wildlife Act* (1974) and the *Environmental Protection Act* (1979).

This assessment was conducted strictly for the purpose of the proposed development to be put forward to Council and in no way gives consent to any ground disturbance activity at the assessment site mentioned above prior to further investigation of the site.

2. Description of the Assessment Area and Development Proposal

The client of Optima Developments proposes to rezone and sub-divide the property for residential development (Figure 2).

The assessment area is situated within the boundaries of the Darkinjung Local Aboriginal Land Council (DLALC). DLALC is located on the Central Coast of New South Wales, its boundaries stretch from Catherine Hill Bay to the Watagan Mountains to the North, Hawkesbury River to the South and Pacific Ocean to the east while the western boundary stretches along Judge Dowling Range from Bucketty to Spencer (Darkinjung Local Aboriginal Land Council).

The assessment site is situated within the suburb of Chain Valley Bay on the Central Coast, NSW and is located within approximately 19km north-east of Wyong.
The assessment area is surrounded by the suburbs of Gwandalan, Lake Munmorah and Doyalson North within the Central Coast Shire.

3. Description of Impact

Any future development has the potential to negatively impact the site, such as the construction of a residential development as it will result in the clearing of vegetation, soil excavation and possibly cause damage to any Aboriginal sites and/or objects that may be present. The recommendations given within this assessment report should be followed in order to minimise or eliminate the impacts on Aboriginal sites and/or objects.

If the registered Aboriginal sites in the surrounding area are an indication of the potential for further sites to be present within the assessment area, the Aboriginal cultural heritage features most at risk from the proposed project is predominantly, but not limited to shell middens, scarred trees and open sites with artefacts. Other sites that may be present are Aboriginal artefact knapping sites, camp sites and Aboriginal ceremonial places.

4. Statutory Requirements and Legislation

Aboriginal heritage and places are protected by law under Legislation. Two basic pieces of legislation concerned with Aboriginal Heritage Management are the National Parks and Wildlife Act 1974 (*NPW Act*) and *The Environmental Planning and Assessment Act* 1979 (*EP&A Act*).

Section 84 of the *National Parks and Wildlife Act* 1974 provides protection for 'Aboriginal Places'. The act defines Aboriginal places as 'areas of cultural significance to the Aboriginal Community'. Section 90 of this Act gives protection for all 'Aboriginal Relics'. The act defines Aboriginal relics as 'any material evidence of the Aboriginal occupation of New South Wales'. The Minister will gazette areas as Aboriginal places if satisfied that adequate evidence exist to show that the area was or is of special importance to the Aboriginal community.

The *National Parks and Wildlife Act* 1974 does not structure any formal mechanisms to make sure that areas with potential to contain Aboriginal sites or places of special significance are evaluated before impact on those areas. It is the *Environmental Planning and Assessment Act* 1979 (*EP&A Act*) which carries out this function.

The *EP & A Act's* principal function is to consider 'environmental impacts' in land use and decision making. Environmental impacts include impacts on Aboriginal heritage. There are three main sections in the EP&A Act which are applicable to Aboriginal heritage. Part 3, administrates the preparation of planning instruments; Part 4 relates to the development evaluation process for local government (consent) authorities; and Part 5 which communicates activity approvals by Government (determining) authorities.

Part 3 of the Act governs the preparation of the following three planning instruments: 1. State Environmental Planning Policies (SEPPs); 2. Regional Environmental Plans (REPs); 3. Local Environmental Plans (LEPs). These planning instruments dictate allowable uses and potential constraints on land use. When preparing planning instruments the Department of Urban Affairs and Planning have guidelines which should be followed. These guidelines list Aboriginal sites and places of significance to the Aboriginal community as values which should be assessed.

Part 4 of the legislation governs the decision making process by local government authorities during a development application. Section 90 of the Act lists impacts which must be considered before development approval is granted. Under section 90 (1) 9b consideration must be given for 'the impact of that development on the environment (whether or not the subject of an environmental impact statement)'. Section 90 (1) 9b includes Aboriginal sites and heritage.

Part 5 of the legislation governs the decision making process by State Government authorities for activities conducted by that agency or under authority from the agency controlled by Part 5 of the *EP&A Act*. It is mandatory for these agencies to consider environmental impacts of proposed activities, and then determine whether the level of impact is adequate to necessitate the planning of an Environmental Impact Statement (EIS). Environmental impacts include Aboriginal sites and places. The Department of Planning New South Wales has created a set of guidelines for explaining Section 112 which requires that Aboriginal heritage is assessed as part of the process (Byrne 1997: 2-3, cited in Hodgetts 2015:11).

There are number of amendments to the *NPW Act* 1974. The amendments include a number of guidelines. These guidelines can be viewed on the NSW Office of Environment and Heritage (OEH) website.

The process of due diligence under the OEH guidelines require that a proponent of a development assess impacts of the proposed activity.

Below is a brief explanation of the process from the OEH web site:

The purpose of due diligence is to identify whether Aboriginal objects are present in an area, and to determine whether a proposed activity will have impacts on Aboriginal objects. Therefore it is essential to identify and understand all the expected impacts of the proposed activity.

There are two categories of activity used for assessing impacts:

(1) Activities involving no additional surface disturbance.
(2) Activities causing additional surface disturbance.

For activities causing additional surface disturbance, it is necessary to determine whether an activity is proposed for:

a) a developed area or a previously disturbed area, or
b) an undisturbed area.

For activities in previously developed or disturbed areas, it is then necessary to determine whether the new activity will create significant additional surface disturbance. If it will, then the process for undisturbed areas will apply'.

Due diligence involves taking reasonable and practicable measures to determine whether your actions will harm an Aboriginal object and if so avoiding that harm (Office of Environment and Heritage formally NSW Department of Conservation Climate Change and Water, cited in Hodgetts 2015:12).

An application for an Aboriginal Heritage Impact Permit (AHIP) from OEH is required if any Aboriginal sites or objects may be disturbed, harmed or destroyed during any works. Prosecution may result due to harm of Aboriginal sites or objects without the relevant permit.

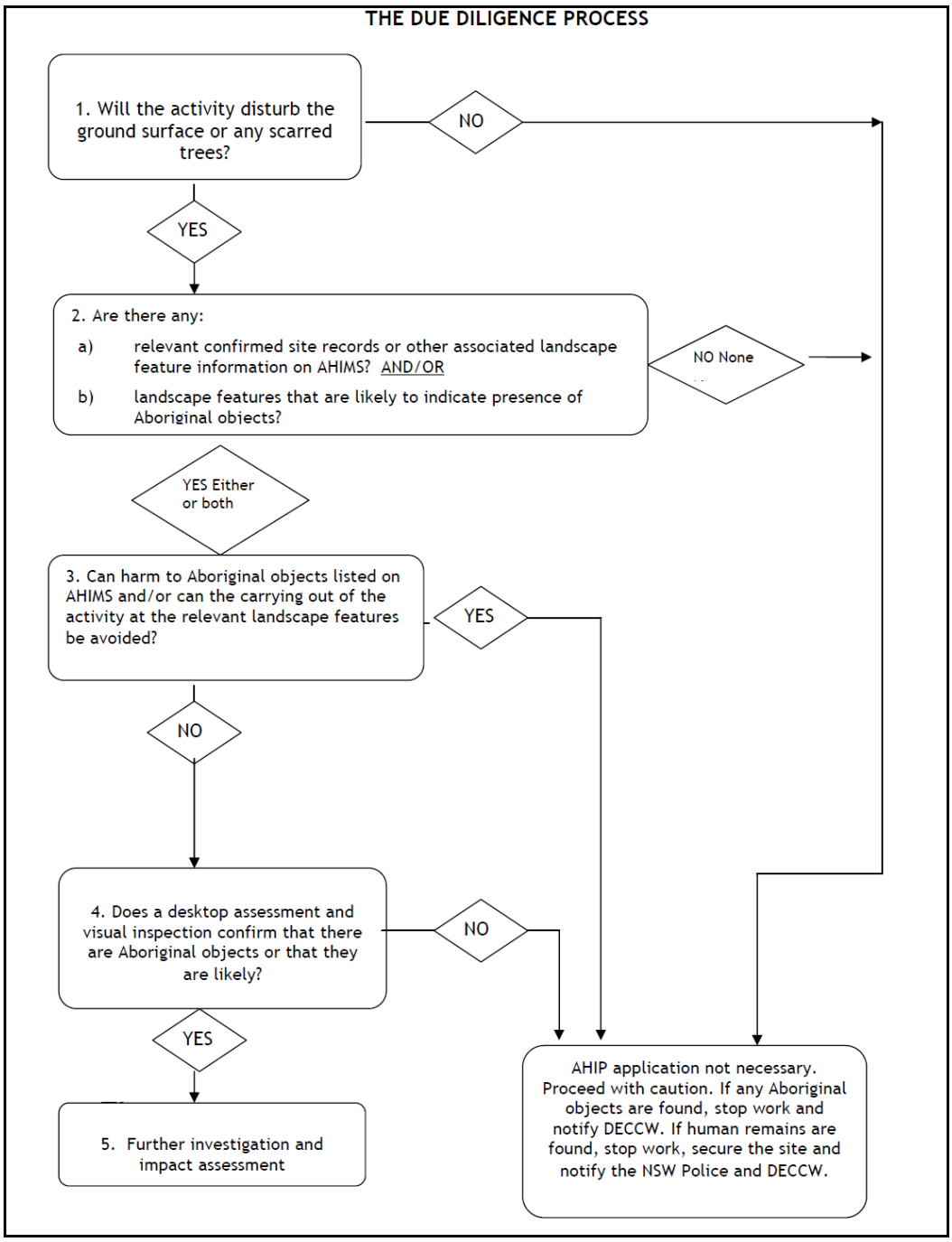

Figure 3: Diagram of the generic due diligence process from the Office of Environment and Heritage's *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales.*

(Office of Environment and Heritage)

5. Aboriginal Cultural Heritage, Values and Significance

Aboriginal people have inhabited Australia between 50,000 and 60,000 years, evidence for this can be found from material dated from Malakunanja and Nauwalabila rock shelter in the Northern Territory (Mulvaney & Kamminga 1999:141, cited in Hodgetts 2015:14).

The first inhabitants of the Central Coast region were peoples of the Darkinjung (Darginung, Darginyung) language group.

Stone artefacts in the Upper Mangrove Creek area of the Central Coast have been dated between 10,000 to 12,000 years old (Attenbrow 2002: 153, cited Hodgetts 2015:14). Upper Mangrove Creek is situated approximately 31km to the west of the assessment area.

Sites of Aboriginal significance, such as those described in this assessment, hold cultural and spiritual values to Aboriginal people.
The scientific evidence of Aboriginal occupation found within shell middens for example, give indications of Aboriginal existence, diet, resource and land use, though the spiritual beliefs and connectedness to country is far more important to the descendants of those who left behind the evidence, or those who created the sites of significance.

Art sites depicting people, animals, landscapes and spiritual beings reflect a spiritual and intimate connection to the land and the beliefs behind their creation, where those such as axe grinding grooves and pigment art (ochre) indicate resourcefulness or the use of the surrounding environment.

Baiame, the Creator God and his son Daramulan, mainly associated with the NSW area, are often depicted in different forms of artwork (pigment in shelters or engraved on sandstone platforms) within Darkinjung country and surrounding regions. Sites where Baiame or Daramulan images are seen are usually associated with the initiation of young men and the teaching of Aboriginal law. These places are considered to hold very high cultural significance. Birthing places (women's business) are also considered to hold very high cultural significance and sensitivity.

The term cultural landscape/s refers to the association of certain sites to others that surround them. Aboriginal sites are often linked or associated with others in terms of activities that took place there (e.g. initiation of young men, birthing places) or stories that tell the history of the area and the people that occupy it. This connectedness of cultural places gives importance of sites as a group rather than as isolated sites, although this is not the case with every site.

The Darkinjung had uses for all aspects of their surrounding environment as hunters, gatherers and fishers and also as artists and environmentalists. The use of all resources has resulted in the widespread existence of archaeological sites that are still present today.
Considering the long Aboriginal occupation of Australia and the Central Coast it could be predicted that most areas, particularly those with minimal disturbance have the potential to contain Aboriginal cultural heritage material or places.

These sites that remain are a link to the Aboriginal cultural past and a connection to ancestors for Aboriginal people and it is important that they are protected and conserved for future generations.

6. The Site

The assessment site consists of privately owned land which has been subject to previous disturbance in the form of residential development (one dwelling), vehicle access (driveway and tracks throughout the property), vegetation clearing, excavation works for the construction of a dam and a sewer line toward the south of the property.

The assessment site is situated approximately 0.8 km west of Lake Macquarie, approximately 5.3 km north of Lake Munmorah and approximately 19.3 km north-east of Wyong River. It is surrounded by various hills, ranges, valleys, creeks, wet lands, lakes and coast line. These types of environments and the resources they provided to local Aboriginal people are very important.

Figure 4: The area proposed for rezoning for residential development.

(Google Earth)

7. Aboriginal Sites

The Darkinjung LALC Asset Governor Management System incorporating the Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) database were consulted and these searches identified that there are no registered Aboriginal sites within a 1km radius of the assessment site.

The assessment site has undergone previous disturbance due to past land clearing for residential use, fencing, vehicle access (driveway and tracks throughout the property, vegetation clearing, excavation works for the construction of a dam and a sewer line toward the south of the property. Despite disturbances, all parts of the assessment site are considered to have potential for Aboriginal sites or artefacts due to its close proximity to both Lake Macquarie and other registered Aboriginal sites. These potential Aboriginal sites or artefacts may be concealed by thick vegetation or be covered by leaf litter, sand and silt.

Parts of the assessment site with a lower potential for Aboriginal cultural heritage sites include disturbed areas such as where there has been previous vegetation clearance and ground disturbance. In the past these activities in and around the assessment site could have negatively impacted on, or destroyed a number of Aboriginal cultural heritage sites.

8. Site Topography and Vegetation

The assessment site is located on the southern side of Mulloway Road, Chain Valley Bay. The assessment site is relatively flat in terms of topography.

The landscape and vegetation in the area of the assessment site is largely influenced by coastal landscapes which includes urban development. The area is largely influenced by Lake Macquarie and associated ecosystems.
Due to past land clearances the vegetation within the assessment site is mainly regrowth of native species of trees. The property has large areas of mature trees, being mainly scribbly gum (*Eucalyptus haemostoma)* and many grass trees (*Xanthorrhoea*).

The assessment site contains the following vegetation communities and their associated plants:

The assessment site is dominated by Coastal Plains Smooth-barked Apple Woodland, which includes the Smooth-barked Apple (*Angophora costata*), Red Bloodwood (*Corymbia gummifera*), Brown Stringybark (*Eucalyptus capitellata*) and Broad-leaved White Mahogany (*Eucalyptus umbra*)(Eco Logical Australia 2003).

Coastal Plains Scribbly Gum Woodland includes the Broad-leaved Scribbly Gum (*Eucalyptus haemostoma*), Red Bloodwood (*Corymbia gummifera*) and Charmhaven Apple (*Angophora inopina*), and

Many of the native plant, faunal and aquatic species found within the Gwandalan area are considered a valuable food and material resource for the local Aboriginal people.

Flowering plants provide Aboriginal people with seasonal indicators, when to move to a new area to obtain a particular food source or when certain marine of faunal species may be available, for example when Sydney Golden Wattle (*Acacia longifolia*) comes into flower it indicates when to fish for Mullet (Stewart & Percival 1997:8, cited Hodgetts 2015:22).

9. Assessment Methodology

Prior to any Aboriginal site survey, assessment or monitoring conducted in the field, a desk top analysis of the area is carried out. This involves consulting the relevant survey maps, Google Earth (aerial photos) and the DLALC Asset Governor incorporating OEH Aboriginal Heritage Information Management System (AHIMS) data.

The main strategy used to assess the area was to first consult the relevant maps and DLALC Asset Governor incorporating AHIMS database and information as mentioned above, then secondly to visually inspect the area and soil surface. The visual inspection of the assessment area was done on foot on Tuesday 18th October.

Consideration for inaccuracies of the locations of registered Aboriginal sites must be taken as this is a common occurrence. This is often due to sites being recorded before GPS units were introduced, as an example, subsequently, sites may be difficult to relocate years later. Sites may also be difficult to relocate simply due to thick vegetation within the assessment area or human error during the original recording many years prior.

10. Assessment Fieldwork

The inspection of the assessment site was conducted on Tuesday 18th October 2016.

Lee Davison conducted the site survey (Project Officer, Culture and Heritage, DLALC).

The site survey comprises one path that covered the assessment area. The survey was recorded as follows:

Site Survey: Tuesday 18th October 2016

Weather conditions: Good/Sunny

The site inspection began with a drive over the property with the land owner, Noel Smith, followed by a walk over by the Darkinjung representative (Refer Figure 5 below).

Ground surface visibility was average through most areas within the study area due to thick or long grass and/or leaf litter. Ground surface exposure in some areas was due to well-worn vehicle tracks throughout the property and disturbed ground surface around the edge of the dam.

Figure 5: Path traversed during the site assessment indicated by red line.

(Google Earth).

11. Photographs

Figure 6: Mulloway Road, Chain Valley Bay. The assessment site (15 Mulloway Road) can be seen on the south side of Mulloway Road (right).
View south east.

Figure 7: Residential dwelling and associated vehicle access (driveway) at the front (north end) of the property. View south west.

Figure 8: Vehicle access tracks and vegetation behind the residential dwelling and shed, approximately 150m south of Mulloway Road. View north west.

Figure 9: Thick vegetation and rubbish at the rear of the residential dwelling. View north.

Figure 10: Cleared section of the property. Grass cover did not allow ground visibility. View south east.

Figure 11: The dam located on the western edge of the mid-section of the property. View south west.

Figure 12: Ground exposure near the dam due to vehicle tracks. View east.

Figure 13: Sewer line toward the south of the property and associated vegetation clearance. This sewer line marks the southern boundary of the proposed development. View west.

Figure 14: Neighbouring residential development on the property's western boundary. View south.

12. Fieldwork Results

Ground surface visibility was poor to average in most areas due to grass cover, leaf litter and thick vegetation. Vehicle tracks throughout the property provided some ground exposure.

No features of Aboriginal cultural heritage were identified during the site inspection.

13. Discussion and Recommendations

This assessment was conducted strictly for the purpose of the proposed development to be put forward to Council and in no way does DLALC give consent to any ground disturbance activity at the assessment site mentioned above prior to further Aboriginal archaeological investigation of the site.

The assessment site shown in Figure 2 and 5 comprised inspection of privately owned land at Chain Valley Bay, Central Coast Shire on Tuesday 18th October 2016.

The assessment site consists of two vegetation communities, Coastal Plains Smooth-barked Apple Woodland and Coastal Plains Scribbly Gum Woodland within 350m of Chain Valley Bay, Lake Macquarie.

According to the AHIMS Register there are no recorded Aboriginal sites located within a 1 km radius of the assessment site. This may be due to no previous cultural heritage surveys conducted within the area.

Ground disturbance at the assessment site has occurred in the past due to the construction of a residential dwelling and associated vehicle access, boundary fencing, vehicle tracks throughout the property, vegetation clearing, a dam, and a sewer line toward the south end of the property.

Although the site has undergone previous disturbance, considering the information above there is a possibility for objects or sites of Aboriginal cultural heritage within the assessment area. It is possible that Aboriginal cultural heritage items such as stone artefacts could lie beneath the top soil surface and ground cover vegetation of the assessment site. A detailed inspection of mature trees within the assessment site may also identify scars produced by Aboriginal people in the past for cultural purposes.

The following is recommended for the proposed residential development:

Further, detailed Aboriginal archaeological inspection and community consultation in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (Part 6 *NPWS Act 1974*) are required prior to any ground disturbance works commences, should the proposed development gain approval.

If any Aboriginal cultural heritage sites or materials are found within the assessment site including bone, the Office of Environment and Heritage (OEH) and Darkinjung LALC should be notified immediately.

Any negative impacts to an area containing Aboriginal cultural heritage will require the application of an Aboriginal Heritage Impact Permit (AHIP) from the Office of Environment and Heritage (OEH).

Overview of recommendations:

1. Further, detailed Aboriginal archaeological inspection and community consultation in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (Part 6 *NPWS Act 1974*) are required prior to any ground disturbance works commence, should the proposed development gain approval.

2. The site developers must give notice to Darkinjung LALC 30 days prior to any commencement of construction work.

3. In the case of Aboriginal cultural heritage sites or material being discovered at the assessment site, the Office of Environment and Heritage (OEH) and Darkinjung LALC should be contacted immediately. If human remains are discovered the Police are to be contacted immediately.

4. Please Note. Under the *National Parks and Wildlife Act (1974)* it is an offence to harm (destroy, deface, or damage) or desecrate an Aboriginal object or Aboriginal place, or in relation to an object, move the object from the land on which is has been situated. Penalties range from $275,000 and 1 year imprisonment to $555,000 and 2 years imprisonment for an individual up to $1,100,000 for a Corporation.

5. Penalties for failure to notify OEH of the location of an Aboriginal object range from $11,000 to $22,000 including from $1,100 to $2,000 for each day the offence continues.

References:

Darkinjung Local Aboriginal Land Council. *'About us'*, retrieved 17 June 2010 from http://www.darkinjung.com.au/default.aspx?id=2

Aboriginal cultural heritage consultation requirements for proponents 2010, Part 6 *National Parks and Wildlife Act 1974.* Environment Climate Change and Water; NSW Government. Retrieved 10 November 2016 from http://www.environment.nsw.gov.au/licences/consultation.htm

Attenbrow, V. 2002, *Sydney's Aboriginal past investigating the archaeological and historical record,* UNSW Press, Sydney.

Byrne, D. 1997, 'National Parks & Wildlife Service Standards Manual', *Aboriginal Cultural Heritage Standards & Guidelines Kit*, *Aboriginal Cultural Heritage Guidelines for Aboriginal Consultants* New South Wales National Parks and Wildlife Service.

Due diligence guidelines for protection of Aboriginal objects in NSW, Consultation draft; Environment Climate Change and Water; NSW Government. Retrieved 11 April 2016 from http://www.environment.nsw.gov.au/resources/cultureheritage/ddcop/10798ddcop.pdf

Google Earth.

Google Maps.

Hodgetts, S. 2015, *Aboriginal Cultural Assessment Regional Sporting Complex Playing Fields Lot 1 DP 1186260 to Insite Heritage Pty Ltd August 2015* Darkinjung Local Aboriginal Land Council.

Lower Hunter & Central Coast Regional Biodiversity Conservation Strategy. 2003, *Technical Report. Digital Aerial Photo Interpretation & Updated Extant Vegetation Community Map*.

Mulvaney, J & Kamminga, J.1999, *Prehistory of Australia*, Allen & Unwin, St Leonards.

Office of Environment and Heritage (OEH), *Aboriginal Heritage Information Management System* (AHIMS).

Royal Botanic Gardens, Sydney Australia, *National Herbarium of New South Wales*. PlantNet. http://plantnet.rbgsyd.nsw.gov.au/search/simple.htm

Stewart, K & Percival, B. 1997, *Bush Foods of NSW: A Botanical Record and Aboriginal Oral History*, Royal Botanical Gardens, Sydney.

Acknowledgments:

Photographs: Lee Davison

Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Site Investigation for Contamination

Proposed Rezoning for Residential Development
15 Mulloway Road, Chain Valley Bay

Prepared for
Mr Noel Smith

Project 83024.00
August 2016

Douglas Partners
Geotechnics / Environment / Groundwater

Document History

Document details

Project No.	83024.00	Document No.	R.001.Rev0
Document title	Report on Preliminary Site Investigation for Contamination Proposed Rezoning for Residential Development		
Site address	15 Mulloway Road, Chain Valley Bay		
Report prepared for	Mr Noel Smith		
File name	83024.00.R.001.Rev0.PSI		

Document status and review

Status	Prepared by	Reviewed by	Date issued
Revision 0	Brent Kerry	Chris Bozinovski	3 August 2016

Distribution of copies

Status	Electronic	Paper	Issued to
Revision 0	1		Mr Noel Smith (c/- Optima Developments Pty Ltd)

The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature	Date
Author		3/8/16
Reviewer	for Chris Bozinovski	3-8-2016

bsi. ISO 9001 Quality Management

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Executive Summary

This report presents the results of a preliminary site investigation for contamination (PSI) undertaken for a proposed rezoning for residential development at 15 Mulloway Road, Chain Valley Bay. The investigation was commissioned by Mr Noel Smith (authorisation dated 18 May 2016) and was undertaken in accordance with Douglas Partners' proposal WYG160024 dated 28 January 2016.

The objective of the study was to provide an initial assessment of the site's contamination status to support an application to rezone the site. For the purposes of this investigation, it is understood that future development is likely to comprise residential use (i.e. residential subdivision).

This PSI report presents the results of a site history review and a walkover of the site. No intrusive investigation or testing was undertaken for this PSI.

Based on the findings of the desktop review and site walkover, DP considers that there is a low potential for widespread contamination given the past site activities and the existing site conditions. Some localised potential contamination sources were identified (refer Table 2 – Section 6); including storage of debris concentrated in the northern portion of the site, and the former and existing building footprints.

The site would generally be considered compatible (from a site contamination perspective) with the proposed residential land use. The localised potential contamination issues identified can be readily address through investigation and where required localised remediation.

These investigations could initially be limited to targeted sampling of soils in localised areas of environmental concern (i.e. areas of disturbance, former/existing buildings, access tracks, cleared paddocks and dam sediments). These investigations should include an assessment of site soils for chemical and physical characteristics to assess the perceived low risk of contamination.

Prior to completion of the further intrusive contamination investigations it is recommended that a licensed contractor is engaged to remove all debris and waste materials and suspected ACM fragments observed at the ground surface (refer to Drawing 1, Appendix A).

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Report on Preliminary Site Investigation for Contamination
Proposed Rezoning for Residential Development
15 Mulloway Road, Chain Valley Bay

1. Introduction

This report presents the results of a preliminary site investigation for contamination (PSI) undertaken for a proposed rezoning for residential development at 15 Mulloway Road, Chain Valley Bay. The investigation was commissioned by Mr Noel Smith (authorisation dated 18 May 2016) and was undertaken in accordance with Douglas Partners' proposal WYG160024 dated 28 January 2016.

The objective of the study was to provide an initial assessment of the site's contamination status to support an application to rezone the site. For the purposes of this investigation, it is understood that future development is likely to comprise residential use (i.e. residential subdivision).

This PSI report presents the results of a site history review and a walkover of the site. No intrusive investigation or testing was undertaken for this PSI. The PSI was undertaken with respect to the staged investigation approach outlined in State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55 – Ref 1) and the National Environment Protection Council (NEPC) National Environment Protection (Assessment of Site Contamination) Measure 1999 (amended 2013) (NEPC, 2013 – Ref 2).

1.1 Objectives

The objectives of the PSI were to:

- Identify potential sources of contamination and determine potential contaminants of concern;
- Identify areas of potential contamination;
- Identify potential human and ecological receptors;
- Identify potentially affected media (soil, sediment, groundwater, surface water, indoor and ambient air);
- Provide a preliminary assessment of the site's contamination status and likely compatibility with a residential use; and
- Assess the need for further investigation and/or site remediation.

1.2 Site Identification

The site is identified as Lot 273 Deposited Plan 755266 and has a street address of 15 Mulloway Road, Chain Valley Bay, NSW. The site is located within the parish of Munmorah, County of Northumberland and in the Central Coast Council (CCC – formerly Wyong Shire Council (WSC)) local government area.

The site is currently zoned E2 Environmental Conservation and E3 Environmental Management under Wyong Local Environmental Plan 2013. The site has an approximate rectangular shape and comprises an area of approximately 16.59 hectares.

Figure 1, is a plan of the local area and shows the site in relation to various local features.

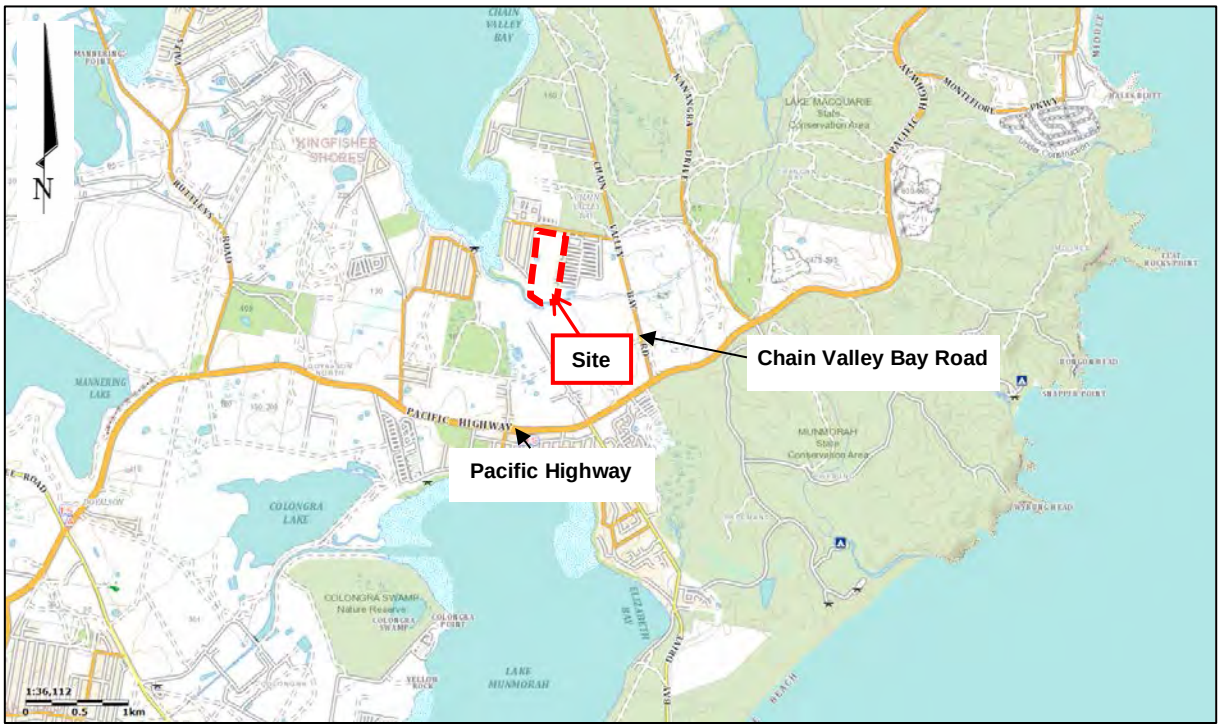


Figure 1: Location of the site within Chain Valley Bay
(image sourced from SIX Maps)

Figure 2, is an aerial view of the local area and shows the site in relation to the nearest cross street.

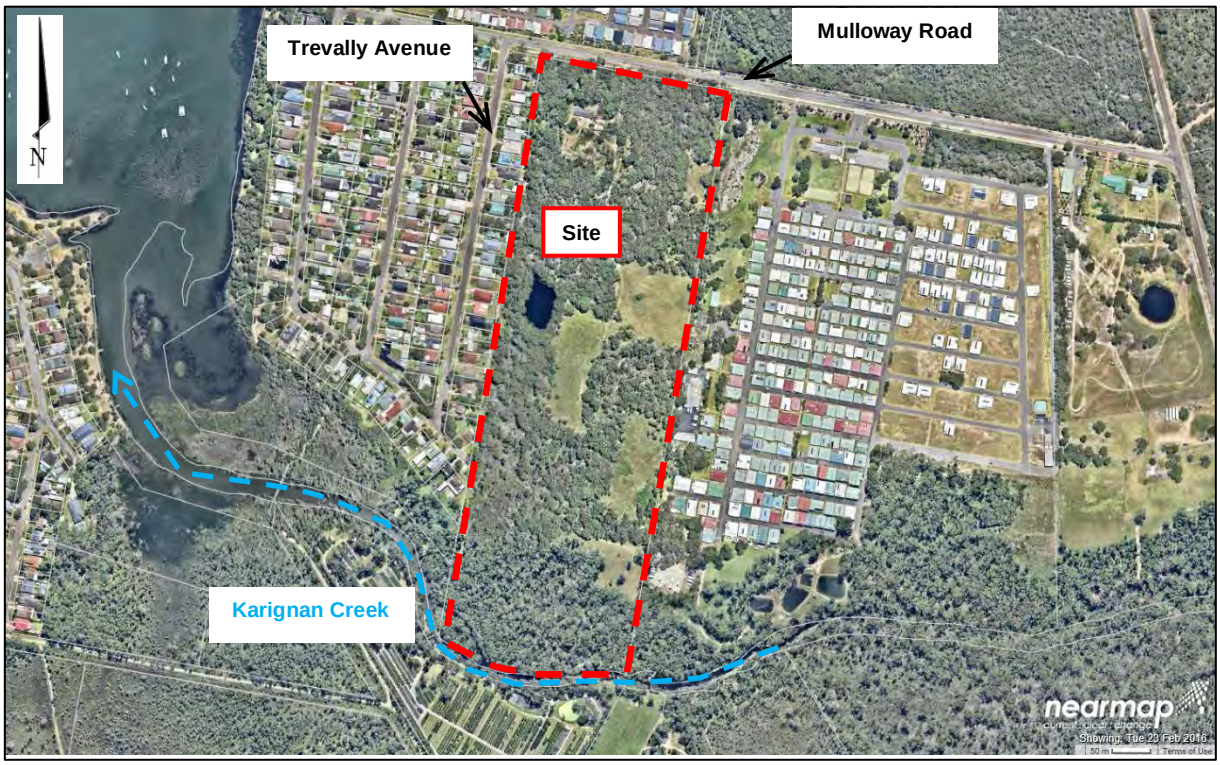


Figure 2: Location of the site **(image sourced from nearmap.com, dated 23 February 2016)**

At the time of the PSI, the site primarily comprised bushland, with several clearings and access trails traversing the site. The main site features comprised a single residence and detached shed in the north-west portion of the site and a large dam in the central-west portion of the site. Other site features are discussed in Section 5.

Drawing 1, which is included in Appendix A, shows the existing layout of the site.

2. Scope of Work

The scope of work for the PSI comprised:

- Collation and interpretation of readily available site data from the following sources:
  - Published public data, including topographical, geological and hydrogeological maps;
  - A search of the Registered Groundwater Bore database of the NSW Department of Primary Industries, Office of Water;
  - NSW EPA Contaminated Land and Protection of Environment Operations databases;
  - WSC (now CCC) Property Enquiry Information; and
  - Historical aerial photographs; and
  - Other historical information available for the site.
- Site walkover to provide a visual assessment of potential contamination sources;
- Development of a preliminary conceptual site model (CSM); and

- Preparation of this report outlining the works undertaken and the findings of the PSI.

3. Physical Setting

3.1 Topography

Review of the local topographic mapping and site observations indicated that site is generally sloping down to the south and west. Surface levels within the site range between approximately RL 16 m in the north east and 2 m AHD in the south. Karignan Creek borders the southern boundary of the site which discharges to the west and then north-west into Lake Macquarie, located approximately 400 m to the north-west.

Surface water would generally be expected to infiltrate at the site, however, runoff from the site is generally expected to migrate to the south-west, possibly entering the on-site dam or discharging into Karignan Creek. The final discharge point would most likely be Karignan Creek and Lake Macquarie.

Figure 3 is a plan of the local area and shows the site in relation to surface elevation contours and local watercourses.

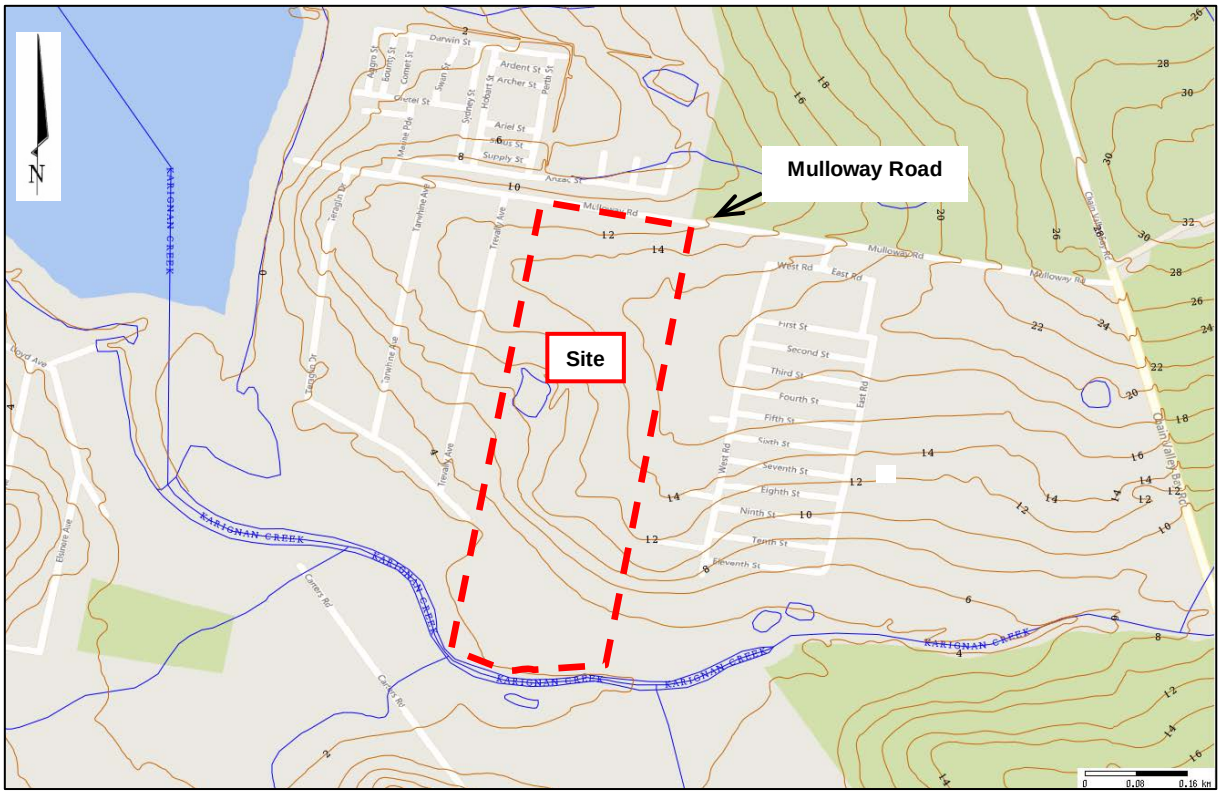


Figure 3: Site Topography
(image sourced from Microsoft Virtual Earth with 2 m elevation contour overlay)

3.2 Adjacent Site Uses

Surrounding land uses include the following:

- North (across and down slope) – Mulloway Road and then residential properties (Teraglin Lakeshore Home Village);
- East (across and up slope) – Residential properties (Valhalla Village);
- South (down slope) – Karignan Creek and then a wholesale nursery (Karignan Plantation – Trees Impact); and
- West (down slope) – Residential properties.

The potential for contamination from existing off-site land uses or activities to have impacted the site is considered to be relatively low. Notably the wholesale nursery use appeared to relate to large trees that would not require intensive management.

A walkover of the adjacent sites was not undertaken as part of this PSI.

3.3 Regional Geology and Soil Landscape

Reference to the local geological mapping indicates that the site is located near the boundary of areas mapped as being underlain by Munmorah Conglomerate (identified as Rnp in Figure 4) and areas mapped as being underlain by Quaternary alluvium (identified as Qa in Figure 4). Munmorah Conglomerate of the Narrabeen Group typically comprises pebbly sandstone, conglomerate, sandstone and claystone. Quaternary alluvium typically comprises an undifferentiated mix of sands, silts and clays.

The local soil landscape mapping confirms that the site is situated near the boundary of two different soil landscapes being the erosional Doyalson soil landscape (identified as do in Figure 5) to the north and alluvial Wyong soil landscape (identified as wy in Figure 5) to the south. The mapping indicates that subsurface conditions in the northern portion of the site may comprise residual clayey soils underlain by weathered Munmorah Conglomerate bedrock, whilst in the southern portion the residual soils maybe overlain by alluvial soils.

The subsurface conditions within the site are likely to be consistent with the local geological and soil landscape mapping based on local knowledge and observations made during the site walkover.

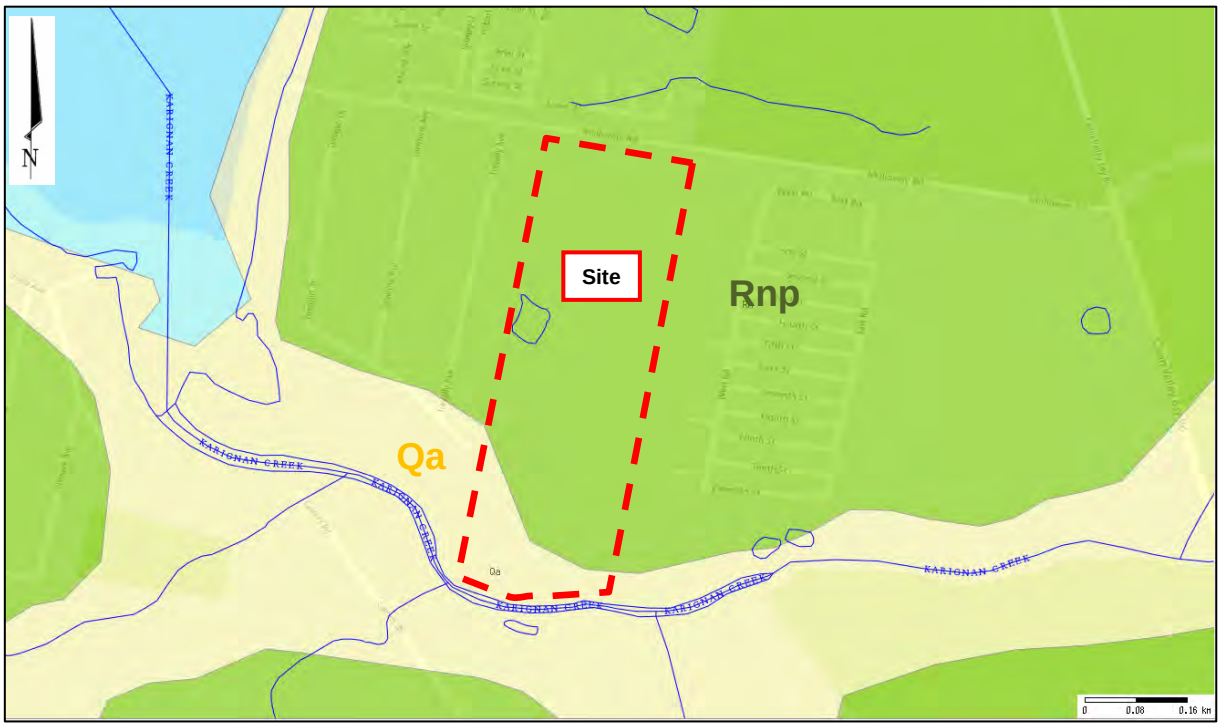


Figure 4: Site Geology Mapping
(image sourced from Microsoft Virtual Earth with Newcastle Coalfields 1:100,000 Geology overlay)

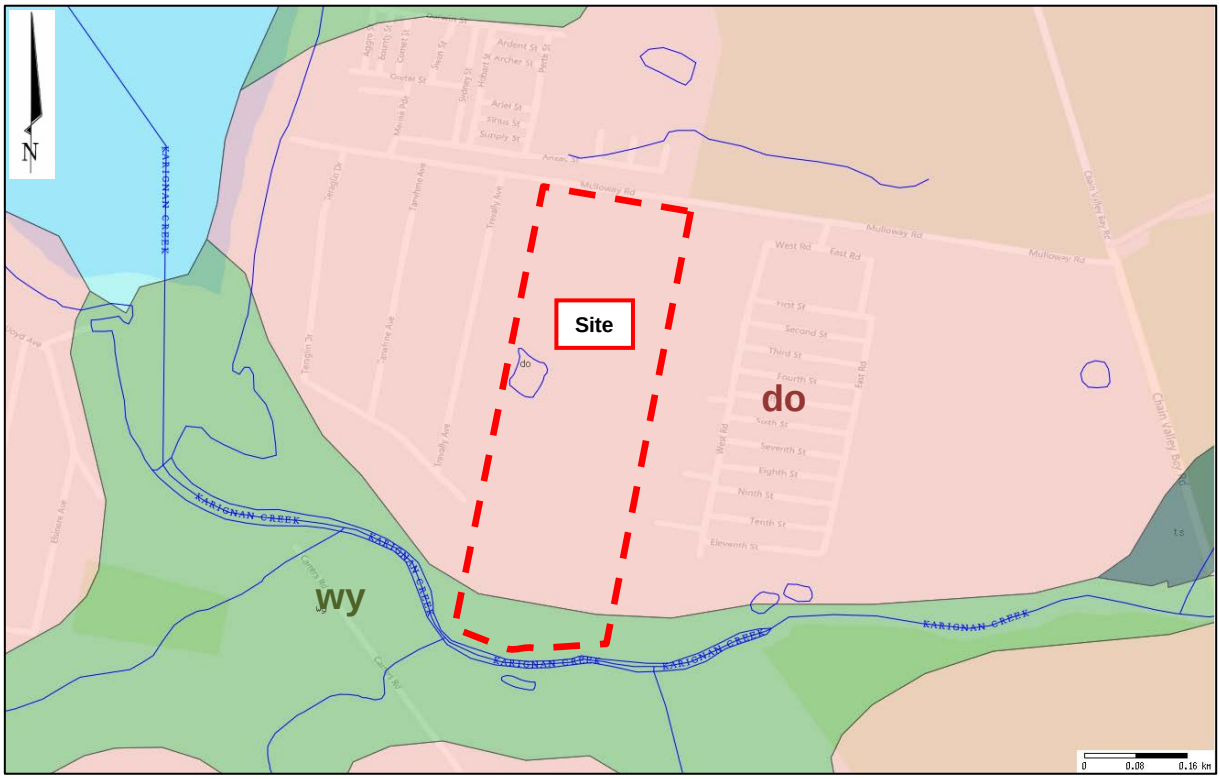


Figure 5: Site Soil Landscape Mapping
(image sourced from Microsoft Virtual Earth with Gosford-Lake Macquarie 1:100,000 Soil Landscapes Sheet overlay)

3.4 Acid Sulfate Soils

The local acid sulfate risk mapping indicates that the site is generally located in an area mapped as having no known occurrence of acid sulfate soils (ASS). However, the southern portion of the site borders areas mapped as having a high probably of occurrence within 1 m of the ground surface.

Furthermore, review of the acid sulfate soils planning maps provided by WSC (now CCC) indicates that the site is located in a Class 2 and Class 5 mapped area. Both of these classes indicate that further assessment of acid sulfate soil conditions is likely to be required by council as part of the planning approvals process.

The acid sulfate soil risk mapping is consistent with the mapped subsurface conditions and site elevations indicating that assessment for acid sulfate soil is warranted if soils in the southern third of the site are likely to be disturbed as part of the proposed development activities.

It is noted that the possible presence of ASS does not preclude future site development. If ASS are found to be present they can be effectively managed through investigation and a site specific acid sulphate soil management plan (ASSMP).

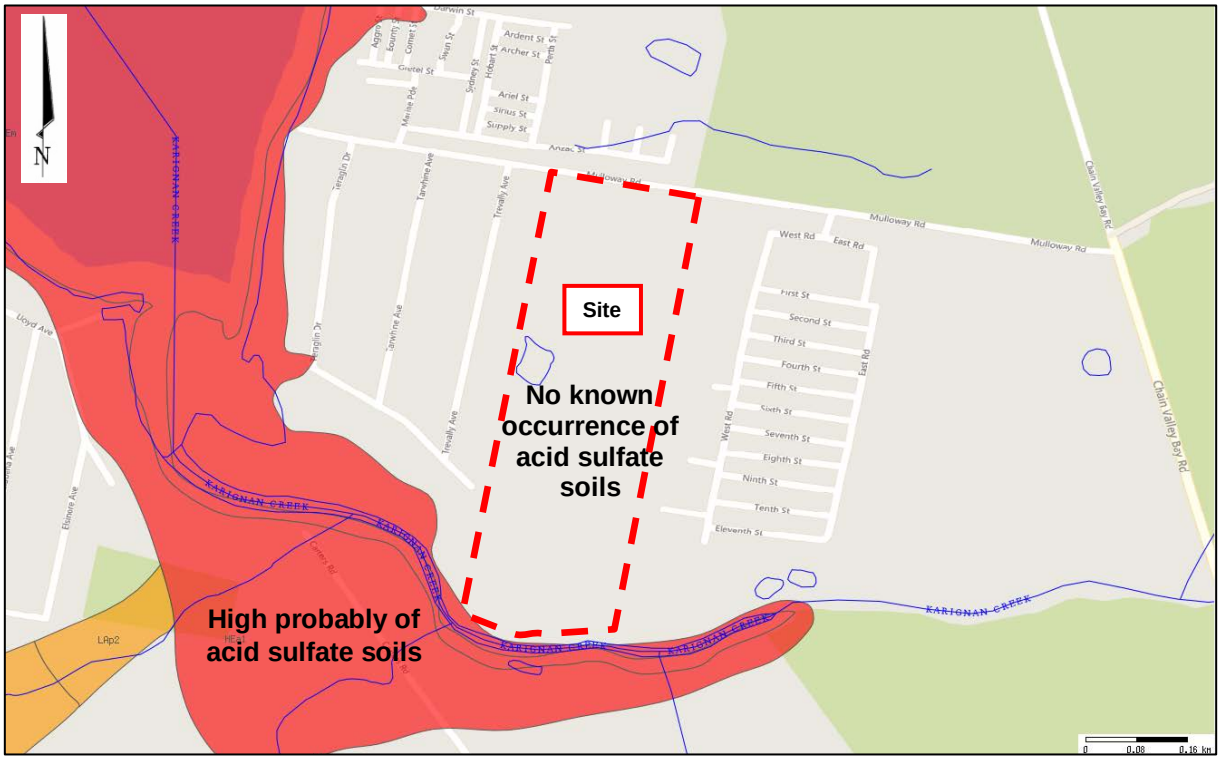


Figure 6: Acid Sulfate SoilSite Soil Landscape Mapping
(image sourced from Microsoft Virtual Earth with Gosford-Lake Macquarie 1:100,000 Soil Landscapes Sheet overlay)

3.5 Groundwater

Given the site's topography and geology, it is considered likely that a permanent groundwater table is present at relatively shallow depth (i.e. less than 4 m depth), particularly within the southern portion of the site which borders Karignan Creek. The shallow groundwater table within the northern portion of the site may be limited to intermittent seepage at the interface of permeability boundaries (i.e. sandy – clayey soils or the soil – weathered rock interface) or be present at greater depths within the rock profile. It should be noted that groundwater levels are potentially transient and can be affected by factors such as soil permeability and recent weather conditions.

Figure 6 is a street map of the local area and shows the site in relation to the local registered groundwater bores.

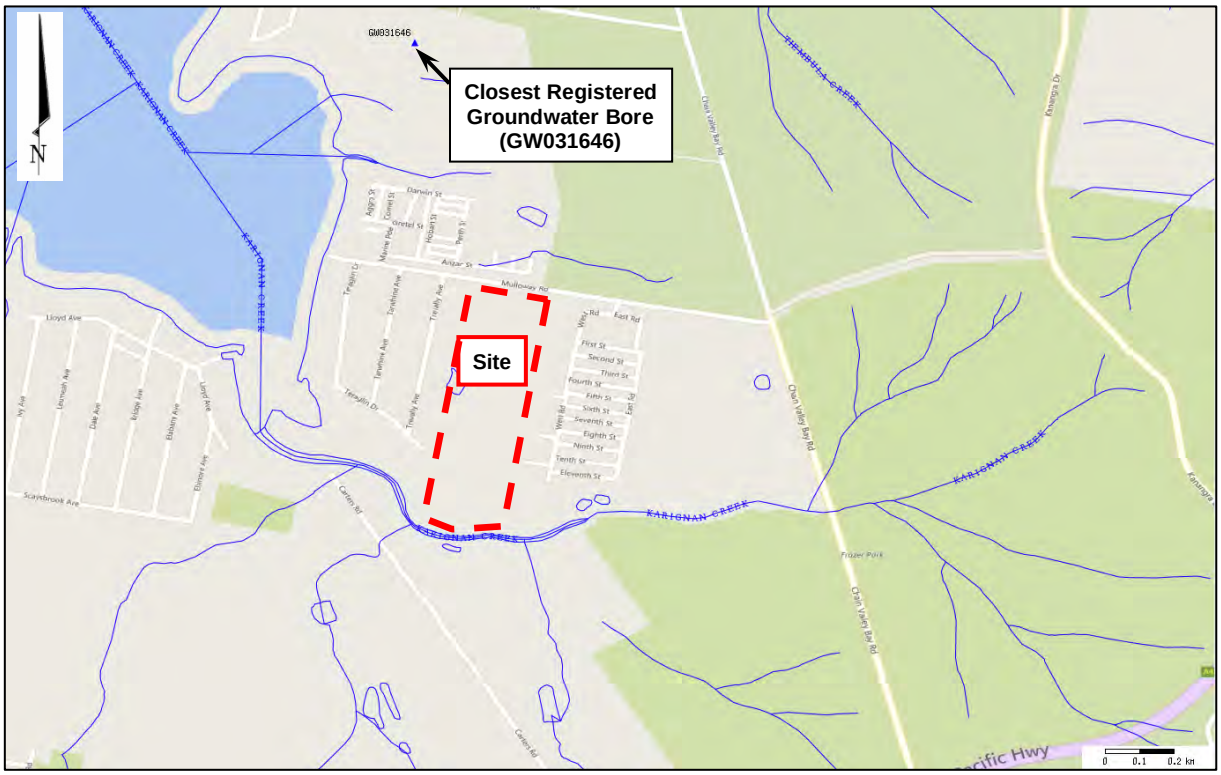


Figure 7: Registered Groundwater Bores
(image sourced from Microsoft Virtual Earth with NSW Office of Water Registered Groundwater Bore location overlay)

A search for registered groundwater bores in the Department of Natural Resources groundwater bore database [Note: this function has been taken up by NSW Department of Primary Industries Office of Water] indicated that there are no registered groundwater bores within a 500 m radius of the site. Furthermore, no registered bores were located between the site the Karignan Creek (suspected primary groundwater discharge point).

The information available suggests that the closest bore was installed approximately 700 m to the north-west and was installed for coal exploration, however, has a domestic stock authorised purpose. The bore was drilled to 277 m depth, however no well construction details were provided. A copy of the search result is provided in Appendix B. Given the site topography and proximity of watercourse to the south, it is considered unlikely that potential groundwater contamination from the site would impact the nearest registered groundwater bore.

4. Site History

4.1 Regulatory Notices Search

The NSW EPA Register of Contaminated Land was searched for Regulatory Notices that may be current on the site issued under the *Contaminated Land Management (CLM) Act* 1997 and Section 308 of the *Protection of the Environment Operations (POEO) Act* 1997. The information obtained at the time of preparing this report indicated that no current or previous Licences, Notices or Orders were applicable for the site.

4.2 Council Enquiry Information

An enquiry was made through Wyong Shire Council's (WSC now CCC) web site. The enquiry identified that only applications from a lodgement date of 1 January 2007onwards are listed. Two applications are listed and both pertain to construction of a shed in 2012. A detached metal shed was observed during the site walkover.

No other applicable information was obtained from WSC. A copy of the WSC Property Report is provided in Appendix B.

4.3 Historical Aerial Photographs

Historical aerial photographs were reviewed dating back to the earliest available record (1954) and approximately every 10 to 20 years thereafter to assess possible changes to the site and surrounding areas during this period. The following historical aerial photographs were reviewed:

- Photograph – Lake Macquarie NSW 8/403 Run 4L, dated 07.03.1954;
- Photograph – Lake Macquarie NSW 2315 24 Run 3, dated 28.05.1975;
- Orthophotomap – Vales Point NSW U4527-9, photograph dated 23.11.1986;
- Photograph – Lake Macquarie NSW 3730 103 Run 9, dated 25.04.1990;
- Photograph – Lake Macquarie NSW 4309 Run 14, dated 29.05.1996;
- Photograph – Google Earth Image, dated 22.04.2005; and
- Photograph – Google Earth Image, dated 10.1.2016.

Extracts of the 1954, 1975, 1990 and 1996 historical aerial photographs are included as Drawing 2 in Appendix B. Table 1 summarises the observations made during the aerial photograph review.

Table 1: Aerial Photograph Review

Year	Site	Surrounding Land Use
1954	The site appears to be generally vegetated with bushland, except for an access track extending from Mulloway Road south and linking four probably grass surfaced paddocks that match the approximate location of the existing open grassed surfaced areas at the site.	Surrounding areas appear to comprise mostly bushland with some areas cleared and appear to have a grass surface cover. No intensive rural activities (i.e. orchards, market gardens or poultry) were identified on the adjacent properties.
1975	The site generally appears to be in a similar condition to the 1954 photograph. Major changes appear to comprise construction of the existing residence, detached shed and access driveway in the northern portion of the site, and the existing dam located centrally along the western site boundary.	Surrounding areas appear generally partially cleared and in-part under development for probably residential uses. No specific rural uses were identified on nearby properties.
1986	No significant changes were observed.	Properties to the west appear to be largely developed for residential uses. The property to the east appears to have a semi-rural residential use (possibly a grazing use). No other significant changes were observed.
1990	No significant changes were observed.	Further residential development appears to be in progress to the north and east. No other significant changes were observed.
1996	No significant changes were observed.	The property to the south across Karignan Creek appears to be developed for the wholesale nursery use (i.e. row of plants visible). No other significant changes were observed.
2005	No significant changes were observed.	Further residential development appears to be in progress to the north (extension to Teraglin Lakeshore Home Village). No other significant changes were observed.
2016	The site generally appears to be in a similar condition to the 1975 photograph. Minor changes to the site conditions observed comprise the previously identified shed has probably been demolished and a larger shed has been constructed slightly to the east. The area immediately to the south of the residence appears to be disturbed (surface vegetation disturbed) and some materials appear to be stored in this area.	No significant changes were observed.

4.4 Other Historical Information

The Planning Consultant (Optima Developments Pty Ltd), as part of the initial information package, supplied a desktop (planning) assessment report, dated November 2009, identified that the land use at the time of the assessment report comprised a single detached dwelling with livestock (including pigs, cattle and horses – small scale only) under the supervision of a caretaker. Furthermore, the Google Earth web images identified that the site was operated as Chain Valley Creek Guided Trail Rides.

Mr Noel Smith (Client) stated that he had owned the property for at least ten years and that the property was currently tenanted. A brief interview with the current tenant indicated that a former tenant left remnant materials scattered in the locality of the residence. These materials are identified in the site walkover (Section 5). The current tenant also indicated that the site was used as a horse riding trail in the past.

5. Site Walkover / Observations

A site walkover was undertaken on 28 July 2016 by a Senior Environmental Engineer (Mr Brent Kerry). The site features observed during the walkover are summarised below. The general site topography was consistent with that described in Section 3.1.

The site layout appears to have remained unchanged from the March 2015 aerial photograph (refer to Drawing 1, Appendix A). The following features were observed during the walkover:

Figure 8 – Photograph from Mulloway Road showing bushland vegetation with single driveway access into site – looking south.


Figures 9 and 10 – Photograph of access driveway into site from Mulloway Road with some recycled aggregate materials used to surface the driveway. Photograph of residence and detached shed. The shed was used to house several cats, with a tractor parked under the attached awning.


Figures 11 and 12 – Inspection of the general site conditions in the locality of the residence indicated that the area immediately to the south was cleared with a scattered grass/weed cover. Surface soils appeared to have been disturbed in the past possibly as a result the livestock known to occupy the site. Various materials and debris (i.e. mix of metal, timber, plastic, concrete and foam) were stored in this portion of the site.


Figures 13 and 14 – Photograph of various materials and debris were stored in general locality of the residence (refer to Drawing 1, Appendix A). Materials observed comprised a mix of metal, timber, plastic, concrete and foam, a derelict truck, tractor and trailer, and small quantities of suspected asbestos-containing-material (ACM) fragments were observed at the ground surface (refer to Figure 13) at three locations.


Figures 15 and 16 – Remaining portions of the site comprised bushland with several grass surface clearings linked with typically unsurfaced access tracks. No obvious signs of widespread filling were identified during the walkover, however, isolated areas on the tracks appeared to have been resurfaced with concrete rubble. Small stockpiles of building waste materials (i.e. mix of brick, concrete, tiles and metal - refer to Figure 16), soils and timber logs (suspected to be sourced from fallen trees) were observed during the walkover. No additional suspected ACM fragments were observed at the surface of the stockpiles.

6. Preliminary Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors. The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or in the future i.e. it enables an assessment of the potential source – pathway – receptor linkages (complete pathways).

6.1 Potential Contamination Sources and Contaminants of Concern

Table 2 summarises the potential sources of contamination and associated contaminants of concern that have been identified at the site.

Table 2: Potential Contamination Sources and Contaminants of Concern

Potential Contamination Source/Activity	Description of Potential Contaminating Activity	Primary Potential Contaminants of Concern
Storage of debris, waste materials, minor spills/leaks from derelict equipment and contaminated filling	Importation of substantial filling is unlikely likely based on site history and observations. Any spills/leaks from equipment are likely to be localised. However, localised filling and storage/dumping of materials was observed at the site.	Various - Common contaminants associated with filling are metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), TRH, BTEX, PAH, PCB, OCP and asbestos
Former and existing building footprints	Site historical review identified a residence and two sheds (one former and one existing). The older buildings may contain hazardous building materials or have been treated with chemical that could contaminate the soil.	Metals (As, Cd, Cr, Cu, Pb, Hg, Ni and Zn), OCP and asbestos

Notes:
As = arsenic, Cd = cadmium, Cr = chromium, Cu = copper, Pb = lead, Hg = mercury, Ni = nickel and Zn = zinc
TRH = total recoverable hydrocarbons, BTEX = benzene, toluene, ethylbenzene and xylene, PAH = polycyclic aromatic hydrocarbons, PCB = polychlorinated biphenyls, OCP = organochlorine pesticides

For the purpose of developing a conceptual site model, the potential sources (S) of contamination are summarised as:

- S1 - Storage of debris (waste materials, spills/leaks and potentially contaminated filling); and
- S2 - Former and existing building footprints.

6.2 Potential Receptors of Concern

The potential receptors of potential contamination sourced from the site are considered to be:

- R1 - Site users (future residential users);
- R2 - Adjacent site users (residential);
- R3 - Construction and maintenance workers;
- R4 - Surface water (nearby intermittent watercourse);
- R5 - Terrestrial ecology; and
- R6 - Property (future).

Groundwater is not considered a potential receptor of concern given the potential contamination sources and site conditions identified. This should be reassessed based on the results of future investigations recommended at the site.

6.3 Potential Contamination Migration Pathways

The pathways by which the potential sources of contamination could reach potential receptors are described below:

- P1 - Ingestion and dermal contact;
- P2 - Inhalation of dust and / or vapours;
- P3 - Surface run off; and
- P4 - Direct contact with terrestrial ecology / property.

6.4 Conceptual Site Model

A ‘source–pathway–receptor’ approach has been used to assess the potential risks of harm being caused to human, water or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways. The possible pathways between the above sources (S1 and S2) and receptors (R1 to R6) are provided in Table 3 below.

Table 3: Conceptual Site Model

Potential Source	Pathway	Receptor
S1 - Storage of debris. (Metals, TRH, BTEX, PAH, PCB, OCP and asbestos) S2 - Former and existing building footprints. (Metals, OCP and asbestos)	P1 – Ingestion and dermal contact	R1 – Site users R3 –Construction & maintenance workers.
	P2 – Inhalation of dust and / or vapours	R1 – Site users R2 – Adjacent site users R3 – Construction & maintenance workers.
	P3 – Surface run off	R4 –Surface water.
	P4 – Direct contact with terrestrial ecology / property	R5 – Terrestrial ecology R6 – Property

7. Conclusions and Recommendations

Based on the findings of the desktop review and site walkover, DP considers that there is a low potential for widespread contamination given the past site activities and the existing site conditions. Some localised potential contamination sources were identified (refer Table 2 – Section 6); including storage of debris concentrated in the northern portion of the site, and the former and existing building footprints.

The site would generally be considered compatible (from a site contamination perspective) with the proposed residential land use. The localised potential contamination issues identified can be readily address through investigation and where required localised remediation.

These investigations could initially be limited to targeted sampling of soils in localised areas of environmental concern (i.e. areas of disturbance, former/existing buildings, access tracks, cleared paddocks and dam sediments). These investigations should include an assessment of site soils for chemical and physical characteristics to assess the perceived low risk of contamination.

Prior to completion of the further intrusive contamination investigations it is recommended that a licensed contractor is engaged to remove all debris and waste materials and suspected ACM fragments observed at the ground surface (refer to Drawing 1, Appendix A).

8. References

1. Department of Urban Affairs and Planning, Managing Land Contamination, Planning Guidelines SEPP 55 – Remediation of Land, 1998.

2. National Environment Protection Council (NEPC), National Environment Protection (Assessment *of Site Contamination) Measure 1999* (amended 2013), 2013.

9. Limitations

Douglas Partners (DP) has prepared this report for this project at 15 Mulloway Road, Chain Valley Bay in accordance with DP's proposal WYG160024, dated 28 January 2016 and acceptance received from Mr Noel Smith dated 18 May 2016. The work was carried out under DP's Conditions of Engagement. This report is provided for the exclusive use of Mr Noel Smith for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's contamination assessment is necessarily based on the result of a desktop site historical search and site inspection only and did not include surface or subsurface sample screening and/or chemical testing. DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site.

It is noted that this assessment does not constitute a hazardous material building assessment. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report. This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Suspected asbestos has been detected by observation on the surface of the site. Building demolition materials, such as concrete were also located in other areas of the site and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos. It is therefore considered possible that HBM, including asbestos, may be present in unobserved parts of the site, and hence no warranty can be given that asbestos is not present.

Douglas Partners Pty Ltd

Appendix A

About This Report
Drawings 1 and 2

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

NOTES:

Drawing adapted from Nearmap.com.au (dated 23 February 2016

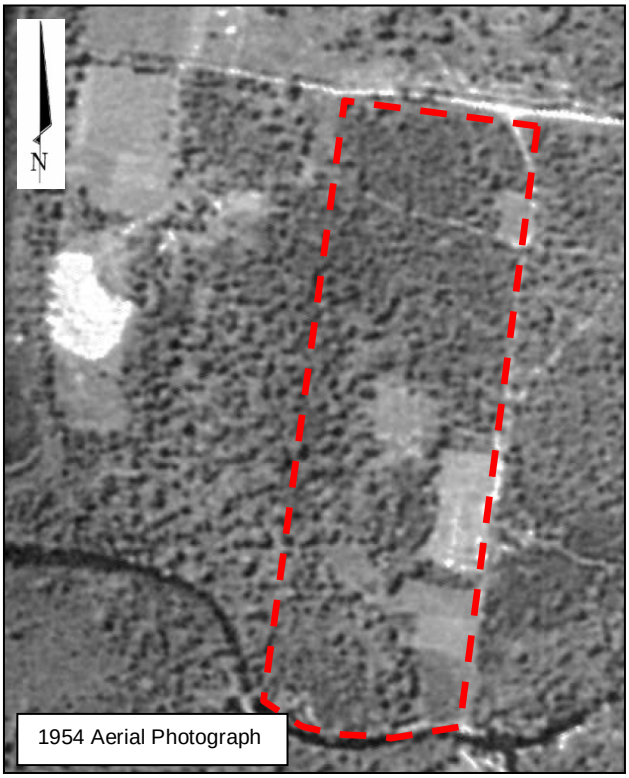
Approximate Site Boundary

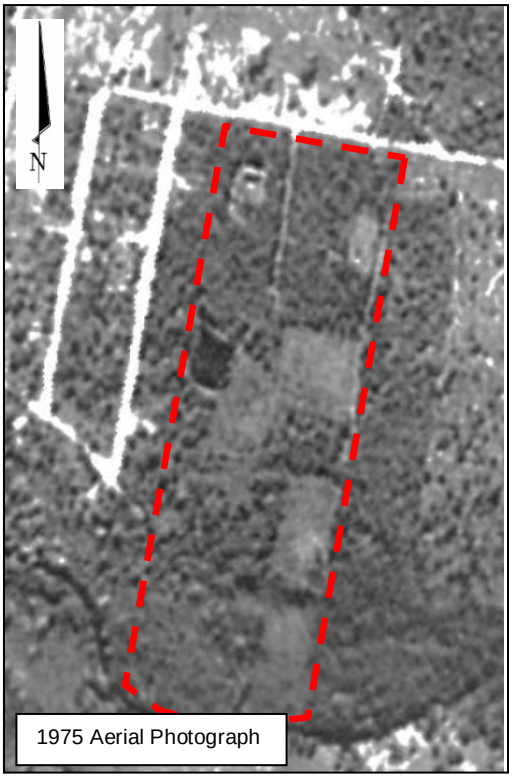
Douglas Partners
Geotechnics / Environment / Groundwater

CLIENT:	Mr Noel Smith		
OFFICE:	Central Coast	DRAWN BY:	BJK
SCALE:	NTS	DATE:	August 2016

TITLE: **Existing Site Layout**
Preliminary Site Investigation for Contamination
15 Mulloway Road, Chain Valley Bay

PROJECT No:	83024.00
DRAWING No:	1
REVISION:	0





Douglas Partners
Geotechnics / Environment / Groundwater

Historical Aerial Photographs

Preliminary Site Investigation for Contamination

15 Mulloway Road, Chain Valley Bay

CLIENT: Mr Noel Smith

PROJECT:	83024.00
DWG No:	2
REV:	0
DATE:	Aug 2016

Appendix B

Background Information

Property Details

Important Information:

Applications listed on this page are only from a lodgement date of 01/01/2007 onwards.

The information listed on this page is supplied by Council for general information purposes only and does not reflect all records and information available for the identified parcel of land. No reliance should be placed on the information on this page to determine the planning or other legislative controls affecting the identified parcel of land. Applications may be made in accordance with the *Government Information (Public Access) Act 2009* to inspect information held by Council in relation to the identified parcel of land. Applications may also be made for planning certificates under sec. 149 of the *Environmental Planning and Assessment Act 1979.* Additionally, the parcel conditions listed are not a complete list of conditions imposed on the identified parcel of land. For example, site compatibility, flooding and coastal hazards are not listed on this page. Also, a reference to a chapter of Council's Development Control Plan (DCP), does not mean that other chapters of the DCP are not relevant. Please refer to Council's full Terms and Conditions applicable to the use of this service.

15 Mulloway Road CHAIN VALLEY BAY NSW 2259

Details
Property Number: 319545
Lot/DP: Lot 273 DP 755266

Ward: A Riding

Zoning
E2 - E2 Environmental Conservation
E3 - E3 Environmental Management

Applications
CC - 162 / 2012 - Shed
DA - 205 / 2012 - Shed

Conditions
Parcel Conditions
SEPP - Miscellaneous Consent Provisions - 22/02/2014
SEPP 30 - Intensive Agriculture - 06/03/2009
SEPP 36 - Manufactured Home Estates - 06/03/2009
SEPP 21 - Caravan Parks - 22/05/2013
Bush Fire Prone Land - Yes - 07/05/2015
SEPP 62 - Sustainable Aquaculture - 31/12/2013
SEPP 64 - Advertising Policy - 31/12/2013
SEPP 44 - Koala Habitat Protection - 11/09/2012
Wyong LEP 2013 - 27/11/1995
Mine Subsidence - YES - 03/02/1995
No Road Widening - 03/07/1994
No Road widening under Planning Instrument - 05/12/2011
SEPP - Housing for Seniors or People with Disabili - 22/12/2000
SEPP 50 - Canal Estate Development - 25/11/1997
SEPP 55 - Remediation of Land - 17/09/1998
SEPP 71 - Coastal Protection - 08/02/2006
SEPP - State Significant Precincts - 07/06/2005
SEPP - BASIX 2004 - 08/09/2006
SEPP - Mining, Petroleum & Extractive Industries - 24/02/2010
SEPP - Infrastructure - 02/09/2008
SEPP - Exempt & Complying (Housing Code) - 26/02/2009
SEPP - Affordable Rental Housing - 12/01/2011
SEPP - State & Regional Development - 30/09/2011

Services
Below is a list of garbage services on this property:
Domestic green waste 240L bin . Collected on TUE Fortnightly Week A
Domestic recycling 240L bin . Collected on TUE Fortnightly Week A
Domestic garbage 140L bin . Collected on TUE Weekly

close all | **open all**

Wyong Shire Council

More

NSW OFFICE OF WATER
Work Summary

GW031646

Converted From HYDSYS

Licence : 20BL024637

Licence Status Active

	Authorised Purpose(s)	Intended Purpose(s)
Work Type : Bore open thru rock	DOMESTIC	COAL EXPLORE
Work Status : (Unknown)	STOCK	
Construct. Method : (Unknown)		
Owner Type : Private		

Commenced Date : **Final Depth :** 277.50 m
Completion Date : 01-Feb-1960 **Drilled Depth :** 0.00

Contractor Name :
Driller :
Assistant Driller's Name :

Property : - N/A
GWMA : 603 - SYDNEY BASIN
GW Zone : -

Standing Water Level :
Salinity : Excellent
Yield :

Site Details

Site Chosen By	County	Parish	Portion/Lot DP
	Form A : NORTHUMBERLAND	WALLARAH	143
	Licensed : NORTHUMBERLAND	WALLARAH	143

Region : 20 - HUNTER
River Basin : 211 - MACQUARIE - TUGGERAH LAKES
Area / District :

CMA Map : 9231-4S CATHERINE HILL BAY
Grid Zone : 56/1 **Scale :** 1:25,000

Elevation :
Elevation Source : (Unknown)

Northing : 6329317 **Latitude (S) :** 33° 10' 0"
Easting : 366742 **Longitude (E) :** 151° 34' 15"

GS Map : 0055C1 **MGA Zone :** 56 **Coordinate Source :** GD.,ACC.MAP

Construction

Negative depths indicate Above Ground Level;

H-Hole;P-Pipe;OD-Outside Diameter;ID-Inside Diameter;C-Cemented;SL-Slot Length;A-Aperture;GS-Grain Size;Q-Quantity;PL-Placement of Gravel Pack;PC-Pressure Cemented;S-Sump;CE-Centralisers

H	P	Component	Type	From (m)	To (m)	OD (mm)	ID (mm)	Interval	Details
1	1	Casing	(Unknown)	0.00	16.70	76			(Unknown)

Water Bearing Zones

From (m)	To (m)	Thickness (m)	WBZ Type	S.W.L. (m)	D.D.L. (m)	Yield (L/s)	Hole Depth (m)	Duration (hr)	Salinity (mg/L)
3.00	10.60	7.60	(Unknown)	3.00		0.13			Excellent

Drillers Log

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

Remarks

***** End of GW031646 *****