

APPENDIX 6

Historic Heritage Review

Mackas Sand

**Historical Heritage Review of Sand
Extraction Operations from
Lot 218 DP 1044608 and
Lot 220 DP 1049608, Salt Ash**

April 2009

Historical Heritage Review of Sand Extraction Operations from Lot 218 DP 1044608 and Lot 220 DP1049608, Salt Ash

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Mackas Sand

Project Director:	Peter Jamieson		
Project Manager:	Steven Crick		
Report No.	1646/R09/FINAL	Date:	April 2009



2/20 The Boulevard
PO Box 838
Toronto NSW 2283

Ph: 02 4950 5322
Fax: 02 4950 5737
Email: mail@umwelt.com.au
Website: www.umwelt.com.au

TABLE OF CONTENTS

1.0	Introduction	1
1.1	Background	1
1.2	Location of the Study Area	1
1.3	Statutory Overview	2
1.4	Heritage Listings	2
1.5	Previous Reports	2
2.0	Historical Context.....	3
2.1	European Contact.....	3
2.2	Exploration and Early Settlement	3
2.3	Early Industry	4
2.4	Early Twentieth Century	4
2.5	World War II	5
2.5.1	Northern Defence Line	5
2.6	Post War Tourism.....	6
3.0	Physical Context	7
3.1	Results of Site Inspection.....	7
3.1.1	Lot 218.....	7
3.1.2	Lot 220.....	7
3.1.3	Conclusion	8
3.2	Potential Historic Heritage Resource	8
4.0	Significance Assessment	8
4.1	Port Stephens LEP 2000	8
4.2	ERM Cultural Heritage Assessment 2006.....	9
5.0	Impact Assessment.....	9
5.1	Proposed Works	9
5.1.1	Lot 218.....	9
5.1.2	Lot 220.....	9
5.2	Discussion of Potential Impacts and Management Options to Mitigate Impacts	10
5.2.1	Lot 218.....	10
5.2.2	Lot 220.....	10

6.0	Conclusions and Recommendations	11
7.0	References	12

FIGURES

1.1	Locality Plan.....	1
3.1	‘Tank Traps’ within the Study Area	7
5.1	Proposed Operational Areas at Lot 218 and Lot 220	9

PLATES

1	View showing tank trap alignment running into dunes at Lot 218	7
2	View showing tank trap alignment alongside four wheel drive track in Lot 220.....	7
3	View showing detail of tank trap in Lot 220.....	7

1.0 Introduction

Mackas Sand proposes to extract industrial and construction grade sand resources from two sites at Stockton Bight, NSW on behalf of the Worimi Local Aboriginal Land Council (Worimi LALC). The sites that would be utilised are known as Lot 218 and Lot 220, Salt Ash (refer to **Figure 1.1**).

Umwelt (Australia) Pty Limited (Umwelt) has been engaged by Mackas Sand to undertake the necessary environmental assessments and assist in attaining approval for the proposal. This historical heritage review was undertaken as part of the assessment process to consider the impacts of the proposal on historic heritage.

An Aboriginal Cultural Heritage Assessment has also been prepared to assess the Aboriginal archaeological and cultural heritage significance of the study area and is provided in Appendix 5 of the main document.

1.1 Background

Stockton Bight has a high conservation value due to its rich Aboriginal cultural heritage and archaeological value, and habitat for threatened and endangered species. In February 2007, the Worimi Conservation Lands were proclaimed, forming a 4438 hectare conservation area that includes Worimi State Conservation Area, Worimi National Park and Worimi Regional Park.

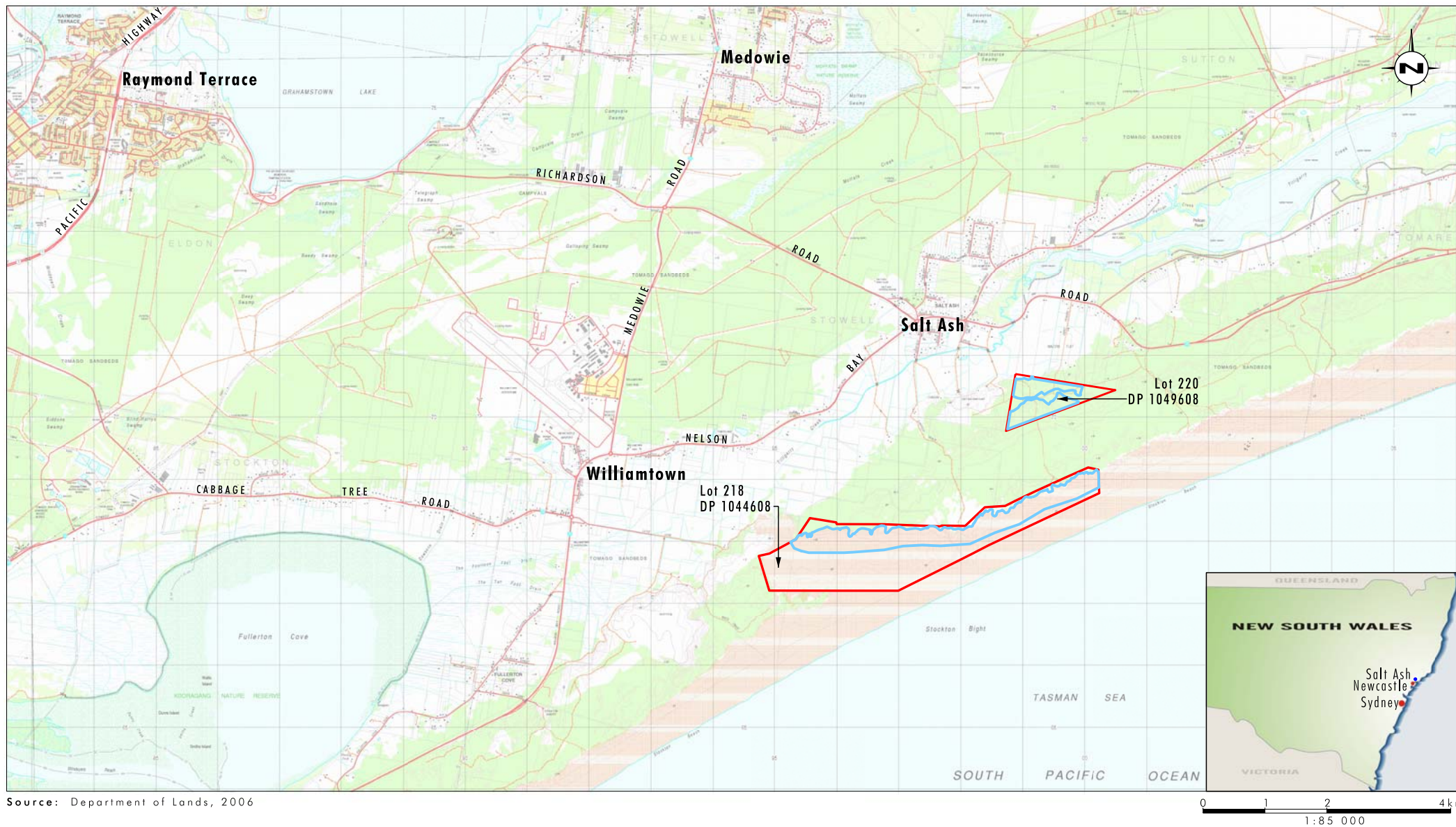
A large portion of Stockton Bight, including the study area and the Worimi Conservation Lands, was granted to the Worimi LALC in 2001 under the *Native Title (New South Wales) Act 1994*. The conservation lands are now leased back to the government under an agreement that allows for the lands to be co-managed between the Worimi LALC and the government. The agreement intends to provide for the protection of the cultural and natural heritage values of the Stockton Bight landscape, while allowing for safe and sustainable recreational and commercial use of the area by the broader community.

1.2 Location of the Study Area

The study area comprises Lot 218 in DP 1044608, Lot 220 in DP 1049608 and the location of proposed access roads on Lot 3 in DP 739188 and Lot 227 in DP 1097995, Salt Ash (refer to **Section 5.1**). The study area forms part of the Stockton Bight dune system and is located approximately 20 to 25 kilometres to the north-east of Newcastle, near Salt Ash.

Lot 218 has a total area of approximately 412 hectares, although only approximately 150 hectares of the site would be potentially affected by the proposed works (refer to **Section 5.1.1**). The site primarily consists of unvegetated mobile dunes. Vegetated dunes within a Water Reserve adjoin the site to the north, while mobile dunes within Crown Reserve 91676 adjoin the site to the south. The Quality Sands and Ceramics sand quarry adjoins the northernmost part of the site.

Lot 220 has an area of approximately 76 hectares and adjoins an existing sand extraction operation immediately to the west, operated by Unimin (formerly ACI). The existing Mackas Sand operation is also located approximately 750 metres to the west. Rural land holdings and a sand quarry operated by Hunter Quarries adjoin the site to the north, and sand dunes to the east and south.



Legend
▬ Lot Boundaries (218 & 220)
▬ Proposed Operational Areas

FIGURE 1.1
Locality Plan

No items or sites of potential historic heritage are known to have been uncovered during the existing sand extraction operations located in the vicinity of the study area.

1.3 Statutory Overview

The proposal satisfies the definition of a Major Project under State Environmental Planning Policy (Major Projects) 2005 and therefore requires approval under Part 3A of the EP&A Act. As the proposal is defined as a major project, the Minister for Planning will be the determining authority and the provisions of the *Heritage Act 1977* do not apply.

Non-Aboriginal heritage was listed as a key issue to be considered for the project as part of the Director-General's Requirements (DGRs), which were provided on 24 October 2008. The DGR's are provided by the Director-General of the Department of Planning and list key issues that must be considered in the Environmental Assessment that is required for the determination of a major project.

1.4 Heritage Listings

A review of the Australian Heritage Database maintained by the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA), the State Heritage Register (SHR) and State Heritage Inventory maintained by the NSW Heritage Council, the Register of the National Trust (NSW) and a review of the Port Stephens Local Environmental Plan 2000 disclosed the following listing relevant to the study area:

- Port Stephens Local Environmental Plan 2000 (LEP) Schedule 2 Heritage, Part 1 Heritage Items of State Significance - Stockton Beach Dune System, including Aboriginal site and shell middens, ship wrecks, WWII ramparts, tank traps, proofing range, rifle range and tin huts in Lots 216-219 DP 1044608, 35-37 Coxs Lane (524.35 and 524.37) 40-42 Stockton Bight Track (1009.40 and 1009.42), DP 753204, 80 Nelson Bay Road (576.80), Reserve No 51277, 384 Nelson Bay Road (544.384).

With the exception of the World War II tank traps (refer to **Section 3.2**), no other historic heritage items named as part of the Port Stephens LEP Stockton Dune System listing are known to be present within the study area.

1.5 Previous Reports

Several archaeological studies have been undertaken in the vicinity of the study area. A brief account of selected studies is provided below.

Archaeological and Aboriginal Cultural Heritage Survey of Lot 218, 2004

Umwelt prepared an Archaeological and Aboriginal Cultural Heritage Survey and Assessment of Part Lot 218 DP 10044608 and WR 52573, Stockton Bight in 2004. No historical archaeological or historical heritage items were identified within Lot 218 during this study.

Archaeological and Aboriginal Cultural Heritage Survey of Lot 220, 2004

Umwelt prepared an Archaeological and Aboriginal Cultural Heritage Survey and Assessment of Lot 220 DP 1049608 Stockton Bight in 2004. During the survey undertaken

as part of this study four sets of tank traps were identified adjacent to the four wheel drive track that crosses Lot 220 in an approximately north to south alignment.

Cultural Heritage Assessment, 2006

Environmental Resources Management Australia (ERM) prepared a Cultural Heritage Assessment of Stockton Bight in 2006. The assessment identified structures associated with the Fern Bay Armour Plate Proof Facility (FBAPPF) to the southwest of the study area, a derelict corrugated iron and timber structure on the beach to the south of Lot 218 (thought to be a World War II post referred to as Silver City), Tin City to the north of the study area and the line of tank traps running through Lot 220 towards the eastern end of Lot 218.

2.0 Historical Context

A brief historical context of the study area has been prepared using existing studies (for example the 2006 *Cultural Heritage Significance Assessment* prepared by Environmental Resources Management Australia (ERM)), focusing on World War II defence activities. No additional historical research has been undertaken and land title searches were not undertaken during the preparation of this review.

2.1 European Contact

The study area is situated within Worimi traditional lands. The Worimi were divided into a number of clans or *nurra*. The Maaialangal clan area is described as extending along the coastline south of Port Stephens to the Hunter River and west to Tilligerry Creek. Based on these descriptions, the study area is within the Maaialangal lands. Ethnohistoric sources indicate that the Worimi had a system of established social organisation and beliefs and an economic system which predominantly utilised the rich coastal resources to support comparatively denser populations than those in the inland areas. No reference is made in the historical sources to the presence within the study area of specific areas of cultural value to Aboriginal people such as birthing places or ceremonial grounds. By the time the Port Stephens, Newcastle and Lower Hunter areas were settled by Europeans, introduced diseases had already had an impact on the Aboriginal population. Subsequent European settlement resulted in significant movement of the Aboriginal population and massive social disruption and dislocation.

2.2 Exploration and Early Settlement

Captain James Cook sailed past Stockton Bight in 1770, noting only Nobby's Island and Port Stephens. In 1797 Lieutenant John Shortland came ashore along Stockton Bight during a search for escaped convicts and this trip discovered the coal resources responsible for much of the later European settlement in the wider Hunter region (ERM, 2006). Miners and merchants seeking timber soon followed and Governor King decided to make a more systematic exploration of the area. Impressed by reports of the rich resources of the area and the already successful coal mining being undertaken, King decided to establish a permanent settlement in the area. This settlement proved to be unsuccessful. The estuary of the Hunter River was not attractive to agriculturalists and the extent of the swamps and sand dunes in the area ensured that Newcastle would have to depend on its coal and port for its future development (Suters Architects and Planners, 1997). By the end of 1801 King had recalled the settlement party.

It was not until 1804 that Newcastle was resettled as a penal colony. Although King planned Newcastle to be more than a penal outpost, the majority of people arriving were sent to serve colonial sentences and formed a large part of the workforce available for the exploitation of the resources of the area, which included coal, timber, salt and lime. The population of Newcastle had reached 1169 by 1821 (Suters Architects and Planners, 1997).

2.3 Early Industry

The early industries in the region included timber, coal mining, salt making, lime burning and shipbuilding.

Deposits of shells had been noted along the beaches of the region during the early expeditions to the area, however it wasn't until 1808 that systematic lime burning commenced in the Newcastle area. Shell deposits in the Stockton area and along Fullerton Cove (originally known as Limeburners Bay) were exploited for the production of lime for cement (Suters Architects and Planners, 1997). Convicts would gather shells from Stockton's beaches for transportation to Newcastle where the shells were burned in brick kilns.

The Australian Agricultural Company (AA Co) was established in 1824 by an Act of the British Parliament. Although the Company was granted one million acres with the primary purpose of producing wool; both pastoral and coal mining activities were soon underway. The Company's extensive Crown grants included lands close to Newcastle that have since been developed into the present day suburbs of Bar Beach, Cooks Hill, Hamilton, Broadmeadow, and parts of the Newcastle Central Business District and The Hill. Attempts to establish small farms in the vicinity of the study area were unsuccessful as a result of the sandy soils and lack of transportation. To the south of the study area Stockton was the subject of formalised settlement from the mid 1830's. A foundry was established in Stockton in 1838, in addition to a textile factory (destroyed by fire in 1851), vitriol works (established 1853) and a tin smelter (established 1872). By 1886, the Stockton Coal Company had also been established (ERM, 2006).

The development and increased use of steam navigation in the 1800's had a positive impact on the local coal mining industry and fishing and dairy farming. Originally dominated by a small number of Chinese families in the Port Stephens area, new fishing businesses were established with the increased viability of fresh fish shipments to Newcastle, including the NSW Fishing Company, established at Nelson Bay in 1880. Inland of Stockton Bight dairy farms were established and with the improved steamer transportation the Hunter Valley Dairy Company was established (ERM 2006).

The natural shoals along Stockton Bight and the at times unpredictable weather conditions resulted in many ship wrecks along the Birubi Point/Nelson Bay and Stockton extremities of Stockton Bight. The most recent and best known of these is the Sygna, which was beached on Stockton Bight in May 1974, to the south-west of the study area. The Sygna wreck now forms an integral part of the tourism industry of Stockton Bight.

2.4 Early Twentieth Century

By the late 1870s the Port of Newcastle was handling more than 1 million tonnes of coal a year, supplying both Sydney and Melbourne and exporting to Asia and America. With the growth of Newcastle as a major port and industrial city came the need to protect the port and its surrounding areas, including associated infrastructure and resources. As coal was used to fuel steamships and navy vessels in this period, the possibility that enemy warships would

target Newcastle, if Great Britain became involved in a major war, was considered to be high. In 1880 Fort Scratchley was established, followed by the Shepherds Hill Battery in 1896. Following the sinking of four light German cruisers near Cocos Island by HMAS Sydney in 1914, there was an increase in the coastal defences of Australia, including an upgrade of the facilities at Fort Scratchley. However, no defences were established along Stockton Bight at this time, with the exception of Fort Wallace to the south of the study area. In 1910 during a visit to advise Australia on defence issues, Lord Kitchener inspected Stockton as a potential site for a new defence facility, finally approving the current site of Fort Wallace. Fort Wallace was constructed in 1912-1913, primarily to cover the area of sea in front of Stockton, replacing the Shepherds Hill Battery to its south.

During the Great Depression the natural resources of Stockton Bight, in particular the availability of sea food, attracted people to the area. One of the first permanent structures on Stockton Bight was a fisherman's hut near Little Beach to the south of the study area. This was demolished during World War II when gun pits were constructed by the army (ERM 2006). A small fishing village constructed using corrugated iron and tin, known as Tin City, is located along the beach to the northeast of the study area. The earliest hut is thought to have been established during the 1930s. Approximately 12 huts remain today (ERM 2006).

2.5 World War II

During World War I Newcastle was an important coal export centre, not only for Australia, but for the Allied Nations generally. Although the importance of coal had lessened by the time World War II commenced, Newcastle was also a major steel producing and shipbuilding centre. As a result, the defences of the Newcastle area were reorganised. Fort Wallace was redesigned to play a counter bombardment role against any attack by ships from the sea. The original Fort Wallace 6 inch guns were removed and replaced with 9.2 inch guns.

The Port Stephens defences to the north of the study area, were established in 1941 to prevent enemy vessels entering Port Stephens. The Joint Overseas Operating Training School (JOOTS) was established in Nelson Bay in 1942 to provide ship-to-shore invasion training for United States and Australian Armed Forces. The establishment closed in 1943 and a new facility at Gan Gan (south of Nelson Bay) operated between 1943 and 1945. Training was also provided at the Stockton Rifle range to the south of the study area. The construction of the Royal Australian Air Force (RAAF) base at Williamtown began in 1940.

2.5.1 Northern Defence Line

The beginning of World War II was marked by the rapid expansion in the use of mechanised and armoured vehicles. In response to the threat of invasion by sea, coastal and inland defences were developed and extended by many countries.

By 1942 there was recognition of Australia's limited capacity to withstand a Japanese invasion. Australian Military Forces Eastern Command coordinated the defence arrangements in New South Wales. As a result, from January 1942, beach defences, road barriers and supplementary inland aerodromes were constructed. Coastal tank barriers and road blocks were among the defence installations constructed. Tank barriers, aimed at slowing any potential Japanese advance inland, were built at strategic locations between the coast and the tablelands (NHL listing Yooroonah Tank Barrier).

The Northern Defence Line was established immediately north of Newcastle, in an area which includes the proposed study area. A second defence line was established south of Brisbane. The Northern Defence Line included tank traps being placed along Stockton Bight

to deter shore invasions. The Northern Defence Line also included anti-aircraft artillery and the coastal batteries at Fort Wallace and Fort Scratchley also formed part of the Line. Experimentation and proofing took place within the area of Stockton Bight at Fern Bay Armour Plate Proof Facility (FBAPPF) to the south-west of the study area. In addition, high explosive mortar and artillery projectiles were also tested at Stockton Beach Artillery Proof Range (SBAPR). This range was located adjacent to the low water mark and covered approximately 420 hectares (ERM, 2006).

There is insufficient information to establish how many tank barriers were actually built, either in New South Wales or nationally as many structures erected during World War II were not intended to last beyond the war. As a result, there is no evidence surviving of some of the sites originally established during World War II. Tank traps that formed part of the Northern Defence Line are present within the study area. The tank traps were identified during the site inspection undertaken as part of this historical heritage review (refer to **Section 3**). Remnants of coastal and inland defences also still exist *in situ* at the following locations in New South Wales (from NHL listing for Yooroonah Tank Barrier):

- Yooroonah Tank Barrier, near Ebor.
- Tabulam, Paddy's Flat on the Clarence River, near Tenterfield – precast concrete pyramids.
- Tenterfield, Mt Lindesay Road, approximately 10 kilometres from the town - timber poles driven into the river bed.
- Dee Why Tank Traps, Dee Why Lagoon – timber poles remaining.
- Smith's Lake Tank Traps, Great Lakes – precast concrete pyramids.
- Mullet Creek and Kanahooka Point near Lake Illawarra – canal.

In addition, two former coastal barriers are known to have been dismantled and their fabric relocated:

- Berkeley Harbour, Illawarra – concrete tetrahedra, removed to Port Kembla.
- Nobby's Beach break wall – fabric relocated from Newcastle Beach.

2.6 Post War Tourism

The construction of the Hexham and Stockton Bridges in 1952 and 1971 respectively, opened up the area to car travel, placing it within 2 hours of Sydney. Consequently, tourism dramatically increased in the area, making it a popular holiday location for people from Sydney and inland cities like Dubbo and Tamworth. The Stockton sand dunes are now popular for both tourism and leisure activities. The presence of the tank traps form part of the attraction of the area for tourism.

3.0 Physical Context

A historical archaeological site inspection of the study area was undertaken in conjunction with an Aboriginal heritage survey conducted by Umwelt and representatives of Aboriginal stakeholders groups. Nicola Roche (Senior Archaeologist, Umwelt), Jamie Merrick (Worimi Local Aboriginal Land Council), Leanne Anderson (Nur-Run-Gee Pty Ltd) and Anthony Anderson (Mur-Roo-Ma Incorporated) surveyed the study area on 14 July and 18 July 2008.

3.1 Results of Site Inspection

The results of the site inspections of Lots 218 and 220 are discussed below.

3.1.1 Lot 218

Lot 218 is composed mainly of mobile transgressive sand dunes which lack vegetation. The active transgressive dune in this area has been relatively recently deposited. Based on the analysis of aerial photography, active transgression of the dune within Lot 218 has occurred within the last 50 years. Only the northern and western margins of the lot are vegetated with Coastal Sands Apple Blackbutt Woodland. The Oakfield track runs into the mid northern margin of the lot and a four wheel drive track runs into the eastern end of the lot, continuing from Lot 220 (refer to **Figure 3.1**).

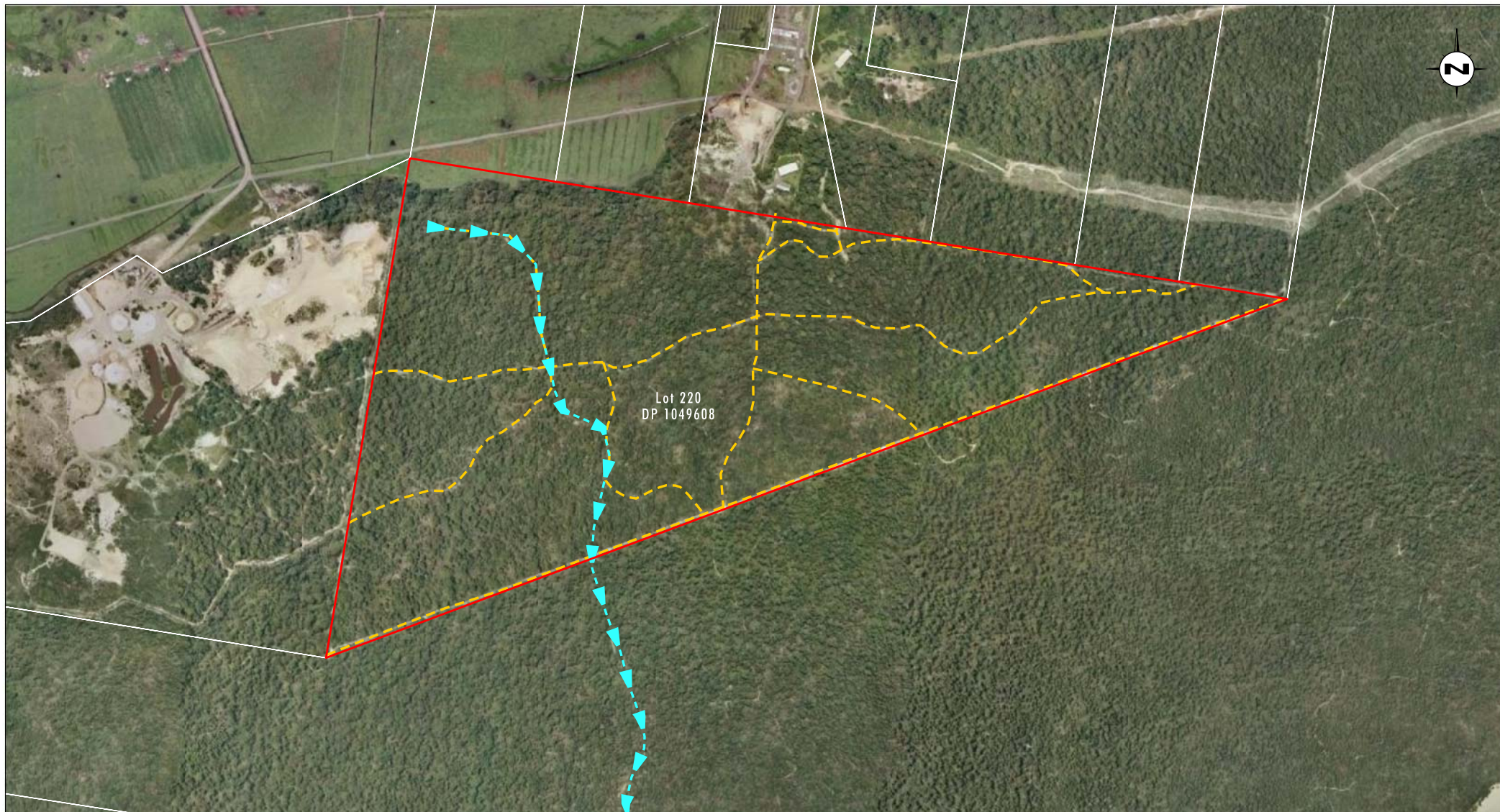
An alignment of tank traps has previously been observed within the Lot 218 operational area but was not located during site inspections as the alignment has been buried by the encroaching sand dunes. These tank traps are part of a row of tank traps that originate in Lot 220 and are visible running into the dunes at Lot 218 from the adjacent bushland (refer to **Plate 1**). The tank traps are discussed further in **Section 3.1.2**.

No other heritage items or potential historical archaeological sites were identified during the site inspection of Lot 218.

3.1.2 Lot 220

Lot 220 is located within the vegetated dunes of Stockton Bight. The vegetation is comprised of Coastal Sands Apple Blackbutt Woodland. A number of four wheel drive tracks wind through the lot, with one track traversing the lot in an approximately north to south direction from the northwest corner to the southern boundary of Lot 220 and later intersecting with the eastern part of Lot 218. This track is associated with a discontinuous alignment of tank traps, forming an approximately north to south running barrier, likely to have been constructed during World War II as part of the establishment of the Northern Defence Line (refer to **Figure 3.1** and **Plate 2**).

The tank trap alignment comprises a single line of concrete tetrahedrons associated with the location of the four wheel drive track crossing Lot 220 (refer to **Plates 2** and **3**). The tetrahedrons are generally distributed along the length of the track, however in places the alignment deviates away from the track for a short distance into the dense vegetation found across the lot. There are also occasional breaks in the alignment of tank traps, likely resulting from prior removal of some of the tetrahedrons. The tetrahedrons are approximately 1.5 metres high and are placed to be less than 50 centimetres apart at the base. They have two metal rings fixed to the base where a cable may have been attached to further prevent the passing of tanks. An iron bar extends approximately 10 centimetres from the peak of the tetrahedrons, to which barbed wire may have been attached. The individual



Source: Aerial: Google Earth 2008

0 100 250 500m
1:10 000

Legend

- Lot 220 Boundary
- - - Tank Trap Alignment
- - - Approximate Location of Existing Tracks

FIGURE 3.1

Tank Traps within
the Study Area



PLATE 1
View showing tank trap alignment running into dunes at Lot 218



PLATE 2
View showing tank trap alignment alongside
four wheel drive track in Lot 220



PLATE 3

View showing detail of tank trap in Lot 220

tank traps are in good condition and although the linear arrangement of the traps has been broken in places, the original linear arrangement of the traps remains *in situ*.

3.1.3 Conclusion

With the exception of the tank traps located in Lot 218 and 220, no other heritage items or potential historical archaeological sites were identified during the site inspection.

3.2 Potential Historic Heritage Resource

The alignment of tank traps crossing Lot 218 and Lot 220 comprises the only identified historic heritage item within the study area (refer to **Figure 3.1**).

While no other heritage items or historical archaeological sites have been identified within the study area, there is potential for other items or sites (possibly associated with the World War II Northern Defence Line) to be located within the proposed study area.

The active transgressive dune that comprises the surface context across the Lot 218 operational area has been deposited over approximately the last 50 years and therefore is unlikely to contain any *in situ* historical heritage resource.

4.0 Significance Assessment

An assessment of significance is ordinarily undertaken to explain why a particular item is important and to enable the appropriate management of the item to be undertaken.

As discussed in **Section 3**, with the exception of the tank traps, no other heritage items or potential historical archaeological sites were identified within the study area during the site inspection or during preparation of the historical context. The tank traps have previously been included in significance assessments undertaken by Port Stephens Council and ERM. As a result, no additional significance assessment has been undertaken during the preparation of this report. The previously undertaken significance assessments are briefly discussed below.

4.1 Port Stephens LEP 2000

Port Stephens LEP 2000 identifies the tank traps within Lots 218 as being part of the Stockton Dune System, which it has assessed as being of State significance (refer to **Section 1.4**).

However, the Stockton Dune System, or the tank traps themselves, are not listed on the State Heritage Register (SHR) maintained by the NSW Heritage Council.

4.2 ERM Cultural Heritage Assessment 2006

The ERM 2006 Cultural Heritage Assessment recommended that Stockton Bight

...has national heritage value due to its association with the events of WWII which played a significant role in the evolution of the nation. Structures relating to WWII are evident within the study area in the form of the tank traps that were part of the Northern Defence Line...the in situ tank traps....represent rare aspects of Australia's WWII history.

The ERM assessment concludes that the area has

...state significance as it contains structures associated with a significant historical phase, WWII, and is part of a sequence of facilities related to Defence Force activity, which, although they differ in purpose, provide an indication of the role of the area in Australia's WWII efforts.

5.0 Impact Assessment

5.1 Proposed Works

The sand extraction operations proposed for Lots 218 and 220 will involve the preparation of the site, staged extraction of sand with front-end loaders, transport operations and site rehabilitation as required. Unsealed access roads would be created on Lot 8 in DP 833768, Lot 3 in DP 739188 and Lot 227 in DP 1097995 as shown on **Figure 5.1**.

The majority of extracted sand from Lot 220 will be processed through either vibrating screens or a wash plant prior to being transported off site. It is anticipated that up to 2,000,000 tonnes of sand will be extracted from the combined operations each year, with a maximum of 1,000,000 tonnes coming from each site. Operations at Lot 220 are anticipated to continue for 10 to 20 years. Operations at Lot 218 may occur indefinitely, due to the continual replenishment of sand resources through the natural progression of the sand dunes.

5.1.1 Lot 218

Development of Lot 218 will involve the establishment of a designated extraction area up to 150 metres wide along the landward margin of the transgressive dune. All proposed works will be contained within this strip, as a result up to approximately 150 hectares of the site will be potentially affected by the proposed works (refer to **Figure 5.1**). Extraction activities at Lot 218 will only remove transgressive sand that has recently been deposited. Sand extraction will generally occur to the depth of the stabilised landscape beneath the transgressive dunes. The exact depth of the stabilised landscape cannot be accurately determined prior to sand extraction, due to the dynamic nature of the dunes. However, the stabilised landscape will be clearly evident if uncovered, as it has a darker colour than the covering sand and may contain a layer of decaying vegetative matter. Front-end loaders will continuously work the strip in stages, allowing for mobile, wind-blown sand to replenish areas where extraction is not occurring.

5.1.2 Lot 220

Development of Lot 220 will involve the staged removal of vegetation and topsoil by bulldozer, followed by extraction and loading with front-end loaders. The extraction plan involves minimal disturbance to low-lying areas, for example no extraction will occur within the central area of low elevation as shown on **Figure 5.1**. However, two access tracks will



Source: Department of Lands (2003)

0 0.5 1 2 km
1:45 000

Legend

- Lot Boundaries (218 & 220)
- Mackas Sand (existing operations)
- Unimin
- Hunter Quarries
- Quality Sands and Ceramics

- Proposed Operational Area
- Proposed Weighbridge
- Site Access
- Proposed Site Access

File Name (A4): R09_V1/1646_091.dgn

FIGURE 5.1

Proposed Operational Areas
at Lot 218 and Lot 220

be constructed through this area. Initial extraction will occur near the northeast corner of Lot 220, where the proposed access road through Lot 3/DP 739188 meets Lot 220 (see **Figure 5.1**).

The site will be progressively rehabilitated following extraction through replacement of topsoil and vegetative debris and the subsequent planting of local endemic plant species.

5.2 Discussion of Potential Impacts and Management Options to Mitigate Impacts

5.2.1 Lot 218

Tank traps are the only heritage items identified within Lot 218 and are currently buried beneath the encroaching sand dunes. The location of the tank traps within the lot is easily predicted, as the alignment is visible in the adjacent vegetation (see **Plate 1**).

Sand extraction at Lot 218 may not occur to a depth that disturbs the tank traps. If excavations do encounter tank traps, the location of the traps will be surveyed and a photographic recording will be prepared in accordance with Heritage Council of NSW requirements for archival recording. The photographic recording will be forwarded to the Heritage Branch of the Department of Planning.

The exposed tank traps will then be temporarily removed and stored during extraction works. Following completion of the works the tank traps will be replaced in their original locations, thus retaining their original alignment (though potentially not their original position within the landscape).

The replacement of the traps in their original alignment will ensure that their significance, as identified by ERM (ERM 2006), as part of the Northern Defence Line is retained. The tank traps will still illustrate a rare aspect of Australia's World War II history as part of the facilities related to Defence Force activity and provide an indication of the role of the area in Australia's war efforts. In addition, they will continue to provide a role in the tourism industry of Stockton Bight.

It is considered unlikely that any items of historic heritage will be identified within Lot 218, with the exception of the tank trap alignment in the north-eastern portion of the lot. However, if any as yet unidentified potential historic heritage item is uncovered during extraction works, all works in the immediate area will cease and the Heritage Branch of the Department of Planning notified, in accordance with Section 146 of the *Heritage Act 1977*. If assessed to be of significance, its location will be surveyed and the item recorded by a suitably qualified heritage consultant or archaeologist.

5.2.2 Lot 220

The alignment of tank traps crossing Lot 220 comprises the only identified historic heritage identified at that site (refer to **Figure 3.1** and **Plates 2** and **3**).

Operations at Lot 220 will require the temporary removal of tank traps to enable sand extraction. Prior to disturbance of the tank traps, the location of the traps will be surveyed and a photographic recording will be prepared in accordance with Heritage Council of NSW requirements for archival recording. The photographic recording will be forwarded to the Heritage Branch of the Department of Planning.

The exposed tank traps will then be temporarily removed and stored during extraction works. Following completion of the works the tank traps will be replaced in their original locations, thus retaining their original alignment (though potentially not their original position within the landscape).

It is proposed to undertake sand extraction works in Lot 220 in stages. As a result, only short sections of the tank trap alignment will be removed and stored before being replaced prior to the next stage of sand extraction. In addition, sand extraction is not proposed in the central low lying area of Lot 220 (shown in **Figure 5.1**). As a result, the alignment of tank traps in this central area will remain undisturbed and *in situ*.

When the tank traps are replaced following extraction works, the alignment of the traps will be retained. The tank traps will continue to illustrate a rare aspect of Australia's World War II history as part of the facilities related to Defence Force activity and provide an indication of the role of the area in Australia's war efforts. In addition, they will continue to provide a role in the tourism industry of Stockton Bight.

Mackas Sand is currently operating a sand quarry to the east of Lot 220 and no items of potential historic heritage, or other items, have been uncovered during quarrying works. It is considered unlikely that any items of historic heritage will be uncovered within Lot 220, with the exception of the identified tank trap alignment. However, if any as yet unidentified potential historic heritage item is uncovered during extraction works, all works in the immediate area will cease and the Heritage Branch, Department of Planning notified, in accordance with Section 146 of the *Heritage Act 1977*. If assessed to be of significance its location will be surveyed and the item recorded by a qualified heritage consultant or archaeologist.

6.0 Conclusions and Recommendations

The tank trap alignment on Lot 218 and Lot 220 is the only identified historic heritage item within the proposed study area.

It is recommended that a photographic recording to Heritage Council of NSW requirements for archival recording is prepared and the location of the traps surveyed before removal and safe storage during the extraction works. Following completion of works the tank traps will be replaced in their original alignment.

Although unlikely, other items (possibly associated with the World War II Northern Defence Line) may be located beneath the active transgressive sand dune in Lot 218 and within Lot 220. In the unlikely event that unexpected or significant archaeological remains are discovered at the site all works in the immediate area will cease and the Heritage Branch, Department of Planning notified, in accordance with Section 146 of the *Heritage Act 1977*.

7.0 References

Environmental Resources Management (Australia) Pty Ltd (ERM). 2006. Stockton Bight Remaining Lands Cultural Heritage Significance Assessment. New South Wales National Parks and Wildlife Service, Nelson Bay.

Heritage Office, 1996 - 2001. *NSW Heritage Manual*, particularly:

Archaeological Assessments ...

Historical Archaeological Sites ...

Statements of Heritage Impact

Heritage Assessment Guidelines ...

Assessing Heritage Significance...

...Heritage Office and Department of Urban Affairs and Planning, (NSW), Sydney.

National Heritage List (NHL) Yooroonah Tank Barrier, Waterfall Way, Ebor, NSW, Place ID 105802.

New South Wales Government:

1977. *Heritage Act*.

1979. *Environmental Planning and Assessment Act*.

1994. *Native Title (New South Wales) Act*.

State Heritage Register and Inventory. <<http://www.heritage.nsw.gov.au>>.

Suters Architects and Planners, Lavelle, S., C and MJ Doring Pty Ltd and Turner, J, 1997. *Newcastle Archaeological Management Plan* prepared for Newcastle City Council.