Appendix F – Non-Aboriginal Heritage Impact Assessment (HIA)

Our ref: PR139685-1: v1.4

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Date: 11 October 2019

GHD
Michelle Kiejda
Technical Director - Environment
GHD Tower
Level 3, 24 Honeysuckle Drive
Newcastle NSW 2300

Dear Michelle,

RE: Belmont Drought Response Desalination Plant, Non-Aboriginal Heritage Impact Assessment Report (HIA).

RPS has been engaged by GHD on behalf of Hunter Water (the Proponent) to prepare a non-Aboriginal heritage impact assessment report (HIA). The HIA has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) to support the submission of an Environmental Impact Assessment (EIS), for a drought response desalination plant (also referred to as a temporary desalination plant) at Belmont, in the Lake Macquarie City Council Local Government Area (LGA), NSW.

SEARs were issued for application SSD 8896 on 12 December 2017 and on 24 January 2018 (revised).

The purpose of a HIA is to investigate and assess the impact of works on non-Aboriginal heritage and to provide recommendations to avoid or mitigate impact.

1.1 The Project

The Project (Concept Design – Figure 1) is for the construction and operation of a drought response desalination plant, designed to produce up to 15 ML/day of potable water, with key components including:

- Seawater intake – The central intake structures would be a concrete structure (referred to as a caisson) of approximately nine to 11 metres diameter, installed to a depth up to 20 m below existing surface levels. The intake structures will be finished above the existing surface (0.5 m to 1 m) to prevent being covered by dune sands over time. The raw feed water (seawater) input is proposed to be extracted from a sub-surface saline aquifer. This would be extracted by an intake pipe structure located approximately eight to 15 m below ground level. Pipelines and pumps are required to transfer the seawater to the desalination plant.
- Water treatment process plant – The desalination plant would comprise a range of equipment potentially in containerised form. Services to and from the process equipment (e.g. power, communications, and raw feed water (seawater)) would comprise a mix of buried and overhead methods. The general components of the water treatment process would comprise:
  - Pre-treatment: a pre-treatment system is required to remove micro-organisms, sediment, and organic material from the seawater.

  - Desalination: a reverse osmosis (RO) desalination system made up of pressurising pumps and membranes. These would be comprised of modular components. In addition, a number of tanks and internal pipework would be required.
  - Post treatment: desalinated water would be treated to drinking water standards and stored prior to pumping to the potable water supply network.
- Brine disposal system – The desalination process would produce around 28 ML/day of wastewater, comprising predominantly brine, as well as a small amount of pre-treatment and RO membrane cleaning waste. The waste brine from the desalination process would be transferred via a pipeline to the existing nearby Belmont WWTW for disposal via the existing ocean outfall pipe.
- Power supply – Power requirements of the plant would be met by a minor upgrade to the existing power supply network in the vicinity of Hudson and Marriot Streets. A power line extension from the existing line along Ocean Park Road into a new substation within the proposed drought response desalination plant would also be required.
- Ancillary facilities – including a tank farm, chemical storage and dosing, hardstand areas, stormwater and cross drainage, access roads, and fencing, signage and lighting.

1.2 Project Area

The project area is herein referred to as the 'Project Area' and is located at Belmont in the Lake Macquarie City Council LGA (Figure 2). An outlier area of the Project Area, to the west in Figure 2, was not inspected. It was subject to a desktop assessment.

1.3 Authorship and Acknowledgement

RPS Heritage Consultant Jo Nelson authored the report. RPS Senior Draftsperson, Natalie Wood, provided technical assistance and Senior Heritage Consultant Ben Slack reviewed the report.

Paper Size ISO A4

0 20 40 60 80

Metres

Map Projection: Transverse Mercator
Horizontal Datum: GDA 1994
Grid: GDA 1994 MGA Zone 56

N

Hunter Water Corporation
Belmont Temporary Desalination Plant
Heritage Impact Assessment Report

The Project

Project No. **22-19573**
Revision No. **0**
Date **05/11/2019**

FIGURE 1

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Print date: 05 Nov 2019 - 10:28

Data source: LPI: DTDB / DCDB, 2017; public_NSW_Imagery: . Created by: kpsroba

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FIGURE 2: PROJECT AREA LOCATION

LOCATION: BELMONT	DATUM: GDA94 PROJECTION: MGA Zone 56
JOB NO.: **PR 139685** PURPOSE: HERITAGE Technician: Natalie.Wood Date: 19/08/2019	Data Sources: RPS, Client Land and Property 2017 HWC Aerial Supplied 2018

CLIENT: GHD

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Path: J:\JOBS\139k\139685 Belmont Desalination Plant\10 - Drafting\Arcgis Map Documents\Arch\Aboriginal\139685 Figure 1 PA Location D A4 20190819.mxd

NEW_A4_Portrait 2018 Rev:B Produced:NW Reviewed:NW Date: 10/05/2018

1.1 Non-Aboriginal Heritage Assessment Framework

Heritage Act 1977 and the Heritage Council NSW

Historical archaeological relics, buildings, structures, archaeological deposits and features are protected under the Heritage Act 1977 (and subsequent amendments) and may be identified on the State Heritage Register (SHR) or by an active Interim Heritage Order.

The Heritage Council of NSW, constituted under the Heritage Act 1977, is appointed by the Minister and is responsible for heritage in NSW. The Council reflects a cross-section of community, government and conservation expertise with the NSW Heritage Division being the operational arm of the Council. The work of the NSW Heritage Division includes:

- Working with communities to help them identify their important places and objects;
- Providing guidance on how to look after heritage items;
- Supporting community heritage projects through funding and advice; and
- Maintaining the NSW Heritage Database, an online list of all statutory heritage items in NSW.

Assessing Significance for Historical Archaeological Sites and 'Relics'

Section 4(1) of the Heritage Act (as amended 2009) defines 'relic' as follows: relic means any deposit, artefact, object or material evidence that:

a. relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

b. is of State or local heritage significance.

In practice, an important historical archaeological site will be likely to contain a range of different elements as vestiges and remnants of the past. Such sites will include 'relics' of significance in the form of deposits, artefacts, objects and usually also other material evidence from demolished buildings, works or former structures which provide evidence of prior occupations but may not be 'relics'. The value of the site and the elements within it must be assessed, documented and recognised so that correct future management choices are made (Heritage Branch 2009:7)

Environmental Planning and Assessment Act 1979 (EP&A Act)

The EP&A Act regulates a system of environmental planning and assessment for NSW. Land use planning requires that environmental impacts are considered, including the impact on cultural heritage. Assessment documents prepared to meet the requirements of the EP&A Act including Reviews of Environmental Factors, Environmental Impact Statements and Environmental Impact Assessments, should address cultural heritage where relevant. Statutory planning documents such as Local Environment Plans and State Environmental Planning Policies typically contain provisions for heritage.

The Project satisfies Clause 4(1) of the State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD), being development for the purpose of desalination plants by or on behalf of a public authority that has a capital investment value of more than $10 million. The Project is therefore State significant infrastructure (SSI). As an SSI, the Project is subject to assessment and approval under Division 5.2 of Part 5 of the EP& Act.

The Minister for Planning (or delegate) is therefore the consent authority for the Project.

In addition to development consent under Division 5.2 of Part 5 of the EP&A Act, various other approvals, licences and permits under other relevant NSW legislation would also be required in order to carry out the Project.

Secretary's Environmental Assessment Requirements (SEARs) (SSD 8896) issued for the Project on 12 December 2017 and revised on 24 January 2018 and are discussed below.

Secretary's Environmental Assessment Requirements (SEARs)

This HIA has been prepared to address the requirements of the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Industry and Environment (DPIE). The requirements detail what the Proponent needs to address in the EIS. The level of detail and the level of prescription differ between key issues. This reflects the level of guidance required on how to assess each key issue, based on the guidance available in the current guidelines. The Proponent must address all the requirements in the SEARs issued for a project.

The desired performance outcome provides the context for the requirements. It outlines the broader objective the Proponent should aim to achieve in the design, construction and operation of the project. It has been articulated to enable Proponents and government agencies to have a common understanding of the desired outcome for the project with regard to that issue.

Table 1 lists the SEARs requirements for non-Aboriginal heritage to be addressed for the project;

Table 1: Sears Requirements for the project.

Requirements	Section/s
Consider relevant statutory guidelines	1.1
Identify if any significant heritage items are within the Project Area	1.1.1
Provide management and recommendations to minimise and mitigate impacts on potential historic heritage values;	2.9

Burra Charter (Australia ICOMOS)

This heritage impact assessment report has been prepared in accordance with The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance (Burra Charter) (2013) and associated Guidelines as well as best practice standards set by the NSW Heritage Branch. Best practice guidance followed in this report includes Assessing Heritage Significance (Heritage Office (former), 2001) and Statements of Heritage Impact (Heritage Office and Department of Urban Affairs & Planning (former), 1996, revised 2002.

1.1.1 Heritage Registers Review for the Project Area

World Heritage Items are listed on the UNESCO World Heritage list (UNESCO 2012), and National Heritage items are listed on the Australia National Heritage list (Australian Government 2019).

World Heritage

There are no World heritage items in the Project Area or within Belmont, NSW.

National Heritage

There are no National heritage-listed items in the Project Area or within Belmont, NSW.

State Heritage

There are no State heritage-listed items in the Project Area or within Belmont, NSW.

Local Heritage

Places of local significance are included in heritage schedules in Local Environmental Plans (LEPs).

There are no local heritage-listed items in the Project Area or within one kilometre. The closest non-Aboriginal heritage item is the Belmont tank traps associated with the defence ditch of Cold Tea Creek which

was used as a WWII defence installation (2.4). The eastern-most end of the ditch is 200 metres to the west of the Project Area. Non-Aboriginal Heritage Assessment Framework provides a historic context of items relating to Belmont. Another locally-listed heritage item, the Belmont section of the Branch lines associated with Belmont Railway, is located 1.0 kilometres to the north-west of the Project Area.

2 HISTORIC CONTEXT

This HIA uses documented evidence and site inspection data to investigate if any non-Aboriginal heritage items exist within the Project Area, and to identify potential impacts. This section reviews the historical context of the Project Area and surrounds. The following provides a historic context for Belmont with a focus on the local heritage items listed in the Lake Macquarie Local Environment Plan 2014, Schedule 5 for Belmont.

2.1 Belmont

Belmont Farm was established in the early 1860's. The name possibly came from Belmont in the Shetland Islands, birthplace of Thomas Williamson, the third settler of the district. Williamson had a guest house called "Belmont" at the early stages of the development of Belmont (Lake Macquarie City Council 2019).

2.2 Belmont Railway Station Platform

The Railway was extended from Redhead to Belmont in 1916. It was opened to traffic on the 23 December 1916. The last passenger train to Belmont ran on 22 March 1971. The Belmont Railway Platform remnant is located near Railway and Ernest Street, Belmont, and now forms part of the Fernleigh Track, further to the west of the Project Area (Plate 1).

Plate 1 Structures of Belmont Railway Station and Platform, Belmont, c.1980s (University of Newcastle: Cultural Collections 2019).

2.3 Branch Lines from the Belmont Railway (Colliery Sidings)

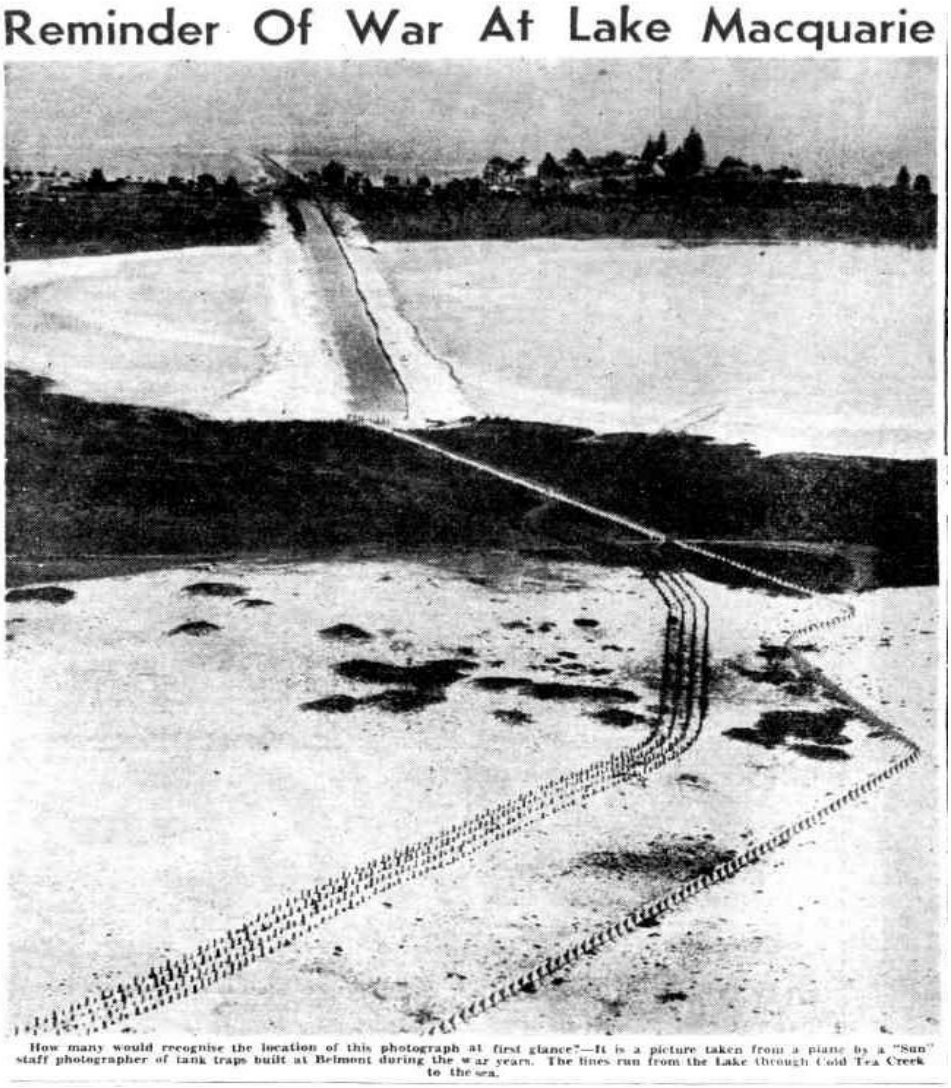
Branch Lines of the Belmont Railway (colliery sidings) were built for the collieries on the route and usually finished in a number of sidings and shunts leading to the coal bins or screens, the boilers and repair shops (Office of Environment and Heritage 2014).

The rail lines and associated infrastructure have been removed and are replaced by the installed public access trail known as Fernleigh Track. These former branch lines are located approximately 1.0 kilometres north-west of the Project Area.

2.4 Cold Tea Creek Tank Traps and Belmont Anti-Tank Ditch

The two concrete tetrahedrons of "tank traps" formed part of the Belmont anti-tank ditch which stretched in a straight line from the ditch of Cold Tea Creek eastward toward the coastline. The ditch was a major defence installation constructed by army and civilian units in late 1942 as the southern perimeter defence of the Port

of Newcastle (Belmont South Progress Association 1996). At the time it was anticipated that the Japanese may attempt a beach landing between Belmont and Swansea Channel. The ditch was designed to prevent enemy tanks proceeding north to Newcastle. It was constructed where the landform between Lake Macquarie and the coastal peninsular is the narrowest, at approximately 1.4 kilometres across. Cold Tea Creek extends east-west and is approximately 998 metres long from its entrance into Lake Macquarie eastward to the coast. The constructed section of the ditch which replaced the winding Creek is 840 metres in length. The beach area from where the ditch ends and eastward to the ocean shoreline, was barricaded using two interlocking rows of concrete tetrahedrons tank traps (1996). The image at Plate 2 shows the two rows of tank traps extending from Cold Tea Creek ditch. The tank traps required no ground surface excavation to install and so left no subsurface, associated infrastructure (Lowry 2014:14; 18; 30; 49). The image at Plate 3 shows the tank traps being removed from the beach toward the end of 1945 (War Memorials Register: NSW Government 2019). The eastern-most end of the ditch is 200 metres to the west of the Project Area.


Reminder Of War At Lake Macquarie

How many would recognise the location of this photograph at first glance?—It is a picture taken from a plane by a "Sun" staff photographer of tank traps built at Belmont during the war years. The lines run from the Lake through Cold Tea Creek to the sea.

Plate 2 Newcastle Sun newspaper image (c. early-1940s) showing the two lines of tank traps extending across the beach from Cold Tea Creek ditch (Trove: Newcastle Sun The Newcastle Sun (NSW: 1918 - 1954) (https://trove.nla.gov.au/newspaper/page/16742522).

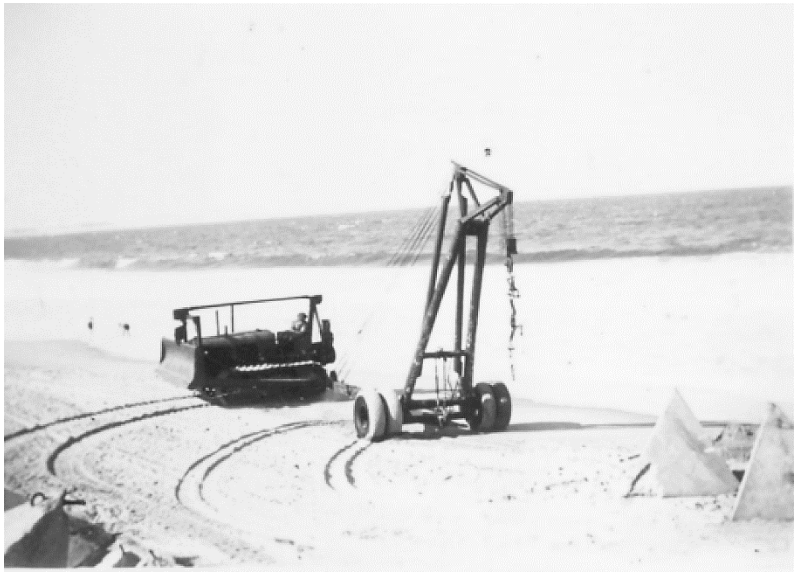


Plate 3 The tanks traps being removed from Belmont beach, 1945 (NSW War Memorials Register 2019).

2.5 Fernleigh Track

The abandoned Belmont Railway corridor linking Belmont to Adamstown was later used as a walking trail by former workers of the John Darling Colliery, and at the time was known as the Burma Track. This track is now part of the Fernleigh Track (Plate 4). Plate 2 illustrates the portion of the Fernleigh Track as it runs by the former Belmont Rail Station Platform, Railway Parade, approximately 1.0 kilometres north-west of the Project Area.

Plate 4 Former Belmont Station Platform and Fernleigh Track (Rail Tracks Australia 2018).
https://www.railtrails.org.au/trail?view=trail&id=80

2.6 Belmont Wetlands State Park (BWSP)

Mining

Dredge mining of minerals occurred in the Belmont Wetlands State Park (BWSP) sand dunes between the late 1950s and 1967 (Lake Macquarie City Council 2019:History).

The land on which the BWSP is now located, was granted to the Redhead Coal Mining Company Limited between 1883 and 1886 with permission given to construct a railway line on a raised embankment through the Wetlands from Belmont to Adamstown. In 1925 the area, owned by the Redhead Coal Mining Company

Limited (Plate 5), was leased by Broken Hill Proprietary (BHP) who then opened the John Darling Colliery on the site on which the Belmont Christian College is now located. (Lake Macquarie City Council 2019:History).

No substantial mining infrastructure relating to Redhead Coal Mining Company, BHP or the John Darling Colliery remains at BWSP, but concrete foundations and floor infrastructure remnants can be found across the site including the capped, concrete remains of BHP airshaft No. 4 on the Belmont Lagoon peninsula (2019:History).

The southern portion of Belmont Lagoon, which is part of the BWSP, is approximately 240 metres west of the Project Area.

2.7 Victoria Tunnel Coal Seam – John Darling Colliery

Between Belmont and Swansea, longwall mining to extract seams of coking coal from the Victoria Tunnel Seam, associated with the former John Darling Colliery, ran beneath the existing wastewater treatment works and the Project Area, and extended coastward beneath the shoreline (Kapp 1984:11). Depths for longwall mining in NSW are between 200 metres and 600 metres below ground (Independent Expert Scientific Committee on Coal Seam Gas and Large Coal Mining Development (IESC) 2014). As such, there is no expected impact between the remnant sub-surface mining remnants and the works.

Plate 5 Redhead Coal Mining Co. (BWSP 2019).

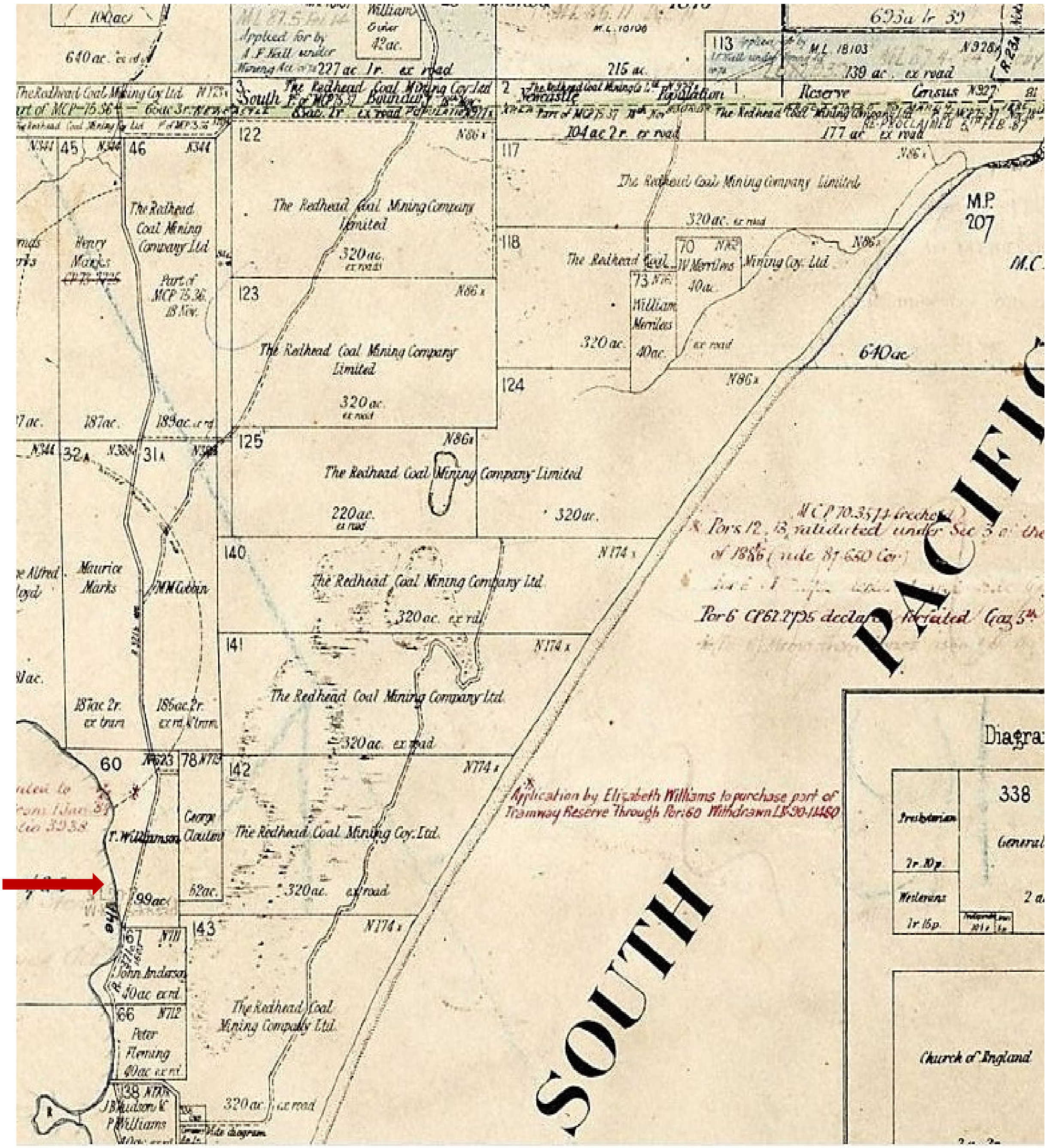


Plate 6 County of Northumberland Parish Map, portion, showing Redhead Coal Mine Land, rail lines, and location of Threlkeld Mission Station (red arrow) 1885 (https://hlrv.nswlrs.com.au/).

2.8 Bahtabah Mission

On 29 January 1825 a grant of 10,000 acres was made to the London Missionary Society supporting Rev. L. Threlkeld and his Mission to the Lake Macquarie Aborigines (Lake Macquarie City Council 2019). The first settlers were Rev. L.E. Threlkeld, his servants and family. In 1825 Threlkeld established the "Bahtabah" mission station. Its site is thought to have been near what is now Victoria St or Ada St, Belmont, or possibly at Lewers Estate at the north end of Belmont Bay. The mission closed in 1829 and the land reverted to the Crown (2019). The arrow in Plate 6 indicates the approximate location of Threlkeld's Mission Station and is approximately 1.3 kilometres west of the Project Area.

2.9 Archaeological Site Inspection

An archaeological site inspection was undertaken by RPS, 24 May 2019. No non-Aboriginal heritage items or relics were identified in the Project Area during the site inspection.

The outlier Project Area to the west was not inspected. It was subject to a desktop assessment. The area encompasses the intersections of Marriot and Hudson Streets, Belmont. There are no heritage items located in this area

2.10 Impact Assessment

A search of the National, State and local heritage registers identified that there are no heritage items within the Project Area.

This HIA used documented evidence and site inspection data to investigate if any non-Aboriginal heritage items exist within the Project Area, and to identify potential impacts.

The closest item associated with the locally-listed Anti-tank Traps is Cold Tea Ditch, a WWII defence installation utilising Cold Tea Creek to form a ditch and concrete anti-tank traps to form a beach barricade. The tank traps required no ground surface excavation as part of their original installation and therefore have left no subsurface, associated infrastructure. The eastern-most end of the ditch is 200 metres to the west of the Project Area and will not be impacted by the proposed works.

No non-Aboriginal heritage items or relics were identified during the site inspection undertaken by RPS 24 May 2019. No structures or evidence associated with items identified in Section 2, Historic Context were observed during the site inspection. As such, no items of heritage significance are expected in the Project Area.

In relation to the remnant longwall mining infrastructure identified as running below the wastewater treatment plant by Kapp (Kapp 1984:11), due to the depths of between 200 metres and 600 metres below ground surface where this infrastructure generally occurs, there is no expected impact between it and the works.

2.10.1 Conclusions and Recommendations

The following Recommendations have been formulated with consideration of all available information in accordance with relevant legislation to guide the works as identified in this HIA;

Recommendation 1 – Unexpected Finds

If, during the course of the works, unexpected archaeological items or relics, as defined by the Heritage Act 1977 (as amended), are uncovered, work should cease in that area immediately. The Heritage Branch, Office of Environment & Heritage (Enviroline 131 555) should be notified and works only recommence when an approved management strategy developed.

Recommendation 2

This non-Aboriginal heritage assessment applies only to the Project Area as shown in Figure 1 and that should any impacts be outside this Project Area, additional archaeological assessments would be required.

Yours sincerely,
for RPS Australia East Pty Ltd

Jo Nelson
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cc: Ben Slack
Senior Heritage Consultant
Ben.slack@rpsgroup.com.au

References

Australia ICOMOS (2013). The Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance.

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UNESCO (2012). "World Heritage List." Retrieved 15 May, 2012, from http://whc.unesco.org/en/list.