

Appendix J

Historic
heritage





Australian Industrial Energy

Port Kembla Gas Terminal Historic Heritage Assessment

November 2018

Executive summary

Australian Industrial Energy (AIE) have commissioned GHD Pty Ltd (GHD) to undertake a Historical Heritage Assessment (HHA) for the proposed Port Kembla Gas Terminal (the project) in Port Kembla, New South Wales (NSW). The project involves the development of a liquified natural gas (LNG) import terminal including a Floating Storage and Regasification Unit (FSRU) moored at Berth 101 in the Inner Harbour, visiting LNG carriers, wharf offloading facilities and the installation of new pipeline to connect to the existing gas transmission network.

The project has been declared Critical State Significant Infrastructure and must be assessed in accordance with Section 5.13 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and Schedule 5 of the State Environmental Planning Policy (SEPP) (State and Regional Development) 2011. An Environmental Impact Statement (EIS) is required to support the application for approval by the NSW Minister for Planning.

This HHA has been prepared in accordance with the Secretary's environmental assessment requirements (SEARs) and provides information and advice on historical heritage considerations for the proposed works.

The study area has been heavily modified with little to no potential for historical features and/or archaeological deposits to survive. Pockets of less disturbed land with potential for historical heritage features and archaeological deposits are located on Spring Hill to the east and west of Springhill Road. Industrial moveable heritage items are also on display in the study area as part of the Inside Industry Visitor Centre on Bluescope Steel land.

The proposed gas pipeline route avoids areas of potential historical heritage values and items of moveable heritage and no impacts are anticipated.

Based on the results of the desktop assessment and field survey, the following recommendations have been made to ensure legislative compliance and management of historic heritage risk.

Recommendation 1: Induction

Isolated relics or heritage features may be unexpectedly encountered during construction and a heritage induction should be included into the general induction package for all individuals undertaking or supervising ground disturbing works. Information in the heritage induction should include descriptions of potential heritage features or relics in the study area that will allow for the visual identification of these items.

Recommendation 2: Contingency plan

Ensure the inclusion of a contingency plan for the discovery of unanticipated historic heritage features or archaeological relics as part of the Construction Management Plan. The Plan should outline clear notification and stop work processes in the case of unanticipated historic finds.

Recommendation 3: Further investigations

The proposed pipeline route will avoid areas of potential for historical heritage features, movable heritage and/or archaeological deposits and no further investigation is recommended. If there is a change in the pipeline route, and these areas cannot be avoided, then further investigation to identify the nature, extent and significance of historical heritage features and/or archaeological deposits in these areas will be required. Any such investigation should be undertaken in accordance with relevant guidelines for historical archaeological investigation and in consultation with OEH.

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1. Introduction

Australian Industrial Energy (AIE) have commissioned GHD Pty Ltd (GHD) to undertake a Historical Heritage Assessment (HHA) for the proposed Port Kembla Gas Terminal (the project) in Port Kembla, New South Wales (NSW). The project involves the development of a liquified natural gas (LNG) import terminal including a Floating Storage and Regasification Unit (FSRU) moored at Berth 101 in the Inner Harbour, visiting LNG carriers, wharf offloading facilities and the installation of new pipeline to connect to the existing gas transmission network.

The project has been declared critical State significant infrastructure and must be assessed in accordance with Section 5.13 of the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and Schedule 5 of the State Environmental Planning Policy (SEPP) (State and Regional Development) 2011. An Environmental Impact Statement (EIS) is required to support the application for approval for determination by the NSW Minister for Planning.

This Historical Heritage Assessment (HHA) has been prepared to meet the requirements of the Secretary's environmental assessment requirements (SEARs) and requirements of the NSW Office of Environment and Heritage (OEH) (see Section 1.3).

1.1 Proposed works

The project comprises the development of a LNG import terminal and incorporates four key components. The four components are proposed to be predominately located within land zoned for dedicated port and industrial uses under the SEPP (Three Ports) 2013 and include:

- LNG carrier vessels — there are hundreds of these in operation worldwide transporting LNG from production facilities all around the world to demand centres;
- Floating Storage and Regasification Unit (FSRU) — a cape-class ocean-going vessel which would be moored at Berth 101 in Port Kembla. There are around 30 such vessels currently in operation around the world;
- Berth and wharf facilities – including landside offloading facilities to transfer natural gas from the FSRU into a natural gas pipeline located on shore; and
- Gas pipeline – a Class 900 carbon steel high-pressure pipeline connection from the berth to the existing gas transmission network at Cringila. The pipeline will be constructed using trenching and directional drilling methodologies. Both the proposed pipeline route and construction methodology has been be adjusted to minimise the potential risk of harm to environmental and heritage values.

At present, it is envisaged that an LNG shipment will be required every 2 - 3 weeks to provide for an annual supply of up to 100 petrajoules (PJ) of gas.

The project will take 10 - 12 months to complete construction and other works in order to start operations for the project. Subject to project approvals, it is possible to have first gas delivery by early 2020.

1.2 Study area

The project area is located in a predominantly industrial area within and surrounding Port Kembla (refer to Figure 1). Port Kembla is a deep water harbour located in the Illawarra region, approximately 3 km south of the Wollongong CBD and 80 km south of Sydney. The port operates across two harbours, consisting of an Inner and Outer Harbour. Berth 101, located

within the Inner Harbour, is proposed for use as part of the project and is located between Berth 102 and “the Cut” shipping channel providing access to the Inner Harbour.

Two grain terminals operate on the northern side of the Inner Harbour along with bulk liquid facilities and a number of multi-purpose berths. BlueScope Steelworks operate five berths on the western side of the Inner Harbour and the Port Kembla Coal Terminal (PKCT), a coal export facility, located on the eastern side of the Inner Harbour operating from two berths. The Wollongong Sewage Treatment Plant is located to the north of the coal export facility.

In addition to the terminal infrastructure, Springhill Road and Masters Roads are the two main vehicular traffic routes connecting Port Kembla to the regional road network including the M1 Princes Motorway. Tom Thumb Road, Springhill Road and Masters Road all carry a high level of heavy vehicle traffic, due to their direct link to and from Port Kembla. Tom Thumb Road services the existing port facilities including the PKCT.

The rail network infrastructure within the port precinct consists of rail lines, sidings and loops. The Port Kembla rail network links to the Illawarra and Moss Vale-Unanderra rail line, managed by the NSW Government and ARTC respectively. The Illawarra Line is a shared passenger and freight rail line.

1.3 Environmental assessment requirements

This HHA has been prepared in accordance with the SEARS that were issued for the project on the 10 August 2018. The secretary’s requirements are summarised in Table 1.

Table 1 Secretary’s requirements - heritage

Category	Secretary’s Requirements
Heritage	including an assessment of the likely Aboriginal and historic heritage (cultural and archaeological) impacts of the project, including adequate consultation with Aboriginal stakeholders having regard to the <i>Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales</i> (OEH 2010) and the <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents</i> (OEH, 2010).

This HHA has also taken into consideration the following heritage guidelines provided in Attachment 1 of the SEARS:

- *Australia ICOMOS Charter for Places of Cultural Significance, The Burra Charter* (ICOMOS, 2013)
- *NSW Heritage Manual* (Heritage Office and Department of Urban Affairs and Planning, 1994)
- *Assessing Heritage Significance* (NSW Heritage Office, 2001).
- *Statements of Heritage Impact* (Heritage Office and Department of Urban Affairs and Planning, 2002)

1.4 Limitations and assumptions

This report has been prepared by GHD for Australian Industrial Energy and may only be used and relied on by Australian Industrial Energy for the purpose agreed between GHD and the Australian Industrial Energy as set out in Section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Australian Industrial Energy arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

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

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

GHD has prepared this report based on information provided by Australian Industrial Energy and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report caused by errors or omissions in that information.

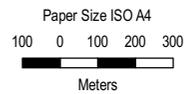


Legend

Proposed pipeline route

- Alignment
- - - Alignment (Proposed HDD Sections)

- Major Roads
- Minor Roads
- Railway
- Waterways



Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere



**Australian Industrial Energy
 East Coast Gas Project**

Project No. **21-27477**
 Revision No. **A**
 Date **9/10/2018**

Study Area

FIGURE 1

2. Desktop assessment

This desktop assessment examines technical data to establish a high-level environmental, statutory, archaeological and historic context for the study area. This context is provided to understand the potential for built, archaeological and intangible heritage values to be present in the study area and associated historic heritage risks or legislative obligations for the project.

2.1 Statutory context

2.1.1 Environment Protection and Biodiversity Conservation Act 1999

Commonwealth requirements in relation to environmental (includes heritage) assessment and management are principally specified in the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), which is administered by the Commonwealth Department of the Environment and Energy (DoEE).

The EPBC Act provides for the listing of natural, historic or Indigenous heritage values on Commonwealth lands, under Australian Government control or that are of outstanding heritage value. Listings include the World Heritage List (WHL), National Heritage List (NHL) and Commonwealth Heritage List (CHL).

The EPBC Protected Matters Search Tool was accessed on the 20 August 2018. There are no historic heritage values registered on the WHL, NHL or CHL within the study area.

2.1.2 Historic Shipwrecks Act 1976

The *Historic Shipwrecks Act 1976* protects historic wrecks and associated relics, that are more than 75 years old and in Commonwealth waters, extending from below the low water mark to the edge of the continental shelf. New South Wales (NSW) has complementary legislation, the *NSW Heritage Act 1977*, which protects historic shipwrecks in NSW waters. The Act requires that a register of historic shipwrecks and relics is maintained. DoEE maintains the Australian National Shipwreck Database (ANSDB), which is a register of maritime heritage in Australia, including shipwrecks, relics, aircraft and other maritime cultural heritage.

The ANSDB was accessed on the 20 August 2018. There are no maritime heritage values registered on the ANSDB within the study area.

2.1.3 Heritage Act 1977

The *NSW Heritage Act 1977* covers the identification, registration, conservation and protection of NSW heritage values. Part 3A of the Act, requires that a State Heritage Register (SHR) of heritage items of significance to the State be maintained. The SHR is maintained by the Office of Environment & Heritage (OEH), who also maintain a database of heritage values registered by Government agency's under Section 170 of the Act. Part 3C of the Act, requires that a register of shipwrecks is to maintained in such form and manner as the Heritage Council determines. OEH maintain a Maritime heritage site register that includes shipwrecks and other items of maritime heritage.

There are no heritage values listed on the SHR or OEH's online databases for the study area.

2.1.4 Environmental Planning Assessment Act 1979

The NSW EP&A Act provides the overarching structure for the planning process in NSW. Environmental impacts, including impacts to heritage values, are required to be assessed under the EP&A Act prior to the development of land. The Act includes provisions for State

Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs), planning instruments, which guide environmental assessment. SEPPs cover matters of State or regional significance, while LEPs are developed by local governments. Both SEPPs and LEPs include heritage schedules that identify historical heritage items and values, which are protected under the EP&A Act and the *Heritage Act 1977*.

Port Kembla is included in the SEPP (Three Ports) 2013, which includes mapping of known heritage values. The study area is wholly located in within the SEPP (Three Ports) 2013 and does not include any heritage values on the SEPP heritage mapping.

2.2 Environmental context

2.2.1 Topography

The study area is located around the former Tom Thumb Lagoon which is now the Port Kembla Inner Harbour (refer to Figure 1). The study area lies within a coastal plain, bounded to the west by the cliff lines of the Illawarra Escarpment, which transitions into gentle slopes and coastal plains. The majority of the study area is characterised as low-lying land that would have formerly been lagoon shoreline, lagoon, saltmarsh and mud flats. The western portions of the study area include gently sloped land and Spring Hill, that would have originally drained to the east into Tom Thumb Lagoon and Allan's Creek. However, the vast majority of land within the study area and drainage has been heavily modified by the construction of the Port Kembla Inner Harbour and surrounding industrial areas. Much of the land in and around the study area has been reclaimed with various fill material and drainage is now largely modified and defined around industrial precincts.

2.2.2 Geology and geomorphology

The underlying geology of the study area consists of fluvial sands, particularly the former Tom Thumb Lagoon area, and Budgong Sandstone on elevated areas, such as Spring Hill (Geological Survey of N.S.W, 1985). The Inner Harbour area is classified as a remnant saline coastal lagoon, approximately 50ha in size.

Prior to the port's development, Tom Thumb Lagoon was an estuary approximately 500 ha in size, comprised of an estuarine channel, saltmarsh and tidal mudflats. The estuary would have been bounded by a sand barrier at the mouth and consisted of a large, moderately deep, central basin influenced predominantly by fluvial processes. The lagoon now consists of modified straight, formalised estuarine channels that do not reflect its original form. A fluvial bay-head delta is no longer present in the system, however a small marine flood-ebb delta is present at the mouth of the estuary (GHD, 2007).

While the soil profiles of the study area are mapped as disturbed terrain (OEH, 2018), it is likely that the majority of original soil profiles at Spring Hill and gentle slopes west of Tom Thumb Lagoon, associated with the Fairy Meadow soil landscape, are less disturbed (Hazelton, 1990). The Fairy Meadow soil landscape is associated with floodplains and consist of alluvial soils overlying Quaternary deposits. Soil profiles in this landscape typically consist of up to 20 cm of loose sandy loam over brown sandy, typically 40 cm thick. Lower horizons typically consist of yellowish brown clay transitioning into olive brown clays sitting above Quaternary sediments (ibid).

2.2.3 Flora and fauna

The study area is located predominately within the Lake Illawarra Barrier, Dapto-Wollongong Coastal Slopes, Kiama Coastal Slopes and Lake Illawarra Alluvial Plains described within the Mitchell NSW landscape system (DECC, 2002). Although heavily altered by urban development,

the former landscape of the study area would originally have consisted of wetlands, saltmarsh, coastal scrub, hilly forest and forested plains with some rainforest elements. The landscape would have provided a resource rich environment for Aboriginal people in the past. Aboriginal people would have had access to molluscs, fish, birds, macropods and a range of flora species, particularly around the margins of the former Tom Thumb Lagoon.

2.3 Historical context

2.3.1 Early settlement 1817 - 1882

Cedar cutters were known to have been active in the Illawarra area as early as 1805, with settlement for farming occurring later in 1817. Two of the first five land grants for the Illawarra area made in 1816, are located south of the study area, with the northern boundaries of these grants being defined by the original shoreline of Tom Thumb Lagoon and Allan's Creek (DEC, 2005) (refer to Figure 2). The larger 2,200 acre (ac) land grant was provided to David Allan and included Port Kembla, Red Point and the southern shoreline of Tom Thumb Lagoon. Robert Jenkins was provided a smaller grant of 1,000 ac adjoining Allan's to the west and includes a small portion of the study area south of Allan's Creek.

David Allan was a Deputy Commissary General who had arrived in NSW in 1813. On receiving his land grant in 1817, Allan established "Illawarra Farm" at Red Point, south of the study area. It was documented that Allan sold meat and timber to the government at favourable rates until he was removed from his commissary position and Governor Macquarie lowered prices (Dowd, Allan, David (1780–1852), 2018). Allan departed NSW for Europe in 1819 and the property was maintained in absenteeism before being sold in succession to Richard Jones and William Charles Wentworth between 1827 and 1828. Wentworth renamed Illawarra Farm to Five Island Estate.

Little is documented on the Berkeley Estate whilst Robert Jenkin was alive, however, it is known that the estate was taken over by his wife Jemima Jenkins in 1822 after Roberts death (Dowd, 1977). Jemima expanded Berkeley Estate in 1834 to 3,280 ac after acquiring adjoining land to the northwest. The Jenkins family was largely based in Campbelltown and Wingello, however William Jenkins (son of Robert and Jemima) took over the management of Berkeley Estate in 1838. William built the first stage of "Berkeley" mansion and stayed on the estate until his death in 1884 (Dowd, 1977). As manager, William divided the Berkeley Estate and let portions to tenants under the clearing lease system. On his death, Berkeley Estate was subdivided into smaller farms and sold (Wollongong City Council, 2018a).

Other grants around Tom Thumb Lagoon were made in 1830 and 1831 to John Drummond (280 ac), Frederick Jones (100 ac) and George Tate (500 ac) (McCaffrey, 1922), with only Tates grant being located within the study area (refer to Figure 3). By 1826, the local administration had moved from Red Point to Wollongong and the Town of Wollongong was gazetted in 1834 (Wollongong City Council, 2018b). Eastern sections of the study area, on the northern mouth of Tom Thumb Lagoon, appear have been largely used as "commons" for recreational purposes. Sections of permanent and temporary commons were gazetted in 1865 and 1865 respectively, while a reserve for a race course and public recreation was gazetted in 1875 (refer to Figure 3).

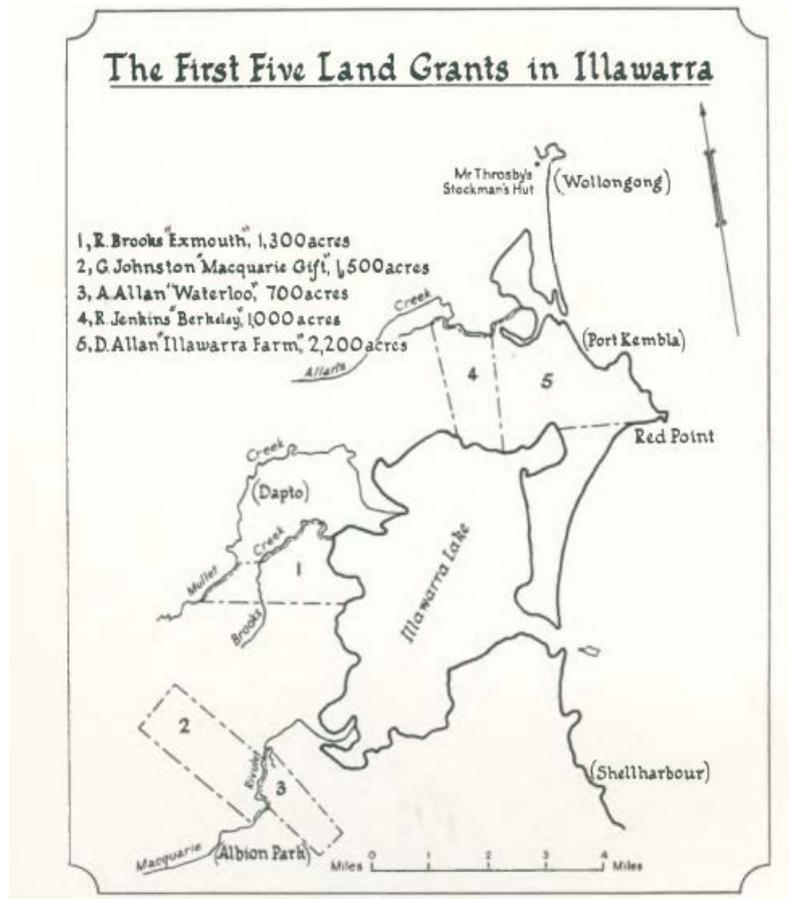


Figure 2 The First Five Land Grants in Illawarra (Dowd, 1977)

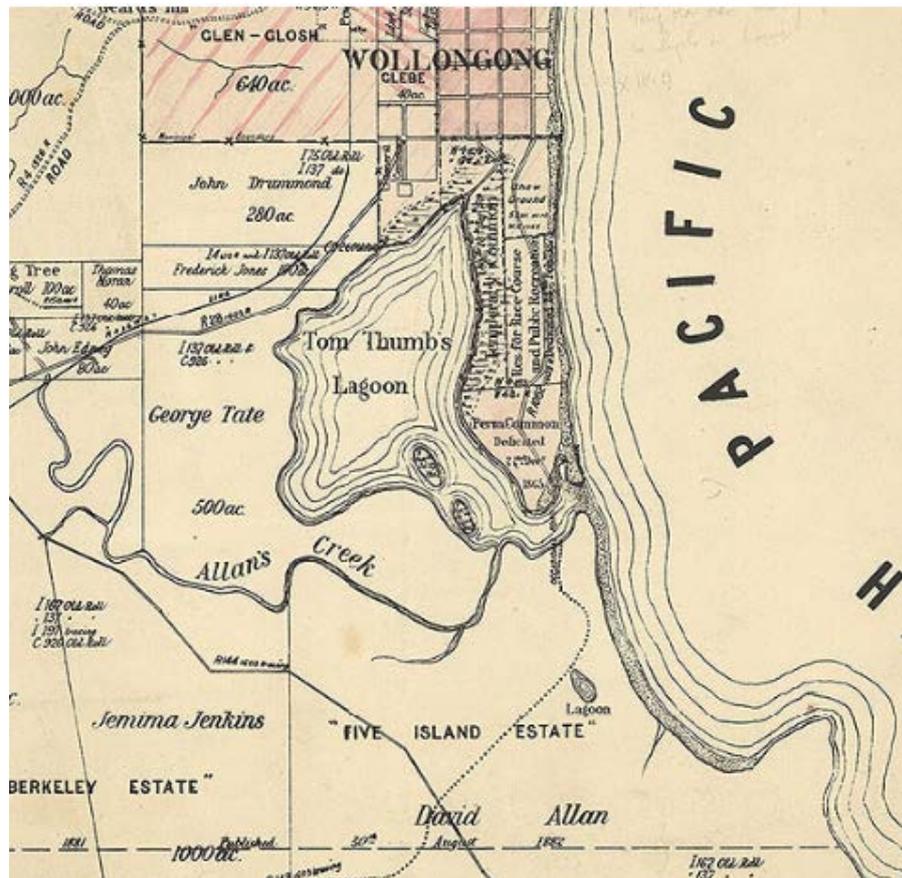


Figure 3 1884 Wollongong parish map (State Library of New South Wales)

George Tate was promised a grant of 500 ac at Spring Hill in 1821 by Governor Macquarie (citation). Tate was further granted a licence for the Springhill Hotel between 1829 and 1832 (Herben, 2007). The hotel was located on the western side of Springhill Road and author Herben describes the building as a slab timber construction, built facing east with French Doors opening onto an east facing veranda. The Springhill Hotel was the first recognised hotel in the Illawarra area and George Tate the first recognised publican. The Tate family also undertook cedar cutting and cattle breeding on the property, focussing on bullocks used for timber hauling. Following the death of his wife, Elizabeth Tate at Spring Hill in 1827, George remarried and opened The Man of Kent Hotel in Jamberoo with his new wife (McCaffrey, 1922).

George Tate sold Spring Hill to Captain Charles Waldron in 1832, who was killed in 1833 (Stewart, 1894) by servants, after which his widow Jemima Waldron took over the property (Herben, 2007). By this time the grant was commonly referred to as Spring Hill Estate and the former hotel as Springhill House. Jemima encountered financial difficulties and mortgaged the property in 1837 and again in 1839, and over time the Spring Hill Estate was broken into smaller farms including Homestead Farm, Rose Hill Farm, Elliot's Farm, Bullard Farm, Swamp Farm and the Horse Paddock. Many of these properties passed in and out of the Waldron family until 1920, when land was formally resumed by the NSW Government (Hoogendoorn, 1999).

Jemima was tenant farming Swamp Farm in the 1840s, a 70 ac portion of the former estate, that included Springhill House and outbuildings located in the western section of the study area. Jemima commissioned a private road through the larger estate in the mid 1800s, which would eventually become Springhill Road and remained on the property until ill health forced her to relocate to Wollongong (Hoogendoorn, 1999). The Horse Paddock was located north of Swamp Farm and roughly bounded by the private road to the west and Tom Thumb Lagoon to the east.

2.3.2 Early industrialisation 1882 - 1928

While an Aboriginal commercial fishing industry had existed at Port Kembla since 1876, heavy industrialisation of Tom Thumb Lagoon and surrounds began in 1882 when the Mount Kembla Coal and Oil Co established a private jetty and rail link to transport coal (Wollongong City Council, 2018c). The rail line was routed through the northern sections of the Berkley Estate south of Allan's Creek (refer to Figure 4). Coal operations at the port expanded in the 1880s and shortly thereafter the *Port Kembla Harbour Act 1898* was passed, enabling expansion of the port through construction of breakwaters in the early 1900s (Wollongong City Council, 2018c).

Transport routes between Wollongong and Port Kembla were formalised in response to the increase in industry at Port Kembla. Workers would initially cross a ford at the mouth of Tom Thumb Lagoon, but this journey ceased in the early 1890s by the construction of Trimmers Bridge (Hoogendoorn, 1999). 'Trimmers' is a term used to a person charged with sorting coal. The pedestrian bridge assisted workers, however, it was documented that it would sometimes be underwater at high tide (refer to Plate 1). A road bridge, known as Tom Thumb Road Bridge, was later constructed to the west of Trimmers Bridge (refer to Plate 2) and is visible in the 1927 mapping (refer to Figure 5).

The NSW Government had acknowledged the future need for a deep-water port to service industry at Port Kembla since 1887, with various plans considered. Following authorisation of the extension of the Port Kembla northern breakwater in 1912, the NSW Government gazetted its intent to resume the Spring Hill grant in 1913. Negotiation with the Waldron family commenced and seven years later, the land was formally resumed by The Public Works Department for a compensation fee of £9,307 (Hoogendoorn, 1999). Springhill House was demolished around 1940 (Herben, 2007), however this date may be disputed noting the Smith family took photos of a number of early Illawarra historical buildings between the 1930s and 1940s, which included the still standing Springhill House (refer to Plate 3).

Following the acquisition of land, the Port Kembla rail line was constructed in 1916 along the western boundary of Tom Thumb Lagoon (Wollongong City Council, 2018c) (refer to Figure 5). Springhill Road also appears to have been formalised around this time and appears on the 1927 mapping (refer to Figure 5), largely following the route of Jemima Waldron’s private road according to author Hoogendoorn (1999).

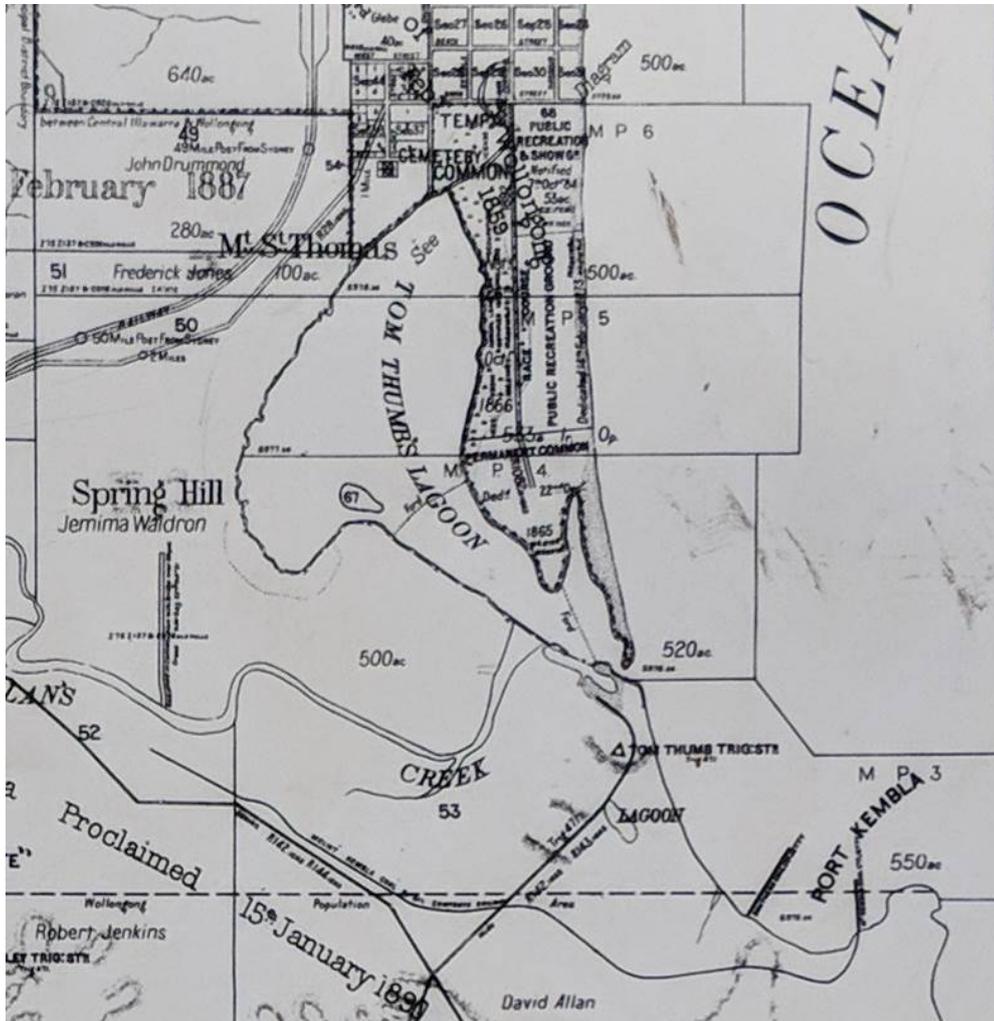


Figure 4 1897 Wollongong parish map (Wollongong City Library)



Plate 1 Trimmers Bridge being built (Catterall, 1994)

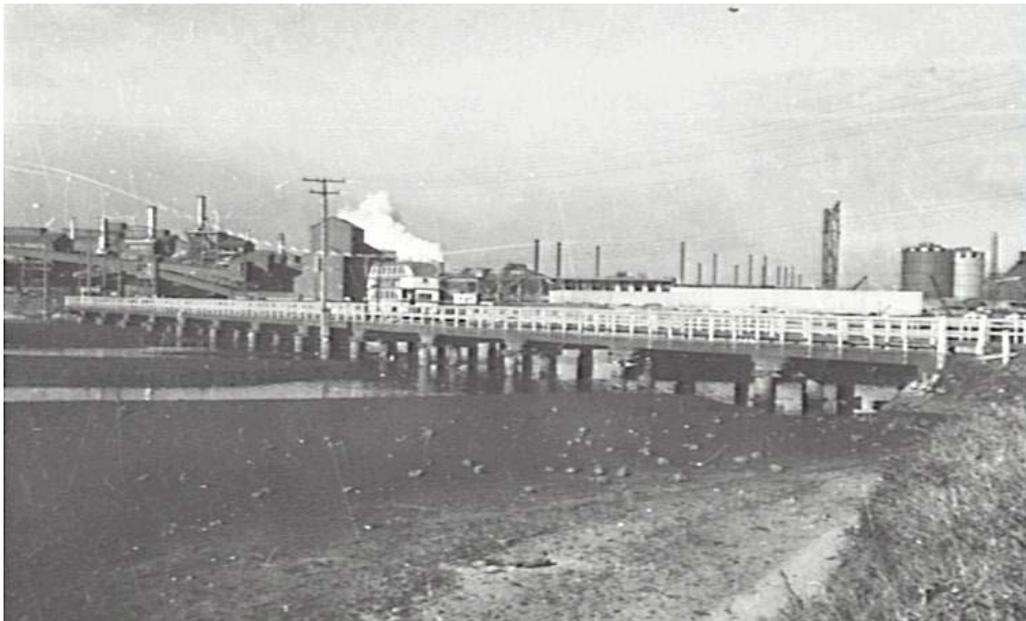


Plate 2 Tom Thumb Road Bridge (Wollongong City Library)



Plate 3 Springhill House ca 1930s to 1940s (Wollongong City Library)



Figure 5 Wollongong, New South Wales (Royal Australian Engineers, 1927)

2.3.3 Heavy industrialisation and Inner Harbour works 1928 – present

In 1927, the Australian Iron and Steel Company established an agreement with the State Government to establish a steel mill at Port Kembla (Wollongong City Council, 2018c). The mill was constructed between 1928 and 1930, on land that had part of the former Berkeley Estate, south of Allan’s Creek (refer to Plate 4). The mill began operations in 1930 and the Australian Iron and Steel Company would later merge with Broken Hill Proprietary (BHP) in 1935. Following the merger, BHP entered into an agreement with the State Government to further expand operations around Tom Thumb Lagoon (Hoogendoorn, 1999).

The expansion of the BHP steel works included the reclamation of 75 ac of the western edge of Tom Thumb Lagoon (refer to Plate 5). The reclamation program raised land by approximately 7 m, which required 2.3 million m³ of fill material, predominately sourced from Port Kembla sand dunes and dredge material from Tom Thumb Lagoon (Hoogendoorn, 1999). While dredging appears to have occurred throughout the 1930s and 1940s, increasing industrial demand after World War II led to construction of the Inner Harbour in the 1950s and 1960s (Catterall, 1994). This involved significant dredging to create a deep water port (refer to Plate 6), systematic drainage and reclamation of other areas of Tom Thumb Lagoon (refer to Plate 7), and the demolishing of Tom Thumb Road Bridge.

The industrialisation boom during the 1950s and 1960s led to large scale land modification across the majority of the study area, with only northern sections of the Inner Harbor and the “Horse Paddock” east of Springhill Road not being infilled by the 1975 (see Plate 8). The resulting industrial development required extensive modification of the natural drainage systems in the area, with Allan’s Creek being heavily modified and rerouted around the border of the industrial estates. Drainage along Springhill Road and the former Tom Thumb Lagoon were similarly heavily modified.

While steel operation areas have remained largely unchanged since the 1960s, works on the Inner Harbour berths and terminals continued well into the 1980s (see Plate 9), 1990s (see Plate 10) and to the present day. These modifications have been undertaken to meet changing commercial demands on the port. The northern sections of the Inner Harbour have been entirely infilled for freight and car storage, while additional berths have been constructed around the

permitter of the Inner Harbour (see Figure 1). Industrial areas west of Springhill Road have significantly changed, with many areas along the western boundary of the road longer in use.



Plate 4 Australian Iron and Steel mill under construction ca 1928 (Wollongong City Library)

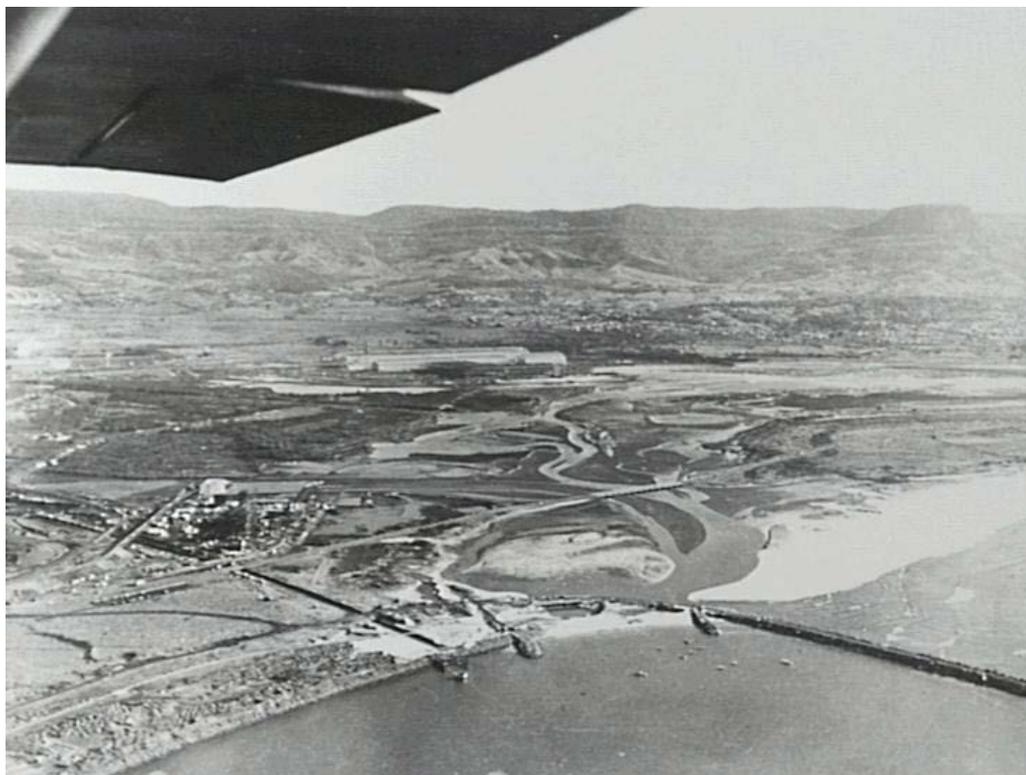


Plate 5 Tom Thumb Lagoon 1937 (Wollongong City Library)



Plate 6 Dredging of Tom Thumb Lagoon 1958 (Wollongong City Library)



Plate 7 Tom Thumb Lagoon 1961 (Wollongong City Library)



Plate 8 Wollongong w 8285-9 1975 Orthophotomap (Wollongong City Library)



Plate 9 Coal Terminal Port Kembla 1982 (Wollongong City Library)



Plate 10 Port Kembla Inner Harbour in 1996 (Hoogendoorn, 1999)

2.4 Archaeological context

2.4.1 Previous studies

While the Port Kembla Township and nearby Hill 60 have been subject to numerous heritage studies, very few historical heritage reports or archaeological surveys have been undertaken of the Inner Harbour area at Port Kembla. Previous environmental assessments for development within and around the Inner Harbour area have not included stand alone heritage assessments on the basis that the history of disturbance at the site has left little potential for heritage values, whether Aboriginal or historical (PKCT, 1992; Cardno, 2007; Cardno, 2008; SKM, 2005).

SKM prepared an environmental assessment (2005) for the general cargo handling facility which infilled on reclaimed land in the central north of the Inner Harbour. The report stated that:

No specific archaeological or heritage studies have been undertaken in the area. The land proposed for the expansion of the general cargo facility is within an industrial area and as such has been previously disturbed. It is highly unlikely given the disturbed nature of the land that any Indigenous archaeological deposits or sites would be present. Furthermore, the land to the north of Tom Thumb Road is reclaimed land would not contain any archaeological material (SKM, 2005).

Similarly, a 2008 environmental assessment for the Port Kembla Coal Terminal (PKCT) stated that:

The land on which PKCT sits has been artificially created by Western settlers in the early 1900 and in continuous uses for coal related operations since construction. There has not been any opportunity for use of the site by Aboriginal Groups. Furthermore, gradual development has been carried out within the PKCT site for approximately 100 years which has resulted in the land being highly disturbed (Cardno, 2008, p. 156).

Heritage studies of industrial land to the east and west of Springhill Road in Spring Hill have also been limited. Development works in the area focusing on modifications to existing industrial areas and environmental assessments have not included archaeological or other heritage studies.

However, the study area does include pockets of land that have not been subject to industrial development or land reclamation, i.e the Horse Paddock east of Springhill Road (refer to Figure 1). Regional historical trends, including the study area, have been examined by Australian Museum Business Services (AMBS) in 2010 and by Artefact Heritage in 2013. In addition, amateur investigations of Spring Hill Hotel have been undertaken by the Illawarra Historical Society. These assessments are summarised below.

Herben 2007

Historian Herben of the Illawarra Historical Society compiled a history of early Wollongong pubs and hotels in 2007. Herben places Springhill Hotel on the western side of Springhill Road at Port Kembla, noting that the site can be located at a depot, no longer present, and a large fig tree marks the site (Herben, 2007). Herben further documents that the building was demolished in 1940.

Australian Museum Business Services 2010

AMBS undertook a preliminary Aboriginal and historic heritage assessment for the West Dapto Urban Release Area (2010). While primarily examining the West Dapto area, the study assessed the entirety of Wollongong and the surrounds of Lake Illawarra, including the current study area. The report noted that much of the landscape assessed reflects early patterns of historic land grants, the development of rural properties for agriculture and pastoralism, followed by mining and industrialisation. Remaining rural landscapes were noted as relatively rare, as development and residential expansion continues (AMBS, 2010).

Artefact Heritage 2013

Artefact Heritage prepared a preliminary Aboriginal and non-Indigenous heritage assessment for the Farmborough Heights to Mount Kembla Strategic Planning Study (2013). The study investigated land 500 m to the west of the study area focussing largely on the suburbs of Farmborough Heights, Kembla Heights, Mount Kembla and Unanderra. All historical heritage items listed in these suburbs at the time of the study were on the Wollongong LEP and consisted of residential houses, cottages, municipal structures, places and former coal mining infrastructure.

The study area shares a similar history of European settlement with the suburbs of Farmborough Heights, Kembla Heights, Mount Kembla and Unanderra, only diverging in the 1920s when industrialisation took place. Suburbs further to the west of the study area remained largely pastoral land until after World War II, when residential subdivisions gradually occurred in the area to serve incoming migrant workers for nearby industries. Wollongong doubled in population between 1947 and 1961. As change was more gradual in these areas, many municipal and early homestead built features (i.e the Kembla Grange homestead) have survived (Artefact Heritage, 2013).

In considering historical archaeological potential, Artefact Heritage noted known archaeological remains were associated with former homestead sites, i.e Benjamin's Farm and Murray's Farm on the Mount Kembla Ring track. In addition, there was likely to be further potential for archaeological deposits associated with farming and coal mining activities (Artefact Heritage, 2013).

2.4.2 Historical heritage place patterning

Five historical places are recorded on the SEPP Three Ports 2013 which covers the study area, including:

- The Mobile Block Setting Steam Crane located on the Eastern Breakwater Harbour
- Hill 60, Illowra Battery (SHR No. 01492) on Gloucester Boulevard
- Brick Chimney, Port Kembla Copper on Military Road (since demolished)
- Office and House, Port Kembla Copper on Military Road
- Commonwealth Rolling Mill Plant and Gardens on Old Port Road

These places relate to early industrialisation and defence of Port Kembla and whilst in the port area, are not located in the study area. Early settlement homesteads, municipal buildings, service buildings and associated archaeological deposits have survived in the wider Wollongong area.

2.4.3 Historical archaeological potential

The majority of the study has been heavily impacted by industrialisation and land reclamation works. Industrialisation in the study area has largely occurred from the 1920s onwards, with the bulk of the port and steel mill development works occurring in the 1950s and 1960s, however, development of the port has continued up until the present.

The majority of the study area includes land reclaimed from Tom Thumbs Lagoon or areas that have been heavily impacted by the development of the Port Kembla Coal Terminal, Port Kembla Steel Mill, heavy industries along Springhill Road or drainage modification works.

Areas that have not been heavily impacted include sections along Spring Hill Road, the most prominent area being the Horse Paddock. These sections of land are associated with the former Springhill Estate and subsequent smaller farming plots. A map of Wollongong prepared by the Royal Australian Engineers in 1927 shows built structures either side Springhill Road on Spring Hill (refer to Figure 5). Based on Herben's (2007) description of the site location, it is likely that the western structure is the former Spring Hill Hotel. A structure on Spring Hill is just visible on an aerial photograph ca. 1928 (refer to Plate 4) to the west of the Port Kembla rail line. Potential foundations to the east and west of Springhill Road are faintly visible on available 1937 aerial photo, which shows the original Springhill Road alignment and western extent of Tom Thumb Lagoon before industrialisation and land reclamation works occurred in this area (refer to Plate 11).

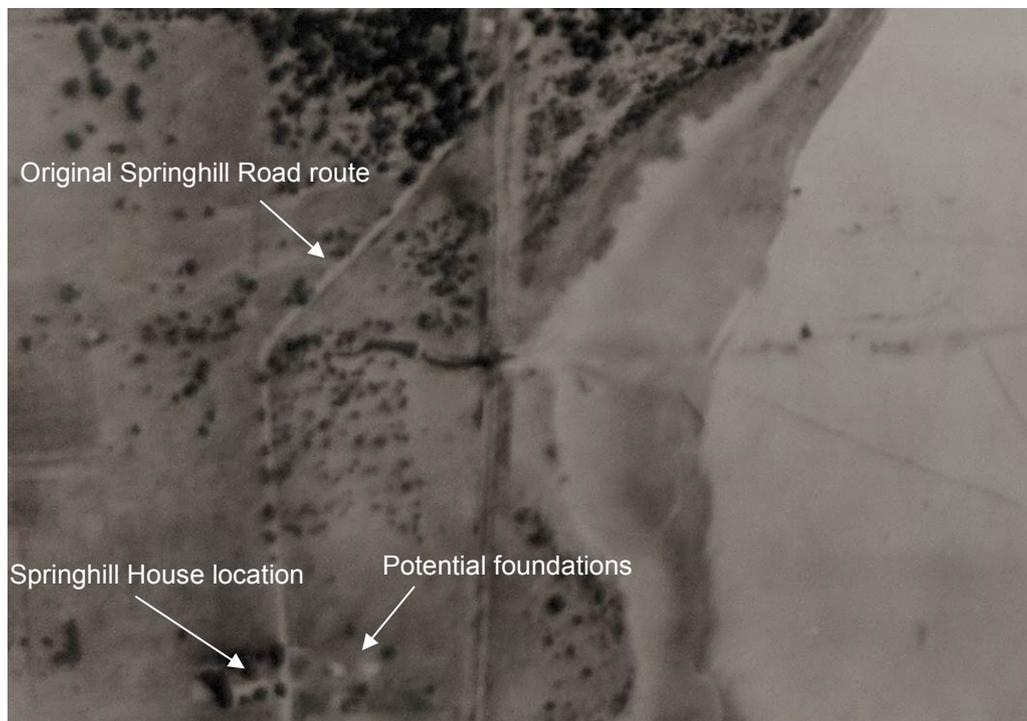


Plate 11 1937 Aerial photo mosaic detail of Spring Hill (Wollongong City Library)

Springhill Road was expanded into a dual carriageway as part of expanded industrial development in the 1950s and 1960s. While the road route over Spring Hill appears to have remained consistent, the crossing over the Kembla rail line was significantly altered into a curve and elevated bridge. Portions of the original Springhill Road route are visible between the

Kembla rail line and new Springhill Road north of the Horse Paddock (refer to Plate 12). Development has occurred to the east and west of Springhill Road on Spring Hill, with works to the east of Springhill Road appearing to be temporary access roads only (refer to Plate 12 and Plate 13).

Works to the west of Springhill Road include construction of depots, buildings, carparks and stockpiling areas, which in many instances occur to the edge of the Springhill Road reserve (Plate 12). Many of these features have been removed by 2008, with a new road and revegetation works being undertaken in former industrial areas (Plate 13). Two Fig trees that appear to have been immediately to the west of the former Springhill House and may have been plantings in association with its establishment, remain visible in recent aerials and appear to have been incorporated into a recreational open space by 2008 (see Plate 13). Foundations or other remains of Springhill House are not visible in available aerials. However, the survival of the Fig trees suggest that some natural soil features and potential historical archaeological deposits may have survived.

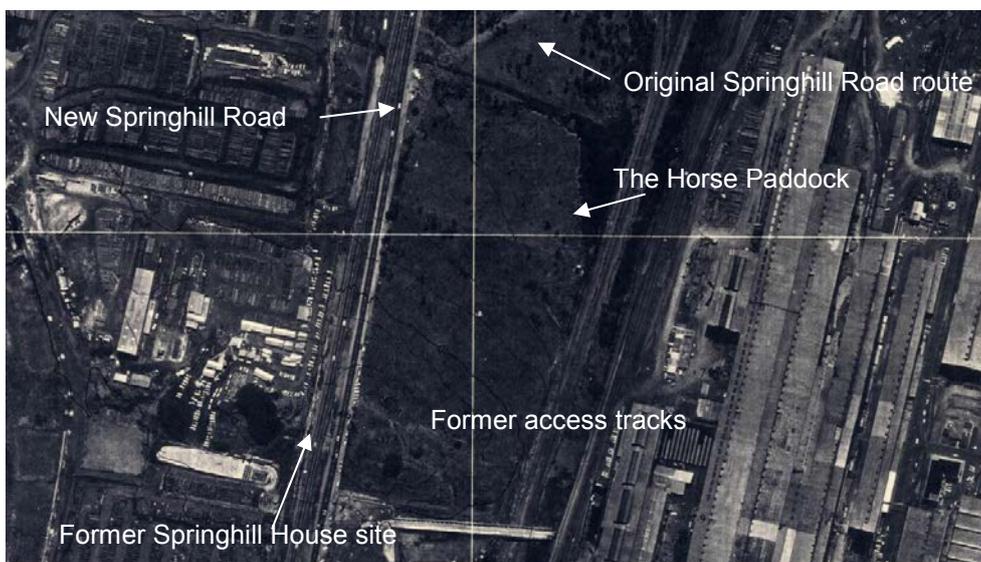


Plate 12 Detail of Springhill from 1975 Orthophotomap (Wollongong City Library)



Plate 13 Detail of Springhill from 2008 aerial photograph (Google Earth)

2.5 Desktop assessment summary

The study area is located in and around the margins of the former Tom Thumb Lagoon, with much of the land being reclaimed or modified as part of the Inner Harbour construction and continued industrial development occurring in the 1950s and 1960s and until the present day. Pockets of undeveloped land are located to the east and west of Springhill Road, with the bulk of these areas being the Horse Paddock and neighbouring Crown land to north. Mature Fig trees, possibly associated with the former Spring Hill Hotel's establishment have also survived on Spring Hill to the west of Springhill Road.

There is potential for historical features and archaeological deposits associated with early settlement and ongoing pastoral activities to survive in these limited areas. Mapping and aerial photographs indicate that the study area was largely rural in nature, prior to industrialisation, with built features largely relating to homesteads and outbuildings. While built features appear to have largely been removed during the 1940s and 1950s, historical features with the most likely potential to be present include; remains of early private roads, house and outbuilding foundations, rural domestic rubbish dumps and associated archaeological deposits with these features.

3. Site visit

A site visit of the study area was undertaken on the 22 August 2018 by GHD Senior Heritage Advisor Asher Ford and GHD Senior Ecologist Daniel Whaite. The site visit methodology and results are documented below.

3.1 Methodology

3.1.1 Aims of the survey

The aims of the site visit were to:

- Undertake an archaeological survey of the study area targeting areas with potential for historical features or archaeological deposits.
- Record any historical archaeological sites identified during the field survey.
- Record any areas of potential archaeological deposits encountered during the field survey.
- Visually inspect disturbance in other areas.

3.1.2 Survey methodology

The site visit included a combination of pedestrian and vehicle survey, with vehicle survey being undertaken in operational port areas where pedestrian survey was a safety concern. Pedestrian transects were undertaken in both disturbed and potentially undisturbed landforms as indicated by the desktop assessment. Due to dense vegetation, limited ground surface visibility, and site limited access, not all areas of the proposed gas pipeline route were able to be surveyed.

3.2 Survey results

The study area was examined in three survey units termed Port Kembla, Port Kembla Steel Works and Springhill Road (refer to Figure 6). The units have been predominately defined by access and history of disturbance. Results for each survey unit are documented below.

3.2.1 Port Kembla

The proposed pipeline route in the Port Kembla survey unit starts at the Port Kembla Coal Terminal (Plate 14) before following the Port Kembla Coal Terminal Road No. 1 north (Plate 15) and then turning west intersecting with Tom Thumb Road (Plate 16). Vehicle survey in this area was undertaken due to safety concerns. The start of the proposed pipeline route is located on reclaimed land within the former mouth of Tom Thumb Lagoon. Road No. 1 does not follow the original Port Kembla Road, which was originally located approximately 300 m to the west. This section of the pipeline route crosses what would have previously been the Wollongong race course prior to the Inner Harbour development. Tom Thumb Road is largely located within the former Tom Thumb Lagoon on reclaimed land.

This section of the study area has been heavily modified by the dredging and land reclamation for the Inner Harbour, as well as construction of the Port Kembla Coal Terminal and General Cargo Handling Facility. The Wollongong racecourse appears on historical mapping from the mid 1800s until the construction of the Inner Harbour in the 1950s. However, land modification has been so extensive that it is unlikely that archaeological deposits associated with the former racecourse would have survived.



Plate 14 Proposed pipeline route at Port Kembla Coal Terminal (GHD 2018)



Plate 15 Proposed pipeline route following unnamed port road north (GHD 2018)



Plate 16 Proposed pipeline route along Tom Thumb Road (GHD 2018)

3.2.2 Port Kembla Steel Works

The proposed pipeline route in the Port Kembla Steel Works survey unit follows Tom Thumb Road northwest out of the port area (Plate 17) then southwest along Springhill Road (Plate 18), before turning south along the Port Kembla rail line (refer to Plate 19 and Plate 20). The proposed pipeline route was surveyed in its entirety on foot. The Tom Thumb Road sections are located on reclaimed land from the former Tom Thumb Lagoon. Sections of the proposed pipeline route on the Springhill Road reserve and adjacent to the rail line are located on the former margins of Tom Thumb Lagoon, likely former marsh or Sheoak forest (refer to Plate 5).

The Tom Thumb Road and Springhill Road reserve areas have been heavily modified and appear to have been significantly built up with coal slag to create bunds (refer to Plate 17 and Plate 18). A considerable amount of built infrastructure and car parking was established in the western sections of the survey unit in the 1950s and 1960s. Much of this infrastructure has since been removed and replaced by the Inside Industry Visitor Centre, with large industrial items also on display on what is now open space (refer to Plate 19 and Plate 20). Land surfaces were observed to have been heavily disturbed with significant amounts of rubble and subsoils visible on the surface.

Historical mapping and aerials do not appear to show built features within the survey unit prior to industrial development in the 1950s and 1960s. Land surfaces have been heavily modified and the potential for historical archaeological deposits is considered low. Items of moveable heritage, former rail mounted steel making industrial equipment (refer to Plate 19 and Plate 21), are located in the survey unit but are not recorded on State or local heritage registers. It is noted that Outdoor displays of obsolete industrial or mining equipment at industry sites is not uncommon in the Wollongong region.



Plate 17 Tom Thumb Road reserve looking northwest towards the port entrance (GHD 2018)



Plate 18 Springhill Road reserve looking southwest along noise bunds (GHD 2018)



Plate 19 Looking southwest from the Inside Industry Centre towards the Kembla rail line (GHD 2018)



Plate 20 Looking south along land to the east of the Kembla rail line (GHD 2018)



Plate 21 Looking north along eastern side of rail corridor (GHD 2018)

3.2.3 Springhill Road

The proposed pipeline route in the Springhill Road survey unit proposes to utilise directional drilling for key road, rail and waterway crossings and to avoid previously undisturbed areas of biodiversity and heritage value. Crown land was unable to be accessed as part of the survey but directional drilling will provide for minimal disturbance. An alternate pipeline route was surveyed at the time to the south, crossing through the Horse Paddock. This route was discarded in favour of a more northern route.

Once crossing Crown land, the proposed pipeline route follows the western Springhill Road reserve south, before directional drilling under Allan's Creek and then turning east to cross Springhill Road again and connect to an existing gas main. The western Springhill Road section of the survey unit was subject to pedestrian survey in its entirety.

The Crown land to the north of the Horse Paddock is relatively heavily vegetated, while the Horse Paddock has largely been cleared of mature vegetation (refer to Plate 22 and Plate 23). Despite some surface disturbance from pastoral and agricultural activities, sections of the study area retain natural soils and the visible remains of built features within the southern section of the Horse Paddock. The eastern crest of Spring Hill and built features were not inspected, as the proposed pipeline route avoided these areas.

The northern slopes of Spring Hill to the west of Springhill Road were inspected (refer to Plate 24 and Plate 25) and noted to have been heavily disturbed by a combination of former industrial development on the mid and upper slopes and extensive drainage works on the lower slopes. The crest of Springhill has been partially modified, with sections between Springhill Road and a reserve to the west, having been levelled and extended to the south to create an extended building pad to accommodate power line pylons (refer to Plate 25, Plate 26 and Plate 27).

Further to the west, in the reserve associated with mature Fig trees, the Springhill crest has not been subject to the same level of disturbance. Slopes around the Fig trees appear to be unmodified (Plate 28) and there is evidence of modern building rubble and rubbish on the surface, likely associated with former structures from the 1950s and 1960s, as well as

contemporary recreational activities. While there has been some disturbance from the shelter construction and landscaping of the reserve, natural soil surfaces appear to be present behind the shelter and around the Fig trees.

The proposed pipeline route to the south of Springhill follows road reserve that has been heavily altered as part of landscaping, industrial or drainage construction activities (refer to Plate 29 and Plate 30). Land in close proximity to Allan's Creek has been heavily altered, with the original winding course of the creek having been straightened as part of the original Inner Harbour and industrial works in the 1950s.

The Springhill Road survey unit is one of the few areas within the study area where historical structures have been documented and remains may have survived. 1927 mapping (refer to Figure 5) indicates that built features were located on Spring Hill, either side of the Springhill Road. Herben locates the Spring Hill Hotel (Springhill House) site near the surviving Fig trees (2007) and the ca. 1928 aerial photograph (Plate 4) appears to indicate that another structure, possibly a house, was located further to east. No historical heritage features were identified around the Fig trees, however there was poor ground surface visibility and dense leaf litter in this area.

The current construction pad visible on the western side of Spring Hill appears to be significantly larger in height than the homestead foundation visible in the Smyth's photo and no house or outbuilding foundations were visible. Grounds surfaces visible in exposures consisting largely of subsoils and road base material, with very shallow topsoils were ground cover was present. Steel power line pylons and support cables are located on the construction pad (refer to Plate 25) are located on this pad and it was most likely constructed for this purpose.

It is possible that archaeological deposits and/or foundations of the former Springhill House site and other rural buildings survive on Spring Hill in the Fig tree reserve to the west or on the eastern side of Springhill Road. However, disturbance by industrial construction activities and the widening of Springhill Road are very likely to have destroyed any potential historical heritage features or archaeological deposits in these areas.



Plate 22 Looking north in northeast corner of Horse Paddock (GHD 2018)



Plate 23 Looking south across the Horse Paddock towards Spring Hill (GHD 2018)



Plate 24 Looking north from the northern mid slopes of Spring Hill (GHD 2018)



Plate 25 Looking north from the top of Spring Hill (GHD 2018)



Plate 26 Looking south from the top of Spring Hill (GHD 2018)



Plate 27 Looking north at the crest of Spring Hill from the southern upper slopes (GHD 2018)



Plate 28 Shelter under Fig trees at Spring Hill (GHD 2018)



Plate 29 Looking north along western road reserve at entrance to Spring Hill industrial estate (GHD 2018)

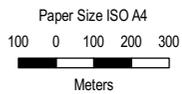


Plate 30 Looking north along western road reserve, just north of Allan's Creek (GHD 2018)

3.3 Site visit summary

A survey was able to be undertaken of the majority of the study area, with some restrictions in port areas and no access to the small Crown land section to the north of the Horse Paddock. A land access license for the area has since been obtained with no limitations placed on activities permissible in association with the site investigations for this project. Crown Lands has advised that buildings and a trotting track are present in this section of land, however they are not visible in mapping or photographs from 1937 or earlier (refer to Plate 11) and likely date to the 1950s or 1960s after which they are visible in aerial photography (refer to Plate 8).

The site visit has confirmed that the majority of the study area has been heavily modified with little to no potential for historical heritage features and/or archaeological deposits to survive. Pockets of undeveloped or disturbed land with the potential for historical heritage features and archaeological deposits are located on Spring Hill to the east and west of Springhill Road (refer to Figure 6). In addition to historical heritage features and/or archaeological deposits, historic industrial items of moveable heritage are also on display in the study area near the Inside Industry Centre.



Map Projection: Mercator Auxiliary Sphere
 Horizontal Datum: WGS 1984
 Grid: WGS 1984 Web Mercator Auxiliary Sphere



Australian Industrial Energy
 East Coast Gas Project

Project No. 21-27477
 Revision No. A
 Date 9/10/2018

Site Inspection Results

FIGURE 6

4. Impact assessment

This section assesses legislative obligations and risk management options for historical heritage.

4.1 Proposed development

The proposed works will include the establishment of a new berth and construction of an underground gas pipeline from Berth 101 to the existing east coast gas transmission network at Cringila. The majority of the pipeline will be trenched with sections of under boring to avoid road and rail infrastructure, waterways and Crown land. The majority of the proposed pipeline route has been sited in areas of heavy disturbance to reduce potential environmental impacts, including potential impacts to heritage values.

The potential pipeline route has considered crossing areas that have not been previously impacted, i.e the Horse Paddock and Crown land to the north. In this instance, considerations to avoid or mitigate potential historic heritage impacts to these areas has been considered. Where the proposed route cannot be rerouted to avoid these heritage areas, the pipeline will be installed via under boring.

4.2 Predicted physical impacts

There are items of moveable heritage and areas of potential for historical features and/or archaeological deposits near the proposed pipeline route. Items of moveable heritage or areas of potential will be avoided by the proposed works and no impacts to heritage values are anticipated.

4.3 Management and mitigation measures

Items of moveable heritage and areas of potential for historical heritage features and archaeological deposits are located outside of works areas and are readily avoidable. Appropriate induction and contingency measures should be included in future Construction Management Plans to manage unanticipated finds.

5. Recommendations

This section of the report summaries findings and makes recommendations to ensure legislative compliance and manage heritage risk.

Recommendation 1: Induction

Isolated relics or heritage features may be unexpectedly encountered during construction and a heritage induction should be included into the general induction package for all individuals undertaking or supervising ground disturbing works. Information in the heritage induction should include descriptions of potential heritage features or relics in the study area that will allow for the visual identification of these items.

Recommendation 2: Contingency plan

Ensure the inclusion of a contingency plan for the discovery of unanticipated historic heritage features or archaeological relics as part of the Construction Management Plan. The Plan should outline clear notification and stop work processes in the case of unanticipated historic finds.

Recommendation 3: Further investigations

The proposed pipeline route will avoid areas of potential for historical heritage features, movable heritage and/or archaeological deposits and no further investigation is recommended. If there is a change in the pipeline route, and these areas cannot be avoided, then further investigation to identify the nature, extent and significance of historical heritage features and/or archaeological deposits in these areas will be required. Any such investigation should be undertaken in accordance with relevant guidelines for historical archaeological investigation and in consultation with OEH.

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