APPENDIX 5

Historic Heritage Assessment

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apa

KURRI KURRI LATERAL PIPELINE PROJECT

Historical Heritage Assessment

FINAL

March 2022

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Historical Heritage Assessment

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Prepared by
Umwelt (Australia) Pty Limited
on behalf of
APA

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Project Manager:	Marion O'Neil
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Report No.	21450/R10
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Environmental & Social Consultants

This report was prepared using Umwelt's ISO 9001 certified Quality Management System.

Acknowledgement of Country

Umwelt would like to acknowledge the traditional custodians of the country on which we work and pay respect to their cultural heritage, beliefs, and continuing relationship with the land. We pay our respect to the Elders – past, present, and future.

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Marion O'Neil	9 March 2022	Paul Douglass	9 March 2022

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1.0 Introduction

1.1 Overview of the Project

Snowy Hydro Limited (Snowy Hydro) is developing a gas-fired peaking power station, referred to as the Hunter Power Project (HPP), at the site of the former Hydro Australia Pty Ltd (Hydro) aluminium smelter at Kurri Kurri. The HPP is aimed to provide up to 750 megawatts (MW) of 'on-demand' electricity to supplement Snowy Hydro's generation portfolio with dispatchable capacity when the needs of electricity consumers are highest. The HPP was approved, subject to conditions, by the Secretary of the Department of Planning, Industry and Environment (DPIE) on 17 December 2021 and by the Commonwealth Minister for the Environment on 6 February 2022.

APA Group (APA) has been engaged by Snowy Hydro to develop a gas supply solution for the HPP. APA has proposed the Kurri Kurri Lateral Pipeline (KKPL) Project (the Project) as the gas supply solution for the HPP. The Project comprises the following primary components:

- A buried, steel, medium diameter (up to DN350), medium pressure (up to 6.9 megapascal (MPag)) transmission pipeline of approximately 20.1 km in length to provide a gas supply from the existing Sydney to Newcastle Pipeline (SNP), via receipt and delivery facilities, to the HPP site.
- A compressor station at the termination of the transmission pipeline to boost gas pressure prior to transfer to a storage pipeline.
- A buried, steel, medium diameter (up to DN350), high pressure (up to 15.3 MPag) interconnect pipeline of approximately 1.3 km in total length, providing an interface between the compressor station, storage pipeline and delivery station.
- A buried, steel, large diameter (up to DN1050), high pressure (up to 15.3 MPag) storage pipeline of approximately 24 km in total length downstream of the compressor station with approximately 70 terajoules (TJ) of useable gas storage ready to supply the HPP.
- A delivery station to receive gas from the storage pipeline and control temperature, pressure and flow rate prior to delivery of gas to the HPP.

The compressor station and delivery station are located within the HPP project site boundary.

A schematic outlining the relationship of these project components is provided in **Figure 1.1**.

The study area for the purposes of this assessment is defined as the Project's combined construction footprint which is located over approximately 103 ha as depicted in **Figure 1.2**. The Study area incorporates:

- The construction right of way (ROW) for the transmission, interconnect and storage pipelines.
- Extra workspaces required for construction of the transmission pipeline for truck turnarounds, vegetation storage, horizontal directional drilling (HDD) entry and exit locations, horizontal bore entry and exit locations, watercourse crossing workspaces and line pipe storage areas.
- Access tracks to provide access to the construction footprint.
- Construction footprints for the offtake facility, compressor station and delivery station.

A compressor station and storage pipeline are required as part of the Project as the SNP does not provide sufficient gas volumes or pressure to meet the supply requirements of the HPP. As such, a direct pipeline connection between the SNP and the HPP is not a viable solution for gas supply to the HPP.

The proposed alignment of the transmission pipeline would commence at the Project's proposed JGN offtake facility near Black Hill, approximately 15 km northwest of Newcastle and terminate at the HPP, approximately 2 km north of Kurri Kurri, as shown on **Figure 1.2**.

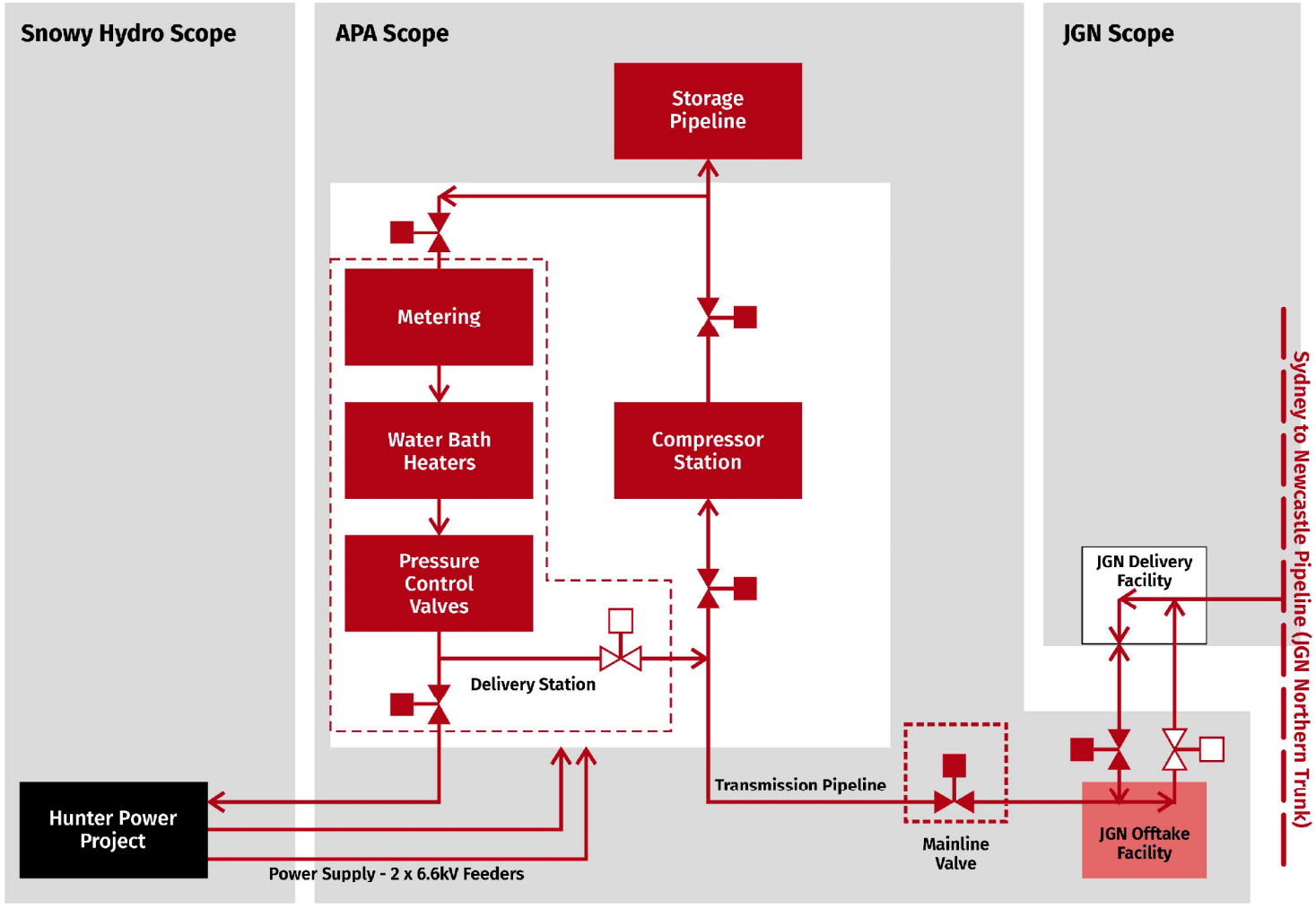
Construction is planned to commence during Q4 2022 with a gas supply to the HPP provided during Q4 2023. The HPP is planned to be operational by the end of 2023.

The Project, including the ancillary surface facilities, would be designed, constructed, commissioned and operated in accordance with *Australian Standard 2885 Pipelines – Gas and Liquid Petroleum* (AS 2885 - a suite of standards outlining requirements for gas and petroleum pipelines which are designed, constructed and operated in Australia) and licenced under the *Pipelines Act 1967*.

1.2 Purpose of this Assessment

This historical heritage assessment (HHA) has been prepared by Umwelt in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Industry and Environment (DPIE) on 23 July 2021. This report:

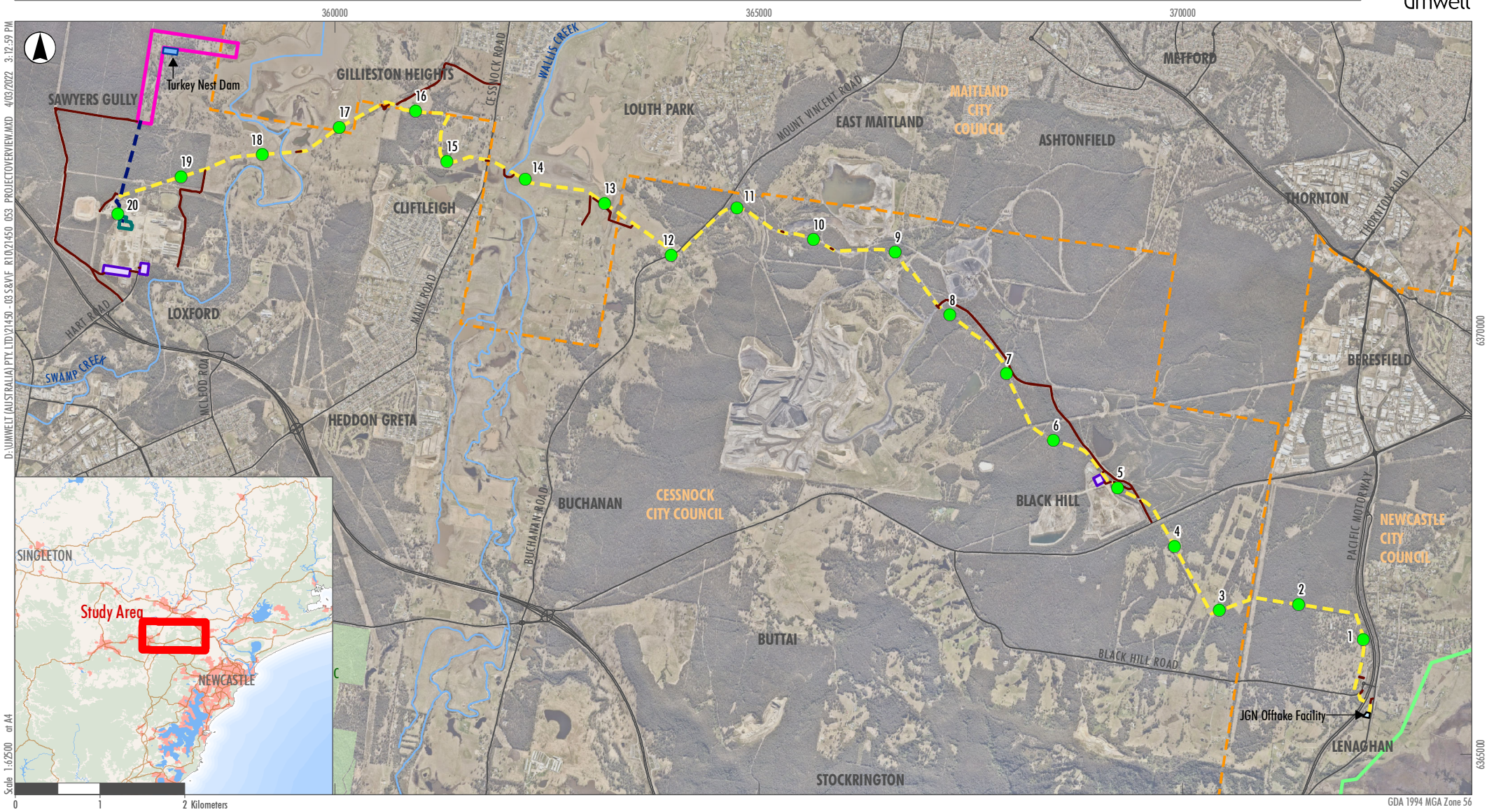
- identifies listed heritage items located within or in proximity to the Study area
- identifies items, buildings, structures, or other elements of potential historical heritage significance (i.e., those which are not listed) located within or in proximity to the Study area
- assesses any areas of historical archaeological potential within or in proximity to the Study area
- assesses the likelihood, extent and nature of potential impacts to any listed or unlisted items of heritage significance located within or in proximity to the Study area
- develops appropriate measures to avoid, manage and/or mitigate any identified impacts.



Note: Not to Scale

FIGURE 1.1

Relationship of Project Components



Legend

- Transmission Pipeline Alignment
- Interconnect Pipeline
- Sydney to Newcastle Pipeline (JGN Northern Trunk)
- Local Government Area Boundary
- Kilometre Point
- Compressor and Delivery Station
- Pipe Laydown Areas
- Storage Pipeline
- Turkey Nest Dam
- JGN Offtake Facility
- NSW Conservation Estates
- Access Tracks
- Roads
- Watercourses

FIGURE 1.2

Project Location

Image Source: Neamap (August 2021) Data source: NSW LPI (2020;2021)

1.2.1 Planning Secretary's Environmental Assessment Requirements

The SEARs for the Project identify key issues and referenced guidelines that must be addressed in the Environmental Impact Statement. **Table 1.1** presents the assessment requirements relevant to the Historical Heritage and where these have been addressed in this report.

Table 1.1 SEARs and where addressed

Requirement	Section where addressed
Historical Heritage – including:	
• An assessment of the impact on historic heritage in accordance with NSW Heritage Manual, prepared by a suitably qualified consultant, including	This report
○ Heritage conservation areas and State and local heritage items within and near the site, and detailed mapping of the items and mitigation measures for impacts on heritage values; and	**Sections 5.0 and 6.0**
○ If identified an historical archaeological assessment, in accordance with the Archaeological Assessment (1996) and Assessing Significance for Historical Archaeological Sites and Relics (2009), including significance of the relics and mitigation strategy. If harm cannot be avoided, a Research Design and Excavation Methodology must outline the proposed excavations or salvage programme.	**Section 6.2**

1.3 Methodology

This HHA has been undertaken in accordance with guidelines set out in the NSW Heritage Manual 1996 (Heritage Office and Department of Urban Affairs & Planning), including:

- Archaeological Assessments
- Assessing Heritage Significance
- Statements of Heritage Impact
- Heritage Terms and Abbreviations.

This HHA has also been prepared with consideration of the best practice principles contained in the:

- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance 1999* (Australia ICOMOS. 2000) (the Burra Charter)
- NSW Heritage Branch (now Heritage NSW), Department of Planning, 2009, *Assessing Significance for Historical Archaeological.*

1.4 Limitations

This report has been prepared in relation to historical heritage and archaeology only. Assessment of the Aboriginal cultural heritage and archaeology is addressed in a separate report prepared as part of the Environmental Impact Statement (EIS) for the Project.

1.5 Report Authorship

This report has been prepared by Melissa Moritz, Senior Heritage Consultant. Review and input have been provided by Tim Adams, Principal Heritage Consultant/Archaeologist.

2.0 Statutory Context

2.1 Relevant Legislation

2.1.1 Commonwealth Legislation

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the Australian Government's environment and heritage legislation. The EPBC Act is triggered by developments or actions that will have a significant impact on matters of National environmental significance, including world heritage areas, Commonwealth marine areas, nationally threatened species and communities and migratory birds. The EPBC Act includes a process for the assessment of proposed actions that have, or are likely to have, a significant impact on matters of national environmental significance. These actions require approval from the Commonwealth Minister, Environment and Heritage.

A new national heritage system was established in January 2004 under the EPBC Act. This led to the introduction of the National Heritage List, which recognises and protects places of outstanding heritage to the Nation, and the Commonwealth Heritage List, which includes Commonwealth owned or leased places of significant heritage value.

No heritage items of National or Commonwealth heritage value are located within the Study Area.

2.2 NSW State Legislation

2.2.1 Heritage Act 1977

The *Heritage Act 1977* (Heritage Act) is administered by Heritage NSW. The purpose of the *Heritage Act* is to ensure cultural heritage in NSW is adequately identified and observed. The Heritage Act is the primary item of state legislation affording protection to items of environmental heritage (natural and cultural) in NSW. Under the Heritage Act 'items of environmental heritage' include places, buildings, works, relics, moveable objects and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items are listed on the NSW State Heritage Register (SHR) and are given automatic protection against any activities that may damage an item or place or affect its heritage and/or archaeological significance.

The Heritage Council of NSW, appointed by the Minister, is responsible for heritage in NSW, as constituted under the *Heritage Act*. The Council is a cross-section of heritage experts, with the Heritage NSW being the operational arm of the Council.

2.2.2 Relics Provision of the *Heritage Act 1977*

The Heritage Act affords automatic statutory protection to 'relics' which form part of archaeological deposits (except where these provisions are suspended by other prevailing legislation). The Heritage Act defines a 'relic' as any deposit, object or material evidence that:

- relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and
- is of state or local heritage significance.

2.2.3 Section 170 Heritage and Conservation Register

Under Section 170 of the Heritage Act, all State government agencies must establish, keep and maintain a list of assets within their ownership and/or management that have been identified as having heritage significance–this can be local or State heritage significance. These registers are kept by each respective government agency with a copy also provided to Heritage NSW. It should be noted however not all registers are publicly accessible.

2.2.4 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (EP&A Act) governs strategic planning and development assessment processes undertaken by State and Local Government in NSW. The EP&A Act requires that Local Governments prepare planning instruments (such as Local Environmental Plans [LEPs] and Development Control Plans [DCPs]) in accordance with the EP&A Act to provide guidance on the level of environmental assessment required.

2.2.5 Local Environmental Plans

The majority of the Study area falls within Cessnock Local Government Area (LGA) with a small section within the Newcastle LGA and the Maitland LGA. The Project is therefore subject to the planning provisions of the Cessnock LEP 2011, Newcastle LEP 2012 and Maitland LEP 2011.

Part 5 Clause 5.10 of these three LEPs provides the statutory framework for heritage conservation including the conservation of:

- the environmental heritage of Cessnock, Newcastle and Maitland
- the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,
- archaeological sites,
- Aboriginal objects and Aboriginal places of heritage significance.

2.3 The Burra Charter (The Australian ICOMOS Charter for Places of Cultural Significance (2013)

The *Burra Charter* is a set of best practice principles and procedures for heritage investigations and conservation. The charter was developed by the Australian group of the international professional organisation for conservation; the International Council for Monuments and Sites (ICOMOS). Although it is not a statutory document, the *Burra Charter* provides a best practice standard for heritage management in NSW and Australia. The policies and legislative guidelines of the Heritage Council of NSW and Heritage NSW are consistent with and guided by the *Burra Charter.*

2.4 Relevant Heritage Listings

To inform this assessment, searches of all relevant heritage databases were undertaken. This includes searches of:

- The Commonwealth Heritage List
- The National Heritage List

- The State Heritage Register
- Heritage Act Section 170 Heritage and Conservation Registers (where publicly accessible)
- relevant LEPs.

As a result of these searches, it has been identified that:

- no Commonwealth or Nationally listed heritage items or places are located within the Study area
- no State listed heritage items are located within the Study area

The Study area crosses through the curtilage of one heritage item listed on the item I212 – 'South Maitland Railway System' on the Cessnock LEP 2011. The following statement of significance is provided in the NSW State Heritage Inventory (SHI) entry for the South Maitland Railway System.

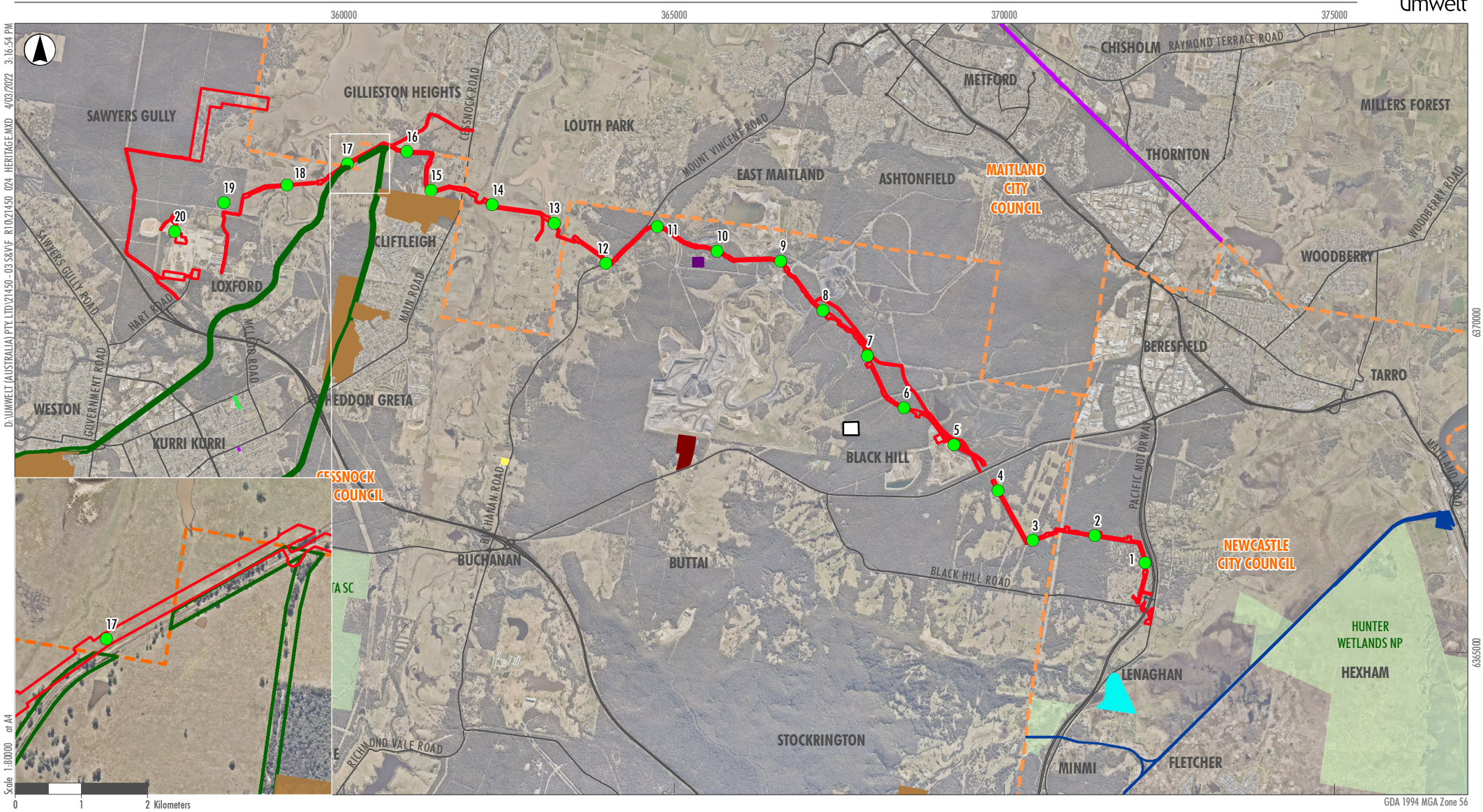
> *From 1892 until the 1960s the South Maitland Railway was the largest and busiest private railway in Australia – essential in the export of Australia's richest coal resources as well as moving passengers. It was the focus of some bitter industrial disputes, and of the conflict, competition and co-operation of some of NSW's largest industrial organisations including J&A Brown and the Australian Agricultural Co. The growth and decline of the line provides evidence of the growth and decline of the coal industry around Cessnock. The largest rail system to retain steam power until it was finally abandoned in 1983.*

Table 2.1 and **Figure 2.1** presents the listed heritage items located within the vicinity of the Study area that was identified through searching the above listed registers.

Table 2.1 Relevant Heritage Listings in proximity to the Study area

Item Details	Address	Description	Listing Details	Distance to the Study area
South Maitland Railway System **Heritage Item ID 1340065**	Between Pelton Colliery Triangle and LGA boundary, Cliftleigh	The remains of a double track mainline railway constructed between 1892 – 1927.	Cessnock LEP 2011 Item I212	Project located partially within the curtilage of this item.
Stoney Pinch Reservoir	Lot DP 1 724279 Lot 1 DP 814843 Lot 1217 DP 1157771 Black Hill NSW 2322	The Reservoir is an inground concrete reservoir with sloping sides and a later metal roof, with tubular steel handrail and walkway on top. At the east end of the reservoir is a decorative concrete structure housing the valve chamber. It is a cast concrete structure with decorative banding and a concrete deck roof.	Hunter Water Section 170 Heritage and Conservation Register Item Number 3630029	Approximately 650m
Buttai No 1. Reservoir	Lot 1 Buttai Rd Four Mile Creek NSW 2323	A brick rectangular inground reservoir situated in remnant bushland at the top of a hill. The reservoir has an arched brick roof, consisting of 6 arches with a bitumen capping. There is a decorative sandstone portico entry point with '1882' engraved on the pediment.	Hunter Water Section 170 Heritage and Conservation Register Item Number 3630004	Approximately 200m south
Buttai No 2. Reservoir	Lot 1 Buttai Rd Four Mile Creek NSW 2323	A later addition, Buttai Reservoir No. 2, forms an L shape around the Buttai No. 1 Reservoir and is made of concrete. The two structures are connected internally.	Hunter Water Section 170 Heritage and Conservation Register Item Number 3630005	Approximately 200m south
Collieries of the South Maitland Coalfields/Greta Coal Measures Group	Multiple locations within the Cessnock LGA	The 'Collieries of South Maitland Coalfields' listing refers to multiple former colliery sites within the Cessnock Local Government Area (LGA), and refer to the mines associated with the Greta Coal Measures. One of the mines included in this group listing is located near the study area.	Cessnock LEP 2011 Item I215	Approximately 100 south

Item Details	Address	Description	Listing Details	Distance to the Study area
Winston Court	142 Lenaghans Drive, Minmi NSW 2287	Two storey face brick work building with iron balcony and flat grille - columns supporting secondary corrugated metal verandah over. Main roof structure is hipped with corrugated metal sheets. Windows are double hung timber frames with flat metal arches. Included are former fountain gates and landscape.	Newcastle LEP 2012 Item I330	Approximately 1.25km south west
Minmi to Hexham Railway	Minmi NSW 2287	The remains of the former Minmi to Hexham railway. Extant structures include the embankments, which remain visible.	Newcastle LEP 2012 Item I332	Approximately 1.25km east
Buchanan Gallery	796 Buchanan Road, Buchanan	No details available	Cessnock LEP 2012 Item I45	Approximately 3.26 km south
Buttai Cemetery—Elliott family graves	659 John Renshaw Drive, Buttai	An area of 640 acres known as the Buttai Paddock was purchased by the Elliott family.	Cessnock LEP 2012 Item I46	Approximately 2.81 km south



Legend

- Study Area
- NSW Conservation Estates
- Kilometre Point
- Local Government Area
- Roads

Heritage Listed

- Trade Union Banners (LEP Item I116)
- Government Railway (LEP Item I119)
- South Maitland Railway Heritage (LEP Item I212)
- Collieries of the South Maitland Coalfields/Greta Coal Measures Group (1340721) (Neath Colliery) (LEP Item I215)
- Winston Court (LEP Item I330)
- Minmi to Hexham Railway (LEP Item I332)
- Buchanan Gallery (LEP Item I45)
- Buttai Cemetery/Elliott Family Graves (LEP Item I46)
- Buttai No.1 and Buttai No.2 Reservoir (HW s170 item numbers 3630004 and 3630005)
- Stoney Pinch Reservoir No. 2 (HW s170 Item 3630029)

FIGURE 2.1

Heritage Context Map

Image Source: Neamap (August 2021, Nov 2021) Data source: NSW LPI (2020;2021)

3.0 Historical Context

3.1 European Settlement

The first exploration into the Hunter region was made by John Howe in 1819, with the Hunter Valley opening for free settlement and agricultural use in the early 1820s. Land in the Cessnock area was taken up as early as 1821, with Benjamin Blackburn receiving upwards of 400 acres near the site of Kurri Kurri and Pelaw Main. Throughout the 1820s numerous others settled in the region, with many prominent estates being established during this time along with smaller working allotments. The fertile land in the area attracted many new settlers and former convicts to take up successful pastoral activities on their land holdings. Following this success, John Campbell acquired 2560 acres of land known as Cessnock, the original land holdings for the contemporary Cessnock township. Between 1821 and 1856 a total of 72 landholders are recorded to have settled in the Cessnock region, ranging from European immigrants to families previously residing in other parts of the colony (Austar 2021).

In 1852, David Campbell subdivided the Cessnock estate on Black Creek. By 1855 the entirety of the Cessnock estate had sold to private sellers. Following the construction of the Great North Road in 1826 to 1836, the area began to attract travellers and as a result grew as a regional hub. Those who settled in the region were predominately engaged in agricultural or pastoral work, with some vineyards being established during the mid to late 1840s. In addition, due to the heavily wooded nature of the region, logging and timber industries were also undertaken (Austar 2021).

3.2 Mining and Collieries of South Maitland

The Study area traverses through a landscape which a long history of mining, that continues to this day. The first mines in the region surrounding the Study area were developed in the late 19th century

Mining commenced in 1862 not far from the town of Greta. By 1886 the Government Surveyor, T.W. Edgeworth David, had mapped the entire Greta Coal Measures, which became one of the most intensely worked coal-fields in Australia. By the early 20th century, upwards of 17 collieries had been established in the area, prompting improvements to local infrastructure and the extension of the South Maitland Railway. In 1925 these collieries employed 10,519 staff and produced 5.48 million tons of high-quality low-ash coal (40 per cent of NSW's production) from two major sources - the Greta and Holmesville seams (Davies 1993). coal-field

This discovery of the rich Greta Coal seam catapulted the region into a state of regional popularity, with new townships and settlements being established in order to exploit the coal resources. The towns of Telarah, East Greta, Heddon Greta, Stanford Merthyr, Pelaw Main, Kurri Kurri, Weston, Abermain, Neath, Kearsley, Abernethy, Kitchener, Aberdare, Paxton, Pelton and Bellbird grew as a result of mining development.

The coal was used both within Australia and exported to overseas markets including Japan, Chile and the United States. Tonnages peaked during the 1920s, but the 1930s depression caused a downturn in production and high unemployment. The Second World War temporarily halted this decline with increased production for the war effort. By the mid-1960s, however, there was less demand for coal and technological advances in other mines made the coal-field less competitive.

3.2.1 Heddon Greta Colliery

The Heddon Greta Colliery was located near the town of Heddon Greta and operated from 1890 to 1910. Fires occurring in part of the pit in 1905 led to the sealing off of portions of the colliery, to halt the fire. This remained closed for more than a year before opening. The colliery was closed in 1910. Upon closure, all pit-top structures were demolished, with the site currently vacant.

3.3 South Maitland Railway Line

The South Maitland Railway was a network of privately owned branch lines extending south-west of Maitland, which served the numerous collieries found along the Greta Coal Seam. The line was the largest and busiest private railway line in Australia and was considered a vital component in the exportation of Australian coal. The branches of the railway were originally owned and operated by individual private entities, however merged together to form the South Maitland Railways Pty Ltd.

Construction of the railway commenced in July 1892, being undertaken by the East Greta Coal Mining Company and extending as far as East Greta, south of Maitland. Originally constructed as a single line, the railway was duplicated into a double line between 1903 and 1912, allowing the railway to accommodate the increased demand brought about by the establishment of new collieries in the area. The railway remained double lined until the 1980's when the railway began to be removed.

In 1900 the railway was further extended to service the Stanford Merthyr Colliery and again in 1901 to reach the Stanford Greta No. 2 Colliery. Additional extensions allowed for the inclusion of numerous neighbouring collieries, with the Australian Agricultural Co extending the line to Cessnock in 1904 in order to service the Aberdare Colliery syndicate. In 1914 the Hebburn Mining Co purchased the line, renaming it as the South Maitland Railway. Following numerous industrial strikes, violent clashes and the destruction of railway property, the Australian Government took over services until 1961.

In addition to operating at the service of the numerous collieries in the region, the East Greta Mining Company also used the South Maitland Railway for passenger services. Commencing in 1902, passengers were offered transportation between the East Greta Junction and Stanford Merthyr. In 1903 this service was extended to further reach Maitland. Following industrial action, passenger services were ceased in 1967.

3.4 Life After the Decline in Collieries

The local area underwent significant changes following the decline in coal extraction and processing in the 1950s. As the older collieries such as Neath and Greta Heddon closed, the land within the vicinity was generally excluded from redevelopment, as the former mine operation areas were undesirable or unfit for development. Farms and rural properties, which has slowly spread in the area continues to occupy large areas of land in the regions however immediately following the decline of the coal industry, there was a rise in unemployment and business failure, which demonstrated how closely dependent the local communities were in the mining (James B. Croft & Associates, 1980: 31)

The establishment of the Kurri Kurri smelter and other government incentivise helped to stabilise the economy, with cattle rearing and dairying and residential development increasing, with towns such as Kurri Kurri growing after a short stall. The area met the population growth with new residential developments and facilities, however due to the presence of active and former mining areas, as well as flood plains, the land within the Study area remained largely undeveloped, with a slight increase in residential buildings following the 1960s, however not at the pace seen elsewhere in the region.

3.5 The Hydro Aluminium Smelter

First known as the Kurri Kurri aluminium smelter, it was constructed by Alcan Australia Limited as part of a State Government initiative to help stabilise the local economy in the area following the decline of the coal mining industry in the 1950s (James B. Croft & Associates, 1980: 31). Construction commenced in 1967, with productions starting in 1969 with a single potline and an initial capacity for less than 25,000 tonnes per annum.

Operations expanded in 1979 with a second potline commissioned, with a third added in 1985 which also increased employee numbers to around 900 employees (Alcan Australia Limited, 1988:2). Ownership of the smelter transferred to VAW Aluminium AG (Hydro Aluminium) in 2002, who undertook the Smelter Upgrade and retrofit Project, increasing production capacity to 170,000 tonnes per annum.

However, due to a decline in profitability of operations of the smelter, the production from the first potline was curtailed, with all pot relining operations ceasing by February 2012. Closure of the primary metal production ended in the following September and production of casthouse products in October also occurred in association with declining profitability of the smelter.

The facility continued in care and maintenance mode until May 2014 when the decision to permanently close the site was made. Remediation efforts were undertaken following the closure, including the removal of the majority of all structures associated with the smelting works, leaving only the hardstand to mark the location of the former smelting operations.

4.0 Visual Inspection

A visual inspection of the Study area was undertaken in October 2021. This inspection was undertaken concurrently with the site survey for the Aboriginal cultural heritage assessment undertaken by Nicola Roche (Umwelt Principal Archaeologist) and Stephanie Howden (Umwelt Archaeologist). The following description has been informed by the results of the visual inspection.

The east portion of the Study area, between kilometre point (KP) 0 to 5 is located within largely undeveloped land, with areas of remnant or regrowth vegetation interspersed with areas of clearing for road and service easements, and a horse farm (**Photo 4.1**). There are also some areas of modern underground mining associated with the Abel Mine. This east portion of the Study area is undulating slopes and crosses through open grassed pastures. No structures such as houses or buildings are located within the area surrounding the Study area (**Photo 4.2**).

The Study area then changes from KP 5 to 12, where it passes through the partially rehabilitated Donaldson Coal Mine and the active Bloomfield Colliery. Within this part of the Study area, the alignment of the transmission pipe follows the easement of an existing pipeline that crosses the existing mining area in a northwest alignment from John Renshaw Drive. This component of the Study area contains large areas of remnant vegetation as well as areas of regrowth following historical and current mining activities (**Photo 4.3**). Although there are several mine operations in the area, there are no structures or buildings within the immediate vicinity of this section. There are several access roads within the area, which for the most part are unpaved. The terrain in this area generally slopes to the north with rolling hills falling to the east near KP 12.

From KP 12 the Study area follows the southeast edge of Buchanan Road, before crossing to the west, passing through an area of open grassed pastures and floodplains of Buttai Creek, Wallis Creek and Testers Hollows to the west side of Main Road. There are several residential buildings located in the vicinity of the Study area here, which are generally constructed post 1960, and were associated with the increase in residential development in the area following the decline of mining leases and coal processing in the area.

From the west side of Main Road, the Study area crosses through open grass pasture, crossing the heritage listed South Maitland Railway (**Photo 4.4**). In this area, the South Maitland Railway consists of the main railway line and branch line leading to Heddon Gretta. The embankment for the rail line, a set of tracks and concrete and masonry retaining wall remain in this area, however several timber sleepers have been removed, and are located nearby in multiple piles near the branch in the line (**Photo 4.5**).

After crossing the former railway line, the Study area passes across open pastures (**Photo 4.6**) and Swamp Creek (and its associated flood plain) (**Photo 4.7**) before connecting into the site of the former Hydro Aluminium Smelter. This area consists of a large expanse of concrete hardstand installed as part of the former smelter operations, with some visible remains of the infrastructure and buildings associated with the former smelting operations. The proposed compressor station and delivery station will be located on the existing hard stand of the former Hydro aluminium smelter directly adjacent to the HPP (**Photo 4.9**).

The storage pipeline is proposed to be located to the north of the HPP within buffer zone land of the former Hydro aluminium smelter. The proposed location of the storage pipeline is an L-shaped parcel of land to the west of Wentworth Swamp. The land in this part of the Study area has largely been previously cleared (**Photo 4.8**), with no visible structures.

Photo 4.1 Study area located within the existing High Voltage Transmission Line easement

Photo 4.2 Study area showing areas of cleared native vegetation within an overgrown pasture

Photo 4.3 Study area showing area of undeveloped land within the current mine sites

Photo 4.4 **Views to the South Maitland Railway**

Photo 4.5 South Maitland Railway showing the in-situ tracks and retaining walls

The sleepers in the foreground of the image is one of multiple piles where sleepers have been removed from the track and relocated within and in the vicinity of the curtilage.

Photo 4.6 Study area showing open pasture adjacent to the South Maitland Railway

Photo 4.7 Study area within the vicinity of Buttai Creek looking towards Louth Park to the Right and Wallis Creek floodplain to the left on the image

Photo 4.8 Proposed Storage pipeline construction footprint

Photo 4.8 shows the predominantly cleared land of the storage pipeline footprint, with areas of shrub regrowth and scattered mature trees.

Photo 4.9 The former Hydro aluminium smelter site, where the compressor station and delivery station will be located

Source: APA, 2022

5.0 Heritage Significance

5.1 Potential Heritage Items

The analysis of the aerial imagery and historical background of the Study area has not identified any items of potential heritage significance within the Study area. This was confirmed during the visual inspection of the Study area by Umwelt Consultants Nicola Roche and Stephanie Howden, with no structures warranting further assessment identified.

5.2 Discussion of Historical Archaeological Potential

Historical archaeology in Australia generally relates to the study of the past using physical evidence in conjunction with historical sources. Historical archaeology is generally defined as comprising the period since European arrival in Australia in 1788. An archaeological resource is the physical evidence of the past and may comprise sub-surface evidence including building foundations, occupation deposits, features and artefacts. Archaeological resources are irreplaceable and have the potential to contribute to our knowledge and understanding of early history using information that is unavailable from other sources (DUAP 1996:2).

The historical archaeological potential of the Study area is the likelihood that there may be physical evidence relating to the early development and occupation of the Study area beneath the current ground surface of the Study area.

5.2.1 Historical Archaeological Potential

Archaeological potential is defined as “the degree of physical evidence presents on an archaeological site, usually assessed on the basis of physical evaluation and historical research” (Heritage Office and Department of Urban Affairs and Planning, 1996).

Archaeological research potential of a site is the extent to which further study of relics likely to be found is expected to contribute knowledge about the history of NSW which is not demonstrated by other sites or archaeological resources. The archaeological potential of the Project, and its immediate surrounds is assessed using the following gradings:

Low Potential: land use history suggests limited development or use, or there is likely or known to have been quite high impacts in these areas.

Moderate Potential: land use history suggests limited phases of low development intensity, or that there have been impacts in this area. A range of archaeological remains may survive, including building footprints and shallower remain or deposits as well as deeper sub-surface features.

High Potential: substantially intact historical archaeological remains could survive in these areas.

The assessment of potential is dependent upon the extent of disturbance that has occurred in the area of the assessment. This has been considered in the following section.

5.2.2 Disturbance

In order to assess the extent of disturbance, the following classifications are used:

Low disturbance: the area or feature has been subject to activities that may have had a minor effect on the integrity and survival of archaeological remains.

Moderate disturbance: the area or feature has been subject to activities that may have affected the integrity and survival of archaeological remains. Archaeological evidence may be present; however, it may be disturbed.

High disturbance: the area or feature has been subject to activities that would have had a major effect on the integrity and survival of archaeological remains. Archaeological evidence may be greatly disturbed or destroyed.

The historical overview presented in **Section 3.0** demonstrates that the Study area has likely been subject to a range of activities which would have resulted in a range of disturbances within the landscape. This includes:

- activities associated with coal mining as localised and large area removal of earth, tunnelling activities, spoil management, diversion of water courses and land clearing
- activities associated with agricultural use such as land clearing, leveling activities, construction of in-ground infrastructure such as septic tanks, water and electricity services, construction of dwellings and supporting structures where present in the landscape
- removal of redundant structures associated with the mining use of the Study area.

5.2.3 Archaeological Potential of the Study area

As outlined in **Section 3.0**, the Study area has remained largely undeveloped, with the early land use patterns in the area historically associated with grazing and pastoralist efforts as was common in the early Hunter region. The grand estates and homesteads of the early European settlers into the area are located outside of the Study area and no historical records indicate that any dwelling or structures associated with early pastoral use were located within the Study area. The floodplains and creeks in the area would have limited the buildable land and are unlikely to have been used for permanent structures. Use associated with this period is unlikely to have left physical evidence within the landscape which would have survived the later land disturbances including mining activities and natural forces such as flooding along the creeks and floodplains. There is low to nil historical archaeological potential associated with the land use prior to the 1890s.

Some parts of the Study area underwent a shift of land use with the discovery of coal seams and reefs within the wider area during the late nineteenth century. This included extensive open cut and underground mining for coal, the effects of which can still be seen on the landscape today.

This period of land use post 1890 was intensive and included widespread landscape modifications for mining and the associated supporting infrastructure. This included items such as railway lines, processing areas, operations and ancillary buildings, mining equipment and housing for workers. Known historical mines were located within the Study area between kilometre 5 and kilometre 12 on the pipeline alignment. Historical aerial imagery from the 1950s shows several structures and modifications to the landscape in this area, likely associated with the early mining activities. The Donaldson and Bloomfield Collieries currently operate within the location of the historical mining activities. This includes the expansion of mining operations and remediation works across a large area around Four Mile Creek, including parts of the Study area.

The continued operation of mines within this part of the Study area has resulted in ongoing modification and reworking of the landscape, including the removal of redundant infrastructure and making safe of former mining areas. This would have resulted in high levels of disturbance to any evidence of historical mining activities in the area, removing most if not all evidence of previous land use activities within the Study area. Other areas of recorded historical mining use within the wider landscape are located outside of the Study area. The Study area is considered to have low potential to contain archaeological evidence associated with the early mining within the region.

Overall, the Study area is considered to have low to nil historical archaeological potential.

6.0 Impact Assessment

The purpose of this section is to assess the potential for the Project to impact on listed heritage items in the Study area and within the vicinity. This impact assessment has been undertaken using the heritage impact gradings included in **Table 6.1**.

Table 6.1 Heritage Impact Gradings

Grading	Definition
Major Adverse	An action which will have a severe, long term and possibly irreversible impact on the heritage item. Major adverse impacts include the partial or complete demolition of a heritage item or addition of new structures in its vicinity that would destroy the visual setting of the items. The action will have a substantial impact on the fabric and or values of the heritage item. Actions of a major adverse impact cannot be fully mitigated.
Moderate Adverse	An action that will have an adverse impact on a heritage item. Moderate adverse impacts include the modification of a heritage item, including partial removal of significant fabric or elements, altering the setting of a heritage item or landscape and construction of new structures which alter the visual setting of the heritage item. Actions of a moderate adverse impact may be able to be reduced through appropriate mitigation measures
Minor Adverse	An action that will a minor adverse impact on a heritage item. This may include an action affecting only a small element of the heritage item, or a small or partial impact on the setting of a heritage place. The action may be temporary or reversible. Actions of a minor adverse impact are able to be minimised or reduced through use of appropriate mitigation measures.
Negligible Impact	Actions which do not affect the heritage values of a place, or do not affect significant elements, fabric, views or the setting of a heritage item.
Minor Positive	An action which will bring a minor benefit to a heritage item, such as improving an item's visual setting.
Moderate Positive	An action which will bring a moderate benefit to a heritage item, such as the removal of an intrusive element or fabric, or a substantial improvement to the heritage items setting or reinstatement of obscured views.
Major Positive	Major positive impacts include actions which include a major benefit to the heritage item and add to or increase the heritage values of the item. This includes actions such as the reconstruction of significant elements, removal or substantial intrusive elements or structures in the curtilage or reinstatement of a heritage items visual curtilage or setting. This can also include the reintroduction of former uses of an item which are key to demonstrating its heritage significance.

6.1 Impacts to Heritage Items

6.1.1 South Maitland Railway

The Study area passes within the curtilage of the South Maitland Railway, item I212 on the Cessnock LEP 2011. The works within the curtilage would include the bore drilling of a section of the transmission pipeline below the existing rail tracks and embankment, passing perpendicular to the tracks from east to west, and the establishment of associated access roads and works areas. Although the works are located within the curtilage of the heritage item, the proposed works would not require the removal or intervention with the railway or its significant components such as the tracks, sleepers, or embankment.

The noticeable embankment and alignment of the former railway line will be retained and remain a visible feature within the immediate landscape. The establishment of the access tracks during construction will result in changes to the setting within the curtilage of the item, however this will be a negligible and temporary alteration to the existing. Similarly, once completed, the alignment will be buried below the existing ground surface with no visible structures to be introduced into the curtilage of the heritage item.

Overall, the Project would not have any adverse physical or visual impacts on the South Maitland Railway.

6.1.2 Heritage Items in the Vicinity

The heritage items in the vicinity of the Study area are generally located at distances greater than 750 m, with the exception of three items which are in closer proximity. These include one of the former collieries included in the group listing for the Collieries of the South Maitland Coalfields (item I215 Cessnock LEP 2011) which is approximately 100m from the Study area; the Buttai No 1. And No. 2 Reservoirs (item 3630004 and 3630005 Hunter Water Section 170 register) which is approximately 200m south of the Study area and the Stoney Pinch Reservoir (item 3630029 Hunter Water Section 170 register) which is approximately 650 m west of the Study area.

The Project's construction of the buried transmission pipeline will be separated from the nearby heritage items and does not require any physical intervention or works to the heritage items within the vicinity of the Study area. The Project will for the most part be constructed below ground, with the visible changes to the Study area to be associated with temporary enabling works.

Components of the Project which include new structures above ground are located significant distance from any listed heritage items and would therefore not result in any impacts to the views to or from or significant setting of any listed heritage items. Overall, the Project would not result in any adverse physical or visual impacts to the heritage items in the vicinity of the Study area.

6.2 Impacts to Historical Archaeology

As identified is **Section 5.2.3**, the Study area has been assessed as having low to nil potential for archaeological remains associated with early settlement and pastoral land use of the area. There is also low potential for the Study area to retain archaeological remains associated with the early mining activities from the 1890s. Although the Project includes significant ground disturbing activities along the construction footprint, there is low potential for historical archaeological remains to be located within the Study area. Therefore, the Project has a low risk of resulting in impacts to historical archaeological remains.

7.0 Conclusion and Mitigation Measures

7.1 Conclusions

Based on the above investigation, no new historical heritage items are located within the Study area. There is considered to be low potential for any historical archaeological remains to be located within the Study area. The potential to impact or harm any yet unidentified archaeological resource is therefore assessed as low.

Although the Project includes works within the curtilage of local heritage item 'South Maitland Railway' (Item I212 Cessnock LEP 2011), it is not expected that the Project would result in any adverse heritage impacts this item.

The Project was assessed as having no adverse heritage impacts on the listed heritage items located in the vicinity of the Study area.

7.2 Management and Mitigation Measures

Table 7.1 provides the heritage related management and mitigation measures proposed for the project.

Table 7.1 Historic Heritage Management and Mitigation Measures

ID	Management and Mitigation Measure	Timing
HH1	An unexpected heritage finds protocol should be established and included in the environmental management policies for the project. All project team members and construction contractors should undertake a s heritage specific induction to support the use of this protocol.	Prior to and during construction
HH2	Detailed survey of the construction footprint within the vicinity of the South Maitland Railway should be undertaken and all piles of sleepers and associated fabric should be recorded. Those elements which are located within the vicinity of the construction footprint should be relocated to a safe location within the curtilage of the item. This should be done in consultation with the asset owner or Council's heritage advisor.	Prior to construction commencement
HH3	In the unlikely event that unexpected historical archaeological material is discovered, all work in the area should cease and suitably qualified archaeologist should be consulted to determine an appropriate course of action. Depending on the extent and significance of the archaeological remains encountered, consultation with Heritage NSW may be required prior to the commencement of works in that area.	During construction.

8.0 References

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