

7 September 2022

Steve O'Donoghue
Energy and Resource Assessments Division
NSW Department of Planning and Environment

By email: Stephen.ODonoghue@planning.nsw.gov.au

Dear Steve,

RE: Proposed Modification Application for the Killingworth to Kooragang Island Gas Pipeline (SSI-46360740)

1.0 Introduction

Jemena is seeking to modify the existing infrastructure approval for the Killingworth to Kooragang Island Pipeline to allow for bi-directional flow of gas between the Jemena Gas Network (JGN) Northern Trunk Pipeline and the approved Kurri Kurri Power Station (KKPS), currently being developed by Snowy Hydro, via the APA's proposed Kurri Kurri Lateral Pipeline Project (KKLP) which is currently under assessment via a separate development application. The Modification and locality are described in more detail in **Section 3.0** below.

Umwelt (Australia) Pty Ltd (Umwelt) has been engaged by Jemena to undertake the environmental assessment of the Modification pursuant to section 5.25 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) and prepare a Modification Report, in accordance with the requirements of the EP&A Act and Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

The purpose of this Scoping Letter is to:

- provide the Department of Planning and Environment (DPE) with an overview of the Modification
- identify relevant key environmental matters that will be further investigated in the Modification Report to be prepared by Umwelt, and
- seek confirmation from DPE on any further assessment requirements in addition to the proposed environmental and social assessment approach outlined in **Section 6.0**.

2.0 Approved Infrastructure

The Killingworth to Kooragang Island Gas Pipeline is an existing major gas pipeline operated by Jemena in accordance with its license under the NSW *Pipelines Act 1967* (Pipelines Act) (License No. 8) and its associated infrastructure approval as State significant infrastructure (SSI) under the EP&A Act (SSI-46360740).

Under the then provisions of the Pipelines Act, Part 4 of the EP&A Act did not apply to the Killingworth to Kooragang Island Gas Pipeline. However, those provisions were repealed in September 2006 by the NSW *Pipelines Amendment Act 2006* which included transitional provisions for existing pipelines, under which Pipeline Licence 8 issued under the Pipelines Act was deemed to be a planning approval granted under Part 3A of the EP&A Act.

Part 3A of the EP&A Act was also repealed in October 2011, and under the provisions of the Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017, the project was transitioned to State Significant Infrastructure (SSI) in June 2022 and Pipeline Licence No. 8 comprises the Infrastructure Approval (SSI-46360740) for the project.

The Killingworth to Kooragang Island Gas Pipeline commences at the Killingworth trunk regulating station (TRS) (connecting at the end of the Plumpton to Kingston Pipeline) and ends at Kooragang Island, forming part of the Jemena Gas Network (JGN).

The Killingworth to Kooragang Island Pipeline transverses over a length of 32.9 kilometre (km) and consists of the following sections:

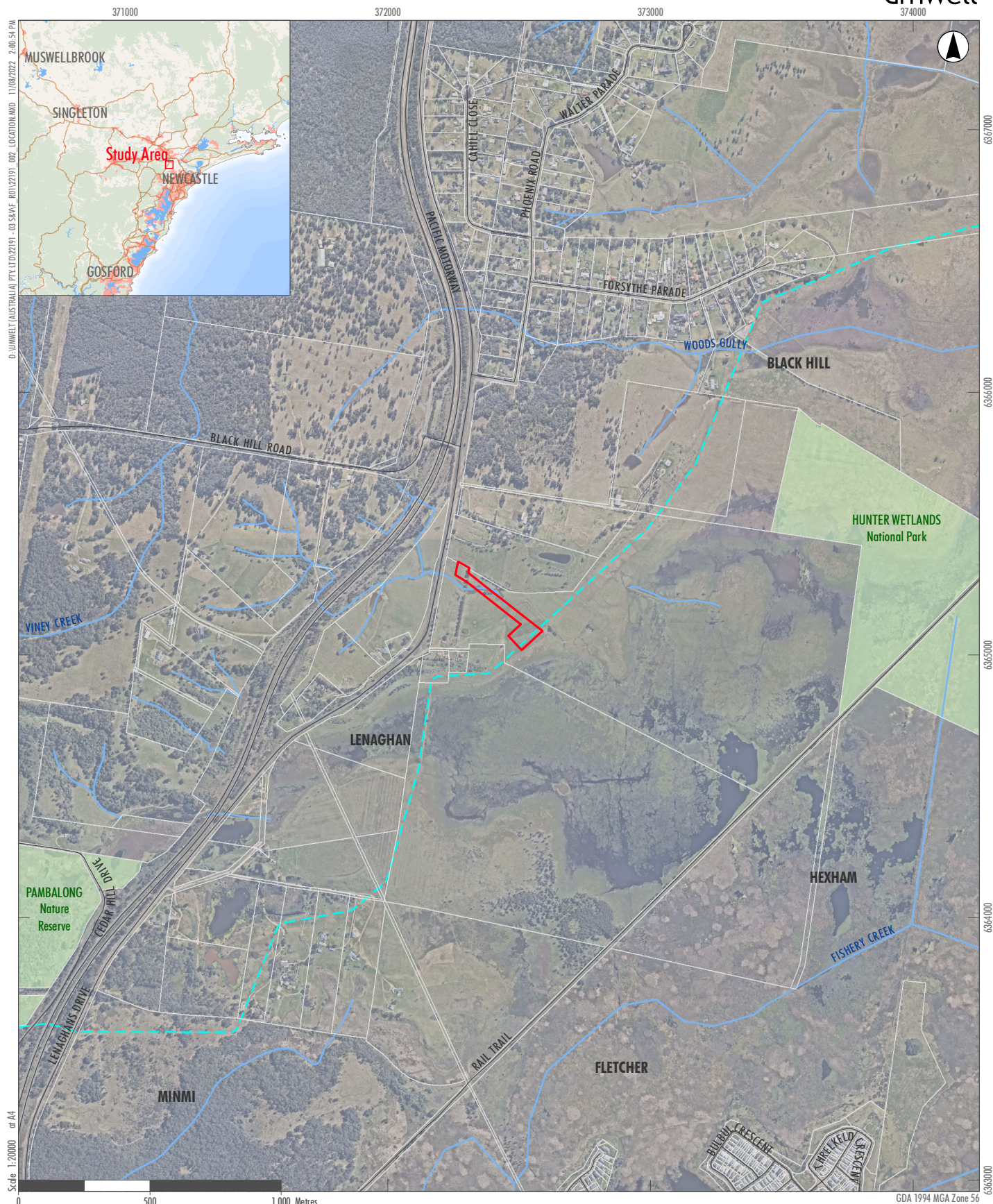
- Killingworth to Hexham (19.5 km).
- Hexham to Kooragang Island TRS (11.6 km).
- Kooragang Island TRS to Walsh Point (1.8 km).

From Killingworth to Hexham TRS, the pipeline is contained within a 24.385 m wide easement and from Hexham TRS to Walsh Point, it is 12 m wide. The pipeline passes through relatively flat urban (residential and industrial land use) and non-urban (public and private land use) areas.

3.0 The Modification

The Modification is located in the rural locality of Lenaghan, approximately 15 km west of Newcastle, New South Wales (NSW). The Modification falls wholly within the Local Government Area (LGA) of the City of Newcastle. Refer to **Figure 3.1** for a locality map of the Modification.

The Modification will involve a new pipeline connection and associated infrastructure at kilometre point (KP) 13.8 within the Killington to Hexham section of the Killingworth to Kooragang Island Pipeline. A map showing the key features of the Modification is provided in **Figure 3.2**. The Modification will maintain the current approved operation of the JGN Northern Trunk Pipeline.

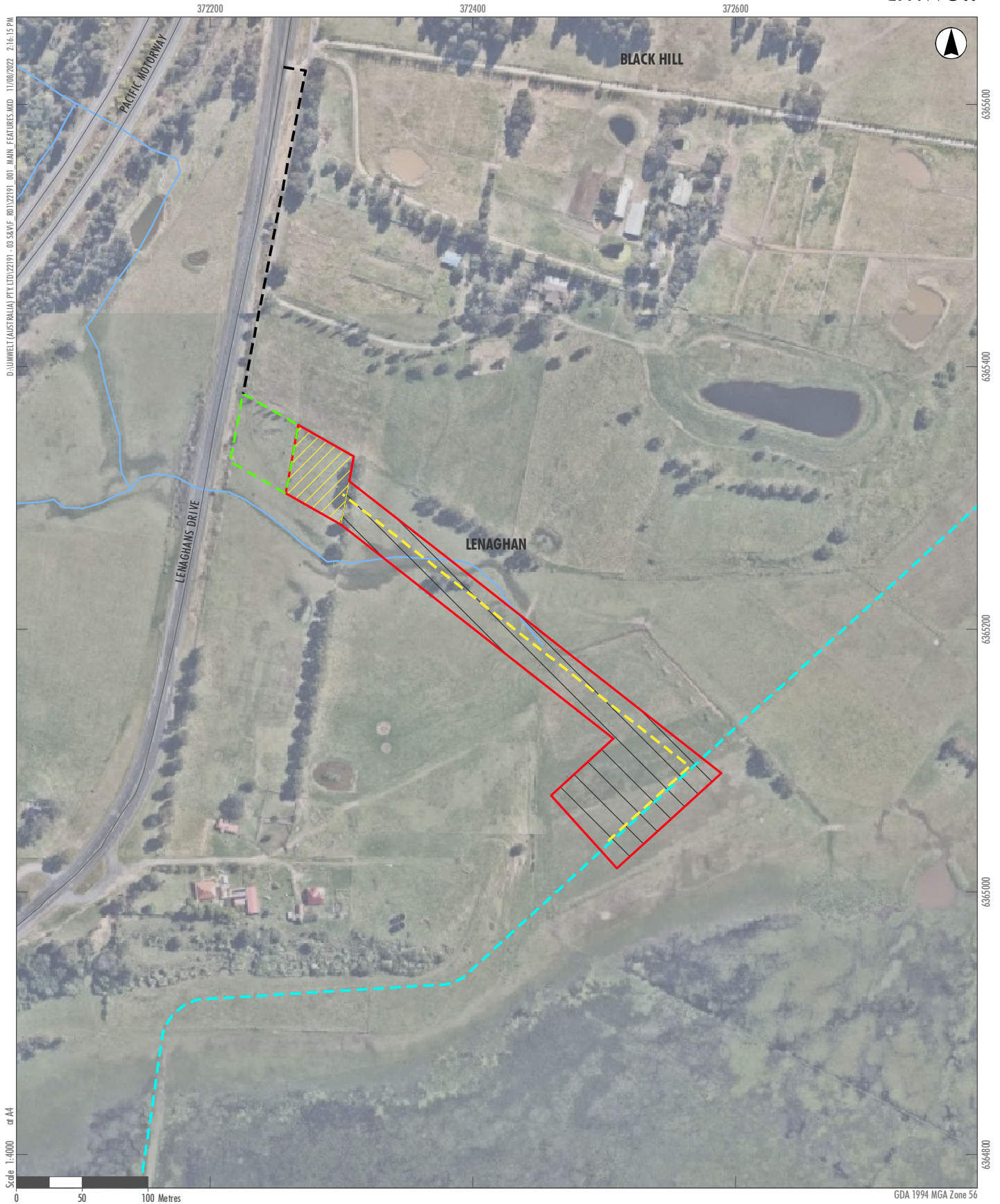


Legend

- Modification Area
- Cadastre Boundaries
- NPWS Reserves
- Existing Killingworth to Kooragang Island Gas Pipeline
- Roads
- Watercourses

FIGURE 3.1

Location Map



Legend

- Modification Area
- APA Meter station (Subject to APA's approval)
- Jemena Meter Station
- Pipeline Construction Footprint
- Existing Killingworth to Kooragang Island Gas Pipeline
- Pipeline Alignment
- Proposed Access (Subject to APA's approval)
- NPWS Reserves
- Roads
- Watercourses

FIGURE 3.2

Key Features of the Modification

Access to the Modification Area would be directly off Lenaghans Drive, as indicated on **Figure 3.2**. The proposed sealed access track is subject to approval of the KKLP Project (currently under assessment) and is not assessed in this modification.

The construction and commissioning of the proposed Modification is expected to take up to 5 months with a peak construction period of 2 months. It is expected that approximately 20 employment opportunities would be generated through the construction phase.

Construction activities would typically be undertaken within standard construction hours, which is:

- Monday to Friday 7 am to 6 pm.
- Saturday 8 am to 1 pm.
- No work on Sundays or public holidays.

During construction, there will be some activities that may need to be undertaken outside of standards hours where work will need to be continuous (i.e. hydrotesting).

3.1.1 Modification Area

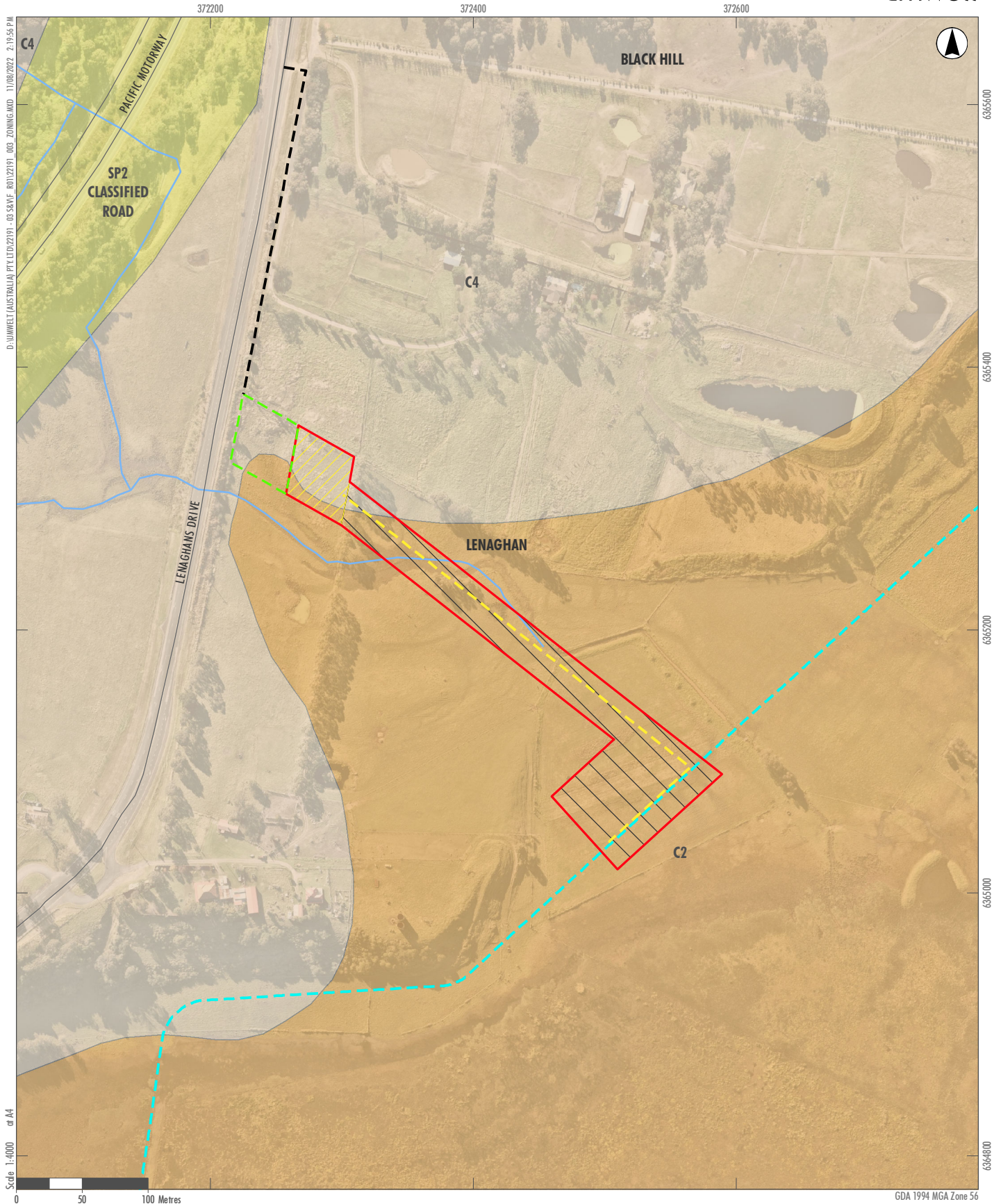
The Modification Area comprises an area of approximately 1.7 ha, which includes the combined construction footprint for the proposed 400 m underground pipeline and the meter station.

The Modification Area is surrounded by agricultural lands and rural residential properties. The Modification Area falls wholly within Lot 453 and DP 807778 and is zoned as C2 Environmental Conservation and C4 Environmental Living under the Newcastle Local Environmental Plan 2012 (LEP) (refer to **Figure 3.3**).

4.0 Justification

The Modification, being the construction and operation of a new pipeline connection at KP 13.8 of the Killingworth to Kooragang Island Pipeline, is integral to the connection between the Northern Trunk Pipeline and the approved KKPS (currently being developed) via the proposed KKLP Project (currently under assessment via a separate development application).

The Modification will allow for bi-directional flow of gas between the Northern Trunk Pipeline and the approved KKPS. The environmental and social impacts of the Modification are minimal, and the potential impacts are able to be either avoided, mitigated and managed.



Legend

- | | | |
|--|--|---|
| Modification Area | NPWS Reserves | EPI Land Zoning |
| Meter station (Subject to APA's approval) | Roads | C2 Environmental Conservation |
| Jemena Meter Station | Watercourses | C4 Environmental Living |
| Pipeline Construction Footprint | | SP2 Classified Road Infrastructure |
| Existing Killingworth to Kooragang Island Gas Pipeline | | |
| Pipeline Alignment | | |
| Proposed Access (Subject to APA's approval) | | |

FIGURE 3.3

LEP Zoning Map

5.0 Statutory Context

5.1.1 Approvals Pathway

5.1.1.1 Environmental Planning and Assessment Act 1979

The NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) is the principal law regulating development in NSW. It establishes a regime for the making of development applications, assessment of their environmental impacts, and the determination of those applications.

Part 5, division 5.2 of the EP&A Act provides for declaration, assessment and approval of State significant infrastructure (SSI).

The Killingworth to Kooragang Island Pipeline was approved under now-repealed provisions and has since been designated as SSI under part 5, division 5.2 of the EP&A Act. A modification is being sought under section 5.25 of the EP&A Act.

5.1.1.2 Pipelines Act 1967

The NSW *Pipelines Act 1967* establishes a licensing regime for pipelines within NSW. Section 18 of the Act provides that a licensee may apply for a variation to a licence. The Killingworth to Kooragang Island Pipeline has been granted Licence No. 8 under the Act. A variation of Licence No. 8 would be sought to amend it to include the Modification.

5.1.2 Permissibility

As noted above the Modification Area is zoned as C2 Environmental Conservation and C4 Environmental Living under the Newcastle LEP. Gas pipelines are not a permitted land use within these zonings under the Newcastle LEP. However, Clause 2.75(1) of *State Environmental Planning Policy (Transport and Infrastructure) 2021* (the Transport & Infrastructure SEPP) states that ‘*development for the purpose of a pipeline may be carried out by any person without consent on any land if the pipeline is subject to a licence under the Pipelines Act 1967*’. Under Clause 2.7(1) of the Transport & Infrastructure SEPP, the provisions prevail where there are inconsistencies with any other Environmental Planning Instruments (EPIs), including LEPs.

Through Clause 2.75(1) of the Transport & Infrastructure SEPP, the Modification is permissible with development consent.

6.0 Preliminary Environmental Assessment

A preliminary assessment of potential environment and community issues associated with the proposed Modification has been undertaken as outlined in **Table 6.1**.

This preliminary environmental assessment was based on detailed knowledge of the existing environment of the Modification Area, the nature of the proposed Modification and the likelihood of changed environmental impacts relative to the approved operations. Key findings of the preliminary assessment are further discussed in **Section 6.1** to **Section 6.5**.

The potential key environment and community issues associated with the proposed Modification and the proposed approach to addressing these issues in the Modification Report, are outlined in **Table 6.1** below.

Table 6.1 Preliminary Environmental Assessment

Aspect	Potential Impact	Preliminary Mitigation Measures	Proposed Assessment Approach
Biodiversity	<ul style="list-style-type: none"> loss or modification of terrestrial habitats due to vegetation clearing spread of weeds across the Modification Area due to construction activities and operational management. 	<ul style="list-style-type: none"> detailed site-specific assessment as part of the modification application project strategically designed to avoid and/or minimise impacts where practicable implementation of mitigation measures implementation of construction and operational management plans. 	<p>A Biodiversity Development Assessment Report (BDAR) will be undertaken for the Modification as outlined in Section 6.1. The assessment will be prepared to satisfy relevant NSW government guidelines and assessment standards.</p>
Heritage – Aboriginal and Non-Aboriginal Heritage	<ul style="list-style-type: none"> potential impacts to aboriginal and/or historic heritage objects or heritage values in the Modification Area. 	<ul style="list-style-type: none"> detailed site-specific assessment as part of the modification application project strategically designed to avoid impacts (if required) implementation of mitigation measures (if required) implementation of construction and operational environmental management plans. 	<p>A modified Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken for the proposed Modification as outlined in Section 6.2.</p> <p>The ACHA would cross reference and utilise consultation and contextual information used in the KKLP ACHA.</p> <p>Heritage NSW has confirmed that they are supportive of this approach.</p> <p>The assessment will be prepared to satisfy relevant NSW government guidelines and assessment standards.</p> <p>No historic heritage assessment is proposed.</p>
Hazards	<ul style="list-style-type: none"> risks posed to public safety and human health associated with the storage, handling and transport of hazardous materials and dangerous goods during construction and operation. 	<ul style="list-style-type: none"> modification designed to manage risks Resilience and Hazards SEPP (2021) considerations implementation of appropriate controls, emergency response management measures, and management of infrastructure on surrounding land. 	<p>A Preliminary Hazard Analysis will be undertaken for the proposed Modification as outlined in Section 6.3. The analysis will be prepared in accordance with Resilience and Hazards SEPP (2021) and relevant NSW government guidelines and assessment standards.</p>

Aspect	Potential Impact	Preliminary Mitigation Measures	Proposed Assessment Approach
Noise and Vibration	<ul style="list-style-type: none"> noise and vibration disturbance associated with increased road traffic and works during the construction phase noise and vibration associated with construction methodologies noise and vibration disturbance associated with the operations on the meter station. 	<ul style="list-style-type: none"> detailed site-specific assessment as part of the modification application implementation of appropriate mitigation measures implementation of a construction noise and vibration management plan operational Environmental Management Plan (OEMP) including hours of operations, parking and deliveries. 	A detailed Noise and Vibration Impact Assessment (NVIA) for the proposed Modification will be completed as part of the Modification Report as outlined in Section 6.4 .
Water and Soil	<ul style="list-style-type: none"> potential soil erosion associated with land clearing during construction water supply for construction increase in impervious surfaces due to meter station and potential run off issues encountering potential acid sulfate soils (PASS). 	<ul style="list-style-type: none"> implementation of construction and operation environmental management plans detailed project design erosion and sediment control plan in CEMP stormwater management and design as part of the OEMP acid sulfate soil management plan. 	<p>A water resources impact assessment (WRIA) will be undertaken for the proposed Modification as outlined in Section 6.5.</p> <p>The WRIA would cross reference and utilise contextual information, particularly flood modelling, used in the proposed KKLP EIS.</p> <p>The assessment will be prepared to satisfy relevant NSW government guidelines and assessment standards.</p>
Air Quality	<ul style="list-style-type: none"> elevated dust levels associated with construction works and transport movements. 	<ul style="list-style-type: none"> implementation of appropriate controls as part of a construction environmental management plan (CEMP). 	No detailed technical assessment proposed.
Socio-economic	<ul style="list-style-type: none"> approximately 20 construction jobs at peak construction will be generated with no operational jobs small scale economic impacts locally and regionally. 	<ul style="list-style-type: none"> landholder agreements in place. 	No detailed technical assessment proposed.

Aspect	Potential Impact	Preliminary Mitigation Measures	Proposed Assessment Approach
Waste	<ul style="list-style-type: none"> minor waste generation as a result of the construction phase. 	<ul style="list-style-type: none"> implementation of a waste management plan. 	No detailed technical assessment proposed.
Traffic and transport	<ul style="list-style-type: none"> small increase in traffic volumes on local roads during the construction phase potential disruption to traffic due to heavy vehicle delivery of materials to Modification Area. 	<ul style="list-style-type: none"> implementation of a construction traffic and access management plan. 	No detailed technical assessment proposed.
Visual	<ul style="list-style-type: none"> change to current scenic landscape/character of the locality loss of visual amenity to affected landholders. 	<ul style="list-style-type: none"> modification designed to avoid and/or minimise long term visual impacts implementation of mitigation measures such as strategically located landscaping. 	No detailed technical assessment proposed.
Rehabilitation	<ul style="list-style-type: none"> potential for various environmental impacts from rehabilitation practices. 	<ul style="list-style-type: none"> commitments to implement appropriate and effective rehabilitation practices following cessation of construction works. 	No detailed technical assessment proposed.

6.1 Biodiversity

The biodiversity development assessment report (BDAR) for the proposed Modification has commenced. The biodiversity values of the Modification Area have been identified through desktop assessment and an in-field survey in an effort to assist in minimising impacts. Preliminary findings based on the desktop assessment and field work undertaken to date are outlined below, with the proposed scope of works for the BDAR outlined in **Section 6.1.3**.

6.1.1 Preliminary Biodiversity Assessment Methodology

The initial site inspection was undertaken in August 2021. A desktop analysis of the Modification Area was undertaken in March 2022 and included:

- NSW Department of Planning and Environment (DPE) BioNet Atlas of NSW Wildlife.
- Threatened Biodiversity Data Collection (TBDC).
- Vegetation Information System (VIS) Classification Database.
- Department of Agriculture, Water and the Environment (DAWE) Protected Matters Search Tool (PMST).
- DPE Biodiversity Assessment Method (BAM) – Important Areas [online] found at: [Important Areas \(nsw.gov.au\)](https://www.nsw.gov.au/important-areas).

6.1.1.1 Preliminary Survey Overview

A preliminary site inspection undertaken in August 2021 included:

- three rapid vegetation assessments which record the floristic structure and dominant plant species in each stratum at a point, to inform vegetation mapping and description (i.e. non-quantitative description only)
- walked meandering transects throughout the Modification Area.

6.1.2 Preliminary Survey Results

The initial site inspection identified the Modification Area to contain low condition grassland in the form of degraded paddocks. The area has a history of grazing and grazing is currently undertaken on the property.

One Plant Community Type (PCT) is likely to occur within the Modification Area being:

- 1736 – Water Couch – Tall Spike Rush freshwater wetland of the Central Coast and lower Hunter.

PCT 1736 was assigned as the most likely PCT to occur within the Modification Area as higher quality conditions of this PCT occurs outside the Modification Area to the east and the landform of the Modification Area is consistent with that of PCT 1736.

Due to the degraded condition of this PCT it is unlikely to conform to any listed threatened ecological community (TEC) under either the *NSW Biodiversity Conservation Act 2016* or *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Refinement of the vegetation mapping will be undertaken for the Modification Report, particularly in relation to the allocation of the allocated PCT.

The Modification Area is mapped as important shorebird habitat (TBDC 2022), which applies to migratory shorebirds listed in the preliminary BAM calculator assessment, including:

- Curlew Sandpiper (*Calidris ferruginea*).
- Great Knot (*Calidris tenuirostris*).
- Greater Sand-plover (*Charadrius leschenaultia*).
- Lesser Sand-plover (*Charadrius mongolus*).
- Terek Sandpiper (*Xenus cinereus*).
- Red Knot (*Calidris canutus*).
- Eastern Curlew (*Numenius madagascariensis*).
- Bar-tailed Godwit (*Limosa lapponica baueri*).

6.1.2.1 Potential Threatened Ecological Communities

PCT 1736 is consistent with Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions Endangered Ecological Community (EEC) (EPBC Act). However, the vegetation zone of this PCT in the Modification Area is in a degraded condition and does not conform to this TEC.

6.1.2.2 Species-Credit Species Survey Requirements

A preliminary BAM calculator assessment indicates the following species-credit species will require consideration in the Biodiversity Development Assessment Report (BDAR) for the Project (**Table 6.2**).

Table 6.2 Species-Credit Species Requiring Consideration in the BDAR

Common Name	Scientific Name
Trailing woodruff	<i>Asperula asthenes</i>
Bush Stone-curlew	<i>Burhinus grallarius</i>
Curlew Sandpiper	<i>Calidris ferruginea</i>
Great Knot	<i>Calidris tenuirostris</i>
Wallum Froglet	<i>Crinia tinnula</i>
White-bellied Sea-Eagle	<i>Haliaeetus leucogaster</i>
Little Eagle	<i>Hieraaetus morphnoides</i>
Broad-billed Sandpiper	<i>Limicola falcinellus</i>
Black-tailed Godwit	<i>Limosa</i>
Green and Golden Bell Frog	<i>Litoria aurea</i>
Green-thighed Frog	<i>Litoria brevipalmata</i>

Common Name	Scientific Name
Square-tailed Kite	<i>Lophoictinia isura</i>
-	<i>Maundia triglochinos</i>
Biconvex Paperbark	<i>Melaleuca biconvexa</i>
Little Bent-winged Bat	<i>Miniopterus australis</i>
Large Bent-winged Bat	<i>Miniopterus orianae oceanensis</i>
Southern Myotis	<i>Myotis macropus</i>
Eastern Osprey	<i>Pandion cristatus</i>
Tall Knotweed	<i>Persicaria elatior</i>
Mahony's Toadlet	<i>Uperoleia mahonyi</i>
-	<i>Zannichellia palustris</i>

6.1.3 Further Biodiversity Assessment

Further detailed biodiversity survey will be undertaken within the Modification Area with a focus on the development footprint. Following the completion of the surveys, a BDAR will be prepared and will include:

- field surveys and GIS mapping:
 - PCT survey and GIS mapping
 - targeted species-credit survey where required.
- preparation the BDAR including:
 - results of the previous literature review
 - methods and results of vegetation surveys including a vegetation community map (based on PCTs and including TECs)
 - methods and results of surveys targeting species-credit species
 - assessment of prescribed impacts
 - outcomes of the calculator assessment identifying the credits generated by the PCTs (and ecosystem-credit species) and species-credit species
 - relevant data and mapping for Agency submission including field sheets, figures and associated GIS files.

6.2 Heritage

6.2.1 Aboriginal Heritage

The Modification falls within the traditional homelands of the Awabakal and Wonnarua people, whose history extends from the present day back many thousands of years. The Modification Area is also within the Mindaribba Local Aboriginal Land Council (Mindaribba LALC) boundary.

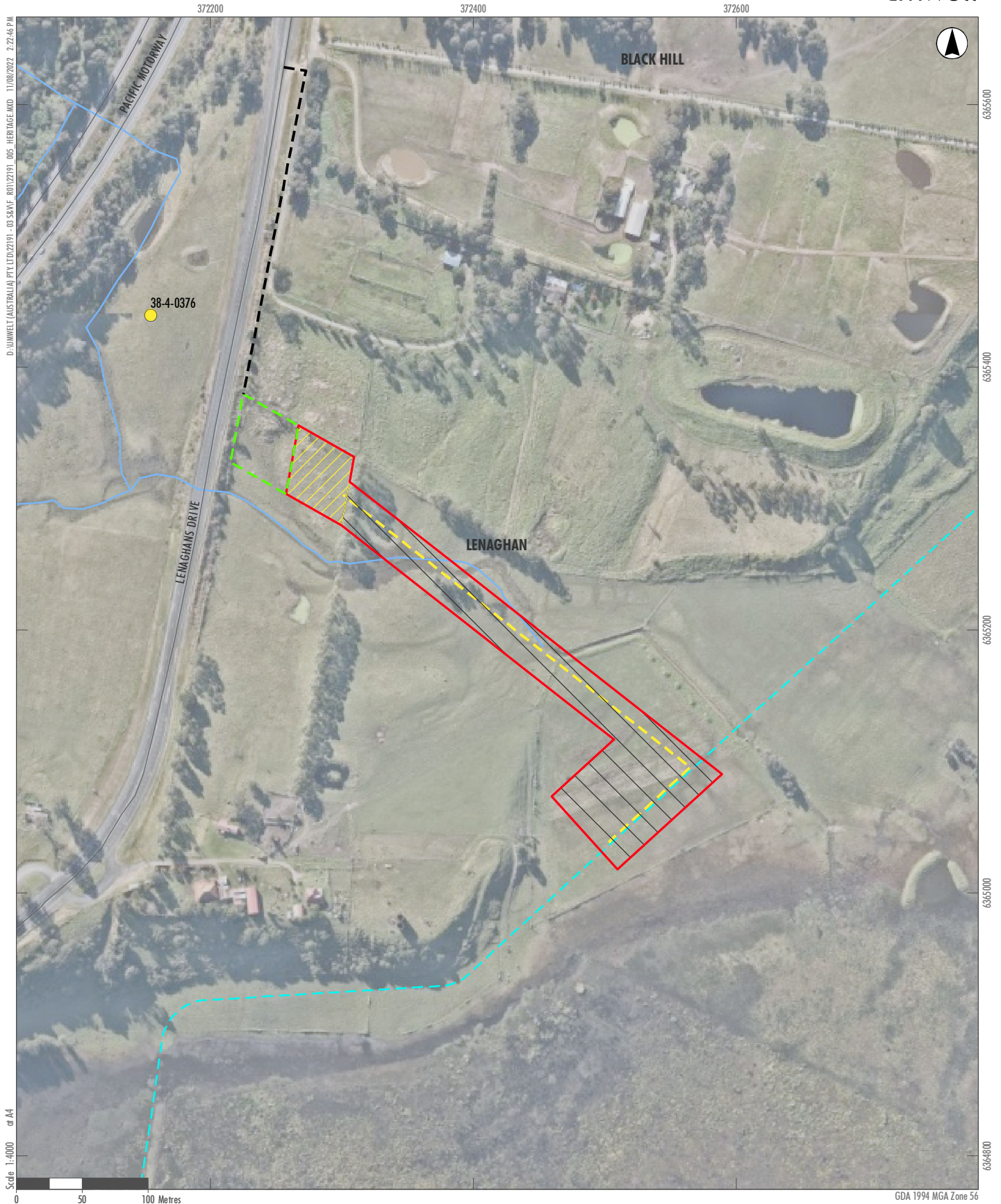
Based on the AHIMS data and review of previous assessments undertaken by the proposed KKLP Project one registered Aboriginal archaeological site (38-4-0376) is located approximately 130 m northwest from the Modification Area (refer to **Figure 6.1**). The archaeological site is listed as an artefact scatter and has been subject to partial salvage. It is noted that Lenaghans Drive inclusive of the road reserve separates the Modification Area and archaeological site.

A modified Aboriginal Cultural Heritage Assessment (ACHA) will be undertaken following the *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (OEH, 2011) and the *Code of Practice for the Archaeological Investigation of Aboriginal Objects in NSW* (DECCW, 2010). The modified ACHA would cross reference and utilise consultation and contextual information used in the KKLP ACHA and would be sent to relevant registered aboriginal parties for review and comment. having regard to the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW, 2010).

6.2.2 Historic Heritage

Desktop review of several databases was undertaken to identify any potential historic heritage values in the Modification Area. No listed historical heritage items were identified within or in proximity the Modification Area. This includes items on the World, National and Commonwealth Heritage lists, in addition to items listed on the State Heritage Inventory and Newcastle LEP.

There are two local heritage sites located in proximity to the Modification Area as detailed in **Table 6.3**. None of these local heritage sites will be impacted by the Modification.



Legend

- Modification Area
- APA Meter station (Subject to APA's approval)
- Jemena Meter Station
- Pipeline Construction Footprint
- Existing Killingworth to Kooragang Island Gas Pipeline
- Pipeline Alignment
- Proposed Access (Subject to APA's approval)
- Roads
- Watercourses
- AHIMS Aboriginal Sites

Image Source: Nearmap (June 2022) Data source: NSW DFSI (2021)

FIGURE 6.1

Heritage Items in Relation to the Modification Area

Table 6.3 Relevant Heritage Listings in Proximity to the Project Area

Item Details	Listing Details	Distance to the Project Area
Winston Court	Newcastle LEP 2012 Item I330	Approximately 1.3km southwest
Minmi to Hexham Railway	Newcastle LEP 2012 Item I332	Approximately 1.6 km east

A historic heritage assessment is therefore not proposed.

6.3 Hazards

As part of the construction and operation of the Modification, hazardous materials and dangerous goods will be stored, handled and transported to the Modification Area. Furthermore, natural gas is a Class 2.1 flammable gas. It is therefore proposed that the Modification will be subject to a Preliminary Hazard Analysis (PHA) in accordance with *State Environmental Planning Policy Resilience and Hazards* (2021). The PHA will involve the following components of work:

- screening of preliminary risks for all hazardous materials and dangerous goods to be stored and transported to/from the Modification Area
- classifying and prioritising risks, and estimating societal risk, in accordance with the *NSW Multi-level Risk Assessment Guideline* (DPI, 2011)
- analysing consequence and frequency for hazard scenarios identified as requiring further assessment in the qualitative risk assessment, undertaken in accordance with the *NSW Risk Criteria for Land Use Safety Planning* (Department of Planning, 2011).

6.4 Noise and Vibration

Potential noise and vibration impacts associated with the Modification will be primarily associated with construction activities and will have the potential to affect rural residential properties located in the vicinity of the Modification Area.

The noise and vibration impact assessment (NVIA) for the Proposed Modification has commenced with the preliminary results presented below for consideration, with details or inputs specific to the Modification, to be incorporated into the detailed assessment as outlined in **Section 6.4.5**.

The NVIA is being prepared in accordance with the following guidelines:

- *Interim Construction Noise Guideline* (ICNG), NSW Department of Environment and Climate Change (DECC), 2009.
- *Noise Policy for Industry* (NPfI), Environment Protection Authority, 2017.
- *Construction Noise and Vibration Guideline* (CNVG), NSW Roads and Maritime, 2016.

6.4.1 Methodology for Preliminary Assessment

6.4.1.1 Assessment Criteria

Construction and operational noise criteria have been determined using background noise data collected in 2021 for the proposed KKLP.

Construction Noise Criteria

The construction noise management levels (NMLs) for residential receivers in the vicinity of the Modification will be based on the adopted rating background levels (RBLs) for Noise Catchment Area (NCA) 8 in the KKLP and are shown in **Table 6.4**.

Table 6.4 Construction Noise Management Levels for Residential Receivers

Noise Catchment Area	Noise Management levels (NML), dB(A)					
	Standard hours of Construction ¹	Outside Standard Hours - Day Period	Outside Standard Hours - Evening Period	Outside Standard Hours - Night Period		Highly Noise Affected
	LAeq (15min)	LAeq (15min)	LAeq (15min)	LAeq (15min)	LAmx	LAeq (15min)
NCA8	55	50	48	40	52	75

Potential construction-related noise impacts on the communities surrounding the Modification area will be summarised into categories. The approach from the Transport for NSW *Construction Noise and Vibration Guideline* (CVNG) has been adopted where a perception category is assigned to each receiver based on the difference between the predicted noise level and the noise management level. The noise perception categories from the CVNG are summarised for each time period in **Table 6.5**.

Table 6.5 Construction Noise Perception Categories

Noise Perception Category	Noise Level Range Above NML, dB(A)			
	Standard Hours of Construction	Outside Standard Hours – Day Period	Outside Standard Hours – Evening Period	Outside Standard Hours – Night Period
Noticeable	N/A	1 dB(A) to 5 dB(A) above NML		
Clearly Audible	1 dB(A) to 10 dB(A) above NML	5 dB(A) to 15 dB(A) above NML		
Moderately Intrusive	10 dB(A) to 20 dB(A) above NML	15 dB(A) to 25 dB(A) above NML		
Highly Intrusive	> 20 dB(A) above NML	> 25 dB(A) above NML		

Operational Noise Criteria

Project noise trigger levels for the operational noise assessment have been based on those used for NCA 8 in the KKLP and are shown in **Table 6.6**.

¹ Recommended standard hours: Monday to Friday 7am–6 pm; Saturday 8 am–1 pm.

Table 6.6 Project Noise Trigger Levels, dB(A), based on background noise levels from KKLP

KKLP Noise Catchment Area	Time of day ²	Project intrusiveness noise level LAeq(15min)	Project amenity noise level LAeq(15min)	Project noise trigger level LAeq(15min)
NCA8	Day	50	53	50
	Evening	48	43	43
	Night	40	38	38

6.4.1.2 Identification of Receivers

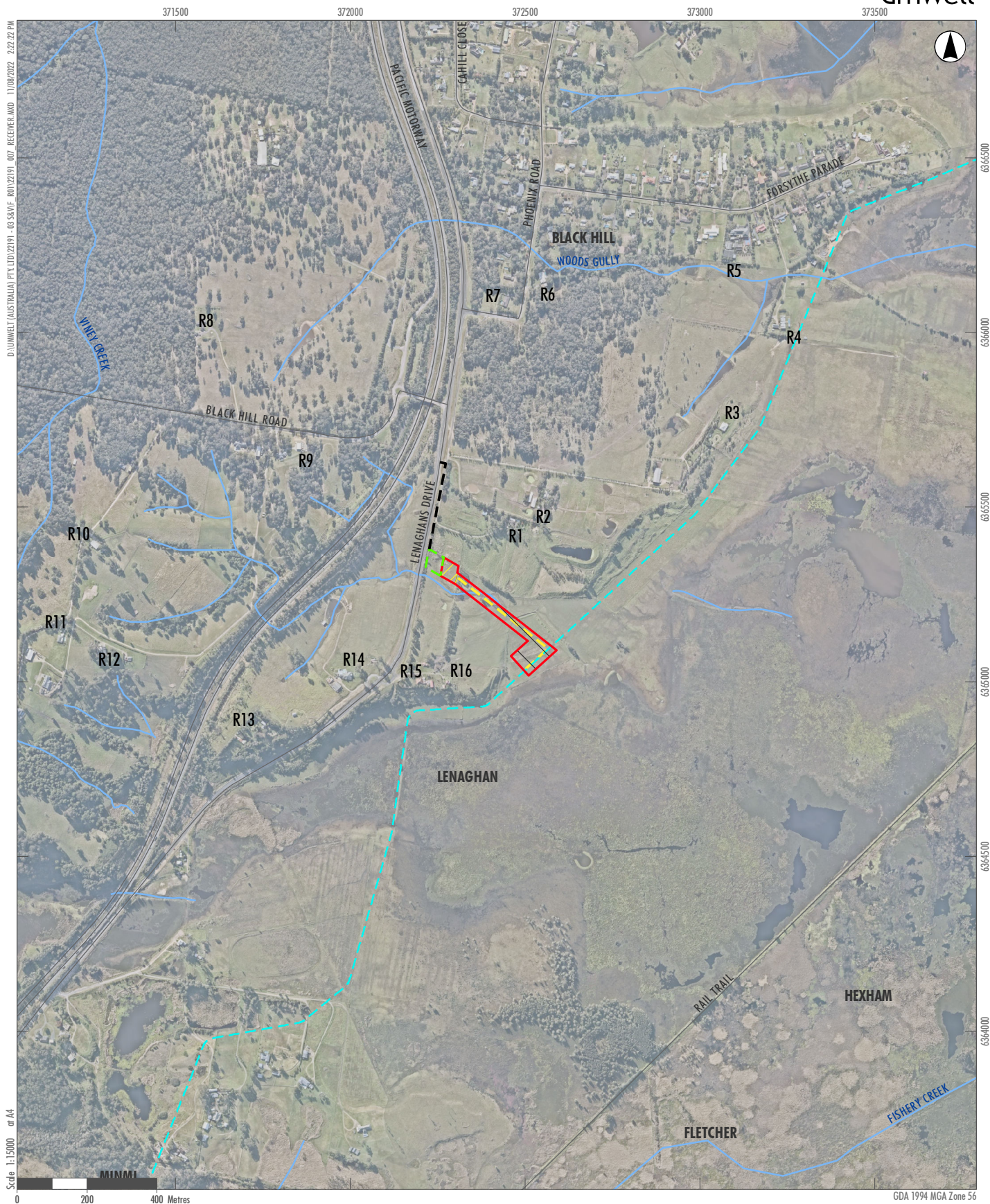
Receivers surrounding the Modification Area were identified using aerial imagery and a radius of approximately 1 km. Receivers further from the Modification Area are assumed to receive lower noise levels than those included in the assessment. The list of receivers will be reviewed and verified in the detailed NVIA. The nearest residence (R01) is located approximately 190 m northeast of the Modification Area.

Receivers identified for this assessment are outlined in **Table 6.7** and shown in **Figure 6.2**.

Table 6.7 Receivers Identified for the Modification

Representative Receiver ID	Receiver Address Details
R01	153 Lenaghans Drive, Lenaghan
R02	159 Lenaghans Drive, Lenaghan
R03	163 Lenaghans Drive, Lenaghan
R04	21a Forsythe Parade, Black Hill
R05	17 Forsythe Parade, Black Hill
R06	3 Phoenix Road, Black Hill
R07	2 Phoenix Road, Black Hill
R08	4 Black Hill Road, Black Hill
R09	21 Black Hill Road, Lenaghan
R10	31 Black Hill Road, Lenaghan
R11	35 Black Hill Road, Lenaghan
R12	29 Black Hill Road, Lenaghan
R13	126 Lenaghans Drive, Lenaghan
R14	146 Lenaghans Drive, Lenaghan
R15	141a Lenaghans Drive, Lenaghan
R16	141b Lenaghans Drive, Lenaghan

² Day period is 7 am–6 pm Monday–Saturday and 8 am–6 pm Sunday and Public Holidays; evening period is 6 pm–10 pm and night period is 10 pm to commencement of day period.



Legend

- Modification Area
- APA Meter station (Subject to APA's approval)
- Jemena Meter Station
- Pipeline Construction Footprint
- Existing Killingworth to Kooragang Island Gas Pipeline
- Pipeline Alignment
- Proposed Access (Subject to APA's approval)
- Roads
- Watercourses

Image Source: Nearmap (June 2022) Data source: NSW DFSI (2021)

FIGURE 6.2

Residential Receivers used in the Preliminary Noise Assessment

6.4.1.3 Preliminary Noise Modelling Methodology

Both construction and operational noise level predictions have been undertaken with the proprietary computer noise modelling software SoundPLAN version 8.2, using the CONCAWE noise prediction algorithms. The noise models have been developed using 3-Dimensional terrain data used in the KKLP assessment.

Noise levels have been predicted under default worst-case meteorological conditions (D-class with 3 m/s windspeed or F-class with 2 m/s windspeed) in accordance with the NPfI. These meteorological conditions represent worst-case enhancing conditions for either day, evening or night periods.

6.4.2 Construction Noise Impacts

Three construction scenarios were considered in the preliminary assessment, with their combined sound powers in dB(A) shown in brackets:

1. earthworks (121 dB(A))
2. pipe installation / lowering in (118 dB(A))
3. hydrostatic testing (113 dB(A)).

These scenarios were selected to represent construction activities with a range of sound powers that will occur over the Modification Area and represent all machinery in that scenario operating 100 % of the fifteen-minute assessment period as a worst-case assessment.

Noise source locations and sound power details for these scenarios have been assumed and will be reviewed and verified during the detailed NVIA.

6.4.2.1 Earthworks

In this scenario, it has been assumed that construction activities such as trenching, clear and grade, site set up and backfill will be unlikely to occur at the same time, so a construction noise source with a sound power of 121 dB(A) has been used to represent the worst-case noise levels around the extend of the Modification Area.

Table 6.8 shows the predicted worst case noise levels for earthwork activities.

Table 6.8 Worst-Case Predicted Construction Noise Levels LAeq(15min) from Earthworks, dB(A)

Representative Receiver ID	Standard/Day/Evening/Night Period NMLs LAeq(15min) dB(A) ¹	Predicted Noise Level LAeq(15min) dB(A) Earthworks	Exceedance Standard/Day/Evening/Night Period NMLs LAeq(15min) dB(A) ³
R01	55/50/48/40	63	8/13/15/23
R02	55/50/48/40	58	3/8/10/18
R03	55/50/48/40	49	Nil/Nil/1/9
R04	55/50/48/40	43	Nil/Nil/Nil/3
R05	55/50/48/40	36	Nil/Nil/Nil/Nil
R06	55/50/48/40	34	Nil/Nil/Nil/Nil
R07	55/50/48/40	36	Nil/Nil/Nil/Nil
R08	55/50/48/40	47	Nil/Nil/Nil/7
R09	55/50/48/40	53	Nil/3/5/13
R10	55/50/48/40	46	Nil/Nil/Nil/6
R11	55/50/48/40	45	Nil/Nil/Nil/5
R12	55/50/48/40	48	Nil/Nil/Nil/8
R13	55/50/48/40	51	Nil/1/3/11
R14	55/50/48/40	56	1/6/8/16
R15	55/50/48/40	59	4/9/11/19
R16	55/50/48/40	62	7/12/14/22

For the earthworks, the preliminary noise predictions presented in **Table 6.8** show:

- All results are predicted to be less than the highly affected management level of 75 dB(A).
- Most predictions are within standard hours day period noise management level of 55 dB(A), with five receivers in the clearly audible category during this period. These are R01, R02, R14, R15 and R16.

Earthworks are proposed to be carried out during standard hours only, but a comparison has been made in **Table 6.8** to out-of-hours NMLs for information purposes. It is recommended that earthwork construction activities for the Modification be limited to standard daytime hours.

6.4.2.2 Pipe Installation/Lower In

This scenario will involve the placement and lowering in of pipe segments into the opencut trench. A moving point source with a sound power of 118 dB(A) at a height of 2 m was modelled along the extent of the Modification Area.

Table 6.9 shows the preliminary predicted noise levels for the pipe installation scenario.

³ Standard refers to standard hours criteria, day refers to outside standard hours daytime criteria, evening refers to outside standard hours evening criteria, and night refers to outside standard hours night time criteria.

Table 6.9 Predicted Construction Noise Levels LAeq(15min) from Pipe Installation Activities, dB(A)

Representative Receiver ID	Standard/Day/Evening/Night Period Criteria LAeq(15min) dB(A) ¹	Predicted Noise Level LAeq(15min) dB(A) Pipe installation	Exceedance Standard/Day/Evening/Night Period NMLs LAeq(15min) dB(A)
R01	55/50/48/40	60	5/10/12/20
R02	55/50/48/40	55	Nil/5/7/15
R03	55/50/48/40	46	Nil/Nil/Nil/6
R04	55/50/48/40	40	Nil/Nil/Nil/Nil
R05	55/50/48/40	33	Nil/Nil/Nil/Nil
R06	55/50/48/40	31	Nil/Nil/Nil/Nil
R07	55/50/48/40	33	Nil/Nil/Nil/Nil
R08	55/50/48/40	44	Nil/Nil/Nil/4
R09	55/50/48/40	49	Nil/Nil/1/9
R10	55/50/48/40	43	Nil/Nil/Nil/3
R11	55/50/48/40	42	Nil/Nil/Nil/2
R12	55/50/48/40	44	Nil/Nil/Nil/4
R13	55/50/48/40	48	Nil/Nil/Nil/8
R14	55/50/48/40	53	Nil/3/5/13
R15	55/50/48/40	56	1/6/8/16
R16	55/50/48/40	59	4/9/11/19

For this scenario, the preliminary noise predictions in **Table 6.9** show:

- All results are predicted to be less than the highly affected management level of 75 dB(A).
- Most predictions are within standard hours day period noise management level of 55 dB(A), with three receivers in the clearly audible category during this period. These are R01, R15 and R16.

Pipe installation works are proposed to be carried out during standard hours only, but a comparison has been made in **Table 6.9** to out-of-hours NMLs for information purposes. It is recommended that pipe installation construction activities for the Modification be limited to standard daytime hours.

6.4.2.3 Hydrostatic testing

Water pumps for hydrostatic testing may run for continuous periods extending over 24-hours. This scenario was modelled with a worst-case combined sound power of 113 dB(A) with a source height of 2 m above ground level, around the perimeter of the pipeline construction footprint.

Table 6.10 shows the preliminary predicted noise levels for hydrostatic testing.

Table 6.10 Predicted Construction Noise Levels LAeq(15min) from Hydrostatic Testing, dB(A)

Representative Receiver ID	Standard/Day/Evening/Night Period Criteria LAeq(15min) dB(A)	Predicted Noise Level LAeq(15min) dB(A) Hydrostatic testing	Exceedance
R01	55/50/48/40	55	Nil/5/7/15
R02	55/50/48/40	50	Nil/Nil/2/10
R03	55/50/48/40	41	Nil/Nil/Nil/1
R04	55/50/48/40	35	Nil/Nil/Nil/Nil
R05	55/50/48/40	28	Nil/Nil/Nil/Nil
R06	55/50/48/40	26	Nil/Nil/Nil/Nil
R07	55/50/48/40	28	Nil/Nil/Nil/Nil
R08	55/50/48/40	39	Nil/Nil/Nil/Nil
R09	55/50/48/40	44	Nil/Nil/Nil/4
R10	55/50/48/40	38	Nil/Nil/Nil/Nil
R11	55/50/48/40	37	Nil/Nil/Nil/Nil
R12	55/50/48/40	39	Nil/Nil/Nil/Nil
R13	55/50/48/40	43	Nil/Nil/Nil/3
R14	55/50/48/40	48	Nil/Nil/Nil/8
R15	55/50/48/40	51	Nil/1/3/11
R16	55/50/48/40	54	Nil/4/6/14

For the hydrostatic testing scenario, the preliminary noise predictions in **Table 6.10** show:

- All results are predicted to be less than the highly affected management level of 75 dB(A).
- All predictions are within standard day period noise management levels.
- Three receivers (R01, R15 and R16) are predicted to have noise levels exceeding the NML in the noticeable category during the outside standard hours day period.
- Two receivers (R02 and R15) are predicted to have noise levels exceeding the NML in the noticeable category and two receivers (R01 and R16) are in the clearly audible category during the outside standard hours evening period.
- Three receivers (R03, R09 and R13) are predicted to have exceedances of the NML in the noticeable category and five receivers are predicted to have exceedances of the NML in the clearly audible category during outside standard hours night period.

This scenario would be further refined with respect to model inputs and final modelling during the detailed NVIA may consider localised, temporary barriers in order to achieve NMLs during the night period. An assessment of sleep disturbance impacts will be undertaken during the NVIA when inputs are reviewed and refined.

6.4.2.4 Cumulative Construction Noise

To assess potential cumulative construction noise impacts of the Modification and the proposed KKLP, a scenario representing earthworks at the KKLP delivery station was created. A moving point source with a sound power of 121 dB(A) at a height of 2m was modelled where the meter station will be located.

Results of the KKLP delivery station earthworks scenario were logarithmically added to the worst-case level predicted in the three construction scenarios for the Modification to assess potential and worst-case cumulative noise levels. Predicted worst case cumulative noise levels are shown in **Table 6.11** with exceedances of the standard hours NML shown in bold and shaded grey.

Table 6.11 Predicted Noise Levels, Cumulative Construction Noise Assessment, LAeq(15minute) dB(A)

Representative Receiver ID	KKLP delivery station (earthworks) LAeq(15min) dB(A)	Earthworks and KKLP delivery station LAeq(15min) dB(A)	Pipe installation and KKLP delivery station LAeq(15min) dB(A)	Hydrostatic testing and KKLP delivery station LAeq(15min) dB(A)
R01	63	66	65	63
R02	56	60	58	57
R03	37	49	46	42
R04	33	44	41	37
R05	31	37	35	33
R06	34	37	35	34
R07	37	39	38	37
R08	48	50	49	48
R09	53	56	54	54
R10	47	50	49	48
R11	46	49	47	46
R12	48	51	49	48
R13	51	54	52	51
R14	56	59	58	57
R15	59	62	61	59
R16	59	64	61	60

All worst-case cumulative construction noise levels are predicted to be less than the highly affected management level of 75 dB(A).

Predicted worst case construction noise levels for the KKLP delivery station earthworks alone exceeded the standard hours NML at the nearest receivers (R01, R02, R14, R15, and R16) prior to the addition of the Modification construction noise levels.

Worst-case cumulative construction noise predictions for receivers R02, R14, R15 and R16 exceed the standard hours NML fall into the perception category of clearly audible for all three scenarios. Predicted noise levels at receiver R09 exceed the NML and fall into the clearly audible category for the cumulative earthworks scenario.

Predicted levels for R01 are also in the clearly audible category for two scenarios but fall into the moderately intrusive category for the cumulative earthworks scenario.

There is potential for the Modification earthwork stages to be scheduled so as not to coincide with KKLP earthworks, where feasible and reasonable. Possible options to reduce noise levels during cumulative earthworks could include reducing the amount of equipment being used at any one time or may include the use of local temporary noise barriers.

6.4.2.5 Construction Vibration

Given the distance between the proposed construction areas and receivers, no construction vibration impacts are anticipated based on the safe working distances outlined in the CNVG.

6.4.3 Preliminary Operational Noise Assessment

The preliminary predicted operational noise assessment of fixed plant for the meter station was based on spectral sound power data from the KKLP assessment, using the operational sound power provide by Jemena, which was 90 dB(A) for their control valve. This sound power was based on one attenuated regulator valve and was modelled as a point source of 1.2 m height in the north-eastern corner of the meter station.

The specific type of control valve will be selected at the detailed design phase when mitigation measures such as localised barriers or attenuation will be considered in order to meet required noise levels. Modelled results assume no barriers are in place in the vicinity of the meter station.

Both the operational sound power and the maximum sound power, which assumes a doubling of valve noise for use in the assessment of sleep disturbance impacts, are shown in **Table 6.12**.

Table 6.12 Operational Sound Power Levels used in the Preliminary Assessment of the Meter Station

Plant	Qty modelled	Indicative Sound Power Levels dB(A)/unit										
		Total	Octave Band Center Frequency Hz									
		dB(A)	16	31	63	125	250	500	1k	2k	4k	8k
PCV – attenuated	1	90	55	72	83	82	82	78	80	79	81	81
PCV – attenuated (Maximum noise level for sleep disturbance assessment)	1	93	58	75	86	85	85	81	83	82	84	84

Preliminary predicted operational LAeq(15min) noise levels for the operation of the meter station are shown in **Table 6.13**.

Modifying factors are applied to the predicted noise levels (L_{aeq}) where the noise has an unbalanced spectrum and contains major components within the low-frequency range, in accordance with Factsheet C of the NPfI. Specifically, these are applied where dB(C) less dB(A) is 15 or more, and any of the low-frequency noise thresholds in NPfI Table C-2 are exceeded. The low-frequency modifying factor analysis is presented in **Table 6.13**.

Table 6.13 Predicted Operational Noise Levels L_{aeq}(15min) from the Meter Station, dB(A)⁴

Representative Receiver ID	Night Period Criteria L _{aeq} (15min) dB(A)	Predicted Noise Level L _{aeq} (15min) dB(A)	Exceedance
R01	38	40 (35 + 5)	2
R02	38	27	Nil
R03	38	10	Nil
R04	38	5	Nil
R05	38	4	Nil
R06	38	8	Nil
R07	38	10	Nil
R08	38	15	Nil
R09	38	22	Nil
R10	38	15	Nil
R11	38	14	Nil
R12	38	16	Nil
R13	38	20	Nil
R14	38	26	Nil
R15	38	31 (29 + 2)	Nil
R16	38	31 (29 + 2)	Nil

Table 6.14 Low-Frequency Modifying Factor Analysis for L_{aeq}(15min) Noise Levels from the Meter Station, dB(A)

Representative Receiver ID	Predicted Noise Levels L _{Ceq} (15min) dB(C)	Difference dB(C) less dB(A)	Exceedance of Low-Frequency Threshold	Low-Frequency Penalty, dB(A)
R01	60	25	Yes (>5 dB) ⁵	5
R02	53	26	No	N/A
R03	38	28	No	N/A
R04	33	29	No	N/A
R05	33	29	No	N/A
R06	37	29	No	N/A

⁴ A modifying factor of +5 dB(A) or +2 dB(A) is applicable due to low-frequency content, refer to **Table 6.14**

⁵ The predicted noise level spectrum indicates an exceedance by more than 5 dB above the low-frequency threshold levels from Table C-2 within Factsheet C of the NPfI, therefore a modifying factor of +5 dB(A) is applicable due to low-frequency content (NPfI Table C-1).

Representative Receiver ID	Predicted Noise Levels LCeq(15min) dB(C)	Difference dB(C) less dB(A)	Exceedance of Low-Frequency Threshold	Low-Frequency Penalty, dB(A)
R07	38	29	No	N/A
R08	42	27	No	N/A
R09	49	27	No	N/A
R10	41	27	No	N/A
R11	40	27	No	N/A
R12	43	27	No	N/A
R13	47	27	No	N/A
R14	53	26	No	N/A
R15	55	26	Yes (<5 dB) ⁶	2
R16	56	26	Yes (<5 dB) ⁶	2

As demonstrated in **Table 6.13**, the preliminary predicted operational noise levels from the meter station are predicted to comply with the day and evening noise limits of 50 and 43 dB(A) respectively. However, based on the sound power spectrum used, noise levels are predicted to exceed the night period noise limit at the nearest receiver (R01) to the Modification with the application of a low frequency modification factor, indicating attenuation and further assessment will likely be required at the detailed design stage of the Modification.

Preliminary predicted operational sleep disturbance noise levels for the operation of the meter station are shown in **Table 6.15**.

Table 6.15 Predicted Sleep Disturbance L_{max} Noise Levels from the Meter Station, dB(A)

Representative Receiver ID	Sleep Disturbance Criterion L _{max} dB(A)	Predicted noise level L _{max} dB(A)	Exceedance
R01	52	38	Nil
R02	52	30	Nil
R03	52	13	Nil
R04	52	8	Nil
R05	52	7	Nil
R06	52	11	Nil
R07	52	13	Nil
R08	52	18	Nil
R09	52	25	Nil
R10	52	18	Nil
R11	52	17	Nil

⁶ The predicted noise level spectrum indicates an exceedance by less than 5 dB above the low-frequency threshold levels from Table C-2 within Factsheet C of the NPfI, therefore a modifying factor of +2 dB(A) is applicable due to low-frequency content (NPfI Table C-1)

Representative Receiver ID	Sleep Disturbance Criterion LA _{max} dB(A)	Predicted noise level LA _{max} dB(A)	Exceedance
R12	52	19	Nil
R13	52	23	Nil
R14	52	29	Nil
R15	52	32	Nil
R16	52	32	Nil

As demonstrated in **Table 6.15**, sleep disturbance noise impacts from the operation of the meter station are predicted to comply with the sleep disturbance criteria.

6.4.3.1 Cumulative Operational Noise Assessment

The Jemena meter station and KKLP delivery station will operate near to each other, but the configuration of these two facilities is such that only one can operate at any one time. Therefore, as these two facilities do not operate simultaneously the further assessment of cumulative noise from the Modification is not required.

6.4.4 Decommissioning

The decommissioning of the Modification is expected to involve similar activities and equipment as those used in the construction stage. In terms of noise and vibration, decommissioning activities are not as intensive as construction activities. Noise generated during decommissioning works would therefore be expected to be less than the construction activities.

The reasonable and feasible management and mitigation measures adopted during construction would also be applicable to minimise potential decommissioning related noise impacts at sensitive receivers.

6.4.5 Further Noise and Vibration Assessment

In preparation of the detailed NVIA, specific details and inputs related to the Modification will be incorporated into the noise model which may alter the findings of the preliminary assessment. Details include:

- specific plants and equipment data to be used by Jemena during construction
- inclusion of regular maintenance activities during operation
- inclusion of decommissioning.

6.5 Water and Soils

The Modification Area is situated in the Hunter River catchment in NSW, which drains a total area of about 22,000 km². The Hunter River flows in a south-westerly direction from Glenbawn Dam in the Liverpool Ranges to meet Goulburn River near Denman. From Denman, the river flows generally in a south easterly direction through Maitland (approximately 6 km north of the Project area) before reaching the Tasman Sea at Newcastle.

On a local scale, the Modification Area is predominantly located in a floodplain area and traverses through an unnamed watercourse, as shown on **Figure 3.1**.

A review of the Newcastle 1:100,000 Soil Landscapes Map Sheet indicated that the Modification Area largely comprise of Bobs Farm variant a with a small area comprising Beresfield (refer to **Figure 6.3**).

The properties of these soil landscapes are:

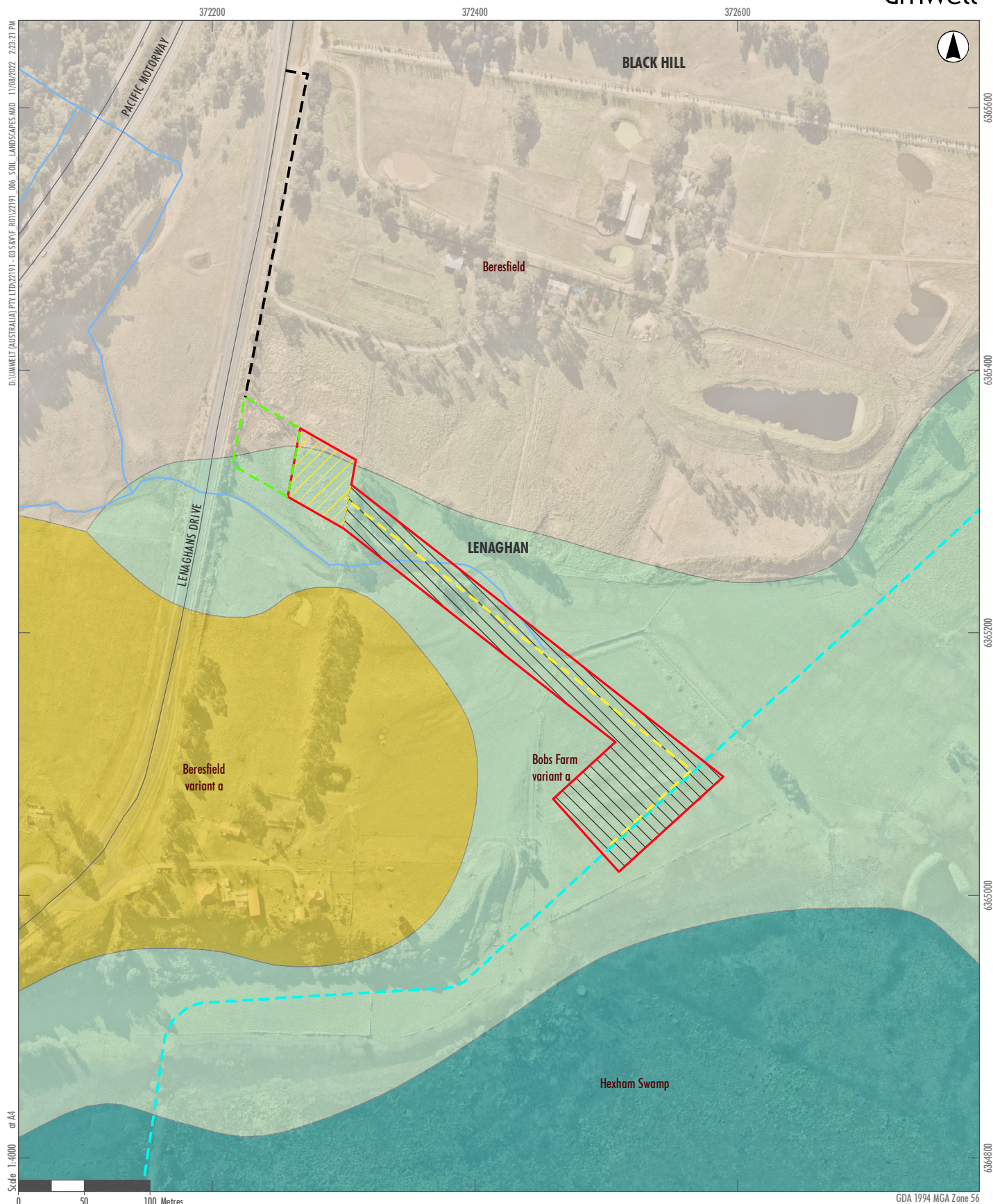
- **Bobs Farm variation a:** Landscape is made up of Holocene estuarine mud deposits consisting of silt and clay forming broad inter-barrier estuarine flats. The landscape is prone to seasonal waterlogging due to its permanently high-water tables with potential to create a flood hazard.
- **Beresfield:** Landscape comprises of Tomago Coal Measures and Permian Mulbring Siltstone with small areas of Permian Waratah Subgroup. The landscape is also a high foundation hazard with localised seasonal waterlogging.

In addition, a review of acid sulfate soil risk maps indicated that the Modification Area is not mapped as having known occurrence of acid sulfate soils (ASS). There is however a high probability of acid sulfate soils being present within sections of the Modification Area associated with quaternary alluvial sediments within the watercourse and associated floodplain.

A detailed water resources impact assessment (WRIA) will be undertaken to consider potential impacts during construction and operation of the Project and address all water related SEARs as required. The WRIA will involve:

- **Catchment analysis and hydrological regimes** – The existing surface water environment will be assessed to establish baseline hydrological and waterway condition and values. The analysis will identify surface water catchments and receiving water bodies/watercourses and existing flow regimes.
- **Flood assessment** – Flood modelling undertaken as part of the Kurri Kurri Lateral Pipeline Water Resources Impact Assessment (Umwelt, 2022) will be used to assess flood inundation and flooding characteristics (water depth, velocity and hazard) in the area of interest. The influence of climate change will also be considered. A review of relevant flood planning legislation, local development controls and assessment guidelines will be undertaken. The assessment will also consider existing flood management procedures and protocols that may influence the project design, construction and operation.
- **Assessment of Groundwater impacts** – Potential for groundwater and surface water interaction will be assessed.
- **Water quantity and resources** – The assessment will identify potential users and uses of water in areas potentially affected by the Modification Project, including agricultural, industrial, recreational and environmental uses of water. Water demands during construction would have a short-term impact if any on local water supply, with operational and maintenance demands to be considered on long-term resources. Surface water impacts from the Modification Project would potentially be associated with increases in impervious surfaces, increasing surface water run-off from hardstand areas. The scale of these works in relation to broader catchment environments is likely to provide for only minor changes to existing runoff regimes. These low-flow hydrology changes would also be considered in the context of geomorphological impacts on receiving waterways.
- **Describe existing surface water quality** – Identify the environmental values of surface waters within the Modification Area and immediately downstream and identify water quality objectives in accordance with NSW and Hunter River water quality objectives.

- **Water quality impacts** – Assess the potential impact of any releases from point or diffuse sources (construction and operational phases) on all relevant environmental values and water quality objectives of the receiving environment. A qualitative assessment of the potential pollutants and impacts to the water quality environment from construction and operation activities will be undertaken. Potential impacts may relate to erosion and sedimentation, spills, stormwater management schemes, site water use and disposal, regulated/unregulated surface water releases.



Legend

- | | | |
|--|--|---|
| Modification Area | NPWS Reserves | Soil Landscape |
| APA Meter station (Subject to APA's approval) | Roads | Beresfield |
| Jemena Meter Station | Watercourses | Beresfield variant a |
| Pipeline Construction Footprint | | Bobs Farm variant a |
| Existing Killingworth to Kooragang Island Gas Pipeline | | Hexham Swamp |
| Pipeline Alignment | | |
| Proposed Access (Subject to APA's approval) | | |

FIGURE 6.3
Soil Landscapes

7.0 Proposed Project Timeframe

Subject to DPE's confirmation of any further assessment requirements in addition to the proposed environmental and social assessment approach outlined in this letter, Jemena anticipates that the Modification Report would be lodged with the DPE at the end of October 2022.

8.0 Conclusion

This Scoping Letter has outlined the proposed Northern Trunk Pipeline Project Modification and established the planning context for the modification application, currently in the early planning phase. The Modification will be assessed under Part 5 of the EP&A Act.

The layout and design of the Modification will be subject to further analysis and refinement as part of the Modification application process, as informed by a range of specialist studies.

All identified environmental issues will be subject to assessment as part of the Modification Report as detailed in **Section 6.0**. Mitigation measures will be developed for inclusion in the Modification Report and will address the management of key issues and other issues identified in the assessment process.

The Northern Trunk Pipeline Modification will provide long-term, strategic benefits to the State of NSW through providing regional investment and cleaner energy generation.

Jemena requests that DPE confirm any further assessment requirements in addition to the proposed environmental and social assessment approach outlined above.

We trust this information meets with your current requirements. Please do not hesitate to contact the undersigned on 0412 691 663 should you require clarification or further information.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Paul Douglass', with a stylized flourish at the end.

Paul Douglass

Manager of Planning and Sustainability

E | pdouglass@umwelt.com.au

M | 0412 691 6633