

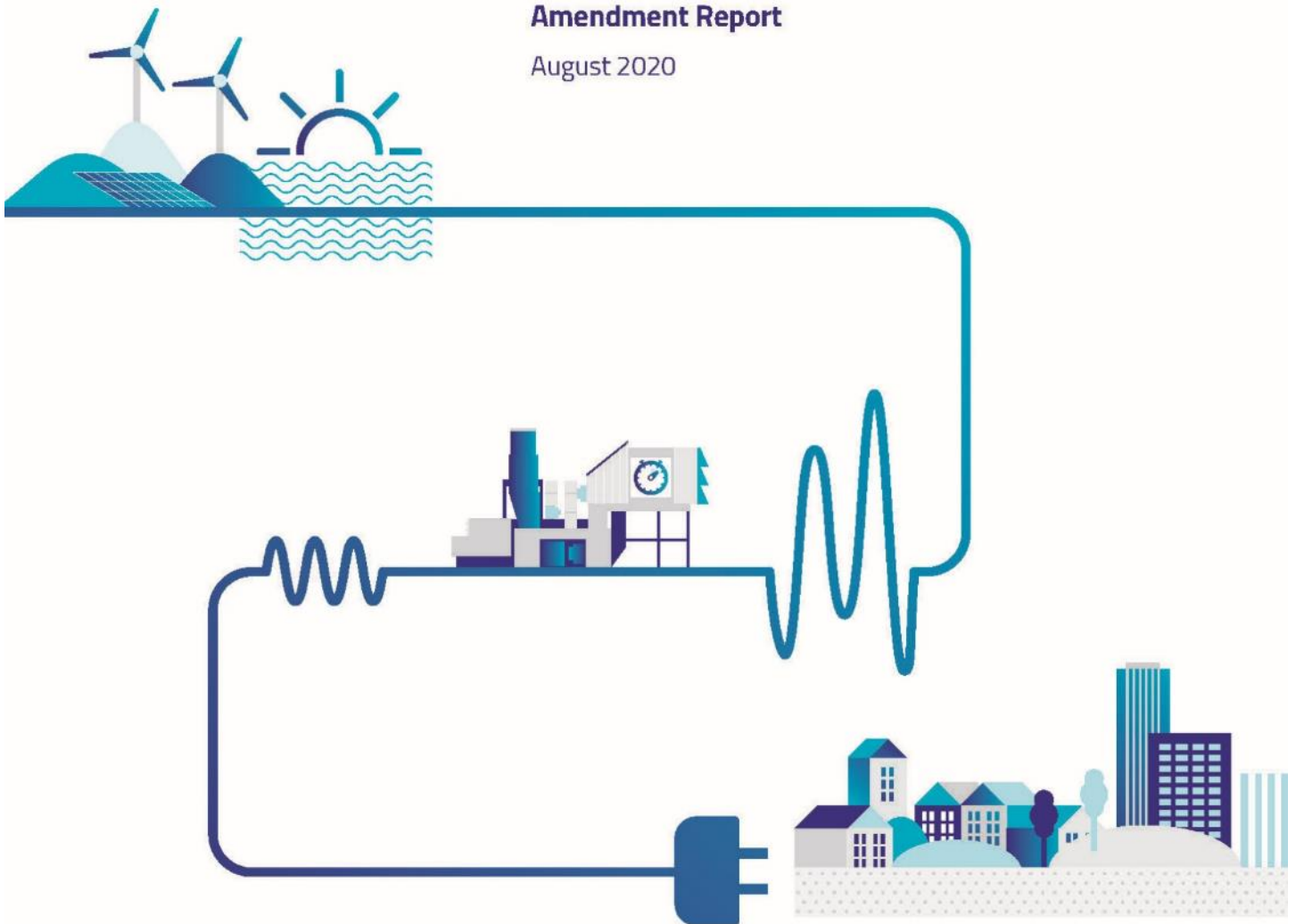


Newcastle Power Station Project

Environmental Impact Statement

Amendment Report

August 2020



Executive summary

Overview of the Newcastle Power Station

AGL Energy Limited (AGL) is seeking approval to construct a dual fuel power station, known as the Newcastle Power Station (NPS). The NPS, with gas pipelines, electricity transmission lines, site access and associated ancillary facilities would be built in Tomago in New South Wales (NSW). Together, the NPS, gas pipelines, electricity transmission lines and associated infrastructure form the Proposal. The Proposal area covers a total of 90.70 ha, with a Development Footprint of 28.62 ha. The Proposal would operate as a dual fuel fast-start peaking power plant with a nominal capacity of 250 megawatts and is anticipated to be operational by 2022.

The Proposal is part of AGL's strategy to introduce new electricity generation to improve energy security and reliability. The NPS is intended to be operated as a dual fuel power station capable of operating on natural gas and/or liquid fuel (diesel). Although intended to be operated as a peaking plant, it would also be designed for continuous operation to maximise operational flexibility.

Overview of the Environmental Assessment

The Proposal was declared Critical State significant infrastructure by the NSW Minister for Planning in December 2018 under State Environmental Planning Policy (State and Regional Development) 2011.

AGL submitted an environmental impact statement (EIS) (Newcastle Power Station Environmental Impact Statement (AGL, 2019)) to the Department of Planning, Industry and Environment (DPIE) in November 2019, seeking approval for the Proposal under Division 5.2 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EIS was then placed on public exhibition from 20 November to 18 December 2019.

During the exhibition period, 30 submissions were received from the community and public authorities by the DPIE. Copies of these submissions were provided to AGL, who, in accordance with section 5.17 of the EP&A Act, provided a response to the issues raised in those submissions. These responses were captured in the Submissions Report, which was provided to DPIE on 30 April 2020.

Purpose of this report

In May 2020, a series of Requests for Information (RFIs) were received from several agencies and organisations in response to the Submissions Report (Section 0). These included:

- DPIE Hazards Team
- DPIE Biodiversity and Conservation Division
- Civil Aviation Safety Authority
- NSW Environment Protection Authority
- Fire and Rescue NSW
- Hunter New England Population Health
- Port Stephens Council
- Transport for NSW.

This document provides responses to the RFIs that were received.

Since the EIS exhibition and Submissions Report, AGL has refined the concept design for the NPS (Section 0). These refinements are to be considered amendments to the Proposal that was described and assessed in the EIS and Submissions Report. Amendments to the Proposal have been developed as a result of an ongoing design process, consultation with agencies and in response to input from construction tenderers. This report provides an assessment of the environmental impact of the Proposal amendments.

Summary of key issues

Key issues raised in the RFIs were:

- Classification of vegetation zones within plant community type (PCT) 1590 in the Biodiversity Development Assessment Report
- Benchmarking of emissions control technology and performance to control emissions of NO_x, acrolein and interregional ozone transport in the Air Quality Impact Assessment
- Feasibility of noise attenuation and adjustments to the Proposal noise trigger levels and amenity noise criteria in the Noise and Vibration Impact Assessment
- Ignition probabilities, release sizes, failure frequencies and rupture scenarios analysed in the Preliminary Hazard Analysis
- Request to change the content or phrasing of traffic mitigation measures to avoid conflict with the M1 to Raymond Terrace Motorway development project
- Flood mitigation for process waste water storage areas to prevent discharge to the environment
- Ensuring that a critical velocity of 6.1 metres per second has been applied for instrument flight rules and visual flight rules.

AGL commissioned additional assessments to support responses to these RFIs.

Proposal amendments

The proposed amendments to the Proposal are described in Section 4 and include:

- Two construction laydown areas, referred to as the Central and East Laydown areas
- The addition of new construction methods including a screening and crushing facility and pile driving
- A realignment of the transmission line corridor in consideration of easement boundaries
- An extension of the Proposal Area boundary to adequately accommodate the area needed for roadworks on Old Punt Road
- A second gas pipeline to connect the NPS to the PL42 pipeline.

Additional assessments

Technical studies were conducted to assess the impacts of the amendments and to respond to RFIs. The following assessments are included as appendices to this report:

- Biodiversity Development Assessment Report (BDAR)
- Aboriginal Cultural Heritage Assessment Report (ACHAR)
- Air Quality Impact Assessment (AQIA)
- Noise and Vibration Impact Assessment (NVIA)
- Preliminary Hazard Assessment (PHA)
- Preliminary Hazard Assessment Addendum (PHA Addendum)
- Traffic Impact Assessment Addendum (TIA Addendum)

The key findings of the assessments and investigations are summarised below:

- Biodiversity impacts from the amendment are within areas that had been previously assessed in the BDAR. The affected areas, credits and offsets were recalculated for the amended Proposal. A total of 28.62 ha would be cleared for the Proposal, including 12.76 ha of low quality vegetation. Following advice from a specialist ecologist, the classification of the vegetation zones in PCT 1590 remains unchanged.
- While the proposed amendments are not expected to impact Aboriginal cultural heritage, it was identified in the ACHAR that the proposed Central Laydown area is close to the site NPS01. To ensure that NPS01 is not impacted during the ground preparation works and operation of the Central Laydown, it was recommended that a 20 m buffer around the site is maintained and access restricted during construction.

- The AQIA assessed the potential dust impacts during construction from the proposed screening and crushing facility, finding that predicted particulate and dust levels were compliant with the relevant impact assessment criteria. With adequate dust management strategies applied during construction, it is expected that the activity is unlikely to produce adverse air quality impacts. The AQIA was also updated to include further details of the benchmarking analysis of control technologies that has been undertaken for the Proposal to determine international best practice technologies that can be reasonably and feasibly applied.
- The NVIA assessed potential noise impacts of new construction methods including pile driving and screening and crushing activities, which were incorporated into the construction noise model. The predicted noise levels were found to exceed the criteria at night but to comply in other periods of the day. Due to the predicted exceedances, the NVIA recommends limiting these new activities to standard day time working hours.
- The PHA for the Proposal includes assessment of a new gas pipeline to connect the NPS to the PL42 pipeline. The pipeline would be located directly adjacent to the main NPS gas supply pipeline that was assessed in the EIS. Risks from the duplicated pipeline were modelled and assessed. It was found that the Proposal complies with all the criteria set out in Hazardous Industry Planning Advisory Paper No. 4 – Risk Criteria for Land Use Safety Planning. No additional mitigation measures were required.
- An Addendum to the PHA has been prepared to assess risks at the proposed East Laydown area, because the Newcastle Gas Storage Facility site is a Major Hazard Facility. The hazard analysis included qualitative and quantitative methods to assess the adequacy of controls to determine if the East Laydown area can be developed with hazards achieving a level as low as reasonably practicable, and to ensure appropriate land use safety planning is applied. It was found that the location of the East Laydown area would be considered acceptable if the specified recommendations are implemented.
- The TIA Addendum assessed the potential traffic impacts of the proposed amendments, particularly the East and Central Laydown areas. No road upgrade works would be required to support construction traffic accessing the laydown areas, and no additional traffic management or mitigation measures are proposed as a result of the assessment.

Safeguards and management measures

This Amendment Report provides a further update to the safeguards and management measures in response to AGL's consideration of the RFIs and to manage the potential impacts of proposed amendments to the Proposal. Safeguards and management measures were modified in relation to Aboriginal cultural heritage, traffic, noise and vibration, bushfire and hazard and risk.

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Terms and abbreviations

Acronym	Description
ACHAR	Aboriginal Cultural Heritage Assessment Report
ACHMP	Aboriginal Cultural Heritage Management Plan
AEC	Area of Environmental Concern
AGL	AGL Energy Limited
ALARP	As low as reasonably practicable
APZ	Asset Protection Zone
ASS	Acid Sulphate Soils
ASSMP	Acid Sulphate Soil Management Plan
AQIA	Air Quality Impact Assessment
BAM	Biodiversity Assessment Method
BDAR	Biodiversity Development Assessment Report
BMP	Best management practice
CASA	Civil Aviation Safety Authority
CEMP	Construction Environmental Management Plan
CEMS	Continuous Emission Monitoring Systems
CHR	Channelised right turn
CNVMP	Construction Noise and Vibration Management Plan
CPE	Critical Plume Extent
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSSI	Critical State significant infrastructure
CTMP	Construction Traffic Management Plan
Development Footprint	Area to be disturbed during construction of the Proposal (see Figure 2)
DCP	Development Control Plan
DELP	Directorate of External Land Planning
DG	Dangerous Goods
DPIE	Department of Planning, Industry and Environment
DPIE BCD	DPIE Biodiversity and Conservation Division
EC	Electrical conductivity
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EMEP	Emergency Management and Evacuation Plan

Acronym	Description
EPA	Environmental Protection Authority
EP&A Act	<i>Environment Planning and Assessment Act 1979</i>
EP&A Regulation	Environment Planning and Assessment Regulation 2000
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
EPL	Environment Protection Licence
ERM	Environmental Resources Management
ERP	Emergency response plan
ESCP	Erosion and Sediment Control Plan
FLT	Forklift driver
FRNSW	Fire and Rescue NSW
FSS	Fire Safety Study
GDE	Groundwater Dependent Ecosystem
GPT	Gross Pollutant Traps
HAZMAT	Hazardous materials
HDD	Horizontal directional drilling
HIPAP	Hazardous Industry Planning Advisory Paper
HNE Health	Hunter New England Population Health
HPP	High Pressure Pipeline
HSEMS	Health and Safety Environmental Management System
IECA	International Erosion Control Association
IFR	Instrument Flight Rules
LEP	Local Environment Plan
LPG	Liquefied petroleum gas
M12RT	M1 to Raymond Terrace
mAHD	Metres elevation – Australian Height Datum
MECA	Manufacturers of Emission Controls Association
MHF	Major Hazard Facility
MW	Megawatts
NEM	National Electricity Market
NEPM	National Environment Protection Measures
NGSF	Newcastle Gas Storage Facility
NMES	Matters of National Environmental Significance
NML	Noise Management Level
NorBE	Neutral or Beneficial Effect
NOx	Oxides of nitrogen

Acronym	Description
NPS	Newcastle Power Station
NSW	New South Wales
NVIA	Noise and Vibration Impact Assessment
OEMP	Operation Environmental Management Plan
OLS	Obstacle Limitation Surface
OSOM	Over size over mass
OWMP	Operational Waste Management Plan
PASS	Potential Acid Sulphate Soils
PCT	Plant Community Type
PHA	Preliminary Hazard Analysis
PM	Particulate matter
PMF	Probable maximum flood
PM _{2.5}	Particulate matter with an aerodynamic diameter of 2.5 micrometres or less
PM ₁₀	Particulate matter with an aerodynamic diameter of 10 micrometres or less
PNTL	Project noise trigger level
PPE	Personal Protective Equipment
PSC	Port Stephens Council
RAAF	Royal Australian Air Force
RAP	Registered Aboriginal Party
RFI	Request for Information
Roads and Maritime	Roads and Maritime Services
SCR	Selective catalytic reduction
SEPP	State Environmental Planning Policy
SWL	Sound Power Level
TfNSW	Transport for NSW
TIA	Traffic Impact Assessment
TSP	Total suspended particles
TTE	Treatment Train Effectiveness
UK HSE RR	United Kingdom Health and Safety Executive Research Report
VCE	Vapour Cloud Explosion
VFR	Visual Flight Rules
VOC	Volatile organic compounds

1 Introduction

1.1 The Proposal

AGL Energy Limited (AGL) is proposing to construct a dual fuel power station, known as the Newcastle Power Station (NPS), located at 1950 Pacific Highway, Tomago, New South Wales (NSW) (Figure 1). The NPS would include gas pipelines, electricity transmission lines, site access and associated ancillary infrastructure (the Proposal). The Proposal would operate as a dual fuel fast-start peaking power plant with a nominal capacity of 250 megawatts (MW) and is anticipated to be operational by 2022.

The Proposal Area is shown in Figure 2, with a more detailed view of the conceptual layout of the proposed plant in Figure 3. The key features of the Proposal, as described in the Environmental Impact Statement (EIS) and shown in the updated conceptual site layout in Figure 2, include:

- Power station: a dual fuel power station capable of operating on natural gas and/or liquid fuel (diesel)
- Gas pipelines: to store gas and to connect the NPS to existing gas supply sources (including AGL's PL42 pipeline and Newcastle Gas Storage Facility (NGSF))
- Electricity transmission lines: to transfer the electricity produced by the NPS to the National Electricity Market (NEM).

The land ownership and zoning in the Proposal Area are shown in Figure 4 and Figure 5, and described further in Section 5.8.

1.2 Environmental assessment

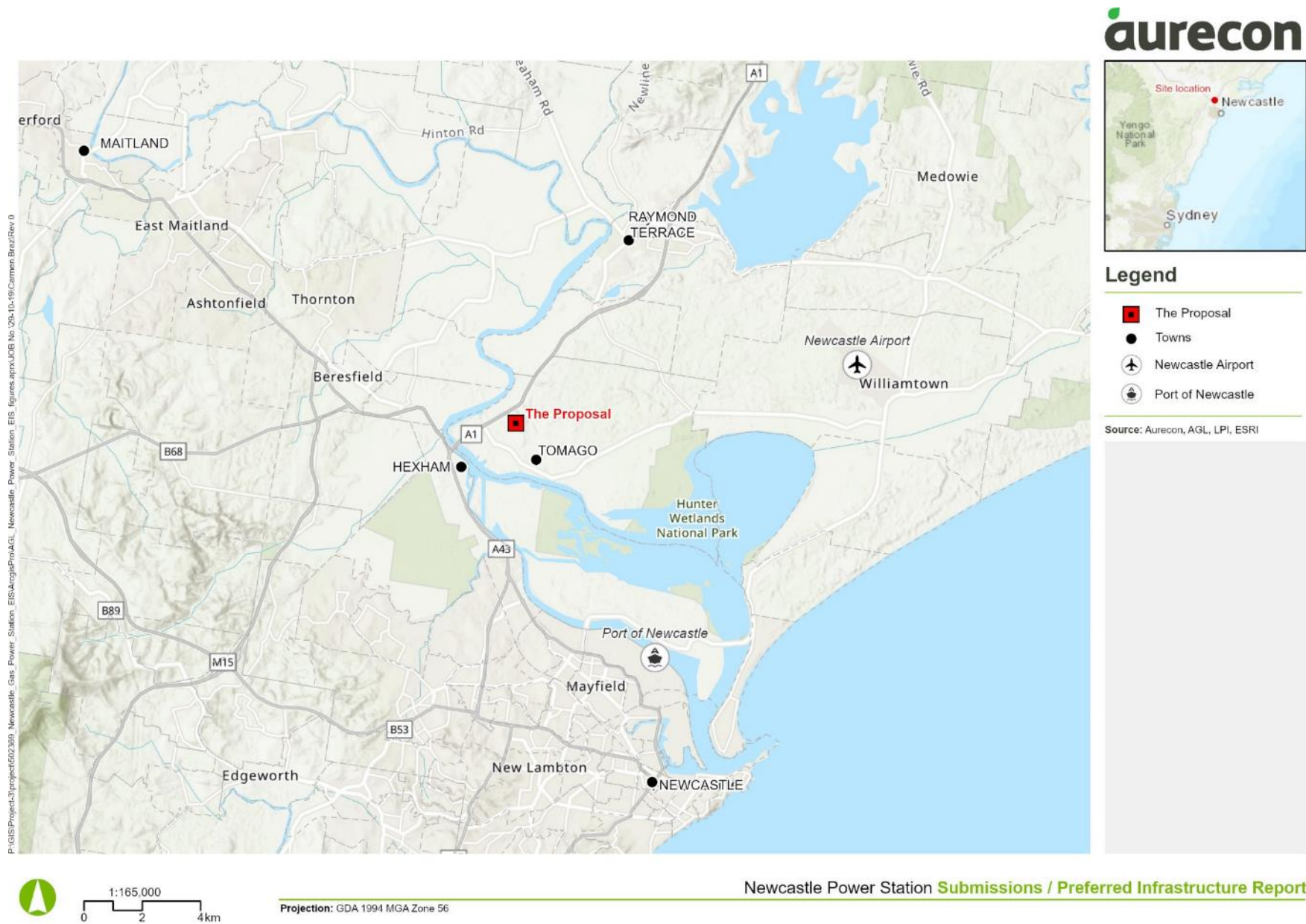
The Proposal was declared critical State significant infrastructure (CSSI) in December 2018 and is subject to assessment under Division 5.2 of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act). Additionally, the Proposal was declared a controlled action on 15 August 2019, requiring assessment and approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Proposal is being assessed through a bilateral agreement between the Commonwealth and NSW governments, within the NSW planning approval process.

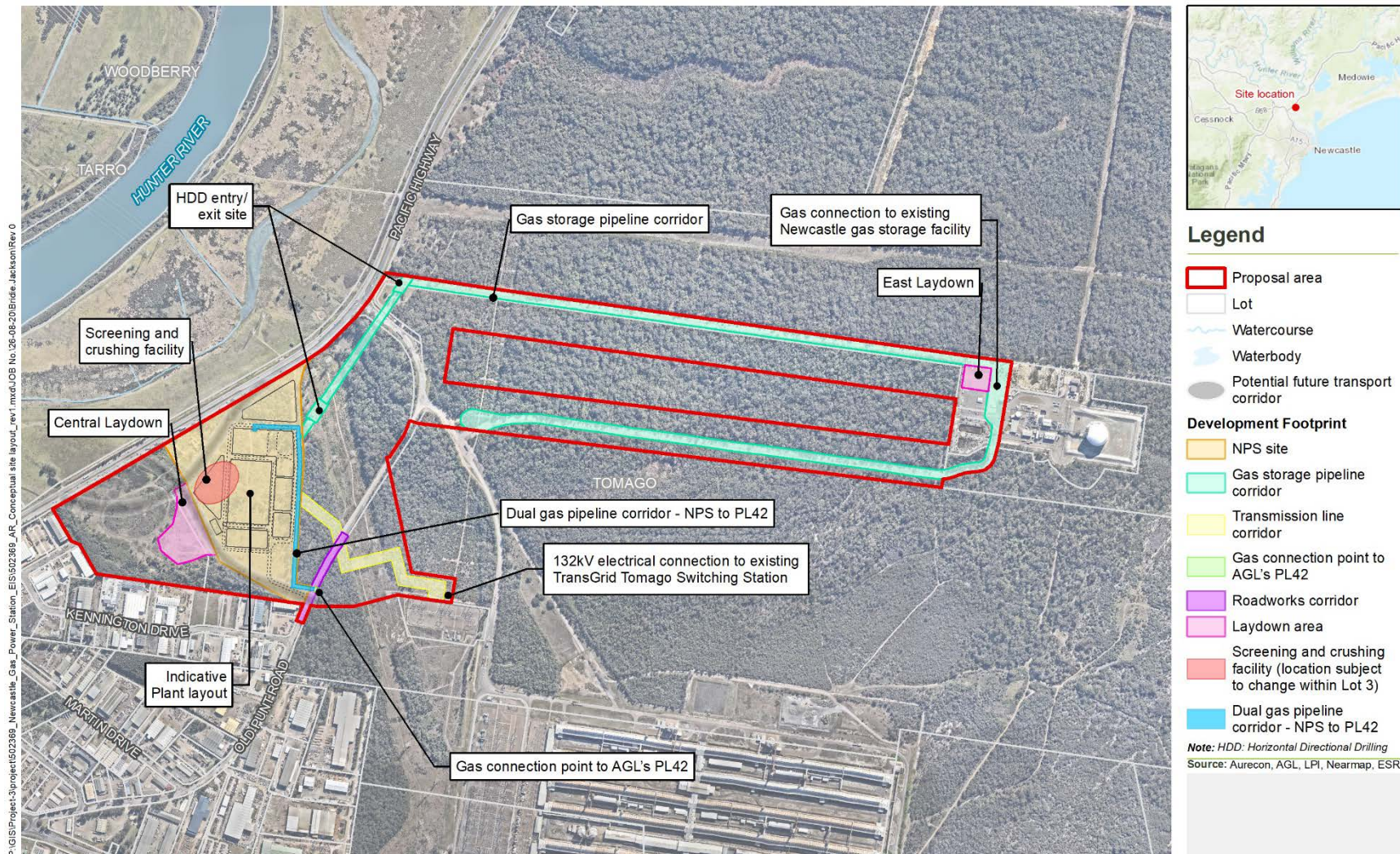
An EIS for the Proposal was prepared by AGL and submitted to the NSW Department of Planning, Industry and Environment (DPIE) in October 2019. The EIS was placed on public exhibition for the statutory period from Wednesday 20 November 2019 to Wednesday 18 December 2019, during which time 30 submissions were received. A Submissions Report was prepared to provide a response to the issues raised in these submissions, including several updated environmental assessments. The Submissions Report was lodged with DPIE on 30 April 2020.

The key environmental issues assessed in the EIS and Submissions Report included:

- Biodiversity
- Aboriginal cultural heritage
- Surface water and hydrology
- Groundwater
- Air quality
- Soils and contamination
- Noise and vibration
- Traffic and transport
- Hazards.

A series of Requests for Information (RFIs) were received from various agencies and organisations in response to the Submissions Report. These are tabled and discussed in Section 3 of this report.





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*Subject to minor changes including in respect to landowners areas

Projection: GDA 1994 MGA Zone 56

Newcastle Power Station **Amendment Report**

Figure 2 Conceptual site layout

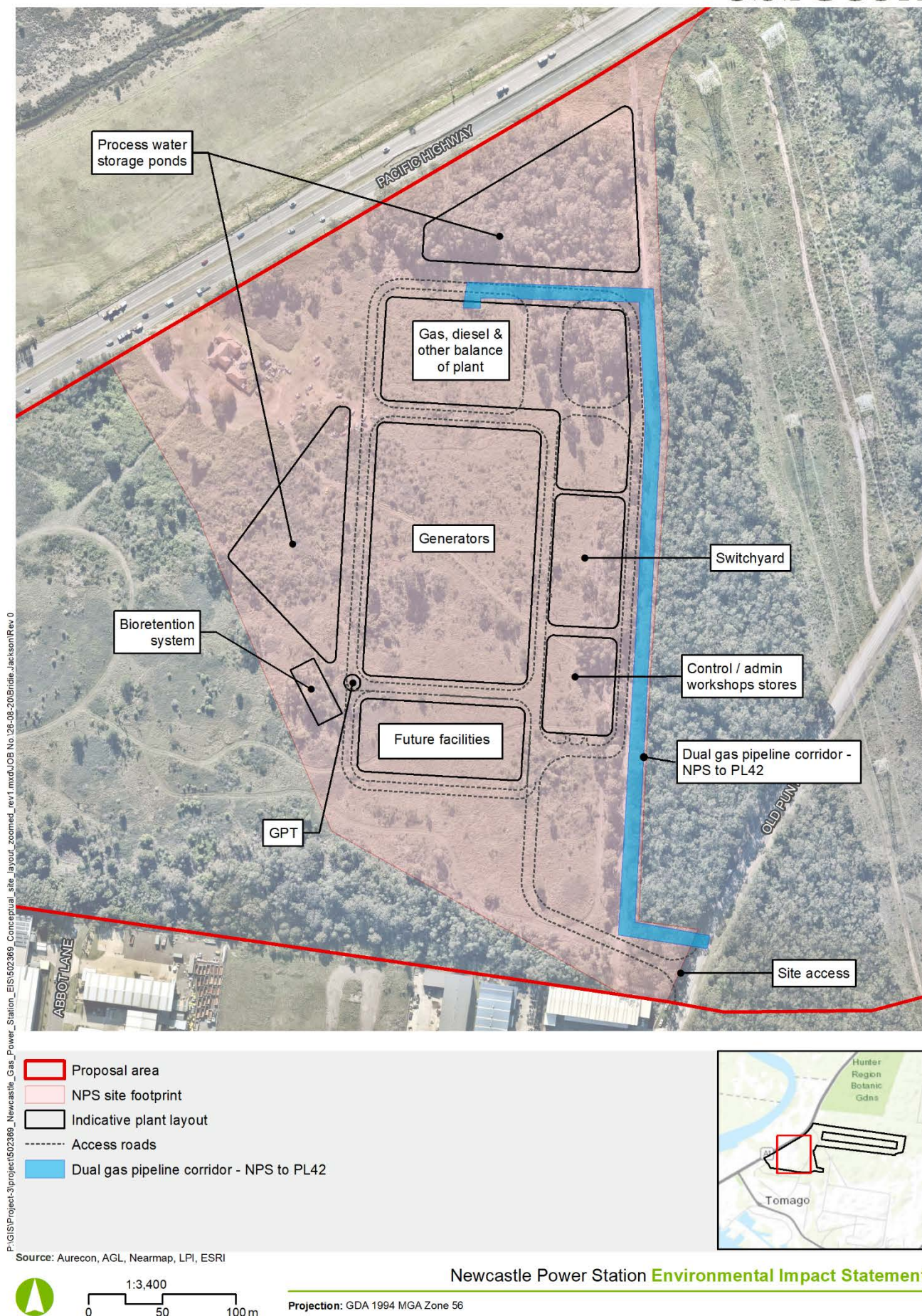


Figure 3 Detail of conceptual site layout

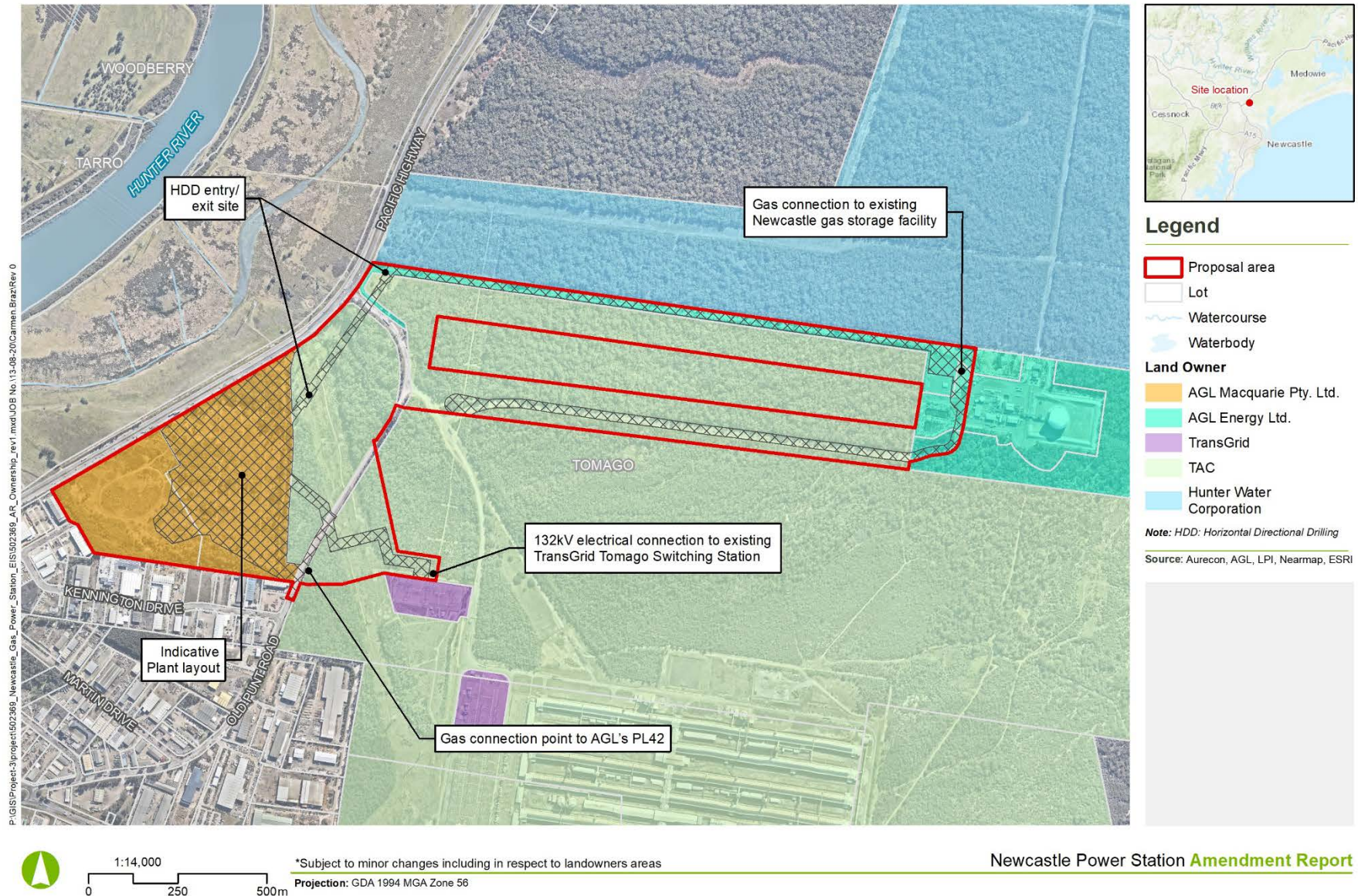


Figure 4 Land ownership in Proposal Area

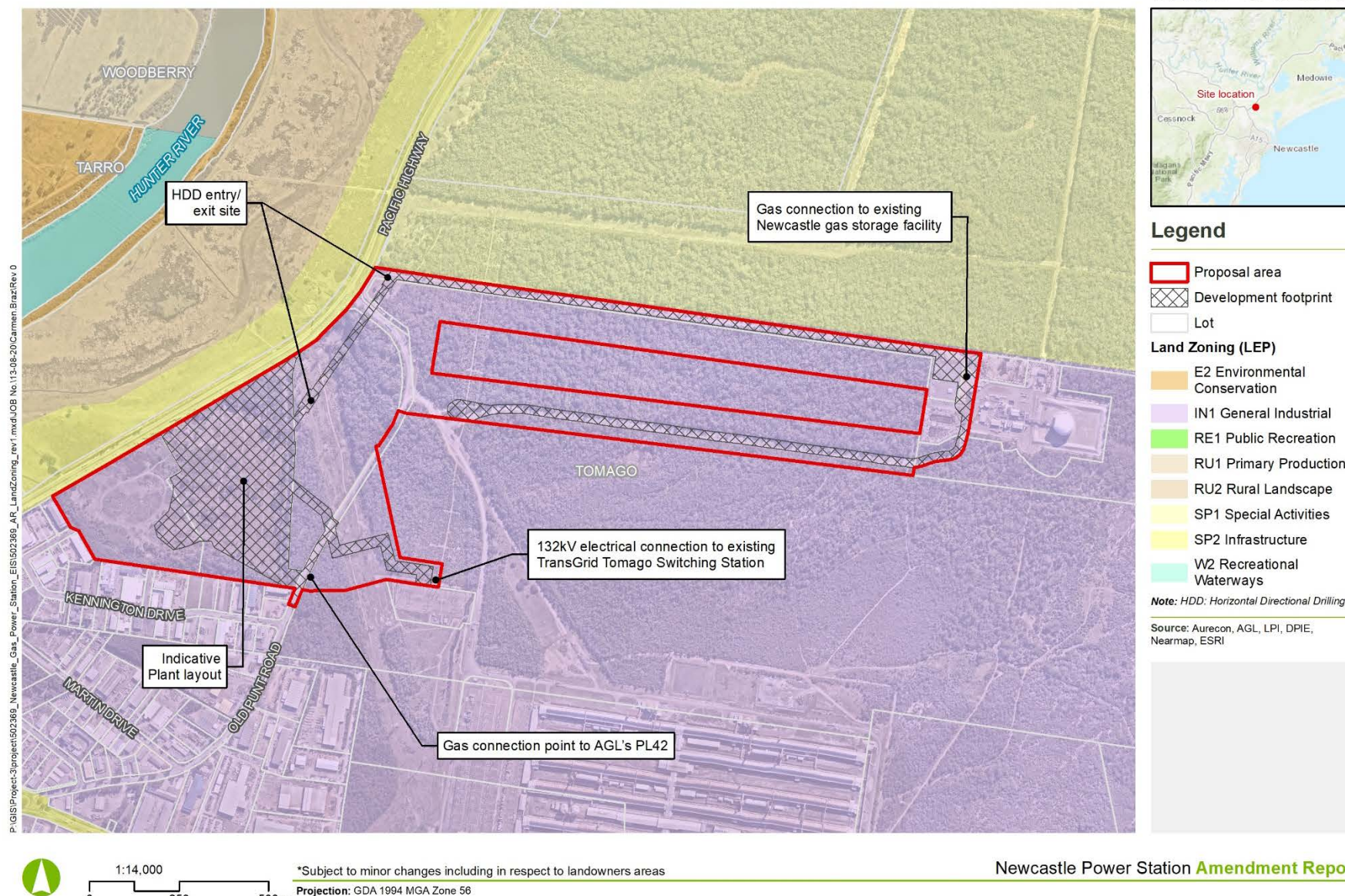


Figure 5 Land use zoning in the Proposal Area

1.3 Purpose of this report

The purpose of the Amendment Report is to outline changes to the Proposal since the EIS was placed on public exhibition and to help the community, government agencies and the approval authority understand the implications of these changes. This Amendment Report has been prepared to:

- Address the RFIs received from agencies and organisations in May 2020, and provide responses
- Outline the substantive changes made to the Proposal design since the EIS exhibition, due to:
 - The ongoing design process
 - Further consultation with agencies
 - Input from construction tenderers
- Provide additional environmental assessment of key issues, as required
- Provide updated mitigation measures, as required.

This Amendment Report has been prepared in accordance with clause 192(2) and (3) of the EP&A Regulation.

This report is structured as described in Table 1-1.

Table 1-1 Structure of the Amendment Report

Chapter number	Description
1	Provides an introduction and purpose of this report
2	Summarises recent consultation regarding the Proposal, including RFIs
3	Provides responses to the RFIs
4	Outlines design refinements and amendments to the Proposal since the completion of the EIS
5	Provides further environmental assessments to inform responses to the RFIs and for the design refinements, where required
6	Summarises environmental management changes
7	Provides a conclusion
8	Lists references used within this Amendment Report

2 Consultation

2.1 Submissions report overview

A Submissions Report was lodged with DPIE on 30 April 2020 to address submissions made on the EIS, as noted in Section 1.2. The Submissions Report included AGL's response to submissions and associated additional assessments and mitigation measures to minimise the Proposal's environmental impact. The Submissions Report was referred to the relevant government agencies by DPIE.

2.2 Ongoing consultation and engagement

AGL is engaged in ongoing consultation with various stakeholders to progress the NPS and consider aspects of the Proposal that may impact on other stakeholders, such as adjacent energy and infrastructure operators. Consultation that has taken place since the Submissions Report is shown in Table 2-1.

Table 2-1 Direct stakeholder consultation after lodging the Submissions Report

Stakeholder	Date	Discussion points/issues raised by the stakeholder	Where addressed
TransGrid	1 April 2020	Meeting held with TransGrid to discuss: - Easement locations, including the potential for AGL easement to overlap with TransGrid easement - Transmission line design, including co-existence with TransGrid's existing 132 kilovolt (kV) lines - Connection proposal and agreement	Section 4.3
Transport for NSW	25 May 2020	Email requesting biodiversity/vegetation mapping spatial data	Section 3.6
	5 June 2020	Email regarding updated M1 to Raymond Terrace (M12RT) design information	
	19 June 2020	Meeting to discuss interaction between the Proposal and the proposed M12RT upgrade, and to discuss proposed mitigation measures	
EPA	26 June 2020	Meeting to discuss items in the air quality and noise assessments raised in the RFI	Sections 5.2 and 5.5
DPIE	11 June 2020	Meeting to discuss RFIs	Section 3
DPIE Biodiversity and Conservation Division (BCD) (previously Office of Environment and Heritage)	29 July 2020	Meeting to discuss items raised in the RFI, in particular vegetation zones on the Proposal site	Section 3.1
DPIE Hazard and Risk Division	11 June 2020	Meeting to discuss approach to Preliminary Hazards Assessment for the Proposal	Section 3.5 and 5.5

Stakeholder	Date	Discussion points/issues raised by the stakeholder	Where addressed
Department of Defence	19 June 2020	Letter received from Defence regarding Defence's response to the additional information provided in the Submissions Report, and preferred position on the NPS design and aviation safety. The letter confirmed that Defence: - Accepted the Turbine Option, despite the proposed plume rise exceeding the Obstacle Limitation Surface (OLS) - Does not require any further consultation between AGL and Civil Aviation Safety Authority (CASA)	Section 3.7
Registered Aboriginal Parties (RAPs)	25 March 2020	Email to RAPs to advise of the proposed construction laydown area on Lots 2 and 3 DP1043561	Section 3.2
	29 May 2020	Letter provided to RAPs with Proposal update and advising updates to Aboriginal Cultural Heritage Assessment Report (ACHAR) to assess construction laydown areas and other amendment items	
	28 June 2020	One comment was received regarding the proposed amendment area, which indicated that the RAP had read and understood the Proposal update and supported the recommendations provided One comment relating to the review of the Draft ACHAR was received. This was a letter stating that the RAP understood the proposed amendments and agreed with all aspects of the report. The letter also noted that as the proposed Central Laydown area is in close proximity to the site NPS01 it will be important that the Proponent follow all guidelines and recommendations outlined in the document and any recommendations from the Aboriginal Cultural Heritage Management Plan (ACHMP)	
SafeWork NSW	3 June 2020	Email to SafeWork NSW with Proposal update and advising updates to Preliminary Hazard Analysis (PHA) to assess construction laydown areas	Section 3.5 and 5.5
	17 June 2020	Consultation with SafeWork NSW completed. SafeWork NSW advised that further briefing was not required	

2.3 Political donations declaration

AGL have completed a declaration that no reportable political donations have been made in association with the NPS. The declaration is attached as **Appendix H**.

3 Requests for information

In May 2020, stakeholder responses to the Submissions Report and RFIs were received. Agencies that provided RFIs were:

- DPIE Hazards Team
- DPIE Biodiversity and Conservation Division
- Civil Aviation Safety Authority (CASA)
- NSW Environment Protection Authority (EPA)
- Fire and Rescue NSW (FRNSW)
- Hunter New England Population Health (HNE Health)
- Port Stephens Council (PSC)
- Transport for NSW (TfNSW).

The issues and responses to the RFIs are grouped by topic in the following subsections.

3.1 Biodiversity

Agency: DPIE BCD

Date: 15 May 2020

Comment:

BCD recommends that vegetation zones 1 and 3 within plant community type (PCT) 1590 are mapped as Lower Hunter Spotted Gum – Ironbark Forest EEC consistent with mapping of vegetation zone 2 and the Biodiversity Assessment Method (BAM) calculator is re-run to determine the updated credit yield for these two zones and that the BDAR is amended.

Response:

Based on the vegetation survey previously carried out on the site and described in the Biodiversity Development Assessment Report (BDAR) assessment in **Appendix A**, and consultation with Dr Stephen Bell, a specialist ecologist, vegetation zones 1 and 3 were confirmed not to display key characteristics of the Lower Hunter Spotted Gum – Ironbark Forest Endangered Ecological Community (EEC). This has been determined based on the following:

- The vegetation zones show evidence of extended historical disturbance (such as vegetation clearing)
- The co-dominance of *Eucalyptus paniculata* and *Corymbia maculata*
- Key diagnostic canopy species are absent from each zone – such as *Eucalyptus fibrosa* and *E. punctata*
- Key diagnostic shrub species are absent – such as *Acacia parvipinnula* and *Daviesia ulicifolia*
- The groundcover is comprised of a mixture of herbs and grasses that are common and widespread. Key species such as *Rytidosperma pallidum*, *Melaleuca nodosa* and *Bursaria spinosa* are absent
- The vegetation occurs within a transitional zone between two soil landscapes and hence has a strong influence of depositional sands, with dominant canopy species changing with soil type change.
- The landscape context indicates that it is likely that only small and restricted occurrences of Lower Hunter Spotted Gum – Ironbark Forest would be present in the area.

This was discussed in a meeting with DPIE BCD on 29th July 2020. It has been concluded that vegetation zones 1 and 3 will remain excluded from the EEC. The BAM calculator has been updated to reflect the outcome of the meeting.

3.2 Aboriginal cultural heritage

Agency: DPIE BCD

Date: 15 May 2020

Comment:

BCD is satisfied that BCD's comments on Aboriginal cultural heritage have been satisfactorily addressed in the response to submissions report and no further Aboriginal cultural heritage assessment is required.

Response:

This comment has been acknowledged by AGL.

Agency: Transport for NSW

Date: 22 May 2020

Comment:

TfNSW is satisfied that the Submissions Report has adequately addressed the issue previously raised regarding responsibility for carrying out heritage salvage works.

Response:

This comment has been acknowledged by AGL.

3.3 Air quality

Agency: EPA

Date: 22 May 2020

Comment:

A report relating to detailed control technology and emissions performance benchmarking against additional jurisdiction guidance and experience is required. The benchmarking must describe and evaluate the full range of available emission control technologies and recommend what is feasible for application at the NPS. Where a technology or emission level is found to be not feasible, a detailed justification must be provided.

Response:

The Air Quality Impact Assessment (AQIA) in **Appendix C** has been updated to include more detail on the benchmarking activities that have been carried out for the Proposal against both NSW and international examples of gas power generators.

The full range of available emission control technologies is described, and a feasibility assessment explains which technologies are feasible for application at the NPS. The control technologies include international best practice and consider the effectiveness of controls that have been implemented in practice to reduce oxides of nitrogen (NOx) emissions.

Reasonable and feasible control technologies selected for the Proposal are water injection for the gas turbine option, and selective catalytic reduction (SCR)/catalytic oxidation for the dual fuel reciprocating engine option.

Comment:

Further refined assessment and consideration is needed of the ozone exceedances for both turbines and reciprocating engines for 24 hours/day operation. This issue could be adequately addressed via commitment to additional emission control based on the benchmarking required under issue 1 (above) and in accordance with the best management practice (BMP) determination requirements of the EPA's Tiered Procedure for Estimating Ground-Level Ozone Impacts from Stationary Sources.

Response:

A discussion of BMP emission control is provided in the AQIA in **Appendix C**, including more detail on the benchmarking activities that have been carried out for the Proposal against both NSW and international examples of gas power generators.

Further information on the previous local ozone studies has been included in the AQIA. This includes an independent assessment of photochemical smog generation for a previous proposal located on the same site (CSIRO, 2003) for a staged development of a dual-fuel gas turbine power plant with a capacity of 260 MW to 790 MW. The assessment included modelling for both natural gas and distillate fuels, with fuel specific volatile organic compounds (VOC) emission quantities. Fuel specific VOCs were modelled, however the airshed was identified to be primarily NO_x-limited. The screening tool also indicated minimal sensitivity to VOC emissions.

The Proposal has a similar NO_x emission intensity (kilograms per megawatt hour (kg/MWh)) compared with the 2003 CSIRO assessment, however the current NPS Proposal is for a smaller capacity of 250 MW. The emission parameters used in the 2003 study are provided in Table 9.7 of the AQIA, with NO_x emission rates higher than those modelled for the Proposal, and similar dispersion characteristics. The results of the modelling indicated that the proposed development would have only a minimal (less than 0.2%) influence on peak 1 hour and 4 hour ozone concentrations.

Comment:

Additional information must be provided for diesel fired reciprocating engines, including revised assessment with the higher start-up emissions and demonstration that emissions are being prevented and minimised.

Response:

The AQIA (refer Appendix C) has been updated to include quantification of start-up emissions for diesel fired reciprocating engines. While start-up NO_x emission rates for gas turbines would be lower than operational emission rates, reciprocating engines under a distillate start-up are higher prior to selective catalytic reduction (SCR) reaching operating temperature. It is noted that start-up of a reciprocating engine plant on distillate fuel is a highly unlikely event.

Comment:

The Proponent should model emissions based final design and emission specifications.

Response:

The AQIA has modelled emissions that represent the proposed generation technologies and scale of plant. While the final design and emission specifications are not currently available, the assessment has considered worst case emission rates for the proposed plant specifications.

Final design and emission specifications can be modelled when the final selection of generation and control technology are determined in the detailed design process and detailed emission information can be confirmed.

Comment:

If the reciprocating engine option is the preferred option, the Proponent must consider additional controls and actions to reduce acrolein emissions and the potential for acrolein exceedances during operation.

Response:

The AQIA has predicted acrolein concentrations based on the emission reductions that could be guaranteed by suppliers. The emission rates provided approach the analytical limit of detection, which limits the ability of suppliers to guarantee lower rates. It is expected that the actual level of control applied to the Proposal would result in acrolein concentrations that are within the criteria.

As per EPA's recommendation, an analysis of meteorological conditions associated with peak predictions of acrolein has been undertaken. The assessment assumed continuous operation, which produces conservative 99.9th percentile predictions. The analysis indicated that the worst case predictions do not align with the times of peak demand or anticipated reduced output from renewables. The worst case predictions occurred with:

- Moderate temperatures – not aligned with peak heating/cooling demand
- Strong winds – associated with higher cross-regional output from wind generators
- Primarily during daytime - where solar output is highest. Minimal exceedances occur in the evening peak.

Collectively these factors indicate that exceedances of the acrolein criteria would be highly unlikely for NPS when operated as a peaking generator.

Agency: HNE Health

Date: 18 May 2020

Comment:

HNE Health would seek the Proponent's commitment to modify the proposed process to ensure that the Proposal does not contribute to exceedances of current or future PM_{2.5} standards in Newcastle. A key interest in assessing the future impacts of this development, will be in whether it can meet future national goals.

Response:

The predictions provided in the AQIA have been prepared in accordance with the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2016) ('the Approved Methods') for the purpose of assessment against relevant impact assessment criteria. The Approved Methods are applied by NSW EPA in the process of licencing air emission sources such that the risk of adverse air quality impacts can be appropriately considered, and relevant conditions applied. The assessment indicates that under a range of conservative assumptions, the peak impacts from the Proposal are minor and localised in their extent, with the reciprocating engine (distillate fuel) scenario showing the highest annual average predictions. For this assessment scenario predictions in excess of 0.10 micrograms per cubic metre (µg/m³) are confined to an area to the south-east of the site that is absent of residential receptors, whilst the peak incremental annual average prediction of 0.16 µg/m³ occurs at a single point across the 14,641 gridded receptor points.

Whilst these peak predictions are useful in the context of the Approved Methods, they do not represent a realistic estimate of potential community exposure, or impact to the airshed, as relevant to consideration of the influence of the Proposal on future air quality goals. It is noted that the compounding of several conservative assumptions can result in a considerable increase in model predictions above what would be anticipated in reality.

Such conservative factors include:

- Applying the peak prediction, irrespective of whether this is an inhabited area, or an area that is representative of broader community exposure (for which the NEPM goals are intended to be applied).
- Assuming continuous operation of the plant at 100% load for all 8,760 hours of the year. AGL anticipate that during typical operations, the Proposal would, on average, generate electricity for 14% of the year.
- Assuming that filterable particulate concentrations are continuously at the upper limit of the expected operating range (i.e. the manufacturer's guarantee). In reality, variability within this limit is anticipated to accommodate operational fluctuations.
- Assuming that all filterable particulate concentrations solely comprise PM_{2.5}. In reality, it would be anticipated that PM_{2.5} comprises approximately 90% of total particulate emissions.
- Excluding the effect emission reductions associated with proposed implementation of oxidation catalyst emission controls on reciprocating engines. MECA (2016) estimates that this may result in a 50% reduction in particulate emissions.
- Excluding dispersion improvements associated with plume merging from adjacent stack clusters. When incorporated into dispersion models, such enhancements can result in reduction in the order of 50% or more.

- Assuming the sole use of distillate fuel (i.e. no use of natural gas which is the preferred fuel and for which emissions are considerably lower).

It is not possible to quantify the compounding influence of these assumptions with certainty. AGL are seeking to operate the plant on an 'as needed' basis in response to electricity network demand, using either natural gas or distillate fuels, where constraints on this flexibility of operation or fuel would adversely impact upon the reliability and security aspects of the Proposal. Noting this, an indicative reconciliation of the compounding influence of these assumptions has been prepared based on a 'best estimate' approach as shown in **Table 3-1**.

Table 3-1 'Best estimate' reconciliation of conservatism within peak PM_{2.5} predictions.

Factor (Reciprocating Engine Option, Distillate Fuel)	Prediction Correction
Average of locality receptors as a proportion grid maximum	0.19
Average operation at 14%	0.14
Operational variability in PM emissions (within emission guarantee)	~0.8
Reconciliation of PM _{2.5} fraction within PM emissions	~0.9
Effect of oxidation catalyst on PM emissions (MECA, 2015)	~0.5
Inclusion of plume merging effects	~0.5
Use of both fuels (assuming 50/50 mix)	0.8
Compounded Factor (as product of individual factors)	0.004

This indicates that a best estimate, absent of any conservatism, would produce average airshed/locality predictions that are approximately 4 thousandths of the peak assessment prediction, which when considered in conjunction with the peak assessment prediction of 0.16 µg/m³ would equate to a best estimate increment of 0.0006 µg/m³, or 0.6 nanograms per cubic metre (ng/m³). In this context, impacts from the Proposal are not expected to materially influence the attainment of the 2025 goal.

Finally, when considering impacts on an airshed basis, the net environmental impact of the Proposal should also be considered. The Proposal is an integral component of the intention to retire existing coal-fired generation (as part of the Liddell Power Station closure plan), as well as facilitate the introduction of additional renewable (solar, wind) energy supply into the grid. Clearly, these activities are a net positive in terms of PM_{2.5} within the Hunter airshed, so the Proposal should be viewed within this wider context.

3.4 Noise and vibration

Agency: EPA

Date: 22 May 2020

Comment:

The EPA requires demonstration that the adopted attenuated sound power levels are feasible and reasonable to achieve, and whether noise emissions from the Proposal can be feasibly and reasonably made free of annoying noise characteristics including low-frequency and/or tonal modifying factors.

Response:

The noise assessment used plant emission data representative of the scale and technology proposed for the NPS. As attenuated emission data was not available for all of the proposed plant, unattenuated emission data were used and an indicative attenuation requirement was calculated. Unattenuated emission data represent a worst case scenario where the plant is not covered or housed. As this will not be the case for NPS, the unattenuated sound power level (SWL) values are highly conservative and the attenuated values are the expected installed SWLs for the plant.

The updated Noise and Vibration Impact Assessment (NVIA) includes a comparison of the expected attenuated SWLs from NPS with attenuated values from similar plant, scales and technologies and standard attenuation measures in place. The attenuated SWLs in the reviewed examples are similar to the nominated attenuated SWLs for the Proposal. This demonstrates that the required attenuated SWLs can be achieved using reasonable and feasible sound attenuation measures.

As part of AGL's plant selection processes, detailed investigation of noise attenuation is being undertaken in order to ensure that compliance with the project noise trigger levels (PNTL's) provided in the noise assessment can be achieved. This will include plant-specific attenuation designs that control noise in the most effective way for that respective plant.

Comment:

The EPA recommends that the Proponent adopt $L_{Aeq(15\text{minute})}$ descriptors for the Proposal Amenity Noise Levels in Table 5-3 and Table 5-4 of the NVIA, in accordance with the process in Section 2.2 of the Noise Policy for Industry, to ease compliance assessment requirements and maintain consistency across receivers and time periods. The Proposal noise trigger levels in Table 5-4 of the NVIA should be revised to account for this change, and the assessment results and conclusions throughout the NVIA should also be revised to account for this change.

Response:

The values have been updated in Table 5-3 and Table 5-4 and carried through to the results and conclusions of the NVIA in **Appendix D**.

Comment:

The EPA notes that the Proposal amenity noise criteria for receiver R4 have been revised following EPA's previous comments, however the 5 dB adjustment for a Proposal based criterion has been omitted and the R4 criteria are now 10 dB higher than for an equivalent residence. The Proposal amenity noise criteria for R4 should thus be reduced by 5 dB to 60/50/45 (Day/Evening/Night).

Response:

The Proposal amenity noise criteria have been reduced accordingly in the updated NVIA in **Appendix D**.

3.5 Hazards

Agency: DPIE Hazards Team

Date: 28 May 2020

Comment:

The Department's Hazards Team requests clarification of how the ignition probabilities (81% and 40% for underground and aboveground sections) in Table 24 were used within the event tree in Table 19. Further details of how the 81% and 40% probabilities are apportioned for direct ignition (P1), delayed ignition (P2) and flame front acceleration (P3) are required.

Response:

The updated PHA in **Appendix E** no longer includes the event tree, which was intended to explain the different paths for a consequence from a Loss of Containment flammable gaseous event. Removal of this detail has not adversely affected the assessment.

Comment:

It is understood that for each underground section, jet fire, flash fire and vapour cloud explosion (VCE) scenarios are analysed for 30, 50 and 110 millimetres (mm) release sizes. The choice of these release sizes appears to align with UK HSE RR1035 Table 72 for pin, small and large holes respectively. Please provide clarifications for the following matters, include full-bore rupture scenarios in the analysis, and revise the analysis as necessary:

- the quoted failure frequencies in Table 24 are different to UK HSE RR1035 Table 72;
- the meaning of "frequency for pipe length of 0.47 kilometre (km)" and "frequency for pipe length of 7.8 km", and how these frequencies were used in the analysis are unclear; and
- no full-bore rupture scenarios were analysed in the revised PHA. These were analysed in the previous PHA; and based on the above matters, the individual risks outcomes in Figure 8 could be underestimated, possibly indicating that the proposal may not comply with the 50 per million per year

(pmpy) individual fatality risk criteria for industrial land uses in HIPAP 4. Please update Figure 8 after revising the risk analysis.

Response:

The updated PHA in **Appendix E** has been amended to include hole sizes of 5 mm, 30 mm, 80 mm and full bore rupture in the analysis. The updated failure frequencies have been provided in Table 24 (now Table 23).

The pipeline length is an input for the pipeline model and to be conservative it accounted for all frequencies using UK HSE RR1035 Table 72 as follows:

- MHE1: A value of 0.47 km was used as per the length of the tie-in section of the pipeline in the model
- MHE6a: The storage pipeline will be 4.7 km long, but the exact location along the 7.8 km route has not been specified. To ensure the model accounted for any location within the corridor a pipeline of 7.8 km was drawn and modelled.

Agency: FRNSW

Date: 5 May 2020

Comment:

FRNSW notes that on page 63 of the EIS Submissions Report dated April 2020, “AGL notes that an updated fire safety survey (FSS) is required and acknowledges that this will be finalised upon completion of the detailed design” and “the proposals PHA will also be progressed to a Final Hazard Analysis at the completed design stage”.

FRNSW are satisfied with this proposal and response to submissions.

Response:

This comment has been acknowledged by AGL.

3.6 Traffic

Agency: Transport for NSW

Date: 22 May 2020

Comment:

The EIS has committed to the provision of a channelised right (CHR)-CHR turn treatment at the site access point off Old Punt Road. However, other than T-3, no other assessment has been completed or commitments made for any other road improvement works that may be required for large vehicles to access the site.

Response:

A Traffic Impact Assessment Addendum (TIA Addendum) has been prepared to further consider heavy vehicle construction traffic to the proposed Central and East laydown areas, and is provided in **Appendix G**. The assessment concludes that no further road improvement works would be needed to accommodate large vehicles expected to enter the NPS site off Old Punt Road during construction. During operation of the NPS no vehicles larger than the largest proposed construction vehicles would be expected to need to access the site.

It is noted that the equipment and suppliers, detailed design and construction requirements are not yet finalised. Once the equipment and suppliers have been selected and detailed design and construction planning is complete AGL will undertake a route survey and over size over mass (OSOM) analysis. If this analysis indicates the need for further road improvements, they would be designed in consultation with TfNSW. AGL acknowledges that road improvements required for the Proposal would be the responsibility of AGL.

Comment:

While additional TIA at the intersection of the Pacific Highway and Old Punt Road was carried out by SECA Solutions, the TIA does not demonstrate the longest B-Doubles servicing the Proposal can safely complete a left-hand turn to the Pacific Highway.

Response:

AGL confirms that 25 metre (m) long, 9-axle B-Double's currently safely complete left-hand turns from Old Punt Road to the Pacific Highway. This is a common current movement for long B-Doubles.

Comment:

T-5 is suitable with the additional comments included:

- This would include full pavement reconstruction across the full road width that adapts to the M12RT design.
- The trenching of the gas utilities is in the location of the proposed intersection. The conditions would include full protection of the gas utility and pavement reconstruction within the scope of the intersection upgrade.
- Upgrade to the intersection prior to substantial works commencing on site.

Proposed changed wording for T-8:

- AGL would design the access from Old Punt Road to integrate appropriately with any development proposal designs for the upgrade of Old Punt Road as part of the M12RT.

Response:

AGL agrees to the proposed management measure modifications for T-5 and T-8. The revised management measures are outlined in Section 6.

Comment:

There has been no commitment to completing road works prior to substantial construction on site.

Response:

Management measure T-5 has been updated to provide a commitment that the road intersection works at the NPS site entry would be commenced prior to substantial construction works commencing on site.

Comment:

The western side of the Proposal is bound by the Motorway and the Pacific Highway. TfNSW have stated that access to the Pacific Highway, the M12RT Motorway or its service ramps would be unsuitable for emergency access purposes. AGL needs to identify the emergency access location and design prior to approval if they wish to access these roads for this purpose.

Response:

AGL acknowledges that emergency access to the proposed M12RT Motorway or its service ramps would be unsuitable due to safety concerns. Management measure BF-9 has been amended to ensure that emergency egress routes from the NPS site are developed in consultation with affected stakeholders.

Comment:

T-7 only commits to providing protection for current road conditions. The commitment and associated condition need to include a requirement for all protection measures to provide for the future operation of the road network, particularly the design and construction of the M12RT.

AGL have provided clarification that directional drilling would be lower than 1200mm but do not define or prescribe a distance they are willing to commit to achieving. While they describe that it will be deep enough to avoid impacts to the road and existing services it is left undefined and also does not recognise the potential impacts to the future construction of the M12RT. Without adequate design and protection of this directional drilling asset it is likely to cause major construction management issue for the M12RT project and long term operational management of the road.

The information provided for the M12RT design includes the alignment of Old Punt Road moving to the immediate north and there has been no recognition or commitment to cater for this change.

Response:

Management measure T-7 commits to the design of the Proposal utilities so that they avoid impact to the current operation of the road network and so that they provide no restriction to the development of local and state roads associated with the M12RT project. AGL would continue to consult with TfNSW on relevant issues including the location, depth and level of protection for the Proposal assets to meet these commitments.

Comment:

T-7 only commits to providing vertical clearance for current road conditions and collaboration with TfNSW regarding the M12RT project is inadequate for a commitment or condition.

The M12RT design has changed design to allow the Power Station proposal to proceed across the site and relocated the Motorway interchange to Old Punt Road.

The M12RT is a Motorway standard road that caters for large over-size/over-mass vehicles and the proposed TransGrid connection to the Power Station must not impact upon accessibility in/out of Tomago or this Motorway access strategy.

A condition is required to be imposed that the vertical clearance of TransGrid lines over Old Punt Road must be no lower than the existing TransGrid lines that cross Old Punt Road.

T-7 only commits to providing vertical clearance, not horizontal clearance. This is inadequate for a commitment or condition to ensure TfNSW does not have horizontal clearance issues when upgrading Old Punt Road for the M12RT project.

Response:

Management measure T-7 has been updated to require the design of proposed utilities to have suitable vertical and horizontal clearance so as not to limit the current operation of Old Punt Road.

Comment:

Raised concerns for the potential impacts of the Proposal on the M12RT project. TfNSW requests for AGL to ensure there are no future constraints to the operation of the surrounding road network, particularly Old Punt Road.

Response:

Additional mitigation measures were added in the Submissions Report to update AGL's commitment in avoiding potential impacts towards the M12RT project during construction and the future. As stated in T-6, AGL is committed to collaborating with TfNSW during the design of the Proposal to ensure the M12RT and associated roads are not restricted in their development.

Through consultation with TfNSW, AGL has also committed in measure T-7 to protecting the local and State roads so that the proposed utilities do not restrict the development or operation of the roads relevant to M12RT. The commitment in T-8 ensures that the design of the access road connecting to Old Punt Road would integrate with any development proposals from M12RT. These measures have been implemented to prevent future constraints to the operation of the road network and the development of M12RT.

Agency: PSC

Date: 14 May 2020

Comment:

PSC has noted that AGL would continue to consult with TfNSW regarding impacts on the future Pacific Highway upgrade.

Response:

This comment has been acknowledged by AGL.

3.7 Surface water

Agency: DPIE BCD

Date: 15 May 2020

Comment:

The Proponent should develop a trigger for interruption of operation under flooding conditions that may cut access to the site, to ensure waste water storage capacity is not exceeded, and discharge does not occur. This should form part of the Flood Preparedness Plan.

Response:

Process waste water from the Proposal will be collected in a waste water pond with temporary storage capacity. Some of the water component would evaporate to the atmosphere, and the remaining waste water and solid or sludge material would be periodically removed from the pond and transported by truck to a trade waste facility.

The current concept design includes a pond sized at up to 20,000 square metres (m²) based on available space within the NPS site boundary. With a depth of about 1 m, the concept design has allowed for approximately 0.5 m of the depth as freeboard to mitigate against spill over or high intensity rainfall events. Waste water discharged to the pond above the freeboard height would be removed by truck. Based on the plant operating at expected peaking capacity and historical evaporation rates the need to remove of waste water from the pond by truck would be minimal and would occur infrequently, depending on the energy load and weather conditions.

AGL will develop a Flood Preparedness Plan as required by management measure SW-26 to mitigate the risk of wastewater discharge from the site during a flood event.

Agency: Port Stephens Council (PSC)

Date: 14 May 2020

Comment:

The following is noted with regard to stormwater discharge and the identification of any necessary easements:

- It is noted that page 34 of the Submissions Report details that the site is located over 2 lots (Lot 3 and 2 DP 1043561) and therefore an easement is not required. Despite this, ownership of separate lots by the same owner does predicate that no easement is required. Easements would still be required for any discharge flow paths or pit and pipe networks on unconsolidated lots.
- It is noted that there is no intention to discharge water over downstream owner's lots (such as Lot 54 DP 570494) but that easements would be required if detailed design required flows.

Response:

AGL will enter into an easement for potential stormwater discharge over downstream Lot 54 DP 570494 benefiting both Lot 2 and Lot 3 DP 1043561.

Comment:

Given the development is located in a Hunter Water drinking water catchment special area, the applicant needs to demonstrate both Treatment Train Effectiveness (TTE) and Neutral or Beneficial Effect (NorBE) water quality outputs. The applicant has mentioned in the EIS that only NorBE will be addressed, however they have not included a TTE analysis for the proposed works.

This is recommended as a condition of consent.

Response:

This comment is acknowledged by AGL.

Comment:

The proposed power station site is above predicted maximum flood (PMF) level and therefore, it is unlikely to have any impact on changing flood levels or flow patterns or velocity outside the property area. Subject to the recommended conditions, the application is considered satisfactory with regard to flood hazard.

Response:

This comment is acknowledged by AGL.

3.8 Aviation impacts

Agency: Civil Aviation Safety Authority

Date: 7 May 2020

Comment:

CASA recommended a critical velocity of 6.1 metres per second (m/sec) for instrument flight rules (IFR) and visual flight rules (VFR).

Response:

AGL acknowledge this recommendation, and a critical plume velocity 6.1 m/s has been applied in the assessment off both IFR and VFR.

Comment:

In Appendix B 'Consolidated Mitigation Measures' SE-4, it is suspected that 'Civil Aviation Authority' should read 'Civil Aviation Safety Authority'.

Response:

The reference in SE-4 has been updated and now reads 'Civil Aviation Safety Authority'.

Agency: Department of Defence

Date: 19 June 2020

Comment:

Defence agrees that it is appropriate that the Critical Plume Extent (CPE) (mAHD) be based on the 99.9% percentile statistic of hourly results and a Critical Plume Velocity (CPV) of 6.1 m/s. A notional perimeter of 250 m from the centre of the power plant is also considered appropriate to define the horizontal extent of the plume.

Response:

This comment is acknowledged by AGL. The 99.9th percentile results with a critical plume velocity 6.1 m/s have been applied in the plume assessment.

Comment:

Defence requests that following the DPIE approval of the Proposal's relevant CSSI application, correspondence is carried out with Defence regarding the final design and emission parameters so that appropriate mitigation measures are developed.

Response:

AGL commits to liaising with Defence following Proposal approval and will provide final design and emission parameters to the following organisations:

- Department of Defence – Land Planning and Regulation Branch
- RAAF Base Williamtown
- Aeronautical Information Service – Air Force
- Air Services Australia
- Newcastle Airport Pty Ltd

4 Proposed amendments

This section provides a description of the amendments to the Proposal that have been considered and assessed in this report.

4.1 Construction laydown areas

Construction laydown areas will be required during construction for temporary storage of equipment and containers, and to enable pre-assembly of equipment. Minimal environmental impact is expected during establishment and use of the laydown areas as there is no intention to clear high value vegetation, disturb heritage items, store chemicals or fuels, stockpile soils or erodible materials, or wash down construction vehicles at these locations. Hours of operation for the laydown areas would be consistent with the Proposal as described in the EIS.

In addition to the two laydown areas described below, AGL had commissioned specialist studies to be updated to include assessment of a West Laydown area in Hexham. While use of this site as a laydown area is still under consideration, and the specialist studies appended to this report may still refer to the West Laydown area, it is not included in the amendment. Any relevant approvals and licences required for the use of a West Laydown area in Hexham would be secured prior to construction commencing, if an additional area is required.

Central laydown

The Central Laydown would be the main construction laydown area and would be situated on parts of Lots 2 and 3, DP 1043561, adjoining the existing Development Footprint to the west of the NPS (Figure 6). The area contains remnant native vegetation in poor condition.

Preparation of this laydown would include minor earthworks, including clearing and grubbing, compacting the surface, and installing security fencing. Site drainage for the Central Laydown area would be connected into the construction sediment ponds proposed in the EIS.

East laydown

The East Laydown area is proposed within an existing carpark area of the NGSF on Lot 1203 DP 1229590, to the east of the proposed NPS (Figure 7). The area has been previously cleared and paved as part of the construction of the NGSF and was used as a contractor carpark at that time. No clearing or earthworks are required to establish the laydown area.

4.2 Construction methods

To provide the opportunity to reuse materials on site during construction, and to reduce impact of the Proposal on traffic and natural resources, it is proposed that rock excavated during preparation of the NPS site will be processed in an in-situ screening and crushing facility and reused on-site as select (suitable) fill.

The facility will reduce the quantity of waste rock transported from site and reduce the volume of imported fill required to achieve the necessary cut-fill balance. The temporary plant and equipment may change locations within Lot 3 during construction, but it is likely to be established in the north-western section of the Development Footprint within land that was assessed for disturbance in the EIS. Approximately 50,000 cubic metres of rock may need to be processed over a period of approximately 40 days during construction, to facilitate cut and fill works.

The construction methodology of the Proposal is also being amended to include the option of using a driven pile system to construct the foundations for the plant. The benefits of this option are that it may shorten the construction time, use less raw material such as concrete, and reduce the need for other equipment on site.

4.3 Transmission line realignment

During consultation with TransGrid, it was identified that the proposed NPS transmission line easement was partly overlapping an existing TransGrid easement near the substation. The proposed transmission easement has been adjusted so that the proposed easement is adjacent to, but not overlapping, TransGrid's easement. This will also ensure that all parts of the proposed structures and conductors will be outside the TransGrid easement. The adjusted easement area is illustrated in Figure 1. This amendment would require an additional 0.17 hectares (ha) of clearing in vegetation zones 2 and 3 of PCT 1590, which is within the original area assessed for impact. There would be no alteration of the proposed construction method.

4.4 Old Punt Road roadworks corridor

The Proposal Area would be extended to include the section of Old Punt Road requiring channelised right-hand turn treatment to facilitate entry into the site access road.

As described in the EIS, the CHR turn treatment on Old Punt Road would provide safe site access for the higher traffic flows during construction. All heavy vehicles would approach the site from the north, turning right into the site. Up to 50 trucks per day would access the site from this intersection, mostly in the morning peak period. The CHR turn treatment would allow any vehicles turning right into the site to do so with negligible impact on through traffic along Old Punt Road.

Design development has indicated the southern extent of these works would extend beyond the Proposal Area shown in the EIS. The proposed roadworks corridor would be a 250 m long and 20 m wide section of the existing, cleared road corridor. No vegetation clearing is required to facilitate these works.

4.5 Gas pipeline

As described in the EIS, the primary source of natural gas for the NPS would be via the connection to AGL's existing PL42 pipeline. This connection would allow gas to be sourced from both PL42 (subject to availability) and NGSF. As described in the EIS this primary connection would be made via a new gas pipeline between the NPS (in the gas receiving yard) to the PL42 pipeline which is located on the eastern side of Old Punt Road.

An additional gas pipeline is proposed as an amendment to the Proposal. The second pipeline will connect from the NPS to the PL42, located on the eastern side of Old Punt Road. Under the amended design, the two pipelines would be constructed in a common trench and would be laid parallel to each other. The pipeline would be buried at a minimum 900 mm to 1200 mm below ground surface (depth to top of pipe) and would be installed primarily via trenching beneath Old Punt Road. The total length of pipeline would be approximately 650 m.

The duplication of the pipeline amendment is wholly within the Development Footprint previously assessed for the Proposal. An updated PHA has been prepared (**Appendix E**) addressing this design amendment.

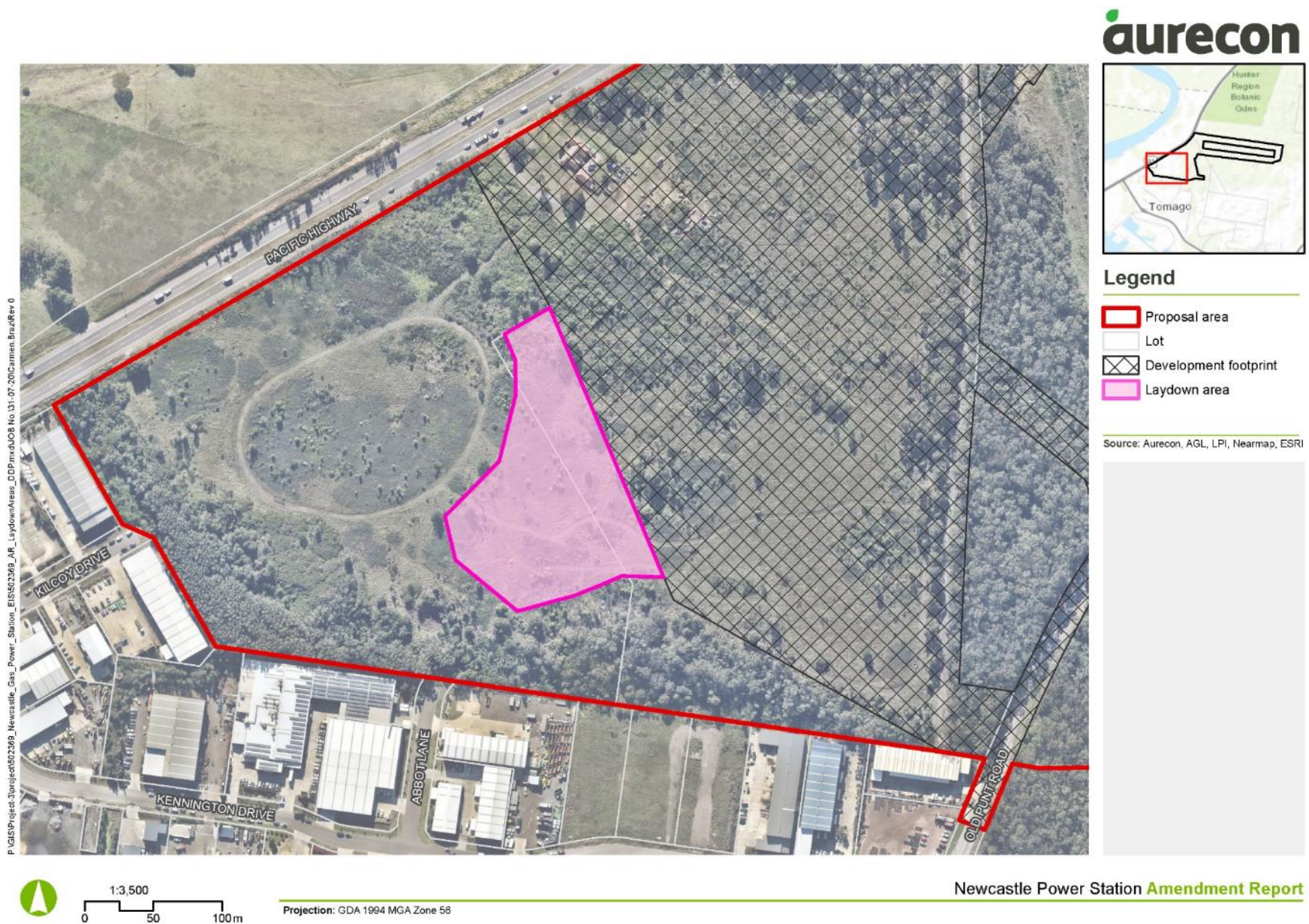
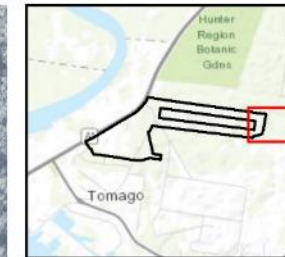


Figure 6 Central Laydown Area



Legend

- Proposal area
- Lot
- Development footprint
- Laydown area

Source: Aurecon, AGL, LPI, Nearmap, ESRI



P:\GIS\Project-3\project502346_Newcastle_Gas_Power_Station_EIS\502346_AR_LaydownArea_DDP.mxd\JOB No.031.07.20\Carman_Bruce\Rev 0



1:3,000
0 50 100m

Projection: GDA 1994 MGA Zone 56

Figure 7 East Laydown Area

5 Additional assessment

Specialist studies were commissioned, or existing studies updated to determine the impact of the proposed amendments and respond to RFIs. This section summarises the key findings of the assessments relating to the proposed amendments. The land ownership and land use zoning of the amendment areas is also described, and environmental aspects of the amendments that were not the subject of the specialist assessments are assessed.

5.1 Biodiversity Development Assessment Report

The updated BDAR presented in **Appendix A** assesses the proposed amendments that have a potential biodiversity impact and responds to the RFI received from the DPIE BCD, as described in Section 3.1.

The BDAR investigated the suitability of Lot 2 as the Central Laydown area during construction. To prepare the area for use as a construction laydown site, it would be subject to vegetation clearing, grubbing, and installation of a gravel base. The BDAR assesses the impact of these works on existing threatened species and vegetation communities in the Central Laydown area.

As detailed in the EIS, the main PCT identified in this area is PCT 1590: Spotted Gum – Broad-leaved Mahogany – Red Ironbark shrubby open forest, with smaller patches of PCT 1724: Broad-leaved Paperbark – Swap Oak – Saw Sedge swap forest on coastal lowlands of the Central Coast and Lower North Coast, and PCT 1235: Swamp Oak swamp forest of the coastal lowlands of the NSW North Coast Bioregion.

The Central Laydown area is dominated by PCT 1590, which has been classified as low condition with EEC present. The area has been subject to previous disturbance and partial development, with indirect impacts from surrounding road, industrial, and commercial activities. Due to this, it is unlikely the area would be used as breeding habitat for any threatened fauna species.

Approximately 1.79 ha of 1590: Spotted Gum - Broad-leaved Mahogany - Red Ironbark shrubby open forest-Low (Zone 3) will be impacted in the Central Laydown area, and the amended transmission easement area would impact approximately 0.17 ha of vegetation in zones 2 and 3 of PCT 1590. The offset credits for the Proposal have been calculated to include the additional impact of these areas.

The East Laydown area is already cleared and paved, and the CHR turn treatment works will take place in cleared areas of the road reserve, so there will be no impact to biodiversity.

5.2 Aboriginal Cultural Heritage Assessment Report

Revisions to the Aboriginal Cultural Heritage Assessment Report were made to assess the potential impacts of the amendments (see **Appendix C**).

The ACHAR assesses the potential impacts of the Proposal on Aboriginal Cultural Heritage values and provides strategies to manage risks to identified heritage values during the course of the Proposal. The updated ACHAR assesses the Aboriginal heritage significance of the amendments. The amendment areas were inspected previously as part of the ACHAR for the EIS, however the East Laydown area was not included. These laydown areas comprise cleared hardstand areas and would not require any ground disturbance or vegetation impact, therefore additional survey of these sites has not been required.

As AGL has proposed to avoid impact to the area of previously identified archaeological potential associated with NPS01, subsurface archaeological testing was not conducted on this lot.

None of the four Aboriginal heritage sites identified in the initial ACHAR are within the proposed amendment areas, and they are not expected to be impacted by these works. No further impacts would result from the proposed amendment areas. Aboriginal cultural heritage potential across the balance of the amended Proposal Area has been assessed as low, due to previous ground disturbance and subsequent low archaeological sensitivity. The likelihood of identifying further artefacts is minimal.

Information about the proposed amendments was provided to the Registered Aboriginal Parties including a description of the works in Stage 3 of consultation. At the time of the correspondence, the East Laydown area was not included in the amendment scope, however the draft report was later sent to RAPs for comment (at consultation Stage 4) and included all of the amendment areas.

Through consultation with the RAPs, only one comment was received regarding the proposed amendment area during Stage 3, which indicated that the Proposal update had been read and understood and that the recommendations provided were supported.

During Stage 4, one comment relating to the review of the Draft ACHAR was received. The response letter stated that the proposed amendments were understood, and the RAP agreed with all aspects of the report. The letter also noted that as the proposed Central Laydown area is in close proximity to the site NPS01, it will be important that the Proponent follow all guidelines and recommendations outlined in the document and any recommendations from the ACHMP.

5.2.1 Construction laydown areas

The proposed East Laydown area would be situated on previously cleared land that presently contains concrete or asphalt hardstands. Due to this, there would be no ground preparation works required for the construction of the laydown, and no impacts to Aboriginal cultural heritage.

The Central Laydown area is situated 20 m south-east of NPS01, which was identified in the initial ACHAR as a large, low-density artefact scatter consisting of 23 stone artefacts.

AGL have agreed that the proposed construction of the laydown area would completely avoid NPS01 (as shown in Figure 6). A buffer of 20 m around the site would also be established and temporarily fenced to ensure no inadvertent impacts occur during initial ground preparation works.

5.2.2 Screening and crushing facility

The screening and crushing facility would include ground preparations work, including clearing and grading, as well as the construction of road elements. The proposed site for the facility is within the Proposal Area originally assessed for impact. No additional impacts to Aboriginal cultural heritage will result from the addition of the screening and crushing facility to the Proposal.

5.2.3 Minor road alignment amendments

Construction of the CHR turn treatment would require land clearing, grading, and installation of road base and asphalt and construction of kerbing. Although impacts to ground surface at the proposed locations are expected, construction activities required for the construction of the proposed road alignments would avoid all known Aboriginal cultural heritage sites within the Proposal Area. The construction impacts would be managed in accordance with the recommendations made in the EIS, management measures (Section 5.8) and the ACHMP.

5.2.4 Amended transmission line alignment

The works adjusted transmission easement would remain in the Proposal Area previously assessed for impact and will require 0.17 ha of clearing in vegetation zones 2 and 3 of PCT 1590. This construction method would not vary from that stated in the EIS.

The proposed transmission line would not impact or be developed in proximity to any known Aboriginal cultural heritage site within the Proposal Area. The construction impacts would be managed in accordance with the recommendations made in the EIS, mitigation measures (Section 5.8) and the ACHMP.

5.2.5 Management measures

Management measures (Section 5.8) would be implemented to manage all sites and objects within the broader Proposal area and be presented in the ACHMP. Recommendations presented in Section 9.2 of the

updated ACHAR are the same as those presented in the EIS, with additional consideration of the proposed laydown areas. To ensure NPS01 is not impacted during the ground preparation works and operation of the Central Laydown area, it was recommended that the 20 m buffer is maintained through the marking-out of boundaries by a surveyor, the installation of a physical barrier around NPS01, appropriate signage designating NPS01 as a No-Go zone, and adequate pre-start induction regarding this zone.

5.3 Air Quality Impact Assessment

The AQIA for the Proposal has been updated to assess the air quality impacts of the amendments in response to RFIs from the EPA and HNE Health (see **Appendix C**).

It was identified that the screening and crushing of excavated rock material for on-site use would generate dust and the activity was assessed to determine the impact on ambient air quality and amenity in the immediate vicinity of the Proposal. A quantitative assessment of the screening and crushing facility is presented in Appendix A of the AQIA to determine the scale of potential air quality impacts and the suitability of dust management strategies.

An emissions inventory was prepared for the earthworks involved in the crushing operations. The model assumed a process rate of 1,250 cubic metres per day (m³/day) based on an expected 50,000 m³ of material to be processed over 40 days, operating hours of the facility from 7am to 6pm, and emissions occurring over the full 2018 meteorological dataset to ensure worst case conditions were adequately represented. The assumptions also included silt content, moisture content, and location of stockpiled material. These were used to estimate hourly emission rates for PM_{2.5}, PM₁₀ and total suspended particles (TSP) for each activity undertaken at the screening and crushing facility, which varied according to the level of activity and wind speed.

The particulate concentrations at surrounding sensitive receivers were assessed against short-term criteria to reflect the realistic construction period for the Proposal (40 days). The model calculated 24-hour averages of PM₁₀ and PM_{2.5} concentrations, as well as the average monthly dust deposition for each sensitive receiver identified in the initial AQIA. Contour isopleths were included to illustrate predicted particulate concentrations and dust deposition rates across the study area as incremental and cumulative levels.

The estimated emission rates of TSP, PM₁₀ and PM_{2.5} were shown in the emissions inventory in **Appendix A** of the updated AQIA (Table A.1). The activities with the highest annualised emissions (kilograms per year (kg/y)), in order of highest to lower emissions, were screening, hauling material to crusher, dozer stripping, and crushing of loaded material. Recommended controls to minimise dust emissions include:

- The use of a water cart for emissions from unsealed haul roads
- Enforcement of speed limits on site
- Minimising drop height of material during truck loading and unloading
- Management of dust generating activities during unfavourable meteorological conditions
- Keeping materials moist in stockpiles and during crushing and screening activities.

The sensitive receiver that was modelled to experience highest incremental and cumulative particulate matter concentrations was R3 (11 µg/m³ incremental increase for PM₁₀ and 5 µg/m³ for PM_{2.5}), and the highest monthly dust deposition was predicted at R5 (0.30 grams per square metre per month (g/m²/month)). Both these levels were well within and compliant with the relevant particulate matter and monthly dust deposition impact assessment criteria.

Based on the analysis of the emissions generated from the construction earthworks, with implementation of adequate dust management strategies there would be low potential to produce adverse air quality impacts.

The air quality impacts resulting from the East Laydown area was considered to be negligible as operations would be limited to the laydown and retrieval of plant and equipment from the existing hardstand, with no associated dust or particle generating activities. The air quality impacts of the other amendments are consistent with the findings of the EIS.

5.4 Noise and Vibration Impact Assessment

The NVIA in **Appendix E** has been updated to assess new noise sources from the proposed amendments and in response to the RFI from the EPA, as described in Section 3.4. It is noted that the Central and East Laydown areas are within the construction noise study area previously assessed as part of the initial NVIA.

Located within the initial Proposal Area, the pile driving and the screening and crushing activities were identified as new noise sources and added to the noise model. Adjusted construction assessment scenarios are presented in Section 6.2 of the updated NVIA. The sound power levels for the construction assessment scenario 'S1 – Site Preparation and Earthworks' (S1) were updated to include a crusher, screener, and excavator with hydraulic hammer and a new scenario, 'S2a Piling during Foundation Works' was included.

The modelled predicted concentration noise levels are presented in Table 6-2 of the updated NVIA and compared to the construction noise management levels to determine compliance. Minor exceedances of up to 3 decibels (dB) were predicted at receivers R3 and R4 in the S1 scenario and at R3 during pile driving works (S2a) for works during the night time period, but complied with the criteria in other periods of the day. All other receivers in all other scenarios were predicted to comply with the criteria for standard and out of hours work.

The screening and crushing and pile driving activities were assessed against the sleep disturbance criteria in Table 6-3 of the updated NVIA. Compliance with the criteria was seen at all receivers except for a minor exceedance of 1-3 dB predicted at R3 and R4 in the S1 scenario, and at R3 during scenario S2a.

Due to the predicted exceedances, Section 10.1 of the NVIA recommends limiting rock breaking, crushing and pile driving activities to standard day time hours.

5.5 Preliminary Hazard Assessment

The PHA prepared by Aurecon has been updated to assess the proposed design changes and amendments in response to the RFI from the DPIE Hazards Team (**Appendix F**).

The Addendum PHA presented in **Appendix G** has been prepared by Planager to consider and assess the risks of using the East Laydown area, as the NGSF site is classified a Major Hazard Facility (MHF). The assessment has been carried out to be consistent with the Final Hazard Analysis of the NGSF (Planager, 2015).

5.5.1 Pipeline duplication

The amended Proposal includes a new gas pipeline to connect the NPS to the PL42 pipeline on the eastern side of Old Punt Road. This amendment would duplicate the gas pipeline that was assessed in the EIS.

Risks from the amended Proposal were modelled and assessed to include the second gas pipeline. It was found that the Proposal complies with all of the criteria set out in Hazardous Industry Planning Advisory Paper (HIPAP) No. 4 – Risk Criteria for Land Use Safety Planning. No additional mitigation measures are required.

5.5.2 East Laydown area

During construction of NPS, workers accessing the East Laydown area would be exposed to risks associated with the NGSF without being directly associated with the operations of the NGSF. Use of the East Laydown area may also pose risks to people on and around the laydown area, including to the NGSF.

The hazard analysis process for the East Laydown area included qualitative and quantitative methods to assess the adequacy of controls, to determine if the East Laydown area can be developed with the hazards as low as reasonably practicable (ALARP) and ensure appropriate land use safety planning. Preliminary risk screening was carried out in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*. The risk assessment has been prepared in accordance with DPIE HIPAP6 requirements and the risks to workers at the East Laydown area from the NGSF have been assessed in accordance with the risk criteria in HIPAP4 and HIPAP10.

The assessment was carried out assuming:

- East Laydown area will be in use for a maximum period of 24 months
- Hours of operation to align with NGSF approval hours (standard working hours)
- Occupancy of at least one person (e.g. security guard at a minimum) at the East Laydown area 24 hours per day, 7 days per year, increasing up to 10 people during hours of operation
- 20 light vehicles and 10 heavy vehicles accessing the East Laydown area in any 24-hour period
- No liquid fuel or other potential pollutant material allowed within the laydown area
- Open air laydown, possibly covered with temporary roofing to protect stored equipment and no underground storage
- No permanently occupied building – however, there may be a need for a security guard to patrol the location and this PHA has assumed that this person will be located in a temporary hut
- Storage of materials to include dry cement mix, gas cylinders, paints, resins and surface coatings
- There will be no bulk storages of liquid fuels, oils or other potentially pollutant material

The Addendum PHA found that the location of the East Laydown area is considered acceptable provided the management recommendations are implemented. The recommendations have been incorporated into the safeguards and management measures in Section 6.

5.6 Traffic Assessment

An addendum traffic assessment has been prepared by SECA Solution to assess the potential traffic impacts of the proposed amendments and is provided in **Appendix D**.

The amendments that could result in additional traffic impact are the East and Central Laydown areas. The roadworks corridor on Old Punt Road was assessed previously in the EIS. The proposed amendment relates to an increase in the Proposal Area, with no change to the impact on traffic. Therefore the Old Punt Road roadworks corridor amendment has not required further assessment. The transmission corridor amendment, screening and crushing facility and pile driving construction methodology would not result in any changes to traffic impact.

5.6.1 Central Laydown

The Central Laydown area is adjacent to the proposed NPS site on Lots 2 and 3, DP104356 which was assessed for traffic impact in the EIS. The temporary use of the Central Laydown area during construction is consistent with the previous traffic assessment, and the intersection of Old Punt Road and the Pacific Highway is considered to have adequate capacity for the traffic generated at the site during construction.

5.6.2 East Laydown

The East Laydown area is accessed via a private access road that connects with Old Punt Road. This access road allows for 2-way traffic movements and can accommodate trucks, with an overall pavement width of 7 m. The intersection with Old Punt Road is currently used by trucks and allows for B-double access, with good visibility available for traffic exiting the private road.

Traffic movements for deliveries to the East Laydown area will be a left turn in and a right turn out and the existing intersection provides a safe and acceptable layout for these movements. Deliveries from the East Laydown to the NPS site will use a turn left out of onto Old Punt Road and a right turn into the construction site at the proposed CHR turn treatment, while returning vehicles will exit left from the construction site then turn right into the private access road to access the East Laydown area.

The traffic movements at the intersection of Old Punt Road and the private access road can be safely completed with no road upgrades. Beyond this intersection, traffic would pass through the intersection of Old

Punt Road and the Pacific Highway that has previously been modelled and assessed for traffic impacts, and is considered to have adequate capacity to cater for the construction traffic.

5.6.3 Traffic routes

No road upgrade works would be required to support construction traffic accessing the Central or East Laydown areas. The construction Traffic Management Plan would allow for the following laydown area access assumptions:

- Central Laydown area:
 - Access to the Central Laydown area provided via the NPS site access point
 - No separate access would be provided for direct connection between the Central Laydown area and Old Punt Road
 - All vehicle access to the Central Laydown area would be via Old Punt Road and the signal-controlled intersection with the Pacific Highway. This would require vehicles to turn right into the access road and left out only
 - No vehicles associated with the construction works would access the site from the south on Old Punt Road
 - Construction material would be moved from the Central Laydown area to the NPS site directly with no external road movement.
- East Laydown area:
 - All vehicle access would be via Old Punt Road and the signal-controlled intersection with the Pacific Highway. Vehicles to turn left into the private access road and right out only
 - When providing delivery from the East Laydown area to the construction site, vehicles would turn right out of the private haul road onto Old Punt Road and then turn right into the construction site via the new access to be provided as part of the construction of the Proposal.
 - No vehicles associated with the construction works would access the East Laydown area from the south on Old Punt Road.

5.7 Other environmental aspects

An assessment of the proposed amendments has been carried out to consider the potential for any other environmental impacts not already assessed above and determine whether additional mitigation measures will be required. No additional site inspection or specialist studies were considered to be required for these aspects.

The aspects, assessments and any additional mitigation measures for the proposed amendments are shown in Table 5-1 below.

Table 5-1 Assessment of other environmental aspects for the proposed amendment

Environmental aspect	Assessment and mitigation
Surface water and hydrology	Surface water The screening and crushing facility would be located in an area of site disturbance already assessed for surface water impacts in the EIS. The Central Laydown area will be prepared for use by carrying out minor earthworks, including clearing and grubbing the predominantly weedy vegetation present, compacting the surface, and installing security fencing. Site drainage would be connected into the construction sediment ponds proposed in the EIS. The East Laydown area will not require site preparation such as ground disturbance and will not be used for long term storage of materials. No surface water impacts are expected as a result of the transmission line adjustment beyond those already assessed.

Environmental aspect	Assessment and mitigation
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The proposed road work will require ground disturbance while preparing the area to be paved, and when sealed would result in a very minor amount of runoff to be accommodated by the existing Old Punt Road stormwater system until the M1 to Raymond Terrace construction takes place.

The mitigation measures proposed in the EIS will effectively control potential surface water impacts.

Hydrology

The proposed amendments are unlikely to have any effect on the pattern of flood flows, flood levels or flood velocity. Early evacuation of the East and Central Laydown areas would be considered in the Flood Preparedness Plan, which would be prepared for the Proposal based on the PMF design event.

Drinking water

The East Laydown area is located in the Tomago Sandbeds drinking water catchment, so the proposed activity must demonstrate a Neutral or Beneficial Effect. The laydown is a paved area that would be used for temporary storage of equipment and containers, and to enable pre-assembly of equipment. It will therefore have no identifiable potential impact on water quality, and the existing stormwater management on the site will be suitable.

To ensure a Neutral or Beneficial Effect, the proposed roadworks on Old Punt Road will contain any water quality impact on the site by applying the safeguards set out in the EIS, and prevent it from reaching any watercourse, waterbody or drainage depression on the site.

Groundwater	No additional impacts expected.
Soils and contamination	No additional impacts expected.
Social and economic	No additional impacts expected.
Visual amenity	The Central Laydown area and the screening and crushing facility may be visible from nearby viewpoints. The visual impact of the Central Laydown area and screening and crushing facility will be consistent with the EIS. The existing safeguards will be suitable to manage these additional construction impacts.
Non-Aboriginal heritage	No additional impacts are expected.
Electromagnetic fields	No additional impacts are expected.
Waste management	The screening and crushing facility will reduce waste generated by the Proposal by processing rock excavated during preparation of the NPS site in-situ and reusing the material on-site as select (suitable) fill. Approximately 50,000 cubic metres of rock may be recovered over a period of approximately 40 days during construction. Waste generated by clearing the Central Laydown area would be consistent with the construction waste described in the EIS and would be managed consistently with the safeguards set out to avoid, mitigate and manage waste from the Proposal. No additional impacts are expected for the East Laydown area, and minimal additional waste material is expected due to the transmission corridor adjustment.
Bushfire	The East Laydown area and transmission line are in bush fire prone areas. The East Laydown area is an existing paved carpark area in an operational site. The transmission corridor vegetation easements will be established in accordance with the bushfire protection requirements of the Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC 3 – 2016). No further safeguards are needed. The Central Laydown area and screening and crushing facility are not within bush fire prone areas.

Environmental aspect	Assessment and mitigation
Cumulative impacts	Additional dust impacts from the amendment have been considered in the AQIA (Appendix C), and cumulative noise impacts have assessed in the NVIA (Appendix D). No further cumulative impacts are expected.

5.8 Land ownership

The land ownership details of the new properties that are located within the Proposal Area described in the Amendment Report are summarised in Table 5-2 and shown in Figure 4.

Table 5-2 Land ownership of additional Proposal areas

Property	Proposed use	Landowner
1950 Pacific Highway, Tomago Lot 2 & 3 DP 1043561	Central Laydown area Screening and crushing facility	AGL Macquarie Pty Ltd
3 Old Punt Road, Tomago Lot 1203 DP 1229590	East Laydown area	AGL Energy Limited
Old Punt Road, Tomago Near intersection of Kennington Drive	Channelised right turn (southbound) into NPS site from Old Punt Road	Administered by Port Stephens Council Within the TfNSW proposed M12RT boundary
35A School Drive, Tomago (Primary) 576 Tomago Road, Tomago (Secondary) Lot 202 DP 1173564	Adjusted electricity transmission easement	Tomago Aluminium Company Transmission easement held by TransGrid

As the laydown sites are owned by AGL, no formal notification or consultation has been required. Consultation with landowners and easement holders regarding the road work and transmission corridor is ongoing, as described in Section 2.

The surrounding land use zoning for the Proposal, including additional amendment areas, is shown in Figure 5. All land within the Proposal Areas is within industrial land use zones. The nearby sensitive receivers remain unchanged since the completion of the EIS.

6 Environmental management changes

6.1 Summary of safeguards and management measures

Management measures were proposed in the EIS to avoid or mitigate the environmental impacts of the Proposal prior to construction, during construction and during operation. The Submissions Report documented changes to the proposed safeguards and management measures in response to the submissions raised.

This Amendment Report provides a further update to the safeguards and management measures in response to AGL's consideration of the RFIs and to manage the potential impacts of proposed amendments to the Proposal. Table 6-1 provides the full set of revised mitigation measures which AGL will be committing to including the changes made in the Submissions Report and the new changes proposed in this Amendment Report. In Table 6-1, new text proposed in the Amendment Report is shown in bold and text to be removed has been struck through.

Table 6-1 Revised safeguards and management measures

ID	Measures and programs	Timing
General		
G-1	AGL would carry out the Proposal in accordance with the Project Application documents and the Minister's Conditions of Approval.	Pre-construction Construction Operation
G-2	Monitoring would be carried out in accordance with the requirements of an Environmental Protection Licence.	Operation
Cumulative impacts		
CU-1	AGL would continue to engage with Transport for NSW as to the collaborative design and construction processes to reduce the cumulative visual impact of the projects (the Proposal and M12RT project).	Pre-construction Construction
Management planning		
M-1	The construction and operation would be carried out under the provisions of an Environmental Management System prepared in accordance with ISO 14001 or equivalent.	Construction Operation
M-2	The construction would be carried out under the provisions of a Construction Environmental Management Plan.	Construction
M-3	The operation would be carried out under the provisions of an Operational Environmental Management Plan.	Operation
Consultation		
CO-1	Consultation would continue with stakeholders during all stages of the Proposal.	Pre-construction Construction Operation
CO-2	Stakeholders, including adjoining landholders and the local community would be notified when construction and operation are planned to commence.	Construction Operation

ID	Measures and programs	Timing
Biodiversity		
B-1	A Biodiversity Management Plan would be prepared as part of the CEMP and implemented throughout construction. The Plan would include, but not be limited to: - Plans showing areas to be cleared and areas to be protected, including exclusion zones, appropriate signage, protected habitat features and revegetation areas, vehicle and equipment parking areas, and stockpile areas - Site inductions - Location of threatened biodiversity - Pre-clearing survey requirements - Vegetation clearing procedures - Procedures for unexpected threatened species finds and fauna handling - Protocols to manage weeds and pathogens including a Plan of Management for the control of weeds, according to requirements under the NSW <i>Biosecurity Act 2015</i> - Protocols for soil and seed material to minimise transfer between sites - Restriction of public access and associated impacts from domestic pets, waste dumping and damage to adjoining vegetation should be enforced pre, during and post construction - Reduction in lighting levels at access road to avoid any adverse effects upon the essential behavioural patterns of light-sensitive fauna, in accordance with AS4282 (INT) 1997 – Control of Obtrusive Effects of Outdoor Lighting - Noise management practices - Dust control measures	Pre-construction Construction
B-2	Detailed design would consider areas identified in the Biodiversity Development Assessment Report (BDAR) that host threatened species and communities and limits the intrusion of the Proposal into those areas.	Pre-construction Construction
B-3	Limit removal of trees to that required within the development footprint and reinstate logs and rocks, which are removed for pipeline construction, along the right of ways or relocate them to appropriate nearby habitats. - A pre-clearing protocol would be implemented during clearing works, as follows: 1.1. Pre-clearance surveys would be undertaken to determine if any inhabiting fauna are present 1.2. A suitably qualified and trained fauna handler would be present during hollow-bearing tree clearing to rescue and relocate displaced fauna - Appropriate exclusion fencing around trees and woodland that are to be retained within the development footprint would be erected, considering allowance for Tree Protection zones in accordance with the Australian Standards	Pre-construction Construction

ID	Measures and programs	Timing
B-4	Koala traffic signs would be installed along the access route from Old Punt Road.	Construction Operation
B-5	Any fencing required around proposed easements (not including fencing erected for safety of operation purposes) would have a Koala-friendly design, with a 20cm gap at the bottom to allow the movement of Koalas and other terrestrial fauna.	Construction Operation
B-6	A Biodiversity Offset Strategy would be prepared for the Proposal.	Pre-Construction
B-7	Weed infestations within the construction footprint would be identified and mapped prior to construction.	Pre-construction
B-8	Appropriate wheel wash and hygiene procedures would be implemented to limit construction plant and vehicles spreading weed seeds, vegetation debris and loose soil to and from the Proposal area.	Construction
B-9	Weed controls would be monitored regularly to promote the rehabilitation of revegetated areas within the Proposal area. Supplementary active revegetation would be undertaken as required.	Operation
B-10	Open sections of trenches would be monitored as required for trapped animals such as small ground dwelling mammals.	Construction
B-11	To manage the risk of koalas entering the site and being hurt, injured or killed, fauna exclusion fencing will be installed around operational areas where reasonable and feasible.	Construction
Surface water and hydrology		
SW-1	A Surface Water Management Plan (SWMP) will be prepared as part of the CEMP and implemented throughout construction. It would include, but not be limited to: ▪ Erosion and Sediment Control Plan ▪ Stormwater Management Strategy ▪ Dewatering Procedure ▪ Acid Sulphate Soil Management Plan (ASSMP)	Pre-construction Construction
SW-2	A site-specific Erosion and Sediment Control Plan (ESCP) would be developed in accordance with the Blue Book. At minimum this would include: ▪ Scheduling construction works to avoid periods of heavy rainfall, where possible ▪ Incorporating a designated stable vehicle access road and construction phase car park ▪ Minimisation of the area of exposed and unstable ground surfaces during construction ▪ Using sediment control systems including geofabric on stockpiles, silt fences, sediment traps, contour berms, energy dissipators ▪ Resealing or revegetating exposed surfaces as soon as practical	Pre-construction Construction

ID	Measures and programs	Timing
	▪ Dust suppression methodologies including the use of a mist/spray and limiting certain tasks once a wind threshold is reached ▪ Clean/dirty water separation and management via a Stormwater Management Strategy ▪ Contact with soil, sediment, groundwater and surface water where possible ▪ A description of monitoring required (dust as well as certain contaminants) ▪ A description of the inspection and maintenance of erosion and sediment controls required	
SW-3	A Stormwater Management Strategy would be developed including: ▪ Clean water diversion drains or berms to divert clean water runoff from the surrounding catchment around the construction site and into existing drainage lines to prevent the formation of new surface flow paths ▪ Separation of clean and dirty/contaminated stormwater within the construction site ▪ All surface runoff from disturbed areas will be directed via dirty water drains to sediment control structures which will ultimately run into the sediment basin/s ▪ Sediment basin sizing, location and maintenance regime in accordance with Blue Book and IECA guidelines ▪ Turbidity testing and treatment (via a Dewatering Procedure) ▪ A description of disposal/reuse options (eg reuse for dust suppression or irrigation or disposal to stormwater or sewer) ▪ Water quality monitoring ▪ Siting of waste and chemical storage areas ▪ Disposal of contaminated water at a licensed facility	Construction Pre-construction
SW-4	A Dewatering Procedure would be developed to instruct: ▪ Process for testing whether water meets discharge criteria ▪ Water treatment methods including flocculation and pH adjustment ▪ Discharge process and location/s including avoiding erosion or scour ▪ Water quality monitoring requirements ▪ Permits and records required ▪ Any water which cannot be treated to meet discharge criteria would be removed by sucker truck and transported for offsite disposal at a licenced facility	Construction Pre-construction
SW-5	An ASSMP would be developed and implemented and would include: ▪ Further site investigations to determine the areas of ASS that may generate sulphuric acidity from sulphide oxidation	Pre-construction Construction

ID	Measures and programs	Timing
	- Preparation in accordance with the Port Stephens LEP 2013, the Port Stephens Council ASS Policy 2004, and the Acid Sulphate Soils Manual (ASSMAC 1998) - Protocol to minimise the disturbance and exposure of ASS - A description of the management/stockpiling requirements for each of the scenarios that may generate ASS (ie excavation or HDD) - Methods for storing excavated ASS in conditions which simulate its natural state; or treatment and storage away from water bodies and drainage lines - Bunding of exposed ASS storage and treatment areas to minimise and prevent spread of leachate - Appropriate signage, barricading and sediment controls - Recommended liming rates for generated ASS - Method for lime treatment with machinery sufficient to perform adequate mixing - A description of the maximum onsite residency time for untreated ASS - A description of an emergency response protocol (ie where acidic runoff is generated) - Steps to minimise groundwater dewatering (potentially oxidising unoxidised ASS) - A field screening test using hydrogen peroxide (H₂O₂) would be performed on excavated soils in areas where ASS or PASS is anticipated, or on suspect soils. Soils which record a pH of below 4 following oxidation should be managed as ASS. - Record keeping requirements including: 1.3. ASS monitoring and laboratory testing results 1.4. Excavation records 1.5. Stockpile tracking 1.6. Register of lime used for ASS treatment 1.7. Register of any offsite disposal of treated ASS	
SW-6	The permanent piped connection to the Hunter Water Corporation (HWC) network would be installed as early works to provide water for construction purposes and minimise water deliveries to the Proposal area.	Pre-construction
SW-7	A procedure would be developed and implemented to minimise the risk of drilling waste (in the form of drilling fluids and hydraulic stimulation fluids) contaminating watercourses during drilling, completion, hydraulic stimulation and workover activities. Drilling fluid spills would be immediately contained, cleaned up and reported.	Construction
SW-8	The HDD entry and exit sites would be securely banded to prevent the release of leachate from excavated material, drilling fluids, or spills entering the surrounding environment.	Construction

ID	Measures and programs	Timing
SW-9	A designated concrete washout area for concrete mixers and pump trucks, concrete chutes, tools and equipment would be established away from drainage lines and water bodies, which would be lined with impervious material. The washout capacity would be regularly checked before being used. The wash water would be left to evaporate, with dried concrete removed for recycling as required. Inspection of the capacity of the washout area and integrity of the liner would be undertaken prior to each use, and prior to rainfall events or site shut down, with improvements made as required. Wash water would be pumped out as required to maintain capacity or prior to rain events and disposed of as contaminated water.	Construction
SW-10	The use of pesticides in the project footprint would be limited where possible to avoid contamination of nearby watercourses/wetland areas.	Construction Operation
SW-11	Use of chemical treatment of hydrostatic test water would be avoided where possible. If necessary, chemical concentration to be calculated such that they are consumed in the hydrotesting process and only trace volumes would be present in any discharge.	Construction
SW-12	Water used in pressure testing would be collected following testing and disposed of off-site at a licensed facility.	Construction
SW-13	Any mulch stockpiles from cleared vegetation must be located at high points away from watercourses, with upgradient water diverted to avoid entering the stockpile.	Construction
SW-14	Mulch should not be used as part of erosion controls in the floodplain or along concentrated flow paths.	Construction
SW-15	Bunding and hazardous materials storage requirements include: ▪ Appropriately banded in accordance with relevant Australian Standards ▪ Bund-wall expansion joints and fire suppression to be incorporated into design. ▪ Sufficient capacity ▪ Isolation valves for all bunds ▪ A high-level alarm would be fitted to the sewage tank ▪ Low- and high-level alarms would be fitted to the diesel tanks ▪ Inspection and maintenance after rainfall ▪ Bund areas and tanker loading/unloading areas having sufficient capacity	Construction Operation
SW-16	A register of all hazardous chemicals kept in the Proposal area is to be maintained and updated regularly.	Construction Operation
SW-17	Dedicated re-fuelling areas and spill controls, and appropriate chemical, fuel and liquid storage and handling would be undertaken during construction, in accordance with Australian standards.	Construction Operation
SW-18	Spill kits to be maintained in appropriate locations in accordance with Australian Standards, including where required inside machinery and vehicles.	Construction Operation

ID	Measures and programs	Timing
SW-19	A Spill Response and Containment Procedure would be developed including: ▪ Training and PPE ▪ Precautionary measures for handling and storage of chemicals and fuels ▪ Spill response protocols (control, contain, clean up) ▪ Contaminated soils to be disposed of appropriately ▪ All spills to be reported and recorded in the Spills Register ▪ Spill kits to be restocked following use	Construction Operation Pre-construction
SW-20	All vehicles, plant and equipment to be checked regularly for fuel tank and line leaks or failures.	Construction Operation
SW-21	Bunds and sumps should be regularly inspected, and capacity maintained by regular draining and disposal.	Construction Operation
SW-22	Licensed contractors would be engaged to collect, transport and dispose of liquid hazardous materials, waste solvents, paints and hydrocarbon products to an appropriate off-site facility in accordance with relevant NSW Environment Protection Authority (EPA) guidelines.	Construction Operation
SW-23	Management and maintenance of the sewage system must be carried out by suitably trained personnel.	Construction Operation
SW-24	The civil design of the power station will incorporate the principles in the Port Stephens Council DCP 2007 to ensure that the post-development flow rate and volume is equal to pre-development for all storm events.	Pre-construction
SW-25	The power station would be developed above the PMF level.	Pre-construction
SW-26	A Flood Preparedness Plan would be developed based on the PMF event, and would include: ▪ Roles, responsibilities and communication procedures including emergency contacts ▪ Monitoring procedures for rainfall and flood warnings (including BoM and local flood warning services) ▪ Requirement for an environmental risk assessment prior to commencing excavation or trenching work in the event of a flood warning ▪ Site shut-down and flood preparedness procedures to minimise harm to persons, plant and the environment ▪ Actions in the lead up to the flood (such as monitoring water levels, filling excavations, completing erosion and sediment controls, removing hazardous materials and waste from the Proposal area, barricading, sealing tanks and containers to prevent overflows, tying down loose items) ▪ Actions at the time of the flood (may include further evacuation, rescue, pollution prevention, spill response, and contingency measures)	Construction Operation Pre-construction

ID	Measures and programs	Timing
	▪ Actions post-flood (including clean up and rectification) ▪ Evacuation routes and procedures identified, particularly for the access road into the site ▪ Rescue procedures ▪ Procedure for resuming operations ▪ Reporting requirements and corrective actions During its development, the Flood Preparedness Plan would be discussed with the SES and Council to ensure alignment with community evacuation arrangements.	
SW-27	Pre-construction surface water quality monitoring would be undertaken at the following monitoring locations: ▪ Drainage Path 1 (at culvert crossing Pacific Highway) ▪ Drainage Path 2 (at culvert crossing Pacific Highway) Water quality testing would be undertaken monthly (if water is present) and following elevated periods of rainfall for a period of at least 3 months prior to construction. Test results from pre-construction monitoring would be correlated with available monitoring data from the adjacent NGSF site to create a baseline dataset which could be used for comparison during construction and operation of the Proposal.	Pre-construction
SW-28	A surface water quality monitoring program would be implemented at the following monitoring locations: ▪ Construction phase sediment basin/s (construction only) ▪ Wet sump oil and grease separator (GPT) ▪ Bio-retention system outflow ▪ Drainage Path 1 ▪ Drainage Path 2 ▪ LEP Wetlands discharge location (downstream of the secondary drainage that meets Drainage Path 1) Water quality testing would be undertaken monthly and following elevated periods of rainfall.	Construction Operation
SW-29	Regular inspection, monitoring and maintenance of erosion and sediment control structures would be undertaken in accordance with the ESCP and Blue Book. In addition, inspections would be undertaken immediately prior to and following heavy rainfall and rectifications made as required.	Construction
SW-30	Regular inspection and maintenance would be undertaken of: ▪ Hazardous material containment facilities ▪ Bunds and sumps ▪ Vehicles, plant and equipment including tanks and line failures ▪ Sewage tanks	Construction Operation

ID	Measures and programs	Timing
	- Water storage tanks or ponds - GPT - Spill kits In addition, inspections would be undertaken immediately prior to and following heavy rainfall and rectifications made as required.	
SW-31	An Operation Environmental Management Plan (OEMP) will include a Stormwater Management Strategy including: - Drainage and temporary water storage systems, including separation of clean and dirty/contaminated water - Use of GPT (sediment and oil/water separator) and bioretention area - Reuse options (eg irrigation) - Water quality monitoring - Clean water discharge location and method - Disposal of contaminated water and sewage at a licensed facility	Operation Pre-construction
SW-32	A chemical drains system would be provided for collection and treatment of chemical spills and stormwater falling into bunded chemical storage areas (if outdoors). Chemical drains would be collected in a drains sump for testing and treatment before being piped to the process wastewater system.	Operation
Groundwater		
GW-1	A Groundwater Management Plan would be prepared, implemented and updated as required as part of the CEMP and OEMP. The plan would describe best practice control measures to reduce the risk of contamination of groundwater, or the substantial alteration of groundwater flows due to drawdown effects. The plan would detail: - Background groundwater quality and levels - Management of groundwater interference and dewatering - Groundwater testing and assessment - Groundwater discharge or reinjection criteria - Best practice controls - Spill response and containment plan - Contamination response plan - Drawdown contingency plan - Groundwater monitoring program The Groundwater Management Plan would include a groundwater monitoring program which would detail: - Groundwater monitoring required - Analytes/parameters (water quality) - Background concentrations - Criteria/thresholds	Construction Operation Pre-construction

ID	Measures and programs	Timing
	- Groundwater levels - Frequency - Bore locations The 10 existing monitoring bores on the power station site - Available boreholes at the NGSF site near the proposed pipeline corridor - Additional locations along the pipeline corridor - At the directional drilling entry and exit pits (during construction) - Upstream and downstream of the operational stormwater discharge point/s - Potential impacts - Change in groundwater quality or levels - Drawdown impacts - Effects on GDE - Effects on beneficial aquifers (including groundwater users) - Reporting requirements - Protocol for the investigation, notification and mitigation of any identified exceedances of the groundwater quality criteria Monitoring requirements would be reviewed once the details of the construction are finalised and during construction.	
GW-2	Limit the extent of impervious surfaces to allow aquifer recharge.	Pre-construction
GW-3	Minimise long-term disturbance of groundwater flows through design, such as incorporating permeable zones that allow groundwater to bypass the buried gas pipeline.	Pre-construction Construction
GW-4	When constructing the gas pipeline in areas of shallow groundwater, the following techniques should be considered to minimise groundwater impact: - Trenches below the water table would be excavated over short lengths to reduce the volume of groundwater impacted during construction - As required, use appropriate materials, such as trench shields or sheet piles, to maintain the stability of excavation walls - If practical, dewater to locally lower the water table beneath the floor of the excavation to provide a safe and dry working surface - Abstracted groundwater would be stored pending water quality testing, for either re-injection or infiltration (if water quality criteria are met) or disposal offsite at a licensed disposal facility - Replace material excavated from trenches to minimise changes to groundwater flows - Where possible, pipelines will be bedded on sand in the base of the trench	Construction
GW-5	When working along the pipeline route, additional precautions should be made when using or transporting fuels and chemicals, and any spills should	Construction

ID	Measures and programs	Timing
	be immediately contained and cleaned up. Any contaminated material to be removed from the site would be sent to a licensed facility.	
GW-6	Any water encountered and abstracted from the Tomago Sandbeds aquifer should be locally reinjected back into the aquifer on the hydraulically down gradient side, approximately 50m from the edge of the construction works. Prior to re-injection the abstracted groundwater must be inspected for any signs of contamination (high turbidity, oily sheen or odour of hydrocarbons) and tested for water quality parameters (temperature, dissolved oxygen, redox, EC, and pH), which would be compared to measurements from nearby monitoring wells. If greater than 10% difference with the groundwater measurements treatment would be required prior to re-injection. If collected groundwater does not meet criteria for re-injection, then the collected groundwater must be disposed to a facility licenced to accept and treat contaminated water.	Construction
GW-7	Undertake infiltration rate tests at locations of proposed groundwater discharge areas or infiltration basins to determine local infiltration rates and the presence of indurated sand layers capable of inhibiting groundwater recharge.	Construction Operation
GW-8	Process water would be managed to prevent discharge to surface water systems or groundwater.	Operation
GW-9	Sealed pavement areas should be used for refuelling and chemical storage areas to minimise the risk of spills infiltrating to groundwater.	Construction Operation
GW-10	Prepare a remediation action plan for major spills or other incidents which may cause impact to groundwater quality. This may include hydraulic containment using downgradient berms and pumps.	Construction Operation
GW-11	Rehabilitate compacted areas which are not needed for operational activities by loosening the soil, adding organic matter and revegetating the area.	Post-construction
GW-12	If more than 3 ML/year groundwater is expected to be intercepted during construction, AGL would pursue a Water Access Licence and continue consultation regarding any water trading requirements.	Pre-construction Construction
Air quality		
AQ-1	The power station would be fitted with a Continuous Emission Monitoring Systems (CEMS) to demonstrate ongoing regulatory compliance, ensure proper and efficient operation of pollution control equipment, and evaluate operating and emission variability.	Pre-construction Operation
AQ-2	The CEMP will include requirements to monitor and manage potential air quality impacts associated with the construction of the Proposal. The CEMP will identify project construction activities with the potential to have air quality impacts and the controls required to avoid, minimise and mitigate these impacts. The plan will include measures to: - Minimise dust generation from stockpiles, haulage routes, work activities and exposed ground surfaces - Minimise generator and vehicle emissions	Construction Pre-construction

ID	Measures and programs	Timing
	▪ Cover or minimise truck loads ▪ Reduce speeds on unsealed roads ▪ Modify or cease dust generating works during unfavourable weather conditions ▪ Inspect and address corrective actions	
AQ-3	Any long-term stockpiles would be stabilised and are to be managed to suppress dust emissions.	Construction
AQ-4	Demolition activities, including removal of hazardous building materials, will be planned and carried out in a manner that minimises the potential for dust generation. Removal of hazardous building materials will be completed prior to the commencement of general demolition works.	Construction
AQ-5	Vegetation or other materials are not to be burnt on site.	Construction Operation
AQ-6	All air quality requirements and monitoring would be adhered to in accordance with an EPA license.	Operation
Soils and contamination		
SC-1	Heavy vehicles and machinery would use allocated tracks where possible to minimise soil erosion.	Construction
SC-2	Where highly contaminated soil and/or groundwater is impacted, a site-specific remediation action plan would be required to manage the material. This would include management requirements that are above those outlined within the CEMP. It may be specific to the selected remediation technique and detail the requirements of a specialist remediation contractor.	Pre-construction Construction
SC-3	A pre-demolition hazardous materials survey is required for the demolition of the residential dwelling on Lot 3. Based on the findings, required controls would be implemented for removing the identified materials.	Pre-construction
SC-4	A spills protocol would be developed as part of the OEMP, including: ▪ Fuel/chemical spill protocols – spill kits to be available and relevant workers to be trained on response protocols ▪ A formal reporting procedure - any spills to be reported on the Spill Register ▪ A register of all hazardous chemicals kept on site is to be maintained and updated regularly ▪ Appropriate recorded spill capture points (i.e. bunding, collection sump, etc) ▪ Maintenance requirements of effluent-related infrastructure or disposal to stormwater or sewer)	Operation
SC-5	Monitoring of contamination would be included in the CEMP which would include: ▪ Further assessment of identified contamination AECs prior to construction to determine remedial actions	Construction

ID	Measures and programs	Timing
	- Hazardous materials (HAZMAT) asbestos and lead paint surveys of any buildings or structures within the Proposal area prior to demolition - Monitoring to be detailed in Proposal construction environmental management plans	
SC-6	Construction of sediment basin/s would be in accordance with the specifications outlined in Appendix I of the EIS.	Construction Operation
Aboriginal heritage		
AH-1	Cultural awareness induction for any personnel involved in ground breaking activities. This could include a Cultural Awareness Training Program.	Construction
AH-2	An Aboriginal Cultural Heritage Management Plan (ACHMP) would be prepared and implemented for the Proposal construction. The ACHMP would include, but not be limited to: Monitoring and salvage works procedures An Aboriginal artefacts care agreement Long term management procedures for Aboriginal objects Aboriginal cultural heritage mapping Community consultation with RAPs and BCD prior to construction An Aboriginal Cultural Heritage Management Plan (ACHMP) would be prepared for the Proposal prior to commencement of groundworks. The ACHMP would be prepared in consultation with the RAPs and the Biodiversity Conservation Division of the DPIE. The ACHMP would include management procedures for: Long term management procedures for Aboriginal objects Cultural awareness inductions Chance finds procedures Mitigating impacts to sites Ongoing consultation with the RAPs.	Construction Pre-construction
AH-3	Chance Finds Procedure to be followed for any Aboriginal heritage objects found during the works. In the event an Aboriginal heritage object is found all activity in the immediate area must cease and an appropriately qualified heritage professional should be consulted. DPIE BCD and local Aboriginal stakeholder groups must be immediately contacted and informed of the Aboriginal heritage object found. The qualified heritage professional should record the location and the attributes of the site and determine its Aboriginal cultural significance. If Aboriginal remains (human skeletal material or suspected human skeletal material) are discovered during construction all activities in the immediate area must cease. The State Police and DPIE BCD must be contacted and any sand or soil removed from the near vicinity identified and set aside for investigation purposes.	Construction
AH-4	Repatriation of archaeological material is to be conducted for artefacts and charcoal recovered during test excavations. The location of the reburial must be determined by the RAPs and should be as close as possible to the location at which the sites were recovered.	Construction

ID	Measures and programs	Timing
AH-5	A copy of the final ACHAR should be distributed to all Aboriginal organisations who expressed interest in the proposed works.	Pre-construction
AH-6	A copy of the final ACHAR including comments and recommendations by RAPs should be provided to the relevant DPIE BCD regional branch.	Pre-construction
AH-7	Works at the Central Laydown area would avoid impacts to site NPS01 with the application of the following controls: ▪ A surveyor would be engaged to mark out the boundaries of the construction laydown area ▪ A physical barrier (e.g. portable mobile fencing) would be installed at the outer edge of NPS01, where it abuts the laydown area to ensure personnel and vehicles remain within the proposed impact area. The physical barrier would not result in ground disturbance ▪ Signage would be installed alerting construction staff of the presence of the Aboriginal Cultural Heritage site, which would be designated as a No-Go Zone ▪ The presence of the NPS01 site and the No-Go Zone would be included in the construction site induction.	Pre-construction
Traffic and transport		
T-1	Parking for construction staff is to be provided within the NPS site.	Construction
T-2	A Construction Traffic Management Plan (CTMP) would be prepared by the contractor to safely manage traffic movements to and from the Proposal. The CTMP would consider the access and egress assumptions for construction laydown areas that are outlined in the Traffic Impact Assessment Addendum (SECA solution, July 2020).	Pre-construction
T-3	Once the equipment and suppliers have been selected and detailed design and construction planning is complete, AGL would undertake a route survey and over size over mass analysis. If this analysis indicates the need for further road improvements, these would be designed in consultation with TfNSW. These road improvements would be the responsibility of AGL. Over Size Over Mass vehicle requirements and management would be addressed in Traffic Control Plans within the CTMP.	Pre-construction
T-4	A Drivers Code of Conduct would be prepared that directs all heavy vehicles to access the site via the Pacific Highway and Old Punt Road intersection.	Pre-construction
T-5	A CHR turn treatment on Old Punt Road is required to allow for the safe movement of construction traffic turning right into the site and to prevent queuing of vehicles along Old Punt Road. This must be designed in accordance with the Austroads Guidelines and to the satisfaction of PSC and Transport for NSW. The road intersection works at the NPS site entry: ▪ Would include full pavement reconstruction across the full road width that adapts to the M12RT design.	Pre-construction

ID	Measures and programs	Timing
	▪ Would include protection of the gas utility and pavement reconstruction within the scope of the intersection upgrade. ▪ Would be commenced prior to substantial construction works commencing on site.	
T-6	Prior to construction of the Proposal, AGL undertakes to share designs and collaborate with Transport for NSW to ensure that there is no restriction to the development of the M12RT project and associated local or state roads.	Pre-construction
T-7	AGL will design proposed utilities to be adequately protected and/or have suitable vertical and horizontal clearance so as not to limit the current operation of the road reserve. AGL undertakes to collaborate with Transport for NSW upon finalisation of the M12RT design/exhibition to ensure that there is no restriction to the development of local and state roads relevant to M12RT.	Pre-construction Construction Construction Operation
T-8	AGL would design the access from Old Punt Road to integrate appropriately with any development proposal designs for the upgrade of Old Punt Road that are exhibited prior to commencement of the construction of the Proposal. AGL would design the access from Old Punt Road to integrate appropriately with any development proposal designs for the upgrade of Old Punt Road as part of the M12RT	Pre-construction
Noise and vibration		
NV-1	A Construction Noise and Vibration Management Plan (CNVMP) would be prepared prior to the commencement of works to manage high noise works, affected receivers, complaints handling and consultation protocols, and out of hours work.	Construction Pre-construction
NV-2	Limit rock breaking, crushing and piling activities to the ICNG recommended standard hours (i.e. 7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturdays and no work on Sundays or public holidays). Respite periods of one hour would be employed for every three hours of work where works are anticipated to generate noise levels > 75dBA at a receiver.	Construction
NV-3	Appropriate plant and equipment would be selected for the task at hand and efficient work practices would be adopted to minimise the construction period and the number of noise sources on site.	Construction
NV-4	Power down plant and equipment when not in use and avoid high engine speeds when lower speeds are sufficient.	Construction
NV-5	All construction plant and equipment would be maintained in suitable condition prior to mobilisation to the site and during construction.	Construction
NV-6	Particular emphasis would be placed on construction maintenance of exhaust silencers, covers on engines and transmissions, and poorly maintained components.	Construction
NV-7	Excessively noisy machines would be taken out of service for repair or removed from the site.	Construction

ID	Measures and programs	Timing
NV-8	Tonal motion alarms (beepers) would be avoided in favour of broadband motion alarms (quackers).	Construction
NV-9	Where night works are required, works with the potential to generate impulsive noise would be avoided.	Construction
NV-10	Noise complaints would be managed by the construction contractor in accordance with the CEMP.	Construction
NV-11	Appropriate plant and equipment would be selected for the task at hand so that lower vibration/lower impact plant would be chosen over that with a higher impact.	Construction
NV-12	Plant and equipment selected for the Proposal would have sound power levels not exceeding those presented in Section 6.9 of the EIS – Attenuated Sound Power Levels at Source.	Operation
NV-13	Where the attenuated noise levels from the Proposal exceed the predicted noise levels, further attenuation and/or analysis would be carried out to assess and recommend additional measures.	Operation
NV-14	Where noise complaints are validated, operator attended noise measurements would be undertaken to measure and compare the site noise level contributions with the NMLs presented in the EIS.	Construction
NV-15	Where noise monitoring is carried out, all site noise levels would be measured.	Construction
NV-16	Where noise monitoring identifies an exceedance, management measures would be designed and implemented to ensure ongoing compliance.	Construction
NV-17	Where vibration complaints are validated, vibration monitoring would be undertaken to identify the nature and extent of any exceedances.	Construction
NV-18	Where vibration monitoring identifies an exceedance, management measures would be designed and implemented to ensure ongoing compliance.	Construction
<i>Social and economic</i>		
SE-1	AGL would use social procurement policies to employ local labour, local and regional businesses, contractors and supply companies for provision of labour, goods and services.	Construction Operation
SE-2	Detailed advanced notice of goods and services required by the Proposal would be issued to assist local businesses and services meet the needs of the Proposal. AGL would require all tenderers on the Proposal to prepare a Local Industry Participation Plan and an Indigenous Engagement Plan as a mandatory component of each tender.	Construction Operation
SE-3	Community consultation would be ongoing throughout the Proposal life. Public notifications, letterbox drops, and emails would be used to update the local community on the Proposal's progress and scheduling of works, particularly works which would have an impact on public amenity such as noisy night works.	Construction Operation
SE-4	Throughout the Proposal planning, construction and operation, AGL would continue consultation with the following key stakeholders:	Pre-construction

ID	Measures and programs	Timing
	▪ DPIE ▪ Paterson electoral division ▪ Newcastle electoral division ▪ Port Stephens Council ▪ Transport for NSW ▪ Hunter Water Corporation ▪ Department of Defence ▪ Civil Aviation Safety Authority ▪ Newcastle Airport ▪ Department of Agriculture, Water and the Environment (previously Department of Energy and Environment)	Construction Operation
SE-5	AGL would continue dialogue groups with representatives from Port Stephens Koalas, Hunter Wildlife Rescue, Wahroonga Aboriginal Corporation, HWC and Hunter Region Botanic Gardens.	Construction Operation
SE-6	A Local Community Investment Program would be established for the Proposal once construction commences and would continue into operation. The Proposal would further facilitate, or support initiatives aimed at community development, capacity building and strengthening community institutions.	Construction Operation
SE-7	AGL would continue to develop their working relationships with local area emergency service providers including Raymond Terrace police, ambulance and fire services, and regional hospitals, to prepare for emergencies and advise on risks to or from the Proposal. Proposal design will provide sufficient access for emergency vehicles and equipment including firefighting and rescue.	Construction Operation
SE-8	AGL's existing 'Fitness for Work Policy' will be enforced, and all staff, contractors and visitors will undergo site inductions to be familiar with the construction safety management plan and emergency management plan, as well as occupational health and safety requirements.	Construction Operation
SE-9	First aid facilities will be provided on site.	Construction Operation
SE-10	Community liaison would be undertaken throughout the construction and operation phases. A 24-hour information line would be established for any concerned residents to enquire about the Proposal, and a complaints register would be maintained for the life of the Proposal.	Construction Operation
SE-11	AGL would monitor socio-economic parameters so that the effects of the Proposal on the socio-economic conditions of the local area can be quantified during the Proposal and additional management measures can be applied where required. These parameters may include: ▪ Number of direct jobs created for local and regional residents ▪ Number of contracts with local businesses and their monetary value ▪ Funding provided to community organisations and groups	Construction Operation

ID	Measures and programs	Timing
	- Housing and accommodation requirements of the workforce - Number of staff who remain in the community after construction - Stakeholder and community feedback	
Visual amenity		
VA-1	The power station design including all plant facilities such as diesel storage and operational and amenity buildings would be located insofar as is practical to reduce the requirement to clear vegetation and to reduce the angle from passing viewpoints.	Pre-construction
VA-2	A landscape design workshop would be considered to establish the means to minimise the visual impact and visibility of the Proposal. The workshop would assess the retention of trees, the planting of new and endemic vegetation, and viewpoint specific plantings to eliminate visual impacts from specific locations.	Pre-construction
VA-3	A site landscape plan would be prepared that emphasises integration of new plantings with existing vegetation and that includes opportunities to provide screen plantings. The landscape plan would include (but not limited to): - Visual and ecological planting patterns of locally endemic species to emulate existing mixes of tree and grass cover in the surrounding landscape - Installation of temporary screens to minimise exposure of construction areas from local viewpoints - Specific plantings would be considered for screening the nearest residential receivers	Pre-construction Construction
VA-4	The power station design would seek to include the selection of visually sympathetic cladding and security fencing materials to reduce contrast and improve integration of the balance of plant and of the site as a whole.	Pre-construction
VA-5	The lighting design would be in accordance with AS4282-1997 Control of the obtrusive effects of outdoor lighting.	Pre-construction
VA-6	The site-specific CEMP would include the following: - Where possible, lights would be used at the lowest effective level and would be directed downwards to the work area and away from incoming viewpoints - Construction lighting would be kept to a minimum necessary for safety and security needs and would not be directed in a manner so as to shine toward oncoming traffic on the Pacific Highway - Night works would be limited where possible to avoid areas that are exposed to direct views along Pacific Highway and workers will be trained in the management of night time lighting - Inspection and maintenance schedules of the following construction elements and mitigations for visual impacts: 1.8. Construction lighting direction 1.9. Temporary construction fencing and screening	Construction

ID	Measures and programs	Timing
	1.10. Delineated no-go areas	
	1.11. Vegetation plantings and rehabilitation	
VA-7	A site-specific OEMP will be prepared for the Proposal. The OEMP would include the following inspection requirements: ▪ Inspection and maintenance of security lighting direction to ensure it is directed to the worksite and away from neighbouring land uses ▪ Inspection and maintenance of security fencing to remove litter and graffiti ▪ Inspection and maintenance of vegetation plantings and rehabilitation	Operation
Non-Aboriginal heritage		
NAH-1	If any heritage objects and/or relics are uncovered during the construction of the Proposal the following steps would be followed: ▪ All activity in the immediate area would cease immediately ▪ The project manager would be notified ▪ Flagging or fencing would be erected to demarcate and protect the area ▪ Site personnel and visitors would be advised to avoid the area until further notice ▪ An appropriately qualified heritage professional would be consulted to confirm if the object/s is a heritage item or relic ▪ The Office of Environment and Heritage (OEH) would be contacted ▪ An appropriately qualified heritage professional would record the location and attributes of the site and determine the significance of the find Heritage objects and/or relics may include glass, ceramic, metal, building footings, and building materials etc., as protected under NSW legislation.	Construction
NAH-2	In the event of the discovery of human skeletal material (or suspected human skeletal material) during project activities in the Proposal area the following steps would most likely be followed: ▪ All activities and/or works in the immediate area would cease ▪ The NSW Police would be immediately contacted along with the project manager and OEH ▪ Flagging or fencing would be erected to demarcate and protect the area ▪ Site personnel and visitors would be advised to avoid the area until further notice ▪ Any sand or soils removed from the near vicinity of the find would be identified and set aside for assessment by the investigating authorities	Construction
Waste and recycling		
WR-1	Appropriate construction and demolition waste storage and disposal methods would be completed in accordance with the CEMP and <i>Protection of the Environment Operations Act 1997</i> during possible demolition of the onsite property. This aims to reduce any transportation of harmful	Construction

ID	Measures and programs	Timing
	contaminant via surface water run-off into the surrounding waterway systems.	
WR-2	A Construction Waste Management Plan (CWMP) and Operational Waste Management Plan (OWMP) would be developed and implemented prior to each stage. The plans would be developed with the following criteria: ▪ A hierarchical waste management approach would be used, from the most preferable (reduce, reuse or recycle wastes) to the least preferable (disposal) to prioritise waste management strategies to avoid waste generation ▪ The CWMP and OWMP would be developed in accordance with the mitigation strategies described in the WSM which provides avoidance, mitigation, reuse, recycle or disposal methods for each waste stream identified in the NPS ▪ The plans would promote the use of materials with minimal packaging requirements, removal of packaging offsite by suppliers and fabrication of parts offsite ▪ Where waste cannot be avoided, waste materials would be segregated by type for collection and removal (for processing or disposal) by licensed contractors ▪ All waste types would be separated at source for recycling and apply a system of colour-coded waste storage containers to ensure the segregation of waste is affected as far as possible ▪ A licensed service provider would be appointed to collect general solid waste and hazardous waste during construction and operation ▪ Each waste type would be classified for transport to ensure correct handling ▪ Any waste that cannot be recovered or recycled would need to go to a licensed treatment or disposal facility where it would be treated and disposed of according to its classification	Construction Operation
WR-3	An audit regime would be implemented, in accordance with the AGL Health and Safety Environmental Management System (HSEMS) during construction and operation which includes (but not limited to) quantities of waste, storage areas and contractor services.	Construction Operation
WR-4	Spoil that can be beneficially reused would be done so in accordance with the project spoil re-use hierarchy.	Construction
WR-5	Ongoing consultation would be required between AGL and HWC regarding the arrangement for the disposal of wastewater.	Construction Operation
Plume rise and aviation hazard		
PR-1	AGL would provide the plume rise assessment report to Airservices Australia, Department of Defence, and CASA for review prior to the commencement of construction.	Pre-construction
PR-2	AGL would continue to consult with Department of Defence during design, construction and operation on appropriate measures to manage aviation safety risks associated with the Proposal.	Pre-construction Construction

ID	Measures and programs	Timing
		Operation
PR-3	AGL would apply for approval from the Directorate of External Land Planning (DELP) for the erection of permanent and temporary structures in accordance with AC 139-08(0) – CASA Advisory Circular – Reporting of Tall Structures.	Pre-construction
Bushfire		
BF-1	An Emergency Management and Evacuation Plan (EMEP) would be developed and implemented prior to construction and operation. The EMEP would be developed in accordance with: ▪ NSW RFS – A guide to developing a Bush Fire Emergency Management and Evacuation Plan ▪ Australian Standard AS 3745:2010 – Planning for emergencies in facilities ▪ Preliminary Hazard Analysis and Quantitative Risk Assessment prepared for the Proposal The EMEP would include: ▪ Identify designated buildings or safe places that can provide refuge from bushfires (in accordance with AS3959:2018) ▪ Consultation with the local NSW RFS, NSW Fire and Rescue and Port Stephens Bush Fire Management Committee ▪ Assessment of response times and access for fire services ▪ Ensuring persons are not exposed to bushfire impacts	Construction Operation Pre-construction
BF-2	Road access to the proposed NPS site would be available to the Fire Emergency Services through the incorporation of the following measures in design: ▪ The NPS road system would consist of a perimeter road and a network of services roads to allow for multiple access routes ▪ The perimeter road would be sealed and a minimum 8m wide forming part of the Asset Protection Zone (APZ) ▪ Service roads would be sealed and a minimum of 4m wide, sign posted, and with direct access toward the main entry ▪ An alternate access/egress will be considered during design in the event access to Old Punt Road or Old Punt Road itself is cut off or closed	Construction Operation
BF-3	A radiant heat impact of 23kW/m² or less would be achieved within design for the generator plant, equipment and fuel storage. This would be achieved through either: ▪ Implementation of an APZ between the asset and the site boundary (as large as reasonably possible) ▪ Installation of radiant heat barriers such as metal clad fencing or construction within a shed (in order to be able to decrease the APZ distance less than 32m) ▪ Suitable siting of infrastructure within the construction compound	Pre-construction Construction

ID	Measures and programs	Timing
BF-4	The bulk fuel (diesel) storage would be designed to be compliant with the Australian Standards AS1692:2006 and AS 1940:2017. The location of these storage areas would be located as far as possible from the primary bushfire hazard area. If compliance with AS1692:2006 and AS 1940:2017 is not possible, fire protection on the primary bushfire hazard side (east) of the plant and equipment area would, as a minimum, be compliant with AS 2419.1:2005 for the installation of fire hydrants.	Pre-construction
BF-5	Design of the proposed pipelines would take advantage of the existing bushfire protection measures. Where the final design layout demonstrates that any existing measures are insufficient, compliance with the requirements of the applicable pipeline standard; European LNG Code, EN 1473:2007 would be necessary.	Pre-construction
BF-6	Electrical transmission lines would have vegetation easements in accordance with the bushfire protection requirements of the Guide for the Management of Vegetation in the Vicinity of Electricity Assets (ISSC 3 – 2016).	Pre-construction Construction
BF-7	As described in ISSC 3, 2016, a 10m APZ would be established surrounding the boundary fence, where only maintained lawn or grasses are permitted.	Construction
BF-8	Administration, workshops and stores buildings located on the eastern side of the site (within 23m of the primary bushfire hazard) would be designed to a construction standard minimum of BAL 40.	Pre-construction Construction
BF-9	An emergency egress onto the Pacific Highway, using the existing Lot 2 residential access, will be further considered and included in the EMEP and operational management plans. As part of the EMEP, emergency egress routes from the NPS site will be developed in consultation with affected stakeholders.	Construction Operation
BF-10	Water for firefighting would be provided through the installation of a ring main water supply and hydrants throughout the site. The water supply for the site would be capable of complying with the Australian Standard AS2419.1:2017.	Construction
BF-11	AZP's would be monitored through vegetation clearing maintenance activities.	Operation
Hazard and risk		
HR-1	The detailed design of the generator building/housing and associated equipment would clearly outline the basis of safety used to ensure that the explosive situations do not arise.	Pre-construction
HR-2	Rotating machines would be designed such that the risk associated with failure leading to uncontained projectiles is minimised.	Pre-construction
HR-3	The safety assessment process would continue to identify controls that prevent or limit the effects of major hazardous incidents on site, such as fire and explosion that could result in significant off-site effects.	Pre-construction
HR-1	The design of the Proposal would comply with all relevant and applicable Australian Standards.	Pre-construction

ID	Measures and programs	Timing
HR-2	The design of the Proposal would consider inherent safe design processes to minimise the potential loss of containment and resulting fire scenarios.	Pre-construction
HR-3	No liquified gas would be stored within the Proposal pipelines.	Pre-construction Operation
HR-4	Where housings are utilised, the detailed design safety requirements for housings would include as a minimum: ▪ Highly reliable ventilation fan system and ventilation detection system ▪ Independent gas detection linked to automatic emergency shut down system ▪ Prevention of ignition sources within the housing ▪ Explosion panel (to minimise effect of confinement) and fire quenching (e.g. carbon dioxide) ▪ Separation distances to nearby housings and occupied buildings ▪ Safety systems to isolate both liquid and gas fuel supplies	Pre-construction
HR-5	A detailed Quantitative Risk Assessment would be undertaken during detail design to ensure the appropriate location of onsite occupied buildings and siting of major pieces of equipment including the diesel storage tanks.	Pre-construction
HR-6	The design of the Proposal would consider spacing of potential fire hazards and the provision of fire barriers.	Pre-construction
HR-7	The design of the Proposal would consider functional safety assessment of control and shutdown systems to ensure that the likelihood of a loss of containment scenario is reduced.	Pre-construction
HR-8	The design of the Proposal would consider installation of a hydrocarbon detection system within the facility to isolate flow and likelihood of a loss of containment and resulting fire scenario.	Pre-construction
HR-9	The design of the East Laydown area would consider the following recommendations from the Addendum PHA: ▪ The underground high and low pressure natural gas pipelines at the northern side of the site would be physically separated and/or secured from the East Laydown area to manage weight and vibrations at the underground pipelines ▪ A suitable offset would be determined, identified and managed ▪ The emergency alarm at the NGSF would be made audible at the East Laydown area to alert persons of the need to evacuate from the site ▪ Determining the means by which people will enter and exit the site at the security gate at Old Punt Road to access the East Laydown area	Pre-construction Construction

ID	Measures and programs	Timing
	■ ■ Implement security measures to prevent access from adjacent properties ■ Develop a Security Plan for the East Laydown area to be integrated with the NGSF Security Plan ■ Develop an Emergency Response Plan applicable for the East Laydown area to be developed and to be integrated with the NGSF Emergency Response Plan ■ Develop a Spill/Loss of Containment Control Management Plan for all potentially hazardous/pollutant chemicals to be stored on-site. The plan will include having spill kits available on site and training of personnel at the East Laydown area in spill response and initiating the emergency response procedure. ■ Develop a Tactical Fire Plan for the East Laydown area as per NSWFR requirements ■ Determine the applicable Asset Management Zone between the East Laydown area and surrounding bushland to minimise bushfire risk ■ WHS risks and processes to be managed under the NGSF management system.	
Fire safety		
FS-1	The storage and associated piping systems for gases in the gaseous or liquefied states would comply with NFPA 54, NFPA 55, NFPA 56, NFPA 58, and ASME B31.1/B31.3/B31.8 as applicable.	Pre-construction
FS-2	The detailed design would provide for the subdivision of separate fire areas for the purpose of limiting the spread of fire, protecting personnel, and limiting the resultant consequential damage to the plant. Fire areas would be separated from each other by fire barriers, spatial separation, or other approved means.	Pre-construction
FS-3	Hydrocarbon detection systems would be provided in areas of the facility where congestion and hydrocarbon loss may occur.	Pre-construction
FS-4	Hot works would be controlled by appropriate Control of Work permitting processes, if required.	Construction Operation
FS-5	Diesel tanks would be designed, installed, and operated in accordance with relevant Australian Standards.	Construction Operation
FS-6	A hydrant system comprising at least one hydrant riser per tank would be installed along with a mobile monitor.	Construction
FS-7	Foam concentrate and powder-type extinguishers would be provided along with a minimum of three powder-type extinguishers for the storage area.	Pre-construction
FS-8	A smoke detection system would be installed throughout rooms containing electrical equipment, including walk-in-type consoles, above suspended ceilings where combustibles are installed, and below raised floors. Where the only combustibles above the false ceiling are cables in conduit and the	Pre-construction

ID	Measures and programs	Timing
	space is not used as a return air plenum, smoke detectors are permitted to be omitted from this area.	
FS-9	An aspirating smoke detection system would be considered for fire detection with Argonite gaseous suppression systems in cabinets and FM200 gaseous suppression in the switch rooms.	Pre-construction
FS-10	A fire detection system would be provided for each generator housing.	Pre-construction
FS-11	Fireproofing of supports and structures potentially exposed to a jet fire would be considered during design based on the requirements of API 2118.	Pre-construction
FS-12	Bund capacity in the diesel storage area would be sufficient for spill containment and firefighting purposes.	Pre-construction
FS-13	Fire water storage capacity would be provided to comply with NFPA 850 requirements.	Pre-construction

7 Conclusion

Amendments have been proposed for the Proposal in response to ongoing consultation with stakeholders and changes identified as the design of the Proposal has progressed. The proposed amendments are described in Section 4 and include:

- Two construction laydown areas, referred to as the Central and East Laydown areas
- The addition of new construction methods including a screening and crushing facility and pile driving
- A realignment of the transmission line corridor in consideration of easement boundaries
- An extension of the Proposal Area boundary to adequately accommodate the area needed for roadworks on Old Punt Road
- A second gas pipeline to connect the NPS to the PL42 pipeline.

The Amendment Report also addresses the requests for information received from agencies since lodgement of the Submissions Report. A total of eight RFIs were received following the Submissions Report, as detailed in Section 3. AGL has been engaged in consultation with authorities, agencies and adjacent infrastructure operators to ensure the concerns raised in their submissions have been properly understood and are adequately addressed in this Amendment Report. Details of consultation carried out since the Submissions Report is summarised in Section 2.2. Some of the issues raised are ongoing and will continue to be the subject of cooperative consultation.

Updated studies were commissioned by AGL to assess the impact of the proposed amendments and responses to the RFIs, including:

- Biodiversity Development Assessment Report
- Aboriginal Cultural Heritage Assessment Report
- Air Quality Impact Assessment
- Noise and Vibration Impact Assessment
- Preliminary Hazard Assessment
- Preliminary Hazard Assessment Addendum for the East Laydown area
- Traffic Assessment Addendum

These studies are summarised in Section 0 and provided as appendices to the Amendment Report.

Following consultation and additional assessment, the environmental management measures for the Proposal have been updated and the proposed changes are shown in Table 6.1.

8 References

- Barilaro, J (2019), *Newcastle gas terminal given critical status*, NSW Department of Planning, Industry and Environment, <https://www.planning.nsw.gov.au/News/2019/Newcastle-gas-terminal-given-critical-status>, accessed 30 January 2020
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- EPA (2016), *The Approved methods for the Modelling and Assessment of Air Pollutants in New South Wales*, NSW Environment Protection Authority, December 2016
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