Review of Environmental Factors

Clarence Correctional Centre HV Substation

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The Activity

GeoLINK has been engaged by Infrastructure New South Wales (INSW) to prepare a Review of Environmental Factors (REF) for the construction of a high voltage (HV) substation to service the Clarence Correctional Centre (CCC) located approximately 12 km east of Grafton, NSW (the Activity). The proposed electricity substation will connect to an additional power line (to be constructed, and subject to a separate REF), linking the CCC to a main transmission line along the Pacific Highway.

The key elements of the proposed Activity within the boundaries of the CCC property include:

Substation

- Power Transformers – two 12.5MVA 132/11kV power transformers
- HV plant and equipment – auxiliary and instrument transformers, circuit breakers, Busbars and conductors
- Auxiliary Services Building.

Transmission Line

- 12 x 25-30m high concrete structures to support the 132kV transmission line.

Need for the Activity

The proposed HV substation would supply power to the new Clarence Correctional Centre and comprises essential infrastructure.

Statutory and Planning Framework

Approval for the proposed Activity is being sought under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), where INSW is both the proponent and determining authority. This REF documents the proposed Activity, assesses the potential environmental impacts in both the construction and operational phases and provides environmental management measures to be implemented to minimise the risk of adverse environmental impacts.

Consultation

Since the inception of the Clarence Correctional Centre project, there has been ongoing consultation with Clarence Valley Council. Under Clause 42 of State Environmental Planning Policy (Infrastructure) (ISEPP), consultation with adjacent landowners and Clarence Valley Council has been completed. No response was received to the consultation process.

Consultation was also completed with Clarence Valley Regional Airport (CVRA); it was confirmed that the transmission line structures within the CCC are below aircraft surface heights and will not penetrate the approach and take-off surfaces at CVRA.

No additional/ broader community consultation is required.

Environmental Assessment

This REF provides an assessment of the Activity that takes into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity as is required under the EP&A Act. Potential environmental impacts of the Activity (both adverse and positive) include minor/ temporary impacts and permanent impacts, as follows:

Minor/ temporary impacts:

- Erosion and sedimentation from excavations associated with the construction of footings for the structures and substation elements.
- Minor, temporary noise impacts generated from construction activities.
- Minor increase in traffic movements on the surrounding road network, however the level of the increase is not expected to impact the safety and function of the road network.
- Minor amounts of dust and emissions from earthworks during construction.

The adverse impacts associated with the Activity are considered to be low in significance and would be managed with the implementation of the mitigation measures and safeguards prescribed in this REF.

Permanent impacts

- Minor removal of vegetation.
- Provision of a reliable electricity supply to the new CCC.

Operational impacts have been assessed and are determined to be minor.

Justification and Conclusion

Having regard to the assessment of the impacts detailed in this REF, it is concluded that the proposed Activity is not likely to have a significant impact on the environment, therefore, an environmental impact statement under section 5.7(1) of the EP&A Act is not required, and Division 5.2 of the Act is not triggered. Furthermore, the proposed Activity would not impact any threatened species or communities listed under the *Biodiversity Conservation Act 2016* or the *Environment Protection and Biodiversity Conservation Act 1999* (Clth). As such, a Species Impact Statement is not required and referral to the Commonwealth Environment Minister is not necessary.

1. Introduction

1.1 Activity Overview

The Activity involves installation of a high voltage (HV) substation to service the Clarence Correctional Centre (CCC) located approximately 12 km east of Grafton, NSW. The substation and associated double circuit transmission line would be contained wholly within the CCC site and would connect to a proposed 132 kV transmission line which is yet to be constructed (and which is currently under review for preparation of a separate REF). All construction and operational activities associated with the installation of the substation and associated double circuit transmission line are referred to herein as 'the Activity'.

Key elements of the proposed Activity include:

Substation

- Power Transformers – two 12.5MVA 132/11kV power transformers (each transformer filled with approximately 15, 000 litres of oil)
- HV plant and equipment – auxiliary and instrument transformers, circuit breakers, Busbars and conductors
- Auxiliary Services Building.

Transmission Line

- 12 x 25-30m high concrete structures to support the 132kV transmission line.

The transmission line forms a small portion of a larger double circuit transmission line which will connect to the main transmission line alongside the Pacific Highway. The larger transmission line traverses numerous private properties (and several road reserves in addition to Crown Land) and is the subject of a separate REF. The section of the transmission line within the CCC site has been assessed as part of this REF to account for all impacts of electrical infrastructure within the CCC site.

A detailed description of the proposed Activity is provided in **Section 3** of this REF.

1.2 Purpose of this Report

This REF has been prepared by GeoLINK on behalf Infrastructure NSW (INSW). For the purposes of these works, INSW is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The purpose of the REF is to describe the Activity, to examine whether the proposed Activity is likely to have a significant impact on the environment or significantly affect threatened species, populations, ecological communities or their habitats. It describes the Activity, documents the likely impacts and details the safeguards/ mitigation measures to be implemented to minimise the risk of adverse impacts during both the construction and operational phases.

The description of the Activity and associated environmental impacts have been undertaken in context of clause 228 of the Environmental Planning and Assessment (EP&A) Regulation 2000, the *Biodiversity Conservation Act 2016* (BC Act) and the Commonwealth *Environment Protection and*

Biodiversity Conservation Act 1999 (EPBC Act). In so doing, the REF helps to fulfil the requirements of section 5.7(1) of the EP&A Act, which requires INSW to examine and take into account to the fullest extent possible, all matters affecting or likely to affect the environment by reason of the Activity.

The findings of the REF would be considered when assessing:

- whether the Activity is likely to have a significant impact on the environment and therefore the necessity to prepare an Environmental Impact Statement (EIS) under Part 5 of the EP&A Act;
- the significance of any impact on threatened species, populations or ecological communities, or their habitats as defined by the BC Act and/ or Fisheries Management Act 1994 (FM Act) in Section 1.7 of the EP&A Act and therefore the requirement for a Species Impact Statement; and
- the potential for the Activity to significantly impact a matter of national environmental significance or Commonwealth land and the need to make a referral to the Department of the Environment and Energy for a decision by the Commonwealth Minister on whether assessment and approval is required under the EPBC Act.

1.3 Background

The CCC is a State Significant Development (SSD), which was approved by a delegate of the Minister for Planning and Environment on 21 December 2017 and was subject to an Environmental Impact Statement (EIS) which presented a detailed environmental assessment, including specialist studies for noise and vibration, biodiversity, Aboriginal cultural heritage, soils and contamination and social impacts.

The SSD granted approval for the construction and operation of a correctional centre of 1,700 beds comprising a maximum-security section (1300 beds) and a minimum-security section (400 beds) over an area of approximately 9.7 ha. The Stage 1 (Early Works) DA requires the following key works for the site and surrounds:

- Vegetation clearance and biodiversity management activities
- Construction of access roads including fire access roads to the extent required to conduct Stage 1 works
- Construction of auxiliary facilities such as construction compound, construction staff parking facilities and stockpile sites
- Temporary provision of water, power and communication services within the site to the extent required to conduct Stage 1 works
- Demolition of the existing house and sheds
- Bulk excavation and site stabilisation works and landscaping.

Construction of the CCC is being managed by the John Holland Group (JHG) and vegetation removal, earthworks and establishment of site offices and ancillary facilities has substantially commenced.

An *Aboriginal Cultural Heritage Management Plan* (ACHMP) (Jacobs 2018) was completed for the CCC due to impacts on several Aboriginal heritage sites and Potential Archaeological Deposits (PADs). Salvage operations for recovery of these items are now complete and no further salvage is required. As part of the EIS, a *Biodiversity Offset Strategy* (BOS) has been completed to compensate for vegetation removal for the CCC.

Stage 2 works for the CCC include the following elements:

- Approximately 62 buildings with a maximum building height not exceeding 10 m.
- A six-metre high fence or wall will be constructed around the perimeter of the facility, with light and security camera poles up to 12 m in height.
- Visitor reception, staff amenities, tank farm, stores buildings, operations support unit, and energy plant will be located outside the perimeter walls/ fences.
- Internal access into and out of the correctional centre from Avenue Road and internal security and fire access roads will be provided.
- Car parking for approximately 700 staff and visitor cars with an overflow area accommodating a further 150 cars.
- Other associated facilities include recreational oval, special accommodation units, health facilities, education and programs areas, administration, workshops, staff amenities, visitor facilities and utilities.
- A wastewater treatment system that allows for collection, treatment and total on-site reuse via a nominal 550KL/day Class A+ Membrane Bioreactor Style Wastewater Treatment Plant. Effluent production in excess of the facility's re-use requirement is delivered to the wet weather storage lagoon for disposal across the designated broad scale irrigation area.
- A 100 m wide Asset Protection Zone (APZ) would be cleared around the correctional centre and associated facilities and car parking.
- A vegetation buffer outside the APZ would be provided along the northern, eastern and southern boundaries of the site. The buffer will be 50 m wide along the northern property boundary, 15 m wide to the east along Avenue Road and 30 m wide along the southern property boundary (to be established as part of Stage 1 works).
- Site landscaping and tree removal.
- Earthworks as required for Stage 2 works.
- Associated development including connecting to utilities reticulation, external lighting and the like.

The substation and transmission line are required to provide power to the CCC site when it is in the operational stage following completion of Stage 2 works.

2. Justification

2.1 Purpose and Need for the Proposed Activity

Investigations undertaken as part of the state significant development application (SSD 8368) for the construction and operation of the CCC confirmed that new electricity infrastructure would be required to service the facility.

The proposed Activity is required to provide a reliable electricity supply to the new CCC located approximately 12 km east of Grafton, NSW. Specifically, this requires the construction of a new HV substation and associated transmission lines which would be contained wholly within the CCC site and would connect to a proposed 132 kV transmission line which is yet to be constructed (and which will be the subject of a separate assessment under Part 5 of the EP&A Act).

Construction of the CCC is scheduled for completion by 30 March 2020 and commissioning of the facility, including all systems operations requiring electricity, will commence 30 June 2020. It is imperative that the electricity supply be available to meet these program milestones.

2.2 Alternative Options Considered

2.2.1 Do Nothing

This option represents the base case where no substation and associated transmission line would be installed. The benefits of this option would include reduced capital expenditure and no construction or operational impacts as described in **Section 3** of this REF. The “do nothing” option is not a viable alternative as it would compromise the ability of the new CCC to function.

2.2.2 Alternative location

Earlier design for the project considered whether the substation should be placed proximate to the existing transmission line adjacent to the Pacific Highway (near the connection point with the proposed transmission line) rather than on the CCC site. However, this was ruled out on electrical design criteria, as the substation needs to be at the end of the line for reticulation purposes. Land at the connection point is also flood prone.

2.2.3 Current Proposal

The location of the substation within the CCC site was selected because it is physically central to both the maximum and minimum-security facilities. Its location to the south west of the car park serving the facility ensures the facility is accessible for ongoing operation/ maintenance.

The proposed HV transmission line route through the CCC site broadly follows the western property boundary, which facilitates its connection to the proposed power line (to be constructed, and subject to a separate REF), which will connect to a main transmission line located along the Pacific Highway.

2.2.4 Preferred Option

As noted above, the proposed substation site / route for the transmission line was the only location considered which is appropriate and meets project requirements.

3. Description of the Activity

3.1 Site Location

The site of the proposed Activity is within the Clarence Correctional Centre (CCC) site on Avenue Road, approximately 12 km east of Grafton, NSW (refer to **Illustration 3.1**). CCC comprises two properties – Lot 26 DP751376 and Lot 1 DP1190399 Avenue Road, Lavadia and covers a total area of 195 ha (refer to **Illustration 3.2**).

The CCC occurs in a rural area where typical land use is largely limited to grazing and small landholdings/ hobby farms. The locality typically comprises flat to gently undulating land, with significant floodplains associated with the Coldstream River (east of the CC) and Glenugie Creek (west of the CCC). No significant infrastructure or facilities occur in the immediate locality. As noted, vegetation removal, earthworks and establishment of site offices and ancillary facilities has substantially commenced at the site. A permanent perimeter fence has also been installed around the construction footprint of the CCC. As noted previously in this REF, the substation will be located to the south west of the main car park and is within the existing fenced construction footprint of the CCC.

The area outside the construction footprint is residual land which comprises grassland and open dry sclerophyll forest. Along the western boundary of the site (where it is proposed to install the transmission line), vegetation not requiring removal for the CCC footprint has been retained for the protection of vegetation and fauna habitat. A number of nest boxes have been installed within this area to compensate for the removal of habitat trees within the construction footprint.

The site of the Activity is slightly elevated and is not prone to flooding.

Photographs of the site are shown at **Plates 3.1 – 3.6**. Images of the structures required for the transmission line are shown at **Plates 3.7 - 3.8**.

3.2 The Activity

Infrastructure NSW proposes to install an electrical substation in the central part of the CCC site, in an area to the south west of the main car park. All works required for the Activity will occur within the boundaries of the CCC. The Activity comprises the following elements:

Substation

- Design, supply, delivery, construction, installation and commissioning of a new 132/11kV substation within an area of (approximately) 60 x 80 m (excluding batters).
- Civil works, including bench construction, security fence, drainage standard equipment footings, excavation and conduit installation for low voltage cables.
- Structural steel works required for the substation including two 132kV concrete terminal poles.
- HV equipment as follows:
  - 12 x 132kV single phase surge arrestors.
  - 6 x 132kV single phase Magnetic Voltage Transformers (MVTs).
  - 2 x 132kV dead tank circuit breakers.
  - 2 x 132kV point on wave dead tank circuit breakers.
  - 8 x 132kV disconnectors.

  - 5 x 132kV associated earth switches.
  - 2 x 132/11kV 12.5MVA transformers (low noise).
  - 2 x 11/0.45kV 200kVA auxiliary transformers.
  - 12 x 11kV surge arresters.
  - 6 x insulated 11kV winding MVTs.
  - 2 x dead tank circuit breakers.
  - 2 x disconnectors.
  - 2 x associated earth switches.
- Associated control, communications, protection and metering systems housed in a secondary systems building.
- One spill oil tank.
- One water tank for domestic water.
- One toilet and septic system.
- A storage shed.
- Security and Closed-Circuit Television System (CCTV) system.
- Transformer noise walls.
- Minor remote substation work (wiring changes within the control buildings, signage changes within the switchyard, switching and testing for commissioning) and including:
  - 2 x Plesiochronous Digital Hierarchy (PDH) multiplexers at Koolkhan substation.
  - 2 x PDH multiplexers at Coffs Harbour substation.
- Substation lighting
- A stockpile site for topsoil and spoil (occupying a footprint of approximately 2400 m²)
- An ancillary laydown and car parking area which will include sheds and offices, ablutions facilities (approximately 3500 m²).
- A new road access from the existing internal road will be constructed to service the substation.

Design plans for the substation are provided at **Appendix A**.

Transmission Line

- Power poles: the feed-in transmission line will comprise 12 structures located within an easement of 30 m width and approximately 1.5 km length
- Installation of access pads on either side of each pole structure. A pad consists of a 20 x 20 m flat, compacted area or areas on which Elevated Work Platforms (EWP's) and cranes can manoeuvre and set up for construction activities (i.e. standing poles, stringing etc).
- Construction of an all-weather access road (four metre width) along the transmission line easement if required (depending on weather and ground conditions).
- Tree removal within the 30 m wide easement, in addition to removal of any 'danger trees' outside or adjacent to the easement (as identified by TransGrid). Danger trees are those which are large enough to fall within the easement and impact on infrastructure. Danger Trees (and tree removal in general are provided at **Appendix B**.

Vehicles will access the site through the main entrance to the CCC site on Avenue Road and utilise the internal road network to access the substation site (which includes parking areas for plant and vehicles); refer to layout plan at **Appendix A** and access plan at **Appendix C**. Access to the transmission line easement will be within the designated 30 m wide easement. The entire easement and substation footprint will be registered as an easement within the context of the CCC site (refer to **Section 3.3**).

The construction of the substation will require civil works including benching and importation of fill to provide a platform of approximately 60 m x 80 m (excluding batters). Excess spoil from excavations will generally be spread on-site adjacent to excavations if suitable or will be removed if required. Building works (including concrete foundations and concrete slabs) will be required for built form structures including transformer areas, switch rooms and lighting masts. Transformers and other equipment will be manufactured off site and delivered to site and installed using mobile cranes. Transformers will not be filled with oil until placed within the concrete bund.

Twelve structures (typically between 25 - 30 m in height) will be installed based on standard installation procedures and wiring strung using a brake and winch. An image of a typical structure is shown at **Plates 3.7 and 3.8** (structures will not be painted green as depicted). The substation and transmission line works will be carried out concurrently.

Physical works for the substation and the transmission line are likely to commence in September 2018, subject to determination of this REF and approval of a Construction Environmental Management Plan (CEMP). The works are scheduled to take 48 weeks to complete (excluding any extensions or delays).

The construction program for the Activity is aligned with the program for delivery of the CCC.

3.3 Easements

The following easements will apply for the Activity:

Substation Easements

- An Easement of sufficient size on the entire substation site (substation size of 60 m x 80 excluding batters), including a 20m buffer zone surrounding the substation site, for the purpose of constructing, maintaining and operating the substation;
- A 10 m wide Easement from the proposed substation site to the nearest public road for the purpose of accessing the substation site;
- Access to the substation will be via standard access routes designated by JHG (refer to **Appendix C**). Access is assumed to suitable for all weather conditions and will be maintained by the John Holland Group. Gradients, radii and compaction assumed to be suitable for delivery of all plant and equipment.

Transmission Line Easements

- A 30 m wide Easement for the final Line Route;
- Easements over any access track which will be used to gain access to the Easements.

Illustration 3.1 Site Locality

Illustration 3.2 The Site and Activity

	**Plate 3.1 The substation site looking east. Yellow star picket represents the edge of the transmission line easement.**
	**Plate 3.2 The substation site looking to south. The small patch of trees will be retained.**
	**Plate 3.3 Most of these trees will be removed. Yellow star picket represents the edge of the transmission line easement.**

	**Plate 3.4 Residue land outside the internal fence; several trees will require removal from this area.**
	**Plate 3.5 Transmission corridor (view to north) – dead trees will be removed. Trees to the right are outside the easement (yellow star picket) and will be retained.**
	**Plate 3.6 Transmission corridor (view to south along western boundary) showing typical grassland and lack of trees.**

Plate 3.7 Typical structure

Plate 3.8 Typical two-pole structure used at angles or changes in direction

3.4 Objectives

The objectives of the Activity are to:

- Provide power to the CCC, necessitating the installation of a HV electricity substation and associated transmission line.
- Avoid as far as possible impacts on utilities and services and ecological features (e.g. fauna habitat features, threatened species habitat).

3.5 Construction Activities

3.5.1 Plant and Equipment

The main plant and equipment required for the Activity may include (but not be limited to):

- Earthmoving equipment (bulldozer, excavator and grader)
- Mobile crane (various sizes, up to 200 tonnes)
- Concrete pump and agitator
- Light vehicles/ trucks
- Hand tools (angle grinder, electric saw, driller/ driver etc)
- Mulcher
- Air compressors
- Dumper trucks
- Elevated working platforms
- Flatbed trucks, tipper trucks, tilt-tray trucks, semi-trailers
- Watercarts
- Rollers
- Pneumatic jackhammers
- Piling rig
- Generators
- Brake and winch.

3.5.2 Construction Methodology

3.5.2.1 Substation

A laydown area of approx. 65 x 65 m including an access to and from this area to the substation will be provided within 50 m of the substation site as a staging/ laydown area associated with construction of the substation. This area will be cleared so that it is free of trees and stumps (except grass). The laydown area will be gravelled to provide a firm surface. Gravel will be removed at completion of the works.

It is noted that the disturbed area will be re-seeded following completion of construction. The purpose of the laydown area is to set up site temporary site sheds, ablutions facilities, laydown materials/ equipment etc. for the substation.

Other elements of the substation construction are as follows:

- A new six-metre wide unsealed access road to be constructed from the existing correctional centre roads network to the substation.
- An area within 250 m of the substation site is required to accommodate spoil stockpiles.
- Substation will have fill imported to build the substation up above the natural ground level to ensure effectiveness of the substation drainage system. The substation footprint is approximately 60 x 80m excluding batters.
- The substation will be surfaced in blue metal except for the sealed transformer road. Extending from the substation gate will be approximately 60 m of unsealed access road (six metres in width) to connect into the CCC road network.
- The substation will be surrounded by a steel palisade fence approximately three metres high. The palisade fence will be topped with barbed or razor wire. The substation will be unmanned and accessible to authorised persons only.
- Substation to be surrounded by a 20 m wide asset protection zone (APZ) to be kept clear of vegetation and infrastructure.

Traffic

Average Light Vehicle Movements (typical day): 35

Average Heavy Vehicle Movements (typical day): 20

The number of vehicle movements will fluctuate throughout the construction of the substation with the maximum daily heavy vehicle movements to occur during the earthworks and civil stages of construction. Oversized vehicle movements will be required for each of the transformer deliveries and the Auxiliary Services building.

Footings

Generally, footings within the substation fall into three categories:

1. Bored or piled foundations (generally used for HV plant, posts and poles)
2. Slab foundations (generally used for transformer compounds and buildings)
3. Pad foundations (generally used for HV plant).

Slab and pad footings are typically flatter and wider footings extending around 600 mm below ground level where as bored or piled type footings are deeper sometimes extending over 3000 mm deep. All footings are steel reinforced concrete construction and will be utilised within the substation.

3.5.2.2 Transmission Line

Site Establishment and Clearing

Requirements include:

1. Survey and peg out the transmission line structure locations
2. Clear vegetation (along the entire length of the easement)
3. Clear identified danger trees outside the easement. Danger trees are typically taller trees with potential to fall on or near the transmission line.

Access Tracks

In order to access the Transmission Line structure sites, access tracks need to be constructed to facilitate the movement of plant and machinery, as detailed below:

1. Access track may be up to six metres wide (although is typically expected to be approximately four metres in width)
2. Depending on the terrain, the extent of access track construction may require:
   a) Slashing long grass only
   b) Excavating and grading to level natural ground
   c) Import and placement of gravel and/or road base onto natural ground
   d) Boxing out the natural ground, importing gravel and/or road base and compacting
   e) Site specific solution depending on the conditions encountered using a combination of the options above including bog mats or similar.
3. Appropriate drainage and erosion and sediment control measure to be implemented depending on the extent of access constructed and the requirements of the CEMP.
4. Culverts and/or causeways to cross erosion gullies.

Benching

Benching is the process of making a flat, stable working surface on which EWP's and cranes can be safely set and operated. Each transmission line structure will require two off benched areas (approximately 20 x 20 m), as detailed below:

1. Extent of benching at each structure site will vary depending on the conditions at each structure.
2. A bench consists of a 20 x 20 m flat, compacted area or areas on which EWP's and cranes can manoeuvre and set up for construction activities (i.e. standing poles, stringing etc).
3. Depending on the terrain, constructing a bench may consist of:
   a) Slashing long grass only
   b) Excavating and grading to level the natural ground. This may include batters when excavating into a sloping site
   c) Import and placement of gravel/ road base to level out the ground
   d) Site specific solution depending on the conditions encountered using a combination of the options above.
4. The two off benches should be confined to approximately a 40 x 40 m area (in total) around the base of each structure where disturbance for construction will occur. The off benches will be accommodated within the 30 m wide easement.
5. Sediment control measures to be implemented depending on the extent of benching constructed and the requirements of 'the Blue Book' *"Managing Urban Stormwater: Soil and Construction Volume 1"* (Landcom, 2004).

Footings

Standard Transmission Line footing construction methodology is to excavate a single bore hole, place the concrete pole into the borehole and back fill with concrete. Boreholes can be up to 1100 mm wide and six metres deep. For poor soils and special structure arrangements the footing will be designed specific for the site conditions. This may require a deeper and wider single bored footing or numerous smaller piles with a cap. In each case the footing construction will be steel reinforced concrete construction. The Transmission Line poles will be a combination of steel and concrete poles.

Guy anchors may also be installed on certain structures to provide additional structural support. Standard guy anchor construction consists of a single bore hole with a steel anchor concrete into the bore hole. A guy wire is then run between the steel anchor and the transmission line pole to provide mechanical support to the pole. In standard conditions the guy anchor bore hole will be approximately 600 mm in diameter and approximately six metres deep. Similar to the footing foundation, the size and design of the guy anchor will change to suit poor soils or special structure arrangements.

Spoil will be spread locally around the source.

Stringing

Once the structures have been erected, pulleys (or rollers) will be hung off each of the transmission line insulators (for the conductors) and from the top of the poles (for the Optical Ground Wire cables [OPGW]). Using a draw wire, the conductors and OPGW will be pulled through the pulleys, sagged to correct height and clipped into their final position. Brake and winch equipment used to pull through the conductor and OPGW will be set up at locations within the established and cleared easement so as to avoid any areas of environmental sensitivity.

Traffic

Average Light Vehicle Movements (typical day): 35

Average Heavy Vehicle Movements (typical day): 20

The number of vehicle movements will fluctuate throughout the construction of the transmission line with the maximum daily heavy vehicle movements to occur during the pole delivery and pole erection stages of construction.

3.5.3 Working Hours

Construction Phase

Construction activities would generally be undertaken in accordance with approved construction work hours at the CCC, i.e. Monday to Friday: 7:00 am to 6:00 pm and Saturday 8:00 am to 5:00 pm. However, certain activities may need to be undertaken outside of these hours such as major plant deliveries, transformer filling, commissioning, line cut-in and energisation, emergencies. In these instances, JHG will be notified.

Operational Phase

The substation will be unattended, with access by field staff on a regular basis to complete routine inspections and maintenance works during daylight hours. It is noted that access to the substation may be required at any time in the event of an emergency.

3.6 Operational Phase

3.6.1 Substation

During the operational phase the substation will be unmanned with access by field staff on regular basis to complete routine inspection and maintenance works including:

- Regular inspection and maintenance of electrical equipment
- Building maintenance
- Fire detection system inspection and maintenance
- Security and fence repair
- Stormwater maintenance
- General landscaping maintenance
- Septic tank pump out.

Typically, maintenance activities will only require light to medium sized plant and vehicles to access the substation. Additional measures, plant and equipment may be required in response to emergencies.

Traffic during the operational phase will be minimal and limited to light vehicles and medium plant only necessary to complete the maintenance task listed above. Vehicles would typically include:

- Light vehicles (4WD)
- Small mobile crane and small EWP for transformer maintenance
- Pump out truck for septic.

3.6.2 Transmission Line

Access by field staff to the transmission line during the operational phase will be on a regular basis to complete routine inspection and maintenance works including:

- Inspection and maintenance of transmission lines, structures and poles
- Vegetation removal required to maintain appropriate clearances between ground vegetation and transmission lines.

Typically, maintenance activities will only require light to medium sized plant and vehicles to access the transmission line. Additional measures, plant and equipment may be required in response to emergencies.

4. Statutory and Planning Framework

4.1 Planning Approval Pathway

The Activity involves installation of an electrical substation and transmission line to service the CCC. As part of this project, applicable environmental planning and legislative requirements were reviewed and the appropriate planning approval is outlined as follows.

Section 4.1 of the EP&A Act states that if an environmental planning instrument (EPI) provides that development may be carried out without the need for development consent, a person may carry out the development, in accordance with the EPI, on land to which the provision applies. However, environmental assessment of the development is required under Part 5 of the EP&A Act.

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) applies to the State and aims to facilitate the effective delivery of infrastructure across NSW. This policy overrides other EPIs, including Local Environmental Plans, and provides specific planning provisions and development controls relating to nominated types of infrastructure. Division 5 of the ISEPP outlines the approval requirements for electricity transmission or distribution networks. Clause 40 of ISEPP defines an electricity substation as a component of an electricity transmission or distribution network.

Clause 41 of ISEPP permits development without consent on any land for the purpose of an electricity transmission or distribution network providing the Activity is carried out by or on behalf of an electricity supply authority or public authority. The Activity is the installation of an electrical substation and section of HV power line (approx. 1.5 km long) which would be undertaken on behalf of INSW.

The Activity comprises the carrying out of a work and is therefore an “Activity” for the purposes of Part 5 of the EP&A Act.

A determining authority is defined in section 5.1 of the EP&A Act as *a Minister or public authority and, in relation to any Activity, means the Minister or public authority by or on whose behalf the Activity is or is to be carried out or any Minister or public authority whose approval is required in order to enable the Activity to be carried out.*

INSW is a public authority constituted by the *Infrastructure NSW Act 2011.* The proposed works will be carried out by a specialist contractor on behalf of INSW. Accordingly, INSW is deemed to be the determining authority for the proposal in accordance with Part 5 of the EP&A Act.

4.2 Environmental Planning and Assessment Act 1979

Although the Activity does not require development consent under Part 4 of the EP&A Act, section 5.7(1) of the EP&A Act requires determining authorities, when assessing activities under Part 5, to examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that Activity. To ensure the Activity adequately addresses the requirements of Section 5.7(1), an assessment of the Activity’s consistency with relevant EPIs including State Environmental Planning Policies (SEPPs) and Local Environmental Plans (LEPs) has been completed.

4.3 State Environmental Planning Policies

4.3.1 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. Development consent is not required for the subject Activity by virtue of clause 41 of ISEPP.

Pursuant to clause 40 of ISEPP an electricity substation and associated transmission line are components of an electricity transmission or distribution network. Clause 41 of ISEPP permits development without consent on any land for the purpose of an electricity transmission or distribution network providing the Activity is carried out by or on behalf of an electricity supply authority or public authority.

As the Activity is for the installation of an electrical substation to be undertaken of behalf of INSW (a public authority), the works can be assessed under Part 5 of the EP&A Act.

Clause 42 of ISEPP requires Council and adjoining landholder notification for electricity substation development permitted without development consent. Further detail on consultation relating to the Activity is provided at **Section 5**.

4.3.2 State Environmental Planning Policy 44 – Koala Habitat Protection

SEPP 44 aims to encourage the conservation and management of natural vegetation areas that provide habitat for Koalas, to ensure permanent free-living populations would be maintained over their present range. Clause 6 of SEPP 44 states that the SEPP applies only to land 'in relation to which a development application has been made'. Clause 41 of ISEPP precludes the Activity from requiring consent therefore Part 2 of SEPP 44 does not apply to the Activity. However, in order to consider environmental issues to the fullest extent possible, it is prudent to assess the potential impacts on Koalas in accordance with SEPP 44.

One Schedule 2 feed tree species (Forest Red Gum *Eucalyptus tereticornis*) occurs infrequently at the site. Forest Red Gum do not comprise >15 per cent of the canopy therefore the site does not comprise potential Koala habitat, and the Policy does not apply.

4.3.3 State Environmental Planning Policy (Coastal Management) 2018

SEPP Coastal Management aims to promote an integrated and co-ordinated approach to land use planning in the coastal zone in a manner consistent with the objects of the *Coastal Management Act 2016*, including the management objectives for each coastal management area, by:

- Managing development in the coastal zone and protecting the environmental assets of the coast
- Establishing a framework for land use planning to guide decision-making in the coastal zone
- Mapping the four coastal management areas that comprise the NSW coastal zone for the purpose of the definitions in the *Coastal Management Act 2016*.

SEPP Coastal Management does not apply to the Activity, as the CCC site occurs outside the boundaries of the Land Application Map. A large area of coastal wetlands occurs approximately 750 m east of the site on the eastern side of Avenue Road. There is no likelihood of the Activity impacting this wetland or its 100 m proximity area. No littoral rainforests occur within 10 km of the site.

4.3.4 State Environmental Planning Policy (Rural Lands) 2008

State Environmental Planning Policy (Rural Lands) 2008 (RSEPP) aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes. Part of this objective relates to the maintenance of the social, economic and environmental welfare of the state and the reduction of land use conflicts.

The Activity would not impose any significant environmental impacts to local agricultural land on the basis that it is contained entirely within the CCC site and that the site is not managed for agricultural purposes.

4.4 Local Environmental Plan

Clarence Valley Local Environmental Plan 2011

Name: Clarence Valley Local Environmental Plan 2011 (CVLEP 2011).

CCC site zoning: RU2 Rural Landscape

Permissibility: Based on definitions in the LEP, the Activity comprises '*electricity generating works'*, meaning *'a building or place used for the purpose of making or generating electricity'*. *Electricity generating works* are technically prohibited within RU2 Rural Landscape as they are not listed in the land use table as being permitted with or without consent. However, it is noted that Correctional Centres are permissible with consent in RU2 land, and the requirement for electricity is considered to be both necessary and ancillary to the operation of the CCC.

The objectives of the RU2 Rural Landscape zone are:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To maintain the rural landscape character of the land.*
- *To provide for a range of compatible land uses, including extensive agriculture.*
- *To provide land for less intensive agricultural production.*
- *To prevent dispersed rural settlement.*
- *To minimise conflict between land uses within the zone and with adjoining zones.*
- *To ensure that development does not unreasonably increase the demand for public services or public facilities.*
- *To ensure development is not adversely impacted by environmental hazards.*

ISEPP overrides the CVLEP and Clause 42 of ISEPP permits development that is carried out by or on behalf of an electricity supply authority or public authority and is for the purpose of a new or existing electricity substation of any voltage (including any associated yard, control building or building for housing plant) without the need for consent.

The proposal constitutes an 'Activity' for the purposes of Part 5 of the EP&A Act and is subject to an environmental assessment (Review of Environmental Factors).

4.5 Development Control Plans

The aim of the Clarence Valley Council Development Control Plan (DCP) – Development in Rural Zones 2011 is to encourage development of land in rural zones that complements the rural character of a locality and is at an appropriate scale and form to minimise land use conflicts. Clarence Valley Council DCP – Development in Rural Zones applies to land within the following rural zones:

- RU1 Primary Production.
- RU2 Rural Landscape.
- RU3 Forestry.

The Activity does not require development consent and is therefore not subject to the requirements of the DCP. However, it is considered that the Activity would not limit or hinder the achievement of the general aim of the DCP.

4.6 Other State and Commonwealth Legislation

4.6.1 Other NSW Legislation

Table 3.1 lists and describes other NSW State legislation and comments on its applicability in relation to the Activity.

Table 4.1 NSW Legislation

Legislation	*Section(s)*	*Comment*
Protection of the Environment Operations Act 1997		No Protection of the Environment Policies (PEPs) are relevant to the Activity. No licences would be required pursuant to the *Protection of the Environment Operations Act 1997* (POEO Act). The appointed contractor/s are required to notify EPA when a 'pollution incident' occurs that is likely to impact upon the environment.
	Section 120	It is an offence to pollute any waters of the State. This REF includes mitigations measures to minimise potential impacts that may result in pollution of waters.
	Section 115	It is an offence to negligently dispose of waste in a manner that harms the environment. Waste would be managed in accordance with the *Waste Avoidance and Resource Recovery Act 2001*. The Activity would aim to reduce the environmental impact of waste and include mechanisms to recover resources and reduce the production of waste where possible.
National Parks and Wildlife Act 1974	Sections 118D(2)(b)(ii)	It is an offence to cause damage to habitat of threatened species, or communities unless essential for the carrying out of an Activity in accordance with an approval of a determining authority within the meaning of Part 5 of the EP&A Act if the determining authority has complied with that Part. This REF forms the Part 5 assessment; the Activity would have minimal impact to habitat of threatened species or communities.

Legislation	Section(s)	Comment
	Sections 84, 90	The *National Parks and Wildlife Act 1974* (NPW Act) provides the basis for the legal protection and management of Aboriginal sites within NSW. Sections 84 and 90 of the NPW Act provide statutory protection for any physical/ material evidence of Aboriginal occupation of NSW and places of cultural significance to the Aboriginal community. The key principles of the Act in relation to Aboriginal heritage are the prevention of unnecessary or unwarranted destruction of Aboriginal objects, and the active protection and conservation of objects which are of high cultural significance. It is an offence to knowingly disturb an Aboriginal object, irrespective of its nature or significance, without the prior consent of the Director-General of the NSW OEH. As part of the EIS for the CCC, an *Aboriginal Cultural Heritage Management Plan (ACHMP)* (Jacobs 2018) was completed due to impacts on several Aboriginal heritage sites and Potential Archaeological Deposits (PADs) from the CCC construction process. Salvage operations have since been completed (March/April 2017) and cultural heritage management obligations for the project have been fulfilled. The ACHMP provides guidance on procedures to be followed in the event of unexpected finds (including human remains) during the Stage 2 construction process. If an artefact or place of significance is disturbed or encountered during the works, works would cease and procedures in the ACHMP followed as required.
Biodiversity Conservation Act 2016	Schedules 1, 2 and 3	The Activity would not impact on any threatened flora species or communities listed in the BC Act. No threatened fauna species would be significantly impacted upon by the Activity. As minor native vegetation clearing is required, the Activity would incrementally contribute to the listed Key Threatening Processes (KTPs) *Clearing of Native Vegetation* and *Removal of Dead Wood*. However, given the proposed extent of clearing, impacts are not considered significant. The Activity would also incrementally contribute to *Anthropogenic Climate Change*, through the generation of carbon dioxide during operation of machinery and vehicles and associated fuel consumption however the impact is not considered significant. No other KTPs would be noticeably contributed to by the Activity. Section 7.3 of the BC Act requires a test of significance ('five-part test') for determining whether a proposed development or Activity is likely to significantly affect threatened species or ecological communities, or their habitats. This has been completed (refer to **Section 6.2**); the test of significance concluded the Activity would not significantly affect threatened species or ecological communities.
Coastal Management Act 2016		The *Coastal Management Act 2016* (CM Act) defines the coastal zone as comprising four coastal management areas which include: coastal wetlands and littoral rainforests, coastal vulnerability areas, coastal environment areas, and coastal use areas. Each coastal management area has different objectives under the Act, which respond to their social and environmental values and key threats. The site does not include any coastal management areas, and hence the Act does not apply.

Legislation	Section(s)	Comment
Heritage Act 1977	Section 31 - 38A Section 170	Searches of the OEH State Heritage Branch database and Schedule 5 of the CVLEP 2011 were undertaken (February 2018) in relation to the Activity. No heritage items have been identified at or in close proximity to the site.
	Sections 139 and 146	Under Section 139 a person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit. The discovery of a relic needs to be notified under s146 of the Heritage Act.
Local Land Services Act 2013	Part 5A Land Management (native vegetation)	Provisions of the Act apply to clearing native vegetation in rural parts of the State (including the RU2 Zone). Pursuant to Section 60O (*Clearing authorised under other legislation*), *for the purposes of this Part, the clearing of native vegetation in a regulated rural area is authorised under other legislation in any of the following cases:* *(b) Other planning authorisation - The clearing was:* *(ii) an Activity carried out by a determining authority within the meaning of Part 5 of that Act after compliance with that Part, or* *(iii) authorised by an approval of a determining authority within the meaning of Part 5 of that Act granted after compliance with that Part.* As the Activity is a Part 5 Activity, vegetation clearing provisions of the *Local Land Services Act 2013* do not apply.
Biosecurity Act 2015		In NSW, the administration of noxious weed control is the responsibility of the Minister for Primary Industries under the *Biosecurity Act 2015*. The Act is implemented and enforced by the Local Control Authority for the area, usually local government or NSW Agencies. No biosecurity risk weed species occur at the site.
Water Management Act 2000	Section 91 (2)	Works within water lands or those comprising of extraction or management of water may be subject to approval if they constitute a 'controlled Activity'. No extraction of water is required for the Activity and the works do not comprise a controlled Activity.
Native Title (NSW) Act 1994	Section 103	The Activity is not within an area subject to an active registration for Native Title Claim.
Environmental Planning and Assessment Regulation 2000	Clause 228	Clause 228 factors have been considered to assess the likely impacts of the Activity on the natural and built environment (refer to **Section 8.1**). It is not expected that the Activity would result in a significant impact to the environment.

Legislation	Section(s)	Comment
Environmental Planning and Assessment Act 1979	Section 1.7	Where there is a significant impact on a threatened species, population or community as defined by the BC Act and/or FM Act, there is requirement for a Species Impact Statement, or if the proponent so elects—a biodiversity development assessment report (BDAR). The Activity would not result in any significant impacts to threatened species, populations or communities.
	Sections 5.5 – 5.7	The determining authority in its consideration of an Activity shall examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that Activity. This assessment provides INSW with the information required to assess the Activity.

4.6.2 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

Under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), any action that has, or is likely to have, a significant impact on matters of national environmental significance or other aspects of the environment, such as on commonwealth land, may progress only with approval of the Commonwealth Minister for the Environment and Energy under Part 9 of the EPBC Act. There are no matters of national environmental significance that would be affected by the Activity and therefore no Commonwealth referral or approval is necessary for the proposed works (also refer to **Section 8**).

4.7 Other Environmental Approvals or Permits Required

Oversize and overmass permits will be obtained as required by the RMS for the delivery of major plant including transformers and buildings.

No other permits or approvals are required.

4.8 Confirmation of Statutory Position

An assessment of the relevant statutory provisions and planning instruments has concluded that the Activity can be carried out as development without consent under clause 41 of ISEPP and can be assessed under Part 5 of the EP&A Act.

5. Stakeholder Consultation

5.1 ISEPP Consultation

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) aims to facilitate the effective delivery of infrastructure across the State. Part 2 *(cll. 13-17)* of the ISEPP sets out the requirements for consultation with local councils and other public authorities prior to commencement of certain types of development.

As the Activity would not:

i) involve connection to or use of Council related infrastructure and services (clause 13);
ii) impact local heritage (clause 14);
iii) impact flood liable land (clause 15); or
iv) impact land within the coastal zone (clause 15A)

there is no requirement to consult with Clarence Valley Council.

In relation to Clause 16 of ISEPP, the Activity does not occur adjacent to land reserved under the *National Parks and Wildlife Act 1974* or an aquatic reserve or a marine park declared under the *Marine Estate Management Act 2014* and does not meet any of the other criteria listed in Clause 16 with regard to consultation with public authorities other than councils. On this basis, consultation with other public authorities is not required.

The Activity is not classified as specified development under the provisions of Clause 16 (2) of ISEPP; therefore, consultation with other public authorities is not required.

Notwithstanding the consultation requirements set out in Part 2, Clause 42 of the ISEPP includes specific requirements for notification of certain electricity substation development that may be carried out without consent, as follows: *'before development to which this clause applies is carried out, the electricity supply authority or public authority must*:

a) give written notice of the intention to carry out the development to the council for the area in which the land is located (unless the authority is that council) and to the occupiers of adjoining land, and
b) take into consideration any response to the notice that is received within 21 days after the notice is given.

Having regard to the above, there is a requirement for INSW to:

i) give written notice of the intention to carry out the development to Council and the occupiers of the following adjoining properties:

- Lot 1176 DP810935, 118 Turnbulls Lane Ulmarra
- Lot 1172 DP739102, 505 Avenue Road Lavadia
- Lot 1173 DP739102, 493 Avenue Road Lavadia
- Lots 19-24 DP751376 and Lot 30 DP751376, 394 Avenue Road Lavadia
- Lots A and B DP366760 and Lot 7300 DP1145093, 27 Coulters Lane Calliope
- Lot 10 DP1205749, 247 Wants Lane Glenugie
- Lot 2 DP1181336, 1104 Avenue Road Glenugie
- Lot 5 DP793765, 37 Old Six Mile Lane Glenugie

- Lot 19 DP7877, 485 Avenue Road Lavadia
- Lot 1 DP1113608, 489 Avenue Road Lavadia
- Lot 8 DP 127096 65 Colletts Island Road, Ulmarra
- Lots 1-3 DP 1199613 65 Colletts Island Road, Ulmarra
- Lot 1 DP 1180329 160 Old Six Mile Lane, Glenugie

ii) take into consideration any response to the notice that is received from Council or the occupiers of adjoining properties within 21 days of the date of the written notice prior to the works associated with the Activity being carried out.

Consultation letters were issued 3 July 2018. No response was received to the consultation process (refer to **Appendix D**).

5.2 Clarence Valley Council

INSW has consulted with Clarence Valley Council (CVC) as part of the Activity, and as part of the broader development of the CCC from the project inception. As required by Clause 42 (b) of the ISEPP, consultation with CVC was completed. No response was received to the consultation process (refer to **Appendix D**).

5.3 Clarence Valley Regional Airport

Clarence Valley Regional Airport (CVRA) is located approximately 2.3 km west of the CCC and is managed by the Clarence Valley Council.

Council's technical advisor, Aviation Projects, was consulted in order to ensure the transmission line and substation within the CCC would not affect airport operations.

Aviation Projects has reviewed the documentation and has confirmed that the transmission line structures within the CCC are below aircraft surface heights and will not penetrate the approach and take-off surfaces at CVRA (refer **Appendix D**).

5.4 Community

Although separate to this project and REF, the EIS prepared for the Clarence Correctional Centre also identified essential services/ infrastructure that would be required for the development. An Infrastructure Management Plan was also prepared and accompanied the EIS which gives an overview of the likely proposed infrastructure requirements and requisite upgrades associated with the CCC project. These documents identified the need for the provision of electrical infrastructure to the CCC.

As noted above, Clause 42 of ISEPP requires adjoining landholder notification for electricity substation development permitted without development consent prior to commencement of the works.

As noted, consultation under ISEPP was completed with adjacent landowners (refer to **Appendix D**).

5.5 Aboriginal Community

As noted, as part of the EIS prepared in respect of the SSD application for the CCC, an *Aboriginal Cultural Heritage Management Plan (ACHMP)* (Jacobs 2018) was completed due to potential impacts on several Aboriginal heritage sites and Potential Archaeological Deposits (PADs) from the CCC construction process. The ACHMP provides guidance on procedures to be followed in the event of unexpected finds (including human remains) during the construction process. As part of the development of the ACHMP extensive consultation was completed with traditional owners. Further consultation has also been completed as part of salvage work of indigenous artefacts (Jacobs 2018).

On this basis, cultural heritage management obligations have been fulfilled and no further consultation has been completed or is required as part of this REF provided the requirements in the ACHMP are followed (refer to **Appendix E**). Compliance with the requirements of the ACHMP is included as a mitigation measure.

6. Environmental Assessment

6.1 Introduction

This section of the REF provides a detailed description of the potential environmental impacts associated with the Activity. All aspects of the environment potentially impacted upon by the Activity in both its construction and operational phases are considered, and safeguards to minimise impacts are prescribed.

6.2 Ecology

6.2.1 Introduction and Background

As part of the project EIS for the CCC, a *Biodiversity Assessment Report* (BAR) was prepared by Jacobs (2017) to meet the requirements of the *Framework for Biodiversity Assessment* (FBA) (Office of Environment and Heritage 2014a) and the NSW Offsets Policy for Major Projects. The BAR fulfilled the Secretary's Environmental Assessment Requirements (SEARs) No 8 provided for the Stage 2 Development Zone DA and the relevant biodiversity Development Conditions of Consent (Stage 1 Conditions) provided for the Stage 1 DA by the Department of Planning and Environment (DPE).

The BAR noted that direct loss of vegetation was required for the project and the condition of the affected vegetation exceeds the impact threshold identified in the FBA for offsetting, as such, biodiversity offsets were required. A Biodiversity Offset Strategy (BOS) has been completed, which identifies the biodiversity offset credits required to meet the conditions of the FBA. The BOS presents the first stage of the offset package, and further work is required to identify the availability of relevant offsets to meet the impacts described and in securing an offset and developing appropriate protection and management measures for offset areas.

Based on the detailed assessment completed in the BAR, the loss of vegetation and habitat for the substation lies within the Stage 2 Development Zone and has already been considered and accounted for. However, vegetation loss for the transmission line corridor was not considered in the BAR, where scattered trees require removal in proximity to one of the constructed sediment ponds (refer to **Appendix F**). In this sense the impacts of the Activity to biodiversity at the site in the context of the overall approved site development are very low.

6.2.2 Existing Environment

6.2.2.1 Vegetation

Vegetation at the site was assessed for the project EIS in the *Biodiversity Assessment Report* (Jacobs 2017); four native vegetation communities were identified (refer to **Appendix F**); all woody vegetation within the approved project footprint has since been removed (refer to **Illustration 3.2**). Vegetation communities in the BAR were described under the BioMetric vegetation classification, these have been updated to reflect the BioNet Vegetation Classification System, as below:

1. Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the NSW North Coast Bioregion (Plant Community Type [PCT]:1209).
2. Spotted Gum - Grey Ironbark - Pink Bloodwood open forest of the Clarence Valley lowlands of the NSW North Coast Bioregion (PCT:1211).
3. Forest Red Gum - Swamp Box of the Clarence Valley lowlands of the NSW North Coast Bioregion (PCT:837).
4. Coastal freshwater meadows and forblands of lagoons and wetlands (PCT:782).

Vegetation within the substation site comprises a mix of various grasses, both native and introduced, including Blady Grass (*Imperata cylindrica*), Barbed Wire Grass (*Cymbopogon refractus*), Kikuyu (*Cenchrus clandestinus*), Three-awned Speargrass (*Aristida vagans*), Rhodes Grass (*Chloris gayana*), Vasey Grass (*Paspalum urvillei*), Kangaroo Grass (*Themeda australis*) and Scented Top (*Capillipedium spicigerum*). Some minor eucalypt regrowth (to 1.5 m) occurs (~10 trees). Areas of the stockpile site and laydown area comprise bare soil.

Vegetation along the transmission line corridor comprises scattered infrequent trees within a grassy ground layer within the perimeter security fence. Typical species include Grey Ironbark (*Eucalyptus siderophloia*) and Pink Bloodwood (*Corymbia intermedia*). A number of immature dead trees are present in small stands. This vegetation forms part of two small stands of PCT1209 (Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the NSW North Coast Bioregion), mapped as being in poor and moderate condition (refer to **Appendix F**). Vegetation within the residue land comprises a less disturbed form of PCT1209.

The balance of the easement comprises mixed grassland (natives and exotic; as per the substation pad) with very infrequent shrubs of Gorse Bitter Pea (*Daviesia ulicifolia*) and Spiny Bush-pea (*Pultenaea spinosa*).

As noted, vegetation subject to removal/disturbance for the proposed transmission line lies outside the approved vegetation clearing limits for the CCC (refer to **Appendix F**); grassland requiring removal for the substation (and associated stockpile and laydown areas) has been assessed for removal.

6.2.2.2 Threatened Flora

A search of the BioNet database returned records of five threatened flora species listed under the *Biodiversity Conservation Act 2016* (BC Act) within five kilometres of the site (refer to **Appendix G**). A search of the PMST tool for federally listed species and communities indicates habitat for 10 threatened flora species may occur within five kilometres of the site (refer to **Appendix G**).

No threatened flora species listed in the BC Act have been recorded at the site by previous assessments; assessment for this REF did not record any threatened flora species within the Activity footprint.

6.2.2.3 Threatened Ecological Communities

The BioNet database returned records of nine threatened ecological communities (TECs) listed under the BC Act within five kilometres of the site (refer to **Appendix G**). PMST search results indicate habitat for three TECs may occur within five kilometres of the site (refer to **Appendix G**).

While several threatened ecological communities occur in the locality (typically in association with floodplain environments), none are present at the site.

6.2.2.4 Fauna Habitat

The BAR (Jacobs 2017) identified various fauna habitats within or in the vicinity of the site including grassland, forest and wetland communities. Numerous hollow-bearing trees and dead standing trees were observed, with an average of 5.3 hollow trees per hectare recorded (refer to **Appendix F**). Previous investigations recorded 15 hollow-bearing trees in the far west of the site (outside the perimeter fence and within residual land) and the adjacent road reserve; all these trees will be retained. Twenty-three nest boxes have been installed within retained habitat in the south-west of the site (within residual land) as part of compensatory measures (refer to **Appendix F**). Habitat trees at the site have been previously marked with paint and flagging tape, much of which is still in place

Site investigations by GeoLINK confirmed four hollow-bearing trees require removal for the substation and transmission line corridor within the CCC site. These are all previously identified and marked habitat trees and were re-marked with white spray paint in the field to assist in identification.

6.2.2.5 Threatened and Significant Fauna

Field assessment for the BAR (Jacobs 2017) recorded nine threatened fauna species at the site:

- Glossy Black-Cockatoo (*Calyptorhynchus lathami*).
- Little Lorikeet (*Glossopsitta pusilla*).
- Grey-crowned Babbler (*Pomatostomus temporalis temporalis*).
- Brolga (Grus rubicunda).
- Black-necked Stork (*Ephippiorhynchus asiaticus*).
- Brown Treecreeper (*Climacteris picumnus victoriae*).
- Rufous Bettong (*Aepyprymnus rufescens*).
- Grey-headed Flying Fox (*Pteropus poliocephalus*).
- Little Bentwing-bat (*Miniopterus australis*).

Works at the site and nearby highway clearing works have also detected several threatened fauna species by GeoLINK ecologists including:

- Brush-tailed Phascogale (*Phascogale tapoatafa*).
- Little Lorikeet.
- Rufous Bettong.
- White-crowned Snake (*Cacophis harriettae*).

While installing nest boxes in the south of the site in September 2017, GeoLINK ecologists flushed three Rufous Bettong from grass refuge areas. A site inspection for this REF (November 2017) also flushed a single Rufous Bettong from long grass in the north-east of the site outside the perimeter security fence. Rufous Bettongs are likely to persist in any area of grassy woodland in the west of the

site outside the disturbed (and fenced) construction footprint. Fresh scratches consistent with Koalas were also observed on a Small-fruited Grey Gum outside the perimeter fence within residue land.

Based on the habitat at the site, there is potential for additional threatened fauna species to occur on an opportunistic or seasonal basis (refer to potential occurrence assessment at **Appendix H**). Impacts on all of these species were considered in the EIS and assessed under the *Threatened Species Conservation Act 1995* (TSC Act). Offsets in the BOS have been considered for all these species.

As this REF is being assessed under the BC Act, five-part tests of significance in accordance with Part 7.3 of the BC Act are required to account for the loss of scattered trees within the transmission line corridor and have been completed for all threatened fauna species with potential to occur at the site (refer to **Appendix I**).

6.2.3 Potential Impacts

Construction impacts

The Activity would require removal of a number of native trees and stags from within the transmission line corridor, including an estimated 34 danger trees (refer to **Table 6.1**). All dead trees (stags) to be removed are immature and do not contain significant hollows or other features. As noted, four hollow-bearing trees require removal for the Activity.

Affected vegetation and habitat trees are shown at **Illustration 6.1**.

While several threatened fauna species may utilise various habitats at the CCC site this is likely to be on an opportunistic or seasonal basis and in the context of broader home ranges (e.g. Rufous Bettong). Habitat within the CCC footprint has now been substantially cleared and modified and will be subject to ongoing noise and disturbance over the next two to three years while the CCC is being constructed. These works, along with impermeable perimeter fencing substantially reduces the value of the CCC site as threatened fauna habitat. However, removal of any danger trees within residual land poses a potential threat to Rufous Bettongs (and arboreal fauna) which may be sheltering in this part of the site, including within two habitat trees within residue land.

Table 6.1 Trees to be Removed for the Activity

Scientific name	*Common name*	*No. removed*
Allocasuarina torulosa	Forest Oak	1
Corymbia intermedia	Pink Bloodwood	20
Corymbia variegata	Spotted Gum	2
Eucalyptus siderophloia	Grey Ironbark	24
Eucalyptus tereticornis	Forest Red Gum	4
Eucalyptus tindaliae	Grafton Stringybark	1
Dead tree (stag)		44
	TOTAL	**52 live trees; 44 dead trees**

Illustration 6.1 Biodiversity Impacts

Operational impacts

As noted previously in this REF, during standard operations the substation will be unmanned. Field staff access the site on a regular basis to complete routine inspection and maintenance works within the substation footprint. This aspect of the Activity would have no biodiversity impacts. The transmission line would also require access by field staff to complete routine inspection and maintenance works, such as:

- Inspection and maintenance of transmission lines, structures and poles, and
- Vegetation removal required to maintain appropriate clearances between ground vegetation and transmission lines.

The second point would require slashing of the ground layer as required. This would not impact on biodiversity values as the transmission line corridor would have already been cleared for construction and groundcover would comprise disturbed grassland. Slashing of the easement would not impact on any potential habitat for threatened fauna (e.g. Rufous Bettong) as existing exclusion fencing ensures that no mobile ground-dwelling fauna are able to enter the site.

Five-part tests of significance in accordance with Part 7.3 of the BC Act were completed for all species either known to occur at the site, or likely to utilise habitat within the site for a significant part of their lifecycle (refer to **Appendix I**). The five-part tests concluded that the Activity is unlikely to result in a significant impact on any threatened species listed in the BC Act.

As noted, loss of vegetation and habitat for the substation lies within the Stage 2 Development Zone and has already been considered and accounted for as part of the BAR. Scattered trees requiring removal for the power line (refer to **Table 6.1**) were not assessed for removal in the BAR/EIS; however, this vegetation loss is very minor (19 native trees) and the nominal impacts of the Activity to existing biodiversity values in the context of the approved site development are negligible. On this basis, compensation for vegetation loss is not required.

The Activity is unlikely to result in significant impacts to any threatened species, communities or migratory species listed under the EPBC Act and referral to DoEE and approval by the Minister is not required.

6.2.4 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse ecological impacts:

1. With the exception of the removal of danger trees, no works are to occur within residual land.
2. Prior to vegetation clearing commencing the transmission line easement will be clearly marked to reduce the risk of vegetation loss outside the easement.
3. Damage to trees outside of those that require clearing will be avoided at all times.
4. Habitat trees to be removed shall be clearly marked with spray paint and flagging tape prior to works commencing.
5. An ecologist is to be present during the clearing of any habitat trees. Clearing shall be undertaken as a two-stage process, with all live trees (and immature stags) removed initially (Stage 1), and habitat trees (Stage 2) removed at least 24 hours following stage one clearing works.
6. Where clearing of danger trees on residual land is required, a pre-clearing flush survey will be completed by an ecologist to ensure Rufous Bettong are not sheltering in long grass where they may be affected by machinery or felled trees. No such actions are required within the Stage 2 footprint as the site is securely fenced and no ground dwelling fauna have access to the site.

7. Compensatory nest boxes are to be installed within residual land at a ratio of 1:1 to offset the loss of the four habitat trees.
8. In the unlikely event that a Koala or any threatened fauna is found to be occupying a tree within the works zone, a flagged exclusion zone will be established (minimum 50 m) in which works will not proceed until the animal has moved from the site of its own volition.
9. Stockpiling will not occur under the crown of existing native trees (i.e. the crown comprises the full width of the branches).
10. All vegetation removed will be chipped and removed from the site; millable timber shall be salvaged wherever possible. No vegetation waste will be burnt.
11. All plant, equipment and personnel will be free of soil and potential weed propagules prior to being brought to the site.
12. Should injured fauna be found on the site, local wildlife care groups and/ or local veterinarians will be contacted immediately, and arrangements made for the immediate welfare of the animal. The phone number of the local WIRES group (ph: 1800 094 737) will be known to the project foremen.

6.3 Traffic and Access

6.3.1 Existing Environment

The CCC is accessed from Avenue Road, which has been recently upgraded to meet heavy vehicle requirements. The road upgrade has been completed from Old Six Mile Lane to the northern boundary of the CCC site over a distance of approximately 2.6 km, with the former single lane road being widened to provide an eight-metre wide carriageway, accommodating a two-lane sealed road (one lane in each direction).

The existing road reserve does not provide an accessible road shoulder. A speed limit of 80 km/hr applies to the majority of Avenue Road, however a 60 km/hr zone has been implemented to the portion of road adjacent to the CCC. The road upgrade was completed to accommodate traffic associated with both the construction and operational stages of the CCC and was determined by an REF separate to the SSD application for the CCC (refer to GeoLINK 2017).

Recent traffic monitoring undertaken by RMS between March-April 2018 determined the following vehicle movements along Avenue Road:

- Light vehicles: 310 per working day
- Heavy vehicles: 120 per working day
- Total: 430 vehicles per working day.

6.3.2 Potential Impacts

Construction impacts

Construction traffic will access the site through the main entrance to the CCC site and utilise the internal road network to access the substation site, which includes parking areas for plant and vehicles (refer to access plan at **Appendix B**). Access to the transmission line will occur within the designated 30 m wide easement that will be created across the site.

Traffic would be generated by the Activity during construction through:

- Construction employees entering and leaving the site;
- Truck deliveries to the site for construction purposes;
- Equipment and plant being delivered to the site for construction purposes; and
- Periodic deliveries to the site for construction materials.

Traffic required for the construction of the Activity would typically occur within daytime hours and be limited to approved hours of construction. However, as noted, some events (e.g. late deliveries, emergency works) may occur at any time. It is expected these events would not be significant.

As noted above, Avenue Road carries up to 430 vehicles per working day. It is estimated that the construction phase of the Activity may generate up to an additional 110 vehicles (70 light vehicle movements and 40 heavy vehicle movements) on a daily basis.

In the context of the existing volume and frequency of traffic to and from the CCC construction site and on the local road network, it is considered that the additional traffic movements associated with the Activity are minimal. Accordingly, the impact of the additional traffic movements associated with the construction of the substation and associated transmission line within the CCC site boundaries would represent a small and temporary increase to existing traffic movements.

Operational impacts

The substation is unmanned. Accordingly, traffic during the operational phase will be minimal and limited to light vehicles and medium plant only necessary to complete the maintenance tasks as described in **Section 3.6** of this REF. The type of vehicles associated with the maintenance regime include:

- Light vehicles (4WD)
- Small mobile crane and small EWP for transformer maintenance
- Pump out truck for septic.

6.3.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to traffic and access:

13. Regard to public safety will be maintained at all times through the implementation of a Construction Traffic Management Plan (CTMP) which will manage all deliveries, access, parking, observation of speed limits etc. The CTMP must be consistent with the site access protocols as attached at **Appendix B**.

6.4 Soils, Erosion and Sedimentation

6.4.1 Existing Environment

The Activity occurs on slightly elevated land, none of which is mapped as containing Acid Sulfate Soils (ASS) in the Clarence Valley LEP. Review of ASS risk mapping in the eSPADE (v2.0) viewer (http://www.environment.nsw.gov.au/eSpade2WebApp#) indicates that no areas of ASS risk occur at the site.

A search of the NSW DPI Cattle Dip Site Locator (https://www.dpi.nsw.gov.au/animals-and-livestock/beef-cattle/health-and-disease/parasitic-and-protozoal-diseases/ticks/cattle-dip-site-locator) was undertaken 14 February 2018 to determine if any cattle dip sites are recorded in proximity to the site. No cattle dip sites occur within proximity to the site.

A search of the NSW EPA Contaminated Land Register (http://www.epa.nsw.gov.au/prclmapp/searchregister.aspx) was undertaken 14 February 2018 to determine if any areas of contaminated land occur in proximity to the site. No known records of contamination occur within proximity to the site.

As noted, substantial soil disturbance has already been completed over much of the site as part of construction works associated with the CCC undertaken by the John Holland Group.

6.4.2 Potential Impacts

Construction impacts

For the substation, an estimated 600 m³ of topsoil will be removed. This will be stockpiled and re-spread where possible over disturbed areas/ batters etc to assist rehabilitation.

A further 1000 m³ of soil will also require removal for the excavation of footings, conduits, spoil oil tank, cable trenches etc. This spoil will be stockpiled locally during construction and if it cannot be reused within the larger CCC project then it will be disposed of off-site to an appropriate licenced facility.

For the transmission line, limited spoil will be generated by excavation for the poles and the guys. Spoil will be spread locally over the easement such as to not present an erosion and sediment risk. In the event of increased spoil quantities due to poor soil conditions, spoil will be stockpiled for reuse within the larger CCC project or disposed of off-site to an appropriate licenced facility.

The Activity would not impact any areas likely to contain acid sulfate soil (potential and/ or actual). The works pose a minor risk from erosion and sedimentation as a result of the ground disturbance, however existing sediment control and sediment basins have been established for construction activities and will be utilised during the construction period.

There is no apparent risk associated with contaminated land and no cattle dip sites are proximate to the site. Regardless, safeguards will be in place should unexpected contamination be encountered during the works.

The Activity would not result in any additional impacts to underlying geology and soils or pose any additional contamination risk as part of the ongoing operation of the substation and the transmission lines. Potential impacts to underlying soils and geology during the proposed Activity are expected to be minor.

Operational impacts

Once operational, the substation and transmission line would not require any activities which results in any soil disturbance.

6.4.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to soil, erosion and sedimentation:

14. A Soil and Water Management Plan (SWMP) will be prepared by a Certified Professional in Erosion and Sediment Control (CPESC) and endorsed by INSW prior to works commencing and form part of the Construction Environmental Management Plan (CEMP). All control measures in the SWMP shall be designed, implemented and maintained in accordance with relevant sections of *"Managing Urban Stormwater: Soil and Construction Volume 1"* (Landcom, 2004) ('the Blue Book') (particularly Section 2.2) and *"Managing Urban Stormwater: Soils and Construction Volume 2A – Installation of Services"* (DECC, 2008). The SWMP shall include stockpiles, stormwater run-off, trees, site boundaries, site access and storage areas.
15. Any unsuitable excavated material/ waste will be classified, managed appropriately (in accordance with the CEMP, including placement in approved stockpile locations or approved landfill facilities as appropriate.
16. In the event that unexpected contaminated land is encountered during the works, works will stop immediately, and relevant procedures outlined in a CEMP will be followed.
17. Only clean equipment and vehicles will be used (refer to safeguard 7).
18. Following spreading of any top soil, these areas will be stabilised with non-invasive grasses (e.g. Japanese Millet, Ryegrass).
19. Upon completion of the works, disturbed areas that are not required for the ongoing operation of the substation and transmission line will be re-established to similar existing conditions.

6.5 Water Quality

6.5.1 Existing Environment

Major watercourses in the locality include the Coldstream River and associated significant wetlands (approximately 800 m east of the site) and Glenugie Creek (approximately 1.6 km west of the site). The site occurs on an elevated ridge between both wetland systems, is not flood prone and no natural watercourses occur.

6.5.2 Potential Impacts

Construction impacts

The Activity presents minimal risks to waterways and nearby wetland areas with the adoption of existing sedimentation and erosion controls already established on-site as part of the CCC

construction (i.e. constructed sediment ponds and flow paths). However, there remains the potential for chemical spills from construction work, refuelling activities or plant failure.

With appropriate mitigation measures in place during construction, the Activity is considered unlikely to present significant risk to waterways and wetlands in the area.

Operational impacts

Post construction, the Activity would not have any potential to negatively impact water quality above or beyond the current situation.

6.5.3 Safeguards and Management Measures

The following measures will be implemented in order to prevent adverse impacts relating to water quality:

20. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment.
21. Any required fuels and other liquids will be stored in self-safe chemical storage containers.
22. All refuelling of plant and equipment will occur in appropriately designated areas.
23. Cleaning of tools and equipment will occur in appropriately designated areas.
24. All equipment will be maintained in good working order and operated according to manufacturer's specification.
25. No waste and/or wastewater will be discharged directly or indirectly in drains or waterways.
26. The EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555).

6.6 Non-Aboriginal Heritage

6.6.1 Existing Environment

Searches of the Department of Environment and Energy Australian Heritage database, OEH State Heritage Branch database and Schedule 5 of the CVLEP 2011 were undertaken on 14 February 2018 in relation to the Activity. No items of non-Aboriginal heritage significance are known to occur in proximity of the site.

The closest listed heritage site to the CCC is at Tucabia (Tucabia Well; item 1437 in Schedule 5 of the CVLEP 2011), approximately 9 km north-east of the site.

6.6.2 Potential Impacts

Construction impacts

The Activity is considered to present low risk to non-Aboriginal heritage given the search results and that no heritage sites have been recorded at or in the vicinity of the site as part of the investigations associated with the SSD application for the CCC; the Activity would not represent a risk to any known heritage sites.

Operational impacts

Once operational the Activity would have no potential to impact on non-Aboriginal heritage.

6.6.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts to any items of non-Aboriginal heritage:

27. If any suspected archaeological items are uncovered during the works, all works will cease in the vicinity of the material/ find. Contact with NSW OEH Heritage Branch will be made immediately.

6.7 Aboriginal Heritage

6.7.1 Existing Environment

As part of the Stage 1 State Significant Development Application (SSDA) for the CCC project, an *Aboriginal Archaeological Assessment and Aboriginal Cultural Heritage Assessment* were undertaken by Jacobs Group in 2016, on behalf of Infrastructure NSW. These assessments included all areas of the CCC site, including the proposed location of the substation and new internal transmission easement. Aboriginal cultural heritage and archaeological assessment of the CCC site included assessment and Aboriginal community consultation in accordance with NSW Office of Environment and Heritage (OEH) statutory guidelines, including *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales*, *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW*, and *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*.

As part of the 2016 Aboriginal cultural heritage and archaeological assessment, Jacobs Group undertook a desktop assessment, an archaeological field survey (including the substation location), and archaeological test excavation within the CCC site, which lead to identification of several Potential Archaeological Deposit (PAD) sites, which were then subject to archaeological salvage excavation (Jacobs 2018, *New Grafton Correctional Centre, Salvage Report)*. The Salvage Report concluded that *'the results of the archaeological salvage has redefined AHIMS site 09-4-0108 (W2X1 Site 8) and fulfilled the cultural heritage management obligations for the project'*.

Therefore, the substation subject site (subject of this REF) has been included within the Aboriginal archaeological and cultural heritage assessment for the site and does not require further assessment at this time. However, the recommendations detailed within the Salvage Report, and the Aboriginal Cultural Heritage Management Plan should be applied to the development of the substation, including requirements for Compliance Management, Unexpected discovery of archaeological finds Procedure, and other management implementations.

The *Aboriginal Cultural Heritage Management Plan* (Jacobs 2018) is attached in full at **Appendix E**.
Potential Impacts

Construction impacts

The Activity is considered to present low risk to Aboriginal heritage, given the completion of the aforementioned artefact salvage operations.

Operational impacts

Once operational, the substation and transmission line would not require any activities where soil disturbance is required, and hence there is no potential to impact on Aboriginal heritage.

6.7.2 Safeguards and Management Measures

Notwithstanding the completion of salvage operations at the site, management measures will be implemented, based on the ACHMP safeguards in order to prevent adverse impacts to any items of Aboriginal heritage. Should any Aboriginal sites, relics or human remains be disturbed during the Activity, the following procedures must be implemented:

28. If Aboriginal finds or relics are exposed during construction all work is to halt at that location immediately and the Environmental Manager on-site is to be immediately notified to allow assessment and management.
29. The immediate area where the artefacts were disturbed should be protected by a highly visible tape surrounding a buffer area of 10 m x 10 m.
30. Works cannot commence within this area until an archaeologist and a representative of the RAPs has inspected the Aboriginal sites or relics and contacted OEH. This would occur as soon as practicable.
31. The Contractor's Environmental Manager (or similar) on-site is to notify the Office of Environment and Heritage using the following contact details: Phone: 02 6659-8288; Mobile: 0457 907 5354; Email: Roger.Mehr@environment.nsw.gov.au**;** Postal address: PO Box 494 Armidale NSW 2350.
32. Once an archaeologist and a representative of the Registered Aboriginal Party (RAP) has inspected the area and assessed the significance of the finds work can recommence provided no salvage activities are required.
33. If there is an unexpected find that requires any salvage works these will be carried out under the supervision of a qualified archaeologist and representative of the RAPs for the Project.
34. Any salvage works would be implemented in accordance with the methodology previously approved for the Project and described in Appendix A of the ACHMP (refer to **Appendix E**).
35. Should human remains be uncovered during works the following procedures must be followed:
    a) Immediately after remains are exposed, all work is to halt at that location and the Environmental Manager on-site is to be immediately notified to allow assessment and management.
    b) The Contractor's Environmental Manager (or similar) on-site is to notify the INSW Representative.
    c) The local NSW Police must be contacted by the contractor.
    d) The OEH Environment line on 131 555 and the Heritage Branch (Heritage Division, OEH) on (02) 9873 8500 must be contacted by the contractor.
    e) A physical or forensic anthropologist would inspect the remains in situ (organised by the police, unless otherwise directed by the police), and make a determination of ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or forensic).
    f) If the remains are identified as forensic, the area is deemed as a crime scene.
    g) If the remains are identified as Aboriginal, the site is to be secured and OEH and all Aboriginal stakeholders are to be notified in writing.
    h) If the remains are identified as non-Aboriginal (historical) remains, the site is to be secured and the Heritage Branch (Heritage Division, OEH) is to be contacted.

6.8 Noise and Vibration

6.8.1 Existing Environment

The site occurs within a rural area predominantly used for agricultural purposes (grazing). While several residences occur adjacent to the CCC site, no sensitive receivers occur within 200 m of the Activity.

The existing background noise is typical for a rural area and includes local vehicle traffic noise and agricultural noises associated with farm machinery and livestock. Construction works associated with the CCC and Section 3 of the Woolgoolga to Ballina (W2B) Pacific Highway Upgrade have resulted in elevated noise in the immediate locality, with construction works at the CCC programmed to continue for at least three years. In this context, the minor noise generated by additional works for the construction of the substation and installation of the associated transmission line is relatively low.

6.8.2 Potential Impacts

Construction impacts

Noise associated with the construction phase would be generated by machinery, equipment and vehicles (for tree removal, excavation, construction etc). This would result in noise and possible vibration emissions within the immediate area. However as noted, given the context of the existing construction works the potential to affect nearby residences is considered very low. Construction traffic would use the existing local road network, with traffic numbers likely to be low enough to be absorbed into general traffic numbers without an audible change in noise level.

Under the Interim Construction Noise Guidelines (DECC 2009):

- the noise management level for works during the recommended standard hours is background + 10 dB(A). Above this noise level, the proponent needs to implement all feasible and reasonable work practices, as defined in the Guideline, to minimise noise impacts;
- for works outside the recommended standard hours, the noise management level is background + 5 dB(A); and
- the highly noise-affected level of LAeq 75 dB(A) represents the point above which there may be strong community reaction to noise and indicates a need to consider other feasible and reasonable ways to reduce noise, such as restricting the times of very noisy works to provide respite to affected residences.

The NSW EPA website suggests that review of predicted noise levels for some recent major construction projects indicated that a level of 75 dB(A) would not likely be triggered on many projects. Given the scale, location and methodology of the proposed works, it is unlikely that the Activity would result in a highly noise-affected level of LAeq 75 dB(A) at any local sensitive receiver locations.

Overall, no significant short-term or long-term adverse noise and vibration impacts are expected to result from the Activity and reasonable safeguard and management measures can be implemented to ensure no adverse impacts.

Operational impacts

The substation will include the installation of low noise transformers and noise walls to meet noise level restrictions at the substation boundary fence. Noise walls to be installed are typically a five-metre high wall that surrounds the transformers (refer to **Figure 6.1**). The physical separation between the closest inmate cell and the proposed substation is in the order of 200 m. It is noted that a further physical barrier is provided in the form of a six-metre high masonry wall around the correctional facility accommodation.

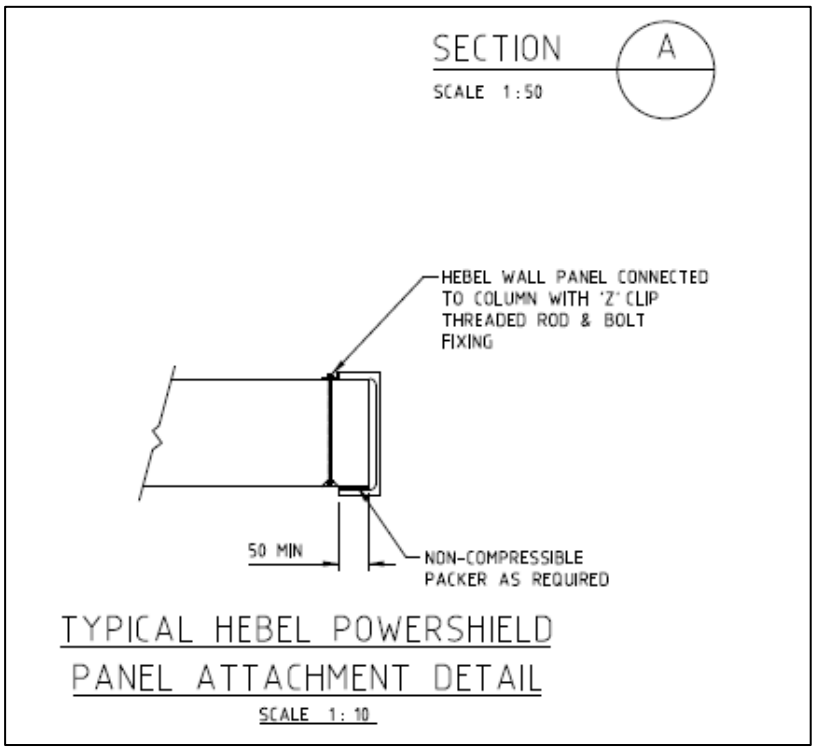

Figure 6.1 Detail of Hebel wall panel for noise reduction (Source: TransGrid)

Day Design Pty Ltd (Acoustic Engineers) provided an acoustic assessment for the SSD application for the CCC. In view of their knowledge of the project, Day Design were engaged to provide advice regarding the potential acoustic impact associated with the operational phase of the proposed substation (refer to **Appendix J**).

The advice indicates that:

- Based on the physical separation (1250 m) between the proposed substation and nearest residence it is unlikely the substation will be auditable at the residence;
- It is unlikely the substation will cause an adverse acoustic impact to staff, visitors or inmates in its proposed location as a result of the six-metre high concrete security fence;
- It is unlikely that the substation will cause a hearing hazard to maintenance workers in the nearby tank farm located 575 m from the substation;
- It is unlikely that the substation will require any acoustic mitigation from the use of low noise transformers as selected (sound level of 75 dBA from Ausgrid; and
- Overall, there will be no acoustic impact from the substation on private residences, inmates, staff or visitors.

Having regard to the above and based on the adoption of the recommended noise mitigation measures, no significant noise is expected as a result of the substation operation.

6.8.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to address adverse impacts relating to noise and vibration:

36. Construction activities will be undertaken in accordance with approved construction work hours at the CCC i.e. Monday to Friday: 7:00 am to 6:00 pm and Saturday 8:00 am to 5:00 pm. Where works are required outside the approved hours (e.g. major plant deliveries, transformer filling, commissioning, line cut-in and energisation, emergencies) or to integrate with construction of the Correctional Centre, consultation will be undertaken with any potentially impacted neighbours.
37. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g. continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required.
38. All vehicles and equipment will be turned off and not left idling when not required for work uses.
39. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.

6.9 Air Quality

6.9.1 Existing Environment

The Activity is located in a predominantly rural context. Potential airborne particles within the locality are largely restricted to agricultural activities, vehicle emissions and minor dust generated by vehicle movements in the broader landscape. Controls for air quality are already in place for existing construction activities at the CCC site.

6.9.2 Potential Impacts

Construction impacts

The Activity may temporarily affect air quality through exhaust emissions from machinery and associated transportation. There may also be minor dust generated during earthworks and minor excavations and the removal of trees. There is potential that emissions and dust generated from the works may result in air quality impacts to sensitive receivers. However, given the temporary duration of the works in the context of the CCC project and the localised nature of the Activity, the level of potential impact is not considered significant and can be managed or minimised through implementation of safeguards and management measures.

Circuit Breakers are typically delivered with a small amount of gas to create a small positive pressure to stop increase of moisture. Once erected on-site, the circuit breakers will be filled up to operational pressure under controlled conditions.

Operational impacts

Once operational, the substation and transmission line would not impact on air quality at the site, other than from minor emissions from vehicles accessing the substation and transmission line easement for maintenance works.

6.9.3 Safeguards and Management Measures

The following mitigation measures will be implemented in order to prevent adverse impacts relating to air quality:

40. Any surplus soils and materials from excavations which cannot be reused on-site shall be removed from the site in covered trucks and disposed of at an appropriately licensed facility.
41. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation.
42. Construction works will not be carried out during strong winds (i.e. weather conditions where high levels of dust or air borne particulates are likely).
43. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle.
44. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.

6.10 Visual Amenity

6.10.1 Existing Environment

CCC is an active construction site within a rural landscape, with impacts of the final build assessed and approved under the SSD application. With reference to **Illustration 3.2**, the substation and transmission line would not be significantly visible to and adjacent landowners or traffic utilising Avenue Road due to a combination of topography, landscaping, existing tree cover (northern and western boundaries of the CCC) and the buildings which form part of the CCC itself.

Significant construction works also occur nearby as part of the W2B Pacific Highway upgrade.

6.10.2 Potential Impacts

Construction impacts

During construction there may be minor visual impacts generated by:

- Temporary site office and amenities buildings
- Earthworks
- Delivery and stockpiling of materials
- Stockpiling of excavated soil
- Construction and installation of proposed substation and transmission towers and cabling
- Use of cranes and excavation machinery

Visual receivers for the proposed Activity during the construction period would include local residents driving along Avenue Road (in the sense of seeing additional vehicles and plant entering the site) and residents at Lots 1172 and 1173 DP739102, immediately north of the CCC. The Activity will not be visible from Avenue Road during construction works.

Given the context of the Activity (as part of the construction works on the wider CCC site), the retention of vegetation along the northern boundary and the fact that no sensitive receivers would be impacted by the proposed Activity, it is considered that the potential visual impact during construction would be minimal.

Operational impacts

The SSD approval requires the following vegetative buffers are established at the CCC: 50 m along the northern boundary, 15 m along the eastern boundary and 30 m along the southern boundary. These vegetation buffers will significantly limit any visual impacts of the CCC, and hence screen the substation and transmission line (refer to **Figure 6.2**). Landscaping works will also include plantings along access roads and around detention basins to supplement planted vegetative buffers. The built form of the CCC will also partially screen elements of the Activity. The substation and transmission line are unlikely to result in any significant visual impacts associated with the operation of the CCC.

As noted, the substation pad will be finished with gravel and the substation building will be non-reflective. A three-metre high steel palisade fence will be installed around the substation. The transmission line corridor will comprise mown grass. None of these final built/ finished aspects of the Activity would have significant visual impacts.

Figure 6.2 View east from Avenue Road with vegetative screening (Source: EIS)

6.10.3 Safeguards and Management Measures

The following measures will be implemented in order to prevent and/or minimise adverse impacts relating to visual amenity:

45. The site will be maintained, kept free of rubbish and cleaned up at the end of each work day.

6.11 Socio-economic Considerations

6.11.1 Existing Environment

The substation and the associated transmission line are essential to the operation of the CCC facility which is currently under construction. The area surrounding the proposed Activity site generally consists of agricultural (grazing) land, interspersed with areas of native vegetation. Residential development in the locality is sparse. The nearest dwelling is located approximately one km to the north of the substation location on Avenue Road.

6.11.2 Potential Impacts

Construction impacts

Due to the sparseness of habitation in the locality, impacts on the community through loss of visual or acoustic amenity associated with the Activity would be minimal. All works associated with the proposed Activity will occur within the CCC site boundary, as such there is no potential for works to impact on agricultural activities on adjoining land. While the Activity will result in a marginal increase in traffic volumes during the construction phase (refer to **Section 6.3**), additional traffic is not expected to adversely impact on the safety and function of the local road network.

The Activity is therefore unlikely to cause any substantive negative socio-economic impacts and there is unlikely to be any significant disruption to businesses, traffic or access during the construction process.

The Activity would result in positive socio-economic outcomes as it would support the operation of the Clarence Correctional Centre which in turn will provide an important future source of local employment. Given the nature of the Activity, the site context and temporary construction period, no adverse long-term socio-economic impacts are anticipated.

Operational impacts

Once operational the Activity would be unlikely to result in any adverse socio-economic impacts upon local residents or staff/inmates at the CCC. The Activity may have positive socio-economic benefits in the locality by the provision of additional employment opportunities.

6.11.3 Safeguards and Management Measures

No mitigation measures to prevent adverse socio-economic impacts are required.

6.12 Waste

6.12.1 Existing Environment

Under the existing construction process, JHG have developed an approved waste management plan (WMP) whereby all waste is managed under the WMP, which is registered in the CEMP for the CCC.

It is noted that the contractor will be required to manage their own waste as part of the Activity and develop their own WMP.

6.12.2 Potential Impacts

Construction impacts

The Activity would be undertaken to ensure minimal impacts are generated from waste produced on-site by ensuring that all waste is managed appropriately. As noted, no spoil will be removed from the site. Stockpiled spoil will become the responsibility of INSW following completion of the works.

Waste generated from the Activity may include, but is not limited to:

- Packaging materials.
- General site rubbish.
- Oils and grease from machinery.
- Plastic pipe cut offs and scrap metal.
- Soil spoil.
- General building materials waste.

Operational impacts

Wastes generated during operations are largely limited to packaging wastes or those associated with food (e.g. lunches etc) and materials. These would be minor in nature and either removed off-site or disposed of within the CCC waste system.

6.12.3 Safeguards and Management Measures

Measures to prevent adverse impacts in relation to generated waste will include:

46. Preparation of a Waste Management Plan for inclusion in the project CEMP.
47. Waste material will not be left on-site once the works have been completed.
48. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate.
49. Waste will be disposed of at a licensed waste or recycling facility as appropriate.

6.13 Climate Change

6.13.1 Existing Environment

Climate change associated with global warming resultant from human activities and the creation of greenhouse gases affects the environment. The proposed Activity is not located in a low-lying area or near the coast.

6.13.2 Potential Impacts

Construction impacts

The Activity would contribute to carbon emissions and climate change to a minor extent via the emissions of carbon dioxide by construction equipment as well as the consumption of materials requiring carbon emissions and the removal of vegetation that may otherwise act as a carbon sink. Given the scale of the works however, the influence on climate change would be negligible. However, it is appropriate to implement measures that can reduce or minimise such effects.

Operational impacts

Electricity assets are subject to regular maintenance and monitoring to ensure all equipment is operating effectively. Minimal staff are required to attend the substation/ transmission line thus limiting associated vehicle use.

Clause 228(2)(p) of the EP&A Regulation requires consideration of any impact on coastal processes and hazards, including those under projected climate change conditions. The NSW Government acknowledges that increased sea levels will have significant medium to long-term social, economic and environmental impacts for development located in the coastal zone. However, the proposal is not within the coastal zone.

6.13.3 Safeguards and Management Measures

Mitigation measures to prevent adverse impacts in relation to climate change will include:

50. Preparation of a Waste Management Plan Waste (refer to safeguard 37) so waste is minimised and recycling opportunities are available.

6.14 Bushfire Risk

6.14.1 Existing Environment

While the site comprises Bush Fire Prone Land, the development of the CCC at the site has required the removal of scattered tree cover and grassland to the extent that hazardous vegetation occurs at low levels (essentially limited to small areas of woodland within residual land).

6.14.2 Potential Impacts

Construction impacts

The works do not require any specific 'hot works' or other activities which may comprise a high fire risk. There is minimal potential for the works to generate a bushfire (e.g. from sparking equipment) with the adoption of standard fire reduction measures.

Operational impacts

The substation will be surrounded by a 20 m wide APZ as per the CCC approval, which will be kept clear of vegetation and infrastructure, providing a buffer from the substation to any potential bushfires. There is little risk of bushfire occurring from the transmission lines and all infrastructure will be inspected and maintained as required.

6.14.3 Safeguards and Management Measures

51. A bushfire contingency and evacuation plan shall be developed as part of the CEMP in consultation with JHG.
52. All plant, equipment and practices will incorporate measures to reduce or minimise risk of fire; this information will be detailed in the CEMP.

6.15 Land Use

6.15.1 Existing Environment

The site is currently a construction site under the jurisdiction of John Holland Group. The Activity will be completed wholly within the works easement (as described in **Section 3.3**) and will not conflict with any other works within the site. Adjacent land in the locality is predominantly agricultural land utilised for grazing.

6.15.2 Potential Impacts

Construction impacts

The construction of the substation and transmission line is unlikely to have any impacts on the existing construction environment at the site, nor would it impact on agricultural land.

Operational impacts

There will be no significant operational impacts from the substation and transmission line as neither asset will conflict with operational objectives of the CCC, nor would they impact on agricultural land.

6.15.3 Safeguards and Management Measures

No safeguards are required.

6.16 Electric and Magnetic Fields

An assessment of Electric and Magnetic Fields (EMFs) is required as the Activity involves the installation of new infrastructure. EMFs are part of the natural environment with electric fields present in the atmosphere and static magnetic fields created by the earth's core. EMF is also produced wherever electricity or electrical equipment is in use. EMFs are produced wherever electricity or electrical equipment is in use. An electric field is the force associated with electric charge, including any powered electrical appliance or conductor (e.g. a transmission line). Electric fields are measured in volts per metre (V/m) or kilovolts per metre (kV/m) and occur both naturally in the environment and as a result of power generation, being produced every time voltage runs through a wire. The higher the voltage, the stronger the electric field. Electric fields are strongest closest to the wires with levels reducing significantly with distance. Most materials act as a shield or barrier to electric fields.

Magnetic fields are produced by the flow of an electric current through a wire and are measured in milligauss (mG). The higher the current, the greater the magnetic field. As for electric fields, magnetic fields are highest closest to the wire with levels reducing significantly with distance. Unlike electric field, most materials do not act as a shield or barrier to magnetic fields.

In combination, electric and magnetic fields are referred to as EMF.

The assessment of EMFs is the responsibility of the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA). ARPANSA has adopted the International Commission on Non-Ionizing Radiation Protection (ICNIRP) guidelines for limiting exposure to EMF (2010). The ICNIRP Guidelines express limits in terms of 'Reference Levels' and 'Basic Restrictions' under general public and occupational exposure conditions.

The Basic Restriction values are expressed as the internal electric fields which can be induced in the body without adverse health outcomes. As the Basic Restriction values apply within body tissue, it is difficult and impractical to measure them. For that reason, Reference Levels, which are simpler to measure, are provided as an alternative means of showing compliance with the Basic Restrictions. If desktop study and/or direct field measurements show that the EMF is below the Reference Levels, the EMF is well within the Basic Restrictions. The reference levels may be exceeded if it can be demonstrated that the basic restrictions are still met.

Reference levels as per the ICNIRP Guidelines are as follows:

- Public exposure:
  - - electric field: 5 kV/m
  - - magnetic field: 2000 mG
- Occupational exposure:
  - - electric field: 10 kV/m
  - - magnetic field: 10,000 mG

6.16.1 Existing Environment

EMF has no relevance to the existing environment based on the absence of any electrical infrastructure.

6.16.2 Potential Impacts

Construction impacts

As for the existing environment, EMFs would not be significantly generated through the construction period as the substation and transmission line would not be operational. EMFs only require consideration when an electrical asset is in operation (refer below).

Operational impacts

Once installed and operational, the site would contain EMF generating electrical equipment in the form of the HV substation and transmission line. Consequently, there would increases to electric and magnetic fields at the site. However, the proposed infrastructure lines would be designed and built to ensure that exposure levels are within the limits recommended by the ICNIRP Guidelines (2010). No inmates or CCC staff will access the transmission lines or substation and entry will be to authorised operators only. The substation will have security fencing installed to prevent entry by any unauthorised persons.

HV substation

Electrical equipment utilised in the HV substation would be contained within metal safety enclosures, which also serve to shield operators (as well as inmates and staff of the CCC) from electric fields associated with the electrical equipment. Accordingly, both the alternating and static electric field contribution from the proposed substation would be negligible both inside and outside the substation. Magnetic fields are not as easily shielded. ARPANSA has published a Draft Standard for exposure to magnetic fields which advocates a full-time exposure limit of 1000 mG and a higher value for occupational exposure.

The alternating field levels to which people may be exposed would be greatest in the localised areas within the substation near the transformer tails, the High Voltage AC switchgear and at cable risers. These localised field levels decrease rapidly at small distances from the cables and equipment. EMF studies on similarly configured substations have concluded that static magnetic field levels are well below the general public guidelines in areas outside metal safety enclosures. As such, it is unlikely that the proposed HV substation would result in any potential health risks for operators, or CCC staff or inmates.

Transmission lines

The transmission line operation would result in a localised alteration to EMF Activity in the immediate vicinity of the transmission line. However, similar to the proposed substation, localised field levels would decrease significantly at distance from the cables and is not anticipated to result in any impacts to adjacent properties.

The transmission lines have been designed consistent with the concept of prudent avoidance. Prudent avoidance is generally defined as what can be done at modest cost and without undue inconvenience to avoid a possible risk. With regard to the proposed Activity, it can be demonstrated that the following steps have been undertaken, consistent with the concept of prudent avoidance:

- Designing structures with appropriate clearance (height above ground) to ensure EMF exposure levels are below the relevant guidelines
- Siting the alignment to avoid proximity to any nearby residential dwellings (and so maximising the distance from public exposure).

On this basis, it is unlikely that the Activity would result in any potential health risks to operators and/or CCC staff or inmates with respect to EMF associated with the new transmission lines.

6.16.3 Safeguards and Management Measures

Mitigation measures to prevent adverse impacts in relation to EMFs will include:

53. Final designs shall be in accordance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (2010).
54. Activities within the easement shall be in accordance with easement safety requirements established by the owner/ operator of the electricity infrastructure.

6.17 Cumulative Impacts

6.17.1 Existing Environment

Under Clause 228 of the EP&A Regulation 2000, any cumulative environmental effect with other existing or likely future activities must be considered when assessing the impact of an Activity for the purposes of Part 5 of the EP&A Act.

Cumulative impacts are incremental environmental impacts caused by the combination of past, present, and reasonably foreseeable future actions. Cumulative impacts accumulate over time, from one or more sources. While impacts may be insignificant in isolation, significant impacts may occur when individual effects are considered in combination. As such assessment of the Activity is required in the context of other projects in the vicinity and where construction and/or operational timeframes are likely to be concurrent. In the locality of the site, these include the CCC itself, the pending transmission line connecting to the existing transmission line at the Pacific Highway and the Pacific Highway Upgrade (Woolgoolga to Ballina – W2B) which occurs near the southern extent of the CCC and extends over approximately 155 km. A review of Council's Development Application register indicates no Development Applications are currently advertised in the locality.

6.17.2 Potential Impacts

Construction impacts

The Activity is expected to add to a number of cumulative impacts including resource consumption, vegetation clearing and generation of greenhouse gas emissions (e.g. through operation of vehicles and equipment). These impacts are cumulative with regard to significant ongoing works for the Pacific Highway upgrade and the future transmission line connecting (as above). However, the mitigation measures set and the methodology for completion of the Activity aim to minimise the extent to which the Activity contributes to cumulative adverse environmental impacts.

Operational impacts

Once operational, the Activity is unlikely to generate any substantial cumulative impacts, save for the minor generation of greenhouse gas emissions from operation of vehicles and equipment during maintenance operations.

6.17.3 Safeguards and Management Measures

No safeguards are required.

6.18 Summary of Impacts

A summary of impacts of the Activity is provided at **Table 6.2**.

The proposed Activity is expected to have a minor impact on the environment which would be further reduced/ minimised through the implementation of the recommended mitigation and management measures. The Activity will result in a net positive impact in that a reliable electricity supply will be provided to the CCC.

Table 6.2 Summary of Impacts

Consideration	*Impact*
Ecology	Low – minor vegetation loss
Traffic and Access	Low – minor increase in local traffic during construction
Soils, Erosion and Sedimentation	Low – construction risks managed by safeguards
Water Quality	Low – construction risks managed by safeguards
Non-Aboriginal Heritage	Nil
Aboriginal Heritage	Low – salvage operations already completed; construction risks managed by safeguards
Noise and Vibration	Low – construction risks managed by safeguards
Air Quality	Low – construction risks managed by safeguards
Visual Amenity	Low – construction risks managed by safeguards
Socio-economic Considerations	Nil
Waste	Low – construction risks managed by safeguards
Climate Change	Low – construction risks managed by safeguards
Bushfire Risk	Low – construction risks managed by safeguards
Land Use	Nil
Electric and Magnetic Fields	Low – operational risks managed by safeguards
Cumulative Impacts	Low

6.19 Ecologically Sustainable Development

The principles of ecologically sustainable development are outlined in Schedule 2 of the EP&A Regulation 2000, in relation to EIS requirements. Whilst an EIS is not required for this project, a consideration of these principles is useful.

6.19.1 Precautionary Principle

Schedule 2 of the EP&A Regulation 2000 states that *"the 'precautionary principle', namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*

i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and
ii) an assessment of the risk-weighted consequences of various options".

To satisfy the precautionary principle, this REF has conducted a thorough analysis of potential environmental, economic and social concerns. This assessment has identified and examined potential impacts and developed appropriate mitigation measures and safeguards to help avoid and/or minimise any impacts and safeguard the environment. Considering this assessment's findings, the Activity is unlikely to impose significant and/or long-term adverse impacts on the environment, economy, or community. The mitigation measures and safeguards outlined in this REF would be implemented to ensure sound environmental outcomes in all aspects of the Activity.

6.19.2 Intergenerational Equity

Schedule 2 of the EP&A Regulation 2000 defines inter-generational equity as "*the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations*".

The Activity would not significantly affect the viability of local or threatened species or communities. Therefore, local biodiversity values would not be substantially adversely affected by the Activity and would be maintained for future generations.

6.19.3 Conservation of Biological Diversity and Ecological Integrity

Schedule 2 of the EP&A Regulation 2000 requires the *"conservation of biological diversity and ecological integrity"*, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration.

The impacts to ecological integrity and conservation of biological diversity at the site have been thoroughly assessed as part of this REF. No threatened species or communities are likely to be significantly affected by the Activity. No populations of native species are likely to be made locally rare or unviable as a result of the Activity. Consequently, the ecological integrity and biological diversity would be maintained at the site.

6.19.4 Improved Valuation, Pricing and Incentive Mechanisms

The following principles of valuation, pricing and incentive as per Schedule 2 of the EP&A Regulation 2000 are acknowledged as part of this review:

i) Polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement.
ii) The users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste.

iii) Environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

It is difficult, however, to assign a monetary value to the environment of a locality or to environmental resources not considered for commercial use. The proponent has taken an approach to manage the potential environmental impacts of the Activity by identifying appropriate safeguards to avoid or mitigate adverse environmental effects. This would ensure that the integrity of the environment is not degraded, is managed and enhanced.

7. Environmental Management

This section of the REF describes how the Activity would be managed to reduce potential environmental impacts throughout the construction and operational phases. A framework for managing the potential impacts is provided. A summary of site specific environmental safeguards is provided.

7.1 Environmental Management Plans

This REF identifies a number of safeguards and management measures to minimise adverse environmental impacts that could potentially arise from the Activity. These management measures would be implemented during the construction phase of the Activity.

INSW will require the preparation of a Construction Environmental Management Plan (CEMP) for the works, which would provide a framework for establishing how these measures will be implemented and who would be responsible for their implementation. The CEMP would be prepared prior to commencement of works and must be reviewed and certified by INSW, prior to the commencement of any on-site works. The CEMP would be a working document, subject to ongoing change and updated as necessary to respond to specific requirements. The CEMP would be developed in accordance with the specifications set out in the *'Guideline for the Preparation of Environmental Management Plans'* (DIPNR, 2004). INSW would oversee compliance with the requirements of the CEMP.

Environmental safeguards in the CEMP will be communicated to all construction personnel as part of Site Inductions, and repeated (where appropriate) at toolbox sessions prior to commencement of relevant work components.

7.2 Summary of Safeguards and Mitigation Measures

Table 7.1 provides a summary of the mitigation measures and safeguards detailed in this report that would be implemented for the Activity.

Table 7.1 Summary of Mitigation Measures and Safeguards

Environmental Attribute	***Mitigation Measures/ Safeguards***
Ecology	1. With the exception of the removal of danger trees, no works are to occur within residual land. 2. Prior to vegetation clearing commencing the transmission line easement will be clearly marked to reduce the risk of vegetation loss outside the easement. 3. Damage to trees outside of those that require clearing will be avoided at all times. 4. Habitat trees to be removed shall be clearly marked with spray paint and flagging tape prior to works commencing. 5. An ecologist is to be present during the clearing of any habitat trees. Clearing shall be undertaken as a two-stage process, with all live trees (and immature stags) removed initially (stage one), and habitat trees (stage 2) removed at least 24 hours following stage one clearing works.

Environmental Attribute	*Mitigation Measures/ Safeguards*
	6. Where clearing of danger trees on residual land is required, a pre-clearing flush survey will be completed by an ecologist to ensure Rufous Bettong are not sheltering in long grass where they may be affected by machinery or felled trees. No such actions are required within the Stage 2 footprint as the site is securely fenced and no ground dwelling fauna have access to the site. 7. Compensatory nest boxes are to be installed within residual land at a ratio of 1:1 to offset the loss of the four habitat trees. 8. In the unlikely event that a Koala or any threatened fauna is found to be occupying a tree within the works zone, a flagged exclusion zone will be established (minimum 50 m) in which works will not proceed until the animal has moved from the site of its own volition. 9. Stockpiling will not occur under the crown of existing native trees (i.e. the crown comprises the full width of the branches). 10. All vegetation removed will be chipped and removed from the site; millable timber shall be salvaged wherever possible. No vegetation waste will be burnt. 11. All plant, equipment and personnel will be free of soil and potential weed propagules prior to being brought to the site. 12. Should injured fauna be found on the site, local wildlife care groups and/ or local veterinarians will be contacted immediately, and arrangements made for the immediate welfare of the animal. The phone number of the local WIRES group (ph: 1800 094 737) will be known to the project foremen.
Traffic and Access	13. Regard to public safety will be maintained at all times through the implementation of a Construction Traffic Management Plan (CTMP) which will manage all deliveries, access, parking, observation of speed limits etc. The CTMP must be consistent with the site access protocols as attached at **Appendix B**.
Soils, Erosion and Sedimentation	14. A Soil and Water Management Plan (SWMP) will be prepared by a Certified Professional in Erosion and Sediment Control (CPESC) and endorsed by INSW prior to works commencing and form part of the Construction Environmental Management Plan (CEMP). All control measures in the SWMP shall be designed, implemented and maintained in accordance with relevant sections of *"Managing Urban Stormwater: Soil and Construction Volume 1"* (Landcom, 2004) ('the Blue Book') (particularly Section 2.2) and *"Managing Urban Stormwater: Soils and Construction Volume 2A – Installation of Services"* (DECC, 2008). The SWMP shall include stockpiles, stormwater run-off, trees, site boundaries, site access and storage areas. 15. Any unsuitable excavated material/ waste will be classified, managed appropriately (in accordance with the CEMP, including placement in approved stockpile locations or approved landfill facilities as appropriate. 16. In the event that unexpected contaminated land is encountered during the works, works will stop immediately, and relevant procedures outlined in a CEMP will be followed. 17. Only clean equipment and vehicles will be used (refer to safeguard 7). 18. Following spreading of any top soil, these areas will be stabilised with non-invasive grasses (e.g. Japanese Millet, Ryegrass). 19. Upon completion of the works, disturbed areas that are not required for the ongoing operation of the substation and transmission line will be re-established to similar existing conditions.

Environmental Attribute	*Mitigation Measures/ Safeguards*
Water Quality	20. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment. 21. Any required fuels and other liquids will be stored in self-safe chemical storage containers. 22. All refuelling of plant and equipment will occur in appropriately designated areas. 23. Cleaning of tools and equipment will occur in appropriately designated areas. 24. All equipment will be maintained in good working order and operated according to manufacturer's specification. 25. No waste and/or wastewater will be discharged directly or indirectly in drains or waterways. 26. The EPA will be notified immediately in response to incidents causing or threatening actual or potential harm to the environment in accordance with section 148 of the POEO Act (via EPA Environment Line on 131 555).
Non-Aboriginal Heritage	27. If any suspected archaeological items are uncovered during the works, all works will cease in the vicinity of the material/ find. Contact with NSW OEH Heritage Branch will be made immediately.
Aboriginal Heritage	28. If Aboriginal finds or relics are exposed during construction all work is to halt at that location immediately and the Environmental Manager on-site is to be immediately notified to allow assessment and management. 29. The immediate area where the artefacts were disturbed should be protected by a highly visible tape surrounding a buffer area of 10 m x 10 m. 30. Works cannot commence within this area until an archaeologist and a representative of the RAPs has inspected the Aboriginal sites or relics and contacted OEH. This would occur as soon as practicable. 31. The Contractor's Environmental Manager (or similar) on-site is to notify the Office of Environment and Heritage using the following contact details: Phone: 02 6659-8288; Mobile: 0457 907 5354; Email: Roger.Mehr@environment.nsw.gov.au; Postal address: PO Box 494 Armidale NSW 2350. 32. Once an archaeologist and a representative of the Registered Aboriginal Party (RAP) has inspected the area and assessed the significance of the finds work can recommence provided no salvage activities are required. 33. If there is an unexpected find that requires any salvage works these will be carried out under the supervision of a qualified archaeologist and representative of the RAPs for the Project. 34. Any salvage works would be implemented in accordance with the methodology previously approved for the Project and described in Appendix A of the ACHMP (refer to **Appendix E**). 35. Should human remains be uncovered during works the following procedures must be followed: a) Immediately after remains are exposed, all work is to halt at that location and the Environmental Manager on-site is to be immediately notified to allow assessment and management. b) The Contractor's Environmental Manager (or similar) on-site is to notify the INSW Representative. c) The local NSW Police must be contacted by the contractor.

Environmental Attribute	*Mitigation Measures/ Safeguards*
	d) The OEH Environment line on 131 555 and the Heritage Branch (Heritage Division, OEH) on (02) 9873 8500 must be contacted by the contractor. e) A physical or forensic anthropologist would inspect the remains in situ (organised by the police, unless otherwise directed by the police), and make a determination of ancestry (Aboriginal or non-Aboriginal) and antiquity (pre-contact, historic or forensic). f) If the remains are identified as forensic, the area is deemed as a crime scene. g) If the remains are identified as Aboriginal, the site is to be secured and OEH and all Aboriginal stakeholders are to be notified in writing. h) If the remains are identified as non-Aboriginal (historical) remains, the site is to be secured and the Heritage Branch (Heritage Division, OEH) is to be contacted.
Noise and Vibration	36. Construction activities will be undertaken in accordance with approved construction work hours at the CCC i.e. Monday to Friday: 7:00 am to 6:00 pm and Saturday 8:00 am to 5:00 pm. Where works are required outside the approved hours (e.g. major plant deliveries, transformer filling, commissioning, line cut-in and energisation, emergencies) or to integrate with construction of the Correctional Centre, consultation will be undertaken with any potentially impacted neighbours. 37. Any noise complaints will be recorded and include suitable identification/ description of the noise source (e.g. continual/ impulsive) and general location of the complaint. Any noise complaints will be investigated and actioned as required. 38. All vehicles and equipment will be turned off and not left idling when not required for work uses. 39. All plant will be fitted with appropriate exhaust systems to ensure compliance with pollution and noise emission standards.
Air Quality	40. Any surplus soils and materials from excavations which cannot be reused on-site shall be removed from the site in covered trucks and disposed of at an appropriately licensed facility. 41. Vehicles transporting waste or other materials that may produce odours or dust will be covered during transportation. 42. Construction works will not be carried out during strong winds (i.e. weather conditions where high levels of dust or air borne particulates are likely). 43. Machinery and vehicles not in use during construction will be turned off and not left to unnecessarily run idle. 44. Vehicles, machinery and equipment will be maintained in accordance with manufacturer's specifications in order to meet the requirements of the *Protection of the Environment Operations Act 1997* and associated regulation.
Visual Amenity	45. The site will be maintained, kept free of rubbish and cleaned up at the end of each work day.
Socio-economic Considerations	No mitigation measures to prevent adverse socio-economic impacts are required.
Waste	46. Preparation of a Waste Management Plan for inclusion in the project CEMP. 47. Waste material will not be left on-site once the works have been completed.

Environmental Attribute	*Mitigation Measures/ Safeguards*
	48. Ensure the responsible environmental management of wastes that cannot be avoided and promote opportunities for the re-use of waste products where appropriate. 49. Waste will be disposed of at a licensed waste or recycling facility as appropriate.
Climate Change	50. Preparation of a Waste Management Plan Waste (refer to safeguard 37) so waste is minimised, and recycling opportunities are available.
Bushfire Risk	51. A bushfire contingency and evacuation plan shall be developed as part of the CEMP in consultation with JHG. 52. All plant, equipment and practices will incorporate measures to reduce or minimise risk of fire; this information will be detailed in the CEMP.
Land Use	No safeguards are required.
Electric and Magnetic Fields	53. Final designs shall be in accordance with the International Commission on Non-Ionizing Radiation Protection (ICNIRP) Guidelines for limiting exposure to EMF (2010). 54. Activities within the easement shall be in accordance with easement safety requirements established by the owner / operator of the electricity infrastructure.
Cumulative Impacts	No safeguards are required.

8. Summary of Consideration of Environmental Factors

8.1 Clause 228 Checklist (NSW Legislation)

As part of its obligation under Section 5.5 of the EP&A Act, the determining authority is required to take into account, to the fullest extent possible, all matters likely to affect the environment. The determining authority is required by Part 14, Clause 228 of the *EP&A Regulation 2000* to give consideration to a number of factors that are listed below. **Table 8.1** provides a summary of the key issues relevant to each factor and the key mitigation measures proposed.

Table 8.1 Clause 228 Checklist (NSW Legislation)

	Factor	*Impact*
a	***Any environmental impact on a community***	
	The community would not be affected through declines in the local environment as a result of the Activity. Mitigation measures have been designed to reduce environmental impacts on the community to minor levels (refer to **Section 6**).	Minor
b	***Any transformation of a locality***	
	Transformation of the locality is not expected, as the Activity will not be visible from public land. Tree removal would be the main visual change; however, the visual impacts of the Activity are not expected to be significant.	Minor
c	***Any environmental impact on the ecosystems of the locality***	
	The ecosystems of the locality would not be affected through declines in local environmental values (e.g. biodiversity, physical environment) as a result of the Activity. Extensive mitigation measures have been designed to reduce environmental impacts (refer to **Section 6**).	Nil
d	***Any reduction of the aesthetic, recreational, scientific or other environmental quality or value of a locality***	
	It is not expected that a reduction in the scientific quality of the locality would occur due to the Activity in the long-term. No reduction in the quality of the environment would occur due to the mitigation measures detailed in **Section 6** of this REF. No significant changes of the locality are expected to occur.	Nil Nil
e	***Any effect on a locality, place or building having aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance or other special value for present or future generations***	
	The site occurs within an agricultural area. The Activity would not impact the existing land uses. There would be no significant impacts to heritage, visual amenity or social significance and as such impacts are therefore considered to be negligible.	Negligible

	Factor	Impact
f	***Any impact on the habitat of protected animals (within the meaning of the Biodiversity Conservation Act 2016)***	
	With effective implementation of the safeguards provided in **Section 6** of this REF, the Activity is not considered likely to have a significant negative impact on the habitat of any other protected fauna.	Nil
g	***Any endangering of any species of animal, plant or other form of life, whether living on land, in water or in the air***	
	With effective implementation of the safeguards provided in **Section 6** of this REF, the Activity is not considered likely to significantly endanger any species of animal, plant or other form of life.	Nil
h	***Any long-term effects on the environment***	
	No negative long-term impacts would occur in the locality given the implementation of the proposed safeguards and measures in **Section 6** of this REF.	Nil
i	***Any degradation of the quality of the environment***	
	Degradation of the quality of the environment is not expected. Given the safeguards in **Section 6** of this REF, any impacts are considered unlikely.	Nil
j	***Any risk to the safety of the environment***	
	No negative long-term impacts would occur in the locality given the implementation of the proposed measures in **Section 6** of this REF.	Nil
k	***Any reduction in the range of beneficial uses of the environment***	
	The proposed works would not result in any reduction in the range of beneficial uses of the environment.	Nil
l	***Any pollution of the environment***	
	The proposed works may adversely affect air quality during construction. The mitigation measures determined in **Section 6** would minimise the duration and impact. Once construction is complete, the Activity is not expected to adversely impact on air quality.	Minor
	No reduction in the quality of the environment associated with water is expected due to the mitigation measures detailed in **Section 6** of this REF.	Nil
	Waste materials, fuel spills and particulate matter have the potential to cause pollution to the environment. However, given the proposed safeguards detailed in **Section 6** of this REF and all waste being disposed within an appropriate/ approved waste disposal facility, pollution to the environment would be minimised.	Minor
m	***Any environmental problems associated with the disposal of waste***	
	Any wastes would be disposed of in a manner which would not damage or disturb any native flora or fauna or the physical environment. The disposal of such waste would be within a waste management facility in accordance with OEH approved methods of waste disposal. Safeguards detailed in **Section 6** of this REF would protect the environment from problems associated with waste disposal.	Nil

n	***Any increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply***	
	The project does not create any demand for resources that are in short supply nor is it likely to result in an increased demand on any natural resources that are likely to become in short supply.	Nil
o	***Any cumulative environmental effect with other existing or likely future activities***	
	The Activity is unlikely to have any significant impact on the environment, therefore would not contribute to any cumulative impacts.	Nil
p	***Any impact on coastal processes and coastal hazards, including those under projected climate change conditions***	
	The Activity is unlikely to have any on coastal processes and hazards.	

8.2 EPBC Act 1999 (Commonwealth Legislation)

The EPBC Act protects/ regulates matters of national environmental significance (MNES), including:

- World heritage properties.
- National heritage places.
- Wetlands of international importance.
- Nationally threatened species and ecological communities.
- Migratory species.
- Commonwealth marine areas.
- The Great Barrier Reef Marine Park.
- Nuclear actions (including uranium mining).
- A water resource, in relation to coal seam gas development and large coal mining development.

Under the EPBC Act, a referral is required to the Australian Government for proposed 'actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land'. Database searches were completed 23 March 2018 encompassing a five-kilometre radius centred on the site (refer to **Appendix E**). Search results following the results of the site assessment are considered in **Table 8.2**.

Table 8.2 EPBC Act Considerations

Matter	***Impact***
Any impact on a World Heritage property?	
No World Heritage properties occur within five kilometres of the site.	Nil
Any impact on a National Heritage place?	
No National Heritage places occur within five kilometres of the site.	Nil
Any impact on a wetland of international importance?	
No wetlands of international importance (Ramsar Sites) occur within five kilometres of the site.	Nil
Any impact on nationally threatened species and ecological communities?	
Habitat for three threatened ecological communities, 30 threatened species (10 flora and 20 fauna species) and 23 marine species is identified within five kilometres of the site. The vegetation present does not conform to the definition of any federally listed	Negligible

Matter	*Impact*
threatened ecological communities, and no federally listed threatened flora or fauna species are known from the site. Based on the relatively minor nature of the works (refer to **Section 6.1**), no listed threatened species or communities are likely to be significantly affected by the Activity.	
Any impact on a Nationally Important Wetland?	
A Nationally Important Wetland (Upper Coldstream) occurs east of Avenue Road. This wetland is unlikely to be significantly affected by the Activity.	Nil
Any impact on Migratory species?	
Habitat for 16 migratory species is identified within five kilometres of the site. Based on the minor nature of the works, no listed migratory species are likely to be significantly affected by the Activity (refer to **Section 5**).	Negligible
Any impact on a Commonwealth marine area?	
No Commonwealth marine areas occur within five kilometres of the site.	Nil
Any impact on the Great Barrier Reef Marine Park?	
The Great Barrier Reef Marine Park is distant from the site.	Nil
Does the Activity involve a nuclear action (including uranium mining)?	
The Activity does not involve a nuclear action.	Nil
Any impact on a water resource, in relation to coal seam gas development and large coal mining development?	
The Activity does not involve any impact on a water resource, in relation to coal seam gas development and large mining development.	Nil

The assessment of the impact of the Activity on MNES and the environment of Commonwealth land found that there is unlikely to be a significant impact on relevant MNES. Accordingly, the Activity has not been referred to the Department of the Environment and Energy.

9. Conclusion

All relevant statutory planning instruments have been examined in relation to the Activity. Based on the review undertaken, the Activity does not require development consent pursuant to Section 41 of State Environmental Planning Policy (Infrastructure) and is subject to environmental impact assessment under Part 5 of the *Environmental Planning and Assessment Act 1979*.

The Activity is an important element of infrastructure to support the Clarence Correctional Centre. The potential environmental impacts posed by the Activity have been thoroughly examined through this Review of Environmental Factors. Some minor impacts would occur from the works (e.g. vegetation loss); however, it is unlikely that any significant or long-term adverse impacts would eventuate. To help ensure that the extent of impacts is limited and that unavoidable impacts are managed and minimised, mitigation measures and safeguards have been developed and would be implement and monitored.

The Activity is considered justifiable taking into account the potential environmental impacts and subsequent mitigation measures and safeguards. The Activity supports the establishment and operation of the Clarence Correctional Centre. The Activity is in accordance with Ecologically Sustainable Development principles and consistent with the objectives of the *Environmental Planning and Assessment Act 1979*.

Certification

This Review of Environmental Factors provides a true and fair review of the Activity in relation to its potential effects on the environment. It addresses to the fullest extent possible all matters affecting or likely to affect the environment as a result of the Activity.

Signature:

Ian Colvin

Senior Ecologist/ Project Manager
GeoLINK
Date: 15/08/2018

I have examined this Review of Environmental Factors and the certification by Ian Colvin and accept the Review of Environmental Factors on behalf of INSW.

Signature:

Tim Ambler

Project Director
INSW

Date: 17/08/2018

References

DECC (2008). *Managing Urban Stormwater: Soils and Construction Volume 2A Installation of Services.* Department of Environment and Climate Change NSW, Sydney.

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DIPNR (2004). *Guideline for the Preparation of Environmental Management Plans.* Department of Infrastructure, Planning and Natural Resources, Sydney.

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Jacobs Australia Pty Limited (2018). *New Grafton Correctional Centre Infrastructure New South Wales Salvage Report (v5).* Report to Infrastructure New South Wales.

Jacobs Australia Pty Limited (2018). *New Grafton Correctional Centre John Holland Group Aboriginal Cultural Heritage Management Plan (v3).* Report to John Holland Group.

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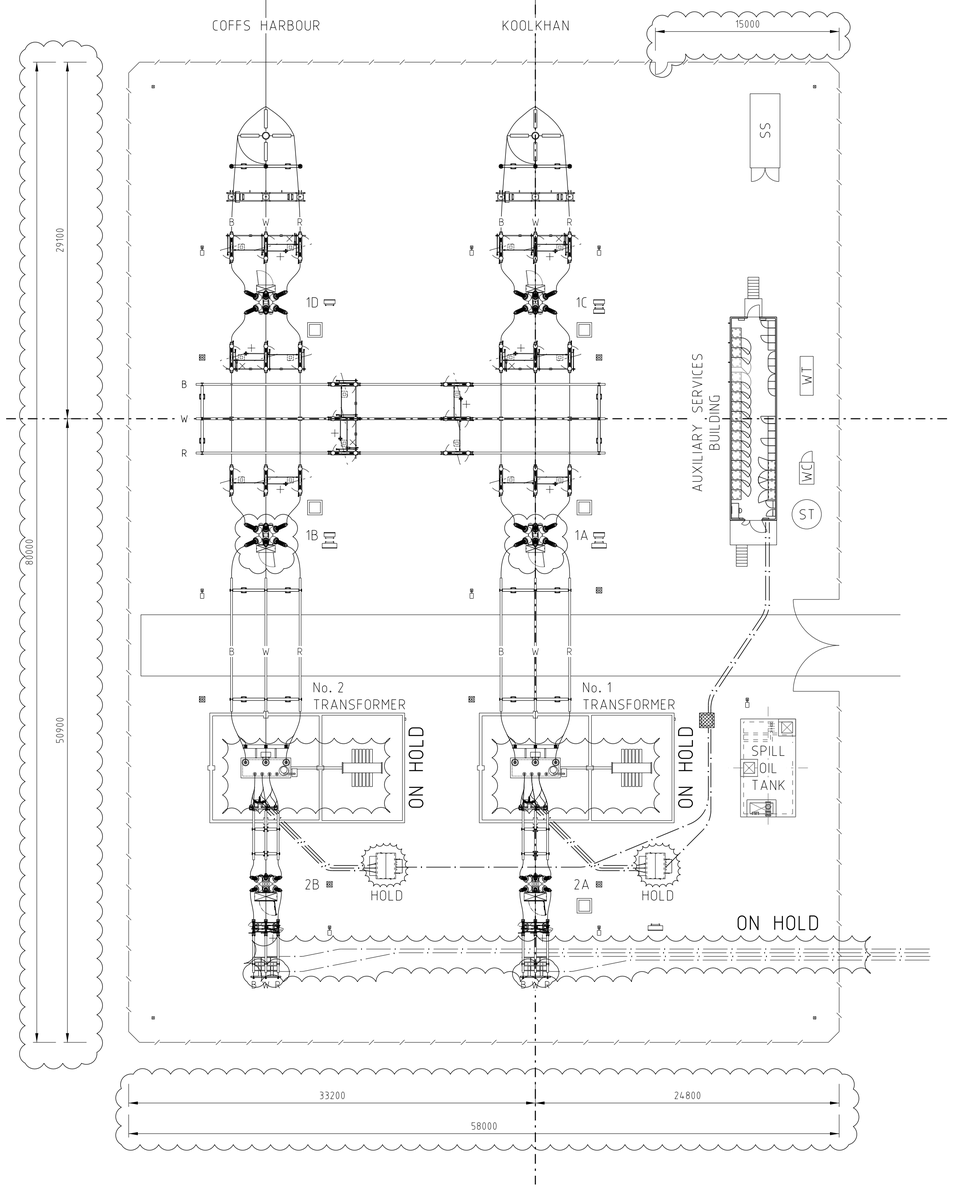
Landcom (2004). *Managing Urban Stormwater: Soil and Construction Volume 1 (Fourth edition)*.

Copyright and Usage

Appendix A

Substation Design Plan



LEGEND

\+ LOCATION OF DISCONNECTOR OPERATING APPARATUS

× LOCATION OF EARTH SWITCH OPERATING APPARATUS

kV	BAY No.	DESCRIPTION	DRAWING No.
132/11kV	TF1 BAY AND BAY 2A	TF1 BAY AND BAY 2A - PLAN AND ELEVATION	GFT-100202
132/11kV	TF2 BAY AND BAY 2B	TF2 BAY AND BAY 2B - PLAN AND ELEVATION	GFT-100204
132kV	BAY 1C AND 1A	BAY 1C AND 1A - PLAN AND ELEVATION	GFT-100201
132kV	BAY 1D AND 1B	BAY 1D AND 1B - PLAN AND ELEVATION	GFT-100203
132kV	132kV BUS	132kV BUS - PLAN AND ELEVATION	GFT-100205

5m 0 10m 20m

1:250

AMENDMENT	MAUN	04-06-2018

PERSONAL GATE RELOCATED.
SITE DIMENSIONS CORRECTED.
GANGED CIRCUIT BREAKER TO BE USED AT BAY 1B AND 1A.
11kV SURGE ARRESTOR ADDED TO CABLE CEILING END.

TransGrid

GFT-100001 SINGLE LINE DIAGRAM
GFT-100002/1 EQUIPMENT SCHEDULE
GFT-100101 SITE LAYOUT

REFERENCE DRAWINGS

DRAWN	MAUN	
REVIEWED	WEIW	29-06-2018
VERIFIED	ATW	29-06-2018
APPROVED	RAM	29-06-2018

ISSUED FOR CONSTRUCT
APPROVAL STATUS

SCALE 1:250

GRAFTON EAST 132kV SUBSTATION
132KV INSTALLATION

GENERAL ARRANGEMENT

A1 | GFT100102 | 03
PREFIX NUMBER SHEET AMDT

INDEX CLASS'N 06-03

566x801mm

PLOT ISSUE DATE 29/06/2018 6:30:24 PM

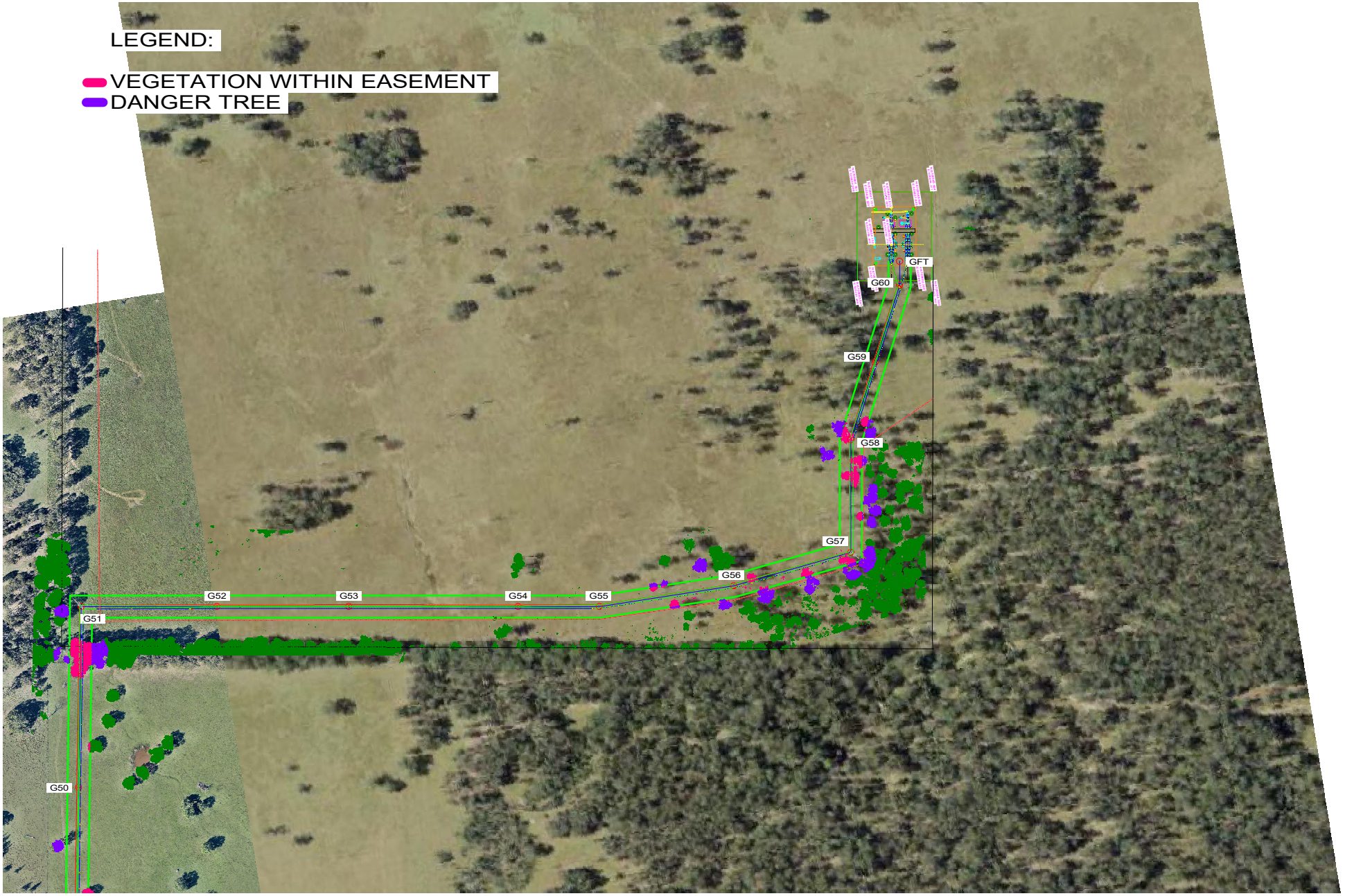
COPIED FROM | SUPERSEDES | SUPERSEDED BY

SOURCE DESIGN FILE: \\vsw08323\ics_share$\4\26564_60\GFT-100102_03.DGN

Appendix B

Danger Trees

PLS-CADD DRAWING



AMENDMENT TEXT:

25.0 M HORIZ. SCALE

MGA 56

TransGrid

DRAWN	NLA	23/07/18
REVIEWED	NDB	23/07/18
VERIFIED		
APPROVED		

ISSUED FOR INFORMATION

APPROVAL STATUS

REFERENCE DRAWINGS

SCALE

TRANSGRID

TRANSMISSION LINES
TL SURVEY - PROFILE
132KV TL96H - COFFS HARBOUR TO KOOLKHAN
GRAFTON EAST CONNECTION
PLAN - DANGER TREE

A1

TLCD-SK006	B
PREFIX NUMBER SHEET	AMDT

INDEX CLASS'N

566X801MM

PLOT ISSUE DATE

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SUPERSEDES

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Appendix C

Site Access

Site access plan (Source: John Holland group)

Appendix D

Consultation

[redacted]

From: [redacted]
Sent: Monday, 30 July 2018 3:18 PM
To: [redacted]
Cc: [redacted]
Subject: RE: hv substn REF upgrade
Attachments: Mapping - substation stakeholders.pdf; 180626 Substation notification_COUNCIL_Schroder.docx; 180626 Substation notification_NEIGHBOURS_v3.docx

Hi everyone

Confirming the display period for the substation and on-site transmission line came to an end last week. We recorded no comments/feedback or enquiries during this time from Council or neighbours. A list of the neighbours who received a notification is listed below. The letter templates that were sent are also attached, for reference.

Title Details	Property address
LOT 1 DP 1113608	489 Avenue Road, Ulmarra
LOT 19 DP 7877	485 Avenue Road, Ulmarra
Lot 1-3 DP 1199613 LOT 8 DP 127096	65 Colletts Island Road, Ulmarra
LOT 1 DP 1180329	160 Old Six Mile Lane, Glenugie
Lot 5 DP 793765	37 Old Six Mile Lane, Glenugie
Lot 2 DP 1181336	1104 Avenue Road, Glenugie
Lot 10 DP 1205749	247 Wants Lane, Glenugie
LOT A & B DP 366760 Lot 7300 DP 1145093	27 Coulters Lane, Calliope
Lots 19-24 DP751376 and Lot 30 DP751376	394 Avenue Road, Lavadia
Lot 1173 DP 739102	493 Avenue Road, Lavadia
Lot 1172 DP739102	505 Avenue Road, Lavadia
Lot 1176 DP810935	118 Turnbulls Lane, Ulmarra

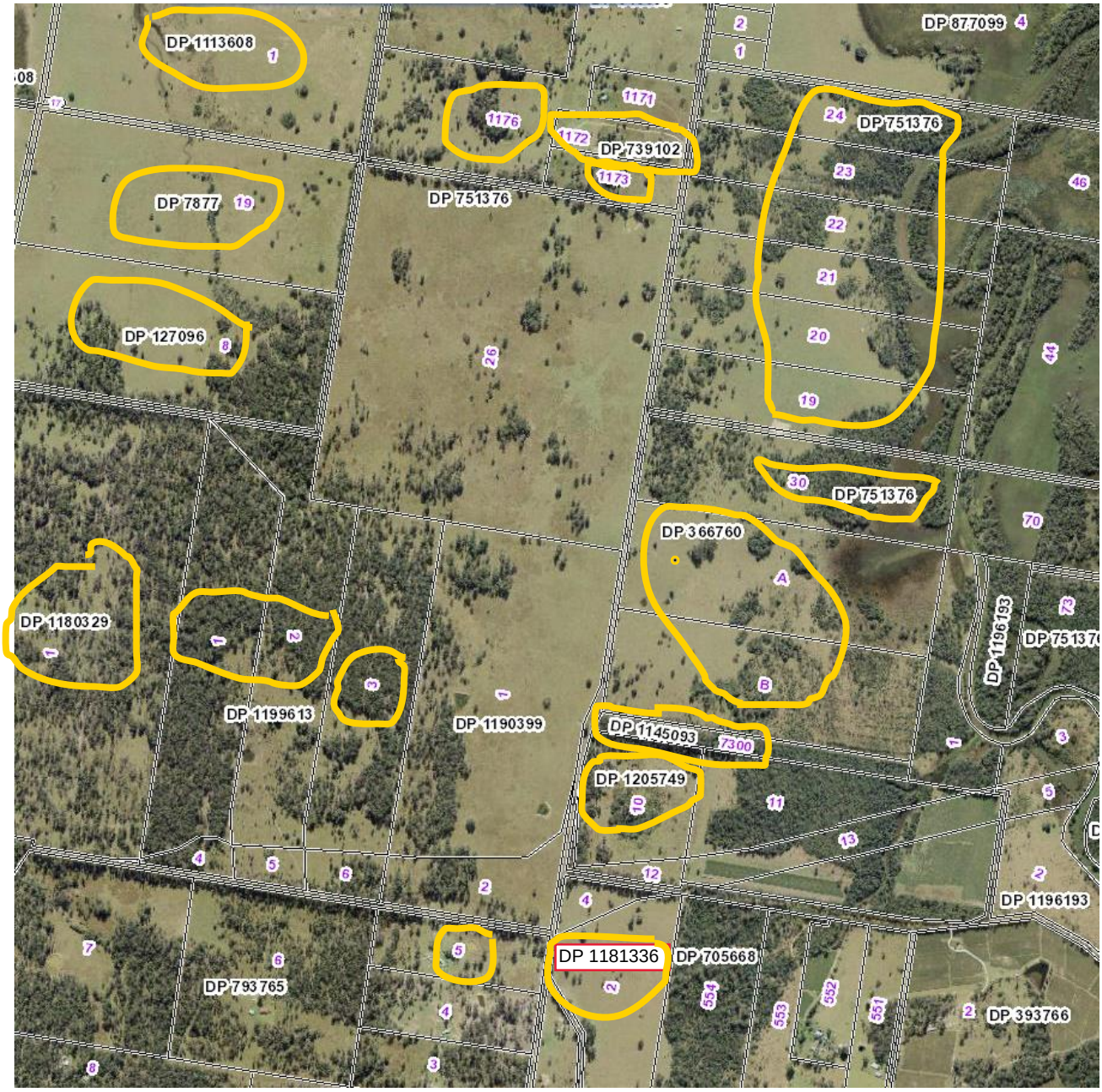
Cheers
[redacted]

From: [redacted]
Sent: Tuesday, 3 July 2018 9:31 AM
To: [redacted]
Cc: [redacted]
Subject: RE: hv substn REF upgrade

Hi [redacted] – that's including Council letter.

Cheers
[redacted]

Project area




Lot 1 DP1113608
489 Avenue Road Lavadia
Lot 1176 DP810935
118 Turnbulls Lane Ulmarra
Lots 19-24 DP751376 and Lot 30 DP751376
394 Avenue Road Lavadia
Lot 19 DP7877
485 Avenue Road Lavadia
Lot 1173 DP739102
493 Avenue Road Lavadia
Lot 3 DP1199613 and Lot 8 DP127096
65 Collets Island Road Ulmarra
Lots A and B DP366760 and Lot 7300 DP1145093
27 Coulters Lane Calliope
Lot 10 DP1205749
247 Wants Lane Glenugie
Lot 5 DP793765
37 Old Six Mile Lane Glenugie
Lot 2 DP1181336
1104 Avenue Road Glenugie
DP 1113608
DP 7877
DP 751376
DP 739102
DP 127096
DP 366760
DP 1180329
DP 1185704
DP 1190399
DP 1145093
DP 1205749
DP 1161185
DP 1192555
DP 793765
DP 393766
DP 705668
DP 749175
DP 1182144

[redacted]

From: [redacted]
Sent: Friday, 10 August 2018 9:52 AM
To: [redacted]
Subject: FW: YGFN03 RE: HV power route

As discussed.

Regards

[redacted]

[redacted]

From: [redacted]
Sent: Tuesday, 10 July 2018 4:41 PM
To: [redacted]
Subject: FW: YGFN03 RE: HV power route

From: [redacted]
Sent: 10 July 2018 2:58 PM
To: [redacted]
Cc: [redacted]
Subject: YGFN03 RE: HV power route

Hello [redacted]

Please refer to the snip below, which shows NSW Globe terrain and contour data, Google Earth imagery plus some sketched in OLS boundaries in yellow and an indicative transmission line alignment in red.

The yellow splay indicates the approach surface. The take-off surface is slightly narrower than the approach surface over the transmission line alignment.
At 1.2% TODA gradient as published, and using 20.18 m inner edge elevation based on the most recent obstacle limitation surface survey data, the take-off surface is 46.58 m AHD at a distance of 2200 m from the inner edge (which roughly equates to the distance between the inner edge and the transmission line alignment).

Using a conservative ground elevation of 5 m, adding 25 m for poles results in an obstacle height of 30 m AHD, which is well below the take-off surface height (46.58 m).
At these heights, the poles will not penetrate the approach and take-off surfaces.

Outside the approach and take-off surfaces lies the inner horizontal surface, which extends to a distance of 4000 m from the point at which the extended runway centreline intersects the runway strip end (60 m from the runway end).
Using 25 m pole height, and the inner horizontal surface height of 44.5 m AHD, the highest ground elevation allowable for any pole is 19.5 m AHD.
The Correctional Centre site lies within the horizontal extent of the inner horizontal surface, with contours up to 20 m AHD.

Beyond the inner horizontal surface is a conical surface which inclines at 5% to a height of 119.5 m AHD (at a horizontal distance of 1500 m from the edge of the inner horizontal surface).
On the north western side of the image, the transmission line crosses contours up to 30 m AHD within the horizontal extent of the inner horizontal surface and up to 40 m within the horizontal extent of the conical surface.

It appears that the poles would penetrate both the inner horizontal surface and the conical surface in this area.

It would be good if you could provide accurate ground elevation data along the transmission line alignment so that we can do a proper check for potential impacts.

If there are impacts, and the pole height cannot be reduced so that the poles do not penetrate the OLS, then a safety case would need to be prepared for submission to CASA.

Regards

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

From: [redacted]
Sent: Tuesday, 10 July 2018 8:35 AM
To: [redacted]
Cc: [redacted]
Subject: RE: HV power route

Hi [redacted],
Thanks for your note and Yes, it would be great to talk with [redacted] directly, so thank you for the introductions and OK to do so.

[redacted], my mobile number is [redacted] and our office is in Sydney. We are acting as Project Directors on behalf of Infrastructure NSW (INSW) on the Grafton PPP prison project, which includes for provision of services infrastructure to the site. I am in and out of meetings today but am generally around.

Many thanks,
[redacted]

From: [redacted]
Sent: 09 July 2018 5:39 PM
To: [redacted]
Cc: [redacted]
Subject: RE: HV power route

Hi [redacted], thanks for the info.

Currently Council is without an airport manager and as such for technical advice we're utilising the services of an external organisation, [redacted], who specialise in aviation. Consequently I've referred this item to [redacted] for their advice and direction if required.

Rather than me playing middle man with communications, [redacted] may contact you direct should he have any questions.

Thanks
[redacted]

Appendix E

ACHMP (Jacobs 2018)

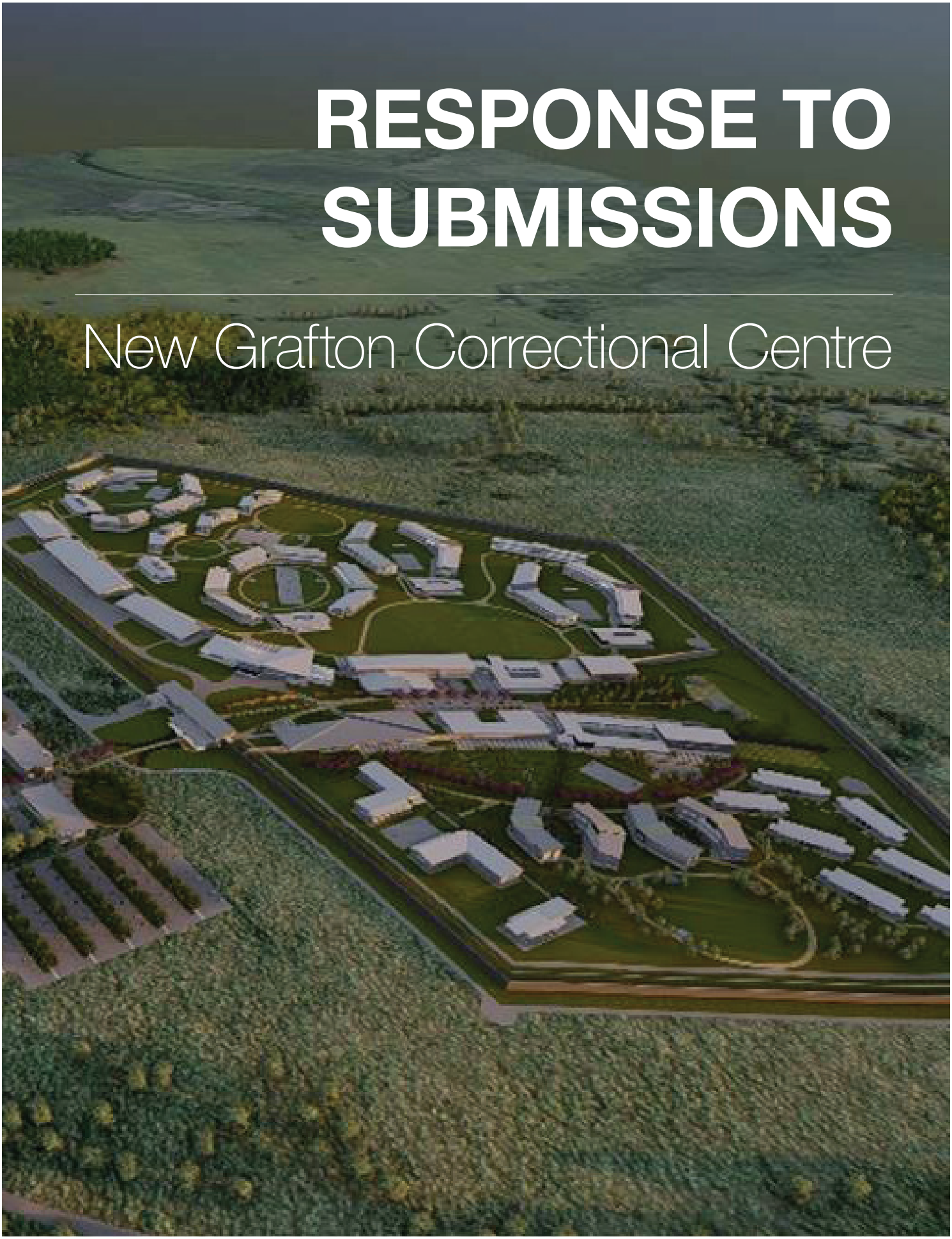
Appendix E has been removed in accordance with section 161 of the National Parks and Wildlife Act 1974. The Act enables information about Aboriginal places, objects and culture to be withheld – or kept confidential – in the public interest.

For access to publicly accessible information about recorded Aboriginal objects and declared Aboriginal Places in NSW, a free basic Aboriginal Heritage Management System (AHIMS) search can be undertaken via the National Parks and Wildlife Service AHIMS website.

For information on how to undertake this search please refer to:
https://www.environment.nsw.gov.au/licences/WhatInformationCanYouObtainFromAHIMS.htm

RESPONSE TO SUBMISSIONS

New Grafton Correctional Centre



northernpathways
building communities improving lives

we are insw
Infrastructure New South Wales

PREPARED FOR
INFRASTRUCTURE NSW

NEW GRAFTON CORRECTIONAL CENTRE RESPONSE TO SUBMISSIONS

Prepared for

Infrastructure NSW

By
BBC Consulting Planners

September 2017

BBC
CONSULTING PLANNERS

Table of Contents

APPENDICES

1. INTRODUCTION

This Response to Submissions Report has been prepared to provide a response to the submissions lodged with the Department of Planning and Environment (DPE) in response to the public exhibition of SSD 17_8368 for the New Grafton Correctional Centre (Stage 2 Design, Construction & Operation).

SSD 17_8368 was publicly exhibited from 16 June 2017 to 31 July 2017.

The Proponent, Infrastructure NSW (INSW) has considered the issues raised in the submissions made during the exhibition period and has implemented various actions in relation thereto. This report presents the following:

- Details of the community consultation undertaken during the public exhibition period and consultation plans moving forward (Section 2);
- A summary of the submissions received during the public exhibition period and responses to the issues raised in submissions Section 2);
- Discussion of key issues including those raised by the DPE (Section 4);
- Details of concrete batching and pre-cast operations (Section 5);
- Recommended mitigation measures (Section 6).

1.1 Proposal Overview

The construction of a correctional centre comprising maximum and minimum security facilities accommodating 1,700 inmates including:

- A facility designed as a maximum security facility for 1000 male inmates and 300 female inmates.
- A facility designed as a minimum security facility for 400 male inmates.

The development includes:

- GFA – 90,700 square metres;
- Approximately 62 buildings with a maximum building height not exceeding 10 metres.
- A six metre high fence or wall will be constructed around the perimeter of the each facility, with light and security camera poles up to 12 metres in height.

- Visitor reception, staff amenities, tank farm, stores buildings, operations support unit, and energy plant will be located outside the perimeter walls / fences.
- Internal access into and out of the correctional centre from Avenue Road and internal security and fire access roads will be provided
- Car parking for approximately 700 staff and visitor cars with an overflow area accommodating a further 150 cars.
- Other associated facilities include recreational oval, special accommodation units, health facilities, education and programs areas, administration, workshops, staff amenities, visitor facilities and utilities.
- A wastewater treatment system that allows for collection, treatment and total on-site reuse via a nominal 550KL/day Class A+ Membrane Bioreactor Style Wastewater Treatment Plant. Effluent production in excess of the facility's re-use requirement is delivered to the wet weather storage lagoon for disposal across the designated broad scale irrigation area.
- A 100-metre wide Asset Protection Zone (APZ) would be cleared around the correctional centre and associated facilities and car parking.
- A vegetation buffer outside the APZ would be provided along the northern, eastern and southern boundaries of the site. The buffer will be 50 metres wide along the northern property boundary, 15 metres wide to the east along Avenue Road and 30 metres wide along the southern property boundary (to be established as part of Stage 1 works);
- Site landscaping and tree removal;
- Earthworks as required for Stage 2 works;
- Associated development including connecting to utilities reticulation, external lighting and the like.

1.2 Summary of Submissions

During and after the public exhibition period 26 submissions were received by DPE. 19 of these submissions were from the public and 7 from public authorities. These submissions are summarised in Section 2.

Additional comments were received from DPE. These are also addressed in the table to Section 2 and in Section 3.

The submissions from public authorities made comments relevant to areas of their responsibility.

Of the nineteen submissions from members of the public, one submission supported the proposal, ten raised objections to the development in part or in whole and six submissions did not object outright yet nonetheless raised concerns or made comments for further consideration.

Two submissions in relation to the provision of HV electricity supply to the facility objected to the alignment of the supply along Reilly Lane which is not part of the proposed development. However, INSW have advised that detailed investigations to identify a preferred route for the HV powerlines are continuing. It has been further confirmed that Reilleys Lane is not suitable and will no longer be considered. Once a preferred route has been confirmed, consultation will be carried out. A separate planning process has been undertaken for the HV supply route.

2. CONSULTATION

2.1 Consultation during preparation of EIS

The following activities were undertaken to inform the preparation of the EIS:

- Meetings with key stakeholders including Clarence Valley Council, relevant government agencies and departments, Grafton Chamber of Commerce etc;
- Presentations and meetings with stakeholder groups including the Clarence Valley Roundtable, Northern District Health, Grafton Correctional Centre, Grafton Police and indigenous groups and organisations;
- Meetings with directly affected landowners and neighbours, both one on one meetings and a group meeting with affected landowners;
- Project website was established, together with an 1800 number and project email;
- Newsletter distributed to over 22,000 residences and businesses;
- Focus groups with the community;
- Meeting with Clarence Youth Alliance;
- Displays and intercept sessions held in high footfall areas such as shopping centres and markets.

Details of this consultation and its outcome are presented in Appendix 25 of the EIS.

In addition, consultation was undertaken as required by specialist consultants in undertaking assessments for the design of the development and this EIS.

2.2 Consultation following start of EIS public exhibition period

The EIS was exhibited by the Department of Planning and Environment from Friday 16 June to Monday 31 July 2017 (six weeks) for public comment. During this time, Northern Pathways undertook further community consultation as described in the *Phase Two EIS Exhibition Period Engagement – Outcomes Report* prepared by Straight Talk, August 2017.

2.2.1 Summary of activities

The following stakeholder groups were identified in the SIA Engagement and Communication Plan for consultation during the exhibition period:

- Directly-affected landowners and neighbours are those people living or owning land in the direct vicinity of the site of the NGCC;
- Key stakeholders include those agencies and organisations who have responsibility for services, facilities or community support programs that may

be impacted by the NGCC. These include key community groups, Aboriginal Land Council's and advocacy groups in the area, as well as businesses, educational and other governmental facilities and services in the Grafton area;

- Hard-to-reach groups including; Aboriginal communities, socially and economically disadvantaged residents and young people are likely to be some of the most impacted stakeholders. Yet these key stakeholders are often the most difficult to engage with through broader community engagement activities. The Plan identified that it was critical that these key stakeholders were identified separately and that engagement activities were tailored to invite their important input;
- The general community refers to the wider community living within the Clarence Valley Local Government Area.

Engagement activities and communication were tailored to be relevant and meaningful to each target audience.

Over 580 people participated in the consultation which included a range of methods:

- Directly affected landowners and neighbours' workshops and meetings - two group workshops were held with directly affected landowners and neighbours. One-on-one meetings were also offered to all directly affected landowner and neighbours to explain the EIS and capture their feedback at a time and place convenient to them. These meetings and workshops were supported by letters, emails and telephone calls to maintain contact, respond directly to questions and build relationships;
- General community workshop - two community workshops were run to present the EIS and capture the general community's views on the suggested impacts and mitigation measures;
- Pop up events - four pop up information stalls were held throughout the exhibition period;
- Stakeholder meetings and workshops - 12 workshops and meetings were held with key stakeholder groups;
- Aboriginal meetings: yarning circles - three yarning circles and one design meeting were held with local Aboriginal stakeholders to explore and capture feedback on the project's impacts and mitigation strategies;
- NAIDOC pop ups - pop up information stalls were held at two NAIDOC family days in Maclean and Grafton;
- One Thing Lunch Straight Talk designed and hosted a lunch targeting socially and economically disadvantaged members of the Grafton community;
- Youth involvement including two meetings with Clarence Youth Action (CYA) Group and two, one-hour workshops with senior students at Grafton High School and Clarence Valley Anglican School focusing on positive and

negative perceptions of Grafton, with some group discussion about what participants had heard about the NGCC.

The purpose of the consultation program was: to explore if the impacts and mitigations measures outlined in the EIS and SIA were accurate; direct the public on how to make a submission on the EIS; and more broadly, gain a deeper understanding of the perceived strength, challenges and impacts of the NGCC.

2.2.2 Key outcomes and actions

Overall, the following key themes were identified:

- There was overall support for the NGCC from all stakeholders, except from directly affected landowners and neighbours. Even when participants had a concern or raised an issue with the proposal, they identified that overall, the project would be beneficial and have a positive impact on the local community
- There were no significant gaps in the impacts or mitigation measures identified by the EIS and SIA. Instead participants emphasised how important it was for the project team to understand the gravity of the identified impacts and to successfully implement mitigation measures. Early planning and providing project partners and the public with clear and detailed information were considered crucial in setting mitigation measures up to be successful
- Issues remained largely consistent with those raised in the Phase 1 consultation, that of: the importance of local employment; making sure local businesses and suppliers benefit from construction and operations; and opportunities to support young people, Aboriginal communities and people who are socially disadvantaged. The key issues raised in the Phase 2 consultation were:
    - Community benefit - and how it would be safeguarded and shared throughout the community was important. The project's potential to deliver community benefits was raised frequently. However, participants identified that in the past, infrastructure projects had, over-promised and under-delivered, when it came to community benefits.
    - Employment targets - were the key project impact and priority raised in the consultation. Participants commended the employment targets set out in the EIS, particularly for local employment, Aboriginal employment, traineeships and local supply chains. Participants said that these targets needed to be well managed to be achieved
    - Visitor management - was raised as an important requirement of the NGCC. Participants believed that visitor management was required for different reasons; some were concerned about a rise in anti-social behaviour, others were concerned about the wellbeing of visitors and

inmates. Participants frequently suggested mechanisms to provide visitors with affordable and safe waiting spaces

- Inmate support and release programs - many participants considered the reintegration of inmates as an important measure of the project's success. Participants said that the NGCC needed to be proactive in partnering with community organisations to support inmate wellbeing, reduce reoffending and prevent community groups from being over stretched with assisting newly released persons

- The issues for participants were consistent across the consultation, except for directly affected landowners and neighbours, who had unique key concerns and issues, which reflected their position on the project. Key issues for directly affected landowners and neighbours were related to: project approvals, stock movement, lifestyle impacts, traffic and utilities

Many actions to mitigate or leverage project impacts were generated from the consultation program (discussed in Table 1). Most suggested actions addressed key issues raised in the consultation, such as: employment targets, visitor management and inmate support. It is important to note that some actions suggested through consultation had already been addressed, either within the EIS or through engagement with local partners and organisations. Other community suggestions have been incorporated into the amended mitigation table contained in Appendix 6.

The outcomes of the consultation will be used by Northern Pathways to inform future NGCC design, operations, process and implementation plans.

Table 1 Strategies Raised Through Consultation

Issue	Suggested mitigation by stakeholders community	Project Response
Visitors will need a safe place to rest and wait	A community hub set up outside the centre gates where visitors could go for support and programs, in partnership with local community services	This would be subject to ongoing discussions with Clarence Valley Council and other non-governement organisations.
	Designated visitor accommodation offered nearby for families visiting, in partnership with local accommodation providers	No. Not recommended in SIA as not considered necessary.
	Fitting train and bus depots with charging stations for phones and devices	Visitors centre at NGCC has these facilities.
	Aligning visiting hours with train schedules to reduce wait times	Visits hours are flexible from 8.30am to 4.00pm Wednesday to Sunday..
	A facility at the centre for waiting visitors	Visits centre included in design.

Issue	Suggested mitigation by stakeholders community	Project Response
	Opportunities for alternative accommodation or subsidised hotels, particularly for Aboriginal visitors or visitors from low socio-economic backgrounds who are likely to depend heavily on stretched community services for short term accommodation	This is beyond the scope of the project. The Operator will be able to provide potential visitors with information on accommodation options if required.
	Facilities for low-income families visiting inmates.	This is beyond the scope of the project. The Operator will be able to provide potential visitors with information on accommodation options if required.
	Public transport stops allocated close to the site (Transport for NSW)	Bus stop included in design.
	Have better transport links with private shuttle buses or general assistance to travel	Yes. Included in project commitments outlined at section 6.
	Public art should be included in all public visiting areas within the correctional centre.	Yes. Public art included in proposed development.
The NGCC needs strong linkages with the community to reduce reoffending and, provide inmate support and release programs	Waiting areas for those being released inside the NGCC so they have flexibility to coordinate their release	Yes. Incorporated in operations.
	Coordinated transport options for released inmates. So those being released are not waiting for long periods of time to leave Grafton	This would be coordinated by NGCC in conjunction with Probation and Parole
	There should be more affordable housing, crisis accommodation and short term transitional housing stock to support newly released persons	This issue is discussed in SIA.
	Stronger rehabilitation programs and partnerships with community groups to manage released persons	Yes, included in operation and discussed in SIA.
	Stronger pre-notification of when people are being released so organisations can prepare	As above
	Focus on reducing drugs and alcohol addiction, and unlicensed driving to most effectively reduce reoffending	As above

Issue	Suggested mitigation by stakeholders community	Project Response
	Have courses that inmates can undertake to take money off their fines and reduce debt	Courses would be developed to meet the needs of inmates in line with Corrective Services NSW requirements.
	24-hour access at the site for legal services	Access available 7 days a week 8.30am to 4.00pm.
	Incorporate different rehabilitation models including Aboriginal healing models which require local specialists	Included in proposal.
	Create a mentoring program with Aboriginal Elders to aid rehabilitation	Yes. This will be considered as an option subject to further development.
	Provide audio-visual links for inmates to speak with legal services	Yes, this is included in the current design.
	Enact memorandums of understanding between the NGCC and local Aboriginal agencies, including Aboriginal Legal Services	Discussions are underway for agreements with a range of service providers.
	Work programs to assist inmates when reengaging the workforce	This is included in the proposal.
Employment targets need to be successfully implemented	Early communication with schools, Southern Cross University, TAFE and students about employment opportunities	Agreements and Structured Programs have already been under development with local TAFE / Training & employment providers.
	A coordinated process to offer long term employment to counter short term construction cycles, such as linking existing employees to work and early notice of the commencement and closure of jobs	Yes. Discussed in SIA.
	Money management training for young people so that they spend sustainably, learn to be financially resilient and don't go back to unemployment.	Yes. Included in proposal.
	Mentoring and employment support	As above
	Paperwork in place prior to the start of works for contractors and subcontractors	Appropriate arrangements in place.
	Inform local businesses early on of quantities of goods required so that they can pool resources or build consortiums	Yes. Included in mitigation measures.
	Incentives to get local people to create jobs	As above.

Issue	Suggested mitigation by stakeholders community	Project Response
	List the available jobs early on to encourage young people to stay in the area	As above.
	Utilise the business roundtable as a vehicle for disseminating business information	As above.
	Run industry specific cluster meetings run by Council	Mitigation includes active participation in Clarence Valley Roundtable
	Develop a public construction calendar with advanced notice of the skills and qualifications required and procurement packages	Yes. In mitigation measures.
	Publicise project team contacts	NorthernPathways contact information is publicly available.
	Have a standing committee and continue to keep communication channels open beyond just the onset of the project	Ongoing communication protocols are outlined in section 6.
	Avoid lengthy payment terms so local businesses with small cash flow can participate	As identified in the mitigation measures, a business model is recommended to be developed in collaboration with local businesses.
	Measures in place to make people prove their eligibility to meet local employment targets and Aboriginal employment targets	Not recommended. As discussed in mitigations measures a plan specific to the NGCC is to be developed to implement the operator's reconciliation action plan.
	Build a construction housing village for workers in town so money is spent there, if local accommodation is not possible	As discussed in the mitigation measures and SIA short term construction worker housing could be explored if required. No current requirement.
	Create a rental directory and liaise with existing accommodation providers to identify accommodation provisions for workers	As, discussed in mitigation measures a housing working group is recommended to be established.
	All NGCC employees should have cultural awareness training to improve relationships with inmates and work respectfully with Aboriginal staff	Yes. In mitigation measures.
The project should be environmental	Consult with the local quarries regarding concrete supplies	Project commitments outlined at section 6

Issue	Suggested mitigation by stakeholders community	Project Response
sustainable		recommend supporting local businesses opportunities.
	Use solar energy to power the site	This is discussed in the EIS.
	The site should be sustainable and powered by renewable energy	Discussed in EIS, provision has been made to accept site based renewable energy in the future.
	Review the thesis; Shotbolt, Timothy (2016) Unwanted lighting effects at night in Australia', for suggestions on best practice light spill to mitigate light pollution	The proposed lighting standards included in the development application are suitably engineered assessed and detailed in the EIS.
	Follow the Australian Standard (AS4282-1997) on the Control of the Obtrusive Effects of Outdoor Lighting	The appropriate standards are referenced in the current design and assessed in EIS.
The project needs to keep the community updated on the project and reach as many people as possible	Have a project Facebook page to connect with, and update the local community	Yes. As discussed in project commitments at section 6.
	Keep people informed along the way by email and word of mouth	Yes. As discussed in mitigation measures at section 6.
	Spread the word about consultation activities through the networks of interagency community organisations	Yes. As discussed in mitigation measures at section 6.
	Find local Aboriginal representatives that can speak for many	Mitigation measures recommend the establishment of an aboriginal cultural group engaging with local or high profile Indigenous leaders.
	Hold stakeholder meetings in surrounding areas which cover different traditional lands	Yes. Discussed in mitigation measures.
	Collect feedback from different Aboriginal Land Councils who will have their own perspectives or employment needs and opportunities	As above.
Have a road	Include a road sign for stock movements	Yes. This will be included in

Issue	Suggested mitigation by stakeholders community	Project Response
sign on Avenue Road saying, 'designated stock route'.	along Avenue Road.	the project.

2.3 Ongoing consultation

The Phase 2 engagement program has built the foundations for ongoing engagement and partnerships with stakeholders and local communities to keep participants updated and support the construction and operation of the NGCC.

3. CONSIDERATION OF SUBMISSIONS

During and after the public exhibition period 26 submissions were received by DPE. 19 of these submissions were from the public and 7 from public authorities.

Additional comments were received from DPE. These are also addressed in the table to Section 3 and in Section 4.

The submissions from public authorities made comments relevant to areas of their responsibility.

Of the nineteen submissions from members of the public, one submission supported the proposal, ten raised objections to the development in part or in whole and six submissions did not object outright yet nonetheless raised concerns or made comments for further consideration.

Two submissions in relation to the provision of HV electricity supply to the facility objected to the alignment of the supply along Reilleys Lane which is not part of the proposed development. However, INSW have advised that detailed investigations to identify a preferred route for the HV powerlines are continuing. It has been further confirmed that Reilleys Lane is not suitable and will no longer be considered. Once a preferred route has been confirmed, consultation will be carried out. A separate planning process has been undertaken for the HV supply route.

The following table and sections of this report presents a summary of the issues raised in the submissions made during and after the exhibition period and the proponent's response to the submissions.

Table 2 – Response to Submissions from the Public

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P1	BF	>Lack of consultation for 'affected landholder'	We both state emphatically along with a significant number of other affected landholders that we have not been adequately or properly consulted. We were not consulted at all prior to the preparation of the EIS for Stage One or its approval on 14th March 2017. The invitation to our first face to face meeting with those representing the applicant was expressed thus: "We would like to meet you since we will be neighbours for the next twenty years." At that first and subsequent meetings we and others have raised issues that have not been described or addressed by the applicant in the EIS. There is general and genuine anger among some of the affected landholders at least that we have been treated with disdain, even contempt.	There has been on-going consultation with directly affected landowners and neighbours during the course of preparing the EIS and during the exhibition of the EIS. This is documented in Section 4.2.1 the report entitled *Engagement to Support the Development of Stage 2 EIS - NGCC Engagement Outcomes Report* May 2017 contained as Appendix 25 of the EIS and in Section 3.4.1 of the report entitled *Phase Two EIS Exhibition Period Engagement Outcomes Report* dated August 2017 contained in Appendix 1to this Response to Submissions Report.
P1	BF	>Aboriginal significance of the site	We and other local residents are aware that the site is very significant for Aboriginal people. When work commenced at the site on 3rd July 2017 and during the following day several Aboriginal people were present. Their message was emphatic and clear. Do not dig. It is clear that they have not been consulted. We submit that the applicant has simply not consulted adequately on this issue and that it is becoming apparent that the site is of major significance and importance in this regard.	Discussed in Section 4.1 below.
P1	BF	>Aboriginal significance of the site	If this gaol is built on a site that has been and continues to be a special and sacred space associated with a songlike running from Susan Island to the floodplain and includes burial sites in close proximity to the gaol site and then on completion incarcerates over 400 aboriginal men and women into the foreseeable future then it will successfully have provided the greatest insult possible to every Aboriginal and Torres Strait Islander in the country and irrevocably prejudiced any advance in the quest for Reconciliation that may otherwise have been possible.	Discussed in Section 4.1 below.
P2	DB	No clear indication	It was not possible to understand the grounds for objection raised in this submission.	No response provided.
P3	DR	> Local resident and proximity to NGCC	> I have only just looked at the pics provided for the Buffer Zone, I don't like it. It closes our view to nothing but a wall of trees. My request was that the trees be put closer to the jail to retain as much as possible of the current outlook as my house was built to look over that paddock.	The proposed vegetation buffer is a requirement of the Stage 1 consent and is being implemented as part of the Stage 1 works. NorthernPathways have agreed a planting design and layout with a Landscape Consultant & designs have been implemented by meeting with these neighbours on their suggested details of planting location to maximise outlook whilst providing privacy and minimising visual impacts.
P3	DR	> Tree planning reducing outlook over paddock and creation of problem with snakes	> And due to the size and how close it is to my house it would present me with the problem of snakes. We have not had much problem with snakes previously as the paddocks were kept clear and grass was short.	The majority of the site would be maintained and grass mown or slashed with the exception of the vegetation buffer.
P3	DR	> Safety for family, requesting additional security measures for the property	>I stated from the start that safety is our priority. For myself as a single person with children. The view matters, but isn't such a high priority to us. So, I request that the money would be better spent on safety features for my house to help keep us safe from any unwanted visitors. IE: Entry, Crim Safe Screens/Doors and safety glass, reinforced door jams/locks etc.	Noted and NorthernPathways will hold on-going discussions during project delivery. Discussions have commenced with the neighbour in this regard.
P4	GW	> Concern regarding management practices of Serco.	> Serco - Operators selected by NSW State Government for 20 years. Do you think they would be suitable operators given the fact they were terminated from Mt. Eden Jail in New Zealand and recent television interview with Minister Dutton revealed they are under federal investigation for mismanagement and corruption within the Christmas Island Detention Centre.	Serco successfully operates a number of correctional centres across Australia, New Zealand and the UK including the Wandoo Reintegration Facility in Perth, which is unique in Australia for its integrated services which is achieving recidivism rates better than half the national average. Throughout the procurement process, Serco were required to demonstrate how they have made systemic and holistic changes in the way they operate their correctional centres in response to previous incidents at the Mount Eden

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
				Corrections Facility. Serco continue to run the Auckland South Corrections Facility and reference checks with the New Zealand Government confirmed that this centre is run safely and efficiently with no concerns about Serco's ability to operate a correctional centre. Serco as part of the Northern Pathways consortium will be subject to rigorous performance reporting and benchmarked standards to ensure efficiency and productivity is lifted, without compromising safety and security. The Northern Pathways proposal provides a state-of-the-art facility that not only focuses on safety and security but will provide innovative programs to help reduce the risk of re-offending.
P4	GW	>Location of site in relation to flooding	> Centre is in high rainfall area where cyclones and high rainfall can be in excess of 250mm. How do you think you can contain runoff and wastewater within your area. Your assumptions concerning irrigation, particularly during wet periods are rubbish.	The EIS states that the overall stormwater management concept is to ensure that post development stormwater runoff volume and peak rate of flow from the site matches pre-development runoff within each of the existing drainage paths leaving the site for the 5, 10, 20 and 100 year ARI events. The large detention basins are sized to meet these requirements. The modelled irrigation scheme resulted in complete reuse on-site, allowing for irrigation flexibility and management of very rare events, with no increases in nitrogen and phosphorous leaching, due to uptake by the crop and overcoming some nutrient deficiencies present in the non-irrigated crop.
P4	GW	>Wastewater and sewage disposal and proximity to proposed sewage	> Wastewater and sewerage disposal - We were told by our local member of Parliament the sewerage would be pumped to the South Grafton Treatment Plant. This has not happened, we were lied to.	Connection to Council's existing Clarenza treatment plant was considered in the Stage 1 EIS which states that due to the distance from the Council's sewerage system, a rising main transfer is not feasible as the detention time in the rising main would mean that the current treatment train would be unable to treat the sewage. This was confirmed during Stage 2 investigations. This alternative is also discussed in Section 1.6 of the EIS.
P4	GW	>Wastewater and sewage disposal and proximity to proposed sewage	> Wasterwater Plant - My property is on the Western side with 3 approximately 40ha Lifestyle Blocks with house sites approved. Your proposed plant is close to these sites. What a bastard of an act for you to do to your neighbour. What is the minimum distance a sewerage plant has to be away from a house site. 3.10.7 - You state in your EIS the wastewater dam when full can discharge waste on the western side by drainage lines (gullies). My property is on the western side and I don't want any of your wastewater discharge.	The site of the water treatment plant is approximately 250 metres from the western boundary of the site adjoining what is assumed to be one of the 3 x 40 hectare lifestyle lots referred to in the submission. There are no dwellings located on these lots and the less timbered areas to the south of these lots closer to Wants Lane (to be relocated as part of the Pacific Highway upgrade) would be the likely location of any dwelling. These locations would be well removed from the location of the water treatment plant by approximately 800 metres. Discussions have been held with Council officers who advise that no development consent has been granted for dwelling houses on these lots.
P4	GW	>Livestock movement along Avenue Rd, with secure fencing at entry points.	> Stock Movements - Graziers use Avenue Rd to drive livestock under license from property to property and particularly during flooding where livestock are moved in many and large mobs from the flood prone land to the north to higher ground via Avenue Rd. The present boundary is securely fenced. Your proposal is for large open driveways. This proposal is unacceptable to me as a grazier. I would expect gates to be put on the entrance and kept closed.	Stock movements discussed below in Section 4.3.
P4	GW	> Traffic movement to the NGCC and capacity for road network to cater for the increased traffic and potential increase in road accidents	> Roads - there are 5 roads in the area. They are Eight Mile Lane, Avenue Road, Wants Lane, Old Six Mile Land and Deep Creek Road. Your preferred route is Eight Mile Land and part Avenue Rd (currently being upgraded). Old Six Mile Rd (Part bitumen, part gravel, poor state), Wants Lane (gravel, poor state), Deep Creek Rd (narrow, single lane bitumen road, average to poor state). Given you have a preferred route to this jail, how do you propose to prevent jail traffic using the other low standard roads as they are public roads and will no doubt cause accidents. How do you propose to the police to manage this situation?	During construction, workers and deliveries will be directed to use Pacific Highway and Eight Mile Lane as the access route to the facility. During operation staff, visitors and deliveries will be similarly directed to use this route. The Pacific Highway upgrade will be completed by the time the facility opens. The quickest and most direct route to the site would be via the Glenugie interchange of the Pacific Highway and Eight Mile Lane. Staff living in the southern part of Ulmarra or the village of Tucabia to the north may use local roads rather than access the Pacific highway bypass at the Tyndale interchange at Sheehys Lane although this is expected to be minor.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P4	GW	> Impact on farming practices (and the ability to continue baiting and shooting of wild animals)	> Feral Animals - They are a problem in this area particularly wild dogs (which kill cattle), foxes and rabbits. The methods of control are baiting and shooting. The law states you cannot bait within 500m of a building. Your jail buildings are less than that from my boundary. The other method is shooting, what is your policy about discharging firearms near a jail?	It is anticipated that the proposed development would not unreasonably impact on farming activities on adjoining or adjacent land undertaken within the law controlling use of firearms, guidelines of the Department of Primary Industries and sound farming practice. The generally smaller lot size in the area including the lifestyle blocks mentioned in the submission would need to be considered in relation to any off site impacts of farming activities. A primary production firearms licence does not extend to shooting on any other property. There would be restricted access to the site and in particular the areas on the western side of the site which would not be accessible to visitors. The operator, Serco, is willing to hold discussions with all adjoining landowners to ensure that impacts on on-going farming operations are minimised.
P4	GW	> impact of the perception of Grafton being a gaol town and potential increase in crime to the area	> As a neighbour and I have lived in the Clarence Valley all my life, I am totally opposed to this jail being built on this site, and the fact Grafton will possibly be turned into a jail town and the possible crime it could bring to the area.	Noted. Impacts of the development on the image of Grafton is discussed in the SIA accompanying the EIS.
P5	JW	> Lack of consultation	>There was no consultation with us. The Pacific Highway and Grafton Bridge spent years and had 4 different location options put out to the public to comment on. We did not have that option were just told the site has been selected. The first EIS was fatally flawed because it did not comply with the requirement to consult with us and without any research done on our concerns contrary to a requirement of the SEAR's.	There has been on-going consultation with directly affected landowners and neighbours during the course of preparing the EIS and during the exhibition of the EIS. This is documented in Section 4.2.1 the report entitled Engagement to Support the Development of Stage 2 EIS - NGCC Engagement Outcomes Report May 2017 contained as Appendix 25 of the EIS and in Section 3.4.1 of the report entitled Phase Two EIS Exhibition Period Engagement Outcomes Report dated August 2017 contained in Appendix 1 to this Response to Submissions Report.
P5	JW	> Potential conflict of interest for selection committee member	> A relative of a local land holder was on the selection committee. We were told he backed out due to conflict of interest but we think it may have been after selection was almost made.	Noted. Site selection discussed in the Stage 1 EIS. Development consent has been granted to the concept proposal for the NGCC to accommodate 1,700 inmates.
P5	JW	> Cost and environmental impacts of infrastructure	> Cost and environmental impacts of infrastructure (electricity line, water, easements) to 'those' land holders. Choice of other sites may have eliminated these costs.	As stated in Section 1.4 of the EIS, the NSW Government is responsible for site acquisition and the provision of certain public utilities infrastructure to the site (including all relevant environmental approvals). These include: · The upgrade of Avenue Road to a two lane carriageway from the bridge over the Pacific Highway Grafton bypass to the northern boundary of the site; · The provision of a potable water supply to the site from the municipal service operated by Clarence Valley Council (CVC); · The provision of an electricity supply to the site to meet the needs of the development; · The provision of communications to the site. These works have commenced and are being coordinated with the Stage 1 works.
P5	JW	> Jobs should be given to locals	> Jobs should be given to the locals. We were told in one of the meetings with John Holland that they are planning on putting a concrete factory on site to make their own concrete. Whatever happened to using locals where possible. We have a facility to provide concrete.	Proposals for employing locals during construction and operation are described in the EIS including Appendix 24 - Social Impact Assessment. The concrete batching plant would involve jobs on site. NorthernPathways will work with local service providers to maximise opportunities for local involvement.
P5	JW	> LEP requirements aren't met	> LEP requirements aren't met (increased traffic; out of character with its surroundings; noise; air pollution). The new facility will be changing the look of our surroundings and with a possible 300 cars per visiting time it dramatically increases traffic, pollution and noise.	The extent to which the development addresses the provisions of the LEP are discussed in Section 5.5.8 of the EIS.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P5	JW	> Local roads are not suitable	> Six Mile Lane and Wants Lane are too narrow for large machinery. During flooding these roads are impassable. These issues should have been addressed in consultation with land holders before approval was granted.	It is proposed that all construction vehicles carrying machinery or other supplies would access the site via Eight Mile Lane and Avenue Road. Large machinery involved in the operation of the facility would also be instructed to use this route. The Construction Traffic Management Plan prevents use of Six Mile Lane.
P5	JW	> Loss of land value	> There is a lot stress to us on every problem created by NGCC. Not addressed not acceptable. We feel our life has been turned upside down. We moved to Glenugie (as you call it Lavadia) to get away from the fast pace life of Sydney, the pollution and the noise. We now feel it has just been dumped on us. Our little part of the North Coast. With the highway and possible threat of a gas mine and now the Goal it is turning our little piece of paradise into an Industrial area and we cannot afford to move because we have lost value in our home. It is too expensive to move and start again. Maybe one day if the government rezones lands and lets us subdivide then maybe we will be able to afford to move and live out our life in the piece and quite that we once had. Recommendation - rezone area into small acreage blocks so we can subdivide. This also allows for housing to be built for the goal workers and allow investors to build housing for rent to relatives of imprisoned family members which will eliminate extra stress on the roads.	There is no proposal to turn the area near the site into an industrial area. Land on the southern side of Wants Lane would be separated from the site by the Pacific Highway. Any changes to land use planning in the area is a matter for Clarence Valley Council and the Department of Planning and Environment in the context of State and regional planning strategies.
P5	JW	> Aboriginal heritage concerns	> Women are not allowed on the site according to the Aborigines yet Serco is going to have 100 indigenous women who may find this extremely distressing and threatening.	Discussed in Section 4.1 below.
P5	JW	>Biodiversity	> Biodiversity offset has been skipped over in stage 1 and 2. Waiting for Stage 3 is too late.	The Biodiversity Offset Strategy has been revised and approved by the Secretary of the Department of Planning and Environment as required by the Stage 1 consent. This outlines the proposed offset strategy. This strategy will be finalised to reflect the offsets required by the Stage 2 development.
P5	JW	> Parking	> The EIS talks about a 500 car park but the application says 850.	The Stage 1 consent for the concept for the development included 500 car parking spaces identified at that time to meet the needs of the development. 850 car parking spaces are provided to meet the estimated need of staff and visitors to this facility. This is based on detailed investigations on parking requirements and the traffic, access and car parking investigations required by condition B5 to B8 of Schedule 2 of the Stage 1 consent.
P6	JC	> Impacts of NGCC on cattle movements	> Stock numbers on these properties change from season to season, large numbers of cattle can be held on these properties, that would potentially lead to movement of these cattle along Avenue Road at any one time.	Discussed in Section 4.3 below.
P6	JC	> Impacts of NGCC on cattle movements	> We believe that the traffic impact from the correctional centre in full operation of 714 vph equating to 11.9 vpm and whilst under construction of 905 vph equating to 15 vpm as quoted in the environmental impact statement under Transport and Accessibilities section 6.4.2 page 106-108, would make it impossible to drove cattle past the correctional centre and along Avenue Road.	Discussed in Section 4.3 below.
P6	JC	> Impacts of NGCC on cattle movements	> We believe that the Stock Movement Protocol that has been proposed by John Holland is drastically inadequate to facilitate any cattle movements along Avenue Road as cattle movements can take multiple hours to complete. Cattle can be unpredictable when working with them and we believe that there are not enough safety interventions and procedures that can be put into place for unforeseen circumstances that may arise to keep both cattle and the public safe.	Discussed in Section 4.3 below.
P6	JC	> Impacts of NGCC on cattle movements	> We are concerned that due to the amount of traffic proposed in the Environmental Impact Statement, that the Department of Local Land Services may not renew and or possibly revoke our current or future permits due to safety concerns of the public.	Discussed in Section 4.3 below.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P7	JG	> Lack of consultation	> As a resident of 195 Avenue Road Glenugie, I would like to submit some positive and constructive improvement ideas for our community. Without prior consultation, the Department of Planning and Infrastructure NSW chose our rural community as the location for a 1700 bed correctional facility despite there being no power or water to support such a facility.	There has been on-going consultation with directly affected landowners and neighbours during the course of preparing the EIS and during the exhibition of the EIS. This is documented in Section 4.2.1 the report entitled *Engagement to Support the Development of Stage 2 EIS - NGCC Engagement Outcomes Report* May 2017 contained as Appendix 25 of the EIS and in Section 3.4.1 of the report entitled *Phase Two EIS Exhibition Period Engagement Outcomes Repor*t dated August 2017 contained in Appendix 1 to this Response to Submissions Report.
P7	JG	> Loss of amenity	> Now through no fault of our own we have had to undergo a series of changes. Our area has gone from a private and quiet rural setting with very little traffic, to a very busy, noisy and unpredictable main thoroughfare right at our front gate. This will continue to deteriorate as the facility gets up and running.	Traffic volumes on Avenue Road are outlined in the EIS accompanying the development application. The existing carriageway will be widened to 2 lanes at the submitter property by Pacific Complete as part of the Pacific Highway upgrade project. Traffic flows would be highest during the morning peak period with the change in shift. Traffic flows at other times would be lower. Noise impacts from additional traffic during operations have been assessed as minimal.
P7	JG	> Cleared land	> With work already well under way on the corner of Eight Mile Lane and Avenue Road, (southern end) the first issue is the amount of trees cleared from the Avenue. I would like to see the area regenerated with fast growing screening trees so that in three years' time, we have a barrier from noise and light. For residents who wish to have an extra barrier between their properties and the road, trees should also be planted inside their fence line to further screen from noise, light and for privacy.	The Proponent will work with the submitter regarding vegetation buffers.
P7	JG	> Employment of local labour	> Another suggestion is that residents from this community be employed by the facility first and foremost, as this will certainly assist in shoring up support from them. Not just in the construction phase but also on-going employment within the facility.	Residents of the local area can seek employment during the construction and operational phases of the development with applications considered on their merits. NorthernPathways have targets for local employment during construction and operation with tailored training during construction that will enable transition into the Operational phase. The NorthernPathways website enables residents to register interest in employment. Jobs fairs are planned.
P7	JG	> Employment of local labour	> I would also like to know if you can guarantee that the Avenue Road will be the main access road to the facility. To make the best of the situation, I have considered investing in a business that may profit from the passing traffic. Can you also guarantee that there will be no on-off ramp from the highway to the facility for the convenience of transporting inmates? If so, can residents have access to this ramp?	No off ramp from the highway is proposed as part of the development with such work being the responsibility of RMS.
P8	KH	>Lack of consultation	> Firstly, I would like to express my disappointment with the lack of direct notification to my family and I about the planned works that directly affect all Reilleys Lane residents. I hope that from now you and your team could be more forth coming with any information regarding any changes affecting our neighbourhood.	The provision of electricity to the facility is the responsibility of INSW and is subject to a separate approval process. Detailed investigations to identify a preferred route for the powerlines are continuing, however it has been confirmed that Reilleys Lane is not suitable and will no longer be considered. Once a preferred route has been identified, consultation will be carried out with impacted landowners.
P8	KH	> Upgrade and redirection of power lines	> Although we are objecting to your proposal we are open to options and possible compensation options that could result in a fair decision for all involved.	See comment above
P8	KH	> Upgrade and redirection of power lines	> We have listed below the concerns we have in regard to this matter followed by a list of options. Concerns - Destruction / clearing of natural vegetation - Property access during works - Road congestion/delays - Dust/noise pollution levels - Power outages - Changes to the street scape - The potential for upgrades in the future - Possible `humming' from the lines	See comment above

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
			- Family and livestock security/wellbeing (health issue?) - Decreased property values	
P8	KH	> Upgrade and redirection of power lines	> Options - Choosing alternate route - Making the new goal self-sufficient with solar/wind power - Placing all existing and new lines underground - Re-surfacing Reilleys Lane with bitumen	See comment above
P9	MS	> Concerns about crime prevention within and round jail premises	> Contradicts a number of existing design principles for Australian Criminal Intelligence Commission. For instance: - Understanding of the Clarence Valley picture of drug use and demand in the present-day and as it evolves in future, is fundamental to social impact of new Grafton Correction Centre. - Independent and transparent wastewater monitoring is essential to understand patterns of illicit drugs usage, like ice, cocaine, MDMA (ecstasy), alcohol, tobacco and medications. - Drugs usage by an ample percentage of 1,300 maximum security inmates at new Grafton Correction Centre, won't be constrained by gaol security surveillance (and irrespective of gaol rules or NSW laws).	State of the art security measures will be in place at the facility including a range of electronic surveillance measures.
P9	MS	> Concerns about crime prevention within and round jail premises	> Puts CASA (Civil Aviation Safety Authority) in a very difficult if not impossible position (how can CASA predict ahead of time how inmates will guide future clandestine drone flights).	State of the art security measures will be in place at the facility
P9	MS	> Concerns about crime prevention within and round jail premises	> Dampens/confuses ethical consideration signals and is a significant risk for future investment into artificial intelligence and autonomous systems which guide drones	including a range of electronic surveillance measures.
P9	MS	> Concerns about crime prevention within and round jail premises	> Creates significant "Intentional Human Acts" risk for some Clarence Valley Council residents. If Environmental Impact Statement is accepted (even with my strong objection) then to avoid serious lifestyle disruption there should be an unimpeded ability for the affected residents to obtain immediate compensation.	State of the art security measures will be in place at the facility
P10	MC	> Impact of high voltage power lines on flora and fauna	> The flora and fauna will suffer extreme disturbance, due to the tree/land clearing that will be required for construction of the proposed power lines.	The provision of electricity to the facility is the responsibility of INSW and is subject to a separate approval process. Detailed investigations to identify a preferred route for the powerlines are continuing, however it has been confirmed that Reilleys Lane is not suitable and will no longer be considered. Once a preferred route has been identified, consultation will be carried out with impacted landowners.
P10	MC	> Impact of high voltage power lines on flora and fauna	> The bird habitat is extensive and includes king parrots; rosellas, coucal pheasants, wrens, sulphur crested cockatoo, kookaburras, lorikeets, honey eaters, native quail, diamond doves, willy wagtails, swifts and many more native bird habitat/nests. Flora species include old established spotted gum present for hundreds of years, which provide shade and habitat for the fauna. There are also tuckeroos, wattle and ground cover species for smaller native animals.	See comment above
P10	MC	>Loss of local character	> Reilleys Lane is a microcosm of a unique natural environment that is encompassed by large agricultural tracts, a veritable oasis of refuge for animals and plants that have been removed from much of the surrounding local area. We, as residents have chosen to live in Reilleys Lane for the very values that will certainly be destroyed if the power lines are to be constructed.	See comment above
P10	MC	> Health impacts of power lines on humans	> This proposal is threatening to impact immeasurably on our native wildlife and plants, on our homes and lifestyle, property value/resale potential, long term effects of traffic and the proven adverse health effects (a UK study found that children who lived close to high voltage power lines at the time of their birth (within 200 m) had a significantly higher (1.69 times higher) chance of developing leukaemia than those who lived further away) of high frequency power lines to humans and native animals. To be informed that we will be potentially surrounded by' and living with hideous and hazardous high frequency power lines, go against all the reasons we live here.	See comment above

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P11	RT	> Difficult to access documents and errors in URL	> The EIS is published online in 92 separate documents, this makes reviewing the document very difficult. I have specific interests & require to search for keywords this has been made very difficult. Many of the residents effected by this development do not have the skills or resources to consider the document in this form. They have been effectively excluded from the process. There are many ways this document could have been made available as a single document it is disappointing that as part of public consultation, the effort was not made.	The number of files on the DPE website is determined by the file size capacity limits of the DPE. Hard copies of the development application including the EIS were available at the following locations: Clarence Valley Council (Grafton and Maclean Customer Service Centres), Grafton Library, Grafton Community Centre and Department of Planning and Environment, Grafton. A summary document was made available and drop in sessions with technical experts were advertised for people to ask questions of the project team. Further, detailed engineering, and technical based presentations were made to involved Agencies (such as Clarence Valley Council).
P11	RT	> Difficult to access documents and errors in URL	> In the document New Grafton Correctional Centre Stage Two Environmental Impact Statement Summary June 2017. page 2 footer states an incorrect URL as a source for the impact statement, it is difficult to understand how this could have happened with even the most cursory of proofing. This again frustrates public comment on the document.	The development application was formally notified by DPE in accordance with its policies and procedures.
P11	RT	> Lack of access to John Holland documents	> Throughout the document, many In house John Holland documents are cited, John Holland refuses access to all of these documents. This lack of transparency makes informed comment impossible. It is appreciated that some documents would need to be kept confidential but this carpet embargo on all documents is inappropriate. Documents relating directly to the community should be available to the community. To invite comment without transparency appears insincere & is insulting to the community. Being a PPP project the consortium has no FOI or GIPA responsibilities, this allows the consortium to operate without any public scrutiny.	Some of the John Holland Management Plans in the EIS reference other plans within the JHG Integrated Management System (IMS). The IMS contains a whole suite of policies, plans and procedures to cover all aspects of project design and delivery. All documents relevant to the project were included in the EIS.
P11	RT	> Lack of consultation with locals	> EIS information sessions were held at Grafton, Yamba & Woolgoolga. No session was held in the area surrounding the project this again makes informed comment difficult. Alarming that the people most directly affected were ignored. Yamba & Woolgoolga markets are tourist events, Yamba & Woolgoolga will not be impacted by the project why would displays be held here?	Extensive consultation was undertaken during the preparation of the EIS and during the exhibition as indicated in Appendix 26 of the EIS and in Appendix 1 to this report. This included consultation with landowners and residents near the site.
P11	RT	> Loss of land value > Inappropriate comparison to existing jail.	> The EIS states that expected effect on land values would be minimal & quickly recover. People purchase property here exclusively for the lifestyle & environment, the development will have a huge impact on the number of prospective purchasers & what they are prepared to pay, the project will have a huge impact on land values. The EIS drew its conclusions from discussions with local real estate agents. These agents have a vested interest in the land values being as high as possible, they are not in any way independent. An independent expert valuer should have been consulted	Impacts of the development on land values were raised during the consultation program and have been addressed in Appendix 24 of the EIS. This issue was also addressed in the determination of the Stage a development consent. The Department acknowledged the *issue raised in submissions received from the public regarding the risk to property values as a result of the proposed project. However, it is an established principle that the impact of a project on surrounding property value is not a planning consideration (refer e.g. Trinvass Pty Ltd and Anor v Council of the City of Sydney [2015] NSWLEC 151, [89])*.
P11	RT	> Loss of land value > Inappropriate comparison to existing jail	> The EIS compares the NGCC with the existing Goal, stating that Grafton has had a Goal for 120 years with little impact. Residents around the existing goal purchased property there knowing there was a goal already there & they took benefit from the lower real estate prices, depressed because of the goal. The existing goal is in a suburban environment. It is inappropriate to draw parallel between the two they are totally different.	Noted. The familiarity of the community with correctional centres was raised frequently during the consultation process.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P11	RT	> Potential for increased visitor violence in Grafton	> Locally one of the most frequently expressed concerns is visitor behaviour. The conclusion reached in the EIS is both counter intuitive & historically inaccurate. The conclusions conflict diametrically with actual community experience. It is alarming to considerer how such conclusions could have been reached with a thorough, prudent methodology. Rather than address a real community concern the EIS trivialises the concern. Local residents of Grafton & surrounds are long aware of the visitor behaviour around the old Grafton Goal, that included Frequent violent incidents at the Albion hotel It is reasonable to presume that similar behaviour will occur at Wooli Hotel Theft , vandalism & assaults at nearby businesses specifically the Butchers shop & Albion service station. Theft, vandalism & assaults at Grafton hospital to both the hospital property, staff & visitor vehicles, harassment of staff & patients Local residents were fearful of walking in their neighbourhood & they were concerned for the security of their property. There were many confronting incidents Police records would confirm, frequent call outs to the Albion Hotel The owners of the Hotel, service station & Butcher could be interviewed. Long term local residents could verify their harassment. Hospital records & staff interviews would provide a true picture of the environment that surrounded the old Grafton Goal.	Discussed in Section 4.1 below.
P12	PGH	> Livestock movement along Avenue Rd	> The movement of their cattle along Avenue Road is critical to the viability of their cattle business. The location of the proposed New Grafton Correctional Centre dissects our client's properties. With the upgraded infrastructure and additional traffic expected on Avenue Rd the walking of cattle along Avenue Road will become unviable due to safety concerns, additional expenses and the inability to get cattle to walk over a newly created highway overpass	Discussed in Section 4.3 below.
P12	PGH	> Livestock movement along Avenue Rd	> Our clients move cattle on average fortnightly, but occasionally weekly on the northern end of Avenue Rd and to and from the southern end of the property on average every three to four weeks. Each movement takes about 3 to 3.5hrs from the southern end of the property to the northern properties to complete. It currently takes 3 people in cars and on horseback and 2 working dogs to move about 50 head of cattle at a time. currently our clients are able to walk their cattle at time and date that is suitable for them which gives them maximum flexibility to run their business.	Discussed in Section 4.3 below.
P12	PGH	> Livestock movement along Avenue Rd	> It has been suggested that future movement of cattle along Avenue Rd will require notification to a designated supervisor at least 24-48 hours in advance. The designated supervisor will arrange for traffic controllers to stop the flow of traffic in either direction whilst the cattle are moved along the road between properties. Given that this movement takes between 3 and 3.5h hours to complete we haven't been advised what the procedure will be in the case of an emergency at the correctional centre, where emergency services are required to attend or leave the facility.	Discussed in Section 4.3 below.
P13	SF	> Money into education rather than incarceration	> INSW should be spending money on more schools and community facilities that will teach children, their parents and grandparents how to be a worthwhile contributor to the community. It is cheaper to educate than to incarcerate. Stop the cycle of crime by investment on prevention not punishment. Privatising gaols is just dumb. They don't work. According to some of my research the private gaols are being dumped in other countries for various reason--mostly health and safety to the guards and inmates (club fights and contraband inside the gaol). The policies sending people to gaol need an overhaul. People who are addicted to drugs and alcohol need to be in a rehab hospital that keeps them there until they are cured of the addiction and not in gaols. People who are never convicted of a crime or found guilty should not be kept in gaol. Bail laws have become so tight that people are in gaol who shouldn't be.	The justification for the development is discussed in Section 1.7 of the EIS. The development is required to provide accommodation to meet the significant growth in short and long-term demand for capacity within the NSW corrections system. There has been a strong growth in the number of persons in custody. The NSW prison population reached 13,000 in March 2017, not counting prisoners held in police cells. This growth has exceeded expectations and predictions of short term and long-term population growth published as recently as May 2015. This brings the total increase in the NSW adult prison population over the last two years to 13 per cent. The development is a primary action under the NSW Government's Prison Bed Capacity Program, which seeks to increase bed numbers through a range of options in the NSW prison system to

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
				accommodate the immediate and estimated long-term demands. The design and construction of a new facility to suit modern correctional practices will facilitate the implementation of the CSNSW program for Better Prisons including improved educational outcomes for inmates and a reduction in the rate of reoffending.
P13	SF	> Site inappropriate	> The site on Avenue Road for the NGCC should never have been selected. There was no consultation. The new Pacific Highway and new Grafton bridge spent years consulting the community about options and feasibility. The site on Avenue Road, Lavadia (Glenugie) was NOT on an original idea on any list of options. The council had a list of places they owned that were overlooked. Those council owned sites would have had fewer problems and costs with hook up to water, electricity, sewer etc. Connecting all these infrastructure facilities out to Avenue Road is costly and means clearing more corridors much to the disapproval to more landholders and wrecking habitat for flora and fauna. There was no consultation! INSW and Northern Pathways should not be able to get away with that!	Justification for the site selection was considered in granting the Stage 1 consent.
P13	SF	> Aboriginal heritage	> The gaol site on Avenue Road has significant meaning to Aborigines- yet Holland Construction Co. is going ahead with bulldozing and fences this very minute without caring.	Discussed in Section 4.1 below.
P13	SF	> Amenity Loss	Holland and Serco do NOT have a good record for honesty and morals. Holland (cutting corners no doubt) has asbestos (from China no doubt) in a Children's Hospital in WA. How can we trust them not to cut corners or that they will abide to Australia's construction laws? Some Serco private gaols around the world that have been reviewed and found to be treating the staff and the inmates in a manner that is unhealthy and unsafe.	These matters have been addressed by the Stage government in appointing NorthernPathways to the project.
P13	SF	> Amenity Loss	The 2nd EIS has noted that we directly affected local landholders will experience negative impacts as a result of the NGCC. Light, noise, traffic, property value, agriculture activities, loss of peace and quiet, loss of personal safety and farm safety and a negative impact on sensitive eco-systems. Also, its looks are going to be abominable compared to the view we have now without it.	These matters and appropriate mitigation strategies have been discussed in the EIS.
P14	TM	>Justification	> I believe a wholistic approach is vital to recovery and rehabilitation in correctional centres, so as to minimise re offending and helping to break the cycle of crime. Wholistic meaning the physical, emotional, spiritual & mental health of the individual. Meaningful daily work e.g. growing & maintaining vegetable gardens & tree planting & garden maintenance would be beneficial. A well stocked library with a range of books including self-help, nutrition for good mental & physical health, Bibles & spiritual health books. Social & recreational facilities, as many have been socially withdrawn, lonely & abused. Regular counselling visits are an important part of rehabilitation. Suggest limited use of medication for mental health, except when absolutely necessary. Provision of natural therapies to assist with depression & anxiety, rather than medication.	The justification for the development is discussed in Section 1.7 of the EIS. A range of educational and vocational training programs would be provided with dedicated spaces for programs, learning, studying and employment inside the facility. These programs will help foster positive lifestyle changes, develop capable citizens and facilitate successful community reintegration. The New Grafton Correctional Centre will have a significant focus on rehabilitation and the reintegration of inmates into the community. Importantly there will be a range of different programs to meet the needs of the different inmate cohorts. There will be programs that reduce dependencies and addictions; build life skills; reactivates association with family and community; encourages education and work-readiness; and importantly, challenges the behaviours that led to reoffending in the first place. Vocational Education and Training (VET) programs and industries will be available and help develop Inmates' work ethos and employment skills, with programs focused on in-demand skills within the community. NGCC is specifically designed with dedicated spaces for programs, learning, studying and employment inside the facility.
P15	Yaaringay	> Aboriginal Heritage	> We Yaaringay are a family company, formed to protect our heritage and cultural ancestry. Being indigenous and born locally as our grandmother her grandmother before her and so on, we are from a strong blood line of traditional people, our family live from the swamp with native birds on the menu regularly, only men go to the swamp because ceremony grounds are nearby on proposed prison premises	Discussed in Section 4.1 below.

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			(there is said to be 4 bags of stones yet to be unearthed on site). Observations tell me artefacts could be walking off the premises already. Ceremony ground should NOT be unearthed for multiple reasons- # ceremony grounds give meaning to the landscape and support beliefs as they are all interwoven it's culture. # your disturbing the spirit of ancestry # this interferes with Dreaming- collectively # it's disrespectful- like destroying a temple. # it's mens area -no women allowed # upset county (Makes people sick) # tormenting for staff (suicidal tendencies) # you unsettle the earth- it's a curse # guaranteed trouble on premises. (100%) # desecration for incarceration is bad karma.	
P15	Yaaringay	> Change of site	Is this common practice to build Gaols on ceremony grounds?	Discussed in Section 4.1 below.
P15	Yaaringay	> Change of site	The budget was for 600 beds why all the changes?	The Stage 1 development consent is for 1,700 inmates. In June 2015, the NSW Government announced that a new prison accommodating 600 inmates would be built in Grafton. In February 2016, the NSW Government announced that the project had been expanded to accommodate 1000 inmates to meet the State's increasing inmate population. A further 700 beds in the prison were funded as part of the NSW Government 2016-17 budget.
P15	Yaaringay	> Change of site	Is this government protocol?	The size of the facility has been nominated by the Government.
P15	Yaaringay	> Change of site	What is the total footprint. I mean the total footprint?	The footprint of the buildings is shown on the plans of the proposed development included in the EIS.
P15	Yaaringay	> Change of site	Are public aware some advertisements of meetings were incorrect?	All meetings were held as advertised
P15	Yaaringay	>Aboriginal Heritage	How did this become Yaegl country it's supposed to be part of the Gumbaynggirr Nation?	This issue was considered in determining the Stage 1 DA and is discussed further in Section 1.
P15	Yaaringay	>Aboriginal Heritage	> From white people point of view- If a person was to sit and read all the research, they would almost be crazy...the land was acquired by compulsory acquisition by Mayor Williamson (great). Did the land owners have any warning? all seems a bit suspicious to us what was wrong with the acmena. That was the plan remember? In the beginning, there would have been heaps of objections, I'm guessing that if they knew exactly what to say in the first place- they would have said it rather than just making a so called comment, the neighbours would NOT be happy, lots of locals wouldn't be happy. The animals wouldn't be happy. Has the DA been approved? because it shouldn't be.	These matters were considered in granting the Stage 1 consent.
P15	Yaaringay	> Flora and Fauna	> NIGHTIME-There are different species of nocturnal animals that are in the zone of destruction some are rare and endangered. Koalas, few types of bats, gliders, spotted quolls, different owls, possums and types of frogs, geckos and a lot more. A rare and favourite night animal is the phascogale. The glow of light created by the Correctional Centre is astronomical and would affect these animals.	The biodiversity impacts of the proposed development have been assessed as part of the Stage 1 DA and the Stage 2 DA. Biodiversity offsets are proposed.
P15	Yaaringay	> Flora and Fauna	> DAYTIME-Birds like honey eaters, bee eaters, fly catchers, the speckled warbler, tree creepers, varied sittella are some our father has shown us as children telling us they live there, emu, rare storks, bettong, Kites and Eagles are also at risk in daylight plus the travelling or visiting birds like the Brolga, nesting or migrating we have seen them and we haven't even mentioned flora.	The biodiversity impacts of the proposed development have been assessed as part of the Stage 1 DA and the Stage 2 DA. Biodiversity offsets are proposed.
P15	Yaaringay	> Change of site	With all due respect this is an objection being submitted asking for a change of venue and we feel it is necessary, It is our opinion that the Correctional Centre needs to be placed near Acmena Juvenile Justice Centre making 3 gaols in one, where there is no swamp and the airport is nowhere to be seen or heard (as where there is a will-there is a way). Not only that bright lights are at Acmena area already and nature has part prepared for any Justice Centre extensions and that most were lead to believe that would be the plan. This is a serious objection to the New Grafton Correctional Centre PLEASE reconsider location for the good of everyone.	Noted.

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P16	WO	> Earthworks and Clearing	> I suggest avoiding all earthworks and forest clearing on your Avenue Road site (Lot 26 D P 751376 and Lot 1 DP 1190399 Lavadia). To avoid unnecessary cost to all NSW taxpayers, local communities, cultural heritage and environmental issues.	Removal of vegetation is required for the development and has been approved as part of the Stage 1 works. The impacts of vegetation removal have been addressed.
P16	WO	> Cost of infrastructure	> Site section -we (local community) now know the real cost (over, $150million) for standard infrastructure makes this $ 3million site, not financially practical.	Noted.
P16	WO	> Area inside security walls	> Area inside security walls – is now less then 40HA with a total floor place of less than 10HA. This makes many other sites closes to existing unfractured and services available.	These matters were considered in granting the Stage 1 consent.
P16	WO	> No EIS for infrastructure	> No integrated EIS or coordinated planning of your 3-major infrastructure - which are: • Existing regional airport. • Under construction W2 B Pacific highway upgrade. • Proposed New Grafton Correctional Centre. As these 3 major projects have a far greater impact as an overall then just individually: • Impact on rare and common fauna with multiple fencing. • Impact on cultural and living heritage. • Impact on traffic movements during construction, midterm, 50-year plan. (example: The John Holland contractors where not aware, their only tar road access is now closed for a time unknown by RMS. Ref Duke St, July 2017 meeting).	The cumulative impacts of the construction of the Pacific Highway upgrade and the correctional centre have been considered in the EIS and measures recommended for coordination of construction activities. This included vehicle movements along Avenue Road.
P16	WO	> Grave sites in the area.	> The proposed correctional centre's access to the new W2B Pacific high way up grade- this area has been under review, being subject of grave sites from a massacre. (now over 50 grave sites have been recorded in this area, approx. 5 km south west of the Avenue Road's proposed correctional centre site).	There are no known grave sites on the site. Unexpected finds protocols will be implemented during earthworks approved as part of the Stage 1 consent.
P17	Name Withheld	> Right to Farm	> The proposed site along with our neighbouring property is zoned "Rural" - we object on the following basis with overarching theme that the proposed site is in a rural zone as a neighbour: i/ impacts agricultural activities - refer below right to farm. ii/ impacts on rural land scape and character - irreversible through building an operational phase. iii/ a correctional centre and working farm is not compatible - clearly a direct conflict - again refer right to farm. iv/ increased demand on public services - namely The Avenue North.	The response to ongoing agricultural farming activities is outlined in section 4.3.1. Residential amenity impacts are outlined at section 4.4.
P17	Name Withheld	> Right to Farm	> 1/ Right to Farm: We object to the DA and intend to operate our farming system in the "normal / business as usual" operation and consider the proposed site far too small and from diagrams on the EIS stage 2 Summary very small distances / buffers for such activities. These activities of normal farming include but are not limited to: a) movement of cattle / trucking and walking between other paddocks along The Avenue, b) movement of machinery including tractors and attachments along The Avenue. Local traffic has traditionally been limited and very respectful of stock / machinery movement e.g. giving way / speed etc however, highway bi pass has seen both an increase in the traffic plus at times disrespect for local traffic and activity - this is risk to both man and livestock (cattle horses / cattle dogs). Movement of stock / machinery occurs all year round - however in times of flood this is enhanced. c) spraying for noxious and poisoning weeds. d) spraying cattle for parasites. e) control of feral animals including wild dog / fox / rabbit etc and includes shooting and at times baiting. f) controlled burning / both dead after storms and weeds control etc. g) fertilising etc. Please note that the buffer to the western boundary was not articulated in the EIS page viii (East / North & South was however page 24 refers to 240m distance of	It is considered that the proposed development would have no significant impact on farming operations on adjoining or nearby properties where such operations are carried out in accordance with the law and relevant standards and guidelines. Implications on stock movements along Avenue Road are discussed in Section 4.3 below.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
			building to Western boundary - please confirm as 240 will potentially impact normal farming activity).	
P17	Name Withheld	> Lack of consultation	> 2/ Consultation - Appendix 25 EIS. a. Lack of consultation - we have not been consulted with, in fact the first consultation has been after our gate on our Eastern Entrance was chained and padlocked - chain / padlock has been removed since but this is not the behaviour of neighbours. b. Error - the June EIS (appendix 25) states that DALN 2 had been consulted - this is not true and we would like this to be noted and corrected. This is our first opportunity to provide feedback.	The property referred to in this submission has changed hands recently. All contact attempts had been to the previous owner of the land during preparation of the EIS document. During the exhibition, numerous further attempts were made to contact the previous owner to invite him to the workshops, and were not advised during this contact that the property had changed hands. A copy of the EIS on USB was delivered to the letterbox of the owner, with contact details to ensure they could in get in touch if they had further questions. As soon as the communications team was made aware of the change in ownership, the new owners we contacted and a meeting arranged. This was after the exhibition period. The team have been able to begin working through the two key issues which are: (a) Impact to routine farming practices and (b) Ownership of the crown land access road on the northern boundary of the property.
P17	Name Withheld	> Access	> 3/ Access We access via the dirt track to the north - this needs to be upgraded for additional traffic (e.g. fire control) and dead timber along track removed. We note Fire access track is planned along perimeter of APZ (page 44) - can more detail of such track be provided - e.g. standard (all weather) / location (on Road to the North etc).	The proposed development has no impact on the Crown Road to the north of the site. It is proposed that existing access along this Crown Road would continue.
P17	Name Withheld	>Fencing	> 4/ Fencing It is expected that cattle proof fencing be maintain in normal neighbour arrangement 50 / 50.	A standard rural two strand wire and post fence would be constructed along the northern boundary of the site.
P17	Name Withheld	> Waste Water treatment	> 5/ Effluent and Waste water treatment - we question why would a facility be built and not connected to the town / regions system? We hope planning takes into consideration key flooding / high rainfall events - usually summer low pressures (ex cyclones). The value of production (cattle - beef and dairy / fishing etc) from downstream creeks / low country (swamp) is significant and we cannot afford chemical spill / effluent overflow into either Glenugie Creek / Coldstream system.	All assumptions for the design of waste water management system are detailed in the EIS.
P17	Name Withheld	> Traffic	> 6/ Traffic on "The Avenue" North of entrance to proposed site. It appears that nil improvement is planned for this road including width / levelling etc and that "staff / contractors" will be encouraged to use other routes - how will this be monitored. Likewise visitor traffic etc needs to be managed once operational.	Noted. Staff and visitors will be directed to access the site via Eight Mile Lane and Avenue Road.
P17	Name Withheld	> Land values	> 7/ Land values - land values will be impacted from a demand aspect with respect to impacting agricultural business activity.	Impacts of the development on land values were raised during the consultation program and have been addressed in Appendix 24 of the EIS. This issue was also addressed in the determination of the Stage 1 development consent. The Department acknowledged the *issue raised in submissions received from the public regarding the risk to property values as a result of the proposed project. However, it is an established principle that the impact of a project on surrounding property value is not a planning consideration (refer e.g. Trinvass Pty Ltd and Anor v Council of the City of Sydney [2015] NSWLEC 151, [89])*.
P17	Name Withheld	> Second correctional centre	> 8/ Second correctional centre - 2 facilities in the town (& close proximity) of the size of Grafton seems out of alignment with towns of similar population. What other areas - and with lesser agricultural value were considered?	These matters were considered in granting the Stage 1 consent.

No.	Submitter	Issues Raised	Issues (Detailed)	Response to Issue
P18	Name Withheld	> Employment opportunities	> Being a retired Prison Officer, I welcome this New Correctional Facility to our region. It was a very dark day for the local economy when the original gaol (where I was employed for many years) ceased to operate. The Clarence Valley and surrounding region can now look towards increased prosperity and employment opportunities for many years.	Noted
P19	Terry Elvey	Various matters raised	This submission has been reviewed in detail and consists primarily of objections to the Stage 1 DA and EIS and to the site selection process.	These matters were considered in granting the Stage 1 consent.

Table 3 – Response to Submissions from the Government Agencies

No.	From	Comment	Response
A1	Transport for NSW	It is acknowledged that the proponent intends on working with TfNSW and local bus operators to establish a bus service to the facility prior to the opening date in 2020. TfNSW supports this approach and requests that the proponent continue to provide details of construction progress, so that TfNSW can plan and allocate funding for the potential bus services.	Noted. NorthernPathways will liaise with TfNSW in relation to funding for a potential bus service
A1	Transport for NSW	TfNSW notes that Section 3.9 of the Transport & Accessibility Report states that provisions will be made onsite to accommodate bus services. Whilst TfNSW understands that the access road is 'bus capable', we require further detail regarding the pick-up/drop-off area (at Attachment A), to ensure there is adequate swept path for the safe movement of buses within the site.	Swept paths provided in Appendix 2.
A2	Rural Fire Service	The RFS has reviewed the documents associated with the SSD and provides the following comment.	Noted
A2	Rural Fire Service	1. The subject land is not mapped bush fire prone by Clarence Valley Council however evidence suggest both the woodland and grassland hazards are located on the subject and adjoining lands; and	Noted and consistent with findings of EIS.
A2	Rural Fire Service	2. The Opportunity to evacuate the facility due to bush fire is very limited. The facility is required to have suitable bushfire prevention measures to compensate for this requirement.	Noted and adequate measures have been incorporated into the design as described in Appendix 11 of the EIS.
A2	Rural Fire Service	3. The NSW RFS is the primary response agency for either bush or structural fires impacting on the facility;	Noted. This will be documented in operation plans for the NGCC.
A2	Rural Fire Service	The RFS generally has no objection to the proposal however, before we provide recommended conditions for any consent to be granted, the following amendment is required to be made to the EIS documentation: 1. The proposed asset protection zones as detailed in Appendix 11 of the EIS prepared by BBC consulting planners dated June 2017 (documented on figure 4.1 Bushfire Protection Measures page 20 Bushfire assessment report dated 30 May 2017) shall include the proposed internal access road and the Stage 2 clearing footprint associated with that internal access road.	Figure 4.1 in Appendix 11 of the EIS provided a range of bushfire protection measures including Fire trails, Stage 2 clearing footprint and broad locations of structures. The proposed location of the track is located inside the perimeter of the APZ and would be a minimum of 4 m wide, with passing bays every 200 m. The track will support heavy vehicles, and have a minimum vertical clearance of 4 m to any overhanging obstructions. It will meet the standards specified in the Bush Fire Coordinating Committee Policy No. 2/2007 Fire trails for Category 1 fire appliances. The APZ itself would be a managed environment and provides a low fuel hazard buffer between buildings and a bushfire hazard and create a defendable space. Development of a cleared zone around the secure outer perimeter of the high and low security facilities. The APZ is proposed to be 100m around the majority of the site and 20m around the WWTP. Figure ARC-DS_002 in Volume 2 of the EIS details the APZ.
A3	OEH	We have reviewed the EIS documents and advise we have no issues with historic heritage, NPWS Estate, flooding or estuary management.	Noted.
A3	OEH	However, we have identified some matters that should be addressed further in the EIS with respect to Aboriginal cultural heritage management and enhancement of wildlife corridors on the site.	Noted.
A3	OEH	Key requests The OEH supports the Aboriginal Cultural Heritage Management Plan (ACHMP) prepared for the project by Jacobs in May 2017. However, the plan does not include regular review and updating as a dynamic document or a process for ongoing consultation with the local Aboriginal Community. The ACHMP review process should provide ongoing culturally and scientifically appropriate management of any tangible Aboriginal values identified throughout the operational life of the facility. Non-tangible values relevant to the subject site should also be managed in consultation with members of the local Aboriginal community.1. The ACHMP should be updated to include regular review so it responds to industry best practice and possible additions to knowledge of Aboriginal Cultural values in the locality. Review of the ACHMP should also include an open and transparent consultation process with Aboriginal knowledge holders to enable ongoing engagement with and inclusion of the local Aboriginal Community.	An updated ACHMP is provided in Appendix 6

No.	From	Comment	Response
A3	OEH	2. The unexpected finds protocol be applicable throughout the construction phase and the operational life of the facility to ensure that any previously unknown Aboriginal objects or cultural values that may be identified during the life of the facility are effectively managed in a culturally sensitive and pro-active manner.	Noted. This will be documented in operation plans for the NGCC.
A3	OEH	OEH generally supports the biodiversity assessment and management components of the EIS. However the biodiversity assessment does not appear to have considered the potential impact of the project on local east-west wildlife corridor function, particularly the cumulative impact when considered in conjunction with the approved route of the Pacific Highway Upgrade. Widening of the vegetated buffer strips would enhance opportunities for safe fauna movement. 3. The proposed 30m wide vegetated buffer along the southern boundary of the site should be increased in width to at least 50m, preferably 70m where possible. In addition, the proposed 15m wide vegetated buffer along the southern part of the eastern boundary should be increased to a width to at least 30m, should extend up to approximately 550m north of the intersection of Avenue Road and Wants Lane.	The buffer area is currently proposed as approved under the Stage 1 consent. The buffer along the southern boundary would be complemented by landscaping within the road reserve. An increase in the buffer area to the southern and south-eastern boundary of the site can be accommodated in the design. This will be investigated as part of the Stage 3 Biodiversity Offset Strategy.
A4	EPA	EPA has no objection to the proposal proceeding largely as described in the EIS and have provided recommended conditions of approval.	Noted and recommended conditions are accepted.
A4	EPA	Operational Wastewater management:	
A4	EPA	a) Suitability of the irrigation area and adequacy of capability assessment - The irrigation area has some limitations related to low permeability subsoils (heavy clay subsoils 200-350mm deep in parts of the site) and sodicity risk. These will need to be carefully managed with the proposed low application rates, soil moisture sensors, targeted irrigation and soil amelioration	Noted. The Recycled Water Management Plan (RWMP), in Appendix C1, Table 1 (item C8) includes management of the irrigation scheme, incorporating specific measures to control irrigation rates, including low application rates, soil sensors, targeted irrigation, soil amelioration and monitoring.
A4	EPA	Periodic application of gypsum should be incorporated into the irrigation management plan to manage sodicity risks, based on soil monitoring.	The RWMP has been amended to specifically include this element, in both the Operational Management Plan (Appendix C1) and the Incident Response and Contingency Plan (Appendix E1). This amended RWMP is contained in Appendix 3.
A4	EPA	An appropriate array of soil water sensors should be used across the site and specifically cover the more susceptible parts of the site for low permeability.	Agreed, as committed to in the reports. Nominal soil moisture sensor locations are shown in drawing PRO-ENV-CD-DWG-00_500 (Appendix 4). These have been collocated with groundwater bores where possible to allow for common telemetry or logging systems.
A4	EPA	Moderate limitations for landform are the concave slopes and foot slopes. This combined with low permeability sub soil may increase the risk of lateral movement of irrigated effluent. The irrigation management plan should specifically target this risk with an action and trigger based management plan including visual inspections downslope	The RWMP includes both low irrigation rates to avoid any surface runoff and over wetting of soils, and both observations of irrigation areas during irrigation and continuous soil moisture monitoring to ensure over wetting is avoided. This element has also been included in the Incident Response and Contingency Plan in the RWMP.
A4	EPA	A 40m buffer to surface waters or drains is proposed for irrigation areas. Buffer distances to the SEPP 14 wetlands are not clearly stated. The environmental guidelines, use of effluent by irrigation (DECC 2004) recommends a 250m buffer around wetlands. Given the effluent will be low strength, a buffer of 50m or more would be appropriate with a tail water collection system was in place to capture any first flush run off to the wetland. It is noted that there appears to be a road on the eastern boundary of the irrigation area that may provide a suitable tail water collection or diversion structure.	The SEPP14 wetlands are located approximately 700m east of the closest point of the site, the northeast corner. As noted in the Stage 2 EIS, the site is split by a ridge running north-south for the full extent of the site, which splits site runoff into two sub-catchments: • the eastern part of the site draining to Coldstream River and Crows Nest Swamp (SEPP14 wetland), and • the western part draining eventually to Glenugie Creek/Deep Creek. Irrigation is to occur to ensure complete absorption of irrigation water during each irrigation event, so as to avoid the need for tail water and similar systems. Appendix 4 shows the irrigation areas, wastewater infrastructure, sub-catchments and the SEPP14 wetland, showing that only part of the irrigation areas are located within the SEPP14 overall sub-catchment. As noted in the wastewater report (and repeated by the EPA in their above comment), suitable buffer distances to nearby drainage systems are provided to avoid any runoff of irrigation water, when coupled with the above irrigation control rates. Note also the response to items above, noting that low irrigation rates, physical observation of irrigation events, and continuous soil moisture monitoring will be undertaken. As such, no fixed tail water collection system is proposed for the site. However, the road drain along the east of the site, and the detention basin in the west of the site can be dammed and used

No.	From	Comment	Response
			to capture the first flush runoff and pass back into the dam if required (for example, as a contingency should excessive irrigation occur, resulting in waterlogging, ponding, or runoff from irrigation, or should rainfall occur soon after over-wetting of soils). This has been added to the Incident Response and Contingency Plan in Appendix E1 in the RWMP (Appendix 3)
A4	EPA	There is adequate land area and appropriate soil conditions to manage nutrients on site. However, details of nutrient removal from the irrigation of areas (e.g. Cut and cart) are not provided. It is recommended methods to remove nutrients from the site are addressed in the response to submissions.	Noted. The removal of nutrients from the irrigation areas will be a normal part of the routine maintenance of irrigation areas – i.e. grassed areas slashed and slashed materials (i.e. grass clippings) removed from the site.
A4	EPA	b) Nil discharge and wet weather storage	
A4	EPA	The report claims based on the reserve data, that modelling shown in Section 2.5 has determined that the proposed scheme would reduce modelled overflows to less than 1 in 10 years on average and could likely be managed to completely avoid any overflows. However, MEDLI model output is only provided for the Priority modelled area. EPA considers the proposed 1 in 10 overflow frequency, for the effluent strength, is consistent with a nil controlled discharge scenario. While MEDLI modelling output for the full area has not been provided, the ERIM model run by the EPA for the proposal indicates the irrigation area and wet weather storage is adequate to provide flexibility in the ongoing management of effluent	It is assumed that the Priority Irrigation Area means the Primary Irrigation Area (the priority area is the key facility landscaped irrigation area within the facility, the Primary irrigation area is the 14ha in the south of the site). In terms of overflows, the MEDLI modelling in the WWMP shows long term responses for the normal operations of the site, where facility reuse is being undertaken. MEDLI modelling was conducted for the entire irrigation area (main + reserve) using the entire facility load (no facility reuse) to allow for a worst case contingency, with the results regarding overflows reported in the main report (Section 3.3.6.1, Table 3-3, page 31) showing 0 overtops for the 42.5ha total area. However long term acceptable application will be based on the Primary Irrigation Area only, since long term application will involve internal facility reuse (the above scenario over 42.5ha is a worst case, short term situation).
A4	EPA	Overflows from the wet weather storage lagoon are expected to flow from the western side of the lagoon towards the detention basin before any discharge from site. The receiving watercourse should be confirmed to ensure the discharge does not flow east to the SEPP 14 wetland	Any emergency overflow from the wet weather storage lagoon flows west, which is located within the western Glenugie Creek/Deep Creek sub-catchment, and so no discharge is directed towards the SEPP14 wetland. Refer to Appendix 4 showing the sub-catchment boundary and overflow path.
A4	EPA	Offsite reuse areas are discussed in the report but it is not clear if these are required or available. This should be clarified in the response to submissions.	These areas are not required for the scheme's long term sustainable operation. However, they offer potential opportunities for added flexibility in irrigation management, benefits in terms of community engagement (positive benefits for neighbours with very little to no cost to the site), and improved recycling of this potential resource. The availability is not important to the approval nor long term operation of the scheme, and this will be followed up during operations on an as needs basis and required approvals sought at the time.
A4	EPA	Offsite reuse areas are discussed in the report but it is not clear if these are required or available. This should be clarified in the response to submissions.	These areas are not required for the scheme's long term sustainable operation. However, they offer potential opportunities for added flexibility in irrigation management, benefits in terms of community engagement (positive benefits for neighbours with very little to no cost to the site), and improved recycling of this potential resource. The availability is not important to the approval nor long term operation of the scheme, and this will be followed up during operations on an as needs basis and required approvals sought at the time.

No.	From	Comment	Response
A4	EPA	c) Recommendations for requirements of design details. Irrigation up to field capacity is proposed. For effluent reuse schemes, it is generally advisable to irrigate soil to allow for a 5 to 10mm soil water deficit. This allows for buffer capacity in the soil should rain fall soon after an irrigation event. There appears to be adequate flexibility in the irrigation areas and wet weather storage to accommodate this soil moisture buffer capacity. The detailed design should address any issues related to the proposed fixed application rate and specify the appropriate coverage of soil moisture sensors for the parts of the irrigation area susceptible to waterlogging or poor subsoil drainage.	Noted. As nominated in the reports and the RWMP, irrigation will in any case be undertaken to avoid any overflow or runoff of irrigation waters, using a variety of methods to inform sustainable irrigation rates (see Appendix C1 (item C8 in Table 1) of the RWMP). The intention of the system is to maintain suitable control and utilise a system able to suitably control application rates. Note that the RWMP contains provisions specifying irrigation to within the hydraulic capacity of soils, with amendment to be adopted based on observations and soil moisture sensors (Appendix C1, Table 1, item C8). Drawing PRO-ENV-CD-DWG-00_500 shows the nominal locations of soil water sensors (Appendix 4).
A4	EPA	d) monitoring.	
A4	EPA	Effluent - The monitoring plan does not specify effluent monitoring indicators of frequency. Consistent with DEC (2004), it is recommended that initially total suspended solids , five day biological oxygen demand, pH, electrical conductivity, cations, and sodium adsorption ratio are monitoring quarterly and oil and grease, total phosphorus, and total nitrogen biannually. E.coli, should also be monitored to ensure the effluent does not exceed the limits for designated uses, as per table 3.8 of the National Guidelines for water recycling Managing health and environmental risks (EPHC, NRMMC and AHMC, 2006).	Appendix D of the RWMP has been amended to include monitoring as suggested (Appendix 3).
A4	EPA	Soil - The monitoring plan proposes monitoring soils for pH, electrical conductivity, exchangeable sodium percent, cation exchange capacity, phosphorus sorption capacity, organic nitrogen, nitrate-nitrogen, and total organic carbon. It is recommended that total phosphorus and phosphorus sorption be monitored after 6 years (and repeated every 6 years) (aligned with the 2 yearly proposed for other analytes). Available phosphorus should be monitored every 2 years.	Appendix D of the RWMP has been amended to include monitoring as suggested (Appendix 3).
A4	EPA	The monitoring plan does not provide details of sampling methodology such as depth increments and composite sampling. This should be developed to target key soil strata relevant to each indicators and risk, including below the root zone for the plant system.	Noted - the RWMP has been amended to include a nominated depth increment for sampling (Appendix 3).
A4	EPA	Groundwater	
A4	EPA	Groundwater monitoring is not proposed at this stage and risk factors should be managed by design of the irrigation scheme and soil monitoring below the root zone i.e. nitrates. Groundwater has been located about 5m below ground level in the south of the site and at more than 15m in the north. Therefore, given the greater vulnerability of groundwater in the southern part of the site, groundwater monitoring may be required (in addition to corrective action) in this area if future soil monitoring indicates increased risks.	The design will incorporate measures to control and allow for low irrigation rates. Soil monitoring will provide for monitoring lower down in the soil profile, and appropriate triggers for further action will be included in the RWMP. Note that groundwater monitoring has now been included in the scheme, as shown in Appendix D to the RWMP (Appendix 3). Groundwater monitoring bores established during the EIS investigations will be continued, with locations shown (nominally) in drawing PRO-ENV-CD-DWG-00_500, for baseline and ongoing groundwater monitoring. Monitoring requirements are detailed in Appendix D to the RWMP (Appendix 3).
A4	EPA	e) Recycled water management plan	
A4	EPA	The draft recycled water management plan is very general at the present and should be finalised, including triggers for management actions based on specific criteria of effluent, soil and other monitoring data. An updated Draft recycled water management plan should address the range of issues identified above.	Noted and agreed. A revised RWMP has been prepared taking into account the relevant items above, including specific contingency measures in Appendix E to the RWMP. The report will be further updated on receipt of conditions of consent following approval and during detailed system design (plant and irrigation scheme). A revised RWMP can be provided to the relevant agencies on finalisation.
A4	EPA	Managing impacts of concrete production works	N/A

No.	From	Comment	Response
A4	EPA	Through discussions with John Holland, a concrete batch plant will be operated on site to facilitate construction activities. The EPA has been unable to identify any reference to this facility or environmental measures specific to its operation. Concrete production works typically generate a highly alkaline wastewater stream and which needs to be managed through process reuse or treated prior to discharge. Dust and solid waste issues also require management.	mobile concrete batching plants and pre-cast yard will be used during construction as referred to in the EIS in the Construction Environment Management Plan (Appendix 12), Construction Traffic Management Plan (Appendix 13), Environmental Noise and Vibration Assessment (Appendix 15), Transport and Accessibility Report (Appendix 19). Further details are provided in Section 5. These elements have beenb clarified in 5.1. Details of the wastewater treatment stream for the temporary plants will be provided prior to commissioning and will be incorporated into the CEMP. Dust and solid waste issues will be managed through implementation of the CEMP. The acoustic impacts of the plant operation have been assessed and found to be acceptable. Traffic impacts of on-site batching and pre-cast activities have been assessed with an overall reduction in traffic movements resulting.
A4	EPA	It is essential that the Construction Environmental Management Plan be amended to address these issues.	A condition of consent to this effect is acceptable.
A4	EPA	Depending on the nature of concrete production works on site, the EPA may vary EPL 209602 to include conditions to address these risks.	Noted and discussions have commenced in this regard.
A4	EPA	Environmental Protection Licencing - Operational	
A4	EPA	Given the size of the proposed sewerage treatment plant is below the licencing thresholds under Schedule 1 of the POEO Act, it is unlikely an EPL will be required for its operation.	Noted
A4	EPA	4. Recommended Conditions of Approval	
A4	EPA	a. Construction i. The proponent must comply with the conditions of EPL number 209602 issued by EPA on 11 July 2017. ii. The CEMP is to be updated to address specific environment risks posed by a concrete production facility	These conditions are acceptable.
A4	EPA	b. Operational wastewater and irrigation management i. The Proponent must provide an updated wastewater management plan that addresses the issues raised in Section 1 above. ii. The Proponent must operate the wastewater treatment plant and reuse/irrigation systems generally in accordance with the updated wastewater management plan required above. iii. The operator must comply with Section 120 of the POEO Act 1997 which prohibits pollution of waters. iv. The Operator shall provide a draft recycled water management plan to EPA for review and comment prior to irrigation of the site. v. Biosolids generated from operational wastewater treatment plant are to be managed in accordance with Environmental Guidelines - Use and Disposal of Biosolids Products (EPA 1997).	These conditions are acceptable.
A05	Roads and Maritime Services	1. The Transport and Accessibility Report (TIA) proposes significant increases in peak hourly traffic movements (up to 300vph) generated along the designated access routes and intersections on the Pacific Highway following project completion. The TIA should further consider the impacts of operational traffic on the road network over a 10 year horizon following project completion. In particular Eight Mile Lane and Six Mile Lane intersections with the Pacific Highway should be considered. Any works must be designed and constructed in accordance with Austroads Guidelines, Australian Standards and RMS Supplements.	The Year 1 traffic generation is the same as the Year 10 traffic generation. The Pacific Highway upgrade would be completed prior to the facility opening and consequently the traffic volumes along the existing pacific Highway would be significantly reduced and capable of accommodating traffic flows from the development.

No.	From	Comment	Response
A05	Roads and Maritime Services	2. The TIA has identified significant increases in peak hourly traffic movements (up to 810vph) along the designated access routes and intersections on the Pacific Highway during the construction phase of the development. In particular the TIA has identified that vehicles entering the Pacific Highway at the Eight Mile Lane and Six Mile Lane intersections will experience unacceptable delays during the AM peak period. The modelled level of service for right turns onto the highway during the peak hour is identified as unacceptable. The Construction Environmental Management Plan (CEMP) and/or Construction Traffic Management Plan (CTMP) should be further expanded to identify specific measures to address the safety and efficiency of affected intersections on the Pacific Highway during the construction phase of the development.	A condition of consent requiring the CEMP to be amended to identify specific measures to address the safety and efficiency of affected intersections on the Pacific Highway during the construction phase of the development is acceptable.
A05	Roads and Maritime Services	3. Section 4 of the CTMP should be further expanded to provide detail of proposed communication measures for regular and ongoing consultation with Council, Roads and Maritime and Pacific Complete. Consultation should inform the management of cumulative traffic impacts arising from the project and concurrent infrastructure projects in the subject area. It is suggested that a coordinated schedule of expected weekly traffic movements be developed to inform a coordinated approach to traffic control and community consultation.	A condition of consent to this effect is acceptable.
A05	Roads and Maritime Services	4. The description of existing road conditions under Section 5 of the CTMP could be further expanded to include details of likely road safety impacts generated along the designated access route during both the construction and operational phases of the project	A condition of consent to this effect is acceptable.
A05	Roads and Maritime Services	5. The TIA should include swept path analysis for the relevant design vehicle at each intersection along the identified access route. Intersections on Eight Mile Lane and Avenue Road should meet the minimum geometric and design specifications to the satisfaction of Council.	Intersections design for Eight Mile Lane and Avenue Road intersection is being undertaken by RMS. The intersection of Avenue Road and the entry of the site has been designed in accordance with Austroads 2010 'Guide to Road Design – Part 4A: Unsignalised and Signalised Intersections'. Avenue Road will be upgraded to have a Basic Right Turn facility plus a Basic Left Turn facility and slip lanes as detailed in the EIS. This intersection will accommodate all vehicle movements for deliveries and buses as well as passenger vehicles. Provision to curtail access to the site by stock during movement along Avenue Road will be incorporated.
A05	Roads and Maritime Services	6. The compliance management measures proposed under Section 8 should be further expanded to identify key issues, including the proposed frequency of communication, monitoring and auditing processes.	A condition of consent to this effect is acceptable.
A05	Roads and Maritime Services	7. Any Traffic Control Plan proposed under the CTMP to address impacts on the Pacific Highway is to be prepared in accordance with the RTA Traffic Control at Worksites Manual. Prior to the implementation of any TCP on the Pacific Highway a Road Occupancy Licence (ROL) is to be obtained from Roads and Maritime Services. Further detail on how to apply for an ROL can be obtained from: http://www.rms.nsw.gov.au/business-industry/road-occupancy-licence/index.html	A condition of consent to this effect is acceptable.

No.	From	Comment	Response
A05	Roads and Maritime Services	8. Vehicular access to the development is likely to occur outside of daylight hours and during periods of low visibility, such as fog. Further consideration should be given to the installation of appropriate street lighting at key intersections along the identified access route to improve safety for road users.	Vehicular access to the development outside of daylight hours is expected to be minimal. All visits and deliveries would be during daylight hours. Staff movements for the night shift would be the only movements. This shift is significantly smaller than the day time shift. The need for lighting at intersections of public roads with Avenue Road would be determined as part of the upgrade works for these intersections. No lighting of the access to the site is proposed.
A06	Department of Primary Industries	• The proponent should prepare a Traffic Management Plan including appropriate measures to manage road sharing with surrounding landholders, particularly with respect to stock movement, and to monitor and address complaints during both construction and operation of the correctional centre. DPI recommends the proponent consult with Local Land Services and affected landholders during the development of the plan.	Discussed below in Section 4.3. A TMP will be prepared prior to Stage 2 construction commencing and in consultation with Local Land Services and the relevant farms moving stock along Avenue Road including those making a submission who have current Routine Stock Movement Permits. A condition of consent to this effect is acceptable. It is noted that the contractor engaged to upgrade Avenue Road south of Wants Lane to Eight Mile Lane has been successfully accommodating stock movements in cooperation with farmers.
A06	Department of Primary Industries	The proponent should prepare a Soil and Water Management Plan for the development which includes the following: o management strategies and measures to mitigate potential impacts to water sources and water users from the disposal of water from dam dewatering; o additional soil testing to determine the potential for acid generation and the development of an Acid Sulfate Soil Management Plan where a risk is identified; and o groundwater monitoring for water level and water quality and the development of a contingency response protocol to address potential impacts from irrigation and the wet weather storage in the southern part of the site.	This can be addressed by condition of consent. A Soil and Water Management Plan is in place for Stage 1 and would be amended to include Stage 2 works. Water sources and strategies for dewatering of existing dams are in place as this work will occur during the Stage 1 works. Testing completed for the Geotechnical Study included as Appendix 6 of the EIS concluded that the results of testing and the understanding of the history of the formation of these site soils do not indicate the typical formation of acid sulfate soils. This is because the soils do not contain sulphides, and are nonestuarine in origin. However, based on the results there is another actual acid hazard which will require further field and laboratory investigation to quantify the risk. Additional geotechnical investigations undertaken in July 2017 by Coffeys indicated that the soils were not potential ASS or actual ASS. This was confirmed following the SCR tests results showing that the soils within this area are naturally acidic soils with no residual sulphur present. Naturally acidic soils do not have the acid generation potential of an ASS and are not of concern. These soils do not require treatment by addition of lime for neutralisation purposes. Groundwater monitoring is to be implemented as per the Recycle Water Management Plan.
A06	Department of Primary Industries	Works on waterfront land, including construction and rehabilitation of detention basins and modifications to existing dams, should be conducted in accordance with DPI Water's Guidelines for Controlled Activities on Waterfront Land (available at http://www.water.nsw.gov.au/water-licensing/approvals/controlled-activity).	Noted. The construction of detention basins is part of the Stage 1 works. Jacobs advise that there are no rivers or streams traversing the site. Notwithstanding, this can be addressed by condition of development consent if required.
A06	Department of Primary Industries	Impacts to agricultural enterprises • It is important that the movement of stock by surrounding landowners is not hindered by increased traffic movement relating to the project during the construction and operation phase and any potential for conflict risk is minimised. It is noted that the proponent outlines a commitment to consult with affected landowners and to include appropriate mitigation measures within the Construction Traffic Management Plan however more consideration at the operation phase will also be required. It is recommended that Local Land Services be involved in the planned consultation to ensure all parties are aware of their legal obligations and a plan of management that includes appropriate management for road sharing and monitoring of complaints is established.	Discussed above and in Section 4.3.

No.	From	Comment	Response
A06	Department of Primary Industries	• Water main installation via easements on private properties is proposed as part of a separate process under Part 5 of the Environmental Planning and Assessment Act 1979. It is recommended that the proponent consider how they manage disruption to agricultural activities during this time. Further information is available in the Infrastructure Proposals on Rural Lands Factsheet available at http://www.dpi.nsw.gov.au/land-and-water/land-use/lup/developmentassessment2/ infrastructure-proposals.	The installation of the water main will be undertaken in accordance with the approved REF and is not a consideration of this application.
A06	Department of Primary Industries	Impacts to water resources • Water supply is proposed via a pipeline and connection to the Clarence Valley Council water reticulation system. An impact assessment and approval for this requirement is proposed as part of a separate process under Part 5 of the Environmental Planning and Assessment Act 1979. Water supply security is therefore yet to be confirmed.	Water supply has been confirmed as contained in the approved REF.
A06	Department of Primary Industries	• In the southern part of the site groundwater has been identified at shallow depth and there is a history of waterlogging due to high rainfall. As this area is proposed for the wet weather storage lagoon and the primary irrigation area there is a risk of raising the water table and groundwater quality impacts due to seepage and irrigation loading. It is recommended groundwater monitoring be included in this area to monitor and manage potential impacts. Adequate baseline data collection will be required prior to commencement of operations.	The nominal location of groundwater monitoring bores is shown in drawing PRO-ENV-CD-DWG-00_500, and groundwater monitoring has been included in Appendix D to the RWMP, including baseline monitoring (Appendix 3).
A06	Department of Primary Industries	• The EIS has not confirmed whether groundwater will be intercepted during the proposed excavations. Based on the groundwater depths provided it is recognised to be a low risk. If groundwater is intercepted the proponent will need to consult with DPI Water to confirm relevant licensing and management requirements.	Based on geotechnical investigations, groundwater is not likely to be intercepted.
A07	Clarence Valley Council	Roads and water – Council accepts that required road and water upgrades are generally being addressed through design and construction approved under the Stage 1 approval. However, there is some concern that there is still potential for a significant impact on the road network outside that agreed upgrading. Specifically, there is potential for The Avenue north of the site to Ulmarra (and connecting roads) to be extensively used as access to the site from the north. It is accepted that the facility operator cannot control public behaviour but can control that of its employees. Accordingly, a condition requiring the operator to have in place management practices that require workers to access the site from the south is requested.	A condition requiring the operator to have in place management practices that require workers to access the site from the south is acceptable.
A07	Clarence Valley Council	On-site sewerage management – Council understands that as the proposed onsite effluent management scheme is sized at under 2,500ep, that Council is the regulatory authority (ARA). Council's concern is that it does not have the dedicated expertise or resources freely available to undertake that role given the specialised nature of such a system and the development that it serves. Notwithstanding the legal requirements to assign regulatory responsibility, it is Council's view that an external body such as the EPA is a more appropriate regulatory and compliance agency in this instance and would request that a condition be imposed to this effect, if legally possible and obviously subject to Agency agreement. Alternatively, if not possible, it would be Council's request that the operator be required to arrange for independent routine inspection and compliance reports be provided to Council by a suitably accredited consultant throughout the life of the project, sufficient for Council to meet these compliance obligations.	NorthernPathways would work with any nominated regulatory authority.
A07	Clarence Valley Council	Council appreciates the socio-economic impact assessment. It is requested that the proponent be required to liaise with Council throughout the operation of the facility in regard any measures proposed to mitigate such impacts.	Noted. Mitigation measures are recommended in the SIA requiring liaison with Council throughout the operation of the facility
A07	Clarence Valley Council	Lighting – All lighting should be in accordance with the relevant Australian Standard and should minimise ambient and overspill lighting as much as possible.	As stated in the EIS, all external lighting has been designed with a view of achieving full compliance with the functional / security requirements of the brief and compliance with the Australian Standard, AS4282, "Control of the Obtrusive Effects of Outdoor Lighting.

No.	From	Comment	Response
A07	Clarence Valley Council	Section 94A Contributions – Council appreciates the legal and State Government policy position on the applicability of such contributions, in particular in terms of a development such as this. Notwithstanding, Council is of the view that the facility will increase demand for a range of public amenities and services (such as impact on public recreation due to increased staffing, social impacts, image impacts) and as such, a Section 94A contribution appropriate to those impacts is reasonable. Hence, a condition requiring a contribution in an amount to be determined through consultation between the proponent and Council is requested.	The Proponent and Council have agreed to contributions to be made for the project.
A07	Clarence Valley Council	Council suggests a condition of consent requiring a contribution towards the cost of water supply headworks costs	The nature of the contributions sought by Council in respect of water are not applicable to this application.
A07	Clarence Valley Council	Wording of conditions should require Council "approval" only where Council's direct assets or interests are involved, otherwise, consultation with Council would be appropriate.	This is a matter for DPE however the Proponent raises no objections to the suggestion.

4. RESPONSES TO MATTERS RAISED BY THE DEPARTMENT OF PLANNING

4.1 Social Impacts

The NSW Department of Planning and Environment has requested the following matters of social impacts to be addressed:

- Provide further consideration of concerns raised by groups in the community in relation to impacts on indigenous communities and culture, including Aboriginal parties who may not be formally registered parties but still form part of the community that would be impacted by the proposal.

- Provide further consideration of the direct and indirect cumulative impacts from the proposal and other major development within the region on surrounding rural towns including impacts on their way of life, community and social cohesion.

- Provide consideration of impacts on the change in character of the area and what measures are proposed to mitigate the impacts.

- Provide details regarding potential anti-social behaviour of visitors and management of impacts on adjoining neighbours (operational management plan).

The comprehensive Social Impact Assessment, together with the Social Baseline Study, was prepared in accordance with the Secretary's Environmental Assessment Requirements, issued by the Department of Planning and Environment. Supporting the Environmental Impact Statement (EIS) for the Stage 2 Development Application, the SIA was informed by extensive community and stakeholder engagement including directly affected landholders and neighbours, local communities, hard to reach groups and stakeholders.

A thorough and robust program of community engagement for the Stage 2 EIS was submitted to the Department of Planning and Environment, demonstrating the comprehensive approach being undertaken and the activities planned. The program of engagement was undertaken in two phases, the first phase was to inform the preparation of the EIS, informing the Social Baseline Study and the Social Impact Assessment. This phase of engagement assisted in identifying and considering the potential impacts of the proposal on directly affected landowners and neighbours, key stakeholders and the general community. The second phase of engagement was designed to gain a deeper understanding of the perceived strengths, challenges and impacts of the proposed NGCC and further inform the proposed mitigation and management strategies outlined in the EIS. As well as the targeted and focused engagement techniques, a number of activities were undertaken,

designed to reach the general public, which included pop-up stalls at local markets in Yamba, Glenreagh and Woolgoolga and Grafton Shopping World, during both the development and exhibition of the EIS.

As noted in the Phase 2 EIS Exhibition Period Engagement Report (Appendix 1), the engagement program identified the optimum way in which meaningful, respectful and authentic engagement with hard to reach groups, including Aboriginal and Torres Strait Islanders, young people and socially disadvantaged communities could be undertaken. As a result, the Phase 2 EIS Exhibition Period Engagement Program included specifically tailored engagement activities to invite important input from these hard to reach groups.

As noted in the Stage 2 EIS exhibition period engagement report there is overall support for the NGCC proposal from the wide community and stakeholders, with issues informing the SIA, and raised during the Phase 1 engagement, consistent with issues raised in the Phase 2 engagement period. Directly affected landowners and neighbours, are identified as having unique key concerns and issues, particularly in relation to the impacts on way of life and rural lifestyle, during both construction and operation.

4.1.1 Provide further consideration of concerns raised by groups in the community in relation to impacts on indigenous communities

There has been an on-going process of engagement and consultation associated with the proposal since the initial announcement. Engagement and consultation has continued throughout the Stage 2 DA process, and will continue through the construction phase and during operation. The following reports detail the approach to consultation and the outcome of consultation and engagement activities during the preparation of the EIS and during the exhibition of the development application:

- *Engagement to Support the Development of Stage Two EIS – NGCC Engagement outcomes report* prepared by StraightTalk, May 2017 which informed the Social Impact Assessment and the EIS;
- *Phase Two EIS Exhibition Period Engagement – Outcomes Report* prepared by StraightTalk, August 2017.

The consideration of submissions and response to matters raised in relation to Aboriginal Cultural Heritage have been discussed with Jacobs Group, who were engaged to prepare the Aboriginal Cultural Heritage Assessment for the Stage 1 EIS and Stage 2 EIS. In response, the following is noted:

- All consultation in relation to Aboriginal Heritage has been undertaken in accordance with the Office of Environment and Heritage's Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010. The Stage 1 Aboriginal Cultural Heritage Management Plan was approved by the Secretary on 27 March 2017.

- Following exhibition of the Stage 1 EIS OEH stated that it 'supports the EIS's recommendations for Aboriginal Cultural Heritage management and considers the level of assessment and consultation with registered Aboriginal parties to be adequate'.
- The search for possible ceremonial grounds/Bora Ring was undertaken by the Registered Aboriginal Parties (RAP), before salvage operations commenced. Following the comprehensive survey by RAP site officers across the entire NGCC Project area it was found that no significant Aboriginal cultural heritage values (such as a Bora Ring or ceremonial site) were present within the entire Project Site boundary.
- Following approval for the concept proposal (Stage 1 NGCC Development Application) salvage operations were undertaken, of Potential Archaeological Deposits, that had been identified in the Aboriginal Cultural Heritage Assessment Report completed for the Stage 1 DA and EIS. It is noted that during the site survey and sub-surface test investigations the Registered Aboriginal Parties communicated a strong expression of connection to the landscape and a desire to preserve and protect the remnant Aboriginal archaeological heritage where it was known to be present. Salvage operations were undertaken by members of the Yaegl Local Aboriginal Land Council and as a result the Aboriginal heritage assessment completed to date has fulfilled the cultural heritage management obligations for the project. The artefacts are to be returned to the RAPs care for educational purposes and are to be kept at the Yaegl keeping place.
- No evidence of a song line or other ceremonial significance or additional artefacts has been confirmed and these issues have not been raised by Aboriginal people with a connection to the site. Works carried out to date under the Stage 1 consent have not uncovered any additional artefacts to those identified during salvage operations.
- The Aboriginal Cultural Heritage Management Plan, prepared in accordance with the Stage 1 approval, and exhibited with the EIS, outlines the requirements for the avoidance, management and mitigation impacts to Aboriginal cultural heritage and includes recommendations for any Aboriginal heritage that may be potentially impacted by the development. Following a review of the submissions received in relation to the Stage 2 exhibition, the approved plan has been updated to detail the frequency of its review and ongoing consultation intentions.
- NorthernPathways engagement with relevant Local Aboriginal Land Councils is ongoing and includes representatives from both the Yaegl and Ngerrie Local Aboriginal Land Councils (which includes members of the Gumbaynggirr traditional owners), and various members of Gumbaynggirr, and the NSW Deputy Ombudsman, Aboriginal Programs, NSW Ombudsman.

The unexpected finds protocol will be followed during all construction and operations on site.

During the preparation of EIS, consultation with indigenous groups focussed on indigenous groups and organisations. This was extended during the exhibition period to include individuals and groups and hard-to-reach groups in the community including young people, socially and economically disadvantaged residents and Aboriginal persons.

Targeted Phase 2 Stakeholder Engagement

As part of the Phase 2 engagement activities undertaken during the EIS Exhibition Period, relevant Aboriginal community members and organisations were targeted for engagement through a variety of activities including:

- An introductory meeting
- Yarning circles
- NAIDOC Information Stalls
- Aboriginal community members were asked how they wanted to be involved and how often they wanted to meet, and as a result, three Yarning Circles were held at the Grafton Community Centre to identify key issues and discuss opportunities for the ongoing involvement of Aboriginal people in employment, cultural programs and support within the construction and operation of the NGCC.
- A stall was held during the Grafton NAIDOC week at the suggestion of the Yarning Circles where 40 members of the community discussed the project and its impacts with project team members.
- The Maclean NAIDOC week event was also visited with a pop up stall, with 25 community members participating in conversations.

The targeted engagement program was undertaken to ensure all relevant Aboriginal community members and organisations were engaged within an appropriately inclusive and flexible manner that would allow all representatives to contribute their views. The details of the Aboriginal engagement activities are included in the attached *Phase Two EIS Exhibition Period Engagement - Outcomes Report* (Appendix 1).

As a result of the engagement, Aboriginal community members and representatives highlighted the importance of ongoing engagement and integrating Aboriginal culture into the NGCC. Participants said that culturally appropriate programs for Aboriginal inmates that were closely linked to the outside community, were crucial to reducing reoffending rates. Aboriginal participants across the consultation program were supportive of continuing to be involved in the project.

Consultation with Gumbaynggirr

Consultation with the Yaegl Traditional Owner Corporation and Yaegl Local Aboriginal Land Council (a LALC formed from Yaegl and Gumbaynggirr people) and

the Ngerrie LALC (a LALC formed from Yaegl, Ngerrie and Gumbaynggirr people) indicated that the site formed part of Gumbaynggirr traditional lands but fell under the Yaegl Local Aboriginal Land Council Area. Gumbaynggirr Traditional Country includes lands located in the Mid North Coast of NSW from the Nambucca River to the Clarence River (Grafton), and eastward to the coast.

Consultation and search for representative parties during Stage 1 EIS did not attract contact from Gumbaynggirr. The Gumbaynggirr Traditional Owners were invited to be part of the consultation process and did not respond.

Additional consultation with elders / knowledge holders of Gumbaynggirr has been undertaken as part of the Stage 2 EIS. Further consultation has also been undertaken with Yarringay Holdings who provided a submission to the Stage 2 exhibition process. A summary is provided in the following table:

Table 4 Additional Consultation

Date	Location / Event	Participants	Outcomes
21 August 2017 9.45am –12.30pm	Sod Turning Ceremony New Grafton Prison Site	• John Holland personnel • Local Aboriginal Legal Services representative • Gumbaynggirr members	Confirmed that no significant sacred site within the Prison project footprint. A bora ring was located approximately 1.5km away from the Prison site.
21 August 2017 1pm-2pm	Maclean RSL Club lunch meeting	• John Holland personnel • Representatives of the Yaegl Traditional Owner Corporation	The Yaegl representatives had walked the whole Prison site with Jacobs, and undertaken extensive investigations. They located some heritage items which were bagged and accurately documented. No bora ring found anywhere on the site. Confirmed that no places located on site holding any cultural significance. Confirmed that the Prison site is within Gumbaynggirr traditional lands but falls under the Yaegl Local Lands Council's area.
21 August 2017 2.30pm – 3.30pm	Yaegl Local Aboriginal Land Council Office Maclean	• John Holland personnel • Representatives of the Yaegl Traditional Owner Corporation • Executive of Yaegl LALC	Confirmed Yaegl LALC has jurisdiction over the Prison site. Considered site monitoring for aboriginal heritage items and places was completed thoroughly. Confirmed no bora ring located on site. Confirmed that the representatives of Yaaringay Holdings are not the correct knowledge holders for the area and do not have authority to represent Gumbaynggirr people.
22 August 2017 9am – 9.20am	Toast Café Grafton	• John Holland Personnel • Executive of Grafton-Ngerrie LALC	Confirmed who are the personnel with authority to represent Gumbaynggirr people.
22 August 2017 2.10pm – 4.30pm	Campsite near Bom Bom National Park	• John Holland Personnel • Representatives of Yaaringay Holdings	Actual location of Prison site confirmed as it was mistakenly thought to be near Acmena Youth Detention Centre which is the Yaaringay representative's preferred location. Representatives of Yaaringay suspected a bora ring is located on the site but no location could be identified or confirmed. Opportunities for ongoing engagement was presented.

This consultation has revealed that:

- no bora ring is located on site and no ceremonial significance is attached to site;
- The representatives of Yaaringay Holdings do not have cultural knowledge of the site;
- The appropriate elders / knowledge holders of the Gumbaynggirr have been identified and are represented on the Consultative Committee for the project; and
- We are advised that a memorandum of understanding exists between the Yaegl LALC and the Gumbaynggirr giving jurisdiction to the Yaegl LALC consistent with the position taken during the Stage 1 EIS.
- Yaegl LALC, Grafton Ngerrie LALC and the recognised elders / knowledge holders of Gumbaynggirr (noting that Gumbaynggirr has representation on both the Yaegl and Grafton Ngerrie LALCs) will continue to be involved in the consultation process during the construction services phase of the project.
- The NSW Deputy Ombudsman, Aboriginal Affairs will also form a key stakeholder for ongoing engagement during development of the NGCC (in relation to Aboriginal Participation in Construction).

Strategies proposed in the SIA

As outlined in the SIA forming part of the EIS for the Stage 2 Development Application, a number of strategies were suggested to address the impacts on Aboriginal Cultural Heritage. These included:

- A plan that implements the operator's Reconciliation Action Plan and meets the 8% Indigenous employment target.
- Working with Indigenous groups to monitor and update Inmate Rehabilitation and Reintegration Programs.
- Development of a specific Aboriginal Participation in Construction Plan to achieve 1.5% of spend target for Indigenous Engagement.
- Ongoing engagement with Indigenous representatives from the local TAFE and Community Colleges.
- Establishment of an Aboriginal Cultural working group to build partnerships with local industries, NGOs and service providers, traditional land owners and Aboriginal groups to promote regional economic and social development and rehabilitation and reintegration programs for inmates.

- Consideration of engagement with local or high profile Indigenous leaders to promote and support training and employment opportunities.

- Development of a program for the provision of inmate art through the engagement with Clarence Valley Council's Cultural Committee and regional art galleries.

Recommended actions/strategies

As a result of the additional stakeholder engagement, it is recommended that the suggested mitigation and enhancement strategies are adopted with the following additions:

- Incorporation of culturally appropriate programs for Aboriginal inmates, approved by CSNSW, closely linked to the outside community in order to reduce reoffending rates. This would include Aboriginal healing models with local specialists, and an Aboriginal elder mentoring program to allow for loss and grief awareness programs to be included with direct links with elders from different areas and specialties who are able to attend sessions with inmates. As part of this linking program there is proposed to be ongoing training and support services to train others to effectively ease the burden on existing elders.

- It is recommended that quarterly yarning circles are conducted with a focus on projects employment/training and business opportunities for the local community. It is recommended that a number of members are invited from lands Councils, Aboriginal Services (Medical and Legal) Employment and training services and organisations. It is noted that discussions are to be held with Corrective Services NSW Aboriginal Strategy and Policy Unit prior to any program of Aboriginal Cultural Inclusion prior to the operation of the NGCC.

- Ensure that the project team (during both construction and operation) works with Indigenous representatives from the local TAFE and Community Colleges to design and prepare job descriptions and induction training manuals that outline the cultural significance of local Aboriginal communities as well as the Aboriginal significance of the site. It is recommended that all NGCC employees undertake cultural awareness training at induction to foster respectful relationships with inmates and Aboriginal staff.

4.1.2 Direct and Indirect Cumulative Impacts from the proposal and other major development within the region on surrounding rural towns.

Engagement with communities in the wider Clarence Valley area and the site of the NGCC was undertaken during the development of the SIA and the exhibition of the EIS, with pop up and intercept activities at:

- Woolgoolga
- Glenreagh
- Maclean
- Yamba

This engagement expressly sought to understand potential cumulative impacts of the NGCC on surrounding communities.

In addition, engagement with Council and the Clarence Valley Roundtable was undertaken and will continue during construction and operations.

As examined in the SIA prepared to support the EIS for the Stage 2 Development Application, the cumulative effect of the proposal and other major development projects within the region on the community are evident, particularly in relation to the recent commencement of major infrastructure projects such as the Woolgoolga to Ballina Pacific Highway Upgrade. It is likely to be during the construction process where the most direct cumulative impacts will occur, due to the coincidence of construction timetables of major projects. The duration of the cumulative impacts in relation to the construction phase is likely to be felt between 2017 – 2020, aligning with the construction and opening of the NGCC.

As identified within the SIA, concern has been raised by the community that despite promises, major infrastructure projects underway within Grafton have not significantly drawn from a local employment base. In recognition of this concern a target of 80% of the construction workforce for the NGCC is to be sourced from within the local area (within a 90 minute drive from the site). Part of the resourcing strategy to be implemented to achieve this target includes the advertising and attraction of local candidates from the Northern NSW area, utilising existing John Holland Group (JHG) workforce resources who have previously worked in the area, and retention strategies to maintain employees during the life of the construction phase. In addition, initiatives include targeted training delivery in partnership with local Aboriginal service providers, such as the North Coast TAFE's Aboriginal Learning Circle as well as the hosting of regular forums with local community groups regarding opportunities for input into design, employment and procurement for the project.

A Construction Traffic and Pedestrian Management Plan provided with the Stage 2 EIS identified the potential cumulative construction impacts of projects and measures to mitigate any associated general traffic, public transport, parking, pedestrian and cyclist impacts. To date, JHG and Pacific Compete have worked together to ensure the cumulative impacts of the construction of the NGCC and the Woolgoolga to Ballina Pacific Highway Upgrade are monitored and managed. Regular weekly communications meetings are held between Pacific Complete and JHG to facilitate the flow of information between the two construction projects.

The indirect cumulative impacts on the wider Grafton area, have been considered in the preparation of the SIA, with the main potential impacts found to include:

- The effect on rental and purchase housing from the concurrence of the Pacific Highway upgrade, the Clarence River Crossing Project and the NGCC.

- The effect on short term accommodation during the construction of these three projects and possibly also berry farming projects requiring seasonal workers.

The construction of NGCC (and the cumulative affects of construction of the Clarence River Crossing Project and Pacific Highway upgrade) may result in changes to surrounding rural towns owing to the increased demand for worker accommodation. This could have the affect of raising the price of short-term accommodation for the duration of construction. The impact of this could result in displacement of existing residents and/ or an economic slump of the town following completion of construction.

Whilst these impacts are possible, a number of strategies can be employed to mitigate these potential impacts. The main mitigation relates to sourcing workers from the local area and sourcing supplies locally. Northern Pathways have committed to targeting 80% of the workforce from the local area, defined as up to 1.5 hours from site. This would greatly reduce the impact of housing demand for incoming workers as up to 80% of the workforce would already be located within the area. This would also negate the impact of temporary spikes in short-term accommodation, negating the indirect potential impacts of displacement of residents and economic slumps within towns following completion of construction.

For any workers requiring short-term accommodation, it is envisaged that any short-term accommodation needs would be better met by the existing market. This would provide opportunities for existing businesses to benefit from the construction of NGCC. Furthermore dispersed short-term accommodation would mean that the corollary benefits to towns such as workers requiring meals and supplies would be dispersed amongst the community. Whilst this may result in price rises for short-term accommodation in some areas, there are other economic benefits that would flow from such rise in demand including job creation.

Suggestions have been made regarding the construction of temporary worker housing to accommodate the construction workforce. Whilst feasible this is considered a secondary mitigation. Should the targets for local workers be achieved (either in whole or large part), and the existing market not be able to meet demands, temporary worker accommodation would be required. As the construction program is less intensive within the first 6-12 months this would allow an adequate period of monitoring to determine whether the local employment targets as well as the existing accommodation provision was adequate. As a last resort, Northern Pathways would develop a strategy for temporary worker accommodation

during the first year of construction. This strategy would detail the type, extent and location of accommodation and be developed in consultation with Clarence Valley Council. As any temporary worker accommodation would effectively co-locate large numbers of workers, it is considered that this would only be proposed as a last resort measure as it would not create the same benefits for the local economy as strategies to employ locals and utilise existing businesses.

It is understood that temporary worker accommodation is being considered at Yamba to service the Pacific Highway upgrade project. The NGCC project would not locate any temporary worker accommodation (if required) in Yamba to ensure there are no further cumulative impacts caused by the construction and operation of such temporary worker accommodation.

Recommended mitigation measures to address this issue are summarised in section 6.

EIS Exhibition Submissions and Targeted Phase 2 Stakeholder Engagement

Some public submissions received during the exhibition of the Stage 2 EIS raised concern with the cumulative impact of the major infrastructure projects on the rural lifestyle (refer to Table 2).

Likewise, as with public submissions, neighbour concerns were raised during the Phase 2 stakeholder engagement activities, in relation to the cumulative impact of the major construction projects. In response, participants requested that construction activities and roadworks are coordinated, well-planned and sensitive to how residents and graziers use the roads.

The indirect impacts of incoming workers and families on the availability of housing was also raised by stakeholders as well as concern with meeting local employment targets and local job opportunities.

The following strategies were suggested by participants for consideration in reducing the cumulative impact on the local and broader communities:

- A coordinated process to offer long term employment to counter short term construction cycles, such as linking existing employees to work and early notice of the commencement and closure of jobs.
- Development of a public construction calendar with advanced notice of the skills and qualifications required, as well as procurement packages.
- Early listing of available jobs to encourage younger people to stay in the area.
- Creation of a rental directory and liaison with existing accommodation providers to identify accommodation provisions for workers (if required).

- Coordination with other nearby large projects to mitigate the cumulative impact of construction works.

Recommended actions/strategies

As a result of the additional stakeholder engagement it is recommended that the following measures are adopted to strengthen the mitigation measures identified in the Stage 2 EIS:

- Development of a public construction calendar with key dates identified that advise relevant communities on timing of projects along with advanced notice of skills and qualifications required, as well as procurement packages to increase local employment and supply opportunities. It is recommended this be coordinated with local social media pages, the Clarence Valley Roundtable, subcontractors and training and employment providers.

- Maintain established relationships with nearby large infrastructure project teams to coordinate and mitigate the cumulative impacts of projects. It is also recommended the Project Managers of the construction projects meet on a fortnightly basis to coordinate activities and minimise impacts on local residents.

- Prioritise the early informing of local businesses of quantities of goods that are required for project phases in order for businesses to pool resources or build consortiums.

- Monitor local worker participation targets and vacancy rates of short-term accommodation providers throughout the Clarence Valley. Should there prove to be a lack of local participation and availability of short-term accommodation, develop a strategy for short-term accommodation provision. This strategy is to be developed in consultation with Clarence Valley Council no later than 6 months following the start of construction.

- In recognition of the importance of safeguarding community benefit, during a time of significant construction, it is recommended that NorthernPathways works with the nearby large infrastructure project teams, to coordinate community contribution projects. These could include community picnics, sporting events and open days, the Jacaranda Festival and concerts. The coordinated contributions will also assist in engaging with the community about the progress of the major infrastructure projects.

4.1.3 Change in Character of the area and measures to mitigate the impacts

As discussed in the SIA prepared to support the Stage 2 EIS, the rural/natural character of the region was identified as a widely held community value within strategic documents as well as through engagement with local residents. The

ambience of the town and lifestyle on offer, along with its idyllic natural surroundings, close to the river and coast, have been identified as important attributes of the area and therefore a consideration that may be threatened by the external effects of the building and construction process and operation.

As outlined in the SIA, measures to mitigate potential local character impacts included:

- Early planting of advanced and fast growing native tress on the site perimeters that would be in character with the existing rural character.
- Design of the buildings in a rural vernacular with a colour scheme that is muted, respecting the natural contours of the site with buildings falling away either side of the ridge. In addition, the design of the lighting system aims to minimise spill.
- Engagement with immediate neighbours in relation to concerns of safety of the family and children with identification and establishment of acceptable measures that can be implemented during both construction and operation to ensure safety of the area is maintained.

EIS Exhibition Submissions and Targeted Phase 2 Stakeholder Engagement

Public submissions received in relation to the exhibition of the Stage 2 EIS identified concerns with the impact of the proposal in relation to the development being out of character with its surroundings (noted to be in a rural zoning), creating an impact on the rural landscape and a loss of local character. In addition, the Phase 2 stakeholder engagement undertaken identified that the potential shift in the rural ambience of the area was a key impact identified by directly affected landowners and neighbours. In addition, the management of inmate visitors was raised as a concern. The following strategies were suggested by participants for consideration in mitigating the impacts of the character of the area.

- Maintenance of existing stock route through implementation of a stock management plan that clarifies where stock can be moved, with road signs on Avenue road with 'designated stock route'.
- Incorporation of waiting areas for those being released inside the NGCC to allow flexibility to coordinate release.
- Establishment of a free facility at the NGCC or in town, to provide a waiting space for visitors, particularly for those with children, that could be created together with subsidised accommodation for visitors from low socio-economic backgrounds.

Recommended actions/strategies

Following the Phase 2 engagement the recommended strategies include:

- NorthernPathways is work with Transport for NSW to determine the viability and subsequent options available to establishing a bus service to the facility prior to the opening date. It is recommended that ongoing construction progress updates are provided to Transport for NSW to ensure planning and funding allocation is aligned with the operational timeframes.

- Continuation of a communications and stakeholder manager role to ensure communication between stakeholders and NorthernPathways project team remain open beyond the onset of the project. It is noted that during operation the General Manager has overall responsibility for the management and coordination of stakeholder relationships.

- Coordination with other nearby large projects to mitigate the cumulative impact of road works and major projects in the locality.

4.1.4 Details regarding potential anti-social behaviour of visitors and management of impacts on adjoining neighbours (operational management plan)

Additional matters raised in submissions related to:

- Serco as the chosen operators.

- Anti-social behaviours associated with existing Grafton Correctional Centre.

- Ensuring rehabilitation programs for inmates are appropriate and forward thinking.

- Consideration of demand for services, particularly the importance of establishing strong linkages with outside organisations and the proactive follow through of treatment plans and programs that begin within the centre. Ensuring strong relationships are established between community organisations and community correctional services was seen as an important way in which relief can be provided to local community organisations.

Comment and Recommended actions/strategies

Serco is a leading, worldwide, correctional facility operator, currently operating ten correctional facilities in Australia, New Zealand and the United Kingdom. This includes the recently commissioned Auckland South Correctional Facility in New Zealand, delivered as an operator-led PPP with John Laing and Macquarie Capital. In relation to the NGCC Serco is committed to implementing the Serco Pathways

Model which will provide a framework to assess all critical factors in reducing the risk of re-offending, targeting these factors for each individual Inmate's rehabilitation journey. The totality of the Inmate's Pathway Plans will form the Inmate's Case Plan.

As outlined in the SIA, Grafton has had a major correctional centre operating for many years (the Old Grafton Gaol opening in 1893 and operating continuously until its downsizing in 2012 and then reopening as a full corrections centre in 2015). As such, the discussion of impact on existing corrections services with the existing Grafton Correctional Centre staff as well as Grafton Police was an important element in understanding the likely impacts associated with the opening of a new correctional centre. Presentations and meetings were held with key stakeholder groups, including Grafton Police and it was noted that whilst there may be some increased need for more presence, no significant issues of concern raised in relation to increased anti-social behaviours as a result of the establishment of the NGCC.

Concerns of potential crime risk were raised in relation to the number of visitors passing through the area, citing concern as to increased vulnerability to theft or other crimes. Recommended strategies incorporated within the SIA noted that the Community Consultative Committee was to monitor the impacts on local residents during construction. In addition the operator is to continue to engage with adjoining landowners in relation to procedures and protocols in the event of any incident requiring NSW Police attendance. This will include the establishment of notification procedures to notify residents in the occurrence of an escape, potentially through the provision of a direct line to the correctional centre security. The operator is also to establish strategies with the Grafton Police Station to manage incidents and inmate transport.

As outlined in the SIA prepared to support the Stage 2 EIS a number of measures have been proposed to minimise the effect on facilities and services. This includes the development of working relationships between the operator and local welfare and charitable services to ensure the needs of inmates are appropriately met when nearing release. In addition, open communication will allow for strategies to be developed to assist visitors who may require support from local welfare and charitable services when visiting the NGCC. As requested by Clarence Valley Council, the operator is to liaise with Council throughout the operation of the facility in relation to ongoing measures to mitigate any socio-economic impacts.

4.2 Traffic Impacts

The NSW Department of Planning and Environment has requested the following traffic impacts to be addressed:

- Demonstrate road safety along designated access routes would not be adversely impacted by construction and operational traffic generated by the development.

- Provide further analysis of operational traffic impacts and traffic efficiency over a 10 year horizon following commencement of operations.

4.2.1 Impacts on road safety along designated access routes of construction and operational traffic

Prior to construction commencing for Stage 2, it is expected that a detailed Construction Traffic and Pedestrian Management Plan (CTMP) would be prepared in consultation with Clarence Valley Council, the RMS, Pacific Complete and the immediately adjoining local residents and would include a road safety audit and measures to mitigate any safety risks for this stage of the construction works.

4.2.2 Provide further analysis of operational traffic impacts and traffic efficiency over a 10 year horizon following commencement of operations.

The traffic generated by the NGCC in Year 10 would be the same as Year 1. The Pacific Highway upgrade would be completed prior to the facility opening and consequently the traffic volumes along the existing Pacific Highway would be significantly reduced and capable of accommodating traffic flows from the development. Currently, on average, a peak of around 9,800 vehicles uses the existing Pacific Highway each day. There would be a significant reduction in this flow with vehicles diverting to the new highway creating substantial capacity at existing intersections.

4.3 Impact on Agricultural and Farming Activities

The NSW Department of Planning and Environment has requested the following impacts to be addressed:

- Provide further consideration of how the proposal would directly and indirectly impact surrounding agricultural and rural farming activities (including moving stock, pest control and use of firearms). Provide details of the mitigation measures required to manage conflict where impacts cannot be avoided.

- Provide details regarding what procedures would be implemented at the correctional centre to address impact on operations whilst stock are being moved along Avenue Road where access to the site can be significantly restricted for up to three hours and potentially longer periods during flood events (operational management plan).

4.3.1 Impacts on farming operations

Adjoining and adjacent land uses are agricultural (predominately grazing) and rural residential. The wider area contains horticultural activities such as tea tree farming.

Consultation with directly affected landowners and neighbours indicated that in addition to grazing, farming activities including shooting, and baiting to deal with feral animals and pests.

It is anticipated that the proposed development would not unreasonably impact on farming activities on adjoining or adjacent land undertaken within the law controlling use of firearms, guidelines of the Department of Primary Industries and sound farming practice.

It is understood that the Local Land Services – North Coast is the relevant government authority that is able to assist with the control of wild dogs in and around the Grafton area. It is suggested that any concerns regarding the control of wild dogs in the area be addressed to Local Land Services – North Coast who are able to assist with the management and control of pests including wild dogs.

With respect to the concern regarding baiting, it is noted that Pesticide Control (1080 Bait Products) Order 2017 only prohibits the use of 1080 bait for the control of wild dogs within 150m of a building if the method of baiting is by ground (as opposed to by helicopter or by fixed wing aircraft). Further, the prohibition area can be reduced to 50m with the consent of the owner of the land upon which the building resides. The operator, Serco, is prepared to discuss the provision of consent subject to a requirement that no bait is laid on the corrections centre site and at least 5m away from the boundary as required under the Pesticide Control (1080 Bait Products) Order 2017.

With respect to the use of firearms on land surrounding the correction centre this is governed by a number of acts, regulations, codes and standards including but not limited to the Firearms Act 1996 (NSW), Firearms Regulation 2006 (NSW), Crimes Act 1900 (NSW), the National Firearms Safety Code and any conditions of holding a valid firearms licence. The overriding purpose of the requirements in those documents is to ensure that the legal use of firearms do not cause a danger or risk to persons or property.

The development of a correctional facility on the site does not create any additional requirements for the use of surrounding properties. There is no specific law that prevents the use of firearms within the vicinity of a correctional facility. Rather, the various governing acts, regulations, codes and standards governing the use of firearms apply equally to a correctional centre as to other land uses, e.g. residential, industrial, farming, educational etc.

The generally smaller lot size in the area including the lifestyle blocks mentioned in the submission would need to be considered in relation to any off site impacts of farming activities.

There would be restricted access to the site and in particular the areas on the western side of the site which would not be accessible to visitors. Further, given the

perimeter fencing around the correctional centre, pests such as wild dogs, foxes and rabbits are unlikely to infiltrate into any adjoining or adjacent land from the correctional centre.

4.3.2 Impact on Stock Movement

Avenue Road is used as a stock route in times of flood and at other times as required for stock management purposes. This is by foot and by truck. In times of flood the movement is generally from the flood prone farmland around Ulmarra to the north via Avenue Road to higher ground in the south. Many such movements are by foot, or a combination of trucking to cattle yards on Avenue Road and then walking the cattle to flood free paddocks, and a number of local farmers have flood free paddocks specifically for this purpose. The movement of stock in this manner requires an annual licence from DPI, however in times of emergency licences are not required.

Several landholders have raised concerns about being able to access paddocks via Avenue Road and the right of way on the northern boundary of the site during construction and operation of the NGCC.

Inquiries were made to Local Land Services. Local Land Services advised that there are three known Routine Stock Movement Permits issued for movements along Avenue Road past the site. Local Land Services would not provide the names or copies of the permits.

Average heard walking speed is approximately 3 kms per hour. Information provided in submissions indicate that the distance cattle are moved along Avenue Road south of the property entry (in the direction of Eight Mile Lane) would be 3.5 kms. Thus, the average stock movement would take a little more than an hour along the boundary of 313 Avenue Road. This speed would however, be impacted by the number of vehicles travelling Avenue Road at the time.

There is no accurate information available on the frequency of movement along Avenue Road. In the past 12 months, the contractor for early works for the Pacific Highway bypass, including the upgrade of Avenue Road south of Wants Lane which commenced in July 2017 has reported a small number of movements along Avenue Road. These movements have occured with cooperation between farmers and contactors.

There are a number of stock movement permit requirements to be observed by farmers including:

- Notification of stock being moved along unfenced public roads is required to be given to all owners or occupiers of the land through or alongside which the stock will pass at least 48 hours prior to commencement of moving stock;

- the permit holder must clearly display stock ahead signs for the benefit of road users;

- If stock is being moved more than one kilometre on a public road, signs are to be placed on the road so that there is not more than 5 kilometres, and no less than 200 metres, between the sign and the place where a vehicle being driven towards stock would first encounter stock. The Permit Holder must ensure that the signs are removed as soon as practicable after all stock have left the road;

- stock warning sign must comply with the specifications as to size, colour and design for T1-19 "Stock AHEAD (Symbolic)" signs that are set out by the Roads & Maritime Service;

- so far as it is reasonably practicable to do so, the stock must be kept off any part of a road which is a bitumen or made up road surface or in relation to a dirt road, any part of the road routinely used by vehicles. Wherever possible, stock should be walked on the areas to the sides of the road where vehicles do not routinely travel, such as, for example, the dirt or grassed sections to the side of a paved road.

It is considered that the movement of stock along Avenue Road can continue during construction and operation subject to the preparation of management plans for the movement of stock. As suggested by the DPI in its submission:

It is important that the movement of stock by surrounding landowners is not hindered by increased traffic movement relating to the project during the construction and operation phase and any potential for conflict risk is minimised. It is noted that the proponent outlines a commitment to consult with affected landowners and to include appropriate mitigation measures within the Construction Traffic Management Plan however more consideration at the operation phase will also be required. It is recommended that Local Land Services be involved in the planned consultation to ensure all parties are aware of their legal obligations and a plan of management that includes appropriate management for road sharing and monitoring of complaints is established.

During the construction phase, the anticipated impacts in relation to stock movements include potential conflicts with construction traffic. As Northern Pathways will be managing construction, it is expected that a large level of control and interaction can be had with both workers to the site and deliveries. To mitigate the impacts to stock movements during construction, Northern Pathways will work with permit holders to ensure stock movements occur unimpeded. This will include:

- Liaising with permit holders regularly to be informed in advance of intended stock movements.

- Notification to staff, sub-contractors and deliveries of stock movement time and location (this will be done through either email or text message notification depending on the amount of prior notice).

- Education of site staff and sub-contractors of the stock movement protocols during site inductions.

- Liaison with neighbours during times of flood to determine whether stock movements will be undertaken and management of construction traffic to accommodate these stock movements.

- Inclusion of the above within the Construction Traffic Management Plan with review cycles to be quarterly in consultation with neighbours and Local Land Services.

During operation the volumes of traffic along Avenue Road would be increased compared to the existing situation, however they would be far less than during construction. Avenue Road would however be upgraded to two-lanes with appropriate width and shoulders. The revised design of Avenue Road would assist in providing adequate space for traffic and stock movements. This would also provide for adequate and safe passing movements at appropriate locations along Avenue Road for staff and visitors to pass the moving stock. Issues to be addressed in managing stock movements during operation include:

- Liaising with permit holders to be informed in advance of intended stock movements.

- Induction of staff to include stock movement education and recommendations for safe driving during these times.

- Notification to staff either by text message or email of intended stock movement. If this is to occur during or close to a shift changeover time, staff are to be advised to allow additional travel time.

- Notification to staff that during times of flood to expect stock movements.

- Notification to visitors that the NGCC is located on a stock movement route and that care and patience should be exercised when visiting the centre. This information will be provided to visitors upon making an appointment for a visit.

- The above will be included in the operational management plan to be developed prior to occupation and updated annually and be finalised in consultation with Local Land Services and stock movers.

Furthermore the experience of managing stock movements during construction would be included in any updates to the above mitigation measures prior to inclusion in the operational management plan.

4.4 Residential Amenity Impacts

The residential amenity impacts as outlined in the Stage 1 conditions of consent are:

- visual impacts,
- privacy,
- noise and vibration,
- odour,
- safety procedures and
- lighting.

The EIS details the anticipated impacts of the above, and the key issues are outlined below:

4.4.1 Visual Impacts

The visual impacts are outlined in Appendix 17 of the report. The assessment demonstrates that with the installation of the landscape buffer the NGCC will be predominately not visible from surrounding residences as well as Avenue Road and the new Pacific Highway. The landscape buffer is considered an adequate mitigation to ensuring negligible visual impacts are experienced from surrounding residences. This buffer is being completed as a component of the Stage 1 consent.

4.4.2 Privacy

The privacy of surrounding residences would be largely retained through implementation of the landscape buffer. The site is bound by Avenue Road to the east and the New Pacific Highway to the south, which reduces the number of directly neighbouring properties. The landscape buffer is considered an adequate mitigation to ensuring negligible privacy impacts are experienced from surrounding residences. This buffer is being completed as a component of the Stage 1 consent.

4.4.3 Noise and Vibration

The Stage 2- Environmental Noise and Vibration Assessment demonstrates that there will be no vibration impacts as a result of the proposal in both operation and

construction for surrounding residences. This report also concludes that noise impacts for construction will comply with the noise management level of 58 dBA. A Construction Noise and Vibration Management Plan will be developed prior to commencement of construction to address noise during construction.

The assessment of operational noise has concluded that noise impacts associated with the operation of the facility have been considered and will be less than the operational noise criteria during the day and night. Mitigation measures for managing noise during both construction and operation have been developed.

4.4.4 Odour

The effluent management system proposed has been designed to comply with the Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DEC, 2005) guidelines. Based on preliminary odour modelling it is anticipated that no odour impacts would be generated by the proposed system.

During the detailed design process for the system, confirmation of odour modelling will be undertaken. In the unlikely event that the modelling demonstrates that an odour impact is likely, tanks would be enclosed or located within a larger shed and fitted with odour extraction and scrubbing systems. It is expected that such a mitigation measure would ensure odour impacts are appropriately controlled.

4.4.5 Safety Procedures

Safety procedures in relation to the operation of the NGCC are outlined in section 6.3.5 of the EIS. The NGCC has been designed with the appropriate security features as required of a correctional centre in NSW.

In response to concerns of directly affected land owners and neighbours, direct lines of communication will be established with the operator and outlined in the Operational Management Plan to be developed prior to occupation. Further mitigations include continuation of a community consultative committee for the project to facilitate interaction with surrounding land owners and neighbours, the wider Clarence Valley community and the management of work release for minimum security inmates.

4.4.6 Lighting

The EIS includes a Built form and Visual Amenity Report at Appendix 17. This report demonstrates that with the proposed landscape buffer, the impacts of light spill will be either negligible or not apparent from neighbouring properties and along Avenue Road and the Pacific Highway. The proposed mitigation measures as contained in the EIS is considered adequate to address this issue. Further the Stage 1 Assessment

Report by DPE notes 'The vegetative buffer is also considered appropriate to assist in mitigating the visual and amenity impacts'

The mitigation measures to address these impacts are contained in Section 6 of this report.

4.5 Directly Affected Land Owners and Neighbours

Further consultation was undertaken with Directly Affected Land Owners and Neighbours (DALN) during the EIS exhibition. These stakeholders are most likely to be impacted by the NGCC project and as such targeted consultation was undertaken. The range of issues raised by DALN was similar to issues raised during the consultation process undertaken for the Stage 1 development application.

Table 5 below details the issues raised by DALN as a result of consultation both prior to and during the EIS exhibition. The table includes a response to the issues by the Proponent, which clarifies whether an impact is perceived or could be expected as a result of the development. Where the issues are expected to result in an impact, mitigation measures as outlined in Section 6 of this report would apply.

Table 5 DALN issues raised during consultation

DALN Issue	Response
Light spill from the new correctional facility	The EIS includes a Built form and Visual Amenity Report at Appendix 17. This report demonstrates that with the proposed landscape buffer, the impacts of light spill will be either negligible or not apparent from neighbouring properties and along Avenue Road and the Pacific Highway. The proposed mitigation measure as contained in the EIS is considered adequate to address this issue. Further the Stage 1 Assessment Report by DPE notes 'The vegetative buffer is also considered appropriate to assist in mitigating the visual and amenity impacts'
Traffic from construction	DALN expressed concern regarding road safety with respect to construction traffic. It is noted that the upgrade of Avenue Road will be completed by the time construction for Stage 2 is anticipated to commence. This will provide a two-lane sealed roadway for the length of Avenue Road between Eight Mile Lane and the Site. A road safety audit will be conducted prior to commencement of construction and the results included in a Final Construction, Traffic and Pedestrian Management Plan (a draft of which is contained at Appendix 13 of the EIS). This plan will be developed in consultation with the contractor responsible for the W2B project and permit holders for stock movements along Avenue Road. The Plan includes provision for all construction

	traffic to use approved construction routes and requirements in respect of driver behaviour.
Noise from construction	The Stage 2- Environmental Noise and Vibration Assessment considers that construction will comply with the noise management level of 58dBA. Despite this conclusion the Proponent commits to managing noise during construction through a Construction Noise and Vibration Management Plan. The requirements for inclusions of this plan are outlined in Appendix 15 of the EIS and this plan will be developed prior to commencement of construction.
Traffic from operation causing an increase in traffic on local roads from staff and visitors, potential conflict with stock movements and concern regarding use of Avenue Road to the north of the site.	In accordance with the approved Stage 1 DA, access to the site will be via Eight Mile Lane and Avenue Road. Avenue Road is currently being upgraded to a two lane road. The Stage 2- Transport and Accessibility Report submitted with the EIS confirms that Eight Mile Lane and Avenue Road (as upgraded) will operate within the road classifications and intersections will operate satisfactorily. As such no mitigation measures are provided in relation to traffic volumes during operation. The interaction of operational traffic and stock movements is discussed further at section 4.3.2 of this report. As outlined in the EIS, the proposed vehicular access to the NGCC is: • From upgraded Pacific Highway south, exit to old Pacific Highway, turn into Eight Mile Lane and then Avenue Road; • From upgraded Pacific Highway north, exit to Eight Mile Lane and then Avenue Road; • From Grafton use old Pacific Highway, exit to Eight Mile Lane and then Avenue Road; • From NGCC use Avenue Road, then Eight Mile Lane and ramp to upgraded Pacific Highway north, old Pacific Highway to Grafton or ramp to upgraded Pacific Highway south. These routes provide the most direct, safe and fastest routes to the NGCC. The only trips that would potentially access the site from further north along Avenue Road would be trips commencing at Ulmarra. The Operator will support the proposed vehicular access points by requiring all staff to access the site via these routes where it represents the most direct route to site as part of their Work Health and Safety requirements. Visitors to the site will receive information on travel routes to the site by the Operator when a visit is arranged.
Noise from	The Stage 2- Environmental Noise and Vibration Assessment

operation	concludes that 'noise impacts associated with the operation of the facility have been considered and will be less than the operational noise criteria during the day and night.' Despite this conclusion the Proponent commits to managing noise complaints through the operational management plan to be developed prior to occupation.
Loss of property values	As per the approved Stage 1 DA, property values are not a valid planning consideration. This was endorsed by DPE in the Stage 1 Assessment Report which stated 'it is an established principle that the impact of a project on surrounding property value is not a planning consideration *(refer e.g. Trinvass Pty Ltd and Anor v Council of the City of Sydney [2015] NSWLEC 151, [89]).'*
Impacts to agricultural activities and agricultural business activities	The Proponent understands that the issue of impacts to agricultural activities relates to perceived impacts in terms of use of firearms and baiting. Details regarding the impacts on agricultural activities are contained in section 4.3.1 of this report. Impacts in relation to stock movements as an agricultural activity is discussed at section 4.3.2 of this report.
Perceived loss of personal safety arising from NGCC visitors	The Proponent notes that association with an inmate should not infer that person as being a criminal or someone who partakes in criminal activity. The Social Impact Assessment submitted with the EIS notes that post occupancy reviews for both Kempsey and South Coast Correction Centre noted that crime had either stabalised or trended downward since development of the correction centre (section 4.6.2.6 of Appendix 24 of the EIS- Social Impact Assessment).
Loss of amenity to rural lifestyle	As the area includes a mix of farming and rural lifestyle residences, the amenity of rural lifestyle in this location contains two aspects- residential amenity impacts and impacts on agricultural activities. The Stage 1 Assessment Report by DPE notes that 'these landscaped setback areas together with controlled noise and lighting activities and upgraded access roadways, where required, would ensure the operations of the correctional centre do not detrimentally impact on surrounding agricultural activities and the rural amenity of the area.' The Assessment Report further notes that '*the Department considers the use of the land for correctional facilities acceptable as the site is not mapped as regionally significant farmland in the mapping undertaken for the Mid North Coast Farmland Mapping Project 2008.*'

	In accordance with the Stage 1 conditions of approval, residential amenity impacts were further developed within the EIS. Section 4.4 of this report details the consolidated findings in relation to residential amenity impacts. Section 4.3.1 details the consolidated findings in relation to agricultural activities. Updated mitigations measures have been provided.
Environmental impacts on flora, fauna and sensitive ecosystems	The Project's impacts on flora, fauna and sensitive ecosystems are detailed in Appendix 3 to the EIS. The biodiversity impacts of the project were largely assessed as part of the Stage 1 DA. DPE concluded in the Stage 1 Assessment Report that It is considered that the proposal would result in the loss of biodiversity values on the site but the impacts can be adequately compensated. Appendix 3 to the EIS is consistent with the Stage 1 approval.
Project approvals, site selection, flood and bushfire risk and lack of infrastructure	The issue of site selection was dealt with as part of the Stage 1 approval. The DPE Assessment Report notes 'the Department considers that the proposed location of the new correctional centre is justified. '
Stock movement along Avenue Road	Refer to section 4.3.2 of this report.
Runoff of wastewater from the site, particularly in times of flood	The Wastewater Management Plan at Appendix 10 of the EIS outlines the provisions in relation to runoff. The Plan concludes that runoff is highly unlikely due to the provision of adequate runoff area within the site, including emergency runoff provisions.
Route for power lines to the site and need for electricity as opposed to use of renewable energy sources	The selection of a route for electricity provision to the site is being undertaken by INSW under a separate planning approvals process. Whilst renewable sources of electricity may be feasibly developed at the site, the correctional centre requires a steady reliable power source. As such electricity will need to be provided to the site through transmission lines.

4.6 Effluent Management

The NSW Department of Planning and Environment has requested the following effluent management issues be addressed:

Table 6: Effluent management issues and response

Issue	Response
Provide a revised wastewater management plan to address nutrient removal from the site and monitoring details in accordance with matters raised by the NSW Environment Protection Authority and Department of Primary Industries.	This revised plan has been prepared addressing matters raised by authorities and is contained in Appendix 3.
Clearly demonstrate that the proposed intended on-site effluent management system and irrigation areas include appropriate buffers to vegetation areas, any approved dwellings on adjoining land and site boundaries.	The drawing contained in Appendix 4 indicate the buffers provided.
Provide clarification regarding whether any off-site discharge or re-use is proposed, particularly any procedures to manage 'rare wet weather events'	No off-site discharge or reuse is proposed. The management of the wet weather storage lagoon to avoid and mitigate overflows is provided in the RWMP (refer Appendix C2 – Pond Management Strategy, and Appendix E1 – Incident Response and Contingency Management) contained in Appendix 3
Provide exact quantities of sodium hydroxide and sodium hypochlorite to be stored on the site to confirm whether the total quantity of dangerous goods to be stored on the site are below screening thresholds to demonstrate that a preliminary hazard analysis is not required.	For the proposed Grafton wastewater treatment plant, the following quantities are estimated: • Caustic (sodium hydroxide, 30% w/w): ~1t/month usage, storage of ~2t on site • Sodium Hypochlorite (Chlorine, 12.5% w/w): ~3.5t/month usage, storage of ~5t on-site. Sedgman advise that the site is not considered potentially hazardous based on the storage screening assessment and transport screening assessment.

4.7 Aboriginal Cultural Heritage Management

The NSW Department of Planning and Environment has requested the following be addressed:

- Provide details of how those who hold knowledge relevant to determining the cultural significance of Aboriginal objects and/or places within the site have been consulted to understand the proposal and details of any involvement in the design process to address potential social and cultural impacts of the development.

This is discussed in Section 4.1.1 above.

4.8 General

4.8.1 Addendum soil report.

DPE requested a complete Addendum - Soil Suitability for effluent disposal report prepared by Jacobs as a number of figures and the appendices have not been provided. This report was a draft report and has been superceded by more detailed geotechnical and soils investigations contained in Appendix 5.

4.8.2 Water

DPE states that adequate water supply during construction has been raised as an issue as a result of current Stage 1 works and requested advice on supply for Stage 2 construction works.

INSW works are underway for the future potable water supply to the site. The works are currently expected to be completed in 4th quarter 2017 with supply available to site that would be sufficient for construction needs.

In the event there is interruption in supply, alternative sources would be available. For example, Clarence Valley Council have identified a potential supplementary source for recycled water at Clarenza in addition to potential on-site (groundwater) uses.

5. Clarifications

5.1 Clarification of ancillary construction activities

Submissions received during exhibition, including EPA, requested clarification on the proposed batch plant and operations including likely mitigation and management measures.

Mobile concrete batching plants and pre-cast facilities will be used during construction as referred to in the EIS in the Construction Environment Management Plan (Appendix 12), Construction Traffic Management Plan (Appendix 13), Environmental Noise and Vibration Assessment (Appendix 15), Transport and Accessibility Report (Appendix 19). Currently the project has identified a need for two facilities however, a third maybe required following further market feedback.

Concrete derived products form a key component of the Stage 2 development. Daily production at peak in construction would be:

- **Precast Production -** 5,766m^3 for onsite precast works or 13,838 tonnes
- **Insitu Works -** 14,436m^3 which equals 34,648 tonnes
- Maximum quantity (m^3) of concrete produced each day for onsite pre-casting - (i.e. utilising the Batch Plant), = **250m^3 to 400m^3**
- Maximum quantity (m3) of concrete produced each day for onsite concrete casting, slabs footings etc, = **350m^3** to **600m^3**
- Total combined quantity (m^3) of concrete produced each day via the onsite Batch Plant, = **700m^3 to 1100 m^3**
- Total quantity converted to Tonnes, = up to **2648 tonnes/day**

The plant would also supply concrete for constructing drainage and structures.

To deliver the project, a range of different concrete mixes would be required which could only be partially supplied within the local market. Further, the design and construction methodology sees the introduction of pre-cast units and as such, on-site batching provides significant benefits when positioned alongside the pre-cast yard.

Proposed activities would be undertaken within the footprint established under the Stage 1 approval and amended by Stage 2. The location broadly is to the south of the property and utilises the pad and drainage infrastructure that would be converted for the future wastewater plant and would not require additional clearing and/or ground disturbance for this activity.

Batch plant facilities are modular in nature and mobile, which will require no foundations or commissioning periods and enables convenient movement and quick installation as required to suit the procurement and delivery of the project.

The batching unit, aggregate conveying unit, water supply and additive agent supplying system, scaling system, mixing system, electrical control system and pneumatic system are all centralised in one mobile trailered chassis. Perfect mixing can be achieved effectively within computerised program demands for dry-hard, half-dry-hard, plastic and concrete with any mixing ratios with minimal impact to the environment.

JHG Modular Mobile Concrete Mixing Plant

A typical concrete batching plant requires a land footprint of approximately 0.5 ha to accommodate cement materials silos, aggregate storage bins with dust suppression systems, conveyor belt (with cover) from aggregate storage bins to surge bins and drum mixer, drum mixer, water holding tanks, fuel tanks, materials storage facilities, truck holding bays, a generator and holding rooms, and any required staff facilities (office, ablutions, etc).

Extract completed system

Temporary mobile concrete mixing plants will produce a combination of products including:

1. 'dry mix' cementitious products for stabilisation of site access roads, swales and building platforms outlined as preparatory works;

2. 'wet mix' (concrete) for construction of auxiliary facilities and ancillary structures associated with construction of roads such as crossovers, concrete pavements, concrete kerbs, headwalls, pits and field & kerb inlet gullies;

3. Stockpiles of materials for the production of dry mix cementitious products and concrete will be suitably managed in large steel bins (containers) or alternatively, in a like manner to those stockpile sites already described within the EIS;

The plant types and would align directly with the construction program and requirements of the Contractor and would range from a combination of both plant types to a single mix operation.

It is noted that key issues associated with batching facilities are linked to air quality, water quality and traffic.

During the construction phase, pollutants from batching such as sediment, soil nutrients and construction waste have the potential to enter drainage lines and

stormwater systems, particularly during high rainfall events. Spillage of diesel during refuelling and leakage of hydraulic and lubricating oil from plant and equipment, or rinse water from plant washing and concrete slurries, also have the potential to enter drainage lines if not managed in the right manner.

Wastewater generated from batching would be discharged and transported to holding pits, which will form the future holding ponds for the wastewater treatment plant. This arrangement will encourage heavy sediment fallout.

Some recycling of wastewater will occur within the system and/or on-site provided water quality requirements can be met. Sediment within the pit will be removed, dried and reused on site or disposed of to a licensed landfill.

The noise levels that are predicted to occur as a result of the site are in the order of 38dB(A). The EIS predicted noise level of construction works associated with Stage 2 would not exceed 58dB(A). Therefore, the operation of the temporary concrete batching plant is predicted to be inaudible. It should be noted however, that this level, is based on background noise levels prior to the commencement of construction (and future operation) of the Pacific Highway, which is currently under construction along the southern boundary of the property which is likely to further mask activities.

The operation of each batch plant will also require several truck movements associated with raw material supply and for production and delivery. The cumulative impacts of on-site batch plants would result in a net reduction of the overall number of truck movements on local roads compared to off-site batch plants.

Details of the wastewater treatment stream for each temporary plant will be provided prior to commissioning and will be incorporated into the CEMP. Dust and solid waste issues will be managed through implementation of the CEMP. The acoustic impacts of the plant operation have been assessed and found to be acceptable. Traffic impacts of on-site batching and pre-cast activities have been assessed with an overall reduction in traffic movements resulting. Proposed mitigation measures are detailed in section 6.

5.2 Hours of Construction

Following a review of construction programming, the Project requests the hours of construction be extended on Saturdays. The assessment as contained in the EIS utilises the hours of construction as contained in the Interim Construcion Noise Guideline (ICNG) , Department of Environment and Climate Change, 2009. Under the ICNG the standard construction hours for Saturdays are 8am to 1pm.

The Proponent is seeking to vary the construction hours on Saturday to 8am to 5pm to allow the advancement of the construction program and thereby reduce the duration of impacts for surrounding residents. The additional 4 hours of work on Saturdays will enable construction to be advanced due to:

- Ability to be able to spread work throughout the daytime period, which is essential in summer months where some works are limited during the middle of the day. This will assist in allowing works to occur in the cooler morning and afternoon periods.

- A potential 2 month saving in the construction program through the ability to utilise Saturdays as a full work day. If Saturday hours are restricted to 8am-1pm this will limit the ability to undertake works such as concrete pours which require longer durations.

The Proponent notes there is valid precedent for extended work hours on a Saturday as compared to the ICNG hours, notably:

- The Woolgoolga to Ballina Pacific Highway Upgrade project (SSI 4963) has approval to work 8am-5pm on Saturdays

- The Clarence Valley Council standard construction hours are 7am-6pm six days per week.

Given the above it is considered reasonable that the NGCC project receive approved construction hours of 8am-5pm Saturdays to align with Council requirements.

The additional works proposed on Saturdays will include all construction activities proposed within the EIS. The main impacts related to construction activities include noise and traffic. The noise assessment confirms that construction activities would comply with the noise management level of 58 dBA at the nearest receptor. Further the anticipated noise generated by construction would be further reduced once the masrony perimeter wall os erected. As such no unreasonable noise impacts are expected as a result of increased construction hours on Saturdays.

The traffic impacts associated with extended construction hours on Saturdays are not expected to be increased from standard construction hours as outlined in the ICNG. The peak workforce movement would instead be altered from 1pm to 6pm on Saturdays, however this would not result in an increase in traffic being generated from the site.

The existing mitigation measures contained in section 6 of this report are considered adequate to apply to extended construction hours of 8am to 5pm on Saturdays.

5.3 Potential Out of Hours Work

Any works proposed out of approved construction hours would be undertaken in accordance with an 'Out-of-Hours Work Protocol' as detailed in Appendix 15 of the EIS. It is envisaged that the following works may be required to be undertaken outside of approved construction hours:

- Commissioning.
- Deliveries to site.
- Craning operations such as lifting cells into place.
- On-site plant operation and maintenance (for example batching).
- Casting concrete (pouring slabs) and pouring for base slabs, paving and associated cutting and curing works.
- Internal fit out of buildings and structures.
- Construction activities during daylight savings (6am to 7pm instead of 7am to 6pm). The Woolgoolga to Ballina Pacific Highway Upgrade project (SSI 4963) has an approval to work these hours for sparsely populated areas (similar to the surrounding environment).

The Construction Noise and Vibration Management Plan would include the Out of Hours Works Protocol which would include processes for notification of impacted receivers, consultation, monitoring and mitigation processes.

The plan would be developed in consultation with EPA and the Department.

6. Updated commitments to mitigation

In response to the consultation activities and submissions, a number of commitments have been made as outlined in the EIS and in this report. Table 23 of the EIS summarises the potential environmental impacts which may arise as a result of the proposed development and, where relevant, identifies the mitigation measures that will be undertaken. These mitigation measures have been updated following the review of submissions and are presented in Table 7.

In addition a number of commitments have been made in relation to the Project. These commirments are summarised in Table 7 below, and detail the current and future commiments in relation to the project, particularly where the outcome is outside the control of the Proponent.

Table 7: Mitigation Measures

ID	ISSUE	MITIGATION MEASURE	TIMING
G1	Concept and Stage 1 Approval	The Stage 2 Project would be designed generally in accordance with the requirements detailed in Condition B2, Schedule 2 of the Stage 1 consent including gross floor area.	During detailed design.
C1	Communications	The Proponent will appoint a communications manager who will be the point of contact for the community during construction. It is noted that the community engagement manager is already engaged on Stage 1 of the project and will be responsible for administering a Community Communications Plan during construction.	Prior to Construction
C2	Communications	The Proponent will appoint a responsible officer who will be the point of contact for the community during operation.	Prior to Operation
C3	Communications	An Operational Management Plan will be developed that will include direct lines of communication with residents in the immediate surrounding area, and this plan will be developed in consultation with those residents. The plan will include security procedures in the event of emergency and protocols for notification of surrounding residents	Prior to Operation
C4	Communications	A community consultative committee would be established by the operator to facilitate management of work release minimum security inmates and to facilitate interaction with the surrounding community and the community of Grafton and the Clarence Valley.	During Operation
C4	Communications	The Proponent would develop the Construction Noise and Vibration Management Plan in consultation with the Community Consultative Committee and local residents prior to construction.	Prior to Construction
Co1	Construction Impacts	The Proponent will develop a Construction Environmental Management Plan (CEMP) for the project.	Prior to Construction

Co2	Construction Impacts	Should local worker participation targets not be met, the Proponent will develop a Short-Term Accommodation Strategy no later than 6 months post commencement of construction. The strategy would be developed in consultation with Clarence Valley Council and accommodation providers.	During Construction
CH1	Aboriginal heritage	The approved *Aboriginal Cultural Heritage Management Plan* (ACHMP) would be implemented for the duration of Stage 2 activities.	During Construction
CH2	Aboriginal heritage	The unexpected finds protocol as detailed in the ACHMP would continue to be implemented during site operations.	During Operations
CH3	Aboriginal heritage	A project specific Aboriginal Participation Program will be developed prior to commencement of construction that will target higher than 8% indigenous participation.	During Construction
CH4	Aboriginal heritage	An Operator's Reconciliation Action Plan will be developed to target 8% indigenous employment and develop partnerships with local indigenous representatives.	During Operation
CH5	Aboriginal heritage	An Aboriginal Cultural Working Group will be established to build productive partnerships with local industries, NGOs and service providers, traditional land owners and Aboriginal groups to promote regional economic and social development as well as rehabilitation and reintegration programs for inmates.	During Construction and Operation
CH6	Aboriginal heritage	The Project will Conduct quarterly Yarning Circles in order to encourage and support local Aboriginal participation in the workforce and develop strategies for ongoing incorporation of cultural programs into the operations of the facility	During Construction and Operation
Cu1	Cumulative impacts	The Project would continue to liaise with Pacific Complete during construction to manage impacts such as construction traffic and accommodation stress arising from non local workforce participation	During Construction
CT1	Contamination	A Construction Environmental Management Plan would be developed that includes an unexpected finds protocol and details of the site induction for unexpected finds during the earthworks phase.	Prior to Construction

WP1	Water Pollution	A final Recycled Water Management Plan (consistent with the Draft Recycled Water Management Plan- Appendix 3 of this Response to Submissions) would be developed prior to operation. The plan will outline: Processes for monitoring nutrients/ runoff and adaptive management of irrigation across the site	During Operation
WP2	Water Pollution	Chemicals and hydrocarbons will be maintained within bunded area(s) with impervious floors. Maintain spill kit(s) on site at all times, and ensure all staff are appropriately trained in their use. Storage of minor quantities of hazardous chemicals / fuels to be undertaken in accordance with AS1940 – The storage and handling of flammable and combustible liquids and AS3780-2008-The storage and handling of corrosive substances.	During Operation
WP3	Water Pollution	The Project will implement a stormwater management plan including measures to control and treat run-off and overflows in wet weather events.	During Operation
FFI	Flora and Fauna	A Landscape Management and Vegetation Restoration Plan will be prepared and implemented during Stage 2 works.	Construction
FF2	Flora and Fauna	Establishment of no-go zones, fencing and measures as per *Flora and Fauna Management Plan* developed for Stage 1 would be implemented for Stage 2 construction.	During Construction
FF3	Flora and Fauna	The Stage 2 Construction Environmental Management Plan will require all construction staff working on the project to be aware of the ecological sensitivity of the bushland in the site induction.	Prior to Construction
FF4	Flora and Fauna	The Project will locate temporary infrastructure (plant sites and construction offices, access tracks etc.) in cleared areas away from vegetation to minimise vegetation removal.	During Construction
FF5	Flora and Fauna	The Project will locate and upgrade any access tracks in a manner that minimises the removal of mature trees, hollow-bearing trees and dead trees.	During Construction
FF6	Flora and Fauna	The Project will accurately and clearly mark out the limits of clearing (where appropriate) and the trees/vegetation to be retained outside of the construction footprint.	Prior to Construction

FF7	Flora and Fauna	An experienced and licensed wildlife carer and/or ecologist is to inspect habitat should vegetation be removed (e.g. after a tree is felled). Animals that emerge would be captured, inspected for injury then relocated to predetermined habitat identified for fauna release. Suitable release sites are recommended in bushland to the west of the site.	During Construction
FF8	Flora and Fauna	Any uninjured nocturnal fauna encountered should be held in a dark, quiet, warm, well ventilated box or carrier for release the following night.	During Construction
FF9	Flora and Fauna	Wildlife Information, Rescue and Education Services (WIRES) Clarence Valley (Ph: 1300 094 737) should be consulted if any injured fauna are encountered.	During Construction
FF10	Flora and Fauna	Clearing would be restricted to the footprint required to deliver elements related to the Stage 2 application.	During Construction
S1	Soils	Soil water sensors would be employed in the WWTP irrigation area to ensure irrigation occurs only when the soil is dry enough to accept additional water, without runoff.	During Operation
S2	Soils	Where soil amelioration is recommended (such as the addition of calcium, gypsum or lime) proposed treatment and amelioration will be undertaken in consultation with an appropriately qualified professional.	During Operation
S3	Soils	The Construction Environmental Management Plan will include erosion and sedimentation plans that would be prepared and implemented during the construction program.	During Construction
S4	Soils	Stabilised exposed surfaces as soon as practicable.	During Construction
O1	Odour	Odour emissions to meet appropriate NSW guidelines at sensitive receptors (*Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (DEC, 2005).	During Operations
O2	Odour	The following approach will be utilised during detailed design to assess potential odour emission from the proposed sewage treatment plant, and allow design to be completed so as to meet the odour criteria in O2:	During detail design

O3	Odour	The following approach will be utilised during detailed design to assess potential odour emission from the proposed sewage treatment plant, and allow design to be completed so as to meet the odour criteria in O2: - Utilise meteorology generated for the study area; - Estimate odour emissions based on similar capacity facilities; - Model odour emission estimates utilising the CALPUFF dispersion model onto the surrounding environment; and Compare the results of dispersion modelling to the criteria for complex odours and Recommend odour controls if required.	During detail design
O4	Odour	Where required, WWTP tanks would be enclosed or located within a larger shed, and fitted with odour extraction and scrubbing systems avoiding odour emissions.	During detailed design
G1	Groundwater	A groundwater extraction licence would be obtained should groundwater be required for construction and/or operational activities	During Construction
B1	Bushfire Hazard	A 100 m wide APZ will be constructed around the secure perimeter of the maximum and minimum security facilities and maintained	During detailed design
B2	Bushfire Hazard	Construction of external access and internal access roads would provide safe operational access into the site and around the outside of the APZ.	During Construction
B3	Bushfire Hazard	A fire water supply system is to be provided during construction and operation of the correction centre. Water supplies will be provided via a 20,000 L water tank and pump. This will be replaced during operations by a series of stand pipes located at about 200 m intervals along the APZ access track. Electricity and any gas services will be located safely.	Prior to Operation
B4	Bushfire Hazard	The Stage 1 Bushfire Management Plan would be updated to incorporate emergency management procedures for Stage 2.	Prior to Construction
B5	Bushfire Hazard	The Operational Management Plan will include emergency management and response procedures, developed in consultation with service providers.	Prior to Operation
B7	Bushfire Hazard	The Construction Environmental Management Plan will include safe hot work procedures to manage the risk of bushfire ignitions from sparks and naked flames.	Prior to Construction

B8	Bushfire Hazard	Flammable and other hazardous will be stored safely to control risks associated with their ignition during a bushfire event.	During Construction
I1	Biting Insects	The Project would implement the following during detailed design to manage biting insects: - drainage paths will be designed with profiles and fall to limit any water retention; - insect screens will be provided to minimum security Residential Buildings; -buildings will incorporate air conditioning to spaces that are mainly occupied with the exception of cells where 'tempered air', i.e. the introduction of cooling when higher ambient temperatures are experienced, will be provided. Stores, plant rooms and other generally un-inhabited spaces will not be air conditioned.	During Detailed Design
I2	Biting Insects	The Project would implement the following management measures during construction to manage biting insects: -disperse water held in depressions and drainage structures; -issue appropriate clothing for those working where high concentration of pests; - issue insect repellents;	During Construction
I3	Biting Insects	The Project would implement the following management measures during operations to manage biting insects: -Regular maintenance of grounds, including irrigation areas and stormwater swales, to limit the build-up of organic matter/dead vegetation and prevent/remove stagnant water (particularly after rainfall) and providing suitable clothing for staff and inmates for outdoor works to protect against biting insects;	During Operations
I4	Biting Insects	The use of pesticides to control biting insects would only be by exception under strict advice and control to prevent contamination of the adjacent Wetlands area.	During Operations
I5	Biting Insects	Supply air to air-conditioning and for ventilation will generally be filtered and this will limit ingress of biting insects.	During detailed design

NV1	Noise and Vibration	A Construction Noise and Vibration Management Plan would be implemented as part of Stage 2 works and be developed in accordance with the *Interim Construction Noise Guideline, Department of Environment and Climate Change (DECC), 2009.*	Prior to Construction
NV2	Noise and Vibration	Consultation and notification of works for nearest receivers would occur as per the site communications plan. Notification will identify works proposed, duration and potential mitigation measures.	During Construction
NV3	Noise and Vibration	Any proposed out of hours works would be: a. Assessed to determine if there are any impacts at nearest receivers. b. If works are likely to be audible, residents would be consulted on likely impacts, proposed mitigation and management measures. Monitoring of noise impacts would occur to verify predictions.	During Construction
NV4	Noise and Vibration	An Operational Management Plan will be prepared including procedures for managing noise and noise complaints	Prior to Operation
NV5	Noise and Vibration	During commissioning, the noise levels of speakers will be checked to ensure compliance with the operational noise criteria.	Prior to Operation
T1	Traffic	The Stage 1 Construction Traffic and Pedestrian Management Plan would be updated finalised and implemented for Stage 2 works consistent with the document detailed in the EIS.	Prior to Construction
T2	Traffic	The findings of any road safety audits required for Stage 2 works would be implemented.	Prior to Construction
T3	Traffic	The Construction Traffic and Pedestrian Management Plan will contain a direction for all staff and contractors and all deliveries to access the site via Eight Mile Lane and Avenue Road.	Prior to Construction
T4	Traffic	Stock route signs would be installed along Avenue Road	Prior to construction
T5	Traffic	Staff will be required to access the site via Eight Mile Land and the Avenue (where this presents the most direct route to site) as part of their Work Health and Safety Requirements.	During Operations

T6	Traffic	The Construction Traffic Plan is to include measures to mitigate impacts on stock movements including: Liaising with permit holders regularly to be informed in advance of intended stock movements. - Notification to staff, sub-contractors and deliveries of stock movement time and location (this will be done through either email or text message notification depending on the amount of prior notice). - Education of site staff and sub-contractors of the stock movement protocols during site inductions . - Liaison with neighbours during times of flood to determine whether stock movements will be undertaken and management of construction traffic to accommodate these stock movements	During Construction
T7	Traffic	An operations traffic management plan would be developed and include measures to manage stock movements including: - Liaising with permit holders to be informed in advance of intended stock movements. - Induction of staff to include stock movement education and recommendations for safe driving during these times. - Notification to staff either by text message or email of intended stock movement. If this is to occur during or close to a shift changeover time, staff are to be advised to allow additional travel time. - Notification to staff that during times of flood to expect stock movements. Notification to visitors that the NGCC is located on a stock movement route and that care and patience should be exercised when visiting the centre. - This information will be provided to visitors upon making an appointment for a visit.	Prior to Operation
T8	Traffic	Sufficient Parking would be provided to meet operational needs with overflow parking provided.	Prior to Operation
T9	Traffic	Visitor information packages and the facility website would clearly show location of the correctional centre and nominated routes to the site.	Prior to Operation
T10	Traffic	The entry to the facility to be clearly signposted.	Prior to Operation

T11	Traffic	Directional signage to the centre will be provided from Eight Mile Lane.	Prior to Operation
WWTP1	Waste water treatment plant - General	The Project would Implement a risk assessment register in line with the *Draft Recycled Water Management Plan* (Appendix 3).	Prior to Operation
WWTP2	Waste water treatment plant - General	The Operational Management Plan would include measures for management of the WWTP as outlined in the *Draft Recycled Water Management Plan* (Appendix 3) technical paper	Prior to Operation
WWTP3	Waste water treatment plant - General	A Complaints register would be maintained and the site would act on complaints as soon as received.	During Operation
WWTP4	Waste water treatment plant - General	An appropriately sized Spill kit will be available in WWTP enclosure.	Prior to Operation
WWTP5	Waste water treatment plant - General	The design and operation of WWTP elements would incorporate the following measures: - Online continuous oxygen meter or regular manual testing of dissolved oxygen for anoxic / anaerobic tanks; - Online continuous oxygen meter for aerobic tank; - Automatic controller linked to PLC; - Daily visual inspections of all system components to ensure they are working effectively and excessive noise is not being generated. Ensure that pumps are working effectively and no blockages or pump failures have occurred. - Regular sludge depth measurements in first two years, frequency afterwards to be determined based on initial de-sludging rate. - Regularly review operational parameters (recycle, wasting rate, oxygen transfer) to ensure processes are occurring as required. - Preventative maintenance	During detailed design
WWTP6	Waste water treatment plant - General	All staff contacting sewage to have appropriate training, PPE and vaccination shots. No public access.	During Operations

WWTP7	Waste water treatment plant - Recycled water	The WWTP would utilise a triple barrier disinfection system, with redundant systems for essential plant elements and include the following: - Implement initial validation and ongoing verification program. Emergency storage and wet weather storage for off-specification water. - Broad scale irrigation for irrigation of off-specification water intended for the dual reticulation system. - Water Management Control System in place to control water usage if required.	Detailed design
WWTP8	Waste water treatment plant – Recycled water	The WWTP would utilise the following for management of recycled water: - Visual inspections of pond system would occur generally monthly and immediately before and after rainfall. - Include overflow points and drainage structures to ensure that overflows are unlikely to occur, that diversion structures are working correctly and that sufficient freeboard is available and erosion is not occurring. - Utilise irrigation scheduling to draw down the lagoon prior to forecast storm or wet periods, and following wet periods (soil moisture monitors to be utilised to avoid over watering) - Utilise licensed contractors to remove liquid in pond prior to any overflows occurring. - A pond management plan for algae control (and other components). - Preventative maintenance.	During Operation
WWTP9	Hazardous materials	The Project will implement a Hazardous Materials Management Plan to manage hazardous materials as part of the Wastewater treatment plant.	Prior to Operation

WWTP10	Waste water treatment plant - Irrigation areas	The WWTP would utilise the following for management of irrigation areas: - Maintain MEDLI model (or similar) for irrigation areas, and calibrate against application rates and soil data to enable long term planning. - Utilise soil water monitors and irrigation controllers to ensure adequate but not excessive watering of soils. - Monthly visual inspections to be undertaken of supply infrastructure. - Monthly visual inspections of irrigation area infrastructure and runoff locations especially discharge points. - 6-monthly sampling of soils for signs of impacts from irrigation for first 2 years, annually thereafter. - No public or staff access to surface irrigation areas until sufficient withholding time (at least 4 hours) after irrigation. - Similar withholding time for livestock access. Preferably no access. If livestock are to access irrigation area, design system to withstand or avoid livestock damage, and WWTP to be specifically design to remove pathogens of concern for livestock (e.g. helminths and other parasites – note MBR / UV / chlorine disinfection should be sufficient) - Carry out preventative maintenance.	During Operation
WWTP11	Water Reuse	The following irrigation requirements would be adopted for the facility: - A 14 ha irrigation area with a 45ML storage; and - an additional 28.5 ha reserve area to manage rare events	During Operations
AM1	Amenity	The Project will prepare 1, 5 and 10 year post occupation reviews of the NGCC to determine economic impact of the facility on the local area as well as a review of crime and safety indices.	During Operations
V1	Visual impact	The Project would implement landscape buffer screening to the North of 50m, 30m to the South and 15m to the East as per the Stage 1 consent. Minor amendments to the Northern Boundary planting density may occur following consultation with directly impacted residents.	During Construction
V2	Visual impact	Additional planting and tree retention would occur towards the periphery of the site and away from the APZ.	During Construction
V3	Visual impact	Building materials and colours would be designed to be sympathetic to rural location.	During detailed design

L1	External lighting	External lighting would be designed to comply with Australian Standard, AS4282, "Control of the Obtrusive Effects of Outdoor Lighting"	During detailed design
L2	External lighting	Luminaires would be designed and controlled to minimise light spill.	During detailed design
AF1	Amenity - Farming Practices	The operations management plans for the site would include provision for maintenance in accordance with sound rural practices including: - Management of noxious weeds; - Pest management; Feral animal management.	During Operations
ESD1	Ecologically Sustainable Development	- The following measures would be employed in detailed design to minimise consumption of resources, water and energy: - Water efficient fixtures, fittings and practices; - Energy and water efficient equipment; - Wastewater treatment and reuse on site; - Water Metering; - Naturally ventilated spaces; - Provision to accept site based renewable energy in the future; - Efficent building management systems and equipment, including lighting - Passive design elements such as building orientation, external shading, appropriate, use of thermal mass, performance glazing, thermal efficiency of building fabric;	During detailed design
F1	Flood Management	The Operational Management Plan will include contingency measures for site access and management during times of flood. These plans and procedures would be tested annually.	During Operations
EC1	Economic Impacts	Prepare 1, 5 and 10 year post occupation reviews of the NGCC to determine economic impact of the facility on the local area as well as a review of crime and safety indices.	During Operations
EC2	Economic Impacts	The Project will participate in the Clarence Valley RoundTable during construction and develop: - Project Social pages to provide project updates. - Information for business to promote engagement directly of local suppliers.	During Construction

BP1	Concrete Batching	The batch plant will be set up on hardstand and will contain dust mitigation measures such as filters for the silos, water sprays for aggregate stockpiles and a hardstand base.	Prior to Construction
BP2	Concrete Batching	Access and exit routes for heavy transport vehicles required to service the concrete batching facilities would be via Eight Mile Lane and The Avenue.	During Construction
BP3	Concrete Batching	Shut-off valves to avoid spillage during any stage of the operations would be employed	During Construction
BP4	Concrete Batching	Air filter systems would be employed along with best practice maintenance controls such as air tight connections and valve systems.	During Construction
BP5	Concrete Batching	Batch plant locations would be bunded and drained to detention ponds to collect flows and reduce the likelihood of runoff from site.	During Construction
BP6	Concrete Batching	Operations would be monitored to ensure no runoff from site occurs from activities	During Construction
BP7	Concrete Batching	Regularly maintain and inspect all runoff areas and ponds and repair or de-silt where necessary after severe rainfall to ensure they are in working order.	During Construction
BP8	Concrete Batching	Designated areas for plant and construction material storage and provide cut-off drains to ensure runoff from upstream areas is diverted around the site.	During Construction
BP9	Concrete Batching	Fuel / chemical areas to be bunded and prompt clean-up of spills.	During Construction
BP10	Concrete Batching	The batch plant would be regularly inspected and tested to ensure the emission levels do not deteriorate over the life of the project and levels at the nearest impacted do not exceed ICNG requirements.	During Construction
BP11	Concrete Batching	Minimise drop heights between conveyors.	During Construction
BP12	Concrete Batching	Bag fills in batch plants would not be filled to the top of the silos.	During Construction
BP13	Concrete Batching	Regularly maintain and service all operational plant and equipment to ensure optimum performance and reduce the potential for emissions.	During Construction

Table 7: Project Commitments

ID	ITEM	PROPOSED BENEFIT	TIMING
PC1	Construction impacts	The Project's Community Consultative Committee will monitor impacts of construction activities on local residents during construction	During Construction
PC2	Bus service	The Proponent will work with Transport for NSW regarding provision of a bus service to the correctional facility for visitors to inmates. Information will be provided to visitors to help them plan and manage their visits to the centre.	Prior to Operation
PC3	Employment during Construction	The following activities and measures will be implemented in relation to employment during construction: • Partner with TAFE NSW and employment providers to ensure courses for qualification and accreditations are widely known amongst potential job-seekers. • Develop a public construction calendar to provide information and advanced notice of skills and qualifications required and upcoming procurement packages. • Prioritise early information for local businesses of quantities of goods required (in order for businesses to pool resources or build consortiums). • Participate in the Clarence Valley Round Table to provide information regarding tenders, jobs and supplies required for construction.	During Construction
PC4	Employment during Construction	Target 80% workforce from local area.	During Construction
	Aboriginal Participation	Develop a specific Aboriginal Participation in Construction Plan to achieve higher than 8% targets for Indigenous employment.	Prior to Construction
	Aboriginal Participation	Work with Indigenous representatives from the local TAFE and Community Colleges to design and prepare job descriptions and induction training manuals that outline the cultural significance of local Aboriginal communities as well as the Aboriginal significance of the site, for the construction of the correctional centre.	During Construction

ID	ITEM	PROPOSED BENEFIT	TIMING
		Regular Yarning Circles with local indigenous leaders will also discuss Aboriginal Participation targets and how the project is achieving and supporting these.	
	Accmodation impacts	Creation of a rental directory and liaison with existing accommodation providers to identify accommodation provisions for workers (should local employment targets not be met).	
	Community contributions	NorthernPathways will work with the nearby large infrastructure project teams, to coordinate community contribution projects. These could include community picnics, sporting events and open days, the Jacaranda Festival and concerts. The coordinated contributions will also assist in engaging with the community about the progress of the major infrastructure projects.	
PC7	Construction operations	The Project would investigate feasibility and interest from workforce and subcontractors on provision of bus services to site during key construction periods.	During Construction
PC8	Inmate Release	Work with local welfare and charitable services to establish appropriate case planning for inmates to ensure needs will be appropriately met upon release.	During Operation
PC9	Visitor support	Work with local welfare and charitable services to establish communications strategies to engage visitors to the correctional centre who may require support services when visiting the centre.	During Operation
PC10	Contribution to local area	Work with local welfare, charitable services and the Clarence Youth Action Group to identify contributions that can be made to the local area in relation to volunteer programs and youth activity programs.	During Operation
PC11	Provision of health services	Engage with Northern NSW Local Health Service to identify roles and responsibilities for inmate emergency care procedures.	Prior to Operation
PC12	Sharing health resources	Liaise with Northern NSW Local Health Service regarding potential part time employment (job-share) opportunities for medically trained staff that will be	During Operation

ID	ITEM	PROPOSED BENEFIT	TIMING
		employed at the correctional centre.	
PC13	Inmate release	Continue to engage with the Grafton Community Corrections Office to develop strategies for probation and parole services.	Prior to Operation
PC14	Security management	Continue to liaise with Grafton Police to develop strategies for incident management and inmate transport.	Prior to Operation
PC15	Contribution to local area	Northern Pathways will join Grafton Chamber of Commerce (as corporate member).	During Construction and During Operation
PC16	Aboriginal Participation	Develop a plan that implements the operator's Reconciliation Action Plan and meets the 8% Indigenous employment target	Prior to Operation
PC17	Aboriginal Participation	Work with Indigenous groups to monitor and update Inmate Rehabilitation and Reintegration Programs	During Operation
	Aboriginal Participation	Develop a program for the provision of inmate art through the engagement with Clarence Valley Council's Cultural Committee and regional art galleries. Continue liaison with local Aboriginal leaders and groups through Yarning Circles to ensure ongoing input to the design and implementation of culturally appropriate programs within the facility promoting culture, art, language and country.	During Operation
	Aboriginal Participation	Work with Indigenous representatives from the local TAFE and Community Colleges to design and prepare job descriptions and induction training manuals that outline the cultural significance of local Aboriginal communities as well as the Aboriginal significance of the site, for the operation of the correctional centre.	Prior to Operation

APPENDICES

Appendix 1 Phase Two EIS Exhibition Period Engagement – Outcomes Report

Appendix 2 Swept Paths

Appendix 3 Amended Recycled Water Management Plan

Appendix 4 Recycled Wastewater Management Drawings

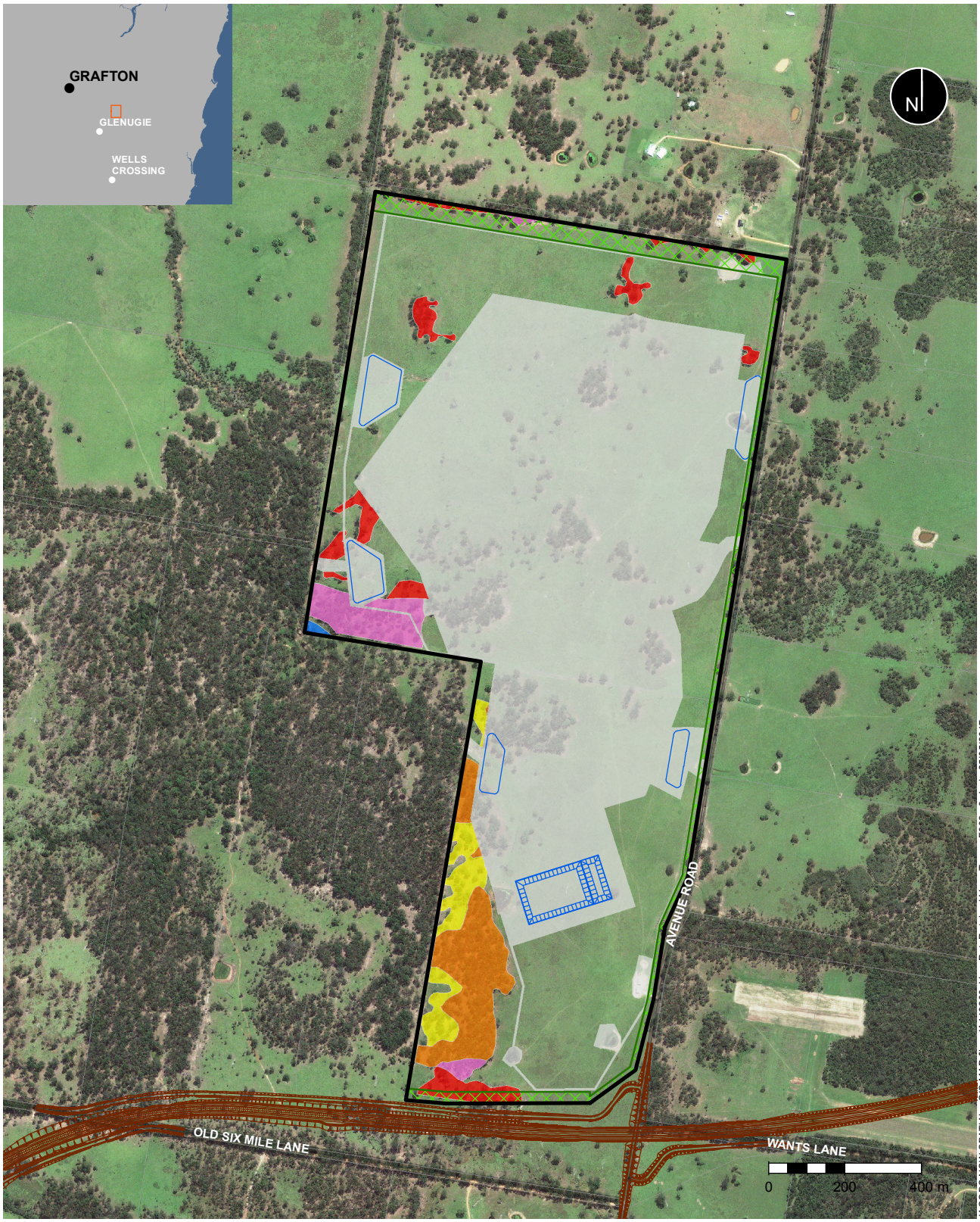
Appendix 5 Additional Soils Investigations

Appendix 6 Updated Aboriginal Cultural Heritage Management Plan

Appendix 7 Updated Infrastructure Management Plan

Appendix F

Vegetation Retention, Habitat Trees & Nestbox Locations

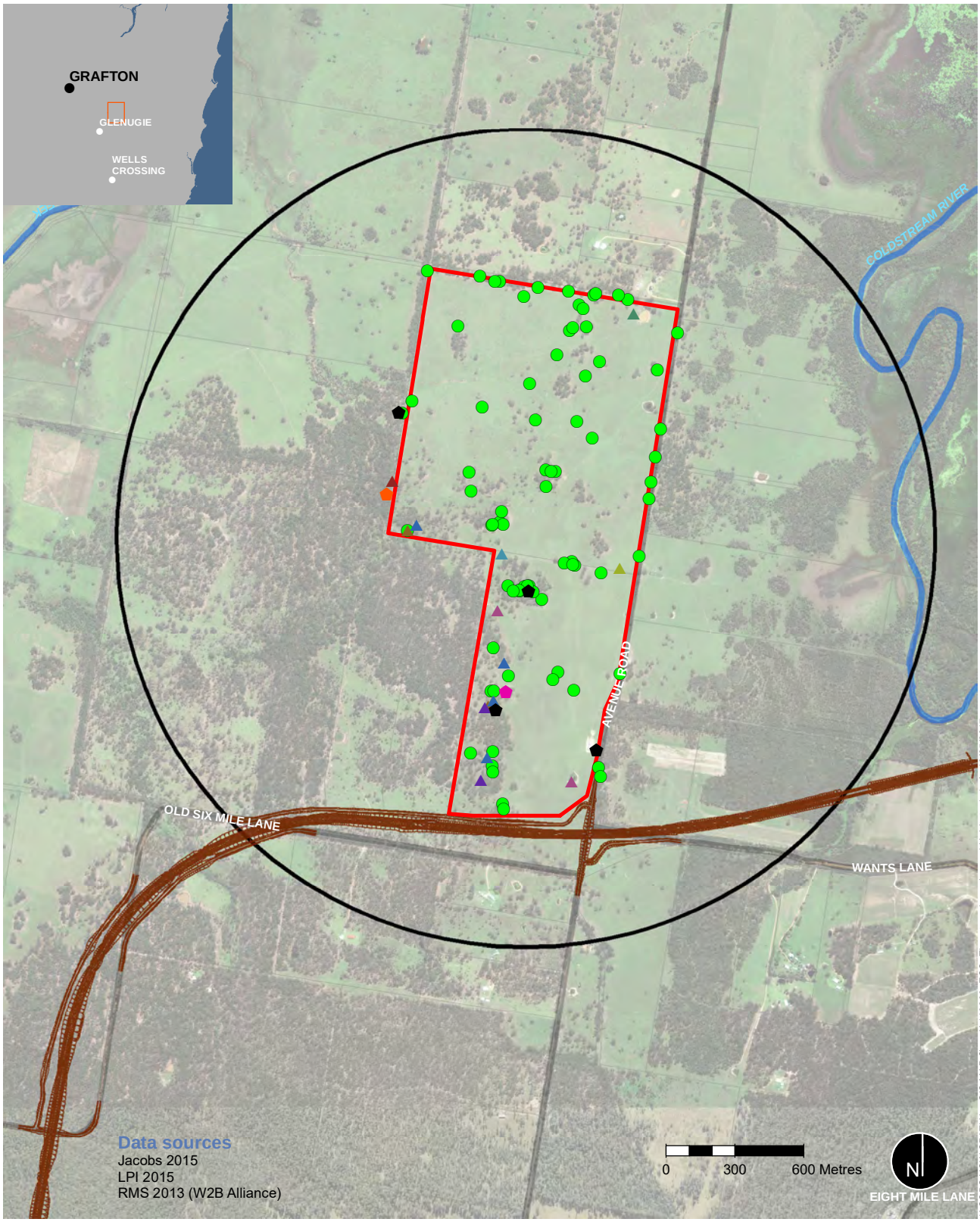


Legend

- The Project Site
- Detention Basins
- Pacific Highway Upgrade alignment
- Vegetation Buffer
- NR161_Good/Moderate (Poor), Forest Red Gum - Swamp Box of the Clarence Valley lowlands of the NSW North Coast Bioregion
- NR244_Good/Moderate (Medium), Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the North Coast
- NR244_Good/Moderate (Poor), Spotted Gum - Grey Box - Grey Ironbark dry open forest of the Clarence Valley lowlands of the North Coast
- NR246_Good/Moderate (Medium), Spotted Gum - Grey Ironbark - Pink Bloodwood open forest of the Clarence Valley lowlands of the North Coast
- NR246_Good/Moderate (Poor), Spotted Gum - Grey Ironbark - Pink Bloodwood open forest of the Clarence Valley lowlands of the North Coast

Data sources
Jacobs 2017
LPI 2016
RMS 2013 (W2B Alliance)

Figure 1 | Vegetation Retention



Legend

- The Project
- Pacific Highway Upgrade alignment
- Inner assessment circle
- Hollow trees and stags

Migratory Species

- Black-necked Stork
- Rainbow Bee-eater
- Satin Flycatcher

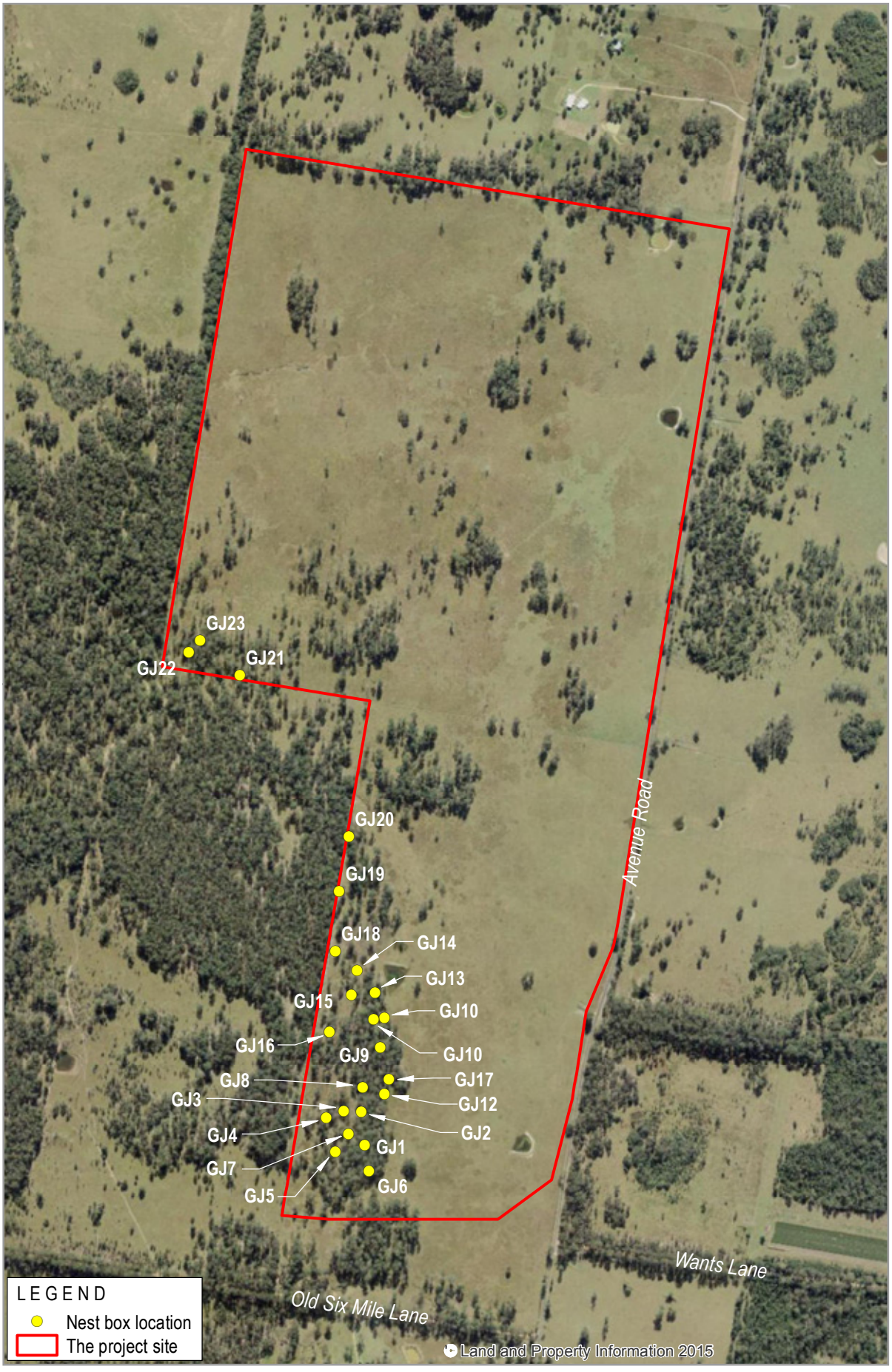
Threatened Species

- Brolga
- Brown Tree-creeper
- Glossy Black-cockatoo (chewed cones)
- Grey-crowned Babbler
- Grey-headed Flying Fox
- Little Bent-wing Bat
- Little Lorikeet
- Rufous Bettong

Figure 5-4 | Recorded threatened species, migratory species and habitat values on the Project Site

Information shown is for illustrative purposes only

Drawn by: GJM Checked by: DSA Reviewed by: GJM Date: 25/07/2017
Source of base data: SIX Maps



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North

Grafton Jail - Nest Box Locations

Appendix G

BioNET and PMST Database Search Results

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) Plants in selected area [North: -29.69 West: 153.01 East: 153.11 South: -29.79] returned a total of 37 records of 5 species.
Report generated on 14/02/2018 4:13 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Plantae	Flora	Ericaceae	9428	*Melichrus hirsutus*		Hairy Melichrus	E1,P	E	2	
Plantae	Flora	Juncaginaceae	3363	*Maundia triglochinoides*			V,P		13	
Plantae	Flora	Myrtaceae	8724	*Angophora robur*		Sandstone Rough-barked Apple	V,P	V	6	
Plantae	Flora	Myrtaceae	4193	*Eucalyptus tetrapleura*		Square-fruited Ironbark	V,P	V	1	
Plantae	Flora	Myrtaceae	4255	*Melaleuca irbyana*		Weeping Paperbark	E1,P		15	

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) Communities in selected area [North: -29.69 West: 153.01 East: 153.11 South: -29.79] returned 0 records for 9 entities.
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Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Community				*Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion*		Coastal Cypress Pine Forest in the New South Wales North Coast Bioregion	E3		K	
Community				*Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*		Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	V	K	

Community	*Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3		K	
Community	*Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	CE	K	
Community	*Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions*	Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	E3	CE	K	
Community	*Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion*	Lowland Rainforest on Floodplain in the New South Wales North Coast Bioregion	E3	CE	K	

Community	*Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion*	Subtropical Coastal Floodplain Forest of the New South Wales North Coast Bioregion	E3	K	
Community	*Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions*	Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	E3	K	
Community	*Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions*	Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	E3	K	

Data from the BioNet BioNet Atlas website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions. Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1Â°; ^^ rounded to 0.01Â°). Copyright the State of NSW through the Office of Environment and Heritage. Search criteria : Public Report of all Valid Records of Threatened (listed on TSC Act 1995) Animals in selected area [North: -29.69 West: 153.01 East: 153.11 South: -29.79] returned a total of 439 records of 37 species.
Report generated on 14/02/2018 4:15 PM

Kingdom	Class	Family	Species Code	Scientific Name	Exotic	Common Name	NSW status	Comm. status	Records	Info
Animalia	Amphibia	Myobatrachidae	3137	*Crinia tinnula*		Wallum Froglet	V,P		2	
Animalia	Amphibia	Hylidae	3169	*Litoria brevipalmata*		Green-thighed Frog	V,P		2	
Animalia	Aves	Casuariidae	0001	*Dromaius novaehollandiae*		Emu population in the New South Wales North Coast Bioregion and Port Stephens local government area	E2,P		67	
Animalia	Aves	Anseranatidae	0199	*Anseranas semipalmata*		Magpie Goose	V,P		6	
Animalia	Aves	Ciconiidae	0183	*Ephippiorhynchus asiaticus*		Black-necked Stork	E1,P		62	
Animalia	Aves	Accipitridae	0218	*Circus assimilis*		Spotted Harrier	V,P		1	
Animalia	Aves	Accipitridae	0226	*Haliaeetus leucogaster*		White-bellied Sea-Eagle	V,P	C	3	
Animalia	Aves	Accipitridae	0230	^^*Lophoictinia isura*		Square-tailed Kite	V,P,3		1	
Animalia	Aves	Gruidae	0177	*Grus rubicunda*		Brolga	V,P		8	

Animalia	Aves	Burhinidae	0174	*Burhinus grallarius*	Bush Stone-curlew	E1,P		14
Animalia	Aves	Jacanidae	0171	*Irediparra gallinacea*	Comb-crested Jacana	V,P		3
Animalia	Aves	Cacatuidae	0265	*^Calyptorhynchus lathami*	Glossy Black-Cockatoo	V,P,2		11
Animalia	Aves	Psittacidae	0260	*Glossopsitta pusilla*	Little Lorikeet	V,P		22
Animalia	Aves	Psittacidae	0309	*^^Lathamus discolor*	Swift Parrot	E1,P,3	CE	2
Animalia	Aves	Strigidae	0246	*^^Ninox connivens*	Barking Owl	V,P,3		1
Animalia	Aves	Strigidae	0248	*^^Ninox strenua*	Powerful Owl	V,P,3		3
Animalia	Aves	Tytonidae	0250	*^^Tyto novaehollandiae*	Masked Owl	V,P,3		4
Animalia	Aves	Climacteridae	8127	*Climacteris picumnus victoriae*	Brown Treecreeper (eastern subspecies)	V,P		20
Animalia	Aves	Acanthizidae	0504	*Chthonicola sagittata*	Speckled Warbler	V,P		1
Animalia	Aves	Meliphagidae	8303	*Melithreptus gularis gularis*	Black-chinned Honeyeater (eastern subspecies)	V,P		18
Animalia	Aves	Pomatostomidae	8388	*Pomatostomus temporalis temporalis*	Grey-crowned Babbler (eastern subspecies)	V,P		26
Animalia	Aves	Artamidae	8519	*Artamus cyanopterus cyanopterus*	Dusky Woodswallow	V,P		4
Animalia	Aves	Estrildidae	0652	*Stagonopleura guttata*	Diamond Firetail	V,P		7

Animalia	Mammalia	Dasyuridae	1008	*Dasyurus maculatus*	Spotted-tailed Quoll	V,P	E	3	
Animalia	Mammalia	Dasyuridae	1017	*Phascogale tapoatafa*	Brush-tailed Phascogale	V,P		19	
Animalia	Mammalia	Phascolarctidae	1162	*Phascolarctos cinereus*	Koala	V,P	V	5	
Animalia	Mammalia	Petauridae	1136	*Petaurus australis*	Yellow-bellied Glider	V,P		8	
Animalia	Mammalia	Petauridae	1137	*Petaurus norfolcensis*	Squirrel Glider	V,P		5	
Animalia	Mammalia	Potoroidae	1187	*Aepyprymnus rufescens*	Rufous Bettong	V,P		69	
Animalia	Mammalia	Pteropodidae	1280	*Pteropus poliocephalus*	Grey-headed Flying-fox	V,P	V	16	
Animalia	Mammalia	Emballonuridae	1321	*Saccolaimus flaviventris*	Yellow-bellied Sheathtail-bat	V,P		2	
Animalia	Mammalia	Molossidae	1937	*Mormopterus lumsdenae*	Northern Free-tailed Bat	V		1	
Animalia	Mammalia	Molossidae	1329	*Mormopterus norfolkensis*	Eastern Freetail-bat	V,P		6	
Animalia	Mammalia	Vespertilionidae	1354	*Chalinolobus nigrogriseus*	Hoary Wattled Bat	V,P		8	
Animalia	Mammalia	Vespertilionidae	1346	*Miniopterus australis*	Little Bentwing-bat	V,P		3	
Animalia	Mammalia	Vespertilionidae	1357	*Myotis macropus*	Southern Myotis	V,P		2	
Animalia	Mammalia	Vespertilionidae	1361	*Scoteanax rueppellii*	Greater Broad-nosed Bat	V,P		4	

EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information is available about Environment Assessments and the EPBC Act including significance guidelines, forms and application process details.

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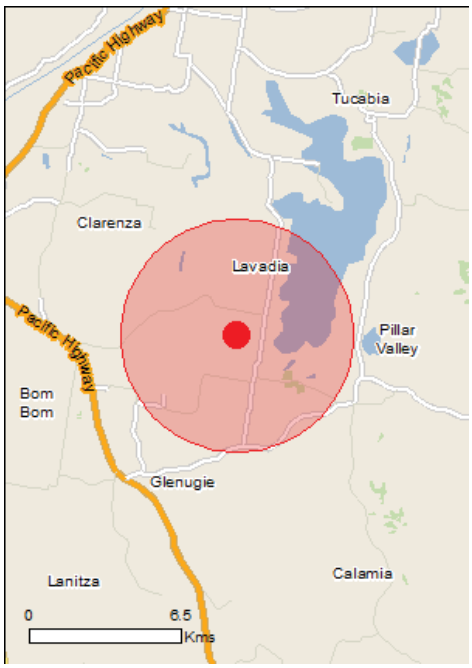

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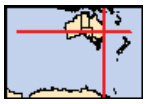

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Importance:	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	None
Listed Threatened Ecological Communities:	3
Listed Threatened Species:	30
Listed Migratory Species:	16

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Land:	1
Commonwealth Heritage Places:	None
Listed Marine Species:	23
Whales and Other Cetaceans:	None
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Commonwealth Reserves Marine:	None

Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

State and Territory Reserves:	None
Regional Forest Agreements:	1
Invasive Species:	33
Nationally Important Wetlands:	1
Key Ecological Features (Marine)	None

Details

Matters of National Environmental Significance

Listed Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Coastal Swamp Oak (Casuarina glauca) Forest of New South Wales and South East Queensland ecological community	Endangered	Community may occur within area
Lowland Rainforest of Subtropical Australia	Critically Endangered	Community may occur within area
White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland	Critically Endangered	Community may occur within area

Listed Threatened Species [Resource Information]

Name	Status	Type of Presence
Birds		
Anthochaera phrygia Regent Honeyeater [82338]	Critically Endangered	Species or species habitat likely to occur within area
Botaurus poiciloptilus Australasian Bittern [1001]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Dasyornis brachypterus Eastern Bristlebird [533]	Endangered	Species or species habitat likely to occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	Species or species habitat likely to occur within area
Grantiella picta Painted Honeyeater [470]	Vulnerable	Species or species habitat may occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Turnix melanogaster Black-breasted Button-quail [923]	Vulnerable	Species or species

Name	Status	Type of Presence
		habitat may occur within area
Frogs		
Mixophyes iteratus Giant Barred Frog, Southern Barred Frog [1944]	Endangered	Species or species habitat may occur within area
Insects		
Argynnis hyperbius inconstans Australian Fritillary [88056]	Critically Endangered	Species or species habitat may occur within area
Mammals		
Chalinolobus dwyeri Large-eared Pied Bat, Large Pied Bat [183]	Vulnerable	Species or species habitat likely to occur within area
Dasyurus maculatus maculatus (SE mainland population) Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184]	Endangered	Species or species habitat likely to occur within area
Petauroides volans Greater Glider [254]	Vulnerable	Species or species habitat known to occur within area
Petrogale penicillata Brush-tailed Rock-wallaby [225]	Vulnerable	Species or species habitat may occur within area
Phascolarctos cinereus (combined populations of Qld, NSW and the ACT) Koala (combined populations of Queensland, New South Wales and the Australian Capital Territory) [85104]	Vulnerable	Species or species habitat known to occur within area
Potorous tridactylus tridactylus Long-nosed Potoroo (SE mainland) [66645]	Vulnerable	Species or species habitat may occur within area
Pseudomys novaehollandiae New Holland Mouse, Pookila [96]	Vulnerable	Species or species habitat likely to occur within area
Pteropus poliocephalus Grey-headed Flying-fox [186]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Plants		
Angophora robur Sandstone Rough-barked Apple [56088]	Vulnerable	Species or species habitat likely to occur within area
Cynanchum elegans White-flowered Wax Plant [12533]	Endangered	Species or species habitat may occur within area
Dichanthium setosum bluegrass [14159]	Vulnerable	Species or species habitat likely to occur within area
Macadamia integrifolia Macadamia Nut, Queensland Nut Tree, Smooth-shelled Macadamia, Bush Nut, Nut Oak [7326]	Vulnerable	Species or species habitat may occur within area
Macadamia tetraphylla Rough-shelled Bush Nut, Macadamia Nut, Rough-shelled Macadamia, Rough-leaved Queensland Nut [6581]	Vulnerable	Species or species habitat likely to occur within area
Marsdenia longiloba Clear Milkvine [2794]	Vulnerable	Species or species habitat likely to occur within area
Phaius australis Lesser Swamp-orchid [5872]	Endangered	Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Thesium australe		
Austral Toadflax, Toadflax [15202]	Vulnerable	Species or species habitat likely to occur within area
Tylophora woollsii		
[20503]	Endangered	Species or species habitat likely to occur within area
Reptiles		
Saiphos reticulatus		
Three-toed Snake-tooth Skink [88328]	Vulnerable	Species or species habitat may occur within area

Listed Migratory Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Migratory Marine Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat known to occur within area
Monarcha melanopsis		
Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus		
Spectacled Monarch [610]		Species or species habitat known to occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca		
Satin Flycatcher [612]		Species or species habitat likely to occur within area
Rhipidura rufifrons		
Rufous Fantail [592]		Species or species habitat known to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within

Name	Threatened	Type of Presence
		area
Numenius madagascariensis		
Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus		
Osprey [952]		Species or species habitat likely to occur within area
Tringa nebularia		
Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Commonwealth Land [Resource Information]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

Name
Commonwealth Land - Airservices Australia

Listed Marine Species [Resource Information]

* Species is listed under a different scientific name on the EPBC Act - Threatened Species list.

Name	Threatened	Type of Presence
Birds		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anseranas semipalmata		
Magpie Goose [978]		Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardea alba		
Great Egret, White Egret [59541]		Breeding known to occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat likely to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area
Cuculus saturatus		
Oriental Cuckoo, Himalayan Cuckoo [710]		Species or species habitat may occur within area

Name	Threatened	Type of Presence
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat known to occur within area
Lathamus discolor Swift Parrot [744]	Critically Endangered	Species or species habitat known to occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Monarcha melanopsis Black-faced Monarch [609]		Species or species habitat known to occur within area
Monarcha trivirgatus Spectacled Monarch [610]		Species or species habitat known to occur within area
Motacilla flava Yellow Wagtail [644]		Species or species habitat may occur within area
Myiagra cyanoleuca Satin Flycatcher [612]		Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Pandion haliaetus Osprey [952]		Species or species habitat likely to occur within area
Rhipidura rufifrons Rufous Fantail [592]		Species or species habitat known to occur within area
Rostratula benghalensis (sensu lato) Painted Snipe [889]	Endangered*	Species or species habitat likely to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat may occur within area

Extra Information

Regional Forest Agreements [Resource Information]

Note that all areas with completed RFAs have been included.

Name	State
North East NSW RFA	New South Wales

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Birds		
Anas platyrhynchos Mallard [974]		Species or species habitat likely to occur within area
Carduelis carduelis European Goldfinch [403]		Species or species habitat likely to occur within area
Columba livia Rock Pigeon, Rock Dove, Domestic Pigeon [803]		Species or species habitat likely to occur within area
Lonchura punctulata Nutmeg Mannikin [399]		Species or species habitat likely to occur within area
Passer domesticus House Sparrow [405]		Species or species habitat likely to occur within area
Pycnonotus jocosus Red-whiskered Bulbul [631]		Species or species habitat likely to occur within area
Streptopelia chinensis Spotted Turtle-Dove [780]		Species or species habitat likely to occur within area
Sturnus vulgaris Common Starling [389]		Species or species habitat likely to occur within area
Turdus merula Common Blackbird, Eurasian Blackbird [596]		Species or species habitat likely to occur within area
Frogs		
Rhinella marina Cane Toad [83218]		Species or species habitat known to occur within area
Mammals		
Bos taurus Domestic Cattle [16]		Species or species habitat likely to occur within area
Canis lupus familiaris Domestic Dog [82654]		Species or species habitat likely to occur within area
Equus caballus Horse [5]		Species or species habitat likely to occur within area

Name	Status	Type of Presence
Felis catus Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Feral deer Feral deer species in Australia [85733]		Species or species habitat likely to occur within area
Lepus capensis Brown Hare [127]		Species or species habitat likely to occur within area
Mus musculus House Mouse [120]		Species or species habitat likely to occur within area
Rattus norvegicus Brown Rat, Norway Rat [83]		Species or species habitat likely to occur within area
Rattus rattus Black Rat, Ship Rat [84]		Species or species habitat likely to occur within area
Sus scrofa Pig [6]		Species or species habitat likely to occur within area
Vulpes vulpes Red Fox, Fox [18]		Species or species habitat likely to occur within area
Plants		
Anredera cordifolia Madeira Vine, Jalap, Lamb's-tail, Mignonette Vine, Anredera, Gulf Madeiravine, Heartleaf Madeiravine, Potato Vine [2643]		Species or species habitat likely to occur within area
Cabomba caroliniana Cabomba, Fanwort, Carolina Watershield, Fish Grass, Washington Grass, Watershield, Carolina Fanwort, Common Cabomba [5171]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera Bitou Bush, Boneseed [18983]		Species or species habitat likely to occur within area
Chrysanthemoides monilifera subsp. rotundata Bitou Bush [16332]		Species or species habitat likely to occur within area
Eichhornia crassipes Water Hyacinth, Water Orchid, Nile Lily [13466]		Species or species habitat likely to occur within area
Genista sp. X Genista monspessulana Broom [67538]		Species or species habitat may occur within area
Lantana camara Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat likely to occur within area
Pinus radiata Radiata Pine Monterey Pine, Insignis Pine, Wilding Pine [20780]		Species or species habitat may occur within area
Rubus fruticosus aggregate Blackberry, European Blackberry [68406]		Species or species habitat likely to occur within area
Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii Willows except Weeping Willow, Pussy Willow and Sterile Pussy Willow [68497]		Species or species habitat likely to occur

Name	Status	Type of Presence
		within area
Salvinia molesta Salvinia, Giant Salvinia, Aquarium Watermoss, Kariba Weed [13665]		Species or species habitat likely to occur within area
Senecio madagascariensis Fireweed, Madagascar Ragwort, Madagascar Groundsel [2624]		Species or species habitat likely to occur within area

Nationally Important Wetlands [Resource Information]

Name	State
Upper Coldstream	NSW

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World and National Heritage properties, Wetlands of International and National Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species distributions have been derived through a variety of methods. Where distributions are well known and if time permits, maps are derived using either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc) together with point locations and described habitat; or environmental modelling (MAXENT or BIOCLIM habitat modelling) using point locations and environmental data layers.

Where very little information is available for species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc). In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More reliable distribution mapping methods are used to update these distributions as time permits.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites
- seals which have only been mapped for breeding sites near the Australian continent

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-29.74107 153.05738

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Appendix H

Threatened Fauna – Potential Occurrence

Table H.1 Threatened Fauna Potential Occurrence Assessment

Scientific Name	*Common Name*	*Status*		*Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)*	*Suitability of Site Habitat*	*Potential Occurrence and need for Test of Significance*
		BC Act	*EPBC Act*			
INSECTS						
Argynnis hyperbius inconstans	Australian Fritillary	E	CE	Open swampy coastal habitat where the caterpillar's food plant, Arrowhead Violet (*Viola betonicifolia*) occurs.	Low	Low; no further assessment required.
AMPHIBIANS						
Crinia tinnula	Wallum Froglet	V	-	Acid paperbark and sedge swamps known as 'wallum', this is a banksia-dominated lowland heath ecosystem characterised by acidic waterbodies.	Low	Low; no further assessment required.
Litoria brevipalmata	Green-thighed Frog	V	-	Rainforest, moist to dry eucalypt forest and heath, typically where surface water gathers after rain.	Low	Low; no further assessment required.
Mixophyes iteratus	Giant Barred Frog	V	V	Deep, damp leaf litter in rainforests, moist eucalypt forest and near dry eucalypt forest.	Low	Low. No OEH records within locality; no further assessment required.
REPTILES						
Saiphos reticulatus	Three-toed Snake-tooth Skink	V	V	Rainforest and occasionally moist eucalypt forest, on loamy or sandy soils.	Low	Low. No OEH records within locality; no further assessment required.
Cacophis harriettae	White-crowned Snake	V	-	Low to mid-elevation dry eucalypt forest and woodland with well-developed litter layer.	Moderate	**Recorded on-site (GeoLINK records). Test of significance completed.**
AVIFAUNA						
Anthochaera phrygia	Regent Honeyeater	CE	CE	Dry open forest and woodland with an abundance of nectar-producing eucalypts, particularly box-ironbark woodland, swamp mahogany forests, and riverine sheoak woodlands.	Low	Low. No OEH records within locality; no further assessment required.
Anseranas semipalmata	Magpie Goose	V	-	Shallow wetlands (<1 m deep), large swamps and dams with dense growth of rushes or sedge.	Low	Low; no further assessment required.
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Woodlands and dry open sclerophyll forests, usually dominated by eucalypts; also recorded in shrublands, heathlands and various modified habitats.	Moderate	**Potential habitat occurs. Test of significance completed.**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Test of Significance
		BC Act	EPBC Act			
Botaurus poiciloptilus	Australasian Bittern	E	E	Permanent freshwater wetlands with tall dense vegetation, particularly bullrushes and spikerushes.	Low	Low. No OEH records within locality; no further assessment required.
Burhinus grallarius	Bush Stone-curlew	E	-	Lightly timbered open forest and woodland, and partly cleared farmland with woodland remnants, preferring areas with dry leaf-litter, fallen timber and sparse ground cover.	Low	Low; no further assessment required.
Calidris ferruginea	Curlew Sandpiper	E	CE	Tidal mudflats, sandy ocean shores and occasionally inland freshwater or salt-lakes.	Low	Low. No OEH records within locality; no further assessment required.
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Sheoaks in coastal forests and woodlands, timbered watercourses, and moist and dry eucalypt forests of the coast and the Great Divide up to 1,000 m.	Moderate	**Recorded on-site (BAR). Test of significance completed.**
Chthonicola sagittata	Speckled Warbler	V	-	Eucalyptus dominated communities with sparse shrubs and grassy understorey.	Low	**Potential habitat occurs. Test of significance completed.**
Circus assimilis	Spotted Harrier	V	-	Grassy open woodland, inland riparian woodland, grassland and shrub steppe.	Low	Low; no further assessment required.
Climacteris picumnus	Brown Treecreeper	V	-	Eucalypt forests and woodlands of inland plains and slopes of the Great Dividing Range, and less commonly on coastal plains and ranges.	Moderate	**Recorded on-site (BAR). Test of significance completed.**
Dasyornis brachypterus	Eastern Bristlebird	E	E	High elevation open forest, woodland with dense tussock or sedge understorey adjacent to rainforest or wet eucalypt forest.	Low	Low. No OEH records within locality; no further assessment required.
Dromaius novaehollandiae	Emu population NSW North Coast Bioregion	E	-	Open forest, woodland, coastal heath, coastal dunes, wetland areas, tea tree plantations and open farmland, and occasionally in littoral rainforest.	Low	Low – site fully fenced; no further assessment required.
Ephippiorhynchus asiaticus	Black-necked Stork	E	-	Swamps, mangroves, mudflats, dry floodplains.	Low	**Recorded on-site (BAR). Test of significance completed.**
Erythrotriorchis radiatus	Red Goshawk	CE	V	In NSW, preferred habitats include mixed subtropical rainforest, Melaleuca swamp forest and riparian Eucalyptus forest of coastal rivers.	Low	Low. No OEH records within locality; no further assessment required.

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Test of Significance
		BC Act	EPBC Act			
Glossopsitta pusilla	Little Lorikeet	V	-	Forages in the canopy of open *Eucalyptus* forest and woodland, yet also sources food in *Angophora, Melaleuca* and other tree species.	High	**Recorded on-site (BAR). Test of significance completed.**
Grantiella picta	Painted Honeyeater	V	V	Boree, Brigalow and Box-Gum Woodlands and Box-Ironbark Forests.	Low	Low. No OEH records within locality; no further assessment required.
Grus rubicunda	Brolga	V	-	Shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties.	Low	**Recorded on-site (BAR). Test of significance completed.**
Haliaeetus leucogaster	White-bellied Sea-eagle	V	-	Coastal seas, rivers, fresh and saline lakes, lagoons, reservoirs and terrestrial habitats such as grasslands.	Low	Low; no further assessment required.
Irediparra gallinacea	Comb-crested Jacana	V	-	Among vegetation floating on slow-moving rivers and permanent lagoons, swamps, lakes and dams.	Low	Low; no further assessment required.
Lathamus discolor	Swift Parrot	E	E	Forests, woodlands, plantations, and banksias.	Low	**Potential habitat occurs. Test of significance completed.**
Lophoictinia isura	Square-tailed Kite	V	-	Dry woodland and open forest, particularly along major rivers and belts of trees in urban or semi-urban areas. Home range can extend over at least 100 km².	Low	Low; no further assessment required.
Melithreptus gularis gularis	Black-chinned Honeyeater	V	-	Drier open forests or woodlands dominated by box and ironbark eucalypts, and open forests of smooth-barked gums, stringybarks, ironbarks and tea-trees.	Low	Low; no further assessment required.
Ninox connivens	Barking Owl	V	-	Inhabits woodland and open forest, including fragmented remnants and partly cleared farmland.	Moderate	**May forage in locality**. **Test of significance completed.**
Ninox strenua	Powerful Owl	V	-	Woodland and open forest to tall moist forest and rainforest, common along drainage lines.	Low	Low; no further assessment required.
Numenius madagascariensis	Eastern Curlew	CE	CE	Estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass	Low	Low. No OEH records within locality; no further assessment required.
Pomatostomus temporalis temporalis	Grey-crowned Babbler	V	-	Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains.	Moderate	**Recorded on-site (BAR). Test of significance completed.**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Test of Significance
		BC Act	EPBC Act			
Rostratula australis	Australian Painted Snipe	E	V	Well-vegetated shallows and margins of wetlands, dams, sewage ponds, wet pastures, marshy areas, irrigation systems, lignum, tea-tree scrub, and open timber.	Low	Low. No OEH records within locality; no further assessment required.
Stagonopleura guttata	Diamond Firetail	V	-	Grassy eucalypt woodlands, open forest, mallee, temperate grassland, and secondary grassland derived from other communities, riparian areas, and sometimes in lightly wooded farmland.	Moderate	**May forage in locality**. **Test of significance completed.**
Turnix melanogaster	Black-breasted Button-quail	V	V	Drier rainforests and viney scrubs, often in association with Hoop Pine and a deep moist leaf litter layer.	Low	Low. No OEH records within locality; no further assessment required.
Tyto novaehollandiae	Masked Owl	V	-	Dry eucalypt forest and woodlands.	Moderate	**May forage in locality**. **Test of significance completed.**
MAMMALS						
Aepyprymnus rufescens	Rufous Bettong	V	-	Tall moist eucalypt forest to open woodland with tussock grass understorey.	Moderate	**Recorded on-site (BAR; GeoLINK records). Test of significance completed.**
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Sandstone cliffs and fertile woodland valley habitat within close proximity of each other.	Low	Low. No OEH records within locality; no further assessment required.
Chalinolobus nigrogriseus	Hoary Wattled Bat	V	-	Inhabits dry open eucalypt forests, favouring forests dominated by Spotted Gum, boxes and ironbarks, and heathy coastal forests.	Moderate	**May forage in locality**. **Test of significance completed.**
Dasyurus maculatus	Spotted-tailed Quoll	V	E	Dry and moist eucalypt forests and rainforests, fallen hollow logs, large rocky outcrops.	Low	Low; no further assessment required.
Miniopterus australis	Little Bentwing-bat	V	-	Moist eucalypt forest, rainforest and dense coastal scrub.	Moderate	**Recorded on-site (BAR). Test of significance completed.**
Mormopterus lumsdenae	Northern Freetail-bat	V	-	Rainforests to open forests and woodlands often along watercourses.	Moderate	**May forage in locality**. **Test of significance completed.**

Scientific Name	Common Name	Status		Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)	Suitability of Site Habitat	Potential Occurrence and need for Test of Significance
		BC Act	EPBC Act			
Mormopterus norfolkensis	Eastern Freetail-bat	V	-	Occurs in dry sclerophyll forest, woodland, swamp forests and mangrove forests.	Moderate	**May forage in locality. Test of significance completed.**
Myotis macropus	Southern Myotis	V	-	Bodies of water, rainforest streams, large lakes, reservoirs.	Low	Low; no further assessment required.
Petauroides volans	Greater Glider	-	V	Wide range of habitats including tall open woodland, eucalypt forests and low woodlands.	Low	Low. No OEH records within locality; no further assessment required.
Petaurus australis	Yellow-bellied Glider	V	-	Tall mature eucalypt forest generally in areas with high rainfall and nutrient rich soils.	Low	Low; no further assessment required.
Petaurus norfolcensis	Squirrel Glider	V	-	Blackbutt, bloodwood and ironbark eucalypt forest with heath understorey in coastal areas, and box-ironbark woodlands and River Red Gum forest inland.	Low	Low; no further assessment required.
Petrogale penicillata	Brush-tailed Rock Wallaby	V	V	North-facing cliffs and dry eucalypt forest and woodland, inhabiting rock crevices, caves and overhangs.	Low	Low. No OEH records within locality; no further assessment required.
Phascogale tapoatafa	Brush-tailed Phascogale	V	-	Drier forests and woodlands with hollow-bearing trees and sparse ground cover.	Moderate	**Recorded on-site (GeoLINK records). Test of significance completed.**
Phascolarctos cinereus	Koala	V	V	Appropriate food trees in forests and woodlands, and treed urban areas.	Low	**Possible scratches (GeoLINK records). Test of significance completed.**
Potorous tridactylus tridactylus	Long-nosed Potoroo	V	V	Cool temperate rainforest, moist and dry forests, and wet heathland, inhabiting dense layers of grass, ferns, vines and shrubs.	Low	Low. No OEH records within locality; no further assessment required.
Pseudomys novaehollandiae	New Holland Mouse	V	V	Occurs in open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	Low	Low. No OEH records within locality; no further assessment required.
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	Subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.	Moderate	**Recorded on-site (BAR). Test of significance completed.**

Scientific Name	*Common Name*	*Status*		*Habitat Requirement (EPBC Act SPRAT and/ or OEH Threatened Species Profiles websites)*	*Suitability of Site Habitat*	*Potential Occurrence and need for Test of Significance*
		BC Act	*EPBC Act*			
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Forages in a variety of habitats, roosts in tree hollows and buildings.	Moderate	**May forage in locality**. **Test of significance completed.**
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	Woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest.	Moderate	**May forage in locality**. **Test of significance completed.**

V = Vulnerable; E = Endangered; CE = Critically Endangered

Appendix I

Five-part Tests of Significance (BC Act)

Based on the BAR, field investigations and database search results, tests of significance ('five-part tests') under Section 7.3 of the BC Act have been completed for the following threatened fauna species:

Wetland birds

- Black-necked Stork.
- Brolga.

Reptiles

- White-crowned Snake.

Owls

- Barking Owl.
- Masked Owl.

Forest birds

- Brown Treecreeper.
- Diamond Firetail.
- Dusky Woodswallow.
- Glossy Black-Cockatoo.
- Grey-crowned Babbler.
- Little Lorikeet.
- Speckled Warbler.
- Swift Parrot.

Microbats

- Eastern Freetail-bat.
- Greater Broad-nosed Bat.
- Hoary Wattled Bat.
- Little Bentwing-bat.
- Northern Freetail-bat.
- Yellow-bellied Sheathtail-bat.

Flying-foxes

- Grey-headed Flying Fox

Macropods

- Rufous Bettong.

Arboreal mammals

- Brush-tailed Phascogale.
- Koala.

a) in the case of a threatened species, whether the proposed development or activity is likely to have an adverse effect on the life cycle of the species such that a viable local population of the species is likely to be placed at risk of extinction,

Wetland birds

Black-necked Stork (BNS)

Floodplain wetlands (swamps, billabongs, watercourses and dams) of the major coastal rivers are the key habitat in NSW for the Black-necked Stork (BNS). Secondary habitat includes minor floodplains, coastal sandplain wetlands and estuaries. BNS usually forage in water five to 30 cm deep for vertebrate and invertebrate prey. Eels regularly contribute the greatest biomass to their diet, but they feed on a wide variety of animals, including other fish, frogs and invertebrates (such as beetles, grasshoppers, crickets and crayfish).

BNS build large nests high in tall trees close to water. Trees usually provide clear observation of the surroundings and are at low elevation (reflecting the floodplain habitat). In NSW, breeding activity occurs May - January; incubation May - October; nestlings July - January; fledging from September. Parents share nest duties and in one study about 1.3-1.7 birds were fledged per nest. The NSW breeding population has been estimated at about 75 pairs. Territories are large and variable in size. They have been estimated to average about 9,000 ha, ranging from 3,000-6,000 ha in high quality habitat and 10,000-15,000 ha in areas where habitat is poor or dispersed.

Threatening processes for this species include:

- Powerlines, especially close to wetlands or over floodplains, are a significant cause of mortality of Storks and one of the most critical threats to the species in NSW.
- Modification or degradation of wetlands through changes in natural water flows. It is important to maintain or reintroduce flows to provide wetland habitats suitable for foraging by Storks as they require large amounts of vertebrate prey from such habitats.
- Loss of wetland habitat through clearing and draining for development.
- Loss of key habitat as a result of wetland drainage for flood mitigation and agricultural development.
- Degradation of wetland habitats through pollution.
- Loss of paddock trees used for nesting.
- Degradation of wetlands as a result of salinity.

Potential Impacts of the Activity

The Activity would not result in any loss of potential foraging habitat for BNS. The two sediment ponds traversed by the transmission line comprise low quality highly disturbed habitat not suited for BNS foraging or breeding. On this basis, it would be highly unlikely that an adverse effect on the life cycle of the BNS would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Brolga

Brolgas inhabit shallow swamps, floodplains, grasslands and pastoral lands, usually in pairs or parties. They are omnivorous and utilise a diverse range of food items on a seasonal basis. The main food items are vegetable materials, particularly the fleshy tubers of wetland plants, which are obtained by digging and foraging. The residues of grain and potato crops are also taken. Amphibians, sometimes small fish and a wide range of invertebrates are also taken including freshwater molluscs, crustaceans and insects.

During summer and autumn, many birds flock to deep freshwater marshes and permanent open water and adjacent dryland areas. These sites provide for the birds' drinking, feeding and roosting requirements. In late autumn and winter, the flocks disperse back to the breeding areas where bonded pairs re-establish substantial territories. Nests are generally constructed on a slight rise or island in shallow herb-dominated or sedge-dominated freshwater marshes and consist of a platform of coarse vegetation. Usually two eggs are laid, and the parents share in nest building, incubation of the eggs and rearing of the young. The chicks fledge 90-100 days after hatching and remain with the parents until the onset of the next breeding season or for another year if the parents do not re-nest.

Threatening processes for this species include:

- Drainage and modification of wetlands.
- Alteration of flood regimes during the breeding season which can cause nest abandonment.
- Modification of vegetation structure and species composition, water quality or soil structure at breeding and feeding sites.
- Widespread use of herbicides and pesticides especially in close proximity to breeding sites.
- Disturbance by hunting activities where young birds are still in the breeding wetland.
- Introduced predators taking eggs and killing chicks.
- Wildfire and burning programs, which remove nest material.
- Grazing by stock.
- Subdivision and fencing of large private landholdings.
- Erection of structures such as overhead powerlines.
- Use of wetlands for irrigation and/or re-use systems.

Potential Impacts of the Activity

The Activity would not result in any loss of potential foraging habitat for Brolga. The two sediment ponds traversed by the transmission line comprise low quality highly disturbed habitat not suited for Brolga foraging or breeding. On this basis, it would be highly unlikely that an adverse effect on the life cycle of Brolgas would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Reptiles

White-crowned Snake

The White-crowned Snake favours low to mid-elevation dry eucalypt forest and woodland, particularly areas with a varied and well-developed litter layer, where their prey of small lizards may be more abundant. It is also occasionally found in moist eucalypt forest and coastal heathland.

Threatening processes for this species include:

- Clearing, fragmentation and isolation of suitable habitat due to agricultural and intensive forestry activities.

- Loss of foraging and sheltering habitat as the result of frequent burning associated with grazing and forest management.
- Collection of firewood, bush rock and mulch from areas of habitat.

Potential Impacts from the Activity

The Activity would result in the loss of disturbed grassland and several small patches of eucalypts. Given the occurrence of better quality forest habitat at the site and within the locality, the Activity represents a negligible reduction of foraging habitat which may be utilised by the White-crowned Snake. On this basis it would be highly unlikely that an adverse effect on the life cycle of the White-crowned Snake would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Owls

Barking Owl

The Barking Owl inhabits woodland and open forest, including fragmented remnants and partly cleared farmland. It roosts in shaded portions of tree canopies, including tall midstorey trees with dense foliage such as *Acacia* and *Casuarina* species. Barking Owls preferentially hunt small arboreal mammals such as Squirrel Gliders and Ringtail Possums, but when loss of tree hollows decreases these prey populations the owl becomes more reliant on birds, invertebrates and terrestrial mammals such as rodents and rabbits.

The species requires very large permanent territories in most habitats due to sparse prey densities. Monogamous pairs hunt over as much as 6000 ha, with 2000 ha being more typical in NSW habitats. Nesting occurs in living eucalypts and sometimes dead trees are also used. Nest sites are used repeatedly over years by a pair, but they may switch sites if disturbed by predators (e.g. goannas). Nesting occurs during mid-winter and spring but is variable between pairs and among years. Laying generally occurs during August and fledging occurs in November. Fledging occurs two to three weeks later.

Threatening processes for this species include:

- Clearing and degradation of habitat, mostly through cultivation, intense grazing and the establishment of exotic pastures.
- Inappropriate forest harvesting practices that remove old, hollow-bearing trees and change open forest structure to dense regrowth.
- Firewood harvesting resulting in the removal of fallen logs and felling of large dead trees.
- Too-frequent fire leading to degradation of understorey vegetation which provides shelter and foraging substrates for prey species.
- Disturbance of nesting and excessive disturbance of foraging by inappropriate use of call-playback surveys.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland around several small patches of eucalypts. Four hollow-bearing trees require removal. The Activity represents a minor reduction of foraging habitat from the broader area which may be utilised by the Barking Owl and a negligible reduction in potential breeding sites. It would be highly unlikely that an adverse effect on the life cycle of the Barking Owl would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Masked Owl

Masked Owls live in dry eucalypt forests and woodlands from sea level to 1100 m. While forest owls, they often hunt along the edges of forests, including roadsides. The typical diet consists of tree-dwelling and ground mammals, especially rats. Pairs have a large home-range of 500 to 1000 ha. Masked Owls roost and breed in moist eucalypt forested gullies, using large tree hollows or sometimes caves for nesting.

Threatening processes for this species include:

- Loss of mature hollow-bearing trees and changes to forest and woodland structure, which leads to fewer such trees in the future.
- Clearing of habitat for grazing, agriculture, forestry or other development.
- A combination of grazing and regular burning is a threat, through the effects on the quality of ground cover for mammal prey, particularly in open, grassy forests.
- Secondary poisoning from rodenticides.
- Being hit by vehicles.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees require removal. The Activity represents a minor reduction of foraging habitat from the broader area which may be utilised by the Masked Owl and a negligible reduction in potential breeding sites. It would be highly unlikely that an adverse effect on the life cycle of the Masked Owl would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Forest birds

Brown Treecreeper

The Brown Treecreeper occurs in eucalypt woodlands and dry open forest of the inland slopes and plains inland of the Great Dividing Range; mainly inhabits woodlands dominated by stringybarks or other rough-barked eucalypts, usually with an open grassy understorey, sometimes with one or more shrub species. Fallen timber is an important habitat component for foraging. Hollows in standing dead or live trees and tree stumps are essential for nesting.

When foraging in trees and on the ground, they peck and probe for insects, mostly ants, amongst the litter, tussocks and fallen timber, and along trunks and lateral branches; up to 80 per cent of the diet is comprised of ants; other invertebrates (including spiders, insects larvae, moths, beetles, flies, hemipteran bugs, cockroaches, termites and lacewings) make up the remaining percentage; nectar from Mugga Ironbark (*Eucalyptus sideroxylon*) and paperbarks, and sap are also eaten, along with lizards and food scraps; young birds are fed ants, insect larvae, moths, craneflies, spiders and butterfly and moth larvae.

The species breeds in pairs or co-operatively in territories which range in size from 1.1 to 10.7 ha (mean = 4.4 ha). Each group is composed of a breeding pair with retained male offspring and, rarely, retained female offspring.

Threatening processes for this species include:

- Historical loss of woodland, forest and mallee habitats as a result of agriculture, forestry, mining and residential development.
- Fragmentation of woodland and forest remnants which isolates populations and causes local extinctions.
- Ongoing degradation of habitat, particularly the loss of tree hollows and fallen timber from firewood collection and overgrazing.
- Lack of regeneration of eucalypt overstorey in woodland due to overgrazing and too-frequent fires.
- Loss of ground litter from compaction and overgrazing.
- Inappropriate forestry management practices.
- Loss of understorey habitat.
- Competition from invasive weeds.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential nest sites) would require removal and is minor in a local context. Given the occurrence of forested habitat (including habitat trees and nest boxes) retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Brown Treecreeper. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Brown Treecreeper would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Diamond Firetail

The Diamond Firetail occurs in grassy eucalypt woodlands (including Box-Gum Woodlands and Snow Gum woodlands) and also occurs in open forest, mallee, natural temperate grassland, and in secondary grassland derived from other communities. Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland. Birds feed exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season).

Groups separate into small colonies to breed, between August and January. Nests are globular structures built either in the shrubby understorey, or higher up, especially under hawk's or raven's nests.

Threatening processes for this species include:

- Clearing and fragmentation of woodland, open forest, grassland and mallee habitat for agriculture and residential development, and firewood collection.
- Poor regeneration of open forest and woodland habitats.
- Invasion of weeds, resulting in the loss of important food plants.
- Modification and destruction of ground- and shrub layers within habitat through: removal of native plants, litter and fallen timber; introduction of exotic pasture grasses; heavy grazing and compaction by stock; and frequent fire.
- Predation.
- Risk of local extinction due to small, isolated populations.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Diamond Firetail. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Diamond Firetail would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Dusky Woodswallow

The Dusky Woodswallow is typically recorded in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests and very occasionally in moist forests or rainforests. The Dusky Woodswallow primarily eats invertebrates, mainly insects, which are captured whilst hovering and sallying above the canopy or over water. Breeding occurs from late September to late February, with eggs present between September and January. Clutch size is one to four and pairs may breed twice in a season. The fledging period is 16 - 20 days.

Threatening processes for this species include:

- Habitat loss.
- Reduction in habitat quality.
- Competitive exclusion by Noisy Miners.
- Inappropriate fire regimes.
- Excessive grazing.
- Removal of coarse woody debris.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Dusky Woodswallow. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Dusky Woodswallow would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Glossy Black-Cockatoo

The Glossy Black-Cockatoo inhabits open forest and woodlands of the coast and the Great Dividing Range where stands of sheoak occur. Black Sheoak (*Allocasuarina littoralis*) and Forest Sheoak (*A. torulosa*) are important foods. The species feeds almost exclusively on the seeds of several species of she-oak (Casuarina and Allocasuarina species), shredding the cones with the massive bill. Large hollow-bearing eucalypts are used as for nest sites. A single egg is laid between March and May.

Threatening processes for this species include:

- Reduction of suitable habitat through clearing for development.
- Decline of hollow bearing trees over time due to land management activities.
- Excessively frequent fire which eliminates sheoaks from areas, prevents the development of mature sheoak stands, and destroys nest trees.
- Firewood collection resulting in loss of hollow bearing trees, reduced recruitment of hollow bearing trees, and disturbance of breeding attempts.

- Decline in extent and productivity of sheoak foraging habitat due to feral herbivores.
- Limited information on the location of nesting aggregations and the distribution of high quality breeding habitat.
- Disturbance from coal seam gas and open cut coal mining causing loss of foraging and breeding habitat as well as disturbing reproductive attempts.
- Forestry activity resulting in loss of hollow bearing trees, reduced recruitment of hollow bearing trees, degradation of foraging habitat, and disturbance of breeding attempts.
- Decline in extent and productivity of sheoak foraging habitat caused by moisture stress due to climate change.
- Degradation of foraging habitat and reduced regeneration of sheoak stands due to grazing by domestic stock.
- Loss of foraging habitat due to slashing/underscrubbing.
- Change in the spatial and temporal distribution of foraging resources due to global warming.
- Illegal bird smuggling and egg-collecting.
- Habitat infestation by weeds such as African boxthorn, Gazania, buffel grass and other invasive grasses.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Glossy Black-Cockatoo. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Glossy Black-Cockatoo would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Grey-crowned Babbler

Grey-crowned Babblers inhabit open Box-Gum Woodlands on the slopes, and Box-Cypress-pine and open Box Woodlands on alluvial plains; in coastal regions Woodlands on fertile soils are typical habitat. Babblers live in family groups that consist of a breeding pair and young from previous breeding seasons. A group may consist of up to 15 birds. They feed on invertebrates, either by foraging on the trunks and branches of eucalypts and other woodland trees or on the ground, digging and probing amongst litter and tussock grasses.

Grey-crowned Babblers build and maintain several conspicuous, dome-shaped stick nests about the size of a football, which are used as a dormitory for roosting each night. Nests are usually located in shrubs or sapling eucalypts, although they may be built in the outermost leaves of low branches of large eucalypts. Nests are maintained year-round, and old nests are often dismantled to build new ones.

Breeding occurs between July and February. Usually two to three eggs are laid and incubated by the female. During incubation, the adult male and several helpers in the group may feed the female as she sits on the nest. Young birds are fed by all other members of the group. Territories range from one to 50 ha (usually around 10 ha) and are defended all year.

Threatening processes for this species include:

- Loss, degradation and fragmentation of woodland habitat on high fertility soils.
- Excessive total grazing pressure and loss of coarse woody debris is resulting in degradation and loss of important habitat components.
- Infestation of habitat by invasive weeds including exotic perennial grasses.

- Inappropriate fire regimes - excessive fires lead to loss of tree and shrub regeneration and absence of fire may lead to the grass sward being too dense and therefore unsuitable for foraging by babblers.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Climate change impacts including reduction in resources due to drought.
- Nest predation by species such as ravens and butcherbirds may be an issue in some regions where populations are small and fragmented.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Grey-crowned Babbler. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Grey-crowned Babbler would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Little Lorikeet

The distribution of the Little Lorikeet encompasses the coast, tablelands and slopes of eastern Australia from Cape York to South Australia. Nomadic movements are common, influenced by season and food availability, although some areas retain residents for much of the year. The Little Lorikeet mostly forages in the canopy of open eucalypt forest and woodland, utilising *Eucalyptus*, *Angophora, Melaleuca* and other tree species. Riparian habitats are particularly used, due to higher soil fertility and hence greater productivity. This species feeds mostly on nectar and pollen, but occasionally also on native fruits such as mistletoe. Nests are generally located in proximity to feeding areas if possible, most typically selecting hollows in the limb or trunk of a smooth-barked *Eucalyptus*. Entrance is small (three centimetres) and usually high above the ground (2 - 15 m). These nest sites are often used repeatedly for decades, suggesting that preferred sites are limited. Riparian trees are often chosen, including species like *Allocasuarina*. Nesting season extends from May to September.

Threatening processes for this species include:

- Clearing of woodlands for agriculture.
- The loss of old hollow bearing trees.
- Competition with the introduced Honeybee.
- Infestation of habitat by invasive weeds.
- Inappropriate fire regimes.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Climate change impacts including reduction in resources due to drought.
- Degradation of woodland habitat and vegetation structure due to overgrazing.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential nest sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Little Lorikeet. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Little Lorikeet would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Speckled Warbler

The Speckled Warbler lives in a wide range of Eucalyptus dominated communities that have a grassy understorey, often on rocky ridges or in gullies. Typical habitat includes scattered native tussock grasses, a sparse shrub layer, some eucalypt regrowth and an open canopy. Large, relatively undisturbed remnants are required for the species to persist in an area. The diet consists of seeds and insects, with most foraging taking place on the ground around tussocks and under bushes and trees. Speckled Warblers often join mixed species feeding flocks in winter, with other species such as Yellow-rumped, Buff-rumped, Brown and Striated Thornbills.

Pairs are sedentary and occupy a breeding territory of about 10 ha, with a slightly larger home-range when not breeding. A clutch of three to four eggs is laid, between August and January, and both parents feed the nestlings. Some cooperative breeding occurs. The species may act as host to the Black-eared Cuckoo.

Threatening processes for this species include:

- Due to the fragmented nature of the populations and their small size the species is susceptible to catastrophic events and localised extinction.
- Clearance of remnant grassy woodland habitat for paddock management reasons and firewood.
- Poor regeneration of grassy woodland habitats.
- Modification and destruction of ground habitat through removal of litter and fallen timber, introduction of exotic pasture grasses, heavy grazing and compaction by stock and frequent fire.
- Habitat is lost and further fragmented as land is being cleared for residential and agricultural developments. In particular, nest predation increases significantly, to nest failure rates of over 80 per cent, in isolated fragments.
- Nest failure due to predation by native and non-native birds, cats, dogs and foxes particularly in fragmented and degraded habitats.
- Infestation of habitat by invasive weeds.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.
- Climate change impacts including reduction in resources due to drought.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Speckled Warbler On this basis it would be highly unlikely that an adverse effect on the life cycle of the Speckled Warbler would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Swift Parrot

The Swift Parrot breeds in Tasmania during spring and summer, migrating in autumn and winter to south-eastern Australia from Victoria and the eastern parts of South Australia to south-east Queensland. In New South Wales the Swift Parrot mostly occurs on the coast and south-west slopes.

On the mainland the Swift Parrot can occur in areas where eucalypts are flowering profusely or where there is abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany (*Eucalyptus robusta*), Spotted Gum (*Corymbia maculata*), Red Bloodwood (*C. gummifera*), Mugga Ironbark (*E. sideroxylon*), and White Box (*E. albens*). Commonly used lerp infested trees include Inland Grey Box (*E. macrocarpa*), Grey Box (*E. moluccana*) and Blackbutt (*E. pilularis*). Birds return to some foraging sites on a cyclic basis

depending on food availability. Following winter, they return to Tasmania where they breed from September to January, nesting in old trees with hollows and feeding in forests dominated by Tasmanian Blue Gum (*Eucalyptus globulus*).

Threatening processes for this species include:

- Habitat loss and degradation.
- Changes in spatial and temporal distribution of habitat due to climate change.
- Reduction in food resources due to drought.
- Competition for food resources.
- Collision mortality.
- Psittacine Beak and Feather Disease (PBFD).
- Fragmentation of woodland habitat.
- Infestation by invasive weeds.
- Inappropriate fire regimes.
- Aggressive exclusion from forest and woodland habitat by over abundant Noisy Miners.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Swift Parrot. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Swift Parrot would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Microbats

Eastern Freetail-bat

Eastern Freetail-bats occur in dry sclerophyll forest, woodland, swamp forests and mangrove forests east of the Great Dividing Range. They mainly roost in tree hollows but would also roost under bark or in man-made structures. Roosting is usually solitary but communal roosting has also been recorded. Females give birth in late November/ early December.

Threatening processes for this species include:

- Loss of hollow-bearing trees.
- Loss of foraging habitat.
- Application of pesticides in or adjacent to foraging areas.
- Artificial light sources spilling onto foraging and/or roosting habitat.
- Large scale wildfire or hazard reduction burns on foraging and/or roosting habitat.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential roost sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Eastern Freetail-bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Eastern Freetail-bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Greater Broad-nosed Bat

The Greater Broad-nosed Bat utilises a variety of habitats from woodland through to moist and dry eucalypt forest and rainforest, though it is most commonly found in tall wet forest. Although usually roosting in tree hollows, the species has also been found in buildings. Open woodland habitat and dry open forest suits the direct flight of this species as it searches for beetles and other large, slow-flying insects; this species has been known to eat other bat species. Little is known of the reproductive cycle, however a single young is born in January; prior to birth, females congregate at maternity sites located in suitable trees, where they appear to exclude males during the birth and raising of a single young.

Threatening processes for this species include:

- Disturbance to roosting and summer breeding sites.
- Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions.
- Loss of hollow-bearing trees.
- Pesticides and herbicides may reduce the availability of insects or result in the accumulation of toxic residues in individuals' fat stores.
- Changes to water regimes are likely to impact food resources, as is the use of pesticides and herbicides near waterways.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential roost sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Greater Broad-nosed Bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Greater Broad-nosed Bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Hoary Wattled Bat

In NSW the Hoary Wattled Bat occurs in dry open eucalypt forests, favouring forests dominated by Spotted Gum, boxes and ironbarks, and heathy coastal forests where Red Bloodwood and Scribbly Gum are common. Because it flies fast below the canopy level, forests with naturally sparse understorey layers may provide the best habitat. The species roosts in hollows and rock crevices and will occupy urban areas with suitable habitat. Birthing usually occurs during October and November when twins are born.

Threatening processes for this species include:

- Clearing and fragmentation of dry forest and woodland habitat through clearing for agriculture and development.
- Loss of tree hollows for roosting and maternity sites from forest management favouring younger stands of trees.
- Loss of hollow-bearing trees used for roosting and maternity sites as a result of too-frequent burning for grazing and forestry management activities.
- Pesticides on insects and in water consumed by bats bio accumulates, resulting in poisoning of individuals. The use of pesticides also reduces available insect food sources.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential roost sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Hoary Wattled Bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Hoary Wattled Bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Little Bent-wing Bat

Bent-wing Bats occur along the east and north-west coasts of Australia where they forage in forested areas, catching moths and other flying insects above the tree tops. Caves are the primary roosting habitat, but this species also use derelict mines, storm-water tunnels, buildings and other man-made structures. Maternity caves with very specific temperature and humidity regimes are used annually in spring and summer for the birth and rearing of young. At other times of the year, populations disperse within about a 300 km range of maternity caves. Breeding or roosting colonies can number from 100 to 150,000 individuals.

Threatening processes for this species include:

- Disturbance of colonies, especially in nursery or hibernating caves, may be catastrophic.
- Destruction of caves that provide seasonal or potential roosting sites.
- Changes to habitat, especially surrounding maternity/ nursery caves and winter roosts.
- Pesticides on insects and in water consumed by bats bio accumulates, resulting in poisoning of individuals.
- Predation from foxes, particularly around maternity caves, winter roosts and roosts within culverts, tunnels and under bridges.
- Predation from feral cats, particularly around maternity caves, winter roosts and roosts within culverts, tunnels and under bridges.
- Introduction of exotic pathogens such as white-nosed fungus.
- Hazard reduction and wildfire fires during the breeding season.
- Large scale wildfire or hazard reduction can impact on foraging resources.
- Poor knowledge of reproductive success and population dynamics.

Potential Impacts of the Activity

The Activity would have little impact on foraging habitat for Bent-wing Bats, due to negligible vegetation loss; no potential roost habitat occurs. Given the occurrence of extensive forested habitat within the locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Little Bent-wing Bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Little Bent-wing Bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Northern Freetail-bat

Northern Freetail-bats occur within a range of vegetation types in northern Australia, from rainforests to open forests and woodlands, and are often recorded along watercourses. They may also occur in towns and cities. They mainly roost in tree hollows, but relatively large colonies have been found under house roofs in urban areas in Queensland

Threatening processes for this species include:

- Clearing of forest and woodland habitat for agricultural, residential and infrastructure development.
- Loss of hollow-bearing trees used for roosting and maternity sites as the result dieback, too frequent burning and forest management favouring younger stands.
- Use of pesticides.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential roost sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Northern Freetail-bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Northern Freetail-bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Yellow-bellied Sheathtail-bat

The Yellow-bellied Sheathtail-bat forages in most habitats across a very wide range, with and without trees; the species appears to defend an aerial territory. It roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. Breeding has been recorded from December to mid-March, when a single young is born. Seasonal movements of Sheathtail-bats are unknown; there is speculation about a migration to southern Australia in late summer and autumn.

Threatening processes for this species include:

- Disturbance to roosting and summer breeding sites.
- Foraging habitats are being cleared for residential and agricultural developments, including clearing by residents within rural subdivisions.
- Loss of hollow-bearing trees; clearing and fragmentation of forest and woodland habitat.
- Pesticides and herbicides may reduce the availability of insects or result in the accumulation of toxic residues in individuals' fat stores.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential roost sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Yellow-bellied Sheathtail-bat. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Yellow-bellied Sheathtail-bat would occur such that a viable local population of the species is likely to be placed at risk of extinction.

<u>Flying-foxes</u>

Grey-headed Flying-fox

Grey-headed Flying-foxes (GHFF) have a distribution that typically extends approximately 200 km from the coast of Eastern Australia, from Rockhampton in Queensland to Adelaide in South Australia. Foraging areas include subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops. Feed on the nectar and pollen of native trees, in particular *Eucalyptus, Melaleuca* and *Banksia*, and fruits of rainforest trees and

vines, as well as from cultivated gardens and orchards. Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy. Individual camps may have tens of thousands of animals and are used for mating, and for giving birth and rearing young. Annual mating commences in January and conception occurs in April or May; a single young is born in October or November. Site fidelity to camps is high; some camps have been used for over a century. Can travel up to 50 km from the camp to forage; commuting distances are more often <20 km.

Eby and Law (2008) have identified 10 trees that are key foraging resource for the Grey-headed Flying-fox in north-east NSW, consisting of Swamp Mahogany (*Eucalytus robusta*), Coastal Blackbutt (*E. pilularis*), Grey Ironbark (*E. siderophloia*), Forest Red Gum (*E. tereticornis*), Spotted Gum (*Corymbia variegata*), Large-leaved Spotted Gum (*C. henryi*), Red Bloodwood (*C. gummifera*), Pink Bloodwood (*C. intermedia*), Broad-leaved Paperbark (*Melaleuca quinquenervia*) and Silky Oak (*Grevillea robusta*).

Threatening processes for this species include:

- Clearing of woodlands for agriculture.
- Loss of roosting and foraging sites.
- Electrocution on powerlines, entanglement in netting and on barbed-wire.
- Heat stress.
- Conflict with humans.
- Incomplete knowledge of abundance and distribution across the species' range.

Potential Impacts of the Activity

The Activity would require negligible loss of potential foraging habitat for GHFF; potential roost habitat does not occur. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the GHFF. On this basis it would be highly unlikely that an adverse effect on the life cycle of the GHFF would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Macropods

Rufous Bettong

Rufous Bettongs inhabit a variety of forests from tall, moist eucalypt forest to open woodland, with a tussock grass understorey. A dense cover of tall native grasses is the preferred shelter. They sleep during the day in cone-shaped nests constructed of grass in a shallow depression at the base of a tussock or fallen log. At night they feed on grasses, herbs, seeds, flowers, roots, tubers, fungi and occasionally insects.

Threatening processes for this species include:

- Changes to the grassy understorey by inappropriate burning and grazing.
- Competition from rabbits.
- Predation by feral cats and foxes, whose numbers appear to increase when dingoes are reduced through baiting.
- Loss of habitat through clearing, logging and collection of fallen timber.
- Poor knowledge of the species' abundance and distribution in the western parts of its range.

Potential Impacts from the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). This habitat is largely unavailable to bettongs as the CCC construction site is securely fenced, however disturbance from the works will impact on refuge habitat outside the fence within residual land for the removal of danger trees. These impacts are a very small portion of the greater residual land where high quality habitat for the species occurs and which is available to any flushed animals. Given the short-term nature of the works and the occurrence of forested habitat retained within the site and in the broader locality, the Activity would be highly unlikely to adversely impact Rufous Bettongs such that a viable local population of the species is likely to be placed at risk of extinction.

Arboreal mammals

Brush-tailed Phascogale

Brush-tailed Phascogales prefer dry sclerophyll open forest with sparse groundcover of herbs, grasses, shrubs or leaf litter. They are agile climbers foraging preferentially in rough barked trees of 25 cm DBH or greater. The diet mostly comprises arthropods but also includes other invertebrates, nectar and sometimes small vertebrates. Females have exclusive territories of approximately 20 - 40 ha, while males have overlapping territories often greater than 100 ha. Brush-tailed Phascogales nest and shelter in tree hollows with entrances 2.5 - 4 cm wide and use many different hollows over a short time span. Mating occurs May - July; males die soon after the mating season whereas females can live for up to three years but generally only produce one litter.

Threatening processes for this species include:

- Loss and fragmentation of habitat.
- Loss of hollow-bearing trees.
- Predation by foxes and cats.
- Competition for nesting hollows with the introduced honeybee.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). Four hollow-bearing trees (potential den sites) would require removal and is minor in a local context. Given the occurrence of forested habitat retained within the site and in the broader locality, the Activity represents a minor reduction of foraging habitat which may be utilised by the Brush-tailed Phascogale. On this basis it would be highly unlikely that an adverse effect on the life cycle of the Brush-tailed Phascogale would occur such that a viable local population of the species is likely to be placed at risk of extinction.

Koala

The Koala has a fragmented distribution throughout eastern Australia from north-east Queensland to the Eyre Peninsula in South Australia. In New South Wales it mainly occurs on the central and north coasts, with populations on the western side of the Great Dividing Range.

Habitat consists of eucalypt woodlands and forests, in which the Koala feeds on more than 70 eucalypt species and 30 non-eucalypt species. Preferred browse species differ across regions. Koalas are inactive for most of the day and do most of their feeding and moving during the night. Although predominantly arboreal, Koalas would descend and traverse open ground to move between trees. Home range size varies with quality of habitat, ranging from less than two hectares to several hundred

hectares in size. Generally solitary, the Koala has complex social hierarchies based on a dominant male with a territory that overlaps that of several females, with sub-ordinate males on the periphery. Females breed at two years of age and produce one young per year.

In Clarence Valley LGA, preferred food trees include Forest Red Gum (*Eucalyptus tereticornis*), Swamp Mahogany (*E. robusta*), Red Mahogany (*E. resinifera*) and Tallowwood (*E. microcorys*), with Small-fruited Grey Gum (*E. propinqua*) and several other species recognised as secondary feed trees (Mitchell 2008).

Threatening processes for this species include:

- Loss, modification and fragmentation of habitat.
- Predation by feral and domestic dogs.
- Intense fires that scorch or kill the tree canopy.
- Road-kills.
- Human-induced climate change, especially drought.

Potential Impacts of the Activity

The Activity would require removal of disturbed grassland and several small patches of eucalypts (loss = 52 live trees; 44 dead trees). This habitat is difficult for Koala to access as the CCC construction site is securely fenced, however disturbance from the works may temporarily impact on Koala habitat outside the fence where danger trees require removal and where scratches were observed. Given the short-term nature of the works and the occurrence of forested habitat retained within the site and in the broader locality, the Activity would be highly unlikely to adversely impact Koala habitat such that a viable local population of the species is likely to be placed at risk of extinction.

b) in the case of an endangered ecological community or critically endangered ecological community, whether the proposed development or activity:

(i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

(ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction,

No endangered ecological communities occur.

c) in relation to the habitat of a threatened species or ecological community:

(i) the extent to which habitat is likely to be removed or modified as a result of the proposed development or activity, and

- Wetland birds (Black-necked Stork, Brolga): No loss of or disturbance to foraging habitat; no breeding habitat affected.
- White-crowned Snake: Minor loss of disturbed, poor quality habitat.
- Owls (Barking Owl, Masked Owl): minor loss of low-quality foraging habitat. No breeding habitat likely to be affected by the removal of four habitat trees.
- Forest birds (Brown Treecreeper, Diamond Firetail, Dusky Woodswallow, Glossy Black-Cockatoo, Grey-crowned Babbler, Little Lorikeet, Speckled Warbler, Swift Parrot): no loss of any significant foraging or breeding habitat.
- Microbats (Eastern Freetail-bat, Greater Broad-nosed Bat, Hoary Wattled Bat, Little Bentwing-bat, Northern Freetail Bat, Yellow-bellied Sheathtail-bat): no loss of any significant foraging or roosting habitat would occur.

- GHFF: Negligible reduction of foraging resources; no roost camps occur.
- Rufous Bettong: No loss of habitat (inaccessible due to fencing); minor short-term disturbance to adjacent refuge habitat.
- Arboreal mammals (Brush-tailed Phascogale, Koala): Nominal habitat loss; minor short-term disturbance to adjacent refuge habitat.

(ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed development or activity, and

- Wetland birds (Black-necked Stork, Brolga): the Activity would not fragment available habitat at the site or in the locality or limit dispersal opportunities.
- White-crowned Snake: the Activity would not fragment available habitat at the site or in the locality or limit dispersal opportunities.
- Owls (Barking Owl, Masked Owl): negligible reduction of poor quality habitat would not fragment available habitat in the locality or limit dispersal opportunities.
- Forest birds (Brown Treecreeper, Diamond Firetail, Dusky Woodswallow, Glossy Black-Cockatoo, Grey-crowned Babbler, Little Lorikeet, Speckled Warbler, Swift Parrot): negligible reduction of poor quality habitat would not fragment available habitat in the locality or limit dispersal opportunities.
- Microbats (Eastern Freetail-bat, Greater Broad-nosed Bat, Hoary Wattled Bat, Little Bentwing-bat, Northern Freetail Bat, Yellow-bellied Sheathtail-bat): negligible reduction of poor quality habitat would not fragment available habitat in the locality or limit dispersal opportunities.
- GHFF: Negligible reduction of foraging resources; no roost camps occur.
- Rufous Bettong: negligible reduction of poor quality habitat would not fragment available habitat in the locality or limit dispersal opportunities.
- Arboreal mammals (Brush-tailed Phascogale, Koala): negligible reduction of poor quality habitat would not fragment available habitat in the locality or limit dispersal opportunities.

(iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species or ecological community in the locality,

- Wetland birds (Black-necked Stork, Brolga): habitat to be removed is unlikely to be important for foraging or breeding.
- White-crowned Snake: habitat to be removed is unlikely to be important for foraging or breeding.
- Owls (Barking Owl, Masked Owl): habitat to be removed is unlikely to be important for foraging or breeding.
- Forest birds (Brown Treecreeper, Diamond Firetail, Dusky Woodswallow, Glossy Black-Cockatoo, Grey-crowned Babbler, Little Lorikeet, Speckled Warbler, Swift Parrot): habitat to be removed is unlikely to be important for foraging or breeding.
- Microbats (Eastern Freetail-bat, Greater Broad-nosed Bat, Hoary Wattled Bat, Little Bentwing-bat, Northern Freetail Bat, Yellow-bellied Sheathtail-bat): habitat to be removed is unlikely to be important for foraging or breeding.
- GHFF: habitat to be removed is unlikely to be important for foraging or breeding.
- Rufous Bettong: habitat to be removed is unlikely to be important for foraging or breeding.
- Arboreal mammals (Brush-tailed Phascogale, Koala): habitat to be removed is unlikely to be important for foraging or breeding.

d) whether the proposed development or activity is likely to have an adverse effect on any declared area of outstanding biodiversity value (either directly or indirectly),

No areas of outstanding biodiversity value have been declared in Clarence LGA.

e) whether the proposed development or activity is or is part of a key threatening process or is likely to increase the impact of a key threatening process.

A key threatening process (KTP) is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species or ecological communities. The current list of KTP under the BC Act, and whether the Activity is recognised as a KTP is shown in **Table I.1**.

Table I.1 Key Threatening Processes

Key Threatening Process (as per Schedule 4 of the BC Act)	***Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?***		
	Likely	***Possible***	***Unlikely***
Aggressive exclusion of birds by noisy miners (*Manorina melanocephala*)			✓
Alteration of habitat following subsidence due to longwall mining			✓
Alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands			✓
Anthropogenic climate change			✓
Bushrock removal			✓
Clearing of native vegetation	✓		
Competition and grazing by the feral European Rabbit (*Oryctolagus cuniculus*)			✓
Competition and habitat degradation by feral goats (*Capra hircus*)			✓
Competition from feral honeybees (*Apis mellifera*)			✓
Death or injury to marine species following capture in shark control programs on ocean beaches			✓
Entanglement in or ingestion of anthropogenic debris in marine and estuarine environments			✓
Forest eucalypt dieback associated with over-abundant psyllids and bell miners			✓
Herbivory and environmental degradation caused by feral deer			✓
High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition			✓
Importation of red imported fire ants (*Solenopsis invicta*)			✓
Infection by *Psittacine circoviral* (beak and feather) disease affecting endangered psittacine species and populations			✓
Infection of frogs by amphibian chytrid causing the disease chytridiomycosis			✓
Infection of native plants by *Phytophthora cinnamomi*			✓
Introduction and Establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae			✓
Introduction of the large earth bumblebee (*Bombus terrestris*)			✓
Invasion and establishment of exotic vines and scramblers			✓
Invasion and establishment of Scotch Broom (*Cytisus scoparius*)			✓
Invasion and establishment of the Cane Toad (*Bufo marinus*)			✓
Invasion, establishment and spread of Lantana (*Lantana camara*)			✓
Invasion of native plant communities by African Olive (*Olea europaea L. subsp. cuspidata*)			✓
Invasion of native plant communities by *Chrysanthemoides monilifera* (bitou bush and boneseed)			✓
Invasion of native plant communities by exotic perennial grasses			✓
Invasion of the Yellow Crazy Ant (*Anoplolepis gracilipes*) into NSW			✓
Loss and degradation of native plant and animal habitat by invasion of escaped garden plants, including aquatic plants			✓
Loss of hollow-bearing trees	✓		
Loss or degradation (or both) of sites used for hill-topping by butterflies			✓

Key Threatening Process (as per Schedule 4 of the BC Act)	***Is the development or activity proposed of a class of development or activity that is recognised as a threatening process?***		
	Likely	***Possible***	***Unlikely***
Predation and hybridisation by feral dogs (*Canis lupus familiaris*)			✓
Predation by the European Red Fox (*Vulpes vulpes*)			✓
Predation by the feral cat (*Felis catus*)			✓
Predation by *Gambusia holbrooki* (Plague Minnow or Mosquito Fish)			✓
Predation by the Ship Rat (*Rattus rattus*) on Lord Howe Island			✓
Predation, habitat degradation, competition and disease transmission by feral pigs (*Sus scrofa*)			✓
Removal of dead wood and dead trees	✓		

The Activity would contribute to the KTPs 'clearing of native vegetation', 'loss of hollow-bearing trees' and 'removal of dead wood and dead trees'. Clearing is defined under the TSC Act as *'the destruction of a sufficient proportion of one or more strata (layers) within a stand or stands of native vegetation so as to result in the loss, or long-term modification, of the structure, composition and ecological function of stand or stands'*.

Habitat to be removed for the Activity is small in area, typically isolated or fragmented or of poor quality. Stags and branches removed provide little habitat of value and the loss of four hollow-bearing trees is minor in the context of habitat trees retained within residue land, nest boxes installed in residue land and habitat trees within established forest on adjacent land to the west and north.

The proposed works would be unlikely to result in any long-term impacts to habitat for any threatened fauna species. The degree that the Activity would contribute to any threatening process is not considered likely to place the local population of any of the subject fauna species at significant risk of extinction.

Conclusion

It is considered unlikely that the local population of any of the subject species would be placed at significant risk of extinction as a result of the Activity.

Appendix J

Acoustic Advice

DAY DESIGN PTY LTD
CONSULTING ACOUSTICAL ENGINEERS

SUITE 17, 808 FOREST ROAD, PEAKHURST 2210 ABN: 73 107 291 494
P. 02 9046 3800 ACOUSTICS@DAYDESIGN.COM.AU WWW.DAYDESIGN.COM.AU

Clarence Correctional Center
John Holland
Level 3, Pirrama Road
Pyrmont NSW 2009

13 August, 2018

Refer: 6100-1.2L REV A

Attention: Mr Adam Sharp
Telephone: 02 9552 4288 Email: adam.sharp@jhg.com.au

CLARENCE CORRECTIONAL CENTER – TRANSGRID SUBSTATION
REQUEST FOR FURTHER INFORMATION

Further to our discussion, I confirm that:

- Day Design works extensively with Endeavour Energy and Ausgrid and so are very familiar with the noise emission from transformer substations
- having regard to the physical separation(approximately 1250 metres) between the proposed substation and the nearest private residential premises, it is unlikely the substation will be audible at the nearest residential premises,
- it is unlikely the substation will cause an adverse acoustic impact to staff, visitors or inmates in its proposed location as a result of 6 metre high concrete security perimeter fences,
- it is unlikely the substation will cause a hearing hazard to maintenance workers in the nearby tank farm (circa 575 metres from the substation)
- it is unlikely that the substation will require any acoustic mitigation from the use of low noise transformers as selected (with a sound power level of 75 dBA from Ausgrid)

We understand that the transformers have been selected are "low noise", with a sound power level of 75 dBA. Noise walls, 5 metres high, are also proposed to surround the transformers. We are of the opinion that there will be no acoustic impact from the substation on the nearby private residences, inmates or any staff and visitors.

Kind regards

Stephen Gauld, BE(Mech), MEngSc (Noise and Vibration), MIEAust, MAAS
Principal Acoustical Engineer and Managing Director
for and on behalf of Day Design Pty Ltd