Notice about change to development application

Section 52(1) of the Planning Act 2016

MCU24/0015	[application reference number]
Asciano Properties Operations Pty Ltd	[applicant's name]
C/- Wynne Planning and Development Pty Ltd Office 3, 20 Carlo Drive Cannonvale Qld 4802 kellianne@wynneplanninganddevelompent.com.au	[contact address/email address]
0400 108 121	[contact number]
26 February, 2025	[notice date]
Isaac Regional Council	[assessment manager's name]
PO Box 97 Moranbah Qld 4744	[assessment manager's address]

RE: Development application for: Development Permit for Material Chang Accommodation (166 Accommodation Rooms) and Office	ge of Use for Workforce [details of proposed development]
23 Braeside Road, Nebo	[street address]
Lot 50 SP239857	[real property description]

Dear Sir	[sir/madam/name]

In accordance with section 52(1) of the *Planning Act 2016*, I would like to advise that I am changing the development application identified above. The change is:

Removal of the Workforce Accommodation (166 Accommodation Rooms) from the application

I believe this change should be considered as: [tick applicable box]
a minor change in accordance with the Planning Act
a change in response to an information request
a change in response to a further advice notice
a change in response to a properly made submission
another change as described below

For the following reasons:

The change is to remove the Workforce Accommodation (166 Accommodation Rooms) from the application due to the information required to support the Needs Assessment and the further contractual negotiations with another party

	Amended Town Planning Report;
	Amended Proposal Plans
	Amended Bushfire Report
	Amended Environmental Report
If you wish to discuss this matter further, please of Yours sincerely	contact me on the above telephone number.
K Wynne	
Kellianne Wynne	
Director	
26.02.2025	

Please find attached to this notice further information and documentation about the change, including:

Wynne Planning & Development PTY LTD TOWN PLANNING SPECIALIST

Development Application for Development Permit for Material Change of Use – Office (Administration Services)

Street Address: Braeside Road, NEBO

Property Description: Lot 50 SP239857

Applicant: Asciano Properties

Operations Pty Ltd

Our Ref: 2024WRC063

Telephone: (07) 4948 3362

Email: info@wynneplanninganddevelopment.com.au Address: Office 3, 20 Carlo Drive, Cannonvale Qld 4802

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1. DEVELOPMENT APPLICATION DETAILS

1.1. APPLICANT DETAILS

Applicant Name:	Asciano Properties Operations Pty Ltd	
Postal Address:	C/- Wynne Planning and Development Pty Ltd,	
	Office 3, 20 Carlo Drive, Cannonvale Qld 4802	
Mobile Number:	0400 108 121	
Email Address:	kellianne@wynneplanninganddevelopment.com	
Owners Consent:	Refer to Appendix 2	

1.2. DEVELOPMENT APPLICATION DETAILS

Nature of Development:	Material Change of Use	
Approval Type:	Development Permit	
Description of Proposal:	Office (Associated Administration Services)	
Level of Assessment:	Impact assessment	
Public Notification:	15 Business Days	
Pre-lodgement Meeting:	No	

1.3. LOCATION OF PREMISES

Real Property Description:	Lot 50 SP239857
Street Address:	Braeside Road
Locality:	Nebo
Total Area of Premises:	126.6 hectares
Existing Easements:	Nil
Existing Covenants:	Nil
Current Use of Premises:	Rail Infrastructure — Provisioning Facility

1.4. PLANNING SCHEME DETAILS

Planning Scheme:	2021 Isaac Regional Planning	g Scheme
Planning Scheme Zone:	Rural Zone	
Planning Scheme Overlay/s:	Bushfire hazard Area	
	Environmental significance	
	Flood hazard	
Local Plan:	Nil	
Superseded Planning Scheme:	Not applicable	
Level of Assessment:	Impact Assessment The Planning Scheme	
Material Change of Use – Office		
Bushfire Hazard Overlay	No change to categories of	Bushfire hazard overlay code
Material Change of Use -	development and	
If in a medium bushfire hazard area	assessment	
Environmental Significance overlay Material change of use	No change to categories of development and assessment	Environmental significance overlay code
Flood hazard	No change to categories of	Flood hazard overlay code
Material change of use for	development and	
use for:	assessment	
 Any Other material change of use 		

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1.5. REFERRAL AGENCIES

Material Change of Use	Schedule 10, Part 9, Division 4, Subdivision 2, Table 4 State transport corridors and future State transport corridors Material change of use of premises near a State transport corridor or that is a future State transport corridor Development application for a material change of use, other than an excluded material change of use, that is assessable development under a local categorising instrument, if all or part of the premises— (a) are within 25m of a State transport corridor; or (b) are a future State transport corridor; or (c) are— (i) adjacent to a road that intersects with a State-controlled road; and
	(i) adjacent to a road that intersects with a State-controlled road; and
Application Fee:	(ii) within 100m of the intersection Schedule 10, Part 9- \$1,817 x 2

2. PROPOSED DEVELOPMENT

The proposal is to establish ancillary offices (administration services) at the existing operational rail provisioning facility at Braeside Road, Nebo.

The two (2) new office buildings which are intended to provide for ancillary support services for the existing provisioning yard by way of administrative functions and a driver training facility for their staff.

The operational intent for this application is to provide for:

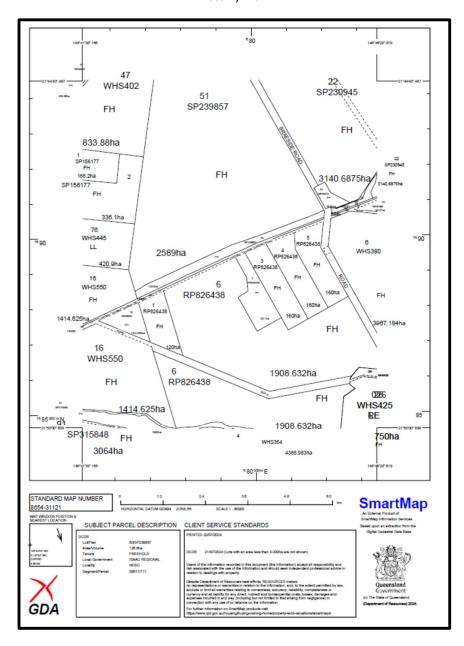
- The Train Support Facility (TSF) (Administration Building) to be used for maintenance, provisioning and trin crew operations on the Goonyella and Newlands lines and will operate 24 hours per day, 7 days per week;
- Administration functions will operate for 12 hours per day, 7 days per week; and
- Maintenance functions will operate 24 hours per day, 7 days per week;

The proposal plans are included in Appendix 3 of the report.

3. PROPERTY CHARACTERISTICS

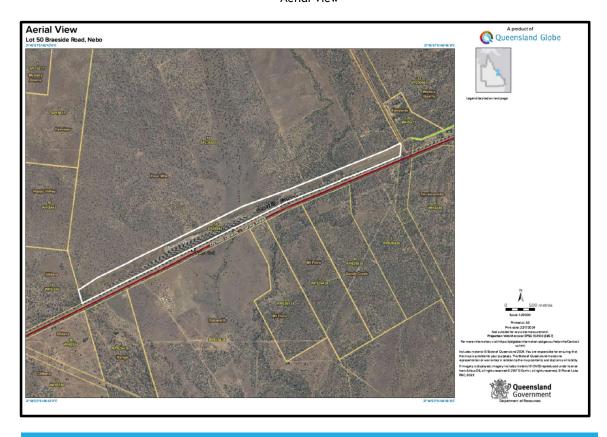
The subject site is described as Lot 50 SP239857 and is located at Braeside Road, Nebo. The subject site contains a total area of 126.6 hectares.

Locality Plan



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Aerial View



4. BACKGROUND OR HISTORY OF SITE

The site operates as a rail infrastructure provisioning facility for Pacific National.

The following Decision Notice Approvals have been granted previously and have since lapsed:

PA11123	Approved 19 March, 2013	Negotiated Decision Notice Approval – Material Change of Use – Work Camp (324 Units;
PA11123A	Approved 6 May, 2013	Decision Notice Approval – Request to Change – Existing Approval – Material Change of Use – Work Camp (324 Units);
PA13058	Approved 13 December, 2013	Decision Notice Approval – Material Change of Use – Work Camp (280 Units).

All workers accommodation and associated infrastructure has been removed from the site as per the conditions of approval.

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5. PLANNING LEGISLATION

The subject site is zoned Rural under the 2021 Isaac Regional Planning Scheme.

The level of assessment for the material change of use is impact assessable as per the following assessment categories:

Level of Assessment: Material Change of Use – Office	Impact Assessment	The Planning Scheme
Bushfire Hazard Overlay Material Change of Use - If in a medium bushfire hazard area	No change to categories of development and assessment	Bushfire hazard overlay code
Environmental Significance overlay Material change of use	No change to categories of development and assessment	Environmental significance overlay code
Flood hazard Material change of use for use for: - Any Other material change of use	No change to categories of development and assessment	Flood hazard overlay code

6. STATE ASSESSMENT AND REFERRAL ASSESSMENT

The subject site has been assessed against the State Development Assessment Mapping Layers for Matters of State Interest and it includes:

- State Controlled Road within 25 metres of State Controlled Road
- Vegetation Clearing
- Waterways

A review of Schedule 10 of the *Planning Regulation 2017*, Division 4 – Referral agency's assessment provides for the following triggers:

Schedule 10, Part 9, Division 4, Subdivision 2, Table 4 - Material change of use of premises near a State transport corridor or that is a future State transport corridor.

Referral is required to the State Assessment and Referral Agency, refer to Appendix for State Assessment Development Provisions.

7. STATE PLANNING POLICIES

State Planning Policy (SPP) commenced in July, 2017 and is a key component to Queensland's land use planning system, which enables development to occur while protecting the natural environment and allows communities to grow and prosper.

The State Planning Policy provides for Part E which is the Interim Development Assessment Requirements for assessment until the Policy has been integrated into the relevant Planning Scheme.

State Interest – Liveable Communities		
A development application in an	All of the following requirements	The facility will be a private
urban area involving premises that	are assessment benchmarks for the	facility, however access will be
is, or will be, accessed by common	development"	provided for emergency services at
property title for:	(1) Development ensures fire	all times.
(1) A material change of use	hydrants are installed and	
or reconfiguration of a	located to enable fire	
lot;	services to access water	

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- (2) The application involves buildings – either attached or detached that are not covered by other legislation or planning provisions making fire hydrants.
- safely, effectively and efficiently.
- (2) Road widths, and construction within the development, are adequate for fire emergency vehicles to gain access to a safe working area close to buildings and near water supplies whether or not onstreet parking spaces are occupied.
- (3) Fire hydrants are suitably identified so that fire services can locate them at all hours.

The site will also contain suitable fire fighting facilities throughout the site.

State Interest - Mining and Extractive Resources

A development application for:

- (1) reconfiguring a lot within a KRA, or
- (2) a material change of use within the resource/ processing area of a KRA or the separation area for the resource/processing area of a KRA, or
- (3) a material change of use within the transport route separation area of a KRA that will result in an increase in the number of people living in the transport route separation area, and

However, requirements of (2) and (3) above do not apply to the assessment of a material change of use for a:

- dwelling house on an existing lot, or
- home-based business (where not employing more than two nonresident people on a fulltime equivalent basis), or
- caretaker's accommodation (associated with an extractive industry), or
- 4) animal husbandry, or
- 5) cropping.

All of the following requirements are assessment benchmarks:

- development within a resource/processing area for a KRA will not impede on the undertaking of an existing or future extractive industry development.
- Development of sensitive land uses is avoided within the separation area for a resource/processing area of a KRA, if it could impede the extraction of the resource.
- 3) Development not associated with extractive industry in the transport route separation area of a KRA does not increase the number of people working or residing in the transport route separation area unless the development mitigates the impacts of noise, dust and vibration generated by the haulage of extractive materials along the route.
- development adjacent to the transport route does not adversely affect the safe and efficient use of the transport route by vehicles transporting extractive resources.

Not applicable to this application.

State Interest - Water Quality

For receiving waters, a development application for:

- (1) Material change of use or an urban purpose that involves premises 2500 metres2 or greater in size; and
 - (a) Will result in six or more dwellings; or

The development application is to be assessed against the following requirements: For a development application mentioned under the heading 'Receiving waters' Development:

 avoids or otherwise minimises adverse impacts on the environmental values of receiving waters, arising from: A Stormwater Quality Report and assessment will be provided with the Engineering Report accompanying this application.

- (b) Will result in an impervious area greater than 25 per cent of the net developable area; or
- (2) Reconfiguration of a lot for an urban purpose that involves premises 2500 metres' or greater in size and will result in six or more lots; or
- (3) Operational works for an urban purpose that involves disturbing a land area 2500 metres2 or greater in size.

For water supply buffer areas, a development application:

- (4) Located wholly outside an urban area and relating to premises that is within, or partly within, a water supply buffer area, that involves:
 - (a) A material change of use for the intensive animal industry, medium and high-impact industry, noxious and hazardous industry, extractive industry, utility installation that involves sewerage services, drainage or stormwater services, waste management facilities, or motor sport facility; or
 - (b) Reconfiguration of a lot to create five or more additional lots if any resultant lot is less than 16 hectares in size, and any of the lots created will rely on on-site wastewater treatment.

- (a) altered stormwater quality or flows, and
- (b) wastewater (other than contaminated stormwater and sewage), and
- (c) the creation or expansion of non-tidal artificial waterways, and
- (2) by demonstrating it complies with the SPP code: Water quality.

The following requirements are assessment benchmarks for the development:

- Development is located, designed and constructed and operated to avoid or minimise adverse impacts on environmental values arising from:
 - (a) Altered stormwater quality and hydrology
 - (b) Wastewater
 - (c) The creation or expansion of non-tidal artificial waterways
 - (d) The release and mobilisation of nutrients and sediments
- (2) Development achieves the applicable stormwater management design objectives outlined in tables A and B (Appendix 2)
- (3) Development in a water supply buffer area avoids adverse impacts on drinking water supply environmental values.

State Interest - Natural Hazards, Risk and Resilience

A development application for a material change of use, reconfiguring a lot or operational works on land within:

- (1) Bushfire prone areas
- (2) Flood hazard areas
- (3) Landslide hazard areas
- (4) Storm tide inundation areas
- (5) Erosion prone area

The following requirements are assessment benchmarks for the development:

Erosion pone areas within a coastal management district:

(1) Development does not occur in an erosion prone area within a coastal management district unless the development cannot feasibly be located elsewhere and is:

The sites are mapped as containing bushfire hazard.

A Bushfire Management Report is included in this application addressing this risk.

- (a) Coastal-dependent development; or
- (b) Temporary, readily relocatable or able to be abandoned development; or
- (c) Essential community infrastructure; or
- (d) Minor development of an existing permanent building or structure that cannot be relocated or abandoned.
- (2) Development permitted in (1) above, mitigates the risks to people and property to an acceptable or tolerable level.

Bushfire, flood, landslide, storm tide inundation and erosion prone areas outside the coastal management district:

(3) Development other than that assessed against (1) above, avoids natural hazard areas, or where it is not possible to avoid the natural hazard area, development mitigates the risks to people and property to an acceptable or tolerable level.

All natural hazard areas:

- (4) Development supports and does not hinder disaster management response or recovery capacity and capabilities.
- (5) Development directly, indirectly and cumulatively avoids an increase in the severity of the natural hazard and potential for damage on the site or to other properties.
- (6) Risks to public safety and the environment from the location of hazardous materials and the release as a result of a natural hazard are avoided.
- (7) The natural processes and the protective function of landforms and the vegetation that can mitigate risks associated with the natural hazard are maintained or enhanced.

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State Interest - Strategic Airports and Aviation Facilities

- A development application for:
- a material change of use of premises which will result in a building, structure or associated activity intruding into the operational airspace of a strategic airport; or
- (2) a material change of use of premises where any part of the premises is within the light restriction zone or lighting area buffer or a strategic airport; or
- (3) A material change of use of premises where nay part of the premises is within a wildlife hazard buffer zone of a strategic airport; or
- (4) A material change of use of premises or reconfiguration of a lot where any part of the premises is within a public safety area of a strategic airport; or
- (5) a material change of use of premises or reconfiguring a lot where any part of the premises is within the 20 ANEF contour, or greater, for a strategic airport, or
- (6) a material change of use of premises that will result in a building, structure or associated activity intruding into the building restricted area of an aviation facility; or
- (7) Building work not associated with a material change of use, that will result in a building, structure or associated activity intruding into the operational airspace of a strategic airport; or
- (8) Building work not associated with a material change of use where any part of the premises is within the light restriction zone or lighting area buffer of a strategic airport; or
- (9) Building work not associated with a material change of use that will result in a building, structure or associated activity intruding into the building restricted area of an aviation facility; or
- (10) Operational work not associated with a material change of use where the work or associated activity will intrude into the operational

All of the following requirements are assessment benchmarks:

- (1) Development and associated activities do not create a permanent or temporary physical or transient intrusion into a strategic airport's operational airspace, unless the intrusion is approved in accordance with the relevant federal legislation.
- (2) Development and associated activities do not include light sources or reflective surfaces that could distract or confuse pilots within a light restriction zone or lighting area buffer.
- (3) Emissions do not significantly increase air turbulence, reduce visibility or compromise the operation of aircraft engines in a strategic airport's operational airspace.
- (4) Development and associated activities do not attract wildlife or increase wildlife hazards within a wildlife hazard buffer zone.
- (5) Development and associated activities within a building restricted area do not interfere with the function of aviation facilities.
- (6) Development does not increase the risk to public safety within a public safety area.
- (7) Development within the 20 ANEF contour or greater is appropriately located and designed to prevent adverse impacts from aircraft noise.

Not applicable to this application.

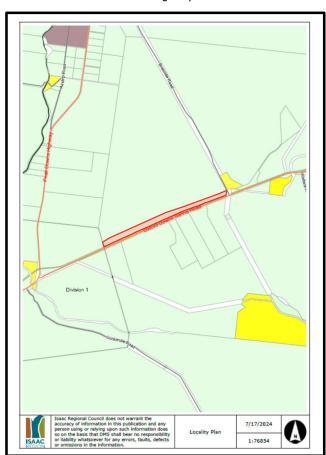
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airspace of a strategic airport;

- (11) Operational work not associated with a material change of use where any part of the premises is within the light restriction zone or lighting area buffer of a strategic airport; or
- (12) Operational work not associated with a material change of use where the work or associated activity will intrude into the building restricted area of an aviation facility.

8. PLANNING SCHEME

The subject site is zoned Rural under the 2021 Isaac Regional Planning Scheme as depicted in the following Zoning Map:



Zoning Map

The following table provides an assessment against the Rural Zone Code

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	Purpose and Overall Outcome	Assessment
(1) The p (a) (b)	purpose of the rural zone is to: provide for rural uses and activities; and provide for other uses and activities that are compatible with: (i) existing and future rural uses and	The proposed office will provide for support for the existing rail infrastructure provisioning being undertaken on the site.
	activities; and (ii) the character and environmental features of the zone; and	The site is not used for rural activities and given the current use of the site a rural activity would be incompatible.
(c)	maintain the capacity of land for rural uses and activities by protecting and managing significant natural resources and processes; and	The environmental values of the site will remain unchanged, however the existing nodes of vegetation could be rehabilitated to support the Koala population in the area by improving the
(d)	ensure sensitive land uses do not encroach into areas affected by hazardous levels of dust associated with mining activity.	connectivity to the adjoining corridor. The proposed uses will be undertaken to minimse
		dust emissions.
	courpose of the zone will be achieved through collowing overall outcomes: areas for use for primary production are conserved and fragmentation is avoided through maintaining very large lots to support rural agricultural activities and lots to support the functional requirements of resource related activities.	The proposal does not result in loss of usable primary production land.
(b)	the viability of both existing and future rural uses and resource related activities are protected from the intrusion of incompatible uses;	The site contains existing rail infrastructure and provisioning. The proposed uses are to support this infrastructure operation while ensuring the uses will not impact on the adjoining farming operations.
(c)	sensitive land uses are not: (i) located within the potential hazardous dust level overlay; (ii) subjected to unreasonable risks associated with resource extraction activities associated with mining and quarrying having regard to vibration, odour, dust or other emissions;	The proposed uses and buildings are located outside of the hazardous dust level overlay.
(d)	the establishment of a wide range of rural pursuits is facilitated, including cropping, intensive horticulture, aquaculture, grazing, intensive animal industries, animal husbandry and animal keeping and other compatible primary production uses;	The site is not used for rural activities and given the current use of the site a rural activity would be incompatible.
(e)	cropping and horticultural activities are encouraged on productive Agricultural Land Classification Class A and B agricultural land;	The site is not used for rural activities and given the current use of the site a rural activity would be incompatible.
f)	renewable energy facilities and extractive industries: (i) mitigate impacts on the environment and adjoining land uses; (ii) do not degrade Class A and B agricultural land; (iii) rehabilitate sites upon completion of activities; and (iv) are supported by necessary infrastructure.	Not applicable to this application.
(g)	the establishment of outdoor recreation and small-scale tourism facilities in suitable	Not applicable to this application.

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	Purpose and Overall Outcome	Assessment
	locations is facilitated only where they do not compromise the use of the land for rural activities and minimise any land-use conflicts;	
(h)	natural features such as creeks, gullies, waterways, wetlands and bushland are retained, managed and separated from adjacent development where possible;	The proposal will not involve the interference with any existing waterways.
(i)	rural land uses incorporate sustainable practices to prevent soil erosion, landslide, protect the quality of land resources and water catchments, maintain habitat values of waterways and native timber and forest areas;	The proposal will involve the inclusion of erosion and sediment control measures to prevent erosion and also some additional rehabilitation of existing vegetated areas for the koala habitat.
(j)	adverse impacts of land use, both on-site and from adjoining areas, are avoided and any unavoidable impacts are minimised through location, design, operation and management;	The proposed office buildings will be setback from the adjoining fence to provide a buffer to avoid impacts. The buildings are also setback off the adjoining boundary for bushfire purposes.
(k)	urban and rural residential expansion does not occur on land in the rural zone.	The site contains an existing industrial use by way of rail infrastructure provisioning and therefore is not considered to be a rural use. The proposal is to support the existing rail operations.

<u>Specific Benchmarks for Assessment – Rural Zone Code</u>

Performance outcomes	Acceptable outcomes	
Built form		
PO1 Buildings are designed and located so as not to adversely	AO1.1 Building height does not exceed 12m.	The proposed buildings are single storey therefore less than 12.0 metres in height.
impact on the rural character and amenity of the locality.	AO1.2 Buildings, other than a roadside stall, are setback a minimum of:	The proposal exceeds the 10 metre front boundary setback.
	(a) 10m from the front boundary and side boundaries for allotments greater than 2ha; or (b) 5m front boundary and side boundaries for allotments less than 2ha.	The proposal also ensures a minimum of 10 metres to the side boundary as this area contains high voltage power, optic fibre, access and acts as a fire break for bushfire protection.
Residential density		
PO2 Residential density reflects the low intensity rural character of the locality.	(a) one dwelling house (including a secondary dwelling) or one dual occupancy per allotment; and (b) one dwelling up to 200m² GFA where for rural workers' accommodation.	Not applicable to this application.
	AO2.2 Any secondary dwelling is: (a) a maximum of 150m² gross floor area; and (b) within 50m of the main building.	Not applicable to this application.
Amenity		

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PO₃

Sensitive land uses do not encroach on existing or approved rural, open cut coal mining and extractive industry activities or other uses that may result in an adverse impact on amenity, health or safety.

Editor's note—Where not achieving AO3, a site based assessment is required to demonstrate compliance with PO3. Refer also to the Hazards PSP regarding Potential Hazardous Dust.

AO3

Sensitive land uses are separated:

- (a) from intensive animal industry uses (where a cattle feedlot) by:
 - (i) up to 500 head 700m
 - (ii) 501 to 5,000 head 1.5km
 - (iii) 5,001 to 10,000 head 2km
 - (iv) > 10,000 head 2 km
- (b) from animal keeping (if only catteries and kennels) by a minimum of 700m;
- (c) from waste disposal areas connected to an animal husbandry operation by a minimum of 1km;
- (d) from cropping on areas of agricultural land by a minimum of 300m;
- (e) from other agricultural activities (excluding cropping activities) by a minimum of 50m;
- (f) from other rural activities, not elsewhere mentioned, by a minimum of 100m;
- (g) from railway activities by a minimum of 100m;
- (h) from the mining lease boundaries of open cut coal mining projects by a minimum of 10km

The site does not adjoin an intensive animal industry use.

The site does not adjoin an animal keeping facility.

The site does not adjoin a waste disposal area for animal husbandry operation.

The site does not adjoin cropping areas.

The subject site is narrow and requires separation from the railway corridor.

The proposal is to support and operate ancillary to the railway operations and therefore considered to be compatible.

The site is not located near mining leases.

Performance outcomes

Acceptable outcomes

Editor's note—Mining lease boundaries can be identified on the Queensland Government Mines Online Map service - MyMinesOnline.

This setback is required to adequately separate sensitive land uses from potentially hazardous dust levels associated with open cut mining activity.

- by not being located within the Potential hazardous dust level overlay map OM10;
- (j) from existing industrial activities by 1km;
- (k) from a high pressure gas pipeline by 200m;
- (I) from the Galilee Basin State Development Area boundary by 1km; and

Editor's note—Refer to map AM1 in Schedule 2.

(m) from extractive industry operations as follows:

The site is not included on the dust mapping.

The site is not located near industrial activities.

The site is not locate near gas pipelines.

The site is not located in or near the SDA.

Operation	Separation distance
Extraction or processing involving blasting or crushing	1000m
Extraction or processing not involving blasting or crushing	200m
Haul route	100m

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PO4 Outdoor lighting does not adversely affect the amenity of	AO4.1 Light emanating from any source complies with Australian Standard	Lighting will comply with Australian Standards.
adjoining properties or create a traffic hazard on adjacent roads.	AS4282 Control of the Obtrusive Effects of Outdoor Lighting or current version.	
	AO4.2 Outdoor lighting is provided in accordance with Australian Standard AS 1158.1.1 – Road Lighting – Vehicular Traffic Category V) Lighting – Performance and Installation Design Requirements or current version.	Lighting will comply with Australian Standards.
PO5	AO5	The location of the buildings is away
Development does not adversely impact on the amenity of the surrounding rural or residential land uses and/or rural landscape character.	Plant and air-conditioning equipment, storage areas and processing activities are screened from view of the road or adjoining residential uses.	from roadways and adjoining boundaries therefore will not impact offsite.
PO6	AO6	The proposed areas are not affected
Development ensures: (a) vulnerability to landslip, erosion and land degradation is minimised; and (b) the safety of people and	Development is not located on slopes greater than 15%.	by slope.
property. Editor's note— where not achieving AO6, a site based assessment and landslide risk management plan is required to demonstrate compliance with PO6. Refer to the Hazards PSP.		
Stock routes		
PO7 Development located on a stock route shown on Agriculture land overlay map OM2 does not compromise the use	AO7 Sensitive land uses are separated a minimum of (a) 200m from a surveyed stock route; or (b) 800m from an unsurveyed stock	The subject site is not located near a stock route.
of the stock route by travelling stock.	route.	
PO8 Development on or crossing a stock route does not impede the free movement of stock.	AO8 Development provides: (a) for grade separation of transport infrastructure and stock; or (b) alternate unimpeded and watered stock route access.	The subject site is not located near a stock route.
Use - Caretakers accommodation		
PO9 Development is ancillary to the primary use.	AO9 No more than 1 caretaker's accommodation unit is established on the site.	Not applicable.
Use - Roadside stall		
PO10 Roadside stalls are of a scale in keeping with the rural	AO10.1 Structures associated with the use are limited to 30m ² gross floor area.	Not applicable.

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AO10.2	Not applicable.
A roadside stall is setback a minimum	
of 10m from the front and side	
boundaries.	
AO10.3	Not applicable.
The roadside stall only sells produce	
grown on site.	
No acceptable outcomes are	The proposed office will provide for
nominated.	support for the existing rail
	infrastructure provisioning being
	undertaken on the site.
	The site is not used for rural activities
	and given the current use of the site
	a rural activity would be
	incompatible.
,	Not applicable to this application.
nominated.	
No acceptable outcome is nominated.	The proposal has been designed to
	ensure:
	511351 5.
	- casual surveillance and slight
	lines due to the simple layout;
	inies ade le me simple layeur,
	- the design ensures no
	concealment areas;
	concediment areas,
	 the exterior design complies
	with building standards;
	- Lighting is provided where
	required for safety and
	surveillance;
	- Signage will be provided
	through out the village.
	- Areas for back of house and
	servicing is clearing defined
	on the plans.
	on me plans.
,	
	A roadside stall is setback a minimum of 10m from the front and side boundaries. AO10.3 The roadside stall only sells produce grown on site.

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PO14	A0141	The managed will not property
PO14 Development minimises potential conflicts with, or impacts on, other uses having regard to vibration, odour, dust	AO14.1 Development achieves the air quality design objectives set out in the Environmental Protection (Air) Policy 2008, as amended.	The proposal will not generate conflicts internally or externally from the site.
or other emissions.	AO14.2 Development that involves the storage of materials on site that are capable of generating air contaminants either by wind or when disturbed are managed by: (a) being wholly enclosed in storage bins; or (b) a watering program so material cannot become airborne.	No chemical storage is proposed.
PO15 Development prevents or minimises the generation of any noise so that: (a) nuisance is not caused to adjoining premises or other nearby sensitive land uses; and (b) desired ambient noise	AO15 Development achieves the noise generation levels set out in the Environmental Protection (Noise) Policy 2008, as amended.	The proposal will generate minimal noise.
levels in residential areas are not exceeded.		
PO16 Development does not unduly impact on the existing amenity and character of the locality having regard to: (a) the scale, siting and design	No acceptable outcomes are nominated.	The proposed buildings are low form light weight structures that have been designed to be placed in areas which do not require tree clearing or impact on habitat areas.
of buildings and structures; (b) visibility from roads and other public view points, screening vegetation and landscaping;		The buildings are setback from the roads and due to vegetation adjoining the railway corridor will not be viewable from the roadway.
(C) the natural landform and avoidance of visual scarring; and (d) vibration, odour, dust, spray drift and other		The location of the buildings will require minimal clearing.
emissions.	No macontale sutrames and	The development will be a section of
PO17 All uses are located, designed, orientated and constructed to:	No acceptable outcomes are nominated.	The development will be constructed so as to minimise impacts on the adjoining farming operations.
(a) minimise noise dust, odour or other nuisance from existing lawful uses including rural and industrial uses;		
(b) minimise nuisance caused by noise, vibration and dust emissions generated to the state-controlled road and rail network in the vicinity of the land.		

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PO19	No secondado estado de constructo d	The green and minimized incomests on
PO18 Development ensures ecological	No acceptable outcome is nominated.	The proposal minimises impacts on
values, habitat corridors and		vegetation by using areas which have
1		no to limited vegetation.
soil and water quality are		
protected, having regard to:		
(a) maximising the retention		
of vegetation and the		
protection of vegetation		
from the impacts of		
development;		
(b) minimising the potential for		
erosion and minimisation of		
earthworks;		
(C) maximising the retention and		
protection		
of natural drainage lines		
and hydrological regimes;		
(d) avoidance of release of		
biohazards into the		
environment;		
(e) mitigating the risk of		
introducing and spreading		
weeds and pest animals;		
and		
(f) avoidance of leeching		
by nutrients, pesticides		
or other contaminants,		
or		
potential for salinity.		
Use - Animal keeping (kennels or	r catteries)	
PO19	AO19.1	Not applicable.
Development is sited, constructed	A minimum site area of 5 hectares	
and managed such that:	is required.	
(a) animals are securely housed;	A019.2	Not applicable.
and	Buildings used for animal keeping	1401 applicable.
(b) the use does not create an	are constructed with impervious	
unreasonable nuisance	reinforced	
beyond the site boundaries.		
be your me sire boundaries.	concrete floors, gravity drained to	
	the effluent collection/treatment	
	point.	N
	AO19.3	Not applicable.
	Animal proof fencing or other	
	appropriate barrier features are	
	provided to a minimum height of	
	1.8m within the site to prevent the	
	escape of animals.	
	AO19.4	Not applicable.
	Animals are kept in fenced	
	enclosures, inside buildings at all	
	times between the hours of 6pm and	
	7am.	
	AO19.5	Not applicable.
	A person who is responsible for the	i toi applicable.
	supervision of the operation of the	
	development is accommodated on	
	the premises at all times.	
	AO19.6	Not applicable.
	Animal enclosures are set back to	
	roads, streets and water resources as	
1		
	follows:	

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I		
	Road frontages 50m	
	Top bank of creek, river, stream, wetland, edge of well, bore, dam, weir, intake or the	
	like which provides potable water supply to	
	the site or surrounds Top bank of dry or perennial gully 30m	
Use – Agricultural supplies store,		
industry, wholesale nursery and		
PO20	AO20.1	Not applicable.
Development is located and	A minimum site area of 5 hectares	
designed on sites of sufficient size, to minimise adverse impacts on:		
(a) the amenity of the setting,	AO20.2	Not applicable.
in particular noise, odour	A minimum 15m setback is required	
and dust emissions;	from any adjoining property	
(b) the amenity of neighbours;	boundary. AO20.3	Not applicable
and	Sales, storage, handling, packaging	Not applicable.
(C) operating within the safe	and production areas are setback a	
and effective design	minimum of:	
capacity of the region's	(a) 100m from any sensitive land	
road system.	use (50m for Garden centre);	
	(b) 50m from state-controlled	
	roads and 20ms from all	
	other roads;	
	(C) 20m from any residential	
	dwelling on the same or	
	adjoining site (10m for Garden centre);	
	(d) 30m from top bank of creek,	
	river, stream or wetland edge	
	of well, bore, dam, weir,	
	or intake that provides potable	
	water.	
	AO20.4	Not applicable.
	Infrastructure and material storage	
	areas are confined to free draining	
	areas and sites on slopes not	
	exceeding 10%.	N
	AO20.5	Not applicable.
	There is direct access from the	
	property boundary to a sealed road.	Not applicable
	AO20.6	Not applicable.
	Hours of operation are limited between 7am and 5pm.	
Use - Club or community use	berneen / am and opini	
PO21	AO21.1	Not applicable.
Development is located and	A minimum site area of 5 hectares	i toi applicable.
designed on sites of sufficient	is required.	
size, to minimise adverse impacts	AO21.2	Not applicable.
on:	Siting and layout includes:	b.b. sees a
(a) the amenity of the setting,	(a) the total area of covered	
in particular noise, odour	buildings and roof structures is	
and dust emissions; and	no greater than 10% of site	
(b) the amenity of neighbours.	area; and	
	(b) no building or structure is	

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1		T
	closer than 15m to any site	
	boundary.	
	AO21.3	Not applicable.
	Buildings and structures associated	. vo. application
	with the use is limited to:	
	(a) shelters;	
	(b) toilets;	
	(C) kiosks;	
	(d) hall/function area.	
	AO21.4	Not applicable.
	Hours of operation are limited	
	between 7am and 10pm.	
Use – Renewable energy facility		
PO22	No acceptable outcome is nominated.	Not applicable.
Development is:	-	
(a) located to allow for		
connections into		
relevant energy supply		
networks;		
(b) located to avoid		
alienating highly		
productive		
agricultural land;		
(C) accessible to an		
appropriate level of		
road infrastructure to		
support the facility; and		
(d) located to avoid		
impacting coal or		
mineral resources or		
tenements.		
PO23	No acceptable outcome is nominated.	Not applicable.
Development ensures the site is	1.10 deceptable obteome is nonminated.	. to applicable.
returned to its pre-development		
condition and land use upon		
cessation of the renewable		
energy facility.		

The proposed development requires an assessment against the following codes:

- Strategic intent
- Development works code
- Landscaping code
- Overlay codes

An assessment against each of these codes is provided below.

Strategic intent

- 3.2.1 Overview
- (1) Isaac Region is diverse geographically, climatically and economically.

Noted

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(2) The diversity gives rise to a range of land uses; from intensive aquaculture, agricultural and small scale settlements on the coast; to broad hectare grazing, cropping, mining and larger urban settlements inland.

Noted

(3) Global policy and market influences are felt directly within Isaac's communities and economy. In turn, our communities and economy play an important role in meeting global energy and resource commodity needs. We are, 'helping to energise the world.'

The subject site and the rail provisioning contributes positively to this outcome.

(4) Our region has a strong historical, current and future connection with mining and the resources sector 2. The Isaac Region is the heart of the Bowen Basin mining and exploration activity and is a major gateway to those activities in the Galilee Basin.

The subject site and the rail provisioning contributes positively to this outcome.

(5) This connection brings with it economic and social dynamism which influences the demographic make up and the economic performance of the region.

The subject site and the rail provisioning contributes positively to this outcome.

(6) Our towns and communities need to be adaptable and resilient to respond to this dynamism and to continue to thrive as our economy and society changes.

The subject site and the rail provisioning contributes positively to this outcome. The proposed offices support this outcome by ensuring train drivers have a suitable location to undertaken administrative functions and training as well as fatigue management.

(7) The permanent resident and the non-resident worker populations of the region's towns are significantly influenced by the extent of resource activity and the workforce policy of resource companies. Population fluctuations during the life of the planning scheme are challenging to predict because of the sensitivity to these external commercial considerations.

The proposed offices are ancillary to the existing site operations.

(8) Projections by the Qld Government for non-resident workers on shift from 2017 – 2023 identify that the Isaac Region will continue to have the largest share of the Bowen Basin's non-resident workers on shift, albeit less than the peak in 2012.⁴

Noted workers are intended to remain in the Isaac Region.

(9) Up to 30,000 beds of Workforce accommodation are estimated to be constructed or approved in the region⁵ and is indicated on Strategic Framework Map SFM1. In this context, need for further development of Workforce accommodation must be demonstrated.

A Needs Report has been commissioned and supports this application.

(10) Strategies which seek to further diversify economic activity, (capitalising on the natural diversity and competitive advantages of the region) and in doing so moderate dynamism and build social and economic resilience in the region, will support sustained prosperity.

The Isaac Region will continue to provide consumables to this site.

(11)Our region is a region where economic activity and entrepreneurial initiative are supported and encouraged.

Adaptable centres, industrial areas and infrastructure support existing and emerging activities.

The proposed ancillary offices will contribute positively to the economy during the construction stage and operational stage.

(12) The region's industries are also adaptable, providing materials and services to the resources and agricultural sectors. Industry areas within the region's towns capitalise on close proximity to these activities.

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The proposal is for ancillary offices.

(13) Agricultural and grazing activities are influenced by access to water and defined climatic variations across the region resulting in diverse practices, produce and opportunities for primary production based industries.

Not applicable to this application. The proposal is for ancillary offices.

(14) Climatic variations also result in differences in the extent of natural hazards, such as flood, bushfire and coastal hazards experienced in the region. Our region can experience extreme events in the form of cyclones, droughts and flooding rains.

Reporting has been prepared and included with this application to address hazards.

(15) Historical centres, established to support the first waves of mining and pastoralism in the region in the 1860's such as Clermont, St Lawrence and Nebo now provide a range of services to urban and rural communities and the agricultural and resource sectors.

The proposal is for ancillary offices.

(16) Moranbah, Dysart, Middlemount and Glenden are centres established in the 1970's which provide a range of urban and administrative services to the community and the resources sector.

Not applicable to this application.

(17)Coppabella, as a privately owned railway settlement, has a specific role in servicing the railway operating in the area but is not intended it expand beyond this role.

Not applicable to this application.

(18) Coastal townships and localities are important focal points for communities and agricultural, lifestyle and tourism activities in these areas.

Not applicable to this application.

3.2.2 Isaac Region in 2036

(1) Moranbah is the region's largest administrative centre providing diverse urban and community services and infrastructure, supporting the local and regional community, including small and medium businesses, education, health, government and administrative services, regional facilities and tourism and visitor facilities.

Not applicable to this application.

(2) Moranbah, Clermont, Nebo, Middlemount, Dysart and Glenden are resilient towns providing a wide range of housing, small business, industry and employment opportunities. Urban services and infrastructure support permanent residents, non- resident workers and visitors to the region.

The proposal is for ancillary offices at the Nebo site to support the existing site operations.

(3) Urban settlements do not occur outside these towns.

Not applicable to this application.

(4) Our towns are attractive, liveable and supportive of thriving communities and economic activity.

Noted.

(5) The region's towns, townships and localities provide the setting for vibrant social and cultural activities which enrich the lifestyle of residents and visitors to the region.

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Noted.

(6) The region's towns support a range of industries providing materials and services to meet the needs of communities and the industry sectors operating within the region.

The proposal is for ancillary offices in Nebo to provide support for the existing site operations

(7) The locality of Coppabella is a railway settlement that provides housing and small scale convenience services, limited in scale to only meet the operational needs of the railways in the region. It does not grow to become an urban area or township that provides housing or services beyond that required of railway operations.

Not applicable to this application.

(8) Carmila services growing tourism, rural and township activities building on existing community facilities, and proximity to major transport infrastructure.

Not applicable to this application.

(9) St Lawrence is one of the region's earliest settlements. It has an important role as the centre within which local government services are provided to the coastal areas.

Not applicable to this application.

(10) Development in other coastal townships is constrained by available infrastructure (Greenhill), natural hazard risks (Clairview and Carmila Beach) and surrounding environmental values.

Not applicable to this application.

(11) Land uses which are sensitive to severe coastal hazard risks do not establish or expand at Clairview or Carmila Beach.

Not applicable to this application.

(12) Rural residential areas at Clermont, Nebo and Greenhill provide housing and lifestyle choice for residents transitioning between rural and urban lifestyles. Rural residential activities do not occur outside these locations.

Not applicable to this application.

(13) Infrastructure is provided to support the health and wellbeing of residents and visitors to the region and to support the safe operation of industry.

The site provides for its own on site essential services. Refer to the engineering plans and documents for details.

(14) Community infrastructure provides a focal point for community activity in localities across the region including: Clarke Creek, Coppabella, Flaggy Rock, Kilcummin, Mackenzie River, Mistake Creek, Twin Hills, Lotus Creek and Valkyrie.

Not applicable to this application.

(15) The region's economy, in addition to the positive contribution from mining activities, includes thriving rural enterprises incorporating cattle grazing and cropping activities and a wide range of complementary value adding rural industries and diversified tourism activities within the capacity of rural infrastructure networks.

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Not applicable to this application.

(16) Productivity of the region's rural areas is enhanced through access to reliable and affordable agricultural water supplies.

Not applicable to this application.

(17) Rural areas support mining activities, renewable energy facilities, infrastructure and hazardous activities that cannot be located within urban areas in locations that do not impact upon surrounding sensitive land uses.

The proposal supports the mining industry and supports the rail infrastructure provisioning located on the same site.

(18) Extractive industry operations 6 occur within identified Key Resource Areas or in rural areas where environmental impacts and impacts on infrastructure can be avoided or mitigated.

Not applicable to this application.

(19) The region's towns and rural areas provide opportunities for traditional owners to undertake cultural activities on country.

Not applicable to this application.

(20) Development avoids or mitigates to an acceptable or tolerable level the risks associated with current and future natural hazards and is safe from other hazards affecting community health and wellbeing.

This development has taken into consideration the potential hazards associated with the site (bushfire, environmental, and flood). Reporting has been provided to address these overlays and support the proposed development.

(21) The cumulative impacts7 of development in the region is managed to avoid intolerable or unacceptable health, safety and amenity impacts on residents and visitors to the region.

The proposed offices will not result in any intolerable or unacceptable health, safety or amenity impacts on the community.

(22) The region's natural environment supports recreation and cultural activities, tourism and primary production in keeping with the environmental values.

Not applicable to this application.

(23) Development and infrastructure mitigates impacts on cultural heritage, water quality and natural environmental values.

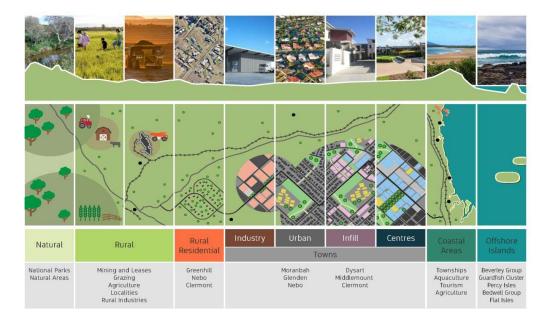
No matters of cultural significance have been identified Water quality and natural environment values have been taken into account and will not be negatively impacted as a result of the proposed.

(24) Land use and land management practices support improvements to water quality in the catchments of the Fitzroy, Burdekin, Styx and a small area of the Pioneer River and Plane Creek which flow to water supply catchments and the Great Barrier Reef.

Not applicable to this application.

- 3.2.3 Places in the Isaac Region
- (1) Isaac is a diverse region which contains many distinct places. The Isaac Places model is a summary of how land use and development is anticipated across the region within these distinct places.

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Places	Description	Location in the region
Natural	These areas will remain dominated by the natural environment containing mostly undisturbed natural conditions. These areas will not accommodate urban development but could accommodate tourism and other compatible commercial uses on private land where impacts can be suitably managed.	Various conservation reserves and adjoining natural landscapes across the region included in the Conservation and environmental management zone.
Rural	These areas are used primarily for agriculture, grazing and complementary tourism and agribusiness activities. Other activities may be found in rural areas where they are in keeping with the character, amenity and natural resources of the area. These areas also contain localities which provide small scale community facilities which serve as a focal	Extensive areas of the region included in the Rural Zone, on the coast and inland, surrounding the region's settlements. Localities are dispersed across the rural areas of the

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Places	Description	Location in the region
	point for the surrounding community. In Rural areas mining and exploration activities occur. These activities are not regulated by the planning scheme but are regulated by the Queensland State Government under other legislation including the Mineral Resources Act 1989 and the State Development and Public Works Organisation Act 1971.	region and include: Clarke Creek, Coppabella, Kilcummin, Mackenzie River, Mistake Creek, Twin Hills, Lotus Creek and Valkyrie.
Rural Residential	These areas provide for residential development on large lots within in a rural setting. The keeping of small numbers of working and companion animals and rural plant is expected in these areas.	Rural residential zoned land at Greenhill, Clermont and Nebo
Towns - Industry	These areas are predominantly for industrial development and contain sufficient capacity to accommodate the future industrial growth needs of the region. These areas have varying lot sizes and standards of infrastructure service consistent with their location and anticipated use.	Industry zoned areas within and on the fringes of the region's major towns – Moranbah, Nebo, Clermont, Glenden, Dysart and Middlemount
Towns - Urban	These areas are predominantly for residential development and contain areas with sufficient capacity to accommodate the future urban growth of the region. These areas (other than emerging community areas) are fully serviced to an urban standard and include current land uses that provide for a localised service function including neighbourhood centres and non-residential uses (community facilities, open space and sport and recreation).	Low density residential zoned areas within the region's major towns – Moranbah, Nebo, Clermont, Glenden, Dysart and Middlemount
Towns - Infill	These areas are located where increased residential densities are desirable to promote compact neighbourhoods. These areas also provide opportunities for replacement of older housing stock and are located in proximity to service centres and major infrastructure.	Low medium density residential zoned areas within key locations within the region's major towns – Moranbah, Nebo, Clermont and Dysart.
Towns - Centres	These areas provide for the day-to-day service needs of the urban community and surrounding rural catchment. The convenience needs include medical and personal services, food and drink outlets, shops and a hotel or other uses that provide a community focal point. Community services that directly support the immediate community and residential development are supported within these centres.	Centre zoned nodes within key locations within the region's major towns – Moranbah, Nebo, Clermont, Glenden, Dysart and Middlemount

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Places	Description	Location in the region
Coastal areas	These areas are a mix of rural activities and small scale coastal townships and localities which also service travellers and tourists using the Bruce Highway. The rural activities and industries are distinct from those inland and where environmental impacts can be managed have the potential for growth and expansion supporting a small increase in township activities at Carmila.	Ilbilbie, Greenhill, Carmila, Clairview, St Lawrence, Flaggy Rock and surrounding rural areas and localities.
Offshore Islands	These islands are located offshore and are undeveloped. The majority of these islands are National Parks and protected areas.	Various islands within the Broadsound and beyond included in the Conservation and environmental management zone.

The subject site is zoned Rural and contains Rail Infrastructure and provisioning to support the mining industry. The proposed development is in keeping with this land use and will operate ancillary to the existing operations on site.

3.3 Liveable communities

3.3.1 Strategic Outcomes

1.3.1.1 General

(1) Moranbah, Clermont, Nebo, Middlemount, Dysart and Glenden are established towns and communities and their urban areas are intended to provide for the range of urban housing choices, and urban scale retail, commercial, industrial, administrative, health, community and educational services to the region.

The proposal is for offices will be ancillary to the operations on the current site.

(2) Moranbah as the region's largest urban area provides the highest order urban services and greatest diversity of urban housing choices.

Not applicable to this application.

(3) Building heights within the urban areas' centres are in keeping with the height of existing buildings. Building heights in Moranbah's town centre are anticipated to be up to four storeys; in all other centres heights do not exceed three storeys.

There are no buildings on adjoining sites within close proximity to the subject site. The proposed offices are one storey.

- (4) Expansion of urban areas does not extend beyond areas included within the following zones:
 - (a) Low density residential
 - (b) Low medium density residential
 - (c) Centre
 - (d) Industry
 - (e) Industry investigation
 - (f) Emerging community
 - (g) Community facilities
 - (h) Open space and recreation
 - (i) Special purpose (where urban infrastructure within a town).

The proposed use is not considered to be urban expansion. The proposal is to provide ancillary services to support the existing rail infrastructure network. The workers administration buildings are to support the on site operations and are not intended to support other uses off site.

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(5) Development in urban areas contributes to the provision of reticulated water supply and sewerage, open space, stormwater management and transport urban infrastructure networks.

Private infrastructure will be provided to this development.

(6) Urban areas are served by treed streetscapes, community spaces, parkland and sporting facilities supporting community health and wellbeing, active lifestyles, community interaction, and a range of recreational activities.

The proposal provides for recreational facilities to support the needs of staff and contractors on site.

(7) Within urban areas a network of roads and walking and cycling paths provide access to places of employment, education, recreation, other community services and other urban areas and localities across the region via the intra regional road network.

Not applicable to this application

(8) Coppabella as a locality servicing the rail community associated with the operation of the Goonyella to Hay Point rail network does not expand to become an urban area. It is not intended that Coppabella be the location of land uses serving travellers on the Peak Downs Highway or land uses anticipated in Nebo or Moranbah.

Not applicable to this application.

(9) Carmila due to its location in proximity to major transport infrastructure is anticipated to experience increased economic activity. This activity will support growth and development within and surrounding the existing township and community facilities where risks from natural and other hazards can be mitigated to an acceptable level.

Not applicable to this application.

(10) St Lawrence provides small scale convenience level activities servicing tourists and the southern coastal communities of the region and is a centre of local government service delivery for coastal areas.

Not applicable to this application.

(11) The coastal township of Greenhill is a low density residential settlement. Retail and commercial services in this locality does not expand beyond small scale convenience level activities servicing the local community and tourists.

Not applicable to this application.

(12) Community facilities across the region's rural areas are the focal point for community events and activities in the localities within which they are located.

Not applicable to this application.

(13) Urban, rural residential, township and rural areas support home based business activities which are compatible with the amenity of the surrounding areas.

Not applicable to this application.

(14) Development preserves the cultural heritage values of local and state significance.

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No matter of cultural significance have been identified on this site.

(15) Development does not diminish places or values of cultural significance to traditional owners.

Noted.

3.3.1.2 Housing choice and diversity

- (1) Existing urban areas are the focus for the majority of housing growth through a mix of:
 - a. infill development in the form of:
 - i. multiple dwellings, dual occupancy and retirement facilities in the Low medium density residential zone and the Centre zone;
 - ii. dual occupancy and lot reconfiguration for detached dwellings on suitably sized allotments in the Low density and Low medium density residential zones;
 - b. greenfield urban development in the Emerging community zone.

Not applicable to this application.

- (2) Multiple dwelling development is only anticipated in the Low medium density residential zone or Centre zone in areas in proximity to centre activities.
 - Not applicable to this application.
- (3) Infill development within urban areas must compliment neighbourhood character, present to the street and include design elements that reduce building bulk, minimise overlooking and overshadowing of adjoining properties and sufficient area for vehicle parking and storage.
 - Not applicable to this application.
- (4) Greenfield urban development is anticipated in the Emerging community zone, in the Belyando Estate and on Cunningham Way and Grosvenor Drive in Moranbah and on Airstrip Road in Nebo, Jeffrey Street Clermont and Turner Avenue Glenden. The establishment of new urban residential areas does not occur outside the Emerging community zone.

Not applicable to this application.

- (5) Development within the Emerging community zone:
 - a. allows for the staging of development in line with the provision of community infrastructure (including parks) and services;
 - b. facilitates integration with existing and future urban development, having regard to movement networks, open space networks and accessibility to community infrastructure;
 - c. provides accessibility for all modes of transport including pedestrian, cyclist, and private motor vehicles;
 - d. creates clear, direct pedestrian and cycle access to centres and local parks;
 - e. provides for a range of housing types and associated lot sizes while avoiding large tracts of any one housing type;
 - f. increases residential densities in and around centres, along connector streets and close to parks and schools:
 - g. includes provision for convenience level centres where this does not impact on the viability of the existing centres;
 - locates community facilities including schools, where appropriate, requiring high levels of accessibility within or adjoining centres;
 - i. mitigates and minimises impacts on the natural terrain, natural environment and water quality;
 - achieves the construction and post construction design objectives for stormwater management relevant to the Western Queensland climatic region;
 - k. avoids risks to future residents from natural hazards and hazardous dust levels;10
 - I. avoids impacts associated with the location of sensitive uses in proximity to hazardous land uses, major electricity, pump station, substations and bulk water infrastructure and corridors;
 - m. provides an open space network suitable for community needs;
 - n. provides for the provision of telecommunication infrastructure; and
 - o. provides for appropriate fire hydrant infrastructure and unimpeded access for emergency service vehicles to protect people, property and the environment.

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- p. Small scale residential growth is anticipated within the Township zone in Carmila on land free of natural hazards and on lot sizes suitable to achieve onsite sewage disposal.
- q. Rural residential housing occurs at Greenhill, Nebo and Clermont in the rural Residential zone on lot sizes sufficient to allow for onsite treatment of effluent and the transition to rural areas from urban scale development.
- r. Diverse housing options are provided for on rural zoned properties to enable accommodation options for multiple generations of families to live on farms in conjunction with employees.

Not applicable to this application.

3.3.1.3 Workforce accommodation

(1) Existing Workforce accommodation within the region's urban centres provide substantial accommodation for non-resident workers. These existing facilities are located in the Specialised centre zone. No further development is intended in the Specialised centre zone until this specialised accommodation use ceases.

The subject site has previously obtained approvals and operated workers accommodation on site, however was removed. The site currently does not provide for workers accommodation.

(2) Workforce accommodation is provided in response to a legitimate and demonstrated need.

No workforce accommodation is proposed as part of this application.

- (3) Where need has been demonstrated in accordance with 3.3.1.3(2) the following applies:
 - (i) Workforce accommodation is located in areas that:
 - A. do not result in unacceptable impacts, including cumulative impacts on established towns and communities including:
 - A. social services;
 - B. infrastructure:
 - C. built form character;
 - D. visual amenity;
 - E. economy; and
 - B. contribute to the regions' economy; and
 - C. avoid conflicts with adjoining or nearby land; and
 - D. are or can be appropriately serviced with the necessary infrastructure; and
 - E. avoid impacts on the planned orderly growth of established communities;

The proposed development is to support the existing rail infrastructure provisioning at the subject site. The administration is to support this existing use and is not intended to be provided for other uses in the region. These facilities are for rail provisioning only and will operate ancillary to the current operations.

- (ii) Workforce accommodation that is located within or in close proximity to an established town and community:
 - A. is of a scale (size, extent and built form) in keeping with the character of the established community; and
 - B. is designed to meet contemporary urban design standards so as to make a positive contribution to the amenity and character of the established community; and
 - C. provides onsite commercial services and facilities where they do not impact upon the economy of the established community; and
 - D. is serviced by appropriate urban infrastructure; and
 - E. provides a high level of residential amenity for its occupants and achieves best practice emergency site management, water sensitive urban design, crime prevention through environmental design (CPTED) and ecologically sustainable design;

Not applicable to this application.

(iii) relocatable modular Workforce accommodation buildings that do not meet the specific outcomes in 3.3.1.3(3)(ii)B are not located in established communities;

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The proposed relocatable buildings are not located in an established community, therefore not applicable.

- (iv) Workforce accommodation outside the region's established towns and communities:
 - is located to avoid natural hazards and other hazards, and impacts upon visual amenity, infrastructure and ecologically sensitive areas; and
 - B. provides a safe and functional living environment for its occupants, including reliable infrastructure to support essential utilities.

The proposal has taken into consideration the hazards that may impact the site and as a result, it has been located to minimise impacts. Supporting reports have been obtained and are attached to support this application to demonstrate compliance with this requirement.

- 3.4 Diverse economy
- 3.4.1 Strategic outcomes
- 3.4.1.1 Diverse rural economy
- (1) Isaac Region has a strong and diverse rural economy with a mix of agricultural, animal husbandry, and complementary and value-adding activities, such as agri-tourism, associated with rural production. A wide range of activities including, grazing, cropping, horticulture, forestry, aquaculture, intensive animal industries and renewable energy facilities may occur on rural zoned land.
 - The proposed offices support the existing operations on site being rail infrastructure and provisioning. The site also has close contact and communications with the adjoining farming property to ensure the uses can work without impacting on each other.
- (2) Cattle feedlots are the primary example of Intensive animal industries in the region.
 - Not applicable to this application.
- (3) A sustainable rural economy is supported by the retention of rural zoned lots of a size sufficient to support economically viable farming enterprises.
 - The subject site is not used for farming purposes.
- (4) Industry uses occurring in rural areas are those only where need for the use to be located in a rural area has been demonstrated and which are directly related to primary production activities or natural resource processing, or are hazardous activities which require separation from urban areas.
 - The site contains rail infrastructure provisioning and the proposed uses will support this operation.
- (5) Development which facilitates cultural activities, outdoor recreation or tourism occurs provided that it does not encroach upon rural production or significantly disturb the landscape character or rural amenity, and is not impacted upon by mining activities, extractive resource activities or other incompatible uses.
 - Not applicable to this application.
- (6) Tourism and recreation related development generally has a limited building footprint and does not involve significant modification of the natural landform. Short-stay tourism accommodation may occur in the form of bed and breakfasts, farm stay facilities, ecotourism cabins and camping, as well as larger scale tourist accommodation facilities.
 - Not applicable to this application.
- (7) Tourism uses accessible from the Bruce Highway and Peak Downs Highway are supported where they avoid the impacts from natural hazards, are compatible with surrounding land uses and any commercial activities do not impact on the economy of the region's towns.
 - Not applicable to this application
- (8) The siting of rural industries and tourism, recreation, industry uses does not negatively impact on infrastructure networks in the area or the productivity of adjoining land.

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The proposed offices support the existing operations on site being rail infrastructure and provisioning. The site also has close contact and communications with the adjoining farming property to ensure both uses can work without impacting on each other.

(9) Renewable energy facilities are located in rural areas where impacts on infrastructure, productive rural lands and adjoining land uses can be avoided or mitigated.

Not applicable to this application.

(10) Sensitive land uses do not encroach upon the Galilee Basin State Development Area.

Not applicable to this application.

3.4.1.2 Thriving urban area

(1) The region's urban areas include town centres which provide a range of commercial, retail, professional, administrative, community, entertainment, cultural, social, residential and associated activities.

Not applicable to this application.

(2) The urban areas provide the setting for the establishment of small business where in keeping with the residential character and amenity of the site and surrounding areas.

Not applicable to this application.

- (3) Development within the region's centres:
 - (a) provide for accessible, convenient and attractive retail, commercial, administrative and community activities;
 - (b) manage the interface between centre activities and adjoining residential activities; and
 - (C) promote high quality centre design that creates safe places, is highly accessible and activates streets and public spaces.

Not applicable to this application.

(4) Development in the Clermont and Nebo centres is designed to integrate with the character of existing historic commercial buildings within these centres.

Not applicable to this application.

- (5) Small scale centres in Moranbah at Cunningham Way and Clements Street are intended as convenience centres providing retail and food and drink outlets to the community. These areas do not exceed three storeys in height. Not applicable to this application.
- (6) Industry zoned land within the region's urban areas support a range of industrial activities compatible with the amenity of surrounding residential areas.

Not applicable to this application.

(7) Sensitive land uses do not encroach upon industry zoned land.

Not applicable to this application.

(8) Industry areas provide a range of lot sizes to support the establishment and operations of a diverse range of industrial uses.

Not applicable to this application.

(9) An area of industry investigation zoned land at Moranbah provides for the establishment of land extensive uses such as outdoor storage and laydown (outdoor warehouse) activities.

Not applicable to this application.

- (10) Development in the Industry investigation zone:
 - (a) allows for the staging of development in line with the provision of necessary urban infrastructure and services:
 - (b) provides for a range of lot sizes suitable to respond to a diverse range of industry activities;
 - (c) mitigates and minimises impacts on the natural terrain, natural environment and water quality;

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- (d) achieves the construction and post construction design objectives for stormwater management relevant to the Western Queensland climatic region;
- (e) avoids risks to industrial activities from natural hazards;
- (f) avoids risks to occupants of the area from hazardous dust levels;
- (g) ensures regional infrastructure (such as high pressure gas pipelines) are protected from inappropriate development; and
- (h) provides for appropriate fire hydrant infrastructure and unimpeded access for emergency service vehicles to protect people, property and the environment.

Not applicable to this application.

- 3.5 Protecting natural resources and the environment
- 3.5.1 Strategic outcomes
- 3.5.1.1 Productive rural lands
 - (1) Rural land use is the dominant land use (by area) within Isaac Region, and rural production is a major source of economic activity and employment. Reconfiguration (where not associated with a mining or petroleum activity 14) in rural areas avoids the fragmentation of rural land into allotment sizes which do not support the long term economic viability of farming enterprises.

The proposed offices support the existing operations on site being rail infrastructure and provisioning. The site also has close contact and communications with the adjoining farming property to ensure both uses can work without impacting on each other.

- (2) Reconfiguration (where not associated with a mining or petroleum activity) on rural land classified as Class A and Class C to allotments of a minimum area of 50 hectares and 1000 hectares respectively will occur only where it has been demonstrated that the reconfiguration:
- (a) can support an ongoing and viable rural enterprise 15 on the land; and
- (b) will not impact on adjoining farming activities through the inclusion of sufficient buffers within the proposed allotments 16; and
- (C) will not adversely impact upon Important Agricultural Areas; and
- (d) will not adversely impact on infrastructure and services.

Not applicable to this application.

(3) Reconfiguration where directly associated with a mining or petroleum activity is limited to aligning lot boundaries with mining or petroleum tenements or establishing necessary infrastructure corridors or buffers.

Not applicable to this application.

(4) Important agricultural areas support high value agricultural activities in the region and are protected from fragmentation and encroachment by sensitive land uses.

The proposed ancillary offices support the existing operations on site being rail infrastructure and provisioning. The site also has close contact and communications with the adjoining farming property to ensure both uses can work without impacting on each other.

(5) Intensive animal industries, cropping and other larger scale and higher impacting activities are protected from encroachment by sensitive land uses.

Not applicable to this application.

(6) Intensive animal industries and other larger scale and higher impacting activities are not located where they would adversely impact on urban areas or existing sensitive uses. These activities minimise impacts on sensitive uses including residential, tourist and recreation facilities established on rural land.

Not applicable to this application.

(7) Stock routes are protected from encroachment by sensitive land uses or other development that might prevent or constrain current or future operations.

Not applicable to this application.

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(8) Development does not significantly impact on the amenity of rural residential lots which are used primarily for residential purposes.

Not applicable to this application.

- 3.5.1.2 Extractive, mineral, gas and petroleum resources
 - (1) Mineral gas and petroleum resources are abundant in the region. These areas are protected from encroachment by sensitive land uses that might prevent or constrain current or future operations.

Not applicable to this application.

(2) Urban areas are contained within Restricted Areas declared under the Mineral Resources Act. Future mineral, gas and petroleum extraction and exploration activities do not occur within these areas.

Not applicable to this application.

(3) Key Resource Areas (KRA's) and their haul routes are shown on Map OM7— Extractive Resources and Minerals Overlay Map. These areas are protected from encroachment by sensitive land uses that might prevent or constrain current or future operations.

Not applicable to this application.

(4) Extractive resource operations only occur where compatible with the intentions of the relevant zone and overlays applying to the site, and where impacts on visual amenity, the natural environment including Matters of State Environmental Significance or the safety and amenity of the surrounding area can be mitigated to an acceptable standard.

Not applicable to this application.

(5) Extractive resource operations whether within a KRA or not are managed to avoid or mitigate to an acceptable standard, impacts including impacts on visual amenity, the natural environment and water quality and offsite impacts on adjoining uses caused by noise, dust, light, blasting or vibration.

Not applicable to this application.

(6) Resource extraction areas are progressively rehabilitated following extraction to restore the natural environment and to mitigate environmental impacts including impacts associated with dust.

Not applicable to this application.

- 3.5.1.3 Biodiversity, water quality and the natural environment
 - (1) Development avoids or mitigates impacts on Matters of National and State Environmental Significance and maintains a connected network of habitat areas. Where development results in a significant residual impact on these areas, the impacts are offset.

An environmental report has been undertaken for this proposal.

(2) Development ensures impacts on local biodiversity values are minimised.

An environmental report has been undertaken for this proposal.

(3) Development avoids the introduction or spread of pest plant and animals in the region.

An environmental report has been undertaken for this proposal.

(4) Development minimises disturbances to natural topography and avoids changes to natural waterways, their bed and banks and riparian vegetation.

An environmental report has been undertaken for this proposal. Development avoids the disturbance to areas of potential acid sulfate soil or treats disturbed soils to a standard required to neutralise impacts.

Noted.

(5) Urban stormwater is managed to mitigate impacts upon the region's waterways and their water quality.

The subject site is not zoned urban.

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(6) The environmental values of the region's waterways are protected or enhanced, and development does not adversely impact on the quality of receiving waters, including waterways, wetlands and Great Barrier Reef waters.

An environmental report has been undertaken for this proposal.

(7) Development does not adversely impact upon water quality within the region's water supply catchments including Theresa Creek Dam catchment, Nebo Borefields, St Lawrence Creek Weir catchment and the Burdekin Falls Regulated Dam catchment.

Noted.

(8) Development avoids or mitigates impacts on natural coastal values and functions.

An environmental report has been undertaken for this proposal.

(9) Coastal-dependent development including boat ramps and vehicle access points to the foreshore are consolidated in existing locations.

Not applicable to this application.

(10) Development does not impede public access to and along coastal foreshores.

Not applicable to this application.

(11) Reclamation of land under tidal water is avoided.

Not applicable to this application.

(12) Development in or adjacent to protected areas mitigates ecological impacts on these areas.

Not applicable to this application.

- 3.6 Safety from natural and other hazards
- 3.6.1 Strategic outcomes
- 3.6.1.1 All hazards
 - (1) Development does not materially increase the extent or severity of natural hazards or their impacts.

The proposed offices will not increase the extent or severity of natural hazards.

(2) Exposure of people and property to hazards is avoided, or where it is not possible to avoid the hazard, the risks are mitigated to an acceptable or tolerable level.

The proposed ancillary offices will not expose people or property to hazards.

(3) Areas at significant risk to natural hazards in and adjacent to urban areas are included within the Limited development zone. The establishment or intensification of sensitive uses in these areas (including parts of Clermont and Nebo) is not anticipated.

Not applicable to this application.

(4) The establishment of community activities and infrastructure and services that require continuous operation during natural hazard events in hazard areas is avoided.

Not applicable to this application.

(5) Development does not reduce the functions of landforms or vegetation in providing protection against natural hazards.

The proposal does not result in removal of vegetation. The subject areas are vacant and have been used in the past.

(6) The cost to the public of measures to mitigate the risks of natural hazards is minimised.

The proposal will not cause any cost to the public.

(7) Activities involving the manufacture or bulk storage of hazardous material are not located in hazard areas.

Not applicable to this application.

3.6.1.2 Flood hazard

(1) Sensitive land uses avoid flood hazards, or where it is not possible to avoid the hazard, the risks are mitigated to an acceptable or tolerable level.

The location of the buildings is above the flood level ensuring people and property are protected.

(2) In existing urban areas (other than the Limited development zone and Emerging community zone), development other than sensitive uses mitigates risks to people and property to an acceptable or tolerable level.

Not applicable to this application.

(3) In the Limited Development zone and Emerging community zone and all other areas, development avoids flood hazard or where it is not possible to avoid the hazard, risks to people and property are mitigated to an acceptable or tolerable level.

Not applicable to this application.

3.6.1.3 Storm tide inundation and erosion prone hazard

(1) Development (including any material change of use, operational work or building work, except for coastal dependant development) is not supported on land seaward of areas identified in the Zone of imminent threat.

Not applicable to this application.

(2) Clairview and Carmila Beach are small localities made up of dwelling houses as identified within the Township zone (Holiday and Residence precinct). Parts of Clairview and Carmila Beach are affected by coastal hazards (within foreshore limit areas) described as the area of imminent erosion threat, storm tide inundation, erosion prone area and area of reduced foundation capacity. Any intensification of dwelling houses (including any associated structures and operational works) is limited in Clairview and Carmila Beach to mitigate risks to people and property associated with coastal hazards.

Not applicable to this application.

(3) Sensitive uses in areas affected by storm tide inundation must ensure all habitable and enclosed habitable levels are equal to, or above the designated coastal planning level for that area. This includes new dwelling houses or major extensions to existing dwelling houses.

Not applicable to this application.

- (4) Development does not occur within erosion prone areas unless it is
 - a. coastal-dependent development;
 - b. is temporary, readily relocatable or able to be abandoned; or
 - where unable to be feasibly located elsewhere, it mitigates the risks to people and property to an
 acceptable or tolerable level.

Not applicable to this application.

(2) Development within the zone of reduced foundation capacity ensures the engineering design of structural elements and foundations associated with buildings and associated structures can mitigate the short-term erosion impacts from a major coastal hazard events.

Not applicable to this application.

(3) The number of lots within an erosion prone area is not increased.

Not applicable to this application.

3.6.1.4 Bushfire and landslide hazard

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- (1) The establishment or intensification of development involving the accommodation or congregation of vulnerable sectors of the community is avoided in areas of bushfire and/or landslide hazard.
 - A Bushfire Management Plan has been provided to support this application.
- (2) Development within or near bushfire and/or landslide hazard areas incorporates appropriate siting, design and management practices to mitigate risk to an acceptable or tolerable level.

A Bushfire Management Plan has been provided to support this application.

3.6.1.5 Safety and emissions

- (1) Development that is likely to generate off-site adverse impacts is adequately separated from sensitive land uses and natural receiving environments, and is protected from encroachment by sensitive land uses. Such development may include:
 - (a) wastewater treatment and disposal facilities;
 - (b) solid waste management sites;
 - (c) industrial development;
 - (d) extractive industry;
 - (e) intensive animal industries such as feedlots;
 - (f) high pressure gas pipelines; and
 - (g) aquaculture.

The proposed offices will not generate off-site adverse impacts.

- (2) Development with the potential to cause harm or nuisance as a result of air, noise or odour emissions is appropriately located, designed and managed to minimise impacts upon existing sensitive land uses and natural receiving environments.
 - The proposed ancillary offices will not result in potential to cause harm or nuisance from air, noise or odour emissions. The site is same location as the previous workers accommodation and provides for a buffering away from day to day operations.
- (3) Development that has the potential to cause land or water contamination is located, designed and managed to minimise environmental and community health risks.
 - The proposed offices will not cause land or water contamination.
- (4) Development involving the use, storage and disposal of hazardous materials and hazardous chemicals, dangerous goods and flammable or combustible substances is located, designed and managed to minimise the health and safety risks to communities.
 - The proposed offices will not involve the use, storage or disposal of hazardous materials.
- (5) Sensitive uses do not establish in areas subject to adverse noise impacts arising from mining operations and along major transport noise corridors.
 - Not applicable to this application.
- (6) Areas subject to potentially hazardous dust levels due to mining activities surrounding Moranbah are shown on Overlay Map OM10. Sensitive uses do not establish in areas subject to hazardous dust levels.
 - Not applicable to this application.
- (7) Establishment of sensitive uses in rural areas is separated from mining activities to mitigate the impact of hazardous dust levels on those uses.
 - Not applicable to this application.
- (8) Sensitive land uses do not occur in proximity to former mining activities and related hazards e.g. abandoned underground mines, tunnels and shafts, which may cause risk to people and property.
 - Not applicable to this application.

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- 3.7 Infrastructure for communities
- 3.7.1 Strategic outcomes
- 3.7.1.1 General
- (1) Development does not encroach on or adversely impact upon the safety, efficiency and operational integrity of Moranbah Strategic Airport. Development within proximity of the airport is regulated to ensure potential impacts upon airport operations are avoided or mitigated.
 - Not applicable to this application.
- (2) Development in proximity to the region's other aviation facilities (Clermont, Middlemount and Dysart Airports; and Nebo and St Lawrence Airstrips) do not impact upon the safe and unimpeded operation of these facilities.
 - Not applicable to this application.
- (3) Transport, parkland, community facilities, reticulated potable water and sewerage, stormwater, waste management, energy and telecommunications infrastructure is provided to meet the needs of the community.
 - Not applicable to this application.
- (4) Urban growth occurs in locations that facilitate the orderly and cost effective delivery of the full range of infrastructure and services required by the community. Urban development does not extend beyond the land zoned for urban purposes.
 - Not applicable to this application.
- (5) Development is undertaken in a way that minimises user demands on, and optimises available capacity and established investment in, infrastructure networks.
 - Not applicable to this application.
- (6) Infrastructure networks are designed to minimise adverse impacts on public health and safety, the visual character and amenity of the community, and the natural environment.
 - Not applicable to this application.
- (7) Infrastructure networks are located and designed to avoid or minimise their exposure to natural hazards.
 - Not applicable to this application.
- (9) Whole of life costs, including both establishment and ongoing operation and maintenance costs, are minimised.
 - Not applicable to this application.
- (10) Urban development supplies non-trunk infrastructure networks that connect to external networks in a manner that maintains the overall safety and efficiency of the infrastructure networks.
 - Not applicable to this application.
- (11) On-site wastewater systems maintain human health and safety, the amenity of the immediate locality and minimise adverse impacts on water quality and the natural environment.
- On site wastewater will be provided in accordance with relevant standards.
- (12) Infrastructure corridors and sites for transport, water supply, gas pipelines and sewerage, waste, energy and telecommunications are protected from development and hazards that would undermine their safe, efficient and unencumbered operation or expansion. Key infrastructure corridors and sites are shown on Map OM11—
 Regional Infrastructure Overlay Map.

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The proposed development is to support the existing rail corridor.

(13) Infrastructure corridors and sites are co-located wherever practicable to minimise impacts on landscapes, the natural environment and communities.

The corridor is existing including the rail infrastructure.

(14) Development does not impact upon the safe and efficient operation of the transport network, airports and aviation facilities; and the rail network within the region.

Not applicable to this application.

3.7.1.2 Social infrastructure

(1) Residents, visitors and non-resident workers have access to a network of well located social infrastructure that meets community needs and promotes a rich and active community life.

Not applicable to this application.

(2) Community services, facilities and a range of civic spaces are concentrated in the region's centres, so that centres become hubs for community life and interaction.

Not applicable to this application.

(3) In areas outside the region's urban areas, community facilities are concentrated around existing nodes of community facilities such as schools, community halls and rodeo grounds within the region's localities.

Not applicable to this application.

(4) Social infrastructure is provided in a timely, cost effective and efficient manner.

Not applicable to this application.

(5) Social infrastructure is designed to be multi-purpose, flexible and adaptable to respond to the changing and emerging needs of the community.

Not applicable to this application.

(6) Development within the Emerging community zone is provided with appropriate social infrastructure from the initial stages of development.

Not applicable to this application.

(7) A network of open space provides the setting for a diverse range of recreation activities and experiences to support active and healthy lifestyles, provide opportunities for community interaction and enhance the quality of the urban environment.

Not applicable to this application.

(8) Development facilitates an open space network that is interconnected and highly accessible from surrounding communities by walking and cycling.

Not applicable to this application.

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(9) Social infrastructure, including sporting and other facilities associated with a high level of activity, are located and designed to minimise impacts on the amenity of the surrounding areas.

Not applicable to this application.

3.7.1.3 Waste management

(1) Waste management infrastructure is provided and managed to maintain the health, wellbeing and amenity of the community and the natural environment, and to minimise visual impacts.

A waste management plan has been provided to support the application.

(2) Development provides for the safe and efficient storage and collection of waste and recyclable materials, commensurate with the type and amount of waste generated.

A waste management plan has been provided to support the application.

Development works code

Daufarmana antaras	A security blooming	
Performance outcomes	Acceptable outcomes	
Utility infrastructure and services		
PO1 Development is serviced by an adequate, safe and reliable supply of potable and general use water, connected to reticulated water supply where possible.	AO1 Development is: (a) connected to Council's reticulated water supply network, including the installation of easily accessed water meters, in accordance with the Development works planning scheme policy; or (b) if connection to Council's reticulated water supply network is not possible, a potable on-site water supply is provided in accordance with the Development works planning scheme policy.	The proposed development will be connected to on site private infrastructure. The infrastructure will be provided to ensure compliance with relevant standards and capacities.
PO2 Development is serviced by appropriate waste water disposal infrastructure which ensures: (a) no adverse ecological impacts on the receiving environment; (b) cumulative impacts of onsite waste water treatment are considered in assessing the likely environmental impacts; (c) public health is maintained; (d) the location, site area, soil type and topography is suitable for on any site waste water treatment; and (e) the reuse of waste water does not contaminate any surface water or ground water.	Development is: (a) connected to Council's reticulated sewerage treatment system, in accordance with the Development works planning scheme policy; or (b) if connection to Council's reticulated sewerage treatment system is not possible development, waste water is treated in accordance with Development works planning scheme policy.	The proposed development will be connected to on site private infrastructure. The infrastructure will be provided to ensure compliance with relevant standards and capacities.

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PO3	AO3.1	The subject site is connected to
Electricity supply network and telecommunication service connections	The development is connected to electricity and telecommunications	electricity and telecommunications and the proposed development wil
are provided to the site and are connected.	infrastructure in accordance with the standards of the relevant regulatory authority prior to the commencement	also be connected.
	of any use of the site.	N
	AO3.2 Where not included in the development, provision is made for future telecommunications services (such as fibre optic cable) in accordance with the	Not applicable to this application.
	standards of the relevant regulatory authority.	
Stormwater management	regulatory dumority.	
Editor's note—refer also to the Stormwo	ater management design objectives in	
PO4	AO4.1	All stormwater from the
Stormwater management is designed	Development does not result in an	development will be diverted to
and operated to:	increase in flood level or flood	detention ponds to ensure no
(a) ensure that adjoining land and upstream	duration on upstream, downstream	impacts on adjoining properties.
'	or adjacent properties.	
Performance outcomes	Acceptable outcomes	
and downstream areas are not	AO4.2	All stormwater from the
adversely affected through any ponding or changes in	Stormwater (including roof and surface water) is conveyed to the	development will be diverted to
flows; and	kerb and channel or other lawful	detention ponds to ensure no impacts on adjoining properties.
(b) direct stormwater to a lawful point of discharge through competently designed and constructed outlet works in a	point of discharge in accordance with the requirements of the Development works planning scheme policy.	impacts on adjoining properties.
manner that reflects the	AQ4.3	All stormwater from the
predevelopment status.	Stormwater runoff from all impervious areas (roof, pavements, etc) are not permitted to flow or discharge over adjoining properties.	
Earthworks		
PO5	AO5.1	Compliance will be achieved
Earthworks are undertaken in a manner that: (a) prevent any worsening of soil	Earthworks comply with the Development works planning scheme policy.	
erosion or water quality on the	AO5.2	Minimal earthworks are proposed
site, any adjoining land, or land upstream or downstream	The extent of filling or excavation does not exceed 40 percent of the	for the proposed development.
of the site; (b) produces stable landforms and	site area or 500m ² , whichever is lesser. AO5.3	Excavation will be minimal
structures; (C) maintain natural landforms where	Excavating or filling is no greater than 1 m in height, where involving	
possible;	more than 50m ³ of material.	
(d) minimise the height of any batter faces;	AO5.4 Batters have a maximum slope of 25%, are	Noted
(e) does not unduly impact on the amenity or privacy for occupants of the site or on	terraced at every rise of 1.5m and each terrace has a depth of 0.75m.	

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adjoining land; (f) does not unduly impact on the amenity of the streetscape; (g) do not result in the contamination of land or water; and (h) avoids risk to people and property.	AO5.5 No contaminated material or acid sulfate soil is used as fill.	Noted
PO6 Retaining walls are designed to minimise visual impact through: (a) setbacks from any boundary;	AO6.1 The combined height of any retaining walls and fences does not exceed 2m.	Nil proposed
and (b) being stepped or terraced to accommodate	AO6.2 A retaining wall is set back at least half the height of the wall from any boundary of the site.	Noted
landscaping.	AO6.3 Retaining walls over 1.5m are stepped 0.75m for every 1.5m in height, terraced and landscaped.	Noted
	AO6.4 Design and construction of retaining walls over 1 m in height are certified by a Registered Professional Engineer of Queensland.	Noted and will comply.
PO7 The excavation, filling or laying of pipes within the vicinity of electricity supply infrastructure must not create damage or hazard.	AO7.1 Excavation or filling does not occur within: (a) 10m of any tower, pole, foundation, ground	Noted and will comply.
Editor's note—Development involving filling, or excavation or laying of metal pipes on land contiguous to electricity supply infrastructure should be referred to the relevant electricity entity for safety advice on the proposed development.	anchorage or stay supporting electric lines or associated equipment; (b) 5m of a substation site boundary; (c) 2m of a padmount substation; or (d) 1m of a padmount transformer or an underground cable.	

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Performance outcomes	Acceptable outcomes	
	AO7.2 The laying of metal pipes does not occur within: (a) 5m of any pole, tower,	Noted and will comply.
	foundation, ground anchorage or stay supporting electric lines or	
	associated equipment; (b) 15m of any substation site boundary; or	
	(c) 5m of, and parallel to, an electric line shadow.	
Parking and access		
PO8 Development includes the provision of adequate and convenient car parking on- site to satisfy the anticipated requirements of the activity.	AO8 Car parking is provided in accordance with Table 8.3.1.3(b)—Car parking requirements.	The proposed car parking has been provided to accommodate the proposed traffic generation for the development. Furthermore, there is ample space on site should overflow be required.
PO9 Development provides end of trip facilities for people engaging in active transport (bicycle and pedestrian): (a) to meet the needs of users and promote active modes of travel; (b) at convenient, easily identifiable, safe locations; and (c) in locations that do not obstruct vehicular, bicycle or pedestrian movement paths.	AO9 Development provides cycling and pedestrian end of trip facilities, in accordance with the requirements of the Queensland Development Code.	The facilities will accommodate pedestrian pathways.
PO10 Access driveways are designed and constructed to: (a) provide convenient access to the site and maintain the safety and efficiency of the road; and (b) minimise conflicts with traffic and pedestrians; and (c) are constructed to a standard that is appropriate to the location and to meet the anticipated volume and type of traffic.	AO10.1 Access driveways are: (a) designed and constructed in accordance with Development works planning scheme policy; and (b) certified by a Registered Professional Engineer of Queensland. AO10.2 Access driveways allow vehicles (with the exception of dwelling house and dual occupancy) to enter and exit the site in a forward gear.	Compliance will be achieved. The proposal demonstrates compliance on the proposal plans.

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PO11 Vehicle movement areas (including internal driveways, access aisles, manoeuvring areas, car parks and service bays) are designed to ensure: (a) a gradient appropriate for the type of vehicles; (b) effective stormwater drainage; (c) clearly marked and signed spaces; (d) convenience and safety for drivers and pedestrians; and (e) adequate dimensions to meet user requirements, including access and egress for emergency vehicles.	AO11 Manoeuvring, loading and unloading areas, and parking areas are: (a) designed and constructed in accordance with the Development works planning scheme policy; and (b) certified by a Registered Professional Engineer of Queensland.	The proposal demonstrates compliance on the proposal plans.
PO12 Footpaths in the road reserve are provided along all road frontages and are paved in durable and stable materials matching any adjacent development footpaths.	Footpaths are: (a) provided for the full width and length of all road frontages; (b) designed and constructed in accordance with the requirements of the Development works planning scheme policy; and (c) certified by a Registered Professional Engineer of	Footpaths are provided where practical.
PO13 Pedestrian access to buildings: (a) do not obstruct pedestrian movement (or form physical clutter) on public footpaths; (b) are not visually overbearing (or form visual clutter) in the streetscape; and (c) provide safe, efficient and convenient access including wheelchair access.	Queensland. AO13 Steps, escalators, ramps and lifts are: (a) located wholly within the site; and (b) setback a minimum of 1.5m from the front boundary.	Not applicable.
Acoustic and air quality		
PO14 Development minimises potential conflicts with, or impacts on, other uses having regard to vibration, odour, dust or other emissions.	AO14 Development achieves the air quality design objectives set out in the Environmental Protection (Air) Policy 2008, as amended. Editor's note—To achieve compliance, development is planned, designed and managed to ensure emissions from activities to achieve the appropriate acoustic objectives (measured at the receptor dB(A)).	The proposal will not impact on air quality.

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DO15	4015	TI 1 1 1 1 1 1 1 1 1
PO15 Development prevents or minimises the generation of any noise so that: (a) nuisance is not caused to adjoining premises or other nearby sensitive land uses; and (b) desired ambient noise levels in residential areas are not exceeded.	AO15 Development achieves the noise generation levels set out in the Environmental Protection (Noise) Policy 2008, as amended.	The buildings will ensure acoustic values are maintained as part of the building works approvals.
PO16 Development adjacent to State controlled roads or Council controlled arterial and sub- arterial roads minimise nuisance caused by noise, vibration and dust emissions.	AO16 Development complies with the requirements of the Department Main Roads - Road Traffic Noise Management Code of Practice and the Environmental Protection (Noise) Policy 2008.	The buildings will ensure acoustic values are maintained as part of the building works approvals.
Lighting		
PO17 External lighting is provided in urban areas to ensure a safe environment.	AO17 Technical parameters, design, installation, operation and maintenance of outdoor lighting complies with the requirements of AS4282 – Control of the Obtrusive Effects of Outdoor Lighting.	Lighting will be provided in accordance with Australian Standards.
PO18 Outdoor lighting does not cause undue disturbance to any person, activity or fauna because of emission, either directly or by reflection.	AO18 The vertical illumination resulting from direct, reflected or other incidental light coming from a site does not exceed 8 lux when measured at any point 1.5 m outside of the boundary of the property at any level from ground level up.	Not applicable to this application.
Waste management	g	
PO19 Development: (a) minimises waste generation (including construction, demolition and operational waste); (b) provides adequate facilities on-site for the storage of waste and recyclables.	AO19 Waste storage and management arrangements are sited, screened and designed in accordance with the Development works planning scheme policy.	A waste management report has been provided. The proposal plans demonstrate compliance.
PO20 Development is designed to allow for safe and efficient servicing of waste and recycling containers through: (a) a development layout facilitates direct and unobstructed servicing of waste and recycling containers; and (b) minimising the potential for nuisances to be caused by	AO20.1 Where on-site waste and recycling collection services are proposed: (a) collection vehicle entry and exit from the site is carried out in forward motion; and (b) the proposed point of servicing is designed in accordance with the Development works planning scheme policy.	A waste management report has been provided.

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way of noise and odour. For all assessable development	AO20.2 Where on-street (kerbside) collection is proposed for any standard waste and recycling containers or bulk bin waste and recycling, waste management is designed in accordance with the Development works planning scheme policy.	Not applicable.
Wastewater management		
PO21 Wastewater is managed to: (a) avoid wastewater discharge to any waterway; or (b) if wastewater discharge to waterways cannot be practically avoided, discharge is minimised to an acceptable level by re-use, recycling, recovery and treatment for disposal to sewer, surface water and groundwater. Editor's note—Wastewater is defined in accordance with Environmental Protection (Water) Policy 2009, schedule 2). Editor's note—A wastewater management plan (WWMP) is prepared by a suitably qualified person and addresses: (i) wastewater type; and (ii) climatic conditions; and (iii) water quality objectives (WQOs); and (iv) best-practice environmental management.	No acceptable outcome specified.	The proposed buildings will be connected to the existing wastewater systems. Train Crew Facility will be based on 5 staff per day at 401/person so total estimate flow is 200L/day allowing 50% variance suggest 400L/day maximum demand Admin Building will have up to 20 per day at 401/person to total estimate flow is 800L / day allowing 50% variance suggest inflow of 1600/I per day As showers are rarely used and no washing machines or food prep.

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PO22	No acceptable outcome specified.	No discharge is proposed.
Wastewater discharge maintains ecological processes, riparian vegetation, waterway integrity, and downstream ecosystem health including:		
(a) protecting applicable water quality objectives for the receiving waters;		
(b) managing soil disturbance or altering natural hydrology in coastal areas;		
(C) avoiding or minimising the release of nutrients of concern so as to minimise the occurrence, frequency and intensity of coastal algal blooms; and		
(d) avoiding lowering groundwater levels where potential or actual acid sulfate soils are present in coastal areas.		
Editor's note—Compliance with part of this performance outcome may be demonstrated by following the		
management advice in the guideline: Implementing Policies and Plans for Managing Nutrients of Concern for Coastal Algal Blooms in Queensland by the Department of Environment and Heritage Protection.		
Stormwater management		
PO23 Stormwater management systems: (a) implement water sensitive urban design (WSUD) principles that: (i) protect natural systems and waterways; (ii) allow for the detention of stormwater instead of rapid conveyance; (iii) minimise impervious areas; (iv) utilise stormwater to conserve potable water; (v) integrate stormwater treatment into the landscape; (vi) ensure water quality values are protected; (c) must be economically maintained for the life of the system; (d) provide for safe access and maintenance; and	Stormwater management systems are designed and constructed in accordance with the Development works planning scheme policy. Editor's note—A site stormwater quality management plan (SQMP) is prepared in accordance with Development works planning scheme policy and the State Planning Policy objectives for stormwater management design.	All stormwater will be captured and divered to a holding pond before low release into the waterways.

(e) maintain natural drainage lines and adequate filtering and settlement of sediment for the protection of watercourses, coastal wetlands and beaches from point sources and non- point source stormwater discharges.		
PO24 Development allows for sufficient site area to accommodate an effective stormwater management system.	No acceptable outcome specified.	The holding bonds will be sized appropriately.
PO25 Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to: (a) existing capacity of stormwater infrastructure and ultimate catchment conditions; (b) discharge for existing and future upstream development; and (c) protecting the integrity of adjacent and downstream development.	No acceptable outcome specified.	The holding bonds will be sized appropriately.
PO26 Major stormwater drainage network elements are designed and constructed with the capacity to control stormwater flows under normal and minor system blockage conditions for the applicable defined flood event ensuring there is no damage to property or hazards for motorists.	AO26 Stormwater infrastructure is designed in accordance with the requirements of the Development works planning scheme policy.	Compliance will be achieved.
PO27 Reconfiguration of lots includes stormwater management measures in the design of any road reserve, streetscape or drainage networks to: (a) minimise impacts on the water cycle; (b) protect waterway health by improving stormwater quality and reducing site run-off; and (c) avoid large impervious surfaces.	No acceptable outcome specified.	Not applicable to this application.

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PO28	No acceptable outcome specified.	Compliance will be achieved at
Construction activities for the	·	all times.
development avoid or minimise		
adverse impacts on stormwate quality.		
. ,		
Editor's note—An erosion and		
sediment control plan (ESCP) is prepared by a suitably qualifi	ad l	
person that demonstrates:	eu	
(i) erosion and sediment cont	rol	
practices (including any		
proprietary erosion and		
sediment control products) designed, installed,	are	
constructed, operated,		
monitored and maintained	,	
and any other erosion and		
sediment control practices		
carried out in accordance local conditions; or	with	
(ii) how stormwater quality w	11	
be managed in accordance		
with an acceptable region	al	
or local guideline so that		
target contaminants are treated to a design object	ive	
at least equivalent of this		
Performance outcome.		
Earthworks		
PO29	No acceptable outcome specified.	Compliance will be achieved at
Earthworks associated with trai	sport	all times.
(a) maintain the efficiency		
of the road network;		
(b) do not adversely impact u	oon	
residents or road		
infrastructure; and (C) do not obstruct access to the	ne site.	
PO30	No acceptable outcome specified.	Compliance will be achieved at
Development in the Rural zone	·	all times.
Rural residential zone manage	s soil	
erosion and sedimentation by:		
(a) avoiding land clearing or earthworks in the riparian		
corridor to a designated		
stream;		
(b) minimising the extent of		
disturbance on, or the	nor	
stabilisation of slopes stee than 10%;	pei	
(C) managing and controlling		
surface drainage by using		
natural flow paths; and		
(d) constructing ponds or small		
dams off natural flow pat for collection of surface	15,	
drainage from areas distu	rbed	
for prolonged periods, suc		
quarries, stock sales yards	. 1	

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Any disturbed areas within the site are to be progressively rehabilitated through appropriate earthworks and involve the: (a) grading and reshaping of the disturbed areas to provide controlled and stable drainage flow paths; (b) construction of drainage paths which divert high velocity flows away from disturbed areas; (c) re-spreading of stored topsoil stripped from the site prior to commencement of construction works; and (d) planting of the disturbed area with native species of grasses, ground covers and trees and placing mulch in between on the surface. Editor's note—Applicants may be required to engage specialists to prepare a rehabilitation plan.	No acceptable outcome specified.	Compliance will be achieved at all times.
PO32 Bridges and culverts for flood immunity: (a) minimise traffic disruption; (b) improve public safety; (c) provides for fauna habitat movement where possible; and (d) allow for bikeways after	No acceptable outcome specified.	Not applicable.
construction. Land use and transport integration		
PO33 Development: (a) supports a road hierarchy which facilitates efficient movement of all transport modes; and (b) appropriately integrates and connects with surrounding movement networks.	No acceptable outcome specified.	The service road supports the proposed development without the need for upgrades. Train crew facility, there are anticipated to be 15 crew cars based there and up to 70 drivers. In shift at any one time in a 24hr period will be 14 crew (ie 7 trains) so 14 vehicle movements for staff vehicles and an additional 7 vehicle movements for crew cars making up to 21 movements per day and an additional 3 staff movements per day. Total aadt for Tran crew facility forecast at 62 vehicle movement (31 each way) we are currently

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		using crew cars to drive staff in
		and out to operate trains so the real additional is only 48 (62 less 14 crew cars based movements)
		In regards to the admin building, this will be Monday to Friday and will house a maximum of 40 staff during double training, but on average will only have 1 school which will be 20.
		PN will offer an allowance of 19k per annum to live local, so some may drive their own vehicle, but for trainees that stay at camp may car pool, so assumed 30 car parks occupied, hence our to 60aadt for admin building.
		As such total anticipated Aadt is less than 100 for both buildings.
PO34 Development provides direct and safe access to public passenger transport facilities.	AO34 Any through-site pathway connections to public passenger transport facilities are provided in accordance with Austroads guide to road design—Part 6A: Pedestrian and cyclist paths.	Not applicable to this application.
Road design		
PO35 Roads providing access to the site are provided, constructed and maintained to a standard which is adequate for the traffic type and volume likely to be generated by the activities on site.	AO35 Roadworks are provided in accordance with the requirements of the Development works planning scheme policy.	The service road supports the proposed development without the need for upgrades.
PO36 Street lighting and signs are provided to ensure the safety of both vehicles and pedestrians, and to facilitate access and movement.	PO36 Street lighting and signage comply with the requirements of the Development works planning scheme policy.	Not applicable to this application.
Acoustic and air quality		
PO37 Utility services and service structures attached to buildings, do not adversely impact on the acoustic or visual amenity of the surrounding area and are: (a) located as far from sensitive land uses, road frontage boundaries and public open spaces as practical; (b) acoustically shielded and visually screened so as not to be audible or visible from adjoining and nearby sites,	No acceptable outcome specified.	The buildings will ensure acoustic values are maintained as part of the building works approvals.
public open spaces and roads.		

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Landscaping code

Performance outcomes	Acceptable outcomes	
General		
PO1 Landscape design of both public and private spaces: (a) compliments the intended character of the streetscape and zone; (b) is functional and designed to be visually appealing in the long-term; and (c) incorporates plant types appropriate for the region and local climate.	No acceptable outcome is nominated.	The site will be provided with suitable landscaping based on the climatic conditions and the availability of water.
Performance outcomes	Acceptable outcomes	
PO2 Landscape works and plant selection ensure: (a) climatically appropriate species are planted; (b) the provision of shade in appropriate locations; (c) an appropriate mix of soft and hard elements; and (d) planting densities and stock sizes are suitable for their location, purpose and hardiness.	No acceptable outcome is nominated.	Landscaping will be provided where practical.
PO3	AO3	Not applicable
Street trees are provided in appropriate locations to: (a) provide shade for pedestrians along footpaths; (b) reinforce the legibility of the movement network; (c) avoid damage to public or private property or infrastructure; (d) enhance the character of the streetscape; and (e) ensure visibility is maintained from entrances and exits to properties and at intersections.	Street trees are provided at the rate whichever is the lesser of: (a) one street tree per lot frontage or one tree per 10 linear metres of road frontage; or (b) a minimum of 1 tree per 400m ² of site area.	Not applicable
Street treatments including pavement, seating, lighting, rubbish bins are provided to: (a) enhance the usability and amenity of streets and public spaces; (b) facilitate social interaction; and (c) maintain clean streetscapes. Editor's note—Refer also to the Development works planning scheme	ino acceptable outcome is nominated.	нот арріісаріе

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policy.		
possey.		
PO5	AO5	No trees are proposed to be
Wherever possible,	Existing mature trees and vegetation	removed.
landscape design facilitates	are retained and incorporated into	1
the retention and	the landscape design.	
integration of mature existing		
vegetation, both within and		
external to the site.		
Landscaping along boundaries and e	edges	
PO6	No acceptable outcome is nominated.	The proposed development is not
Planting and landscape elements		located close to public view,
along boundaries and edges assist in:		therefore this requirement is not
(a) maintaining privacy between		considered to be relevant.
adjoining buildings;		
(b) protecting local views,		
vistas and sightlines;		
(C) enhancing the visual appearance of the built form;		
(d) screening service, utility		
and parking areas;		
(e) minimising noise impacts between		
noise		
sources and sensitive receiving		
environments; and		
(f) reducing the visual impact of		
acoustic fences, retaining walls		
and long		
unbroken walls.		
Open air car parking		
PO7	A07.1	No shade trees are proposed.
Open air car parking areas are	Shade trees are located at the	
provided with suitable levels of shade.	rate of one tree per 6 car spaces.	
silude.	AO7.2	Compliance will be provided
	Wheel stops are provided to	where appropriate.
6	protect vegetation.	
Sustainability		

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No acceptable outcome is nominated.	Landscaping will be provided where practical.
No acceptable outcome is nominated.	Landscaping will be provided where practical.
No acceptable outcome is nominated.	Noted and compliance will be achieved.
	No acceptable outcome is nominated.

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PO11	No acceptable outcome is nominated.	Landscaping will be provided
Landscape elements:		where practical.
(a) provide high levels of		
durability and robustness;		
(b) are cost effective; and		
(C) have the ability to be		
maintained		
conveniently over the		
long-term.		
PO12	No acceptable outcome is nominated.	Landscaping will be provided
Landscape works and plant		where practical.
selection protects the structural		
integrity and function of:		
(a) buildings and structures;		
(b) overhead and underground		
services; and		
(C) other forms of infrastructure.		

9. OVERLAYS

Bushfire hazard overlay code

Performance outcomes	Acceptable outcomes	
Site suitability		
PO1 Development maintains the safety of people and property. Editor's note—A site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP.	No acceptable outcome is nominated.	A bushfire management plan has been provided and supports this application.
PO2 Development does not result in a higher concentration of people living, working or congregating in a bushfire prone area unless it can be demonstrated: (a) there is an overriding community need in the public interest; and (b) no other site is suitable and reasonably available.	The following uses are not located on land within a high to very high bushfire hazard area: (a) child care facility; (b) community care centre; (c) educational establishment; (d) hostel; (e) hospital; (f) industry involving manufacture or storage of hazardous materials in bulk (g) multiple dwelling; (h) nature based tourism; (i) workforce accommodation; (j) residential care facility; (k) retirement facility; (l) rural workers' accommodation; (m) shopping centre; (n) short-term accommodation; (o) tourist attraction; (p) tourist park.	A bushfire management plan has been provided and supports this application.
Siting of development		

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PO3	No acceptable outcome is nominated.	A bushfire management plan has
The siting, layout and design of development avoids or mitigate		been provided and supports this
		application.
the risks associated with bushfire		
hazard through:		
 (a) being situated on that part of the site that has the lowest level of bushfire risk; 		
(b) fire mitigation measures that do not adversely impact on areas having high environmental values.		
Editor's note-		
(i) a site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP;		
(ii) buildings in a bushfire hazard area must meet the requirements of AS3959-2009		
 the Australian Standard for the Construction of Buildings in Bushfire Prone Areas and the requirements of the 		
Building Code of Australia.		
Water supply		
PO4	AO4	Fire water storage and firefighting
Development in areas with a reticulated water supply have adequate flow and pressure for fire-fighting purposes at all times.	The water supply network has a minimum sustained pressure and flow of at least 10 litres per second at 200kPa.	equipment in accordance with the relevant Australian Standards.
PO5	AO5	Two Steel tanks will be provided.
Development in areas without a reticulated water supply have an appropriate dedicated water supply for fire-fighting purposes, that is safely located and freely accessible for fire-fighting purposes at all times.	Development involving a gross floor area greater than 50m ² where a reticulated water supply is not available is: (a) provided with an easily accessible fire resistant on-site water storage of not less than 5,000 litres (eg. concrete tank with fire brigade fittings, inground swimming pool, dam fed by a permanent water source) that is within 100m of the development; and (b) has a hard-standing area	
	allowing a heavy rigid fire appliance safe access to within 6m of the storage facility. Editor's note—Plastic water tanks are not considered to be fire	
	resistant.	
Roads, fire access trails and firebrea		

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PO6	A06.1	The subject site provide for a clear
Roads and fire access trails are	Roads and fire access trails are	access from a sealed road.
designed and constructed to:	designed and constructed to:	
(a) enable efficient access to	(a) have a maximum gradient of	Roads have been designed to
buildings and structures for	12.5%;	comply.
fire-fighting purposes for	(b) a minimum cleared width of 6m	
emergency services; and	and a	
(b) swift evacuation in emergency	minimum formed width of 4m;	
situations.	(C) provides passing and turning	
	areas for fire- fighting	
	appliances at intervals of not	
	less than 500m;	
	(d) have a vehicular access at	
	each end to roads or a	
	bushfire trail; and	
	(e) not involve any cul-de-sac.	
	A06.2	Refer to the Bushfire Report.
	Development has direct access to an	
	evacuation route with a potential fire	
	intensity exposure no greater than 2	
	kw/m^2 .	
	Editor's note—The distance from	
	hazardous vegetation to achieve	
	2kw/m² is generally:	
	(i) 58m in a very high bushfire	
	hazard areas;	
	(ii) 52m in a high bushfire hazard	
	area; and (iii) 44m in a medium bushfire	
	hazard area.	
	AO6.3	Refer to the Bushfire Report.
	Development incorporates an area of	· · ·
	managed vegetation that separates	
	lot boundaries from hazardous	
	vegetation by a distance of:	
	(a) 20m to a high or very high	
	bushfire risk area; or	
	(b) 10m to a medium risk bushfire	
	area and includes a fire	
	access trail.	
	Editor's note—Any fire access trail is	
	secured by public ownership or an	
	access easement in favour of Isaac	
	Regional Council and the Queensland	
	Fire and Rescue	
PO7	Service.	Refer to the Bushfire Report.
= 1	No acceptable outcome is nominated.	kerer to the bushfire keport.
Development provides for adequate fire breaks that minimise bushfire		
hazard by:		
1		
(a) separating hazardous		
vegetation from		
development areas; and		
(b) facilitating access for		
firefighting and emergency		
vehicles.		
Editor's note-A site specific		
bushfire hazard assessment and		
management plan is required to		
demonstrate compliance with this		
performance		
performance		

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criterion. Refer to the Hazards PSP.		
PO8 Development is located and designed to incorporate a bushfire defendable space which achieves separation between buildings, building envelopes and hazardous vegetation necessary to reduce risk to an acceptable or tolerable level.	AO8.1 Buildings, or building envelopes, are separated by hazardous vegetation by a distance that achieves a radiant heat flux level at any point on the building, or building envelope, respectively that does not exceed: (a) 10kW/m² where involving a vulnerable use, essential service uses or hazardous chemical facility use; or (b) 29W/m² otherwise.	Refer to the Bushfire Report.
	Editor's note—The radiant flux levels and separation distances are to be established in accordance with state guidance on hazard assessments. Where a separation distance is proposed to be achieved by utilising existing, cleared developed areas external to the site, certainty must be established (through tenure or other means) that the land will remain cleared of hazardous vegetation. For staged development, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages.	
	AO8.2 Development ensures buildings or building envelopes are separated from adjacent buildings or building envelopes by 8m.	Refer to the Bushfire Report.
Hazardous materials		
PO9 The potential for the release of hazardous materials as a result of a bushfire event is avoided.	AO9 Development involving the production or storage of hazardous materials is not located within a high or very high bushfire hazard area.	Refer to the Bushfire Report.
Reconfiguration of a lot		

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PO10 Additional lots avoid the risk of bushfire hazard to personal and property safety and increased risk of damage to assets.	New lots (including rear lots) do not occur in a bushfire prone area.	Not applicable to this application.
Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards		
PSP. Essential community infrastructure		
Editor's note—The term essential commu State Planning Policy.	unity infrastructure is defined in the	
PO11	No acceptable outcome is nominated.	Refer to the Bushfire Report.
Development for essential community infrastructure is located, designed and sited to: (a) protect the safety of people during a bushfire; (b) not increase the exposure of people to the risk from a bushfire event; and (c) function effectively during and immediately after bushfire events.		
Editor's note—A site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP.		

Environmental significance overlay

Performance outcomes	Acceptable outcomes	
Environmental protection and buffering		
PO1 Development maintains and protects MNES by: (a) locating in areas that avoid adverse impacts on MNES; (b) ensuring underlying ecological processes and biodiversity values of MNES are maintained or enhanced.	AO1 Development locates outside of an area supporting MNES. Editor's note—Areas identified with matters of environmental significance can be located through the Federal Government Department of Environment and Energy website.	Refer to Environmental Reporting.
Editor's note— (i) consideration must be given to the requirements of the Environment Protection and Biodiversity Conservation Act 1999; (ii) an environmental and ecological assessment may be required to demonstrate compliance with this performance criterion.		

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PO₂ AO2 Refer to Environmental Reporting. Development maintains and protects Development locates outside of an MSES by: area supporting MSES as shown on (a) locating in areas that OM6. avoid adverse impacts on MSES; or (b) where adverse environmental impacts cannot be avoided, impacts are minimised and an environmental offset is provided for any residual adverse impacts; and (C) the underlying ecological processes and biodiversity values of MSES are maintained or enhanced. Editor's note-(i) to assist in demonstrating achievement of an environmental and ecological assessment may be required to demonstrate compliance with this performance criterion; where it is demonstrated that adverse impacts cannot be avoided or minimised, significant residual impacts on matters of state environmental significance may require an offset in accordance in accordance with the Environmental Offsets Act 2014. **Buffers** PO3 AO₃ Refer to Environmental Reporting. Development is setback from and A buffer extending from the outside edge of an area of MNES provides an adequate vegetated buffer to areas containing MNES or or MSES is provided and has a MSES to: minimum width of: (a) protect these areas and (a) 200m where located outside their values from an urban area; or threatening processes; (b) 50m where located within an (b) avoid edge effects such as urban area. undesirable microclimate effects and threats from non-

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native or pest fauna or flora;

(c) maintain and enhance ecological

and

connectivity.

PO4 An adequate buffer to a wetland in a MNES or MSES area is provided and maintained to: (a) protect or enhance habitat values, connectivity and other ecological processes and values; (b) protect water quality and aquatic conditions; (c) maintain natural micro-climatic conditions; (d) maintain natural hydrological processes; (e) prevent mass movement, gully erosion, rill erosion, sheet erosion, tunnel erosion, stream bank erosion, wind erosion, or scalding; and (f) prevent loss or modification of chemical, physical or biological properties or functions of soil.	A vegetated and development free buffer is provided and maintained extending from the high bank or highest astronomical tide of the following: (a) 100m wide buffer to a river; or (b) 50m wide buffer to waterway; or (c) 100m from a declared fish habitat area.	Refer to Environmental Reporting.
PO5 Isolated habitat areas are linked by a continuous corridor to provide effective ecological connectivity and to create additional linkages along waterways, wetlands, drainage lines, ridgelines, coastlines and other areas where possible.	AO5 Development provides a continuous corridor with a minimum width of 100m linking areas of protected vegetation to each other and other vegetation areas off-site.	Refer to Environmental Reporting.
Assessable development		
General		
PO6	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Alterations to natural landforms, hydrology and drainage patterns do not adversely impact on areas containing MNES or MSES.		Keren te Emme men keper mig
PO7 Development retains and enhances riparian vegetation along watercourses and drainage corridors, and vegetation along timbered ridgelines.	No acceptable outcome is nominated.	Refer to Environmental Reporting.
PO8 Development avoids direct and indirect impacts on significant ecological communities and significant species and their habitats, including disturbance from the presence of vehicles, pedestrian use, increased exposure to domestic animals and noise and lighting impacts.	No acceptable outcome is nominated.	Refer to Environmental Reporting.

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PO9	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Areas of habitat that support a	·	
critical life cycle stage such as		
feeding, breeding or roosting or		
ecological function for threatened		
species, ecological communities		
or migratory species are protected		
and not impacted by development.		
PO10	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Buffering, rehabilitation or		
restoration protects and enhances		
MNES and MSES and their		
underlying ecological processes,		
habitat and biodiversity values		
by:		
(a) using site appropriate		
and locally occurring		
native species;		
(b) replicating as far as		
practicable, the species		
composition and structural		
components of healthy		
remnant vegetation and		
associated habitats,		
including understorey		
vegetation; and		
(C) excluding environmental		
weeds, declared plants and		
other non-native plants		
likely to displace native		
flora or fauna species or		
degrade habitat.		
PO11	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Development:		
(a) avoids the introduction of pest		
species (plant or animal) that		
pose a risk to the ecological		
integrity and biodiversity		
values of MNES and MSES;		
(b) includes appropriate pest		
management practices to control any existing threat of		
pest species in a way that		
provides for the long term		
ecological integrity of		
MNES and MSES.		
Ecological corridors		

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PO12	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Development protects an		
ecological corridor, enhances		
ecological connectivity and		
habitat extent and effectively		
links habitats on and/or adjacent		
to the site.		
Editor's note–Ecological corridors and		
habitat linkages have dimensions and		
characteristics to support:		
(a) ecological processes and		
functions that enable the		
natural change in distributions		
of species and provide connectivity between		
populations of species over		
long periods of time;		
(b) ecological responses to climate		
change;		
(c) connectivity between large		
tracts and patches of remnant		
vegetation, habitat areas		
and areas supporting MNES		
and MSES; and (d) effective and unhindered day-		
to-day and seasonal movement		
of avian, terrestrial and		
aquatic fauna.		
Wetland ecological values		
PO13	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Development involving the		
clearing of vegetation protects		
the biodiversity, ecological values		
and processes, and hydrological		
functioning of a wetland area, including:		
(a) water quality values;		
(b) aquatic habitat values;		
(C) terrestrial habitat values;		
(d) usage of the site by native wetland fauna		
species or communities.		
Wetland hydrology and stormwater		
		5.6 . 5
PO14	No acceptable outcome is nominated.	Refer to Environmental Reporting.
The existing surface water		
hydrological regime of the		
wetland is enhanced or		
maintained through:		
(a) providing a net ecological benefit and improvement to		
the environmental values and		
functioning of a wetland in a		
wetland protection area; or		
(b) rehabilitating the existing		
hydrological regime, or		
restoring the natural		
hydrological regime of a		
wetland in a wetland		
, , ,		
wetland in a wetland		
wetland in a wetland		

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PO15	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Development adjacent to state	The acceptable determine is nonlineared.	Kerer to Environmental Reporting.
coastal foreshores or tidal water		
is located, designed and		
operated to:		
(a) maintain existing access to		
and along coastal foreshores		
and riparian banks;		
(b) minimise any loss of access to		
and along coastal foreshores		
or riparian banks through		
providing appropriate		
alternative access to coastal		
foreshores and riparians areas. PO16	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Public access infrastructure is	140 acceptable obtcome is nonlinated.	kerer to Litvironmental keporting.
designed and located to:		
(a) maintain or enhance natural and cultural values of the		
foreshore;		
(b) avoid areas of significant		
aquatic or terrestrial		
habitat values;		
(C) maintain the natural movement		
of sand and sediment;		
(d) avoid contributing to		
surface or geological		
instability or erosion of the		
foreshore;		
(e) utilise single access points		
wherever possible; (f) direct popula gwgy from		
(f) direct people away from sensitive areas;		
•		
(g) be compatible with		
scenic coastal landscape values; and		
(h) ensure users remain on the		
* *		
footpath and walkways to		
minimise physical impacts on the local environment		
through appropriate signage		
and fencing.		
Land degradation		D. () E. ()
PO17	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Development avoids land		
degradation in a wetland		
area, including:		
(a) mass soil movement, gully		
erosion, rill erosion, sheet		
erosion, tunnel erosion, stream		
bank erosion, wind erosion, or		
scalding;		
(b) loss or modification of		
chemical, physical or		
biological properties or		
functions of soils.		D. C 5
PO18	No acceptable outcome is nominated.	Refer to Environmental Reporting.
Degraded areas supporting MNES		
or MSES or other environmental		
values important to the maintenance		
of underlying ecological processes		

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required to maintain biodiversity,		
Performance outcomes	Acceptable outcomes	
are rehabilitated as near as is practical to the naturally occurring state of native plant species and ecological communities.		Refer to Environmental Reporting.
Monitoring		
PO19 During construction and operation of development, ongoing management, monitoring and maintenance is undertaken to ensure impacts on areas supporting MNES or MSES and their underlying ecological processes and biodiversity values are avoided or minimised.	No acceptable outcome is nominated.	Refer to Environmental Reporting.

Flood hazard overlay code

Performance outcomes	Acceptable outcomes	
Siting of development		
PO1 Development: (a) does not provide unacceptable risks to people and property from flood hazard impacts or, the risks are mitigated to an acceptable or tolerable level; and (b) does not intensify or locate a use in an extreme or high hazard area, in order to avoid risks to people, property and the environment.	No acceptable outcome is nominated.	The proposed structures are located outside of the flood impact areas.
PO2 Development is sited to enable safe evacuation in the event of a flood.	AO2 Development has direct access to land above the DFE by an evacuation route that is: (a) flood free; or (b) within a low or medium flood hazard area and not within an extreme or high flood hazard area.	The proposed buildings are located above the flood levels. The buildings provide a safe place of refuge should access be restricted for a period of time.

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PO3 Signage is provided within flood hazard areas to alert residents and visitors to the flood hazard.	AO3 Signage is provided on site (regardless of whether the land is in public or private ownership) indicating: (a) the position and path of all safe evacuation routes off the site; and (b) if the site contains or is within 100m of a floodable waterway, hazard warning signage and depth indicators are also provided at key hazard points such as floodway crossings or entrances to low- lying reserves.	Signage will be provided
Reconfiguring a lot		
PO4 The siting, layout and design of lot reconfiguration avoids or mitigates the adverse impacts associated with flooding to protect the safety of people and property.	AO4.1 No new lots or roads are created in an extreme or high flood hazard area.	Not applicable to this application.
	AO4.2 Within low or medium flood hazard areas, the creation of any new lot must be a minimum of 0.3m above the DFE.	Not applicable to this application.
	AO4.3 For new lots (whether or not for residential purposes), a designated building envelope commensurate with the scale of development and intent of the zone is provided at or above the DFE.	Not applicable to this application.
PO5 Road and pathway layout ensures residents are not physically isolated from adjacent flood free urban	AO5.1 New arterial, sub-arterial and collector roads are located above the 2% AEP flood level.	Not applicable to this application.
areas and provides a safe and clear evacuation route path.	AO5.2 Development does not involve cul-desacs or dead end streets within an extreme, high or medium flood hazard area.	Not applicable to this application.
Performance outcomes	Acceptable outcomes	
Building floor levels		
PO6 The floor levels of sensitive land uses have an acceptable level of flood immunity to maintain the safety of people from flood	A06.1 New buildings and extensions to existing buildings with sensitive land uses are not located in in extreme or high hazard areas.	All buildings are located above the flood levels.
hazard impacts. Editor's note—The term 'sensitive land uses' is defined in the <i>Planning Regulation 2017</i> .	AO6.2 Habitable rooms have a minimum floor level at least 0.5m above the DFE.	All buildings are located above the flood levels.
	AO6.3 Floor levels of non-habitable rooms (other than Class 10 buildings) are above the DFE, or allow for the flow through of floodwaters on the	Not applicable, all buildings are located outside the flood area.

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	ground floor.	
	AO6.4 Where involving an extension to an existing residential use that has habitable rooms below the level referred to in AO6.2, any extension does not exceed 25m² gross floor area.	Not applicable.
PO7 Non-residential development is designed and located to minimise damage to property and content from flooding impacts.	New buildings and extensions to existing buildings are not located in an extreme or high hazard areas. AO7.2 The floor level of non-residential buildings (other than Class 10 buildings) is above the DFE or allow for the flow through of floodwaters on the ground floor.	Not applicable, all buildings are located outside the flood area. Not applicable, all buildings are located outside the flood area.
	AO7.3 Materials stored on-site are those that are easily able to be moved off-site in a flood event.	Not applicable, all buildings are located outside the flood area.
Earthworks		
PO8 Development including any earthworks must: (a) not adversely impact on or change the flood characteristics of a floodplain or waterway; (b) not reduce existing flood storage and flow capacity; (c) avoid any physical change to a floodplain or natural waterway; (d) avoid increased scour and erosion; (e) not increase the depth, velocity or direction of the flow, the rate of flood level rise or the duration of inundation on the site or on land external to the site; and (f) not remove any riparian or riverine vegetation.	No acceptable outcome is nominated.	The proposed earthworks will not impact on the flood immunity or the flood characteristics.
Hazardous materials		
PO9 Public safety and the environment are not adversely affected by the impacts of floodwater on hazardous materials	AO9.1 Development does not involve the manufacture or storage of hazardous materials within a flood hazard area.	Not applicable, all buildings are located outside the flood area

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manufactured or stored in bulk.	AO9.2 Where it can be demonstrated that there is a low or medium flood risk, the manufacture or storage of hazardous materials takes place above the DFE flood levels.	Not applicable, all buildings are located outside the flood area
	Editor's note—A site specific flood hazard assessment is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP.	
Intensive animal industry		
PO10 The use of land for intensive animal husbandry does not establish or intensify in	AO10 Intensive animal husbandry, including the storage of bulk food and any associated	Not applicable.
a flood hazard area, in order to	water treatment facilities, does not	
avoid risk to the environment.	occur on land below the DFE.	
Essential community infrastructure		
Editor's note—The term essential community infra		
PO11 Essential community infrastructure is able to function effectively during and immediately after flood events.	AO11 Community infrastructure is provided at or above the recommended flood level specified in Table 7.2.7.3(c)— Recommended levels for community infrastructure.	Not applicable.
PO12 Essential services infrastructure (e.g. on- site electricity, gas, water supply, sewerage and telecommunications) maintains its function during and immediately after a DFE flood event.	AO12 Any components of infrastructure that are likely to fail to function or may result in contamination when inundated by flood water (e.g. electrical switchgear and motors, water supply pipeline air valves) are: (a) located above the DFE; or (b) designed and constructed to prevent floodwater intrusion/infiltration.	Not applicable.

10. ADOPTED INFRASTRUCTURE CHARGES RESOLUTION (NO. 3 OF 2021)

Isaac Regional Council made a resolution under the *Planning Act 2016* adopted a charge for the entire Isaac

The proposed development is for two offices to support the existing rail operations.

The subject site has been used for workers accommodation in the past of which has since been removed. Credits associated with these applications will apply. Given the proposal and the approvals in the past we believe there will be no additional infrastructure charges to apply to this site.

11. CONCLUSION

This assessment report has demonstrated the proposed development is consistent with the intent of the relevant provisions of the 2021 Isaac Regional Planning Scheme and therefore should be approved with reasonable and relevant conditions.

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12. APPENDICIES

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APPENDIX 2 – IDAS FOR	RMS		

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APPENDIX 3 - PROPOSAL PLANS	
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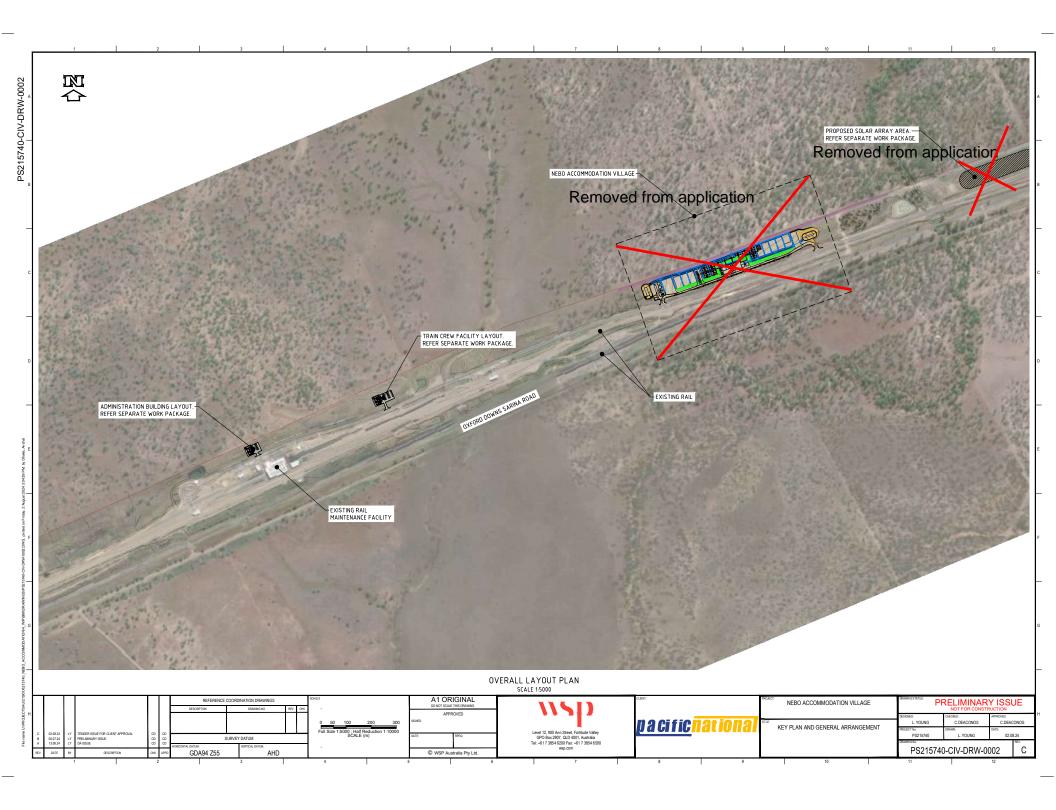
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APPENDIX 5 – ENVIRONMENTAL REPORT	

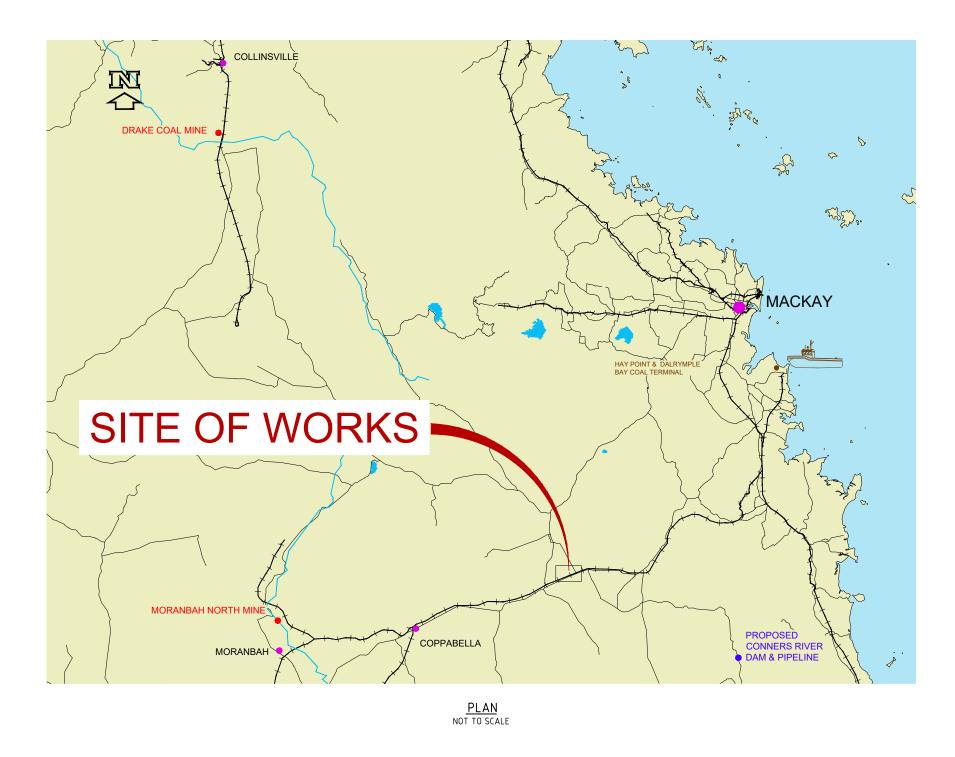
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APPENDIX 6 – ENGINEERING REPORT	

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PS215740-CIV-DRW-0001



DRAWING NUMBER	TITLE
PS215740-CIV-DRW-0001	LOCALITY PLAN AND DRAWING INDEX
PS215740-CIV-DRW-0002	KEY PLAN AND GENERAL ARRANGEMENT
PS215740-CIV-DRW-0100	TRAIN CREW FACILITY LAYOUT PLAN
PS215740-CIV-DRW-0105	TRAIN CREW FACILITY BUILDING LAYOUT PLAN
PS215740-CIV-DRW-0115	TRAIN CREW FACILITY TYPICAL DETAILS
PS215740-CIV-DRW-0200	ADMINISTRATION BUILDING GENERAL ARRANGEMENT PLAN
PS215740-CIV-DRW-0205	ADMINISTRATION BUILDING LAYOUT PLAN
PS215740-CIV-DRW-0215	ADMINISTRATION BUILDING TYPICAL DETAILS

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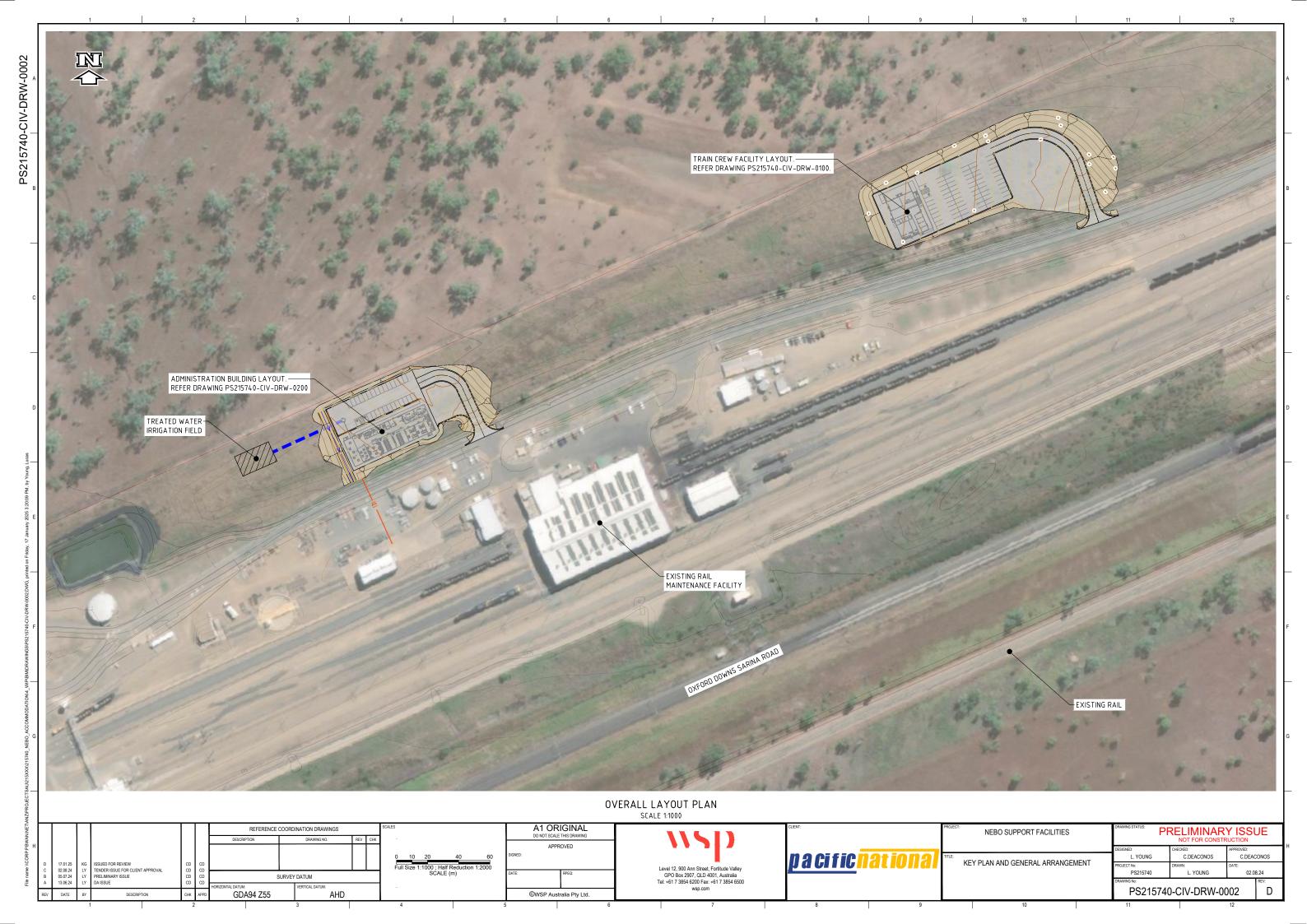
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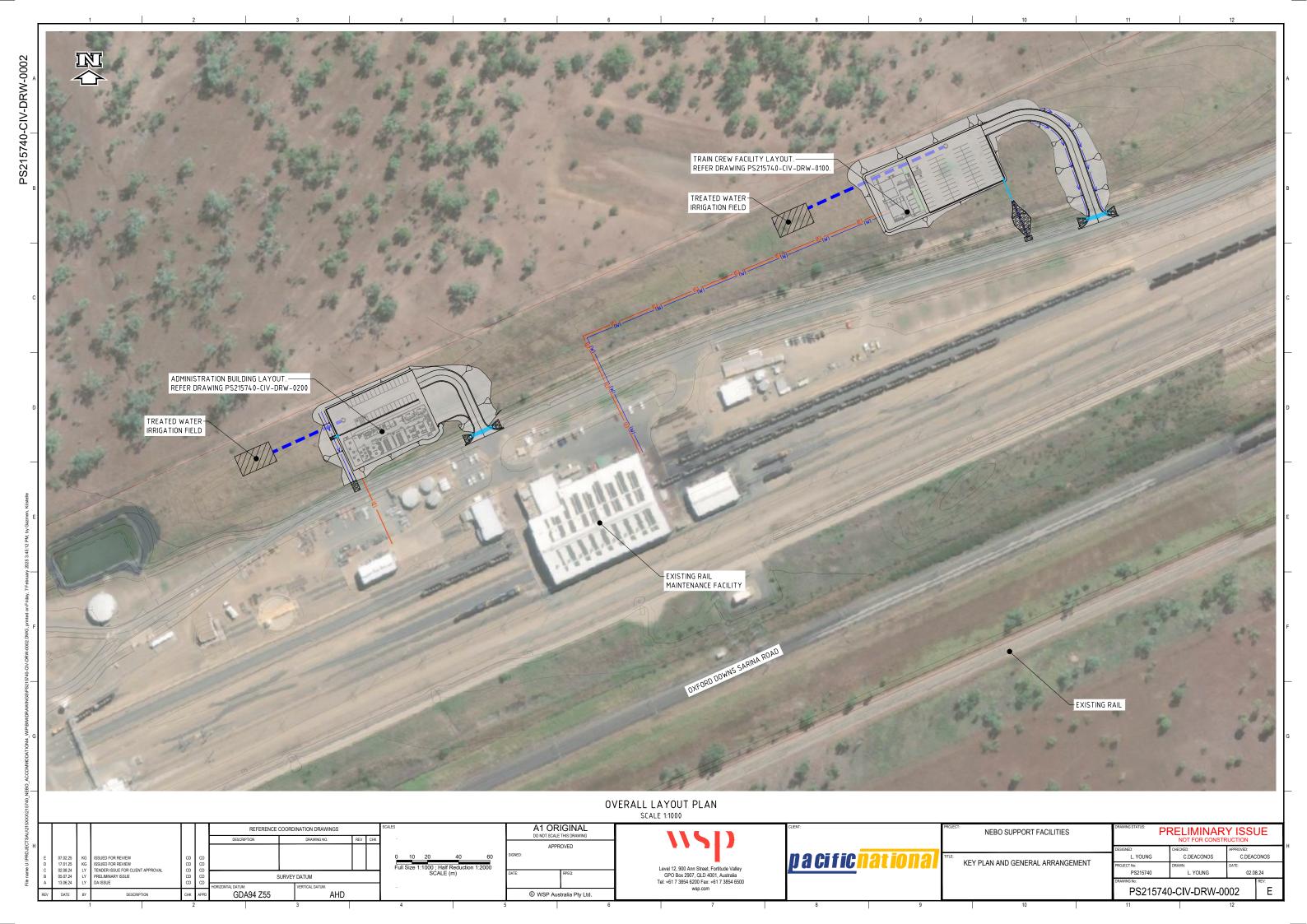
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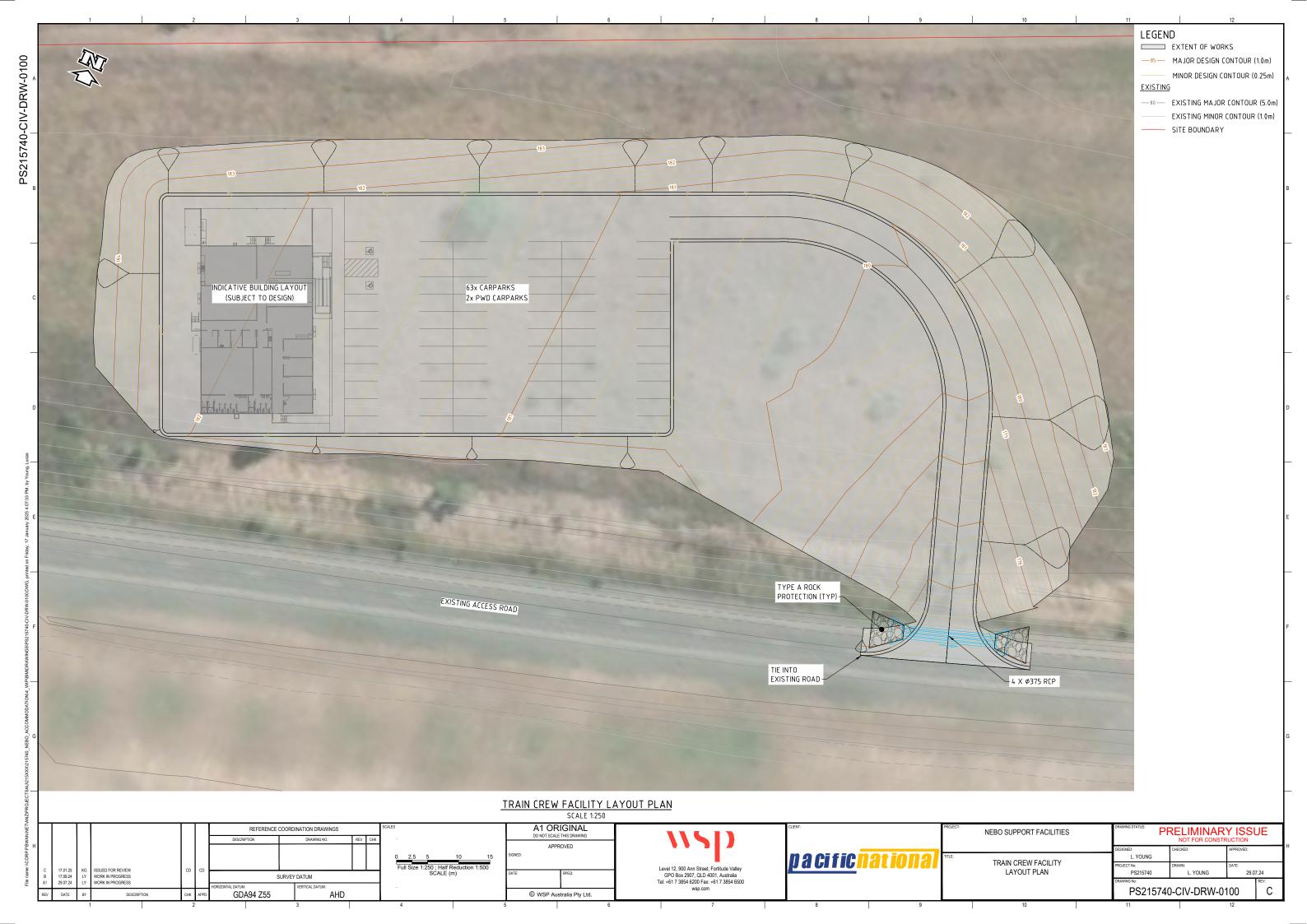
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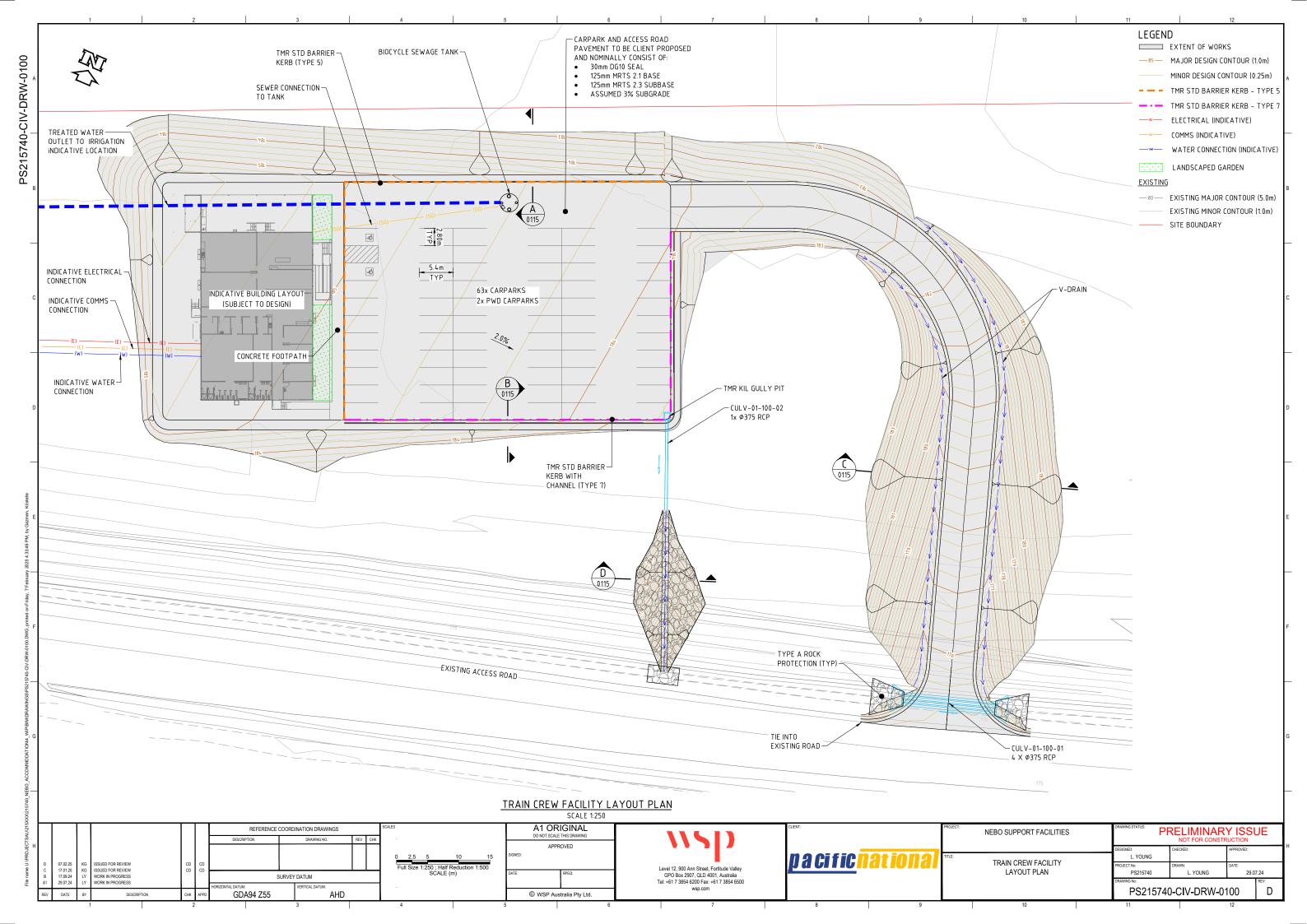
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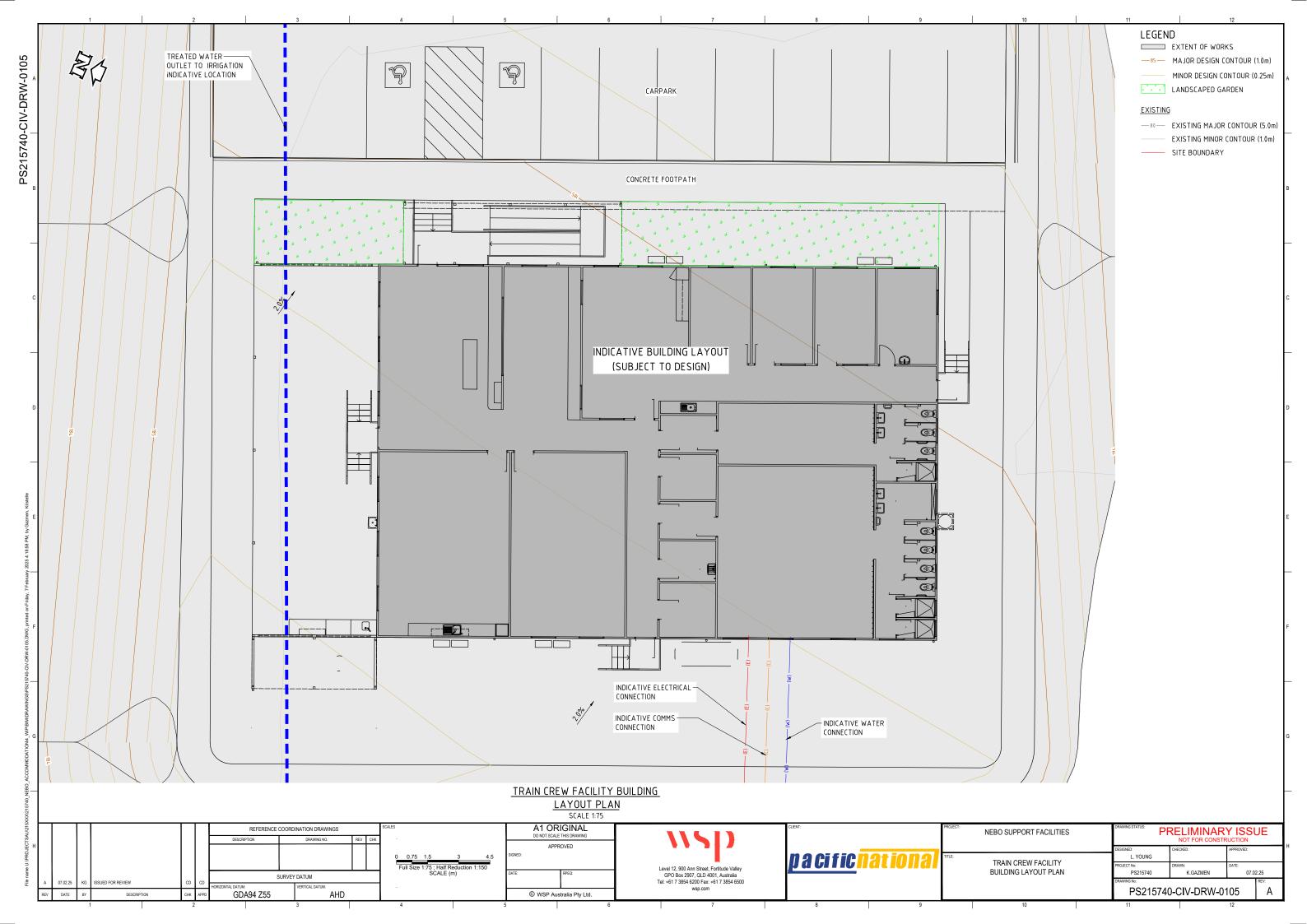
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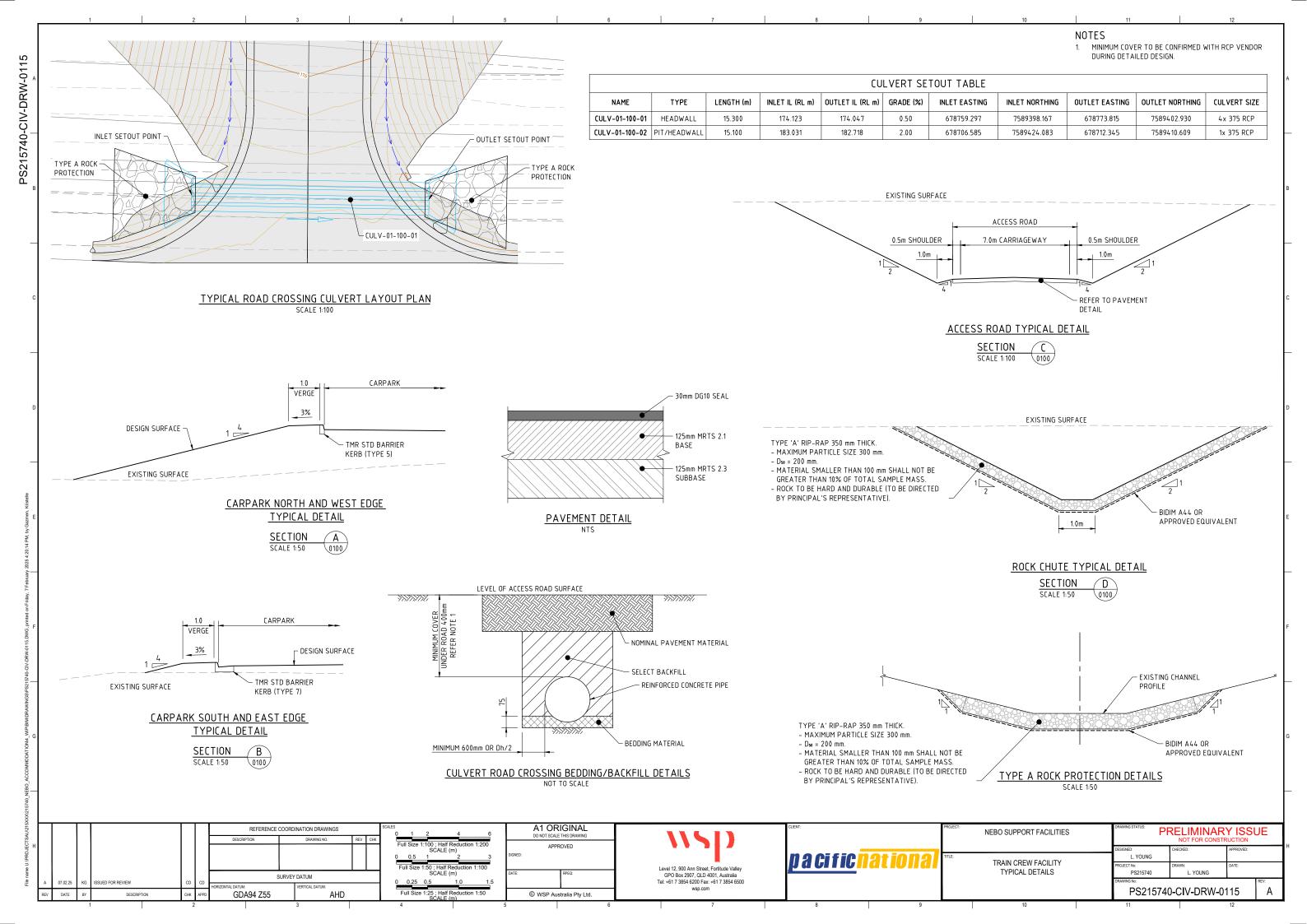


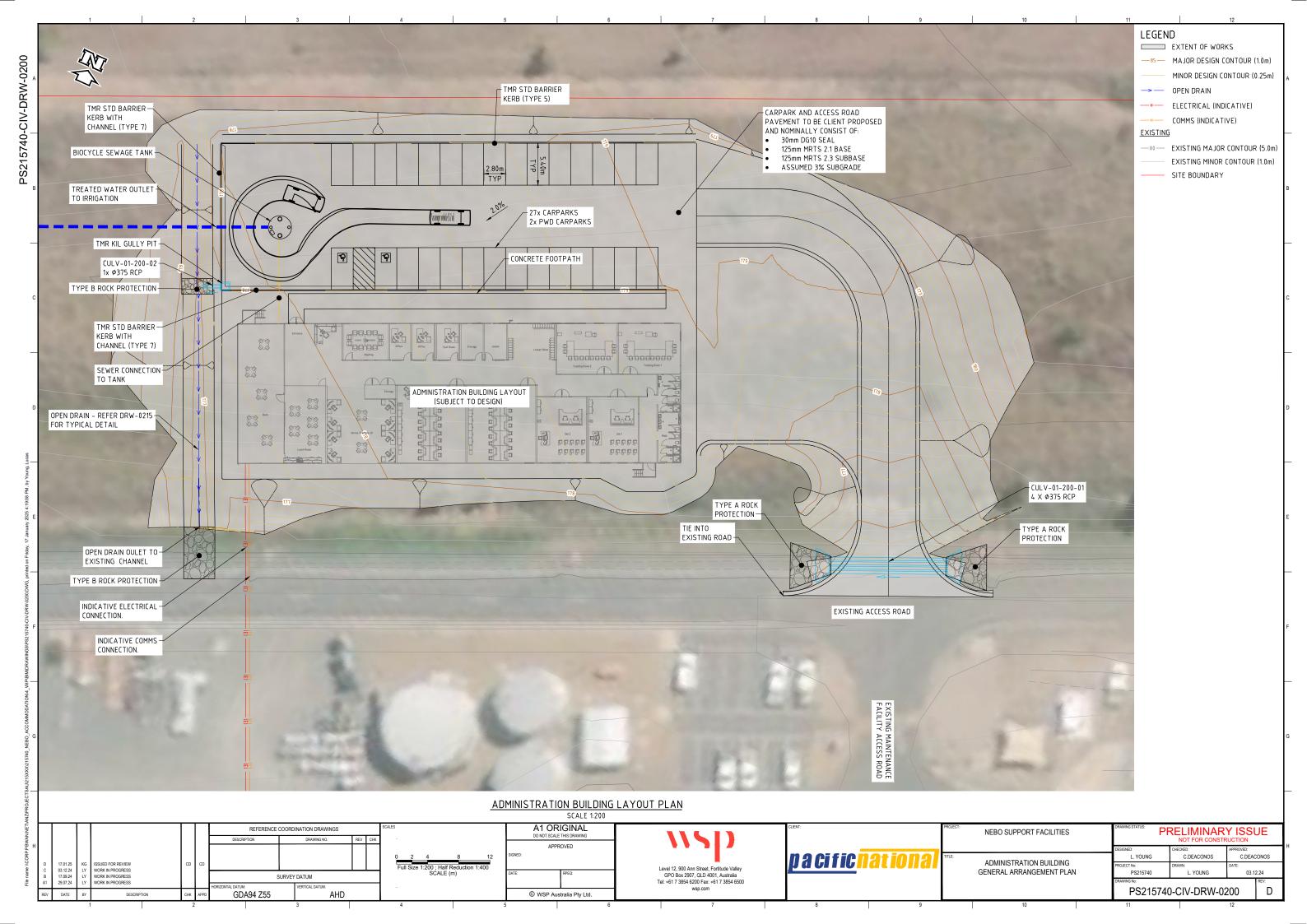


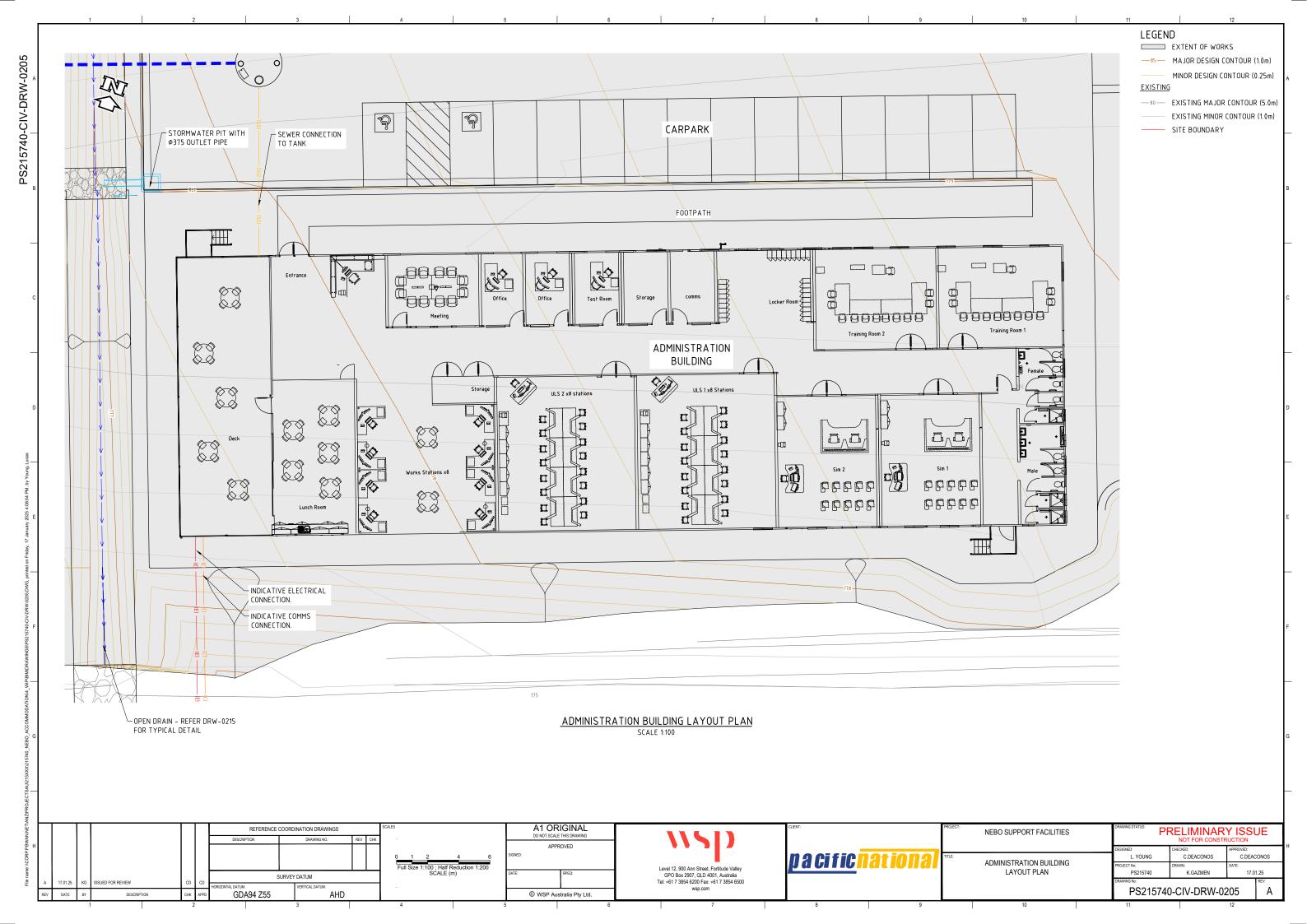


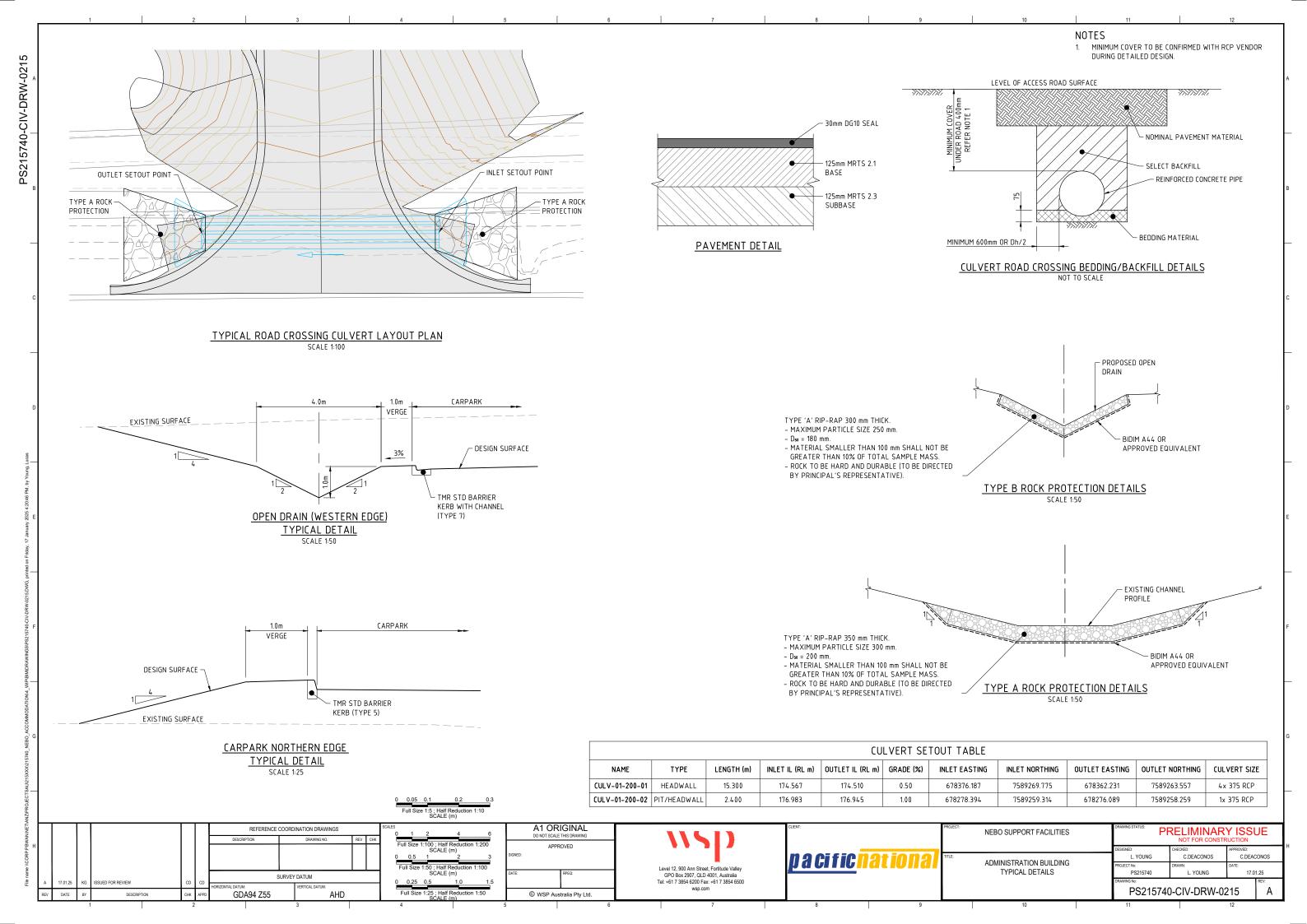


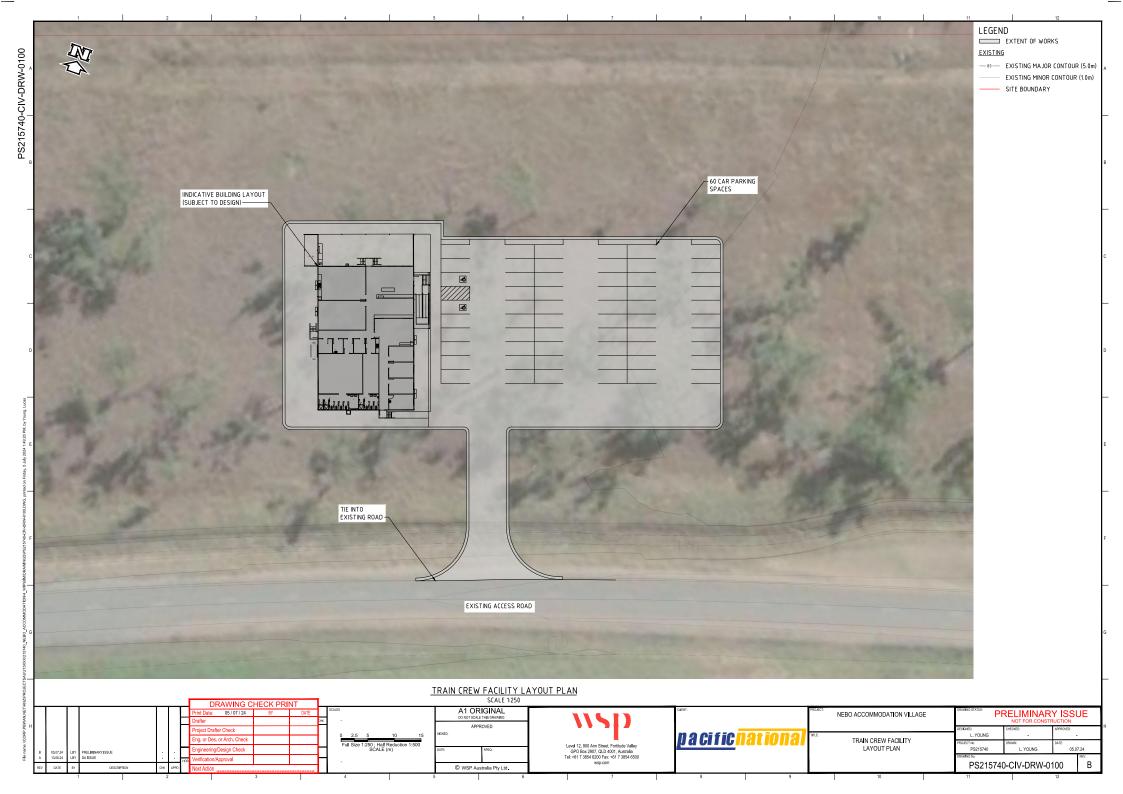


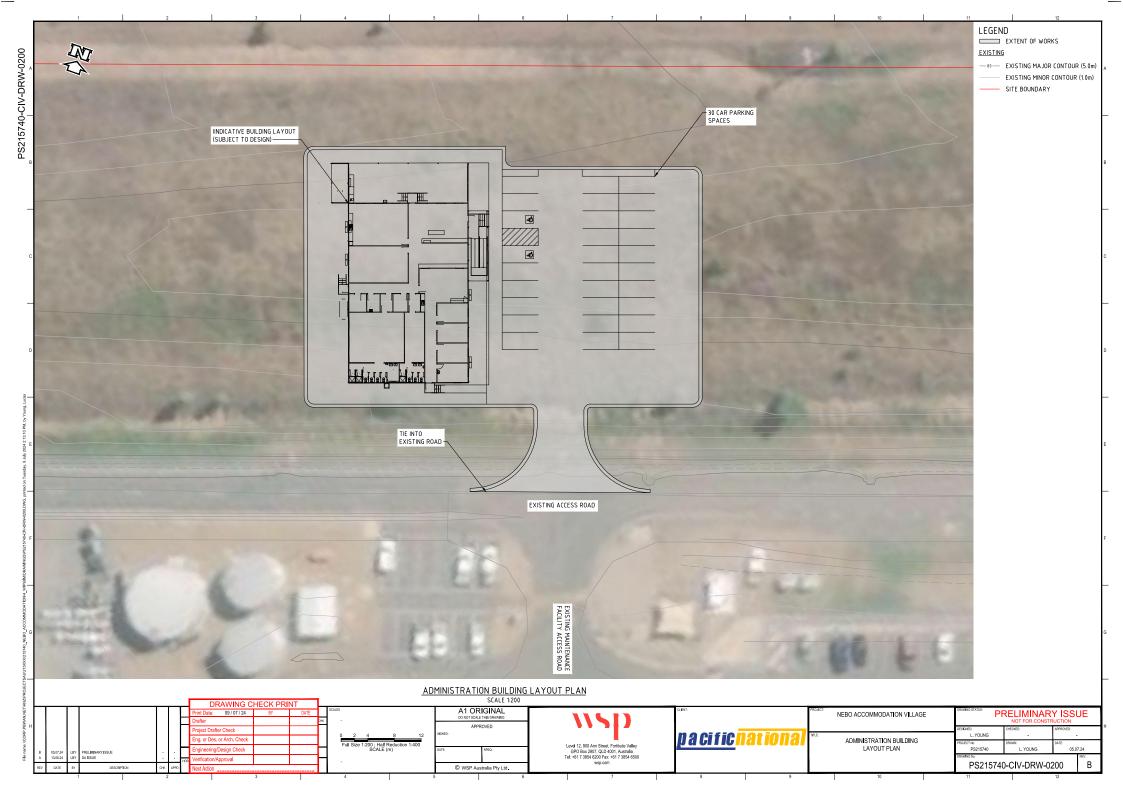












Question today Imagine tomorrow Create for the future

Nebo Accommodation Village Basis of design

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В	13 August 2024	Issued.

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Approved by:	Chris Deaconos	13 August 2024	be Jeannes

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LIST OF APPENDICES

APPENDIX A SPECIFICATIONS

APPENDIX B GEOTECHNICAL REPORT

Glossary

AEP

μm Micrometer

4WD Four-Wheel Drive

AC Asphaltic Concrete

AHD Australian Height Datum

ALCAM Australian Level Crossing Assessment Model

Annual Exceedance Probability

AS Australian Standard

AS/NZS Australian and New Zealand Standard

BCA Building Code of Australia

CASA Civil Aviation Safety Authority Australia

CBR California Bearing Ratio
CCTV Closed-Circuit Television

CoP Code of Practice

DB Distribution Board

DICL Ductile iron cement lined (pipe)

GPS Global Positioning System

HAZOP Hazard and Operability

HDPE High Density Polyethylene

HV High Voltage

IAS Initial Advice Statement

IEEE Institute of Electrical and Electronics Engineers

IMS Integrated Management System

ISO International Organization for Standardisation

kVA Kilo Volt Amperes
L/s Litres per second

LAN Local Area Network

LPG Liquefied Petroleum Gas

LV Low Voltage

MCC Motor Control Centre

MGA Map Grid of Australia

ML/yr Mega litres per year

MVA Mega Volt Amperes

NCC National Construction Code

PE Polyethylene (pipe)

PED Personal emergency device
PLC Programmable logic controller

PTO Power take-off

PVC Polyvinyl chloride

PWD Persons with a disability

QLD Queensland

QR Queensland Rail

RCS Remote Controlled Signalling
RIM Rail Infrastructure Manager

RL Reduced Level
RMU Ring Main Unit

SMDD Standard Maximum Dry Density

SWL Safe Working Load

T/O Turn-out

ToR Terms of Reference

TOS Toe of Switch

TSS Total Suspended Solids

UPS Uninterruptible Power Supply
VoIP Voice Over Internet Protocol

WAN Wide Area Network

WBS Work Breakdown Structure
XLPE Cross Linked Polyethylene

1 Introduction

1.1 Project background

Pacific National (PN) proposes to develop a workers' accommodation village near Nebo township to support their Train Support Facility (TSF), which is used for maintenance, provisioning, and train crew operations on the Goonyella and Newlands lines. The site is located approximately 90 km southwest of Mackay in Central Queensland, within the Isaac Regional Council local government area (refer to Figure 1.1 for the locality plan). The area is accessible via the Peak Downs Highway to the north, the Oxford Downs Sarina Road to the south, and Braeside Road to the east, with site access provided off Braeside Road.

The project involves the design and construction of a permanent accommodation village adjacent to the Nebo TSF, located 1.2 km north of the intersection with Oxford Downs Sarina Road, off Braeside Road. The site is bordered by the existing Goonyella railway line to the south and the corridor/property boundary to the north.

The village is to be constructed in three stages with a total number of 166 prefabricated accommodation modular units. The number of accommodation units for each stage are as follows:

- 68 units in Stage 1
- 48 units in Stage 2
- 50 units in Stage 3.

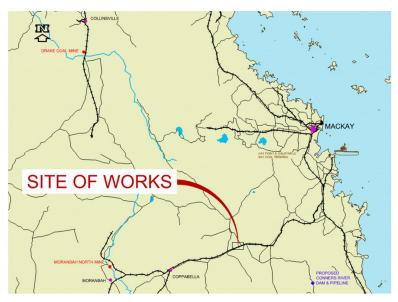


Figure 1.1 Nebo Accommodation Village site location

1.2 Purpose of this document

The purpose of this document is to set out the design criteria, parameters, assumptions and operational requirements for the accommodation village.

2 Operational requirements

2.1 Village operations

- The Train Support Facility (TSF), which is used for maintenance, provisioning, and train crew operations on the Goonyella and Newlands lines will operate 24 hours per day, 7 days per week
- Administration functions will operate for 12 hours per day, 7 days per week
- Maintenance functions will operate 24 hours per day, 7 days per week
- Village guests are intended to use the village to rest between shifts
- Village Staff are 100% FIFO.

3 Codes, standards, specification and statutory requirements

3.1 General

The design of all components of the accommodation village shall comply with the latest revisions of all national and state statutory requirements including all PN internal policy documentation. The order of precedence applying for the use of the codes, standards, specifications and statutory requirements for the project is as follows:

- Statutory requirements
- Australian Standards
- Project specific requirements and standards
- International standards
- Service authority standards.

In the event of an inconsistency, conflict or discrepancy between any of the standards, specifications and statutory requirements, the most stringent and safest requirement applicable to the project shall prevail to the extent of the inconsistency, conflict or discrepancy. Any inconsistencies critical to the design shall be brought to the attention of Pacific National.

3.2 Specifications

The minimum applicable construction specifications that are applicable are listed below in Table 3.1. All these documents are attached as Appendix A – except for the NCC documents which are available on-line.

Table 3.1 Specifications

Document number	Description
Structural/buildings	
NCC 2022	National Construction Code (NCC)
Civil / Site Works	
PS215740-SPC-GEN-1010	General construction specification
PS215740-SPC-CIV-2110	General earthworks
PS215740-SPC-CIV-2510	Unbound pavements
PS215740-SPC-CIV-2520	Bituminous surfacing
PS215740-SPC-CIV-2540	Kerb and channel
PS215740-SPC-CIV-2550	Road furniture
PS215740-SPC-CIV-2610	Rock Filled Mattresses, Gabions and Rock Protection
PS215740-SPC-CIV-2620	Geotextiles under rock filled mattresses, gabions and rock protection
PS215740-SPC-CIV-2630	Reinforced concrete culverts

Document number	Description
PS215740-SPC-CIV-2640	Fencing
PS215740-SPC-CIV-2720	Conduits
PS215740-SPC-CIV-2810	Excavation, Bedding, Backfill Pipe Trenches
PS215740-SPC-CIV-3100	Supply and delivery of ready mixed concrete
PS215740-SPC-CIV-3101	Concrete placement
PS215740-SPC-CIV-3102	Precast concrete
Dry Services	
PS215740-SPC-ELE-1001	Electrical installation
PS215740-SPC-ELE-1002	Electrical commissioning
PS215740-SPC-ELE-1003	Metal clad switchboards and enclosures
PS215740-SPC-ELE-1004	Backbone fibre and structural cabling
PS215740-SPC-ELE-1005	Fire systems
PS215740-SPC-ELE-1007	Security and CCTV
PS215740-SPC-ELE-1008	Gigabit passive optical network
PS215740-SPC-ELE-1009	Low voltage generator
Wet Services	
PS215740-SPC-ELE-1010	Low voltage electric motors
PS215740-SPC-MEC-4001	General mechanical works
PS215740-SPC-MEC-4002	Steel protective coatings
PS215740-SPC-MEC-4003	Fire detection – fire protection
PS215740-SPC-MEC-4004	Valves
PS215740-SPC-MEC-4005	Class 2 centrifugal pumps for water services
PS215740-SPC-MEC-4006	Supply & installation of water pressure pipelines
PS215740-SPC-MEC-4007	Sewer reticulation

3.3 Statutory requirements

All aspects of the project shall comply with the requirements of the latest revisions of all relevant Australian statutory requirements. Specific attention is drawn to the requirements stipulated in the legislation detailed in Table 3.2.

Table 3.2	Statutory requirements		
Act title			
Work Health	and Safety Act (Qld)		
Work Health	and Safety Regulations (Qld)		
Environmental Protection Act (Qld)			

Act title

Environmental Protection Regulations (Qld)

Clean Waters Act

Water Act (Qld)

Water Supply (Safety and Reliability) Act (Qld)

Australian Electrical Safety Act

Australian Electrical Safety Regulation

Electricity Act (Qld)

Qld Electricity (Licensing) Regulations

Qld Electricity Regulations Part VIII

Relevant Australian, British or American standards and codes in that order of precedence. For Mechanical systems, the American Society of Mechanical Engineers (ASME) standards will take precedence over the British.

The Building Code of Australia (BCA)

Fire and Emergency Services Act

Fire and Rescue Service Act Requisition (No. 1)

AA TS 108 001 Structural Integrity Standard

National Construction Code (NCC)

3.4 Codes and standards

Wherever possible, all aspects of the project shall comply with the requirements of the latest revision of the relevant Australian codes and standards. Where applicable Australian Standards do not exist or cannot be applied, other industry recognised international standards and recommended practices, such as those from the American Petroleum Institute (API) may be used. If alternative standards are proposed, these shall be specifically stated at the commencement of design and be subject to approval by PN.

3.5 Other applicable reference documentation

The following reference documentation shall be read in conjunction with the design criteria.

- The Capricorn Municipal Development Guidelines (CMDG) including Standard Drawings and Specification,
 Construction Specification and Procedures, Design Specification and Purchase Specifications
- Queensland Department of Transport and Main Roads Design Standards and Specifications
- All Australian Standards relevant to engineering matters including, but not limited to:
 - Construction
 - Quality, inspection and testing of materials
 - Car parking (AS2890)
 - Access requirements (AS1428)
 - Stormwater management and control (AS3500)

- Overhead line design (AS7000)
- All relevant Austroads documentation relating to design, construction and maintenance of road related infrastructure
- Infrastructure related documentation published by Queensland Department of Transport & Main Roads where relevant areas of road related infrastructure not contained or otherwise specified in CMDG of Council policy documents
- Current version of the Building Code of Australia
- Current version of the Sewerage Code of Australia
- Current version of the Water Supply Code of Australia
- Current version of the Australian Rainfall and Runoff: A Guide to Flood Estimation
- Best Practice Erosion and Sediment Control (International Erosion Control Association, Australia)
- Community Development and Justice Standing Committee Report 2 'ENOUGH IS ENOUGH' Sexual harassment against women in the FIFO mining industry, June 2022.

4 General design parameters

4.1 Design life

The design life of the accommodation village is 20 years.

The design life of the various infrastructure elements within the village shall be as listed in Table 4.1.

Table 4.1 Design Life

Design element	Design life
Structures	20 years
Tanks, pipe works and electrical equipment	20 years
Pump casings and mechanical equipment	20 years
Pump impellers and shafts (replaceable components)	10 years
Roads	20 years
All other items unless specified otherwise	20 years

4.2 Survey

All survey data used in the design shall be in the GDA94 Zone 55 projection. Vertical coordinates are based on the Australian Height Datum (AHD).

4.3 Temperature

Temperature data provided in Table 4.2 has been obtained from the BOM for Moranbah Water Treatment Plant (site number 034038), located approximately 74 km south-east of the accommodation village location.

Table 4.2 Design temperature variables to be applied

Temperature reference	Design temperature
Mean maximum temperature	29.7°C
Mean minimum temperature	16.7°C
Maximum design temperature	45°C
Minimum design temperature	5°C

Note: design temperature for the infrastructure (including fluids) may vary to account for thermal mass, burial and solar radiation.

4.4 Equipment

All equipment shall be designed and selected to be suitable for continuous, reliable operation 24 hours per day, 365 days per year in the conditions specified unless clearly identified for intermittent duty.

4.5 Geotechnical

A geotechnical report (Document No. 2135587J-GEO-RPT-001 dated November 2013) attached as Appendix B, was prepared for a previous proposed accommodation village development. The design parameters recommended in this report may be assumed for the accommodation village design (subject to confirmation that additional geotechnical investigations are not required).

4.6 Wind

The design wind loads for buildings and structures are to be based on requirements of AS 1170.2.

4.7 Earthquake

The design earthquake loads for buildings and structures are to be based on the requirements of AS 1170.4.

4.8 Rainfall

Design rainfall data for location Lat. -21.787, Long. 148.737 was downloaded from the Australia Bureau of Meteorology (BOM) to be used for stormwater drainage design.

Table 4.3 IFD design rainfall intensity (mm/hr)

Duration	63.2% AEP	50% AEP	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP
1 min	137	156	210	244	275	314	342
2 min	118	134	181	211	238	271	293
3 min	111	126	170	198	223	254	276
4 min	105	120	162	188	212	242	263
5 min	101	114	155	180	203	232	252
10 min	84	95.2	128	149	168	192	209
15 min	72.4	82	110	128	144	165	179
20 min	63.8	72.2	97.1	113	127	145	158
25 min	57.2	64.7	87.1	101	114	130	141
30 min	51.9	58.8	79.1	91.9	104	118	129
45 min	40.9	46.4	62.6	72.9	82.4	94.1	103
1 hour	33.9	38.6	52.3	61	69.1	79.2	86.4
1.5 hour	25.6	29.2	39.9	46.8	53.3	61.4	67.2
2 hour	20.7	23.7	32.7	38.5	44	51	56.1
3 hour	15.2	17.5	24.5	29.1	33.5	39.2	43.5
4.5 hour	11	12.8	18.3	21.9	25.5	30.3	33.9
6 hour	8.8	10.2	14.8	18	21.1	25.3	28.5

Duration	63.2% AEP	50% AEP	20% AEP	10% AEP	5% AEP	2% AEP	1% AEP
9 hour	6.41	7.51	11.1	13.7	16.2	19.8	22.6
12 hour	5.14	6.05	9.08	11.3	13.6	16.7	19.2
18 hour	3.78	4.48	6.87	8.68	10.6	13.2	15.4
24 hour	3.06	3.64	5.66	7.23	8.93	11.2	13.2
30 hour	2.6	3.1	4.88	6.28	7.82	9.91	11.7
36 hour	2.28	2.73	4.32	5.59	7.01	8.92	10.5
48 hour	1.86	2.22	3.56	4.65	5.88	7.52	8.91
72 hour	1.38	1.66	2.68	3.54	4.52	5.79	6.87
96 hour	1.11	1.34	2.17	2.87	3.68	4.7	5.58
120 hour	0.929	1.12	1.82	2.41	3.08	3.94	4.65
144 hour	0.797	0.962	1.57	2.07	2.64	3.35	3.96
168 hour	0.695	0.84	1.37	1.8	2.28	2.9	3.41

4.9 Pacific National accommodation village guiding principles

The following are PN's guiding principles for the Nebo Accommodation Village:

- A worker's experience is central to the design and operation of the accommodation village.
- All workers are entitled to safe and secure accommodation whilst residing in a PN accommodation village.
- Employees and contractors are entitled to the same standard of amenity and safety.
- Village experience is a key driver of attraction and retention.

5 Village layout and size

Table 5.1 Layout design criteria

Parameter	Requirement	Notes/comments
Layout design	The layout of the village shall take the following into consideration:	
	 Local environmental aspects (including wind direction, rainfall, sun orientation, natural slope, soil conditions, existing vegetation) 	
	 Logical paths of travel for residents and safe, efficient access to all areas for the village management and caretaking personnel. Path widths to accommodate a golf cart and person passing as a minimum. 	
	The location of the sewage tanks to minimise odour control and noise to accommodation buildings.	
	 The location of water storage tanks, distribution pumps and treatment facilities to be away from accommodation buildings to minimise noise impact. 	
	 Maintenance access to be provided to all accommodation buildings, either via village roads or unsealed access corridors 	
	 The proposed location of transformers for incoming power to be closest to the larger load demands at the village 	
	 Layout to minimise travel distances from accommodation buildings to hub facilities as much as reasonably possible 	
	 Segregation of delivery vehicles and light vehicles and pedestrians 	
	 Dedicated entry and exit roads for car parking areas 	
	 Layout to minimise travel distances from car parking to accommodation buildings as much as reasonably possible 	
	 Provide a buffer (nominally 14m) from the hub facilities to the accommodation rooms to reduce noise impacts. 	
Pedestrian access	Covered concrete pathway internal pedestrian access to and between all hub buildings	

Parameter	Requirement	Notes/comments
	 Uncovered asphalt pathways from the hub facilities to the accommodation buildings, all other facilities and the carparks. 2.5m wide pathways Gradient of paths to be acceptable for use by golf carts 	
Village location	 All building finished floor levels will be located above the 1% AEP flood level All pads and roads to achieve a 5% AEP flood immunity 	
Village access in wet weather	The village access road will have 5% AEP flood immunity	
Cleaning and maintenance	 Method of village operation to be confirmed. Nominal time to clean a room is 20 minutes 	
Village size	 Total required accommodation units is 166, with the following breakdown per stage: 68 for Stage 1 48 for Stage 2 50 for Stage 3 Wherever reasonably possible, the workforce will be allocated the same room each time they come to site. "Motelling" is not preferred. Provide dedicated female rooms. 	
Village staff	Village staff assigned a permanent room	

6 Civil works

Table 6.1 Earthworks and drainage design criteria

Parameter	Requirement	Notes/comments
Finished surfaces	 All finished surfaces shall be free draining. Finished grades shall be 1% preferred. Where design circumstances permit, 5% absolute maximum may be used. 	
Cut and fill batters	 3H:1V (4H:1V where roadway is adjacent to avoid requirement for guardrail) Fill batters may be steepened to 1.5H:1V where geotechnical conditions are suitable 	
Flood immunity	 1% AEP (1 in 100-year ARI) to all buildings 5% AEP (1 in 20-year ARI) to all pads and roads 	
Major open channels and culverts	5% AEP (1 in 20-year ARI)	
Minor drainage	Not required. Just let minor flows sheet across the surface.	
Clean water runoff	 Runoff from building roofs, sealed car park areas, and unsealed and unvegetated areas is to be discharged to the stormwater drainage system. 	
	 Rainwater from building roofs will not be harvested. 	
	 The stormwater drainage system shall include 2 sedimentation dams – one located east of the village, and another located west of the village. 	
Runoff from areas potentially contaminated with hydrocarbons	Runoff from areas potentially contaminated with hydrocarbons shall drain via a silt trap and/or oily water separation system to the stormwater drainage system.	

Table 6.2 Roads and parking design criteria

Parameter	Requirement	Notes/comments
Internal roads and car parking	Internal road and vehicular access provided in accordance with AS2890 and the following:	
	Mix of one way and two-way traffic access roads depending on function and safety	
	Typical design vehicle – short rigid vehicles (9 m service vehicle)	
	Maximum design vehicle – medium rigid vehicles (12.5 m single unit truck or bus)	
	 Minimum 40 km/h posted speed on the village access road. Design speed higher than this in accordance with standard practices 	
	— Car park posted speed 10 km/h	
	 Minimum longitudinal grade of open drains to be 0.5% absolute and 1.0% desirable in accordance with Austroads guidelines 	
	Maximum road longitudinal grade 5%	
	Minimum curve radius in accordance with Austroads guidelines	
	Large vehicles are permitted to cross the centre line of the road at internal road intersections and manoeuvring areas	
	— 24-hour vehicle movements	
	 7 m formation, 6 m traffic lanes, 0.5 m sealed shoulder, 4H:1V batters in accordance with Austroads guidelines. If 3H:1V batters used, guardrail must be included. 	
	— 3% cross fall	
	 Roads may have one-way crossfall if required 	
	— 2 coat bituminous seal.	
Parking and road hierarchy	Parking and road layout shall take the following into considerations:	
	 Safe transport paths that minimise the interaction of pedestrian and medium/light vehicles 	
	Parking for cars and medium sized vehicles	
	 Access for delivery vehicles to storage areas for the kitchen and linen store shall be provided and clearly indicated 	

Parameter	Requirement	Notes/comments
	 Consideration of the configuration of delivery and maintenance vehicles servicing the village, and appropriate design of delivery areas, turnarounds, parking laybys, and hitching areas Waste and recyclables collection (waste management area) 	
Light/medium vehicle parking	 Unless noted otherwise, to be designed in accordance with AS2890 (parking facilities), and 	
	Car park class – Type 3, short to medium- term parking	
	Car park capacity to be:	
	— 38 for Stage 1	
	— 72 for Stage 2	
	— 114 for Stage 3	
	Minimum light vehicle carpark bay dimensions to be 2.6 m wide x 5.4 m long	
	 Car parking areas at ends of village preferred rather than spreading car parking throughout the village 	
	— 2 coat bituminous seal	
Deliveries area	— 40m x 40m area adjacent to kitchen and store for delivery of food and consumables	
	 Sized to suit a 19m long semi-trailer that will reverse into the dock at the back of the store room 	
	AC seal to manage risk of wear and tear due to turning movements	

Table 6.3 Landscaping design criteria

	DESIGN CITIENTS	
PARAMETER	REQUIREMENT	NOTES/COMMENTS
Landscaping and irrigation	A well-established, controlled and landscaped environment will be included to complement the built environment.	
	 All landscaping will include local native indigenous species. Plant selection should consider the seasonal nature of Nebo to minimise watering. 	
	 Also consider mosquito management in the selection of plants. That is, plants that do not attract mosquitoes or have standing water. In general, no standing water in the landscaping. 	
	Fully irrigated landscaped gardens, plantings and grassed areas as shown on the layout plan.	
	 Fully integrate any landscaping with the designs for the stormwater overland flow paths to ensure that the landscaping is not scoured out by rainfall events. 	
	 Incorporate garden edging between landscaped garden beds and grassed areas and stake and secure all trees and shrubs. 	
	— Irrigation services to be controlled by a fully programmable multi-zoned system, incorporating a 365-day time clock with independent battery backup, rain fall sensors, pop-up and drip irrigation heads as appropriate for the various planted zones, to provide comprehensive year-round system.	
	 Water supplies for the irrigation system will be secured from the Village potable water storage tanks. 	
	 Irrigation lines to be protected from blockages using appropriately sized in-line filters. All irrigation supply lines to be fitted with reduced pressure zone (RPZ) valves. 	
Noise	10m wide buffer zone provided for noise mitigation.	

7 Accommodation buildings

Table 7.1 Accommodation buildings design criteria

Parameter	Requirement	Notes/comments
Design	 Accommodation buildings shall be modular design, utilising transportable units fabricated off-site and requiring minimum on-site installation and finishing works 	
	There are 2x layouts proposed. Guests have 1x room per module and Village staff have 4x rooms per module.	
	 Guest module size to be 3m wide x 9.8m long. Staff module to be 3.3m wide x 14.4m long. 	
	 Buildings can be either ground mounted or raised slightly above ground level (e.g. 600mm) at contractor's discretion, provided that if ground mounted, there is a means of ensuring that surface water runoff does not enter the buildings. Single storey for all buildings. 	
	 2.5m wide covered reinforced concrete walkway in front of / between accommodation modules 	
Structure	Modularised buildings	
	 Buildings must be permanently affixed to the site by footings with cyclone tie downs. 	
	 Fully welded steel sections must be used for building frames and chassis (i.e. no wooden structural members). 	
	 Members within wall and ceiling frame panels shall be fully welded, however the individual panels may be bolted to each other. 	
Main room	 Guest rooms to have Double bed ensemble with lockable castors. Staff rooms to have King singles with lockable castors. 	
	 Bedside table (Bedside table to have GPO, USB charger and light master switch (double switched with switch just inside door frame) 	
	Work desk and bookshelf above	
	 Cupboard/wardrobe with two separate lockable segments (to allow for back-to-back use of the room) 	
	Bar fridge (plugged into power socket outlet)	
	 Solid entry door with exterior security screen door, opens outwards with peep hole. 	

Parameter	Requirement	Notes/comments
	 Entry door to have weather strip to fully block light, to include deeper door jamb 	
	Latch mechanism for entry door to allow it to be latched in the open position	
	Workstation chair	
	— Outdoor chair	
	Ceiling fans not provided	
	— 1,200H x 1,500W window (non-openable)	
Ensuite bathroom	 Shower (minimum size 1,200 mm x 900 mm), with openable glass screen (not shower curtain) 	
	Shower head with hose to be provided	
	Dual flush toilet	
	 Basin with vanity cupboard underneath (minimum 350 mm x 600 mm). 700mm wide preferred if possible. 	
	 Mirror and shelf above basin, with GPO and shaver dual socket power outlet 	
	Exhaust fan to operate when bathroom light is on automatically	
Room access	 Entry via key FOB access. In event of power outage, all rooms to default to unlocked state 	
	 FOB will not operate lights/ AC, such that all lights and A/C automatically turn off when worker departs room with FOB 	
	All doors to open outwards	
	— All doors to have 180-degree peep hole to allow the	
	room occupant to see who is at the door	
	 Door hinges shall be internal (i.e. not possible to tamper with from the outside) 	
	Doors to be self-closing	
	Security chain on all doors	
	Latch mechanism for entry door to allow it to be latched in the open position	
	 Physical master swipe card system to allow access to all rooms in emergency. 	
Room size	 Refer to drawings for example of typical modularised accommodation room. 	
	— All rooms are to be the same size.	
Air conditioning	Systems shall comply with the requirements AS1668.2 for air quality and contaminant control	

Parameter	Requirement	Notes/comments
	 All rooms will be air conditioned (split system) with reverse cycle capability Temperature to be locked at minimum of 21 deg Celsius. Can be increased above this temperature if needed. All external air-conditioning units to be located on reinforced concrete slab at ground level on back walls of the buildings to facilitate maintenance access. 	
External finishes	Refer Table 9.1 and Table 9.10	
Internal finishes	Refer Table 9.2 and Table 9.3	
Building drainage	Stormwater shall be discharged away from all buildings into drainage channels.	
Floors	Refer Table 9.2	
Wall and ceiling linings	 Wall and ceiling linings to be as per demountable building typical standard offering from vendors. Walls and ceilings shall comply with all requirements of NCC/BCA. Wallpaper on one wall of the room with an image of natural landscape (optional item) 	
Ceiling height	Minimum ceiling height of 2,400 mm.	
Splashbacks	Waterproof splashbacks in wet areas.	
Insulation	 Thermal insulation for all buildings in accordance with NCC/BCA requirements. Insulation for sound suppression shall be installed to all walls and ceilings in accordance with NCC/BCA requirements. Vendors to price optional extra for additional noise insulation as part of D&C tender. 	
Windows	 Double glazed Windows to be non-openable, fresh air to be provided through sound baffle (subject to this being acceptable for NCC/ BCA requirements) 	
Curtains	Block-out curtains shall be installed in all accommodation rooms	

Parameter	Requirement	Notes/comments
Plumbing	All plumbing and sanitary drainage shall comply with AS/NZS 3500	
	 Include plumbing and sanitary fittings 	
	 Externally mounted water taps shall be supplied for all buildings/ modules, spaced to provide coverage to all external veranda or breezeway areas for wash- down purposes. Key lockable to prevent use by village guests. 	
Televisions	 Smart flat screen televisions with remote control (nominally 32 inches) will be provided. TV connected to ethernet. Television plugged into socket outlet. Residents will be able to access re-broadcast free-to air television and radio services. 	
	Foxtel package not required. Foxtel only in the tavern, beer garden and recreation room.	
	 50Mbps internet/ Wi-Fi coverage across the whole village site to allow guests to stream their own content to smart television. 	
	Hardware to allow for traffic shaping per device.	
Power, electrical and communications	External lighting is required to all buildings, with photoelectric cell control in accordance with relevant standards	
	Low energy LED internal lighting is required with diffuser shades and local switches	
	Socket outlets should be provided sufficient to eliminate the need for power boards. Minimum:	
	 2 x double outlets at desk, 100 mm above desk surface to suit chargers 	
	 Dedicated outlets for the TV and fridge to suit the room layout 	
	— 1 double outlet 100mm above the bedside table	
	 1 additional double outlet another wall, 200mm above floor, appropriately positioned 	
	— 1 double outlet at bathroom sink	
	 Distribution boards on each accommodation module shall be locked. 	
	 Smoke detectors, emergency evacuation and FIPs as required 	
	 An appropriately sized reading light or overhead light provided at the work desk and bed head end. Target lighting level is minimum of 320 lux. 	

Parameter	Requirement	Notes/comments
	 Mobile phones to be used as a means to call security for assistance. No landline in the rooms. Earth leakage circuit-breakers (safety switch) AS3000 	
	— TV point and ethernet points.	
Hot water systems	 Hot water systems shall be electric Hot water systems installed externally at ground level and shall be weatherproof, secured adequately and mounted on a freely draining reinforced concrete slab that extends a minimum 50 mm around the base of the unit in all directions. 	
	 Top of slab to me minimum 100mm above surrounding ground level to prevent water damage and corrosion of the base 	
	 Insulation shall be applied to all pipework, and ductwork protected against the effects of weather, sunlight and able to withstand the temperatures of the fluid being handled 	
	 All hard-wired hot water systems shall be installed with a pad lockable isolation switch for maintenance purposes 	
	 Hot water systems (excluding kitchen systems) shall be set to limit the outlet water temperature to 60°C. 	
Accessibility	The rooms shall comply with the accessibility requirements of the NCC/BCA but are not required to comply with the requirements of the Disability Discrimination Act and AS 1428 for access by disabled persons as per the advice of PN.	

8 Hub and support facilities

Sufficient quality facilities need to be provided to attract and retain a competent, committed workforce. The level of amenity needs to be balanced with the cost and time required to set-up facilities.

Table 8.1 Hub and support facilities design criteria

Parameter	Requirement	Notes/comments
Overview	The central hub area facilities will include the following:	
	Guest laundry	
	 Commercial laundry 	
	— Amenities	
	— Wet mess	
	 Dining and kitchen 	
	— Ice room	
	Village Administration	
	— Waste management area	
	Reefer storage	
	— Deliveries	
	— Gym	
	Light industrial area facilities:	
	— Sewage storage	
	— Water storage	
	— Gas bottle storage	
	Light/medium vehicle parking	
	Generator set and fuel storage	
	Electrical switchroom	
	The support facilities located west of the accommodation village include:	
	Train Support Facility (TSF)	
	Administration Building	
Structure	 Modularised buildings, unless specifically noted otherwise 	
	 Nominally raised 600mm above ground level or as approved otherwise by Pacific National and subject to NCC/BCA compliance 	
	 Buildings must be permanently affixed to the site by footings with cyclone tie downs. 	

Parameter	Requirement	Notes/comments
	 Steel sections must be used for building frames and chassis (i.e. no wooden structural members). Building chassis will utilise fully welded 	
	steel members. — Members within wall and ceiling frame panels will be fully welded, however the individual panels may be bolted to each other.	
Dining and kitchen	 Dining to have "interesting/lively" colour scheme for chairs and other features. Avoid bland colours such as whites, creams, greys where reasonably possible. 	
	 Kitchen and preparation area nominally 12m x 12m, Modular building. 	
	 Dining room and servery nominally 12m x 12m, Modular building. 	
	Tables and seating for 96 people(~64% of village capacity)	
	 Provide a range of seating options. For example, the inclusion of round tables, and high tables for casual dining. 	
	 Entry air locks and access zone 	
	 Nearby male and female amenities (separate building). 	
	 Use mobile food stations to break up the seating areas, rather than having one large seating area. 	
	— Grab-n-go station/fridge to be provided on one wall along with vending machine, dessert station and drinks station (tea, coffee, juice, cordial etc)	
	 Dining room to have PA system 	
	 Coffee station (with bean coffee) 	
	General flow of dining area:	
	 Bag rack area with coat hooks and hand wash troughs outside on covered verandah 	
	— Then entry doors	
	— Then air lock with air curtain	
	 Then hand wash troughs 	
	Then another air lock with air curtain	

Parameter	Requirement	Notes/comments
	 Then turnstiles with swipe card access two sets of turnstiles – one set leading to the dining room and one set leading to the crib Then dining area and crib area. 	
	Additional air curtains at access points from the dining room to the kitchen and crib areas.	
	— The design and construction of the facility shall comply with requirements and principles of the Food Standards Code: Standard 3.2.3 – Food Premises and Equipment and Safe Food Australia's A Guide to the Food Safety Standards	
	All equipment shall be of commercial grade and proven reliability.	
	— Wall mounted TVs (minimum of 2)	
	 Separating thoroughfares, such as main pathways from the access doors to the servery area, etc., from seating zones. Half- height wall partitions can be used. 	
Kitchen	The kitchen shall include the following areas:	
	 Food preparation and cooking areas Pot washing and dishwashing Washing machine and dryer 	
	Kitchen to include the following:	
	Pot wash sink	
	— Dishwashers	
	— Ovens	
	— Hotplates	
	— Brat pans	
	Deep fryers	
	— Chillers	
	Exhaust systems to suit the above	
	Food preparation areasAir curtains	
	High spec floors in compliance with Food Standards	
Kitchen store	Store room nominally 6m x 12m. Modular building.	

Parameter	Requirement	Notes/comments
	 2 off 2.6m x 4m storage rooms. Storage rooms to include a mix of dry stores, cold stores and freezers 	
	 Hardstand space to be provided adjacent to kitchen stores for additional reefer containers. These should only be used to provide extra buffer storage for cyclones and extreme weather events. The main kitchen store shall be sufficiently sized for normal operations to avoid kitchen staff needing to access the containers on a regular basis. 	
Deliveries receivable area / loading dock	Semi-trailer delivery truck to reverse into deliveries area	
	 Single person battery operated pallet jack to unload goods from truck and deliver to frozen/ cold/ dry storages and drop pallets. 	
	Suitable flooring for loading to be provided	
Reefer Storage	2x refrigerated storage containers (Reefers)	
Administration buildings	 Nominally 3m x 12m Modularised building. 	
	Clear and welcoming external signage	
	— Reception:	
	— Seating area	
	 Reception desk with workstation and storage shelving 	
	 Key storage peg-board or smart key registration and validation point 	
	 External after-hours key drop off box. 	
	 Village manager's office with workstation, two visitors' chairs and filing cabinet (3m x 3m) 	
	 Communications / IT room (3m x 3m) with dry fire suppression system 	
	— Printer area	
	 Offices to have two double GPOs and two data points at the workstations. Additional double GPO to be provided on opposite wall at low height. 	
Commercial laundry and linen store	— Nominally 12m x 12m building.	

Parameter	Requirement	Notes/comments
	 Steel portal-framed shed with slab on ground. 	
	Linen to be washed on site	
	Facility to include the following:	
	— Two (2) commercial washers	
	Two (2) commercial dryers	
	Dirty linen store	
	Clean linen store	
	Consumables store	
	 Office with desk, phone and data connections. 	
	 6m x 3m lunch room with kitchenette for cleaning staff 	
	 Radio charging station with minimum of 4 double socket outlets 	
	Dirty and clean linen rooms require air conditioning to assist with mildew control	
	 Door widths sized for pallet trolley access, and floors designed for pallet trolley loads 	
	 Wide breezeway along the front of the building (adjacent to clean and dirty linen stores) to facilitate undercover pick-up and drop off of linen. The breezeway should be trafficable, and support columns arranged to allow drive-through access. 	
Guest Laundry	Dimensions nominally as per example in gs. Modularised buildings.	
	 Fit out as per the example provided in drawings. Double stack washing machines and dryers to fit more in the building. 	
	 Minimum ratio of 1 laundry per 50 people but provide more than this if needed to minimise travel distances from rooms to laundries. 	
	 External drying area (clothes lines) with gravel seal adjacent to laundry buildings. 	
	Laundries must have a minimum of two entry/exit points.	
	Water fountain in each laundry.	
	Minimum 6 washing machines per laundry, unless approved otherwise.	

Parameter	Requirement	Notes/comments
Ice room	 To be located in 6m x 3m modularised building adjacent to dining room. Contain at least two high-capacity ice machines, with output and storage capacity of 600 kg/day and a high-capacity chilled water unit. 	
Gym	 Nominally 12m x 12m. Modularised building. Refer to drawings for example. Nominally divided into 3 areas as follows: Cardio zone with cardio equipment such as treadmills, bikes, rowers, cross trainers. Weights A space for group fitness classes (e.g. cross fit, yoga). Wall mounted TVs in each area. PA system to allow for music to be played. Office for use by Health and Lifestyle officer for administration, fitness consultations and assessments. Equipment should be durable and robust to minimise down-time Boxing station with speed balls, floor to ceiling balls, punch/kick bags and mitts/kick shields. This equipment can also be used in group fitness classes Free-weights areas with a range of bar bells, dumb-bells and benches. Building flooring should be reinforced in this area to withstand dropped weights, and rubber mats provided for shock absorption Cable weight machine area for conditioning specific body areas (such as leg, shoulder and chest presses, lat pull-downs, abdominal rollers, dips and curls stations). Multi-station units can be used to reduce the footprint, provided that they are 	
	designed so that more than one station can be used simultaneously — Stretch, core and cool down area with floor mats, fit balls (including storage racks), medicine balls. Industrial carpet is recommended for the floor in this area. If possible, providing glass sliding doors from	

Parameter	Requirement	Notes/comments
	the internal area to an undercover outdoor stretch/meditation area can be useful — General facilities such as toilets (may be external, shared with other sports facilities), storage pigeon-holes, chilled water fountains, towel service (optional), music system, block mounted posters (stretching, heart rate training zones, fit ball exercises, etc.)	
Amenities	 Two separate 6m x 3m modularised amenities buildings to be provided as follows: Male with 3 toilets, 3 urinals and washbasins Female with 6 toilets and washbasins The number of pans, urinals and basins in each building shall be designed for a population ratio of 75% males and 25% females with some contingency. Size based on capacity of dining room (150 seat capacity). Located within close access to dining room, and wet mess. Exhaust fans. 	
Waste management area	 Wastes and recyclables will be disposed off-site by a licensed waste contractor. Recyclable materials will as far as practical be segregated from waste streams for separate collection and re-use The site layout shall include an area for storage and sorting of waste and recyclable streams and loading onto vehicles for off-site disposal. Nominally 10m x 10m area. The recyclable storage / sorting area shall nominally be in the vicinity of the village maintenance depot. An undercover dry area is required for storage of paper and cardboard products. Three phase power outlets are required at this location for paper balers and glass crushers (equipment by to be provided by village operator). 	
Fencing and security	Appropriate fencing and security to be provided to control access and prevent	

Parameter	Requirement	Notes/comments
	unauthorised access, with vehicle and personnel gates at required access points. Personnel gates also to be provided at each corner of the overall fenced area to allow for egress in an emergency.	
	Reception access doors shall be automatic from 6am to 6pm and shall be locked with swipe card access outside of these hours	
	All other external doors and offices shall be key lockable using a hierarchical master keying system. A minimum of three copies of each key shall be provided Output Description:	
General requirements – hub	Refer to Table 10.4.	
Building floor height	— Buildings can be either ground mounted or raised slightly above ground level (e.g. 600mm or as approved otherwise by Pacific National and subject to NCC/BCA compliance) at contractor's discretion, provided that if ground mounted, there is a means of ensuring that surface water runoff does not enter the buildings.	
Air conditioning	Systems shall comply with the requirements AS1668.2 for air quality and contaminant control	
	All buildings will be air conditioned with remote control (reverse cycle split system)	
	System shall be suitable for continuous operation all year round	
Verandahs, balconies, access landings and breezeway	Each building must have a covered/sheltered entry.	
structures	 All buildings must have ramp access (to assist with providing ergonomic access for village staff). Stair access may also be provided, but stair only access (with no ramp) is not acceptable. 	
External and internal finishes	 Selected to provide a cohesive appearance across the entire site 	
	Building cladding to be eucalypt green or approved alternative colour	
	Walls and floor colours shall take into consideration the red earth environment in the area (i.e. white is not a good colour)	

Parameter	Requirement	Notes/comments
	Reflective cladding is not permitted.	
Custom building structures	Steel portal framed buildings	
	Monosloped roofs.	
Modularised structures	Steel sections will be used for building frames and chassis (i.e. no wooden structural members).	
	 Building chassis will utilise fully welded steel members. 	
	 Members within wall and ceiling frame panels will be fully welded, however the individual panels may be bolted to each other. 	
Floors	Vinyl flooring throughout or approved alternative	
	Floor shall comply with all requirements of NCC/BCA.	
Building drainage	Stormwater shall be discharged away from all buildings into the stormwater drainage system.	
Wall and ceiling linings	 Wall and ceiling linings to be as per demountable building typical standard offering from vendors. 	
	Walls and ceilings shall comply with all requirements of NCC/BCA.	
Ceiling height	Minimum ceiling height of 2,400 mm minimum.	Optional tender item to increase ceiling height to 2,700mm
Splashbacks	Full-length stainless-steel splashbacks in wet areas. (not tiled)	
Insulation	Thermal insulation for all buildings in accordance with NCC/BCA requirements.	
Windows	Double glazed openable windows with fly screens, except in accommodation modules as noted above, where the windows will not be openable.	
Curtains	Blinds shall be installed in all hub facility rooms. No curtains.	
Plumbing	All plumbing and sanitary drainage shall comply with AS/NZS 3500	
	 Scope to include plumbing and sanitary fittings 	
	Externally mounted water taps shall be supplied for all buildings, spaced to provide	

Parameter	Requirement	Notes/comments
	coverage to all external veranda or breezeway areas for wash-down purposes.	
Power, electrical and	All lighting to be LED	
communications	 External lighting is required to all buildings, with photoelectric cell control 	
	 Low energy LED internal lighting is required with diffuser shades and local switches 	
	 Socket outlets should be provided sufficient to eliminate the need for power boards. Vendor shall provide electrical fit out plans to Pacific National for review and approval prior to commencement of fabrication of the buildings. 	
	 In accordance with AS/NZS 3000 Cl 2.10.2.3 (a) and 2.3.3.4 (a), to facilitate rapid isolation in the event of an emergency such as fire, distribution boards shall not be locked. 	
	 Smoke detectors, emergency evacuation and FIPs as required 	
	Data outlets wired on site to a campus distributer	
	 No telephones in rooms – mobile phone coverage to be provided 	
	 Earth leakage circuit-breakers (safety switch) AS3000 	
	 TV point and co-axial cable points in the office, retail outlet, meeting room/training room, dining hall, tavern, beer garden, rec room and gymnasium. 	
	A Wi-Fi internet service with full coverage of the village.	
	 Hardware to allow for traffic shaping per device. 	
Accessibility	The rooms shall comply with the accessibility requirements of the NCC/BCA but are not required to comply with the requirements of the Disability Discrimination Act and AS 1428 for	
	access by disabled persons as per the advice of PN.	

9 Schedule of external finishes and fixtures

This schedule is to be read in conjunction with the relevant specification.

9.1 Cladding schedule

Table 9.1 Cladding schedule

Item	Description
Location	Roof and external walls
Product type	Contractor to provide proposal, or
	Colorbond roof and wall cladding
Product finish	Contractor to provide proposal, or
	Colorbond
Material	Contractor to provide proposal, or
	Colorbond steel
Profile	Contractor to provide proposal, or
	Trimdek
Thickness (mm)	Contractor to provide proposal, or
	0.48 BMT
Fixing	Contractor to provide proposal, or
	To manufacturer's recommendations
Flashings	Contractor to provide proposal, or
	Colorbond finish
Gutters, sumps and downpipes	Contractor to provide proposal, or
	Colorbond finish
Other	Roof safety mesh over purlins

9.2 Flooring schedule

Table 9.2 Flooring schedule

Item	Description
Dry areas	Contractor to provide proposal, or
	19mm aquatite, termite treated, or
	Vinyl flooring with coving up the wall (no skirting boards)

Item	Description
Wet areas	Contractor to provide proposal, or
	1.9mm aquatite, termite treated and 2mm slip resistant vinyl floor finish c/w 100mm high covering

9.3 Internal wall finishes

Table 9.3 Internal wall finishes

Item	Description
Insulation	In accordance with the BCA.
Buildings	Contractor to provide proposal
	Minimum Rw+C 42 and Rw+Ctr 42 (AS/NZS ISO 717.1 2004) noise rated walls for office and meeting room walls only, 13 mm plasterboard, or
	70mm steel stud c/w 3.6mm pre-finished plyboard, painted

9.4 Door schedule

Table 9.4 Door Schedule

Item	Description
General	All single doors shall have a minimum clear opening width of 800 mm. All exit doors shall swing in the direction of egress. All door handle and latch hardware shall be located between 900 mm and 1100 mm above the floor and be able to be opened without a key from the side facing a person seeking egress. All external doors and passageway doors shall have an eye level window incorporated into the doors to reduce injury hazard.

9.5 Window schedule

Table 9.5 Windows schedule

Item	Description
	Windows shall be as per drawings (unless approved otherwise by PN) with coloured powder coated aluminium frame. Windows to BCA Section J standards to control the amount of heat energy entering or leaving a building through glazing.
	All windows shall be slidable with security fly screens to the open side. All windows shall have venetian style louvres.

9.6 Ceilings

Table 9.6 Ceilings

Item	Description
Wet areas	Contractor to provide proposal

Item	Description	
Dry areas including the muster area/walkways	Contractor to provide proposal	
Buildings	13 mm plasterboard, or	
	3.6mm mirage pearl ply lining	
Other	Minimum indoor room ceiling height shall be 2.7 m. UNO	
Insulation	Roof / ceiling in accordance with the BCA ,or	
	R2.5 Acoustic-Therm between ceiling joist and 6.5mm E-Therm under roof sheets	

9.7 Plumbing fixtures

Table 9.7 Plumbing Fixtures

Item	Description	
Ratings	All shower and tap fittings shall be AAA rated.	
Wash basins	Stainless steel basin to Principal's specifications, chrome gooseneck spouts	
Sinks	Stainless steel single drainer	
Water coolers	Chilled non-reticulated (bottle) water coolers shall be installed.	
Male amenities	Wall basins – Stainless steel basins located on a laminated surface bench top, with 450 mm high lamipanel splashback and stainless steel supporting legs Closet pans – Caroma Caravelle 2000 Smartflush toilet suite with Caravelle commercial toilet seat or similar	
	Urinal – Urinal shall be stainless steel stand with back and side plates, lift up standing grid and pull chain flush in complete installation	
	Tapware – Raymor, surgeon lever or similar	
Female amenities	Wall basins – Stainless steel basins located on a laminated surface bench top, with 450 mm high lamipanel splashback and stainless-steel supporting legs	
	Closet pans – Caroma Caravelle 2000 Smartflush toilet suite with Caravelle commercial toilet seat or similar	
	Tapware – Raymor, surgeon lever or similar approved	

9.8 Fire systems schedule

Table 9.8 Fire systems

Item	Description	
Fire system	As required by the BCA and Australian Standards.	
Fire extinguishers	Wall mounted fire extinguishers in accordance with Australian Standards and Building Code of Australia. Refer Fire protection Specification for details.	

9.9 Other fixtures

Table 9.9 Other fixtures

Item	Description	
Emergency lighting	As required by the BCA and Australian Standards	
Exit signs	Illuminated exit signs shall be provided and located above all exit doors. They shall incorporate a battery backup and shall be in accordance with BCA and Australian standards.	
Exit directional signs	Illuminated direction signs shall be provided to indicate egress direction. They shall incorporate a battery backup and shall be in accordance with BCA and Australian standards.	
Emergency Lighting testing	A selector switch, test timer, and contactor shall be provided in each distribution board to perform automatic testing of all illuminated emergency lights, exit signs and directional exit signs.	
Security lighting control	An "Auto-Off-Normal selector switch, PE cell and contactor shall be provided for each security lighting circuit to control the operation of external security lights.	
Signage	Male, female, signs shall be installed on the outside of all amenities.	
Air conditioners	Air conditioning units shall be supplied as required All air conditioners shall be reverse cycle and compressors shall be external to the building. Design internal operating temperatures shall be 22 degree Celsius for summer and 25 degrees Celsius for winter. Programmable start and stop times function is required. Design outdoor temperature range is -2 to 42 degrees Celsius. Air conditioning performance to comply with Section J of the BCA.	
Mechanical ventilation	Roof or wall mounted, electric motor driven extractor fans shall be installed in all ablutions rooms.	

9.10 Building colour scheme

Table 9.10 Building colour scheme

C	
Item	Description
Roofing and Doors	Contractor to provide proposal
Gutters/Trims and Verandah Posts	Contractor to provide proposal
External walls and down pipes – upper tone	Contractor to provide proposal
External walls and down pipes – lower tone	Contractor to provide proposal
Exposed Steel Columns and general steel work	Contractor to provide proposal
Handrails, posts and kickboards	Contractor to provide proposal
Timber battens to under-croft perimeter	Contractor to provide proposal

Item	Description	
Walkways, landings and decks	Contractor to provide proposal	
Internal finishes	Contractor to provide proposal	

10 Utilities

This section provides the requirements for the water, sewerage, electrical reticulation and communications.

Table 10.1 Water and wastewater design criteria

Parameter	Requirement	Notes/comments
Water and sewerage overview	Potable, fire/raw water will be sourced externally and stored in separate water tanks.	
	 The location of water storage tanks, distribution pumps and sewage tanks shall be away from accommodation units to minimise noise impact. 	
	 A potable water reticulation system will distribute the potable water throughout the village for human consumption, washing, cleaning etc. <u>Potable water will not be used</u> for irrigation. 	<u>1</u>
	 A combined fire/raw water reticulation system will be used to provide water to firefighting fixtures (e.g. fire hoses, fire hydrants) and to provide water for irrigation. 	
	 A sewerage system will collect sewage from the village and store it in tanks for removal off site. 	
Potable water	 Potable water to be stored in 2 potable water storage tanks. Tanks sized to store a day supply. 	7
	 Potable water usage to be 250L/person/day for village residents and 70L/person/day fo other demands. 	
	Tanks to be provided with connection points to allow for trucked in potable water	
	 Potable water storage tanks, pumps and pipes to be sized for future stages of the village. 	
	Potable water is to be pumped from the tanks and reticulated to all fittings and buildings within the village	
	 Potable water is required to be supplied at 25 degrees Celsius for showers. 	
Grey water	A grey water system will not be provided. All grey water will be classed as sewage.	

Parameter	Requirement	Notes/comments
Wastewater and sewage	 Sewerage will gravity flow from the building battery limits to collection wells via a buried pipe. Sewerage will be removed from the collection wells via pumps and will be directed to storage tanks. 	
	 Estimated wastewater generation – 250L/person/day (assume no losses from potable water to be conservative) 	
	 Tanks and collection pipework to be sized to allow for future stages of the village. 	
	 Allow additional 10kL/day (nominal value of 10%) for treatment of wastewater generated during the potable water treatment process 	
	 Collection wells to provide 24-hour buffer storage. 	
Fire/raw water	 Fire water storage and firefighting equipment in accordance with the relevant Australian Standards. 	
	 Pumps and pipes to be sized for future stages of the village. 	
	— Stored in a minimum of 2 steel panel tanks.	
	 Raw water pump outlets to be above the minimum fire water storage volume. 	
	 Assume irrigation of 20mm, 3 days per week = 20 L/m²/day on average 	
	— Allow for 2 days storage in the tanks	
	Buried RW/FW pipework system within the village (separate to PW pipework)	

Table 10.2 Electrical design criteria

Parameter	Requirement	Notes/comments
Incoming power supply	Assumed to be via the Ergon 11kV overhead power line located north of the property boundary.	
Substation	It is anticipated that Ergon will supply a new point of supply consisting of a new padmounted substation. PN will connect to the low voltage terminals and will be a low volage customer.	

Parameter	Requirement	Notes/comments
Backup power supply	Essential services that require backup power supply include:	
	Administration building	
	Train support facility	
	All pumping equipment in the accommodation village	
	Central hub	
	 Communications tower 	
Power demand	Assumed demand of 3kVA per person	
	— Allow 20% contingency	
Main switchboard	Switchboard, in an air conditioned switchroom, adjacent to the kiosk substation	
Security	Substation and switchboard to be located in a pad lockable fenced area with vehicle access gates	
Area lighting	Building mounted lighting to be used where possible	
	Fixed pole mounted lights to be used in the following areas:	
	— Internal roads	
	Pedestrian walkways	
	— Car parks	
	— Delivery areas	
	— Plant areas (e.g. substation)	
	Location of light poles to consider ambient lighting for elevated platforms (e.g. top of tanks)	
	Further to the above, all areas of the village with CCTV coverage, duress alarm locations need to be well-lit. Selected lighting design lux levels to suit the CCTV minimum lighting requirements.	
	Constant, uniform lighting shall be installed along pathways and corridors throughout the accommodation area. At night, the entire pathway or corridor needs to be illuminated to ensure that there are no dark spots.	

Table 10.3 Communications design criteria

Parameter	Requirement	Notes/comments
Incoming communications connection	To be advised by Pacific National	
Location of main communications rack for the village	In village office building communications/IT room	
Wi-Fi	 Wi-Fi within all areas of the village Hardware to allow for traffic shaping per device. 	
Mobile phones	Mobile phone coverage within all areas of the village	
Communications backbone	 Fibre optic cables reticulated in communications conduits and LV cable pits along routes throughout the village service corridors and via galvanised cable ladders in buildings. 	
	 Fibre optic cabling will be reticulated to all hub buildings and facilities 	
	 Cabling and communication rack sized to suit future expansion of the village by 20%. 	
	 Fibre optic cabling will not be reticulated to all the accommodation modules. Internet connection will rely upon the village Wi-Fi network. 	
	 Fibre optic cabling will be reticulated to the Wi-Fi interfaces throughout the village. 	
	 Fibre optic patch panels with LC connections. 	
	 Data management racks as required. 	
	 48 RU, 1.2m deep racks (air conditioned as required). Minimum 7kVa A/C. 	
	 Routers and switches (provided by Pacific National). 	
	— Fire suppression is to be provided.	
	 UPS and backup generator to be provided. 	
Cabling	 Copper cabling for local devices (to Cat 6A standard) copper patch panels to match cabling standard. 	

Table 10.4 Fire and security design criteria

Parameter	Requirement	Notes/comments
Fire system		
Location of fire indicator panel	In reception area of village administration building	
Fire detection system	 — AS1670 – Automatic fire detection and alarm systems: — Centralised fire indicator panel (FIP) located in the office building — The FIP will have a phone connection to emergency services. — Smoke and thermal detectors in general buildings and facilities including the 	
	accommodation rooms. — Aspirating smoke detection systems in IT/communications areas of the office building. Detection systems shall be automatic and shall raise an alarm in both the workshop supervisor's office and the administration building reception area. The suppression system is to be manually activated.	
	 VESDA is required for the main switchboard. A flame detection system at the utility facilities. 	
	 Warning systems: Speakers in office and hub buildings and facility and accommodation buildings that integrate with a PA system to ensure evacuation messages are activated in the event of a fire alarm. 	
	 Ensure locks to office default to open in the event of alarm Villages shall provide mobile visual fire alarm beacons to any residents who are hearing impaired to be utilized in their accommodation room. These devices are not fixed to any one room and can be given to an individual to take to their room as the need requires. 	

Parameter	Requirement	Notes/comments
Requirements - general	 Signage clearly demarcating emergency exits and emergency assembly areas Emergency exits and lighting in all public areas Contact numbers and details for emergency personnel, including security, available in all rooms. Additionally, where practicable, contact information for Security, EAP and Helpline should be included on the back of access badges and/or room keys. An escort service shall be made available 	
	for those uncomfortable walking alone to their rooms. Consideration shall be made where feasible for alternate options including site security, female escorts or buddy systems.	
Requirements - fencing	 The village is to be fully fenced. Accommodation should be not less than 6m from the perimeter fencing. 	
Requirements - doors	 Unless specifically noted otherwise, the doors in all buildings and facilities are to be swipe card operated. There shall be no key lockable doors. Refer to Table 7.1 for accommodation 	
	building access requirements. All swipe card access areas to default to open in the event of a fire alarm or loss of power	
	 Fenced areas shall be key lockable but with push bar system to open gates from the inside without the need for a key. Protective panel to be provided to prevent push bar from being operated by reaching through fence from outside. 	
CCTV	CCTV to monitor the following areas: — All pedestrian walkways, both within the main hub and accommodation module areas. Continuous CCTV surveillance shall be in place covering all accommodation pathways, corridors and hallways within the accommodation areas, room entry doors, building surroundings, laundries and utility blocks.	

Parameter	Requirement	Notes/comments
	All access points/gates through the perimeter fence	
	High value areas including the kitchen store	
	 Loading dock 	
	Reception/office area	
	Light vehicle car park	
	Dining room	
	— Gym	
	Water storage and pumping station	
	Sewage storage tanks	
	Electrical substation	
	Sedimentation dams	
	 The location of all duress alarm buttons, if not covered by the above CCTV coverage requirements. 	
	Camera feeds to connect back to the village administration office. CCTV surveillance shall be monitored 24/7 through a control room, able to coordinate and dispatch an immediate response, if required.	
	CCTV cameras will be either fixed or PTZ network cameras depending on the type needed to achieve the required coverage. Cameras will utilise PoE powering service. Camera types must be Axis high definition (1280 x 720 minimum resolution with minimum 15fps) connected to Flir Lattitude video management system.	
	Security console (standard PC with security viewing software) in the village office	
	CCTV server in village office IT/comms room	
	Storage server in village office IT/comms room	
Access points	All controlled access points shall default to open from the inside in the event of an emergency	

Parameter	Requirement	Notes/comments
	(for egress) without the need for a key or swipe card	
Response capability	A response capability, able to immediately react to a threat or actual event impacting on an individual's safety and security, shall be maintained. Security patrols shall regularly patrol through the accommodation areas.	
Duress alarms	 Emergency 'flip-cover' alarm buttons which can be activated in the event of a safety and/or security emergency shall be fitted at each end of the group/cluster of accommodation modules. Alarm buttons shall be fitted at no greater than 100m spacings externally in the central hub area. 	



Regional and Rural

Development

Department of Natural Resources and Mines, Manufacturing, and

Author: Daniel Horrocks Ref number: 2025/000402

4 April 2025

Ms Kellianne Wynne

Office 3, 20 Carlo Drive

Cannonvale Qld 4802

kellianne@wynneplanninganddevelopment.com

Dear Kellianne

Application for a Relevant Purpose determination under section 22A of the *Vegetation Management Act 1999* for the clearing of native vegetation on lot 50 SP239857 - Isaac Regional Council

I refer to your application submitted to the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (the department) on 10 February 2025.

As the delegate for the Chief Executive, I have considered your request and am satisfied that the proposed development to clear vegetation for the purpose of Relevant Infrastructure Activities meets the relevant requirements of section 22A of the *Vegetation Management Act* 1999. The areas determined to be for a relevant purpose are shown as 'area A' on the attached Relevant Purpose Determination Plan (RPDP 2025/000402).

This decision is based on:

- the development proposal and information you submitted to the department on 10 February 2025
- circumstances at the time of this determination; and
- the attached RPDP.

Should your proposal change (eg. development footprint) or circumstances associated with your proposal change (eg. legislation changes, regional ecosystem mapping changes), you will need to request another section 22A relevant purpose determination.

This relevant purpose determination is valid for two years and will expire on 4 April 2027.

Please note that this letter is not a development approval to carry out vegetation clearing. You will need to apply for a development approval from your local Council, or the

Department of State Development, Infrastructure, Local Government and Planning (DSDILGP) under the *Planning Act 2016.*

Please note, clearing vegetation to the extent the clearing is in any category C areas or category R areas is not for a relevant purpose under the *Vegetation Management Act 1999*. Accordingly clearing of vegetation in these areas cannot be approved under a development approval. If your proposed development includes clearing vegetation in any category C areas or category R areas, you should ensure this clearing can be undertaken as exempt clearing work or in accordance with an Accepted Development Vegetation Clearing Code (ADVCC). Clearing vegetation in any category C areas or category R areas that is not exempt or in accordance with an ADVCC is prohibited development. Information on exempt clearing work or ADVCCs is available online at www.qld.gov.au (search 'exempt clearing work' or 'accepted development vegetation clearing codes').

Disclaimer: Please note, assessment of rehabilitation requirements and environmental offset requirements will be undertaken as part of the State Development Assessment Provisions: State Code 16 (SDAP: State Code 16) assessment. Accordingly, any determination that the proposed development is for a relevant purpose under section 22A of the Vegetation Management Act 1999 is not a finding that the proposed development also satisfies any Performance Outcome requirements to rehabilitate or provide environmental offsets where required under SDAP: State Code 16.

Other relevant Commonwealth or State approvals may also be required to undertake vegetation clearing. An indicative list of other legislation is provided in Attachment 1.

Should you require any additional information please contact your local SARA office as below:

SARA Mackay Isaac Whitsunday Office

Location: Level 4, 44 Nelson Street, Mackay

Postal address: PO Box 257, Mackay Qld 4740

Telephone: 07 4898 6888

Email: miwsara@dsdilgp.qld.gov.au

Should you have any enquiries or require assistance regarding this request, please do not hesitate to contact Daniel Horrocks, Natural Resource Management Officer on telephone 13 58 34 quoting the above reference number.

Yours sincerely

Mike McGahan

Senior Natural Resource Management Officer (VM1)

Attachment 1 - Legislation and Acts

Activity	Legislation	Agency	Contact details
Interference with overland flow	Water Act 2000	Department of Regional Development, Manufacturing and Water (Queensland Government)	Ph: 13 QGOV (13 74 68) www.rdmw.qld.gov.au
Earthworks, significant disturbance	Soil Conservation Act 1986	Department of Resources (Queensland Government)	Ph: 13 QGOV (13 74 68) www.resources.qld.gov.au
Indigenous Cultural Heritage	Aboriginal Cultural Heritage Act 2003 Torres Strait Islander Cultural Heritage Act 2003	Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts (Queensland Government)	Ph. 13 QGOV (13 74 68) www.datsip.qld.gov.au
Mining and environmentally relevant activities Infrastructure development (coastal) Heritage issues Protected plants and protected areas ¹	Environmental Protection Act 1994 Coastal Protection and Management Act 1995 Queensland Heritage Act 1992 Nature Conservation Act 1992	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) www.des.qld.gov.au
Koala mapping and regulations.	Nature Conservation Act 1992	Department of Environment and Science (Queensland Government)	Ph: 13 QGOV (13 74 68) Koala.assessment@des.q ld.gov.au www.des.qld.gov.au
Interference with fish passage in a watercourse, mangroves Forest activities	Fisheries Act 1994 Forestry Act 1959 ²	Department of Agriculture and Fisheries (Queensland Government)	Ph: 13 25 23 www.daf.qld.gov.au
Matters of National Environmental Significance including listed threatened species & Discological communities	Environment Protection and Biodiversity Conservation Act 1999	Department of Climate Change, Energy, the Environment and Water (Australian Government)	Ph: 1800 803 772 www.dcceew.gov.au
Development and planning processes	Planning Act 2016 State Development and Public Works Organisation Act 1971	Department of State Development, Infrastructure, Local Government and Planning (Queensland Government)	Ph: 13 QGOV (13 74 68) www.statedevelopment.ql d.gov.au
Road corridor permits	Transport Infrastructure Act 1994	Department of Transport and Main Roads (Queensland Government)	Ph: 13 QGOV (13 74 68) www.tmr.qld.gov.au
Wet Tropics World Heritage Area	Wet Tropics World Heritage Protection and Management Act 1993	Wet Tropics Management Authority	Ph: (07) 4241 0500 www.wettropics.gov.au

¹ In Queensland, all plants that are native to Australia are protected plants under the <u>Nature Conservation Act 1992</u>, which endeavours to ensure that protected plants (whether whole plants or protected plants parts) are not illegally removed from the wild, or illegally traded. Prior to *clearing*, you should check the flora survey trigger map to determine if the *clearing* is within a high-risk area by visiting For further information or assistance on the protected plants flora survey trigger map for your property, contact the Department of Environment and Science on 13QGOV (13 74 68) or email palm@des.qld.gov.au

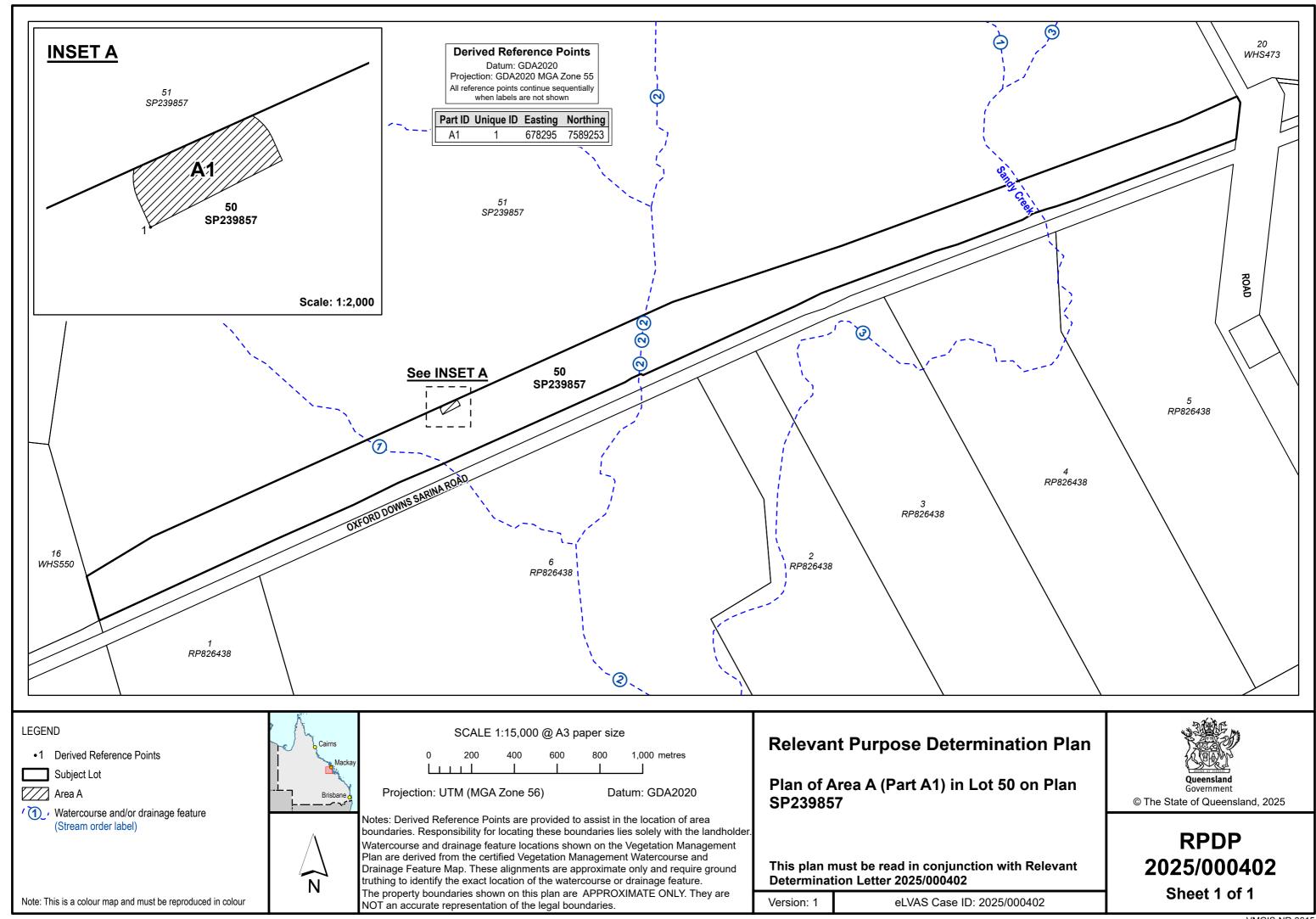
² Contact the Department of Agriculture and Fisheries before *clearing:*

[•] Any sandalwood on state-owned land (including leasehold land)

Local government requirements	Local Government Act 2009	Your relevant local government office	
	Planning Act 2016		

[•] On freehold land in a 'forest consent area'

More than five hectares on state-owned land (including leasehold land) containing commercial timber species listed in parts 2 or 3 of Schedule 6 of the Vegetation Management Regulation 2023 and located within any of the following local government management areas—Banana, Bundaberg Regional, Fraser Coast Regional, Gladstone Regional, Isaac Regional, North Burnett Regional, Somerset Regional, South Burnett Regional, Southern Downs Regional, Tablelands Regional, Toowoomba Regional, Western Downs Regional.



Wynne Planning & Development PTY LTD TOWN PLANNING SPECIALIST

Bushfire Hazard Assessment - MCU –Administration Buildings

Isaac Regional Council.

Report Date: 05/08/2024

Assessment Date: 12/07/2024

Client: Asciano Properties

Operations Pty Ltd

Street Address: Lot 50 Braeside Road,

Locality: Nebo

Real Property Description: Lot 50SP239857

Zone Description: Rural

Lot Size: 126.5868 ha

Local Authority: Isaac Regional Council

Development Description: MCU

BCA Building Class: Class 5

Building Works Administration Building

Description:

Telephone: (07) 4945 1976

Email: info@wynneplanninganddevelopment.com

Address: Shop 5 Deickie Arcade, 38 Main Street, Proserpine Qld 4800

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1. Introduction

Pacific National is seeking a development approval for administration buildings (MCU) to the existing property. The property (the site) is described as Lot 50 SP239857. The subject site is within the Isaac Regional Council (IRC) area.

Under the Isaac Region Planning Scheme 2017 (V. 4.7) the site is partly included in the Bushfire Hazard Overlay. The proposed buildings are outside the overlay. However, bushfire risk is considered for the development application process.

This Bushfire Management Plan (BMP) has been developed to address the IRC Planning Scheme. This BMP will support the Development Application (DA) and considers the following:

- The Natural Hazards Overlay Code for Bushfire Hazard Isaac Regional Council (IRC)
 Planning Scheme 2021 Version 1.1
- "Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy
 State Interest for Natural Hazards, Risks and Resilience Bushfires", QLD Fire and Emergency
 Services, October 2019
- Leonard, J., Newnham, G., Opie, K., and Blanchi, R. (2014) A new methodology for state-wide mapping of bushfire-prone areas in Queensland. CSIRO, Australia.
- Is specific to the proposed development

1.1 Aims and Objectives

This BMP aims to provide a framework to assist the applicant in mitigating bushfire risk and its effects on life, property, and the surrounding environment. The following objectives have been identified to meet the aim of the BMP:

- Identify potential bushfire risks at the subject site and surrounds
- Analyse and evaluate the risks to determine appropriate risk treatment options; and
- Prioritise treatment options to mitigate the bushfire risk and its effect on life, property, and the environment

1.2 Assumptions and Limitations

The following assumptions and limitations apply to this management plan:

- This BMP is not an emergency or evacuation plan
- It is the responsibility of the resident/s of the proposed Lots to work together and undertake
 fire management which is in the interest of all relevant stakeholders and the natural
 environment.
- At the time of writing this report, the final structure locations, water sources, access, and egress routes had not been determined.

1.3 Description of Site and Surrounds

1.3.1 Proposal

The proposed development application is to provide for two administration buildings. (note the workers accommodation is not proposed or part of this application)

Figure 1: Proposed buildings in relation to the bushfire overlay (hatched black)



Figure 2: Source: Development Assessment Mapping System - QLD government

The proposed buildings are indicated in red with black hatching.

There was no ability to include the aerial photography on the Council mapping. As such, the above extract is from the Development Assessment Mapping System (DAMS). Considering that they are essentially the same, the DAMS mapping was used.

The proposed buildings are outside the overlay. nevertheless, it is recognised that there is a bushfire risk for the property and as such an assessment was conducted.

1.3.2 Location

The proposed development is located within the Isaac Regional Council on Braeside road, Nebo, described as Lot 50 SP239857. The subject site is zone Rural and the existing use is railway corridor.

2. Bushfire hazard assessment

The Bushfire Resilient Communities Technical Reference Guide (BRC 2019) describes the bushfire hazard assessment methodology over three stages:

- Stage 1 Reliability assessment;
- Stage 2 Hazard assessment; and
- Stage 3 Separation and radiant heat exposure.

The below discuss the three stages.

2.1 Stage 1 Reliability Assessment

The purpose of the Reliability assessment is to verify the reliability of existing bushfire prone area mapping and streamlining the detailed BHA process.

The following information was taken into account for the reliability study:

- Planning Scheme and State mapping
- Aerial photography
- Regional Ecosystem and BVG State mapping
- Contours from Queensland Globe
- Wind prevalence
- On-site observations (site visit dated 12/07/24)

2.1.1 Bushfire Hazard Overlays

Figure 3: Bushfire Risk Overlay (Isaac Regional Council)



Figure 4 State Planning Policy Bushfire Hazard Overlay



Legend Cadastre (10k) Cadastre (10k) Bushfire prone area Very High Potential Bushfire Intensity High Potential Bushfire Intensity Medium Potential Bushfire Intensity Potential Impact Buffer

Both the Isaac Regional Council bushfire hazard overlay and the SPP mapping identify bushfire hazard risks for the site as ranging from buffer area risk to medium risk. The SPP and Council mapping are essentially the same.

2.1.2 Relevant site constraints mapping

The site is located within a rural area and abuts a railway corridor. The surrounding landscape is as per below:

Figure 5: Site location in the landscape (source: QGlobe)



2.1.3 Site Characteristics

In addition to being located within the Bushfire hazard Overlay, the site is located within the biodiversity, waterways and wetlands Overlay.

The below map shows the Biodiversity, Waterway and Wetlands Overlay.

Figure 6: Biodiversity, Waterway and Wetland Overlay - Source Isaac Regional Council



The present proposal is to construct a workers accommodation camp and two administration buildings.

The table below indicates the corresponding Broad Vegetation Group as mapped by the Queensland State (Source: Property report – Regional Ecosystems – Biodiversity and Conservation Values Status downloaded 10/07/2024):

BVG (1	Description	Area	Corresponding	Corresponding
million)		(Ha)	RE	Vegetation
				Hazard Class ¹
None	None	105.39	-	-
11a	Moist to dry open forests to woodlands dominated by Eucalyptus orgadophila (mountain coolibah). Some areas dominated by E. tereticornis (blue gum), E. melliodora (yellow box), E.	4.62	11.4.13	VHC 7/9.2

	albens (white box), E. crebra (narrow- leaved red ironbark) or E. melanophloia (silver-leaved ironbark).			
16a	Open forest and woodlands dominated by Eucalyptus camaldulensis (river red gum) (or E. tereticornis (blue gum)) and/or E. coolabah (coolabah) (or E. microtheca (coolabah)) fringing drainage lines. Associated species may include Melaleuca spp., Corymbia tessellaris (carbeen), Angophora spp., Casuarina cunninghamiana (riveroak). Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded.	0.15	11.3.25	VHC 7/16.1
17a	Woodlands dominated by Eucalyptus populnea (poplar box) (or E. brownii (Reid River box) on alluvium, sand plains and footslopes of hills and ranges.	13.16	11.5.3	VHC 7/16.1
30a	Tussock grasslands dominated by Astrebla spp.(mitchell grass) or Dichanthium spp. (bluegrass) often with Eulalia aurea (silky browntop) on alluvia.	3.26	11.3.21	VHC 11/27.5

¹ Source: Bushfire Resilient Communities: Technical Reference Guide for the State Planning Policy State Interest – Natural Hazards, Risk and Resilience – Bushfire" – October 2019, QLD Fire and Emergency Services. And A New Methodology for State-Wide Mapping of Bushfire Prone Areas in Queensland. Justin Leonard, Kimberley Opie, Glenn Newnham, Raphaele Blanchi. CSRIO, January 2014.

2.1.4 Access and Evacuation routes

The site is accessed via Braeside Road which is sealed. This would be the evacuation route.

As the administrative buildings are non-habitable, it is expected that standard fire dills will be conducted and that in the case of an imminent bushfire, the buildings will be unoccupied.

It is proposed that the emergency points will be easily accessible and that an evacuation plan will be prepared.

2.1.5 Climate

Local climatic conditions have a significant role in bushfire behaviour. The bushfire season in the Isaac area extends from mid to late winter to early summer. The period of greatest danger is typically in late winter/early spring following a dry winter preceded by a wet summer in which there has been abundant growth.

2.1.6 Topography

The site levels are between RL. 170 - 180 and is generally flat. There are three creek systems that traverses the site which mark lower points.

2.2 Stage 2 – Hazard Assessment

Bushfire Resilient Communities 2019 (BRC 2019) provides a methodology to determine the bushfire threat posed to a site and Australian Standards for the Construction of Buildings in Bushfire Prone Areas (AS3959) is used to determine the construction requirement to reduce potential bushfire attack.

The following assessment is prepared in accordance with BRC 2019 and Method 1 from AS3959. This assessment is based on a desktop assessment of the subject site, utilising the following resources:

- Bushfire hazard overlay code of the Issac Planning Scheme;
- · Aerial mapping;
- Site constraints analysis;
- Mapping and data from the Queensland Government data portal, 'bushfire-hazard-area bushfire-prone-area-inputs-queensland'; and
- Existing Lot plan.

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as APZ locations/dimensions and future building construction requirements in accordance with AS3959. The vegetation formations (bushfire fuels) and the topography (effective slope) combine to create the bushfire threat that may affect bushfire behaviour at the site, and which determines the building response of AS3959.

2.2.1 SPP Fireline Intensity Class validation and FFDI

Fireline intensity is a measure of the energy released from the flame or combustion zone. The method of calculation is as per follows:

Figure 7: source: Bushfire Resilient communities, QFES, 2019



Figure 4: Method for calculation of potential fireline intensity.6

Fireline intensity greater than 30,000 kW/m is commonly understood as blow-up conditions. Intensities exceeding 30,000 kW/m were a defining feature of the 2009 Black Saturday Fires. Vegetated parts of the landscape that would carry a vegetation fire at an intensity lower than 4,000 kW/m2 are categorised as grass fire-prone land or low-hazard areas (e.g. rainforest or water or non-vegetated urban areas).

Corresponding fireline intensity and class are explained as per below:

Figure 8: Source: A new methodology for state-wide mapping of bushfire prone area, CSIRO, 2014

Potential Bushfire Intensity Class	Potential Fire-line Intensity
1. Very high (potential intensity)	40,000+kW/m
2. High (potential intensity)	20,000 – 40,000kW/m
3. Medium (potential intensity)	4,000 – 20,000kW/m

In lieu of the Fire Weather severity, the FFDI is used. For this particular area, a FDI 53 can be used as per the below map.

Figure 10: Bushfire Hazard mapping indicating Fire Danger Index (FDI) – Source: Catalyst



2.2.2 Identification of Vegetation hazard class

The site was ground-truthed on the 12th July 2024. The site where the old workers accommodation was located has been cleared. The closest vegetation is located to the north on the adjoining site being Lot 51 on SP 239857 where there is a bushfire break of approximately 15 m. There is also a powerline and road access on the subject site on that side. The vegetation on that side would be classified as woodland. On the other sides (east and west) the closest vegetation is approximately 100m and is also considered woodland albeit being highly modified. On the southern side, there is a road and the railway which is maintained.

In regard to the administration buildings the situation is similar for the northern side with further distances to the east and west. There is also existing cluster of buildings to the south of the third proposed building.

The type of vegetation is classified as woodland and as such the type of vegetation does attack some risks.

The State mapping appears to be generally accurate except for the areas that overlap with the existing site. Category X – would be more appropriate.

2.2.2.1 Vegetation Hazard Class 7 – Open Forests/ Woodlands Grassy

The VHC 9.0 community is considered synonymous with Regional Ecosystem 11.3.25, 11.5.3 and 11.4.13.

RE 11.3.25 is described as: "Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines"

RE 11.5.3 is described as: "Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces"

RE 11.4.13 is described as: "Eucalyptus orgadophila open woodland on Cainozoic clay plains"

This type of vegetation has a potential fuel load: 19 tonnes / ha Vegetation in this category will often feature an open canopy and sparse understory. The majority of the fuel is located on the surface and comprises of leaf litter, grasses and coarse wooded debris. This category mainly features grass-dominated varieties of open eucalypt forests and woodlands.

2.2.2.2 Vegetation Hazard Class 11 – Native Grasslands, sedgelands and balds

The VHC 11.0 community is considered synonymous with Regional Ecosystem 11.3.21.

RE 11.3.21 is described as: "Dichanthium sericeum and/or Astrebla spp. grassland on alluvial plains. Cracking clay soils"

This type of vegetation has a potential fuel load of 5 tonnes / ha (expert estimate). This category incorporates native Mitchell grasslands, Spinifex grasslands, sedgelands and balds. It consists generally native (or exotic) grass fuel with limited scattered other fuels, prone to lower intensity but very rapidly spreading fires.

2.3 Stage 3 – Separation and radiant heat exposure

The bushfire asset protection zone width calculator is the preferred method and considering the limiting factors, this method is still considered appropriate.

For the Worker's accommodation, the most at risk direction is to the north of the proposed building. However, the below demonstrates that the risk would be acceptable:

VARIABLE DESCRIPTION	VARIABLE	UNITS	VALUE
	Input Values		
FIRE WEATHER SEVERITY	FDI		53.00
VEGETATION HAZARD CLASS	VHC		9.2 Moist to dry eucalypt woodland or
			coastal lowlands and ranges
REMNANT STATUS		-	Remnant
SLOPE TYPE (UPSLOPE OR DOWNSLOPE)	ST		Upslope
EFFECTIVE SLOPE UNDER THE HAZARDOUS VEGETATION	eSlope	degrees	1.00
SLOPE BETWEEN SITE AND HAZARDOUS VEGETATION	θ	degrees	1.00
DISTANCE OF THE SITE FROM HAZARDOUS VEGETATION	d	m	25.00
	Output Values		
SURFACE FUEL LOAD		t/ha	11.40
NEAR SURFACE FUEL LOAD		t/ha	3.50
BARK FUEL LOAD	-	t/ha	1.30
ELEVATED FUEL LOAD	-	t/ha	1.00
TOTAL OVERALL FUEL LOAD	w	t/ha	17.20
TOTAL SURFACE FUEL LOAD	w	t/ha	14.90
POTENTIAL FIRE LINE INTENSITY	1	kW/m	8421
RADIANT HEAT FLUX	q	kW/m²	14.58
BUSHFIRE ATTACK LEVEL (AS 3959-2018)	BAL	-	BAL 19
DISCLAIMER: Fire-line intensity and radiant heat calculations wh unreliable. In these locations, specialist assessment is warranted		eeds 20 degree	s (downslope) or 15 degrees (upslope) ma y Calculate
			Copy Results

The proposed development is able to achieve a BAL 19 or below which is consistent with a tolerable level of risk.

2.3.1 Asset protection zone

The access road, the powerline easement and the bushfire break are sufficient to provide an average of 25m as an asset protection zone on the northern side which should be sufficient.

The APZ is required to be managed in compliance with the standards as set out below:

Trees

- · A discontinuous fuel structure;
- · A potential fuel load of less than eight tonnes per hectare with no continuous canopy;
- · Lower limbs should be removed up to a height of 2m above the ground;
- · Preference should be given to smooth-barked and evergreen trees.

Shrubs

- · Shrubs should not be located under trees;
- · Shrubs should not form more than 10% of ground cover; and
- · Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation.

Grass

- · Grass should be kept mown (as a guide grass should be kept to no more than 100mm in height);
- · Ground fuels such as fallen leaves, twigs (less than 6 mm in diameter) and bark should be removed on a regular basis.
- · Keeping areas beneath retained or planted trees and shrubs cleared of fuel.
- · Availability of reliable and sufficient water and installation of irrigation and sprinkler systems to create a well-watered landscape.
- · Manage weed

As the APZ provides a fuel-reduced, physical separation between the new development and bushfire hazards, it is a key element in the suite of bushfire measures and dictates the type of construction necessary to mitigate bushfire attack. In practical terms, the setback of each building will form part of the APZ and will need to be conditioned to be maintained to the standards prescribed above.

3. Isaac Regional Council Planning Scheme 2021 (Version 1.1)

The following are the relevant extracts from the Bushfire hazard overlay code of the IRC Planning Scheme:

Application

This code applies to development where the code is identified as applicable in the categories of development and assessment for the Bushfire hazard overlay code and applies to any areas identified

on Map OM4—Bushfire hazard overlay map. When using this code, reference should be made to section 5.3.2 and where applicable, section 5.3.3 located in Part 5.

Purpose and overall outcomes

- (1) The purpose of the Bushfire hazard overlay code is to ensure that:
 (a) that the risks to life, property, community, economic activity and the environment during uncontrolled bushfire events are avoided or minimised; and
 (b) development does not increase the potential for bushfire damage or risk on-site or to other property.
- (2) The purpose of the code will be achieved through the following overall outcomes:

 (a) development is compatible with the nature of the bushfire hazard except where there is an overriding need for the development in the public interest and no other site is suitable and reasonably available for the proposal;
 - (b) development siting, layout, design and access minimises the risks to personal safety, and damage to property, infrastructure and other assets;
 - (c) development directly, indirectly and cumulatively avoids an unacceptable increase in severity of bushfires and does not increase the potential for damage on the site or to other properties.
 - (d) the potential for the release of hazardous material as a result of a bushfire event is avoided;
 - (e) evacuation and disaster management responses including firefighting and access for emergency services during bushfire events is facilitated;
 - (f) community infrastructure is located and designed to function effectively at all times

7.2.3.3 Specific benchmarks for assessment

Table 7.2.33 – Bushfire hazard overlay – accepted development subject to requirements and assessable development

Performance outcomes	Acceptable outcomes	Response
Site suitability		
PO1	AO1	
Development maintains the safety of people and property. Editor's note—A site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP.	No acceptable outcome is nominated.	Although the site is partly covered by the bushfire hazard overlay, the proposed buildings are outside the overlay.
		Bushfire breaks are maintained along the northern side which is where the vegetation is the closest.

		The vegetation is maintained in the east/west directions, the road and railway offer a buffer area to the south. The proposal will maintain the safety of people and property.
		The development is able to achieve a radiant heat flux of less than 19 kw/m2. The risk is considered tolerable. The proposal is compliant. Protective landscape treatment consists of access/road to the north
PO2	AO2	and south. Buffers to the east and west will be included. An evacuation plan will be provided to ensure that the risk to people is tolerable.
Development does not result in a higher concentration of people living, working or congregating in a bushfire prone area unless it can be demonstrated: (a) there is an overriding community need in the public interest; and (b) no other site is suitable and reasonably available	The following uses are not located on land within a high to very high bushfire hazard area: (a) child care facility; (b) community care centre; (c) educational	Parts of the site are included within the Medium and buffer area of the bushfire hazard overlay only. The proposed buildings are outside both the medium and buffer area of the
	establishment; (d) hostel; (e) hospital; (f) industry involving manufacture or storage of hazardous materials in bulk (g) multiple dwelling;	bushfire hazard overlay area.
15 Page	(h) nature based tourism;(i) workforce accommodation;	

	(j) residential care facility; (k) retirement facility; (l) rural workers' accommodation; (m) shopping centre; (n) short-term accommodation; (o) tourist attraction; (p) tourist park.	
Sitting of development		
PO3 The siting, layout and design of development avoids or mitigate the risks associated with bushfire hazard through: (a) being situated on that part of the site that has the lowest level of bushfire risk; (b) fire mitigation measures that do not adversely impact on areas having high environmental values. Editor's note— (i) a site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP; (ii) buildings in a bushfire hazard area must meet the requirements of AS3959-2009 – the Australian Standard for the Construction of Buildings in Bushfire Prone Areas and the requirements of the Building Code of Australia	No acceptable outcome is nominated.	As above. Complies
Water Supply		
PO4 Development in areas with a reticulated water supply have adequate flow and pressure for fire-fighting purposes at all times. PO5	AO4 The water supply network has a minimum sustained pressure and flow of at least 10 litres per second at 200kPa. AO5 Development	N/A. The site is not reticulated.
Development in areas without a reticulated water supply have an appropriate dedicated water supply for fire-fighting purposes, that is safely located and freely accessible for fire-fighting purposes at all times.	involving a gross floor area greater than 50m2 where a reticulated water supply is not available is: (a) provided with an easily accessible fire resistant on-site water storage of not less than 5,000 litres (eg. concrete tank with fire brigade fittings, in-	There will be a dedicated water supply that is available solely for fire-fighting purposes. The proposal can be conditioned.

	T	
	ground swimming pool, dam fed by a permanent water source) that is within 100m of the development; and (b) has a hard-standing area allowing a heavy rigid fire appliance safe access to within 6m of the storage facility. Editor's note-Plastic water tanks are not considered to be fire resistant.	
Roads, fire access trails and firebreaks	resistant.	
PO6 Roads and fire access trails are designed and constructed to: (a) enable efficient access to buildings and structures for fire-fighting purposes for emergency services; and (b) swift evacuation in emergency situations.	AO6.1 Roads and fire access trails are designed and constructed to: (a) have a maximum gradient of 12.5%; (b) a minimum cleared width of 6m and a minimum formed width of 4m; (c) provides passing and turning areas for fire- fighting appliances at intervals of not less than 500m; (d) have a vehicular access at each end to roads or a bushfire trail; and (e) not involve any cul-de-sac. AO6.2 Development has	The proposal is able to comply. The site is generally flat and there will be sufficient area for emergency vehicle access. Complies. Roads, fire
	direct access to an evacuation route with a potential fire intensity exposure no greater than 2 kw/m2. Editor's note—The distance from hazardous vegetation to achieve 2kw/m2 is generally: (i) 58m in a very high bushfire hazard areas; (ii) 52m in a high bushfire hazard area; and (iii) 44m in a medium bushfire hazard area	breaks, railroad and powerline easements are maintained to be below 2kw/m2.
	AO6.3 Development incorporates an area of managed vegetation that separates lot	The proposal is outside the high or very high bushfire risk area.

	boundaries from hazardous vegetation by a distance of: (a) 20m to a high or very high bushfire risk area; or (b) 10m to a medium risk bushfire area and includes a fire access trail. Editor's note—Any fire access trail is secured by public ownership or an access easement in favour of Isaac Regional Council and the Queensland Fire and Rescue Service.	The proposal is able to comply with the 10 m setback requirement for the medium risk bushfire area despite being also outside the medium risk bushfire area.
PO7 Development provides for adequate fire breaks that minimise bushfire hazard by: (a) separating hazardous vegetation from development areas; and (b) facilitating access for firefighting and emergency vehicles. Editor's note—A site specific bushfire hazard assessment and management plan is required to demonstrate compliance with this performance criterion. Refer to the Hazards PSP.	No acceptable outcome is nominated.	The proposal complies
PO8 Development is located and designed to incorporate a bushfire defendable space which achieves separation between buildings, building envelopes and hazardous vegetation necessary to reduce risk to an acceptable or tolerable level.	AO8.1 Buildings, or building envelopes, are separated by hazardous vegetation by a distance that achieves a radiant heat flux level at any point on the building, or building envelope, respectively that does not exceed: (a) 10kW/m2 where involving a vulnerable use, essential service uses or hazardous chemical facility use; or (b) 29W/m2 otherwise. Editor's note—The radiant flux levels and separation distances are to be established in accordance with state guidance on hazard assessments. Where a separation distance is proposed to be achieved by utilising	As demonstrated in section 2.3, the site is located within a tolerable risk area.

	existing, cleared developed areas	
	external to the site, certainty	
	must be established (through	
	tenure or other means) that the land will remain cleared of	
	hazardous vegetation. For staged	
	development, temporary	
	separation distances, perimeter roads or fire trails may be	
	absorbed as part of subsequent	
	stages.	
	AO8.2 Development	
	ensures buildings or	
	building envelopes are	
	separated from adjacent	
	buildings or building	
	envelopes by 8m.	
Hazardous materials		
PO9 The potential for the release of	AO9 Development	No production or storage
hazardous materials as a result of a	involving the production	of hazardous material is
bushfire event is avoided.	or storage of hazardous	proposed to be stored
	materials is not located	within a high or very high
	within a high or very	bushfire hazard area.
	high bushfire hazard	
	area.	
Reconfiguration of a lot		
PO10 Additional lots avoid the risk of	AO10 New lots	N/A
bushfire hazard to personal and	(including rear lots) do	
property safety and increased risk of	not occur in a bushfire	
property surety and increased risk of		
damage to assets.	prone area.	
damage to assets. Editor's note–A site specific bushfire hazard assessment	prone area.	
damage to assets.	prone area.	
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is	prone area.	
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure		
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure	re is defined in the State Planning Polic	I
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure PO11 Development for essential	re is defined in the State Planning Police No acceptable outcome	The proposal is not for an
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure PO11 Development for essential community infrastructure is located,	re is defined in the State Planning Polic	The proposal is not for an essential community
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure PO11 Development for essential community infrastructure is located, designed and sited to: (a) protect the	re is defined in the State Planning Police No acceptable outcome	The proposal is not for an
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure rommunity infrastructure is located, designed and sited to: (a) protect the safety of people during a bushfire; (b)	re is defined in the State Planning Police No acceptable outcome	The proposal is not for an essential community infrastructure.
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure PO11 Development for essential community infrastructure is located, designed and sited to: (a) protect the safety of people during a bushfire; (b) not increase the exposure of people to	re is defined in the State Planning Police No acceptable outcome	The proposal is not for an essential community infrastructure. The proposed buildings are
damage to assets. Editor's note—A site specific bushfire hazard assessment and management plan may demonstrate that the site is not within a bushfire hazard area or has a low degree of bushfire risk. Refer also to the Hazards PSP. Essential community infrastructure Editor's note—The term essential community infrastructure PO11 Development for essential community infrastructure is located, designed and sited to: (a) protect the safety of people during a bushfire; (b) not increase the exposure of people to the risk from a bushfire event; and (c)	re is defined in the State Planning Police No acceptable outcome	The proposal is not for an essential community infrastructure.
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4. Ongoing Maintenance and Preparation for Bushfire

Even well-designed and constructed buildings can be subject to elevated bushfire risk due to inadequate maintenance. Ember attack directly on a building, and adjoining structures of any available fuels nearby (e.g. fallen leaves and trees) can cause destruction. Ongoing maintenance is therefore essential. In the context of the existing lot, the manicured and maintained lawn significantly contributes to bushfire safety. It's important that this is maintained and where possible extended to the unmaintained section of the blocks.

Prior to the bushfire danger period, most typically spring & summer in this region, there are a number of things that can be done to protect the proposed buildings exposed to the threat vegetation.

4.1 Preparation for the Bushfire Season

The following is an excerpt from the QLD Rural Fire Service Website.

An unprepared property is not only at risk itself but may also present an increased danger for neighbours. Here are some things you can do:

Structures

- Clear leaves, twigs, bark and other debris from the roof and gutters.
- Purchase and test the effectiveness of gutter plugs.
- Enclose open areas under decks and floors.
- Install fine steel wire mesh screens on all windows, doors, vents, and weep holes.
- Point LPG cylinder relief valves away from the house.
- Conduct maintenance checks on pumps, generators, and water systems.
- Seal all gaps in the external roof and wall cladding.

Access

- Display a prominent house or lot number, in case it is required in an emergency.
- Ensure there is adequate access to your property for fire trucks 4 metres wide by 4 metres high, with a turn- around area.

Vegetation

- Reduce vegetation loads along the access path.
- Mow your grass regularly.
- Remove excess ground fuels and combustible material (long dry grass, dead leaves, and branches).
- Trim low-lying branches two metres from the ground surrounding your home.

Personal

Check that you have sufficient personal protective clothing and equipment.

- Relocate flammable items away from your home, including woodpiles, paper, boxes, crates, hanging baskets and garden furniture.
- Check the first aid kit is fully stocked.
- Make sure you have appropriate insurance for your home and vehicles.
- Find out if there is a nearby Neighbourhood Safety Place.
- Review and update your household Bushfire Survival Plan (see further details in next section).

5. Conclusion

The subject site is within the bushfire- prone area under the Planning Scheme, more particularly the Medium and buffer area. The proposed buildings are located outside the bushfire overlay. Nevertheless, the bushfire risk was considered and it was demonstrated that the risk is tolerable. It is submitted that the use is compatible with the bushfire risk and that provides a balance between environmental conservation and risk.

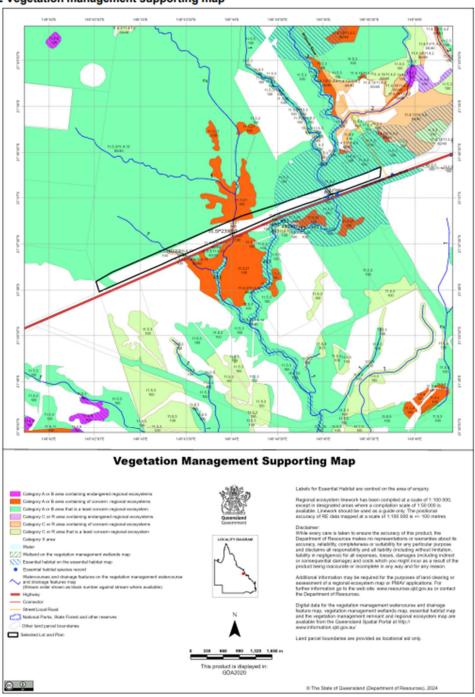


Julie Giguere

Wynne Planning and Development Pty Ltd

APPENDIX A – Regional Ecosystem Map

4.2 Vegetation management supporting map



APPENDIX B – Photos

Figure 9



Figure 10



Figure 11:



Figure 12:



Figure 13:



Figure 14:



Figure 15:



Figure 16:



Figure 17:



Wynne Planning & Development PTY LTD TOWN PLANNING SPECIALIST

Review of Environmental Features

This report is an assessment of the Environmental Sensitive Overlay affecting the following property:

Report Date: 31/07/2024

Assessment Date: 12/07/2024

Client: Asciano Properties

Operations Pty Ltd

Street Address: Lot 50 Braeside Road,

Locality: Nebo

Real Property Description: Lot 50 SP239857

Zone Description: Rural

Lot Size: 126.5868 ha

Local Authority: Isaac Regional Council

Development Description: Administration Buildings

and Associated Infrastructure

BCA Building Class: Class 5

Building Works Accommodation Buildings

Description:

This report has been prepared to support a Development Application for proposed

Telephone: (07) 4945 1976

Email: info@wynneplanninganddevelopment.com

Address: Shop 5 Deickie Arcade, 38 Main Street, Proserpine Qld 4800

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Technical Description

Regional ecosystem: 11.3.25

Stratum: Tree 2

Height avg. = 10.9m, range 4-20m, 37 sites Crown cover avg. = 10.6%, range 0.0-40.0%, 37 sites

Frequent species (cover, frequency): Eucalyptus camaldulensis (6, 19%), Acacia salicina (6, 15%), Acacia stenophylla (10, 15%), Eucalyptus coolabah (3, 15%), Eucalyptus tereticornis (2, 13%), Angophora floribunda (5, 8%), Corymbia tessellaris (3, 8%), Melaleuca trichostachya (7, 8%), Lophostemon suaveolens (2, 6%), Melaleuca bracteata (11, 6%), Callitris glaucophylla (9, 4%), Eucalyptus populnea (17, 4%), Livistona nitida (1, 4%), Melia azedarach (4%), Terminalia oblongata subsp. oblongata (1, 4%), Acacia fasciculifera (3, 2%), Acacia indet. (2, 2%), Acacia leiocalyx subsp. leiocalyx (1, 2%), Acacia ramiflora (29%), Alphitonia excelsa (2%), Angophora subvelutina (4, 2%), Backhousia angustifolia (2, 2%), Brachychiton australis (2%), Cassia brewsteri (2%), Casuarina cunninghamiana (1, 2%), Casuarina cunninghamiana subsp. cunninghamiana (10, 2%), Celtis sinensis* (5, 2%), Cissus oblonga (2%), Corymbia erythrophloia (24, 2%), Dendrophthoe glabrescens (2%), Ficus fraseri (10, 2%), Geijera parviflora (15, 2%), Geijera salicifolia (4, 2%), Hakea lorea (2%), Lysiphyllum hookeri (20, 2%), Lysiphyllum indet. (20, 2%), Melaleuca fluviatilis (2, 2%), Melaleuca leucadendra (2%), Melaleuca linariifolia (7, 2%), Planchonella cotinifolia (1, 2%)

Stratum: Tree 3

Height avg. = 6.9m, range 4-12m, 12 sites

Crown cover avg. = 11.0%, range 0.0-62.0%, 12 sites

Frequent species (cover, frequency): Acacia salicina (1, 4%), Corymbia tessellaris (4%), Eucalyptus camaldulensis (1, 4%), Eucalyptus coolabah (2, 4%), Melaleuca linariifolia (4, 4%), Acacia excelsa (2%), Acacia leiocalyx subsp. leiocalyx (2, 2%), Alectryon diversifolius (2%), Angophora floribunda (2, 2%), Casuarina cunninghamiana subsp. cunninghamiana (3, 2%), Cymbidium canaliculatum (2%), Diospyros geminata (2%), Erythrina vespertilio (2%), Eucalyptus tereticornis (2%), Ficus coronata (6, 2%), Ficus opposita (7, 2%), Livistona nitida (4, 2%), Lysiphyllum hookeri (50, 2%), Lysiphyllum indet. (10, 2%), Macaranga tanarius (2%), Mallotus philippensis (3, 2%), Melaleuca fluviatilis (3, 2%), Melaleuca trichostachya (3, 2%), Melaleuca viminalis (4, 2%), Pleiogynium timorense (2, 2%), Terminalia oblongata subsp. oblongata (10, 2%), Timonius timon var. timon (3, 2%)

Stratum: Shrub 1

Height avg. = 2.5m, range 0.5-6m, 24 sites Crown cover avg. = 7.2%, range 0.0-40.0%, 25 sites

Frequent species (cover, frequency): Acacia salicina (10%), Ficus opposita (1, 10%), Alphitonia excelsa (1, 6%), Melaleuca trichostachya (22, 6%), Abutilon oxycarpum (4%), Alectryon diversifolius (7, 4%), Alstonia constricta (4%), Brachychiton rupestris (4%), Breynia oblongifolia (4%), Bridelia leichhardtii (4%), Casuarina cunninghamiana (1, 4%), Corymbia tessellaris (4%), Denhamia disperma (4%), Erythroxylum australe (1, 4%), Eucalyptus camaldulensis (1, 4%), Ficus fraseri (4%), Geijera parviflora (4%), Grewia latifolia (1, 4%), Lophostemon suaveolens (4%), Melaleuca bracteata (4%), Melaleuca viminalis (4, 4%), Notelaea microcarpa (4%), Petalostigma pubescens (3, 4%), Pleiogynium timorense (4%), Turraea pubescens (4%), Vachellia farnesiana* (1, 4%), Acacia aulacocarpa (1, 2%), Acacia disparrima subsp. disparrima (2%), Acacia excelsa (1, 2%), Acacia glaucocarpa (5, 2%), Acacia holosericea (2%), Acacia indet. (2%), Acacia leiocalyx subsp. leiocalyx (2%), Acacia maidenii (2%), Acacia ramiflora (2%), Acacia stenophylla (2, 2%), Alyxia ruscifolia (2%), Angophora floribunda (2%), Angophora leiocarpa (2%), Angophora subvelutina (2%), Bertya oleifolia (2%), Brachychiton populneus (2%), Capparis indet. (2%), Carissa ovata (2, 2%), Cassia brewsteri (1, 2%), Casuarina cristata (2%), Casuarina cunninghamiana subsp. cunninghamiana (1, 2%), Clematicissus opaca (2%), Corymbia erythrophloia (2%), Cupaniopsis anacardioides (2%), Cymbidium canaliculatum (2%), Diospyros geminata (2%), Dodonaea viscosa (2%), Elaeodendron australe (2%), Eremophila mitchellii (2%), Erythroxylum sp. (Splityard Creek L.Pedley 5360) (2%), Grevillea striata (2%), Hovea longipes (2%), Jasminum simplicifolium subsp. australiense (2%), Leptospermum polygalifolium (24, 2%), Livistona decora (1, 2%), Livistona nitida (5, 2%), Lycium ferocissimum* (1, 2%), Lysiphyllum hookeri (12, 2%), Macaranga tanarius (1, 2%), Mallotus philippensis (2%), Melaleuca decora (1, 2%), Melaleuca fluviatilis (1, 2%), Melaleuca indet. (2%), Melaleuca linariifolia (2, 2%), Mela azedarach (2%), Opuntia tomentosa* (2%), Pittosporum spinescens (2%), Psydrax odorata (2%), Santalum lanceolatum (2%), Terminalia oblongata subsp. oblongata (10, 2%), Timonius timon var. timon (2%)

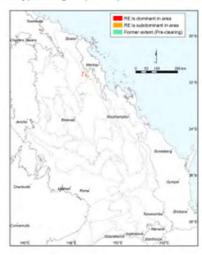
Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet, after listed name = indeterminate species or genus

1/03/2018

Eucalyptus orgadophila open woodland on Cainozoic clay plains



Pre-clearing area (ha), remnant area (ha) and per cent remaining: 22,960 11,520 50%

Species_recorded: Total: 44; woody: 5; ground: 39; Avg. spp./site: 23.0; std dev.: 8.0, 2 site(s)

Basal area: Avg./site: 5.0 m²/ha, range: 5.0 - 5 m²/ha, std. deviation: 0 m²/ha, 1 site(s)

Structural formation: Woodland: 50%; tussock grassland: 50%, 2 site(s)

Representative_sites 16880, 19244.

Stratum: Tree 1 Height avg. = 10.0m, 1 site

Crown cover avg. = 10.5%, range 1.0-20.0%, 2 sites

Dominant species (relative cover, frequency): Eucalyptus orgadophila (100, 50%), Eucalyptus crebra (90, 50%), Corymbia erythrophloia (10, 50%)

Frequent species (cover, frequency): Corymbia erythrophloia (2, 50%), Eucalyptus crebra (18, 50%), Eucalyptus orgadophila (50%)

Stratum: Shrub 1

Height avg. = 2.3m, range 2-2.5m, 2 sites Crown cover avg. = 1.0%, range 1.0-1.0%, 2 sites

Dominant species (relative cover, frequency): Atalaya hemiglauca (75, 100%), Vachellia farnesiana* (50, 50%)

Frequent species (cover, frequency): Atalaya hemiglauca (1, 100%), Vachellia farnesiana* (1, 50%)

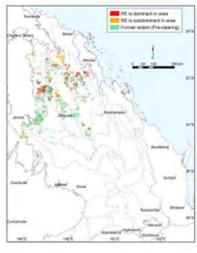
Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet. after listed name ≈ indeterminate species or genus

Regional ecosystem: 11.5.3

Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces





Pre-clearing area (ha), remnant area (ha) and per cent remaining: 974,585 376,888 39%

Species_recorded: Total: 207; woody: 64; ground: 160; Avg. spp./site: 27.6; std dev.: 7.8, 12 site(s)

Basal area: Avg./site: 7.2 m²/ha, range: 1.0 - 13 m²/ha, std. deviation: 4 m²/ha, 16 site(s)

Structural formation: Open-woodland: 50%; woodland: 44%; low open-woodland: 6%, 16 site(s)

Representative_sites 2460, 2467, 16868, 16888, 16891, 16901, 17017, 17032, 17056, 19030, 19163, 19169, 19186, 19194,

19217, 32290.

Stratum: Tree 1

Height avg. = 13.9m, range 8.4-20m, 16 sites Crown cover avg. = 16.1%, range 2.0-30.0%, 16 sites

Dominant species (relative cover, frequency): Eucalyptus populnea (98, 50%), Eucalyptus melanophloia (93, 25%)

Frequent species (cover, frequency): Eucalyptus populnea (16, 50%), Eucalyptus melanophloia (17, 25%), Eucalyptus brownii (10, 19%), Corymbia clarksoniana (4, 13%), Eucalyptus crebra (2, 13%), Ventilago viminalis (13%), Angophora leiocarpa (1, 6%), Atalaya hemiglauca (1, 6%), Corymbia dallachiana (6%), Eucalyptus melanophloia subsp. melanophloia (30, 6%), Grevillea parallela (1, 6%), Grevillea striata (1, 6%)

Stratum: Tree 2

Height avg. = 7.9m, range 5-12m, 9 sites

Crown cover avg. = 7.6%, range 0.0-25.0%, 9 sites

Frequent species (cover, frequency): Acacia excelsa (19%), Archidendropsis basaltica (3, 19%), Eucalyptus populnea (2, 19%), Terminalia oblongata subsp. oblongata (4, 19%), Atalaya hemiglauca (13%), Corymbia dallachiana (13%), Eucalyptus melanophloia (9, 13%), Grevillea parallela (1, 13%), Acacia fodinalis (3, 6%), Acacia longispicata (6%), Acacia rhodoxylon (1, 6%), Angophora leiocarpa (1, 6%), Cassia brewsteri (1, 6%), Corymbia erythrophloia (6%), Ehretia membranifolia (6%), Eremophila mitchellii (4, 6%), Erythroxylum australe (2, 6%), Eucalyptus brownii (2, 6%), Eucalyptus crebra (1, 6%), Geijera parviflora (6%), Grevillea striata (1, 6%), Lysiphyllum carronii (4, 6%), Lysiphyllum hookeri (5, 6%), Parsonsia lanceolata (6%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet. after listed name = indeterminate species or genus

1/03/2018

1. Introduction

1.1 Background

1.1.1 Location

The property (the site) is described as Lot 50 SP239857, Lot 50 Braeside Road which is on the Northern side of Braeside Road in the locality of Nebo. The subject site is within the Isaac Regional Council (IRC) area. The location of the site is shown on Figure 1. The current lot size is 126.5868ha.

Figure 1 Site Location



1.1.2 Report Purpose

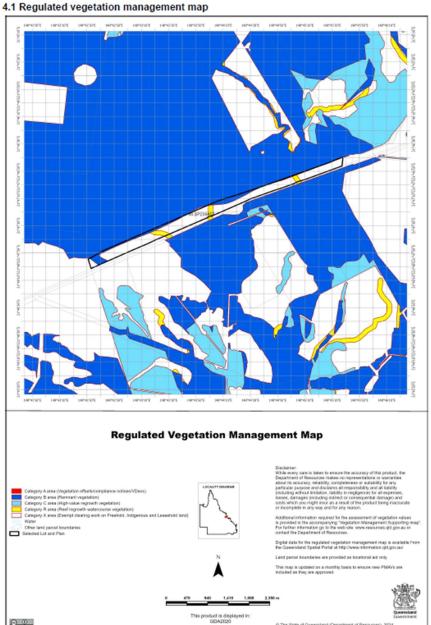
This report was prepared to provide the results of an on-ground assessment of the vegetation and landscape features on and adjacent to the Site to address State Referral and any overlay mapping 'triggered' in the Isaac Regional Council (IRC) Planning Scheme (2017). As the IRC planning scheme is reliant on Queensland Government map layers it is important to determine if the State mapping is accurate as a starting point. The on-ground observations will be used, in particular, to assess the environmental features and ecological values associated with the Site. The observations will be used to determine if the regional ecosystem mapping is accurate as well as recommend mitigation measures.

1.2 Regulated Vegetation

1.2.1 Regulated Vegetation and regional ecosystems

The Regulated vegetation management map was generated and downloaded from the Department of Resources (DOR) website on 10/07/24 as part of a Vegetation management report. The vegetation management report shows the regulated vegetation mapping of the Site [see Figure 2] with:

Figure 2: Regulated Vegetation Mapping



21.67 ha of Category B [dark blue], 7.32 ha of Category R [yellow] and 97.6 ha of Category X [non-remnant]. Current regional ecosystem (RE) mapping shows that the site is covered by remnant vegetation on the southern side and that there is some regrowth on the northern side.

According to the regional mapping, the site is mostly covered by non-remnant vegetation but contains some patches of:

• Of concern: RE's 11.3.21, 11.3.25, 11.4.13,

• Least of concern: RE 11.5.3

Table 1 Regional Ecosystem Descriptions

RE ID	RE Description	Vegetation Management Act Status
11.3.21	Dichanthium sericeum and/or Astrebla spp. (A. lappacea, A. elymoides and A. squarrosa) tussock grassland. Frequently occurring species include the grasses Aristida leptopoda, A. latifolia, Bothriochloa bladhii subsp. bladhii, Brachyachne convergens, Heteropogon contortus, Panicum decompositum, Eriochloa spp., Sporobolus mitchellii and Thellungia advena and the forbs Abelmoschus ficulneus, Corchorus trilocularis, Commelina ensifolia, Euphorbia coghlanii, Ipomoea lonchophylla, Neptunia gracilis, Phyllanthus maderaspatensis, Sida trichopoda and Trichodesma zeylanicum var. latisepaleum. Scattered emergent trees and shrubs may occur, including Eucalyptus coolabah, E. populnea, E. tereticornis and Acacia spp. Occurs on Cainozoic alluvial plains on flats associated with rivers and creeks, including back-plains, terraces, low levees and back-swamps. Associated soils are usually heavy cracking clays. Not a Wetland. (BVG1M: 30a).	Of Concern
11.3.25	Eucalyptus tereticornis or E. camaldulensis woodland to open forest. Other tree species, including Casuarina cunninghamiana, E. coolabah, Melaleuca bracteata, Melaleuca viminalis, Livistona spp. (in north), Melaleuca spp. and Angophora floribunda, may occur. An tall shrub layer may occur, including Acacia salicina, A. stenophylla and Lysiphyllum carronii. Low shrubs are present, but rarely form a conspicuous layer. The ground layer is open to sparse and dominated by perennial grasses, sedges or forbs. Occurs on fringing levees and banks of major rivers and drainage lines of alluvial plains throughout the region. Soils are very deep, alluvial, grey and brown cracking clays with or without some texture contrast. These are usually moderately deep to deep, soft or firm, acid, neutral or alkaline brown sands, loams or black cracking or non-cracking clays, and may be sodic at depth (Burgess 2003). Riverine. (BVG1M: 16a).	Of concern
11.4.13	Eucalyptus orgadophila open woodland. Other canopy species include Corymbia dallachiana and C. erythrophloia. Scattered shrubs and low trees may occur, including Alectryon diversifolius, Vachellia bidwillii, Cassia brewsteri and Atalaya hemiglauca. The ground layer is	Of concern

	dominated by tussock grasses, including Dichanthium sericeum,				
	Bothriochloa ewartiana, Heteropogon contortus, Panicum				
	queenslandicum and Themeda triandra. Occurs on Cainozoic clay				
	plains. The soils associated with this regional ecosystem are often				
	derived from weathered basalt. Not a Wetland. (BVG1M: 11a).				
11.5.3	Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana +/-	Least of			
	C. dallachiana and occasionally E. cambageana or E. brownii woodland.				
	Localised areas may be dominated by E. melanophloia, occasionally E.				
	crebra and other canopy species. There is typically a secondary tree				
	layer, including Eremophila mitchellii, Geijera parviflora,				
	Archidendropsis basaltica, Erythroxylum australe, Cassia brewsteri,				
	Ventilago viminalis, Allocasuarina luehmannii and Callitris glaucophylla.				
	A low shrub layer of Carissa ovata, Erythroxylum australe, Capparis				
	lasiantha commonly occurs. Occurs on flat to gently undulating plains				
	formed from Cainozoic sediments. Associated soils are generally deep				
	texture contrast with thick sandy surface horizons with some deep red				
	earths. Not a Wetland. (BVG1M: 17a).				

The table below indicate corresponding Broad Vegetation Group:

BVG (1	Description	Area	% of	Corresponding
million)		(Ha)	AOI	RE
None	None	105.39	83.26	Cat X
11a	Moist to dry open forests to woodlands dominated by Eucalyptus orgadophila (mountain coolibah). Some areas dominated by E. tereticornis (blue gum), E. melliodora (yellow box), E. albens (white box), E. crebra (narrow-leaved red ironbark) or E. melanophloia (silver-leaved ironbark).	4.62	3.65	11.4.13
16a	Open forest and woodlands dominated by Eucalyptus camaldulensis (river red gum) (or E. tereticornis (blue gum)) and/or E. coolabah (coolabah) (or E. microtheca (coolabah)) fringing drainage lines. Associated species may include Melaleuca spp., Corymbia tessellaris (carbeen), Angophora spp., Casuarina cunninghamiana (riveroak). Does not include alluvial areas dominated by herb and grasslands or alluvial plains that are not flooded.	0.15	0.12	11.3.25
17a	Woodlands dominated by Eucalyptus populnea (poplar box) (or E. brownii (Reid River box)) on alluvium, sand plains and footslopes of hills and ranges.	13.16	10.40	11.5.3
30a	Tussock grasslands dominated by Astrebla spp. (mitchell grass) or Dichanthium spp. (bluegrass) often with Eulalia aurea (silky browntop) on alluvia.	3.26	2.58	11.3.21

A technical description is available for Regional Ecosystem 11.3.25, 11.4.13, and 11.5.3 and is available in Appendix A.

1.2.2 Essential Habitat

The Vegetation management report does not indicate potential essential habitat on the sites.

The sighting data provided by the QLD State government identifies several sightings in the surrounding areas, but not on the proposed development site.

https://apps.des.qld.gov.au/species-search/details/?id=891

The Wildnet search indicated that the following species are recorded within a one-kilometre buffer from the site:

Table 2. Conservation significant species recorded within the area of interest and its one kilometre buffer

Taxon Id	Kingdom	Class			Common Name	NCA	EPBC	Specimens	Records	Last record
860	Animalia	Mammalia	Phascolarct idae	Phascolarct os cinereus	koala	E	E	0	4	23/07/2016

Taxon Id: Unique identifier of the taxon from the WildNet database.

NCA: Queensland conservation status of the taxon under the Nature Conservation Act 1992 (Least Concern (C), Critically Endangered

(CR), Endangered (E), Extinct (EX), Near Threatened (NT), Extinct in the Wild (PE), Special Least Concern (SL), and Vulnerable (V)).

EPBC: Australian conservation status of the taxon under the *Environment Protection and Biodiversity Conservation Act* 1999 (Conservation

Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Vulnerable (V), and Extinct in the Wild (XW)).

Specimens: The number of specimen-backed records of the taxon.

Records: The total number of records of the taxon.

Last record: Date of latest record of the taxon.

1.2.3 Ecological Corridors

The site is outside the State corridor mapping:



The State corridor is mapped in dark blue. The site is outside the State Corridor. However, part of the site is within the Regional corridor (Green).

No works are proposed within the regional corridor.

1.2.3 Matters of State Environmental Significance

A matter of state environmental significance (MSES) report was downloaded from the Queensland Government's [https://www.qld.gov.au/environment/pollution/management/environmental-reports-online] environmental reports website for Lot 50 SP239857. The report identified a number of features embedded in Queensland Government mapping from various departments that corresponded to MSES in the State Planning Policy (SPP):

- Threatened (endangered or vulnerable) wildlife (10.45 ha/ 8.3 %)
- Regulated Vegetation Endangered/Of concern in Category B (remnant) (3.26ha/ 2.6%)
- Regulated Vegetation Category R (7.32ha / 5.8%)
- Regulated Vegetation Essential Habitat (2.76 ha/ 2.2%)
- Regulated Vegetation -intersecting a watercourse (0.8 km)

No other MSES have been recorded.

The MSES map is available in Figure 2.

The accuracy of the Queensland Government mapping cannot be taken as given, as indicated in the MSES report "General Information" section [p.2]. The General Information includes the following statements: "The information presented in this report should be considered as a guide only and field survey may be required to validate values on the ground.", and the following disclaimer;

Disclaimer

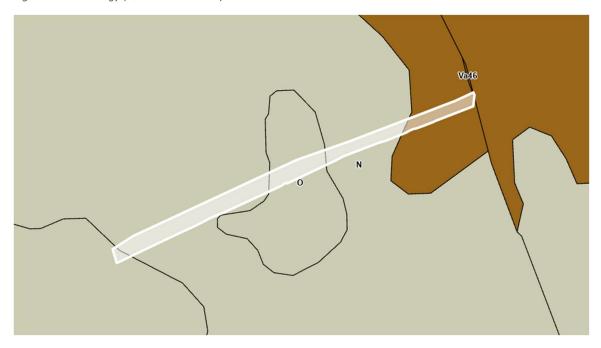
Whilst every care is taken to ensure the accuracy of the information provided in this report, the Queensland Government makes no representations or warranties about its accuracy, reliability, completeness, or suitability, for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which the user may incur as a consequence of the information being inaccurate or incomplete in any way and for any reason.

1.2.4 Geology

The below map illustrates the soil type for the site area. The information was taken from the Australian soil classification layer from QGLOBE.

The site contains sodosol and other soils.

Figure 3 Site Geology (Queensland Globe)



1.2.5 Isaac Planning Scheme

IRC has updated the planning scheme mapping and these maps are now available online. The Isaac Regional Council (IRC) planning scheme (2017) Overlay map — Environmental Significance which is illustrated below:

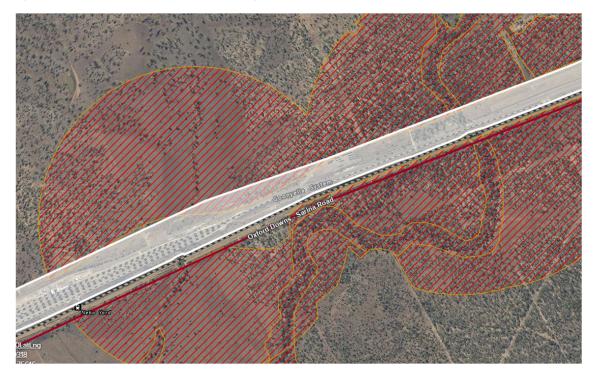


Figure 4 IRC Environmental Significance Overlay

"Regulated vegetation" and "Wildlife habitat" are 'translated' across to the Environmental Significant Overlay (ESO) from the Queensland Government's Regulated Vegetation Management Map (RVMM) and the associated Vegetation Management Supporting Map (VMSM). In the case of the ESO "Regulated vegetation" consists of 'Endangered" and 'Of concern' regional ecosystems that are remnant vegetation [category B] along with Reef watercourse regrowth vegetation [category R], as shown on the VMSM.

It is noted that the site is partly included in the "Wildlife Habitat" overlay on Council mapping but that MSES – Wildlife habitat are identified on State mapping as per below:

Figure 5: source QLD Globe - Wildlife habitat (endangered or vulnerable)



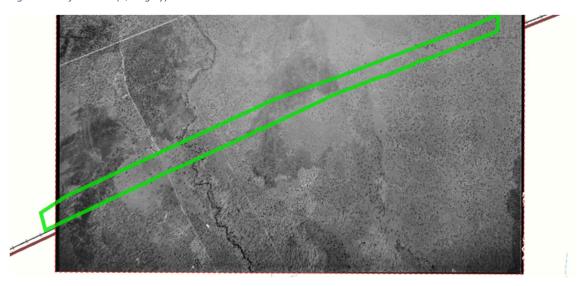
The wildlife habitat would refer to mainly to koala habitat.

1.3 Clearing History

The below provides some background history in regards to the clearing history.

1.3.2 Aerial Photography

Figure 6 – Oxford 1957 (QImagery)



Note: the site indicated in green appears to be not in the right location on the 1957 aerial photography but it still gives an idea of the area.

Figure 7 - Oxford 1966 - Qimagery

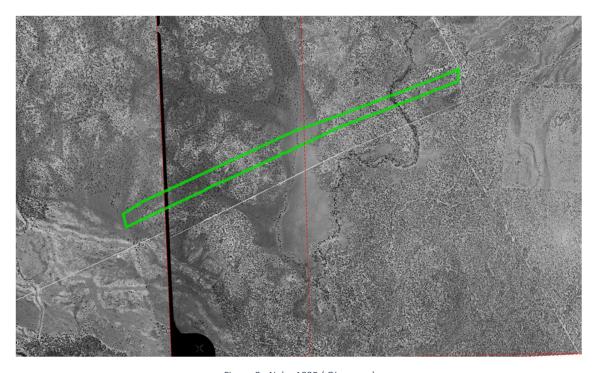


Figure 8: Nebo 1995 (Qimagery)

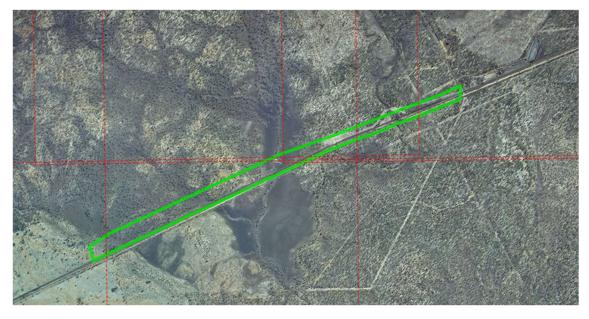
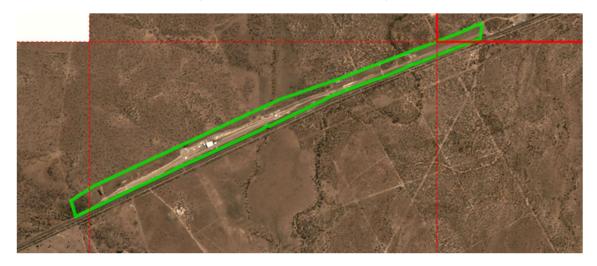


Figure 9: QLD satellite data – 2017 (Qimagery)



NB. The Lot plan overlay on the historical imagery is inconsistent and is not fully accurate and should be considered an indicator only. This is likely due to inaccuracies alignment of the historical photo overlays.

The earliest aerial photo available over the site dates from 1957. However, the aerial photo does show that the area was relatively undeveloped at the time. A road clearly appears in 1966. The railway appears later on the 1995 aerial.

Figure 10 Latest Imagery available from QLD Globe with current clearing



2. Assessment of Environmental Features

2.1 Site Assessment

The Site was visited on 12 July 2024 in the morning. Figure 11: Waypoints (Source QGlobe)

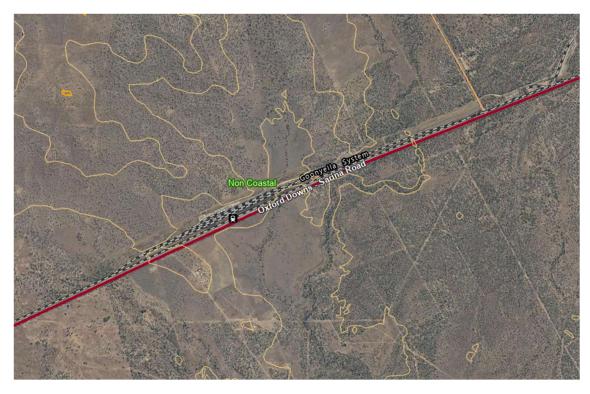


2.2 Environmental Features

2.2.1 Topography

The land is generally flat with the railway located Parallel to Braeside road .

Figure 2-1 Site Topography (Source : QLD Globe)



2.2.2 Watercourses

There are three watercourses crossing the site, which are identified as barrier works ranging from low to high.





Figure 12: Northern drainage feature



2.3 Environmental impacts of the proposed development

The following describes the environmental impacts of the proposed development for the proposed two administration buildings.



This site is outside the State mapping and there is no significant vegetation on the site.



Figure 13: Site 1

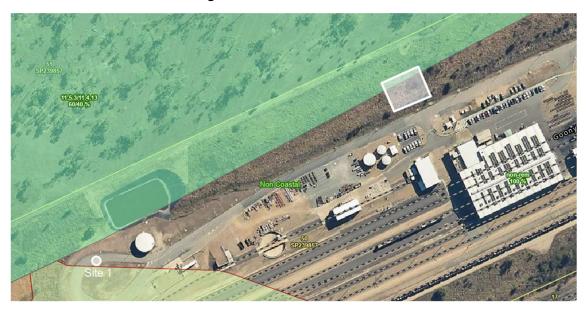


Figure 14: Site 2



Figure 15: Site 3

Administration Building 2



Part of this site is included within the State mapping. Unfortunately, no photos are available for the specific site, but it is clear from the aerial that this site has been previously cleared. This site has been chosen because it is in cluster with the existing buildings and as such seemed appropriate.

Access to the site is also restricted due to the elevations in this area. Investigations to relocate the building closer to Administration Building 2 were undertaken however could not achieve a suitable access and building separations to meet a practical location or the clients needs.



Figure 16: Site 1

2.3.3 Planning Scheme

The site is mostly excluded from the Environmental Significance Overlay except for the riparian corridors and a small portion of the wildlife habitat. The mapped Wildlife habitat area is outside the proposed work areas as seen on the map below:

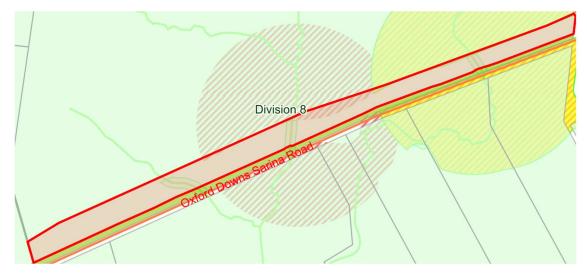
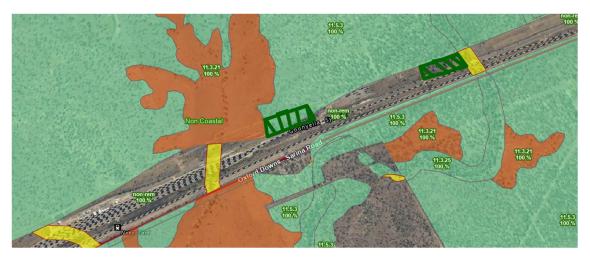


Figure 17: Environmental Significance Overlay Isaac Regional Council

The proposed development complies with the Environmental Significance Overlay as:

- The proposed development is outside the mapped areas;
- Ground truthing has demonstrated that no significant vegetation will be affected by the development.
- A construction management plan is proposed to be submitted prior to construction
- The areal photos show that the subject sites have been cleared for a long time.
- The Wildlife Habitat is already fragmented due to the railway and the existing buildings.
- The riparian corridors will not be affected by the proposed development. There is more than 200 m distance between the riparian corridors and the proposed development site
- It is also proposed to rehabilitate some areas that have been degraded to comply with PO 18 of the Environmental Significance Overlay Code. These areas are identified below (Hatched dark green):



2.3.4 Recommendations

The proposed development plan minimises the impact on vegetation and wildlife habitat and as such is considered acceptable. There is sufficient distance between the riparian corridor and the proposed development site to avoid any impacts. The following is recommended:

- A construction management plan is to be submitted prior to construction. It is proposed to include mitigation measures for the adjoining lots.
- Two degraded areas are proposed to be rehabilitated. A rehabilitation plan is proposed to be submitted prior to the start of construction. A weed and land management plan is intended to be put in place.

APPENDIX A – Technical descriptions

Technical Description

Regional ecosystem: 11.3.25

Eucalyptus tereticornis or E. camaldulensis woodland fringing drainage lines





Pre-clearing area (ha), remnant area (ha) and per cent remaining: 685,740

430,808

Species_recorded: Total: 530; woody: 104; ground: 467; Avg. spp./site: 32.2; std dev.: 12.6, 38 site(s)

Avg./site: 14.7 m²/ha, range: 2.0 - 38 m²/ha, std. deviation: 8 m²/ha, 46 site(s)

Woodland: 44%; open-forest: 23%; open-woodland: 21%; tall woodland: 6%; tall open-forest: 2%; low woodland: 2%; closed-forest: 2%, 48 site(s)

2459, 14146, 14164, 14595, 16233, 16236, 16590, 16608, 16623, 16641, 16677, 16724, 16736, 16751, 16787, 16795, 16867, 16877, 16936, 16968, 16967, 17094, 17133, 17155, 17260, 17385, 17400, 17482, 17654, 17682, 19112, 19113, 19210, 28778, 30413, 40910, 41705, 41715, 41915, 41916, 41975, 41995, 42015, 42016, 42190, 42194, 42237, 42264.

Stratum: Emergent

Height avg. = 23.9m, range 14-36m, 7 sites Crown cover avg. = 5.0%, range 2.0-9.0%, 7 sites

Frequent species (cover, frequency): Eucalyptus tereticornis (6, 10%), Casuarina cunninghamiana (4, 2%), Cymbidium canaliculatum (2%), Eucalyptus camaldulensis (2, 2%)

Stratum: Tree 1

Height avg. = 22.1m, range 6-32m, 48 sites

Crown cover avg. = 34.9%, range 5.0-86.0%, 48 sites

Dominant species (relative cover, frequency): Eucalyptus camaldulensis (73, 46%), Eucalyptus tereticornis (61, 48%), Corymbia tessellaris (12, 21%)

Frequent species (cover, frequency): Eucalyptus tereticornis (23, 48%), Eucalyptus camaldulensis (25, 46%), Corymbia tessellaris (3, 21%), Angophora floribunda (15, 17%), Eucalyptus coolabah (15, 17%), Eucalyptus populnea (7, 10%), Casuarina cunninghamiana (10, 6%), Corymbia clarksoniana (4, 6%), Lophostemon suaveolens (1, 6%), Acacia salicina (1, 4%), Cymbidium canaliculatum (4%), Eucalyptus crebra (3, 4%), Melaleuca bracteata (47, 4%), Melaleuca leucadendra (27, 4%), Acacia stenophylla (7, 2%), Angophora leiocarpa (1, 2%), Angophora subvelutina (28, 2%), Callitris glaucophylla (10, 2%), Casuarina cunninghamiana subsp. cunninghamiana (8, 2%), Eucalyptus melanophloia (5, 2%), Livistona decora (2, 2%), Livistona nitida (25, 2%), Melaleuca fluviatilis (36, 2%), Melaleuca linariifolia (7, 2%), Melaleuca viminalis (12, 2%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. Indet. after listed name = indeterminate species or genus

1/03/2018

Regional ecosystem: 11.3.25

Stratum: Tree 2

Height avg. = 10.9m, range 4-20m, 37 sites Crown cover avg. = 10.6%, range 0.0-40.0%, 37 sites

Frequent species (cover, frequency): Eucalyptus camaldulensis (6, 19%), Acacia salicina (6, 15%), Acacia stenophylla (10, 15%), Eucalyptus coolabah (3, 15%), Eucalyptus tereticornis (2, 13%), Angophora floribunda (5, 8%), Corymbia tessellaris (3, 8%), Melaleuca trichostachya (7, 8%), Lophostemon suaveolens (2, 6%), Melaleuca bracteata (11, 6%), Callitris glaucophylla (9, 4%), Eucalyptus populnea (17, 4%), Livistona nitida (1, 4%), Melia azedarach (4%), Terminalia oblongata subsp. oblongata (1, 4%), Acacia fasciculifera (5, 2%), Acacia indet. (2, 2%), Acacia leiocalyx subsp. leiocalyx (1, 2%), Acacia ramiflora (29%), Alphitonia excelsa (2%), Angophora subvelutina (4, 2%), Backhousia angustifolia (2, 2%), Brachychiton australis (2%), Cassia brewsteri (2%), Casuarina cunninghamiana (1, 2%), Casuarina cunninghamiana subsp. cunninghamiana (10, 2%), Celtis sinensis* (5, 2%), Cissus oblonga (2%), Corymbia erythrophloia (24, 2%), Dendrophthoe glabrescens (2%), Ficus fraseri (10, 2%), Geijera parviflora (15, 2%), Geijera salicifolia (4, 2%), Hakea lorea (2%), Lysiphyllum hookeri (20, 2%), Lysiphyllum indet. (20, 2%), Melaleuca fluviatilis (2, 2%), Melaleuca leucadendra (2%), Melaleuca linariifolia (7, 2%), Planchonella cotinifolia (1, 2%)

Stratum: Tree 3

Height avg. = 6.9m, range 4-12m, 12 sites

Crown cover avg. = 11.0%, range 0.0-62.0%, 12 sites

Frequent species (cover, frequency): Acacia salicina (1, 4%), Corymbia tessellaris (4%), Eucalyptus camaldulensis (1, 4%), Eucalyptus coolabah (2, 4%), Melaleuca linariifolia (4, 4%), Acacia excelsa (2%), Acacia leiocalyx subsp. leiocalyx (2, 2%), Alectryon diversifolius (2%), Angophora floribunda (2, 2%), Casuarina cunninghamiana subsp. cunninghamiana (3, 2%), Cymbidium canaliculatum (2%), Diospyros geminata (2%), Erythrina vespertilio (2%), Eucalyptus tereticornis (2%), Ficus coronata (6, 2%), Ficus opposita (7, 2%), Livistona nitida (4, 2%), Lysiphyllum hookeri (50, 2%), Lysiphyllum indet. (10, 2%), Macaranga tanarius (2%), Mallotus philippensis (3, 2%), Melaleuca fluviatilis (3, 2%), Melaleuca trichostachya (3, 2%), Melaleuca viminalis (4, 2%), Pleiogynium timorense (2, 2%), Terminalia oblongata subsp. oblongata (10, 2%), Timonius timon var. timon (3, 2%)

Stratum: Shrub 1

Height avg. = 2.5m, range 0.5-6m, 24 sites Crown cover avg. = 7.2%, range 0.0-40.0%, 25 sites

Frequent species (cover, frequency): Acacia salicina (10%), Ficus opposita (1, 10%), Alphitonia excelsa (1, 6%), Melaleuca trichostachya (22, 6%), Abutilon oxycarpum (4%), Alectryon diversifolius (7, 4%), Alstonia constricta (4%), Brachychiton rupestris (4%), Breynia oblongifolia (4%), Bridelia leichhardtii (4%), Casuarina cunninghamiana (1, 4%), Corymbia tessellaris (4%), Denhamia disperma (4%), Erythroxylum australe (1, 4%), Eucalyptus camaldulensis (1, 4%), Ficus fraseri (4%), Geijera parviflora (4%), Grewia latifolia (1, 4%), Lophostemon suaveolens (4%), Melaleuca bracteata (4%), Melaleuca viminalis (4, 4%), Notelaea microcarpa (4%), Petalostigma pubescens (3, 4%), Pleiogynium timorense (4%), Turraea pubescens (4%), Vachellia farnesiana* (1, 4%), Acacia aulacocarpa (1, 2%), Acacia disparrima subsp. disparrima (2%), Acacia excelsa (1, 2%), Acacia glaucocarpa (5, 2%), Acacia holosericea (2%), Acacia indet. (2%), Acacia leiocalyx subsp. leiocalyx (2%), Acacia maidenii (2%), Acacia ramiflora (2%), Acacia stenophylla (2, 2%), Alyxia ruscifolia (2%), Angophora floribunda (2%), Angophora leiocarpa (2%), Angophora subvelutina (2%), Bertya oleifolia (2%), Brachychiton populneus (2%), Capparis indet. (2%), Carissa ovata (2, 2%), Cassia brewsteri (1, 2%), Casuarina cristata (2%), Casuarina cunninghamiana subsp. cunninghamiana (1, 2%), Clematicissus opaca (2%), Corymbia erythrophloia (2%), Cupaniopsis anacardioides (2%), Cymbidium canaliculatum (2%), Diospyros geminata (2%), Dodonaea viscosa (2%), Elaeodendron australe (2%), Eremophila mitchellii (2%), Erythroxylum sp. (Splityard Creek L.Pedley 5360) (2%), Grevillea striata (2%), Hovea longipes (2%), Jasminum simplicifolium subsp. australiense (2%), Leptospermum polygalifolium (24, 2%), Livistona decora (1, 2%), Livistona nitida (5, 2%), Lycium ferocissimum* (1, 2%), Lysiphyllum hookeri (12, 2%), Macaranga tanarius (1, 2%), Mallotus philippensis (2%), Melaleuca decora (1, 2%), Melaleuca fluviatilis (1, 2%), Melaleuca indet. (2%), Melaleuca linariifolia (2, 2%), Melia azedarach (2%), Opuntia tomentosa* (2%), Pittosporum spinescens (2%), Psydrax odorata (2%), Santalum lanceolatum (2%), Terminalia oblongata subsp. oblongata (10, 2%), Timonius timon var. timon (2%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet, after listed name = indeterminate species or genus

Regional ecosystem: 11.3.25

Stratum: Shrub 2

Height avg. = 1.1m, range 0.5-1.5m, 5 sites Crown cover avg. = 2.2%, range 0.0-5.0%, 5 sites

Frequent species (cover, frequency): Grewia latifolia (3, 4%), Abutilon oxycarpum (1, 2%), Acacia aulacocarpa (2%), Acacia maidenii (2%), Acacia salicina (2%), Alyxia ruscifolia (2%), Breynia oblongifolia (2%), Carissa lanceolata (1, 2%), Corymbia tessellaris (2%), Glochidion ferdinandi (2%), Grewia retusifolia (2%), Macaranga tanarius (2%), Mallotus philippensis (1, 2%), Melaleuca fluviatilis (2%), Melia azedarach (2%), Pleiogynium timorense (2%), Senna barclayana (2%), Senna indet. (2%), Sida hackettiana (2%), Terminalia oblongata subsp. oblongata (4, 2%), Turaea pubescens (1, 2%), Wikstroemia indica (2%)

Stratum: Ground

Height avg. = 0.5m, range 0.1-1.3m, 38 sites PFC avg. = 48.6%, range 0-100%, 38 sites

Dominant species (relative cover, frequency): Phyla canescens* (57, 26%), Arundinella nepalensis (15, 24%), Heteropogon contortus (14, 34%). Themeda triandra (8, 21%), Lomandra longifolia (8, 50%)

Frequent species (cover, frequency): GRAMINOIDS: Cyperus gracilis (34%), Heteropogon contortus (10, 34%), Dichanthium sericeum subsp. sericeum (26%), Paspalidium distans (2, 26%), Arundinella nepalensis (9, 24%), Bothriochloa bladhii subsp. bladhii (4, 24%), Cyperus indet. (1, 24%), Paspalidium jubiflorum (1, 24%), Cynodon dactylon* (1, 21%), Melinis repens* (1, 21%), Themeda triandra (8, 21%), Aristida personata (6, 18%), Eriochloa crebra (18%), Chrysopogon filipes (5, 16%), Dichanthium sericeum (4, 16%), Eriochloa procera (16%), Sporobolus mitchellii (1, 16%), Bromus catharticus* (2, 13%), Capillipedium spicigerum (13%), Chloris gayana* (1, 13%), Eulalia aurea (7, 13%), Imperata cylindrica (5, 13%), Leptochloa digitata (13%), Megathyrsus maximus var. pubiglumis* (15, 13%), Panicum effusum (6, 13%), Anthosachne scabra (14, 11%), Bothriochloa bladhii (11%), Cymbopogon refractus (1, 11%), Cynodon dactylon var. dactylon* (3, 11%), Eragrostis leptostachya (4, 11%), Megathyrsus maximus* (5, 11%), Panicum laevinode (2, 11%), Sorghum halepense* (3, 11%), Sporobolus creber (3, 11%), Urochloa foliosa (3, 11%), Chionachne cyathopoda (7, 8%), Chloris divaricata (8%), Chloris ventricosa (16, 8%), Chrysopogon fallax (2, 8%), Cyperus fulvus (1, 8%), Digitaria brownii (8%), Echinochloa colona* (2, 8%), Eleocharis plana (8%), Enteropogon acicularis (8%), Enteropogon ramosus (8%), Eragrostis sororia (8%), Themeda avenacea (3, 8%)

FORBS: Lomandra longifolia (4, 50%), Bidens pilosa* (45%), Eustrephus latifolius (26%), Phyla canescens* (28, 26%), Rumex brownii (26%), Xanthium occidentale* (26%), Cyanthillium cinereum (24%), Cyclospermum leptophyllum* (24%), Rapistrum rugosum* (1, 24%), Sonchus oleraceus* (24%), Marsilea drummondii (3, 21%), Oxalis perennans (21%), Alternanthera denticulata var. denticulata (1, 18%), Cirsium vulgare* (18%), Emilia sonchifolia* (18%), Erigeron bonariensis* (18%), Gomphrena celasioidex* (18%), Malyastrum americanum var. americanum* (18%), Sida hackettiana (3, 18%), Alternanthera nodiflora (16%), Commelina diffusa (16%), Malvastrum coromandelianum subsp. coromandelianum* (16%), Rorippa palustris* (16%), Sida rhombifolia* (16%), Crinum flaccidum (13%), Euphorbia dallachyana (13%), Phyllanthus virgatus (13%), Rhynchosia minima (13%), Rorippa eustylis (13%), Sida cordifolia* (4, 13%), Argemone ochroleuca subsp. ochroleuca* (11%), Asperula conferta (11%), Boerhavia sp. (St George A.Hill AQ399299) (11%), Duma florulenta (11%), Eclipta prostrata* (11%), Opuntia stricta* (11%), Sida spinosa* (11%), Solanum nodiflorum* (11%), Vachellia farnesiana* (11%), Verbena indet. (11%), Vicia monantha (11%), Ageratum houstonianum* (8%), Alternanthera denticulata (8%), Arthropodium strictum (8%), Asteraceae indet. (8%), Basilicum polystachyon (8%), Breynia oblongifolia (8%), Calostemma luteum (8%), Calyptocarpus vialis* (8%), Dianella indet. (8%), Dichondra repens (8%), Euphorbia drummondii (8%), Euphorbia hirta* (8%), Evolvulus alsinoides (8%), Galactia tenuiflora (8%), Glandularia aristigera* (8%), Glycine tabacina (8%), Glycine tomentella (8%), Ipomoea lonchophylla (8%), Medicago polymorpha* (8%), Neptunia gracilis (8%), Parthenium hysterophorus* (8%), Physalis lanceifolia* (8%), Polymeria calycina (8%), Portulaca oleracea* (8%), Richardia brasiliensis* (8%), Ricinus communis* (8%), Ruellia tuberosa* (1, 8%), Senna barclayana (8%), Spermacoce brachystema (8%), Tridax procumbens* (8%), Verbena litoralis* (8%), Verbesina encelioides* (8%), Wahlenbergia gracilis (8%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet, after listed name = indeterminate species or genus

Eucalyptus orgadophila open woodland on Cainozoic clay plains



Pre-clearing area (ha), remnant area (ha) and per cent remaining: 22,960 11,520 50%

Species_recorded: Total: 44; woody: 5; ground: 39; Avg. spp./site: 23.0; std dev.: 8.0, 2 site(s)

Basal area: Avg./site: 5.0 m²/ha, range: 5.0 - 5 m²/ha, std. deviation: 0 m²/ha, 1 site(s)

Structural formation: Woodland: 50%; tussock grassland: 50%, 2 site(s)

Representative_sites 16880, 19244.

Stratum: Tree 1 Height avg. = 10.0m, 1 site

Crown cover avg. = 10.5%, range 1.0-20.0%, 2 sites

Dominant species (relative cover, frequency): Eucalyptus orgadophila (100, 50%), Eucalyptus crebra (90, 50%), Corymbia erythrophloia (10, 50%)

Frequent species (cover, frequency): Corymbia erythrophloia (2, 50%), Eucalyptus crebra (18, 50%), Eucalyptus orgadophila (50%)

Stratum: Shrub 1

Height avg. = 2.3m, range 2-2.5m, 2 sites Crown cover avg. = 1.0%, range 1.0-1.0%, 2 sites

Dominant species (relative cover, frequency): Atalaya hemiglauca (75, 100%), Vachellia farnesiana* (50, 50%)

Frequent species (cover, frequency): Atalaya hemiglauca (1, 100%), Vachellia farnesiana* (1, 50%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet. after listed name = indeterminate species or genus

Regional ecosystem: 11.4.13

Stratum: Ground

Height avg. = 0.9m, range 0.8-1m, 2 sites PFC avg. = 64.0%, range 60-68%, 2 sites

Dominant species (relative cover, frequency): Iseilema vaginiflorum (51, 50%), Aristida leptopoda (42, 50%), Aristida latifolia (42, 50%), Themeda triandra (32, 50%), Enneapogon lindleyanus (7, 50%)

Frequent species (cover, frequency): GRAMINOIDS: Heteropogon contortus (4, 100%), Aristida latifolia (25, 50%), Aristida leptopoda (25, 50%), Astrebla elymoides (2, 50%), Bothriochloa ewartiana (50%), Digitaria divaricatissima (50%), Enneapogon lindleyanus (5, 50%), Enneapogon truncatus (2, 50%), Iseilema membranaceum (50%), Iseilema vaginiflorum (35, 50%), Panicum decompositum var. tenuius (50%), Panicum effusum (50%), Panicum queenslandicum var. queenslandicum (50%), Thellungia advena (50%), Themeda triandra (22, 50%)

FORBS: Capparis canescens (50%), Capparis lasiantha (50%), Commelina indet. (50%), Corchorus trilocularis (50%), Eryngium plantagineum (50%), Euphorbia bifida (50%), Euphorbia indet. (50%), Euphorbia mitchelliana (50%), Galactia tenuiflora (50%), Grewia retusifolia (50%), Indigofera linnaei (50%), Ipomoea indet. (50%), Malvastrum americanum var. americanum* (50%), Malvastrum americanum var. stellatum (50%), Melhania oblongifolia (50%), Neptunia gracilis (50%), Parthenium hysterophorus* (2, 50%), Pimelea haematostachya (50%), Rhynchosia minima (50%), Sclerolaena muricata var. muricata (50%), Sida indet. (50%), Sida rohlenae (50%), Sida spinosa* (50%), Tephrosia filipes (50%)

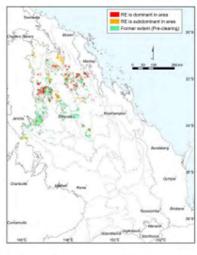
Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet. after listed name = indeterminate species or genus

Regional ecosystem: 11.5.3

Eucalyptus populnea +/- E. melanophloia +/- Corymbia clarksoniana woodland on Cainozoic sand plains and/or remnant surfaces





Pre-clearing area (ha), remnant area (ha) and per cent remaining: 974,585 376,888 39%

Species_recorded: Total: 207; woody: 64; ground: 160; Avg. spp./site: 27.6; std dev.: 7.8, 12 site(s)

Basal area: Avg./site: 7.2 m²/ha, range: 1.0 - 13 m²/ha, std. deviation: 4 m²/ha, 16 site(s)

Structural formation: Open-woodland: 50%; woodland: 44%; low open-woodland: 6%, 16 site(s)

Representative_sites 2460, 2467, 16868, 16888, 16891, 16901, 17017, 17032, 17056, 19030, 19163, 19169, 19186, 19194,

19217, 32290.

Stratum: Tree 1

Height avg. = 13.9m, range 8.4-20m, 16 sites Crown cover avg. = 16.1%, range 2.0-30.0%, 16 sites

Dominant species (relative cover, frequency): Eucalyptus populnea (98, 50%), Eucalyptus melanophloia (93, 25%)

Frequent species (cover, frequency): Eucalyptus populnea (16, 50%), Eucalyptus melanophloia (17, 25%), Eucalyptus brownii (10, 19%), Corymbia clarksoniana (4, 13%), Eucalyptus crebra (2, 13%), Ventilago viminalis (13%), Angophora leiocarpa (1, 6%), Atalaya hemiglauca (1, 6%), Corymbia dallachiana (6%), Eucalyptus melanophloia subsp. melanophloia (30, 6%), Grevillea parallela (1, 6%), Grevillea striata (1, 6%)

Stratum: Tree 2

Height avg. = 7.9m, range 5-12m, 9 sites

Crown cover avg. = 7.6%, range 0.0-25.0%, 9 sites

Frequent species (cover, frequency): Acacia excelsa (19%), Archidendropsis basaltica (3, 19%), Eucalyptus populnea (2, 19%), Terminalia oblongata subsp. oblongata (4, 19%), Atalaya hemiglauca (13%), Corymbia dallachiana (13%), Eucalyptus melanophloia (9, 13%), Grevillea parallela (1, 13%), Acacia fodinalis (3, 6%), Acacia longispicata (6%), Acacia rhodoxylon (1, 6%), Angophora leiocarpa (1, 6%), Cassia brewsteri (1, 6%), Corymbia erythrophloia (6%), Ehretia membranifolia (6%), Eremophila mitchellii (4, 6%), Erythroxylum australe (2, 6%), Eucalyptus brownii (2, 6%), Eucalyptus crebra (1, 6%), Geijera parviflora (6%), Grevillea striata (1, 6%), Lysiphyllum carronii (4, 6%), Lysiphyllum hookeri (5, 6%), Parsonsia lanceolata (6%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Naturalised species have an asterisk (*) after the name. indet. after listed name = indeterminate species or genus

Regional ecosystem:

11.5.3

Stratum: Tree 3

Height avg. = 3.3m, range 1.5-6m, 3 sites Crown cover avg. = 7.3%, range 1.0-15.0%, 3 sites

Frequent species (cover, frequency): Eremophila mitchellii (3, 19%), Acacia excelsa (2, 6%), Acacia salicina (1, 6%), Alphitonia excelsa (1, 6%), Archidendropsis basaltica (2, 6%), Atalaya hemiglauca (1, 6%), Bursaria incana (1, 6%), Erythroxylum australe (1, 6%), Flindersia dissosperma (1, 6%), Geijera salicifolia (3, 6%), Lysiphyllum carronii (1, 6%), Notelaea microcarpa (1, 6%), Terminalia oblongata subsp. oblongata (2, 6%)

Stratum: Shrub 1

Height avg. = 2.0m, range 0.75-4m, 16 sites Crown cover avg. = 5.1%, range 1.0-15.0%, 16 sites

Dominant species (relative cover, frequency): Eremophila mitchellii (36, 50%), Erythroxylum australe (23, 44%), Grewia latifolia (9, 38%)

Frequent species (cover, frequency): Eremophila mitchellii (3, 50%), Erythroxylum australe (2, 44%), Grewia latifolia (38%), Acacia excelsa (1, 19%), Atalaya hemiglauca (19%), Carissa ovata (8, 19%), Eucalyptus populnea (1, 19%), Acacia sericophylla (1, 13%), Archidendropsis basaltica (1, 13%), Capparis lasiantha (13%), Cassia brewsteri (13%), Denhamia cunninghamii (1, 13%), Eucalyptus brownii (1, 13%), Eucalyptus melanophloia (2, 13%), Flindersia dissosperma (1, 13%), Lysiphyllum carronii (13%), Psydrax oleifolia (1, 13%), Acacia fodinalis (3, 6%), Acacia laccata (1, 6%), Acacia longispicata (6%), Acacia salicina (6%), Alectryon oleifolius subsp. elongatus (1, 6%), Alphitonia excelsa (6%), Apophyllum anomalum (6%), Brachychiton australis (6%), Capparis canescens (1, 6%), Capparis loranthifolia var. loranthifolia (1, 6%), Cassytha pubescens (6%), Corymbia clarksoniana (6%), Dodonaea viscosa (1, 6%), Enchylaena tomentosa (6%), Eucalyptus crebra (1, 6%), Fabaceae indet. (6%), Geijera parviflora (1, 6%), Hakea chordophylla (6%), Hakea lorea (6%), Indigofera brevidens (6%), Melaleuca nervosa (1, 6%), Petalostigma pubescens (6%), Pittosporum spinescens (1, 6%), Senna artemisioides subsp. filifolia (1, 6%), Sida hackettiana (6%), Terminalia indet. (1, 6%), Terminalia oblongata subsp. oblongata (1, 6%), Ventilago viminalis (6%)

Stratum: Shrub 2

Height avg. = 0.9m, range 0.6-1.3m, 4 sites

Crown cover avg. = 4.3%, range 0.0-14.0%, 4 sites

Frequent species (cover, frequency): Carissa lanceolata (19%), Carissa ovata (7, 13%), Archidendropsis basaltica (1, 6%), Capparis lasiantha (6%), Denhamia cunninghamii (6%), Eremophila indet. (6%), Eucalyptus melanophioia (6%), Grewia latifolia (1, 6%), Grewia retusifolia (6%), Harrisia martinii* (6%), Petalostigma pubescens (6%), Psydrax attenuata (1, 6%), Psydrax oleifolia (6%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

Frequent species: Cover (mean of all values > zero) and frequency (percent of total sites) of all species occurring in more than 5% of sites ordered by decreasing frequency. Ground layer species % (of comprehensive sites) are listed as either graminoid or forb.

Regional ecosystem: 11.5.3

Stratum: Ground

Height avg. = 0.5m, range 0.2-1m, 11 sites PFC avg. = 44.0%, range 10-90%, 12 sites

Dominant species (relative cover, frequency): Cenchrus ciliaris* (39, 33%), Themeda triandra (28, 33%), Aristida calycina (23, 33%), Chrysopogon fallax (11, 50%), Fimbristylis dichotoma (9, 50%)

Frequent species (cover, frequency): GRAMINOIDS: Chrysopogon fallax (2, 50%), Fimbristylis dichotoma (1, 50%), Heteropogon contortus (4, 50%), Aristida calycina (7, 33%), Čenchrus ciliaris* (28, 33%), Digitaria brownii (33%), Panicum effusum (1, 33%), Themeda triandra (22, 33%), Cyperus fulvus (25%), Dichanthium sericeum (25%), Eragrostis lacunaria (1, 25%), Eragrostis sororia (25%), Aristida jerichoensis (1, 17%), Bothriochloa decipiens (17%), Bothriochloa decipiens var. decipiens (17%), Cymbopogon bombycinus (17%), Cyperus gracilis (17%), Digitaria ammophila (17%), Enneapogo lindleyanus (1, 17%), Enneapogon virens (1, 17%), Eragrostis brownii (1, 17%), Eragrostis leptostachya (17%), Eulalia aurea (1, 17%), Sporobolus caroli (17%), Tragus australianus (17%), Triodia pungens (19, 17%), Alloteropsis cimicina (8%), Alloteropsis semialata (8%), Aristida calycina var. calycina (1, 8%), Aristida holathera var. holathera (8%), Aristida indet. (5, 8%), Aristida jerichoensis var. subspinulifera (1, 8%), Aristida latifolia (8%), Aristida personata (2, 8%), Aristida ramosa (1, 8%, Bothriochloa ewartiana (20, 8%), Chloris divaricata (5, 8%), Chloris truncata (8%), Cleistochloa subjuncea (8%), Cymbopogon refractus (8%), Cyperus indet. (1, 8%), Dactyloctenium radulans (8%), Digitaria indet. (8%), Dinebra decipiens var. asthenes (2, 8%), Enneapogon gracilis (1, 8%), Enneapogon polyphyllus (1, 8%), Enteropogon acicularis (8%), Enteropogon ramosus (1, 8%), Eragrostis cumingii (8%), Eragrostis elongata (8%), Eriachne indet. (8%), Eriachne mucronata (4, 8%), Melinis repens* (2, 8%), Panicum decompositum (1, 8%), Panicum queenslandicum (8%), Paspalidium criniforme (5, 8%), Perotis rara (8%), Schizachyrium fragile (1, 8%), Sporobolus actinocladus (8%), Sporobolus australasicus (8%), Sporobolus scabridus (1, 8%), Themeda avenacea (8%), Urochloa piligera (8%) FORBS: Evolvulus alsinoides (1, 33%), Phyllanthus virgatus (33%), Glycine tomentella (25%), Grewia latifolia (25%), Spermacoce indet. (25%), Trianthema triquetra (25%), Waltheria indica (25%), Capparis lasiantha (1, 17%), Denhamia cunninghamii (17%), Euphorbia hyssopifolia* (17%), Malvastrum americanum var. americanum* (3, 17%), Melhania oblongifolia (17%), Portulaca oleracea* (17%), Pseuderanthemum variabile (1, 17%), Rhynchosia minima (1, 17%), Sauropus trachyspermus (17%), Sida atherophora (1, 17%), Sida hackettiana (3, 17%), Sida indet. (1, 17%), Zornia muelleriana subsp muelleriana (17%), Abutilon subviscosum (8%), Acacia laccata (8%), Achyranthes aspera (1, 8%), Alternanthera angustifolia (8%), Alternanthera nana (8%), Apowollastonia spilanthoides (8%), Blumea saxatilis (8%), Boerhavia sp. (St George A.Hill AQ399299) (8%), Buchnera linearis (8%), Cassytha pubescens (8%), Chamaecrista absus var. absus (8%), Chrysocephalum apiculatum (8%), Cyanthillium cinereum (8%), Desmodium campylocaulon (8%), Desmodium macrocarpum (8%), Dianella longifolia (8%), Dipteracanthus australasicus subsp. australasicus (8%), Dysphania carinata (8%), Ehretia membranifolia (8%), Einadia nutans subsp. nutans (8%), Enchylaena tomentosa (8%), Euphorbia crassimarginata (8%), Euphorbia indet. (8%), Euphorbia tannensis subsp. eremophila (8%), Galactia tenuiflora (1, 8%), Glycine latifolia (8%), Gomphrena celosioides* (8%), Gomphrena indet. (8%), Goodenia glabra (8%), Grewia retusifolia (8%), Harrisia martinii* (8%), Heliotropium peninsulare (8%), Hibiscus burtonii (8%), Indigofera colutea (8%), Jacquemontia paniculata (1, 8%), Jasminum didymum subsp. racemosum (8%), Marsdenia viridiflora subsp. viridiflora (8%), Marsilea hirsuta (8%), Melaleuca nervosa (8%), Oldenlandia mitrasacmoides subsp. trachymenoides (8%), Pandorea pandorana (8%), Parsonsia indet. (8%), Phyllanthus fuernrohrii (8%), Pluchea rubelliflora (8%), Polygala triflora (8%), Pterocaulon indet. (8%), Pterocaulon redolens (1, 8%), Rostellularia adscendens (8%), Ruellia tuberosa* (8%), Sida brachypoda (1, 8%), Sida rohlenae (1, 8%), Sida sp. (Musselbrook M.B.Tho MRS437) (1, 8%), Spermacoce brachystema (8%), Streptoglossa adscendens (8%), Stylidium eriorhizum (8%), Stylosanthes scabra* (8%), Tephrosia leptoclada (8%), Vittadinia sulcata (8%), Wahlenbergia graniticola (8%), Zornia muriculata (8%), Zornia muriculata subsp. angustata (8%)

Dominant species: Relative cover (mean of cover of species / total cover of all species in that stratum for all values > zero) and frequency (percent of total sites) ordered by decreasing relative abundance. Up to five most dominant species with frequency > 20% listed for each stratum, (only comprehensive sites used for ground stratum).

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