PUBLIC NOTIFICATION



Approval Sought: Material Change of Use and

Reconfiguring a Lot

Proposed Development: Undefined use (Battery Energy

Storage System) and

Reconfiguring a Lot for a Lease

(exceeding 10 years)

Where: Lot 742 Cherryfield Road,

Gracemere and 52949 Burnett

Highway, Bouldercombe

Lot Description: Lot 2 on RP613051 and Lot 1 on

RP610887

Application Reference: D/25-2025

Make a submission from:

9 September 2025 to 30 September 2025

You may make a submission to Rockhampton Regional Council

PO BOX 1860, Rockhampton QLD 4700

Email: enquiries@rrc.qld.gov.au

Phone: 07 4932 9000 or 1300 22 55 77

Click here to view the 'Guide to public notification of development and change applications'

For more information on planning requirements within the Rockhampton Region feel free to visit www.rrc.ald.gov.au



DA Form 1 – Development application details

Approved form (version 1.6 effective 2 August 2024) made under section 282 of the Planning Act 2016.

This form **must** be used to make a development application **involving code assessment or impact assessment**, except when applying for development involving only building work.

For a development application involving **building work only**, use *DA Form 2 – Building work details*.

For a development application involving **building work associated with any other type of assessable development** (i.e. material change of use, operational work or reconfiguring a lot), use this form (*DA Form 1*) and parts 4 to 6 of *DA Form 2 – Building work details*.

Unless stated otherwise, all parts of this form **must** be completed in full and all required supporting information **must** accompany the development application.

One or more additional pages may be attached as a schedule to this development application if there is insufficient space on the form to include all the necessary information.

This form and any other form relevant to the development application must be used to make a development application relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994*, and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*. For the purpose of assessing a development application relating to strategic port land and Brisbane core port land, any reference to a planning scheme is taken to mean a land use plan for the strategic port land, Brisbane port land use plan for Brisbane core port land, or a land use plan for airport land.

Note: All terms used in this form have the meaning given under the Planning Act 2016, the Planning Regulation 2017, or the Development Assessment Rules (DA Rules).

PART 1 - APPLICANT DETAILS

1) Applicant details					
Applicant name(s) (individual or company full name)	Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust c/- Environmental Resources Management Australia Pty Ltd				
Contact name (only applicable for companies)	Mifanwy Press				
Postal address (P.O. Box or street address)	GPO Box 2982				
Suburb	Brisbane				
State	QLD				
Postcode	4001				
Country	Australia				
Contact number	+61730078460				
Email address (non-mandatory)	mifanwy.press@erm.com				
Mobile number (non-mandatory)	+61468915128				
Fax number (non-mandatory)					
Applicant's reference number(s) (if applicable)	0708744				
1.1) Home-based business	1.1) Home-based business				
Personal details to remain private in accordance with section 264(6) of <i>Planning Act 2016</i>					

2) Owner's consent
2.1) Is written consent of the owner required for this development application?
☑ Yes – the written consent of the owner(s) is attached to this development application
□ No – proceed to 3)



PART 2 - LOCATION DETAILS

					or 3.2), and 3.				t applica	ation For further information see DA
Note : Provide details below and attach a site plan for any or all premises part of the development application. For further information, see <u>DA Forms Guide</u> : Relevant plans.										
3.1) St	treet address	s and lo	ot on pla	an						
			•	•	ots must be liste	* '				
	Street address AND lot on plan for an adjoining or adjacent property of the premises (appropriate for development in water but adjoining or adjacent to land e.g. jetty, pontoon. All lots must be listed).									
	Unit No.	Stree	t No.	Stree	t Name and	Туре			Sı	uburb
۵)		742		Cherryfield Road			G	racemere		
a)	Postcode	Lot No.		Plan	Type and No	umber (e.g	g. R	P, SP)	Lo	ocal Government Area(s)
	4702	2		RP6	13051				R	ockhampton Regional Council
	Unit No.	Stree	t No.	Stree	t Name and	Туре			Sı	uburb
L١		5294	9	Burn	ett Highway				В	ouldercombe
b)	Postcode	Lot N	0.	Plan	Type and Nu	umber (e.g	g. R	P, SP)	Lo	ocal Government Area(s)
	4702	1		RP6	10887				R	ockhampton Regional Council
е.	g. channel dred	ging in N	Noreton B	ay)		ent in remote	are	as, over part of a	a lot or i	in water not adjoining or adjacent to land
	lace each set of									
		prems			e and latitud				Loos	Covernment Area(a) (f/
Longit	. ,		Latitud	()		Datum	20.4			al Government Area(s) (if applicable)
150.48	5979		-23.53	_		_	VGS84 SDA94		Roci	khampton Regional Council
				☐ ObA	1	GDA2020				
ПСо	ordinates of	premis	es by ea	astina	and northing	_				
Eastin			ing(s)		Zone Ref.	Datum			Loca	al Government Area(s) (if applicable)
	3(-)		3(-)		□ 54	□ WGS84				
					☐ 55	☐ GDA94				
					□ 56	Othe	r:			
3.3) A	dditional pre	mises								
					this developr opment appli		icat	ion and the d	etails	of these premises have been
⊠ Not	t required									
								ovide any rele	vant o	letails
	-		-		tercourse or	in or abo	ve a	an aquifer		
	of water boo				•					
☐ On	strategic po	rt land	under tl	he <i>Tra</i>	nsport Infras	tructure A	\ct	1994		
Lot on	plan descrip	otion of	strateg	ic port	land:					
Name	of port author	ority fo	r the lot:							
☐ In a	a tidal area									
Name	Name of local government for the tidal area (if applicable):									
Name	Name of port authority for tidal area (if applicable)									

☐ On airport land under the Airport Assets (Restructuring	and Disposal) Act 2008
Name of airport:	
☐ Listed on the Environmental Management Register (EM	IR) under the <i>Environmental Protection Act 1994</i>
EMR site identification:	
☐ Listed on the Contaminated Land Register (CLR) under	the Environmental Protection Act 1994
CLR site identification:	
5) Are there any existing easements over the premises?	
Note: Easement uses vary throughout Queensland and are to be identified how they may affect the proposed development, see <u>DA Forms Guide.</u>	ed correctly and accurately. For further information on easements and
∑ Yes – All easement locations, types and dimensions ar application	e included in plans submitted with this development
□No	

PART 3 – DEVELOPMENT DETAILS

Section 1 – Aspects of development

<u>'</u>	<u>'</u>				
6.1) Provide details about th	e first development aspect				
a) What is the type of develo	pment? (tick only one box)				
	Reconfiguring a lot	Operational work	☐ Building work		
b) What is the approval type	? (tick only one box)				
□ Development permit	☐ Preliminary approval	☐ Preliminary approval that	includes a variation approval		
c) What is the level of asses	sment?				
Code assessment		res public notification)			
d) Provide a brief description lots):	n of the proposal (e.g. 6 unit aparti	ment building defined as multi-unit de	welling, reconfiguration of 1 lot into 3		
Undefined Use - Battery ene	ergy storage system and assoc	ciated infrastructure.			
e) Relevant plans Note: Relevant plans are required to Relevant plans.	to be submitted for all aspects of this o	development application. For further i	information, see <u>DA Forms guide:</u>		
Relevant plans of the pro	posed development are attach	ned to the development applic	ation		
6.2) Provide details about th	e second development aspect				
a) What is the type of develo	pment? (tick only one box)				
☐ Material change of use	□ Reconfiguring a lot	Operational work	☐ Building work		
b) What is the approval type	? (tick only one box)				
□ Development permit	☐ Preliminary approval	☐ Preliminary approval that	t includes a variation approval		
c) What is the level of asses	sment?				
Code assessment		res public notification)			
d) Provide a brief description lots):	n of the proposal (e.g. 6 unit apart	ment building defined as multi-unit d	welling, reconfiguration of 1 lot into 3		
Reconfiguration of a lot for a	lease exceeding 10 years				
Relevant plans.	o be submitted for all aspects of this d				
Relevant plans of the proposed development are attached to the development application					



6.3) Additional aspects of de						
			this development application this form have been attached			
6.4) Is the application for Sta	ato facilitatod	dovolopmo	ont?			
Yes - Has a notice of dec		<u> </u>				
⊠ No	Jaration beer	i given by t	ne wiinster :			
Section 2 – Further devel	lopment de	etails				
7) Does the proposed development	opment appli	cation invol	ve any of the following?			
Material change of use	🛚 Yes -	- complete	division 1 if assessable agains	t a local planning instru	ument	
Reconfiguring a lot	🛚 Yes -	- complete	division 2			
Operational work	Yes -	- complete	division 3			
Building work	☐ Yes -	- complete I	DA Form 2 – Building work det	ails		
Division 1 – Material change Note: This division is only required to local planning instrument. 8.1) Describe the proposed	be completed if		e development application involves a i	material change of use asse	ssable against a	
				Number of dwelling	Cross floor	
Provide a general descriptio proposed use	n of the		e planning scheme definition h definition in a new row)	Number of dwelling units (if applicable)	Gross floor area (m²) (if applicable)	
Battery storage facility		Undefined	Use			
8.2) Does the proposed use	involve the ι	use of existi	ng buildings on the premises?			
⊠ No						
	elonment rela	ate to temp	orary accepted development u	nder the Planning Reg	ulation?	
		· · · · · · · · · · · · · · · · · · ·	a schedule to this development		diditorr:	
No	ow or morac	, actails in t	a sortedule to this development	сарриосион		
Provide a general descriptio	n of the temp	oorary acce	pted development	Specify the stated pe under the Planning R		
Division 2 – Reconfiguring a						
lote : This division is only required to 9.1) What is the total numbe			e development application involves red	configuring a lot.		
2. 2	i or existing	ots making	up trie premises?			
	a lot reconfic	uration? #	dr all applicable haves			
9.2) What is the nature of the Subdivision (complete 10)	e-locreconing	uralion? (lic		agreement (samulate 4)	1)	
			,	<u> </u>		
Boundary realignment (co	ompiete 12)		Creating or changing an easement giving access to a lot			



10) Subdivision								
10.1) For this devel	10.1) For this development, how many lots are being created and what is the intended use of those lots:							
Intended use of lots	created	Residential	Com	mercial	Industrial	Other, please specify:		
Number of lots crea	nted							
		10						
10.2) Will the subdi								
☐ Yes – provide ad	dditional deta	alls below						
How many stages v	vill the works	include?						
What stage(s) will the apply to?	his developn	nent applicatior	1					
11) Dividing land int	o parta by a	rrooment he	v many parl	to are being	a created and who	t is the intended use of the		
parts?	o parts by a	greement – nov	w many pan	s are being	g created and wha	t is the intended use of the		
Intended use of par	ts created	Residential	Com	mercial	Industrial	Other, please specify:		
						Battery storage facility		
Number of parts cre	eated					2		
12) Boundary realig	nment							
12.1) What are the		nronosed area	s for each lo	at comprisir	ng the premises?			
12.1) What are the	Current I		3 TOT CACIT IC	t compnai	•	posed lot		
Lot on plan descript		rea (m²)		Lot on plan description		Area (m²)		
		()				,		
12.2) What is the re	eason for the	boundary real	ignment?					
,		•						
13) What are the di			y existing ea	asements b	eing changed and	I/or any proposed easement?		
Existing or proposed?	Width (m)	Length (m)	Purpose of pedestrian a	of the easer	ment? (e.g.	Identify the land/lot(s) benefitted by the easement		
Division 3 – Operati	ional work							
Note : This division is only i		ompleted if any pa	rt of the develo	opment applic	ation involves operatio	nal work.		
14.1) What is the na								
☐ Road work			Stormwate			frastructure		
Drainage work]Earthwork	(S		infrastructure		
Landscaping Signage Clearing vegetation					vegetation			
Other – please s		aaaaan ta faal	litata tha an	ation of re-	vy loto?	-()		
14.2) Is the operation		-	mate the cre	eation of he	W TOIS? (e.g. subdivi	sion)		
Yes – specify nu	illibel of fiew	1015.						



14.3) What is the monetary value of the proposed operational work? (include GST, materials and labour)	
\$	

PART 4 – ASSESSMENT MANAGER DETAILS

15) Identify the assessment manager(s) who will be assessing this development application
Rockhampton Regional Council
16) Has the local government agreed to apply a superseded planning scheme for this development application?
Yes – a copy of the decision notice is attached to this development application
☐ The local government is taken to have agreed to the superseded planning scheme request – relevant documents
attached
No No

PART 5 - REFERRAL DETAILS

17) Does this development application include any aspects that have any referral requirements? Note: A development application will require referral if prescribed by the Planning Regulation 2017.
No, there are no referral requirements relevant to any development aspects identified in this development application − proceed to Part 6
Matters requiring referral to the Chief Executive of the Planning Act 2016:
☐ Clearing native vegetation
Contaminated land (unexploded ordnance)
Environmentally relevant activities (ERA) (only if the ERA has not been devolved to a local government)
Fisheries – aquaculture
Fisheries – declared fish habitat area
Fisheries – marine plants
Fisheries – waterway barrier works
Hazardous chemical facilities
Heritage places – Queensland heritage place (on or near a Queensland heritage place)
☐ Infrastructure-related referrals – designated premises
☐ Infrastructure-related referrals – state transport infrastructure
☐ Infrastructure-related referrals – State transport corridor and future State transport corridor
☐ Infrastructure-related referrals – State-controlled transport tunnels and future state-controlled transport tunnels
Infrastructure-related referrals – near a state-controlled road intersection
Koala habitat in SEQ region – interfering with koala habitat in koala habitat areas outside koala priority areas
Koala habitat in SEQ region – key resource areas
Ports – Brisbane core port land – near a State transport corridor or future State transport corridor
Ports – Brisbane core port land – environmentally relevant activity (ERA)
Ports – Brisbane core port land – tidal works or work in a coastal management district
Ports – Brisbane core port land – hazardous chemical facility
Ports – Brisbane core port land – taking or interfering with water
Ports – Brisbane core port land – referable dams
Ports – Brisbane core port land – fisheries
Ports – Land within Port of Brisbane's port limits (below high-water mark)
SEQ development area
SEQ regional landscape and rural production area or SEQ rural living area – tourist activity or sport and recreation activity
SEQ regional landscape and rural production area or SEQ rural living area – community activity
SEQ regional landscape and rural production area or SEQ rural living area – indoor recreation
SEQ regional landscape and rural production area or SEQ rural living area – urban activity
SEQ regional landscape and rural production area or SEQ rural living area – combined use
SEQ northern inter-urban break – tourist activity or sport and recreation activity



□ SEQ northern inter-urban break – community activity □ SEQ northern inter-urban break – indoor recreation □ SEQ northern inter-urban break – urban activity □ SEQ northern inter-urban break – combined use □ Tidal works or works in a coastal management district □ Reconfiguring a lot in a coastal management district or for a canal □ Erosion prone area in a coastal management district □ Urban design □ Water-related development – taking or interfering with water □ Water-related development – removing quarry material (from a watercourse or lake) □ Water-related development – referable dams □ Water-related development – levees (category 3 levees only) □ Wetland protection area					
Matters requiring referral to the local government:					
☐ Airport land ☐ Environmentally relevant activities (ERA) (only if the ERA ha ☐ Heritage places – Local heritage places					
Matters requiring referral to the Chief Executive of the dist ⊠ Infrastructure-related referrals – Electricity infrastructure	tribution entity or transmission	on entity:			
 Matters requiring referral to: The Chief Executive of the holder of the licence, if n The holder of the licence, if the holder of the licence is Infrastructure-related referrals – Oil and gas infrastructur Matters requiring referral to the Brisbane City Council: Ports – Brisbane core port land 	s an individual				
Matters requiring referral to the Minister responsible for administering the Transport Infrastructure Act 1994: Ports – Brisbane core port land (where inconsistent with the Brisbane port LUP for transport reasons) Ports – Strategic port land					
Matters requiring referral to the relevant port operator , if a ☐ Ports – Land within Port of Brisbane's port limits (below high	• •				
Matters requiring referral to the Chief Executive of the rele Ports – Land within limits of another port (below high-water referred)					
Matters requiring referral to the Gold Coast Waterways Au Tidal works or work in a coastal management district (in the coast waterways)	_				
	Matters requiring referral to the Queensland Fire and Emergency Service : Tidal works or work in a coastal management district (involving a marina (more than six vessel berths))				
18) Has any referral agency provided a referral response for ☐ Yes – referral response(s) received and listed below are ☐ No					
Referral requirement	Referral agency	Date of referral response			
Identify and describe any changes made to the proposed de referral response and this development application, or including applicable).					

PART 6 - INFORMATION REQUEST

19) Information request under th	ne DA Rules						
☑ I agree to receive an informa	☐ I agree to receive an information request if determined necessary for this development application						
☐ I do not agree to accept an ir	nformation request for this develo	pment	application				
,	rmation request I, the applicant, acknowle	•					
application and the assessment m	• that this development application will be assessed and decided based on the information provided when making this development application and the assessment manager and any referral agencies relevant to the development application are not obligated under the DA Rules to accept any additional information provided by the applicant for the development application unless agreed to by the relevant						
Part 3 under Chapter 1 of the DA	Rules will still apply if the application is a	n applica	ation listed under section 11.3 o	of the DA Rules or			
Part 2under Chapter 2 of the DA F	Rules will still apply if the application is fo	r state fa	cilitated development				
Further advice about information reques	ets is contained in the <u>DA Forms Guide</u> .						
PART 7 – FURTHER DE	ETAILS						
20) Are there any associated de	velopment applications or currer	it appro	ovals? (e.g. a preliminary app	roval)			
	or include details in a schedule to			,			
No No	or morade details in a soriedate te	, tills at	evelopment application				
	Deference number	Data		Assassment			
List of approval/development application references	Reference number	Date		Assessment manager			
				manager			
Approval							
Development application							
☐ Approval							
☐ Development application							
21) Has the portable long service operational work)	ce leave levy been paid? (only appl	icable to	development applications invo	lving building work or			
☐ Yes – a copy of the receipted	d QLeave form is attached to this	develo	opment application				
	vide evidence that the portable lo						
	es the development application. I						
	I only if I provide evidence that th	-		vy has been paid			
	and construction work is less tha	n \$150),000 excluding GST)				
Amount paid	Date paid (dd/mm/yy) QLeave levy number (A, B or E)			, B or E)			
\$							
22) Is this development applicat notice?	ion in response to a show cause	notice	or required as a result of	an enforcement			
☐ Yes – show cause or enforcement notice is attached							
⊠ No							

23) Further legislative requirements			
Environmentally relevant activities			
		pplication for an environmenta	
		115 of the <i>Environmental Prot</i> or an application for an enviror	
	•	are provided in the table belov	
⊠ No			
Note : Application for an environment requires an environmental authority to		ng "ESR/2015/1791" as a search term o <u>v.au</u> for further information.	at <u>www.qld.gov.au</u> . An ERA
Proposed ERA number:		Proposed ERA threshold:	
Proposed ERA name:			
☐ Multiple ERAs are applica this development application		cation and the details have bee	en attached in a schedule to
Hazardous chemical facilities	<u>es</u>		
23.2) Is this development app	lication for a hazardous che	mical facility?	
Yes – Form 536: Notification	on of a facility exceeding 10%	% of schedule 15 threshold is a	ttached to this development
⊠ No			
Note: See www.business.gld.gov.au	for further information about hazardo	ous chemical notifications.	
Clearing native vegetation			
23.3) Does this development application involve clearing native vegetation that requires written confirmation that the chief executive of the <i>Vegetation Management Act 1999</i> is satisfied the clearing is for a relevant purpose under section 22A of the <i>Vegetation Management Act 1999</i> ?			
☐ Yes – this development ap Management Act 1999 (st ☑ No		firmation from the chief execu	tive of the Vegetation
Note: 1. Where a development app the development application	on is prohibited development.	ial change of use requires a s22A det ng for further information on how to ob	
Environmental offsets			
		ped activity that may have a signal Offsets Act 2014?	gnificant residual impact on
Yes – I acknowledge that		be provided for any prescribe	d activity assessed as
No Note: The environmental offset section environmental offsets.	on of the Queensland Government's	website can be accessed at www.qld	<u>.gov.au</u> for further information on
Koala habitat in SEQ Region			
		change of use, reconfiguring to 10 of the Planning Regulation	
Yes – the development ap	plication involves premises in	the koala habitat area in the l	koala priority area
☐ Yes – the development ap ☐ No	plication involves premises in	n the koala habitat area outside	e the koala priority area
Note : If a koala habitat area determination has been obtained for this premises and is current over the land, it should be provided as part of this development application. See koala habitat area guidance materials at www.desi.qld.gov.au for further information.			



overland flow water under the <i>Water Act 2000</i> ?
 Yes – the relevant template is completed and attached to this development application and I acknowledge that a relevant authorisation or licence under the <i>Water Act 2000</i> may be required prior to commencing development No
Note: Contact the Department of Resources at www.resources.qld.gov.au for further information.
DA templates are available from <u>planning statedevelopment qld gov.au</u> . If the development application involves:
Taking or interfering with underground water through an artesian or subartesian bore: complete DA Form 1 Template 1
Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2 Taking or interfering with water in a watercourse, lake or spring: complete DA Form1 Template 2
Taking overland flow water: complete DA Form 1 Template 3.
Waterway barrier works
23.7) Does this application involve waterway barrier works?
☐ Yes – the relevant template is completed and attached to this development application ☐ No
DA templates are available from <u>planning.statedevelopment.qld.gov.au</u> . For a development application involving waterway barrier works, complete DA Form 1 Template 4.
<u>Marine activities</u>
23.8) Does this development application involve aquaculture, works within a declared fish habitat area or removal, disturbance or destruction of marine plants?
Yes – an associated <i>resource</i> allocation authority is attached to this development application, if required under the <i>Fisheries Act 1994</i>
No No
Note: See guidance materials at www.daf.qld.gov.au for further information.
Quarry materials from a watercourse or lake
23.9) Does this development application involve the removal of quarry materials from a watercourse or lake under the <i>Water Act 2000?</i>
Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development⋈ No
Note : Contact the Department of Resources at www.resources.qld.gov.au and www.business.qld.gov.au for further information.
Quarry materials from land under tidal waters
23.10) Does this development application involve the removal of quarry materials from land under tidal water under the <i>Coastal Protection and Management Act 1995?</i>
☐ Yes – I acknowledge that a quarry material allocation notice must be obtained prior to commencing development ☐ No
Note: Contact the Department of Environment, Science and Innovation at www.desi.qld.gov.au for further information.
Referable dams
23.11) Does this development application involve a referable dam required to be failure impact assessed under section 343 of the <i>Water Supply (Safety and Reliability) Act 2008</i> (the Water Supply Act)?
Yes – the 'Notice Accepting a Failure Impact Assessment' from the chief executive administering the Water Supply Act is attached to this development application
No Note: See guidance materials at www.resources.gld.gov.au for further information

23.6) Does this development application involve taking or interfering with underground water through an

Water resources



Tidal work or development within a coastal management district				
23.12) Does this development application involve tidal work or development in a coastal management district?				
 Yes – the following is included with this development application: □ Evidence the proposal meets the code for assessable development that is prescribed tidal work (only required if application involves prescribed tidal work) □ A certificate of title ⋈ No 				
Note: See guidance materials at www.desi.		tion.		
Queensland and local heritage p 23.13) Does this development app heritage register or on a place en	lication propose develo			
Yes – details of the heritage pla	ace are provided in the t	able below		
No Note: See guidance materials at www.desi. For a heritage place that has cultural herita under the Planning Act 2016 that limit a loc development on the stated cultural heritage information regarding assessment of Queen	ge significance as a local her al categorising instrument fro a significance of that place. Se	itage place and a Queensland heritage p m including an assessment benchmark a	lace, provisions are in place bout the effect or impact of,	
Name of the heritage place:		Place ID:		
Decision under section 62 of the	Transport Infrastruct	ure Act 1994		
23.14) Does this development app	lication involve new or o	changed access to a state-contro	olled road?	
 ✓ Yes – this application will be taken to be an application for a decision under section 62 of the <i>Transport Infrastructure Act 1994</i> (subject to the conditions in section 75 of the <i>Transport Infrastructure Act 1994</i> being satisfied) ✓ No 				
Walkable neighbourhoods assessment benchmarks under Schedule 12A of the Planning Regulation				
23.15) Does this development app (except rural residential zones), wh			certain residential zones	
Yes – Schedule 12A is applicable to the development application and the assessment benchmarks contained in schedule 12A have been considered				
No Note: See guidance materials at www.planning.statedevelopment.gld.gov.au for further information.				
PART 8 – CHECKLIST AN	ND APPLICANT I			
24) Development application check				
I have identified the assessment m requirement(s) in question 17 Note : See the Planning Regulation 2017 fo		and all relevant referral	⊠ Yes	
If building work is associated with t	If building work is associated with the proposed development, Parts 4 to 6 of <u>DA Form 2 – Building work details</u> have been completed and attached to this development application Yes Not applicable			
Supporting information addressing development application	any applicable assessr	ment benchmarks is with the		
Note: This is a mandatory requirement and and any technical reports required by the reschemes, State Planning Policy, State Deviews Guide: Planning Report Template.	elevant categorising instrumer	nts (e.g. local government planning	⊠ Yes	

Relevant plans of the development are attached to this development application

development permit is issued (see 21)

Note: Relevant plans are required to be submitted for all aspects of this development application. For further information, see <u>DA Forms Guide</u>: Relevant plans.

The portable long service leave levy for QLeave has been paid, or will be paid before a



Yes

25) Applicant declaration			
By making this development application, I declare to correct	hat all information in this development application is true and		
	s form, I consent to receive future electronic communications ency for the development application where written information d 12 of the <i>Electronic Transactions Act 2001</i>		
Note: It is unlawful to intentionally provide false or misleading inform	nation.		
Privacy – Personal information collected in this form will be used by the assessment manager and/or chosen assessment manager, any relevant referral agency and/or building certifier (including any professional advisers which may be engaged by those entities) while processing, assessing and deciding the development application. All information relating to this development application may be available for inspection and purchase, and/or bublished on the assessment manager's and/or referral agency's website. Personal information will not be disclosed for a purpose unrelated to the <i>Planning Act 2016</i> , Planning Regulation 2017 and the DA Rules except where: • such disclosure is in accordance with the provisions about public access to documents contained in the <i>Planning Act 2016</i> and the Planning Regulation 2017, and the access rules made under the <i>Planning Act 2016</i> and Planning Regulation 2017; or • required by other legislation (including the <i>Right to Information Act 2009</i>); or • otherwise required by law. This information may be stored in relevant databases. The information collected will be retained as required by the <i>Public Records Act 2002</i> .			
PART 9 – FOR COMPLETION OF THE USE ONLY	ASSESSMENT MANAGER – FOR OFFICE		
Date received: Reference n	umber(s):		
Notification of engagement of alternative assessment	manager		
Prescribed assessment manager			
Name of chosen assessment manager			
Date chosen assessment manager engaged			
Contact number of chosen assessment manager			
Relevant licence number(s) of chosen assessment manager			
QLeave notification and payment Note: For completion by assessment manager if applicable			
Description of the work			
QLeave project number			
Amount paid (\$)	Date paid (dd/mm/yy)		
Date receipted form sighted by assessment manager			
Name of officer who sighted the form			



Level 9 260 Queen Street Brisbane QLD 4000

erm.com

The Chief Executive Officer Rockhampton Regional Council PO Box 1860 Rockhampton QLD 4700 DATE 28 February 2025

SUBJECT

Development Permit for a Material Change of Use (Undefined Use) and Reconfiguring a Lot (Lease Lot exceeding 10 years)

REFERENCE 0729714

Dear Sir/ Madam,

Environmental Resources Management Australia Pty Ltd (ERM) writes on behalf of Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust (the Applicant) in relation to the making of a Development Application over part of Lot 2 on RP613051 and Lot 1 on RP610887 (the subject site). The Development Application is for a Material Change of Use (MCU) and Reconfiguring a Lot (RaL) Development Permit for an Undefined Use.

APPLICATION DETAILS

The purpose of this MCU and RaL Development Application is to facilitate the construction and installation of a Battery Energy Storage System (BESS) on the subject site.

The subject site is within the Rockhampton Regional Council Local Government Area within the Rural Zone and Special Purpose Zone under the Rockhampton Region Planning Scheme 2015 version 4.4. As per Section 5.4.6.4 of the Planning Scheme, an Undefined Use within the Rural Zone is Impact Assessable.

ATTACHED DOCUMENTATION

Please find attached the following documentation that comprises the MCU and RoL Development Application:

- DA Form 1 (refer to Attachment A);
- Owner's Consents (refer to Attachment B);
- Planning Report (refer to **Attachment C**), which includes:
 - Project Layout Plan (refer to Appendix A);
 - Traffic Impact Statement (refer to Appendix B);
 - Hazard Incident Management Plan (refer to Appendix C);
 - Noise Assessment Report (refer to Appendix D);
 - Stormwater Assessment Report (refer to Appendix E);
 - Site-based Stormwater Management Plan (refer to *Appendix F*);
 - Landscape Concept Plan (refer to Appendix G);
 - Council Pre-lodgement Meeting Minutes (refer to Appendix H);



- SDAP Code Response (refer to Appendix I);
- Council Code Response (refer to Appendix J);
- DAMS Mapping (refer to Appendix K); and
- DWATSIP Search Results (refer to Appendix L).

CONCLUDING COMMENTS

Please note that given the application is for an Undefined Use, an invoice is requested for the application fee.

If you have any queries regarding the application or require any further information during the assessment, please contact Mifanwy Press by telephone on (07) 3007 8460 or via email at mifanwy.press@erm.com.

Yours faithfully,

Mifanwy Press

Managing Consultant

John Herron

Partner



ATTACHMENT A DA FORM 1



ATTACHMENT B OWNER'S CONSENT



ATTACHMENT C PLANNING REPORT



Planning Report Capricorn BESS Project

PREPARED FOR Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust

DATE 28 February 2025

REFERENCE 0729714



DOCUMENT DETAILS

DOCUMENT TITLE	Planning Report
DOCUMENT SUBTITLE	Capricorn BESS Project
PROJECT NUMBER	0729714
DATE	28 February 2025
VERSION	04
AUTHOR	Bella Nakos
CLIENT NAME	Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust

DOCUMENT HISTORY

			ERM APPROVAL TO ISSUE			
VERSION	REVISION	AUTHOR	REVIEWED BY	NAME	DATE	COMMENTS
01	00	B. Nakos	M. Press M. Rookwood	J. Herron	05 July 2024	Working draft for client input
02	00	B. Nakos	M. Press M. Rookwood	J. Herron	30 July 2024	Draft
03	00	B. Nakos	M. Press M. Rookwood	J. Herron	24 January 2025	Draft for client input
04	00	B. Nakos	M. Rookwood	J. Herron	28 February 2025	Final for submission



CLIENT: Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust
PROJECT NO: 0729714 DATE: 28 February 2025 VERSION: 04

SIGNATURE PAGE

Planning Report

Capricorn BESS Project

Mifanwy Press

Managing Consultant

John Herron

BULL

Partner

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ACRONYMS AND ABBREVIATIONS

Acronym	Description
BESS	Battery Energy Storage System
Council	Rockhampton Regional Council
DWATSIPM	Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ERM	Environmental Resources Management Australia Pty Ltd
Planning Act	Planning Act 2016
Planning Regulation	Planning Regulation 2017
Planning Scheme	Rockhampton Region Planning Scheme 2015 version 4.4
The Proponent	Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust c/- Environmental Resources Management Australia Pty Ltd
Proposed Development	Capricorn BESS
SDAP	State Development Assessment Provisions
State Code 1	State Code 1: Development in a State controlled road environment



1. INTRODUCTION

1.1 DEVELOPMENT APPLICATION DETAILS

The details of the Development Application are outlined in **Table 1-1**.

TABLE 1-1 APPLICATION DETAILS

Development Application	on Details
Site Details	
Real Property Description	2 on RP6130511 on RP610887 (Bouldercombe Substation)
Address	 742 Cherryfield Road, Gracemere 4702 (access via Burnett Highway) 52949 Burnett Highway, Bouldercombe 4702
Tenure	Freehold
Total Land Area	128.13 hectares
Disturbance Footprint	18.09 hectares
Lease Area	16.65 hectares
Local Government	Rockhampton Regional Council
Planning Scheme	Rockhampton Region Planning Scheme 2015 version 4.4
Zone	RuralSpecial purpose (Bouldercombe Substation)
Easements	 D on RP611868 (electrical) C on RP611868 (electrical) F on RP613914 (electrical) B on RP611868 (electrical) E on RP611868 (electrical)
Development Application	on Summary
Proposed Development Description	The Proposed Development is for a Battery Energy Storage System (BESS) and ancillary infrastructure, which will have a storage capacity of up to 300 MW / 1200MWh. The BESS containers will be connected into the BESS substation using underground cables and then connected to the Bouldercombe (Powerlink) substation via underground cable. The Proposed Development Layout Plan is included as Appendix A.
Application Type	 Development Permit for a Material Change of Use – Undefined Use (Battery Energy Storage System); Development Permit for Reconfiguring a Lot - Creation of a lease exceeding 10 years; Section 62 (1) approval (access off a State-controlled road).
Assessment Manager	Rockhampton Regional Council
The Proponent	Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust c/- Environmental Resources Management Australia Pty Ltd
Level of Assessment	Impact Assessable
Referral	 Department of Transport and Main Roads (Referral Agency) Powerlink (Referral Agency)
State Assessment Benchmarks	State Code 1: Development in a State-controlled road (State Code 1)



Development Application Details		
Regional Plan	Central Queensland Regional Plan The Project Area is not mapped within a designated Priority Agricultural Area or Priority Living Area.	
Applicable Planning Scheme Codes	 Special Purpose Zone Code (Bouldercombe Substation) Rural Zone Code Reconfiguring a Lot Code Landscape Code Stormwater Management Code Water and Sewer Code Access, Parking and Transport Code Waste Management Code Works Code Bushfire Hazard Overlay Code Steep Land Overlay Code Flood Hazard Overlay Code 	
Applicable Overlays	Bushfire Hazard OverlaySteep Land Overlay	
Public Notification	15 business days	

1.2 OVERVIEW / PURPOSE

This Planning Report has been prepared by Environmental Resources Management Australia Pty Ltd (ERM) on behalf of Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust, a wholly owned subsidiary of Potentia Energy (the Proponent), in support of a Development Application for a Development Permit for Material Change of Use and Development Permit for Reconfiguring a Lot (creation of a lease exceeding 10 years) under the *Planning Act 2016* (Planning Act), and an approval for access from a State-controlled Road under the *Transport Infrastructure Act 1994*.

The Proposed Development is within the Rockhampton Regional Council Local Government Area, approximately 2.5 km north of Bouldercombe and 16 km south of Rockhampton, Queensland. The Project Area is located within the Rural Zone and Special Purpose of the Rockhampton Region Planning Scheme 2015 version 4.4 (Planning Scheme). As per Section 5.4.6.4 of the Planning Scheme, an Undefined Use within both the Rural Zone and Special Purpose Zone is Impact Assessable, requiring assessment against the Planning Scheme.

As per the Planning Regulation 2017 (Planning Regulation), the Development Application requires referral to the State Assessment Referral Agency, Powerlink, and the Department of Transport and Main Roads.

Relevant specialist plans and reports have been prepared by technical consultants and these have been provided to Council to assist in its interpretation and assessment of the Development Application.

These reports include:

- Traffic Impact Statement (Appendix B);
- Hazard Incident Management Plan (Appendix C);
- Noise Assessment Report (Appendix D);
- Stormwater Assessment Report (Appendix E);
- Site-based Stormwater Management Plan (Appendix F); and
- Landscape Concept Plan (Appendix G).



This report sets out details of the Proposed Development, the background to the application, and addresses relevant issues arising from the Proposed Development. A detailed assessment has been undertaken with respect to relevant State Development Assessment Provisions (SDAP) and other relevant matters of State and local interest.

1.3 PRE-LODGEMENT DISCUSSIONS

1.3.1 ROCKHAMPTON REGIONAL COUNCIL

A Pre-Lodgement Meeting for the Proposed Development was held on 21 May 2024 with Council, which was attended by representatives of Council, ERM and the Proponent.

A record of the Pre-Lodgement Meeting is provided in **Appendix H**.

1.4 COMMUNITY CONSULTATION

As part of the Proposed Development, the Proponent has undertaken community engagement within the Bouldercombe Area to inform the local community of the Proposed Development and ensure there is transparency throughout the planning and approval stages.

Consultation undertaken to date includes:

- 20 personalised letters sent to residents of Childs Avenue and neighbours within 1.5km of the Project Area introducing the project and providing the opportunity to discuss.
- Letter sent to First Nations Group Darumbal People Aboriginal Corporation.
- Face to Face meeting with Bouldercombe Renewable Energy Working Group on Tuesday 10 September 2024.
- Phone calls and emails to the Renewable Working Group to organise the Community Information session at a location and time that would be suitable for the wider community.
- Invitation to the Community Information session published in local newspaper The Bouldy News.
- Creation of project webpage with project details, timelines, community feedback form, contact details, FAQs, site map, assessments completed, and preliminary DA package.
- A Community Survey made available on the project webpage. This was communicated to the Renewable Energy Working Group to share with the wider community.
- A Community Information Session was held on Thursday 24 October 2024. This session covered a wide range of topics informed by the results of the Community Survey.
- Creation of information posters related to topics raised from the Community Survey.
- Face to face meetings with local stakeholders, and businesses, including a meeting with representatives of Rockhampton Regional Council on Friday 25 October 2024.
- An information page on the Holding company's webpage, which includes fact sheets and frequently asked questions on the Proposed Development.
- Face to face meeting with the CEO and a Board member of Darumbal Enterprises on Thursday 28 November 2024.
- Attendance and stall holder at the Rockhampton Energy Forum Lunch on Thursday, 28
 November 2024 to provide further details about the Proposed Development.
- Phone calls and emails with President of the Bouldercombe Progress Association.



• Inclusion in the January-March 2025 edition of The Bouldy News with information about Potentia Energy, the project and contact details for further information.

- Attendance at the Bouldercombe Australia Day event on Sunday 26 January 2025 to maintain existing relationships and establish new connections within the community. Providing an opportunity for feedback about the project.
- Face to face meeting with Bouldercombe Rural Fire Services on Sunday 26 January 2025 to discuss the project and gather any feedback.
- Face to face meeting with the Board of Directors of Darumbal Enterprises on Thursday 30
 January 2025.
- Face to face meeting with representatives from Rockhampton Regional Council on Thursday 30 January 2025.
- Over 200 interactions with the community including; neighbours, Rockhampton Council, First Nations, wider community members, Bouldercombe Progress Association, Rural Fire Services.

Following input from the community, the Proponent has aimed to address community feedback around perceived potential impacts to amenity, water quality, road network and increased fire risk resulting from the Proposed Development. In response, the Proponent has updated the project to include the following:

- The preparation of a Landscape Concept Plan (**Appendix G**) and inclusion of visual screening in the form of a 3-metre-wide vegetation buffer along the northern boundary and 500mm high mound along the Burnett Highway.
- Inclusion of a 100,000 litre water supply tank, and a 10 metre defendable space around the asset. Additionally, in direct response to comments from the Bouldercombe Rural Fire Brigade, the Proponent has committed to the preparation of an Emergency Management Plan which includes detailed emergency procedures to be prepared in consultation with the Bouldercombe Rural Fire Brigade.
- The preparation of a Site-based Stormwater Management Plan (**Appendix F**) which includes the design of a water impounding area.
- The design of the BESS unit will be chosen to meet noise criteria.
- Upgrading the proposed site access intersection for a basic right turn (BAR), to be a channelised right turn (CHR).



PLANNING REPORT SITE ANALYSIS

SITE ANALYSIS

2.1 PROJECT AREA AND LOCATION

The Project Area is located within a rural area adjacent to the Bouldercombe Substation on the Burnett Highway. The Project Area Context Map included as **Figure 2 2** illustrates the location of the Project Area within the wider region.

The Project Area includes an 18.09 ha portion of the larger combined 128.13 ha lot area, to be subdivided via Lease Lot (exceeding 10 years) to facilitate the BESS. The Project Area is characterised by the following features:

- Currently utilised for rural purposes including stock grazing;
- Adjacent to a State-controlled Road, being the Burnett Highway;
- Contains Category X Regulated Vegetation;
- Is adjacent to the existing Bouldercombe BESS operated by Genex;
- Is adjacent to the existing Bouldercombe (Powerlink) substation;
- Is adjacent to the approved yet undeveloped Bouldercombe Solar Farm, with the BESS infrastructure overlapping a small area of the approved development area. The Bouldercombe Solar Farm is owned by Potentia Energy, the holding company of the Proponent.

2.2 SITE CHARACTERISTICS

A description of the Project Area characteristics is outlined in **Table 2-1**, with **Figure 2-1** and **Figure 2-2** providing context mapping.

TABLE 2-1 SITE CHARACTERISTICS

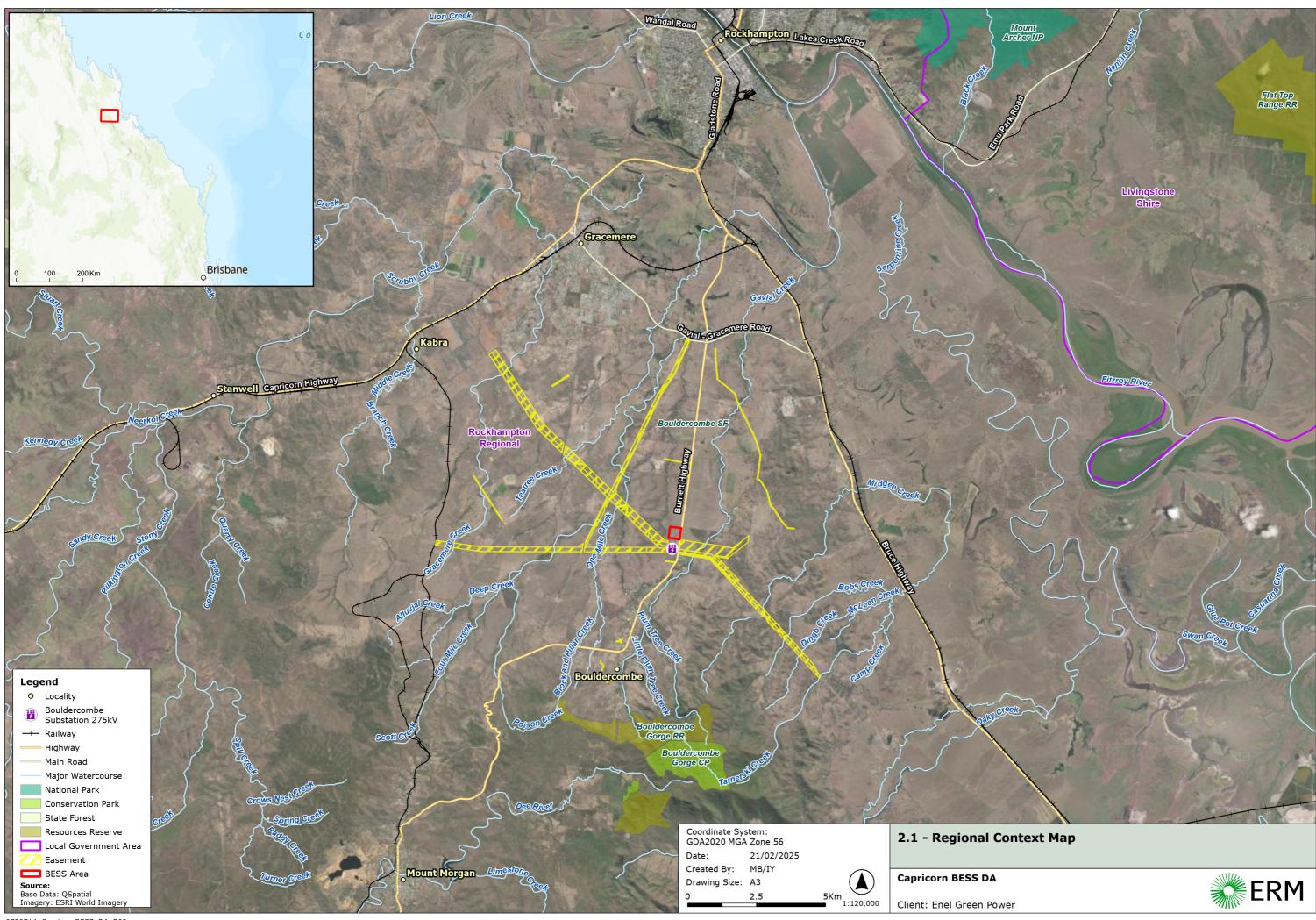
Site Characteristics	Description
Existing Land Use	The Project Area is in the Rural Zone and Special Purpose Zone of the Planning Scheme. Existing uses include rural purposes (cattle grazing) and the Powerlink Substation, with the Project Area being in a highly disturbed condition.
Existing Structures	There are no existing structures in the proposed area for the BESS facility on Lot 2 on RP613051. The Bouldercombe (Powerlink) substation is located on Lot 1 on RP610887, however it is outside of the proposed footprint for the underground transmission cable connection route. There are multiple residential dwellings along Childs Avenue, approximately 1 km to the South of the Project Area. Additionally, there is an existing BESS operated by Genex Power and existing substation facility operated by Powerlink immediately south of the Project Area.
Access	Access to the Proposed Development is from the Burnett Highway via proposed site access on the frontage of the lot.
Existing Vegetation	The Project Area consists solely of mapped Category X vegetation.

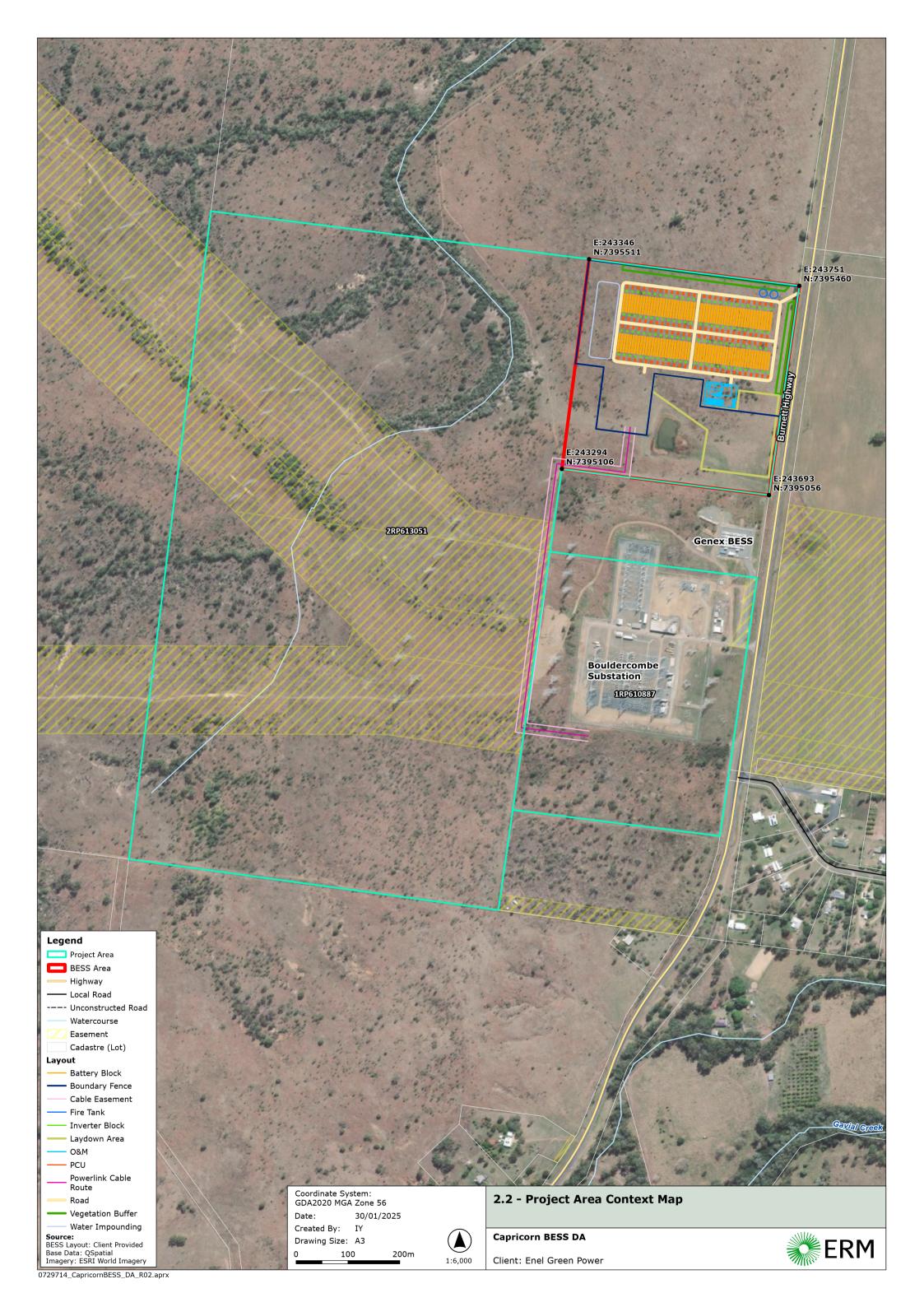


PLANNING REPORT SITE ANALYSIS

Site Characteristics	Description
Existing Waterways	Existing waterways present within the Project Area include a farm dam and an unmapped stream order 1 waterway. There are no wetlands of international importance associated with the Project Area. There are also no high ecological value waterways and wetlands, nor high ecological significance wetlands that occur within the Project Area.
Surrounding Land Uses	The Project Area is predominantly surrounded by land used for agricultural and rural purposes, with residential dwellings and an existing BESS facility operated by Genex Power, located immediately south of the Project Area.
Cultural Heritage	A search of the Cultural Heritage Database and Register administered by the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism (DWATSIPM) was undertaken on 23 January 2025 DWATSIP has confirmed that no Aboriginal Cultural Heritage is recorded on the Cultural Heritage Database and Register with respect to the subject site. A copy of the search result is provided in Appendix L .
	The Proposed Development is to be undertaken in accordance with Cultural Heritage Duty of Care Guidelines. The Proponent is currently undertaking consultation with Darumbal Enterprises & Darumbal People Aboriginal Corporation as the relevant Traditional Owners of the Project Area.







PROPOSED DEVELOPMENT

3.1 OVERVIEW OF PROPOSED DEVELOPMENT

The Proposed Development includes a BESS, which will have a storage capacity of up to 300MW / 1200MWh consisting of the following:

- 525 BESS containers;
- 105 inverters and Medium Voltage Power Stations;
- Electrical equipment including primary transformers, high voltage substation, auxiliary transformers, harmonic filters and control rooms;
- Administrative and Operations & Maintenance buildings and facilities.

The proposed battery storage technology with suitable outdoor rated housing will comprise of lithium-ion phosphate cells. Best industry practice will be observed for handling the respective battery components during installation, maintenance, replacement and recycling.

The BESS containers will be connected to inverters, which convert direct current to grid compliant alternating current, then through medium voltage power stations into the BESS substation using buried cables. The BESS substation will be connected to the Bouldercombe (Powerlink) substation via underground cable.

Utilities

The Proposed Development will not be connected to reticulated water or sewage infrastructure. Rainwater will be collected and stored via water tanks and used on site for operational activities. Sewage will be managed by an onsite wastewater treatment facility, with wastewater going to a land application area on the site, requiring treatment to a secondary standard.

Parking and Access

Access to the Proposed Development will be provided from Burnett Highway, with a car parking area provided at the site office to be located at the site frontage. The final location will be subject to detailed design. Informal carparking will be provided during construction.

Lease Area

The leased area for the Proposed Development is 16.65 ha and is required to facilitate the operation of the BESS facility following construction. This leased area will be fenced for safety and security purposes and includes the BESS infrastructure, on site office and utilities, and parking.

Bioretention Basin for Water Quality

A conventional bio-retention basin has been included in the Proposed Development design. This has been proposed to enable the site to meet Water Quality Objectives and is discussed in length in the Site-based Stormwater Management Plan (**Appendix F**). It has been assumed that all surface water is able to be directed to the basin, resulting in 0% site bypass catchments.



3.2 CONSTRUCTION PHASE

3.2.1 CONSTRUCTION ACTIVITIES

The Proposed Development will be installed on-site using varying sized construction crews over a 12-to-18-month period.

For the construction phase of the Proposed Development, the following activities will be undertaken:

- Mobilisation and establishment of temporary construction facilities and laydown areas;
- Civil works to create a new access track on the frontage of the project site from the Burnett Highway;
- Civil works to create a level pad/s including hardstands;
- Installation of drainage;
- Installation of overhead or underground transmission line to connect the BESS to the existing Bouldercombe substation;
- Installation of foundations for key equipment including BESS containers, inverters, power stations, switch/control building and other outdoor electrical infrastructure.
- Delivery and placement of all equipment on the foundations;
- Commissioning of the BESS.

The details of the construction phase of the Proposed Development are detailed in **Table 3-1**.

TABLE 3-1 SUMMARY OF CONSTRUCTION ACTIVITIES

Construction Phase Activities	Description
Site Access	A new site access will be created for the Proposed Development from the Burnett Highway as indicated in Appendix A.
Traffic and Car Parking	Construction phase activities are of the most relevance in terms of traffic generation, due to the traffic associated with the following activities: BESS components being delivered to the site via the State Controlled Road Network; Materials and plant being transported to and from the Project Area; and Construction workers moving between population centres and the Project Area. Traffic impacts considered during the construction phase of the Proposed Development are further detailed in Appendix B.
Construction Workforce	Up to approximately 120 full time equivalents (FTE) personnel would be required during peak construction.
Waste	Site office is proposed, therefore onsite wastewater facilities may be required
Utilities	Utilities will be required for the site office.
Hours of Operation	Construction would be undertaken during standard construction hours: • Monday to Friday: 7.00 am to 6.00 pm • Saturday: 8.00 am to 1.00 pm • No works on Sunday and public holidays



3.3 OPERATIONAL PHASE

The details of the operational phase of the Proposed Development are detailed in **Table 3-2**.

TABLE 3-2 SUMMARY OF OPERATIONAL ACTIVITIES

Operational Phase Activities	Description
Site Access	Site access during the operational phase will be using the newly formed site access from the Burnett Highway. The access will remain unchanged from the construction phase.
Traffic and Car Parking	During the operational phase of the Proposed Development, it is estimated that there will be up to 10 light vehicles to access the site each day. Car parking will be accommodated on hardstand areas during the operational phase of the Proposed Development. Onsite car parking can always be fully accommodated.
Maintenance Workforce	The BESS facility only requires small crews of up to 10 persons to attend the site to manage site operations and maintenance of the facility, including reporting, safety, monitoring, and upkeep of the facility.
Waste	Site office is proposed, therefore onsite wastewater facilities may be required
Utilities	Utilities will be required for the site office.
Hours of Operation	Given the nature of the Proposed Development being an energy storage facility, the hours of operation for the Proposed Development is as required during any 24-hour period.

3.4 DECOMMISSIONING PHASE

3.4.1 OPERATIONAL LIFE

BESS facilities are typically operational for 20 to 30 years, after which the BESS infrastructure may be decommissioned and removed from the site and the land rehabilitated. Alternatively, the asset life may be extended by the refurbishment of existing infrastructure or consideration of potential new BESS technology. The approximate operational life of the BESS infrastructure is delineated as follows:

- <u>Battery Life:</u> the batteries themselves typically last around 10 to 20 years, depending on the type of battery used.
- <u>Power and Electrical Infrastructure:</u> Additional components of BESS facilities including inverters, transformers and control systems, all of which have typical lifespans of 20 to 30 years.
- <u>Site Infrastructure</u>: Supporting infrastructure, including buildings and security systems, typically have a useful operational life of 20 to 30 years, dependent on construction quality and environmental conditions.



3.4.2 DECOMMISSIONING AND REHABILITATION PLAN

In the event of planned decommissioning of the asset, a detailed decommissioning plan will be prepared in consultation with the following stakeholders:

- <u>Council:</u> Engagement with Council will be required to determine which permit conditions needs to be discharged, or whether new development permits are required (in the event the project life is extended). Engagement with Council may also be required for input on the BESS facility decommissioning plan.
- <u>Landowners:</u> in the event the project life is extended, lease agreements are required between the Proponent and landowners. However, if the Proposed Development is decommissioned at the end of operational life, a decommissioning and rehabilitation plan will need to be provided.
- <u>Community:</u> Engagement with the local community will be undertaken as part of preparing the decommissioning plan for the Proposed Development as the community supports ongoing social and economic sustainability.

The decommissioning plan is to outline the following information (as a minimum):

- Decommissioning Work Method Statements (or similar) for key decommissioning activities;
- Community and Stakeholder Consultation;
- Waste Management;
- Stormwater Management;
- Noise Management;
- Dust Management;
- Traffic Management; and
- Water and Contamination Management.

Decommissioning and rehabilitation activities will adhere to the requirements imposed by the appropriate governing authorities. The process will comprise of the removal of structures and rehabilitation of vegetation where applicable. Effectively, the reclamation of the Proposed Development if required, will proceed in the reverse order of the installation. Additionally, appropriate temporary erosion and sediment control practices will be utilised during the reclamation phase of the Proposed Development, similar to those proposed for use during construction. These control practices will be inspected on a regular basis to ensure their function.

If required, the reclamation of each phase of the Proposed Development will begin within six months of the cessation of operations in association with the project's final power contract. The duration of infrastructure removal is estimated to be 6 months. Further details on the decommissioning and rehabilitation of the Project Area will be decided and provided when applicable in the required Decommissioning Plan.



3.5 POTENTIAL IMPACTS AND MANAGEMENT

3.5.1 ROAD NETWORK

A Traffic Impact Statement (**Appendix B**) has been prepared by Cambray Consulting Pty Ltd to assess potential impacts to the road network. The most significant impact on the State controlled and local controlled road networks are anticipated during the construction phase of the Proposed Development. A summary of the results of the assessment are as follows:

- The development is proposed to be accessed from the State-controlled road network via access from the Burnett Highway;
- Burnett Highway is identified as a 25/26m B-Double and PBS 2A (B25/26) Network;
- The State Controlled Road network servicing the site has the capacity to carry up to 35.0m OSOM vehicles to deliver construction equipment and BESS components;
- The turn treatment is proposed to be provided as a;
 - Channelised Right-hand turn lane treatment for vehicle approaching from the north;
 and
 - A Basic Auxiliary Left Turn land treatment for vehicles approaching from the south.
- Sight distances to/from the Project Area access appears sufficient to/from the north to meet the design speed in accordance with Austroads *Guide to Road Design Part 4a*;
- The proposed access configuration caters for heavy vehicle access;
- Internal access tracks are intended to be utilised for the Proposed Development and improvements to the existing flat Project Area may be undertaken for set down and car parking arrangements; and
- The peak traffic generation period does not appear to require any turn treatment upgrades based on the highly conservative traffic generation estimate.

Given the above, it is considered that the Proposed Development is compliant with the requirements of Council's Access, Parking and Transport Code (refer to **Appendix H**), and the Performance Outcomes within State Code 1 (refer to **Appendix I**).

3.5.2 HAZARD INCIDENT ASSESSMENT

Fire Risk (Internal)

A Hazard Incident Management Plan has been undertaken for the Proposed Development by Riskcon Engineering Pty Ltd (refer to **Appendix C**). As part of the assessment, hazards that have the potential to cause fire or explosion impact have been identified and assessed. Consequently, the following hazardous scenarios were developed as part of the assessment:

- Li-ion battery fault, thermal runaway and fire.
- Li-ion battery fire, toxic smoke plume.
- Electrical equipment failure and fire.
- Transformer internal arcing, oil spill, ignition and bund fire.
- Transformer electrical surge protection failure and explosion.
- Diesel release, ignition and pool fire.



Recent advancements in battery technology have moved away from lithium metal to lithium ions (held within composite materials), which reduce the incidence of lithium dendrites, creating an overall safer battery. Despite these improvements, there still exist several degradation mechanisms which are present within the battery which can result in thermal runaway. Consequently lithium-ion batteries are equipped with several safety features to prevent batteries from charging or discharging at voltages which result in battery degradation, leading to shorting of the battery and thermal runaway. The battery product proposed for use in the Proposed Development is the I-Shit SAFT BESS unit. Further details on this product are delineated within **Appendix C**. In summary, the selected battery technology does not cause flaming fire in the event of thermal runaway occurrence. Should fire be developed within one BESS enclosure, it would not transfer to nearby enclosures due to the fire safety design features.

Bushfire Risk (external)

External fire impacts have been assessed as part of the developed hazardous scenarios within the Hazard Incident Management Plan. There exists the potential for an external fire event to impact the BESS facility. The Project Area is mapped as being adjacent to medium potential bushfire intensity prone land (refer Figure 4.3 of **Appendix C**). The distance between this vegetation and the project site is an estimated 200m and is classified as a potential impact buffer; hence the potential for direct radiant heat impact from a bushfire on the site is considered negligible.

Notwithstanding, prevailing winds can cause fire embers to travel several kilometres, posing potential risk of ignition of vegetation at the BESS facility. A Bushfire Management Plan will be developed for the Proposed Development and will include vegetation management strategies to prevent the accumulation of combustible fuel loads.

Additionally, the water tank stored on site is anticipated to contain a sufficient water supply for use in combating grass fire or provide cooling to critical infrastructure as necessary.

Therefore, the potential for incident escalation because of external fire impact is deemed negligible for the Proposed Development.

Prevention, Protection and Mitigation Measures

The following fire prevention, protection and mitigation measures have been identified for the Proposed Development:

- Control of ignition sources, these include controls for fixed potential ignition sources and controls for introduced ignition sources;
- Separation of incidents, which is used to prevent the generation of potential 'domino' effects;
- Housekeeping, whereby the risk of fire can be significantly reduced by maintaining high standards of housekeeping;
- Work practices, including a variety of workplace health and safety measures detailed in section 6.1.4 of Appendix C;
- The creation of an emergency response plan;
- Maintaining site security;



- Fire detection, gas detection and alarming devices;
- Fire water supply, whereby the site is equipped with an 80,000 L water tank, which is deemed adequate to deal with the potential fire hazards at the site;
- Explosion venting and ventilation.

Additionally, a series of recommendations were outlined in the assessment. The recommendations relevant to bushfire management are outlined below. Refer to **Appendix C** for a complete list of recommendations for the Proposed Development.

- All site personnel shall be inducted in site procedures and emergency response protocols relevant to their roles.
- All site personnel who require training must undergo formal training in the required procedures and emergency response protocols relevant to their role.
- A team of site personnel to be trained in the use of the water cart and first-attack firefighting methods, during manned hours on site.
- Site management to prepare and maintain operational procedures to minimise the number of hazardous incidents regarding the handling of dangerous goods and chemicals.
- A site Emergency Response Plan shall be prepared and shall include measures to advise neighbouring premises in the event of an emergency with potential offset impacts

Battery Unit Fire Risk Management

BESS units will be equipped with smoke detectors and thermal detectors to detect the early signs of a fire. In the event that elevated temperatures or smoke is detected, an audible fire alarm and visual fire strobes fitted on the BESS unit will be activated. In addition, corresponding alarms will be sent to the EMS systems to alert site personnel to begin emergency procedures.

Battery units are also fitted with a ceiling mounted aerosol fire suppression system. In the event of detection of a fire within the BESS unit, the aerosol suppression system is triggered, releasing a gaseous suppressant inside the BESS.

The site is provided with water tanks that can be accessed to provide water supply in the event of fires to other sources of fire (i.e. transformers, site buildings, etc.)

Given the above, it is considered that the Proposed Development is compliant with the requirements of Council's Bushfire Overlay Code (refer to **Appendix J**).

3.5.3 NOISE

ERM has completed a Preliminary Noise Assessment of the Proposed Development (refer to **Appendix D**) The findings indicate that the predicted project noise levels are within the *Environmental Protection (Noise) Policy Acoustic Quality Objectives and Background Creep Criteria*.

The nearest Sensitive Receptors are at 1 Childs Avenue and 2 Childs Avenue, Bouldercombe which is 612m and 625m respectively from the project site boundary. To understand the existing noise environment at this location with respect to the noise influence from the existing Bouldercombe Substation and the existing Bouldercombe BESS, short-term noise monitoring was conducted.



The project criteria applicable to the Sensitive Receptors are the Acoustic Quality Objectives and the Background Creep criteria from the Environmental Protection (Noise) Policy 2019 (EPP(Noise)). The Background Creep criteria was derived from the noise monitoring results.

Noise modelling using the environmental noise modelling software, SoundPLAN v9 was conducted utilising representative and realistic noise data for the proposed project equipment.

The predicted project noise levels are within the EPP (Noise) Acoustic Quality Objectives and Background Creep criteria, and no project-specific noise mitigation measures are proposed based on this assessment or necessary to achieve legislative criteria compliance.

As the BESS technology to be implemented for the project will not be finalised until project detailed design, realistic assumptions on the equipment have been made in the noise modelling conducted. Assumptions made represent the maximum noise emissions for the project, through detailed design, it is possible that actual project noise emissions will be less than that predicted. Once a final equipment selections and relevant manufacturers' have been selected at the detailed design stage of the project, it is recommended that re-assessment be conducted to ensure ongoing compliance with the noise criteria and general environmental duty.

Given the above, it is considered that the Proposed Development is compliant with the performance outcomes of the Planning Scheme.

3.5.4 STORMWATER ASSESSMENT

A Stormwater Assessment was undertaken for the Proposed Development (refer to **Appendix E**). The Proposed Development will likely result in a small increase in imperviousness within the contributing catchment. However, it is of a scale which is considered unlikely to result in any significant changes to overland flow characteristics of the catchment.

The Proposed Development infrastructure is located within an area of minor flooding within the 1% AEP flood event. Flood modelling is to be undertaken during the detailed design phase to ensure sufficient controls are in place to avoid flood impacts.

Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additional information will become available at the detailed design stage of the project when the proposed construction methods and schedule are finalised.

3.5.4.1 SITE-BASED STORMWATER MANAGEMENT PLAN

A Site-based Stormwater Management Plan (SSMP) has been undertaken by GHD Australia (refer to **Appendix F**), which considers the 1% AEP storm event and outlined the stormwater quantity and quality assessments for the site. As part of the stormwater quantity assessment, existing site conditions (pre-development) were assessed to provide an understanding of the flood behaviour across the site.



Stormwater Quantity

The flood analysis for both pre- and post-development conditions at the site indicate that the design of the Proposed Development will effectively manage flood risks while minimising downstream impacts, with the Burnett Highway maintaining flood immunity. The retention of the existing farm dam on site ensures similar storage capacity between pre- and post-development conditions, mitigating potential flood risks downstream.

Based on the flood velocity results appropriate measures such as rock protection at the culvert outlets and inlets have been recommended to reduce erosion risks. Additionally, the proposed access track adjustments and culvert placements will address local flood conditions without significantly impacting surrounding properties.

Overall, the proposed design effectively manages flood risks and minimizes adverse effects on the surrounding areas. The flood afflux results indicate that the increase in water level downstream of the Project Area is less than 50 mm for most surrounding areas, except for upstream of proposed culvert CD02.

Stormwater Quality

A stormwater quality analysis was undertaken in MUSIC for the Proposed Development. The site was modelled with the inclusion of a bio-retention basin with a filter media area of 1750 m², to achieve the Water Quality Objectives (WQO) for the site. This assumes that all surface water is able to be directed to the basin and hence there is 0% site bypass catchments.

A sensitivity analysis was undertaken to investigate the effect of increasing site bypass catchments on the required bioretention filter area. This analysis indicated that if 5% of the site catchment bypasses the bioretention basin, the basin filter area would need to be increased to 2250 m² to still achieve the site's WQO. Similarly for a 10% site catchment bypass, the basin filter area would need to increase to 3750 m². When bypass catchments grew to 20% of the site, results indicated that the bioretention filter area would need to increase to greater than 10,000 m² to achieve the sites WQO, which was not considered to be practical. It is recommended that future earthwork and drainage designs minimise the amount of site bypass catchments, by ensuring positive fall and grading to the proposed bioretention basin. This will minimise the required bioretention filter area and avoid the introduction of additional Stormwater Quality Improvement Devices to meet the target water quality objectives. It is recommended that once earthwork and pipe drainage designs are progressed, the MUSIC model is updated to incorporate the final design areas and bypass catchments to ensure that the bioretention basin still achieves the required site WQOs.

Given the above, it is considered that the Proposed Development complies with Council's Stormwater Management Code, Flood hazard Overlay Code, and relevant Performance Outcomes of State Code 1 (refer to **Appendix J** and **Appendix I**).



3.5.5 LANDSCAPE CONCEPT PLAN

A Landscape Concept Plan has been prepared by Covey Associates for the Proposed Development (refer to **Appendix G**). The Landscape Concept Plan details a proposed 3-metrewide vegetation buffer on a 500mm high mound along the Burnett Highway (refer to **Photograph 1** for existing view of the site from the Burnett Highway), and a 3-metre-wide vegetation buffer along the northern boundary of the site to provide appropriate screening. An indicative native planting palette has also been provided for consideration. The objective of the buffer is to provide a dense and fast-maturing screen to filter views of the Proposed Development from the Burnett Highway. The height of the proposed mounding will serve to provide additional screening at ground level.



PHOTOGRAPH 1 GOOGLE STREET VIEW OF PROJECT SITE

3.5.6 AGRICULTURAL LAND

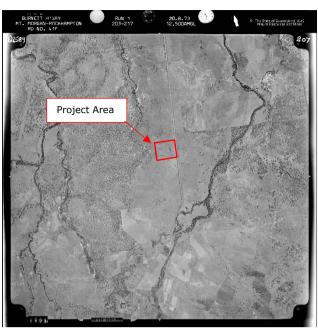
The Project Area is mapped within Council's Agricultural Land Overlay, being specifically mapped as Class B Agricultural Land which is defined as being "limited crop land that is suitable for a narrow range of current and potential crops due to severe limitations" (DSITI, DNRM, 2015). Approximately 9.34 ha of the Project Area is located within land mapped for Class B Agricultural Land. Desktop analysis of the site (refer to **Photograph 1**) shows the Project Area is currently not utilised for cropping purposes, with vegetation on site being highly disturbed due to historic use for cattle grazing. It is therefore considered unlikely that this area would serve as quality agricultural land for cropping purposes as evidenced through historic imagery (refer to **Photograph 2 - Photograph 5**).

A Development Approval (Council Reference D18-2017) over the Project Area for the construction and operation of a Solar Farm facility is in place, consenting to the approval for the mapped Class B Agricultural Land for use as a solar farm facility. Considering the Project Area falls within this existing approval area, it is reasonably considered that this area does not constitute priority agricultural land. It is concluded that the strategic co-location of the Proposed Development with similar infrastructure will not serve to alienate or impact the agricultural productivity of the surrounding landscape, as it is directly adjacent to existing infrastructure.

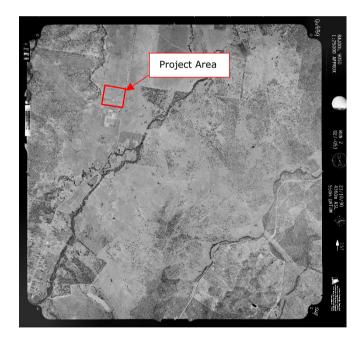




PHOTOGRAPH 2 HISTORIC IMAGERY OF SITE 1968



PHOTOGRAPH 3 HISTORIC IMAGERY OF SITE 1973



PHOTOGRAPH 4 HISTORIC IMAGERY OF SITE 1990



PHOTOGRAPH 5 HISTORIC IMAGERY OF SITE 2004

4. PLANNING ASSESSMENT

4.1 PLANNING ACT 2016

The Planning Act provides the overall statutory planning framework and development system for Queensland. The purpose of the Planning Act is to establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning, development assessment and related matters that facilitates the achievement of ecological sustainability.

To facilitate the provision of the Proposed Development over the proposed area, a Development Application for a Material Change of Use (Undefined Use (BESS)) and Reconfiguring a Lot is required.

4.1.1 IMPACT ASSESSMENT

As outlined in the following, Impact Assessable Development Applications are required to be lodged with the assessment manager identified by the Planning Regulation 2017.

Further, the assessment manager is required to assess the Proposed Development in accordance with section 45(5) of the Planning Act:

- 1. An impact assessment is an assessment that
 - a. Must be carried out
 - i. Against the assessment benchmarks in a categorising instrument for the development; and
 - ii. Having regard to any matter prescribed by regulation for this subparagraph; and
 - b. May be carried out against, or having regard to, any other relevant matter, other than a person's personal circumstances, financial or otherwise.

4.1.2 PUBLIC NOTIFICATION

As per section 53(4) of the Planning Act, given that the application is Impact Assessable, public notification is required. The Development Application is required to be publicly notifiable for a period of at least 15 days.

4.2 STATE PLANNING MATTERS

4.2.1 APPLICABLE STATE MAPPING

The State Development Assessment Mapping System provides a central representation of all available mapping that may assist in identifying relevant assessment or referral triggers under the Planning Regulation 2017 and relates to provisions contained within the SDAP. A copy of the DAMS mapping is available within **Appendix K**, with the following matters of State interest identified specifically for the Project Area.

State Controlled Road - Area within 25m of a State Controlled Road

The Burnett Highway is located immediately to the east of the Proposed Development, with access to the site proposed via Burnett Highway.



4.2.2 STATE ASSESSMENT AND AGENCY REFERRALS

Schedule 10 of the Planning Regulation outlines the following referral triggers that applicable for the Proposed Development and are addressed as part of this report.

- Schedule 10, Part 9, Division 4, Subdivision 2, Table 4 Material change of use that is within 25 m of a State-controlled Road; and
- Schedule 10, Part 9, Division 2, Table 1 and Table 2 Reconfiguring a lot subject to an
 easement or near a substation site and material change of use near a substation site or
 subject to an easement.

4.2.3 STATE DEVELOPMENT ASSESSMENT PROVISIONS

The Proposed Development triggers referral to the State Assessment and Referral Agency for assessment against State Code 1: Development in a State Controlled Road environment.

An assessment of State Code 1 is provided in **Appendix I**. The assessment demonstrates that the proposed development complies with State Code 1. The proposed development is consistent with the intent of the Code and will not have any adverse impacts on the State-controlled road or State-controlled road network.

4.2.4 CENTRAL QUEENSLAND REGIONAL PLAN

The Project Area is located within the Central Queensland Regional Plan 2013 (Regional Plan) area.

Part 2.2 of the Planning Scheme identifies that the Regional Plan has been appropriately integrated into the Planning Scheme and therefore the development application does not require separate assessment against the Regional Plan.

Specifically, the Regional Plan identifies regional outcomes, regional policies for achieving the regional outcomes, and the State's intent for the future spatial structure of the region including Priority Agricultural Areas, Priority Living Areas, and priority outcomes for infrastructure.

The Regional Plan identifies Priority Living Areas, which are to be utilised to provide opportunities for towns to expand in the next 20 years (i.e. 2033). Local governments can approve other activities within Priority Living Areas should they deem they are appropriate and in the community's interest. The Project Area is not located within a mapped Priority Living Area.

The Regional Plan identifies a Priority Outcome for electricity infrastructure in the region to grow energy generation capabilities through the public and private sector. Particularly, the Regional Plan identifies the need for transmission/ distribution systems to respond to growth in the region.

Given that the Proposed Development will allow energy generation in the region to be connected to the adjacent substation, the Proposed Development is considered consistent with the intent of the Regional Plan and will contribute to achieving its outcomes.

4.2.5 STATE PLANNING POLICY

Section 2.1 of the Planning Scheme identifies that the State interests under the State Planning Policy have been appropriately integrated into the Planning Scheme and therefore the development application does not require separate assessment against the Policy.



The State Planning Policy was released on 3 July 2017 and is the State instrument made under the Planning Act. The State Planning Policy contains 17 State interests that are important to protect and enhance through Queensland's continued development. The State interests are arranged under five broad themes:

- · Liveable communities and housing;
- Economic growth;
- Environment and heritage;
- Safety and resilience to hazards; and Infrastructure.

4.3 ROCKHAMPTON REGION PLANNING SCHEME 2015 VERSION 4.4

The Planning Scheme provides the framework for managing development in a way that advances the purpose of the Planning Act and to meet the needs of the Rockhampton region.

The Strategic Plan within the Planning Scheme sets the policy direction for the scheme and forms the basis for ensuring appropriate development occurs in the Planning Scheme area.

4.3.1 DEVELOPMENT DEFINITION

Council have not yet adopted the BESS definition provided by the Queensland Planning Provisions into the Planning Scheme. As such, under Schedule 1 of the Planning Scheme, the BESS is defined as 'Undefined Use'. Recently, the Planning Regulation was amended to include a use definition for a Battery Storage Facility. The Planning Regulation amendment has not been reflected in the Planning Scheme. Under Schedule 24 of the Planning Regulation, 'Battery Storage Facility' is defined as:

"The use of premises for the operation of 1 or more battery storage devices."

4.3.2 ZONING

The Project Area is in the Rural Zone and Special Purpose Zone of the Planning Scheme.

The purpose of the Rural Zone is to:

- 1. Ensure that land with productive capacity is maintained for a range of existing and emerging rural uses that are significant to the economy of the planning scheme area;
- Recognise that different types of rural land are suited to specific uses such as animal industries, horticulture, cropping, intensive animal industries, intensive grazing and extractive industries;
- 3. Prevent the establishment of development which may limit the productive capacity of the land:
- 4. Provide for diversification of rural industries where impacts can be managed; and
- 5. Maintain the environmental values of all rural land.

The purpose of the Special Purpose Zone is to:

- 1. Protect important special purpose sites from the establishment of inappropriate land uses;
- 1. Minimise land use conflict and ensure that development does not adversely affect the amenity and characteristics of the surrounding area; and
- 2. Ensure that development within the zone has appropriate standards of infrastructure and essential services.



4.3.3 CATEGORY OF ASSESSMENT

4.3.3.1 MATERIAL CHANGE OF USE

In accordance with Section 5.4.6.4 of the Planning Scheme, a Material Change of Use Development Application for 'Undefined Use' within the Rural Zone is 'Impact Assessable Development.' As such, the Proposed Development is to be assessed against the entire Planning Scheme and requires public notification.

4.3.3.2 RECONFIGURING A LOT

The Proposed Development seeks to divide the land of Lot 2 on RP613051 into parts by agreement via a lease exceeding 10 years. In accordance with Table 5.5.1 of the Planning Scheme, reconfiguring a lot via the creation of a lease exceeding 10 years is not listed within the table of assessment and thus is considered 'Code Assessable Development.' Notwithstanding, as the Material Change of Use Development Application is to be assessed as 'Impact Assessable Development' this aspect of the application will also be treated as such. Therefore, the Proposed Development is to be assessed against the entire Planning Scheme and requires public notification.

4.3.4 STRATEGIC FRAMEWORK

The Planning Scheme Strategic Framework sets the policy direction for the Planning Scheme and forms the basis for ensuring appropriate development occurs with the Planning Scheme area for the life of the Planning Scheme. As per the Planning Scheme, an Impact Assessable application is to be assessed against the Strategic Framework.

Table 4-1 provides an assessment of the Proposed Development against the Strategic Framework outlined in the Planning Scheme.

TABLE 4-1 STRATEGIC FRAMEWORK ASSESSMENT

Strategic Theme	Response	
Settlement pattern	The Proposed Development has been strategically co-located immediately adjacent to existing infrastructure, being the BESS operated by Genex and the Bouldercombe Substation operated by Powerlink. Through the location of the Proposed Development with like facilities, the surrounding landscape is maintained through the avoidance of fragmentation should the development be located elsewhere. Additionally, the Proposed Development would not be suitably located outside of the chosen Project Area as no viable substation connection is available. The Proposed Development has been assessed for its	
	potential impacts on natural hazards, including bushfire and flooding, and is compliant in avoiding and mitigating potential impacts to the surrounding environment.	
Natural environment and hazards	The Project Area is not mapped as being within Council's Biodiversity Overlay Code, Character Ovelay Code or Heritage Overlay Code. It can therefore be concluded that the Proposed Development will not negatively impact on these elements as they have not been identified within the Project Area.	



Strategic Theme	Response
	A Hazard Incident Management Plan (Appendix C), Stormwater Assessment Report (Appendix E), and Sitebased Stormwater Management Plan (Appendix F) have been completed for the Proposed Development, concluding that the project will not result in unsustainable impacts on the natural functioning of floodplains and the quality of water entering waterways and local catchments. Additionally, no significant risk to human life and property from Proposed Development in the areas surrounding the project have been identified.
Community identity and diversity	The Proposed Development involves the construction of a BESS facility and ancillary infrastructure which will enable the Rockhampton region to increase their energy generation capabilities.
	The Proposed Development does not relate to, nor will it adversely impact housing diversity, sport and recreation, social, arts and cultural infrastructure.
	Community identify should not be impacted, as the project does not relate to the creation of a place intention for public use. Additionally, as the Project Area is not mapped within a heritage or character place, the Proposed Development will not impact these elements.
Access and mobility	The Proposed Development is for a BESS facility and ancillary infrastructure, and as such is unsuitable for access by the public. The lease area for the development will be fenced for safety and security purposes.
	A Traffic Impact Statement (Appendix B) has been prepared for the development and does not identify any significant impacts to the State-controlled or local road network. Additionally, the application requires referral to the Department of Transport and Main Roads to ensure the safety of the road network is maintained.
Infrastructure and services	The Proposed Development will address the existing and long-term energy needs of the community by allowing generated energy to be stored and connected to the adjacent substation for distribution.
Natural resources and economic development	The Proposed Development provides the opportunity for increased employment opportunities during the construction and operational phases, as identified in Table 3-1 and Table 3-2 .
	Additionally, as detailed in Section 3.5.6 , whilst a portion of the Project Area is mapped as being Class B Agricultural Land, the removal of this portion will not result in significant impacts as the Project Area has historically not been utilised for productive cropping purposes. Additionally, as delineated in Section 3.5.6 , the Project Area has already been designated for use as a Solar Farm facility under an existing Council Approval (Council Reference D18-2017).



Additionally, **Table 4-2** provides a response to the relevant identified Strategic Outcomes in the Strategic Framework.

TABLE 4-2 STRATEGIC OUTCOME ASSESSMENT

TABLE 4 2 STRATEGIC OUTCOME ASSESSMENT			
Strategic Outcome	Response		
Settlement Pattern (Element - Rural)			
1.Rural land has important economic, environmental, and scenic values and provides for uses including primary production, mining and tourism	The Proposed Development, while is not a mining, tourism or primary production land use, will not have any impact on environmental and scenic values. The Proposed Development will provide economic benefit to the region through the employment of workers during construction and the provision of energy stability and security to the region during operation.		
2.Rural land is not used for urban development and is to be protected for its productive, landscape and natural resource values.	The Proposed Development is not for urban development and will not impact the productive landscape and natural resource values.		
4. Development will not alienate or impact on the productive agricultural capacity of rural areas.	The Project Area is in the Rural Zone, however, is located adjacent to an existing BESS and substation. The use of the Project Area as a BESS will not alienate or impact on surrounding rural land uses.		
6. Subdivision of rural land will be regulated by minimum lot sizes established to maintain the productive potential of the land. The amalgamation of existing smaller lots into larger proportions is encouraged.			
14. Other uses that are required to coexist with rural uses will be accommodated where they do not: a. diminish the productivity of agricultural land; b. impact on adjoining or nearby uses; c. impact on the capacity and safety of State-Controlled roads; and d. result in fragmentation of rural land.	The Project Area is located within the Rural Zone, however, is located adjacent to an existing BESS and substation. The use of the Project Area as a BESS will not alienate or impact on surrounding rural land uses. Additionally, the Proposed Development will not diminish the productivity of surrounding agricultural land nor the capacity and safety of the State-controlled road.		
Natural Environment and Hazards			
 2. Development does not create unsustainable impacts on: a. the natural functioning of floodplains; b. environmentally significant areas, including areas of State and locally significant vegetation, which provide fauna habitat and support biodiversity; and c. the quality of water entering waterways, wetlands and local catchments. 	The Proposed Development is located on Category X vegetation (Appendix K) and will not impact any environmentally significant areas. Additionally, the functioning of floodplains and water quality will not be impacted.		
3. Development does not increase the risk to human life and property in areas that are affected, or potentially affected, by storm-surge, erosion, sea-level rise or other coastal processes, flooding, bushfire, or landslide. This occurs through the avoidance of natural hazards in new development areas.	The subject site is affected by bushfire hazards however the Proposed Development will not increase the risk to human life and property in the area.		



Strategic Outcome	Response	
Infrastructure and Services		
Element – Inter-regional networks		
5. Development provides for the safe and efficient provision of energy infrastructure adequate to satisfy community's needs and where possible accommodate sustainable/alternative energy options such as solar.	Given the Proposed Development will allow energy generated in the region to be connected to the adjacent substation, the development will be adequate to accommodate existing and future energy needs of the community.	
Element – Local area networks		
6. The design and location of infrastructure maximises the use and benefits of existing infrastructure and minimises the need for additional infrastructure and services.	The strategic location of the Proposed Development immediately adjacent to the Powerlink Substation has been done so to maximise the use and benefits of the existing substation facility, whilst minimising additional infrastructure and services should the development be located elsewhere.	

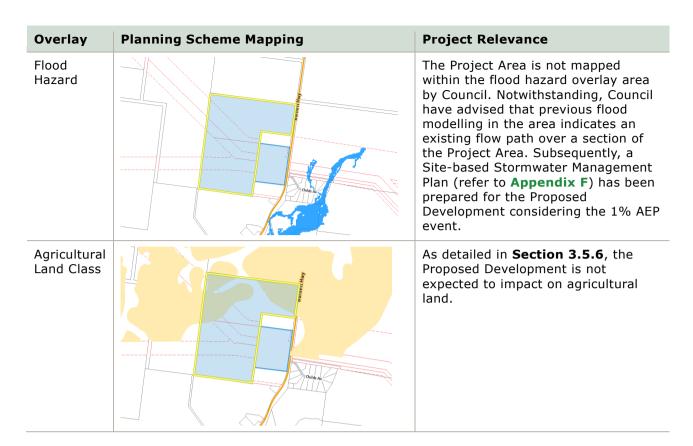
4.3.5 OVERLAY MAPPING

A review of the Planning Scheme was undertaken with applicable mapping identified in Table 4-3.

TABLE 4-3 APPLICABLE OVERLAYS

Overlay	Planning Scheme Mapping	Project Relevance
Bushfire Hazard		A small portion of the Project Area is mapped as being a medium potential bushfire intensity. A bushfire risk assessment may not be required; however, the Proponent will submit a Fire Safety Management Plan detailing emergency response and mitigation measures to reduce the risk of fire and adverse impacts to adjacent landowners.
Steep Land	Contract of the Contract of th	A small portion of the Project Area is mapped as steep land. The current project layout largely avoids these areas, no further assessment is required.





4.3.6 APPLICABLE ASSESSMENT BENCHMARKS

Under the provisions of the Planning Scheme and SDAP, the Proposed Development is required to be assessed against the Assessment Benchmarks – Codes, stated in **Table 4-4.**

TABLE 4-4 ASSESSMENT BENCHMARKS - CODES

Development Codes	Overlay Codes	SDAP Codes
 Special Purpose Zone Code Rural Zone Code Reconfiguring a Lot Code Landscape Code Stormwater Management Code Water and Sewer Code Access, Parking and Transport Code Waste Management Code Works Code 	 Bushfire Hazard Overlay Code Steep Land Overlay Code 	State Code 1: Development in a State-controlled road environment

4.3.6.1 BENCHMARK COMPLIANCE SUMMARY

A detailed assessment of the Proposed Development against the assessment benchmarks has been undertaken and is provided in **Appendix H** and **Appendix I**.

From the assessment, the Proposed Development is generally compliant with the assessment benchmarks in **Table 4-4**. As per the assessment, the Proposed Development is proposed to seek no alternative outcomes, as such, the Proposed Development is compliant with the intent of the Rural Zone. A benchmark compliance summary, including additional consideration of the Rural Zone and Reconfiguring a Lot Codes is provided below:



Rural Zone Code

As the Proposed Development is located in the Rural Zone, the project has been assessed against the specific benchmarks for assessment of the Rural Zone Code. Site selection within the Rural Zone has been selected due to the provision of existing major electricity infrastructure within the area, being the Bouldercombe BESS facility operated by Genex and Bouldercombe (Powerlink) Substation. The strategic co-location of the Proposed Development with similar infrastructure will not serve to alienate or impact the agricultural productivity of the surrounding landscape, as it is directly adjacent to existing infrastructure. Additionally, impacts to the rural amenity and landscape features of the region is minimised and will not be further degraded, as the Proposed Development will utilise existing electricity infrastructure. It is therefore considered that the co-location of the Proposed Development with like infrastructure is not inconsistent with the purpose of the Rural Zone Code.

Reconfiguring a Lot Code

A Development Permit for a lease lot (exceeding 10 years) is sought to facilitate the operation of the proposed BESS facility and has been assessed against the applicable assessment benchmarks. The site area is proposed to be established via a lease lot (exceeding 10 years) over the parent property, which includes the development site for the BESS facility and underground connections.



PLANNING REPORT PROJECT COMMITMENTS

PROJECT COMMITMENTS

As part of the Proposed Development, the Proponent will make the following commitments to ensure that the Proposed Development provides the best outcome for the local community and maintains the rural amenity of the area:

- 1. The approved development will comply with the acoustic quality objectives in the Queensland Environmental Protection (Noise) Policy 2019 at all existing noise affected sensitive receptors as at the date of any approval;
- 2. The Proponent will submit to Council a Traffic Management Plan which includes measures to mitigate adverse impacts to traffic during construction;
- 3. The Proponent will submit to Council a Fire Safety Management Plan, which details emergency response measures and mitigation measures to reduce risk of fire and adverse impacts to adjacent landowners;
- 4. The Proponent will submit to Council a Construction Environmental Management Plan;
- 5. Following project approval, the Proponent will apply to Council for the necessary operational and building works approvals;
- 6. The proponent commits to developing and implementing a community benefits scheme in consultation with the local community.
- 7. Preparation of a Decommissioning and Rehabilitation Plan created when the project reaches end of life;
- 8. The final design shall include the following:
 - Suitable equipment to respond to any fires on site, including provision of a 100,000 litre water supply tank fitted with a Bouldercombe Rural Fire Service compatible suction connection;
 - b. A minimum 10 meter defendable space around the perimeter that permits unobstructed vehicle access, and assists the emergency services as much as practicable if there is a fire in the vicinity of the site; and is managed as an asset protection zone (including the defendable space); Appropriate management of vegetation fire loads on site to reduce bushfire risk.
 - c. Notify the relevant local emergency services following completion of construction of the development, and prior to commencing operations; and
- 9. Preparation of an Emergency Management Plan including detailed emergency procedures in consultation with Bouldercombe Rural Fire Brigade prior to commencement of operations



PLANNING REPORT CONCLUSION

CONCLUSION

This Planning Report is in support of an Impact Assessable Development Application for a Development Permit for a Material Change of Use – Undefined Use (Battery Energy Storage System) and Reconfiguring a Lot – creation of a lease exceeding 10 years, to authorise the construction and operation of a BESS facility and ancillary infrastructure, including lease for the life of the Proposed Development.

This Planning Report demonstrates that the Proposed Development is consistent with the relevant State and local planning intents for the Rural Zone and Special Purpose Zone in the Rockhampton Regional Council Local Government Area.

The proposed BESS has been assessed against the relevant assessment benchmarks and has demonstrated compliance with the Overlay Codes and SDAP (**Appendix I** and **Appendix J**). The Proposed Development satisfies the overall outcomes of the applicable codes and does not significantly impact on the existing rural amenity of the surrounding area.

Based on the assessment undertaken in this Planning Report, it is concluded that the Proposed Development supports the overall planning intent for the Rural Zone and Special Purpose Zone. Accordingly, it is requested that Council approve the Development Application, subject to reasonable and relevant conditions.





APPENDIX A PROPOSED DEVELOPMENT LAYOUT PLAN



APPENDIX B TRAFFIC IMPACT STATEMENT



APPENDIX C HAZARD INCIDENT MANAGEMENT PLAN



APPENDIX D NOISE ASSESSMENT REPORT



APPENDIX E STORMWATER ASSESSMENT REPORT



APPENDIX F

SITE-BASED STORMWATER MANAGEMENT PLAN



APPENDIX G LANDSCAPE CONCEPT PLAN



APPENDIX H

COUNCIL PRE-LODGEMENT MEETING MINUTES



APPENDIX I SDAP CODE RESPONSE



APPENDIX J COUNCIL CODE RESPONSE



APPENDIX K DAMS MAPPING



APPENDIX L DWATSIP SEARCH RESULTS



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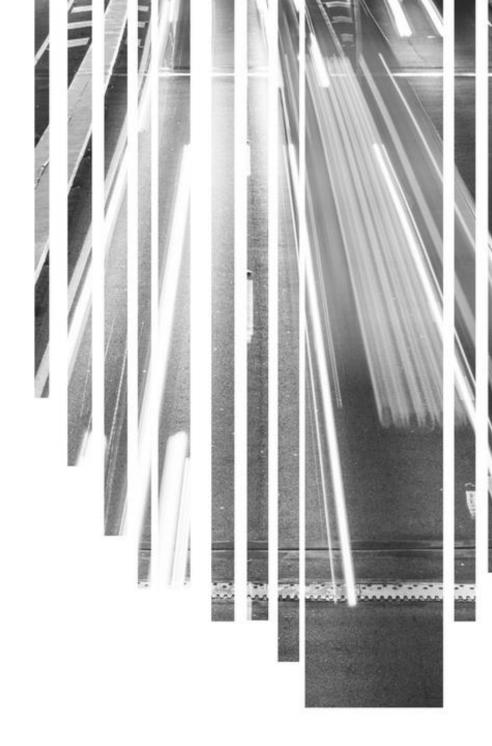
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CAMBRAY CONSULTING

TRAFFIC ENGINEERING + TRANSPORT PLANNING



Capricorn BESS Project TRAFFIC IMPACT STATEMENT

Prepared For ERM (Environmental Resources Management) 12 February 2025

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Appendices

Appendix A

Capricorn BESS Project Layout Plan

Appendix B

High-level Project Area Access Concept &
Swept Path Assessment
Cambray Consulting



1.0 Introduction

Cambray Consulting Pty Ltd (Cambray) has been engaged by ERM in relation to the Capricorn Battery Electricity Energy Storage System (BESS) Project (The **Project**), which is the neighbouring property to the north of the Bouldercombe Substation located on the Burnett Highway.

1.1 Limits of Report

This report takes into account the particular instructions and requirements of our client. Cambray Consulting has taken care in the preparation of this report, however, it neither accepts liability nor responsibility whatsoever in respect of:

- Any use of this report by any third party;
- Any third party whose interests may be affected by any decision made regarding the contents of this report; and/or
- Any conclusion drawn resulting from omission or lack of full disclosure by the client, or the clients' consultants.

1.2 Safety in Design

Within our scope, we have identified safety in design issues and potential hazards, whenever reasonably practicable within our field of expertise. It is not considered reasonably practicable to identify all potential hazards which may occur throughout the life of a project, including during detailed design and construction activities. It is strongly recommended that safety in design issues be reviewed during all ensuing design and construction stages of the project.

1.3 Qualifications

This report was prepared by:

- Andrew Douglas, Director BE Civil (Hons), MSc Env Man, FIEAust, CPEng, RPEQ 6691; and
- John Dollisson, Senior Transport Engineer BE Civil, MIEAust.



2.0 Context

2.1 Project Area

The Project area is located on the western side of the Burnett Highway in Bouldercombe, is located within the Rockhampton Regional Council (Council) local government. The Project Area is formally identified as Lot 2 on RP613051.

2.2 Surrounding Road Network

The key characteristics of the adjacent road network are summarised in **Table 2.1** and illustrated in **Figure 2.1**.

Table 2.1 Existing Road Network

Road	Authority	Hierarchy	Speed Limit
Burnett Highway	State-Controlled Road	Motorway	100km/h
Childs Avenue	Council	Rural Access	50km/h

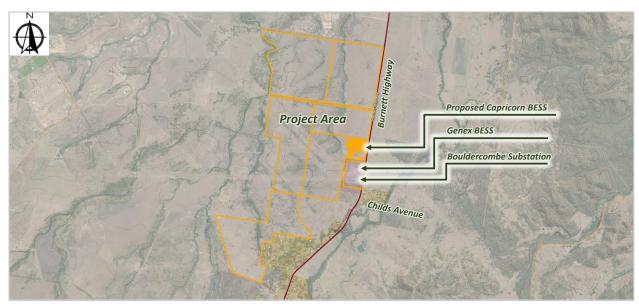


Figure 2.1 Project Area and Surrounding Road Network



3.0 Project Review

The Project proposes to construct a Battery Energy Storage System (BESS) directly north-west of the existing Substation and recently constructed Genex BESS system within the substation property.

The proposed BESS is a 399MW / 1575MWh system consisting of the following:

- 525 BESS containers;
- 105 Inverters and Medium Voltage (MV) Power Stations; and
- One (1) High Voltage (HV) Substation and associated infrastructures.

A copy of the Project plans is included in **Appendix A** and reproduced in **Figure 3.1.**

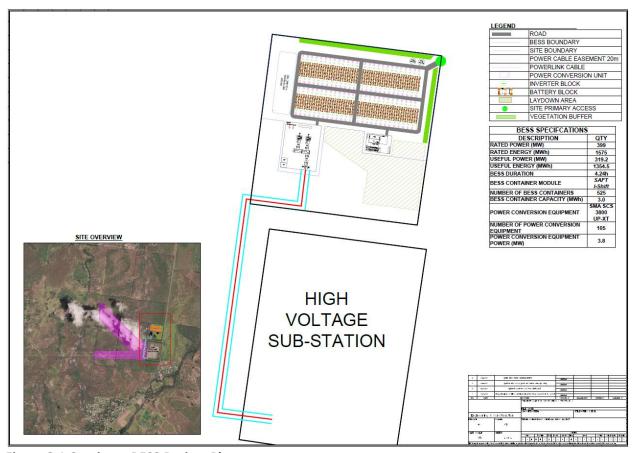


Figure 3.1 Capricorn BESS Project Plans

3.1.1 Construction Phase Traffic Generation

The Construction phase is of most relevance in terms of potential traffic related impacts, with the assessment of significance due to the traffic associated with:

- Components moving between the State Controlled Road (SCR) Network and the Project area;
- Materials and equipment moving between population centres and the Project area; and
- Construction workers moving between population centres and the Project area.



3.1.2 Operations Phase Traffic Generation

During the operational phase of the Project, the number of daily movements will be insignificant in the general context of the Project. It is anticipated that daily movements may be in the order of 10 vehicle trips a day with a service vehicle visiting the base of operations 1 to 2 times a week for refuse collections and occasional large deliveries.

3.1.3 Project Transport Route

During the construction period, there may be a need for low loaders for machinery delivery, truck and dog tippers, 26m B-Double side tippers, and up to 26m B-Double in length for the delivery of components. The delivery of construction machinery and BESS components will travel along the State Controlled Road (SCR) Network to the Project area.

While it is still to be determined on where the components may be transported from, a high-level review of movements from the Port of Gladstone has been undertaken to determine the capacity of the road network in the vicinity to the Project Area.

3.2 State Controlled Road Network Summary

The Project intends to utilise the SCR network in order to access the Project area of which includes the following roads:

- Gladstone Port Access Road (183);
- Gladstone Mount Larcom Road (181)
- Bruce Highway (Benaraby Rockhampton) (10);
- Gavial Gracemere Road (450); and
- Burnett Highway (Mount Morgan Rockhampton) (41F).

3.2.1 State Controlled Road Network Heavy Vehicle Routes and Restrictions

A review of the SCR network for Heavy Vehicle Routes and Restrictions was undertaken in order to understand the potential limitations of access to the Project Area.

Extracts from the SCR Heavy Vehicle Routes and Restrictions mapping are illustrated in **Figure 3.2** to **Figure 3.4** and indicate the extent of routes pre-approved for the following heavy vehicle classes:

- 25/26m B-Double and PBS 2A (B25/26) which include;
 - Vehicles configured to be up to 26 metres in length and 62.5 tonnes;
- Higher mass limits (HML) of which;
 - Is a mass exception allowing an increase in mass limit for specific single axles or axle groups of heavy vehicles; and
- The Queensland Critical Road Network.

Further, Oversized and Overmass (OSOM) vehicles up to 35.0m in length may be required to transport construction equipment and components to the Project Area. These OSOM vehicles are defined in Queensland as Special Purpose Vehicles (SPV) which is governed by the *National Class 1 Load Carrying Vehicle Dimension Exemption Notice 2024 (No.1)*.

The parameters of allowable SPV Prime mover and trailer combination are summarised in **Table 3.1** and the route found on the National Heavy Vehicle Regulator (NHVR) is illustrated in **Figure 3.5.**



Table 3.1 SPV Prime Mover and Trailer Combinations for OSOM Movements

Maximum Vehicle Length	Condition#	Critical Road Width	Other Roads Width	Pilot Required	Escort Required
26.0*	5. Day	3.5m	3.5m	No	No
26.0m*	6. Night	3.1m	3.1m	No	No
35.0m	7. Day	4.5m	5.5m	Yes	Yes

^{*}Maximum length on B-Double approved routes

[#] National Class 1 Load Carrying Vehicle Dimension Exemption Notice 2024 (No.1).

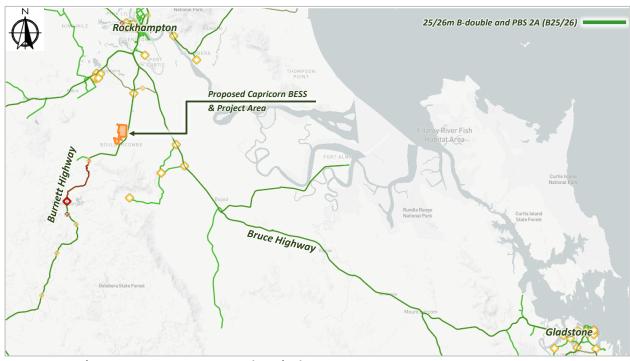


Figure 3.2 25/26m B-Double and PBS 2A (B25/26) Network - NHVR

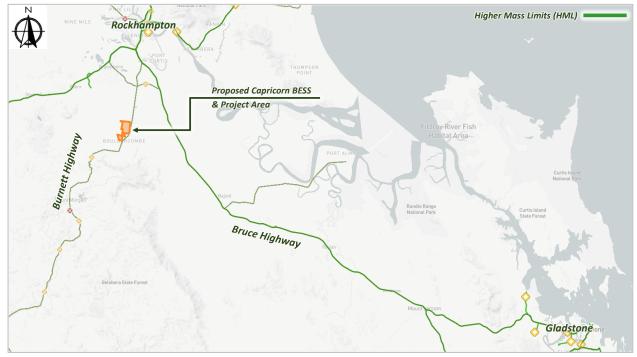


Figure 3.3 Higher Mass Limits Network - NHVR



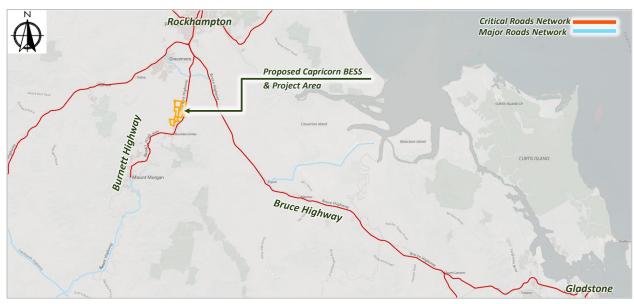


Figure 3.4 Critical Roads Network - DTMR

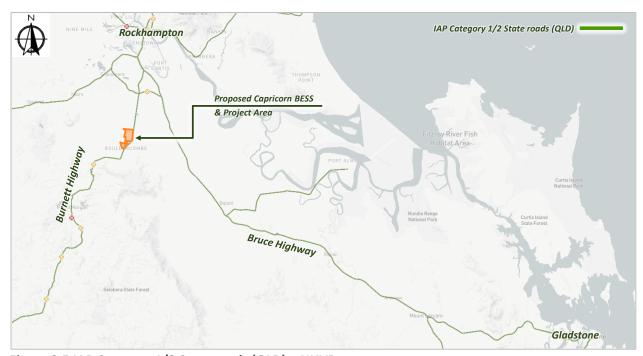


Figure 3.5 IAP Category 1/2 State roads (QLD) – NHVR

Figure 3.2 and **Figure 3.4** demonstrates the capacity of the SCR network in proximity to the Project area allows the following combinations:

- 25/26m B-Double and PBS 2A (B25/26) appearing to be approved between Gladstone to Rockhampton and Rockhampton to the Project area;
- Higher Mass Limits (HML) vehicle combinations between the Port of Gladstone and The Project Area; and
- The roads are listed on the Queensland Critical Road Network.

Further, the SCR network appears to have the capacity to carry up to and including 26m B-double combinations 'as of right' and OSOM combinations of up to 36.0m in length and 4.5m (**Figure 3.5**) on the Critical Road network during the day under pilot and escort.



4.0 Proposed Area Access

The Project will be accessed from the Burnett Highway via proposed Project area access location fronting Lot 2 on RP613051. The proposed Project area access location is illustrated **Figure 4.1** in relation to the surrounding road network.



Figure 4.1 Proposed Project Area Access Location

The existing turn treatments on the Burnett Highway in proximity to the Project area access location, includes:

- Bouldercombe Sub-Station;
 - A Basic Right Turn Treatment (BAR);
 - TMR Standard Drawing SP-02 'Property Access Main Roads AADT > 2000vpd';
- Childs Avenue;
 - o A Basic Left Turn Treatment (BAL); and
 - A Basic Right Turn Treatment (BAR).

A Street view of the proposed access location is illustrated in Figure 4.2.



Figure 4.2 Street View of proposed Project Area Access Location

4.1.1 Sight Distance

A desktop sight distance review was conducted for the Project site access location on the Burnett Highway. The recommended Safe Intersection Sight Distance (SISD) to / from this intersection is summarised in **Table 4.1**.



Table 4.1 Sight Distance Review

Parameter	Requirement
Posted Speed limit	100km/h
Design Speed (Posted +10km /h)	110km/h
Reaction Time	2.5 sec
Required SISD AGRD4a	300m

The required sight distances to/from the Project site access location on the Burnett Highway are illustrated in **Figure 4.3**.

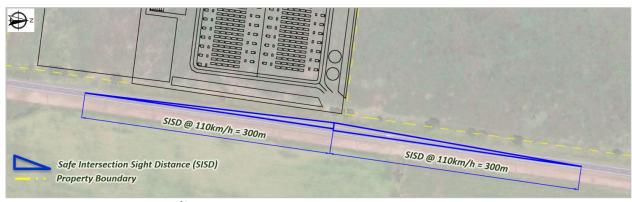


Figure 4.3 Sight Distances to/from the Project Site Access location

The sight distances to the north and south of the Project Site access location are illustrated in **Figure 4.4** and **Figure 4.5**.



Figure 4.4 Burnett Highway Facing North



Figure 4.5 Burnett Highway Facing South

Based on the desktop review of Project site access location on the Burnett Highway, and the design speed of 110km/h at a 2.5 second reaction time, the available sight distances appear consistent with AGRD4a guidelines.



4.2 Internal Layout Provisions

The site office and light vehicle parking will be located to the south of the Project Area south of the BESS infrastructure. The light vehicle parking will be accessed via the internal road network as shown in **Figure 4.6.**



Figure 4.6 Proposed Car Parking Provision

The car park will include ten (10) spaces and will be dimensioned in accordance with AS2890.1, as follows:

- Nine (9) car park spaces measuring 2.6 x 5.4m min.;
- A PWD space of 2.4 x 5.4m with a 2.5 x 5.4m Shared Zone; and
- Aisle width of 6.6m min.

Given the nature of this type of development, the provision of the car parking is expected meet daily operational traffic and therefore appears to be adequate.



5.0 Traffic Generation and Distributions

5.1 Overview

We have undertaken a review of the Project's traffic impacts may have on the existing transport network surrounding the Project area over the 24-month construction phase, broken down into the following phases:

- Civil Works;
- Installation:

- Commissioning; and
- Operation.

The construction phase traffic is generated by the following vehicle types and uses:

- Light vehicles associated with staff accessing the Project area;
- Heavy vehicles which include;
 - o Medium and Heavy rigid vehicles which deliver materials and smaller plant equipment;
 - o Truck and Dog vehicles used for earthworks and movement of material;
 - o Class vehicles i.e. mobile cranes; and
 - Up to and including 26m B-double vehicles for the delivery of materials, components and to transport larger plant to the Project area.

The inputs which form the basis of our review are outlined in the following sections.

5.2 Background Traffic Volumes

The 2023 Annual Average Daily Traffic (AADT) for the Burnett Highway has been sourced from DTMR traffic census data at count site 60008 and is summarised in **Table 5.1.**

Table 5.1 2023 DTMR Census Data for the Burnett Highway

Direction	AADT	% of HV	Description	Road Name/Segment ID	10 Year Growth
Combined	3427		670m N of	(Mayot Margan	
Gazettal	1695	11.27%	670m N of	(Mount Morgan –	3.36%
Against Gazettal	1732		Childs Ave	Rockhampton ID 41F)	

The growth rate over the last 10 years is listed as 3.36% in the AADT traffic census data. The 10-year growth has been adopted and applied to the background traffic volume as linear.

5.2.1 Peak Hour Review

A review of the hourly profile was undertaken for Traffic Count Site 60008 to determine the peak hour Annual Average Daily Traffic percentage (AADT %) for the potential through movements along the Burnett Highway. The 2020 segment data for the count site has been reviewed as the 2021 to 2023 segment data is not currently available and is illustrated in **Figure 5.1**



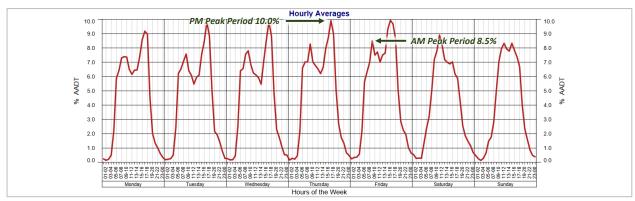


Figure 5.1 Hourly AADT% for Peak Hour movements at Traffic Count Site 60008

The peak hour AADT % adopted from the 2020 segment data for the count site 60008, is as follows:

- AM Peak Period = 8.5%; and
- PM Peak Period = 10.0%

5.2.2 Background Traffic volumes summary

The 2023 DTMR Traffic Census at count site 60008 is in the order of 3427 at a growth of 3.36% over the last 10 years. An AM and PM peak period of 8.5% and 10.0% respectively will be applied to the background traffic for the Gazettal and Against Gazettal AADT summarised in **Table 5.1**.

5.3 Project Traffic Volumes

A first principals' approach to the volume of light, and heavy vehicle movement has been adopted from similar BESS projects and has been used to estimate traffic volumes for the construction and operational phase, as follows:

- Construction commencement in 2026;
- 24 months total Construction Phase working Six (6) day working week;
- Civil works (delivery of dozers, loaders, graders, concrete deliveries, etc. arrives during civil works period);
- In the order of 630 Total Equivalent Units (TEU) containers to be delivered to the Project area, which may include;
 - o 525 BESS containers;
 - o 105 Inverters and Medium Voltage (MV) Power Stations; and
 - 1 High Voltage (HV) Substation and associated infrastructures.

Civil Works Phase (6 months)

- 40 45 trucks per day for delivery of machinery and construction materials;
 - o I.e., 80 90 two-way heavy vehicle trips per day; and
- 45 50 light vehicles per day for the movement of staff during the civil works period;
 - o I.e., 90 100 two-way light vehicle trips per day.

Installation Phase (15 months)

- 25 30 trucks per day for delivery of machinery and construction materials;
 - o I.e., 50 60 two-way heavy vehicle trips per day; and
- 25 30 light vehicles per day for the movement of staff during the civil works period;
 - o I.e., 50 60 two-way light vehicle trips per day; and
- Delivery of 730 TEU containers to the Project area over ten (10) months, 3 deliveries every day,
 - o i.e., six (6) two-way trips every day.



Commissioning Phase (3 months)

- 2-3 trucks per week for the removal of machinery;
 - o I.e., one (1) one-way truck trip every three (3) days; and
- 20 light vehicles per day;
 - o i.e., 40 two-way light vehicle trips per day.

Operational Phase (ongoing)

- 1 truck per month to cater for maintenance; and
- 10 light vehicles per day;
 - o i.e., 20 two-way light vehicle trips per day.

Table 5.2 and **Table 5.3** Summarises the estimated average weekly and daily potential vehicle trips expected to access the Project area during the approximate 4-month (16 week) Civil Works Phase and the Installation Phase. This considers a six (6) day work week, with an average number of component deliveries and no substantial delays due to weather.

Table 5.2 illustrates the indicative vehicle trips expected to access the Project area during the peak week/day during the Civil Works Phase.

Table 5.2 Civil Works Phase Traffic: Estimated Average Week & Average Day

Average Period	Heavy Vehicles	Light Vehicles	Total Vehicles	Estimated Total Trips (In + Out)
Weekly	259	287	546	1092
Daily	43	48	91	182

Table 5.2 indicates the approximate vehicle trips expected to access the Project area during the highly conservative Civil Works Phase, is in the order of 91 vehicles per day.

Table 5.3 illustrates the indicative vehicle trips expected to access the Project area during the peak week/day during the Construction Phase.

Table 5.3 Installation Phase Traffic: Estimated Peak Week & Peak Day

Peak Period	Heavy Vehicles	Light Vehicles	Total Vehicles	Estimated Total Trips (In + Out)
Weekly	158	151	309	618
Daily	26	25	51	103

Table 5.3 indicates the approximate vehicle trips expected to access the Project area during the highly conservative Installation Phase, is in the order of 51 vehicles per day.

5.4 Traffic Generation and Distribution

We have adopted the Civil Works Phase as the peak traffic generation given the higher traffic generation to determine the developments impact on the SCR and Local road networks.

A traffic distribution split of Heavy and light Vehicle traffic arriving during the AM and PM peak periods is summarised in **Table 5.4.**



Table 5.4 Adopted Peak Period Traffic Distribution Splits

Traffic Type	AM	Peak	PM Peak	
тапіс туре	In	Out	In	Out
Material and Equipment Deliveries	20%	0%	0%	20%
Light Vehicle (Workforce)	80%	0%	0%	80%

Based on **Table 5.1** and **Table 5.2**, **Table 5.5** provides a summary of the traffic generated during the AM and PM peak periods accessing and egressing the development during the Civil Works Phase and Installation Phase.

Table 5.5 Peak Period Civil Works and Installation Traffic Generation

Traffic Type	AM Peak		PM Peak		
Traffic Type	In	Out	In	Out	
Civil Works	Phase – First 4	-Months			
Material and Equipment Deliveries	9	0	0	9	
Light Vehicle (Workforce)	38	0	0	38	
Total	47	0	0	47	
Installation I	Installation Phase – Last 20-Months				
Material and Equipment Deliveries	5	0	0	5	
Light Vehicle (Workforce)	20	0	0	20	
Total	25	0	0	25	

5.4.1 External Traffic Distribution

The external traffic distribution we adopted for both the construction and operational phases was based on a review of trip attractors and generators surrounding the Project and is summarised in **Table 5.6.**

Table 5.6 Adopted External Traffic Distributions

Direction	%
North (towards Rockhampton)	90%
South (towards Bouldercombe)	10%

5.4.2 Directional Traffic Distribution

The adopted directional traffic distribution splits for the various trip types are outlined in **Table 5.7**.

Table 5.7 Adopted Directional Traffic Distribution Splits

Traffic Type	AM Peak			PM Peak		
Trailic Type	In	Out	Total	In	Out	Total
Construction Phase	90%	10%	100%	10%	90%	100%

5.4.3 Operational Phase Traffic Estimate

During the operational phase of the Project, the number of daily movements will be insignificant in the general context of the Project. It is anticipated that daily movements may be in the order of 10 vehicle trips a day with a service vehicle visiting the base of operations 1 to 2 times a week for refuse collections and occasional large deliveries.

It is expected that the operational traffic will provide a negligible effect on the operation of the Burnett Highway.



6.0 Traffic Impact Statement

A turn warrant assessment was undertaken at the Burnett Highway and Project area access in accordance with Austroads *Guide to Road Design Part 4A* and the Department of Transport and Main Roads' (DTMR) *Road Planning and Design Manual.* The turn warrants assessment identified the turn-lane treatment/s that may be required to support turning volumes during Project construction and operation.

For the purpose of the assessment, the construction phase will be commencing in 2026 and to be in the order of 24 months duration. We have adopted the Civil Works Phase outlined in **Table 5.2** as a highly conservative approach and have incorporated the following:

- The 2023 AADT traffic census data was applied for Gazettal and Against Gazettal directions from (Table 5.1);
 - o Directions were applied in the AM peak and reversed in the PM peak periods;
- The AM and PM peak periods % was adopted from the 2020 AADT traffic census data for the peak hours and applied to the Gazettal and Against Gazettal volumes (Figure 5.1);
- The first principals review of the Civil Works Phase which equates to approximatly 91 daily vehicle trips (**Table 5.3**);
- The adopted peak period traffic distribution splits as summarised in **Table 5.4**;
- The adopted Peak Period Civil Works and Installation Traffic Generation as summarised in Table
 5.5;
- The adopted directional traffic distribution splits as summarised in Table 5.6; and
- The adopted directional north (90%) / south (10%) split as summarised in **Table 5.7.**

The background traffic volumes and Civil Works Phase traffic generation is illustrated in Figure 6.1.

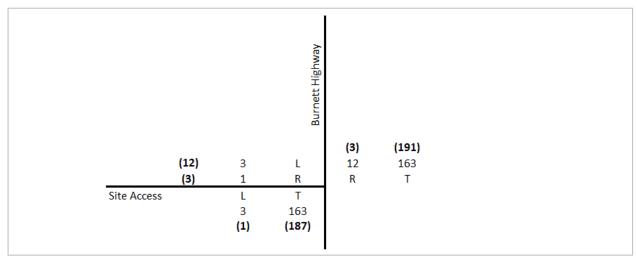


Figure 6.1 Background Traffic and Civil Works Phase Traffic Generation

A turn warrant assessment based on the 100km/h posted speed limit was undertaken for the Background Traffic and Civil Works Phase Traffic Generation and is provided in **Figure 6.2.**



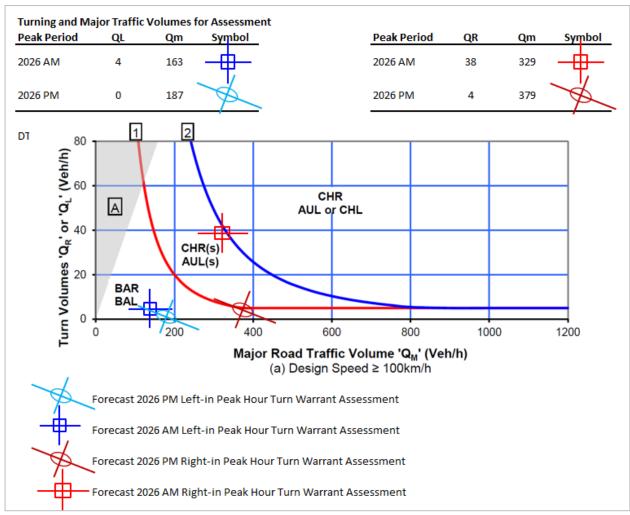


Figure 6.2 Turn warrant analysis results for background traffic and peak construction traffic generation

Table 6.2 summarises the turn warrant treatments identified in Figure 6.2.

Table 6.2 Turn Warrant Findings Summary

Traffic Scenario	Left-	Turn	Right-Turn	
Traffic Scenario	AM	PM	AM	PM
Civil Works Traffic Scenario	BAL	BAL	CHR(s)	BAR

The turn warrants analysis indicates that a BAL/CHR(s) type turn treatment may be required for access into the Project area based on the existing TMR traffic census volumes and Civil Works Phase traffic during the AM and PM peak period.

The Project site access will be new and therefore, the next section will discuss the possible implementation of a BAL and a CHR(s) turn treatment arrangement from the Burnett Highway.



7.0 Project Site Access and Turn Treatment

As indicated by the turn warrant assessments, BAL and CHR(s) turn treatments have been identified as a required upgrade based on the proposed Project traffic volumes for the site access proposed from the Burnett Highway.

Based on the Burnett Highway characteristics, the design speed of 110km/h and the available sight distances summarised in **Table 4.1**, the requirements of Austroads *Guide to Road Design Part 4a* for a Channelised Right Turn lane Treatment is summarised in **Table 7.1**.

Table 7.1 Project Site Access Turn Lane Parameters

Parameter	Access
Design Speed	110km/h
Stop Condition	2.5m/s ²
Deceleration Length	185m
Taper Length	35m

The Project Site and Burnett Highway High-level Site Access Concept is included in **Appendix C** and reproduced in **Figure 7.1.**

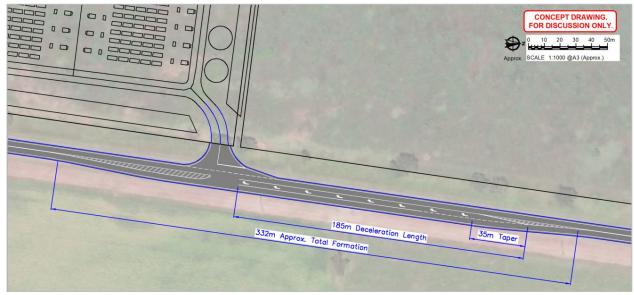


Figure 7.1 Burnett Highway High-level Site Access Concept

It is proposed to provide turn lane treatments into each of the sites access as follows:

- Channelised Right-hand turn lane (CHR) treatment for vehicle approaching from the north; and
- A Basic Auxiliary Left Turn lane treatment for vehicles approaching from the south.

During the construction period, it is proposed to lower the speed limit to 80km/h within the vicinity to the site. The reduced construction period speed limit will further improve sight lines and provide increased time to decelerate into the turn lanes and access to the site.



8.0 Summary

Key findings are summarised below:

- The Project is proposed to be accessed from the state-controlled road network via access from the Burnett Highway;
- Burnett Highway is identified as a 25/26m B-double and PBS 2A (B25/26) Network;
- The SCR has the capacity to carry up to 35.0m OSOM vehicles to deliver construction equipment and BESS components;
- The turn treatment is proposed to be provided as a;
 - Channelised Right-hand turn lane (CHR) treatment for vehicle approaching from the north; and
 - A Basic Auxiliary Left Turn lane treatment for vehicles approaching from the south.
- Sight distances to/from the Project area access appears sufficient to/from the north to meet the design speed in accordance with Austroads *Guide to Road Design Part 4a*;
- The proposed access configuration caters for heavy vehicle access;
- Internal access tracks are intended to be utilised for the project and improvements to the existing flat Project area may be undertaken for set down and car parking arrangements; and
- The peak traffic generating period does not appear to require any turn treatment upgrades based on the highly conservative traffic generation assessment.

In light of the above, we recommend that the Project be approved with reasonable and relevant conditions as set out above.

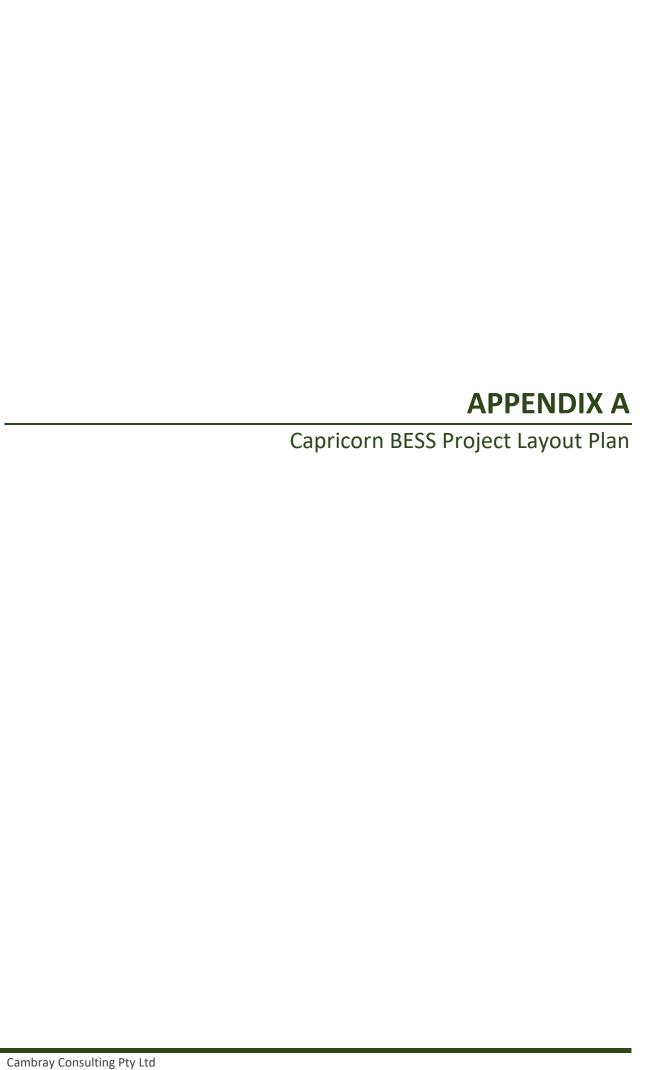
Please do not hesitate to contact the undersigned on 07 3221 3503 if you have any queries regarding the above.

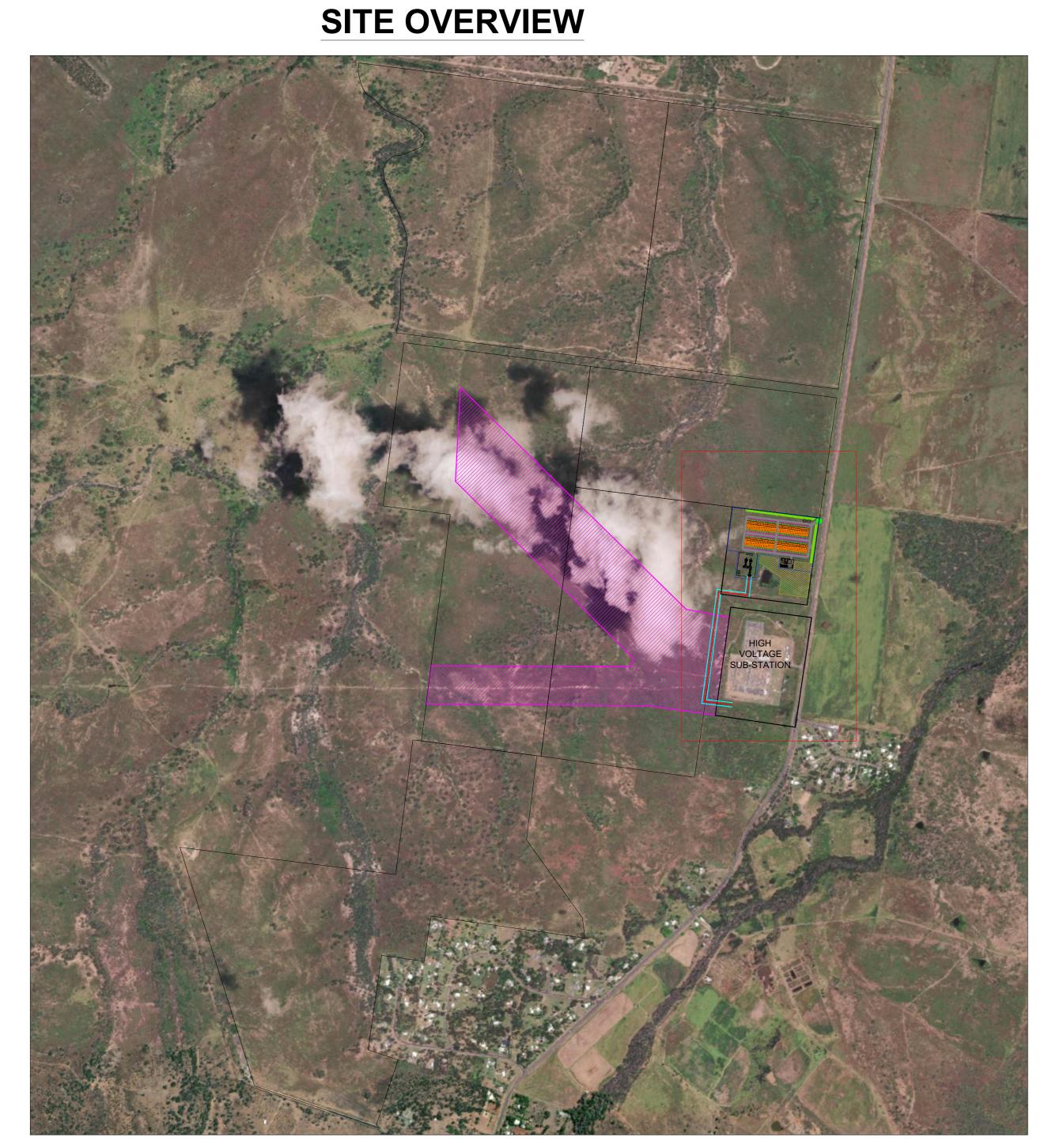
Yours faithfully,

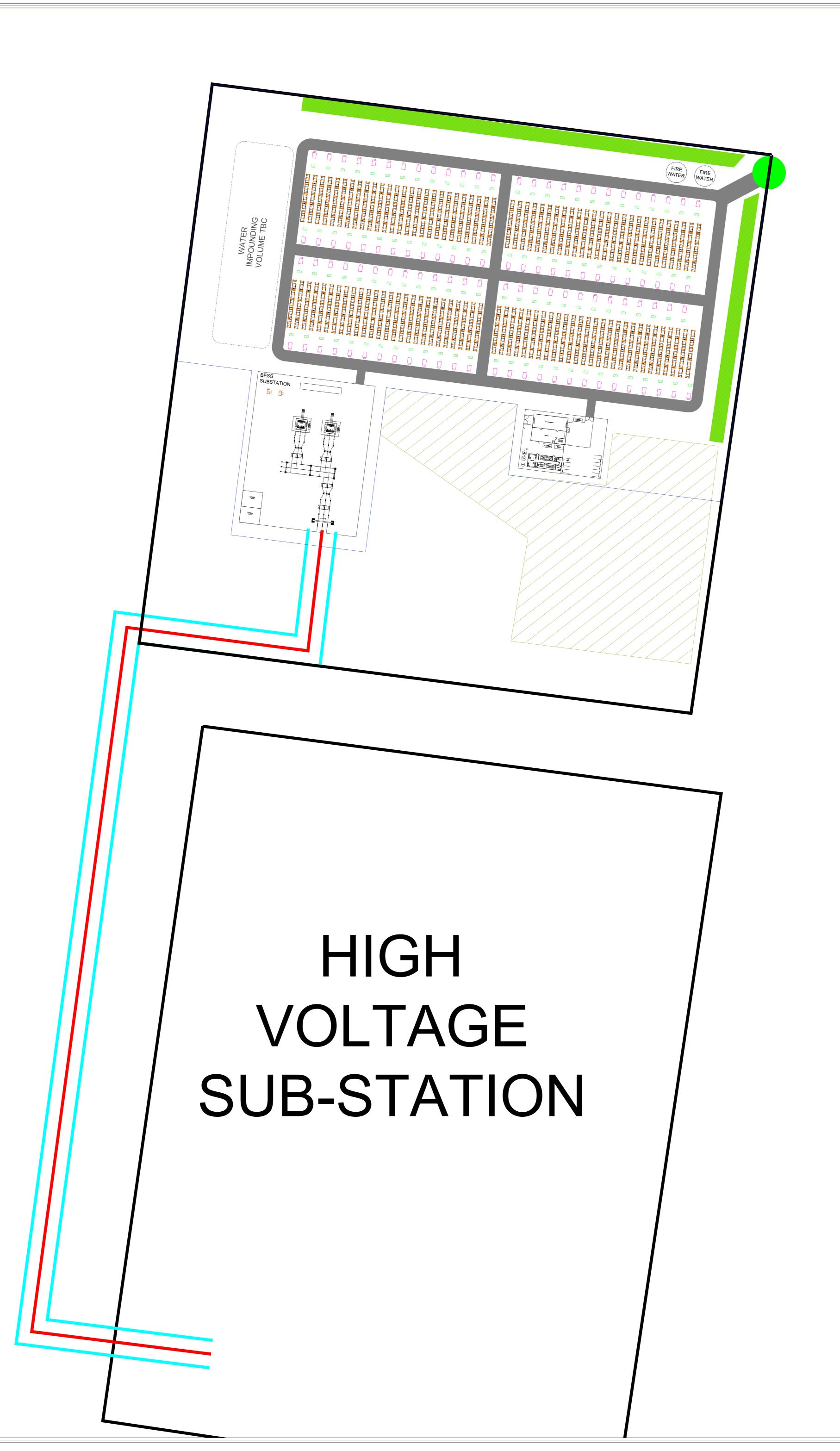
Andrew Douglas

Director | Cambray Consulting Pty Ltd BECivil (Hons) | MSc (Env Man)

FIEAust | CPEng | RPEQ 6







LEGEND

	ROAD
	BESS BOUNDARY
	SITE BOUNDARY
	POWER CABLE EASEMENT 20m
	POWERLINK CABLE
	POWER CONVERSION UNIT
INVERTER	INVERTER BLOCK
	BATTERY BLOCK
	LAYDOWN AREA
	SITE PRIMARY ACCESS
	VEGETATION BUFFER

BESS SPECIFCATION	S
DESCRIPTION	QTY
RATED POWER (MW)	399
RATED ENERGY (MWh)	1575
USEFUL POWER (MW)	319.2
USEFUL ENERGY (MWh)	1354.5
BESS DURATION	4.24h
BESS CONTAINER MODULE	SAFT
	I-Shift
NUMBER OF BESS CONTAINERS	525
BESS CONTAINER CAPACITY (MWh)	3.0
	SMA SCS
POWER CONVERSION EQUIPMENT	3800
	UP-XT
NUMBER OF POWER CONVERSION EQUIPMENT	105
POWER CONVERSION EQUIPMENT POWER (MW)	3.8

10	28.11.2024	ADDED BESS POWER C					
			Said Elmir				
9	14.11.2024	Lippin tool site assess	point and added landscape strip				
	14.11.2024	opauted site access	point and added landscape strip	Said Elmin			
	11.07.000.4						
8	11.07.2024	Updated layout	t to allow for switchyard	Said Elmir			
7	27.05.2024	Changed number of RESS conta	iners/inventer from 6×26083MWh to 5×3MWh				
,	L7.03.L0L4	Changed number of BESS containers/inverter from 6x2.6083MWh to 5x3MWh		Said Elmir			
REV.	DATE		PREPARED BY	COLLABORATORS	VERIFIED BY	VALIDATED BY	
			PROJECT: Capricon Creek BESS (Australia)				
			FILE NAME:				
			CLASSIFICATION: UTILIZATION SCOPE:		OPE:		
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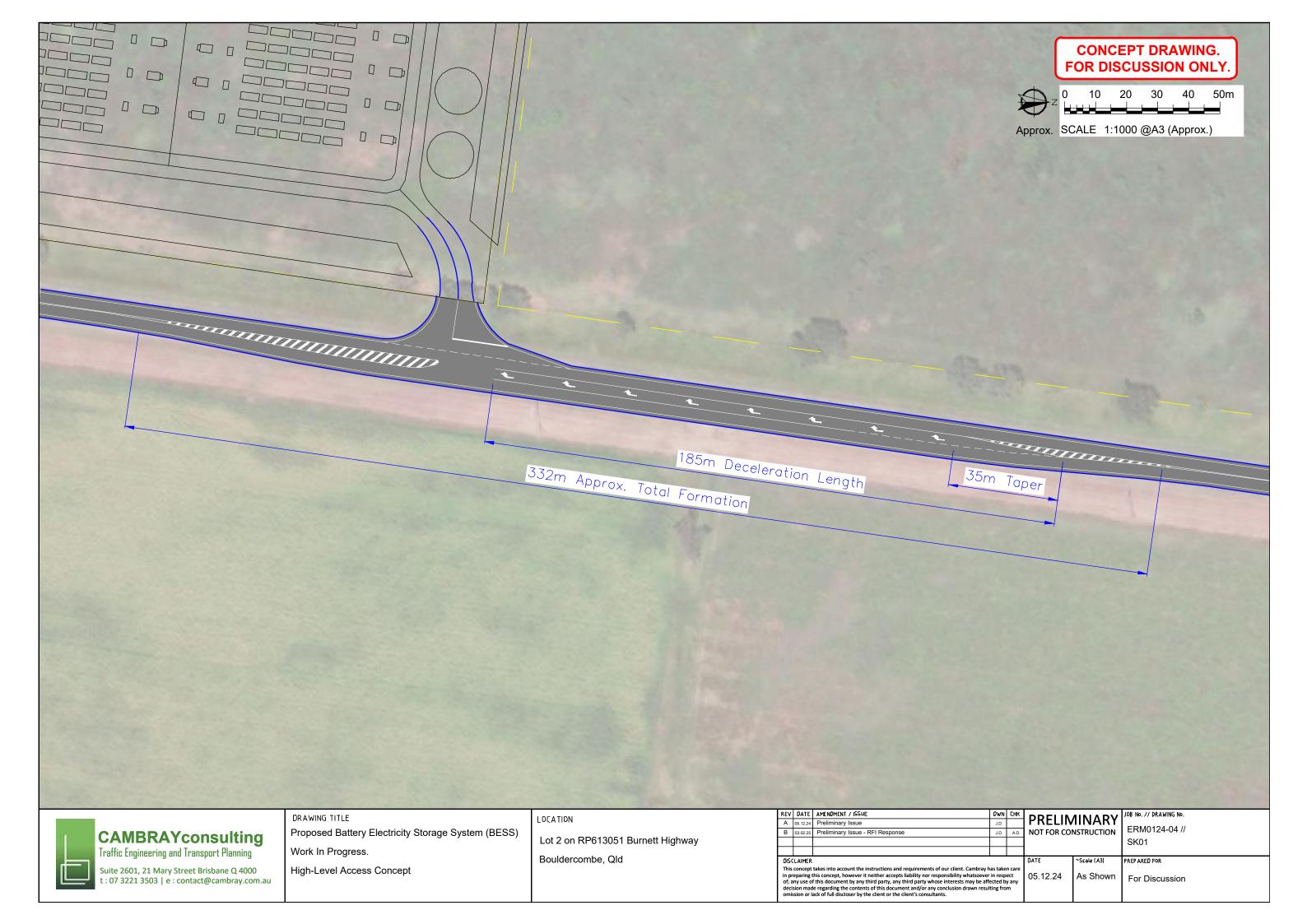
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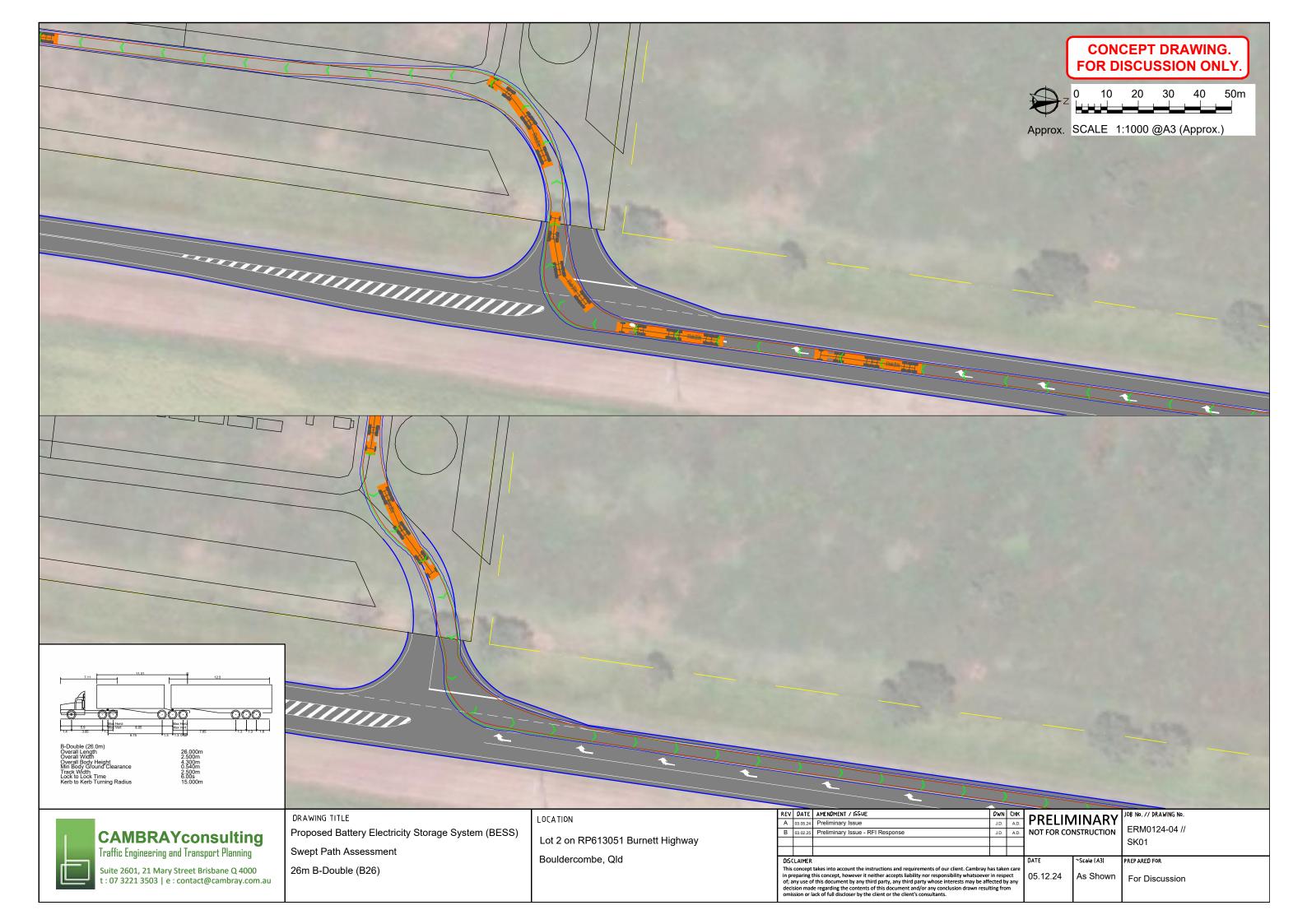
PLOT SCALE:

SHEET:

1 of 1

APPENDIX B High-level Project Area Access Concept &
Swept Path Assessment Cambray Consulting







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Hazard Incident Management Plan

Capricorn BESS, QLD



Hazard Incident Management Plan

Capricorn BESS, QLD

Environmental Resources Management Australia Pty Ltd

Prepared by

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Quality Management

Rev	Date	Remarks	Prepared By	Reviewed By
Α	26 August 2024	Draft issued for comment		
В	30 August 2024	Draft comments addressed		
С	2 September 2024	r 2024 Draft comments addressed Isaac Gates Rent		Renton Parker
0	3 September 2024	Final Issued		
1	5 February 2025	Final Issued	<u> </u>	



Executive Summary

Background

Environmental Resource Management Australia Pty Ltd (ERM) is preparing the planning application on behalf of Capricorn BESS Pty Ltd for the proposed Capricorn BESS (CB), a new 300 MW / 1,200 MWh Battery Energy Storage (BESS) facility in Bouldercombe QLD. The facility will be comprised of BESS units, electrical transformers and inverters, electrical cabling, telecommunications equipment, an electrical control room, connection to substation and perimeter fencing.

A Hazard Incident Management Plan (HIMP) is to be developed to support the CB Development Application. It has been proposed to adopt the methodology for the HIMP from the NSW HIPAP 2 (Ref. [1]) in the absence of QLD guidelines. Due to BESS facility being an emerging power systems facility there is little regulation that directly aligns with the development of these facilities within Queensland. FRNSW have developed a comprehensive Fire Safety Guideline Technical Information – Large scale external lithium-ion battery energy storage systems – Fire safety study considerations this document will be consulted to further the safety provisions of the facility. In addition, the Electrical Safety Office Code of Practice (Ref. [2]) and The Best Practice Guide: Battery Storage Equipment 2018 (Ref. [3]) will be also considered in the assessment.

ERM on behalf of Capricorn BESS has commissioned Riskcon Engineering Pty Ltd (Riskcon) to prepare the HIMP for the facility. This document represents the HIMP study for the BESS facility located Burnett Highway - Bouldercombe, QLD 4702.

Conclusions

A HIMP per the HIPAP No. 2 guidelines was prepared for the proposed BESS Facility located at Lot 2 on RP613051 off Burnett Highway Bouldercombe, QLD 4702. The analysis performed in the HIMP was based on credible fire scenarios to assess whether the protection measures at the site were adequate to combat the hazards associated with the quantities and types of commodities being stored. Based on the assessment, it was concluded that the designs and existing fire protection adequately managed the credible fire risks at the site.

Recommendations

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Based on the analysis, the following recommendations have been made:

- All site personnel shall be inducted in site procedures and emergency response protocols relevant to their roles.
- All site personnel who require training must undergo formal training in the required procedures and emergency response protocols relevant to their role.
- Necessary personnel to provide first aid are to be trained in accordance with the QLD Code of Practice for first aid in workplaces 2021 – high-risk workplaces (Ref. [4]).
- A team of site personnel are to be trained in the use of the water cart and first-attack firefighting methods.
- Site management to prepare and maintain operational procedures to minimise the number of hazardous incidents and accidents on site and to mitigate the consequences of incidents regarding the handling of dangerous goods and chemicals.



- A site Emergency Response Plan per the requirements of HIPAP No. 1 shall be prepared and shall include measures to advise neighbouring premises in the event of an emergency with potential offsite impacts.
- Dangerous Goods (DG) documentation shall be prepared as required by the Work Health and Safety Regulation 2011 to demonstrate the risks associated with the storage and handling of DGs has been assessed and minimised.
- Any DGs stored at the site shall be stored and handled in accordance with the Work Health and Safety Regulation 2011 and any applicable storage and handling standards.



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Abbreviations

Abbreviation	Description
ADG	Australian Dangerous Goods Code
AS	Australian Standard
BESS	Battery Energy Storage System
ВММ	Battery Management Module
CBD	Central Business District
СВ	Capricorn BESS
DA	Development Application
DGs	Dangerous Goods
EMS	Environmental Management Strategy
ERM	Environmental Resources Management Australia
FCAS	Frequency Control Ancillary Services
FER	Fire Engineering Report
FRNSW	Fire and Rescue New South Wales
HVAC	Heating, Ventilation and Air Conditioning
HIPAP	Hazardous Industry Planning Advisory Paper
ISO	International Organization for Standardization
LEL	Lower Explosive Limit
NSW	New South Wales
MVPS	Medium Voltage Power Station
PCU	Power Conditioning Unit
QLD	Queensland
QFES	Queensland Fire and Emergency Services
RFS	Rural Fire Service
SEP	Surface Emissive Power
SMSS	Storage Mode Sprinkler System
SMU	Battery Management System Unit



1.0 Introduction

1.1 Background

Environmental Resource Management Australia Pty Ltd (ERM) is preparing the planning application on behalf of Capricorn BESS Pty Ltd for the proposed Capricorn BESS (CB), a new 300 MW / 1,200 MWh Battery Energy Storage (BESS) facility in Bouldercombe QLD. The facility will be comprised of BESS units, electrical transformers and inverters, electrical cabling, telecommunications equipment, an electrical control room, connection to substation and perimeter fencing.

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ERM on behalf of Capricorn BESS has commissioned Riskcon Engineering Pty Ltd (Riskcon) to prepare the HIMP for the facility. This document represents the HIMP study for the BESS facility located Burnett Highway - Bouldercombe, QLD 4702.

1.2 Objectives

The objectives of the HIMP are to:

- Review the site operations and DG storages for the potential to initiate or become involved in a fire including flammable materials which may be present at the site.
- Identify heat radiation impacts from potential fire sources at the site and determine the potential impacts on the surrounding areas and fire protection system, and
- Review the proposed fire safety features and determine the adequacy of the fire safety systems based on the postulated fires.

1.3 Scope of Services

1

The scope of work is for the preparation of a HIMP for the facility to assess the potential hazards at the site to ensure the fire protection systems are commensurate with the identified hazards. This document follows the methodology recommended in HIPAP No.2 (Ref. [1]).

The HIMP focuses on the storage of commodities associated with the new development at the site in addition to the existing operations at the site as required by HIPAP No. 2. A review of the following components of the HIMP are within the scope of work:

- Determination of risk and consequences from fire or explosion scenarios throughout the facility.
- The preparation of a report on fire prevention, fire detection, fire alarm and fire suppression systems for the site.
- Firewater storage capacity for compliance with Australian Standards and Regulations.



- External fire hydrant configuration and locations.
- Recommendations based upon the study for implementation in the final design.



2.0 Methodology

2.1 Hazard Incident Management Plan Approach

The following methodology was used in the preparation of the HIMP for the facility. The methodology is to follow items required by HIPAP No. 2 (Ref. [1]).

- The fire hazards associated with the facility were identified to determine whether there were any fire or explosion hazards that may impact offsite or result in a potential to escalate. Where fire hazards with the potential to impact offsite or escalate were identified, these were carried forward for consequence assessment.
- The heat radiation impacts or overpressure impacts (consequences) from each of the postulated incidents from the proposed equipment were then estimated and potential impacts on surrounding areas assessed.
- Impacts of the fires from the proposed equipment were plotted on a layout plan of the proposed facility, to determine whether heat radiation impacts any critical areas (i.e. adjacent storage areas, fire services, safety systems, etc.) and whether such impact affected the ability of firefighters to respond to the postulated fire. The heat radiation impact from incidents at adjacent sites on the buildings and structures at the facility were then assessed against the maximum permissible levels in HIPAP No. 4 (Ref. [5]).
- The firefighting strategies were then assessed to determine whether these strategies require update in light of the location of the proposed equipment and storage areas.
- The response times for Queensland Fire & Emergency Service (QFES) in the immediate vicinity
 were assessed. In addition, further outlying QFES stations were included to provide a 'back-up
 plan' in the event that the closest fire brigades were unable to attend.
- A report was then developed for submission to the client and the regulatory authority.

In addition, the FRNSW Fire Safety Guideline *Technical Information – Large scale external lithium-ion battery energy storage systems – Fire safety study considerations*, (Ref. [6]) herein referred to as the 'FRNSW BESS Guideline', was reviewed as part of the preparation of the HIMP coupled with the Electrical Safety Office Code of Practice Managing electrical risks in the workplace 2021 (Ref. [2]).

2.2 Limitations and Assumptions

In this instance, the HIMP is developed based on applicable limitations and assumptions for the development which are listed as follows:

- The report is specifically limited to the project described in **Section 3.4** and the methodology and approach outlined in **Section 2.1**.
- The report is based on the information provided.
- The report does not provide guidance in respect of incidents that relate to sabotage or vandalism of fire safety systems.
- The assessment is limited to the objectives of the HIMP as provided in the guidelines issued as HIPAP No. 2 (Ref. [1]) and does not consider property damage such as building and contents damage caused by fire, potential increased insurance liability and loss of business continuity.



- Malicious acts or arson with respect to fire ignition and safety systems are limited in nature and are outside the scope of this report. Such acts can potentially overwhelm fire safety systems and therefore further strategies such as security, housekeeping and management procedures may better mitigate such risks.
- This report is prepared in good faith and with due care for information purposes only and should not be relied upon as providing any warranty or guarantee that ignition or a fire will not occur.



3.0 Site Description

3.1 Site Location

The development site is located on Lot 2 on RP613051 off Burnett Highway Bouldercombe, QLD 4702 within the Rockhampton Regional Council LGA. The site is located approximately 2.5 km north of Bouldercombe and 16 km form Rockhampton, QLD.

Figure 3-1 shows the regional location of the site. The Project layout has been provided in **Figure 3-3**. The BESS layout is provided in **Figure 3-4**.



Figure 3-1: Site Location (Source - Google Maps)

3.2 Adjacent Land Uses

The land is located in a regional / rural area surrounded by the following land used which are adjacent to the site:

- North rural vacant land
- South High voltage substation, rural vacant land and residential area
- East Burnett Hwy and rural vacant land
- West rural vacant land

3.3 Project Area

The project area context map is shown in Figure 3-2.



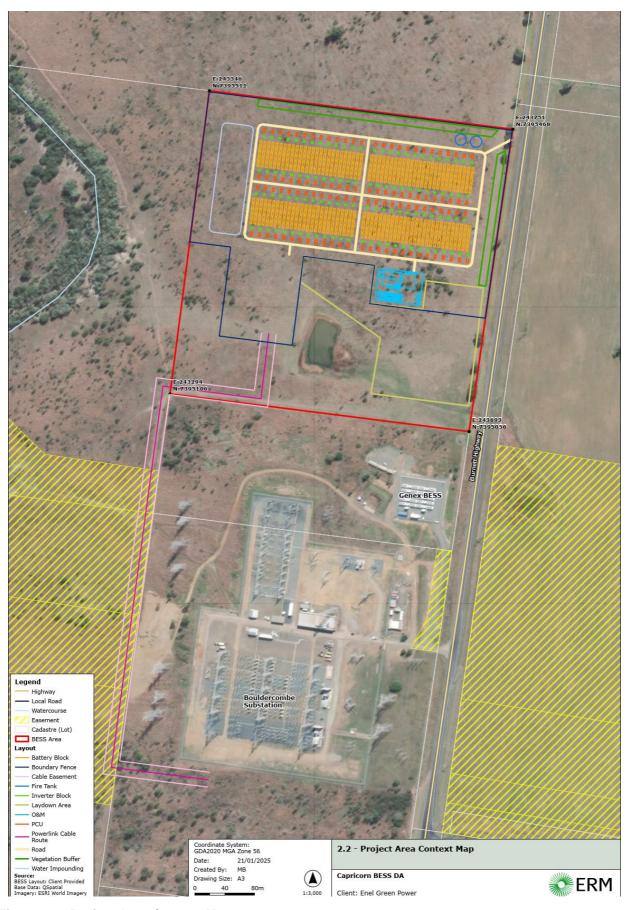


Figure 3-2: Project Area Context Map



3.4 General Description

CB will store dispatchable energy generated from renewable sources for the QLD Grid. The facility will operate to provide electricity during peak energy consumption. The CB will be managed by personnel during standard working hours. The facility will consist of BESS modules, electrical transformers and inverters, electrical cabling, telecommunications equipment, an electrical control room, the connection to Bouldercombe substation, security lighting, perimeter security fencing and site access gates.

The stored electricity will be exported through an underground transmission line 275 kV connection to the Powerlink's Bouldercombe Substation located approximately 100 m south of the CB site.

The Project comprises the construction, operation and decommissioning of a BESS facility and associated infrastructure. The Project includes:

- BESS Infrastructure
 - o BESS with a capacity of up to 300 MW / 1200 MWh.
 - o 525 BESS containers (for this assessment and may differ to the final design)
 - o BESS container capacity of 3 MWh.
- Electricity infrastructure:
 - o 2 x 180 MVA Transformers.
 - o 105 MVPS 4.4 MVA Transformers coupled with 105 Inverters.
 - o Electrical cabling between BESS units and transformers.
 - o Underground transmission line connection to substation.
 - o Switching station.
- Onsite permanent supporting infrastructure:
 - Site access road and entry.
 - Internal access roads.
 - Operations and Maintenance (O&M) Facility including site offices, O&M buildings, amenities, equipment sheds, storage and parking areas, fire water tank and fire hydrants.
- Off-site supporting infrastructure:
- Existing public road and communications network; and
- Temporary supporting infrastructure:
 - o Construction facilities such as offices, car park and amenities.
 - Fencing and landscaping works.
 - o Delivery of project components, such as battery modules.
 - o Installation of underground and overhead cabling.
 - Water sourcing.
 - Installing maintenance and environmental management processes and equipment.



 A minimum 10-meter defendable space surrounding the BESS facility. This space should allow unobstructed vehicle access to aid emergency services in the event of a nearby fire. Additionally, the 10 meter spacing should manage the defendable space and BESS areas as an Asset Protection Zone (APZ).



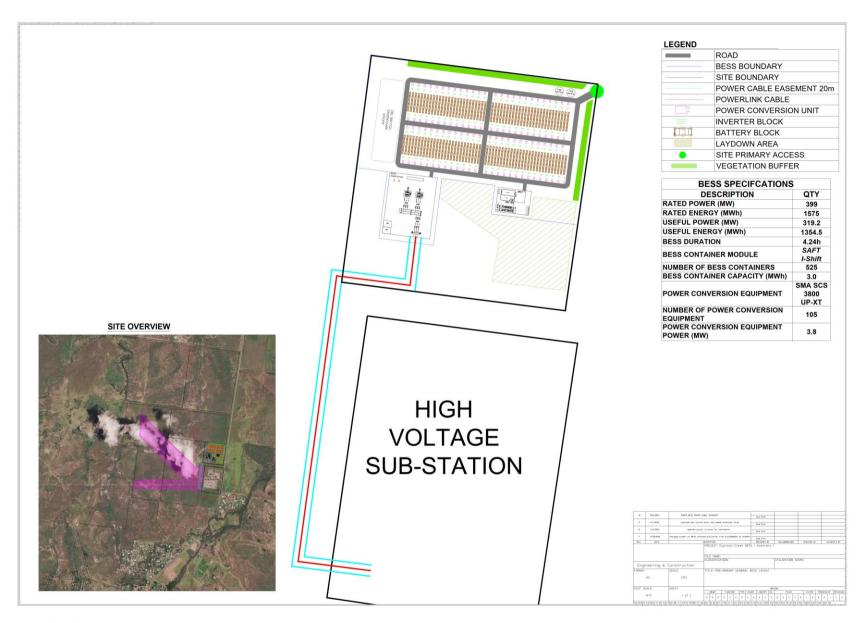


Figure 3-3: Project Layout



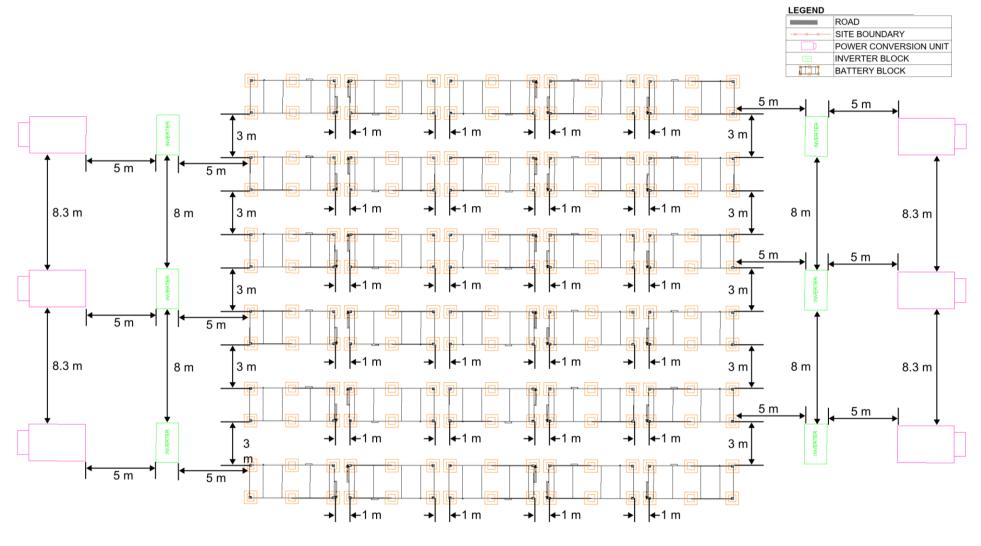


Figure 3-4: BESS Layout



3.5 Detailed Description

The purpose of the project is to provide dispatchable energy to the QLD grid and contribute towards the goals of the QLD government's QLD Electricity Infrastructure Roadmap.

The electricity will be capable of storage in a 300 MW / 1200 MWh BESS which can be dispatched based on electricity demand fluctuations, providing the opportunity for greater supply dispatch flexibility when electricity demand is highest. This is enabled by the fast response times achievable through lithium-ion battery storage.

3.5.1 Battery Storage

The BESS will be located within the site compound, laydown and substation footprint area. The BESS converts electrical energy into chemical energy and stores the energy internally. It may also provide additional network support such as Frequency Control Ancillary Services (FCAS) assisting with transmission network grid stability. The SAFT Intensium Shift (I-Shift) BESS is shown in **Figure 3-5**. The OEM for the BESS has not yet been selected, therefore the SAFT I-Shift BESS shall provide a representative analysis of the system.

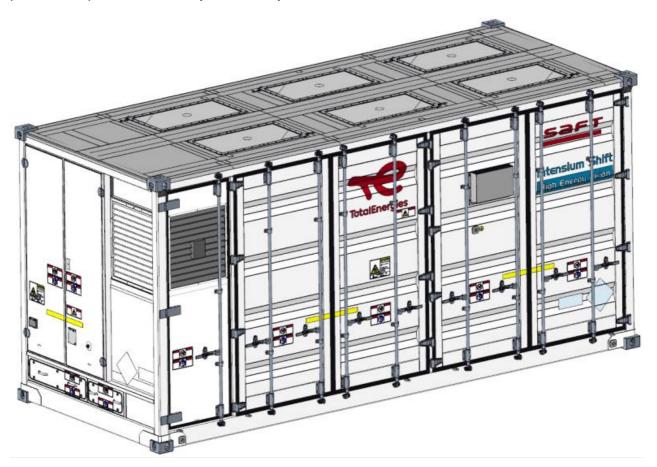


Figure 3-5: SAFT I-Shift BESS

The SAFT I-Shift BESS proposed for CB is housed in an ISO 20 ft container having a rating of IP64. The container is divided into 4 rooms:

- The battery room
- The control room



- The Battery Management Module (BMM) room
- The Heating, Ventilation and Air Conditioning (HVAC) room

The Battery Room houses Li-Ion battery modules arranged in 8 parallel strings, each consisting of 17 Lithium-Ion battery modules connected in series across 2 racks. These strings are organised into 9+8 parallel configurations. Each module, configured as 1P24S, is monitored by a Battery Management Module (BMM) located in the BMM room. The BMM tracks cell voltages and temperatures through a Battery Management System Unit (SMU) and ensures the stability of the batteries, preventing thermal runaway by isolating any cell that falls outside operating parameters. The BMM room also contains the fire suppression system.

Temperature and humidity within the container are regulated by a thermal power HVAC system, maintaining the environment at a consistent 20°C to 35°C. Each BESS unit comprises 3,400 lithium iron phosphate (LiFePO4, or LFP) cells. Each cell weighs 5.4 kg, making the total weight of the I-Shift BESS 18,360 kg.

The SAFT I-Shift contains heat and smoke detectors and a gaseous suppression system. In the event of thermal runaway, flammable gases are generated which can be detected to initiate a safety response. The SAFT I-Shifts are fitted with flammable gas detection which identifies flammable gases at 25% of the Lower Explosive Limit (LEL) which will activate a visual and audible alarm as well as opening the off gassing valve to prevent over pressurisation and activation of the ventilation system to clear flammable gases. The units are fitted with blast panels in the event that the flammable gas protection systems fail to operate, and the flammable gas exceeds the LEL and is ignited. The presence of the explosion vent mitigates against escalation into an explosion as it relieves the pressure preventing the acceleration of the combustion through the vapour cloud and subsequent detonation.

3.5.2 Protection Measures

The BESS is fitted with a range of fire protection systems including:

- Gaseous fire protection system
- Thermal detection
- Smoke detection
- Audible & Visual alarms
- Fire system emergency start
- Emergency stop
- Water Fire Safety System
- Gass Fire Safety System
- Pressure relief valve
- 6 blast panels
- Thermally insulated rockwool top and sides

The arrangement of the fire protection systems are shown in **Figure 3-6**.



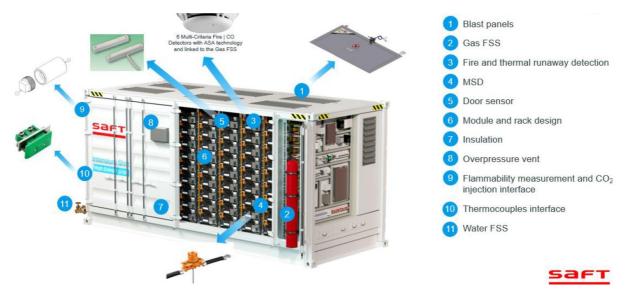


Figure 3-6: BESS Protection Systems

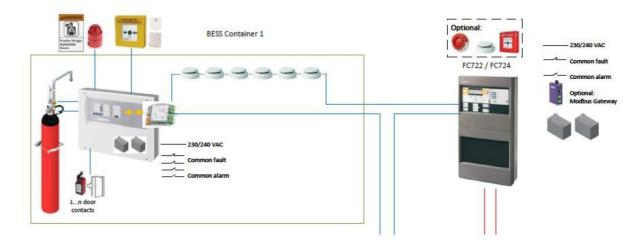


Figure 3-7: BESS Fire Protection Systems

3.6 Quantities of Dangerous Goods

The classes and quantities of DGs provided in Table 3-1.

Table 3-1: Maximum Quantities of Dangerous Goods Stored & Preliminary Risk Screening

Area	Class	Description	Quantity (L / tonne*)
BESS	9	Lithium Batteries	16,800 *
PCU Transformer	C2	Transformer oils	112,000 L
Substation Transformer	C2	Transformer oils	90,000
Control room generator	C1	Diesel	1,000



4.0 Hazard Identification

4.1 Introduction

A hazard identification table has been developed and is presented at **Appendix A**. Those hazards identified to have a potential fire or explosion impact are assessed in the following sections of this document.

4.2 Properties of Dangerous Goods

The type of DGs and quantities stored and used at the site has been described in **Section 3**. **Table 4-1** provides a description of the DGs to be stored and handled at the site, including the Class and the hazardous material properties of the DG Class.

Table 4-1: Properties* of the Dangerous Goods and Materials Stored at the Site

Class	Hazardous Properties
9 – Miscellaneous DGs	Class 9 substances and articles (miscellaneous dangerous substances and articles) are substances and articles which, during transport present a danger not covered by other classes. Releases to the environment may cause damage to sensitive receptors within the environment. It is noted that the Class 9s stored within this project are lithium-ion batteries which may undergo thermal runaway (i.e. escalating reaction resulting in heat which ultimately leads to failure of the battery and a fire).
Combustible Liquids	Combustible liquids are typically long chain hydrocarbons with flash points exceeding 60.5°C. Combustible liquids are difficult to ignite as the temperature of the liquid must be heated to above the flash point such that vapours are generated which can then ignite. This process requires either sustained heating or a high-energy ignition source.

^{*} The Australian Code for the Transport of Dangerous Goods by Road and Rail (Ref. [7])

4.3 Hazard Identification

Based on the hazard identification table presented in **Appendix A**, the following hazardous scenarios have been developed:

- Li-ion battery fault, thermal runaway and fire.
- Li-ion battery fire, toxic smoke plume
- Electrical equipment failure and fire.
- Transformer internal arcing, oil spill, ignition and bund fire.
- Transformer electrical surge protection failure and explosion
- · Diesel release, ignition and pool fire.
- External fire impact.

Each identified scenario is discussed in further detail in the following sections.

4.4 Li-Ion Battery Fault, Thermal Runaway and Fire

Lithium ion (Li-ion) batteries are composed of a metallic anode and cathode which allows for electrons released from the anode to travel to the cathode where positively charged ions in the solute migrate to the cathode and are reduced. The flow of electrons provides the source of energy



which is discharged from a battery and used for work. In a Li-ion battery, the lithium metal composites (a composite of lithium with other metals such as cobalt, manganese, nickel, or any combination of these metals) oxidises (loses an electron) becoming a positively charged ion in solution which migrates through the battery separator to the cathode. At the same time, the lost electron travels through the circuit to the cathode. The lithium ions in solution then recombine with the electron at the cathode forming lithium metal within the cathodic metal composite. This process is shown in **Figure 4-1**.

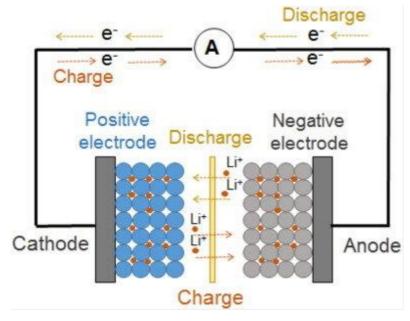


Figure 4-1: Cathode and Anode of a Battery (Source Research Gate)

Initial lithium batteries were designed around lithium metal (i.e. no composite structure) due to the high energy density yielded by the metal. However, when overcharging a battery, lithium ions can begin to plate on the anode in the form of lithium dendrites. Eventually, the dendrites pierce the separator within the battery resulting in a short of the battery which could result in heat, fire, or explosion of the battery. The technology evolved to move away from lithium metal to lithium ions (held within composite materials) which reduced the incidence of lithium dendrites forming resulting in an overall safer battery.

Despite the improvement in battery technology, there are several degradation mechanisms that are still present within the battery which can result in thermal runaway. These include:

- Chemical reduction of the electrolyte at the anode
- Thermal decomposition of the electrolyte
- Chemical reduction of the electrolyte at the cathode
- Thermal decomposition by the cathode and the anode
- Internal short circuit by charge effects

These effects arise primarily as a result of high discharge, overcharging, or water ingress into the battery which results in a host of by-products being formed within the battery during charge and discharge cycles.



As a result, Li-ion batteries are equipped with several safety features to prevent the batteries from charging or discharging at voltages which result in battery degradation, leading to shorting of the battery and thermal runaway. Safety features generally include:

- Shut-down separator (for overheating)
- Tear-away tab (for internal pressure relief)
- Vent (pressure relief in case of severe outgassing)
- Thermal interrupt (overcurrent/overcharging/environmental exposure)
- Battery Management Systems (BMS) constant monitoring of the voltage, temperature and state of charge of individual cells to aid in early detection of a fault condition. Upon detection of cell fault, the BMS disconnects and isolates the cell to prevent propagation of the incident, and alarms the site Emergency Management System (EMS).
- Emergency stop
- Fire proteciton emergency start
- · Gaseous fire protection system
- Explosion prevention vent

These features are designed to prevent overcharging or excessive discharge, pressurisation arising from heat generated at the anode or from battery contamination. Protection techniques for Li-ion batteries are standard; hence, the potential for thermal runaway to occur in normal operation is incredibly low with the only exceptions being where batteries are manufactured poorly or due to manufacturing faults, or battery damage (i.e. battery cell is ruptured as this can short circuit the battery resulting in thermal runaway) or in the event of an ancillary system failure during commissioning (i.e. while protection systems are being tested).

The battery product that has been proposed for this project is the I-Shift SAFT BESS units. The battery chemistry of the I-Shift units is lithium-Ion phosphate (LiFePO4, or simply LFP), which are considered to be one of the safest battery chemistries within the industry. The stability of the batteries is due to the cathode which does not release oxygen therefore preventing violent redox reactions resulting in rapid temperature rise as the oxygen oxidizes the electrolyte.

A UL9540A report was prepared for the I-Shift SAFT BESS which has been provided in **Appendix C**. It is noted that the testing involved 34 modules: A review of the report indicated that thermal-runaway in one cell would result in cell-to-cell propagation (i.e. between the cells within a single module). The maximum wall surface temperature (i.e. of a module) was measured at 30.3°C which was below the BESS threshold limit of 35°C. While cell-to-cell propagation was observed, module to module propagation did not occur. In addition, flaming of the cells was not observed and no explosion hazards were observed (i.e. no deflagration (flash fire), detonation (explosion), or accumulation (precursor to deflagration or detonation)). Therefore, it is considered that a thermal runaway even in the LFP batteries would not result in a BESS unit fire.

Additional testing for shock and damage to batteries (i.e. nail puncture test) has shown that LFP batteries when punctured through membranes typically results in a shorting of the battery, and fire does not result in ignition of the battery demonstrating that the battery chemistry is protected against shock damage. When exposed to external heat the thermal rise of typical lithium ion battery chemistries is 200-400 °C/min resulting thermal run away and fire which can then propagate to adjacent batteries escalating the incident to a full container fire. For LFP batteries, the thermal rise

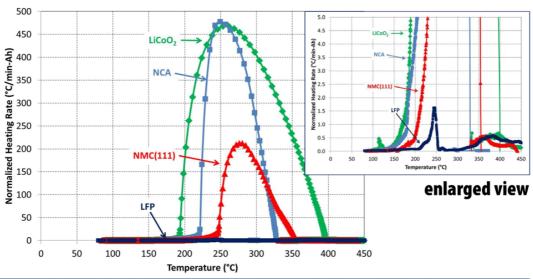


of the batteries at peak is 1.5°C/min which results in a gradual temperature rise and does not result in fire and thus incident propagation to other batteries. The thermal rise of various battery chemistries is provided in **Figure 4-2** with a zoomed in temperature rise for LFP provided in the top right of **Figure 4-2**.

Thermal Runaway: Impact of Cell Chemistry







- All measurements at 100% SOC and for cells with 1.2 M LiPF₆ in EC:EMC (3:7)
- Differences in runaway profiles are related to oxygen release and combustion at different cathodes

Figure 4-2: Temperature Rise of Lithium-Ion Battery Chemistries (Ref. [8]).

Although the LFP technology does not typically cause fire, there can be circumstances where battery modules catch fire due to leaking coolant or electric faults. In those cases, fire will be constrained by the enclosure. In the event that LFP chemistries do ignite, the combustion byproducts release carbon dioxide which reduces the oxygen concentration within a confined space reducing the combustion rate.

In conclusion, the LFP technology does not cause flaming fire during thermal runaway. Should fire be developed within one BESS enclosure it would not transfer to nearby enclosures due to the fire safety design features. In terms of physical damage, the batteries are contained within in modules which are located within a fenced area; therefore, there is a low potential for damage to occur to the batteries which may initiate an incident.

Notwithstanding this, for conservatism it has been assumed that a flaming fire could occur from a BESS unit which may impact firefighting equipment or result in propagation of the incident to adjacent units. Therefore, this incident has been carried forward for further analysis for conservatism.

4.5 Li-ion Battery Fire and Toxic Gas Dispersion

As noted in **Section 4.4**, there is the potential for a BESS failure to occur resulting in a fire which may result in toxic by-products of combustion to form. As part of the BESS testing the off gases generated from the thermally running away battery cells were captured and tested. Provided in the **Table 4-2** is a summary of the gases that were detected.



Table 4-2: Gas Composition from Battery Cell Thermal Runaway

Gas Component	Gas volume in Percentage (%)
Carbon Monoxide	8.268
Carbon Dioxide	21.177
Hydrogen	53.408
Methane	6.962
Acetylene	0.311
Ethylene	6.101
Ethane	1.479
Propadiene (Allene)	0.001
Propylene	0.489
Propane	0.321
-	0.467
-	0.096
-	0.056
1-Heptene	0.005
Benzene	0.014
Toluene	0.002
Dimethyl Carbonate	0.645
Ethyl Methyl Carbonate	0.195
Diethyl Carbonate	0.003
Total	100

A review of the gases indicates they are predominantly flammable gases with the only gases of consideration for toxic impacts being carbon dioxide and carbon monoxide. These have been reviewed in further detail in the following subsections.

4.5.1 Carbon Dioxide

Carbon dioxide is a colourless, odourless, dense gas which is naturally forming and is present in the atmosphere at concentrations around 415 ppm (0.0415%). At low concentrations carbon dioxide is physiologically impotent and at low concentrations does not appear to have any toxicological effects. However, as the concentration grows it increases the respiration rate with Short Term Exposure Limit (STEL) occurring at 30,000 ppm (3%), above 50,000 ppm (5%) a strong respiration effect is observed along with dizziness, confusion, headaches, and shortness of breath. Concentrations in excess of 100,000 ppm (10%) may result in coma or death.

Carbon dioxide is a by-product of combustion where hydrocarbon or carbon-based materials are involved. A typical combustion reaction producing carbon from a hydrocarbon has been provided in **Equation A-1**. This reaction proceeds when there is an excess of oxygen to the fuel being consumed and is known as complete combustion as it is the most efficient reaction pathway.

$$C_3H_8(g) + 5O_2(g) \rightarrow 3CO_2(g) + 4H_2O(g)$$

Equation A-1



The lithium-ion batteries are predominantly composed of metal structures. However, during a fire event ancillary equipment and materials within the batteries will be involved in the fire including wiring, plastics, anodes, etc. which will liberate carbon dioxide. However, a review of the toxicological impacts indicates high concentrations would be required to result in injury or fatality. Based upon a review of the sensitive areas, and the similar BESS fires (i.e. Victoria BESS fire), it is not considered that the formation of carbon dioxide in a fire would be sufficient to result in downwind impacts sufficient to cause injury or fatality. In other words, there would be insufficient production of carbon dioxide to generate a plume of sufficient concentration to displace the required oxygen for a significant downwind consequence to occur. Therefore, this incident has not been carried forward for further analysis.

4.5.2 Carbon Monoxide

Carbon monoxide an odourless, colourless gas which is slightly denser than air and occurs naturally in the atmosphere at concentrations around 80 ppb. Carbon monoxide is a toxic gas as it irreversibly binds with haemoglobin which prevents these molecules from carrying out the function of oxygen / carbon dioxide exchange. The loss of 50% of the haemoglobin may result in seizures, coma or death which can occur at concentration exposures of approximately 600 ppm (0.06%).

Carbon monoxide is by-product of combustion if there is insufficient oxygen to enable complete combustion. The reaction pathway for the formation of carbon monoxide is provided in **Equation A-1**.

$$2C_3H_8(g) + 7O_2(g) \rightarrow 6CO(g) + 8H_2O(g)$$
 Equation A-1

As noted, in **Section 4.5.1** there is the potential for a fire to occur with the BESS units which could form carbon monoxide if there is insufficient oxygen to sustain complete combustion. However, it is noted that the combustible load within the BESS which could result in the formation of carbon monoxide is relatively low compared to the available oxygen in the surrounding atmosphere. Therefore, it is considered that the formation of carbon monoxide at levels which would result in a substantial downwind impact are not considered credible. Therefore, this incident has not been carried forward for further analysis.

4.6 Electrical Equipment Failure and Fire

Electrical equipment is located within the switch room which may fail resulting in overheating, arcing, etc. which could initiate a fire. In the event of a fire, it may begin to propagate to adjacent combustible materials (i.e. wiring). It is noted that electrical equipment fires typically start by smouldering before flame ignition occurs resulting in a slow fire development.

The type of equipment used within the project is ubiquitous throughout the world and across industry segments and is therefore not a unique fire scenario. Based upon fire development within switch rooms the fire would be considered to be relatively slow in growth and would be unlikely to result in substantial impacts in terms of impacts to firefighting equipment and incident propagation. Therefore, this incident has not been carried forward for further analysis.

4.7 Transformer Internal Arcing, Oil Spill, Ignition and Bund Fire

Transformers contain oil which is used to insulate the transformers during operation. If arcing occurs within the transformer (e.g. due to a low oil level), the high energy passing through the coolant vaporises the oil into light hydrocarbons (methane, ethane, acetylene, etc.) resulting in rapid pressurisation within the reservoir. To minimise the likelihood of such occurrence,



transformers are fitted with a low oil pressure switch, oil temperature monitoring and switches, gas formation detectors and a pressure surge protection. These devices identify potential oil and pressure events within the transformer, isolating power and alarming operators.

Notwithstanding the protection systems, if the pressure rise exceeds the structural integrity of the reservoir, and the installed pressure relief devices, the reservoir can rupture allowing the release of oil into the bund. The rupture also allows oxygen to enter the reservoir. The temperature of the gases is above the auto ignition point, but this does not occur until oxygen is present. When oxygen enters the reservoir, the gases auto ignite which generates sufficient heat to ignite the oil in the bund.

The transformer to be used on site will be insulated using natural ester based insulating oil. Natural esters have a flash point exceeds 300°C (Ref. [9]) and are classified as non-dangerous goods under the Australian Dangerous Goods Code (Ref. [7]). Therefore, ignition of the fluid is extremely difficult, and a fire occurring from a natural ester insulated transformer is not considered a credible scenario. Furthermore, transformers are ubiquitous units with a low potential for failure.

Notwithstanding this, due to the number of transformers on site, this incident has been carried forward for further analysis for conservatism.

4.8 Transformer Electrical Surge Protection Failure and Explosion

Transformers generate large amounts of heat as a result of the high electrical currents that pass through them; hence, oil is used as an insulating material within the transformers to protect the mechanical components. However, if the transformer gets an extreme surge of energy, such as that which could occur due to a lightning strike, and the electrical surge protection measures fail, the mineral oil may start to decompose and vapourise, resulting in gas bubbles of hydrogen and methane (Ref. [10]) as temperatures above the autoignition of the gases.

The formation of gases will increase the pressure within the transformer which can result in the transformer structure rupturing which allows the ingress of oxygen. As the oxygen enters, the concentration of flammable gases falls within the explosive limits which are above their autoignition temperatures which ignite resulting in increased formation of hot gaseous products resulting in an explosion. The explosion may generate significant overpressure, sparks and fire and would result in a whole transformer fire, as discussed in **Section 4.7**.

In order to protect against overheating and explosions, transformers have surge protection, which programs them to shut down upon detection of an energy spike. However, the surge protection can have a slight delay. In the event of a major lightning strike, significant oil deterioration or physical damage such as a fallen tree, the surge protection may be too slow to stop an electrical overload (Ref. [11]).

However, the transformers will be protected against lightning as per the requirements of AS 2067:2016 (Ref. [12]). Furthermore, the transformers will use natural esters as the insulating liquid instead of mineral oil. As previously discussed, natural esters have a flash point exceeding 300°C (Ref. [9]), and so are classified as non-dangerous goods under the Australian Dangerous Goods Code (Ref. [13]).

Therefore, there is the potential for an explosion to occur which may result in impacts to fire protection equipment; however, as noted, these units are ubiquitous and have a low potential for failure. Therefore, this incident has not been carried forward for further analysis.



4.9 Diesel Release, Ignition and Pool Fire

A self-bunded diesel fuel tank (1,000 L) is provided to supply a backup generator for the control room will be located at the site. The diesel tank will be designed in accordance with AS 1940:2017 (Ref. [14]), including fitting the tank with level alarms and overfill sensors. In the event the operator fails to respond alarm during tank filling, this may result in a release of diesel. However, the tank is integrally bunded and hence will be capable of containing the full volume of the liquid within the secondary tank, should deterioration of the internal tank or overfill occur.

A significant release of diesel may also occur if a vehicle were to impact the tanks as this may damage both the primary and secondary tanks. The risk of vehicle collision will be mitigated by the use of impact protection (e.g. bollards, armco barriers) which will prevent any wayward vehicles from contacting the tank; hence, catastrophic damage is unlikely to occur.

Furthermore, diesel is classified as a combustible liquid (flash point above 61°C), and as such does not readily form a vapour cloud at ambient temperature and is difficult to ignite. Therefore, a subsequent flash fire or explosion is not a possible scenario. Although combustible liquids are difficult to ignite in ambient conditions, there is potential for a pool fire to occur if the spill has prolonged exposure to ignition sources. The diesel tank will be located away from ignition sources.

Therefore, as the diesel tank will be designed with appropriate control measures to prevent a release and diesel does not readily ignite at ambient temperature, a diesel pool fire is not considered to be a credible scenario. Based on the protections and the size of the diesel tank, this incident has not been carried forward for further analysis.

4.10 External Fire Impact

There is the potential for an external fire event to impact the BESS facility such as bushfire. The development area is adjacent to medium potential bushfire intensity prone land. **Figure 4-3** shows the location of the bushfire prone land that is in proximity to the site. The distance between this vegetation and the site is an estimated 200 m and is classified as a potential impact buffer; hence, the potential for direct radiant heat impact from a bushfire on the site is considered negligible.

Notwithstanding this, with prevailing winds, embers can travel several kilometres which may result in ignition of vegetation at the BESS facility. The site operates a vegetation management plan to prevent the accumulation of combustible loads; hence, in such an event any escalation would be expected to be a grass fire. Grass fires can move quickly; however, they tend to be short lived as the combustible load is exhausted. Subsequently, sustained radiant heat impacts at the site would not be expected and would be unlikely to result in sufficient heat to impact the BESS or other infrastructure such that incident propagation occurs.

In addition, during operations, the site has an 80,000 L water tank. The tank is fitted with a 65 mm Storz fitting in addition to a QFES compatible suction connection adjacent to the internal access road. It is expected that this water supply can be used to combat a grass fire or provide cooling to critical infrastructure if necessary.

Based on the discussion above, the potential for incident escalation as a result of an external fire impact to occur is considered negligible; hence, this incident has not been carried forward for further analysis.



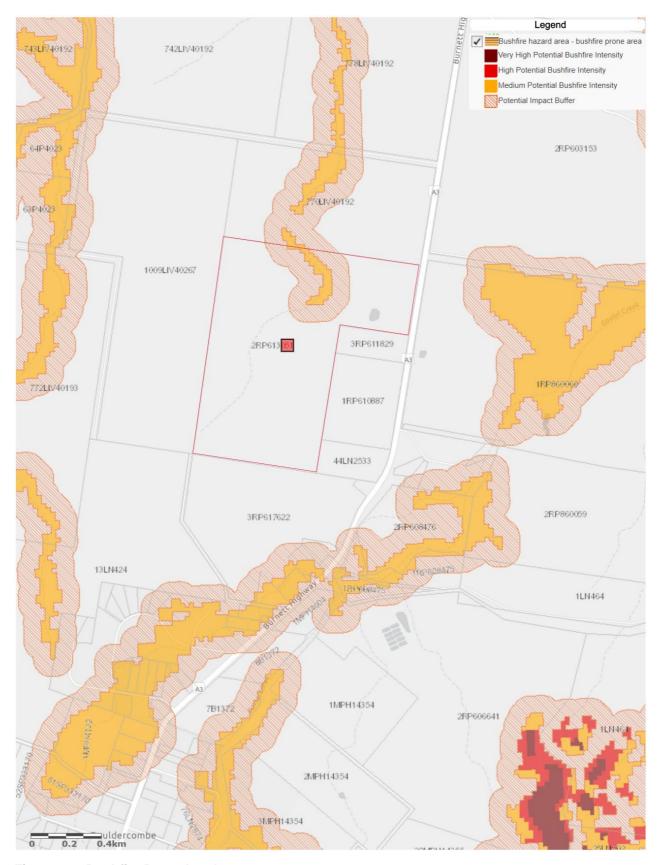


Figure 4-3: Bushfire Prone Land



5.0 Consequence Analysis

5.1 Incidents Carried Forward for Consequence Analysis

The following incidents were identified to have the potential to impact fire protection systems or to complicate firefighting interventions:

- Li-ion battery fault, thermal runaway and fire.
- Main transformer internal arcing, oil spill, ignition and bund fire.
- Power conversion unit transformers, oil release, ignition and fire.

Each incident has been assessed in the following sections. A detailed analysis of each scenario is outlined in **Appendix B**, along with the criteria used to assess each incident.

5.2 Li-Ion Battery Fault, Thermal Runaway and Fire

There is potential that a Li-lon battery may fault resulting in thermal decomposition and fire which may spread throughout the whole fire unit if not isolated / protected. A detailed review of the test data for the BESS (Appendix C) was conducted in **Appendix B**. The testing conducted for the BESS indicated that the average cell venting temperature was 166°C and the average temperature at the onset of thermal runaway was 232°C with no flaming observed. This temperature value was adopted to determine the Surface Emissive Power (SEP) of the batteries undergoing thermal runaway. The calculation resulted in a SEP of 2.88 kW/m² which would be insufficient to result in incident propagation between BESS units.

The test data also identified that the maximum surface temperature of the BESS units under thermal runaway was 58.6°C which is consistent with a radiating surface with a low value. Based on the test data and the calculated SEP, it is considered that the potential for BESS propagation to occur is unlikely.

5.3 Transformer Internal Arcing, Oil Spill, Ignition and Bund Fire

There is potential that arcing may occur within the transformers which may lead to generation of gases and pressure above the structural integrity of the oil reservoir which may rupture leaking oil into the bund. As a result of the arcing and rupture, the oil may ignite leading to a bund fire within the dimensions of the bund. A detailed analysis has been conducted in **Appendix B** and the radiant heat impact distances estimated for this scenario are shown in **Table 5-1.** The radiant heat contours associated with a fire occurring within a transformer bund are shown in **Figure 5-1**.

Table 5-1: Radiant Heat from a Transformer Fire

Heat Radiation (KW/m²)	Distance (m)	
35	6	
23	8	
12.6	10	
4.7	14	
3.0	17	

The 23 kW/m² contour has been used to assess the potential for propagation of the incident. As shown in **Figure 5-1**, the 23 kW/m² contour does not impact any other critical infrastructure and so



incident propagation is not expected. There are no fixed fire protection systems in proximity to the transformer; hence, these are unimpacted by the 3 kW/m² contour.

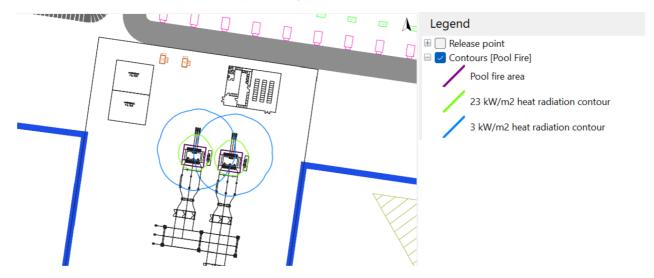


Figure 5-1: Transformer Fire Radiant Heat Contours

5.4 Power Conversion Unit Transformers, Oil Release, Ignition and Fire

There is potential that arcing may occur within the PCUs which may lead to generation of gases and pressure above the structural integrity of the oil reservoir which may rupture leaking oil into the bund. As a result of the arcing and rupture, the oil may ignite leading to a bund fire within the dimensions of the bund. An extremely conservative detailed analysis has been conducted in **Appendix B** and the radiant heat impact distances estimated for this scenario are shown in **Table 5-2**. The radiant heat contours associated with a fire occurring within the PCUs are shown in **Figure 5-1**.

Table 5-2: Radiant Heat from a PCU Fire

Heat Radiation (KW/m²)	Distance (m)	
35	4	
23	5	
12.6	6	
4.7	8	
3.0	9	

The 23 kW/m² contour has been used to assess the potential for propagation of the incident. As shown in **Figure 5-1**, the 23 kW/m² contour does not impact any other critical infrastructure and so incident propagation is not expected. There are no fixed fire protection systems in proximity to the transformer; hence, these are unimpacted by the 3 kW/m² contour.



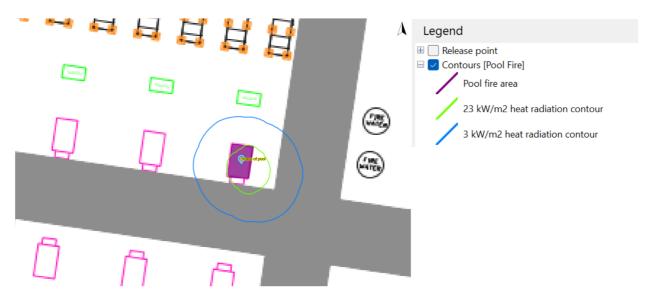


Figure 5-2: PCU Fire Radiant Heat Contours



6.0 Details of Prevention, Detection, Protection and Mitigation Measures

The fire safety systems at the site can be split into four main categories:

- Fire Prevention systems, installed to prevent the conditions that may result in initiating fire.
- **Fire Detection** systems installed to detect fire and raise alarm so that emergency response can be affected (both evacuation and firefighting)
- Fire Protection systems installed to protect against the impacts of fire or explosion (e.g. fire walls)
- **Fire Mitigation** systems installed to minimise the impacts of fire and to reduce the potential damage (e.g. fire water application)

Each category has been reviewed in the following sections, with respect to the existing systems incorporated into the design and those to be provided as part of the recommendations herein.

6.1 Fire Prevention

This section describes the fire prevention strategies and measures that will be undertaken at the site.

6.1.1 Control of Ignition Sources

The control of ignition sources reduces the likelihood of igniting a release of material. The site has a number of controls for ignition sources. These include controls for fixed potential ignition sources and controls for introduced ignition sources.

- A permit to work or clearance system will be used hot work will be controlled as part of the permit to work system.
- Designated smoking areas within the site (i.e. external from building areas).

Table 6-1 presents the potential ignition sources and incidents for the facility which may lead to ignition and fire. The table also summarises the controls that will be used to reduce the likelihood of these potential sources of ignition and incidents resulting in a fire.

Table 6-1: Summary of Control of Ignition Sources

Ignition Source	Control	
Smoking	No smoking policy for the site with smoking only permitted in designated areas.	
Electrical	Fixed electrical equipment to be designed and installed to AS/NZS 3000:2018 (Ref. [15]).	
Arson	The site will have a security fence and monitored security cameras.	
Hot Work	A permit to work system and risk assessment prior to starting work will be provided for each job involving the introduction of ignition sources.	

6.1.2 Separation of Incidents

The separation of incidents is used to minimise the impacts of a hazardous incident on the surrounding operations or the generation of potential "domino" effects. The storage locations of products have been designed based upon whether a product can be adequately protected by the fire protection system. The BESS tests indicated that propagation between modules did not occur



from thermally running away battery cells. Therefore, propagation within the BESS is unlikely and therefore propagation between adjacent BESS units is not considered to be credible.

6.1.3 Housekeeping

The risk of fire can be significantly reduced by maintaining high standards of housekeeping. The site shall maintain a high housekeeping standard, ensuring all debris is cleaned up and removed from the areas. In addition, the site has vegetation management procedures to prevent accumulation of combustible vegetation in proximity to the site equipment and to minimise the potential for bushfire escalation.

6.1.4 Work Practices

The following work practices will be undertaken to reduce the likelihood of an incident. They include:

- DG identification
- Placarding & signage within the site
- Forms of chemical and DG information
- · Availability of Safety Data Sheets
- Compliance with the Work Health and Safety Regulation 2011 (Ref. [16]).
- · Safe work practices adhered to
- Personal Protective Equipment
- Emergency response plan and procedures
- Bushfire Management Plan
- Training of personnel

6.1.5 Emergency Response Plan

Emergency management is critical in controlling and responding to an emergency. Therefore, to ensure that an appropriate emergency response plan is developed, the following recommendation has been made:

• An emergency response plan shall be prepared in accordance with HIPAP No. 1 – Industry Emergency Planning Guidelines (Ref. [17]).

6.1.6 Site Security

Maintaining a secure site reduces the likelihood either of a fire being started maliciously by intruders or by accident. Access to the site will be restricted at all times and only authorised personnel will be permitted within the site.

6.2 Detection Procedures and Measures

This section discusses the detection and protection from fires for the hazardous incidents previously identified. These include detection of fire pre-conditions, detection of a fire suppression activated condition and prevention of propagation. This assessment includes identification of the detection and protection systems required.



6.2.1 Fire Detection and Alarming

The site will utilise I-Shift SAFT BESS Units or equivalent. The I-Shift BESS Safety Manual (**Appendix D**) indicates that the BESS units are equipped with smoke detectors and thermal detectors to detect the early signs of a fire. In the event that elevated temperatures or smoke is detected, an audible fire alarm and visual fire strobes fitted on the BESS unit will be activated. In addition, corresponding alarms will be sent to the EMS systems to alert site personnel to begin emergency procedures.

6.2.2 Gas Detection and Alarming

The I-Shift BESSs are fitted with flammable gas detection which will alarm and activate the ventilation system. Flammable gases are a by-product of thermal runaway in the battery chemistries; hence, detection of the flammable gases provides another point to isolate BESS failure.

6.3 Fire Protection

The required fire protection systems are summarised below. All drawings associated with the fire protection systems are provided in **Appendix D**.

The I-Shift BESS units selected are fitted with a ceiling mounted aerosol fire suppression system. In the event of detection of a fire within the BESS unit, the aerosol suppression system is triggered, releasing a gaseous suppressant BESS.

The site is provided with water tanks that can be access to provide water supply in the event of fires to other sources of fire (i.e. transformers, site buildings, etc.).

6.4 Fire Mitigation

6.4.1 Fire Water Supply

The site is equipped with an 80,000 L water tank. The water tank is to have a 65 mm Storz fitting and QFES compliant suction connection. Based on the low potential for fire and / or propagation of a BESS fire it is considered that the water supply would be adequate to deal with the potential fire hazards at the site (i.e. propagation of a fire from the BESS noting that a BESS fire should not be fought with water). The water may also be used to supply combat measures for transformer fires or other building fires.

6.4.2 Ventilation

In the event of thermal runaway, flammable gases are generated which if ignited could result in an explosion. The units are fitted with an extraction system that activates when a flammable gas is detected. The purpose of this system is to extract the gases to prevent accumulation to the explosive limits to minimise the potential for an explosion to occur.

6.4.3 Explosion Venting

In the event the extraction system is unable to remove sufficient gases to maintain a concentration below the Lower Explosive Limit (LEL) the potential for an explosion exists as the gases are contained within a confined area which is a necessary requirement for an explosion. The I-Shift BESSs are fitted with an explosion vent which is designed to open under pressure. In the event of ignition, the pressure will begin to rise within the unit as the combustion propagates through the flammable gas atmosphere. When the pressure reaches the activation point of the explosion vent,



the vent opens relieving the pressure. With the pressure relieved, the combustion reaction slows prevent escalation to the point of detonation.



7.0 Local Brigade Access and Egress

7.1 Overview

In order to assess the likely fire brigade response times an indicative assessment of fire brigade intervention has been undertaken based on the methods defined in the Fire Brigade Intervention Model (FBIM, Ref. [18]). **Figure 7-1** illustrates the site layout with entry points to the site and fire services infrastructure.

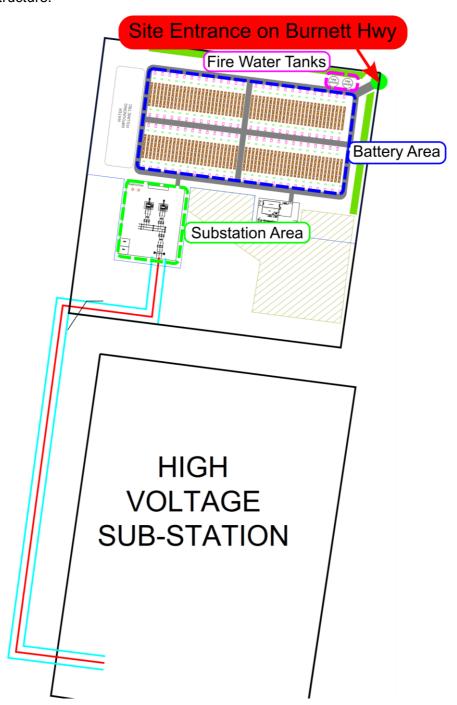


Figure 7-1: Fire Service Entry Point and Site Infrastructure

The closest fire stations to the site are described in **Table 7-1**. The expected routes from the stations to the site are illustrated in **Figure 7-2**.



Table 7-1: Station Locations

Station Name	Station Address	Distance (km)	Time (min)
Mount Morgan Fire Station	32 Morgan St, Mount Morgan, QLD	20	19
Gracemere Fire & Rescue Station	HF64+H5 Gracemere, QLD	14	11

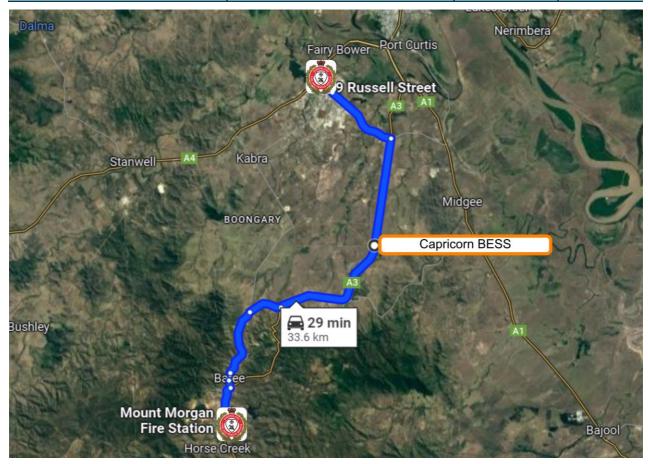


Figure 7-2: Location of Site with Respect to Closest Fire Stations

7.2 Response Time – Fire Brigade Intervention Model (FBIM)

Due to the nature of the Fire Brigade Intervention Model (FBIM, Ref. [18]), it is necessary to justify the results through the inclusion of assumptions. The accuracy of results weighs heavily upon the measure of which assumptions are made and the sources from which they are derived. The model produced details the time it will take for brigade personnel within the aforementioned location to receive notification of a fire, time to respond and dispatch resources, time for resources to reach the fire scene, time for the initial determination of the fire location, time to assess the fire, time for fire fighter travel to location of fire, and time for water setup such that suppression of the fire can commence. The following are details of the assumptions utilised in this FBIM:

7.2.1 Location of Fire

This FBIM will only be an indicative model of one fire scenario within the facility. For conservative purposes, the FBIM will consider a fire in the furthest incident from the point of entry.

7.2.2 Time between Ignition and Detection

• It is assumed that the initial brigade notification is via a direct contact by the site personnel.



• It was conservatively assumed that the time from ignition, detection and notification to fire brigade is 30 minutes, or 1,800 seconds, due to the remote nature of the site.

7.2.3 Time to Dispatch Resources

- The fire station is considered to be manned at the time of the fire.
- Based on QFES response times statistics from the 2022/2023 annual report (Ref. [19]), the
 average time for the fire brigade to respond to an emergency call (including call processing,
 turnout time and travel time) is 8.2 minutes as shown in Figure 7-3. The 90th percentile of
 response time of approximately 12.5 minutes. However, as this is for inner city areas and the
 site is rurally located, it was assumed that RFS would respond 30 minutes later (1,800 s).

Service area: Fire and Emergency Services							
Performance measures	Notes	2022–23 SDS	Strategic plan	RoGS	2021–22 Actual	2022–23 Target/ Estimate	2022–23 Actual
Rate of accidental residential structure fires reported (per 100,000 households)	1, 2, 3	✓		✓	51.1	<60	48.0
Response times to structure fires including call taking time:	3, 4, 5	✓		✓			
• 50 th percentile	6				8.3 minutes	<7.8 minutes	8.2 minutes
• 90 th percentile	7				12.9 minutes	<14 minutes	12.5 minutes

Figure 7-3: QFES Response Time from 2022/2023 Annual Report

- As the site is located in a rural area, additional travel time should be taken into account. The travel time has been assumed to be 25 minutes (1,500 seconds).
- Therefore, with a brigade call out time of 1,820 seconds, response time of 1,800 seconds, and travel time of 1,500 seconds (25 minutes), the fire brigade can be expected to arrive on site 5,120 seconds after fire ignition (85 minutes).

7.2.4 Time for Initial Determination of Fire Location

- On arrival, the fire location may not be visible to the approaching brigade personnel, thus requiring information to be obtained from the site emergency box.
- Fire brigade personnel assemble at the office area.
- Fire brigade tactical fire plans will be provided.

7.2.5 Time to Assess the Fire

Horizontal egress speeds have been based on fire brigade personnel dressed in turnout uniform in BA. An average travel speed of 1.4 m/s with a standard deviation of 0.6 m/s as shown in Table 7-2. As such, for the purposes of the calculations, a horizontal travel speed of 1.40 – (1.28x0.6) = 0.63 m/s is utilised.

Table 7-2: FBIM data for Horizontal Travel Speeds



Graph	Travel Conditions		Speed		
Giapii			SD*		
Q1	Dressed in turnout uniform	2.3	1.4		
Q2	Dressed in turnout uniform with equipment	1.9	1.3		
Q3	Dressed in turnout uniform in BA with or without equipment	1.4	0.6		
Q4	Dressed in full hazardous incident suit in BA	0.8	0.5		

^{*}Standard Deviation

Horizontal travel distances will include the following:

- Travel from the entrance to the main water tank is approximately 30 m. Assuming vehicles are travelling at 60 km/h, this results in a travel time of 2 s.
- From the water tank, the most northern west point of the site is approximately 464 m via internal access roads which would result in 28 s of travel time assuming a travel speed of 60 km/h within the site.
- It was assumed that RFS would only be required to travel approximately 100 m on foot. Coupled with an egress speed of 0.63 m/s results in a horizontal travel time of up to 63 seconds.
- Thus, the total horizontal travel time to respond to an incident in the farthest location would be expected to be in the realm of 93 s.

7.2.6 Time for Water Setup

- The first appliance would be expected to commence the initial attack on the fire.
- Time taken to connect and charge RFS tanker units to the water tanks and collect the water is based on Table X of the Fire Brigade Intervention Model Guidelines, which indicates an average time of 201.6 seconds, and a standard deviation of 115.6 seconds. Using a 90th percentile approach as documented in the FBIM (Ref. [18]), the standard deviation is multiplied by a constant *k*, in this case being equal to 1.28. Therefore, the time utilised in this FBIM is 201.6 + (1.28x115.6) = 350 s.

7.2.7 Search and Rescue

Search and Rescue of the site will consist of a perimeter search of the control building located adjacent to the BESS area. It was assumed this will provide firefighting personnel with an additional 500 m of travel.

At a speed of 0.63 m/s, this will take firefighting personnel approximately 315 seconds.

7.2.8 Summary

As summarised in **Table 7-3** the FBIM (Ref. [18]) indicates that the arrival times of the brigade from the nearest fire stations is approximately 96 minutes after fire ignition, and it is estimated that it takes another 9.7 minutes for the fire brigade to carry out activities including the determination of fire location and preparation of firefighting equipment. As such, the initial attack on the fire is expected to commence approximately 105.7 minutes after fire ignition (note rounding affects the basic addition of the reported figures).

Table 7-3: Summary of the Fire Brigade Intervention Model (FBIM)



Fire Station	Alarm	Travel	Time for Access &	Set-up	Time of	Time for Search
	Time	Time	Assessment	Time	Attack	& Rescue
Gracemere Fire & Rescue Station	1,800 s	3,300 s	93 s	350 s	6,322 s (125 minutes)	315 s



8.0 Fire Water Supply & Contaminated Fire Water Retention

8.1 Detailed Fire Water System Assessment

Hydrants are not available at this site due to its rural location. Instead, fire water will be supplied by an 80,000 L water tank. AS 2419.1 places the minimum flow rate requirement for fire hydrants at 10 L/s. The site falls under the requirement of having two hydrants equating to a storage of 80,000 L for 60 minutes of firefighting operation.

The tank is located on the northern side of the site access road, next to the BESS area. This provides sufficient water to refuel a response tanker twenty times (each tanker having a capacity of 4,000 L) provided the tank is 100% full.

The site will not have fixed firefighting infrastructure other than the water supply from the tanks. The fire hazards have been assessed in **Section 5.0** which identified that there is a low potential for a fire to occur within the BESS units and that in the event of thermal runaway the radiant heat generated would be unable to result in incident propagation.

Based on this, the water demand required to combat fire incidents at the site is low and would be expected to be adequately managed by the provided water supply.

8.2 Contaminated Water/Fire Water Retention

Where materials are combusted in a fire, they may become toxic (i.e. formation of volatile organic compounds and aromatic hydrocarbons). Hence, when fire water is applied the materials may mix with the water resulting in a contaminated run off. To ensure environmental damage does not occur the facility is designed to contain a volume of liquid discharged from the site.

A risk assessment methodology is outlined by the NSW Department of Planning document "Best Practice Guidelines for Potentially Contaminated Water Retention and Treatment Systems" (Ref. [20]). This guide will be consulted to provide a conservative assessment of the site in the absence of an alternate guide provided by QLD regulation. Application of fire water to a BESS fire does not result in extinguishment as the fire will continue until the energy has been discharged from the battery. In addition, application of water can result in additional side reactions as the fire progresses which can form potentially toxic by-products. Therefore, the method for combatting a BESS fire is to prevent propagation to adjacent units / equipment.

Based on the test data, a flaming fire is not expected to occur; hence, the incident will likely be heated batteries which rupture resulting in the release of flammable gases which are handled by the ventilation system to prevent ignition. Therefore, it is expected the incident will mostly be contained within the BESS enclosure itself which will provide protection in the event that the incident occurs in the rain.

Vegetated areas around BESS are typically used for grazing of livestock; hence, the area will not be paved preventing any reasonable method for providing containment in the event that contamination does occur. However, given the protection systems incorporated into the BESS design, the likely outcome of thermal runaway not resulting in a flaming fire, the potential for contaminated water to be generated from this incident is considered low and that accommodating the unlikely formation of contaminated water would be disproportionately expensive to the risk of contamination.



Based on the above discussion, no recommendations have been made with respect to contaminated water retention.



9.0 Conclusion and Recommendations

9.1 Conclusions

A HIMP per the HIPAP No. 2 guidelines was prepared for the proposed BESS Facility located at Lot 2 on RP613051 off Burnett Highway Bouldercombe, QLD 4702. The analysis performed in the HIMP was based on credible fire scenarios to assess whether the protection measures at the site were adequate to combat the hazards associated with the quantities and types of commodities being stored. Based on the assessment, it was concluded that the designs and existing fire protection adequately managed the credible fire risks at the site.

9.2 Recommendations

Based on the analysis, the following recommendations have been made:

- All site personnel shall be inducted in site procedures and emergency response protocols relevant to their roles.
- All site personnel who require training must undergo formal training in the required procedures and emergency response protocols relevant to their role.
- Necessary personnel to provide first aid are to be trained in accordance with the QLD Code of Practice for first aid in workplaces 2021 – high-risk workplaces (Ref. [4]).
- A team of site personnel are to be trained in the use of the water cart and first-attack firefighting methods.
- Site management to prepare and maintain operational procedures to minimise the number of hazardous incidents and accidents on site and to mitigate the consequences of incidents regarding the handling of dangerous goods and chemicals.
- A site Emergency Response Plan per the requirements of HIPAP No. 1 shall be prepared and shall include measures to advise neighbouring premises in the event of an emergency with potential offsite impacts.
- Dangerous Goods (DG) documentation shall be prepared as required by the Work Health and Safety Regulation 2011 to demonstrate the risks associated with the storage and handling of DGs has been assessed and minimised.
- Any DGs stored at the site shall be stored and handled in accordance with the Work Health and Safety Regulation 2011 and any applicable storage and handling standards.



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Appendix A Hazard Identification Table

Appendix A



A1. Hazard Identification Table

ID	Area/Operation	Hazard Cause	Hazard Consequence	Safeguards
1	Battery Storage	 tery Storage Battery fault / failure Failure of Li-ion battery 	Thermal runaway resulting in fire or explosion	Batteries are tested by manufacturer prior to sale / installation
		protection systems	Incident propagation through	Overcharging and electrical circuit protection
			battery cells	Battery monitoring systems
			Toxic smoke dispersion	Batteries composed of subcomponents reducing risk of substantial component failure
				Batteries are not located in areas where damage
				could easily occur (i.e. within the fenced property)
				Electrical systems designed per AS/NZS 3000:2018 (Ref. [15])
				Ventilation
				Explosion venting
				Smoke & gas detection
				Aerosol suppression system
2	Switch rooms,	Arcing, overheating,	Ignition of processors and other	Fires tend to smoulder rather than burn
	communications, etc.	sparking, etc. of electrical	combustible material within servers and subsequent fire	Isolated location
		systems		Switch room separation from other sources of fire
3	Transformers	Arcing within transformer, vaporisation of fluid and rupture of fluid reservoir	Transformer fluid release spill, ignition and fire	Natural ester used as dielectric fluid – Natural esters have a high flash point (>300°C) such that ignition is very unlikely to occur.
				Transformers are bunded
				Electrical protection for transformer faults
				Control of ignition sources – no smoking / open flames around the transformers



ID	Area/Operation	Hazard Cause	Hazard Consequence	Safeguards
4	Main transformer	Power surge to transformers (e.g. from lightning, fault, etc.)	Major failure of surge protection in transformer, vapourisation of mineral oil, ignition and explosion	 Transformers have surge protection system to shut down upon detection of extreme energy input Lightning protection to prevent lightning strikes impacting transformers Control of ignition sources – no smoking / open flames around the transformers
5	Ancillary transformers	Power surge to transformers (e.g. fault)	Major failure of surge protection in transformer, vapourisation of mineral oil, ignition and explosion	 Transformers are in containers which protect from lightning and cables are underground. Control of ignition sources – no smoking / open flames around the transformers
6	Generator tank	Release of diesel	Ignition and pool fire	 Integrally bunded tank complying with AS 1940:2017 Low volume of diesel stored (1,000 L) Separated from other site areas. Diesel is difficult to ignite as it's a combustible liquid.

Appendix B Consequence Analysis

Accendix B



B1. Incidents Assessed in Detailed Consequence Analysis

The following incidents are assessed for consequence impacts.

- Li-ion battery fault, thermal runaway and fire.
- Main transformer internal arcing, oil spill, ignition and bund fire.
- Power conversion unit transformers, oil release, ignition and fire.

Each incident has been assessed in the sections below.

B2. Radiant Heat Physical Impacts

Appendix Table B-1 provides noteworthy heat radiation values and the corresponding physical effects of an observer exposed to these values (Ref. [5]).

Appendix Table B-1: Heat Radiation and Associated Physical Impacts

Heat Radiation (kW/m²)	Impact
35	Cellulosic material will pilot ignite within one minute's exposure
	Significant chance of a fatality for people exposed instantaneously
23	Likely fatality for extended exposure and chance of a fatality for instantaneous exposure
	Spontaneous ignition of wood after long exposure
	Unprotected steel will reach thermal stress temperatures which can cause failure
	Pressure vessel needs to be relieved or failure would occur
12.6	Significant chance of a fatality for extended exposure. High chance of injury
	 Causes the temperature of wood to rise to a point where it can be ignited by a naked flame after long exposure
	Thin steel with insulation on the side away from the fire may reach a thermal stress level high enough to cause structural failure
4.7	Will cause pain in 15-20 seconds and injury after 30 seconds exposure (at least second degree burns will occur)
3.0	FRNSW criteria to access equipment

B3. Gexcon - Effects

The modelling was prepared using Effects where appropriate, which is proprietary software owned by Gexcon which has been developed based upon the TNO Coloured books and updated based upon CFD modelling tests and physical verification experiments. The software can model a range of incidents including pool fires, flash fires, explosions, jet fires, toxic dispersions, warehouse smoke plumes, etc.

B4. View Factor Radiant Heat Model

The modelling for the BESS units was carried out using a manual view factor calculation method outlined below.

B4.1 Radiant Heat Flux

The heat flux (Q) for the view factor model is given by **Equation B-1**.

 $Q = \tau EF$ Equation B-1



Where;

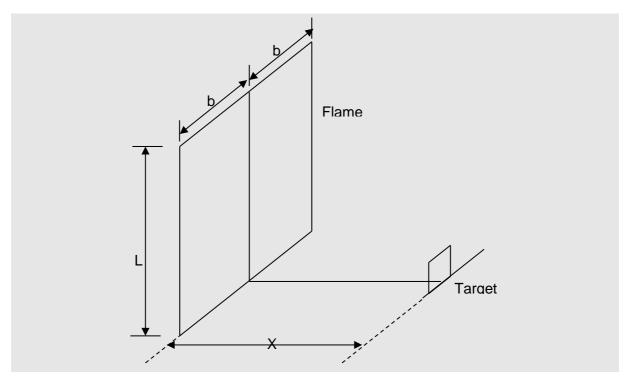
- Q = heat flux (kW/m²) at the target
- F = geometric view factor
- τ = transmissivity
- E = SEP (kW/m²)

Each of the required inputs is determined in the sections following.

B4.2 View Factor

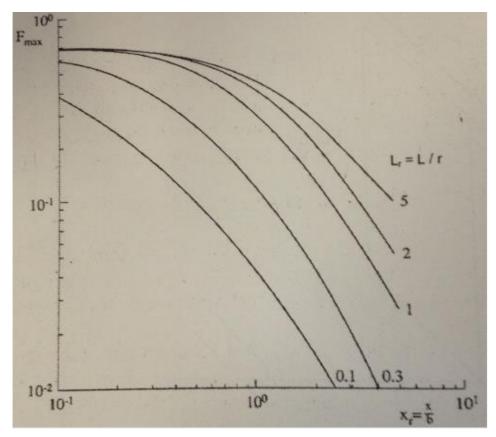
The view factor for a flat surface fire is estimated using the scenario shown in **Appendix Figure B-1** where the flame is the vertical surface of height L and length 2b with receiver located centrally and at a distance of X. Two dimensionless parameters are calculated, and the view factor read from **Appendix Figure B-2**. The dimensionless parameters are shown in **Equation B-2** and **Equation B-3**.

$$L_r = rac{L}{b}$$
 Equation B-2
$$X_r = rac{x}{b}$$
 Equation B-3



Appendix Figure B-1: Vertical Flame Geometry View Factor Geometry





Appendix Figure B-2: Vertical Flame Maximum View Factor (Ref. [21])

B4.3 Transmissivity

The transmissivity is estimated using **Equation B-4**.

$$\tau = 1.006 - 0.01171(\log_{10} X(H_2O) - 0.02368(\log_{10} X(H_2O))^2 - 0.03188(\log_{10} X(CO_2) + 0.001164(\log_{10} X(CO_2))^2$$
 Equation B-4

Where:

- $X(H_2O) = (R_H \times L \times S_{mm} \times 2.88651 \times 10^2)/T$
- X(CO₂) = L x 273/T

And:

- R_H = percentage relative humidity
- L = distance to target (m)
- S_{mm} = saturated water vapour pressure in mm mercury at temperature (at 200°C S_{mm} = 11549)
- T = temperature (473 K assumed air is heated to 200°C)

B5. Li-Ion Battery Fault, Thermal Runaway and Fire

The BESS units selected are the I-Shift SAFT having 8 8+9 strings. Each module has dimensions of $0.525 \,\mathrm{m}$ (W) x $0.876 \,\mathrm{m}$ (D) x $0.250 \,\mathrm{m}$ (H). They are arranged so that the cabinets open outwards; hence, the arrangement for the I-Shift BESS is conservatively (due to module between 8 and 9 stack heights to service the 17 module unit string) nine (8) x nine (2) x nine (9) yielding total dimensions of $4.2 \,\mathrm{m}$ x $2.25 \,\mathrm{m}$.



To determine the radiant heat impacts from the BESS in the event of a fire it is necessary to assume the height of the flame. The rule of thumb for most flammable liquid fires is that the height is 2 times the width of the flame; however, a review of the Victorian Big Battery (VBB) fire indicates that it did not align with rule of thumb approach.

Based upon the VBB it has been assumed that the maximum height of the flame is 1 m above the height of the BESS unit. From the VBB it was apparent that only the flame through the roof was exposed as a radiant surface; hence, the assumed flame height of 1 m above the BESS container has been taken as the value of L for input into **Equation B-2**.

It is necessary to calculate the Surface Emissive Power (SEP) of the radiant surface to calculate the radiant heat at the target. The test data indicated the average temperature of the batteries at thermal runaway was 232°C or 505.15 K. Therefore, for the purposes of modelling this temperature has been used.

The following equation can be used to estimate the SEP of the flame:

 $SEP = \varepsilon \sigma T^4$ Equation B-5

Where:

- ε = flame emissivity (taken as 0.78 (Ref. [22]))
- $\sigma = 5.67 \times 10^{-11} \text{ kW/m}^2.\text{k}^4$
- T = Temperature (505.15 K)

Substituting into the above equation yields:

$$SEP = 0.78 \times 5.67 \times 10^{-11} \times 505.15^4 = 2.88 \frac{kW}{m^2}$$

B6. Main Transformer Internal Arcing, Oil Spill, Ignition and Bund Fire

Transformers contain oil to provide cooling and insulation. If arcing occurs within the transformer, the oil will rapidly heat generating gases above their auto ignition point. The pressure of the gases may rupture the reservoir allowing oxygen to enter resulting in the gases auto igniting. The oil is released from the reservoir and is ignited by the burning gases.

The transformer is bunded and so in the event of a spill and ignition, the pool fire will have dimensions of the bund. The inputs for the model are provided in **Appendix Table B-2**.

Appendix Table B-2: Main Transformer Fire Modelling Inputs

Input	Value	Justification
Chemical name	Linoleic acid	Transformer oil to be used is a natural ester, which is typically a combustible liquid of some formulation which have high flash points. For the purposes of providing a conservative analysis, linoleic acid has been selected. This material has a flash point of approximately 200°C. Natural ester oils typically have flash points exceeding 330°C, thus this material selection is considered to be conservative.
Type of pool fire calculation	Rew & Hulbert	The model has been developed for modelling fires based on the radiant heat emitted from the radiant surface. The model uses the clear and sooty portions of the flame to estimate the radiant heat at the target.



Input	Value	Justification	
		The terminology (i.e. pool fire) is because these models were originally developed from liquid pool fires. However, the model actually works by looking at the flame surface to estimate the radiant heat that is emitted from that surface. The flame surface is present irrespective of the material burning (i.e. a solid or liquid pool will have a flame that will have a clear and sooty portion).	
		Based on the above discussion, it is considered that the Rew & Hulbert model is appropriate for modelling the fire.	
Type of pool fire source	Instantaneous	Conservative as it assumes full fire immediately	
Soot definition	Calculated	Calculated	
Total mass released	45,000 kg	Mass of oil in the transformers	
Temperature of pool	20°C	Conditions expected to be observed regularly. Also, negligible impact on results.	
Type of pool	Polygon	Modelled based on transformer bund area.	
Max pool surface area	14 m x 13 m	Scenarios to be modelled outlined above this table.	
Height of confined pool above ground level	0 m	Modelled at ground level	
Include shielding to bottom side of flame	No	No shielding provided in modelling.	
Height of shielding	n/a	n/a	
Wind speed	2 m/s	Fire seat enclosed in building and unlikely to be impacted by wind at fire seat.	
Wind direction	Any direction	Toward infrastructure	
Ambient temperature	20°C	Conditions expected to be observed regularly. Also, negligible impact on results.	
Ambient pressure	1.0151 bar	Atmospheric pressure	
Ambient relative humidity	60%	Typical humidity in the area	
CO2 concentration	0.0004	CO2 concentration in atmosphere	

The results of the analysis are shown in **Appendix Table B-3.**

Appendix Table B-3: Heat Radiation Impacts from a Transformer Bund Fire

Heat Radiation (KW/m²)	Distance (m)
35	6
23	8
12.6	10
4.7	14
3.0	17



B7. Power Conversion Unit Transformers, Oil Release, Ignition and Fire

The PCUs contain oil to provide cooling and insulation. If arcing occurs within the transformer, the oil will rapidly heat generating gases above their auto ignition point. The pressure of the gases may rupture the reservoir allowing oxygen to enter resulting in the gases auto igniting. The oil is released from the reservoir and is ignited by the burning gases.

It has been assumed that the transformer has bund dimensions of the PCU; hence, if a spill from the transformer was to occur it would fill the base of the bund resulting in a pool fire with the dimensions of the bund. The inputs for the model are provided in **Appendix Table B-4**.

Appendix Table B-4: PCU Fire Modelling Inputs

Input	Value	Justification		
Chemical name	Linoleic acid	Transformer oil to be used is a natural ester, which is typically a combustible liquid of some formulation which have high flash points. For the purposes of providing a conservative analysis, linoleic acid has been selected. This material has a flash point of approximately 200°C. Natural ester oils typically have flash points exceeding 330°C, thus this material selection is considered to be conservative.		
calculation based on the radiant heat emitted fr surface. The model uses the clear and of the flame to estimate the radiant he The terminology (i.e. pool fire) is a models were originally developed fr fires. However, the model actually we at the flame surface to estimate the ratis emitted from that surface. The flame surface is emitted from that surface. The flame solid or liquid pool will have a flame to clear and sooty portion). Based on the above discussion, it is of the Rew & Hulbert model is appropriate.		The model has been developed for modelling fires based on the radiant heat emitted from the radiant surface. The model uses the clear and sooty portions of the flame to estimate the radiant heat at the target. The terminology (i.e. pool fire) is because these models were originally developed from liquid pool fires. However, the model actually works by looking at the flame surface to estimate the radiant heat that is emitted from that surface. The flame surface is present irrespective of the material burning (i.e. a solid or liquid pool will have a flame that will have a clear and sooty portion). Based on the above discussion, it is considered that the Rew & Hulbert model is appropriate for modelling the fire.		
Type of pool fire source	Instantaneous	Conservative as it assumes full fire immediately		
Soot definition	Calculated	Calculated		
Total mass released	1,065 kg	Mass of oil in the transformers		
Temperature of pool	20°C	Conditions expected to be observed regularly. Also, negligible impact on results.		
Type of pool	Polygon	Modelled based on transformer bund area.		
Max pool surface area	4 m x 2.6 m	Dimension of PCU enclosure		
Height of confined pool above ground level	0 m	Modelled at ground level		
Include shielding to bottom side of flame	No	No shielding provided in modelling.		
Height of shielding	n/a	n/a		



Input	Value	Justification
Wind speed	2 m/s	Fire seat enclosed in building and unlikely to be impacted by wind at fire seat.
Wind direction	Any direction	Toward BESS units
Ambient temperature	20°C	Conditions expected to be observed regularly. Also, negligible impact on results.
Ambient pressure	1.0151 bar	Atmospheric pressure
Ambient relative humidity	60%	Typical humidity in the area
CO2 concentration	0.0004	CO2 concentration in atmosphere

The results of the analysis are shown in **Appendix Table B-5**.

Appendix Table B-5: Heat Radiation Impacts from a PCU Fire

Heat Radiation (KW/m²)	Distance (m)
35	4
23	5
12.6	6
4.7	8
3.0	9

Appendix C

Test Data

Appendix C

Appendix D

SAFT Intensium Shift + Safety Manual and Certificates

Appendix D



Preliminary Noise Assessment

Capricorn BESS ProjectPreliminary Noise Assessment Capricorn BESS Project PREPARED FOR

Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust

DATE 25 February 2025

REFERENCE 0729714



PRELIMINARY NOISE ASSESSMENT EXECUTIVE SUMMARY

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PRELIMINARY NOISE ASSESSMENT EXECUTIVE SUMMARY

SIGNATURE PAGE

Preliminary Noise Assessment

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
Acoustic environment	The part of the environment of an area or place characterised by the total amount of noise that may be experienced there.
Acoustic quality objective	The maximum level of noise that should be experienced in the acoustic environment of the sensitive receptor
Background Creep	Noise progressively increasing or creeping higher over time with the establishment of new developments in a locality
BESS	Battery Energy Storage System
dB	Decibel, a derived unit used to express values on a logarithmic scale. In acoustics, the dB scale is used to measure sound pressure and sound power levels, each of which are related to a standard reference point to allow comparison between measurements.
dB(A)	dB(A) denotes a single number sound pressure level that includes a frequency weighting ("A-weighting") to reflect the subjective loudness of the sound level. The frequency of a sound affects its perceived loudness. Human hearing is less sensitive at low and high frequencies, and so the A-weighting is used to account for this effect. An A-weighted decibel level is written as dB(A).
EP Act	Environmental Protection Act 1994.
EP Regulations	Environmental Protection (Noise) Regulation 2019
EPP (Noise)	Environmental Protection (Noise) Policy 2019
Hz	Hertz – the measure of frequency of sound wave oscillations per second. 1 oscillation per second equals 1 hertz
LA1,adj,1hr	A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 1% of a 1-hour period when measured using a fast standardised response time
L _{A10,adj,1hr}	A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 10% of a 1-hour period when measured using a fast standardised response time
LAeq,adj,1hr	A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 1-hour period has the same mean square sound pressure of a sound that varies with time
Residence	Includes a building, or part of building, capable of being used as a dwelling
Sensitive Receptor	An area or place where noise is measured
SPL	Sound Pressure Level – the level of sound pressure; as measured at a distance by a standard sound level meter with a microphone. This differs from SWL in that this is the received sound as opposed to the sound intrinsic at the source



Acronyms	Description
SWL	Sound Power Level – this is a measure of the total power radiated by a source. The Sound Power of a source is a fundamental property of the source and is independent of the surrounding environment



EXECUTIVE SUMMARY

Environmental Resources Management Australia Pty Ltd (ERM) has undertaken a Noise Assessment on behalf of Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust (the Proponent), in support of a Development Application for the Capricorn Battery Energy Storage System (BESS) Project (the Project or the Site) for a Material Change of Use, Reconfiguring a Lot under the *Planning Act 2016* (Planning Act) and an approval for access from a State-controlled Road under the *Transport Infrastructure Act 1994*.

The nearest Sensitive Receptors are at 1 Childs Avenue and 2 Childs Avenue, Bouldercombe which is 612m and 625m respectively from the Project site boundary. To understand the existing noise environment at this location with respect to the noise influence from the existing Bouldercombe Substation and the existing Bouldercombe BESS, short-term noise monitoring was conducted.

The Project criteria applicable to the Sensitive Receptors are the Acoustic Quality Objectives and the Background Creep criteria from the Environmental Protection (Noise) Policy 2019 (EPP(Noise)). The Background Creep criteria was derived from the noise monitoring results.

Noise modelling using the environmental noise modelling software, SoundPLAN v9 was conducted utilising representative and realistic noise data for the proposed Project equipment.

The predicted Project noise levels are within the EPP (Noise) Acoustic Quality Objectives and Background Creep criteria, and no Project-specific noise mitigation measures are required to achieve compliance with the legislated criteria for the development application, based on this assessment.

As the BESS technology to be implemented for the Project will not be finalised until Project detailed design, realistic assumptions on the equipment have been made in the noise modelling conducted. Assumptions made represent the maximum noise emissions for the Project, through detailed design, it is possible that actual Project noise emissions will be less than that predicted. Recommendations to reduce Project noise emissions to be considered in detailed design have also been predicted in this report, noting that compliance with the noise criteria is not dependent on their implementation.



PRELIMINARY NOISE ASSESSMENT INTRODUCTION

1. INTRODUCTION

Environmental Resources Management Australia Pty Ltd (ERM) has undertaken a Noise Assessment on behalf Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust (the Proponent), in support of a Development Application for the Capricorn Battery Energy Storage System (BESS) Project (the Project or the Site) for a Material Change of Use, Reconfiguring a Lot under the *Planning Act 2016* (Planning Act) and an approval for access from a State-controlled Road under the *Transport Infrastructure Act 1994*.

The proposed development is located approximately 2.5 km north of Bouldercombe and 16 km south of Rockhampton, Queensland. The proposed development is within the Rockhampton Regional Council Local Government Area, with the assessment manager for the Development Application being Rockhampton Regional Council.

This report contains the methodology and findings of the Noise Assessment, including the listing of proposed Project infrastructure and their noise emissions, identification of potentially affected sensitive receptors, applicable noise criteria and the predicted noise levels at Sensitive Receptors.



PROJECT AND SITE DESCRIPTION

2.1 OVERVIEW

The proposed development includes a 300MW / 1200MWh BESS. The BESS will include battery containers, inverters (which convert Direct Current to grid compliant Alternating Current), power conversion units and substation including two main transformers. The substation will be connected to the Bouldercombe (Powerlink) sub-station via underground or overhead cables.

2.2 PROJECT SITE

The Project site is located within a rural area and is surrounded by characteristic rural uses including cattle grazing. The site is adjacent to and accessed via the Burnett Highway.

The Project site comprises a smaller area of approximately 18.09 ha across two land parcels totally 128.13 ha. The Project site is characterized by the following features:

- Currently utilised for rural purposes including stock grazing;
- Adjacent to a State-controlled Road, being the Burnett Highway;
- Adjacent to an existing Bouldercombe (Powerlink) substation south of the Site and
- Adjacent to the existing Bouldercombe BESS south of the Site and
- Adjacent to the approved Bouldercombe Solar Farm northeast of the Project site.

2.3 SENSITIVE RECEPTORS

For this Noise Assessment, the nearest Sensitive Receptors considered are summarized in Table 2-1 and are shown in **Appendix A.** These locations are representative of locations that will potentially experience the highest operational noise impacts associated with the Project. Project criteria compliance at these locations indicate compliance at all sensitive receptors surrounding the Project site.

TABLE 2-1 SENSITIVE RECEPTORS

Sensitive Receptor ID	UTM Coordinates (GDA94 Zone 56) X, m Y, m		(GDA94 Zone 56)		Distance From Site Boundary, m
1	243792	7394452	1 Childs Avenue	Residential	612
2	243702	7394430	2 Childs Avenue	Residential	625
3	245529	7396093	'Glenlands' Residence	Residential	1887



2.4 EXISTING NOISE ENVIRONMENT

The existing noise environment at the Sensitive Receptors is best described as 'rural' or an area with an acoustical environment that is dominated by natural sounds, generally characterised by low background noise levels with intermittent influence from local road traffic. However, there is noise influence from the existing Bouldercombe Substation and the existing Bouldercombe BESS. To understand the existing noise environment, ERM was engaged by the Proponent to undertake noise monitoring at the nearest residential Sensitive Receptors which are 1 Childs Avenue and 2 Childs Avenue (as shown in Figure 2-1). Both these Sensitive Receptors have the highest potential to be affected to by noise impacts from the Project and experience different background noise environments due to their proximity to the Burnett Highway.

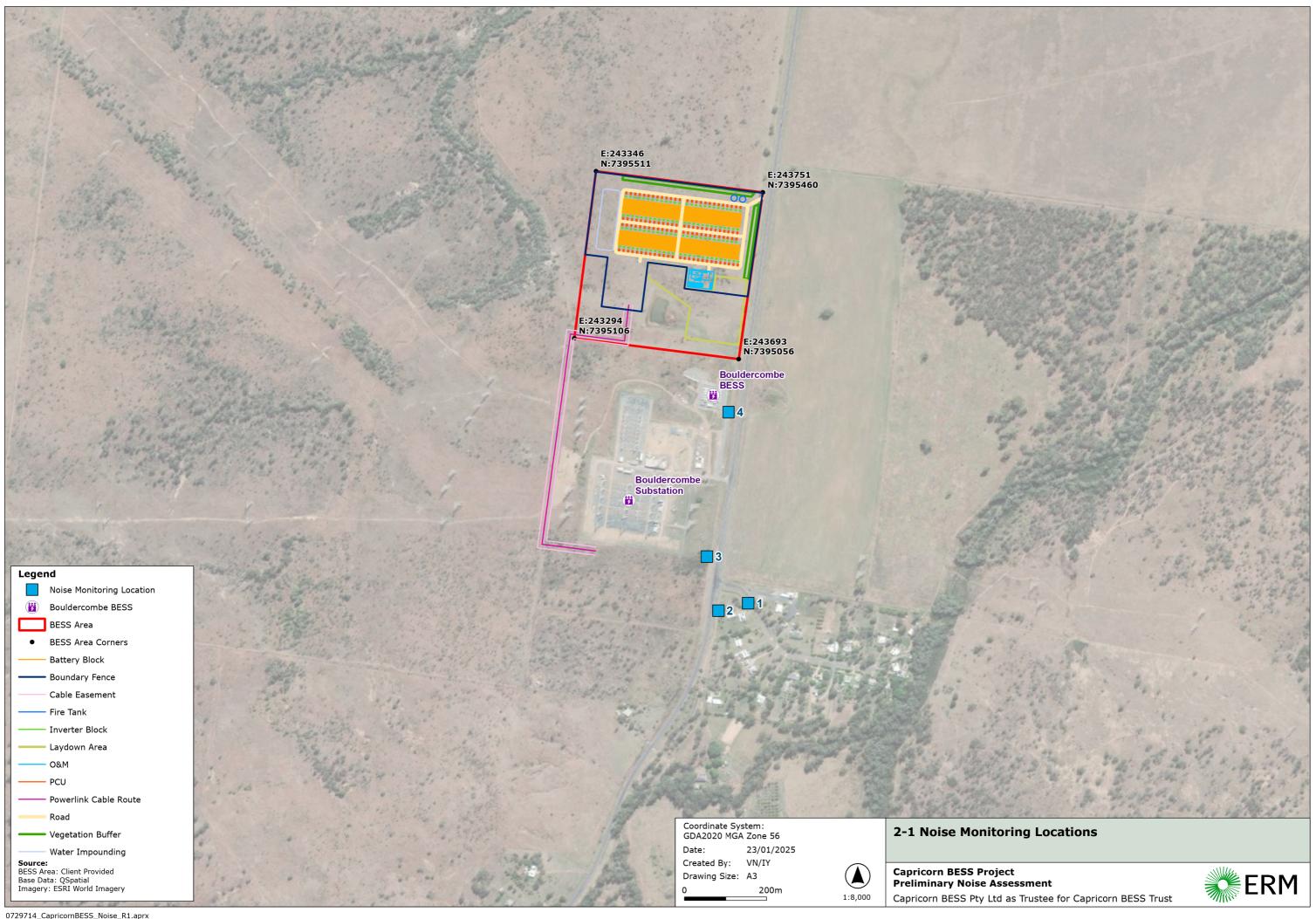
2.4.1 NOISE MEASUREMENT LOCATIONS

Noise measurements were conducted at the nearest Sensitive Receptors and at intermediate locations (dominated by noise from the existing Bouldercombe Substation and the existing Bouldercombe BESS) as shown in Table 2-2 and displayed in Figure 2-1.

TABLE 2-2 NOISE MONITORING LOCATIONS

Noise Monitoring Location	UTM Coordin	nates (GDA94 Zone 56)	Description
	X, m	Y, m	
1	243715	7394463	Background noise at 1 Childs Ave; 85m from Burnett Highway
2	243642	7394445	Background noise at 2 Childs Ave; 17m from Burnett Highway
3	243614	7394576	Bouldercombe Substation noise
4	243667	7394926	Bouldercombe BESS noise





2.4.2 METHODOLOGY

Ten-minute operator-attended noise measurements were undertaken at Noise Monitoring Locations 1, 2, 3 and 4 during the day, evening, and night periods on 24 July 2024 in accordance with the Queensland Noise Measurement Manual (Queensland Government DES, 2020).

The sound level meter NTi XL2 was set to show instantaneous noise levels throughout each measurement, with noise events noted by ERM. Overall A-weighted 10-minute acoustic statistical parameters (L_{max} , L_{min} , L_{eq} , L_{1} , L_{10} and L_{90}) were recorded by the device.

The measurement instrumentation used to complete the assessment complied with the requirements of AS 61672.1 and AS/IEC 60942 with current National Association of Testing Authorities calibration certificates, with certification at intervals not exceeding two years at the time of use.

Instrument calibration was checked before monitoring and again at its conclusion, with no difference noted between the two results.

2.4.3 MEASUREMENT EQUIPMENT

The measurement instrumentation are as follows:

- Sound Level Meter: NTi XL2 Type 1, Serial Number A2A-06905-E0, FW3.03; and
- Acoustic Calibrator: Brüel & Kjær Type 4231, Serial Number 2205468.

Meteorological conditions were observed during attended noise monitoring. Wind and temperature conditions were measured with a handheld anemometer. Noise monitoring was conducted in the absence of rainfall and windspeeds above 5 m/s.

2.4.4 MEASUREMENT RESULTS

The results of the attended noise measurements are summarised in Table 2-3.



TABLE 2-3 ATTENDED NOISE MONITORING RESULTS ON 24 JULY 2024

Start Time	Period	Noise Monitoring Location	L _{Aeq} , dB(A)	LAF90, dB(A)	Observations
14:09	Day	1	57	43	Noise dominated by bird calls, traffic on Burnett Highway and wind-induced tree noise. Ambient noise is 43-46 dB(A). Car passby noise is 52-55dB(A) every 10-20 seconds.
14:30	Day	2	64	42	Noise dominated by bird calls, traffic on Burnett Highway and wind-induced tree noise. Ambient noise is 46-48 dB(A). Car passby noise was 65-72dB(A) every 10-20 seconds.
14:46	Day	3	66	46	Noise dominated by traffic on Burnett Highway and wind-induced tree noise. Car passby noise is 70-75dB(A). Ambient noise was approximately 48 dB(A).
14:59	Day	4	74	56	Noise was dominated by traffic on Burnett Highway and wind-induced tree noise. Noise from the existing Bouldercombe BESS was present in the absence of car passbys.
20:05	Evening	1	40	33	Noise was dominated by traffic on Burnett Highway. Noise from the existing Bouldercombe substation was present in the absence of car passbys.
20:20	Evening	2	57	35	Noise was dominated by traffic on Burnett Highway. Noise from the existing Bouldercombe substation was present in the absence of car passbys.
20:36	Evening	3	64	39	Noise was dominated by traffic on Burnett Highway. Noise from the existing Bouldercombe substation was present in the absence of car passbys.
20:58	Evening	4	64	36	Noise was dominated by traffic on the Burnett Highway. There was also wind-induced tree noise and mild insect noise. Noise from the existing Bouldercombe BESS was present in the absence of car passbys.



PRELIMINARY NOISE ASSESSMENT

PROJECT AND SITE DESCRIPTION

Start Time	Period	Noise Monitoring Location	L _{Aeq} , dB(A)	LAF90, dB(A)	Observations
22:18	Night	1	38	34	Noise was dominated by wind and occasional traffic on the Burnett Highway (every 40 seconds – 1 minute). Noise from the existing Bouldercombe substation was present in the absence of car passbys.
22:33	Night	2	59	39	Noise was dominated by wind and occasional traffic on the Burnett Highway (every 40 seconds – 1 minute). Noise from the existing Bouldercombe substation was present in the absence of car passbys.
22:47	Night	3	56	39	Noise was dominated by wind and occasional traffic on the Burnett Highway (every 40 seconds – 1 minute) There was also wind-induced tree noise and bird noise. Noise from the existing Bouldercombe substation was present in the absence of car passbys
22:02	Night	4	65	32	Noise was dominated by wind and occasional traffic on the Burnett Highway (every 40 seconds – 1 minute) There was also wind-induced tree noise and bird noise. Noise from the existing BESS was present in the absence of car passbys

3. LEGISLATIVE CONTEXT AND CRITERIA

3.1 ENVIRONMENTAL PROTECTION (NOISE) POLICY 2019

In Queensland, noise is regulated under the *Environmental Protection Act 1994* (Queensland Government, 1994) and subordinate regulation and policy including the Environmental Protection Regulation 2019 (EP Regulation) (Queensland Government, 2019), and the EPP(Noise) (Queensland Government, 2019).

Section 9 of EPP (Noise) provides the management intent for noise as follows:

- (2) To the extent it is reasonable to do so, noise must be dealt with in a way that ensures—
- (a) the noise does not have any adverse effect, or potential adverse effect, on an environmental value under this policy; and
- (b) background creep in an area or place is prevented or minimised.
- (3) Despite subsection (2)(b), if the **acoustic quality objectives** for an area or place are not being achieved or maintained, the noise experienced in the area or place must, to the extent it is reasonable to do so, be dealt with in a way that progressively improves the acoustic environment of the area or place.
- (4) In this section—background creep, for noise in an area or place, means a gradual increase in the total amount of background noise in the area or place as measured under the document called the 'Noise measurement manual' published on the department's website.

3.2 BACKGROUND CREEP

Assessment of background creep forms part of EPP(Noise). The criteria is designed to prevent background noise from progressively increasing, or creeping, higher over time with the establishment of new developments in a locality. EPP(Noise) does not provide the methodology to assess background creep. The Background creep assessment methodology is taken from its previous iteration, EPP(Noise) 2008 (Queensland Government, 2008) which states that:

- 2) To the extent that it is reasonable to do so, noise from an activity must not be for noise that is continuous noise measured by $L_{A90,T}$ more than nil dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$; or
- for noise that varies over time measured by $L_{Aeq,adj,T}$ more than 5dB(A) greater than the existing acoustic environment measured by $L_{A90,T}$.

The noise from the Project is expected to be variable due to the nature of the Project and likely high and low operational needs. Although Project noise emissions are expected to be constant over a 1-hr period, the equipment may operate intermittently and at different intensity over the 12-hour day period, 4-hour evening period and the 8-hour night period. The background creep criteria presented in Table 3-1 is applicable to Project noise contribution at the two worst-affected noise sensitive receptors and are based on the noise measurements of the existing noise environment obtained in **Section 2.4**.



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TABLE 3-1 BACKGROUND CREEP CRITERIA

Sensitive Receptor ID	Address	Background Noise, L _{A90,T} dB(A) ^{1, 2}			V	ckground (ariable No ria, L _{Aeq,T} d	ise
		Day	Evening	Night	Day	Evening	Night
1	1 Childs Ave, Bouldercombe	43	33	34	48	38	39
2	2 Childs Ave, Bouldercombe	42	35	39	47	40	44

Note:

- 1. Based on short-term noise measurements detailed in Table 2-3.
- 2. Day 7am to 6pm, Evening -6pm to 10pm, Night 10pm to 7am

3.3 ACOUSTIC QUALITY OBJECTIVES

Schedule 1 of the EPP(Noise) 2019 lists the acoustic quality objectives for residential sensitive receptors and are provided in Table 3-2Table 3-2.

TABLE 3-2 ACOUSTIC QUALITY OBJECTIVES

Sensitive Receptor	Time of Day	Acoustic Q (measured receptor)		Environmental Value	
		L _{Aeq,adj,1hr}	L _{A10,adj,1hr}	L _{A1,adj,1hr}	
residence (for outdoors)	daytime and evening	50	55	65	health and wellbeing
residence (for indoors)	daytime and evening	35	40	45	health and wellbeing
	night-time	30	35	40	health and wellbeing, in relation to the ability to sleep

Notes:

- L_{A1,adj,1hr} means the A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 1% of a 1-hour period when measured using a fast standardised response time.
- 2. **L**_{A10,adj,1hr} means the A-weighted sound pressure level, adjusted for tonal character or impulsiveness, that is exceeded for 10% of a 1-hour period when measured using a fast standardised response time.
- 3. **L**_{Aeq,adj,1hr} means an A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within a 1-hour period has the same mean square sound pressure of a sound that varies with time.
- 4. The adjustment, 'adj' for tonal character, impulsiveness



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Both the indoor and outdoor objectives in Table 3-2Table 3-2 must be met as per EPP (Noise). Accounting for an outdoor-to-indoor reduction of 7 dB, which is typical Queensland buildings with open windows as per the Noise and Vibration – EIS Information Guideline by the Department of Environment and Science (Queensland Government DES, 2022). The acoustic quality objectives for operational noise for residences are as follows:

- LAeq,adj,1hr 42 dB during the daytime and evening periods and
- LAeq,adj,1hr 37 dB during the night-time period.

These criteria are cumulative and consider existing and Project noise.



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4. OPERATIONAL NOISE ASSESSMENT

4.1 ASSESSMENT METHODOLOGY

Noise modelling has been undertaken using SoundPLAN v9, which is a software package for the calculation, presentation, assessment, and prediction of environmental noise. The noise prediction algorithms in ISO 9613 *Acoustics – Attenuation of sound during propagation outdoors* (Standards Australia, 1996) have been implemented into this software package.

The noise modelling considered the sound power level of the Project's operational equipment, and applies adjustments for attenuation from geometric spreading, acoustic shielding from intervening ground topography, ground effects, meteorological effects and atmospheric absorption.

The ground absorption and meteorological parameters summarised in Table 4-1Table 4-1 were used and are considered conservative.

TABLE 4-1 MODELLED GROUND AND METEOROLOGICAL CONDITIONS

Ground Factor	Relative Humidity	Temperature
0.5	70%	10°C

Interval topographical contours of 10m were incorporated into the noise model, and the propagation of site noise emissions were significantly influenced by topography.

All predicted operational noise levels consider adjustments to the predicted noise levels for tonality.

4.2 MODELLED OPERATIONAL NOISE SOURCES

The modelled operational noise sources are summarised in Table 4-2. For this model, the locations of the noise sources were assumed to be as shown in the noise contour figures in **Appendix A**.

The BESS technology to be implemented for the Project cannot be confirmed until detailed design and selection of the supplier. Due to this, realistic assumptions on equipment sound power levels have been made in Table 4-2. To ensure conservative results, it was assumed in consultation with the Proponent that the noisiest models, operating at maximum capacity would be used for the Project.



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TABLE 4-2 MODELLED NOISE SOURCES

Plant Item	Sound Power Level per Plant Item, Leq dB(A)	Quantity	Notes
Battery Unit	79.7	525	 Make and Model: CSI Solbank – S-2967-2h-H-A/E-0 Based on supplier noise assessment at factory Maximum cooling power operation Equipment noise data sheet provided in Appendix B
Inverter	85.8	105	 Make and Model: SMA SCS 3950UP-XT Sound Power Level provided by manufacturer Fitted with silencer Equipment noise data sheet provided in Appendix B
Power Conversion Unit (PCU)	63.9	105	 Medium Voltage (MV) Transformer (1 per Inverter) Client advice and noise measurements Equipment noise data sheet provided in Appendix B
Substation High Voltage (HV) Transformer	97.6	2	 180 MVA Transformer Sound Power Level based on IEC 60076-10:2001 (AS/NZS 600076.10:2009) – Standard Maximum Sound Level



4.3 PREDICTED OPERATIONAL NOISE LEVELS

Based on the noise modelling methodology described in **Section 4.1** of this report and the operational noise sources presented in Table 4-2, noise levels have been predicted and assessed against the outdoor Project criteria in Table 3-1 and Table 3-2 at the nearest Sensitive Receptors. Noise contours are provided in **Appendix A**.

This assessment has conservatively assumed that all operations will remain the same for each assessment period (i.e., day, evening, and night) and be operating at maximum output (i.e., loudest operational noise levels). The predicted Project noise levels are within the EPP (Noise) Acoustic Quality Objectives and Background Creep criteria (Table 4-3)

TABLE 4-3 PREDICTED OPERATIONAL NOISE LEVELS

Sensitive Receptor	Distance from Nearest Project Noise Source, m	Predicted Project Noise Levels, Leq dB(A) ¹	Acoustic Quality Objectives, L _{eq} dB(A)	Variable Background Creep Criteria, L _{eq} dB(A)
1 Childs Avenue	612	29.5	42 (Day and Evening) 37 (Night)	48 (Day) 38 (Evening) 39 (Night)
2 Childs Avenue	625	31.6	42 (Day and Evening) 37 (Night)	47 (Day) 40 (Evening) 44 (Night)
`Glenlands' Residence	1887	19.7	42 (Day and Evening) 37 (Night)	N/A

Note:

1. Day - 7am to 6pm, Evening -6pm to 10pm, Night - 10pm to 7am

.



5. RECOMMENDATIONS AND CONCLUSION

The predicted Project noise levels are within the EPP (Noise) Acoustic Quality Objectives and Background Creep criteria, and no Project-specific noise mitigation measures are proposed based on this assessment or necessary to achieve legislative criteria compliance.

Once a final equipment selections and relevant manufacturers' have been selected at the detailed design stage of the Project, it is recommended that re-assessment be conducted to ensure ongoing compliance with the noise criteria and general environmental duty.



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6. STATEMENT OF LIMITATIONS

1. This report is based solely on the scope of work described in the submitted proposal performed by ERM for the Proponent. The Scope of Work was governed by a contract between ERM and the Proponent.

- 2. No limitation, qualification or caveat set out below is intended to derogate from the rights and obligations of ERM and the Proponent.
- 3. The findings of this report are solely based on, and the information provided in this report is strictly limited to that required by the Scope of Work. Except to the extent stated otherwise, in preparing this report ERM has not considered any question, nor provides any information, beyond that required by the Scope of Work.
- 4. This report was prepared between July 2023 and February 2025 and is based on conditions encountered and information reviewed at the time of preparation. The report does not, and cannot, take into account changes in law, factual circumstances, applicable regulatory instruments or any other future matter. ERM does not, and will not, provide any on-going advice on the impact of any future matters unless it has agreed with the Client to amend the Scope of Work or has entered into a new engagement to provide a further report.
- 5. Unless this report expressly states to the contrary, ERM's Scope of Work was limited strictly to identifying typical environmental conditions associated with the Project site and does not evaluate the condition of any structure on the subject site nor any other issues.
- 6. This report is based on one or more site inspections conducted by ERM personnel, the noise monitoring described in the report, and information provided by the Client or third parties (including regulatory agencies). All conclusions and recommendations made in the report are the professional opinions of the ERM personnel involved. Whilst normal checking of data accuracy was undertaken, except to the extent expressly set out in this report ERM:
 - a. did not, nor was able to, make further enquiries to assess the reliability of the information or independently verify information provided by the Proponent;
 - b. assumes no responsibility or liability for errors in data obtained from, the Client, any third parties or external sources (including regulatory agencies).
 - c. Although the data that has been used in compiling this report is generally based on actual circumstances, if the report refers to hypothetical examples those examples may, or may not, represent actual existing circumstances.
- 7. Only the environmental conditions referred to in this report have been considered. To the extent permitted by law and except as is specifically stated in this report, ERM makes no warranty or representation about:
 - the suitability of the site(s) for any purpose or the permissibility of any use;
 - the presence, absence or otherwise of any environmental conditions or contaminants at the site(s) or elsewhere; or



PRELIMINARY NOISE ASSESSMENT STATEMENT OF LIMITATIONS

8. Use of the site for any purpose may require planning and other approvals and, in some cases, environmental regulator and accredited site auditor approvals. ERM offers no opinion as to the likelihood of obtaining any such approvals, or the conditions and obligations which such approvals may impose, which may include the requirement for additional environment works.

- 9. This report should be read in full and no excerpts are to be taken as representative of the whole report. To ensure its contextual integrity, the report is not to be copied, distributed or referred to in part only. No responsibility or liability is accepted by ERM for use of any part of this report in any other context.
- 10. Except to the extent that ERM has agreed otherwise with the Client in the Scope of Work or the Contract, this report:
 - has been prepared and is intended only for the exclusive use of the Client
 - has not been prepared nor is intended for the purpose of advertising, sales, promoting or endorsing any Client interests including raising investment capital, recommending investment decisions, or other publicity purposes
 - does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial commitment or otherwise in or in relation to the site(s); and
 - does not purport to provide, nor should be construed as, legal advice.



PRELIMINARY NOISE ASSESSMENT REFERENCES

7. REFERENCES

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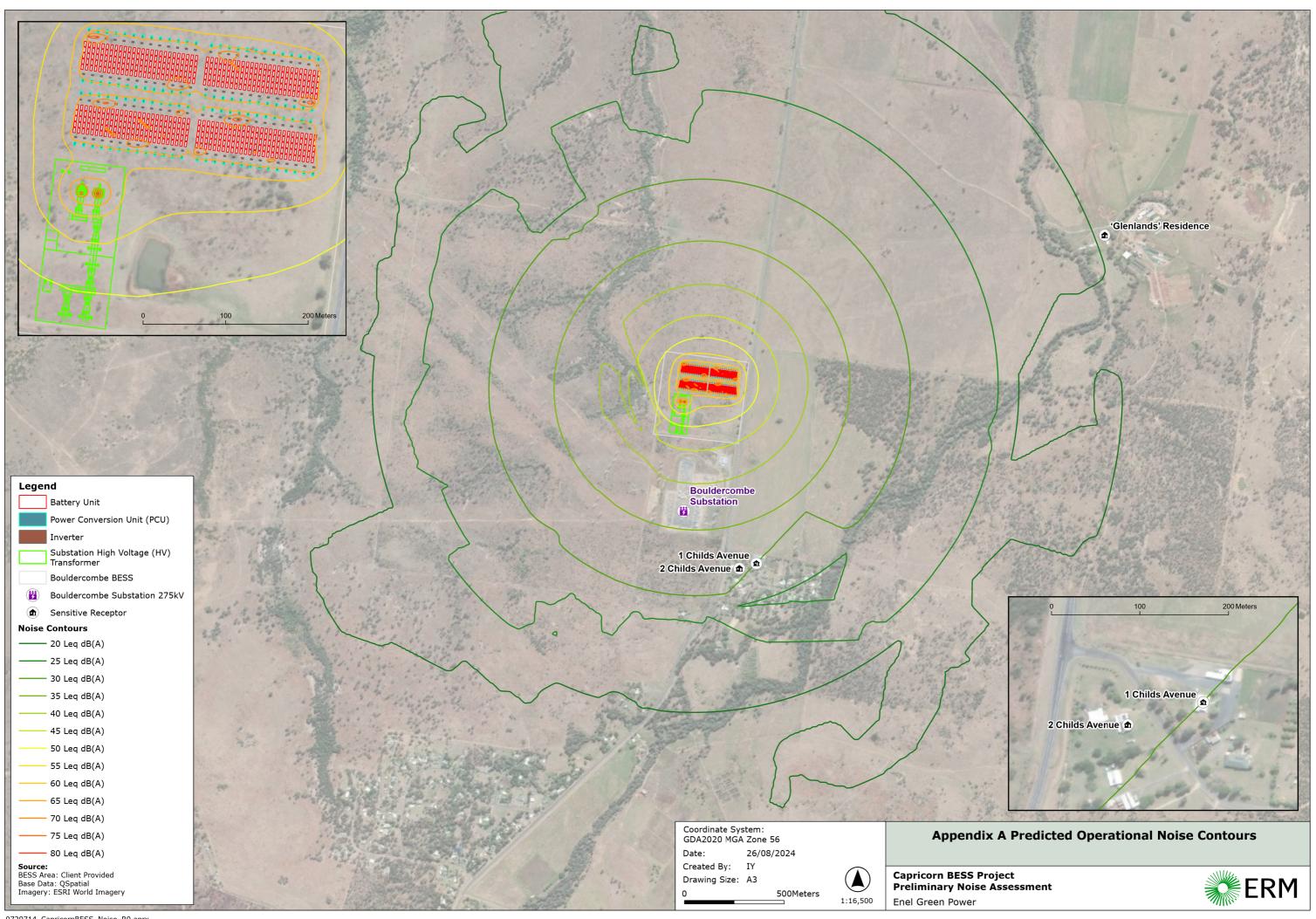
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APPENDIX A PREDICTED OPERATIONAL NOISE CONTOURS





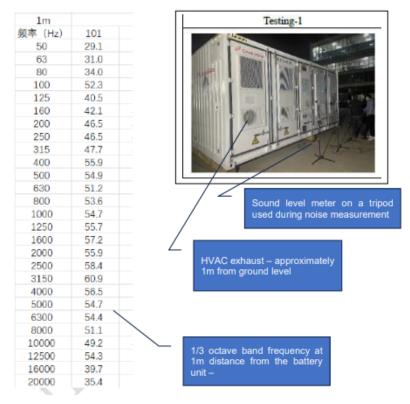
APPENDIX B EQUIPMENT NOISE SPECIFICATIONS



Battery Unit



CSI Solbank – S-2967-2h-H-A/E-0 battery (noise assessment at the factory)



CSI Solbank battery sound power (dB) 1/1 octave band frequency level used for predictive noise calculations

Frequency	31.5	63	125	250	500	1k	2k	4k	8k	16k	Hz
Level		46.6	63	61.7	61.2	69.5	72.1	72.9	76.9	54.5	dB
Total					79	.9					



Inverter

Measurement No. 25 at 3933 kVA with Silencer Kit

Sound Power Levels of the Third Octave Band Frequencies according to EN ISO 9614-2

231019 002	Meas 25
Frequency	Tot.Pwr,A
25 Hz	27,42
31,5 Hz	39,38
40 Hz	43,79
50 Hz	52,16
63 Hz	55,07
80 Hz	57,2
100 Hz	62,39
125 Hz	58,94
160 Hz	58,73
200 Hz	62,45
250 Hz	65,46
315 Hz	70,66

400 Hz	64,11
500 Hz	64,34
630 Hz	65,52
800 Hz	64,36
1 kHz	63,94
1,25 kHz	61,02
1,6 kHz	59,51
2 kHz	58,53
2,5 kHz	75,35
3,15 kHz	84,38
4 kHz	61,75
5 kHz	64,8
6,3 kHz	74,85
8 kHz	65,59
10 kHz	66,03
Α	85,82
Z	89,93

1/3 octave band frequency used for predictive noise calculation



Silencer's exhaust approximately 1m from the ground



MV Transformer

		A-weighted sour	d pressure lev	els LpA0		1000
Plan Position	Heght 1	Heght 2	Plan Position	Heght 1	Heght 2	
1	51,5		11	49,6		
2	48,1		12	53,6		
3	51,7		13			
4	52,2		14			
5	48,4		15			
6	52		16			
7	50,2		17			
8	50		18			
9	52,5		19			
10	51,1		20			
The average A-weigh	ited background noise	sound pressure level is pressure level (before) is pressure level (after) is	s LbgA=10 lc	$(1/N \sum (j=1)^{N} (10^{-1})^{N} (10^{-1})^{$	^(0.1*LbgAj))	= 47,09 dB(A) = 46,79 dB(A)
L) if LpA0 - the ma	jor of LbgA is ≥ 8dE	following condition B and LbgA(before) - I		IB		
The corrected aver	rage A-weighted sou	and pressure level is:	LpA=10 log([10]^	(0.1*LpA0) - [10]^(0.1	<i>LbgA</i>))-k	= 49,23 dB(A)
where Lbga is the	lower of the two A-	weighted background	noise sound pressu	ire levels.		
Calculation of so	und power level:					
he A-weighted so	und power level:	LwA=L	pA+10 log S/S0			= 63,86 dB(A)
shore Co le accet i	to the reference are	. (1 m (2)				V /



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Conceptual Stormwater Assessment

Capricorn Battery Energy Storage System (BESS)

PREPARED FOR

Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust

DATE 27 February 2025

REFERENCE 0729714



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SIGNATURE PAGE

Conceptual Stormwater Assessment

Capricorn Battery Energy Storage System (BESS)



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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
ERM	Environmental Resource Management
BESS	Battery Energy Storage System
LGA	Local Government Area
MV/HV	Medium Voltage/High Voltage
PCU	Power Conversion Unit
ВоМ	Bureau of Meteorology
РО	Performance Outcomes
AO	Acceptable Outcomes
CMDG	Capricorn Municipal Development Guidelines
QUDM	Queensland Urban Drainage Manual
AHD	Australian Height Datum
GBR	Great Barrier Reef
RUSLE	Revised Universal Soil Loss Equation
AEP	Annual Exceedance Probability
ARR	Australian Rainfall Runoff
CESCP	Construction Erosion Sediment Control Plan
СЕМР	Construction Environmental Management Plan
SPP	State Planning Policy
EMP	Environment Management Plan
EPP	Environment Protection Policies
IECA	International Erosion Control Association
ESC	Erosion Sediment Control



1. INTRODUCTION

Environmental Resources Management Pty Ltd (ERM) has been engaged by being Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust (the Proponent) to prepare a Conceptual Stormwater Assessment for the proposed development of the Capricorn Battery Energy Storage System (BESS) (the Project). The Project Area is located within the Rockhampton Regional Council local government area and is approximately 2.5 km north of Bouldercombe, Queensland.

The Project involves the construction of a battery energy storage system within Lot 2 on RP613051 in Queensland. The proposed BESS is to be connected to the Bouldercombe Substation (owned and operated by Powerlink).

This report contains the assessment methodology and findings of the conceptual stormwater assessment, for the proposed Project infrastructure associated with the BESS.

1.1 OBJECTIVES

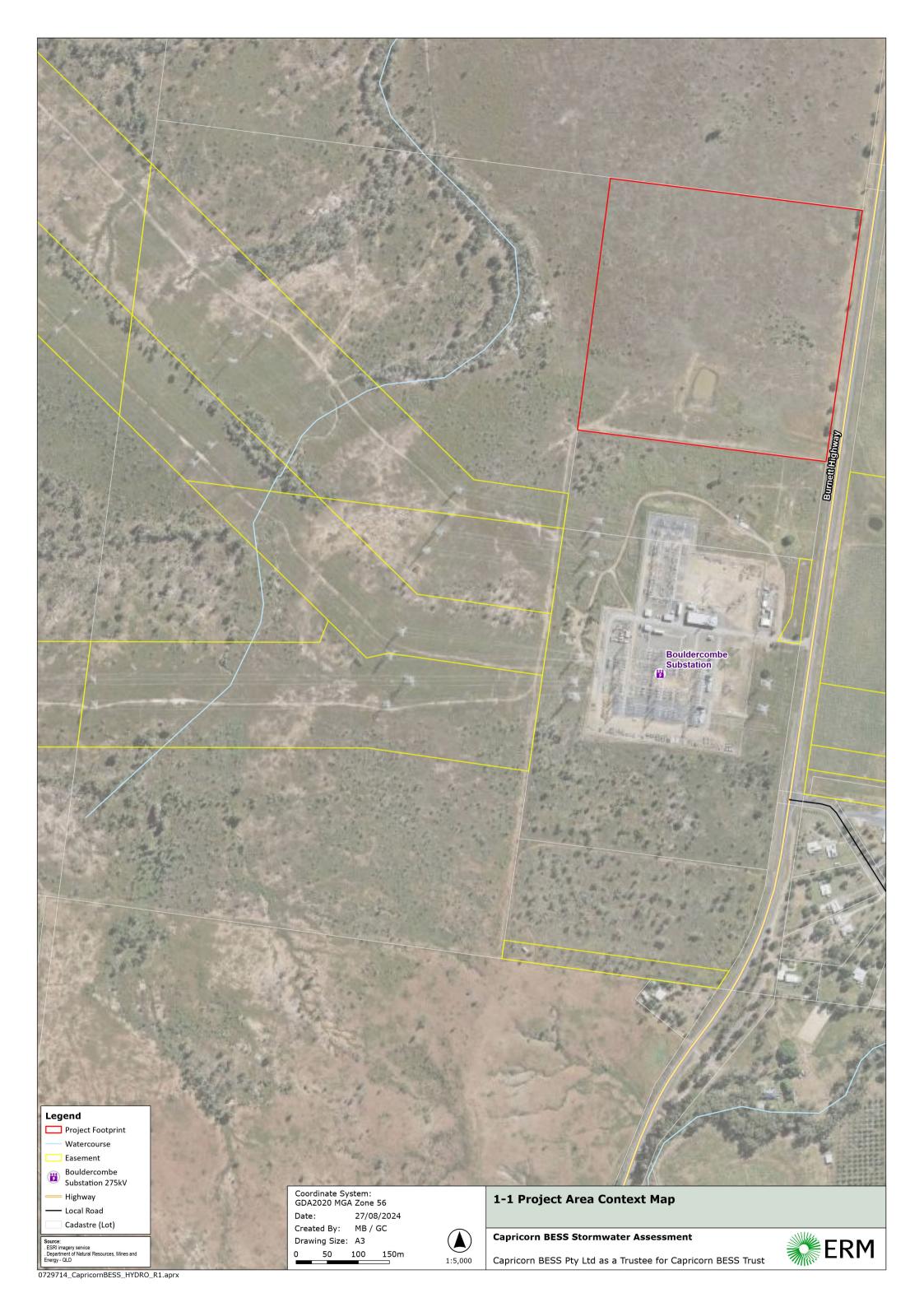
The objectives of this Stormwater Assessment relates to the extent to which works and activities associated with the project will impact:

- stormwater quantity during each phase of the project;
- stormwater quality during each phase of the project;

1.2 SCOPE OF WORK

The following scope of work was undertaken to address the objectives:

- Desktop-based investigation to establish the existing conditions;
- Review of potential stormwater related risks (including flooding);
- Consideration of runoff flow paths that may be changed by the project;
- Review of erosion risk;
- Impact assessment for stormwater; and
- Development of a summary report for the stormwater impact assessment (this report).



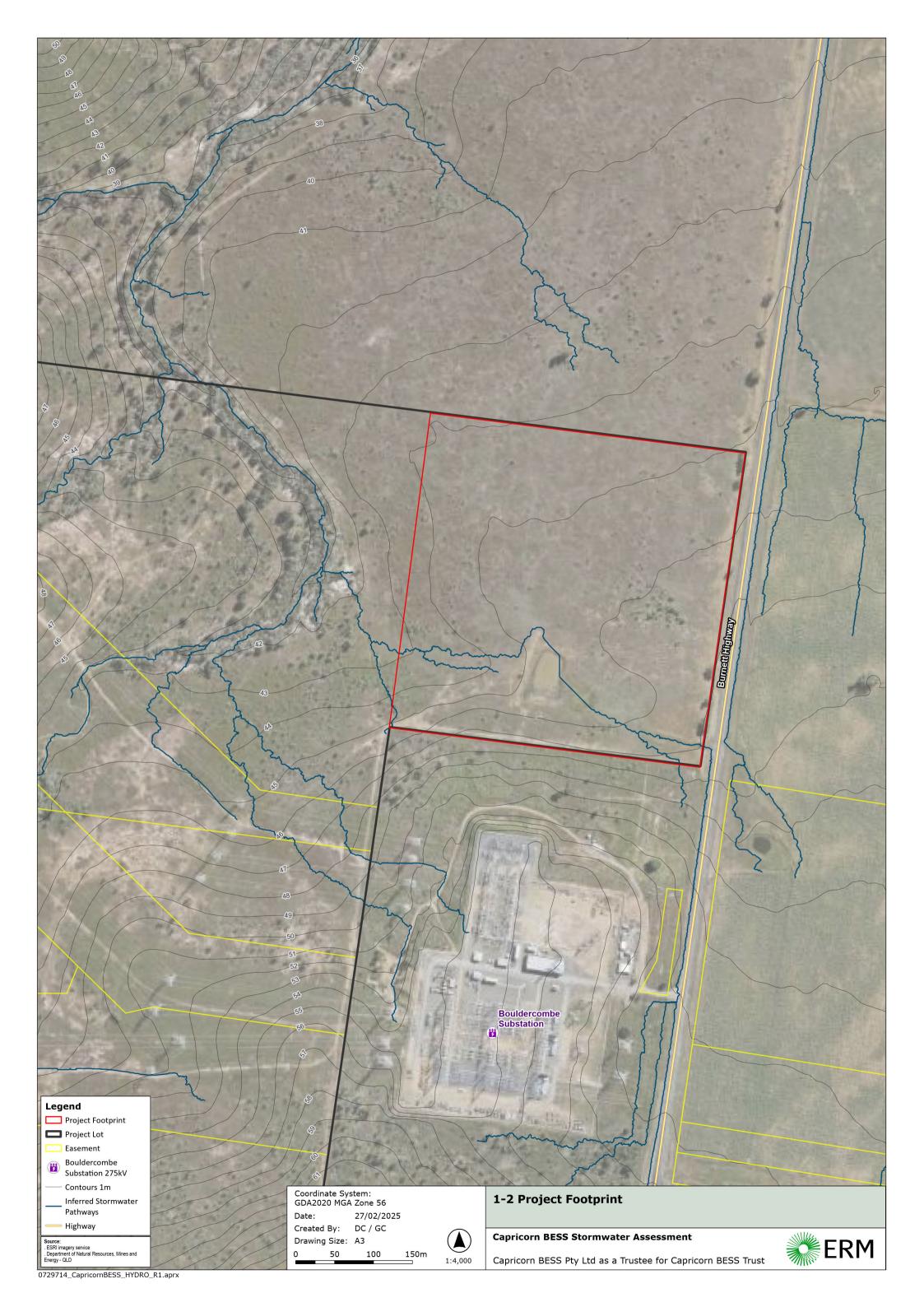
1.3 PROPOSED PROJECT DESIGN

The proposed footprint is presented in **Figure 1-2.** The layout is subject to change based on the final agreed and approved project layout. The proposed development includes a BESS, which would be a 300MW / 1200MWh system consisting of the following:

- 525 BESS containers;
- 105 SMA Inverters and Medium Voltage Transformer (Power Station);
- · Operation and Maintenance facilities;
- Electrical equipment including high voltage substation, primary transformer, auxiliary transformers, harmonic filters and control rooms;
- · Laydown area;
- · Onsite road;
- Fire Tanks x2; and
- Water Impoundment.

The BESS containers will be connected to inverters, which converts direct current to grid compliant alternating current, then through MV power stations into the BESS substation using buried cables The BESS substation will be connected to the Bouldercombe (Powerlink) substation via underground or overhead cables.





METHODOLOGY

The Conceptual Stormwater Assessment includes a desktop-based investigation of the site's characteristics including topography, hydrology, water quality, soil, and potential for erosion at the Project site. The methodology outlined below has been adopted.

2.1 Desktop-based Investigation

The desktop-based investigation was completed using the following methodology:

- Review of topographical maps and local ground elevation maps for the Project area;
- Review of publicly available hydrology and watercourse maps for the Project sites;
- Review of publicly available climate and water flow data from the Bureau of Meteorology (BoM);
- Review of information obtained from Queensland Globe (QLD Government, 2023a) and QSpatial (QLD Government, 2023b);
- Review of lidar data provided by the client;
- the International Erosion Control Association (2012) Best Practice Erosion and Sediment Control Book 1; and
- Review of the proposed Project construction and operation plans.

2.2 IMPACT ASSESSMENT

The assessment of impacts consisted of the following:

- Identification of the location of surface water features in the vicinity of the site, with respect to the planned Project activities (specifically excavations and soil disturbances) and recommendations of areas to avoid for the Project;
- Assessment of the potential impacts of the Project on surface water quality,
- Assessment of potential for risk of erosion utilising the Revised Universal Soil Loss Equation methodology;
- Identification of risks to the Project from surface water including potential flooding (if already present in the Project area); and
- Identification of control and mitigation measures for the Project to avoid, minimise and mitigate impact to surface water.

REGULATORY FRAMEWORK

Relevant guidance and legislation considered included the Fitzroy Basin Water Plan (2011) and Environmental Protection (Water and Wetland Biodiversity) Policy 2019.

The conceptual stormwater assessment has been compiled to support a development application for the project. The information contained within the report provides an overview of stormwater management for the project.

It is noted that additional development guidelines exist for the project including the Capricorn Municipal Development Guidelines for Stormwater Design (CDMG-D5) and Performance Outcomes 6 and 7 stipulated within Rockhampton Regional Council's Version 4.4 Current Planning Scheme (2015). Some of the specific requirements outlined in these guidelines are not considered at the preliminary stage but will be provided as the project progresses to detailed design, and both the project layout and construction methods are confirmed. A site-based Stormwater Management Plan is to be prepared for the project at the detailed design stage which will comply with the requirements of CDMG-D5 and the Rockhampton Regional Council's Current Planning Scheme.



4. ENVIRONMENTAL SETTING

The proposed development involves the construction of a BESS over Lot 2 on RP613051 adjacent to the Bouldercombe Substation (Powerlink) and Bouldercombe BESS (Genex). The Project area is located approximately 16km south of Rockhampton, Queensland and 2.5km north of Bouldercombe with the total area of the proposed site extending to approximately 17 hectares (ha) and situated on freehold land.

This section provides information regarding the environmental setting of the proposed project; all the information has guided the potential impacts and proposed mitigation measures discussed in Sections 5 and 6.

4.1 LOCATION AND LAND USE

The Project is located approximately 16km south of Rockhampton, Queensland and 2.5km north of Bouldercombe, accessible via the Burnett Highway. Existing land uses within the area consist largely of cleared grazing land and residential dwellings to the south and southeast. There is also an existing BESS and substation to the south of the proposed project.

Notable roads within the vicinity of the proposed BESS include Burnett Highway which borders the Project Area to the east. The Burnett Highway connects the site to Bouldercombe to the south and Rockhampton to the north via Bruce Highway. A number of small tracks are noted to the west of the Project Area named Bouldercombe Kabra. These tracks lead to the Four Mile Road to the west and Cherryfield Road to the north-west

4.2 CLIMATE

The Project area is situated within a sub-tropical climate with peak periods of rainfall occurring between the months of (November to March) as the typical 'wet season'. The middle of the year is typically dry between (April to October) with occasional bouts of rainfall experienced. The minimum mean monthly rainfall for the region is 22.3mm in August, with a maximum mean monthly rainfall of 133mm in February.

Rainfall data was sourced from Bureau of Meteorology (BOM) Moonmera weather station (station no. 039067) which is located 6.6km southwest of the Project area and is presented in **Figure 4-1**. The dataset from Moonmera Station represents monthly rainfall data collected from January 1901 to August 2024.



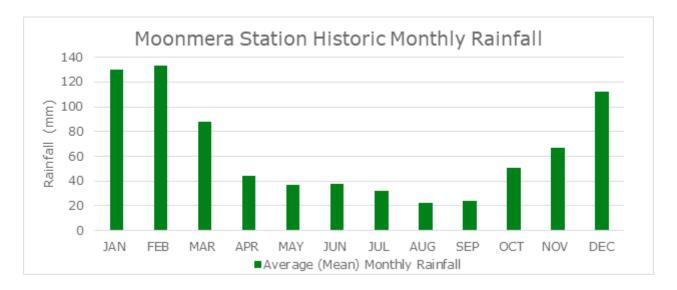
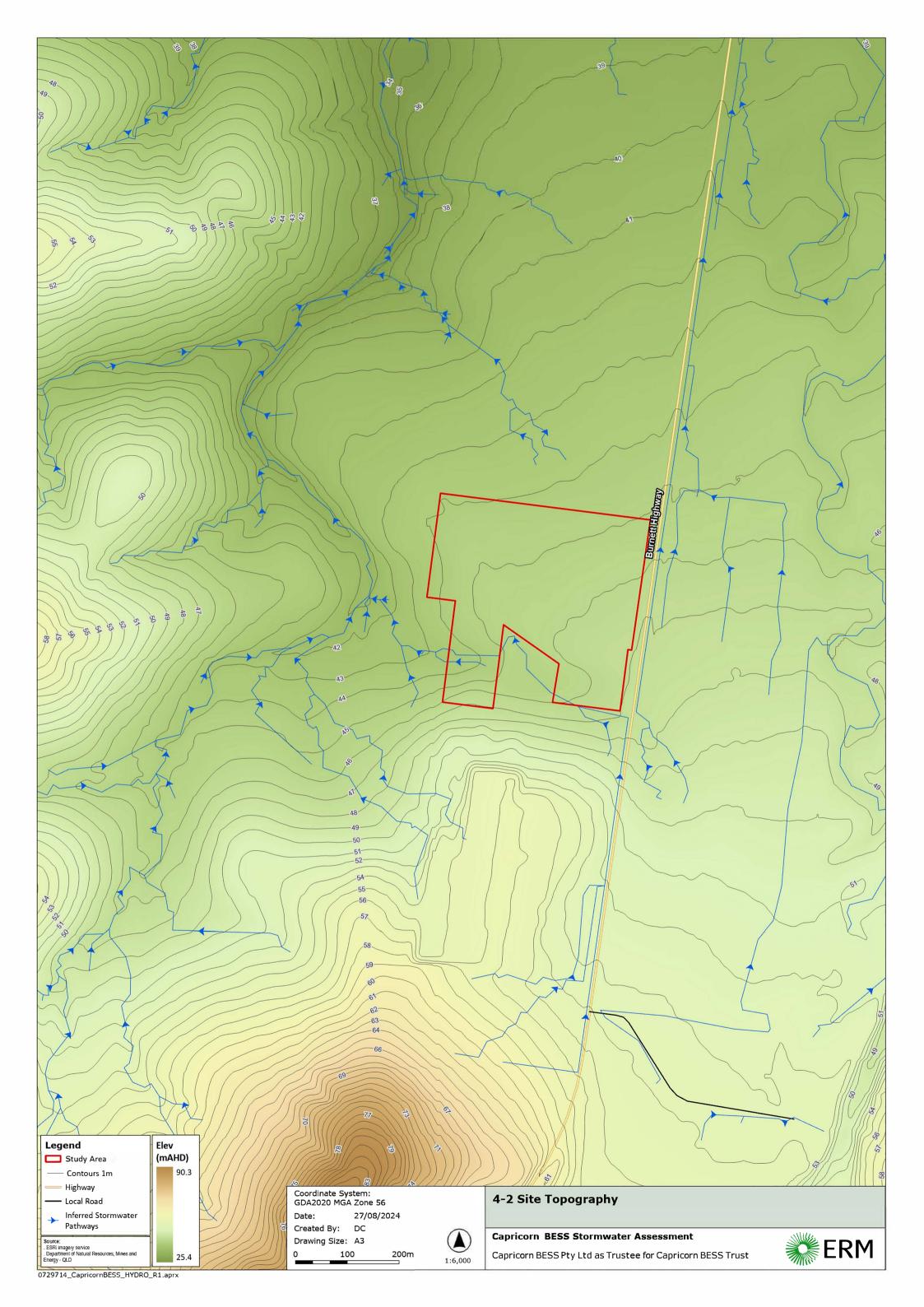


FIGURE 4-1 MOONMERA STATION (039067) HISTORIC MONTHLY RAINFALL

4.3 TOPOGRAPHY

The topography of the site is shown in **Figure 4-2.** A review of the regional topography and the Lidar data provided by the client indicates the Project site is located in an area that is predominantly low-lying and relatively flat. The ground level is highest towards the southern boundary of the site and gradually falls away to the west and north. There is a small farm dam near the southern boundary of the site which currently captures surface runoff from the site and from the adjacent substation to the south.





4.4 HYDROLOGY AND WATERCOURSES

The Project is located within the Fitzroy River drainage sub-basin, which forms part of the wider Fitzroy Basin catchment. On a larger scale, the Fitzroy Basin is located within the Fitzroy region, one of six natural resource management regions that drains into the Great Barrier Reef (GBR). At 156,000 square kilometers, the Fitzroy region is the largest draining region into the GBR.

Four Mile Creek is located to the west of the proposed BESS site, an unnamed tributary of the Four Mile Creek lies immediately west of the site. Surface runoff from the site reports to the unnamed tributary to the west. This tributary flows north where it converges with the Four Mile Creek before discharging into Gavial Creek. Gavial Creek flows into the Fitzroy River downstream of Rockhampton City Centre prior to discharging into the Great Barrier Reef.

There appears to be a small farm dam (or similar) located near the southern boundary of the site. The dam appears to collect surface flows from most of the site, as well as surface runoff from the adjacent substation (south). The dam is not located within the development footprint for the BESS.

The watercourses within the Project Area and surrounds is presented in **Figure 4-3**. An unnamed tributary to the west of the site is Classified as Stream Order 1 under the Strahler system of stream order. This tributary joins a Stream Order Class 2 unnamed tributary to the north of Hunt Road before joining the Four Mile Creek classified as Stream Order 4 approximately 400m west of Burnett Highway. **Figure 4-2** shows minor watercourses within close proximity to the Project Area, it identifies an unnamed watercourse flowing through the southern boundary of the site in an east to west direction before discharging into a tributary of the Four Mile Creek.

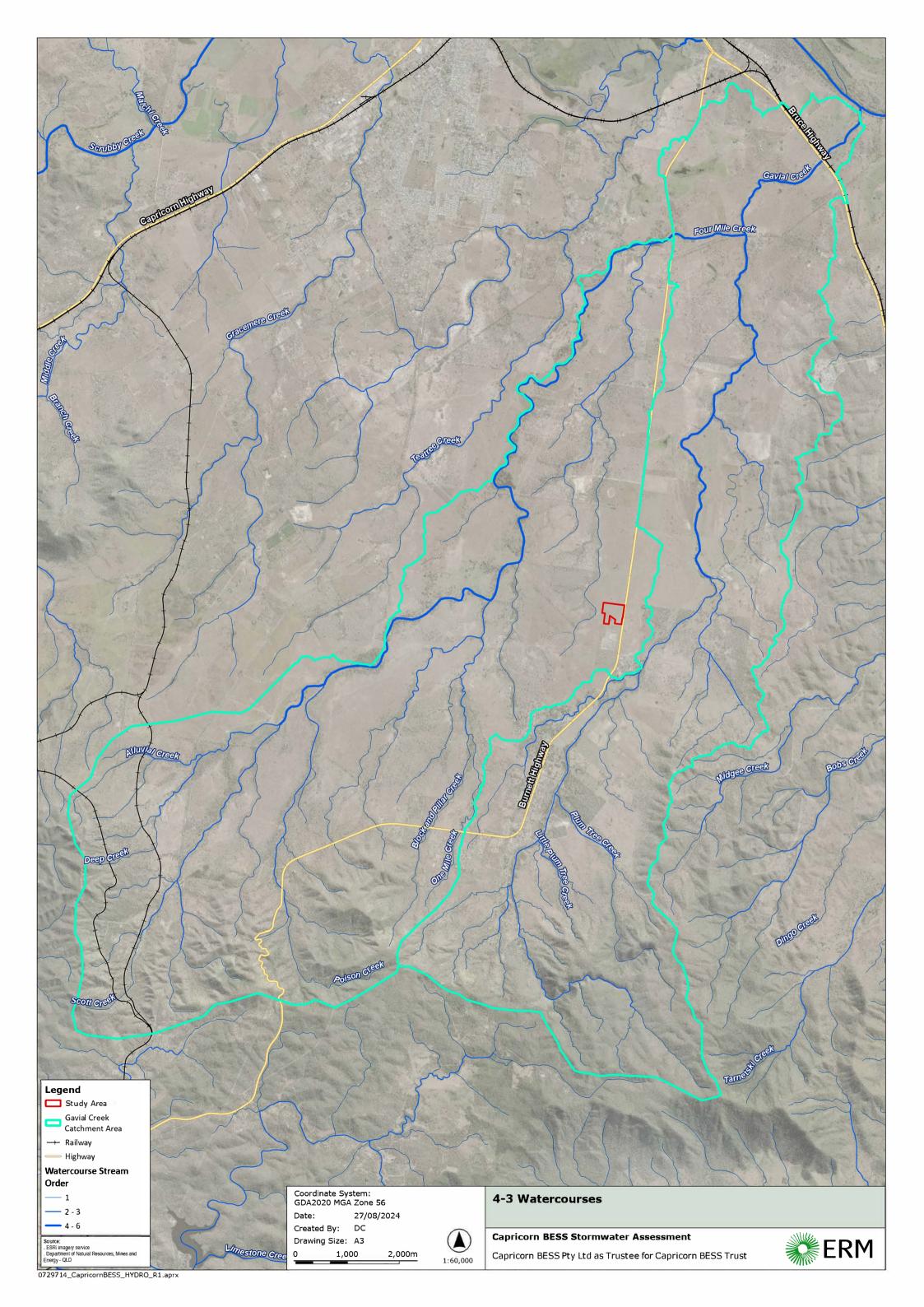
The road to the east of the Project Area appears to be acting as a small hydrological boundary, and has been slightly built up from the surrounding environment, therefore all watercourses to the east of this road tend not to flow towards the project area.

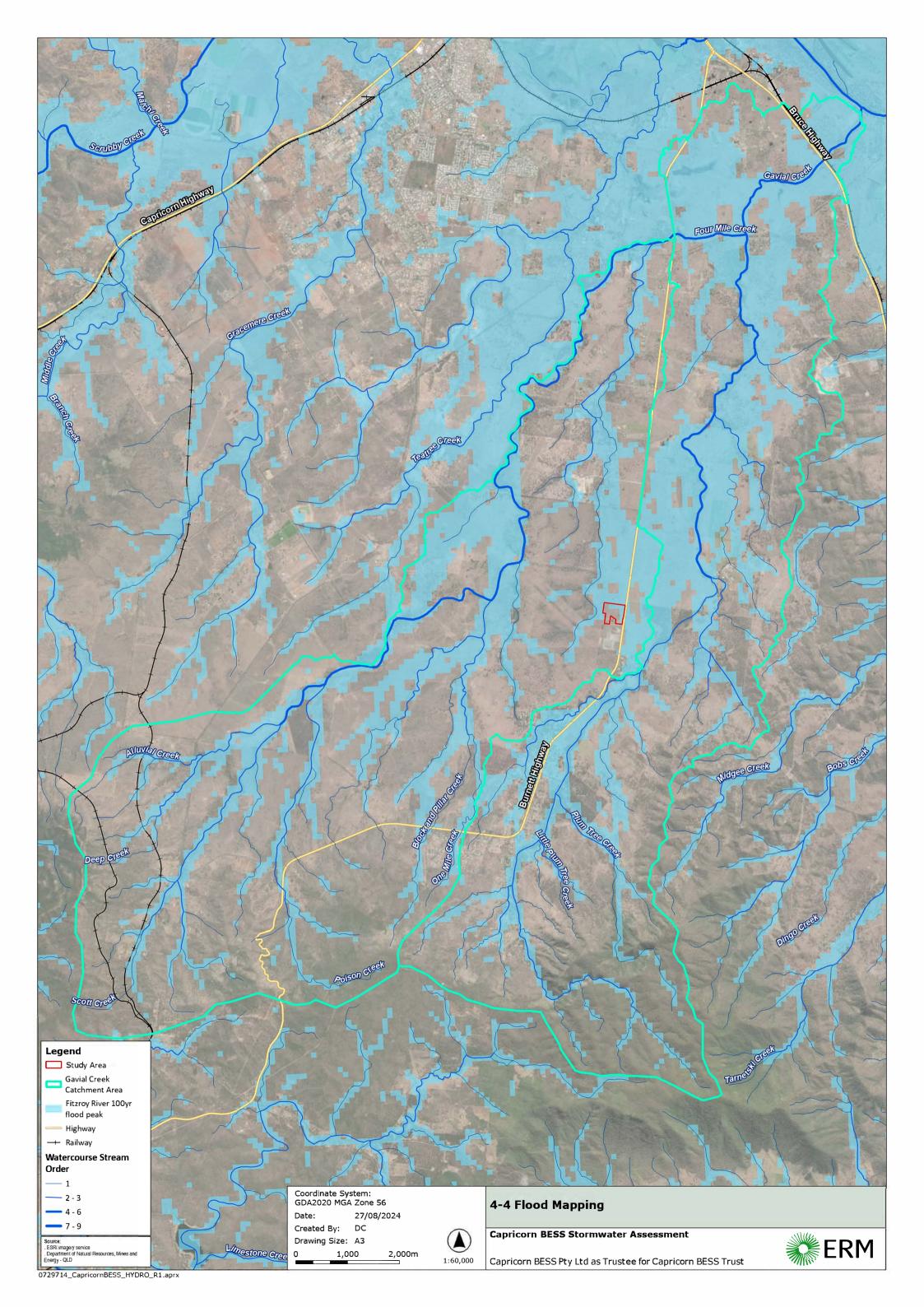
4.5 FLOODING

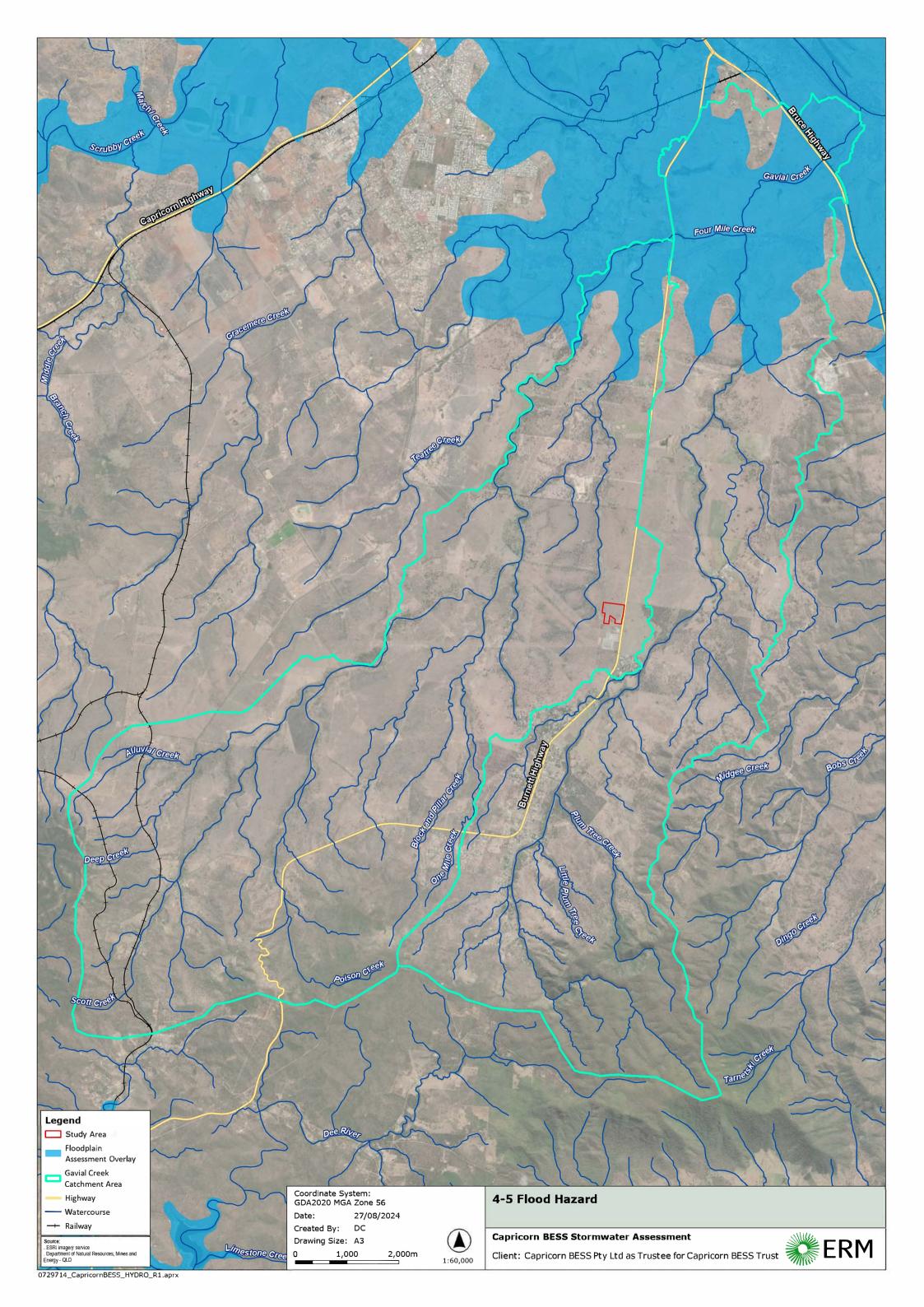
The 1% annual exceedance probability (AEP) flood extent for the project area has been obtained from Queensland Globe and QSpatial and shown in **Figure 4-4.** While the level of detail presented by this mapping is regional in nature, it provides an indicative understanding of the 1% AEP flood extent.

Based on a review of the mapping, a small portion of the project footprint is located within areas considered likely to be affected by a 1% AEP flood event. The northern boundary of the site and north east corner are likely to be affected by flooding from the unnamed tributary west of the site.

Assessment of flood hazard in **Figure 4-5** indicated that the site is not within an area considered to be a floodplain.







4.6 EROSION

Soil erosion is caused by wind, water or physical action displacing soil particles and resulting in movement from their previous location. Erosion is a multifaceted phenomenon combining soil properties, climate, setting, cover and protection. An assessment of potential erosion risk at the site using the Revised Universal Soil Loss Equation (RUSLE) is included in **Appendix A**.

The RUSLE assessment classifies erosion risk into seven groups based on the properties of the land in that area. **Figure 4-6** below shows the erosion risk across the project area. The findings of this assessment indicate the vast majority of the site is located within areas classified as very low erosion risk. A small portion of the site is classified as low to low-moderate risk of erosion.

The percentage of the disturbance footprint area within each erosion risk was and shown in **Table 1-2** below.

TABLE 1-1 EROSION RISK DISTURBANCE FOOTPRINT PERCENTAGE

Erosion Risk	Mean Annual Soil Loss (t/ha/yr)	Disturbance Footprint Percentage (%)
Very Low	< 150	89.33
Low	151 - 225	7.14
Moderate	351 to 500	3.53
High	501-750	0
Very High	751 to 1500	0
Extreme	>1500	0

Erosion and sedimentation in areas of low to moderate risk areas will typically be manageable with basic or industry standard controls.





Capricorn BESS.mxd

POTENTIAL IMPACTS

5.1 PROJECT CONSTRUCTION AND OPERATION

There are currently no definitive Project construction and operation plans available for review. Therefore, assessment of potential impacts on and from the Project to stormwater are presented at a high level only. The following Proposed project components require further consideration as they may cause ground disturbance:

- Site development Site development works are likely to include vegetation clearance, and levelling of the surface prior to construction of the foundations of the BESS.
- Battery Energy Storage System (BESS); The development of the BESS, operation and maintenance facilities are all likely to result in disturbance of the surface and possibly shallow soils. Footings and foundations are likely to include use of concrete.
- Temporary facilities during construction, laydown areas have the potential to disturb surface and shallow soils.

5.2 STORMWATER QUANTITY

A change in surface water quantity would typically be associated with a change in the imperviousness of the catchment. This could occur during the construction, and operation phases of the project.

The proposed development will include clearing of land for laydown areas, construction of the BESS compound and associated maintenance facilities. The BESS compound is unlikely to be entirely sealed but is likely to result in an overall increase in imperviousness compared to the current site layout.

The hydrology of the post development catchment is likely to remain largely unchanged. The proposed development area is \sim 16ha. As described above, the natural contributing catchment for the site is \sim 7,142 ha. The resultant change is an additional 2% of imperviousness.

5.3 FLOODING

Surface water flows within the Site will likely require the diversion of the overland flows around the site area. Diverting the surface flows around the project area would follow a relatively natural flow path from east to west. Based on a high-level review, and the project description provided. The proposed development is not considered likely to be significantly affected by flooding as a result of a 1% AEP design storm event. However, Further impacts to site may be present during rarer design rainfall events (i.e. 0.5% AEP and 0.2% AEP).

It should be noted that minor flood impacts such as ponding of water and localised flooding may be possible during a 1%AEP flood event and there are likely to be some indirect effects on site operations including disruption to the local roads, affecting access to the site.

The construction of the BESS is likely to include a diversion and infilling and flattening of the project area. This has the potential to change the local hydrological response. Given the site of the site, it is unlikely that the changes would increase the likelihood of flooding, but the potential for flooding in the north of the site may require further assessment. Once the intended levels of the site are known, and details of any stormwater infrastructure around the site are understood, further flood modelling will be undertaken to understand risks posed by extreme flood events (0.5% and 0.2% AEP) as well as the suitability of stormwater management structures for the BESS after detailed design.



5.4 STORMWATER QUALITY

Unmitigated discharges of stormwater from disturbed or cleared areas could result in adverse effects or the delivery of pollutants downstream. During the construction and operation of the project, activities may be undertaken which could result in an impact to water quality. Activities with the potential to impact surface water quality during each phase of the Project are discussed below.

5.4.1 CONSTRUCTION PHASE

Potential impacts to stormwater quality during the construction phase include:

- Water for dust suppression could affect surface water quality if the water used is of a
 poorer quality compared with the background surface water quality. There is also potential
 for increased mobilisation and flushing of salts stored in soils, depending on the salt
 content of soil at site.
- Fuel stores and refueling construction vehicles presents a potential for hydrocarbon spills which can contaminate surface water and result in off-site migration if not captured and managed.
- General earthworks associated with construction can also affect stormwater, including:
 - vegetation clearance and site levelling;
 - operation and maintenance facility and laydown area construction; and
 - drainage works.

5.4.2 OPERATIONAL PHASE

Potential impacts to stormwater quality during the operational phase include:

- Stormwater runoff from impervious surfaces such as laydown areas and access roads.
- Chemical leaks from lithium-ion batteries and infrastructure, such as accidental damage have the potential to migrate off site if not captured and managed.
- On-site use and storage of chemicals needed for maintenance of infrastructure.

5.4.3 DECOMISSIONING PHASE

Potential impacts to stormwater quality during the decommissioning phase include:

- Fuel stores and refueling construction vehicles presents a potential for hydrocarbon spills which can contaminate surface water and result in off-site migration if not captured and managed.
- Spills and leaks of chemicals from storage areas and infrastructure which may be damaged during decommissioning.
- General earthworks associated with construction can also affect stormwater, including:
 - vegetation clearance and site levelling;
 - operation and maintenance facility and laydown area construction; and
 - drainage works.



CLIENT: Capricorn BESS Pty Ltd as a Trustee for Capricorn BESS Trust PROJECT NO: 0729714 DATE: 28 February 2025 VERSION: 02

6. PROPOSED MITIGATION AND CONTROL MEASURES

The following section outlines proposed controls and mitigation measures to be considered to manage project related stormwater risks.

6.1 STORMWATER QUANTITY

The change in imperviousness is relatively minor across a catchment scale. This indicates the project is not likely to affect the volume of stormwater runoff at a catchment level. Localised issues may persist, however, a stormwater management system for the site is to be developed during the detailed design phase. The stormwater design should incorporate methodologies outlined in the Queensland Urban Drainage Manual (QUDM) and comply with the requirements of the CDMG-D5 and the Rockhampton Regional Council's Current Planning Scheme.

It is recommended that the BESS site be designed to ensure free draining where possible. Diversions should be included around the BESS compound to allow surface flows to bypass the site and avoid concentrating flows.

6.2 STORMWATER QUALITY

The potential impacts to stormwater quality described in Section 5 can be broadly categorised as contamination from leaks and spills associated with equipment, and impacts from erosion and sedimentation.

6.2.1 SPILLS AND LEAKS

The construction and operation of the proposed BESS should be governed by an Environmental Management Plan that includes a detailed spill response procedure. Development plans should also consider the potential for a spill or leak of chemicals from BESS units, and storage compounds and should include design solutions to ensure leaks and spills can be identified, captured and cleaned up.

6.2.2 EROSION AND SEDIMENTATION

A Construction Environmental Management Plan (CEMP) is to be developed prior to construction to minimise impacts to nearby environmental values, including surface water. The CEMP should include reference to land clearance, erosion and sediment control, and stormwater risks discussed in this report. Despite the low to moderate erosion risk outlined in this report, the CEMP should still include erosion and sediment control measures to ensure water quality is preserved.

Erosion and sediment controls outlined in the CEMP should follow the International Erosion Control Association Erosion and Sediment Control Design Manual (IECA, 2008). Some of the key principles outlined in the IECA for effective control include:

- Ensure ESC measures are designed and constructed effectively.
- Promptly stabilize disturbed areas.
- Control water movement through the site.
- Utilise existing topography and adopt construction practices that stabilize soil erosion and sediment discharge from disturbed areas
- Ensure ESC measures are maintained.



6.3 FLOODING

As shown in section 4.5, the flood risk posed at the site, based on 1% AEP flood modelling, are confined to the northern reaches of the project area. There are likely to be some indirect effects of flooding including disruption to the local roads, and possible localised ponding.

During the detailed design phase pf the project, stormwater management design will be undertaken in line with relevant guidelines. The project area is likely to be infilled and flattened prior to construction. The BESS area will likely need to be built up in the northern reaches to alleviate any potential flood risks. The southern and eastern boundaries of the site are likely to have some form of diversion for overland flow. The water holding structure on the western part of the site will likely have an outlet point near the western boundary.

Detailed flood modelling will be undertaken during the detailed design phase of the project to understand the effectiveness of the designed stormwater protections against potential flooding including the level the site is to be built on to prevent inundation. Flood modelling is to consider the pre and post development landscape under a range of design storm events including 0.5%AEP and 0.2%AEP scenarios.



7. CONCLUSION

The preliminary stormwater assessment for the project considers the potential risks to the project and likely impact on stormwater and overland flows. The preliminary assessment shows that the proposed development would result in a small increase in imperviousness within the contributing catchment. The footprint of the proposed development is ~ 16 ha, which represents $\sim 2\%$ of the contributing catchment. As the fraction of imperviousness of the catchment does not change significantly as a result of the project, it is considered unlikely that the project will result in any significant changes to the overland flow characteristics of the catchment.

The proposed BESS infrastructure is located within an area of minor flooding within the 1% AEP flood event. Flood modelling is to be undertaken during the detailed design phase to ensure sufficient controls are in place to avoid flood impacts.

In order to protect water quality downstream of the project, an CEMP for the construction phase of the project is required. The development CEMP should include:

- Site setting;
- Environmental targets;
- · Resources roles and responsibilities;
- · Competence, training and awareness;
- Incident and emergency plans;
- · Inspections and monitoring plans; and
- Management of environmental issues.

Erosion and Sediment Control measures to be implemented will also be required as part of the CEMP. The methodology for the erosion and sediment control elements is to follow the Best Practice Erosion and Sediment Control (BPESC) Book 1.



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APPENDIX A: EROSION RISK ASSESSMENT

8.1 EROSION RISK ASSESSMENT

This report has been prepared to meet the requirements for an erosion risk assessment. The following erosion risk assessment has been undertaken using the RUSLE. The outputs of which are visualised in erosion risk mapping have been prepared to inform the site layout.

8.1.1 REVISED UNIVERSAL SOIL LOSS EQUATION

The RUSLE is a method of predicting soil loss based on key data inputs (rainfall data, soil properties, digital elevation, and land use). The RUSLE quantifies average annual soil loss (A) using five factors; rainfall erosivity (R), soil erodibility (K), slope length and slope steepness (LS), cover management (C), and support practice (P). The RUSLE can be presented as follows:

$A = R \times K \times LS \times C \times P$

- A is the mean annual soil loss (t ha⁻¹yr⁻¹)
- R is the rainfall erosivity
 - The R factor is an expression of energy and maximum intensity of rainfall averaged over long periods of time (more than 20 years) so as to accommodate discernible recurring rainfall patterns.
- K is the soil erodibility factor
 - The K factor is defined as the susceptibility of a soil to soil erosion. The K factor
 accounts for particle size, permeability, organic matter, and structure of the soil as the
 critical physiochemical properties which affect erodibility.
- LS is the slope length and slope steepness factor
 - The landscape's topography has a significant influence on the extent of soil erosion. The LS factor expresses the effect slope length and gradient have on soil erosion.
- C is the cover management factor
 - The C factor considers the effect of vegetation and plant canopy cover.
- P is the support practice factor
 - P factor measures the combined effect of support and work practices. These values are typically derived from images, previous studies, or expert knowledge.

The RUSLE erosion risk assessment for the proposed development at was completed using a range of inputs including the Digital Atlas of Australian Soil in Queensland Globe, and spatial data available in the QSpatial catalogue. This initial assessment uses publicly available data. There has been no effort to calibrate the findings with site-based observations or measurements in the field.

8.1.2 SITE TOPOGRAPHY

As evident within the slope gradient mapping in **Figure A1** majority of the Project area is located on little slope with values ranging from 0.7% - 0.8%.

Figure A2 illustrates the length of these slopes with all noted as short in length. The majority of the site has slope lengths of under 2 meters with a small area of 2-2.5 within the south of the proposed development.



8.1.3 SOIL PROPERTIES

The site is underlain by sodsols (texture-contrast soils with impermeable subsoils). Land uses around the Project area consist largely of cleared grazing land and residential dwellings to the south and southeast.

8.1.4 EROSION RISK CLASSIFICATION

The IECA BPESC Book 1 provides guidance surrounding erosion risk classes, adopting classification developed by Morse and Rosewell (1996) to categorise annual soil loss rates into very low, to extreme erosion risk. The risk categories and their corresponding soil loss rates are presented in **Table 1-3**.

TABLE 1-2 EROSION RISK CLASSES

Soil Loss Class	Mean Annual Soil Loss (t/ha/yr)	Erosion Risk
1	<150	Very Low
2	151 to 225	Low
3	226 to 350	Low - Moderate
4	351 to 500	Moderate
5	501 to 750	High
6	751 to 1500	Very High
7	>1500	Extremely High

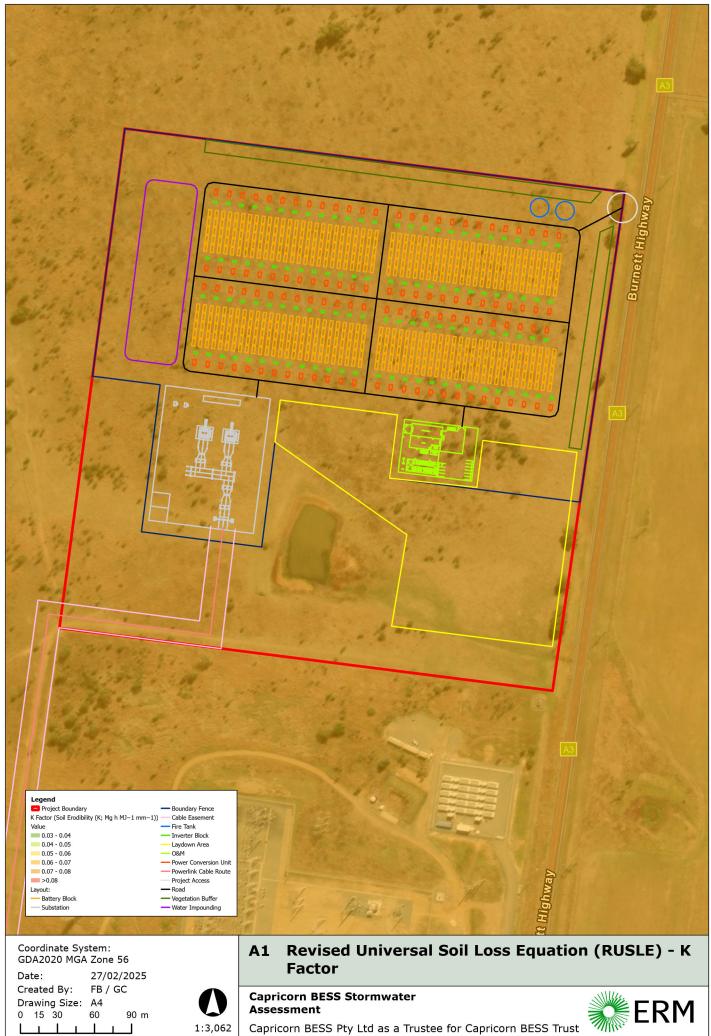
Where possible, disturbance of land within extreme erosion risk area should be avoided. Further guidance on how the erosion risk (soil loss) is calculated is detailed in the following section.

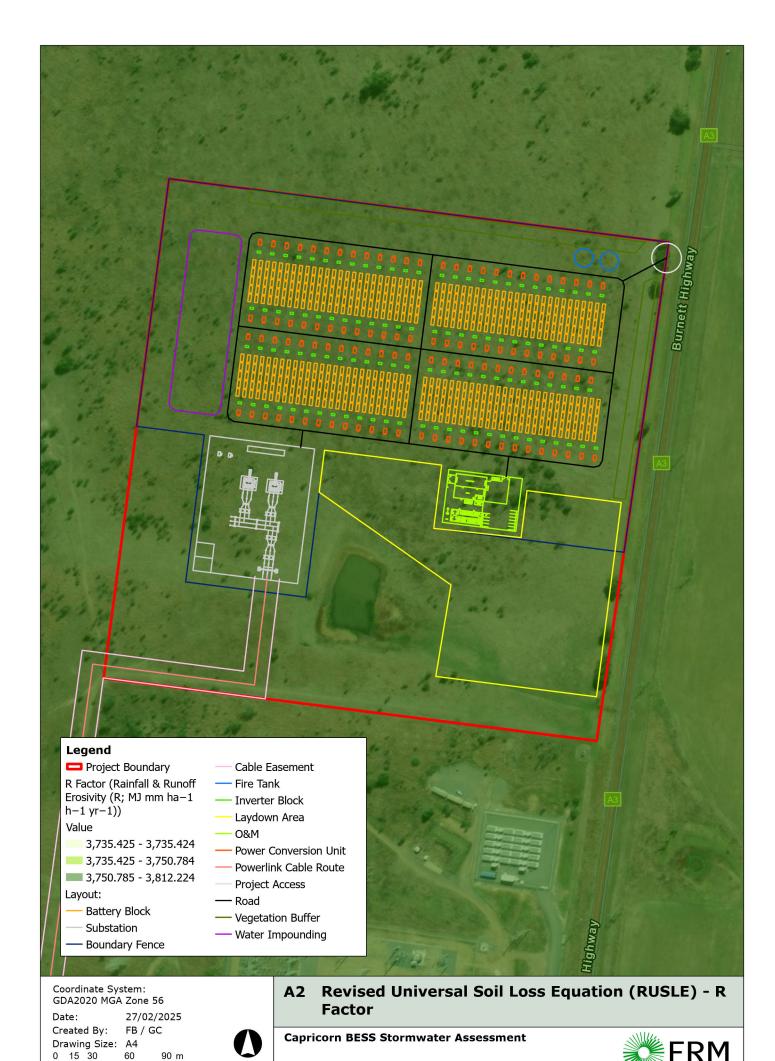
8.1.5 RUSLE ASSESSMENT RESULTS

The QSpatial catalogue provides proposed K, R, S and L factors across Queensland based on existing understanding of soil properties, statewide topographic mapping, and climatic data. The Project Area is categorised as low to moderately hilly with small alluvial plains to steep mountainous country.

Using a geographic information system, the various QSpatial inputs for the K, R, S, and L factors were overlayed. The C and P factors were determined based on project descriptions. These combined layers form a series of maps which present the results of the RUSLE assessment visually.

The results of the RUSLE erosion risk assessment are visually presented Figure 7, with the intended location of BESS shown within the project area.

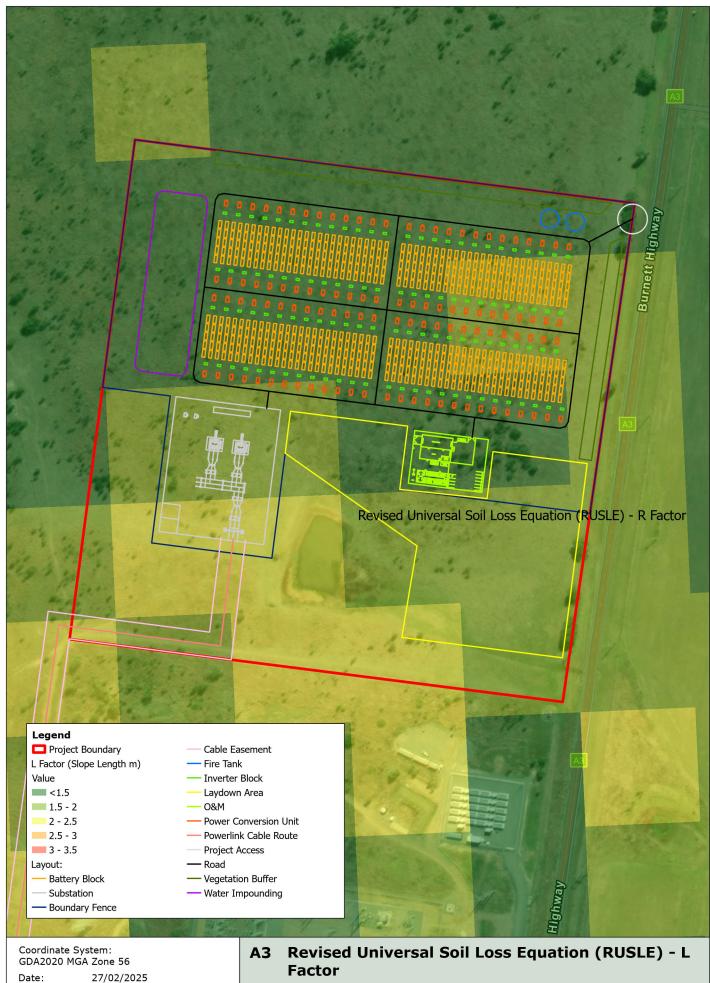




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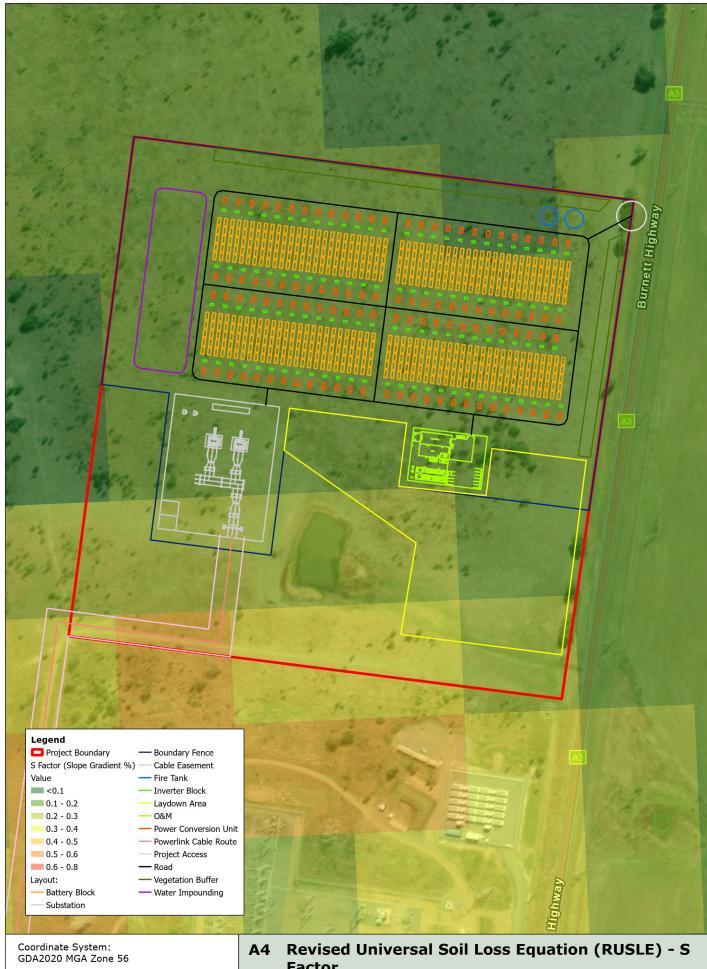
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Capricorn BESS Stormwater Assessment

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Site-based Stormwater Management Plan (SSMP)

Capricorn Battery Energy Storage System (BESS)

Potentia Energy Pty Ltd 24 February 2025

→ The Power of Commitment



Project na	ame	Capricorn BESS						
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Appendix C Flood Afflux Maps for Sensitivity Scenarios

1. Introduction

1.1 Purpose of this report

GHD Pty Ltd (GHD) has been engaged by Potentia Energy Pty Ltd for engineering services associated with the proposed development of the Capricorn Battery Energy Storage System (BESS) located on Lot 2 on RP613051 in Bouldercombe, Queensland. The proposed BESS will be connected to the Bouldercombe Substation.

GHD has been commissioned to prepare a Site-Based Stormwater Management Plan (SSMP) for the proposed BESS project area. The scope of work includes an assessment to provide support document for the development application approval, of stormwater quantity, through a hydrologic and hydraulic assessment, and stormwater quality, through MUSIC modelling of the proposed development.

1.2 Scope and limitations

This report: has been prepared by GHD for Potentia Energy Pty Ltd and may only be used and relied on by Potentia Energy Pty Ltd for the purpose agreed between GHD and Potentia Energy Pty Ltd as set out in section 1.1 of this report.

GHD otherwise disclaims responsibility to any person other than Potentia Energy Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer section(s) 1.3 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared the TUFLOW ("Model") for, and for the benefit and sole use of, Potentia Energy Pty Ltd to support hydraulic assessment and must not be used for any other purpose or by any other person.

The Model is a representation only and does not reflect reality in every aspect. The Model contains simplified assumptions to derive a modelled outcome. The actual variables will inevitably be different to those used to prepare the Model. Accordingly, the outputs of the Model cannot be relied upon to represent actual conditions without due consideration of the inherent and expected inaccuracies. Such considerations are beyond GHD's scope.

The information, data and assumptions ("Inputs") used as inputs into the Model are from publicly available sources or provided by or on behalf of the Potentia Energy Pty Ltd, (including possibly through stakeholder engagements). GHD has not independently verified or checked Inputs beyond its agreed scope of work. GHD's scope of work does not include review or update of the Model as further Inputs becomes available.

The Model is limited by the mathematical rules and assumptions that are set out in the Report or included in the Model and by the software environment in which the Model is developed.

The Model is a customised model and not intended to be amended in any form or extracted to other software for amending. Any change made to the Model, other than by GHD, is undertaken on the express understanding that GHD is not responsible, and has no liability, for the changed Model including any outputs.

Accessibility of documents

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.3 Assumptions

This assessment has been completed based on the following assumptions:

- Project hydrology has been undertaken in accordance with Australian Rainfall and Runoff (2019) guidelines.
- This study has assessed storm events of 50%, 20%, 10%, 5%, 2%, and 1% AEP based on the meeting held on 27/11 and the development application request (D/124-2024). No climate change assessment has been conducted at this stage (Concept Design).

- Hydraulic model extents need to be large enough, and the grid element sizes small enough, to capture the hydraulic characteristics of the overland flow. This is offset by the need to have a model able to run in an acceptable amount of time. For this assessment, the hydraulic model was run with a two (2) meter cell size with sub-grid sampling distance of one (1) meter for computational efficiency. It has been assumed that the adopted model resolution is adequate to identify relevant hydraulic features.
- Unless stated, flood grids presented in this report are based on estimated peak values of flow, depth, and velocity for each storm event, considering median temporal pattern for each duration of the design storm events. This means the value presented for each cell is based on the maximum computed value which has occurred over the durations of the simulated design events. Hence, a presentation of peak values does not represent an instantaneous point in time, but rather an envelope of maximum values.
- Hydrologic estimates have been validated against empirical estimates. Calibration of the hydrologic or hydraulic model was not conducted.
- Identifiable crossing structures (e.g. culverts) have been assumed based on visual observation of aerial imagery.
- Culvert length and width has been assumed based on the areal imagery, culvert height and invert levels are inferred from the provided 500 mm DEM. It is recommended to capture the culvert information via a detail survey or similar in the next stage of the project.
- Proposed design string provided for flood modelling in 2D DWG format. The proposed levels are initial and added to the flood model using TUFLOW layers (2d_zsh).
- For the design surface, it is assumed that:
 - Roads are sealed/ asphalt
 - Design surfaces (except the road) are compacted soil with gravel at the top
- Detailed design, drawings or costings of required stormwater infrastructure is outside the scope for the purposes of this study.
- Obtaining any approvals associated with the recommended works infrastructure is outside the scope for the purposes of this study

Additional and specific assumptions are provided in the relevant sections of this report.

2. Available data

2.1 Topography

- 0.5 m DTM undertaken by Aerometrex dated May 2024 provided to GHD by the client.
- 1-metre LiDAR dated 2015 extracted from ELVIS (Elevation and Depth Foundation Spatial Data) website.

2.2 Imagery

Google Maps satellite aerial imagery was used throughout the assessment for both the hydrologic and hydraulic assessments.

2.3 Development layout

The design layout is based on the provided designed by Potentia Energy based on the Preliminary General BESS layout for Capricorn Creek BESS dated 28/11/2024 which included:

- BESS and on-site infrastructure.
- Sealed access roads within the BESS footprint.
- For more details refer to Appendix B.

2.4 Datum

The Australian Height Datum (AHD) was adopted for all hydraulic modelling levels cited in this report.

3. Site description

3.1 Existing site (Pre-development)

The Project Area consists of approximately 17 hectares and encompasses the entire area associated with the Project footprint which includes part of Lot 2 on RP613051. The Project area is located north of Bouldercombe within the Rockhampton Regional Council Local Government Area (LGA). The existing site is currently dominated by rural land and low density vegetation. The Bouldercombe Substation and Bouldercombe BESS are located directly south of the site. The topography of the site is relatively flat but grades to the north-west corner of the property. Four Mile Creek is located immediately west of the site and flow in northerly direction. The existing site locality is illustrated in Figure 1.

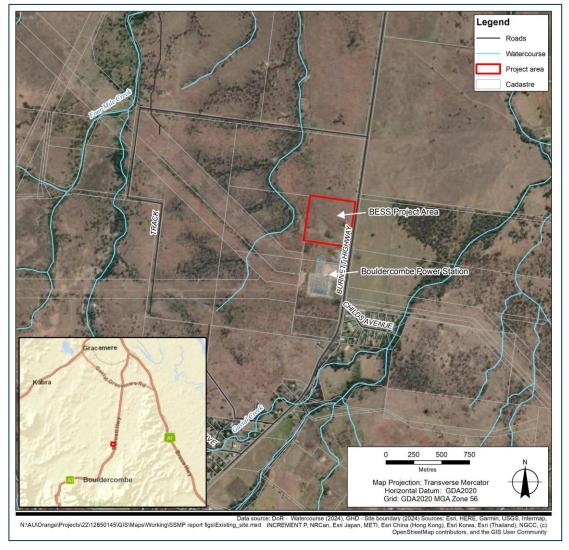


Figure 1 Existing site locality

3.2 Proposed site

The proposed development includes the following infrastructure:

- BESS and on-site infrastructure.
- Sealed access roads within the BESS footprint.
- Bioretention basin for water quality

Detailed plans of the Project area and proposed development infrastructure are provided in Appendix B.

4. Stormwater quantity

4.1 Hydrologic modelling

An XP-RAFTs (2018 version) hydrologic model was set-up and run in Storm Injector as part of the hydrologic assessment of the site. This section of the report presents the details of the hydrologic modelling undertaken.

4.1.1 Catchment hydrology

The subject site is located approximately 2.5 km from Bouldercombe in the Rockhampton Regional Council Local Government Area. The contributing catchment area to the local area near the site is approximately 384 ha. The terrain to the site is dominated by rural land and bushland.

A total of 26 sub-catchments were delineated using CatchmentSIM near the site. Figure 2 shows the catchment delineation undertaken for the local hydrologic model. Catchment parameters are summarised in Table 1.

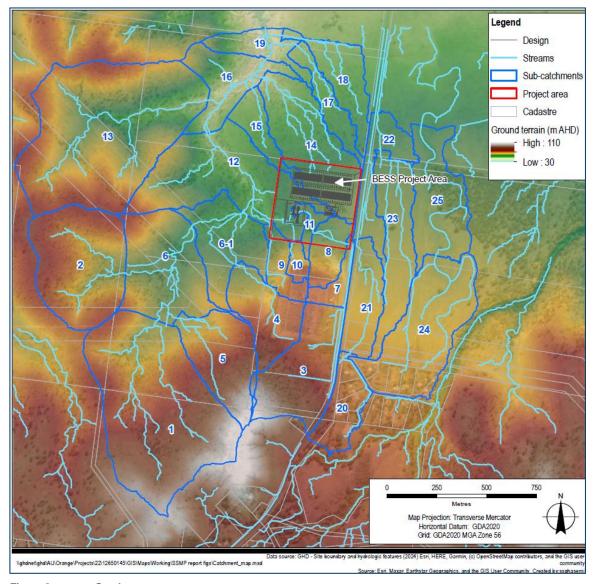


Figure 2 Catchment map

Table 1 Hydrology sub catchment parameters

ID	Area (ha)	Average Slope (%)	Impervious Percentage (%)
1	47.88478	1.95	0
2	24.45269	1.54	0
6-1	13.35944	1.15	0
3	17.62951	1.48	18
4	11.76855	2.37	21
5	14.57373	2.78	0
6	20.75634	1.19	0
7	3.237078	1.85	72
8	5.656706	1.97	23
9	4.411649	2.57	0
10	1.76114	3.74	0
11	1.85106	0.61	0
12	28.0546	0.98	0
13	52.53716	0.91	0
14	19.75952	1.38	0
15	5.307085	1.3	0
16	11.10127	0.91	0
17	5.6319	0.68	0
18	9.008311	0.73	0
19	5.920578	2.1	0
2	24.45269	1.54	0
20	7.925759	0.56	0
21	9.315272	1.02	0
22	8.774422	0.65	20
23	14.24854	0.63	0
24	23.75471	0.56	22
25	15.58462	0.46	0

4.1.2 Design rainfall, temporal patterns and losses

Rainfall Intensity-Frequency-Duration (IFD) data was obtained from the Bureau of Meteorology (BOM) (2016) and is presented in Figure 3 for the different Annual Exceedance Probability (AEP) events.

For the purposes of this assessment, design storms were simulated for the BOM IFD data using design storm durations of 10 minutes to 540 minutes for six (6) AEP events (50%, 20%, 10%, 5%, 2%, 1% AEPs).

The ten (10) standard Australian Rainfall and Runoff 2019 (ARR19) temporal patterns were applied in the hydrologic model.

The losses from the ARR19 Datahub were adopted for this assessment.

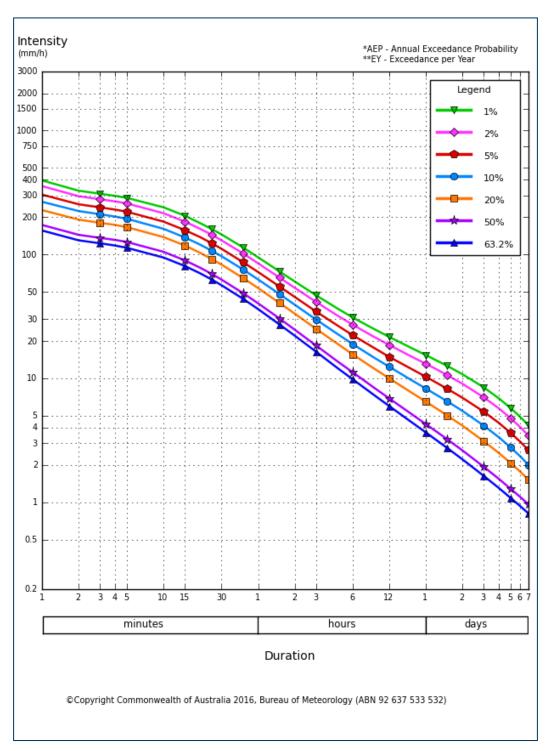


Figure 3 Design rainfall intensity (Bureau of Meteorlogy, 2016, Extracted 11 December 2024).

4.1.3 Results

Table 2 presents a summary of the hydrology model results for peak total flow rate for critical duration and median temporal pattern in accordance with AR&R 2019. to three likely outlet locations: Subcatchment 19, Subcatchment 22 and Subcatchment 25.

Table 2 Hydrology model peak flow summary

AEP	Subcatchment 19		Subcatchment 22		Subcatchment 25	
	Peak flow (m³/s)	Critical storm duration	Peak flow (m³/s)	Critical storm duration	Peak flow (m³/s)	Critical storm duration
50%	8.9	9 hours	0.7	4.50 hours	1.2	4.50 hours
20%	16.3	9 hours	1.3	4.50 hours	2.2	4.50 hours
10%	21.9	3 hours	1.7	2 hours	2.8	3 hours
5%	28.0	3 hours	2.2	2 hours	3.5	4.50 hours
2%	30.7	6 hours	2.7	1.50 hour	4.2	1.50 hour
1%	38.2	2 hours	3.3	1.50 hour	5.0	1.50 hour

4.1.4 Validation

An empirical flow estimation using the Rational Method has been used to the validate the hydrologic model results at the following four locations within the catchment:

- Subcatchment 7
- Subcatchment 11
- Subcatchment 6-1
- Subcatchment 12

The Modified Friend's equation has been used to calculate the time of concentration at each of the four locations. This equation is appropriate as the catchment has an area less than 25 km².

Table 3 summarises the 1% AEP peak flows estimated from the hydrologic validation and the hydrologic model. The Rational Method results are generally within appropriate variance bounds for the 1% AEP event at the validation location. The hydrologic results are considered reasonable for applying as inflows to the hydraulic model.

Table 3 Summary of peak flow estimates from hydrologic validation

Validation location	1% AEP Peak Flow	1% AEP Peak Flow Rate (m³/s)			
	XP-RAFTs	Rational Method	Difference (%)		
Subcatchment 7	6.8	8.4	-19%		
Subcatchment 11	7.4	9.1	-19%		
Subcatchment 6-1	19.0	25.3	-25%		
Subcatchment 12	29.2	39.3	-26%		

4.2 Proposed hydraulic infrastructure

Diversion drains and culverts have been proposed to divert flow from upstream of the site to downstream to the unnamed creek, aiming for minimising flood impacts. Figure 4 showed the proposed hydraulic infrastructures locations.

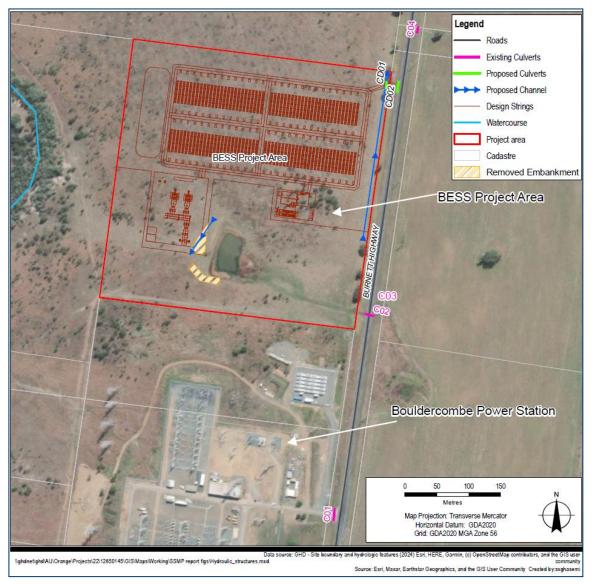


Figure 4 Proposed design drains and culvert

Two (2) culverts proposed under the design access road and proposed tracks. Refer to Figure 4 for the locations of the proposed culverts. The geometry of these culverts were modelled in HY-8 software to determine the optimum size and number of culvert barrels to convey the required flow whilst maintaining a reasonable velocity. Design parameters for the modelling of the culverts are displayed in Table 4.

Table 4 Proposed design culverts sizes

Culvert ID	Design storm event	Design Flow (m³/s)	Geometry (No. x Width(m) x Height(m))	Туре	Minimum road level (mAHD)
CD01 ¹	1% AEP	0.5	2x1200x600	RCBC	45.9
CD02 ²	1% AEP	0.3	2x450	RCP	46.3

¹⁻ CD01 Culvert on the proposed drainage channel, under the proposed site access road

4.3 Hydraulic modelling

A TUFLOW hydraulic model (version 2023-03-AE-iSP-w64) using the HPC solution scheme was set-up to model the extent of local inundation and to estimate peak flood levels, depths and velocities affecting the BESS site.

²⁻ CD02 Culvert on the existing drainage channel at the western side of the Burnett Highway, under the proposed site access road connecting to the Burnett Highway

TUFLOW HPC solves the Shallow Water Equations (SWE) using a finite volume numerical technique on the central nodes of a fixed grid, which is used to schematise the area of interest.

The hydraulic model set-up is illustrated in Figure 5.

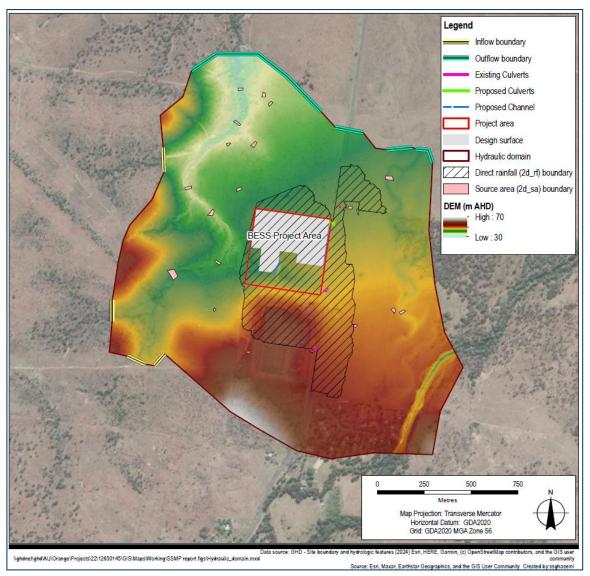


Figure 5 Hydraulic model domain

4.3.1 Model set-up

4.3.1.1 Geometry

The model was developed using a 2 m cell size with sub-grid (SGS) sampling to 1 m for computational efficiency. SGS functionality was enabled to more accurately represent the storage and conveyance in the hydraulic model. Rather than using a single elevation value for each model grid cell elevation, SGS uses the DEM elevations to determine a water surface elevation vs volume and wetted perimeter relationship for each model grid cell. This essentially allows the hydraulic model to sample the full resolution of the provided DEM regardless of the model grid cell size.

The 1 m LiDAR DEM (2015) and the 0.5 m survey DEM (05/2024), detailed in Section 2.1, were included in the hydraulic model to represent the existing ground terrain. No terrain modifications were undertaken.

4.3.1.1.1 Design Geometry

The proposed initial design provided for flood modelling using 2D-DWG format (refer to Section 2.3). The proposed design surface levels are initial and based on 0.5m freeboard for 1% AEP flood levels. The proposed design surface Manning's roughness is based on compacted soil with gravel on top, except for the proposed access road, which has been assumed to be sealed.

The proposed design surface and design drains have been added to the hydraulic model using the 2d zshape layers, it is acknowledged that these do not capture the exact geometric features due to the cell size in the model and are a simplified representation of the proposed design. Figure 6 shows proposed design features.

- Design surface has been added to the model using 2d zshape layers
- Location A: removal of the existing bund at southern side of the existing pond to divert flow toward unnamed creek
- Location B: create an opening at the edge of the proposed design extent to divert flow toward unnamed creek

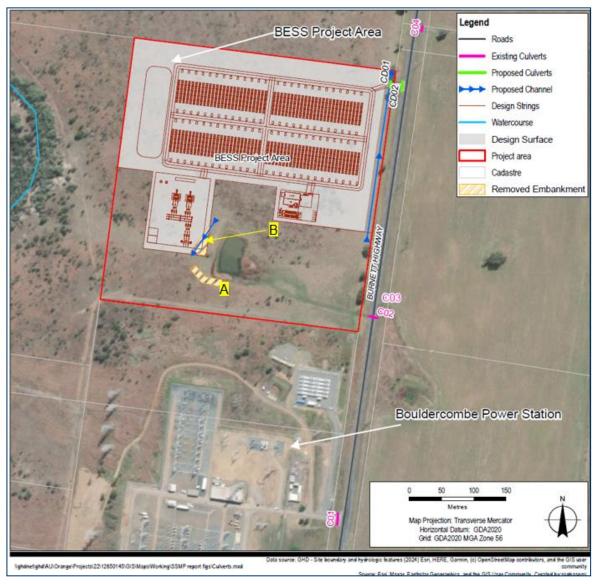


Figure 6 Post-developed site conditions

4.3.1.2 Boundary conditions sensitivity

A combination of boundary conditions was used in the model domain and are illustrated in Figure 5. These include:

Four (4) flow-time (QT) boundaries for inflows.

- Four (4) normal-depth (HQ) boundaries for outflows with slopes ranging from 1 in 125 to 1 in 333 m/m.
- Twenty-three (23) source-area (SA) boundaries for local inflows near the site.
- One (1) direct gridded rainfall (RF) boundary for inflows on the site where no distinctive flow channels were observed. Rainfall losses have been applied for the direct rainfall section of the model in accordance with ARR19.

4.3.1.3 Hydraulic roughness

The Manning's 'n' coefficient for roughness was estimated from aerial imagery. The Manning's 'n' values for different surface types which were adopted in the hydraulic model are summarised in Table 5 and illustrated in Figure 7 and Figure 8 for pre- and post-development conditions of the site. It should be noted that the proposed design access road assumed sealed, and the proposed design surface has been assumed as compacted soil with a gravel top.

Table 5 Manning's 'n' roughness coefficients

Land Use	Manning's 'n' Roughness Value
Farm / low vegetation	0.045
Road	0.025
Dam / pond / waterway	0.035
Industrial	0.050
Buildings	0.100
Dense vegetation	0.080
Medium vegetation	0.060
Design pads- Compacted soils	0.040
Electricity facility with piles	0.090

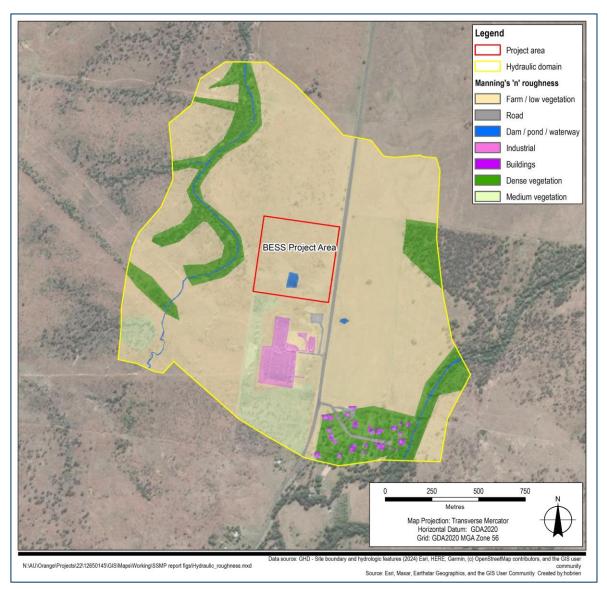


Figure 7 Hydraulic roughness – pre-developed condition

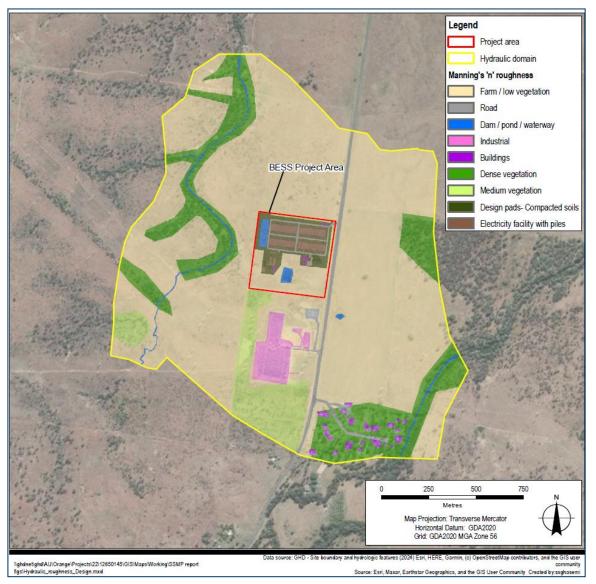


Figure 8 Hydraulic roughness – post-developed condition

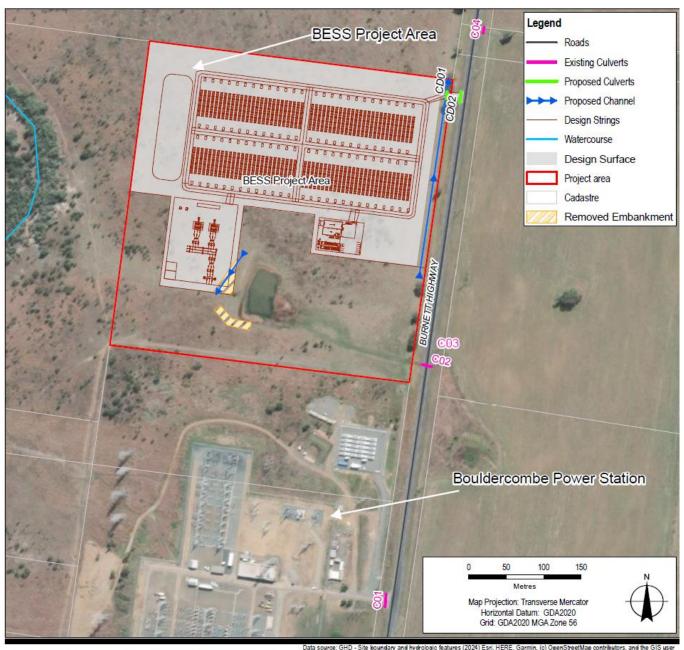
4.3.1.4 Hydraulic structures

Hydraulic structures in the model domain were identified and estimated using aerial imagery. The structures were implemented in the model using 1D network (1d_nwk) pipe networks. Culvert length and width has been measured based on the areal imagery, culvert height and invert levels are extracted based on the provided 0.5m DEM. It is recommended to update the culvert information in the next stage of the project. Assumed hydraulic structure details used in the modelling are shown in Table 6 and illustrated in Figure 9.

Table 6 Hydraulic structure details

Culvert ID	Length (m)	Upstream invert (m AHD)	Downstream invert (m AHD)	Diameter (m)	Number of barrels	Existing / Proposed
C01	20	51.67	51.50	0.3	2	Existing
C02	16	46.85	46.56	1.2 x 0.6 (W x H)	2	Existing
C03	9.5	47.24	47.24	0.375	1	Existing
C04	11	44.77	44.52	0.3	1	Existing

For proposed design culverts and channel refer to Section, Figure 9 and Table 4.



 $\label{light} \verb| Wighth of the project size

community
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community. Created by sachasemi

Figure 9 Existing and proposed hydraulic structure

4.3.2 Scenarios

The following six design events have been assessed (50%, 20%, 10%, 5%, 2%, 1% AEP) using storm durations ranging from 10 minutes to 540 minutes for the 10 standard temporal patterns. Modelling has been conducted for pre- and post-development site conditions.

4.3.2.1 Sensitivity scenarios

A sensitivity run involving a 10% variation in Manning's roughness coefficient (n) is conducted in hydraulic modelling to assess the impact of changes in surface roughness on flow characteristics. In these scenarios, the roughness coefficient is adjusted by 10% higher and lower its baseline value, scenario S01 and S02 respectively. This assessment allowing quantify the uncertainty for the evaluation of sensitivity of the flood results due to roughness parameters such as flood water level.

The sensitivity scenarios have been assessed for 1% AEP storm events for 10% increase (S01) and 10% decrease (S02) in adopted Mannings values. Refer to Table 7 for the manning's roughness value for sensitivity scenarios.

Table 7 Manning's roughness value for sensitivity scenarios

Land Use	10% increase – S01 Manning's 'n' Roughness Value	10% decrease – S02 Manning's 'n' Roughness Value
Farm / low vegetation	0.0405	0.0495
Road	0.0225	0.0275
Dam / pond / waterway	0.0315	0.0385
Industrial	0.045	0.055
Buildings	0.09	0.11
Dense vegetation	0.072	0.088
Medium vegetation	0.054	0.066
Design pads- Compacted soils	0.036	0.044
Electricity facility with piles	0.027	0.033

4.3.3 Results

The flood result maps (flood depth and velocity of flow) for the pre-development condition of the site are presented in Figures A1.1 to A2.6 in Appendix A. Below is a summary of the pre-development flood results:

- The pre-developed flood results show that the Burnett Highway has 10% AEP flood immunity. Flood results for 5% showed that the existing Highway is partially inundated. It should be noted that the highway levels are based on the provided 0.5m DEM, and the existing culvert information has been assumed from aerial imagery and the 0.5m DEM (refer to Section 1.3). To ensure a more accurate assessment of the road's flood immunity, it is recommended that this information be updated with a detailed survey in the next stage of the project.
- Flow depth across most of the project area is shallow, except for the existing pond, which has a flood depth of approximately 1.1 meters.
- Flood velocity across most of the site is less than 1.0 m/s, except for the existing flow path, where velocities range from 1.0 to 2.0 m/s in 1% AEP storm event.
- The flow rate estimated using the TUFLOW model has been validated against the hydrology model results for the outlets of Catchments 7 and 12. The 1% AEP flow rates at the catchment outlets are 6.5 m³/s for Catchment 7 and 36.6 m³/s for Catchment 12.

The pre- and post-development conditions have been assessed to identify any flood impacts on neighbouring properties, as well as changes to the immunity of the existing Burnett Highway To maintain flood immunity and minimize property impacts in the post-developed condition, the following measures have been implemented:

- The existing pond will be maintained to provide similar storage capacity in both pre- and post-development conditions, minimizing potential downstream impacts caused by changes in water storage volume.
- An opening in the embankment of the existing pond.
- An opening of the southeast corner of the design surface to create a diversion channel
- A bio-detention basin is proposed at the northwest corner of the site to manage water quality (refer to Section 5 for more details).

The post-developed condition flood maps results (flood depth and velocity) are presented in Figures A3.1 to A4.6 in Appendix A for the proposed design scenario (excluding temporary pad) unless otherwise specified. Flood level afflux mapping is provided in Figures A5.1 to A5.6. The following observations were made:

The flood immunity for Burnett Highway remains the same.

- The velocity on the southern side of the existing pond increased (up to 1.5 m/s) due to the proposed embankment opening. It is recommended to install rock protection at this location to minimize the risk of erosion.
- Flood modelling results showed a velocity of approximately 2.0 m/s downstream of the existing pond on the southern side of the proposed design surface.
- No significant changes in flood velocity are observed on surrounding properties.
- The flow rate slightly increased towards the unnamed creek downstream of the proposed design surface. Specifically, the flow rate showed about a 15% increase (from approximately 10 m³/s in the pre-developed condition to around 11 m³/s in the post-developed condition), immediately downstream of the project boundary. This difference gradually decreased, reaching a 4% variation 200 meters downstream of the project boundary.
- The flood afflux results indicate that the increase in water level downstream of the project area is less than 50 mm for most surrounding areas, with the following exception.
 - Immediately downstream of the proposed culvert CD04, afflux reach up to 120 mm for 1% AEP storm event.
 - Upstream of culvert CD02, flood results showed an afflux of 170 mm in 1% AEP storm event at the culvert inlet due to the proposed access road in this location, However, the Burnett Highway remains unovertopped.

Table 8 summarised flood level results for pre and post development condition of the site for nominated points. Refer to Figure 10 for the point locations.

Table 8 Water level results (mAHD) for nominated points. Refer to Figure 10 for point ID locations

ID	1%	AEP	2% /	AEP	5% AEP		10% AEP		20%	AEP	50% AEP	
	Pre- develop't	Post- develop't										
L1	47.71	47.71	47.67	47.67	47.63	47.63	47.55	47.55	47.43	47.43	47.31	47.31
L2	47.91	47.91	47.89	47.89	47.85	47.85	47.79	47.79	47.68	47.68	47.42	47.42
L3	47.79	47.79	47.78	47.78	47.75	47.75	-	-	-	-	-	-
L4	47.55	47.55	47.53	47.53	47.50	47.50	47.49	47.49	47.46	47.46	47.35	47.35
L5	47.14	47.14	47.13	47.13	47.12	47.12	47.11	47.11	47.09	47.09	47.03	47.03
L6	47.13	47.13	47.13	47.13	47.12	47.12	47.12	47.12	47.11	47.11	-	-
L7	47.13	47.13	47.12	47.12	47.12	47.12	47.12	47.12	47.11	47.11	47.11	47.11
L8	45.89	45.72	45.87	45.70	45.85	45.68	45.83	45.65	45.81	45.63	45.74	45.57
L9	45.89	45.69	45.87	45.66	45.85	45.63	45.83	45.59	45.80	45.56	45.73	45.46
L10	45.77	45.62	45.75	45.60	45.74	45.57	45.72	45.54	45.71	45.51	45.65	45.47
L11	43.31	43.34	43.30	43.33	43.28	43.31	43.27	43.29	43.25	43.27	43.20	43.21
L12	42.75	42.76	42.74	42.75	42.73	42.74	42.71	42.72	42.70	42.71	42.67	42.67
L13	41.78	41.79	41.69	41.70	41.61	41.62	41.52	41.53	41.43	41.44	41.25	41.26
L14	43.55	43.55	43.54	43.54	43.54	43.54	43.53	43.53	43.53	43.53	43.52	43.52
L15	45.86	45.86	45.83	45.83	45.80	45.80	45.72	45.72	45.65	45.65	45.55	45.55
L16	45.56	45.57	45.55	45.56	45.54	45.52	45.54	45.49	45.53	45.46	45.51	45.43
L17	45.51	45.51	45.50	45.50	45.49	45.48	45.48	45.47	45.46	45.46	45.44	45.44
L18	43.35	43.38	43.34	43.38	43.33	43.37	43.32	43.37	43.31	43.36	43.29	43.35

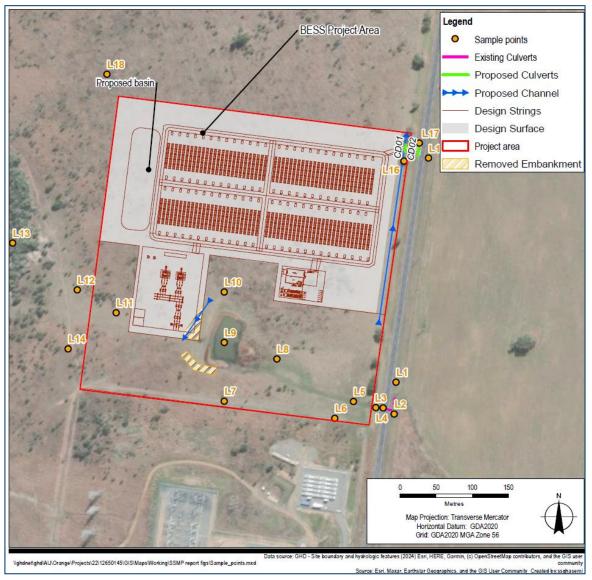


Figure 10 Hydraulic model results sample locations

4.3.3.1 Sensitivity Results

The results of the sensitivity analysis, with a 10% variation in Manning's roughness coefficient, showed minor changes. A 10% increase in roughness led to a slight decrease in flow velocity (~0.1 m/s) and a small rise in water level (~10 mm to ~40 mm) for 1% AEP storm event. In contrast, a 10% reduction in roughness resulted in a modest increase in flow velocity (~0.1 m/s) and decrease in water level (~10 mm to ~50 mm) for the 1% AEP event. However, the flood level impact on the surrounding area remained almost the same for both the sensitivity scenarios and the adopted Manning's roughness. Refer to Appendix C for the flood level afflux maps for sensitivity scenarios for 1% AEP storm event.

5. Stormwater quality

GHD has undertaken a stormwater quality assessment of the proposed development post construction. The following standards and guidance documentation has been adopted for the review:

- WaterByDesign MUSIC Modelling Guidelines (November 2018)
- Queensland State Planning Policy (July 2017)
- Queensland State Planning Policy Interactive Mapping System.

5.1 Water quality objectives (WQOs)

The ultimate development must achieve the relevant water quality objectives as given in the State Planning Policy (2017). This includes the following minimum reductions in mean annual loads compared with untreated stormwater runoff from the developed part of the site:

Total Suspended Solids: 85% Reduction
 Total Phosphorous: 60% Reduction
 Total Nitrogen: 45% Reduction
 Gross Pollutants: 90% Reduction

These WQOs have been adopted for this design.

5.2 Water quality modelling

A MUSIC model has been prepared to determine the performance of the proposed treatment devices in achieving the required pollutant reduction loads. The software package MUSIC (Model for Urban Stormwater Improvement Conceptualisation) was used to model the pollutant exportation for the industrial allotment and associated roads in their mitigated and unmitigated post-development condition.

Pollutant export rates for Total Suspended Solids (TSS), Total Nitrogen (TN), Total Phosphorus (TP) and Gross Pollutants (GP) were available in MUSIC to model the water quality discharge from the site. Accordingly, these pollutants became the focus of the analysis to compare the unmitigated development discharge to the mitigated development discharge and the required percentage reduction of the median loads for the following indicators (WQOs):

- Suspended solids (SS);
- Total Nitrogen (TN); and
- Total Phosphorus (TP).
- Gross Pollutants (GP)

MUSIC was used to model the exportation rates of the relevant pollutants, and the effect that the selected treatment train had on the reduction of these pollutants from the site stormwater runoff.

5.2.1 MUSIC modelling

The parameters adopted for the MUSIC analysis of the site have been taken from the MUSIC Modelling Guidelines (November 2018). Table 9 lists the parameters of the adopted Land Use node in MUSIC.

Table 9 Land use parameters

	Land Use Value (Industrial)	
Impervious Area Properties	Rainfall Threshold (mm/d)	1
	Soil Storage Capacity (mm)	100
Pervious Area Properties	Initial Storage (% Capacity)	30
	Field Capacity	100

	Parameter	Land Use Value (Industrial)
	Infiltration Capacity Coefficient A	200
	Infiltration Capacity Coefficient B	1
	Initial Depth (mm)	10
Croundwater Properties	Daily Recharge Rate (%)	4
Groundwater Properties	Daily Baseflow rate (%)	2
	Daily Deep Seepage Rate (%)	0.4

5.2.2 Meteorological data

Rainfall data with a six-minute time step has been obtained from the Bureau of Meteorology (BOM) for the Rockhampton AERO Station 039083 from 31/03/2000 to 31/03/2010. The corresponding evapotranspiration rates for the various months were also obtained from BOM, utilising the average annual and monthly evapotranspiration maps.

Climate data, including rainfall intensity, duration, and frequency, is based on historical averages. Rainfall intensity is not assumed to increase.

5.2.3 Source Nodes

The Industrial source node in MUSIC has been modelled with a 'lumped catchment land use'. The pollutant export parameters for the industrial source node have been adopted in line with MUSIC Modelling Guidelines (2018).

Baseflow and stormflow pollutant export parameters used in the analysis are provided in Table 10.

Table 10 Pollutant generation parameter

Land Use	TSS log ¹	¹⁰ Values	TP log ¹⁰	[□] Values	TN log ¹⁰ Values	
(lumped)	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev
Baseflow	0.78	0.45	-1.11	0.48	0.14	0.2
Stormflow	1.92	0.44	-0.59	0.36	0.25	0.32

Catchment details for source nodes are shown in Table 11 below. The impervious percentage was estimated based on the current site layout at the time of writing this report (refer to Figure 11). The nominated 90% impervious percentage falls within the recommended range of 70% to 95% for industrial sites, as per the MUSIC Modelling Guidelines (2018). This is in line with the guidelines, which account for the higher levels of imperviousness typically associated with industrial developments.

Table 11 Catchment Area

Catchment	Area (ha)	Surface Type	Impervious Percentage (%)
Total Site Area	10.198	Urban - Industrial	90

Please refer to Figure 11 for the assumed extents of the catchment. Please refer to Appendix B for site specific details.



Figure 11 Water quality catchment extent (in blue)

5.2.4 Stormwater Quality Treatment

To reduce the exportation of pollutants via stormwater from the site, some Stormwater Quality Improvement Devices (SQIDs) were integrated into the development. The selection process for the SQIDs considered the treatment efficiencies of the SQIDs in reducing TSS, TN and TP, effectiveness in peak flow attenuation, cost, site restrictions and footprint required.

A conventional bio-retention basin with a 600 mm filter depth has been modelled for pollutant reduction. It is assumed that all surface runoff within the assumed water quality catchment extent can be directed into this bio-retention basin. At this early stage of design, the bioretention basin is assumed to have a square shape (equal length and width) for the purpose of determining the surface area. This assumption simplifies calculations and provides a baseline for further refinement as the design progresses.

The parameters of the bio-retention basins modelled in MUSIC are shown below:

Table 12 Bio-retention basin details

Design Properties	Value
Extended Detention Depth	0.3 m
Surface Area	1826 m ²
Filter Area	1750 m ²
Saturated Hydraulic Conductivity	200 mm/h
Filter Depth	0.6 m
TN Content of Filter Media	400 mg/kg
Orthophosphate Content of Filter Media	30 mg/kg
Exfiltration Rate	0 mm/hr
High Flow Bypass	100 m³/s

Design Properties	Value		
Lining, Vegetation and Outlet Properties	Unlined basin, with an underdrain present and vegetation with effective nutrient removal plants.		

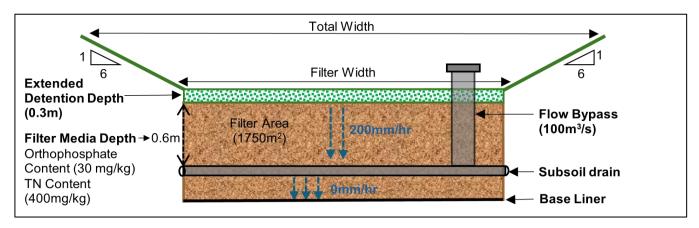


Figure 12 Bio-retention basin typical layout

5.2.5 Mitigated post development case

A MUSIC analysis has been undertaken with the incorporation of the bio-retention system discussed in Section 5.2.40. The MUSIC model layout is provided in Figure 13, while the resulting annual pollutant load reductions are provided in Table 13.



Figure 13 MUSIC Model Layout

Table 13 Mitigated post development results

Pollutant	Source Load	Residual Load	WQO	Achieved Reduction
Total Suspended Solid (kg/year)	7722	1091	>85%	85.87%
Total Phosphorous (kg/year)	20.16	7.989	>60%	60.37%

Pollutant	Source Load	Residual Load	WQO	Achieved Reduction
Total Nitrogen (kg/year)	131	54.85	>45%	58.14%
Gross Pollutants (kg/year)	1428	0	>90%	100.00%

The results in Table 13 indicate that through the incorporation of the bio-retention basin, the proposed development achieves the required WQO's.

5.2.6 Model Sensitivity to Bypass Flows

The bio-retention basin parameters proposed in Section 05.2.4 assumes that the site can convey all surface water to the bio-retention basin. It is expected that future design phases will develop the site earthwork and drainage models which would likely include an underground piped network and open channels. A sensitivity analysis was undertaken to determine the impact to the required bio-retention filter area sizes with increasing site bypass catchments. Table 14 indicates the minimum bio-retention basin filter area required with 5%, 10% and 20% site bypass catchments.

Table 14 Water quality sensitivity analysis

Site Bypass Catchment (%)	Bio-retention Filter Area (m²)	TSS Reduction (%)	TP Reduction (%)	TN Reduction (%)	GP Reduction (%)
WQO	NA	>85	>60	>45	>90
0% Site bypass catchment	1 750	85.87	60.37	58.14	100.00
5% Site bypass catchment	2 250	86.74	61.2	59.37	95.00
10% Site bypass catchment	3 750	85.88	63.40	63.77	90.00
20% Site bypass catchment	10,000 m ² bioretent to achieve WQO's.	tion did not achieve r	eduction targets. Cor	nsider alternative or a	dditional SQIDs

The results in Table 14 indicated that increasing site bypass catchments resulted in exponentially larger bioretention filter areas to compensate and still meet the site WQO. It is recommended that future earthwork and drainage designs minimise the amount of site bypass catchment flows, by ensuring positive fall and grading to the proposed bioretention basin. This will minimise the required bioretention filter area and/or avoid the introduction of additional SQIDS to meet the target water quality objectives.

5.3 Maintenance

The ongoing maintenance, including but not limited to the maintenance of the bio-retention vegetation, will be the responsibility of the site owner/operators and should be undertake as outlined below. Due to the project's climatic region, it is recommended that the detailed design of the bio-retention basin utilises a submerged zone via an elevated underdrainage outlet. This will maintain more moisture within the bio-retention, improving vegetation health and minimising potable irrigation requirements.

A bio-retention filter should only be installed once the majority of the sediment producing activities for the proposed development has been completed. To minimise the accumulation of sediment within the vegetation and to improve maintenance, it is recommended that a sediment forebay is incorporated within the detailed design of the bio-retention basin.

The following sections provide expected maintenance requirements for the bio-retention basin.

5.3.1 Short term (weekly – monthly)

Short term maintenance of bio-retention systems shall be undertaken by the Proponent or its approved subcontractor, and it should comprise mainly of:

- Weeding
- Watering
- Mowing (batters)

5.3.2 Medium term (half yearly/yearly)

To be completed by the Proponent or its approved sub-contractor on a biannual/annual or event-based trigger. Items to be checked and/or maintained include:

- Erosion
- Grass condition
- Flow conveyance/blockage
- Sedimentation
- Evidence of ponding
- Back-washing of filter material
- Cleanout of sediment forebay.

5.3.3 Long term (replacement)

Triggered by the results of medium-term assessment, the long-term replacement of bio-retention systems will occur from gross failure caused by large storm events or long-term use. Replacement and/or rectification works shall be completed by the Proponent or its approved sub-contractor. This work should generally include some or all of the following:

- Removal of accumulated sediment
- Replacement of underdrain system
- Replacement of filter material
- Grading of basin invert
- Replacement of surface vegetation.

6. Conclusion and recommendations

This report outlined the stormwater quantity and stormwater quality assessments undertaken by GHD for the proposed BESS project site. As part of the stormwater quantity assessment, existing site conditions (predevelopment) were assessed to provide an understanding of the flood behaviour across the project site. Additionally, post-development conditions were assessed to evaluate potential flood impacts on neighbouring properties and immunity of the Burnett Highway.

6.1 Stormwater Quantity

The flood analysis for both pre- and post-development conditions at the project site indicates that the proposed design will effectively manage flood risks while minimising downstream impacts. The Burnett Highway will maintain flood immunity. It should be noted that the existing highway levels and existing culverts' invert levels extracted from provided 0.5 m DEM, it is recommended to update the levels and culverts details in the next stage of the project using detailed survey. The retention of the existing pond ensures similar storage capacity between pre- and post-development conditions, mitigating potential flood risks downstream.

Based on the flood velocity results appropriate measures such as rock protection at the culvert outlets and inlets have been recommended to reduce erosion risks. Additionally, the proposed access track adjustments and culvert placements will address local flood conditions without significantly impacting surrounding properties.

The proposed design effectively manages flood risks and minimises adverse effects on the surrounding areas. The flood afflux results indicate that the increase in water level downstream of the project area is less than 50 mm for most surrounding areas, except for upstream of proposed culvert CD02.

Overall, the assessment indicated that the proposed design would maintain the existing immunity of the Burnett Highway and no adverse impacts on surrounding properties.

6.2 Stormwater Quality

A stormwater quality analysis was undertaken in MUSIC for the proposed development.

The site was modelled with the inclusion of a bio-retention basin with a filter media area of 1750 m², to achieve the Water Quality Objectives (WQO) for the site. This assumes that all surface water is able to be directed to the basin and hence there is 0% site bypass catchments.

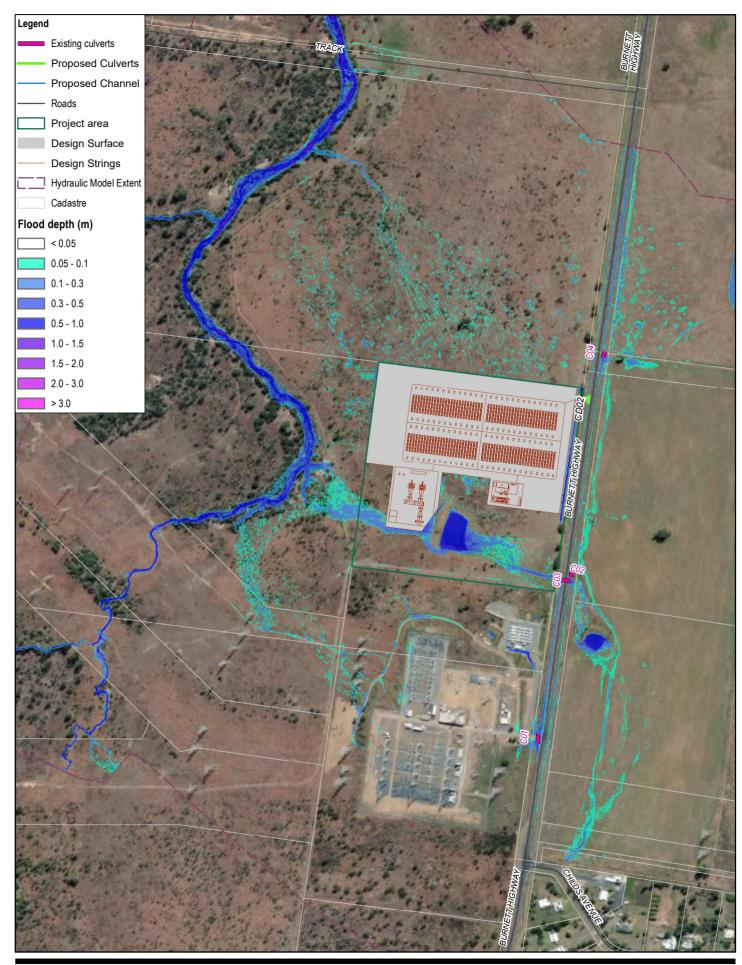
A sensitivity analysis was undertaken to investigate the effect of increasing site bypass catchments on the required bioretention filter area. This analysis indicated that if 5% of the site catchment bypasses the bioretention basin, the basin filter area would need to be increased to 2250 m² to still achieve the site's WQO. Similarly for a 10% site catchment bypass, the basin filter area would need to increase to 3750 m². When bypass catchments grew to 20% of the site, results indicated that the bioretention filter area would need to increase to greater than 10,000 m² to achieve the sites WQO, which was not considered to be practical.

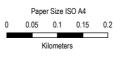
It is recommended that future earthwork and drainage designs minimise the amount of site bypass catchments, by ensuring positive fall and grading to the proposed bioretention basin. This will minimise the required bioretention filter area and avoid the introduction of additional SQIDS to meet the target water quality objectives.

It is recommended that once earthwork and pipe drainage designs are progressed, the MUSIC model is updated to incorporate the final design areas and bypass catchments to ensure that the bioretention basin still achieves the required site WQOs.

Appendices

Appendix A Flood maps





Map Projection: Transverse Mercator Horizontal Datum: GDA2020 Grid: GDA2020 MGA Zone 56

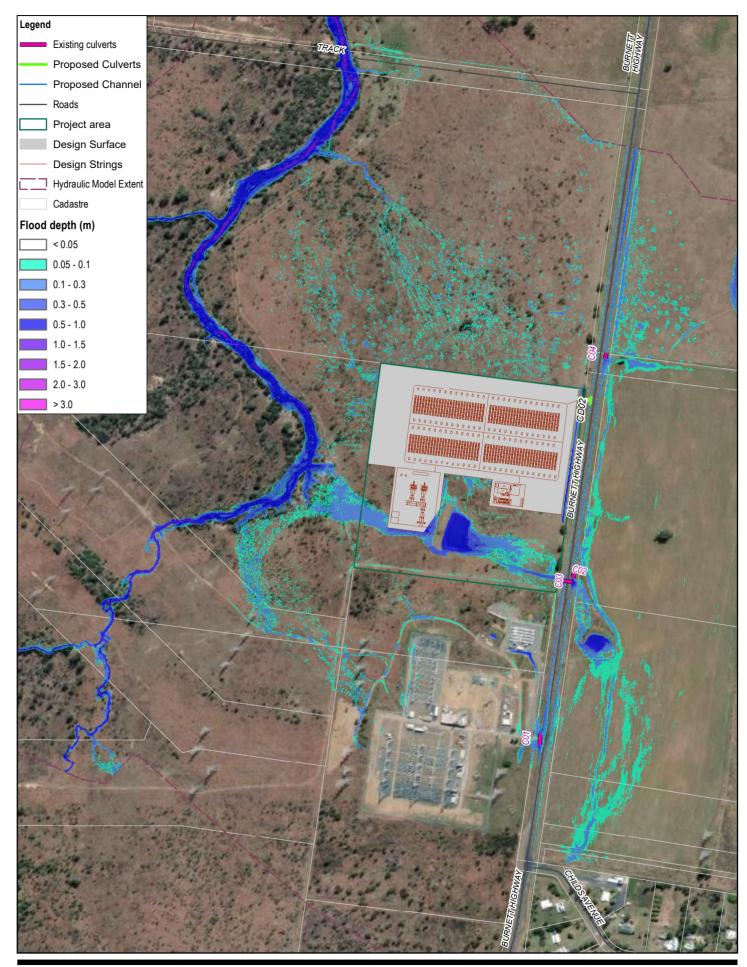


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 50% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025

Figure A3.1





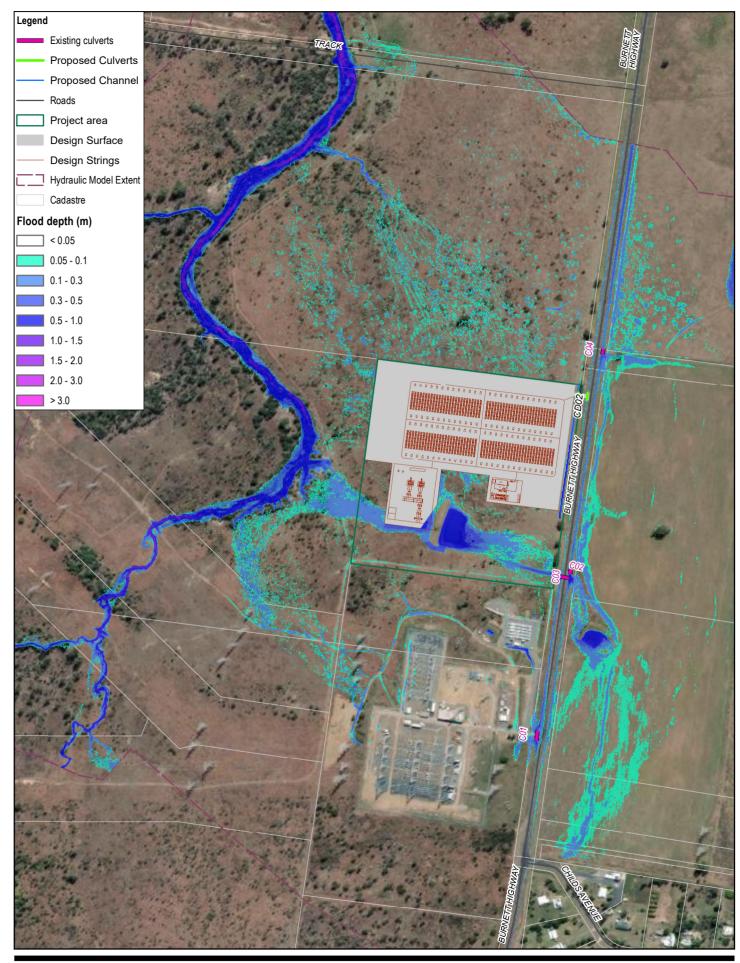




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 20% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025





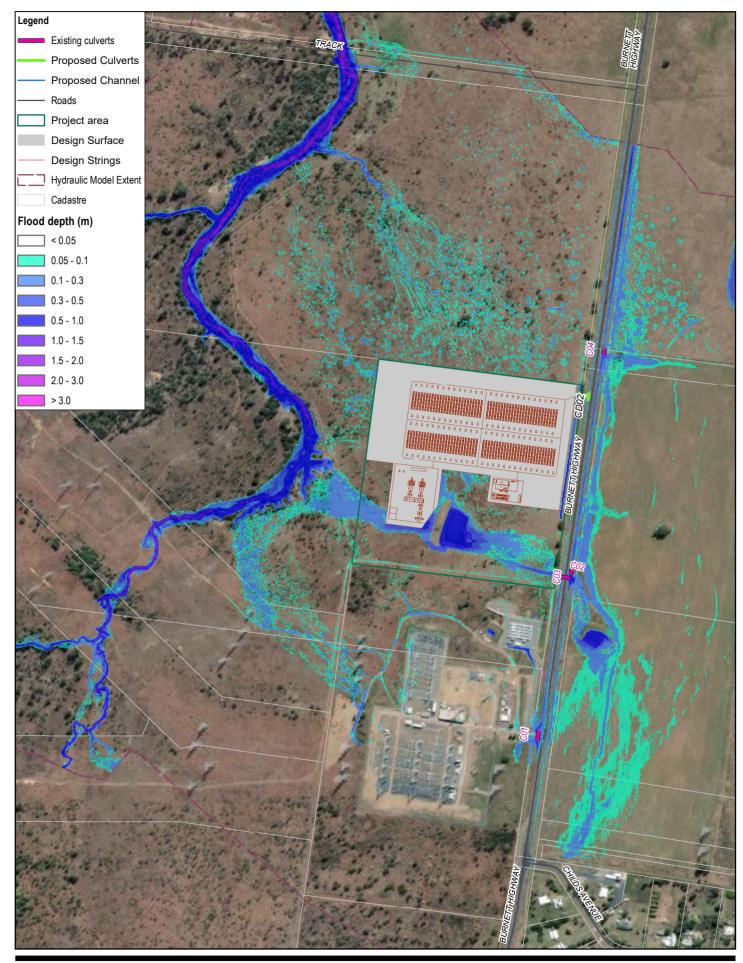




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 10% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025





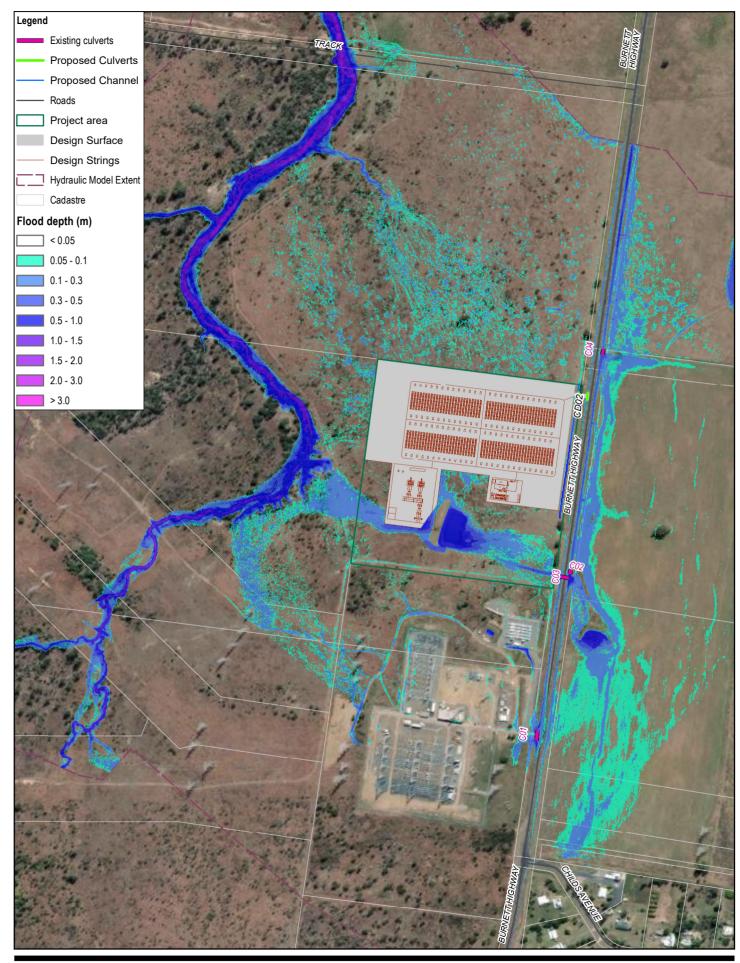




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 05% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025





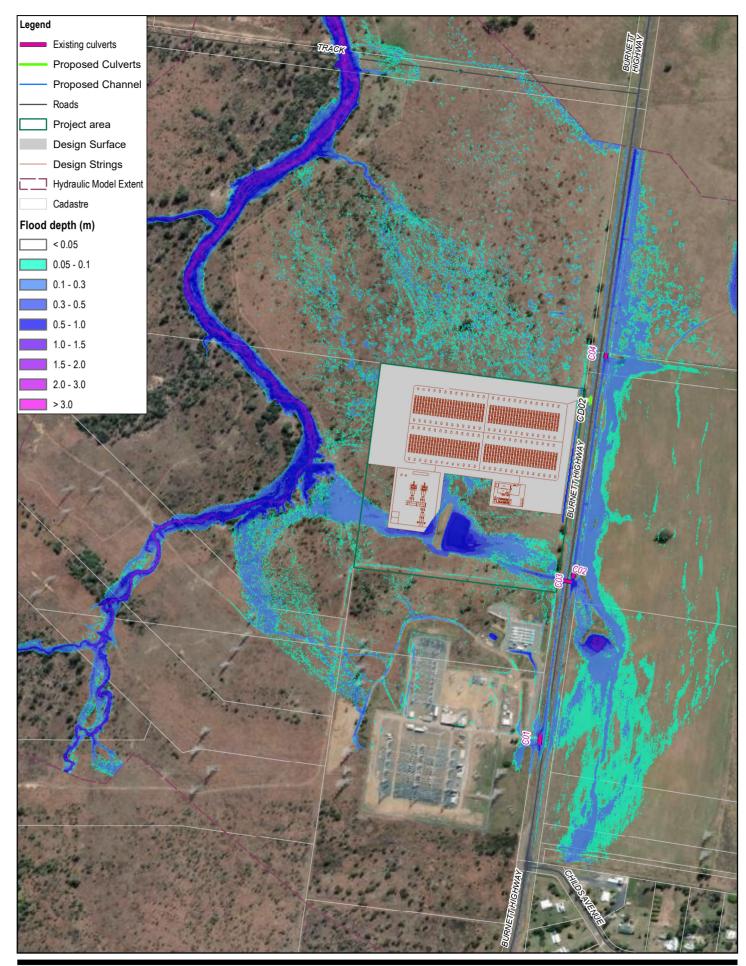




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 02% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025





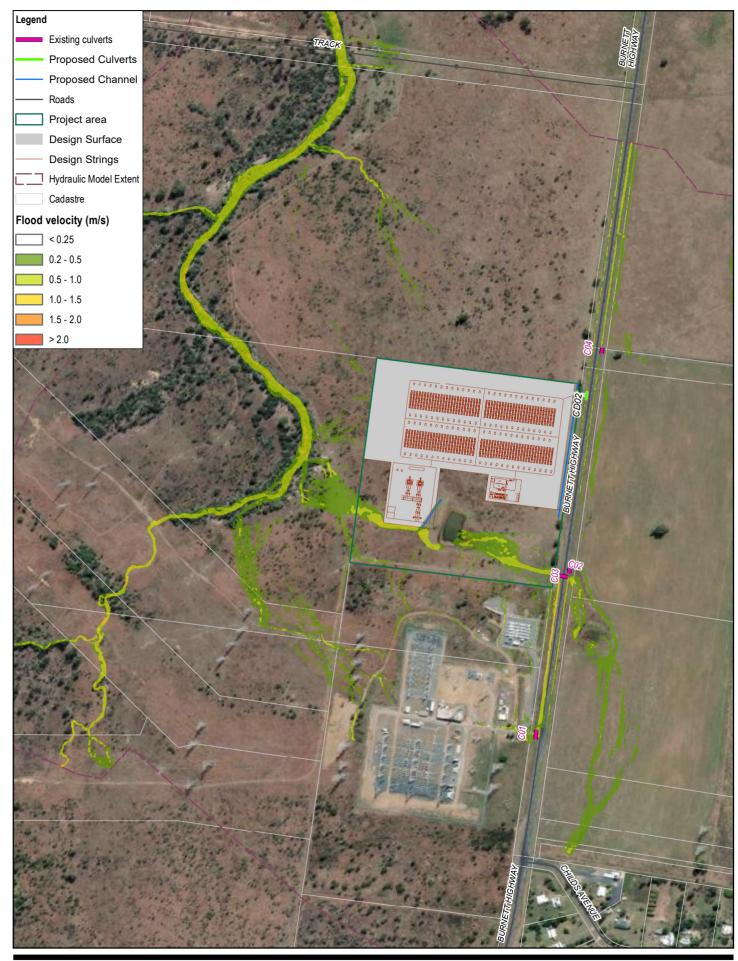


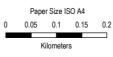


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 01% AEP storm event Flood depth (m) Project No. 12650145 Revision No.

Date 09/02/2025





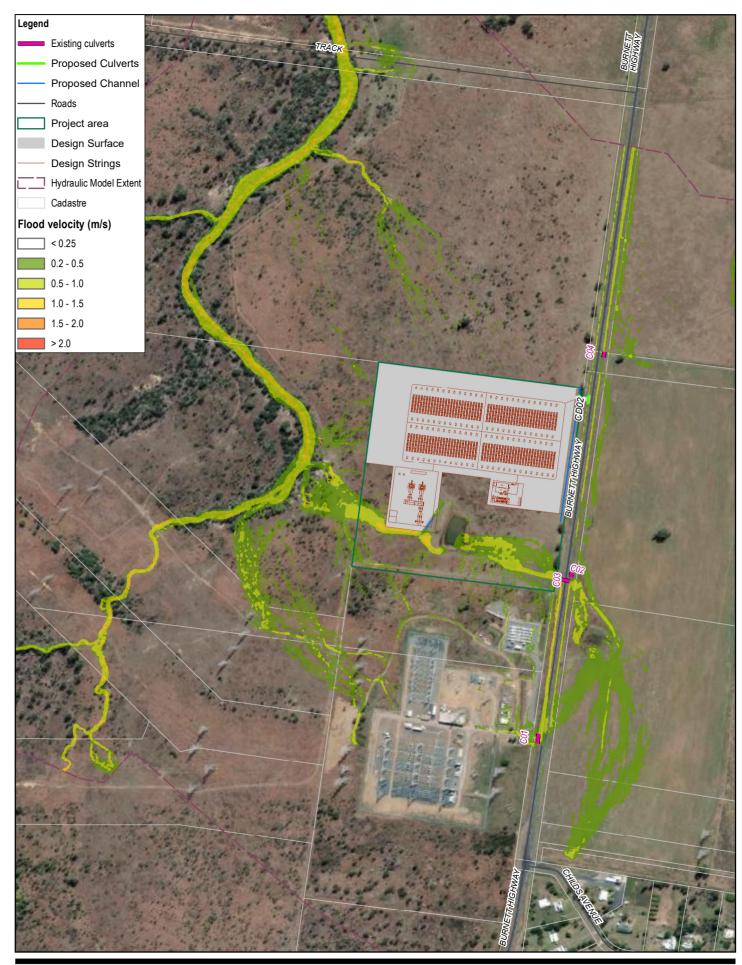


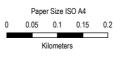


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 50% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025



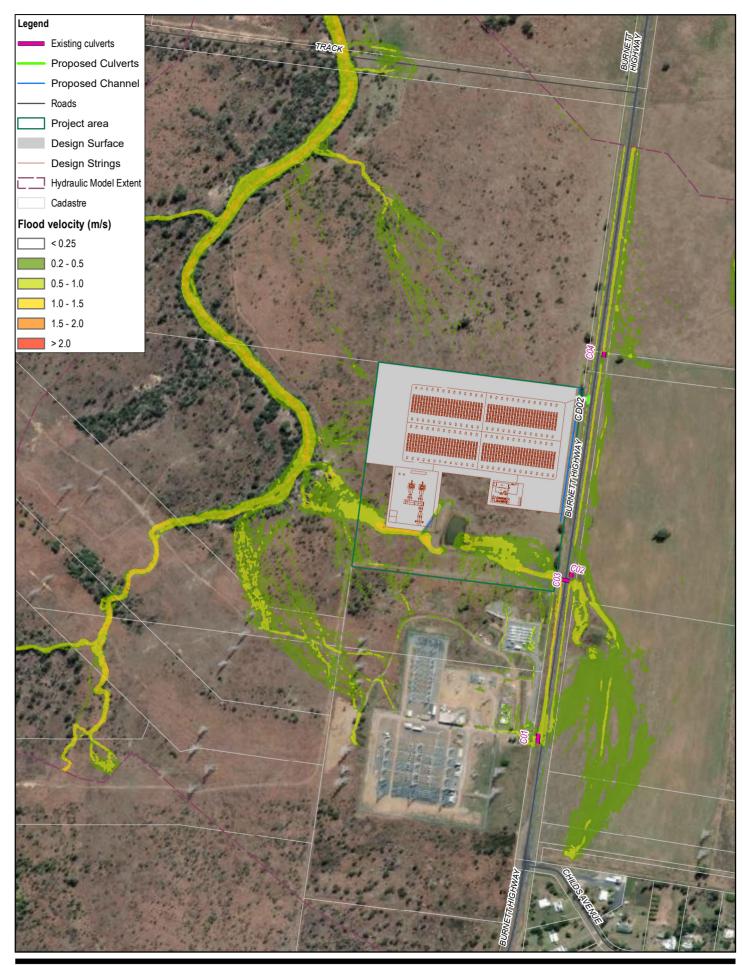


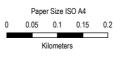


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 20% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025





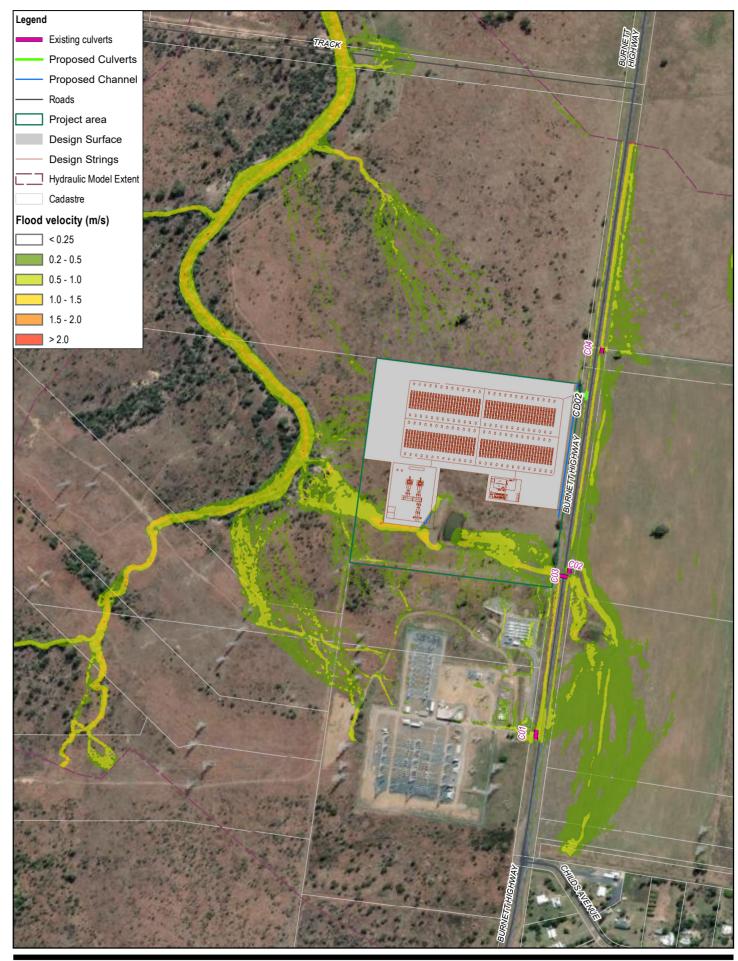


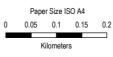


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 10% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025





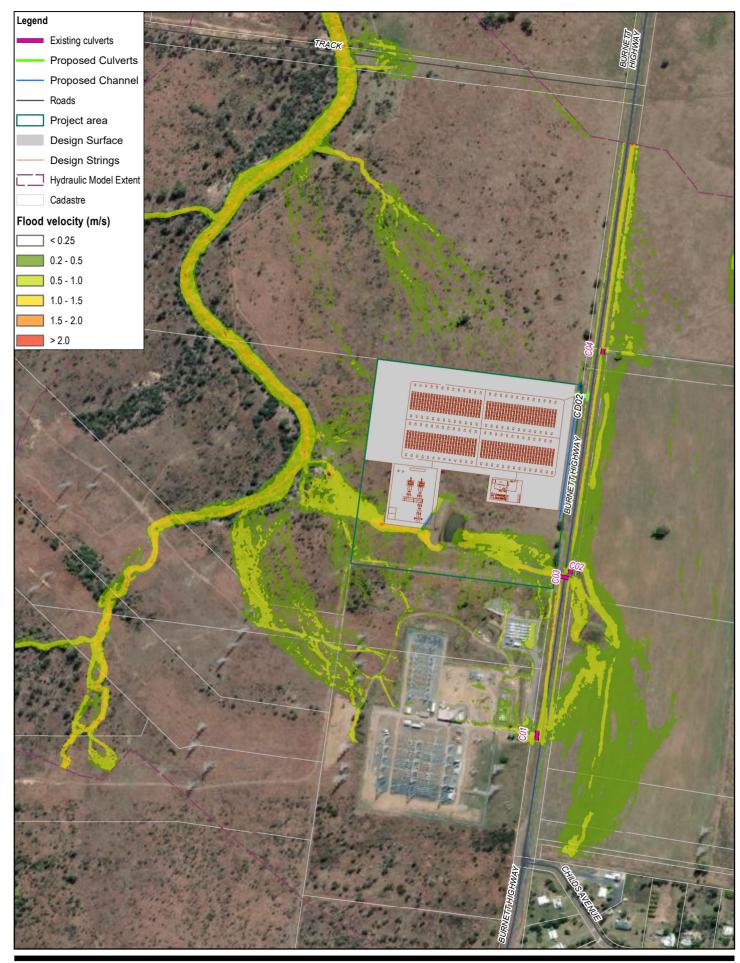


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Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 05% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025





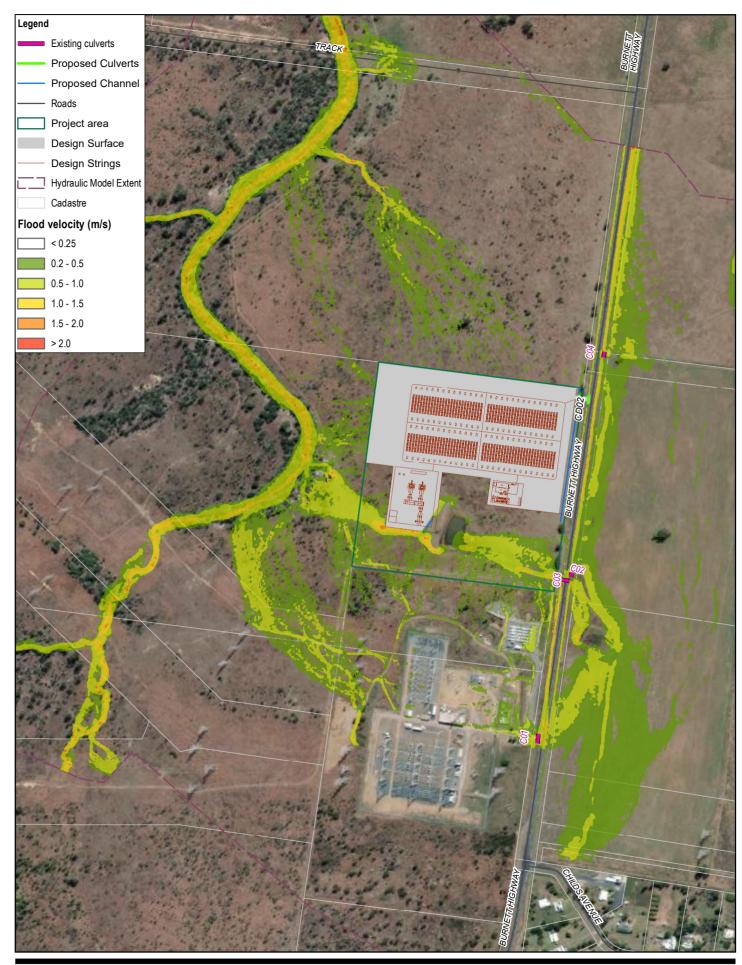


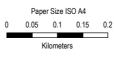


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 02% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025



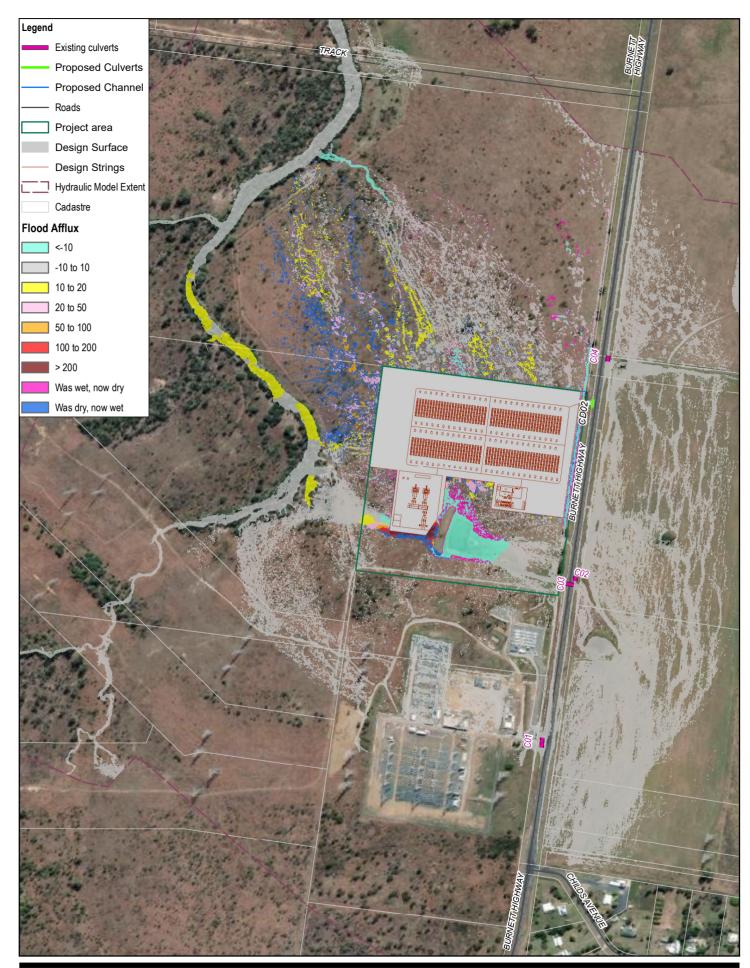




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 01% AEP storm event Flood Velocity (m/s) Project No. 12650145 Revision No.

Date 09/02/2025



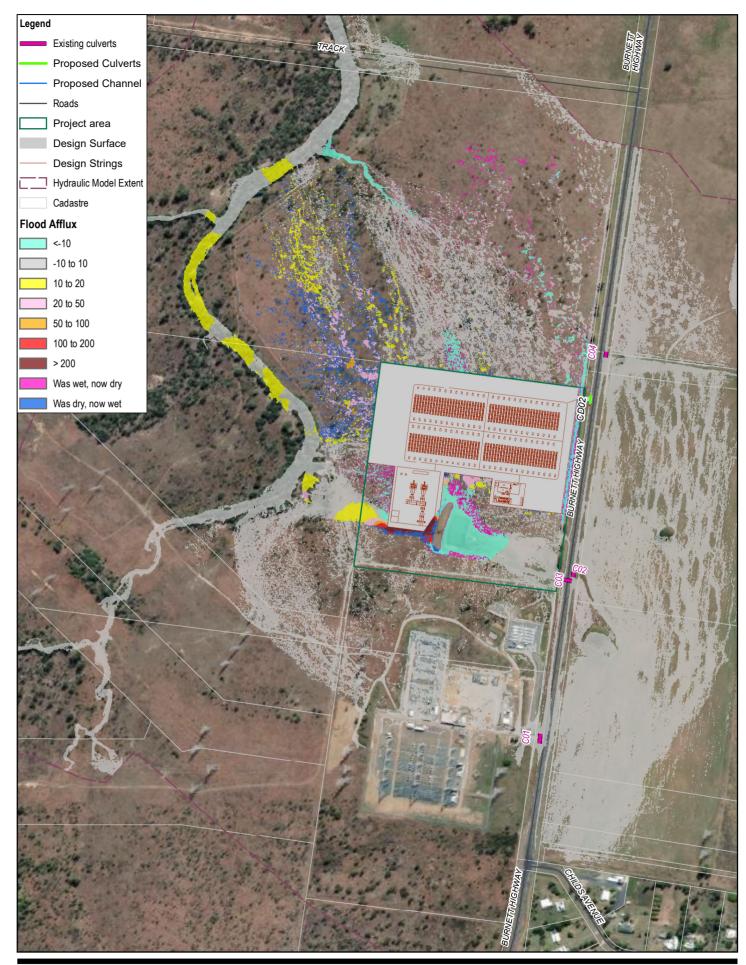


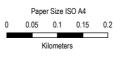


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 50% AEP storm event Flood Afflux (mm) Project No. 12650145 Revision No.

Date 09/02/2025







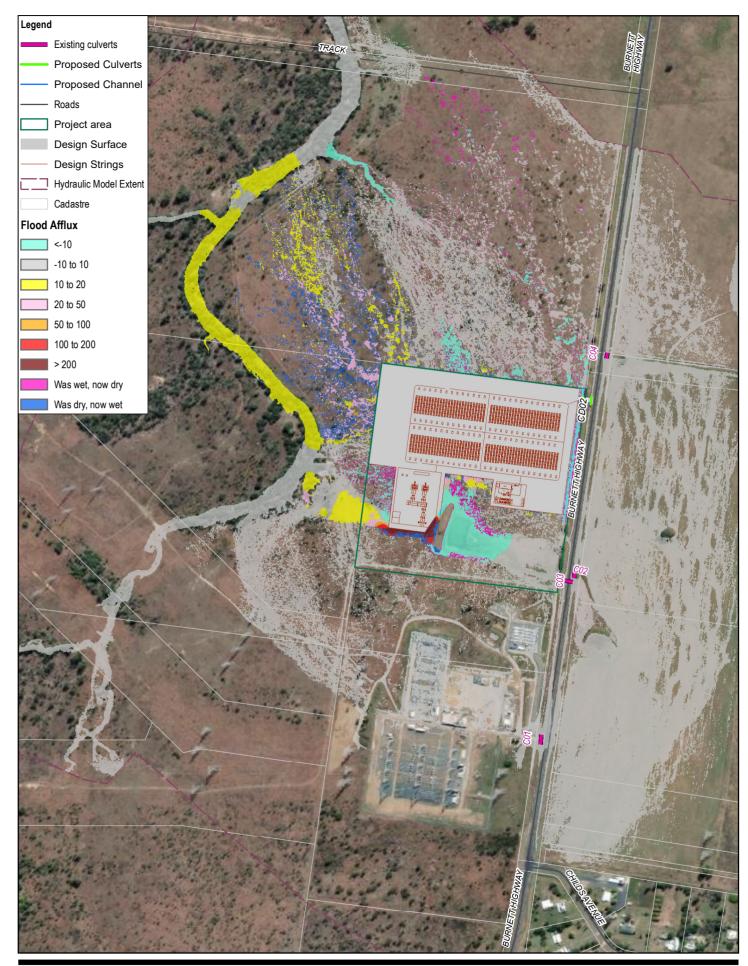


Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 20% AEP storm event Flood Afflux (mm)

Project No. 12650145 Revision No.

Date 09/02/2025





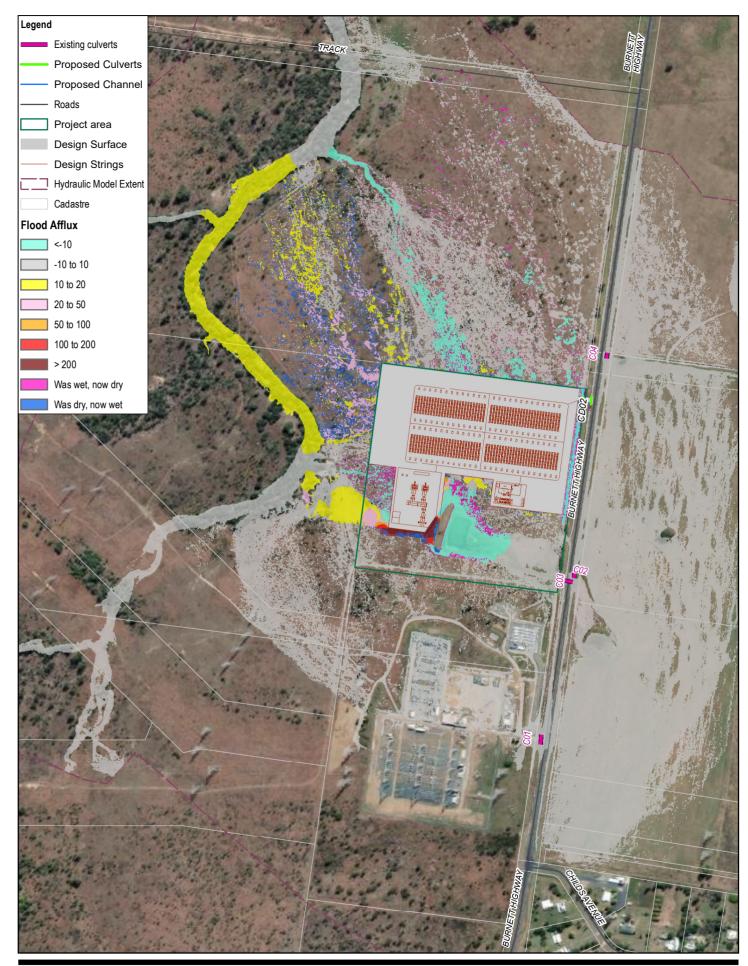


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Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 10% AEP storm event Flood Afflux (mm) Project No. **12650145** Revision No.

Date 09/02/2025



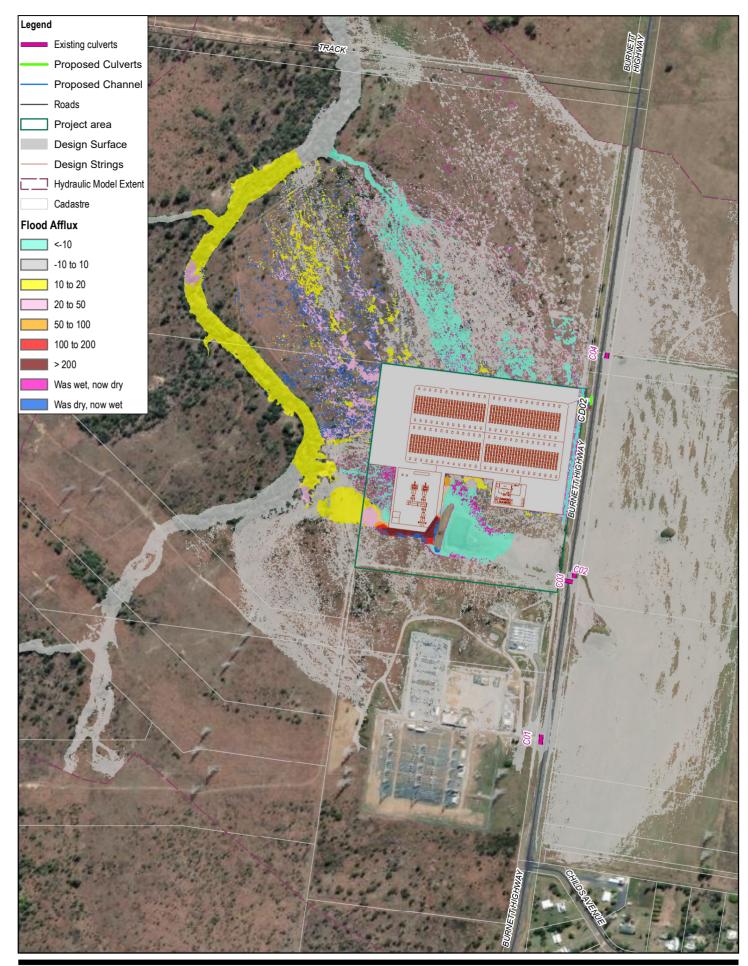




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 05% AEP storm event Flood Afflux (mm) Project No. **12650145** Revision No.

Date 09/02/2025





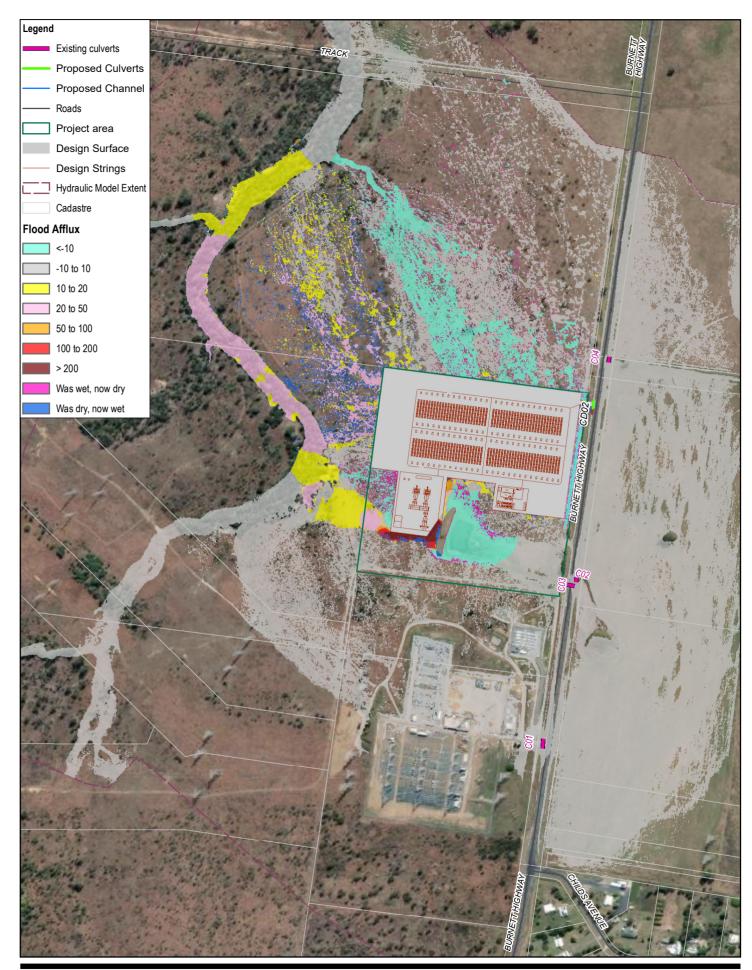




Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 02% AEP storm event Flood Afflux (mm) Project No. 12650145 Revision No.

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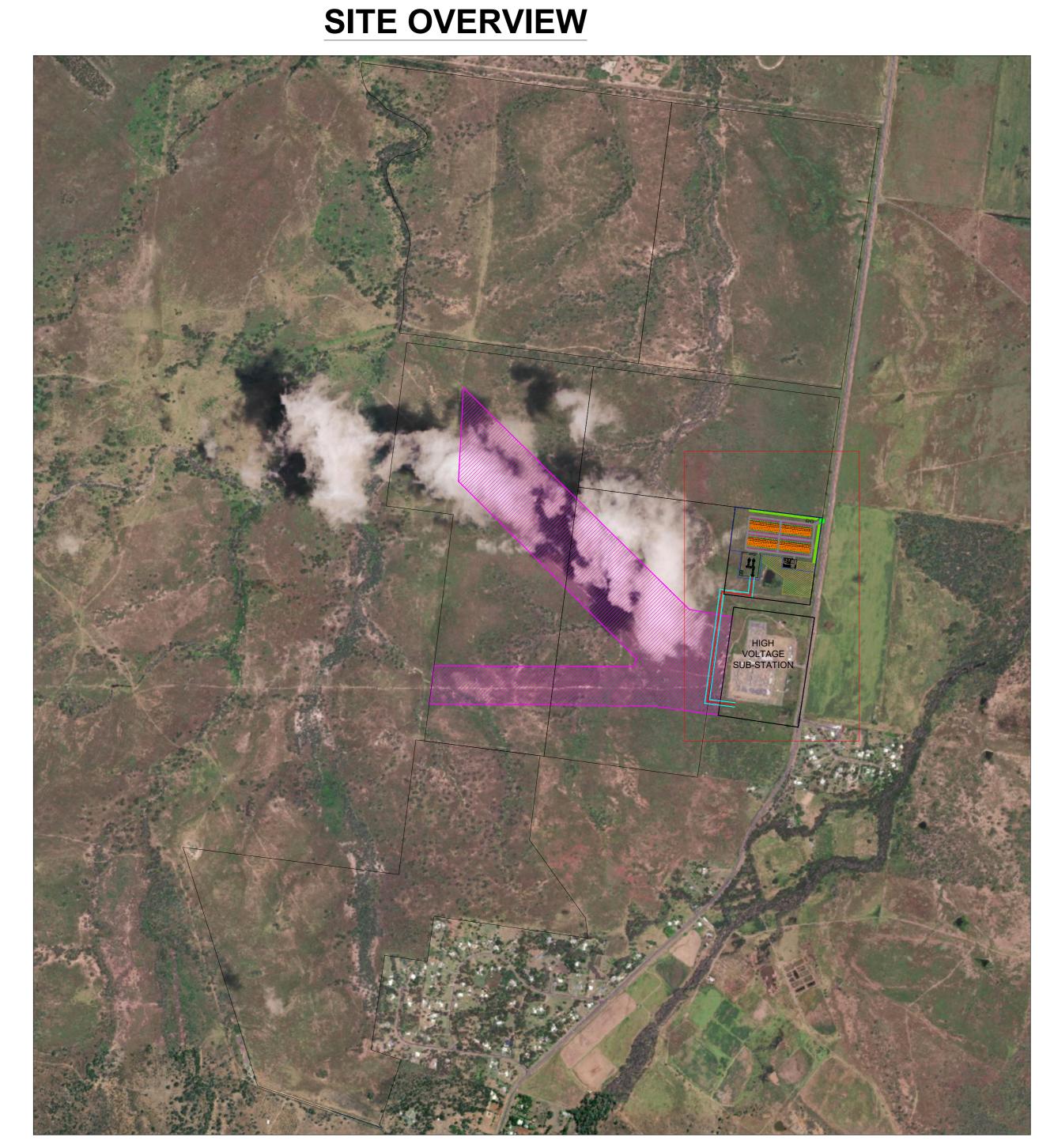


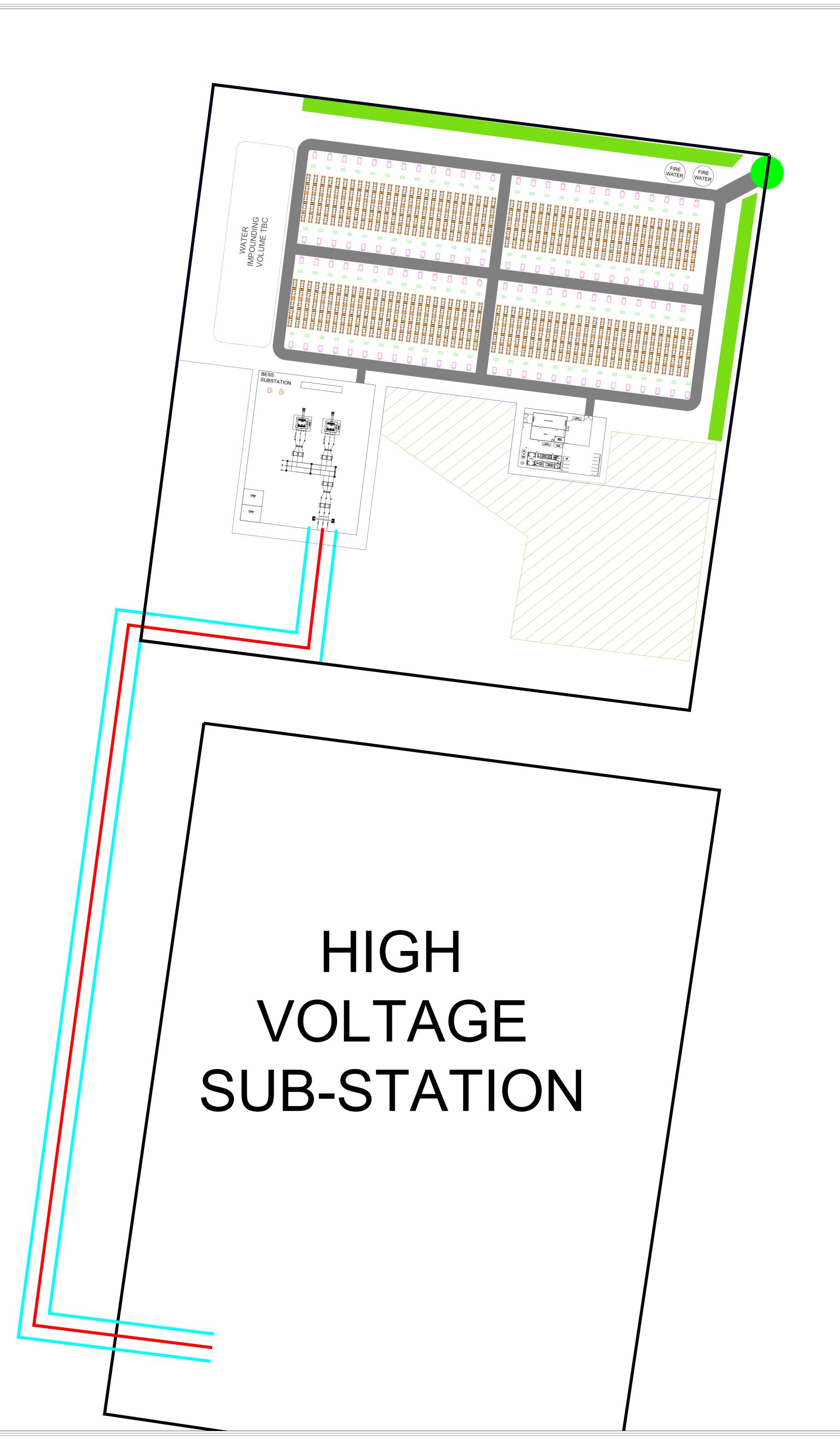
Enel Green Power Australia Pty Ltd Capricorn BESS

Post_Developed site conditions 01% AEP storm event Flood Afflux (mm) Project No. 12650145 Revision No.

Date 09/02/2025

Appendix B Development plans





LEGEND

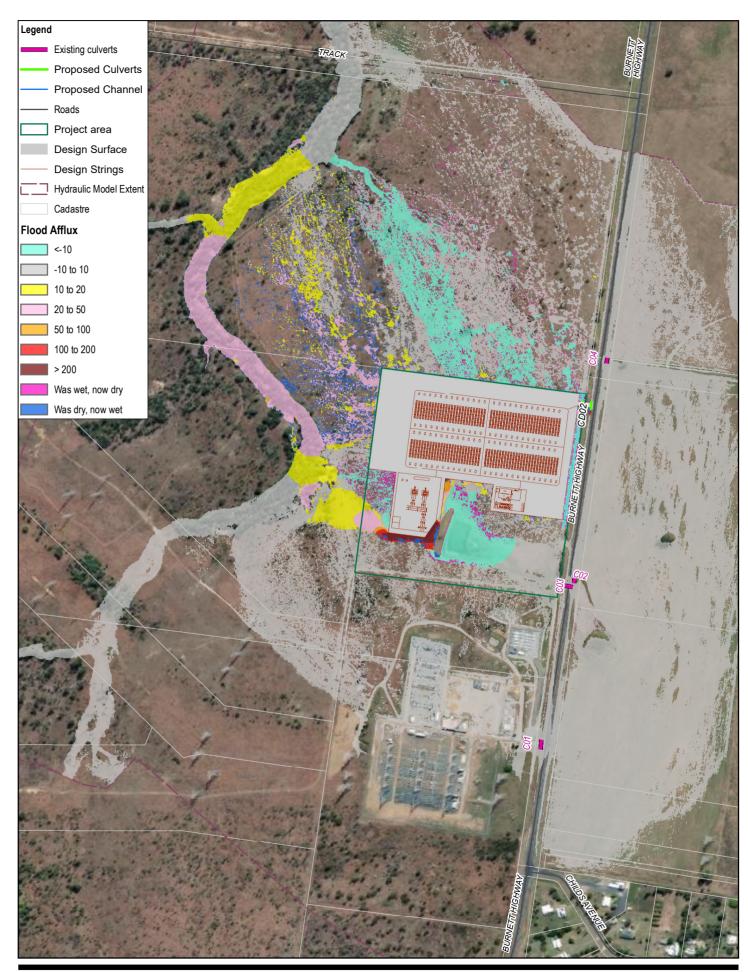
	ROAD
	BESS BOUNDARY
	SITE BOUNDARY
	POWER CABLE EASEMENT 20m
	POWERLINK CABLE
	POWER CONVERSION UNIT
INVERTER	INVERTER BLOCK
	BATTERY BLOCK
	LAYDOWN AREA
	SITE PRIMARY ACCESS
	VEGETATION BUFFER

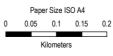
BESS SPECIFCATION	S
DESCRIPTION	QTY
RATED POWER (MW)	399
RATED ENERGY (MWh)	1575
USEFUL POWER (MW)	319.2
USEFUL ENERGY (MWh)	1354.5
BESS DURATION	4.24h
BESS CONTAINER MODULE	SAFT
NUMBED OF DECC CONTAINEDC	I-Shift
NUMBER OF BESS CONTAINERS	525
BESS CONTAINER CAPACITY (MWh)	3.0
	SMA SCS
POWER CONVERSION EQUIPMENT	3800
	UP-XT
NUMBER OF POWER CONVERSION EQUIPMENT	105
POWER CONVERSION EQUIPMENT POWER (MW)	3.8

10 28.11.2024 ADDED BESS POWER CABLE EASEMENT		ARLE FASEMENT					
10	20,11,202 1	TIDDED DESS TEWER OF	TIDEL ENSETENT	Said Elmir			
9	14.11.2024	Undoted site occess	point and added landscape strip				
	THILDET	opaaved sive access	point and added tandscape strip	Said Elmir			
8	8 11.07.2024 Updated layout to allow for switchyard -						
	11.07.2021	opaa vea kayoa v	To allow the Switching at a	Said Elmin			
7	27.05.2024	15.2024 Changed number of BESS containers/inverter from 6x2.6083MWh to 5x3MWh					
	2710012021			Said Elmir			
REV.	DATE		DESCRIPTION	PREPARED BY	COLLABORATORS	VERIFIED BY	VALIDATED BY
			FILE NAME:				
			CLASSIFICATION: UTILIZATION SCOPE:				
Engineering & Construction		Construction					
FORMAT:	:	SCALE:	TITLE: PRELIMINARY GENERAL BESS LAYDUT				
	АО	NTS					

Appendix C

Flood Afflux Maps for Sensitivity Scenarios







GHD

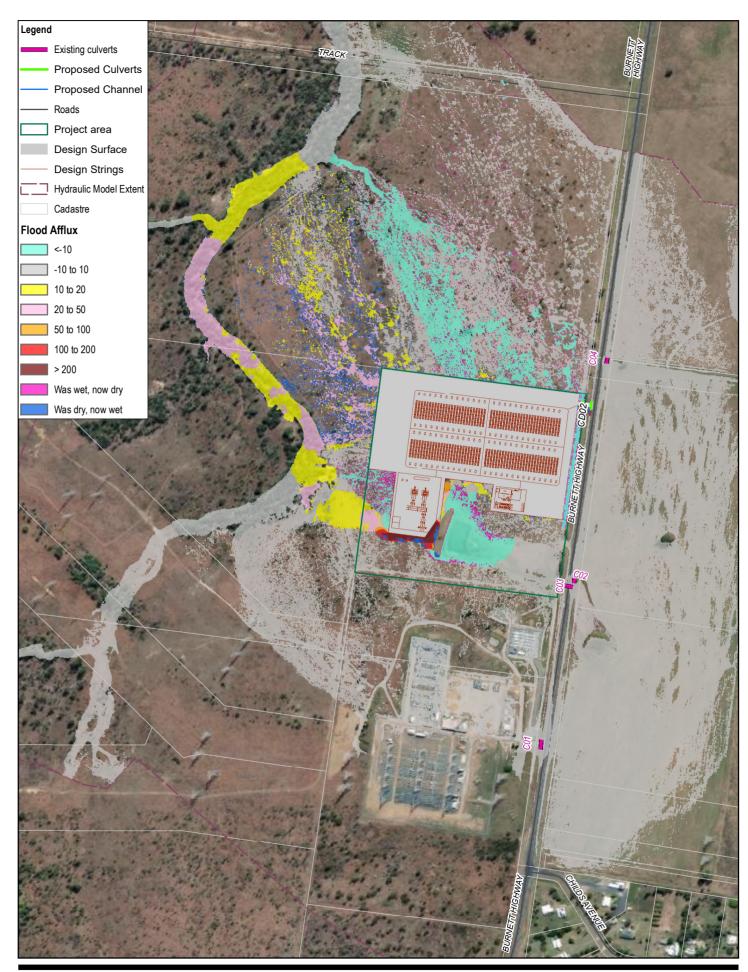
Enel Green Power Australia Pty Ltd
Capricorn BESS

Post_Developed site conditions
1% AEP storm event
Sensitivity (S01)
Flood Afflux (mm)

Project No. **12650145** Revision No.

Date 09/02/2025

Figure C1.1









Enel Green Power Australia Pty Ltd
Capricorn BESS

Post_Developed site conditions
1% AEP storm event
Sensitivity (S02)
Flood Afflux (mm)

Project No. **2650145**Revision No. **B**Date **09/02/2025**

Figure C2.1





Landscape concept package



Capricorn Battery Energy Storage System (BESS)

Burnett Highway, Bouldercombe QLD January 2025

INDEX

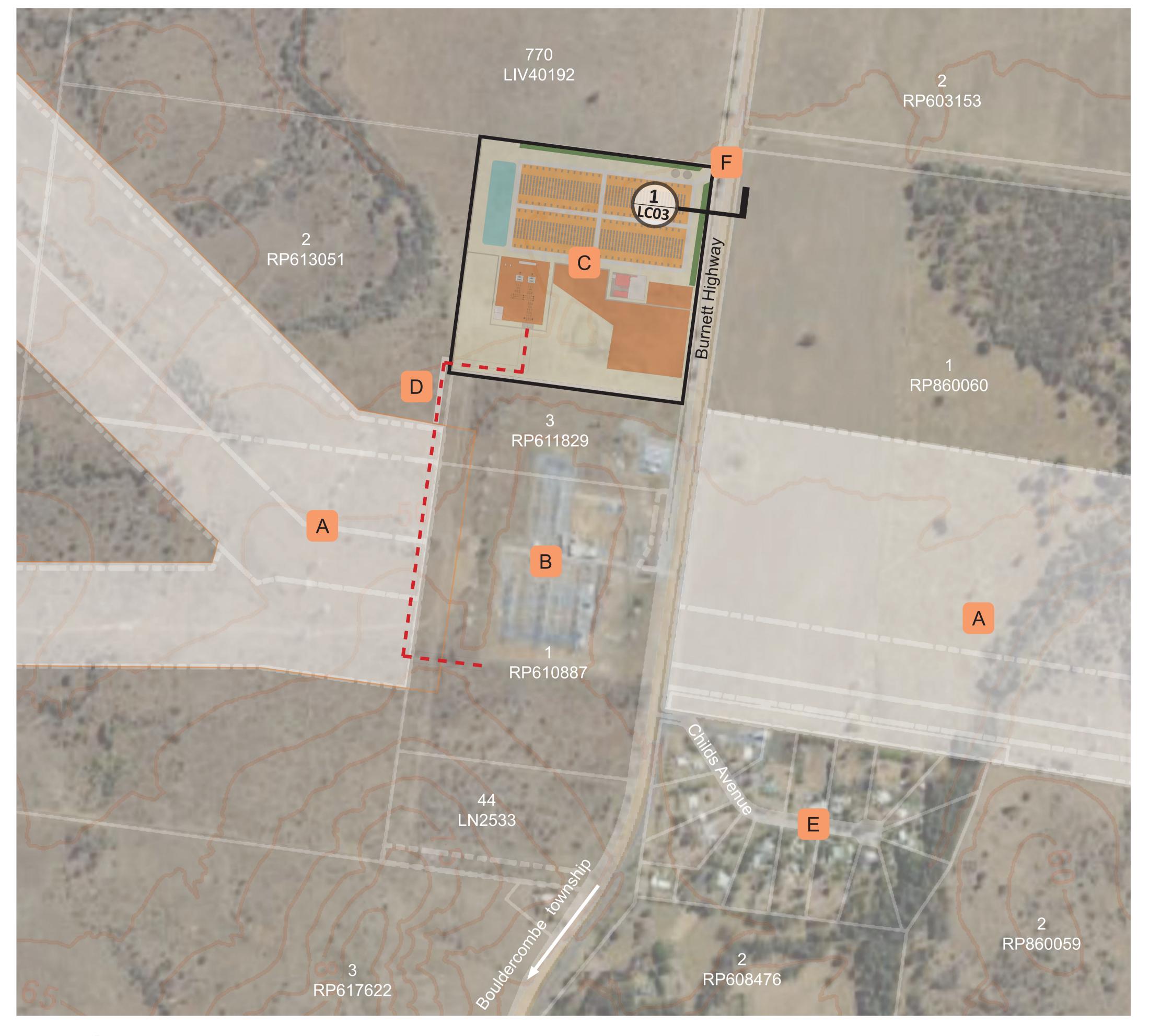
LC00 - COVER PAGE

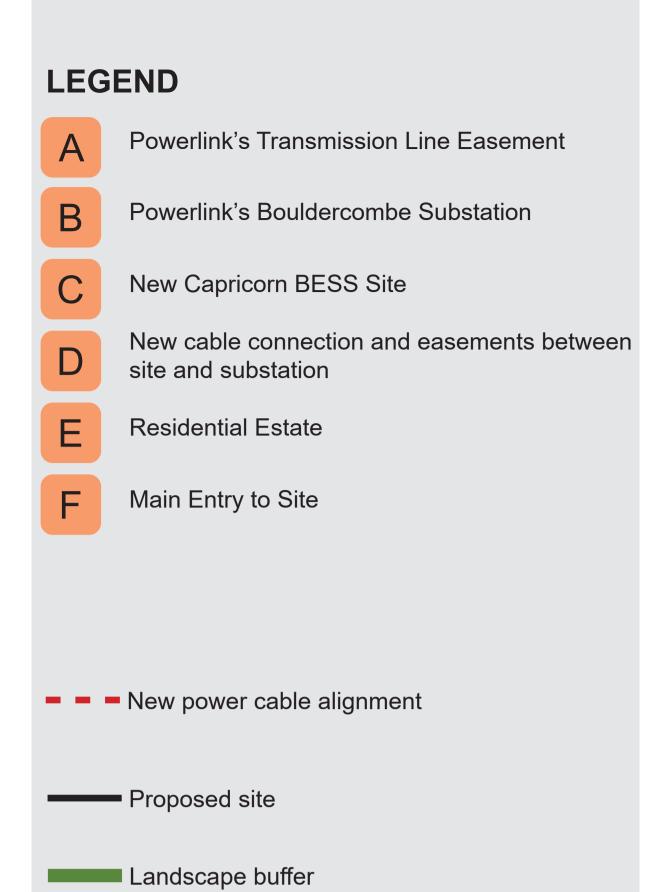
LC01 - CONTEXT PLAN

LC02 - DETAIL PLAN

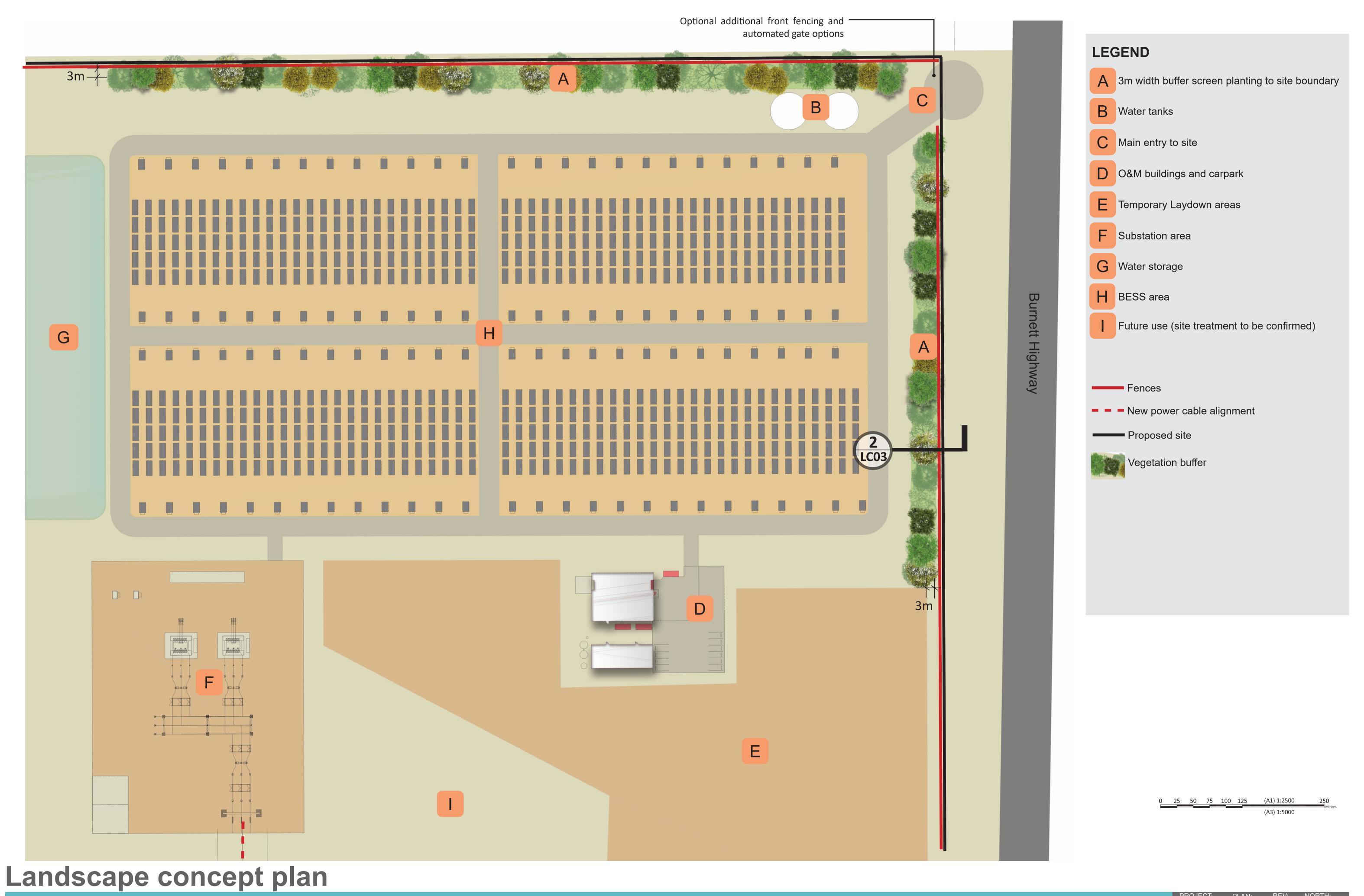
LC03 - BUFFER DETAILS

LC04 - PLANTING PALETTE





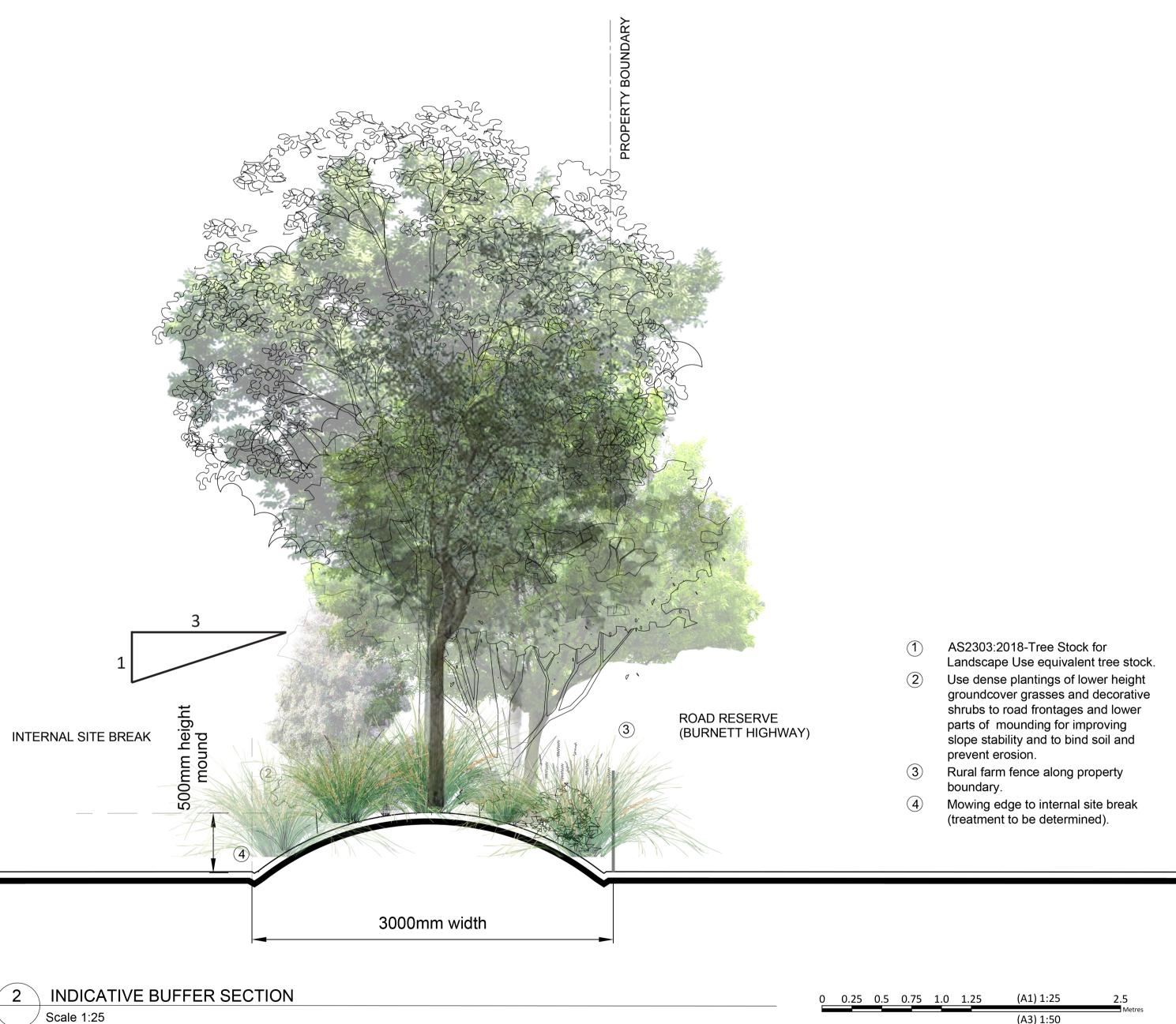
Site context plan



Proposed Battery Energy Storage System (BESS), Bouldercombe for Potentia Energy







Vegetation buffer strategy:

The objective of the vegetation buffer is to provide a dense and fast-maturing (5 years) screen to filter views from the Burnett Highway to the proposed BESS development, whilst allowing opportunities for passive internal/external site surveillance, to create visual interest, scenic amenity, and increase biodiversity.

The height of the mounding is to provide a maximum 1 in 3 slope for additional screening at ground level.

Variations to the shape and visual porosity of the buffer may occur depending on the natural conditions and site variations, however, by varying the spatial planting arrangements across the length of the buffers, any deformations due to unforeseen growth patterns provide minimal disturbance to the pattern.

Vegetation buffer details

244023 LCP_A.indd

Indicative Plant List: Botanical Name Common Name Height **TREES** Forest She-oak 10m Allocasuarina torulosa Red Ash Alphitonia excelsa Corymbia ptychocarpa Swamp Bloodwood 12m Cupaniopsis anacardoides Tuckeroo 10m Jagera pseudorhus Foambark 15m Melaleuca viridiflora Broad-leaved Paperbark 12m Syzygium australe Lilly Pilly Waterhousia floribunda Weeping Lilly Pilly 15m SHRUBS Hickory Wattle Black Wattle Acacia leiocalyx Breynia oblongifolia Coffee Bush Clerodendron floribundum Lolly Bush Hovea acutifolia Pointed Leaf Hovea GROUNDCOVERS AND GRASSES Lomandra longifolia Matt Rush 1.5m Hardy Egg and Bacon Pultenaea villosa 02 Alphitonia excelsa 07 Syzygium australe Kangaroo Grass Themeda triandra 01 Allocasuarina torulosa 05 Jagera pseudorhus 03 Corymbia ptychocarpa 06 Melaleuca viridiflora 04 Cupaniopsis anacardoides 08 Waterhousia floribunda 11 Breynia oblongifolia 13 Hovea acutifolia 09 Acacia aulacocarpa 12 Clerodendron floribundum 10 Acacia leiocalyx

Planting palette



F +0 000 000 0000

erm.com

MEMO

ATTENDEES	[Add name]
DATE	21 May 2024
REFERENCE	00000
SUBJECT	Insert subject here

Topic	Discussion
Visual Amenity	 May not require an actual assessment, rather a comment Condition of landscape screening may be considered
Fire and Emergency Management Plan and Operational Plan	 Due to public concern may be in Enel's best interest In relation adjoining substation and BESS
Public Notification	 Local community is very aware of potential for BESS projects in the area Key concerns are amenity – Noise/visual and fire and safety
Agronomist Report	 Given located within the Agricultural Land Overlay Agronomist Report may be required to demonstrate the Project will not reduce the agricultural capacity long term
Stormwater	 MCU will be based on concept plan Detailed plan will be required for stormwater assessment and treatment Stormwater Assessment will be required based on impervious
Approved layout	Footprint at MCU stage is requiredPresented as a worst case a scenario
Noise	The assessment at DA Stage is based on worst case scenario
Rehabilitation	Likely to be a condition to rehabilitate to agricultural land
Application	 Combined application MCU RoL MCU/RoL will be assessed separately and together
Construction and Operation	Conditions for each stage of the Project – dependent on level of impact e.g. traffic etc.
Sewerage and Water	 Required for construction and operation On-site sewerage retention Rainwater tanks

APPENDIX I SDAP CODE ASSESSMENT

STATE CODE 1: DEVELOPMENT IN A STATE CONTROLLED ROAD ENVIRONMENT

TABLE 1 DEVELOPMENT IN GENERAL

Performance Outcomes	Acceptable Outcomes	Response	
Buildings, structures, infrastructure, services and utilities			
PO1 The location of the development does not create a safety hazard for users of the state-controlled road.	AO1.1 Development is not located in a state-controlled road. AND AO1.2 Development can be maintained without requiring access to a state-controlled road.	PO1 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D, which demonstrates that the location of the proposed access will not create a safety hazard for users of the statecontrolled road.	
PO2 The design and construction of the development does not adversely impact the structural integrity or physical condition of the state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO2 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Assessment has concluded that the construction and operational traffic from the Proposed Development will not impact the structural integrity of the state-controlled road.	
PO3 The location of the development does not obstruct road transport infrastructure or adversely impact the operating performance of the state-controlled road.	No acceptable outcome is prescribed.	PO3 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Assessment has concluded that the construction and operational traffic from the Proposed Development will not impact the operating performance of the state-controlled road.	

Performance Outcomes	Acceptable Outcomes	Response
PO4 The location, placement, design and operation of advertising devices, visible from the state-controlled road, do not create a safety hazard for users of the state-controlled road.	No acceptable outcome is prescribed.	PO4 Not Applicable The Proposed Development does not involve advertising devices.
PO5 The design and construction of buildings and structures does not create a safety hazard by distracting users of the state-controlled road.	AO5.1 Facades of buildings and structures fronting the state-controlled road are made of non-reflective materials. AND AO5.2 Facades of buildings and structures do not direct or reflect point light sources into the face of oncoming traffic on the state-controlled road. AND AO5.3 External lighting of buildings and structures is not directed into the face of oncoming traffic on the state-controlled road. AND AO5.4 External lighting of buildings and structures does not involve flashing or laser lights.	PO5 Complies Given the nature of the development being a Battery Energy Storage System, it is not considered that the BESS will create a safety hazard by distracting users of the state- controlled road.
PO6 Road, pedestrian and bikeway bridges over a state-controlled road are designed and constructed to prevent projectiles from being thrown onto the state-controlled road.	AO6.1 Road, pedestrian and bikeway bridges over the state-controlled road include throw protection screens in accordance with section 4.11 of the Design Criteria for Bridges and Other Structures Manual, Department of Transport and Main Roads, 2020.	PO6 Not Applicable No bridges are proposed as part of this development.

Performance Outcomes	Acceptable Outcomes	Response
Landscaping		
PO7 The location of landscaping does not create a safety hazard for users of the statecontrolled road.	AO7.1 Landscaping is not located in a state-controlled road. AND AO7.2 Landscaping can be maintained without requiring access to a state-controlled road. AND AO7.3 Landscaping does not block or obscure the sight lines for vehicular access to a state-controlled road.	PO7 Complies A Landscape Concept Plan (Appendix K) has been prepared for the development. The Landscape Concept Plan details a proposed 3 metre wide vegetation buffer on a 500mm high mound along the Burnett Highway. The location of the proposed landscaping will not create a safety hazard for users of the state-controlled road.
Stormwater and overland flow		
PO8 Stormwater run-off or overland flow from the development site does not create or exacerbate a safety hazard for users of the state-controlled road.	No acceptable outcome is prescribed.	PO8 Complies A Stormwater Assessment (refer to Appendic) has been prepared as part of the Development Application. The assessment concluded that the Proposed Development w not increase stormwater run-off or impact or overland flow.
PO9 Stormwater run-off or overland flow from the development site does not result in a material worsening of the operating performance of the state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO9 Complies A Stormwater Assessment (refer to Appendic) has been prepared as part of the Development Application. It was concluded that the Proposed Development will not increase stormwater run-off or impact on overland flow.
PO10 Stormwater run-off or overland flow from the development site does not adversely impact the structural integrity or physical condition of the state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO10 Complies A Stormwater Assessment (refer to Append C) has been prepared as part of the Development Application. It was conclused that the Proposed Development will not increase stormwater run-off or impact on overland flow.

Performance Outcomes	Acceptable Outcomes	Response
PO11 Development ensures that stormwater is lawfully discharged.	AO11.1 Development does not create any new points of discharge to a state-controlled road. AND AO11.2 Development does not concentrate flows to a state-controlled road. AND AO11.3 Stormwater run-off is discharged to a lawful point of discharge. AND AO11.4 Development does not worsen the	PO11 Complies The Proposed Development will have a lawful point of discharge and will not have points of discharge to a state-controlled road.
Flooding	condition of an existing lawful point of discharge to the state-controlled road.	
riooding		
PO12 Development does not result in a material worsening of flooding impacts within a state-controlled road.	AO12.1 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (within +/- 10mm) to existing flood levels within a state-controlled road. AND AO12.2 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (up to a 10% increase) to existing peak velocities within a state-controlled road. AND AO12.3 For all flood events up to 1% annual exceedance probability, development results in negligible impacts (up to a 10% increase) to	Given the nature of the Proposed Development, it will not impact on the state- controlled environment. Furthermore, a Site- based Stormwater Management Plan (Appendix J) has been prepared to accompany the Development Application. It was concluded that post-development, the Burnett Highway will maintain flood immunity, therefore the Proposed Development will not result in the material worsening of flooding impacts within the state-controlled road.

Performance Outcomes	Acceptable Outcomes	Response
	existing time of submergence of a state-controlled road.	
Drainage Infrastructure		
PO13 Drainage infrastructure does not create a safety hazard for users in the statecontrolled road.	AO13.1 Drainage infrastructure is wholly contained within the development site, except at the lawful point of discharge. AND AO13.2 Drainage infrastructure can be maintained without requiring access to a state-controlled road.	PO13 Not applicable No drainage infrastructure is proposed on a state-controlled road.
PO14 Drainage infrastructure associated with, or within, a state-controlled road is constructed, and designed to ensure the structural integrity and physical condition of existing drainage infrastructure and the surrounding drainage network.	No acceptable outcome is prescribed.	PO14 Not applicable No drainage infrastructure is proposed on a state-controlled road.

TABLE 2 VEHICULAR ACCESS, ROAD LAYOUT AND LOCAL ROADS

Performance Outcomes	Acceptable Outcomes	Response		
Vehicular access to a state-controlled road or within 100 m of a state-controlled road intersection				
PO15 The location, design and operation of a new or changed access to a state-controlled road does not compromise the safety of users of the state-controlled road.	No acceptable outcome is prescribed.	PO15 Complies The Proposed Development is to be accessed from the state-controlled road network via Burnett Highway.		
		A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the proposed development will not impact on the operating performance of the state—controlled road.		
PO16 The location, design and operation of a new or changed access does not adversely impact the functional requirements of the state-controlled road.	No acceptable outcome is prescribed.	PO16 Complies The proposed development is to be accessed from the state-controlled road network via Burnett Highway.		
		A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.		
PO17 The location, design and operation of a new or changed access is consistent with the future intent of the state-controlled road.	No acceptable outcome is prescribed.	PO17 Complies The Proposed Development is to be accessed from the state-controlled road network via Burnett Highway.		
		A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.		

Performance Outcomes	Acceptable Outcomes	Response
PO18 New or changed access is consistent with the access for the relevant limited access road policy: LAR 1 where direct access is prohibited; or LAR 2 where access may be permitted, subject to assessment.	No acceptable outcome is prescribed.	PO18 Complies The Proposed Development is to be accessed from the state-controlled road network via Burnett Highway. A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.
PO19 New or changed access to a local road within 100 metres of an intersection with a state-controlled road does not compromise the safety of users of the state-controlled road.	No acceptable outcome is prescribed.	PO19 Complies The Proposed Development is to be accessed from the state-controlled road network via Burnett Highway. A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.
PO20 New or changed access to a local road within 100 metres of an intersection with a state-controlled road does not adversely impact on the operating performance of the intersection.	No acceptable outcome is prescribed.	PO20 Complies The Proposed Development is to be accessed from the state-controlled road network via Burnett Highway. A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.

Performance Outcomes	Acceptable Outcomes	Response	
Public passenger transport and active trans	Public passenger transport and active transport		
PO21 Development does not compromise the safety of users of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	PO21 Complies Given the rural nature of the location of the Proposed Development, it is considered that the development will not compromise the safety of users of public passenger transport (refer to Appendix D).	
PO22 Development maintains the ability for people to access public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	PO22 Complies Given the rural nature of the location of the Proposed Development, it is considered that the development will not compromise the access of public passenger transport (refer to Appendix D).	
PO23 Development does not adversely impact the operating performance of public passenger transport infrastructure, public passenger services and active transport infrastructure.	No acceptable outcome is prescribed.	PO23 Complies Given the rural nature of the location of the Proposed Development, it is considered that the development will not compromise the operating performance of public passenger transport (refer to Appendix D).	
PO24 Development does not adversely impact the structural integrity or physical condition of public passenger transport infrastructure and active transport infrastructure.	No acceptable outcome is prescribed.	PO24 Complies Given the rural nature of the location of the Proposed Development, it is considered that the development will not compromise the structural integrity of public passenger transport (refer to Appendix D).	

TABLE 3 NETWORK IMPACTS

Performance Outcomes	Acceptable Outcomes	Response
PO25 Development does not compromise the safety of users of the state-controlled road network.	No acceptable outcome is prescribed.	PO25 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.
PO26 Development ensures no net worsening of the operating performance of the state-controlled road network.	No acceptable outcome is prescribed.	PO26 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.
PO27 Traffic movements are not directed onto a state-controlled road where they can be accommodated on the local road network.	No acceptable outcome is prescribed.	PO27 Complies A Traffic Impact Statement has been prepared as part of this Development Application (refer to Appendix D). The Traffic Impact Statement has concluded that the construction and operational traffic from the Proposed Development will not impact on the operating performance of the state—controlled road.
PO28 Development involving haulage exceeding 10,000 tonnes per year does not adversely impact the pavement of a statecontrolled road.	No acceptable outcome is prescribed.	PO28 Not Applicable The Proposed Development does not involve haulage exceeding 10,000 tonnes per year.
PO29 Development does not impede delivery of planned upgrades of state-controlled roads.	No acceptable outcome is prescribed.	PO29 Complies The Proposed Development does not impede on delivery of planned upgrades of state-controlled roads.

Performance Outcomes	Acceptable Outcomes	Response
PO30 Development does not impede delivery of corridor improvements located entirely within the state-controlled road corridor.	No acceptable outcome is prescribed.	PO30 Complies The Proposed Development does not impede delivery of corridor improvements for the state-controlled road.

TABLE 4 FILLING, EXCAVATION, BUILDING FOUNDATIONS AND RETAINING STRUCTURES

Performance Outcomes	Acceptable Outcomes	Response
PO31 Development does not create a safety hazard for users of the state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO31 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.
PO32 Development does not adversely impact the operating performance of the state-controlled road.	No acceptable outcome is prescribed.	PO32 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.
PO33 Development does not undermine, damage or cause subsidence of a state-controlled road.	No acceptable outcome is prescribed.	PO33 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.
PO34 Development does not cause ground water disturbance in a state-controlled road.	No acceptable outcome is prescribed.	PO34 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.
PO35 Excavation, boring, piling, blasting and fill compaction do not adversely impact the physical condition or structural integrity of a state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO35 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.
PO36 Filling and excavation associated with the construction of new or changed access do not compromise the operation or capacity of existing drainage infrastructure for a statecontrolled road.	No acceptable outcome is prescribed.	PO36 Not Applicable There is no filling, excavation, building foundations and retaining structures proposed for this development.

TABLE 5 ENVIRONMENTAL EMISSIONS

Performance Outcomes	Acceptable Outcomes	Response
Involving the creation of 5 or fewer new residential lots adjacent to a state-controlled road or type 1 multi-modal corridor		
PO37 Development minimises free field noise intrusion from a state-controlled road.	AO37.1 Development provides a noise barrier or earth mound which is designed, sited and constructed: to achieve the maximum free field acoustic levels in reference table 2 (item 2.1); in accordance with: Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020.	PO37 Not Applicable The Proposed Development is not for the creation of residential lots.
	OR	
	AO37.2 Development achieves the maximum free field acoustic levels in reference table 2 (item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	
	OR	
	AO37.3 Development provides a solid gap-free fence or other solid gap-free structure along the full extent of the boundary closest to the state-controlled road.	
Involving the creation of 6 or more new res	idential lots adjacent to a state-controlled r	oad or type 1 multi-modal corridor
PO38 Reconfiguring a lot minimises free field noise intrusion from a state-controlled road.	AO38.1 Development provides noise barrier or earth mound which is designed, sited and constructed:	PO38 Not Applicable The Proposed Development is not for the creation of residential lots.

Performance Outcomes	Acceptable Outcomes	Response
	to achieve the maximum free field acoustic levels in reference table 2 (item 2.1); in accordance with: Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR AO38.2 Development achieves the maximum free field acoustic levels in reference table 2	
	(item 2.1) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	
Material Change of Use (accommodation a	ctivity)	
Ground floor level requirements adjacent to a state-controlled road or type 1 multi-modal corridor		
PO39 Development minimises noise intrusion from a state-controlled road in private open space.	AO39.1 Development provides a noise barrier or earth mound which is designed, sited and constructed: to achieve the maximum free field acoustic	PO39 Not Applicable The Proposed Development is not for an accommodation activity.

to achieve the maximum free field acoustic levels in reference table 2 (item 2.2) for private open space at the ground floor level;

in accordance with:

Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;

Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020.

Performance Outcomes	Acceptable Outcomes	Response
	OR AO39.2 Development achieves the maximum free field acoustic level in reference table 2 (item 2.2) for private open space by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	
PO40 Development (excluding a relevant residential building or relocated building) minimises noise intrusion from a state-controlled road in habitable rooms at the facade.	AO40.1 Development (excluding a relevant residential building or relocated building) provides a noise barrier or earth mound which is designed, sited and constructed: to achieve the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms; in accordance with: Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020. OR AO40.2 Development (excluding a relevant residential building or relocated building) achieves the maximum building façade acoustic level in reference table 1 (item 1.1) for habitable rooms by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	PO40 Not Applicable The Proposed Development is not for an accommodation activity.
PO41 Habitable rooms (excluding a relevant residential building or relocated building) are	No acceptable outcome is provided.	PO41 Not Applicable

Performance Outcomes	Acceptable Outcomes	Response
designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).		The Proposed Development is not for an accommodation activity.
Above ground floor level requirements (according to the corridor of the corrid	commodation activity) adjacent to a state-co	entrolled road or type 1 multi-modal
PO42 Balconies, podiums, and roof decks include: a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); highly acoustically absorbent material treatment for the total area of the soffit above balconies, podiums, and roof decks.	No acceptable outcome is provided.	PO42 Not Applicable The Proposed Development is not for an accommodation activity.
PO43 Habitable rooms (excluding a relevant residential building or relocated building) are designed and constructed using materials to achieve the maximum internal acoustic level in reference table 3 (item 3.1).	No acceptable outcome is provided.	PO43 Not Applicable The Proposed Development is not for an accommodation activity.
Material change of use (other uses)		
Ground floor level requirements (childcare type 1 multi-modal corridor	centre, educational establishment, hospital)	adjacent to a state-controlled road or
PO44 Development: provides a noise barrier or earth mound that is designed, sited and constructed: to achieve the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas; in accordance with: Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013;	No acceptable outcome is provided.	PO44 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.

Performance Outcomes	Acceptable Outcomes	Response
Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020; or achieves the maximum free field acoustic level in reference table 2 (item 2.3) for all outdoor education areas and outdoor play areas by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.		
PO45 Development involving a childcare centre or educational establishment: provides a noise barrier or earth mound that is designed, sited and constructed: to achieve the maximum building facade acoustic level in reference table 1 (item 1.2); in accordance with: Chapter 7 integrated noise barrier design of the Transport Noise Management Code of Practice: Volume 1 (Road Traffic Noise), Department of Transport and Main Roads, 2013; Technical Specification-MRTS15 Noise Fences, Transport and Main Roads, 2019; Technical Specification-MRTS04 General Earthworks, Transport and Main Roads, 2020; or achieves the maximum building facade acoustic level in reference table 1 (item 1.2) by alternative noise attenuation measures where it is not practical to provide a noise barrier or earth mound.	No acceptable outcome is provided.	PO45 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.
PO46 Development involving: indoor education areas and indoor play areas; or sleeping rooms in a childcare centre; or	No acceptable outcome is provided.	PO46 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.

Performance Outcomes	Acceptable Outcomes	Response
patient care areas in a hospital achieves the maximum internal acoustic level in reference table 3 (items 3.2-3.4).		
Above ground floor level requirements (chi or type 1 multi-modal corridor	ldcare centre, educational establishment, ho	spital) adjacent to a state-controlled road
PO47 Development involving a childcare centre or educational establishment which have balconies, podiums or elevated outdoor play areas predicted to exceed the maximum free field acoustic level in reference table 2 (item 2.3) due to noise from a state-controlled road are provided with: a continuous solid gap-free structure or balustrade (excluding gaps required for drainage purposes to comply with the Building Code of Australia); highly acoustically absorbent material treatment for the total area of the soffit above balconies or elevated outdoor play areas.	No acceptable outcome is provided.	PO47 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.
PO48 Development including: indoor education areas and indoor play areas in a childcare centre or educational establishment; or sleeping rooms in a childcare centre; or patient care areas in a hospital located above ground level, is designed and constructed to achieve the maximum internal acoustic level in reference table 3 (items 3.2-3.4).	No acceptable outcome is provided.	PO48 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.
Air, light and vibration		
PO49 Private open space, outdoor education areas and outdoor play areas are protected from air quality impacts from a statecontrolled road.	AO49.1 Each dwelling or unit has access to a private open space which is shielded from a state-controlled road by a building, solid gapfree fence, or other solid gap-free structure. OR	PO49 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.

Performance Outcomes	Acceptable Outcomes	Response
	AO49.2 Each outdoor education area and outdoor play area is shielded from a state-controlled road by a building, solid gap-free fence, or other solid gap-free structure.	
PO50 Patient care areas within hospitals are protected from vibration impacts from a state-controlled road or type 1 multi-modal corridor.	AO50.1 Hospitals are designed and constructed to ensure vibration in the patient treatment area does not exceed a vibration dose value of 0.1m/s1.75.	PO50 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.
	AND	
	AO50.2 Hospitals are designed and constructed to ensure vibration in the ward of a patient care area does not exceed a vibration dose value of 0.4m/s1.75.	
PO51 Development is designed and sited to ensure light from infrastructure within, and from users of, a state-controlled road or type 1 multi-modal corridor, does not: intrude into buildings during night hours (10pm to 6am); create unreasonable disturbance during evening hours (6pm to 10pm).	No acceptable outcomes are prescribed.	PO51 Not Applicable The Proposed Development is not for a childcare centre, educational establishment or hospital.

TABLE 6 DEVELOPMENT IN A FUTURE STATE-CONTROLLED ROAD ENVIRONMENT

Performance Outcomes	Acceptable outcomes	Response
PO52 Development does not impede delivery of a future state-controlled road.	AO52.1 Development is not located in a future state-controlled road.	PO52 Not Applicable The Proposed Development is not in a future state-controlled road environment.
	OR ALL OF THE FOLLOWING APPLY:	
	AO52.2 Development does not involve filling and excavation of, or material changes to, a future state-controlled road.	
	AND	
	AO52.3 The intensification of lots does not occur within a future state-controlled road.	
	AND	
	AO52.4 Development does not result in the landlocking of parcels once a future state-controlled road is delivered.	
PO53 The location and design of new or changed access does not create a safety hazard for users of a future state-controlled road.	AO53.1 Development does not include new or changed access to a future state-controlled road.	PO53 Not Applicable The Proposed Development is not in a future state-controlled road environment.
PO54 Filling, excavation, building foundations and retaining structures do not undermine, damage or cause subsidence of a future statecontrolled road.	No acceptable outcome is prescribed.	PO54 Not Applicable The Proposed Development is not in a future state-controlled road environment.
PO55 Development does not result in a material worsening of stormwater, flooding, overland flow or drainage impacts in a future state-controlled road or road transport infrastructure.	No acceptable outcome is prescribed.	PO55 Not Applicable The Proposed Development is not in a future state-controlled road environment.
PO56 Development ensures that stormwater is lawfully discharged.	AO56.1 Development does not create any new points of discharge to a future state-controlled road.	PO56 Not Applicable The Proposed Development is not in a future state-controlled road environment.

Performance Outcomes	Acceptable outcomes	Response
	AND	
	AO56.2 Development does not concentrate flows to a future state-controlled road.	
	AND	
	AO56.3 Stormwater run-off is discharged to a lawful point of discharge.	
	AND	
	AO56.4 Development does not worsen the condition of an existing lawful point of discharge to the future state-controlled road.	

APPENDIX J COUNCIL CODES SPECIAL PURPOSE ZONE CODE

Performance Outcome	Acceptable Outcome	ERM Response
Where involving a new building or expansion to an existing building		
PO1 Development is of a height and scale that: 1. complements the scale of the locality; 2. maintains the residential amen in adjoining residential zones; 3. minimises overshadowing and overlooking of residential areas and 4. avoids impacts on the operationairspace of the Rockhampton Airport.	ground has a slope less than fifteen (15) per cent; and constant fifteen (2) storeys and ten (10) metres above ground level where	PO1 Not Applicable The Proposed Development is for a BESS and does not involve new building or expansion to an existing building within the special purpose zone.
PO2 Building setbacks contribute to an attractive <u>streetscape</u> and provide for landsca at the front of the <u>site</u> .	AO2.1 Buildings are set back from street frontages: 1. within twenty (20) per cent of the average front setback of adjoining buildings; or	PO2 Not Applicable The Proposed Development is for a BESS and does not involve new building or expansion to an existing building within the special purpose zone.

Performance Outcome	Acceptable Outcome	ERM Response
	 where there are no adjoining buildings a minimum of six (6) metres. 	
Development reflects the operational and functional needs of the use and provides design features when having regard to visibility of buildings to street frontages.	AO3.1 Except where a wall is built directly against another wall, all exterior walls are: 1. articulated so they do not exceed a length of fifteen (15) metres without a change in plane of at least 0.75 metre depth; or 2. painted with at least two colours, each of which covers at least ten (10) per cent of total exterior wall area; or 3. covered with at least two (2) different types of cladding material, each of which covers at least ten (10) per cent of total exterior wall area. AND AO3.2 Where applicable, the ancillary office space and sales areas of each building are sited on and oriented towards the primary street frontage.	PO3 Not Applicable The Proposed Development is for a BESS and does not involve new building or expansion to ar existing building within the special purpose zone
Where located in the Depot Hill precinct		
Where adjoining land in a residential zone or within proximity of an existing sensitive land use not located within an industrial or special purpose zone, development does not create adverse impacts by way of noise, light, dust, odour, hours of operation or unsightly activities.	AO4.1 Development where adjoining land in a residential zone or an existing sensitive land use not located within an industrial or special purpose zone is to ensure that the following is complied with:	PO4 Not Applicable The Proposed Development is not located within the Depot Hill precinct

Performance Outcome	Acceptable Outcome	ERM Response
	 buildings, plant and equipment, active outdoor use areas, servicing or outdoor storage areas are set back a minimum of five (5) metres from any boundary adjoining a residential zone; where sites have two (2) road frontages, access is from the frontage furthest away from the adjoining residential zone or sensitive land use; vehicular access is not located along a common boundary shared with a residential zone or sensitive land use; vehicles with a load greater than 4.5 tonne tare in weight do not exit or enter via an urban access; Editor's note— Urban access is shown on the road hierarchy overlay map. 	
	 vehicles with a load greater than 4.5 tonne tare in weight are limited in their operation to between the hours of 07:00 and 19:00 Monday to Saturday; noise generating activities, access, driveways and outdoor activities are not directly adjoining a residential zone or sensitive land use and are restricted to between the hours of 07:00 to 19:00 Monday to Saturday; and windows that have direct views into adjoining residential buildings 	

PO5	AO5.1	PO5 Not Applicable
Where located in the airport terminal sub-precinct		
	are provided with fixed screening that is a maximum of seventy-five (75) per cent transparent to obscure views into the adjoining residential building and maintain privacy for those residents.	
Performance Outcome	Acceptable Outcome	ERM Response

Development is of a height and scale that:

- 1. complements the scale of the locality;
- 2. maintains the residential amenity in adjoining residential zones; and
- 3. minimises overshadowing and overlooking of residential areas; and
- 4. avoids impacts on the operational airspace of the Rockhampton Airport.

The height of buildings and structures within the airport terminal sub-precinct does not exceed three (3) storeys and twelve (12) metres above ground level.

AND

AO5.2

Site cover does not exceed sixty (60) per cent of the total site area.

Note—Within the Rockhampton Airport precinct and sub-precincts, building heights on the airport obstacle limitation surface map OM-2A prevail over building heights detailed in the zone codes.

The Proposed Development is not located within the airport terminal sub-precinct.

Streetscape and landscaping

PO6

Landscaping and streetscaping is provided to:

- 1. enhance public streets and spaces;
- 2. create an attractive environment that is consistent with, and defines, the local character of the zone;
- 3. enhance the appearance of the development;

A06.1

Development includes a minimum landscaped area of ten (10) per cent of the total site area.

AND

A06.2

Where buildings are set back from the street, a landscape planting bed with a minimum

PO6 Not Applicable

The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require landscaping and streetscaping.

Performance Outcome	Acceptable Outcome	ERM Response
 4. screen components of developmen from adjoining sensitive land use(s and from the street; and 5. allow shading for pedestrian comfort 		
	AO6.3 For non-residential uses a two (2) metre wide vegetated <u>buffer</u> is provided to any vehicle movement and parking areas that adjoin a <u>sensitive land use</u> .	
	AND	
	AO6.4 For non-residential uses a 1.8 metres high solid screen fence is provided along side and rear property boundaries.	
	AND	
	AO6.5 Windows that have direct views into adjoining residential buildings in residential zones are provided with fixed screening that is a maximum of seventy-five (75) per cent transparent to obscure views into the adjoining residential building and maintain privacy for those residents.	
Land Use - Caretakers accommodation		
PO7 The development does not compromise the productivity of the use.	No more than one (1) <u>caretaker's</u> <u>accommodation</u> is established on the <u>site</u> .	PO7 Not Applicable The Proposed Development is for a BESS and does not involve caretaker's accommodation.

Performance Outcome	Acceptable Outcome	ERM Response
Effects of Development		
Outdoor lighting maintains the amenity of any adjoining residential zoned premises and does not adversely impact the safety of vehicles or pedestrians on the adjoining streets as a result of light emissions, either directly or by reflection.	AO8.1 Outdoor lighting is designed, installed and maintained in compliance with the parameters and requirements of the Australian Standard AS 4282 — Control of the obtrusive effects of outdoor lighting, as updated from time to time. AND AO8.2 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, as updated from time to time.	PO8 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require outdoor lighting within this zone.
PO9 Development provides for the appropriate storage, collection, treatment and disposal of liquid wastes or sources of contamination such that offsite releases of contaminants do not occur. All storage areas are screened from the streetscape and adjoining residential zones.	AO9.1 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: 1. being wholly enclosed in storage bins; or 2. a watering program so material	PO9 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require the storage, collection, treatment and disposal of liquid wastes or sources of contamination.

AND

A09.2

Roof water is piped away from areas of potential contamination.

can not become airborne.

Performance Outcome	Acceptable Outcome	ERM Response
	AO9.3 Outdoor storage areas are: 1. located behind the front building line; 2. screened from view from offsite public places; and 3. screened from adjoining sensitive land use(s) by a 1.8 metre high solid screen fence.	
Built form – additional provisions		
Buildings which are located in prominent positions such as corner sites or with frontages to public spaces are designed to express or emphasise the importance of their location.	AO10.1 The building's main entrance faces the public place. AND AO10.2 Buildings on corner sites provide active frontages to both street frontages and the main entrance faces the principal street or the street corner.	PO10 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require buildings.
PO11 The design of new buildings: 1. has vertical and horizontal articulation to create shadow and break up the built form, such as steps, recesses and splays; 2. has a roof form that creates visual interest, is not flat and can conceal plant equipment; 3. fits responsively into the streetscape;	No acceptable outcome is nominated.	PO11 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require buildings.

Performance Outcome	Acceptable Outcome	ERM Response
 accommodates local climatic conditions; creates an engaging, high quality built environment; and provide a continuous pedestrian friendly facade at a human scale. 		
PO12 Development avoids the creation of 'heat islands' such as large expanses of roofing and parking areas.	AO12.1 Hard surface areas are interspersed with spaces between buildings and car <u>park</u> areas, vegetated or covered with fabric sails	PO12 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require buildings.
PO13 Development facilitates the security of people and property having regard to: 1. opportunities for passive surveillance and sightlines; 2. exterior building design that promotes safety; 3. adequate lighting; 4. appropriate way finding mechanisms; 5. minimisation of entrapment locations; and 6. building entrances, loading and storage areas that are well lit and lockable after hours.	No acceptable outcome is nominated. Editor's note—Applicants should have regard to Crime Prevention Through Environmental Design Guidelines for Queensland.	PO13 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require buildings.
Effects of development		
PO14 Development is located and designed to respond sensitively to on- <u>site</u> and surrounding landscape and topography such that:	No acceptable outcome is nominated.	PO14 Complies The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and

Performance Outcome	Acceptable Outcome	ERM Response
 hazards to people or property are avoided; earthworks are minimised; the retention of natural drainage lines is maximised; the retention of existing vegetation is maximised; damage or disruption to sewer, stormwater and water infrastructure is avoided; and there is adequate buffering from locally significant natural features. 		appropriately responds to the surrounding landscape and topography. During the construction phase, erosion and sediment control will be managed as part of the Construction Environmental Management Plan.
PO15 Hours of operation of a non-residential use do not impact on the amenity or privacy of adjoining residential zones.	No acceptable outcome is nominated.	PO15 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility.
PO16 Development minimises impacts on surrounding land and provides for an appropriate level of amenity within the centre, having regard to: 1. noise; 2. hours of operation; 3. traffic; 4. visual impact; 5. signage; 6. odour and emissions; 7. lighting; 8. access to sunlight; 9. privacy; and 10. outlook.	No acceptable outcome is nominated.	PO16 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility.

Performance Outcome	Acceptable Outcome	ERM Response
PO17 On-site landscaping is provided to: 1. create an attractive environment that is consistent with, and defines, the local character of the zone; 2. soften and enhance the appearance of the development; and 3. provide shade for visitors and adjoining footpaths.	No acceptable outcome is nominated. Editor's note—A landscape concept plan may be required in accordance with SC6.12 — Landscape design and street trees planning scheme policy.	PO17 Not Applicable The infrastructure for the Proposed Development located within the Special Purpose zone is an underground transmission line to connect to the existing Powerlink substation facility and therefore will not require landscaping.
Where located in the Rockhampton Airport pred	inct	
PO18 Where development is within the Rockhampton Airport precinct, development which is ancillary to the primary use of the precinct and is designed and sited in a manner that is compatible with and supports the development of the precinct and sub- precincts for air services.	No acceptable outcome is nominated	PO18 Not Applicable The Proposed Development is not located within the Rockhampton Airport precinct.
PO19 Development primarily consists of commercial, retail or community related activities at ground level and, where they occur, residential uses above ground level.	No acceptable outcome is nominated	PO19 Not Applicable The Proposed Development is not located within the Rockhampton Airport precinct.
PO20 Development does not compromise the intended role or successful functioning of centres, and in the airport terminal sub-precinct, food and drink outlets, shops and offices do not exceed 250 square metres in gross floor area. Note—Large-scale office activities are to be consolidated into the principal centre – core precinct.	No acceptable outcome is nominated Note—Development involving an increase in gross floor area exceeding the nominated threshold is accompanied by an economic impact report which assesses the likely economic impacts on the principal centre and major centre. The report is to be in accordance with SC6.9 – Economic impact assessment planning scheme policy.	PO20 Not Applicable The Proposed Development is not located within the Rockhampton Airport precinct.

RURAL ZONE CODE		
Performance Outcomes	Acceptable Outcomes	ERM Response
Built Form		
PO1 Development does not adversely impact on the rural character of the locality, having regard to the scale and visibility of buildings.	AO1.1 The height of new buildings and structures does not exceed two (2) storeys and ten (10) metres above ground level, excluding silos, windmills and similar structures ancillary to rural uses. Note—Building heights on the airport obstacle limitation surface map OM-2A prevail over building heights detailed in the zone codes.	PO1 Complies The Proposed Development is for a BESS and will not adversely impact on the rural character of the locality and is located adjacent to an existing BESS and substation facility. Further to this, there exists a Development Approval (Council Reference D18-2017) over the Project Area for the construction and operation of a Solar Farm facility, and consequently will not adversely impact the surrounding landscape.
Aquaculture		
Aquaculture that is low impact in nature is located and designed on sites of sufficient size and dimension, to minimise adverse impacts on the amenity, water quality and ecological values.	AO2.21 Aquaculture activities using ponds or tanks that are less than or equal to ten (10) hectares in total water surface area are carried out in accordance with the Department of Agriculture and Fisheries accepted development requirements for material change of use that is aquaculture, as updated from time to time.	PO2 Not Applicable The Proposed Development is for a BESS and does not involve aquaculture.
Dwelling house and dwelling unit		,
PO3 Development does not compromise the continued operation of an <u>intensive animal</u>	AO3.1 Development: 1. is set back a minimum of twenty (20) metres	PO3 Not Applicable The Proposed Development is for a BESS and does not involve dwellings.

Development does not compromise the continued operation of an <u>intensive animal</u> <u>industry</u>, <u>extractive industry</u>, or a similar potential use on neighbouring rural land.

- 1. is set back a minimum of twenty (20) metres from all <u>site</u> boundaries; and
- 2. is separated from an existing or approved:
 - 1. <u>intensive animal industry</u> by a minimum of 1,000 metres; and
 - 1. <u>extractive</u> <u>industry</u> operation as follows:

Performance Outcomes	Acceptable Outcomes		ERM Response
	Operation	Separation distance	
	Extractive industry operation involving blasting	1,000 metres	
	A hard rock <u>extractive</u> <u>industry</u>	500 metres	
	A sand and gravel <u>extractive industry</u>	200 metres	
	A designated haul route	100 metres	
	AND		
	AO3.2 Where a secondary dwelling 1. is contained within to the secondary dwelling 2. is no more than eight floor area.		
PO4 Dwellings have adequate access to services to ensure the safety and well-being of residents and the water supply is adequate for the current and future needs of the development.	and 2. where w legal co water so Editor's note—A constructed gravel.	road can be sealed, graded or	PO4 Not Applicable The Proposed Development is for a BESS and does not involve dwellings.
	Editor's note—Where develop	oment is located outside of the	

Performance Outcomes	mance Outcomes Acceptable Outcomes	
	water supply area refer to the requirements under the Plumbing Code of Australia.	
Caretaker's accommodation		
PO5 The development does not compromise the productivity of the use.	AO5.1 No more than one (1) <u>caretaker's accommodation</u> is established on the <u>site</u> .	PO5 Not Applicable The Proposed Development is for a BESS and does not involve caretaker's accommodation.
A <u>caretaker's accommodation</u> has adequate access to services to ensure the safety and well-being of residents and the water supply is adequate for the current and future needs of the development.	AO6.1 A caretaker's accommodation: 1. has a legal access to a constructed road; and 2. where within a water supply area has a legal connection to Council's reticulated water supply. 1. Editor's note—A constructed road can be sealed, graded or gravel. Editor's note—Where development is located outside of the water supply area refer to the requirements under the Plumbing Code of Australia.	PO6 Not Applicable The Proposed Development is for a BESS and does not involve caretaker's accommodation
Home-based business		
PO7 Development for a home-based business is operated, designed and sited in a manner that: 1. is an appropriate scale and intensity; 2. is integrated with the primary use of the site for a dwelling house; 3. does not adversely affect the safety and private recreation needs of adjoining premises; 4. does not adversely affect the streetscape and street function; and	AO7.1 The home-based business has a maximum gross floor area of 100 square metres. AND AO7.2 The home-based business is carried out within an existing building or structure. Note—This does not include the parking of vehicles. AND	PO7 Not Applicable The Proposed Development is for a BESS and does not involve home-based business.

Performance Outcomes	Acceptable Outcomes	ERM Response
 does not compromise the character and amenity of the surrounding area by way of noise, light, dust, fumes, vibration, odour or storage of potentially hazardous materials. 	AO7.3 Hours of operation are between the hours of 07:00 and 19:00 Monday to Saturday and 08:00 and 19:00 Sunday and public holidays (except for a bed and breakfast accommodation or home-based child care).	
	AND	
	AO7.4 The <a href="https://www.new.new.new.new.new.new.new.new.new.</td><td></td></tr><tr><td></td><td>AND</td><td></td></tr><tr><td></td><td>AO7.5 A maximum of one (1) worker, not residing in the <u>dwelling</u> <u>house</u>, is employed in the <u>home-based business</u>.</td><td></td></tr><tr><th></th><th>AND</th><th></th></tr><tr><td></td><td>AO7.6 The <a href=" https:="" td="" www.news.news.news.news.news.news.news.n<=""><td></td>	
	AND	
	AO7.7 The home-based business where for bed and breakfast accommodation:	
	 the combined total number of guests and permanent residents does not exceed twelve (12) persons at any one time; and guests stay a maximum of fourteen (14) consecutive nights. 	
	AND	

Performance Outcomes	Acceptable Outcomes	ERM Response
	AO7.8 Goods or services for sale or hire are not displayed where they are visible from the street <u>frontage</u> or an adjoining residential premise. AND	
	A07.9 No more than one (1) commercial vehicle is associated with the business and the vehicle does not exceed a gross vehicle mass of 4.5 tonnes tare weight unless associated with a https://www.homes-based-business involving heavy vehicles.	
	Editor's note—Refer to provisions under additional outcomes for home-based business involving heavy vehicles.	
	AND	
	AO7.10 The	

Performance Outcomes	Acceptable Outcomes	ERM Response
light, dust, fumes, vibration, odour or storage of potentially hazardous materials.	AND AO8.2 Heavy vehicles and heavy trailers: 1. are not started or manoeuvred on site between the hours of 22:00 and 06:00, or left running unattended for any period up to five (5) minutes; 2. if used for the transport of cattle or waste disposal, are stored a minimum of 100 metres away from an adjoining dwelling; and 3. do not have a refrigeration unit running while on-site if within 100 metres of a sensitive land use on an adjoining lot. AND AO8.3 The business does not include the loading or unloading of vehicles or storage of goods. AND AO8.4 The site has direct access to a minor urban collector road or higher order road, but not to a state controlled road. AND AO8.5 Heavy vehicles are stored onsite and located a minimum distance of: 1. twenty (20) metres from the frontage; and 2. fifteen (15) metres from side and rear boundaries. AND AO8.6 Only minor maintenance is carried out on the property and does not involve major body work and mechanical repairs	
Roadside stall		
PO9 A <u>roadside stall</u> :	AO9.1 Any structure used for a <u>roadside stall</u> : 1. has a maximum floor area of twenty (20) square metres;	PO9 Not Applicable The Proposed Development is for a BESS and does not involve a roadside stall

Performance Outcomes	Acceptable Outcomes	ERM Response
 does not impact on the amenity of adjoining land uses and the surrounding area; does not adversely affect the safety and efficiency of the road network; is ancillary to the farming use conducted on the same site; and sells only fresh produce grown locally. 	 is located entirely within the property and not on the road reserve; and is set back from any boundary adjoining residential premises a minimum of six (6) metres. AND AO9.2 Site access, car parking and storage areas: are located entirely within the property and not on the road reserve; and use the same driveway as the primary property access. AND AO9.3 roadside stall is associated with a rural use conducted on the same site. 	
Rural worker's accommodation		
PO10 The amenity of the <u>rural workers'</u> <u>accommodation</u> is not adversely impacted upon and appropriately separated from intensive rural and industrial uses.	AO10.1 On- <u>site</u> cabins or dwellings housing workers are sited no closer than 250 metres to intensive rural uses and industrial uses.	PO10 Not Applicable The Proposed Development is for a BESS and does not involve a rural worker's accommodation.
PO11 The <u>rural workers' accommodation</u> has adequate access to services to ensure the safety and well-being of occupants and the water supply is adequate for the current and future needs of the development.	AO11.1 Rural workers' accommodation: 1. has a legal access to a constructed road; and 2. where within a water supply area has a legal connection to Council's reticulated water supply. Editor's note—A constructed road can be sealed, graded or gravel. Editor's note—Where development is located outside of the	PO10 Not Applicable The Proposed Development is for a BESS and does not involve a rural worker's accommodation.

Performance Outcomes	Acceptable Outcomes	ERM Response
	water supply area refer to the requirements under the Plumbing Code of Australia.	
Effects of development		
PO12 Outdoor lighting maintains the amenity of any adjoining residential zoned premises and does not adversely impact the safety of vehicles or pedestrians on the adjoining streets as a result of light emissions, either directly or by reflection.	AO12.1 Outdoor lighting is designed, installed and maintained in accordance with the parameters and requirements of the Australian Standard AS 4282 — Control of the obtrusive effects of outdoor lighting, as updated from time to time.	PO12 Complies The Proposed Development is for a BESS facility and any outdoor lighting required for the development will not adversely impact the safety of road users or pedestrians.
Where in the Alton Downs precinct Note—Where acceptable outcomes in this	s section vary from this code, the precinct based acceptable	e outcomes take precedence.
PO13 Residential uses are sufficiently separated from road frontages in order to protect the amenity of residents and to ensure the character of the area is maintained.	AO13.1 A dwelling house is setback a minimum of six (6) metres from front boundaries. Note—There is no specific setback to any other boundary.	PO13 Not Applicable The Proposed Development is not located within the Alton Downs precinct.
General		
PO14 Development that does not involve rural uses: 1. is located on the least productive parts of a site and not on land identified on the agricultural land	No acceptable outcome is nominated.	PO14 Complies The Proposed Development is for a BESS facility and is located adjacent to the existing Bouldercombe BESS facility and substation. Further to this, there exists a Development Approval (Council Reference D18-2017) over the Project Area for the construction and operation of a Solar Farm facility, and consequently will not adversely impact the surrounding landscape.
 classification (ALC) overlay maps; does not restrict the ongoing safe and efficient use of nearby rural uses; and is adequately separated or buffered where it is likely to be sensitive to the operational characteristics 		

Performance Outcomes	Acceptable Outcomes	ERM Response
associated with rural uses, rural industries or extractive industries.		
Editor's note—Agricultural land classified as Class A or Class B is shown on the <u>agricultural land classification</u> overlay map OM-13.		
Editor's note—Applicants should have regard to the <u>State Planning Policy - State Interest Guideline - Agriculture.</u>		
PO15 Uses that require isolation from urban areas are accommodated only where: 1. they cannot be more appropriately located in an industrial or other relevant zone; 2. they can be adequately separated from sensitive land use(s) (whether or not in the rural zone); and 3. potential impacts can be appropriately managed.	No acceptable outcome is nominated.	PO15 Complies The Proposed Development is for a BESS facility and is located adjacent to the existing Bouldercombe BESS facility and substation. Further to this, there exists a Development Approval (Council Reference D18-2017) over the Project Area for the construction and operation of a Solar Farm facility, and consequently will not adversely impact the surrounding landscape.
Editor's note—Applicants seeking approval for intensive animal industries are to refer to <u>State Planning Policy – State Interest Guideline – Agriculture</u> and consult with the relevant state government department prior to the lodgement of a development application. <u>Council</u> may require a study that, amongst other matters, identifies how the development is in accordance with <u>Environmental Protection (Air) Policy 2019</u> or <u>Environmental Protection (Noise) Policy 2019</u> .		

Performance Outcomes	Acceptable Outcomes	ERM Response
PO16 Ecological values, habitat corridors and soil and water quality are protected, having regard to: 1. maximisation of vegetation retention and protection of vegetation from the impacts of development; 2. avoidance of potential for erosion and minimisation of earthworks; 3. retention and protection of natural drainage lines and hydrological regimes; and 4. avoidance of leeching by nutrients, pesticides or other contaminants, or potential for salinity. Animal keeping – kennels or catteries	No acceptable outcome is nominated.	PO16 Complies The Proposed Development is located on land that is not categorised as ecologically important and does not involve works impacting on water and soil quality.
PO17 Animal keeping (being kennels or catteries) is sited, constructed and managed such that: 1. animals are securely housed; 2. the use does not create a nuisance beyond the site boundaries; and 3. the use does not create adverse environmental impacts.	AO17.1 Animal keeping (being kennels or catteries) is located on a site having a minimum site area of three (3) hectares. AND AO17.2 Animal enclosures are set back a minimum of 250 metres from any sensitive land use. AND AO17.3 Buildings used for animal keeping are: 1. constructed with impervious reinforced concrete floors; and 2. gravity drained to the effluent collection/treatment point.	PO17 Not Applicable The Proposed Development is for a BESS facility and does not involve animal keeping.

Performance Outcomes	Acceptable Outcomes		ERM Response
	AND A017.4		
	Animals are kept in fenced encinside buildings at all times being 07:00.		
	AND		
	AO17.5 A person who is responsible for operation of the development is premises at all times.		
	AND		
	AO17.6 Animal enclosures are set back resources as follows:	to roads, streets and water	
	Location	<u>Setback</u>	
	Road frontages	50 metres	
	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	100 metres	
	Top bank of dry or perennial gully	30 metres	

Aquaculture

PO18

<u>Aquaculture</u> is located and designed on sites of sufficient size and dimension, to minimise adverse impacts on the amenity, water quality and ecological values and existing fish habits.

AO18.1

<u>Aquaculture</u> activities using ponds or tanks that are greater than ten (10) hectares in total water surface area are carried out in accordance with <u>State Planning Policy – State</u> <u>Interest Guideline – Agriculture</u>, as updated from time to time.

PO18 Not Applicable

The Proposed Development is for a BESS facility and does not involve aquaculture.

Bulk landscape supplies, rural industry or wholesale nursery

PO19

Development is located on sites:

- of sufficient size, to minimise adverse impacts on the amenity of adjoining land, in particular noise, odour, light and dust emissions;
- 2. where the operation is within the safe and effective design capacity of the road system; and
- 3. where the operation does not impact upon water quality.

AO19.1

A minimum <u>site area</u> of two (2) hectares is required with at least fifteen (15) metre <u>setback</u> from any <u>adjoining premises</u>.

AND

AO19.2

Sales, storage, handling, packaging and production areas are set back a minimum of:

- 1. 100 metres from any <u>dwelling</u> on surrounding land;
- fifty (50) metres from state controlled roads and twenty (20) metres from all other roads; and
- 3. thirty (30) metres from top bank of creek, river, stream or <u>wetland</u> edge of well, bore, dam, weir, or intake that provides potable water.

AND

A019.3

Infrastructure and material storage areas are confined to free draining areas and sites on slopes not exceeding ten (10) per cent.

AND

PO19 Not Applicable

The Proposed Development is for a BESS facility and does not involve bulk landscape supplies, rural industry or wholesale nursey.

Performance Outcomes	Acceptable Outcomes	ERM Response
	AO19.4 There is direct access to a minor urban collector or higher order road.	
Intensive animal industry		
Intensive animal industry uses are sited, constructed and managed such that: 1. animals are securely housed; 2. the use does not create a nuisance on adjoining sensitive land use(s); 3. buildings used for intensive animal industry are constructed with floors, that are gravity drained to the effluent collection/treatment point; 4. animal proof fencing or other appropriate barrier feature is provided of an appropriate height within the site to prevent the escape of animals; and 5. a person who is responsible for the supervision of the operation of the development is accommodated on the premises at all times.	No acceptable outcome is nominated.	PO20 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive animal industry.
Editor's note—Applicants seeking approval for intensive animal industries are to refer to <u>State Planning Policy – State Interest</u> <u>Guideline – Agriculture</u> and consult with the relevant State government department prior to the lodgement of a development application. <u>Council</u> may require a study that, amongst other matters, identifies how the development is in accordance with <u>Environmental Protection (Air) Policy</u>		

Performance Outcomes	Acceptable Outcomes	ERM Response
2019 or Environmental Protection (Noise) Policy 2019.		
PO21 Intensive animal industry does do not detract from the amenity of a nearby sensitive land use and community related activities and are not visible from any road or other public view point.	No acceptable outcome is nominated.	PO21 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive animal industry.
PO22 Intensive animal industry is not located within: 1. a declared catchment area; or 2. a declared groundwater area.	No acceptable outcome is nominated.	PO22 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive animal industry.
PO23 Intensive animal industry has suitable access to road or rail infrastructure via a sealed road to an access point with a state controlled road.	No acceptable outcome is nominated.	PO23 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive animal industry.
Intensive horticulture		
The region's water quality is protected from the inflow of waste water or run-off from intensive horticulture activities. Waste water or run-off from intensive horticulture: 1. is contained and treated so that nutrients and sediments can be removed from the water; 2. where possible, treated water is re-used; and (c) waste water is only disposed of when acceptable nutrient levels are achieved.	No acceptable outcome is nominated.	PO24 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive horticulture.

Performance Outcomes	Acceptable Outcomes	ERM Response
Editor's note—Applicants should have regard to the State Planning Policy Guideline – State Interest – Agriculture. Editor's note—The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 applies to intensive horticultural uses.		
PO25 Intensive horticulture activities are not located within: 1. a declared catchment area; or 2. a declared groundwater area.	No acceptable outcome is nominated.	PO25 Not Applicable The Proposed Development is for a BESS facility and does not involve intensive horticulture.
Outdoor sport and recreation or commu	nity use	
PO26 Development is provided primarily to service the needs of the surrounding rural area or is inappropriate in urban areas (as a result of amenity impacts or land area requirements). The development is located and designed to: 1. minimise adverse impacts on the agricultural productive capacity of the site and the locality; 2. minimise impacts on the amenity of the locality, in particular noise (including limiting the hours of operation), odour, light and dust emissions; and 3. operate within the safe and effective design capacity of the region's road system.	No acceptable outcome is nominated.	PO26 Complies The Proposed Development is for a BESS facility and would be inappropriate in an urban area. The Proposed Development has been designed and located to minimise adverse impacts to the rural amenity and agricultural capacity of the land and surrounding region. Desktop analysis of the site shows the Project Area is not utilised for cropping purposes, with vegetation on site being highly disturbed due to historic use for cattle grazing. Further to this, there exists a Development Approval (Council Reference D18-2017) over the Project Area for the construction and operation of a Solar Farm facility, thereby not further removing agricultural land.

Performance Outcomes	Acceptable Outcomes	ERM Response
Renewable energy facility – wind farms		
Wind farms are located, designed and operated to minimise impacts on the environment and residential amenity, having regard to such matters as shadow flicker, noise (including low frequency noise), avifauna, separation from dwellings and site boundaries and scenic amenity.	No acceptable outcome is nominated.	PO27 Not Applicable The Proposed Development is for a BESS facility and does not involve a wind farm facility.
Rural workers accommodation, farm sta	ay and tourism uses	
Tourism, short-term accommodation (farm stay), and rural workers' accommodation uses are: 1. associated with and compatible with rural production, natural resources and scenic landscape features in the immediate vicinity; and 2. not located in areas identified on the agricultural land classification (ALC) overlay maps.	No acceptable outcome is nominated.	PO28 Not Applicable The Proposed Development is for a BESS facility and does not involve tourism, short term accommodation or rural workers accommodation.
Transport and freight uses		
PO29 Transport and freight uses, which do not meet the definition of a home based business involving (heavy vehicles), are not established in the rural zone.	No acceptable outcome is nominated.	PO29 Not Applicable The Proposed Development is for a BESS facility and does not involve freight for a home based business.
Effects of development		
PO30 Effective separation distances are provided to minimise conflicts with sensitive land use(s).	No acceptable outcome is nominated.	PO30 Complies The Proposed Development is for a BESS facility and is appropriately located away from sensitive land uses.

Performance Outcomes	Acceptable Outcomes	ERM Response
Editor's note—Where potential conflicts between agricultural and sensitive land uses may occur, applicants should refer to <u>State Planning Policy – State Interest Guideline – Agriculture</u> . Applicants should consult with the relevant state government department prior to the lodgement of a development application.		
PO31 Development does not unduly impact on the existing amenity and character of the locality having regard to: 1. the scale, siting and design of buildings and structures; 2. visibility of buildings and structures when viewed from roads and other public view points; and 3. any heritage places.	No acceptable outcome is nominated.	PO31 Complies The Proposed Development is for a BESS facility and will not impact on the existing amenity and character of the surrounding locality. Additionally, it is located adjacent to an existing BESS and substation facility on land previously approved for use as a Solar Farm facility (Council Reference D18-2017).
PO32 Development responds sensitively to onsite and surrounding topography, drainage patterns, utility services, access, vegetation and adjoining land uses, such that: 1. any hazards to people or property are avoided; 2. any earthworks are minimised; 3. the retention of natural drainage lines is maximised; 4. the retention of existing vegetation is maximised; 5. leeching by nutrients, pesticides or other contaminants, or potential for salinity is minimised;	No acceptable outcome is nominated.	PO32 Complies The Proposed Development is for a BESS facility and has been located to minimise potential impact to the surrounding locality. Additionally, it is located adjacent to an existing BESS and substation facility on land previously approved for use as a Solar Farm facility (Council Reference D18-2017).

Performance Outcomes	Acceptable Outcomes	ERM Response
6. damage or disruption to sewer, stormwater and water infrastructure is avoided; and7. there is adequate buffering, screening or separation to adjoining development.		
PO33 Development is designed and managed so that it provides appropriate protection for community safety and health and avoids <u>unacceptable risk</u> to life and property.	No acceptable outcome is nominated.	PO 33 Complies The Proposed Development has been designe and located in existing cleared land to minimise potential risk to life and property.
Reconfiguring a lot		
PO34 The further subdivision of land is limited to reflect the suitability of the land for primarily grazing purposes and to protect water quality, environmental and landscape values.	AO34.1 Unless otherwise stated in a precinct the minimum lot size is 100 hectares	PO34 Complies The reconfiguration of the lot is requested as a lease lot (exceeding 10 years) for the Project Area.
Where in the Alton Downs precinct Note—Where outcomes in this section vary f	from this code, the precinct based outcomes take precedence.	
PO35 Development: 1. is compatible with the residential amenity of the area and avoids impacts on surrounding dwellings; and 2. has adequate water supply and sewerage treatment and	No acceptable outcome is nominated.	PO35 Not Applicable The Proposed Development is not located within Alton Downs precinct.

Performance Outcomes	Acceptable Outcomes	ERM Response
PO36 The subdivision of land reflects the desired character of the area being smaller rural lots for primarily residential purposes.	AO36.1 The minimum lot size in the precinct is eight (8) hectares. AND AO36.2 Newly created lots must have access to a sealed road where sequential connection or integration with an existing sealed road can be achieved.	PO36 Not Applicable The Proposed Development is not located within the Alton Downs precinct.
Where in the <u>cropping</u> and <u>intensive hortic</u> Note—Where outcomes in this section vary	<u>culture</u> precinct from this code, the precinct based outcomes take precedence.	
PO37 Rural industries are established only where associated with rural production in the immediate vicinity.	No acceptable outcome is nominated.	PO37 Not Applicable The Proposed Development is not located within the cropping and intensive horticulture precinct.
PO38 The subdivision of land is limited to protect	AO38.1 The minimum lot size in the precinct is forty (40) hectares.	PO38 Not Applicable The Proposed Development is not located

within the cropping and intensive horticulture

precinct.

the ongoing viability and productivity of

existing and potential cropping and

horticulture uses.

RECONFIGURING A LOT CODE

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
Provisions applicable to a boundary realignme	nt only	
PO1 Boundary realignment does not contribute to: a. the fragmentation of land; and b. the potential to introduce uses or activities which conflict with the intent of the applicable zone for all or part of the <u>site</u> .	AO1.1 No additional lots are created by the realignment of boundaries. AND AO1.2 Boundary realignment is contained entirely within a single zone, precinct or sub-precinct.	PO1 Not Applicable The Proposed Development does not involve boundary realignment only.
PO2 Boundary realignment results in all lots being connected to appropriate infrastructure or services.	AO2.1 All infrastructure connections and services are provided within the sites they serve. Editor's note—This may require relocation of existing infrastructure connections.	PO2 Not Applicable The Proposed Development does not involve boundary realignment only.
PO3 Boundary realignment results in lots with the appropriate size, dimensions and road access to accommodate uses consistent with the zone, precinct or sub-precinct.	AO3.1 The size of the resulting lots complies with Table 9.3.5.3.2 — Minimum lot sizes and dimensions.	PO3 Not Applicable The Proposed Development does not involve boundary realignment only.
Provisions applicable to all other reconfiguring	a lot applications	
Lot design – general		
PO4 Lot reconfiguration is integrated with the surrounding natural, urban and rural environment, having regard to: a. the layout, access and dimensions of streets and lots;	No acceptable outcome is nominated.	PO4 Complies The Proposed Development is for a BESS facility and is located adjacent to the existing Bouldercombe BESS and Substation facility. The lot reconfiguration is requested as a lease lot (exceeding 10 years).

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
 b. connections to surrounding streets and pedestrian and cycle networks and other infrastructure networks; c. provision for shared use of public facilities; d. open space networks, retained habitat areas or corridors, landscape features and views and vistas; and e. connections to centres. 		
Lot layout and movement network design protects areas with significant values and generally: a. follows the natural topography, minimising earthworks and avoiding development on steep slopes; b. avoids crossing or otherwise fragmenting waterways, wetlands, habitat areas or ecological corridors; c. maintains natural drainage features and hydrological regimes; and d. retains key site characteristics, landmarks, views and vistas and places of cultural heritage significance.	No acceptable outcome is nominated.	PO5 Complies The Proposed Development is for a BESS facility and is located adjacent to the existing Bouldercombe BESS and Substation facility. e lot reconfiguration is requested as a lease lot (exceeding 10 years). Additionally, the Project is cited on previously cleared agricultural land and does not contain significant values, being previously approved for the construction and operation of a solar farm facility (Council reference D18-2017).
PO6 Street blocks are: a. rectilinear and arranged to provide an efficient neighbourhood pattern that supports walking, cycling and public transport use; and b. Laid out in a grid pattern taking account of topography and minimising cut and fill on steeper land. Editor's note—Smaller to sizes (below minimum lot	alternative. Where provided, a cul-de-sac: a. is less than or equal to eighty (80)	PO6 Not Applicable The Proposed Development is for a BESS facility and does not involve street blocks.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
size nominated in <u>Table 9.3.5.3.2</u>) may be considered to the grid pattern layout. Editor's note— <u>Figure 9.3.5.3.1a</u> provides a subdivision design that achieves this performance outcome.	 b. is straight, with a clear view from the start of the street to the turning head; and c. provides a pedestrian connection from the head of the cul-de-sac to another road with a minimum width of ten (10) metres 	
Lot size and dimension		
Lots have a regular shape and consistent dimensions to facilitate the efficient development of the land for its intended purpose, and have sufficient area to provide for: a. appropriate buildings and structures; b. adequate usable open space and landscaping; c. ventilation and sunlight; d. privacy for residents; e. suitable vehicle access and onsite parking where required; and f. any required on-site services and infrastructure such as effluent disposal areas	AO7.1 The dimensions and minimum areas of lots are in accordance with Table 9.3.5.3.2 — Minimum lot sizes and dimensions.	PO7 Complies The Proposed Development will maintain a regular lot shape and is of consistent dimensions to facilitate the development of the proposed BESS facility.
PO8 Rear lots are only created where: a. the lots are not to prejudice future subdivisions or development of adjoining land; b. it is not practicable for the site to be reconfigured so that all lots have full frontage to the road;	AO8.1 Only one (1) rear lot is provided behind each standard lot. AND AO8.2 No more than two (2) access driveways are located together. AND	POS Not Applicable The Proposed Development does not involve the creation of rear lots.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
 c. the siting of buildings is not likely to be detrimental to the use and amenity of the surrounding area; d. sufficient width is provided for access for the use of the lot; and e. infrastructure services to the lot can be easily constructed, monitored and maintained. 	AO8.3 No more than two (2) rear lots gain access from the head of a cul-de-sac. AND AO8.4 An access strip for a rear lot is in accordance with Table 9.3.5.3.2 — Minimum lot sizes and dimensions. AND AO8.5 In a residential category zone, a rear lot is capable of containing a building envelope of fourteen (14) metres by twenty (20) metres.	
Additional requirements in the low density residevelopment	idential zone and in the emerging community zo	one when reconfiguring land for residential
PO9 Reconfiguration provides for the development of a range and mix of lot sizes to facilitate a range of housing choices and the creation of walkable	AO9.1 In a development which results in the creation of ten (10) or more lots, at least twenty (20) per cent of the lots are smaller than 450 square	PO9 Not Applicable The Proposed Development is for a BESS facility and does not involve residential development.

neighbourhoods in accordance with the intent of the relevant zone.

Editor's note—Smaller lot sizes (below the minimum lot size nominated in Table 9.3.5.3.2) may be considered.

metres.

Editor's note—For all lots smaller than 450 square metres, and on land steeper than ten (10) per cent, a plan is submitted demonstrating that future development can comply with Queensland Development Code: Part 1, MP 1.1 — Design and siting standard for single detached housing – on lots under 450 square metres.

AND

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	AO9.3 Where a row of small lots are located in a development: a. there are no more than eight narrow frontage (less than fifteen (15) metres) lots in a row; and b. attached (terrace or row) housing lots are arranged in groups of four (4) to six (6) to enable group housing construction and integrated streetscape.	
PO10 Reconfiguring in the emerging community zone does not compromise the future development potential of the area for urban purposes.	AO10.1 Reconfiguring below the minimum lot size specified in Table 9.3.5.3.2 — Minimum lot sizes and dimensions is undertaken only to facilitate new urban development and only in accordance with an approved structure plan prepared in accordance with SC6.19 — Structure plan planning scheme policy.	PO10 Not Applicable The Proposed Development is not located within the emerging community zone.
Climatic response		
PO11 Street and lot orientation and lot size facilitate development that enhances climate responsiveness by minimising sun penetration and maximising cooling breezes into buildings by: a. optimising an east-west orientation for the long axis of street blocks or where north-south street orientation is unavoidable, proportioning lots to allow for appropriate building orientation; b. creating lots that are generally rectangular in shape; c. avoiding concentration of small lots where perpendicular to natural air flows	No acceptable outcome is nominated.	PO11 Not Applicable The Proposed Development does not involve building work.

erformance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
such as south-east prevailing winds; and d. locating built to boundary walls, where they are proposed, on the west-southwest boundary of lots except where these boundaries are on the higher side of a sloping lot.		

Table 9.3.5.3.1 Development outcomes for assessable deve	opment (part)
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Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring	a lot applications	
Development near infrastructure corridors		
PO12 Reconfiguration within 100 metres of any trunk gas pipeline does not: 1. affect the long-term operation of the pipe line; or 2. put at risk the safety and lives of people; or 3. put at risk the safety of property.	AO12.1 No additional lots are created within 100 metres of any trunk gas pipeline.	PO12 Not Applicable The Proposed Development is not within 100 metres of any trunk gas pipeline.
PO13 Lots are designed and oriented to: 1. minimise the visual exposure of electricity transmission lines; 2. facilitate a substantive vegetated buffer adjoining electricity transmission line easements; 3. ensure habitable buildings and recreation areas are well separated from electricity transmission line easements; 4. avoid compromising or adversely impacting upon the efficiency and integrity of the major electricity and bulk water supply infrastructure works; and 5. ensure that access requirements of major electricity and bulk water supply infrastructure are maintained.	Where on land that includes or adjoins a high voltage (above 11kV) electricity easement, lot design and layout incorporates: 1. a vegetated buffer along the boundary of the electricity transmission line easement; and 2. the orientation of the primary lot frontage away from the transmission line easement. AND AO13.2 Lots are designed and oriented to ensure that a habitable building or primary open space areas on each lot can comply with the separation distances set out in Table 9.3.5.3.3 — Separation distances to electricity transmission line easement.	P013 Complies The Proposed Development is for a BESS facility, does not involve habitable buildings and avoids adversely impacting adjacent major electricity infrastructure.

Performance outcomes	Acceptable outcomes	ERM Response
	AO13.3 Residential development including lots and buildings/structures are not located within an easement for, or an area otherwise affected by, a high voltage electricity transmission line as identified on the Regional Infrastructure Corridors Overlay Map OM-18.	
	AND	
	AO13.4 Major electricity or bulk water supply infrastructure traversing or within private land is protected by an easement in favour of the service provider for access and maintenance.	
PO14 Lots near a rail corridor or a regional arterial, sub- arterial or distributor road are of sufficient size and depth to ensure that noise attenuation measures can be facilitated to ensure that future dwellings are not exposed to road or rail noise greater than 63dB La10 (18 hours).	No acceptable outcome is nominated.	PO14 Not Applicable The Proposed Development is for a BESS facility and does not involve dwelling structures.
PO15 Reconfiguration does not result in lots being subject to adverse air quality or odour impacts. Editor's note—A report by a suitably qualified person may be required to allow an assessment to be made of the air quality or impacts.	No acceptable outcome is nominated.	PO15 Complies The Proposed Development is for a BESS facility and lot reconfiguration will not result in lots being subject to adverse air quality or odour impacts.

Infrastructure

Table 9.3.5.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring	g a lot applications	
Infrastructure		
PO16 Infrastructure, including roads and streets, water supply, stormwater drainage, sewage disposal, waste disposal, electricity and communication facilities are provided in a manner that: 1. is adequate for the projected needs of the development; 2. is adaptable to allow for future infrastructure upgrades; 3. minimises risk of adverse environmental or amenity related impacts; and 4. minimises whole of life cycle costs for that infrastructure.	No acceptable outcome is nominated. Editor's note—Services are provided in accordance with the desired standards of service in Part 4 of this planning scheme. Editor's note—All electrical reticulation in new developments or in new stages of existing developments must be underground unless agreed otherwise with Council.	PO16 Complies The Proposed Development is for a BESS facility, any infrastructure required to support the development is to be provided in a manner which is adequate for the projected needs of the BESS facility and minimises adverse impacts.
PO17 Reconfiguration of land in areas unable to be connected to the reticulated sewerage system results in sites that are each able to efficiently dispose of domestic effluent in a manner that: 1. minimises any potential adverse ecological impacts, particularly on any nearby sensitive receiving environments; 2. limits any health risks during a system failure; 3. ensures the water quality of existing and/or proposed water supplies remains unaffected;	AO17.1 The minimum size of a lot is 4,000 square metres in areas unable to be connected to the reticulated sewerage system.	PO17 Complies The proposed lease lot size for the Proposed Development is 16.65 ha.

Performance outcomes	Acceptable outcomes	ERM Response
 ensures the sustainable disposal of domestic effluent; and does not impose a higher than normal cost to future land owners of the site for the installation and maintenance of pipes, pumps, etcetera, and ensures that systems are easily able to be properly maintained. 		

Movement network design

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring	a lot applications	
Movement network design		
PO18 The street and road network has a clear structure, with roads that conform to their function in the network, having regard to: 1. convenient and safe movement between local streets and higher order roads; 2. traffic volumes, vehicle speeds and driver behaviour; 3. on street parking; 4. sight distance; 5. provision for public transport routes and stops; 6. permeability and connectivity for vehicles and pedestrians; 7. provision for pedestrian and cyclist movement, prioritising these where appropriate; 8. multiple access points to every neighbourhood; 9. provision for waste collection and emergency vehicles; 10. lot access; 11. convenience; 12. public safety; 13. amenity;	AO18.1 Roads and streets are designed in accordance with Capricorn Municipal Development Guidelines, SC6.15 — Road infrastructure and hierarchy planning scheme policy and SC6.19 — Structure plan planning scheme policy. AND AO18.2 No more than 200 lots are served by any one (1) road access point.	PO18 Not Applicable The Proposed Development does not involve the creation of new street or road networks.

	Acceptable outcomes	ERM Response
O19 ocal streets do not operate as through traffic outes for externally generated traffic (other than or pedestrians, cyclists and public transport).	No acceptable outcome is nominated.	PO19 Not Applicable The Proposed Development is located off the Burnett Highway and will not impact local streets
O20 /here lot reconfiguration involves the creation of new street (other than in a rural zone or the ural residential zone), streetscape and landscape reatments are provided that: 1. create an attractive and legible environment with a clear character and identity; 2. use and highlight features of the site such as views, vistas, existing vegetation, landmarks and places of cultural heritage significance; 3. enhance safety and comfort, and meet user needs; 4. complement the function of the street in which they are located by reinforcing desired traffic speed and behaviour; 5. assist integration with the surrounding environment; 6. maximise infiltration of stormwater runoff; and 7. minimise maintenance costs through: 1. street pavement, parking bays and speed control	policy; and 2. SC6.15 — Road infrastructure and hierarchy planning scheme policy;	PO20 Not Applicable The Proposed Development does not involve the creation of new streets.

Performance outcomes	Acceptable outcomes	ERM Response
 retention of existing vegetation; and on-street planting. 		
Dood doolon		

Road design

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring	g a lot applications	
Road design		
PO21 The geometric design features of each type of road: 1. convey its primary function for all relevant design vehicle types; 2. have an adequate horizontal and vertical alignment that is not conducive to excessive speeds; 3. encourage traffic speeds and volumes to levels commensurate with road hierarchy function; 4. ensure unhindered access by emergency and waste collection vehicles and buses; and 5. ensure safe access to lots.	AO21.1.1 Roads are designed in compliance with the Capricorn Municipal Development Guidelines. OR AO21.1.2 Within the rural residential zone new roads are constructed to a rural minor collector standard or higher. Note—A rural access road does not apply to new subdivisions within the rural residential zone regardless of the vehicles per day as identified by the Capricorn Municipal Development Guidelines Table D.1.21.01.	PO21 Not Applicable The Proposed Development does not involve the creation of new roads.
PO22 Intersections and road crossings for the safe and efficient movement of pedestrians and cyclists are provided at regular intervals.	No acceptable outcome is nominated.	PO22 Not Applicable The Proposed Development does not involve the creation of new roads.
PO23 Access to each lot is designed to minimise impacts on the function, vehicle speeds, safety, efficiency and capacity of streets and roads.	AO23.1 Access arrangements are consistent with the characteristics intended for the particular type of	PO23 Complies Access to the Proposed Development is off the Burnett Highway. A Traffic Impact Statement (Appendix B) has been completed for the

Performance outcomes	Acceptable outcomes	ERM Response
	road or street specified in the <u>Capricorn Municipal</u> <u>Development Guidelines</u> .	Proposed Development with minimal traffic impacts anticipated from the Proposed Development.

Table 9.3.5.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring	g a lot applications	
Pedestrian and cycle networks		
PO24 A network of pedestrian paths and cycle ways is provided which links open space networks, employment areas and community facilities, including public transport stops, centres and schools, and is designed having regard to: 1. topography; 2. cyclist and pedestrian safety; 3. cost effectiveness; 4. likely user volumes and types; 5. convenience; and 6. accessibility.	No acceptable outcome is nominated.	PO24 Not Applicable The Proposed Development does not involve the creation of pedestrian paths or cycle networks.
Editor's note—The bicycle network is to be in accordance with the <u>SC6.4 — Bicycle network planning scheme policy.</u>		
PO25 The alignment of pedestrian paths and cycle ways is designed so that they: 1. allow for the retention of trees and other significant features; 2. maximise the visual interest provided by views and landmarks where they exist; 3. are well lit and allow for casual surveillance; 4. do not compromise the operation of or access to other infrastructure services;	No acceptable outcome is nominated.	PO25 Not Applicable The Proposed Development does not involve the creation of pedestrian paths or cycle networks.

Performance outcomes	Acceptable outcomes	ERM Response
5. are widened at potential conflict points; and6. retain existing trees and other features that provide shade.		
Editor's note—The bicycle network is to be in accordance with the <u>SC6.4 — Bicycle network planning scheme policy.</u>		

Public transport

 Table 9.3.5.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring a lot applications		
Public transport		
PO26 The movement network caters for the extension of existing or future public transport routes to provide services that are convenient and accessible to the community.	AO26.1 Except in the rural zone and the rural residential zone, at least eighty (80) per cent of proposed lots are within 400 metres safe walking distance from an existing or potential bus route or 500 metres walking distance of an identified bus stop.	PO26 Not Applicable The Proposed Development is located within th rural zone.
PO27 Public transport stops are located and designed to: 1. ensure adequate sight distances are available to and for passing traffic; 2. be part of the pedestrian network and allow for safe pedestrian crossing; 3. provide shelter or shade, seats, adequate lighting and timetable information; 4. be in keeping with the character of the locality; 5. be able to be overlooked from nearby buildings where in urban areas; and 6. minimise adverse impacts on the amenity of nearby dwelling units.	No acceptable outcome is nominated.	PO27 Not Applicable The Proposed Development is located within th rural zone.

Open space

Performance outcomes	Acceptable outcomes	ERM Response
Provisions applicable to all other reconfiguring a lot applications		
Open space		
PO28 Neighbourhood design and lot layout provides a balanced variety of local <u>park</u> types, including:	AO28.1 Open space is provided in accordance with the rates and desired standards of service contained in SC6.14 — Local parks planning scheme policy.	PO28 Not Applicable The Proposed Development is for a BESS facility and does not involve neighbourhood design.
 small local parks, which are designed to: provide a small open space setting for adjoining dwellings; incorporate and retain existing natural features; and incorporate landscaping to assist in creating neighbourhood identity and way finding; neighbourhood parks, which are designed to: be centrally located; support the local community's recreational needs; and provide opportunities for community and special events; a lineal or corridor parks, which are designed to: connect with existing or planned open space in the locality; incorporate pedestrian and cycle paths; 		

Performance outcomes	Acceptable outcomes	ERM Response
 protect significant natural features; convey stormwater; and provide for other recreational needs when not flooded; natural parkland areas which: retain locally significant wetlands, regulated vegetation and habitat for fauna; continue ecological corridors and linkages to areas outside of the neighbourhood; and maintain important landscape and visual amenity values. 		
PO29 Neighbourhood design and lot layout provides for safe and secure, well distributed and located parkland that: 1. provides a clear relationship between the public realm and adjoining land uses through treatment including alignment, fencing and landscaping; 2. enhances the area's local identity and landscape amenity; 3. provides for a range of recreational opportunities to meet community needs; 4. forms a linkage to existing parkland or habitats;	No acceptable outcome is nominated.	PO29 Not Applicable The Proposed Development is for a BESS facility and does not involve neighbourhood design.

Performance outcomes	Acceptable outcomes	ERM Response
5. respects and retains existing natural elements; and6. protects biodiversity values and features.		
Note—The subdivision layout addresses the elements of crime prevention through environmental design described in the <u>Crime Prevention Through Environmental Design</u> (<u>CPTED</u>) Guidelines for Queensland.		

LANDSCAPE CODE

Performance outcomes	Acceptable outcomes	ERM Response
Design		
Landscaping is professionally designed and provides a suitably sized area to: 1. create an attractive visual addition to a building or place; 2. soften the built form; 3. provide a space for onsite recreation; and 4. enable landscaping to establish and thrive under the local conditions. Editor's note—Landscaped areas may include natural bushland, planted garden beds, grassed areas, vegetated courtyards and pedestrian paths.	AO1.1 Landscaping is provided in accordance with requirements in zone codes and SC6.12 — Landscape design and street trees planning scheme policy. Note—Where the outcomes vary, the zone code takes precedence. Editor's note—A landscaped plan, prepared by a competent landscape designer is required to meet this acceptable outcome.	PO1 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility.
PO2 Shade trees are provided in the landscaped areas to provide shade onto buildings, recreation areas, seating, car parking areas and the road <u>verge</u> .	No acceptable outcome is nominated.	PO2 Not Applicable No street trees are proposed as part of the development.
PO3 On-site stormwater harvesting is to be maximised with reuse measures and amelioration of stormwater impacts indicated.	AO3.1 Landscape design incorporates the flow of water along overland flow paths, but does not impede flow paths and watercourses. AND AO3.2 Landscaping maximises opportunities for onsite infiltration by:	PO3 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. Vegetation planting proposed will not impede on existing flow paths over the site.

1. minimising impervious surfaces and incorporating semi-permeable paving products; 2. falling hard surfaces towards pervious surfaces such as turf or mulched areas; 3. maximising the opportunity for turf and planting areas; 4. aligning planting areas parallel to contours to slow the flow of surface water; and 5. ensuring the planting palette comprises canopy tree species. A03.3 Provision for drainage is incorporated through treatments such as subsurface drains, swales, ponds, infiltration cells. A03.4 The landscape design incorporates sediment and erosion control measures. **PO4 Not Applicable** A04.1 The Proposed Development does not involve The landscape design complies with Australian Standard AS 1428 parts 1, 2, 3 and 4 — Design pedestrian paths and places. for access and mobility.

use. **PO5**

PO4

Landscaping is designed and maintained to minimise the potential for risk to personal safety and property, through:

Design of pedestrian paths and places reinforces

features to enhance their use and are of universal

the desired character of the area, and includes

design to ensure non-discriminatory access and

AO5.1

AND

AND

Planting is carried out in accordance with crime prevention through environmental design principles and incorporates:

PO5 Complies

A Landscape Concept plan has been prepared for the Proposed Development (refer to **Appendix G**) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the

- maximising casual surveillance of public spaces;
- 2. increasing opportunity for public interaction; and
- 3. minimising opportunity for concealment and criminal activity through environmental design principles.

- plants and trees that do not restrict casual surveillance of paths and landscaped spaces;
- 2. clear sight lines from private to public space;
- visually permeable screens and fencing;
- 4. lighting of landscaped areas;
- 5. public facilities (toilets, shelters etcetera) located to promote use;
- 6. dual access points to public spaces;
- 7. clearly defined public and private spaces;
- 8. measures to protect solid and blank walls from graffiti;
- 9. legible universal signage;
- 10. a selection of species that do not create nuisance and danger by way of thorns, toxins or a common source of allergies; and
- 11. plant species that do not exacerbate impacts such as bushfire or flash flooding.

Burnett Highway to provide visual screening of the BESS facility. Vegetation planting proposed will not impede result in adverse impacts for risk to personal safety and property. Additionally, the BESS facility will be fenced.

Species selection

Table 9.3.4.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Species selection		
P06 Landscaping design includes plant species that: 1. suit the local climatic conditions; 2. have low water usage needs or are provided with water harvested onsite; 3. include locally native species; 4. are of a suitable size and density to achieve the purposes of this code; and 5. complement the proposed development; 6. are not classified as a pest species or a noxious or invasive weed; 7. preserve existing vegetation where desirable and protect existing environmental values of the land; and 8. do not exacerbate bushfire or flood hazards.	Plant species are chosen from sources recommended in SC6.12 — Landscape design and street trees planning scheme policy. AND A06.2 Plant species do not include undesirable species as listed in SC6.12 — Landscape design and street trees planning scheme policy. A06.3 At least fifty (50) per cent of all new plantings are locally native species. AND A06.4 Plant species are compliant with any adopted planting or landscape design concept/theme for the local area. AND A06.5 Unless forming part of a landscaping concept approved by Council, planting is carried out to create a 'three-tier' landscaping treatment at the following minimum density rates: 1. trees at five (5) metre intervals;	PO6 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. An indicative native vegetation planting palette has been provided with the Landscape Concept Plan for use and consideration.

Performance outcomes	Acceptable outcomes	ERM Response
	 shrubs at two (2) metre intervals; and groundcovers at 0.5 metre to one (1) metre intervals. 	
	AND	
	AO6.6 Existing vegetation is retained and integrated into landscaping.	
	AND	
	AO6.7 The use of palms is avoided in proximity to overland flow paths and watercourses.	

Character and streetscaping

Table 9.3.4.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Character and streetscaping		
Where the development involves the creation of a new road, street-tree planting is undertaken which takes account of: 1. the hierarchy and function of the street; 2. the selection of appropriate species; 3. avoidance of conflict between the street tree and utilities and services within the road reserve; 4. soil conditions; 5. existing street trees; 6. solar access; and 7. driveway access.	AO7.1 Street tree planting is carried out in accordance with the requirements of SC6.12 — Landscape design and street trees planning scheme policy.	PO7 Not Applicable The Proposed Development does not involve the creation of a new road.
PO8 Vehicle safety is not adversely affected by the location of landscaped areas and/or landscape buffers.	AO8.1 For any <u>site</u> on a corner bounded by two or more road frontages, landscaping and fences higher than 1.2 metres are not located within the corner truncation illustrated in Figure 9.3.4.3.1a below:	PO8 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. The proposed planting will not adversely impact vehicle safety.

Performance outcomes	Acceptable outcomes	ERM Response
	ALLOTMENT ROAD Figure 9.3.4.3.1a — Height restriction for	
PO9 Landscape design is integrated with any existing urban design theme within the surrounding area and coordinates paving, planting, street furniture, lighting, signage and other elements to reflect that theme and assist in the creation of a sense of place.	No acceptable outcome is nominated.	PO9 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. The proposed planting palette incorporates native plants suitable to the surrounding amenity of the existing landscape.
PO10 Fencing (including walls) and acoustic barriers are designed to: 1. be compatible with the existing streetscape; 2. minimise adverse effects on the amenity of an adjoining property; and	AO10.1 Combined fencing and retaining walls do not exceed three (3) metres in height and require vertical articulation if taller than two (2) metres in height. AND AO10.2 Where acoustic fencing is required by the planning	PO10 Complies The Proposed Development will be fenced for safety and security purposes and will be in keeping with the rural amenity of the surrounding landscape. Additionally, the proposed fencing will be screened by the proposed vegetation buffer.

Performance outcomes	Acceptable outcomes	ERM Response
 complement, but not dominate, the development. 	scheme it is designed by an acoustic engineer and incorporates a minimum three (3) metre vegetated <u>buffer</u> (unless otherwise stated by the relevant zone code) with vegetation having a mature height equal to or above the height of the acoustic fencing.	

Car parking and internal access Table 9.3.4.3.1 Development outcomes for assessable development (part)

Performance	outcomes	Acceptable outcomes	ERM Response
Car parking a	Car parking and internal access		
street) are land 1. 2. 3. 4.	reduce their visual appearance;	AO11.1 Shade trees with a minimum height of two (2) metres are provided within car parking areas at the following rate: 1. in single sided, angle or parallel bays — one (1) tree per three (3) car parks; and 2. in double sided, angle or parallel bays — one (1) tree per six (6) car parks. Editor's Note—SC6.12 — Landscape design and street trees planning scheme policy sets out guidance on tree species and planting standards. AND AO11.2 Each shade tree is provided with a minimum planting area of 1.2 square metres with a minimum topsoil depth of 0.8 metres. AND	PO11 Not Applicable Given the temporary nature of the construction phase, shading for the informal carparking area has not been provided.

Performance outcomes	Acceptable outcomes	ERM Response
	AO11.3 Each shade tree has a clean trunk with a minimum height of two (2) metres.	
	AND	
	AO11.4 Planting bays incorporate ground covers less than one (1) metre in height that allow unobstructed surveillance.	
	AND	
	AO11.5 Trees within car parking areas are planted within a deep natural ground/structured soil garden bed, and are protected by wheel stops or bollards as required.	
	AND	
	AO11.6 Root control barriers are installed where invasive roots may cause damage to car parking areas, pedestrian paths and road carriageways.	

Utilities and other infrastructure

Table 9.3.4.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Utilities and other infrastructure		
PO12 The function, safety and accessibility of utilities and other infrastructure is not compromised by the location and type of landscaping including: 1. overhead wires and equipment; 2. underground pipes and cables; and 3. inspection chambers, transformers, poles and drainage infrastructure.	AO12.1 A minimum three (3) metre wide densely planted landscaped <u>buffer</u> is provided along the boundary adjoining the identified major electricity transmission corridor, including provision for advanced trees and shrubs that will grow to a minimum height of ten (10) metres. AND AO12.2 Root control barriers are installed where invasive roots may cause damage to car parking areas, pedestrian paths and road carriageways. AND AO12.4 The mature foliage of vegetation is not located within three (3) metres of an electrical <u>substation</u> boundary.	PO12 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. The vegetation proposed will reach a height of 5 metres and is not located near any overhead wires and equipment, underground pipes and cables or inspection chambers, transformers, poles and drainage infrastructure.
PO13 Landscape site planning and design must accommodate for maintenance access points and clearances with the following considerations: 1. access by appropriate maintenance or utility vehicles must be demonstrated with slope gradients and ground surface treatments that are stable and usable in all weather; 2. provide an appropriate turn around area for vehicles and secure access entrance; and	AO13.1 Maintenance access points and clearance must be provided in accordance with Capricorn Municipal Development Guidelines and Queensland Urban Drainage Manual. AND AO13.2 Landscape treatments to be constructed in accordance with SC6.12 — Landscape design and street tree planning policy.	PO13 Complies A Landscape Concept plan has been prepared for the Proposed Development (refer to Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility. The proposed planting has been designed to remain clear of the site access points for the Proposed Development.

Performance outcomes	Acceptable outcomes	ERM Response
 plant species mature height and habit must not interfere with or compromise underground or overhead utility assets, including storm inlet pits. 		

STORMWATER MANAGEMENT CODE

Performance outcomes	Acceptable outcomes	ERM Response
Stormwater management - General		
PO1 Development provides a stormwater management system which achieves the integrated management of stormwater to: 1. ensure that flooding impacts do not increase, including upstream or downstream of the development site; 2. avoid net worsening of stormwater peak discharges and runoff volumes; 3. utilises the use of water sensitive urban design principles; and 4. ensure the site maximizes opportunities for capture and reuse. Editor's note—A stormwater management plan	AO1.1 Development provides a stormwater management system which is designed in compliance with SC6.18— Stormwater management planning scheme policy, SC6.10 — Flood hazard planning scheme policy, Queensland Urban Drainage Manual, Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff. AND AO1.2 Stormwater is conveyed to a lawful point of discharge in accordance with the Queensland Urban Drainage Manual.	PO1 complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (Appendix F) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and minimizing adverse effects on the surrounding areas.
may be required to demonstrate compliance with the performance outcome.		
PO2 Development provides a stormwater management system which: 1. has sufficient capacity to safely convey run-off taking into account increased run-off from impervious surfaces and flooding in local catchments; 2. maximises the use of natural waterway corridors and natural channel design principles; and	AO2.1 Development provides a stormwater management system which is designed in compliance with SC6.18 — Stormwater management planning scheme policy, Queensland Urban Drainage Manual, Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff.	PO2 complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (Appendix F) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and

Performance	outcomes	Acceptable outcomes	ERM Response
3.	efficiently integrates with existing stormwater treatments upstream and downstream.		minimizing adverse effects on the surrounding areas.
of stormwater treatment faci 1.	minimise risk to people and property; provide for safe access and maintenance; and	AO3.1 Development provides for stormwater detention and water quality treatment facilities which are located outside of a waterway. AND AO3.2 Development provides for stormwater detention in accordance with SC6.18 — Stormwater management planning scheme policy, Queensland Urban Drainage Manual, Capricorn Municipal Development Guidelines and Australian Rainfall and Runoff. AND AO3.3 Development provides a stormwater quality treatment system which is designed in accordance with State Planning Policy - Water Quality.	PO3 complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (Appendix F) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and minimizing adverse effects on the surrounding areas.

2. Environmental values

Performance outcomes	Acceptable outcomes	ERM Response	
Environmental values	Environmental values		
PO4 Development and drainage works including stormwater channels, creek modification works, bridges, culverts and major drains, protect and enhance the environmental values of the waterway corridors and drainage paths and	AO4.1 Development ensures natural waterway corridors and drainage paths are retained. AND	PO4 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-	

permit terrestrial and aquatic fauna movement.

Editor's note—Compliance with the performance outcomes and acceptable outcomes should be demonstrated by the submission of a <u>site</u>-based stormwater management plan for development.

A04.2

Development incorporates the use of natural channel design principles in constructed components to maximise environmental benefits and <u>waterway</u> stability in accordance with the <u>Queensland Urban Drainage Manual</u>, <u>Capricorn Municipal Development Guidelines</u> and <u>Australian</u> Rainfall and Runoff.

AND

A04.3

Development provides stormwater outlets into waterways, creeks, wetlands and overland flow paths with energy dissipation to minimise scour in accordance with the <u>Queensland Urban Drainage Manual</u>, <u>Capricorn Municipal Development</u>
Guidelines and Australian Rainfall and Runoff.

construction decommissioning of facilities.
Additionally, a Site-based Stormwater
Management Plan (Appendix F) has been
prepared to understand flood behaviour across the
site. It was concluded that the Burnett Highway
will maintain flood immunity, with the overall
design effectively managing flood risk and
minimizing adverse effects on the surrounding
areas.

PO5

Development protects and enhances the environmental and water quality values of waterways, creeks and estuaries within or external to the <u>site</u>.

Editor's note—The <u>State Planning Policy</u> - <u>Guideline</u> - <u>Water Quality</u> and Section 9 of the <u>Environmental Protection Act 1994</u> define environmental values as 'a quality or physical characteristic of the environment that is conducive to ecological health or public amenity or safety.'

No acceptable outcome is nominated.

PO5 Complies

A Stormwater Assessment (**Appendix C**) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (**Appendix J**) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and minimizing adverse effects on the surrounding areas.

Overland flow path tenure

Performance outcomes	Acceptable outcomes	ERM Response	
Overland flow path	Overland flow path		
PO6 All overland flow paths are maintained under tenure arrangements that facilitate efficient infrastructure and enhance environmental sustainability.	No acceptable outcome is nominated.	PO6 Not Applicable The Proposed Development is not located in an overflow path.	
Editor's note—As a guide, <u>Council</u> prefers that the location of <u>Council</u> owned assets are contained within a road reserve, <u>drainage system</u> is contained within a road reserve, drainage easement, drainage reserve, public reserve, public pathway, <u>park</u> or <u>waterway</u> corridor.			

Detention Systems

Performance outcomes	Acceptable outcomes	ERM Response
Detention Systems		
PO7 Detention basins are designed, located and constructed on land solely dedicated for stormwater management.	A07.1 Detention basins are designed in accordance with SC6.18 Stormwater management planning scheme policy.	PO7 Not Applicable The Proposed Development does not involve detention basins.
PO8 Development ensures that location and design of stormwater detention and water quality treatment: 1. minimises risk to people and property; 2. provides for safe access and maintenance; and 3. minimises ecological impacts to creeks and waterways.	AO8.1 Development provides a stormwater management system designed in accordance with SC6.10 Flood hazard planning scheme policy and SC6.18 Stormwater management planning scheme policy.	PO8 Not Applicable The Proposed Development does not involve detention basins.
Property Pro	No acceptable outcome is nominated.	PO9 Not Applicable The Proposed Development does not involve detention basins.
PO10 Detention basins shall not be provided in locations that prevent easy access to or maintenance of the detention basin.	AO10.1 The location of detention basins are in accordance with SC6.18 Stormwater management planning scheme policy.	PO10 Not Applicable The Proposed Development does not involve detention basins.

Efficiency and whole of life cycle cost

Performance outcomes	Acceptable outcomes	ERM Response
Efficiency and whole of life cycle cost		
PO11 Development ensures that there is sufficient <u>site</u> <u>area</u> to accommodate an effective stormwater management system. Editor's note—Compliance with the performance outcome should be demonstrated by the submission of a <u>site</u> -based stormwater management plan for development.	No acceptable outcome is nominated.	PO11 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities.
PO12 Development provides for the orderly development of stormwater infrastructure within a catchment, having regard to the: 1. existing capacity of stormwater infrastructure within and external to the site, and any planned stormwater infrastructure upgrades; 2. safe management of stormwater discharge from existing and future upslope development; and 3. implications for adjacent and down-slope development.	No acceptable outcome is nominated.	PO12 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities.
PO13 Development provides proposed stormwater infrastructure which: 1. remains fit for purpose for the life of the development and maintains full functionality in the design storm event; and	No acceptable outcome is nominated.	PO13 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities.

Performance outcomes	Acceptable outcomes	ERM Response
can be safely accessed and maintained in a cost effective way.		

Erosion and sediment control

Performance outcomes	Acceptable outcomes	ERM Response
Erosion and sediment control		
PO14 Development ensures that all reasonable and practicable measures are taken to manage the impacts of erosion, turbidity and sedimentation, both within and external to the development site from construction activities, including vegetation clearing, earthworks, civil construction, installation of services, rehabilitation, revegetation and landscaping to protect: 1. the environmental values and	AO14.1 Erosion and sediment control plan is to be designed and implemented in accordance with the Capricorn Municipal Development Guidelines.	PO14 Complies The Proposed Development does not involve earthworks.
water quality objectives of waters; 2. <u>waterway</u> hydrology; and		
the maintenance and serviceability of stormwater infrastructure.		

Water quality within catchment areas Table 9.3.6.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Water quality within catchment areas		
For development proposals within the Fitzroy River sub-basin, relevant environmental values are recognised and enhanced, and relevant water quality objectives are addressed. Editor's note—Section 3.2 of Queensland Water Quality Guidelines 2009 identifies values for water quality for waters in the Central Coast Queensland region.	AO15.1 Development complies with the provisions of the State Planning Policy - Guideline - Water Quality. AND AO15.2 Development adjoining the full supply height above the Fitzroy River Barrage includes the provision of an effective buffer that assists in filtering runoff, including: 1. a buffer distance of 100 metres to the water supply height of the barrage which excludes cropping or grazing of a low intensity nature; and 2. fencing and water troughs installed on the land to prevent encroachment of animals within 100 metres of the full supply height above the barrage.	PO15 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (Appendix F) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and minimizing adverse effects on the surrounding areas. Furthermore it is recommended that once earthwork and pipe drainage designs are progress, the MUSIC model is updated to ensure Water Quality Objectives are maintained for the site.

Performance outcomes	Acceptable outcomes	ERM Response
Protecting water quality		
The development is compatible with the land use constraints of the site for: 1. achieving stormwater design objectives; and 2. avoiding or minimising the entry of contaminants into, and transport of contaminants in stormwater.	AO16.1 Development is undertaken in accordance with a stormwater management plan that: 1. incorporates stormwater quality control measures to achieve the design objectives set out in the State Planning Policy – Guideline – Water Quality; 2. provides for achievable stormwater quality treatment measures reflecting land use constraints, such as soil type, landscape features (including landform), nutrient hazardous areas, acid sulfate soil and rainfall erosion potential; and 3. accounts for development type, construction phase, local landscape, climatic conditions and design objectives. Editor's note—A stormwater management plan includes the design, construction, operation, maintenance of the stormwater system. Editor's note—SC6.18 — Stormwater management planning scheme policy provides guidance on preparing a stormwater quality management plan.	PO16 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities. Additionally, a Site-based Stormwater Management Plan (Appendix F) has been prepared to understand flood behaviour across the site. It was concluded that the Burnett Highway will maintain flood immunity, with the overall design effectively managing flood risk and minimizing adverse effects on the surrounding areas. Furthermore it is recommended that once earthwork and pipe drainage designs are progress, the MUSIC model is updated to ensure Water Quality Objectives are maintained for the site.

Protecting water quality in existing natural waterways

Table 9.3.6.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Protecting water quality in existing natural waterways		
PO17 The waterway is designed for stormwater flow management, stormwater quality management and the following end use purposes: 1. amenity including aesthetics, 2. landscaping and recreation; 3. flood management; 4. stormwater harvesting as part of an integrated water cycle management plan; 5. as a sustainable aquatic habitat; and 6. the protection of water environmental values.	No acceptable outcome is nominated.	PO17 Not Applicable The Proposed Development does not involve works within a waterway.
PO18 The waterway is located in a way that is compatible with existing tidal waterways.	AO18.1 Where the waterway is located adjacent to, or connected to, a tidal waterway by means of a weir, lock, pumping system or similar: 1. there is sufficient flushing or a tidal range of more than 0.3 metres; or 2. any tidal flow alteration does not adversely impact on the tidal waterway; or 3. there is no introduction of salt water into freshwater environments.	PO18 Not Applicable The Proposed Development does not involve works within a waterway.
PO19 The construction phase for the <u>waterway</u> is	AO19.1 Erosion and sediment control measures are incorporated during construction to achieve design	PO19 Not Applicable The Proposed Development does not involve works within a waterway.

Performance outcomes	Acceptable outcomes	ERM Response
compatible with protecting water environmental values in existing natural waterways.	objectives set out in <u>State Planning Policy -</u> <u>Guideline - Water Quality</u> .	
	Editor's note—Erosion and sediment control is to be designed and implemented in accordance with the International Erosion Control Association Best Practice Erosion and Sediment Control Guidelines.	
PO20 Stormwater overflows from the <u>waterway</u> do not result in lower water quality objectives in existing natural waterways.	AO20.1 Stormwater run-off entering non-tidal waterways is pre-treated prior to release in accordance with the guideline design objectives, water quality objectives of local waterways, and any relevant local area stormwater management plan.	PO20 Not Applicable The Proposed Development does not involve works within a waterway.

WATER AND SEWER CODE

 Table 9.3.8.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Water		
PO1 A water supply is provided that is adequate for the current and future needs of the intended development.	AO1.1 AO1.1.1 Where within a water supply planning area, the development is connected to Council's reticulated water supply system in accordance with SC6.21 — Water supply infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. Editor's note—Where development is located outside of the water supply planning area to refer to the requirements under the Plumbing Code of Australia.	PO1 Not applicable The Proposed Development will not be connected to reticulated water.
PO2 Reticulated water supply networks ensure that the installation is sustainable and minimises whole of life cycle costs.	Where within a <u>water supply planning area</u> , water supply systems and connections are designed and constructed in accordance with <u>SC6.21 — Water supply infrastructure planning scheme policy</u> and the <u>Capricorn Municipal Development Guidelines</u> . Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. AND	PO2 Not applicable The Proposed Development will not be connected to reticulated water.
	AO2.2 Where within a <u>water supply planning area</u> , staged	

Performance outcomes	Acceptable outcomes	ERM Response
	developments are connected to the water supply network and operational prior to the commencement of the use or endorsement of the survey plan.	

Sewer

Performance outcomes	Acceptable outcomes	ERM Response	
Sewer			
PO3 Sewerage treatment and disposal is provided that is appropriate for the level of demand generated, protects public health and avoids environmental harm.	AO3.1 Where within a sewer planning area, the development is connected to Council's reticulated waste water system in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. Editor's note—Where development is located	PO3 Not Applicable The Proposed Development will not be connected to sewage infrastructure. Sewage will be managed by a septic system.	
	outside of the sewer planning area to refer to the requirements under the <u>Plumbing Code of Australia</u> .		
PO4 Reticulated sewer networks ensure that the installation of infrastructure assets is sustainable and minimises whole of life cycle costs.	AO4.1 Where within a sewer planning area, waste water systems and connections are designed and constructed in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome. AND	PO4 Not Applicable The Proposed Development will not be connected to sewage infrastructure. Sewage will be managed by a septic system.	
	AO4.2 Where within a <u>sewer planning area</u> , staged developments are connected to the waste water		

Performance outcomes	Acceptable outcomes	ERM Response
	network and operational prior to the commencement of the use or endorsement of the survey plan.	

Point source waste water management Table 9.3.8.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response	
Point source waste water management	Point source waste water management		
PO5 The waste water management plan provides that waste water is managed in accordance with a waste management hierarchy that: 1. avoids waste water discharge to waterways; or 2. minimises waste water discharge to waterways by reuse, recycling, recovery and treatment for disposal to sewer, surface water and groundwater if it is agreed waste water discharge to waterways can not practically and reasonably be avoided.	AO5.1 A waste water management plan (WWMP) is prepared by a suitably qualified person. The waste water management plan accounts for: 1. waste water type; 2. climatic conditions; 3. water quality objectives; and 4. best practice environmental management.	PO5 Complies The Proposed Development will not be connected to sewage infrastructure. Wastewater will go to a land application area on site, requiring treatment to a secondary standard.	

ACCESS, PARKING AND TRANSPORT CODE

Table 9.3.1.3.1 Development outcomes for assessable development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Access driveways		·
PO1 Access driveways are located to avoid conflicts and designed to operate efficiently and safely, taking into account: 1. the size of the parking area; 2. the volume, frequency and type vehicle traffic; 3. the need for some land uses (for example hospitals) to accommodate emergency vehica access; 4. the type of use and the implications on parking and circulation, for example long-te or short-term car parking; 5. frontage road function and conditions; and 6. the capacity and function of the adjoining street system.	industrial or centres zone or ten (10) metres otherwise; and 3. one (1) metre of any street signage, power poles, street lights manholes, stormwater gully pits o other <u>Council</u> asset.	
PO2 Access driveways do not disrupt existing road of footpath infrastructure.	AO2.1 Access driveways: 1. do not require the modification, relocation or removal of any infrastructure including street trees, fire hydrants, water meters and street signs; 2. do not front a traffic island, speed control device, car parking bay, bus stop or other infrastructure within the road carriageway;	PO2 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project

Performance outcomes	Acceptable outcomes	ERM Response
	 must be sealed and to a formed road; are not constructed over an access point to equipment under the control of a regulatory authority, including storm water pits, water meters, hydrants and telephone pits; and are raised or lowered to match the surface level of the driveway, where an access chamber is to be incorporated within the driveway. 	
PO3 Access driveways are designed and constructed so as to: 1. enable safe and functional vehicular access from the street to the property; and 2. not cause a change in the level of a footpath.	AO3.1 Access driveways are constructed in compliance with the Capricorn Municipal Development Guidelines.	PO3 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project
PO4 A driveway does not allow water to pond adjacent to any buildings or cause water to enter a building.	AO4.1 A driveway has a minimum cross fall of one (1) metre (vertical) to 100 metres (horizontal) away from all adjoining buildings.	PO4 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project

Parking

Performance outcomes	Acceptable outcomes	ERM Response
Parking		
Provision is made for on-site vehicle parking: 1. to meet the demand likely to be generated by the development; and 2. to avoid on-street parking where that would adversely impact on the safety or capacity of the road network or unduly impact on local amenity. Editor's note—SC6.6 — Car parking contributions planning scheme policy prescribes circumstances under which an applicant can satisfy PO5.	AO5.1 AO5.1.1 On-site car parking is provided at the rates set out in Table 9.3.1.3.2 of the access, parking and transport code. OR AO5.1.2 Where a change of use of existing premises is proposed and there is no increase in the gross floor area, the existing number of on-site car parks is retained or increased. AND AO5.2 All parking, loading and manoeuvring facilities for visitors and employees to be located on-site. AND	PO5 Complies Given the size of the subject site, it can accommodate car parking during the construction and operational phase of the Project.
	AO5.3 Manoeuvring facilities to be of adequate dimensions to prevent any queuing in a roadway.	
PO6 Parking and servicing facilities are designed to meet user requirements.	AO6.1 Parking spaces, access and manoeuvring facilities, loading facilities and connections to the transport network are sealed and designed in accordance with Australian Standard AS 2890.	PO6 Complies Given the size of the subject site, it can accommodate car parking during the construction and operational phase of the Project.
PO7 Sites with more than one (1)	No acceptable outcome is nominated.	PO7 Not Applicable

Performance outcomes	Acceptable outcomes	ERM Response
road <u>frontage</u> (excluding laneways) gain access only from the lower order road, except if it will introduce traffic generated by a non-residential use into a street that is in a residential zone.		The Proposed Development does not contain more than one road frontage.
PO8 Parking areas are illuminated in a manner that maximises user safety but minimises the impacts on adjoining residents.	AO8.1 Parking areas for uses that operate at night are illuminated in accordance with the requirements of Australian Standard AS 1158. AND AO8.2 Lighting used in parking areas does not cause an environmental nuisance and complies with Australian Standard AS 4282.	PO8 Complies Given the nature of the Proposed Development illumination of parking areas is not proposed.
Car parking areas, pathways and other elements of the transport network are designed to enhance public safety by discouraging crime and antisocial behaviour, having regard to: 1. provision of opportunities for casual surveillance; 2. the use of fencing to define public and private spaces, whilst allowing for appropriate sightlines; 3. minimising potential concealment points and assault locations; 4. minimising opportunities for graffiti and other vandalism; and 5. restricting unlawful access to buildings and between buildings.	No acceptable outcome is nominated. Editor's note—Refer to <u>Crime Prevention Through Environmental Design (CPTED) guidelines for Queensland</u> for guidance.	PO9 Not Applicable The Proposed Development will be fenced for security and safety reasons. Public access to the site will not be available.
PO10 Parking and servicing areas are kept accessible	No acceptable outcome is nominated.	PO10 Complies

Performance outcomes	Acceptable outcomes	ERM Response
and available for their intended use at all times during the normal business hours of the activity.		Given the size of the subject site, there is sufficient room to accommodate vehicular movements.

Transport impact

Performance outcomes	Acceptable outcomes	ERM Response
Transport impact Editor's note—Applicants should note that the De	partment of Transport and Main Roads may have additio	nal requirements.
PO11 Development contributes to the creation of a transport network which is designed to: 1. achieve a high level of permeability and connectivity for all modes of transport, including pedestrians and cyclists, within t development and to the surrounding area; and 2. encourage people to walk, cycle use public transport to and from the site instead of using a car.		PO11 Complies A Traffic Impact Statement (Appendix B) was prepared to ensure the Proposed Development supports the surrounding road hierarchy.
PO12 Development is located on roads that are appropriate for the nature of traffic (including vehicles, pedestrians and cyclists) generated, having regard to the safety and efficiency of the transport network.	AO12.1 Traffic generated by the development is safely accommodated within the design capacity of roads as provided in SC6.15 — Road infrastructure and hierarchy planning scheme policy. AND	PO12 Complies A Traffic Impact Statement (Appendix B) was prepared to ensure the Proposed Development supports the surrounding road hierarchy.
	AO12.2 A road or street does not connect with another road or street that is more than two (2) levels higher or lower in the road hierarchy. AND AO12.3 The existing infrastructure fronting the proposed development is upgraded in accordance with SC6.15 — Road infrastructure and hierarchy	

Performance outcomes	Acceptable outcomes	ERM Response
	<u>planning scheme policy</u> and <u>Capricorn Municipal</u> <u>Development Guidelines</u> .	
PO13 Where the nature of the development creates a demand, provision is made for set down and pick-up facilities by bus, taxis or private vehicle, which: 1. are safe for pedestrians and vehicles; 2. are conveniently connected to the main component of the development by pedestrian pathway; and 3. provide for pedestrian priority and clear sightlines.	No acceptable outcome is nominated.	PO13 Not Applicable A Traffic Impact Statement (Appendix B) was prepared to support the development. Given the nature and location of the Proposed Development, no significant adverse traffic impacts are anticipated.

Site access

Performance outcomes	Acceptable outcomes	ERM Response
Site access		
PO14 Development does not impact on the safety, operation or function of the road network or system.	AO14.1 Vehicle manoeuvring into and from the <u>site</u> for all vehicles is designed in accordance with the <u>Australian Standard AS 2890</u> , as updated from time to time. AND	PO14 Complies A Traffic Impact Statement (Appendix B) was prepared to support the development. Given the nature and location of the Proposed Development, no significant adverse traffic impacts are anticipated.
	AO14.2 No direct property access is gained to a highway, main road, urban arterial or sub arterial road as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy other than via a service road or a joint access arrangement with other sites.	
	AND	
	AO14.3 Development that generates greater than 100 vehicle movements per day does not gain access to or from an urban access place or urban access streets as defined in SC6.15 — Road infrastructure and hierarchy planning scheme policy.	
PO15 Development facilitates the orderly provision and upgrading of the transport network or contributes to the construction of transport network improvements.	No acceptable outcome is nominated.	PO15 Not Applicable A Traffic Impact Statement (Appendix B) was prepared to support the development. Given the nature and location of the Proposed Development, no significant adverse traffic impacts are anticipated.

Performance outcomes	Acceptable outcomes	ERM Response
PO16 On- <u>site</u> transport network infrastructure integrates safely and effectively with surrounding networks.	AO16.1 Intersections, connections and access arrangements are designed in accordance with the Capricorn Municipal Development Guidelines and Australian Standard AS 2890.	PO16 Not Applicable Not on site transport network infrastructure is proposed as part of the development.

Pedestrian and cyclist facilities

Performance outcomes	Acceptable outcomes	ERM Response
Pedestrian and cyclist facilities		
PO17 Development provides safe and convenient pedestrian and cycle movement to the <u>site</u> and within the <u>site</u> having regard to desire lines, users' needs, safety and legibility.	AO17.1 Pedestrian and cyclist movement are designed in compliance with the Capricorn Municipal Development Guidelines and Australian Standard AS 2890 — Parking facilities.	PO17 Not Applicable The Proposed Development does not involve pedestrian or cyclist facilities.
PO18 Provision is made for adequate bicycle parking and end of trip facilities, to meet the likely needs of users and encourage cycle travel.	No acceptable outcome is nominated. Editor's note—Provisions are made for parking and end of trip facilities in accordance with the SC6.4 — Bicycle network planning scheme policy.	PO18 Not Applicable The Proposed Development does not involve pedestrian or cyclist facilities.

Servicing

Performance outcomes	Acceptable outcomes	ERM Response
Servicing		
PO19 Refuse collection vehicles are able to safely access on- <u>site</u> refuse collection facilities.	AO19.1 Refuse collection areas are provided and designed in accordance with the <u>waste management</u> code and <u>Australian Standard AS 2890</u> .	PO19 Complies A Traffic Impact Statement (Appendix B) was prepared to ensure the Proposed Development supports the surrounding road hierarchy.

WASTE MANAGEMENT CODE

Performance	outcomes	Acceptable outcomes	ERM Response
Design of was	ste storage areas		
PO1		AO1.1	PO1 Complies
For on-site was	te collection, waste storage areas	Waste storage areas are designed and maintained	The site office will be appropriately serviced;
are located and	d designed so that:	in accordance with <u>SC6.20 — Waste management</u> planning scheme policy.	however, the design will be subject to the detailed design phase of the Project.
1.	they are easily accessed and convenient to use;		
2.			
3.	sufficient height clearance is provided for the safe operation of both front and side bin lifting operations;		
4.	they are clear of car parking bays, loading bays and similar areas; and		
5.	they are clear of footpaths and pedestrian access.		

Kerbside waste servicing

Performance outcomes	Acceptable outcomes	ERM Response
Kerbside waste servicing		
PO2 Kerbside collection of waste containers ensures the safety and amenity of road and footpath users.	AO2.1 Waste bins are located on the footpath so that: 1. bins are located one (1) metre apart from other bins and obstructions; 2. all bins are accommodated within the street frontage of the site; 3. a clear pedestrian access way two (2) metres wide is retained; and 4. bins are capable of being serviced by the collection vehicle travelling forward, without having to reverse the vehicle.	PO2 Complies During the construction and operational phase of the Project, any waste generated will be managed by the relevant contractors. Waste vehicles are able to enter and exit from the site.
PO3 Waste storage minimises adverse impacts on adjoining properties.	AO3.1 Waste storage areas are: 1. integrated with the building design; or 2. set back a minimum of two (2) metres from any boundary; and 3. screened from neighbouring properties and the street by a fence of 1.8 metres minimum height; and 4. not located directly adjoining dwelling units on the site and on neighbouring properties. AND	PO3 Complies During the construction and operational phase of the Project, any waste generated will be managed by the relevant contractors.

Performance outcomes	Acceptable outcomes	ERM Response
	AO3.2 Waste bins are fitted with lids.	
 PO4 Waste storage areas: 1. have a level area on impermeable, durable materials so that they are easily cleaned; and 2. have adequate clearance between and around waste storage bins to allow for manoeuvring and washing of bins. 	No acceptable outcome is nominated.	PO4 Complies During the construction and operational phase of the Project, any waste generated will be managed by the relevant contractors.

Water management

Performance outcomes	Acceptable outcomes	ERM Response
Water management		
PO5 Waste storage areas are designed to separate stormwater and wash-down water.	AO5.1 Wash-down water drains to either the reticulated sewerage system or an on-site sewerage facility if not in a sewer area. AND AO5.2 Wash-down areas are: 1. provided with a tap and water supply; and 2. provided with a stormwater diversion valve and arrestor trap.	PO5 Complies Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities

WORKS CODE

Table 9.3.9.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Access driveways		
Access driveways are located to avoid conflicts and designed to operate efficiently and safely, taking into account: 1. the size of the parking area; 2. the volume, frequency and type of vehicle traffic; 3. the need for some land uses (for example hospitals) to accommodate emergency vehicle access; 4. the type of use and the implications on parking and circulation for example long-term or short-term car parking; 5. frontage road function and conditions; and 6. the capacity and function of the adjoining street system.	AO1.1 New access driveways are not located within: 1. twenty-five (25) metres of a signalised road intersection; 2. twenty (20) metres of an unsignalised road intersection in an industrial or centres zone or ten (10) metres otherwise; and 3. one (1) metre of any street signage, power poles, street lights, manholes, stormwater gully pits or other Council asset.	PO1 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project
PO2 Access driveways do not disrupt existing road or footpath infrastructure.	AO2.1 New access driveways: 1. do not require the modification, relocation or removal of any infrastructure including street trees, fire hydrants, water meters and street signs; 2. do not front a traffic island, speed control device, car parking bay, bus stop or other infrastructure within the road carriageway; must be sealed and to a formed road;	PO2 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project

Performance outcomes	Acceptable outcomes	ERM Response
	 are not constructed over an access point to equipment under the control of a regulatory authority, including stormwater pits, water meters, hydrants and telephone pits; and where an access chamber is to be incorporated within the driveway, are raised or lowered to match the surface level of the driveway are provided with a trafficable lid. 	
PO3 Access driveways and cross-falls within the verge are designed and constructed so as to: 1. enable safe and functional vehicular access from the street to the property; and 2. not cause a change in the level of a footpath.	AO3.1 New access driveways and cross-falls within the <u>verge</u> are constructed in compliance with the <u>Capricorn Municipal Development Guidelines</u> .	PO3 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project
PO4 An access driveway does not allow water to pond adjacent to any buildings or cause water to enter a building.	AO4.1 New access driveways have a minimum cross fall of one (1) metre (vertical) to 100 metres (horizontal) away from all adjoining buildings.	PO4 Complies A Traffic Impact Statement (Appendix B) has been prepared for the Proposed Development. The access configuration is provided in accordance with TMR Standard Drawing SP-02 'Property Access Main Roads AADT >2000vpd' and is consistent with access to the existing substation and Genex BESS directly south of the Project

Parking, access and transport

Table 9.3.9.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Parking, access and transport	·	
PO5 Provision is made for on-site vehicle parking: 1. to meet the demand likely to be generated by the development; and 2. to avoid on-street parking where that would adversely impact on to safety or capacity of the road network or unduly impact on local amenity. Editor's note—SC6.6 — Car parking contributions planning scheme policy prescribes circumstances under which an applicant can satisfy PO5.	AO5.1.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing number of on-site car parks is retained or increased.	PO5 Complies Given the size of the subject site, it can accommodate car parking during the construction and operational phase of the Project.
PO6 Car parking areas are designed to: 1. be clearly defined, marked and signed; 2. be convenient and accessible; 3. be safe for vehicles, pedestrians and cyclists; and 4. provide spaces which meet the needs of people with disabilities.	AO6.1.1 The car parking areas are sealed and designed in accordance with Australian Standard AS 2890, as updated from time to time. OR AO6.1.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing standard of on-site car parks is maintained or improved.	PO6 Complies Given the size of the subject site, it can accommodate car parking during the construction and operational phase of the Project.
PO7 Parking access arrangements are appropriate for 1. the capacity of the parking area;	A07.1 Parking access is provided in accordance with Australian Standard AS 2890, as updated from time to time.	PO7 Complies Given the size of the subject site, it can accommodate car parking during the construction and operational phase of the Project.

Performance outcomes	Acceptable outcomes	ERM Response
 the volume, frequency and type of vehicle usage; and the function and characteristics of the access road and adjoining road network. 	OR AO7.1.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing parking access is maintained or improved.	
PO8 Landscaping is provided to soften the visual impact of car parking areas and to provide shading.	AO8.1.1 Shade trees with a minimum height of two (2) metres are provided within car parking areas at the following rate: 1. in single sided, angle or parallel bays — one (1) tree per three (3) car parks; and 2. in double sided, angle or parallel bays — one (1) tree per six (6) car parks. Editor's note—SC6.12 — Landscaping design and street trees planning scheme policy provides sources for determining appropriate species and planting standards. OR AO8.1.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing standard of landscaping is maintained or improved.	POS Not Applicable Given the nature of the Proposed Development landscaping works are not proposed.
PO9 Provision is made for the on- <u>site</u> loading, unloading, manoeuvring and access by service	AO9.1 AO9.1.1 New development is designed to ensure service	PO9 Complies

Performance outcomes	Acceptable outcomes	ERM Response
vehicles that: 1. is adequate to meet the demands generated by the development; 2. is designed to accommodate service vehicle requirements; 3. is wholly contained within the site; and 4. does not unduly impede vehicular, cyclist and pedestrian safety and convenience within the site.	vehicles do not perform reversing movements onto public roads. AND AO9.1.2 Access and manoeuvring facilities, loading facilities and connections to the transport network are sealed and designed in accordance with Australian Standard AS 2890. OR AO9.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing provision for service vehicles is maintained or improved.	Given the size of the subject site, there is sufficient room to accommodate vehicular movements.
PO10 Development is located on roads that are appropriate for the nature of traffic (including vehicles, pedestrians and cyclists) generated, having regard to the safety and efficiency of the transport network.	AO10.1.1 The existing infrastructure fronting the proposed development is upgraded in accordance with SC6.15 — Road infrastructure and hierarchy planning scheme policy and Capricorn Municipal Development Guidelines. OR AO10.1.2 Where a change of use of existing premises is proposed and involves not more than minor building work, the existing infrastructure fronting the proposed development is maintained or improved.	PO10 Not Applicable A Traffic Impact Statement (Appendix B) was prepared to support the development. Given the nature and location of the Proposed Development, no significant adverse traffic impacts are anticipated.

Infrastructure

Table 9.3.9.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Infrastructure		
PO11 A water supply is provided that is adequate for the current and future needs of the development.	AO11.1 Where within a water supply planning area, the development is connected to Council's reticulated water supply system in accordance with SC6.21 — Water supply infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome.	PO11 Not applicable The Proposed Development will not be connected to reticulated water.
	Editor's note—Where development is located outside of the water supply planning area to refer to the requirements under the Plumbing Code of Australia.	
PO12 Reticulated water supply networks ensure that the installation is sustainable and minimises whole of life cycle costs.	Where within a water supply planning area, water supply systems and connections are designed and constructed in accordance with SC6.21 — Water supply infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome.	PO12 Not applicable The Proposed Development will not be connected to reticulated water.
	AND AO12.2 Where within a water supply planning area, staged developments are connected to the water supply network and operational, prior to the	

Performance outcomes	Acceptable outcomes	ERM Response
	commencement of the use or endorsement of the survey plan.	
PO13 Sewerage treatment and disposal is provided that is appropriate for the level of demand generated, protects public health and avoids environmental harm.	AO13.1 Where within a sewer planning area, the development is connected to Council's reticulated waste water system in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required	PO13 Not Applicable The Proposed Development will not be connected to sewage infrastructure. Sewage will be managed by a septic system.
	to demonstrate compliance with this acceptable outcome. Editor's note—Where development is located outside of the sewer planning area to refer to the requirements under the Plumbing Code of Australia.	
PO14 Reticulated sewer networks ensure that the installation of infrastructure assets is sustainable and minimises whole of life cycle costs.	Where within a sewer planning area, waste water systems and connections are designed and constructed in accordance with SC6.17 — Sewerage infrastructure planning scheme policy and the Capricorn Municipal Development Guidelines. Editor's note—A network analysis may be required to demonstrate compliance with this acceptable outcome.	PO14 Not Applicable The Proposed Development will not be connected to sewage infrastructure. Sewage will be managed by a septic system.
	AND	
	AO14.2 Where within a sewer planning area, staged developments are connected to the waste water network and operational prior to the	

Performance outcomes	Acceptable outcomes	ERM Response
	commencement of the use or endorsement of the survey plan.	
PO15 Development is located and designed in a manner that does not result in adverse flood affects to the <u>site</u> and on adjoining properties.	AO15.1 The development does not result in an increase in flood level, flood water velocity or flood duration on upstream, downstream or adjacent properties. AND	PO15 Complies A Stormwater Assessment (Appendix E) has been undertaken for the Proposed Development. Normal best practice stormwater designs and management measures are to be implemented during construction, operations and post-construction decommissioning of facilities.
	AO15.2 Roof and surface water is conveyed to the kerb and channel or an inter-allotment <u>drainage</u> system in accordance with <u>Australian Standard AS/NZ 3500.3.2</u> , and the <u>Queensland Urban Drainage Manual</u> as updated from time to time.	

Waste management

Table 9.3.9.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Waste management		
PO16 Provision is made for waste management that is appropriate to the use, protects the health and safety of people and the environment. Editor's note—Applicants should also be aware that	AO16.1 The development provides a bin container storage area that has a sealed pad and is screened to the height of the bins. AND	PO16 Complies During the construction and operational phase of the Project, any waste generated will be managed by the relevant contractors.
any provision for disposal of any trade waste is to be made in accordance <u>Council</u> 's Trade Waste Policy supporting the <u>Water Act 2000</u> , <u>Water Supply (Safety and Reliability) Act 2008</u> and the <u>Plumbing and Drainage Act 2018</u> .	AO16.2 On sites in an industrial zone that are greater than 2,000 square metres in area, provision is made for refuse collection vehicles to access the collection area and to enter and leave the site in a forward direction without having to make more than a three-point turn.	

Erosion and sediment control

Table 9.3.9.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	Acceptable outcomes	ERM Response
Erosion and sediment control		
PO17 Development ensures that all reasonable and practical measures are taken to manage the impact of erosion, turbidity and sedimentation, both within and external to the development <u>site</u> from construction activities, including vegetation clearing, earthworks, to protect water quality and environmental values.	AO17.1 AO17.1.1 Erosion and sediment control plan is to be designed and implemented in accordance with the Capricorn Municipal Development Guidelines. OR AO17.1.2 No filling or excavation is occurring on the site.	PO17 Complies During the construction phase, erosion and sediment control will be managed as part of the Construction Environmental Management Plan.

BUSHFIRE OVERLAY CODE

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
Access		
PO1 Development ensures that the location, siting, and design of development and associated driveways and access routes: e. avoid potential for entrapment during a bushfire; f. facilitate safe and efficient emergency services to access and egress the site during a bushfire; and g. enables safe evacuation of the site during a bushfire for site occupants.	AO1.1.1 Where the development is located in an urban area, the development: a. has direct access to a constructed, allweather, public road capable of carrying emergency service vehicles; b. has a maximum single access driveway length of sixty (60) metres from the street to the development; and c. access driveways have a maximum gradient of 12.5 per cent. OR AO1.1.2 Where the development is located in a non-urban area, the development: a. has direct access to a constructed, allweather, public road capable of carrying emergency service vehicles; b. is separated from hazardous vegetation by a public road or fire trail with a minimum width of four (4) metres and at least six (6) metres clear of vegetation, with a minimum of 4.8 metres vertical clearance and a maximum gradient of 12.5 per cent; and c. has: i. a maximum single access driveway length of sixty (60)	PO1 Complies The Proposed Development has been designed and aligned in already cleared areas and away from dense vegetation to avoid bushfire risk. Access to the site will be off Burnett Highway.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	metres from the street to the development; or ii. access driveways that are greater than sixty (60) metres from the street to the dwelling provide a turning circle with a minimum radius of eight (8) metres every sixty (60) metres	
Water supply for fire fighting purposes	_	
Development provides adequate and accessible water supply for fire fighting purposes which is safely located and freely accessible for fire fighting.	AO2.1.1 In a reticulated water supply area fire hydrants in: a. residential areas are above ground single outlet fire hydrants and provided at not less than eighty (80) metre intervals and at each street intersection; and Editor's note—To remove any doubt, these intervals also apply to common access ways within a common private title. b. commercial and industrial areas are above or below ground fire hydrants and provided at not less than ninety (90) metre intervals and at each street intersection. Above ground fire hydrants are to be fitted with dual valve outlets in these areas. Editor's note—Fire hydrants are designed and installed in accordance with Australian Standard 2419.1 Fire hydrant installations – system design, installation and commissioning, unless	PO2 Complies The Proposed Development will collect rainwater on site in storage tanks which would be freely accessible for fire fighting purposes.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
Performance Outcome (PO)	Acceptable Outcome (AO) specified by the relevant water entity. OR AO2.1.2 Where a reticulated water supply is not available or the development is not within eighty (80) metres of a hydrant, a water tank is provided within ten (10) metres of the building or structure, and the water tank has: a. a take-off connection from the building to the tank which is at a level that provides on-site water storage of not less than the water requirement outlined in Table 8.2.4.3.3; b. a hardstand area allowing heavy rigid fire appliance access within six (6) metres of a tank; and c. fire brigade tank fittings consisting of: i. for above ground tanks, A. fifty (50) millimetre ball valve and male camlock coupling; and B. above ground water pipe fittings that are metal; or ii. for underground tanks, an access hole of 200 millimetre diameter (minimum) to allow access for suction lines. Note—Plastic tanks are not recommended,	ERM's response
	Note—Plastic tanks are not recommended, however if they are fully submerged with above ground access points they are acceptable. Note—Where water tanks are required, swimming pools, creeks and dams should not be used as a substitute for a dedicated static supply as these	

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	sources of water are not reliable during drought conditions.	
Activities involving hazardous materials		
PO3 Public safety and the environment are not adversely affected by the impacts of bushfire on hazardous materials.	AO3.1 Development does not involve the manufacture or storage of hazardous materials within a bushfire hazard area. Editor's note—Refer to the Work Health and Safety Act 2011 and associated regulation, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.	PO3 Complies The Proposed Development has been designed and aligned in already cleared areas and away from dense vegetation to avoid bushfire risk.
Development within the high and very high be	ushfire hazard areas	
Avoiding the hazard		
PO4 The development is compatible with the level of risk associated with the bushfire hazard.	AO4.1 The development has a Bushfire Attack Level of less than 12.5. Editor's note—The Bushfire Attack Level is calculated in accordance with the methodology described in the Australian Standard AS 3959—Construction of buildings in bushfire prone areas.	PO4 Complies The Proposed Development has been designed and aligned in already cleared areas and away from dense vegetation to avoid bushfire risk. Additionally, a Bushfire Management Plan will be implemented for construction and decommissioning.
Land use		
PO5 Essential community infrastructure and community facilities are highly vulnerable development are located, designed and sited to:	AO5.1 The following uses are not located in high or very high bushfire hazard areas: 1. childcare centre; 2. detention facility;	PO 5 Not Applicable The Proposed Development is not located in very high or high bushfire hazard areas and does not involve essential community infrastructure of community facilities.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
 a. protect the safety of people during a bushfire; b. not increase the exposure of people to the risk from a bushfire event; c. minimise the risk to vulnerable populations; and d. ensure essential community infrastructure can function effectively during and immediately after bushfire events. 	 a. educational establishment; 4. emergency services; 5. hospital; 6. industrial use involving manufacture or storage of hazardous materials; 7. multiple dwelling; 8. outstation; 9. relocatable home park; 10. residential care facility; 11. retirement facility; 12. rooming accommodation; 13. shopping centre; 14. short-term accommodation; 15. telecommunications facility; 16. tourist park; 17. tourist attraction; 18. transport depot; and 19. utility installation. 	
Reconfiguring a lot		
General		
P06	A06.1	PO6 Complies
Where reconfiguration is undertaken a separation	In urban areas lots are separated from hazardous	The Proposed Development is located on

distance from hazardous vegetation is provided.

Editor's note—The preparation of a bushfire management plan in accordance with SC6.5 -Bushfire management planning scheme policy can assist in demonstrating compliance with this performance outcome.

vegetation by a distance:

- a. that achieves a Bushfire Attack Level of twenty-nine (29) or less at all boundaries; and
- b. is contained wholly within the development site.

OR

A06.2

In non-urban areas a <u>building envelope</u> of

solely Category X vegetation and is not located adjacent to vegetation identified as hazardous.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	reasonable dimensions is provided on each lot which achieves a Bushfire Attack Level of twentynine (29) or less at all boundaries Editor's note—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 developments, temporary separation distances, perimeter roads or fire trails may be absorbed as part of subsequent stages.	
PO7 In urban areas development includes a constructed perimeter road between the lots and hazardous vegetation with reticulated water supply. The access is available for both fire fighting and maintenance works.	AO7.1 In urban areas lot boundaries are separated from hazardous vegetation by a public road which: a. has a two lane sealed carriageway; b. contains a reticulated water supply; c. is connected to other public roads at both ends and at intervals of no more than 500 metres; d. accommodates geometry and turning radii in accordance with Queensland Fire and Emergency Services' Fire Hydrant and Vehicle Access Guidelines; e. has a minimum of 4.8 metres vertical clearance above the road; f. is designed to ensure hydrants and water access points are not located within parking bay allocations; and g. incorporates roll-over kerbing.	PO 7 Not Applicable The Proposed Development is not located within an urban area.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
PO8 In non-urban areas development includes a perimeter road or an all-weather fire access trail which is available for both fire fighting and maintenance/hazard reduction works	In non-urban areas the development includes a perimeter road or an all-weather fire access trail which: a. separates the development from the hazardous vegetation with a width of at least twenty (20) metres; b. with a minimum formed width of four (4) metres; c. a minimum of 4.8 metres vertical clearance above the road; d. has a turning circle with a minimum radius of eight (8) metres every sixty (60) metres; e. has adequate drainage and erosion control devices; f. has a gradient no greater than 12.5 per cent and a cross fall of no greater than ten (10) degrees; g. has access at each end of the perimeter road or the fire trail from a public road; h. has the access point signed and direction of travel identified; and i. has a suitable arrangement in place to ensure maintenance in perpetuity.	PO9 Complies The Proposed Development does not involve new public or private roads.
PO9 Road widths and construction within the development are adequate for fire emergency vehicles.	No acceptable outcome is nominated	PO9 Not Applicable The Proposed Development does not involve new public or private roads.
Emergency services access		
PO10 Development facilitates the safe and efficient	AO10.1 The development includes a perimeter road or a fire	PO10 Complies The Proposed Development includes the development of new site access off the

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
access and egress of emergency services during a bushfire event.	 a. separates the development from the hazardous vegetation; b. is a minimum of ten (10) metres in width, with a minimum formed width of four (4) metres; c. is a minimum of six (6) metres clear of standing flammable vegetation; d. has passing bays twenty (20) metres long by three (3) metres extra trail width, or turning facilities every 200 metres; e. has adequate drainage and erosion control devices; f. has a gradient no greater than 12.5 per cent and a cross fall of no greater than ten (10) degrees; g. has access at each end of the perimeter road or the fire trail from a public road; h. has the access point signed and direction of travel identified; and i. has suitable arrangements in place to ensure maintenance in perpetuity. 	Burnett Highway which would provide for appropriate access of emergency services during a bushfire event.
Avoiding the hazard		
PO11 Road widths and construction within the development are adequate for fire emergency vehicles to gain access to a safe working area close to dwellings and near water supplies whether or not on-street parking spaces are occupied.	AO11.1 Road access minimum clearances of 3.5 metres wide and 4.8 metres high are provided for safe passage of emergency vehicles. Editor's note—For further information on how to address the above criteria please see Queensland Fire and Emergency Service: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots.	PO11 Complies The Proposed Development includes the development of new site access off the Burnett Highway which would provide for appropriate access of emergency services during a bushfire event.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
PO12 Hydrants are suitably identified so that fire services can locate them at all hours.	Hydrants are identified as specified in Queensland Fire and Emergency Service: Fire hydrant and vehicle access guidelines for residential, commercial and industrial lots. Editor's note—Fire hydrants are designed and installed in accordance with Australian Standard 2419.1 Fire hydrant installations – system design, installation and commissioning, unless specified by the relevant water entity.	PO12 Complies The Proposed Development will contain storage water tanks for firefighting purposes.

STEEP LAND OVERLAY CODE

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
All development		
PO1 Development incorporates design measures for the development (including ancillary buildings, structures and swimming pools) to ensure: a. the long-term stability of the <u>site</u> considering the full nature and end use of the development; b. <u>site</u> stability during all phases of construction and development; c. people and property are protected from a potential landslide event; and d. adjoining properties are not impacted by a potential landslide event	No acceptable outcome is nominated. Editor's note—The preparation of a <u>site</u> specific geotechnical assessment or landslide risk assessment in accordance with <u>SC6.11</u> — <u>Geotechnical report planning scheme policy</u> can assist in demonstrating compliance with this acceptable outcome.	PO1 Complies The Proposed Development has been designed and located to avoid areas of steep land.
PO2 Vegetation clearing on <u>site</u> does not increase the risk of a landslide event occurring.	No acceptable outcome is nominated. Editor's note—The preparation of a <u>site</u> specific geotechnical assessment report or landslide risk assessment in accordance with <u>SC6.11</u> — <u>Geotechnical report planning scheme policy</u> can assist in demonstrating compliance with this acceptable outcome.	PO2 Not Applicable The Proposed Development does not involve vegetation clearing.
PO3 Development involving the manufacture or storage of hazardous materials in bulk is not at risk from a landslide event.	AO3.1 The manufacture or storage of hazardous materials in bulk does not occur within the steep land overlay area.	PO3 Not Applicable The Proposed Development does not involve the manufacture of hazardous materials. The proposed location for hazardous materials storage has been located outside of the areas marked as steep land overlay.
PO4 Emergency services and community uses are able	No acceptable outcome is nominated.	PO4 Not Applicable The Proposed Development is not located within an identified landslide area.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
to function effectively during and immediately after landslide events.		
Reconfiguring a lot		
PO5 Development ensures that on all new lots: a. future building location is not located on part of the site subject to a potential	When a <u>development footprint</u> has a slope of, or greater than fifteen (15) per cent, each new lot has a minimum size and road <u>frontage</u> in accordance with <u>Table 8.2.11.3.2</u> .	PO5 Complies The Proposed Development is not located within an identified landslide area and has been designed to avoid areas on the lot marked as steep land.
landslide; b. the need for excessive work or changes to the finished landform to construct a building or vehicular access route within the development envelope nominated is avoided; and c. future building will not be adversely affected by, or be at unacceptable risk from, landslide activity originating on	Note—The minimum lot size and road <u>frontage</u> stated in <u>Table 8.2.11.3.2</u> prevails over the reconfiguring a lot code to the extent of any inconsistency. AND AO5.2	
sloping land above the <u>site</u> . Editor's note—The preparation of a <u>site</u> specific geotechnical assessment report or landslide risk assessment in accordance with <u>SC6.11</u> — <u>Geotechnical report planning scheme policy</u> can assist in demonstrating compliance with this performance outcome.	 a. a <u>frontage</u> to a <u>formed road</u>; and b. any section of a driveway or road internal to a <u>site</u> is not steeper than twenty-five (25) per cent. 	
Operational works		
PO6 Filling and excavation does not: a. occur on land that has a slope greater than or equal to fifteen (15) per cent; and b. alter the existing flow of surface water or groundwater on the site.	No acceptable outcome is nominated. Editor's note—The preparation of a <u>site</u> specific geotechnical assessment report or landslide risk assessment in accordance with <u>SC6.11</u> — <u>Geotechnical report planning scheme policy</u> can assist in demonstrating compliance with this acceptable outcome.	PO6 Not Applicable The Proposed Development does not involve filing or excavation works.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response

ELOOD HAZADD OVEDLAY CODE

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
Development in Fitzroy River flood areas – H1 (low hazard area) or H2 (medium hazard area) or North Rockhampton flood management area or Local catchment flood – planning area 2		
PO1 Development (including extensions) for non-residential purposes is able to provide a safe refuge for people and for the storage of goods during times of flood inundation.	AO1.1 For non-residential development, at least thirty (30) per cent of the gross floor area of all new buildings and structures is located a minimum of 500 millimetres above the defined flood level. Editor's note—Areas less than those nominated above may be supported where accompanied by a flood impact report in accordance with SC6.10—Flood hazard planning scheme policy. AND AO1.2 A report from a registered professional engineer of Queensland certifies that the development in the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties.	PO1 Not Applicable The Proposed Development is not located within the mapped Fitzroy River flood area, North Rockhampton flood management area or local catchment flood planning area.
PO2 Development is located to minimise susceptibility to and potential impacts of flooding.	AO2.1 For residential uses the finished floor levels of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level. AND AO2.2 A report from a registered professional engineer of Queensland certifies that the development in the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties.	PO2 Not Applicable The Proposed Development is not located within the mapped Fitzroy River flood area, North Rockhampton flood management area or local catchment flood planning area.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	Editor's note—Report to be prepared in accordance with <u>SC6.10—Flood hazard planning scheme policy</u> .	
PO3 Development avoids the release of hazardous materials into floodwaters.	AO3.1 All hazardous materials and hazardous manufacturing equipment and hazardous containers are located and stored a minimum of 500 millimetres above the defined flood level. Editor's note—Refer to the Work Health and Safety Act 2011 and associated regulation, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.	PO3 Not Applicable The Proposed Development is not located within the mapped Fitzroy River flood area, North Rockhampton flood management area or local catchment flood planning area.
Development in Fitzroy River flood areas – H3-h area 1	14 (high hazard areas) or H5-H6 (extreme hazard	areas) or Local catchment flood - planning
PO4 Development does not involve the further intensification of land uses and does not increase the risk to people and property. Editor's Note—Flood hazard risk assessment can be undertaken in accordance with CCC 10.	AO4.1 AO4.1.1 Development does not involve new buildings or structures. OR	PO4 Not Applicable The Proposed Development is not located within a mapped high hazard area, extreme hazard area or local catchment flood – planning area 1.
undertaken in accordance with <u>SC6.10 — Flood</u> hazard planning scheme policy.	AO4.1.2 Where involving the replacement or alteration to an existing non-residential building or structure:	
	 there is no increase in the existing or previous buildings' gross floor area; and the finished floor level of any replacement or alteration to an existing building is constructed a 	

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
	minimum of 500 millimetres above the defined flood level. OR	
	AO4.1.3 Where involving the replacement or alteration to an existing caretaker's accommodation, dwelling house or dwelling unit: 1. there is no increase in the number of dwellings; 2. there is no increase in the existing or previous buildings' gross floor area; and 3. the finished floor level of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level.	
	AND AO4.1.4 Where located in the rural zone, the total floor area of class 10a buildings and structures on the site do not exceed a total of fifty (50) square metres, and are set back a minimum of twenty (20) metres from all site boundaries.	
PO5 Development avoids the release of hazardous materials into floodwaters.	AO5.1 Materials manufactured, used or stored on <u>site</u> are not hazardous in nature.	PO5 Not Applicable The Proposed Development is not located within a mapped high hazard area, extreme hazard area or local catchment flood – planning area 1.
Development in <u>floodplain</u> investigation area	,	
PO6 Development is located to minimise susceptibility to	AO6.1 Flood resilience is optimised by ensuring new	PO6 Not Applicable

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
and potential impacts of flooding. Editor's note—The <u>floodplain</u> investigation area is mapping supplied by the Queensland Reconstruction Authority for possible flood affected areas, where local verification is yet to be completed. A flood hazard assessment in accordance with <u>SC6.10</u> — <u>Flood hazard planning scheme policy</u> can be undertaken to verify the potential risk of a flood event occurring.	habitable rooms are located on the highest part of the <u>site</u> to minimise entrance of floodwaters.	The Proposed Development is not located within a flood investigation area.
PO7 Development avoids the release of hazardous materials into floodwaters.	AO7.1 Materials manufactured, used or stored on site are not hazardous in nature.	PO7 Not Applicable The Proposed Development is not located within a flood investigation area.
Development in Fitzroy River flood area – all happlanning areas	zard areas, North Rockhampton flood manageme	nt area or Local catchment flood – all
PO8 Development is located to minimise susceptibility to and potential impacts of flooding.	No acceptable outcome is nominated.	PO8 Not Applicable The Proposed Development is not located within the Fitzroy River flood area, North Rockhampton flood management area or Local catchment flood areas.
PO9 Underground car parks are designed to prevent the intrusion of floodwaters.	AO9.1 Development with underground car parking is designed to prevent the intrusion of floodwaters by the incorporation of a bund or similar barrier a minimum of 500 millimetres above the defined flood level.	PO9 Not Applicable The Proposed Development is not located within the Fitzroy River flood area, North Rockhampton flood management area or Local catchment flood areas.
PO10 Development: 1. does not result in any reduction of onsite flood storage capacity; or 2. does not result in any change to depth, duration or velocity of	No acceptable outcome is nominated.	PO10 Not Applicable The Proposed Development is not located within the Fitzroy River flood area, North Rockhampton flood management area or Local catchment flood areas.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
floodwaters within the premises; and 3. does not change flood characteristics outside the premises, including but not limited to causing: 1. loss of flood storage; or 2. loss of or changes to flow paths; or 3. acceleration or retardation of flows; or 4. any reduction in flood warning times elsewhere on the floodplain. Editor's note—Council may require the applicant to submit a site-based flood study that investigates the impact of the development on the floodplain and demonstrates compliance with the relevant performance outcome.		
PO11 Essential community infrastructure and community facilities are protected from, and able to function effectively during and immediately after, a defined flood event.	AO11.1 A use for a purpose listed in Table 8.2.8.3.3: 1. is not located within the flood hazard area; and 2. has at least one (1) flood free access road.	PO11 Not Applicable The Proposed Development is not located within the Fitzroy River flood area, North Rockhampton flood management area or Local catchment flood areas.
PO12 Development provides safe and trafficable access to the local evacuation centres and evacuation services and have regard to: 1. evacuation time; 2. number of persons affected;	AO12.1 Trafficable access to and from the development complies with the Capricorn Municipal Guidelines. AND AO12.2 Trafficable access to and from the development	PO12 Not Applicable The Proposed Development is not located within the Fitzroy River flood area, North Rockhampton flood management area or Local catchment flood areas.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
 types of vehicles necessary for evacuation purposes; the distance to flood free land; and the evacuation route. 	within the local catchment planning areas are in accordance with the Queensland Urban Drainage Manual. Note—Trafficable access for emergency services or community related uses is obtained from at least one (1) route (minor collector or higher) for emergency services purposes. The development is to ensure that safe access, to the road network between the development site and the closest centre zone, is provided. Editor's note—Trafficable access requirements for local catchment planning areas has not been identified and reference has been made to the provisions under the Queensland Urban Drainage Manual. This is due to the short period that property may be isolated.	
Development in Fitzroy River flood areas – H3-H management area or Local catchment flood – pl	l4 (high hazard areas) or H5-H6 (extreme hazard anning area 1	areas), North Rockhampton flood
PO13 Development that involves temporary or moveable residential structures (for example caravan parks and camping grounds) are not located with the Fitzroy River high and extreme hazard areas, North Rockhampton flood management area and Local catchment planning area 1.	No acceptable outcome is nominated.	PO13 Not Applicable The Proposed Development is not located within the Fitzroy River high hazard or extreme hazard areas, North Rockhampton flood management area or Local catchment flood – planning area 1.
Reconfiguring a lot		
Development in Fitzroy River flood area planning areas	- all hazard areas, North Rockhampton flood man	agement area or Local catchment flood - all
PO14 Development does not result in the creation of additional lots	AO14.1 Reconfiguring a lot does not result in new lots.	PO14 Not Applicable The Proposed Development is not located in the Fitzroy River flood area.

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response	
Development in floodplain investigation area			
PO15 Development provides vehicle access to a road network that is sufficient to enable safe access. Editor's note—The <u>floodplain</u> investigation area is mapping supplied by the Queensland Reconstruction	No acceptable outcome is nominated.	PO15 Not Applicable The Proposed Development is not located in the Fitzroy River flood area.	
Authority for possible flood affected areas, where local verification is yet to be completed. A flood hazard assessment in accordance with SC6.10 — Flood hazard planning scheme policy can be undertaken to verify the potential risk of a flood event occurring.			
PO16 Onsite access is provided to a <u>building envelope</u> or fill area in which a building is to be constructed. The access is located on land classified as a low flood hazard in the defined flood event.	AO16.1 Onsite access to a <u>building envelope</u> or fill area is provided over land that is designated as a low flood hazard. Editor's note—For the purposes of the above requirements in respect of an access area or a road which provides access to the development a low flood hazard means: (a) inundation is a maximum depth of 300 millimetres during events up to and including the defined flood event; (b) inundation extends for a maximum distance of 200 metres during events up to and including the defined flood event; and (c) The product of velocities and depth does not exceed D*V=0.4m2/s.	PO16 Not Applicable The Proposed Development is not located in the Fitzroy River flood area.	

Performance Outcome (PO)	Acceptable Outcome (AO)	ERM's response
PO17 Development does not materially impede the flow of floodwaters through the <u>site</u> or worsen flood flows external to the <u>site</u> .	AO17.1 Development does not involve: 1. filling with a height greater than 100 millimetres; or 2. block or solid walls or fences; or 3. garden beds or other structures with a height more than 100 millimetres; or 4. the planting of dense shrub hedges.	PO17 Not Applicable The Proposed Development is not located in the Fitzroy River flood area.

TELECOMMUNICATIONS FACILITIES AND UTILITIES CODE

Performance outcomes	Acceptable outcomes	ERM Response		
Telecommunication facility				
PO1 The location of a <u>telecommunications</u> <u>facility</u> does not adversely impact the amenity, health or visual character of a residential zone or other sensitive locations, including national parks and surrounding ranges.	AO1.1 Development is not located in the following zones: 1. residential zone category; or 2. rural residential zone; or 3. emerging community zone; or 4. environmental management and conservation zone.	PO1 Not Applicable The development is not for a telecommunication facility.		
PO2 Development is visually integrated with the surrounding area to ensure it does not visually dominate and is not visually obtrusive, having regard to: 1. scale; 2. height; 3. bulk; 4. materials and colour; and 5. aesthetic appearance.	AO2.1 AO2.1.1 If the development is a freestanding structure (that is, not attached to a building), the height does not exceed whichever is the taller of the following: 1. the height limit specified on the airport environs overlay (relating to the airport heights for Rockhampton); and 2. for areas outside of the airport environs overlay: 1. the maximum height of buildings allowable within a twenty (20) metre radius of	PO2 Not Applicable The Proposed Development is not for a telecommunications facility.		

Performance outcomes	Acceptable outcomes	ERM Response
	the proposed facility; or 2. the top of the predominant tree canopy within twenty (20) metres of the proposal. OR AO2.1.2 The development is: 1. collocated on an existing tower, or as a co-tenant on a new tower; or 2. located on or as part of a new or existing building.	
PO3 Development: 1. is camouflaged through use of colours and materials which blend into the visual landscape (earth tones); and 2. incorporates a range of non-reflective materials, textures and finishes that reflect the		PO3 Not Applicable The Proposed Development is not for a telecommunications facility.

Performance outcomes	Acceptable outcomes	ERM Response
character of the surrounding area.		
PO4 Development is located at distances from the property frontage and the side and rear boundaries, to provide clear separation from neighbouring properties and road frontages so that visual obtrusiveness is minimised.	AO4.1 If the development is a freestanding structure (that is, not attached to a building), the following minimum setbacks to property boundaries are achieved: 1. ten (10) metres, where the height of the structure is less than twenty (20) metres; and 2. fifteen (15) metres, where the height of the structure is between twenty (20) metres and thirty (30) metres; and 3. twenty (20) metres, where the height of the structure is greater than thirty (30) metres.	PO4 Not Applicable The Proposed Development is not for a telecommunications facility.
PO5 Tree and shrub planting must provide dense screening to reduce the visual impacts of the facility and to enhance the character of the local area.	AO5.1 A minimum three (3) metre wide earth mounded landscape strip, with densely planted shrubs and appropriate tree species, provides a visual barrier within the setback area and adjoining properties.	PO5 Not Applicable The Proposed Development is not for a telecommunications facility.
PO6 Development does not negatively impact on the natural environment,	AO6.1 Vegetation cleared beyond the structure of the telecommunications facility and	PO6 Not Applicable The Proposed Development is not for a telecommunications facility.

Performance outcomes	Acceptable outcomes	ERM Response
having regard to: 1. sensitive receiving environments; 2. regulated vegetation; 3. fauna habitats; 4. soil erosion; and 5. waterways.	associated power links, parking and access areas disturbed during construction is re-vegetated. AND AO6.2 Replacement planting is carried out in accordance with the provisions of SC6.12 — Landscape design and street trees planning scheme policy. AND AO6.3 Excavation and filling is minimised and earthworks are stabilised or retained.	
PO7 Development does not adversely impact on existing or future residential premises, or other sensitive receiving environments	A07.1 If the development is a freestanding structure (that is, not attached to a building), the following minimum separation distances are achieved: 1. 300 metres to an educational establishment, child care centre, retirement facility, or other sensitive receiving environments; or 2. 150 metres to a dual occupancy, dwelling house, dwelling unit or multiple dwelling.	PO7 Not Applicable The Proposed Development is not for a telecommunications facility.

Performance outcomes	Acceptable outcomes	ERM Response
PO8 Telecommunications facilities do not cast shadows such that the amenity and character of adjacent premises or a public place is unacceptably reduced.	AO8.1 Telecommunications facilities with a height in excess of 8.5 metres do not result in the loss of sunlight falling on more than twenty (20) per cent of an open space area of a residential use or a public place for a period in excess of three (3) hours on any day of the year	POS Not Applicable The Proposed Development is not for a telecommunications facility.
Development prevents or minimises the generation of any noise such that: 1. nuisance is not caused to adjoining premises or other nearby noise sensitive areas; 2. applicable legislative requirements are met; and 3. desired ambient noise levels for residential zoned areas are not exceeded.	AO9.1 Development provides that: 1. noise levels measured as the adjusted maximum sound pressure level LAmax, adj.T at a noise sensitive place do not exceed: 1. background noise level plus 5db(A) between the hours of 07:00 and 22:00; and 2. background noise level plus 3db(A) between the hours of 22:00 and 07:00; and 2. noise levels measured as the adjusted maximum sound pressure level LAmax, adj.T at a business	PO9 Not Applicable The Proposed Development is not for a telecommunications facility.

Performance outcomes	Acceptable outcomes	ERM Response
	place do not exceed: 1. background noise level plus 10db(A) between the hours of 07:00 and 22:00; and 2. background noise level plus 8db(A) between the hours of 22:00 and 07:00	
Public Health and Safety		
PO10 Telecommunications facilities are established, operated and maintained in a way to minimise the risk to public health and safety	No acceptable outcome is nominated.	PO10 Not Applicable The Proposed Development is not for a telecommunications facility.
PO11 Fencing must enclose the outermost boundaries of the land on which the telecommunications facilities are built in order to: 1. prevent unauthorised access; 2. protect ease of maintenance access to the property; and 3. integrate the facility into the local built form	AO11.1 A minimum 1.5 metre high fence is provided along all boundaries of land identified for telecommunications use, including enclosed areas for vehicle parking, storage and landscape works. AND AO11.2 The materials and coloured finishes used for fencing or walls match those used nearby, and integrate the facility into the character of the local area.	PO11 Not Applicable The Proposed Development is not for a telecommunications facility.

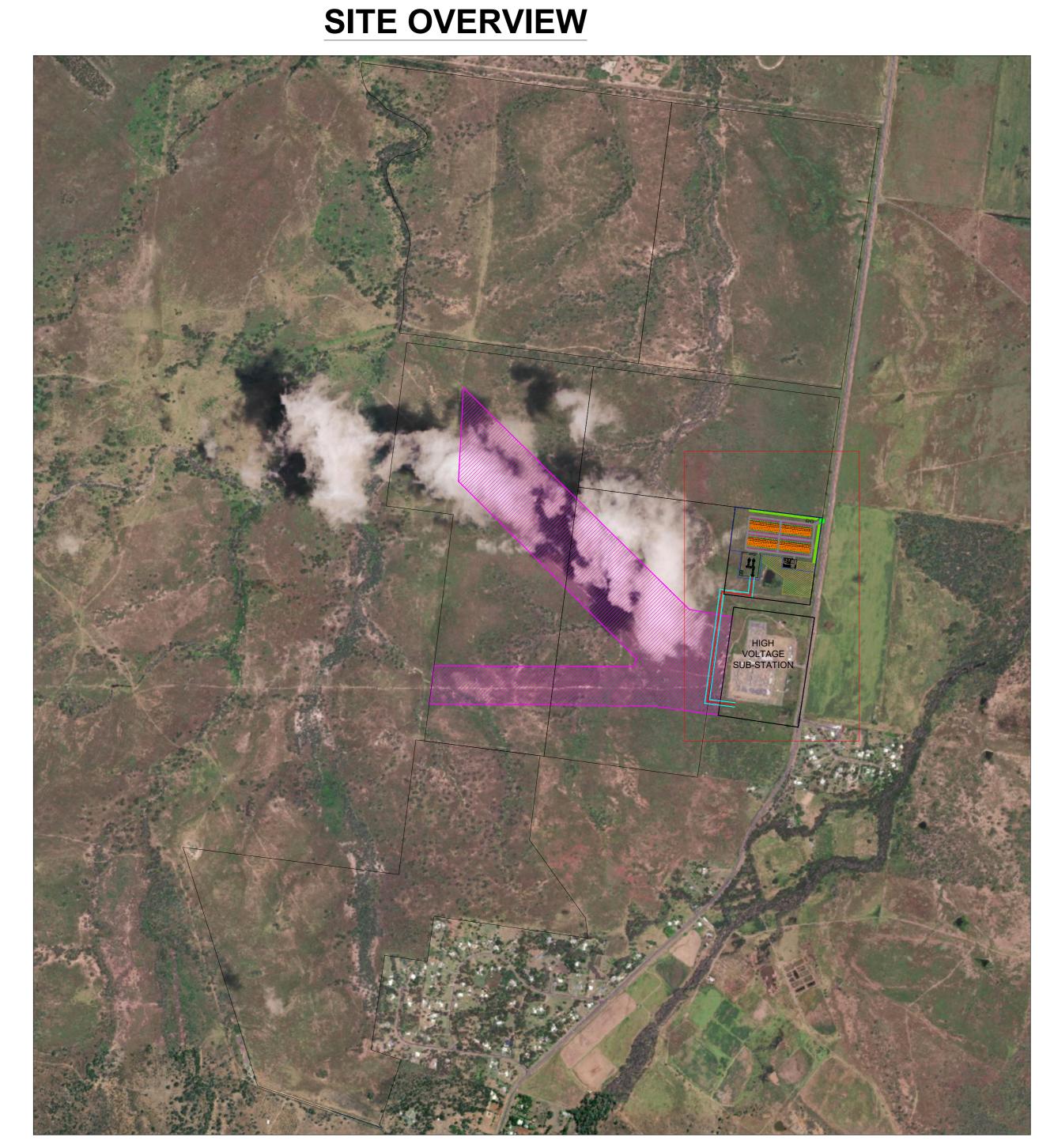
Performance outcomes	Acceptable outcomes	ERM Response
character of the surrounding areas.		
Substations, utility installations and	major electricity infrastructure	
Location		
PO12 Development does not adversely impact the amenity or visual character of an area.	AO12.1 Development is not visible from: 1. within thirty (30) metres of a major urban collector or higher order road; 2. within fifteen (15) metres of any residential road frontage; 3. within the environmental management and conservation zone; and 4. elevated parts of a site.	PO12 Complies The Proposed Development is in keeping with the existing landscape, being directly adjacent to this existing Genex BESS facility and Powerlink Substation. Additionally, a Landscape Concept Plan (Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility.
Visual integration, character and amenity	,	
PO13 Development is designed to be visually unobtrusive and blend with the character of the locality by: 1. ensuring the bulk, height and scale of the facility is consistent with surrounding development; 2. extensive landscaping and building colours	No acceptable outcome is nominated.	PO13 Complies The Proposed Development is in keeping with the existing landscape, being directly adjacent to this existing Genex BESS facility and Powerlink Substation. Additionally, a Landscape Concept Plan (Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility.

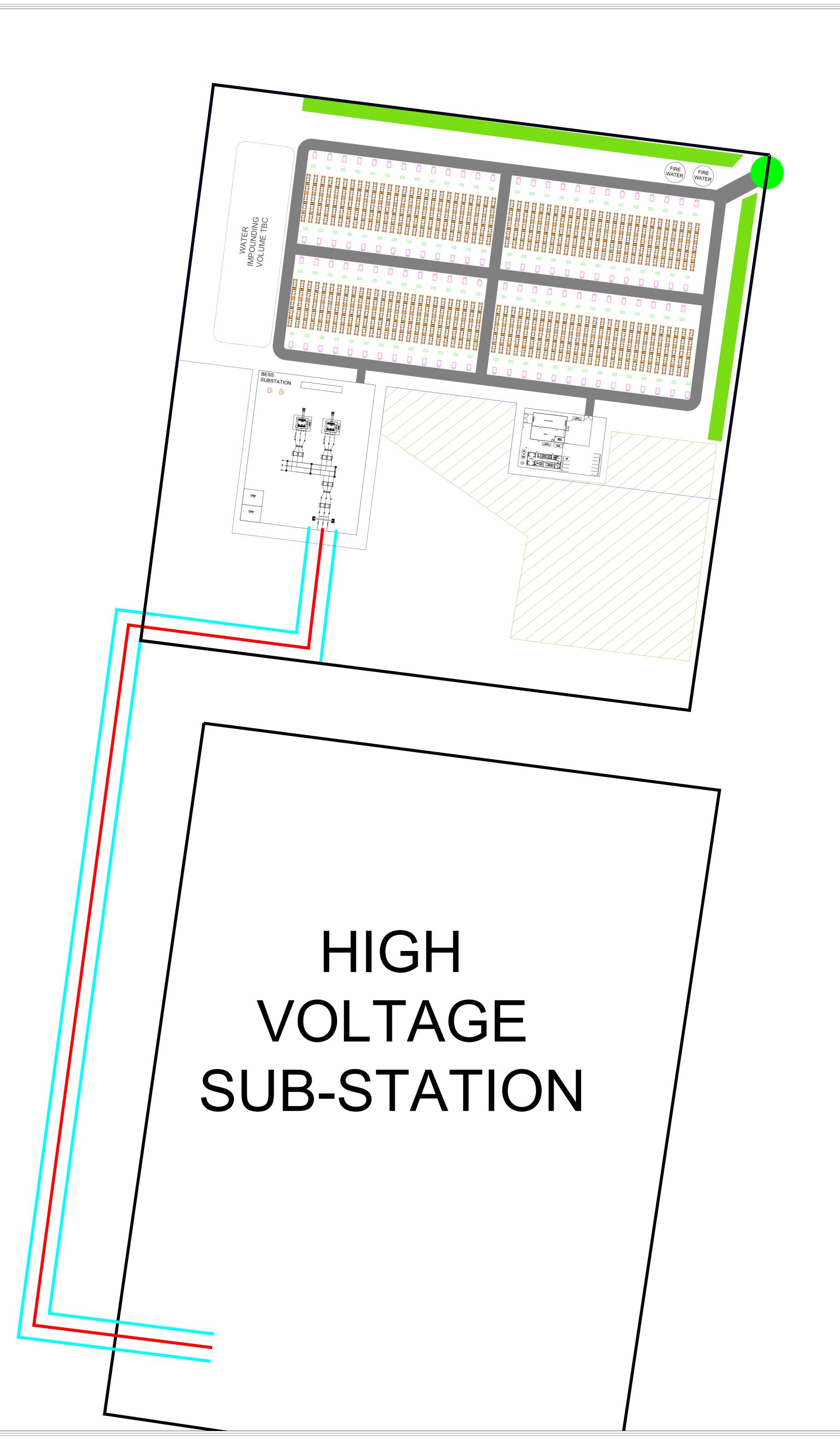
Performance outcomes	Acceptable outcomes	ERM Response
which blend with the landscape; and 3. ensuring transformers are not visible from the property boundary or public place.		
PO14 Development is well set back and screened from adjoining sensitive land use(s) to reduce potential impacts of light, noise, glare, overshadowing or visual obtrusiveness.	AO14.1.1 Development is set back a minimum of fifteen (15) metres from all common boundaries with a sensitive land use or residential zone. OR AO14.1.2 Development is set back a minimum of seven (7) metres from common boundaries with a non-sensitive use or non-residential zone. AND AO14.2 Where development extends or reuses existing structures, that setback is not decreased. AND AO14.3 A minimum three (3) metre wide deep planting area is provided along the full length of all boundaries, except where broken by access driveways or	PO14 Complies The Proposed Development is in keeping with the existing landscape, being directly adjacent to this existing Genex BESS facility and Powerlink Substation. Additionally, a Landscape Concept Plan (Appendix G) with a proposed native vegetation buffer of 3 metres, and a 500m high mound along the Burnett Highway to provide visual screening of the BESS facility.

Performance outcomes	Acceptable outcomes	ERM Response
	pedestrian entries. AND A014.4 The development is carried out in accordance with the provisions of SC6.12 — Landscape design and	
PO15 Development prevents or mitigates the generation of unreasonable noise impacts to: 1. prevent noise nuisance; and 2. ensure ambient noise levels are consistent with the prevailing character of the area.	AO15.1 Development provides that: a. noise levels measured as the adjusted maximum sound pressure level LAmax, adj.T at a sensitive land use do not exceed: • background noise level plus 5dB(A) between the hours of 07:00 and 22:00; and • background noise level plus 3dB(A) between the hours of 22:00 and 07:00; and b. noise levels measured as the adjusted maximum sound pressure level LAmax, adj.T at a business premises does not exceed: • background noise level plus 10dB(A) between the hours of 07:00 and 22:00; and • background noise level plus 8dB(A) between the hours of 22:00 and 07:00.	PO15 Complies A Noise Impact Assessment Report has been completed for the Development Application (Appendix D). The noise predictions within the report are average equivalent noise (LAeq,adj,T) values, in line with the Environmental Protection Policy (2019). However, the nature of the BESS noise emissions is constant and continuous and the LAeq,adj,T values may be approximated to be LAmax, adj,T values for the BESS. An assessment of the AO15.1 criteria at the worst-affected sensitive receptor (2 Childs Avenue) is as follows: Sensitive Background Noise, AO15.1(a) Criteria, Predicted Noise Layo Noise Level, Lmax, adj, T Day Evening Night Day Evening Night All periods Avenue A

Performance outcomes	Acceptable outcomes	ERM Response
Environmental impact		
PO16 Development does not negatively impact on the natural environment, having regard to: 1. sensitive habitat; 2. remnant vegetation; 3. soil erosion; and 4. waterways.	No acceptable outcome is nominated.	PO16 Complies The Proposed Development is not mapped within a sensitive receiving environment or fauna habitat area. Additionally, the site is mapped as containing only Category X Regulated Vegetation and the Proposed Development does not involve works within a waterway or earthworks.
Safety	'	
PO17 Development includes security fencing along all property boundaries to prevent unauthorised entry and clearly define the boundaries of a potentially hazardous use.	AO17.1 Development includes a security fence around the entire perimeter of the <u>site</u> at a minimum height of 1.8 metres from <u>ground level</u> .	PO17 Complies The lease area for the Proposed Development will be fenced for safety and security purposes.
PO18 Development incorporates access control arrangements including: 1. providing warning information signs on all boundaries to prevent unauthorised entry; 2. minimising the number and width of entry points; and 3. providing safe vehicular access to the site.	No acceptable outcome is nominated.	PO18 Complies The Proposed Development will have new site access arrangements and will provide sufficient parking on site during both the construction and operational phases.

Acceptable outcomes	ERM Response
No acceptable outcome is nominated.	PO19 Not Applicable The Proposed Development is not defined as major electricity infrastructure.
supply substation	
No acceptable outcome is nominated.	PO20 Not Applicable The Proposed Development does not involve upgrades to an existing substation or bulk supply substation.
	No acceptable outcome is nominated.





LEGEND

	ROAD
	BESS BOUNDARY
	SITE BOUNDARY
	POWER CABLE EASEMENT 20m
	POWERLINK CABLE
	POWER CONVERSION UNIT
INVERTER	INVERTER BLOCK
	BATTERY BLOCK
	LAYDOWN AREA
	SITE PRIMARY ACCESS
	VEGETATION BUFFER

BESS SPECIFCATION	S
DESCRIPTION	QTY
RATED POWER (MW)	399
RATED ENERGY (MWh)	1575
USEFUL POWER (MW)	319.2
USEFUL ENERGY (MWh)	1354.5
BESS DURATION	4.24h
BESS CONTAINER MODULE	SAFT
NUMBED OF DECC CONTAINEDC	I-Shift
NUMBER OF BESS CONTAINERS	525
BESS CONTAINER CAPACITY (MWh)	3.0
	SMA SCS
POWER CONVERSION EQUIPMENT	3800
	UP-XT
NUMBER OF POWER CONVERSION EQUIPMENT	105
POWER CONVERSION EQUIPMENT POWER (MW)	3.8

10	28.11.2024	ADDED BESS POWER C	ARLE FASEMENT				
10	20,11,202 1	TIDDED DESS TEWER OF	TIDEL ENSETENT	Said Elmir			
9	14.11.2024	Undoted site occess	point and added landscape strip				
	THILDET	opaaved sive access	point and added tandscape strip	Said Elmir			
8	11.07.2024	Undo ted lo vout	to allow for switchyard				
	11.07.2021	opaa vea kayoa v	To allow the Switching at a	Said Elmin			
7	27.05.2024	Changed number of BESS conta	iners/inverter from 6x2.6083MWh to 5x3MWh -				
	2710012021	5.1agc 5. 1.6		Said Elmir			
REV.	DATE		DESCRIPTION	PREPARED BY	COLLABORATORS	VERIFIED BY	VALIDATED BY
			FILE NAME:				
			CLASSIFICATION: UTILIZA		UTILIZATION SC	OPE:	
Engi	Engineering & Construction						
FORMAT:	:	SCALE: TITLE: PRELIMINARY GENERAL BE		ESS LAYDUT			
	АО	NTS					

Search report reference number: 177463

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The cultural heritage register is intended to be a depository for information for consideration for land use and land use planning, and a research and planning tool to help people in their consideration of the Aboriginal cultural heritage values of particular objects and areas.

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The placing of information on the database is not intended to be conclusive about whether the information is up-to-date, comprehensive or otherwise accurate.

Under the Cultural Heritage Acts, a person carrying out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal or Torres Strait Islander cultural heritage. This applies whether or not such places are recorded in an official register and whether or not they are located on private land.

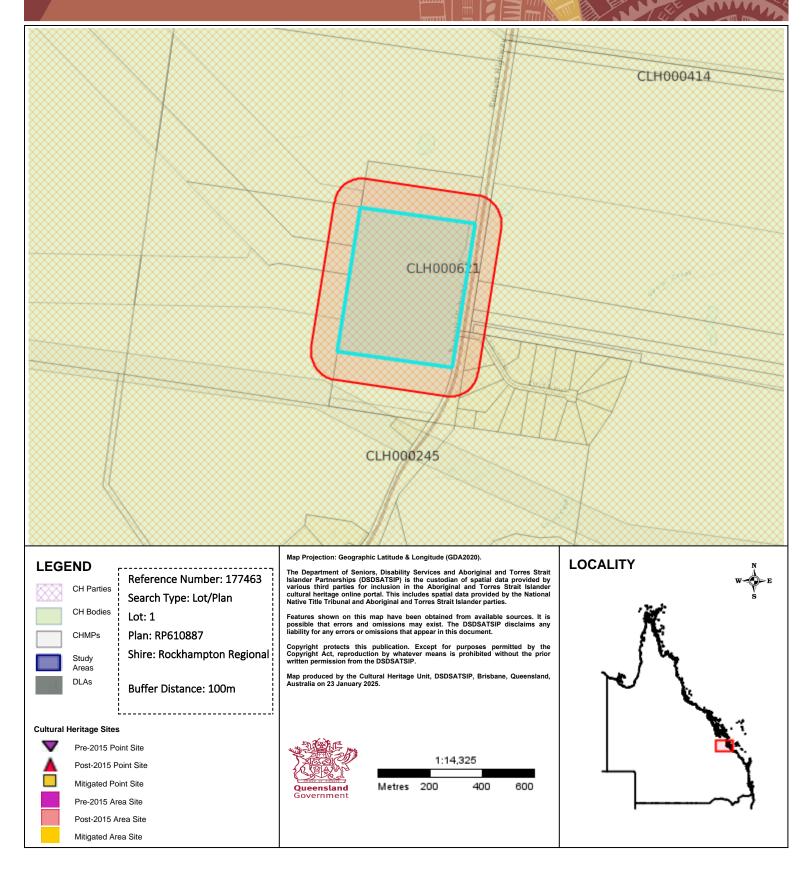
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There are no Aboriginal or Torres Strait Islander cultural heritage site points recorded in your specific search area.

There are no Aboriginal or Torres Strait Islander cultural heritage site polygons recorded in your specific search area.

Cultural Heritage Party/ies for the area:

Reference No.	Federal Court No.	Name	Contact Details
QCD2016/006 DET	QUD6131/1998	Darumbal People	Darumbal People Aboriginal Corporation RNTBC Trevor Hatfield PO Box 8581 ALLENSTOWN QLD 4700 Phone: (07) 4926 0026 Email: admin@darumbal.com.au

Cultural Heritage Body/ies for the area:

Departmental Reference No.	Name	Contact Details	Registration Date
CLH000621		Darumbal Enterprises Pty Ltd PO Box 8581 ALLENSTOWN QLD 4700	30/05/2014
		Phone: (07) 4926 0026 Email: admin@darumbal.com.au	

There are no Cultural Heritage Management Plans recorded in your specific search area.

There are no Designated Landscape Areas (DLA) recorded in your specific search area.

There are no Registered Cultural Heritage Study Areas recorded in your specific search area.

There are no National Heritage Areas (Indigenous values) recorded in your specific search area.

Glossary

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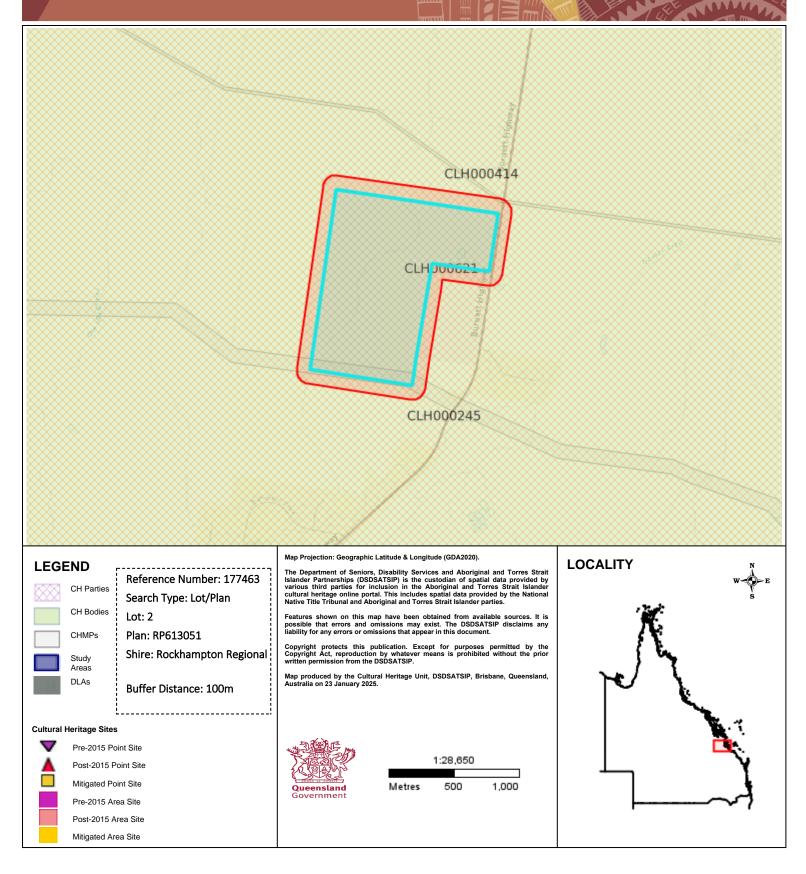
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Cultural Heritage Management Plans (CHMPs) for the area:

Departmental Reference No.	Project	Sponsor	Party	Registration Date
CLH000245	Approved CHMP - Central Queensland Gas Pipeline	Queensland Power Trading Corporation Trading as Enertrade	On their own behalf and on behalf of the Southern Barada & Kabalbara people QC00/4; Mr John Smith, Mr Jeff Smith, Ms Rhede Kelly, Ms Margaret Hornagold, Ms Ethel Smith, Mr Alick Smith, Mr Toby Smith, Mr Clarry Smith Senior, Ms Mona Keilly and Ms Amy Lest	May 12, 2006
CLH000414	Approved CHMP - Gladstone Nickel Project	Gladstone Pacific Nickel Ltd	Darumbal People	Jul 25, 2006

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Rockhampton Office

232 Bolsover St, Rockhampton

Gracemere Office

1 Ranger St, Gracemere

Mount Morgan Office

32 Hall St, Mount Morgan

14 March 2025

Our Reference: D/25-2025
Enquiries: Kathy McDonald
Telephone: 07 4936 8099

Capricorn BESS Pty Ltd As Trustee for Capricorn BESS Trust C/- Environmental Resources Management Australia Pty Ltd GPO BOX 2982
BRISBANE QLD 4001

Dear Sir/Madam

ACTION NOTICE - NOT PROPERLY MADE APPLICATION

(Given under section 3.1 of the Development Assessment Rules)

Council refers to your Development Application received by Council on 28 February 2025.

Location Details

Street address: Lot 742 Cherryfield Road, Gracemere and 52949 Burnett

Highway, Bouldercombe

Real property description: Lot 2 on RP613051 and Lot 1 on RP610887

Application Details

Application number: D/25-2025

Application description: Material Change of Use for an Undefined use - Battery Energy

Storage System and Reconfiguring a Lot for a Lease (exceeding

10 years)

Council does not consider the application to be a properly made application in accordance with section 51(5) of the *Planning Act 2016* for the following reasons:

1) The requisite fee of \$11,540.00 has not been paid.

The action/s listed must be completed and a notice given to Council advising that the action notice has been complied with, within 20 business days starting the day after receiving this notice, or a further period agreed with Council, otherwise the application will be taken to have not been made in accordance with section 3.7 of the Development Assessment Rules.

Should you have any queries regarding this matter please contact the undersigned on 07 4936 8099.

Yours faithfully

Kathy McDonald

Principal Planning Officer

Planning and Regulatory Services







Confirmation Notice

PLANNING ACT 2016, PART 1 OF THE DEVELOPMENT ASSESSMENT RULES

Application number:

D/25-2025
For further information regarding this notice, please contact:

Date application properly made:

For further information regarding this notice, please contact:

Nathy McDonald

14 March 2025
Phone:

07 4936 8099

1. APPLICANT DETAILS

Name:	Capricorn BESS Pty Ltd as Trustee for Capricorn BESS Trust		
Postal address:	C/- Environmental Resour GPO BOX 2982 BRISBANE QLD 4001	rces Man	agement Australia Pty Ltd
Contact number:	+61730078460	Email:	mifanwy.press@erm.com

2. PROPERTY DESCRIPTION

Street address:	Lot 742 Cherryfield Road, Gracemere and 52949 Burnett Highway, Bouldercombe
Real property description:	Lot 2 on RP613051 and Lot 1 on RP610887

3. OWNER DETAILS

Name:	TMSF Pty Ltd Tte
Postal address:	Table Mountain Superannuation Fund
	221 McEvoy Rd
	KABRA QLD 4702

Name: Powerlink Queensland

Postal address: PO Box 1193

VIRGINIA QLD 4014

4. DEVELOPMENT APPROVAL SOUGHT

Development Permit for a Material Change of Use for an Undefined use (Battery Energy Storage System) and Reconfiguring a Lot for a Lease (exceeding 10 years)

5. APPLICATION TYPE

	Development Permit	Preliminary Approval
Development assessable under the planning scheme, a temporary local planning instrument, a master plan or a preliminary approval which includes a variation approval		

6. REFERRAL AGENCIES

Based on the information accompanying the lodged application, in accordance with the *Planning Regulation 2017*, referral to the following Referral Agencies is required.

For an application involving		Name of agency		Role of Agency	Contact Details
INFRASTRUCTURE-REI	LATED REFERR	ALS (Des	signated Pre	mises)	
Schedule 10, Part 9, Division 1, Table 1 – Development on designated premises					
Development application for development on premises that are the subject of a designation made by the Minister, if—	The chief executhe department which the <i>Plant Act 2016</i> is administered:	in	Concurrenc		In person: Level 2, 209 Bolsover Street, Rockhampton City Online lodgement using MyDAS2:
(a) the development is assessable development under a local categorising instrument; and	Department of State Development,To and Innovation	ourism			https://prod2.dev- assess.qld.gov.au/suite / Email: RockhamptonSARA@d
(b) the infrastructure the subject of the designation is to be supplied by a public sector entity; and					sdmip.qld.gov.au Postal: PO Box 113 Rockhampton Qld
(c) the premises are not owned by or for the State; and					4700
(d) the development is for a purpose other than the designated purpose; and					
(e) the development will not be carried out by or for the State					
INFRASTRUCTURE-REI	LATED REFERR	ALS (Ele	ctricity Infra	structure)	
Schedule 10, Part 9, Divisubstation site	sion 2, Table 1 –	Reconfigu	uring a lot su	bject to an eas	ement or near a
Development application for reconfiguring a lot that is assessable development under section 21, if— (a) all or part of the lot is subject to an		The chief executive of the distribution entity or transmission entity: Powerlink Queensland		Advice	Postal: Powerlink (Property Services) PO Box 1193
easement— (i) for the benefit of a distribution entity, or transmission entity, under the Electricity Act; and					Virginia Qld Email:
(ii) for a transmission grid or supply network; or					Property@powerlink. com.au
(b) part of the lot is within substation site	roum of a				

Schedule 10, Part 9, Division 2, Table 2 – subject to an easement	Material change of use	e of premises ne	ear a substation site or
Development application for a material change of use that is assessable development under a local categorising instrument and does not relate to reconfiguring a lot, if— (a) all or part of the premises are within 100m of a substation site; or (b) both of the following apply— (i) all or part of the premises are subject to an easement for the benefit of a distribution entity, or transmission entity, under the Electricity Act; (ii) the easement is for a transmission grid or supply network	The chief executive of the distribution entity or transmission entity: Powerlink Queensland	Advice	Postal: Powerlink (Property Services) PO Box 1193 Virginia Qld Email: Property@powerlink.com.au
STATE TRANSPORT INFRASTRUCTUR Corridors)			
Schedule 10, Part 9, Division 4, Subdivision corridor	on 2, Table 1 – Reconfi	iguring a lot nea	r a State transport
Development application for reconfiguring a lot that is assessable development under section 21, if— (a) all or part of the premises are within 25m of a State transport corridor; and (b) 1 or more of the following apply— (i) the total number of lots is increased; (ii) the total number of lots adjacent to the State transport corridor is increased; (iii) there is a new or changed access between the premises and the State transport corridor; (iv) an easement is created adjacent to a railway as defined under the Transport Infrastructure Act, schedule 6; and (c) the reconfiguration does not relate to government supported transport infrastructure	The chief executive of the department in which the <i>Planning Act 2016</i> is administered: Department of Housing, Local Government, Planning and Public Works (State Assessment and Referral Agency Department)	Concurrence	In person: Level 2, 209 Bolsover Street, Rockhampton City Online lodgement using MyDAS2: https://prod2.dev- assess.qld.gov.au/sute/ Email: RockhamptonSARA @dsdilgp.qld.gov.au Postal: PO Box 113 Rockhampton Qld 4700
Schedule 10, Part 9, Division 4, Subdivision State transport corridor or that is a future S	State transport corridor		· T.
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;	The chief executive of the department in which the <i>Planning Act 2016</i> is administered: Department of Housing, Local	Concurrence	In person: Level 2, 209 Bolsover Street, Rockhampton City Online lodgement using MyDAS2: https://prod2.dev- assess.qld.gov.au/su te/

or	Government,	Email:	
(c) are—	Planning and Public Works (State	RockhamptonSARA @dsdilgp.qld.gov.au	
(i) adjacent to a road that intersects with a State-controlled road; and	Assessment and Referral Agency	Postal:	
(ii) within 100m of the intersection	Department)	PO Box 113	
		Rockhampton Qld 4700	

It is the responsibility of the applicant to give within 10 business days each referral agency a copy of -

- the application (including application form and supporting material).
- this confirmation notice; and
- any applicable concurrence agency application fee (refer to the *Planning Regulation* to confirm the applicable referral agencies).

The applicant must provide written advice to Council (as the Assessment Manager) of the day on which this action was completed.

7. IMPACT ASSESSMENT

Will Impact Assessment be required?

YES

The whole of the application must be publicly notified under the provisions of Part 4 of the Development Assessment Rules by:

- Publishing a notice at least once in a newspaper circulating generally in the locality of the premises which are the subject of the application; and
- Placing a notice on the premises which are the subject of the application. The notice must remain on the premises for the period of time up to and including the stated day; and
- Giving a notice to all owners of any lots adjoining the premises which are the subject of the application.

8. PUBLIC NOTIFICATION DETAILS

The application requires public notification which must be undertaken in accordance with Section 53 of the *Planning Act 2016* and Part 4 of the Development Assessment Rules.

9. INFORMATION REQUEST

A further information request may be made by the assessment manager. Regardless of this advice, any concurrence agency for the application may make an information request.

10. SUPERSEDED PLANNING SCHEME

Is the application to be assessed under a Superseded Planning Scheme?

You are further advised that the truth and accuracy of the information provided in the application form and accompanying information is relied on when assessing and deciding this application. If you find an INACCURACY in any of the information provided above or have a query or seek clarification about any of these details, please contact Council's Development Assessment Unit.

11. ASSESSMENT MANAGER

Name: Kathy McDonald Signature: Date: 17 March 2025

PRINCIPAL

PLANNING OFFICER