

Queensland Treasury

Our reference: 1907-12044 SRA Your reference: D/52-2019

28 July 2020

The Chief Executive Officer Rockhampton Regional Council PO Box 1860 Rockhampton Qld 4700 enquiries@rrc.qld.gov.au

Dear Sir/Madam

Changed SARA response—777 Yaamba Road, Parkhurst

(Given under section 28 of the Development Assessment Rules)

On 20 July 2020 the department received representations from the applicant requesting the State Assessment and Referral Agency (SARA) change its referral agency response. SARA has considered the representations and now provides this changed referral agency response which replaces the response dated 13 July 2020.

Response	Re	esp)01	ıse
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Outcome:	Referral agency response – with conditions.
Date of response:	28 July 2020
Conditions:	The conditions in Attachment 1 must be attached to any development approval.
Advice:	Advice to the applicant is in Attachment 2.
Reasons:	The reasons for the referral agency response are in Attachment 3.

Development details

Description:	Development permit	Reconfiguring a lot for Two Lots into Twelve Lots, Staged Subdivision
SARA role:	Referral Agency.	
SARA trigger:	Schedule 10, Part 9, Divis Regulation 2017)	sion 4, Subdivision 1, Table 1 (Planning
	Development impacting c	on state transport infrastructure
	Schedule 10, Part 9, Divisi Regulation 2017)	sion 4, Subdivision 2, Table 1 (Planning

	Reconfiguring a lot near a State transport corridor
SARA reference:	1907-12044 SRA
Assessment Manager:	Rockhampton Regional Council
Street address:	777 Yaamba Road, Parkhurst
Real property description:	Lot 20 on SP300132; Lot 30 on SP300133
Applicant name:	Parkhurst Holdings Pty Ltd
Applicant contact details:	C/- Capricorn Survey Group (CQ) Pty Ltd PO Box 1391 Rockhampton QLD 4700 reception@csgcq.com.au
State-controlled road access permit:	 This referral included an application for a road access location, under section 62A(2) of <i>Transport Infrastructure Act 1994</i>. Below are the details of the decision: Approved Reference: TMR19-027870 Date: 23 July 2020
	If you are seeking further information on the road access permit, please contact the Department of Transport and Main Roads at

Representations

An applicant may make representations to a concurrence agency, at any time before the application is decided, about changing a matter in the referral agency response (s.30 Development Assessment Rules) Copies of the relevant provisions are in **Attachment 4**.

CorridorManagement@tmr.qld.gov.au.

A copy of this response has been sent to the applicant for their information.

For further information please contact Jonas Griffin Fodaro, Planning Officer, on 0749242915 or via email RockhamptonSARA@dsdmip.qld.gov.au who will be pleased to assist.

Yours sincerely

Anthony Walsh Manager Planning

- cc Parkhurst Holdings Pty Ltd, reception@csgcq.com.au
- enc Attachment 1 Changed conditions to be imposed Attachment 2 – Advice to the applicant Attachment 3 - Changed reasons for decision to impose conditions Attachment 4 - Change representation provisions Attachment 5 - Approved plans and specifications

Attachment 1—Changed conditions to be imposed

No.	Conditions	Condition timing
Reco	nfiguring a lot	
Schec road)- Depar which to the	Jule 10, Part 9, Division 4, Subdivision 1, Table 1 and Subdivision 2, Tab —The chief executive administering the <i>Planning Act 2016</i> nominates the tment of Transport and Main Roads to be the enforcement authority for t this development approval relates for the administration and enforcement following condition(s):	le 1 (state-controlled Director-General the he development to nt of any matter relating
1.	 The development must be carried out generally in accordance with the following plan: (i) Reconfiguration Plan (2 Lots into 12 Lots) (with Ortho Underlay) prepared by Capricorn Survey Group CQ dated 8 July 2020, plan number 7249-03-ROL and issue B (as amended in red by SARA) 	Prior to submitting the Plan of Survey to the local government for approval
2.	 (a) The new intersection to Lot 20 SP314611 and an existing road access location at Lot 30 SP314611 on the new service road (a state-controlled road) are to be located at: (i) Lot 20 SP314611 at approximately longitude 150.513544, latitude -23.305406; and (ii) Lot 30 SP314611 at approximately longitude 150.514236, latitude -23.303920. (b) Access to proposed Lot 6 must be obtained from the new Service Road (a state-controlled road) and be located: (i) Lot 30 SP314611 at approximately longitude 150.514236, latitude -23.303920. 	 (a) At all times (b) Prior to submitting the Plan of Survey (for proposed Lot 6) to the local government for approval
3.	Direct access is not permitted between the new service road (located within the state-controlled road reserve) and the subject site (lot 20 SP300132 and lot 30 SP300133) other than described in condition 2.	At all times
4.	(a) Any excavation, filling/backfilling/compaction, retaining structures, batters, stormwater management measures and other works involving ground disturbance must not encroach upon or de- stabilise the state-controlled road corridor, including all transport infrastructure or the land supporting this infrastructure, or cause similar adverse impacts.	(a) At all times
	(b) Registered Professional Engineer of Queensland (RPEQ) certification, with supporting documentation, must be provided to the Manager of Project Planning & Corridor Management, Fitzroy District (<u>CorridorManagement@tmr.qld.gov.au</u>) within the Department of Transport and Main Roads, confirming that the development has been constructed in accordance with part (a) of this condition.	(b) Prior to submitting the Plan of Survey to the local government for approval
5.	 Works at the road access / intersection onto the new service road (a state-controlled road) must be undertaken generally in accordance with the following plan: (i) Intersection & Road Type Cross Section & Details prepared by Siris Consulting Engineers dated June 2020, reference SCE-115-105 and revision A (as amended in red by SARA) 	At all times

6.	(a) The with Impa June	development must be carried out generally in accordance the Stormwater Management Plan (Including Hydraulic act Assessment) prepared by Knobel Engineers dated 12 2020 reference K4820-0003 and revision B.	(a) At all times
	(b) RPE com mod mus Man (<u>Cor</u> Tran beer	Q certification (with supporting documentation including pliance with Rockhampton Regional Council's updated flood el including the Rockhampton North Access Upgrade Project) t be provided to the Manager of Project Planning & Corridor agement, Fitzroy District ridorManagement@tmr.qld.gov.au) within the Department of isport and Main Roads, confirming that the development has in constructed in accordance with part (a) of this condition.	(b) Prior to submitting the Plan of Survey to the local government for approval
Sched The ch Depar which to the	lule 10, P hief execu tment of ⁻ this deve following	art 9, Division 4, Subdivision 1, Table 1 and Subdivision 2, Tabl utive administering the <i>Planning Act 2016</i> nominates the Director Transport and Main Roads to be the enforcement authority for the lopment approval relates for the administration and enforcement condition(s):	e 1 (railway corridor)— or-General of the he development to ht of any matter relating
7.	(a) Any batte invo stab or th impa	excavation, filling/backfilling/compaction, retaining structures, ers, stormwater management measures and other works lving ground disturbance must not encroach upon or de- ilise the railway corridor, including all transport infrastructure he land supporting this infrastructure, or cause similar adverse acts.	(a) At all times
	(b) RPE prov Que withi that part	Q certification, with supporting documentation, must be ided to the Program Delivery and Operations Unit, Central ensland Region (Central.Queensland.IDAS@tmr.qld.gov.au) in the Department of Transport and Main Roads, confirming the development has been constructed in accordance with (a) of this condition.	(b) Prior to submitting the Plan of Survey to the local government for approval
8.	(a) Stor ensu	mwater and flooding management of the development must ure no worsening or actionable nuisance to the railway	(a) At all times
	corri	dor.	(b) At all times
	(b) Any	works on the land must not:	
	(1)	the railway corridor;	
	(ii)	interfere with and/or cause damage to the existing	
	(iii)	stormwater drainage on the railway corridor; surcharge any existing culvert or drain on the railway corridor;	
	(iv)	reduce the quality of stormwater discharge onto the railway	
	(v)	impede or interfere with hydraulic conveyance or overland flow paths on the site, including run-off from the railway corridor;	(c) Prior to submitting
	(vi)	reduce the floodplain storage capacity of the site.	the local government
	(c) RPE prov Que withi	Q certification, with supporting documentation, must be ided to the Program Delivery and Operations Unit, Central ensland Region (Central.Queensland.IDAS@tmr.qld.gov.au) n the Department of Transport and Main Roads, confirming	for approval

	that the development has been designed and constructed in accordance with part (a) of this condition.	
9.	Fencing must be provided along the site boundary with the railway corridor in accordance with Queensland Rail drawing number QR-C-S3230 – '1.8m High Chain Link Security Fence Without Rails Using 50mm Diamond Mesh General Arrangement'.	Prior to submitting the Plan of Survey to the local government for approval

Attachment 2— Advice to the applicant

Gene	eral advice
1.	Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> its regulation or the State Development Assessment Provisions (SDAP) v2.5. If a word remains undefined it has its ordinary meaning.
2.	Works on a railway corridor Pursuant to section 255 of the <i>Transport Infrastructure Act 1994</i> , the railway manager's written approval is required to carry out works in or on a railway corridor or otherwise interfere with the railway or its operations.
	The applicant should also contact the railway manager prior to the installation of any fencing along the site boundary with the railway corridor. Any interference with stormwater in relation to the railway corridor may require approval from the railway manager.
	Please be advised that this referral agency response does not constitute an approval under section 255 of the <i>Transport Infrastructure Act 1994</i> and that such approvals need to be separately obtained from the relevant railway manager. The applicant should contact the Queensland Rail Property Team at <u>developmentenquiries@qr.com.au</u> or (07) 3072 2213 in relation to obtaining the necessary approvals.
3.	Road works approval Under section 33 of the <i>Transport Infrastructure Act 1994,</i> written approval is required from the Department of Transport and Main Roads to carry out road works on a state-controlled road. Please contact the Department of Transport and Main Roads' on <u>CorridorManagement@tmr.qld.gov.au</u> to make an application for road works approval.
	This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the Department of Transport and Main Roads as soon as possible to ensure that gaining approval does not delay construction.

Attachment 3—Changed reasons for decision to impose conditions

The reasons for the department's decision are:

- the proposed development is for reconfiguration of two lots into twelve lots, over six stages
- there is a railway corridor (North Coast Line) adjacent to the western boundary of the subject land
- there is a state-controlled road corridor adjacent to the eastern boundary of the subject land. A new service road is located within the state-controlled road corridor between the subject land and the Bruce Highway
- the proposed layout plan shows most lots will access the service road using a new access to be created between proposed lots 1 and 5. This new access is located approximately 100m from the access between the service road and the Bruce Highway. Direct access to the service road is limited to the new access between proposed lots 1 and 5, the existing access from proposed lot 12 and a direct access to proposed Lot 6 from the new service road ensure the road access locations to the state-controlled road from the site do no compromise the safety and efficiency of the state-controlled road
- the new access can be designed and constructed so that it does not cause adverse impacts on the service road
- earthworks (cut and fill) are proposed adjacent to the state-controlled road corridor. Earthworks (cutting) are proposed adjacent to the railway corridor. Subject to certification by a Registered Professional Engineer of Queensland (RPEQ), it is considered the development and its construction can avoid causing adverse structural impacts on state transport infrastructure
- the provided Stormwater Management Plan did not identify any adverse impacts on state transport
 infrastructure as a result of management of stormwater and flooding. Detailed design of the
 stormwater management system is to be finalised at a later date. Subject to RPEQ certification, it is
 considered the development and its construction can minimise and manage the impacts of
 stormwater events and flooding to avoid creating any adverse impacts on state transport corridors
- the proposed development results in an increase in the number of lots adjoining the rail corridor and there is an increase in the risk of unauthorised access to the railway by people and vehicles. Appropriate fencing must be in place to ensure there is no unauthorised access onto the rail corridor
- it is considered the proposed development will not adversely impact on the state-controlled road or railway networks.
- the development complies with relevant provisions of State codes 1, 2 and 6 of the State Development Assessment Provisions, version 2.5, subject to the implementation of conditions.

Material used in the assessment of the application:

- The development application material and submitted plans
- Representations material
- Planning Act 2016
- Planning Regulation 2017
- The State Development Assessment Provisions (version 2.5), as published by the department
- The Development Assessment Rules
- SARA DA Mapping system

Attachment 4—Change representation provisions

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Attachment 5—Approved plans and specifications

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Development Assessment Rules—Representations about a referral agency response

The following provisions are those set out in sections 28 and 30 of the Development Assessment Rules¹ regarding **representations about a referral agency response**

Part 6: Changes to the application and referral agency responses

28 Concurrence agency changes its response or gives a late response

- 28.1. Despite part 2, a concurrence agency may, after its referral agency assessment period and any further period agreed ends, change its referral agency response or give a late referral agency response before the application is decided, subject to section 28.2 and 28.3.
- 28.2. A concurrence agency may change its referral agency response at any time before the application is decided if—
 - (a) the change is in response to a change which the assessment manager is satisfied is a change under section 26.1; or
 - (b) the Minister has given the concurrence agency a direction under section 99 of the Act; or
 - (c) the applicant has given written agreement to the change to the referral agency response.²
- 28.3. A concurrence agency may give a late referral agency response before the application is decided, if the applicant has given written agreement to the late referral agency response.
- 28.4. If a concurrence agency proposes to change its referral agency response under section 28.2(a), the concurrence agency must—
 - (a) give notice of its intention to change its referral agency response to the assessment manager and a copy to the applicant within 5 days of receiving notice of the change under section 25.1; and
 - (b) the concurrence agency has 10 days from the day of giving notice under paragraph (a), or a further period agreed between the applicant and the concurrence agency, to give an amended referral agency response to the assessment manager and a copy to the applicant.

¹ Pursuant to Section 68 of the *Planning Act 2016*

² In the instance an applicant has made representations to the concurrence agency under section 30, and the concurrence agency agrees to make the change included in the representations, section 28.2(c) is taken to have been satisfied.

Part 7: Miscellaneous

30 Representations about a referral agency response

30.1. An applicant may make representations to a concurrence agency at any time before the application is decided, about changing a matter in the referral agency response.³

³ An applicant may elect, under section 32, to stop the assessment manager's decision period in which to take this action. If a concurrence agency wishes to amend their response in relation to representations made under this section, they must do so in accordance with section 28.

Our refTMR19-027870Your ref7249EnquiriesAnton DeKlerk



Department of Transport and Main Roads

23 July 2020

Parkhurst Holdings Pty Ltd c/- Capricorn Survey Group (CQ) Pty Ltd PO Box 1391 Rockhampton QLD 4701

Negotiated Decision Notice Permitted Road Access Location

(s62(1) Transport Infrastructure Act 1994)

This is not an authorisation to commence work on a state-controlled road¹

Development application reference number D/52-2019, lodged with Rockhampton Regional Council involves constructing or changing a vehicular access between Lot 20SP300132, 30SP300133, the land the subject of the application, and a new Service Road (a state-controlled road). In accordance with section 62A(2) of the *Transport Infrastructure Act 1994* (TIA), this development application is also taken to be an application for a decision under section 62(1) of TIA.

Decision (given under section 67 of TIA)

It has been decided to approve the application, subject to the following conditions:

No.	Conditions of Approval	Condition Timing
Perm	nitted Intersection and Road Access Location	
1	 The permitted new intersection to Lot 20 and an existing road access location to Lot 30 on the new Service Road (a state-controlled road) are to be located at: a) Lot 20 SP314611 at approximate Lat: 150.513544; Long: -23.305406; and b) Lot 30 SP314611 at approximate Lat: 150.514236; Long: -23.303920. 	At all times.
2	 Access to proposed Lot 6 must be obtained from the new Service Road (a state-controlled road) and be located at: a) approximate Lat: 150.513740; Long: -23.302180; and b) be generally in accordance with the Department of Transport and Main Roads' Road Planning and Design Manual (2nd Edition) and suitable for B-Doubles. 	Prior to submitting the Plan of Survey (for proposed Lot 6) to the local government for approval.
3	The new road intersection to Lot 20 must be provided at the permitted location, generally in accordance with the Department of Transport and Main Roads' Road Planning	Prior to submitting the Plan of Survey to the local government for approval.

¹ Please refer to the further approvals required under the heading 'Further approvals'

No.	Conditions of Approval	Condition Timing
	and Design Manual (2 nd Edition) and suitable for B-Doubles.	
4	Direct access is prohibited between the new Service Road (the state-controlled road) and Lot 20 SP314611 and Lot 30 on SP314611 at any other location other than the permitted road access location described in Condition 1 and 2.	At all times.
5	Any other existing vehicular property access (other than described in condition 1 and 2) located between Lot 20 SP314611 and Lot 30 SP314611 and the new Service Road (the state-controlled road) must be permanently closed and removed and the verge areas and table drains reinstated to a condition similar to the adjacent verge areas.	Prior to submitting the Plan of Survey to the local government for approval.
6	The use of the intersection and access is limited to vehicles not exceeding B-Doubles.	At all times
7	The road access is to be constructed and maintained at no cost to the department in accordance with section 64(a) & (b) of the <i>Transport Infrastructure Act 1994</i> .	At all times.
8	The applicant shall be responsible for all maintenance works for the access in accordance with Module 9 of the Local Government Association of Queensland document 'TMR/Local Government Cost Sharing Arrangement', dated October 2017.	At all times
9	Reasonable steps are taken to ensure that the permitted road access is used by others in accordance with these conditions.	At all times.
Gen	eral Advice	
1	 The design of the new intersection onto the new Service Road (to Lot 20 SP314611) must demonstrate the following: (i) The pavement widening must match the depth of the existing pavement; (ii) The subsoil drainage must be provided under new kerb and channel; (iii) The proposed table drain behind the kerb and channel is not supported. 	
2	Due to potential stacking issues from vehicles turning off the B Road South and into the new Service Road, TMR will condition this intersection (that is, the new Service Road and newly cons South) to assist with this issue.	ruce Highway into Boundary n 'keep clear line marking' at structed Boundary Road

Reasons for the decision

The reasons for this decision are as follows:

a) To maintain the safety and efficiency of the state-controlled road.

Please refer to **Attachment A** for the findings on material questions of fact and the evidence or other material on which those findings were based.

Information about the Decision required to be given under section 67(2) of TIA

- 1. There is no guarantee of the continuation of road access arrangements, as this depends on future traffic safety and efficiency circumstances.
- 2. In accordance with section 70 of the TIA, you are bound by this decision. A copy of section 70 is attached as **Attachment B**, as required, for your information.

Further information about the decision

- 1. In accordance with section 67(7) of TIA, this decision notice:
 - a) starts to have effect when the development approval has effect; and
 - b) stops having effect if the development approval lapses or is cancelled; and
 - c) replaces any earlier decision made under section 62(1) in relation to the land.
- In accordance with section 485 of the TIA and section 31 of the *Transport Planning and Coordination Act 1994* (TPCA), a person whose interests are affected by this decision may apply for a review of this decision only within 28 days after notice of the decision was given under the TIA. A copy of the review provisions under TIA and TPCA is attached in **Attachment C** for your information.
- 2. In accordance with section 485B of the TIA and section 35 of TPCA you may appeal against a reviewed decision. You must have applied to have the decision reviewed before an appeal about the decision can be lodged in the Planning and Environment Court. A copy of the Appeal Provisions under TIA and TPCA is attached in **Attachment C** for your information.

Further approvals

The department also provides the following information in relation to this approval:

- Road Works approval required Written approval is required from the department to carry out road works that are road access works (including driveways) on a state-controlled road in accordance with section 33(1) of the TIA. This approval must be obtained prior to commencing any works on the state-controlled road. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the department to make an application for road works approval.
- 2. The section 33 application must also demonstrate that suitable sight visibility exists or is able to be provided in accordance with the requirements of the departments Road Planning and Design Manual. It should be noted that some minor vegetation clearing may be required to ensure suitable sight distance is provided. The extents of any vegetation clearing may need to be accurately determined on site during the construction works.

If further information about this approval or any other related query is required, Mr Anton DeKlerk, Principal Town Planner should be contacted by email at <u>CorridorManagement@tmr.qld.gov.au</u> or on (07) 4931 1545.

Yours sincerely

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Anton DeKlerk Principal Town Planner

Attachments: Attachment A – Decision evidence and findings Attachment B - Section 70 of TIA Attachment C - Appeal Provisions

Attachment A

Decision Evidence and Findings

Findings on material questions of fact:

- The planned upgrades of the Bruce Highway are currently underway (known as the Rockhampton Northern Access Upgrade). The planned upgrade is to duplicate the existing Bruce Highway, and also include a new Service Road facilitating a number of industrial lots on the western side of the highway, which include the subject site.
- The service road will be located within the State-controlled Road Reserve but once completed it will be maintained by Council.
- The primary access to the development will be via a new internal road (Road A and Road B) connecting onto the new Service Road (a state-controlled road), allowing access to Lot 1, 2, 3, 4, 5, 7, 8, 9, 10 and 11.
- The applicant requested Lot 6 is to obtain direct access onto the new service road, located opposite Rachel Drive at approximate chainage 9.93km. Please note, this s62 approval will override any other previous access approvals over the subject site.
- The applicant provided swept path for the 19.0m Semi-Trailer entering the development but did not provide a swept path for 19.0m Semi-Trailers leaving the site. This can however be dealt with at the "section 33" stage for the intersection / access onto the new service road.
- Furthermore, it should be noted that this portion of the Bruce Highway is a B-Double Route (and Boundary Road South is a B-Double route), thus it would be expected that the site will need to be able to cater for B-Doubles entering and leaving the site. If a B-Double cannot enter the site, TMR will reissue a new s62 Road Access approval, conditioning the largest vehicle allowed to enter the development site to be a Semi-Trailer. This will be confirmed during s33 stage.
- Due to potential stacking issues from vehicles turning off the Bruce Highway into Boundary Road South and into the new Service Road, TMR will condition 'keep clear line marking' at this intersection (that is, the new Service Road and newly constructed Boundary Road South) to assist with this issue. This will form part of the "section 33" approval.

Title of Evidence / Material	Prepared by	Date	Reference no.	Version /Issue
Proposed Development Application – 777 Yaamba Road, Parkhurst	Knobel Engineers	12 June 2020	K4820-0005	-
Traffic Engineering Report	Hayes Traffic Engineering	November 2019	19889	DA-01
Plans	SIRIS Consulting Engineers	June 2020	SCE-115-001 to SCE-115-027	A
Change Representation to Permitted Road Access Location	Capricorn Survey Group CQ	20 July 2020	7249	-
Reconfiguration Plan (2 Lots into 12 Lots) – (Amended in red by DSDMIP 13 July 2020)	Capricorn Survey Group CQ	8 July 2020	7249-03-ROL	В

Evidence or other material on which findings were based:

Attachment B

Section 70 of TIA

Transport Infrastructure Act 1994 Chapter 6 Road transport infrastructure Part 5 Management of State-controlled roads

70 Offences about road access locations and road access works, relating to decisions under s 62(1)

- (1) This section applies to a person who has been given notice under section 67 or 68 of a decision under section 62(1) about access between a State-controlled road and adjacent land.
- (2) A person to whom this section applies must not—
 - (a) obtain access between the land and the State-controlled road other than at a location at which access is permitted under the decision; or
 - (b) obtain access using road access works to which the decision applies, if the works do not comply with the decision and the noncompliance was within the person's control; or
 - (c) obtain any other access between the land and the road contrary to the decision; or
 - (d) use a road access location or road access works contrary to the decision; or
 - (e) contravene a condition stated in the decision; or
 - (f) permit another person to do a thing mentioned in paragraphs (a) to (e); or
 - (g) fail to remove road access works in accordance with the decision.

Maximum penalty-200 penalty units.

(3) However, subsection (2)(g) does not apply to a person who is bound by the decision because of section 68.

Attachment C

Appeal Provisions

Transport Infrastructure Act 1994 Chapter 16 General provisions

485 Internal review of decisions

- (1) A person whose interests are affected by a decision described in schedule 3 (the *original decision*) may ask the chief executive to review the decision.
- (2) The person is entitled to receive a statement of reasons for the original decision whether or not the provision under which the decision is made requires that the person be given a statement of reasons for the decision.
- (3) The Transport Planning and Coordination Act 1994, part 5, division 2-
 - (a) applies to the review; and
 - (b) provides—
 - (i) for the procedure for applying for the review and the way it is to be carried out; and
 - (ii) that the person may apply to QCAT to have the original decision stayed.

485B Appeals against decisions

- (1) This section applies in relation to an original decision if a court (the appeal court) is stated in schedule 3 for the decision.
- (2) If the reviewed decision is not the decision sought by the applicant for the review, the applicant may appeal against the reviewed decision to the appeal court.
- (3) The Transport Planning and Coordination Act 1994, part 5, division 3-
 - (a) applies to the appeal; and
 - (b) provides—
 - (i) for the procedure for the appeal and the way it is to be disposed of; and
 - (ii) that the person may apply to the appeal court to have the original decision stayed.
- (4) Subsection (5) applies if-
 - (a) a person appeals to the Planning and Environment Court against a decision under section 62(1) on a planning application that is taken, under section 62A(2), to also be an application for a decision under section 62(1); and

- (b) a person appeals to the Planning and Environment Court against a decision under the Planning Act on the planning application.
- (5) The court may order—
 - (a) the appeals to be heard together or 1 immediately after the other; or
 - (b) 1 appeal to be stayed until the other is decided.
- (6) Subsection (5) applies even if all or any of the parties to the appeals are not the same.
- (7) In this section—

original decision means a decision described in schedule 3.

reviewed decision means the chief executive's decision on a review under section 485.

31 Applying for review

- (1) A person may apply for a review of an original decision only within 28 days after notice of the original decision was given to the person under the transport Act.
- (2) However, if-
 - (a) the notice did not state the reasons for the original decision; and
 - (b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)

the person may apply within 28 days after the person is given the statement of the reasons.

- (3) In addition, the chief executive may extend the period for applying.
- (4) An application must be written and state in detail the grounds on which the person wants the original decision to be reviewed.

32 Stay of operation of original decision

- (1) If a person applies for review of an original decision, the person may immediately apply for a stay of the decision to the relevant entity.
- (2) The relevant entity may stay the original decision to secure the effectiveness of the review and any later appeal to or review by the relevant entity.
- (3) In setting the time for hearing the application, the relevant entity must allow at least 3 business days between the day the application is filed with it and the hearing day.
- (4) The chief executive is a party to the application.
- (5) The person must serve a copy of the application showing the time and place of the hearing and any document filed in the relevant entity with it on the chief executive at least 2 business days before the hearing.
- (6) The stay—
 - (a) may be given on conditions the relevant entity considers appropriate; and
 - (b) operates for the period specified by the relevant entity; and
 - (c) may be revoked or amended by the relevant entity.
- (7) The period of a stay under this section must not extend past the time when the chief executive reviews the original decision and any later period the relevant entity allows the applicant to enable the applicant to appeal against the decision or apply for a review of the decision as provided under the QCAT Act.

- (8) The making of an application does not affect the original decision, or the carrying out of the original decision, unless it is stayed.
- (9) In this section—

relevant entity means—

- (a) if the reviewed decision may be reviewed by QCAT—QCAT; or
- (b) if the reviewed decision may be appealed to the appeal court—the appeal court.

35 Time for making appeals

- (1) A person may appeal against a reviewed decision only within-
 - (a) if a decision notice is given to the person—28 days after the notice was given to the person; or
 - (b) if the chief executive is taken to have confirmed the decision under section 34(5)—56 days after the application was made.
- (2) However, if-
 - (a) the decision notice did not state the reasons for the decision; and
 - (b) the person asked for a statement of the reasons within the 28 days mentioned in subsection (1)(a);

the person may apply within 28 days after the person is given a statement of the reasons.

(3) Also, the appeal court may extend the period for appealing.



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FE	NCING NOTES:		
1.	ALL POSTS AND RAILS SHALL BE STEEL CIR (CHS) GRADE C250 IN ACCORDANCE WITH AS "STRUCTURAL STEEL HOLLOW SECTIONS".	CULAR HOLLOW SECTION /NZS 1163	
2.	ALL PIPE CLAMP FITTINGS, GATE HINGES, G Shall be "Downee" or an approved equ	ATE KEEPERS, etc IVALENT.	
з.	EACH RAIL BETWEEN POSTS SHALL BE A CO	NTINUOUS LENGTH.	
4.	ALL TUBES, FITTINGS AND FASTENERS SHAL AFTER FABRICATION IN ACCORDANCE WITH A	LL BE HOT DIP GALVANISED IS/NZS 4680.	
5.	FENCING MATERIALS INCLUDING WIRES, BARI Chain-link fencing fabric shall be mani As 2423 "Coated steel wire fencing pro	SED WIRE (WHERE ORDERED) AND DFACTURED IN ACCORDANCE WITH DUCTS".	
6.	ERECTION SHALL BE IN ACCORDANCE WITH A "CHAIN-LINK FABRIC SECURITY FENCES AND	S 1725 Gates", unless noted otherwise.	
7.	FENCING WIRE SHALL BE CONTINUOUS FROM GATE POST AND BE CONSTRUCTED WITH 180 CHAIN-LINK FABRIC SHALL BE "HEAVY OUT" GALV. CORE WIRF, WITH UNIFORM 50am DIA SHALL BE BARBED AND THE BOTTOM SELVE	GATE POST TO 0 mm HIGH CHAIN-LINK FABRIC. "", MANUFACTURED FROM 3.15 mm DIA. MOND MESH. THE TOP SELVEDGE DGE SHALL BE KNUCKLED.	
8.	SUPPORT CABLES SHALL CONSIST OF 2 x 3. Together between posts, or 1 x 4mm di. Spiralled. Support cables shall be ins	15mm DIA. GALV. CABLE WIRE, TWISTED A. GALV. HELICOIL CABLE WIRE HELIX TALLED IN ACCORDANCE WITH AS 1725.	
9.	LACING WIRE SHALL BE 2mm DIA. GALV. WI	RE INSTALLED IN ACCORDANCE WITH AS 1725.	
10.	TIE WIRE TO SECURE CHAIN-LINK FABRIC TO TO INTERMEDIATE POSTS, SHALL BE 2 x 1.5 WIRE, TIE WIRE TO SECURE CHAIN-LINK FAB WIRE TWISTED TWICE AND NEATLY CUT OFF TIE WIRES SHALL BE AND INSTALLED IN ACT (SEE ALSO TIE-OFF DETAIL)	POSTS, AND SECURE SUPPORT CABLES 7mm DIA. GALV. WIRES, OR 1 x 2mm DIA. GALV RIC TO CABLES SHALL BE 1 x 1.57mm DIA. GAL , OR 2mm DIA. GALV. WIRE NETTING CLIPS. ORDANCE WITH AS 1725.	v.
11.	BRACING CABLES (WITH TURNBUCKLE) SHALI WIRES TWISTED TOGETHER AND TENSIONED 12mm TURNBUCKLE. BRACING CABLES SHALL IN ACCORDANCE WITH AS 1725.	. CONSIST OF 2 x 3.15mm DIA. GALV. CORE In Conjunction with a Galvanised Be Galvanised and Installed	
12.	STRAINER ASSEMBLIES SHALL BE INSTALLE LENGTHS AND AT SIGNIFICANT CHANGES IN PANELS SHALL HAVE BRACING INSTALLED II	D AT 150m MAXIMUM CENTRES ON STRAIGHT Direction. All corner and strainer N Accordance with As 1725.	
13.	BOLLARDS SHALL BE INSTALLED AT GATES WHERE DIRECTED BY QUEENSLAND RAIL INFI SEE DETAILS THIS DRAWING.	TO SECURE DPEN GATE PANELS ONLY ASTRUCTURE OWNER.	
14.	IN CORROSIVE ENVIRONMENTS EXTRA GALVA AND/OR PLASTIC COATED MESH (WHERE OR	INISING SHALL BE PROVIDED FOR POSTS JERED).	
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Note 1: The pavement widening must match the depth of the existing pavement.

Note 2: Subsoil drainage must be provided under new kerb and channel.

Note 3: The table drain must not be located within the state-controlled road reserve.







IMPORTANT NOTE

This plan was prepared to accompany an application to Rockhampton Regional Council and should not be used for any other purpose.

The dimensions and areas shown hereon are subject to field survey and also to the requirements of council and any other authority which may have ments under any relevant legislatio

In particular, no reliance should be placed on the information on this plan for any financial dealing involving the land.

This note is an integral part of this plan.

JRT

project Sibelco Site 777 Yaamba Road, Parkhurst

Reconfiguration Plan (2 Lots into 12 Lots) (with Ortho Underlay)

Lots 20 & 30 on SP314611

Rockhampton Regional Council

-			
issue	date	details	authorised
Α	28-06-2019	Initial Issue	RJKF
В	8-07-2020	Lots 10-12 & 7-9 (Stages 5 & 6) added	RJKF
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STORMWATER MANAGEMENT PLAN (INCLUDING HYDRAULIC IMPACT ASSESSMENT)



Proposed Industrial Development 777 Yaamba Road PARKHURST

12 June 2020

File No: K4820-0003

PLANS AND DOCUMENTS referred to in the REFERRAL AGENCY RESPONSE



SARA ref: 1907-12044 SRA

Date:

28 July 2020



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DOCUMENT CONTROL SHEET

Title:	Stormwater Management Plan (Including Hydraulic Impact Assessment)
Document No:	K4820-0003
Original Date of Issue:	15 May 2020
Project Manager:	Martin Roushani-Zarmehri
Author:	M. Roushani-Zarmehri
Client:	Siris Consulting Engineers
Client Contact:	D. Cugola
Client Reference:	777 Yaamba Road, Parkhurst
Synopsis:	This Hydraulic Impact Assessment Report provides details of the potential for hydraulic impact due to the Proposed Industrial Development on 777 Yaamba Road Parkhurst. It includes adopted modelling parameters, hydraulic constraints, conceptual design information for the proposed development and a summary of the mitigation of impacts.

Reviewed by RPEQ	Reg. No.	Signed	Date
Martin Roushani- Zarmehri	22549		12 June 2020

Revision/Checking History			
Revision No	Date	Checked By	Issued By
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D.Cugola – Siris Consulting Engineers	1	PDF

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CONTENTS

1.0		INTRODUCT	ΓΙΟΝ	1
	1.1	Backgro	bund	1
	1.2	Study C	Dbjectives	1
	1.3	Site De	scription	1
		1.3.1	Location and Context	1
		1.3.2	Existing and Proposed Use	3
2.0		PROVIDED	DATA AND MODELLING APPROACH	4
	2.1	Existing	g Case Scenario Adoption	4
	2.2	RNAU 1	IMR TUFLOW Model	5
	2.3	Design	Case Provided Data	6
3.0		HYDROLOG	IC ASSESSMENT	7
	3.1	Hydrol	ogical Model - XPRAFTS	7
	3.2	XPRAF1	rS Model Results	9
4.0		HYDRAULIC	ASSESSMENT	. 10
	4.1	Hydrau	lic Modelling	10
		4.1.1	Model Consistency	. 10
		4.1.2	Land Use Manning's (n)	. 11
		4.1.3	Pre-Developed Scenario Model	. 12
		4.1.4	Post-Development Scenario Model	. 12
		4.1.5	Hydraulic Impact Assessment	. 13
		4.1.6	Proposed Flood Compliant Levels	. 15
5.0		WATER QU	ALITY ASSESSMENT	. 15
	5.1	Backgro	pund	15
	5.2	Constru	uction Phase	16
		5.2.1	Key Pollutants	. 16
		5.2.2	Sediment and Erosion Controls	. 16
		5.2.3	Water Quality Monitoring and Inspections	. 17
		5.2.4	Reporting	. 17
	5.3	Operat	ional Phase	17
		5.3.1	Stormwater Quality Objectives	. 17
		5.3.2	Post Development MUSIC Modelling	. 18
		5.3.3	Adopted Catchments	. 18
		5.3.4	Adopted SQID Design Parameters	. 18
		5.3.5	Post Development Modelling Results - Mitigated	. 20
6.0		CONCLUSIC)N	. 20

FIGURES

Figure 1:	Site Location Plan (Source: QLD Globe – Modified)	2
Figure 2:	RNAU Concept Plan – Yaamba Road Section (Modified from www.tmr.qld.gov.au)	2
Figure 3:	Deemed Lawful Points of Discharge (Source: RNAU Hydraulic Model, mapped in QGIS)	
Figure 4:	RNAU Model Components (Source: provided RNAU TuFLOW, files - Mapped in QGIS)	5
Figure 5:	Proposed earthworks design surface Digital Elevation Model (DEM) provided by the client	7
Figure 6:	Subject Site Location within existing RNAU Tuflow model catchment	
Figure 7:	LIM-16 Sub-Catchment properties – Source: Supplied XPRAFTS model	
Figure 8:	39% AEP XPRAFTS Local Inflow Hydrographs – Sub-Catchment LIM-16	9
Figure 9:	1% AEP XPRAFTS Local Inflow Hydrographs – Sub-Catchment LIM-16	10
Figure 10:	1% AEP TuFLOW Classic vs. TuFLOW HPC Comparison (Source: WaterRIDE)	11
Figure 11:	Examples of ROG Model Noise (Source: 39% AEP event Peak Afflux Map, via WaterRIDE)	14
Figure 12:	1% AEP event Peak Afflux Map (Source: WaterRIDE)	15
Figure 13:	Operational Phase Treatment Train (Source: KE MUSIC model)	19

TABLES

Table 1:	Provided TuFLOW Model Scenarios	5
Table 2:	Provided TuFLOW Model Scenarios	6
Table 3:	Adopted Initial Losses (Source: RRC/RNAU XPRAFTS Model)	9
Table 4:	XPRAFTS Peak Flow Rate	9
Table 5:	Manning's 'n' Roughness Coefficients – Adopted from Council's TUFLOW Model Parameters	11
Table 6:	Key Pollutants, Construction Phase	16
Table 7:	MUSIC Model Catchment Parameters	18
Table 8:	Adopted Bioretention System Parameters	19
Table 9:	Treatment Train Effectiveness at Receiving Node	20

APPENDICES

Appendix A	Siris Consulting Engineers, Lily Place Estate Site Layout Plan, (Ref: SCE-115-002)
Appendix B	Knobel Engineers, Model Layout Plans, (Ref: K4820/B001/A to B004/A)
Appendix C	Knobel Engineers, Pre-Development Peak Flood Mapping, (Ref: K3328/F100/A to F305/A)
Appendix D	Knobel Engineers, Post-Development Peak Flood Mapping, (Ref: K3328/F400/B to F605/B)
Appendix E	Knobel Engineers, Peak Flood Afflux Mapping, (Ref: K3328/F700/B to F705/B)
Appendix F	SDAP State Code Responses

1.0 INTRODUCTION

1.1 Background

Knobel Engineers has been commissioned by Siris Consulting Engineers to carry out a Stormwater Management Plan (SMP), which includes a Hydraulic Impact Assessment (HIA) at 777 Yaamba Road, Parkhurst, ('the site'). This HIA is to facilitate a Development Application for an Industrial Reconfiguration Of Lot (ROL) application to Rockhampton Regional Council, and the referable State Agencies.

Accordingly, this report has been provided in response to the Information Requests ('IR') by Rockhamption Regional Council ('RRC') - Application Reference No: D/52-2019, dated 11 July 2019, and the Queensland Government's Department of State Development, Manufacturing, Infrastructure and Planning ('SDMIP') – SARA Reference: 1907-12044 SRA dated 5 August 2019.

This report should be read in conjunction with the Response to RRC Information Request (Document No: K4820-0005) and the State Assessment and Referral Agency Information Request (Document No: K4820-0006), prepared by Knobel Engineers.

1.2 Study Objectives

This SMP aims to:

- Review existing information and studies for the subject site and surrounding catchment;
- Undertake site analysis for stormwater quantity and quality management purposes;
- Adopt the provided modelling files provided by the Department of Transport (as deemed appropriate by RRC), being the Rockhampton Northern Access Upgrade ('RNAU') TuFLOW Hydraulic Model, to establish a "base case" hydraulic model;
- Hydrological assessment of the subject site considering the proposed development;
- Update the "base case" model with the post-development scenario (provided by Siris Consulting Engineers), which adopts updated hydrologic implications, topographical modifications, manning's roughness and drainage, to investigate and determine if there are any anticipated flood impacts as a result of the proposed development.
- Analysis the pre- and post-development scenarios for the typical 39% AEP to 1% AEP critical duration events, for assessment purposes;
- Propose mitigation solutions should any hydraulic impacts be determined; and
- Provide output results from the hydraulic modeling including pre-versus post development flood level and velocity afflux mapping.

1.3 Site Description

1.3.1 Location and Context

The site is located at 777 Yaamba Road, Parkhurst, however is formally identified as the following lots:

- Lot 20 on SP314611 (Area = 10.67ha); and
- Lot 30 on SP314611 (Area = 8.887ha).

The site location and surrounding properties have been illustrated in *Figure 1* below.

The northern lot (30/SP314611) contains a major and minor access point, which fronts Yaamba Road. Yaamba Road forms part of the Bruce Highway, which is currently in the process of being upgraded as part of the Department of Transport and Main Roads (DTMR) Rockhampton Northern Access Upgrade (RNAU) project (RNAU Concept Plan: Proposed site's extents shown in figure 2 below).

Upon completion of the works at the site frontage, the subject site will retain the northern access point, however will be connected to a Service Road adjacent to the Bruce Highway. An opportunity to connect the southern portion of the site to a Southern Service Road is also available.

As illustrated in, the site is bound by an industrial lot to the north and south-west, bounded by Yaamba Road and a service road to the east and south-east of the site, and by the Queensland Rail ('QR') North Coast Railway Line to the west.



The subject site in the context of the surrounding area is shown in *Figure 2*.

Figure 1: Site Location Plan (Source: QLD Globe – Modified)



Figure 2: RNAU Concept Plan – Yaamba Road Section (Modified from www.tmr.qld.gov.au)

1.3.2 Existing and Proposed Use

The subject site was recently reconfigured through a partial resumption of land for the RNAU project. The site contains the remnants of the old Parkhurst Cement Works which was abandoned in 2009. The site contains a manmade waterbody to the south, which is deemed to have been utilised for industrial activities (Cement plant operations) over time.

As part of the Development Application (DA) for the site, it is proposed that the old cement works infrastructure is demolished and the site be levelled, in preparation of a 13 Lot Industrial Subdivision, and associated stormwater management area, as shown in Appendix A of this report (Drawing Ref: SCE-115-002).

1.3.3 Lawful Point of Discharge

Due to the complex topography within the existing site, as a result of the historical cement plant industrial activities, a stormwater catchment plan is not deemed appropriate. However, the existing and post-development Lawful Points of Discharge are able to be ascertained via the Rainfall-On-Grid hydraulic model, as these utilise topographical data, and determine the concentrated flow paths leaving the site.

Refer to Figure 3 below which illustrates the deemed pre and post-development Lawful Points of Discharge.



Figure 3: Deemed Lawful Points of Discharge (Source: RNAU Hydraulic Model, mapped in QGIS)

2.0 PROVIDED DATA AND MODELLING APPROACH

To assess the potential for both stormwater quantity management and flood hydraulic impact, as a result of the proposed development, a hydraulic impact assessment is deemed required. As part of a data agreement, Rockhampton Regional Council (RRC) have supplied the DTMR RNAU TUFLOW and XPRAFTS Model for development assessment purposes, as this model would more appropriately reflect an existing scenario for the assessment.

BMT WBM's TUFLOW model is deemed an appropriate model to adopt, as it simulates depth-averaged one and two-dimensional free-surface flows using a majority of the hydraulic shallow water equation.

The TuFLOW models provided by RRC contained design AEP storms between the 10% and 1% design AEP events, and therefore to provide an assessment of all typical design events from the 39% design AEP event, additional hydrological outputs were generated from the XPRAFTS hydrologic model (provided by RRC), to extend the TuFLOW model's design event runs.

This modelling approach has been adopted to meet the requirements requested by the State Assessment and Referral Agency (SARA), where the following flood and stormwater events (39%, 18%, 10%, 5%, 2% and 1% AEP) are required to demonstrate that the post-development case will achieve a deemed nonworsening criteria impact when compared to the existing case scenario.

2.1 Existing Case Scenario Adoption

The supplied RNAU TUFLOW models were prepared by AECOM (Rockhampton) on behalf of Rockhampton Regional Council (RRC) and the Queensland Department of Transport and Main Roads (DTMR), as part of the RNAU project.

The supplied modelling files include two different model setups – one for RRC and the other for TMR. Based off consultation with RRC's engineering officers, it was deemed appropriate to adopt the RNAU design model setup, given that this scenario more appropriately represents the 'existing condition' (inclusive of a completed RNAU project) of the site and its surroundings.

Further liaison with RRC has assisted in determining the suitable base model to be adopted. It was determined that the model scenario "D3c" by DTMR was the most appropriate model to adopt for a base case, given this scenario also takes into consideration climate change.

Refer to Table 1 below for the different types of scenarios provided by RRC.

For further details on the pre-development TuFLOW model setup and 2D Manning's roughness map, refer to *Appendix B* of this report.

Table 1: Provided TuFLOW Model Scenarios

TuFLOW Model Scenario	Model Description
E2c	RRC model setup – pre RNAU
R2e	RRC model setup – post RNAU
E2b	TMR model setup – pre RNAU
D3c (Adopted)	TMR model setup – post RNAU + Climate Change

2.2 RNAU TMR TUFLOW Model

The RNAU TUFLOW model by TMR is based on the extents of RRC's Limestone Creek Catchment. To simulate the worst-case scenario of the site, the existing detention basin will be represented as being at full capacity before the event storm is to be applied on the model.



Figure 4: RNAU Model Components (Source: provided RNAU TuFLOW, files - Mapped in QGIS)

Additional items that are to be noted as part of adopting the RNAU TuFLOW 'D3c' scenario model include:

- The level of detail as part of the RNAU project is based off design work completed as of the 15th March 2018;
- Bridge parameters are based on the 85% complete bridge design for Limestone Creek Southbound Bridge;
- The Ultimate Bridge Design for Limestone Creek Northbound Bridge was modelled as a sensitivity using the 15% complete bridge design drawings;
- Modelling is based on provided RNAU project design only;
- The adopted upstream flow diversion strategy at Norman Road and Bondeson Drive is modelled utilising adopted conceptual design available at the time of modelling; and
- The existing water body within the site area was modelled as full capacity, as historical aerial imagery demonstrates this water body generally being full over the long term.

Table 2 below identifies the event and duration modelling results supplied by RRC within the TuFLOW Model. Section 3.0 provides discussion on the adopted methods to extend the hydrologic outputs to simulate the critical duration events for the site.

Table 2: Provided TuFLOW Model Scenarios

Event (AEP)	Provided Durations (Mins)
39%	No results provided
18%	No results provided
10%	120mins
5%	60mins
2%	60mins
1%	90mins

2.3 Design Case Provided Data

Siris Consulting Engineers has provided the proposed design case Digital Elevation Model (DEM) data, which has been used as a base case in preliminary mitigation iterations. In order to provide a desired outcome for a deemed acceptable hydraulic impact, further consultation has been undertaken with Siris Consulting Engineers, to provide a civil design outcome which integrates the required hydraulic design outcomes.

The design case DEM data which has been 'stamped' over the existing case model, which has been illustrated below in *Figure 4* for an appreciation of the model approach.

For further details on the post-development TuFLOW model setup and 2D Manning's roughness map, refer to *Appendix B* of this report.



Figure 5: Proposed earthworks design surface Digital Elevation Model (DEM) provided by the client

3.0 HYDROLOGIC ASSESSMENT

3.1 Hydrological Model - XPRAFTS

RRC has supplied Knobel Engineers ('KE'), a copy of the XPRAFTS model used for the RNAU project. As per the supplied XPRAFTS model by RRC, the sub-catchments within the regional Limestone Creek catchments were reviewed, to determine which sub-catchment have influencing flows over the site, to run the appropriate hydrological simulations, for critical duration adoption purposes.

As seen in the Limestone Creek catchment delineation data, mapped in *Figure 5* below, the main subcatchment which has influence and pertains to the subject site is sub-catchment LIM-16. It is deemed no other sub-catchments contribute flow to the site, or the sub-catchment of which the site pertains to.



Figure 6: Subject Site Location within existing RNAU Tuflow model catchment

A screenshot of the sub-catchment properties within the supplied XPRAFTS model is shown below in *Figure 6.*

Subcatchment Data: Node LIM-16 (Subcatchment 1)	
Rainfall Losses Pervious	Split catchment into pervious/impervious
Initial/Continuing LIM-16	Local Storm
⊖ ARBM	Location:
Rainfall Losses Impervious	
Initial/Continuing	
○ ARBM	
Total Area 98.6922	
Impervious 69.8318 %	
Vectored Slope 0.64473655	
Pervious Mannings 'n' 0.04	
Impervious Mannings 'n' 0.025	
Use 10 UnEqual Sub areas	
Use Direct Storage Coefficent	
Use non-standard Storage Exponent	Use Baseflow
	OK Cancel

Figure 7: LIM-16 Sub-Catchment properties – Source: Supplied XPRAFTS model
The adopted Pervious Initial Loss, as per the provided XPRAFTS model for each corresponding design storm AEP event were retained, and have been shown in Table 3 below for clarity:

Event (AEP)	Adopted Initial Loss (mm/hr)
39%	10
18%	10
10%	10
5%	5
2%	0
1%	0

Table 3: Adopted Initial Losses (Source: RRC/RNAU XPRAFTS Model)

3.2 XPRAFTS Model Results

The inflow hydrographs found in the supplied XPRAFTS shows that peak flow and duration for the proposed development site for each corresponding event are:

Event (AEP)	XPRAFTS Peak Flow Rate (m ³ /s)	Critical Duration (min)
39%	21.6	60
18%	29.7	60
10%	34.5	60
5%	41.6	60
2%	49.6	60
1%	56.9	60

Table 4: XPRAFTS Peak Flow Rate

For a visual appreciation of the flow hydrographs from the site's sub-catchments, a range of duration hydrographs have been provided for the 39% and 1% design AEP events in Figure 6 and 7, respectively.





As noted in the above figures, the critical duration has been determined as the 60min storm duration for all design AEP events.

Given the site is already zoned as industrial in the pre-development scenario, it was deemed reasonable to adopt these critical durations for the post-development assessment for a consistent approach.

4.0 HYDRAULIC ASSESSMENT

A hydraulic assessment utilising TUFLOW was undertaken to establish pre development flood extents/flow paths, flood levels and flood velocities across the site for the 1 in 2yr ARI (39% AEP), 1 in 5yr ARI (18% AEP), 1 in 10yr ARI (10% AEP), 1 in 20yr ARI (5% AEP), 1 in 50yr ARI (2% AEP) and 1 in 100yr ARI (1% AEP) critical design storm events.

To provide an adequate assessment in accordance with Council and SARA requirements, the hydraulic assessment will demonstrate and quantify any potential impacts caused by the proposed development, on peak flood levels within and external to the site. The following section describes the pre development and post development hydraulic model verification, set-up and results of the modelling.

4.1 Hydraulic Modelling

4.1.1 Model Consistency

To ensure consistency between the supplied models by RRC/TMR and that of KE's, all XPRAFTS and TUFLOW inputs by KE were based and built from the supplied models. The hydrologic method utilised within the supplied TuFLOW model was the Rainfall On Grid method, which has been retained for this assessment.

The supplied TuFLOW model has been setup to run utilising TuFLOW Classic, however to provide a much faster runtime, TuFLOW's Heavily Parallelised Compute (HPC) functionality with GPU processing has been adopted within the hydraulic impact assessment modelling. Accordingly, the HPC results have been confirmed via benchmarking against the Classic results, that the modelling outcomes are reasonably similar, and suitable for adoption for the hydraulic impact assessment.

See Figure 9 below which demonstrates the 1% AEP design event impacts, between the TuFLOW Classic result and the TuFLOW HPC result.



Figure 10: 1% AEP TuFLOW Classic vs. TuFLOW HPC Comparison (Source: WaterRIDE)

4.1.2 Land Use Manning's (n)

For both base case scenario and post development scenario, the Manning's 'n' values and associated model layers set up in the previous RNAU TUFLOW model remained unchanged and were adopted for this HIA. The adopted Manning's 'n' hydraulic roughness parameters are outlined below in *Table 5*.

Refer to *Appendix B* for the pre and post-development 2D Manning's 'n' roughness maps.

Materials Layer	Manning's 'n' Value
High Density Residential - General lots < 1200 sq. meters	0.060-0.150
Medium Density Residential - Mixture of clear and vegetation areas on developed land	0.060-0.120
Low Density Residential - High density vegetation with building obstructions	0.060-0.090
Industrial, Outlet Protection	0.060
High Density Vegetation - Very bushy and many plant obstructions	0.090-0.150
Medium Density Vegetation - Bushy with larger plant obstructions	0.070-0.110
Low Density Vegetation - Long grass, some brush	0.045-0.080
Channel	0.050-0.060
Riparian Corridor - Bushy with larger plant obstructions	0.060-0.100
Maintained Grass	0.035
Road Reserve	0.030
Railway	0.025
Fitzroy River Bed (at DS boundary)	0.022
Long Grass	0.040
Buildings	0.018-0.50
Steep Slopes	0.090-0.110

Table 5: Manning's 'n' Roughness Coefficients – Adopted from Council's TUFLOW Model Parameters

4.1.3 Pre-Developed Scenario Model

The base case model set up was described in the previous section (Section 2.2).

The peak water depth and peak velocity mapping results for the pre-development TUFLOW model scenarios have been presented in Appendix D, for the following design storm events:

- 1 in 2yr ARI (39% AEP);
- 1 in 5yr ARI (18% AEP);
- 1 in 10yr ARI (10% AEP);
- 1 in 20yr ARI (5% AEP);
- 1 in 50yr ARI (2% AEP); and
- 1 in 100yr ARI (1% AEP).

4.1.4 Post-Development Scenario Model

The proposed development layout of the site is attached in *Appendix A* of the report.

As illustrated in the development plan supplied by Siris Consulting Engineers, the proposed subdivision site has been designed to ultimately discharge flows from the individual lots to the proposed basin in the south-western corner of the site area. There is also a channel through the site to divert flows from the eastern side, and along the western boundary, to promote capture of flows off the Queensland Rail land, and into a formalised channel.

The developed scenario's building pads have been levelled to be above the adjacent major flow channels along the perimeter of the site, to ensure an adequate level of freeboard has been considered. The north-eastern half of the subject site will remain at existing site levels, as no earthworks are proposed in this region.

The 2D Manning's roughness 'n' has also been updated as per the Manning's values provided in Table 5, in proposed development areas, to account for future impervious surfaces and roads.

The topographical modifications undertaken using TuFLOW modelling tools, in addition the client's supplied design tin, includes proposed culverts discharging from the basin, and drainage under the proposed internal road, as detailed below.

Channels

It is noted that further refinement of the channels can be undertaken at detailed design to provide equivalent conveyance abilities;

- A channel which runs parallel along the inner western boundary of the site, that collects external north-western flows, and any additional flow from the adjacent QR land. This ultimately connects to the site's proposed basin. This channel varies along it's width, however has approximate maximum sizes of a 4m wide base, 10m wide top, and approximately 1.8m deep;
- A channel through the middle of the site, which connects the eastern parts, to discharge flows towards the western parts of the site, modelled to be approximately 4m bottom width, 8m top width, and approximately 600mm deep on the upstream side. Whereas on the downstream side, it has been modelled to be approximately 4m bottom width, 6m top width and 1.2m deep. These flows ultimately connect to the site's proposed basin;

<u>Basin</u>

- A basin has been provided at the southern corner of the site, which has a basin invert level at RL20.55mAHD at the lowest regions, and embankments as high as 23.0mAHD. The basin has a floor slope of approximately 0.8% to allow it to drain efficiently. The basin outlet pipes are detailed below;
- A portion of the proposed basin contains a stormwater quality treatment bioretention basin area.
 Refer to Section 5.0 of this report for further information of the adopted bioretention area.

Drainage Structures

- 2no. 900mm RCP cross-road drainage structures to connect middle channels internal to the site;
- Basin Outlets:
 - \circ ~ 1no. 600mm (W) x 900mm (H) Rectangular Concrete Box Culvert; and
 - o 3no. 900mm (W) x 900mm (H) Rectangular Concrete Box Culverts.

Designated Flood Level

The Defined Flood (Event) Level (DFL) for the site is determined via the 1 in 100yr ARI (1% AEP) storm event as defined in the Local government's requirement and QUDM. Given the topographical changes across the site and the flooding source, the post-development DFL for the site varies across the channel chainages, and the respective depth along the chainage. Accordingly, the detailed civil design is to adhere to the minimum DFL level requirements as shown in the post-development modelling peak mapping results.

The base case model set up was described in the previous section (Section 2.2).

Peak Mapping Results

The peak water depth and peak velocity mapping results for the post-development TUFLOW model scenarios have been presented in Appendix E, for the following design storm events:

- 1 in 2yr ARI (39% AEP);
- 1 in 5yr ARI (18% AEP);
- 1 in 10yr ARI (10% AEP);
- 1 in 20yr ARI (5% AEP);
- 1 in 50yr ARI (2% AEP); and
- 1 in 100yr ARI (1% AEP).

The peak water level map has also been provided for the 1 in 100yr ARI (1% AEP) event, to demonstrate the required DFL levels for the proposed development.

4.1.5 Hydraulic Impact Assessment

The peak water surface levels were generated for both pre-developed and post-developed Scenarios, and an afflux impact assessment has been undertaken and peak flood impact maps presented in Appendix E. The figures present the potential flood level impact (afflux) caused by the proposed development for the 39% to 1% design AEP events.

As seen in *Appendix E* of the report, there is afflux shown externally to the eastern and south-eastern sides of the site, within the existing DTMR roadside channels. It is however noted that these regions have been

Provided as dedications to DTMR previously, to provide trafficability off Yamba Road/Bruce Highway, and to contain stormwater within these roadside channels.

Furthermore, the afflux demonstrated is deemed to occur, given the development of the site up to the boundary is disallowing road surface flows to enter into the site, but rather is shown to be displaced into the allocated channels in the DTMR dedicated stormwater channels.

Accordingly, the afflux results shown in the stormwater channel regions are deemed to be generally contained in the DTMR road regions, and therefore not deemed to affect the trafficability of the proposed design works.

There is afflux demonstrated within the subject site boundaries, however this is deemed to be acceptable.

It is noted that there are small random afflux cells within the model, however given the adopted approach is a Rainfall On Grid method, it is common to experience a level of model noise as shown below in Figure 10.



Figure 11: Examples of ROG Model Noise (Source: 39% AEP event Peak Afflux Map, via WaterRIDE)

The post-development scenario has shown a general decrease in peak water levels for all design AEP events within the Railway Corridor and the north-western portion of the site, which is generally deemed a desirable outcome.

The peak flow rates and peak water levels leaving the site at the southern Lawful Point of Discharge (LPOD) also demonstrates a general reduction from pre to post-development scenarios for all design AEP events, and therefore is deemed an appropriate solution.



Figure 12: 1% AEP event Peak Afflux Map (Source: WaterRIDE)

Overall modelling indicates that there are no actionable or adverse impacts to neighbouring properties or transport infrastructure, in particular the QR Railway Corridor at the western side of the site (whereby peak flood level reductions have also been demonstrated), for all design AEP events. Accordingly, it is deemed that the requirements by the State Assessment and Referral Agency (SARA) have been satisfied, in accordance with the State Development Assessment Codes.

4.1.6 Proposed Flood Compliant Levels

As discussed previously the proposed industrial lot level pads have been set above the designated flood event (DFE) for modelling purposes and as a conservative approach.

5.0 WATER QUALITY ASSESSMENT

5.1 Background

The development of the land has the potential to increase the pollutant loads within stormwater runoff and downstream watercourses. During the construction phase of the development, disturbances to the existing ground have the potential to significantly increase sediment loads entering downstream drainage systems and watercourses. The operational phase of the development will potentially increase the amount of sediments and nutrients washing from the site.

The following sections describe construction and operational phase controls and water quality modelling of the proposed treatment train in compliance with Council guidelines.

5.2 Construction Phase

A high risk of stormwater pollution will occur from the site during the construction phase due to erosion and sediment transportation off site to the receiving environment. The majority of this risk results from construction activities disturbing the site and exposing areas of soil to the direct erosive influence of the environment.

The following section outlines the procedures necessary to minimise erosion and control sediment during construction in accordance with the International Erosion Control Association (IECA) Best Practice ESC Document.

5.2.1 Key Pollutants

The key pollutants have been identified for the Construction Phase of this development.

Pollutant	Sources
Litter	Paper, construction packaging, food packaging, cement bags, material off cuts.
Sediment	Exposed soils and stockpiles during earthworks and building works.
Hydrocarbons	Fuel and oil spills, leaks from construction equipment and temporary car park areas.
Toxic Materials	Cement slurry, asphalt primer, solvents, cleaning agents, and wash waters (e.g., from tile works).
Acids or Alkaline substances	Acid sulphate soils, cement slurry and wash waters.

 Table 6:
 Key Pollutants, Construction Phase

5.2.2 Sediment and Erosion Controls

Sediment and Erosion Control devices (S&EC) employed on the site shall be designed and constructed in accordance with the *International Erosion Control Association (IECA) Best Practice ESC Document*. As the bulk earthworks for the site have already been conducted, the following devices and management measures proposed for controlling sediment and erosion are specific to the construction of the operational phase development works.

Pre-Construction

- Stabilised site access/exit onto Yaamba Road (Service Road) to the east;
- Sediment fences to be located around the perimeter of the site;
- Sediment trap to be installed in the southeast corner of the site;
- Dust fencing to be installed if required; and
- Educate site personnel to the requirements of Erosion and Sediment Control Plan.

Initial Construction – Bulk Earthworks

- Maintain construction access/exit, sediment fencing, dust fences and all other existing controls as required;
- Construct diversion drains to convey disturbed site run-off to the temporary sediment traps; and
- Confine construction activities to stages to minimise areas of disturbance at any given time.

Second Stage Construction

- Maintain construction access/exit, sediment fencing, dust fences, diversion drain, and all other existing controls as required;
- Progressively revegetate finished areas where applicable;
- Divert runoff from un-disturbed areas around disturbed areas; and
- Drainage structure protection around field inlets and gully pits.

During construction, all areas of exposed soils allowing dust generation are to be suitably treated. Treatments will include covering the soil and watering. Road accesses are to be regularly cleaned to prevent the transmission of soil on vehicle wheels and eliminate any build-up of typical road dirt and tyre dusts from delivery vehicles.

Adequate waste disposal facilities are to be provided and maintained on the site to cater for all waste materials such as litter, hydrocarbons, toxic materials, acids or alkaline substances.

5.2.3 Water Quality Monitoring and Inspections

To ensure that the water quality objectives are being met during the construction phase of the development water quality monitoring shall be conducted. Water quality monitoring shall use a calibrated probe or sampling and testing at a NATA registered laboratory.

Location: Monitoring Stations at the most downstream location of each sub-catchment, after sediment fences, to ensure an adequate reading of site sediment treatment.

Parameters: Site discharge criteria.

Frequency: Following at least 30 mm of rainfall in a 24 hour period.

The contractor shall be responsible for the inspection and maintenance of all sediment and erosion control devices. Additional controls and review of existing controls shall be undertaken in response to the results of the above-mentioned monitoring program.

5.2.4 Reporting

An inspection report shall be written by a suitably qualified and experienced scientist/engineer following each water quality monitoring episode. The report shall include at least the following information:

- Name, address and real property description for the development site;
- Council file reference number (if known);
- Monitoring locations;
- Performance criteria;
- Results for each monitoring location, identifying any breaches of performance criteria;
- Recommended corrective actions to be taken and additional sediment and erosion controls, if required; and
- Inspection reports shall be provided to the contractor for their action and compilation in an onsite register.

If the above-mentioned performance criteria are exceeded and results from the downstream monitoring stations show significant deterioration from upstream results (if applicable), the contractor shall implement all recommendation of the inspection report within one (1) working day of receipt of the report.

5.3 Operational Phase

The following sections provide details of the Stormwater Quality Improvement Devices (SQID's) proposed for the operational phase of the development.

5.3.1 Stormwater Quality Objectives

To protect the water quality of the downstream watercourses the following Water Quality Objectives (WQO's) has been applied to stormwater runoff from the site in accordance with the State Planning Policy 2017 and the RRC Stormwater Quality requirements.

Best Management Practices (BMP) are required to be demonstrated for all Development Applications within RRC and are recommended to be implemented by the developer. Where practicable, methods such as first flush devices, and discharging stormwater to landscaped/grassed areas prior to discharge to the LPOD, are to be incorporated into the site's stormwater strategy, where the opportunity is available.

The following load reduction targets must be achieved when assessing the post-development treatment train (comparison of unmitigated developed case versus developed mitigated case).

- 85% reduction in Total Suspended Sediment (TSS)
- 60% reduction in Total Phosphorus (TP)
- 45% reduction in Total Nitrogen (TN)
- 90% reduction in litter (sized 5 mm or greater)

5.3.2 Post Development MUSIC Modelling

To assess the potential quantities of pollutants anticipated to be discharged from the site, the water quality modelling package 'Model for Urban Stormwater Improvement Conceptualisation' (MUSIC) V6.3 by eWATER has been applied. MUSIC Modelling Parameters and delineated data have been sourced from Water by Design, *MUSIC Modelling Guidelines*, and where possible, via online MUSIC Link data.

Rainfall data has been sourced from Rainfall Station 39083, (Rockhampton) using a date range from 1991 to 2001 and a 6 Minute Time Step, in accordance with RRC requirements.

5.3.3 Adopted Catchments

The development has been modelled with the assumption that all developable areas and road Q3-month flows are to be diverted to the treatment area, which is located at the lowest point within the subject site. The adopted primary treatment strategy for the site is a large bioretention basin for the entire development, which shall allow flows to be treated prior to discharge into the receiving waterways downstream of the subject site.

The MUSIC model schematic has been illustrated in Figure 9.

Stormwater Pollutant catchment modelling for the development has been estimated based off catchment analysis, and the prescribed Water by Design MUSIC modelling guidelines Version 1.0, 2010 (WBDMG).

Given the future variability in catchment type splits, a Lumped catchment approach has been adopted for the subject site, which adopts an Industrial Lumped type for consistency.

Typical Impervious Fractions used for Lumped-catchments have been adopted from Table 3.6 in the Water by Design MUSIC Modelling Guidelines Version 1.0, 2010.

Adopted catchment parameters have been provided below in *Table 7*.

Table 7:	MUSIC Model	Catchment	Parameters

		Treature and Truce	Adopted P	arameters
	Catchment Type	atchment Type Treatment Type	Area (ha)	fi
Development	Industrial (Lumped)	Bioretention	13.21	0.90

Further assumptions associated with the model involve:

- The rainfall-runoff parameters have been based off the Industrial Land Use parameters set out in WBDMG Table 3.7;
- The pollutant export parameters for Lumped-catchment Residential land use has been adopted from WBDMG Table 3.9;
- Default routing (No flow routing or translation between nodes);
- No seepage/exfiltration (0 mm/hr); and
- All other parameters used within the modelling were based on Water by Design MUSIC Modelling Guidelines Version 1.0, 2010.

5.3.4 Adopted SQID Design Parameters

A Bioretention (SQID – Stormwater Quality Improvement Device) will be utilised to treat stormwater runoff from the site, as it is deemed the most suitable for the proposed site use. The proposed SQID has been provided for modelling purposes only and is subject to council approval. Accordingly, similar and alternative SQID devices may be adopted upon council assessment and approval.

Detailed design of the stormwater treatment train shall be in accordance with the WSUD, Technical Design Guidelines for South East Queensland – Version 1 (June 2006).

BIORETENTION BASIN

A bioretention basin is designed to pond stormwater allowing it to percolate through a layer of filter media, typically sandy loam. Runoff passing through the filter media is collected with a perforated pipe discharging to the downstream drainage infrastructure. The Bioretention basins shall be located to treat all stormwater from the development areas.

The required bioretention parameters are based on the model output for compliance with the SPP and have been provided below in *Table 8.*

Parameter	Northern Basin Adopted Values
Surface Area (m²)	2100
Extended detention depth (m)	0.30
Filter area (m ²)	1100
Unlined filter media perimeter (m)	0.01
Saturated hydraulic conductivity (mm/hr)	180
Filter depth (m)	0.60
TN content of filter media (%)	400
Orthophosphate content of filter media (mg/kg)	30
Is the base lined?	Yes
Vegetated with effective nutrient removal plants	Yes
Overflow weir width (m)	3.60
Exfiltration rate (mm/hr)	0
Underdrain present?	Yes
Submerged zone with carbon present?	No
Depth of submerged zone (m)	N/A
Confirmation that K and C* remain default	Yes

Table 8: Adopted Bioretention System Parameters

An illustration of the MUSIC model of the adopted operational treatment train for the post-development site has been provided below in *Figure 10*.

ing Node	Bioretention Estimate - 2	100m2 SA - 1100m2	FA Indust	rial - Lumped Catchm	ent (Approx 13.21ha - Lots 1-6,10
	Treatment Train Effectiveness - Receiving N	lode		23	
		Sources	Residual Load	% Reduction	
	Flow (ML/yr)	38.7	36.5	5.7	
	Total Suspended Solids (kg/yr)	5300	762	85.6	
	Total Phosphorus (kg/yr)	13.9	3.28	76.4	
	Total Nitrogen (kg/yr)	89.4	44.4	50.3	
	Gross Pollutants (kg/yr)	420	0	100	

Figure 13: O

Operational Phase Treatment Train (Source: KE MUSIC model)

5.3.5 Post Development Modelling Results - Mitigated

The modelled Stormwater Quality Improvement Devices (SQID) has demonstrated a reduction in the amount of sediments and nutrients discharging from the post-development site. *Table 9* illustrates the effectiveness of the SQID's within the treatment train at the Receiving Node.

Parameter	Post	Post Mitigated	Reduction	Water Quality Objectives
Flow (ML/yr)	38.7	36.5	8	-
TSS (kg/yr)	5300	762	86	80 %
TP (kg/yr)	13.90	3.28	76	60 %
TN (kg/yr)	89.4	44.4	50	45 %
Gross Pollutants (kg/yr)	420	0	100	90 %

Table 9:	Treatment Train	Effectiveness at	t Receivina	Node
	In cutilite in all		. neeeening	

The results demonstrate that the proposed SQID's meet the intended Water Quality Objectives for Gross Pollutants, Suspended Solids, Phosphorous and Nitrogen levels, in accordance with the RRC Requirements and The State Planning Policy 2017.

6.0 CONCLUSION

Knobel Engineers has been commissioned by Siris Consulting Engineers to carry out a Stormwater Management Plan (SMP), which includes a Hydraulic Impact Assessment (HIA) at 777 Yaamba Road, Parkhurst, ('the site'). This HIA is to facilitate a Development Application for a Industrial Reconfiguration Of Lot (ROL) application to Rockhampton Regional Council, and the referable State Agencies.

This Stormwater Management Plan (SMP) and Hydraulic Impact Assessment (HIA) was prepared to quantify and demonstrate the the potential stormwater and flooding within the site, as a result of the proposed industrial development within 777 Yaamba Rd, Parkhurst, Rockhampton.

The results of the analysis have determined that:

- The adoption of a proposed basin and conveyance channels within the site, provides adequate mitigation, in order to demonstrate no worsening from pre to post-development scenarios. The proposed basin contains a bioretention component which has been demonstrated via a MUSIC model, to provide adequate stormwater quality treatment for the site, in accordance with The State Planning Policy;
- The stormwater quantity management for the site has been demonstrated via the hydraulic impact assessment component of this Stormwater Management Plan report;
- The designated flood level (DFL) for the site varies between approximately 25.00m AHD to 22.30mAHD, based on location within the site;
- The site in the existing scenario is inundated in the 1% AEP event, up to approximately 3.60m within the existing water body, and up to approximately 2.0m within the existing channels within the site;
- Existing velocities around the site are generally within 1.0m/s along the north, west and southern boundaries, and up to approximately 2.0m/s along the southern side, in the 1% AEP design event;
- The proposed development has generally demonstrated no actionable nuisance or adverse impacts externally (no material worsening of peak flood level or peak flood velocity), which includes the State Controlled Road (Yaamba Road/Bruce Highway) and the Railway Corridor to the west; and
- The current conceptual layout is deemed to be acceptable at this phase of the development application. Further refinement of the channels can be undertaken at the detailed design phase, to accommodate the required flows and outcomes from this preliminary hydraulic impact analysis.

Α

Siris Consulting Engineers

Lily Place Estate Site Layout Plan

(Ref: SCE-115-002)



В

Knobel Engineers

Model Layout Plans

(Ref: K4820/B001/A to B004/A)



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С

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Pre-Development Peak Flood Mapping

(Ref: K3328/F100/A to F305/A)





С

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Pre-Development Peak Flood Mapping

(Ref: K3328/F100/A to F305/A)




































APPENDIX

D

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Post-Development Peak Flood Mapping

(Ref: K3328/F400/B to F605/B)





































APPENDIX

Ε

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Peak Flood Afflux Mapping

(Ref: K3328/F700/B to F705/B)













APPENDIX

F

SDAP State Code Responses

State Code Responses

Note: Only Relevant Stormwater and Hydraulic Items have been addressed.

State Code 1: Development in a state-controlled road environment

Table 1.2.1: Development in a state-controlled road environment

Performance outcomes	Acceptable outcomes	Response
Buildings and structures		
PO1 The location of buildings, structures, infrastructure, services and utilities does not create a safety hazard in a state-controlled road, or cause damage to, or obstruct road transport infrastructure.	AO1.1 Buildings, structures, infrastructure, services and utilities are not located in a state-controlled road. AND	The proposed development is deemed to comply, as stormwater infrastructure is generally proposed within the site boundaries only. The proposed basin will have outlets which discharge into the existing DTMR stormwater channel. It is anticipated that appropriate scour outlet protection will be provided in the civil design. All existing stormwater infrastructure within the State Controlled Road will be retained and unmodified.
	AO1.2 Buildings, structures, infrastructure, services and utilities can be maintained without requiring access to a state-controlled road.	Proposed Infrastructure will discharge into the existing stormwater channels south of the subject site, and therefore access will be required. However it is not envisaged that the proposed infrastructure will significantly impact the State-Controlled Road's operation.

State Development Assessment Provisions – Version 2.6 State Code 1: Development in a state-controlled road environment State Code 2: Development in a Railway Environment State Code 6: Protection of State Transport Networks Knobel Engineers

11 June 2020		
Performance outcomes	Acceptable outcomes	Response
Filling, Excavation and Retaining Structures		
PO8 Development involving the haulage of fill, extracted material or excavated spoil material exceeding 10,000 tonnes per year does not damage the pavement of a state-controlled road.	AO8.1 Fill, extracted material and spoil material is not transported to or from the development site on a state-controlled road	The site has historically gained access via the State Controlled Road, and is deemed to have industrial traffic volumes, given the industrial activities undertaken on site.
		The proposed development site retains the access via the Service Road (Yaamba Road).
		Accordingly, if material movement into and out of the site is required for stormwater management reasons, it is deemed any movement of material must continue to be transported via the State-Controlled Road as per existing conditions. Civil construction contractor is to adopt any precautionary measures to protect the State Controlled Road. Refer to Civil Engineer
Stormwater and drainage		response for further details.
P012 Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state-controlled road.	No acceptable outcome is prescribed.	The proposed development and associated mitigation strategy, as per the Knobel Engineers <i>Hydraulic Impact Assessment (HIA), Report Doc</i> <i>No: K4820-0003),</i> demonstrates that the proposed development is not deemed to result in any actionable nuisance for all typical design AEP events, to the State-Controlled Road. Afflux impacts generally are demonstrated to generally be contained within the existing DTMR stormwater channels.

State Development Assessment Provisions – Version 2.6 State Code 1: Development in a state-controlled road environment State Code 2: Development in a Railway Environment State Code 6: Protection of State Transport Networks Knobel Engineers 11 June 2020

Performance outcomes	Acceptable outcomes	Response
P013 Run-off from the development site is not unlawfully discharged to a state-controlled road.	AO13.1 Development does not create any new points of discharge to a state-controlled road. AND	The HIA has demonstrated that the proposed development scenario retains the existing (Lawful) points of discharge.
	 AO13.2 Stormwater run-off is discharged to a lawful point of discharge. Note: Section 3.9 of the Queensland Urban Drainage Manual, Institute of Public Works Engineering Australasia (Queensland Division) Fourth Edition, 2016, provides further information on lawful points of discharge. AND 	The HIA has demonstrated that the proposed development scenario retains the existing (Lawful) points of discharge.
	AO13.3 Development does not worsen the condition of an existing lawful point of discharge to the state- controlled road.	The HIA has demonstrated that the proposed development scenario retains the existing (Lawful) points of discharge, and also demonstrates a non-worsening condition to the main lawful point of discharge to the south of the site, from pre to post-development for all typical design AEP events.
P014 Run-off from the development site during construction does not cause siltation of stormwater infrastructure affecting a state-controlled road.	AO14.1 Run-off from the development site during construction is not discharged to stormwater infrastructure for a state-controlled road.	Refer to Civil Engineer for Erosion and Sediment Control strategy during the Construction phase.

State Development Assessment Provisions – Version 2.6 State Code 1: Development in a state-controlled road environment State Code 2: Development in a Railway Environment State Code 6: Protection of State Transport Networks

State Code 2: Development in a Railway Environment

Table 2.2.1: Development in a Railway Environment

Performance outcomes	Acceptable outcomes	Response
Stormwater and drainage		
PO16 Development does not result in an actionable nuisance or worsening of stormwater, flooding or drainage impacts in a railway corridor.	No acceptable outcome is prescribed.	The proposed development and associated mitigation strategy, as per the Knobel Engineers <i>Hydraulic Impact Assessment (HIA), Report Doc</i> <i>No: K4820-0003)</i> , demonstrates that the proposed development does not results in any actionable nuisance for all typical design AEP events, to the Railway Corridor.
		Furthermore, it has been proposed that a formalised channel be provided within the development site, adjacent to the Railway Corridor, which has demonstrated a reduction of peak flow's within the Railway Corridor, and therefore may provide benefit to the State- Controlled land.
P017 Run-off from the development site during construction of development does not cause siltation of stormwater infrastructure affecting a railway corridor.	AO17.1 Run-off from the development site during construction of development is not discharged to stormwater infrastructure in a railway corridor.	It is not proposed that run-off be discharged to stormwater infrastructure in the adjacent Railway Corridor. All run-off from site construction activity is to be managed external of the Railway Corridor.
		Refer to Civil Engineer for Erosion and Sediment Control strategy during the Construction phase.

State Development Assessment Provisions – Version 2.6 State Code 1: Development in a state-controlled road environment State Code 2: Development in a Railway Environment State Code 6: Protection of State Transport Networks

Page 4 of 6

Knobel Engineers Document: K4820-0007
State Code 6: Protection of State Transport Networks

Table 6.2.2: All Development

Performance outcomes	Acceptable outcomes	Response
Stormwater and drainage		
P010 Development does not result in an actionable nuisance, or worsening of, stormwater, flooding or drainage impacts in a state transport corridor or state transport infrastructure.	No acceptable outcome is prescribed.	The proposed development and associated mitigation strategy, as per the Knobel Engineers <i>Hydraulic Impact Assessment (HIA), Report Doc</i> <i>No: K4820-0003)</i> , demonstrates that the proposed development does not results in any actionable nuisance for all typical design AEP events, to the State Transport Networks.
P011 Run-off from the development site is not unlawfully discharged to a state transport corridor or state transport infrastructure.	 A011.1 Development does not create any new points of discharge to a state transport corridor. AND A011.2 Stormwater run-off is discharged to a lawful point of discharge AND AO11.3 Development does not worsen the condition of an existing lawful point of discharge to a state transport corridor 	The HIA has demonstrated that the proposed development scenario retains the existing (Lawful) Points of Discharge and that no new points of discharge are proposed. Furthermore, the proposed development demonstrates a non-worsening condition from pre to post-development for all typical design AEP events.
PO12 Run-off from the development site does not cause siltation of stormwater infrastructure affecting	AO12.1 Run-off from the development site is not discharged to stormwater infrastructure for a state transport corridor.	The HIA has demonstrated that the proposed development scenario retains the existing

State Development Assessment Provisions – Version 2.6

State Code 1: Development in a state-controlled road environment

State Code 2: Development in a Railway Environment

State Code 6: Protection of State Transport Networks

Knobel Engineers 11 June 2020

Performance outcomes	Acceptable outcomes	Response
a state transport corridor or state transport infrastructure.		(Lawful) Points of Discharge at the south, which is not a State Transport Corridor.

State Development Assessment Provisions – Version 2.6 State Code 1: Development in a state-controlled road environment State Code 2: Development in a Railway Environment State Code 6: Protection of State Transport Networks

Knobel Engineers Document: K4820-0007