

Lot 23-24, 15-17 Lee Street, Port Curtis Flood Hazard Assessment

Project Name:	15-17 Lee Street, Flood Hazard Assessment
Patcol Reference Number:	23-649
Project Address:	15-17 Lee Street, Port Curtis (Lot 23-24 on RP600807)
Client:	Kevin Foreman

Issue Date	Version	Description	Approved
01.12.23	0	Original Issue	Scott Thomas

ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/169-2023

Dated: 19 February 2024

1.0 SITE ASSESSMENT

The scope of this document is to address the relevant provisions of the Rockhampton Region Planning Scheme 2015 with regards to the Fitzroy River Flood Overlay for Lot 23-24, 15-17 Lee Street, Port Curtis.

Lot 23-24, 15-17 Lee Street, as shown below, currently has no existing structures and seeks approval for a new Class 10a structure (shed).

The subject site is located in the flood hazard zone as defined by the Rockhampton Region Planning Scheme 2015 hazard overlays. As can be seen in Figure 2, the flood overlay map shows the site being within the 'H4 and H5 (high and extreme) zones.

This report also aims to provide the necessary governance for effects of stormwater. Available data suggest that the effects of stormwater are not as significant as those of flood waters, thus any mitigatory measures applicable for floodwater management will also apply to the stormwater management.



Figure 1 - Site Location

1. FLOOD HAZARD ASSESSMENT

Based on the data obtained from the council, it has been determined that the property is susceptible to flooding, which has prompted a thorough evaluation of all planning and development activities. Special attention has been given to the potential risks to both individuals and property, as well as the natural floodplain characteristics and the potential impact of a river flood event. The report takes into account flood-free and low-flood hazard access outcomes, ensuring that all measures are in place to minimise the impact of any potential flooding. In particular, the provisions outlined in the report address the AEP 1% data, providing a comprehensive framework to manage and mitigate the risks associated with flooding in the area.

The purpose of the structure is to store cars and other items that are not suitable for indoor storage. The nature of the structures is such that it is generally open in nature, being that they would not obstruct the flow of flood waters, meaning that in a flood event water will be free to flow in and around the structure without causing nuisance turbulence or redirecting flows outside of the site.

It is seen that in a flood event, the site could be effectively managed with regards to achieving the acceptable outcomes set out in Appendix A by simply ensuring all doors are opened to allow water to flow unimpeded through the shed which would in turn mean existing flood risks are not made worse by alteration to the flow characteristics of the site. Further, insignificant increase in impervious area is seen to have resulted from the structures, hence the post-development case for the site will show very minimal impact on the peak discharge and stormwater quality.

Summarising, the structure covered under this report would not create any actionable nuisance to the surrounding properties.

2. EXISTING SITE CONDITIONS

The proposed site is situated within the Fitzroy River Flood Overlay Zone H4.

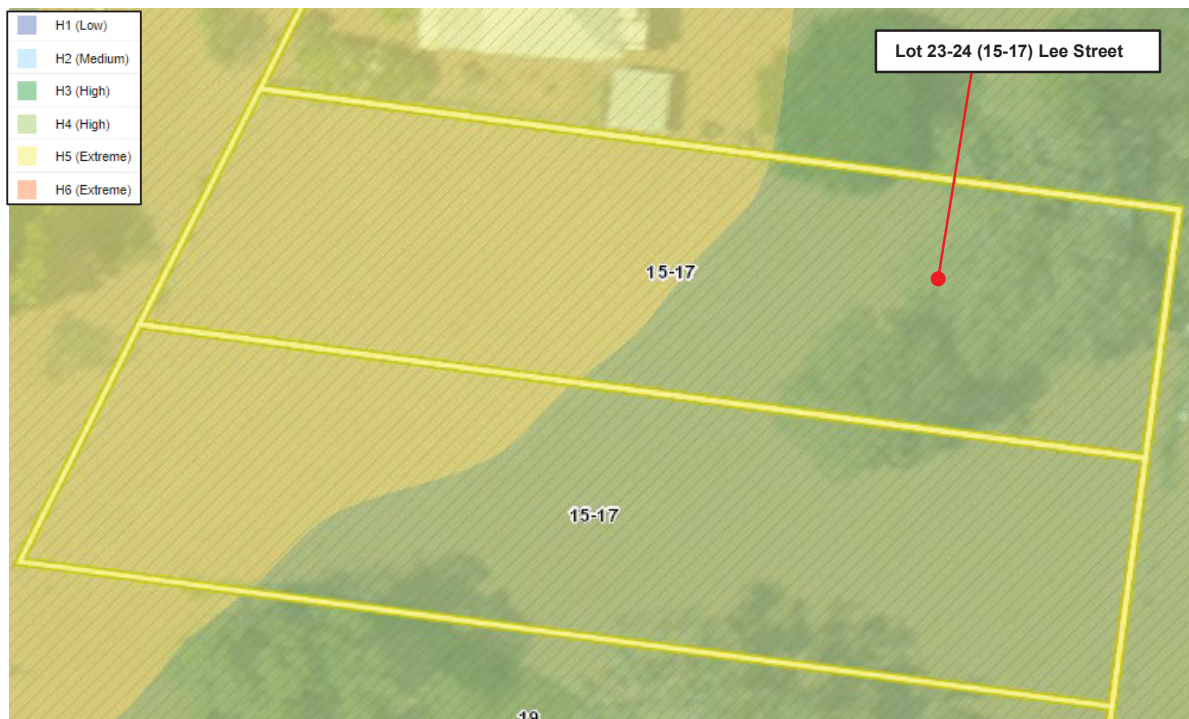


Figure 2 – Flood Hazard Overlay

Figure 3 is an extract from the report “Flood Study Report Fitzroy River Flood Study, Rockhampton Regional Council” which was completed by Aurecon in 2011. This report shows that the peak depth in a 100 Year ARI is 0.5m to 2.0m. From the same report it was shown that the velocity of the water flowing through the site during a 100 Year ARI event will almost be negligible.

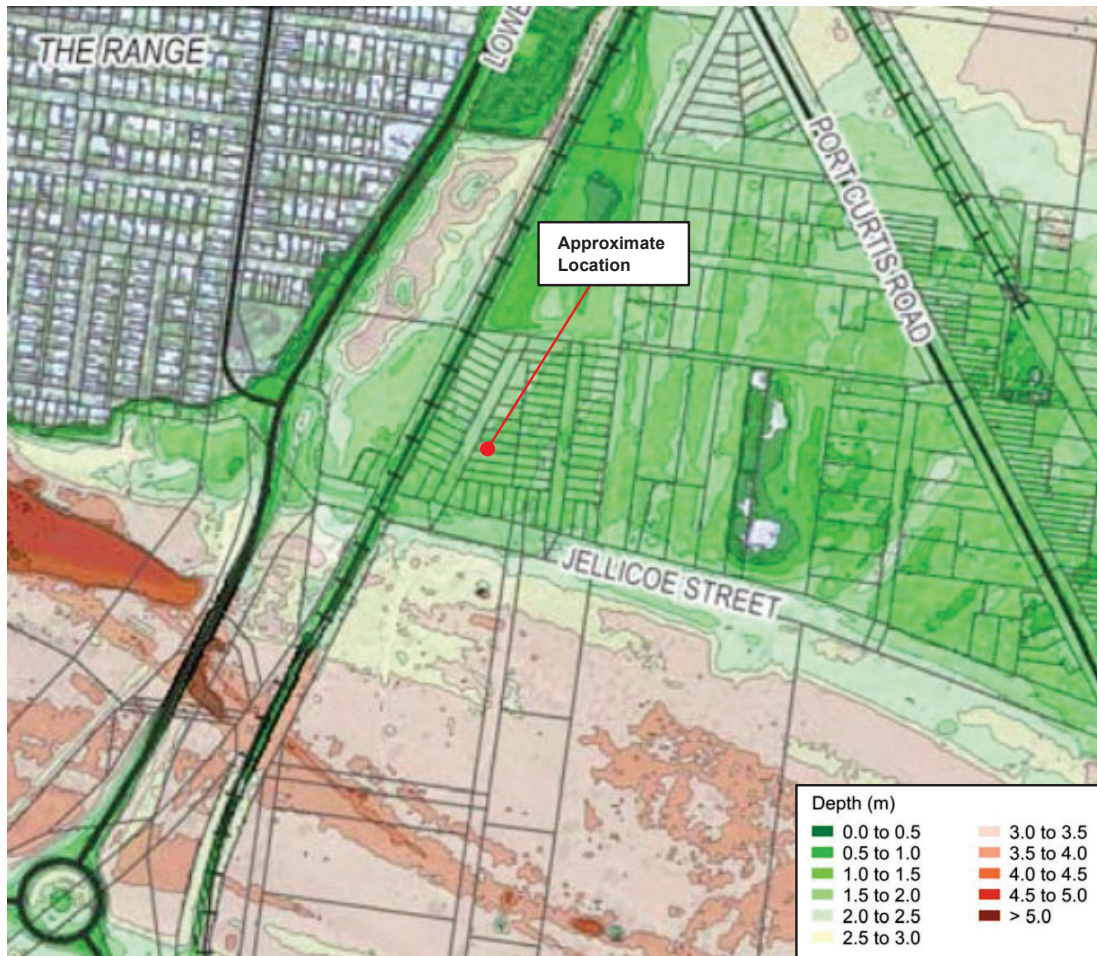


Figure 3 - Flood Depth Mapping (Aurecon, 2011)

It is seen that the proposal is acceptable based on the following:

1. The building is not habitable, and the amount of displaced floodwater is negligible.
2. Resilience to the existing flood event affects will be provided in accordance with the RRC Planning Scheme outcomes towards a defined flood event. This is achievable as the proposed structure will be constructed using structural steel. This coupled with the fact that the floodwater is slow moving due to being backflow from the Fitzroy River.
3. All electrical infrastructure must be installed at a minimum height of 1200mm above FFL.
4. Local and global (Riverine Flooding) flood heights will not increase as a result of the development. This is due to the fact that there will be no material change to existing hydraulic parameters and no loss of storage.
5. As there will be no change to depth or velocity, there will be no increase to the sites Flood Hazard Category and therefore no risk to persons, infrastructure or property.
6. There are no proposed earthworks aside from minor levelling of ground under the shed.

7. Sufficient notice period of two weeks has been the case for previous Riverine Flooding events, and we know this would not change in the future. Given the structure is not habitable or commercial the management required after notice include:
 1. Removal of loose material and potential debris.
 2. Relocation of all equipment off site
 3. Relocation of all animals off site
 4. Open all doors and windows to allow ingress of flood waters

3. Stormwater Heights

An application was made to Rockhampton Regional Council to gain a flood report which had stormwater data within it. The following information was used from the RRC supplied Flood Report (attached in full as Appendix A).

Based on the report received from the council, it is evident that the property is not affected severely by local storm events or overland flow as the 1% Riverine maximum (8.59) is greater than the 1% Local Catchment (6.94) maximum. Therefore, in the event of any high overland flow during a storm event, it could be managed using the same provisions nominated to mitigate the riverine flooding. The below suggests that the property is not likely to experience significant flood risk, and appropriate measures have been put in place to manage any potential flooding that may occur.

Riverine		Local Catchment	
AEP 1% WSL Min:	8.58	AEP 1% WSL Min:	6.94
AEP 1% WSL Max:	8.59	AEP 1% WSL Max:	6.94
AEP 1% Velocity Min:	0.45	AEP 1% Velocity Min:	0.08
AEP 1% Velocity Max:	0.81	AEP 1% Velocity Max:	0.18

Table 1 – Excerpts from RRC Flood Date

4. Conclusion

There appears to be no great engineering infrastructure difficulties with the proposed changes to the aforementioned property. It is seen that the proposal will not affect flooding, either on the property or upstream/downstream in any way and conforms to the acceptable outcomes as set out by the RRC planning scheme.

Yours sincerely,



Scott Thomas

Manager – B. Eng (Civil/Structural) RPEQ 16203

This page has been intentionally left blank

Fitzroy River – H1 or H2 or North Rockhampton flood management area or Creek catchment planning area 2

Table 8.2.8.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes

Development in Fitzroy River flood areas – H1 (low hazard area) or H2 (medium hazard area) or North Rockhampton flood management area or Creek catchment flood - planning area 2	
Editor's note—Refer to overlay maps OM-8A and OM-8C	
<p>PO1 Development (including extensions) for non-residential purposes is able to provide a safe refuge for people and for the storage of goods during times of flood inundation.</p>	<p>AO1.1 For non-residential development, at least thirty (30) per cent of the gross floor area of all new buildings and structures is located a minimum of 500 millimetres above the defined flood level.</p> <p>Editor's note—Areas less than those nominated above may be supported where accompanied by a flood impact report in accordance with SC6.10—Flood hazard planning scheme policy.</p> <p>Development is for residential purposes.</p> <p>AND</p> <p>AO1.2 A report from a registered professional engineer of Queensland certifies that the development in the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties.</p> <p>As provided in this report.</p>
<p>PO2 Development is located to minimise susceptibility to and potential impacts of flooding.</p>	<p>AO2.1 For residential uses the finished floor levels of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level.</p> <p>No habitable rooms in the structures</p> <p>AND</p> <p>AO2.2 A report from a registered professional engineer of Queensland certifies that the development in</p>

<p>PO3 Development avoids the release of hazardous materials into floodwaters.</p>	<p>the flood area will not result in a material increase in flood level or flood hazard on upstream, downstream or adjacent properties. Editor's note—Report to be prepared in accordance with SC6.10—Flood hazard planning scheme policy.</p> <p>As provided in this report.</p>
<p>PO3.1 All hazardous materials and hazardous manufacturing equipment and hazardous containers are located and stored a minimum of 500 millimetres above the defined flood level.</p> <p>No hazardous materials, hazardous manufacturing equipment or hazardous containers are to be stored at the site.</p> <p>Editor's note—Refer to the Work Health and Safety Act 2011 and associated regulation, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.</p>	<p>AO3.1 All hazardous materials and hazardous manufacturing equipment and hazardous containers are located and stored a minimum of 500 millimetres above the defined flood level.</p> <p>No hazardous materials, hazardous manufacturing equipment or hazardous containers are to be stored at the site.</p> <p>Editor's note—Refer to the Work Health and Safety Act 2011 and associated regulation, the Environmental Protection Act 1994 and the relevant building assessment provisions under the Building Act 1975 for requirements related to the manufacture and storage of hazardous substances.</p>

Fitzroy River – H3-H4 or H5-H6 or Creek catchment flood planning area 1

Table 8.2.8.3.1 Development outcomes for assessable development and requirements for accepted development (part)

Performance outcomes	
Acceptable outcomes	
<p>PO4 Development does not involve the further intensification of land uses and does not increase the risk to people and property.</p> <p>Editor's Note—Flood hazard risk assessment can be undertaken in accordance with SC6.10—Flood hazard planning scheme policy.</p>	<p>AO4.1 AO4.1.1 Development does not involve new buildings or structures.</p> <p>Development approval is proposed for existing structures</p> <p>OR</p> <p>AO4.1.2 Where involving the replacement or alteration to an existing non-residential building or structure:</p>
<p>Development in Fitzroy River flood areas – H3-H4 (high hazard areas) or H5-H6 (extreme hazard areas) or Creek catchment flood - planning area 1</p> <p>Editor's note—Refer to overlay maps OM-8A and OM-8C</p>	<p>Acceptable outcomes</p> <p>Development in Fitzroy River flood areas – H3-H4 (high hazard areas) or H5-H6 (extreme hazard areas) or Creek catchment flood - planning area 1</p>

<p>PO5 Development avoids the release of hazardous materials into floodwaters..</p>	<p>1. there is no increase in the existing or previous buildings' <u>gross floor area</u>; and 2. the finished floor level of any replacement or alteration to an existing building is constructed a minimum of 500 millimetres above the defined flood level.</p> <p>No alteration to the existing structure</p> <p>OR</p> <p>AO4.1.3 Where involving the replacement or alteration to an existing caretaker's accommodation, <u>dwelling house</u> or <u>dwelling unit</u>:</p> <ol style="list-style-type: none"> there is no increase in the number of dwellings; there is no increase in the existing or previous buildings' <u>gross floor area</u>; and the finished floor level of all habitable rooms shall be constructed a minimum of 500 millimetres above the defined flood level. <p>No existing dwelling structure.</p> <p>AND</p> <p>AO4.1.4 Where located in the rural zone, the <u>total floor area</u> of class 10a buildings and structures on the <u>site</u> do not exceed a total of fifty (50) square metres, and are set back a minimum of twenty (20) metres from all <u>site</u> boundaries.</p> <p>Structure not located in the rural zone.</p> <p>AO5.1 Materials manufactured, used or stored on <u>site</u> are not hazardous in nature.</p> <p>No hazardous materials to be manufactured, used or stored on site.</p>
---------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Fitzroy River – all hazard areas, North Rockhampton flood management area or Creek catchment – all planning areas

Table 8.2.8.3.2 Development outcomes for assessable development

Performance outcomes		Acceptable outcomes
Development in Fitzroy River flood area – all hazard areas, North Rockhampton flood management area or Creek catchment flood – all planning areas		
Editor's note—Refer to overlay maps OM-8A and OM-8C		
<p>PO8 Development is located to minimise susceptibility to and potential impacts of flooding.</p> <p>PO9 Underground car parks are designed to prevent the intrusion of floodwaters.</p>	<p>No acceptable outcome is nominated.</p> <p>Development has been located to minimise susceptibility to and potential impacts of flooding.</p> <p>AO9.1 Development with underground car parking is designed to prevent the intrusion of floodwaters by the incorporation of a bund or similar barrier a minimum of 500 millimetres above the defined flood level.</p> <p>No underground carparks.</p>	<p>No acceptable outcome is nominated.</p> <p>1. Development does not result in a reduction of onsite flood storage;</p> <p>2. Development does not result in a change to depth, duration or velocity of floodwater within the premises, and;</p> <p>3. Does not change flood characteristics outside the premises, including but not limited to causing;</p> <ol style="list-style-type: none"> 1. Loss of flood storage, 2. Loss of or changes to flow paths, 3. Acceleration or retardation of flows, and; 4. Any reduction of flood warning times.
<p>PO10 Development:</p> <ol style="list-style-type: none"> 1. does not result in any reduction of onsite flood storage capacity; or 2. does not result in any change to depth, duration or velocity of floodwaters within the premises; and 3. does not change flood characteristics outside the premises, including but not limited to causing: <ol style="list-style-type: none"> 1. loss of flood storage; or 2. loss of or changes to flow paths; or 3. acceleration or retardation of flows; or 4. any reduction in flood warning times elsewhere on the <u>floodplain</u>. <p>Editor's note—Council may require the applicant to submit a <u>site-based flood study</u> that investigates the impact of the development on the <u>floodplain</u> and demonstrates compliance with the relevant performance outcome.</p>	<p>No acceptable outcome is nominated.</p>	<p>AO11.1 A use for a purpose listed in Table 8.2.8.3.3:</p>
<p>PO11 Essential community infrastructure and community facilities are protected from, and able to function effectively during and immediately after, a defined flood</p>		

<p>event.</p>	<p>1. is not located within the flood hazard area; and has at least one (1) flood free access road.</p> <p>Development is not essential community infrastructure, community facilities or public asset.</p>
<p>PO12 Development provides safe and trafficable access to the local evacuation centres and evacuation services and have regard to:</p> <ol style="list-style-type: none"> 1. evacuation time; 2. number of persons affected; 3. types of vehicles necessary for evacuation purposes; 4. the distance to flood free land; and <p>the evacuation route.</p>	<p>AO12.1 Trafficable access to and from the development complies with the Capricorn Municipal Guidelines.</p> <p>Trafficable access will be provided with regards to the requirements of the Capricorn Municipal Development Guidelines.</p> <p>AND</p> <p>AO12.2 Trafficable access to and from the development within the creek catchment planning areas are in accordance with the Queensland Urban Drainage Manual.</p> <p>Trafficable access will be provided with regards to the requirements of the Queensland Urban Drainage Manual.</p> <p>Note— Trafficable access for emergency services or community related uses is obtained from at least one (1) route (minor collector or higher) for emergency services purposes. The development is to ensure that safe access, to the road network between the development site and the closest centre zone, is provided.</p> <p>Editor’s note— Trafficable access requirements for creek catchment planning areas has not been identified and reference has been made to the provisions under the Queensland Urban Drainage Manual. This is due to the short period that property may be isolated.</p>

Fitzroy River – H3-H4 or H5-H6, North Rockhampton flood management area or Creek catchment – planning area 1

Table 8.2.8.3.2 Development outcomes for assessable development

Performance outcomes	Acceptable outcomes
<p>Development in Fitzroy River flood areas – H3-H4 (high hazard areas) or H5-H6 (extreme hazard areas), North Rockhampton flood management area or Creek catchment flood – planning area 1</p> <p>Editor’s note— Refer to overlay maps OM-SA and OM-8C</p>	

<p>PO13 Development that involves temporary or moveable residential structures (for example caravan parks and camping grounds) are not located with the Fitzroy River high and extreme hazard areas, North Rockhampton flood management area and Creek catchment planning area 1.</p>	<p>No acceptable outcome is nominated. The development is not temporary or moveable.</p>
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------

Operational work

Table 8.2.8.3.2 Development outcomes for assessable development (part)

Acceptable outcomes	
Performance outcomes	Operational work
<p>PO17 Development does not materially impede the flow of floodwaters through the <u>site</u> or worsen flood flows external to the <u>site</u>.</p>	<p>AO17.1 Development does not involve:</p> <ul style="list-style-type: none"> a) filling with a height greater than 100 millimetres; or b) block or solid walls or fences; or c) garden beds or other structures with a height more than 100 millimetres; or d) the planting of dense shrub hedges. <p>Development does not impede the flow of floodwaters through the site or worsen flood flows external to the site – refer Report 23-649.</p>

Appendix B: RRC Supplied Flood Report

This page has been intentionally left blank

Flood Report for 15-17 Lee Street Port Curtis QLD 4700

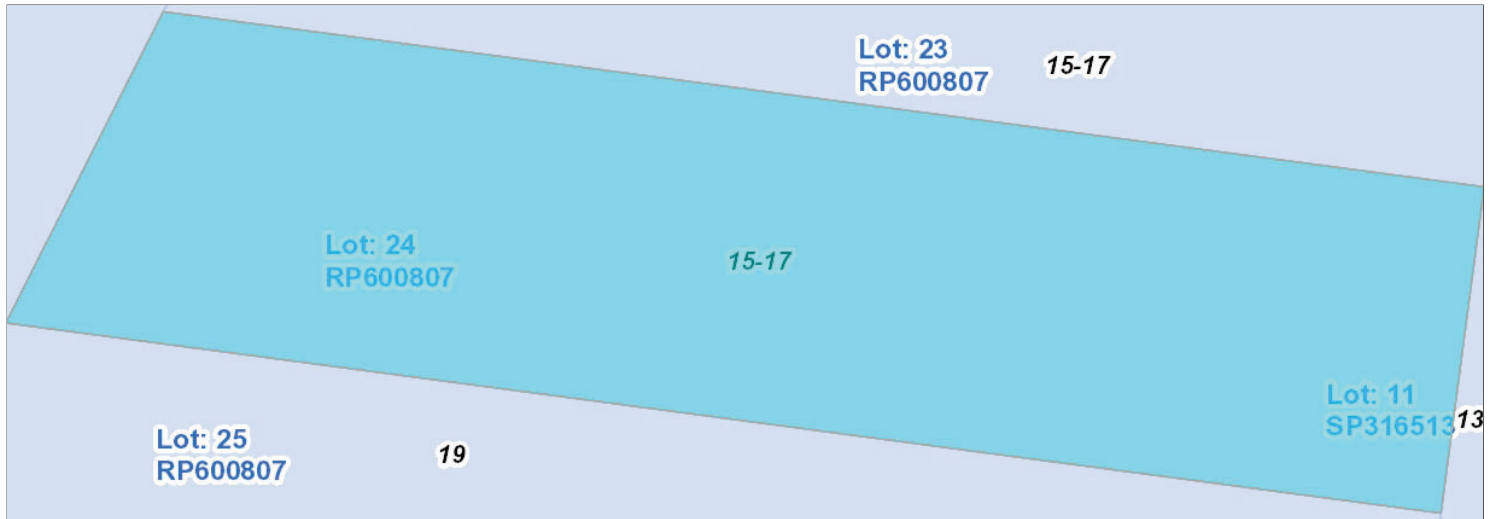
Printed from
GeoCortex on
30/10/2023

Owners: E C Williams

Ratepayer Address: 274 West St DEPOT HILL QLD 4700

Parcel ID: RP600807/24

Land use: Vacant Land



Riverine Catchment: Fitzroy River Flood Study

Creek Catchment: South Rockhampton Local Catchment Study 2018

Mitigation Area: N/A

Horizontal Datum: MGA 56, GDA 2020 Elevation / WSL: mAHD Velocity: m/sec

Comments

N/A

Riverine

PMF WSL Min:	12.23	AEP 2% WSL Min:	8.20
PMF WSL Max:	12.25	AEP 2% WSL Max:	8.22
PMF Velocity Min:	0.98	AEP 2% Velocity Min:	0.36
PMF Velocity Max:	1.27	AEP 2% Velocity Max:	0.65
AEP 0.05% WSL Min:	9.89	AEP 5% WSL Min:	7.55
AEP 0.05% WSL Max:	9.91	AEP 5% WSL Max:	7.56
AEP 0.05% Velocity Min:	0.69	AEP 5% Velocity Min:	0.20
AEP 0.05% Velocity Max:	1.11	AEP 5% Velocity Max:	0.47
AEP 0.2% WSL Min:	9.32	AEP 10% WSL Min:	N/A
AEP 0.2% WSL Max:	9.34	AEP 10% WSL Max:	N/A
AEP 0.2% Velocity Min:	0.60	AEP 10% Velocity Min:	N/A
AEP 0.2% Velocity Max:	1.02	AEP 10% Velocity Max:	N/A
AEP 0.5% WSL Min:	8.91	AEP 18% WSL Min:	N/A
AEP 0.5% WSL Max:	8.93	AEP 18% WSL Max:	N/A
AEP 0.5% Velocity Min:	0.53	AEP 18% Velocity Min:	N/A
AEP 0.5% Velocity Max:	0.93	AEP 18% Velocity Max:	N/A
AEP 1% WSL Min:	8.58	AEP 39% WSL Min:	N/A
AEP 1% WSL Max:	8.59	AEP 39% WSL Max:	N/A
AEP 1% Velocity Min:	0.45	AEP 39% Velocity Min:	N/A
AEP 1% Velocity Max:	0.81	AEP 39% Velocity Max:	N/A

Creek \ Local Catchment

PMF WSL Min:	7.25	AEP 5% WSL Min:	N/A
PMF WSL Max:	7.25	AEP 5% WSL Max:	N/A
PMF Velocity Min:	0.02	AEP 5% Velocity Min:	N/A
PMF Velocity Max:	0.18	AEP 5% Velocity Max:	N/A
AEP 0.05% WSL Min:	7.04	AEP 10% WSL Min:	N/A
AEP 0.05% WSL Max:	7.09	AEP 10% WSL Max:	N/A
AEP 0.05% Velocity Min:	0.00	AEP 10% Velocity Min:	N/A
AEP 0.05% Velocity Max:	0.16	AEP 10% Velocity Max:	N/A
AEP 0.2% WSL Min:	6.97	AEP 18% WSL Min:	N/A
AEP 0.2% WSL Max:	7.06	AEP 18% WSL Max:	N/A
AEP 0.2% Velocity Min:	0.01	AEP 18% Velocity Min:	N/A
AEP 0.2% Velocity Max:	0.16	AEP 18% Velocity Max:	N/A
AEP 0.5% WSL Min:	6.94	AEP 39% WSL Min:	N/A
AEP 0.5% WSL Max:	6.94	AEP 39% WSL Max:	N/A
AEP 0.5% Velocity Min:	0.07	AEP 39% Velocity Min:	N/A
AEP 0.5% Velocity Max:	0.17	AEP 39% Velocity Max:	N/A
AEP 1% WSL Min:	6.94	AEP 63% WSL Min:	N/A
AEP 1% WSL Max:	6.94	AEP 63% WSL Max:	N/A
AEP 1% Velocity Min:	0.08	AEP 63% Velocity Min:	N/A
AEP 1% Velocity Max:	0.18	AEP 63% Velocity Max:	N/A

Property Elevation

Ground Elevation (Min): 6.86
Ground Elevation (Max): 7.23

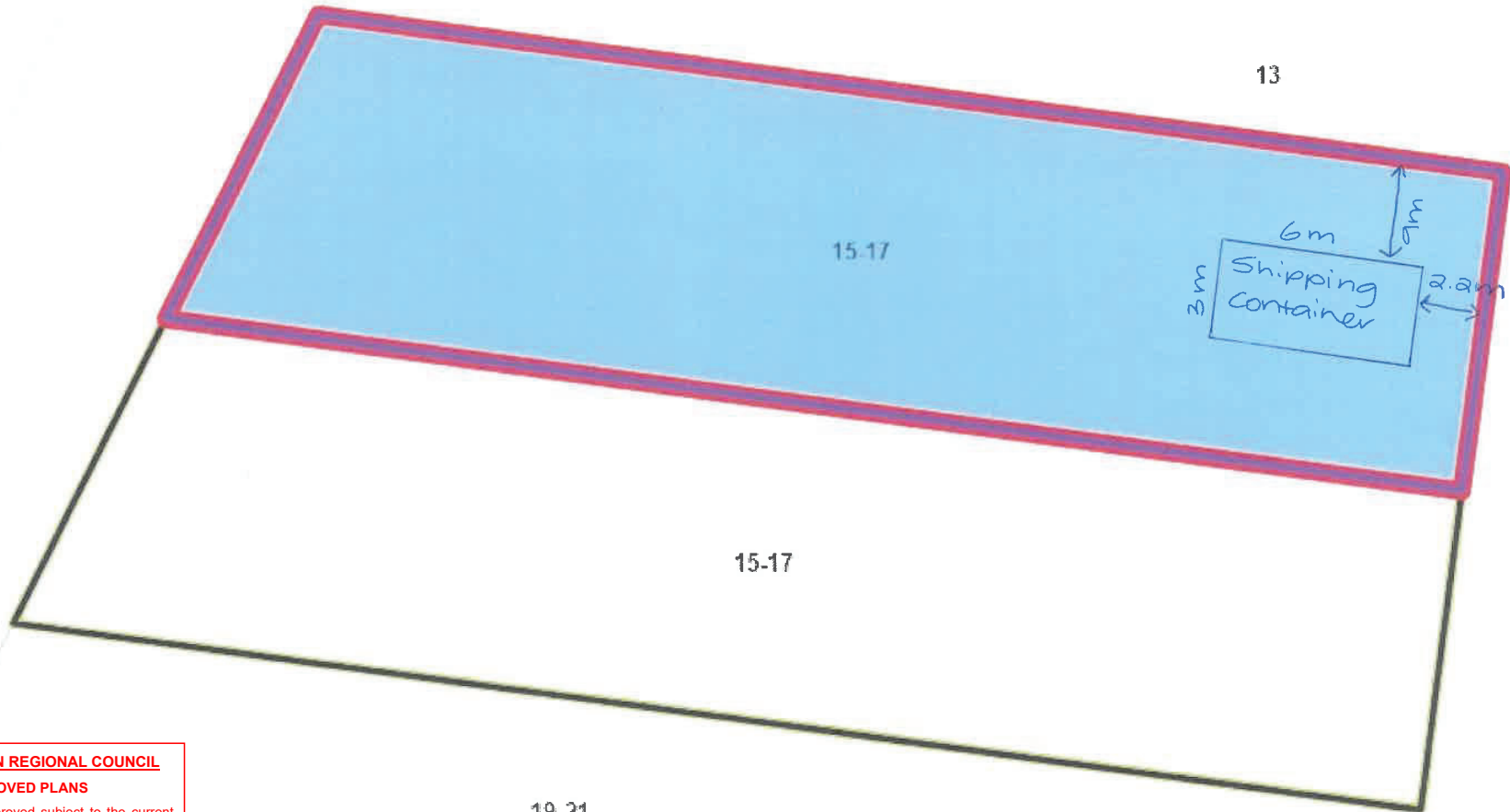
AEP 2% WSL Min:	6.93
AEP 2% WSL Max:	6.93
AEP 2% Velocity Min:	0.06
AEP 2% Velocity Max:	0.14

Copyright protects this publication. Reproduction by whatever means is prohibited without prior written permission of the Chief Executive Officer, Rockhampton Regional Council. Rockhampton Regional Council will not be held liable under any circumstances in connection with or arising out of the use of this data nor does it warrant that the data is error free. Any queries should be directed to the Customer Service Centre, Rockhampton Regional Council or telephone 4932 9000. The Digital Cadastral DataBase is current as at October 2023. © The State Government of Queensland (Department of Resources) 2023. All other data © Rockhampton Regional Council 2023. This map is a user generated static output from an Internet mapping site and is for reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable.



22

Lee St



ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/169-2023

Dated: 19 February 2024

19-21