HCE Engineers

Ref. (22288)

MATERIAL CHANGE OF USE – PLACE OF WORSHIP (CHURCH)
3303 - 3305 LOGAN ROAD, UNDERWOOD

CIVIL ENGINEERING ASSESSMENT REPORT

REVISION 0



Prepared For

EVANGELICAL FORMOSAN CHURCH OF ROHI INC. – LOGAN ROAD

HCE Engineers

PO Box 7214, Redland Bay Qld 4165
55-57 Jardine Dr, Redland Bay Qld
Tel: (07) **3829 1399**
Email: mail@hce-engineers.com.au
Web: www.hce-engineers.com.au

REPORT CONTROL SHEET

HCE Ref. No.:	22288
Site:	**3303 - 3305 Logan Road, Underwood**
Report Title:	Civil Engineering Assessment Report

Rev No.	Date	Written By	Reviewed By	Authorised By	Signed
DRAFT	28/04/23	TC	MN	TC	
0	09/05/23	TC	GH	GH	 Digitally signed by Greg Henwood DN: C=AU, E=ghenwood@hce-engineers.com.au, O=HCE Engineers, CN=Greg Henwood Date: 2023.05.09 13:27:07+10'00'

DISTRIBUTION

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Oasis Town Planning	09/05/23		☒							

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Appendix D – Filling and Excavation Code

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1. INTRODUCTION

HCE Engineers have been engaged to prepare a Civil Engineering Assessment Report to accompany the development application for a Place of Worship (Church) at 3303 - 3305 Logan Road, Underwood (Lot 36 and 37 on SP 10904). The proposed development is for the construction of a church building with associated carparking and landscaping. The site has a total area of approximately 3,441m^2.

A general description of proposed works and items of particular note is contained within the body of this report. Tabular responses to each of the performance criteria within the Flood Hazard Overlay Code, Filling & Excavation Code and the Infrastructure Code are included as Appendices.



Image 1: *Site Location (image from Nearmap.com)*

2. EARTHWORKS

Minor earthworks are proposed to provide desired interface with the road frontage, to facilitate suitable vehicular access grades and for stormwater management purposes. No earthworks are proposed beneath the proposed church building. The architectural drawings indicate a suspended floor.

Refer to Sketch No. 22288-SK02 for the concept earthworks plan.

3. STORMWATER DRAINAGE

This site is currently developed with an existing building, concrete and bitumen hardstand over approximately 88% of the site and landscaped areas. The site falls away from Logan Road with the lowest point on the site being the southeast corner.

The Logan Road verge and kerb and channel fronting the site directs any surface flow from the road reserve away from the site. No external catchments direct surface flow to the subject site

The proposed development decreases the impervious site area and does not result in an increase in peak discharge from the site. As a result there will not be any adverse impacts to neighbouring properties in accordance with Section 3.6.2.10 of Council's Planning Scheme Policy 5 – Infrastructure. Stormwater detention is therefore not proposed for the development site.

It is proposed to utilise existing water quality treatment infrastructure on site. No further water quality treatment measures are proposed.

Refer to Drawing 22288-SK01 and the Stormwater Management Plan prepared by HCE Engineers for further details.

4. FLOODING

A Logan City Council Flood Report has been generated and the recently updated flood mapping indicates that the site is not flood affected. To confirm Council's River and Catchment Engineering team was contacted. Council's "Application for Property information" response letters indicated that the development site is not at risk of flooding in the 1% AEP flood event.

Refer to Appendix B for a copy of the response letters.

5. SEWERAGE RETICULATION

An existing 450mm diameter sewer main traverses the site parallel to the western and southern boundaries. A new 6m wide easement is proposed over the existing main. It is noted that as advised by Logan Water, via email correspondence, the existing main is located eccentrically within the proposed 6m easement. Access to the sewer manholes is available via a proposed 1m wide easement along the western side of the property, connecting from the Logan Road frontage to the proposed 6m wide easement over the trunk sewer.

The site is serviced via two existing property connections from existing manholes on site. The existing property connection from the existing manhole in the southeast corner of the site is to be capped and sealed at the manhole.

The existing property connection from the existing manhole located centrally along the southern boundary it to be used to service the proposed development. The size and condition of the existing property connection is to be confirmed via CCTV prior to connection. If the existing property connection is damaged or undersized a new upgraded connection to the existing manhole is to be provided.

Refer to Drawing 22288-SK01 for details.

6. WATER RETICULATION

The site is currently serviced by a water meter and service from the existing 150mm diameter AC main in the verge fronting the site on Logan Road. The existing meter and service is to be removed.

A new metered water service is proposed, the size and final location is to be determined at the detail design stage by a hydraulic consultant.

There is an existing fire hydrant in the opposite verge of Passage Street. This hydrant provides firefighting coverage in accordance with the Water Supply Code SEQ Edition, therefore no new hydrants are proposed.

Refer to Drawing 22288-SK01 for details.

7. VEHICLE MANOEUVERING ON SITE

Fernway Engineering has undertaken an analysis of the proposed carpark layout and vehicle swept paths. Refer to Fernway Engineering reports for details.

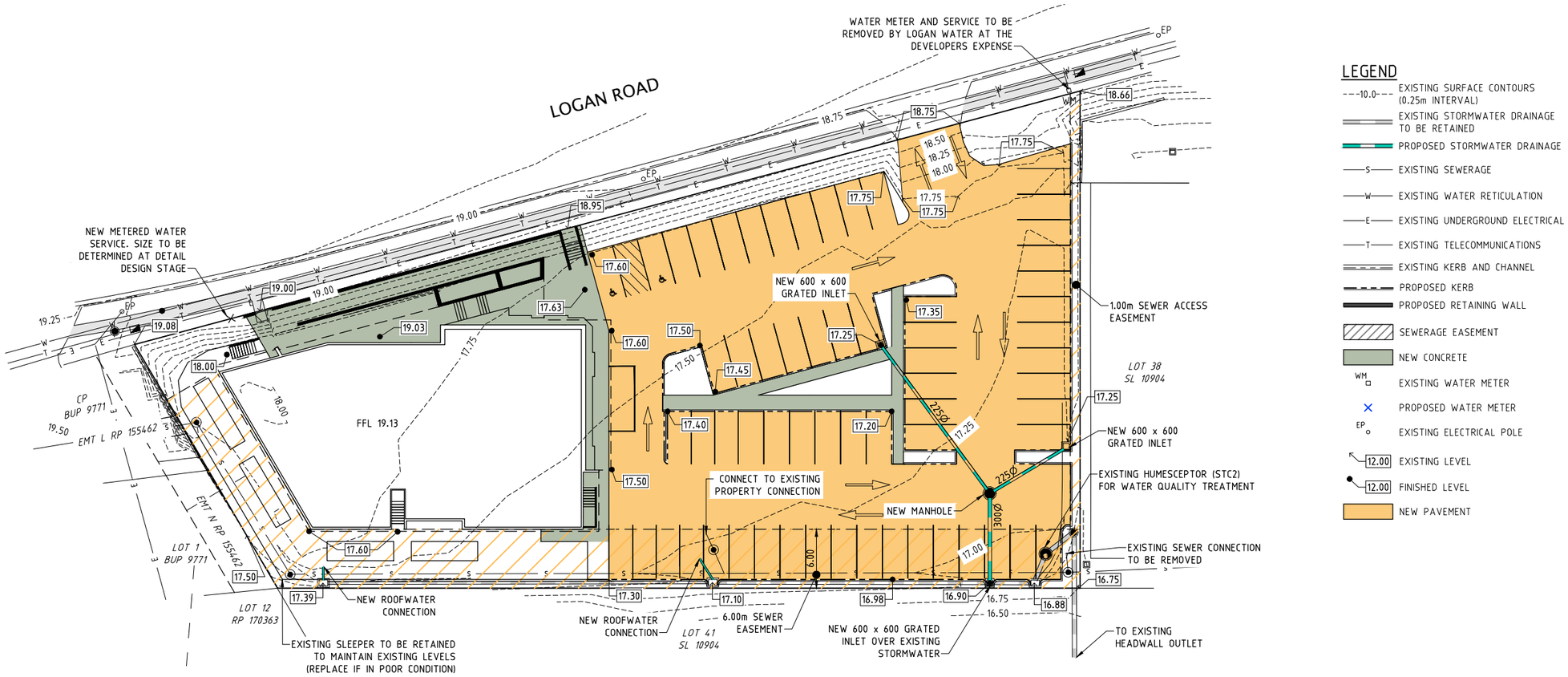
8. CONCLUSIONS

The proposed development is for the construction of a church building with associated carparking and landscaping. The development has been assessed against Logan City Council's the Flood Hazard Overlay Code, Filling & Excavation Code and the Infrastructure Code.

Compliance with the Performance Outcomes of the Flood Hazard Overlay Code, Filling & Excavation Code and the Infrastructure Code can be achieved.

Reasonable and relevant conditions can be applied to the development approval to achieve compliant and adequate servicing of the development.

APPENDIX A – CONCEPT DRAWINGS



LEGEND

- EXISTING SURFACE CONTOURS (0.25m INTERVAL)
- EXISTING STORMWATER DRAINAGE TO BE RETAINED
- PROPOSED STORMWATER DRAINAGE
- EXISTING SEWERAGE
- EXISTING WATER RETICULATION
- EXISTING UNDERGROUND ELECTRICAL
- EXISTING TELECOMMUNICATIONS
- EXISTING KERB AND CHANNEL
- PROPOSED KERB
- PROPOSED RETAINING WALL
- SEWERAGE EASEMENT
- NEW CONCRETE
- EXISTING WATER METER
- PROPOSED WATER METER
- EXISTING ELECTRICAL POLE
- 12.00 EXISTING LEVEL
- 12.00 FINISHED LEVEL
- NEW PAVEMENT

PLAN

SCALE 1:250

THIS DESIGN HAS BEEN PREPARED BASED ON SERVICE AUTHORITY AS CONSTRUCTED INFORMATION. NO POT HOLING HAS BEEN UNDERTAKEN TO VERIFY EXISTING SERVICE LOCATIONS AND DEPTHS. IT IS THE CONTRACTORS RESPONSIBILITY TO UNDERTAKE POT HOLING TO VERIFY THE DESIGN.

SCALE 1:250 (A1) 0 5 10 15m
(SCALE BEFORE REDUCTION)

HCE Engineers
Phone: (07) 3829 1399
mail@hce-engineers.com.au
P.O Box 7214
Redland Bay
Level 1
55-57 Jardine Drive
Redland Bay
QLD 4165

PROJECT	TITLE	CLIENT
3303 - 3305 LOGAN ROAD UNDERWOOD QLD 4119 LOT 36-37 SL 10904	CONCEPT CIVIL SERVICING AND FINISHED LEVEL PLAN	JOAS CHRISTOFAN

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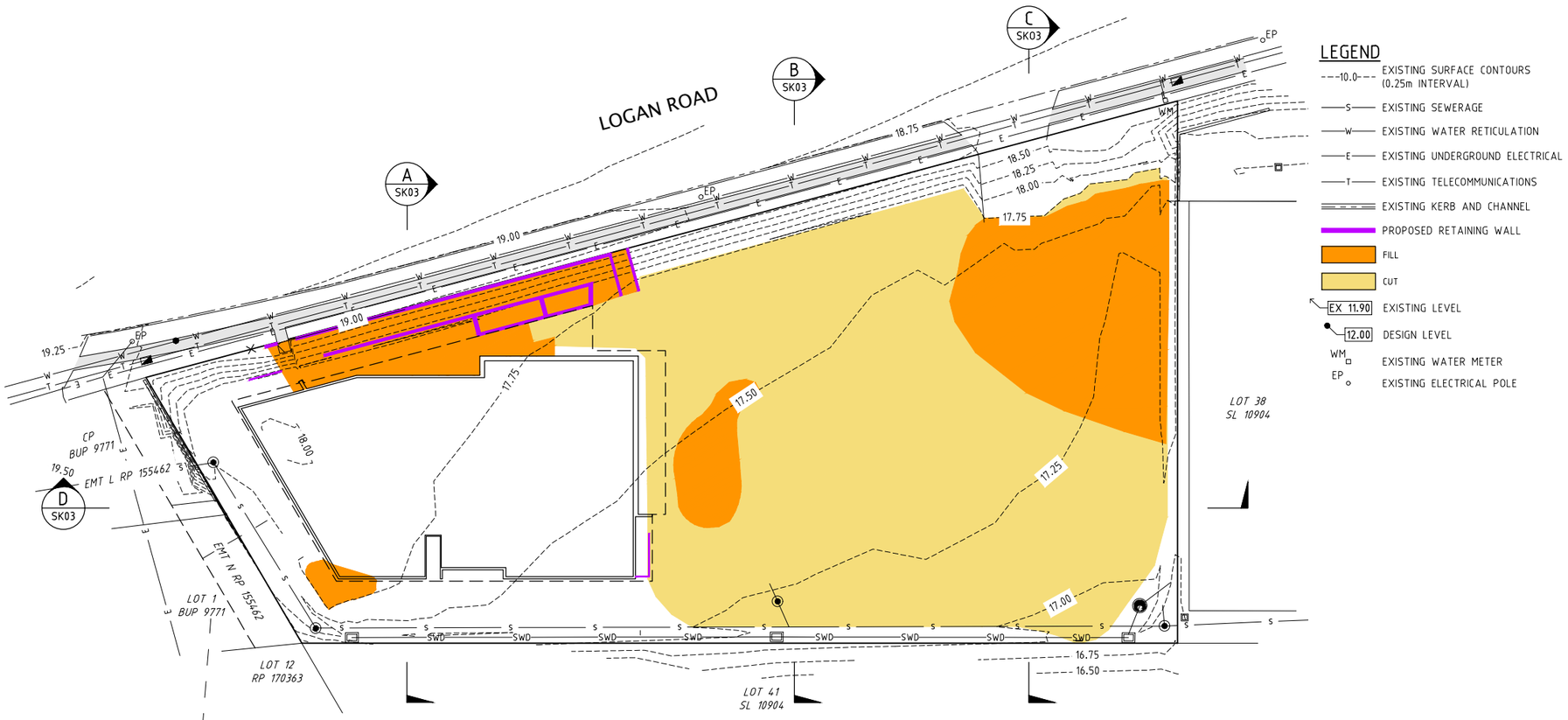
REVISION	AMENDMENT	DATE
A	ISSUED FOR COMMENT	28/04/23

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Designed	Drawn	Date
TC	JW/TC	28/04/2023

Approval No.	Scale
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Drawing No.	Rev.
22288-SK01	A



PLAN

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SCALE 1:250 (A1) 0 5 10 15m (SCALE BEFORE REDUCTION)

HCE Engineers
Phone: (07) 3829 1399
mail@hce-engineers.com.au
P.O Box 7214
Redland Bay
Level 1
55-57 Jardine Drive
Redland Bay
QLD 4165

PROJECT	TITLE	CLIENT
3303 - 3305 LOGAN ROAD UNDERWOOD QLD 4119 LOT 36-37 SL 10904	CONCEPT EARTHWORKS PLAN	JOAS CHRISTOFAN

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REVISION	AMENDMENT	DATE
A	ISSUED FOR COMMENT	28/04/23

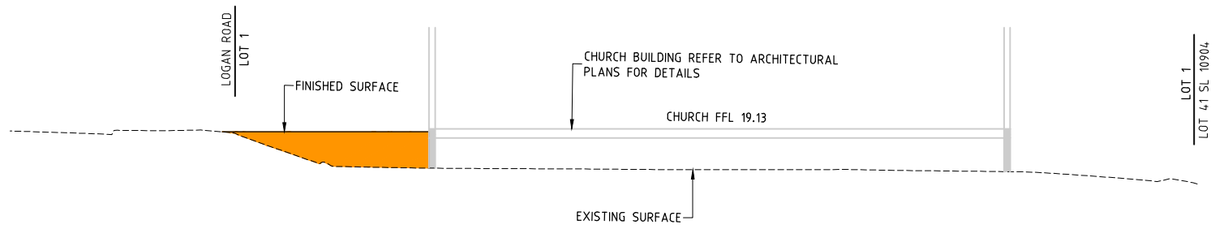
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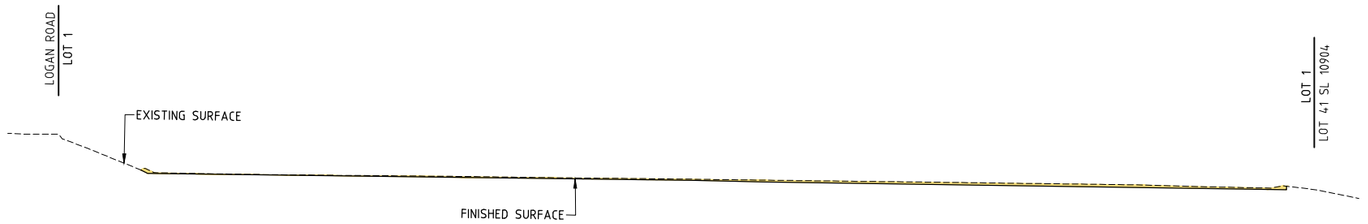
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TC	JW/TC	28/04/2023

Approval No.	Scale
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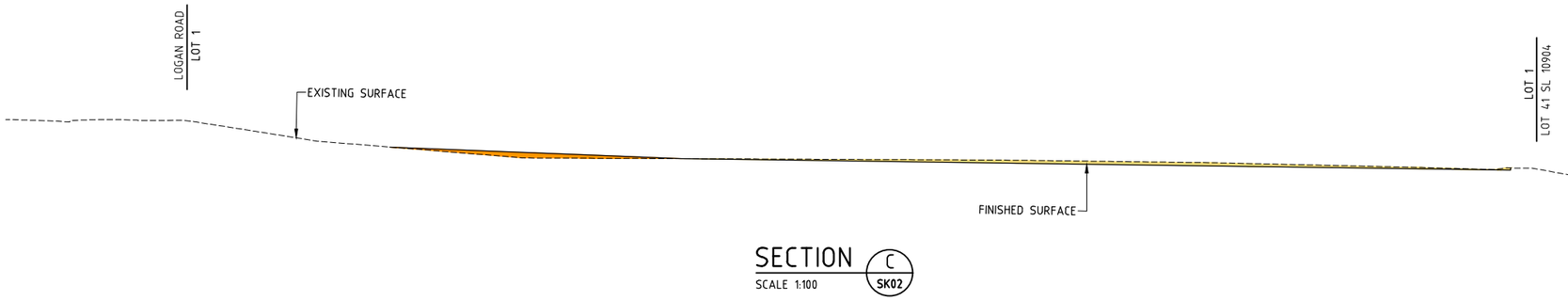
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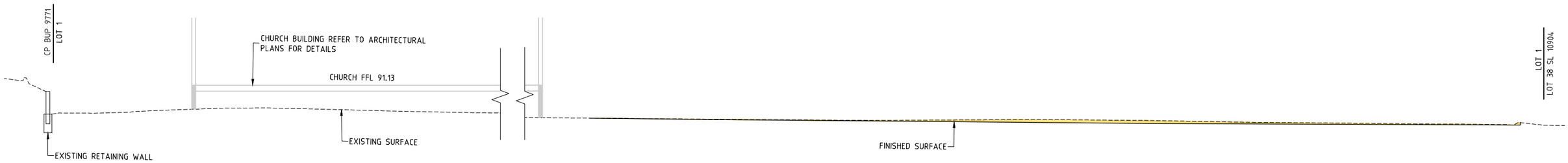
SECTION A
SCALE 1:100
SK02



SECTION B
SCALE 1:100
SK02



SECTION C
SCALE 1:100
SK02



SECTION D
SCALE 1:100
SK02

LEGEND
- EXISTING SURFACE
- FINISHED SURFACE
- FILL
- CUT

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SCALE 1:100 (A1) 0 2 4 6m
(SCALE BEFORE REDUCTION)

HCE Engineers
Phone: (07) 3829 1399
mail@hce-engineers.com.au
P.O Box 7214
Redland Bay
Level 1
55-57 Jardine Drive
Redland Bay
QLD 4165

PROJECT	TITLE	CLIENT
3303 - 3305 LOGAN ROAD UNDERWOOD QLD 4119 LOT 36-37 SL 10904	CONCEPT EARTHWORKS SECTIONS	JOAS CHRISTOFAN

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REVISION	AMENDMENT	DATE
A	ISSUED FOR COMMENT	28/04/23

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APPENDIX B – LOGAN CITY COUNCIL FLOOD RESPONSE LETTERS

Flood Report

During a flood or other emergency event, please visit Logan's Disaster Dashboard for the latest information.

This Flood Report provides information from Logan's planning scheme and any updated information Council has accepted from more recent flood studies.

Property Details

Address:	3303 Logan Road UNDERWOOD QLD 4119		
Lot/Plan:	Lot 36 SL 10904	**Property Key:**	186880
Property Size:	1,864 m ^{2} (survey plan area)	**Division:**	3
Zone and precinct:	Mixed Use - Enterprise		

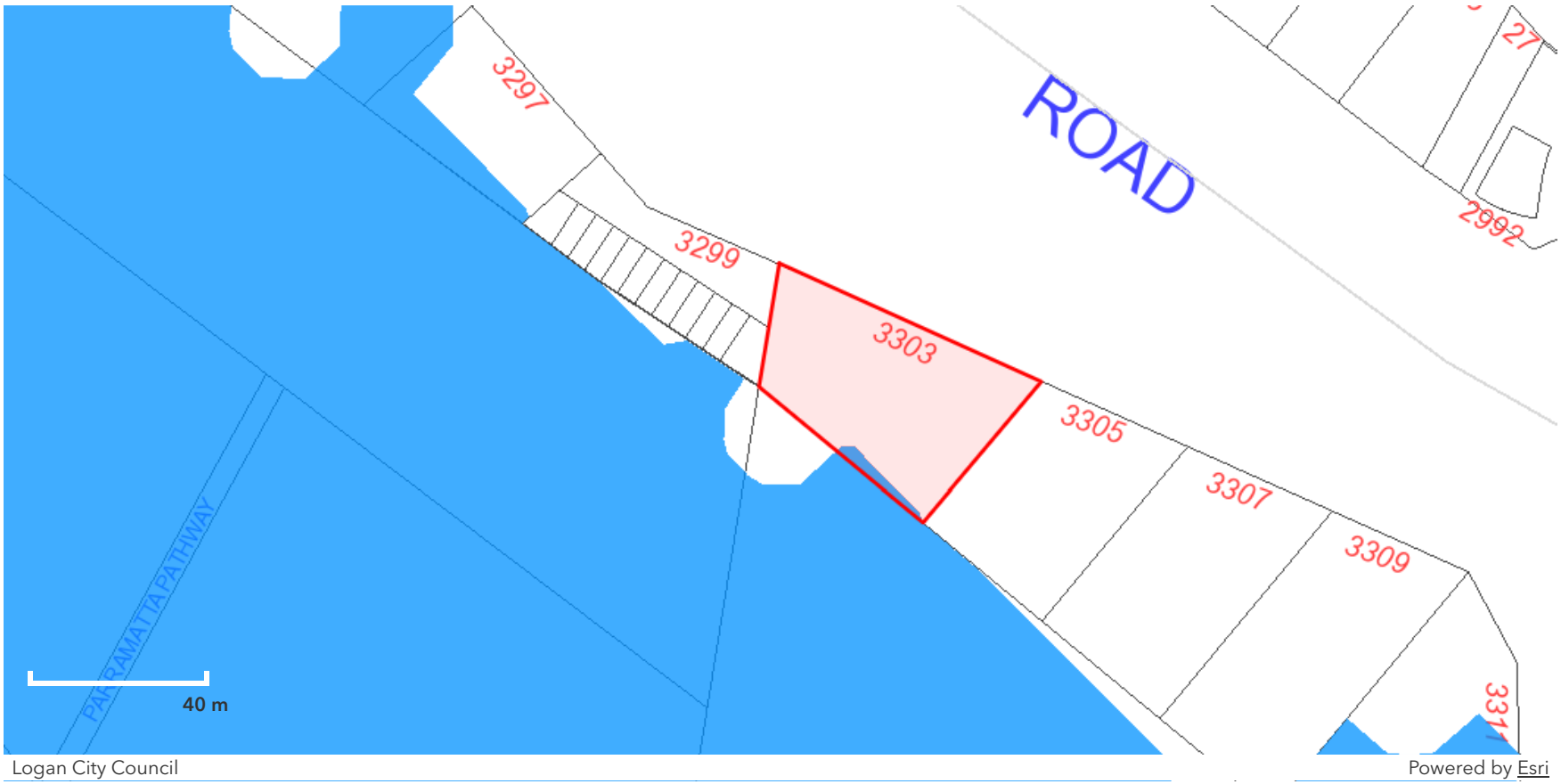
Flood hazard overlay in Logan Planning Scheme 2015	**YES**	This property is mapped on the Flood hazard overlay map in the Logan Planning Scheme 2015. See further details below.
Flood Level Information	**NO**	There is no flood level information for this property included in this report. This does not mean the property is not potentially impacted by floods. Please see further details below or contact Council's River and Catchment Engineering Program using the details in the Further Information section below.
Updated flood mapping based on more recent flood studies	**YES**	Updated flood mapping is available for this property and is included in this report. It should be used to inform development decisions.

Planning Scheme Flood hazard overlay map

The selected property is shown on the extract below of the Flood hazard overlay map in the Logan Planning Scheme 2015.

Various provisions of the Logan Planning Scheme 2015 which refer to premises affected by the 'flood hazard overlay' apply to the part(s) of the property affected by the Flood hazard overlay map. The map may not reflect the most recent information about flood hazard.

If more recent information is available about the flood hazard for this property, that should be used to inform development decisions to ensure risks associated with flood hazard are avoided or mitigated to protect people and property. Please refer to the Updated flood mapping section below.



Flood Level Information

The table below identifies the estimated flood level for the selected property by Annual Exceedance Probability (AEP). The AEP is the likelihood of a flood event of a particular size (or larger) occurring in any given year. Council requires that development is designed to protect against a 1% AEP flood event as a minimum.

N/A = not available

Defined Flood Event	**1 % AEP**
Flood Level	N/A
Flood Study	*Note: The %AEP may be approximate for flood levels sourced from a study completed before 2017. Flood studies are available from the **Flood page** on Council's website.*

Ground Level Information

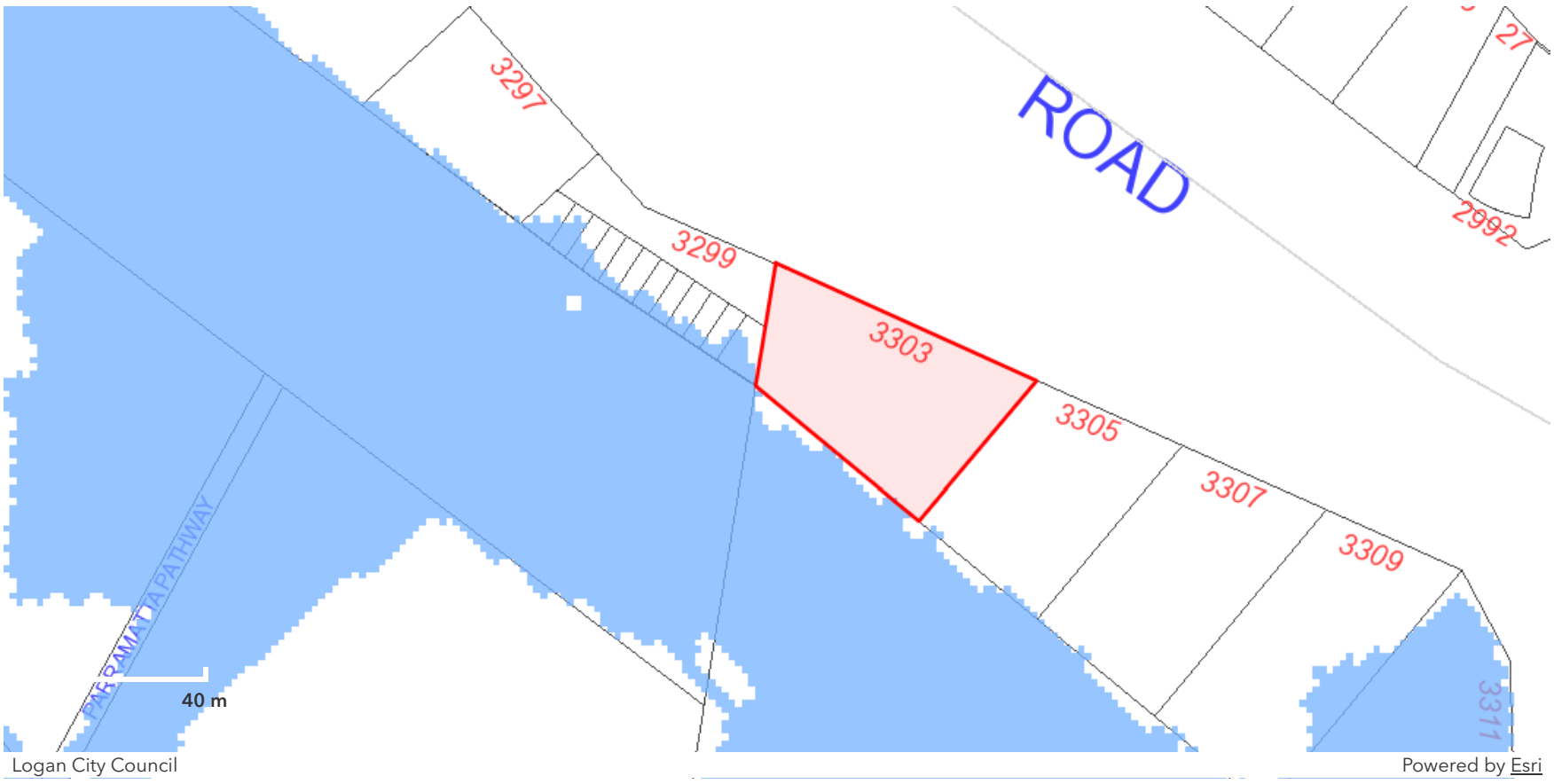
Minimum Ground Level	**17.0** metres AHD
Maximum Ground Level	**19.4** metres AHD
Source	2021 Digital Elevation Model (1 metre grid)

Updated flood mapping

Council undertakes new flood studies to obtain updated flood risk information in accordance with the endorsed Flood Studies Review Program. The latest available mapping for the selected property is shown and indicates flood risk for the 1% AEP flood event. This updated information will be incorporated into the planning scheme in a future amendment. It is important that this updated information is used to inform development decisions to ensure risks associated with flood hazard are avoided or mitigated to protect people and property.

Please note that the local planning scheme does not apply to properties in priority development areas (PDAs), where development is managed by Economic Development Queensland.

Please check this report in future to see if any further updates affect this property. Flood studies are available from the Flood page on Council's website.



Further Information

Please refer to the Flood Risk Fact Sheet or contact Council using the details below.

Planning and development enquiries	Contact Council on 07 3412 5269 or email development@logan.qld.gov.au Before lodging a development application, pre-lodgement advice is recommended.
Building information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. You can also contact a private building certifier.
Flood studies and modelling information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. Flood studies are available from the Flood page on Council's website.
Properties in Priority Development areas	Contact Economic Development Queensland.

Please note:

1. This report can be used for the purposes of development assessment but should **not** be relied upon as part of a property transaction.
2. This report does not represent the highest possible flood level that might affect the property, as floods are highly unpredictable and variable.
3. A property may also be affected by other sources of potential inundation.
4. The flood levels are sourced from Council's accepted flood studies and flood modelling and are measured in metres Australian Height Datum (AHD), where mean sea level is approximately zero (0) metres AHD. Ground level information for the property is provided as context for the flood levels.
5. The flood mapping and levels in this report are based on data that was obtained through flood studies undertaken at a particular time and date and which are subject to change. For example, if the method for calculating flood levels is updated, industry guidelines are amended, or more recent information becomes available, this may result in changes to the information in this report.
6. If flood level information is not available (shown as 'N/A'), you will need to contact Council using the details in the table above.
7. This report provides limited information for development assessment purposes and is not a substitute for independent professional advice. You should engage the services of a Registered Professional Engineer of Queensland (RPEQ) to obtain site specific information regarding the flood risk to your property and any the implications for any proposed building or development.
8. Although Logan City Council takes reasonable care in producing this report, it does not guarantee the information is accurate, complete, or current. Logan City Council does not accept any responsibility for any loss or damage (however it was caused) in connection with the use of or reliance on the information in this report.

Logan City Council

PO Box 3226 Logan Central QLD 4114

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Phone: (07) 3412 5269

Email: council@logan.qld.gov.au

Web: logan.qld.gov.au

Flood Report

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This Flood Report provides information from Logan's planning scheme and any updated information Council has accepted from more recent flood studies.

Property Details

Address:	3305 Logan Road UNDERWOOD QLD 4119		
Lot/Plan:	Lot 37 SL 10904	**Property Key:**	186881
Property Size:	1,577 m ^{2} (survey plan area)	**Division:**	3
Zone and precinct:	Mixed Use - Enterprise		

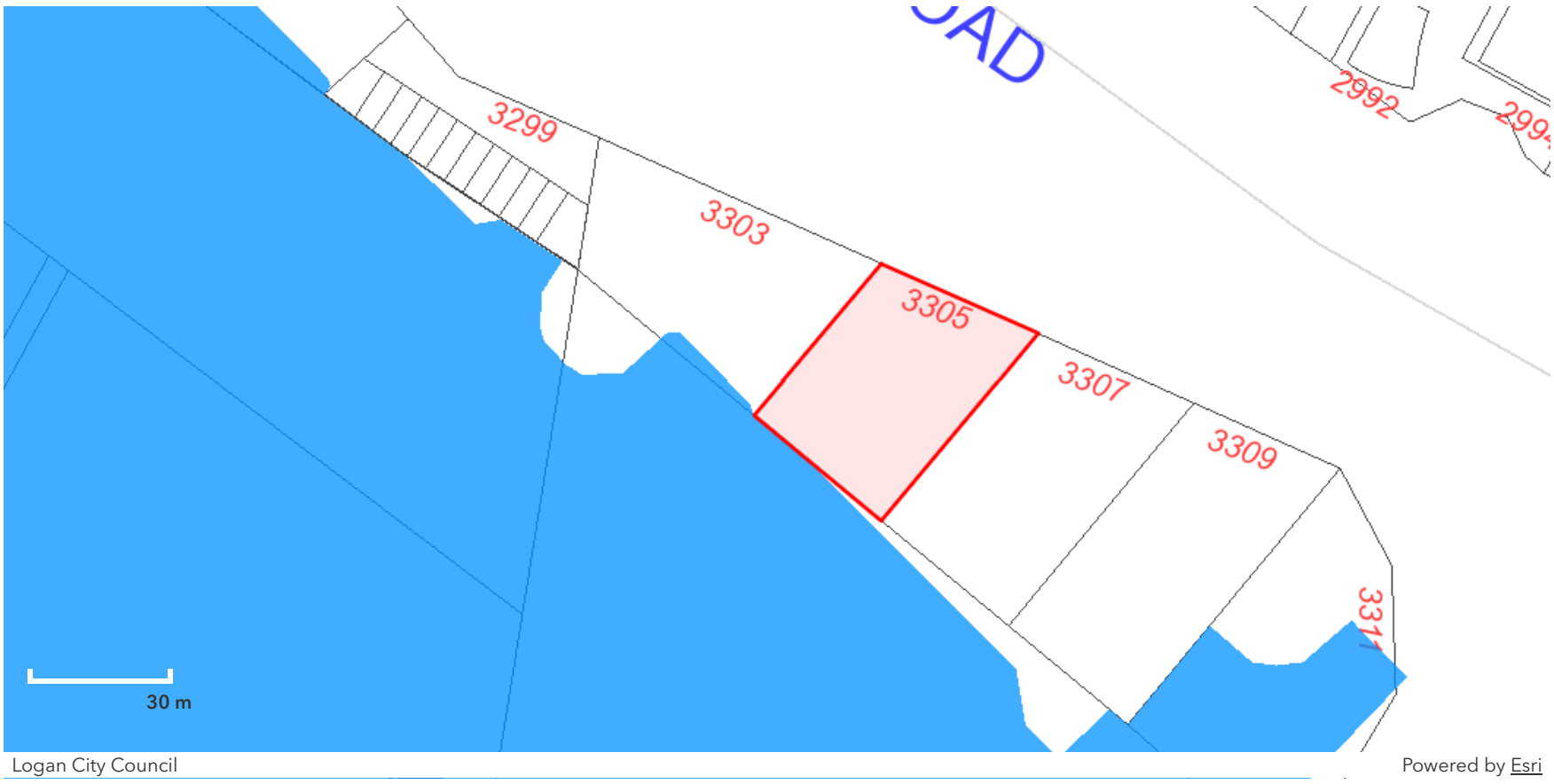
Flood hazard overlay in Logan Planning Scheme 2015	**NO**	This property is not mapped on the Flood hazard overlay map in the Logan Planning Scheme 2015. If more recent information about the flood hazard is available, it should be used to inform development decisions. This is to ensure risks associated with flood hazard are avoided or mitigated to protect people and property. See further details below.
Flood Level Information	**YES**	Flood level information is available for this property and is included in this report.
Updated flood mapping based on more recent flood studies	**YES**	Updated flood mapping is available for this property and is included in this report. It should be used to inform development decisions.

Planning Scheme Flood hazard overlay map

The selected property is shown on the extract below of the Flood hazard overlay map in the Logan Planning Scheme 2015.

Various provisions of the Logan Planning Scheme 2015 which refer to premises affected by the 'flood hazard overlay' apply to the part(s) of the property affected by the Flood hazard overlay map. The map may not reflect the most recent information about flood hazard.

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Flood Level Information

The table below identifies the estimated flood level for the selected property by Annual Exceedance Probability (AEP). The AEP is the likelihood of a flood event of a particular size (or larger) occurring in any given year. Council requires that development is designed to protect against a 1% AEP flood event as a minimum.

N/A = not available

Defined Flood Event	**1 % AEP**
Flood Level	**16.9** metres AHD
Flood Study	Slacks and Scrubby Creeks Flood Study 2018

*Note: The %AEP may be approximate for flood levels sourced from a study completed before 2017. Flood studies are available from the **Flood page** on Council's website.*

Ground Level Information

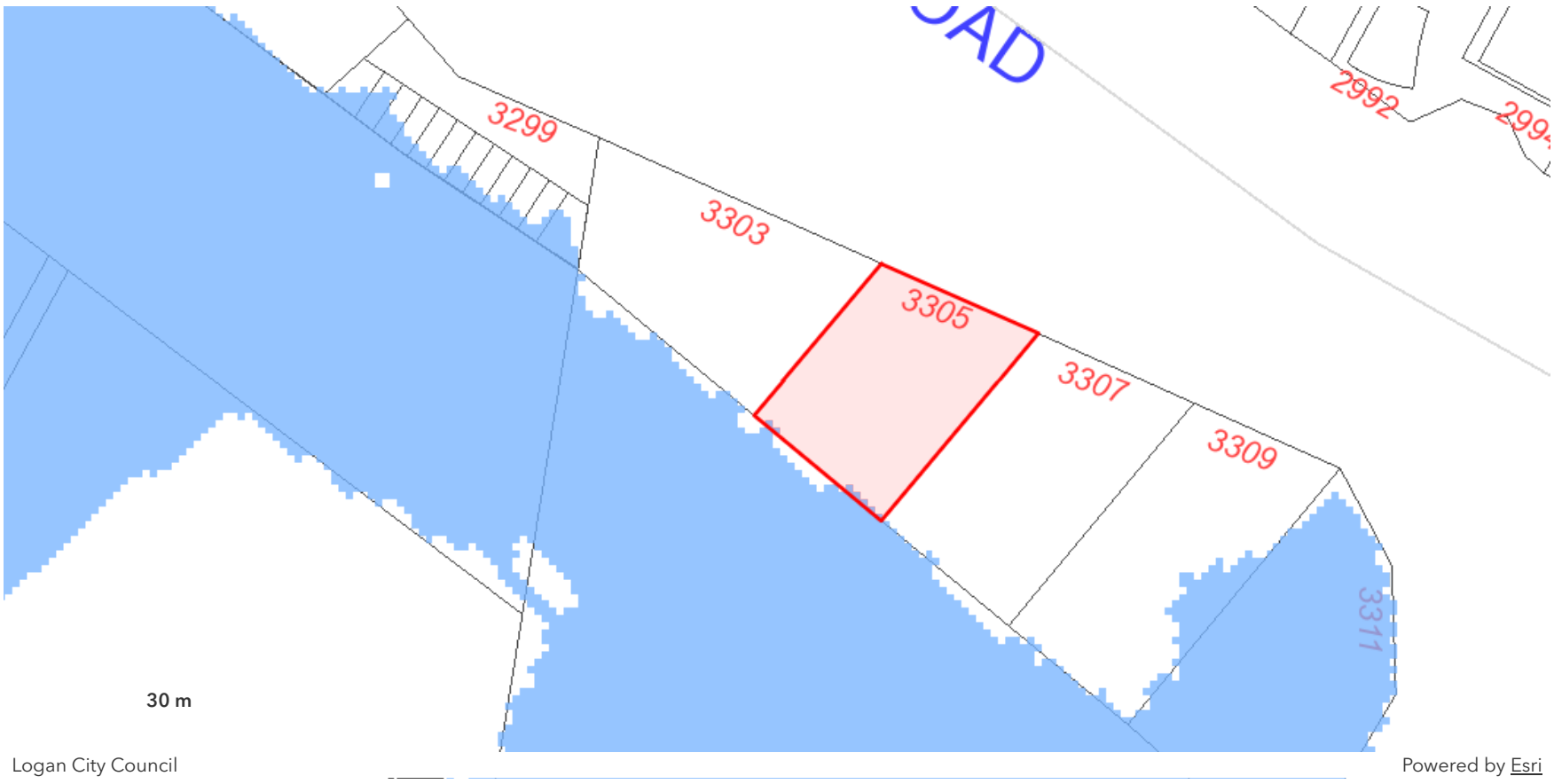
Minimum Ground Level	**16.9** metres AHD
Maximum Ground Level	**18.8** metres AHD
Source	2021 Digital Elevation Model (1 metre grid)

Updated flood mapping

Council undertakes new flood studies to obtain updated flood risk information in accordance with the endorsed Flood Studies Review Program. The latest available mapping for the selected property is shown and indicates flood risk for the 1% AEP flood event. This updated information will be incorporated into the planning scheme in a future amendment. It is important that this updated information is used to inform development decisions to ensure risks associated with flood hazard are avoided or mitigated to protect people and property.

Please note that the local planning scheme does not apply to properties in priority development areas (PDAs), where development is managed by Economic Development Queensland.

Please check this report in future to see if any further updates affect this property. Flood studies are available from the Flood page on Council's website.



Further Information

Please refer to the Flood Risk Fact Sheet or contact Council using the details below.

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Building information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. You can also contact a private building certifier.
Flood studies and modelling information	Contact Council on 07 3412 3412 or email council@logan.qld.gov.au. Flood studies are available from the Flood page on Council's website.
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3. A property may also be affected by other sources of potential inundation.
4. The flood levels are sourced from Council's accepted flood studies and flood modelling and are measured in metres Australian Height Datum (AHD), where mean sea level is approximately zero (0) metres AHD. Ground level information for the property is provided as context for the flood levels.
5. The flood mapping and levels in this report are based on data that was obtained through flood studies undertaken at a particular time and date and which are subject to change. For example, if the method for calculating flood levels is updated, industry guidelines are amended, or more recent information becomes available, this may result in changes to the information in this report.
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7. This report provides limited information for development assessment purposes and is not a substitute for independent professional advice. You should engage the services of a Registered Professional Engineer of Queensland (RPEQ) to obtain site specific information regarding the flood risk to your property and any the implications for any proposed building or development.
8. Although Logan City Council takes reasonable care in producing this report, it does not guarantee the information is accurate, complete, or current. Logan City Council does not accept any responsibility for any loss or damage (however it was caused) in connection with the use of or reliance on the information in this report.

Logan City Council

PO Box 3226 Logan Central QLD 4114

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Phone: (07) 3412 5269

Email: council@logan.qld.gov.au

Web: logan.qld.gov.au

APPENDIX C – FLOOD HAZARD CODE

8.2.5 Flood hazard overlay code

8.2.5.1 Application

1. This code applies to accepted development (subject to requirements) and assessable development for which the Flood hazard overlay code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.10.5.1 - Flood hazard overlay map OM-05.00 in Part 5 - Tables of assessment.
2. When using this code, reference should be made to section 5.3.2 - Determining the criteria of development and category of assessment and, where applicable, section 5.3.3 - Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development located in Part 5 - Tables of assessment.

Editor's Note - This overlay deals with inundation as a result of waterways overtopping their banks. It does not address localised stormwater runoff making its way into a waterway.
Note - Pursuant to section 32(a) of the *Building Act 1975* and section 13(1)(a) of the *Building Regulation 2006*, land identified as a Flooding and inundation area on Flood hazard overlay map OM-05.00 is designated as a 'natural hazard management area (flood)'.
Note - Floods larger than the DFE can occur, which may cause development at the margins of the natural hazard management area (flood) to be indirectly affected by flooding and therefore may not be able to serve their critical function. Particular attention should be paid to community infrastructure and the State Planning Policy requirements for their respective flood immunities.

8.2.5.2 Purpose

1. The purpose of the Flood hazard overlay code is to ensure development:
    a. is compatible with the nature of the natural flood hazard;
    b. does not cause injury, loss of life or damage to premises and property due to flooding or storm tide inundation;
    c. does not increase the emergency management burden on neighbours, the community or the local government.
2. The purpose of the code will be achieved through the following overall outcomes:
    a. Development:
        i. does not result in people and premises being at an unacceptable risk during a defined flood event;
        ii. protects the flood storage and discharge capacity of the flood plain;
        iii. does not exacerbate the extent or severity of flooding or flood risk;
        iv. protects and enhances the flood resilience (safety) of the community, including properties, infrastructure and amenities;
        v. does not adversely affect public safety and the environment from the impact of flooding on hazardous materials;
        vi. does not add to the emergency management or evacuation burden during and after a flood event.

8.2.5.3 Assessment benchmarks for assessment development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 8.2.5.3.1 - Flood hazard overlay code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Risk to people and premises		
PO1 A building floor level of a habitable room has adequate allowance for the hydraulic gradient above the main floodway.	**AO1** A building has a finished habitable floor level a minimum of 500mm above the defined flood event.	Not Applicable the site is not flood affected
PO2 Development must not increase the level of risk of injury to life or risk of damage to property or adversely affect flood evacuation procedures.	**AO2** Development: a. does not result in any of the following: i. an increase in the number of people at risk from flooding up to and including the defined flood event; or ii. an increase in the number of people that need evacuation up to and including the defined flood event; or iii. an increase in the number of premises or infrastructure at risk from flooding up to and including the defined flood event; or	Not Applicable the site is not flood affected

	iv. existing flood warning times being reduced for flood events up to and including the defined flood event; or v. an adverse impact on the ability of traffic to use evacuation routes or unreasonably increase traffic volumes on evacuation routes; or b. is located entirely within a development envelope area approved by an earlier development approval.	
For assessable development		
Risk to people and premises		
PO3 Development provides a development envelope area that is above the flood level during the defined flood event.	**AO3** Development provides a development envelope area above the flood level during the defined flood event with a minimum size and dimension specified in Table 8.2.5.3.2 - Development envelope area.	Not Applicable the site is not flood affected
PO4 Public safety and the environment are not adversely affected by floodwater by: a. locating a Medium impact industry or High impact industry to be able to function safely during and immediately after flood events; b. safely storing hazardous materials.	**AO4** Development: a. for a Medium impact industry or High impact industry is above the flood level specified in column 2 of Table 8.2.5.3.3 - Minimum flood levels; b. involving the storage, sale or use of hazardous materials is located above the flood level during the defined flood event.	Not Applicable the site is not flood affected
PO5	**AO5**	Not Applicable the site is not flood affected

A car park other than a Parking station is only located below the flood level during the defined flood event where there is no increase in risk to: a. pedestrian and vehicular safety; b. a building or other structure. Note - Section 4.1 - Guidelines for satisfying flood hazard overlay code in Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	No acceptable outcome provided.	
PO6 Development for any of the uses identified in column 1 of Table 8.2.5.3.3 - Minimum flood levels, are able to function effectively during and immediately after flood events. Note - Compliance with this performance outcome is to be demonstrated by a flood study report prepared in accordance with section 2.5.1 of Planning scheme policy 5 - Infrastructure Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO6** Development for any of the uses identified in column 1 of Table 8.2.5.3.3 - Minimum flood levels is located above the flood level specified in column 2 of Table 8.2.5.3.3 - Minimum flood levels.	Not Applicable the site is not flood affected
Flood storage and discharge capacity		
PO7 An existing floodway is protected and maintained to ensure there are no losses of conveyance capacity of waterways and storage so as not to adversely affect other premises, infrastructure and the environment. Note - Compliance with this performance outcome is to be demonstrated by a flood study report prepared in accordance with section 2.5.1 of Planning scheme policy 5 - Infrastructure Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO7** No acceptable outcome provided.	Not Applicable the site is not flood affected

PO8 The natural conveyance of flood waters and natural overland flow paths are protected and maintained without adversely affecting adjoining premises. Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO8** No acceptable outcome provided.	Not Applicable the site is not flood affected
PO9 Development (or development in combination with other development) for all flood events up to and including the defined flood event does not do any of the following: a. cause or have the potential to cause damage; or b. cause ponding of flood water; or c. adversely affect the flood discharge capacity of the floodplain; or d. decrease the flood resilience of properties and infrastructure; or e. cause a cumulative increase in flood levels external to the premises. Note - Compliance with this performance outcome is to be demonstrated by a flood study report prepared in accordance with section 2.5.1 of Planning scheme policy 5 - Infrastructure Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO9** No acceptable outcome provided.	Not Applicable the site is not flood affected
PO10 Any loss of floodplain storage is compensated with compensatory storage or excavation that:	**AO10** No acceptable outcome provided.	Not Applicable the site is not flood affected

a. is of equal volume, creating a balance of cut to fill; b. is free draining; c. is located within the premises; d. does not adversely affect the hydraulic conveyance capacity of the flood channel or floodplain; e. is provided to the corresponding flood level; f. is landscaped to provide visual amenity and erosion control; g. is solely for the purpose of compensatory storage. Note - Compliance with this performance outcome is to be demonstrated by a flood study report prepared in accordance with section 2.5.1 of Planning scheme policy 5 - Infrastructure Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.		
PO11 Development does not adversely change the following flood characteristics for all flood events up to and including the defined flood event: a. peak flow; b. flow of any part of the flood before the peak; c. flood flow velocity; d. level of flooding; e. flood time to peak. Note - Compliance with this performance outcome is to be demonstrated by a flood study report prepared in accordance with section 2.5.1 of Planning scheme policy 5 - Infrastructure Note - Section 4.1 - Guidelines for satisfying flood hazard overlay of Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO11** No acceptable outcome provided.	Not Applicable the site is not flood affected

PO12 A stormwater quality improvement device is located to retain existing flood plain storage capacity and ensure functionality of the stormwater quality improvement device.	**AO12** A stormwater quality improvement high flow outlet device is located: a. above the five percent AEP flood event caused by local flooding; b. above the two percent AEP flood event caused by regional flooding.	Not Applicable the site is not flood affected
PO13 A stormwater quantity management device is located to retain existing flood plain storage capacity and ensure functionality of the stormwater quantity management device.	**AO13** A stormwater quantity management high flow outlet device is located above the two percent AEP flood event.	Not Applicable the site is not flood affected
Filling and excavation		
PO14 Filling and excavation is carried out above the flood level of the 10 percent AEP event to protect in stream and banks of a waterway and wetland. Note - Section 4.1 - Guidelines for satisfying flood hazard overlay code in Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO14.1** Earthworks are limited to areas where: a. flooding is predominately due to backflow; b. the peak depth average velocity is less than the maximum permissible velocity for considerable bare earth channels (typically 0.5m/sec) in accordance with Table 9.0.5.3 of the Queensland Urban Drainage Manual; c. the cut/fill batter is not steeper than 1V:4H and the exposed earth surface is landscaped with erosion resistant vegetation cover. **AO14.2** A filling and excavation plan is provided in accordance with section 2.2.2 of Planning scheme policy 5 - Infrastructure**.**	Not Applicable the site is not flood affected

Access		
PO15 Development provides vehicular access to a road network that is sufficient to enable safe access and egress. Note - Section 4.1 - Guidelines for satisfying flood hazard overlay code in Planning scheme policy 5 - Infrastructure provides guidance to achieve this outcome.	**AO15** Development provides vehicular access to a road that is: a. above the flood level during the defined flood event; or b. below the flood level during the defined flood event where the road: i. has a low flood hazard; ii. remains trafficable until another road access to the development becomes trafficable; iii. directly connects to a road that is above the defined flood event that provides access to the road network.	Not Applicable the site is not flood affected
PO16 Development provides an access area to a building or fill area on which a building is to be constructed where the access is located on land classified as a low flood hazard in the defined flood event.	**AO16** Development provides access to a building or fill area that has: a. a maximum depth of inundation of 300 mm during all flood events up to and including the defined flood event; b. a maximum distance of inundation of 200 metres during all flood events up to and including the defined flood event; c. a depth multiplied velocity product of less than or equal to $0.4m^2/s$. Note - Velocity in flood waters is measured as the average velocity over a column of water.	Not Applicable the site is not flood affected

Table 8.2.5.3.2 - Development envelope area

Zone or precinct	Development envelope area specification	
	Minimum area	Minimum dimension
Rural zone	4,000m^2	50m
Rural residential zone	4,000m^2	50m
Environmental management and conservation zone - Environmental management precinct	2,000m^2	30m
Environmental management and conservation zone - Rural environmental management precinct	4,000m^2	50m
All other zones	The entire lot	-

Table 8.2.5.3.3 - Minimum flood levels

Column 1 Development for a material change of use	Column 2 Land is to be above the following minimum flood level
Emergency services not specified elsewhere in this table	The 0.2% AEP flood level
Hospital	The 0.2% AEP flood level
Major electricity infrastructure	The 0.2% AEP flood level
Detention facility	The 0.2% AEP flood level
Utility installation, being a power station	The 0.2% AEP flood level
Residential care facility or Retirement facility	The 0. 2% AEP flood level
Emergency services, being police facilities and emergency shelters	The 0.5% AEP flood level
Substation	The 0.5% AEP flood level

Utility installation, being a sewage treatment plant or water treatment plant	The 0.5% AEP flood level
Stores of valuable records or items of historic or cultural significance (eg galleries and libraries)	The 0.5% AEP flood level
An industry activity, involving the manufacture or storage of noxious or hazardous materials (e.g. a regional fuel storage facility)	The 0.5% AEP flood level
Warehouse, being a food storage warehouse	The 0.5% AEP flood level
Development involving the use of Class 5, 6, 7(b), 8 or 9(b) buildings other than specified above	The 1% AEP flood level

APPENDIX D – FILLING AND EXCAVATION CODE

9.4.2 Filling and excavation code

9.4.2.1 Application

1. This code applies to:
   a. material change of use:
      i. that is accepted development (subject to requirements) or code assessable and for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use in Part 5 - Tables of assessment;
      ii. that is made impact assessment in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use or section 5.9 - Categories of development and assessment - local plans in Part 5 - Tables of assessment;
   b. reconfiguring a lot:
      i. that is code assessable and for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
      ii. that is impact assessable in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
   c. operational work that is accepted development (subject to requirements) and code assessable operational work - filling or excavation for which the Filling and excavation code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.8.1 - Operational work.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5 - Tables of assessment.

9.4.2.2 Purpose

1. The purpose of the code is to protect premises, people and natural processes from adverse impacts associated with filling or excavation.
2. The purpose of the code will be achieved through the following overall outcomes:
   a. development protects:
      i. natural physical processes and ecosystems;
      ii. existing and planned infrastructure;
      iii. personal health and safety and premises;
      iv. visual amenity.

9.4.2.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.2.3.1 - Filling and excavation code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		
Protection of natural processes and ecosystems		
PO1 The discharge of sediments and pollutants from filling or excavation does not adversely affect a waterway or the stormwater network.	**AO1** The discharge of sediments and pollutants to a waterway or stormwater network complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be achieved through compliance with appropriate approval conditions
PO2 Topsoil and spoil stockpiled on the premises do not adversely affect natural processes and ecosystems.	**AO2** Topsoil and spoil is stockpiled to comply with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be achieved through compliance with appropriate approval conditions
PO3 Filling is carried out using stable, solid and clean earth, free of organic and putrescible waste, rubbish and refuse material.	**AO3** Filling complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be achieved through compliance with appropriate approval conditions
Protection of existing and planned infrastructure		

PO4 Filling or excavation works do not adversely affect infrastructure, including any services.	**AO4** Filling or excavation works comply with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be achieved through compliance with appropriate approval conditions
Protection and enhancement of personal health and safety and premises		
PO5 Filling or excavation works do not adversely affect personal health and safety.	**AO5** Filling or excavation works comply with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be achieved through compliance with appropriate approval conditions
Surface water flow		
PO6 Surface water drainage does not cause any of the following: a. ponding on any premises; or b. a hazard or adversely affect personal health and safety and premises; or c. diversion or concentration of flow from or onto adjoining premises or infrastructure.	**AO6** Surface water drainage complies with part 3.3 - Filling or excavation standards in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be and is proposed to be met
Batters		
PO7 A batter: a. does not adversely affect the natural physical processes and ecosystems; b. protects existing and planned infrastructure; c. is safe, stable and easily maintained; d. is landscaped to enhance visual amenity.	**AO7** A batter is designed and constructed to comply with the standards specified in 3.3.6 - Batters and retaining walls in Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be and is proposed to be met
Retaining walls		

PO8 A retaining wall: a. is not constructed of timber and is not located on existing or proposed lot boundaries, or movement networks; b. does not adversely affect the natural physical processes and ecosystems; c. is located to avoid conflict with adjoining premises; d. is located such that existing and planned infrastructure is not adversely affected; e. protects the visual amenity of adjoining premises or a public open space; f. is located within the premises that is being filled; g. is located within the premises that is cut and is designed to take any surcharge loading allowable on the uphill lot; h. is safe and stable; i. enables easy access for maintenance.	**AO8** A retaining wall is designed and constructed to comply with the standards specified in section 3.3.6.2 - Retaining walls in Planning scheme policy 5 - Infrastructure.	The Performance Outcome can be and is proposed to be met
Filling of a dam		
PO9 The filling of a dam: a. does not adversely affect the natural physical processes and ecosystems; b. creates a safe and stable surface; c. is integrated into the landscape.	**AO9** The filling of a dam complies with part 3.3 - Filling and excavation standards in Planning scheme policy 5 - Infrastructure.	Not applicable, no dams to be filled

APPENDIX E – INFRASTRUCTURE CODE

9.4.3 Infrastructure code

9.4.3.1 Application

1. This code applies to:
    a. material change of use:
        i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use in Part 5 - Tables of assessment;
        ii. that is made impact assessment in a table of assessment in section 5.5 - Categories of development and assessment - Material change of use or section 5.9 - Categories of development and assessment - Local plans in Part 5 - Tables of assessment;
    b. reconfiguring a lot:
        i. that is code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
        ii. made impact assessment in Table 5.6.1 - Reconfiguring a lot in Part 5 - Tables of assessment;
    c. operational work that is infrastructure work:
        i. that is accepted development (subject to requirements) or code assessable and for which the Infrastructure code is identified in the 'assessment benchmarks for assessable development and requirements for accepted development' column Table 5.8.1 - Operational work in Part 5 - Tables of assessment.
2. When using this code, reference should be made to section 5.3.2 - Determining the category of development and category of assessment and, where applicable, section 5.3.3 - Determining the 'assessment benchmarks for assessable development and requirements for accepted development' located in Part 5 - Tables of assessment.

9.4.3.2 Purpose

1. The purpose of the code is to ensure that infrastructure is provided to service development.
2. The purpose of the code will be achieved through the following overall outcomes:
    a. development protects the existing infrastructure and planned infrastructure networks being the:
        i. movement network;
        ii. park network;
        iii. water network;

iv. sewerage network;
v. stormwater network;
vi. other networks including electricity, gas and telecommunications;
vii. land for community facilities network;

b. development other than operational work provides infrastructure that is necessary to service the development, including elements of:
i. a safe, efficient and legible road network;
ii. a safe, efficient and legible public transport network;
iii. a safe, efficient and legible cycle network;
iv. a safe, efficient and legible pedestrian network;
v. a safe, efficient and legible parks network;
vi. a safe and efficient water network;
vii. a safe and efficient sewerage network;
viii. a safe and efficient stormwater network;
ix. safe and efficient other networks including electricity, gas and telecommunications;
x. a safe and efficient road lighting network;
xi. land for a community facilities network;

c. development integrates with existing and planned infrastructure networks;
d. infrastructure is designed and constructed to deliver a standard of service that is efficient and equitable;
e. the cost to the community for the life of the infrastructure is minimised by providing for a suitable design life, ease of maintenance and ease of replacement;
f. infrastructure protects personal health and safety and premises;
g. infrastructure protects environmental values.

9.4.3.3 Assessment benchmarks for assessable development and requirements for accepted development

Part A - Requirements for accepted development (subject to requirements) and assessment benchmarks for assessable development

Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development

Performance outcomes	Acceptable outcomes	Comments
For accepted development (subject to requirements) and assessable development		

Provision, design, construction and location of infrastructure		
PO1 Development is demonstrated to be capable of being serviced by necessary infrastructure.	**AO1** Reports, plans and drawings are provided in accordance with part 2 of Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome is met
PO2 Development: a. provides necessary infrastructure to service the development; b. provides that the design, construction and location of necessary infrastructure: i. protects existing and planned infrastructure networks; ii. services proposed development; iii. integrates with existing and planned infrastructure networks; iv. delivers a standard of service that is efficient and equitable; v. minimises the cost to the community for the life of the infrastructure by providing a suitable design life, ease of maintenance and ease of replacement; vi. protects personal health, safety and premises; vii. protects environmental values.	**AO2** Development: a. in a water supply service area connects to the water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; b. not in a water supply service area provides a tank with a minimum storage capacity of 45,000 litres; c. in a sewerage supply service area connects to the waste water network in accordance with the SEQ Water Supply and Sewerage Design and Construction Code; d. not in a sewerage supply service area complies with part 1 of the Queensland Plumbing and Wastewater Code; e. provides stormwater infrastructure in accordance with part 3.6 of Planning scheme policy 5 - Infrastructure; f. provides a movement network infrastructure in accordance with part 3.4 of Planning scheme policy 5 - Infrastructure; g. provides parks in accordance with part 3.12 of Planning scheme policy 5 - Infrastructure;	The Acceptable Outcome can be and is proposed to be met

	h. provides road lighting in accordance with part 3.5 of Planning scheme policy 5 - Infrastructure; i. provides electricity reticulation in accordance with part 3.8 of Planning scheme policy 5 - Infrastructure; j. provides gas and telecommunications reticulation in accordance with part 3.9 of Planning scheme policy 5 - Infrastructure. k. is consistent with the general planning layouts in part 7.2 of Planning scheme policy 5 - Infrastructure. Editor's note - The delivery of any part of a network identified in the plans for trunk infrastructure is governed by Part 4 - Local government infrastructure plan.	
Location of development		
PO3 Development is located to protect existing and planned infrastructure networks.	**AO3** Development is located outside: a. planned widening of a road or a new road identified in Table 7.3.1.1 - Road encroachment maps of Planning scheme policy 5 - Infrastructure; b. planned public transport network identified on Figure 3.4.1.3.1 - Public transport network in Planning scheme policy 5 - Infrastructure; c. a planned cycle network identified on Figure 3.4.1.2.1 - Cycle network in Planning scheme policy 5 - Infrastructure; d. a planned network identified in Local government infrastructure plan map LGIP-07.00 Plan for trunk parks infrastructure in	The Acceptable Outcome can be and is proposed to be met

	Schedule 3 - Local government infrastructure plan mapping and tables.	
Fire fighting		
PO4 Development in a water service area accessed by common private title provides: a. fire hydrant infrastructure; b. unimpeded access for emergency services vehicles. Editor's note - The term common private title refers to areas such as access roads in community title developments or strata title unit access, which are private and under group or body corporate control.	**AO4** Development in a water service area involving a material change of use or reconfiguring a lot where, or to be, accessed by common private title ensures that fire hydrant placement and technical requirements for streets and access ways are in accordance with: a. Australian Standard (AS) 2419.1 - 2005 *Fire hydrant installations*; b. QFES: *Fire Hydrant and vehicle access guidelines for residential, commercial and industrial lots*.	Not applicable, no common private title land proposed
PO5 Development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for fire fighting purposes.	**AO5** Development: a. is connected to a reticulated water supply scheme that has sufficient flow and pressure characteristics for fire fighting purposes at all times with a minimum pressure and flow of 10 litres per second at 200kPa; or b. has on-site water storage in accordance with Table 9.4.3.3.2 - Water storage for fire fighting, dedicated or retained for fire fighting purposes that is made of fire resistant materials and is: i. a separate tank; or ii. a reserve section in the bottom part of the main water supply tankwater tank. Editor's note - The requirement in AO5 is:	Not applicable, land is within a water service area

	- in addition to the requirement for potable water supply/storage in AO2 in Table 9.4.3.3.1 - Infrastructure code: accepted development (subject to requirements) and assessable development; - reflected in AO5 in Table 8.2.3.3.1 - Bushfire hazard overlay code: accepted development (subject to requirements) and assessable development.	
Disposal of trade waste		
PO6 The disposal of trade waste in a sewerage supply service area does not adversely affect the sewerage network.	**AO6** The disposal of trade waste in a sewerage supply service area complies with the sewer admission standards in section 3.2.6 - Sewer admission standards in Planning scheme policy 3 - Environmental management.	Not applicable, the proposed use does not generate trade waste
Roof water drainage and surface water drainage		
PO7 Development provides stormwater infrastructure for the drainage of the premises so as not to cause any of the following: a. ponding of stormwater on the premises; b. a hazard to personal health and safety; c. damage to premises; d. an increased risk of flooding to premises within the catchment.	**AO7** Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be and is proposed to be met
Natural flow of surface water		
PO8 Development provides that the natural flow of surface water is: a. not altered so as to cause a risk to personal health and safety or damage to property;	**AO8** Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be and is proposed to be met

b. not increased in intensity, velocity or frequency; c. not concentrated onto adjoining premises.		
Water sensitive urban design		
PO9 Development which provides stormwater infrastructure incorporates water sensitive urban design principles having regard to: a. protecting existing natural features and ecological processes; b. protecting the natural hydrologic behaviour of catchments; c. protecting the existing natural flow and water quality regimes of waterways; d. protecting water quality of surface and ground waters; e. minimising demand on the water network; f. minimising sewage discharges to the natural environment; g. integrating water into the landscape to enhance visual and ecological values.	**AO9** Development complies with the standards for stormwater infrastructure specified in part 3.6 of Planning scheme policy 5 - Infrastructure.	The Acceptable Outcome can be and is proposed to be met.
Movement network		
PO10 The projected traffic levels for a use do not adversely affect the planned standards of service for a road or intersection.	**AO10** Development does not cause or contribute to projected traffic levels: a. exceeding the maximum vehicle trips per day in Table 3.4.1.4.2 in Planning scheme policy 5 - Infrastructure; or b. exceeding the maximum control delays through intersections in peak periods in	It is envisaged that the Performance Outcome and the Acceptable Outcome are met given the scale of development. However, no traffic impact assessment has been prepared by HCE Engineers at this time.

	Table 3.4.1.4.3 in Planning scheme policy 5 - Infrastructure.	
Integrated movement concept report		
PO11 Development which generates more than 3,000 vehicle trips per average weekday is designed to integrate the movement network to minimise the transportation costs required to service the use.	**AO11** Development which generates more than 3,000 vehicle trips per average weekday provides an integrated movement concept report which integrates the planning of the movement network in accordance with part 2 and 3 of Planning scheme policy 5 - Infrastructure.	It is envisaged that the Performance Outcome and the Acceptable Outcome are met given the scale of development. However, no traffic impact assessment has been done at this time.
For assessable development only		
Land use and transport integration		
PO12 Development within 400 metres of existing or future public passenger transport facilities where the total site area is 5,000m^2 or more: a. supports a road hierarchy which facilitates efficient, safe and accessible bus services connecting to existing and future public passenger transport facilities; b. enhances connectivity between existing and future public passenger transport facilities and other transport modes; c. optimises the walkable catchment to existing and future public passenger transport facilities; d. provides for direct and safe access to and use of existing or future public passenger transport facilities.	**AO12** No acceptable outcome provided.	Not applicable, not within 400m of existing public passenger transport facilities.

Note - SPP code: Land use and transport integration in Appendix 4 of the state planning policy provides guidance to achieve this outcome.		

Table 9.4.3.3.2 - Water storage for fire fighting

Column 1 Lot size / use type	Column 2 Water requirement
For each residential lot:	
a. less than 1,000m^2	5,000 litres
b. between 1,000m^2 and less than 1 hectare	10,000 litres
c. greater than 1 hectare	20,000 litres
Multiple dwelling	5,000 litres per dwelling up to a maximum of 20,000 litres
A use other than Multiple dwelling	5,000 litres or the prevailing rural fire brigade standard