

Mailing Address:PO Box 390, Gayndah Qld 4625Street Address:34-36 Capper Street, Gayndah Qld 4625Telephone:1300 696 272Facsimile:(07) 4161 1425Email:admin@northburnett.qld.gov.auWeb:northburnett.qld.gov.auABN:23 439 388 197

30 October 2023

Our reference: 1176902

Indigenous Wellbeing Centre Ltd c/- Insite SJC PO Box 1688 BUNDABERG QLD 4670

Dear Sir / Madam

RE: DEVELOPMENT APPLICATION FOR MATERIAL CHANGE OF USE - MULTIPLE DWELLING (3 UNITS) AT 94 MESON STREET, GAYNDAH; LAND DESCRIBED AS 10G1345

Thank you for the above-mentioned development application lodged with the North Burnett Regional Council on 16 August 2023 and taken to be properly made on 17 August 2023.

Please find attached the Decision Notice for the above-mentioned development application.

Sections 71 and 72 of the Planning Act 2016 identifies when a development approval has effect and the development may start. In summary, a development approval generally has immediate effect, except when—

- if there is an appeal, after the appeal has ended;
- if there is no appeal but there was a submitter, all submitters have notified the Council that they will not appeal the decision, or when the last appeal period ends.

Please quote Council's application number: DA230045 in all subsequent correspondence relating to this development application. Should you require any clarification regarding this matter or wish to schedule a meeting, please contact Council's Development Services team on telephone 1300 696 272.

Yours sincerely,

Kim Mahoney General Manager – Corporate and Community

Enc: Decision notice Approved plans



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Decision notice — approval (with conditions)

(Given under section 63 of the Planning Act 2016)

Thank you for your development application detailed below which was properly made on 17 August 2023 The North Burnett Regional Council has assessed your application and decided it as follows—

Applicant's Details				
Name:	Indigenous Well	being Centre Ltd		
Postal Address:	c/- Insite SJC PO Box 1688			
	BUNDABERG			
Email:	shane@insitesjo	c.com.au		
Phone No.:	4151 6677			
Mobile No.:				
Location details				
Street address:	94 MESON STF	REET, GAYNDAH		
Real property description:	10G1345			
Local government area:	North Burnett Re	egional Council		
Application details:				
Application number:	DA230045			
Approval sought:	Material change	of use		
Description of development proposed:	Multiple Dwelling	g (3 units)		
Decision				
Date of decision:	27 October 2023	3		
Decision details:	Approved in full <u>Attachment 1</u> a assessment ma	with conditions. The nd are clearly identifi nager or a concurren	se conditions and to indicate vindicate vindicate vindicate vindicate vindicate vindicate vindicate vindicate s	re set out in vhether the osed them.
		Planning Regulation 2017 reference	Development Permit	Preliminary Approval
Development assessable under the	planning			

scheme, a temporary local planning instrument, a master plan or a preliminary approval which

includes a variation approval

Approved plans and specifications

Drawing/report title	Prepared by	Date	Reference no.	Version/ issue
Cover	Tomas O'Malley Architect	10.07.2023	Project 22042 Drawing No. A00000	3
Site Plan	Tomas O'Malley Architect	10.07.2023	Project 22042 Drawing No. A10000	4
Area Plan	Tomas O'Malley Architect	10.07.2023	Project 22042 Drawing No. A12000	3
Floor Plans	Tomas O'Malley Architect	10.07.2023	Project 22042 Drawing No. A21000	4
Floor Plan – Units 1&2	Tomas O'Malley	08.06.2023	Project 22042 Drawing No, A2110	2
Floor Plan – Unit 3	Tomas O'Malley Architect	08.06.2023	Project 22042 Drawing No. A2110	2
Elevations – Units 1&2	Tomas O'Malley Architect	08.06.2023	Project 22042 Drawing No. A3100	2
Elevations – Units 1&2	Tomas O'Malley Architect	08.06.2023	Project 22042 Drawing No. A3101	2
Elevations – Units 3	Tomas O'Malley Architect	08.06.2023	Project 22042 Drawing No. A3110	2
Elevations – Units 3	Tomas O'Malley Architect	01.07.2023	Project 22042 Drawing No. A3111	3
Detail and Level Survey of Visible Features Over Lot 10 on Plan G1345 Meson Street Gayndah	Insite SJC	05.07.2023	GC23-008 D1	1
Preliminary Management Report – Clinicians Housing Development	Engineers Plus	20.07.2023	Job No.: 23338 Pages 31	0

Copies of the following plans, specifications and/or drawings are enclosed in attachment 3-

Conditions

This approval is subject to the conditions in <u>Attachment 1 and 2</u>. These conditions are clearly identified to indicate whether the assessment manager or concurrence agency imposed them.

Further development permits

Please be advised that the following development permits are required to be obtained before the development can be carried out:

- All Building Work
- All Plumbing and Drainage Work
- All Operational Work

Properly made submissions

Not applicable — No part of the application required public notification.

Referral agencies for the application

Not applicable — This application did not require referral to a concurrence agency. Address all correspondence to the Chief Executive Officer

Currency period for the approval

This development approval will lapse at the end of the period set out in section 85 of *Planning Act 2016*—refer <u>https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#sec.85</u>. A hard copy of section 85 of *Planning Act 2016* can be provided upon request.

Conditions about infrastructure

No conditions about infrastructure have been imposed under Chapter 4 of the Planning Act 2016

Rights of appeal

The rights of applicants to appeal to a tribunal or the Planning and Environment Court against decisions about a development application are set out in chapter 6, part 1 of the *Planning Act 2016* (<u>https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#ch.6</u>) and Schedule 1 of the *Planning Act 2016* (<u>https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#ch.6</u>). For particular applications, there may also be a right to make an application for a declaration by a tribunal (see chapter 6, part 2 of the *Planning Act 2016 –* <u>https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#ch.6</u>). A hard copy of the appeal rights extracted from the *Planning Act 2016* can be provided upon request.

Should you require any further assistance in process, please contact Council's Development Services Department on 1300 696 272.

Yours faithfully

Kim Mahoney General Manager – Corporate and Community

Enc: Attachment 1-conditions imposed by assessment manager Attachment 2-approved plans Attachment 3-appeal rights



Attachment 1 – Conditions Imposed by Assessment Manager

General

- 1) Carry out the approved development in accordance with the approved plans and documents identified in section 5 "Approved plans" of the decision notice approval, except as modified by the conditions of this approval as relevant.
- 2) Where there is any conflict between conditions of this approval and details shown on the approved plans and documents, the conditions prevail.
- 3) Exercise the approval and complete all associated works, including any relocation or installation of services, at no cost to Council.
- 4) Comply with all the conditions of this development permit prior to commencement of the use and maintain compliance whilst the use continues.
- 5) Submit to and have approved by the Assessment Manager amended plans and/or documents which incorporate compliance to these conditions prior to the submission of a building work application or commencement of work, whichever comes first.

Existing Services and Structures

6) Ensure all existing and proposed utility services and connections (e.g. electricity, telecommunications, water, and sewerage) are wholly located within the lot they serve.

Construction management

- 7) Unless otherwise approved in writing by the Assessment manager, do not carry out building work in a way that makes audible noise
 - a) on a business day or Saturday, before 6:30am or after 6:30pm
 - b) on any other day, at any time.
- 8) Contain all litter, building waste, and sediment on the building site by the use of a skip and any other reasonable means during construction to prevent release to neighbouring properties or public spaces.
- 9) Remove any spills of soil or other material from the road or gutter upon completion of each day's work, during construction.

Use Specific

- 10) Provide and maintain a solid screen fence along all side boundaries. The fence is to have a minimum height of 1.8m behind the front building line or 6m from the front boundary (whichever is lesser).
- 11) Provide a maximum of one (1) letter box for each dwelling unit plus one (1) letter box for the use of the body corporate or management. All letter boxes must form an integral part to the building / landscape design and must be located on the primary road frontage.

Landscaping

- 12) Landscape the site in accordance with the approved plans. Landscaping must:
 - a) consist of permanent garden beds planted with trees and shrubs, with particular attention to the street frontage(s) of the site;
 - b) include species recognised for their tolerance for low water conditions;
 - c) be provided with a controlled underground or drip watering system;
 - d) landscaping does not include any species identified as an unacceptable species in planning scheme policy SC6.5 Landscaping, section SC6.5.5 Unacceptable plant species for landscaping or are otherwise known to be toxic to people or animals,
 - e) landscaping enables passive surveillance of car parking areas, communal spaces, children's play areas and pathways,
 - f) all pedestrian surfaces are slip-resistant and trafficable in all weather conditions,
 - g) provide root barriers minimise the risk of intrusion and damage to services and utilities, and
 - h) landscaping works do not cause ponding of water on the premises or adjoining land,

Note: Council does not require the submission of an Operational works development application for landscaping.

Waste management

- 13) Provide an impervious bin storage area for the storage of refuse bins in accordance with the following
 - a) designed so as to prevent the release of contaminants into the environment,
 - b) sufficiently sized to accommodate all refuse bins,
 - c) screened from the road frontage or other public space by landscaping or constructed screening,
 - d) a suitable hose cock (with backflow prevention) and hoses must be provided at the bin storage area, and wash down to be drained to the sewer and fitted with an approved stormwater diversion valve arrangement, and
 - e) must be maintained in a clean and sanitary manner.
- 14) Maintain and operate an adequate waste disposal service, including the maintenance of refuse bins and associated storage areas so as not to cause an environmental nuisance.

Erosion and sediment control

15) Implement and maintain an erosion and sediment control (ESC) plan on-site for the duration of works, and until all exposed and disturbed soil areas are permanently stabilised, to prevent the release of sediment or sediment laden stormwater from the site.

Stormwater

- 16) Carry out all stormwater drainage work generally in accordance with the Stormwater Management Report Clinicians Housing Development 94 Meson Street, Gayndah prepared by Engineers Plus (Job No. 23338, Preliminary version), dated 20 July 2023.
- 17) Design and implement water quality measures ensuring best practice standards are utilised in accordance with the applicable planning scheme codes and the planning scheme policy for development works.

18) Design and implement a stormwater drainage system connecting to a lawful point of discharge in accordance with the planning scheme policy SC6.2 design and construction standards for non-trunk infrastructure *works*.

Water

19) Connect the premises to the reticulated water supply service, and provide internal infrastructure as required to satisfy the demands of the development in accordance with the applicable Planning Scheme codes, the planning scheme policy SC6.2 Design and construction standards for non-trunk infrastructure works, the QLD Plumbing and Drainage Act and the Water Supply Act.

Sewerage

- 20) Make provision for a single connection suitable to meet the requirement of the development to Council's sewerage infrastructure. Connection is to be made into gravity main SEW-SP-626 which is the main nearest the Meson Street frontage.
 Note: Connection to the sewer main at the rear of the site is not supported and any future design and development of the site must take this into consideration.
- 21) All sewerage infrastructure must be clear of all proposed buildings. The development is to comply with Queensland Development Code MP1.4 Building over or near relevant infrastructure.

Note: This approval is not an approval against the provisions of the Queensland Development Code MP1.4 Building over or near relevant infrastructure.

Vehicle access

- 22) Design and construct the access driveway in accordance with the dimensions, alignment, and location detailed on the approved plans and the construction standards detailed within Council's Standard drawing Residential Driveways Slabs (R1010, Rev. A) or another standard drawing as approved in writing by the Assessment Manager.
- 23) Remove all disused or redundant vehicular crossings, kerb drainage outlets, and footpath crossovers and reinstate kerb and channel, and footpaths as required.

Note:

For all accepted development work being undertaken within the road reserve, submit a completed copy of Council's 'Undertaking Works on a Road Reserve' form for approval prior to work within the road reserve being undertaken. This includes any access points/driveway crossovers to the land.

- 24) Design and construct off-street car parking, access, and manoeuvring areas in accordance with the approved plans and the North Burnett Regional Planning Scheme Policy SC6.2 Design and construction standards for non-trunk infrastructure works. Car parking, access, and manoeuvring areas must
 - a) provide a minimum of three (3) covered onsite car parking spaces for residents use,
 - b) provide a minimum of 2 onsite visitor car parking spaces. Visitor car parking spaces are to remain available for visitors and are to be sign posted or delineated accordingly,
 - c) be designed, constructed and delineated in accordance with AS2890 Parking facilities off-street car parking,
 - d) provide parking spaces for people with a disability in accordance with the Building Code of Australia and AS2890.6 Off-street parking for people with disabilities,
 - e) provide on-site loading and unloading for all necessary service and delivery vehicles,
 - f) be constructed and sealed with concrete, pavers or asphalt,

- g) provide sufficient manoeuvring to enable all vehicles to enter and leave the site in a forward direction, and
- h) be drained to a legal point of discharge.
- 25) Repair any damaged kerb and channel, footpath, or road (including removal of concrete slurry from footpath, roads, kerb and channel, and stormwater gullies and drain lines) and reinstate existing traffic signs and pavement markings that have been removed or damaged during any works carried out in association with the approved development.

Lighting

26) Vertical illumination resulting from direct and indirect light from the premises is eight (8) lux or less when measured at ground level at any point 1.5 metres outside the site.

Advice to the applicant

- This approval relates to development requiring approval under the *Planning Act 2016* only. It is the applicant's responsibility to obtain any other necessary approvals, licences or permits required under State and Commonwealth legislation or council local law, prior to carrying out the development. Information with respect to other council approvals, licences or permits may be found on the North Burnett Regional Council website (www.northburnett.qld.gov.au). For information about State and Commonwealth requirements please consult with these agencies directly.
- This development approval does not authorise any activity that may harm Aboriginal cultural heritage. Under the *Aboriginal Cultural Heritage Act 2003* you have a duty of care in relation to such heritage. Section 23(1) provides that "A person who carries out an activity must take all reasonable and practicable measures to ensure the activity does not harm Aboriginal cultural heritage." Council does not warrant that the approved development avoids affecting Aboriginal cultural heritage. It may therefore be prudent for you to carry out searches, consultation, or a cultural heritage. The Act and the associated duty of care guidelines explain your obligations in more detail and should be consulted before proceeding.
- Inspect the vegetation prior to clearing for the presence of nesting birds, koalas, and other fauna, including habitat hollows. No clearing of vegetation which may disturb nesting birds is permitted until the birds have fledged and left the nest. Removal of trees with koalas and other fauna must be carried out under the supervision of a Department of Environment and Heritage Protection registered fauna management spotter-catcher who will be responsible for dealing with native fauna present as required under the *Queensland Nature Conservation Act 2002*.



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Attachment 2 – Approved Plans

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Please refer to the following pages for approved plans.

PROPOSED ACCOMMODATION

LOT 10, G1345

94 Meson Street, Gayndah Q 4625

FOR IWC LTD

GENERAL NOTES

- These drawings are intended for use for Concept assessment. 1.
- 2. Do not scale drawings. All dimensions are in millimetres unless specifically noted otherwise. All wall setouts are dimensioned to the integral wall structure; i.e. brick, block, concrete or studwork; excluding linings and applied finishes.
- 3. Hatches and patterns are graphic representations only, and do not pertain
- to the dimensional properties of the materials indicated. The included outline specification provides the general extent of the scope 4. of works and materials to be used. It remains the responsibility of the Builder to provide a building which is complete and complies with all relevant building codes and standards.
- 5. Selections of finishes and fixtures not specifically noted in these documents are to be determined by the owner.

SHEET LIST

NUMBER	REVISION	NAME
A0000	3	COVER
A1000	4	SITE PLAN
A1200	3	AREA PLANS
A2100	4	FLOOR PLANS
A2110	2	FLOOR PLAN - UNITS 1&2
A2111	2	FLOOR PLAN - UNIT 3
A3100	2	ELEVATIONS - UNITS 1&2
A3101	2	ELEVATIONS - UNITS 1&2
A3110	2	ELEVATIONS - UNIT 3
A3111	3	ELEVATIONS - UNIT 3



Architect TOMAS O'MALLEY ARCHITECT Level 1, 7 Barolin Street Bundaberg, QLD 4670 t 07 41536420 e info@to-architect.com.au ABN 96 632 830 954	No Date Description 3 10.07.2023 General Revision 2 08.06.2023 For Approval 1 17.08.2022 For Information	Drawn Aprv DB DB RT	Client IWC Ltd	Builder WKProjects Project Address 94 Meson Street Gayndah, Q 4625	Project IWC PHC Clinicians Housing Gayndah Proj. No. 22042	Draw CO Draw FO
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HARDSTAND

LANDSCAPING

TURFED AREA

UNIT 1 - P.O.S.

UNIT 2 - P.O.S.

UNIT 3 - P.O.S.

AREA SCHEDULE 1

	AREA	PERCENTAGE
	354 m²	18%
TAND	484 m²	25%
CAPING	238 m ²	12%
	164 m ²	8%
- P.O.S.	59 m²	3%
	164 m ²	8%
- P.O.S.	59 m²	3%
	182 m ²	9%
- P.O.S.	233 m ²	12%
	1938 m ²	

BUILDING FOOTPRINT

HARDSTAND

LANDSCAPING

TURFED AREA

AREA SCHEDULE 2

BUILDING FOOTPRINT

AREA 586 m² 354 m² 474 m² 307 m² 217 m² 1938 m²



PERCENTAGE

30% 18% 24% 16% 11%

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COMALLEY AR	Architect	Revisions	Client	Builder	Project	Drawin
$\langle \cdot \rangle$	TOMAS O'MALLEY ARCHITECT	No Date Description Drawn Aprv 2 08 06 2023 For Approval DB	IWC Ltd	WKProjects	IWC PHC Clinicians	ELE
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Ç EngineersPlus

CLINICIANS HOUSING DEVELOPMENT

94 Meson Street, Gayndah

Preliminary Stormwater Management Report



July 2023 Job No: 23338



Engineers Plus Pty Ltd ABN 14 153 364 866



Email: admin@engineersplus.com.au

Rev	Date	Prepared	Reviewed	Authorised	RPEQ
0	20/07/23	Brady Cheesman	David Lankinen	Kane Macready	7772
1					

RELIANCE, USES and LIMITATIONS

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This study, report and analyses have been based on the information available to Engineers Plus at the time of preparation. Engineers Plus accepts responsibility for the report and its conclusions to the extent that the information was sufficient and accurate at the time of preparation. Engineers Plus does not take responsibility for errors and omissions due to incorrect information or information not available to Engineers Plus at the time of preparation of the study, report or analyses.

PRELIMINARY STORMWATER MANAGEMENT REPORT

TABLE OF CONTENTS

1.	PRE	AMBLE	5
	1.1	Introduction	5
	1.2	Hydrology and Hydraulics	5
		1.2.1 Design Considerations	5
		1.2.2 Flow Estimation	5
2.	INTR	ODUCTION	6
	2.1	Background	6
3.	PRE	-DEVELOPMENT SITE DESCRIPTION	7
	3.1	Topography	7
		3.1.1 Water Bodies	7
	3.1	Vegetation	7
	3.2	Existing Infrastructure	7
		3.2.1 Road Drainage System	7
	3.3	Legal Point of Discharge	7
4.	XPS	TORM MODEL BUILD	8
	4.1	Methodology	8
	4.2	Rainfall	8
	4.3	Losses	9
	4.4	Manning's Roughness – Co-Efficient	9
5.	SITE	RUNOFF	. 10
	5.1	Pre-developed Catchment Runoff and Flows	. 10
	5.2	Post-developed Catchment Runoff and Flows	. 10
6.	sto	RMWATER QUANTITY MANAGEMENT	. 11
	6.1	Attenuation of Discharge	. 11
	6.2	Detention Storage	. 11
		6.2.1 Post-developed Scenario / Attenuation	. 11
	6.3	Outlet Flows	. 11
	6.4	Impact on Downstream Infrastructure	. 12
	6.5	Stormwater Infrastructure Layout	. 12
	6.6	NBRC Flood Overlay	. 12
		DA230045	

7.	WATER QUALITY MANAGEMENT1	3
8.	CONCLUSIONS1	4



APPENDICES:

- Appendix A Development Location
- Appendix B Layout Plan
- Appendix C Existing Features Plan
- Appendix D XP Storm Modelling Output Pre-Development
- Appendix E XP Storm Modelling Output Post-Development
- Appendix F Catchment Plans
- Appendix G Preliminary Infrastructure Layout Plan



1. PREAMBLE

1.1 Introduction

This Site Specific Stormwater Management Report sets out the planning, design and implementation of stormwater drainage to integrate two (2) distinct components of stormwater management, being water quantity and water quality. In general terms a stormwater drainage system shall:-

- (a) Prevent or minimise adverse social, environmental, and flooding impacts on Council waterways, overland flow paths and constructed drainage networks.
- (b) Ensure that the hydrological assessment and hydraulic design of pipe drainage, internal road flow paths and channel works conform with Australian Rainfall and Runoff, QUDM, Waterway Design and relevant natural channel design guidelines.
- (c) Achieve acceptable levels of stormwater quantity and quality mitigation by applying total water cycle management and water sensitive urban design principles.
- (d) Comply with North Burnett Regional Council's Planning Scheme.

1.2 Hydrology and Hydraulics

1.2.1 Design Considerations

Design considerations for water quantity shall ensure that: -

- (a) Design discharges are based on the ultimate development in the catchment.
- (b) Future maintenance of drainage works is minimised whilst ensuring that design intent is maintained.
- (c) Solutions are safe, particularly for children.
- (d) Erosion and siltation both within and on adjoining properties is not increased as a result of the development.
- (e) No detrimental effect or actionable nuisance is caused to downstream and adjacent properties.
- (f) Maximum flow hazard depth-velocity ratios comply with QUDM.

1.2.2 Flow Estimation

The design of urban stormwater drainage systems is based on QUDM and the Australian Rainfall and Runoff. A run-off / storage routing model has been used to estimate flows and analyse the urban drainage system including any flow mitigation infrastructure.



2. INTRODUCTION

Engineers Plus have been commissioned to prepare a Site Specific Stormwater Management Report for a proposed "Clinicians Housing" development located at 94 Meson Street, Gayndah being formally known as Lot 10 G1345. The proposed development consists of new accommodation buildings with associated landscaped areas, parking bays and an internal access driveway.

The intention of this report is to provide preliminary advice on stormwater quantity and quality infrastructure required to ensure that the development meets Council's Planning Scheme. This assessment has been undertaken to ensure that no detrimental or adverse conditions are imposed on the downstream waterway or adjacent properties.

2.1 Background

The site is located on Lot 10 G1345 with a total site area of 6109m². A Layout plan has been prepared and attached in **Appendix B**.

All proposed infrastructure within the site will convey flows from the fully developed site catchment and upstream external catchments as per Councils current Town Planning Scheme.

It is reasonable to expect the Council would impose conditions on the development to demonstrate that any change in the quantity, concentration or velocity of stormwater at the point of discharge and downstream of the point of discharge that will not create an actionable nuisance to downstream infrastructure and properties.



3. PRE-DEVELOPMENT SITE DESCRIPTION

The proposed development has a land area of approximately $6109m^2$ and has a frontage of 50.4m onto Meson Street. Refer to **Appendix B** for the development layout Plan showing the proposed land use functions of the development site.

Currently the subject site is zoned "General Residential" and the site is appropriate for the proposed land use.

The site is bounded by the following land uses:

- North: General Residential
- East: General Residential
- South: General Residential
- West: General Residential

3.1 Topography

The natural topography of the site includes a ridge which approximately splits the overland flows of the site with the front third of the property falling south and the rear two thirds falling towards the north being Lot 9 RP853096. The conveyance of the existing stormwater flows is via sheet flow from the natural contours of the site.

The natural topography has gradients varying from 0.5% to 5%. Surface elevations range from 106m to 107m AHD within the site.

The existing contours and topography of the site are shown in **Appendix C**.

3.1.1 Water Bodies

There are water bodies located on the site.

3.1 Vegetation

The site is a residential type lot with limited vegetation other than grasses.

3.2 Existing Infrastructure

3.2.1 Road Drainage System

The road drainage system consists of roadway kerb and channel.

3.3 Legal Point of Discharge



The legal point of discharge for the development has been adopted as the existing kerb and channel in Meson Street. The rear of the lot remains unchanged in terms of flows and conveyance.

4. XPSTORM MODEL BUILD

4.1 Methodology

A runoff routing model has been developed in XP Storm to quantify flows generated by the pre-developed and post developed catchments. XP Storm is an industry recognised hydrological and hydraulic stormwater flow routing program that generates storm hydrographs and conveys these hydrographs through a system of overland flow paths and drainage structures. Rainfall losses are calculated and subtracted from the rainfall burst temporal pattern to yield excess rainfall which is applied to the stormwater network. Storage areas such as retardation basins or road sag areas are utilised by the program to reduce the hydrograph peaks and to mitigate additional flows produced from a post-developed catchment due to an increase in impervious area.

4.2 Rainfall

XP Storm generates design rainfall bursts in accordance with the guidelines recommended in Australian Rainfall and Runoff. Temporal rainfall burst patterns have been obtained from the Bureau of Meteorology website utilising ARR1987 rainfall data.

This methodology has been used within XP Storm to produce storms with recurrence intervals from 1 to 100 years and durations between 30 minutes and 72 hours. Flow results from these storm events were analysed to determine the critical storm duration for each recurrence interval. Peak flows from the critical storm event were then used in the flow routing model. Output hydrographs for the 2, 10 and 100 year storms were developed to determine critical storm events which are summarised in **Appendix D** and **Appendix E** for the pre-developed and post-developed scenarios respectively



4.3 Losses

Losses that have been applied to the Pre and Post Development models are shown in Table 1 below.

Table 1 – Modelling Losses

	Surface	Initial Loss (mm/hr)	Continuing Loss (mm/hr)
Pre-developed	Pervious surfaces (sand)	35.0	2.5
Pre-developed	Pervious surfaces (non-sand)	15.0	2.5
Post-developed	Impervious	0.0	0.0

4.4 Manning's Roughness – Co-Efficient

Manning's roughness coefficient values adopted for stormwater modelling are summarised in summarised in Table 2 below:

Table 2 - Manning's Roughness Co-Efficient

Structure	Minimum	Maximum
Grassed Surface	0.03	0.05
Road Surface	0.02	0.022
Constructed Channels	0.03	0.06
Natural Channels	0.04	0.10
Hardstand areas	0.014	0.018



5. SITE RUNOFF



5.1 **Pre-developed Catchment Runoff and Flows**

The modelling parameters utilized for the pre-developed site of 6109m² reflect the existing situation being greenfield 'Pervious' land (2% Impervious). The pre-developed catchment plan has been detailed in **Appendix F**.

Based on the modelling, the existing runoff from the site is summarised Table 3.

Table 3 – Pre-developed Catchment Flows

	Flow (m ³ /s) / Critical Storm Duration (mins)
Area (Ha)	6.11Ha
Q2	0.031 / 30 mins
Q20	0.035 / 10 mins
Q100	0.140 / 30 mins

Outlet flows from the pre-development scenario have been provided in Table 4 below.

Table 4 – Summary	of Pre-development	Outlet Flows
-------------------	--------------------	---------------------

Link		Depth (m)			Vel (m/s)		Flow (m3/s)			
	Q2	Q20	Q100	Q2	Q20	Q100	Q2	Q20	Q100	
LE1 1	0.011	0.011	0.023	0.263	0.270	0.496	0.014	0.014	0.059	
LE2 2	0.019	0.019	0.047	0.159	0.164	0.324	0.014	0.015	0.075	

5.2 Post-developed Catchment Runoff and Flows

The proposed development layout plan was used to define the infiltration parameters for the post developed scenario. The post-developed catchment plan has been detailed in **Appendix F**. The infiltration parameters used for the post-development catchment areas include:

- 4340m² Pervious (2% Impervious)
- 1769m² Impervious (100% Impervious)

The following assumptions have been made with regards to the development layout:

- All catchment land use types have been modelled as per the proposed development layout plan. Any significant alterations to the development layout will require a review of this report.
- Fraction impervious ratios relevant to each land use are considered a 'worst case' scenario for runoff flows.

Post-developed catchment flows are summarised in Error! Reference source not found.5.

Table 5 – Post-developed Catchinent Flows	Table 5 –	Post-develop	bed Catchment	Flows
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	Flow (m ³ /s) / Critical Storm Duration (mins)
Area (Ha)	6.11 Ha
Q2	0.078 / 30 mins
Q20	0.134 / 10 mins
Q100	0.202 / 30 mins

Catchment areas for both the pre-developed and post-developed scenarios are essentially the same. In general, post-developed stormwater runoffs increase due to the larger impervious area that arises from the construction of the development.

6. STORMWATER QUANTITY MANAGEMENT

6.1 Attenuation of Discharge

Generally, it is a requirement to provide storage detention to attenuate the increase in flows from a developed catchment to ensure there are no adverse impacts on downstream waterways. Mitigation is generally achieved with the provision of storage detention of some form with associated outlet pipe which stores a sufficient volume of water to control the flow rate released to the downstream drainage system. This has the effect of flattening and elongating the outlet flow hydrograph which subsequently reduces the peak outlet flow at the critical time of concentration.

Modelling was undertaken for the site to assess the flows and water levels at the legal point of discharge (LDP) to ensure outlet flows have been mitigated to achieve 'no worsening' as per QUDM requirements. The provision of detention will be required for attenuation.

6.2 Detention Storage

6.2.1 Post-developed Scenario / Attenuation

Pre-developed and post-developed modelling was undertaken for the evaluation of outlet flows to determine the quantity of storage required to sufficiently mitigate the increased flows generated by the development. Sufficient mitigation has been achieved with the provision of detention storage within the proposed landscaped area. The proposed stormwater infrastructure has been detailed in **Appendix G**. The detention storage results are summarised in Table 6.

Table	6 –	Storage	Modelling	Results
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Node	Storm	Invert	Max. Vol. (m³)	Max. WSL (m AHD)	Max. Depth (m)	
D3 3	Q2 30min		20.661	107.019	0.235	
	Q20 10min	106.784	23.526	107.047	0.263	
	Q100 30min		36.102	107.170	0.387	

6.3 Outlet Flows

Flows from the developed catchments are conveyed via the proposed stormwater infrastructure and detention storage devices which then outlet to the LDP. Pre-development and post-development outlet flows are summarised in Table 7.



Medalling Seenaria	Link	Max Flow (m3/s)					
Modelling Scenario	Link	Q2	Q10	Q100			
	LE1 1	0.014	0.014	0.059			
Pre-developed	LE2 2	0.014	0.014	0.075			
	Total	0.028	0.028	0.134			
	LD4 1	0.011	0.011	0.060			
Deet developed	LD1 6 O	0.000	0.000	0.042			
Post-developed	LD1 6 P	Q2 Q10 Q2 0.014 0.014 0.14 0.014 0.014 0.14 0.014 0.014 0.14 0.028 0.028 0.02 0.011 0.011 0.1 0.000 0.000 0.1 0.017 0.018 0.1 0.028 0.029 0. 0.000 0.001 -0.	0.024				
	Total	0.028	0.029	0.126			
Differe	nce	0.000	0.001	-0.008			

 Table 7 – Summary of Pre vs Post Development Outlet Flows

6.4 Impact on Downstream Infrastructure

As the post-development flows are being mitigated to that of the pre-developed scenario, it is concluded that there will be no adverse impact on downstream infrastructure or property.

6.5 Stormwater Infrastructure Layout

A preliminary layout plan has been provided in **Appendix G** for the preliminary location of the proposed Stormwater infrastructure required to comply with Councils development guidelines.

6.6 NBRC Flood Overlay

Figure 1 below shows an extract from North Burnett Regional Council Flood Overlay Mapping and the site is not within the Flood overlay zone.



Figure 1 – NBRC Flood Overlay

7. WATER QUALITY MANAGEMENT

The town of Gayndah has a population of 1,981 inhabitants according to the 2016 census.

Thereby in accordance with Table B of Appendix 2 of the State Planning Policy 2017, the applicant is not required to comply with post construction phase stormwater quality management objectives since the population of Gayndah is less than 25,000. However, the applicant is required to demonstrate some water quality measures are undertaken which has been accomplished as the detention area in the proposed landscaping area which will provide some water quality treatment.



8. CONCLUSIONS

The intention of this Report is to provide advice on the size of stormwater quantity infrastructure for the development to ensure compliance with Councils Stormwater development objectives.

A runoff routing model was developed using XP Storm for the pre and post development cases. The modelling analysis shows no increases in outlet flows therefore the proposed detention is sufficient for mitigation of post developed flows.

Sizing of the following infrastructure has been undertaken in the XP Storm model to manage flows from the site:

- Landscaped Detention Storage Area Min Volume 36.1m³
- Trench Grate across driveway 300mm Width x 150mm Depth
- Internal drainage system as shown in attached Appendices.

The XP Storm modelling undertaken for the development site has provided satisfactory evidence that the post developed flows from the proposed development site can be successfully managed.

Refer to Appendix G for stormwater requirements for the proposed development.



Appendix A

Development Location



July 2023



Appendix B

Layout Plan







FUTURE LOT RECONFIGURATION HARDSTAND LANDSCAPING TURFED AREA UNIT 1 UNIT 1 - P.O.S. UNIT 2 UNIT 2 - P.O.S. UNIT 3 - P.O.S. AREA SCHEDULE 1

	AREA	PERCENTAGE
	354 m²	18%
TAND	484 m²	25%
CAPING	238 m ²	12%
	164 m²	8%
P.O.S.	59 m²	3%
	164 m ²	8%
P.O.S.	59 m²	3%
	182 m ²	9%
P.O.S.	233 m ²	12%
	1938 m ²	

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Author PLOTTED & CHECKED BY:

Appendix C

EXISTING FEATURES PLAN





			DESIGNED	B CHEESMAN	CLIENT				Ģ	PROJECT
			DRAWN	B CHEESMAN		1	WC			94 MESON STREET GAYNDAH
A FOR COMMENTS	BC	20/07/23	CHECKED	K MACREADY	1000			ingineersplus	STORMWATER MANAGEMENT PLAN	
REV DESCRIPTION	APPD	DATE	APPROVED	K MACREADY	RPEQ No.	7772	DATE	JULY 2023	ENGINEERS PLUS PTY LTD www.engineersplus.com.au	EXISTING FEATURES

Appendix D

XP Storm Model Output – Pre-Development





Figure 2 – Pre Development Outlet Hydrograph - Link "LE1 1"

Figure 3 – Pre Development Outlet Hydrograph - Link "LE2 2"



Name	Londuce	Sub	Area (ha)		Flow (m3/s)				
	Land use	No.		Slope (%)	Q2	Q20	Q100		
E1 1	Open Space	1	0.196	1.19	0.013	0.014	0.058		
E1 1	Impervious	5	0.004	1.19	0.001	0.002	0.003		
E2 1	Open Space	1	0.259	0.42	0.008	0.008	0.045		
E2 1	Impervious	5	0.005	0.42	0.002	0.003	0.003		
E2 2	Open Space	1	0.144	0.42	0.006	0.006	0.029		
E2 2	Impervious	5	0.003	0.42	0.001	0.002	0.002		
				Total	0.031	0.035	0.140		

Table 8 – Pre Development Catchment Flows

Table 9 – Pre Development Conduit Data

Link	Shape	Length (m)	No. of Cells	Width (m)	Dia / Ht (m)	Slope (%)	"n"	US IL	DS IL
LE1 1	Trapezoidal	5.1	1	5.0	0.300	4.71	0.035	107.140	106.900
LE2 1	Trapezoidal	32.679	1	5.0	0.300	0.55	0.035	106.460	106.280
LE2 2	Trapezoidal	5.592	1	5.0	0.300	0.89	0.035	106.280	106.230

Table 10 – Pre Development Conduit Flows

Link	Flow Depth (m)			Max Velocity (m/s)			Max Flow (m3/s)		
	Q2	Q20	Q100	Q2	Q20	Q100	Q2	Q20	Q100
LE1 1	0.011	0.011	0.023	0.263	0.27	0.496	0.014	0.014	0.059
LE2 1	0.018	0.018	0.047	0.119	0.119	0.23	0.008	0.008	0.045
LE2 2	0.018	0.018	0.047	0.158	0.157	0.323	0.014	0.014	0.075



July 2023



XP Storm Model Output – Post-Development







Figure 5 – Post Development Outlet Hydrograph - Link "LD4 1"



Nama	Landuca	Sub	Area (ba)	Slope (%)	Flow (m³/s)			
Name	Land use	Catchmen	Area (na)	Area (iia) Siope (%) Q2		Q20	Q100	
D1 1	Impervious	5	0.042	1.19	0.014	0.027	0.028	
D1 4	Open Space	1	0.014	1.19	0.002	0.002	0.006	
D1 4	Impervious	5	0.001	1.19	0	0.001	0.001	
D1 5	Open Space	1	0.004	1.19	0.001	0.001	0.002	
D1 5	Impervious	5	0.086	1.19	0.029	0.054	0.058	
D2 1	Impervious	5	0.034	1.19	0.012	0.022	0.023	
D3 1	Open Space	1	0.011	1.19	0.001	0.002	0.005	
D3 1	Impervious	5	0.016	1.19	0.006	0.01	0.011	
D3 3	Open Space	1	0.014	1.19	0.002	0.002	0.006	
D3 3	Impervious	5	0.001	1.19	0	0.001	0.001	
D4 1	Open Space	1	0.387	0.42	0.011	0.011	0.06	
D4 1	Impervious	5	0.001	0.42	0	0.001	0.001	
				Total	0.078	0.134	0.202	

Table 11 – Post Development Catchment Flows

Table 12 – Post Development Conduit Data

Link	Shape	Length (m)	No. of Cells	Width (m)	Dia / Ht (m)	Slope (%)	"n"	US IL	DS IL
LD 1 1	Circular	5	1	0.0	0.450	0.40	0.009	109.718	109.698
LD 1 3	Trapezoidal	11	1	5.0	0.200	0.50	0.060	107.116	107.061
LD1 4 O	Trapezoidal	6.2	1	5.0	0.200	0.50	0.014	107.191	107.180
LD1 4 P	Rectangular	6.2	1	0.3	0.150	0.50	0.009	107.061	107.030
LD1 5	Trapezoidal	1	1	6.2	0.300	9.50	0.060	106.879	106.784
LD1 6 O	Trapezoidal	4.5	1	12.0	0.020	5.33	0.035	107.160	106.920
LD1 6 P	Circular	4.5	2	0.0	0.090	0.30	0.009	106.784	106.770
LD2 1	Circular	5	1	0.0	0.450	0.40	0.009	109.722	109.703
LD2 2 O	Trapezoidal	3	1	5.0	0.200	0.33	0.035	107.174	107.163
LD2 2 P	Circular	3	1	0.0	0.225	0.50	0.009	106.924	106.909
LD2 3	Trapezoidal	6	1	5.0	0.250	0.50	0.060	106.909	106.879
LD3 2	Trapezoidal	6	1	5.0	0.200	0.50	0.060	106.814	106.784
LD3 2 O	Trapezoidal	3	1	5.0	0.200	0.33	0.035	107.361	107.351
LD3 2 P	Circular	3	2	0.0	0.225	0.50	0.009	107.131	107.116
LD4 1	Trapezoidal	5.592	1	5.0	0.300	0.89	0.035	106.280	106.230
LD5 1 O	Trapezoidal	3	1	6.0	0.300	0.50	0.035	107.205	107.190
LD5 1 P	Circular	3	1	0.0	0.090	0.50	0.009	106.829	106.814



Link	Flow Depth (m)			Ma	ax Velocity (m	/s)	Max Flow (m³/s)		
	Q2	Q20	Q100	Q2	Q20	Q100	Q2	Q20	Q100
LD 1 1	0.072	0.098	0.101	0.885	1.076	1.081	0.014	0.027	0.028
LD 1 3	0.062	0.079	0.121	0.084	0.115	0.097	0.014	0.021	0.026
LD1 4 O	0	0	0	0	0	0	0	0	0
LD1 4 P	0.062	0.079	0.141	0.756	0.83	0.918	0.014	0.019	0.028
LD1 5	0.235	0.264	0.387	0.243	0.394	0.322	0.044	0.075	0.082
LD1 6 O	0	0	0.011	0	0	0.321	0	0	0.042
LD1 6 P	0.235	0.264	0.387	1.31	1.417	1.82	0.017	0.018	0.024
LD2 1	0.077	0.106	0.111	0.656	0.76	0.772	0.012	0.021	0.023
LD2 2 O	0	0	0.007	0	0	0.032	0	0	0
LD2 2 P	0.114	0.197	0.262	0.71	0.776	0.808	0.012	0.022	0.022
LD2 3	0.139	0.169	0.292	0.086	0.119	0.1	0.009	0.02	0.014
LD3 2	0.235	0.264	0.387	0.029	-0.031	-0.026	0.003	-0.006	0.01
LD3 2 O	0	0	0	0	0	0	0	0	0
LD3 2 P	0.087	0.146	0.121	0.618	0.707	0.755	0.014	0.027	0.028
LD4 1	0.016	0.016	0.041	0.142	0.142	0.293	0.011	0.011	0.06
LD5 1 O	0	0	0.014	0	0	0.111	0	0	0.009
LD5 1 P	0.207	0.301	0.39	0.863	1.537	1.527	0.006	0.009	0.01

Table 13 – Post Development Conduit Flows



Appendix F

Catchment Plans





Appendix G

Preliminary Stormwater Infrastructure Layout Plan







Attachment 3 – Appeal Rights Planning Act 2016

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Please refer to attached document or

https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#ch.6

https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025#sch.1