

**PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL**

Approval no: DEV2018/988/3
Date: 24 January 2020



Bushman + Wyatt

In association with:



robertsday



THE CONSULTANCY BUREAU



Steven Hosking Surveys Pty Ltd

SEWER INFRASTRUCTURE MASTER PLAN

To support the Reconfiguration of a Lot (Permissible) Development Permit
Application for Urban Residential Development.

Address: Lot 24 Bushman Drive and 68 Wyatt Road,
Riverbend Qld 4280

Lot & RP Description: Lot 24 on SP142997
Lot 1 on RP49296

Parish: Maclean

County: Stanley

Assessment Manager: MEDQ

MUS Reference: 23305-ALL

Prepared for:

PACIFIQ

DATE: 19th December 2019



CIVIL ENGINEERING

TOWN PLANNING

PROJECT COORDINATION

19 Short Street,
Southport Qld 4215

P: (07) 5571 1099
F: (07) 5571 1088
www.urbansolutions.net.au



Prepared for:

PACIFIQ

Property Address:
Lot 24 Bushman Drive and
68 Wyatt Road,
Riverbend Qld 4280

Real Property Descriptions:
Lot 24 on SP142997
Lot 1 on RP49296

DOCUMENT CONTROL

Report Summary

Document Details

Project Reference: 23305-ALL
Document Title: 'Bushman & Wyatt' | Sewer Supply IMP

Distribution

Revision	Date	Author	Reviewed	Distributed To
DRAFT	20.09.2018	MM	AS	Client
A	15.11.2018	JP	MM	Client/EDQ
B	10.05.2019	MM	JH	Client/EDQ
C	19.12.2019	MM	JH	Client/EDQ

Signed:



Warren Morton (RPEQ 4706)

CONTENTS

1.0	PURPOSE OF THE INFRASTRUCTURE MASTER PLAN	5
1.1	PDA Guideline No. 13 Engineering Standards	5
2.0	'BUSHMAN & WYATT'	6
3.0	PLANNING AND DELIVERY PRINCIPLES	7
4.0	EDQ ENDORSED GREATER FLAGSTONE PDA SEWER STRATEGY	9
5.0	SEWER NETWORK	10
5.1	Connection to LWIA Sub-Regional Infrastructure	11
6.0	DEMAND MANAGEMENT	13
7.0	INNOVATION AND TWCM	14
7.1	Reduced Infiltration Gravity Sewer (RIGS)	14
7.2	Polyethylene (PE) Sewer	14
7.3	Pressure Sewer System (PSS)	14
8.0	INFRASTRUCTURE DELIVERY AND STAGING	15
9.0	GREATER FLAGSTONE ICOP - OFFSETABLE INFRASTRUCTURE	16

List of Attachments

- Attachment A **Subdivision Proposal Plan (Sheet 1 only)**
(Dwg No. 23305-PP-S001 to S005, dated 12.11.2018)
Prepared by Mortons-Urban Solutions
- Attachment B **Prelodgement Meeting Minutes**
(Minutes dated 15.06.2018)
Prepared by EDQ
- Attachment C **'Bushman & Wyatt' Sewer Calculation Table**
(Dwg No. 23305-SNA-007, Rev A dated 15.11.2018)
Prepared by Mortons-Urban Solutions
- Attachment D **GFPDA External Sewer Infrastructure Plan (Sheet 1)**
(Dwg. No. 23305-SNA-003, Rev A dated 15.11.2018)
Prepared by Mortons-Urban Solutions
- Attachment E **GFPDA External Sewer Infrastructure Plan (Sheet 2)**
(Dwg. No. 23305-SNA-005, Rev C, dated 18.12.2019)
Prepared by Mortons-Urban Solutions
- Attachment F **Sewer Network Plan**
(Dwg. No. 23305-SNA-500, Rev A, dated 15.11.2018)
Prepared by Mortons-Urban Solutions
- Attachment G **Email – Connection to Sub-Regional Infrastructure Agreement**
(Emails dated 19.12.2019 and 18.12.2019)
Prepared by EDQ

1.0 PURPOSE OF THE INFRASTRUCTURE MASTER PLAN

The purpose of this Infrastructure Master Plan (IMP) is to address the Greater Flagstone Development Scheme and direct the provision of infrastructure as outlined in the Reconfiguration of a Lot (Development Permit) application for 314 lots at 'Bushman & Wyatt'.

During a pre-lodgement meeting Economic Development Queensland requested the inclusion of a:

- **Sewer Supply Infrastructure Master Plan**; and a
- Water Supply Infrastructure Master Plan.

Infrastructure Master Plans are required to:

- Be for the whole of the site;
- Demonstrate compliance with PDA Guideline No. 13 – Engineering Standards;
- Detail applicable infrastructure networks both within an external to the site, and identify where works are required to connect existing or future networks on the site into existing or future sub-regional networks;
- Identify the overall planning and delivery principles for the infrastructure works, required to support the ultimate development of the site; and
- Identify how and when each component of the infrastructure will be provided (including dedication/transfer), or if not known, how and when provision of that infrastructure is to be determined.

This IMP covers the 'Bushman and Wyatt' development within the Greater Flagstone Priority Development Area (GFPDA). This IMP should be considered a 'living' document and may require updating from time to time.

1.1 PDA Guideline No. 13 Engineering Standards

PDA Guideline 13 – Engineering Standards requires the water and sewer is designed and constructed in accordance with the SEQ Water Supply and Sewerage Design and Construction Code.

The requirements of Guideline No. 13 and the SEQ Code have been addressed in this IMP.

2.0 'BUSHMAN & WYATT'

Bushman and Wyatt is a 314 lot subdivision within the Greater Flagstone Priority Development Area (GFPDA). The development will become a community of 391 dwellings positioned adjacent to a future railway station; and the future Flinders Lakes Drive. 'Bushman & Wyatt' development proposes primarily single lots of varying sizes for detached dwellings with duplexes nominated in suitable locations. The proposal plan includes master lots adjacent to the future train station providing an opportunity for medium density residential and 2 commercial sites adjacent to the future Flinders Lakes Drive (refer **Attachment A**). **Figure 1** below provides a reference to the proposed development.

Figure 1: Subdivision Proposal Plan



The parkland shown is proposed to provide a broad range of amenities promoting shelter, shade, and shared path networks which connect the neighbourhood internally, and also provide connections to other facilities and greenspace external to the subject site.

The proposed sewer strategy for the development was discussed with EDQ at the Pre-lodgement Meeting held on 8th June 2018. Outcomes from this meeting were detailed in EDQ email dated 15th June 2018 (refer copy in **Attachment B**).

3.0 PLANNING AND DELIVERY PRINCIPLES

The proposed sewer network has been planned to accommodate 391 dwellings and proposed non-residential development located within 'Bushman & Wyatt' site.

EDQ has previously advised the desired standards of service to be adopted for the sewer master planning of the proposed development are outlined in the Logan Water Alliance's 'Master Planning Review of Desired Standards of Service' document, dated April 2014 (Task Number: 90-12-43) with an amendment to the Peak Wet Weather Flow (PWWF). EDQ advised that the PWWF must be designed with a flow of 1,000L/EP/day and 75% depth of flow instead of 1,300L/EP/day and 100% depth of flow. Appendix E of Logan Water Alliance's report outlined the recommended design criteria utilised within this Sewer Supply Infrastructure Master Plan. A copy is contained within **Figure 2** for ease of reference.

Figure 2: Logan Water Alliance's Recommended Wastewater Desired Standards of Service

WASTEWATER NETWORK DSS	
Parameter	Criteria
<i>Sewage load</i>	
ADWF	165 L/EP/day
PWWF	Use actual flow data; or $d \times 165 \quad \text{L/EP/d or,}$ $d \times 0.00191 \times EP \quad \text{L/s}$ Where: $d = 0.01(\log A)^4 - 0.19(\log A)^3 + 1.4(\log A)^2 - 4.66\log A + 7.57$ $d = \text{dry weather peaking factor}$ $A = \text{gross plan area of development catchment, in hectares}$ Refer to WSAA Sewerage Code of Australia; Part 1 Planning and Design
Containment standard for assessment of existing networks	Network to contain a 1 year ARI storm event, for critical storm duration. This is an overflow containment standard rather than a conveyance standard. For those catchments that fail the standard, mitigation measures such as l/i reduction and wet weather storage should be considered in addition to any capacity increases.
PWWF	Residential 1300 L/EP/d For Common Effluent Discharge PWWF = 660 L/EP/d Commercial 1300 L/EP/d Light Industrial 1000 L/EP/d Heavy Industrial 840 L/EP/d
<i>Gravity sewer design</i>	
Flow equation	Colebrook White to be used for all applications – design and modelling
Pipe roughness general	Colebrook White $k = 1.5\text{mm}$
Maximum velocity @ PWWF	3 m/s
Depth of flow @ PWWF - Existing	Up to 1m below MH surface level and no spillage through overflow structures
Depth of flow @ PWWF - Proposed/ new sewers	100% of pipe depth
Depth of flow @ PDWF – existing and new sewers	Maximum 60% of pipe depth
Slime Stripping	It is desirable where gradients permit to achieve slime stripping. A wall shear of 3.85 Pa is required to achieve slime stripping.

The Equivalent Persons (EP) values have been determined in accordance with the Demand Table contained within Appendix A of the SEQ WS&S D&C Code. The specified EP/ET conversion rate for Logan City Council is 2.7 EP/ET.

Based on the above, the proposed development's estimated sewer load has been calculated and is detailed in the Sewer Calculations Table on Drawing 23305-SNA-007 (refer **Attachment C**). **Attachment C** is summarised in Section 5.0 below.

4.0 EDQ ENDORSED GREATER FLAGSTONE PDA SEWER STRATEGY

Following the preparation of a report titled 'Logan South (including Greater Flagstone and Yarrabilba Priority Development Areas) Wastewater Servicing Strategy', a sewer solution for the Greater Flagstone PDA was agreed and endorsed by Council in June 2016. The report reviewed several options regarding the transfer and treatment of sewerage within the area and summarised the preferred strategy as follows:

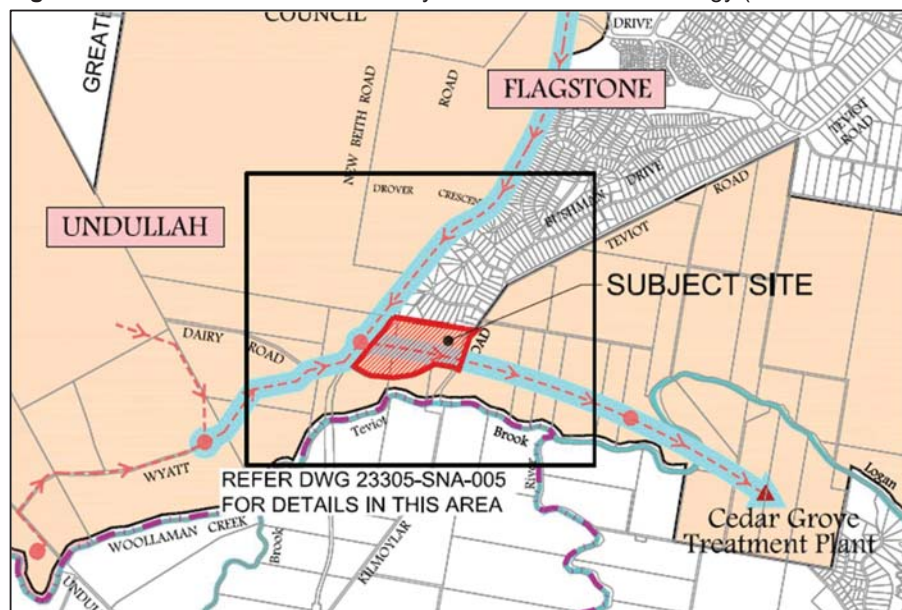
1. Upgrade the existing Flagstone wastewater treatment plant (WWTP);
2. Install temporary WWTP's around the PDA where required;
3. Decommission the temporary WWTP's and pump to a new WWTP at Cedar Grove, and;
4. The use of tankering in early phases of development if feasible.

The implementation of the preferred strategy is contingent upon the establishment of an infrastructure funding agreement with EDQ, Council and the major GFPDA developers which is understood to be currently under negotiation. LWIA's 'on the ground investigations' have commenced within the GFPDA and Council already own the proposed Cedar Grove WWTP site. Timing of the construction of the Cedar Grove WWTP is currently advised as 2019 (previously 2021).

The 'Logan South (including Greater Flagstone and Yarrabilba Priority Development Areas) Wastewater Servicing Strategy' was a strategic review to determine appropriate high-level strategies for the GFPDA. It was envisaged that reviews at a local level would be undertaken to ensure strategies are site specific and relevant to proposed development.

This Sewer Network Infrastructure Master Plan reviews the 'Bushman & Wyatt' catchment at a local level. The ultimate sewer strategy for the GFPDA is shown in **Figure 3** (refer **Attachment D – MUS Dwg No. 23305-SNA-003**). It is understood that EDQ and LWIA are currently securing the required resumptions/agreements with landowners to deliver this strategy.

Figure 3: 'Extract from 'Bushman & Wyatt' External Sewer Strategy (refer **Attachment D**)



5.0 SEWER NETWORK

The proposed 'Bushman & Wyatt' Sewer Network has been developed in accordance with EDQ's Endorsed Greater Flagstone PDA Sewer Strategy with main sizing proposed in accordance with the SEQ Code. Preliminary sewer main sizes have been calculated based on minimum grade capacities and the network allows for surrounding development as requested by EDQ at the Pre-Lodgement Meeting.

A pump station is proposed in the low point of development to deliver the catchment's wastewater to the sub-regional infrastructure proposed by LWIA. **Section 5.1** below discusses the agreed strategy to deliver wastewater to the municipal infrastructure via rising mains. Access to the proposed pump station will be via the existing Wyatt Rd until the development road network provides access.

Estimated sewer loads from the proposed development are summarised in **Table 5.1** below.

Catchment ID	Estimated Catchment Area (ha)	Estimated Dwellings	Demand Conversion	Total Sewer Load (EP)	Average Day Weather Flow (l/s)	Peak Wet Weather Flow (l/s)
Catchments 1 + 2	6.4	91 dw	2.7 EP/dw	252.0	0.48	2.94
Catchment 3	5.7	74 dw	2.7 EP/dw	199.8	0.38	2.31
Catchments 4 to 9	14.4	226 dw	2.7 EP/dw	618.3	1.18	7.28
Total	26.4ha	391 dw		1,070	2.04	12.5 l/s

The estimated sewer load for adjacent development has also been considered in the sizing of the sewer infrastructure for the proposed development. **Table 5.2** summarises the external catchments considered within this IMP.

External Catchment ID & Proposed Land Use	Estimated Catchment Area (ha)	Estimated Dwellings	Demand Conversion	Total Sewer Load (EP)	Average Day Weather Flow (l/s)	Peak Wet Weather Flow (l/s)
EXT1 Residential	9.9	149 dw	2.7 EP/dw	402.3	0.77	4.66
EXT2 Residential	1.0 *	15 dw	2.7 EP/dw	40.5	0.08	0.47
Total	10.9ha	164 dw		442.8	0.85 l/s	5.13 l/s

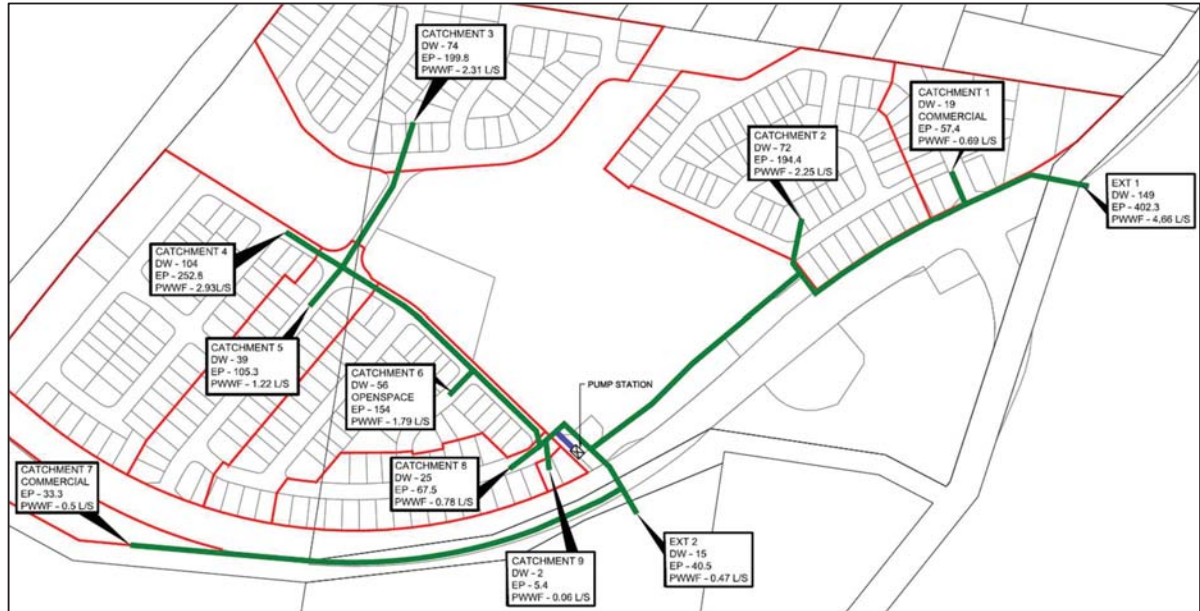
* Assumed a minimum catchment of 1ha for EXT2

The surrounding catchment calculations are estimated based on approximately 15 dwellings/ha of the total area. It is noted that the external sewer catchments are preliminary only and subject to future detailed design and Authority approvals by others.

The above tables are included in **Attachment C**.

The Sewer Network Plan is shown in Figure 4 below (refer **Attachment F**) which shows the preliminary sizing of the sewer network based on the above assumptions.

Figure 4: Sewer Network Plan



As can be seen in **Figure 4** above, 150mm sewer main is suitable throughout to service the catchment with the exception of a small section of 225mm where all catchments converge and gravitate into the pump station.

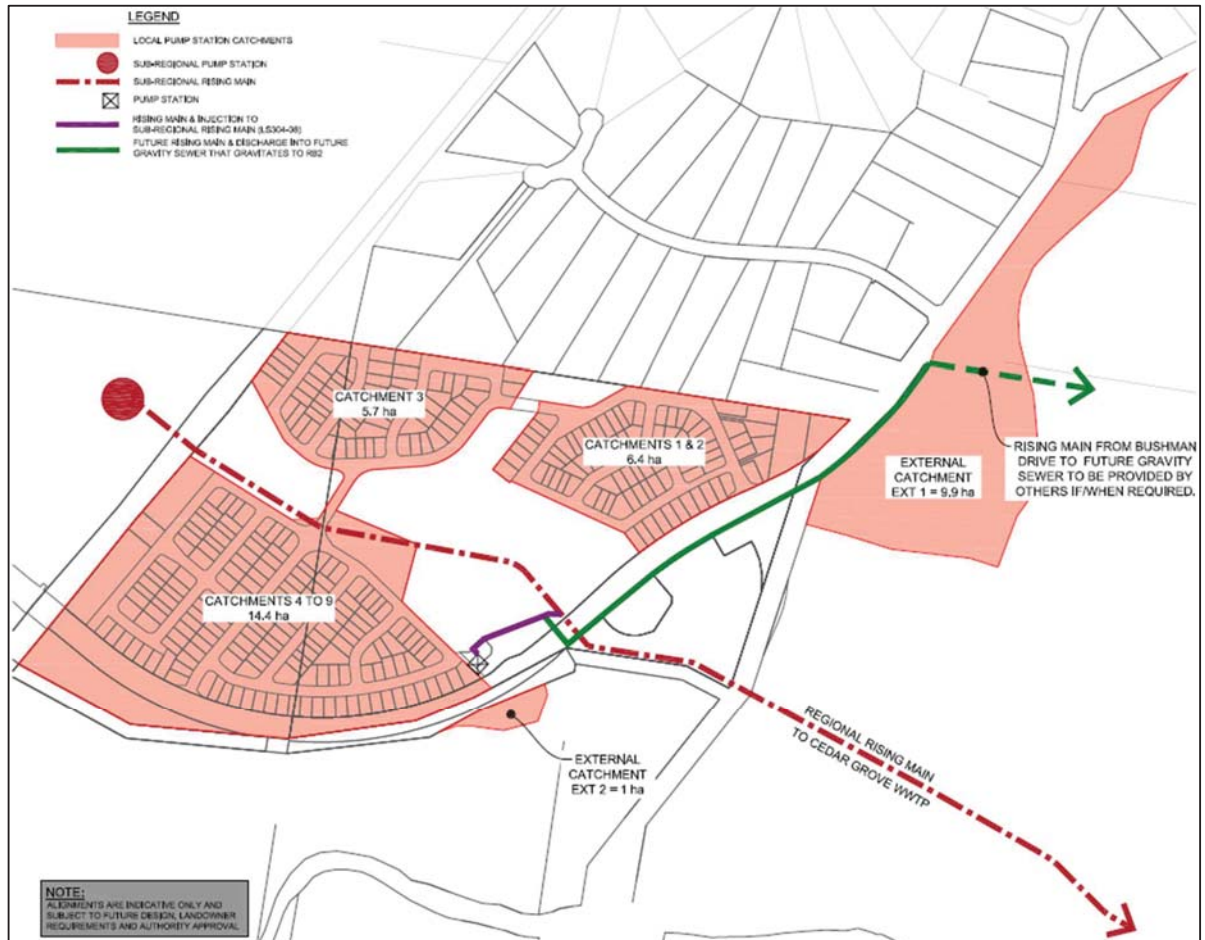
All sewer infrastructure will be constructed in accordance with the SEQ Code and Logan City Council's requirements.

5.1 Connection to LWIA Sub-Regional Infrastructure

In accordance with the agreement reached with Logan City Council and EDQ in December 2019 (refer **Attachment G**), the proposed connection strategy to municipal infrastructure is shown in **Figure 5** (refer **Attachment E**) and summarised as follows:

- Upfront – Developer to deliver a rising main that direct injects into LWIA's OD630mm rising main (LS304-08). This is shown as the purple line on **Figure 5** (refer **Attachment E**). Suitable pumps will be selected to suit the head/flow within LWIA's main.
- Future – Developer to deliver upfront a rising main that allows the future delivery of the catchment's wastewater into the future gravity network to the east. This option is shown as the green line on **Figure 5** (**Attachment E**). The Bushman + Wyatt Developer will construct the rising main to the corner of Bushman Drive & Gittins Road with the remaining section to be delivered by others when/if required in the future.

Figure 5: Local Pump Station Catchment (refer Attachment E)



6.0 DEMAND MANAGEMENT

Consideration will be given to the following demand management strategies during the detailed design phase of the project:

- Reuse of the treated effluent from the Cedar Grove Treatment Plant in line with any GFPDA strategies approved by EDQ. It is expected that the returned treated effluent would be used opportunistically for irrigation of open space areas, street trees, urban agriculture areas and riparian buffers within the site; for dust suppression during construction and potentially for reuse by non-residential uses. The scale of this project would likely render this strategy cost-prohibitive unless a GFPDA wide strategy is implemented by EDQ and Council.
- A program that involves monitoring sewage flows to minimise leakage and infiltration of the sewer network is proposed, aiming to reduce the required size and extend the duration of the sewerage treatment infrastructure. This program will also be able to test the efficiency of the sewerage pipe network in conveying sewerage, particularly the effect of wet weather on flow rates within the development. Accurately determining the EP through ABS demographics and lot/dwelling size will assist in estimating the actual system demand and the effectiveness of sewer load and water demand management strategies.
- Greywater recycling has been considered for the development to assist in reducing sewage discharge and potable water consumption, however the high additional upfront and on-going costs payable by the buyer/resident is likely to cause an unacceptable impact on housing affordability.

7.0 INNOVATION AND TWCM

In accordance with the proposed Total Water Cycle Management Plan, the following sewerage related measures are proposed to be researched and potentially implemented within 'Bushman & Wyatt':

7.1 Reduced Infiltration Gravity Sewer (RIGS)

In an effort to minimise infiltration into the sewerage system the Reduced Infiltration Gravity Sewer (RIGS) system is being considered for 'Bushman & Wyatt'. Achieving a reduction in infiltration enables an overall reduction in the size of pipes, associated pump stations, energy consumption and end-of-line treatment. Construction is therefore cheaper and through the use of different products (i.e. maintenance shafts and bends), the RIGS system can provide significant cost savings.

7.2 Polyethylene (PE) Sewer

The Project Team are also investigating Polyethylene (PE) sewer mains as an option for the sewer system throughout the development. Polyethylene sewer mains are the basis of Brisbane City Council's 'NuSewer' and Queensland Urban Utilities' (QUU) sewer network.

The pipe and fittings are joined using an electrofusion process (couples, saddles and end caps) which is designed to eliminate infiltration by storm and ground water and tree roots.

The PE Sewer System greatly reduces the number of manholes and allows for both vertical and horizontal bends. Maintenance shafts are provided at regular intervals to permit jet-rodding to remove blockages.

7.3 Pressure Sewer System (PSS)

A pressure sewer system consists of a network of pressure pipes and grinder pumps. The grinder pumps are generally installed at each property grinding all wastewater into a slurry for transportation through a low pressure pipe network.

Pressure sewerage systems are generally more suitable and cost-effective in environments which are either very flat (avoids deep excavations) or very hilly (avoids several pump stations). Whilst the development lends itself to a gravity system given its topography, PSS also provides several other benefits over traditional gravity networks through its ability to essentially eliminate wet weather infiltration as it is a sealed system and provides flexibility to monitor and control flows throughout the network.

The ability to monitor the flows throughout the network allows early leak detection and can be used to determine dwellings/lots that have incorrect connections (ie pool overflow or roof water). This allows pipes and end-of-line treatment infrastructure to be sized for actual flows rather than 4 or 5 times for peak wet weather flows.

8.0 INFRASTRUCTURE DELIVERY AND STAGING

The necessary internal infrastructure will be installed during the construction of each stage of the works as required. Each Operational Works submission will detail the works to be completed to adequately service that stage of the development.

It is intended that on completion of the works, the infrastructure will be transferred to LCC as the Asset Owner in accordance with the procedures outlined by EDQ.

The pump station will be constructed with the first stage of development although the option of tankering may be explored with EDQ & LWIA in the future. The rising main will traverse future stages which will be covered by a temporary easement that will be extinguished as the development progresses.

9.0 GREATER FLAGSTONE ICOP - OFFSETABLE INFRASTRUCTURE

Given the location of the proposed development within the GFPDA, it is integral in the provision of a suitable sewer strategy for the catchment. As a result of this, the proposed development may require the construction of several items of trunk sewer infrastructure identified within EDQ's Greater Flagstone Infrastructure Charging Offset Plan (ICOP).

As requested by EDQ, Infrastructure Offsets aren't discussed any further in this IMP as they will be addressed separately to the development assessment process.

ATTACHMENT A

Subdivision Proposal Plan (23305-PP-S001 Rev A) (Sheet 1 Only)

Prepared by Mortons-Urban Solutions
Dated 12.11.2018

LEGEND

SITE BOUNDARY

STAGE BOUNDARY

EASEMENT (DRAINAGE)

GENERAL RESIDENTIAL

MIXED-USE / MULTIRESIDENTIAL

COMMERCIAL

LOCAL CIVIC PARK

LOCAL RECREATION PARK

LINEAR OPEN SPACE

SHEET 02

Development Summary

STAGE	1	2	3	4	5	6	7	7A	7B	8	9	10	11	12	13	14	15	TOTALS
Area of Park	0.385 ha	1.045 ha	-	4.177 ha	-	1.893 ha	3.319 ha	3.213 ha	0.060 ha	-	-	-	-	-	-	0.129 ha	-	14.213 ha
Area of Road	0.278 ha	0.204 ha	0.211 ha	0.566 ha	0.314 ha	0.193 ha	0.385 ha	-	-	0.242 ha	0.290 ha	0.170 ha	0.103 ha	-	-	-	-	2.871 ha
Residential Lots	35	27	21	31	33	23	41	-	-	36	24	25	13	-	-	-	-	309
Mixed-use / Multi-Fuse Lots	-	-	-	-	-	-	-	-	-	-	-	-	-	(1)	-	-	-	(2)
Commercial Lots	(1)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	(2)
Stage Area	3.244 ha	2.603 ha	1.454 ha	7.209 ha	2.453 ha	3.354 ha	5.816 ha	3.223 ha	0.060 ha	2.383 ha	1.706 ha	1.643 ha	0.655 ha	0.572 ha	0.437 ha	0.129 ha	1.145 ha	38.461 ha
Stage Area	-	0.065 ha	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.065 ha

Park Area Table

Lot No	900	901	902	903	904	905	907	908
Area	0.129 ha	0.765 ha	1.891 ha	7.295 ha	0.473 ha	0.385 ha	3.213 ha	0.061 ha
Total Park	-	-	-	-	-	-	-	-

SCALE: 1:15

PROJECT NAME

Bushman + Wiggatt

PACIFIQ

R.P. DESCRIPTION

LOT 24 ON SP142997
AND
LOT 1 ON RP49296

ASSOCIATED CONSULTANTS

HDG

ENVIRONMENT GROUP

robertsday

THE CONSULTANT GROUP

BMT WBM

Where will our knowledge take you?

Cardno

ORGACOUSICS

SA saunders hawill group

THE CONSULTANT GROUP

Stevens Hocking Survey Pty Ltd

Stevens Hocking Survey Pty Ltd

DRAWING TITLE

SUBDIVISION
PROPOSAL PLAN
(Page 1 of 5)

MORTONS

urbansolutions

Urban & Regional Planning
Civil Engineering
Project Coordination

Paul Adams

Paul Adams

PO Box 144

Southport QLD 4215

07 5531 1010

07 5531 1010

07 5531 1010

07 5531 1010

DESIGNED	DRAWN	CHECKED	DATE	DATE	DATE
23305-PP-S001	23305-PP-S001	23305-PP-S001	23305-PP-S001	23305-PP-S001	23305-PP-S001

ATTACHMENT B

Prelodgement Meeting Minutes

Prepared by EDQ
Minutes Dated 15.06.2018

Matthew McLaren

From: Brandon Bouda <Brandon.Bouda@dsdmip.qld.gov.au>
Sent: Friday, 15 June 2018 11:44 AM
To: Gavin Johnson
Subject: Pre-lodgement Bushman Drive / Wyatt Road - PRE2018/335
Attachments: Bushman Drive Draft Sketch Layout_EDQ_Comments_June_2018 (EDQ Comment) (003).pdf

Hi Gavin

Thank you for coming in with Stephen, John and Craig to meet to discuss the proposal and clarify some matters.

The following is a summary of the meeting discussions.

Attendees

Jeanine Stone – EDQ
Brandon Bouda – EDQ
Marco Bonotto – EDQ
Gavin Johnson – Mortons Urban Solutions
John Harrison – Mortons Urban Solutions
Stephen Harrison – Harrison Development Group
Craig Christensen – Robertsday
Idris Glozier

Discussion

The applicant took EDQ through the proposal:

- 42 ha site which is confined by various constraints, including land outside PDA to the north and the railway line to the west.
- The plans submitted include approximately 12ha for open space, 2ha for medium density and 24ha for low density residential.
- Open space is along existing waterway corridors and is designed to protect existing ecological values and includes a neighbourhood park and linear corridors.
- Whilst a centre is noted on the plans, this is earmarked to be delivered on the Undullah site (west of the railway line) as per the Undullah endorsed context plan.
- The proposal has considered the future railway station and the potential use of entry/exit at each end of the station.

The applicant will be seeking a combined MCU/ROL application and are looking for early approval.

Planning

EDQ discussed the planning aspects of the proposal.

- Generally the proposal can be supported and is generally consistent with the endorsed context plan for this area, with the following exceptions:
 - o the neighbourhood recreational park is located in a different location. This can be supported because it is more central to the development
 - o consider the inclusion of a civic park/space in the medium density area, which can be incorporated into a mixed use proposal
- EDQ noted that incorporation of mixed use outcomes near the train station
- Interface to the exiting rural residential lots (prefer larger lots with fewer boundaries adjoining the rural residential properties)
- Interface with Wyatt Road extension – applicant will need to manage acoustic requirements while still ensuring a CPTED outcomes can be maintained. Wyatt Road is proposed to be 4 lane arterial road at its ultimate development.

- Applicant to consider extending the medium density area north of the waterway corridor where adjacent to the railway corridor, whilst managing the interface with the rural residential lots. It is noted that if low density in this area is still proposed, consideration should be given to larger lots to manage an acoustic requirements from the railway line.
- The open space needs to accord with EDQ Guideline 12 – Parks Planning and Design
- EDQ noted the isolated site on the north eastern side adjoining Bushman Drive and queried what is proposed here. The applicant advised it could be a non-residential use, such as a service station.

EDQ notes a revised plan was sent on 11/06 following the prelodgement meeting. EDQ notes that the plan reflects the discussion as noted above. Additional comments are shown on the plan as mark ups.

Engineering

EDQ noted that the following Engineering outcomes:

Traffic

The proposed road layout is generally acceptable with a second connection to be provided to the South-West part of the development (avoiding that all the vehicular traffic of this area be channelled through the roundabout). It is recommended that roads hierarchy and relative cross sections are discussed with EDQ early in the design process.

** following the meeting, it has been identified that the external road connection will be the planned extension of Teviot Rd and the upgrade of the last section of Bushman Drive. If the applicant seeks to use Bushman Drive in the interim, an impact assessment report shall be undertaken by a suitable qualified engineer and submitted to EDQ for consideration.

Stormwater

Stormwater quality and quantity shall be managed within the site. In particular, it is noted that the site is within the Seqwater drinking water catchment and the proposal shall address the SPP State Interest for Water Quality and Seqwater Development Guidelines.

Water

Water supply will be provided through the planned 375mm main to be constructed along Teviot Rd and Wyatt Rd). A water network analysis shall be provided to support the internal reticulation layout and identified any temporary works (booster pump) that may be required in the short term.

Sewer

The site will be serviced by a local pump station discharging on the gravity network west of the railway (to the sub-regional pump station SPS152). The pump station and reticulation network shall make provision for the two small external catchments (South of Wyatt Rd and East of Bushman Drive).

Other

EDQ will discuss the proposal with the Department of Transport and Main Roads in relation to the railway station and its potential design on lodgement of the application.

Reports to be provided

- Acoustics
- Bushfire
- Ecology
- Traffic
- Water/sewer
- Stormwater, including responding to the SEQwater water supply buffer area outcomes
- Housing Affordability and Diversity OSS
- Community Development OSS – for implementation charges offsets purposes
- Employment and Economic Development OSS – for implementation charges offsets purposes
- Ecological Sustainability and Innovation OSS – for implementation charges offsets purposes

Feel free to contact me if you have any queries.

Regards



Brandon Bouda
Manager
Economic Development Queensland
Department of State Development,
Manufacturing, Infrastructure and Planning

P 07 3452 7422
Level 14 1 William Street, Brisbane QLD 4000
GPO Box 2202, Brisbane QLD 4002
www.dsdmip.qld.gov.au

Personal Information you supply to Economic Development Queensland (EDQ), either verbally or in writing, is collected for the purpose of processing and responding to your enquiries and requests for information about our projects and researching the needs of our communities, partners and potential customers (the Purpose). EDQ will only use your personal information for this Purpose. Personal Information provided will be uploaded to our stakeholder relationship software, Consultation Manager a cloud based information management system. For further information please refer to EDQ's [privacy plan](#) on our website at <http://www.dsdmip.qld.gov.au/privacy/>

This email and any attachments may contain confidential or privileged information and may be protected by copyright. You must not use or disclose them other than for the purposes for which they were supplied. The confidentiality and privilege attached to this message and attachment is not waived by reason of mistaken delivery to you. If you are not the intended recipient, you must not use, disclose, retain, forward or reproduce this message or any attachments. If you receive this message in error please notify the sender by return email or telephone, and destroy and delete all copies. The Department does not accept any responsibility for any loss or damage that may result from reliance on, or use of, any information contained in this email and/or attachments.

ATTACHMENT C

‘Bushman & Wyatt’ Sewer Calculation Table (Drawing: 23305-SNA-007 Rev A)

Prepared by Mortons-Urban Solutions
Dated 15.11.2018

ATTACHMENT D

GFPDA External Sewer Infrastructure Plan (Drawing: 23305-SNA-003 Rev A)

Sheet 1 of 2

Prepared by Mortons-Urban Solutions

Dated 15.11.2018

ATTACHMENT E

GFPDA External Sewer Infrastructure Plan (Drawing: 23305-SNA-005 Rev C)

Sheet 2 of 2

Prepared by Mortons-Urban Solutions

Dated 18.12.2019

ATTACHMENT F

Sewer Network Plan (Drawing: 23305-SNA-500 Rev A)

Prepared by Mortons-Urban Solutions
Dated 15.11.2018

ATTACHMENT G

Emails – Connection to Sub-Regional Infrastructure Agreement

Prepared by EDQ
Dated 19.12.2019 and 18.12.2019

Matthew McLaren

From: Marco Bonotto <Marco.Bonotto@dsdmip.qld.gov.au>
Sent: Thursday, 19 December 2019 8:12 AM
To: Matthew McLaren; Tibaer Muhe
Cc: John Harrison
Subject: RE: Bushman + Wyatt Meeting Outcomes
Attachments: 23305-SNA-005.pdf

Hi Matt,

To avoid any doubts, I confirm that EDQ is supportive of this new option. Condition 23 needs to be amended. However, this may be done any time before the plan sealing of the 151 lots as condition 22 is still valid with the new options.

The pump station is just upstream of the Seqwater raw water pool for the future potable water treatment plant and the 1 in 200 flood immunity (together with the overflow mitigation strategy) is a more stringent condition required by the specific location.

Regarding the provision of the injection point to the LS304 rising main, please give me a call to discuss a way forward.

Cheers,



Marco Bonotto
Principal Engineer – Technical Services
Economic Development Queensland
Department of State Development,
Manufacturing, Infrastructure and Planning
P 07 3452 7696 | E marco.bonotto@dsdmip.qld.gov.au
Level 14, 1 William Street, Brisbane QLD 4000
GPO Box 2202, Brisbane QLD 4001
www.dsdmip.qld.gov.au

Personal Information you supply to Economic Development Queensland (EDQ), either verbally or in writing, is collected for the purpose of processing and responding to your enquiries and requests for information about our projects and researching the needs of our communities, partners and potential customers (the Purpose). EDQ will only use your personal information for this Purpose. Personal Information provided will be uploaded to our stakeholder relationship software, Consultation Manager a cloud based information management system. For further information please refer to EDQ's [privacy plan](#) on our website at <http://www.dsdmip.qld.gov.au/privacy/>

Matthew McLaren

From: Tibaer Muhe <Tibaer.Muhe@dsdmip.qld.gov.au>
Sent: Wednesday, 18 December 2019 10:56 AM
To: Matthew McLaren
Cc: John Harrison; Stephen Harrison; Wayne Hunt; Marco Bonotto
Subject: RE: Bushman + Wyatt Meeting Outcomes
Attachments: Bushman & Wyatt Development.pdf

Hi Matt

Following our meeting last Wednesday with Logan Council, EDQ has received advice from LCC regarding your client's proposal to connect the development to permanently inject to the Subregional rising main. LCC's acceptable solutions are as follows:

- 1) Permanent Injection (**purple** pipe) to the regional rising main is permitted following commissioning of both the regional rising main and the Cedar Grove treatment plant site. Details to be determined;
- 2) Permanent injection to the regional rising main is contingent on the developer's agreement to construct the **green** pipe along the road verge (Bushman Drive) at no cost to Council and to Council satisfaction. No cash contribution towards this rising main is accepted by LCC;
- 3) Permanent injection to the regional rising main is contingent on the SPS design, construction and connection timing (including odour mitigation methods and measures), and meets the *SEQ Design and Construction Code* and LCC's specifications.

Please let me know if the above terms are acceptable to your client.

Note: In accordance with the *SEQ Design and Construction Code – Pump Station Code* and close proximity to neighboring lots, an odour assessment report submission is required at the time of the compliance assessment. You are required to implement all odour control measures that are outlined in the report. A chemical dosing may be required if odour cannot be mitigated to LCC's acceptable level.

Kind regards
Tibaer



Tibaer Muhe
Principal Engineer
Economic Development Queensland
Department of State Development,
Manufacturing, Infrastructure and Planning

P 07 3452 7622
Level 14, 1 William Street, Brisbane QLD 4000
PO Box 15009, City East QLD 4002
www.dsdmip.qld.gov.au

Personal Information you supply to Economic Development Queensland (EDQ), either verbally or in writing, is collected for the purpose of processing and responding to your enquiries and requests for information about our projects and researching the needs of our communities, partners and potential customers (the Purpose). EDQ will only use your personal information for this Purpose. Personal Information provided will be uploaded to our stakeholder relationship software, Consultation Manager a cloud based information management system. For further information please refer to EDQ's privacy plan on our website at <http://www.dsdmip.qld.gov.au/privacy/>