

### 3.5 Telecommunications

Telecommunications is currently transitioning from copper wire to broadband technology. NBN Co have confirmed that it is unlikely that the overall site will be provided with Fibre to the Premises (FTTP), as part of the National Broadband Network. The site does, however, sit within the current NBN fixed wireless footprint as shown below.

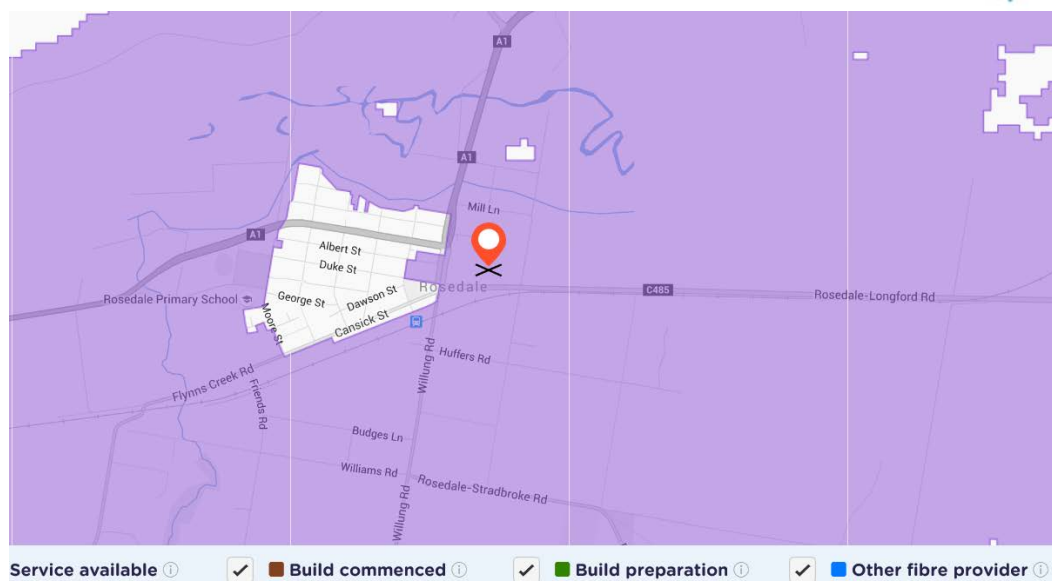


Figure 8: NBN Network Plan

It is envisaged that Telstra will be required to provide standard copper service throughout the subdivision. There are no anticipated issues with supply as there are existing services installed in Mill Lane, Nelson Street and Lyons Street.

## 4 Urban Run-off

The responsible authorities for local drainage are West Gippsland Catchment Management Authority (WGCMA) and Wellington Shire Council. Design approval from Wellington Shire Council and WGCMA will be required prior to commencement of the drainage works.

Initial feasibility advice from the West Gippsland Catchment Management Authority shows a proportion of the site is subject to inundation. The advice from the CMA at the time of this report suggests that this can be mitigated by increasing conveyance of flows through the site and along Mill Lane to the north.



The Preliminary Stormwater Management Strategy for the site has been prepared based on the new mapping with the intent of improving water quality, flow regimes and safety of the major table drain within the north-south alignment of Mill Lane. This strategy is set out in the Millar Merrigan SWMS completed to inform the Rosedale East Development Plan.

- Close Mill Lane to vehicular traffic along its north-south alignment to allow for a widened flow conveyance and treatment functions.
- Construct Mill Lane along the east-west alignment to provide a levy, protecting the site from inundation associated with the Latrobe River flood plain.
- Provide an overland flow path along major internal north-south road
- Fill areas of inundation to ensure appropriate freeboard

---

13

## 5 Access and Mobility Management

### 5.1 Mobility Plan

The Mill Lane DPO area and the town of Rosedale, is largely defined by its central location within Gippsland. It was historically located on various trade routes and tracks. As such, the provision of transport has been a key factor in the development of Rosedale.

The Princes Highway also presents challenges in respect of the accessibility and permeability of the town centre. This will be greatly improved by the proposed roundabout works which have now received funding and will improve access to the town centre from the DPO area.





*Figure 9: Proposed roundabout upgrade*

The proposed Rosedale East Development Plan embraces Rosedale's location on the Princes Highway and links to the town centre which provides opportunities to eat and shop. A network of safe walking and cycling routes is proposed as part of the Rosedale Structure plan to provide residents with easy access to the wide range of community, retail and employment uses within the town. The proposed Development Plan links to this as shown in the Mobility Plan presented as figure 10. This plan has the following objectives and strategies in line with those outlined in the Rosedale Structure Plan:

Objectives:

- To provide residents and visitors with improved access to a range of retail, commercial and community facilities;
- To improve the safety and ease of accessing and crossing Prince Street by vehicle, bicycle, foot, and/or other means;
- To cater for future improvement to the public transport network and promote alternative modes of travel;
- To ensure roads can meet traffic demands and accommodate services including those for development east of the DPO area.

Strategies

- Provision of a legible, permeable and interconnected street and path networks;
- A safe and efficient pedestrian and bicycle network that connects to the town centre, Rosedale community house, the railway station and existing parks and reserves;
- On and off road pedestrian and cycle links that allow for safe and efficient movement between residential areas and key community infrastructure and along Blind Joes Creek corridor;
- Provision for safe and efficient bus routes, with stops that promote passive surveillance and passenger safety;
- Roads and access ways are compliant with the requirements of the Gippsland Infrastructure Design Manual, Council policies and the Disability Discrimination Act; and
- Integration of the proposed Development Plan into the proposed roundabout upgrades on Prices Highway.

The site Mobility Plan as shown below, demonstrates that the proposed development is well serviced by vehicle and pedestrian infrastructure which can be readily extended by future development.

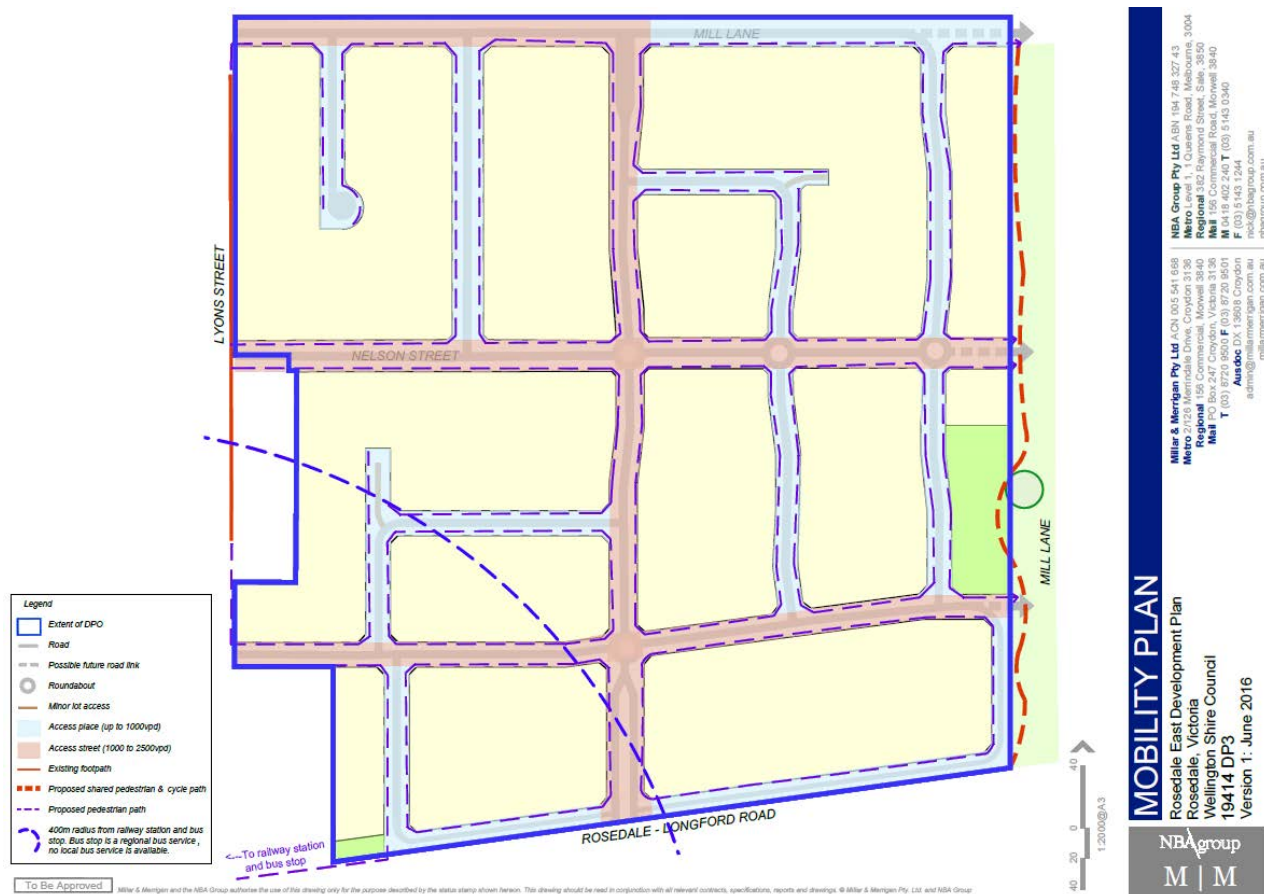


Figure 10: Mobility Plan

## 5.2 Existing Roads

Key elements of road infrastructure within Rosedale are the Princes Highway (including Prince Street), Rosedale-Longford Road and a network of sealed and unsealed local roads. Please refer to Figure 8 - Road Hierarchy Plan. Rosedale is provided with road infrastructure which generally has capacity to accommodate further growth through the region. There is currently no requirement to upgrade the existing road network from a capacity or quality perspective.

A Traffic Impact Assessment for the proposed Rosedale East Development Plan has been completed by O'Brien Traffic. The below summary outlines hierarchy and relevant design parameters. As can be seen from the Mobility Plan, the following roads provide for vehicle access:

**Mill Lane** is a rural residential access road under Council control. It runs in an east-west orientation off Lyons Street (Princes Highway) before turning 90 degrees and running north-south to Huffers Lane. A permanent road closure exists just south of Rosedale-Longford Road at the former railway level crossing.

The road is unsealed and the default rural speed limit (outside a built-up area) of 100km/h applies, although this is not a practical speed for the standard of roadway.

**Lyons Street** is a Road Zone Category 1 and is under the care and management of VicRoads. North of Prince Street, Lyons Street is a divided road featuring two traffic lanes in each direction. The speed limit is 100km/h (beginning approximately 50m north of Mill Lane), reducing to 60km/h south of this point. South of Prince Street, Lyons Street is also divided but features a single wide traffic lane in each direction. The speed limit in this section of Lyons Street is 60km/h.

**Rosedale-Longford Road** is a rural arterial road and a Road Zone Category 1, being under the care and management of VicRoads. The road is undivided, and in the vicinity of the subject site features a single 2.9m to 3.3m wide traffic lane in each direction. The speed limit past the subject site is 60km/h, increasing to 100km/h approximately 140m west of Mill Lane.

**Nelson Street** is local access street under Council control. It runs in an east-west direction off Lyons Street (Princes Highway) and terminates as a cul-de-sac. The intersection with Lyons Street is a standard T-intersection with give way control. Access is limited to left-in and left-out manoeuvres only, by virtue of the median in Lyons Street. For northbound vehicles to enter Nelson Street, they must undertake a U-turn at the existing median break approximately 40m to the north, the default urban speed limit of 50km/h applies.

### 5.3 Public Transport

Public transport infrastructure is established within Rosedale with the provision of both train and bus. The Rosedale train station is located on the southern border of the town centre, with access available via Cansick Street and Hood Street. There are six daily train services between Melbourne and Bairnsdale (including weekends) between 7:00am and 9:00pm.

Bus services operate between Traralgon and Sale via the Princes Highway, providing service to Rosedale. There are four weekday services, two services on Saturday and one service on Sunday. The bus stop is located at the intersection of Princes Street and Hood Street in the town centre. There are no local bus routes within Rosedale.

### 5.4 Pedestrian and Bicycle Network

There are formal footpaths within the town centre however, there are limited footpaths outside the town centre and no formal footpaths in the rural and low density living areas. These routes are well used by locals at present and have been identified in the Rosedale Structure Plan for formalisation or improvement to make it safer for residents of these areas to walk into the town.

There are no formal bicycle path facilities within Rosedale. The table overleaf provides a summary of footpath provision on the local roads inspected.

Street	Provision
Prices Highway	Both sides through Rosedale
Lyons Street (extension)	West side only
Moore Street	Both sides adjacent to the new residential development and Rosedale Primary School
Wood Street	East side between Princes Highway and Dawson Street
Latrobe Street	Both sides between Princes Highway and Dawson Street, east side only south of Dawson Street
Hood Street	Both sides between Queen Street and Cansick Street
Queen Street	North side between Mackay Street and Princes Highway
Albert Street	Both sides, except on the south side between Hood Street and Lyons Street
Cansick Street	Both sides, except on the south side between Latrobe Street and Lyons Street
Rosedale-Longford Road	No footpaths

## 5.5 Subdivision Access

The road network entering the Development Plan area is managed by both Wellington Shire Council and VicRoads. Roads within the development will be solely the responsibility of Wellington Shire Council. The Traffic Impact Assessment identifies no problems with the proposed access points. It is anticipated that an intersection similar to that shown below will be required for access onto Rosedale-Longford Road.

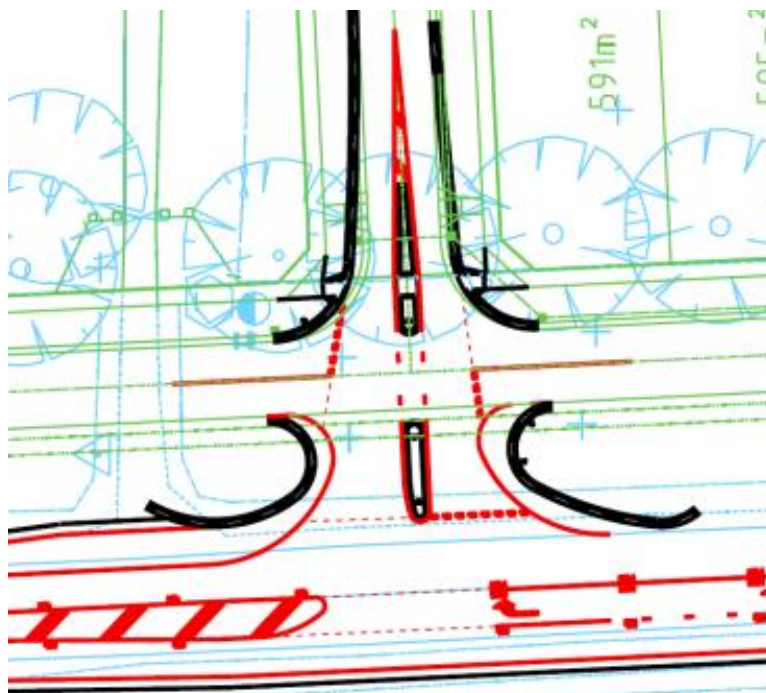


Figure 10: Intersection with Rosedale-Longford Road

Mill Lane would be closed to vehicular access for its north-south alignment with access points provided at:

- Existing turn lane into Mill Lane (east-west alignment)
- Extension of Nelson Street
- New access point onto Lyons Street
- New Access point onto Rosedale-Longford Road

Internal roads would be provided to Council standards and include footpaths on both sides of the road. As noted on the Mobility Plan, an opportunity exists to link to the walking trails along Blind Joes Creek.



---

## 6 Summary and Conclusion

The subject site has a total area of approximately 24.9 ha and is located within the Wellington Shire. The majority of the site is currently used for farming purposes with some scattered trees. There are a number of smaller titles along the western boundary of the area that have exiting dwellings on them. These properties are serviced by existing infrastructure on Lyons Street, Nelson Street and Princes Highway. There is a single dwelling outside of the western frontage at 38 Mill Lane. This house is supplied with water, telecommunications and power from Mill Lane. The house has no formal drainage discharge point.

Gippsland Water is responsible for managing the reticulated sewer and water constructed for the site. They have determined that current sewerage and water infrastructure is sized sufficiently to service the proposed level of development.

The relevant electricity authority for the site is AusNet. There are no anticipated issues with regard to network capacity. Upgrades to transformers and poles directly adjacent to future development sites may be required to provide underground supply to the sites.

APA Group may also be able to supply this estate with natural gas. Initial feasibility enquiries have been conducted which indicate that supply should be available via augmentation of existing assets.

Telecommunications is currently transitioning from copper wire to broadband technology. As part of the federal government's National Broadband Network initiative, Fixed Wireless Broadband is available. NBN Co. is responsible for the delivery of broadband infrastructure which will be subject to commercial agreements between NBN Co. and the developer. Telstra will also be able to provide copper service as required.

Site stormwater works will require liaison with both Wellington Shire Council and the West Gippsland Catchment Management Authority. The Preliminary Stormwater Management Strategy for the site has been prepared based on new mapping with the intent of improving water quality, flow regimes and safety of the major table drain within the north-south alignment of Mill Lane. This strategy is set out in the Millar Merrigan SWMS completed to inform the Rosedale East Development Plan.

VicRoads and Wellington Shire Council will be responsible for managing the road network entering and within the development. The Traffic Impact Assessment prepared by O'Brien Traffic identifies no concerns with the proposed access points.

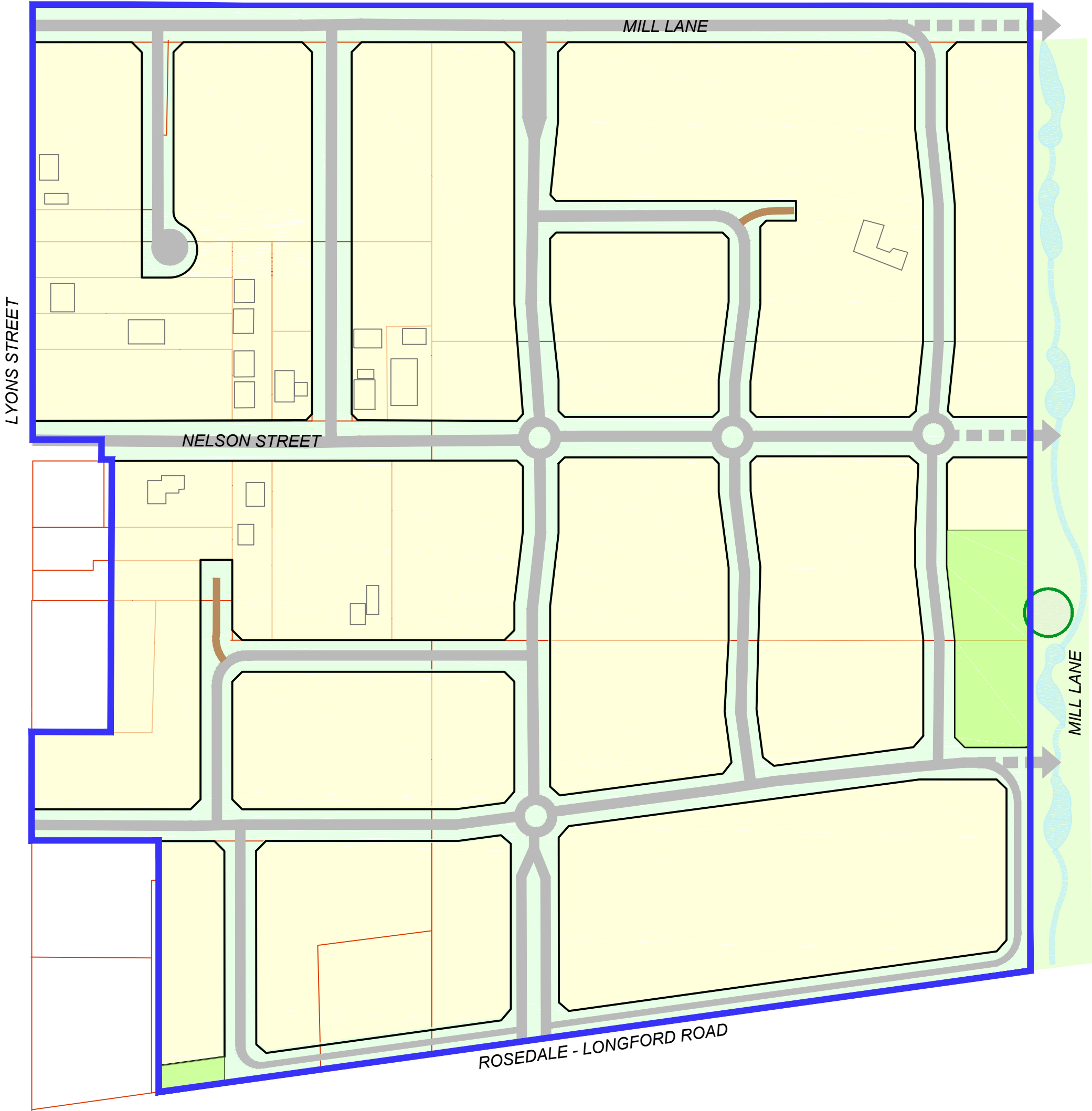
The site represents an exciting development opportunity that can be serviced by the upgrade of existing infrastructure. Feasibility enquiries have returned largely positive responses and early engagement with relevant service authorities has yielded a functional and efficient strategy for servicing the site.

## Appendix 1 – Development Plan

LAND BUDGET		
SITE AREA	24.85ha	
	AREA	% SITE
OPEN SPACE	0.47ha	1.9%
TOTAL	0.47ha	1.9%
NET DEVELOPABLE AREA	24.38ha	
LAND USES	AREA	% NET DEV. AREA
LOCAL ROADS	6.62ha	27.15%
RESIDENTIAL LOTS	17.76ha	72.85%
TOTAL AREA	24.38ha	100%
Mill Lane Road Reserve	1.38ha	
Expected Lot Yield: 208 lots		
Net housing density 8.5 dwellings per hectare		

Legend

- Extent of DPO
- Existing buildings
- Standard residential
- Reserve
- WSUD
- Existing title boundary
- Road
- Possible future road link
- Roundabout
- Minor lot access
- Consider retention of tree



## DEVELOPMENT PLAN

Rosedale East Development Plan  
Rosedale, Victoria  
Wellington Shire Council  
19414 DP2  
Version 1: June 2016

**Millar & Merrigan Pty Ltd** ACN 005 541 668  
**Metro** 2/126 Merrindale Drive, Croydon 3136  
**Regional** 156 Commercial, Morwell 3840  
**Mail** PO Box 247 Croydon, Victoria 3136  
**T** (03) 8720 9500 **F** (03) 8720 9501  
**Ausdoc** DX 13608 Croydon  
admin@millarmerrigan.com.au  
millarmerrigan.com.au

**NBA Group Pty Ltd** ABN 194 748 327 43  
**Metro** Level 1, 1 Queens Road, Melbourne, 3004  
**Regional** 382 Raymond Street, Sale, 3850  
**Mail** 156 Commercial Road, Morwell 3840  
**M** 0418 402 240 **T** (03) 5143 0340  
**F** (03) 5143 1244  
nick@nbagroup.com.au  
nbagroup.com.au

## **Appendix 2 – Preliminary Servicing Advice (Authority Correspondence)**





Australian Pipeline Ltd  
ACN 091 344 704

Australian Pipeline Trust  
ARSN 091 678 778

APT Investment Trust  
ARSN 115 585 441

APT O&M Services Pty Ltd  
ABN 11 112 358 586

*Our reference:* CON/2016 041  
*Your reference:* 19414/9.1 cc:bs  
*Enquiries:* Ms R May  
*Extension:* 349

Date: 17 May, 2016

Millar & Merrigan Pty Ltd  
2/126 Merrindale Drive  
P.O. Box 247  
Croydon, VIC. 3136

**Attention: Christopher Constantine**

Dear Sir,

**PROPOSED SUBDIVISION - PRELIMINARY SERVICING ADVICE**  
**38 MILL LANE**  
**ROSEDALE**

Reference is made to your correspondence, dated 27<sup>th</sup> April 2016, followed by the overall concept plan.

APA Group Networks (APA) operates and manages gas reticulation assets within and around the subject area of 38 Mill Lane, Rosedale. As a licenced distributor under the Gas Industry Act 2005, and a referral authority under the Subdivision Act, APA Group manages, on behalf of Australian Gas Networks, an extensive natural gas asset network within this area and as such has reviewed the affect this proposal will have on the existing gas network assets.

Indications are that APA has existing gas assets located within the area defined. Consequently, consideration will need to be given to maintaining and protecting all rights and privileges currently enjoyed by APA in relation to these assets in the preparation and implementation of any proposed planning documentation. This includes any third party activities that may interfere with these assets.

The existing gas assets located within the vicinity of your proposal may not have the capacity to service this development. An assessment of the gas reticulation requirements, inclusive of required upstream augmentation, cannot be assessed until receipt of application for connection to natural gas. A contribution may be required by the Developer for the reticulation of this site. An assessment of viability, inclusive of any contribution that maybe required, cannot be determined until a formal application for connection is received.

Enclosed for your information is a copy of APA Group District Plan, as listed below, showing recorded location of the existing gas mains.

Yours faithfully,

**REBECCA MAY**  
**INTEGRITY & PLANNING MANAGER**  
**PLANNING & ENGINEERING**

Enclosed: District Plans: Heyfield 2500: 23-14

Note: APA Group acts as the Network Operator on behalf of Australia Gas Networks (Vic) Pty Ltd, a licensed gas distributor in relation to all works in the vicinity of Australia Gas Networks (Vic) Pty Ltd gas reticulation mains and transmission pipelines.

## Christopher Constantine

---

**From:** Emma Bostedt <Emma.Bostedt@ausnetservices.com.au>  
**Sent:** Wednesday, 8 June 2016 2:29 PM  
**To:** Christopher Constantine  
**Cc:** Coen Moore  
**Subject:** RE: Mill Lane Rosedale  
**Attachments:** 20160608\_134345.pdf

Hi Christopher,

Please see attached sketch showing approximate kiosk placement for this development(dependant on Council approval).

To facilitate this development, the overhead conductors highlighted in pink in the attached sketch will most likely need to be upgraded. I am still waiting to hear back from our Network Planning Engineer to confirm whether any further works will be required.

Regards,

**Emma Bostedt**  
Design Officer



**AusNet Services**  
PO Box 339  
Traralgon VIC 3844 Australia  
Tel 51739016 Fax 51741456  
Mobile 0429534842  
[emma.bostedt@ausnetservices.com.au](mailto:emma.bostedt@ausnetservices.com.au)  
[www.ausnetservices.com.au](http://www.ausnetservices.com.au)

---

**From:** Christopher Constantine [mailto:CConstantine@millarmerrigan.com.au]  
**Sent:** Monday, 6 June 2016 9:46 AM  
**To:** Coen Moore  
**Cc:** Emma Bostedt  
**Subject:** RE: Mill Lane Rosedale

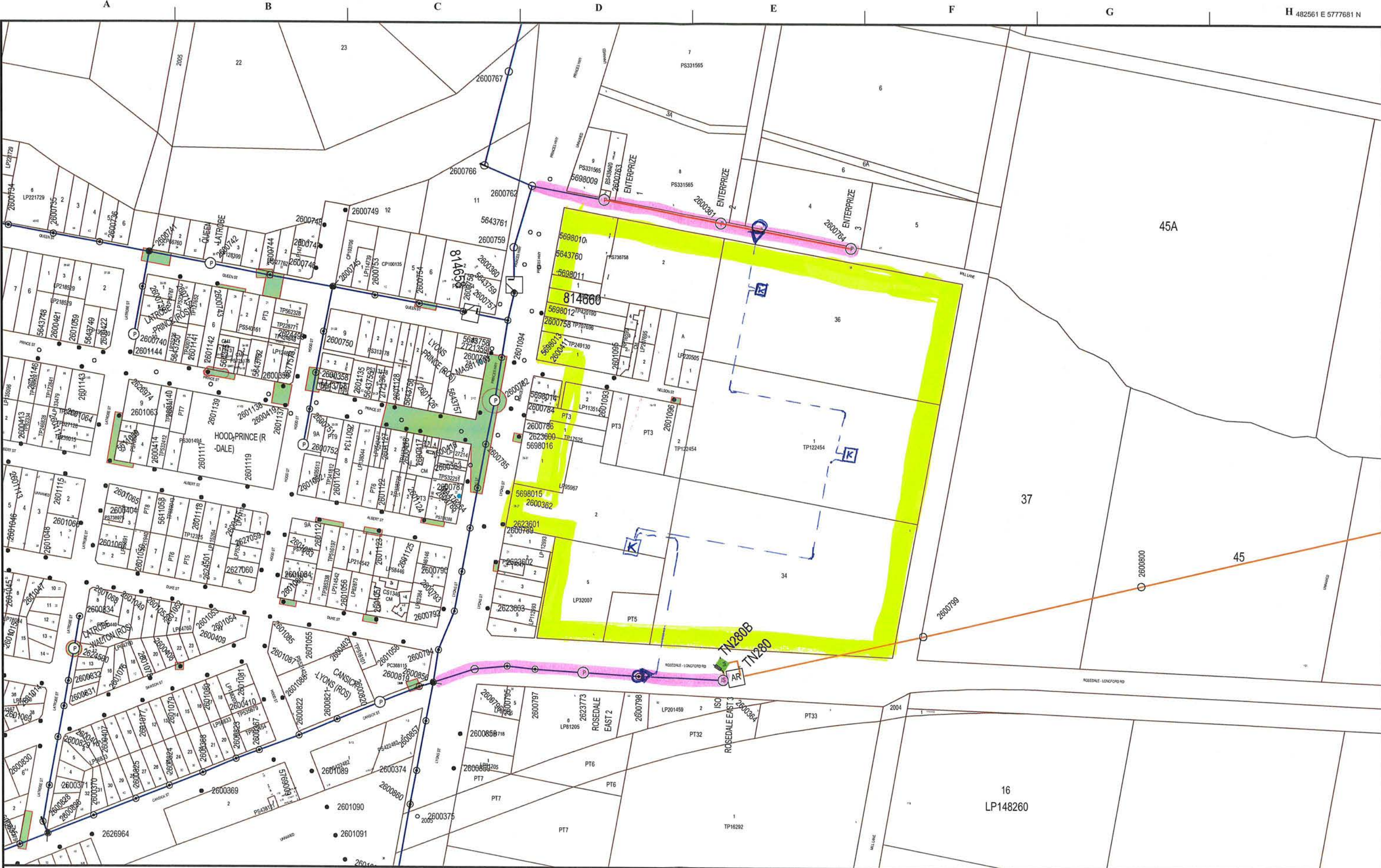
Hi Coen,

At this stage development will come from Mill Lane south back towards Rosedale-Longford Road. No firm staging has been put in place but I would anticipate stages of around 20 to 25 lots.

Hope that helps,

**Christopher Constantine**  
Civil Engineer





**NOTICE**

Please note that the information contained in AusNet Services GIS system is constantly being updated, and the information contained in these plans is subject to change. To the best of our knowledge this information is accurate at the date of issue, AusNet Services does not accept liability for any loss suffered as a result of reliance on the information.

If you have any queries, please contact Brian Esposito (03) 9695 6559



Select a bitmap

Vic Roads 343 T 10

CFA 531 Ref 81E 77N

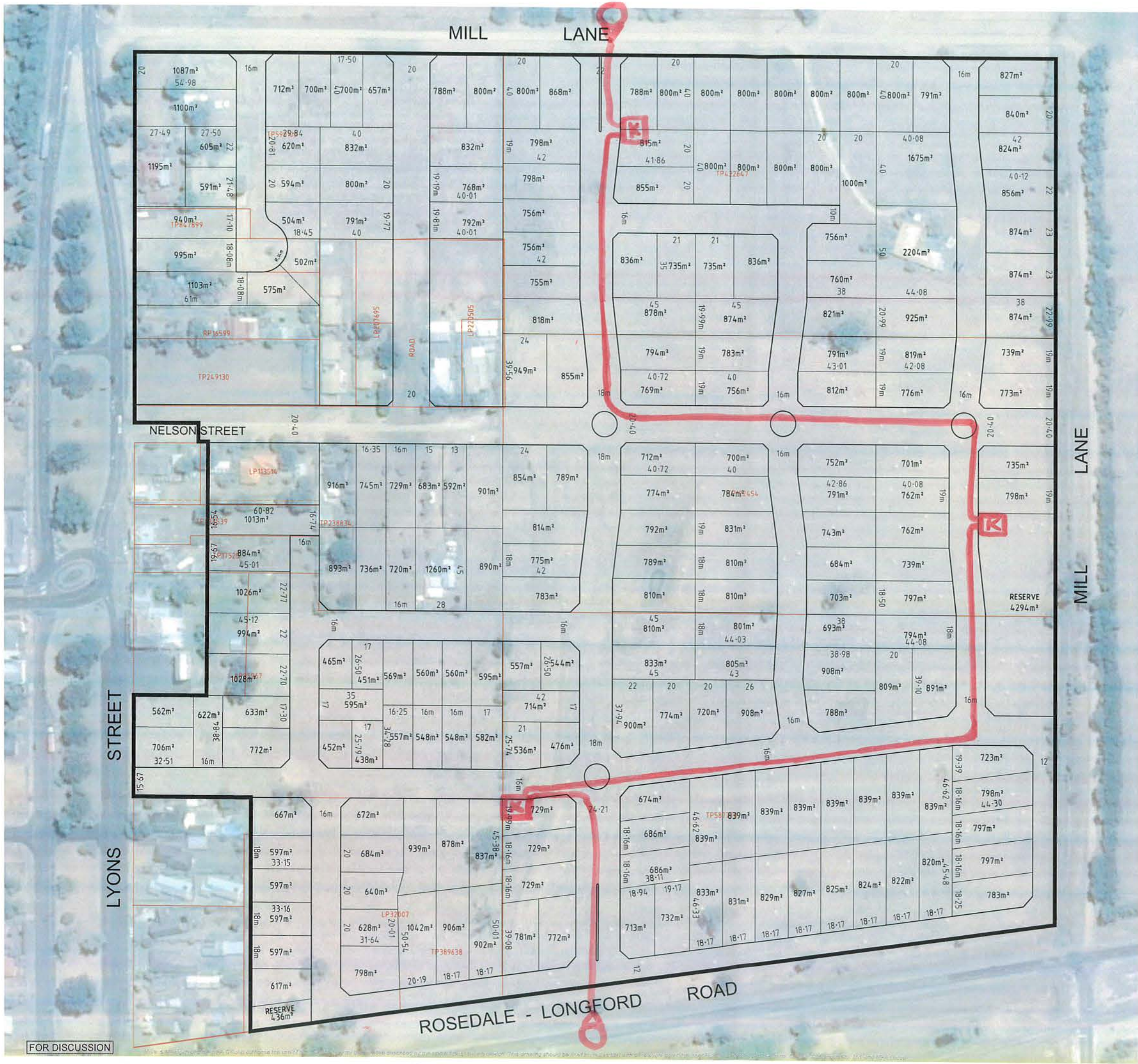
Heyfield 2,500/23.14

Field 1:

Field 2:

Copyright of AusNet Services  
All rights reserved.  
No part of this plan may be reproduced in any form  
without written permission from AusNet Services





NOTE: This plan is subject to the approval of various statutory authorities

= Kiosk  
 = Cable Head Pole  
 = Cable

LAND BUDGET			
SITE AREA		23.90ha	
ENCUMBERED LAND		AREA	% SITE
Existing whole titles		1.47ha	6.1%
TOTAL		1.47ha	6.1%
NET DEVELOPABLE AREA		22.43ha	0%
LAND USES		AREA	% NET DEV. AREA
LOCAL ROADS		5.66ha	25.25%
OPEN SPACE		0.47ha	2.11%
RESIDENTIAL LOTS		16.29ha	72.64%
TOTAL AREA		22.43ha	100%

- OVERALL DEVELOPMENT PLAN AREA
- TITLE BOUNDARIES
- EXISTING ROADS
- PROPOSED ROADS
- POTENTIAL ROADS
- RESERVE
- ROUNDABOUTS - TRAFFIC CIRCLES
- MEDIUM DENSITY POTENTIAL

DIMENSIONS HEREON ARE SUBJECT TO SURVEY.  
THIS PLAN IS SUBJECT TO THE APPROVAL OF VARIOUS STATUTORY AUTHORITIES.  
PROPERTY BOUNDARIES SHOWN HEREON ARE DERIVED FROM THE VICMAP DIGITAL PROPERTY INFORMATION SUPPLIED TO MILLAR AND MERRIGAN UNDER LICENSE AGREEMENT FROM LAND VICTORIA.  
THE ACCURACY OF THIS INFORMATION HAS NOT BEEN VERIFIED BY THIS OFFICE.  
THE AERIAL PHOTOGRAPH SHOWN AS A BASE ON THIS PLAN HAS NOT BEEN ORTHO-RECTIFIED AND THE LOCATION OF IMAGES SHOWN IS SUBJECT TO DISTORTION.

NBA Group Pty Ltd  
Metro Level 1, 1 Queens Road, Melbourne, 3004  
Regional 302 Raymond Street, Sale, 3950  
Mail 156 Commercial Road, Victoria 3136  
M 0418 402 240 F (03) 5143 1244  
nick@nba-group.com.au  
nba-group.com.au

Millar & Merrigan Pty Ltd  
Metro 2126 Merrindale Drive, Croydon 3136  
Regional 156 Commercial Road, Victoria 3136  
Mail PO Box 247 Croydon, Victoria 3136  
T (03) 8720 9500 F (03) 8720 9591  
T (03) 5143 1244  
admin@millarmerrigan.com.au  
millarmerrigan.com.au

No.	Revision Description	Aspd	Date
1	Prepared for discussion purposes	Aspd	27 Feb 2016
2	Layout change	Aspd	12 Oct 2016
3	Layout change - accommodate reserve	Aspd	23 Oct 2016
4	Layout change	Aspd	23 Oct 2016
5	Layout change - add area and land budget	Aspd	31 Oct 2016

# OVERALL CONCEPT PLAN

Proposed Subdivision  
38 Mill Lane, Rosedale Victoria  
Wellington Shire Council  
19414M1  
Version 6  
Sheet 1 of 1 Sheets  
Date : May 2016



## Christopher Constantine

---

**From:** Todd Blackney  
**Sent:** Tuesday, 20 October 2015 10:41 AM  
**To:** Christopher Constantine  
**Subject:** FW: Mills Lane Rosedale Preliminary Servicing Advice (19414)  
**Attachments:** Mill Lane.pdf; Mill Lane Sewer.pdf; Mill Lane Water.pdf; A1 - 4911 TIF # Rosedale Sewerage Reticu~g Station Stage 3B Reticulation....tif

FYI

Are we at a point that we would want to request a drawdown test?

Regards

**Todd Blackney**  
Civil and Environmental Engineer

# Millar /Merrigan

**Metro** (03) 8720 9527 | **Regional** (03) 5134 8611  
[tblackney@millarmerrigan.com.au](mailto:tblackney@millarmerrigan.com.au) | [LinkedIn](#) | [Facebook](#)

Our Ref: 19414

---

**From:** michael.johnstone@gippswater.com.au [mailto:michael.johnstone@gippswater.com.au]  
**Sent:** Tuesday, 20 October 2015 10:31 AM  
**To:** Todd Blackney  
**Cc:** Paul.Young@gippswater.com.au  
**Subject:** Mills Lane Rosedale Preliminary Servicing Advice

Todd,

I have had a quick look at the Mills Lane ODP area and can provide the following advice.

Total Area within red highlighted cells; 21 Hectares, Total lots 210. There is approximately 35 existing lots in the current catchment.

### Sewer:

The outfall for this development is Mill Lane SPS, constructed in 1982. The limited data we have on this pump station suggests that its duty is 15 L/s.

Based on empirical calculations this pump rate is sufficient for 245 lots. The required Dry Weather system storage is 41 kL's.

I would suggest before you progress to much further you request a draw down test to be conducted on the pump.

### Water:

A 150 mm interlinked (dual feed) main is adequate to service this development.

## Christopher Constantine

---

**From:** Todd Blackney  
**Sent:** Tuesday, 20 October 2015 10:51 AM  
**To:** Christopher Constantine  
**Subject:** FW: Mill Lane

FYI

**Todd Blackney**  
Civil and Environmental Engineer

# Millar /Merrigan

---

**From:** michael.johnstone@gippswater.com.au [mailto:michael.johnstone@gippswater.com.au]  
**Sent:** Tuesday, 20 October 2015 10:50 AM  
**To:** Todd Blackney  
**Subject:** FW: Mill Lane

---

**From:** Evgenia Brand  
**Sent:** Tuesday, 20 October 2015 10:43 AM  
**To:** Michael Johnstone  
**Subject:** Mill Lane

Mick,

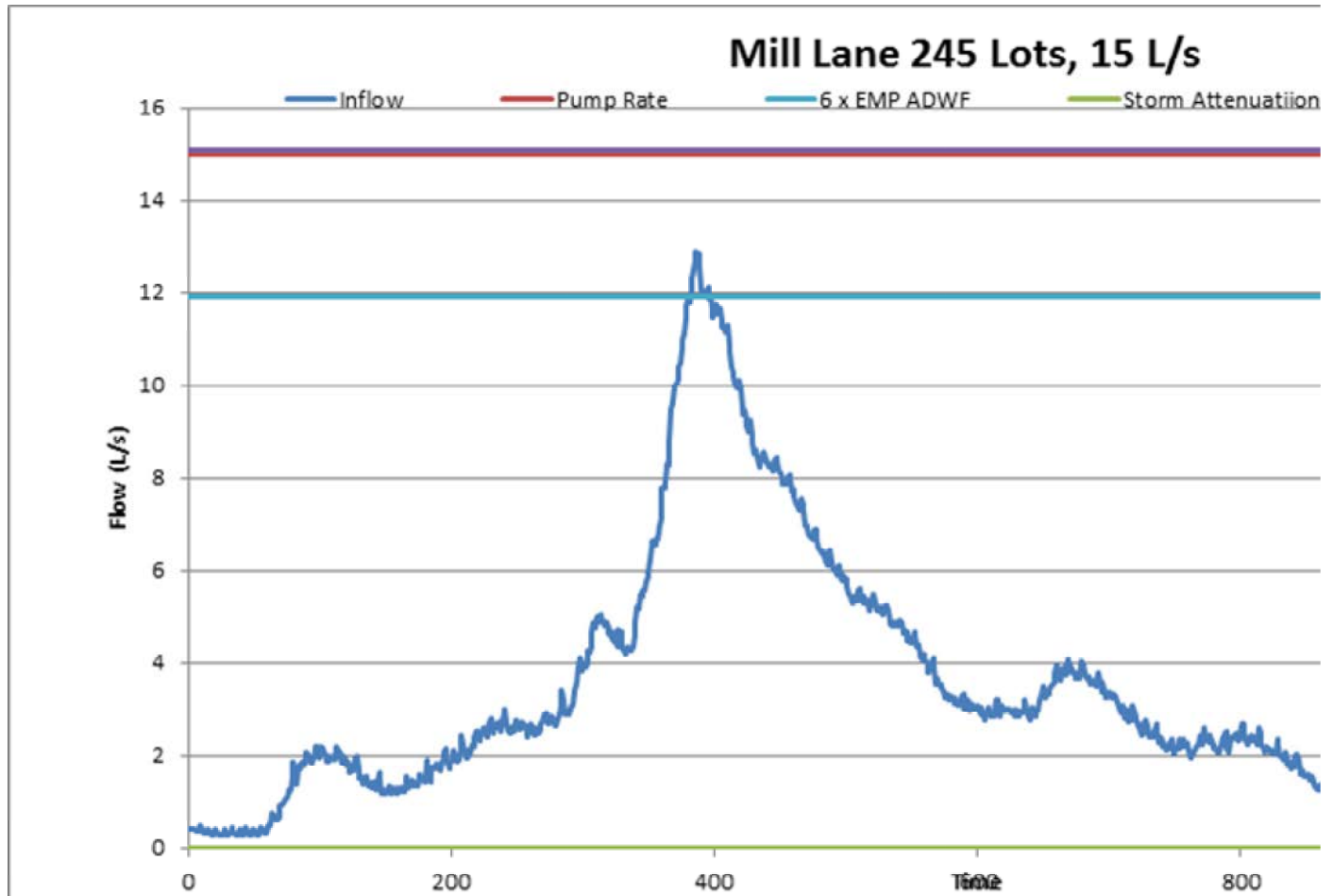
I can confirm now that one pump at Mill Lane SPS was definitely replaced with a Flygt 3102.181 – 255 pump.

**Evgenia Brand**  
Senior Engineer Field Services  
Gippsland Water  
P.O. Box 348  
Hazelwood Road, Traralgon, VIC  
ph: (03) 5177 5923  
mob: 0419 158 744

**IMPORTANT:** This email, including all attachments, is confidential. If you are not the intended recipient, you must not disclose, distribute, copy or use the information contained in this email or attachments. Any confidentiality or privilege is not waived or lost because this email has been sent to you in error. If you have received it in error, please let us know by reply email, delete it from your system and destroy any copies.

If you have any issues let me know.

Mick



**Michael Johnstone**

**Planning Engineer**

**Asset Strategy and Planning**

Gippsland Water

PO Box 348 Traralgon VIC 3844

T 03 5177 4774

F 03 5174 0103

Mob 0447808238

[michael.johnstone@gippswater.com.au](mailto:michael.johnstone@gippswater.com.au)

[www.gippswater.com.au](http://www.gippswater.com.au)

**Reduce your use!**

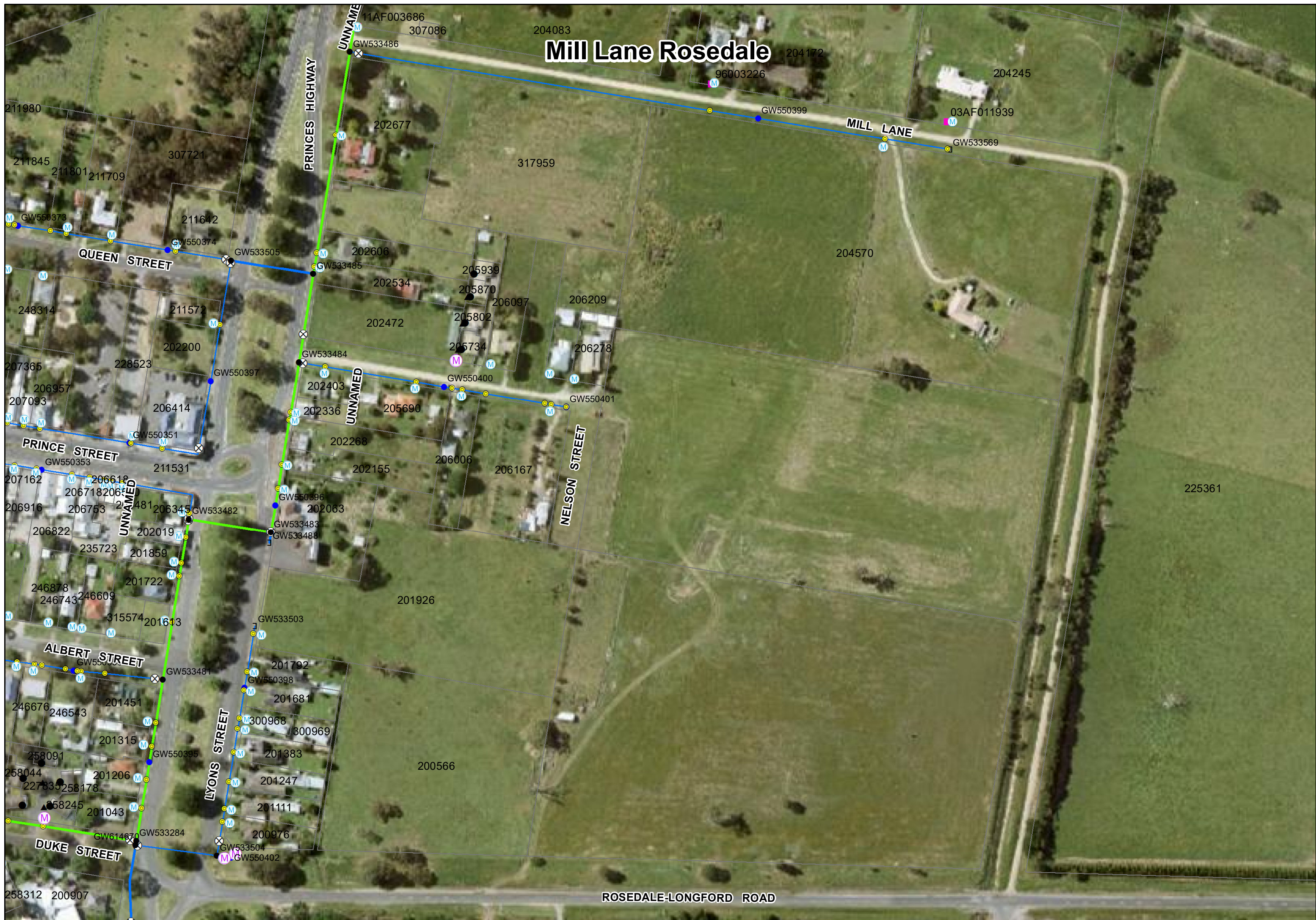
 Please consider the environment before printing this email







# Mill Lane Rosedale

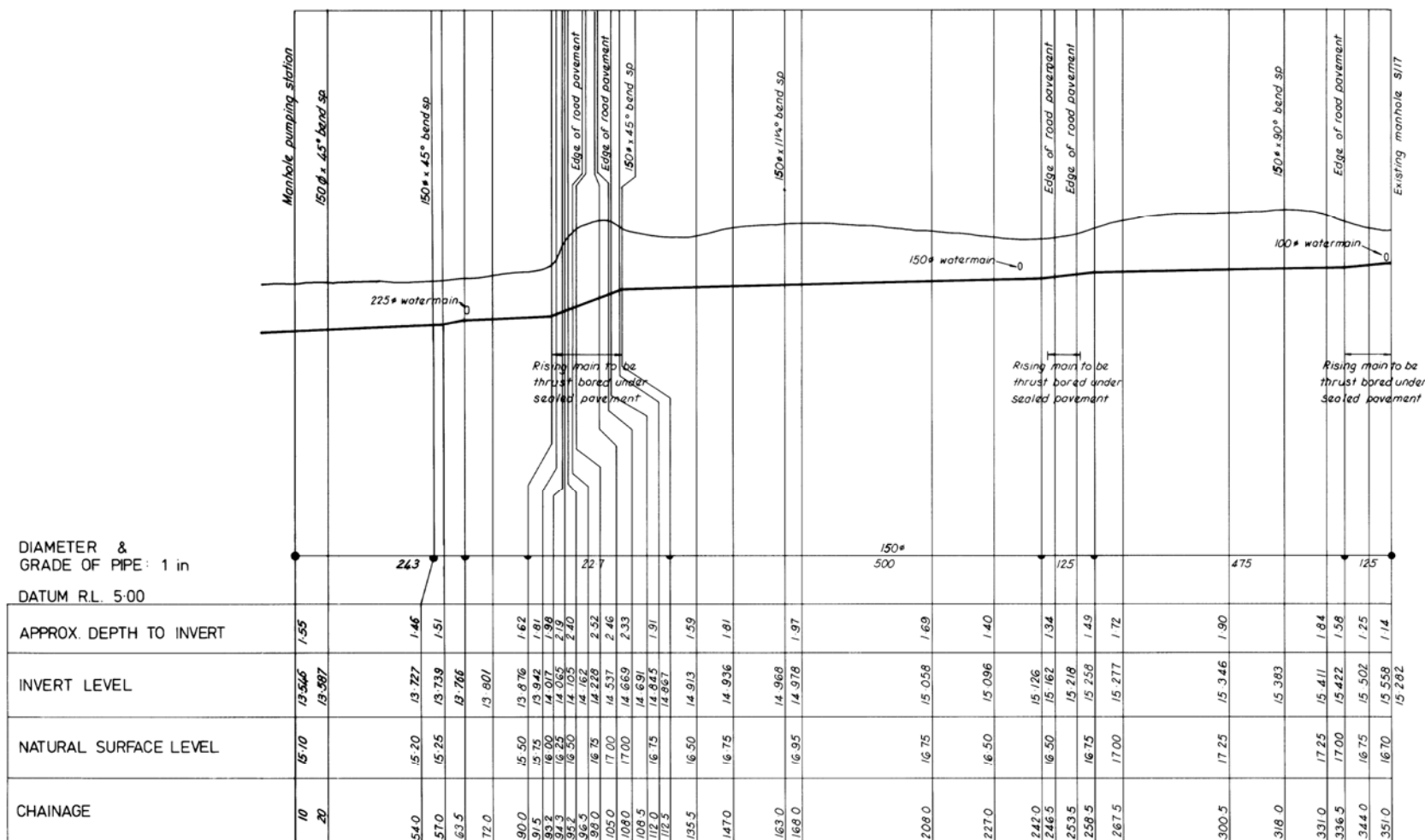






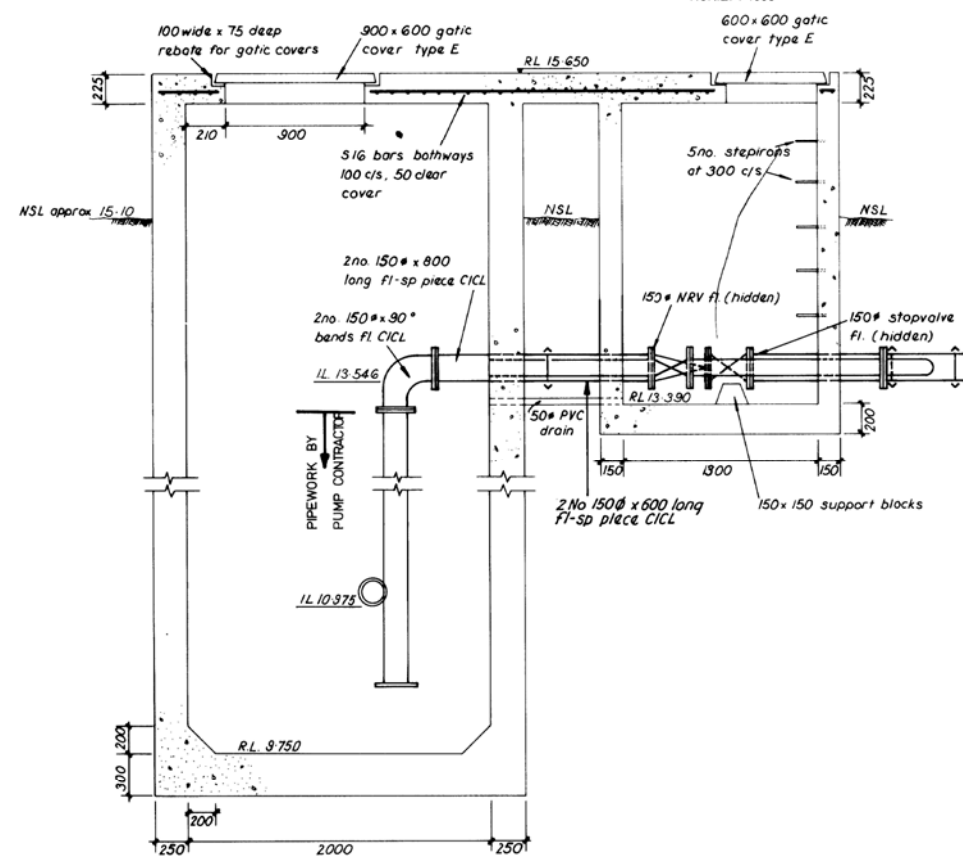
# Mill Lane Rosedale



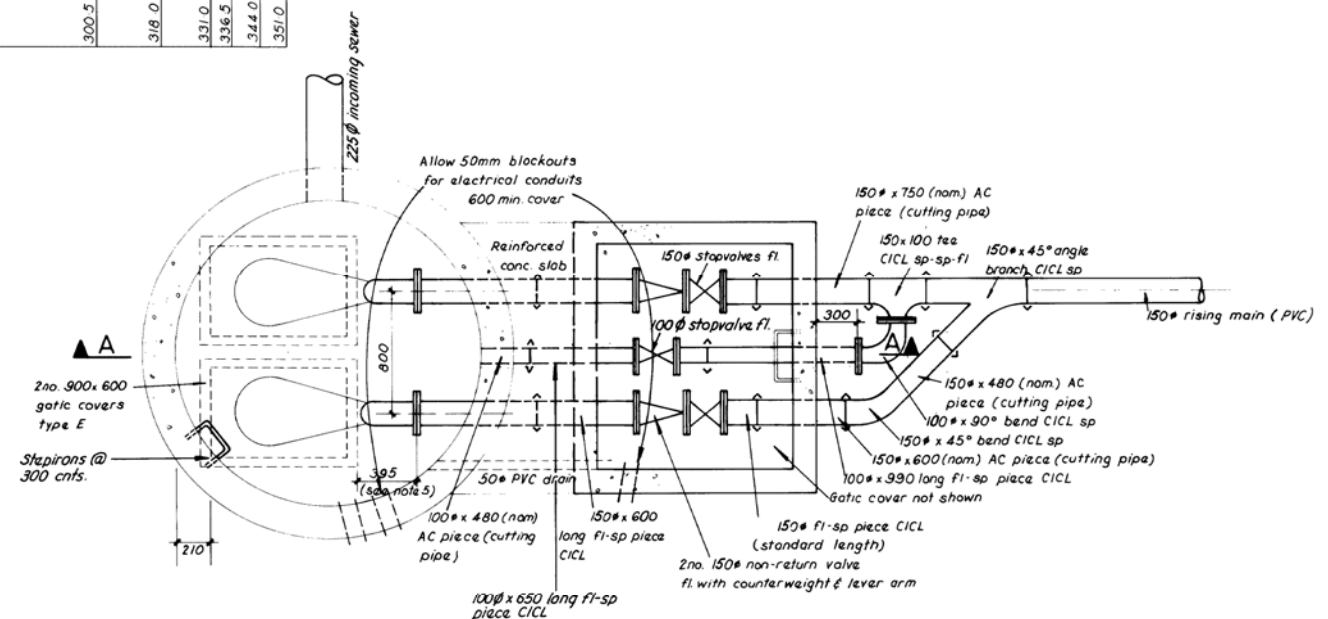


LONGITUDINAL SECTION

SCALE: VERT 1:100  
HORIZ 1:1000



SECTION A-A  
NTS



PLAN

SCALE 1:25

NOTES

- THRUST BLOCKS TO BE PLACED AS DIRECTED IN ACCORDANCE WITH DRG 4-S-7050
- CONCRETE IN WELL AND PITS CLASS 20 (SULPHATE RESISTANT) FINISHES WALLS F2, SLAB U2
- STOPVALVES & NON RETURN VALVES IN PITS TO BE SUPPORTED BY CONCRETE BLOCKS
- INTERNAL PIT DIMENSIONS 1200 x 1500
- FINAL DIMENSION TO FLANGED JOINT TO BE CONFIRMED BY ENGINEER PRIOR TO INSTALLATION OF PIPEWORK
- VALVE PIT FLOOR REINFORCEMENT SHALL BE F92 CENTRALLY PLACED WALL REINFORCEMENT SHALL BE F92 WITH 40mm COVER TO INSIDE FACE OF PIT (SPICES TO BE 300mm)
- PUMP WELL AND VALVE PIT SURROUND TO BE BACKFILLED WITH TOPSOIL TO GRADE OF 1:5

C	Layout of pump station amended	S.A.	6-12-82
B	Rising main details amended (Ch00-72)	SA	16-11-82
	Pump well & valve pit invert amended		
A	Pump wall invert amended	SA	26-10-82
REV	NO	DETAILS	DATE

ROSEDALE SEWERAGE AUTHORITY  
MILL LANE RISING MAIN & PUMP STATION  
STAGE 3B RETICULATION SCHEME N°1  
LONGITUDINAL SECTION & PROFILES

DESIGNED	DRAWN	TRACED	CHECKED	DATE
SA	SA	MR		29-9-82
SCALE	JOB NO	PROJ. DRS. No	DRAWING NO	REV.
As shown	134/0140		1-134-14831	C

John Scroggie  
Consulting Engineer  
pty ltd

PROJECT ENGINEER

PRINCIPAL

A1-4911

## Appendix 4 –Preliminary Stormwater Management Statement

As prepared by Millar Merrigan dated September 2017





**Preliminary Stormwater Management Strategy**  
**Rosedale East Development Plan Area**

**Prepared for:** NBA Group Pty Ltd

**Municipality:** Wellington Shire Council

**Reference:** 19414/8.1

**Millar & Merrigan Pty Ltd**

trading as

Millar Merrigan

ACN 005 541 668

2/126 Merrindale Drive,

PO Box 247

Croydon Victoria 3136

Telephone 03 8720 9500

Facsimile 03 8720 9501

[email@millarmerrigan.com.au](mailto:email@millarmerrigan.com.au)

[www.millarmerrigan.com.au](http://www.millarmerrigan.com.au)

**Document Status**

Version	Date	Description	Prepared By	Approved By
1	11/07/2016	Draft	Chris Constantine	
2	24/05/2017	Final	Chris Constantine	
3	22/09/2017	POS Amendment	Andrew Keegan	Chris Constantine

## Contents

1	Introduction .....	1
2	Proposed Strategy.....	2
2.1	Existing conditions.....	2
2.2	Detention.....	2
2.3	Water quality .....	3
	Pool and riffle.....	3
2.4	Overland Flow Paths .....	3
2.5	External Catchments.....	4
2.6	LSIO Area .....	6
3	Staging.....	7
4	Engineering Maintenance Plan.....	8
4.1	Pool and Riffle.....	8
4.2	Downstream flow path.....	9
5	Conclusion & Recommendations.....	10
	Appendix A – Proposed Plan of Subdivision .....	11
	Appendix B – Preliminary WGCMA Advice .....	12
	Appendix C – 100-year ARI Catchment Plan & Typical Cross Sections .....	13
	Appendix D – 19414E 00 Preliminary Fill Plan .....	14
	Appendix E – WSUD Maintenance Checklist .....	15
	Appendix F – Water Technology Report.....	17

## 1 Introduction

Millar Merrigan has been engaged by NBA Group Pty Ltd to formulate a preliminary stormwater management strategy to inform the formation of the Rosedale East Development Plan. This report has been completed based on Council's request for an integrated approach across the whole site and in consideration of work being completed by the West Gippsland Catchment Management Authority (WGCMA) on flooding and land subject to inundation within Rosedale.

The Best Practice Environmental Management Guidelines for Urban Stormwater (BPEMG) ensure the goals and purpose of water quality measures are aimed to improve the environment for flora, fauna and the people that exist within it. The objectives outlined in *Table 1* are proposed to be met using varying WSUD elements throughout the site. Detailed design of water quality measures during preparation of engineering plans will ensure that TP, TN, TSS and Gross Pollutants reduction targets will be met.

Table 1 – Pollutant Reduction Objectives

	Reduction from typical urban load
Total Suspended Solids (TSS)	80%
Total Phosphorus (TP)	45%
Total Nitrogen (TN)	45%
Gross Pollutants	70%

LiDAR level information has been sourced by Millar Merrigan and indicates the undulating terrain within the property. This is the same data used by the WGCMA, Cardno and Water Technology for modelling of the Rosedale area. Based on this data, the site has been split into sub-catchments which have each been analysed to size required features.

The following documents have been considered when compiling this report:

- Flood Study Report – Mill Lane Rosedale (Water Technology, 2017)
- Best Practice Environmental Management Guidelines for Urban Stormwater (CSIRO 1999) (BPEMG)
- WSUD Engineering Procedures: Stormwater (CSIRO 2005) (EPS)
- Australian Runoff Quality (Engineers Media 2006) (ARQ)
- Melbourne Water Land Development Manual
- Wellington Shire Planning Policies
- Wellington Shire Design Guidelines
- Austroads Guide to Road Design Part 5 (2013)
- MUSIC User Guidelines Version 6

---

## 2 Proposed Strategy

A meeting was held between the NBA Group, Millar Merrigan representatives and Council on 29 April 2015 to discuss the proposed stormwater management strategy. In the meeting the use of the north-south alignment of Mill Lane for stormwater treatment, conveyance and pedestrian access was discussed. This was identified as an opportunity to improve existing site conditions and the overall Rosedale drainage network. The concept has also been discussed with Adam Dunn of the WGCMA (21/4/2016) who has raised no objections to the proposal, subject to detailed design. These works could be staged with adjacent land owners required to construct the proposed works along Mill Lane as a condition of permit.

Further work has been undertaken as a result of consultation with Council and WGCMA. Flood modelling has been completed by Water Technology (Appendix F) which further strengthens the justification for the following proposal.

The draft subdivision layout used to inform this report can be found as Appendix A – Proposed Plan of Subdivision.

### 2.1 Existing conditions

The Rosedale East Development Plan area directly abuts the Latrobe River flood plain with the north-south alignment of Mill Lane conveying major flows around the Rosedale CBD. The drainage channel within the Mill Lane Road Reserve carries large volumes of flow at high velocities and at significant depth. The limitations of this conveyance and the low lying section of the east-west alignment of Mill Lane result in areas within the Development Plan area which are subject to inundation. The extent of these areas is currently under review as part of the Rosedale Flood Study, to be completed in July 2016. Initial WGCMA advice can be found in Appendix B.

There is limited formalised drainage within the Development Plan area. Properties along the western extent of the subject area connect to existing drainage in Lyons and Nelson Streets. The single dwelling within in 38 Mill Lane, has no formal drainage discharge point.

### 2.2 Detention

Due to the site's proximity to the Latrobe River flood plain, no end of line detention has been proposed. The improved conveyance of flows through and from the site will reduce the areas subject to inundation upstream. No noticeable changes to flood levels are anticipated due to the size of the Latrobe River flood plain and the contributing catchment as shown by the modelling completed by Water Technology (Appendix F). Due to the size of the lots, tanks may use to provide additional flood mitigation and flow routing benefits subject to Council requirements. It is proposed that tanks of 10kL volume be provided on each lot with 5kL of detention provided in each.



## 2.3 Water quality

The WSUD proposal for this project will ensure the development plan area improves the quality and conveyance of stormwater runoff water from and through the site. This is in accordance with discussions with the responsible authority and targets a reduction in the levels of nitrogen, phosphorus and total suspended solids in runoff to downstream receiving waters.

Functional design drawings have been prepared by Millar Merrigan as part of the preliminary design process.

### **Pool and riffle**

Pool and riffle treatments allow conveyance of major storm events as well as providing improved water quality outcomes and oxygenation. They protect water quality by trapping sediments and retaining excess nutrients and other pollutants such as heavy metals. The proposed pool and riffle will protect the receiving waterway from the problems of nutrient overload by removing the excess nutrients, some of which are taken up and used by plants. Pool and riffle systems provide varied habitat for aquatic species.

## 2.4 Overland Flow Paths

The below figure, Figure 1, shows the proposed flow paths for the development. Due to the large volume of flow from the external catchment, the volume of water discharged overland onto neighbouring properties will not be dramatically different to pre-developed flows.



Figure 1 - Overland Flow Paths

Due to the sensitive nature of the site with regard to inundation, critical sections have been prepared for critical overland flow paths. In all instances, a depth and velocity safety criteria have been met as per Appendix C – 19414E 00 RH - 100 Year Catchment Plan & Typical Sections.

## 2.5 External Catchments

Immediately to the south of the Rosedale East Development Plan area, there is a confluence of major flows. Based on data from the Rosedale Flood Study provided by the WGCMA and Water Technology, a flow rate of  $10.6\text{m}^3/\text{s}$  has been used for preparing this strategy. Below the raw output from modelling can be seen.



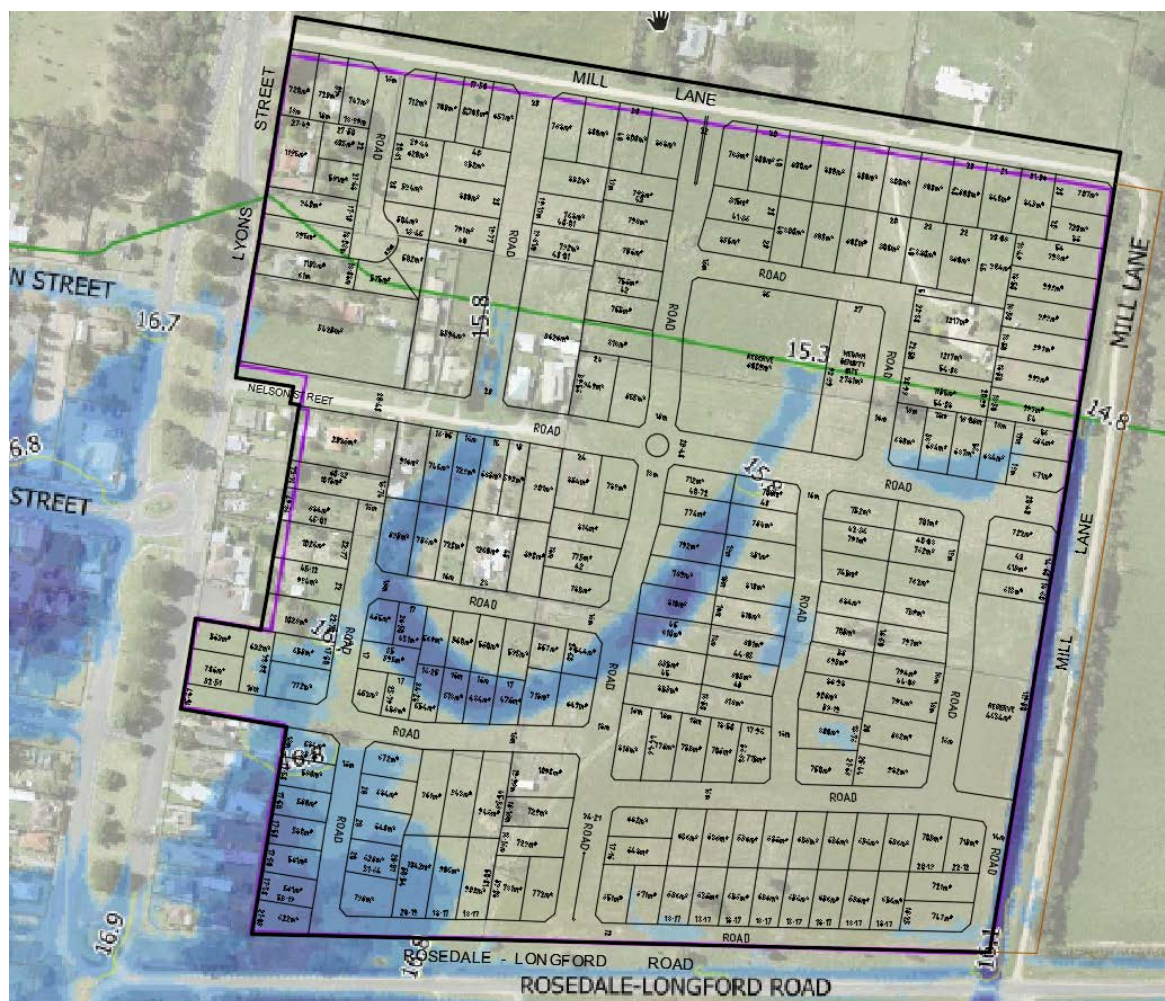


Figure 2 – Water Technology Modelling of External Catchment Flows

Existing road reserves to the north of Mill Lane have been utilised to provide outlet to Blind Joes Creek. A typical section for the outlet to Blind Joes creek can be seen below.

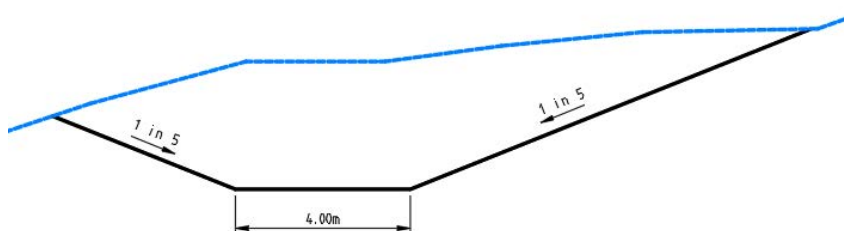


Figure 3 – outlet to Blind Joes Creek

## 2.6 LSIO Area

There is an existing LSIO and FO area within the subject site which is currently under review as part of the Rosedale Flood Study. It is suggested that the LSIO and FO be removed as part of this review with the flood mitigation measures proposed in this report as a justification.

It is proposed that the areas below the calculated flood level of 16.1m AHD (inclusive of 300mm freeboard) be filled as per the 19414E 00 Preliminary Fill Plan provided as Appendix D to this report and summarised overleaf.

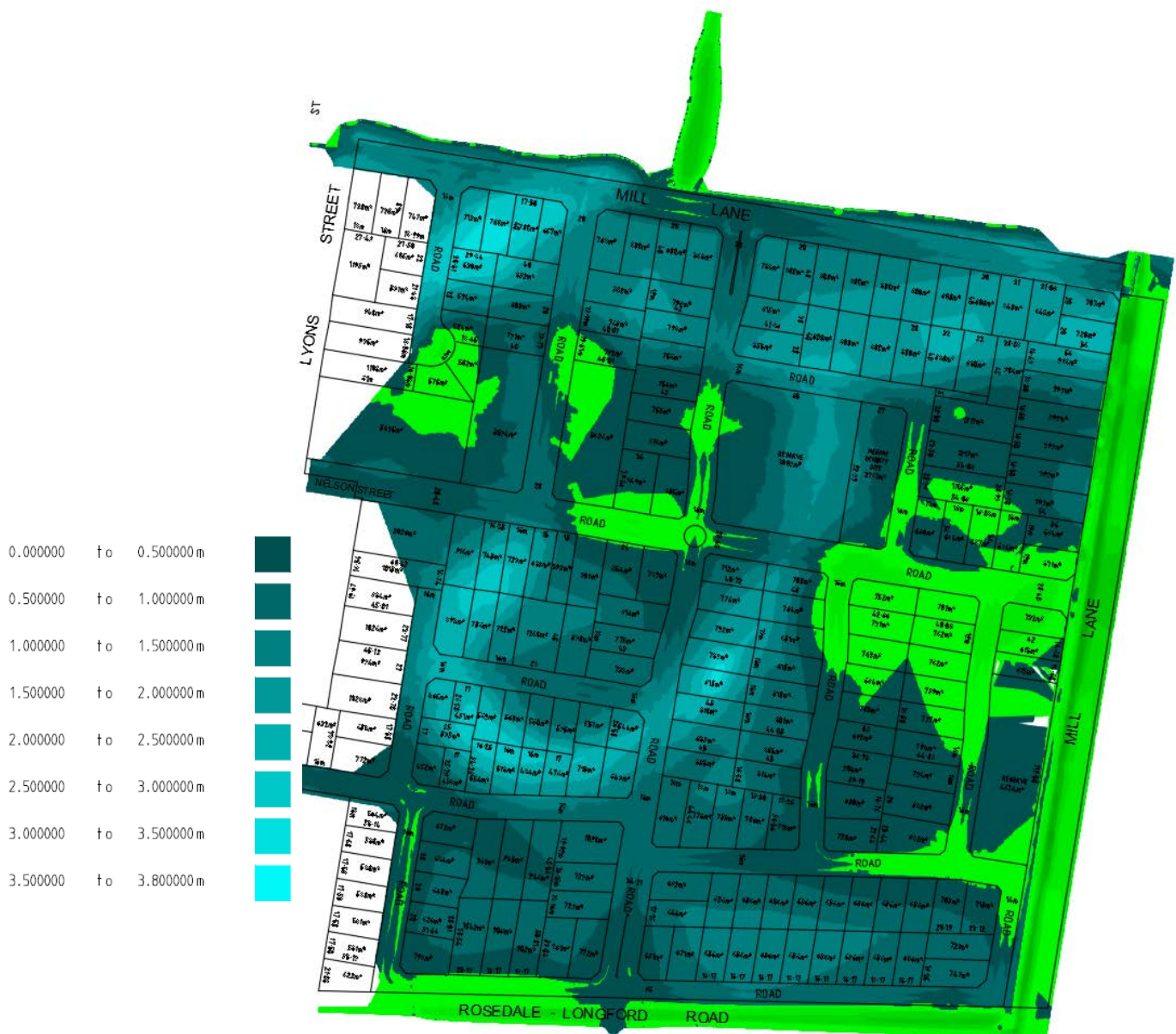


Figure 4 – Preliminary Fill Plan



Light green areas represent those areas of cut with dark green representing fill.

This proposal has been modelled by Water Technology and produces a developed conditions model as presented overleaf. The detailed analysis can be found as Appendix F to this report and demonstrates zero afflux as part of this proposal.

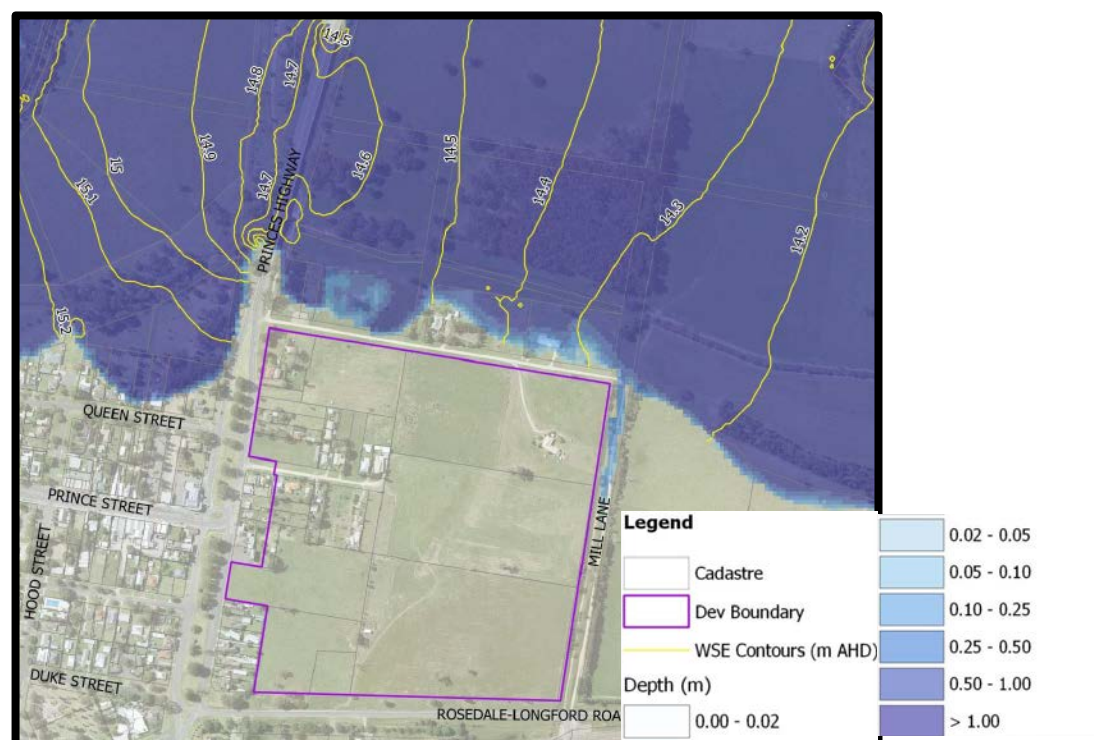


Figure 5 – Developed Conditions Model

In the event that the LSIO is not removed, controls can be provided in line with the above as a function the detailed design phase.

### 3 Staging

The Rosedale East Development Plan has been prepared to allow for the staging of works. with specific regard to the staging of stormwater assets, the following summary is provided:

Stage	Description of works
First stage of development	Construction of eastern outlet to Blind Joe's Creek
Development of any parcel adjacent to Mill Lane (east-west)	Construction of western outlet to Blind Joe's Creek
Development of any parcel adjacent to Mill Lane (north-south)	Construction of proposed channel to provide a free draining outlet to Blind Joe's Creek

	Landscaping of channel directly abutting the property to be developed
Development of any stage adjacent to Rosedale-Longford Road	Regrading of table drain to provide free draining outlet to north-south alignment of Mill Lane
Any stage creating access to Rosedale-Longford Road	Crossing of the table drain within Rosedale-Longford Road such that flows are not inhibited in any way.
ALL STAGES	Filling of LSIO areas within the stage area

Staging of works is to be as per the above unless written agreement is provided by the Responsible Authority.

## 4 Engineering Maintenance Plan

The following maintenance plan for the WSUD features proposed in the ultimate design is intended to be read in conjunction with the Works on *Waterway Management Plan* to be prepared by Millar Merrigan during the detailed design phase. This details the landscape maintenance requirements. A combined *Opinion of Probable Costs* for engineering and landscape maintenance is to be provided in a separate document once designs are finalised

### 4.1 Pool and Riffle

Weeding, planting and debris removal are the dominant tasks when it comes to maintaining vegetation quality and appropriate flow conditions but the pool and riffle needs to be protected from high loads of sediment and debris from the various inlets. Removal of sediment will need to be carried out to ensure that discharge quality to the pool and riffle is maintained. Areas can be set aside for sediment drying as part of the detailed design phase.

The first two years post construction is when weed removal and replanting is most important. Refer to the Waterway Management Plan for planting and vegetation maintenance schedule. Similarly during this time sediment loads can affect plant growth and must be monitored, particularly following large rainfall events. The outlet and inlet structures of the wetland and retarding basin are of critical importance to the health and performance of the pool and riffle and must also be checked after large rainfall events.

Routine maintenance should be undertaken immediately following construction, quarterly in the first 24 months and every 6 months following. The WSUD Maintenance Checklist in *Appendix E* (sourced from *WSUD Engineering Procedures 2005*) should be adhered to. Records of all inspections should be kept for future reference. A copy of all inspection records must be forwarded to Council within one calendar month of each inspection together with advice of all remedial actions to be taken as a result of the inspection.

From time to time it may be necessary to drain the pools to perform maintenance. This is to be carried out during times where minimal rain is forecast and weather conditions will not adversely impact vegetation when permanent water areas are to be drained/pumped out to the adjacent creek.

#### **4.2 Downstream flow path**

As part of the construction of the new flow conveyance, it will be important to ensure the integrity and maintenance of the downstream flow path. Due to its current rural use and short length to the Latrobe River flood plain and Blind Joes Creek, this is not seen as a concern. Specific reference will need to be made to low flow events as part of the detailed design plans.



---

## 5 Conclusion & Recommendations

The responsible authorities for local drainage are West Gippsland Catchment Management Authority (WGCMA) and Wellington Shire Council. Design approval from Wellington Shire Council and WGCMA will be required prior to commencement of the drainage works.

Initial feasibility advice from the West Gippsland Catchment Management Authority shows a proportion of the site is subject to inundation. The advice from the WGCMA at the time of this report suggest that this can be mitigated by increasing conveyance of flows through the site and along Mill Lane to the north.

The Preliminary Stormwater Management Strategy for the site has been prepared based the above and modelling completed by Water Technology and with the intent of improving water quality, flow regimes and safety of the major table drain within the north-south alignment of Mill Lane.

The key features of this strategy can be summarised as follows:

- Modify the table drain along its north-south alignment of Mill Lane to allow for a widened flow conveyance and treatment functions whilst maintaining the current features of the road reserve cross section.
- Construct Mill Lane along the east-west alignment to a level protecting the site from inundation associated with the Latrobe River flood plain.
- Provide an overland flow path along major internal north-south road
- Fill areas of inundation to ensure appropriate freeboard
- Specify tanks on all blocks for flow routing in minor storm events

The implementation of the drainage strategy outlined above will allow water quality (BPEMG) and flow regime objectives to be met as part of the detailed design process. Millar Merrigan have compiled a sample maintenance plan and waterway management plan to ensure the longevity of these systems.

---

## **Appendix A – Proposed Plan of Subdivision**

---

## **Appendix B – Preliminary WGCMA Advice**



---

## Appendix C – 100-year ARI Catchment Plan & Typical Cross Sections