

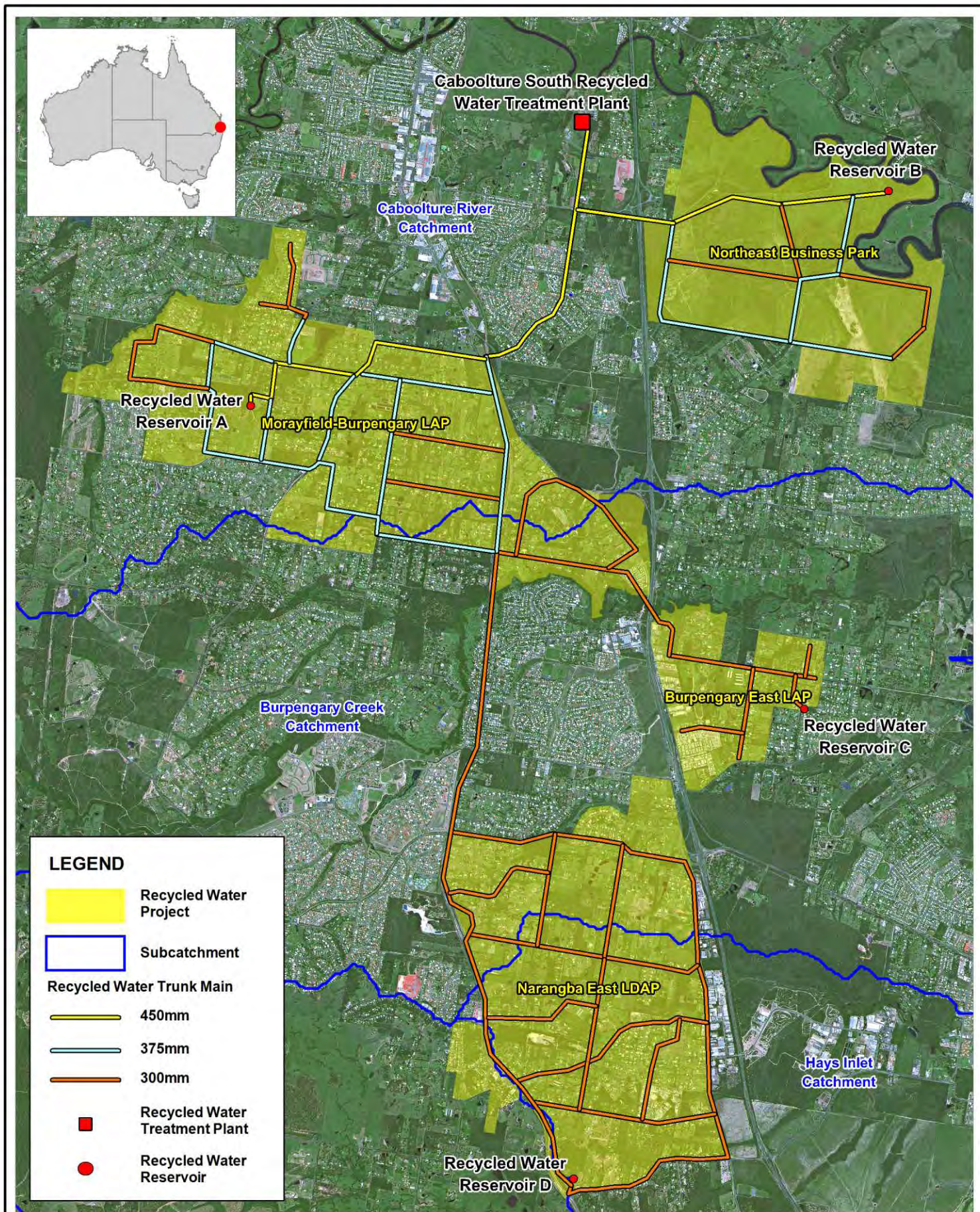
APPENDIX F:

CONCEPT DESIGNS FOR PREFERRED SCENARIOS (BASED ON MCA)



APPENDIX F: CONCEPT DESIGNS FOR PREFERRED SCENARIOS (BASED ON MCA)

Figure F- 1	Caboolture River Catchment Recycled Water Concept Design	F-2
Figure F- 2	CIGA Catchment Recycled Water Concept Design	F-3
Figure F- 3	Hays Inlet Catchment Recycled Water Concept Design	F-4
Figure F- 4	CIGA Catchment Recycled Water Concept Design	F-5
Figure F- 5	Burpengary Catchment Stormwater Harvesting Schemes	F-8
Figure F- 6	Caboolture Catchment Stormwater Harvesting Schemes	F-9
Figure F- 7	Hays Inlet Catchment Stormwater Harvesting Schemes	F-10
Figure F- 8	Lower Pine Catchment Stormwater Harvesting Schemes	F-11
Figure F- 9	Wetland Typical Sections	F-12
Figure F- 10	Bioretention Basin Typical Section	F-13
Figure F- 11	Burpengary Catchment Proposed Wetland and Bioretention Basin Sites	F-14
Figure F- 12	Burpengary Catchment Proposed Wetland and Bioretention Basin Sites (continued)	F-15
Figure F- 13	Caboolture Catchment Proposed Wetland and Bioretention Basin Sites	F-16
Figure F- 14	Caboolture Catchment Proposed Wetland and Bioretention Basin Sites (continued)	F-17
Figure F- 15	Caboolture Catchment Proposed Wetland and Bioretention Basin Sites (continued)	F-18
Figure F- 16	Hays Inlet Catchment Proposed Wetland and Bioretention Basin Sites	F-19
Figure F- 17	Lower Pine Catchment Proposed Wetland and Bioretention Basin Sites	F-20
Figure F- 18	Lower Pine Catchment Proposed Wetland and Bioretention Basin Sites (continued)	F-21
Figure F- 19	Burpengary Creek Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-22
Figure F- 20	Caboolture River Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-23
Figure F- 21	CIGA Catchment Waterway Rehabilitation	F-24
Figure F- 22	Hays Inlet Catchment Waterway Rehabilitation	F-25
Figure F- 23	Lower Pine Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-26
Figure F- 24	Pumicestone Passage Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-27
Figure F- 25	Sideling Creek Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-28
Figure F- 26	Stanley River Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-29
Figure F- 27	Upper Pine Catchment Waterway Rehabilitation and Rural BMPs for Grazing	F-30



Title:

Caboolture River Catchment Recycled Water Concept Design

Figure:

F-1

Rev:

A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

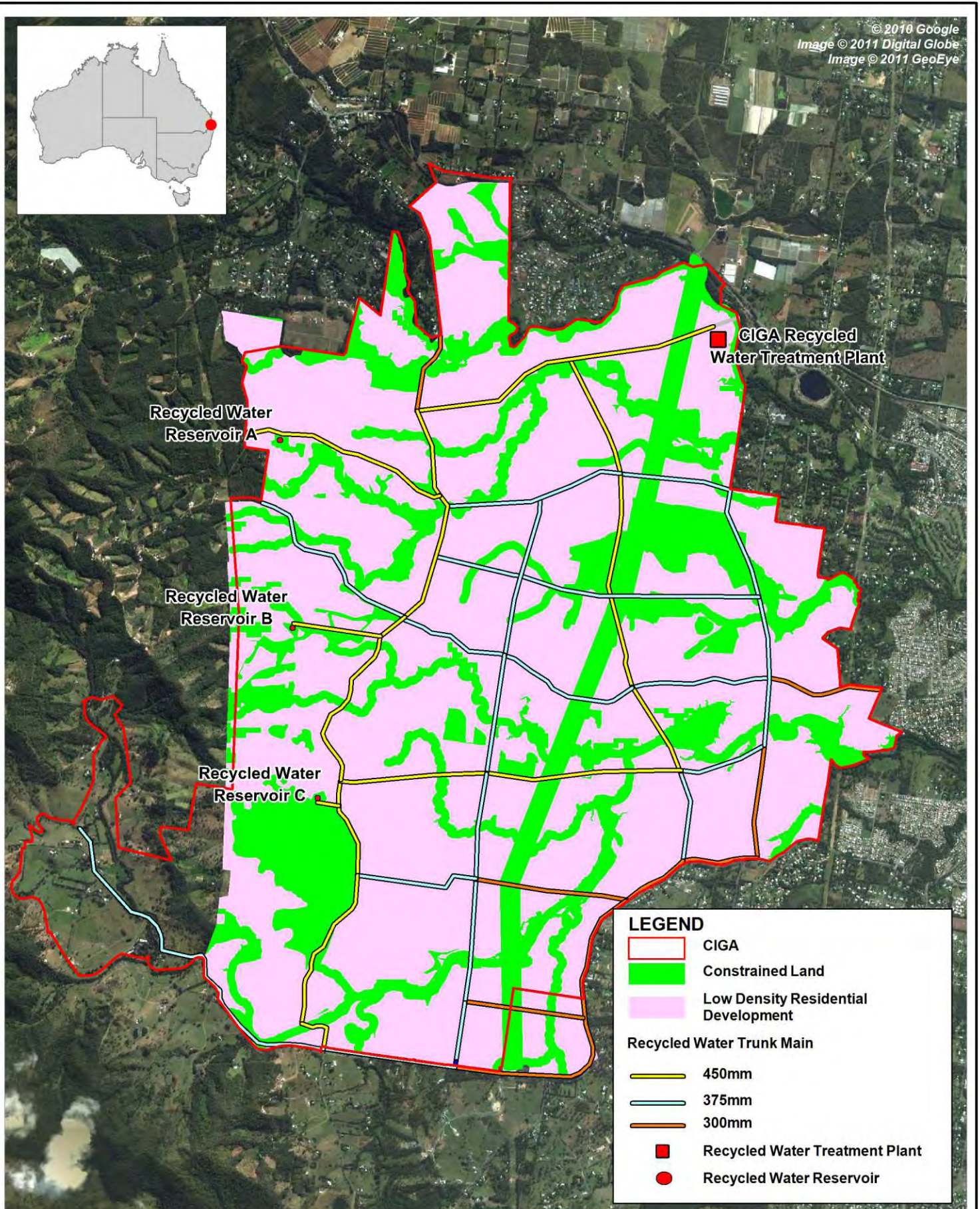


0 1 2km
Approx. Scale





© 2010 Google
Image © 2011 Digital Globe
Image © 2011 GeoEye

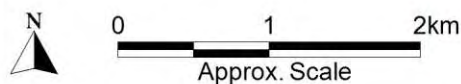


Title:
CIGA Recycled Water Concept Design

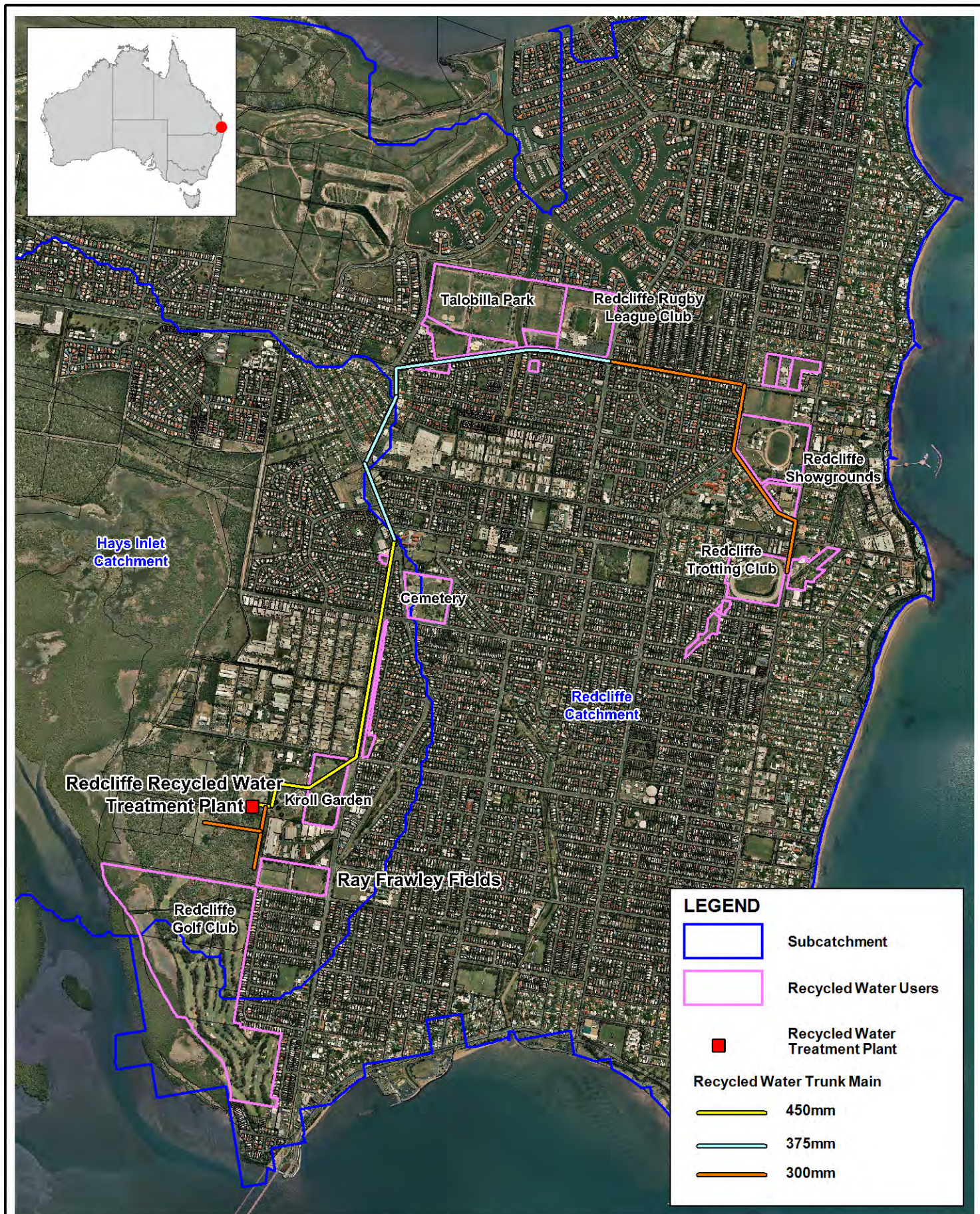
Figure:
F-2

Rev:
A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_047_120130_CIGA RW Concept.wor



Title:
Hays Inlet Catchment Recycled Water Concept Design

Figure:
F-3

Rev:
A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 0.5 1km
Approx. Scale





LEGEND

- Subcatchment
- Recycled Water Trunk Main
 - 750mm
 - 450mm
- Recycled Water Treatment Plant

Title:

Lower Pine River Catchment Purified Recycled Water Concept Design

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 1 2km
Approx. Scale

Figure:

F-4

Rev:

A



Stormwater Harvesting - Revised Performance

In December 2012, Council identified that some opportunities identified for stormwater harvesting were no longer viable, due to granted Development Approvals. Table F1 below provides a summary of the land use characteristics for the revised adopted stormwater harvesting schemes in each catchment (shown in Figure F- 5 to Figure F- 8).

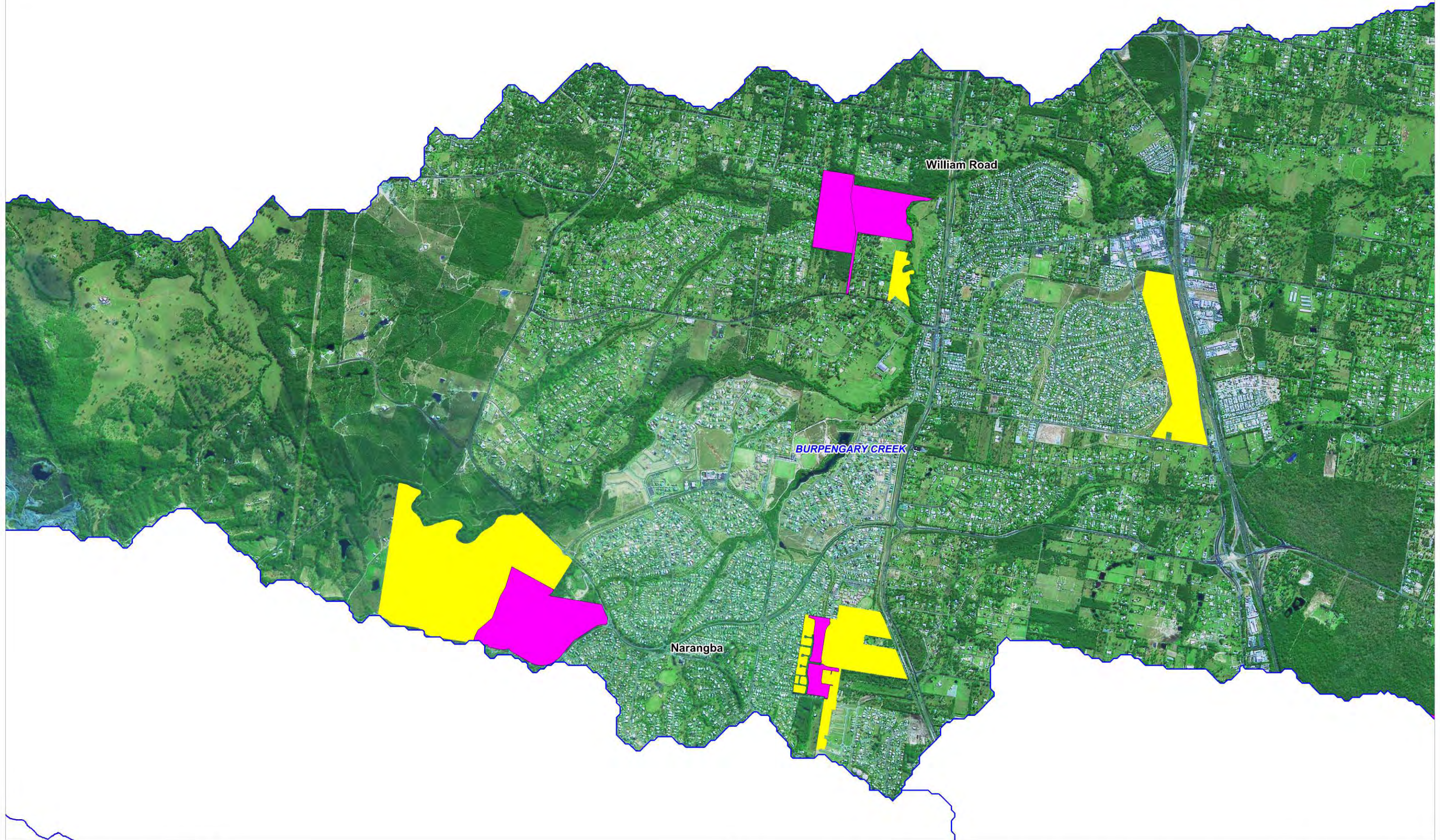
A summary of the performance of the revised adopted stormwater harvesting schemes is outlined in Table F2.

Table F1 – Landuse Summary of Revised Stormwater Harvesting Schemes


Catchment	Scheme ID	Land Use Area (ha)			
		Low Density	Medium Density	Industrial	Open Space Estimate
Caboolture	Caboolture Industrial			130	
	Morayfield	32			3
Subtotal		32	0	130	3
Burpengary	William Road	40			4
	Narangba	57			6
Subtotal		97	0	0	10
Hays Inlet	Northlakes	16		166	2
	Mango Hill	89	45		13
Subtotal		105	45	166	15
Lower Pine	Strathpine		40		4
	Warner	36	17	44	5
Subtotal		36	57	44	9

Table F2 – Performance of Revised Stormwater Harvesting Schemes

Performance Indicator	Catchment			
	Caboolture	Burpengary	Hays Inlet	Lower Pine
NPV (\$2011) ¹	\$6,220,046	\$7,699,158	\$10,536,025	\$7,886,428
CAPEX	\$4,424,420	\$5,694,731	\$7,588,304	\$5,771,628
Annual OPEX	\$175,797	\$200,108	\$285,173	\$205,583
Potable Water Savings (ML/yr)	77	61	170	94
Total Water Savings (ML/yr)	87	89	170	121
Pollutant Load Reduction				
TSS (kg/yr)	13,096	13,514	25,619	18,252
TN (kg/yr)	158	163	309	220
TP (kg/yr)	29	30	58	41
Levelised Cost				
Stormwater (\$/kL)	\$6.25	\$7.50	\$5.41	\$5.69
TSS (\$/kg)	\$24	\$28	\$21	\$22
TN (\$/kg)	\$1,970	\$2,363	\$1,706	\$1,792
TP (\$/kg)	\$10,578	\$12,688	\$9,159	\$9,623



LEGEND

-  Subcatchments
-  Stormwater Harvesting Schemes
-  Opportunities No Longer Viable

Title:
Burpengary Catchment Stormwater Harvesting Schemes

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



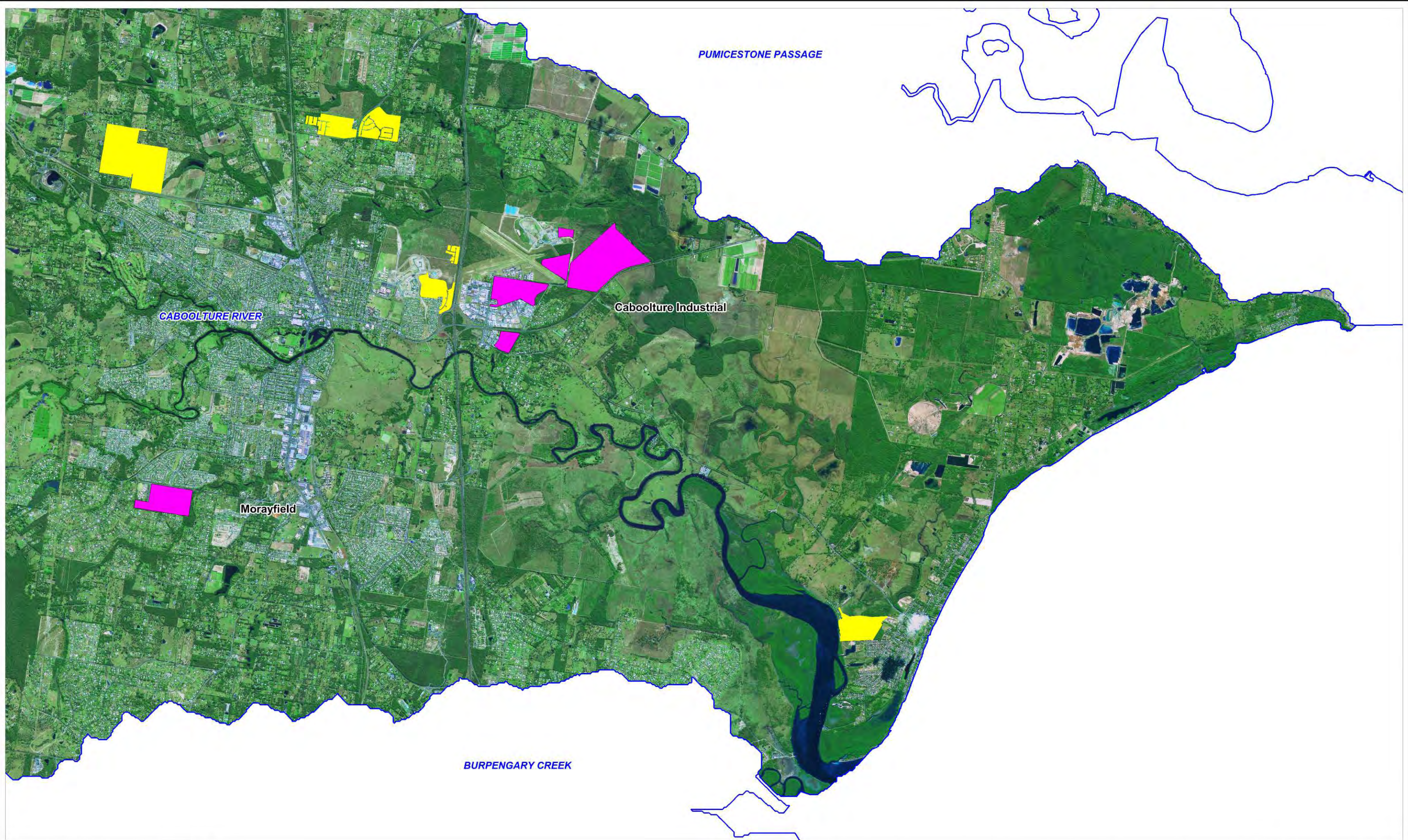
0 0.5 1km
Approx. Scale

Figure:
F-5

Rev:
A



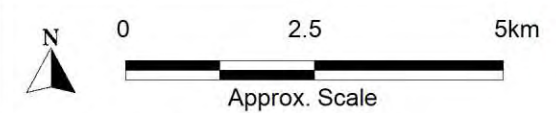
Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_055_120202 Burpengary SWH.wor



- LEGEND**
-  Subcatchments
 -  Stormwater Harvesting Schemes
 -  Opportunities No Longer Viable

Title:
Caboolture Catchment Stormwater Harvesting Schemes

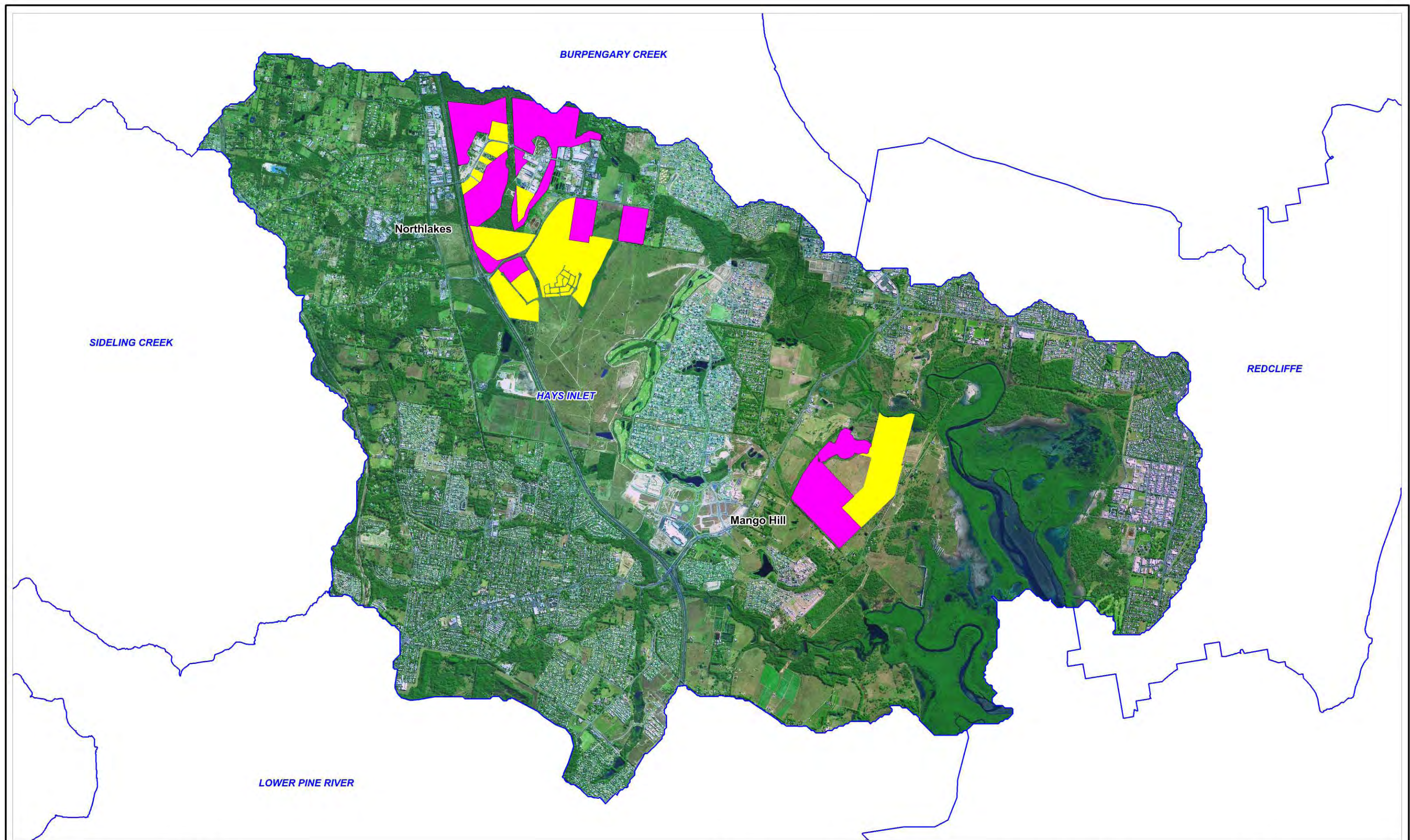
BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



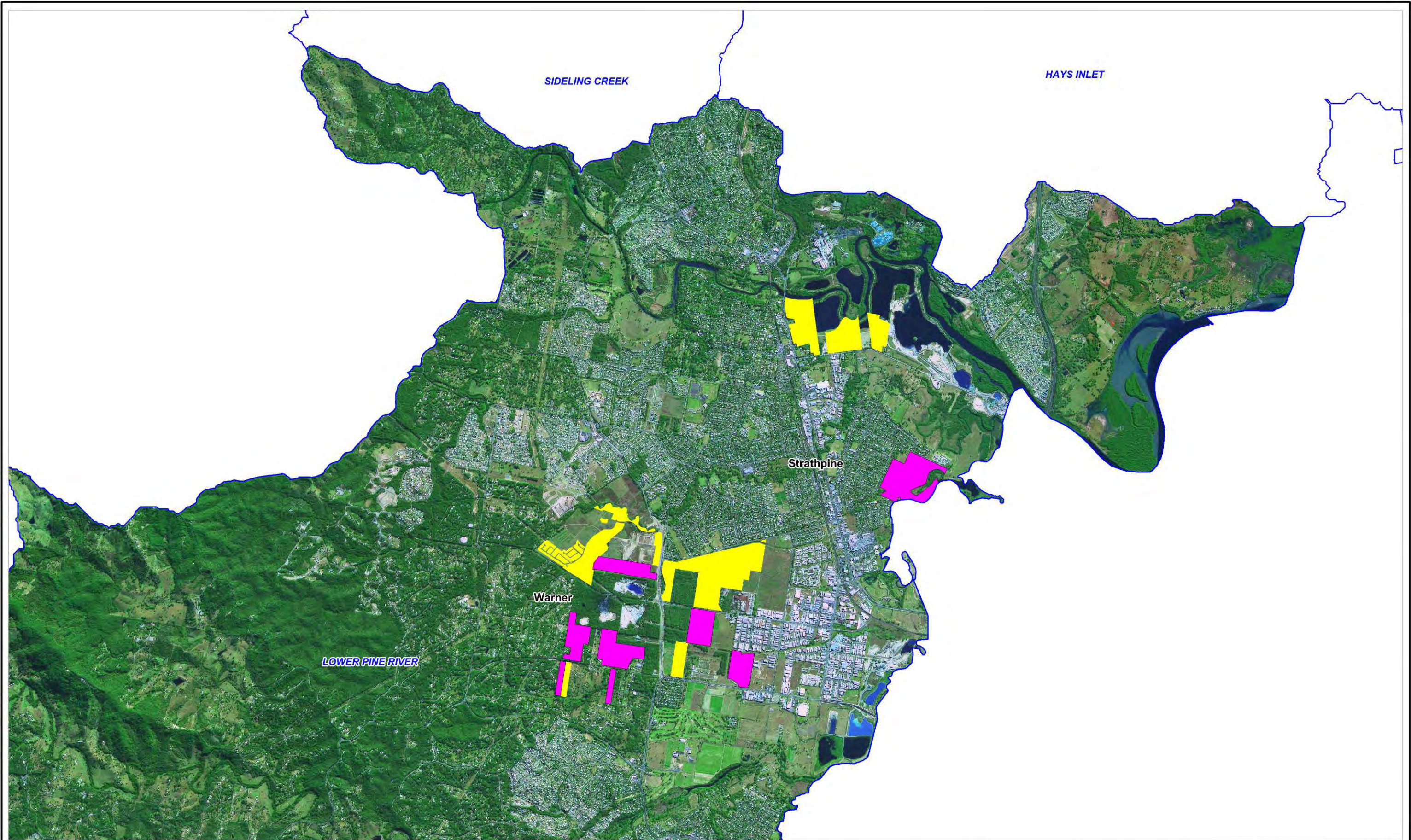
Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_054_120202 Caboolture SWH.wor

Figure: F-6	Rev: A
-----------------------	------------------








	<p>LEGEND</p> <ul style="list-style-type: none"> Subcatchments Stormwater Harvesting Schemes Opportunities No Longer Viable 	<p>Title: Hays Inlet Catchment Stormwater Harvesting Schemes</p> <p>BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.</p> <p>Figure: F-7</p> <p>Rev: A</p> <p>N 0 1.5 3km Approx. Scale</p> <p>Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_056_120202 Hays Inlet SWH.wor</p>	<p>BMT WBM www.bmtwbm.com.au</p>
--	--	---	---



LEGEND

-  Subcatchments
-  Stormwater Harvesting Schemes
-  Opportunities No Longer Viable

Title:

Lower Pine Catchment Stormwater Harvesting Schemes

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 1 2km
Approx. Scale

Figure:

F-8

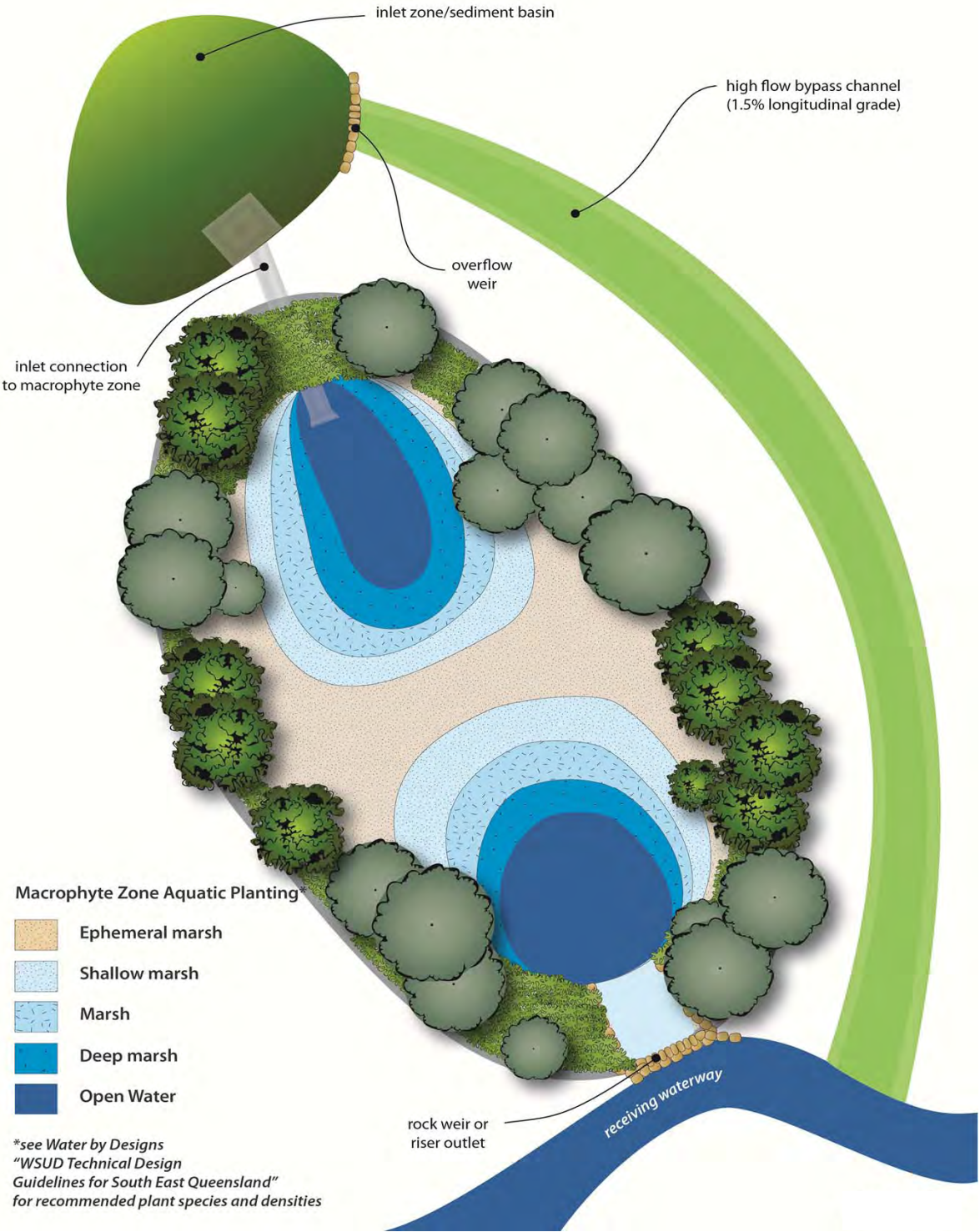
Rev:

A



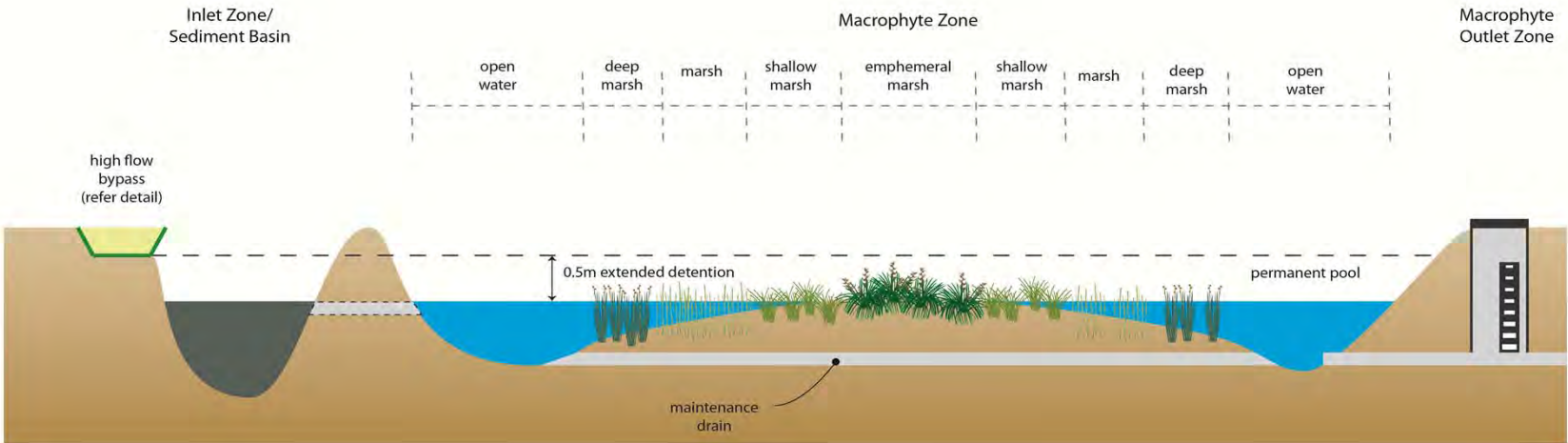
Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_057_120202 Lower Pine SWH.wor

Typical Wetland Layout - Plan View

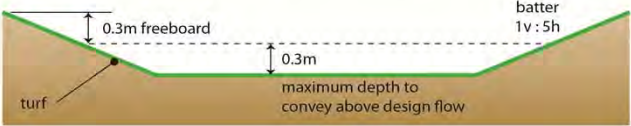


Not to Scale

Typical Wetland Longitudinal Section



Detail: Typical High Flow Bypass Channel Cross Section



Example Wetland - Northlakes



Title:
Typical Wetland Section and Plan View

Figure:
F-9

Rev:
A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



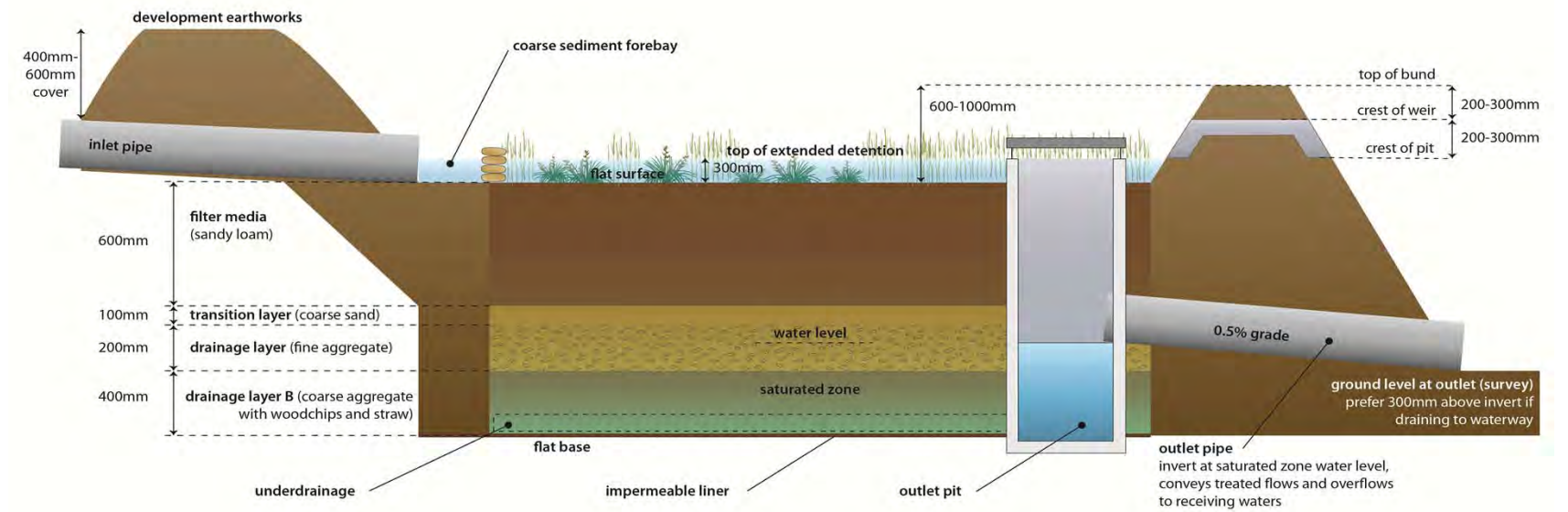
Filepath: I:\B18282_NJR_MBRC_Phase_2\PPT\WQU_002_020203 Wetland Layout XSection.ppt

Typical Bioretention Basin Layout - Plan View



Not to Scale

Typical Bioretention Basin Longitudinal Section



*adapted from Water by Design, 2009

Example Bioretention Basin - Northlakes



Title:
Typical Bioretention Section and Plan View

Figure:
F-10

Rev:
A

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath: I:\B18282_NJR_MBRC_Phase_2\PPT\WQU_003_020203 Bioretention Layout XSection.ppt



- LEGEND**
- Wetland Site
 - Bioretention Site
 - Waterway

Title:
Burpengary Creek Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_040_111124 Burpengary Creek Wetlands 1.wor

Figure:
F-11

Rev:
A

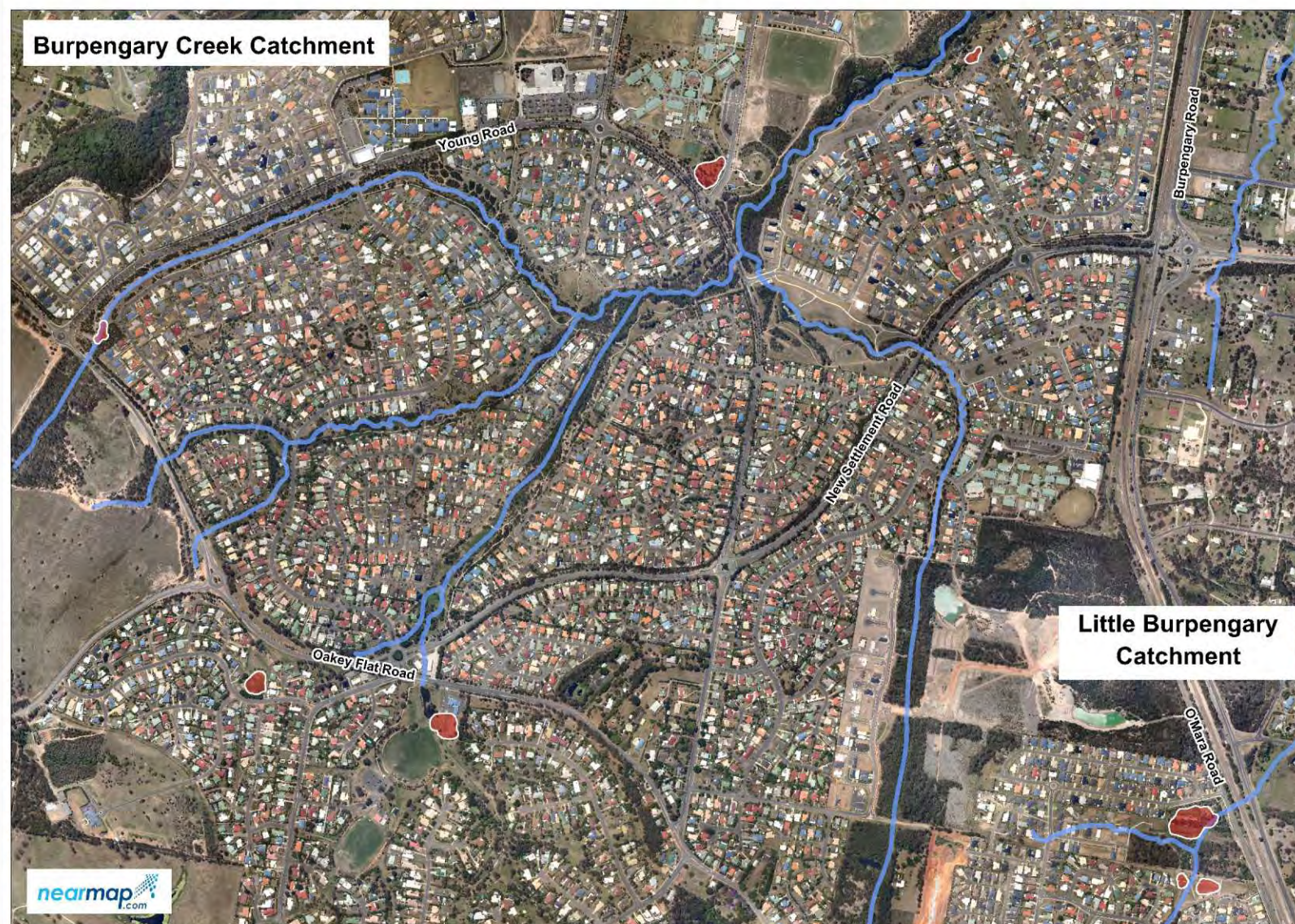




Little Burpengary Catchment



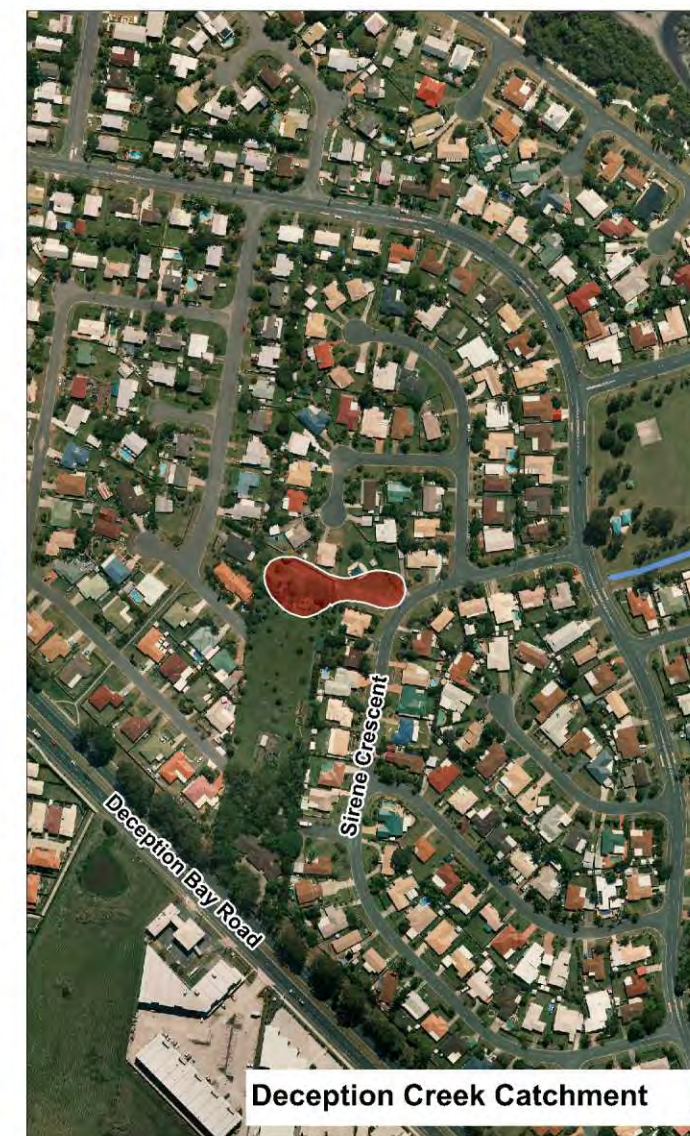
Little Burpengary Catchment



Little Burpengary Catchment



Little Burpengary Catchment



Deception Creek Catchment



LEGEND

- Wetland Site
- Bioretention Site
- Waterway

Title:

Burpengary Creek Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_041_111124 Burpengary Creek Wetlands 2.wor

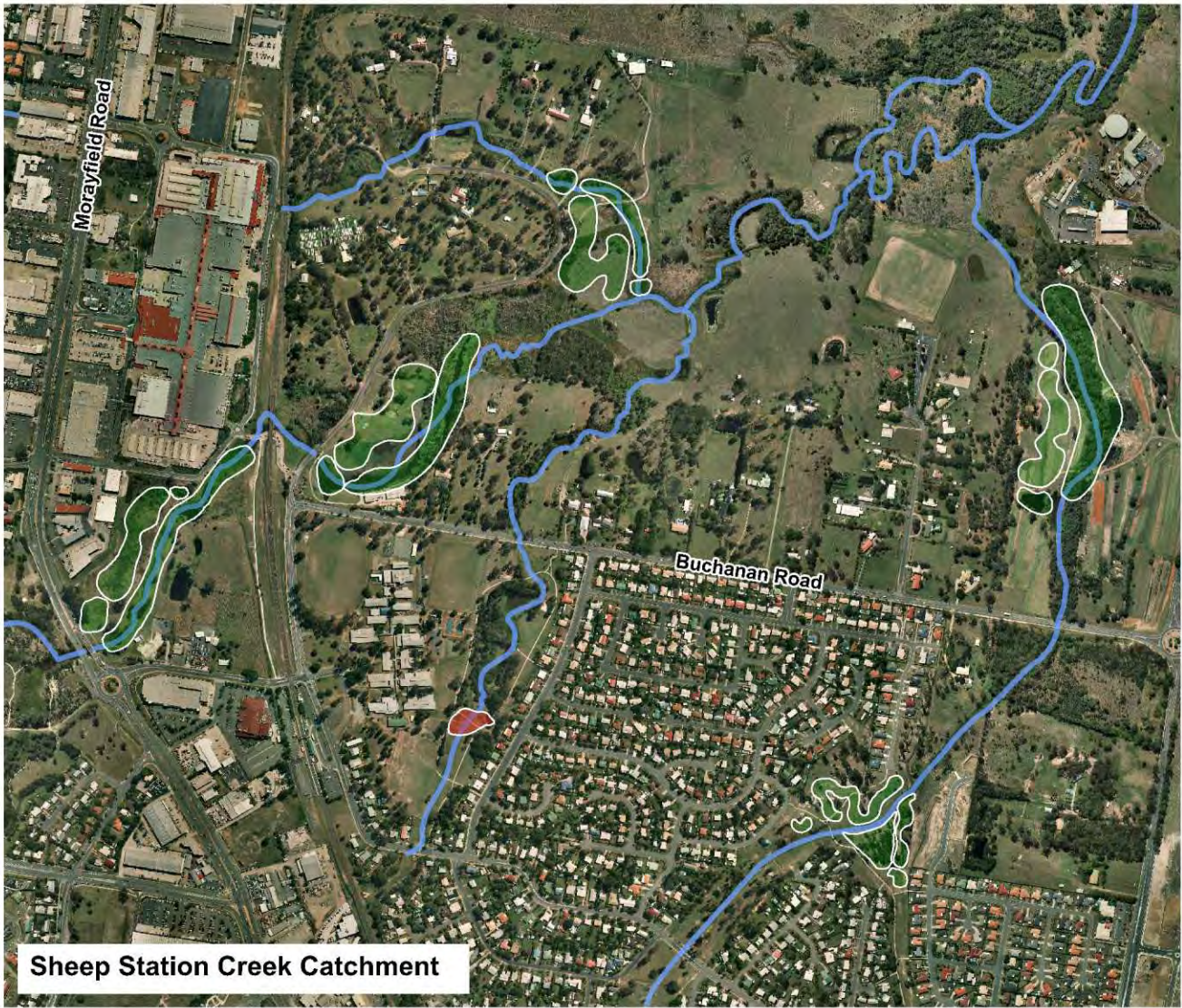
Figure:

F-12

Rev:

A





- LEGEND**
- Wetland Site
 - Bioretention Site
 - Waterway

Title:
Caboolture River Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_037_111124 Caboolture River Wetlands.wor

Figure:
F-13

Rev:
A





LEGEND

- Wetland Site
- Bioretention Site
- Waterway

Title:

Caboolture River Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Figure:

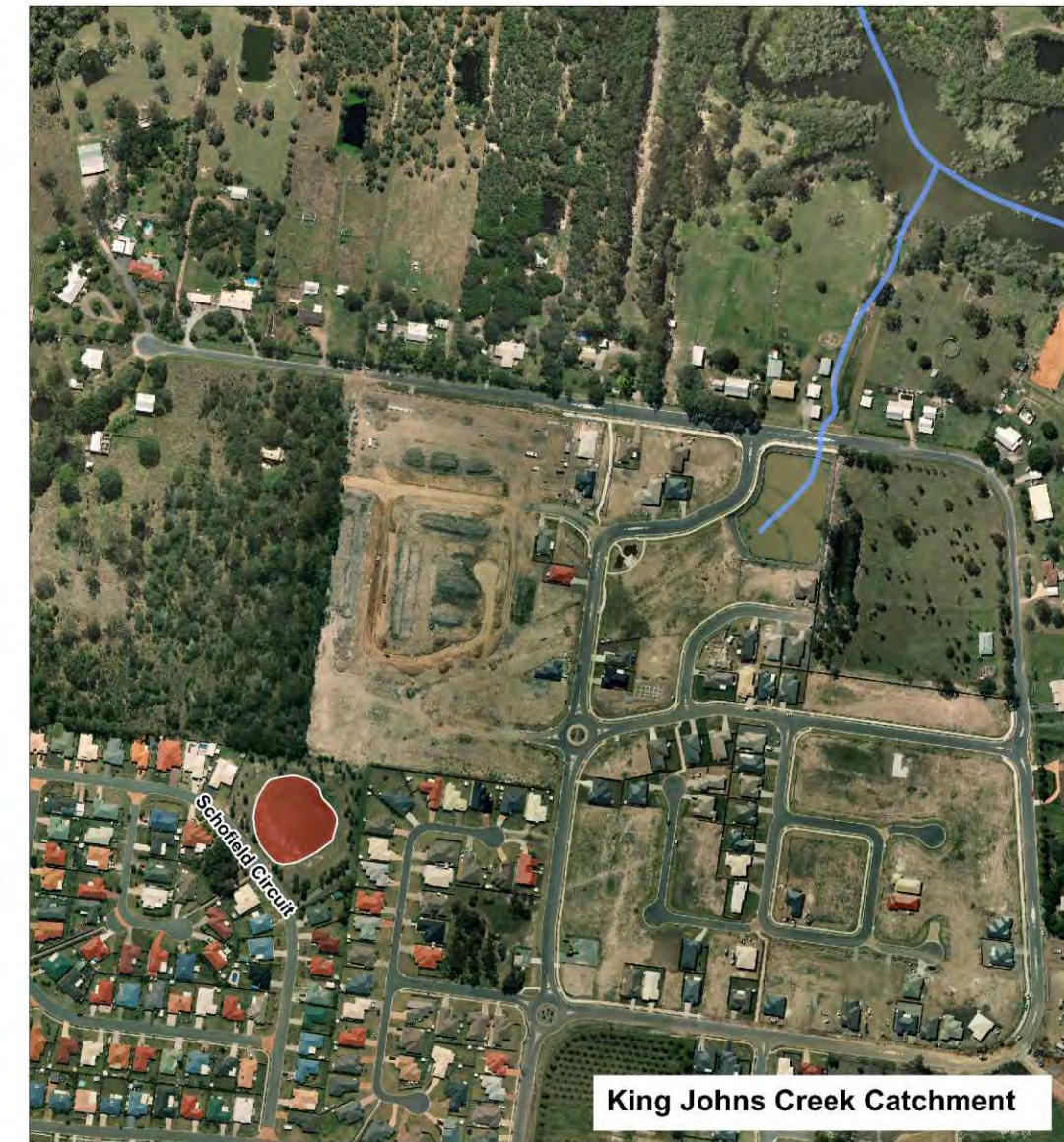
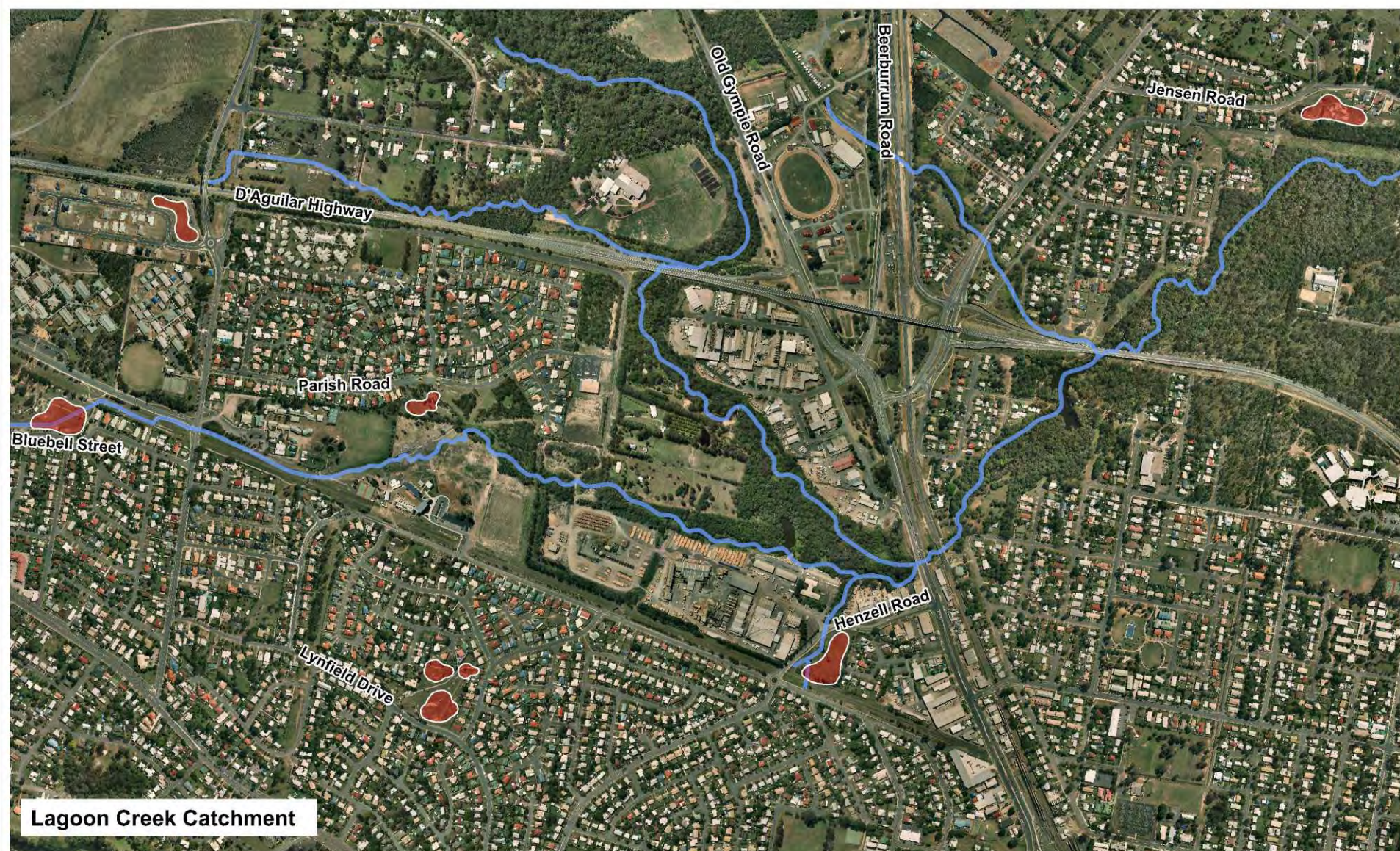
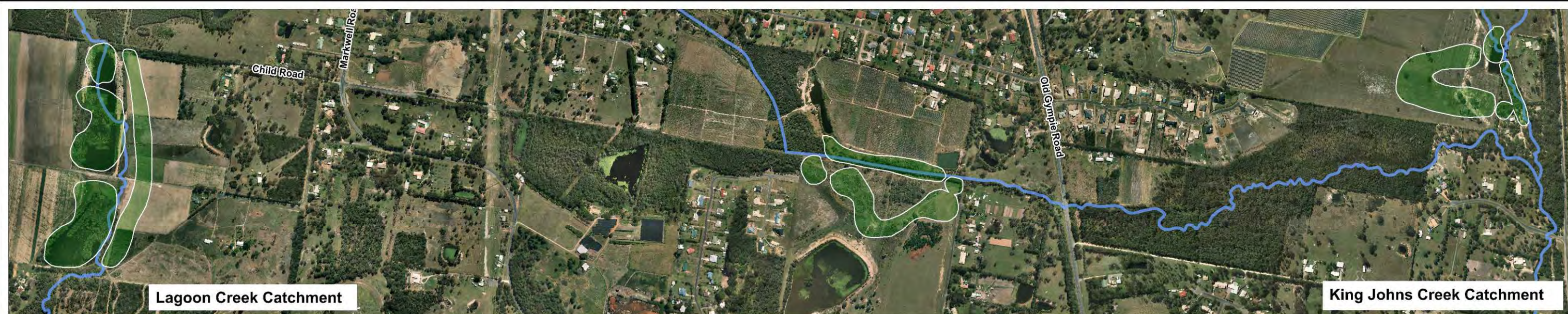
F-14

Rev:

A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_038_111124 Caboolture River Wetlands 2.wor



- LEGEND**
- Wetland Site
 - Bioretention Site
 - Waterway

Title:
Caboolture River Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_039_111124 Caboolture River Wetlands 3.wor

Figure:
F-15

Rev:
A





LEGEND

- Wetland Site
- Bioretention Site
- Waterway

Title:

Hays Inlet Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_051_120130 Hays Catchment Wetlands.wor

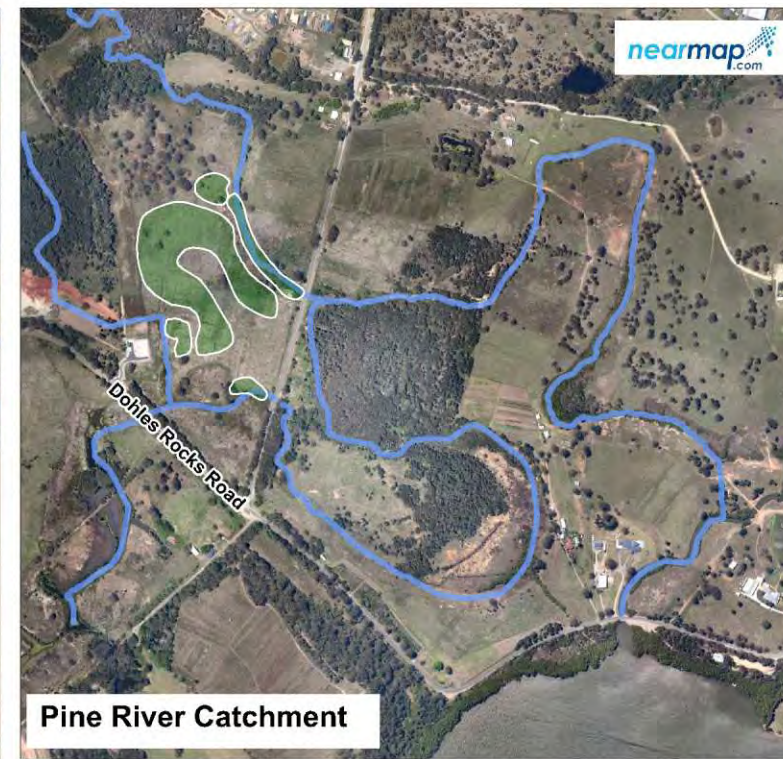
Figure:

F-16

Rev:

A





LEGEND

- Wetland Site
- Bioretention Site
- Waterway

Title:

Lower Pine Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_049_120130 Lower Pine Catchment Wetlands.wor

Figure:

F-17

Rev:

A





- LEGEND**
- Wetland Site
 - Bioretention Site
 - Waterway

Title:
Lower Pine Catchment Proposed Wetland and Bioretention Basin Sites

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

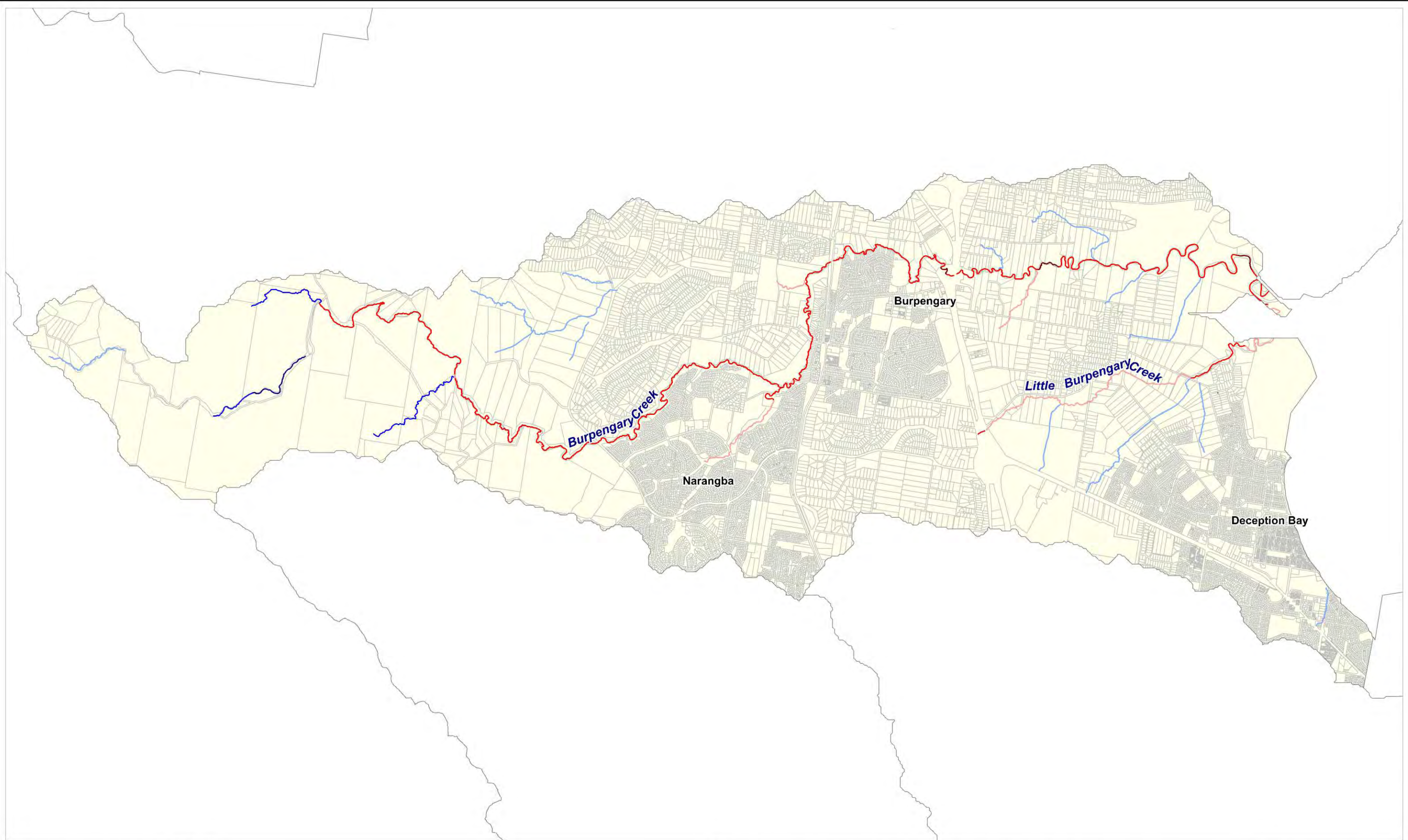


Figure:
F-18

Rev:
A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_052_120130 Lower Pine Catchment Wetlands 2.wor



LEGEND	
Rural Best Management Practice Grazing 1/2 Stream Order	Waterway Rehabilitation 3/4 Stream Order
High	High
Medium	Medium
Low	Low

Title:

Burpengary Creek Catchment Waterway Rehabilitation and Rural BMPs for Grazing

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

Approx. Scale

Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_031_111114 Burpengary Catchment.wor

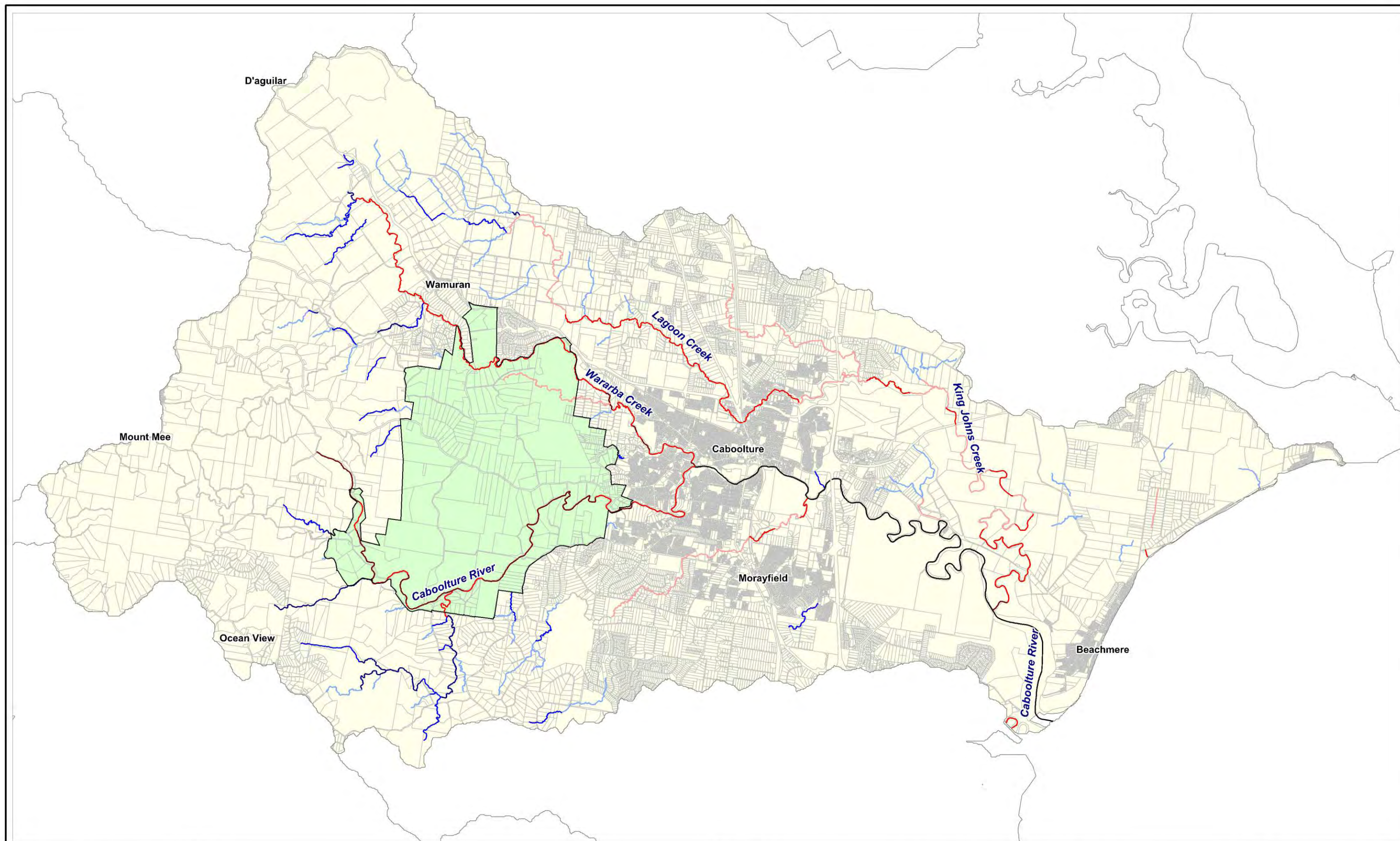
Figure:

F-19

Rev:

A

www.bmtwbm.com.au



	<p>LEGEND</p> <p>Rural Best Management Practice Grazing 1/2 Stream Order</p> <ul style="list-style-type: none"> High Medium Low <p>Waterway Rehabilitation 3/4 Stream Order</p> <ul style="list-style-type: none"> High Medium Low <p>5/6 Stream Order</p> <p>CIGA Boundary</p>	<p>Title: Caboolture River Catchment Waterway Rehabilitation and Rural BMPs for Grazing</p> <p>BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.</p> <p>Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_029_111114 Caboolture River.wor</p>	<p>Figure: F-20</p> <p>Rev: A</p> <p> BMT WBM www.bmtwbm.com.au</p>
--	--	--	--



LEGEND
Waterway
Rehabilitation
3/4 Stream Order

- High
- Medium
- Low

Title:
CIGA Waterway Rehabilitation

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.

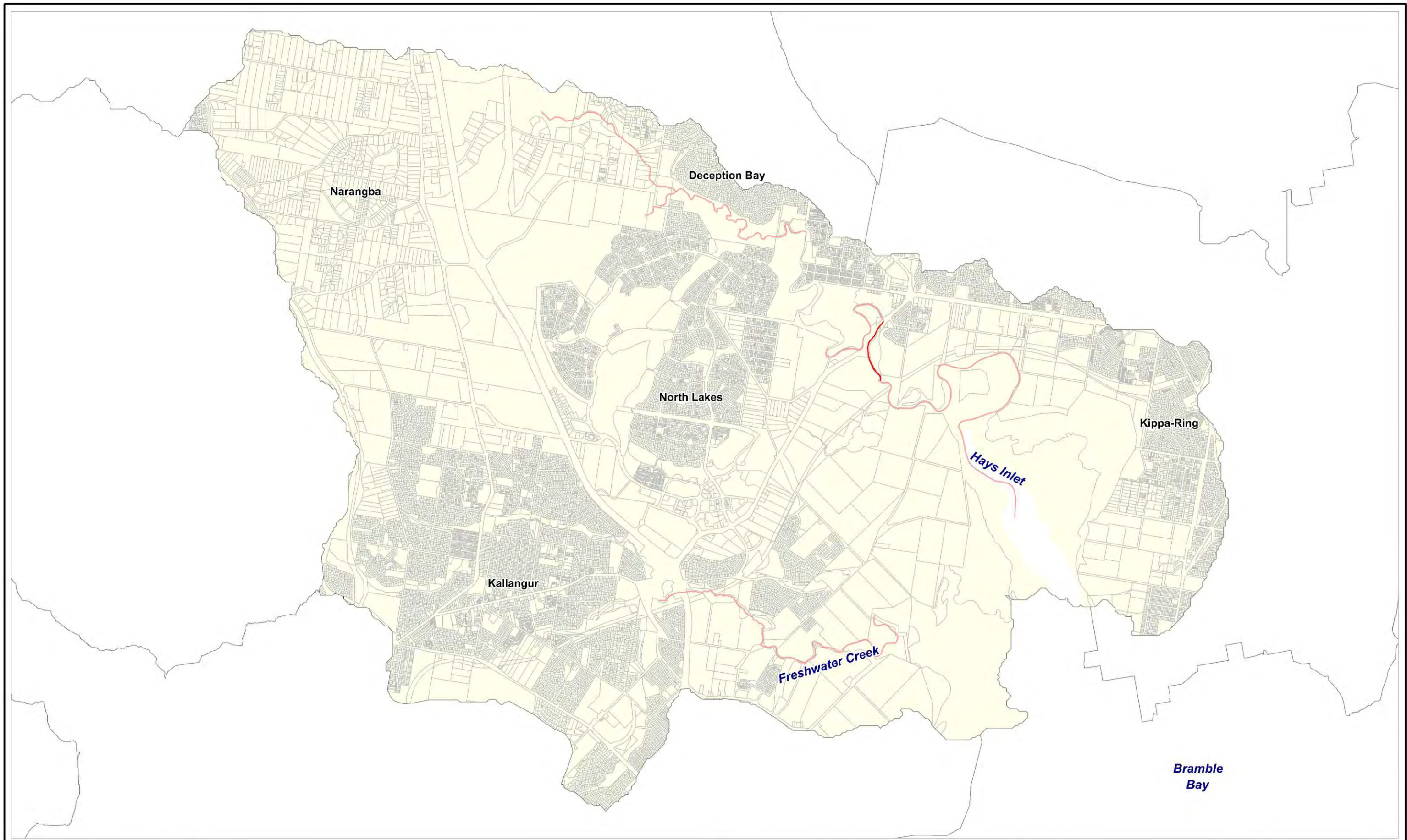


Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_030_111114 CIGA.wor

Figure:
F-21

Rev:
A





LEGEND

Waterway Rehabilitation
3/4 Stream Order

— High
— Medium
— Low

Title:
Hays Inlet Catchment Waterway Rehabilitation

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



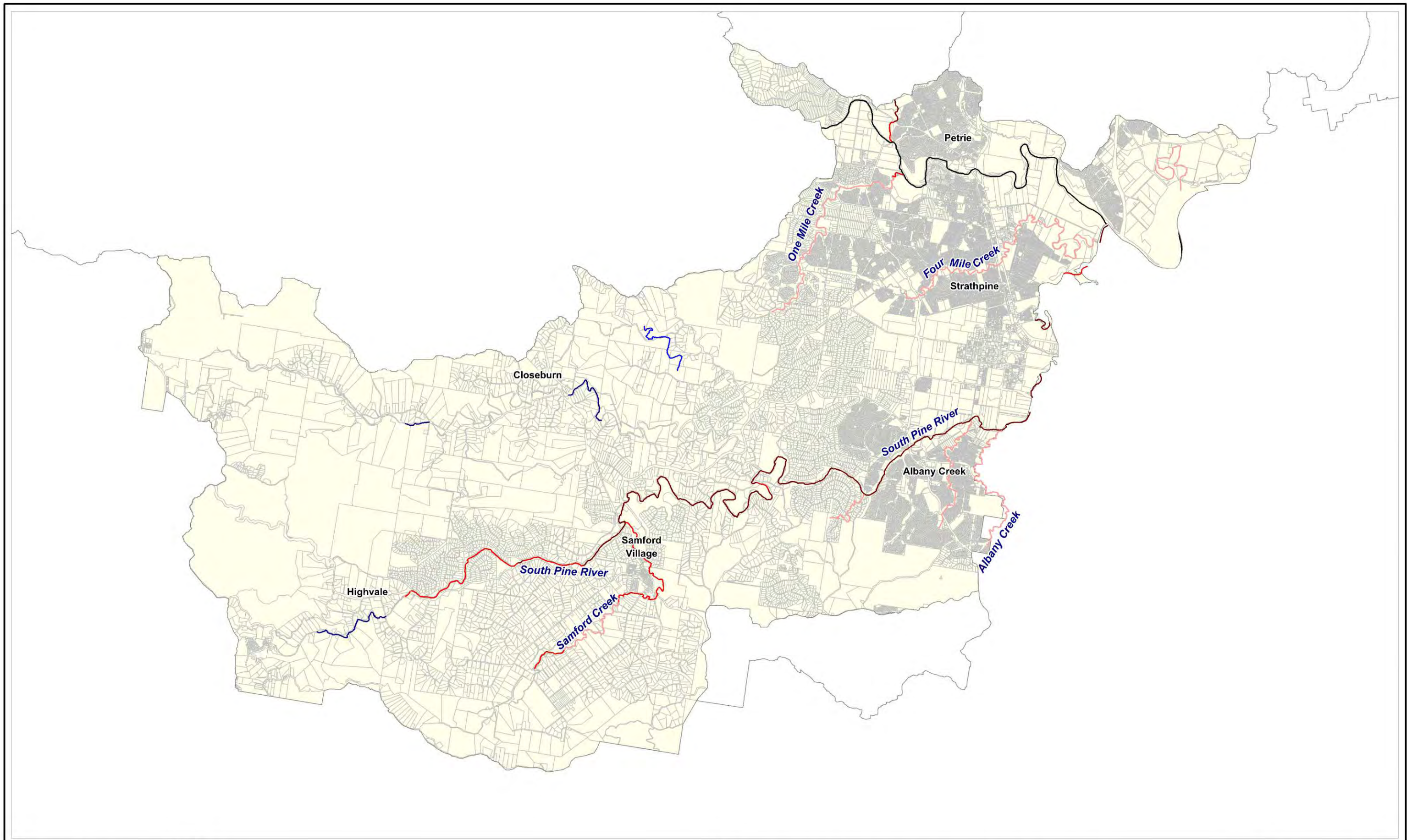
0 1 2km
Approx. Scale

Figure:
F-22

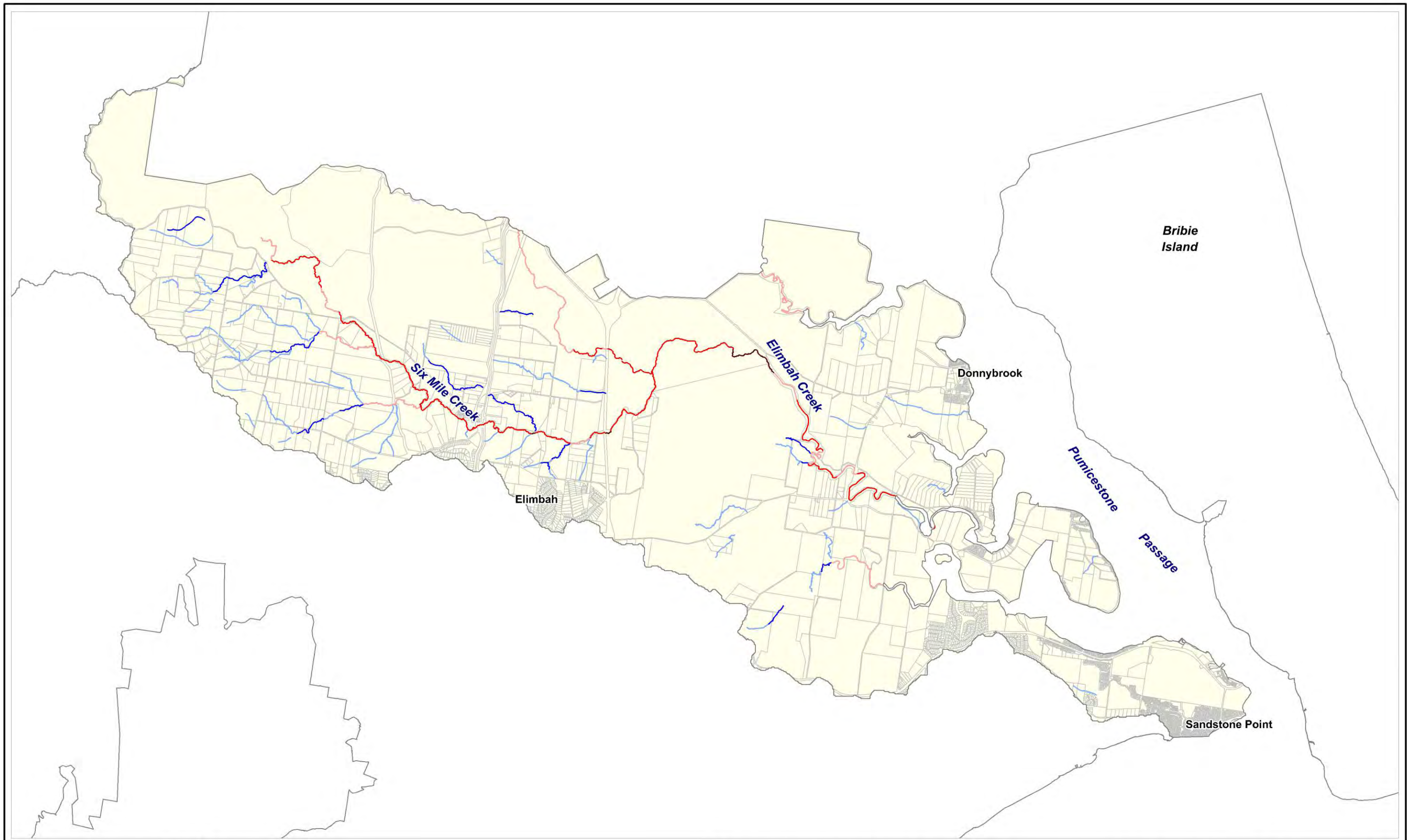
Rev:
A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_035_111114 Hays Inlet Catchment.wor



	<p>LEGEND</p> <p>Rural Best Management Practice Grazing 1/2 Stream Order</p> <ul style="list-style-type: none"> High Medium Low <p>Waterway Rehabilitation 3/4 Stream Order</p> <ul style="list-style-type: none"> High Medium Low <p>5/6 Stream Order</p>	<p>Title: Lower Pine Catchment Waterway Rehabilitation and Rural BMPs for Grazing</p> <p>BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.</p> <p>Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_033_111114 Lower Pine Catchment.wor</p>	<p>Figure: F-23</p> <p>Rev: A</p> <p> BMT WBM www.bmtwbm.com.au</p>
--	---	--	--



LEGEND

Rural Best Management Practice Grazing
1/2 Stream Order

- High
- Medium
- Low

Waterway Rehabilitation
3/4 Stream Order

- High
- Medium
- Low

Title:

Pumicestone Passage Catchment Waterway Rehabilitation and Rural BMPs for Grazing

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 2 4km
Approx. Scale

Figure:

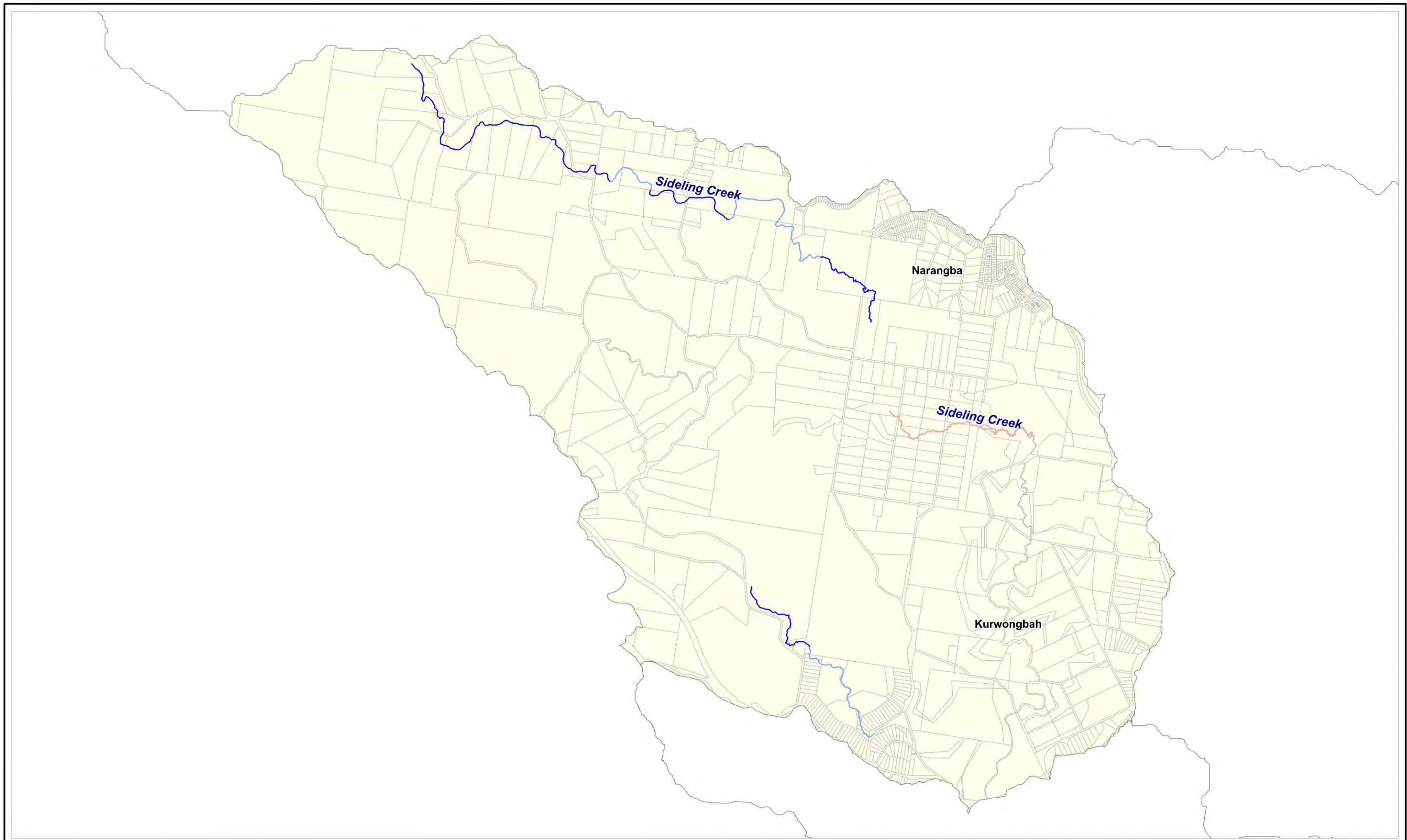
F-24

Rev:

A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_028_111114 Pumicestone Passage Catchment.wor



LEGEND

Rural Best Management
Practice Grazing
1/2 Stream Order

- High
- Medium
- Low

Waterway
Rehabilitation
3/4 Stream Order

- High
- Medium
- Low

Title:

Sideling Creek Catchment Waterway Rehabilitation and Rural BMPs for Grazing

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 1 2km
Approx. Scale

Figure:

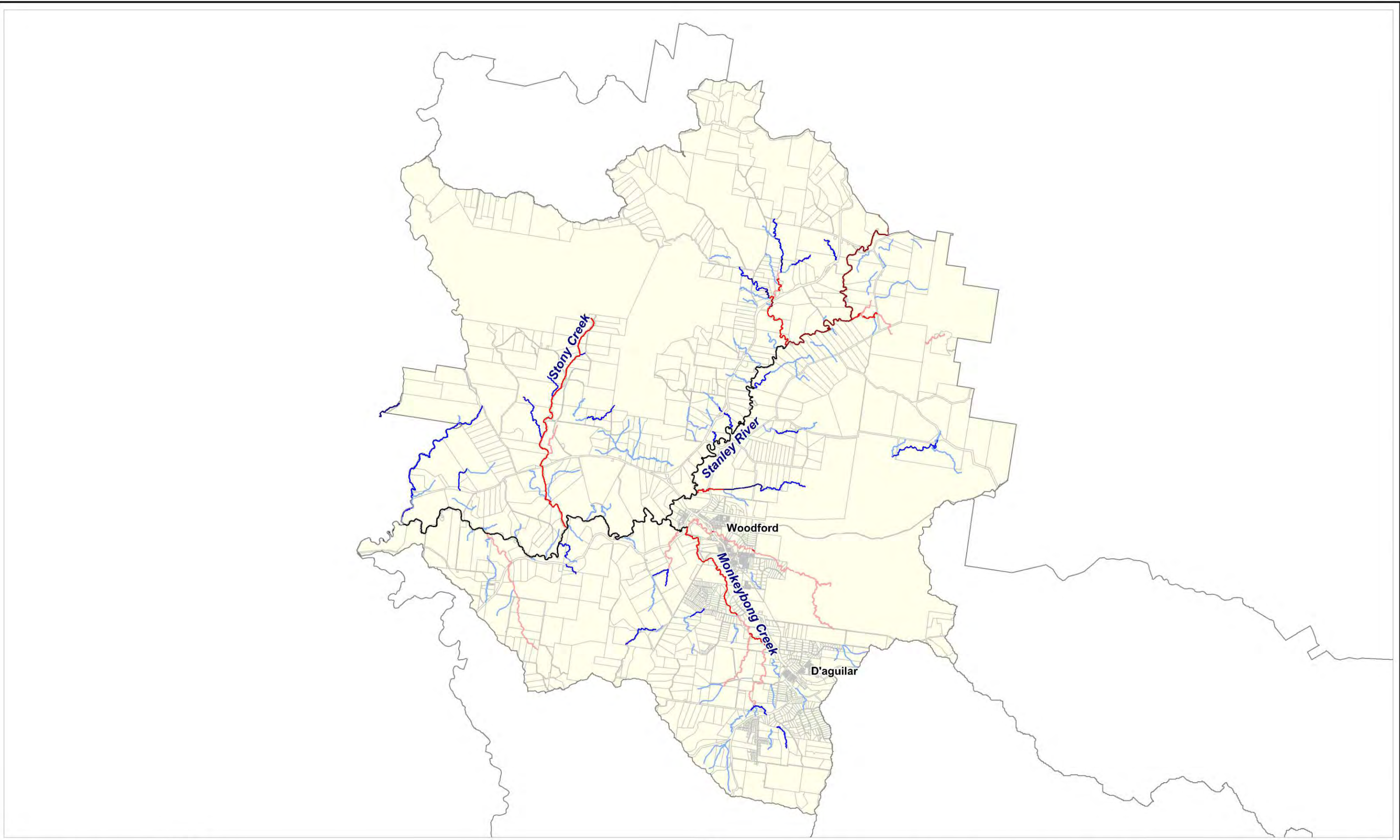
F-25

Rev:

A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_034_111114 Sideling Catchment.wor



LEGEND

Rural Best Management Practice Grazing
1/2 Stream Order

- High
- Medium
- Low

Waterway Rehabilitation
3/4 Stream Order

- High
- Medium
- Low

5/6 Stream Order

Title:

Stanley River Catchment Waterway Rehabilitation and Rural BMPs for Grazing

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 2.5 5km
Approx. Scale

Figure:

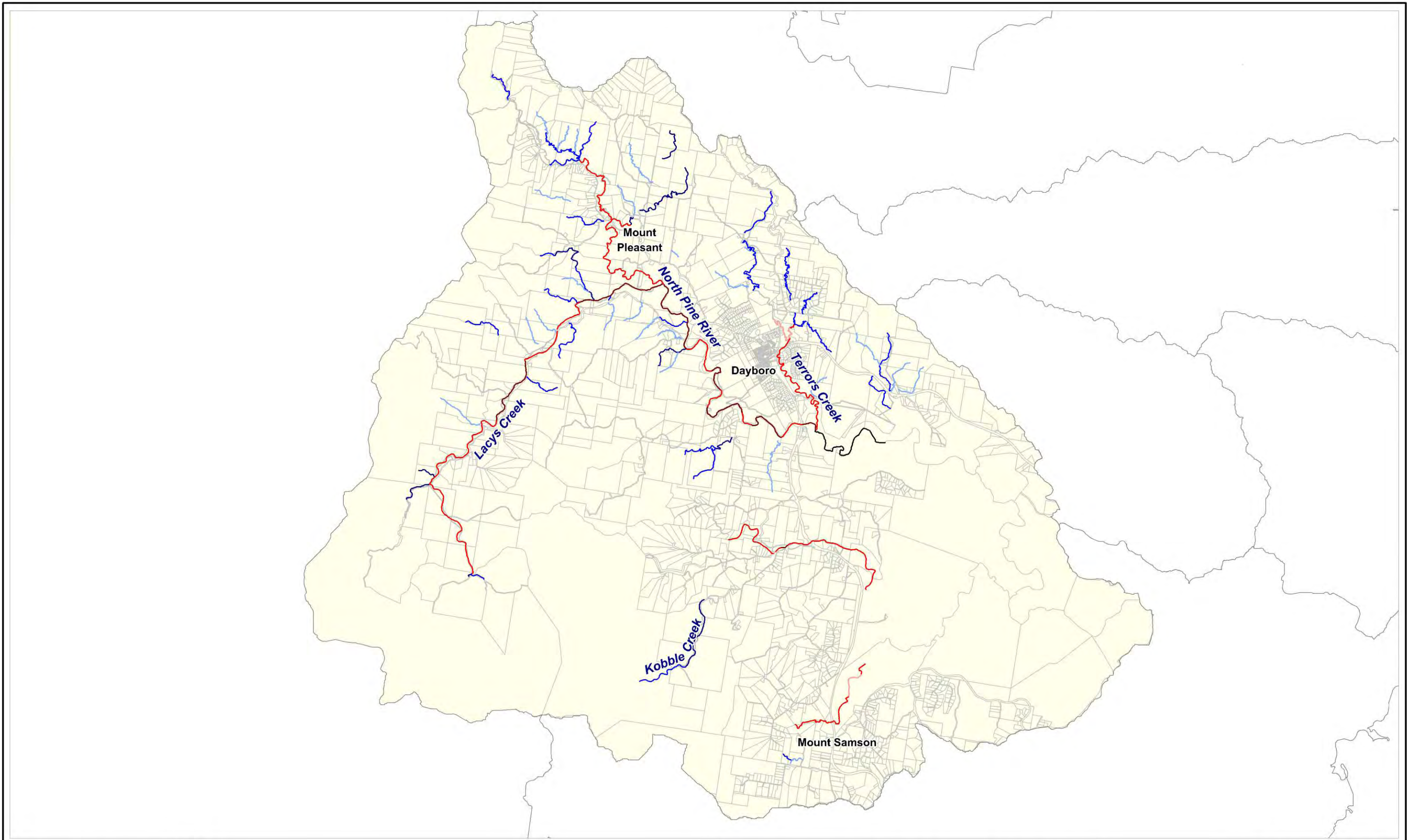
F-26

Rev:

A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_027_111114 Stanley River Catchment.wor



LEGEND

Rural Best Management
Practice Grazing
1/2 Stream Order

- High
- Medium
- Low

Waterway
Rehabilitation
3/4 Stream Order

- High
- Medium
- Low

5/6 Stream Order

Title:

Upper Pine Catchment Waterway Rehabilitation and Rural BMPs for Grazing

BMT WBM endeavours to ensure that the information provided in this map is correct at the time of publication. BMT WBM does not warrant, guarantee or make representations regarding the currency and accuracy of information contained in this map.



0 2 4km
Approx. Scale

Figure:

F-27

Rev:

A



Filepath : I:\B18282_NJR_MBRC_Phase_2\DRG\WQU_032_111114 Upper Pine Catchment.wor