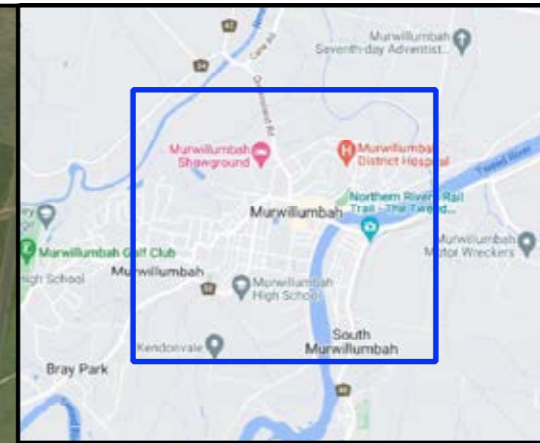
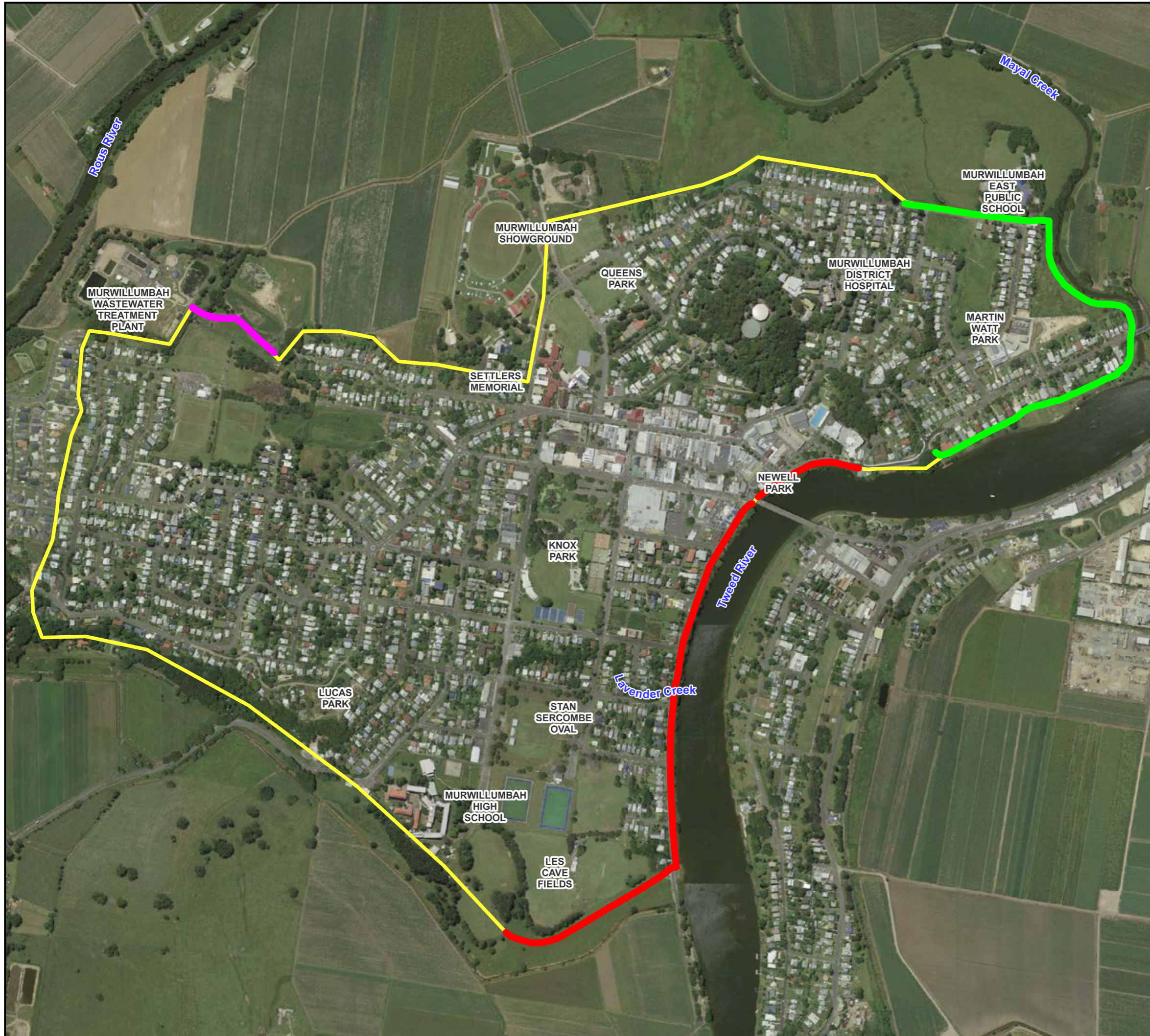

APPENDIX A

FIGURES





LEGEND

- Murwillumbah CBD Levee (Commercial Road)
- East Murwillumbah Levee
- Dorothy/William Streets Levee (Brothers)

Notes:
 Aerial photograph: NSW Six Maps
 All levels are provided in metres above Australian Height Datum (AHD).

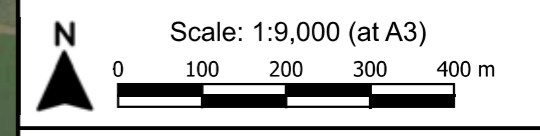
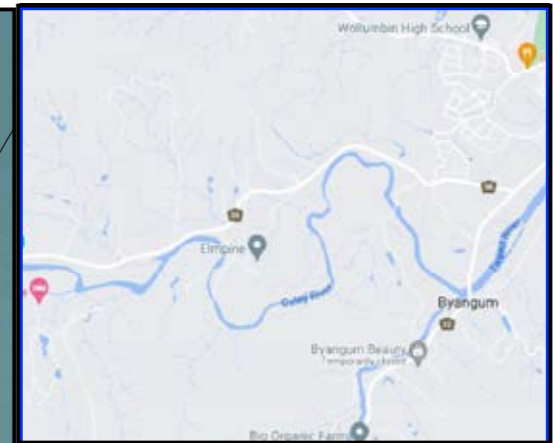
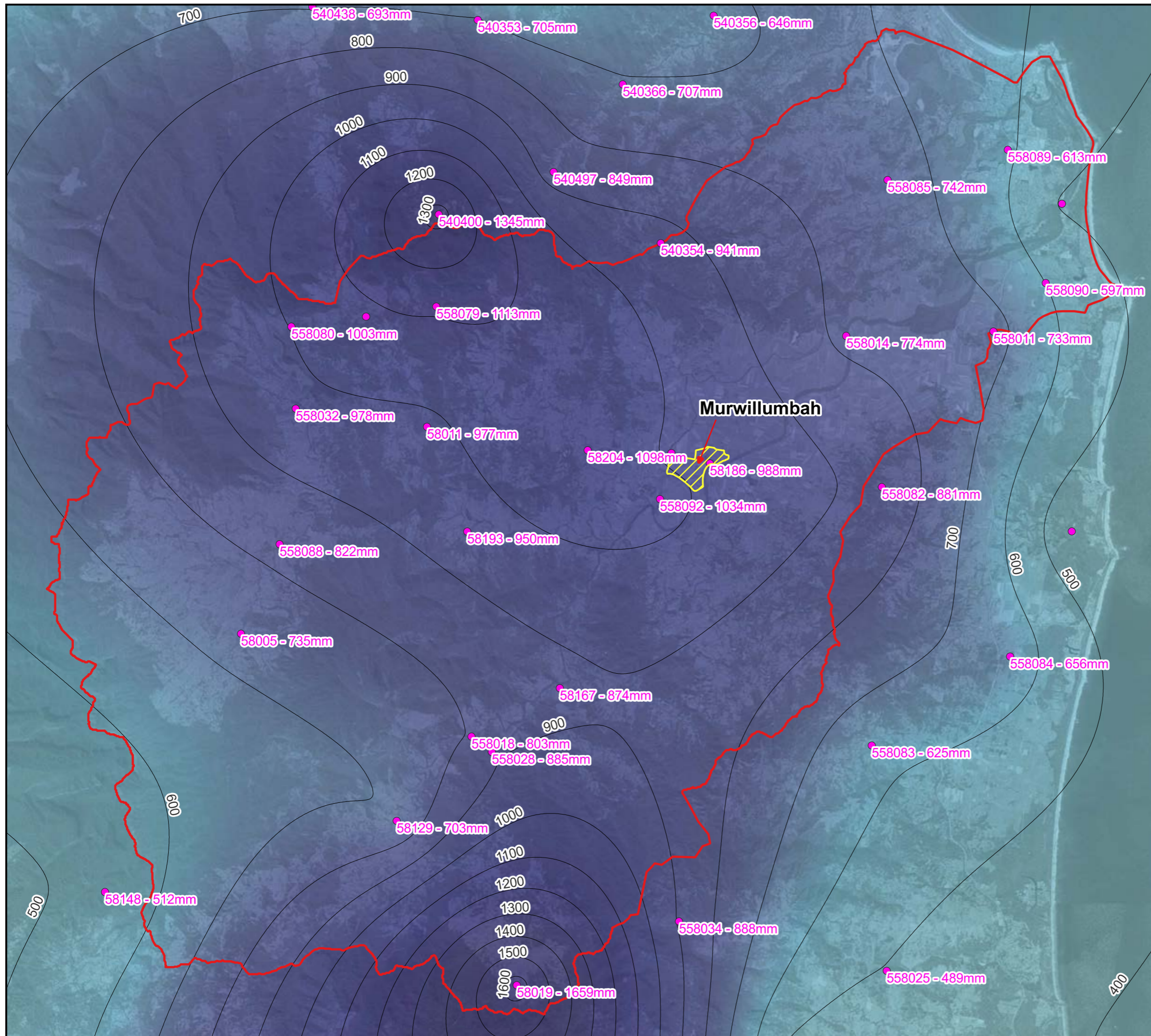


Figure 1: Study Area

Prepared by:
Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

- Gauge Number - Rainfall (mm)
- Catchment Boundary
- Rainfall Isohyet (mm)

Rainfall Depth (mm)

≤ 400
400 - 600
600 - 800
800 - 1000
1000 - 1200
1200 - 1400
1400 - 1600

Notes:
 Aerial photograph: NSW Six Maps
 All levels are provided in metres above Australian Height Datum (AHD).

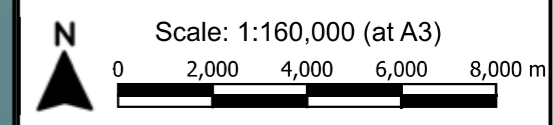
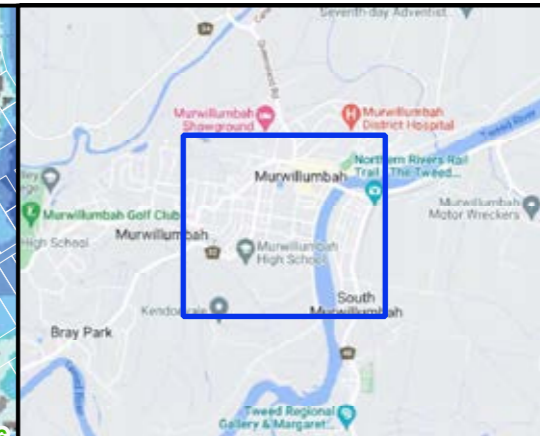
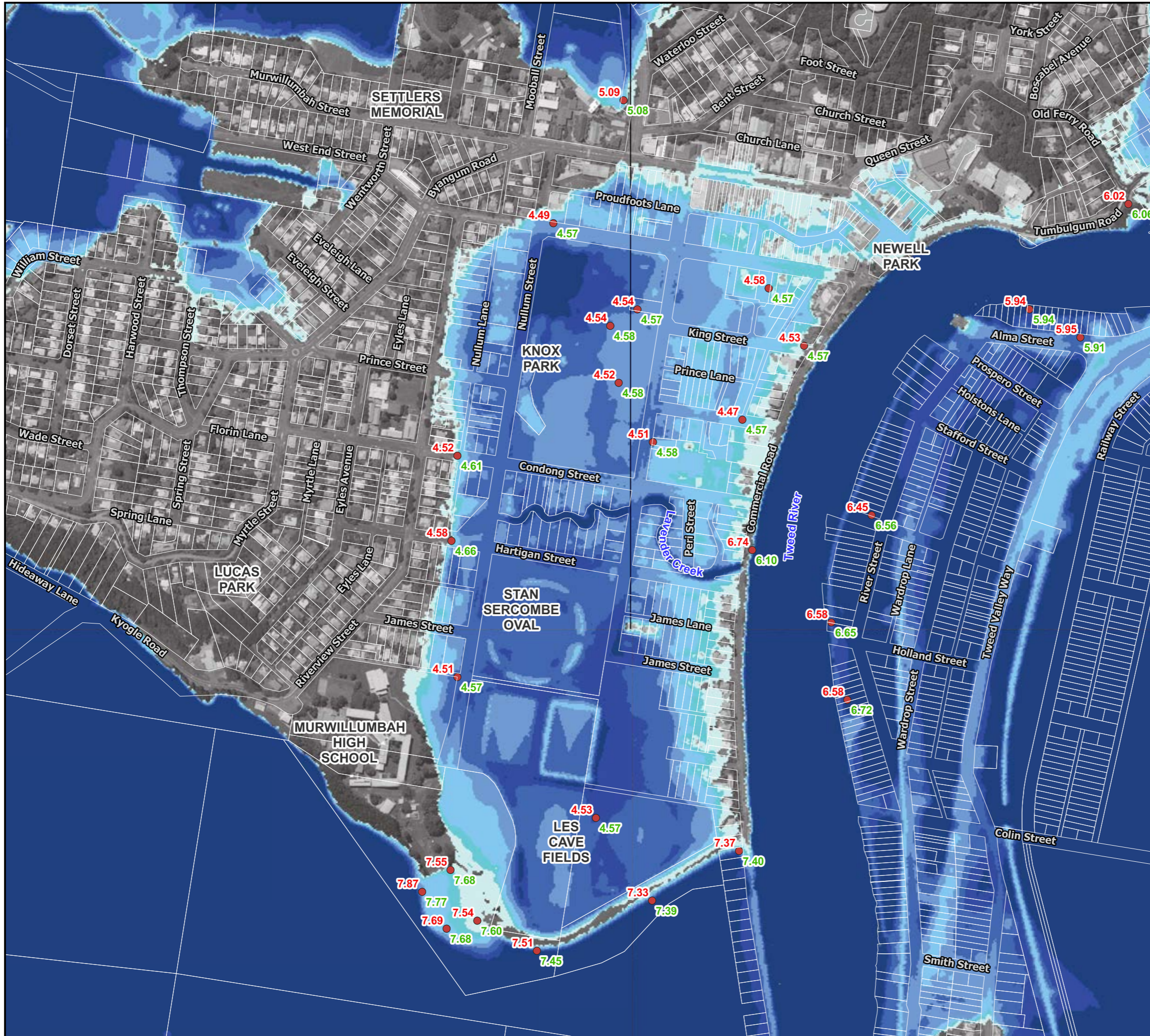


Figure 2: Rainfall Isohyet Map for 2022 Flood

Prepared by:
Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Surveyed Level ● Simulated Level ●

Depth (m)

- <= 0.05
- 0.05 - 0.30
- 0.30 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- > 2.50

Notes:
 Aerial photograph: NSW Six Maps
 All levels are provided in metres above Australian Height Datum (AHD).

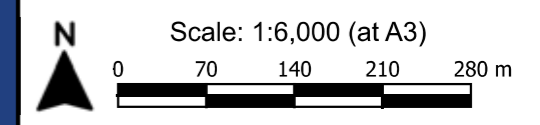
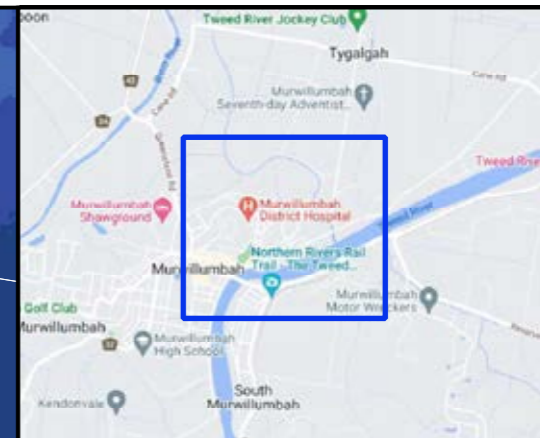
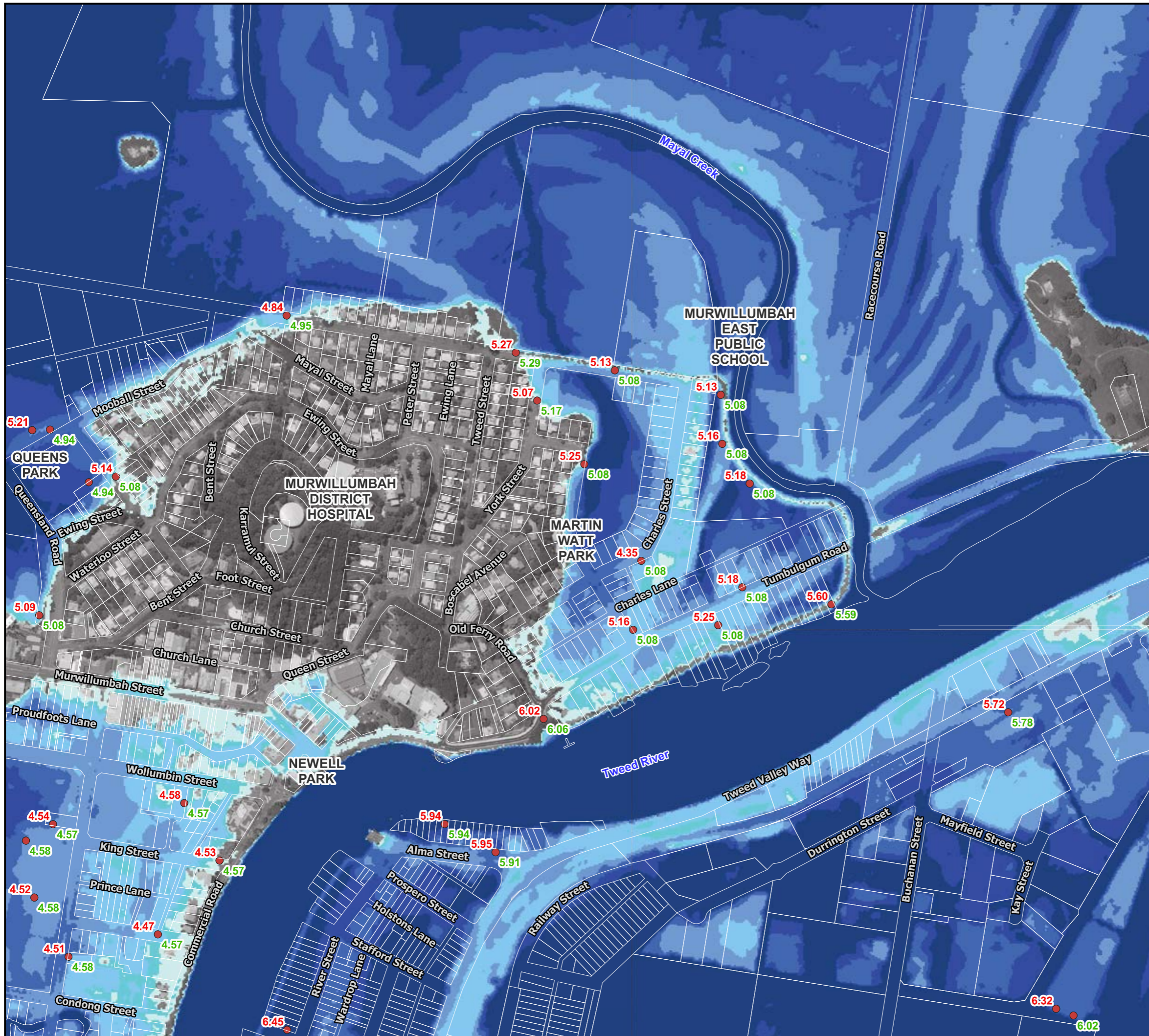


Figure 3.1: Peak Floodwater Depths and Levels for the 2022 Calibration Event

Prepared by:
Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

● Surveyed Level (Red dot)
● Simulated Level (Green dot)

Depth (m)

- ≤ 0.05
- 0.05 - 0.30
- 0.30 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- > 2.50

Notes:
Aerial photograph: NSW Six Maps
All levels are provided in metres above Australian Height Datum (AHD).

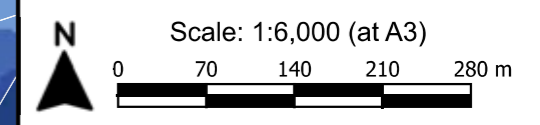
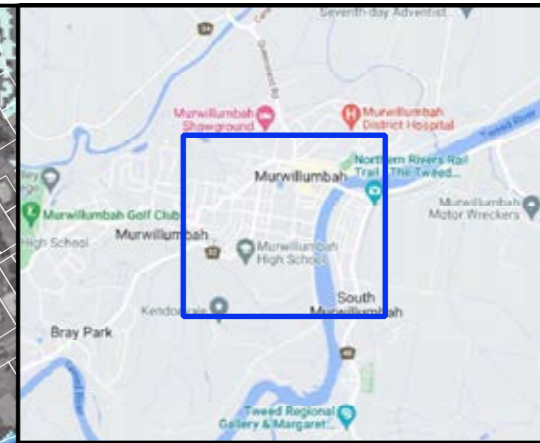
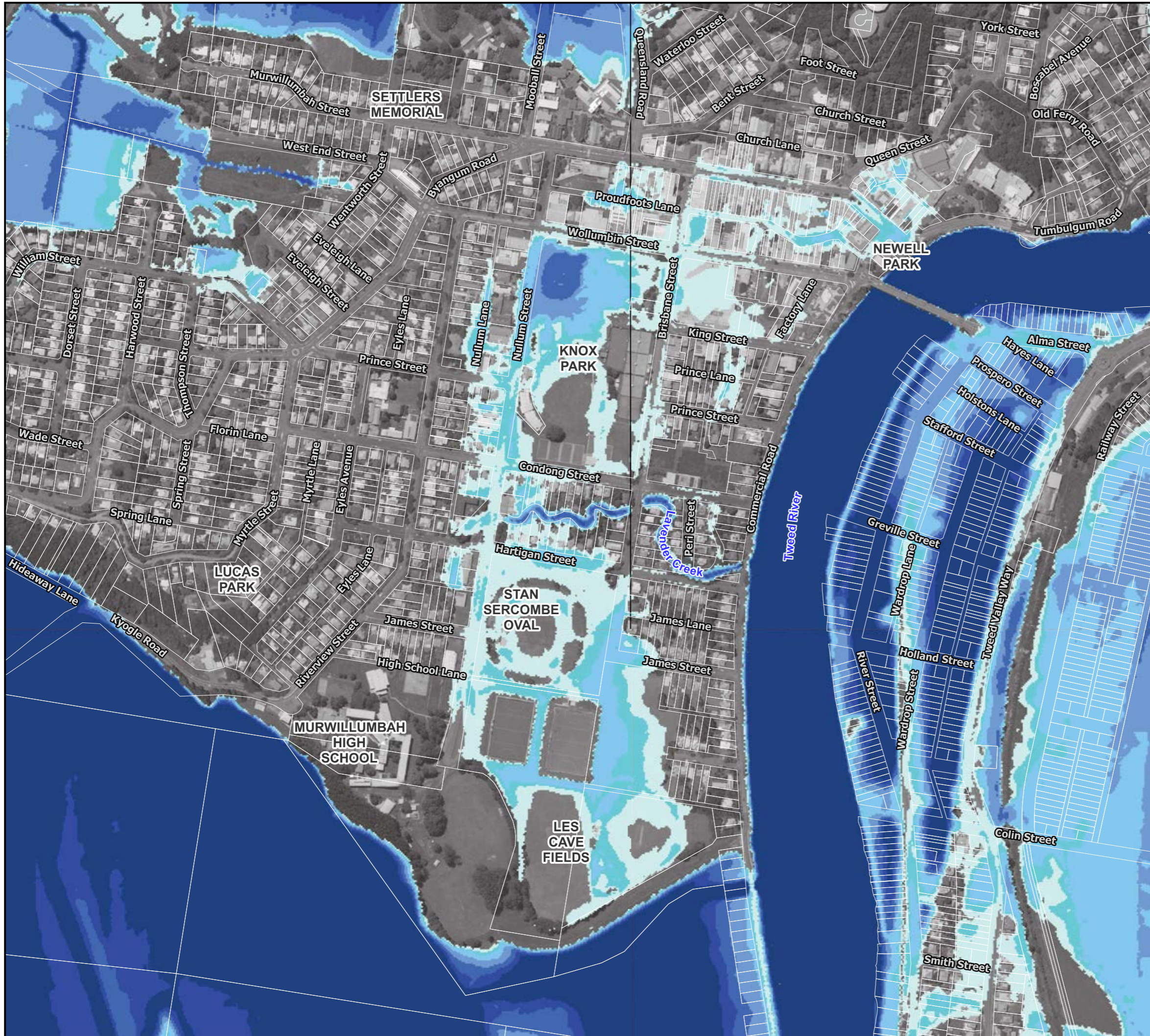


Figure 3.1: Peak Floodwater Depths and Levels for the 2022 Calibration Event

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

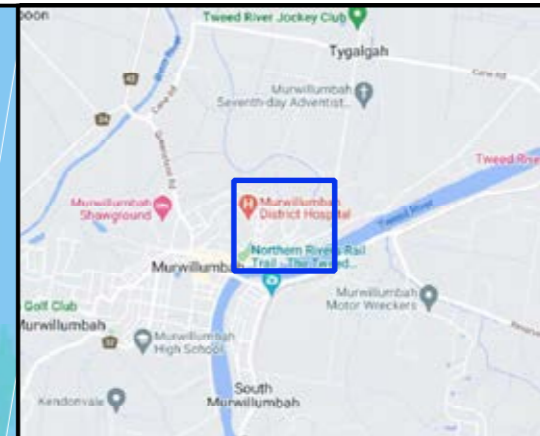
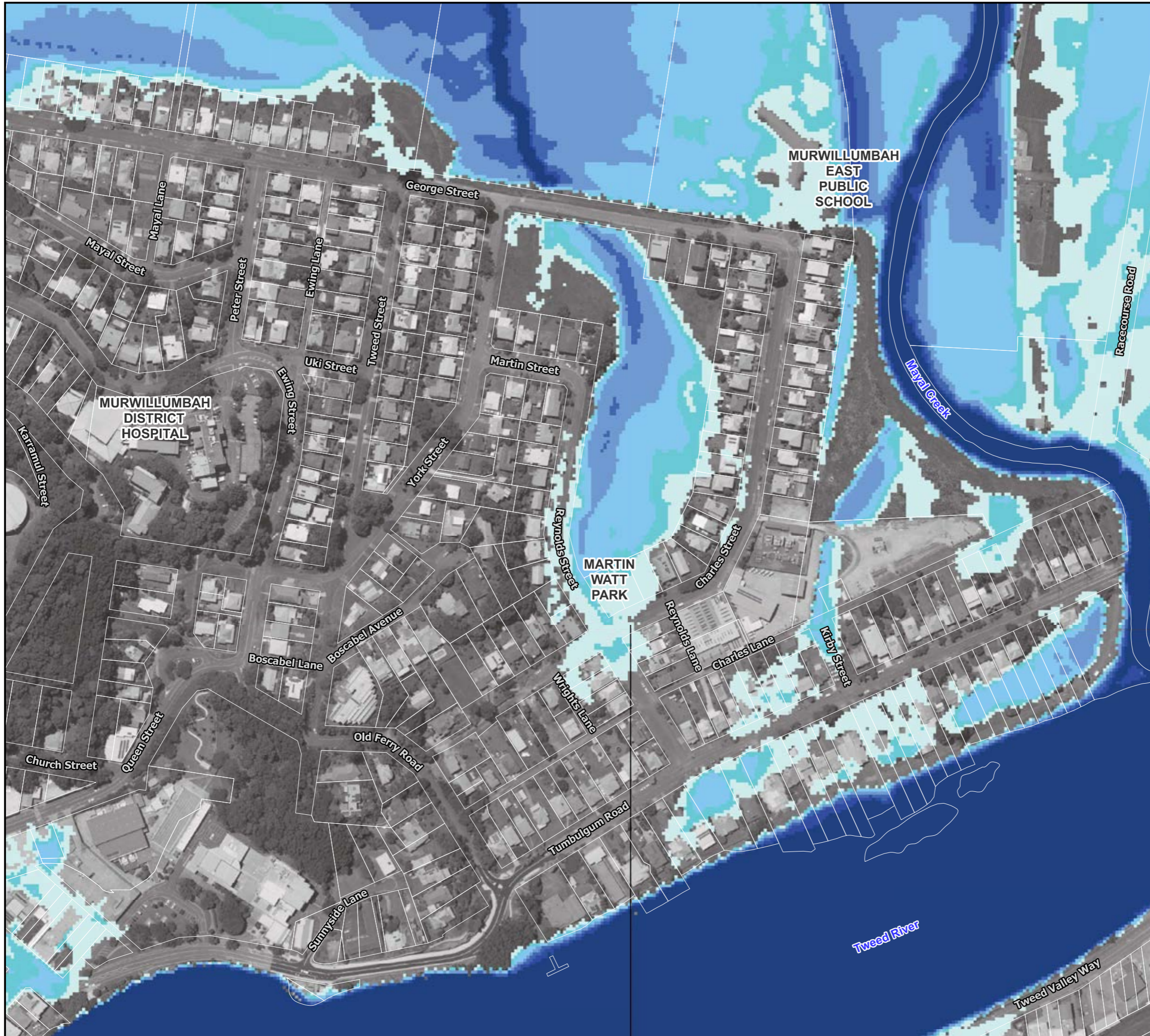
Scale: 1:6,000 (at A3)

0 70 140 210 280 m

**Figure 4.1 :
Peak 20% AEP Floodwater
Depths (Including River
Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

- 0.05 - 0.30
- 0.30 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- > 2.50

Notes:
Aerial photograph: NSW Six Maps

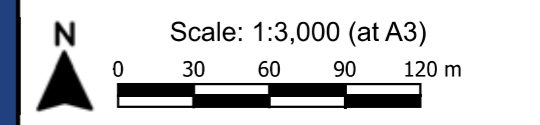
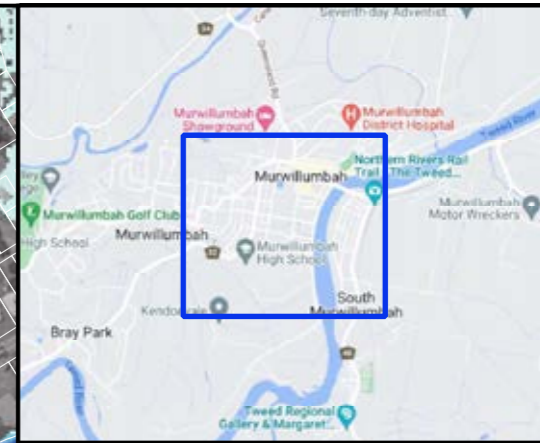
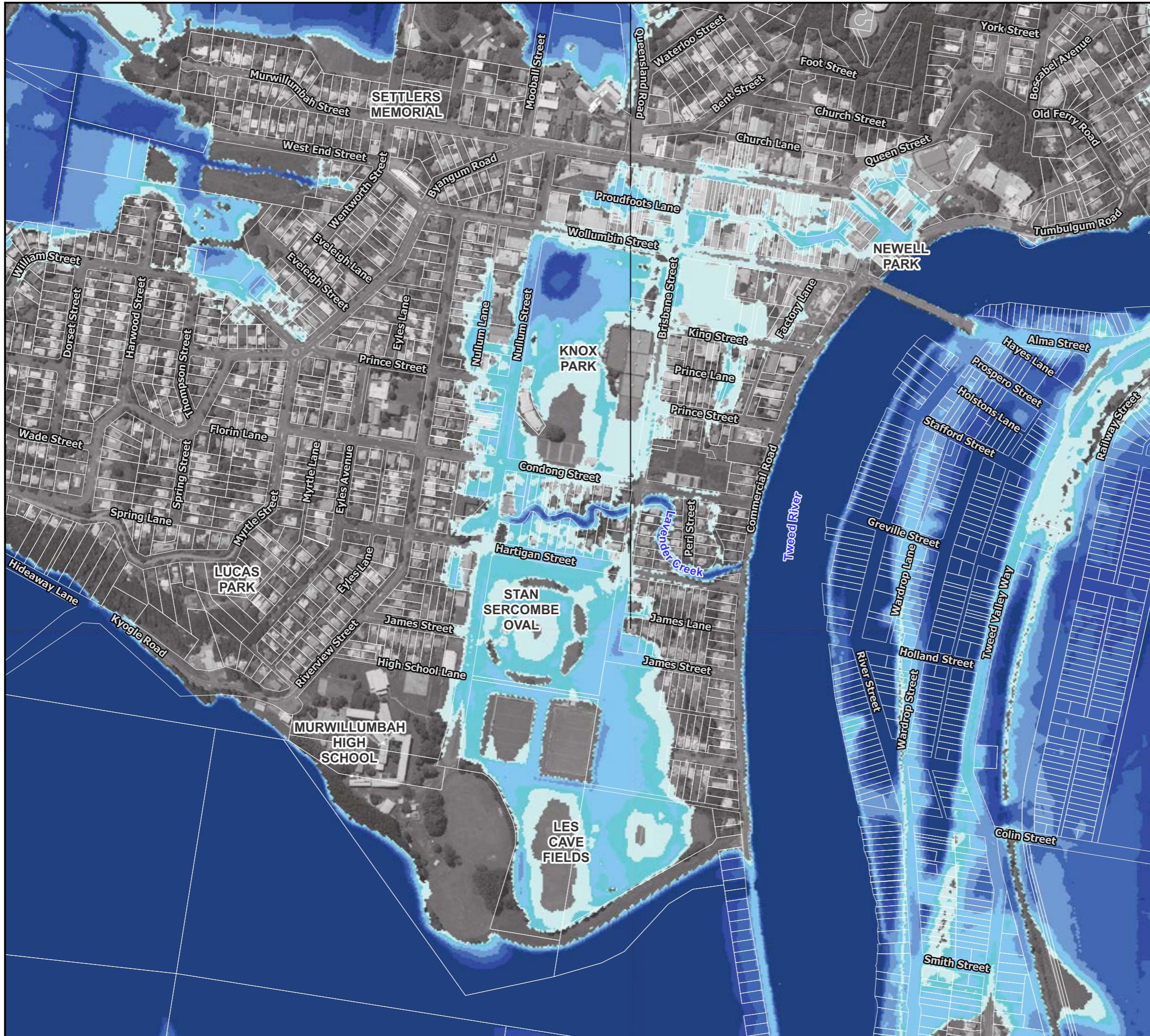


Figure 4.2 :
Peak 20% AEP Floodwater
Depths (Including River
Flooding)

Prepared by:
Catchment Simulation Solutions
Suite 1, Level 10, 70 Phillip St
Sydney, NSW, 2000



LEGEND

Depth (m)


0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

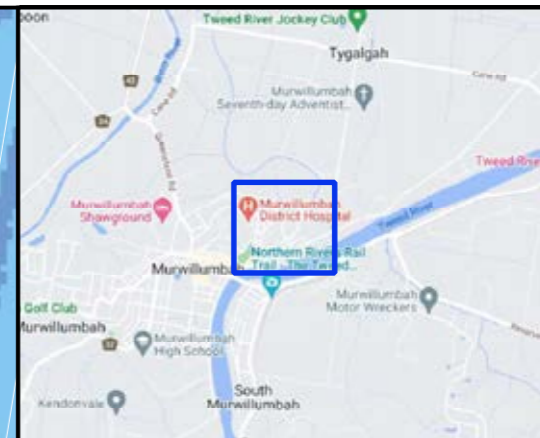
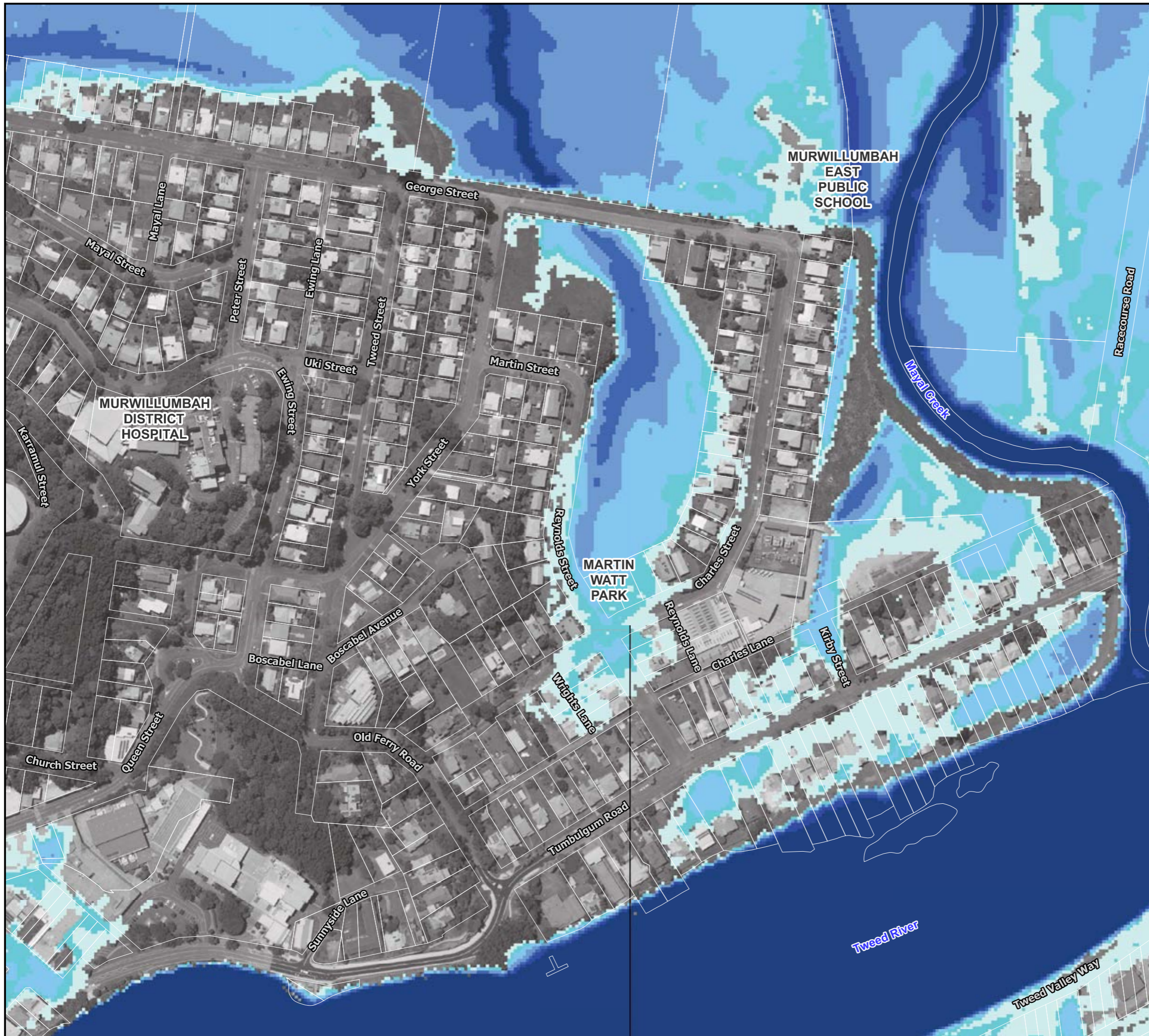
Notes:
Aerial photograph: NSW Six Maps

Scale: 1:6,000 (at A3)

0 70 140 210 280 m

Figure 5.1 :
Peak 5% AEP Floodwater
Depths (Including River
Flooding)

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

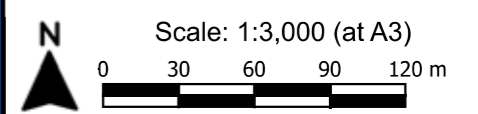

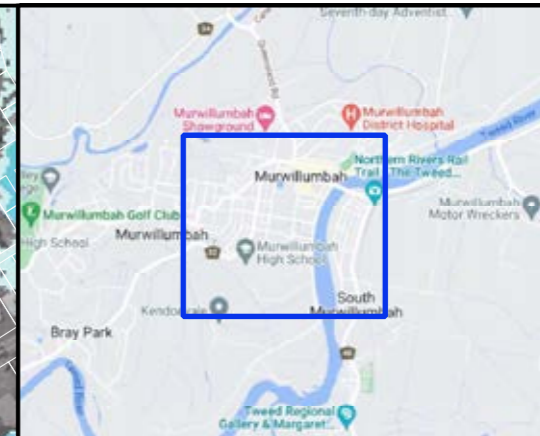
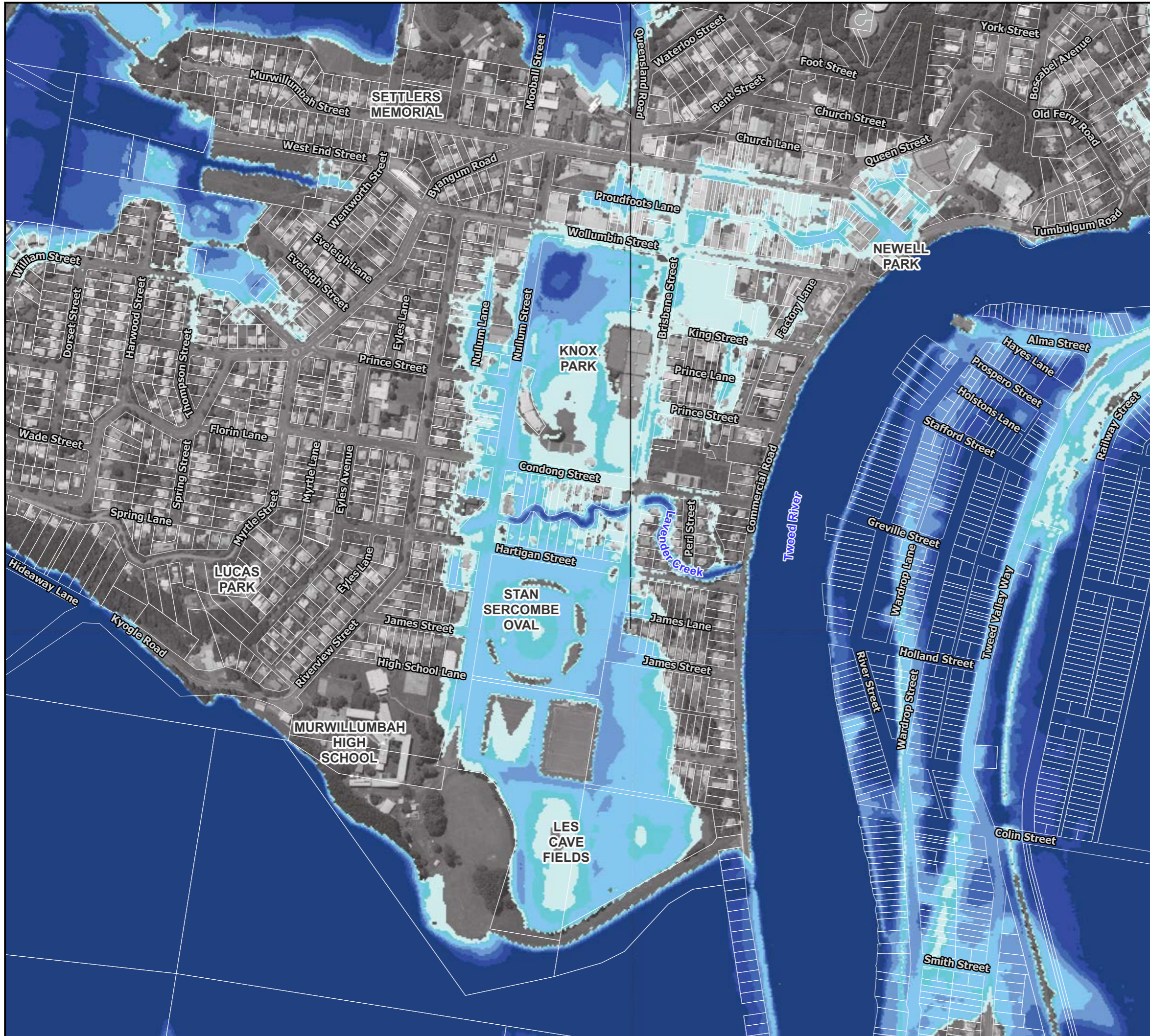


Figure 5.2 :
Peak 5% AEP Floodwater
Depths (Including River
Flooding)

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

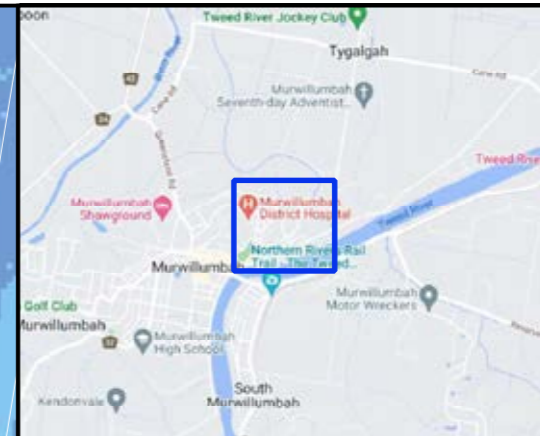
Notes:
Aerial photograph: NSW Six Maps

Scale: 1:6,000 (at A3)

0 70 140 210 280 m

Figure 6.1 :
Peak 1% AEP Floodwater
Depths (Including River
Flooding)

Prepared by:
Catchment Simulation Solutions
Suite 1, Level 10, 70 Phillip St
Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

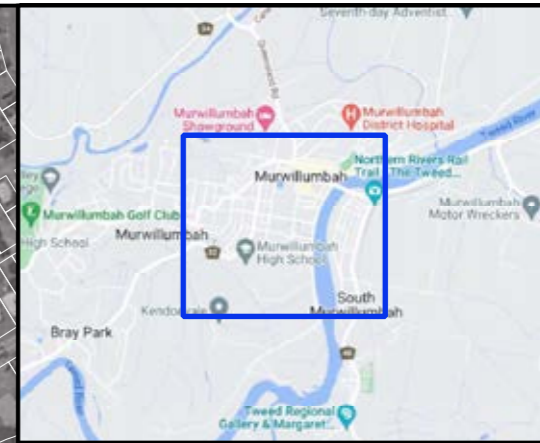
Notes:
Aerial photograph: NSW Six Maps

Scale: 1:3,000 (at A3)

0 30 60 90 120 m

Figure 6.2 :
Peak 1% AEP Floodwater
Depths (Including River
Flooding)

Prepared by:
Catchment Simulation Solutions
Suite 1, Level 10, 70 Phillip St
Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

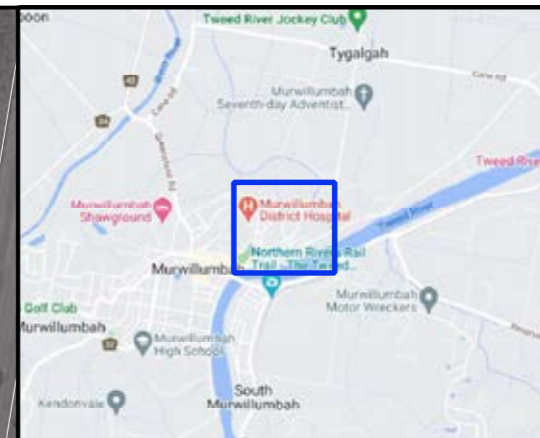
Scale: 1:6,000 (at A3)

0 70 140 210 280 m

**Figure 7.1 :
Peak 20% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

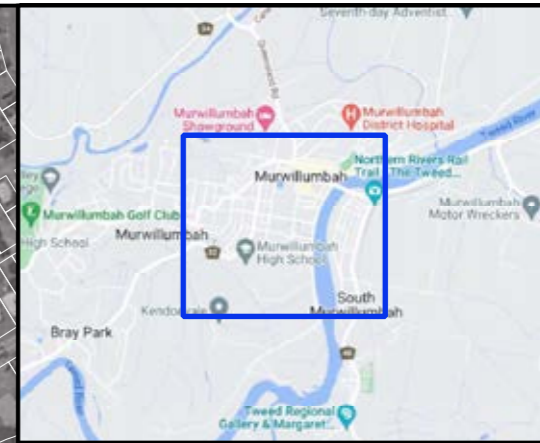
Scale: 1:3,000 (at A3)

0 30 60 90 120 m

**Figure 7.2 :
Peak 20% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

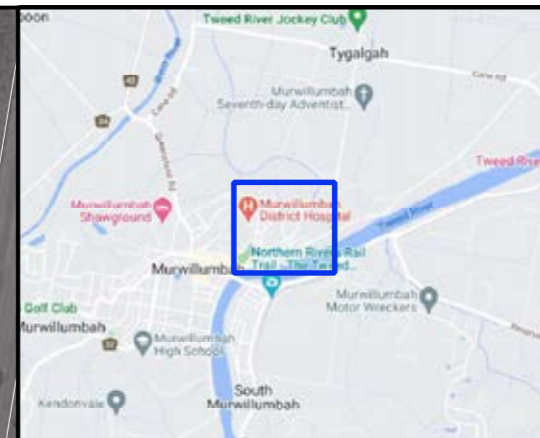
Scale: 1:6,000 (at A3)

0 70 140 210 280 m

**Figure 8.1 :
Peak 5% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

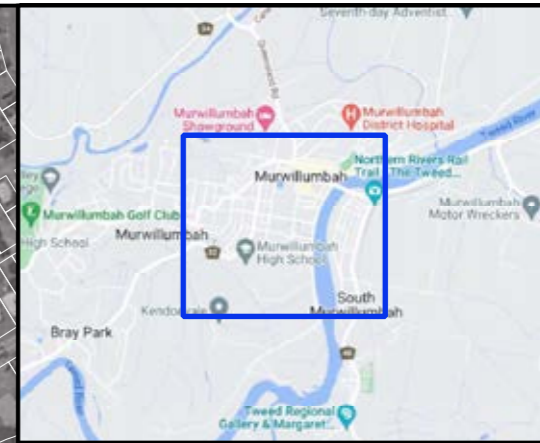
Scale: 1:3,000 (at A3)

0 30 60 90 120 m

**Figure 8.2 :
Peak 5% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)


0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

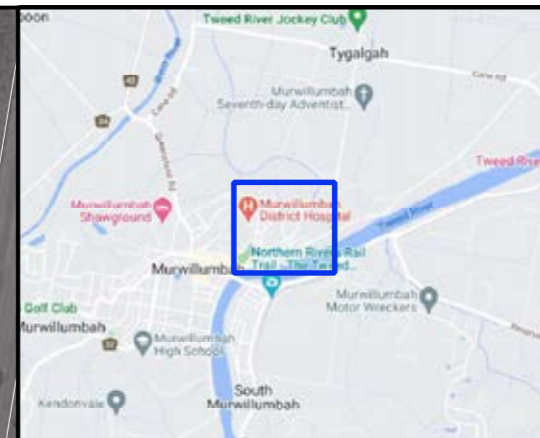
Notes:
Aerial photograph: NSW Six Maps

Scale: 1:6,000 (at A3)

0 70 140 210 280 m

**Figure 9.1 :
Peak 1% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000



LEGEND

Depth (m)

0.05 - 0.30
0.30 - 0.50
0.50 - 1.00
1.00 - 1.50
1.50 - 2.00
2.00 - 2.50
> 2.50

Notes:
Aerial photograph: NSW Six Maps

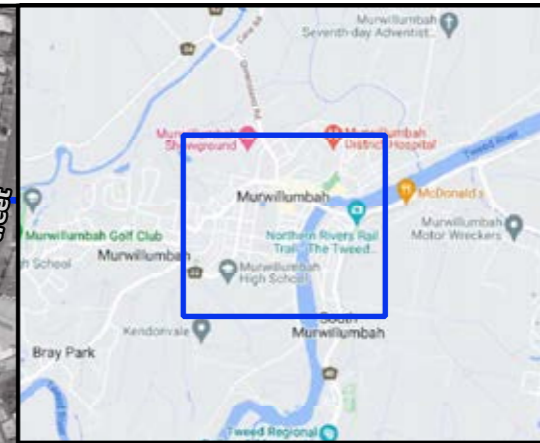
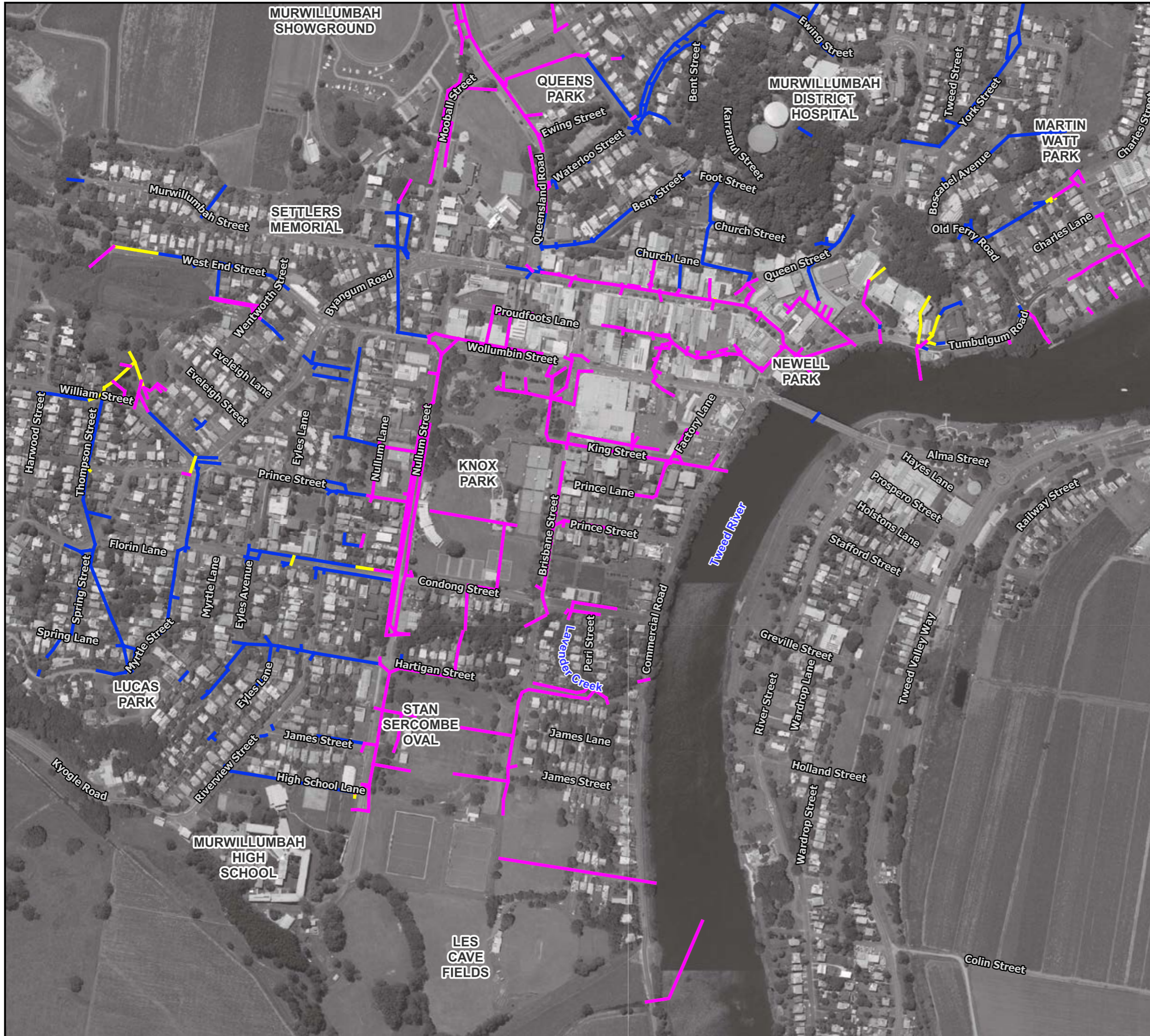
Scale: 1:3,000 (at A3)

0 30 60 90 120 m

**Figure 9.2 :
Peak 1% AEP Floodwater
Depths (No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000

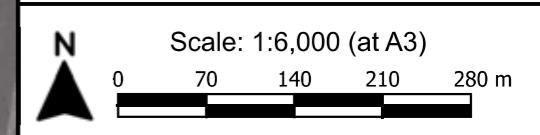


LEGEND


Event when stormwater capacity exceeded

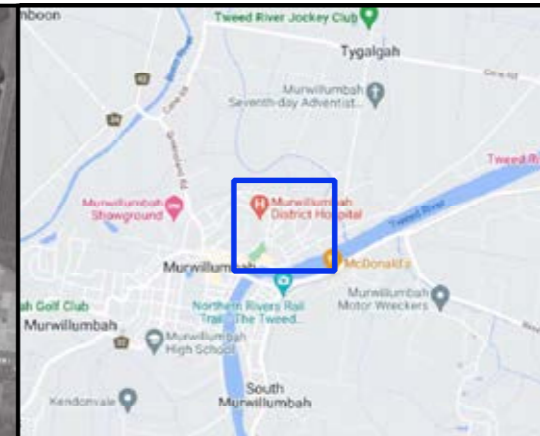
- <= 20% AEP
- 5% AEP
- >= 1% AEP

Notes:
Aerial photograph: NSW Six Maps



**Figure 10.1:
Stormwater Capacity Map
(Including River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000

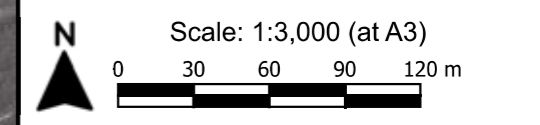


LEGEND


Event when stormwater capacity exceeded

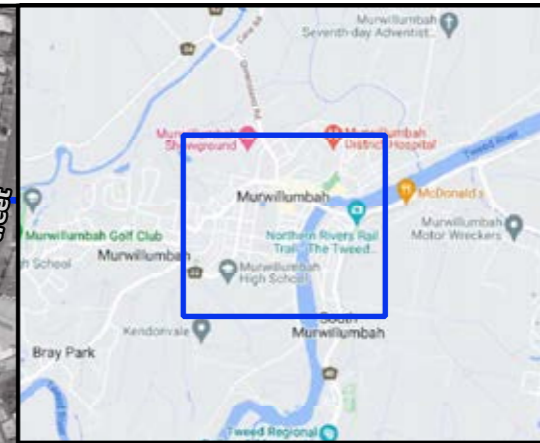
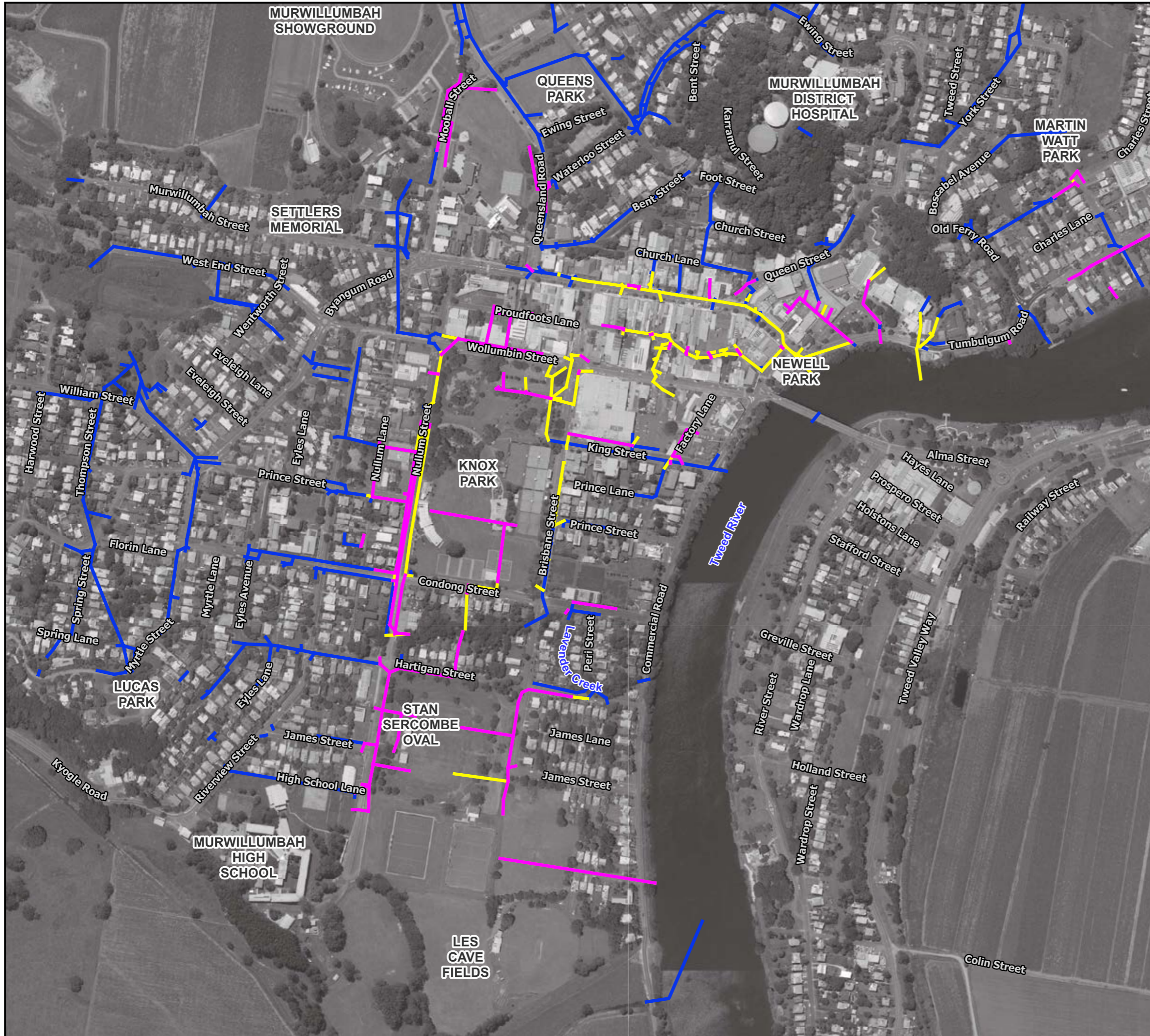
- $\leq 20\%$ AEP
- 5% AEP
- $\geq 1\%$ AEP

Notes:
Aerial photograph: NSW Six Maps



**Figure 10.2:
Stormwater Capacity Map
(Including River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000

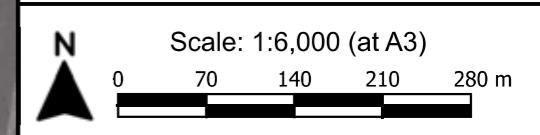


LEGEND

Event when stormwater capacity exceeded

- $\leq 20\%$ AEP
- 5% AEP
- $\geq 1\%$ AEP

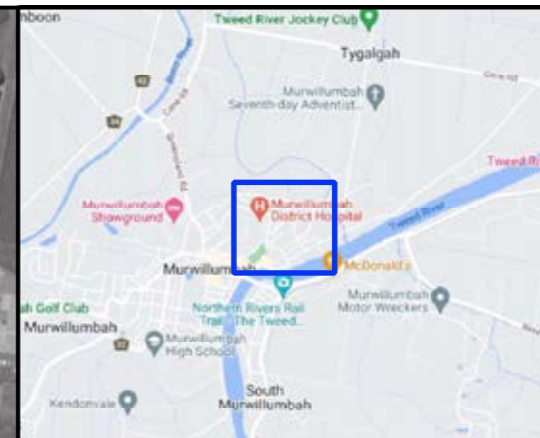
Notes:
Aerial photograph: NSW Six Maps



**Figure 11.1:
Stormwater Capacity Map
(No River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000

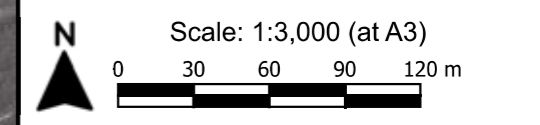


LEGEND


Event when stormwater capacity exceeded

- <= 20% AEP
- 5% AEP
- >= 1% AEP

Notes:
Aerial photograph: NSW Six Maps



**Figure 11.2:
Stormwater Capacity Map
(Including River Flooding)**

Prepared by:

Catchment Simulation Solutions
 Suite 1, Level 10, 70 Phillip St
 Sydney, NSW, 2000

APPENDIX B

2022 FLOOD PHOTOS



2022 FLOOD PHOTOS



Upstream side of Murwillumbah bridge looking west



Murwillumbah Netball association courts looking north-west towards Powerhouse Christian Centre



Condong St looking towards 12 Condong St property



Nullum St and High School Ln intersection looking south along Nullum St



Outlet of Lavender Creek pumps



Intersection of Proudfoots Lane and Brisbane St looking east



Commercial Rd looking south after flood has passed

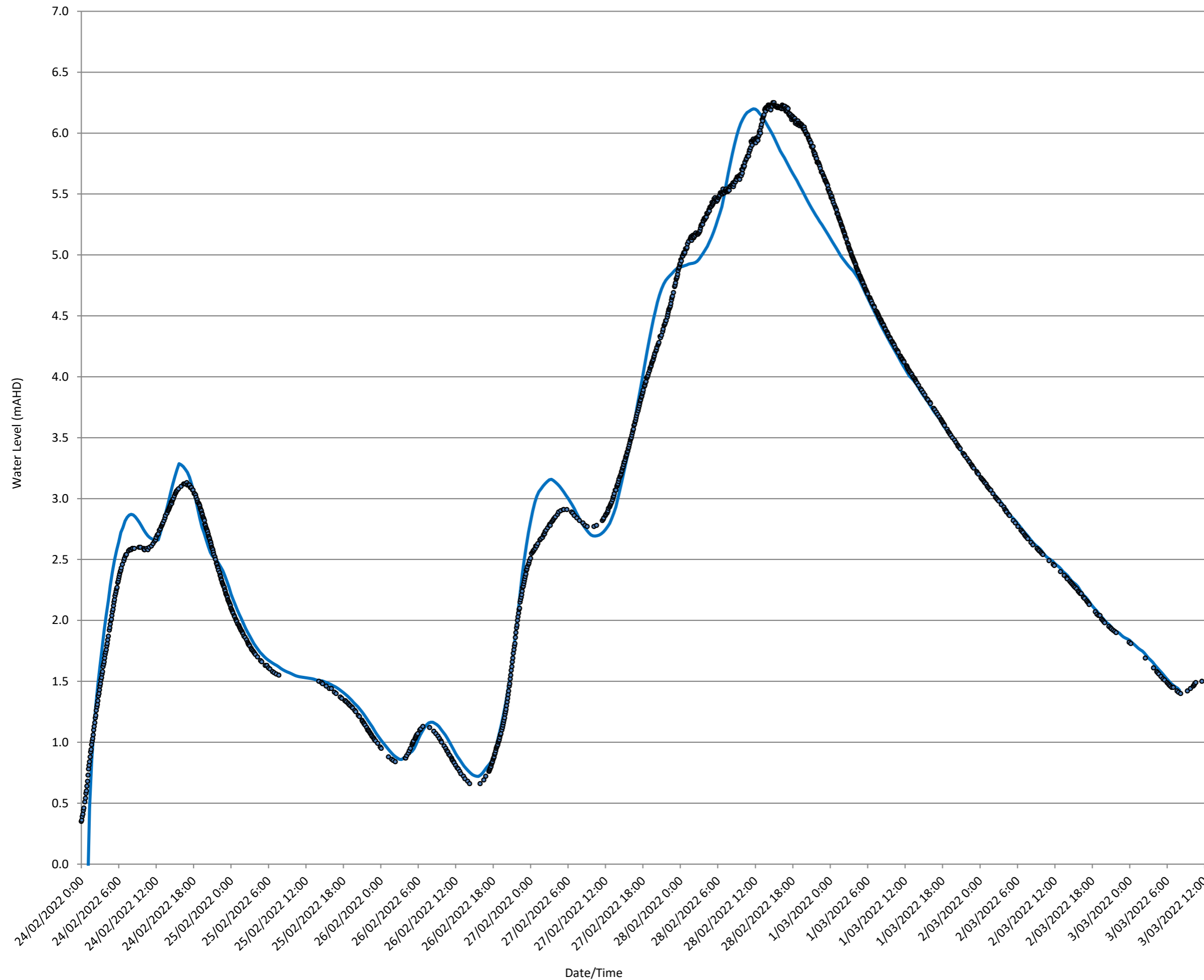
APPENDIX C

MARCH 2022 STAGE HYDROGRAPHS



LEGEND:


- Recorded Stage Hydrograph
- Simulated Stage Hydrograph



Notes:

**Figure C1:
Recorded and
Simulated Stage
Hydrographs for Tweed
River at Murwillumbah
Bridge Gauge for 2022
Flood**

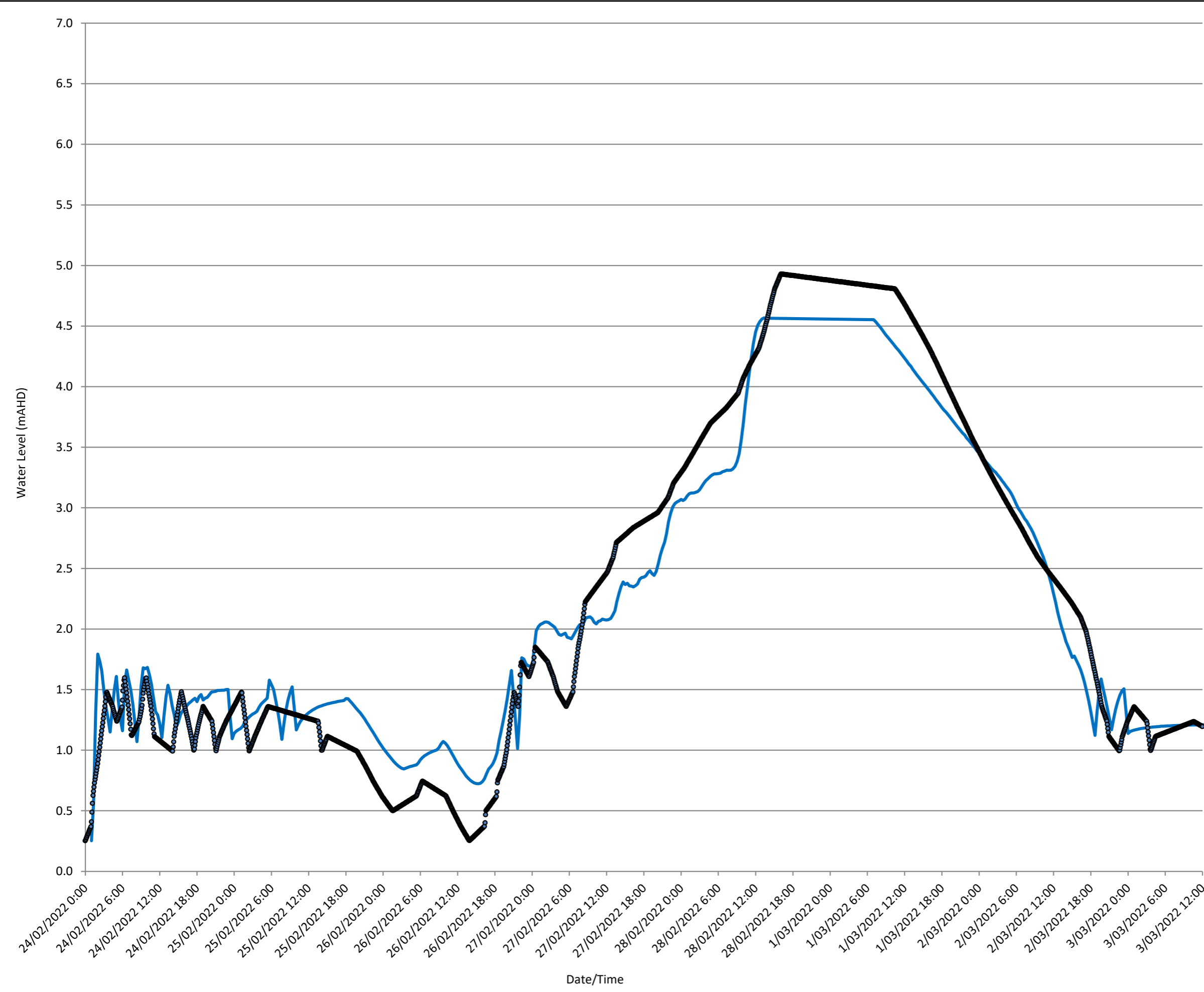
Prepared By:

 **Catchment Simulation Solutions**
Suite 2.01, 210 George Street
Sydney, NSW, 2000

File Name: .xls


LEGEND:

- Recorded Stage Hydrograph
- Simulated Stage Hydrograph



Notes:

**Figure C2:
Recorded and
Simulated Stage
Hydrographs for
Lavender Creek @ FPS1
for 2022 Flood**

Prepared By:

Catchment Simulation Solutions
 Suite 2.01, 210 George Street
 Sydney, NSW, 2000

File Name: .xls

APPENDIX D

LOW RIVER LEVEL DIFFERENCE MAPS



Overview

The following appendix shows the impact that low river levels would have on flooding behind the Murwillumbah CBD and Murwillumbah East levees. More specifically, it shows the magnitude and extent of reductions in water level associated a low river level versus a high river water level in the form of flood level difference maps.

20% AEP

Murwillumbah CBD



Predicted change in 20% AEP water levels across the Murwillumbah CBD with a low Tweed River water level

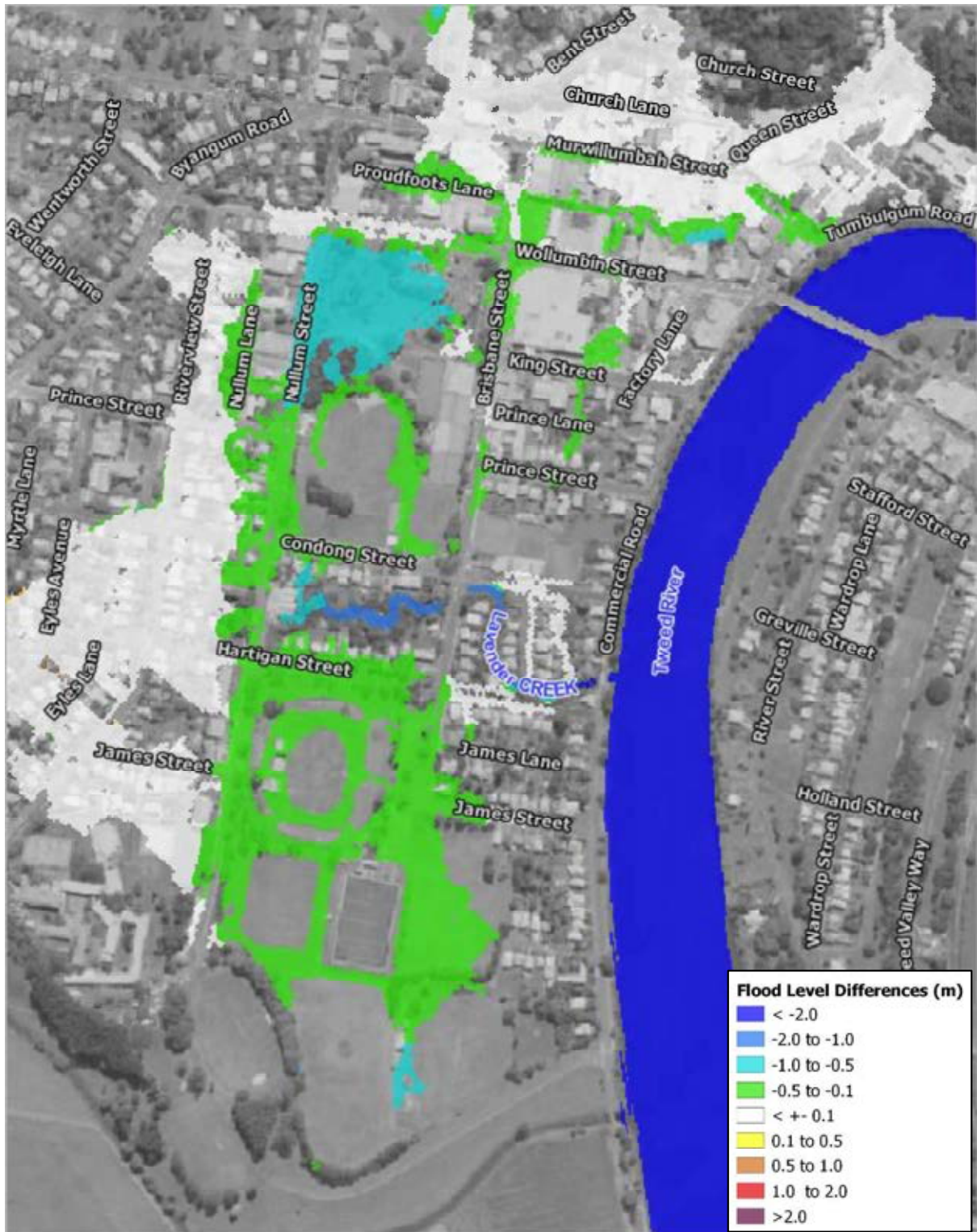
East Murwillumbah



Predicted change in 20% AEP water levels across East Murwillumbah with a low Tweed River water level

5% AEP

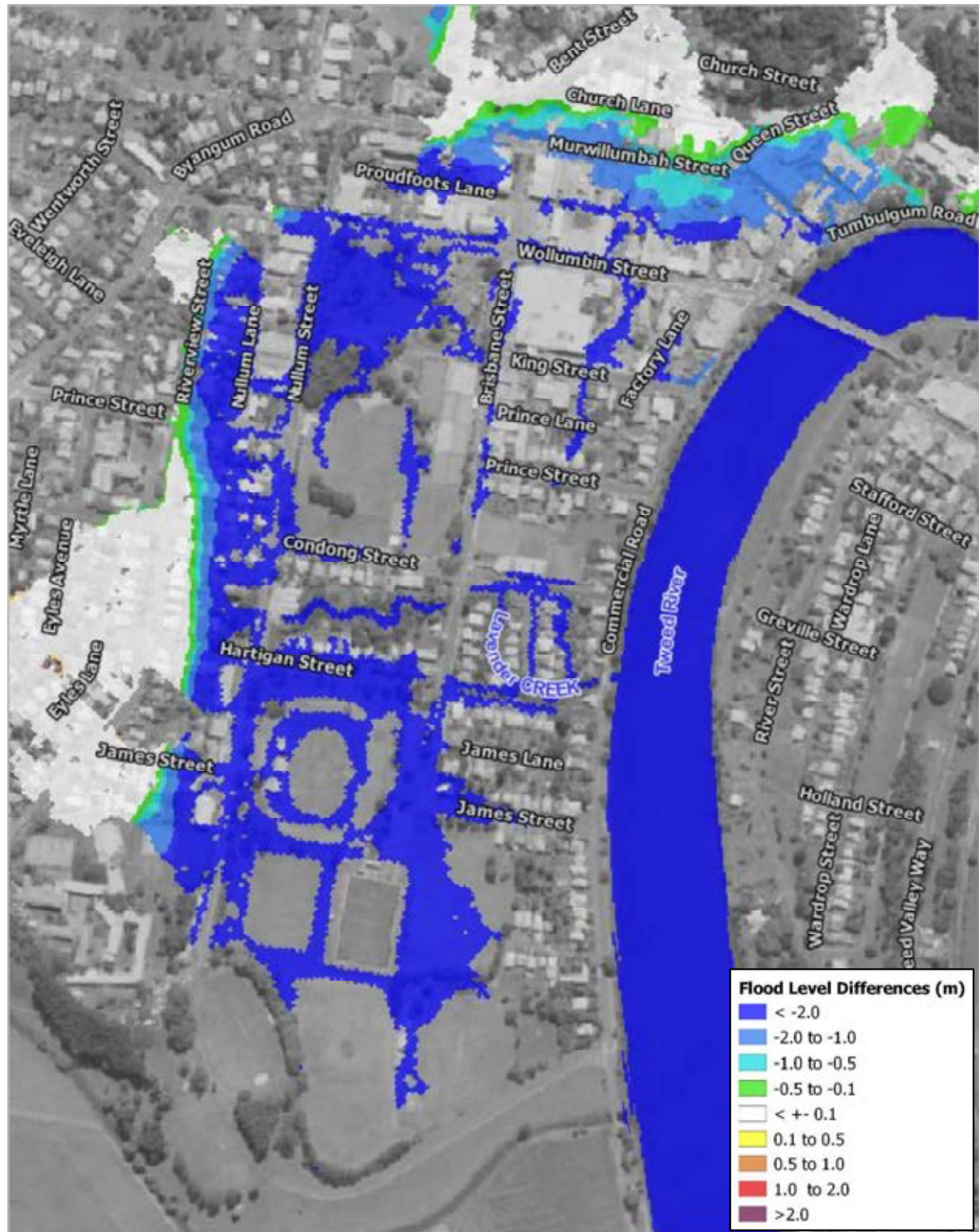
Murwillumbah CBD



Predicted change in 5% AEP water levels across the Murwillumbah CBD with a low Tweed River water level

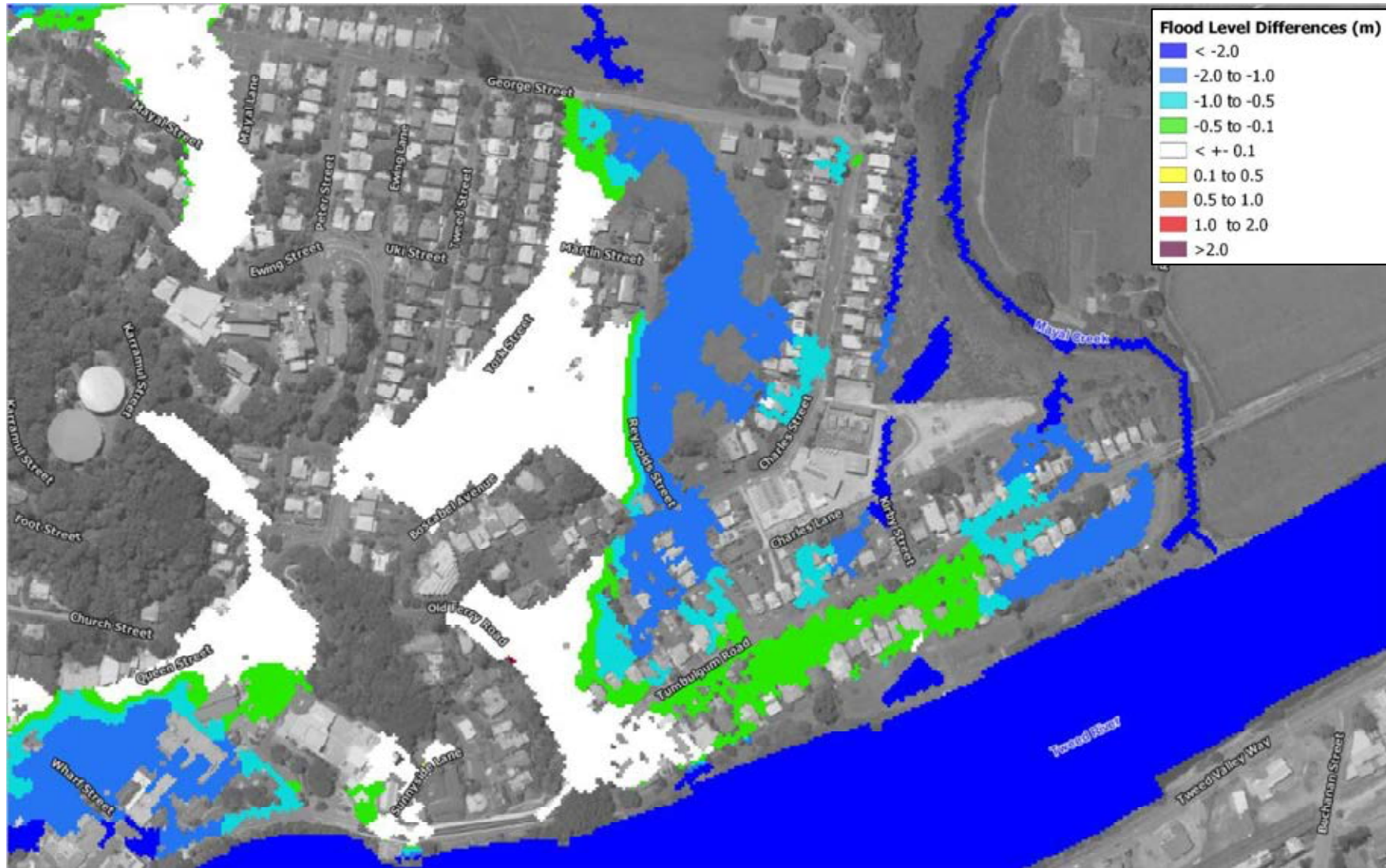
1% AEP

Murwillumbah CBD



Predicted change in 1% AEP water levels across the Murwillumbah CBD with a low Tweed River water level

East Murwillumbah



Predicted change in 1% AEP water levels across East Murwillumbah with a low Tweed River water level

APPENDIX E

COST ESTIMATES



Lavender Creek Pump Station Upgrade Scenario 1 (Minimum Upgrade)

Nominal Capacity = 4m³/s (1 x Flygt PL7125 or equivalent)

Job Title: Lavender Creek Pump Station Upgrade

Code	Description	Quantity	Unit	Rate	Amount	Notes
015, JOB SITE CHARGES						
7516	Demolition of Existing House (77 Commercial Road)	1	Item	\$	50,000.00 \$	50,000.00
7511	Dewatering for Pump Well Excavation	1	Item	\$	6,631.99 \$	6,631.99
7507	Environmental Compliance	1	Item	\$	2,070.10 \$	2,070.10
7500	Establishment, Large (Including Plant Transport)	1	Item	\$	4,174.46 \$	4,174.46
7480	Principal Project Management	1	Item	\$	7,086.70 \$	7,086.70
7508	Traffic Control and Guidance & 5099	1	Item	\$	12,008.69 \$	12,008.69
7620	Temporary Fencing	70	Metres	\$	35.78 \$	2,504.88
025, FORMATION/ EARTHWORKS/EXCAVATION						
7593	Excavation for Pump Wells	720	Tonne	\$	41.63 \$	29,972.16
7593	Excavation for Maintenance Access	145	Tonne	\$	41.63 \$	6,036.06
040, MINOR WORKS						
7629	Maintenance Access - Driveway Crossover	1	Item	\$	5,485.72 \$	5,485.72
7624	Maintenance Access (Reinforced Concrete)	105	M2	\$	149.72 \$	15,721.02
7628	Landscaping, Revegetation, Restoration	1	Item	\$	6,412.49 \$	6,412.49
050, PUMP WELL STRUCTURES						
7665	Pump Well Rear and Side Walls (Reinforced Concrete)	1	Each	\$	37,159.67 \$	37,159.67
7669	Pump Well Base Slab (Reinforced Concrete)	1	Each	\$	23,739.97 \$	23,739.97
7649	Large Debris Screen (Fabricate and Install)	1	Item	\$	22,500.00 \$	22,500.00
7649	Pump Platform (Roof of Wells)	1	Item	\$	20,000.00 \$	20,000.00
055, PUMPS, PIPES, AND ASSOCIATED INFRASTRUCTURE						
7684	Pump Outlet Pipes incl Mounts and Bracing	1	Item	\$	40,000.00 \$	40,000.00
7686	Pumps - 1 x Flygt PL7125	1.00	Each	\$	635,000.00 \$	635,000.00
7685	Slip Line Existing RCP Outlet Pipes	1	Item	\$	120,000.00 \$	120,000.00
7687	Switchboard Controls, Telemetry, Commissioning	1	Each	\$	100,000.00 \$	100,000.00
7620	Site Structures - Switchgear Housing, Motor Platform, Sheds etc.	1	Item	\$	37,500.00 \$	37,500.00
7633	Generator Backup - Supply and Installation	1	Item	\$	175,000.00 \$	175,000.00
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$	120,000.00 \$	120,000.00
Sub-Total (Direct Costs)						\$1,479,004
COSTS, INDIRECT COSTS						
COST	Indirect Costs	1.00	Item			\$746,897
Total (rounded)						\$2,230,000

Notes:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes

Lavender Creek Pump Station Upgrade Scenario 2 (Mid-Range Capacity)

Nominal Capacity = 8m³/s (2 x Flygt PL7125)

Job Title: Lavender Creek Pump Station Upgrade

Code	Description	Quantity	Unit	Rate	Amount	Notes
015, JOB SITE CHARGES						
7516	Demolition of Existing House (77 Commercial Road)	1	Item	\$	50,000.00 \$	50,000.00
7511	Dewatering for Pump Well Excavation	1	Item	\$	9,947.99 \$	9,947.99
7507	Environmental Compliance	1	Item	\$	2,070.10 \$	2,070.10
7500	Establishment, Large (Including Plant Transport)	1	Item	\$	4,174.46 \$	4,174.46
7480	Principal Project Management	1	Item	\$	7,086.70 \$	7,086.70
7508	Traffic Control and Guidance & 5099	1	Item	\$	12,008.69 \$	12,008.69
7620	Temporary Fencing	70	Metres	\$	35.78 \$	2,504.88
025, FORMATION/ EARTHWORKS/EXCAVATION						
7593	Excavation for Pump Wells	720	Tonne	\$	62.44 \$	44,958.24
7593	Excavation for Maintenance Access	145	Tonne	\$	41.63 \$	6,036.06
040, MINOR WORKS						
7629	Maintenance Access - Driveway Crossover	1	Item	\$	5,485.72 \$	5,485.72
7624	Maintenance Access (Reinforced Concrete)	105	M2	\$	149.72 \$	15,721.02
7628	Landscaping, Revegetation, Restoration	1	Item	\$	6,412.49 \$	6,412.49
050, PUMP WELL STRUCTURES						
7665	Pump Well Rear and Side Walls (Reinforced Concrete)	1	Each	\$	55,739.50 \$	55,739.50
7669	Pump Well Base Slab (Reinforced Concrete)	1	Each	\$	35,609.96 \$	35,609.96
7649	Large Debris Screen (Fabricate and Install)	1	Item	\$	22,500.00 \$	22,500.00
7649	Pump Platform (Roof of Wells)	1	Item	\$	30,000.00 \$	30,000.00
055, PUMPS, PIPES, POWER AND ASSOCIATED INFRASTRUCTURE						
7684	Pump Outlet Pipes incl Mounts and Bracing	1	Item	\$	60,000.00 \$	60,000.00
7686	Pumps - 2 x Flygt PL7125	2.00	Each	\$	630,000.00 \$	1,260,000.00
7685	Slip Line Existing RCP Outlet Pipes	1	Item	\$	120,000.00 \$	120,000.00
7687	Switchboard Controls, Telemetry, Commissioning	1	Each	\$	150,000.00 \$	150,000.00
7620	Site Structures - Switchgear Housing, Motor Platform, Sheds etc.	1	Item	\$	56,250.00 \$	56,250.00
7633	Generator Backup - Supply and Installation	1	Item	\$	225,000.00 \$	225,000.00
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$	175,000.00 \$	175,000.00
Sub-Total (Direct Costs)					\$	2,356,506
COSTS, INDIRECT COSTS						
COST	Indirect Costs	1.00	Item		\$	1,190,035
Total (rounded)					\$	3,550,000

Notes:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes



Lavender Creek Pump Station Upgrade Scenario 3 (High Range Capacity)

Nominal Capacity = 12m³/s (3 x Flygt PL7125)

Job Title: Lavender Creek Pump Station Upgrade

Code	Description	Quantity	Unit	Rate	Amount	Notes
015, JOB SITE CHARGES						
7516	Demolition of Existing House (77 Commercial Road)	1	Item	\$	50,000.00 \$	50,000.00
7511	Dewatering for Pump Well Excavation	1	Item	\$	13,263.98 \$	13,263.98
7507	Environmental Compliance	1	Item	\$	2,070.10 \$	2,070.10
7500	Establishment, Large (Including Plant Transport)	1	Item	\$	4,174.46 \$	4,174.46
7480	Principal Project Management	1	Item	\$	7,086.70 \$	7,086.70
7508	Traffic Control and Guidance & 5099	1	Item	\$	12,008.69 \$	12,008.69
7620	Temporary Fencing	70	Metres	\$	35.78 \$	2,504.88
025, FORMATION/ EARTHWORKS/EXCAVATION						
7593	Excavation for Pump Wells (incl Propping)	720	Tonne	\$	83.26 \$	59,944.32
7593	Excavation for Maintenance Access	145	Tonne	\$	41.63 \$	6,036.06
040, MINOR WORKS						
7629	Maintenance Access - Driveway Crossover	1	Item	\$	5,485.72 \$	5,485.72
7624	Maintenance Access (Reinforced Concrete)	105	M2	\$	149.72 \$	15,721.02
7628	Landscaping, Revegetation, Restoration	1	Item	\$	6,412.49 \$	6,412.49
050, PUMP WELL STRUCTURES						
7665	Pump Well Rear and Side Walls (Reinforced Concrete)	1	Each	\$	74,319.34 \$	74,319.34
7669	Pump Well Base Slab (Reinforced Concrete)	1	Each	\$	47,479.94 \$	47,479.94
7649	Large Debris Screen (Fabricate and Install)	1	Item	\$	30,000.00 \$	30,000.00
7649	Pump Platform (Roof of Wells)	1	Item	\$	40,000.00 \$	40,000.00
055, PUMPS, PIPES, AND ASSOCIATED INFRASTRUCTURE						
7684	Pump Outlet Pipes incl Mounts and Bracing	1	Item	\$	80,000.00 \$	80,000.00
7686	Pumps - 3 x Flygt PL7125	3.00	Each	\$	628,000.00 \$	1,884,000.00
7685	Slip Line Existing RCP Outlet Pipes	1	Item	\$	120,000.00 \$	120,000.00
7523	Pipe-Jack New Outlet Pipe	1	Each	\$	200,000.00 \$	200,000.00
7687	Switchboard Controls, Telemetry, Commissioning	1	Each	\$	200,000.00 \$	200,000.00
7620	Site Structures - Switchgear Housing, Motor Platform, Sheds etc.	1	Item	\$	75,000.00 \$	75,000.00
7633	Generator Backup - Supply and Installation	1	Item	\$	225,000.00 \$	225,000.00
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$	225,000.00 \$	225,000.00
Sub-Total (Direct Costs)					\$	3,385,508
COSTS, INDIRECT COSTS						
COST	Indirect Costs	1.00	Item		\$	1,709,681
Total (rounded)					\$	5,100,000

Notes:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes



Wharf Street Scenario 1 – Inlet Upgrade Only

Pump Unchanged. Augment Offtake. Increase Inlet Capacity. Replace Pump Station Pits.

Job Title: Wharf Street 1 – Inlet Upgrade Only

Code	Description	Quantity	Unit	Rate	Amount
015, JOB SITE CHARGES					
7516	Demolition of Existing Pump Station	1	Item	\$ 30,000.00	\$ 30,000
7507	Environmental Compliance	1	Item	\$ 1,245.30	\$ 1,245
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 4,174.46	\$ 4,174
7480	Principal Project Management	1	Item	\$ 3,543.35	\$ 3,543
7508	Traffic Control and Guidance & 5099	1	Item	\$ 38,936.65	\$ 38,937
020, DRAINAGE					
7522	Augment Local Sag Offtake Pipe	35	Metres	\$ 934.72	\$ 32,715
7541	Inlet Pits - Augment Inlet Capacity	3	Each	\$ 6,097.99	\$ 18,294
7687	New Large Pump Well	1	Each	\$ 84,178.25	\$ 84,178
030, PAVEMENT					
7603	Reinstate Road - Base Material	50	Tonne	\$ 104.36	\$ 5,218
7569	Reinstate Kerb & Gutter	25	Metres	\$ 158.45	\$ 3,961
035, WEARING SURFACE					
7614	Reinstate Wharf St - Asphalt	75	M2	\$ 60.00	\$ 4,500
7610	Reinstate Wharf St - Prime Coat	75	M2	\$ 15.00	\$ 1,125
040, MINOR WORKS					
7620	Temporary Fencing	70	Metres	\$ 35.78	\$ 2,505
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 6,040.82	\$ 6,041
7654	Linemarking	50	Metres	\$ 25.00	\$ 1,250
055, WATER MAINS					
7645	Pump Supports, Structures and Fixings	1	Item	\$ 18,000.00	\$ 18,000
7686	Reinstate Switchboards Controls, Telemetry and Re-Commissioning	1	Each	\$ 24,000.00	\$ 24,000
Sun-Total					\$ 279,687
COSTS, INDIRECT COSTS					
COST	Indirect Costs	1	Item		\$ 141,243
Total (rounded)					\$ 420,000

Project Specific Conditions:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes

Wharf Street Scenario 2 – Inlet and Pump Upgrade

Augment Offtake. Increase Inlet Capacity. Replace Pump Station Pits. New Pump = Flygt P7081

Job Title: Wharf Street Pump Station Upgrade

Code	Description	Quantity	Unit	Rate	Amount
015, JOB SITE CHARGES					
7516	Demolition of Existing Pump Station	1	Item	\$ 20,000.00	\$ 20,000
7507	Environmental Compliance	1	Item	\$ 1,245.30	\$ 1,245
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 4,174.46	\$ 4,174
7480	Principal Project Management	1	Item	\$ 3,543.35	\$ 3,543
7508	Traffic Control and Guidance & 5099	1	Item	\$ 25,957.76	\$ 25,958
020, DRAINAGE					
7522	Augment Local Sag Offtake Pipe	35	Metres	\$ 934.72	\$ 32,715
7541	Inlet Pits - Augment Inlet Capacity	3	Each	\$ 6,097.99	\$ 18,294
7687	New Large Pump Well	1	Each	\$ 84,178.25	\$ 84,178
7688	Pipe-Jack New Outlet Under Levee	1	Each	\$ 150,000.00	\$ 150,000
030, PAVEMENT					
7603	Reinstate Road - Base Material	50	Tonne	\$ 104.36	\$ 5,218
7569	Reinstate Kerb & Gutter	25	Metres	\$ 158.45	\$ 3,961
035, WEARING SURFACE					
7614	Reinstate Wharf St - Asphalt	75	M2	\$ 60.00	\$ 4,500
7610	Reinstate Wharf St - Prime Coat	75	M2	\$ 15.00	\$ 1,125
040, MINOR WORKS					
7620	Temporary Fencing	70	Metres	\$ 35.78	\$ 2,505
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 12,081.65	\$ 12,082
7654	Linemarking	100	Metres	\$ 25.00	\$ 2,500
055, WATER MAINS					
7644	Pump - 1 x Flygt PL7081	1	Item	\$ 295,000.00	\$ 295,000
7645	Pump Supports, Structures and Fixings	1	Item	\$ 20,000.00	\$ 20,000
7686	Reinstate Switchboards Controls, Telemetry and Re-Commissioning	1	Each	\$ 40,000.00	\$ 40,000
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$ 75,000.00	\$ 75,000.00
Sun-Total					\$ 801,999
COSTS, INDIRECT COSTS					
COST	Indirect Costs	1	Item		\$ 386,514

Total (rounded) \$ 1,190,000

Project Specific Conditions:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes

Wharf Street Scenario 3 - New (Deep) Medium Capacity Pump Station

Nominal Capacity = 1.2m³/s (1 x Flygt PL7081). Set Below Stormwater System IL.

Job Title: Wharf Street Pump Station Upgrade

Code	Description	Quantity	Unit	Rate	Amount	Notes
015, JOB SITE CHARGES						
7507	Environmental Compliance	1	Item	\$ 1,245.30	\$ 1,245.30	
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 4,174.46	\$ 4,174.46	
7480	Principal Project Management	1	Item	\$ 5,315.03	\$ 5,315.03	
7508	Traffic Control and Guidance & 5099	1	Item	\$ 100,000.00	\$ 100,000.00	
7511	Dewatering	1	Item	\$ 13,263.98	\$ 13,263.98	
020, DRAINAGE						
7544	New Large Pump Well	1	Each	\$ 140,000.00	\$ 140,000.00	
7523	Pipe-Jack New Outlet Pipe	1	Each	\$ 150,000.00	\$ 150,000.00	
030, PAVEMENT						
7603	Reinstate Tumbulgum Road - Base Material	362	Tonne	\$ 91.12	\$ 32,983.99	
7569	Reinstate Kerb & Gutter	25	Metres	\$ 158.45	\$ 3,961.20	
035, WEARING SURFACE						
7614	Reinstate Tumbulgum Road - Asphalt	216	M2	\$ 20.99	\$ 4,533.41	
7610	Reinstate Tumbulgum Road - Prime Coat	216	M2	\$ 9.78	\$ 2,112.48	
040, MINOR WORKS						
7620	Temporary Fencing	70	Metres	\$ 35.78	\$ 2,504.88	
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 6,040.82	\$ 6,040.82	
7619	Flood Gates	1	Item	\$ 1,200.00	\$ 1,200.00	
7654	Linemarking	200	Metres	\$ 8.24	\$ 1,648.80	
055, WATER MAINS						
7632	Pump - 1 x Flygt PL7081	1	Item	\$ 295,000.00	\$ 295,000.00	
7645	Pump Supports, Structures and Fixings	1	Item	\$ 18,750.00	\$ 18,750.00	
7648	Switchboard Controls, Telemetry, Commissioning	1	Item	\$ 112,500.00	\$ 112,500.00	
7685	Divert Trunk Water Main	1	Item	\$ 160,000.00	\$ 160,000.00	
7633	Generator Backup - Supply and Installation	1	Item	\$ 100,000.00	\$ 100,000.00	
7634	Alterations to Electricity Services (incl New	1	Item	\$ 75,000.00	\$ 75,000.00	
					Sub-Total	\$ 1,230,234.36
COSTS, INDIRECT COSTS						
COST	Indirect Costs	1	Item		\$ 510,696.77	
					Total (rounded)	\$1,740,000

Project Specific Conditions:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes



Wharf Street Scenario 4 - New (Deep) High Capacity Pump Station

Nominal Capacity = 2.5m³/s (1 x Flygt PL7105)

Job Title: Wharf Street 4 – New (Deeper) High Capacity Pump Station

Code	Description	Quantity	Unit	Rate	Amount	Notes
015, JOB SITE CHARGES						
7507	Environmental Compliance	1	Item	\$ 1,245.30	\$ 1,245.30	
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 4,174.46	\$ 4,174.46	
7480	Principal Project Management	1	Item	\$ 5,315.03	\$ 5,315.03	
7508	Traffic Control and Guidance & 5099	1	Item	\$ 100,000.00	\$ 100,000.00	
7511	Dewatering	1	Item	\$ 13,263.98	\$ 13,263.98	
020, DRAINAGE						
7544	New Large Pump Well	1	Each	\$ 175,000.00	\$ 175,000.00	
7523	Pipe-Jack New Outlet Pipe	1	Each	\$ 150,000.00	\$ 150,000.00	
030, PAVEMENT						
7603	Reinstate Tumbulgum Road - Base Material	362	Tonne	\$ 91.12	\$ 32,983.99	
7569	Reinstate Kerb & Gutter	25	Metres	\$ 158.45	\$ 3,961.20	
035, WEARING SURFACE						
7614	Reinstate Tumbulgum Road - Asphalt	216	M2	\$ 20.99	\$ 4,533.41	
7610	Reinstate Tumbulgum Road - Prime Coat	216	M2	\$ 9.78	\$ 2,112.48	
040, MINOR WORKS						
7620	Temporary Fencing	70	Metres	\$ 35.78	\$ 2,504.88	
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 6,040.82	\$ 6,040.82	
7619	Flood Gates	1	Item	\$ 1,200.00	\$ 1,200.00	
7654	Linemarking	200	Metres	\$ 8.24	\$ 1,648.80	
055, WATER MAINS						
7632	1 x Flygt P7105	1	Item	\$ 415,000.00	\$ 415,000.00	
7645	Pump Supports, Structures and Fixings	1	Item	\$ 25,000.00	\$ 25,000.00	
7648	Switchboard Controls, Telemetry, Commissioning	1	Item	\$ 150,000.00	\$ 150,000.00	
7685	Divert Trunk Water Main	1	Item	\$ 160,000.00	\$ 160,000.00	
7633	Generator Backup - Supply and Installation	1	Item	\$ 150,000.00	\$ 150,000.00	
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$ 100,000.00	\$ 100,000.00	
				Sub-Total	\$ 1,503,984.36	
COSTS, INDIRECT COSTS						
COST	Indirect Costs	1	Item		\$ 797,180.77	

Total (rounded) \$2,300,000

Project Specific Conditions:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes

King Street 1 – New Pump Station fitted to Stormwater System

Nominal Capacity = 2.5m³/s (1 x Flygt PL7105). Set Below Stormwater System IL.

Job Title: King Street Pump Station

Code	Description	Quantity	Unit	Rate	Amount
015, JOB SITE CHARGES					
7507	Environmental Compliance	1	Item	\$ 1,245.30	\$ 1,245.30
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 4,174.46	\$ 4,174.46
7480	Principal Project Management	1	Item	\$ 5,315.03	\$ 5,315.03
7508	Traffic Control and Guidance & 5099	1	Item	\$ 36,963.44	\$ 36,963.44
7511	Dewatering	1	Item	\$ 9,931.19	\$ 9,931.19
020, DRAINAGE					
7544	New Large Pump Well	1	Each	\$ 127,650.08	\$ 127,650.08
7523	Pipe-Jack New Outlet Pipe	1	Each	\$ 150,000.00	\$ 150,000.00
030, PAVEMENT					
7603	Reinstate Road - Base Material	210	Tonne	\$ 92.65	\$ 19,456.92
7569	Reinstate Kerb & Gutter	25	Metres	\$ 158.45	\$ 3,961.20
035, WEARING SURFACE					
7614	Reinstate Road - Asphalt	162	M2	\$ 23.86	\$ 3,864.67
7610	Reinstate Road - Prime Coat	162	M2	\$ 9.78	\$ 1,584.36
040, MINOR WORKS					
7620	Temporary Fencing	70	Metres	\$ 35.78	\$ 2,504.88
7619	Flood Gates	1	Item	\$ 1,200.00	\$ 1,200.00
7654	Linemarking	50	Metres	\$ 32.99	\$ 1,649.40
055, WATER MAINS					
7632	1 x Flygt P7105	1	Item	\$ 415,000.00	\$ 415,000.00
7645	Pump Supports, Structures and Fixings	1	Item	\$ 24,000.00	\$ 24,000.00
7648	Switchboard Controls, Telemetry, Commissioning	1	Item	\$ 120,000.00	\$ 120,000.00
7685	Divert Trunk Water Main	1	Item	\$ 160,000.00	\$ 160,000.00
7633	Generator Backup - Supply and Installation	1	Item	\$ 150,000.00	\$ 150,000.00
7634	Alterations to Electricity Services (incl New Transformer)	1	Item	\$ 100,000.00	\$ 100,000.00
Sub-Total					\$ 1,338,501
COSTS, INDIRECT COSTS					
COST	Indirect Costs	1	Item		\$ 676,818.79

Total (rounded) \$2,020,000.00

Project Specific Conditions:

Where Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes

EM1 - East Murwillumbah Pump Station

Date Printed 21 March 2023

Quote Number: EM1

Tweed Shire Council

Attention:

Job Title: EM1 - East Murwillumbah Pump Station

Code	Description	Quantity	Unit	Rate	Amount
015, JOB SITE CHARGES					
7517	Acid Sulphate Soil Treatment On-Site	1	Item	\$ 7,578.50	\$ 7,578.50
7511	Dewatering	1	Item	\$ 3,332.80	\$ 3,332.80
7507	Environmental Compliance	1	Item	\$ 2,070.10	\$ 2,070.10
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 3,562.52	\$ 3,562.52
7480	Principal Project Management	1	Item	\$ 3,543.35	\$ 3,543.35
7508	Traffic Control and Guidance & 5099	1	Item	\$ 23,304.96	\$ 23,304.96
7629	Subdivision and Purchase of Portion of Adjacent Lot for Pump Station	1	Item	\$ 75,000.00	\$ 75,000.00
020, DRAINAGE					
7551	Outlet Headwall	1	Each	\$ 2,828.27	\$ 2,828.27
7684	Install Outlet Pipes	60	Metres	\$ 1,157.24	\$ 69,434.64
025, FORMATION/ EARTHWORKS					
7593	Earthworks for Pump Well and Intake	90	Tonne	\$ 54.42	\$ 4,897.80
7592	Excavate and Reinstall Flood Levee	300	Tonne	\$ 8.47	\$ 2,541.60
030, PAVEMENT					
7603	Reinstall Road - Base Material	20	Tonne	\$ 134.80	\$ 2,695.92
035, WEARING SURFACE					
7610	Prime Coat	42	M2	\$ 9.78	\$ 410.76
7614	Asphalt	42	M2	\$ 20.99	\$ 881.50
040, MINOR WORKS					
7631	Adjust Water Main, Services	1	Item	\$ 4,782.84	\$ 4,782.84
7619	Flood Gates	2	Item	\$ 750.00	\$ 1,500.00
7624	Footpath & Cycleway Construction	1	M2	\$ 3,504.19	\$ 3,504.19
7641	Information Signs	1	Item	\$ 1,392.44	\$ 1,392.44
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 7,205.20	\$ 7,205.20
7630	Service Locations	1	Item	\$ 578.96	\$ 578.96
7620	Temporary Fencing	50	Metres	\$ 40.50	\$ 2,025.00
7620	Permanent Security Fencing	50	Metres	\$ 84.30	\$ 4,215.00
7654	Linemarking	200	Metres	\$ 3.10	\$ 619.20
055, WATER MAINS					
7687	Pump Well - Precast	1	Each	\$ 19,599.91	\$ 19,599.91
7646	Pump - 1 x Flygt PL7081 (or equivalent)	1	Item	\$ 295,000.00	\$ 295,000.00
7647	Pump Supports, Structures and Fixings	1	Item	\$ 25,000.00	\$ 25,000.00
7626	Switchboard Controls, Telemetry, Commissioning	1	Item	\$ 100,000.00	\$ 100,000.00
7627	Alterations to Electricity Services (incl New Transformer)	1	Item	\$ 75,000.00	\$ 75,000.00
Sub-Total					\$ 742,505.46
COSTS, INDIRECT COSTS					
COST	Indirect Costs	1	Item		\$ 374,963.86
Total					\$1,120,000.00

Project Specific Conditions:

here Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes



EM2 - Stormwater Connectivity Upgrades Associated with East Murwillumbah Pump Station

Date Printed 21 March 2023

Quote Number: EM2

Tweed Shire Council

Attention:

Job Title: EM2 - Stormwater Connectivity Upgrades Associated with East Murwillumbah Pump Station

Code	Description	Quantity	Unit	Rate	Amount
015, JOB SITE CHARGES					
7517	Acid Sulphate Soil Treatment	1	Item	\$ 16,623.89	\$ 16,623.89
7507	Environmental Compliance	1	Item	\$ 3,925.90	\$ 3,925.90
7500	Establishment, Large (Including Plant Transport)	1	Item	\$ 3,562.52	\$ 3,562.52
7480	Principal Project Management	1	Item	\$ 5,315.03	\$ 5,315.03
7508	Traffic Control and Guidance & 5099	1	Item	\$ 46,609.92	\$ 46,609.92
7633	Purchase of Easements - Charles St	2	Item	\$ 75,000.00	\$ 150,000.00
020, DRAINAGE					
7522	Stormwater Pipes - 600mm Diameter	380	Metres	\$ 614.58	\$ 233,540.40
7551	Headwalls. (Precast)	4	Each	\$ 2,676.94	\$ 10,707.74
7541	Inlet Pits (<1.5m Deep)	6	Each	\$ 5,620.93	\$ 33,725.59
7565	Open Drains	200	Metres	\$ 33.73	\$ 6,746.40
030, PAVEMENT					
7603	Reinstate Reynolds St - Base Material	520	Tonne	\$ 97.87	\$ 50,893.44
7603	Reinstate Tumbulgum Rd - Base Material	25	Tonne	\$ 127.12	\$ 3,177.90
7603	Reinstate Charles St - Base Material	25	Tonne	\$ 127.12	\$ 3,177.90
035, WEARING SURFACE					
7610	Prime Coat	1,225.00	M2	\$ 9.78	\$ 11,980.50
7614	Asphalt	1,225.00	M2	\$ 20.99	\$ 25,710.30
040, MINOR WORKS					
7631	Adjust Water Main, Services	4	Item	\$ 1,267.39	\$ 5,069.57
7624	Footpath & Cycleway Construction	1	M2	\$ 3,504.19	\$ 3,504.19
7628	Landscaping, Revegetation, Restoration	1	Item	\$ 7,205.20	\$ 7,205.20
7630	Service Locations	1	Item	\$ 578.96	\$ 578.96
7620	Temporary Fencing	50	Metres	\$ 40.50	\$ 2,025.00
7654	Linemarking	1,440.00	Metres	\$ 1.14	\$ 1,641.60
7629	Adjustments to Properties, Including Access	2	Item	\$ 4,637.09	\$ 9,274.18
7632	Alterations to Sewer Services, Fittings	4	Item	\$ 1,267.39	\$ 5,069.57
7620	Fencing and Bollard Lines	20	Metres	\$ 85.30	\$ 1,705.92
7621	Gates and Accesses	2	Item	\$ 540.00	\$ 1,080.00
Sub-Total					\$ 642,851.62
COSTS, INDIRECT COSTS					
COST	Indirect Costs	1	Item		\$ 324,640.23
Total (rounded)					\$970,000.00

Project Specific Conditions:

Where TSC Benchmark Rates have been used, a factor of 1.2 has been applied to account for recent inflation/market changes