



# Killarney Vale / Long Jetty Catchments Floodplain Risk Management Study & Draft Plan

**Final Report**  
Volume 2 of 2: Figures



▶▶ **Revision 5**  
**March 2021**

**Catchment Simulation Solutions**

## ▶ FIGURES

- Figure 1 Killarney vale and Long Jetty Catchments
- Figure 2 Existing Flood Detention Basins
- Figure 3 Ground Surface Elevations
- Figure 4 Environmental and Heritage Constraints

### Flood Maps for Existing Conditions

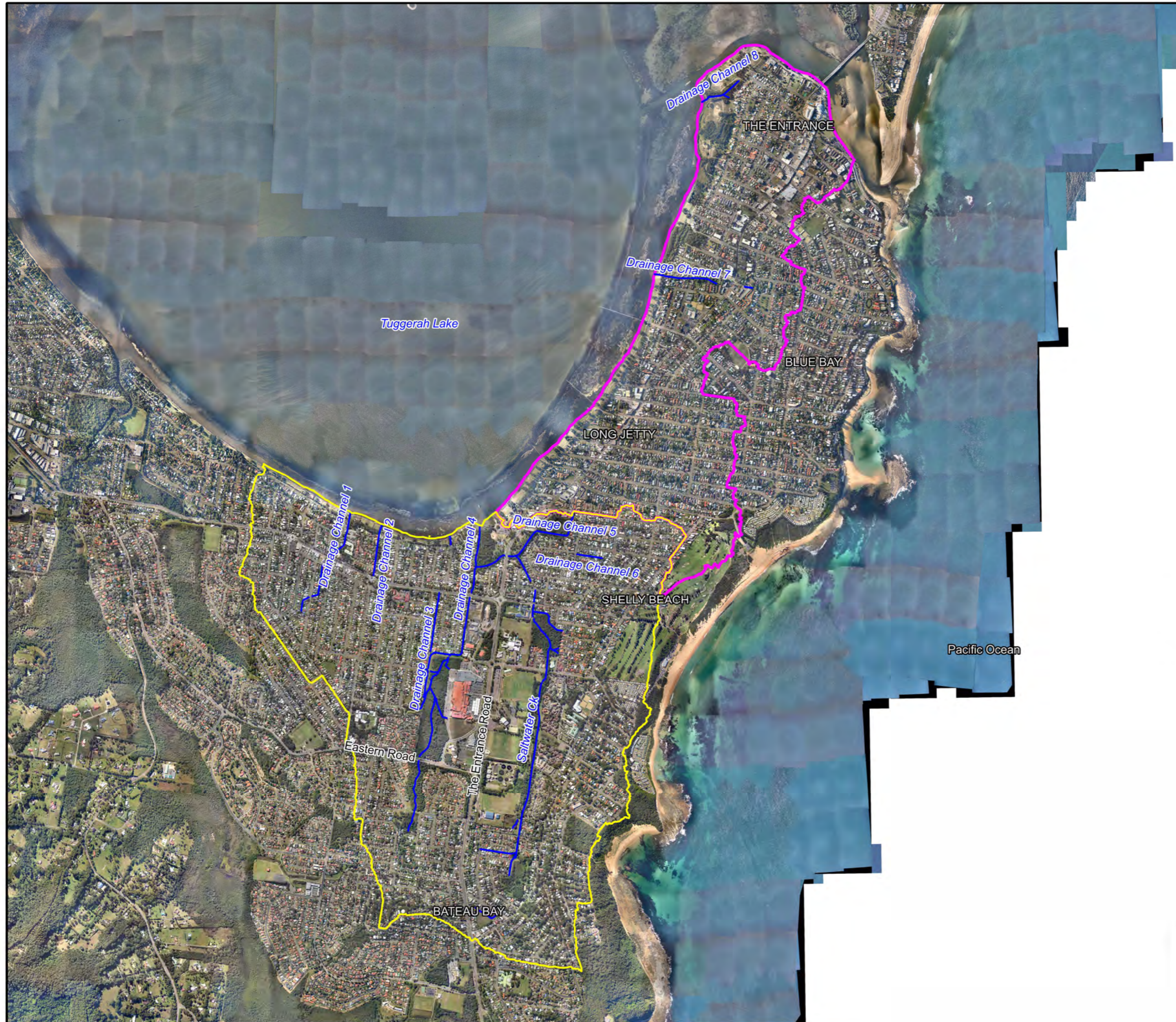
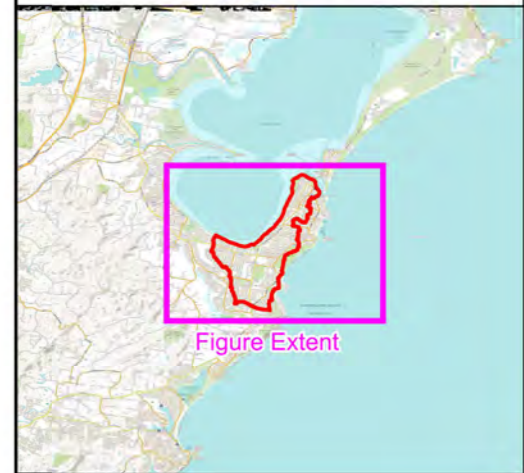
- Figure 5: Peak Floodwater Depths for the 20% AEP Flood
- Figure 6: Peak Floodwater Depths for the 5% AEP Flood
- Figure 7 Peak Floodwater Depths for the 1% AEP Flood
- Figure 8 Peak Floodwater Depths for the PMF
- Figure 9 Stormwater Capacity
- Figure 10 Flood Hazard for the 1% AEP Flood
- Figure 11 Flood Hazard for the PMF
- Figure 12 Emergency Response Classifications for the 1% AEP Flood
- Figure 13 Emergency Response Classifications for the PMF
- Figure 14 1% AEP Hydraulic Categories
- Figure 15 PMF Hydraulic Categories
- Figure 16 Peak Floodwater Depths and Velocities for the 1% AEP Flood with 18.6% Increase in Rainfall Intensity associated with Climate Change
- Figure 17 Flood Planning Area
- Figure 18 Local Environmental Plan (LEP) Zoning

### Concept Designs for Floodplain Risk Management Options

- Figure 19 Concept Design for Blockage Control Structures Upstream of Culverts
- Figure 20 Concept Design for Culvert Upgrades near Kathleen White Crescent
- Figure 21 Concept Design for Culvert Upgrades between Hume Boulevard and Wyong Road
- Figure 22 Concept Design for Culvert Upgrades between The Entrance Road and the rear of The Reef Resort Motel
- Figure 23 Concept Design for the Shelly Beach Golf Course Detention Basin

- Figure 24 Concept Design for The Bay Village Detention Basin Upgrade
- Figure 25 Concept Design for the Installation of Kerb and Gutter along Elsiemer St and Pacific St
- Figure 26 Concept Design for Wyong Road Regrading
- Figure 27 Concept Design for The Entrance Reef Resort Motel Regrading
- [Draft Floodplain Risk Management Plan](#)
- Figure 28 Killarney Vale and Long Jetty Draft Floodplain Risk Management Plan





**LEGEND**

- Killarney Vale Catchment
- Long Jetty Catchment
- Watercourses

Notes:  
Aerial photograph date: 2013

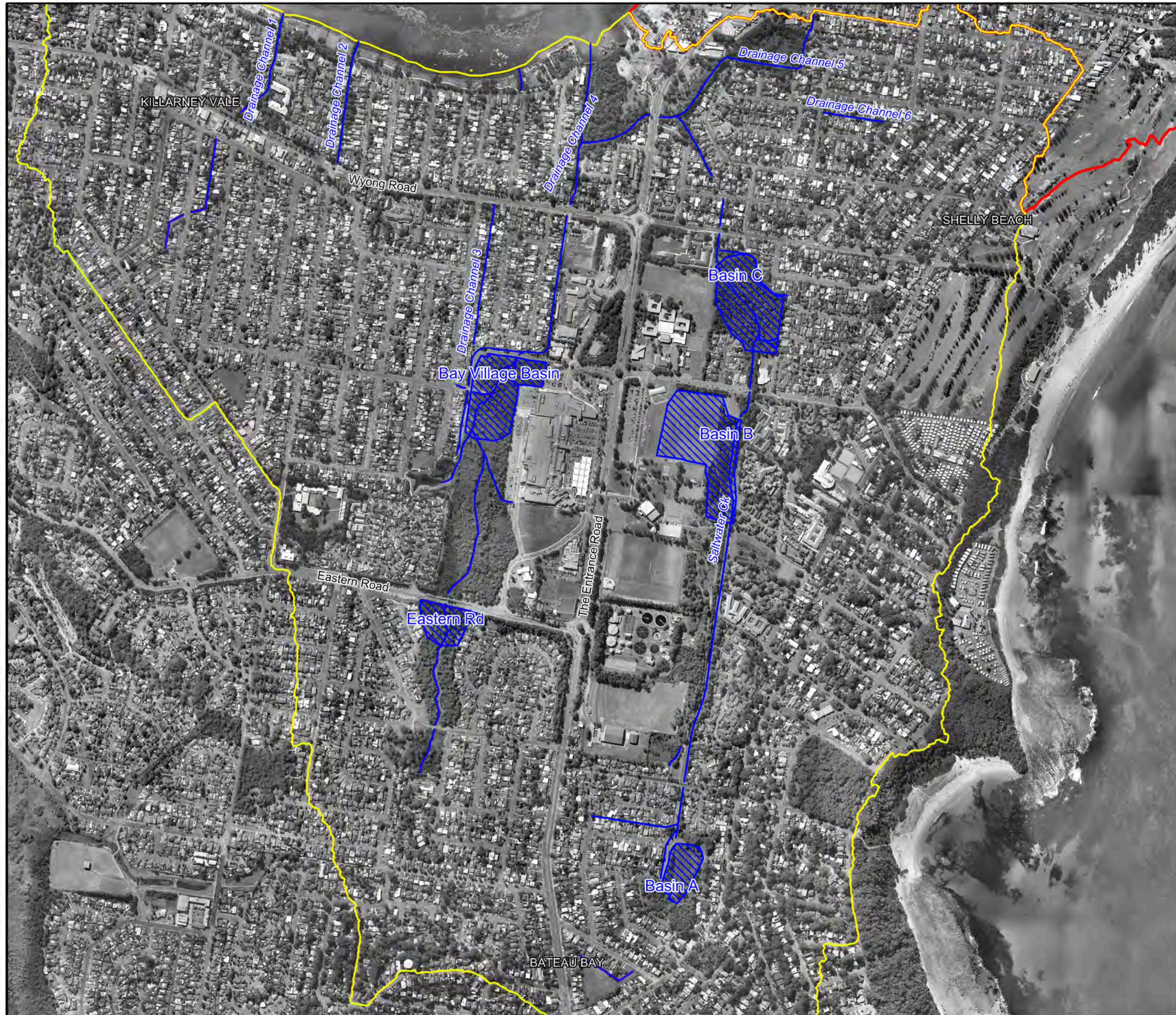
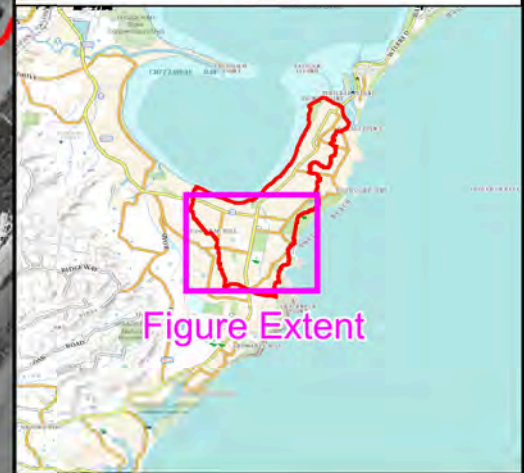
Scale 1:24,000 (at A3)

0 0.5 1.0  
Km

**Figure 1:**  
**Killarney Vale and Long Jetty Catchments**

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 Sydney, NSW 2000

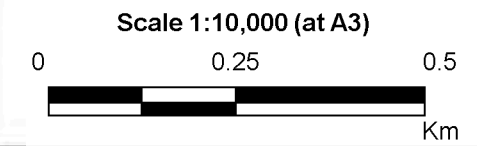
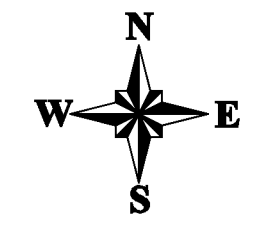
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**LEGEND**

- Killarney Vale Catchment
- Long Jetty Catchment
- Detention Basin
- Watercourses

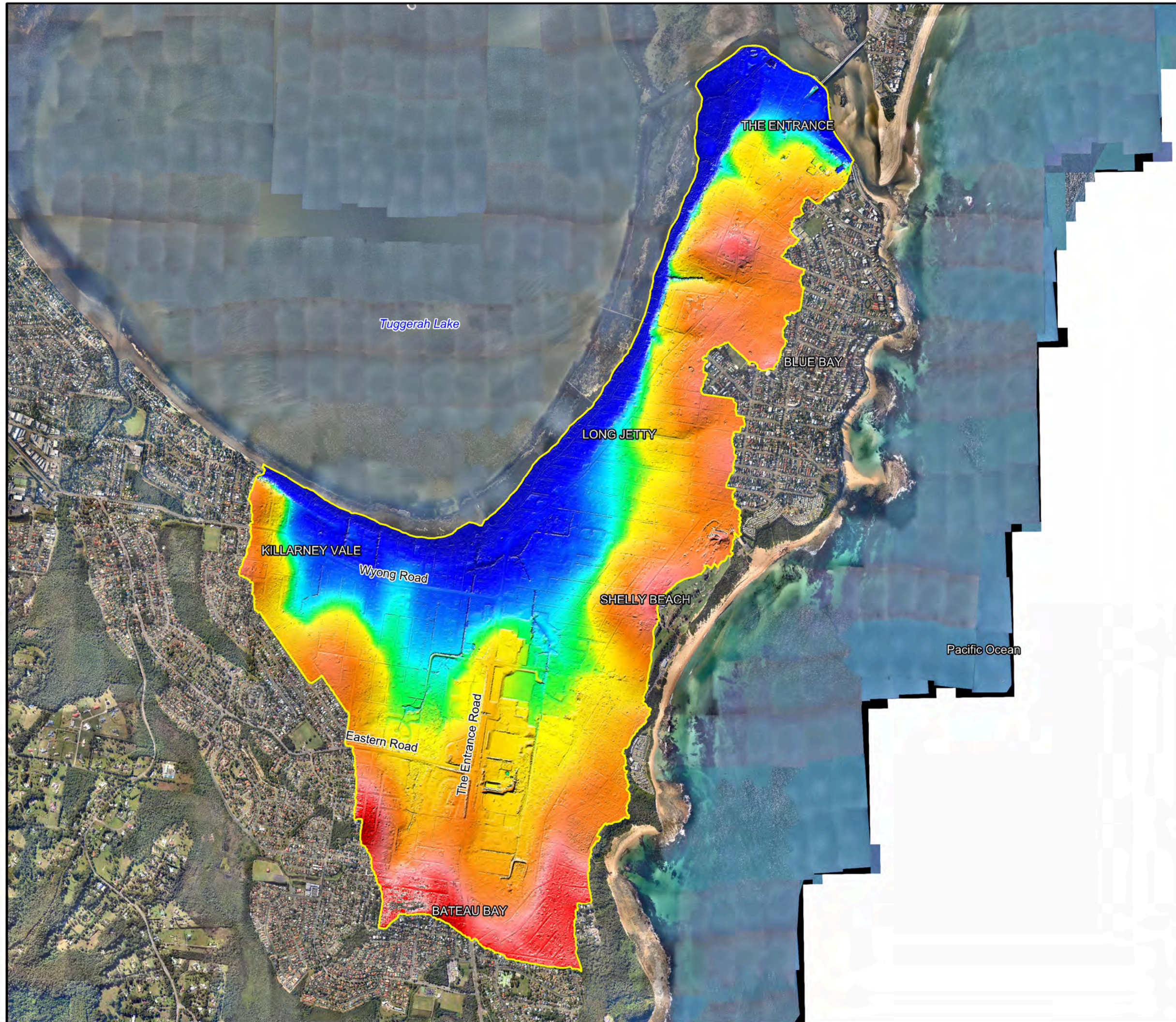
Notes:  
Aerial photograph date: 2013



**Figure 2:  
Existing Flood  
Detention Basins**

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Sydney, NSW 2000

File Name: Fig2 Detention Basins.wor



**LEGEND**

Ground Surface Elevation (mAHD)

0
2
4
6
8
10
20
30
40

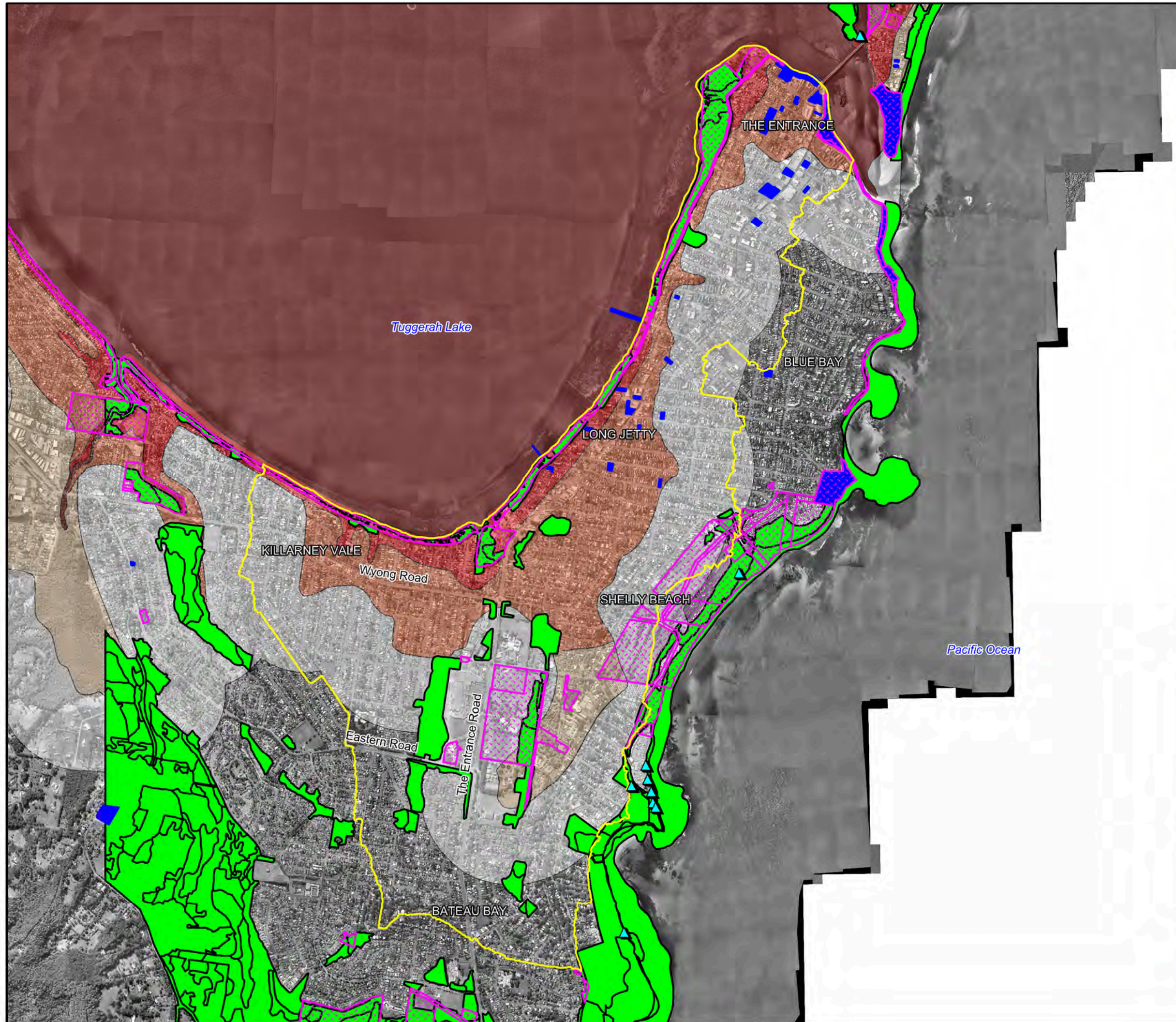
Notes:  
Aerial photograph date: 2013

Scale 1:24,000 (at A3)

**Figure 3:  
Ground Surface  
Elevations**

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File Name: Fig3 DEM.wor



**LEGEND**

- Catchment Boundary
- Heritage Site
- Vegetation Community
- Reserves in Trust
- Aboriginal Heritage Site

Acid & Sulphate Soil Risk

- Class 1 (High)
- Class 2
- Class 3
- Class 4
- Class 5 (Low)

Notes:  
Aerial photograph date: 2013

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Scale 1:24,000 (at A3)

0      0.5      1.0  
Km

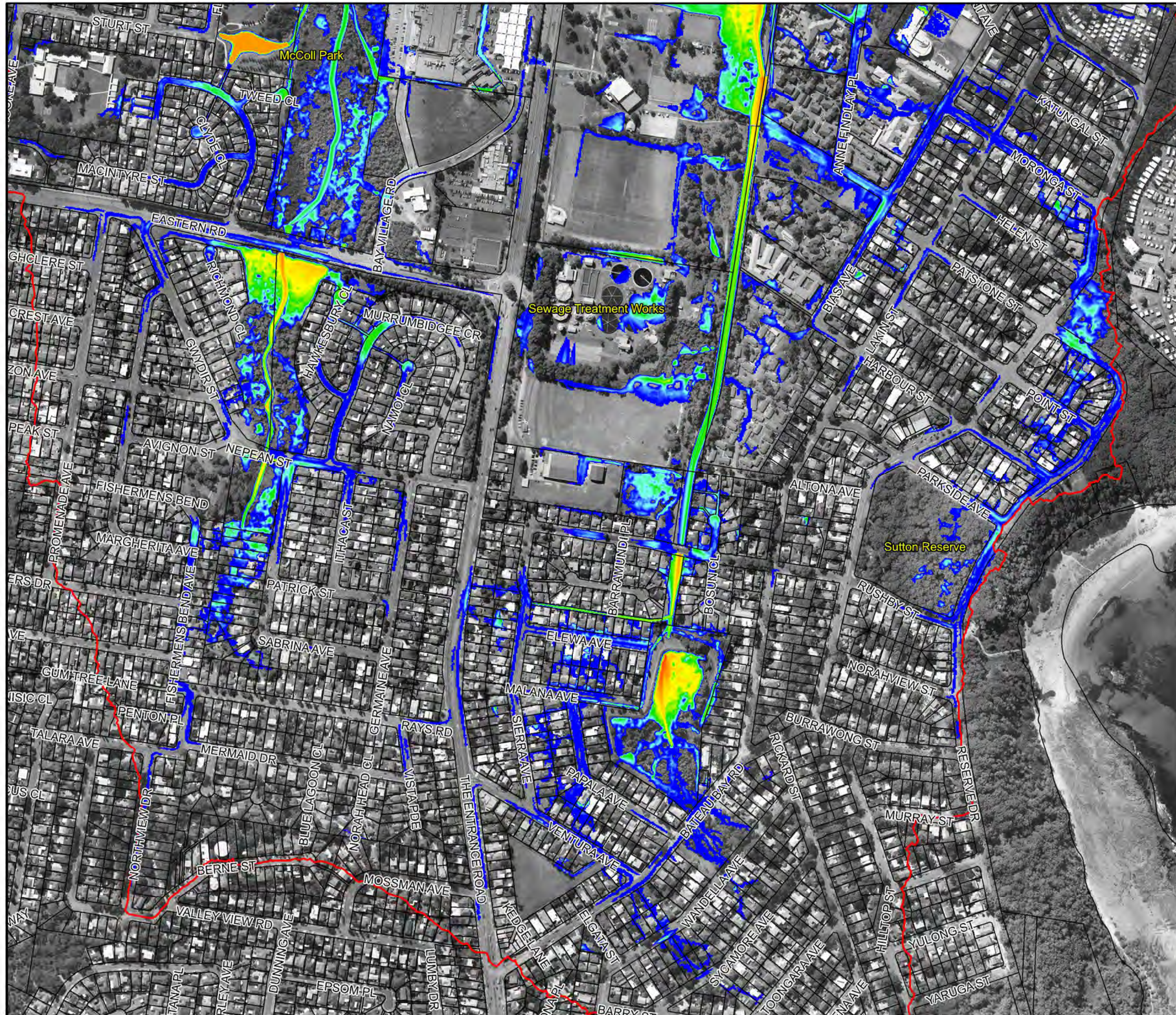
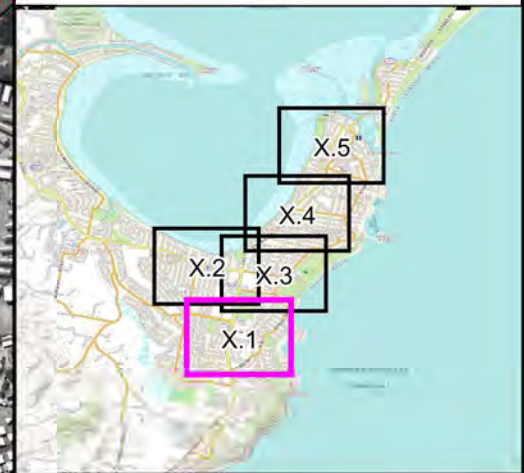
**Figure 4:  
Environmental and  
Heritage Constraints**

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## FLOOD MAPS FOR EXISTING CONDITIONS

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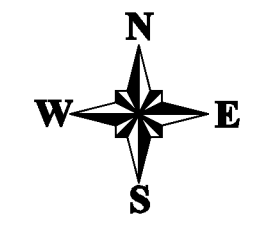
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Depths (m)

Blue	<= 0.15
Cyan	0.3
Green	0.5
Yellow	1.0
Orange	2.0
Red	3.0

Tuggerah Lake Inundation Area.  
 Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



Scale 1:6,000 (at A3)

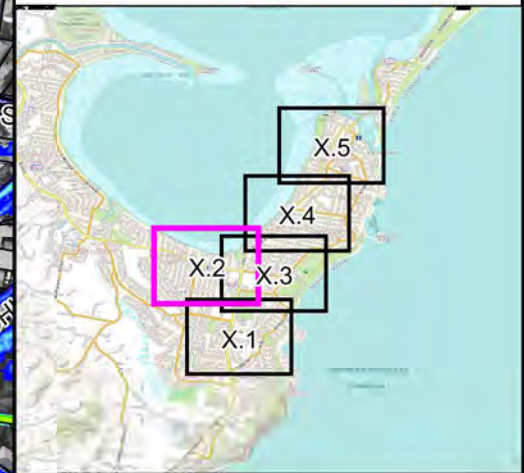


**Figure 5.1**  
**Peak Floodwater**  
**Depths for the**  
**20% AEP Flood**

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Depths for the 20% AEP Flood.wor





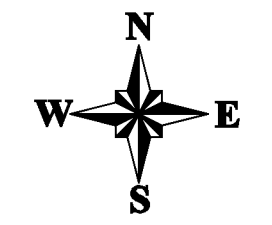
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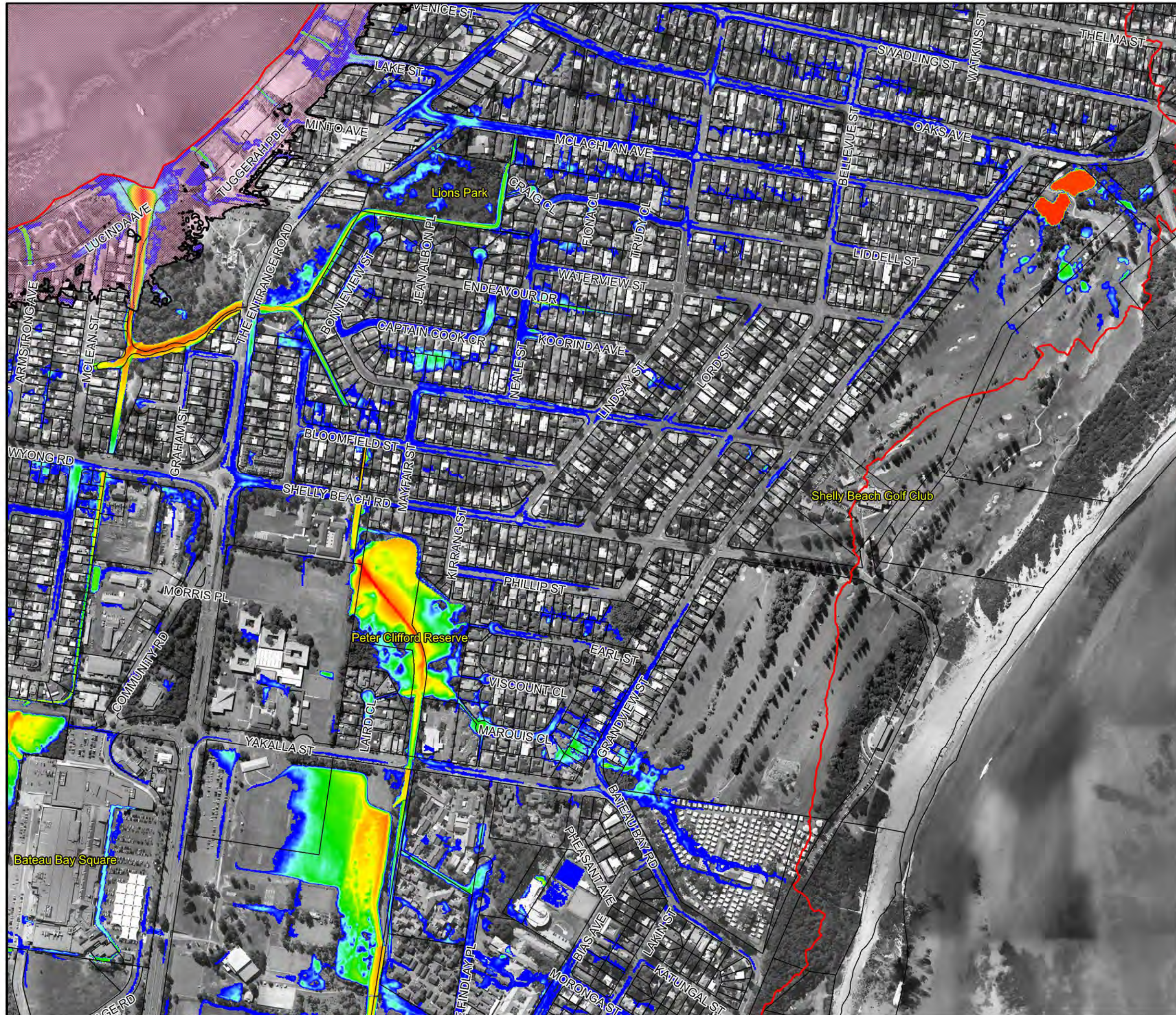
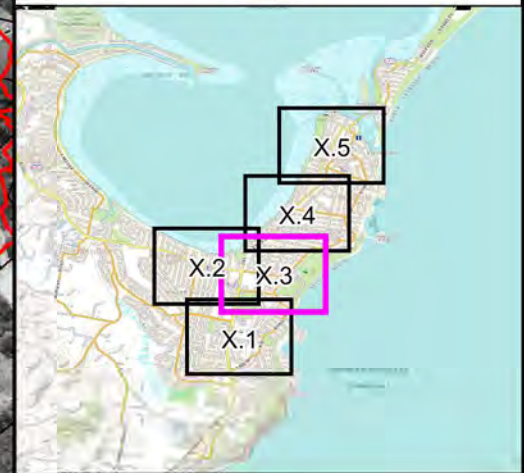
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**Figure 5.2**  
**Peak Floodwater**  
**Depths for the**  
**20% AEP Flood**

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Depths for the 20% AEP Flood.wor



**LEGEND**

Depths (m)

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- 1.0
- 2.0
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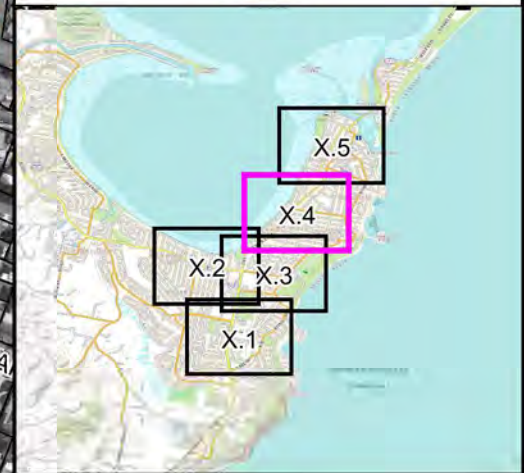
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Aerial photograph date: 2013

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Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 5.3**  
**Peak Floodwater**  
**Depths for the**  
**20% AEP Flood**



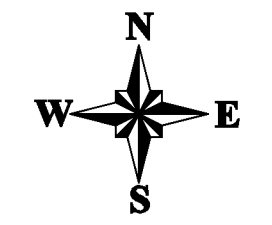
**LEGEND**

Depths (m)

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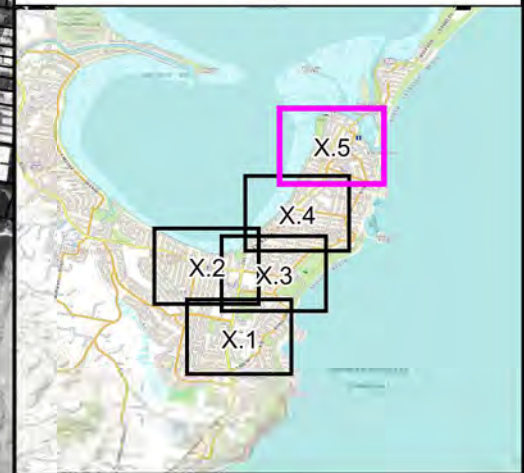
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**Figure 5.4**  
**Peak Floodwater**  
**Depths for the**  
**20% AEP Flood**

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 Sydney, NSW 2000

Depths for the 20% AEP Flood.wor



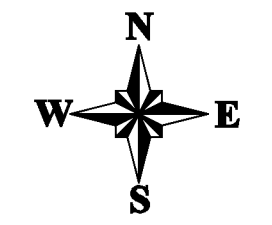
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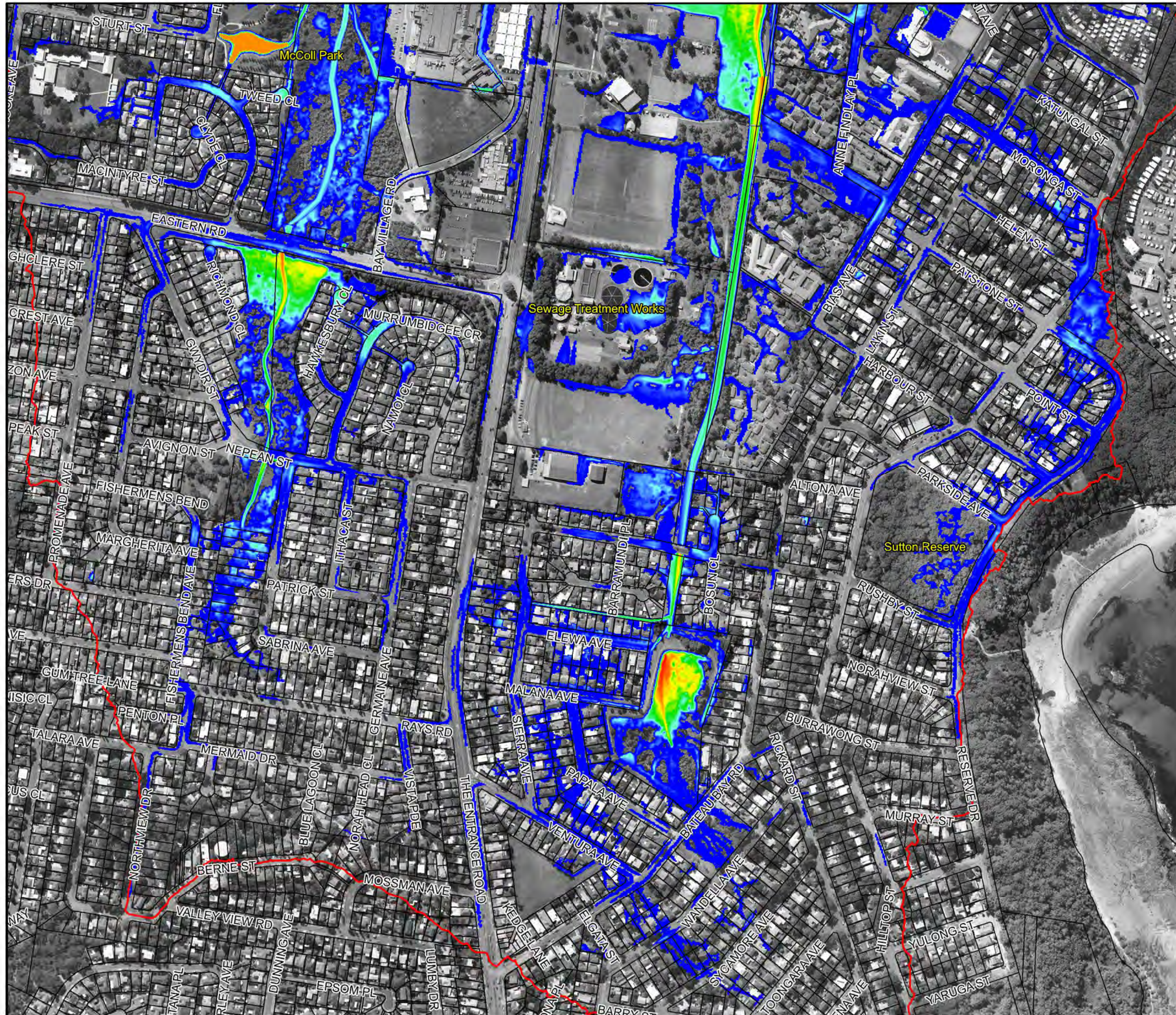
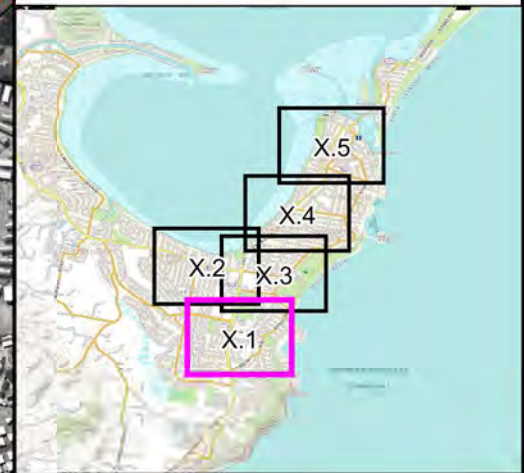


**Figure 5.5**  
**Peak Floodwater**  
**Depths for the**  
**20% AEP Flood**

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Sydney, NSW 2000

Depths for the 20% AEP Flood.wor





**LEGEND**

Depths (m)

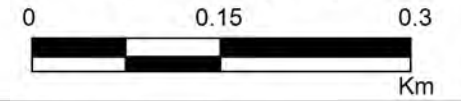
- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
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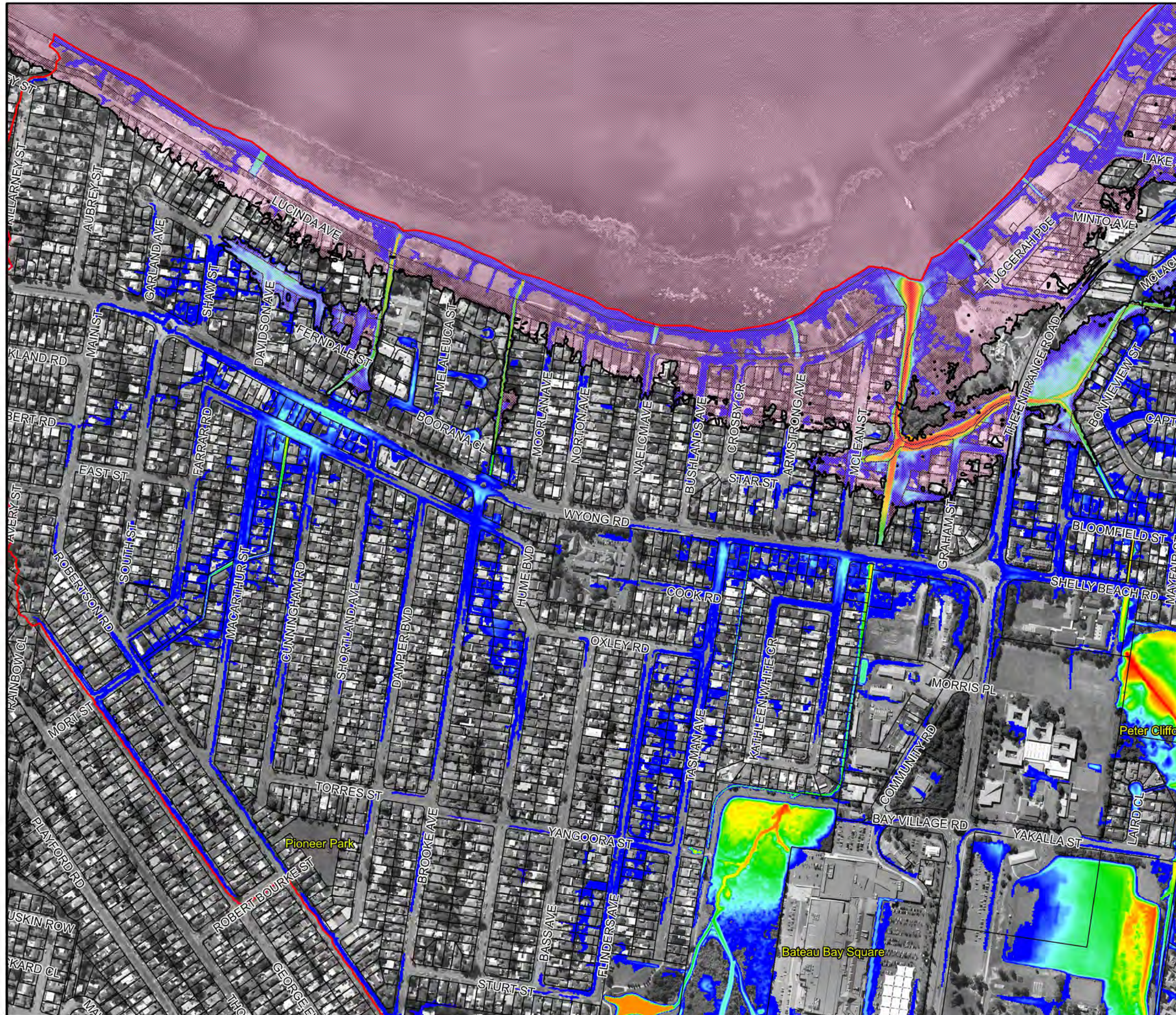
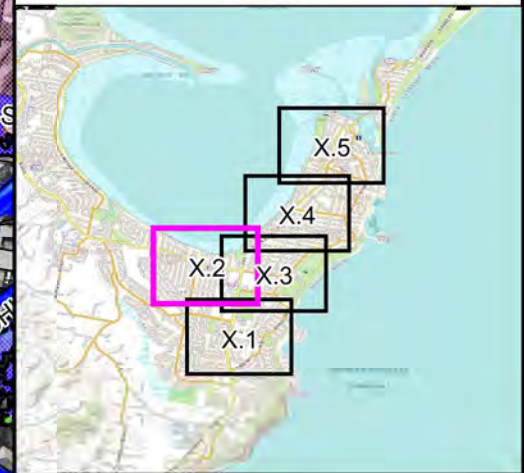
Scale 1:6,000 (at A3)



**Figure 6.1**  
**Peak Floodwater**  
**Depths for the**  
**5% AEP Flood**

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 **Catchment Simulation Solutions**  
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Sydney, NSW 2000

Depths for the 5% AEP Flood.wor



**LEGEND**

Depths (m)

- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
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Aerial photograph date: 2013

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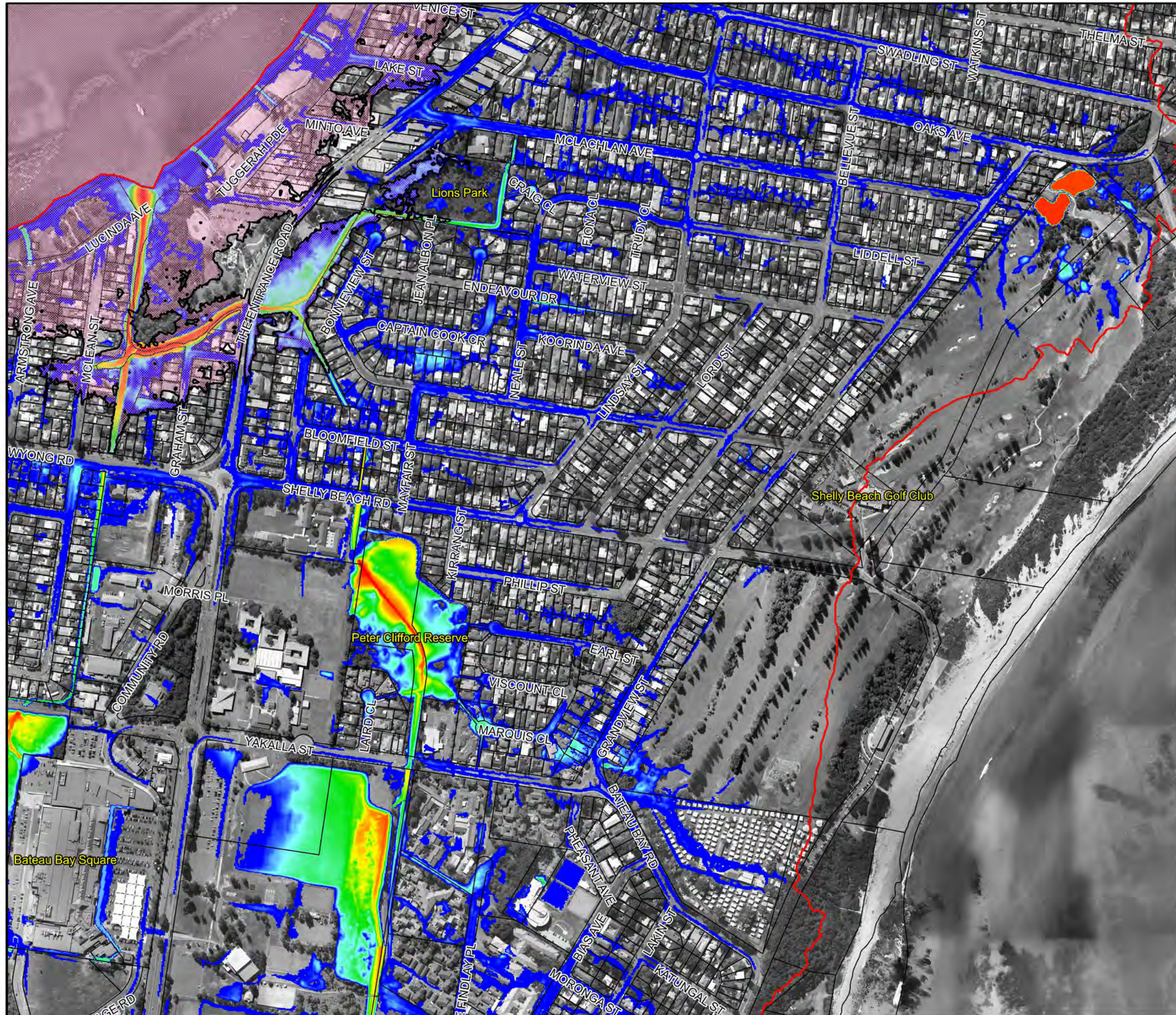
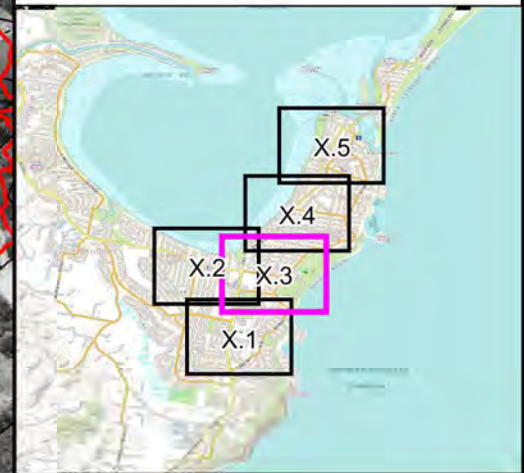
Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 6.2**  
**Peak Floodwater**  
**Depths for the**  
**5% AEP Flood**

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**Catchment Simulation Solutions**  
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Depths for the 5% AEP Flood.wor



**LEGEND**

Depths (m)

- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

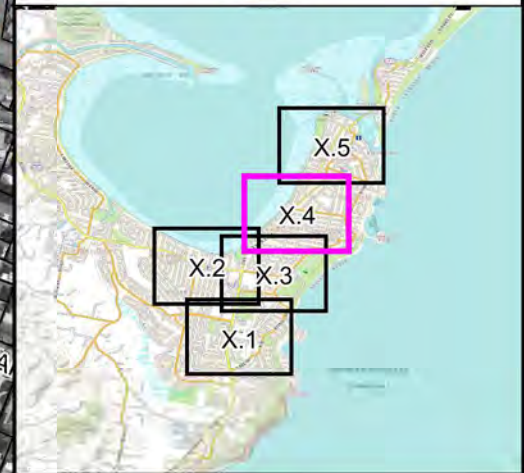
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Aerial photograph date: 2013

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Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 6.3**  
**Peak Floodwater**  
**Depths for the**  
**5% AEP Flood**



**LEGEND**

Depths (m)

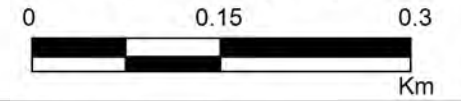
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Cyan	0.3
Green	0.5
Yellow	1.0
Orange	2.0
Red	3.0

Tuggerah Lake Inundation Area.  
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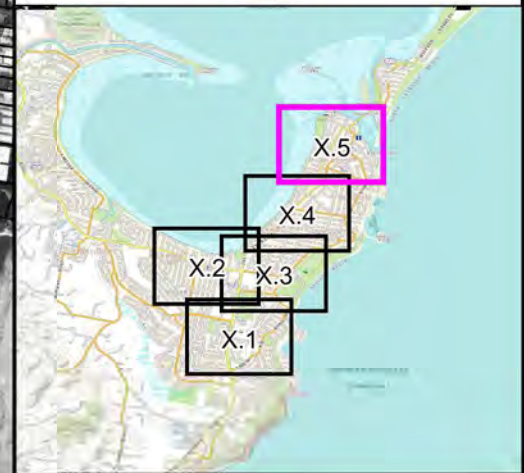


**Figure 6.4**  
**Peak Floodwater**  
**Depths for the**  
**5% AEP Flood**

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Depths for the 5% AEP Flood.wor





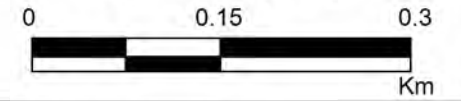
**LEGEND**

- Depths (m)
- <= 0.15
  - 0.3
  - 0.5
  - 1.0
  - 2.0
  - 3.0
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Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

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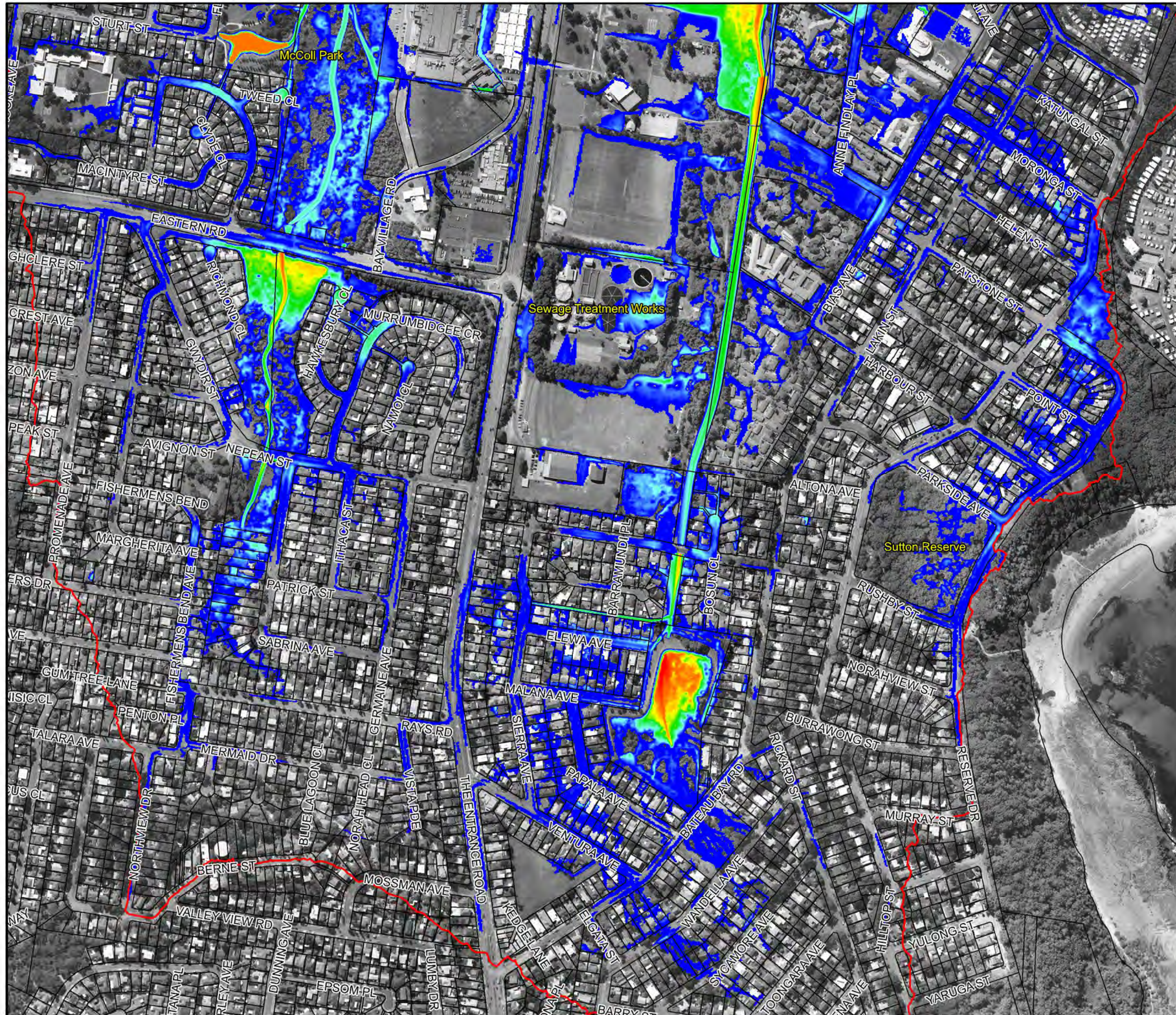
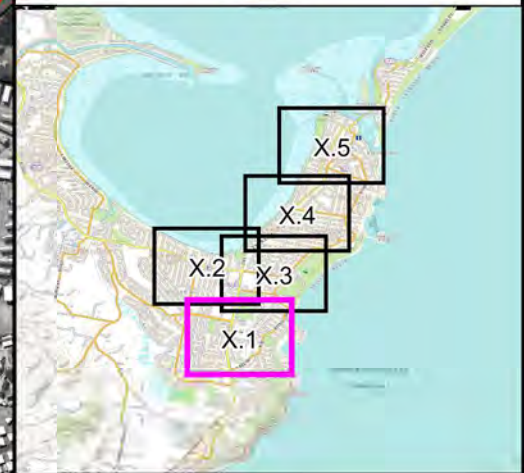


**Figure 6.5**  
**Peak Floodwater**  
**Depths for the**  
**5% AEP Flood**

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**Catchment Simulation Solutions**  
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Sydney, NSW 2000

Depths for the 5% AEP Flood.wor





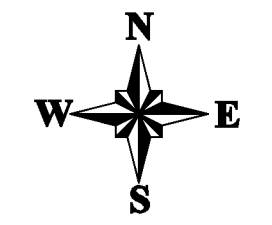
**LEGEND**

Depths (m)

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<span style="color: cyan;">■</span>	0.3
<span style="color: green;">■</span>	0.5
<span style="color: yellow;">■</span>	1.0
<span style="color: orange;">■</span>	2.0
<span style="color: red;">■</span>	3.0

Tuggerah Lake Inundation Area.  
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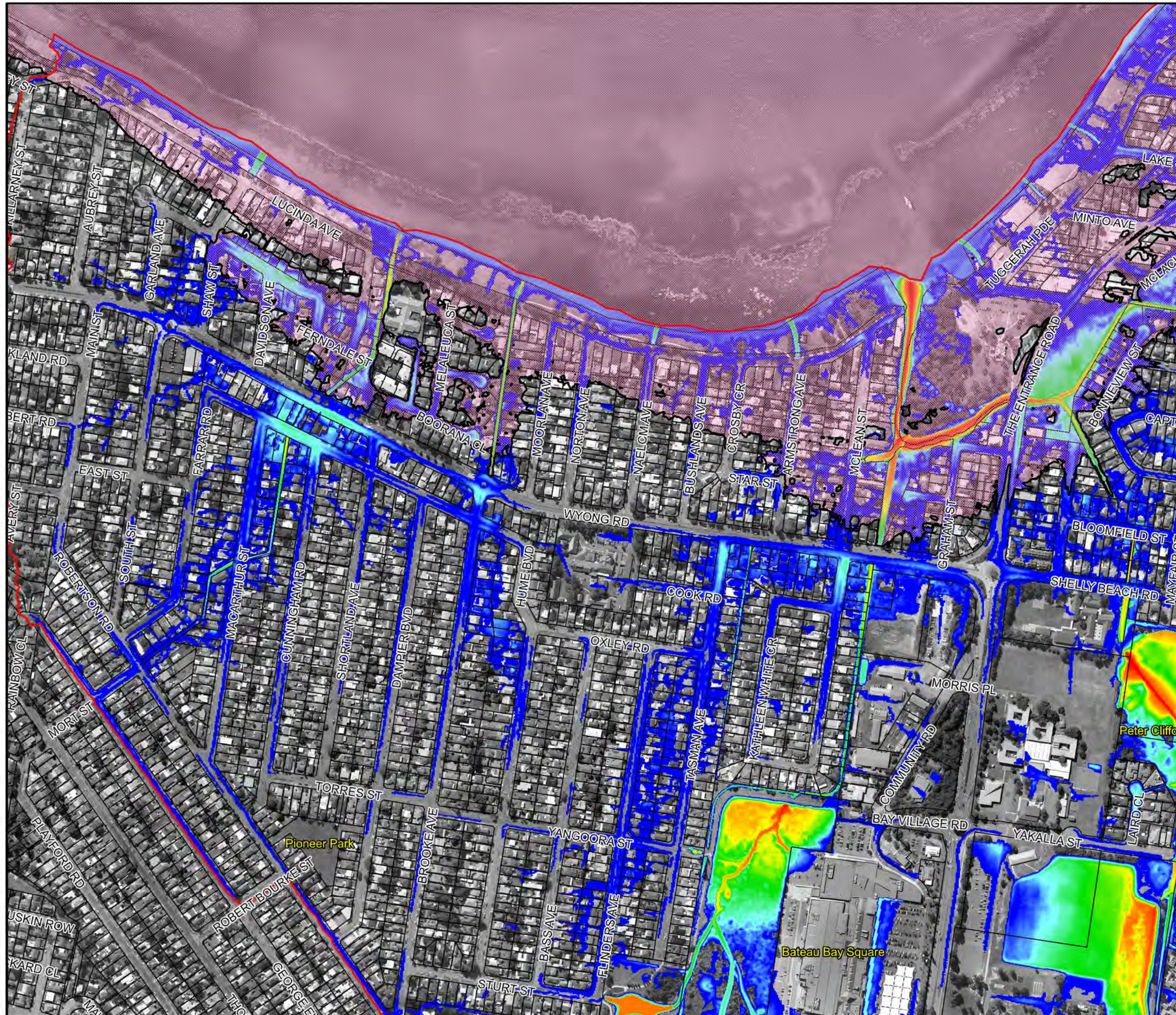
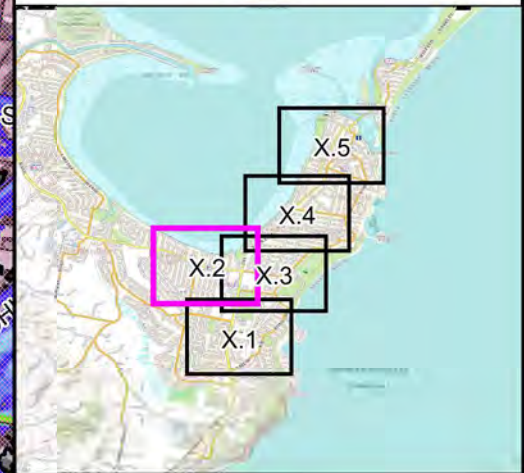
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**Figure 7.1**  
**Peak Floodwater**  
**Depths for the**  
**1% AEP Flood**

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Depths for the 1% AEP Flood.wor



**LEGEND**

Depths (m)

- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
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Aerial photograph date: 2013

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Scale 1:6,000 (at A3)

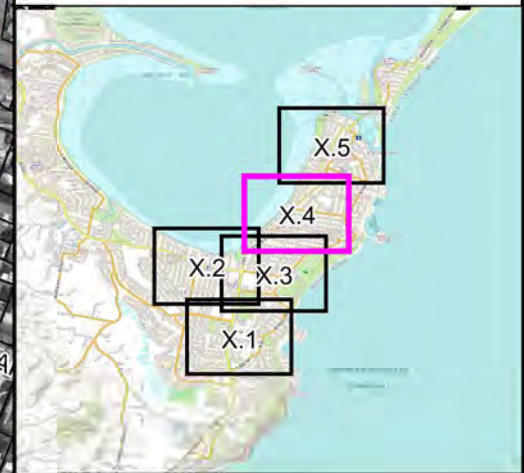
0      0.15      0.3  
Km

**Figure 7.2**  
**Peak Floodwater**  
**Depths for the**  
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Sydney, NSW 2000

Depths for the 1% AEP Flood.wor





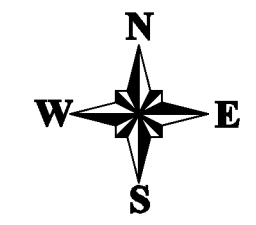
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Tuggerah Lake Inundation Area.  
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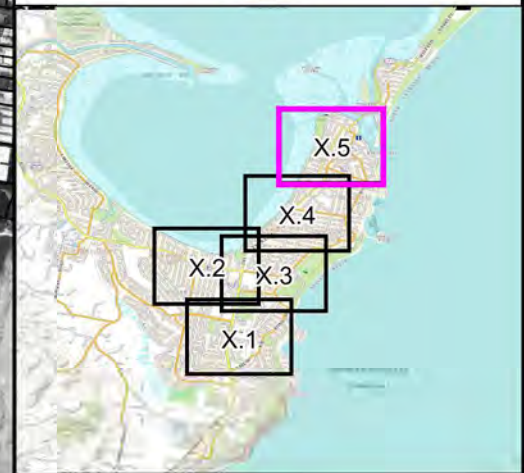
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**Figure 7.4**  
**Peak Floodwater**  
**Depths for the**  
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Depths for the 1% AEP Flood.wor



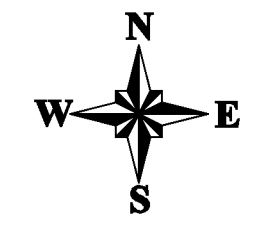
**LEGEND**

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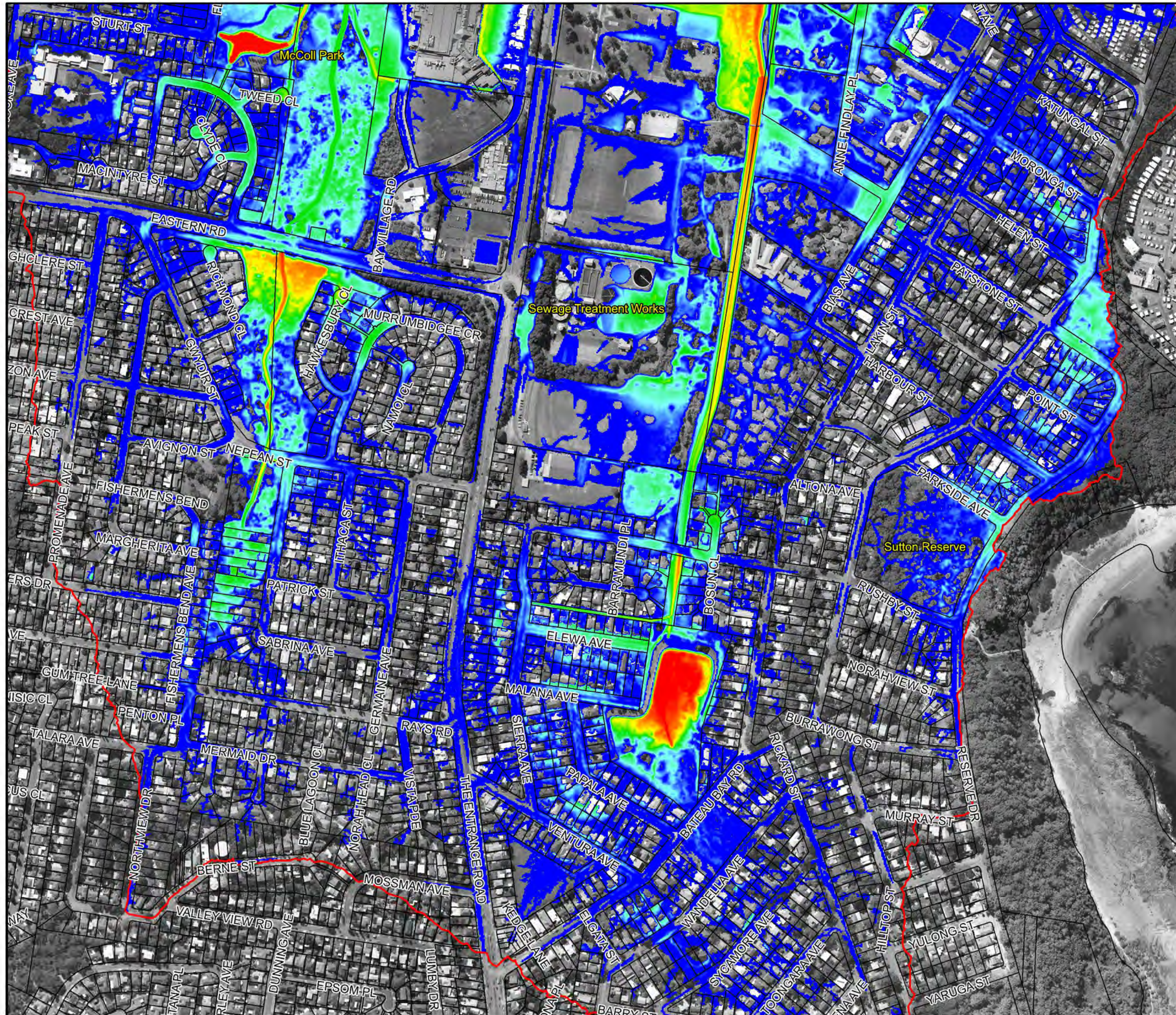
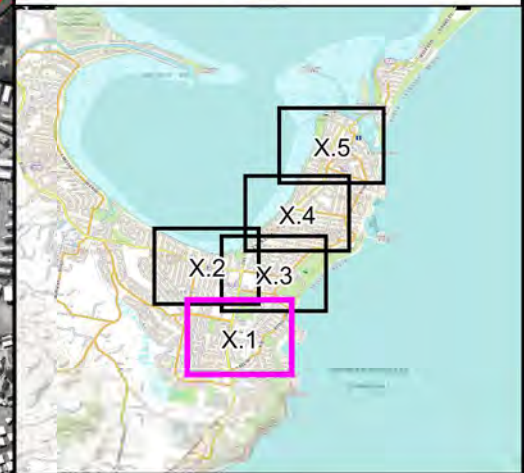


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**Peak Floodwater**  
**Depths for the**  
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Depths for the 1% AEP Flood.wor





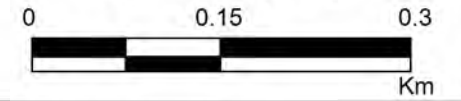
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Aerial photograph date: 2013



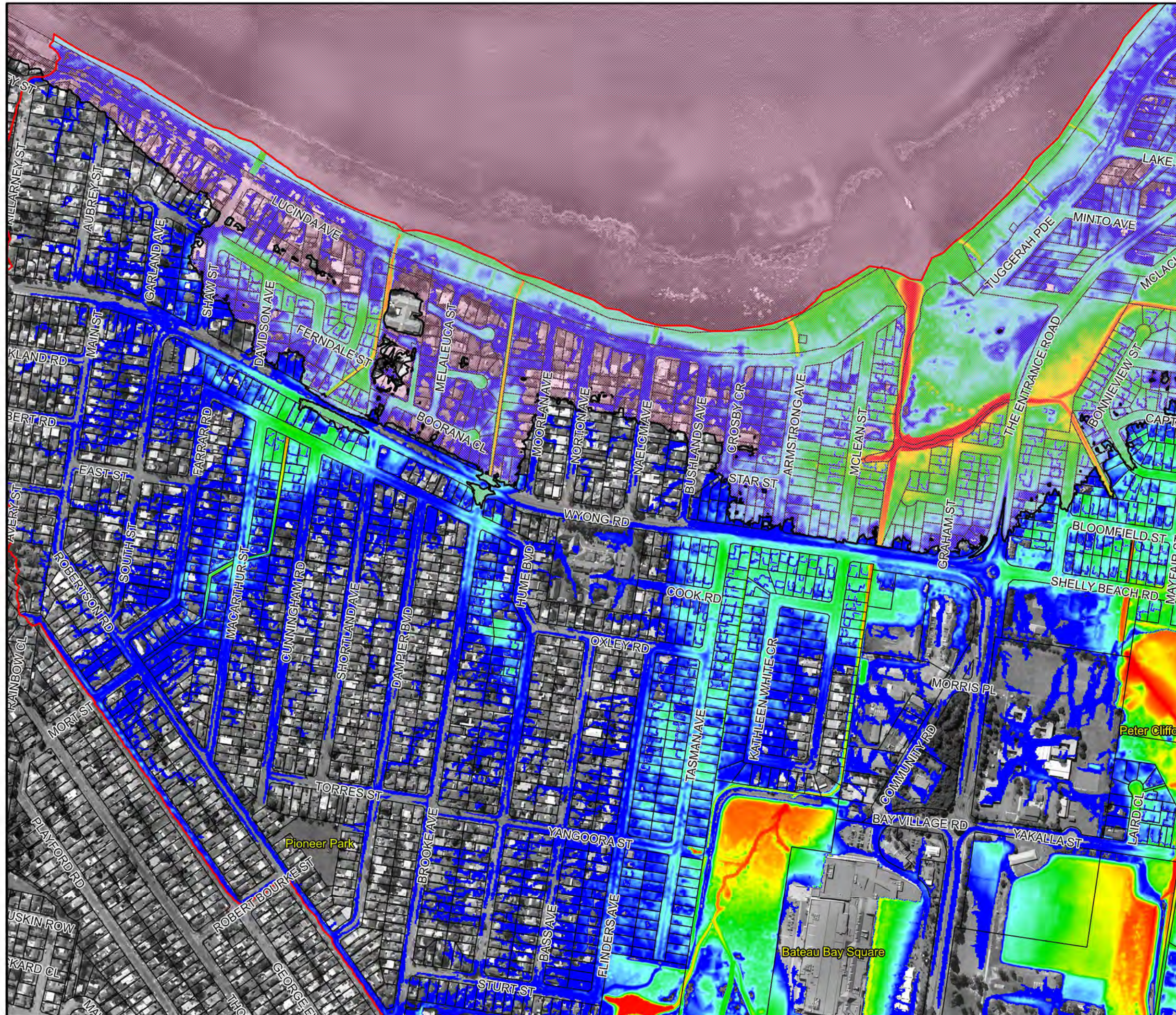
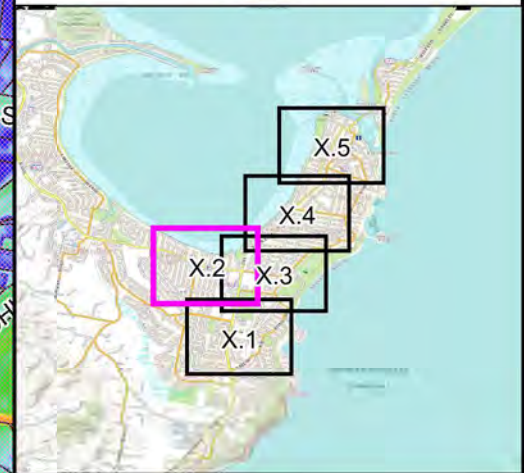
Scale 1:6,000 (at A3)



**Figure 8.1**  
**Peak Floodwater**  
**Depths for the**  
**PMF**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

Depths for the PMF.wor



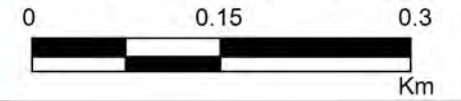
**LEGEND**

Depths (m)	
	<= 0.15
	0.3
	0.5
	1.0
	2.0
	3.0
	Tuggerah Lake Inundation Area. Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



Scale 1:6,000 (at A3)

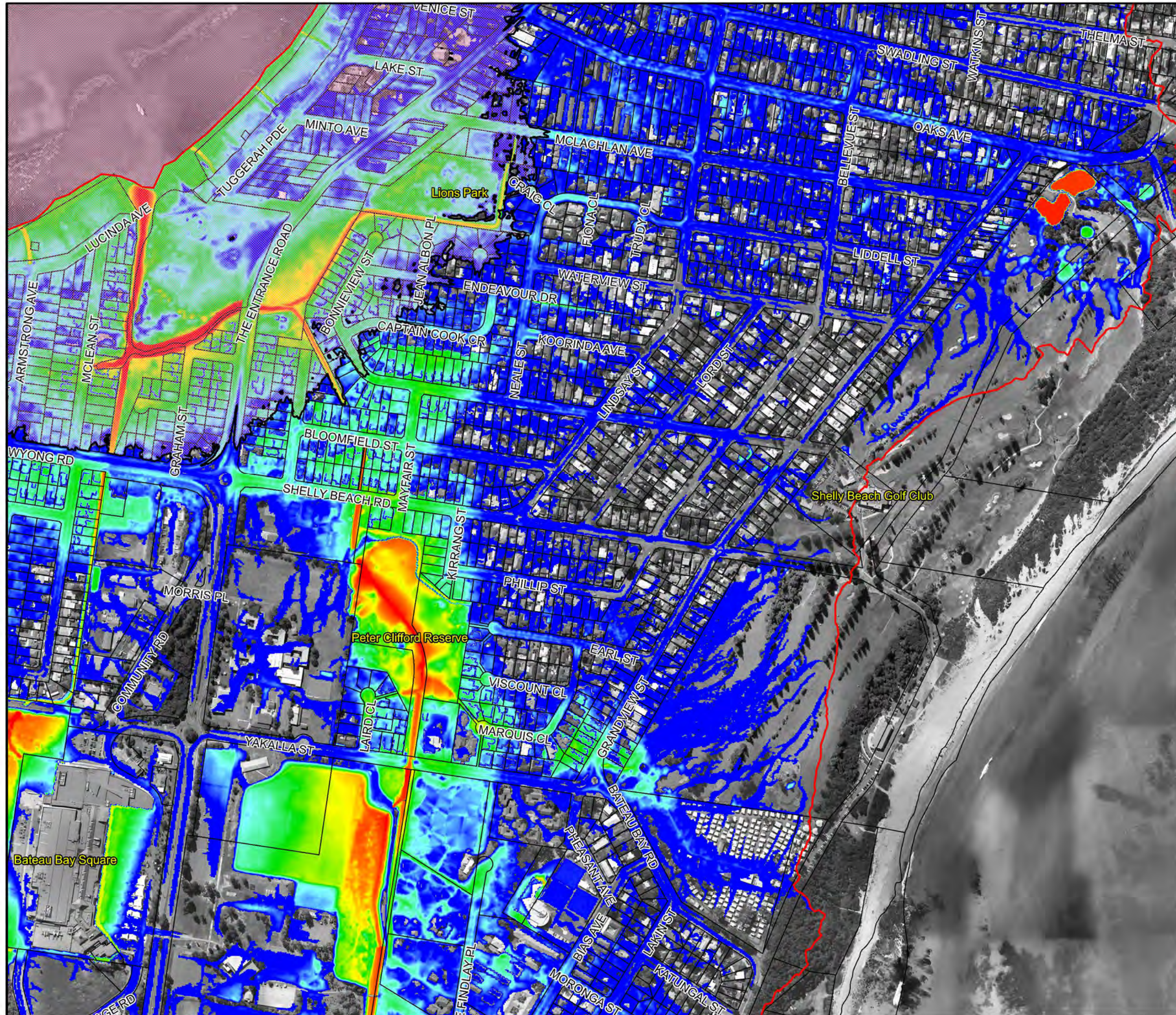
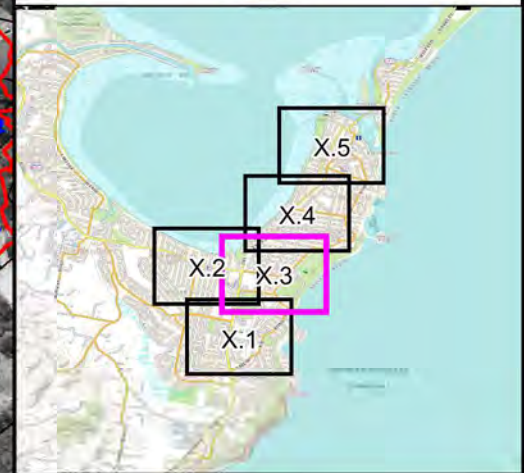


**Figure 8.2**  
**Peak Floodwater**  
**Depths for the**  
**PMF**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the PMF.wor





**LEGEND**

Depths (m)

- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
Results are filtered based on criteria in Section 3.2.2 of Volume 1  
Aerial photograph date: 2013

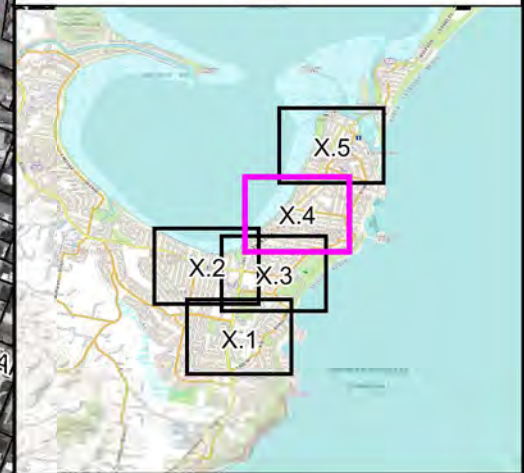
N  
W —+— E  
S

Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 8.3**  
**Peak Floodwater**  
**Depths for the**  
**PMF**

Prepared By:  
 **Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000



**LEGEND**

Depths (m)

- <= 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Tuggerah Lake Inundation Area.  
Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
Results are filtered based on criteria in Section 3.2.2 of Volume 1  
Aerial photograph date: 2013

N  
W —+— E  
S

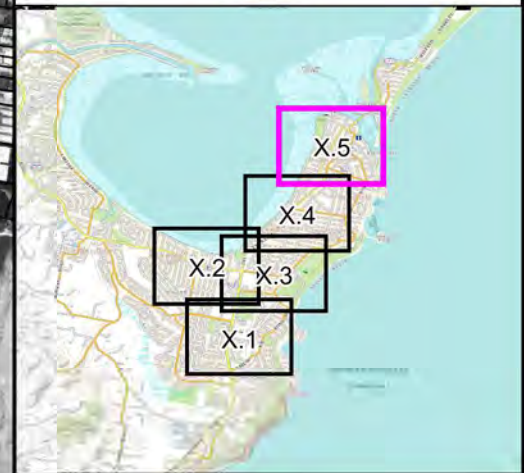
Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 8.4**  
**Peak Floodwater**  
**Depths for the**  
**PMF**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

Depths for the PMF.wor



**LEGEND**

Depths (m)

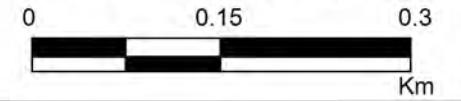
Blue	<= 0.15
Cyan	0.3
Green	0.5
Yellow	1.0
Orange	2.0
Red	3.0

Tuggerah Lake Inundation Area.  
 Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



Scale 1:6,000 (at A3)

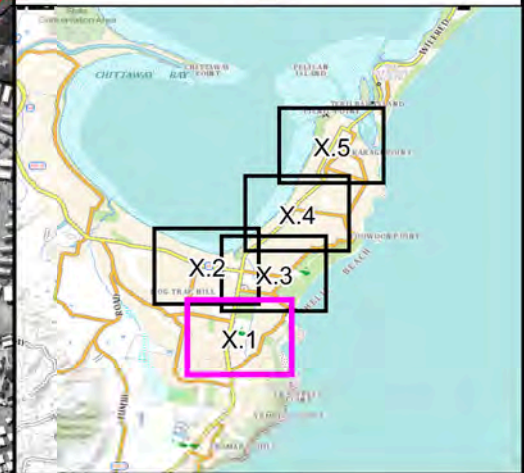


**Figure 8.5**  
**Peak Floodwater**  
**Depths for the**  
**PMF**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the PMF.wor





**LEGEND**

- Catchment Boundary
- Failure AEP**

  - <20%AEP
  - 20%AEP
  - 5%AEP
  - 1%AEP or better

- Pit Failure Type**

  - No Failure
  - Surcharge
  - Ponding

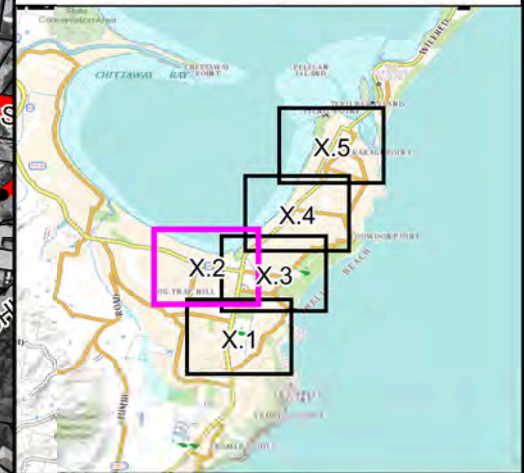
Notes:  
Aerial photograph date: 2013

N  
W E  
S

Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 9.1**  
**Stormwater Capacity**



**LEGEND**

- Catchment Boundary
- Failure AEP**
  - <20%AEP
  - 20%AEP
  - 5%AEP
  - 1%AEP or better
- Pit Failure Type**
  - No Failure
  - Surcharge
  - Ponding

Notes:  
Aerial photograph date: 2013

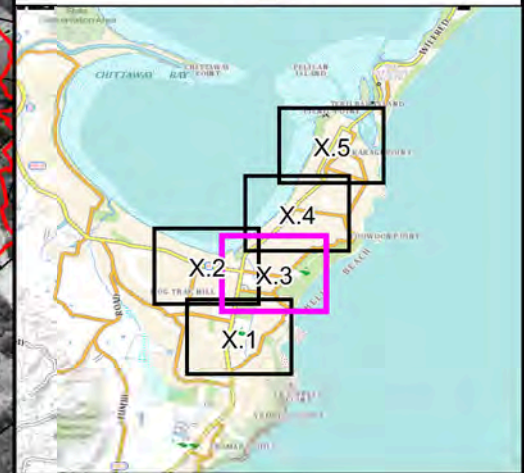
N  
W E  
S

Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 9.2**  
**Stormwater Capacity**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000  
 Stormwater Capacity.wor



**LEGEND**

- Catchment Boundary
- Failure AEP**
- <20%AEP
- 20%AEP
- 5%AEP
- 1%AEP or better
- Pit Failure Type**
- No Failure
- ▲ Surcharge
- ◆ Ponding

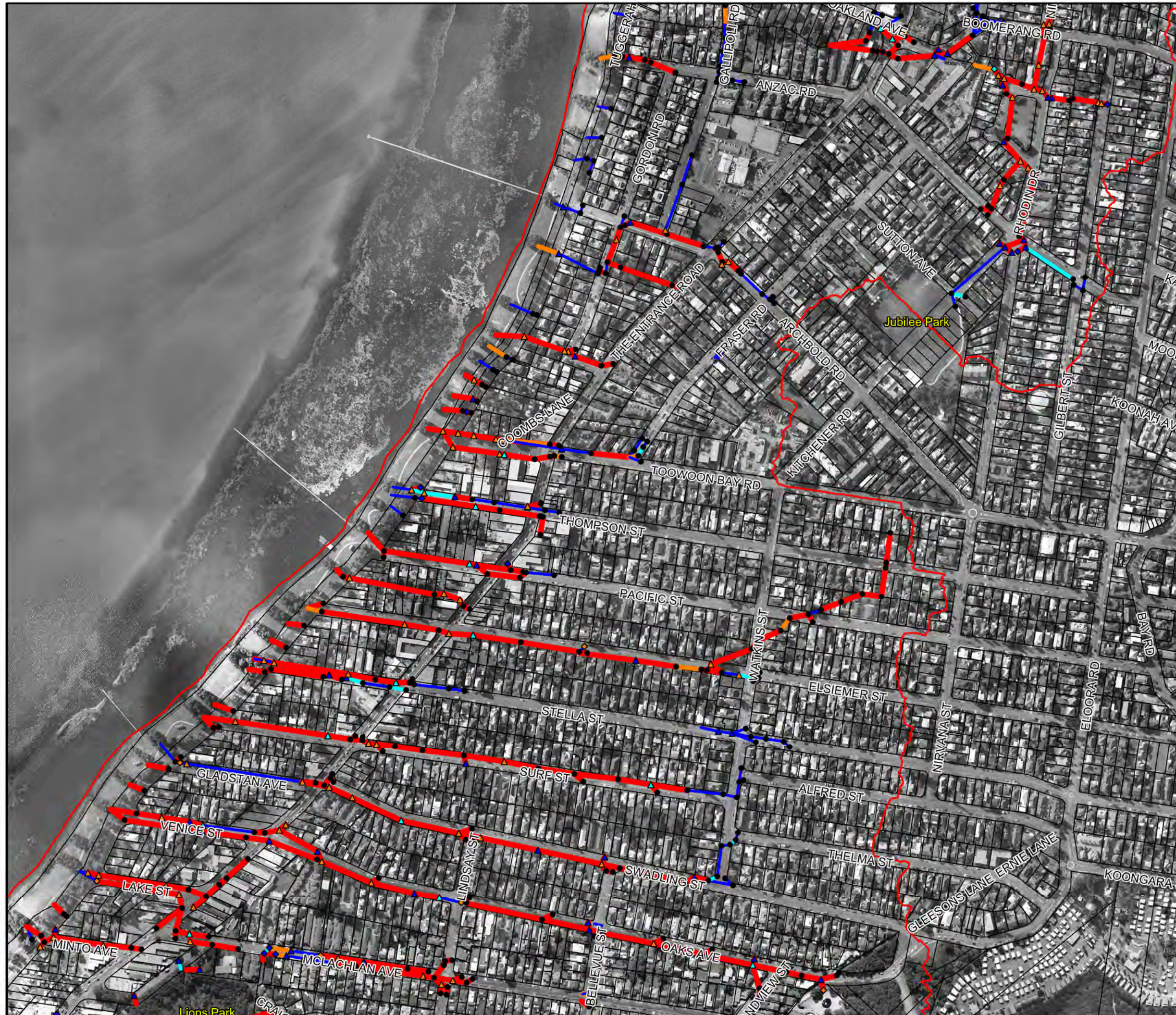
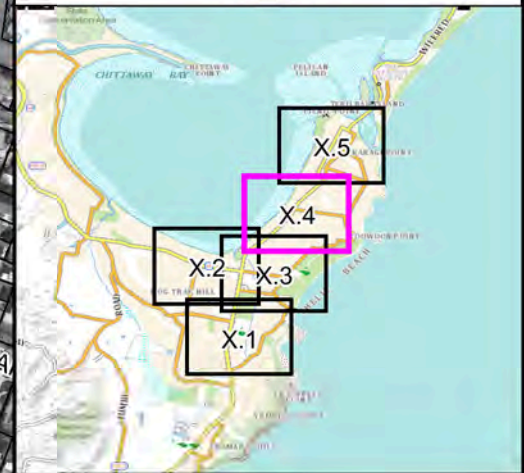
Notes:  
Aerial photograph date: 2013

N  
W E  
S

Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 9.3**  
**Stormwater Capacity**



**LEGEND**

- Catchment Boundary
- Failure AEP**

  - <20%AEP
  - 20%AEP
  - 5%AEP
  - 1%AEP or better

- Pit Failure Type**

  - No Failure
  - Surcharge
  - Ponding

**Notes:**  
Aerial photograph date: 2013

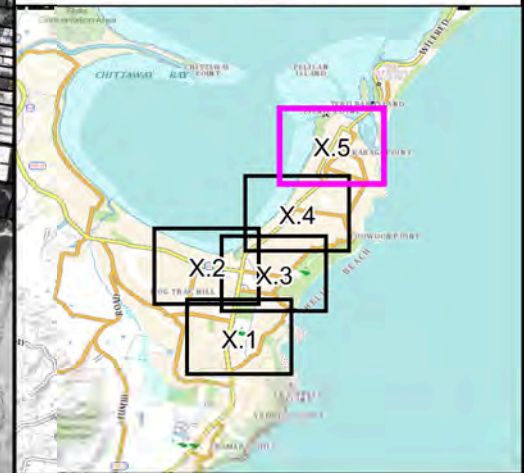
N  
W E  
S

Scale 1:6,000 (at A3)

0      0.15      0.3  
Km

**Figure 9.4**  
**Stormwater Capacity**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000  
 Stormwater Capacity.wor



**LEGEND**

- Catchment Boundary
- Failure AEP**
  - <20%AEP
  - 20%AEP
  - 5%AEP
  - 1%AEP or better
- Pit Failure Type**
  - No Failure
  - ▲ Surcharge
  - ◆ Ponding

Notes:  
Aerial photograph date: 2013

Scale 1:6,000 (at A3)

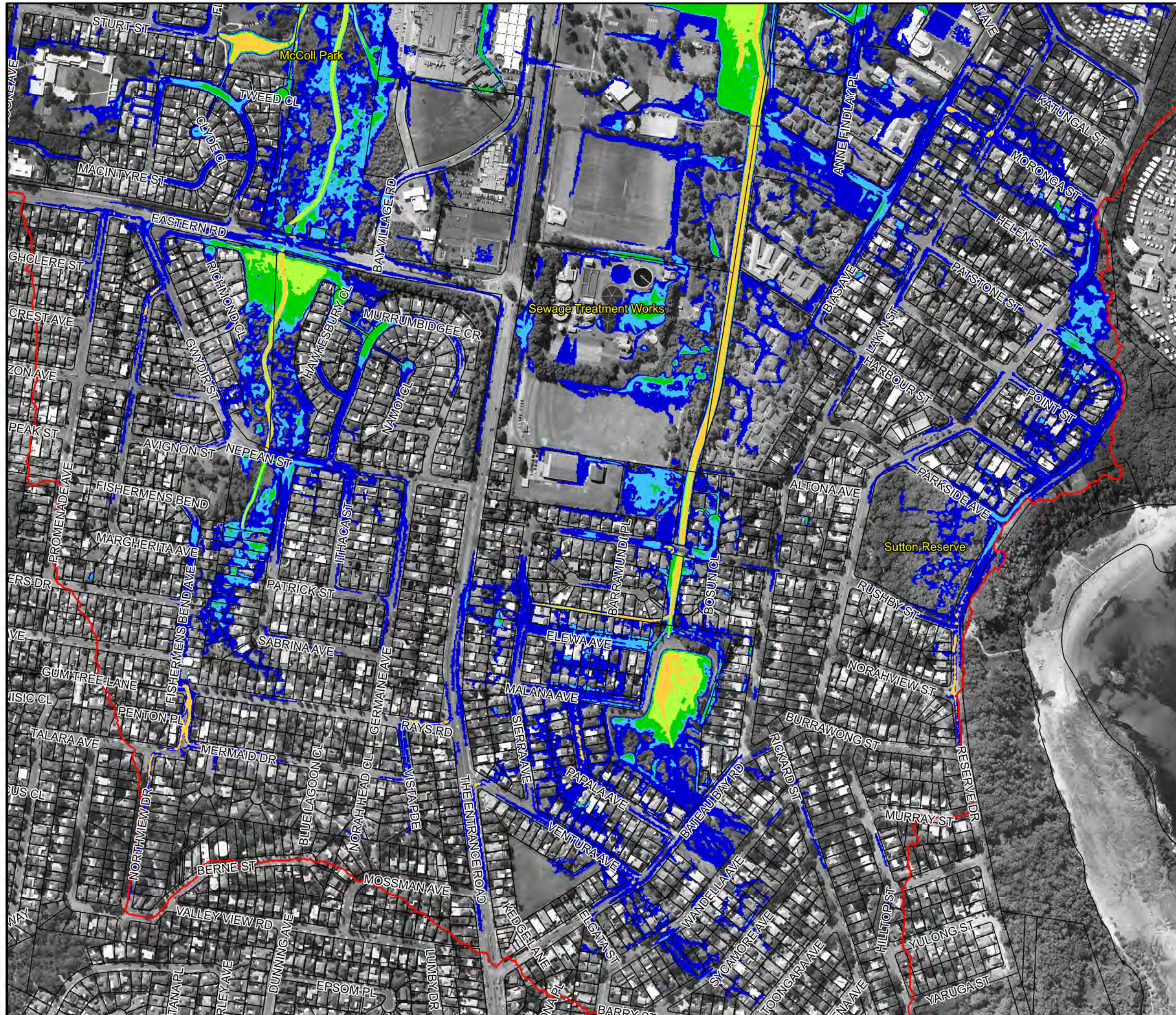
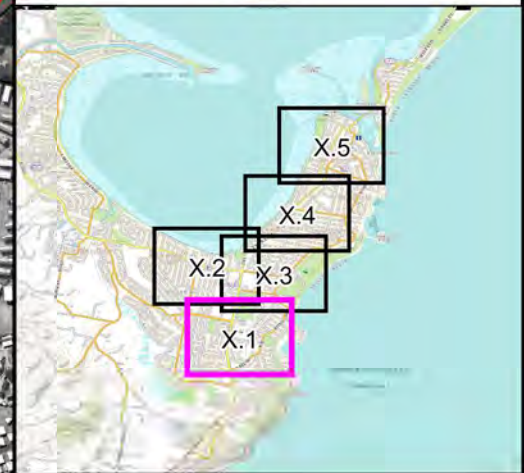
0 0.15 0.3 Km

**Figure 9.5**  
**Stormwater Capacity**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000  
 Stormwater Capacity.wor



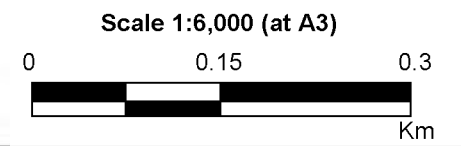
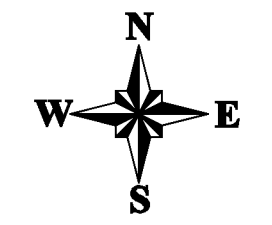




**LEGEND**

- Hazard Categories**
- H1 - Generally Safe
  - H2 - Unsafe for small vehicles
  - H3 - Unsafe for vehicles, children and elderly
  - H4 - Unsafe for people and vehicles
  - H5 - Unsafe for people and vehicles. Buildings require special design
  - H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
  - Tuggerah Lake Inundation Area. Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

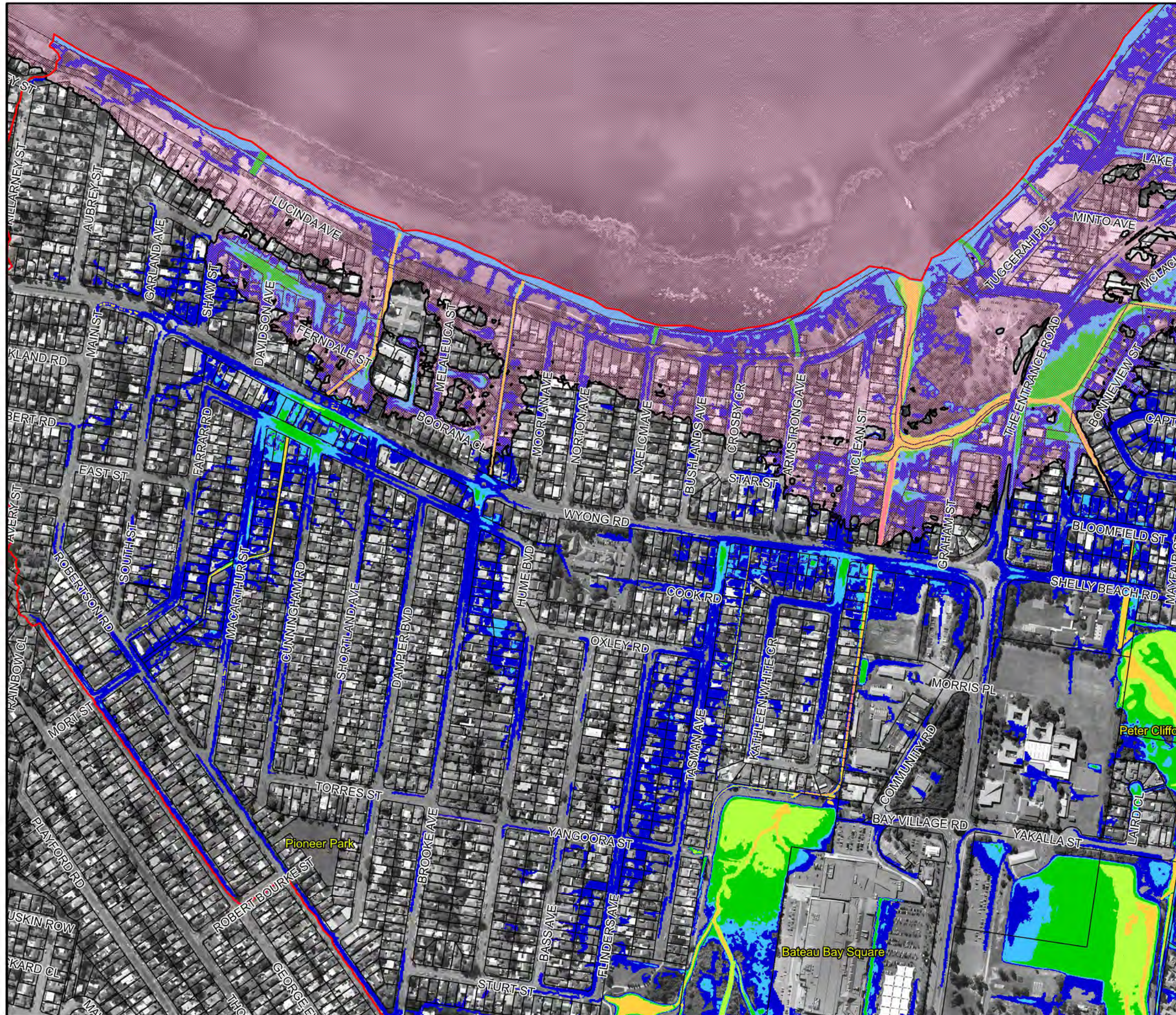
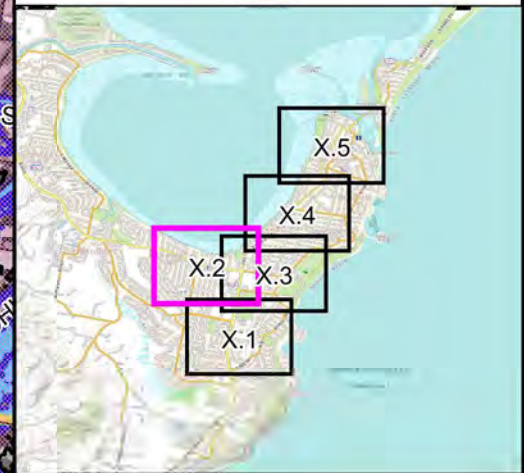
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



**Figure 10.1:**  
**Flood Hazard for the**  
**1% AEP Flood**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: Flood Hazard 1AEP.wor



**LEGEND**

**Hazard Categories**

- H1 - Generally Safe
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special design
- H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

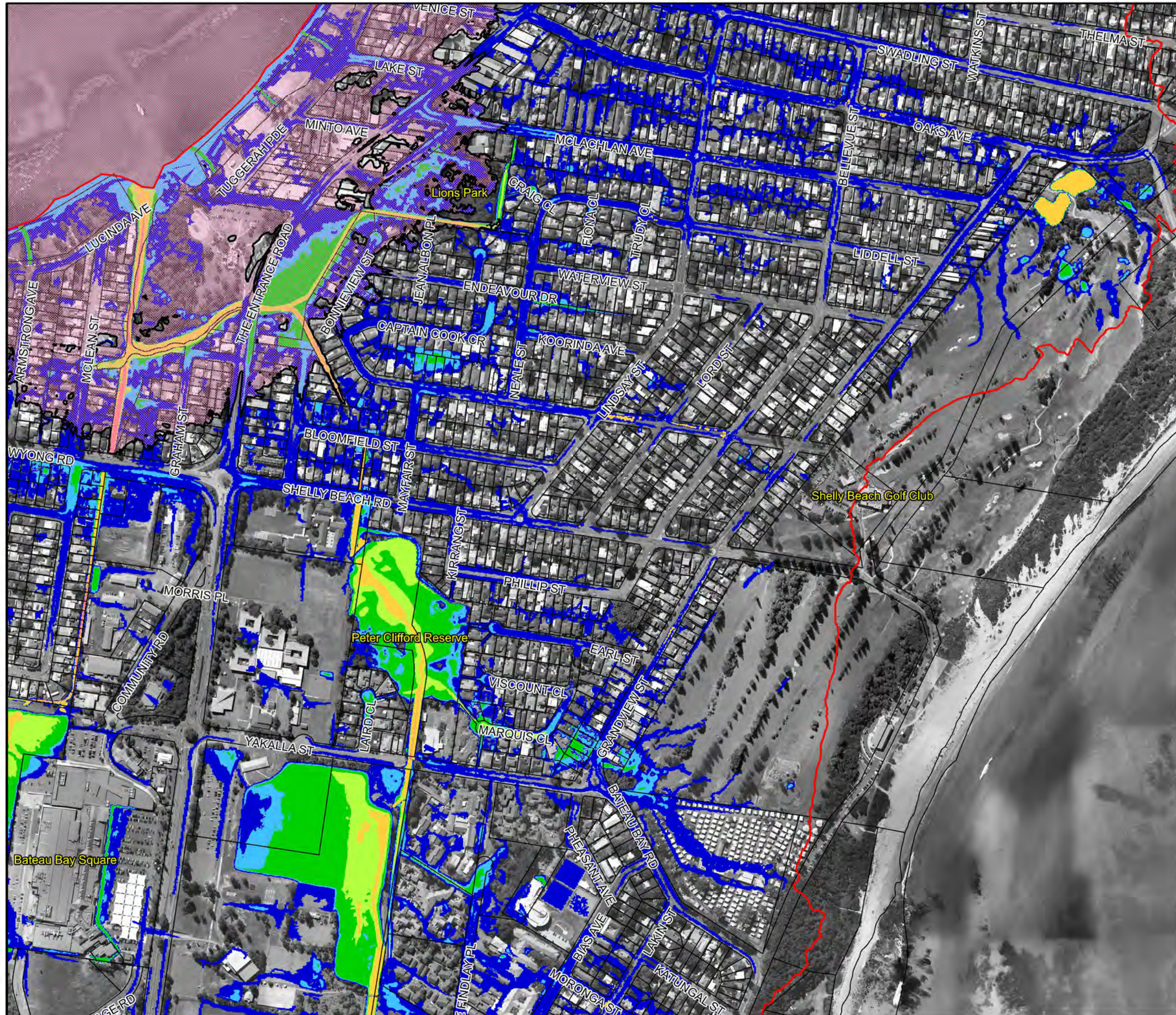
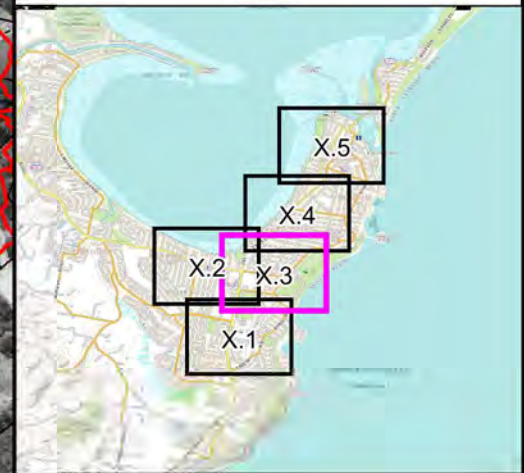
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W — \* — E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 10.2:**  
**Flood Hazard for the**  
**1% AEP Flood**



**LEGEND**

**Hazard Categories**

- H1 - Generally Safe
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special design
- H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

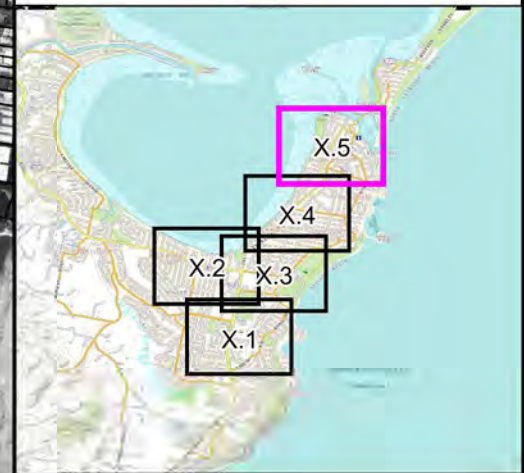
N  
 W E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 10.3:**  
**Flood Hazard for the**  
**1% AEP Flood**

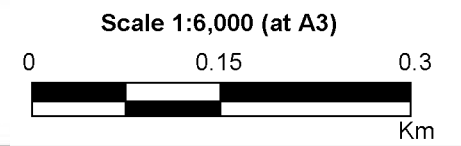
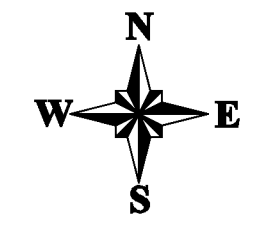




**LEGEND**

- Hazard Categories**
- H1 - Generally Safe
  - H2 - Unsafe for small vehicles
  - H3 - Unsafe for vehicles, children and elderly
  - H4 - Unsafe for people and vehicles
  - H5 - Unsafe for people and vehicles. Buildings require special design
  - H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
  - Tuggerah Lake Inundation Area. Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

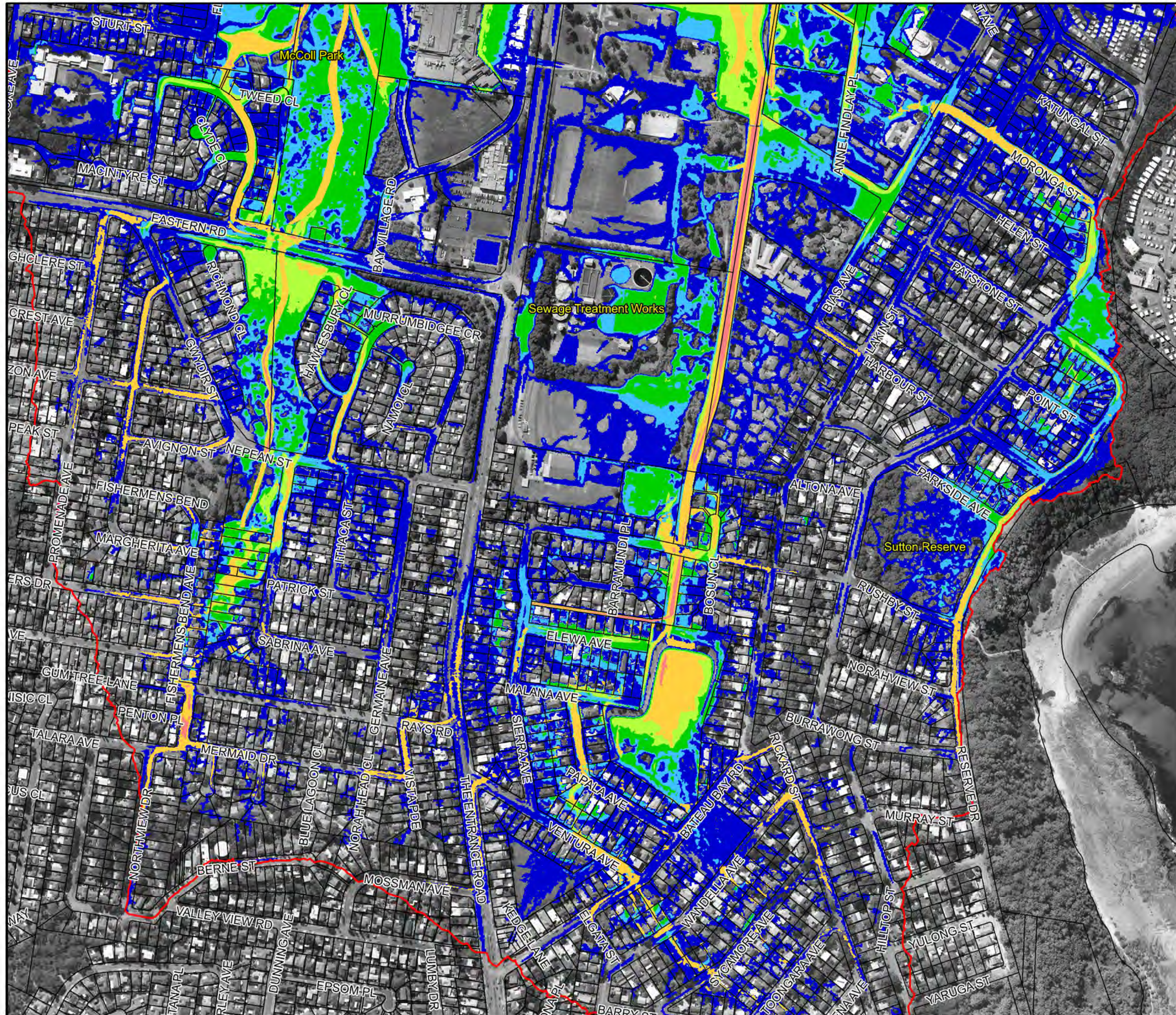
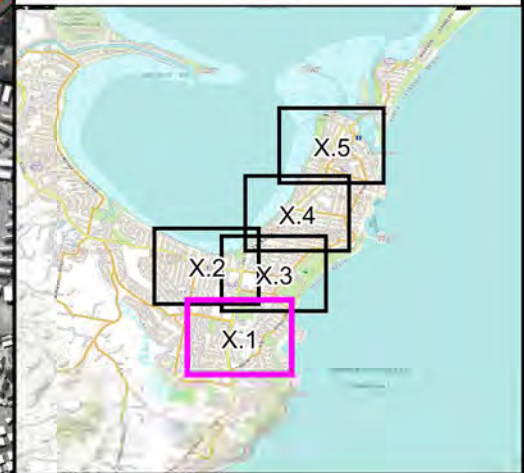


**Figure 10.5:**  
**Flood Hazard for the**  
**1% AEP Flood**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: Flood Hazard 1AEP.wor

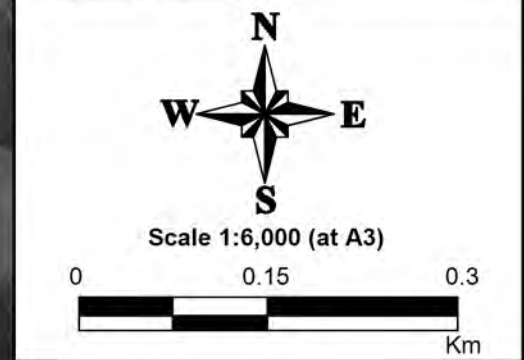




**LEGEND**

- Hazard Categories**
- H1 - Generally Safe
  - H2 - Unsafe for small vehicles
  - H3 - Unsafe for vehicles, children and elderly
  - H4 - Unsafe for people and vehicles
  - H5 - Unsafe for people and vehicles. Buildings require special design
  - H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
- Tuggerah Lake Inundation Area.  
Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

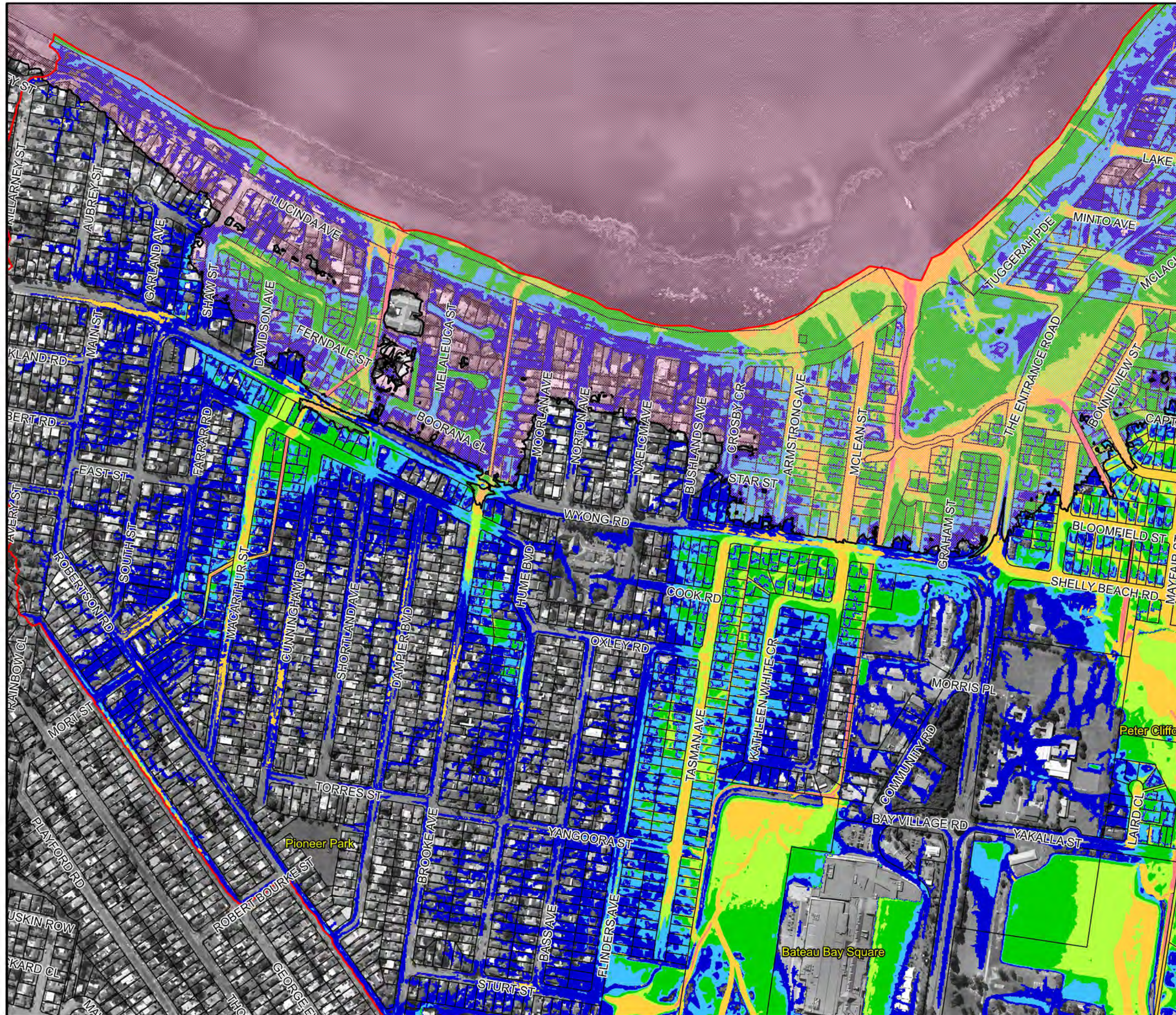
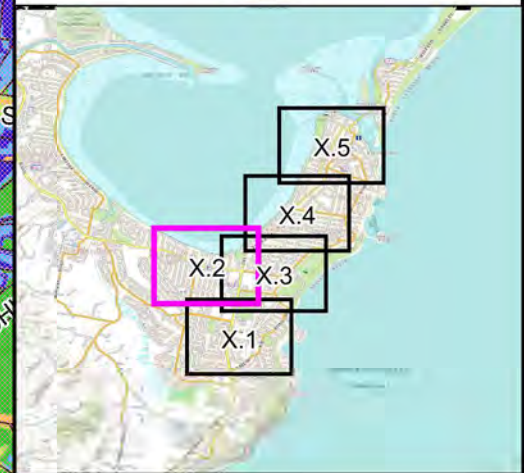
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



**Figure 11.1:  
 Flood Hazard for the  
 PMF**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: Flood Hazard PMF.wor



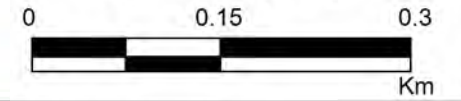
**LEGEND**

- Hazard Categories**
- H1 - Generally Safe
  - H2 - Unsafe for small vehicles
  - H3 - Unsafe for vehicles, children and elderly
  - H4 - Unsafe for people and vehicles
  - H5 - Unsafe for people and vehicles. Buildings require special design
  - H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
  - Tuggerah Lake Inundation Area.
- Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



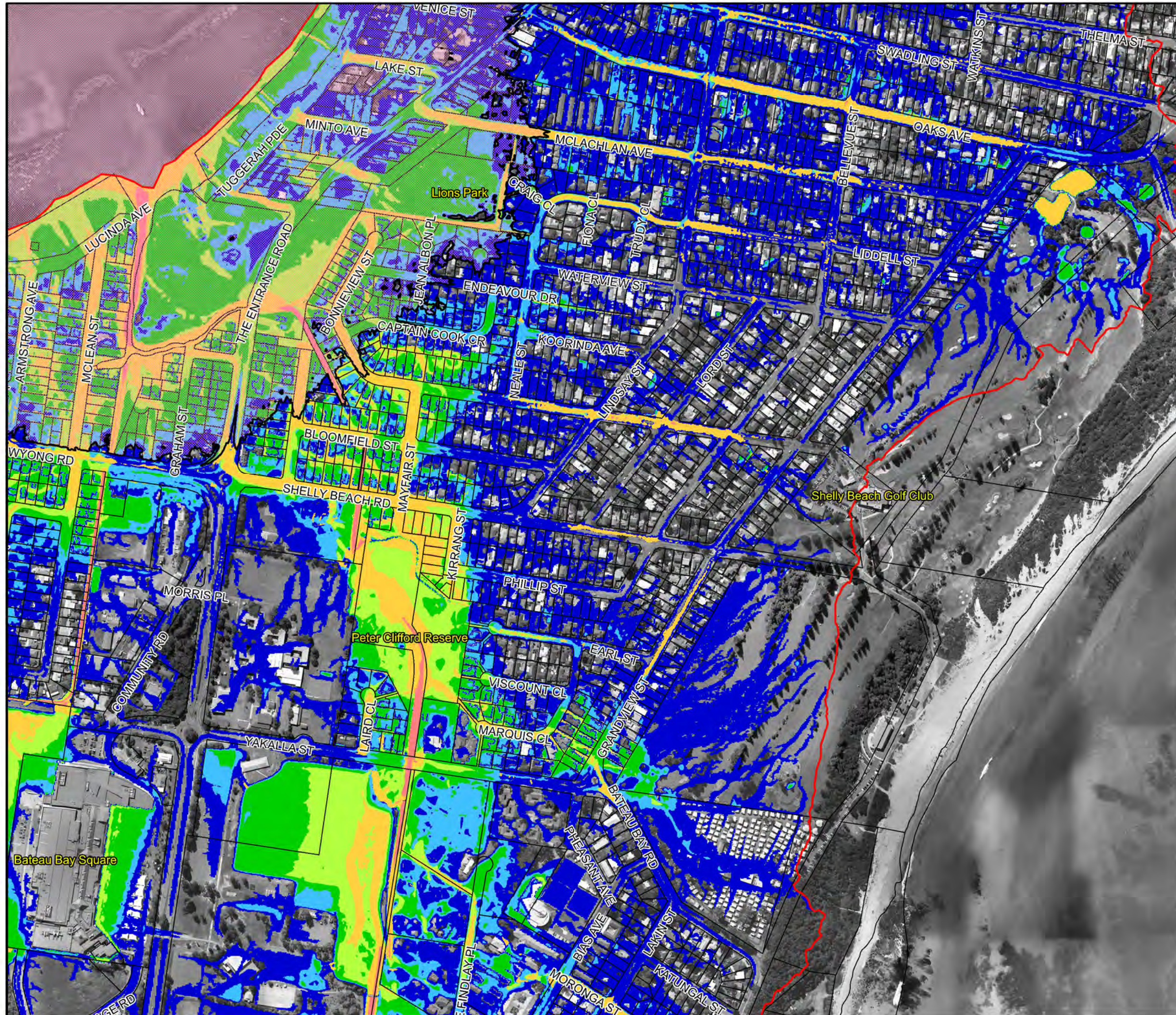
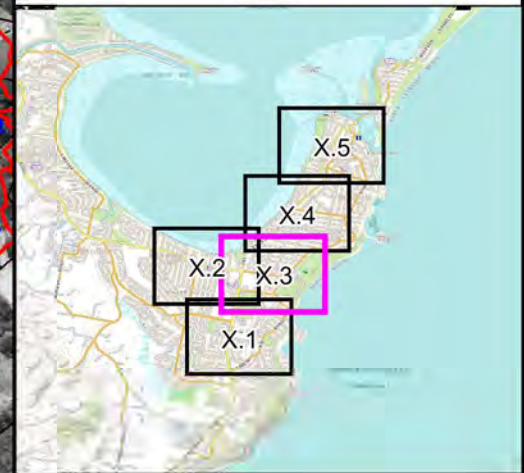
Scale 1:6,000 (at A3)



**Figure 11.2:  
 Flood Hazard for the  
 PMF**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: Flood Hazard PMF.wor



**LEGEND**

**Hazard Categories**

- H1 - Generally Safe
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special design
- H6 - Unsafe for people and vehicles. All buildings vulnerable to failure

Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

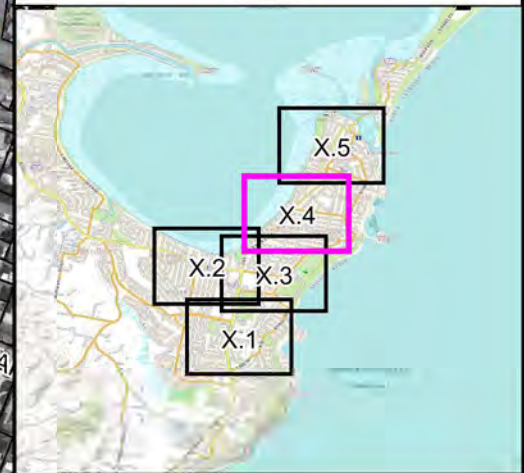
N  
 W — — E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 11.3:  
 Flood Hazard for the  
 PMF**





**LEGEND**

**Hazard Categories**

- H1 - Generally Safe
- H2 - Unsafe for small vehicles
- H3 - Unsafe for vehicles, children and elderly
- H4 - Unsafe for people and vehicles
- H5 - Unsafe for people and vehicles. Buildings require special design
- H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
- Tuggerah Lake Inundation Area. Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

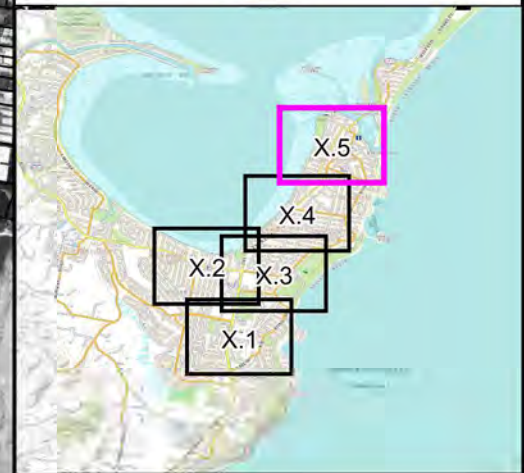
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W ——— E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

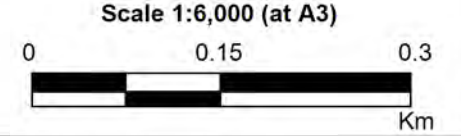
**Figure 11.4:**  
**Flood Hazard for the PMF**



**LEGEND**

- Hazard Categories**
- H1 - Generally Safe
  - H2 - Unsafe for small vehicles
  - H3 - Unsafe for vehicles, children and elderly
  - H4 - Unsafe for people and vehicles
  - H5 - Unsafe for people and vehicles. Buildings require special design
  - H6 - Unsafe for people and vehicles. All buildings vulnerable to failure
  - Tuggerah Lake Inundation Area. Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

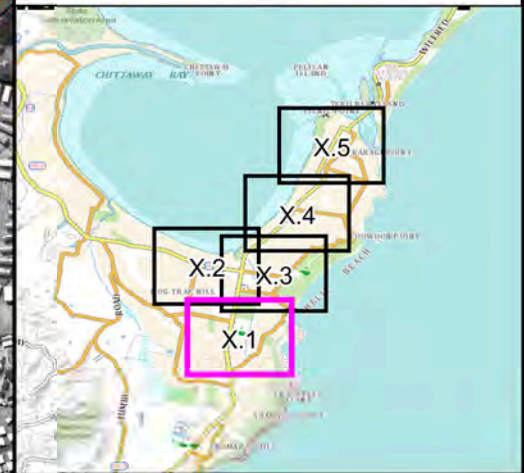


**Figure 11.5:  
 Flood Hazard for the  
 PMF**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: Flood Hazard PMF.wor





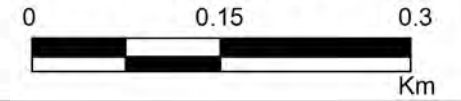
**LEGEND**

- Flooded Isolated Submerged
- Flooded Isolated Elevated
- Flooded Exit Route Overland Escape
- Flooded Exit Rising Road Egress
- Indirect Consequences
- No Flood Impacts
- Inundation Extent
- Road Overtopping Location
  - Time Road First Cut (hours)
  - Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



Scale 1:6,000 (at A3)

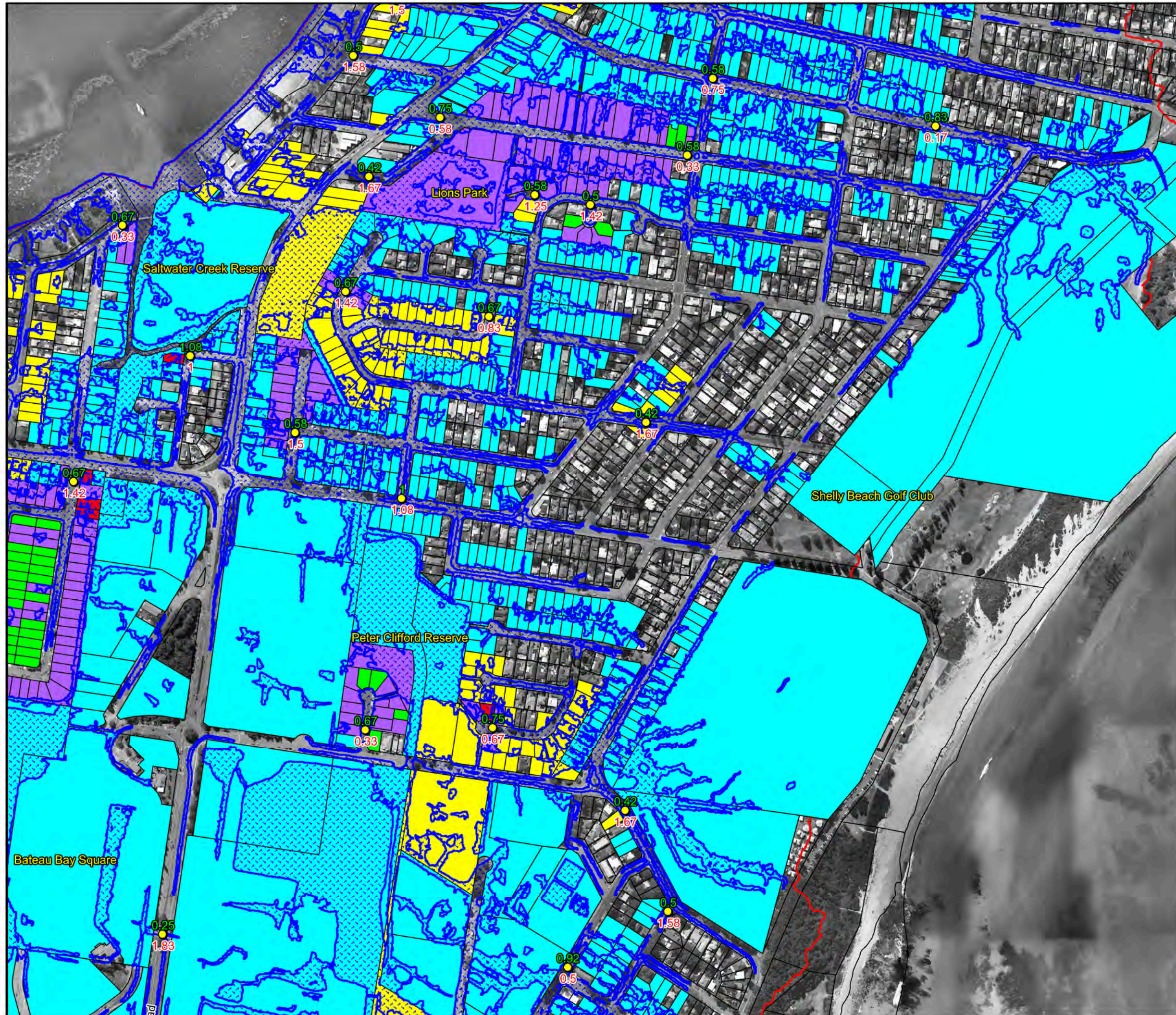
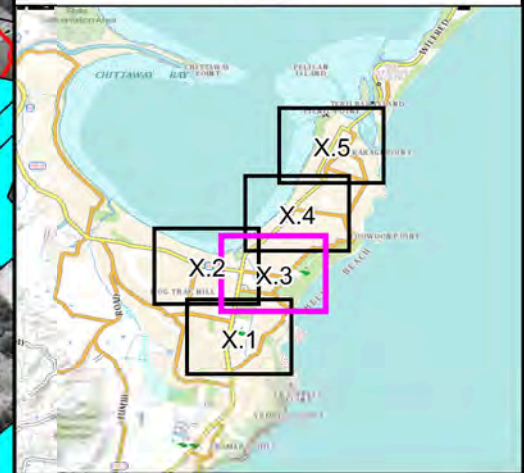


**Figure 12.1:  
Emergency Response  
Classifications for  
the 1% AEP Flood**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC 1% AEP Flood.wor





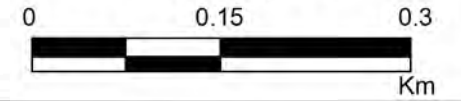
**LEGEND**

- Flooded Isolated Submerged
- Flooded Isolated Elevated
- Flooded Exit Route Overland Escape
- Flooded Exit Rising Road Egress
- Indirect Consequences
- No Flood Impacts
- Inundation Extent
- Road Overtopping Location
- 0.67 Time Road First Cut (hours)
- 0.5 Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



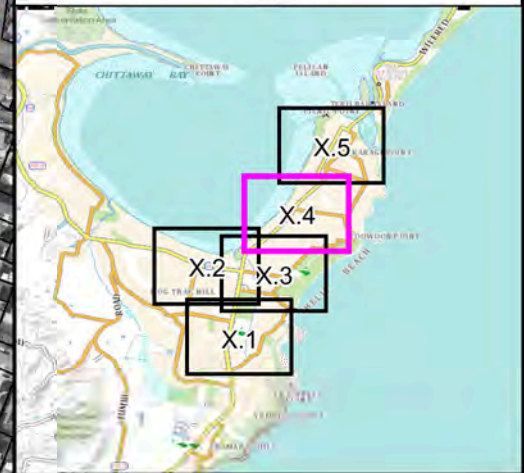
Scale 1:6,000 (at A3)



**Figure 12.3:  
Emergency Response  
Classifications for  
the 1% AEP Flood**

Prepared By:  
 **Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC 1% AEP Flood.wor



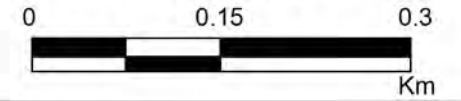
**LEGEND**

- Flooded Isolated Submerged
  - Flooded Isolated Elevated
  - Flooded Exit Route Overland Escape
  - Flooded Exit Rising Road Egress
  - Indirect Consequences
  - No Flood Impacts
  - Inundation Extent
- Road Overtopping Location
- Time Road First Cut (hours)
  - Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



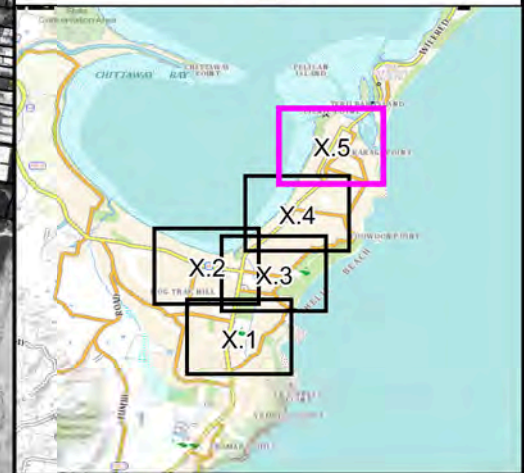
Scale 1:6,000 (at A3)



**Figure 12.4:  
Emergency Response  
Classifications for  
the 1% AEP Flood**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC 1% AEP Flood.wor



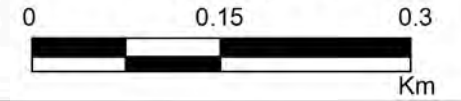
**LEGEND**

- Flooded Isolated Submerged
  - Flooded Isolated Elevated
  - Flooded Exit Route Overland Escape
  - Flooded Exit Rising Road Egress
  - Indirect Consequences
  - No Flood Impacts
  - Inundation Extent
- Road Overtopping Location
- 0.57 Time Road First Cut (hours)
  - 0.5 Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



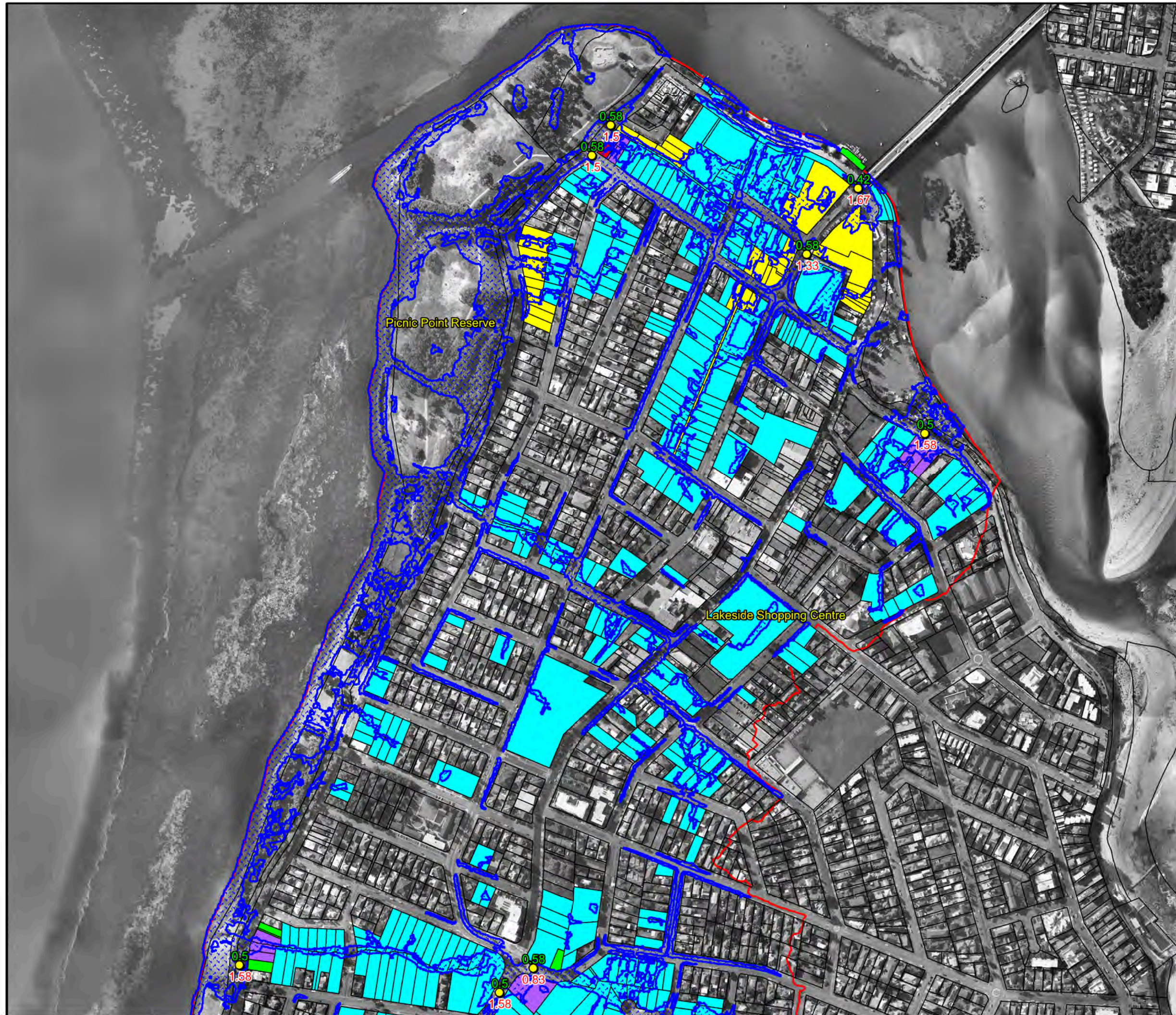
Scale 1:6,000 (at A3)

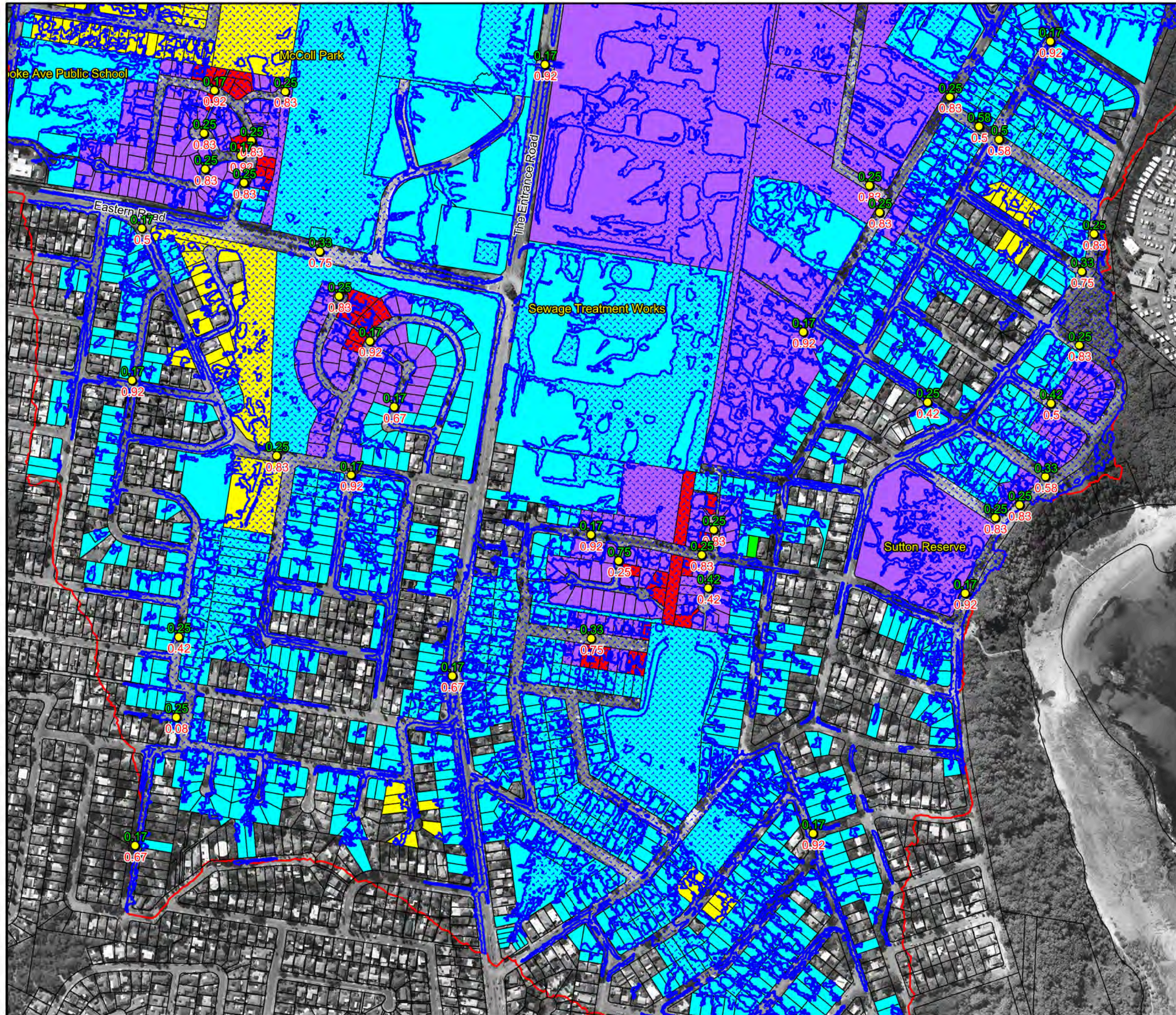
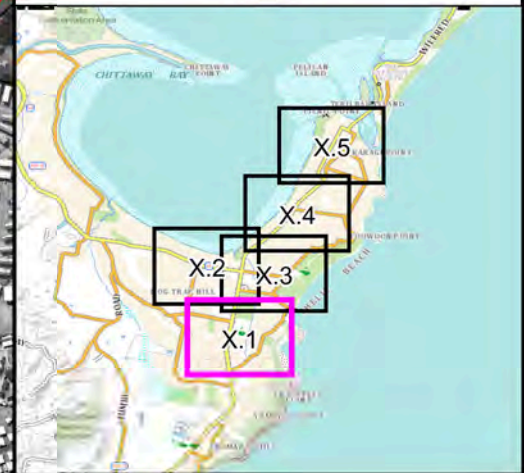


**Figure 12.5:  
Emergency Response  
Classifications for  
the 1% AEP Flood**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC 1% AEP Flood.wor





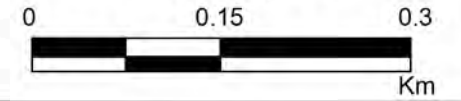
**LEGEND**

- Flooded Isolated Submerged
- Flooded Isolated Elevated
- Flooded Exit Route Overland Escape
- Flooded Exit Rising Road Egress
- Indirect Consequences
- No Flood Impacts
- Inundation Extent
- Road Overtopping Location
- Time Road First Cut (hours)
- Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



Scale 1:6,000 (at A3)

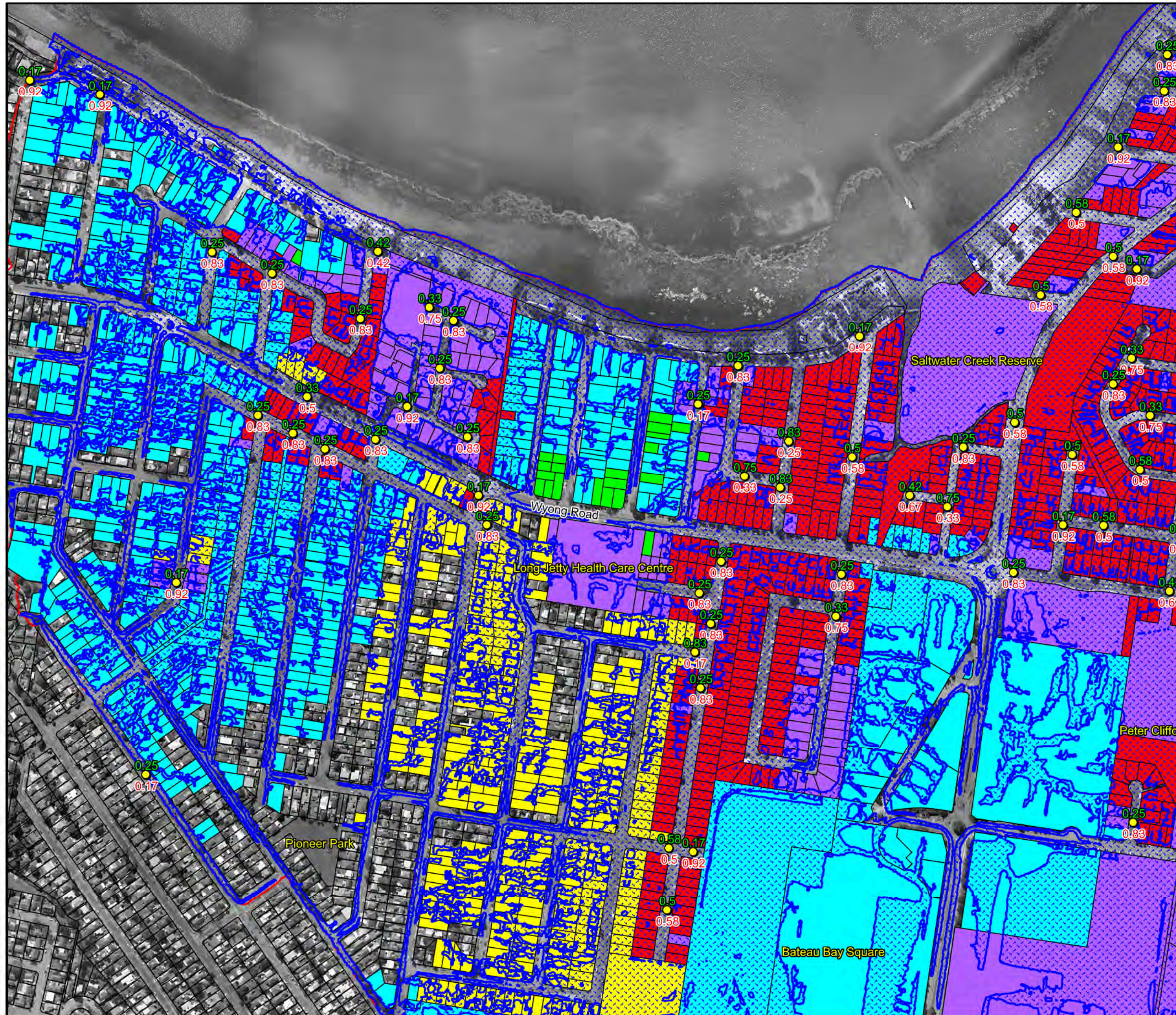
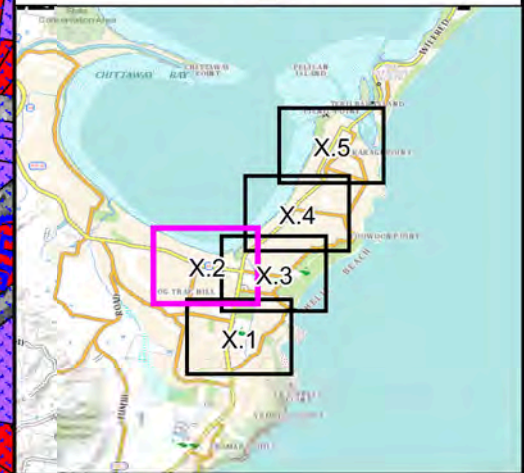


**Figure 13.1:  
Emergency Response  
Classifications for  
the PMF**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC PMF.wor

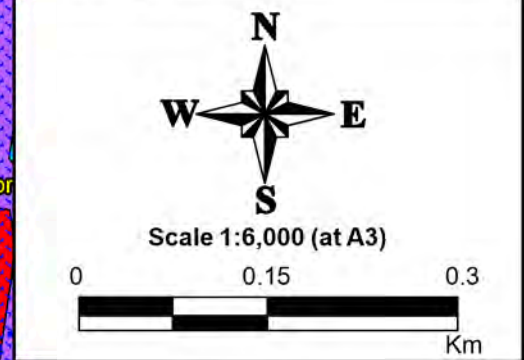




**LEGEND**

- Flooded Isolated Submerged
- Flooded Isolated Elevated
- Flooded Exit Route Overland Escape
- Flooded Exit Rising Road Egress
- Indirect Consequences
- No Flood Impacts
- Inundation Extent
- Road Overtopping Location
- 0.67 Time Road First Cut (hours)
- 0.5 Duration Cut (hours)

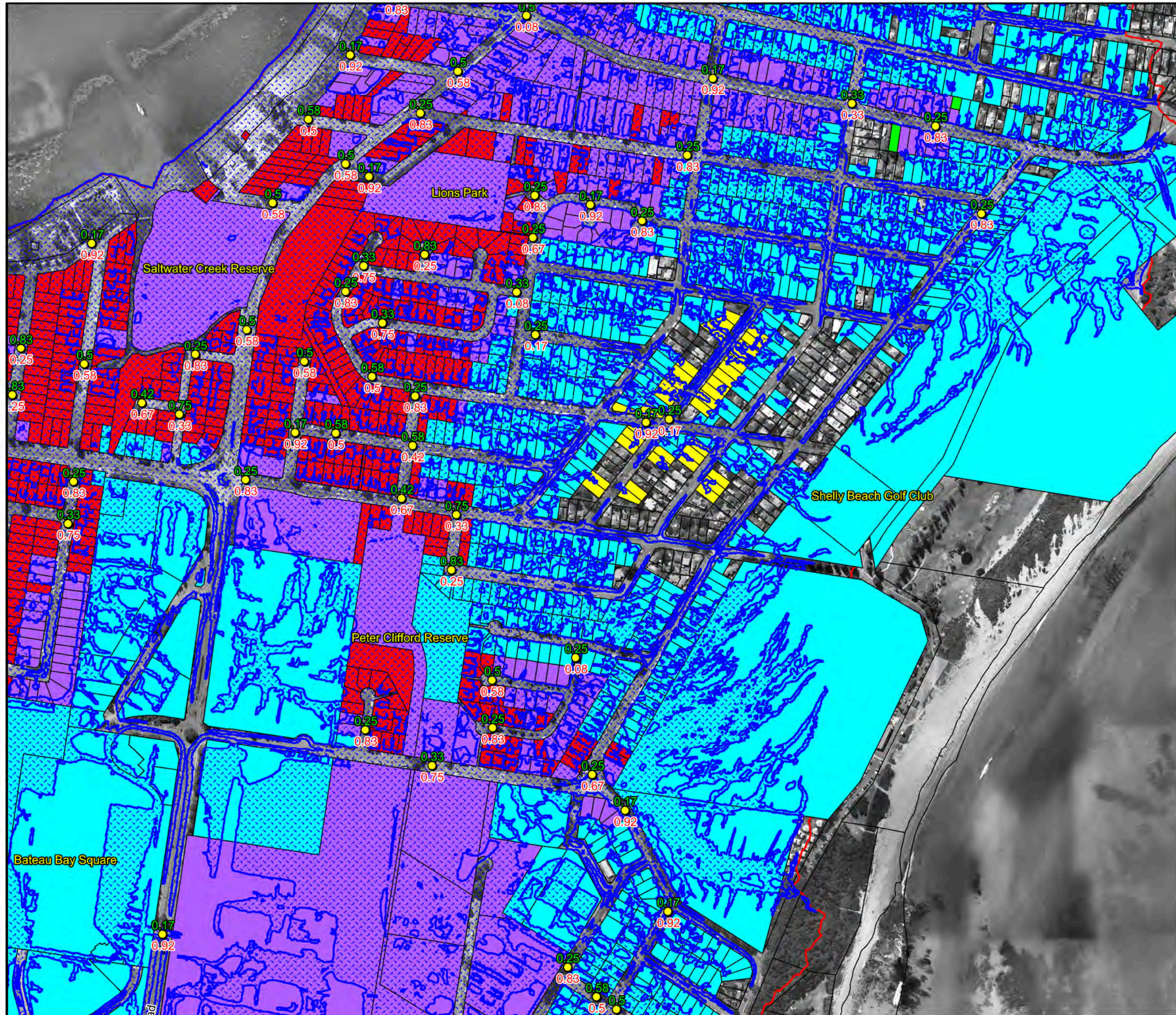
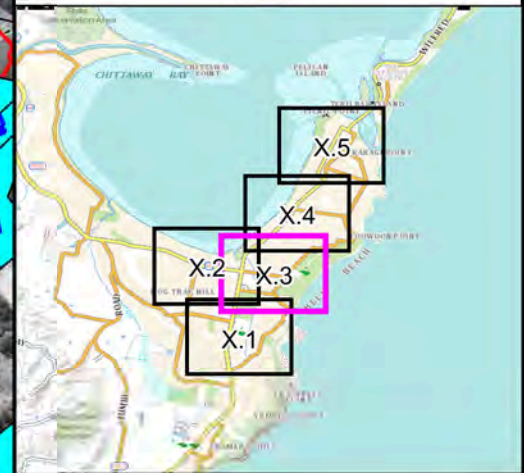
Notes:  
Aerial photograph date: 2013



**Figure 13.2:  
Emergency Response  
Classifications for  
the PMF**

Prepared By:  
Catchment Simulation Solutions  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC PMF.wor



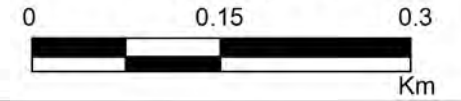
**LEGEND**

- Flooded Isolated Submerged
- Flooded Isolated Elevated
- Flooded Exit Route Overland Escape
- Flooded Exit Rising Road Egress
- Indirect Consequences
- No Flood Impacts
- Inundation Extent
- Road Overtopping Location
- 0.67 Time Road First Cut (hours)
- 0.5 Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



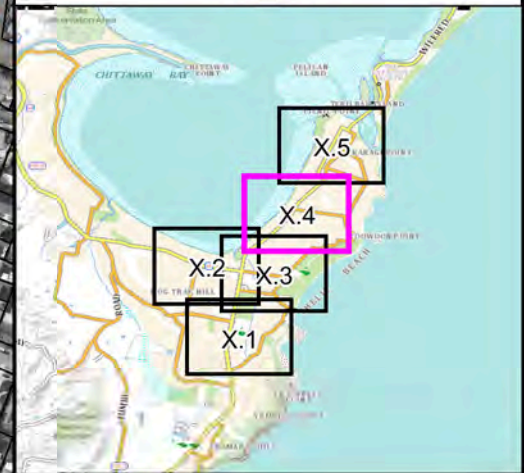
Scale 1:6,000 (at A3)



**Figure 13.3:  
Emergency Response  
Classifications for  
the PMF**

Prepared By:  
Catchment Simulation Solutions  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC PMF.wor



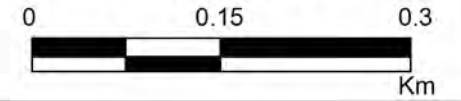
**LEGEND**

- Flooded Isolated Submerged
  - Flooded Isolated Elevated
  - Flooded Exit Route Overland Escape
  - Flooded Exit Rising Road Egress
  - Indirect Consequences
  - No Flood Impacts
  - Inundation Extent
- Road Overtopping Location
- 0.17 Time Road First Cut (hours)
  - 0.5 Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



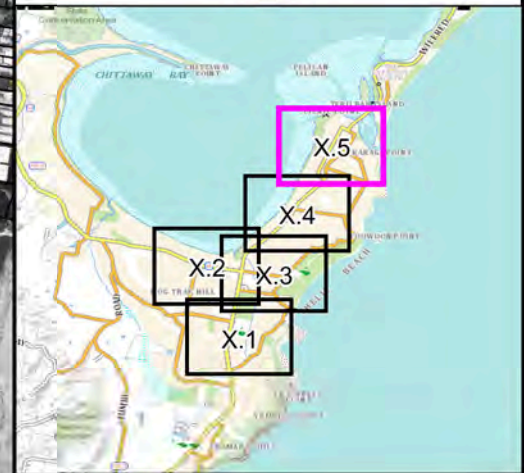
Scale 1:6,000 (at A3)



**Figure 13.4:  
Emergency Response  
Classifications for  
the PMF**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC PMF.wor



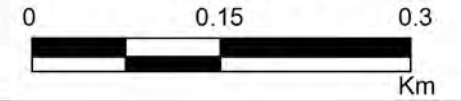
**LEGEND**

- Flooded Isolated Submerged
  - Flooded Isolated Elevated
  - Flooded Exit Route Overland Escape
  - Flooded Exit Rising Road Egress
  - Indirect Consequences
  - No Flood Impacts
  - Inundation Extent
- Road Overtopping Location
- 0.67 Time Road First Cut (hours)
  - 0.5 Duration Cut (hours)

Notes:  
Aerial photograph date: 2013



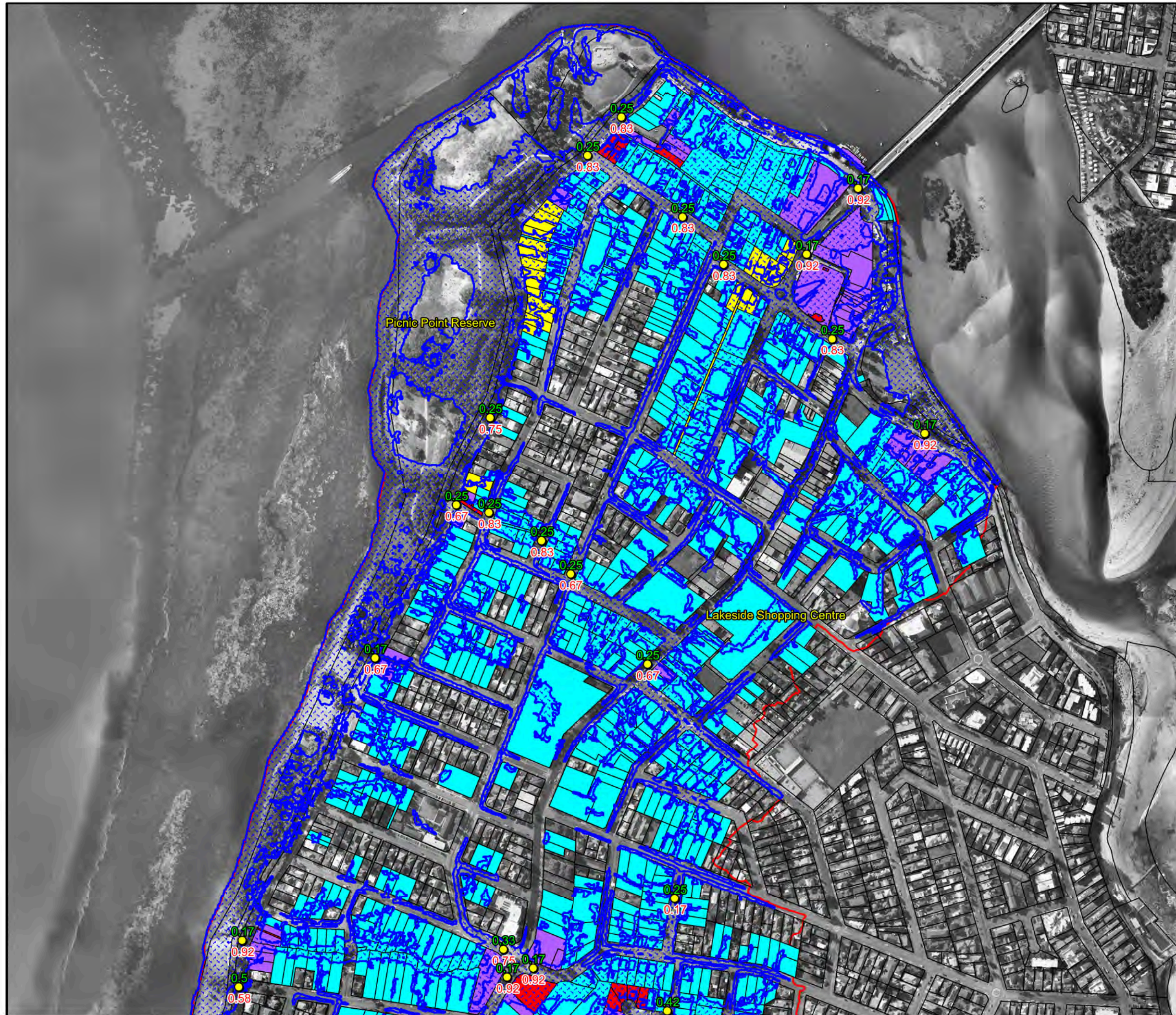
Scale 1:6,000 (at A3)

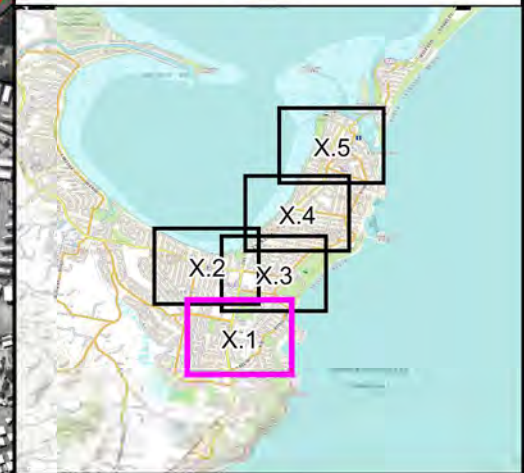


**Figure 13.5:  
Emergency Response  
Classifications for  
the PMF**

Prepared By:  
**Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

File Name: ERC PMF.wor





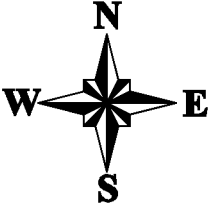
**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

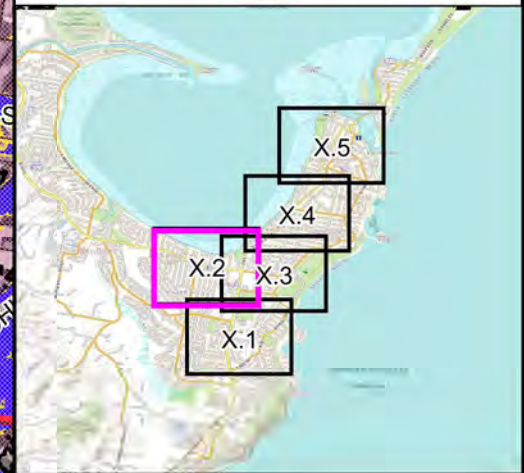
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
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Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 14.1:  
 1% AEP Hydraulic Categories**



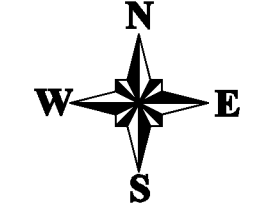
**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

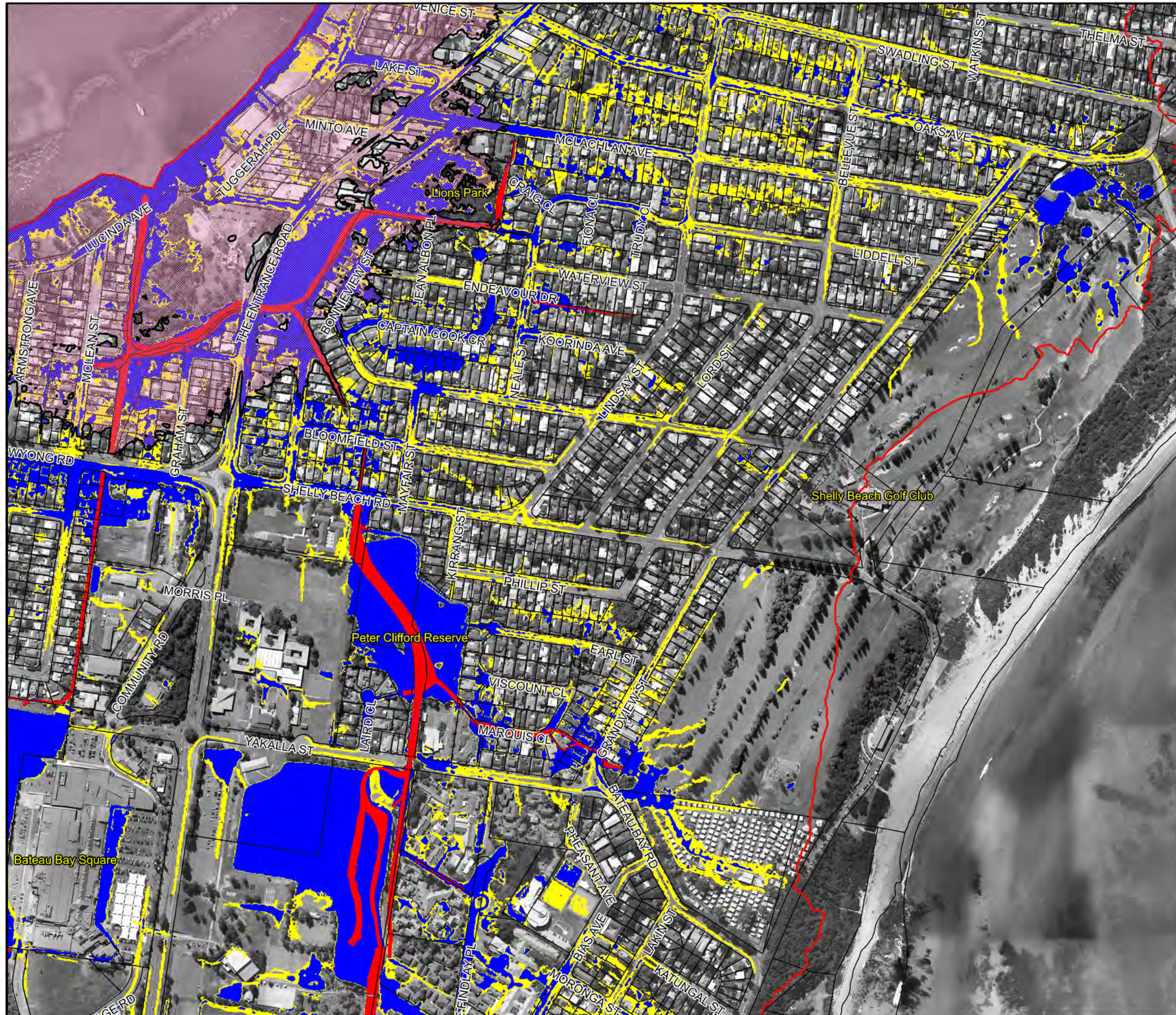
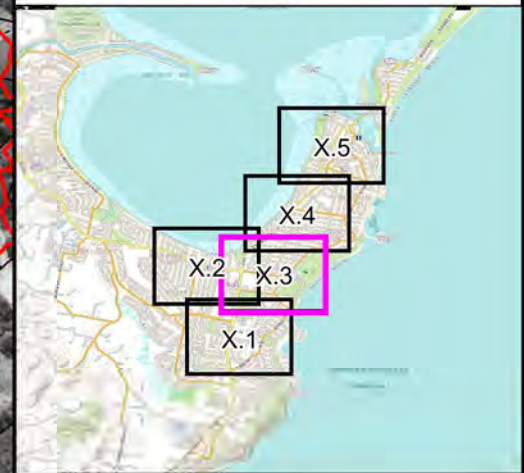
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
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 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 14.2:**  
**1% AEP Hydraulic Categories**



**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

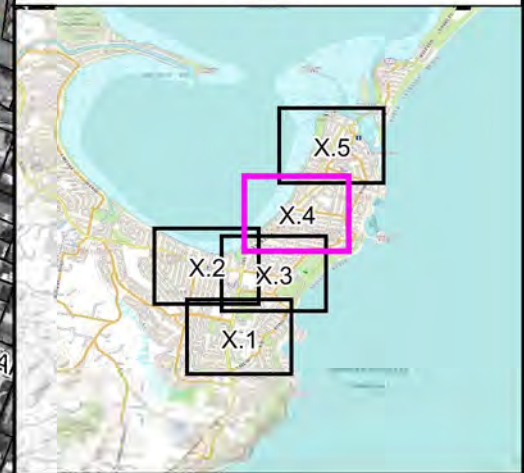
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
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 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 14.3:**  
**1% AEP Hydraulic Categories**



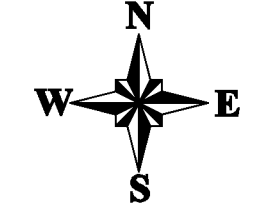
**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

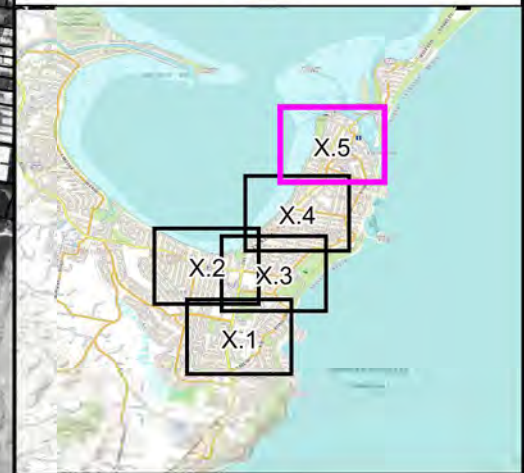
N  
 W  E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 14.4:**  
**1% AEP Hydraulic Categories**





**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

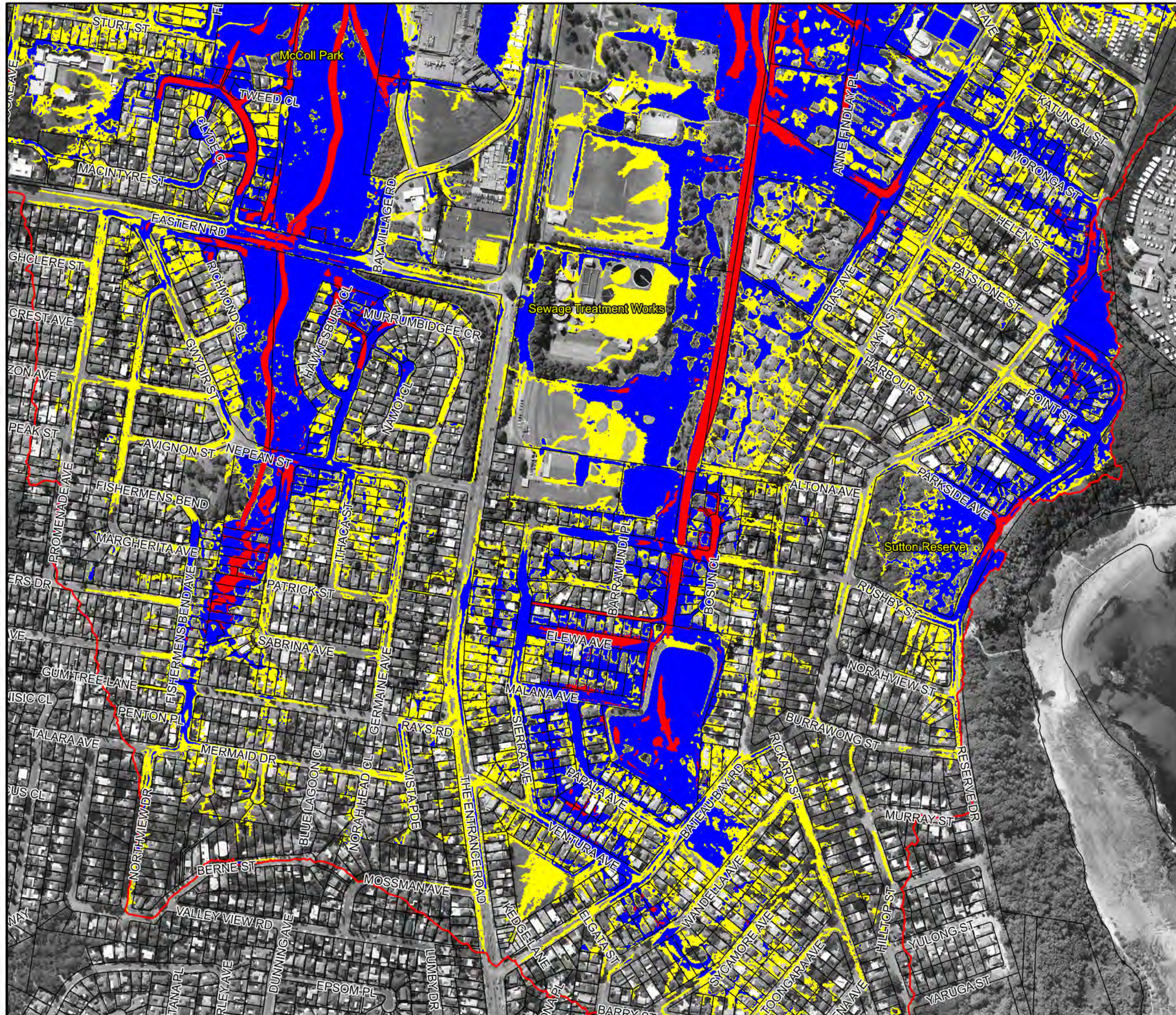
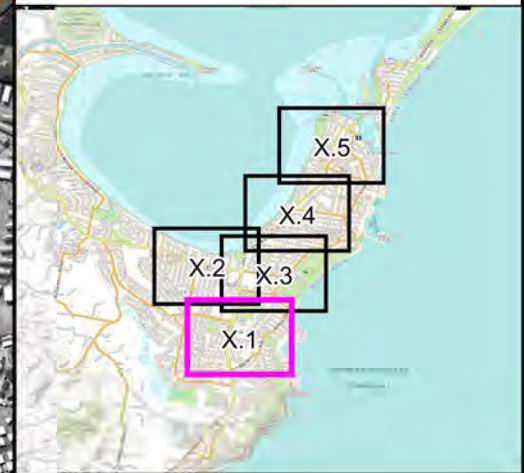
Scale 1:6,000 (at A3)

**Figure 14.5:**  
**1% AEP Hydraulic Categories**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: 1AEP Hydraulic Cat.wor





**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W — \* — E  
 S

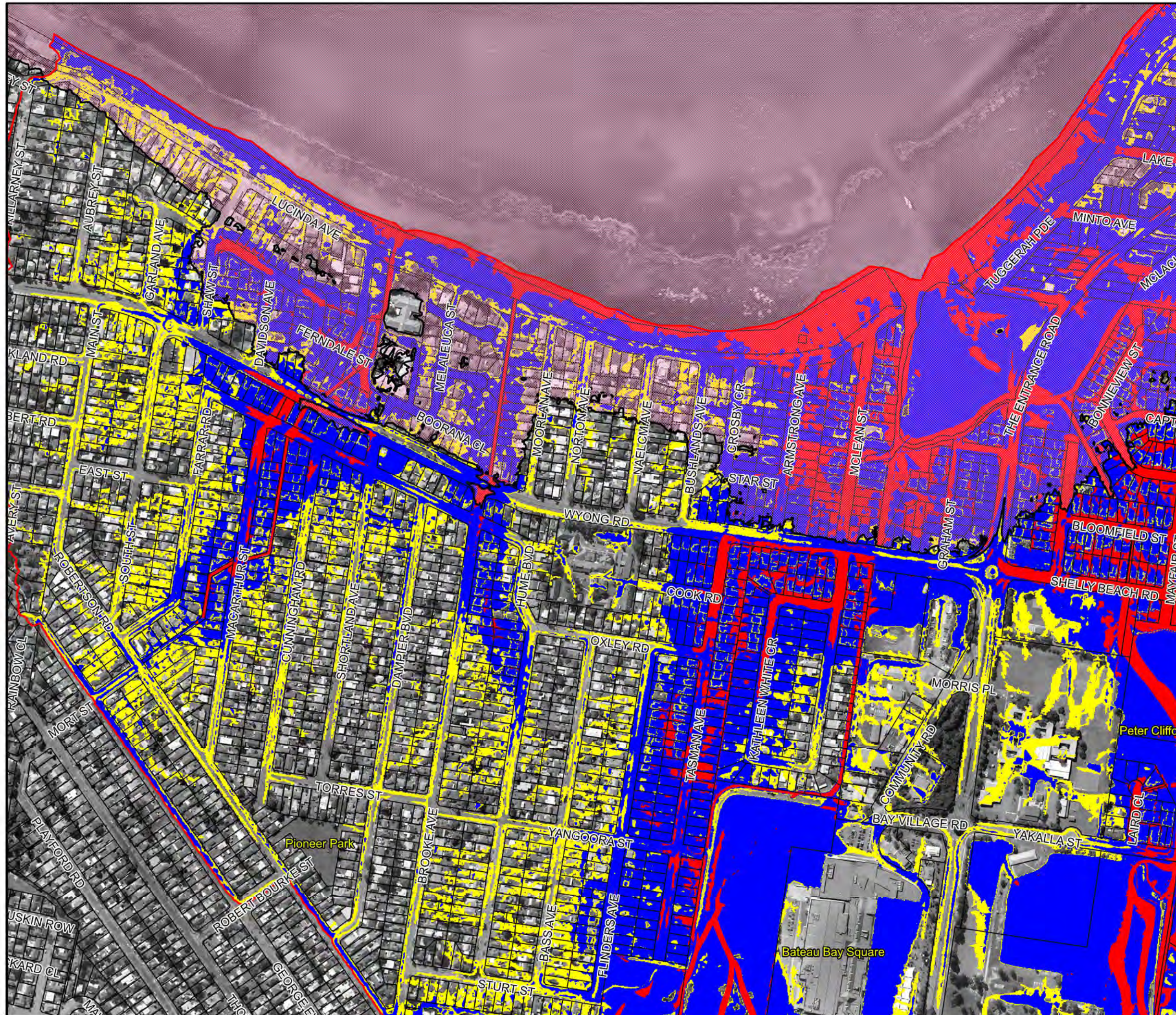
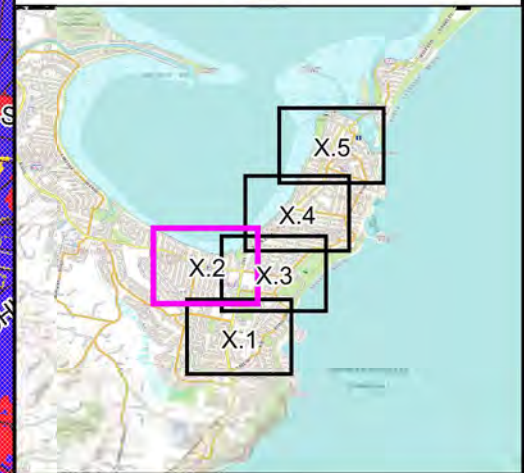
Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 15.1:  
 PMF Hydraulic  
 Categories**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: PMF Hydraulic Cat.wor



**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

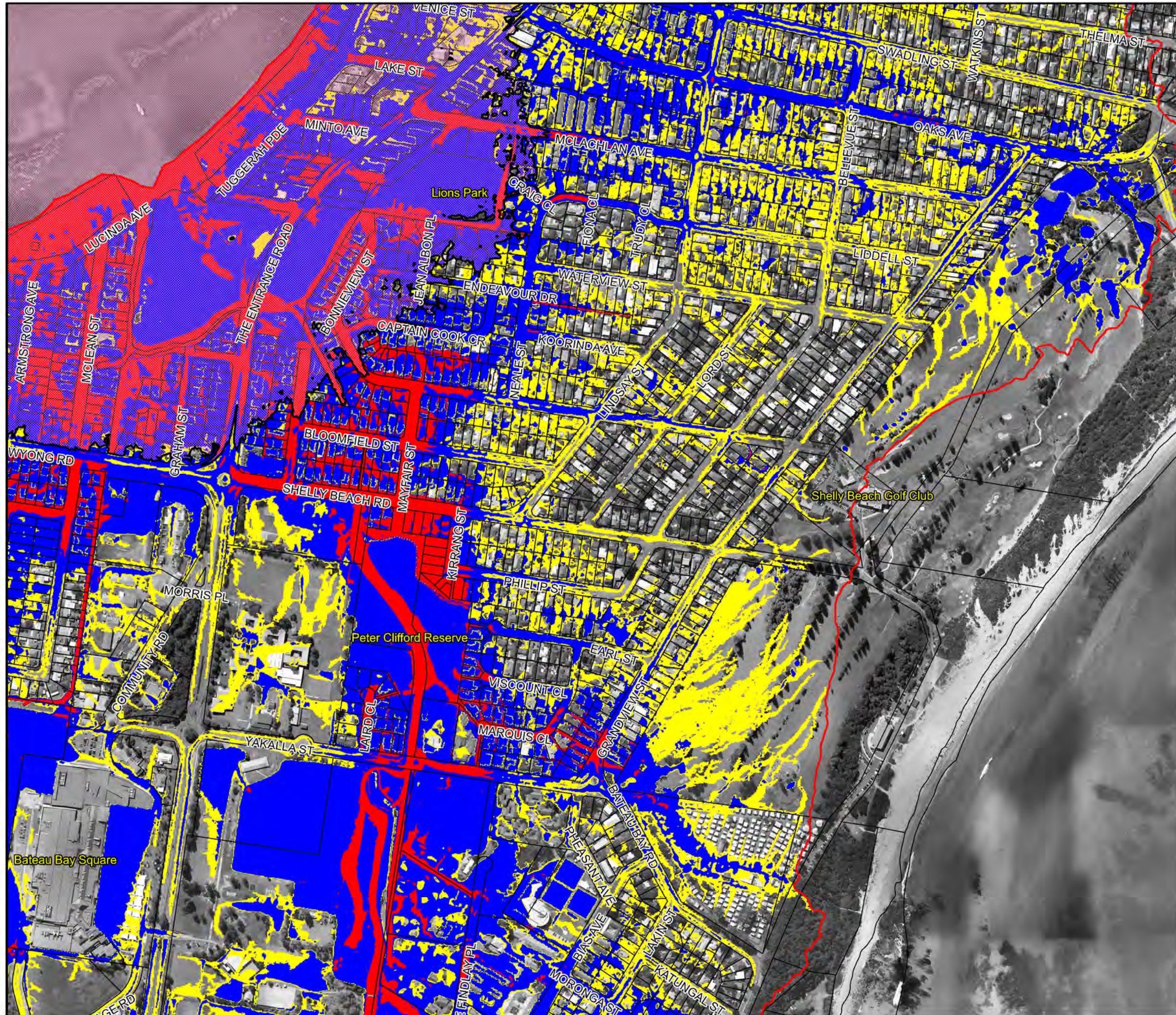
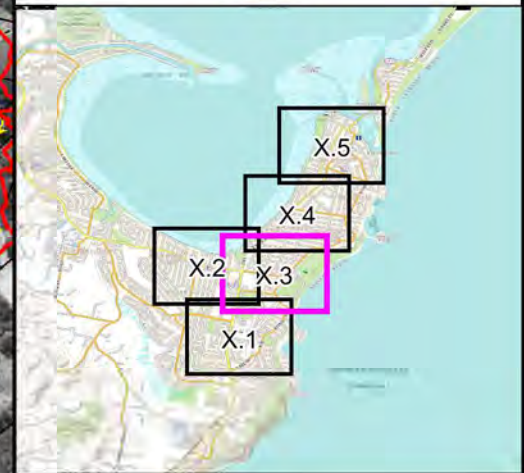
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W — \* — E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 15.2:  
 PMF Hydraulic  
 Categories**



**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

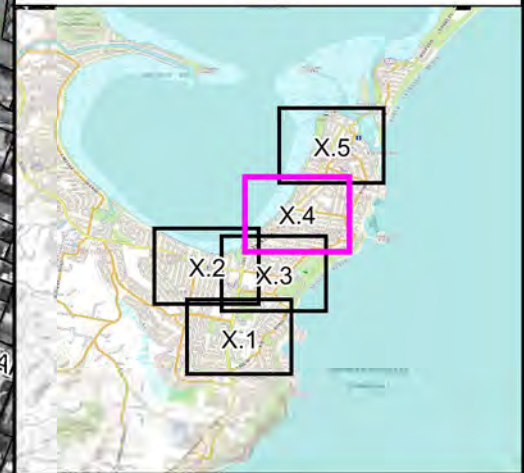
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 15.3:  
 PMF Hydraulic  
 Categories**




**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

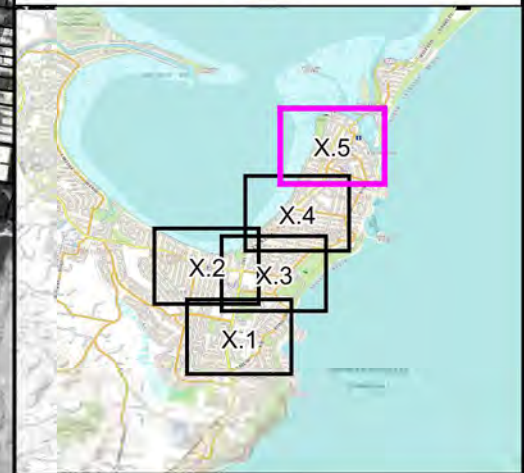
**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W  E  
 S

Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 15.4:  
 PMF Hydraulic  
 Categories**



**LEGEND**

Hydraulic Categories

- Flood Fringe
- Flood Storage
- Floodway
- Tuggerah Lake Inundation Area.

Please refer to the 'Tuggerah Lakes Floodplain Risk Management Study and Plan' (2014) for further information

**Notes:**  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

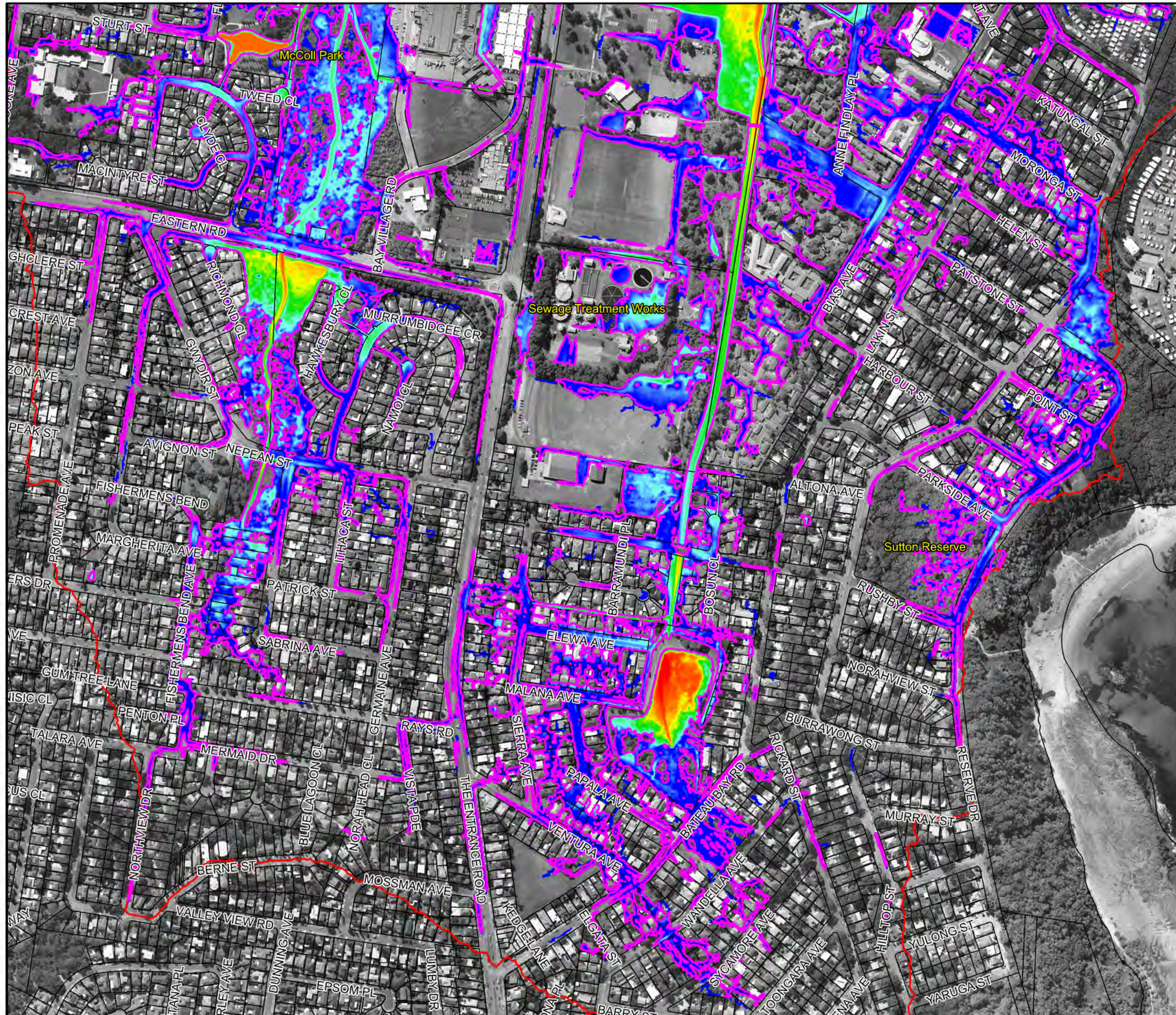
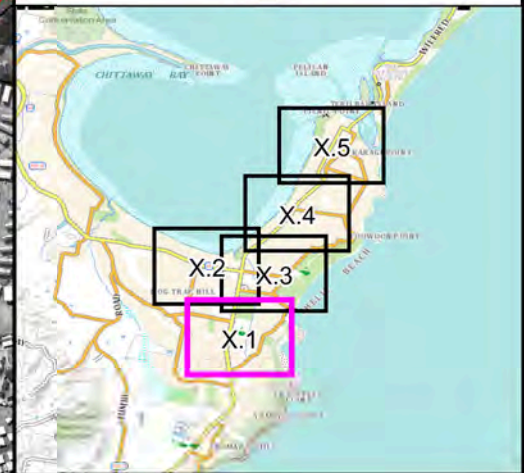
Scale 1:6,000 (at A3)

**Figure 15.5:  
 PMF Hydraulic  
 Categories**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

File Name: PMF Hydraulic Cat.wor





**LEGEND**

- Catchment Boundary
- 1% AEP Extent

Depths (m)

- ≤ 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W E  
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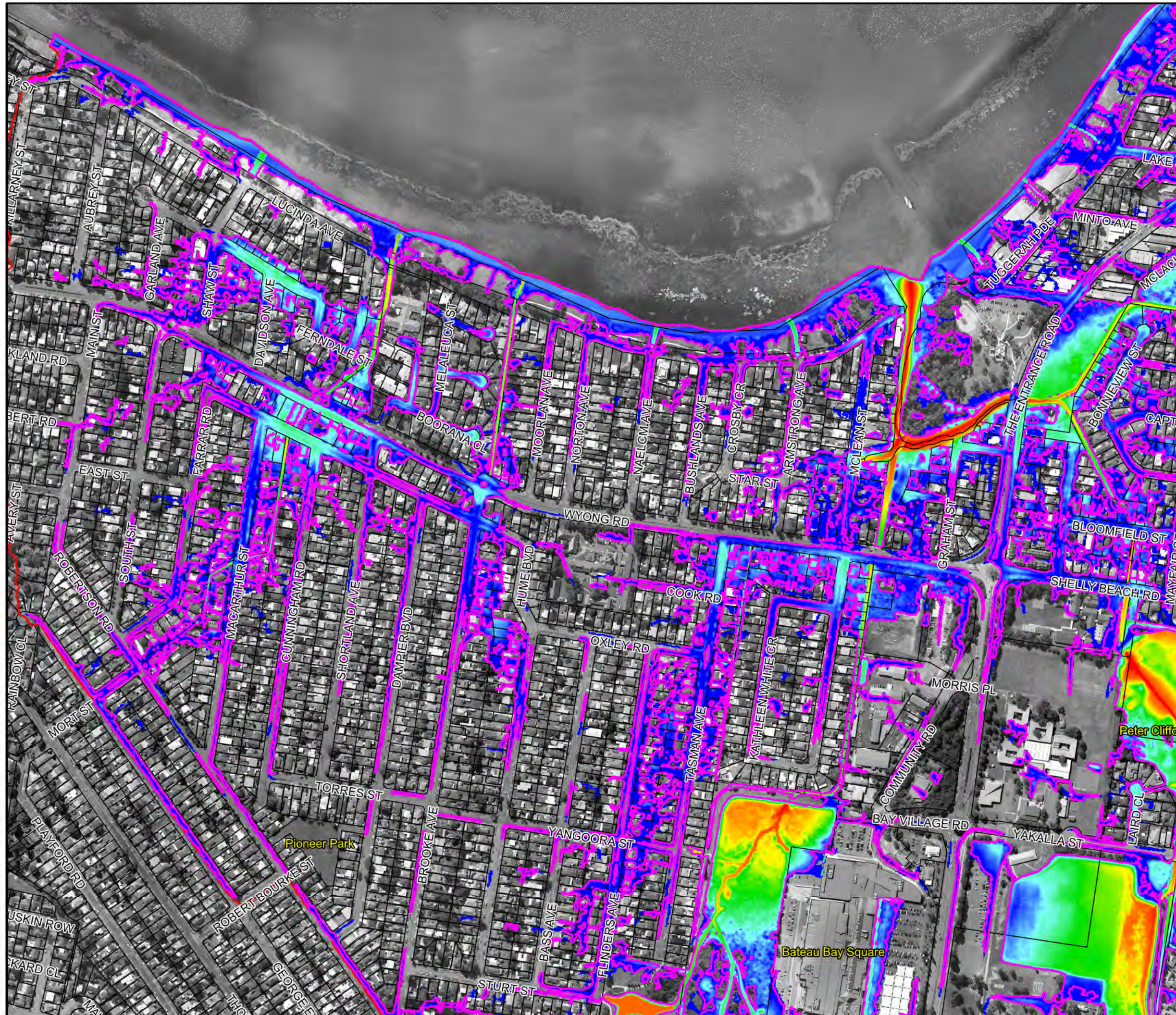
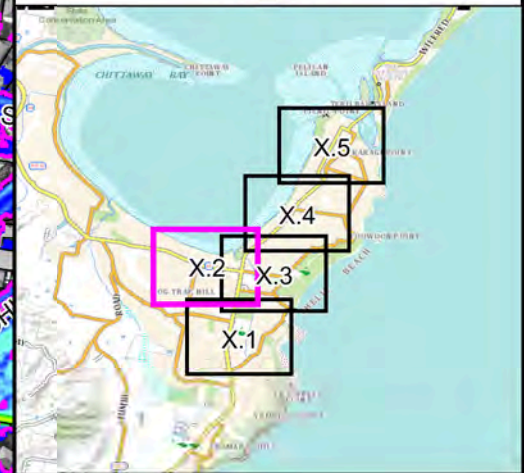
Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 16.1**  
**Peak Floodwater Depths for the 1% AEP Flood with 18.6% Increase in Rainfall Intensity associated with Climate Change**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the 1% AEP CC186 Flood.wor



**LEGEND**

- Catchment Boundary
- 1% AEP Extent

Depths (m)

- ≤ 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W E  
 S

Scale 1:6,000 (at A3)

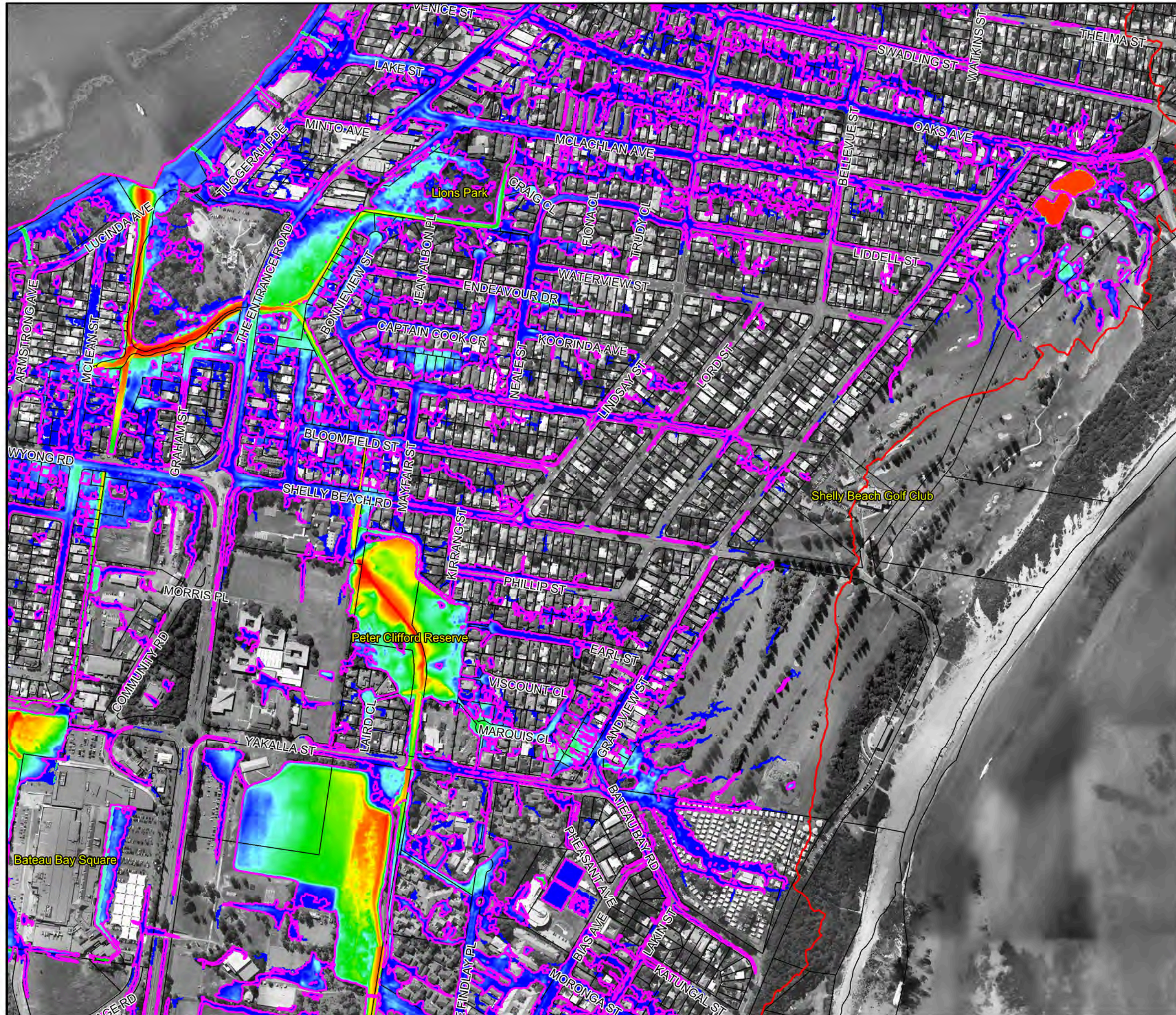
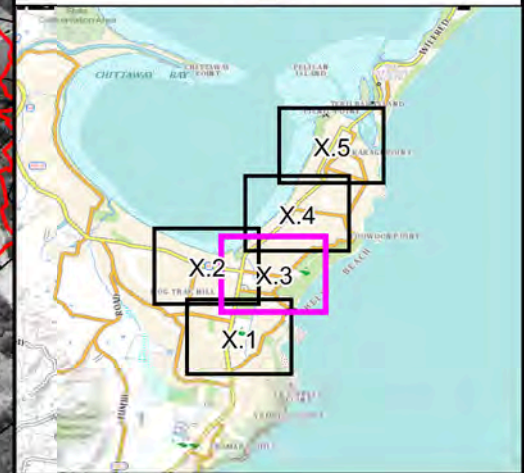
0      0.15      0.3  
 Km

**Figure 16.2**  
**Peak Floodwater Depths**  
**for the 1% AEP Flood with**  
**18.6% Increase in Rainfall**  
**Intensity associated with**  
**Climate Change**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the 1% AEP CC186 Flood.wor





**LEGEND**

- Catchment Boundary
- 1% AEP Extent

Depths (m)

- ≤ 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

N  
 W E  
 S

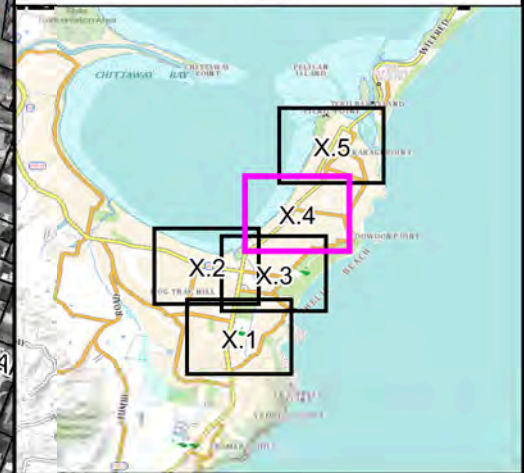
Scale 1:6,000 (at A3)

0      0.15      0.3  
 Km

**Figure 16.3**  
**Peak Floodwater Depths for the 1% AEP Flood with 18.6% Increase in Rainfall Intensity associated with Climate Change**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the 1% AEP CC186 Flood.wor



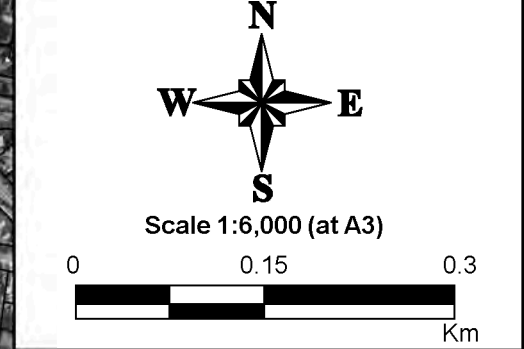
**LEGEND**

- Catchment Boundary
- 1% AEP Extent

Depths (m)

- ≤ 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

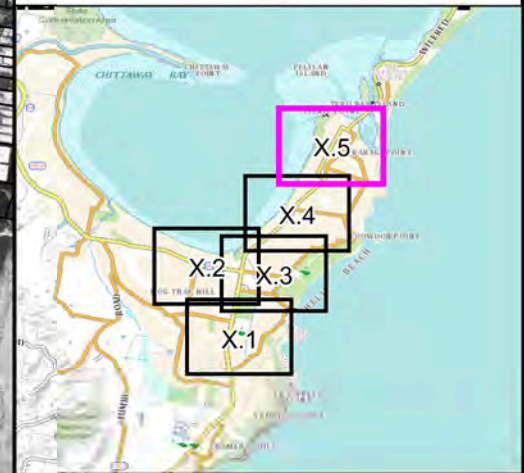
Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013



**Figure 16.4**  
**Peak Floodwater Depths for the 1% AEP Flood with 18.6% Increase in Rainfall Intensity associated with Climate Change**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the 1% AEP CC186 Flood.wor



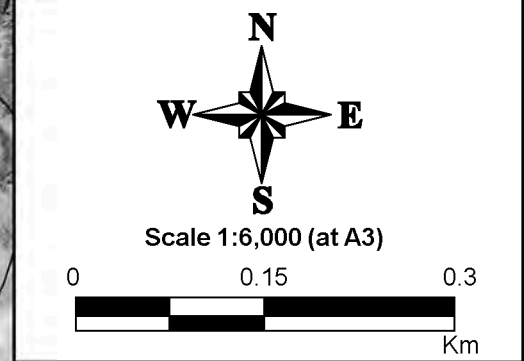
**LEGEND**

- Catchment Boundary
- 1% AEP Extent

Depths (m)

- ≤ 0.15
- 0.3
- 0.5
- 1.0
- 2.0
- 3.0

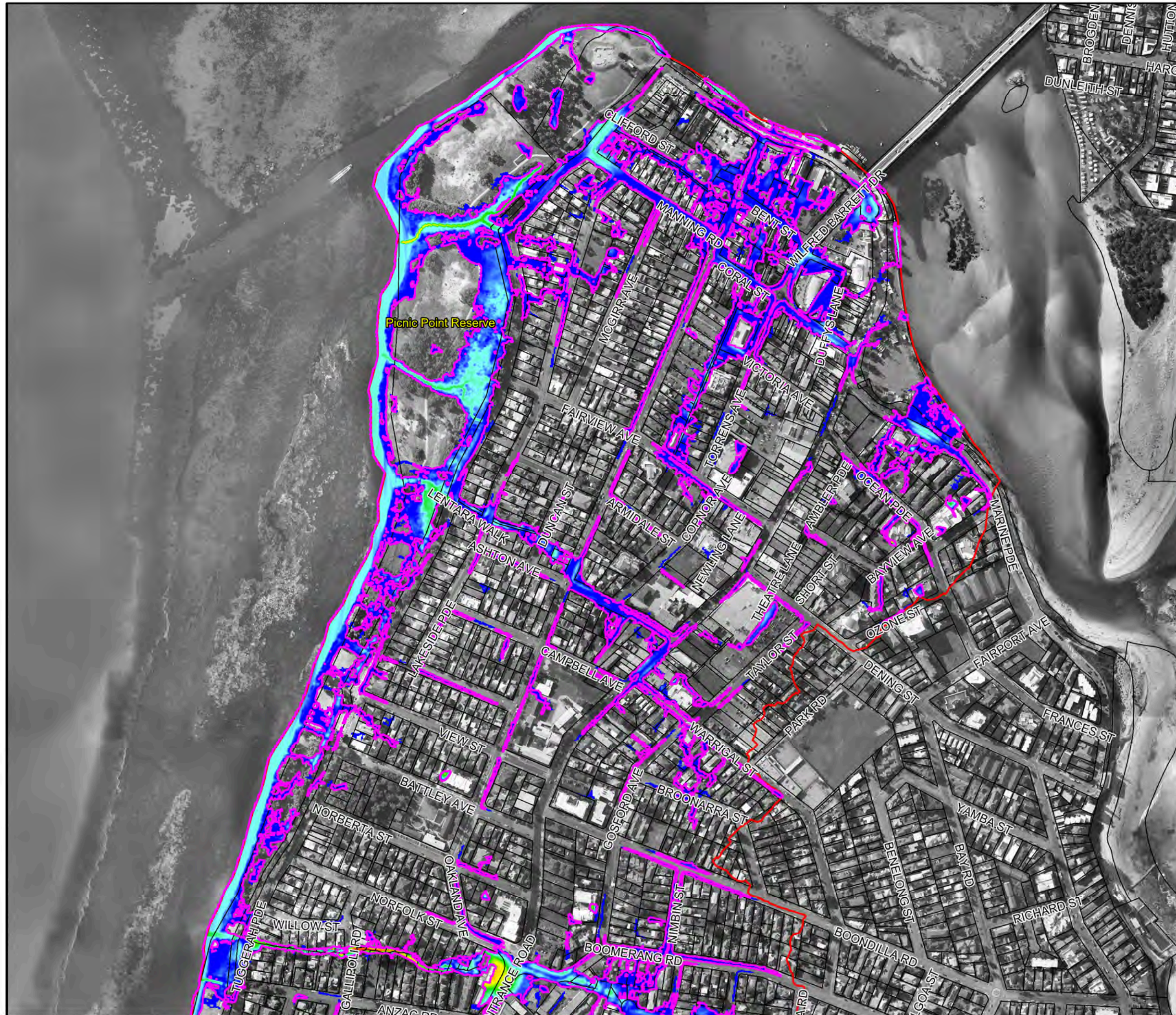
Notes:  
 Results are filtered based on criteria in Section 3.2.2 of Volume 1  
 Aerial photograph date: 2013

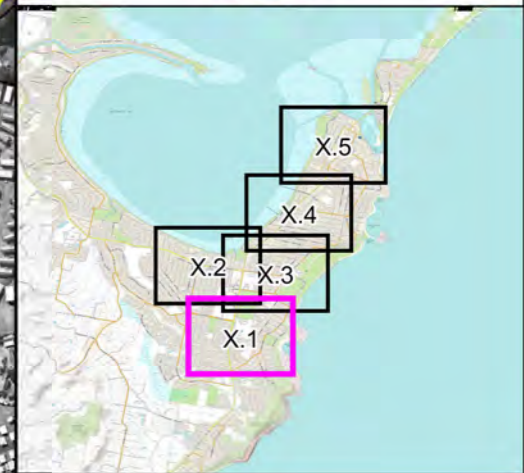


**Figure 16.5**  
**Peak Floodwater Depths**  
**for the 1% AEP Flood with**  
**18.6% Increase in Rainfall**  
**Intensity associated with**  
**Climate Change**

Prepared By:  
**Catchment Simulation Solutions**  
 Suite 2.01, 210 George St  
 Sydney, NSW 2000

Depths for the 1% AEP CC186 Flood.wor





**LEGEND**

- Catchment Boundary
- Flood Planning Area

**Notes:**  
Aerial photograph date: 2013

N  
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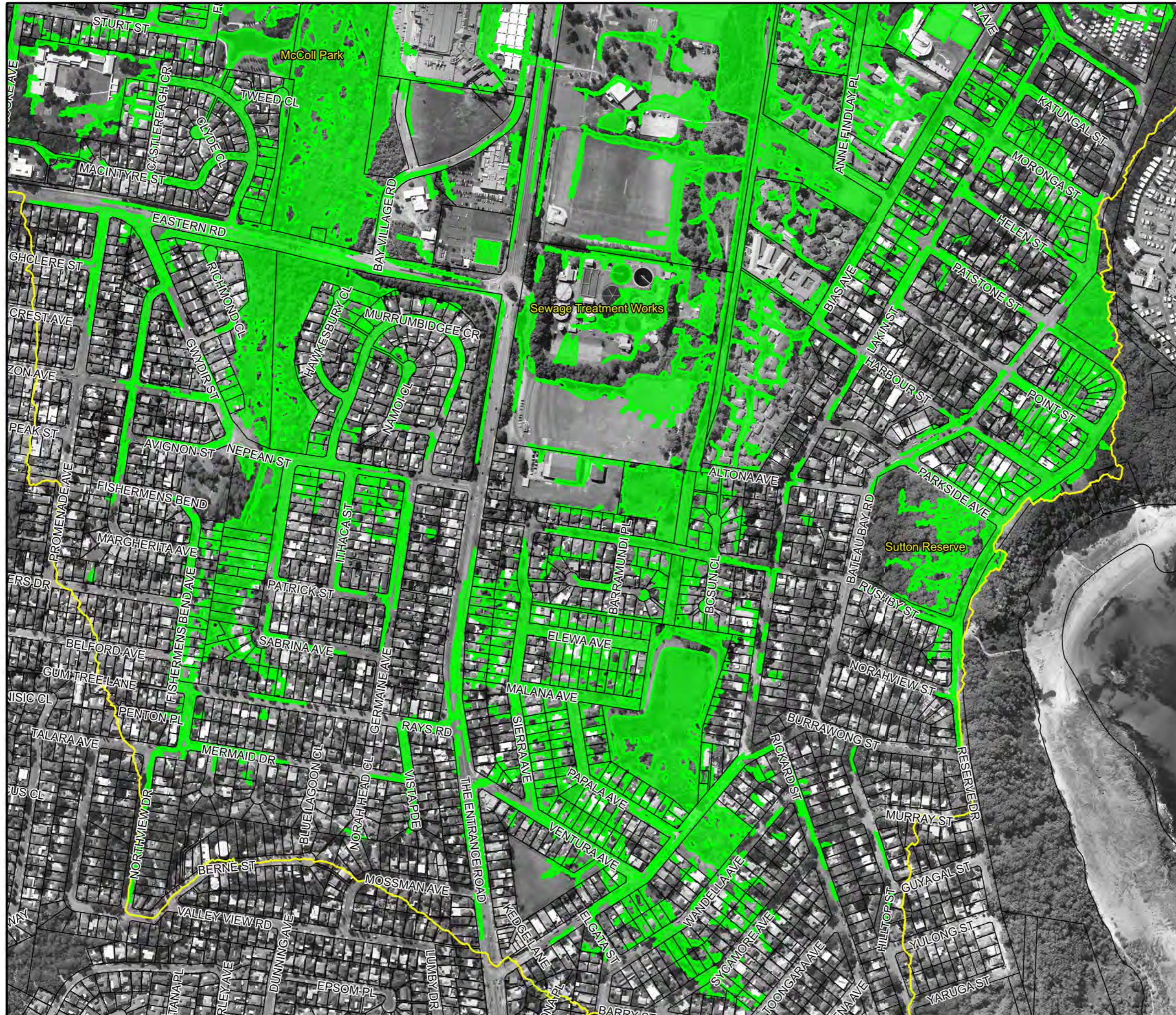
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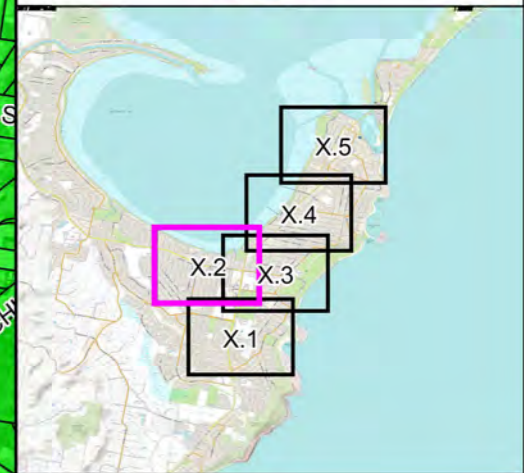
0 0.15 0.3  
Km

**Figure 17.1  
Flood Planning Area**

Prepared By:  
 **Catchment Simulation Solutions**  
Suite 2.01, 210 George St  
Sydney, NSW 2000

Flood Planning Area wor





**LEGEND**

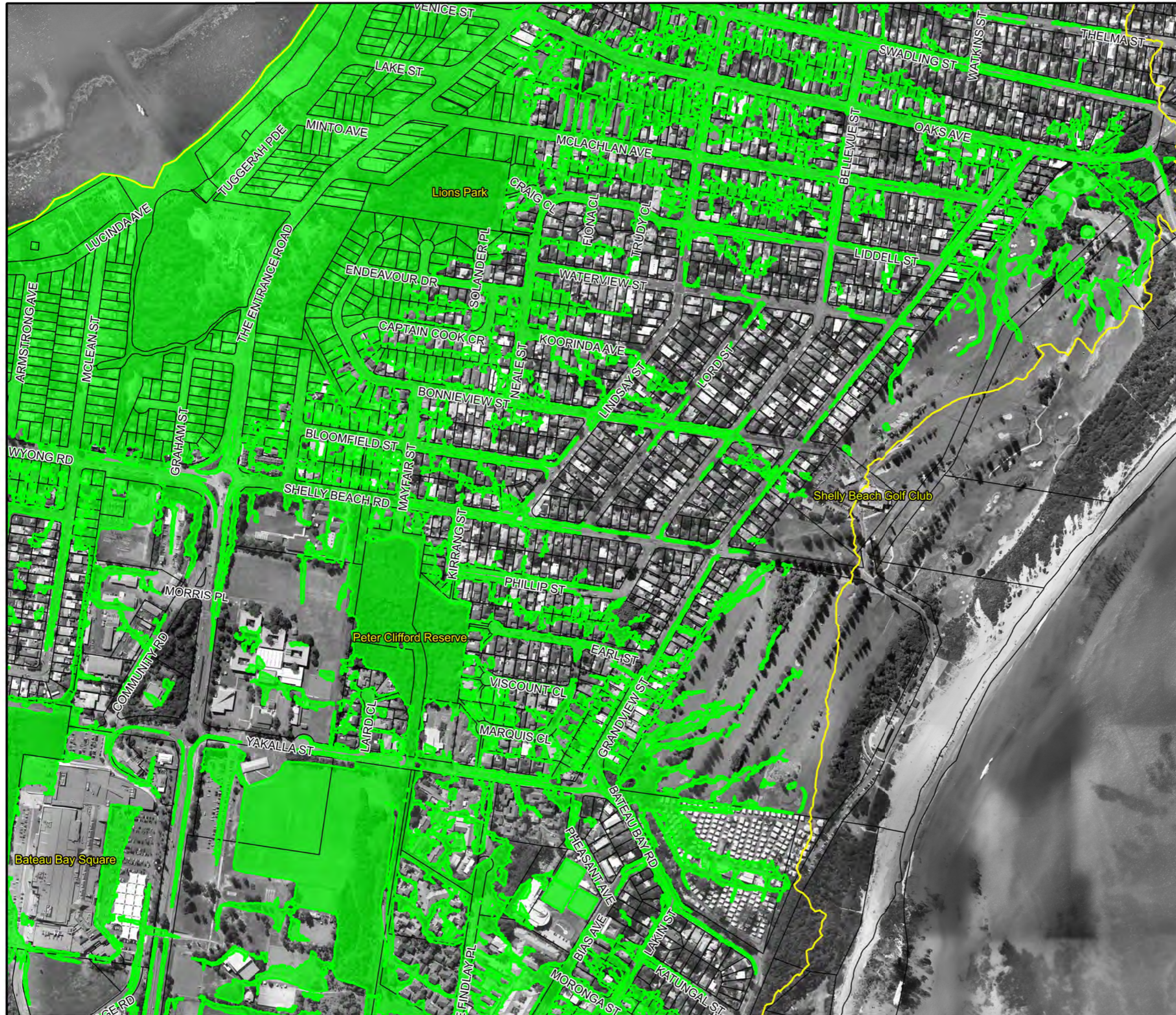
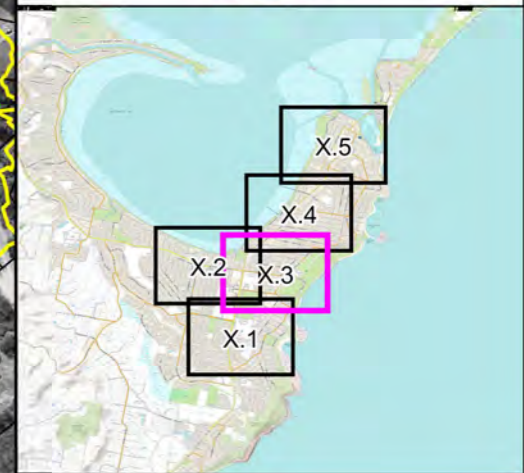
- Catchment Boundary
- Flood Planning Area

Notes:  
Aerial photograph date: 2013

Scale 1:6,000 (at A3)

**Figure 17.2**  
**Flood Planning Area**

Prepared By:  
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 Suite 2.01, 210 George St  
 Sydney, NSW 2000  
 Flood Planning Area wor



**LEGEND**

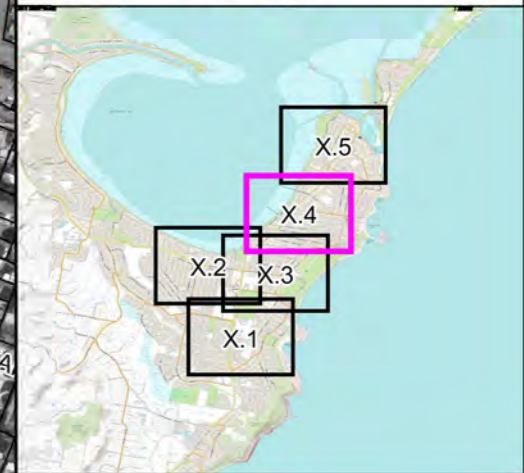
- Catchment Boundary
- Flood Planning Area

**Notes:**  
Aerial photograph date: 2013

Scale 1:6,000 (at A3)

**Figure 17.3**  
**Flood Planning Area**

Prepared By:  
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 Sydney, NSW 2000  
 Flood Planning Area wor



**LEGEND**

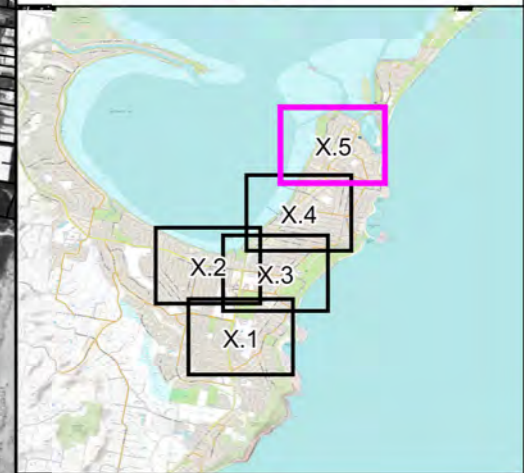
- Catchment Boundary
- Flood Planning Area

Notes:  
Aerial photograph date: 2013

Scale 1:6,000 (at A3)

**Figure 17.4**  
**Flood Planning Area**

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 Sydney, NSW 2000  
 Flood Planning Area wor



**LEGEND**

- Catchment Boundary
- Flood Planning Area

**Notes:**  
Aerial photograph date: 2013

Scale 1:6,000 (at A3)

0 0.15 0.3 Km

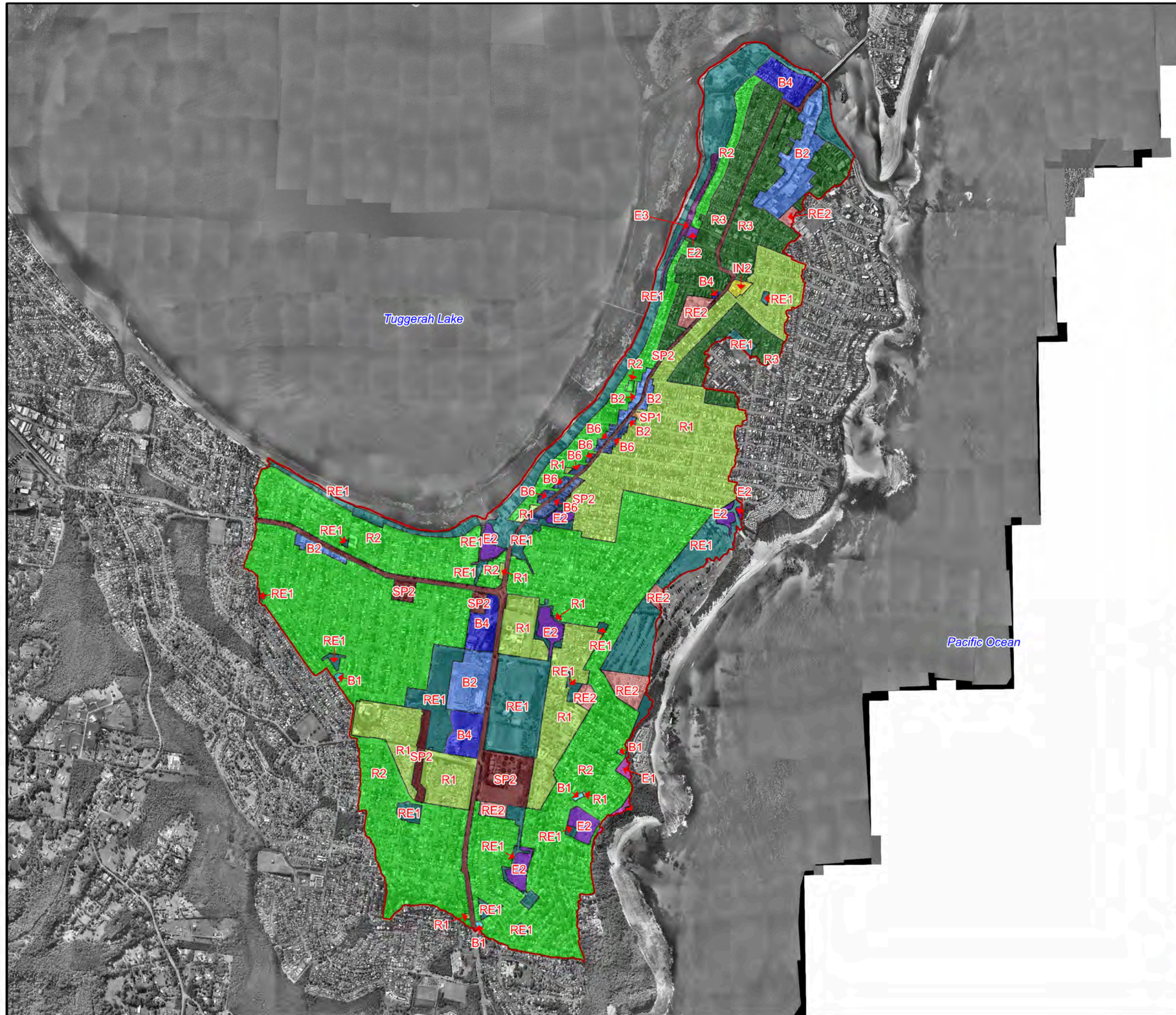
**Figure 17.5  
Flood Planning Area**

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Sydney, NSW 2000

Flood Planning Area wor





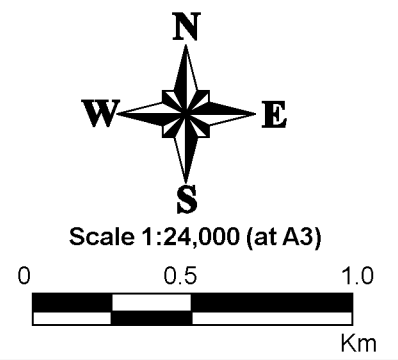


**LEGEND**

Land Zoning Categories

	B1		R1
	B2		R2
	B4		R3
	B6		RE1
	E1		RE2
	E2		SP1
	E3		SP2
	IN2		

Notes:  
Aerial photograph date: 2013



**Figure 18:  
Local Environmental  
Plan (LEP) Zoning**