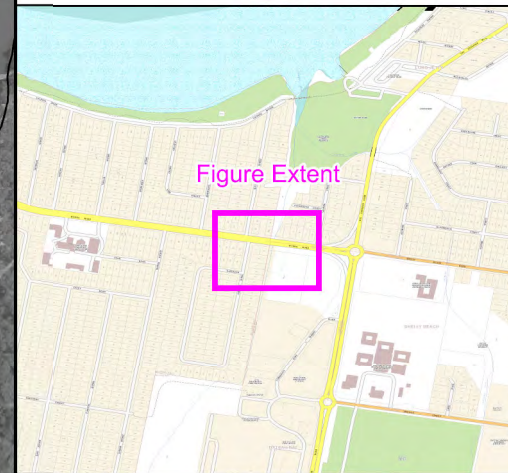




CONCEPT DESIGNS FOR FLOODPLAIN RISK MANAGEMENT OPTIONS





LEGEND

- Catchment Boundary
- Existing Stormwater Pipe
- Blockage Control Structure
- Culvert with Reduced Blockage

Notes:
Aerial photograph date: 2013

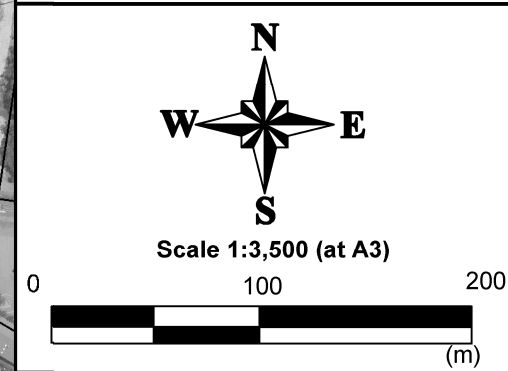
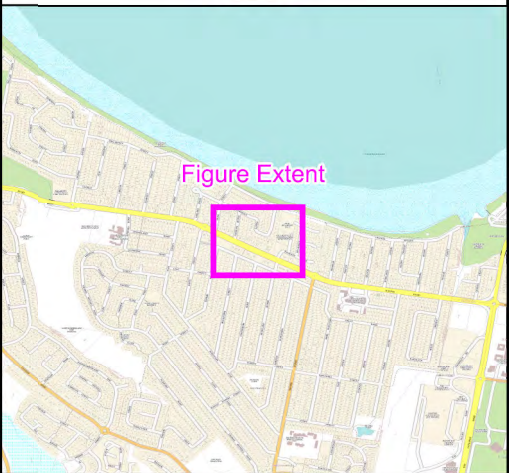


Figure 19
Concept Design for
Blockage Control Structures
Upstream of Culverts



LEGEND

- Catchment Boundary
- Proposed Culvert
- Upgrade Stormwater Pipe/Culvert
- Existing Stormwater Pipe/Culvert

Notes:
Aerial photograph date: 2013

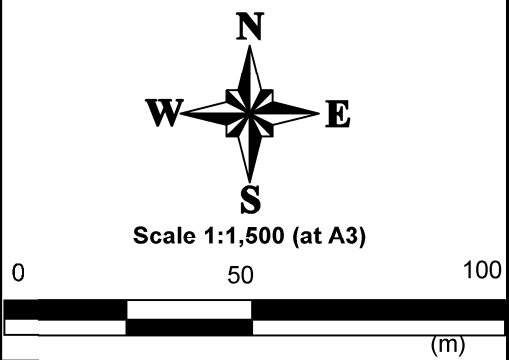
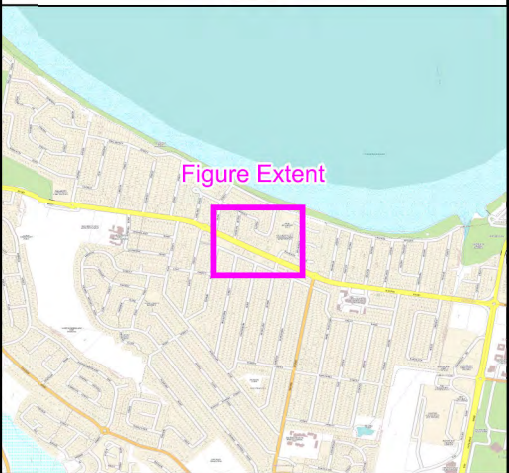


Figure 20
Concept Design for
Culvert Upgrades near
Kathleen White Crescent

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

File Name: Fig 20 Kathleen White
Culvert Upgrades.wor



LEGEND

- Catchment Boundary
- Proposed Culvert
- Upgrade Stormwater Pipe/Culve
- Existing Stormwater Pipe/Culver

Notes:
Aerial photograph date: 2013

Scale 1:1,500 (at A3)

0 50 100 (m)

Figure 21
Concept Design for
Culvert Upgrades between
Hume Blvd and Wyong Rd

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

File Name: Fig 21 Culvert Upgrades
Hume Blvd to Wyong Rd.wor



LEGEND

- Catchment Boundary
- Proposed Culvert
- Upgrade Stormwater Pipe/Culve
- Existing Stormwater Pipe/Culver

Notes:
Aerial photograph date: 2013

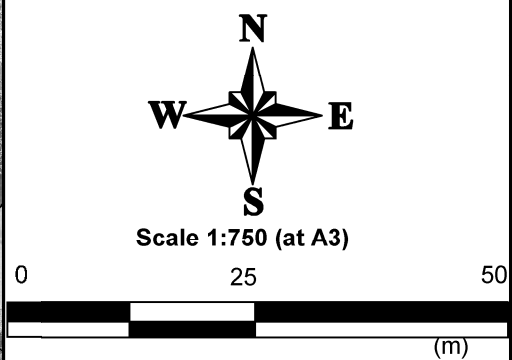
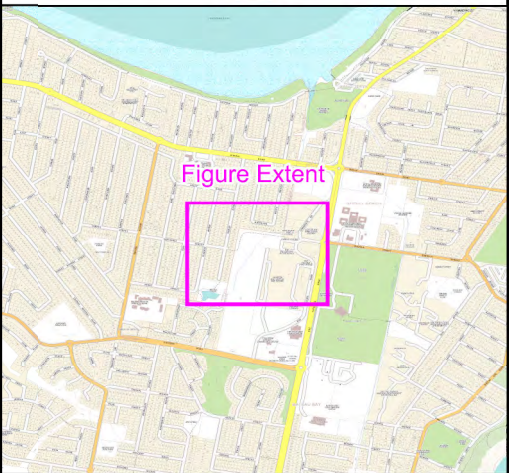


Figure 22
Concept Design for Culvert Upgrade between The Entrance Rd and the rear of The Reef Resort Motel

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

File Name: Fig 22 Concept Design for Reef Resort Motel Culvert Upgrades.wor



LEGEND

- Catchment Boundary
- Proposed Peak 1%AEP Flood E
- Basin Crest
- Basin Spillway
- Existing Stormwater Pipe
- New Stormwater Pipe

Notes:
Aerial photograph date: 2013

North arrow pointing North (N), South (S), East (E), and West (W).

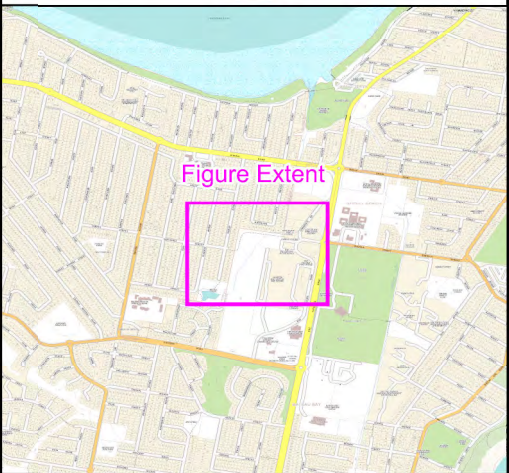
Scale 1:1,000 (at A3)

0 25 50 (m)

Figure 23
Concept Design for the
Shelly Beach Golf Course
Detention Basin

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

File Name: Fig 23 Shelly Beach Detention Basins Concept Design.wor



- LEGEND**
- Catchment Boundary
 - Basin Crest and Spillway Raising
 - Mound Construction
 - Existing Stormwater Pipe

Notes:
Aerial photograph date: 2013

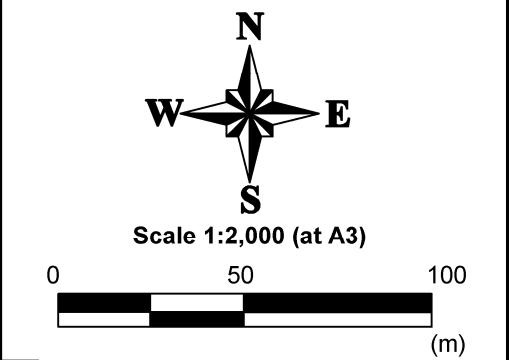

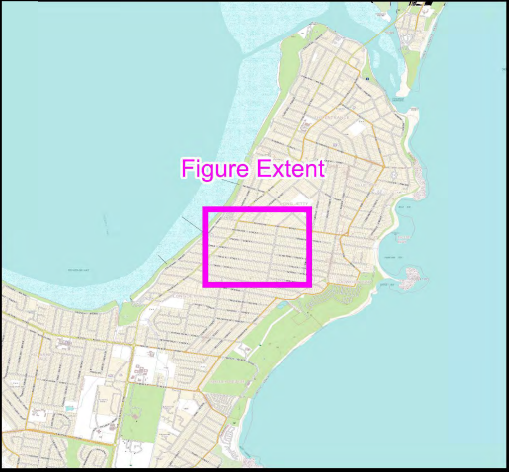


Figure 24
Concept Design for the
Bay Village Detention
Basin Upgrade

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

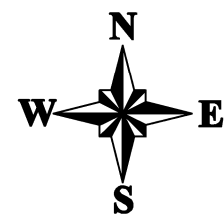
File Name: Fig 24 Bay Village Basin
Upgrade Concept Design.wor



LEGEND

- Catchment Boundary
- Proposed Kerb and Gutter Installation/Modification (0.3m raising)
- Proposed Kerb and Gutter Installation/Modification (0.2m raising)
- Proposed Regrading

Notes:
Aerial photograph date: 2013



Scale 1:2,000 (at A3)

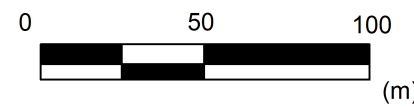
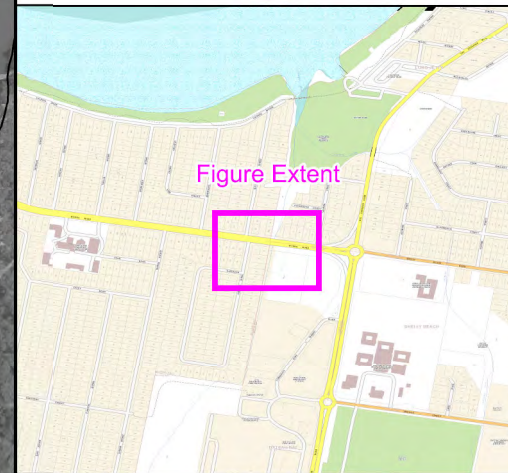


Figure 25
Concept Design for
Installation of Kerb and Gutter
along Elsiemer St and Pacific St

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

File Name: Fig 25 Concept Design for Kerb and Gutter along Elsiemer and Pacific St.wor



LEGEND

- Catchment Boundary
- Longitudinal Regrading
- Proposed Single Grade Crossfall Regrading

Notes:
Aerial photograph date: 2013

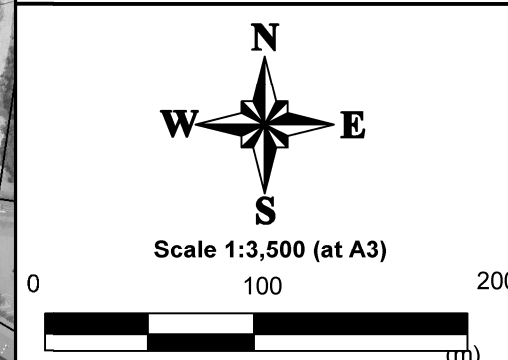


Figure 26
Concept Design for
Wyong Road Regrading

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

File Name: Fig 26 Wyong Rd Regrading
Concept Design.wor



- LEGEND**
- Catchment Boundary
 - Proposed Regrading

Notes:
Aerial photograph date: 2013

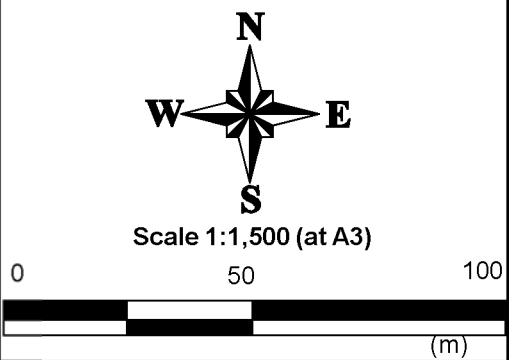


Figure 27
Concept Design for The
Entrance Reef Resort
Motel Regrading

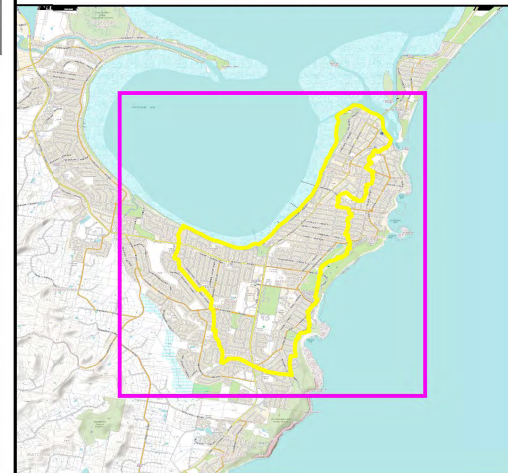
Prepared By:
 Catchment Simulation Solutions
Suite 2.01, 210 George St
Sydney, NSW 2000

File Name: Fig 27 Concept Design for Reef
Resort Motel Regrading.wor



DRAFT FLOODPLAIN RISK MANAGEMENT PLAN

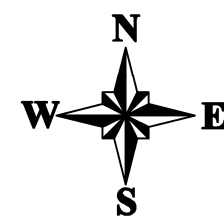




LEGEND

- Catchment Boundary
- High Priority Option
- Medium or Low Priority Option
- Not recommended
- FM Flood Modification Option
- PM Property Modification Option
- RM Response Modification Option
- FUT Option for Managing the Future Flood Risk

Notes:
Aerial photograph date: 2013



Scale 1:22,000 (at A3)



Figure 28
Killarney Vale and Long Jetty Draft Floodplain Risk Management Plan

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

File Name: Fig 28 - FPRM Plan.wor