



Design Flood Extents
Post-Development
1% AEP 9 Hour Storm
With Future Riparian Corridor

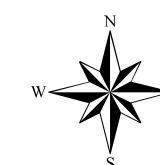
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

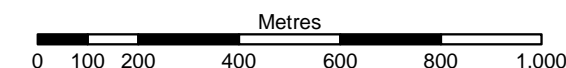
- Site Boundary
- Flood Level Contours (m AHD)
- Cadastre (LPMA)

1% AEP Flood Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00

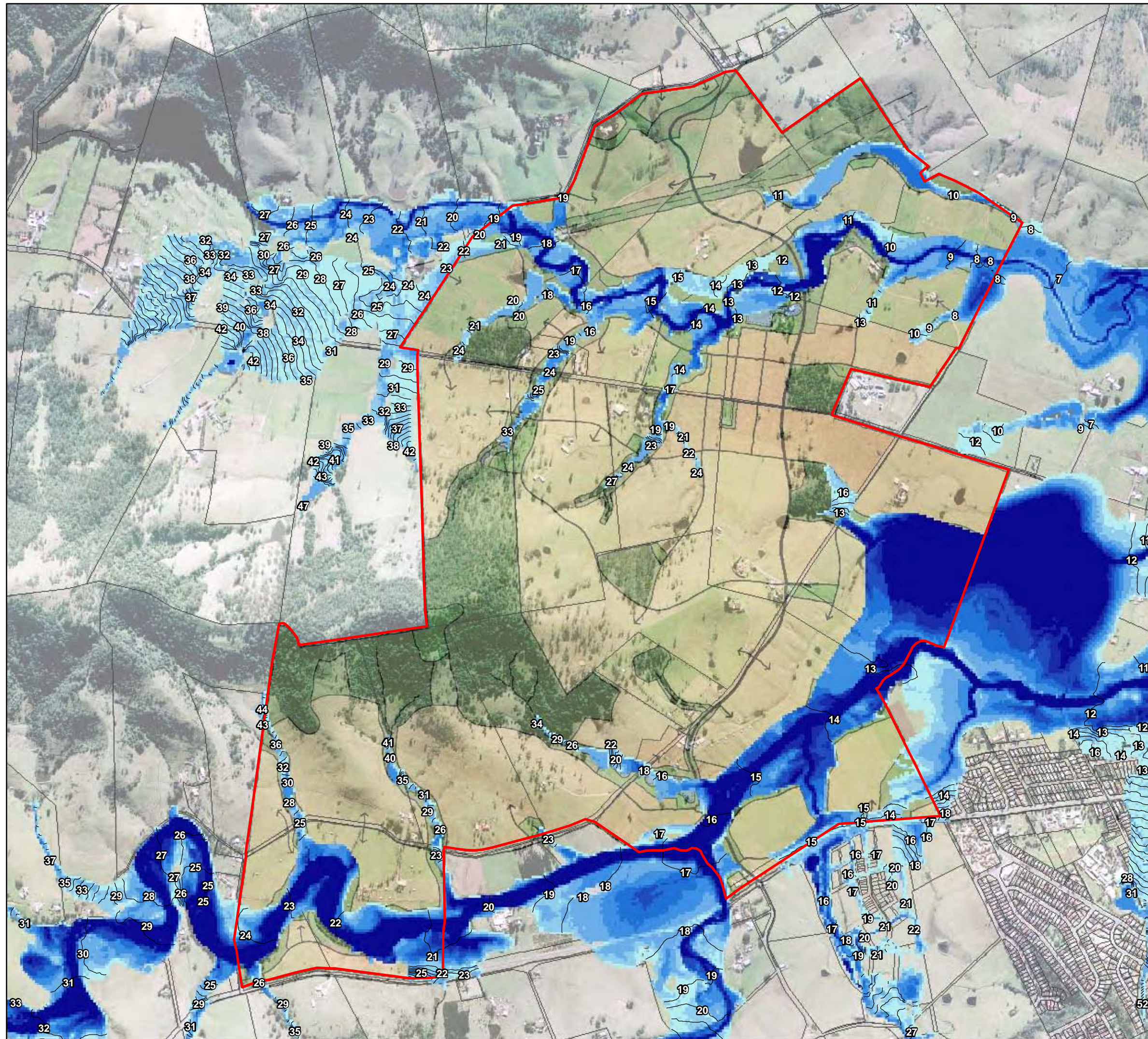


Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38035_100yr_Depth_Proposed_Development_Riparian.mxd 04

Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease - February 2010



Design Flood Extents
Post-Development
1% AEP 9 Hour Storm
With Existing Riparian Corridor

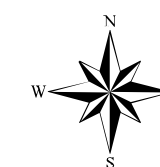
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

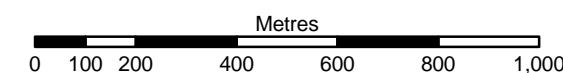
- Site Boundary
- Flood Level Contours (m AHD)
- Cadastre (LPMA)

1% AEP Flood Depth (m)

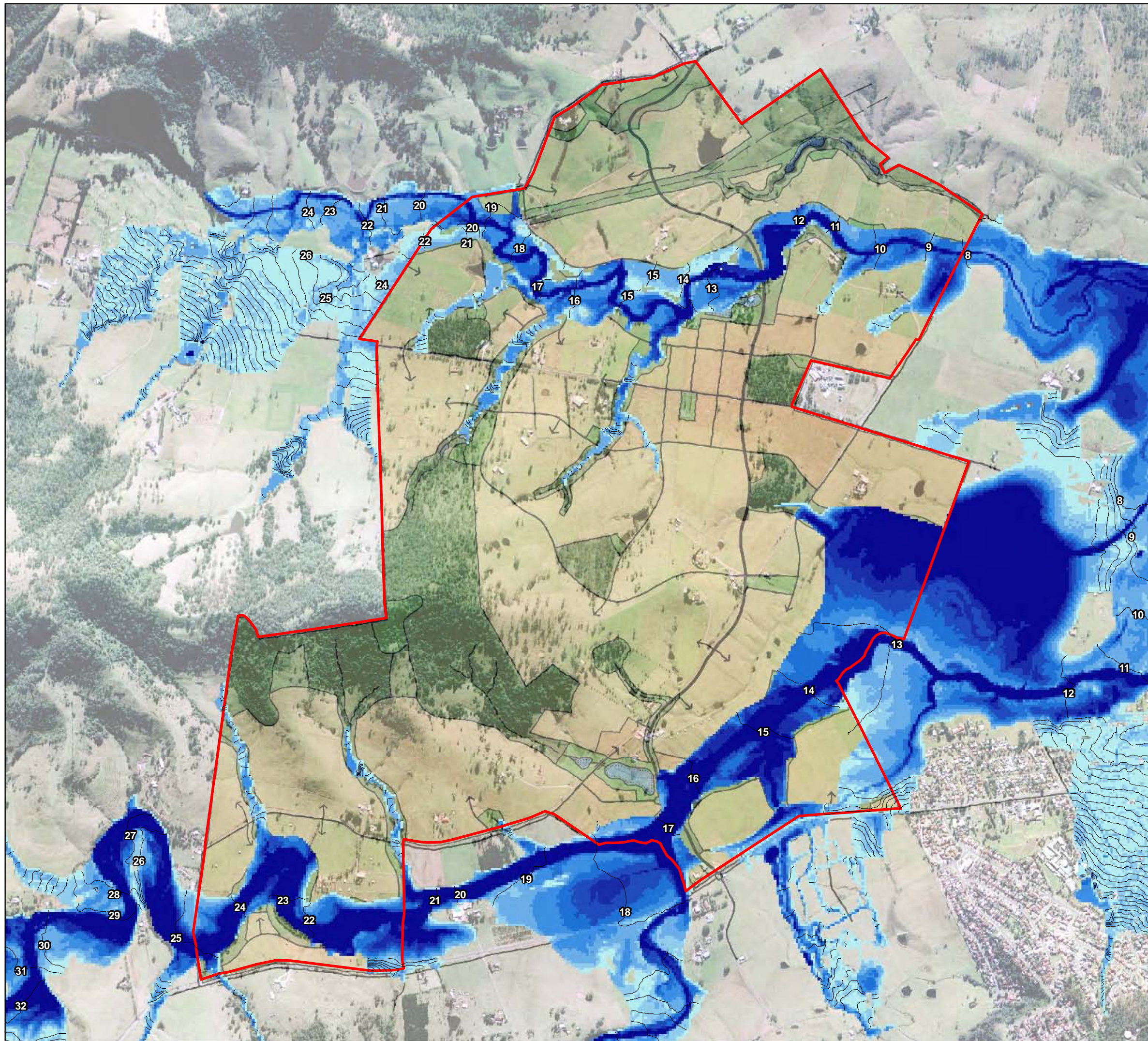
- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
110026-01_38036_100yr_Depth_Proposed_Development.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)



Design Flood Extents
Post-Development
(Climate Change)
1% AEP 9 Hour Storm
With Future Riparian Corridor

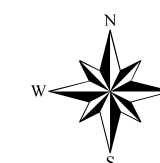
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

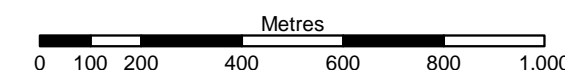
- Site Boundary
- Flood Level Contours (m AHD)

**1% AEP Flood Depth (m)
(Climate Change)**

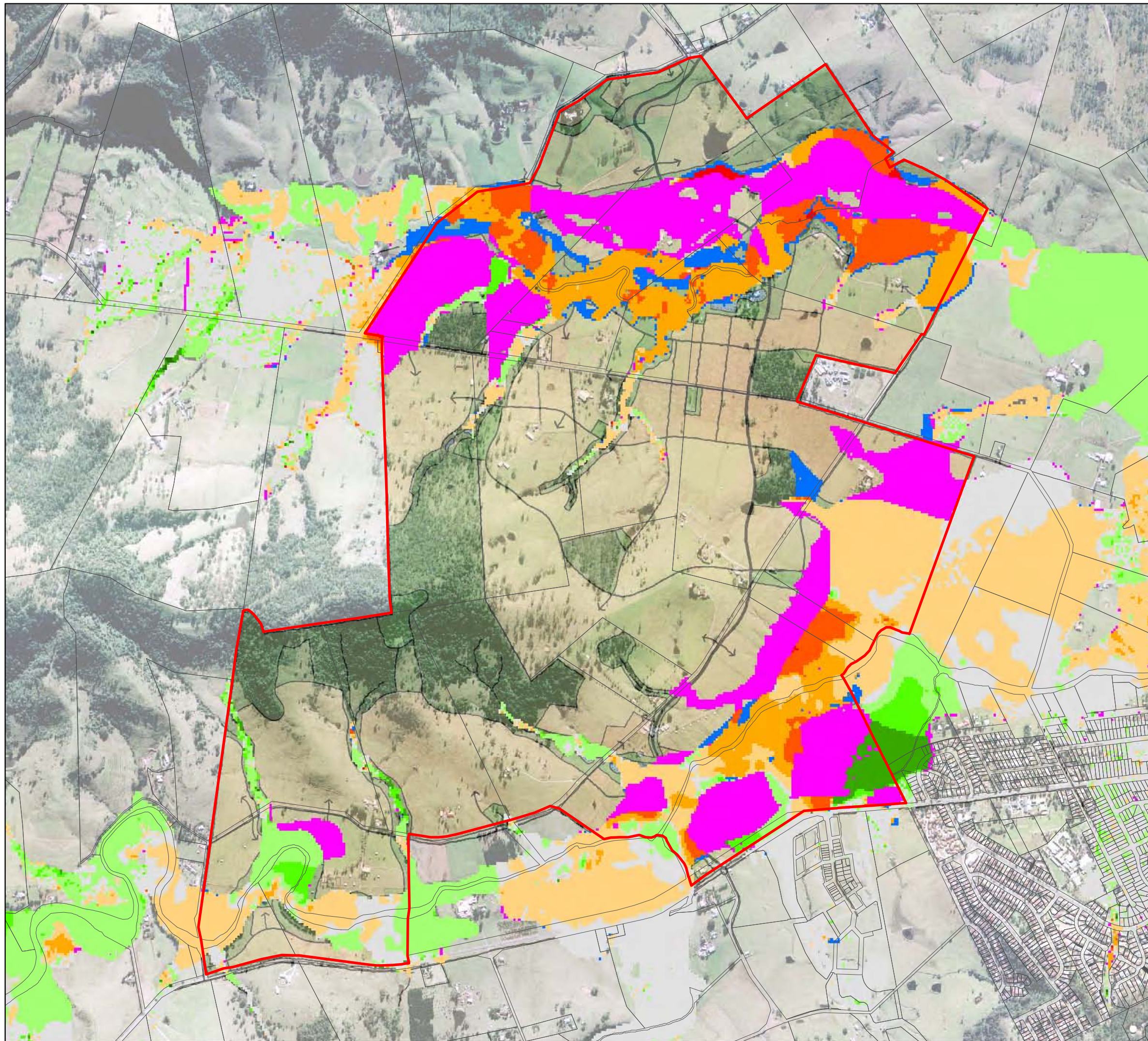
- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38037_100yr_Depth_Climate Change_Proposed_Development_Riparian.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease - February 2010



Design Flood Impact Map
Post-Development
1% AEP 9 Hour Storm
With Future Riparian Corridor

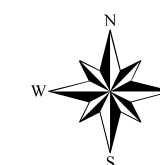
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

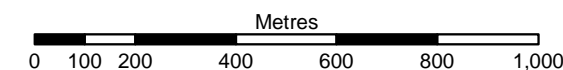
- Site Boundary
- Cadastre (LPMA)

Impact of Development and Riparian
Corridor on Flood Levels (m)

- < -1.0
- 1 to -0.5
- 0.5 to -0.2
- 0.2 to -0.02
- 0.02 to 0.02
- 0.02 to 0.2
- 0.2 to 0.5
- 0.5 to 1
- > 1.0
- Was Wet, Now Dry
- Was Dry, Now Wet

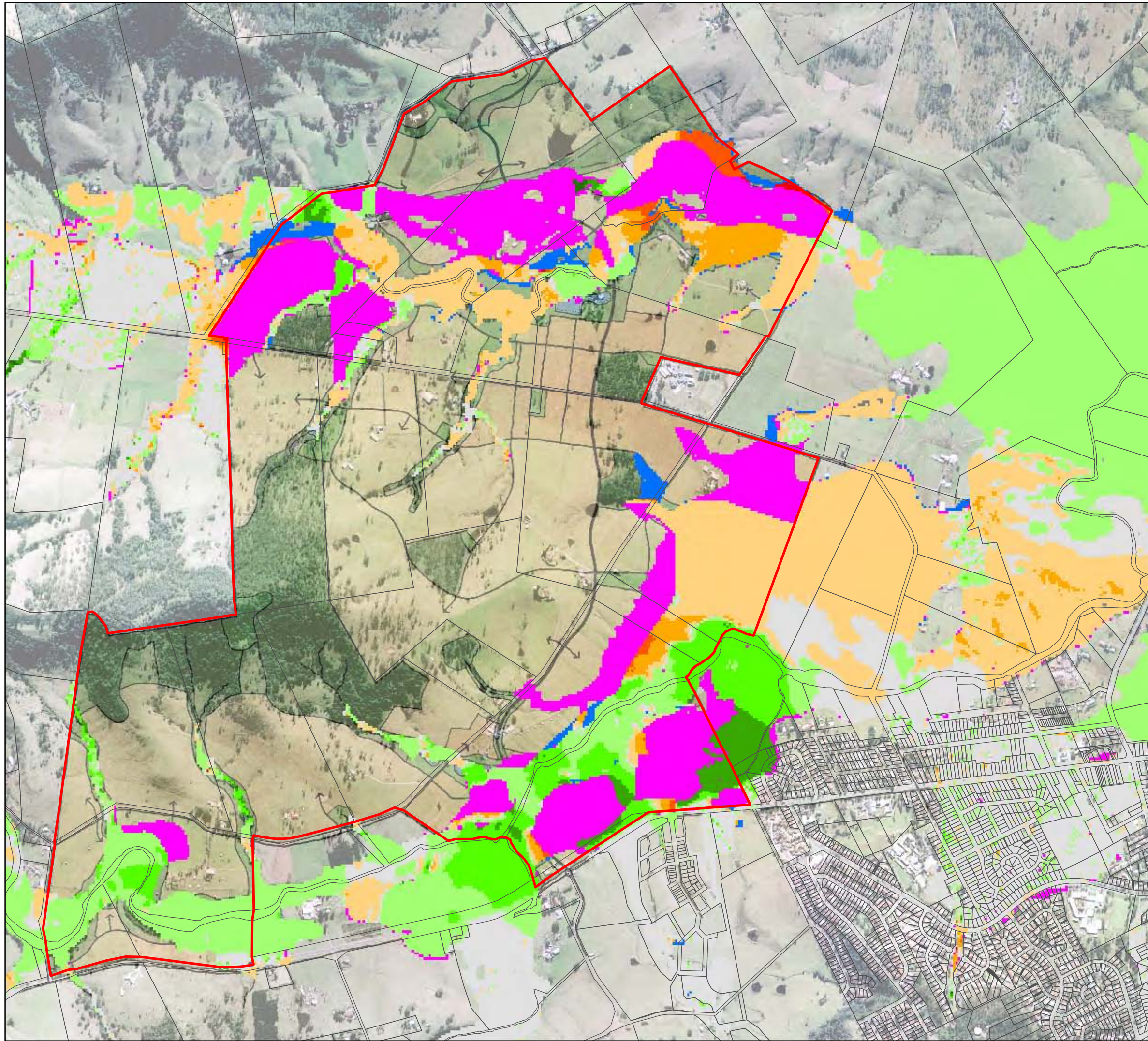


Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38038_100yr_Impacts_Proposed_Development_Riparian.mxd 04

Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease - February 2010

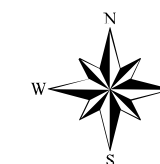


Design Flood Impact Map Post-Development 1% AEP 9 Hour Storm With Existing Riparian

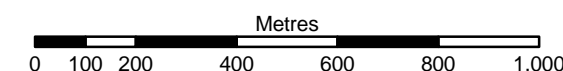
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

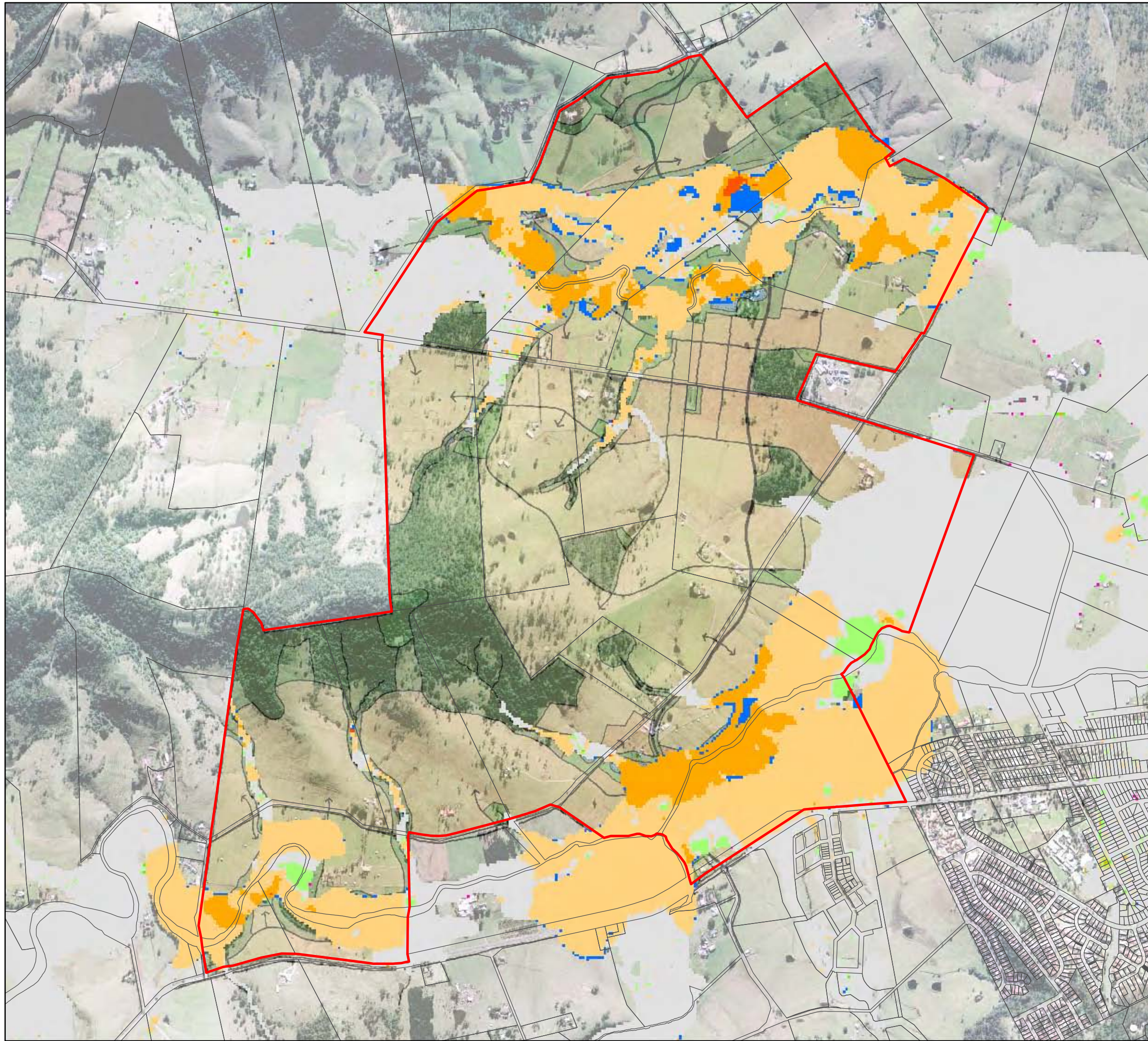
- Site Boundary
- Cadastral (LPMA)
- Impact of Development on Flood Levels (m)
 - < -1.0
 - 1 to -0.5
 - 0.5 to -0.2
 - 0.2 to -0.02
 - 0.02 to 0.02
 - 0.02 to 0.2
 - 0.2 to 0.5
 - 0.5 to 1
 - > 1.0
 - Was Dry, Now Wet
 - Was Wet, Now Dry



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38039_100yr_Impacts_Proposed_Development.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)



Design Flood Impact Map
Future Riparian Corridor
Pre-Development
1% AEP 9 Hour Storm

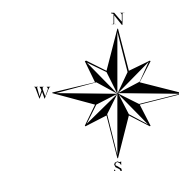
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

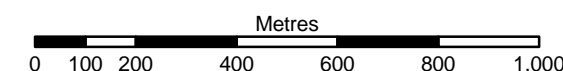
- Site Boundary
- Cadastre (LPMA)

Impact of Riparian Corridor
On Flood Levels (m)

- < -1.0
- 1 to -0.5
- 0.5 to -0.2
- 0.2 to -0.02
- 0.02 to 0.02
- 0.02 to 0.2
- 0.2 to 0.5
- 0.5 to 1
- > 1.0
- Was Dry, Now Wet
- Was Wet, Now Dry

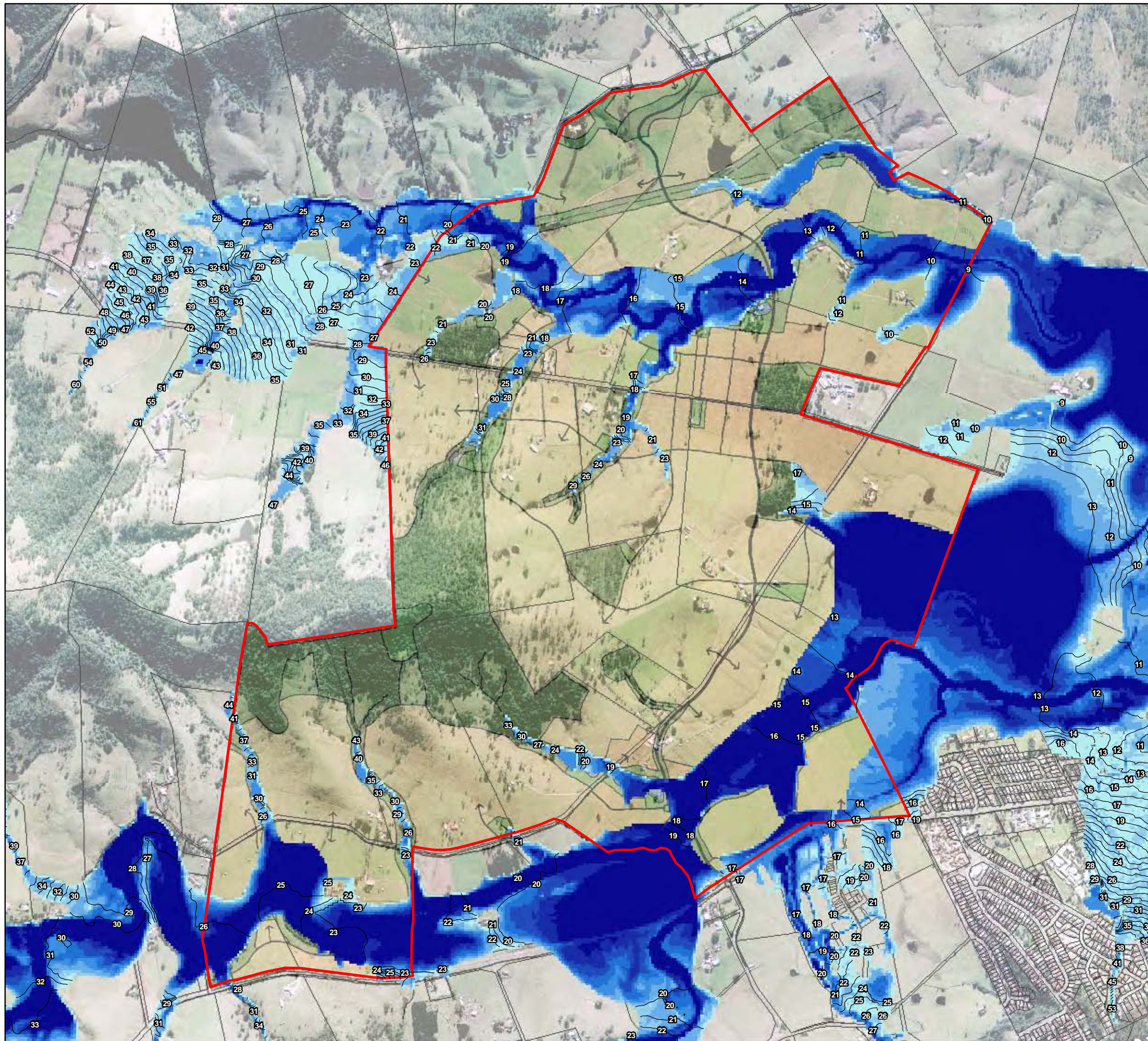


Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF:
110026-03_38040_100yr_Impacts_Riparian.mxd 03

Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)



Design Flood Extents
Post-Development
PMF 9 Hour Storm
With Future Riparian Corridor

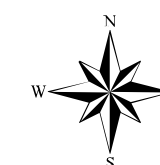
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

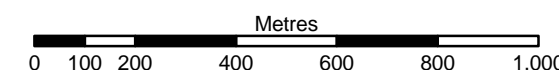
- Site Boundary
- Flood Level Contours (m AHD)
- Cadastre (LPMA)

PMF Flood Depth (m)

- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38041_PMF_Depth_Proposed_Development_Riparian.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)



Design Flood Extents
Post-Development
PMF 9 Hour Storm
With Existing Riparian Corridor

CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

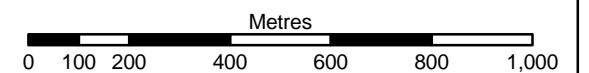
- Site Boundary
- Flood Level Contours (m AHD)
- Cadastre (LPMA)

PMF Flood Depth (m)

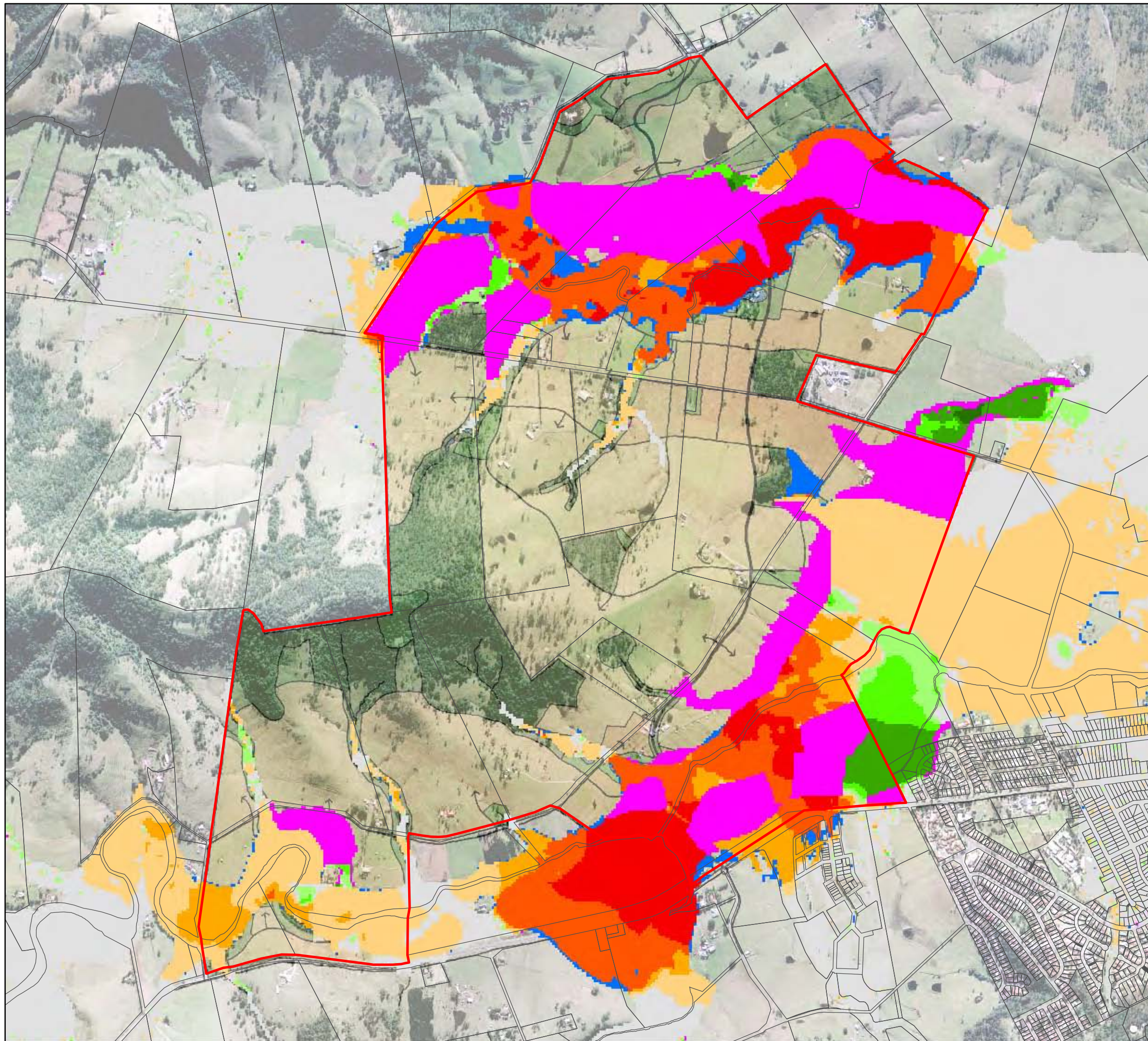
- 0 - 0.25
- 0.25 - 0.50
- 0.50 - 1.00
- 1.00 - 1.50
- 1.50 - 2.00
- 2.00 - 2.50
- 2.50 - 3.00
- > 3.00



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01
38042_PMF_Depth_Proposed_Development_Riparian.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)



Design Flood Impact Map Post-Development PMF 9 Hour Storm With Future Riparian Corridor

CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

Site Boundary

Cadastral (LPMA)

Impact of Development and Riparian Corridor on Flood Levels (m)

< -1.0

-1 to -0.5

-0.5 to -0.2

-0.2 to -0.02

-0.02 to 0.02

0.02 to 0.2

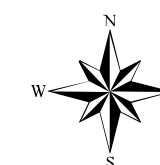
0.2 to 0.5

0.5 to 1

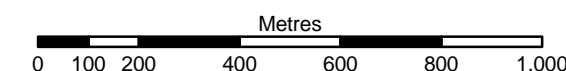
> 1.0

Wet Dry, Now Wet

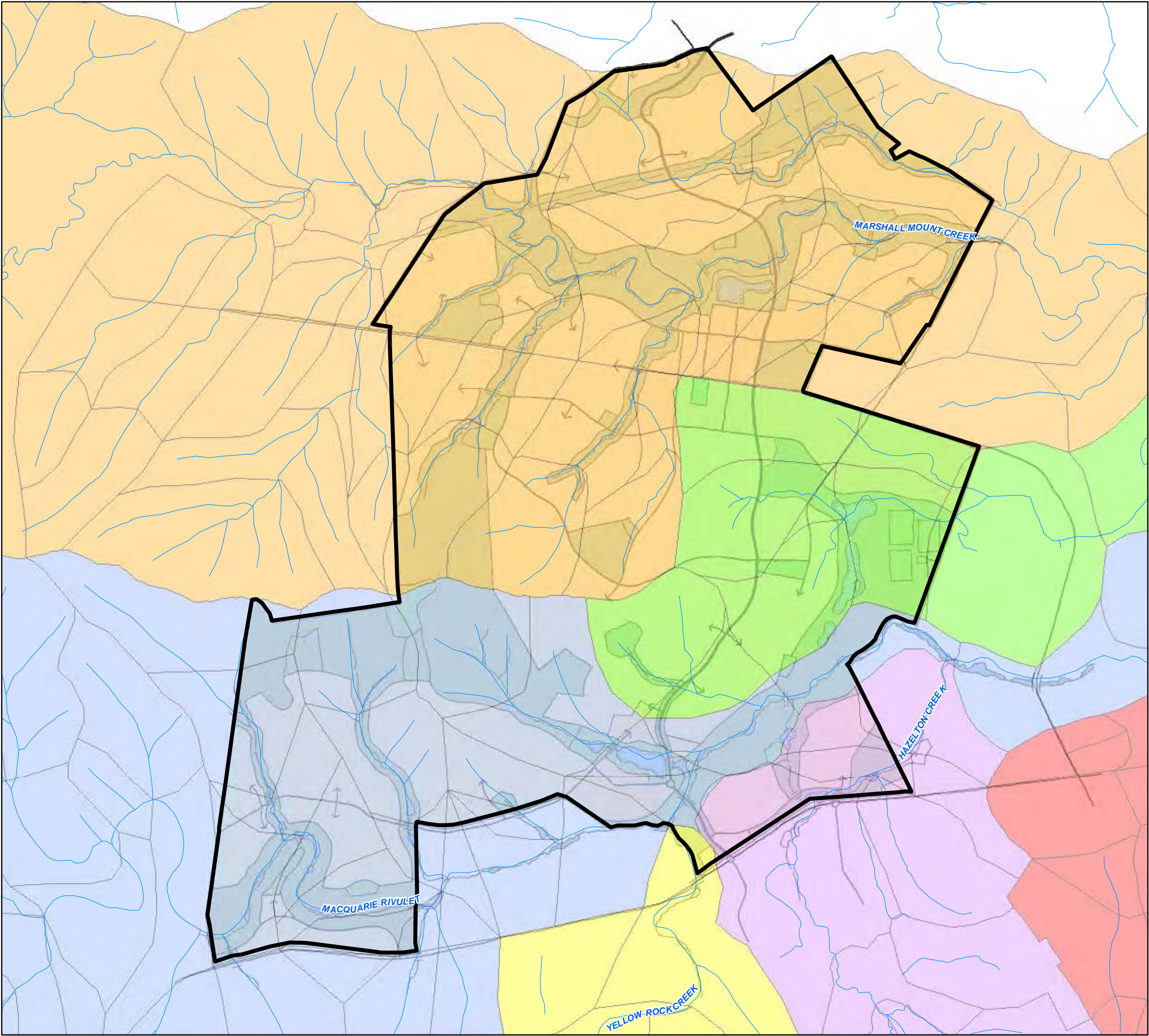
Was Wet, Now Dry



Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-03
38043_PMF_Impacts_Development_and_Riparian.mxd 04
Aerial imagery supplied by AAM Hatch (2001)
Concept Base Plan from Delfin Lend Lease (February 2010)

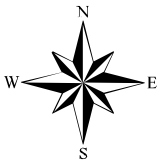


TUFLOW
Catchment Boundaries

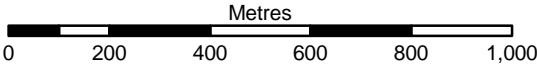
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

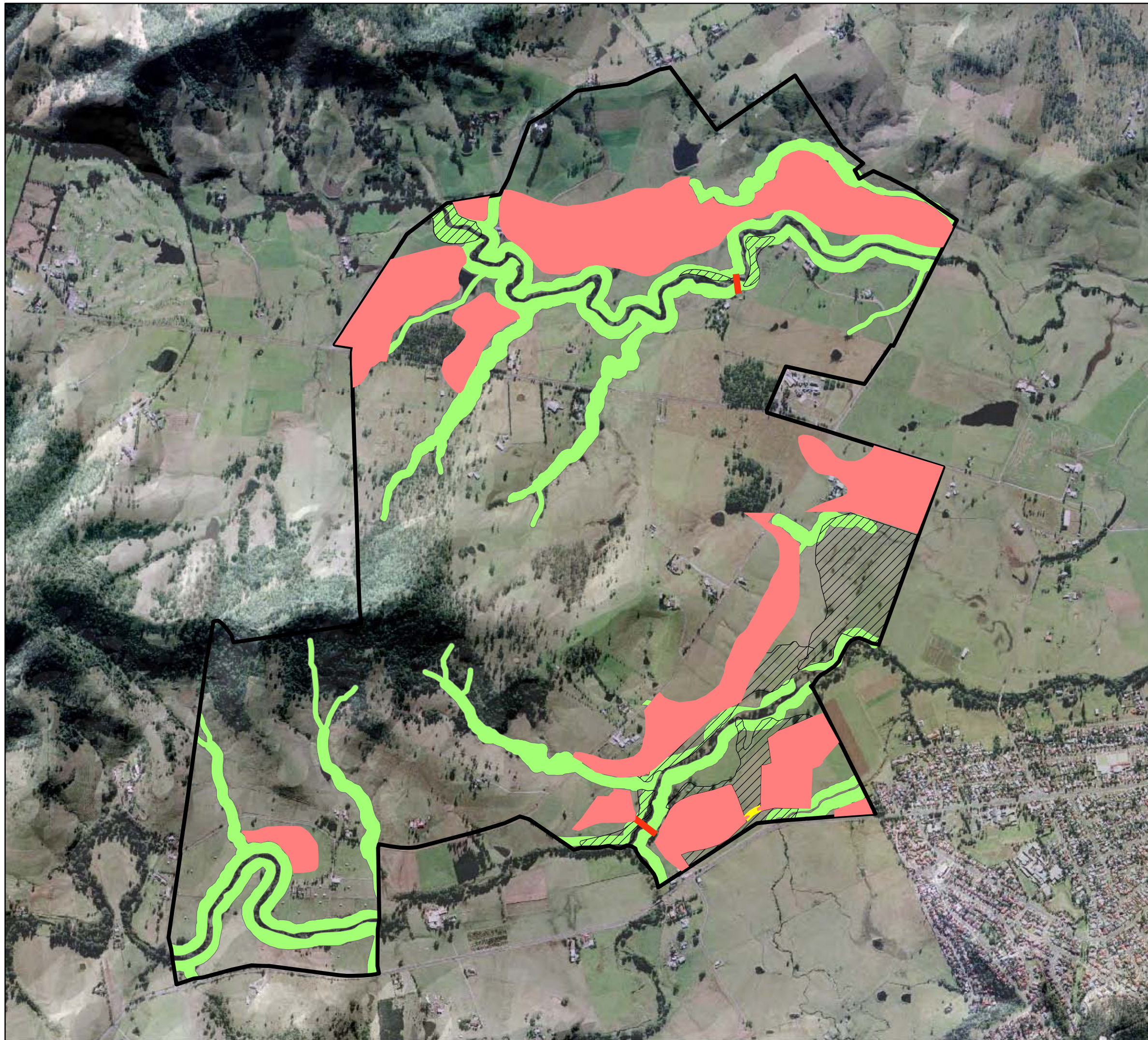
- Site Boundary
- Catchment Boundaries**
 - Albion Park (Urban Catchment)
 - Calderwood Catchment
 - Hazelton Creek Catchment
 - Macquarie Rivulet Catchment
 - Marshall Mount Creek Catchment
 - Yellow Rock Creek Catchment



Scale 1:40,000 (at A3)



Map Produced by Cardno Wollongong
Date: 17 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01_38046_Catchment_Boundaries.mxd 03
Concept Base Plan from Delfin Lend Lease (February 2010)

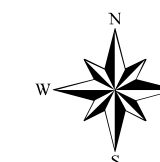


Flood Mitigation Plan

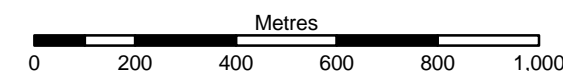
CALDERWOOD
URBAN DEVELOPMENT PROJECT

Legend

- Site Boundary
- Proposed Bridge
- Proposed Culvert Under Road
- Floodplain Regrade - Increase Elevation
- Floodplain Regrade - Decrease Elevation
- Proposed Increased Roughness



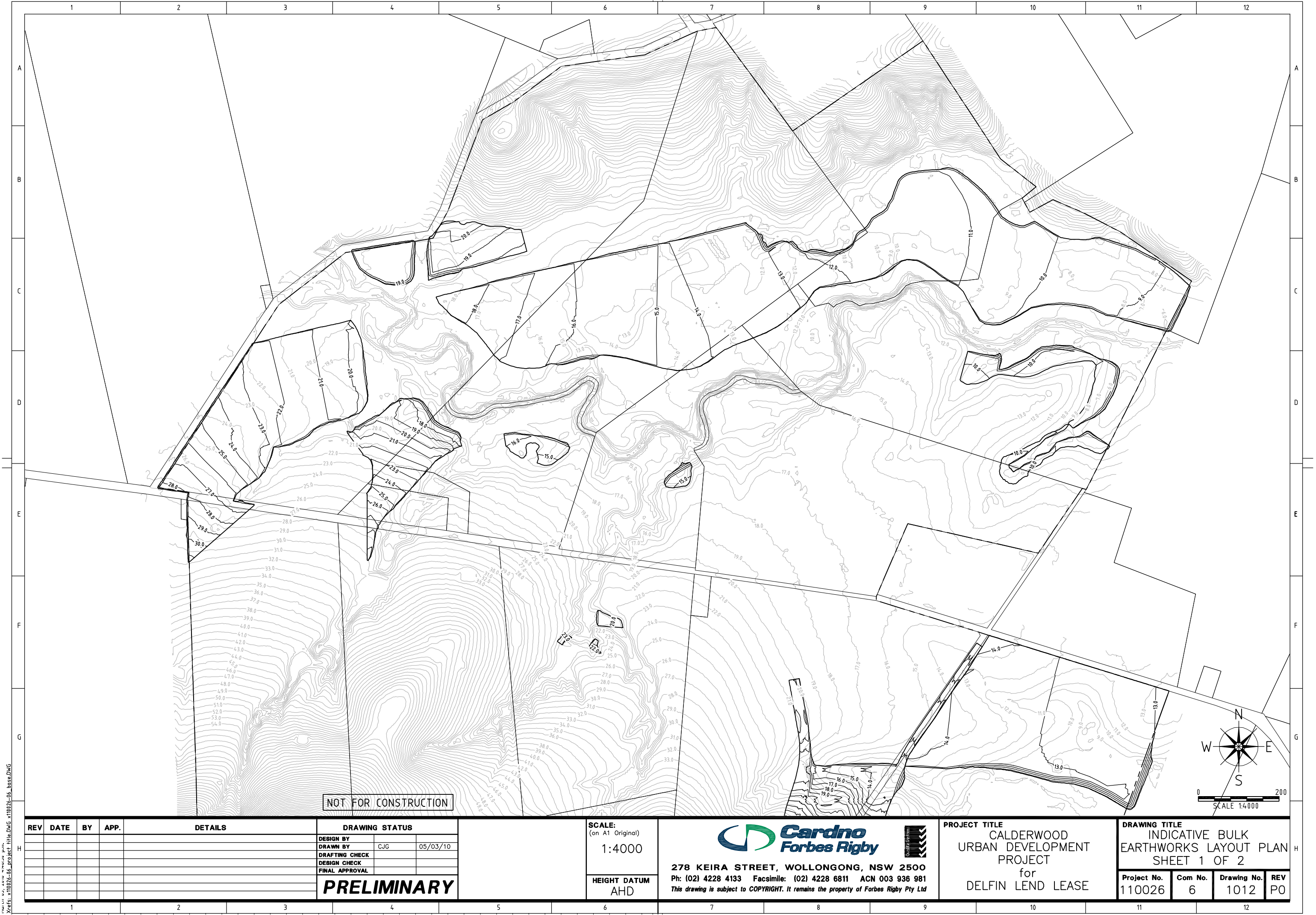
Scale 1:15,000 (at A3)



Map Produced by Cardno Wollongong
Date: 5 February 2010
Coordinate System: Zone 56 MGA/GDA 94
GIS MAP REF: 110026-01_38048_FloodMitigationPlan.mxd 03
Imagery supplied by AAM Hatch (2001)

Annex D

D. Concept Engineering Plans




\\sfs1\proj\110026-06\proj\110026-06_base.dwg
Xref: 110026-06_proj\110026-06_base.dwg

REV	DATE	BY	APP.	DETAILS

DRAWING STATUS		
DESIGN BY		
DRAWN BY	CJG	05/03/10
DRAFTING CHECK		
DESIGN CHECK		
FINAL APPROVAL		
PRELIMINARY		

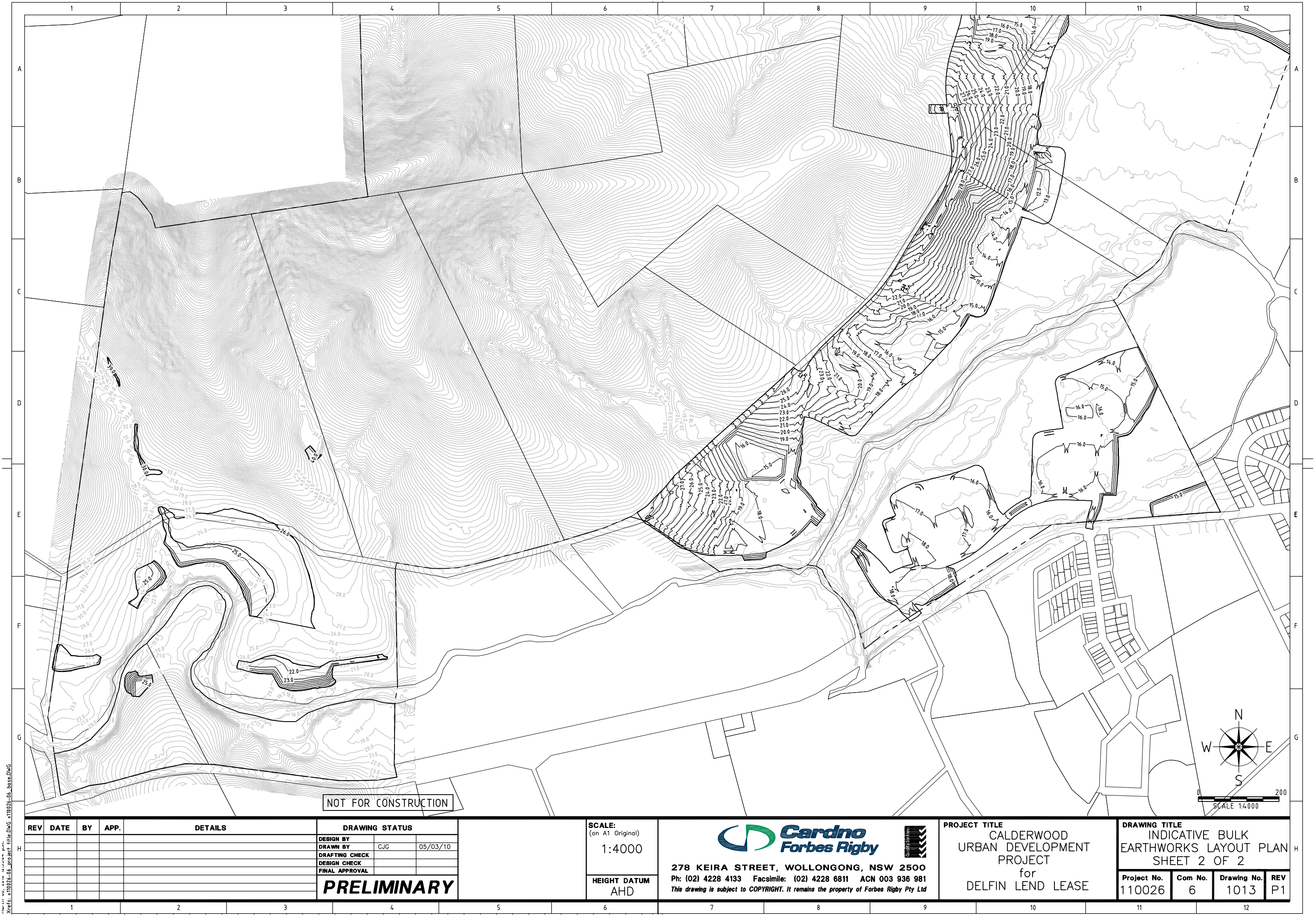
SCALE: (on A1 Original)
1:4000
HEIGHT DATUM AHD



278 KEIRA STREET, WOLLONGONG, NSW 2500
Ph: (02) 4228 4133 Facsimile: (02) 4228 6811 ACN 003 936 981
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PROJECT TITLE
CALDERWOOD URBAN DEVELOPMENT PROJECT for DELFIN LEND LEASE

DRAWING TITLE			
INDICATIVE BULK EARTHWORKS LAYOUT PLAN SHEET 1 OF 2			
Project No.	Com No.	Drawing No.	REV
110026	6	1012	P0




REV	DATE	BY	APP.	DETAILS

DRAWING STATUS		
DESIGN BY		
DRAWN BY	C/JG	05/03/10
DRAFTING CHECK		
DESIGN CHECK		
FINAL APPROVAL		
PRELIMINARY		

SCALE:
(on A1 Original)
1:4000

HEIGHT DATUM
AHD



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Ph: (02) 4228 4133 Facsimile: (02) 4228 6811 ACN 003 936 981
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PROJECT TITLE
CALDERWOOD
URBAN DEVELOPMENT
PROJECT
for
DELFIN LEND LEASE

DRAWING TITLE			
INDICATIVE BULK EARTHWORKS LAYOUT PLAN SHEET 2 OF 2			
Project No.	Com No.	Drawing No.	REV
110026	6	1013	P1