Legend (continued)

FLOOD TRAVEL TIME

01:15 to 02:05 ← Initial flood arrival time range (hours:minutes)

17.9 km ← Distance from dam

01:45 to 02:20 ← Peak flood arrival time range (hours:minutes)

NOTES:

1. The Eastern Embankment breach hazard area is shown in three bands (Low, Medium, High) and is developed from guidance in the 2005 *New South Wales Floodplain Development Manual* light blue for depths less than 0.5 m, with shaded depth contours for greater depths. The merged breach hazard area represents the combined extent of inundation for all breach scenarios together (i.e. northern, southern, western embankment breaches) and is shown in light grey. It is emphasised that breach of the four embankments could not occur simultaneously.

2. Flood hazard areas shown on this map were predicted with a computational hydraulic model. Topographic information for the hydraulic model was derived from Waimakariri District Council and Environment Canterbury's LiDAR (Light Detection and Ranging) 2005 aerial survey.

3. An additional area potentially subject to flood inundation around the confluence of the Eyre River Diversion with the Waimakariri River is shown on the map with cross hatching. This area was not represented in the hydraulic model used to predict the extent of flood inundation.

4. Households shown on this map were surveyed by Waimakariri Irrigation Limited (WIL) in August 2012.

5. Base map is the Land Information New Zealand (LINZ) Topo50 topographic map series licensed by LINZ for re-use under the Creative Commons Attribution 4.0 International licence.

6. Coordinate system is NZMG.

7. The production of this inundation map does not in any way reflect on the integrity of the embankments forming the WIL Storage Pond.

8. Flood hazard areas and travel times shown on this map represent a hypothetical "worst case" failure scenario and set and upper bound for effects that can reasonably be anticipated. Actual hazard areas and flood travel times will depend on actual failure conditions and may differ from areas and times shown on the maps. Flood travel times are given as a range to reflect the uncertainty in the surface roughness of the plains downstream of the WIL Storage Pond. All flood travel times are measured from the onset of rapid failure of the eastern embankment.

Northern Embankment Breach Location

Western Embankment Breach Location

Eastern Embankment Breach Location

Southern Embankment Breach Location

00:50 to 00:55 — 2.2 km

01:10 to 01:30 — 4.7 km

01:40 to 02:05 — 7.4 km

01:55 to 02:25 — 8.9 km

02:35 to 03:35 — 13.1 km

03:30 to 04:40 — 17.8 km

04:20 to 06:45 — 21.1 km

05:55 to 08:25 — 26.6 km

01:05 to 01:10

01:20 to 01:35

01:45 to 02:05

01:55 to 02:35

02:50 to 03:45

03:35 to 05:00

04:35 to 06:55

06:00 to 09:05

Further flooding contained within Eyre River Diversion & Waimakariri River channels

Legend

- Surveyed household (Aug 2012)
- WIL Storage Pond

MAXIMUM FLOOD HAZARD (based on 2005 New South Wales Flood Development Manual)

- Low: Danger to persons is low or non-existent. Buildings may suffer little damage, but flooding or sedimentation may affect interiors.
- Medium: Persons are in danger outside their homes. Buildings may suffer damage and possible destruction depending on construction type.
- High: Persons are in danger both inside and outside their houses. Buildings can be destroyed.
- Merged hazard area
- Additional inundation area

0 1 2 3 4 5 Kilometers

ROONEY Earthmoving

DAMWATCH ENGINEERING BEYOND THE SURFACE

WIL Waimakariri Irrigation Limited

Drawn	Date	Checked	Approved
R.L./B.V.	SEP 2016	G.W.	I.D.

Title

WAIMAKARIRI IRRIGATION LIMITED
WRIGHTS ROAD STORAGE PONDS

EASTERN EMBANKMENT BREACH
MAXIMUM FLOOD HAZARD MAP

Damwatch Project Number	Map Reference	Revision
FILE E1154	E1154\WIL\EST-H\02	SEP 2016
Scale: 1:80,000 @ A3	Damwatch Engineering Ltd	