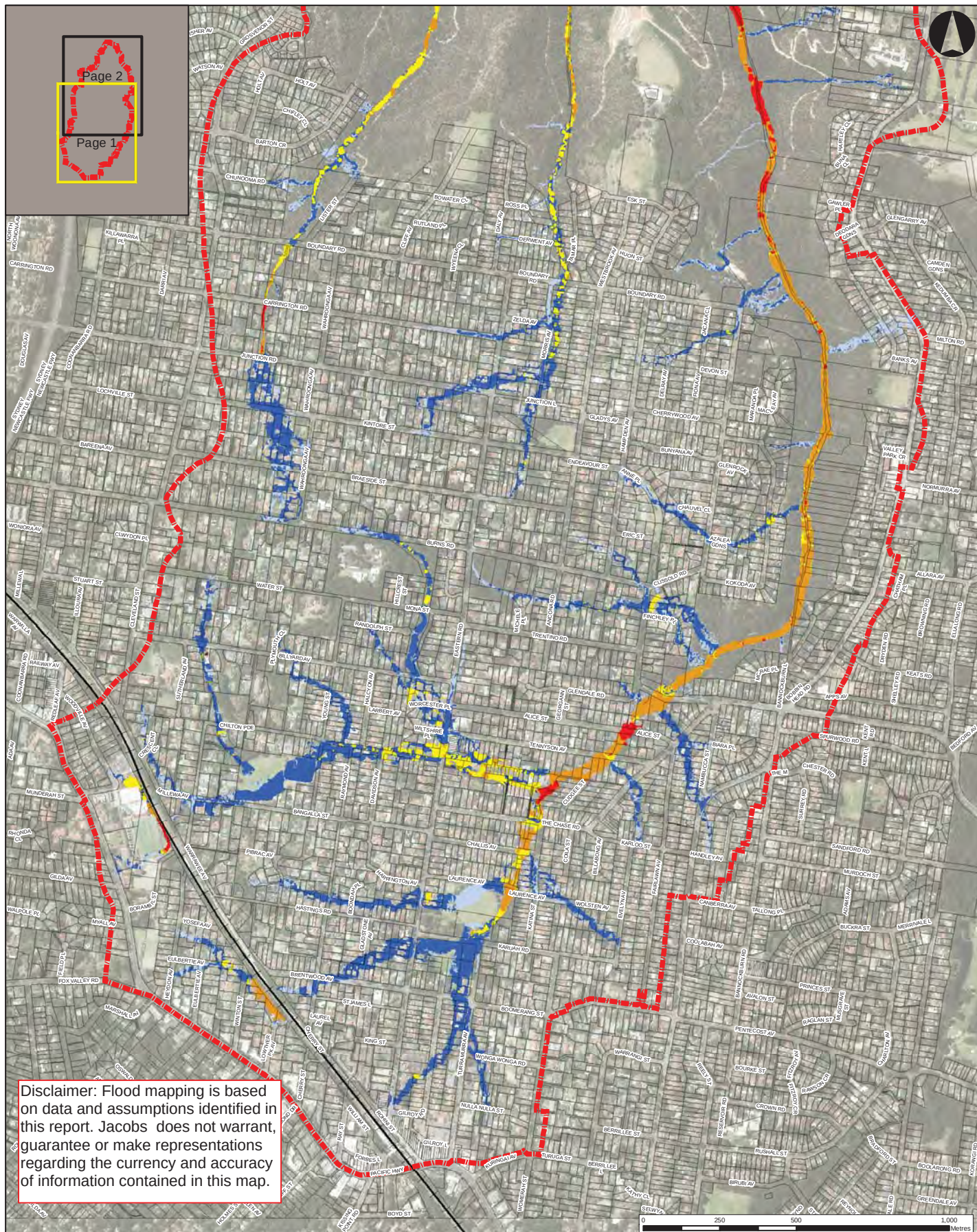


Appendix K. Climate Change Impact Mapping



Legend

- Study area
- Cadastral
- Railway

Climate change difference raster

Change in 1% AEP Flood Level (m)

- < 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.5

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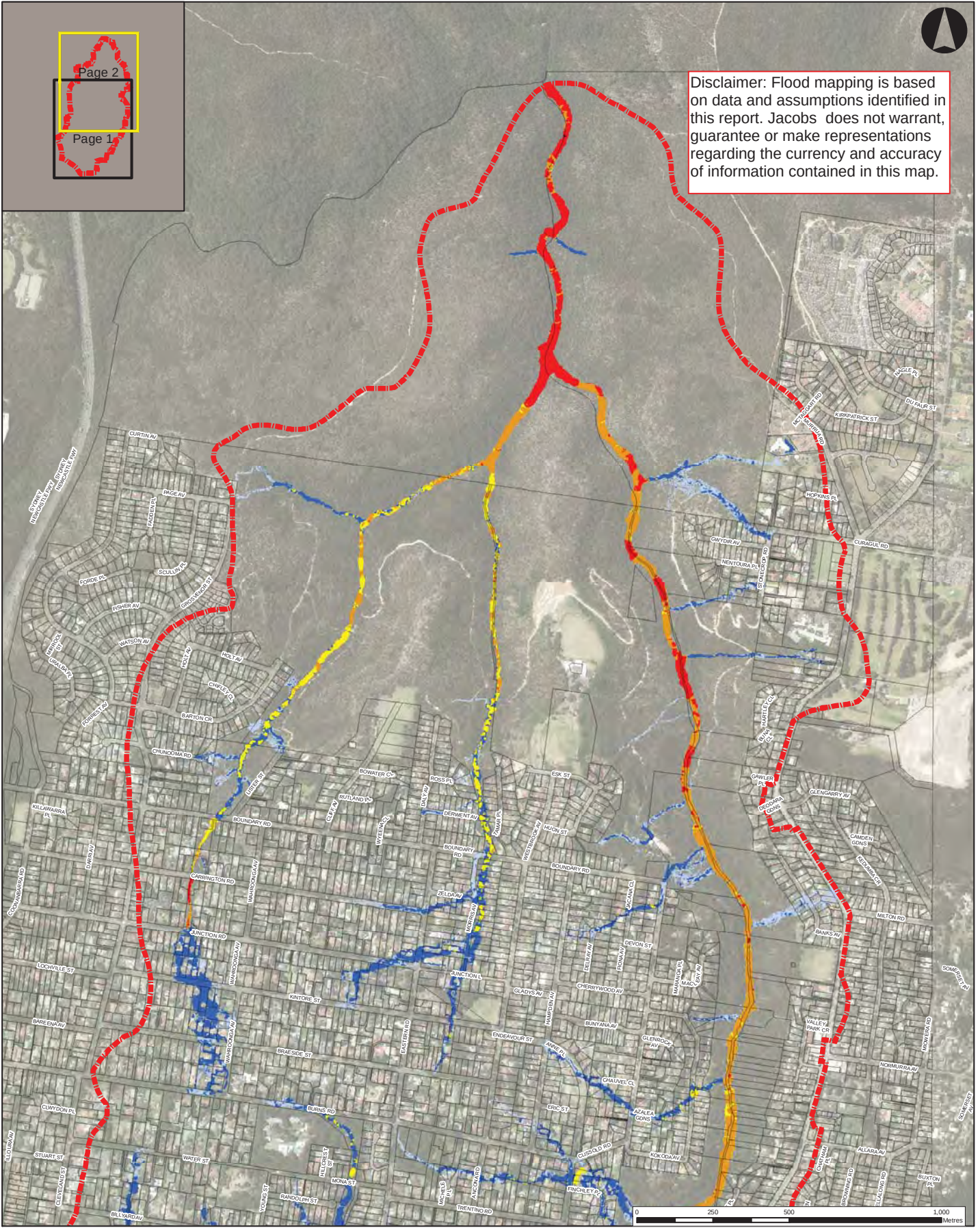
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SHEET Page 1 of 2 GDA 1994 MGA Zone 56

TITLE 1% AEP Event
Climate Change Impact
10% Increase in Rainfall Intensity

PROJECT Lovers Jump Creek Flood Study Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map K-1	1	1
CHECK	DATE			
AH	22/02/2018			1:12,000 A3



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Legend

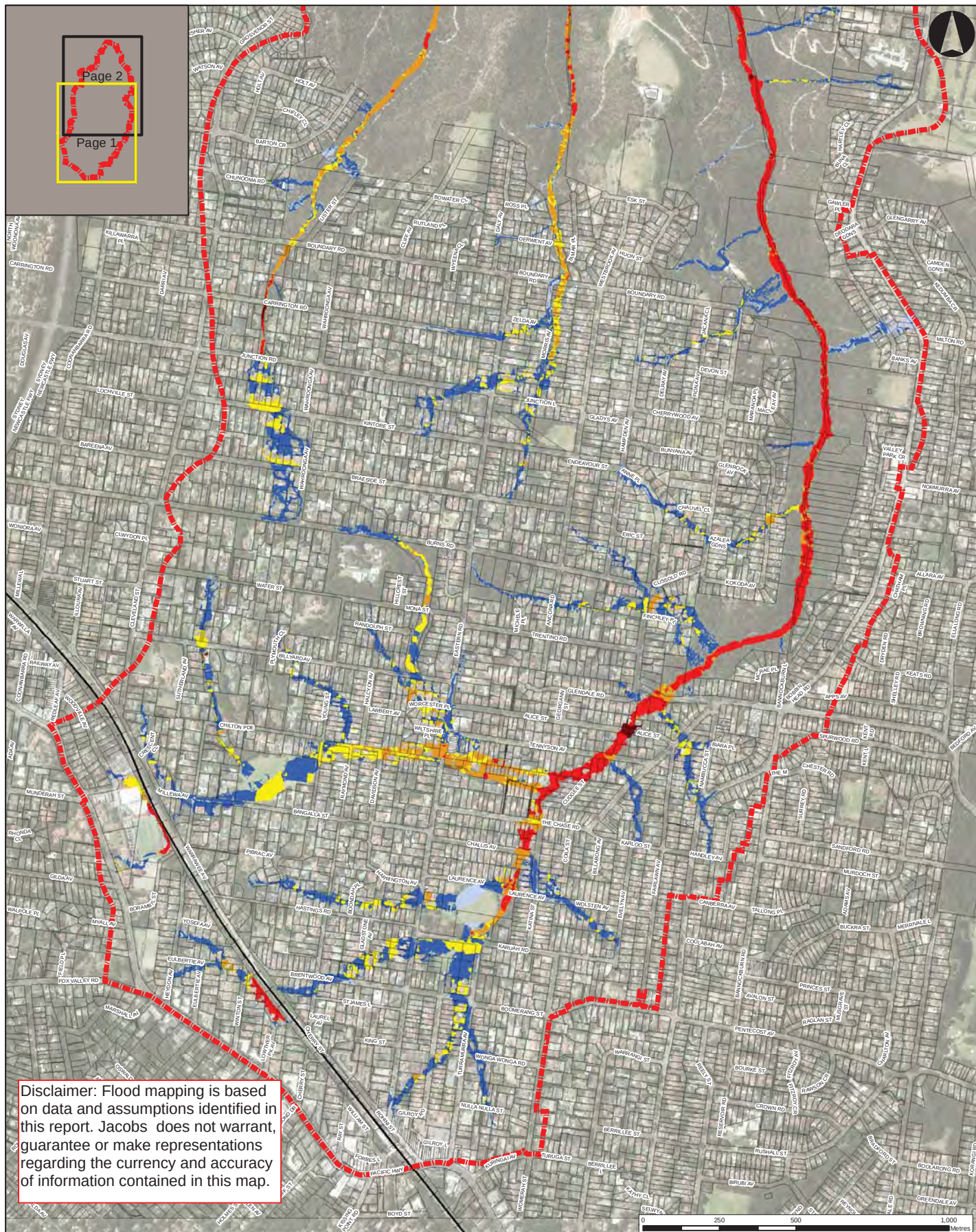
- Study area
- Cadastral
- Railway

Climate change difference raster	
Change in 1% AEP Flood Level (m)	
< 0.01	
0.01 - 0.05	
0.05 - 0.1	
0.1 - 0.2	
0.2 - 0.5	
0.5 - 1.5	



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SHEET		Page 2 of 2		GDA 1994 MGA Zone 56	
TITLE		1% AEP Event Climate Change Impact 10% Increase in Rainfall Intensity			
PROJECT		Lovers Jump Creek Flood Study Review			
DRAWN	PROJECT #	MAP #	REV VER		
LC	IA159900	Map K-1	1 1		
CHECK	DATE	1:12,000 A			
AH	22/02/2018				



Legend

- Study area
- Cadastre
- Railway

Climate change difference raster

Change in 1% AEP Flood Level (m)

- < 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.5

JACOBS

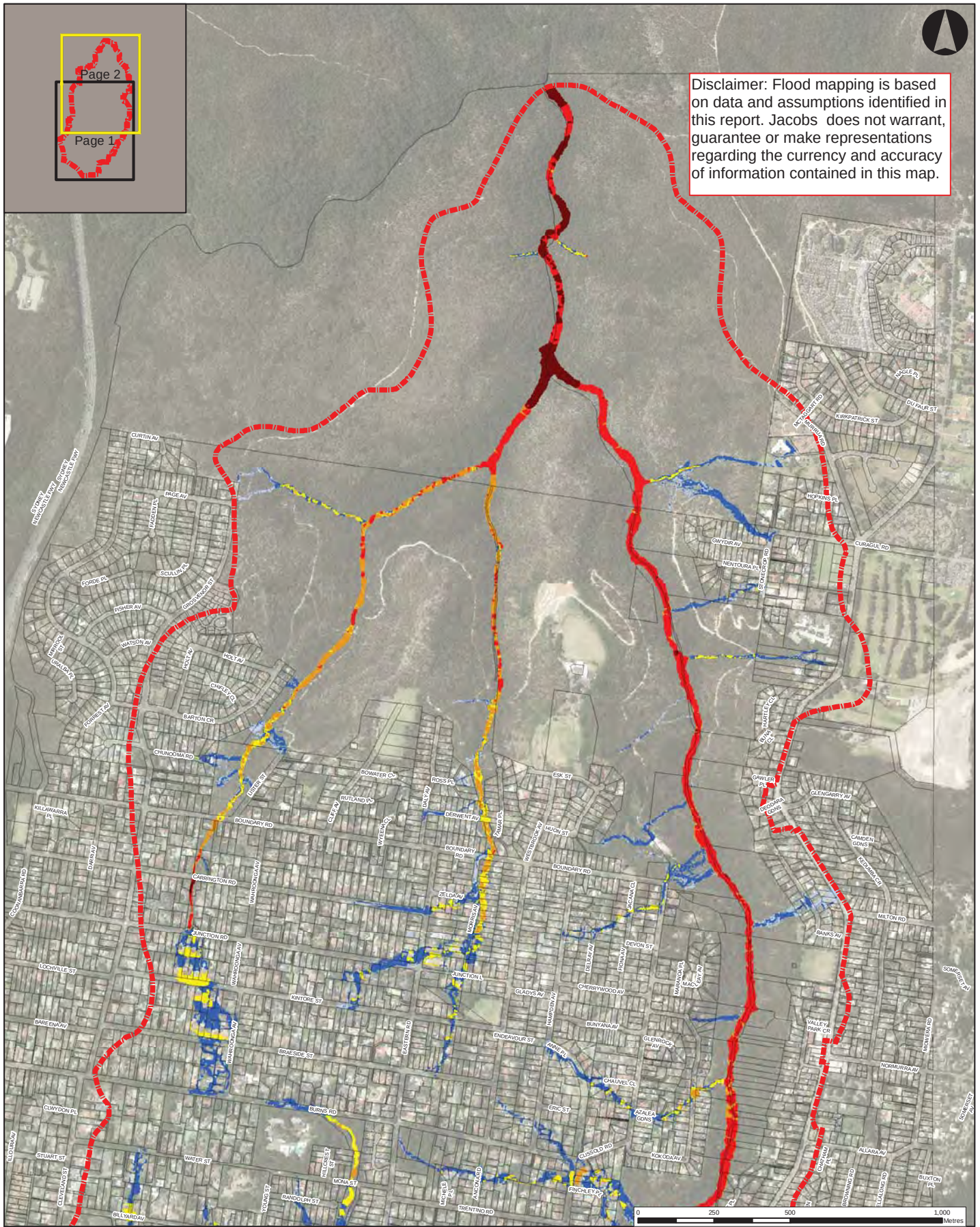
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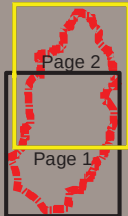
TITLE 1% AEP Event
Climate Change Impact
20% Increase in Rainfall Intensity

PROJECT Lovers Jump Creek Flood Study Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map K-2	1	1
CHECK	DATE			
AH	22/02/2018			1:12,000 A3



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Legend

- Study area
- Cadastre
- Railway

- Climate change difference raster**
Change in 1% AEP Flood Level (m)
- < 0.01
 - 0.01 - 0.05
 - 0.05 - 0.1
 - 0.1 - 0.2
 - 0.2 - 0.5
 - 0.5 - 1.5



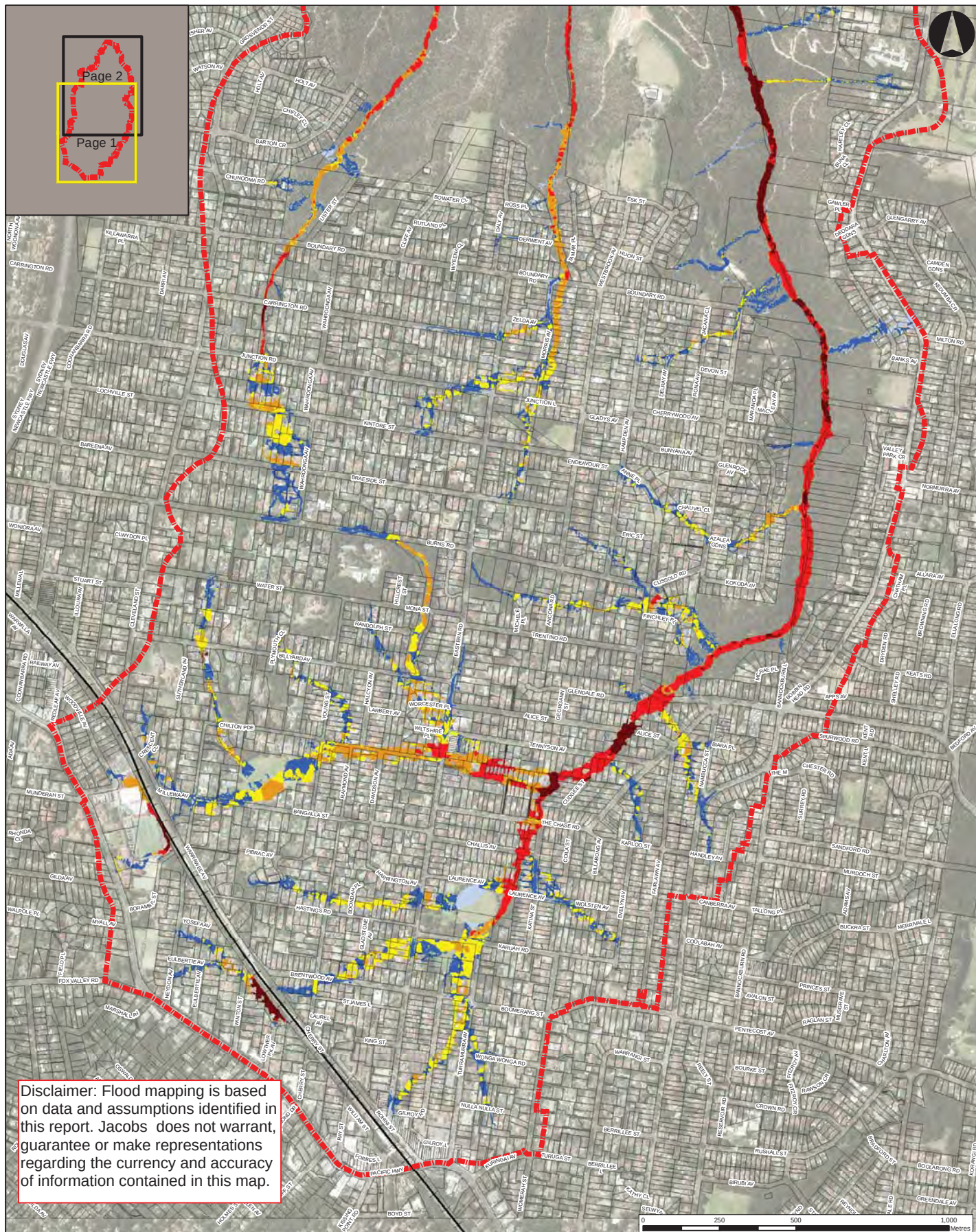
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TITLE 1% AEP Event
Climate Change Impact
20% Increase in Rainfall Intensity

PROJECT Lovers Jump Creek Flood Study Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map K-2	1	1
CHECK	DATE			
AH	22/02/2018			1:12,000 A3



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Legend

- Study area
- Cadastre
- Railway

Climate change difference raster

Change in 1% AEP Flood Level (m)

- < 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.5

JACOBS

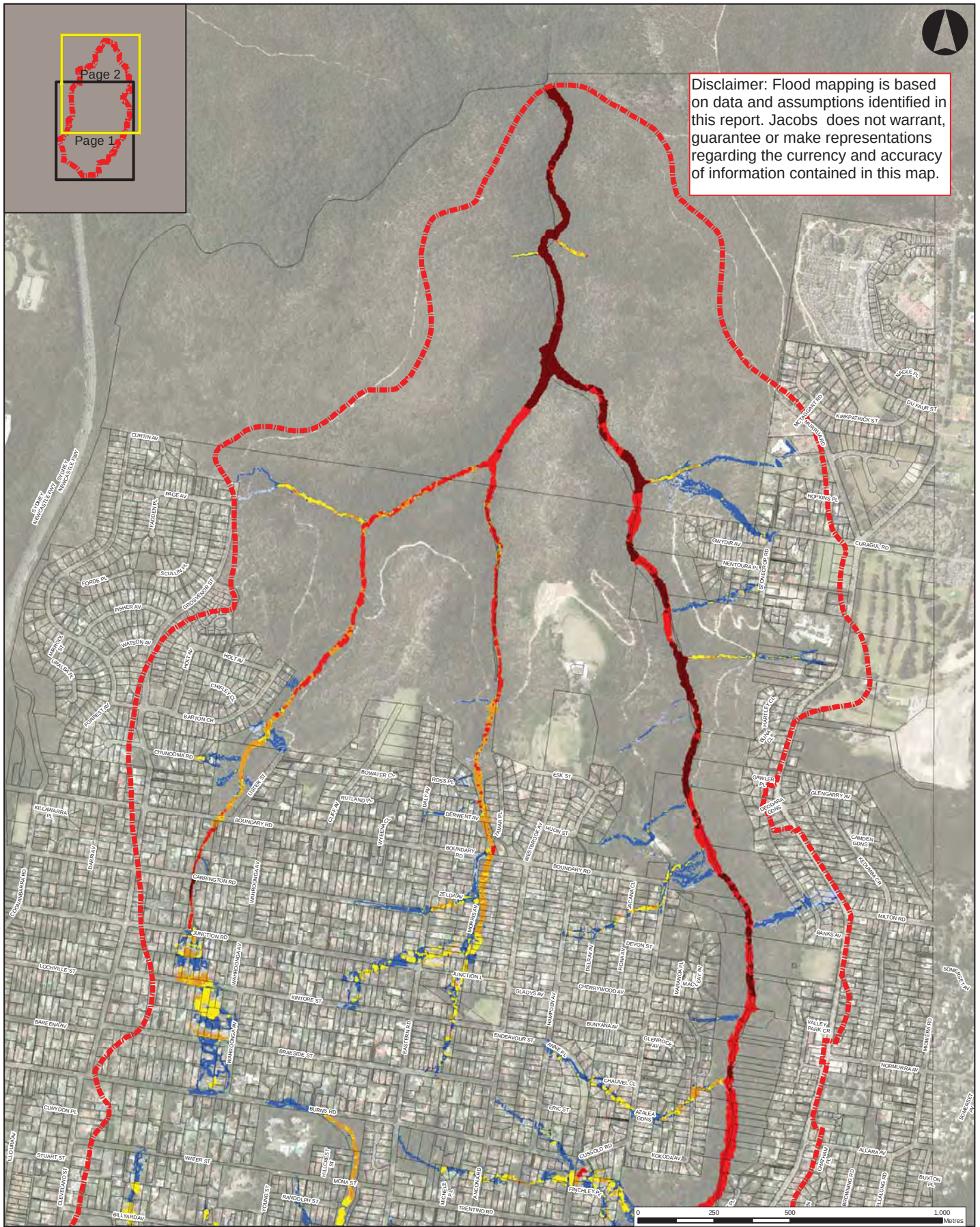
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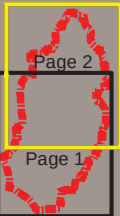
TITLE 1% AEP Event
Climate Change Impact
30% Increase in Rainfall Intensity

PROJECT Lovers Jump Creek Flood Study Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map K-3	1	1
CHECK	DATE			
AH	22/02/2018			1:12,000 A3



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Legend

- Study area
- Cadastre
- Railway

Climate change difference raster

Change in 1% AEP Flood Level (m)

- < 0.01
- 0.01 - 0.05
- 0.05 - 0.1
- 0.1 - 0.2
- 0.2 - 0.5
- 0.5 - 1.5

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TITLE 1% AEP Event
Climate Change Impact
30% Increase in Rainfall Intensity

PROJECT Lovers Jump Creek Flood Study Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map K-3	1	1
CHECK	DATE			
AH	22/02/2018			1:12,000 A3

Appendix L. Impacts of ARR 2016 and At-Site Design Rainfall on flood behaviour

L.1 Comparisons of ARR 1987, ARR 2016 and At-Site Design Rainfall Estimates

Figure L-1 Design Rainfall Comparison – 30 minute storm duration

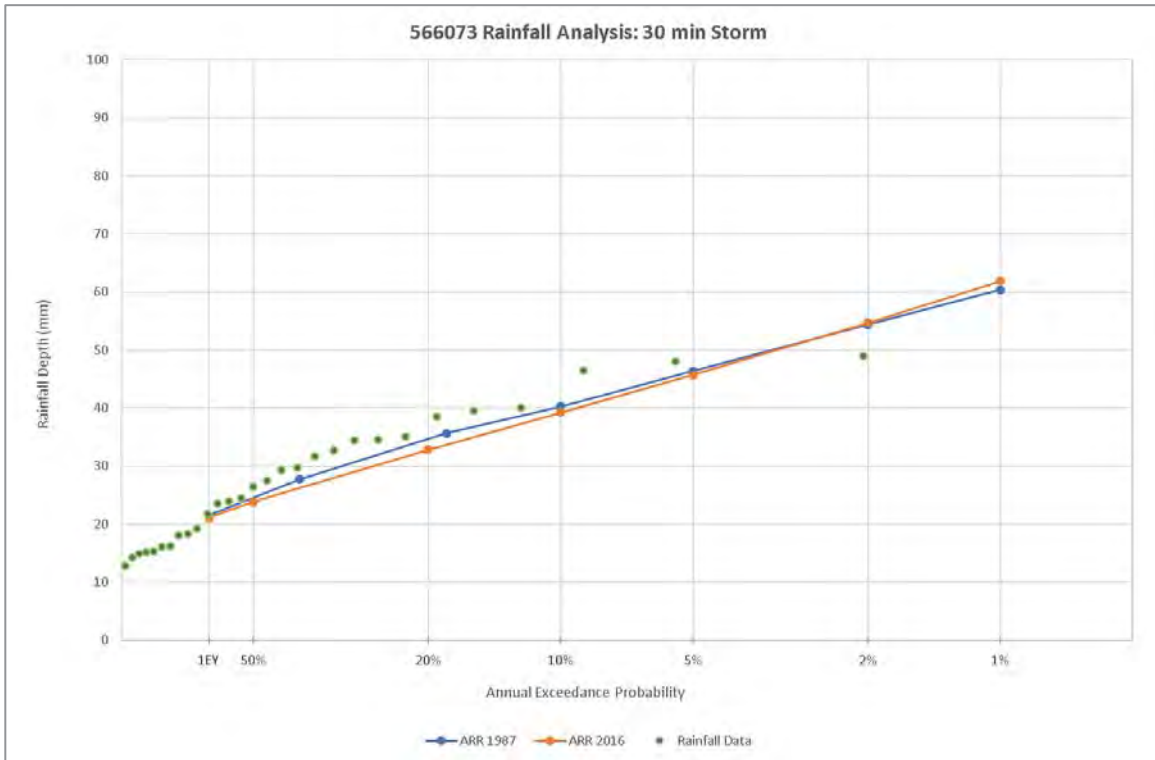


Figure L-2 Design Rainfall Comparison – 60 minute storm duration

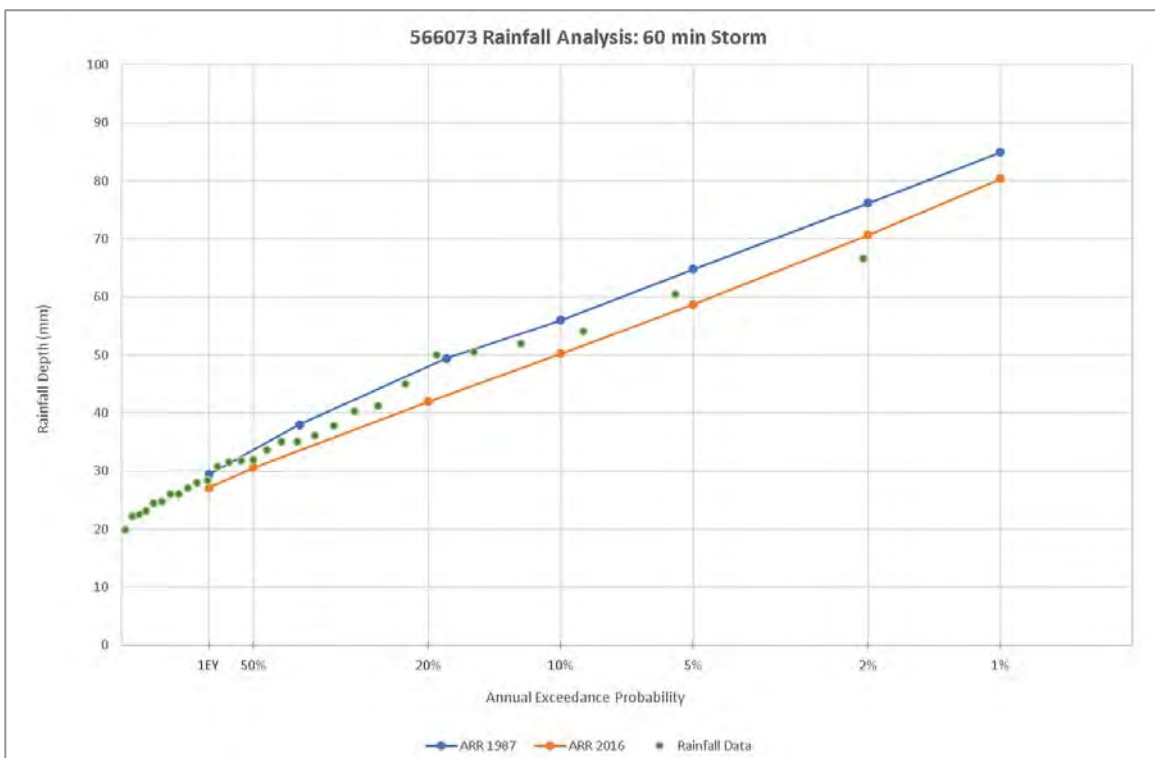


Figure L-3 Design Rainfall Comparison – 90 minute storm duration

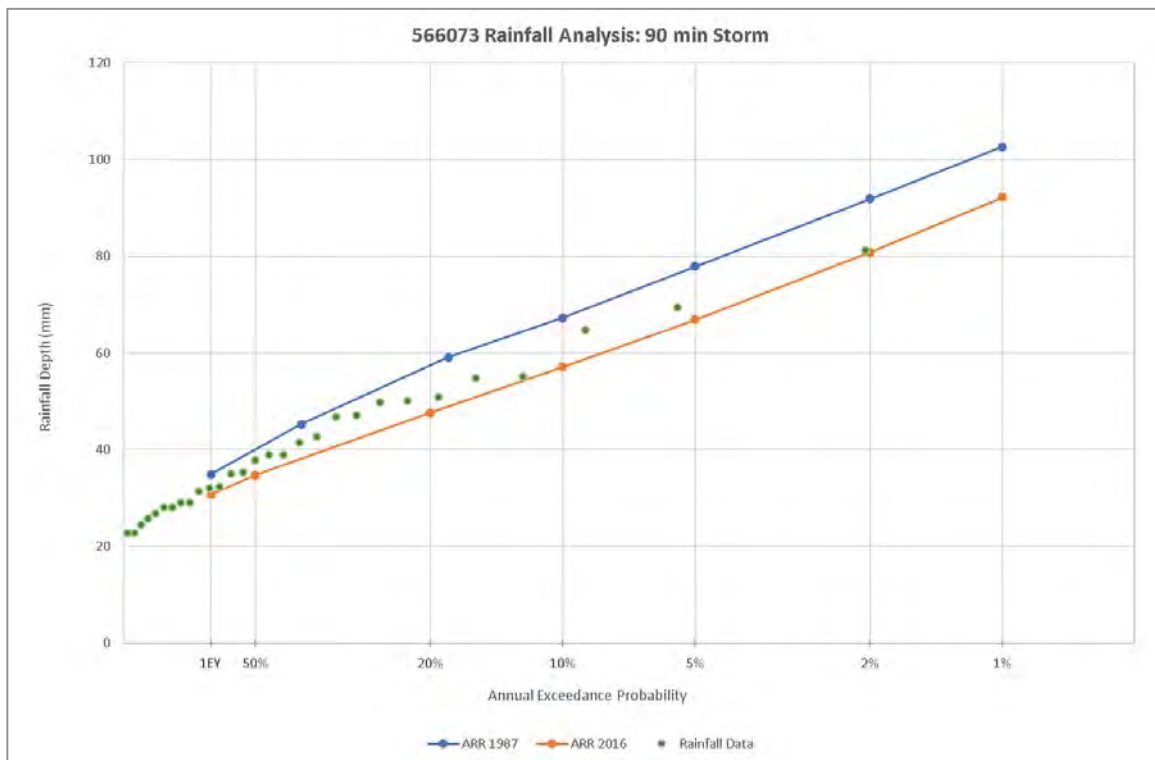


Figure L-4 Design Rainfall Comparison – 120 minute storm duration

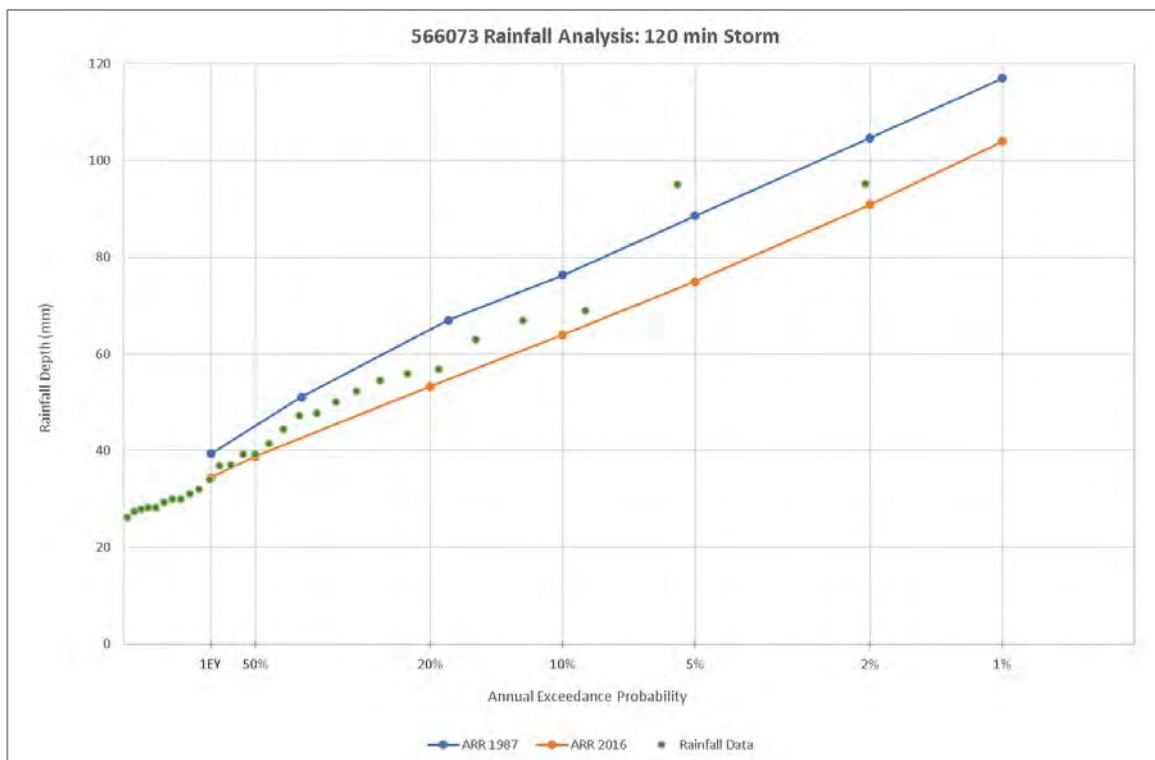


Figure L-5 Design Rainfall Comparison – 180 minute storm duration

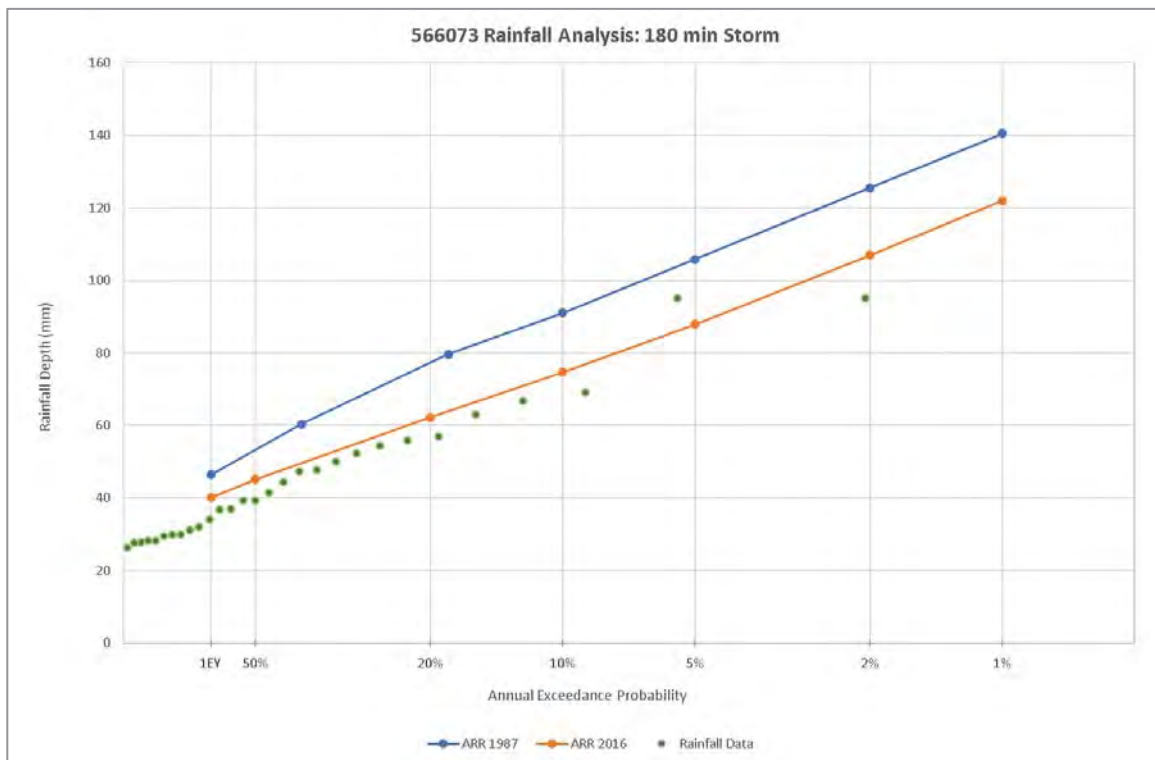
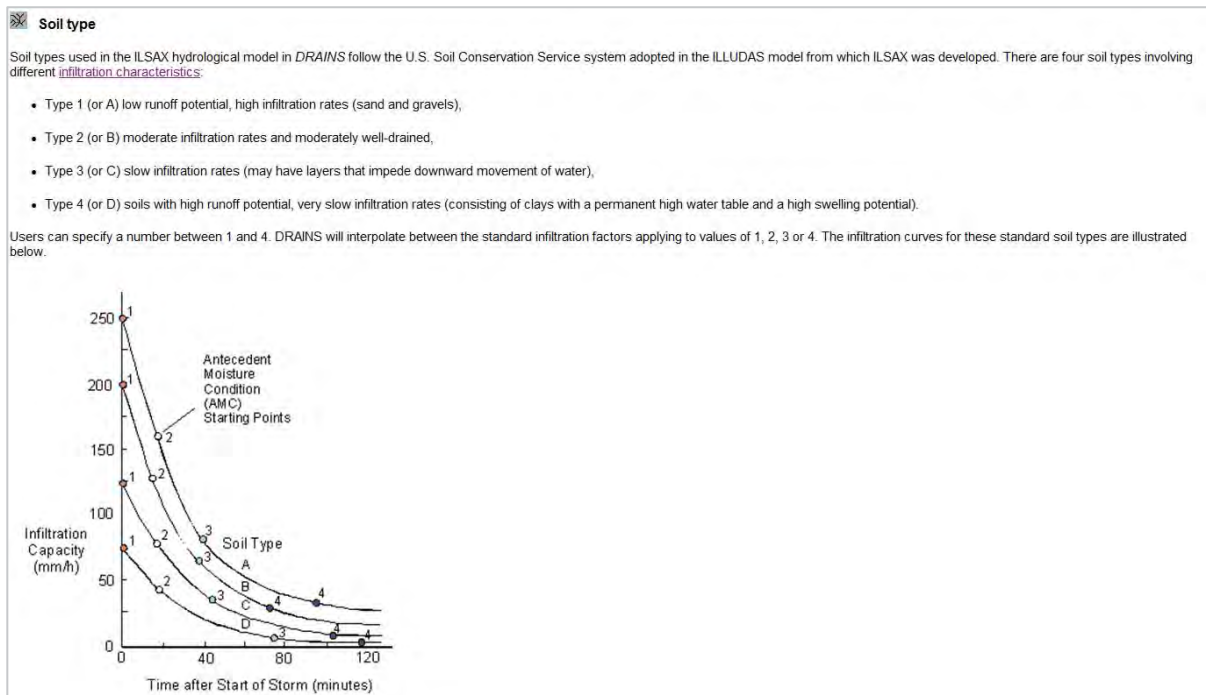


Figure L-6 – Traditional DRAINS rainfall infiltration losses (Horton infiltration). Source: DRAINS User Manual (2018)



L.2 Comparison of ARR 2016 and ARR 1987 Peak Flows

Figure L-7 – Selected locations for analysis of ARR 2016 peak flows

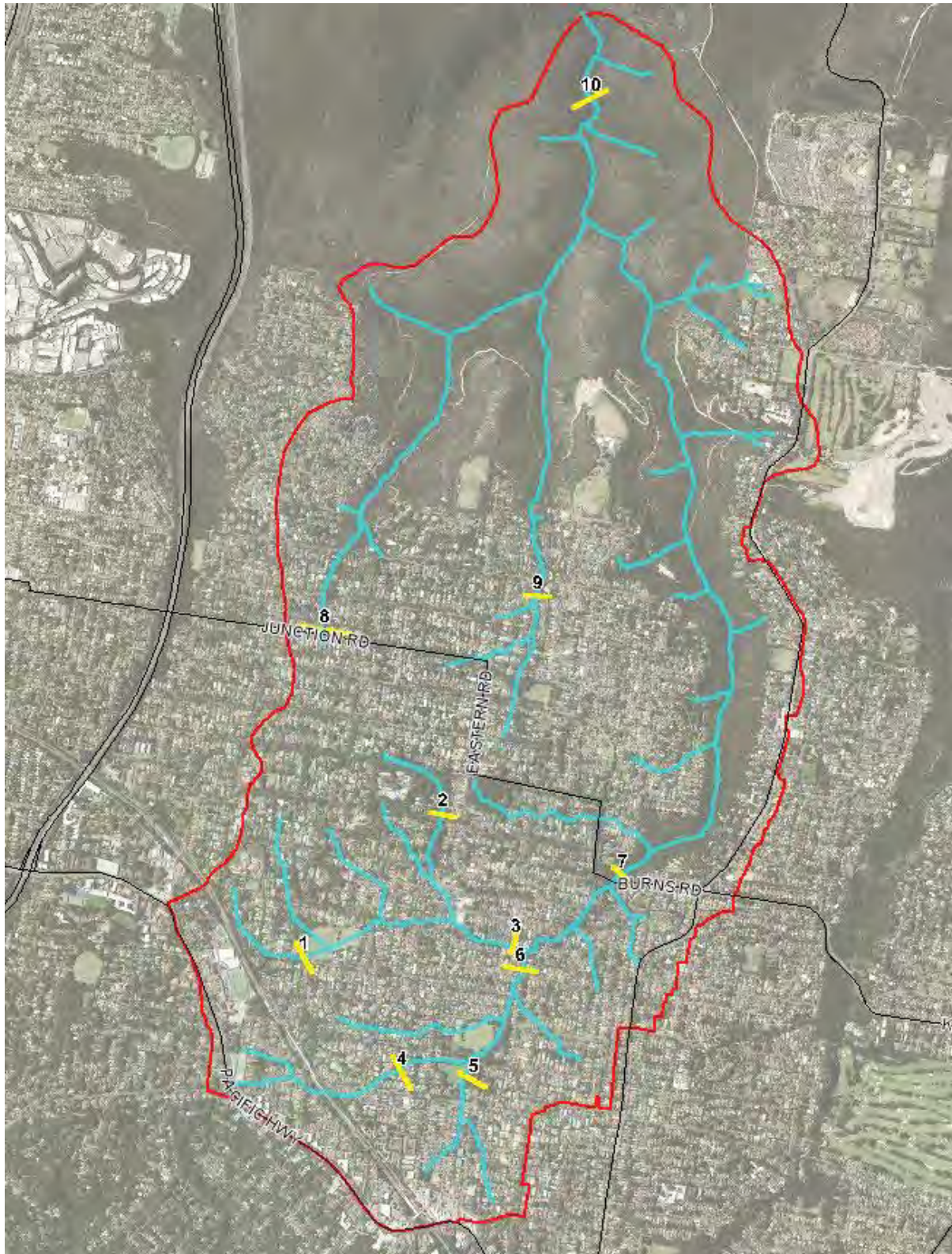


Figure L-8 – Site 1 ARR 2016 flow box plots

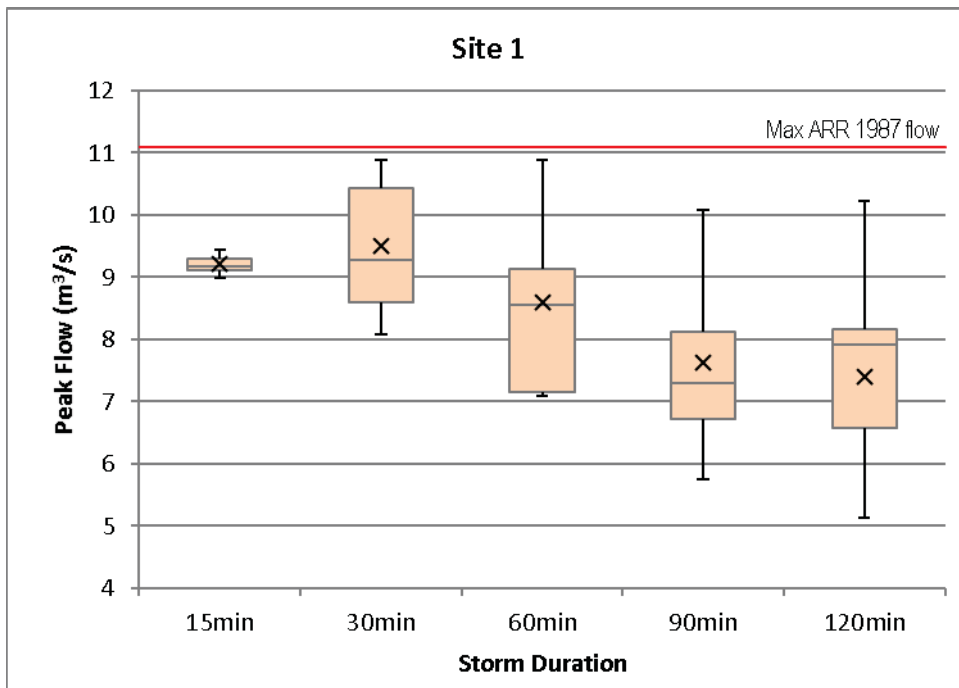


Figure L-9 – Site 2 ARR 2016 flow box plots

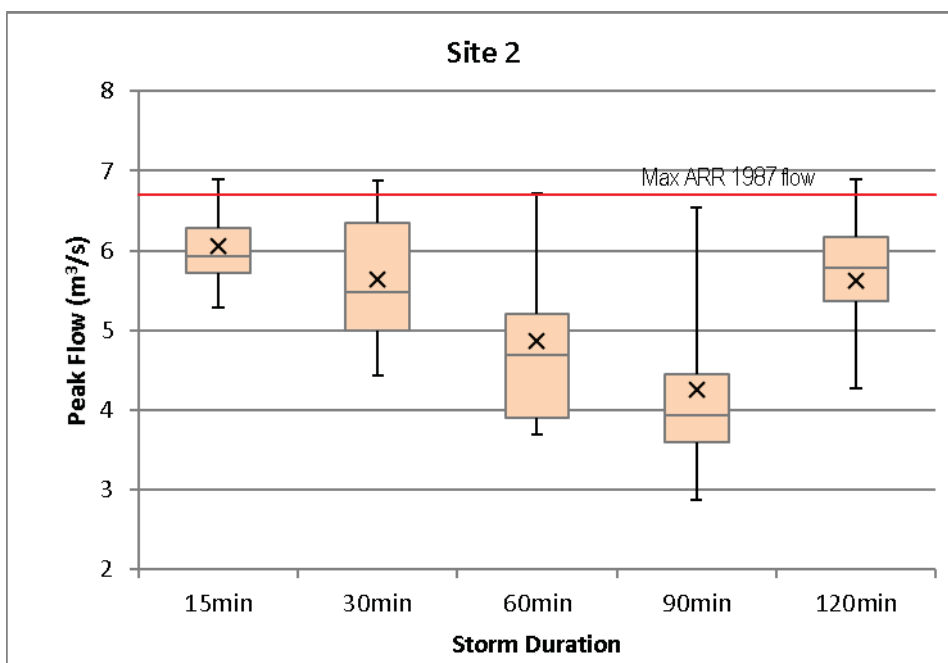


Figure L-10 – Site 3 ARR 2016 flow box plots

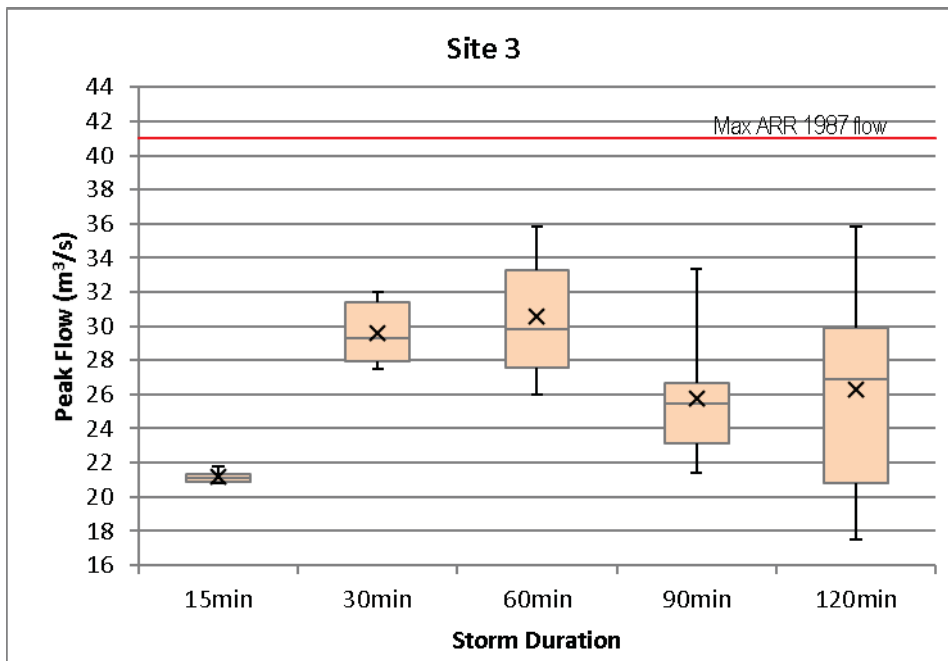


Figure L-11 – Site 4 ARR 2016 flow box plots

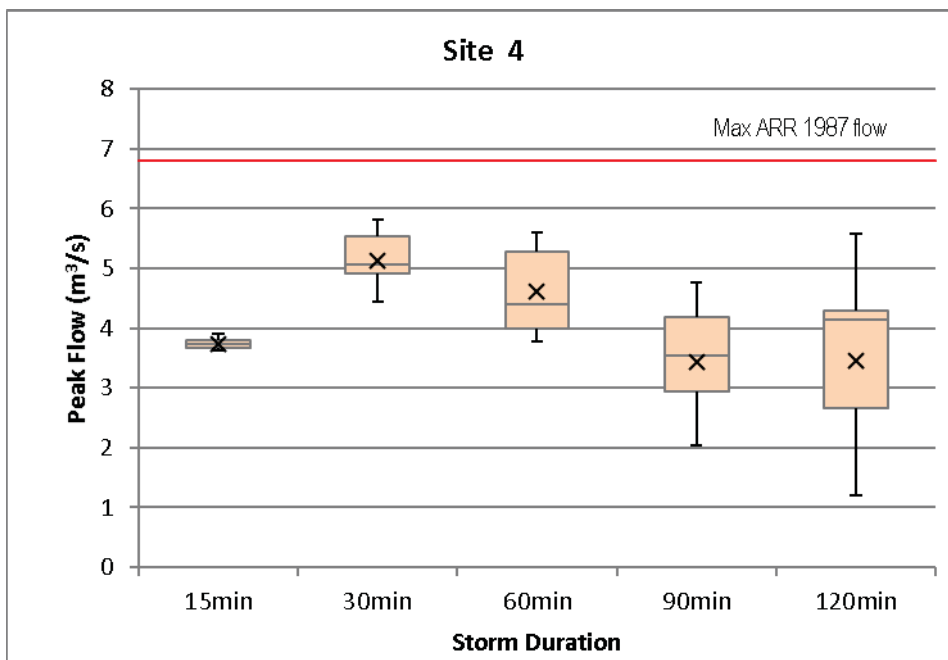


Figure L-12 – Site 5 ARR 2016 flow box plots

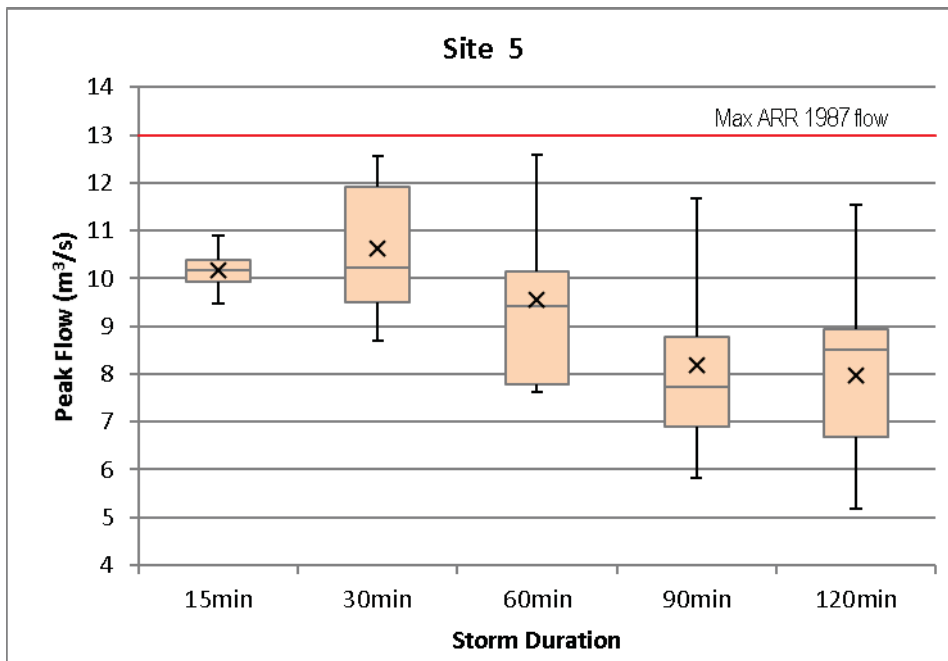


Figure L-13 – Site 6 ARR 2016 flow box plots

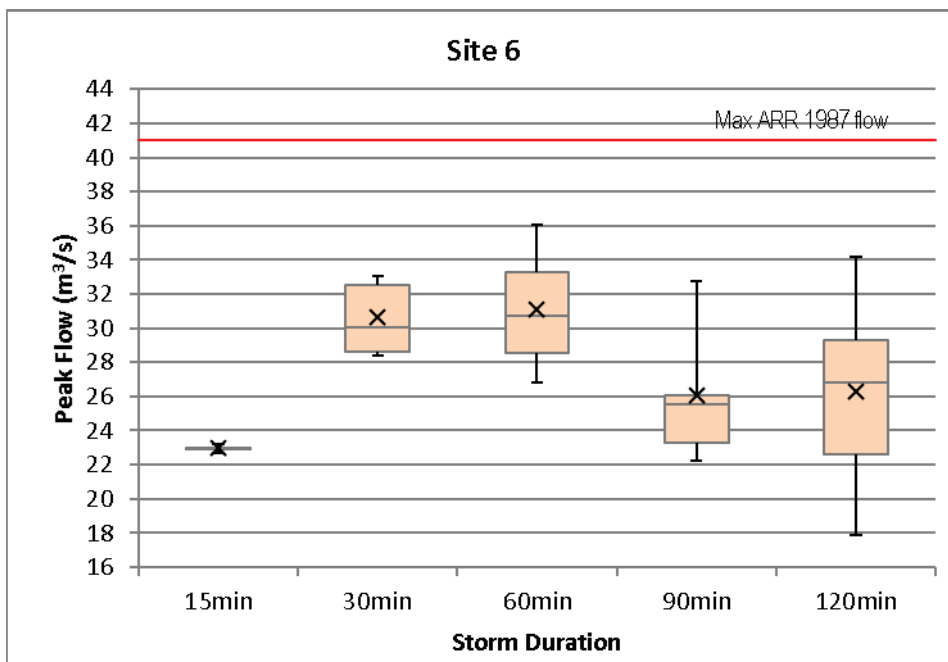


Figure L-14 – Site 7 ARR 2016 flow box plots

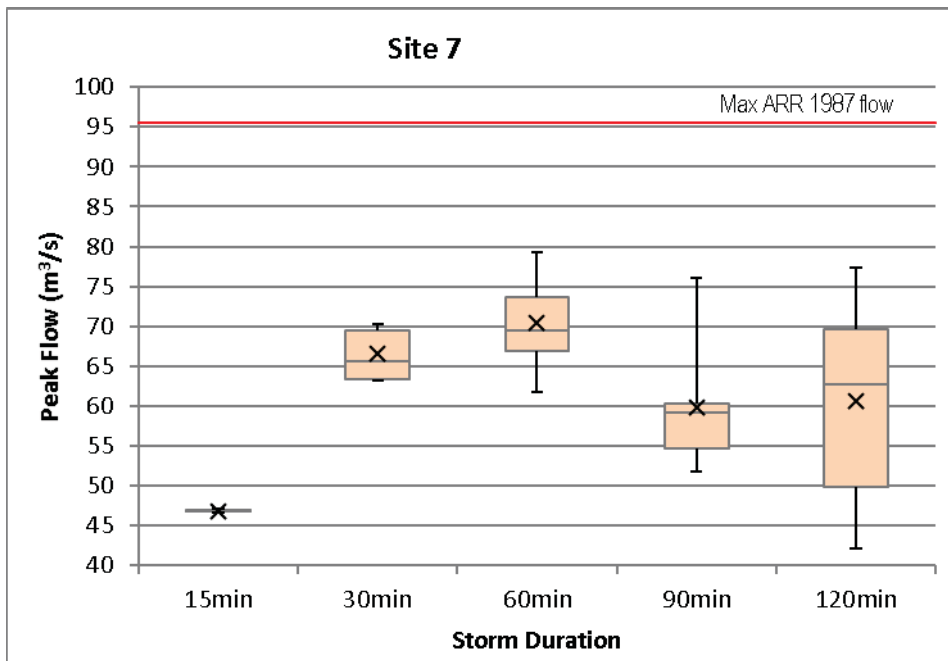


Figure L-15 – Site 8 ARR 2016 flow box plots

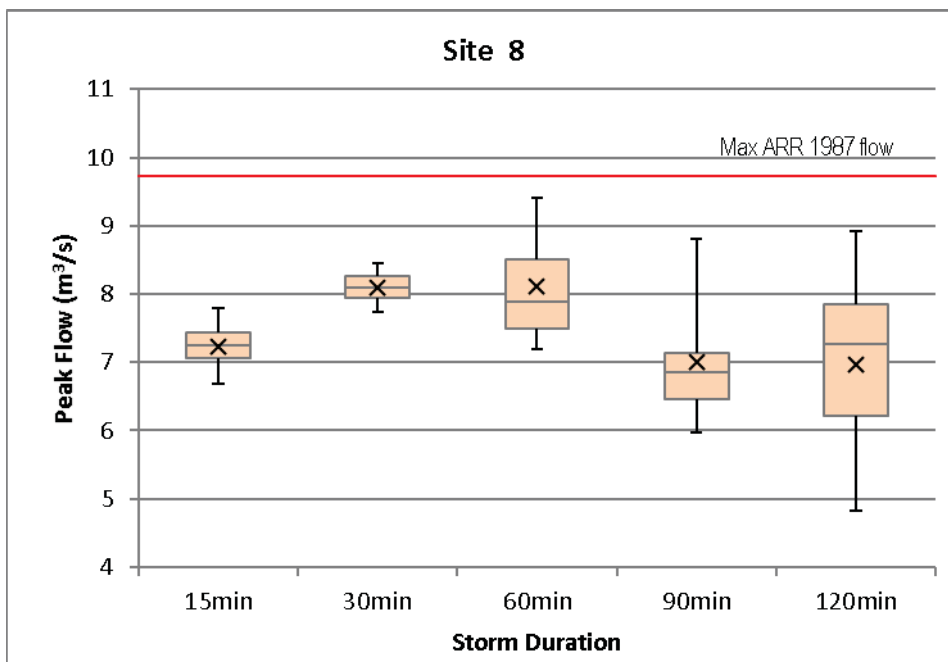


Figure L-16 – Site 9 ARR 2016 flow box plots

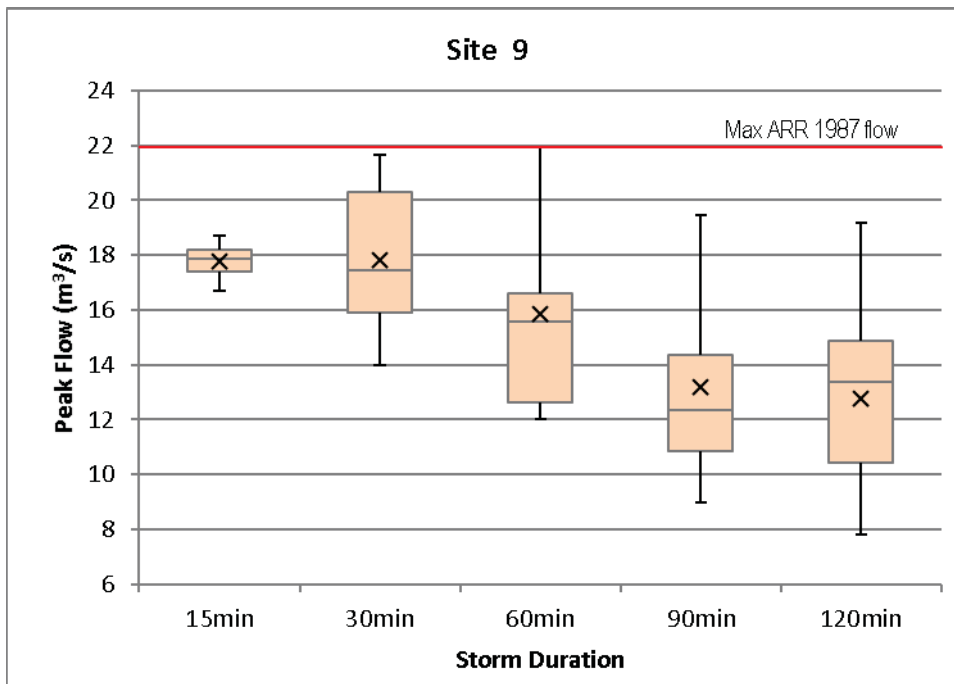
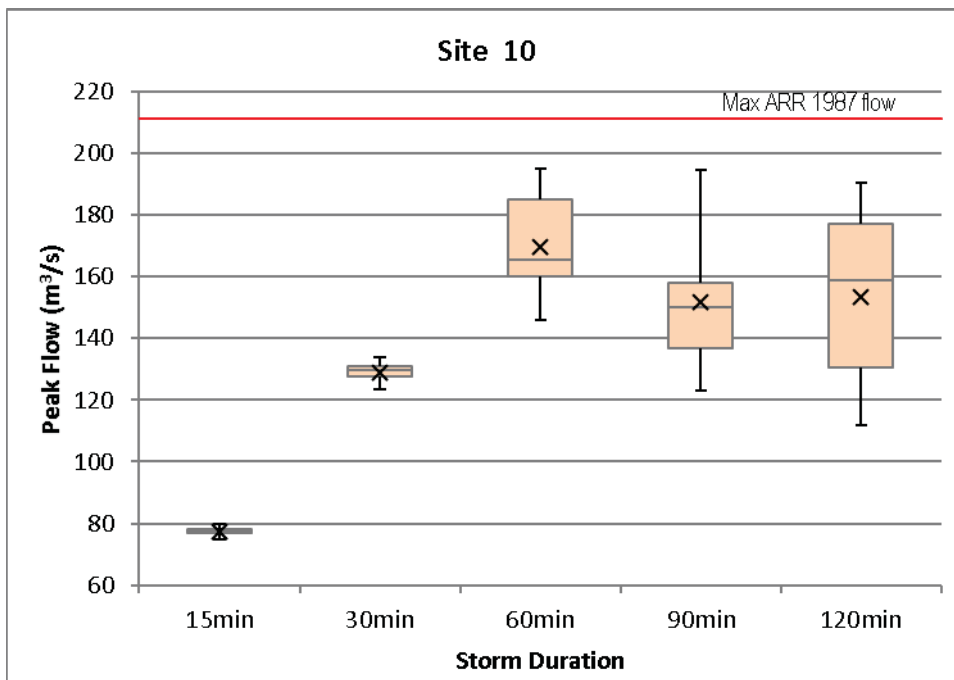
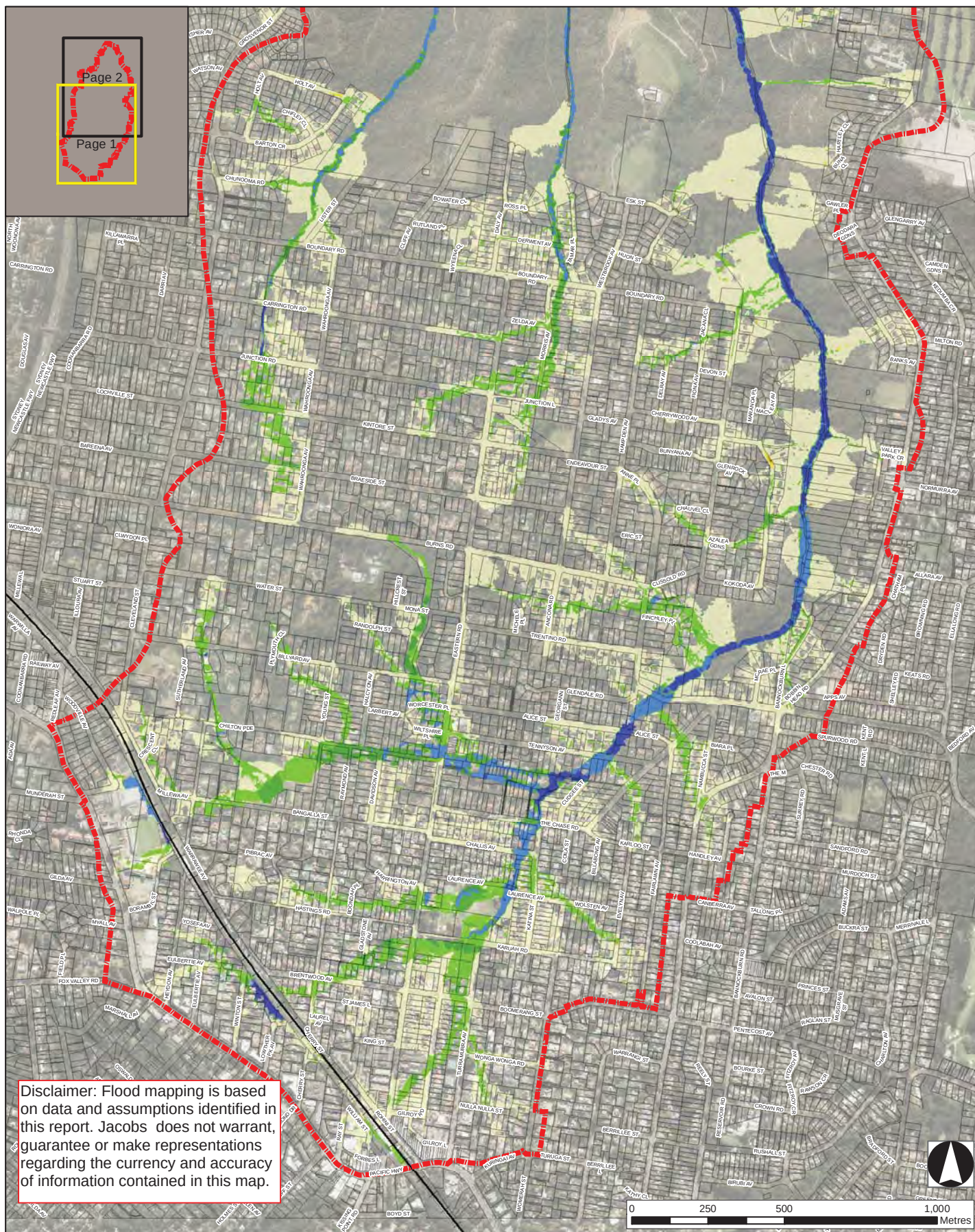


Figure L-17 – Site 10 ARR 2016 flow box plots





Legend

Difference in Flood Level (m)

< -0.25	-0.01 - 0.01	Study area
-0.25 - -0.1	0.01 - 0.05	Cadastre
-0.1 - -0.05	0.05 - 0.1	Railway
-0.05 - -0.01	0.1 - 0.25	
	> 0.25	

Note: Mapping represents difference in 1% AEP flood level between ARR 2016 and ARR 1987 hydrology. Negative values indicate that ARR 2016 flood levels are lower than ARR 1987 flood levels.

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TITLE **ARR 2016 Sensitivity - Change in 1% AEP Peak Flood Levels**

PROJECT Lovers Jump Creek FloodStudy Review

DRAWN	PROJECT #	MAP #	REV	VER
LC	IA159900	Map L-1	1	1
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AH	22/02/2018			1:12,000 A3

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Page 2

Page 1

0 250 500 1,000 Metres

DRAWN LC	PROJECT # IA159900	MAP # Map L-1	REV 1	VER 1
CHECK AH	DATE 22/02/2018		1:12,000 A3	