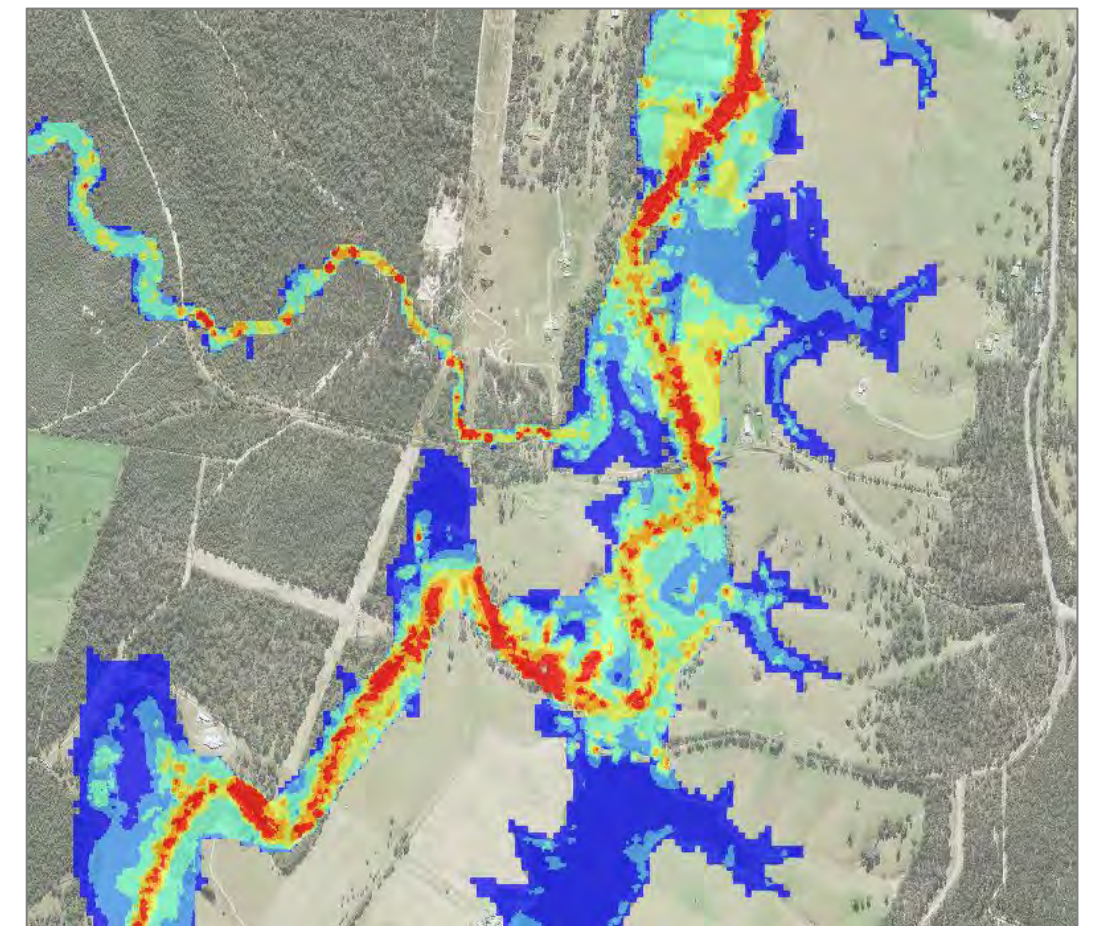


MAITLAND CITY COUNCIL & CESSNOCK CITY COUNCIL

WALLIS AND SWAMP FISHERY CREEK FLOOD STUDY
VOLUME 2: FINAL REPORT FIGURES

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Figure 27: Hydrological Model Layout

Figure 28: Hydraulic Model Layout

Figure 29: Reporting Locations of Results

Figure 30: Flood Level versus AEP for Wallis Creek and Hunter River Flooding



FIGURE 1
LOCALITY MAP

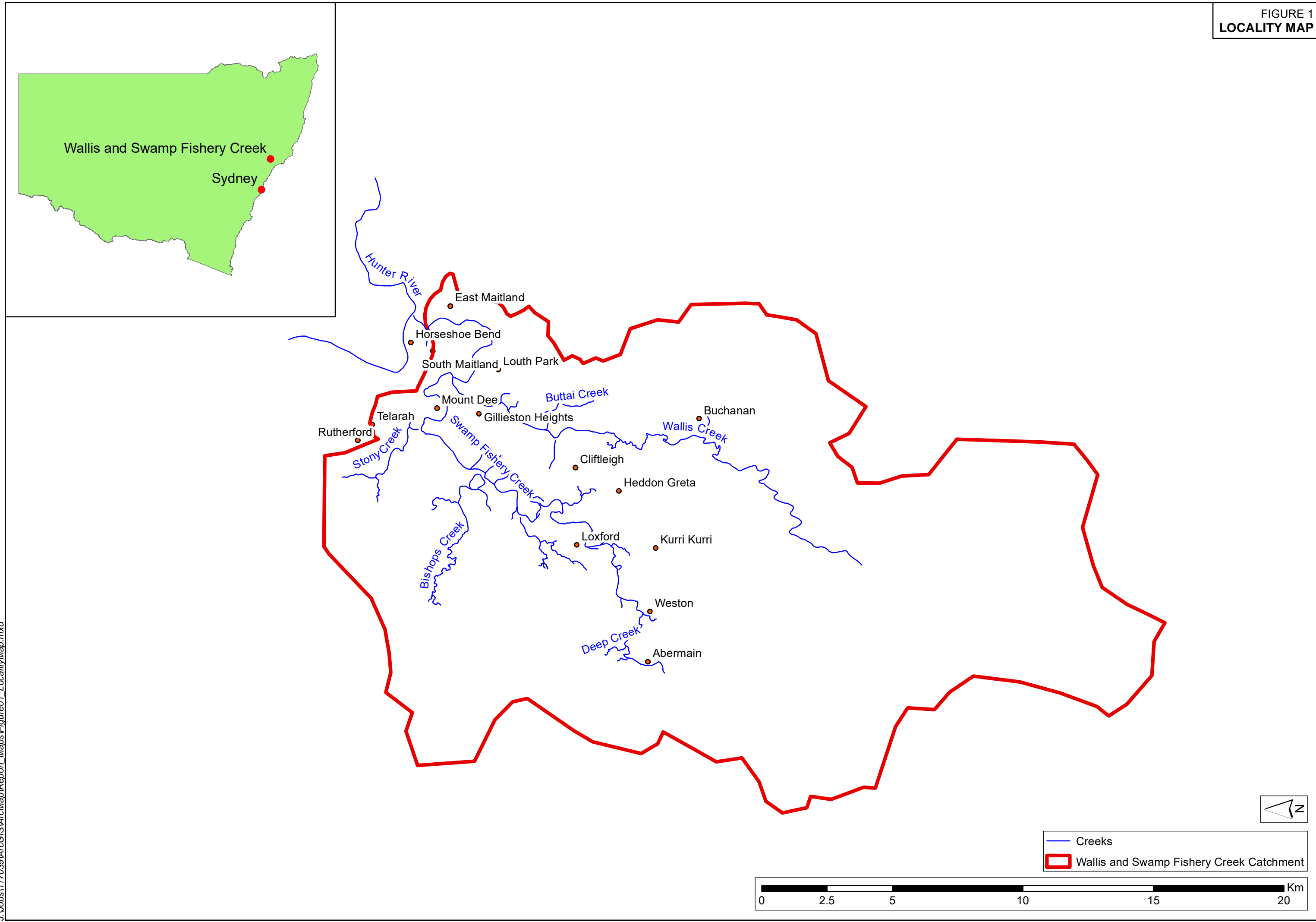


FIGURE 2
STUDY AREA

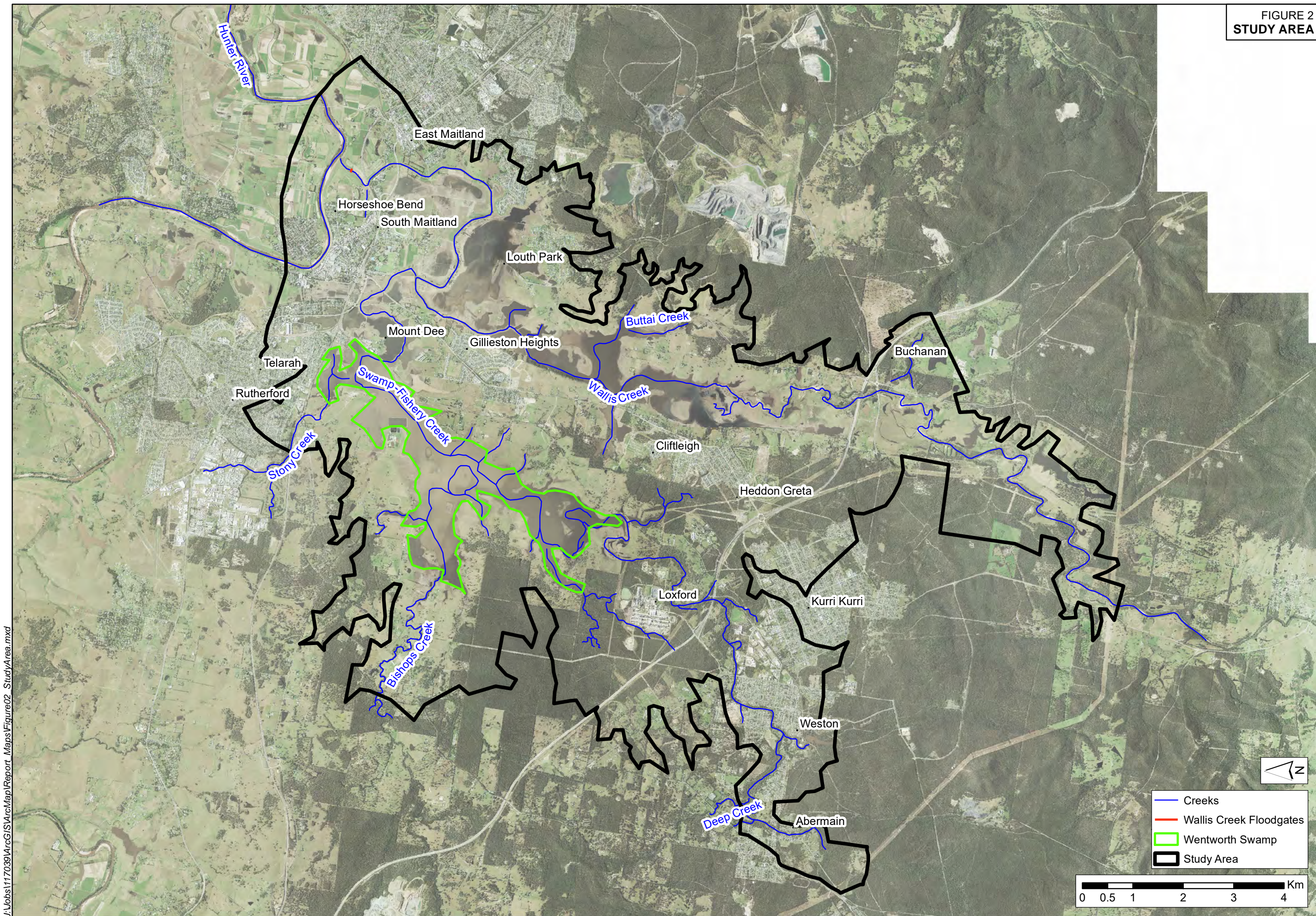


FIGURE 3
AVAILABLE SURVEY DATA

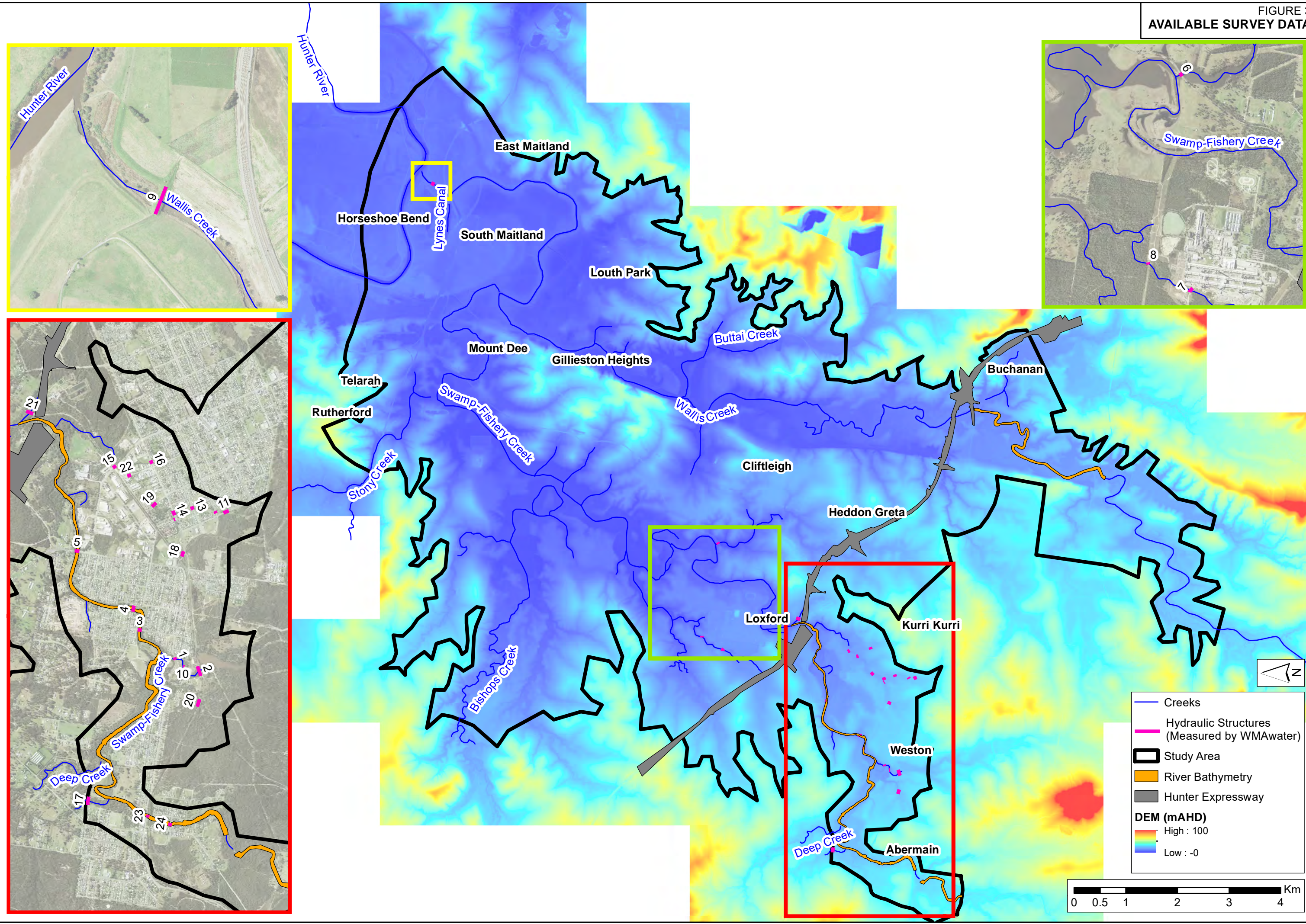
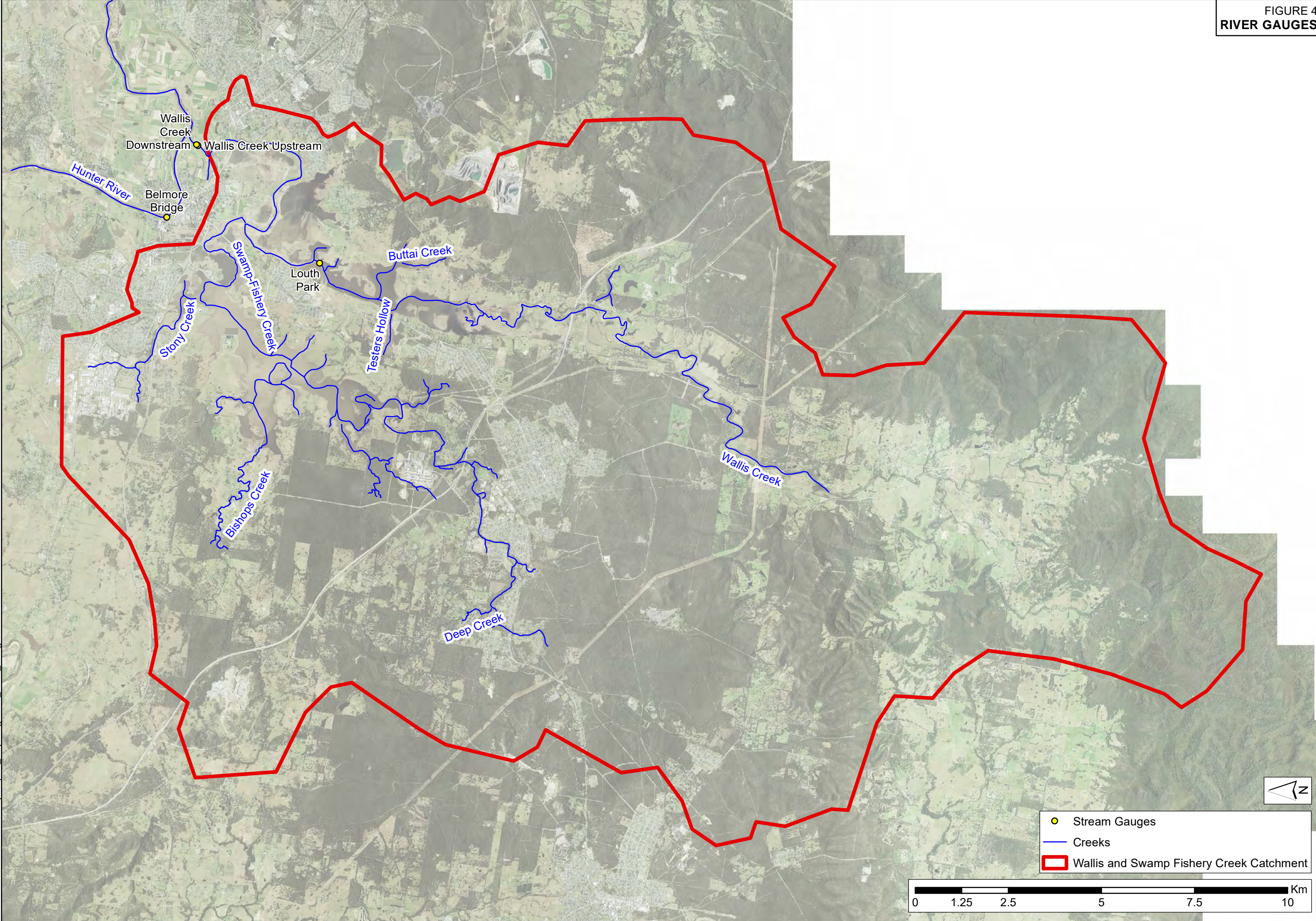


FIGURE 4
RIVER GAUGES



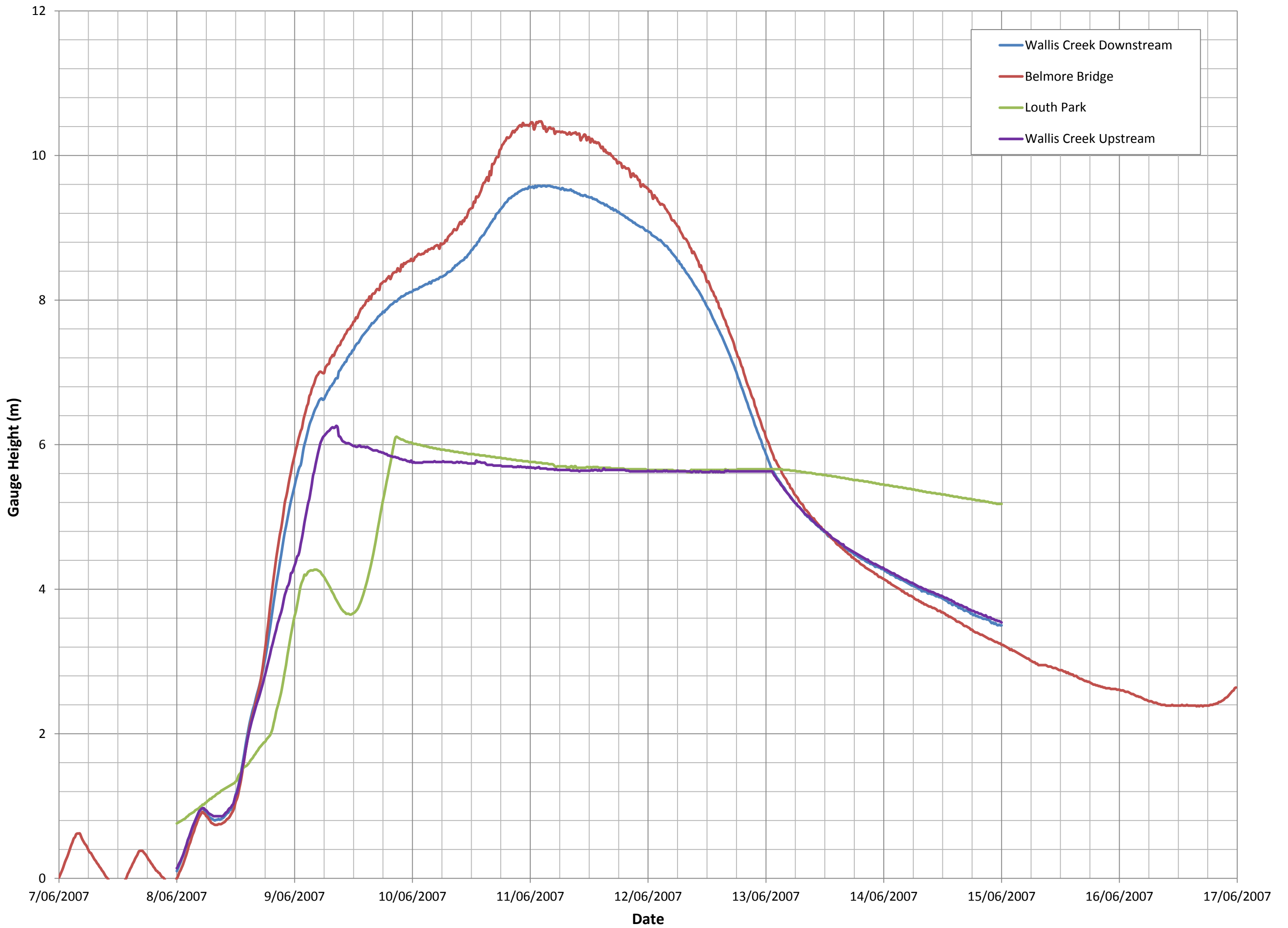


FIGURE 5
WATER LEVEL DATA
JUNE 2007 EVENT

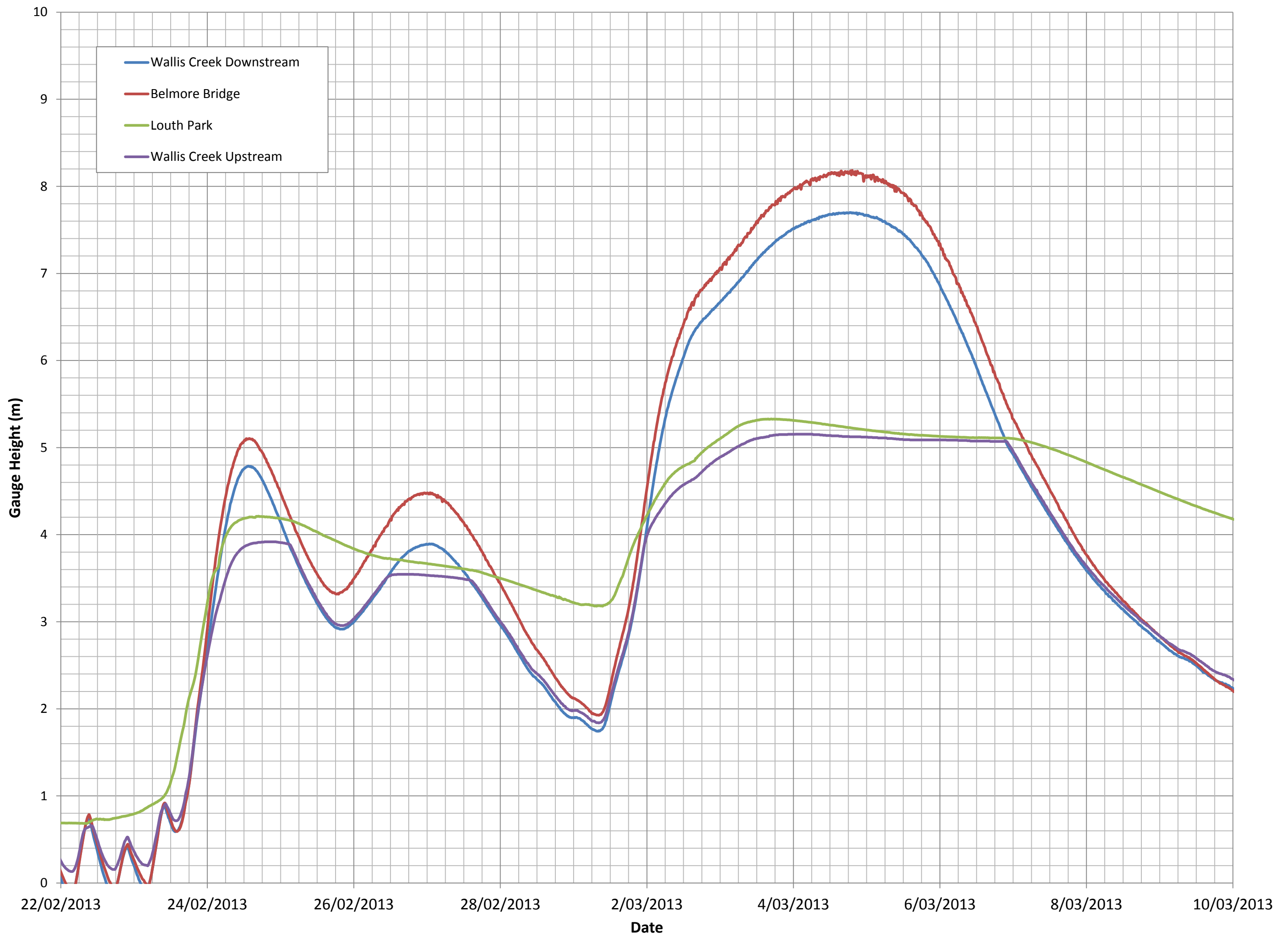


FIGURE 6
WATER LEVEL DATA
MARCH 2013 EVENT

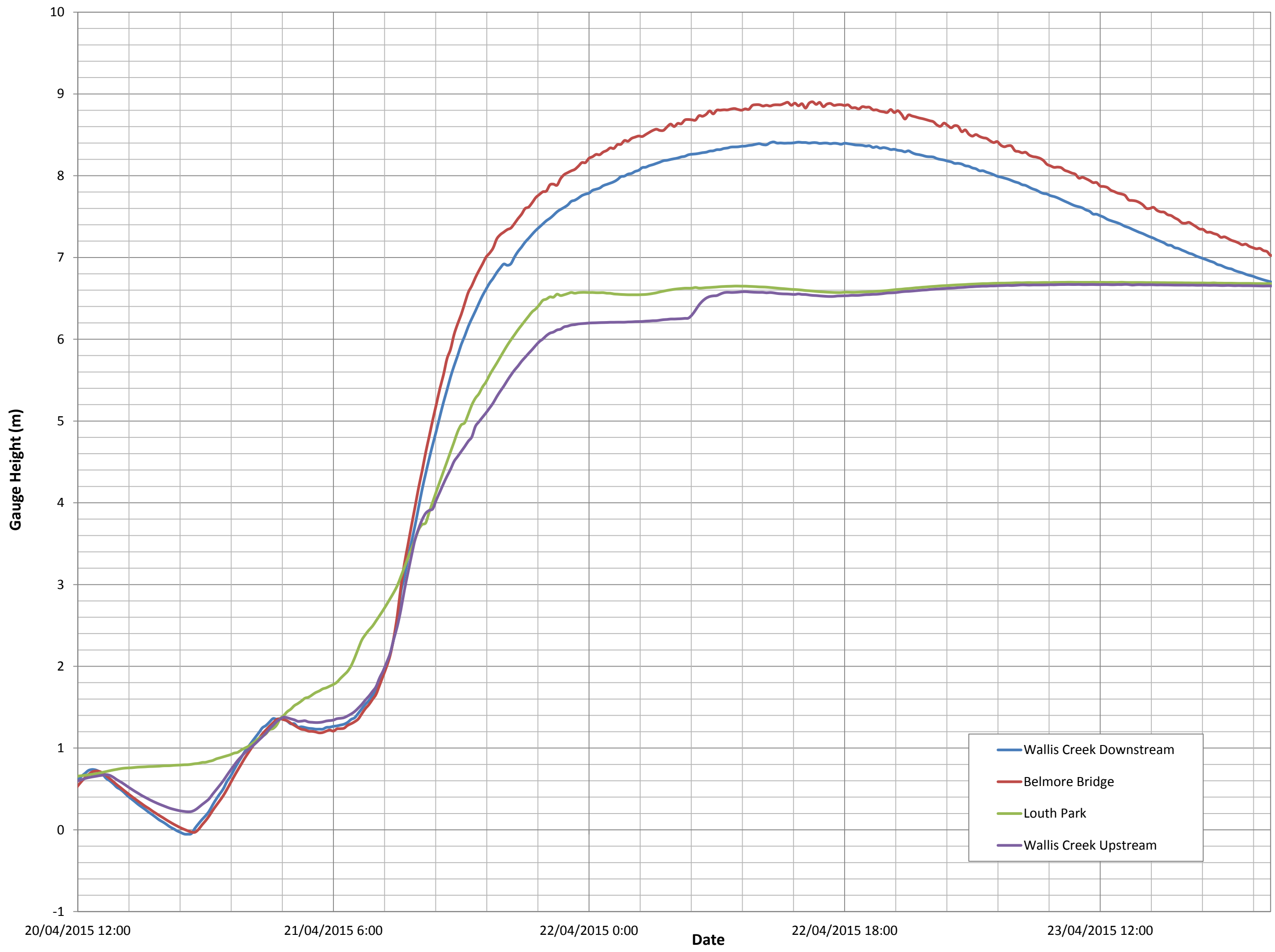


FIGURE 7
WATER LEVEL DATA
APRIL 2015 EVENT

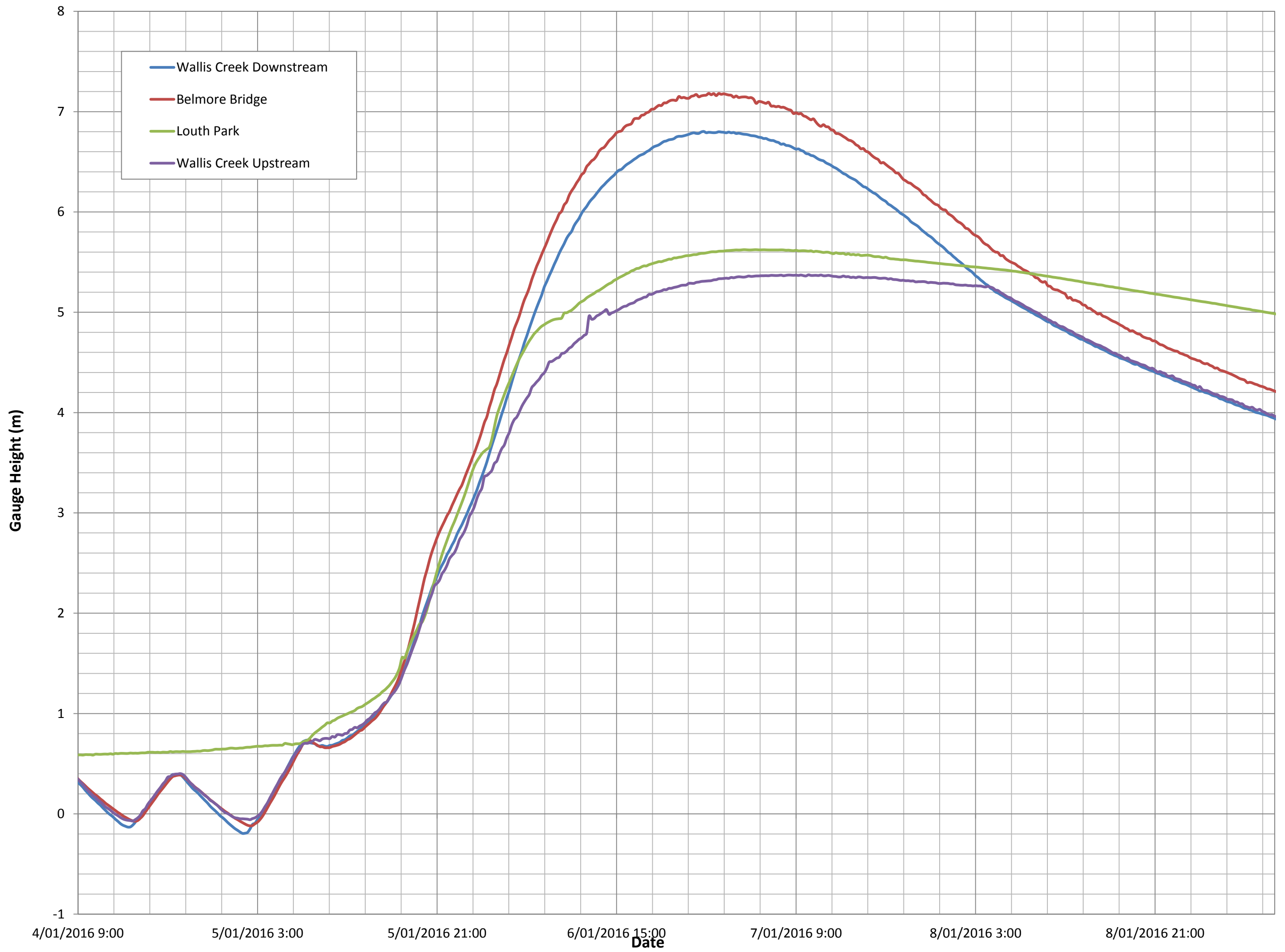


FIGURE 8
WATER LEVEL DATA
JANUARY 2016 EVENT

FIGURE 9
PLUVIOMETER RAIN GAUGES

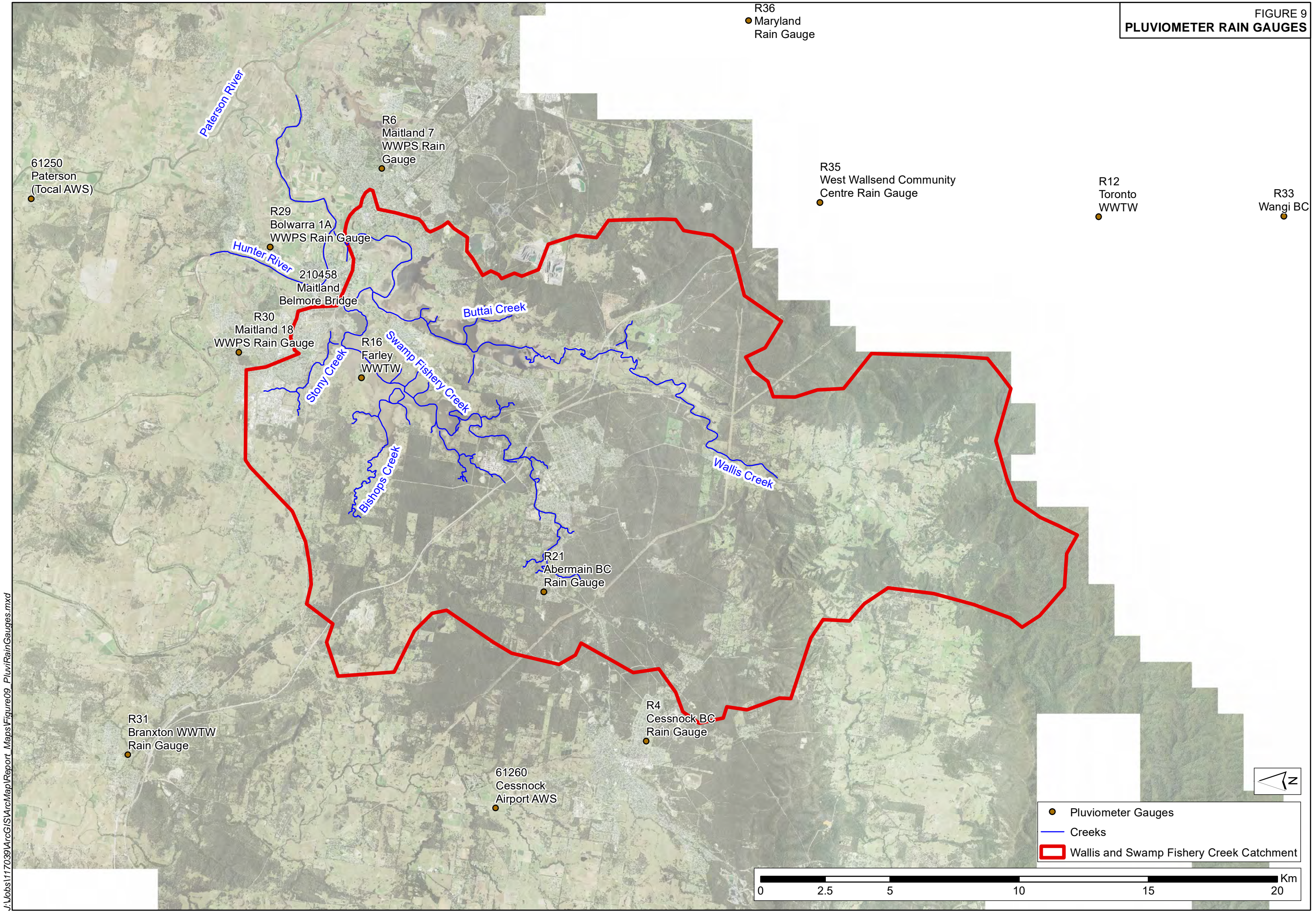


FIGURE 10
DAILY RAINFALL GAUGES

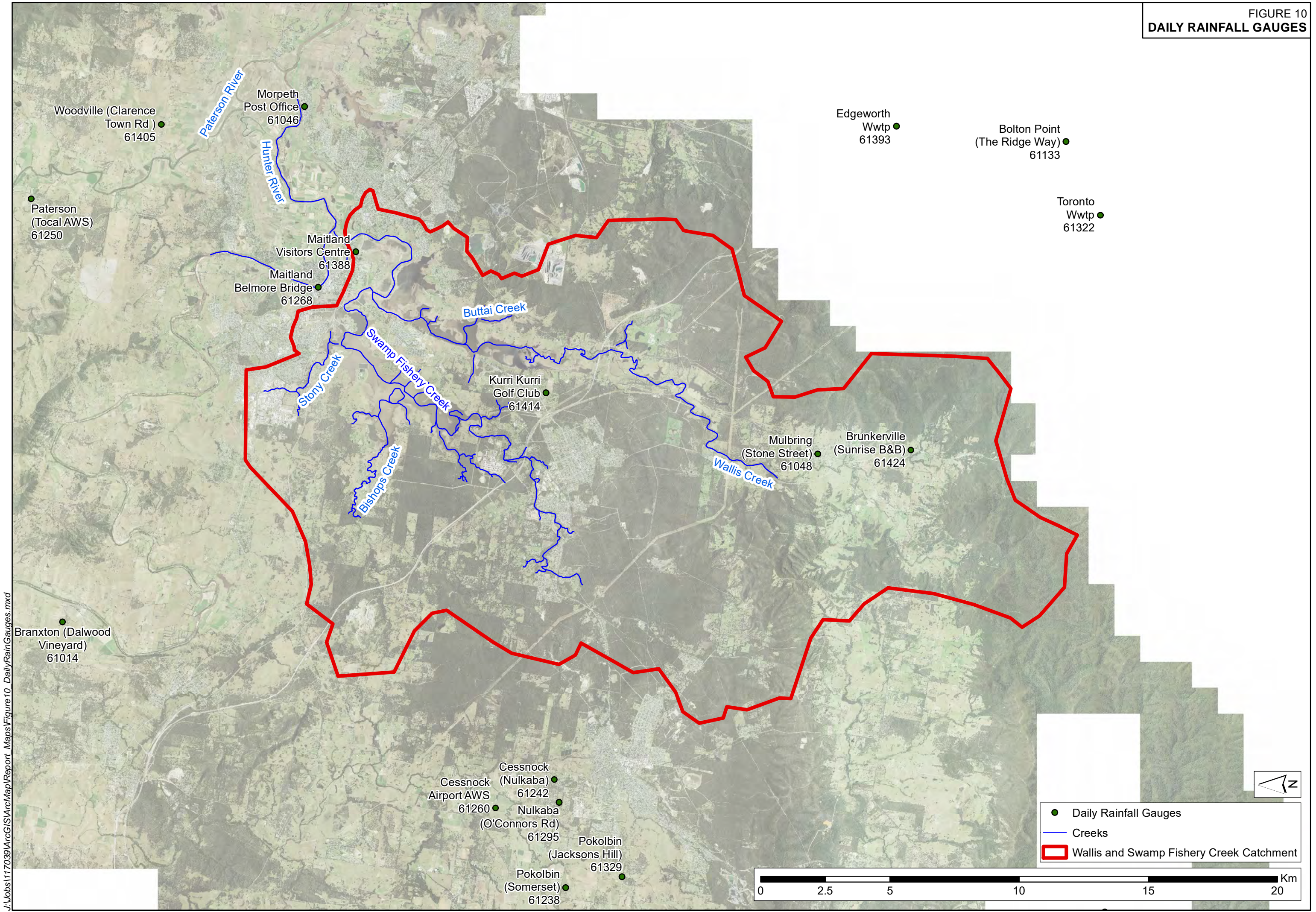


FIGURE 11
DAILY RAINFALL DEPTHS
JUNE 2007 EVENT

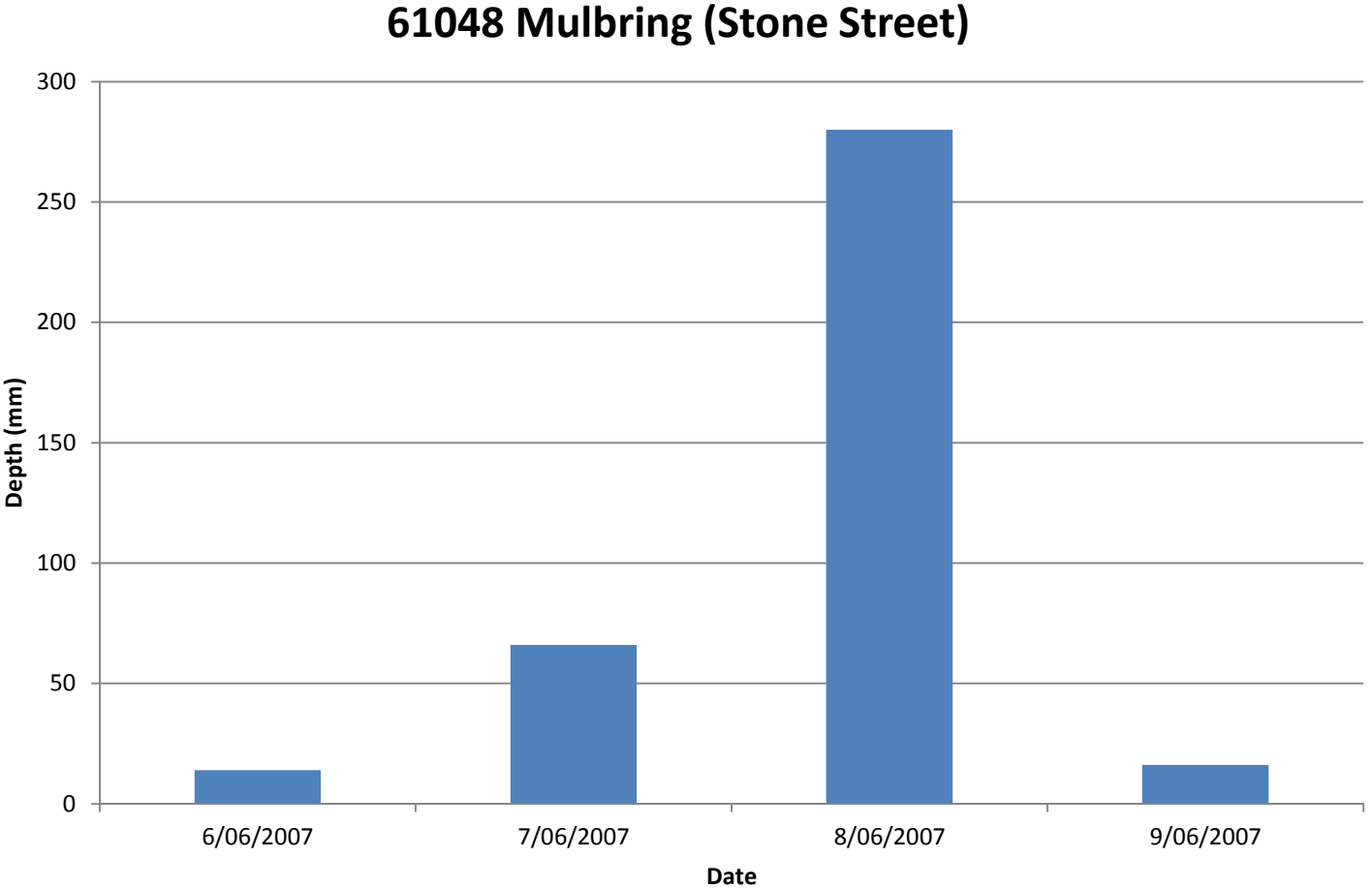


FIGURE 12
DAILY RAINFALL DEPTHS
MARCH 2013 EVENT

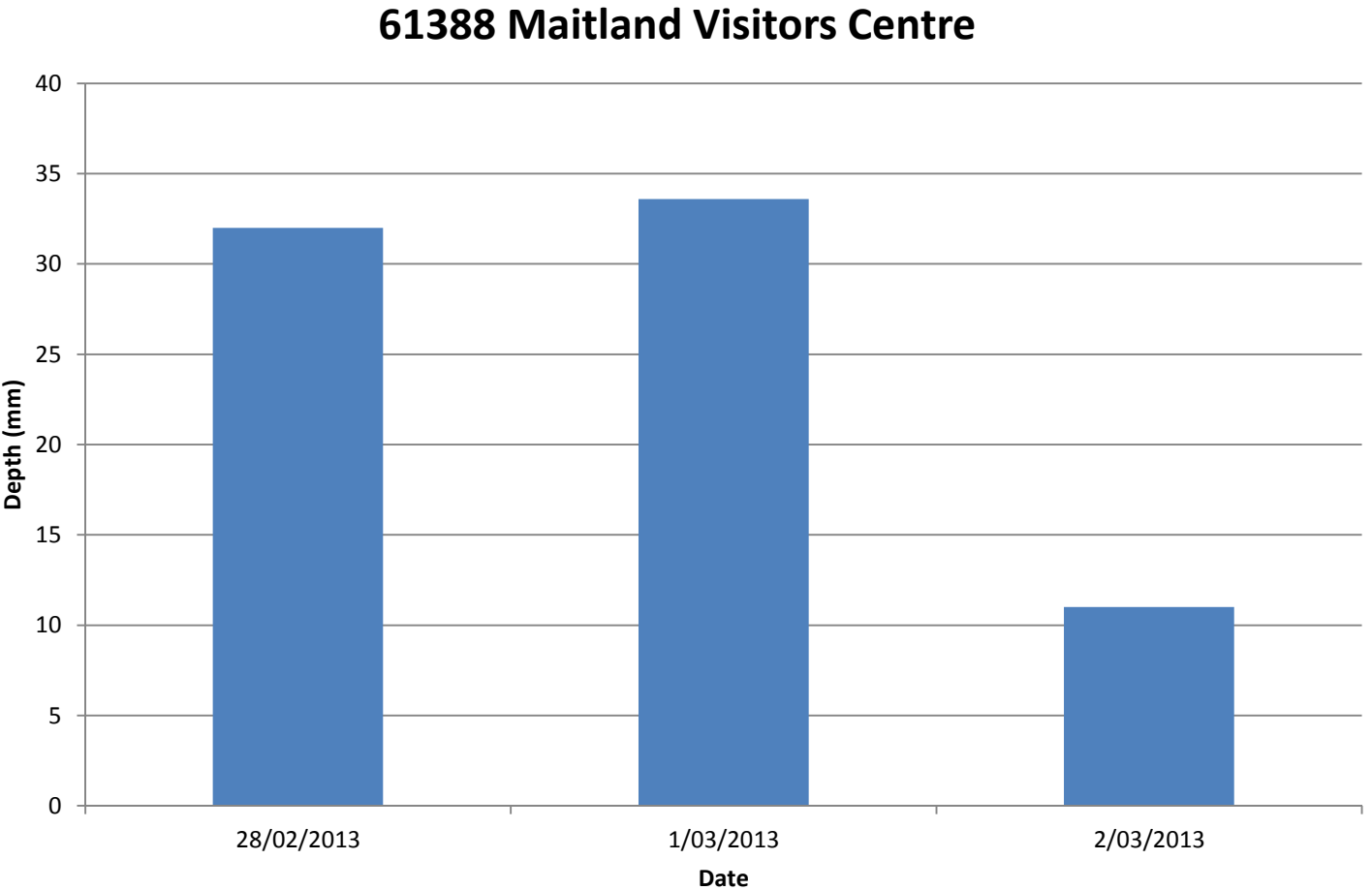
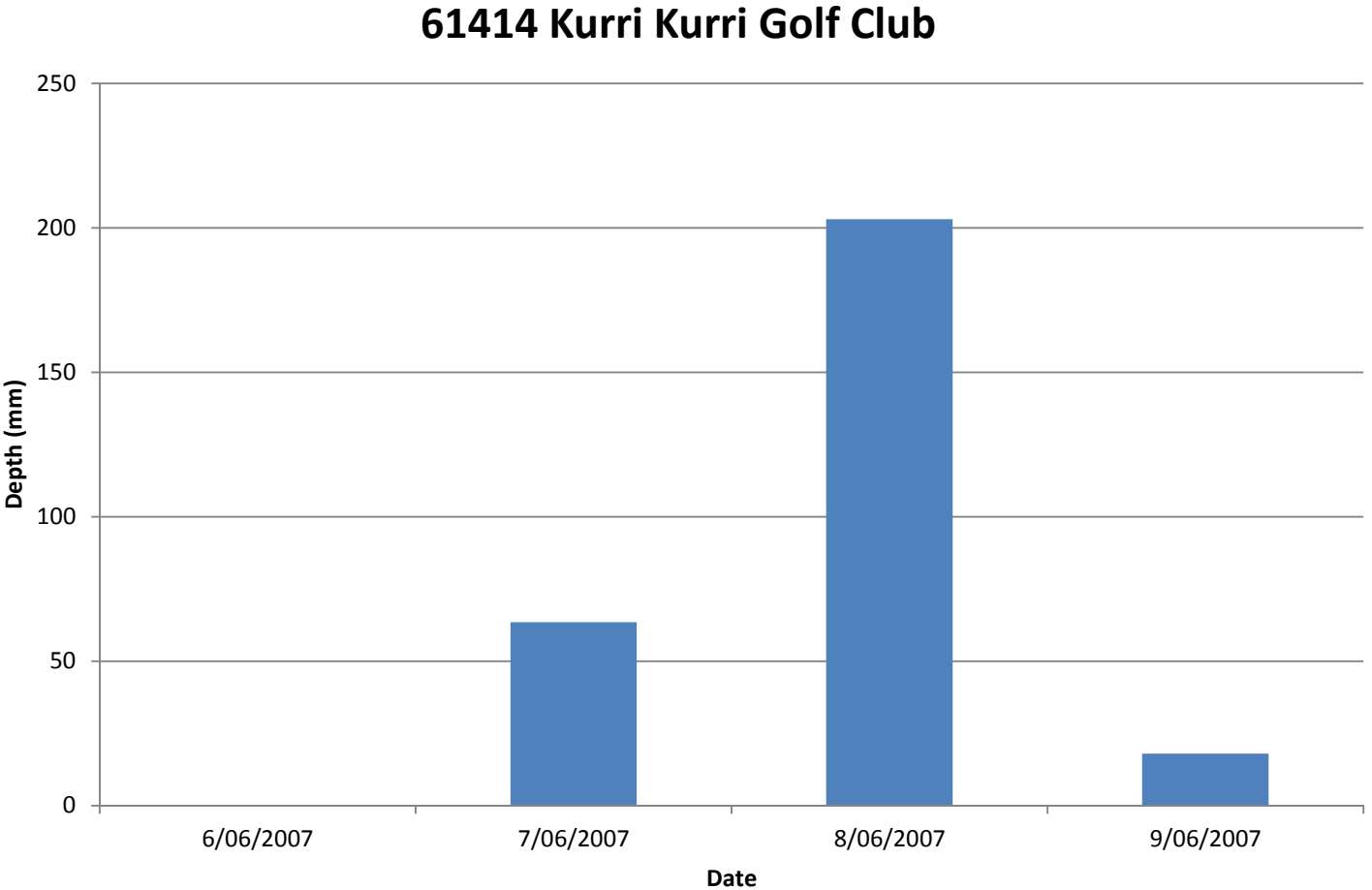
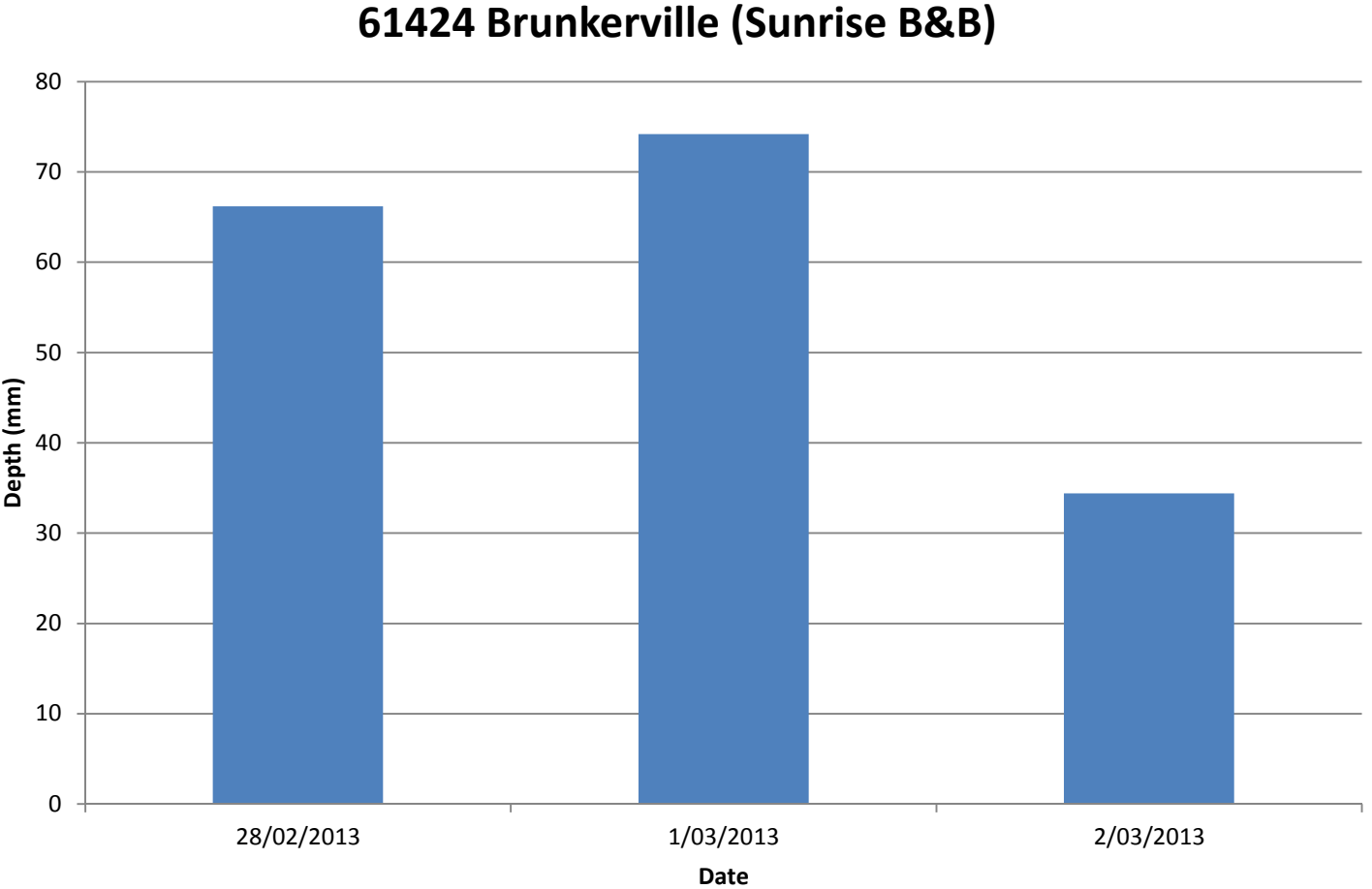


FIGURE 13
DAILY RAINFALL DEPTHS
APRIL 2015 EVENT

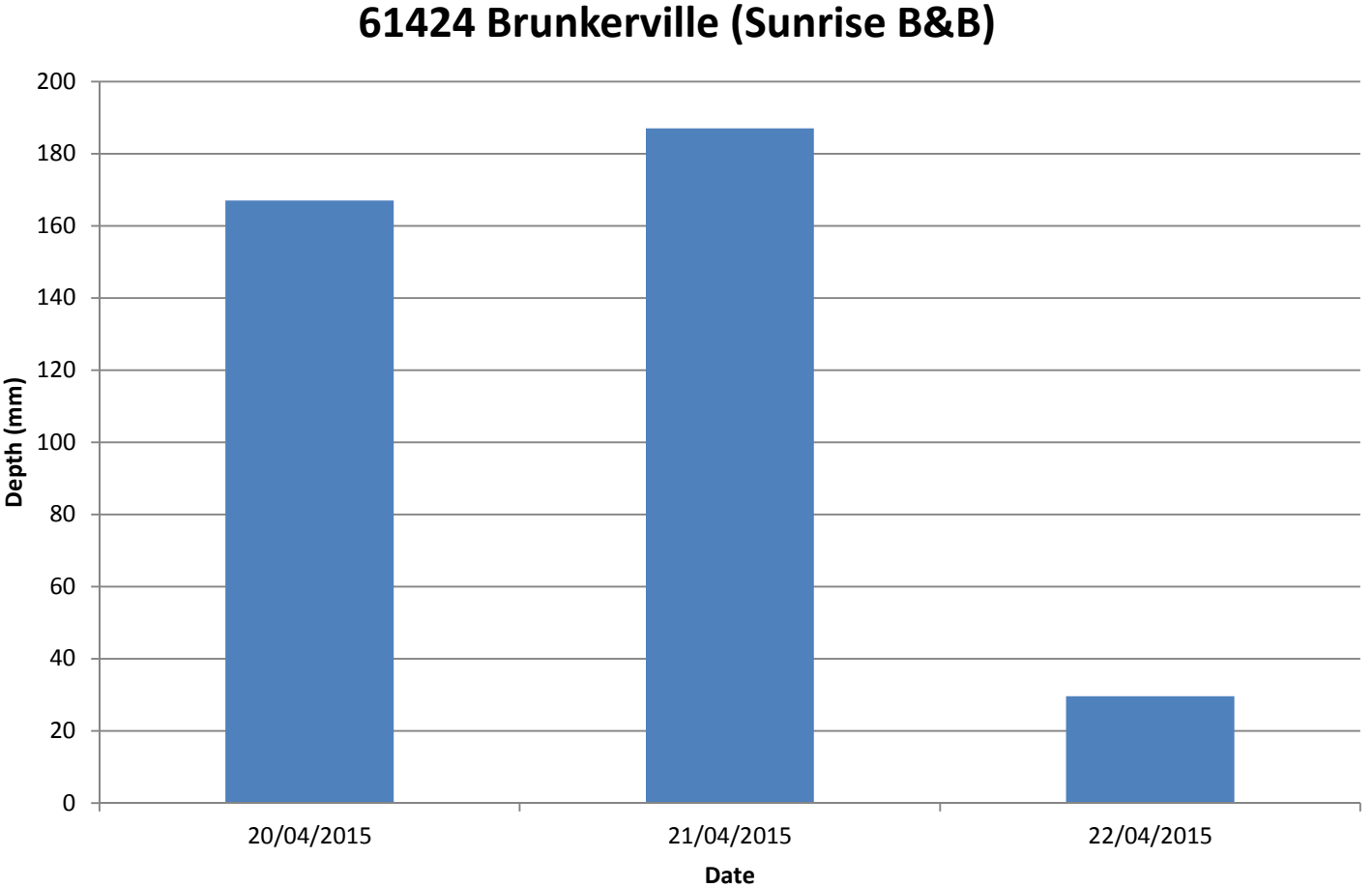


FIGURE 14
DAILY RAINFALL DEPTHS
JANUARY 2016 EVENT

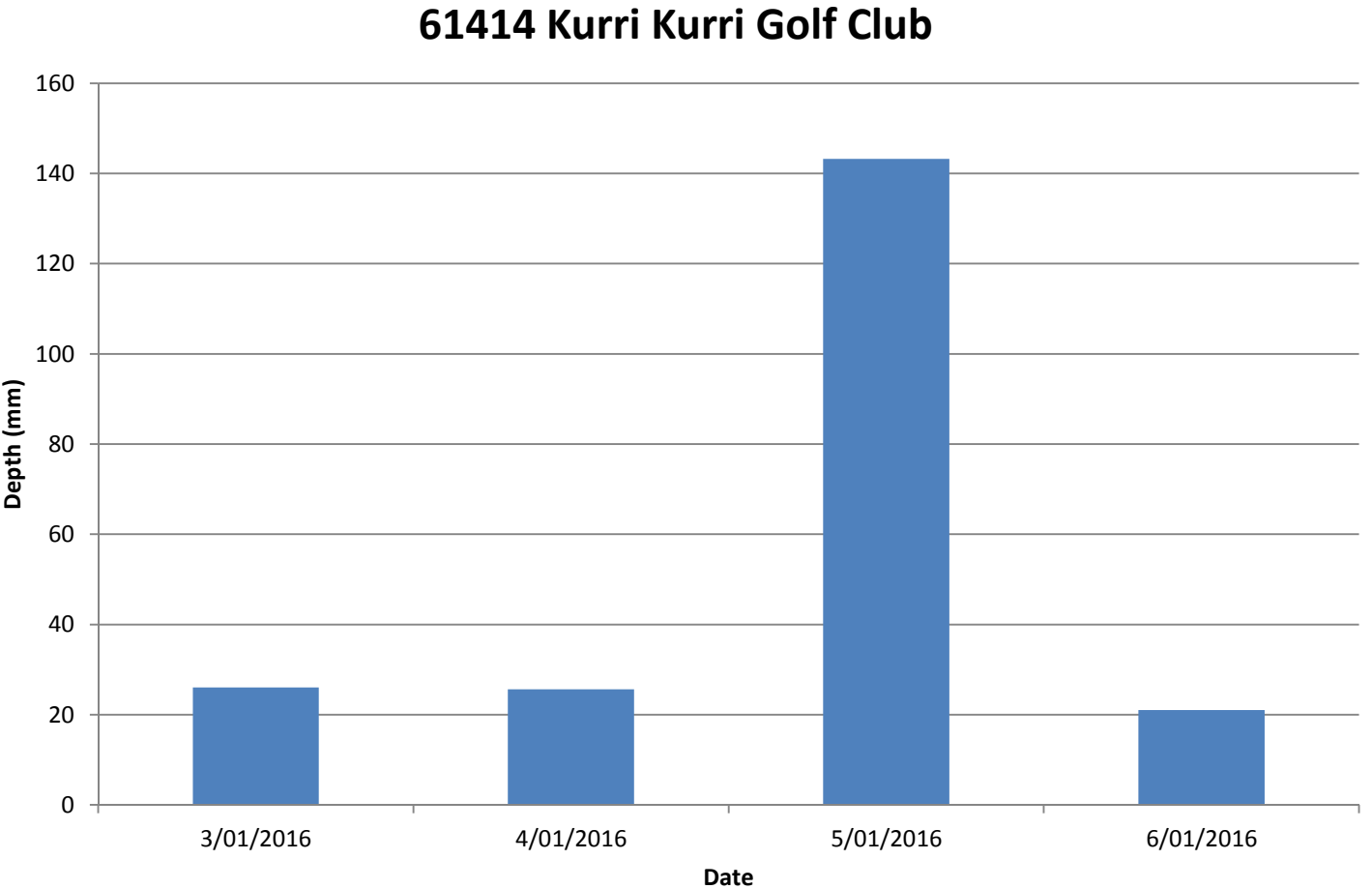
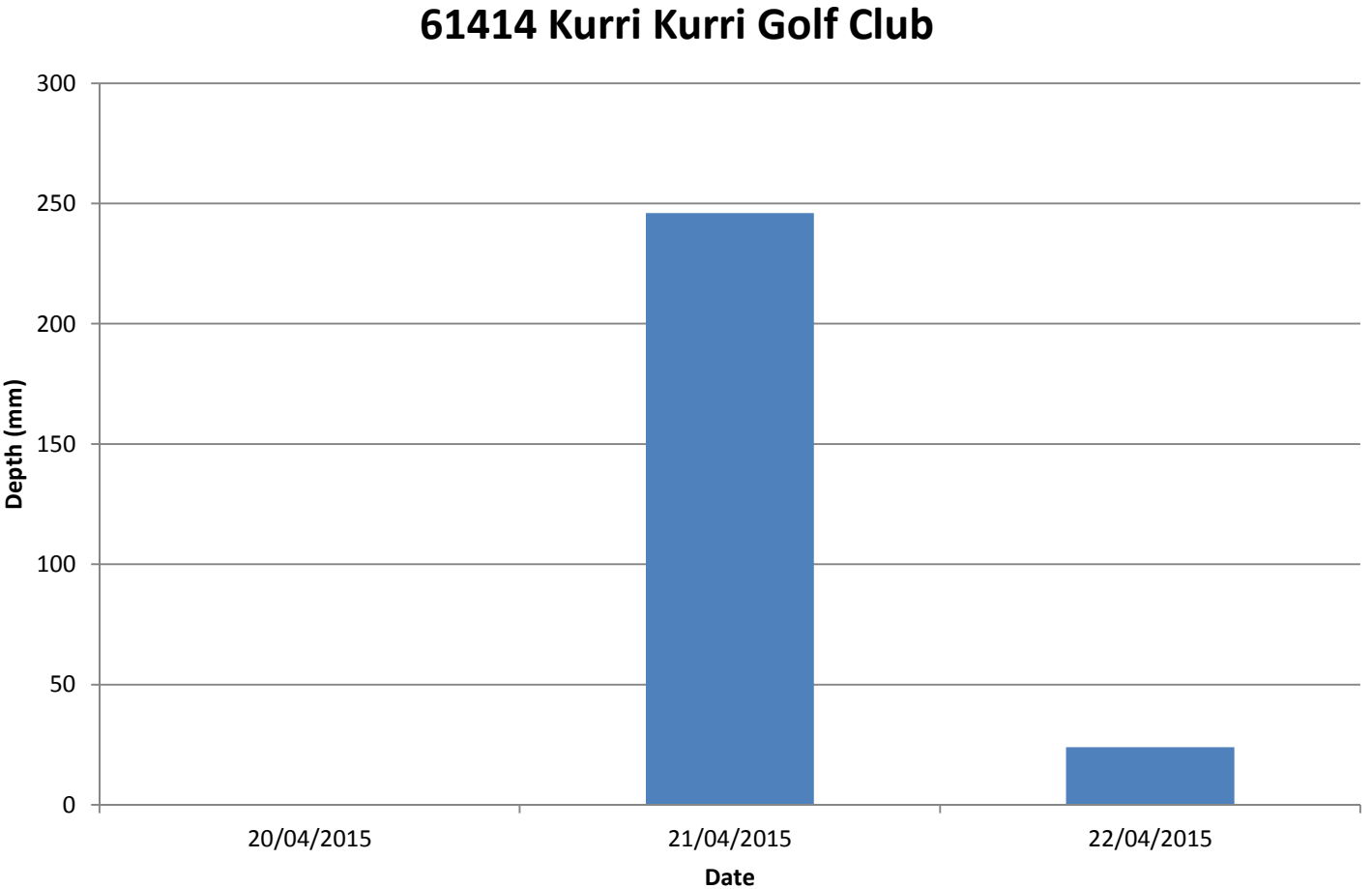
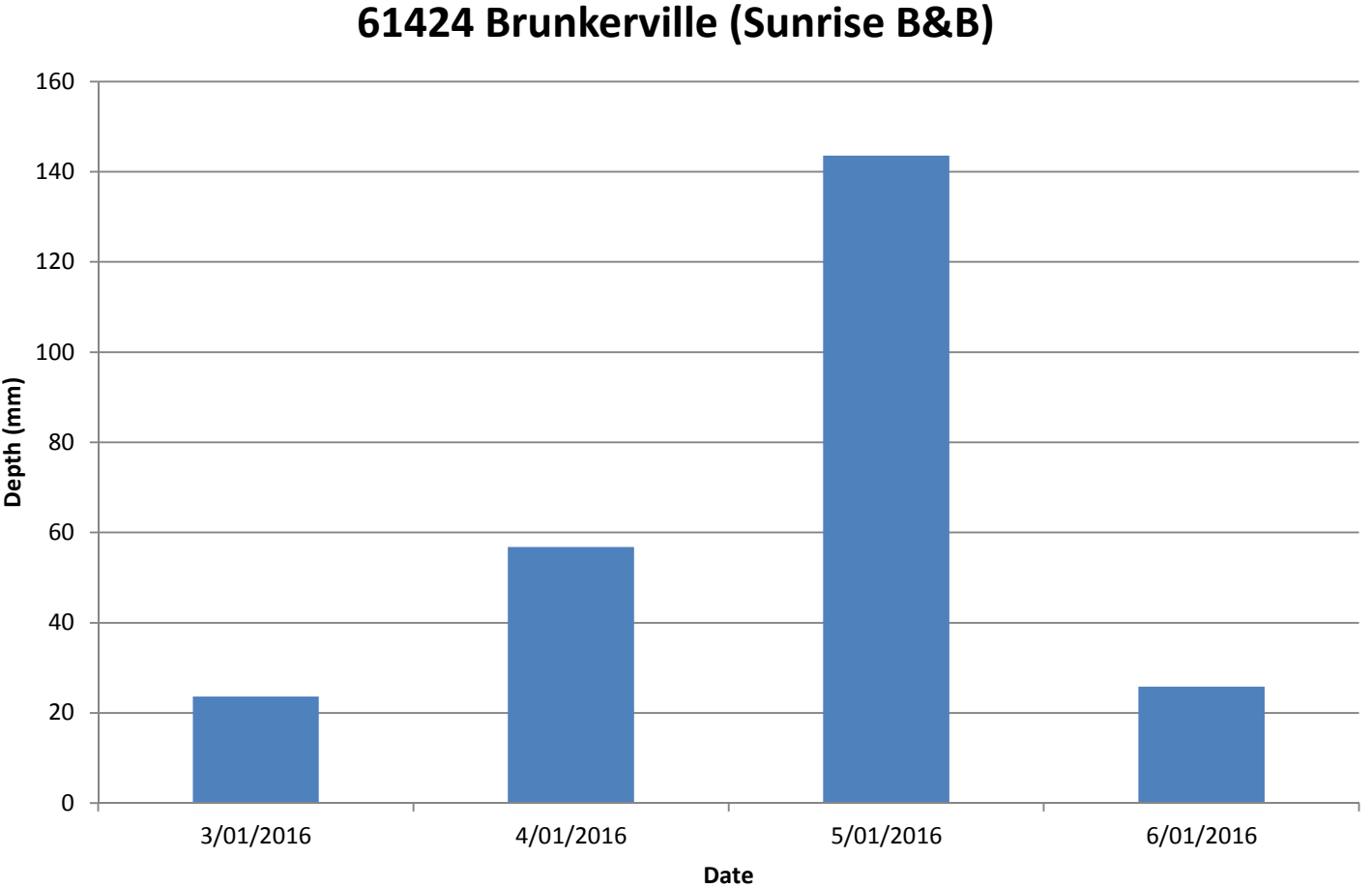


FIGURE 15
CUMULATIVE RAINFALL DATA
JUNE 2007 EVENT

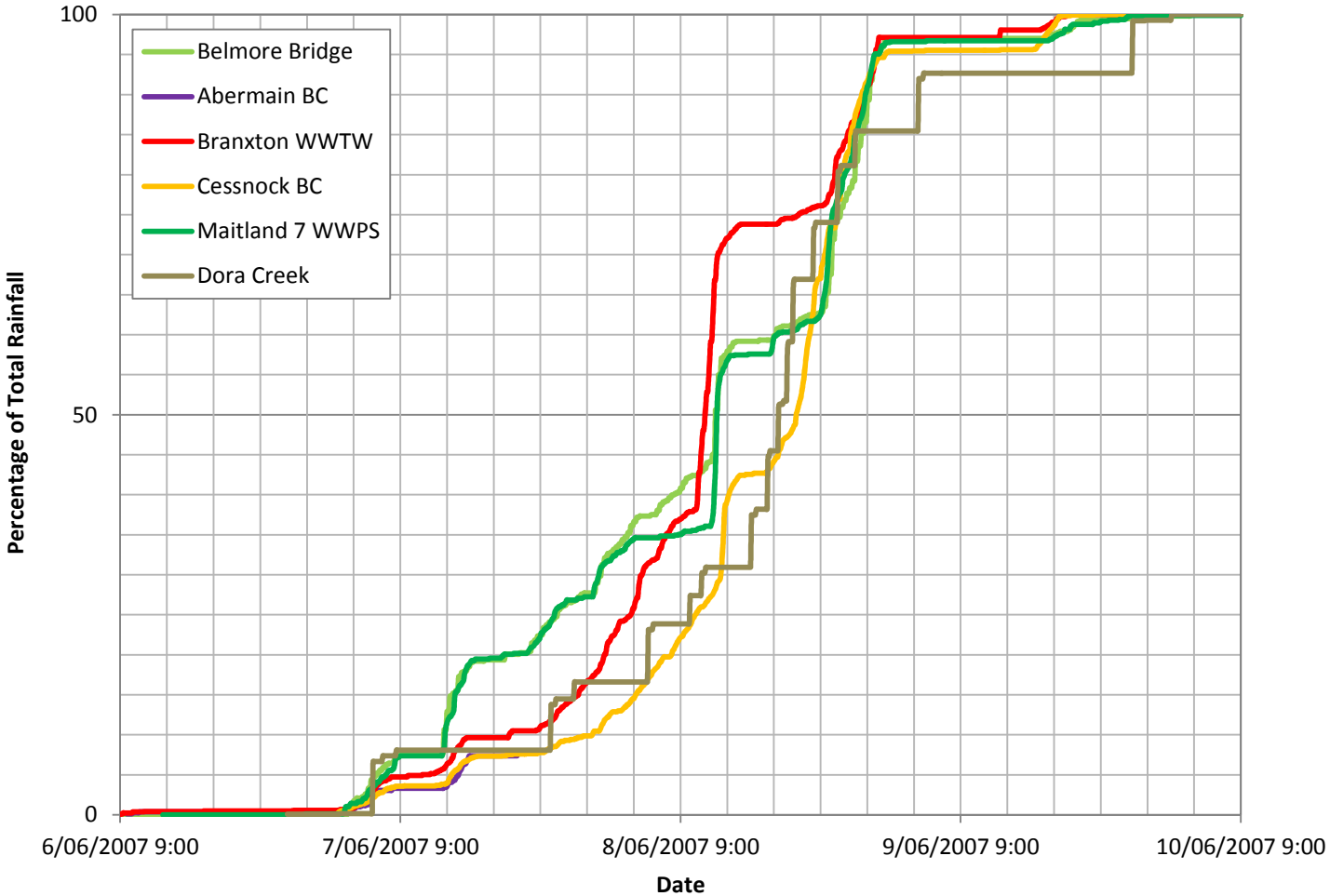
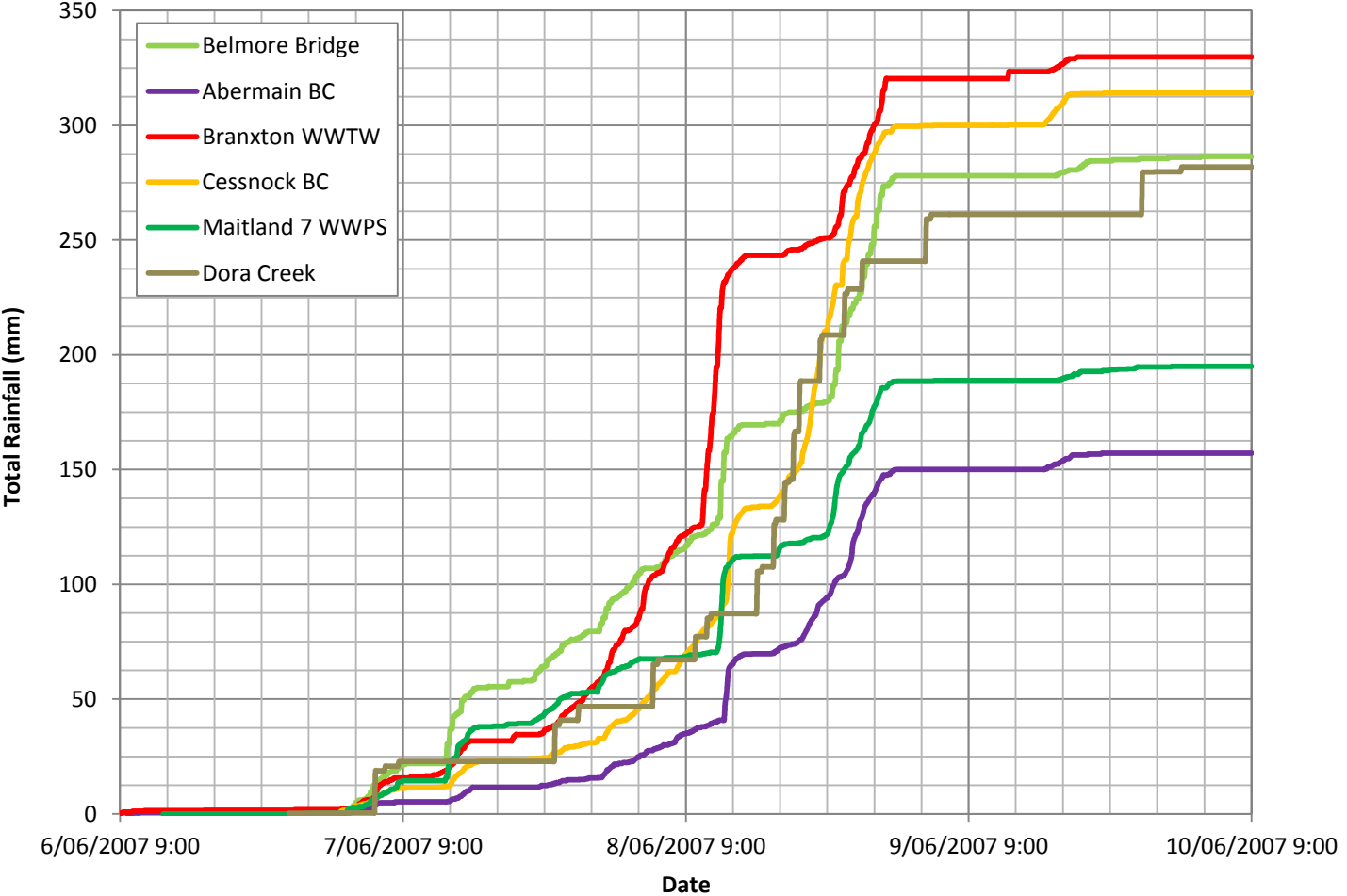


FIGURE 16
CUMULATIVE RAINFALL DATA
MARCH 2013 EVENT

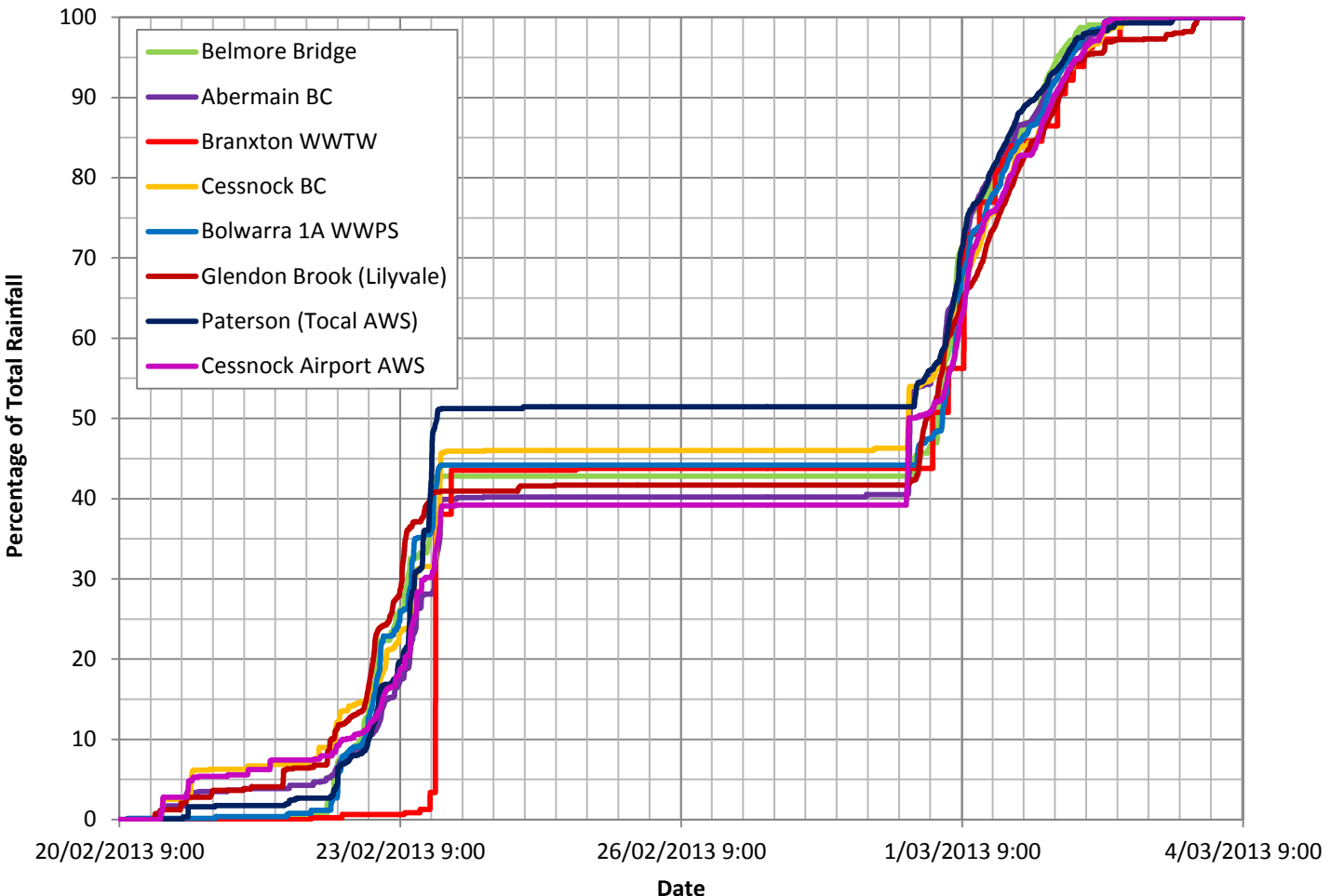
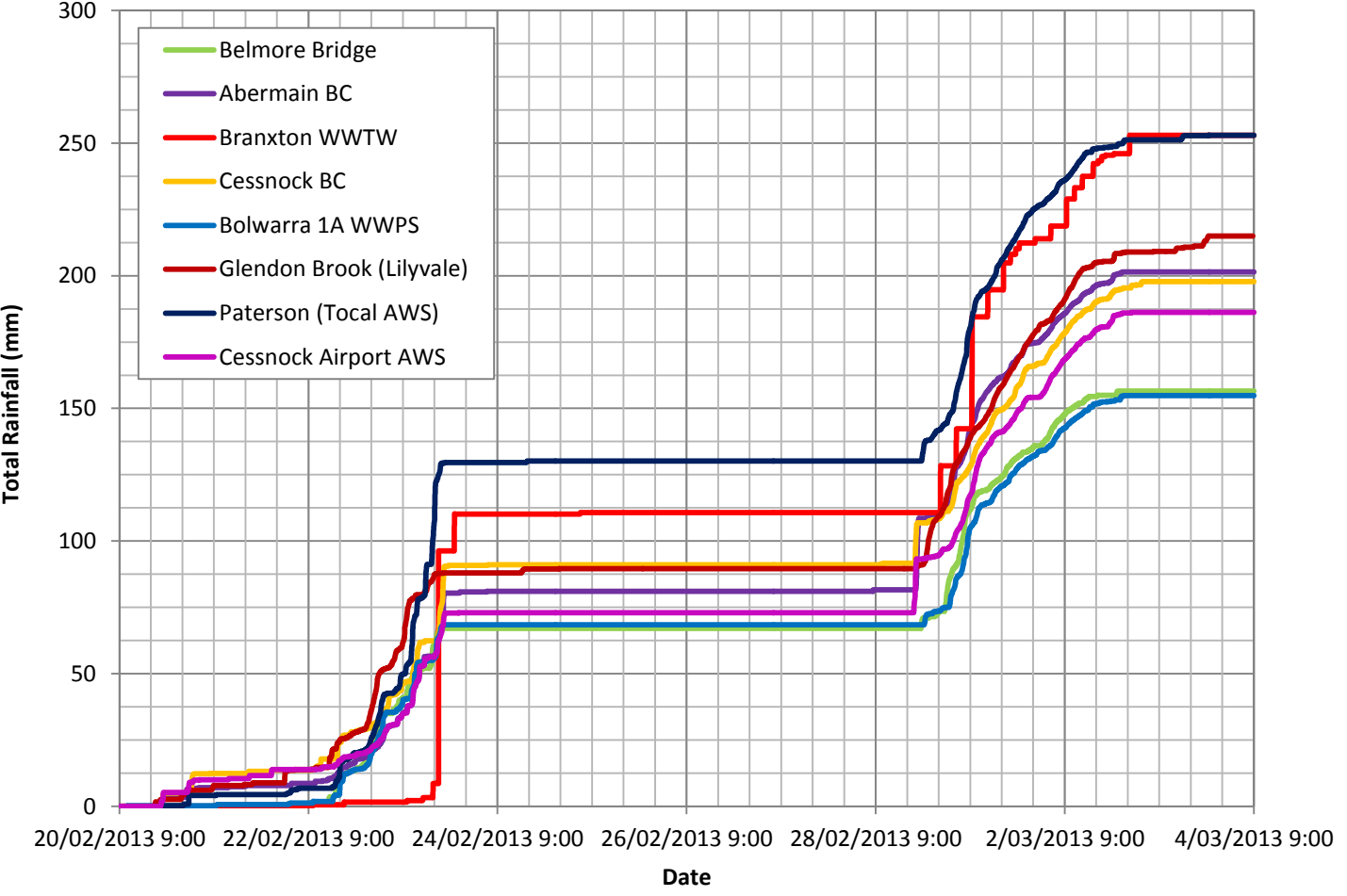


FIGURE 17
CUMULATIVE RAINFALL DATA
APRIL 2015 EVENT

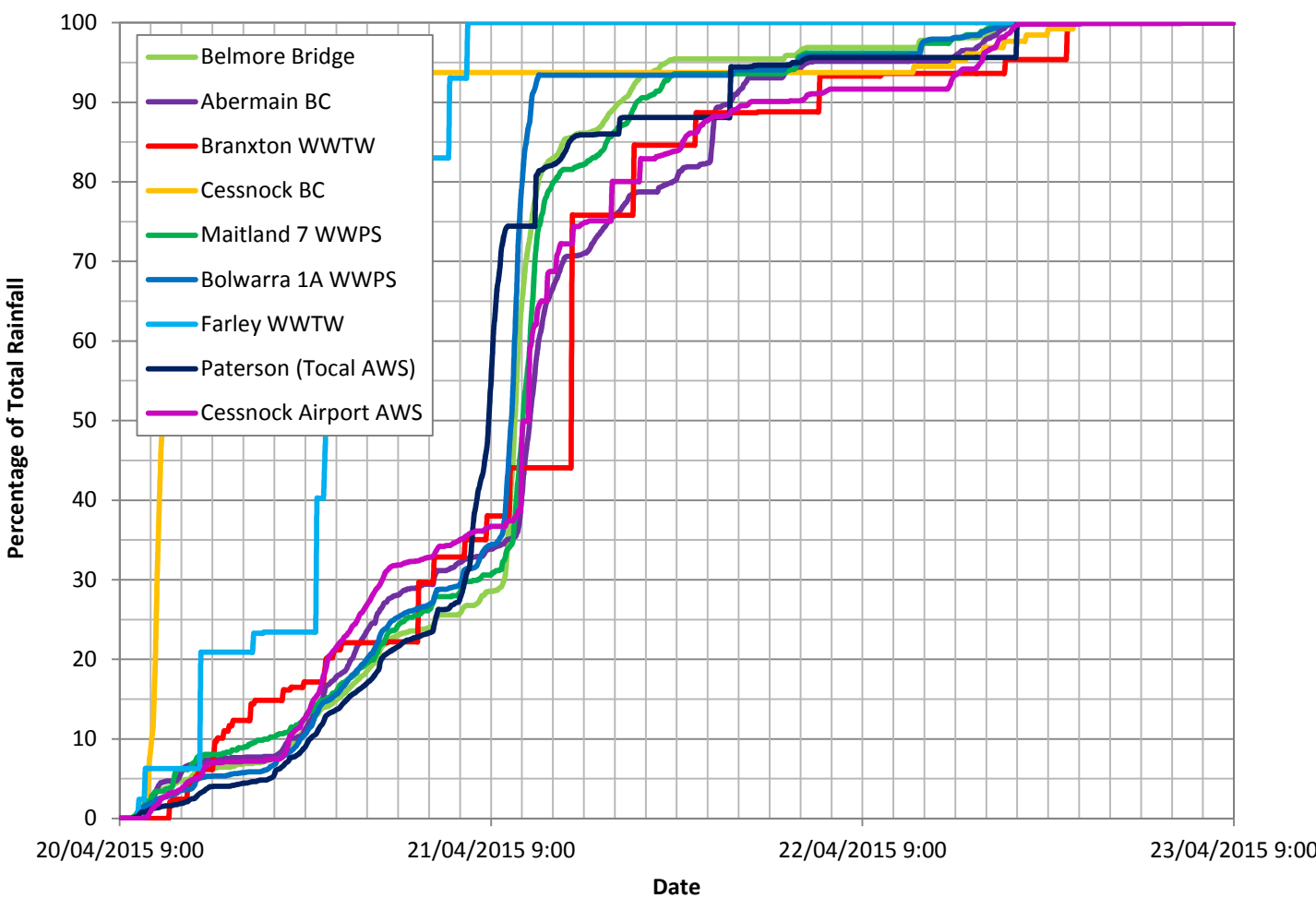
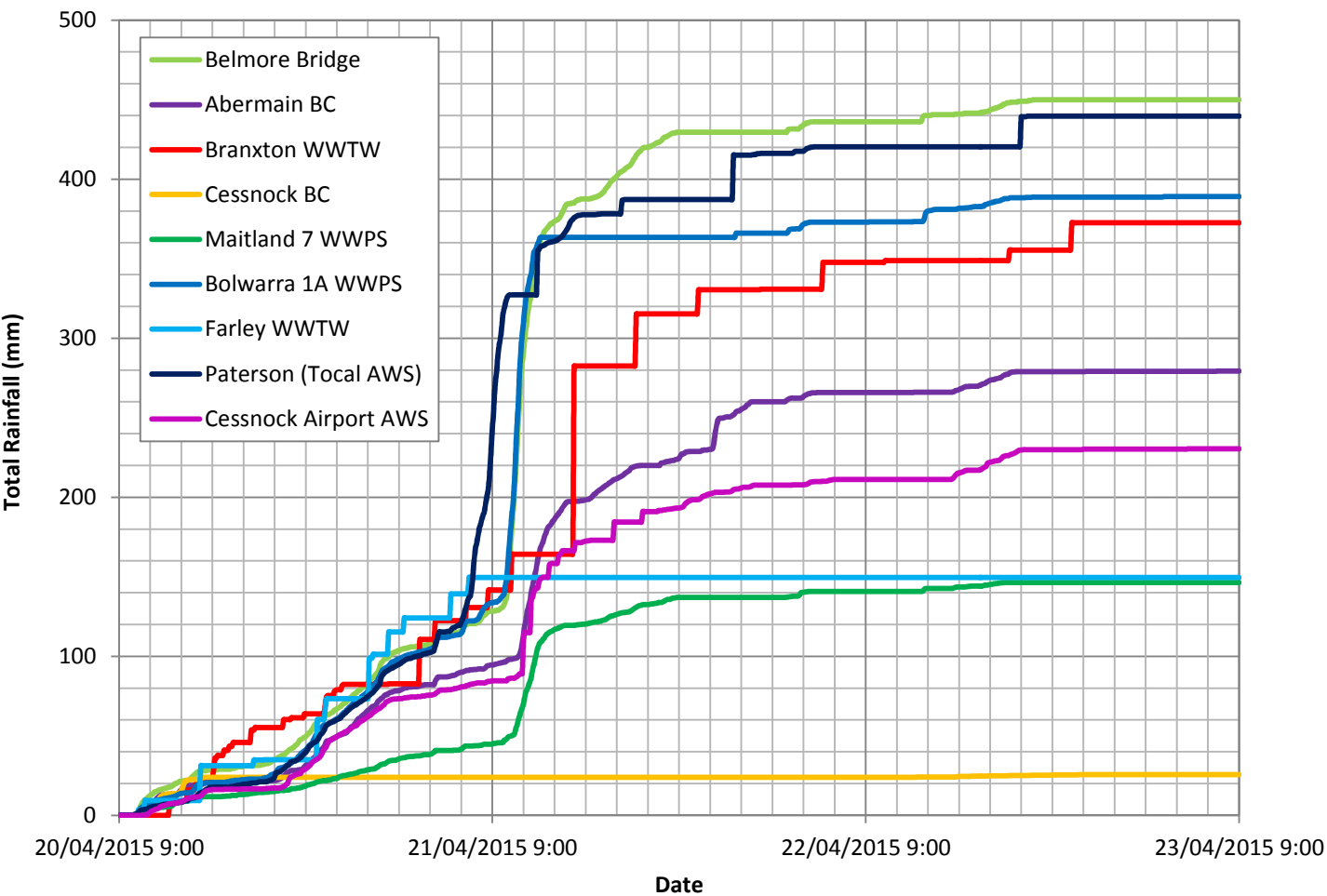
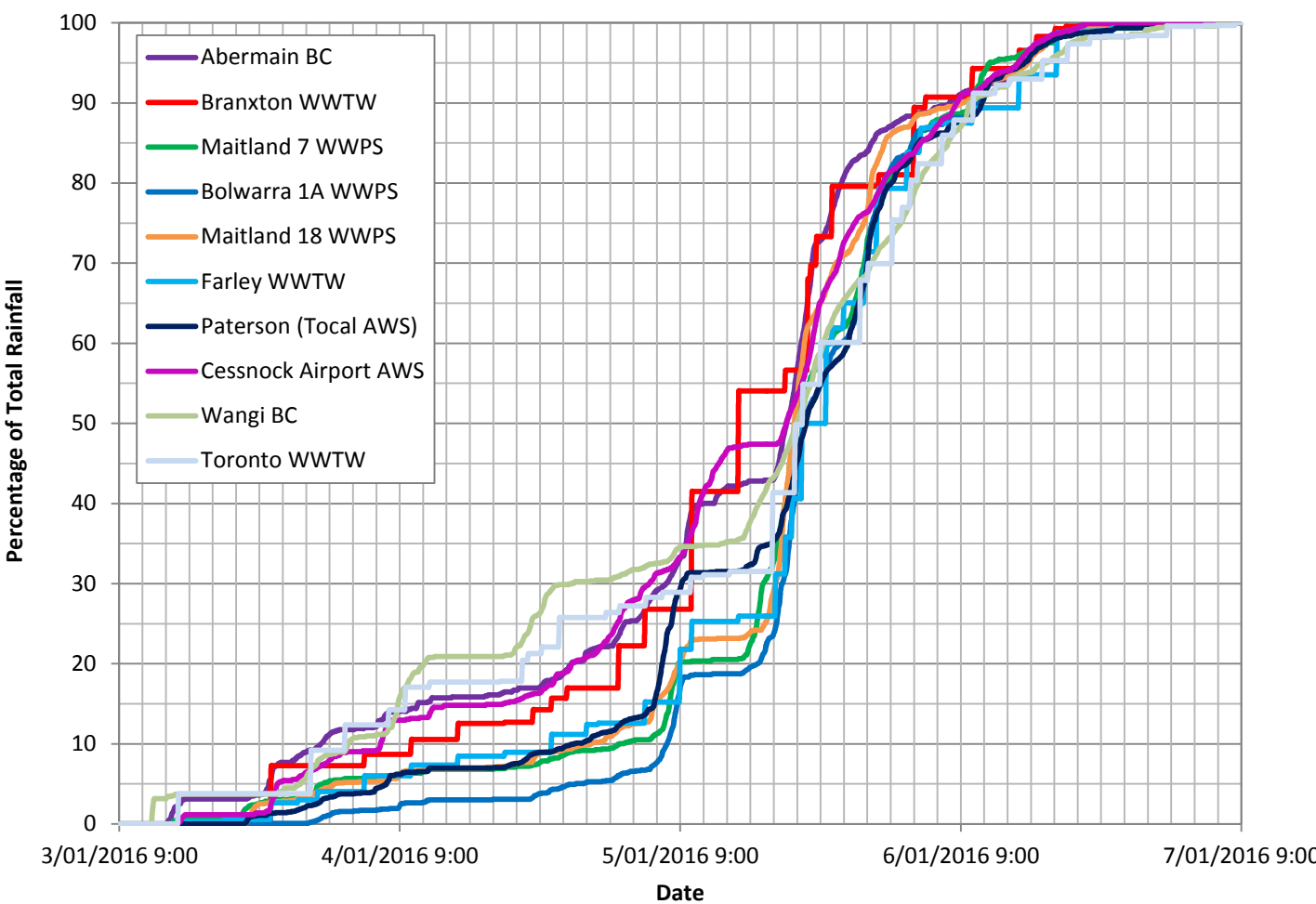
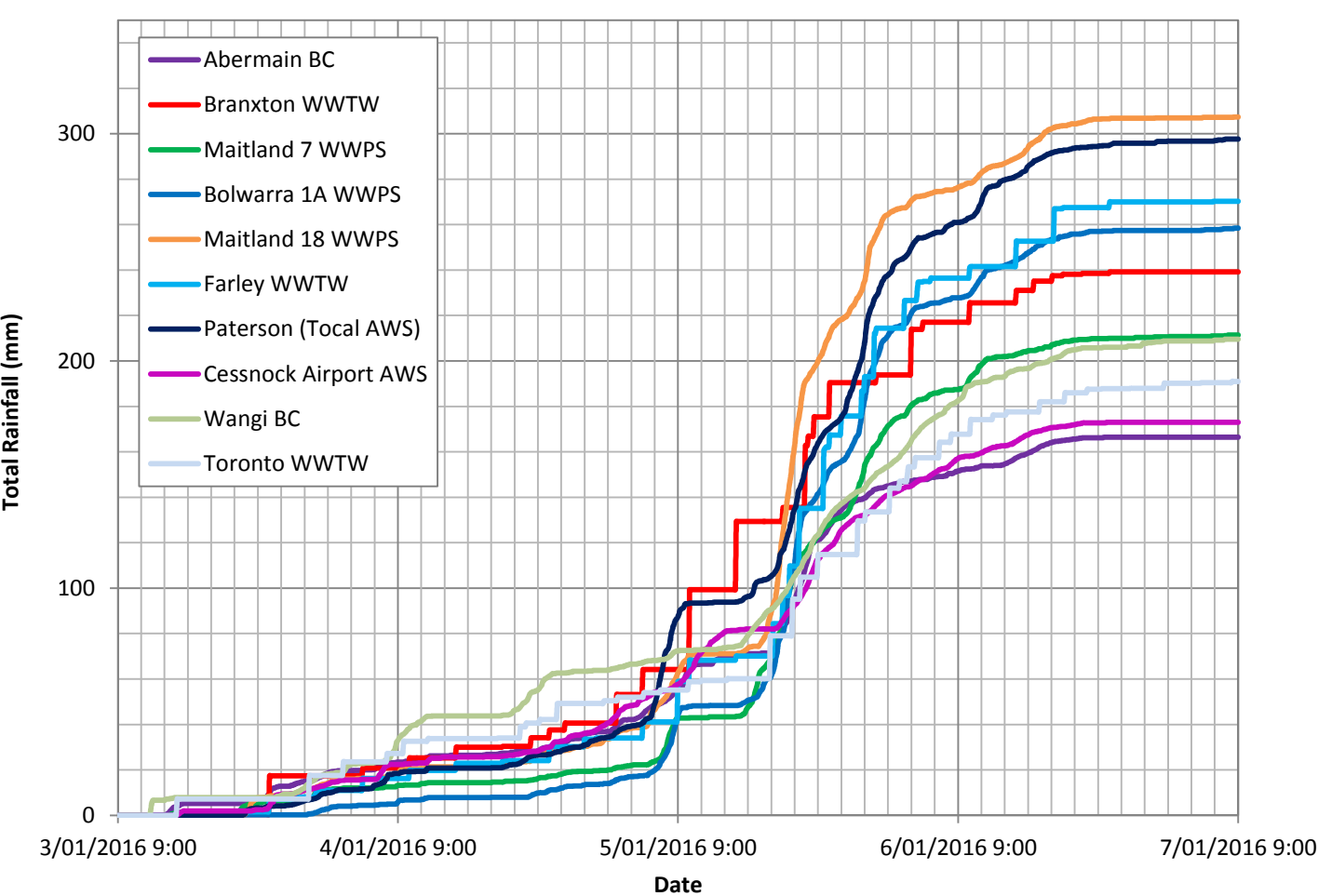
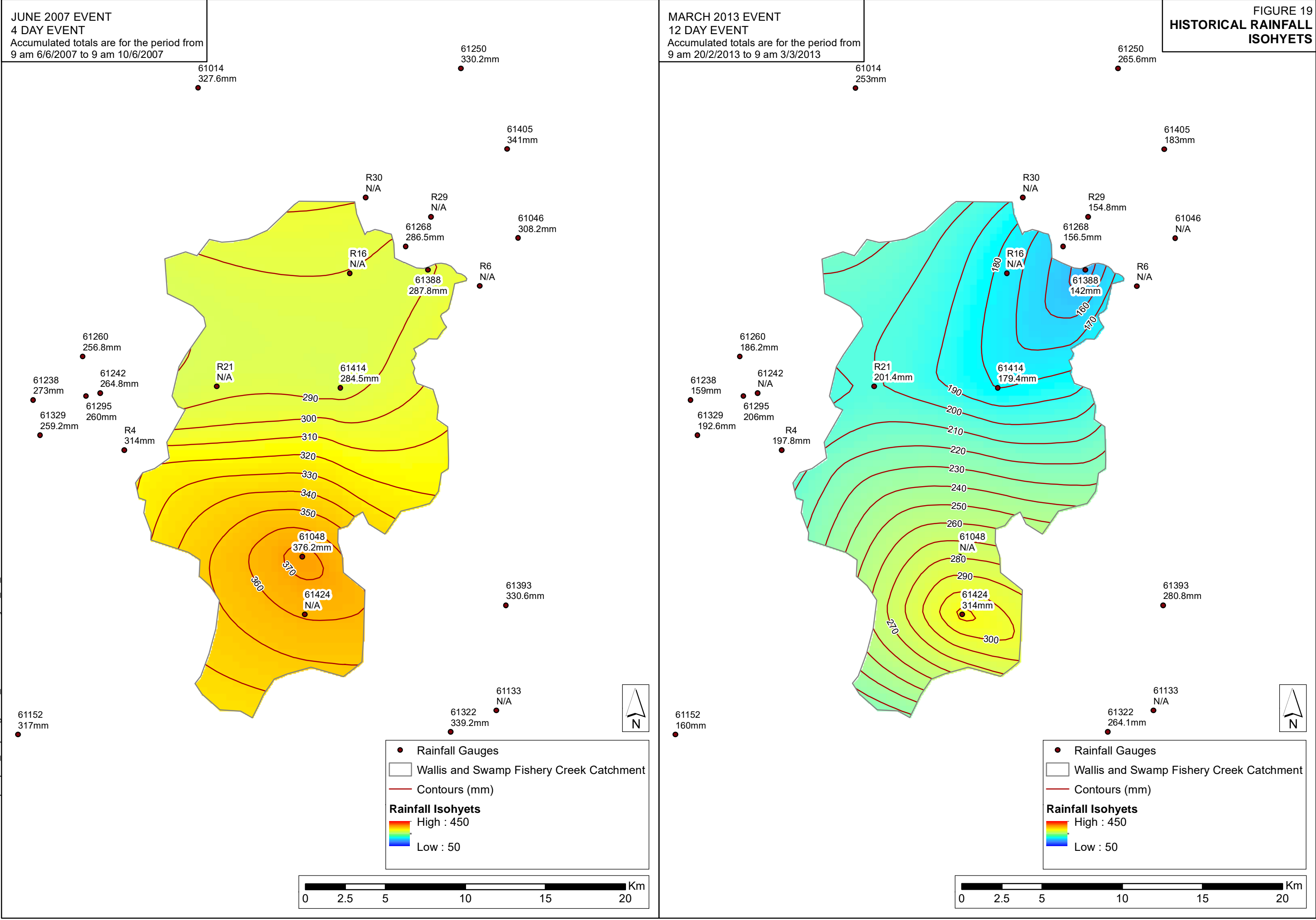


FIGURE 18
CUMULATIVE RAINFALL DATA
JANUARY 2016 EVENT



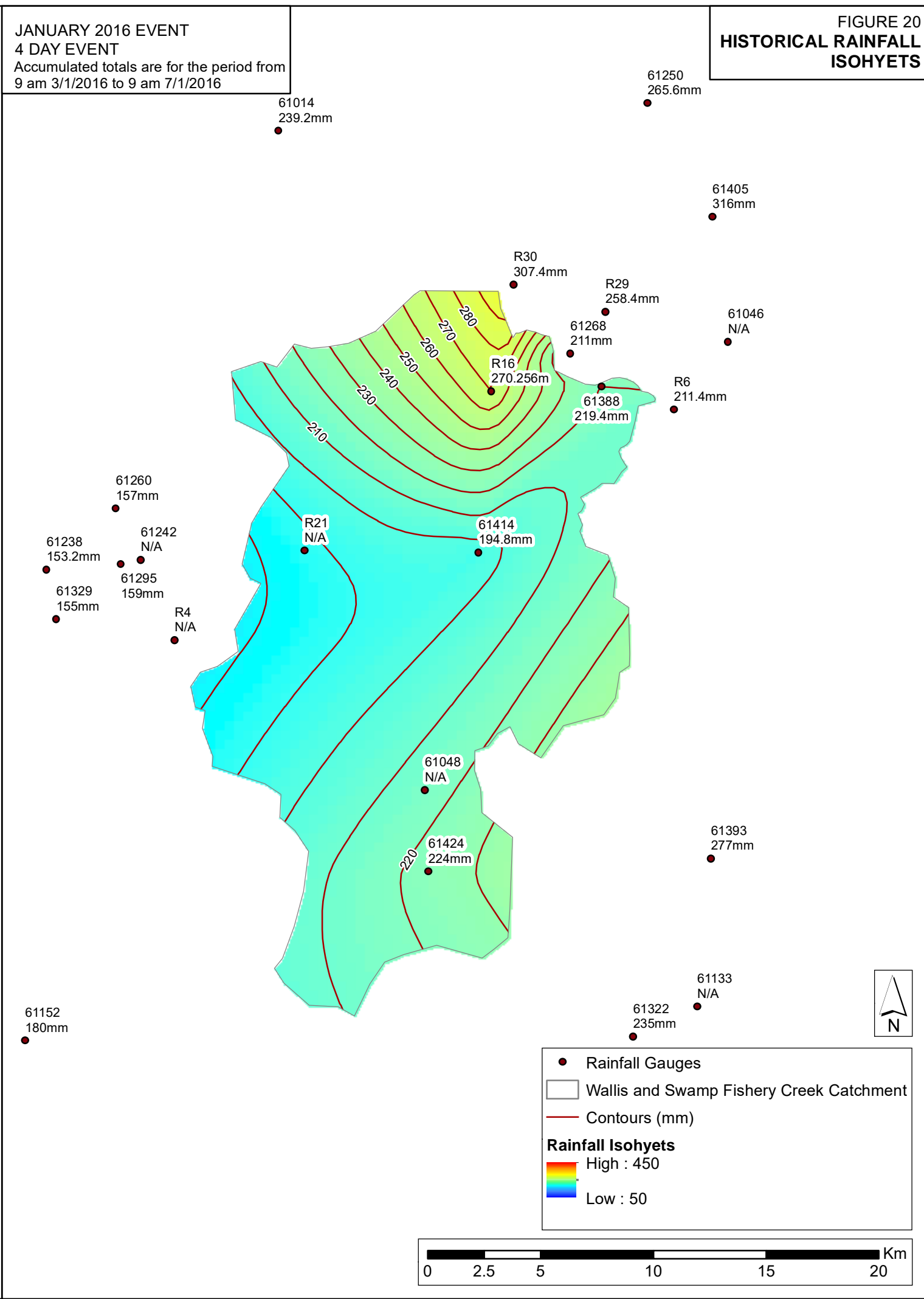
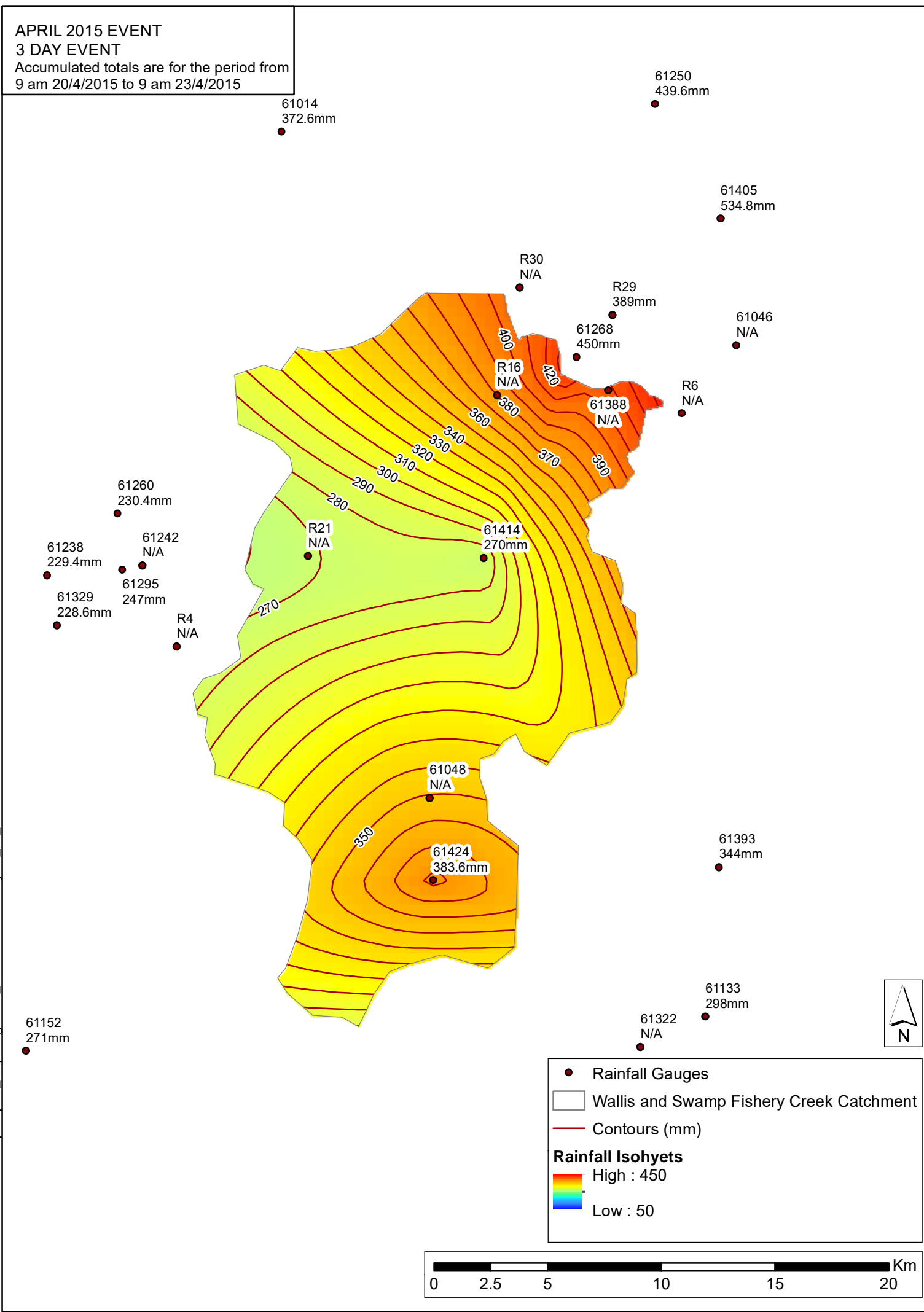
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APRIL 2015 EVENT
3 DAY EVENT
Accumulated totals are for the period from
9 am 20/4/2015 to 9 am 23/4/2015

JANUARY 2016 EVENT
4 DAY EVENT
Accumulated totals are for the period from
9 am 3/1/2016 to 9 am 7/1/2016

FIGURE 20
HISTORICAL RAINFALL
ISOHYETS



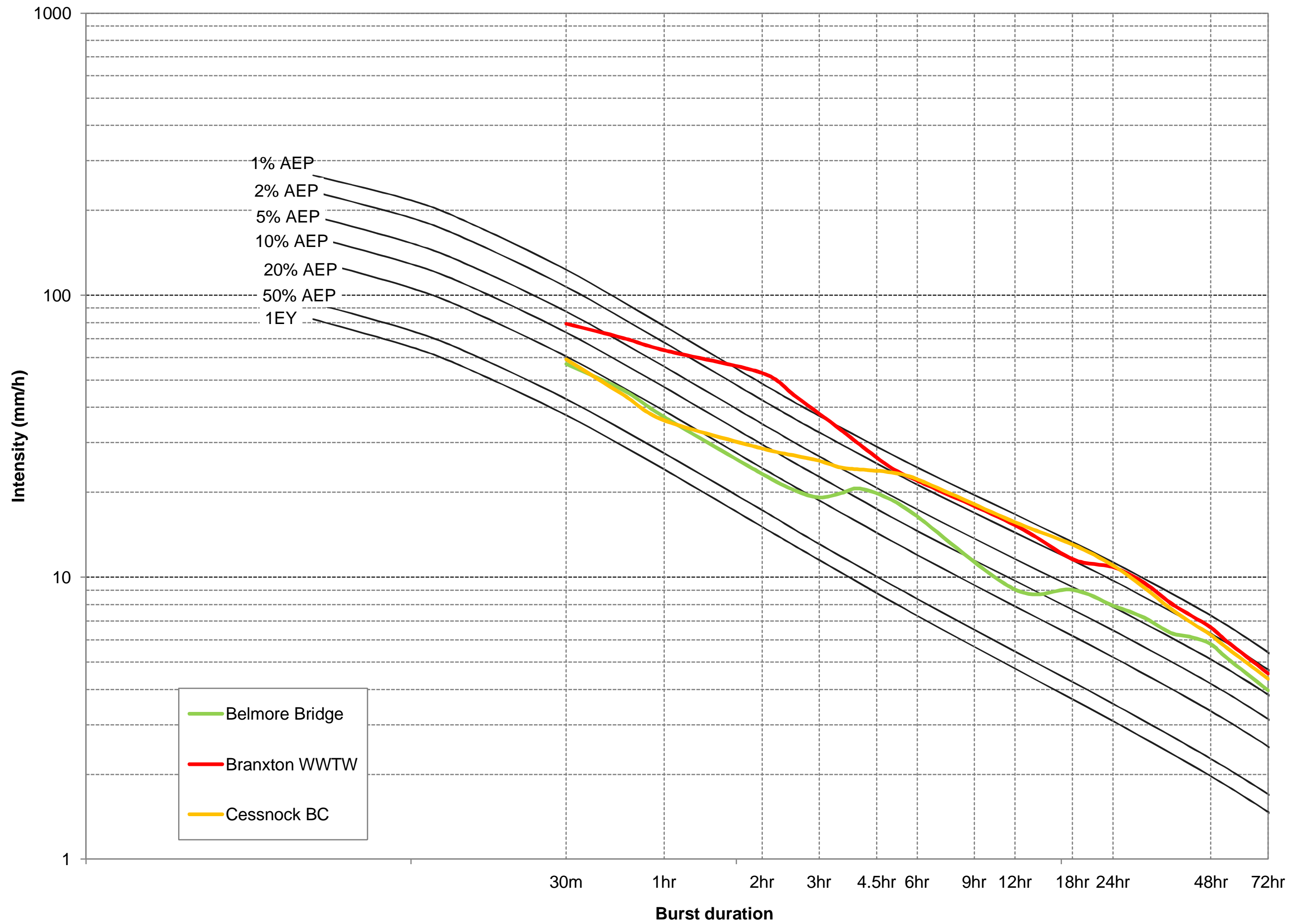


FIGURE 21
BURST INTENSITIES AND FREQUENCIES
JUNE 2007

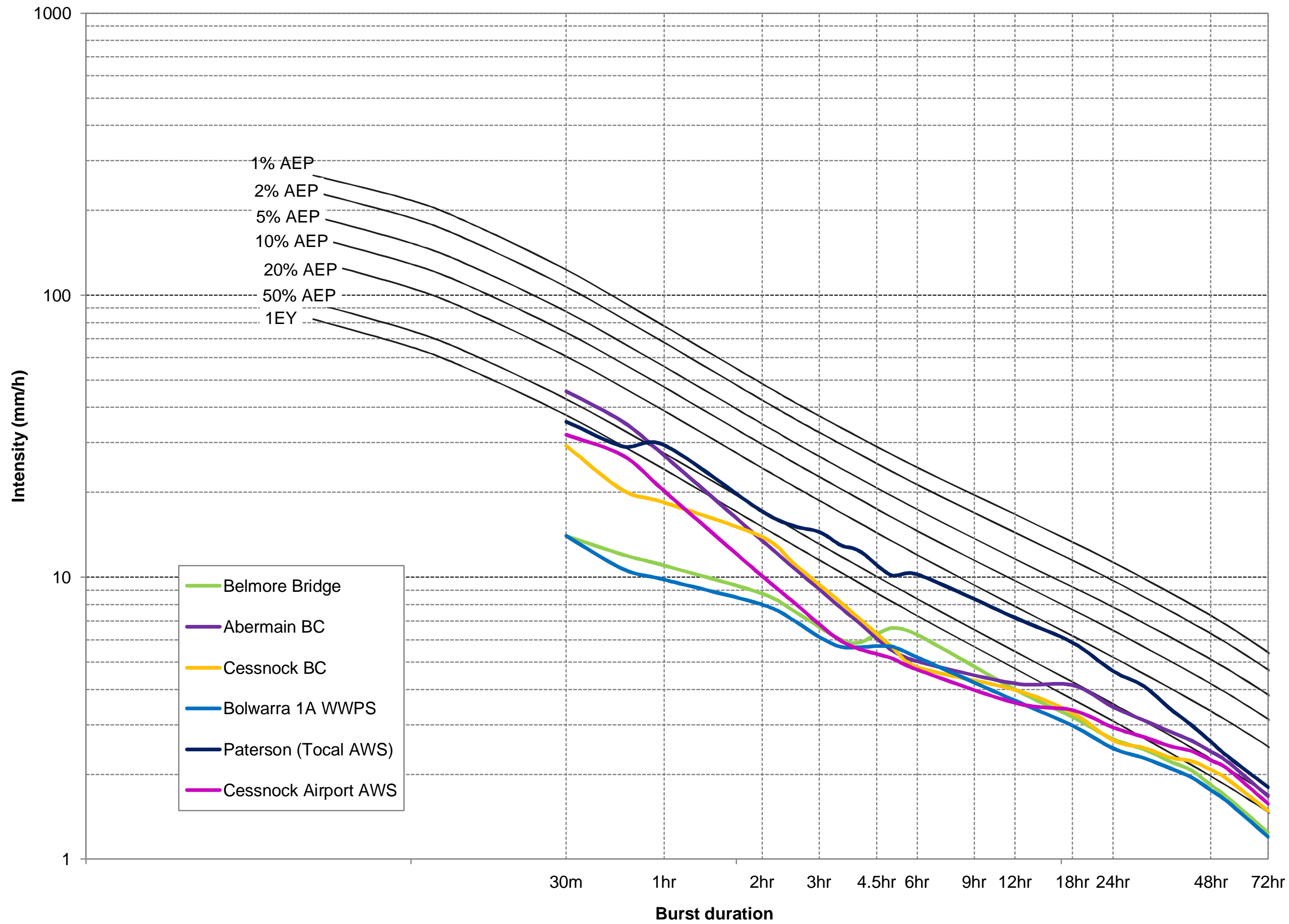


FIGURE 22
BURST INTENSITIES AND FREQUENCIES
MARCH 2013

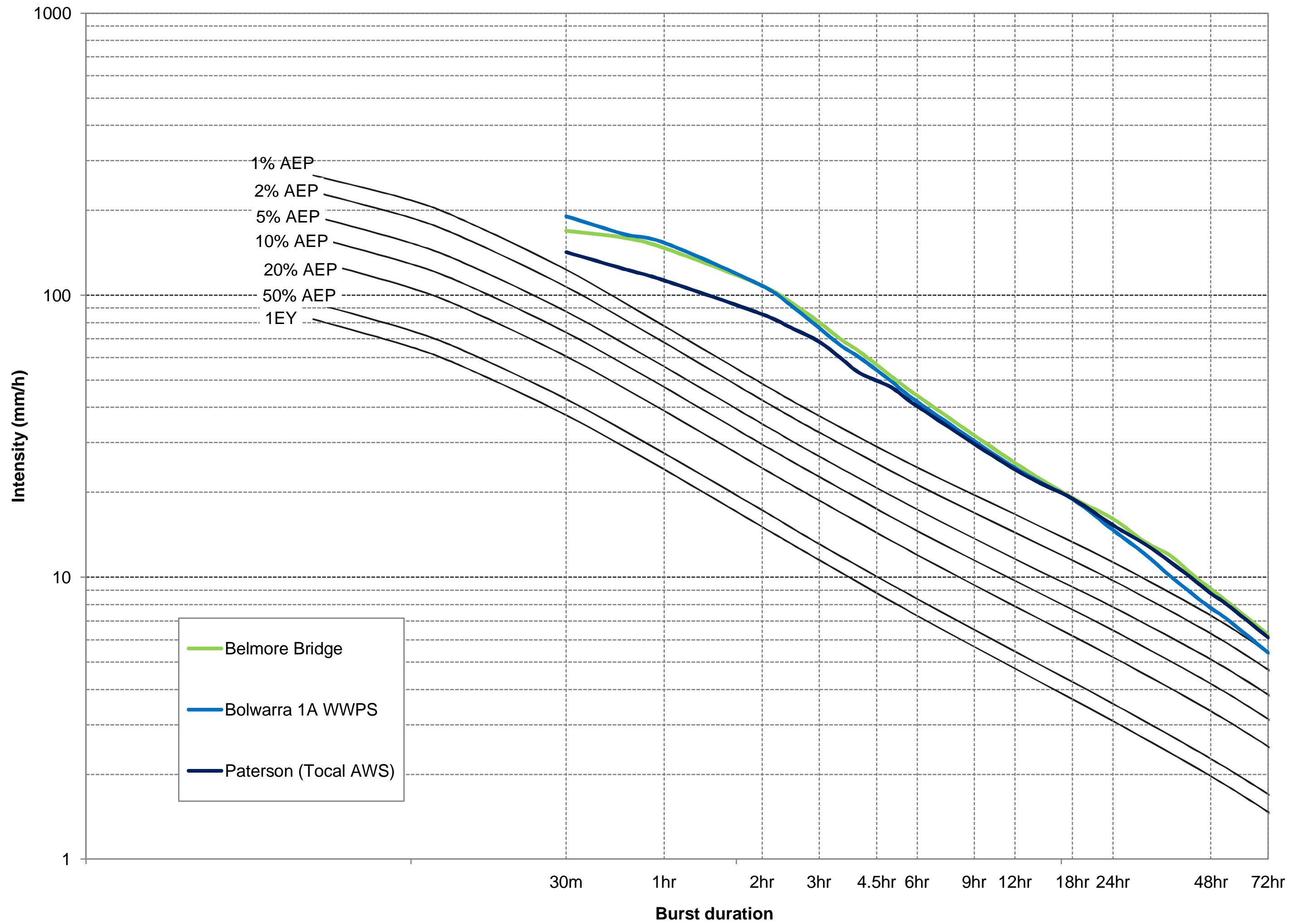


FIGURE 23
BURST INTENSITIES AND FREQUENCIES
APRIL 2015

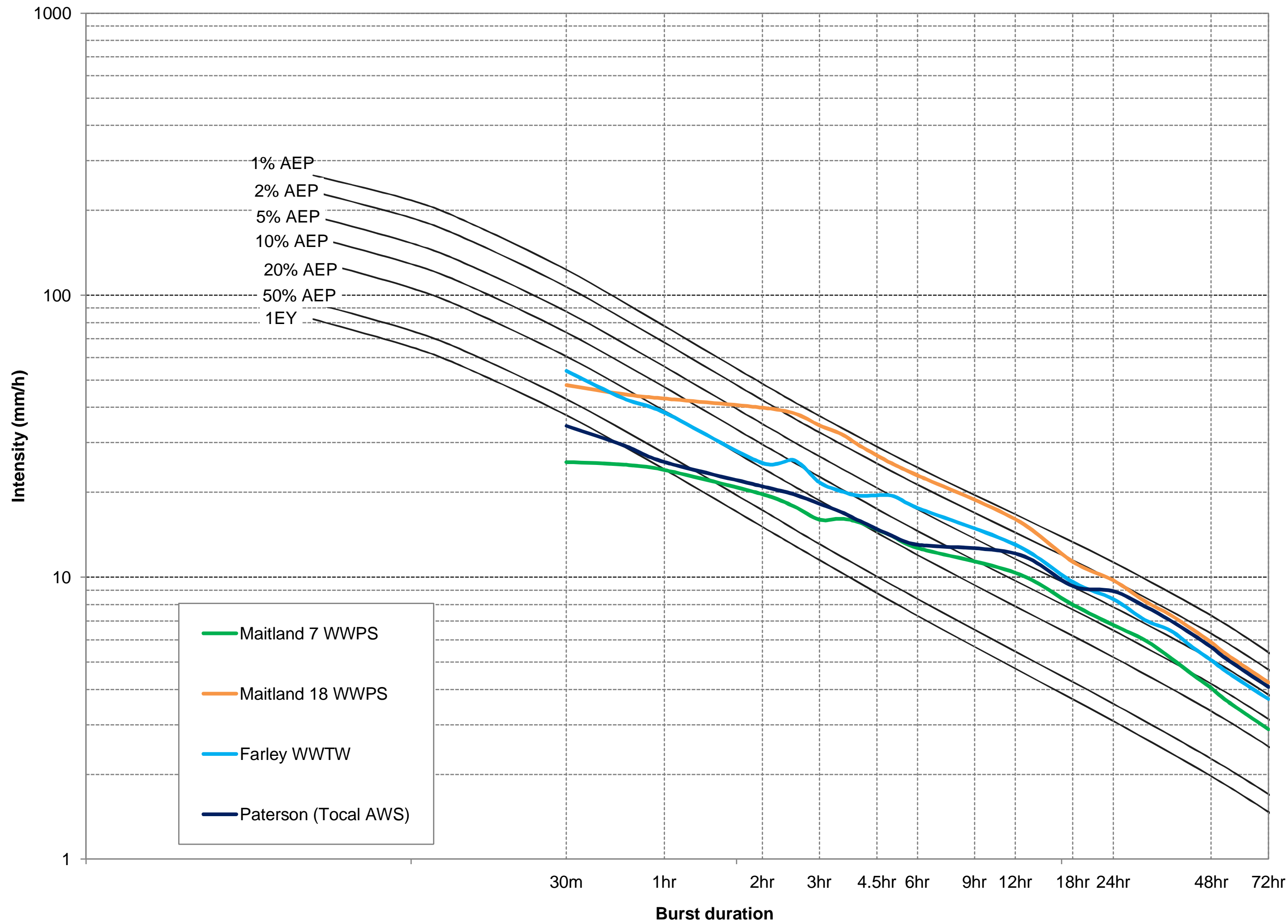
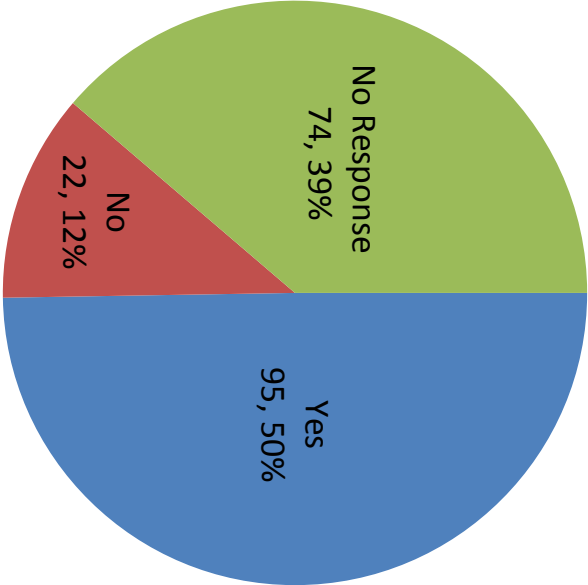


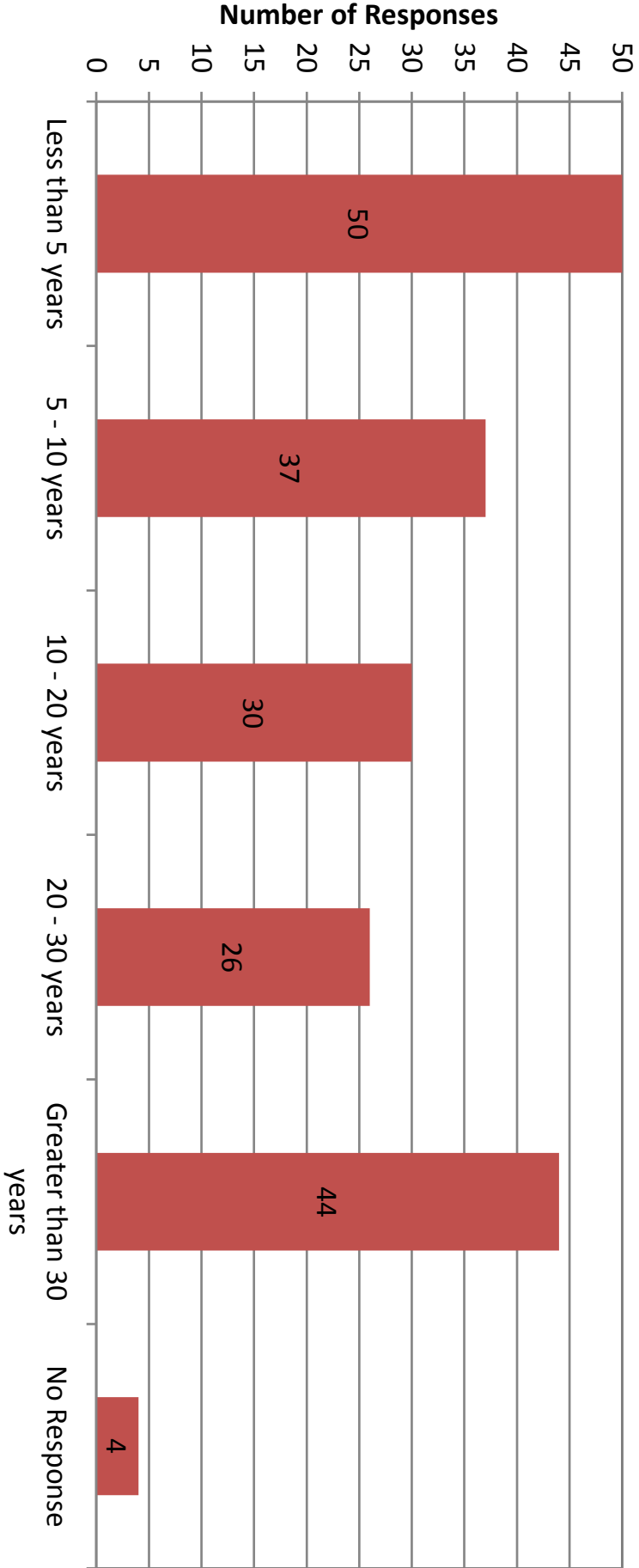
FIGURE 24
BURST INTENSITIES AND FREQUENCIES
JANUARY 2016

FIGURE 25A
COMMUNITY CONSULTATION RESPONSES

Residents Contactable



Period of Living/Owning/Working on Property



Length of Residence in Cessnock or Maitland

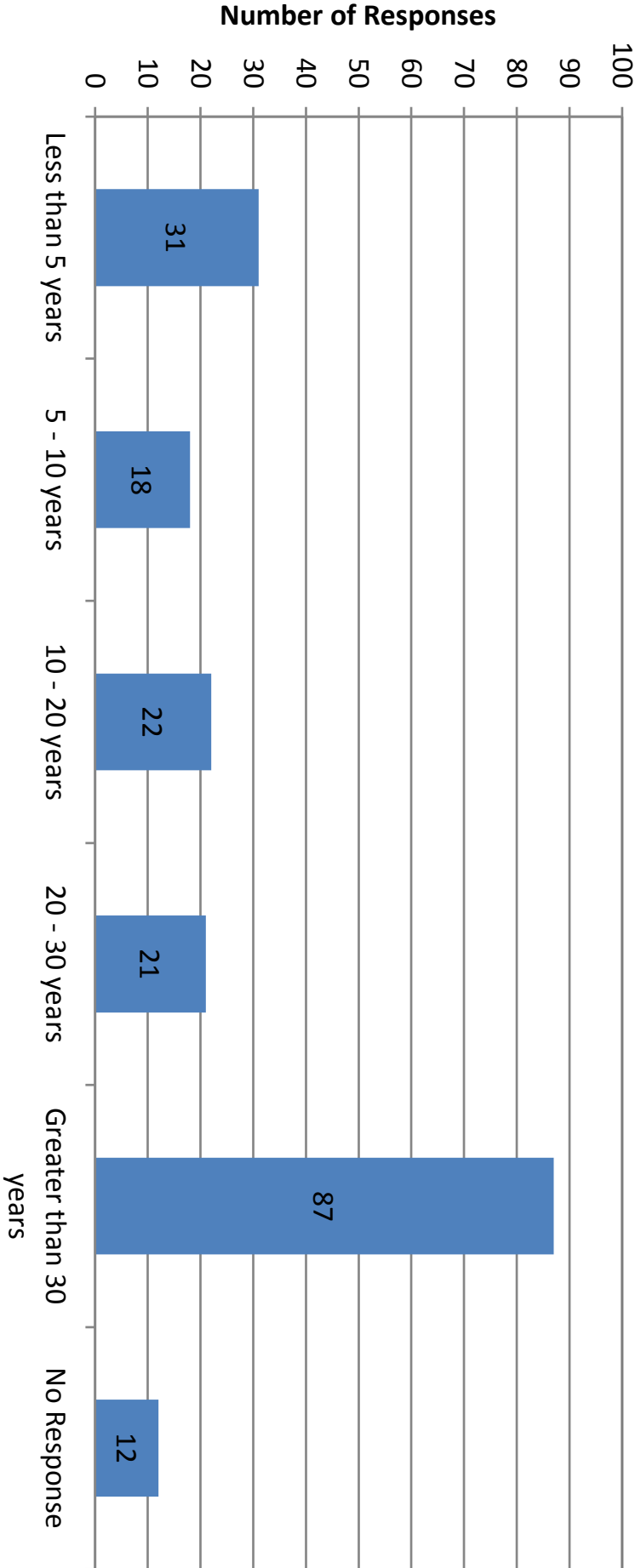


FIGURE 25B
COMMUNITY CONSULTATION RESPONSES

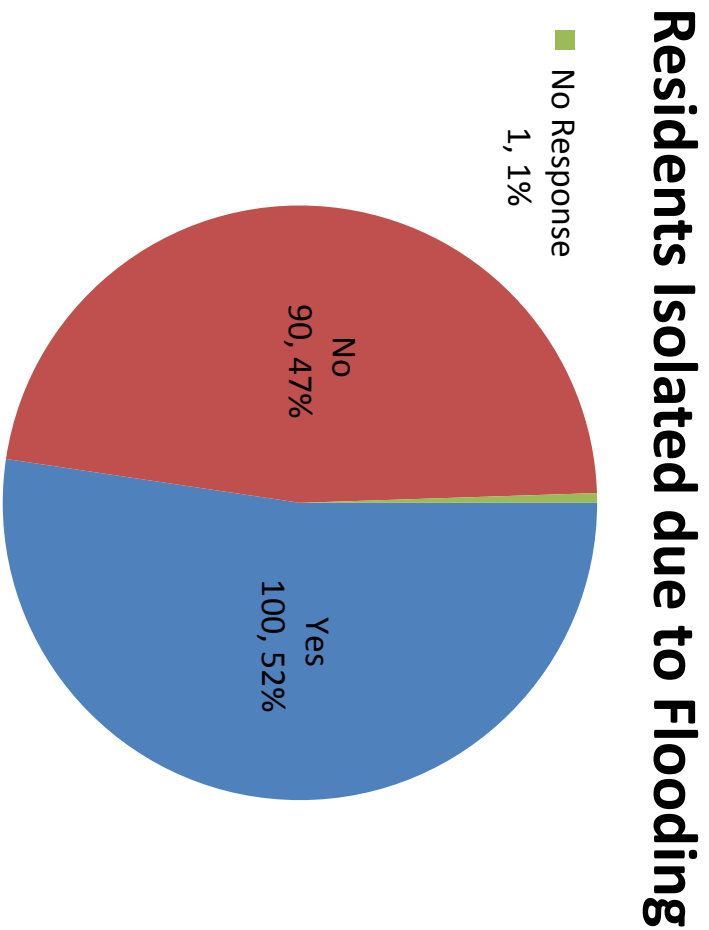
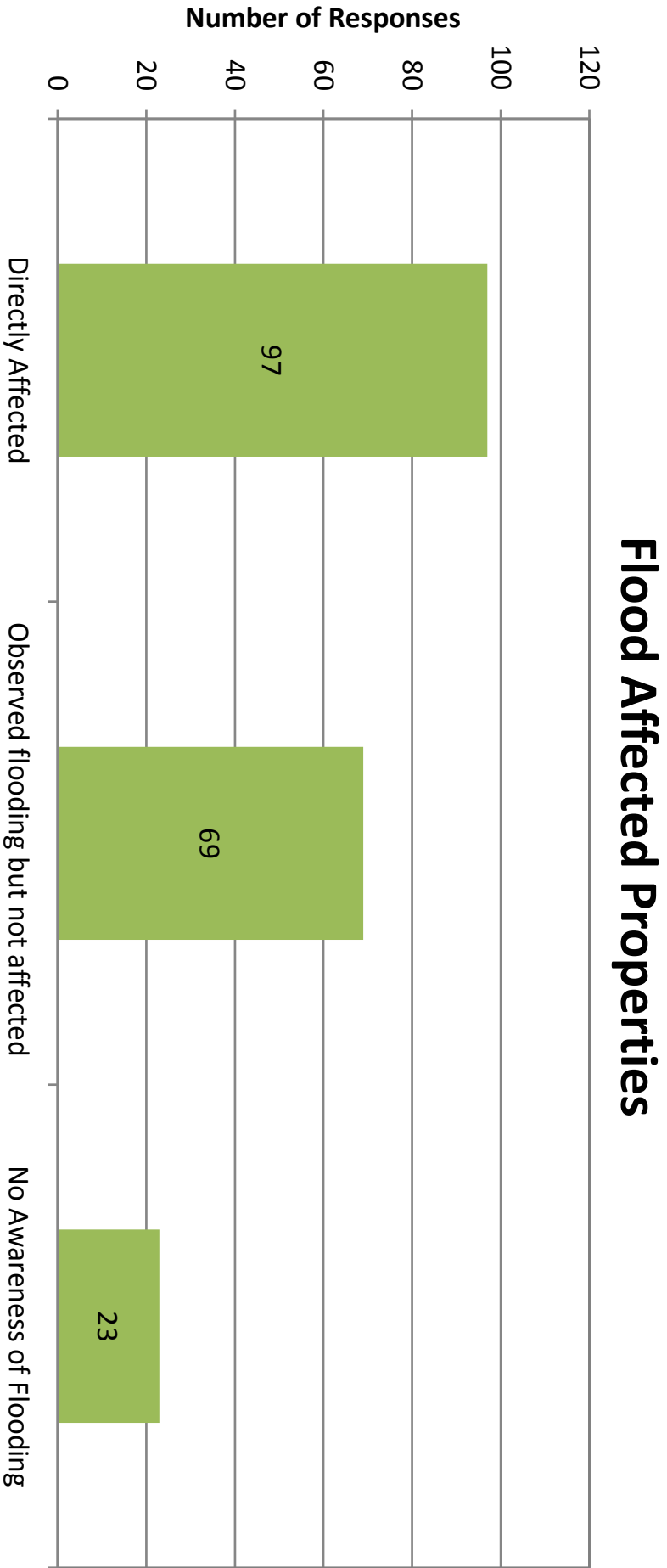
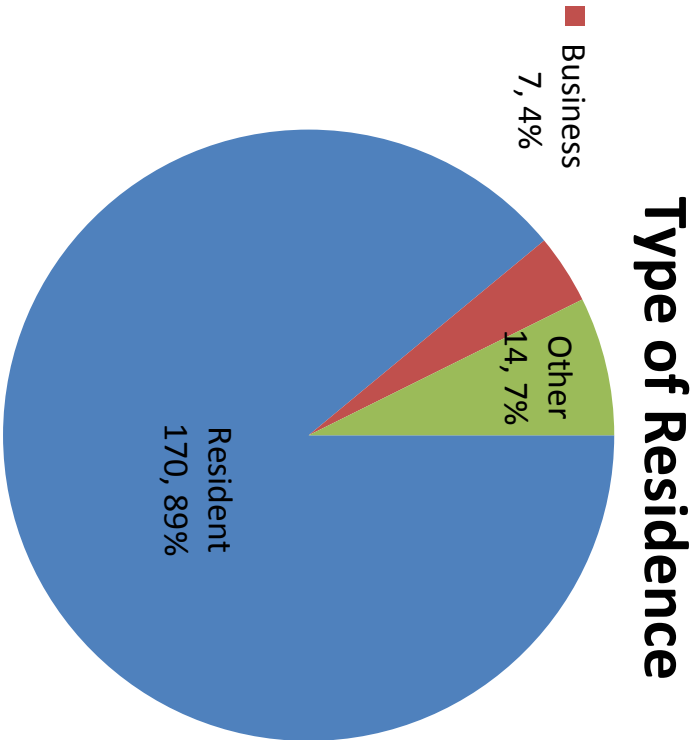


FIGURE 25C
COMMUNITY CONSULTATION RESPONSES

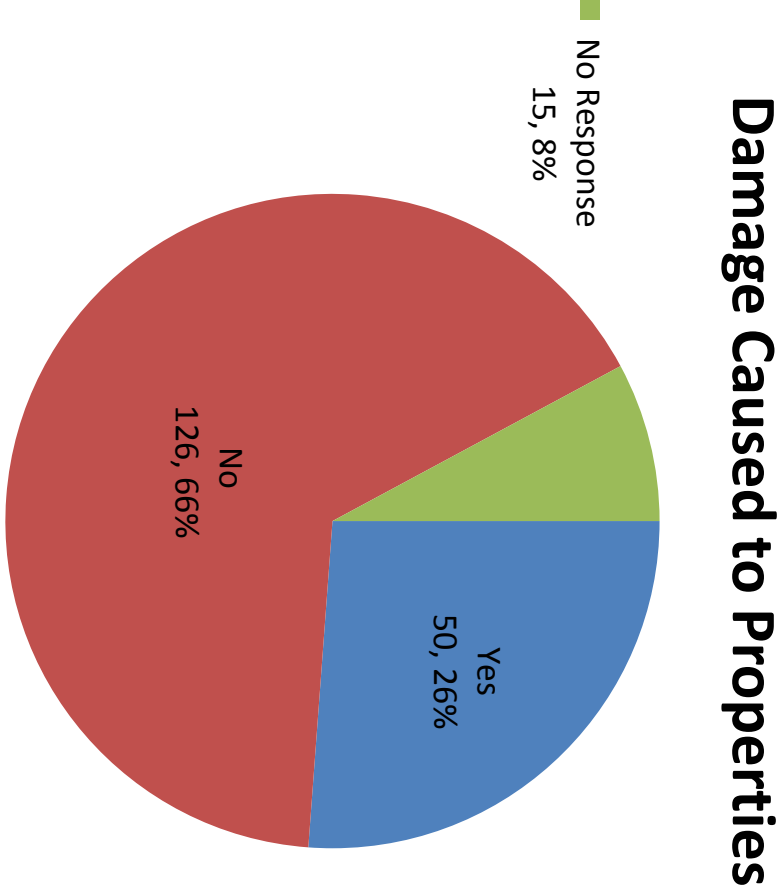
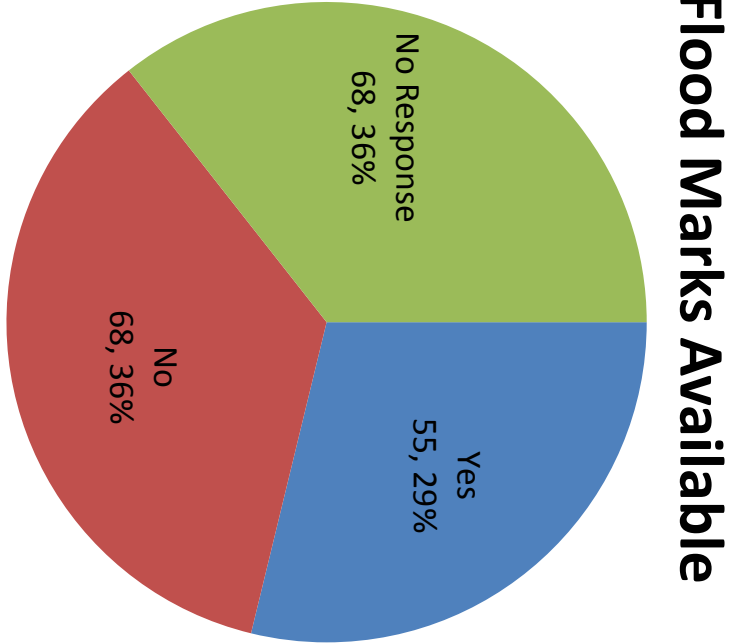
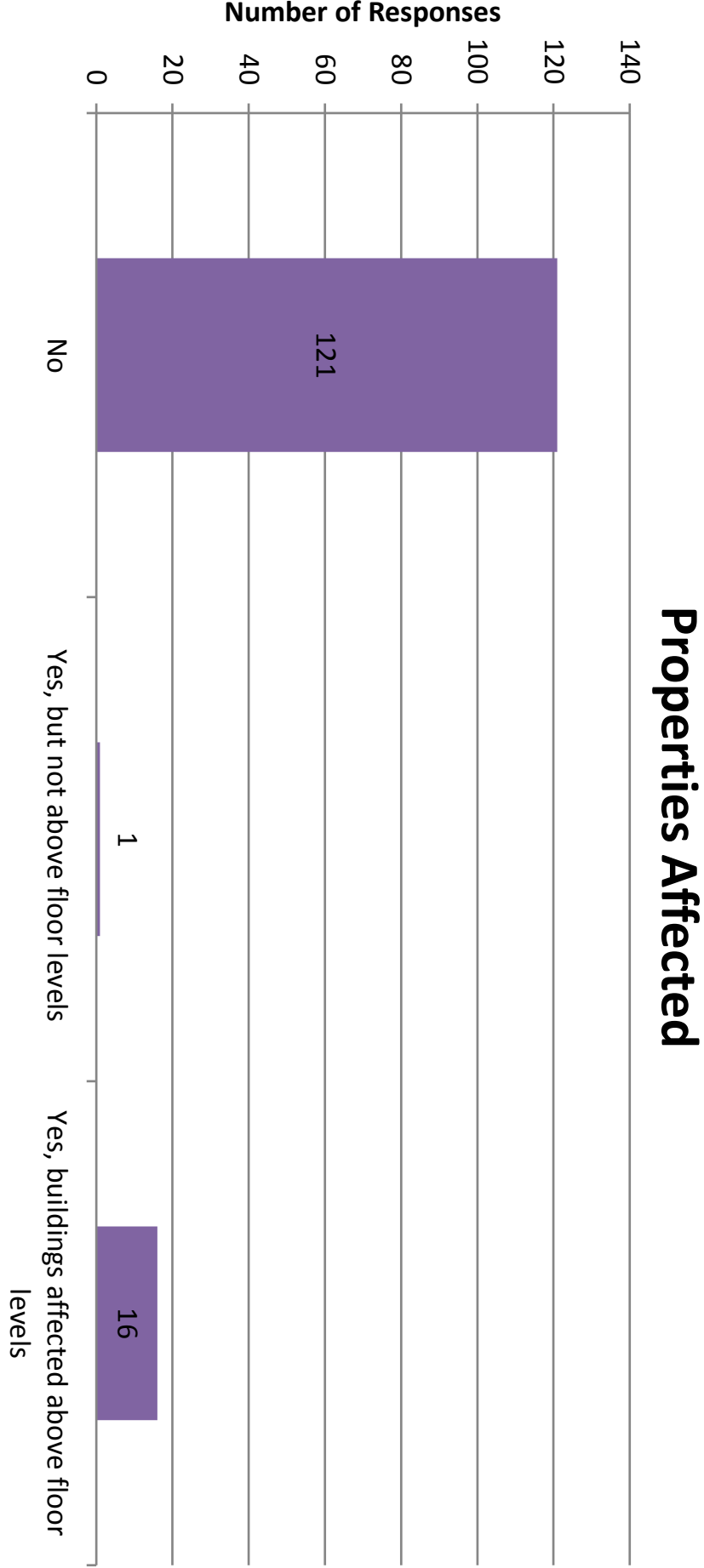


FIGURE 26
FLOOD AFFECTED PROPERTIES

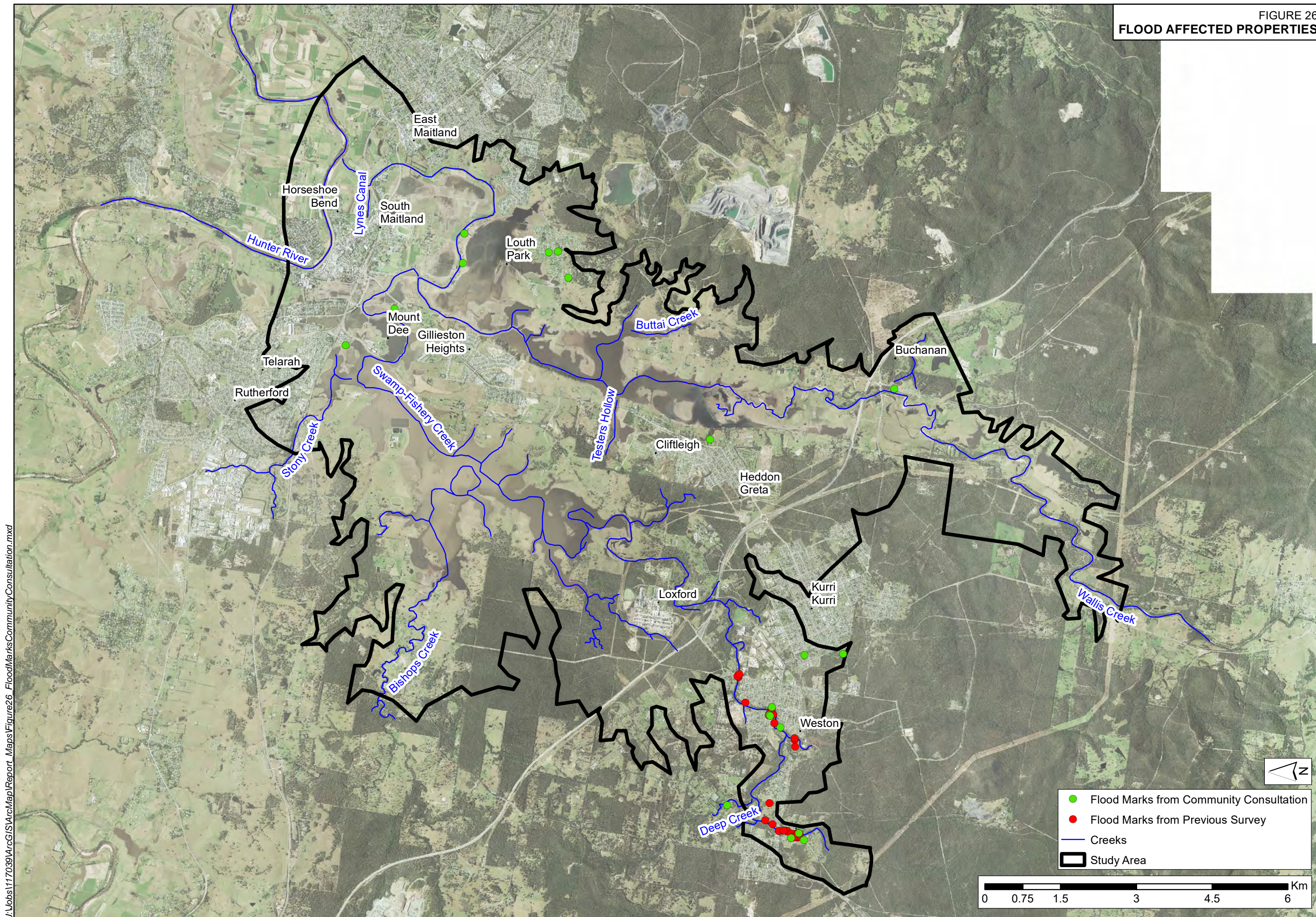


FIGURE 27A
HYDROLOGICAL MODEL LAYOUT

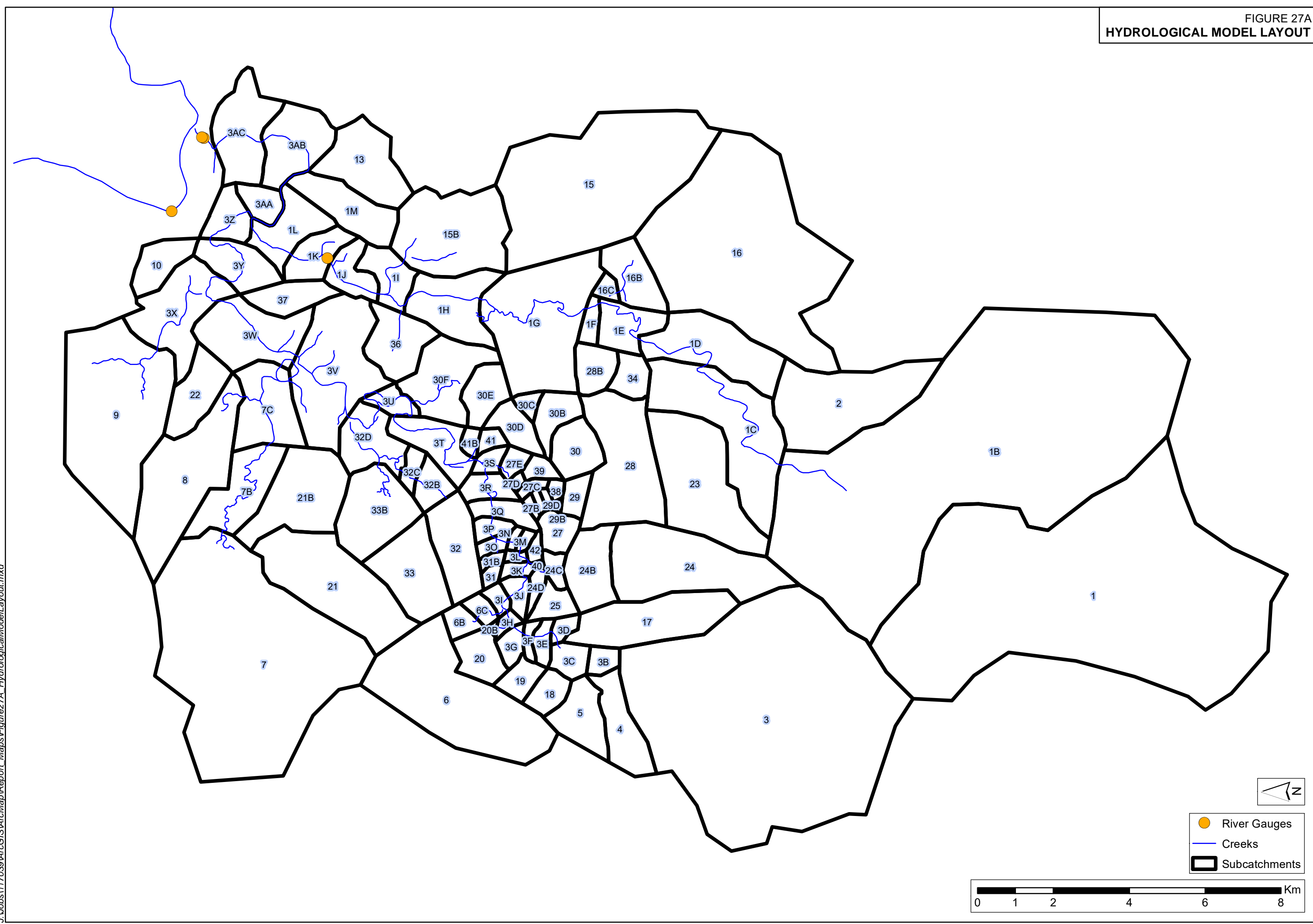


FIGURE 27B
HYDROLOGICAL MODEL LAYOUT

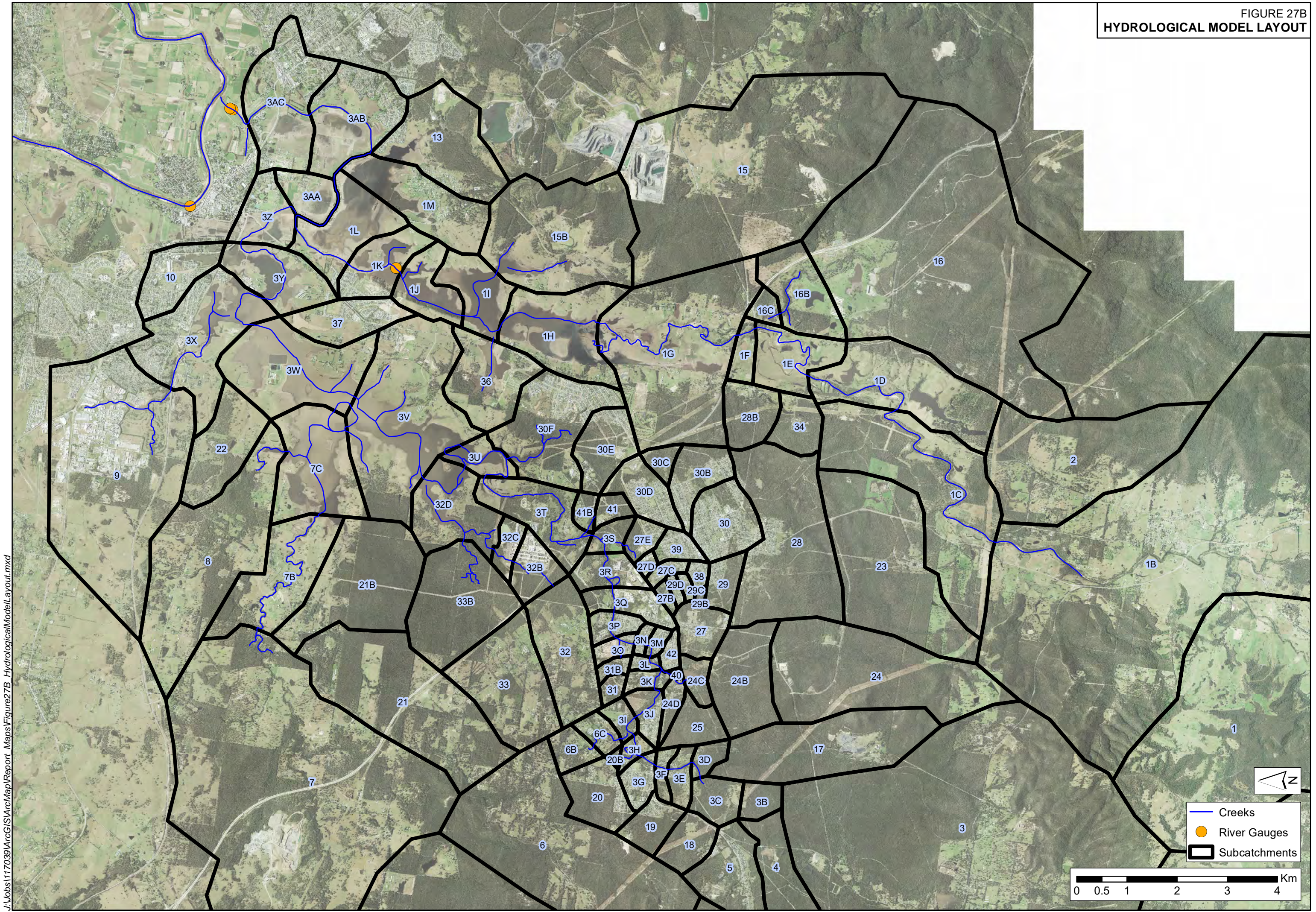


FIGURE 28A
HYDRAULIC MODEL LAYOUT

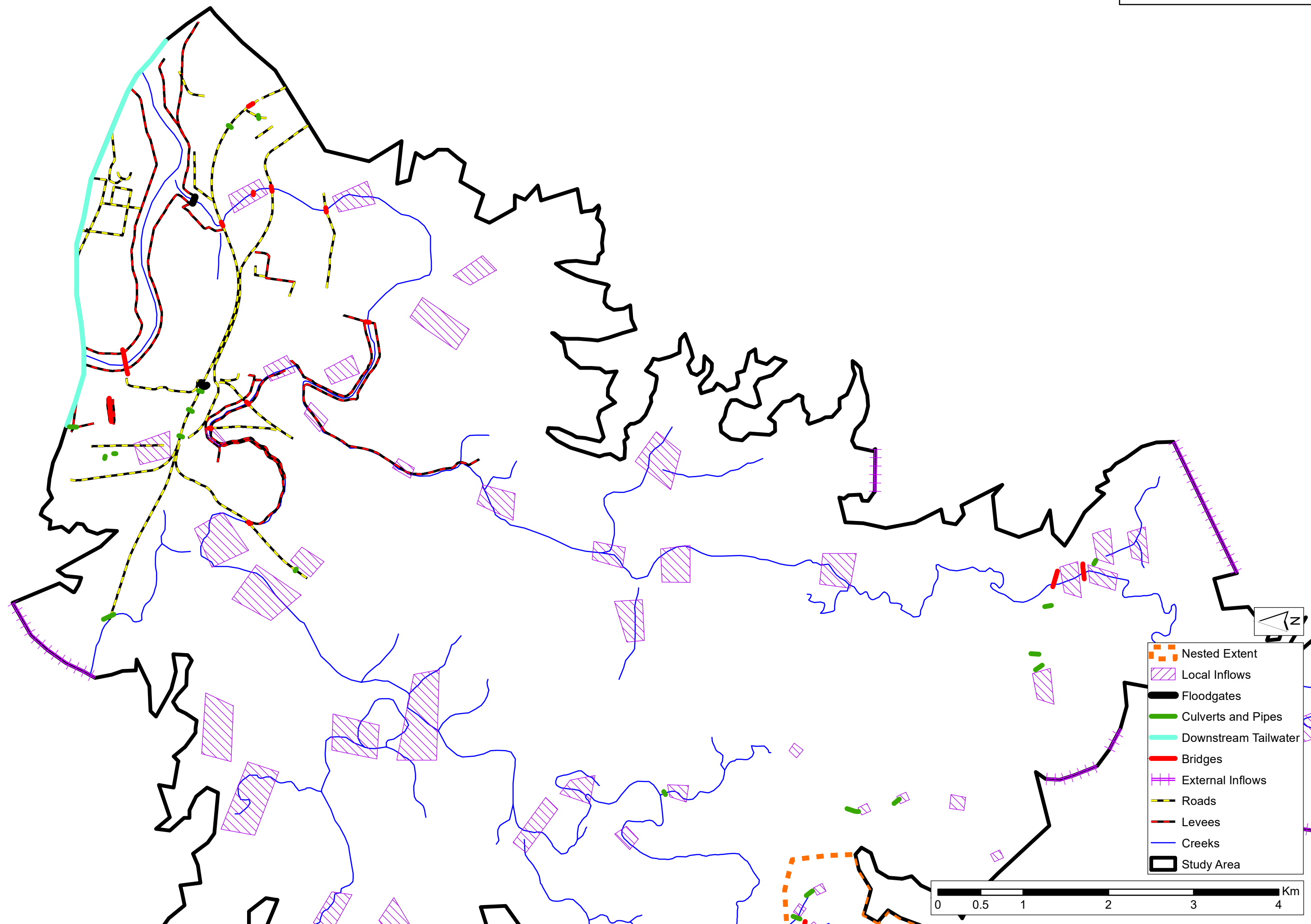


FIGURE 28B
HYDRAULIC MODEL LAYOUT

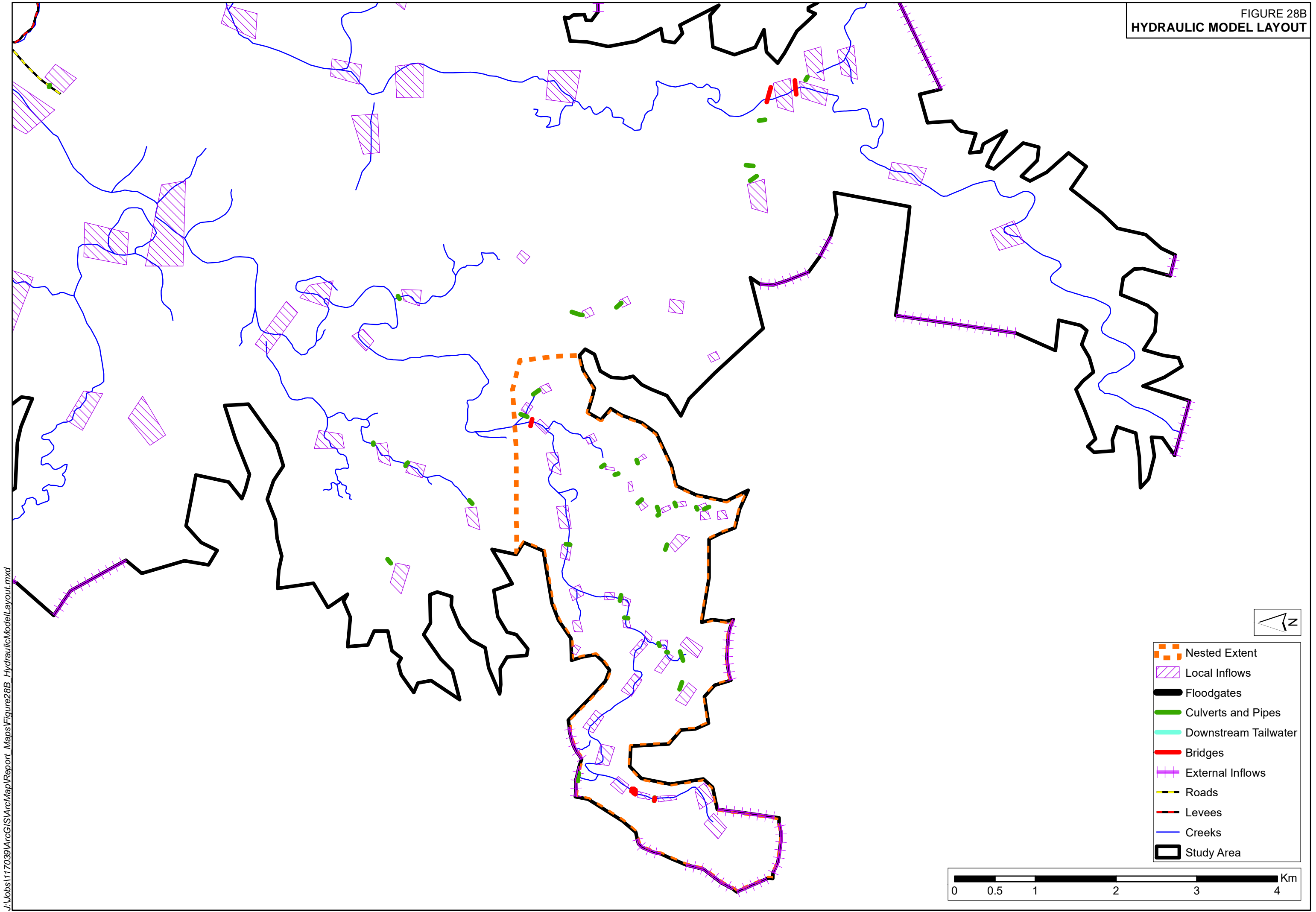


FIGURE 29A

LOCATIONS OF MEASUREMENT POINTS AND LINES
FOR RESULTS REPORTING

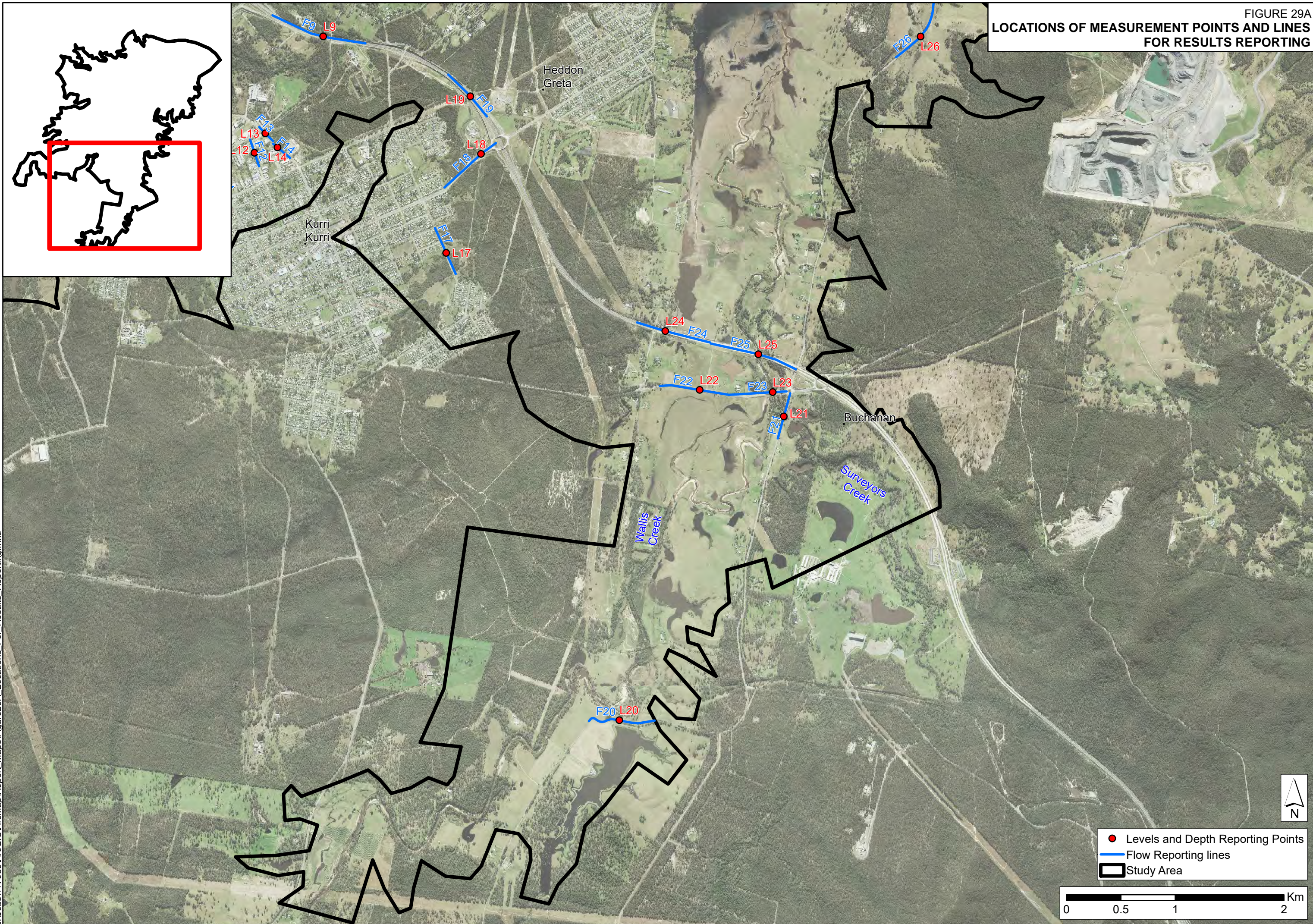
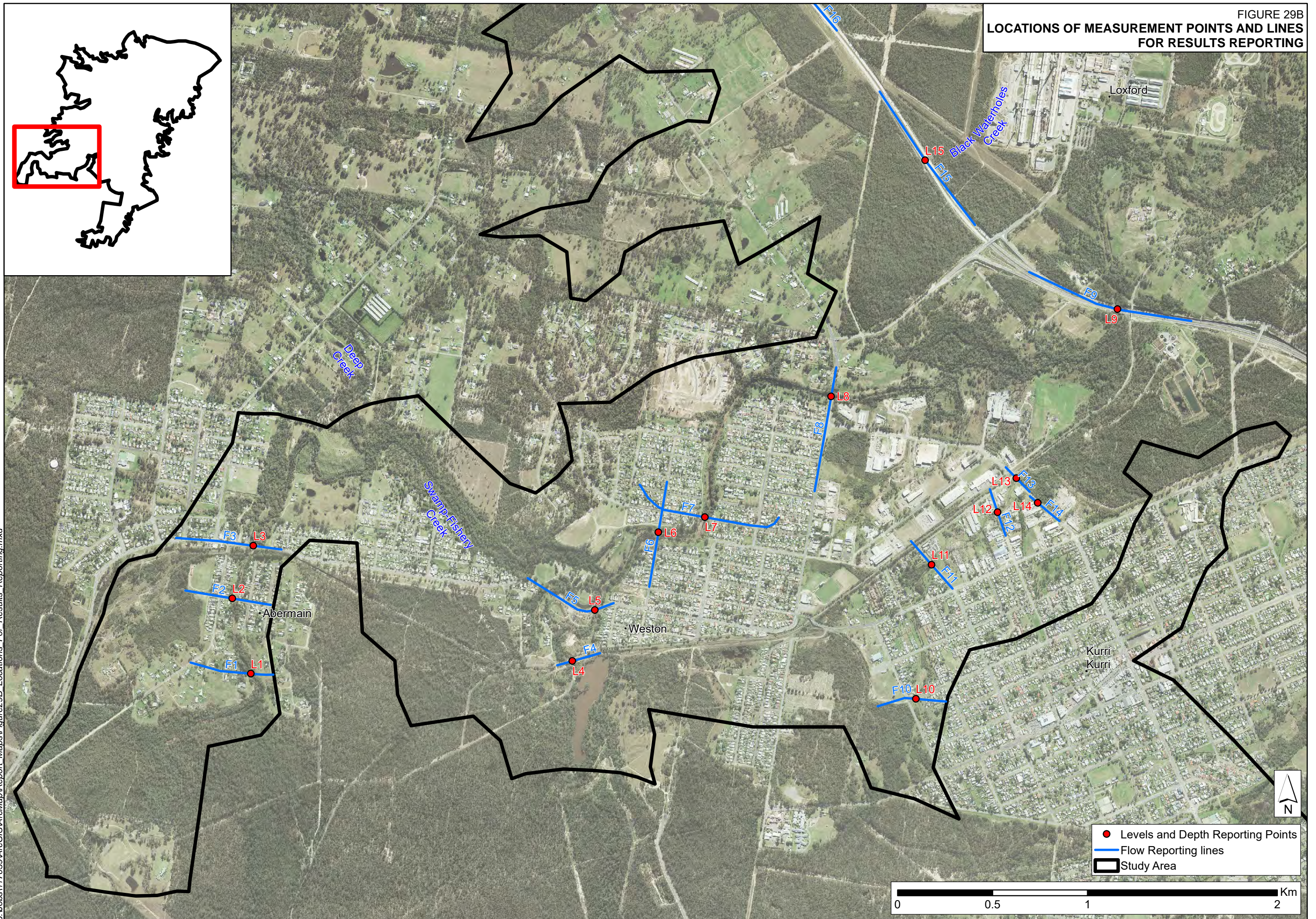


FIGURE 29B

LOCATIONS OF MEASUREMENT POINTS AND LINES
FOR RESULTS REPORTING



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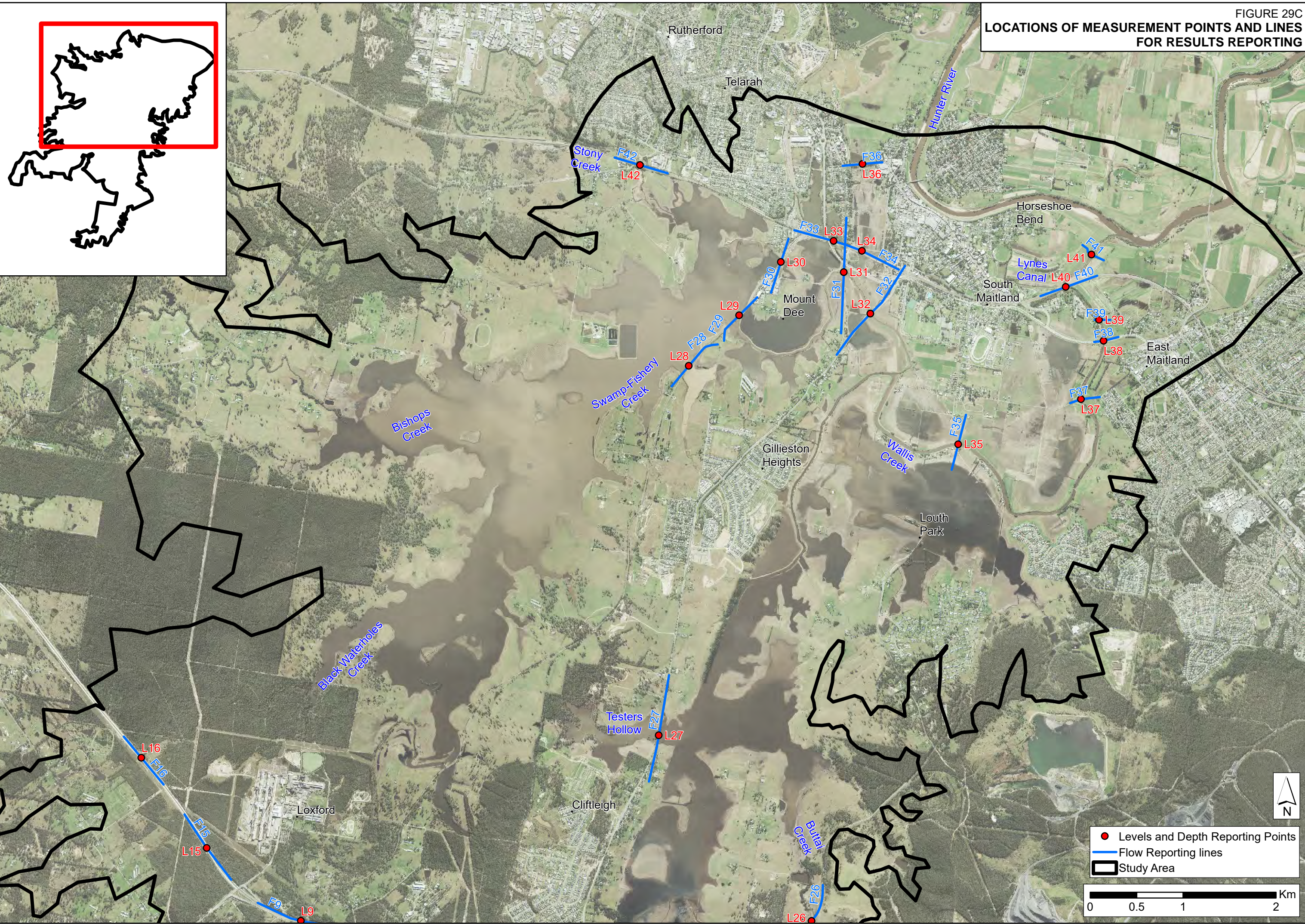


FIGURE 29C
LOCATIONS OF MEASUREMENT POINTS AND LINES
FOR RESULTS REPORTING

- Levels and Depth Reporting Points
- Flow Reporting lines
- ▭ Study Area

0 0.5 1 2 Km

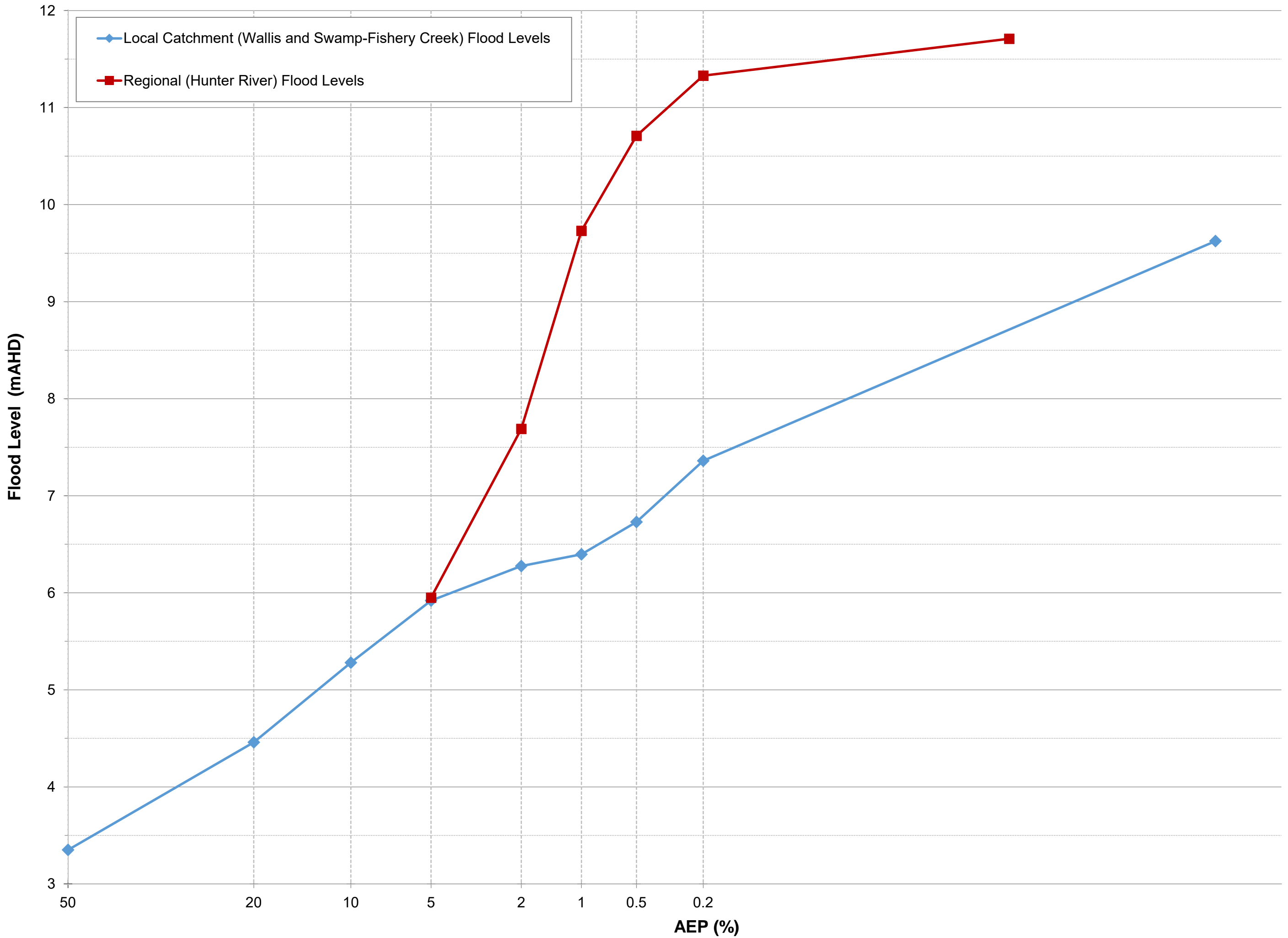


FIGURE 30
AEP VERSUS FLOOD LEVEL
WALLACE CREEK FLOOD STORAGE AREA NEAR TESTERS HOLLOW
DESIGN STORM EVENTS FOR LOCAL CATCHMENT AND HUNTER RIVER FLOODING

APPENDIX B. MODEL CALIBRATION RESULTS

Figure B1: Hydraulic Model Calibration – June 2007

Figure B2: Hydraulic Model Calibration – March 2013

Figure B3: Hydraulic Model Calibration – April 2015

Figure B4: Hydraulic Model Calibration – January 2016

Figure B5: Comparison of Peak Flood Levels and Depths – June 2007

Figure B6: Comparison of Peak Flood Depths – April 2015



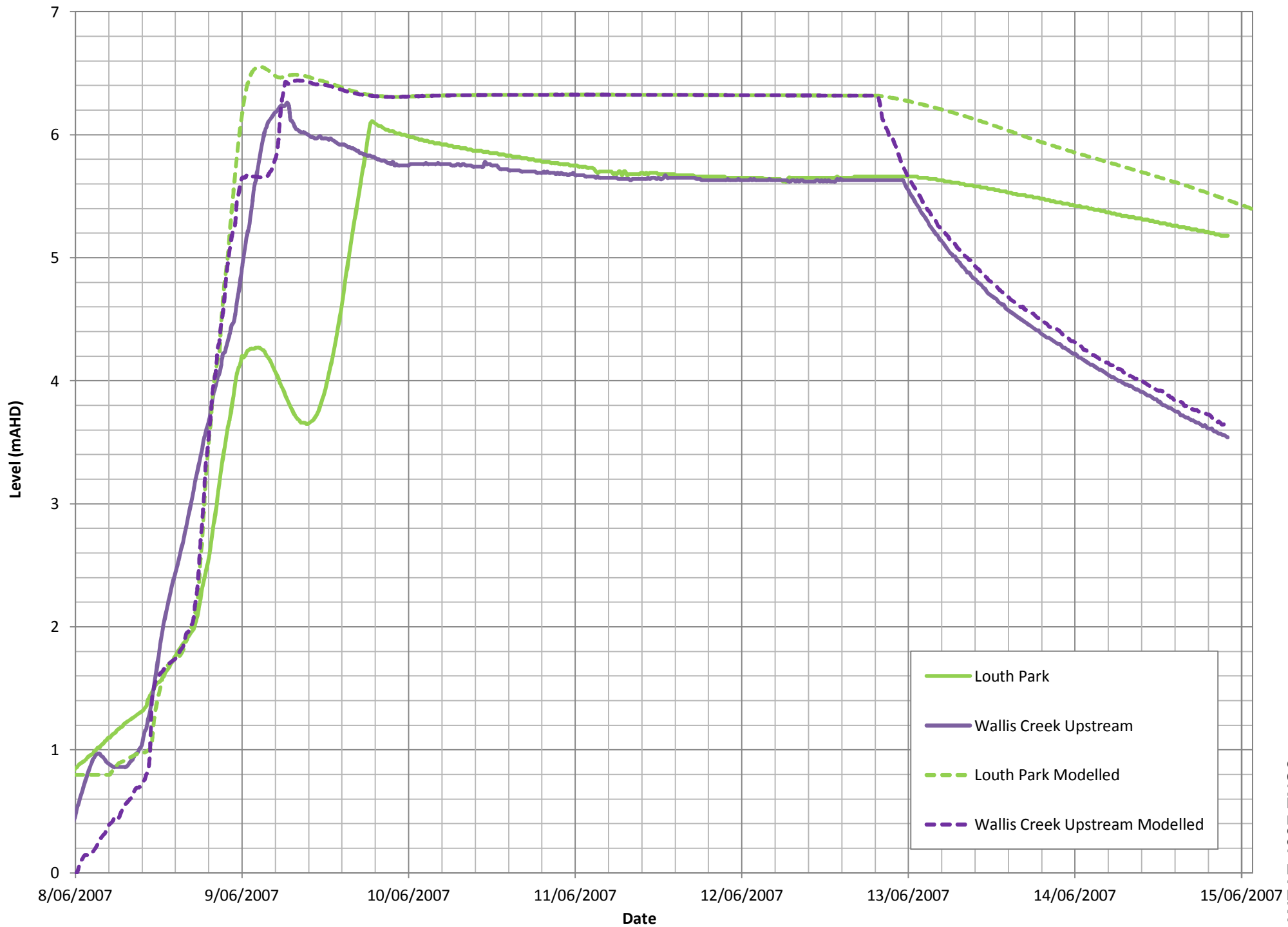


FIGURE B1
HYDRAULIC MODEL CALIBRATION
JUNE 2007 EVENT

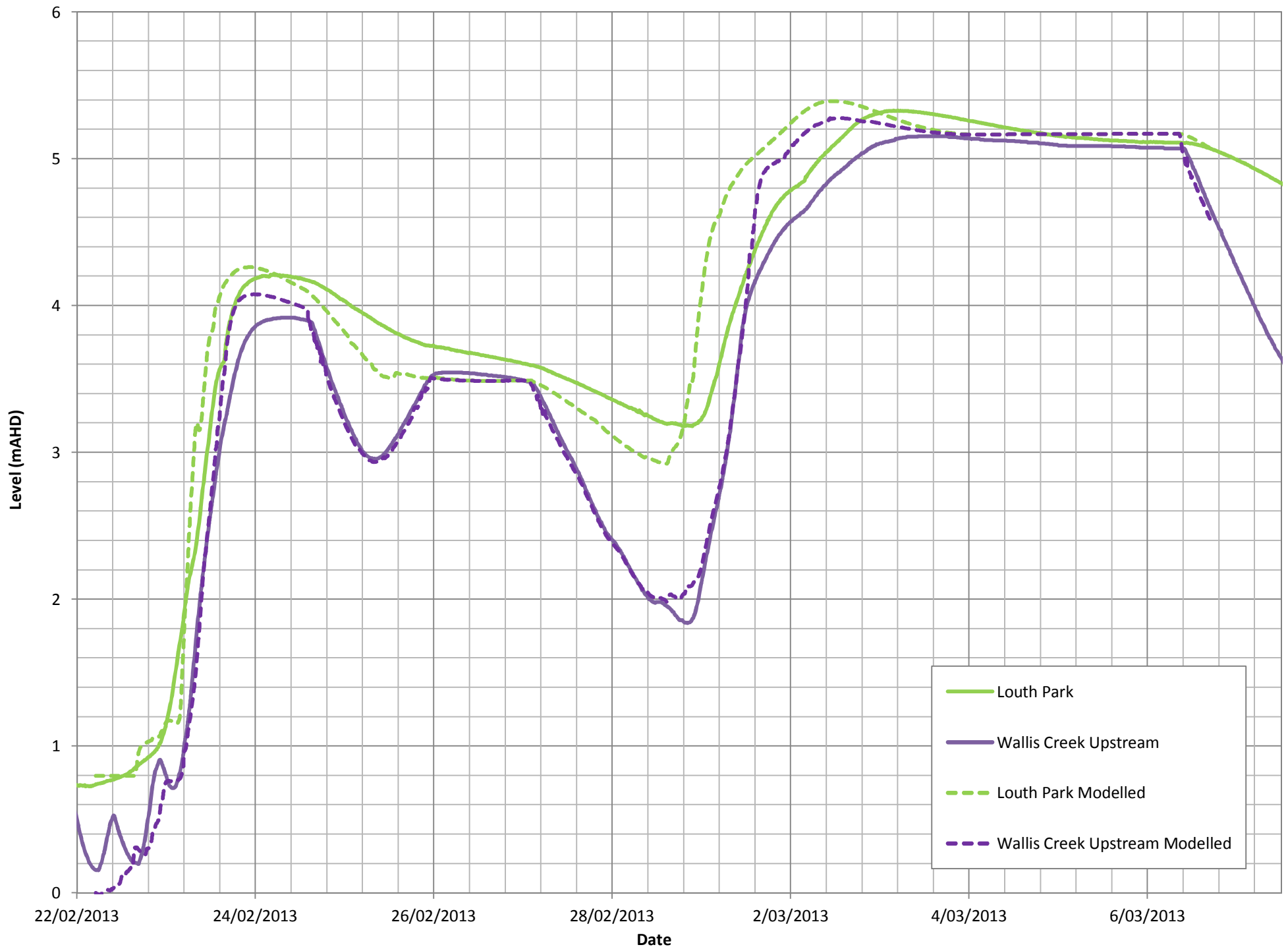


FIGURE B2
HYDRAULIC MODEL CALIBRATION
MARCH 2013 EVENT

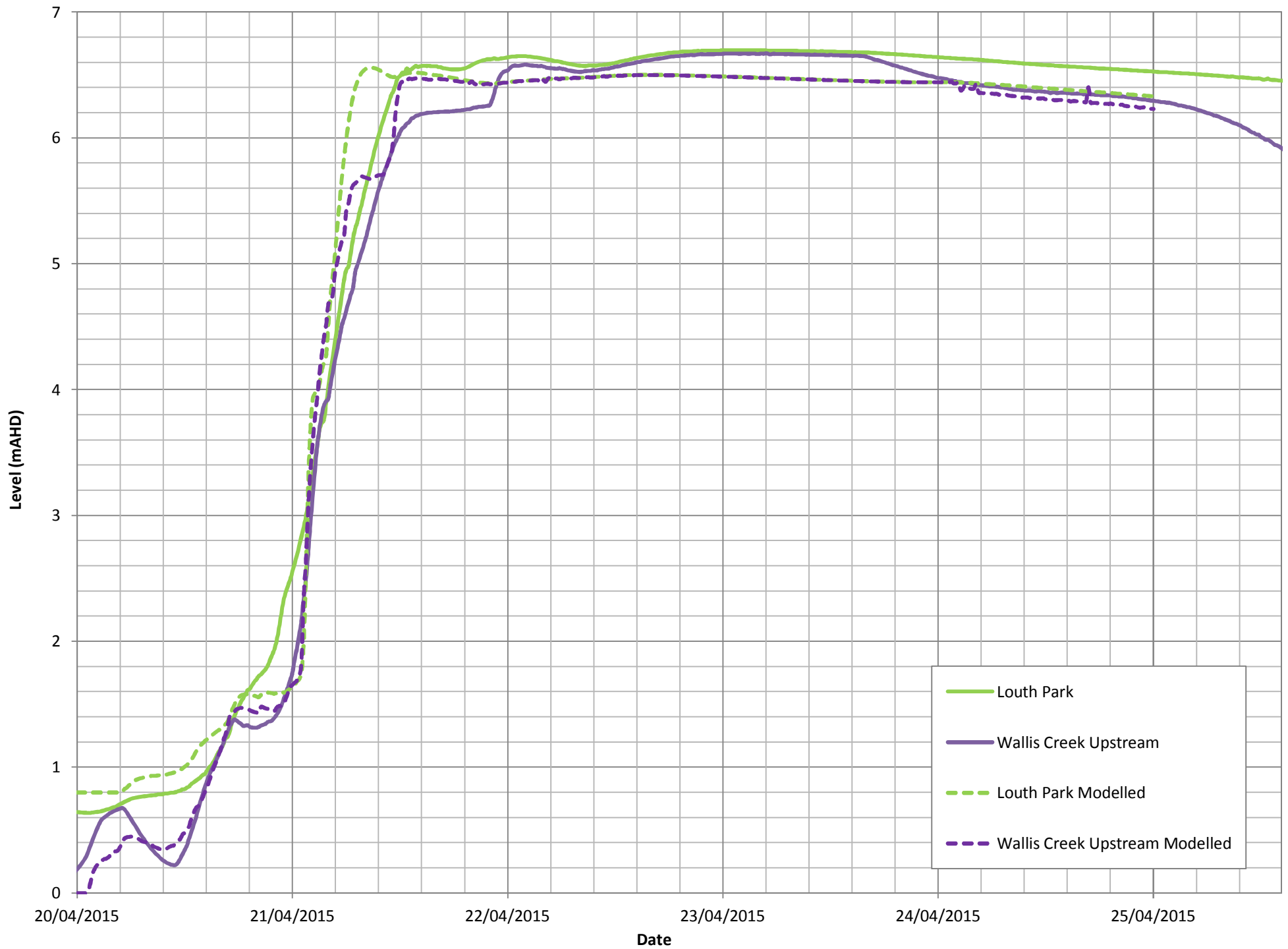


FIGURE B3
HYDRAULIC MODEL CALIBRATION
APRIL 2015 EVENT

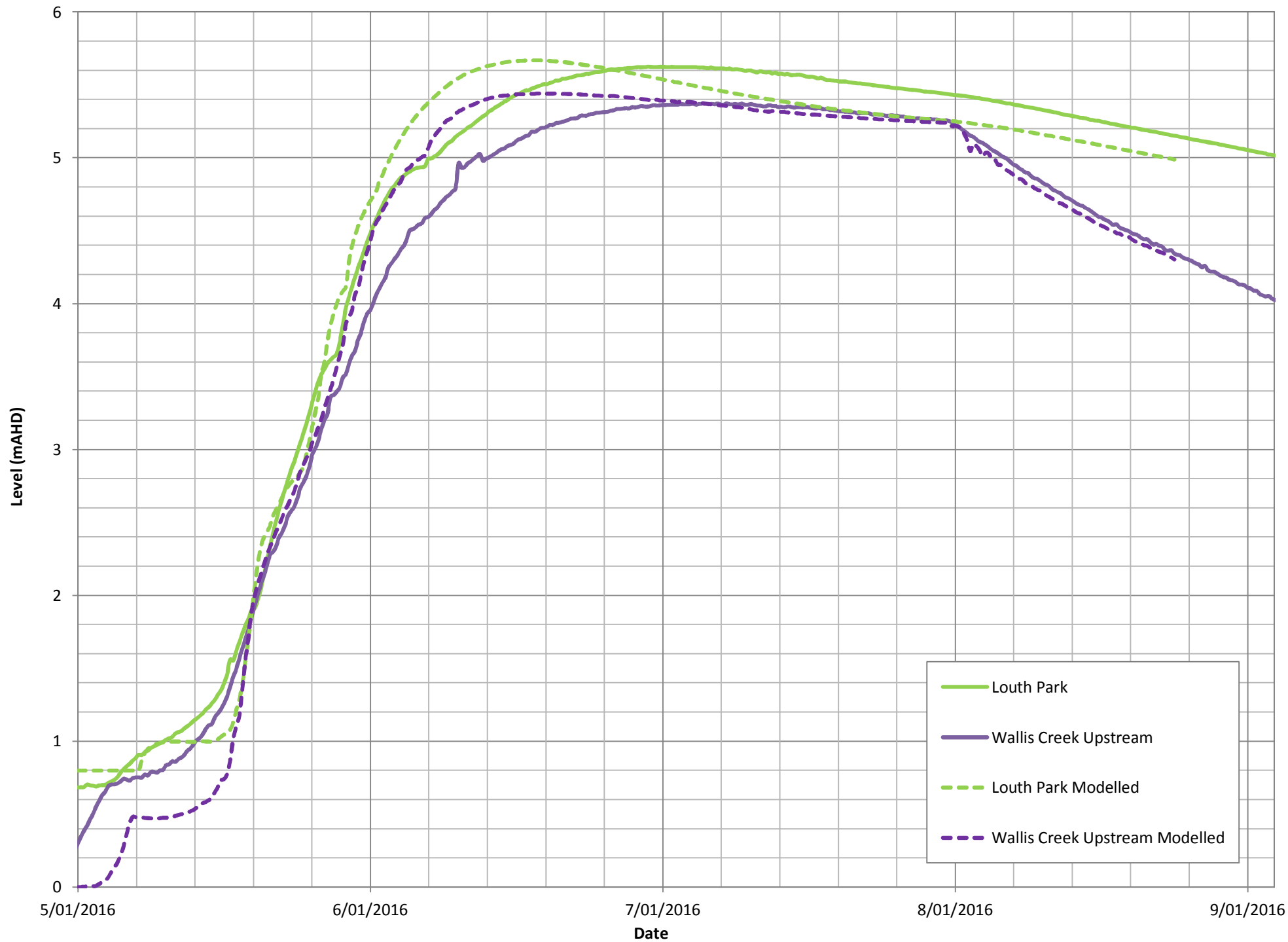
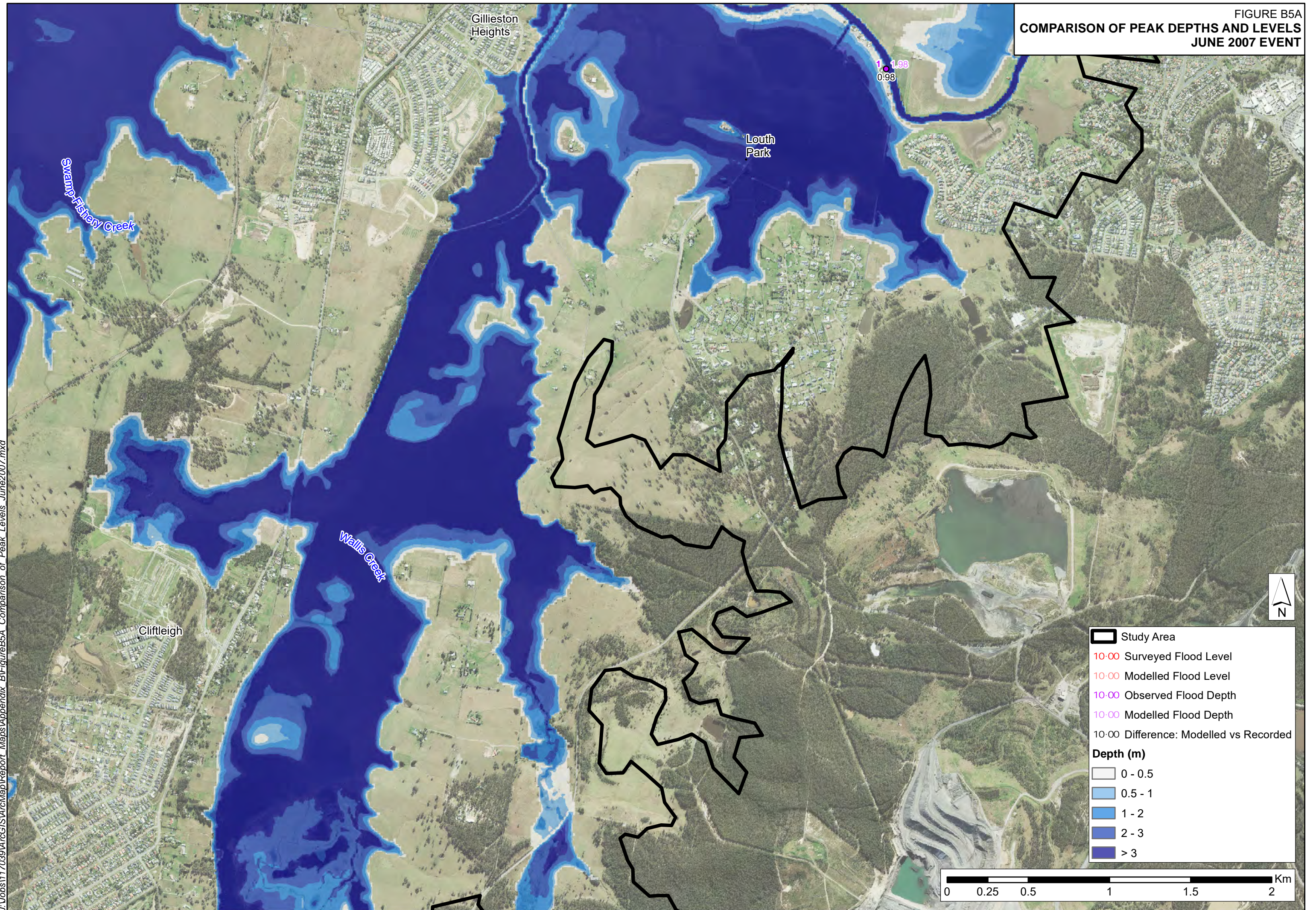


FIGURE B4
HYDRAULIC MODEL CALIBRATION
JANUARY 2016 EVENT

FIGURE B5A
COMPARISON OF PEAK DEPTHS AND LEVELS
JUNE 2007 EVENT



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FIGURE B5B
COMPARISON OF PEAK DEPTHS AND LEVELS
JUNE 2007 EVENT

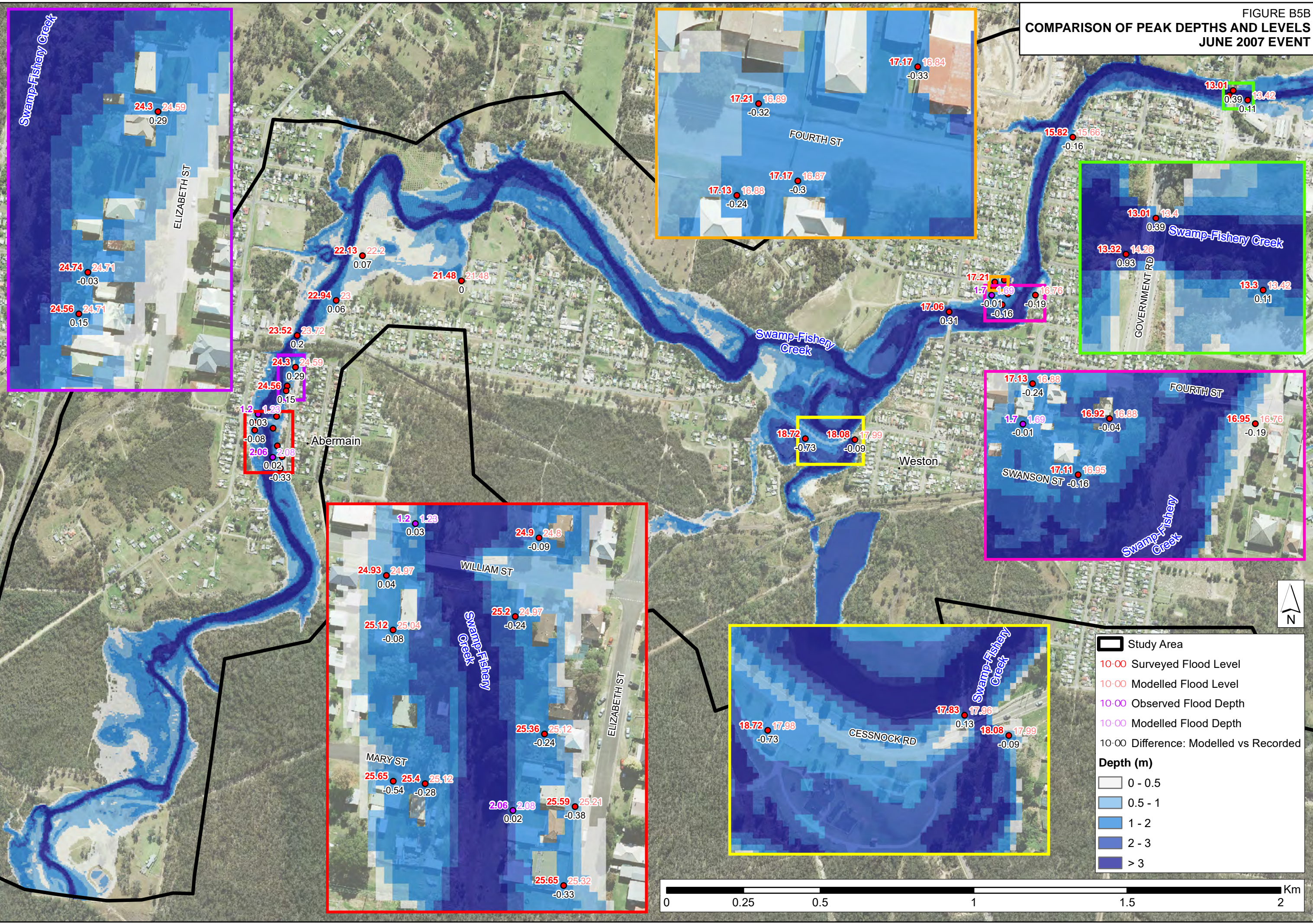


FIGURE B6A
COMPARISON OF PEAK DEPTHS
APRIL 2015 EVENT

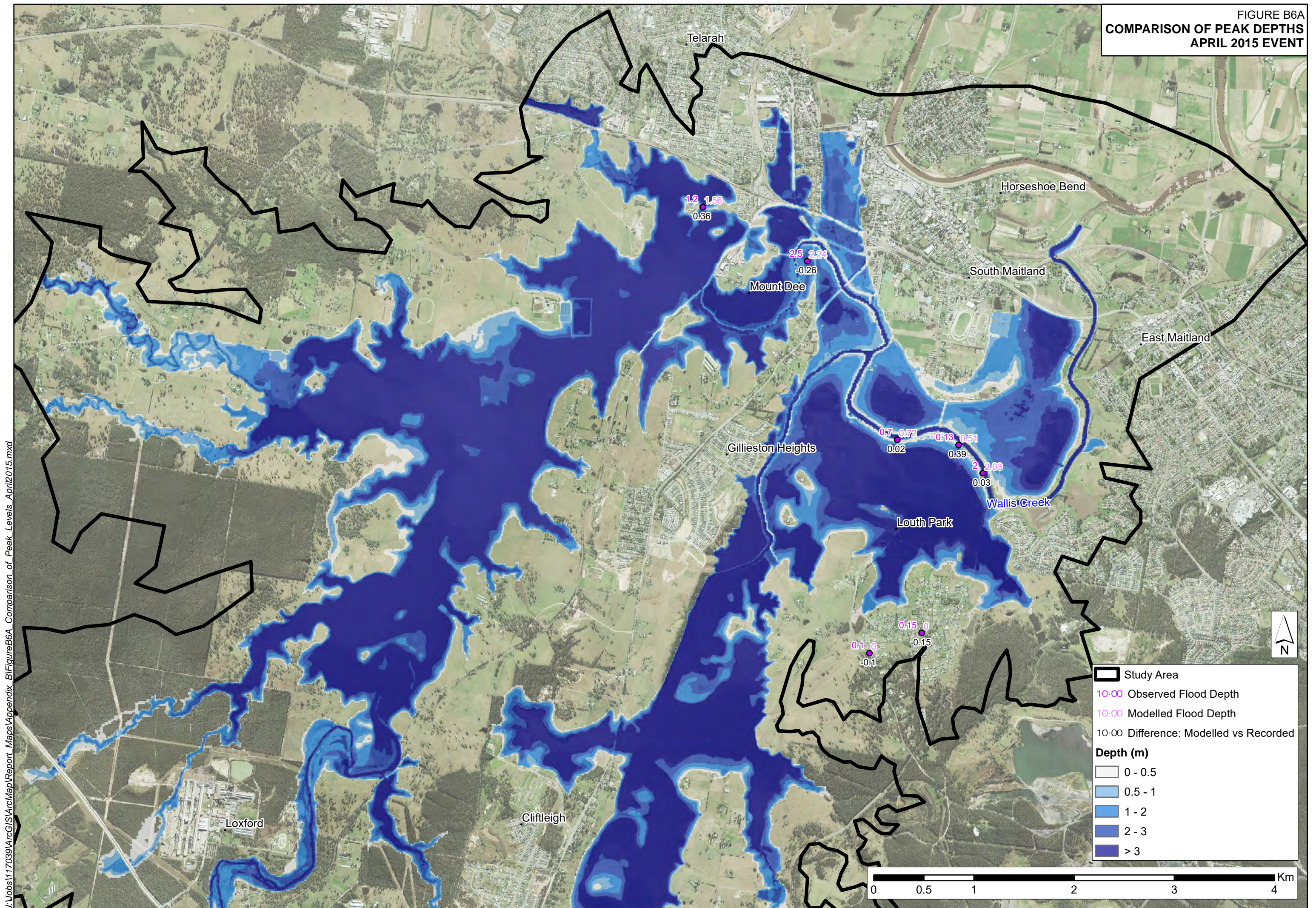
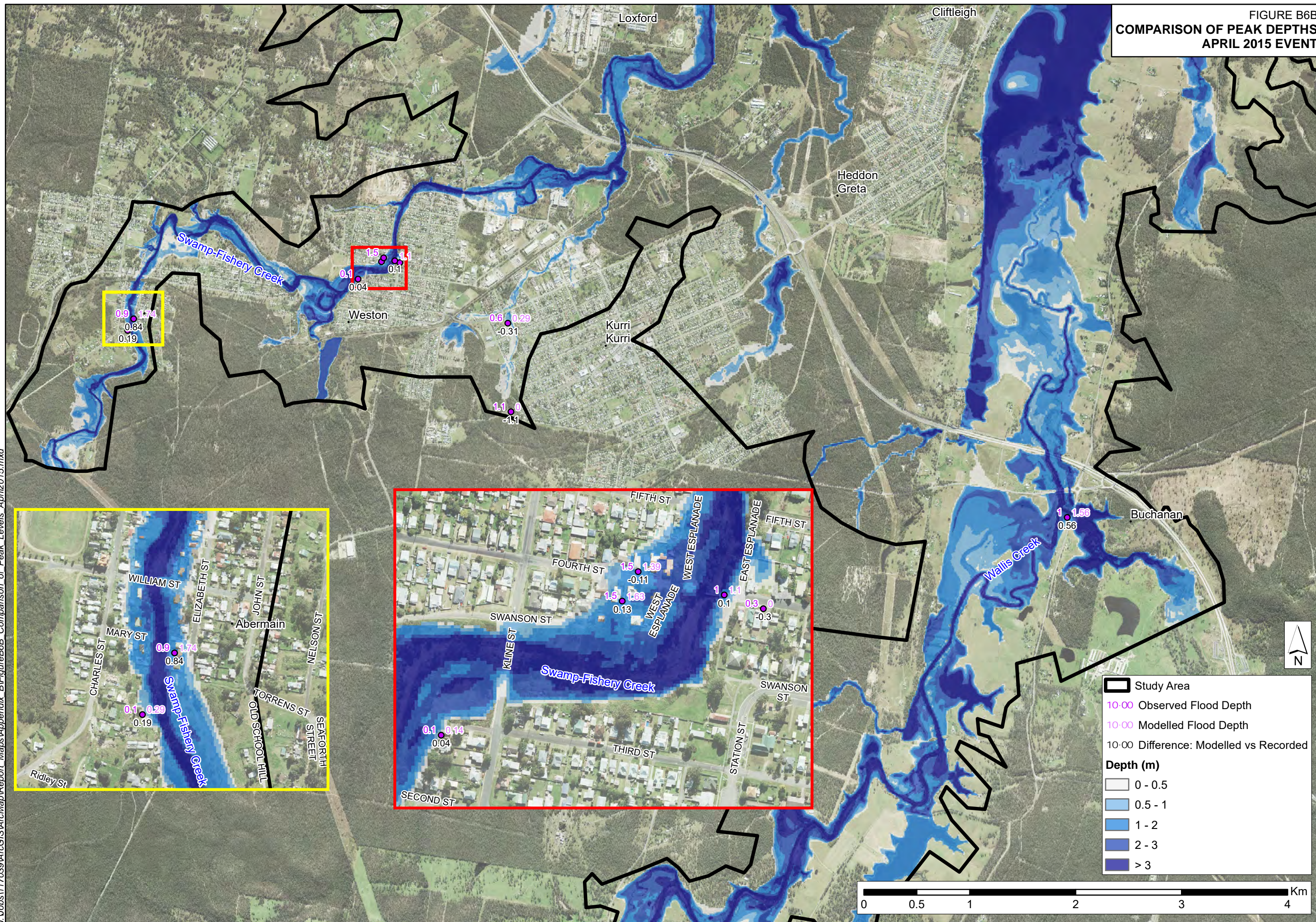


FIGURE B6B
COMPARISON OF PEAK DEPTHS
APRIL 2015 EVENT



APPENDIX C. CRITICAL STORM ANALYSIS

Figure C1: Subcatchments Used to Analyse Critical Storm Duration

Figure C2: 1% AEP Peak Flow Box Plot at 3E

Figure C3: 1% AEP Peak Flow Box Plot at 3T

Figure C4: 1% AEP Volume Box Plot at 3AC



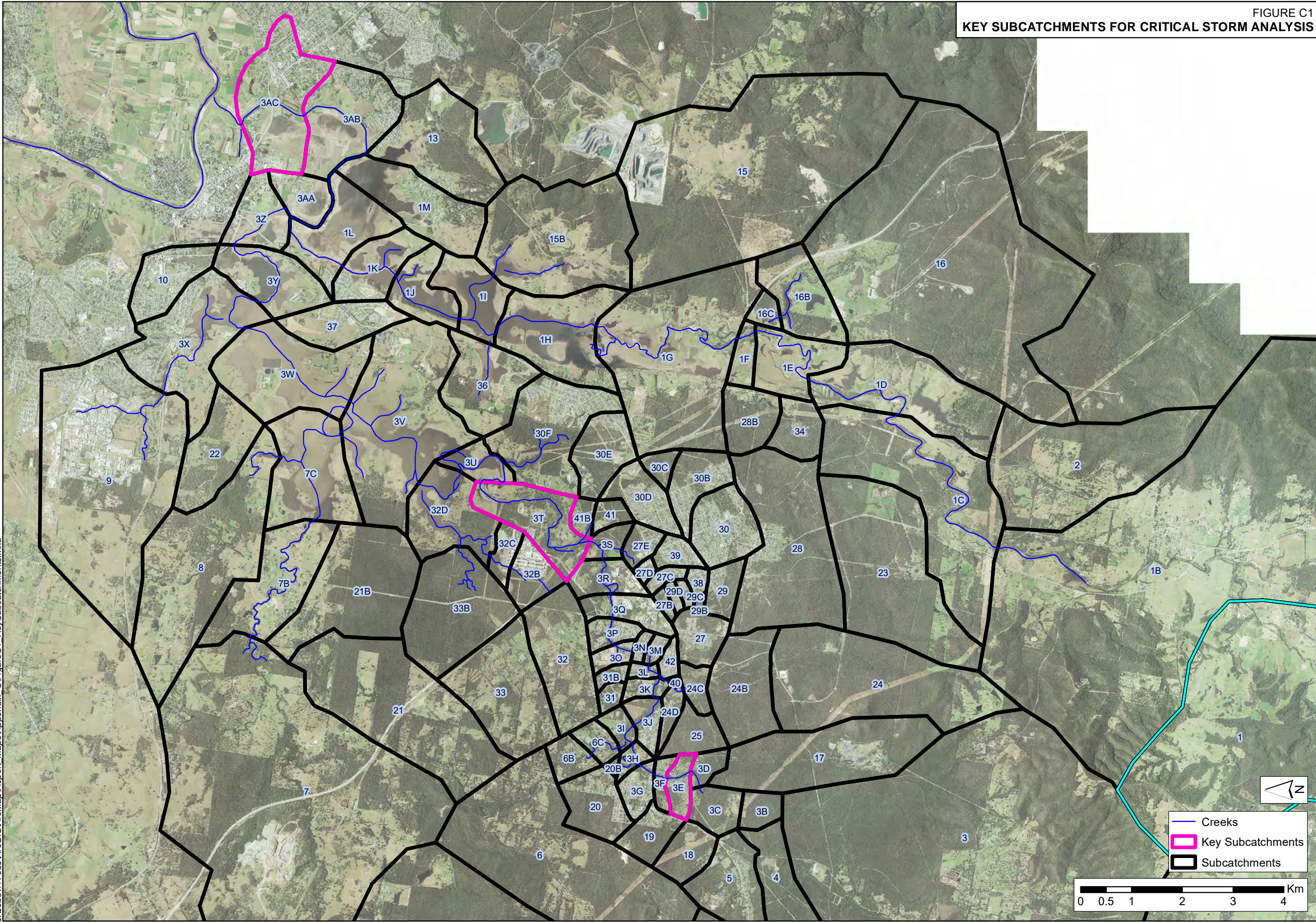


Figure C2: Box Plot of Peak Flows at Subcatchment 3E - 1% AEP Event

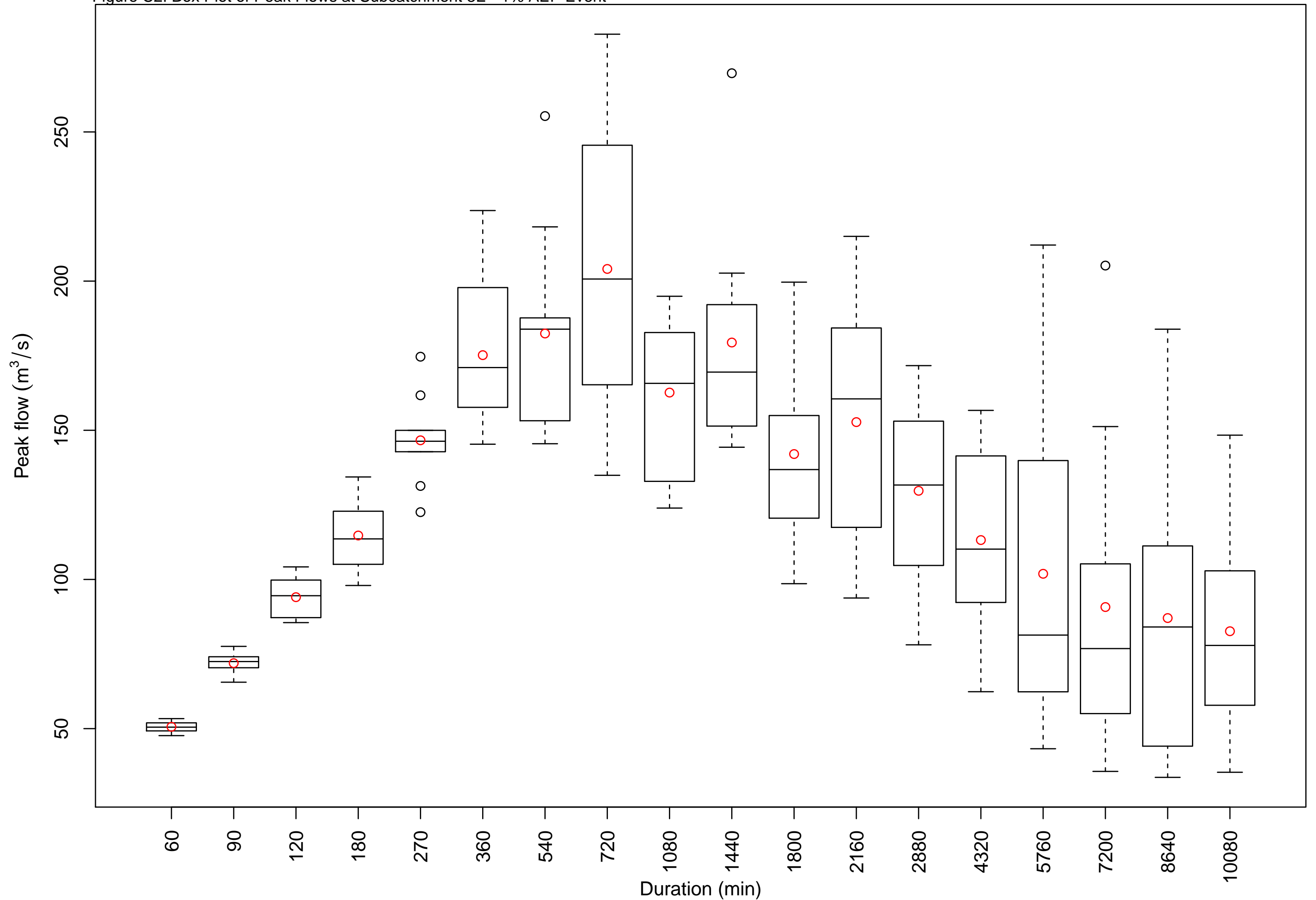


Figure C3: Box Plot of Peak Flows at Subcatchment 3T - 1% AEP Event

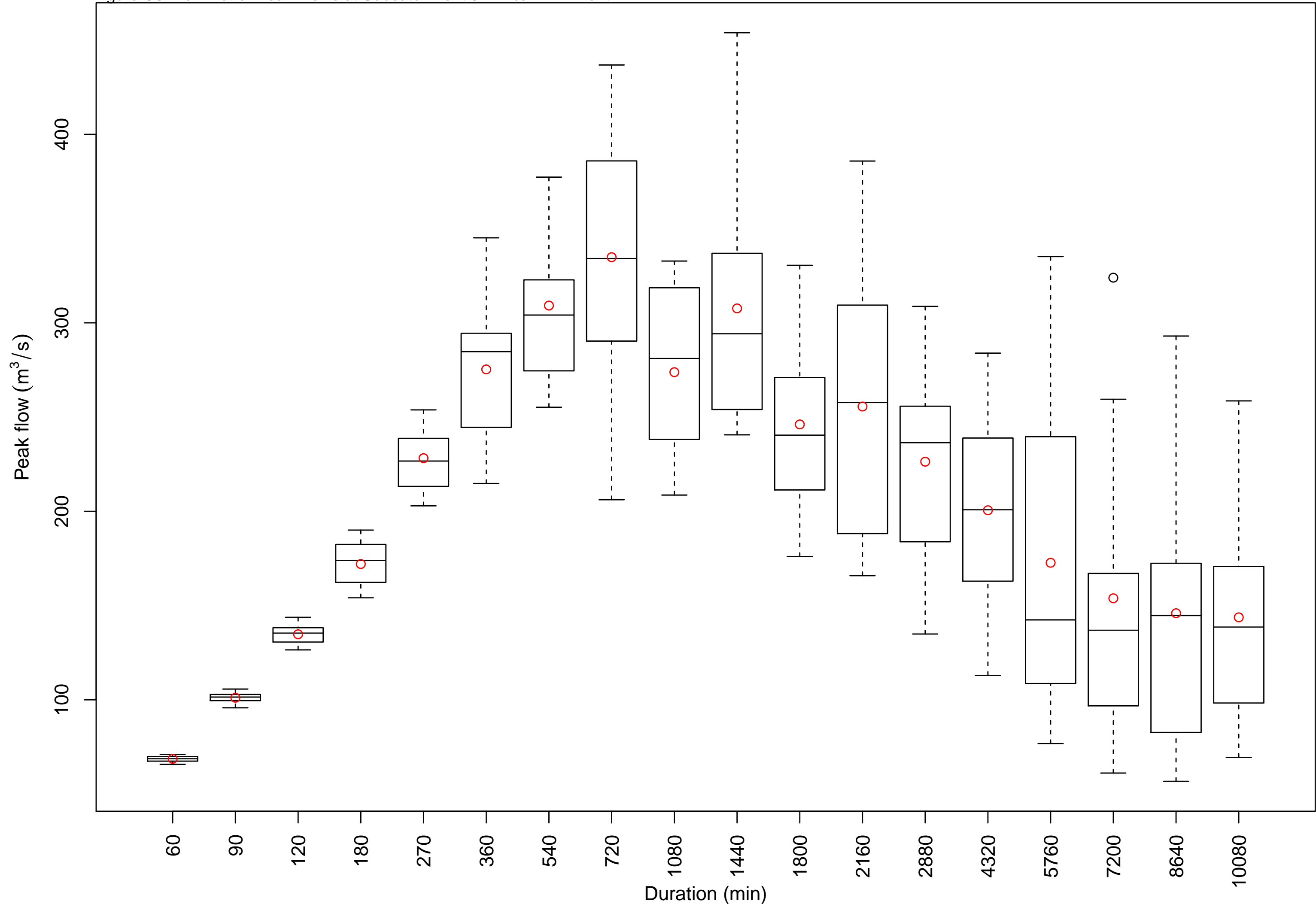
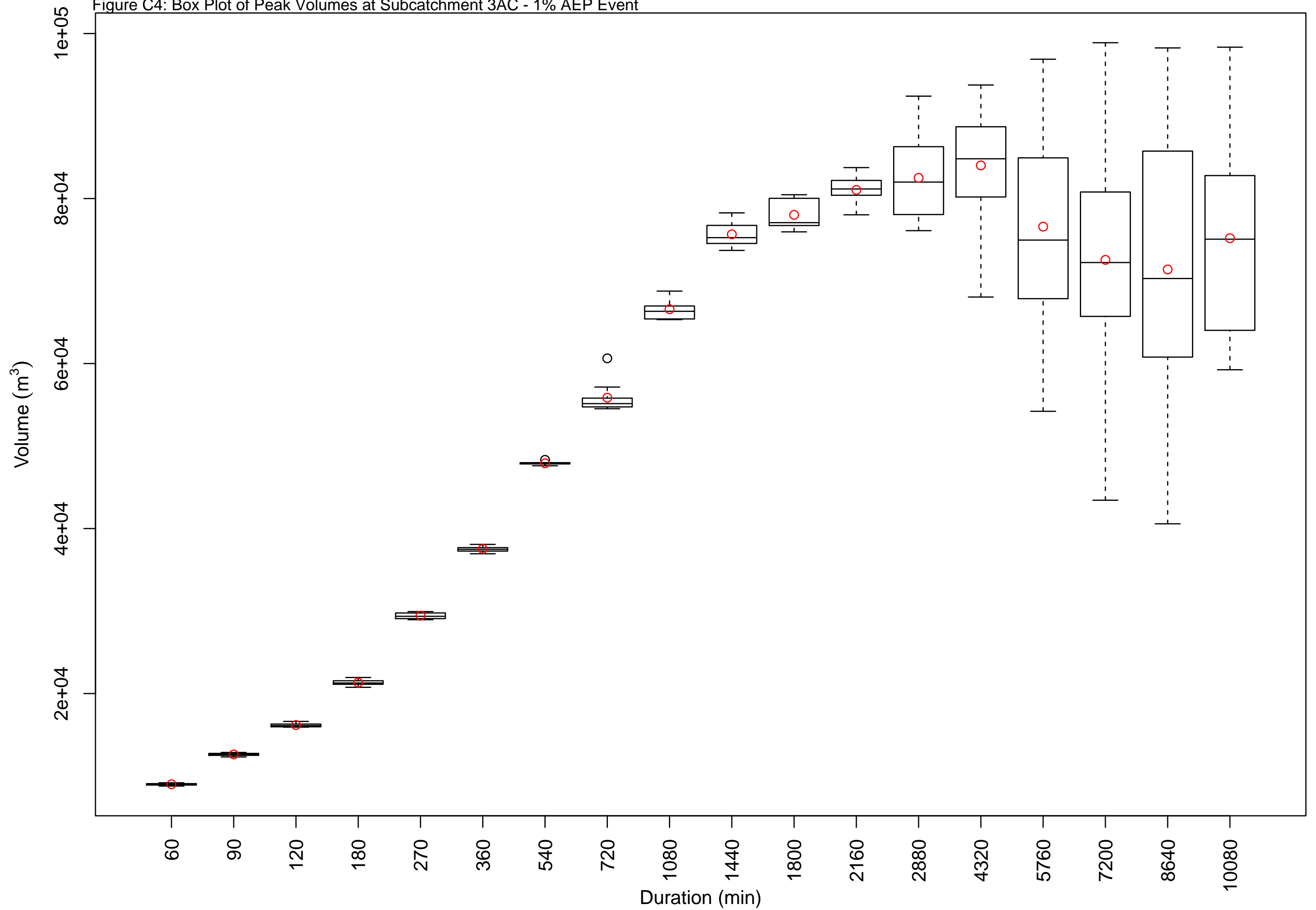


Figure C4: Box Plot of Peak Volumes at Subcatchment 3AC - 1% AEP Event



APPENDIX D. DESIGN FLOOD MAPPING

Figure D1: Peak Flood Depths and Level Contours – 50% AEP Event

Figure D2: Peak Flood Depths and Level Contours – 20% AEP Event

Figure D3: Peak Flood Depths and Level Contours – 10% AEP Event

Figure D4: Peak Flood Depths and Level Contours – 5% AEP Event

Figure D5: Peak Flood Depths and Level Contours – 2% AEP Event

Figure D6: Peak Flood Depths and Level Contours – 1% AEP Event

Figure D7: Peak Flood Depths and Level Contours – 0.5% AEP Event

Figure D8: Peak Flood Depths and Level Contours – 0.2% AEP Event

Figure D9: Peak Flood Depths and Level Contours – PMF Event

Figure D10: Peak Flood Velocities – 50% AEP Event

Figure D11: Peak Flood Velocities – 20% AEP Event

Figure D12: Peak Flood Velocities – 10% AEP Event

Figure D13: Peak Flood Velocities – 5% AEP Event

Figure D14: Peak Flood Velocities – 2% AEP Event

Figure D15: Peak Flood Velocities – 1% AEP Event

Figure D16: Peak Flood Velocities – 0.5% AEP Event

Figure D17: Peak Flood Velocities – 0.2% AEP Event

Figure D18: Peak Flood Velocities – PMF Event

Figure D19: Flood Hazard Categories (FDM) – 10% AEP Event

Figure D20: Flood Hazard Categories (FDM) – 5% AEP Event

Figure D21: Flood Hazard Categories (FDM) – 1% AEP Event

Figure D22: Flood Hazard Categories (FDM) – PMF Event

Figure D23: Flood Hazard Categories (ADR) – 10% AEP Event

Figure D24: Flood Hazard Categories (ADR) – 5% AEP Event

Figure D25: Flood Hazard Categories (ADR) – 1% AEP Event

Figure D26: Flood Hazard Categories (ADR) – PMF Event

Figure D27: Provisional Hydraulic Categories – 10% AEP Event

Figure D28: Provisional Hydraulic Categories – 5% AEP Event

Figure D29: Provisional Hydraulic Categories – 1% AEP Event

Figure D30: Provisional Hydraulic Categories – 0.5% AEP Event

Figure D31: Provisional Hydraulic Categories – PMF Event

Figure D32: SES Flood Emergency Response Classifications – 10% AEP Event

Figure D33: SES Flood Emergency Response Classifications – 5% AEP Event

Figure D34: SES Flood Emergency Response Classifications – 1% AEP Event

Figure D35: SES Flood Emergency Response Classifications – PMF Event

Figure D36: Preliminary Flood Planning Area

Figure D37: William Street Flooding Hotspot

Figure D38: Fourth Street Flooding Hotspot

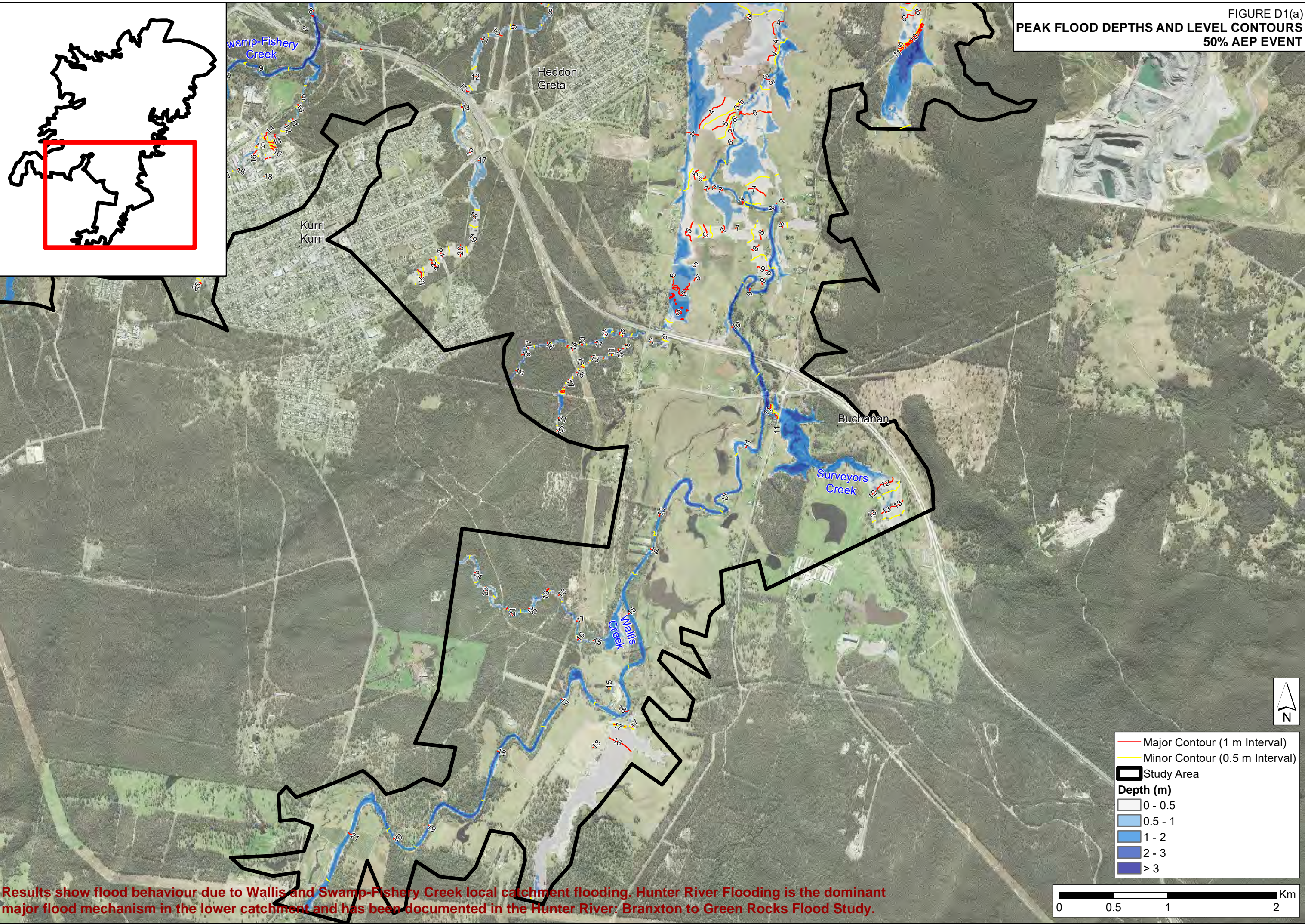
Figure D39: Government Road Flooding Hotspot

Figure D40: Gillieston Heights Flooding Hotspot

Figure D41: Flood Storages Hotspot



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Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

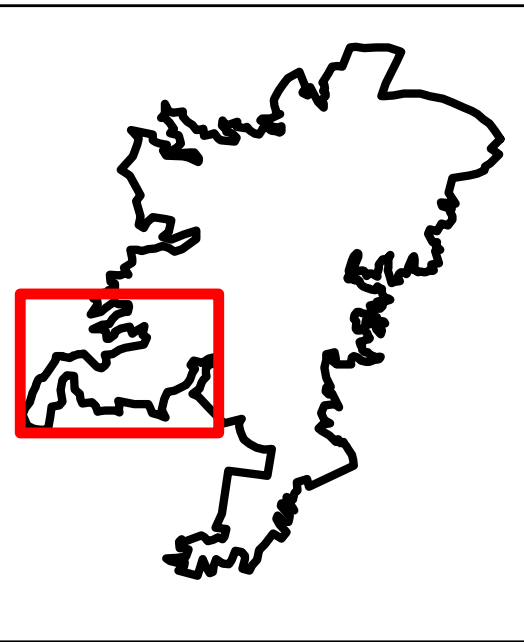
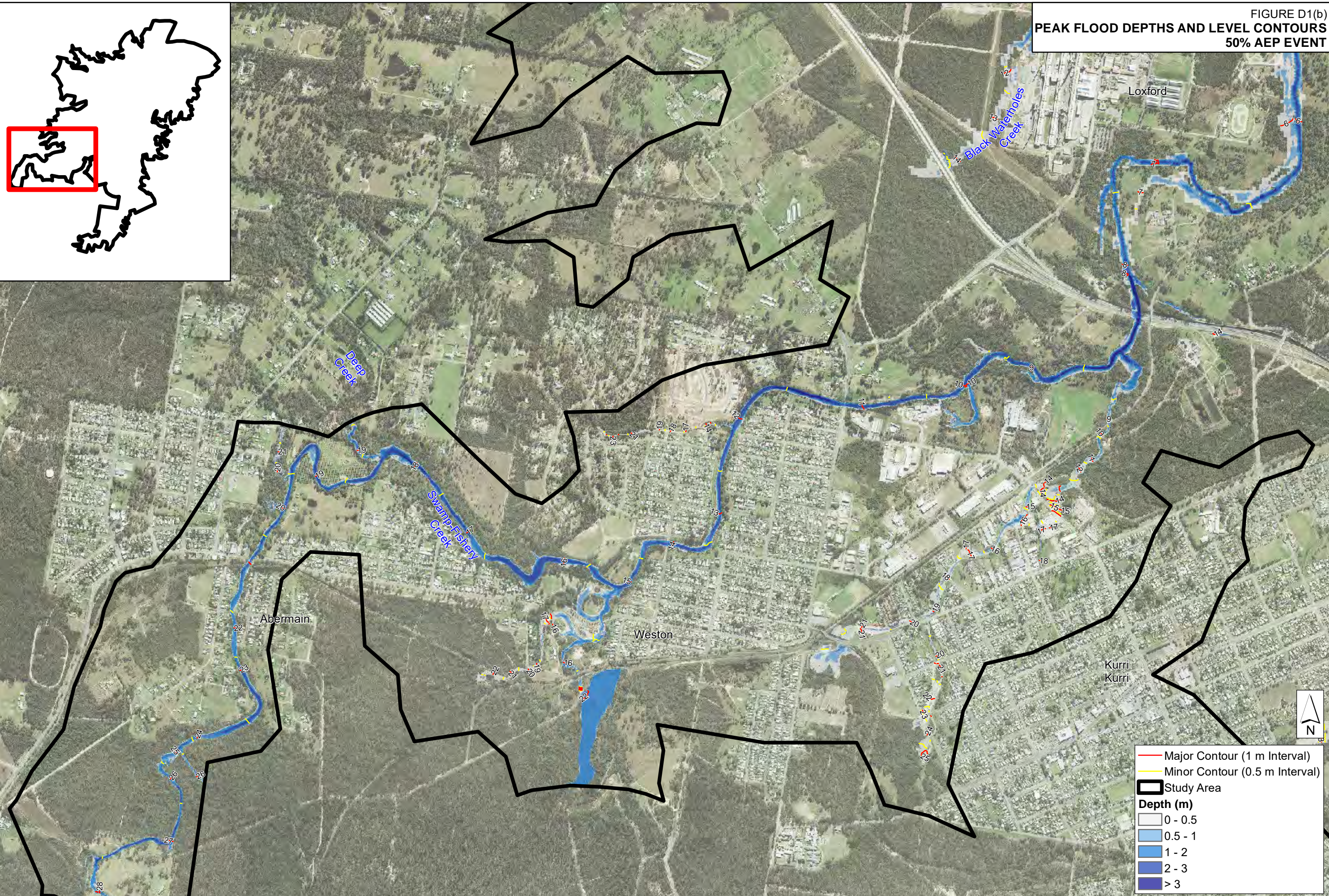


FIGURE D1(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
50% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

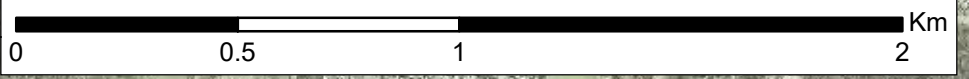
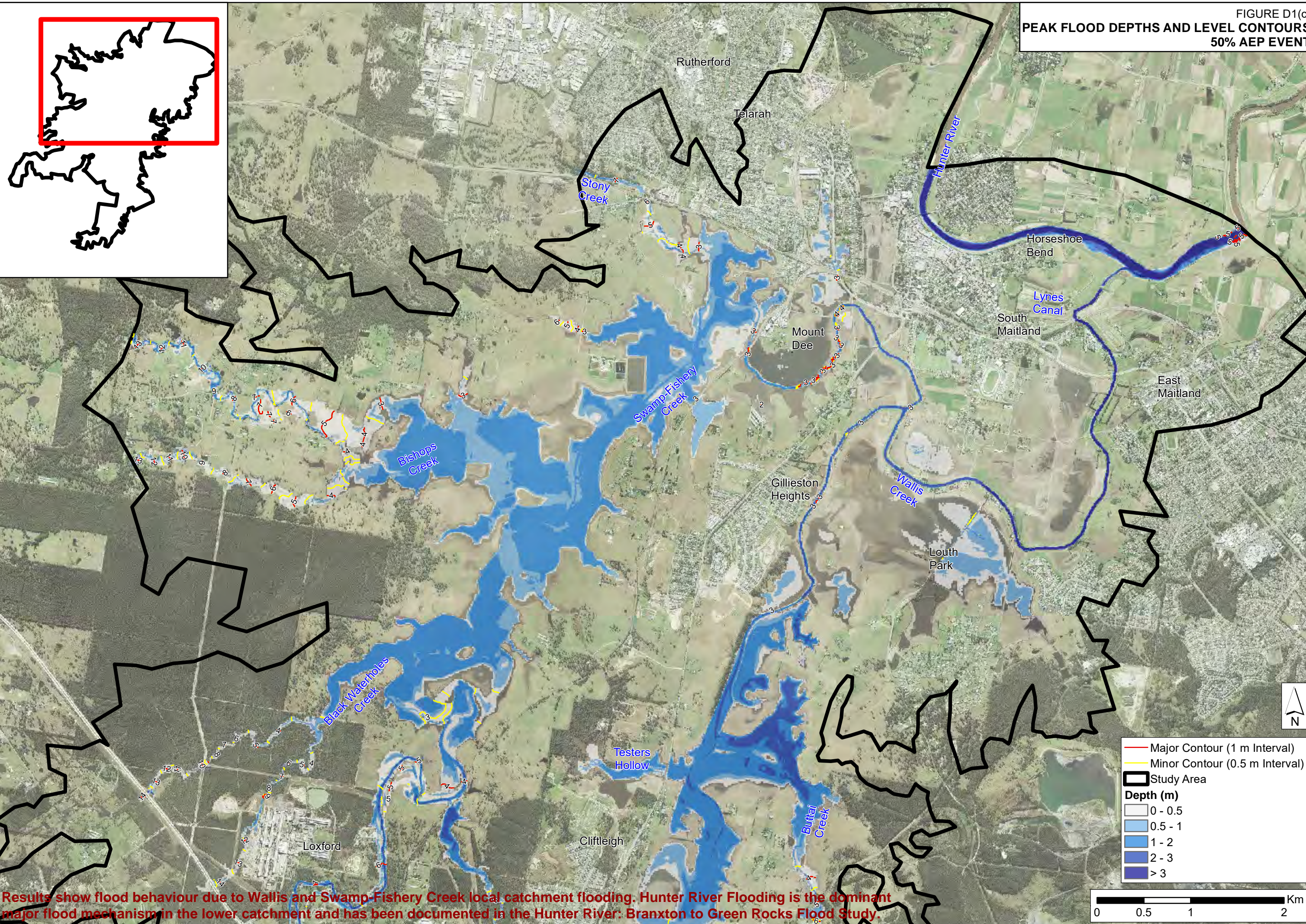
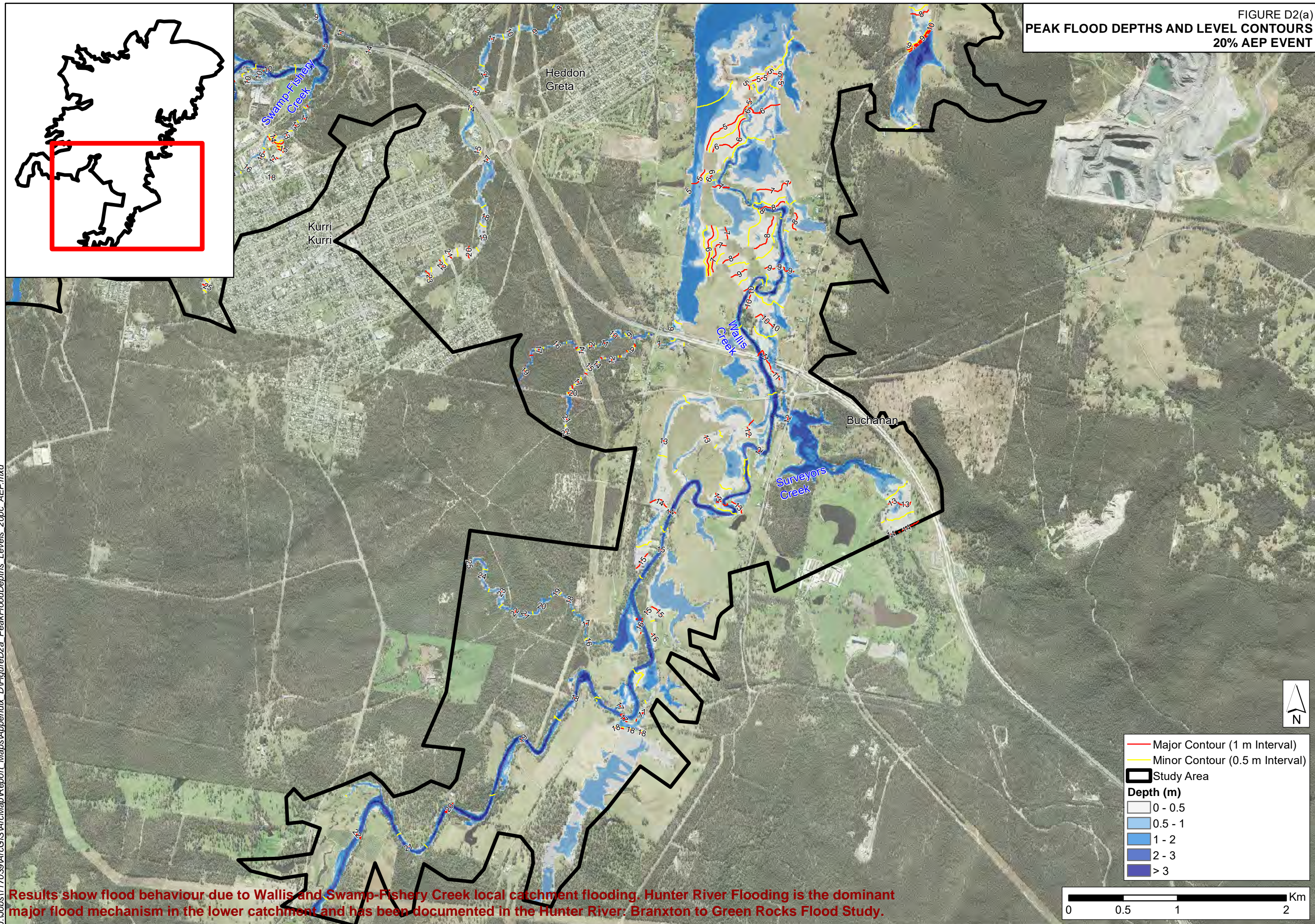


FIGURE D1(c)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
50% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D2(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
20% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

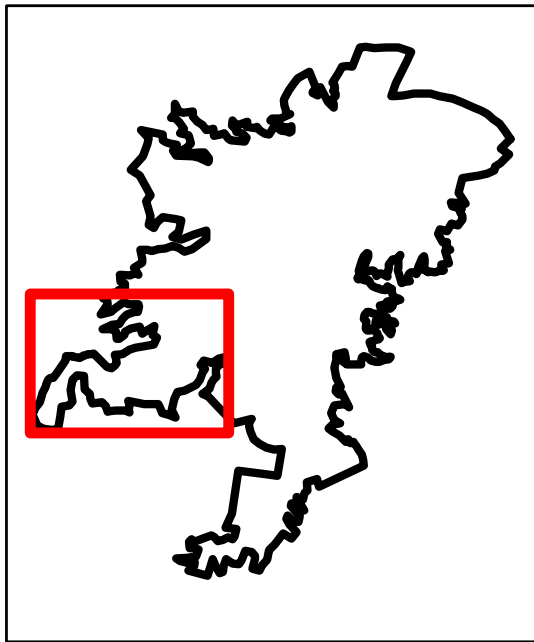
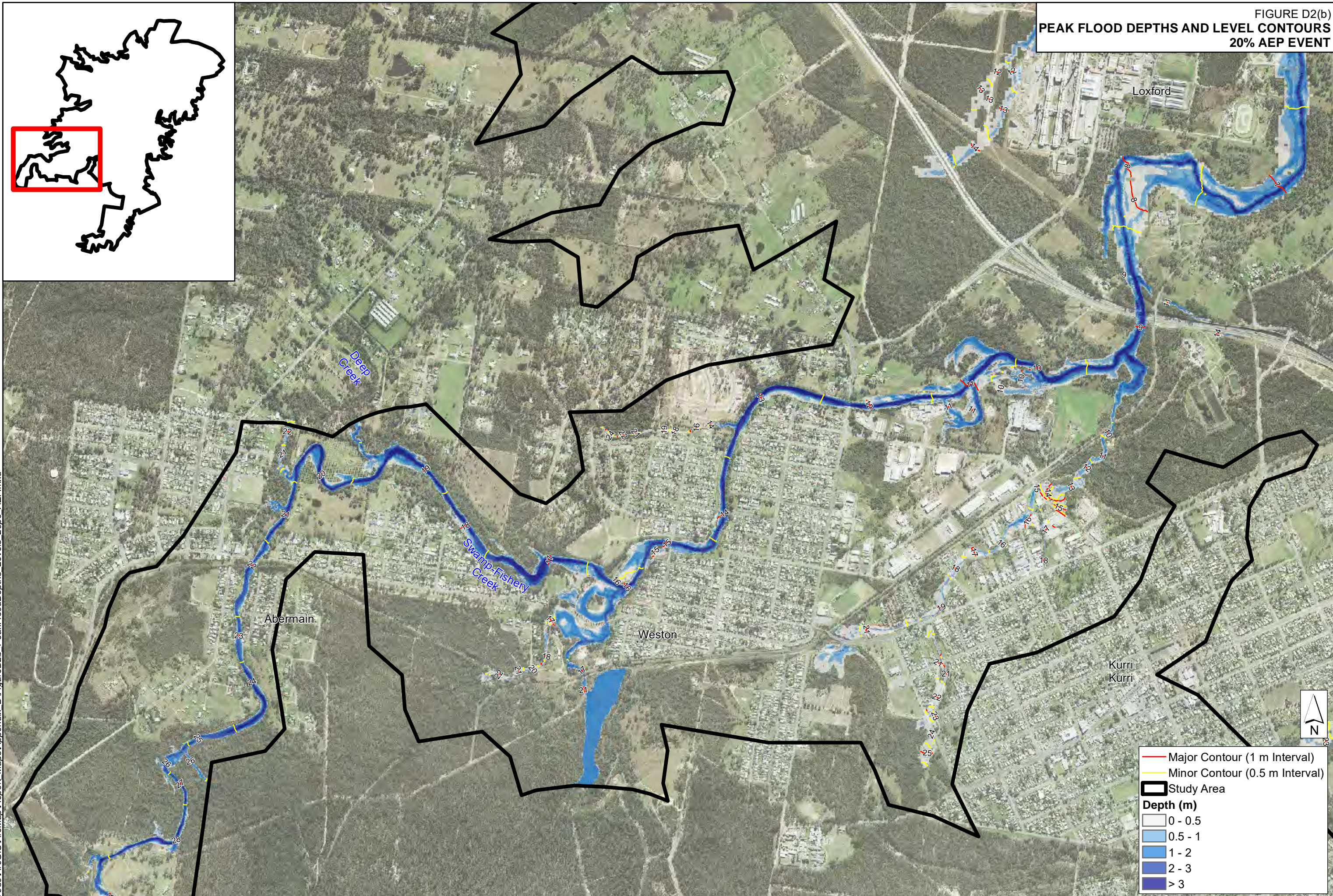
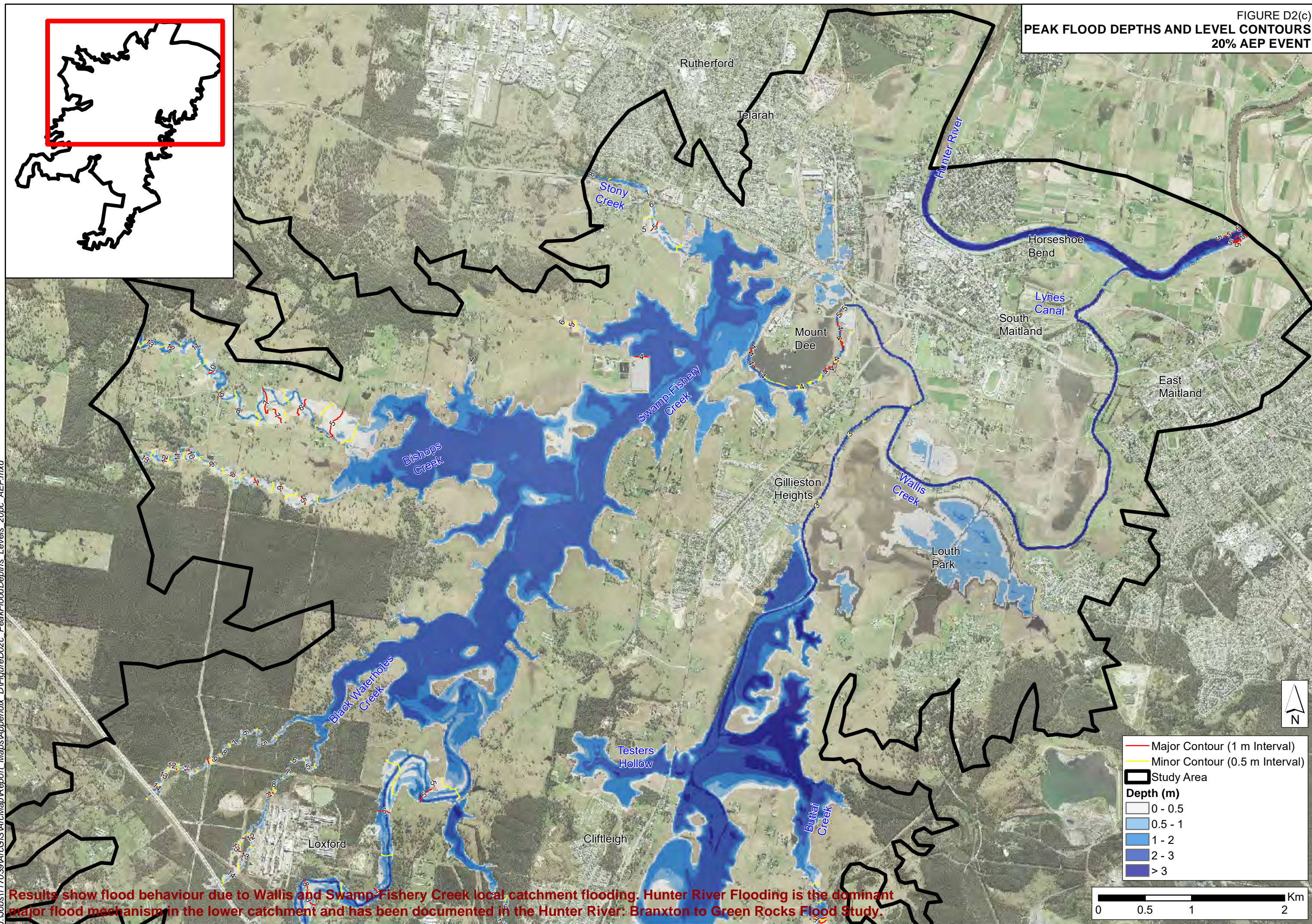


FIGURE D2(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
20% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D2(c)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
20% AEP EVENT



J:\Jobs\1170-39\ArcGIS\Map\Report Maps\Appendix D\FigureD3a PeakFloodDepths Levels 10pc_AEP.mxd

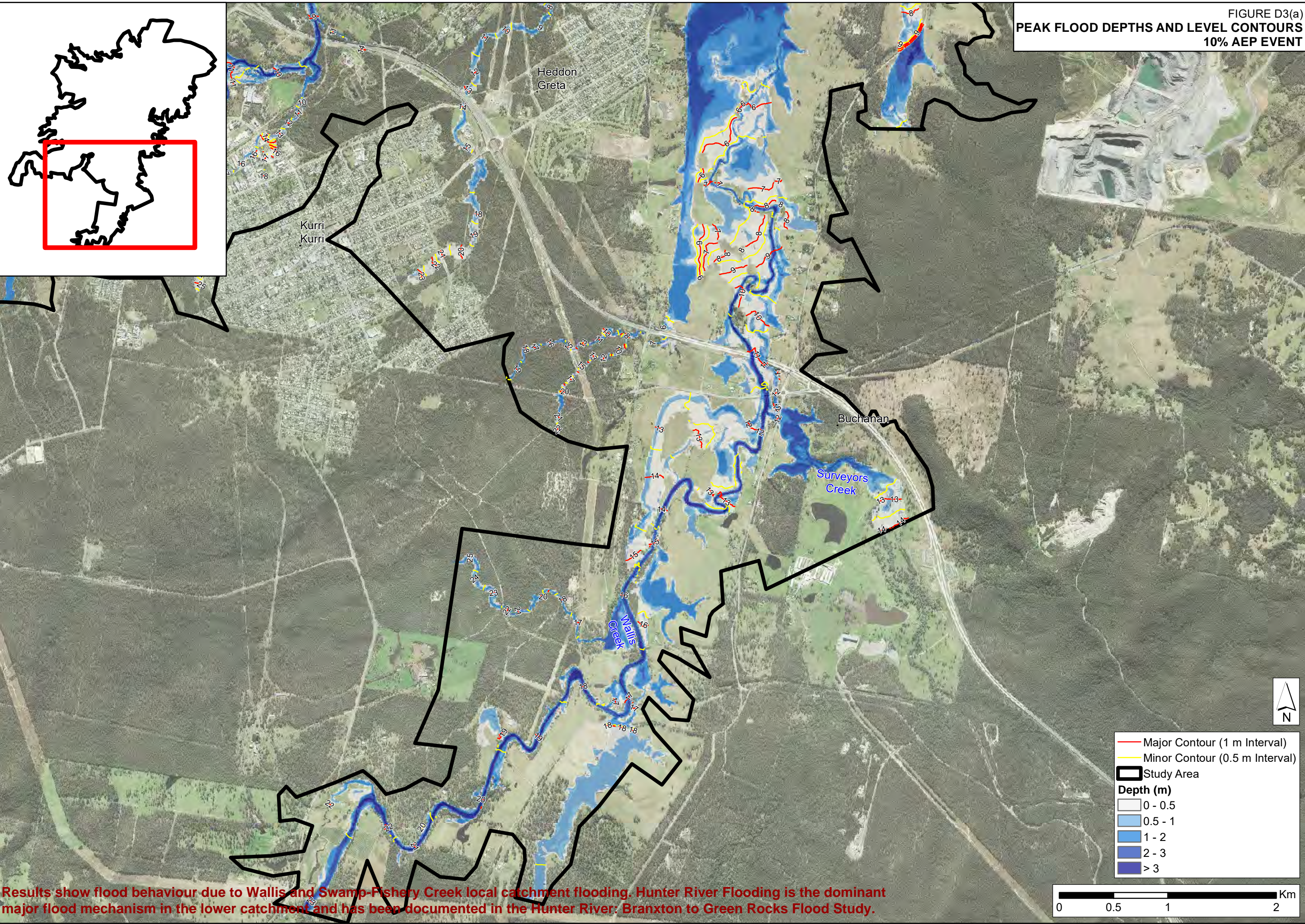


FIGURE D3(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
10% AEP EVENT

Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

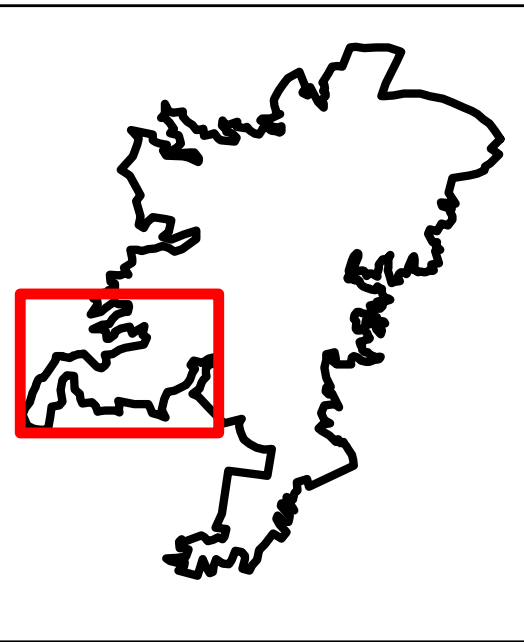
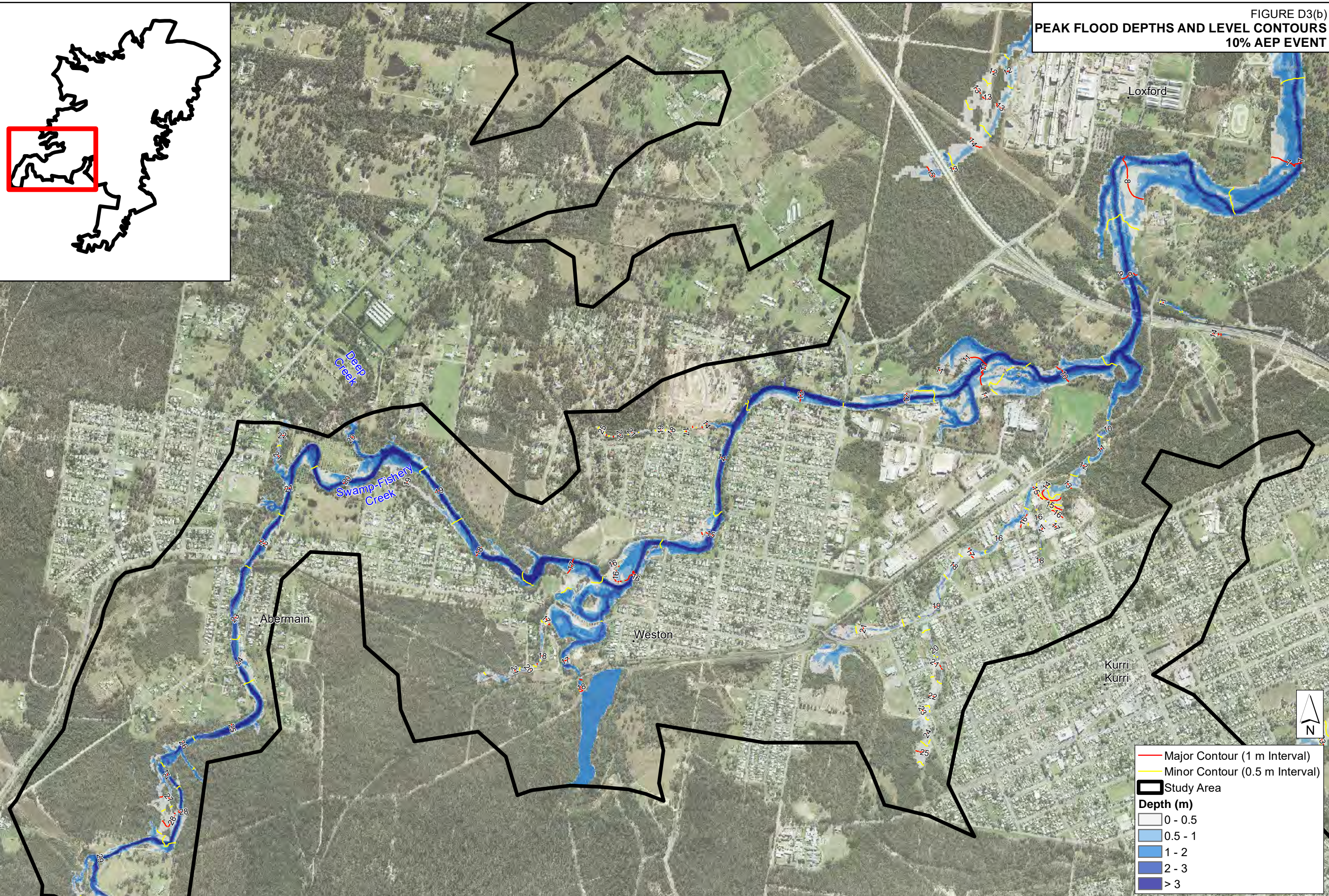
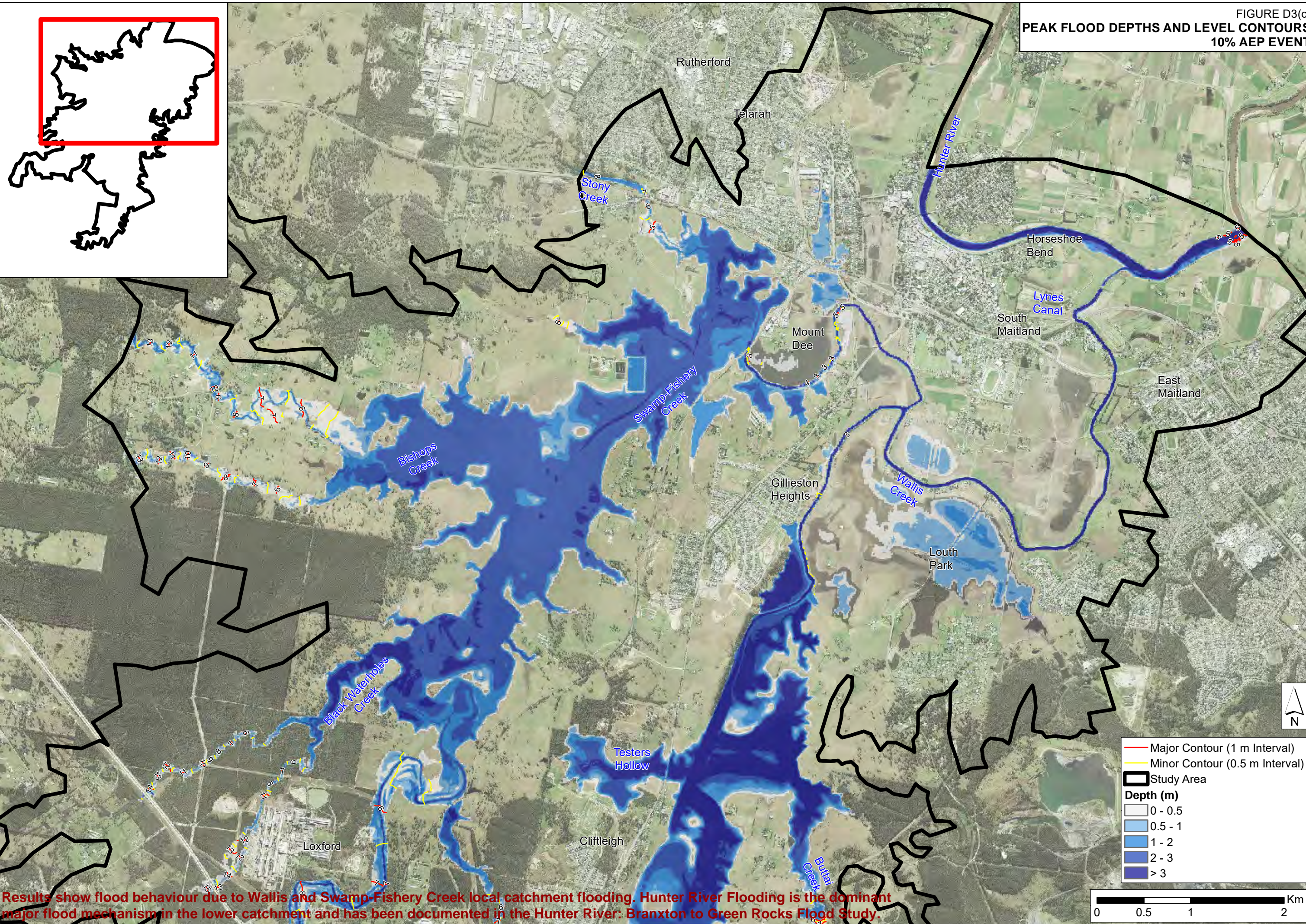


FIGURE D3(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
10% AEP EVENT



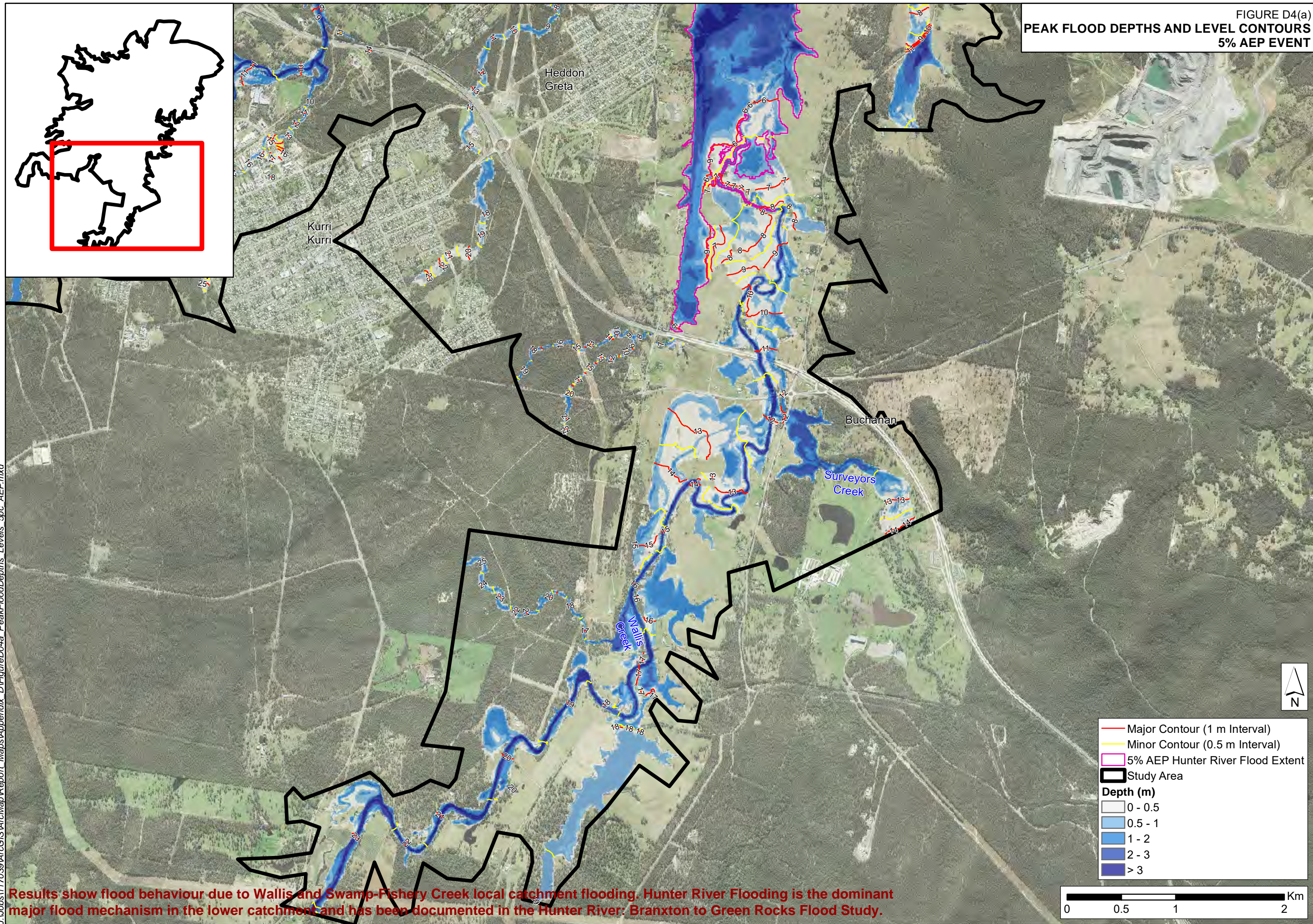
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D3(c)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\1170-39\ArcGIS\Map\Report Maps\Appendix D\FigureD04a_PeakFloodDepths Levels 5pc_AEP.mxd



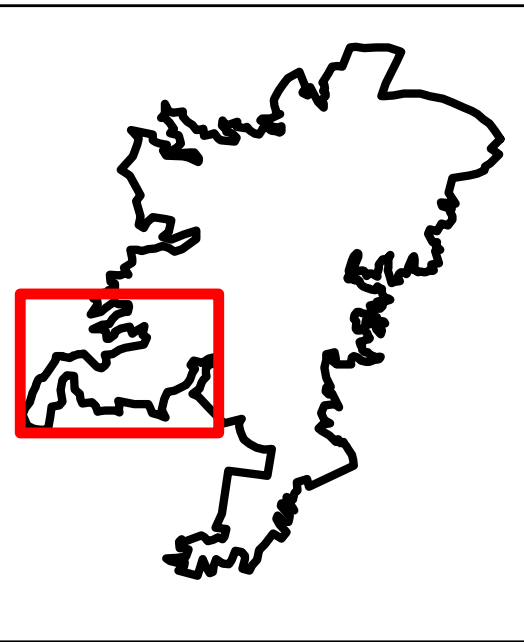
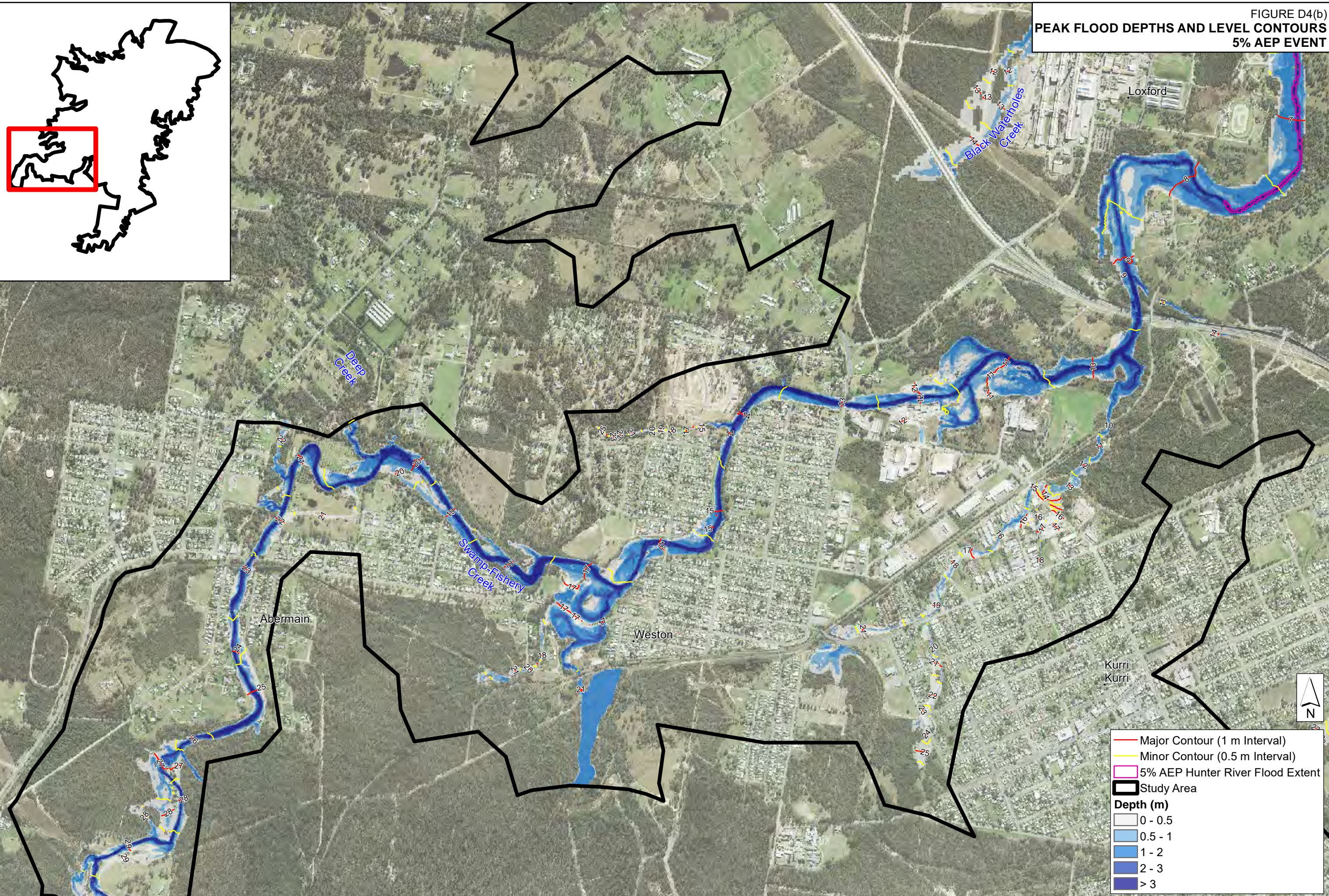


FIGURE D4(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

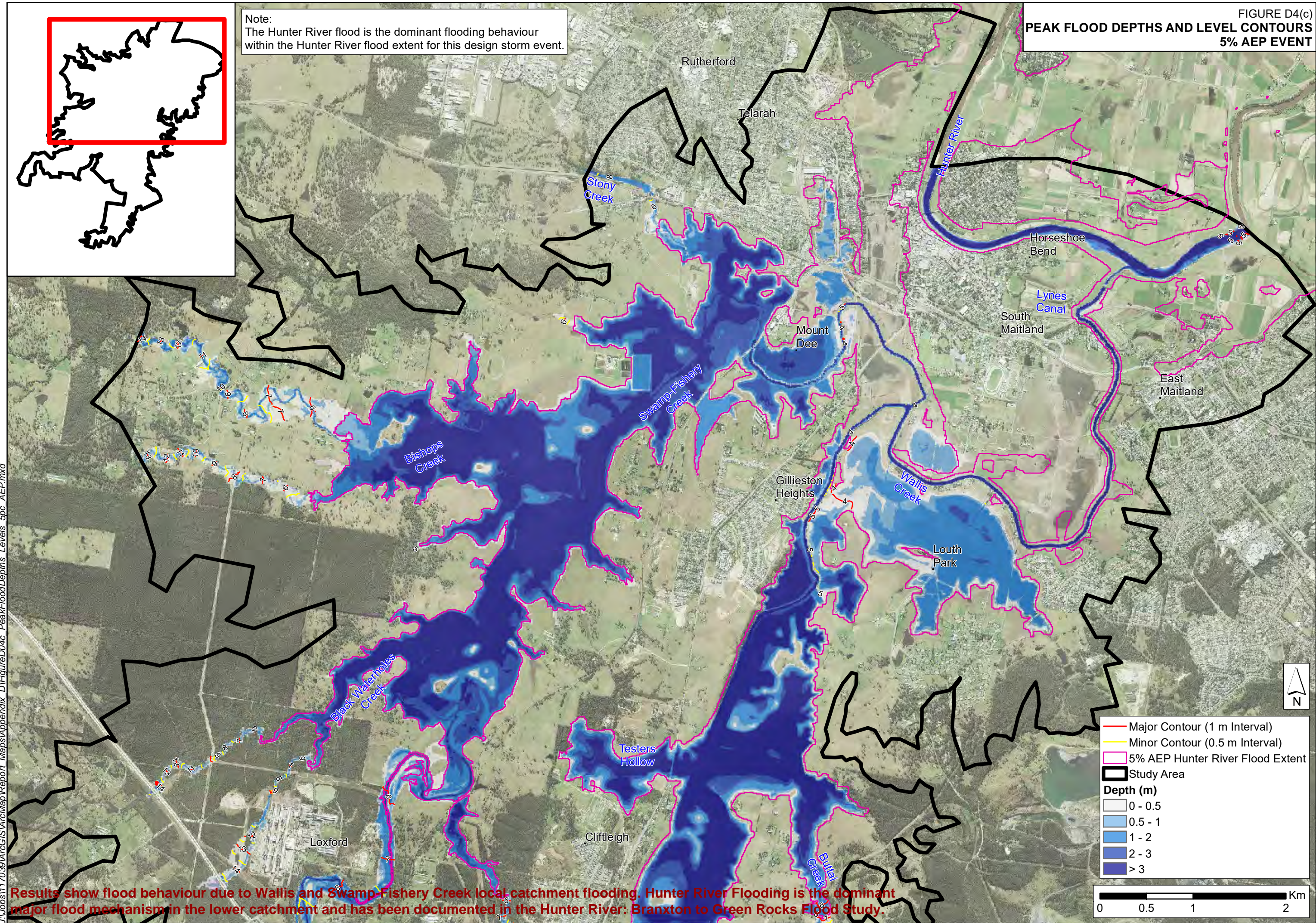
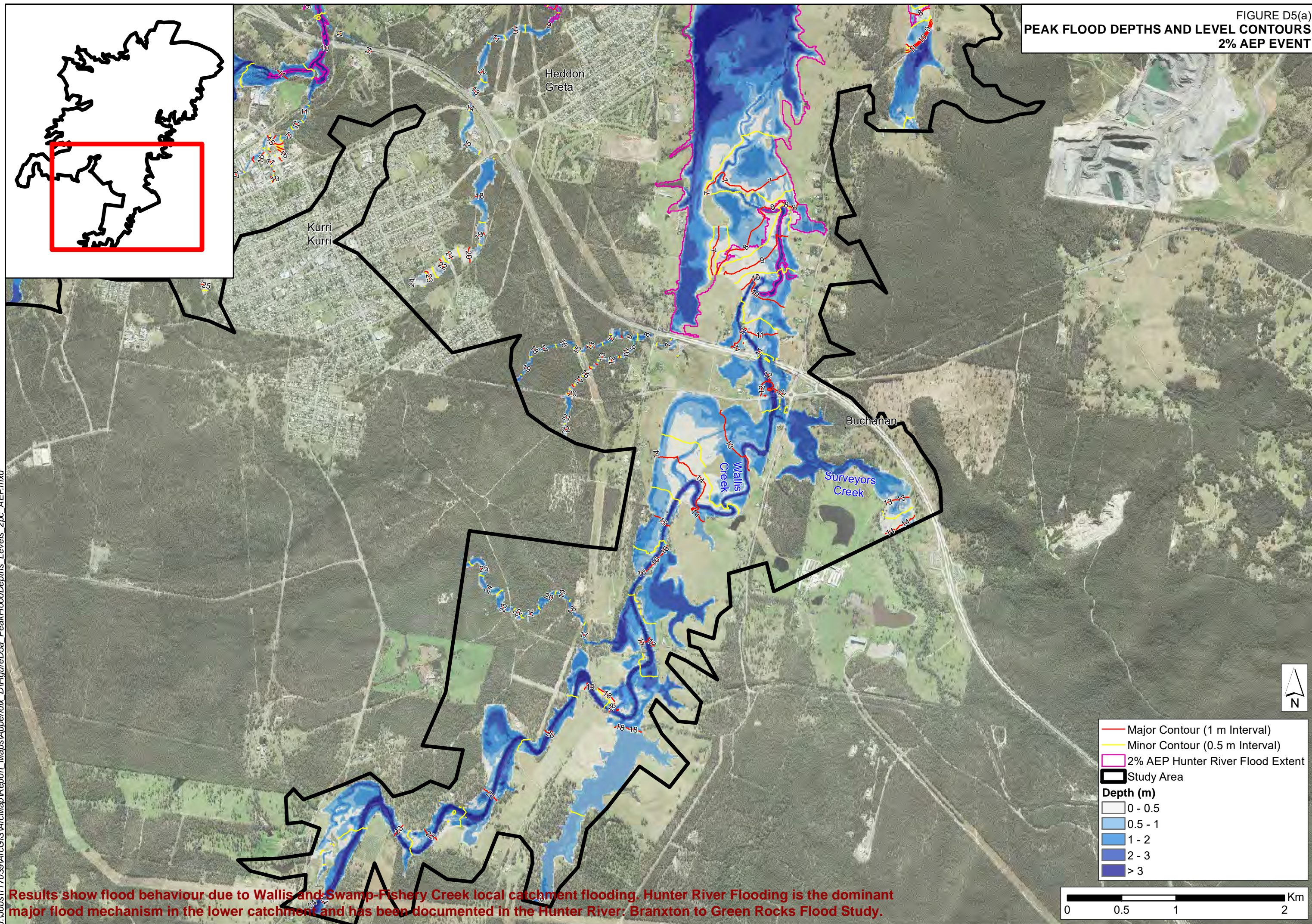
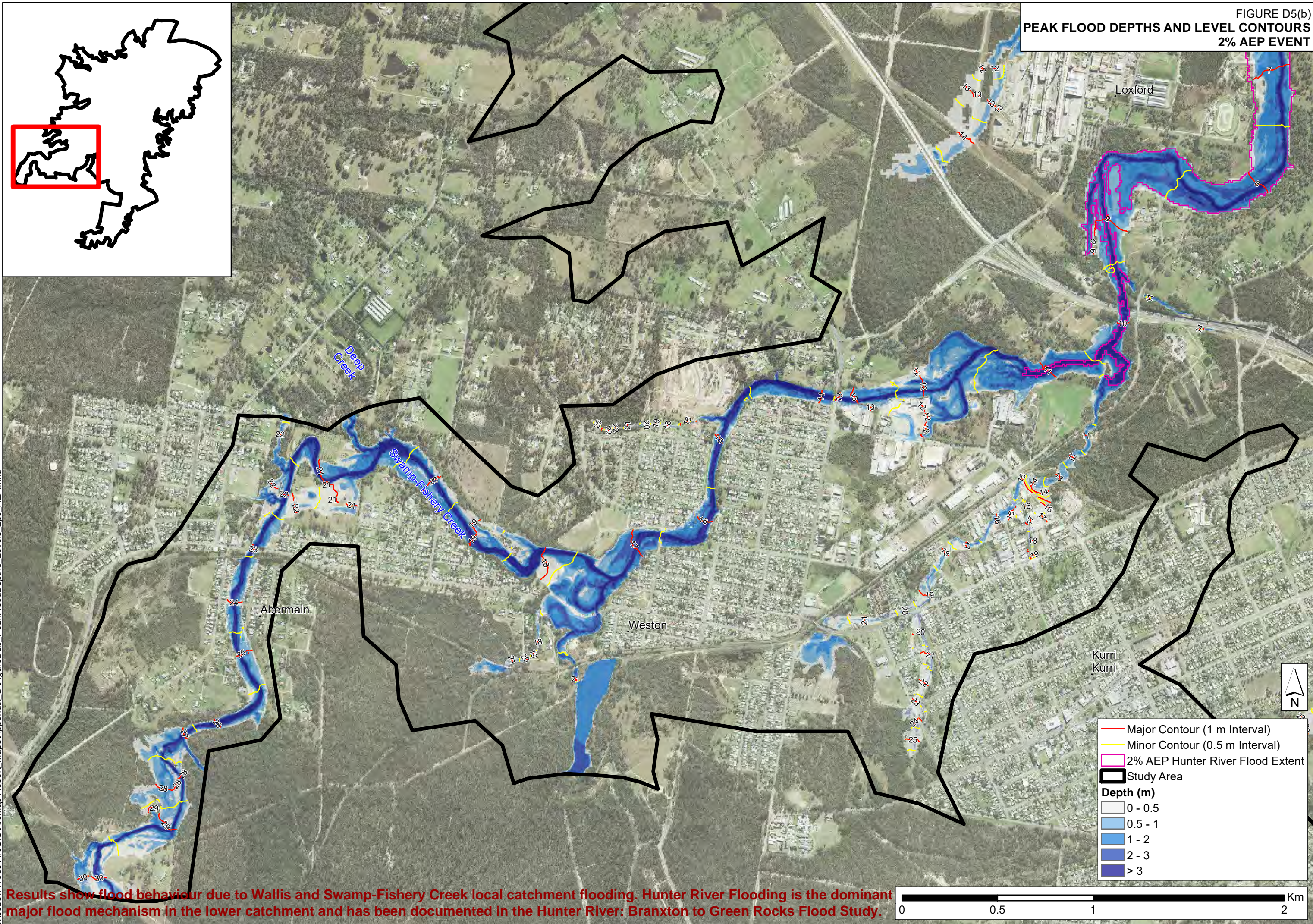
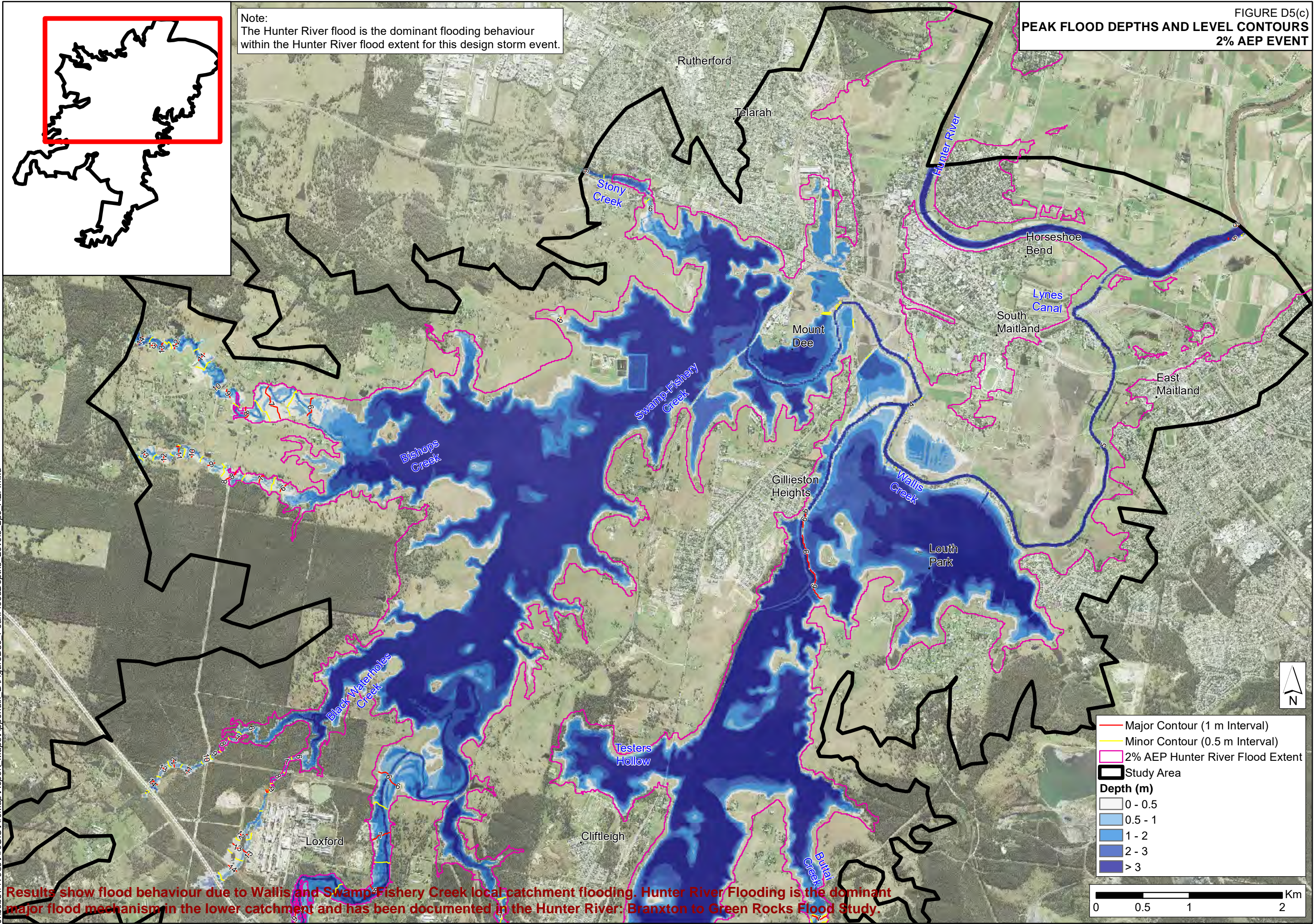


FIGURE D5(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
2% AEP EVENT

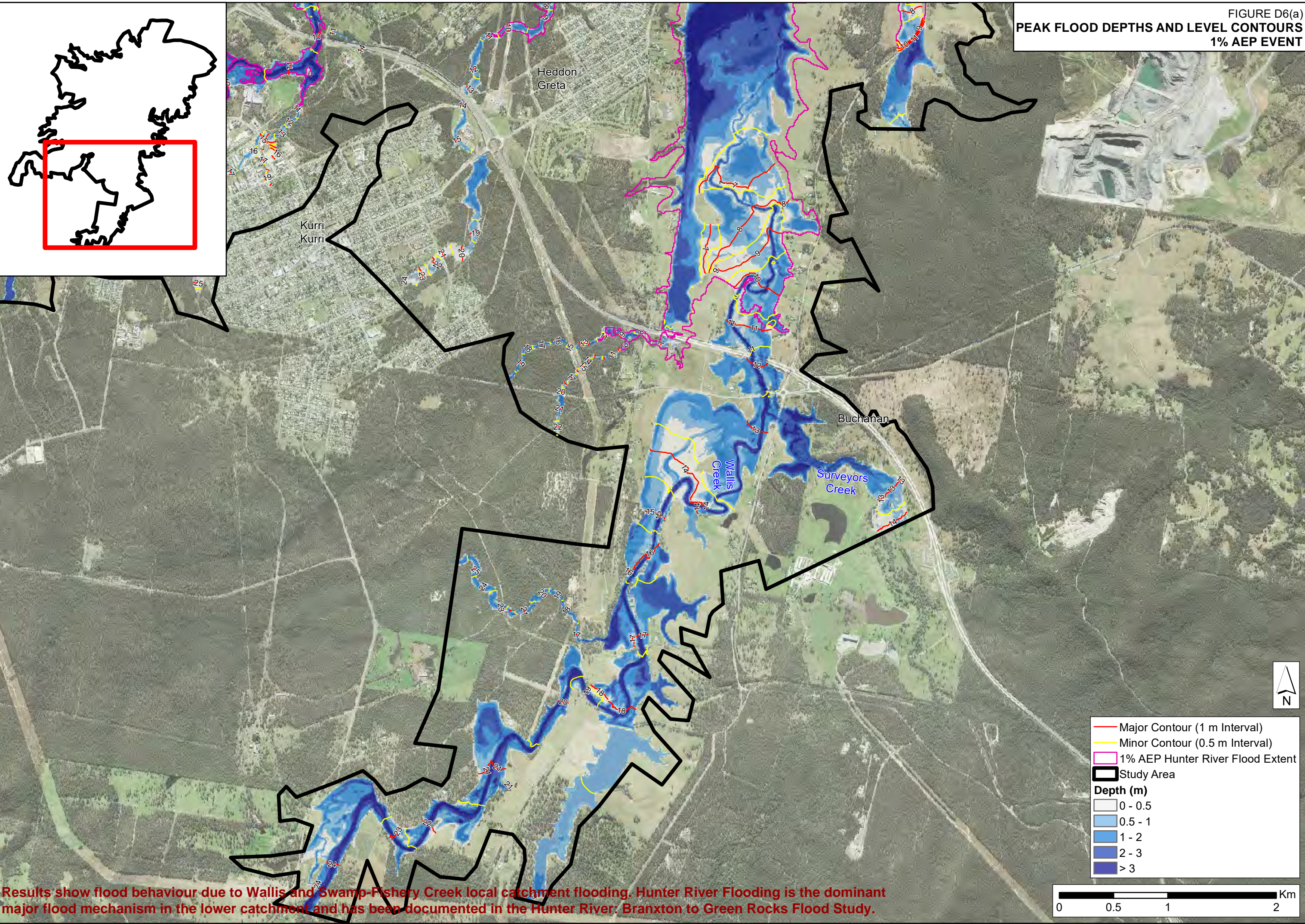




Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



J:\Jobs\1170-39\ArcGIS\MapReport_Maps\Appendix_D\FigureD6a_PeakFloodDepths Levels_1pc_AEP.mxd



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

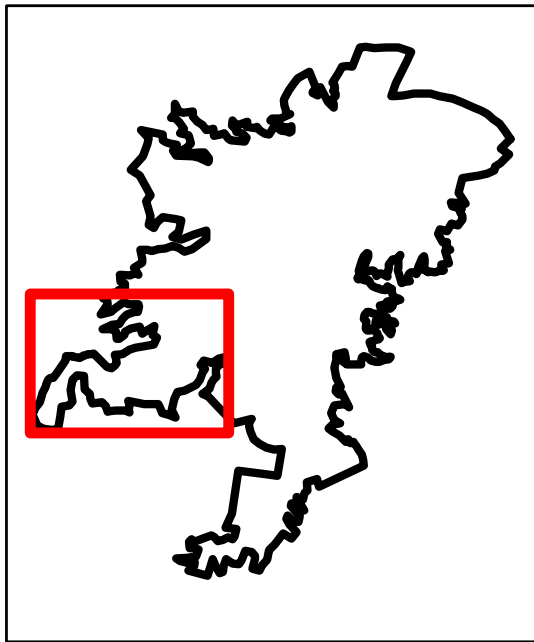
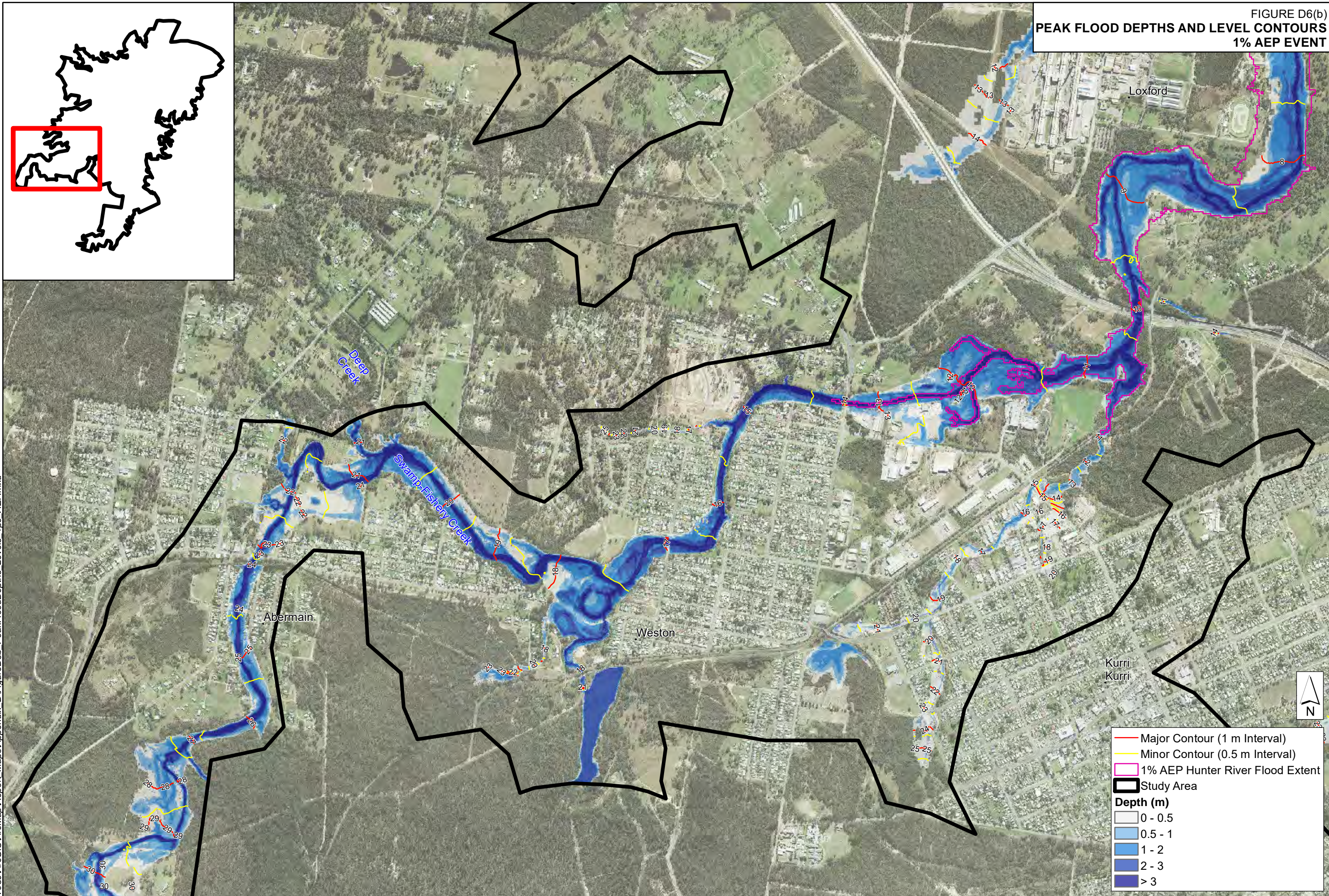
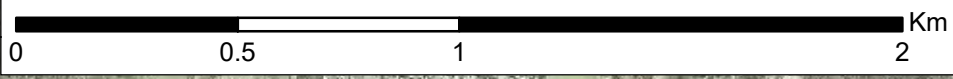


FIGURE D6(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



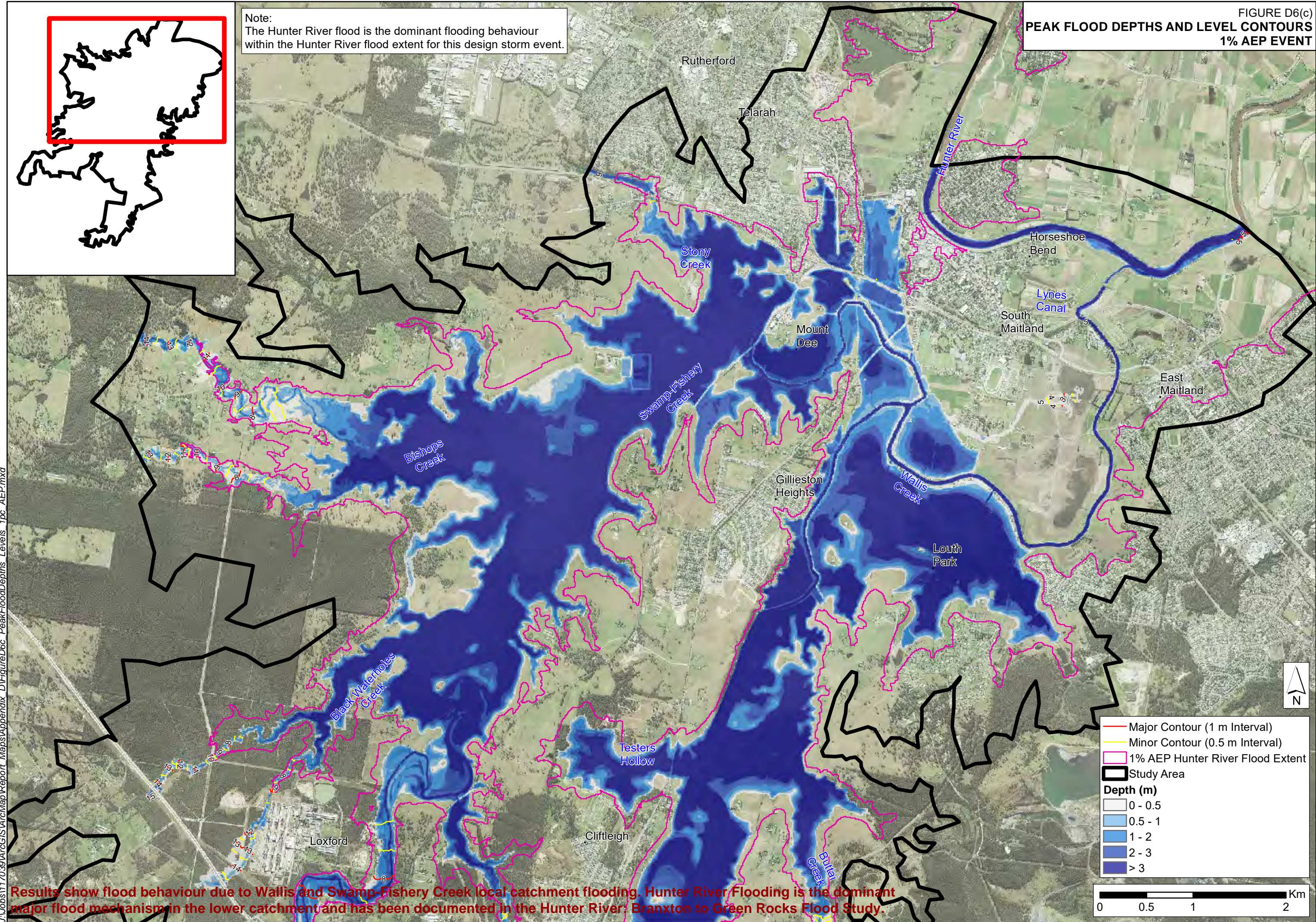
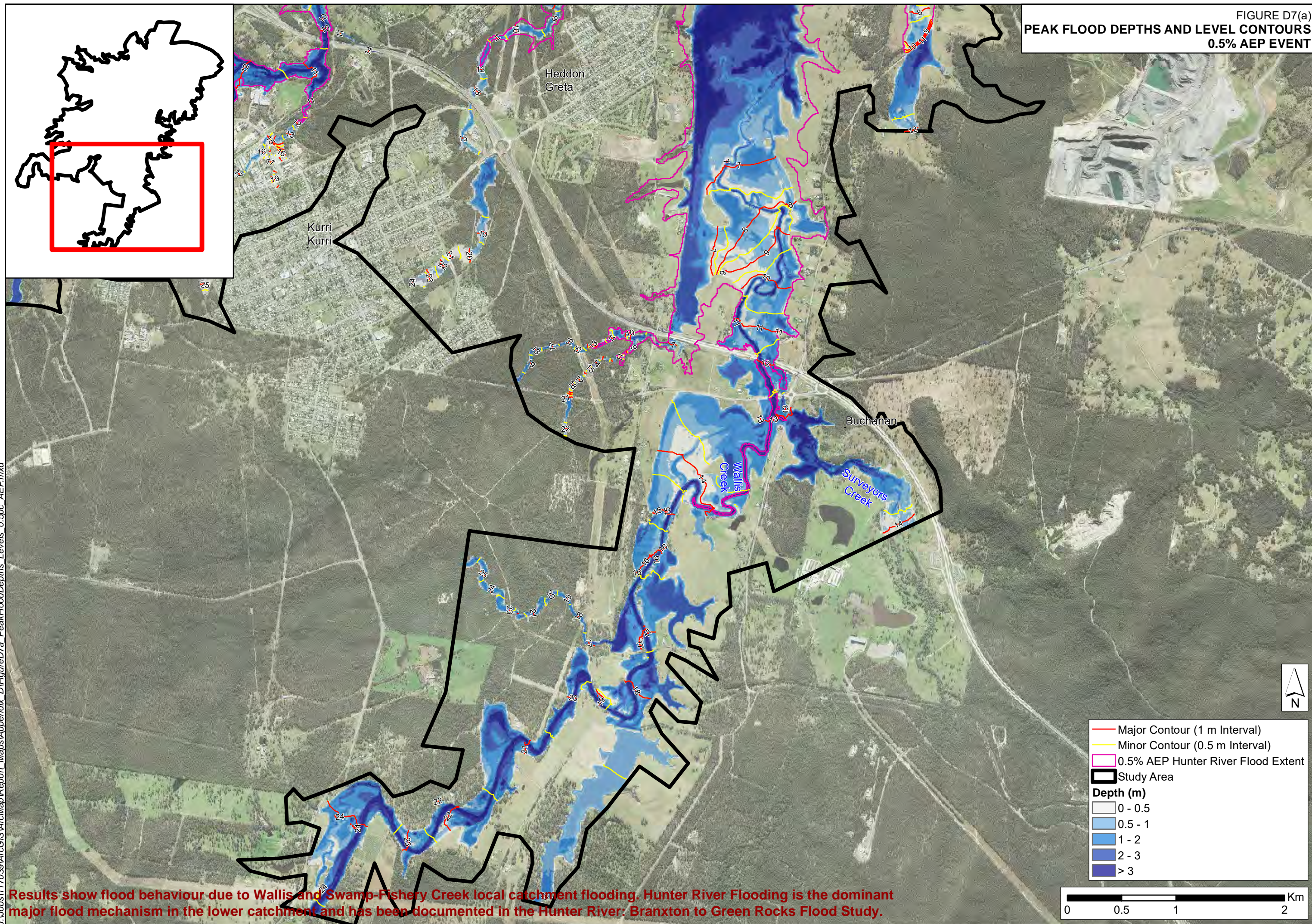


FIGURE D7(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
0.5% AEP EVENT



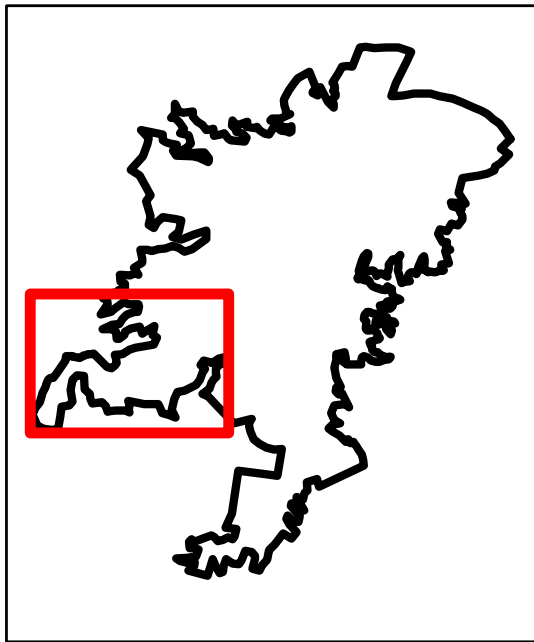
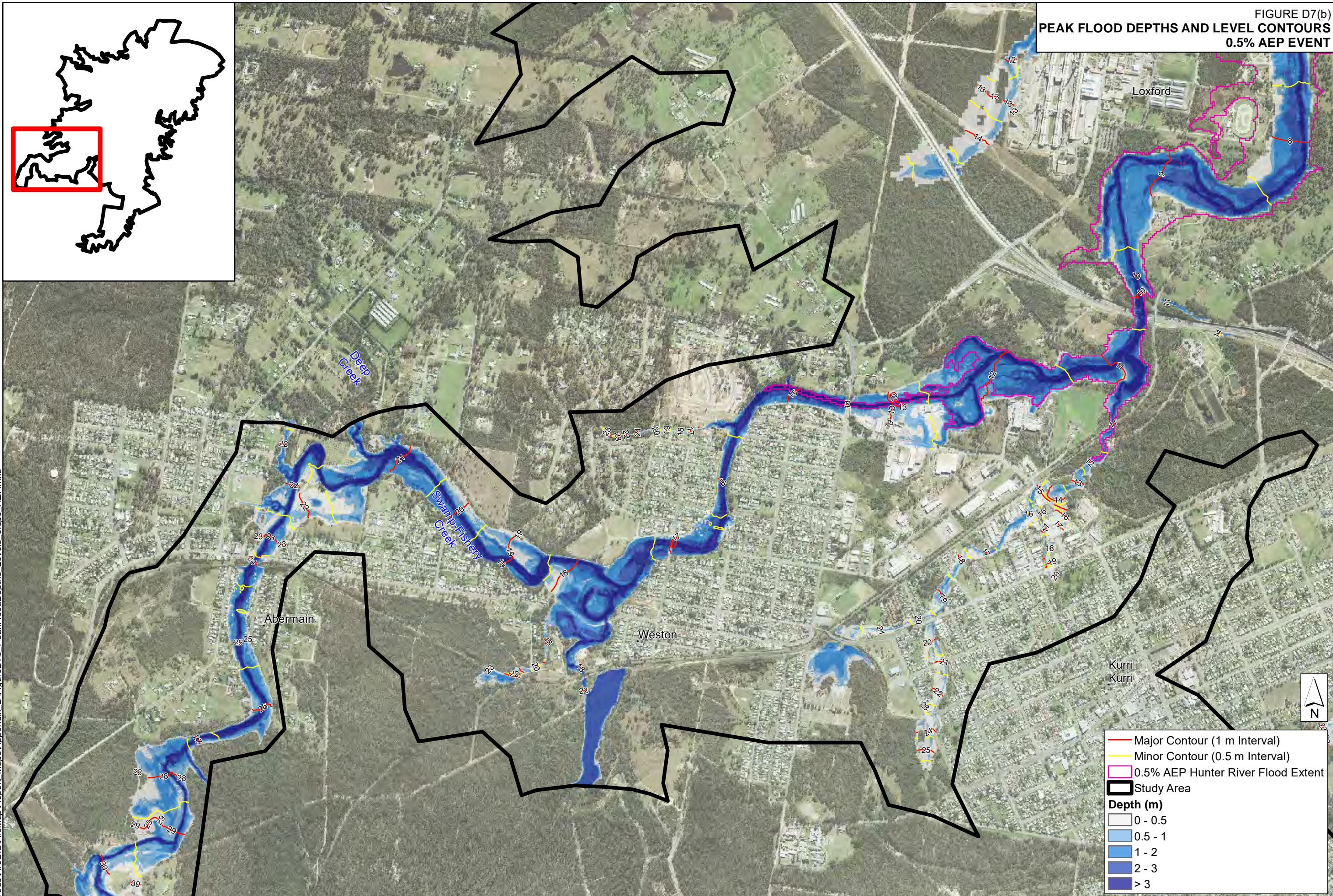
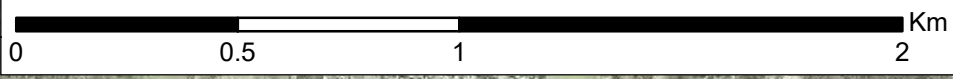


FIGURE D7(b)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
0.5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



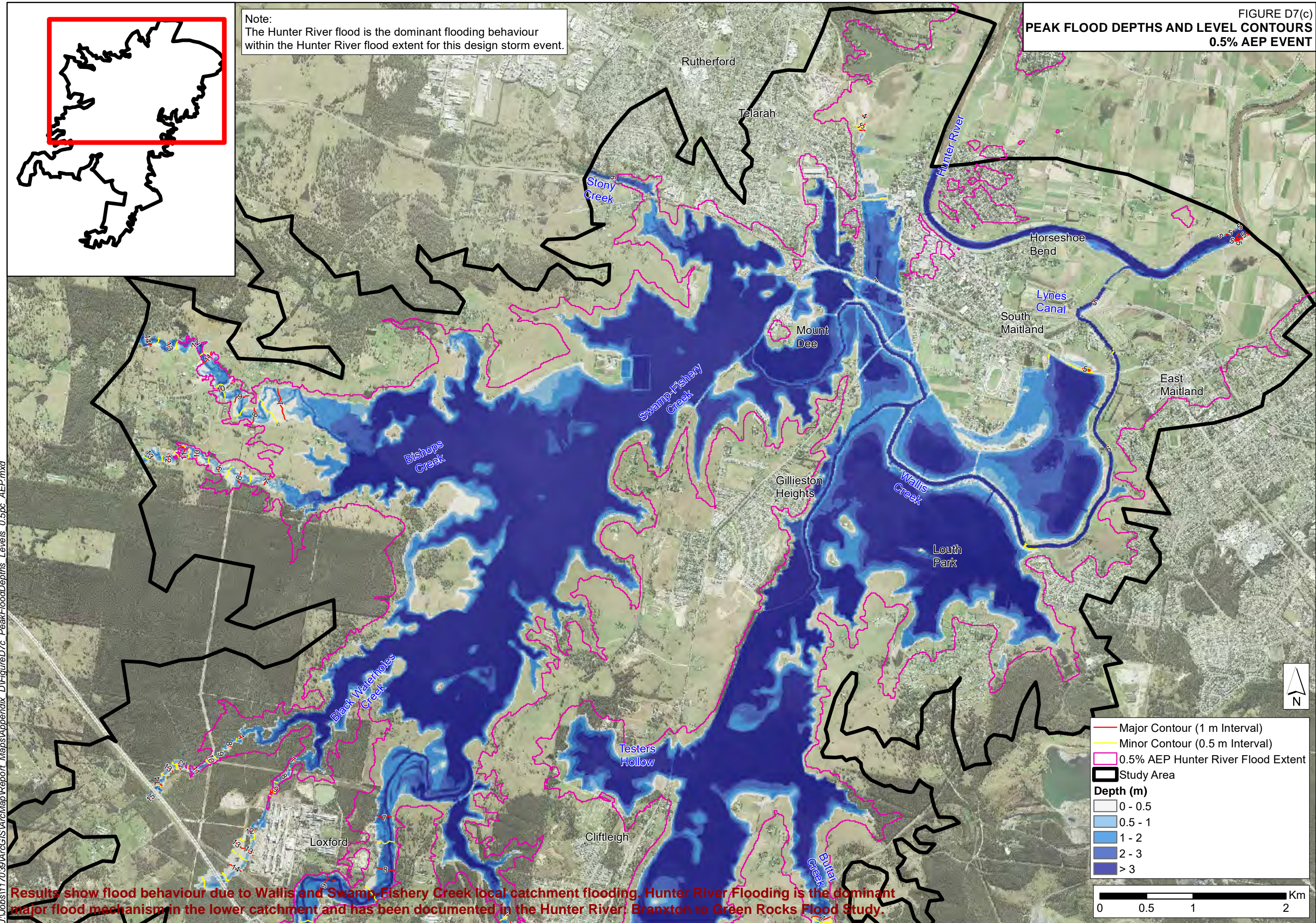
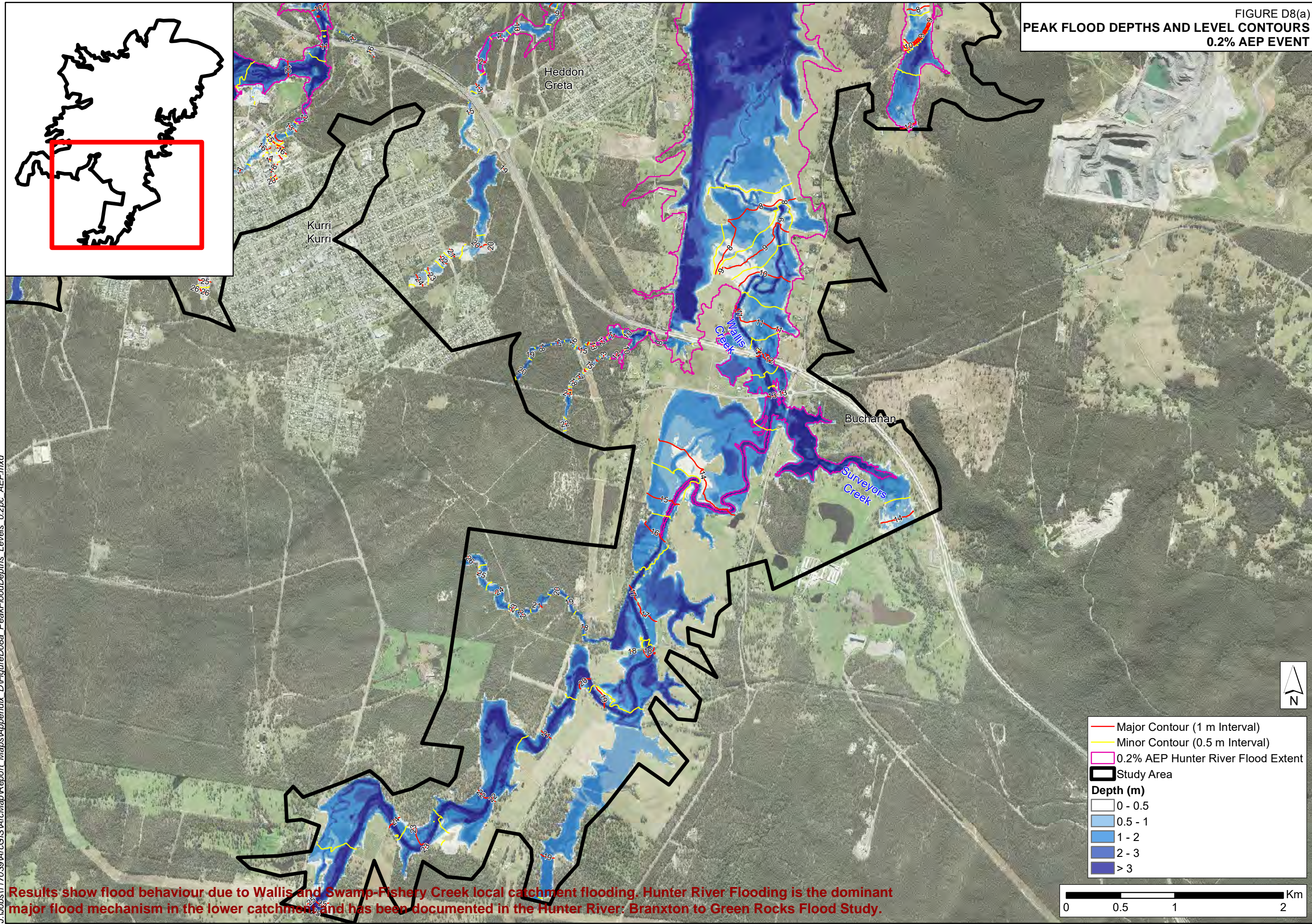
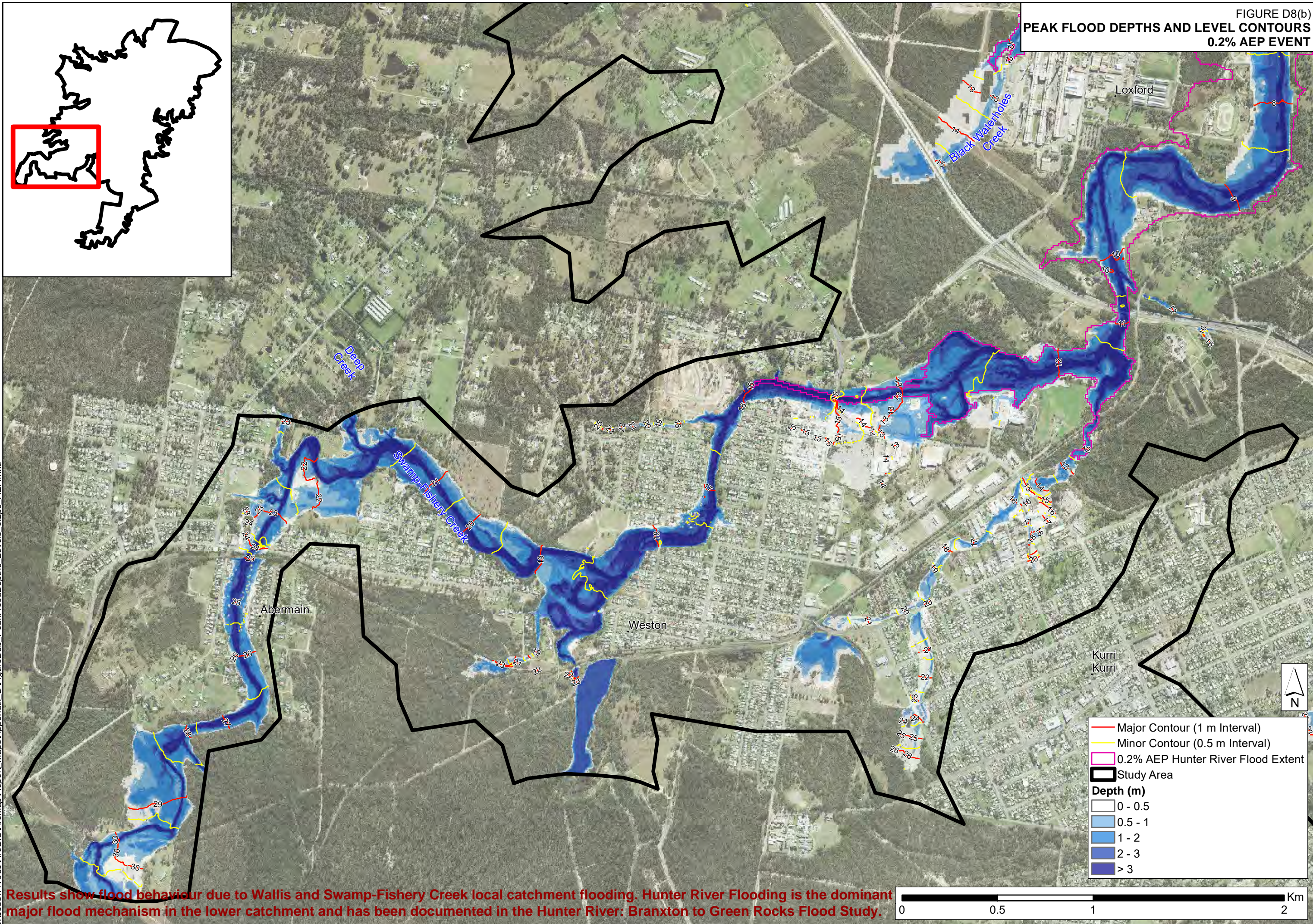


FIGURE D8(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
0.2% AEP EVENT

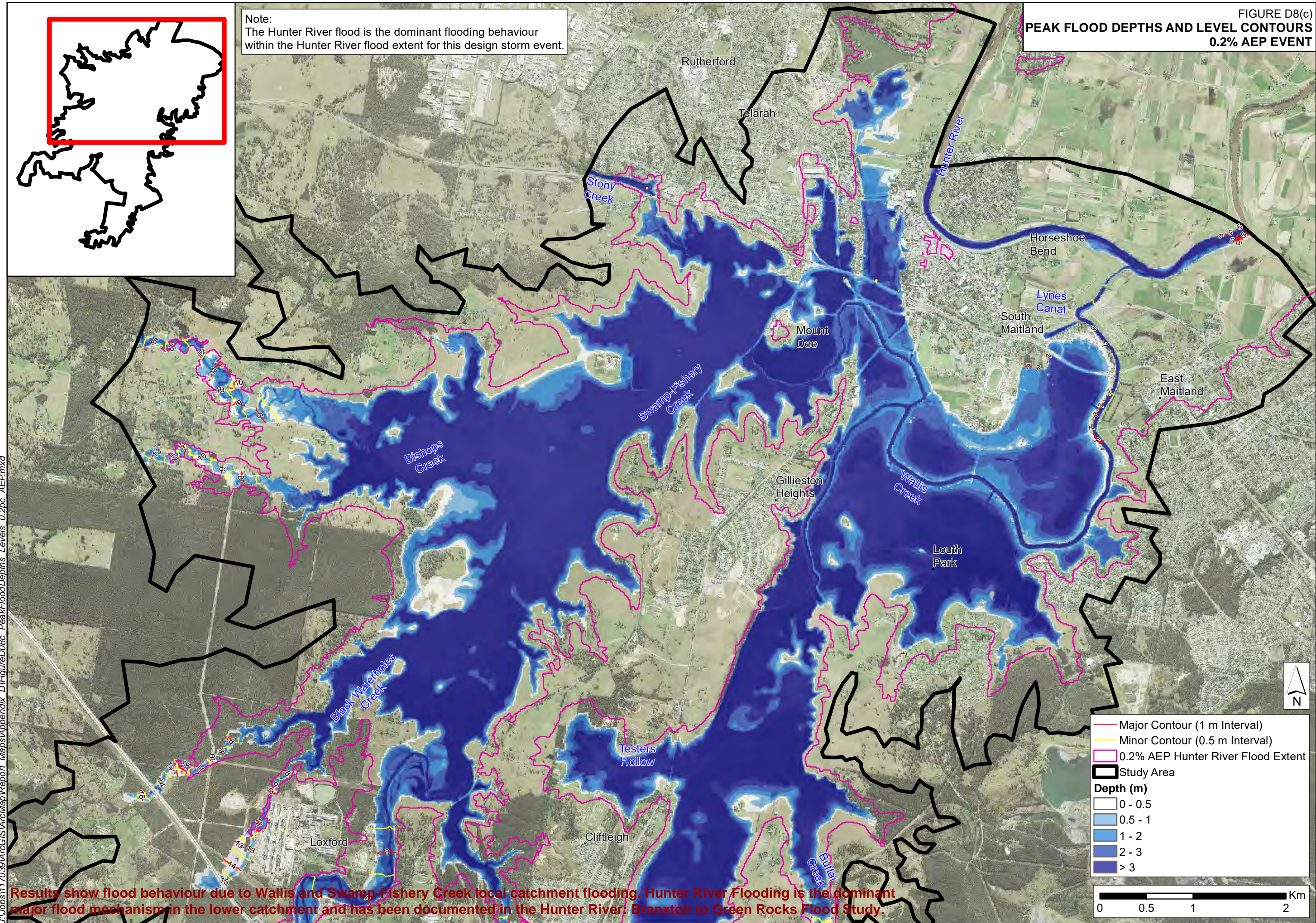


J:\Jobs\1170-39\ArcGIS\Map\Report Maps\Appendix D\FigureD08a_PeakFloodDepths Levels 0.2pc_AEP.mxd

Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



J:\Jobs\1170-39\ArcGIS\MapReport_Maps\Appendix_D\FigureD9a_PeakFloodDepths_Levels_PMF.mxd

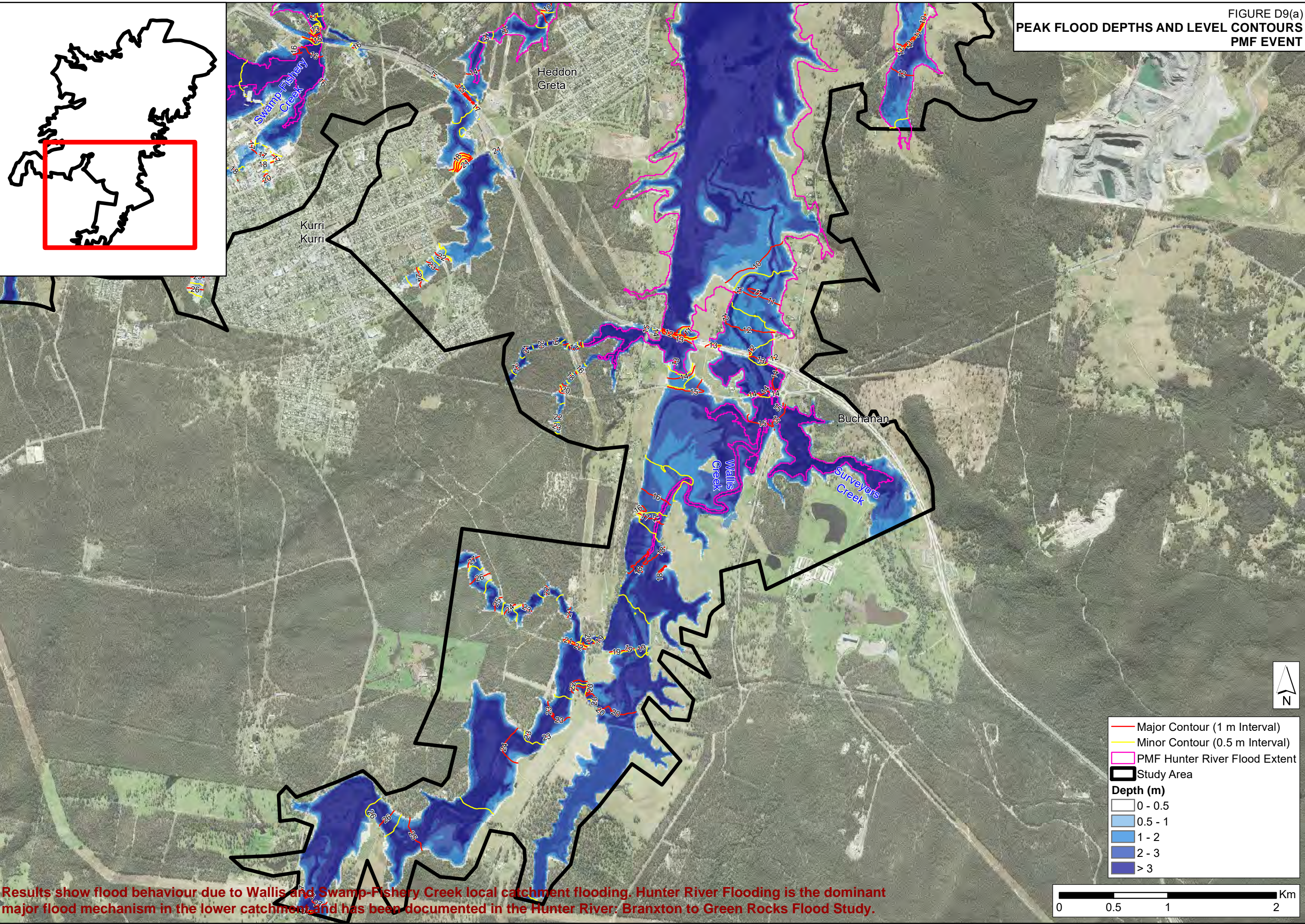
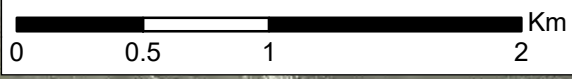


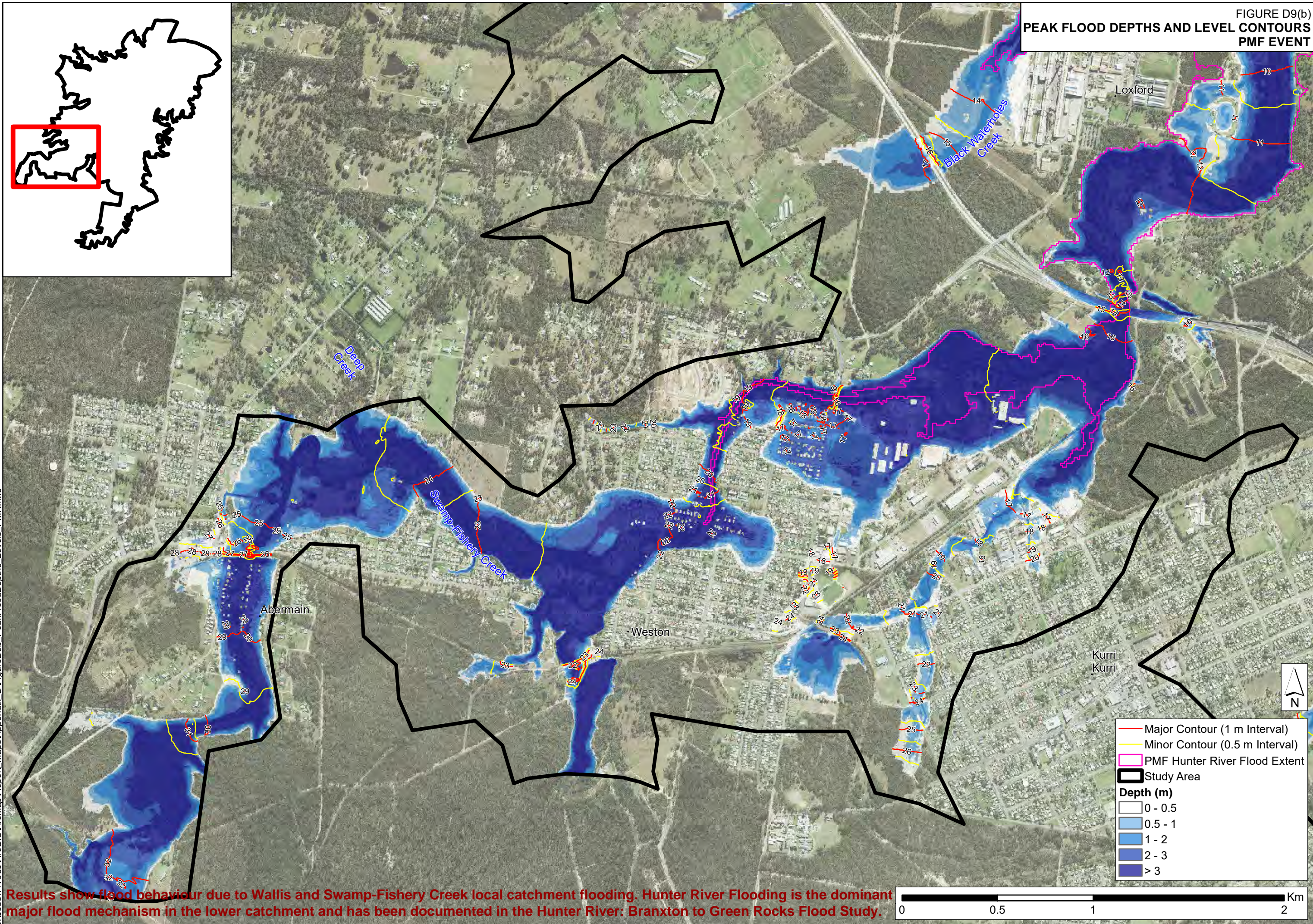
FIGURE D9(a)
PEAK FLOOD DEPTHS AND LEVEL CONTOURS
PMF EVENT

Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

Major Contour (1 m Interval)
Minor Contour (0.5 m Interval)
PMF Hunter River Flood Extent
Study Area

Depth (m)
0 - 0.5
0.5 - 1
1 - 2
2 - 3
> 3





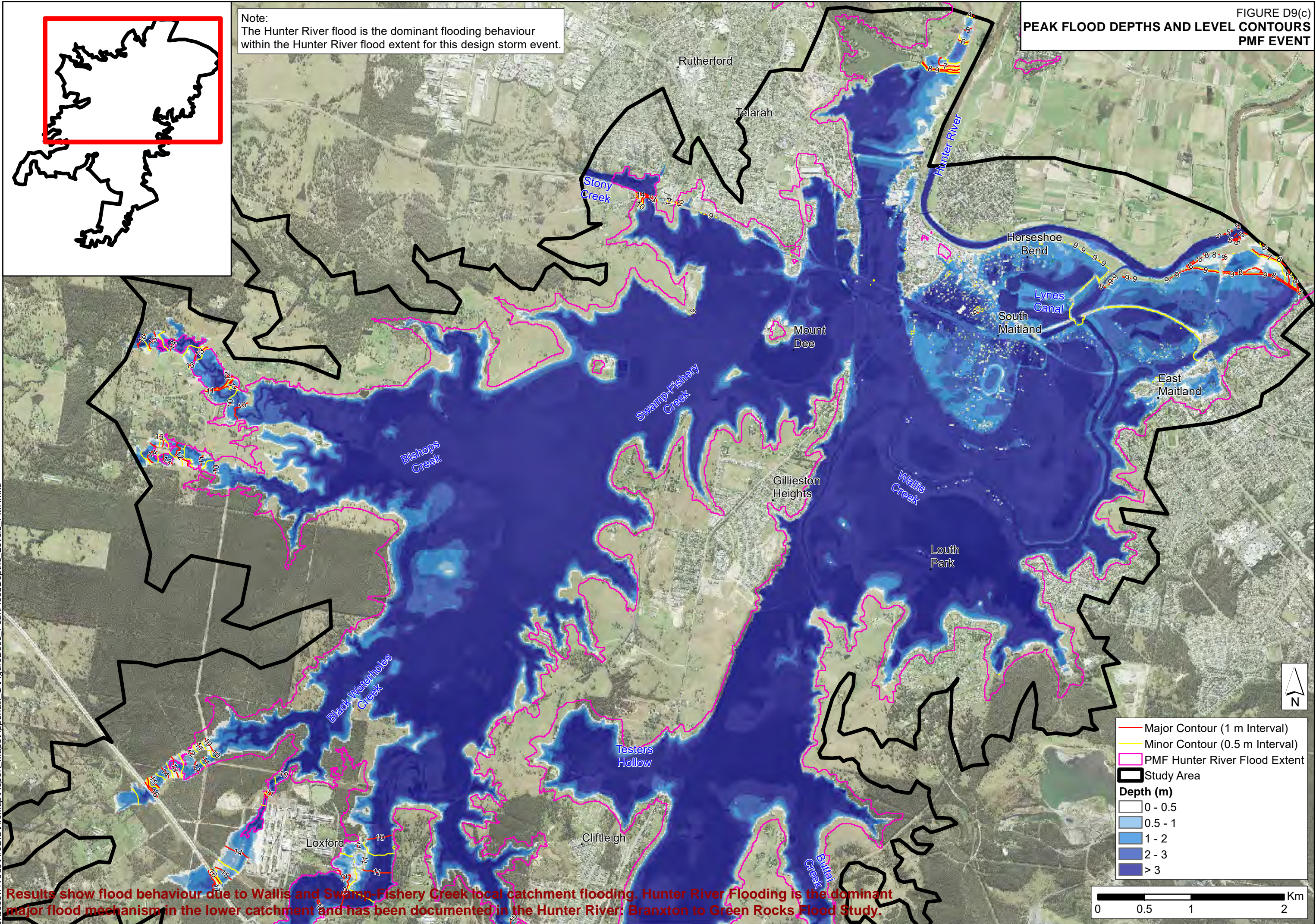
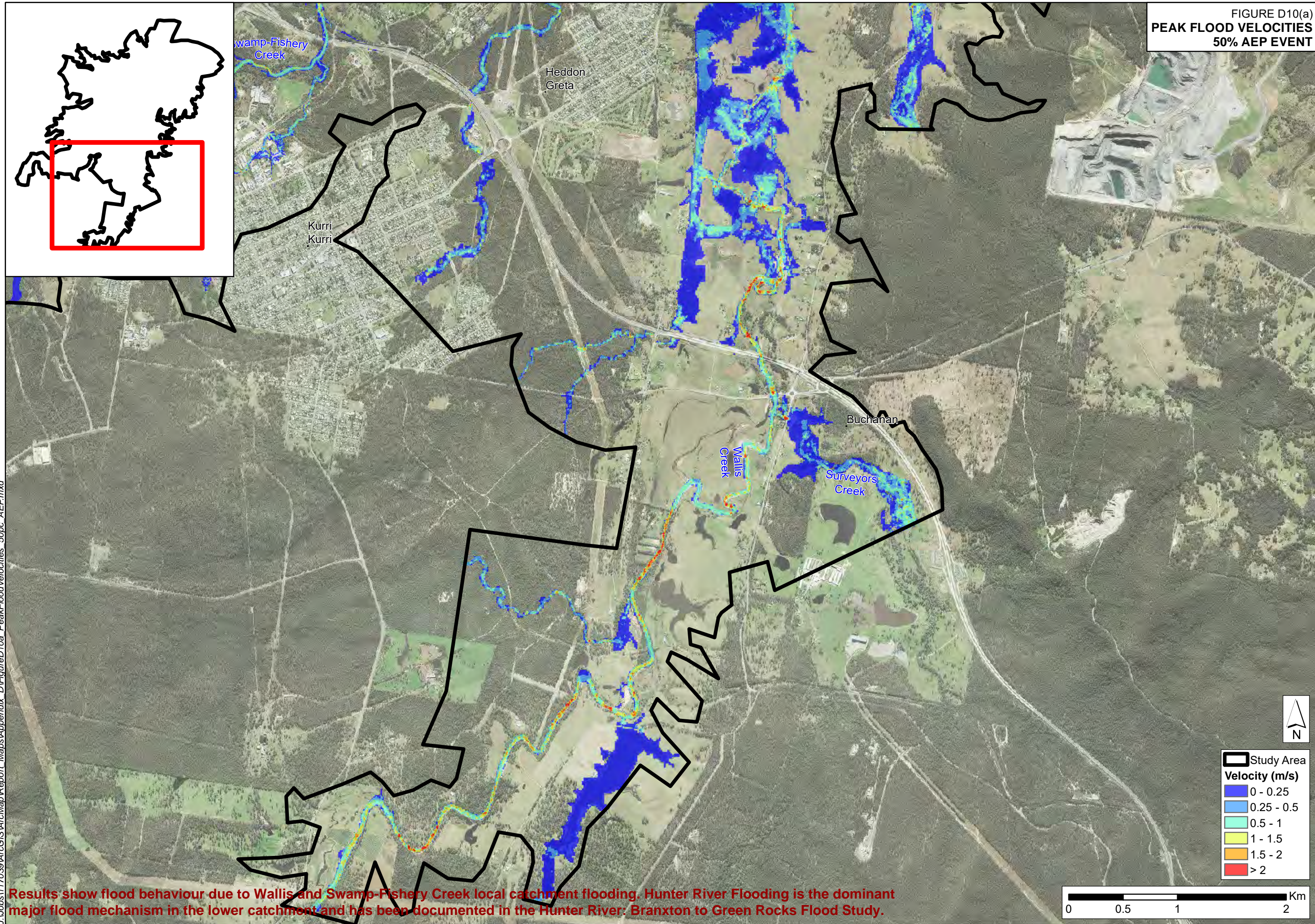


FIGURE D10(a)
PEAK FLOOD VELOCITIES
50% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

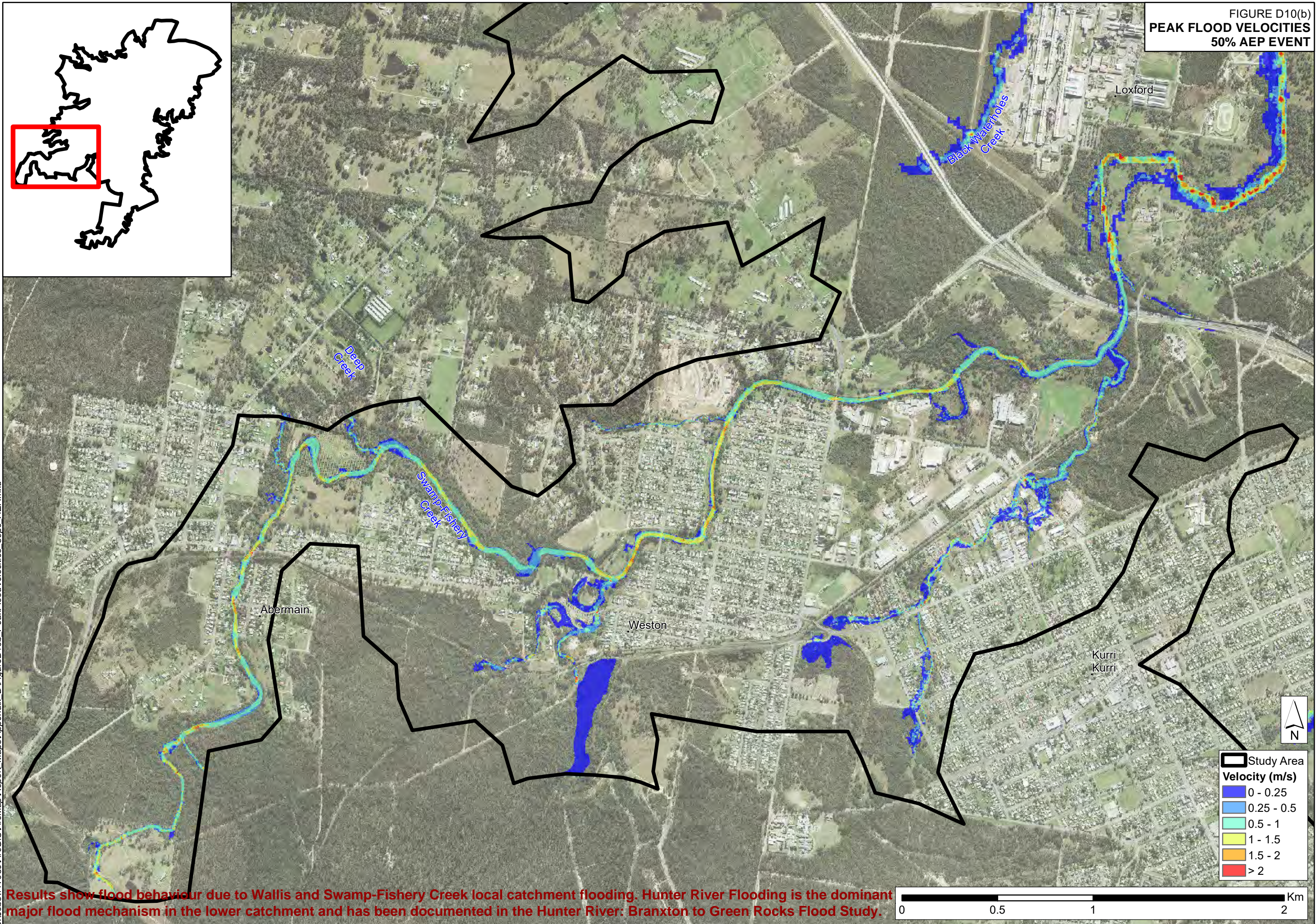
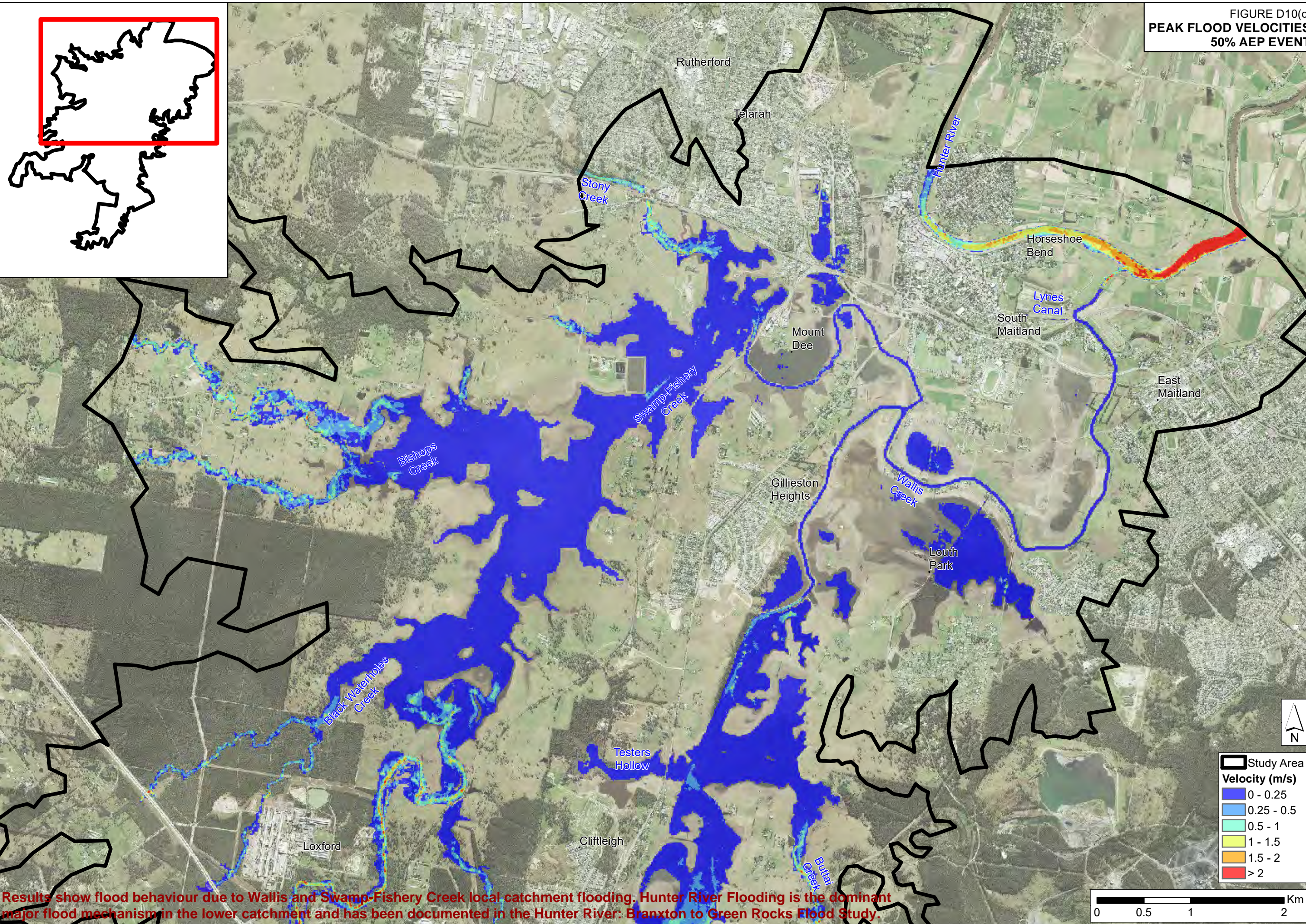
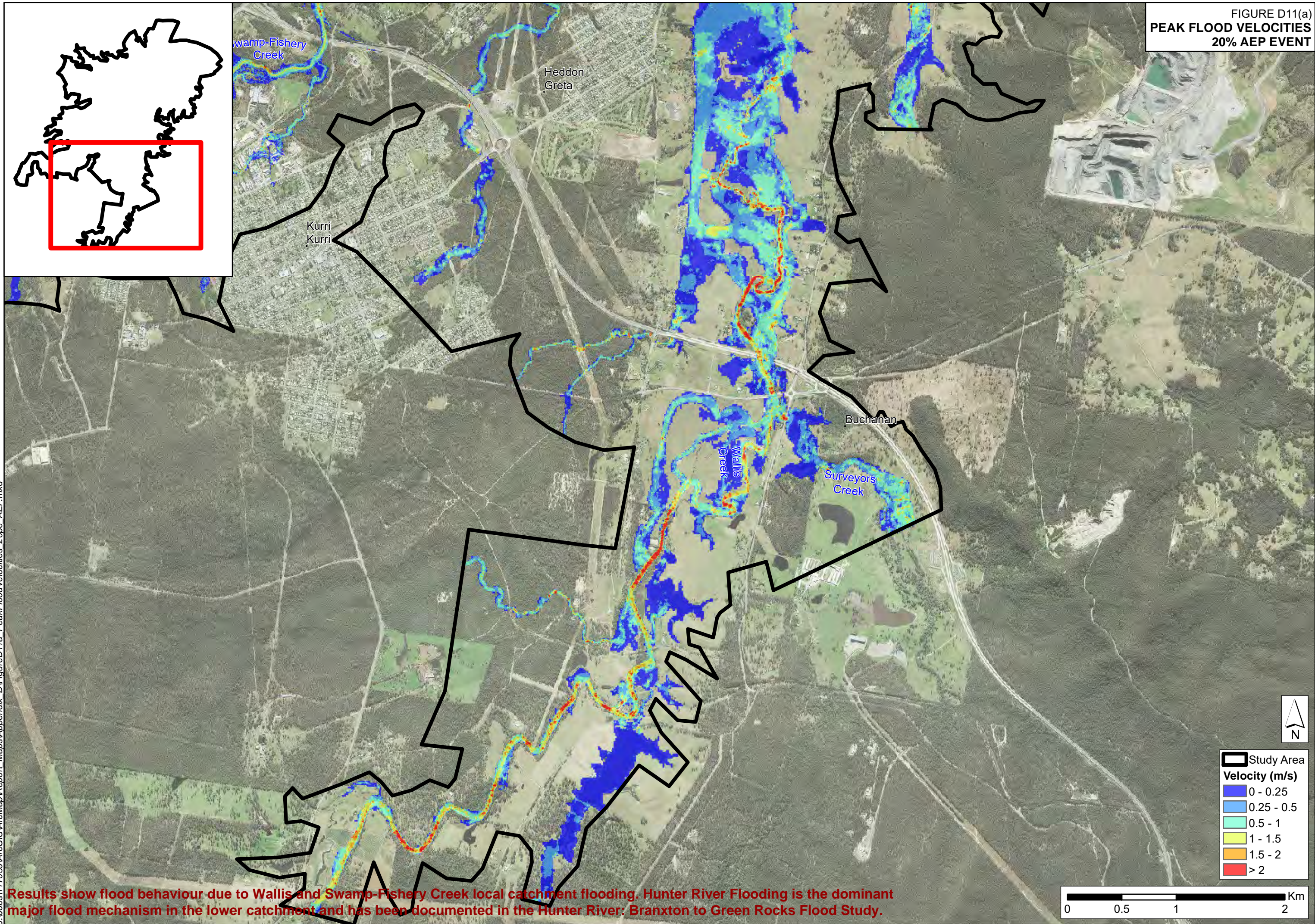


FIGURE D10(c)
PEAK FLOOD VELOCITIES
50% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D11(a)
PEAK FLOOD VELOCITIES
20% AEP EVENT



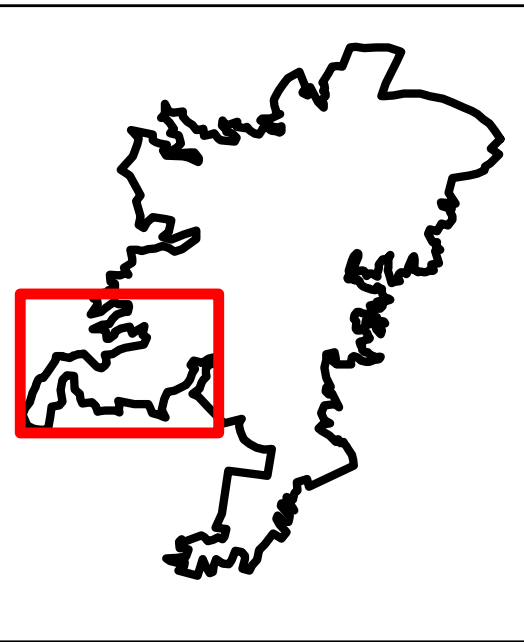
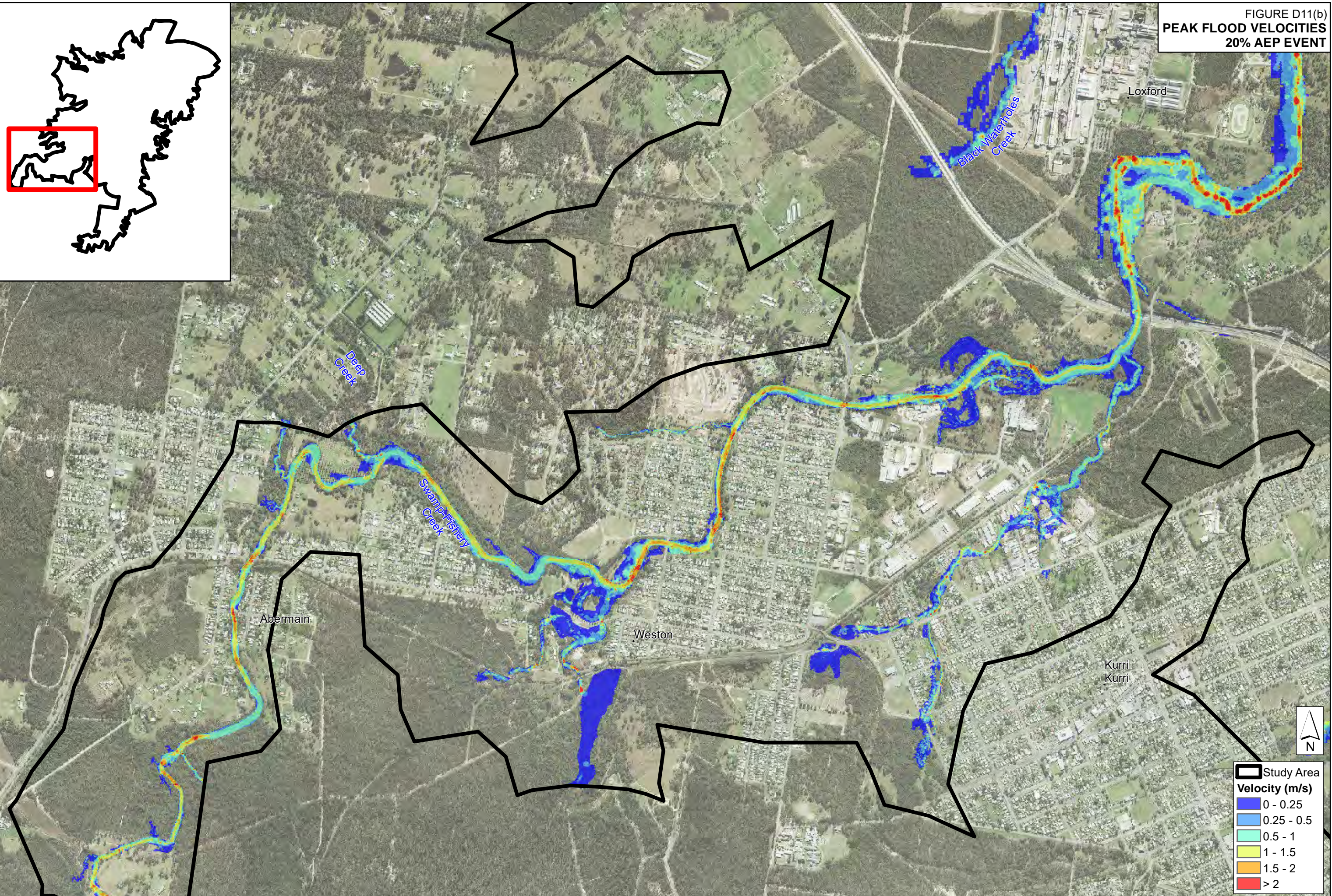


FIGURE D11(b)
PEAK FLOOD VELOCITIES
20% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D11(c)
PEAK FLOOD VELOCITIES
20% AEP EVENT

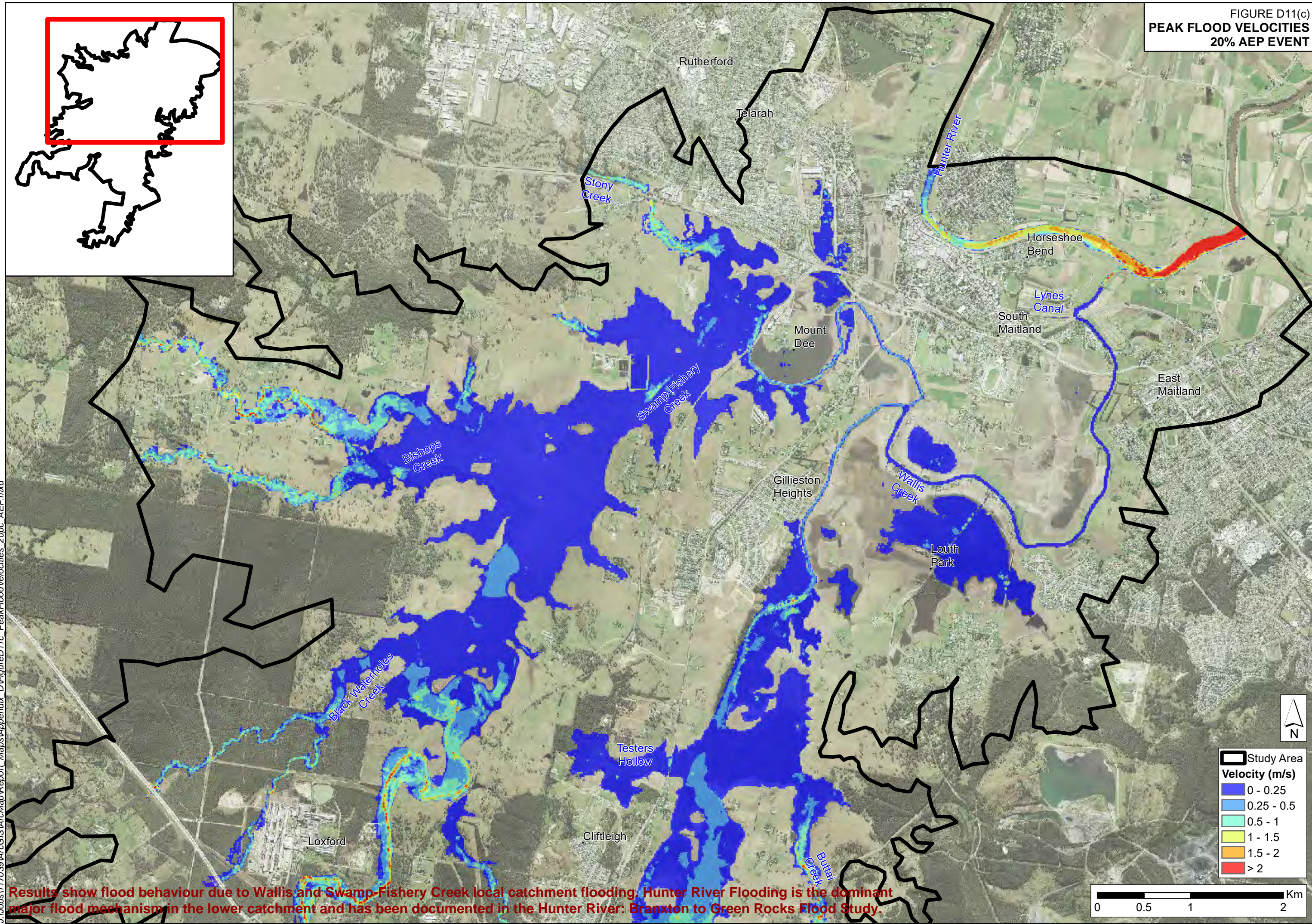
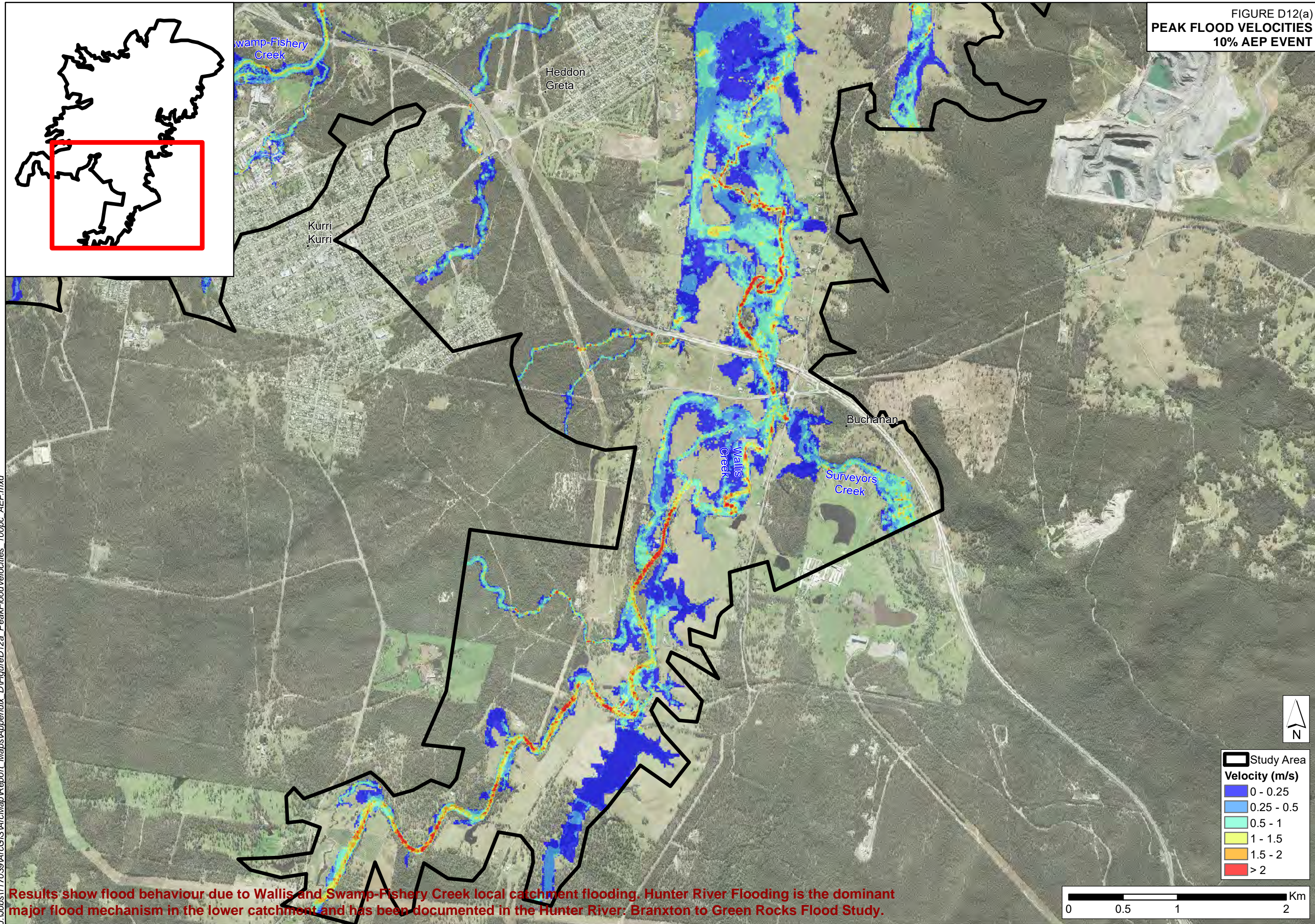


FIGURE D12(a)
PEAK FLOOD VELOCITIES
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

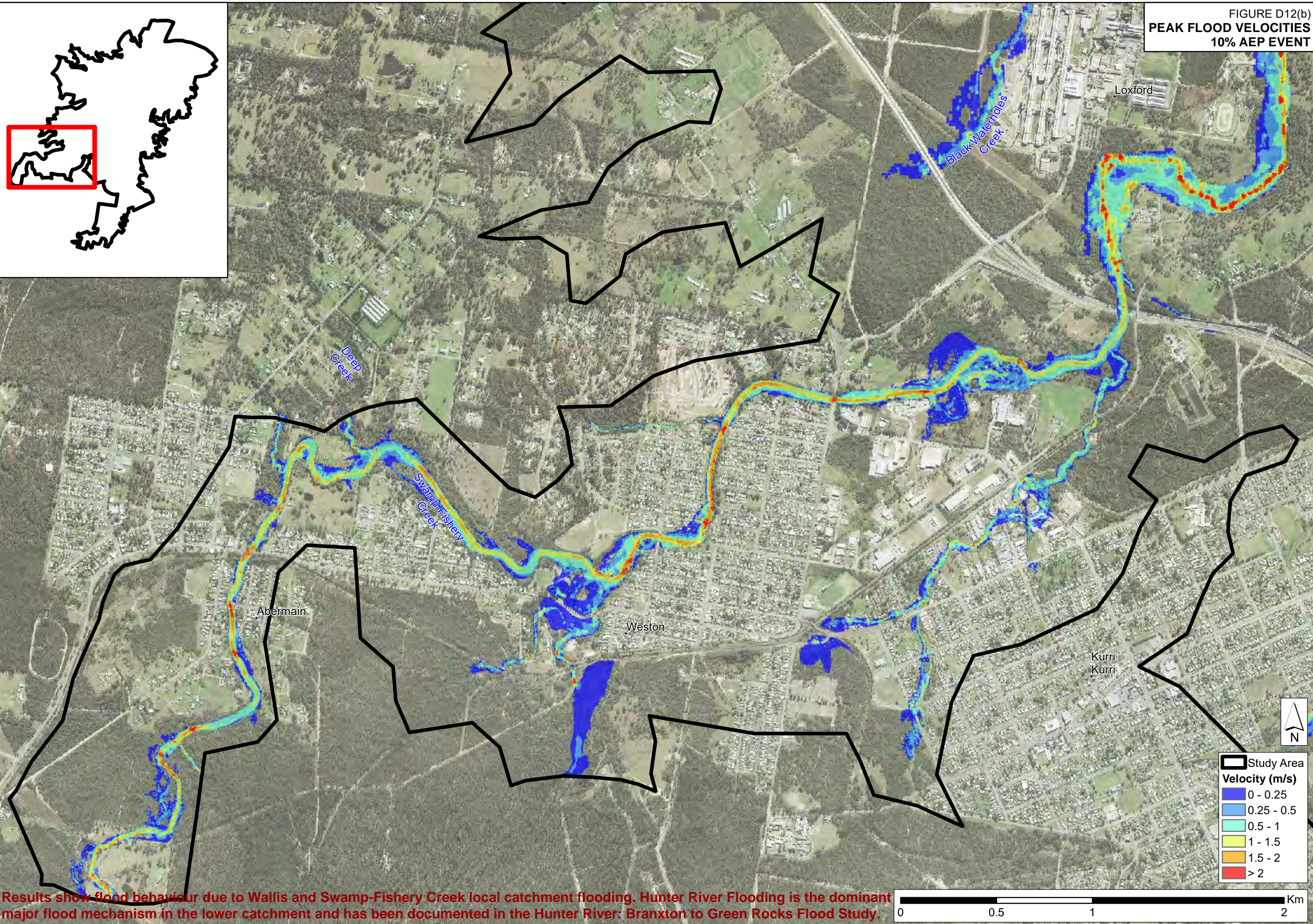


FIGURE D12(b)
PEAK FLOOD VELOCITIES
10% AEP EVENT

J:\Jobs\117039\ArcGIS\Map\Report Maps\Appendix D\FigureD12b_PeakFloodVelocities_10pc_AEP.mxd

Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

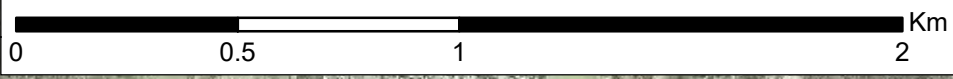
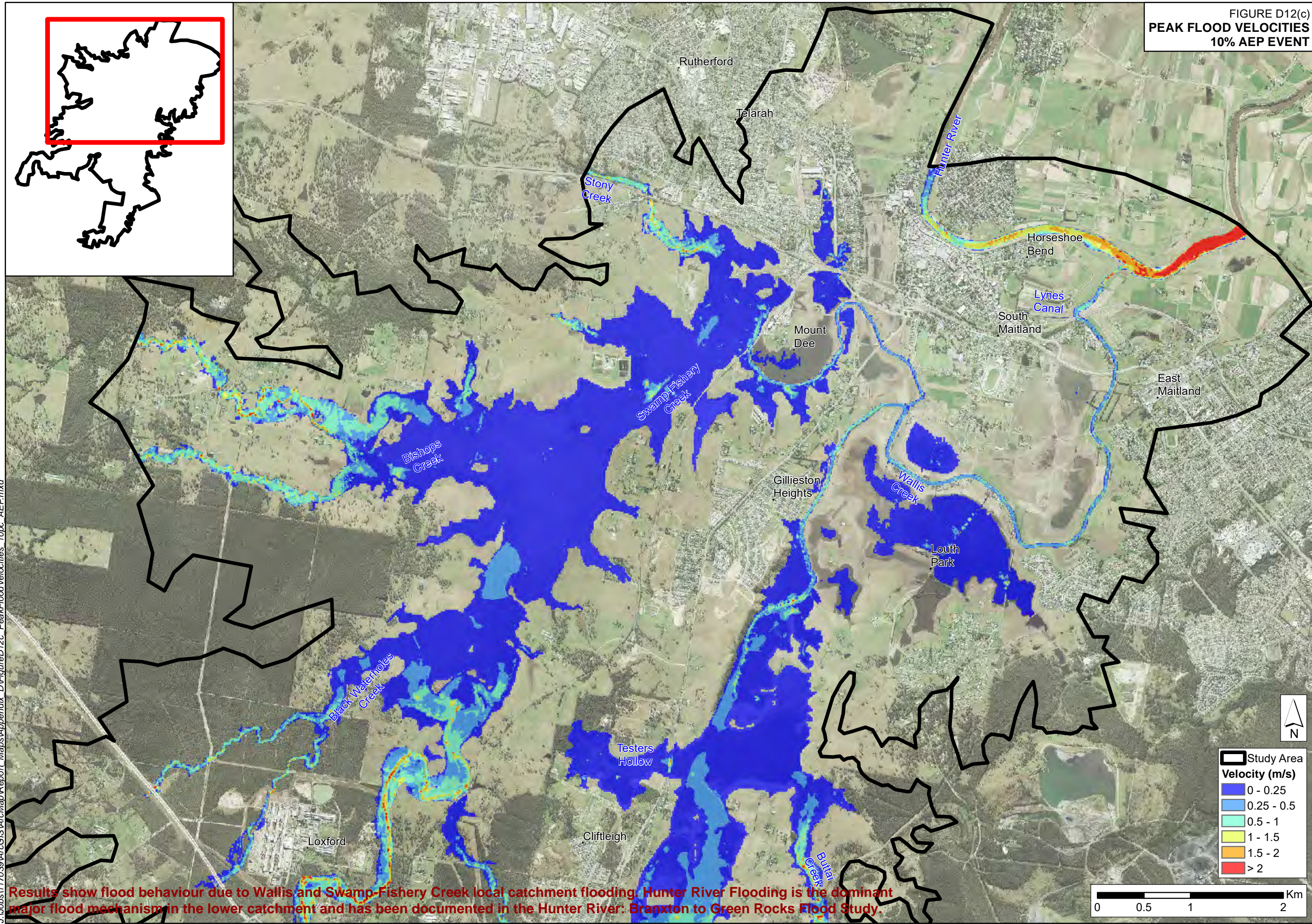
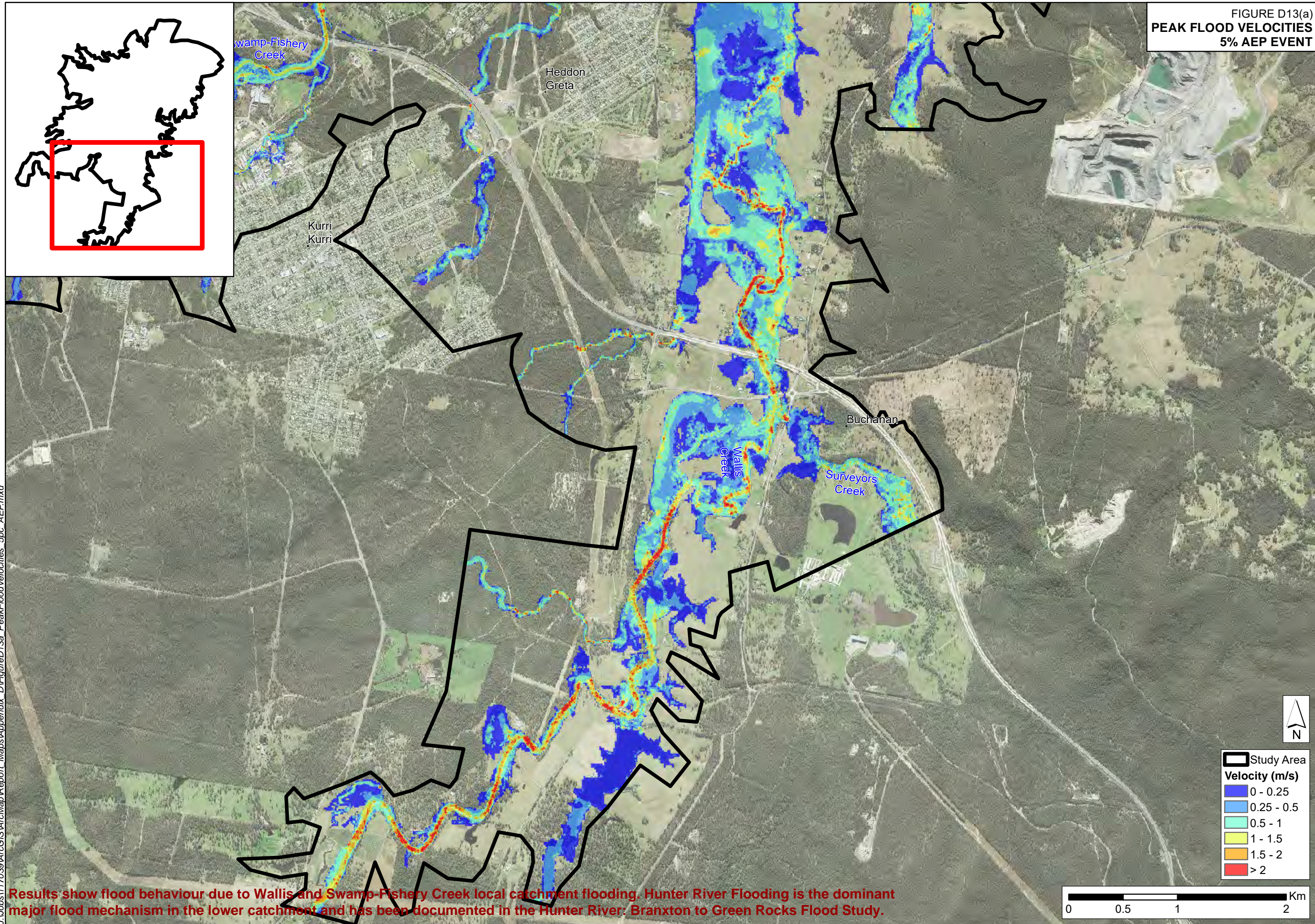


FIGURE D12(c)
PEAK FLOOD VELOCITIES
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D13(a)
PEAK FLOOD VELOCITIES
5% AEP EVENT



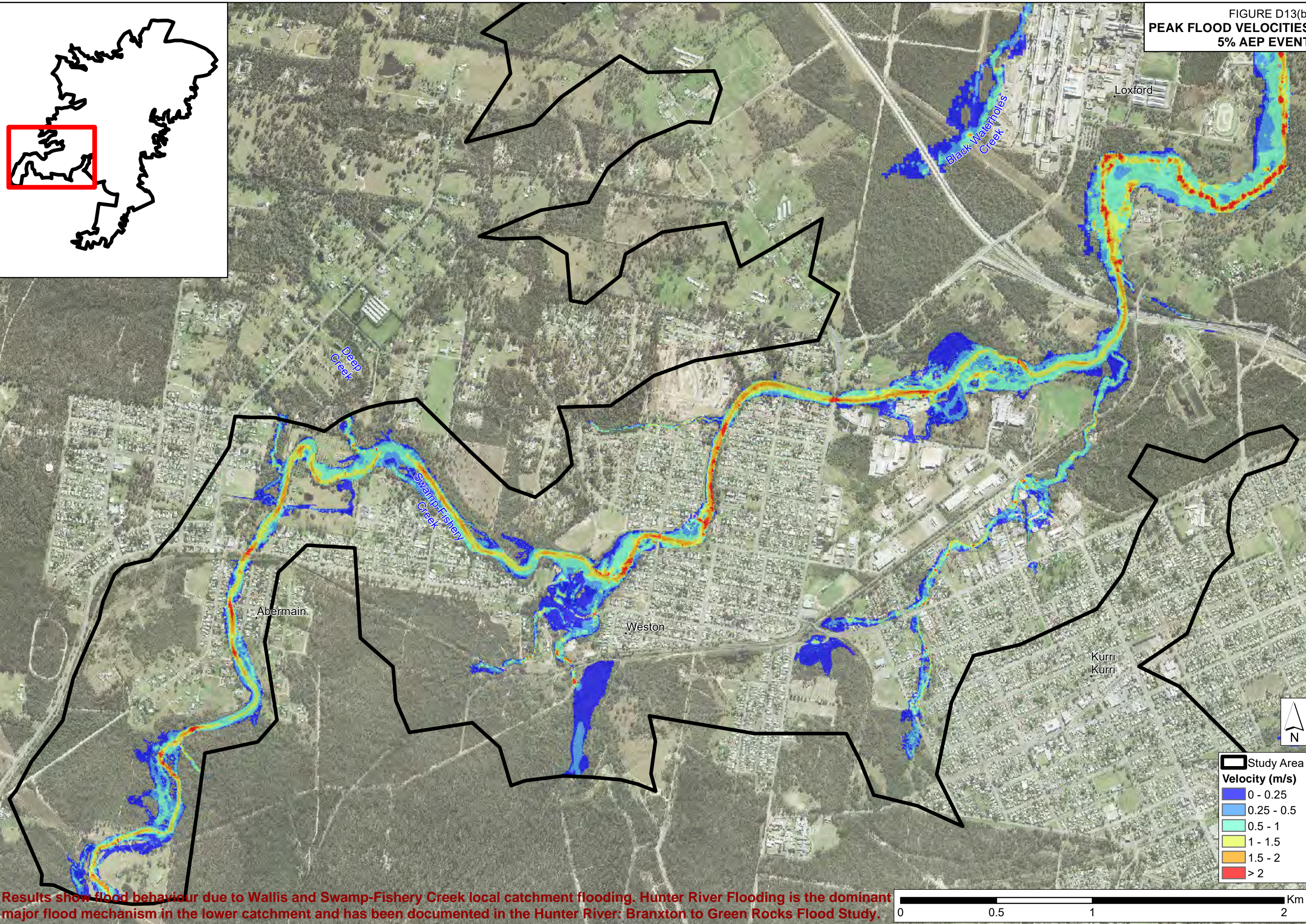
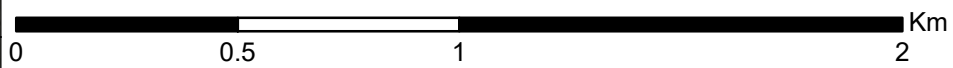


FIGURE D13(b)
PEAK FLOOD VELOCITIES
5% AEP EVENT

Study Area

Velocity (m/s)

- 0 - 0.25
- 0.25 - 0.5
- 0.5 - 1
- 1 - 1.5
- 1.5 - 2
- > 2



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D13(c)
PEAK FLOOD VELOCITIES
5% AEP EVENT

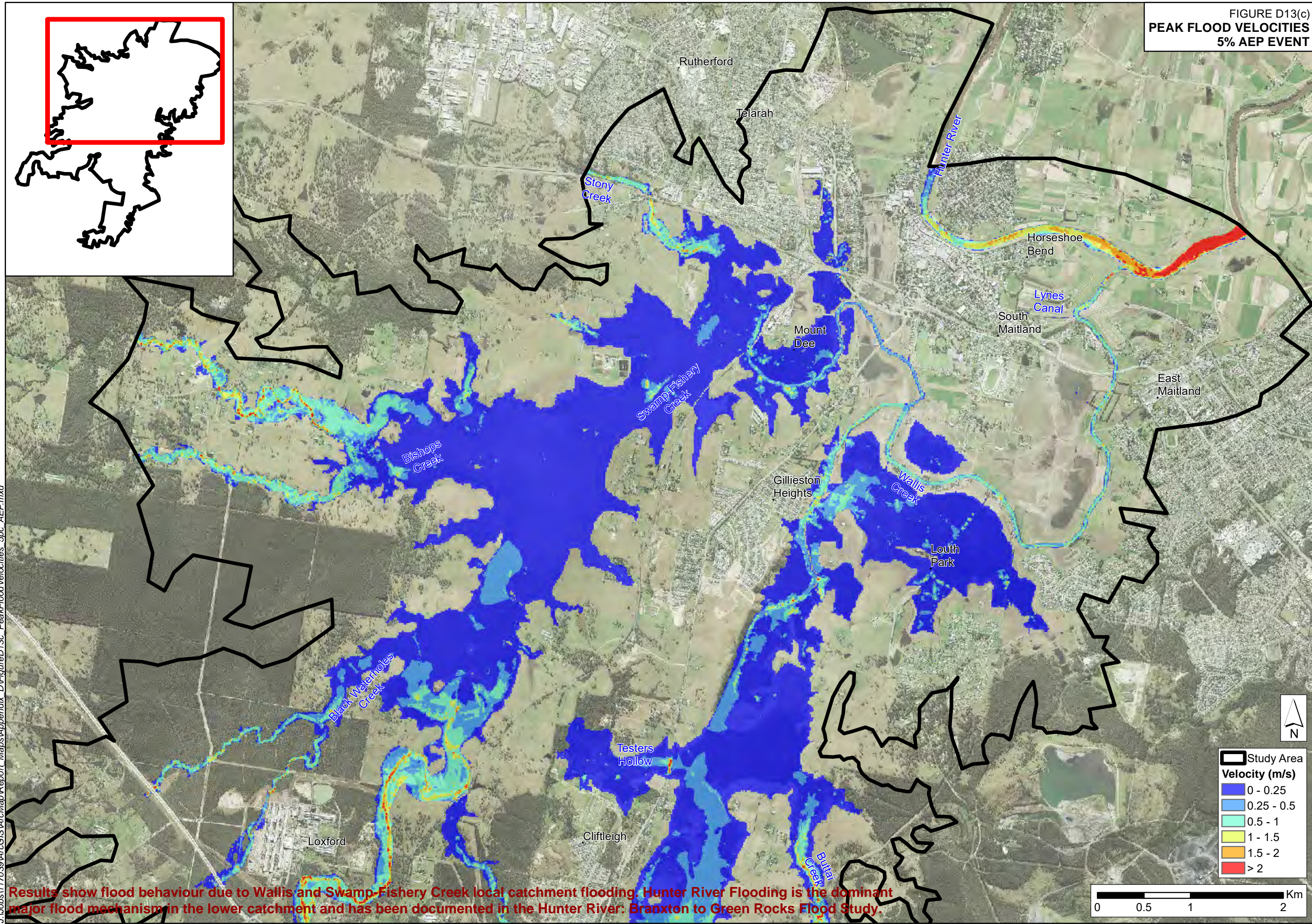
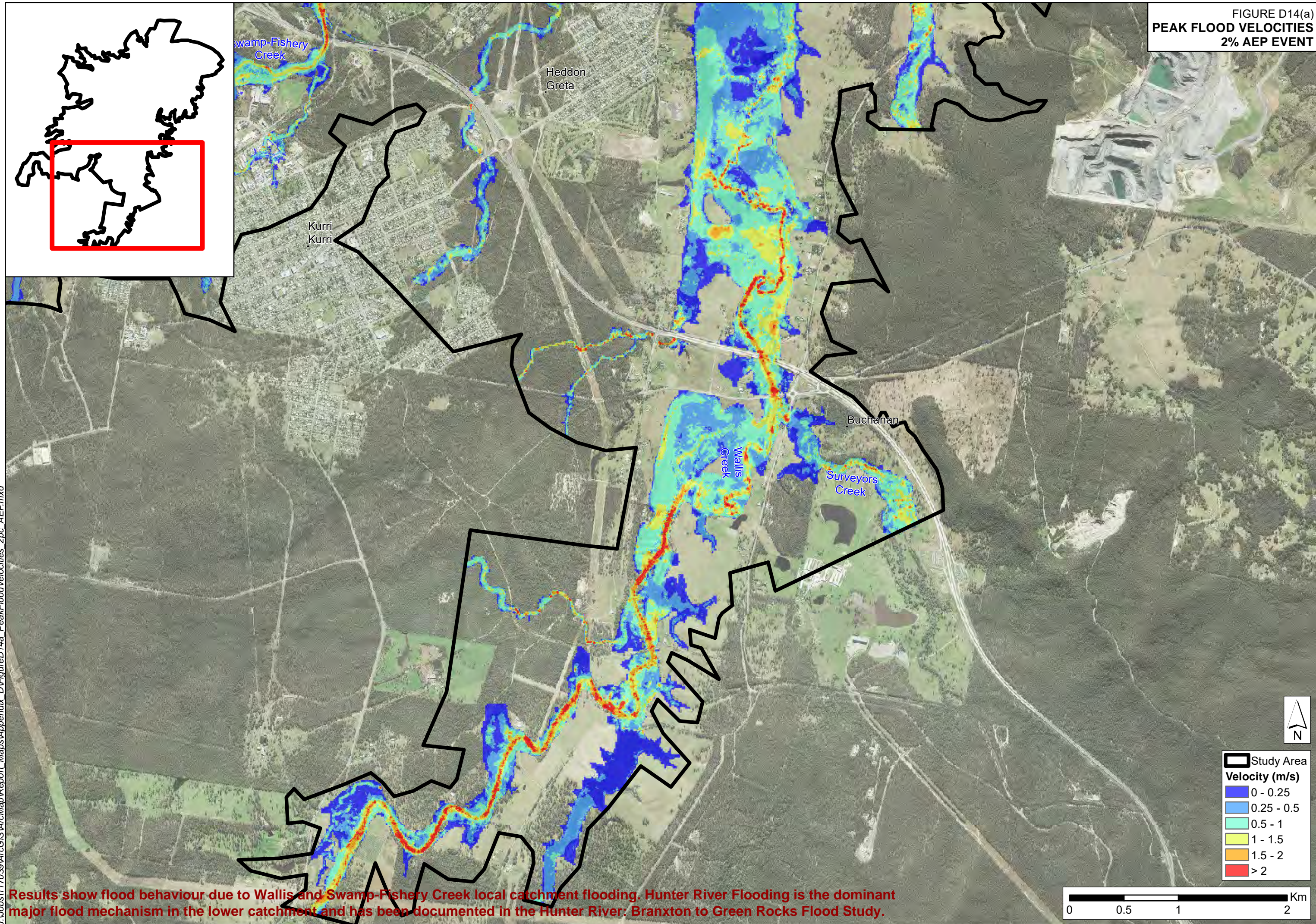


FIGURE D14(a)
PEAK FLOOD VELOCITIES
2% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

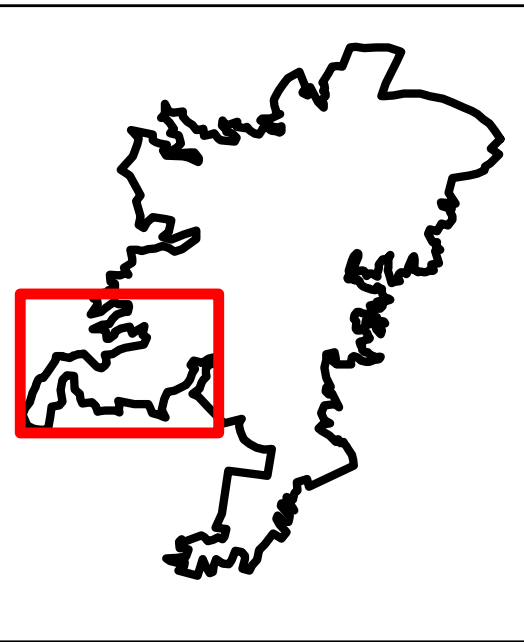
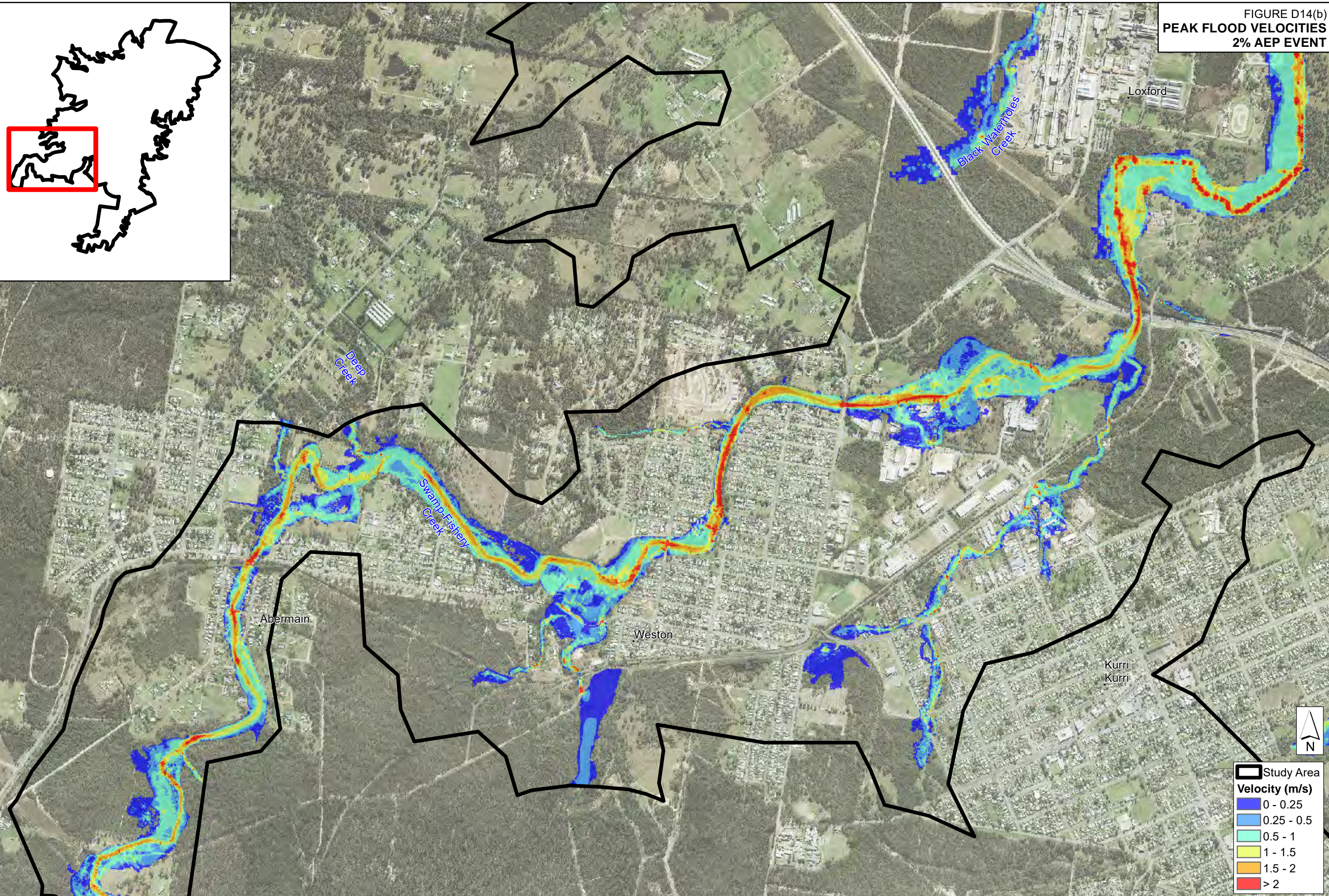


FIGURE D14(b)
PEAK FLOOD VELOCITIES
2% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

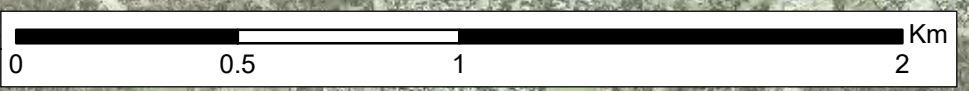


FIGURE D14(c)
PEAK FLOOD VELOCITIES
2% AEP EVENT

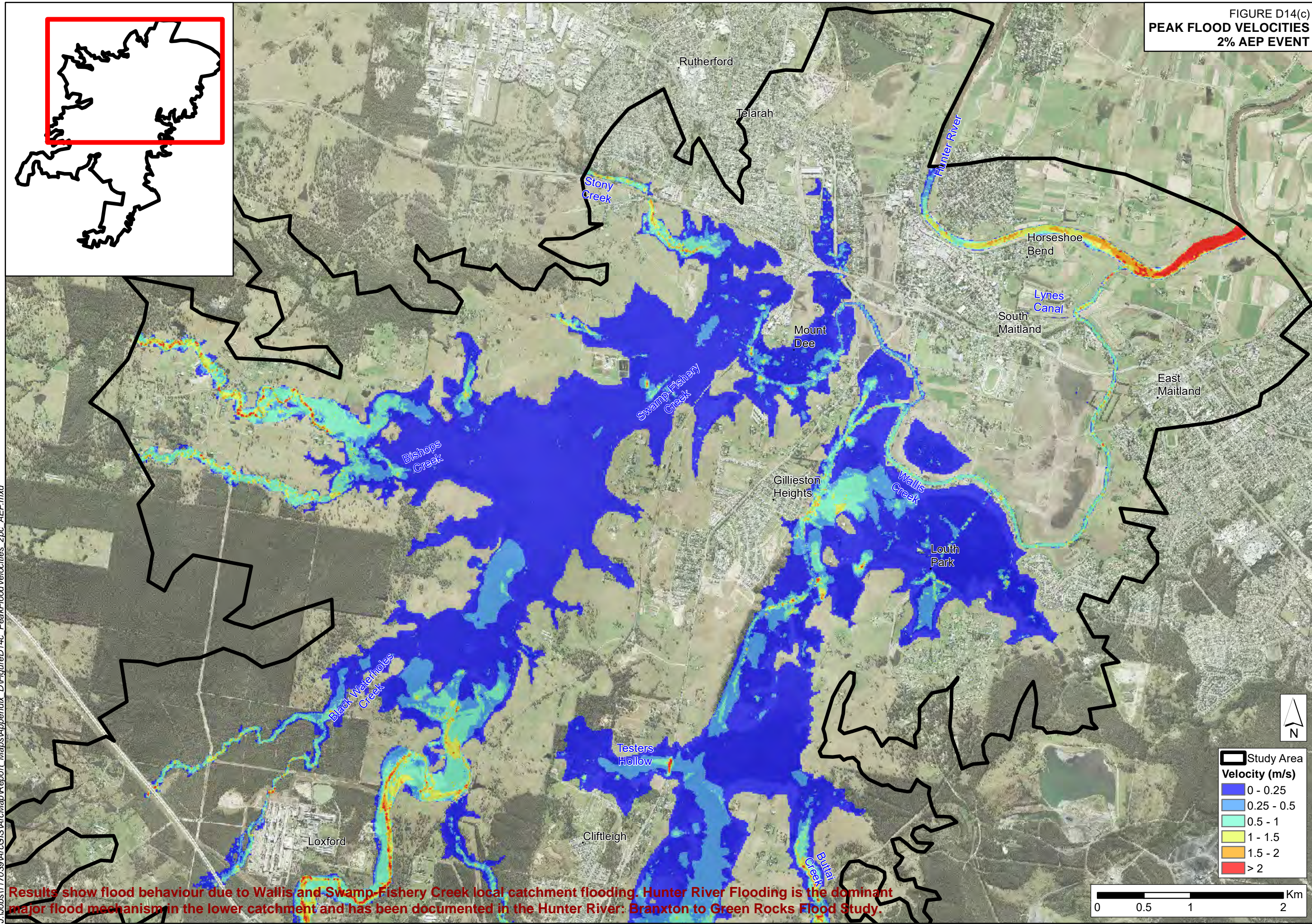
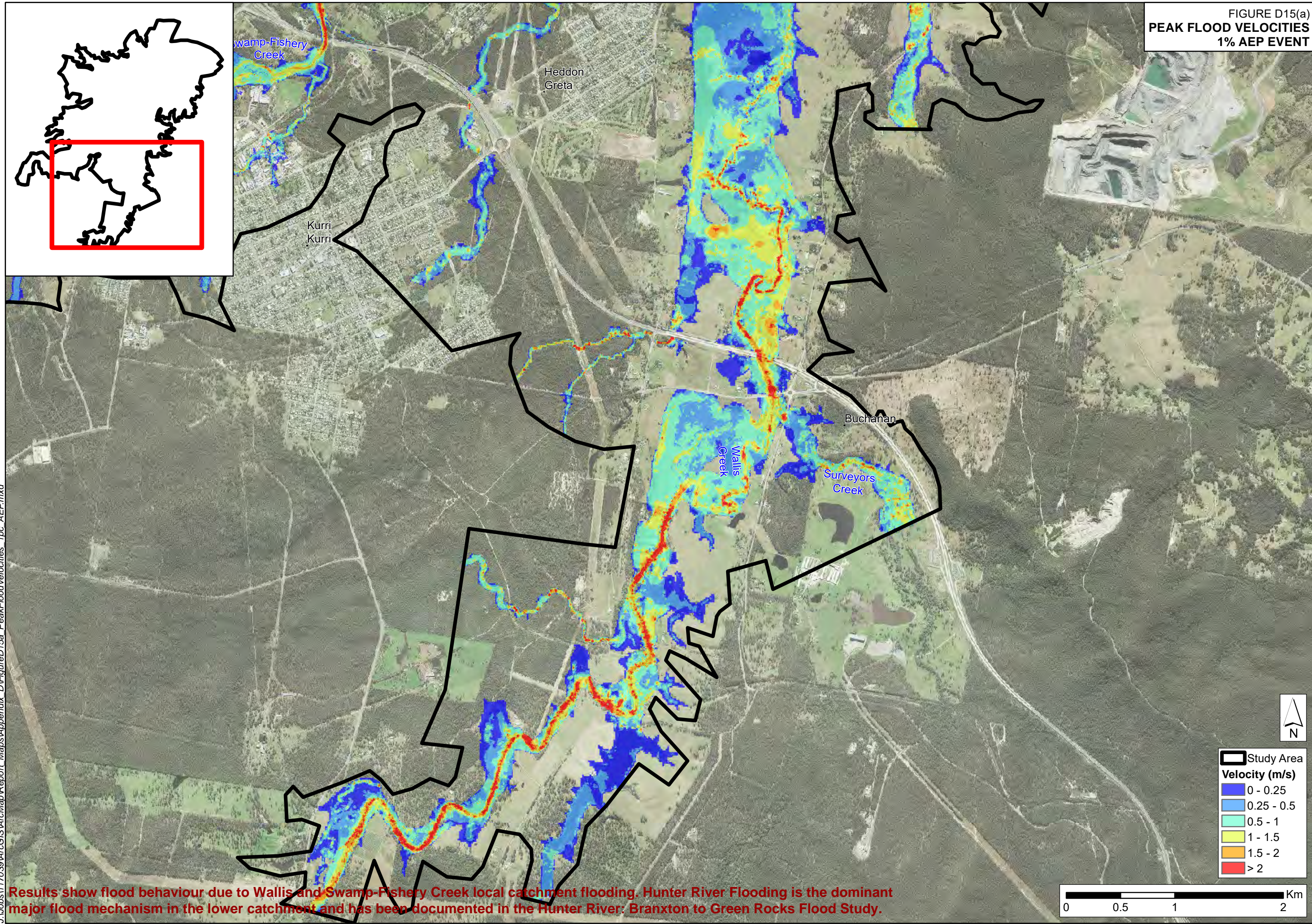


FIGURE D15(a)
PEAK FLOOD VELOCITIES
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

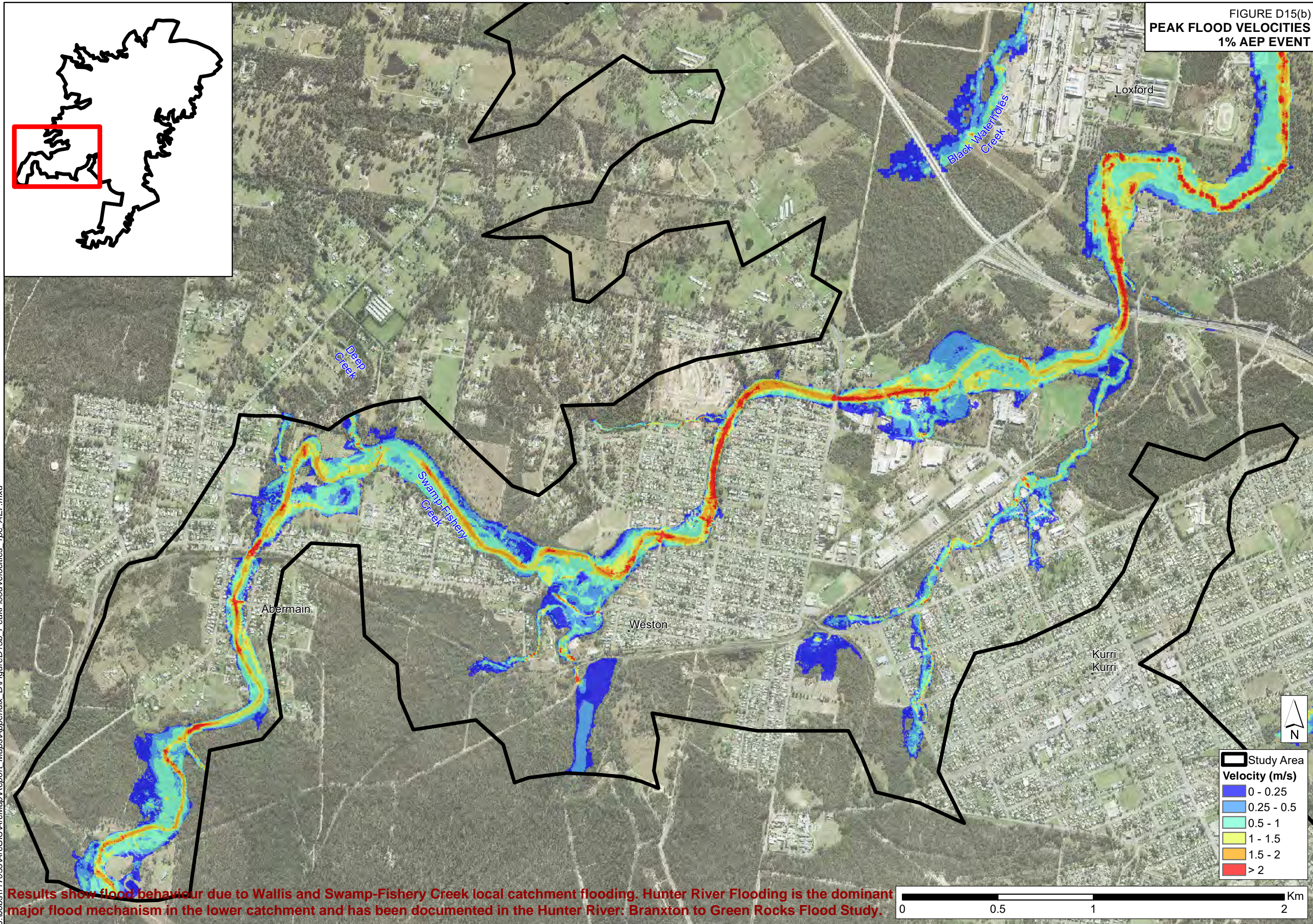
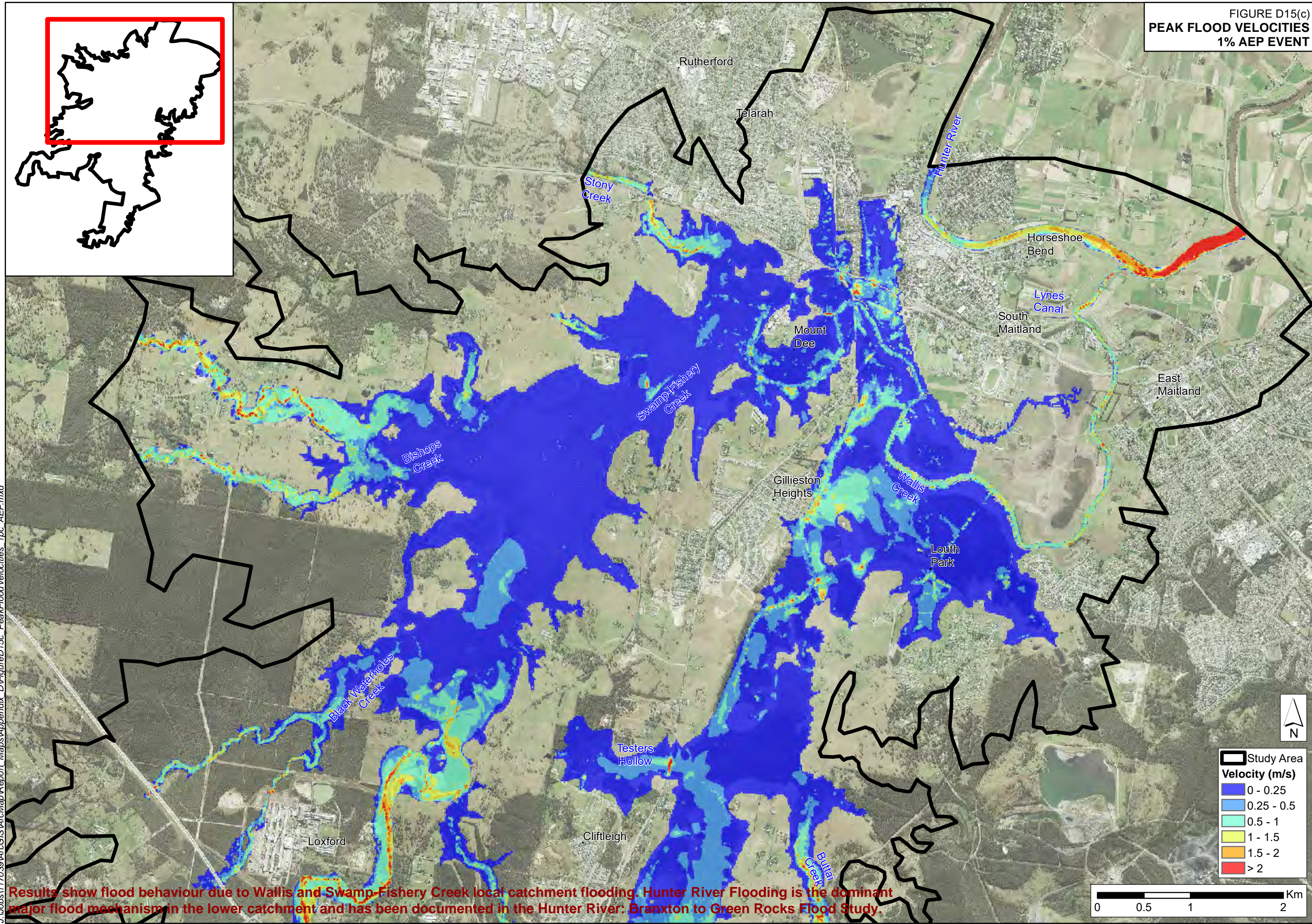
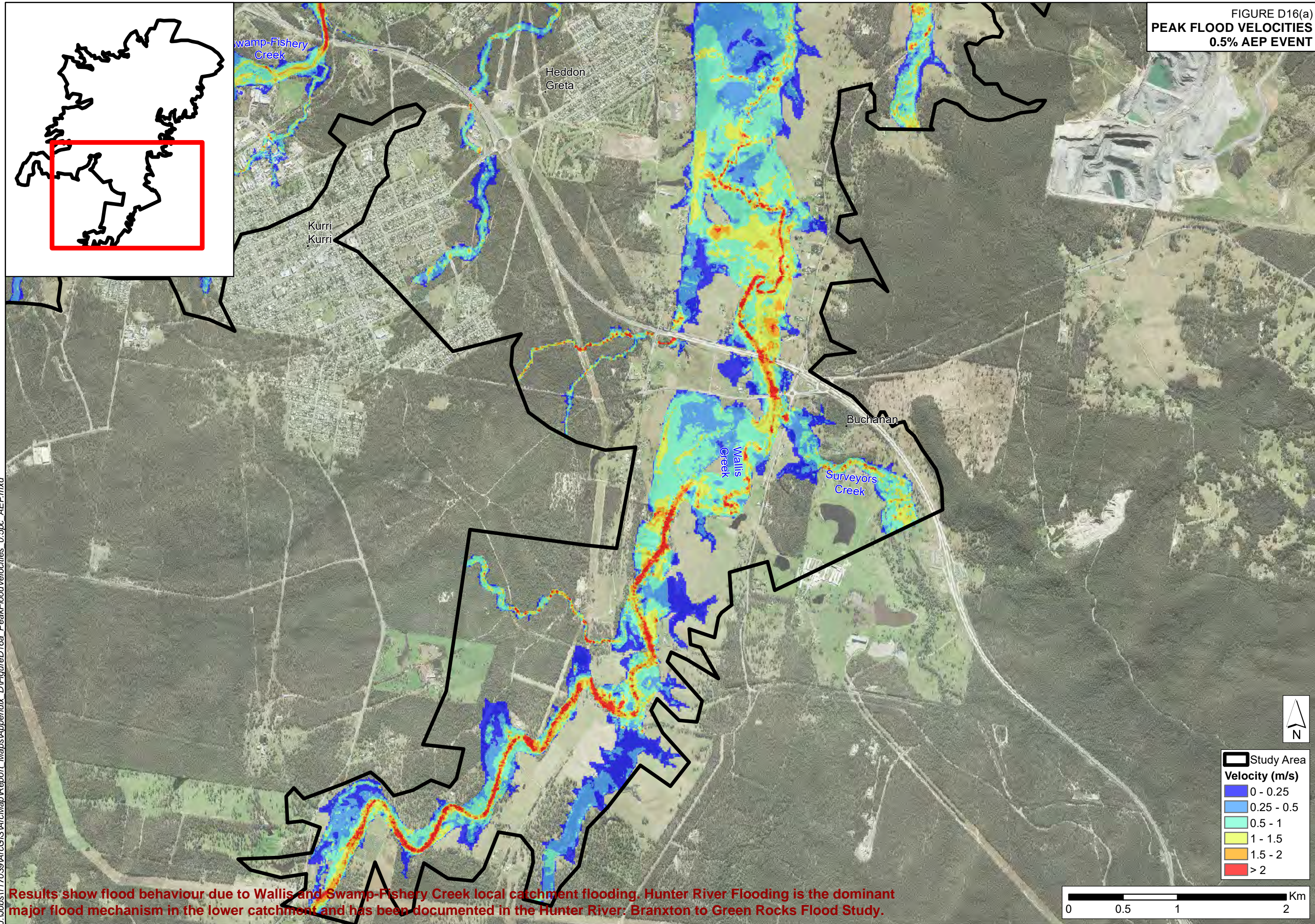


FIGURE D15(c)
PEAK FLOOD VELOCITIES
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D16(a)
PEAK FLOOD VELOCITIES
0.5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

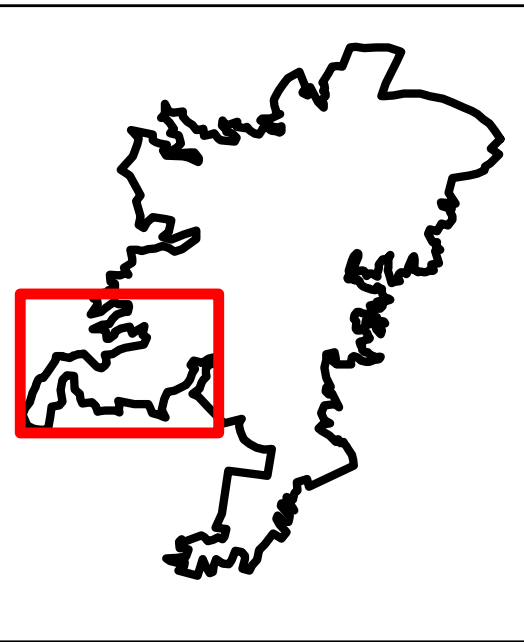
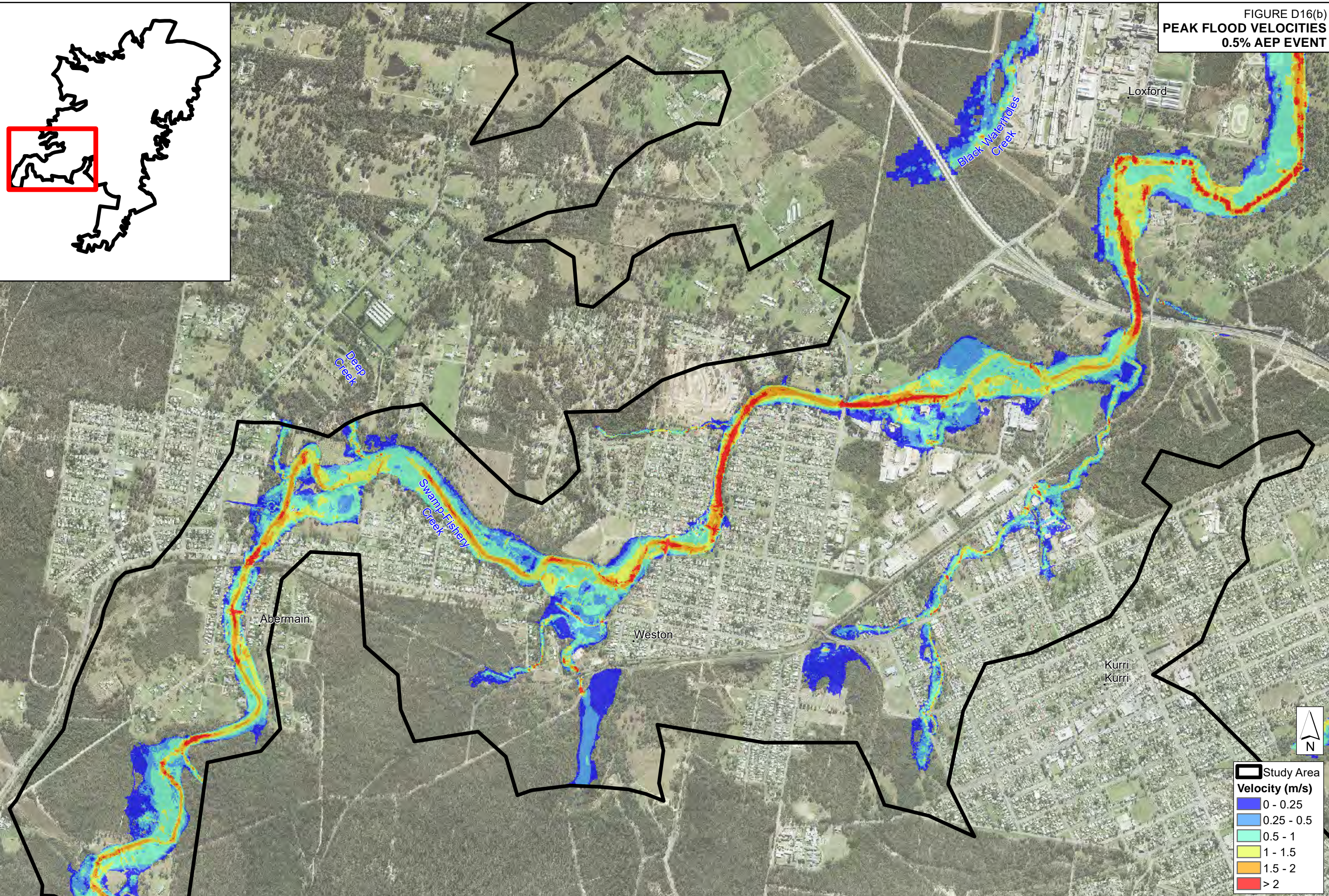


FIGURE D16(b)
PEAK FLOOD VELOCITIES
0.5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

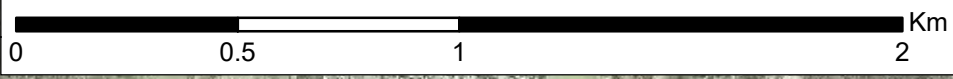


FIGURE D16(c)
PEAK FLOOD VELOCITIES
0.5% AEP EVENT

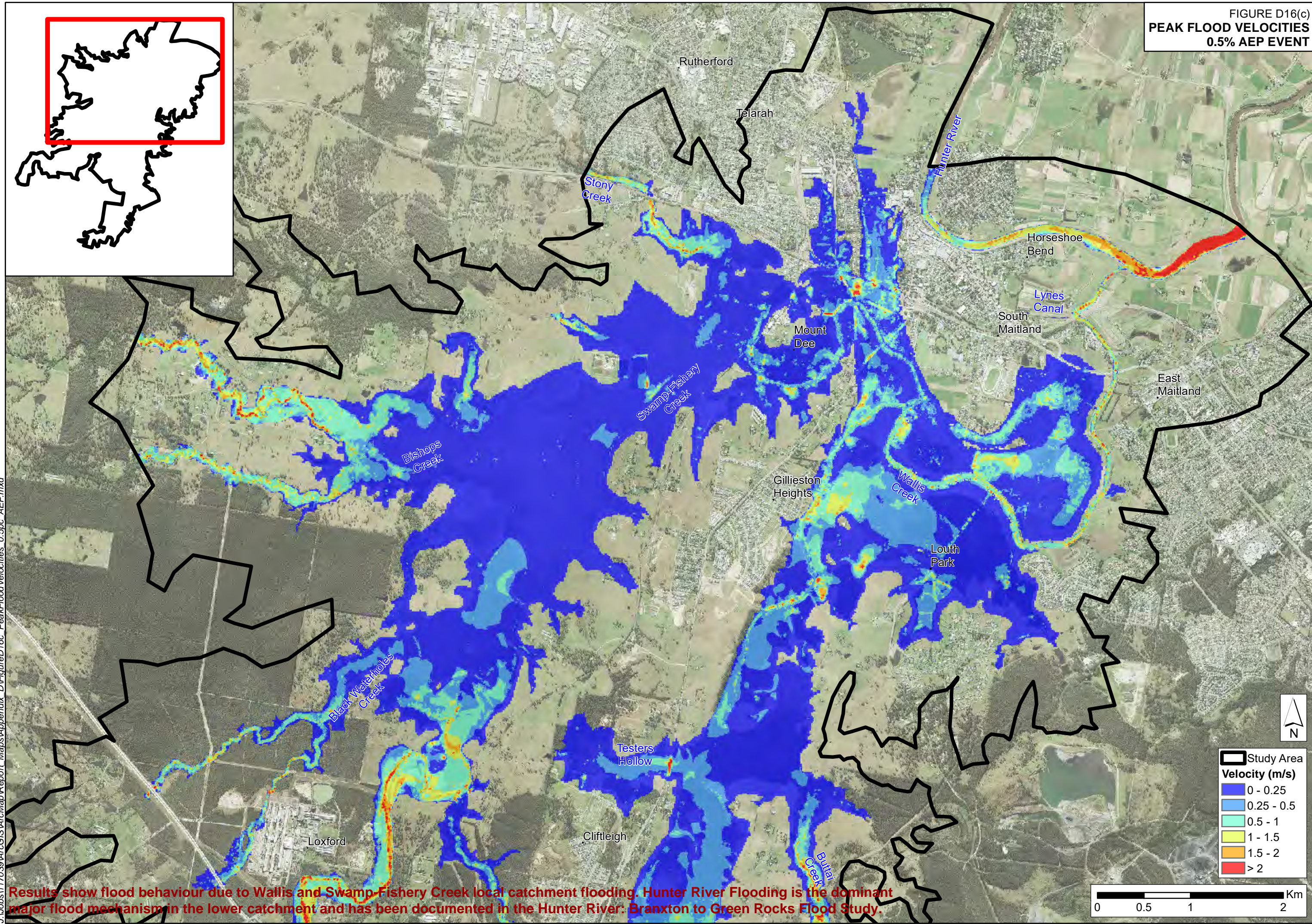
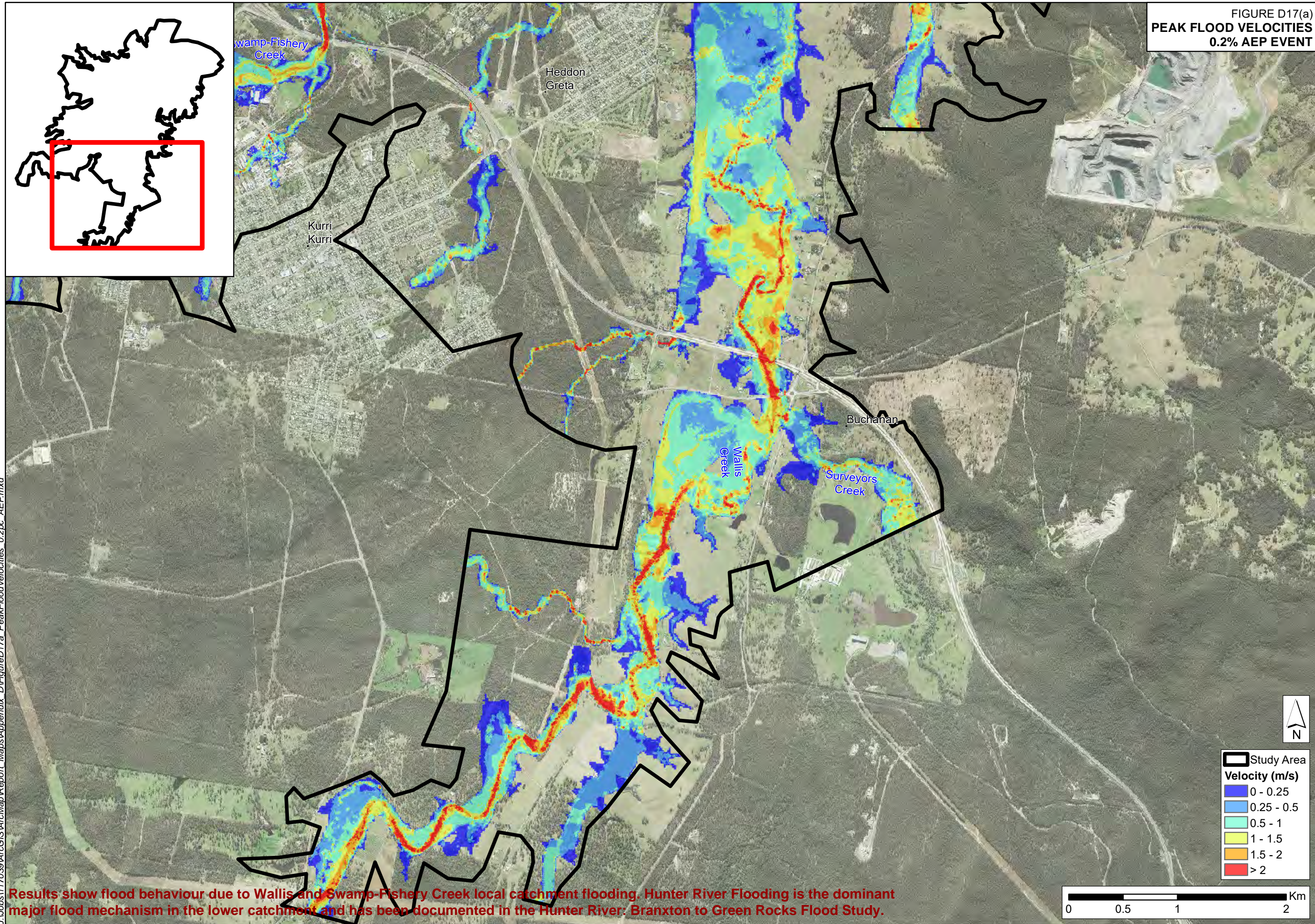


FIGURE D17(a)
PEAK FLOOD VELOCITIES
0.2% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

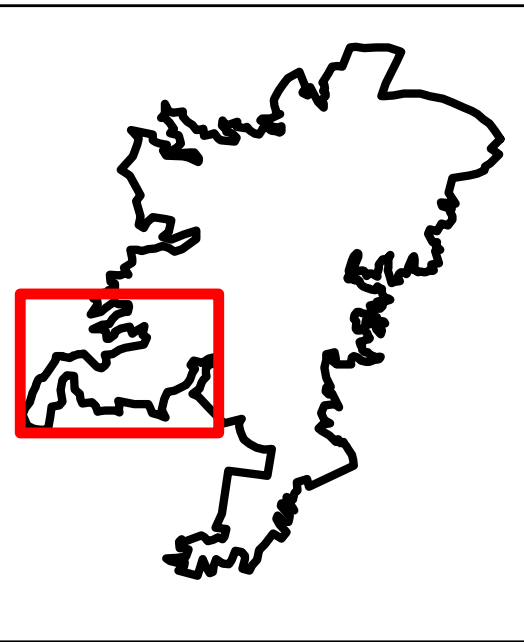
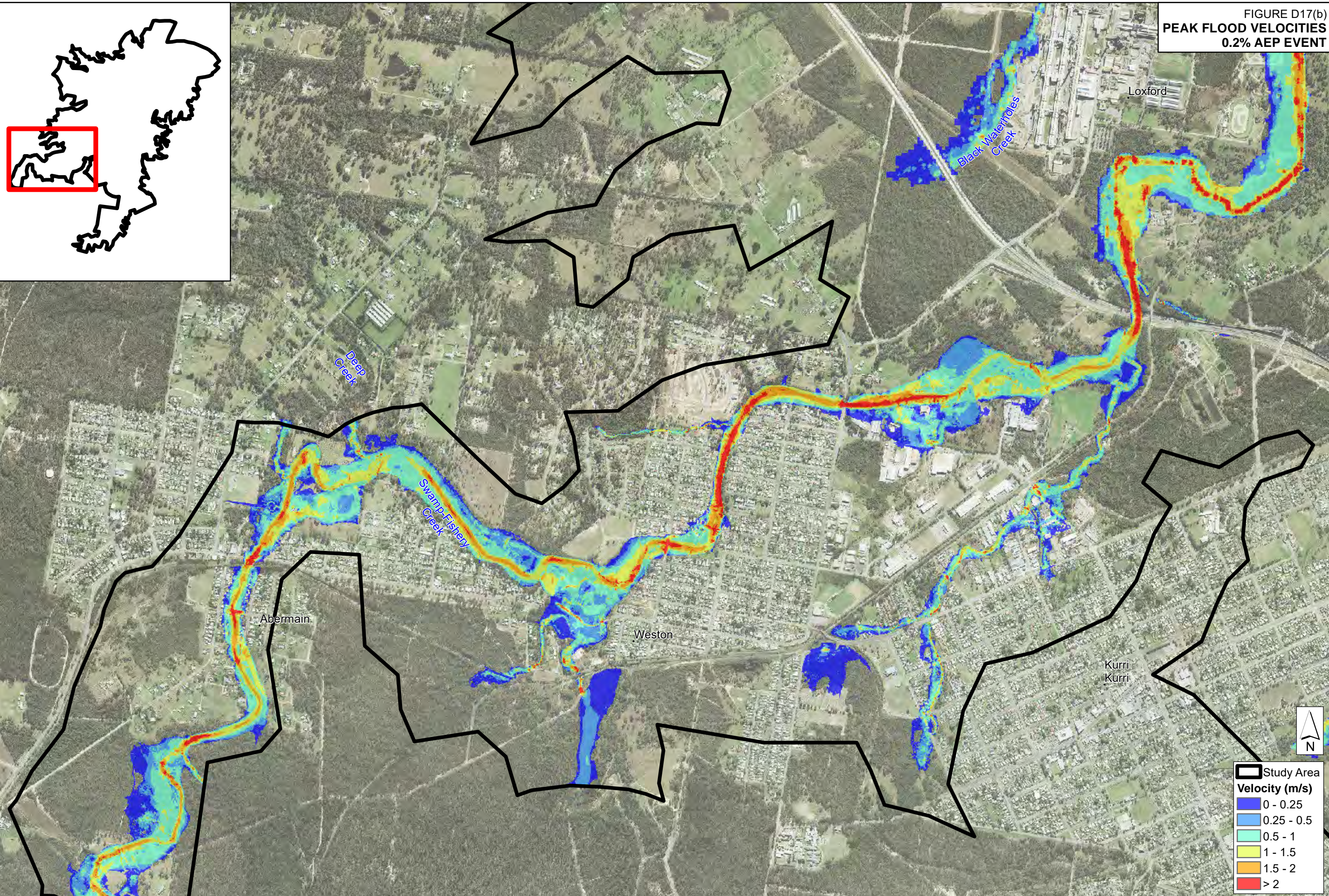
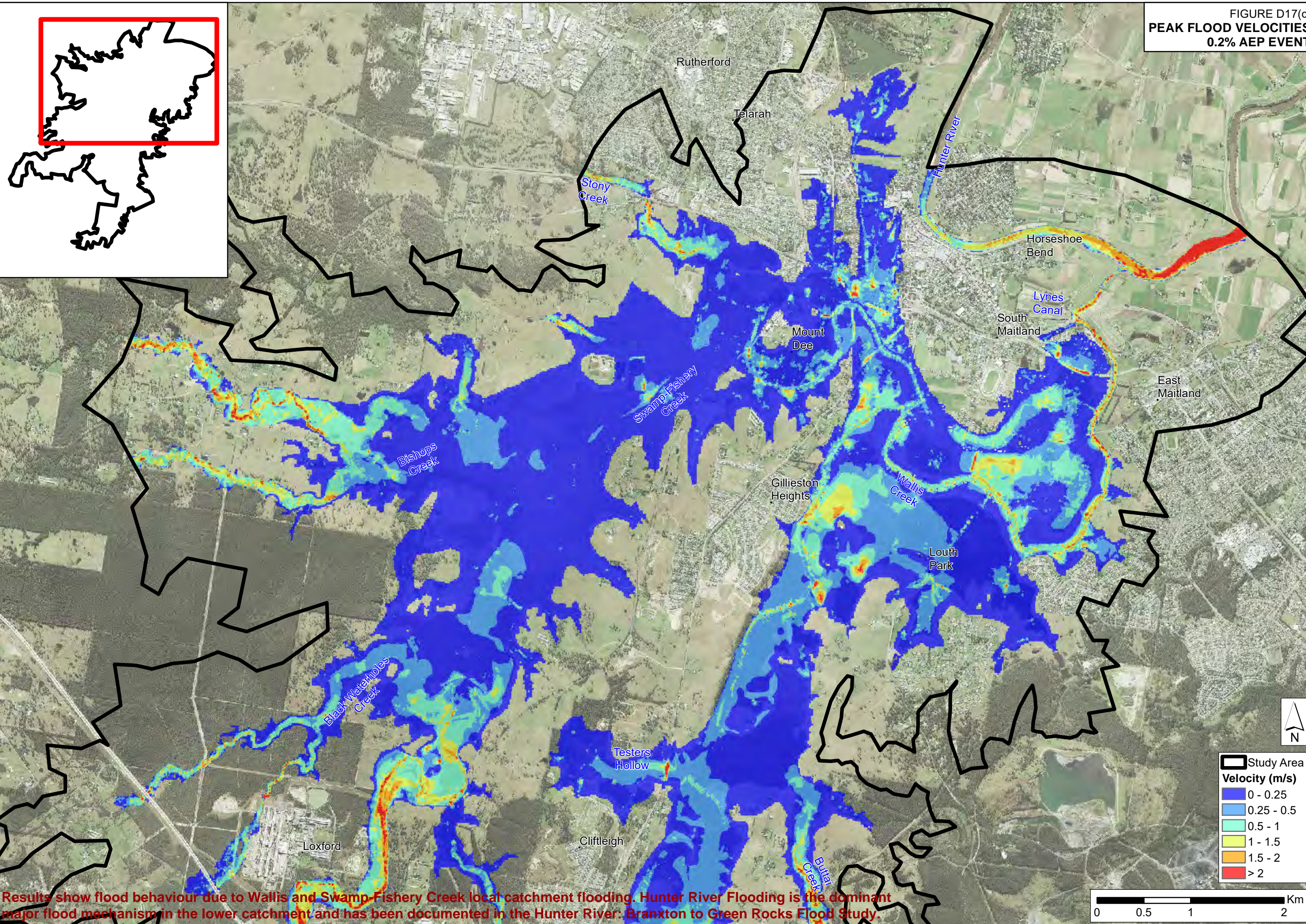


FIGURE D17(b)
PEAK FLOOD VELOCITIES
0.2% AEP EVENT



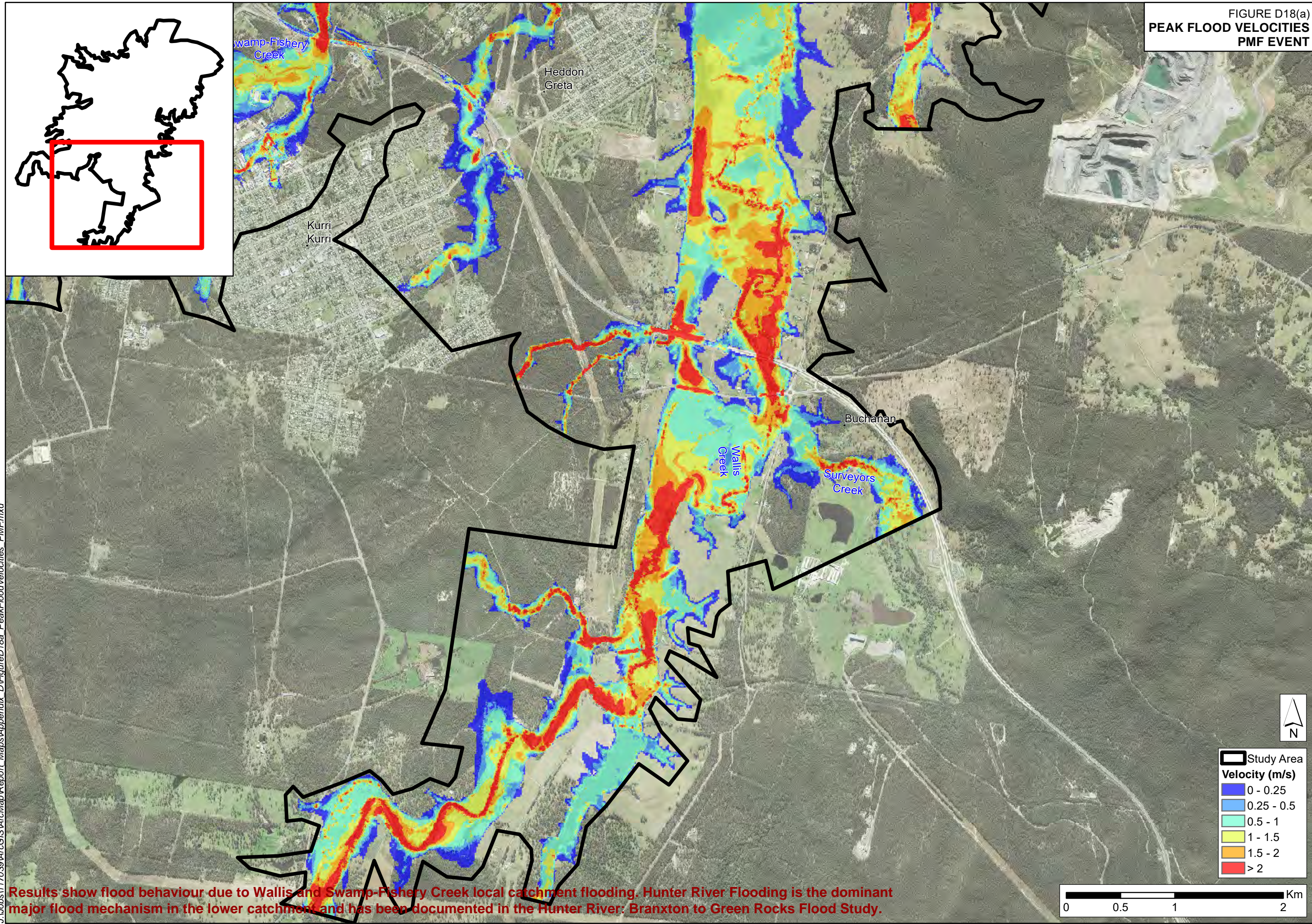
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D17(c)
PEAK FLOOD VELOCITIES
0.2% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D18(a)
PEAK FLOOD VELOCITIES
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

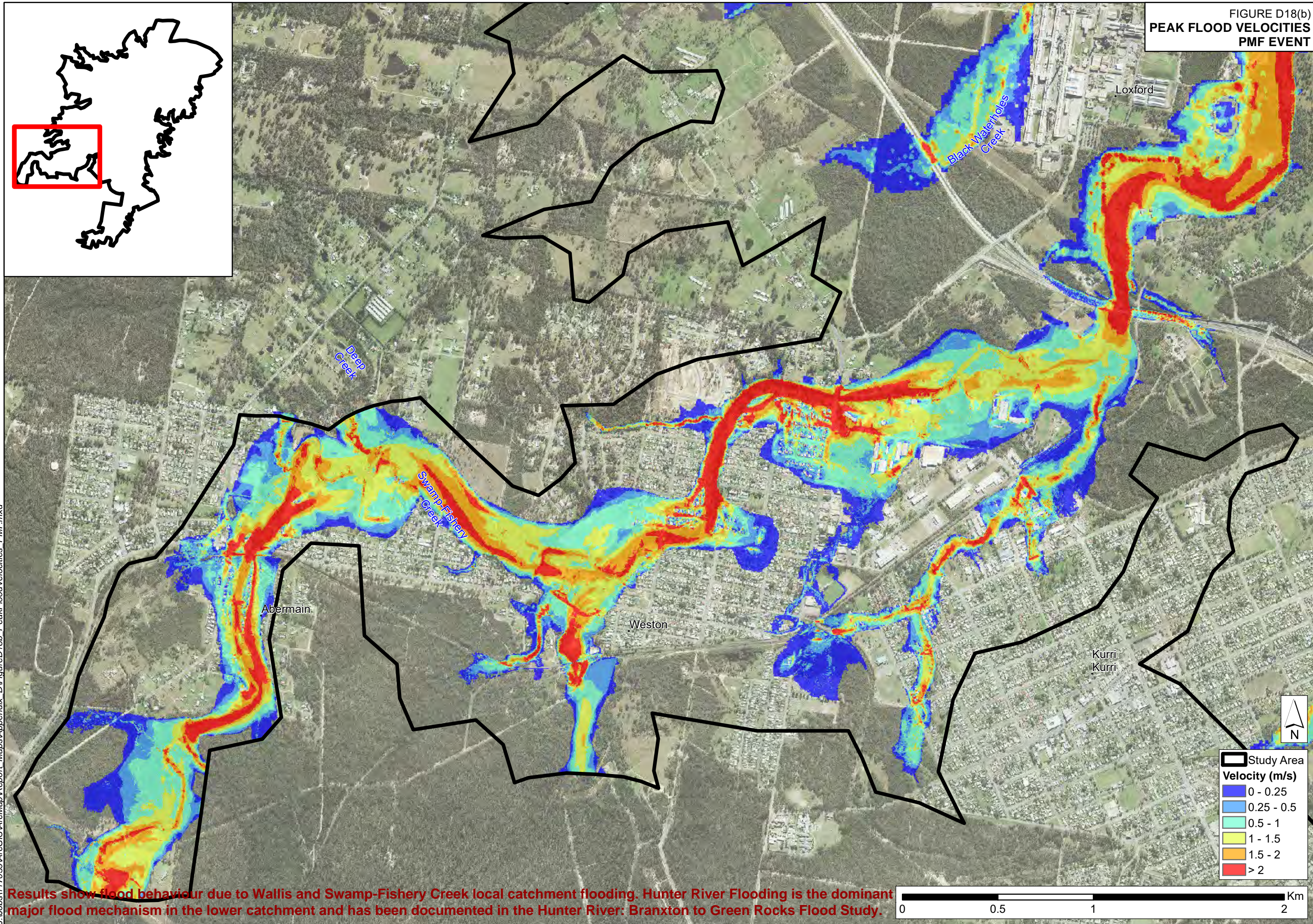
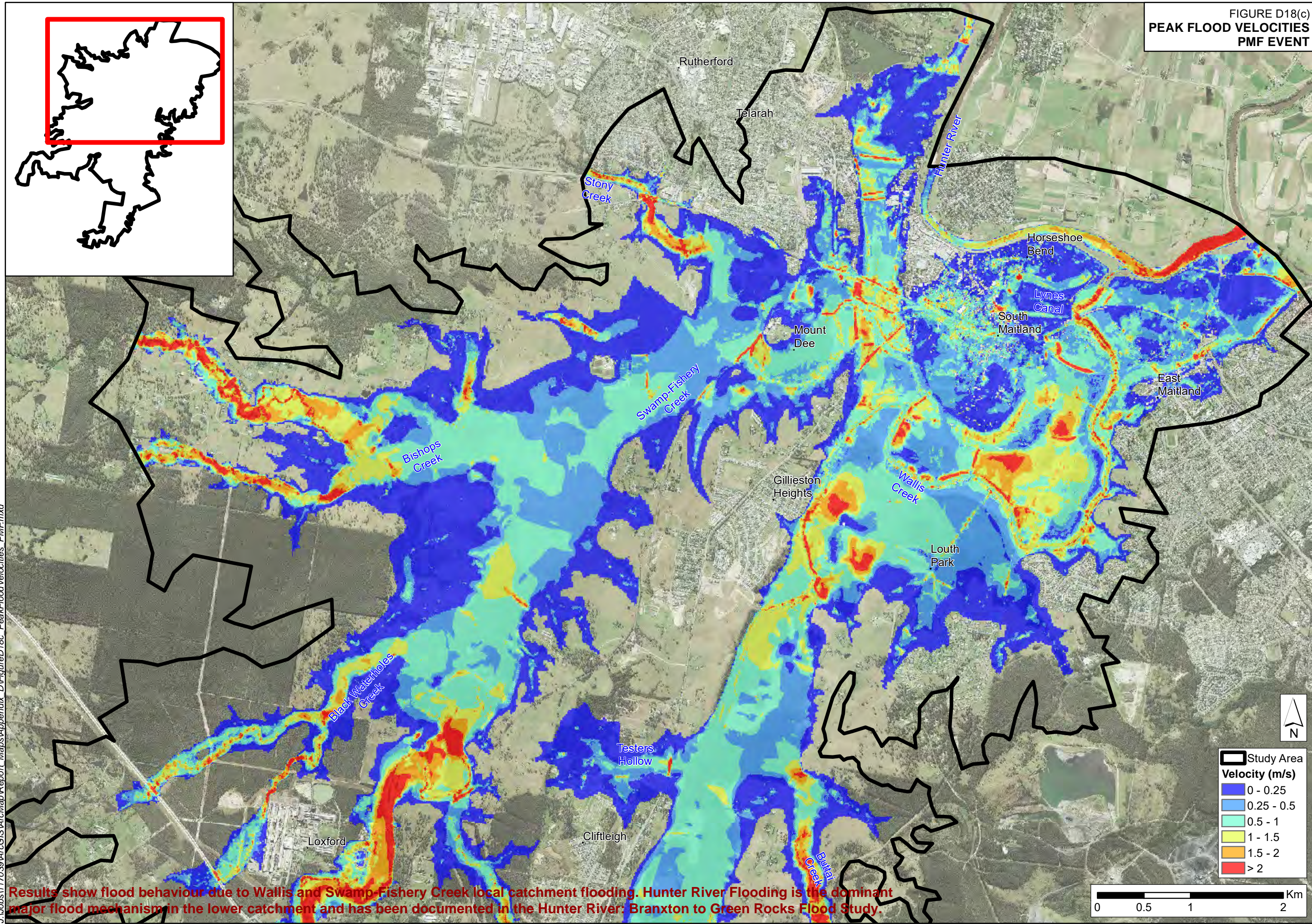
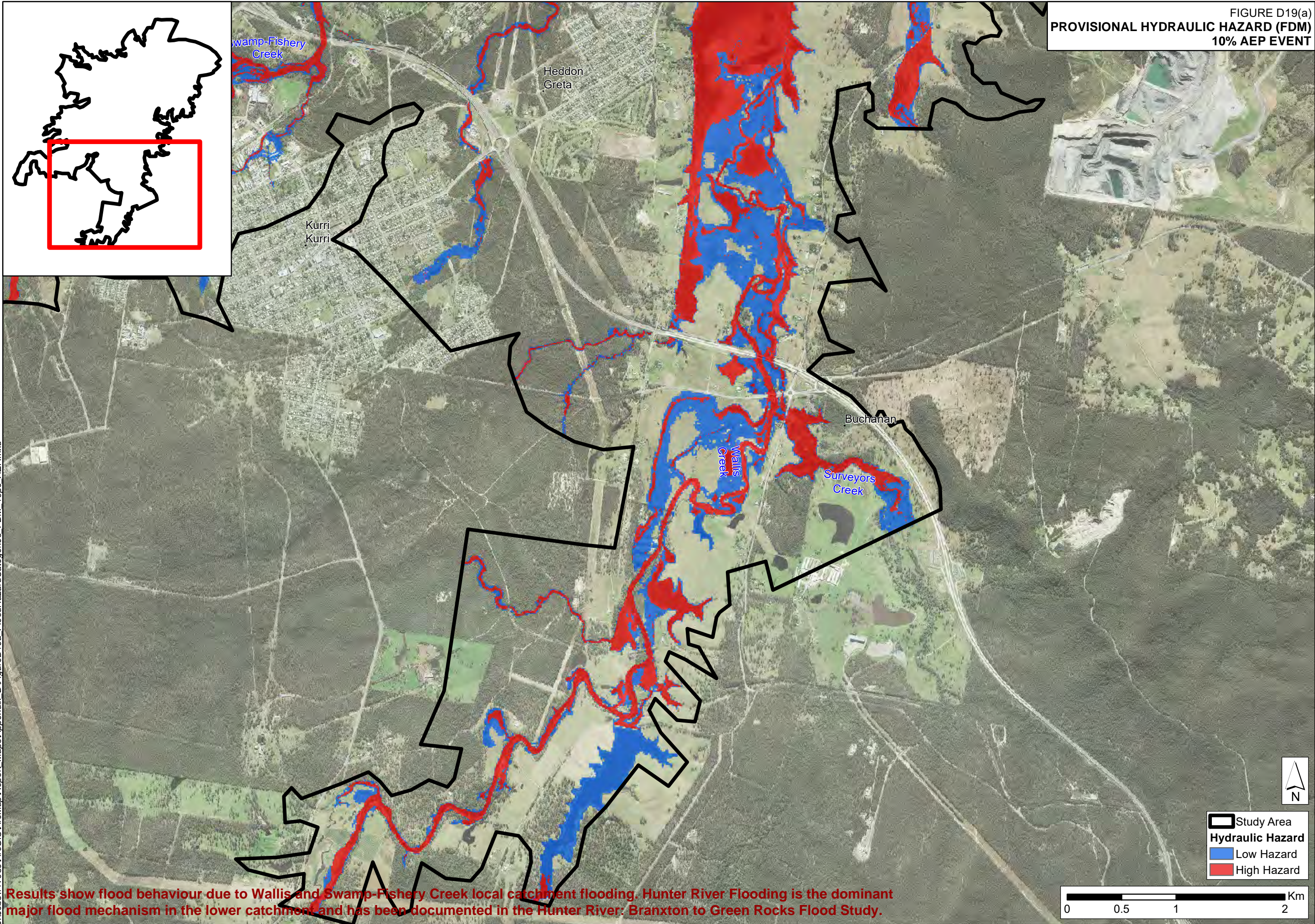


FIGURE D18(c)
PEAK FLOOD VELOCITIES
PMF EVENT





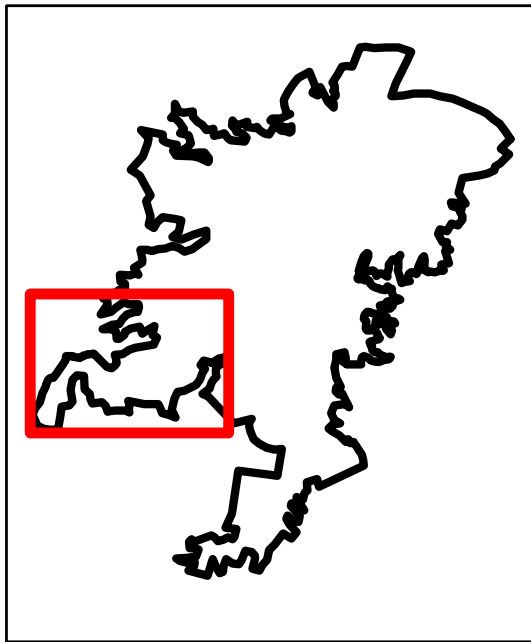
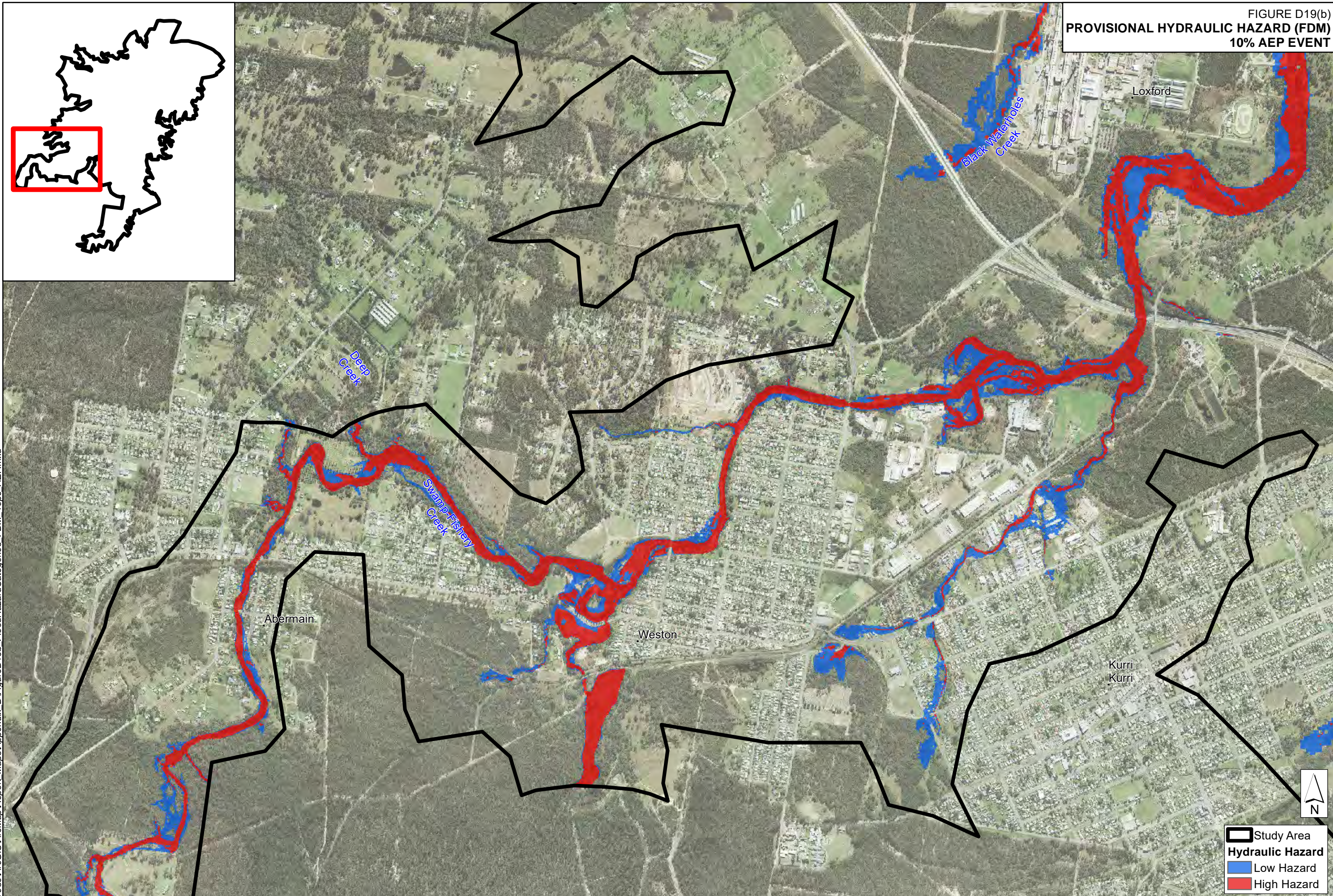
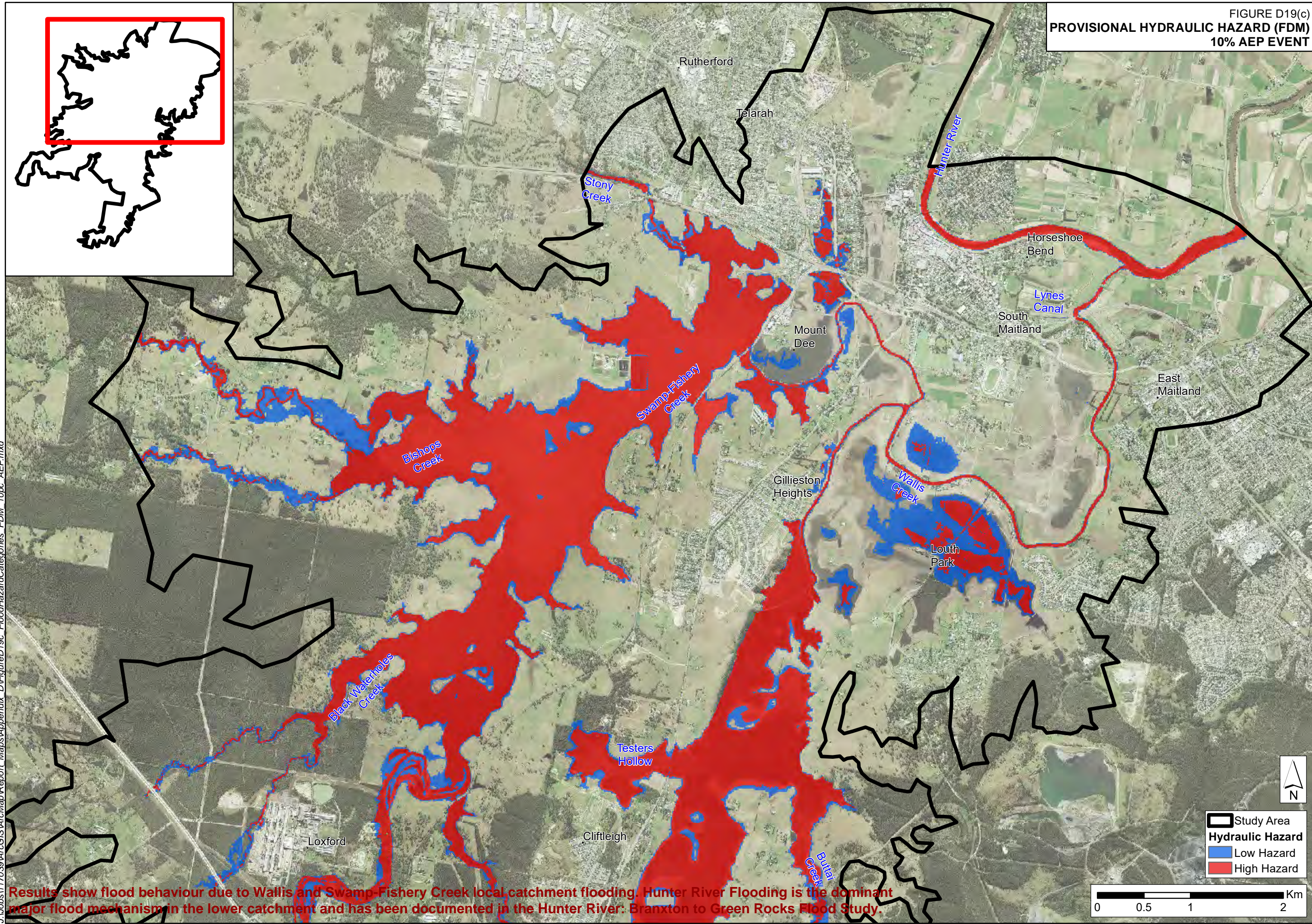


FIGURE D19(b)
PROVISIONAL HYDRAULIC HAZARD (FDM)
10% AEP EVENT

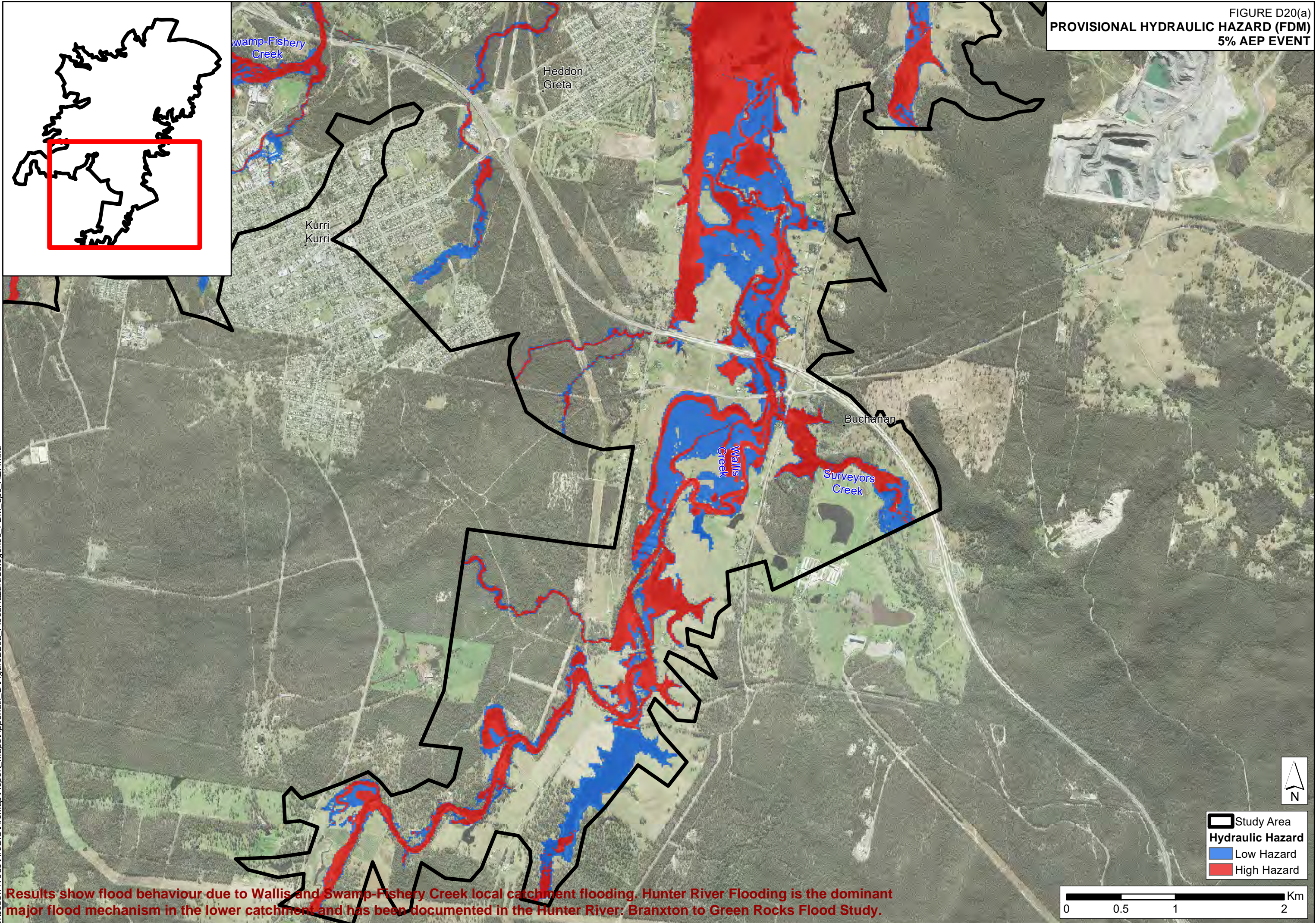


Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D19(c)
PROVISIONAL HYDRAULIC HAZARD (FDM)
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



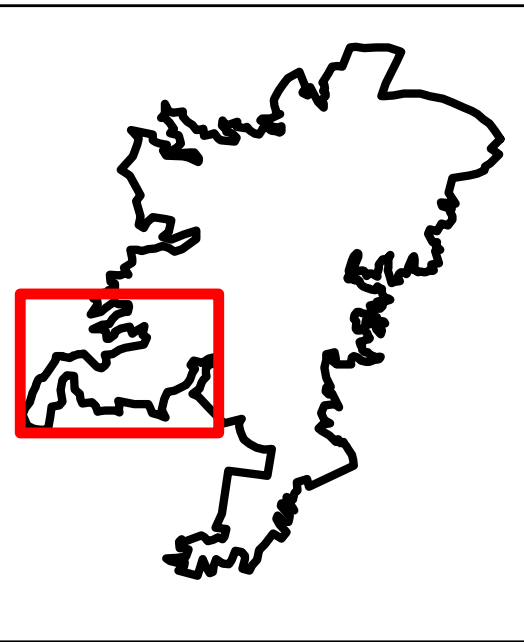
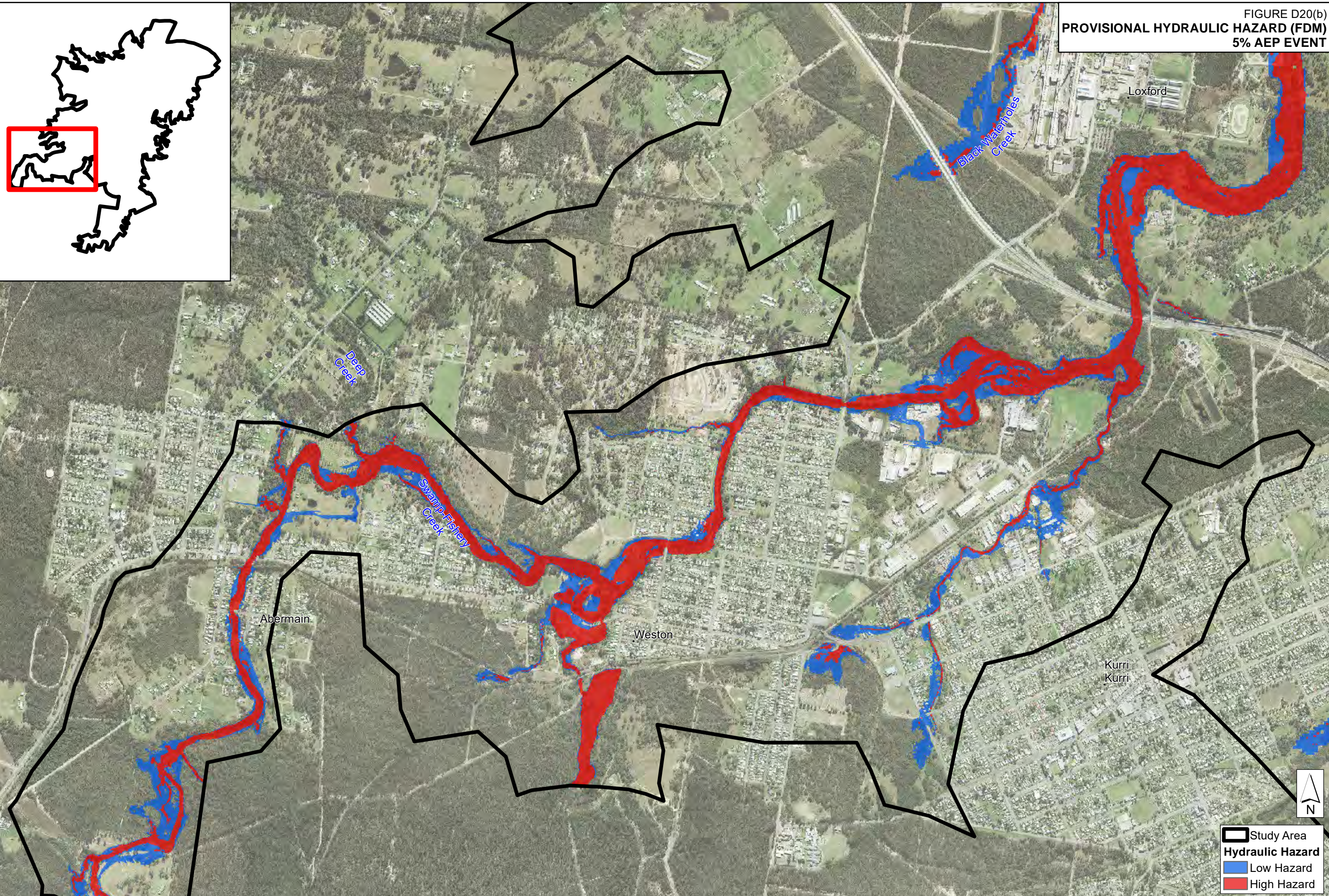
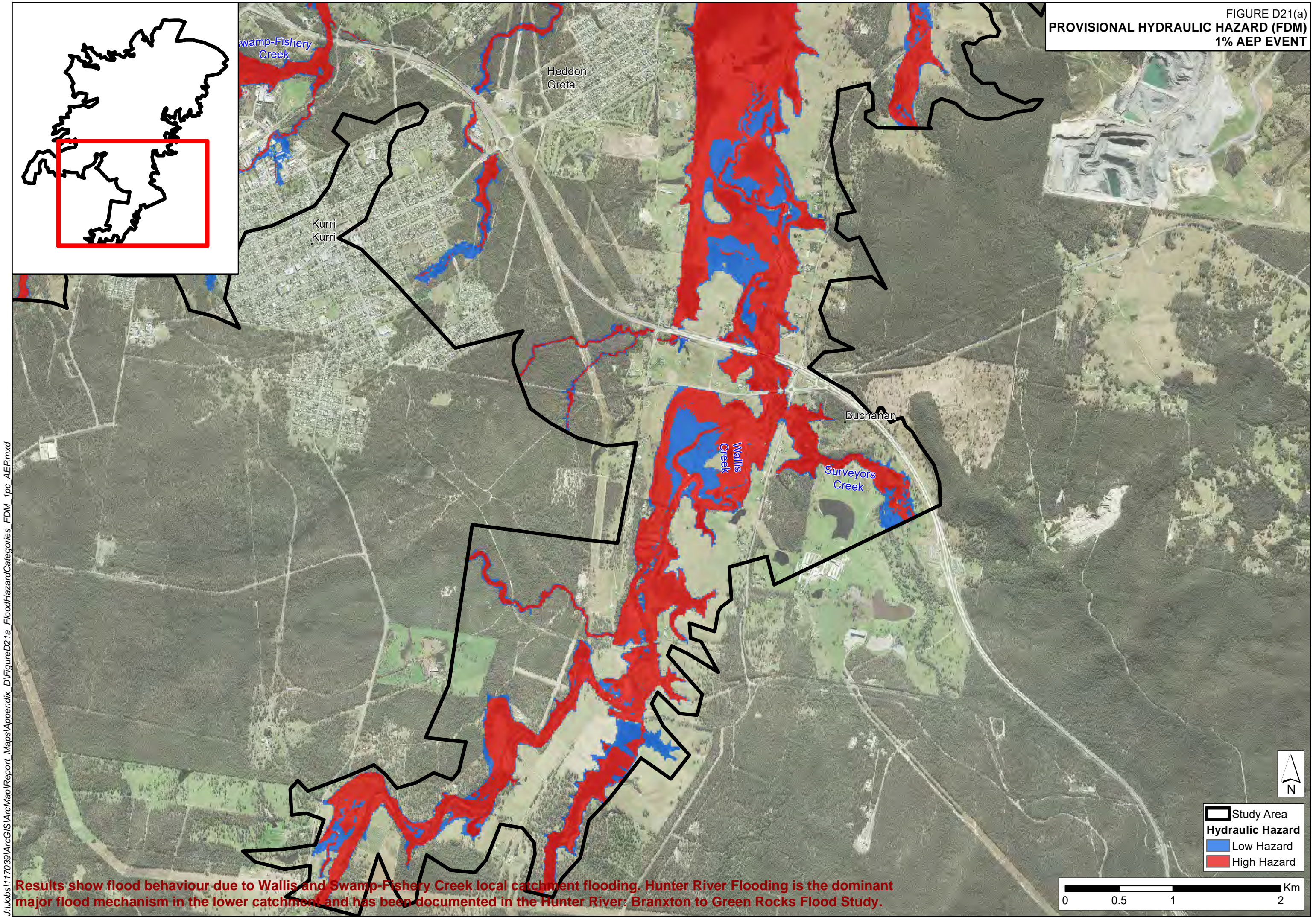


FIGURE D20(b)
PROVISIONAL HYDRAULIC HAZARD (FDM)
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

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Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

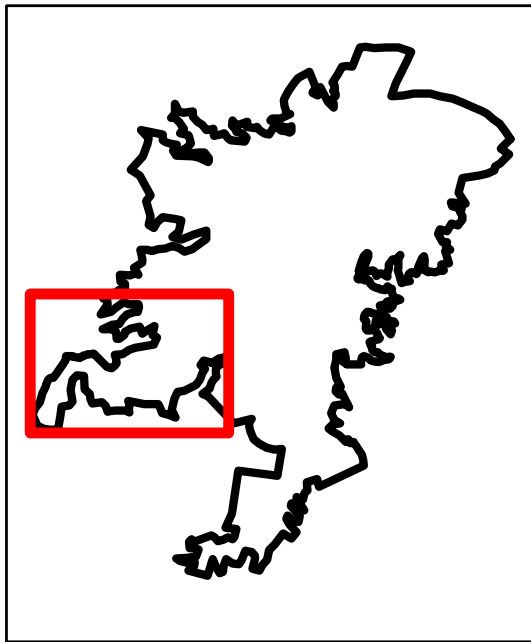
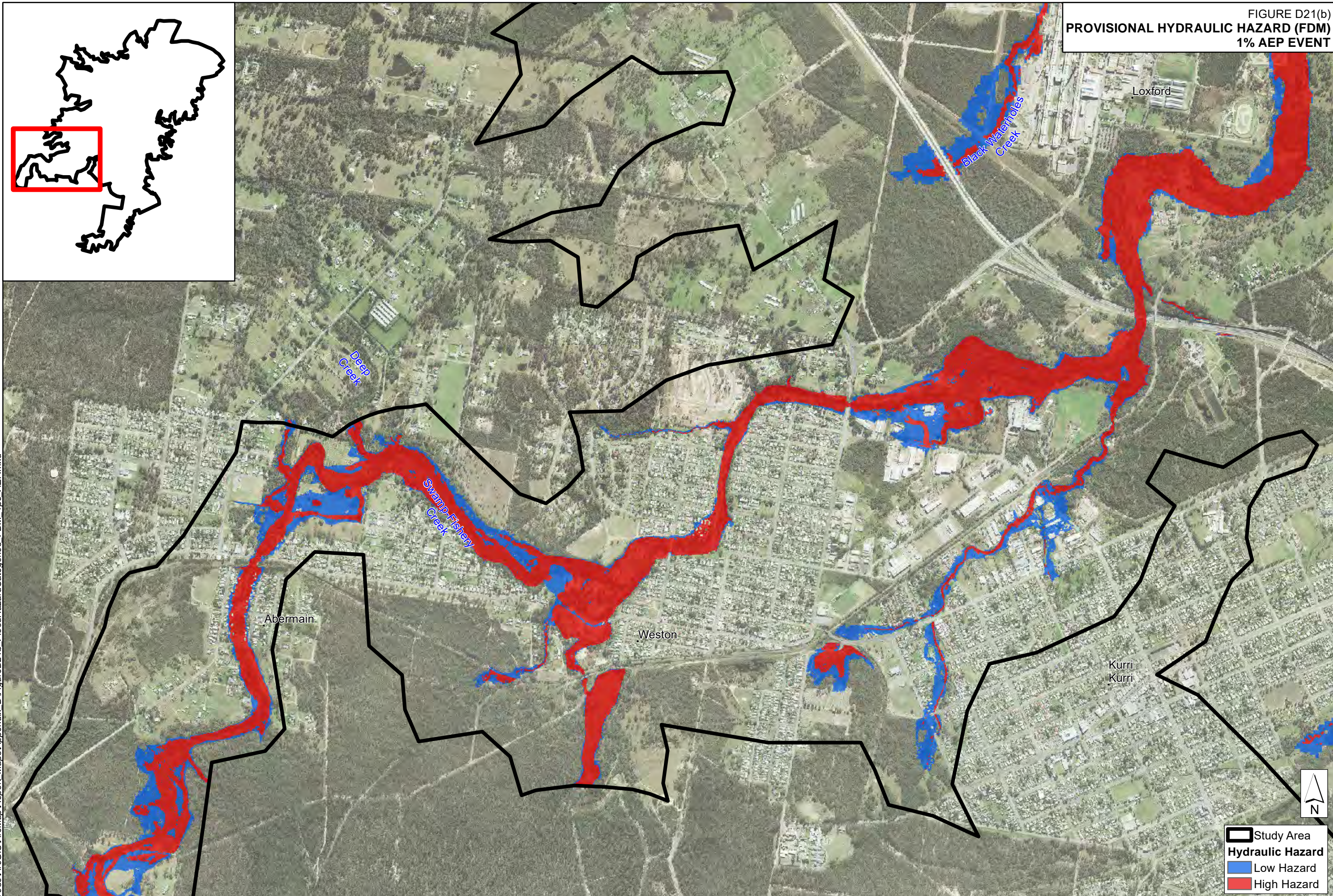


FIGURE D21(b)
PROVISIONAL HYDRAULIC HAZARD (FDM)
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

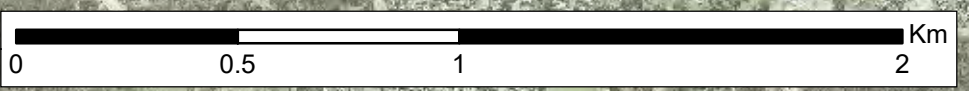
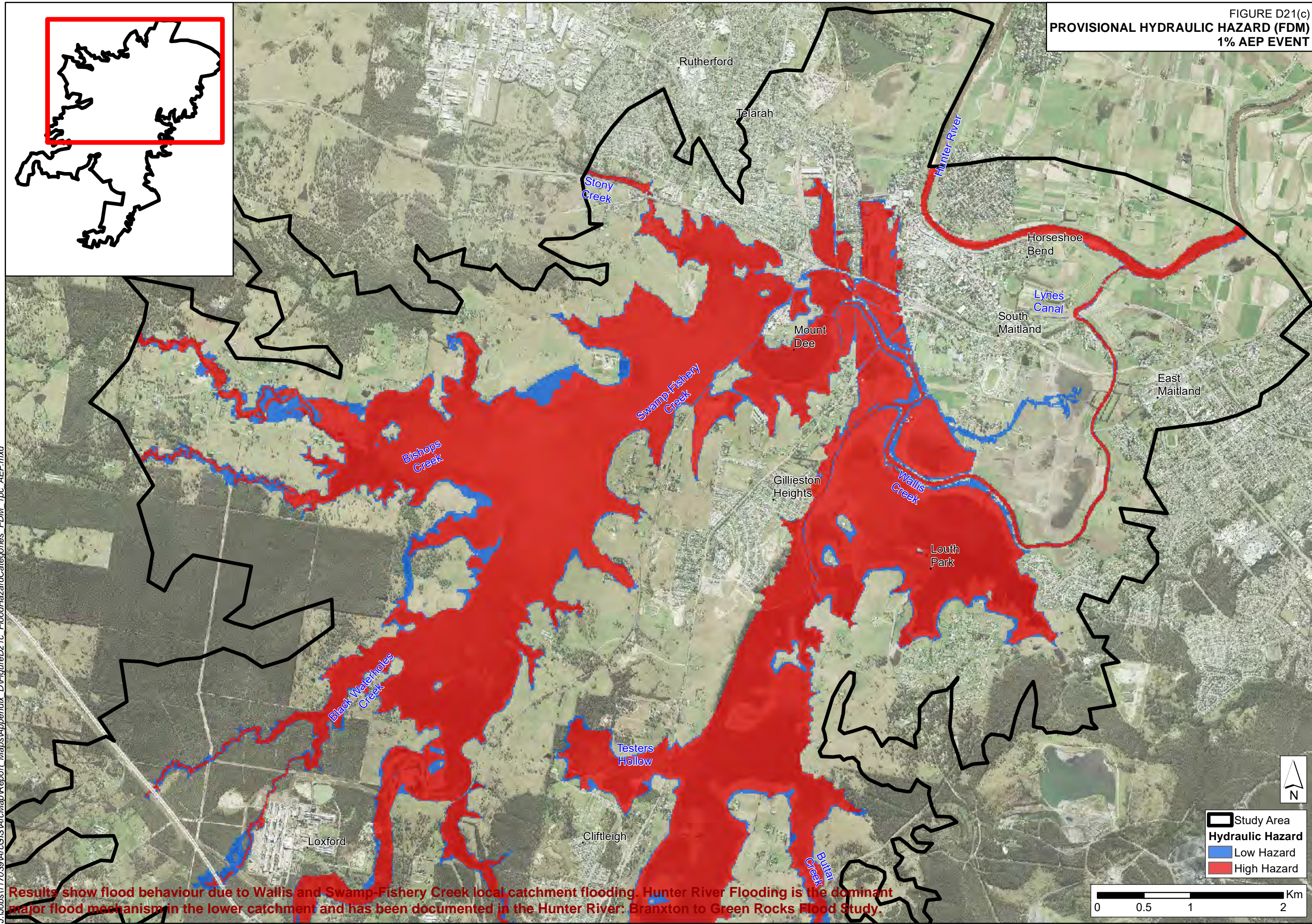


FIGURE D21(c)
PROVISIONAL HYDRAULIC HAZARD (FDM)
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\1170-39\ArcGIS\Map\Report Maps\Appendix D\FigureD21c FloodHazardCategories_FDM_1pc_AEP.mxd

Study Area

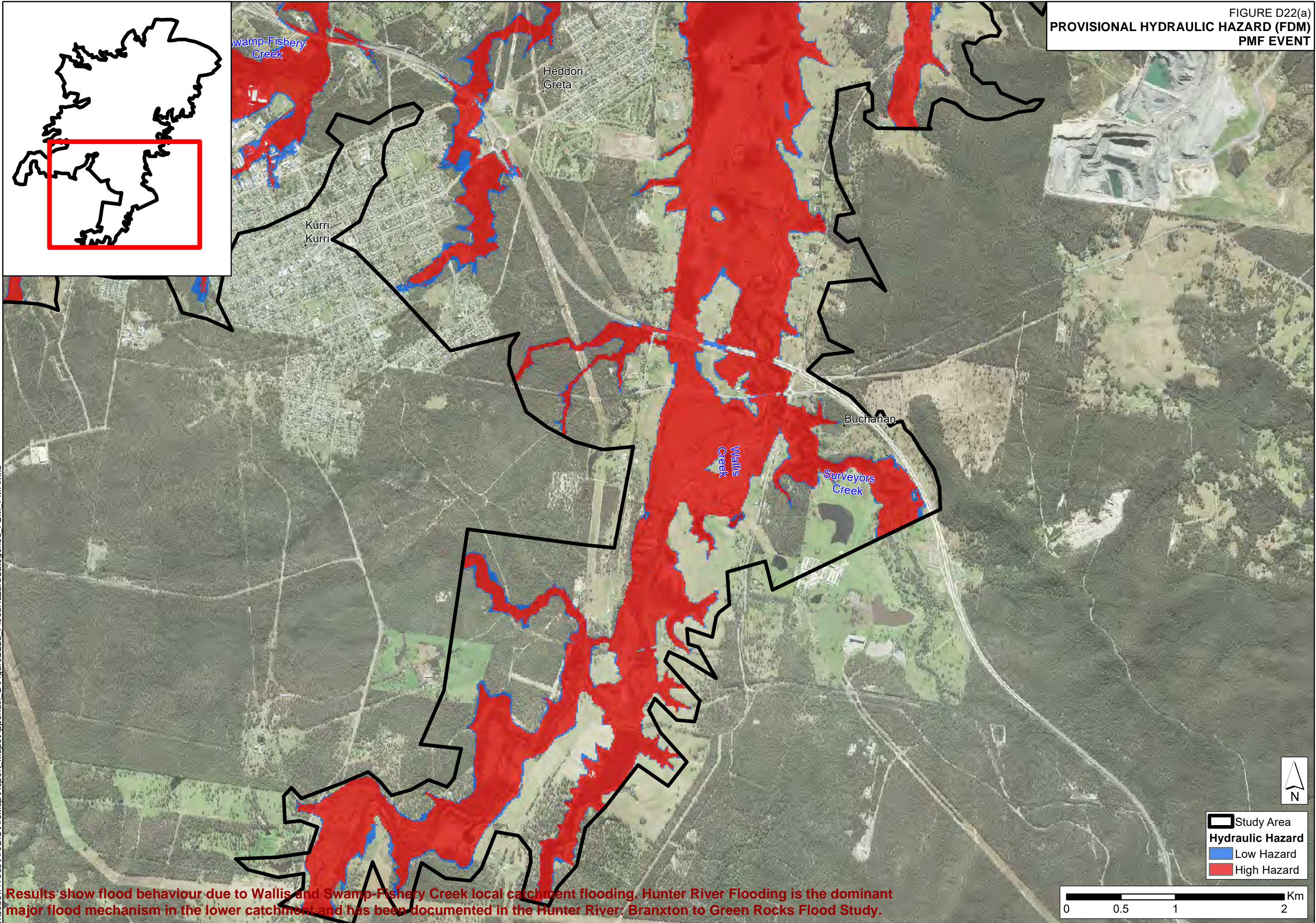
Hydraulic Hazard

Low Hazard

High Hazard

N

0 0.5 1 2 Km



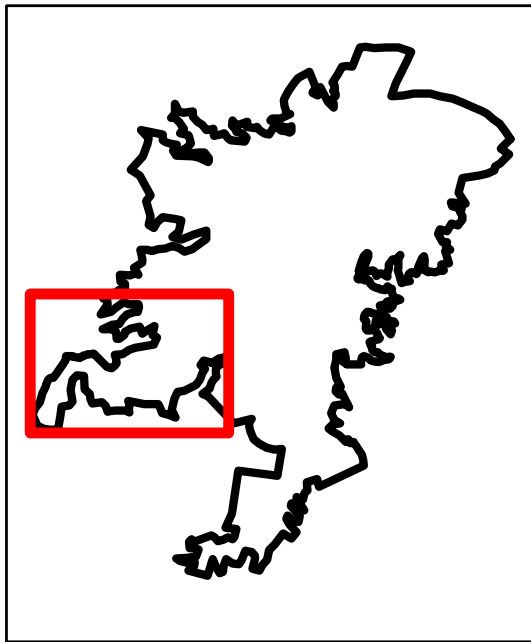
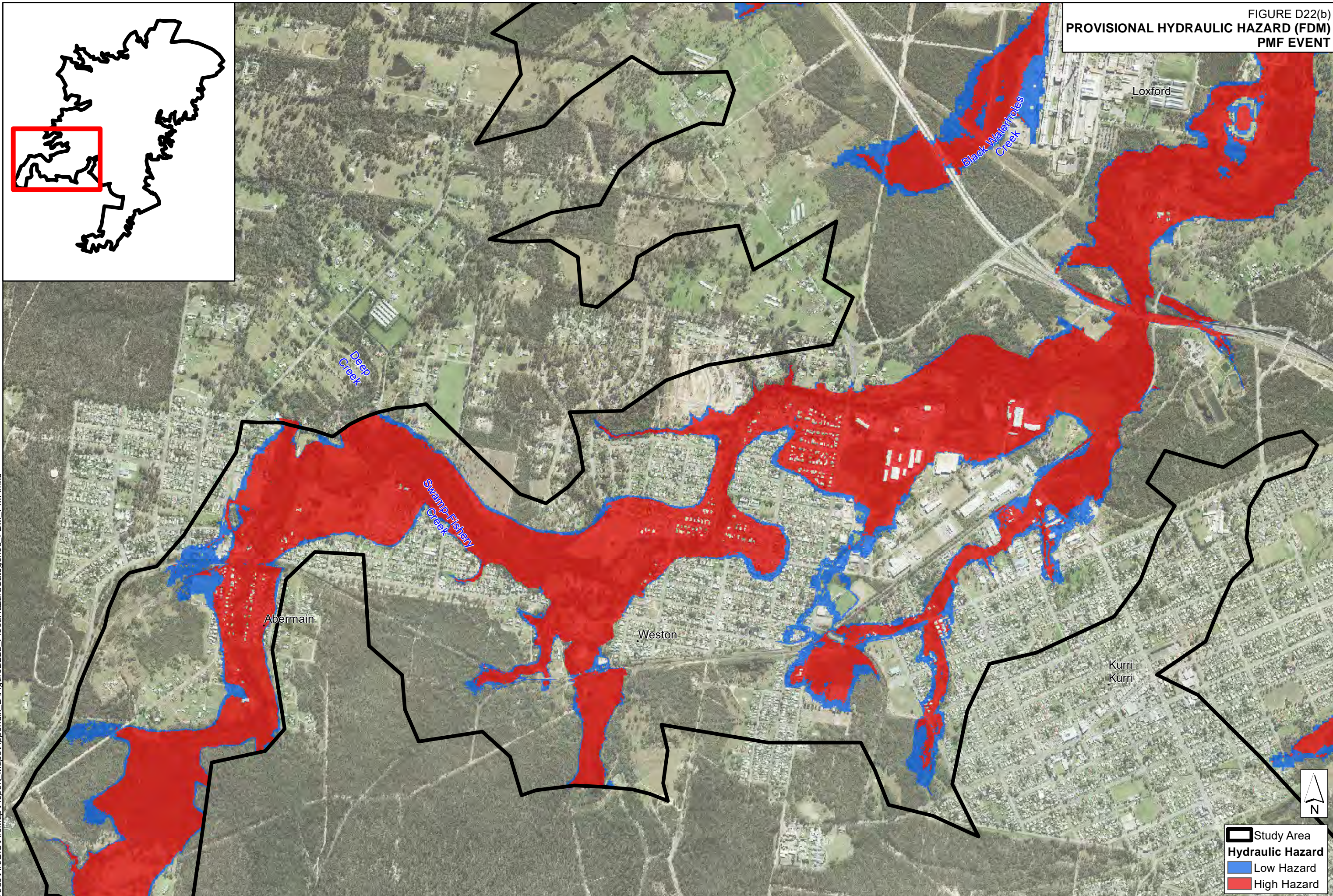


FIGURE D22(b)
PROVISIONAL HYDRAULIC HAZARD (FDM)
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

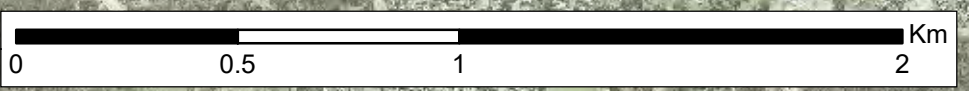
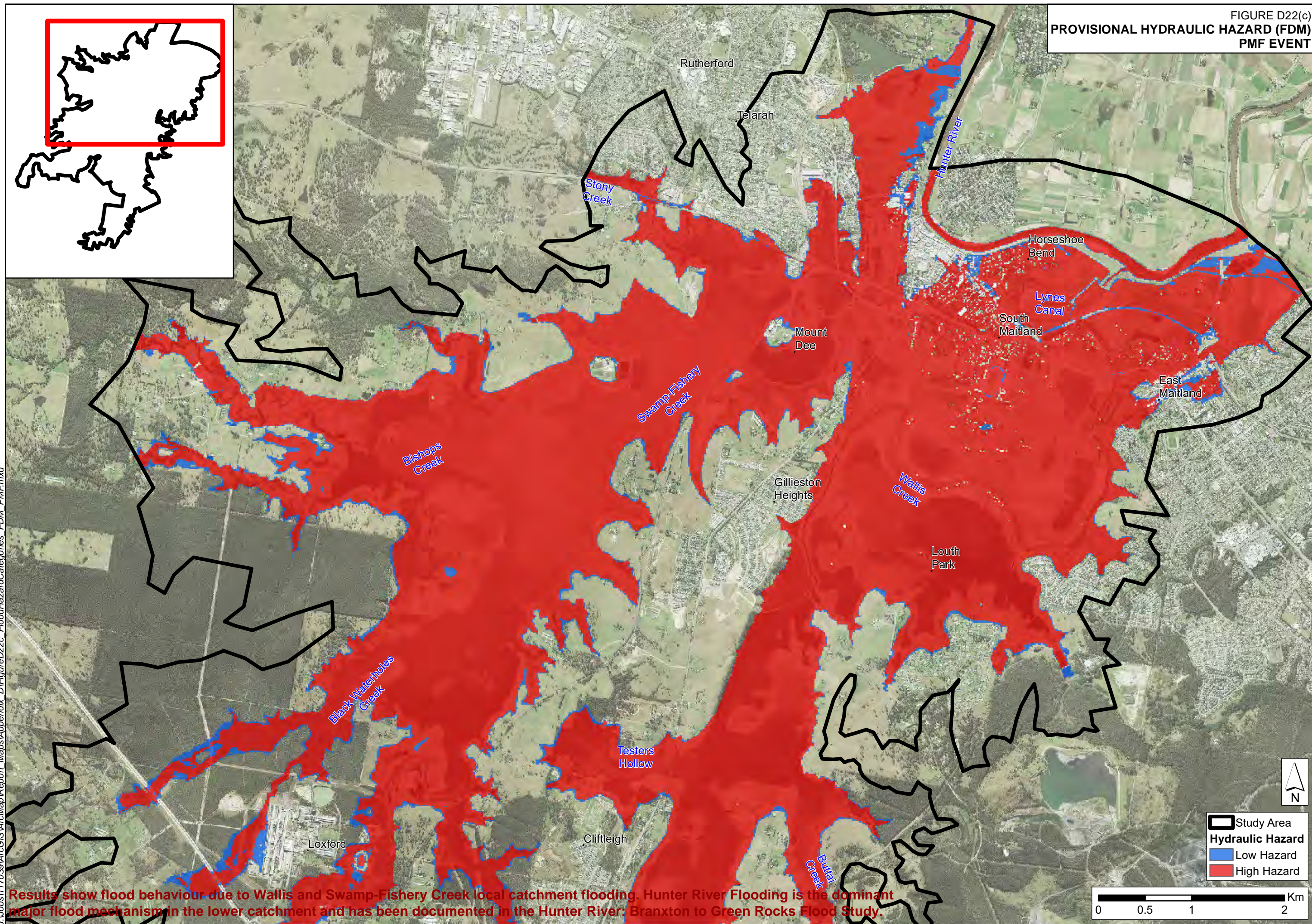
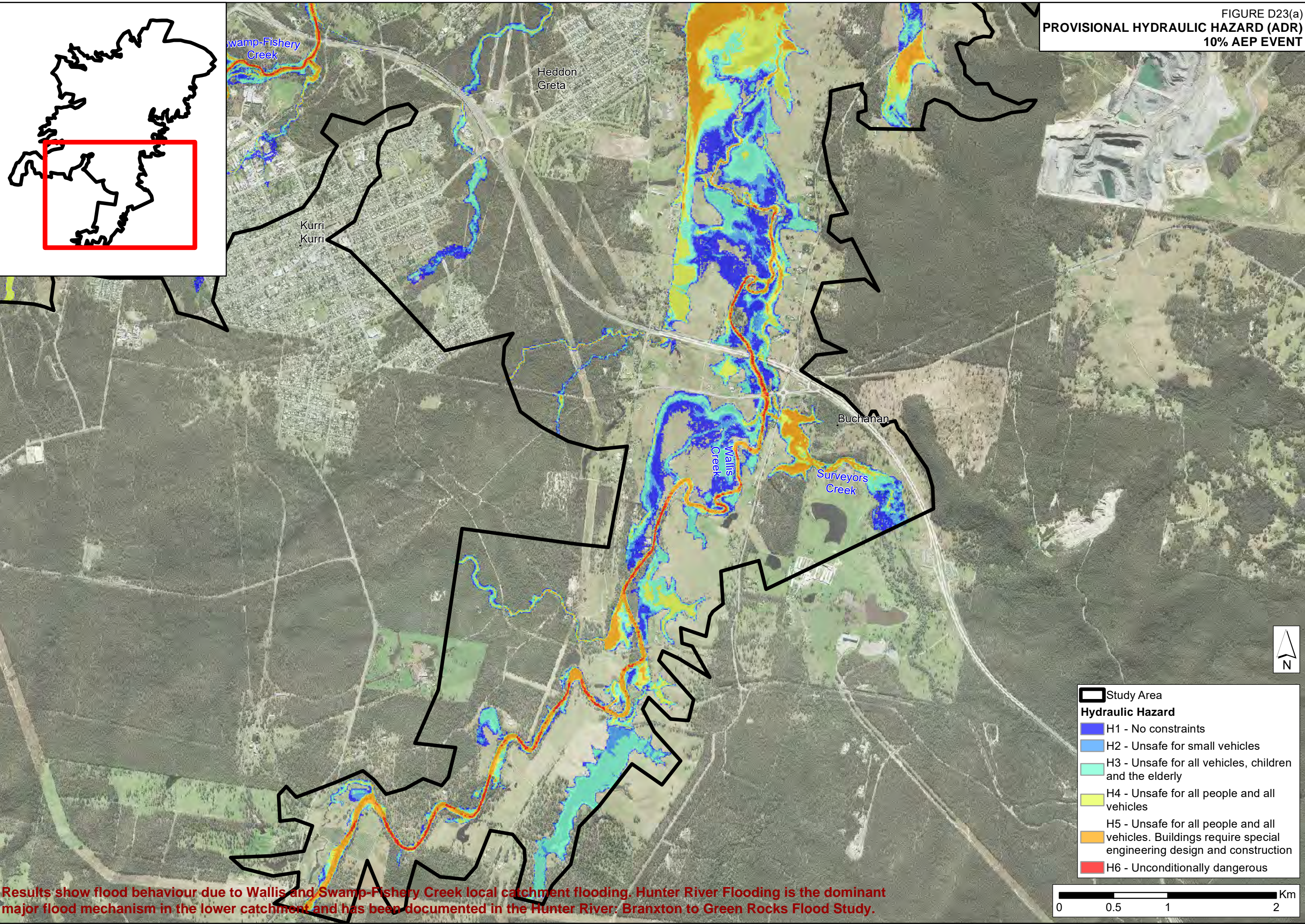


FIGURE D22(c)
PROVISIONAL HYDRAULIC HAZARD (FDM)
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\1170-39\ArcGIS\Map\Report_Maps\Appendix_D\FigureD23a_FloodHazardCategories_ADR_10pc_AEP.mxd



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

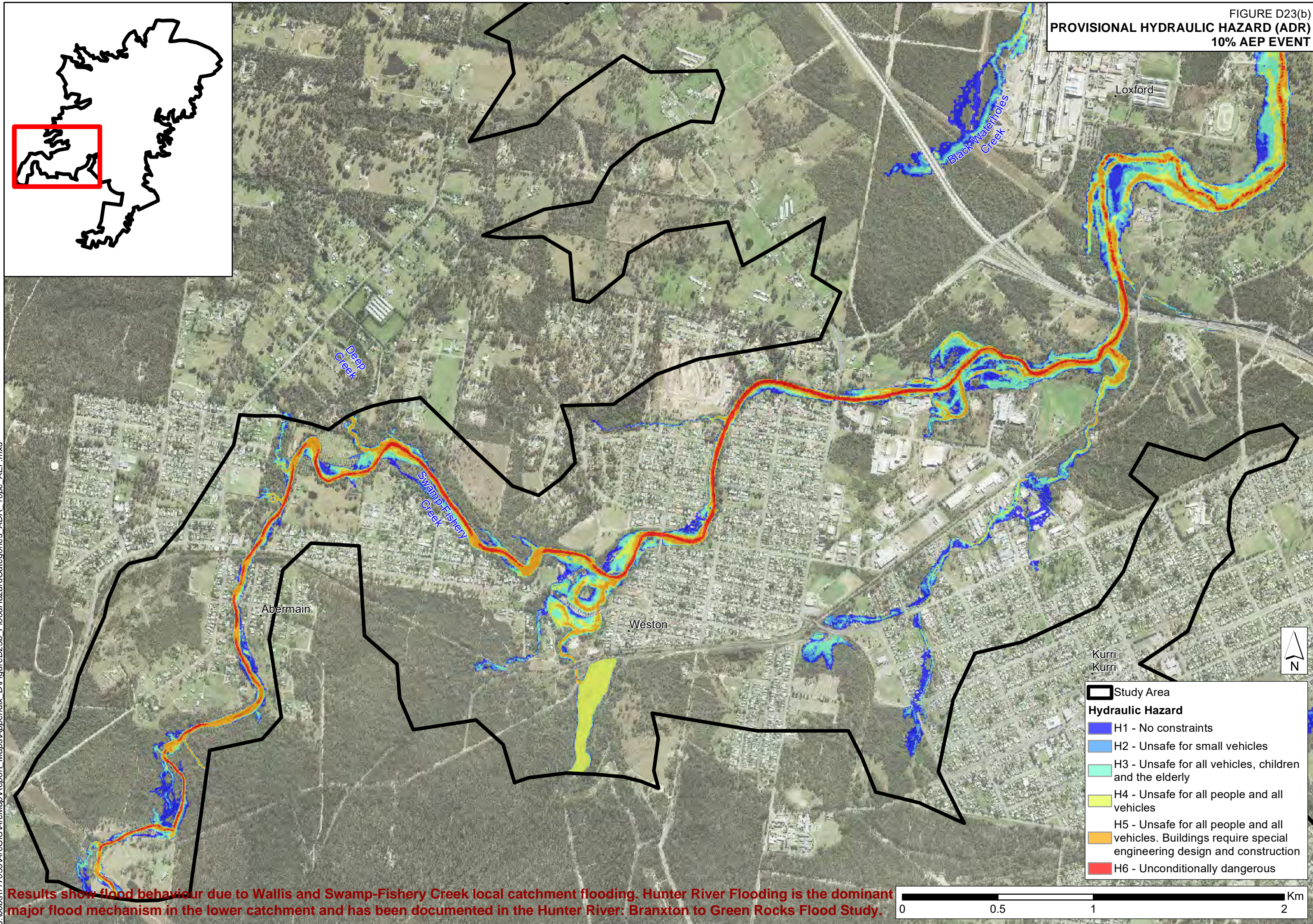
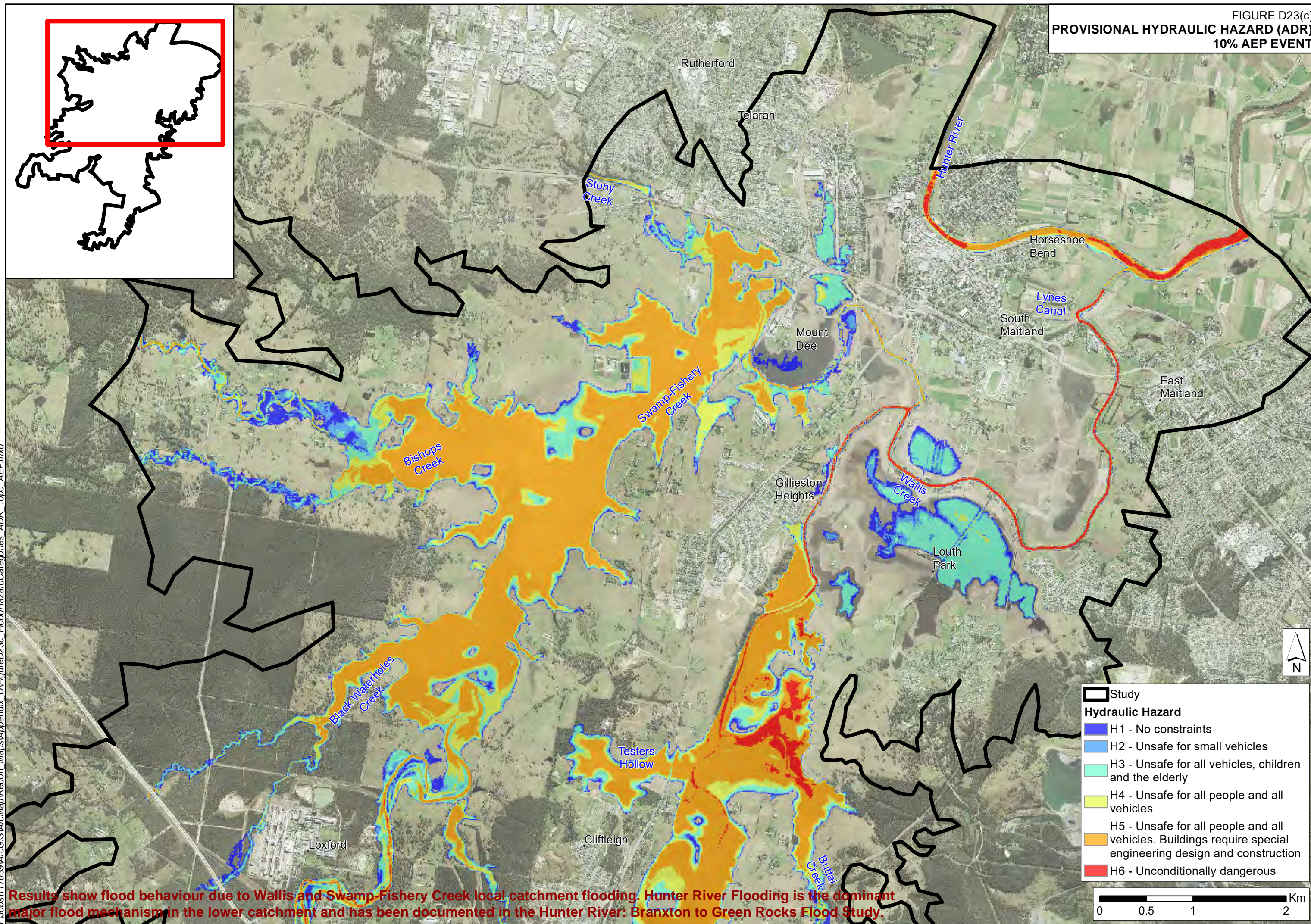
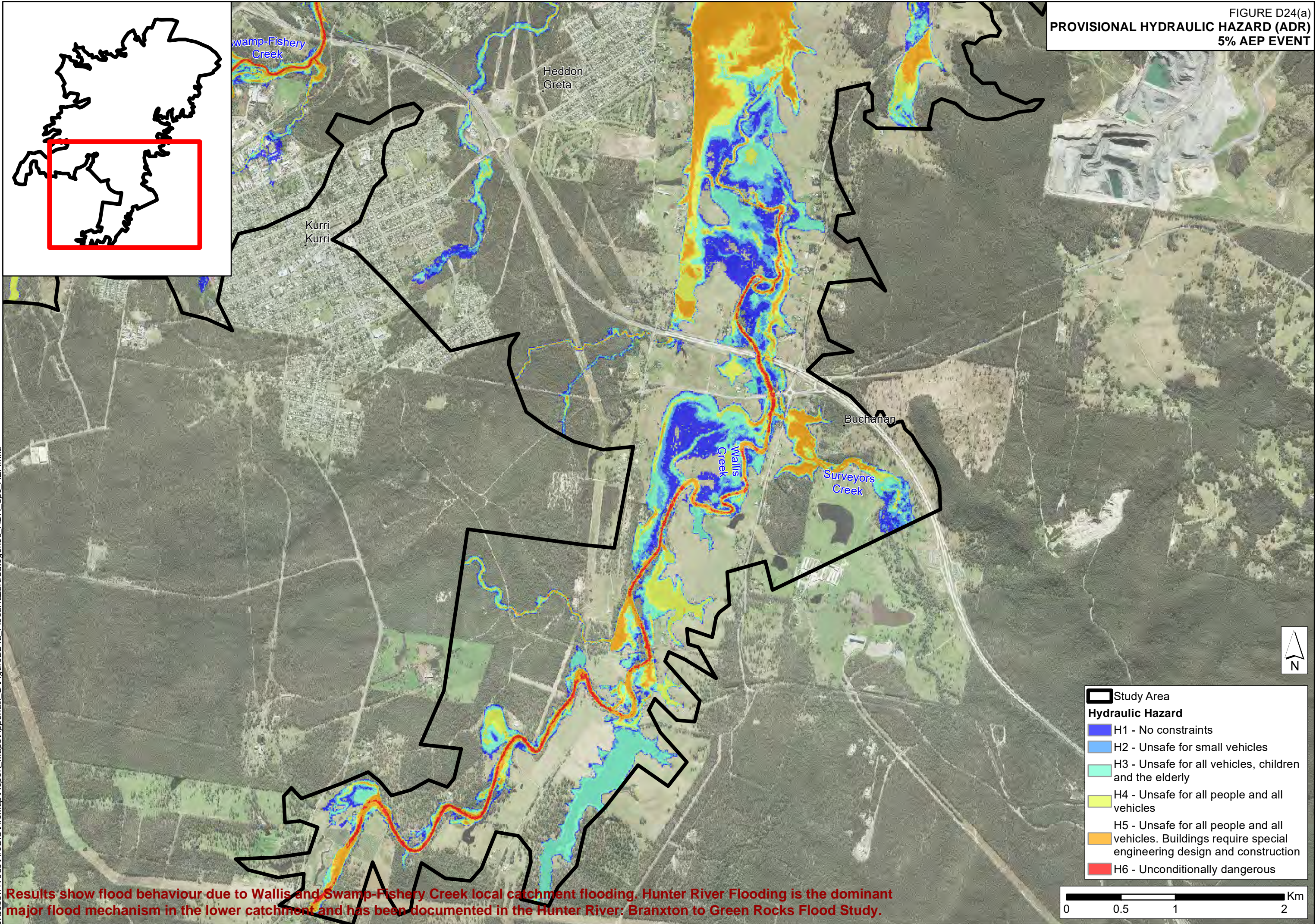


FIGURE D23(c)
PROVISIONAL HYDRAULIC HAZARD (ADR)
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.



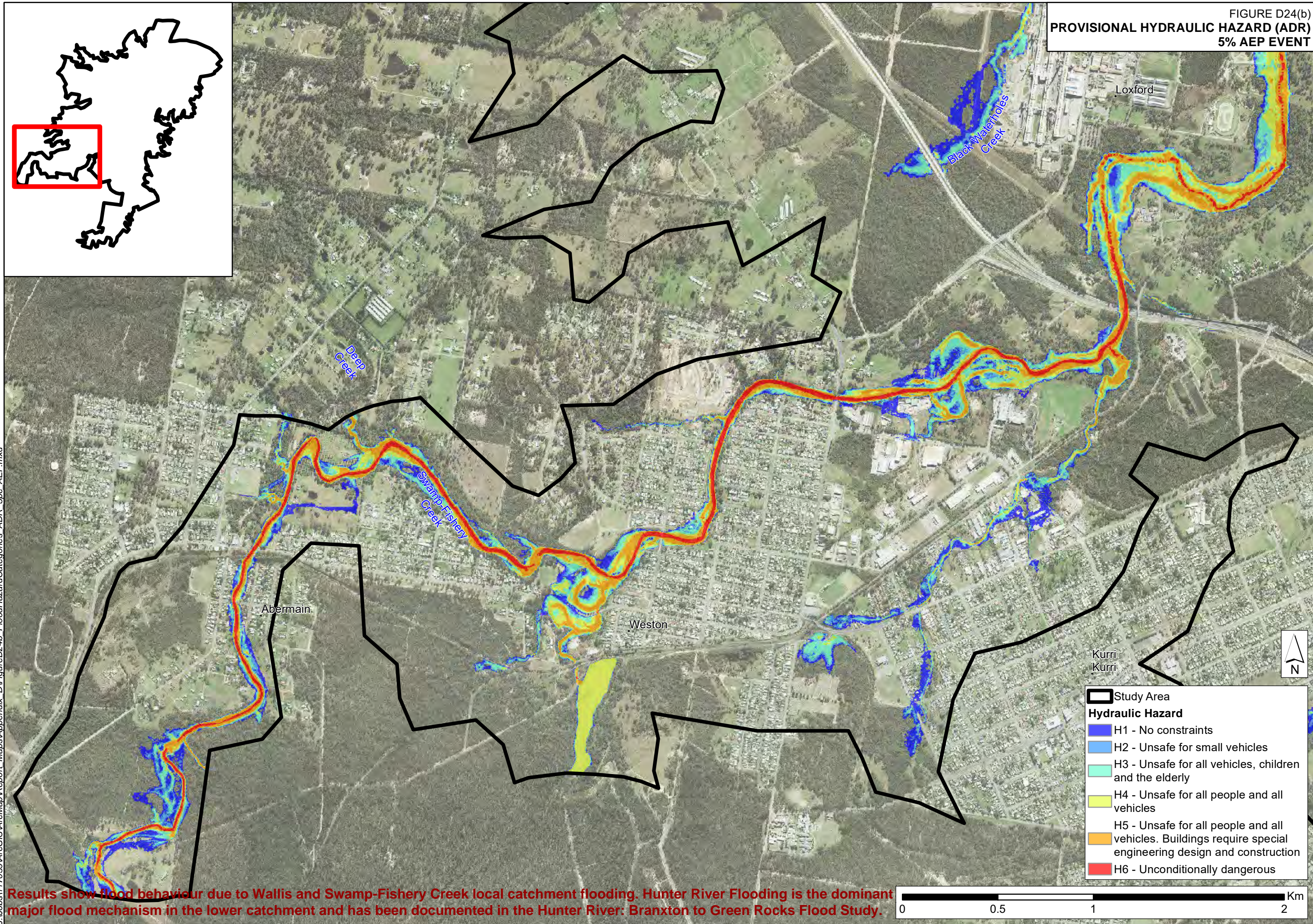
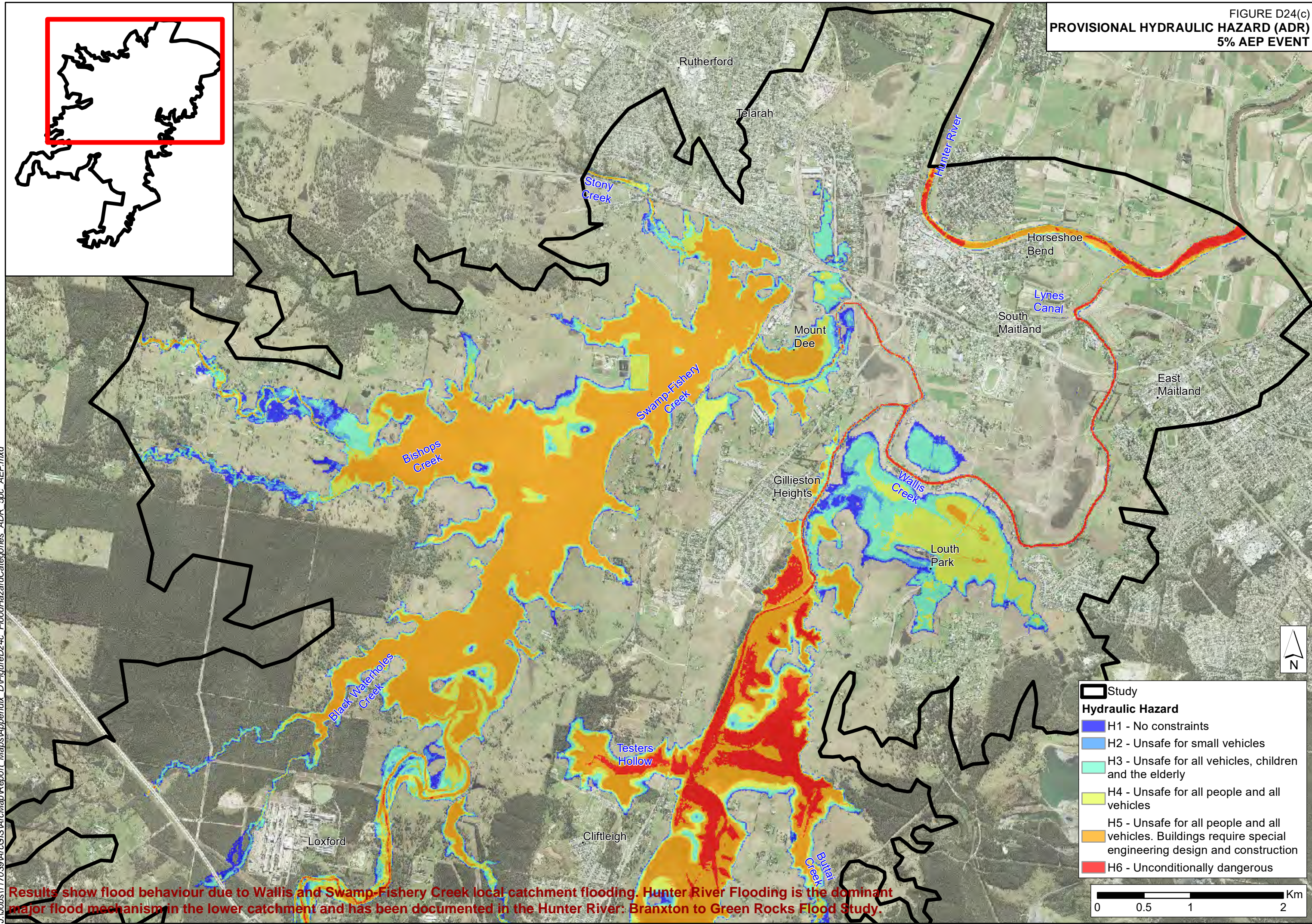
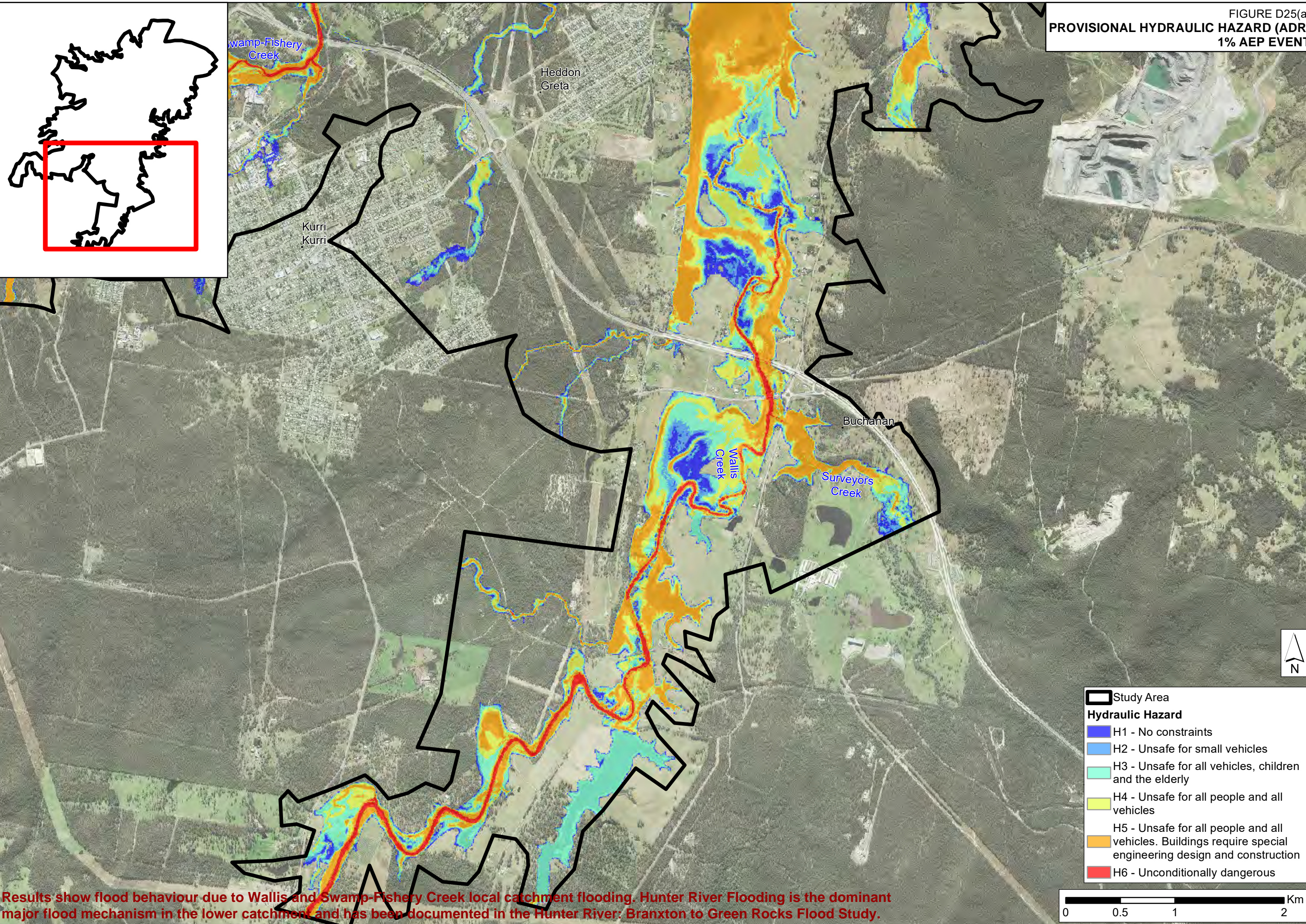


FIGURE D24(c)
PROVISIONAL HYDRAULIC HAZARD (ADR)
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\1170-39\ArcGIS\MapReport_Maps\Appendix_D\FigureD25a_FloodHazardCategories_ADR_1pc_AEP.mxd



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

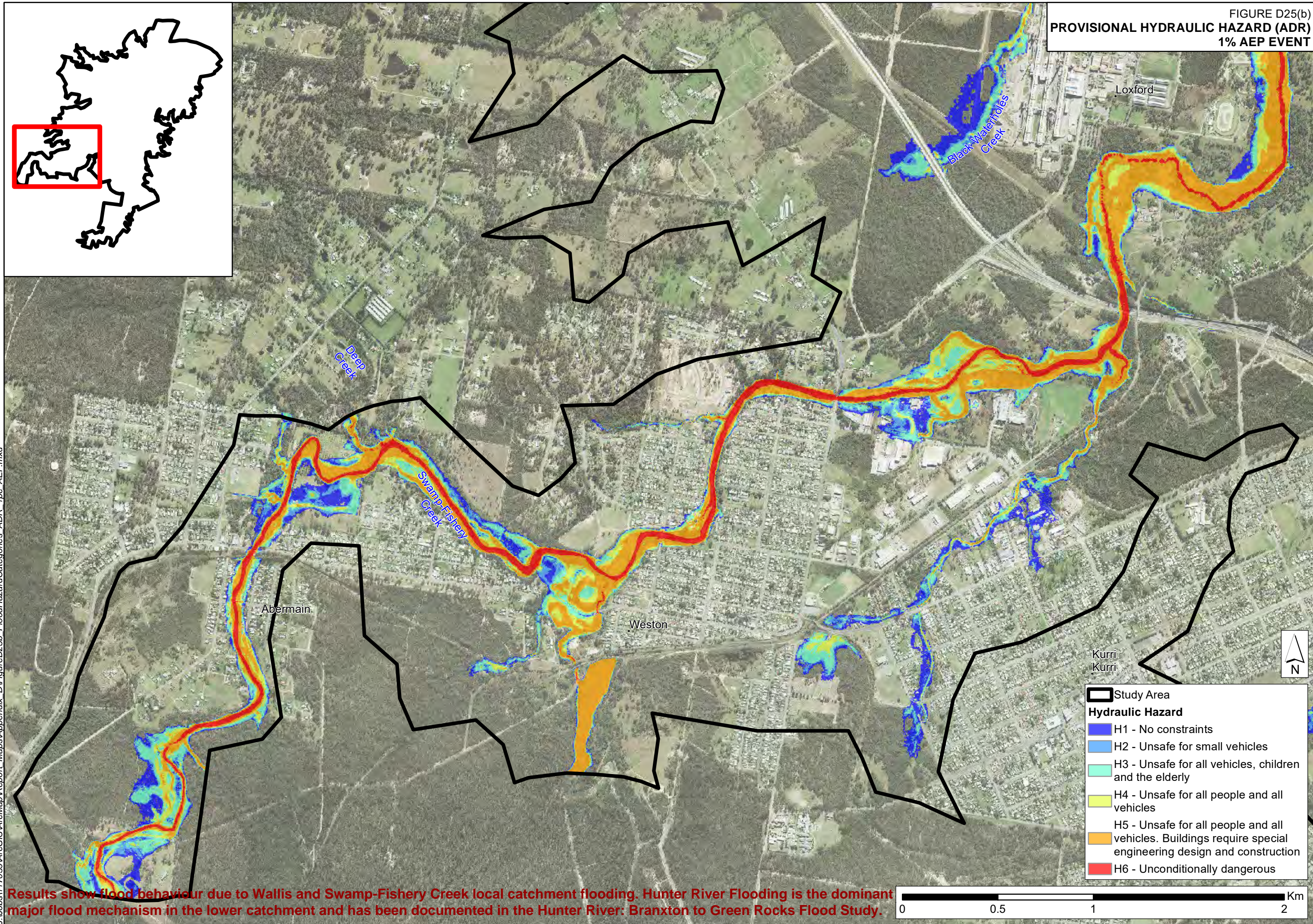
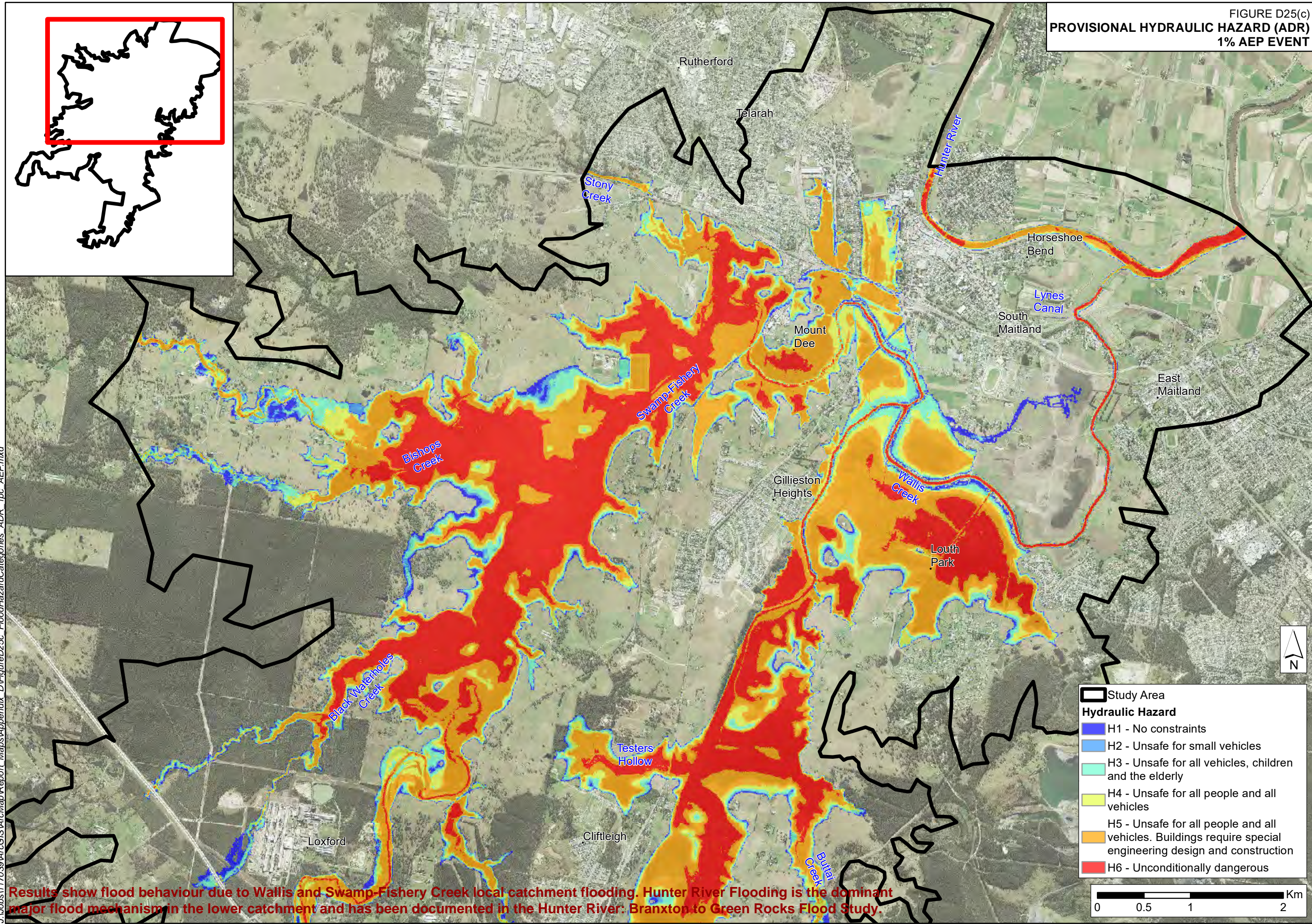
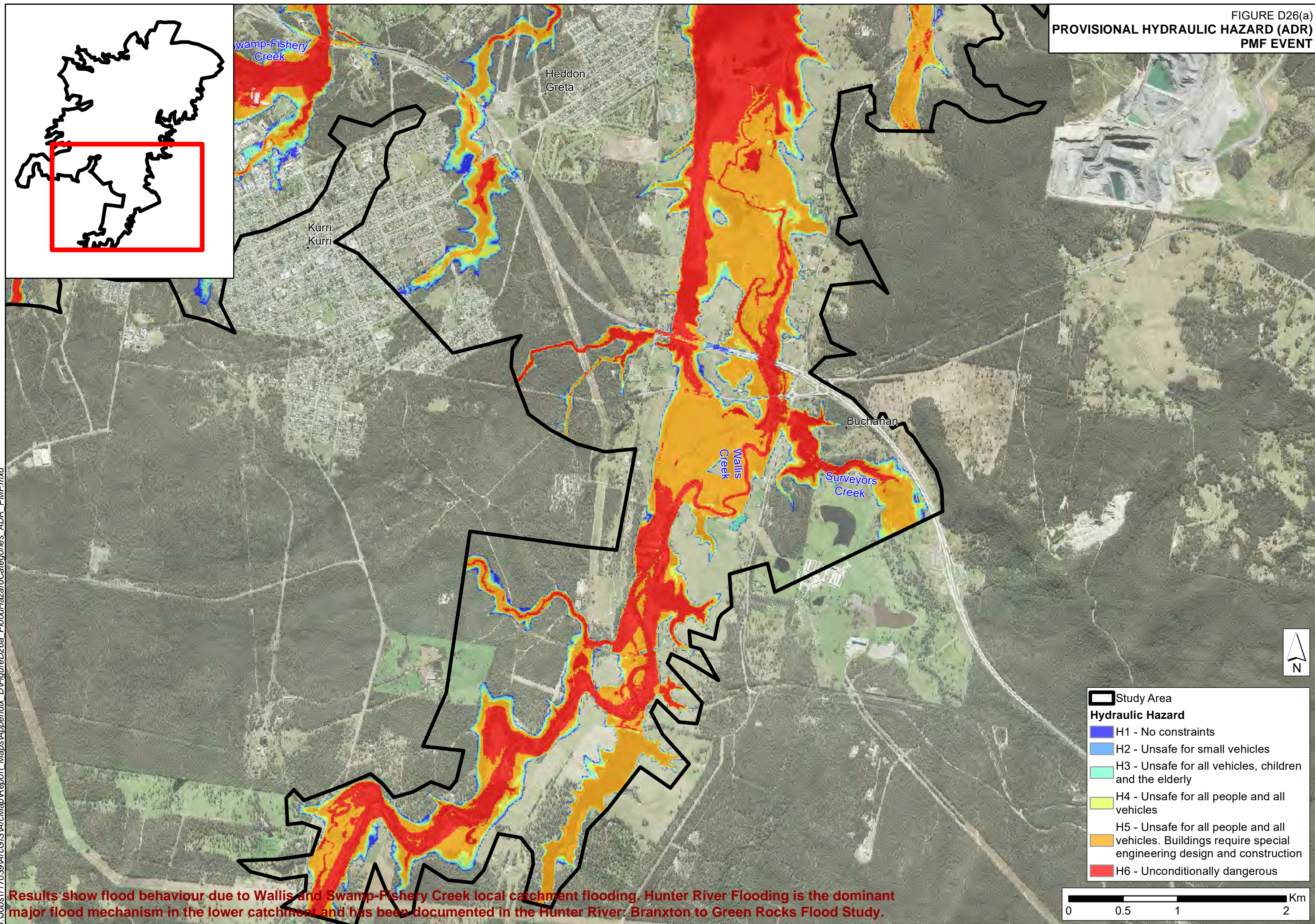


FIGURE D25(c)
PROVISIONAL HYDRAULIC HAZARD (ADR)
1% AEP EVENT



J:\Jobs\1170-39\ArcGIS\Map\Report Maps\Appendix D\FigureD25c_FloodHazardCategories_ADR_1pc_AEP.mxd

J:\Jobs\1170-39\ArcGIS\ArcMap\Report_Maps\Appendix_D\FigureD26a_FloodHazardCategories_ADR_PMF.mxd



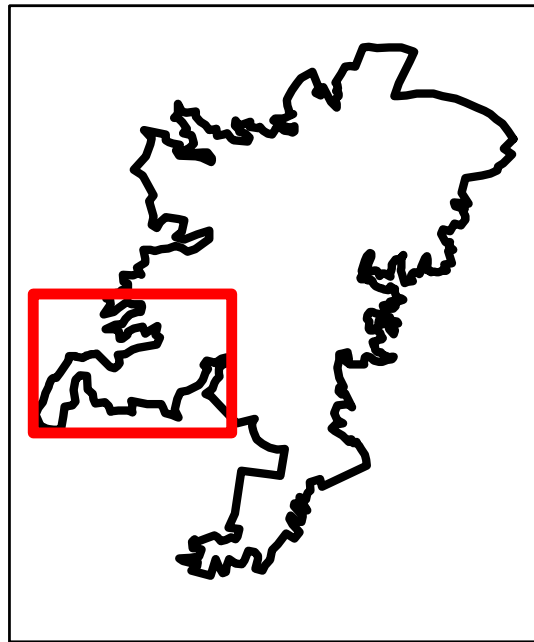
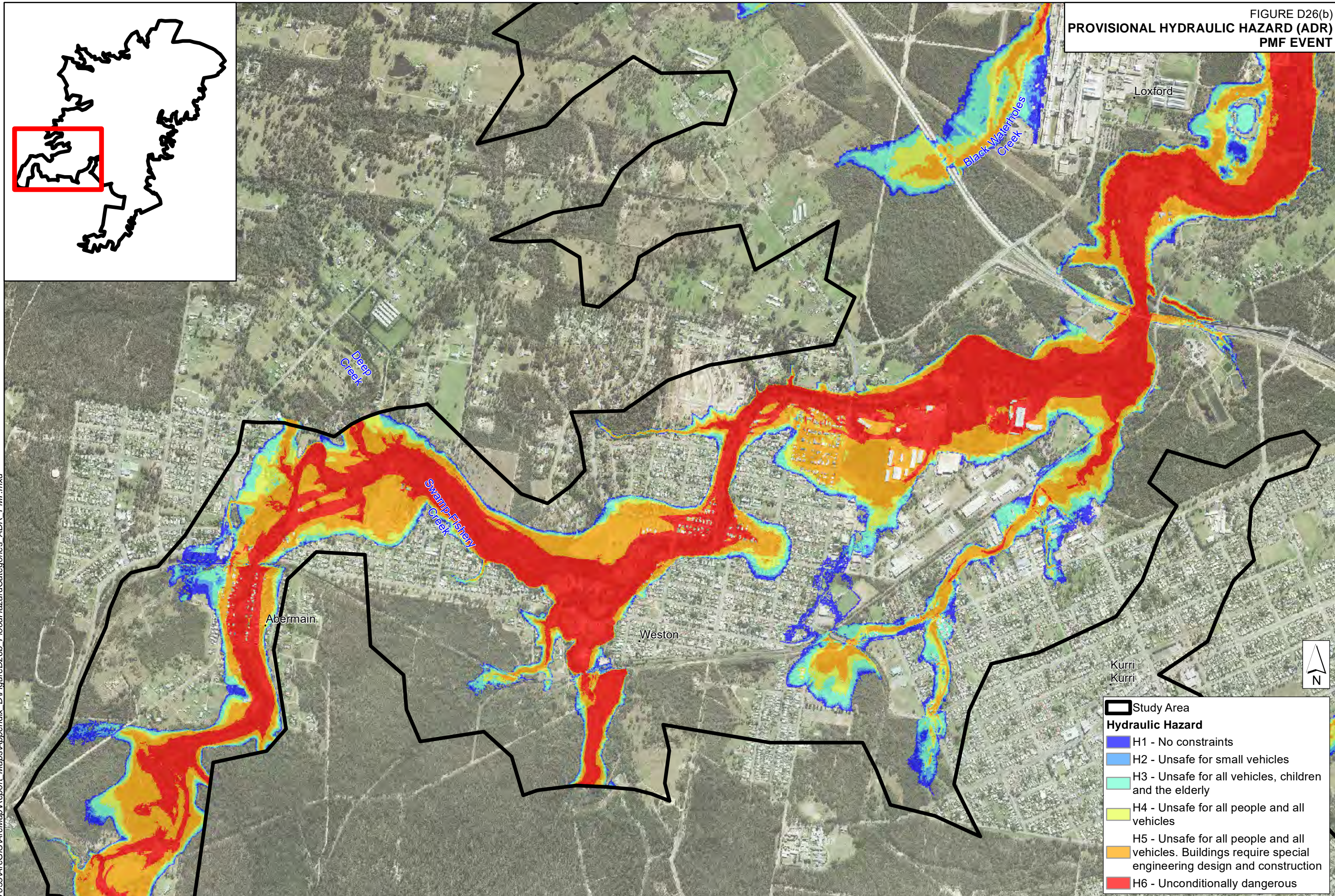
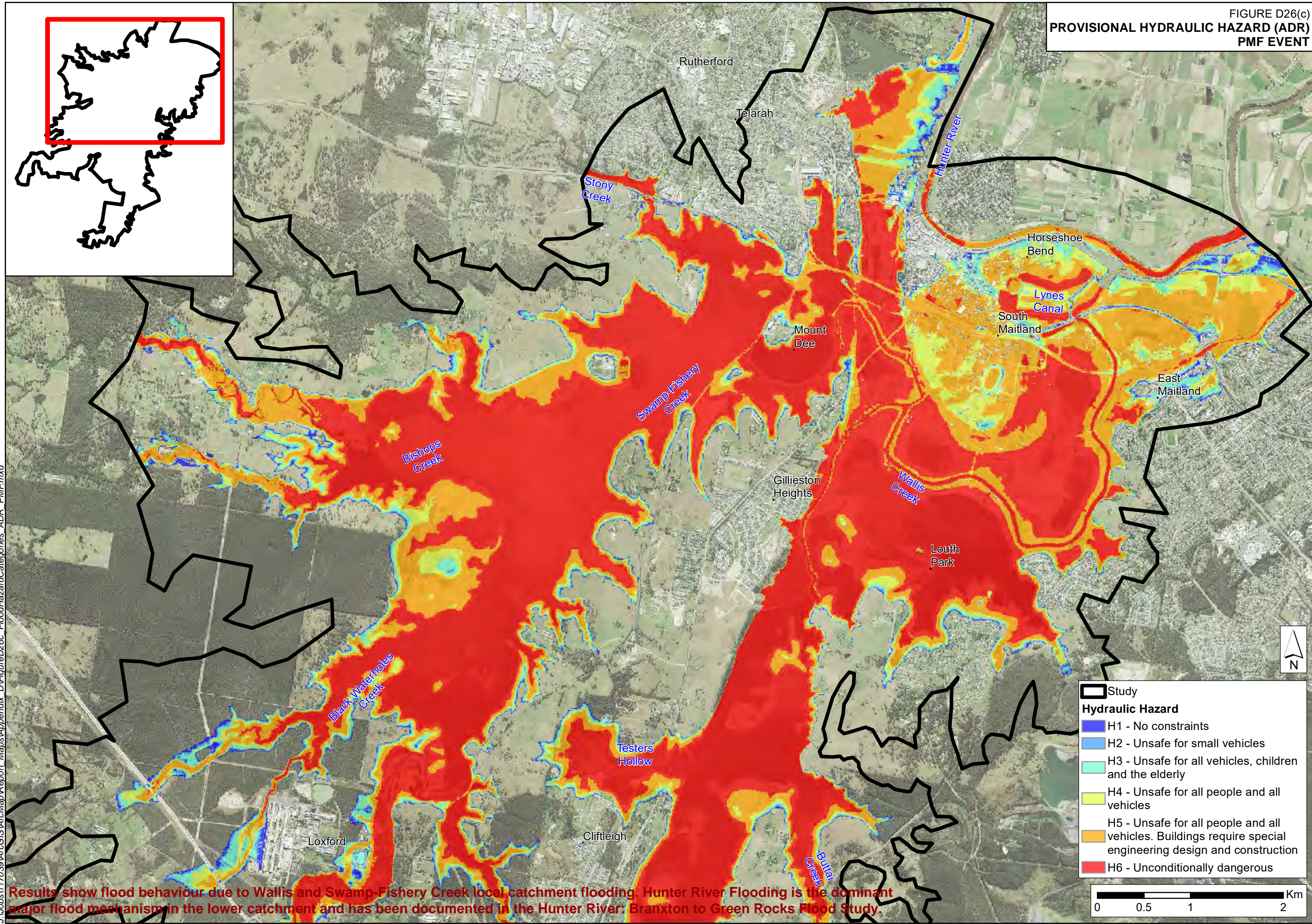


FIGURE D26(b)
PROVISIONAL HYDRAULIC HAZARD (ADR)
PMF EVENT



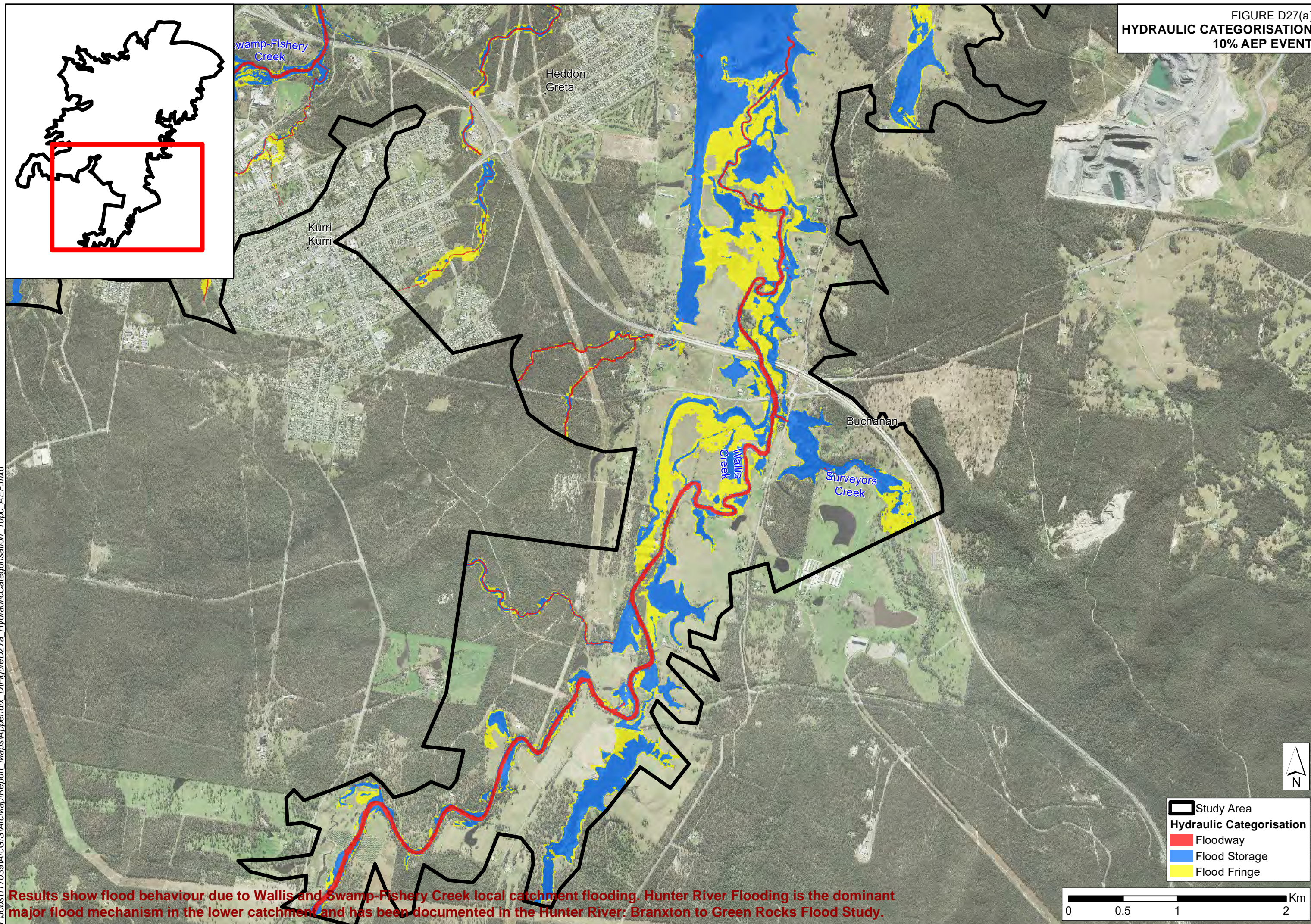
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D26(c)
PROVISIONAL HYDRAULIC HAZARD (ADR)
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D27(a)
HYDRAULIC CATEGORISATION
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

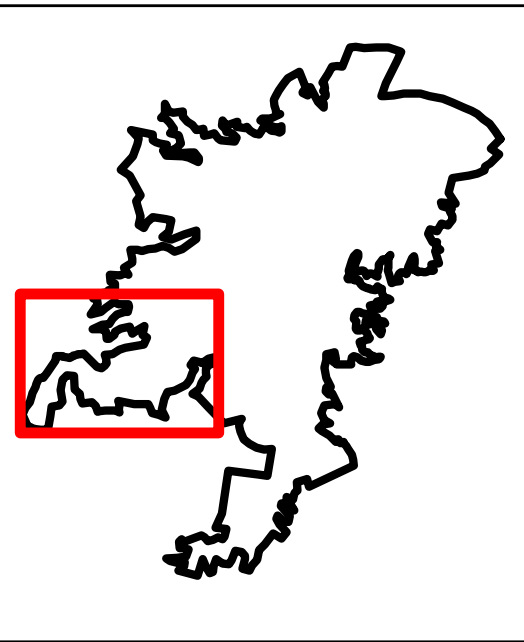
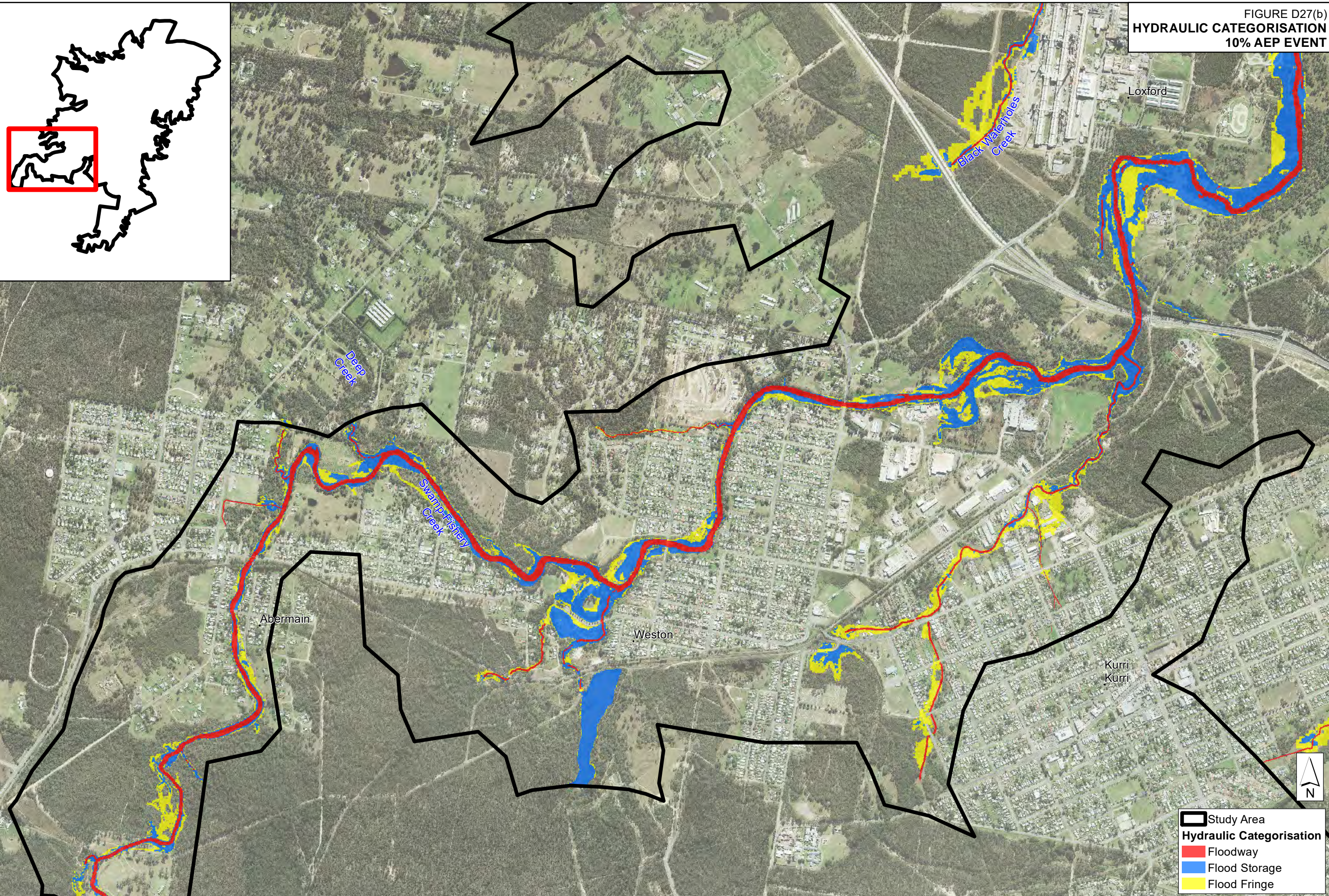


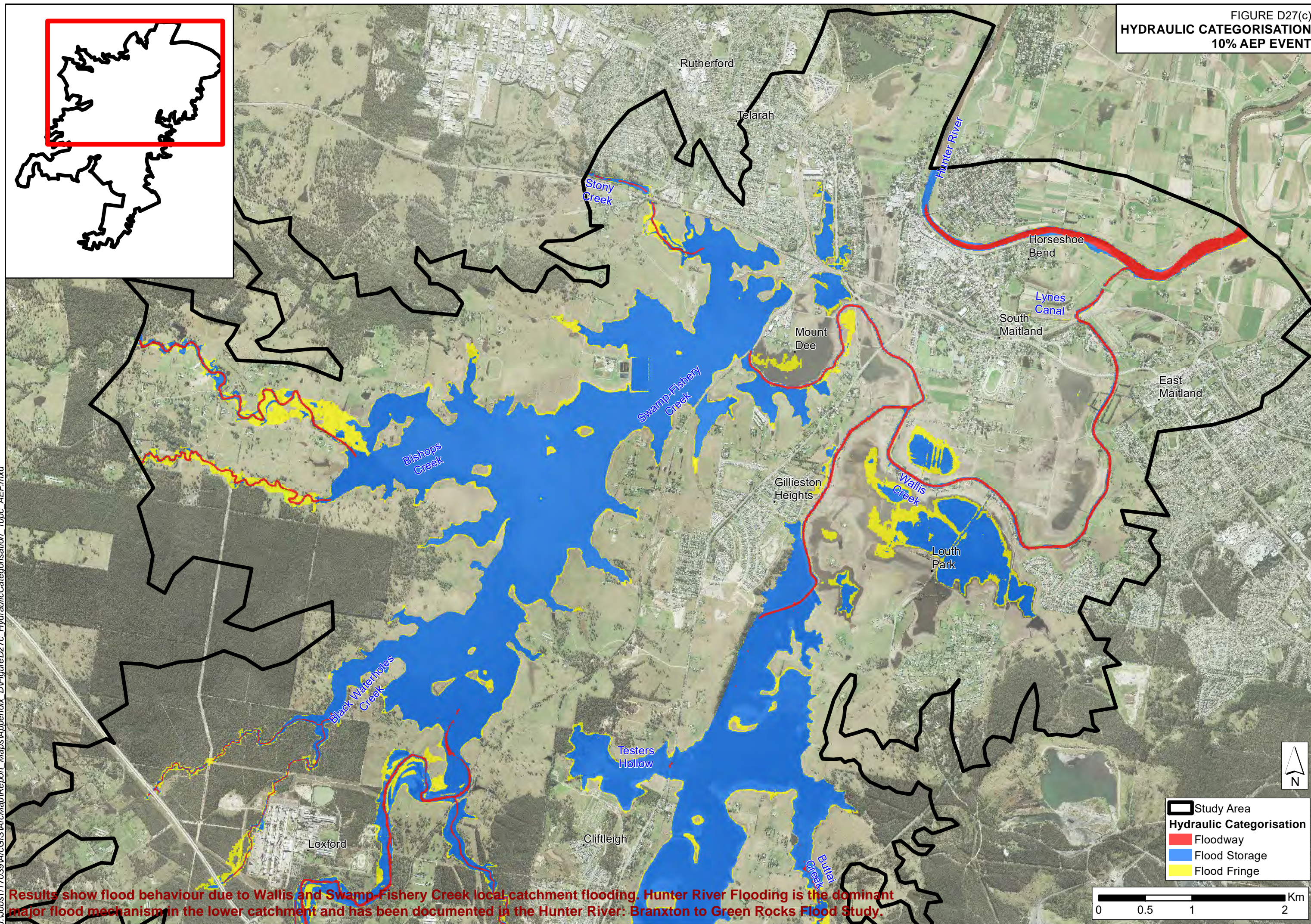
FIGURE D27(b)
HYDRAULIC CATERGISATION
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

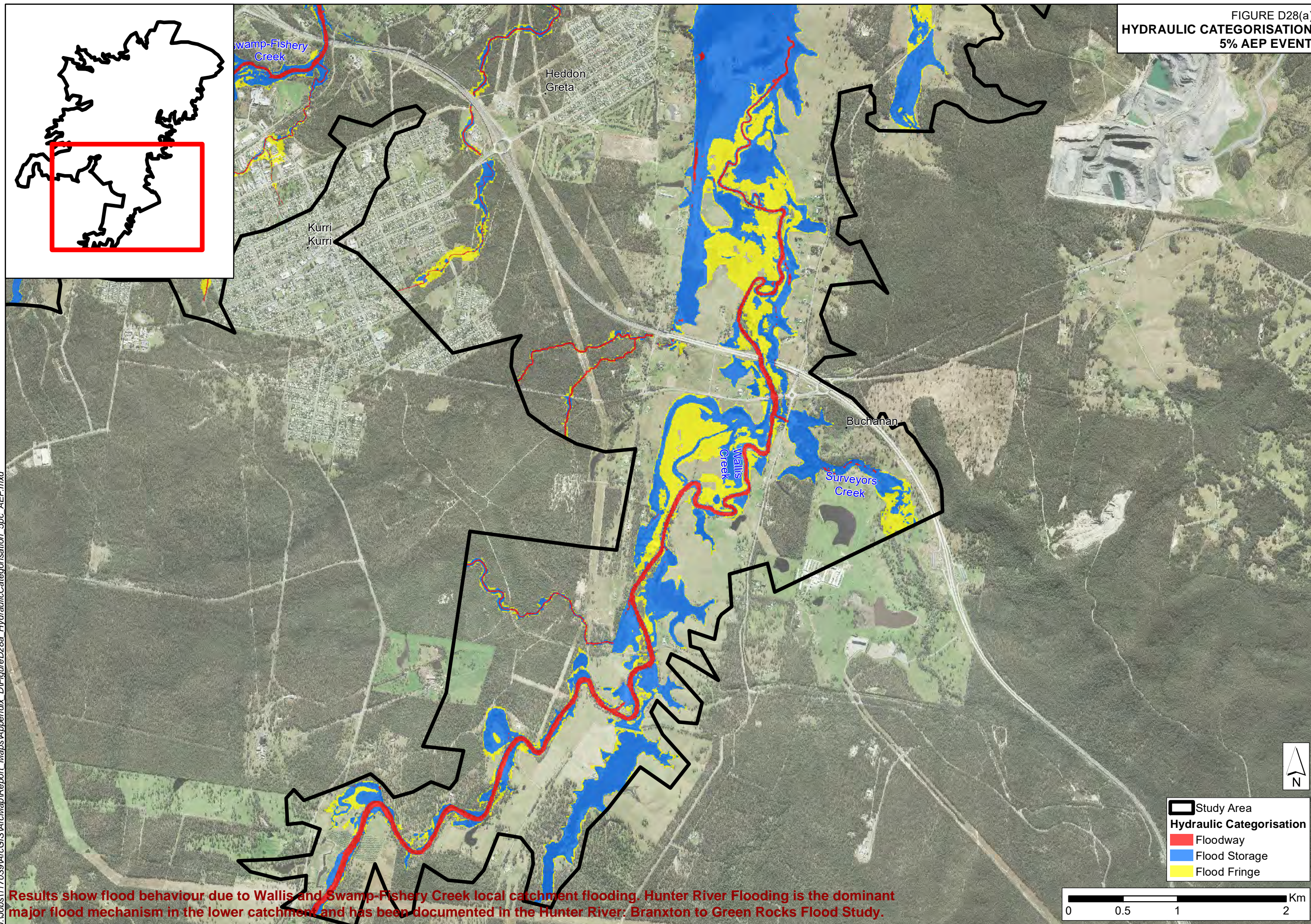
J:\Jobs\117039\ArcGIS\MapReport Maps\Appendix D\ExportFigureD27b HydraulicCategorisation 10pc_AEP.mxd

FIGURE D27(c)
HYDRAULIC CATEGORISATION
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D28(a)
HYDRAULIC CATEGORISATION
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

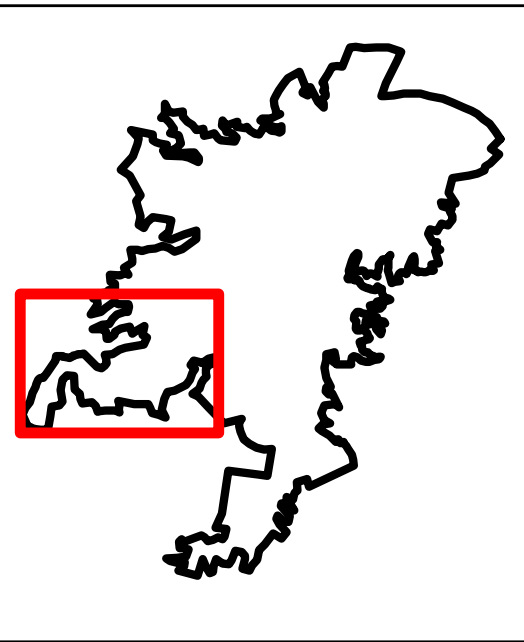
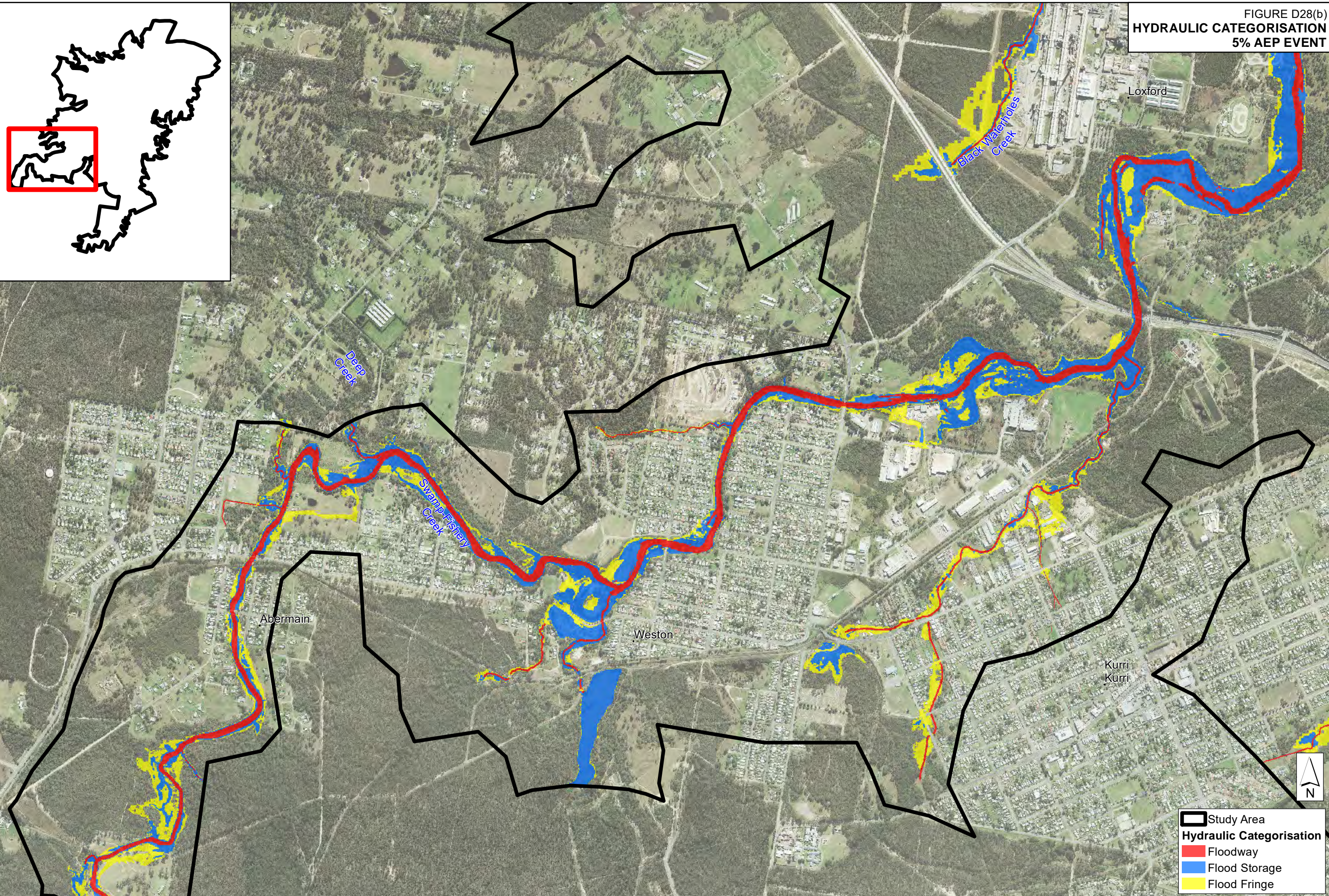
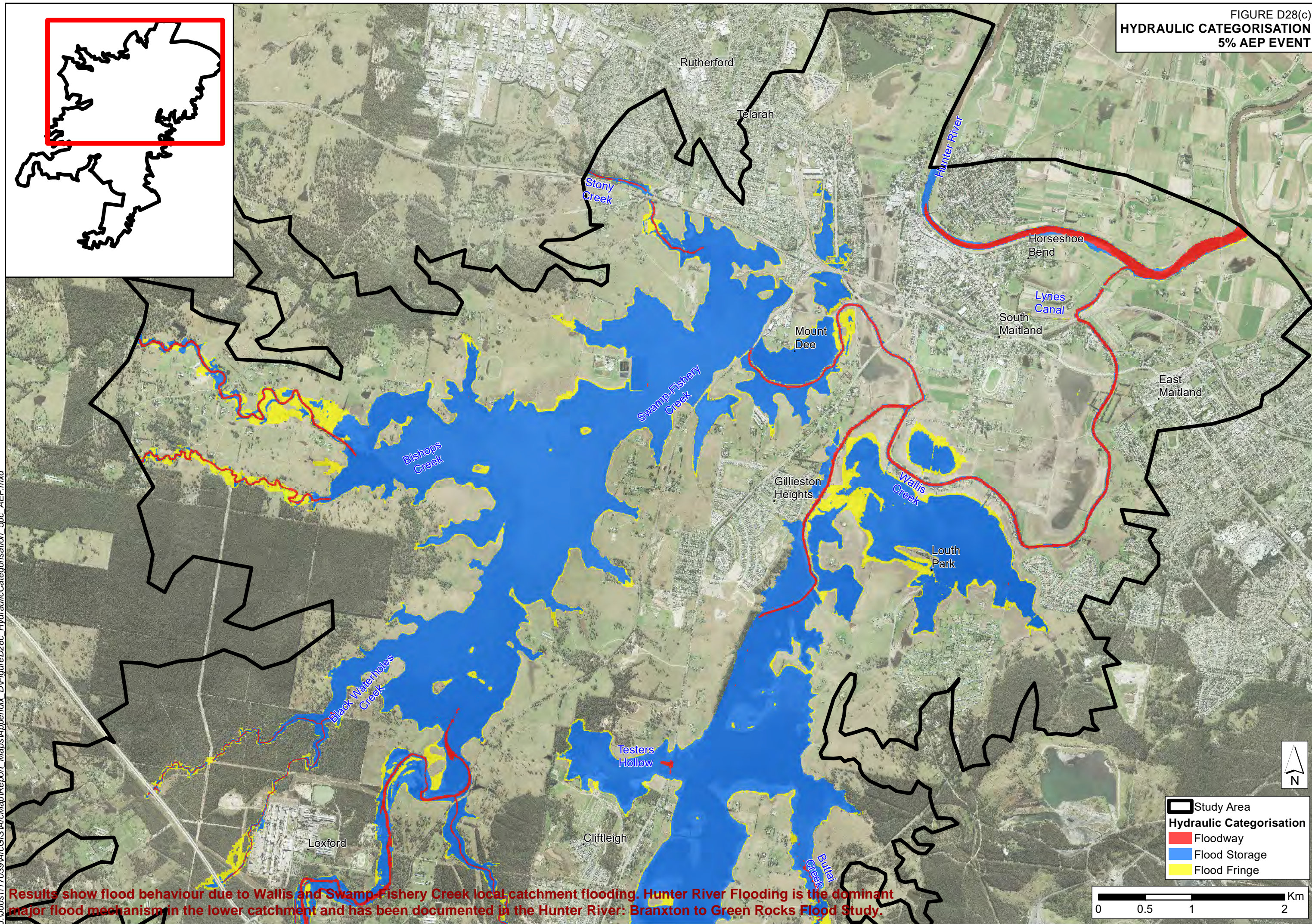


FIGURE D28(b)
HYDRAULIC CATEGORISATION
5% AEP EVENT



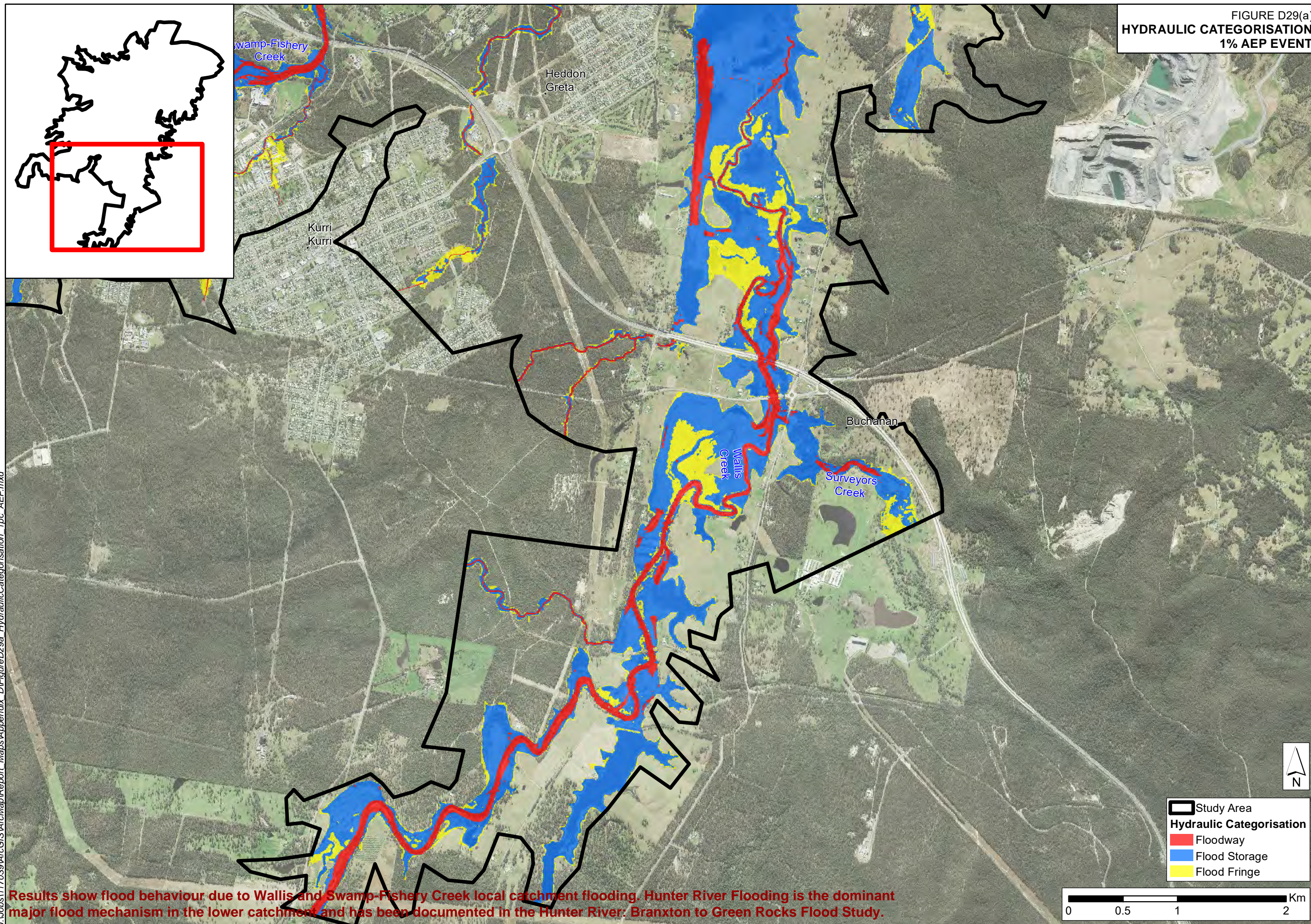
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D28(c)
HYDRAULIC CATEGORISATION
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D29(a)
HYDRAULIC CATEGORISATION
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

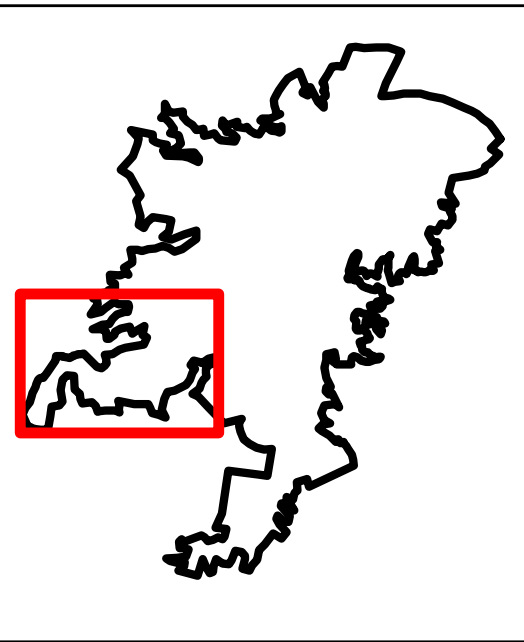
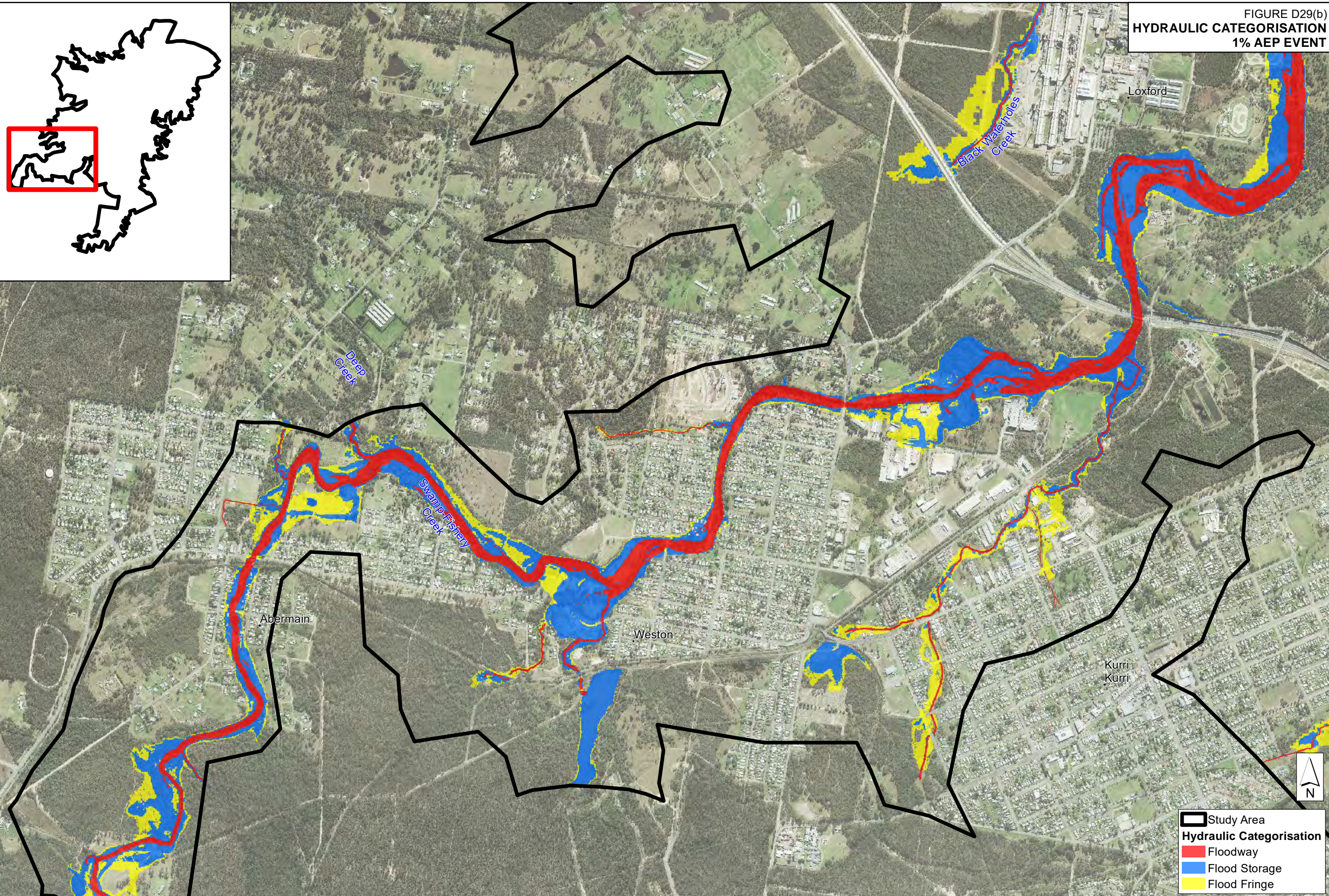
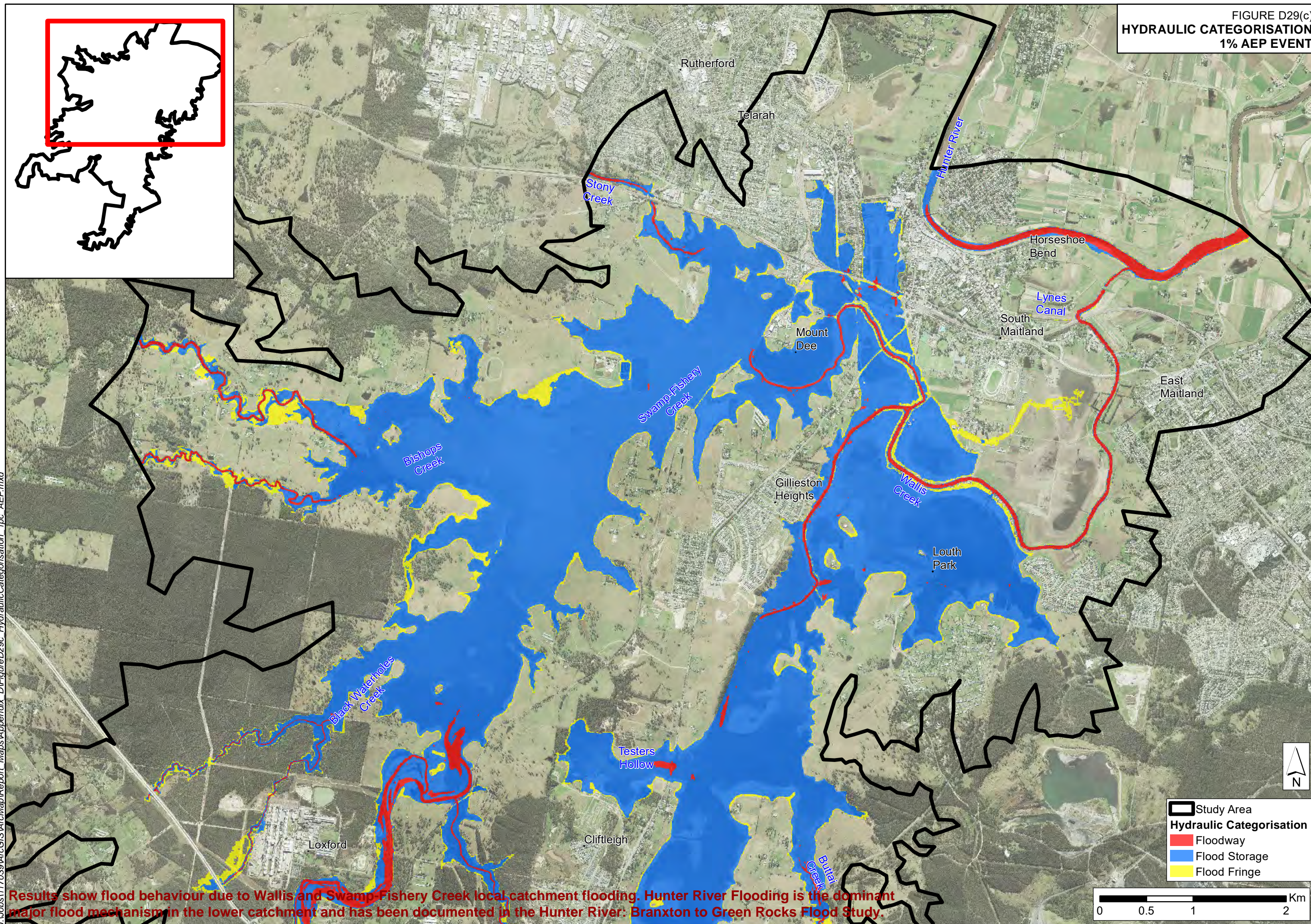


FIGURE D29(b)
HYDRAULIC CATEGORISATION
1% AEP EVENT



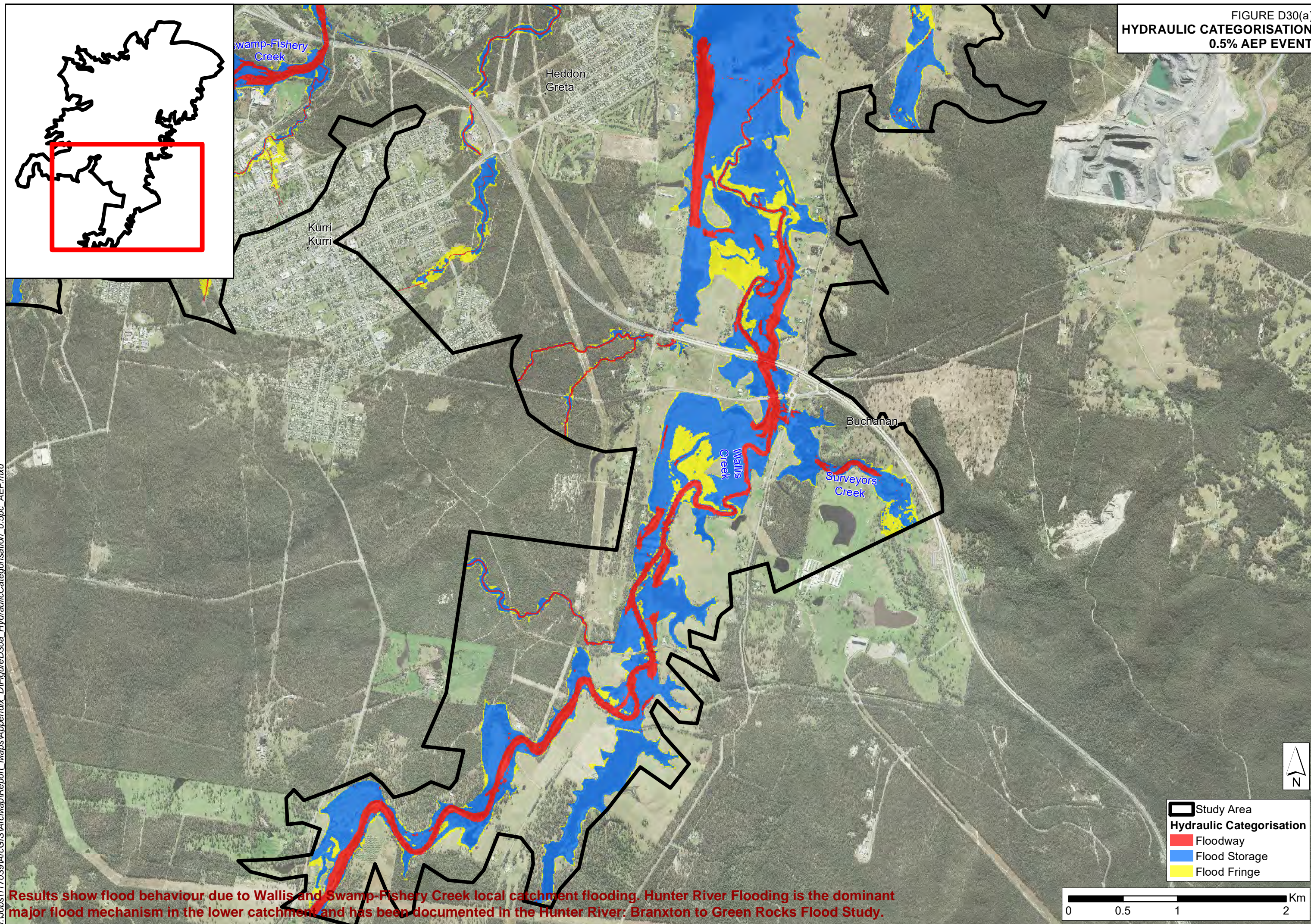
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D29(c)
HYDRAULIC CATEGORISATION
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D30(a)
HYDRAULIC CATEGORISATION
0.5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

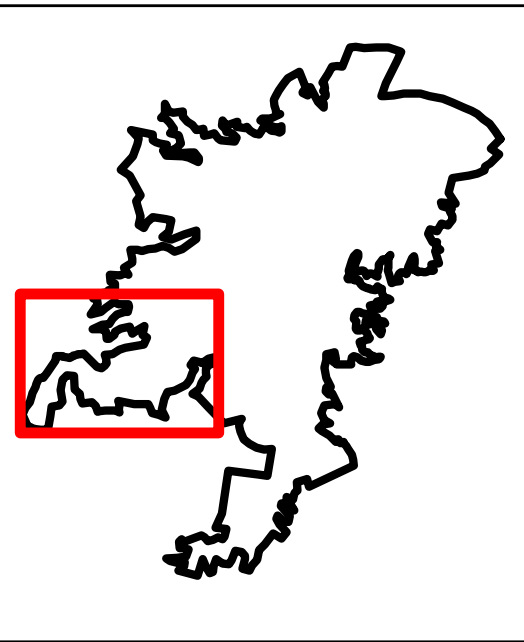
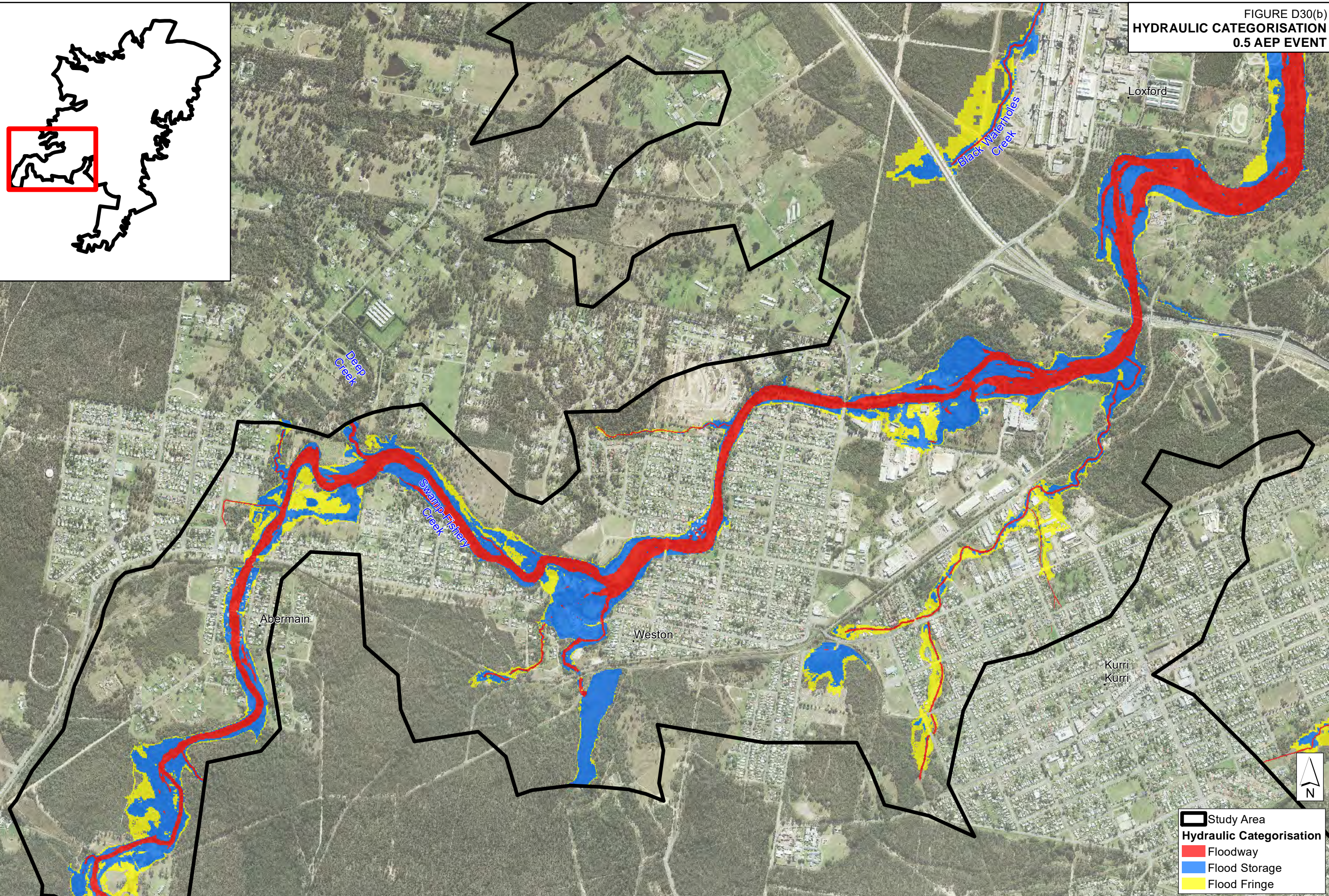


FIGURE D30(b)
HYDRAULIC CATEGORISATION
0.5 AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

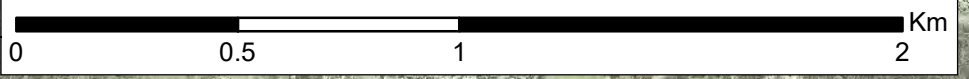
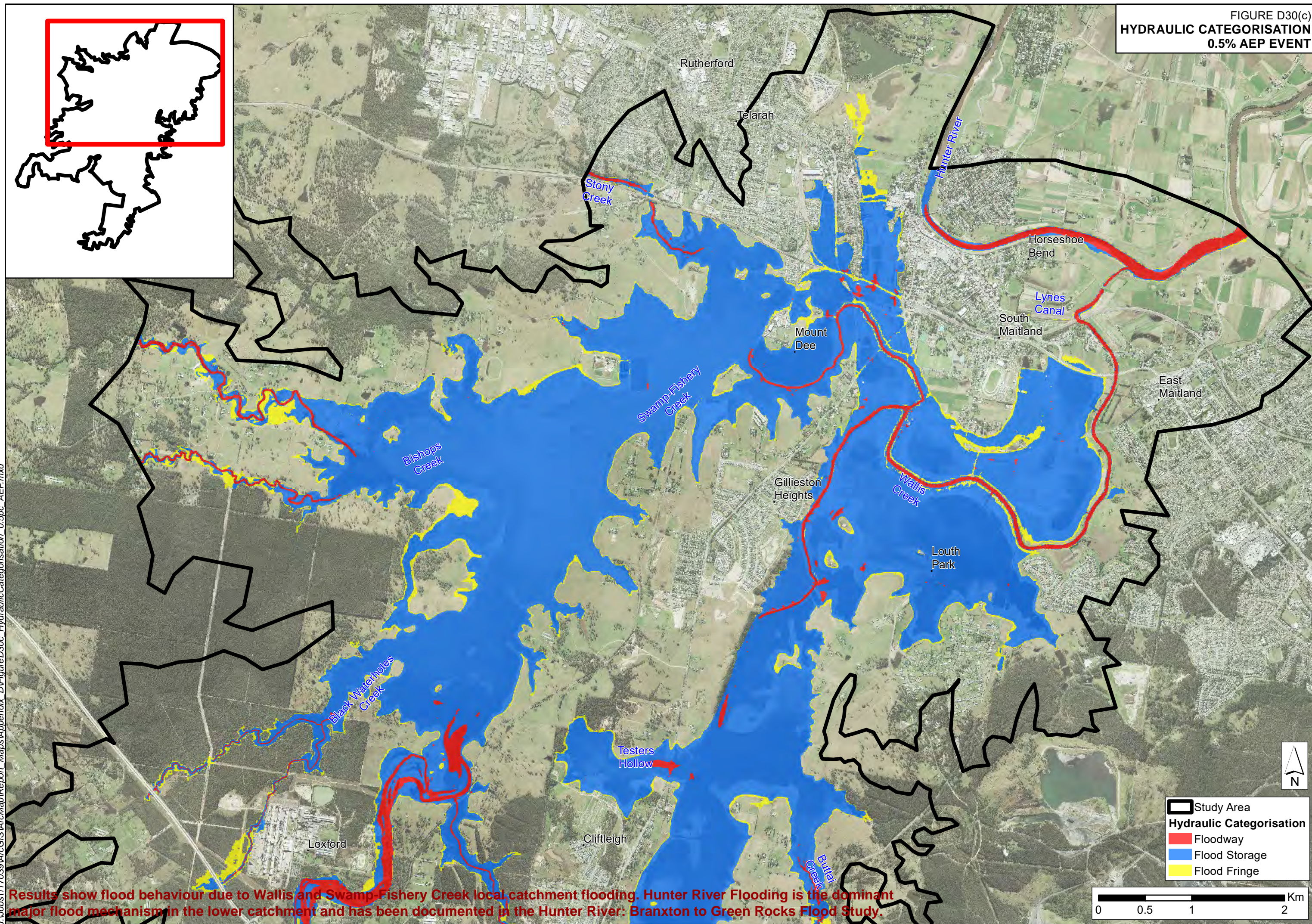
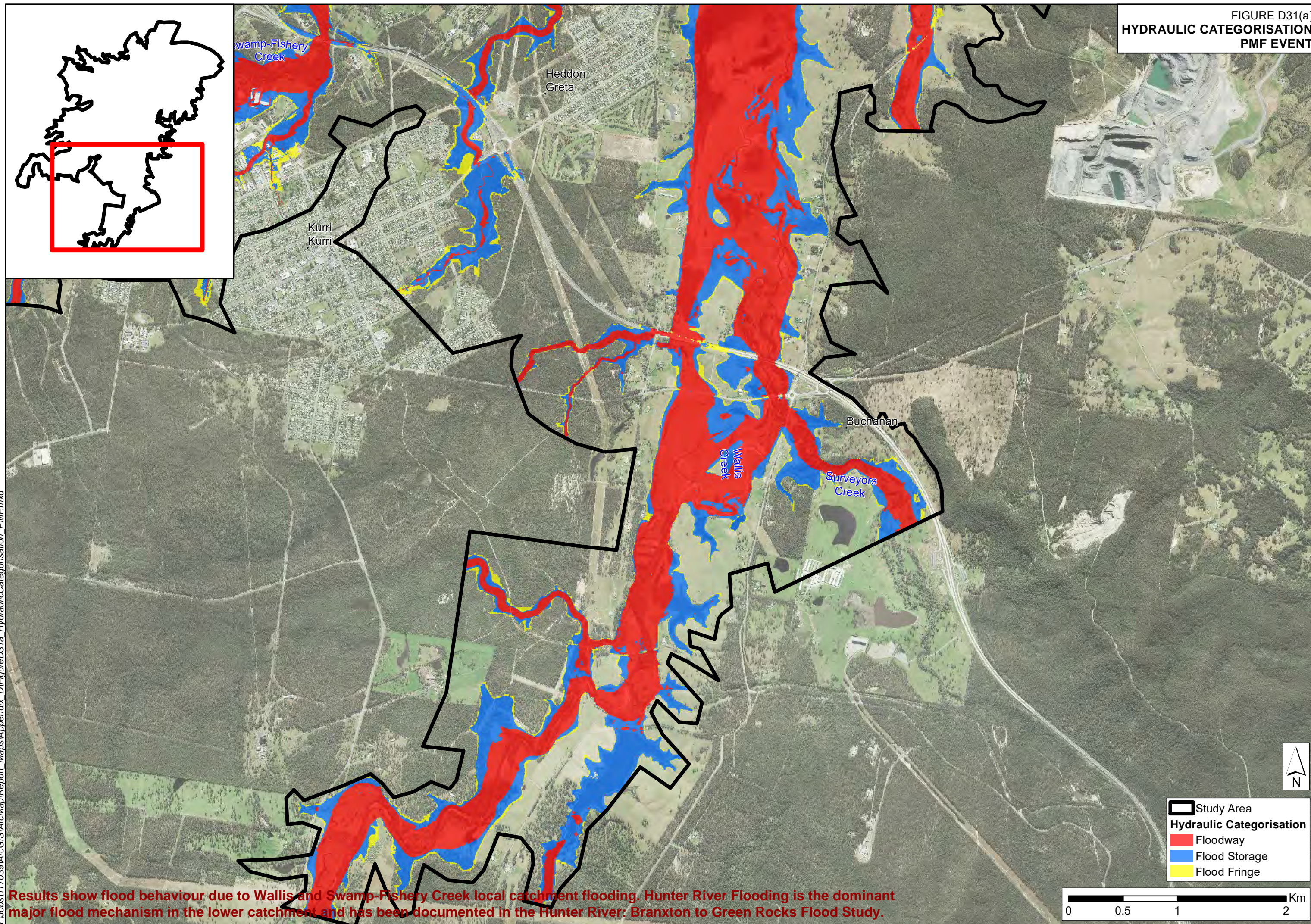


FIGURE D30(c)
HYDRAULIC CATEGORISATION
0.5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D31(a)
HYDRAULIC CATEGORISATION
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

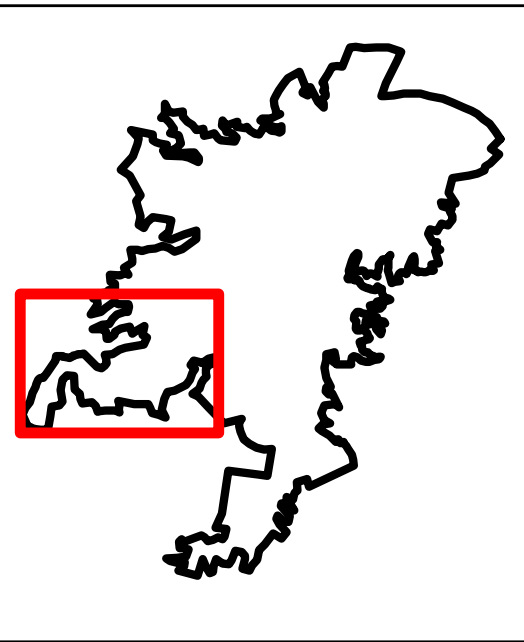
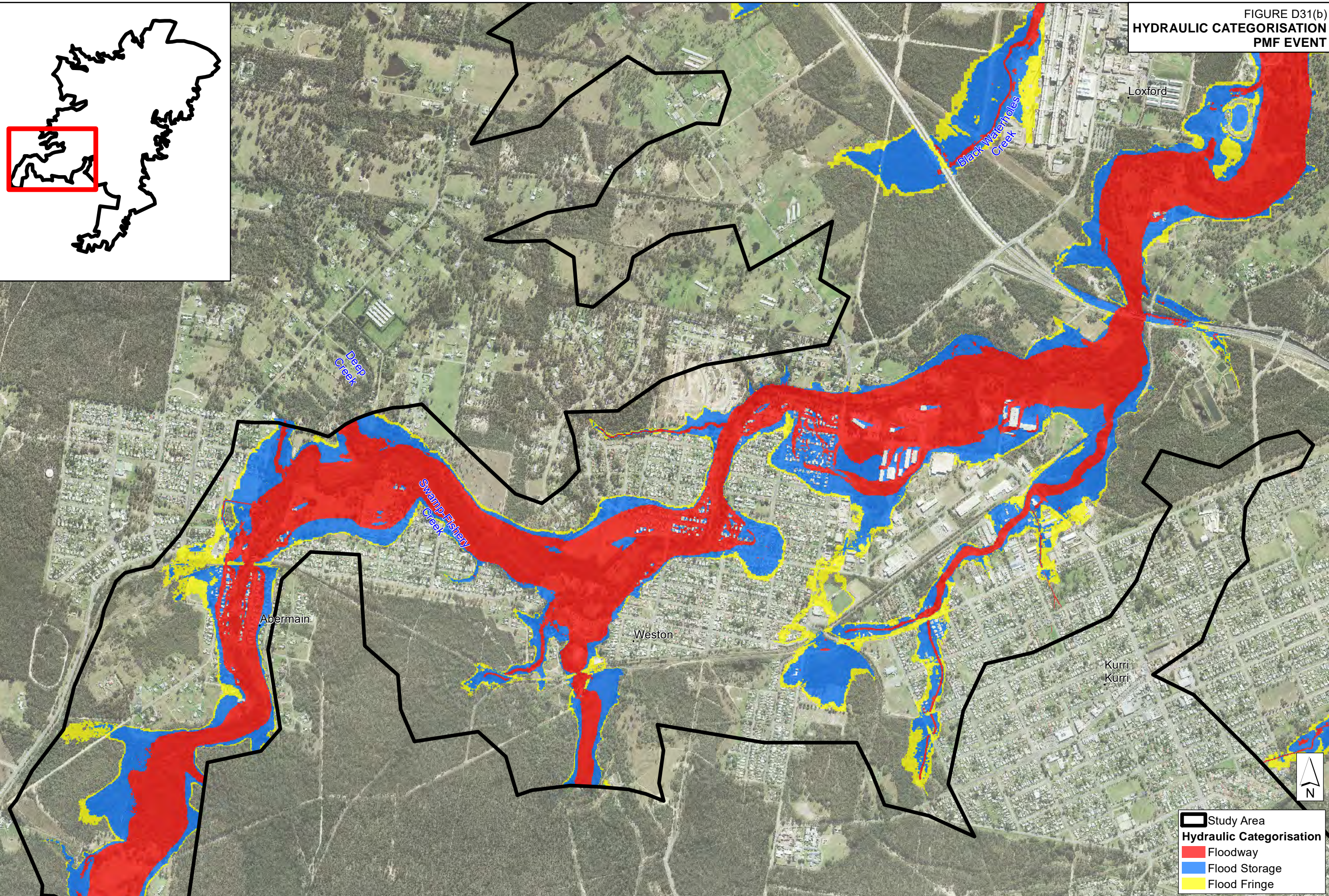
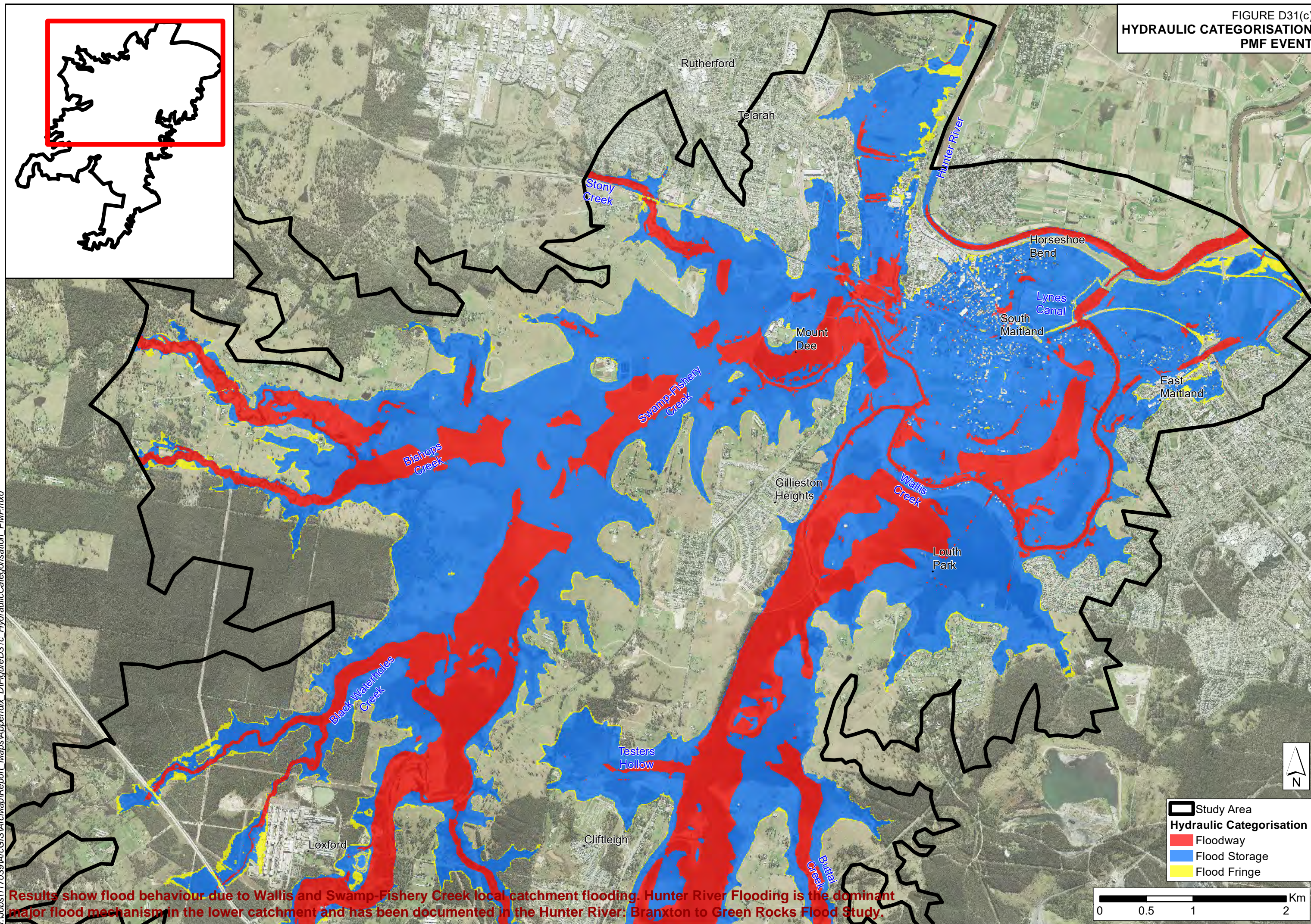


FIGURE D31(b)
HYDRAULIC CATEGORISATION
PMF EVENT



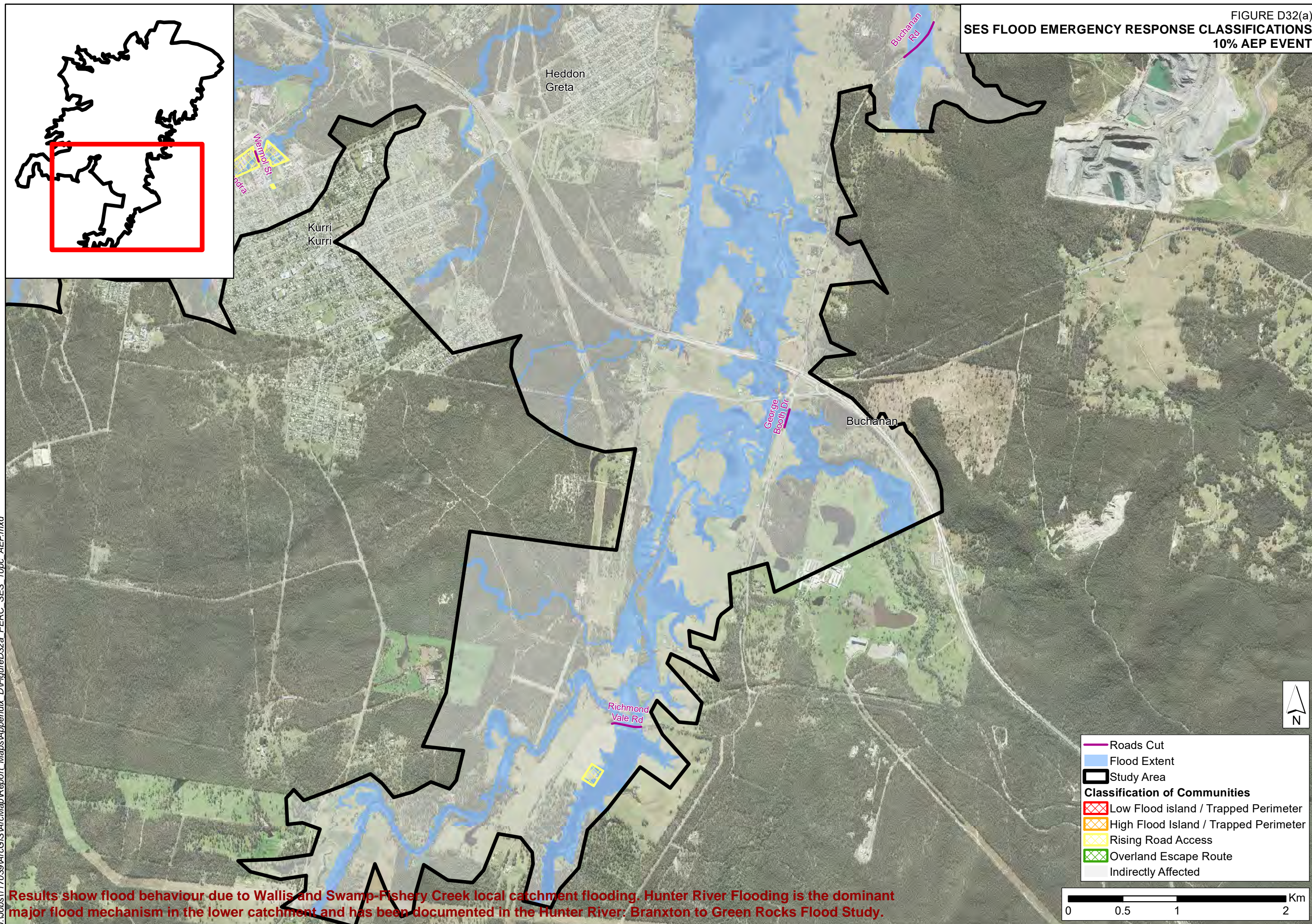
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D31(c)
HYDRAULIC CATEGORISATION
PMF EVENT



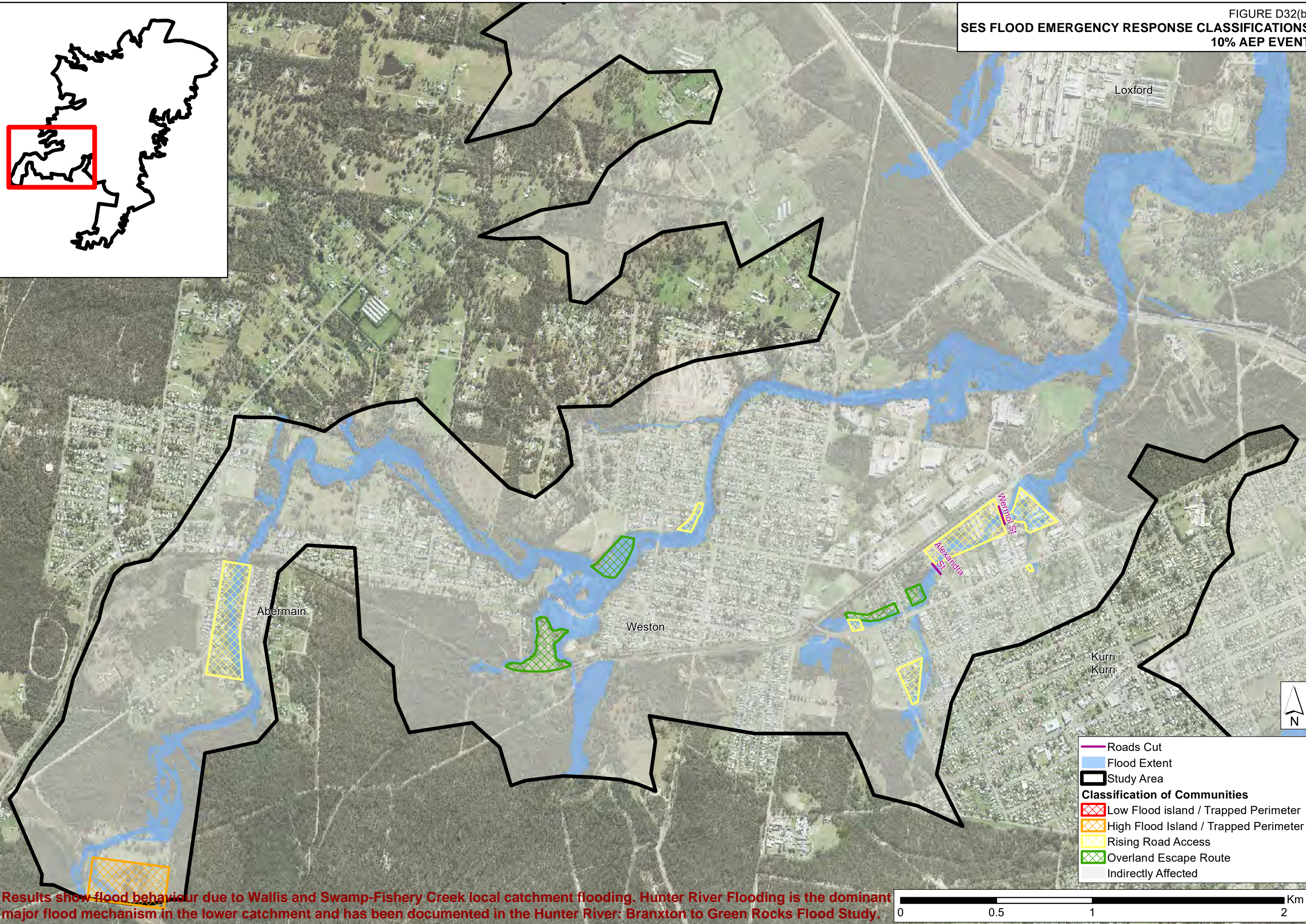
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
10% AEP EVENT



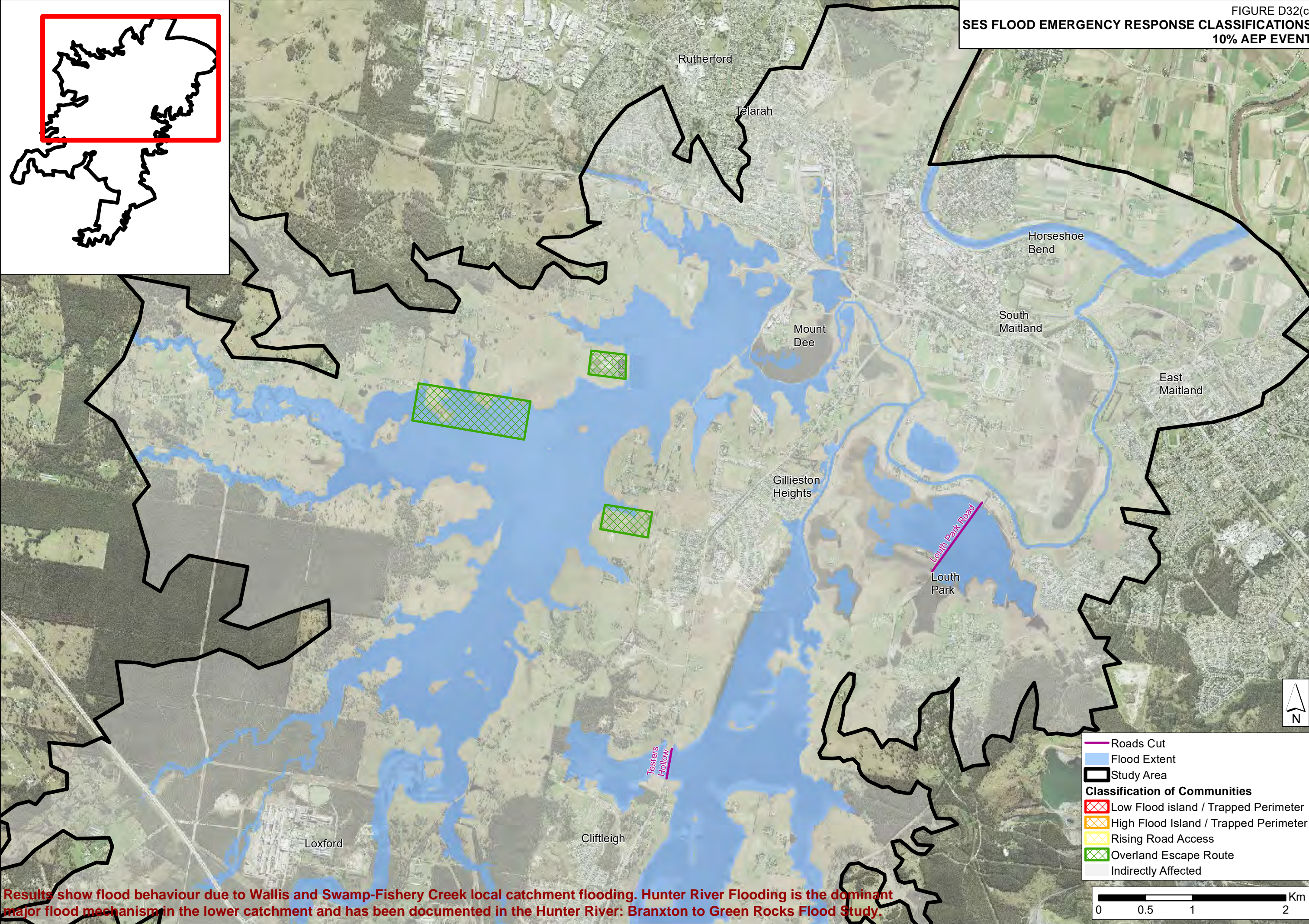
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D32(b)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D32(c)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
10% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\117039\ArcGIS\MapReport_Maps\Appendix_D\FigureD33a_FERC_SES_5pc_AEP.mxd

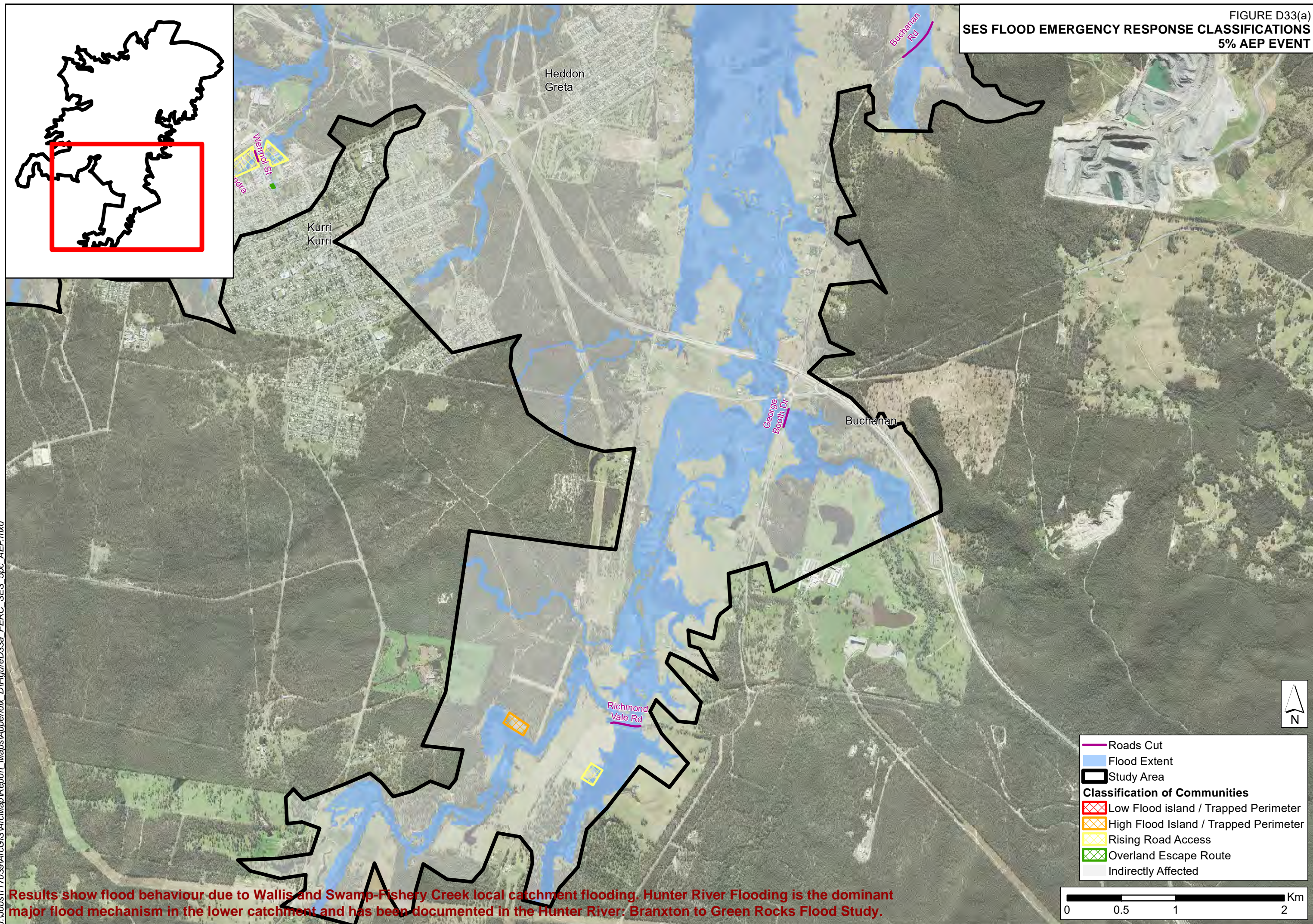


FIGURE D33(b)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
5% AEP EVENT

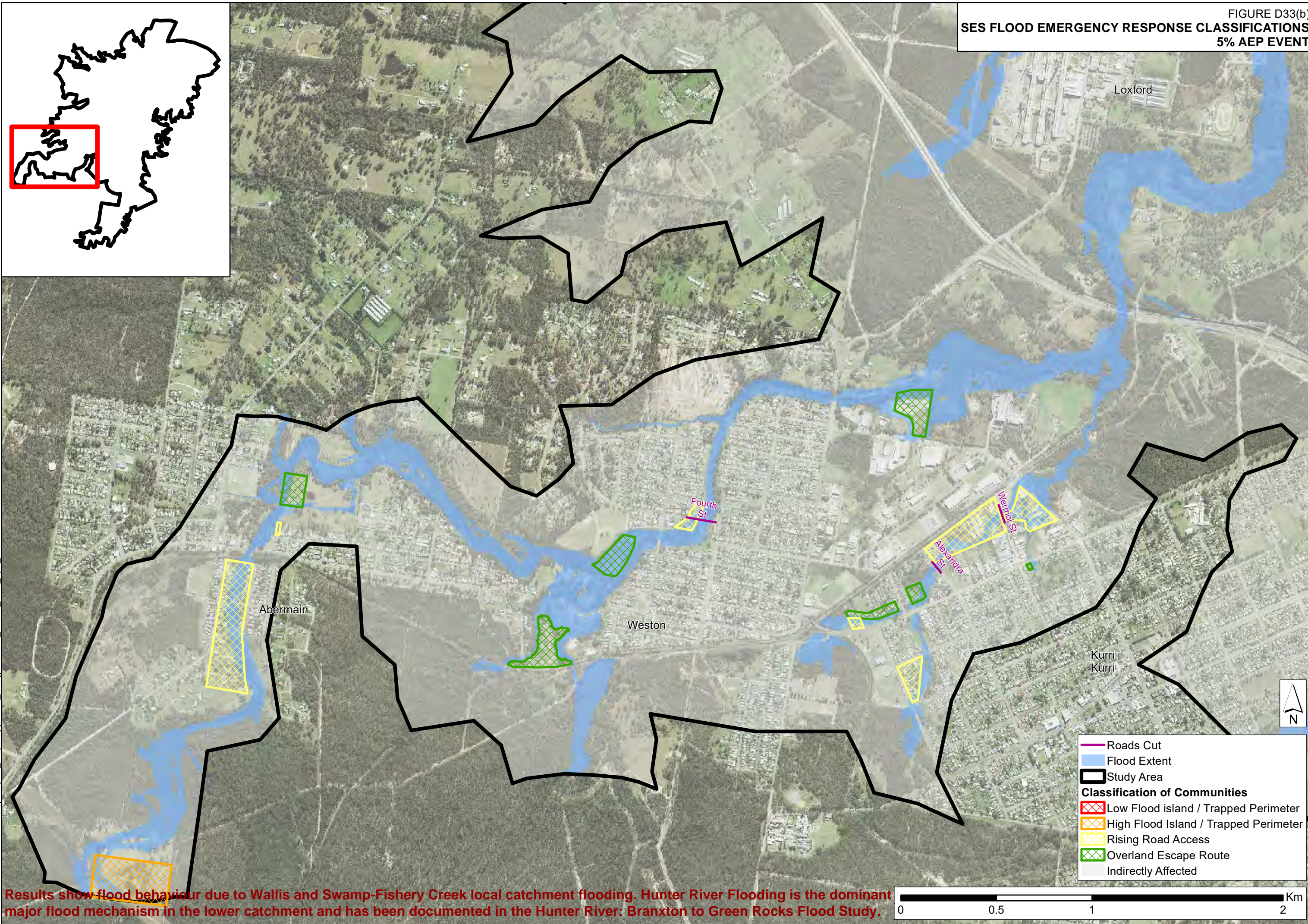
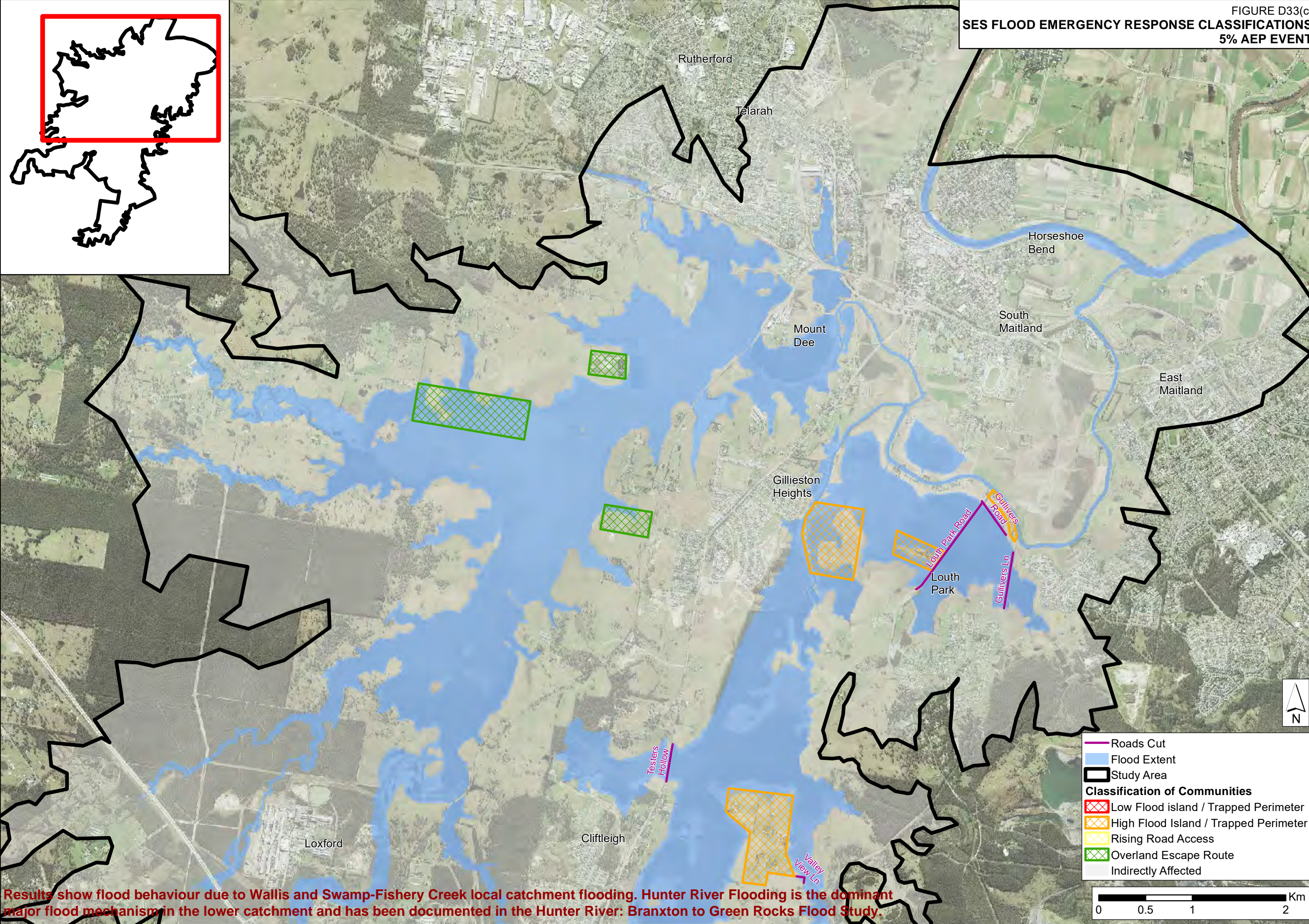


FIGURE D33(c)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
5% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

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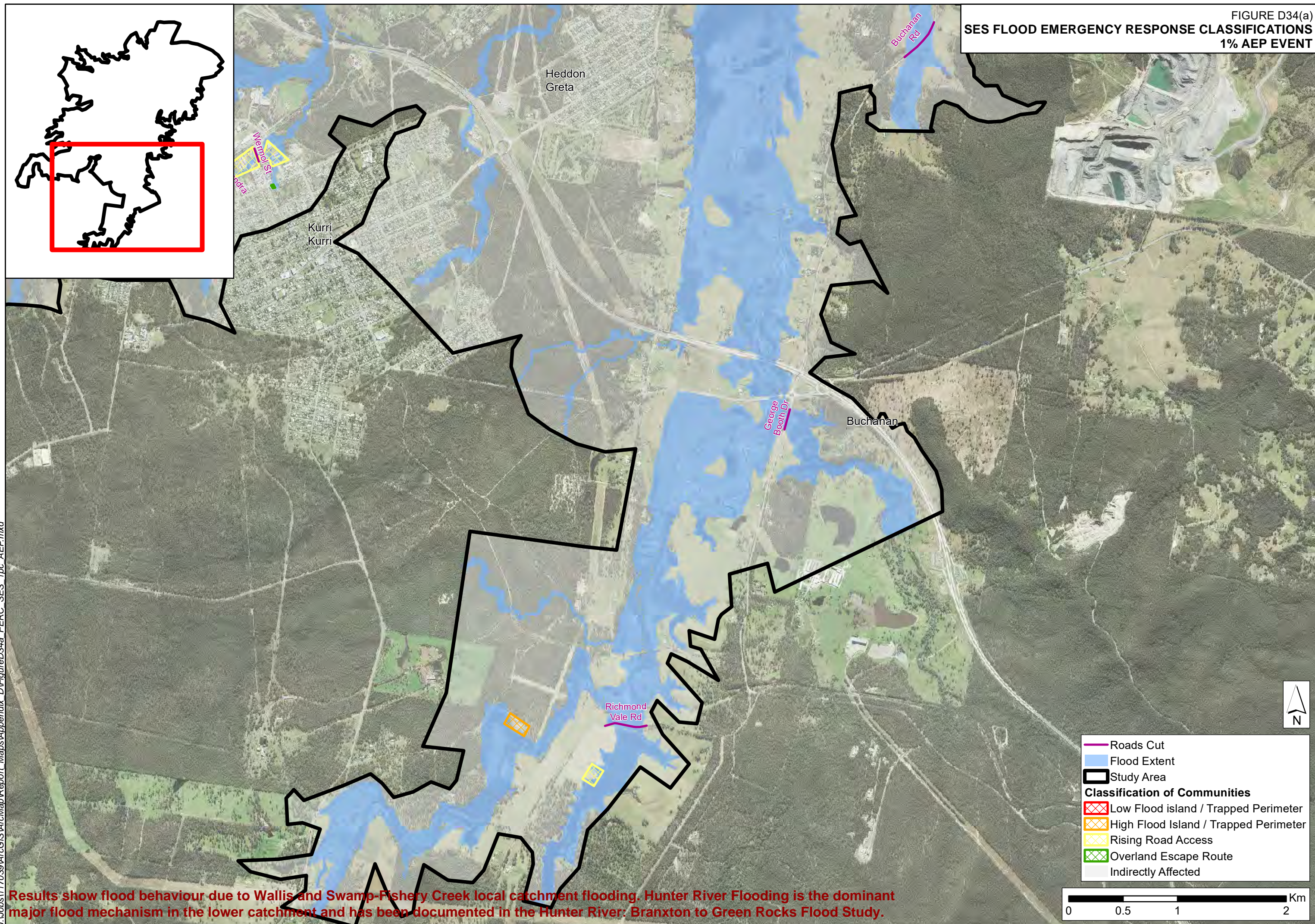


FIGURE D34(b)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
1% AEP EVENT

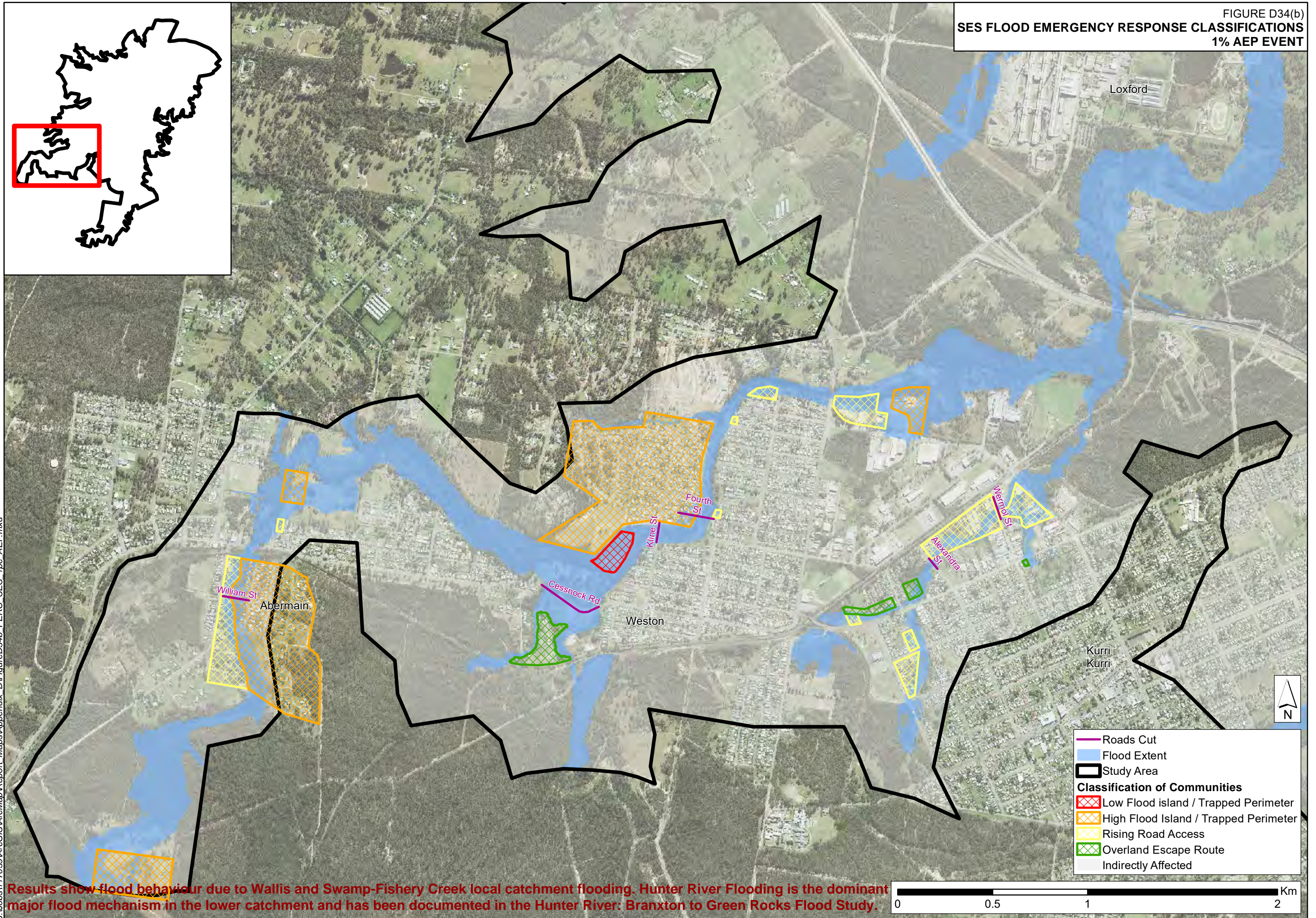
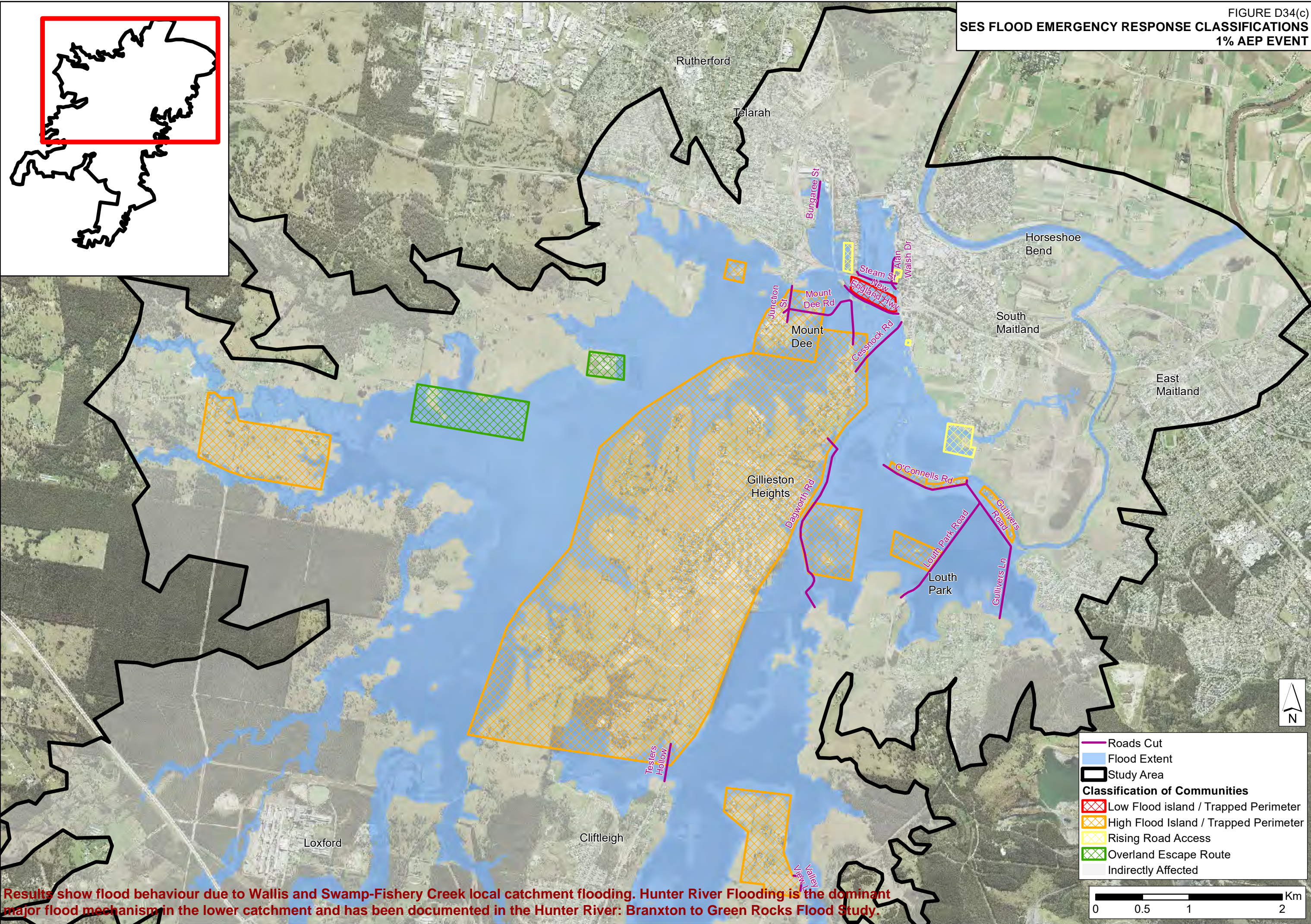


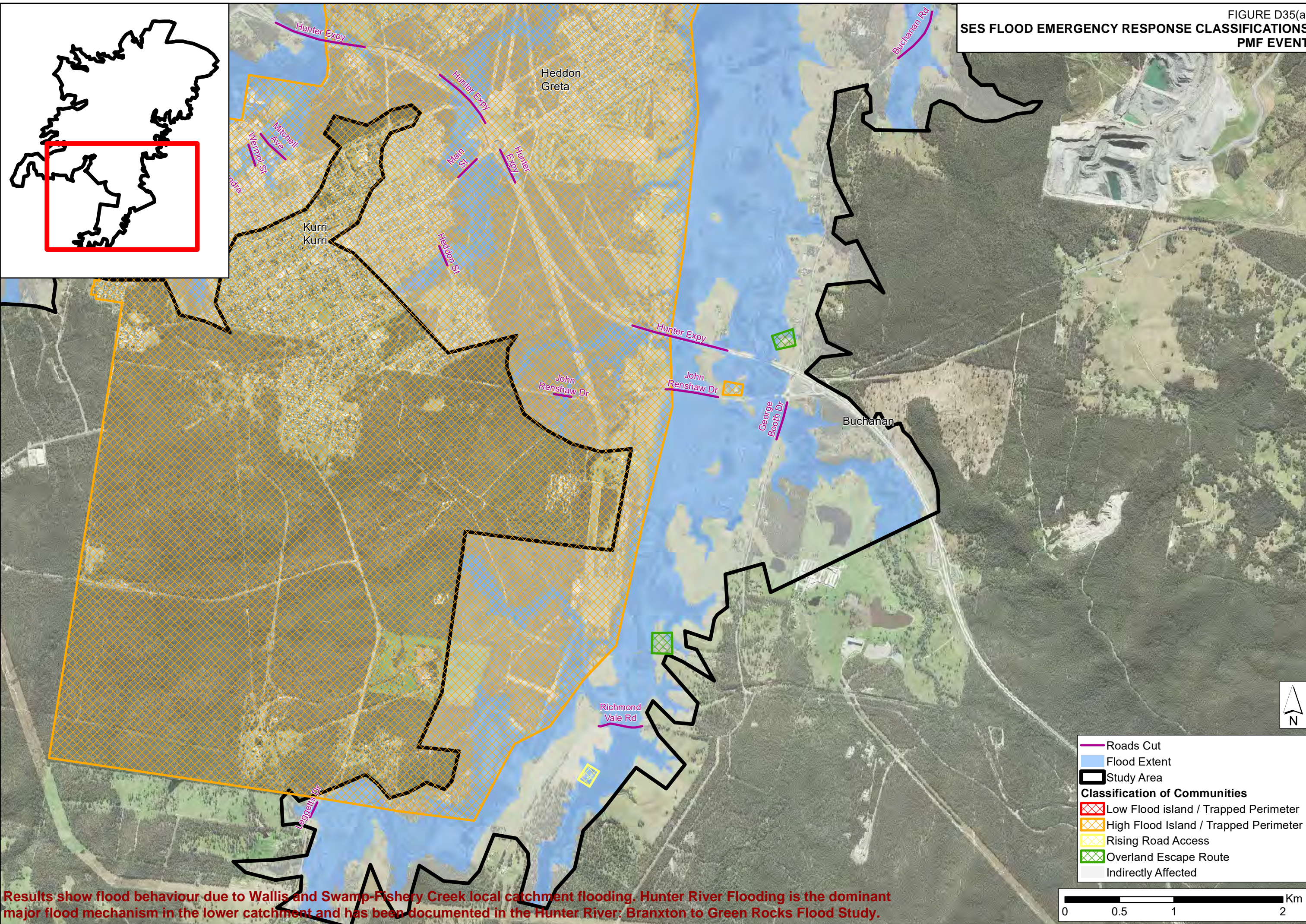
FIGURE D34(c)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
1% AEP EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

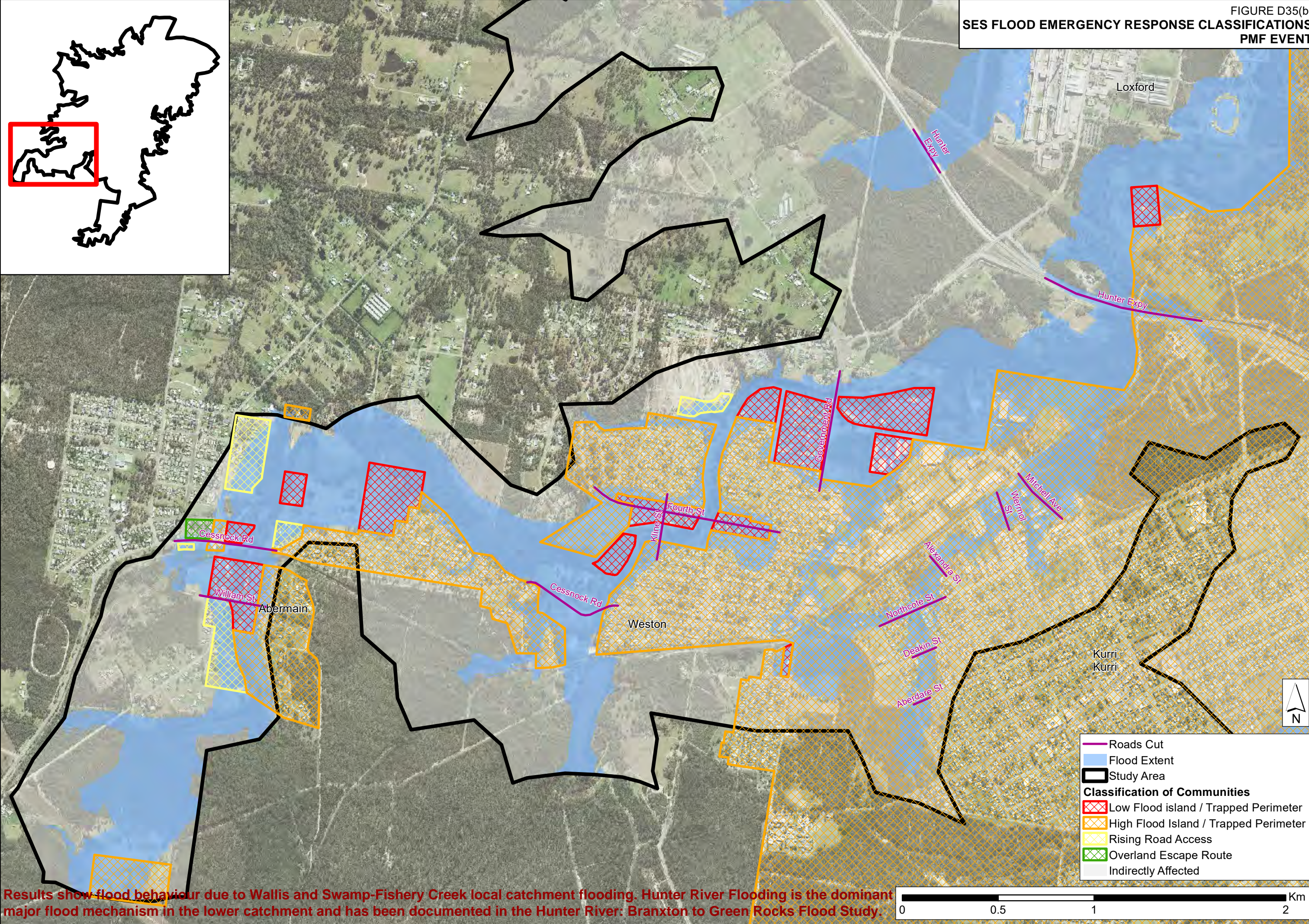
FIGURE D35(a)

SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
PMF EVENT

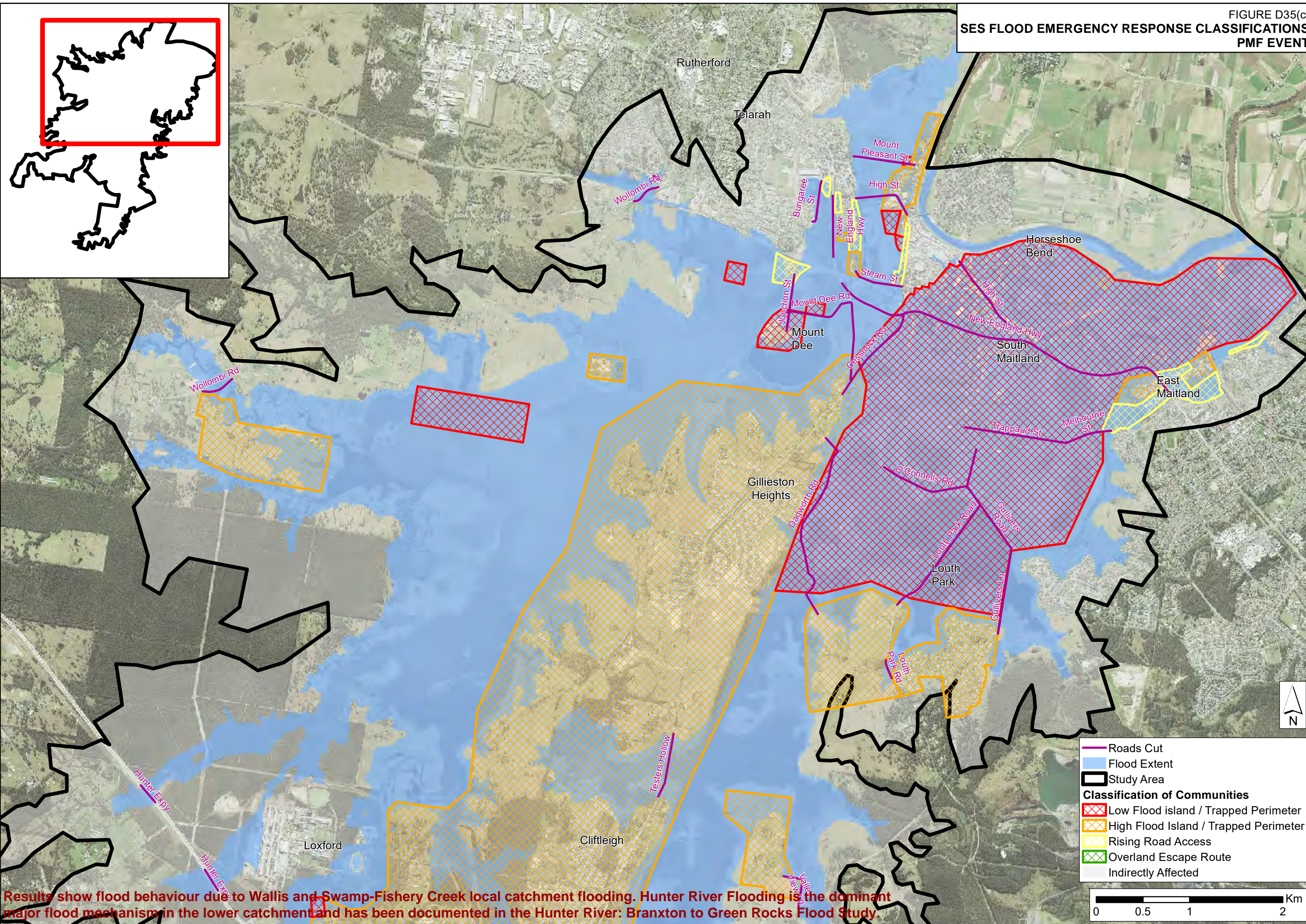


Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D35(b)
SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
PMF EVENT

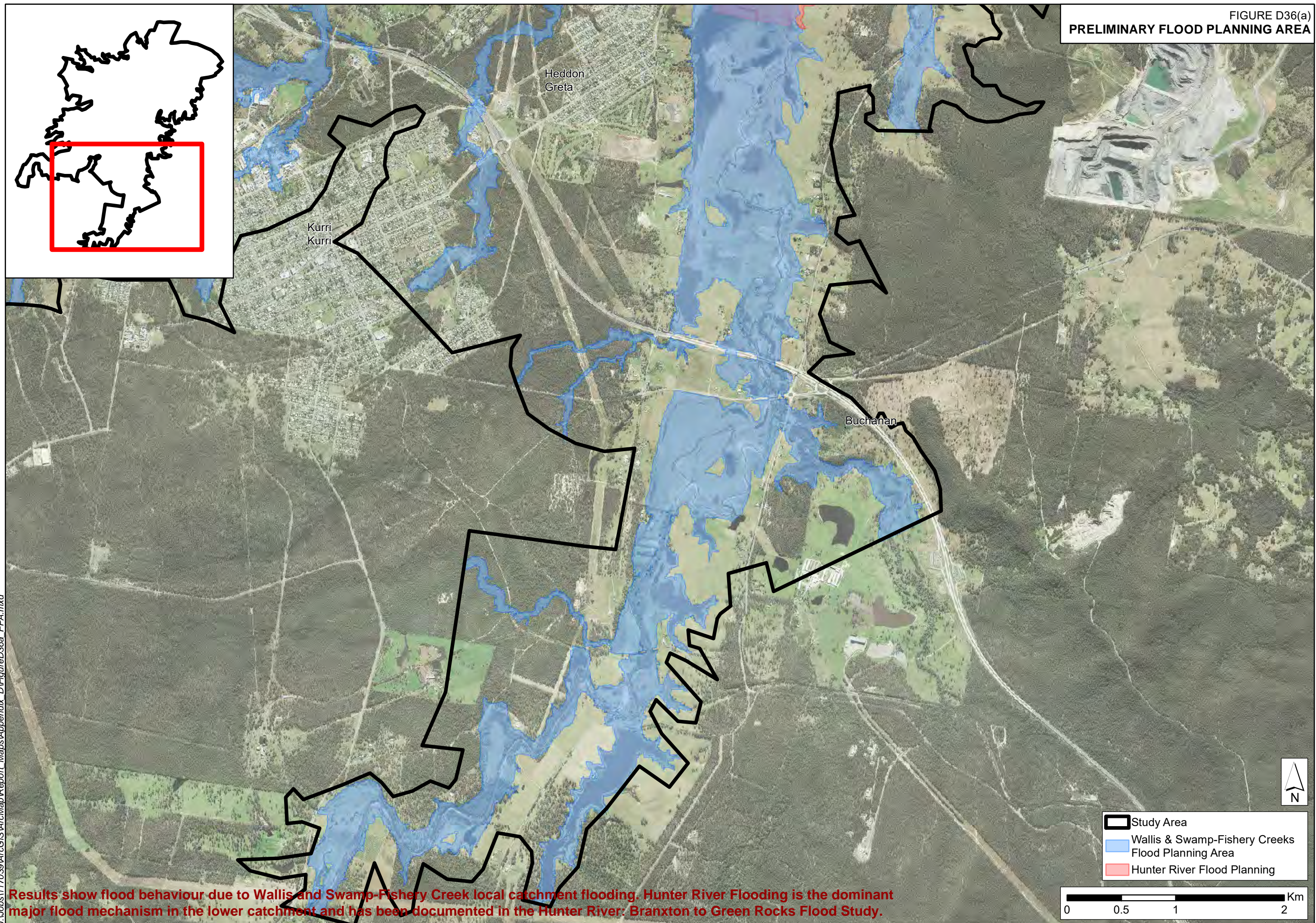


SES FLOOD EMERGENCY RESPONSE CLASSIFICATIONS
PMF EVENT



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D36(a)
PRELIMINARY FLOOD PLANNING AREA



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

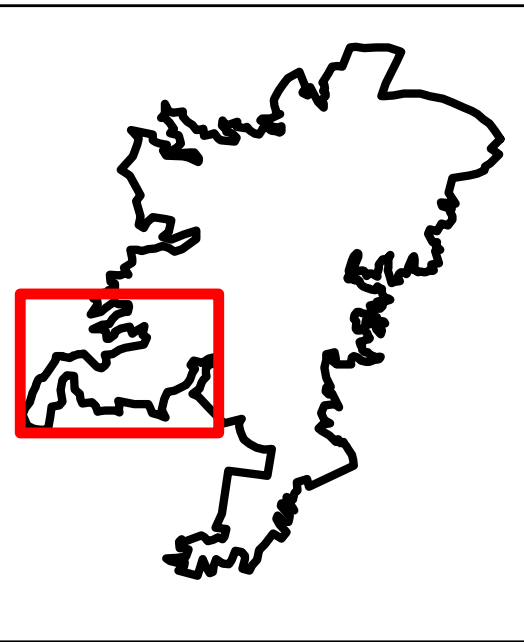
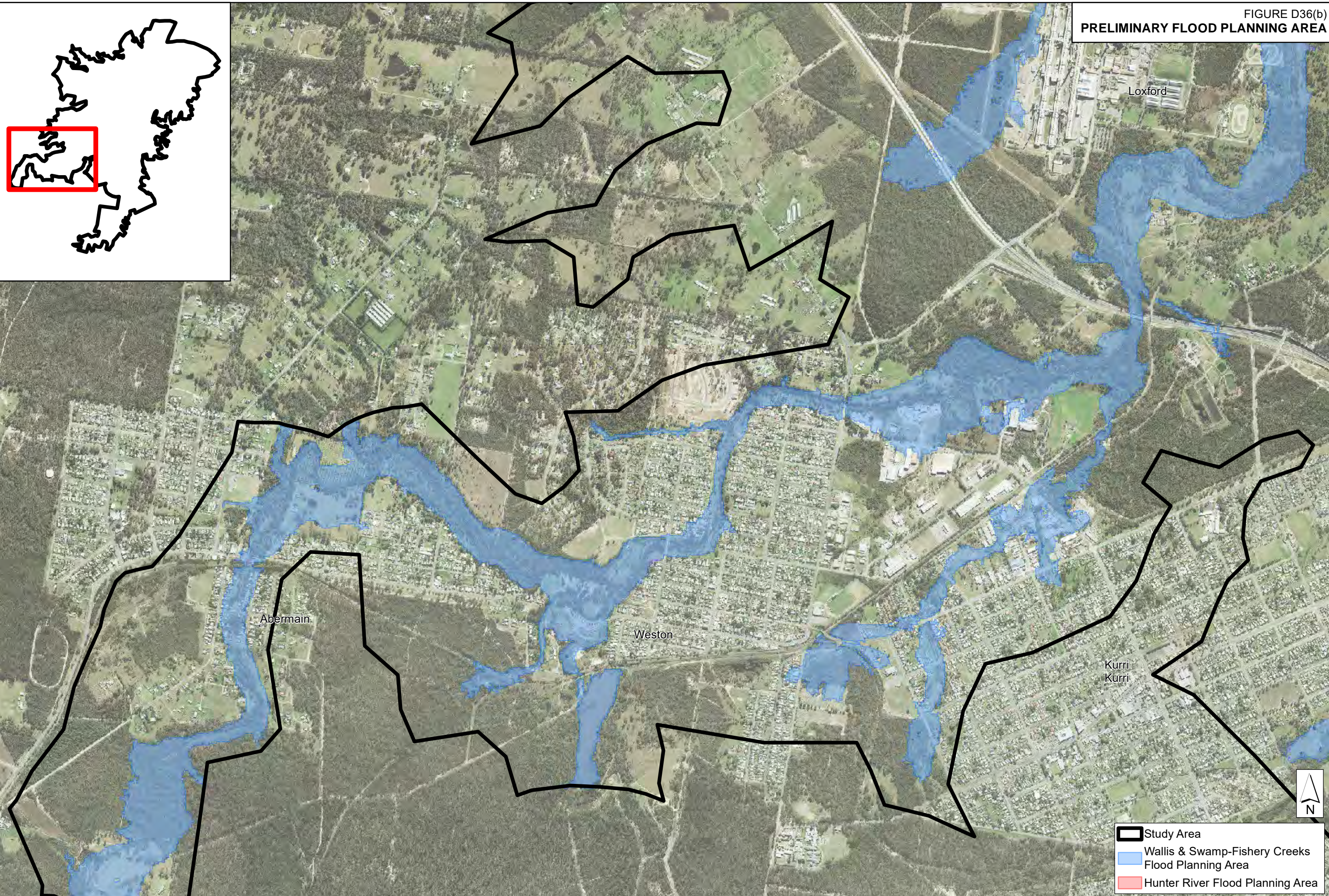
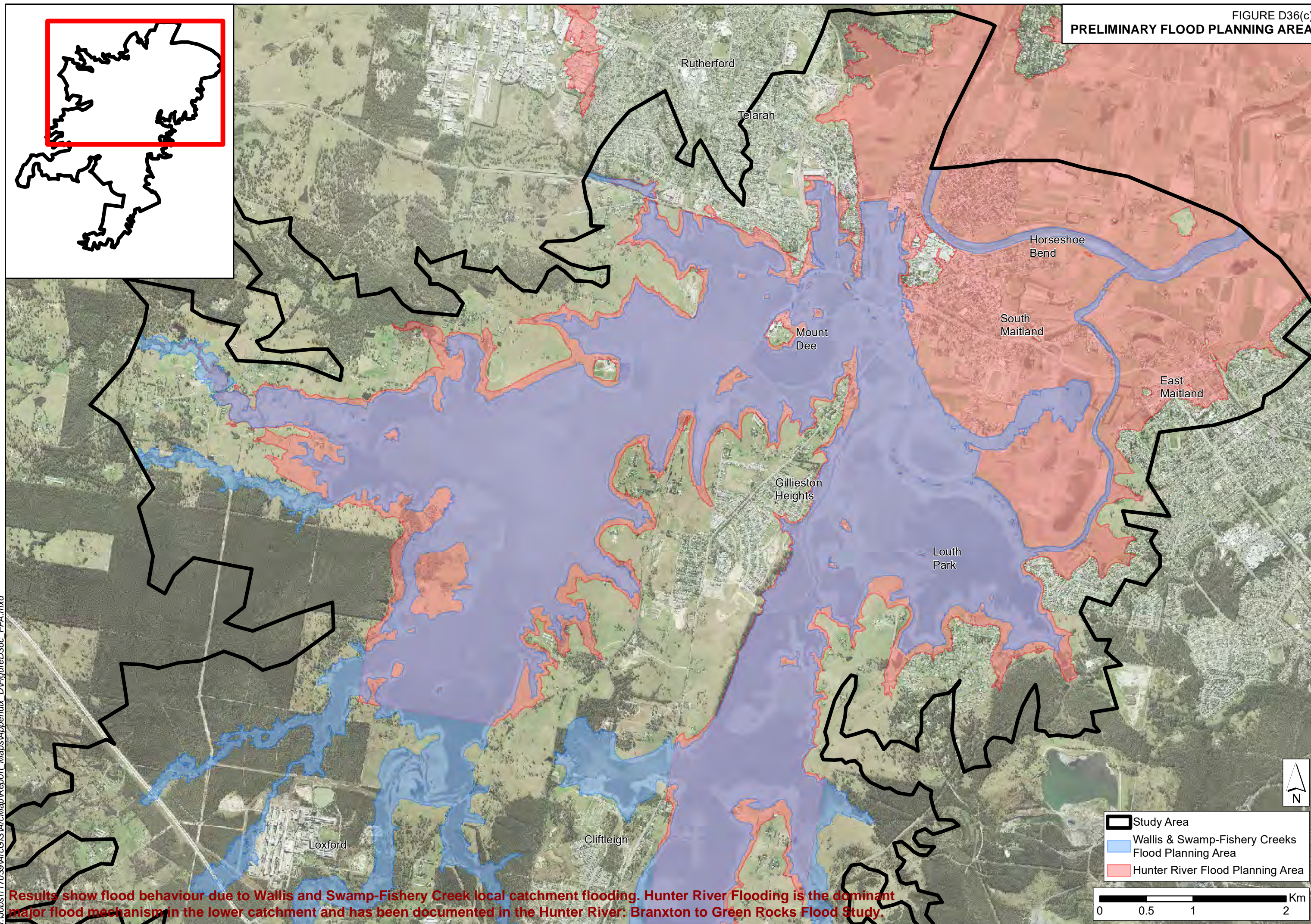


FIGURE D36(b)
PRELIMINARY FLOOD PLANNING AREA



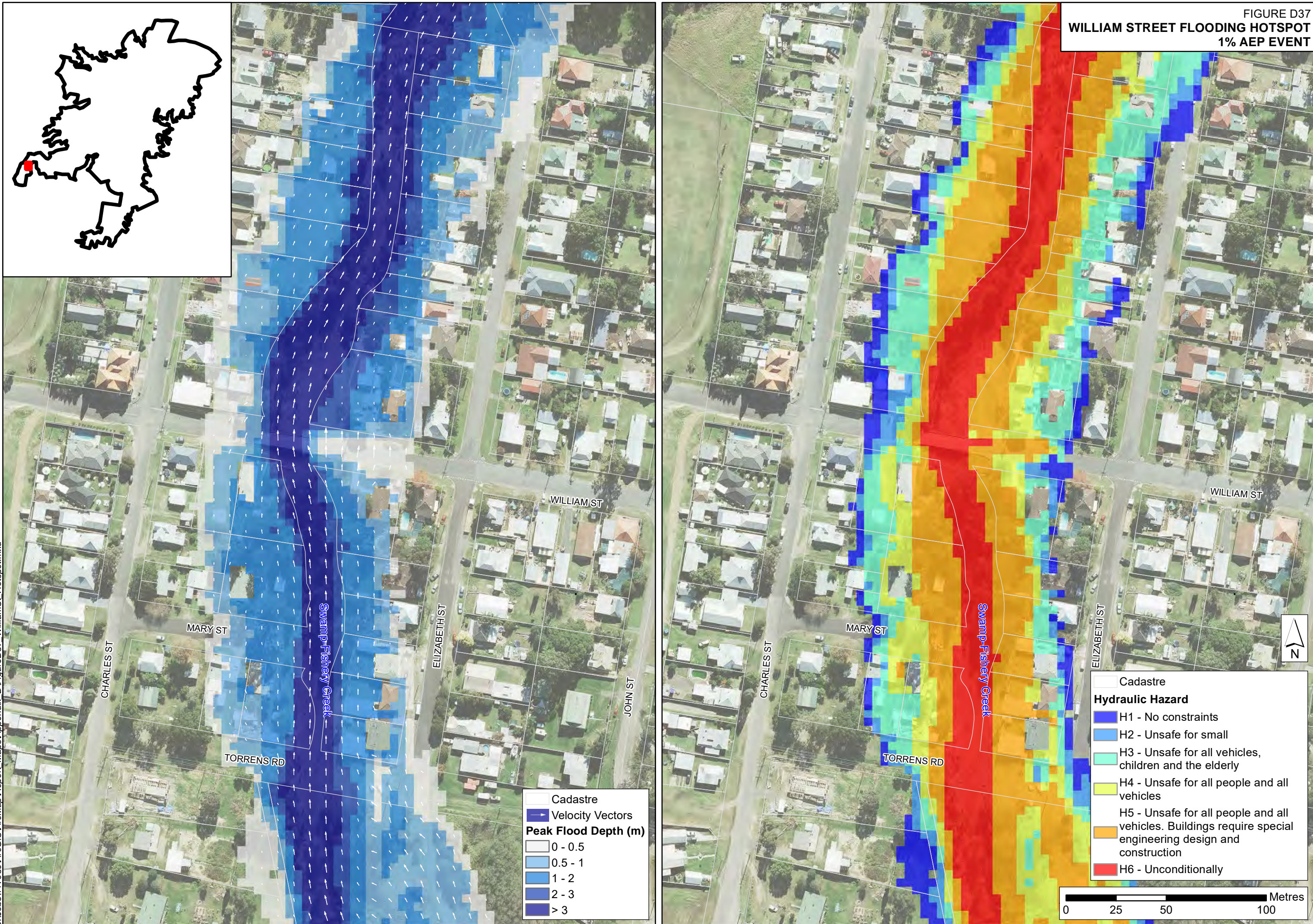
Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

FIGURE D36(c)
PRELIMINARY FLOOD PLANNING AREA



Results show flood behaviour due to Wallis and Swamp-Fishery Creek local catchment flooding. Hunter River Flooding is the dominant major flood mechanism in the lower catchment and has been documented in the Hunter River: Branxton to Green Rocks Flood Study.

J:\Jobs\1170-39\ArcGIS\ArcMap\Report Maps\Appendix D\FigureD37 WilliamSt Hotspot.mxd



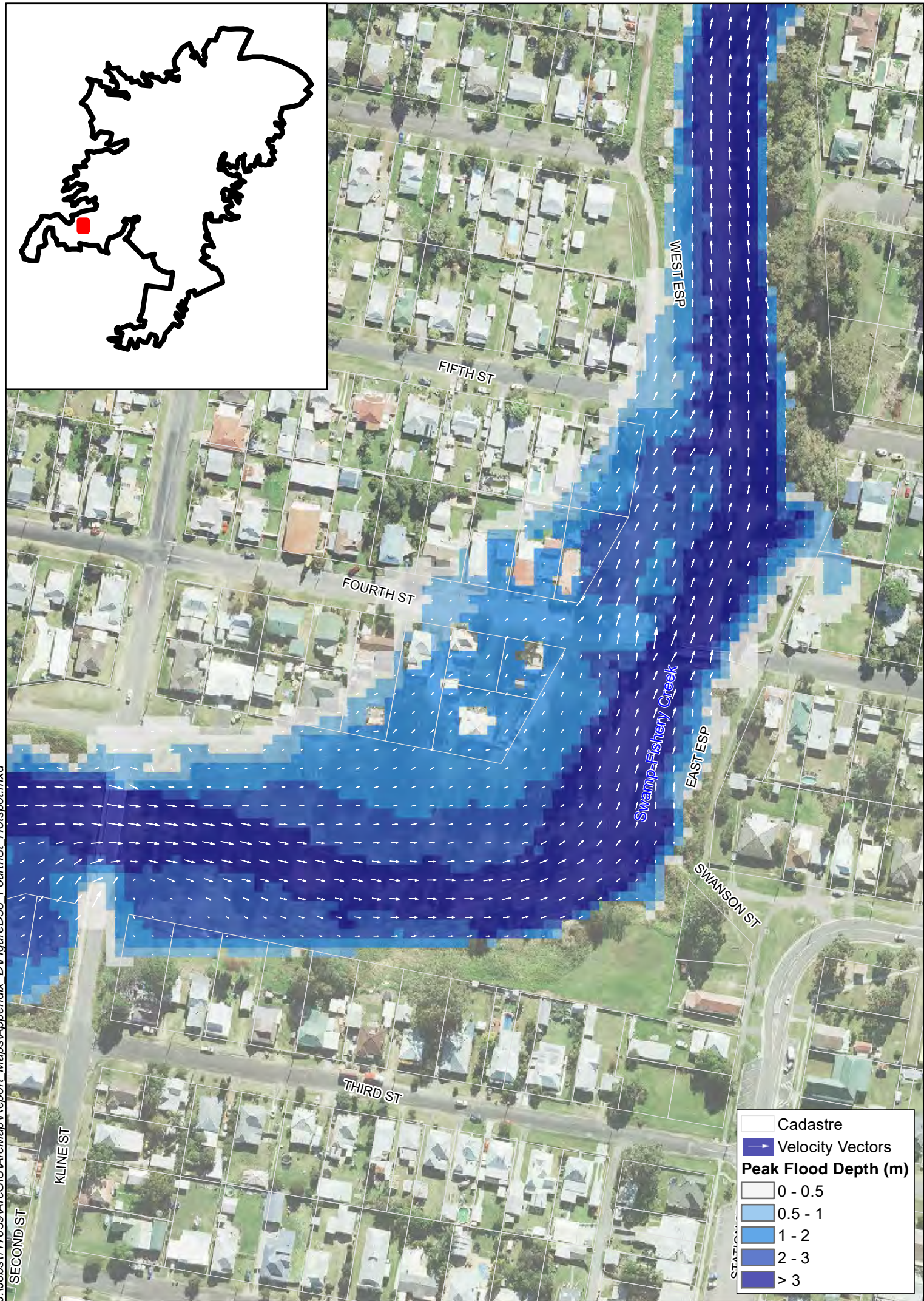
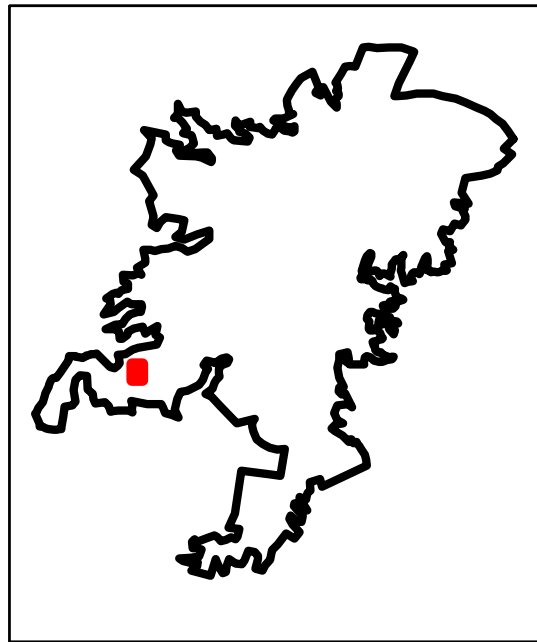
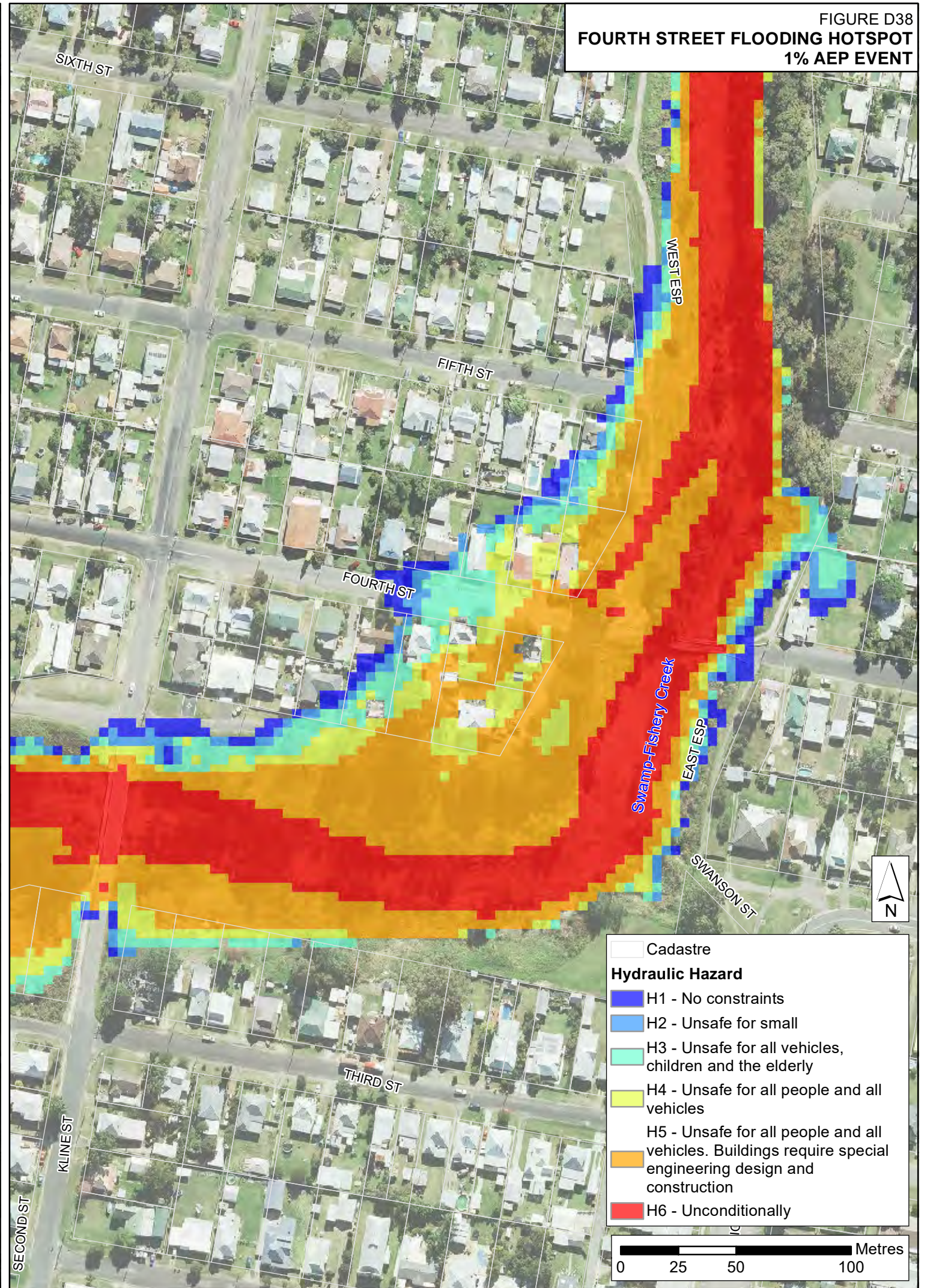


FIGURE D38
FOURTH STREET FLOODING HOTSPOT
1% AEP EVENT



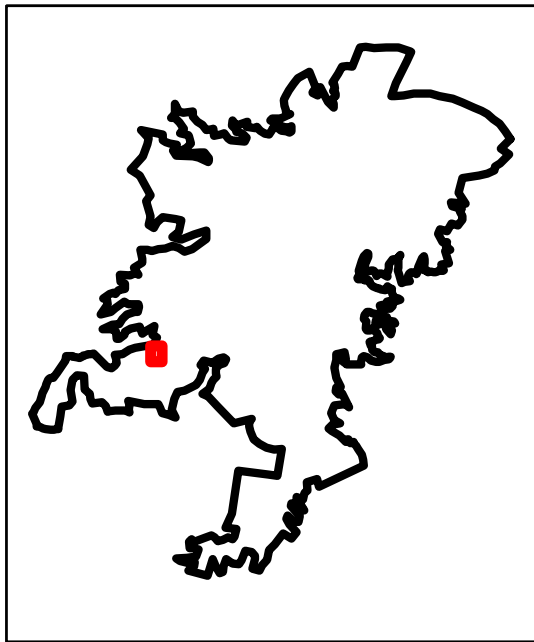
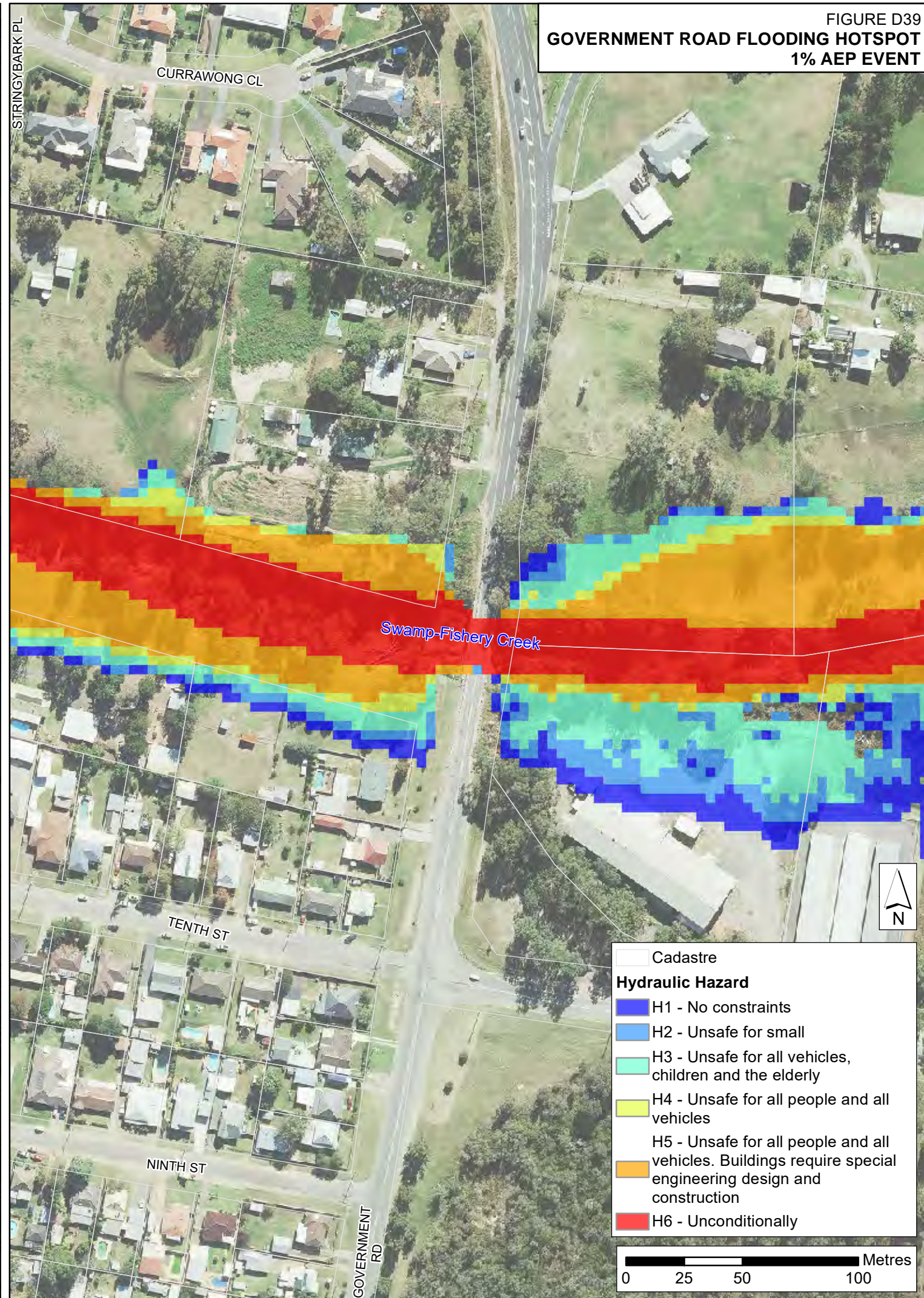
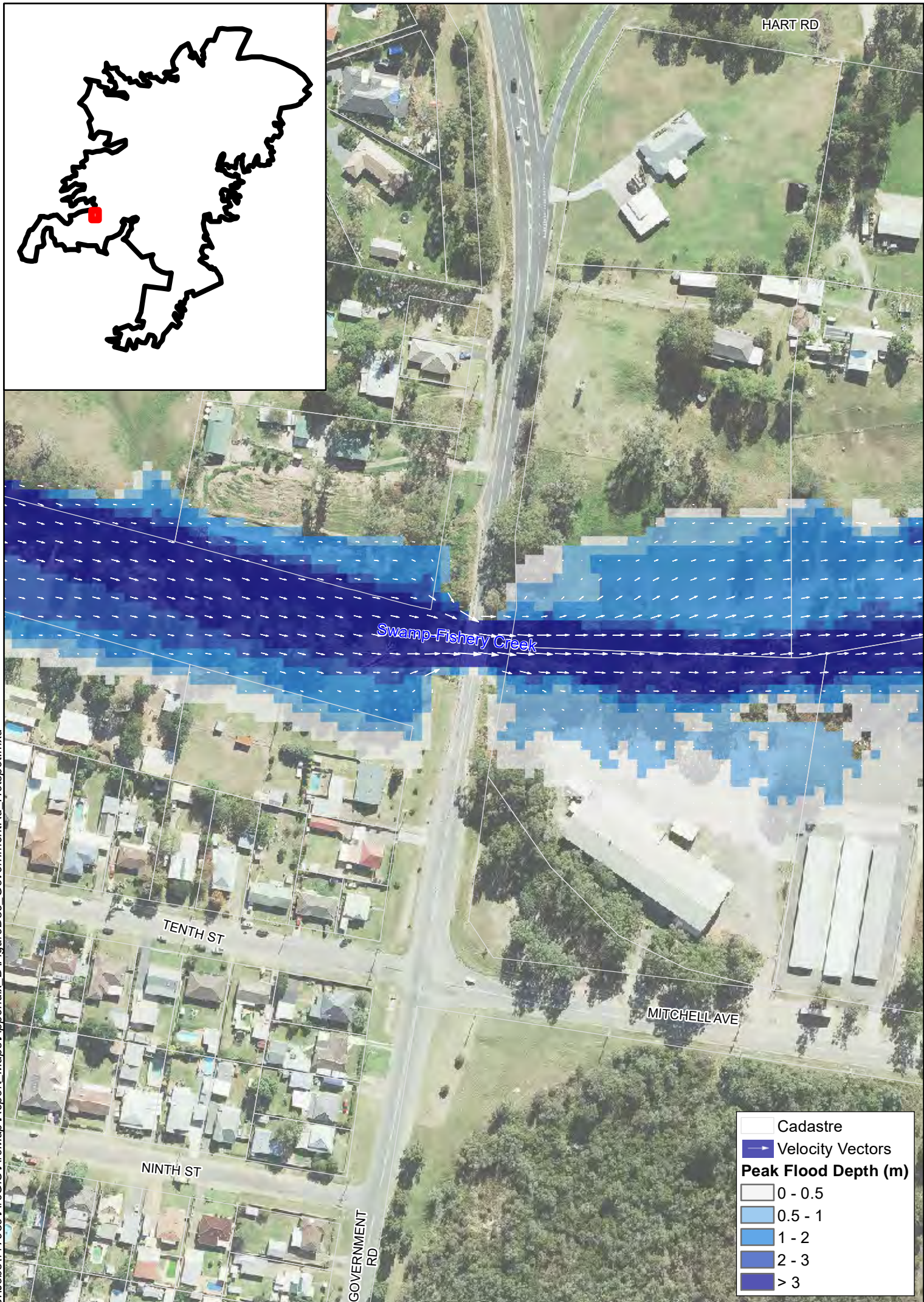
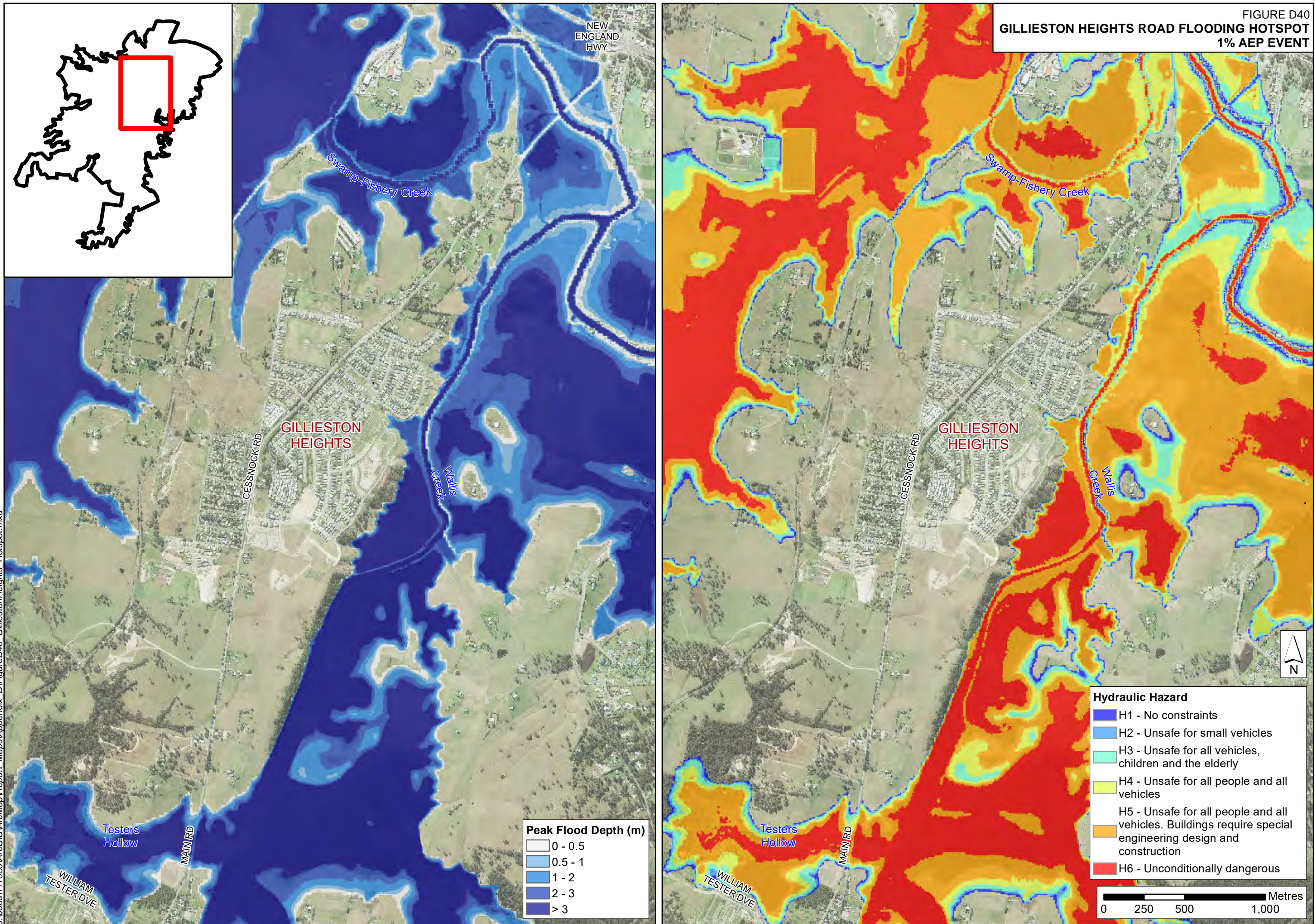


FIGURE D39
GOVERNMENT ROAD FLOODING HOTSPOT
1% AEP EVENT





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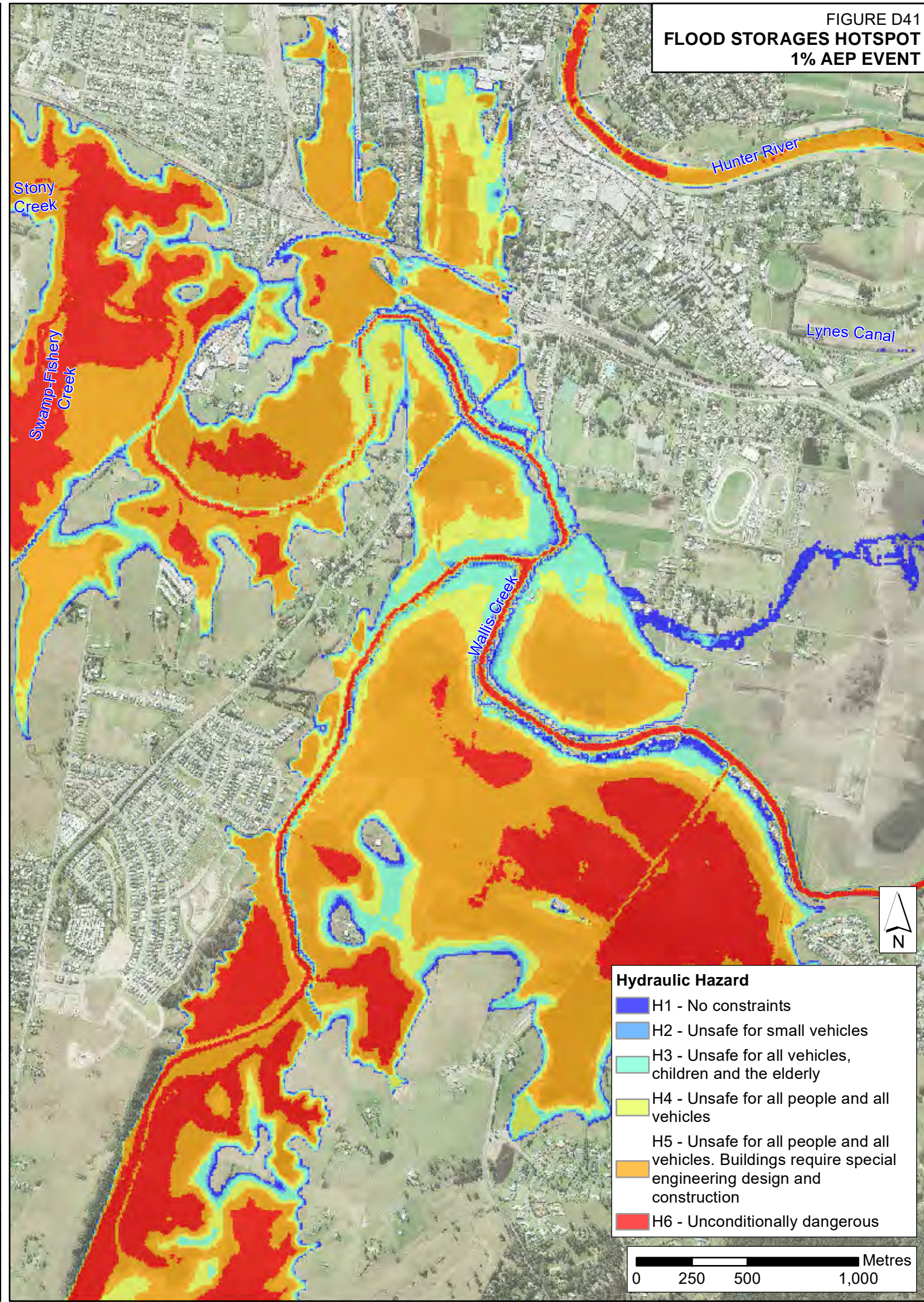
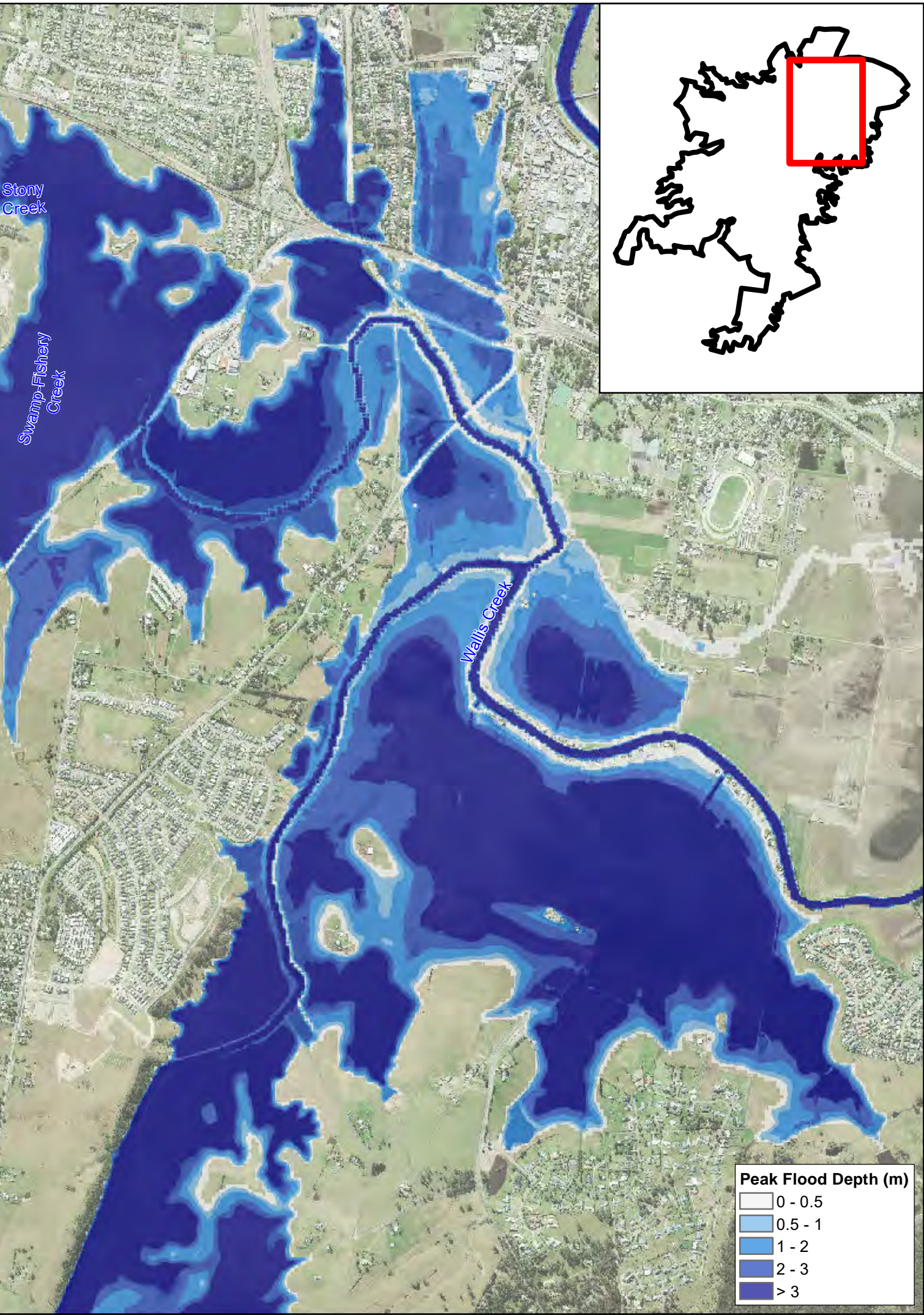


FIGURE D41
FLOOD STORAGES HOTSPOT
1% AEP EVENT

APPENDIX E. DESIGN FLOOD RESULTS

Table E1: Peak Flood Depths at Road Crossings

Table E2: Peak Flows at Road Crossings

Figure E1: Peak Flood Level Profile – Swamp-Fishery Creek for all Design Flood Events

Figure E2: Peak Flood Level Profile – Wallis Creek for all Design Flood Events

Figure E3: Stage Hydrograph at William Street

Figure E4: Stage Hydrograph at Cessnock Road, Abermain

Figure E5: Stage Hydrograph at Fourth Street

Figure E6: Stage Hydrograph at Government Road

Figure E7: Stage Hydrograph at Hunter Expressway, Loxford

Figure E8: Stage Hydrograph at Hunter Expressway, Buchanan

Figure E9: Stage Hydrograph at Testers Hollow

Figure E10: Stage Hydrograph at Railway, Mount Dee

Figure E11: Stage Hydrograph at Junction Street, Telarah

Figure E12: Stage Hydrograph at Mount Dee Road

Figure E13: Stage Hydrograph at Cessnock Road, Maitland

Figure E14: Stage Hydrograph at New England Highway

Figure E15: Stage Hydrograph at Railway, Wallis Creek

Figure E16: Duration of Inundation of Lower Storage Areas

Figure E17: Comparison of Peak Water Level Profiles – Wallis Creek 1% AEP Event

Figure E18: Comparison of Peak Water Level Profiles – Swamp/Fishery Creek 1% AEP Event



Table E1: Peak Flood Depths at Road Crossings

ID	Location	AEP								PMF
		50%	20%	10%	5%	2%	1%	0.5%	0.2%	
L1	Ridley St	-	-	-	0.2	0.6	0.8	1.0	1.5	4.5
L2	William St	-	-	-	-	0.2	0.6	0.9	1.6	5.2
L3	Cessnock Rd, Abermain	-	-	-	-	-	-	-	0.1	1.3
L4	Rawson St	-	-	-	-	-	-	-	-	1.4
L5	Cessnock Rd, Weston	-	-	-	-	-	-	-	0.5	4.4
L6	Kline St	-	-	-	-	0.2	0.6	0.8	1.6	5.9
L7	Fourth St	-	-	-	0.2	1.0	1.3	1.6	2.5	6.8
L8	Government Rd	-	-	-	-	-	-	-	-	1.1
L9	Hunter Expy, Loxford	-	-	-	-	-	-	-	-	2.6
L10	Boundary St	-	-	-	-	-	-	-	-	0.3
L11	Alexandra St	0.5	0.6	0.7	0.7	0.7	0.7	0.8	0.9	1.3
L12	Wermol St	0.9	1.0	1.1	1.2	1.2	1.3	1.3	1.6	2.3
L13	Mitchell Ave West	-	-	-	-	< 0.1	< 0.1	< 0.1	0.2	1.1
L14	East Mitchell Ave East	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.4
L15	Hunter Expy near Bishops Bridge Rd	-	-	-	-	-	-	-	-	0.2
L16	Hunter Expy near Graham Ln	-	-	-	-	-	-	-	-	0.5
L17	Heddon St	-	-	< 0.1	< 0.1	0.1	0.1	0.1	0.2	0.6
L18	Main Rd	-	-	-	-	-	-	-	-	-
L19	Hunter Expy, Kurri Kurri	-	-	-	-	-	-	-	-	0.6
L20	Richmond Vale Rd	0.5	1.4	1.6	1.8	2.2	2.5	2.6	2.9	4.4
L21	George Booth Dr	0.4	0.9	1.1	1.3	1.9	2.1	2.3	2.7	4.3
L22	John Renshaw Dr West	-	-	-	-	-	-	-	-	0.7
L23	John Renshaw Dr East	-	-	-	-	-	-	-	-	-
L24	Hunter Expy West, Buchanan	-	-	-	-	-	-	-	-	1.0

ID	Location	AEP								PMF
		50%	20%	10%	5%	2%	1%	0.5%	0.2%	
L25	Hunter Expy East, Buchanan	-	-	-	-	-	-	-	-	-
L26	Buchanan Rd	0.6	0.6	0.7	0.8	0.8	0.8	0.9	1.0	1.5
L27	Testers Hollow	-	-	0.5	1.3	1.7	1.8	2.1	2.8	5.1
L28	Gillieston Public School	-	-	-	-	-	-	0.4	1.0	3.4
L29	Railway, Mount Dee	-	-	-	-	0.1	0.8	1.3	1.9	4.3
L30	Junction St	-	-	-	-	-	0.4	0.9	1.5	3.9
L31	Mount Dee Rd	-	-	-	-	-	0.2	0.7	1.3	3.7
L32	Cessnock Rd, Maitland	-	-	-	-	-	0.2	0.7	1.3	3.7
L33	Telarah Lagoon	-	-	-	-	-	-	-	0.5	2.9
L34	Steam St	-	-	-	-	-	-	0.4	0.9	3.3
L35	Louth Park Rd	-	-	-	-	-	-	-	-	0.6
L36	High St, Maitland	-	-	-	-	-	-	-	1.1	3.5
L37	Melbourne St	-	-	-	-	-	-	-	-	2.1
L38	New England Hwy, Maitland	-	-	-	-	-	-	-	-	0.8
L39	High St, East Maitland	-	-	-	-	-	-	-	-	1.9
L40	Maitland Station	-	-	-	-	-	-	-	-	-
L41	Wallis Creek Floodgates	-	-	-	-	-	-	-	-	-
L42	Wollombi Rd	-	-	-	-	-	-	-	-	0.1

Table E2: Peak Flows at Road Crossings

ID	Location	Flow Type	AEP								PMF
			50%	20%	10%	5%	2%	1%	0.5%	0.2%	
F1	Ridley St	Total Flow	29	62	87	115	169	204	235	340	1199
F2	William St	Total Flow	29	63	87	116	172	206	238	344	1215
F3	Cessnock Rd, Abermain	Total Flow	30	65	90	120	176	212	245	355	1251
F4	Rawson St	Overland Flow	0	0	0	0	0	0	0	0	361
	Pipe	Pipe Flow	7	16	23	30	43	51	58	82	230
F5	Cessnock Rd, Weston	Total Flow	8	18	24	33	48	56	60	84	457
F6	Kline St	Total Flow	48	104	141	187	273	328	376	532	2067
F7	Fourth St	Total Flow	48	104	141	187	276	330	378	532	2068
F8	Government Rd	Total Flow	48	106	141	187	278	334	381	534	2092
F9	Hunter Expy, Loxford	Total Flow	50	113	146	194	294	353	403	537	2169
F10	Boundary St	Overland Flow	0	1	1	1	1	2	2	9	47
	Pipe	Pipe Flow	2	2	3	4	6	7	8	9	10
F11	Alexandra St	Total Flow	4	7	9	10	14	15	17	29	129
F12	Wermol St	Total Flow	4	8	10	12	15	17	19	32	142
F13	Mitchell Ave West	Total Flow	5	9	11	13	17	20	22	38	164
F14	East Mitchell Ave East	Total Flow	1	1	2	2	2	3	3	6	16
F15	Hunter Expy near Bishops Bridge Rd	Overland Flow	0	0	0	0	0	0	0	0	73
	Pipe	Pipe Flow	3	6	8	10	14	17	19	27	64
F16	Hunter Expy near Graham Ln	Overland Flow	0	0	0	0	0	0	0	0	87
	Pipe	Pipe Flow	21	24	26	26	26	26	26	38	83
F17	Heddon St	Total Flow	4	6	8	10	13	16	17	34	99
F18	Main Rd	Overland Flow	0	0	0	0	0	0	0	0	130
	Pipe	Pipe Flow	5	9	12	14	17	18	20	23	28
F19	Hunter Expy, Kurri Kurri	Overland Flow	0	0	0	0	0	0	0	0	145

ID	Location	Flow Type	AEP								PMF
			50%	20%	10%	5%	2%	1%	0.5%	0.2%	
	Pipe	Pipe Flow	7	12	16	19	23	26	28	39	73
F20	Richmond Vale Rd	Total Flow	2	11	16	22	40	43	51	63	141
F21	George Booth Dr	Overland Flow	13	36	36	46	68	91	111	155	432
	Pipe	Pipe Flow	16	20	22	27	33	40	47	56	63
F22	John Renshaw Dr West	Total Flow	0	0	0	0	0	0	0	0	805
F23	John Renshaw Dr East	Total Flow	65	145	176	227	403	498	575	714	1542
F24	Hunter Expy West, Buchanan	Overland Flow	0	0	0	0	0	0	0	0	869
	Pipe	Pipe Flow	31	33	33	33	44	52	59	88	173
F25	Hunter Expy East, Buchanan	Total Flow	63	142	171	223	401	497	574	712	1547
F26	Buchanan Rd	Total Flow	14	30	43	55	77	92	104	153	533
F27	Testers Hollow	Total Flow	0	0	88	123	201	221	236	263	338
F28	Gillieston Public School	Overland Flow	0	0	0	0	0	0	12	46	274
	Pipe	Pipe Flow	0	0	1	2	2	2	3	4	8
F29	Railway, Mount Dee	Total Flow	0	11	20	27	47	71	110	192	986
F30	Junction St	Total Flow	0	0	0	0	0	8	20	43	270
F31	Mount Dee Rd	Total Flow	1	11	20	26	44	52	123	266	1053
F32	Cessnock Rd, Maitland	Total Flow	2	11	20	26	37	49	83	246	747
F33	Telarah Lagoon	Overland Flow	0	0	0	0	0	0	2	5	151
	Pipe	Pipe Flow	1	2	3	6	13	60	59	63	104
F34	Steam St	Overland Flow	0	0	0	0	0	0	10	21	343
	Pipe	Pipe Flow	0	0	0	0	0	80	129	132	129
	Pipe	Pipe Flow	0	0	0	0	0	32	57	58	75
F35	Louth Park Rd	Total Flow	9	36	56	79	97	126	131	297	823
F36	High St, Maitland	Total Flow	0	0	0	0	0	0	0	19	180

ID	Location	Flow Type	AEP								PMF
			50%	20%	10%	5%	2%	1%	0.5%	0.2%	
F37	Melbourne St	Total Flow	9	36	56	78	94	130	177	247	283
F38	New England Hwy, Maitland	Total Flow	9	36	56	78	94	126	175	260	322
F39	High St, East Maitland	Total Flow	9	36	56	78	95	126	176	260	325
F40	Maitland Station	Total Flow	9	36	56	78	96	126	177	259	580
F41	Wallis Creek Floodgates	Overland Flow	0	0	0	0	0	0	0	0	53
	Pipe	Pipe Flow	0	7	14	22	29	40	59	91	301
	Pipe	Pipe Flow	3	14	22	31	38	50	71	105	280
	Pipe	Pipe Flow	1	7	11	16	19	25	32	48	100
	Pipe	Pipe Flow	5	8	9	10	10	11	12	14	21
F42	Wollombi Rd	Overland Flow	0	0	0	0	0	0	0	0	204
	Pipe	Pipe Flow	15	24	33	41	55	66	73	99	152

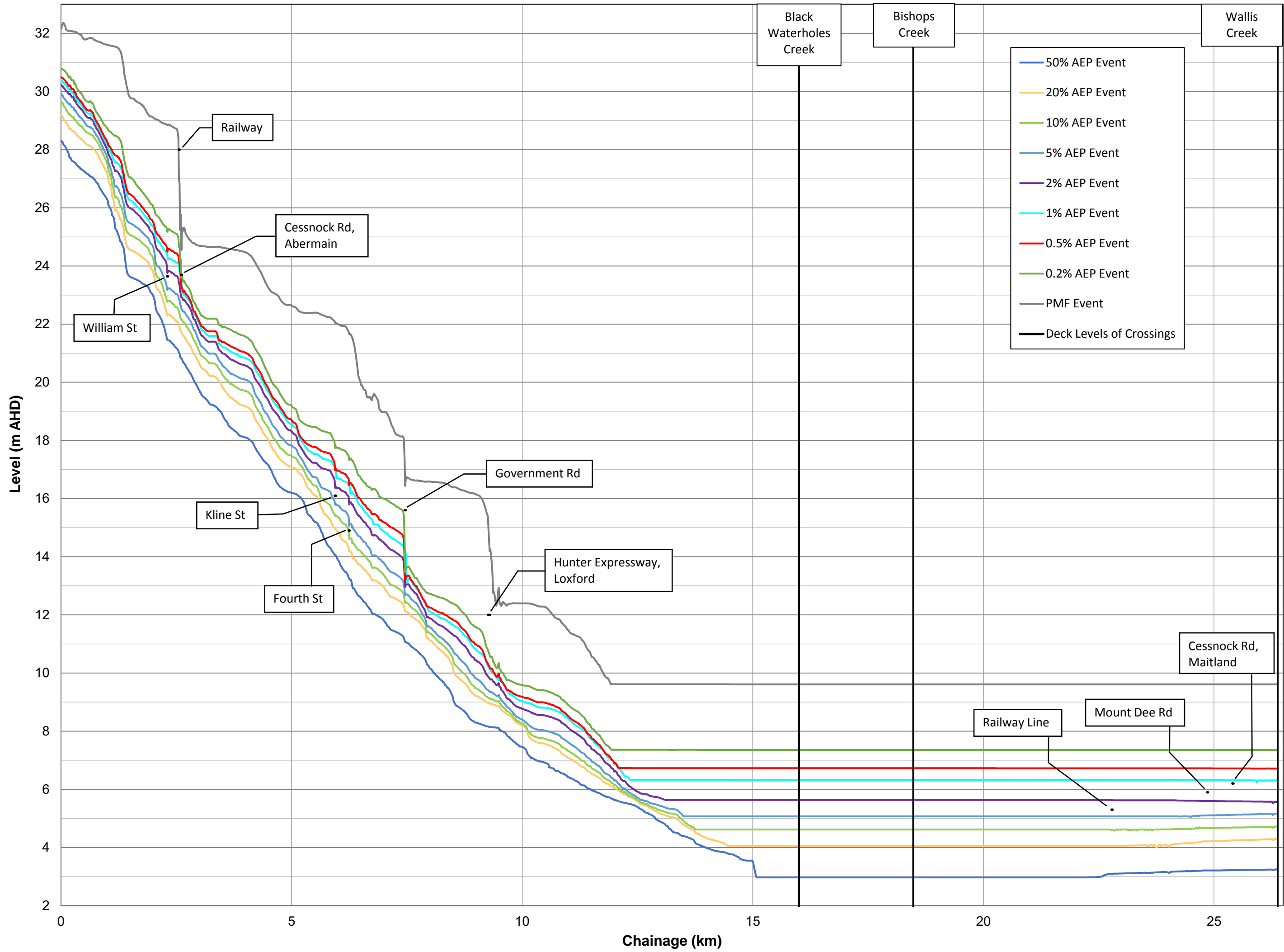


FIGURE E1
PEAK FLOOD LEVEL PROFILE
SWAMP-FISHERY CREEK
DESIGN STORMS

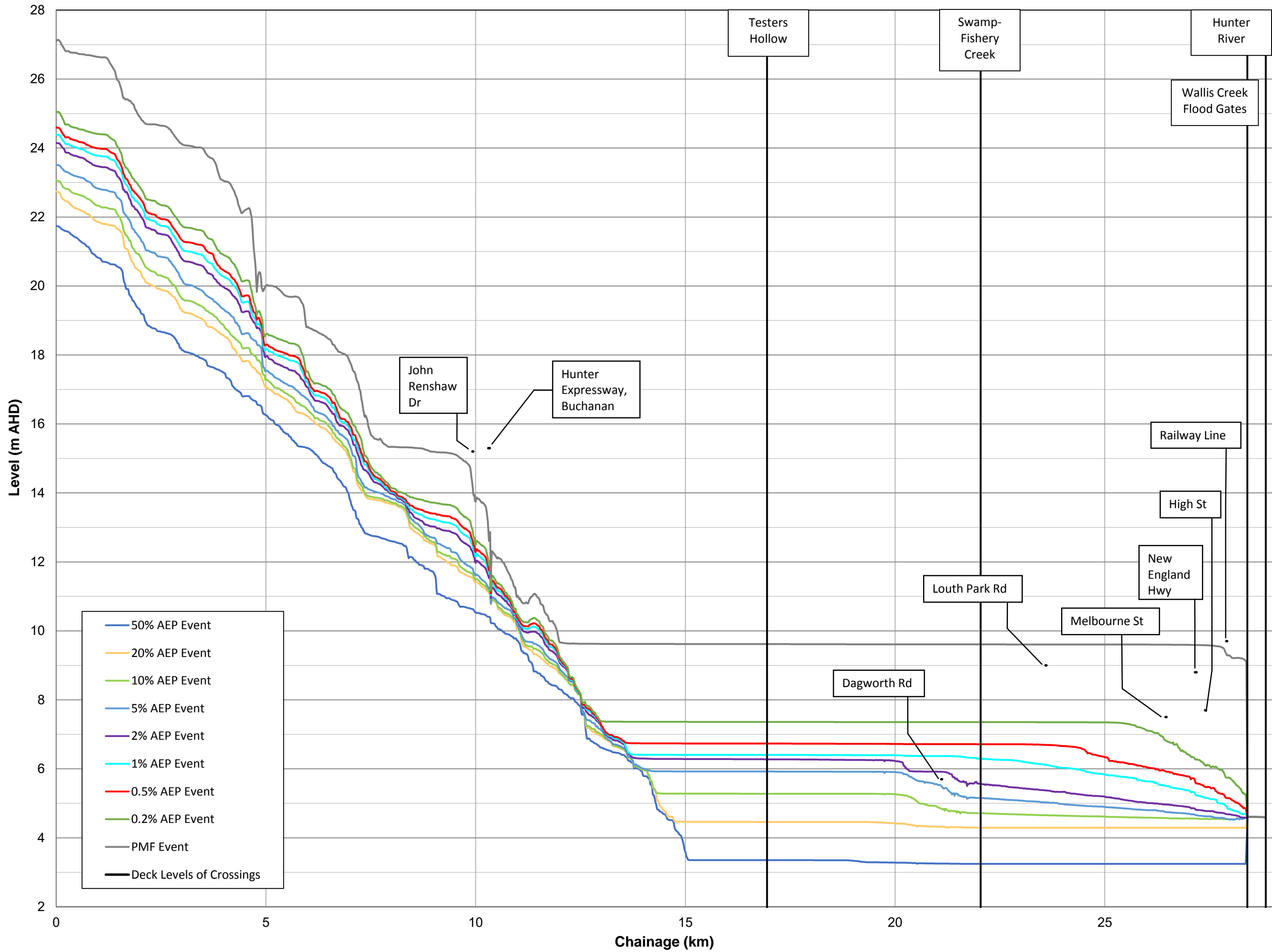


FIGURE E2
PEAK FLOOD LEVEL PROFILE
WALLIS CREEK
DESIGN STORMS

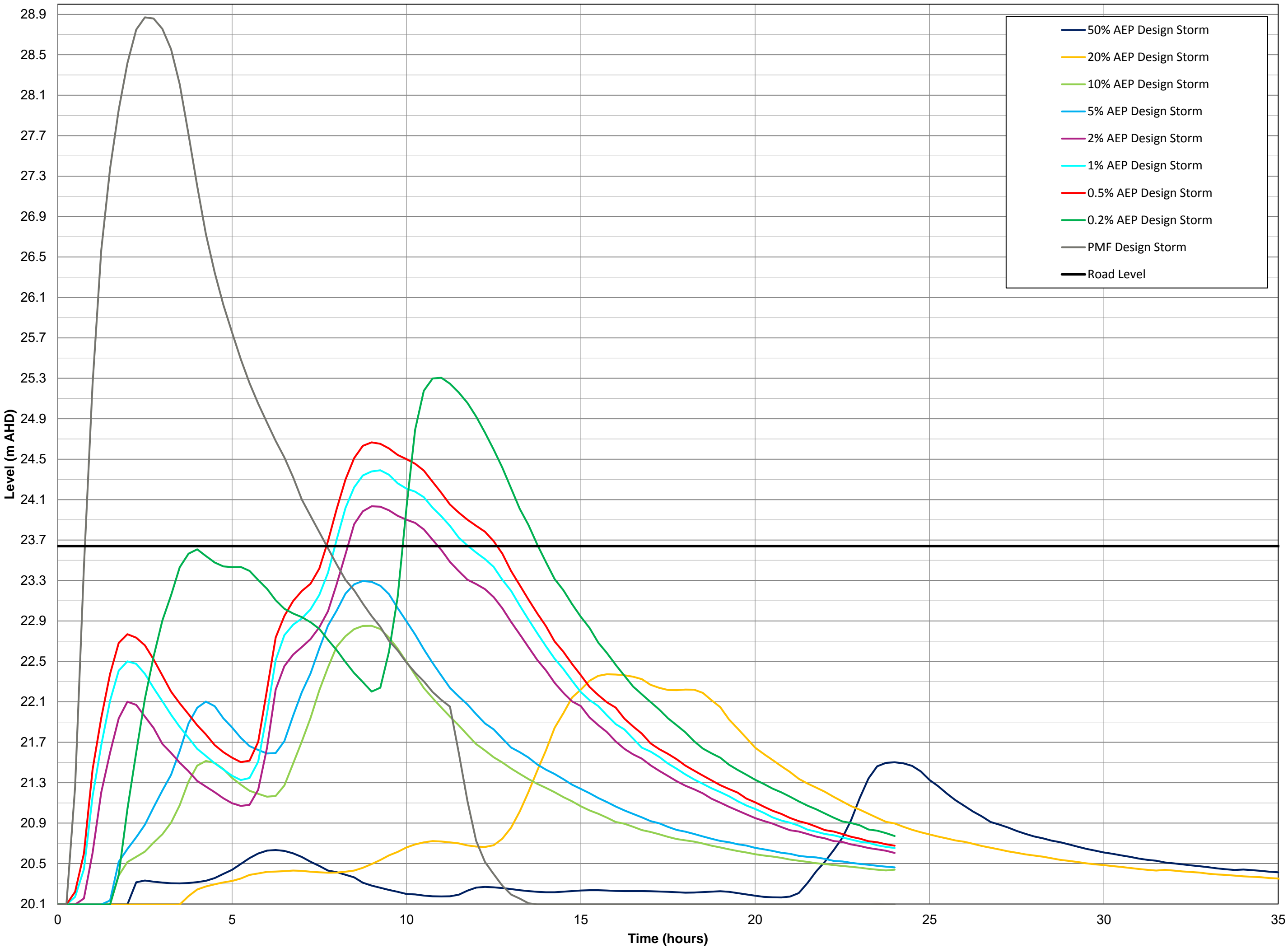


FIGURE E3
STAGE HYDROGRAPH
WILLIAM STREET ABERMAIN
DESIGN STORMS

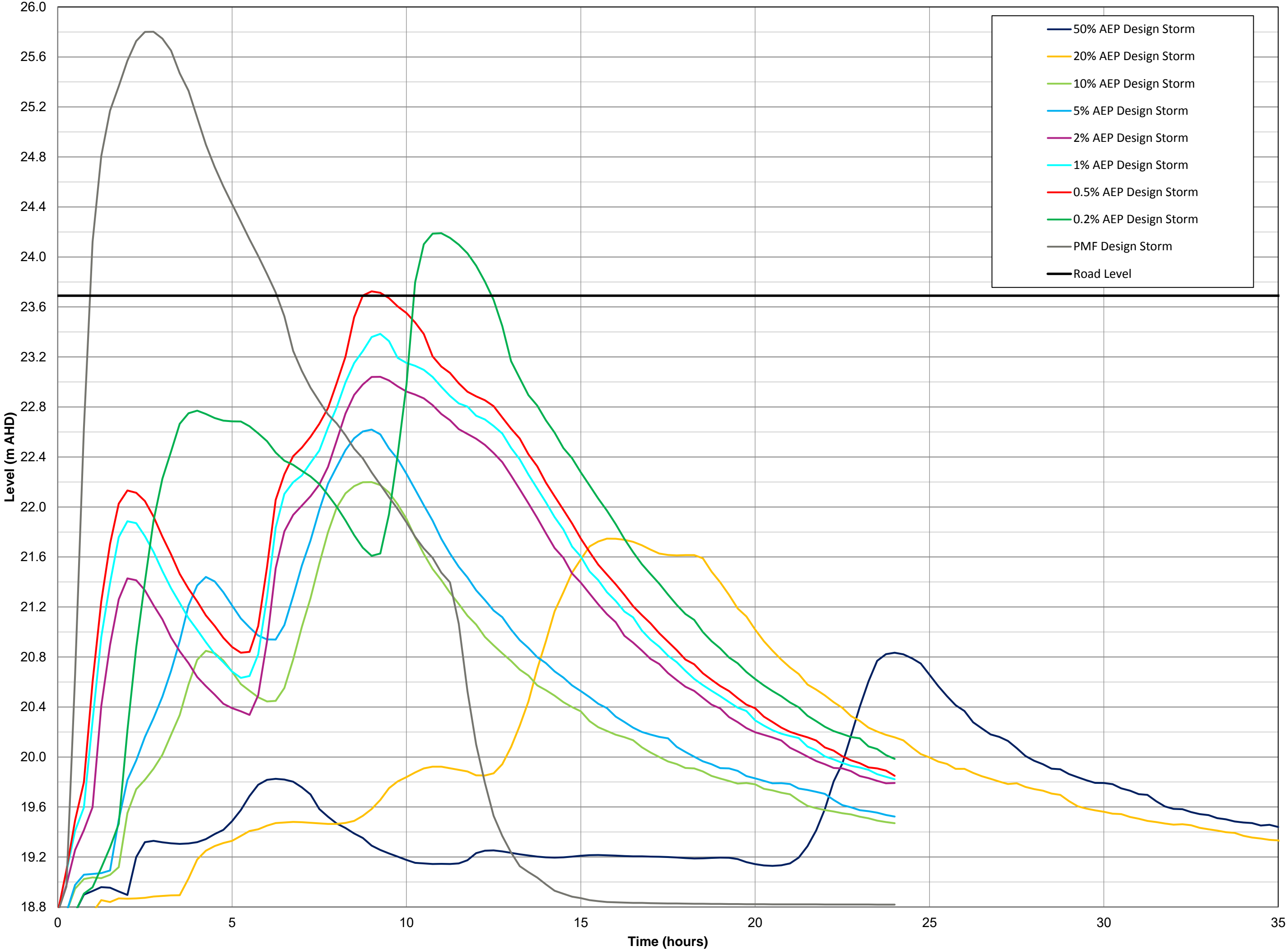


FIGURE E4
STAGE HYDROGRAPH
CESSNOCK ROAD ABERMAIN
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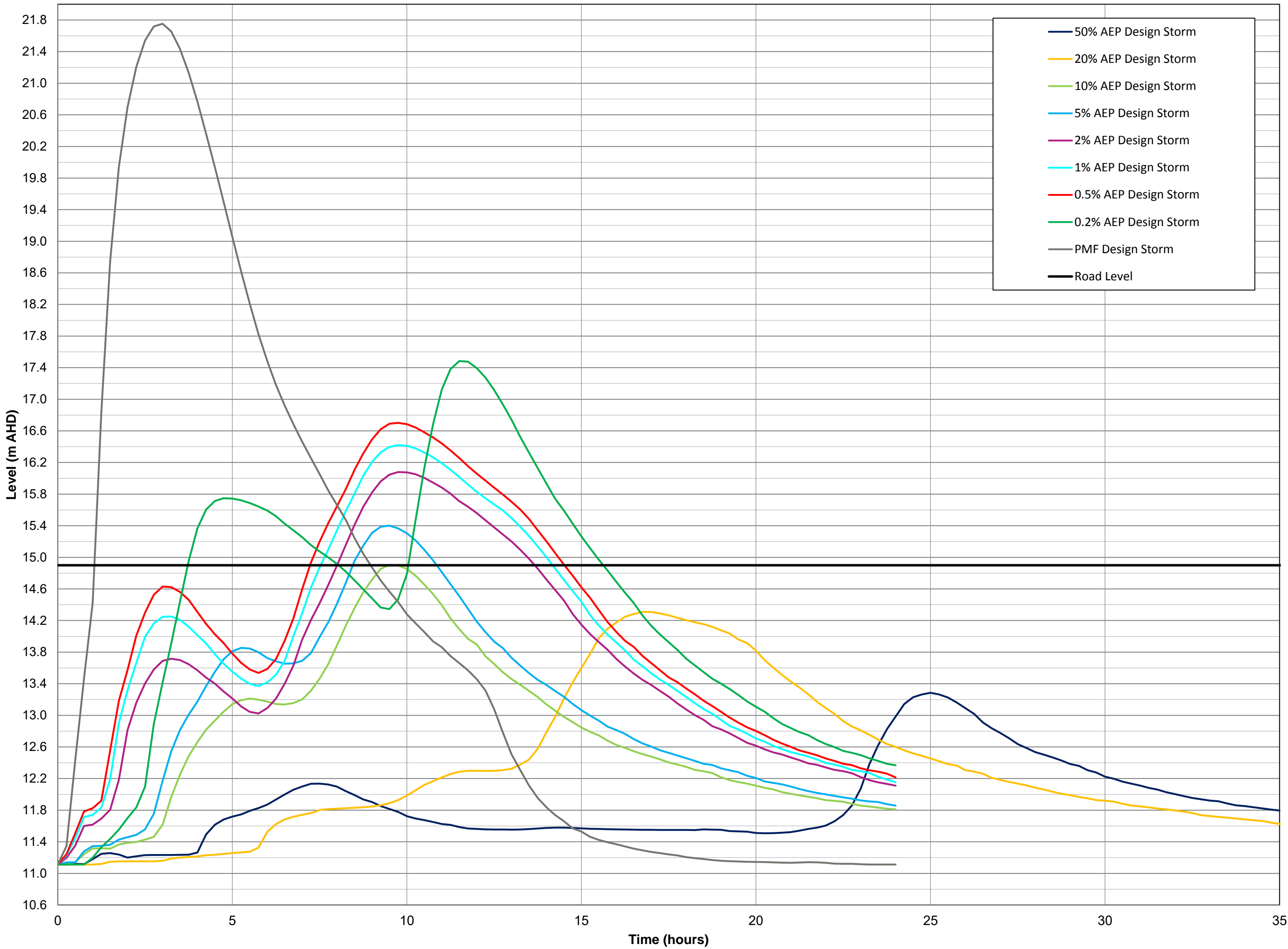


FIGURE E5
STAGE HYDROGRAPH
FOURTH STREET WESTON
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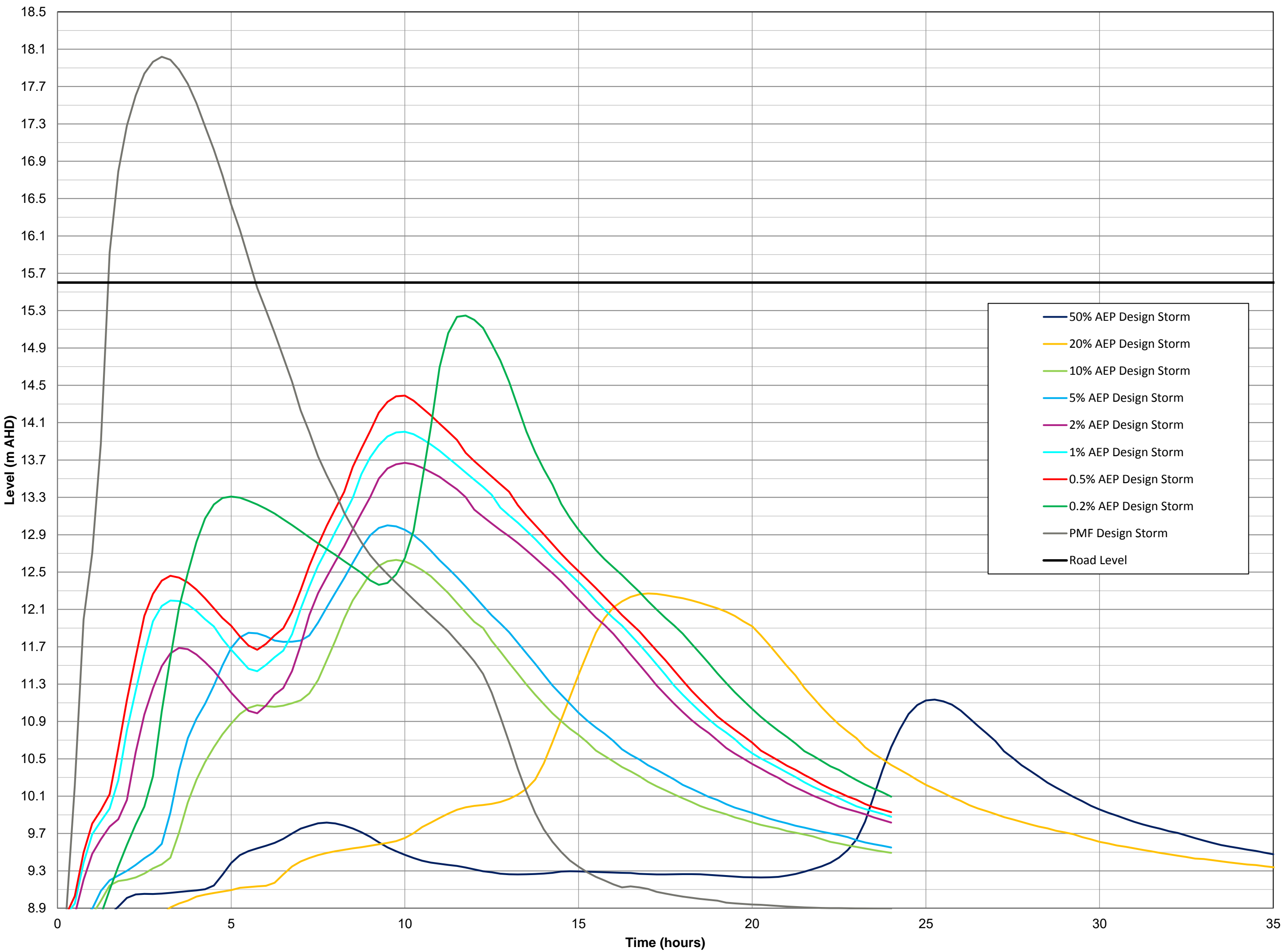


FIGURE E6
STAGE HYDROGRAPH
GOVERNMENT ROAD WESTON
DESIGN STORMS

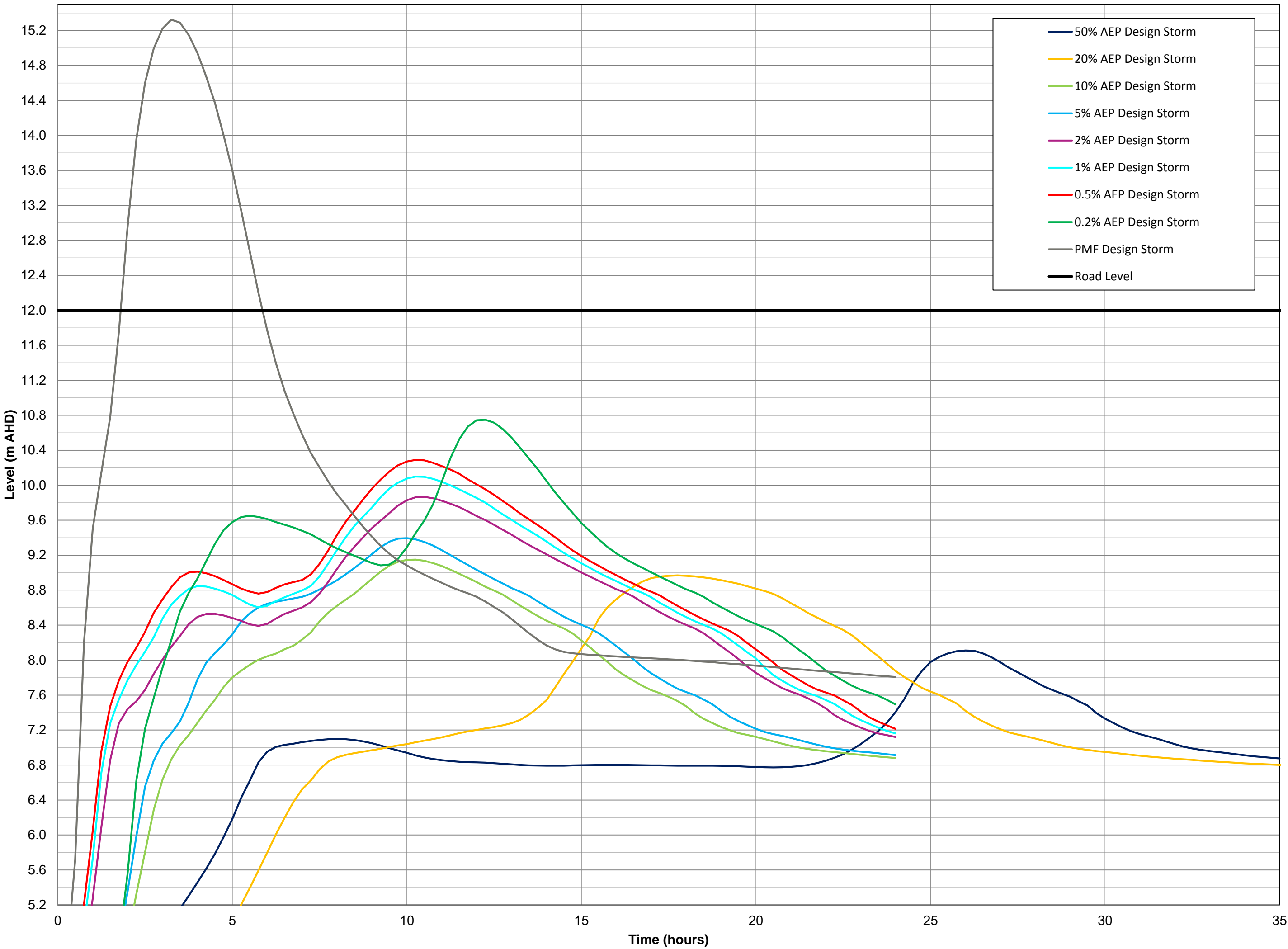


FIGURE E7
STAGE HYDROGRAPH
HUNTER EXPRESSWAY LOXFORD
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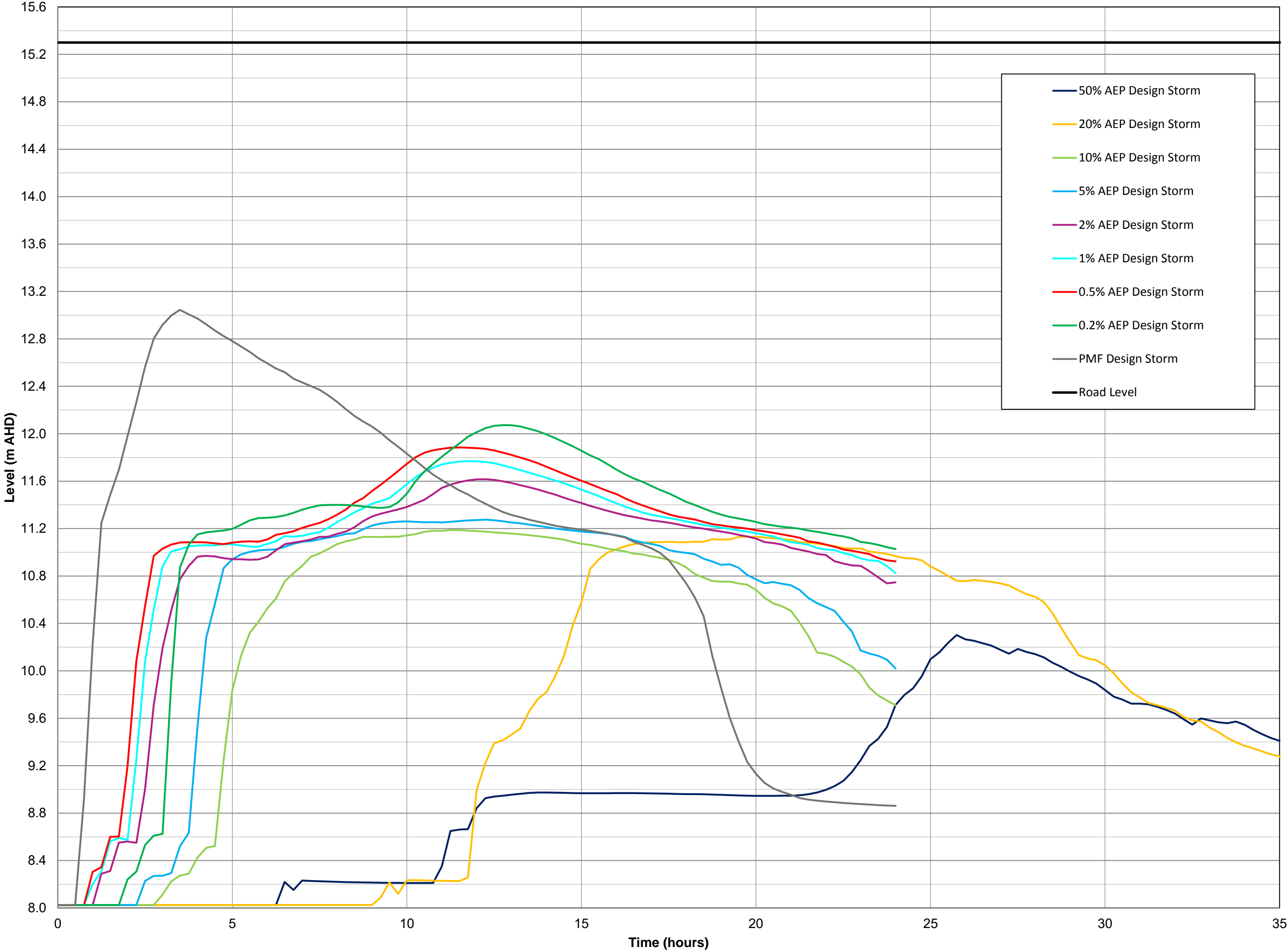


FIGURE E8
STAGE HYDROGRAPH
HUNTER EXPRESSWAY BUCHANAN
DESIGN STORMS

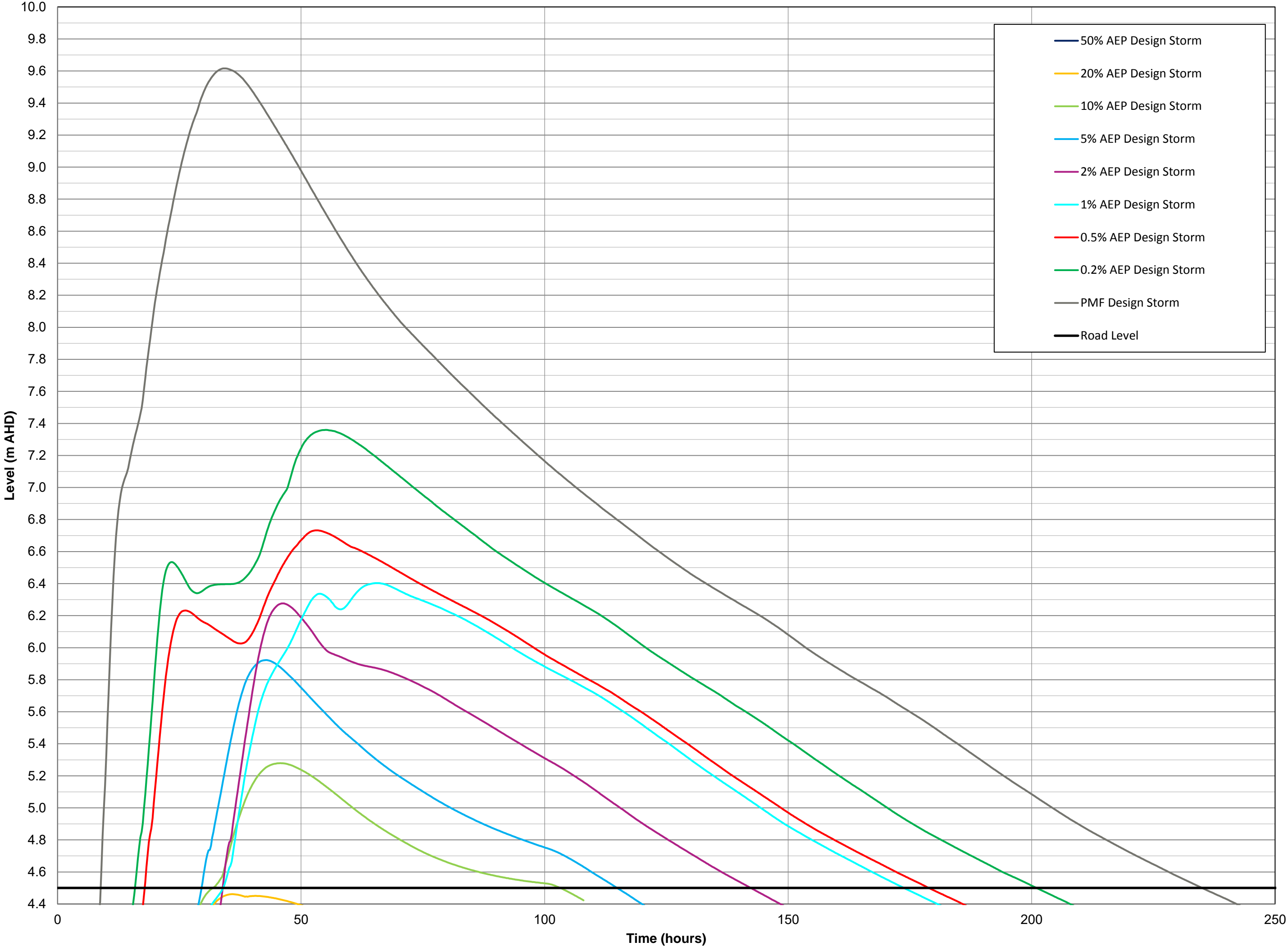


FIGURE E9
STAGE HYDROGRAPH
CESSNOCK ROAD TESTERS HOLLOW
DESIGN STORMS

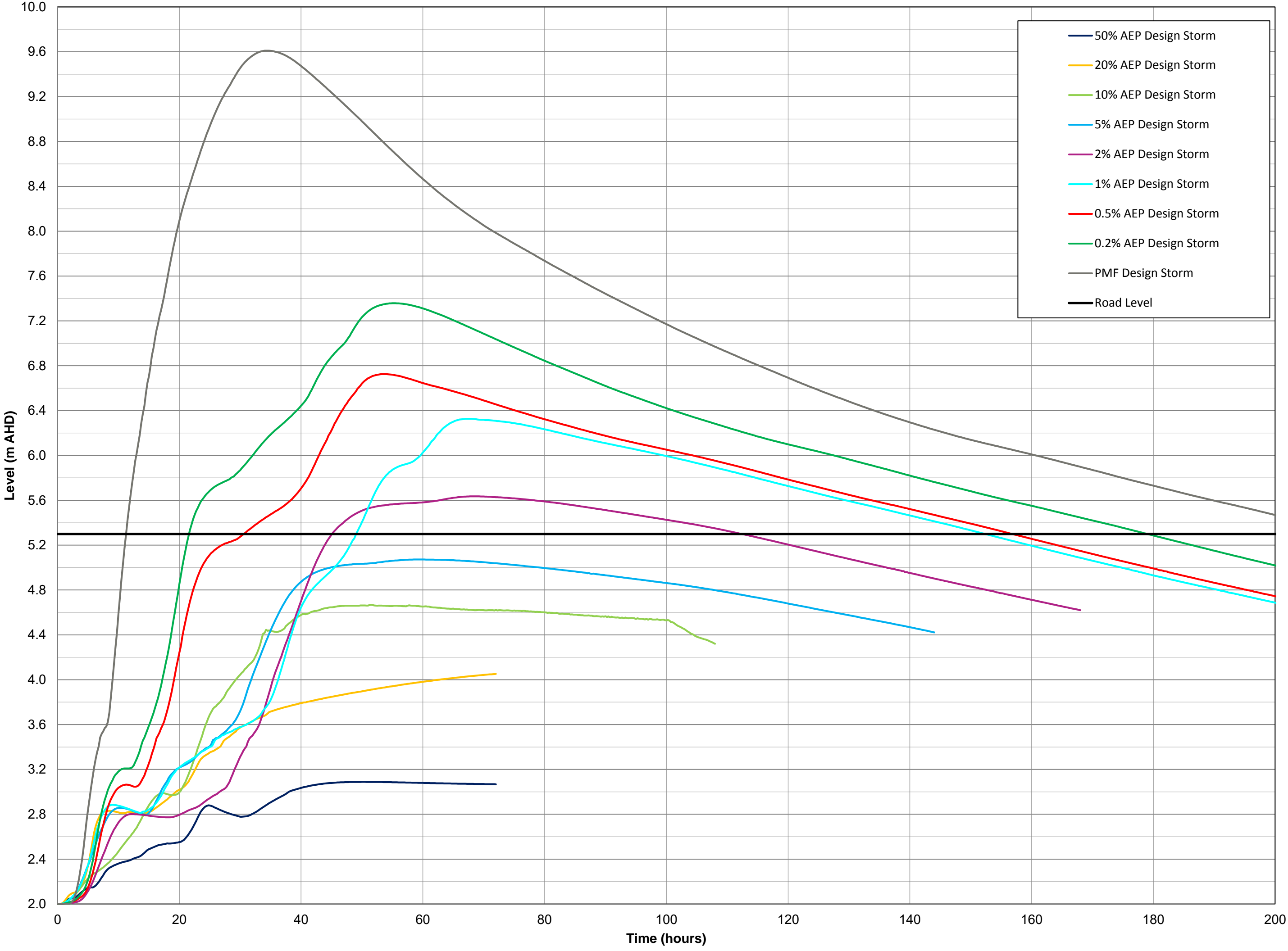


FIGURE E10
STAGE HYDROGRAPH
RAILWAY MOUNT DEE
DESIGN STORMS

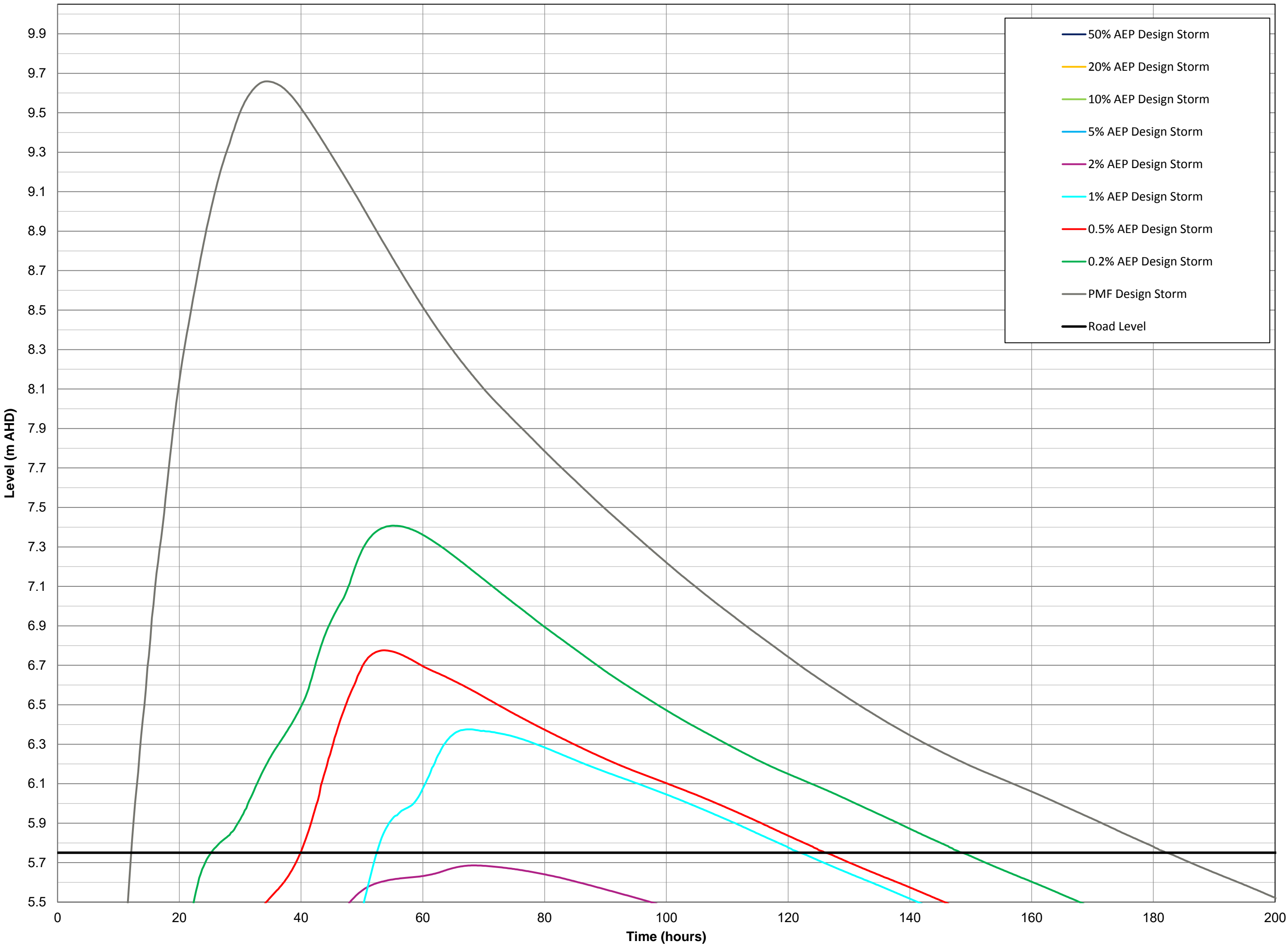


FIGURE E11
STAGE HYDROGRAPH
JUNCTION STREET TELARAH
DESIGN STORMS

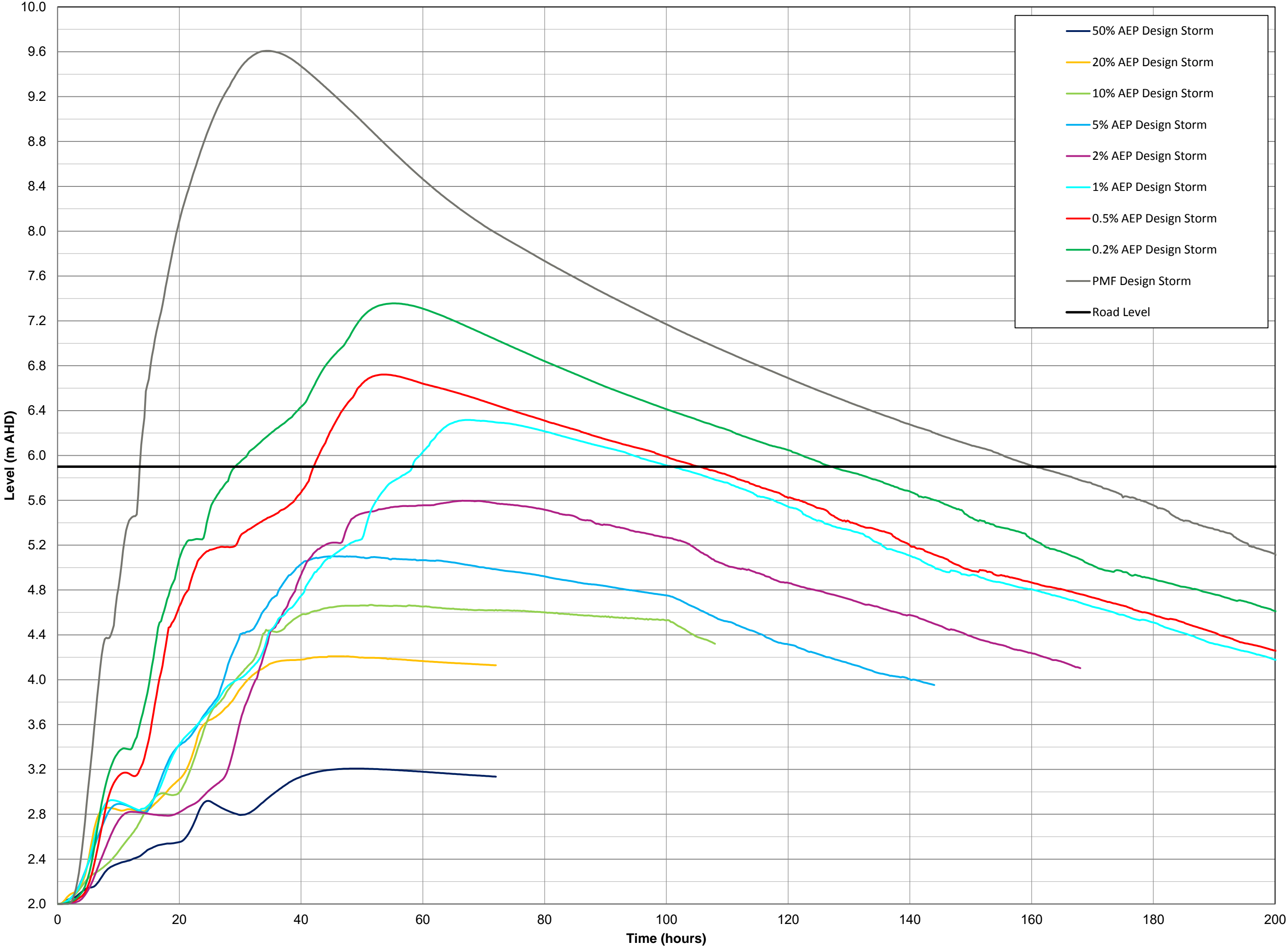


FIGURE E12
STAGE HYDROGRAPH
MOUNT DEE ROAD MAITLAND
DESIGN STORMS

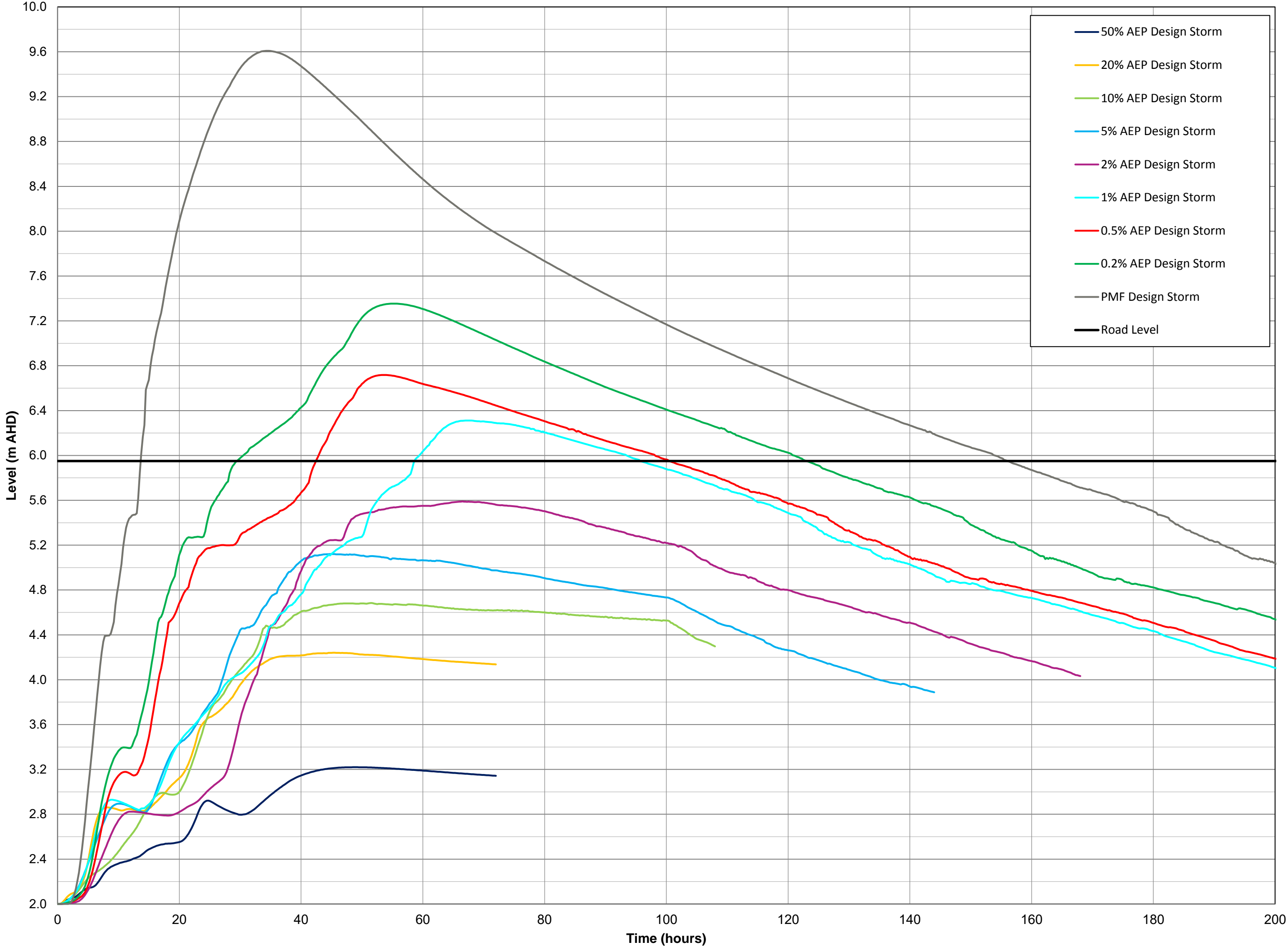


FIGURE E13
STAGE HYDROGRAPH
CESSNOCK ROAD MAITLAND
DESIGN STORMS

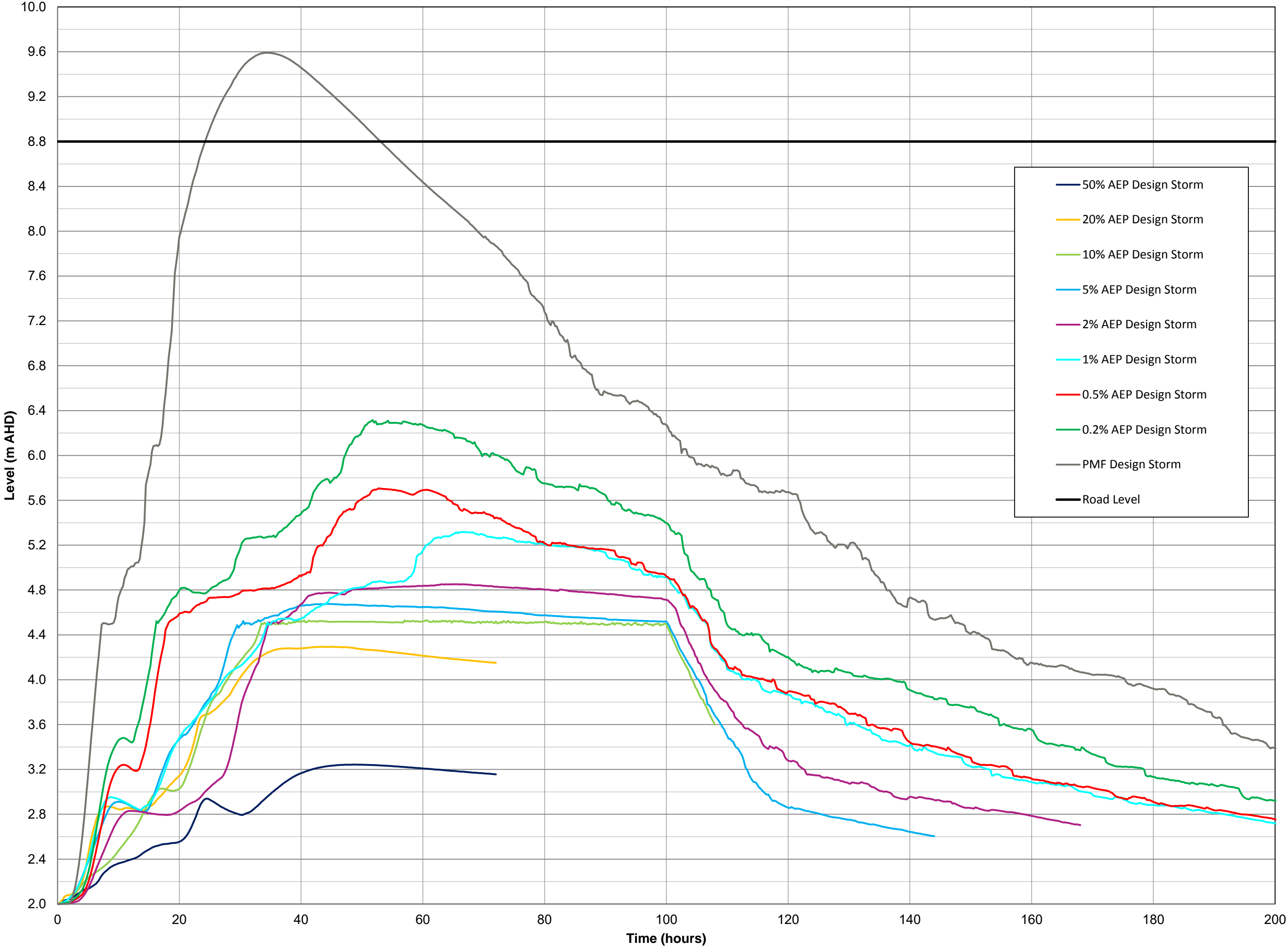


FIGURE E14
STAGE HYDROGRAPH
NEW ENGLAND HIGHWAY MAITLAND
DESIGN STORMS

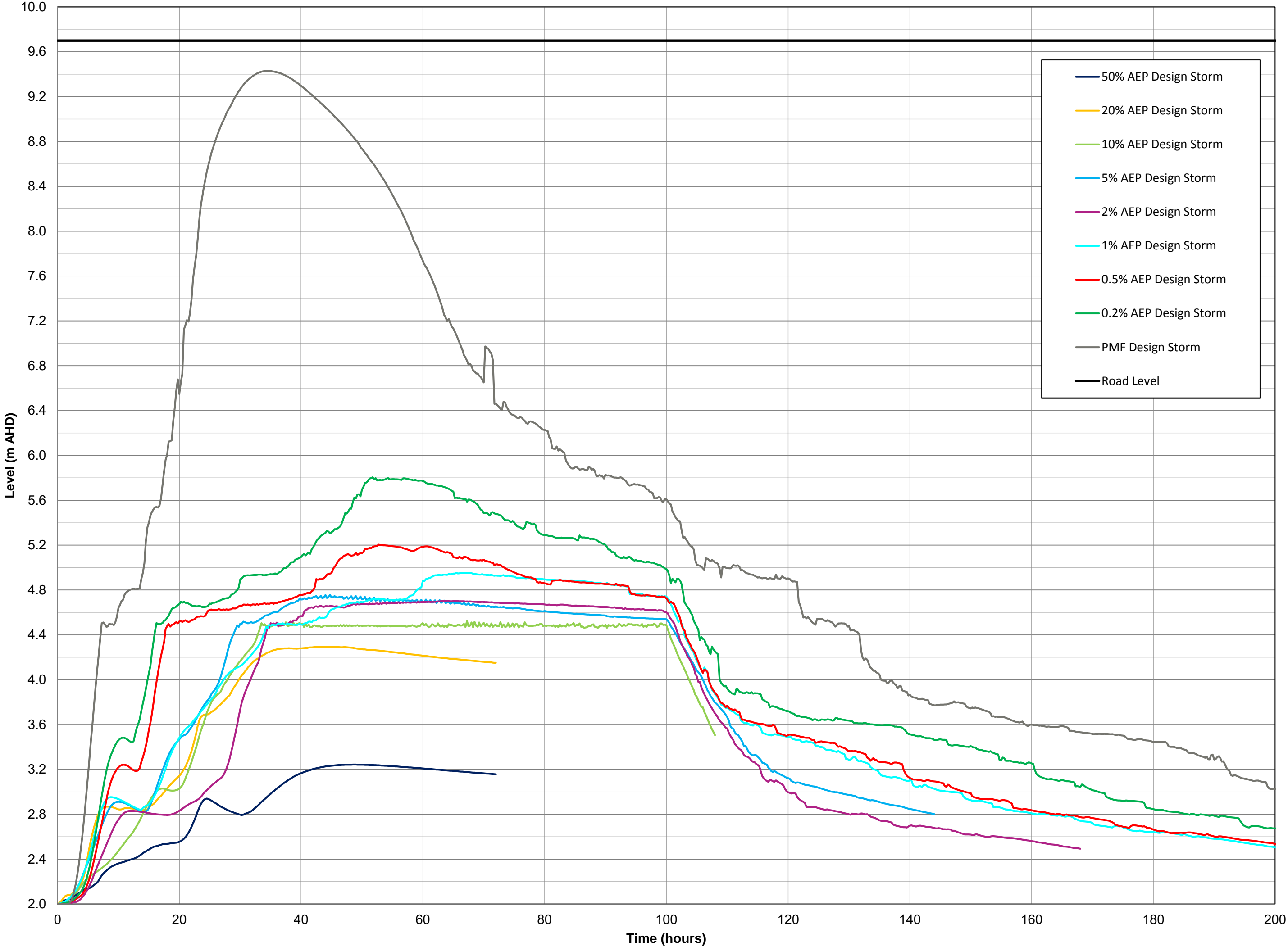


FIGURE E15
STAGE HYDROGRAPH
RAILWAY AT WALLIS CREEK
DESIGN STORMS

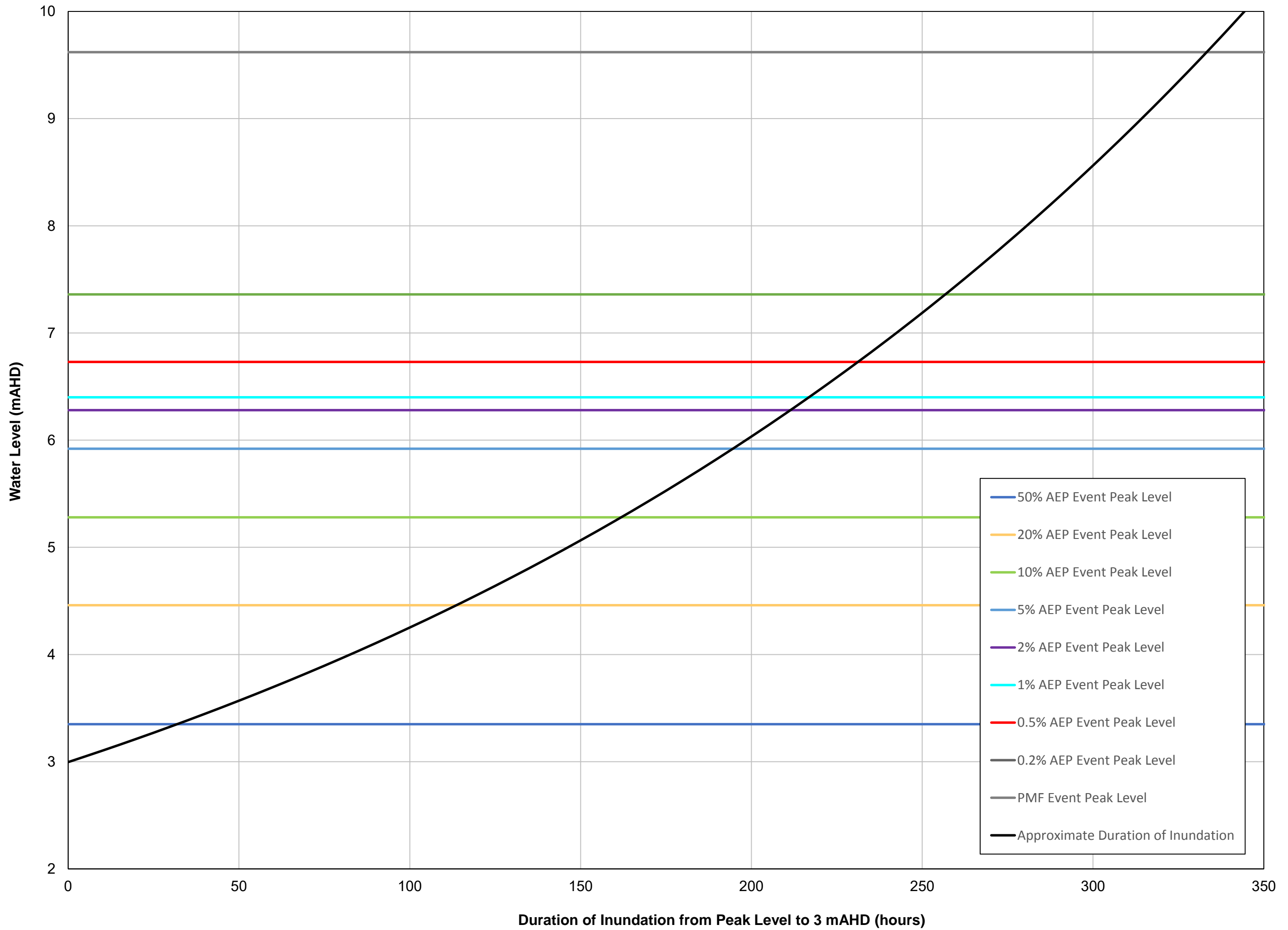


FIGURE E16
APPROXIMATE DURATION OF INUNDATION
LOWER STORAGE AREAS
AFTER FLOOD PEAKS TO RL 3 mAHD

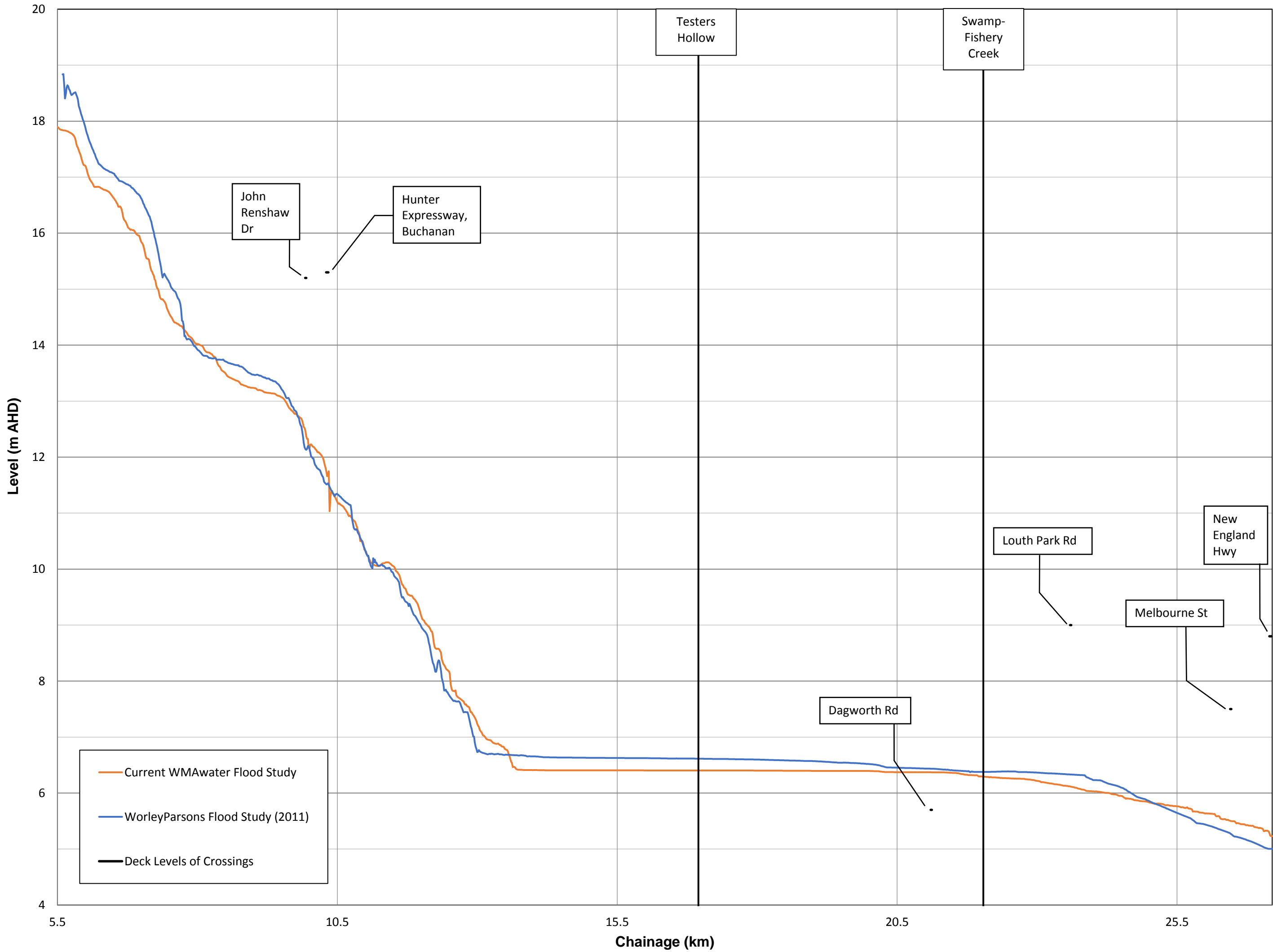


FIGURE E17
COMPARISON OF PEAK FLOOD LEVEL PROFILES
WALLIS CREEK
1% AEP FLOOD EVENT

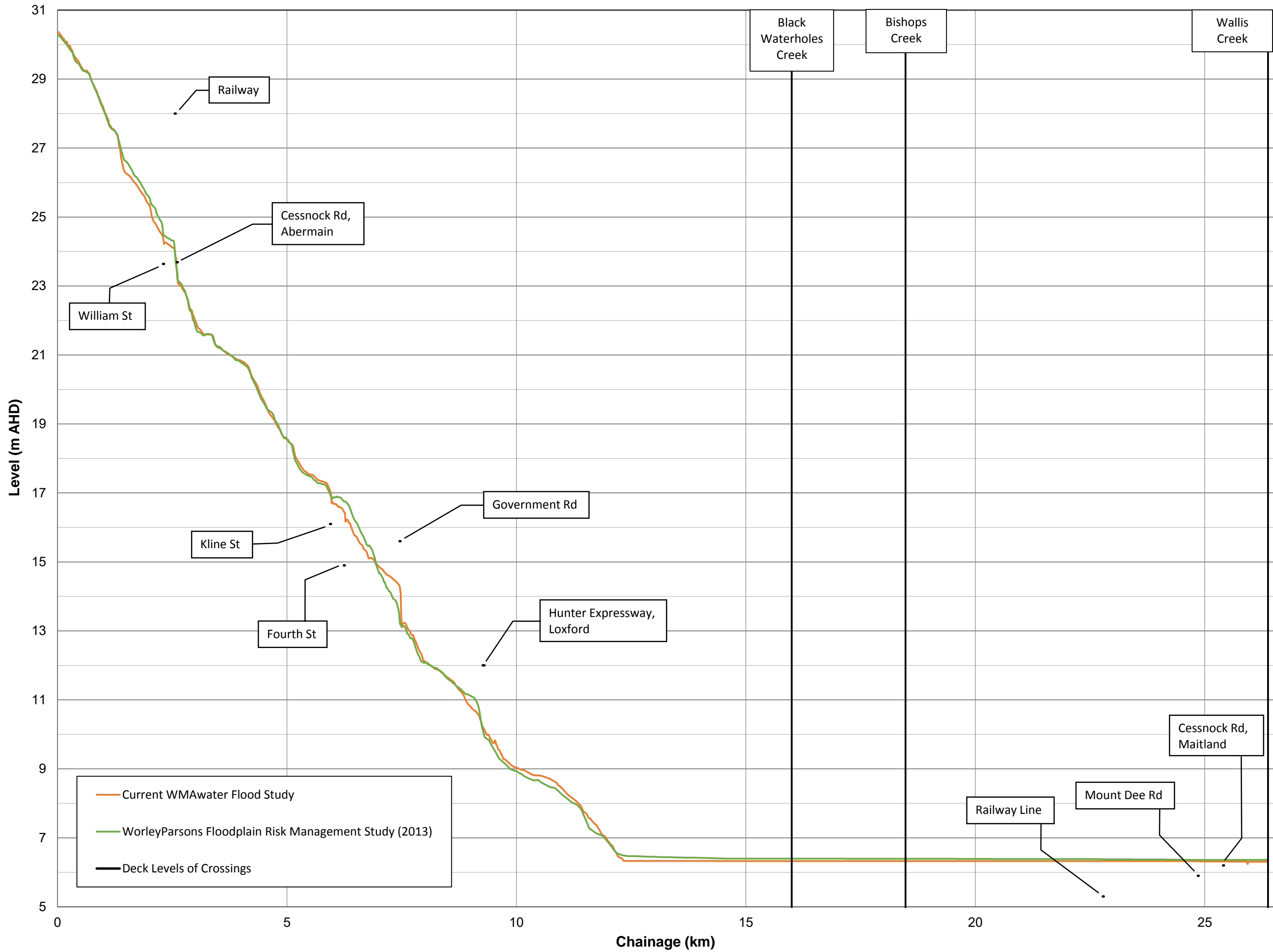


FIGURE E18
COMPARISON OF PEAK FLOOD LEVEL PROFILES
SWAMP-FISHERY CREEK
1% AEP FLOOD EVENT

APPENDIX F. SENSITIVITY ANALYSIS RESULTS

Table F1: Change in Peak Flood Levels for Sensitivity Analysis

Figure F1: Climate Change Sensitivity – 0.5% versus 1% AEP Event

Figure F2: Climate Change Sensitivity – 0.2% versus 1% AEP Event

Figure F3: Manning's 'n' Sensitivity – Increase by 20% for 1% AEP Event

Figure F4: Manning's 'n' Sensitivity – Decrease by 20% for 1% AEP Event

Figure F5: Blockage Sensitivity – 25% Blockage for 1% AEP Event

Figure F6: Blockage Sensitivity – 50% Blockage for 1% AEP Event



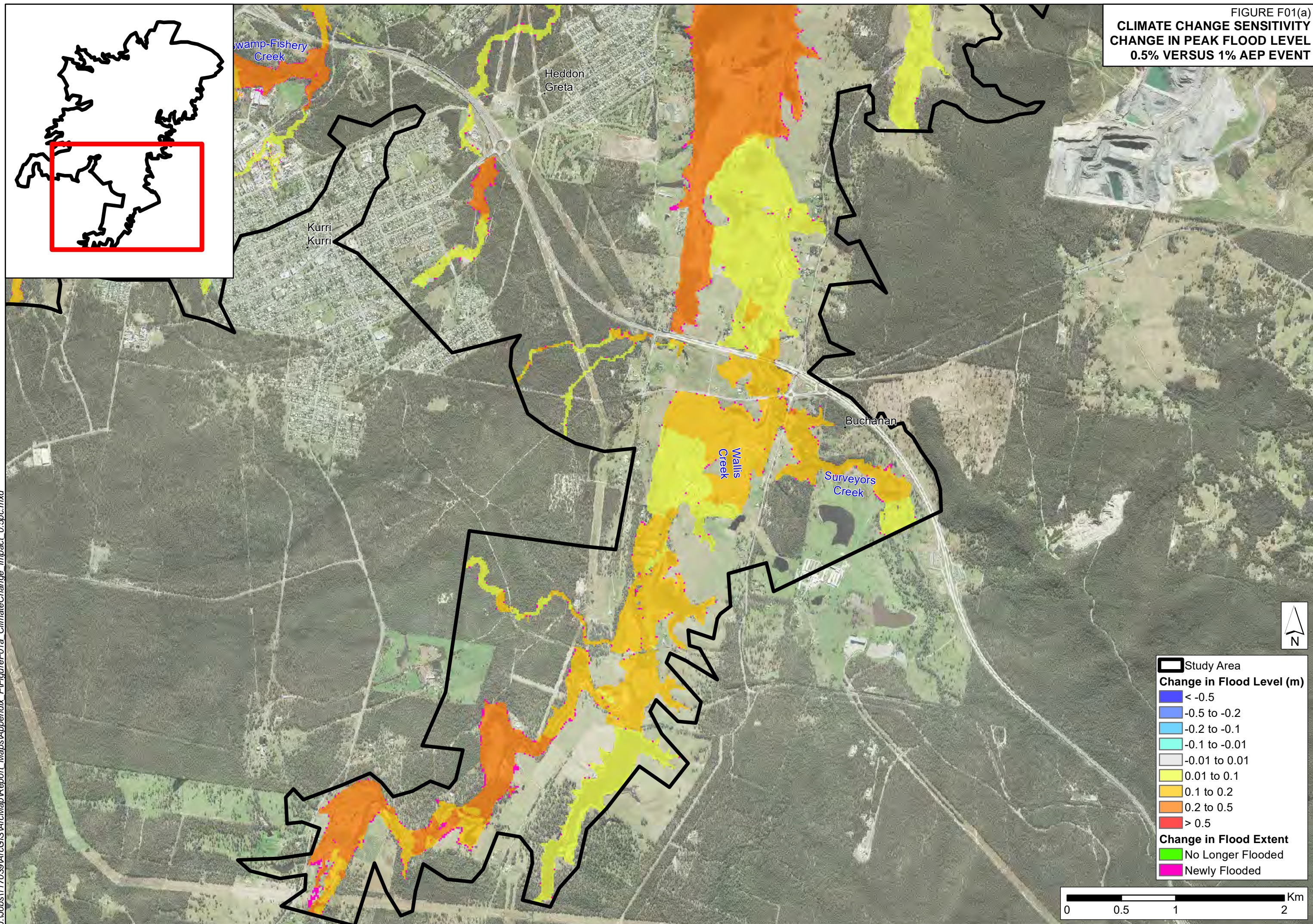
Table F1: Change in Peak Flood Levels for Sensitivity Analysis

ID	Location	1% AEP Sensitivity Run						
		1% AEP	0.5% AEP	0.2% AEP	1% AEP B25	1% AEP B50	1% AEP n+	1% AEP n-
L1	Ridley St	25.59	+0.18	+0.70	+0.03	+0.11	+0.18	-0.19
L2	William St	24.40	+0.27	+0.92	+0.25	+0.63	+0.17	-0.19
L3	Cessnock Rd, Abermain	23.39	+0.34	+0.81	+0.40	+0.82	+0.27	-0.31
L4	Rawson St	NF	NF	NF	NF	NF	NF	NF
L5	Cessnock Rd, Weston	17.62	+0.23	+0.91	+0.06	+0.21	+0.17	-0.15
L6	Kline St	16.97	+0.27	+0.98	+0.16	+0.45	+0.20	-0.15
L7	Fourth St	16.42	+0.28	+1.07	+0.14	+0.39	+0.23	-0.20
L8	Government Rd	14.00	+0.39	+1.25	+0.87	+1.72	+0.16	-0.11
L9	Hunter Expy, Loxford	10.10	+0.19	+0.65	+0.07	+0.31	+0.18	-0.18
L10	Boundary St	NF	NF	NF	NF	NF	NF	NF
L11	Alexandra St	18.61	+0.02	+0.18	+0.05	+0.12	+0.01	-0.01
L12	Wermol St	16.04	+0.05	+0.32	-0.02	-0.05	+0.04	-0.04
L13	Mitchell Ave West	15.34	+0.05	+0.27	+0.03	+0.06	+0.03	-0.02
L14	East Mitchell Ave East	16.10	+0.01	+0.03	+0.00	+0.00	+0.00	-0.00
L15	Hunter Expy near Bishops Bridge Rd	NF	NF	NF	NF	NF	NF	NF
L16	Hunter Expy near Graham Ln	NF	NF	NF	NF	NF	NF	NF
L17	Heddon St	21.24	+0.02	+0.14	0.00	0.00	+0.02	-0.03
L18	Main Rd	NF	NF	NF	NF	NF	NF	NF
L19	Hunter Expy, Kurri Kurri	NF	NF	NF	NF	NF	NF	NF
L20	Richmond Vale Rd	18.11	+0.12	+0.46	-0.00	-0.00	+0.08	-0.08
L21	George Booth Dr	12.81	+0.20	+0.55	+0.10	+0.39	+0.12	-0.11
L22	John Renshaw Dr West	NF	NF	NF	NF	NF	NF	NF
L23	John Renshaw Dr East	12.53	+0.16	+0.48	+0.13	+0.49	+0.12	-0.11
L24	Hunter Expy West, Buchanan	NF	NF	NF	NF	NF	NF	NF

ID	Location	1% AEP Sensitivity Run						
		1% AEP	0.5% AEP	0.2% AEP	1% AEP B25	1% AEP B50	1% AEP n+	1% AEP n-
L25	Hunter Expy East, Buchanan	11.77	+0.12	+0.31	+0.07	+0.37	+0.08	-0.09
L26	Buchanan Rd	11.44	+0.03	+0.11	0.00	0.00	+0.01	-0.01
L27	Cessnock Rd, Testers Hollow	6.40	+0.33	+0.96	+0.00	+0.01	+0.03	-0.03
L28	Railway, Gillieston	6.33	+0.40	+1.03	+0.00	+0.01	+0.01	-0.01
L29	Railway, Mount Dee	6.33	+0.40	+1.03	+0.00	+0.01	+0.01	-0.01
L30	Junction St	6.33	+0.40	+1.03	+0.00	+0.01	+0.01	-0.02
L31	Mount Dee Rd	6.32	+0.40	+1.04	+0.00	+0.01	+0.01	-0.01
L32	Cessnock Rd, Maitland	6.31	+0.41	+1.04	+0.01	+0.01	+0.01	-0.02
L33	Telarah Lagoon	6.31	+0.43	+1.06	+0.01	+0.03	+0.02	-0.02
L34	Railway, Steam St	6.32	+0.41	+1.04	+0.01	+0.02	+0.03	-0.16
L35	Louth Park Rd	6.12	+0.57	+1.23	+0.01	+0.07	+0.03	-0.06
L36	High St, Maitland	5.63	+0.62	+1.72	0.00	0.00	0.00	0.00
L37	Melbourne St	5.51	+0.43	+1.34	+0.08	+0.24	+0.01	-0.01
L38	New England Hwy, Maitland	5.32	+0.39	+0.99	+0.06	+0.26	-0.00	+0.00
L39	High St, East Maitland	5.19	+0.34	+1.01	+0.03	+0.12	+0.00	+0.01
L40	Railway, Wallis Creek	4.95	+0.25	+0.85	+0.03	+0.11	-0.00	+0.02
L41	Wallis Creek Floodgates	NF	NF	NF	NF	NF	NF	NF
L42	Railway at Wollombi Rd	NF	NF	NF	NF	NF	NF	NF

- Notes:
- 0.5% and 0.2% AEP events are used as proxies for increase in rainfall intensity due to climate change for the 1% AEP event.
 - B25 and B50 are sensitivity runs with 25% blockage and 50% blockage scenarios, respectively
 - n+ and n- are sensitivity runs with 20% increase and 20% decrease in Mannings n, respectively

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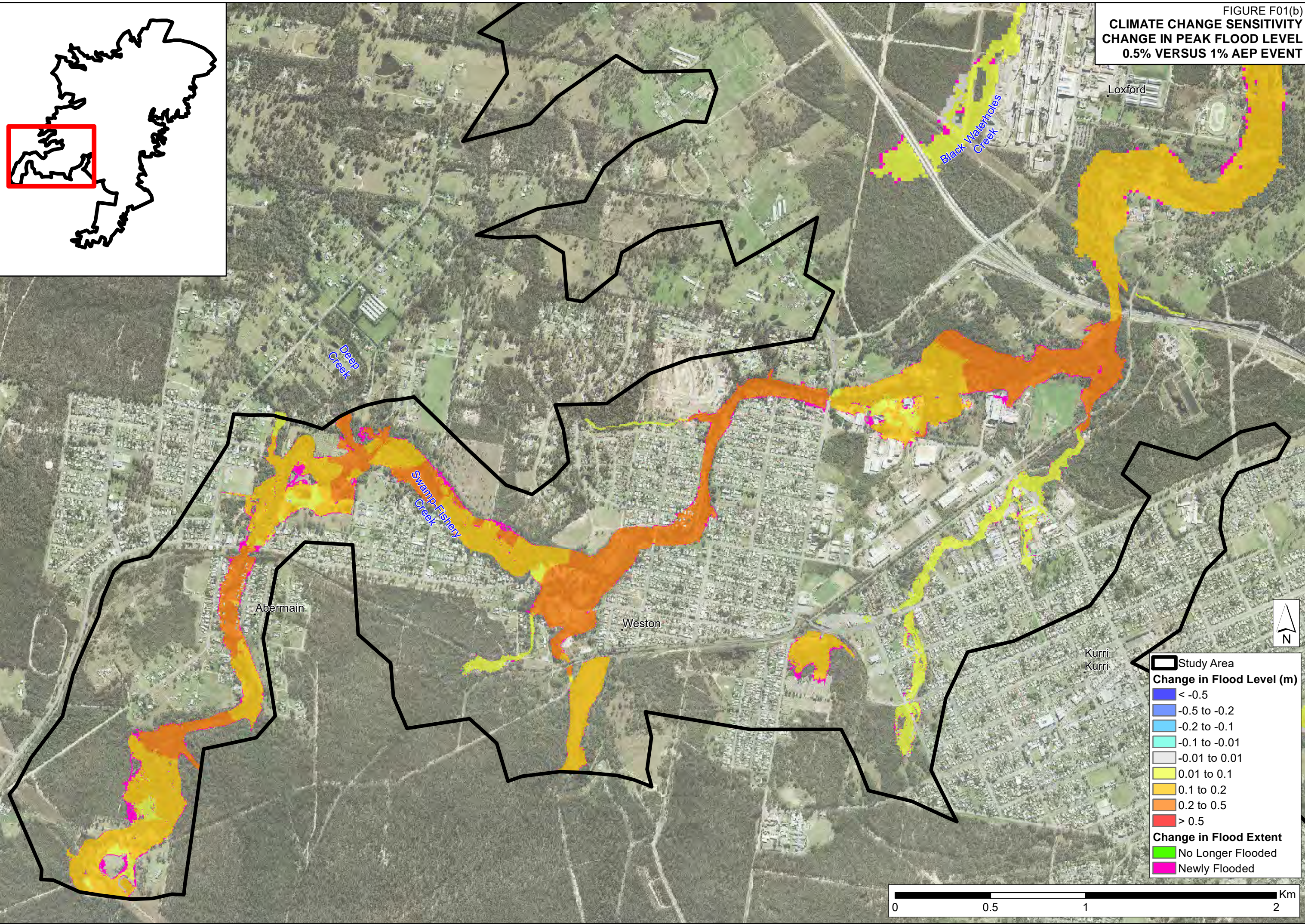
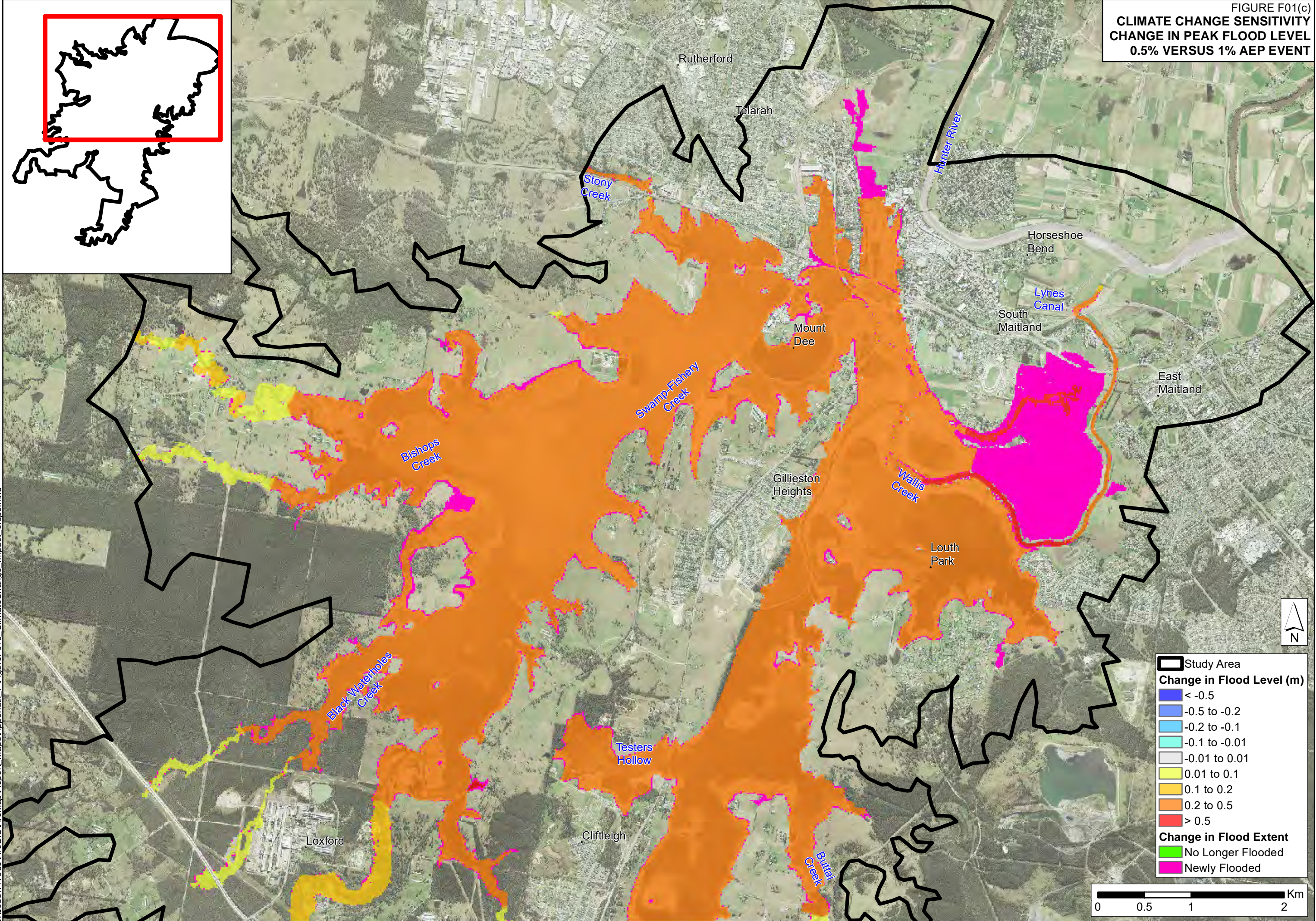
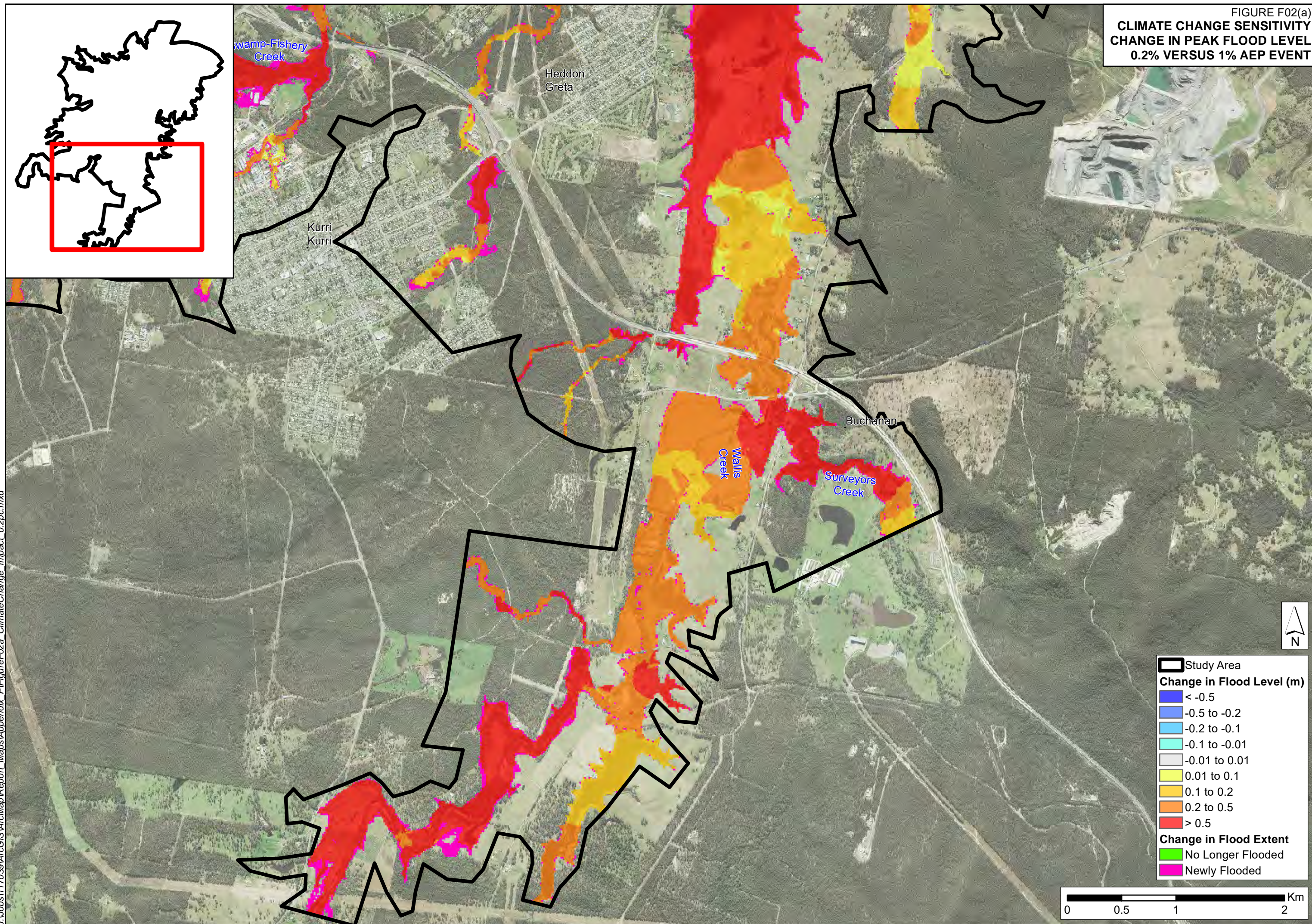


FIGURE F01(b)
CLIMATE CHANGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
0.5% VERSUS 1% AEP EVENT

FIGURE F01(c)
CLIMATE CHANGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
0.5% VERSUS 1% AEP EVENT





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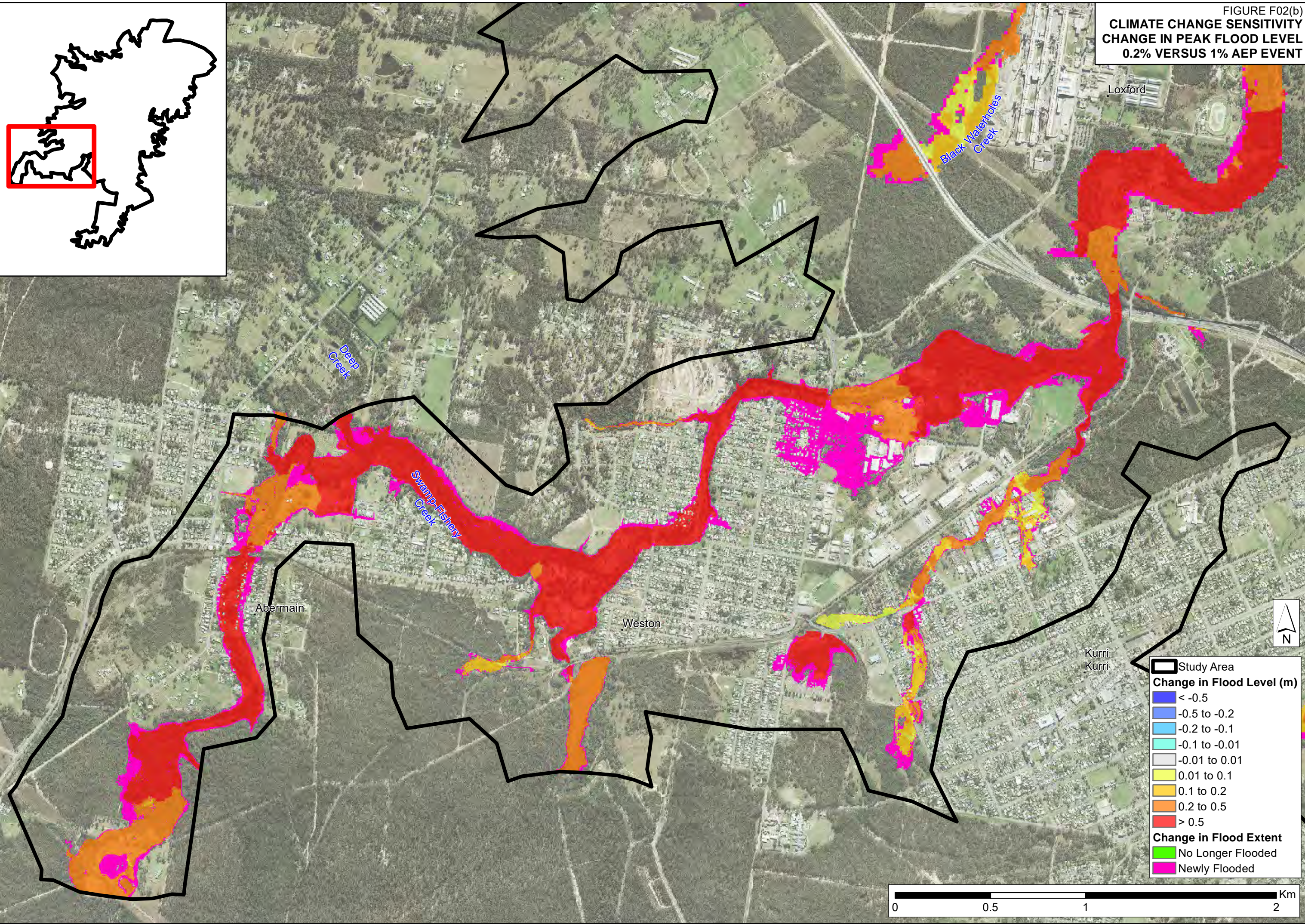


FIGURE F02(b)
CLIMATE CHANGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
0.2% VERSUS 1% AEP EVENT

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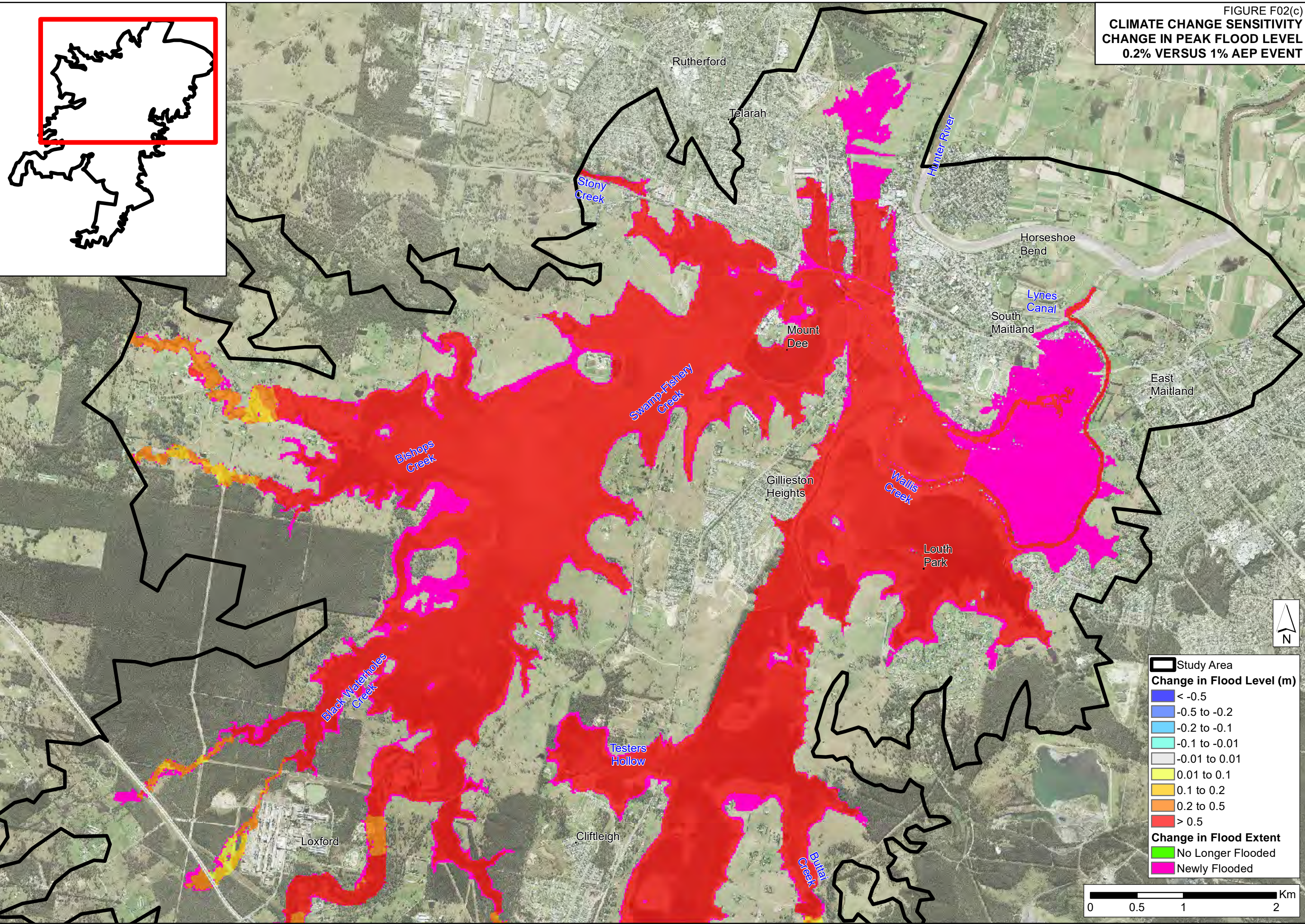
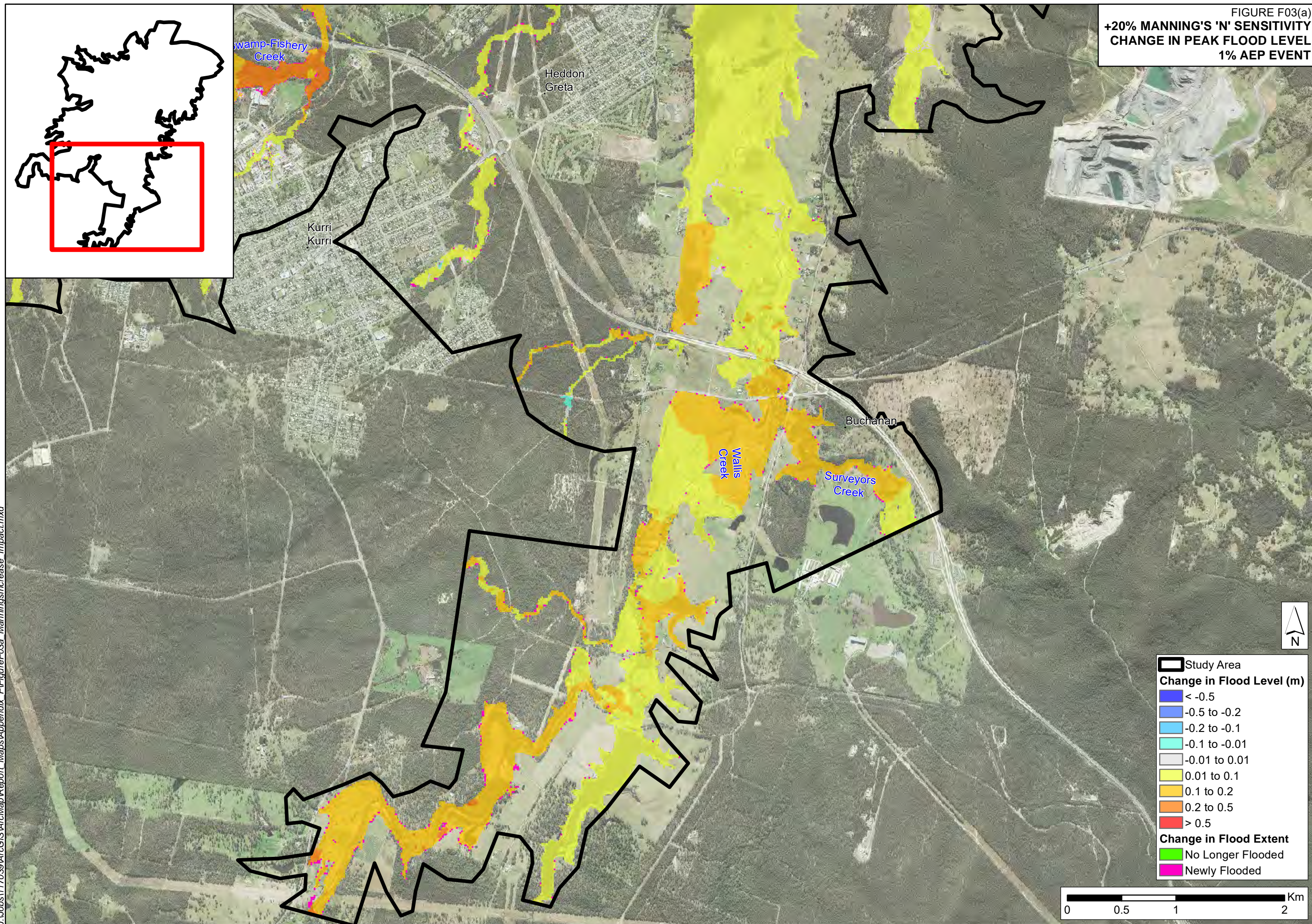


FIGURE F02(c)
CLIMATE CHANGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
0.2% VERSUS 1% AEP EVENT



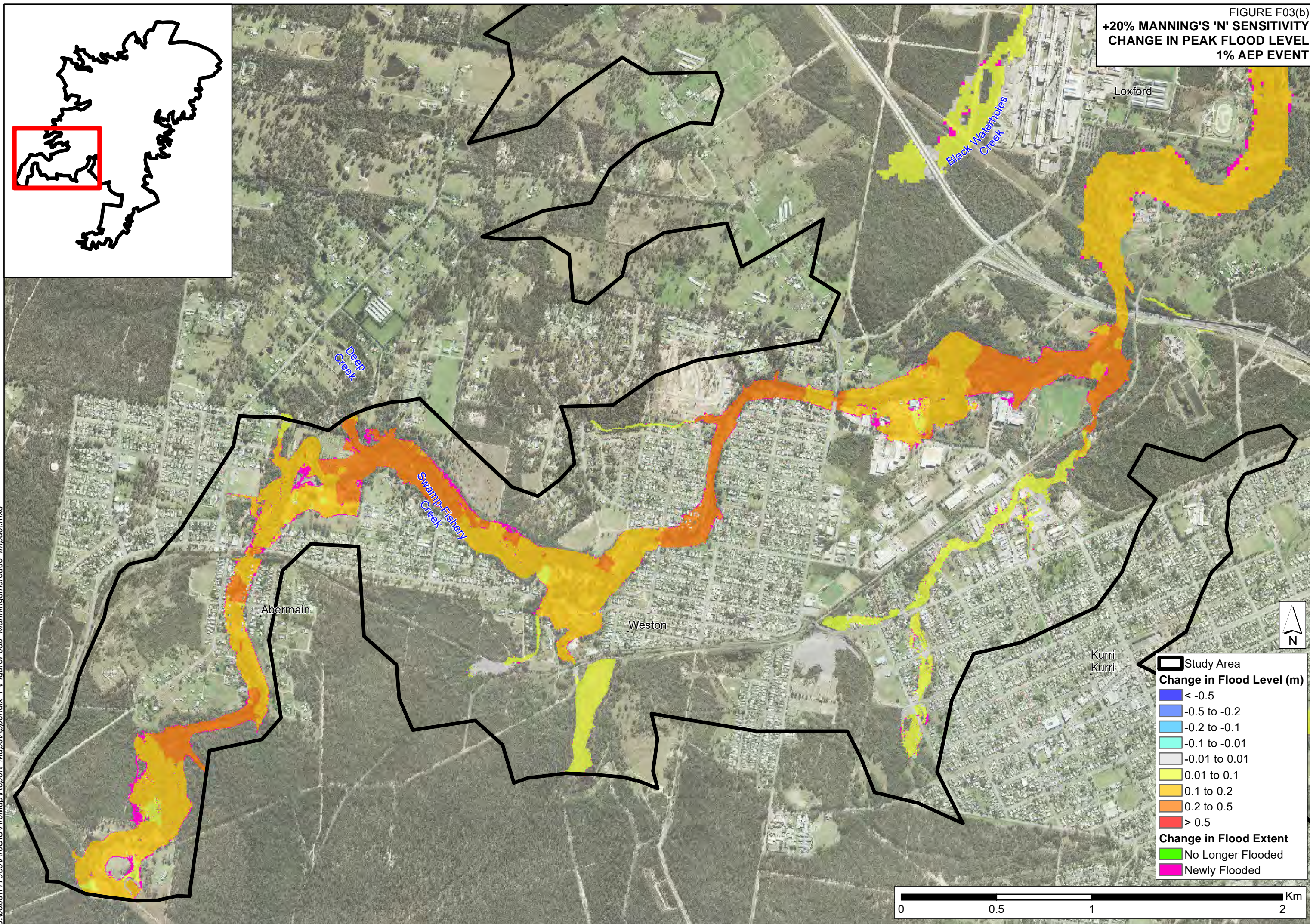
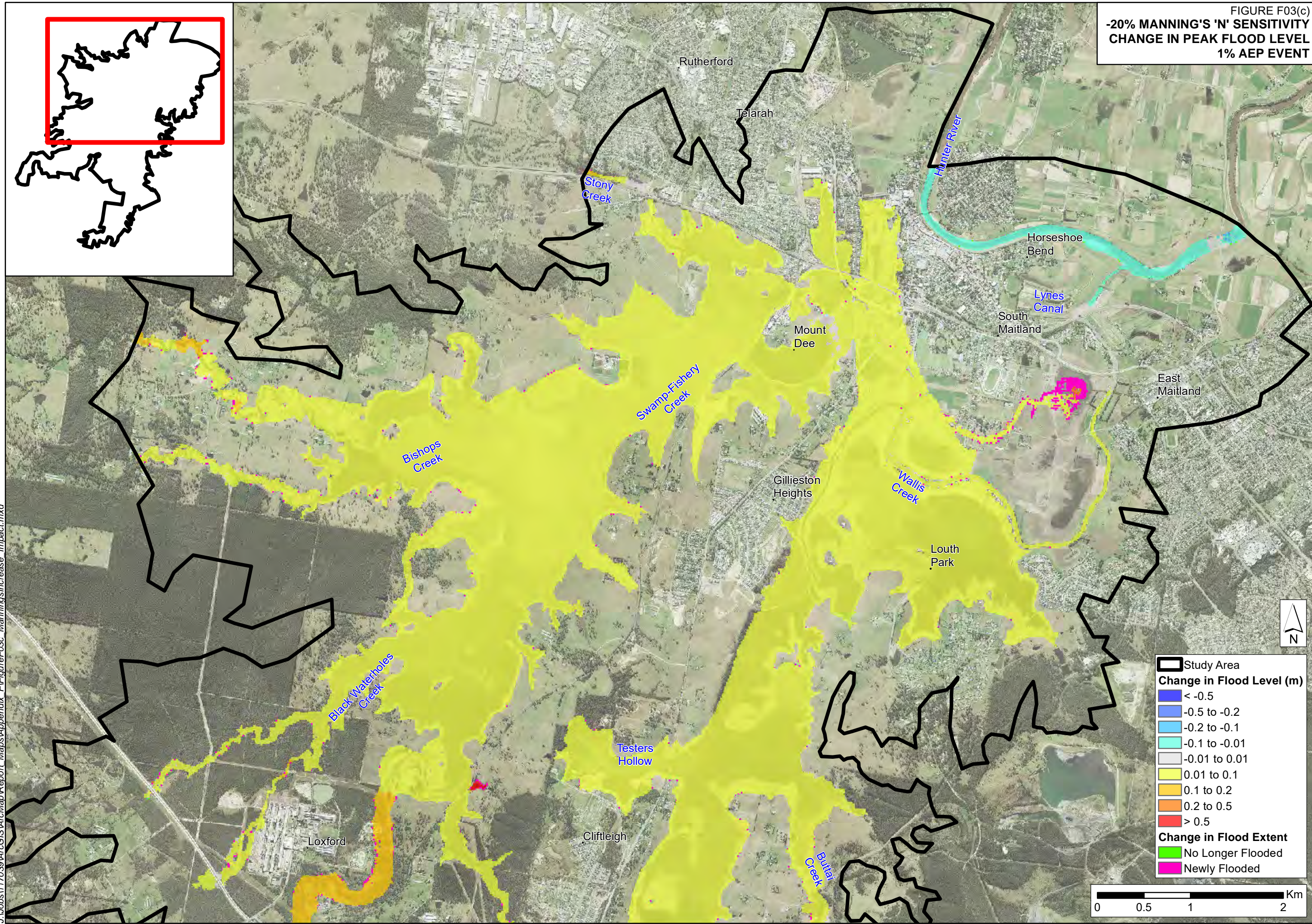
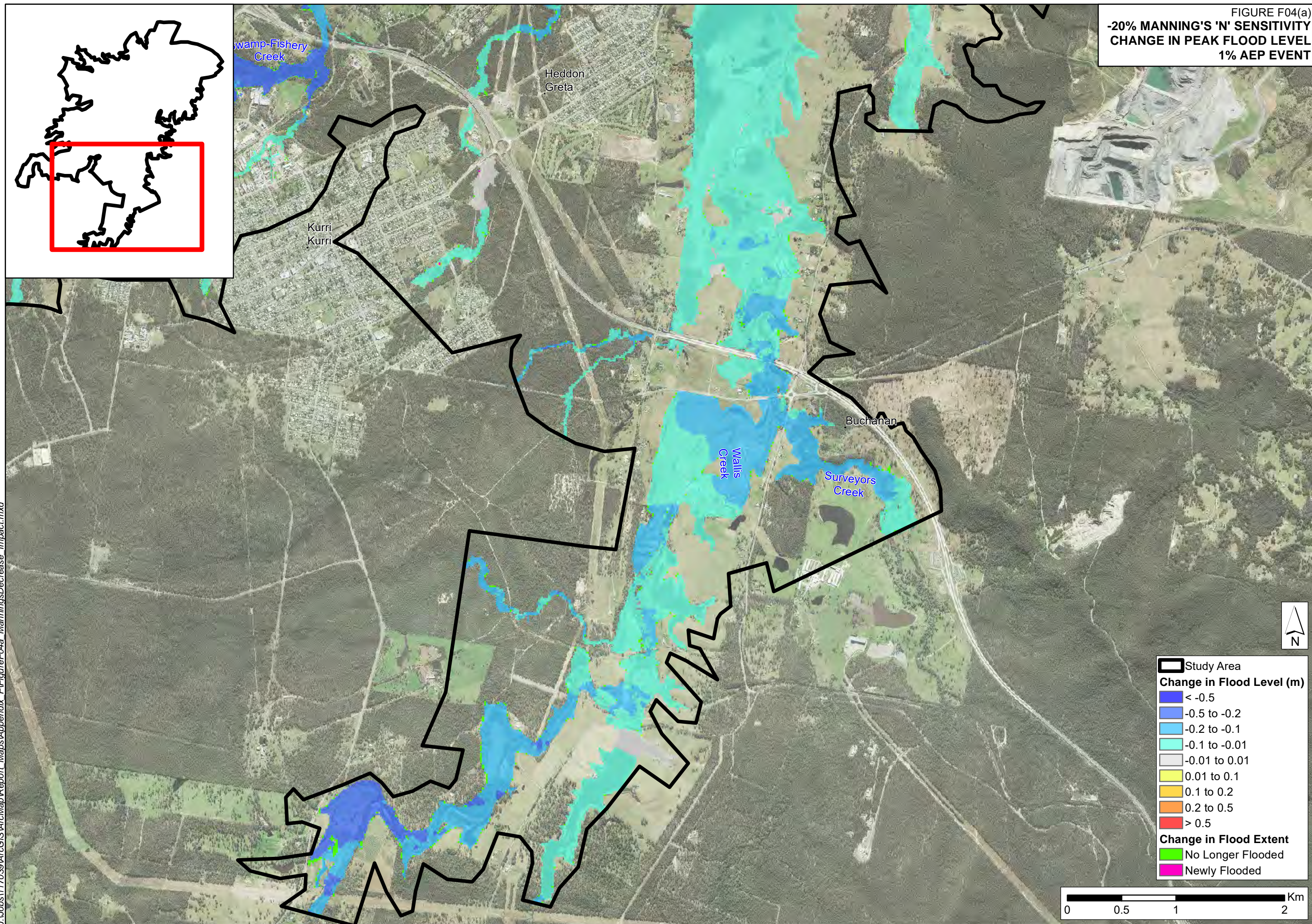
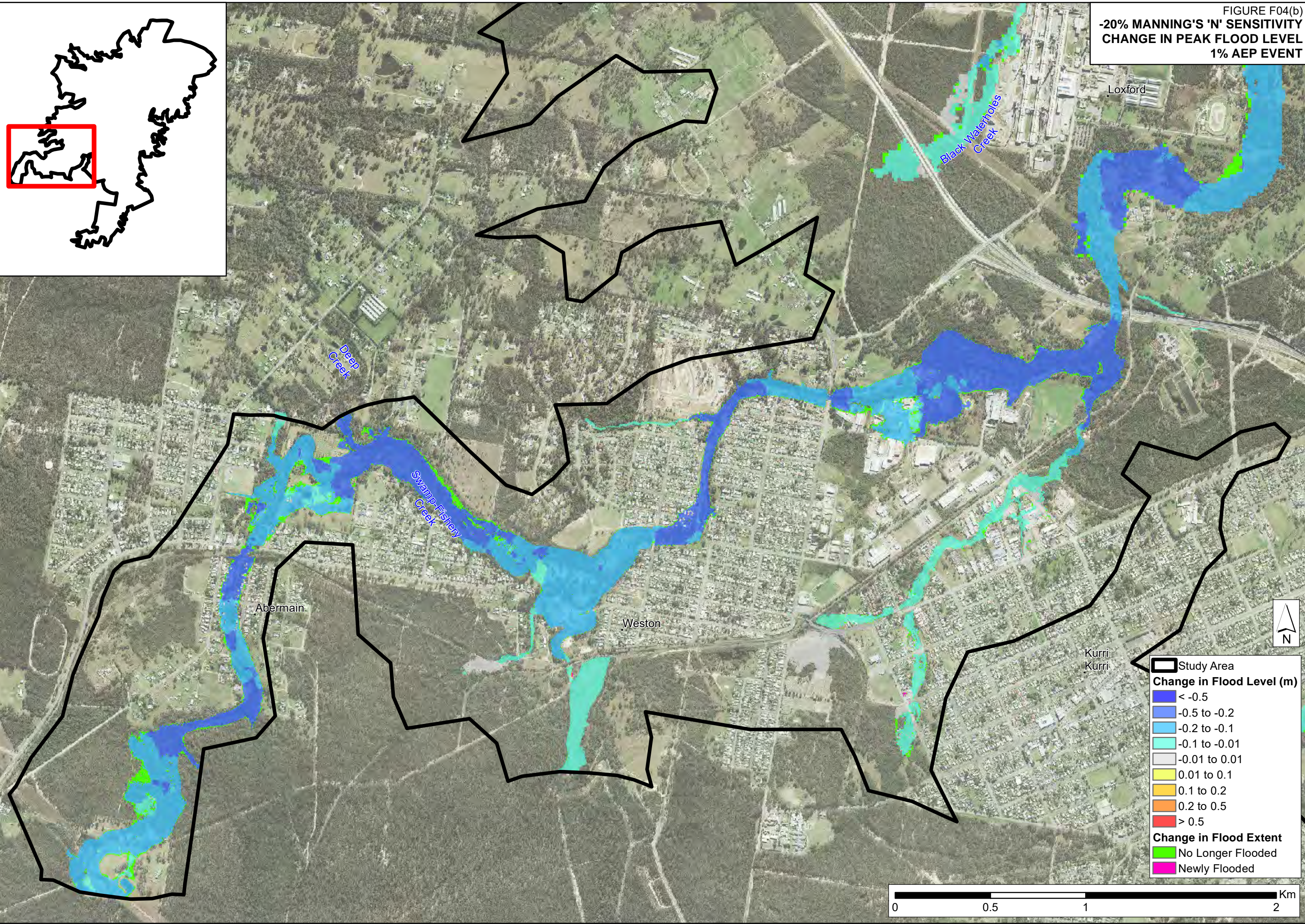


FIGURE F03(c)
-20% MANNING'S 'N' SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
1% AEP EVENT

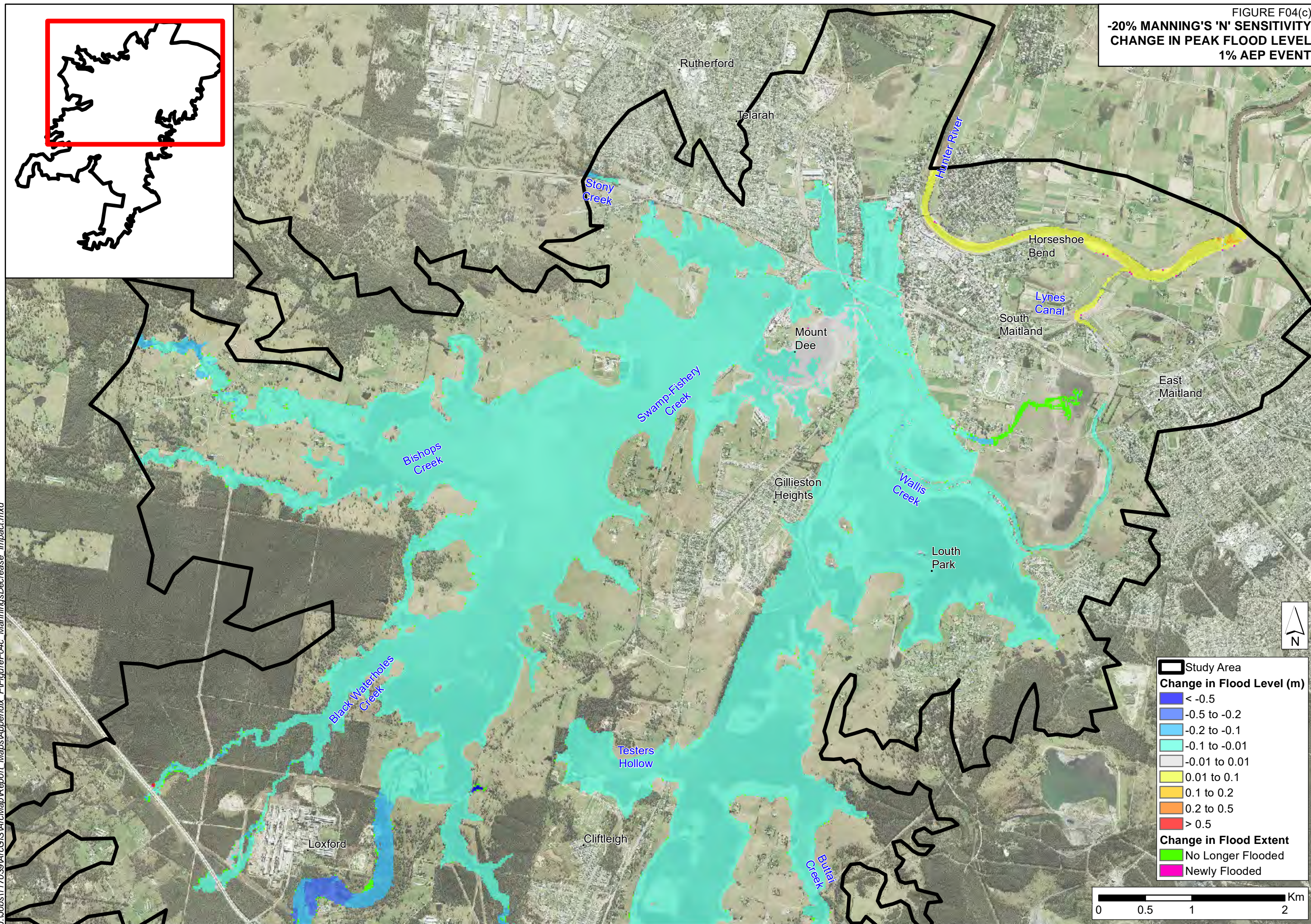




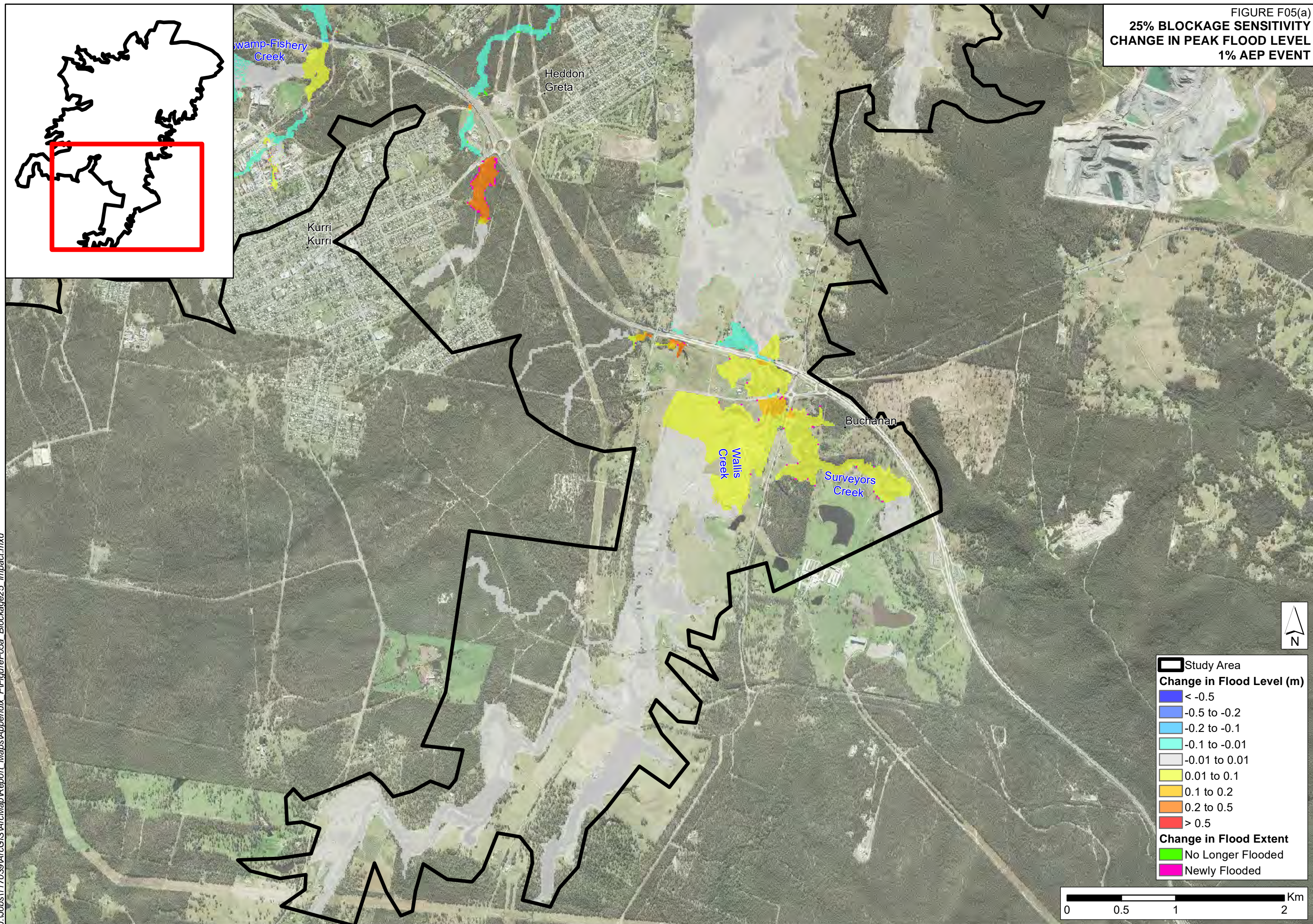
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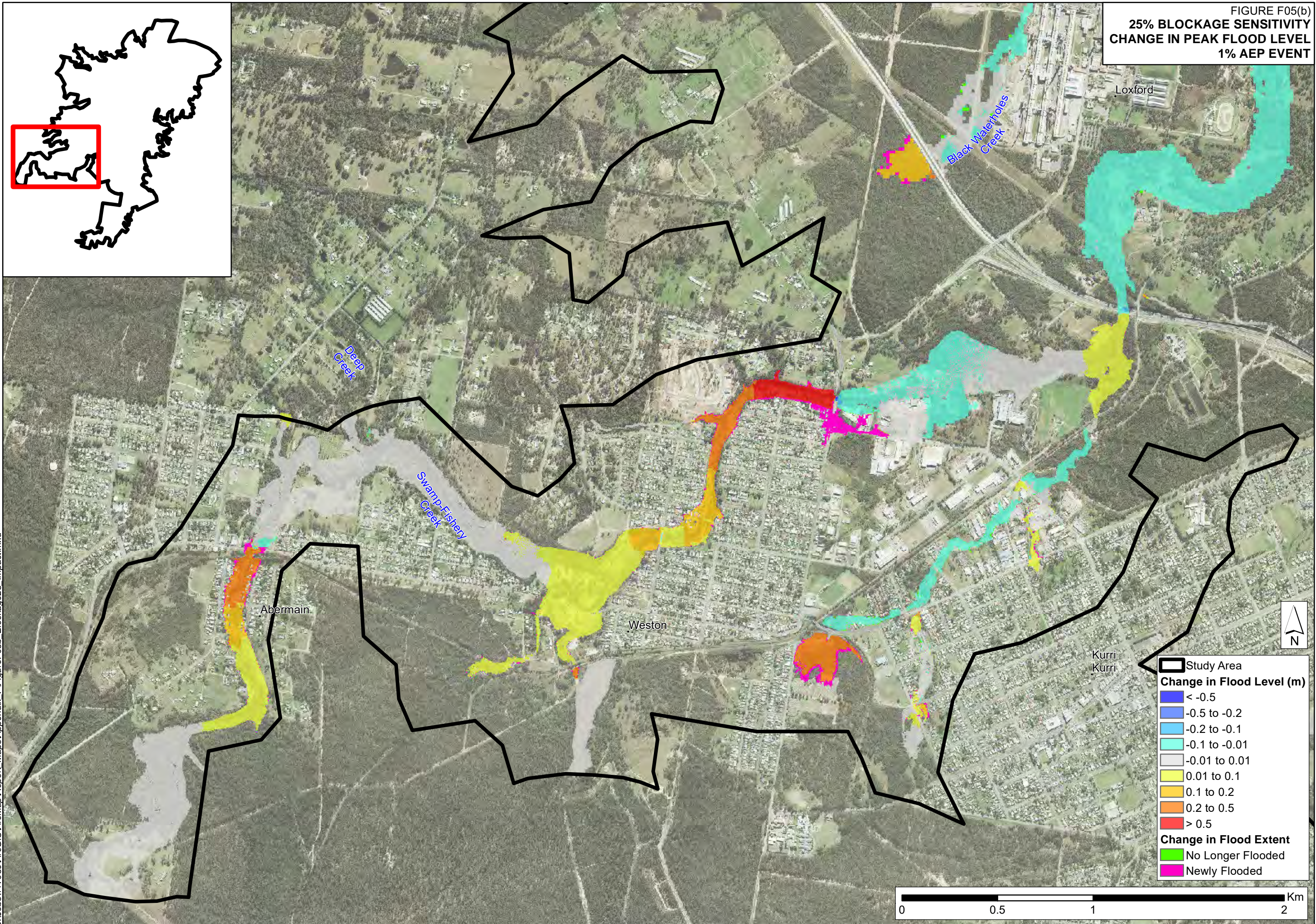


FIGURE F05(c)
25% BLOCKAGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
1% AEP EVENT

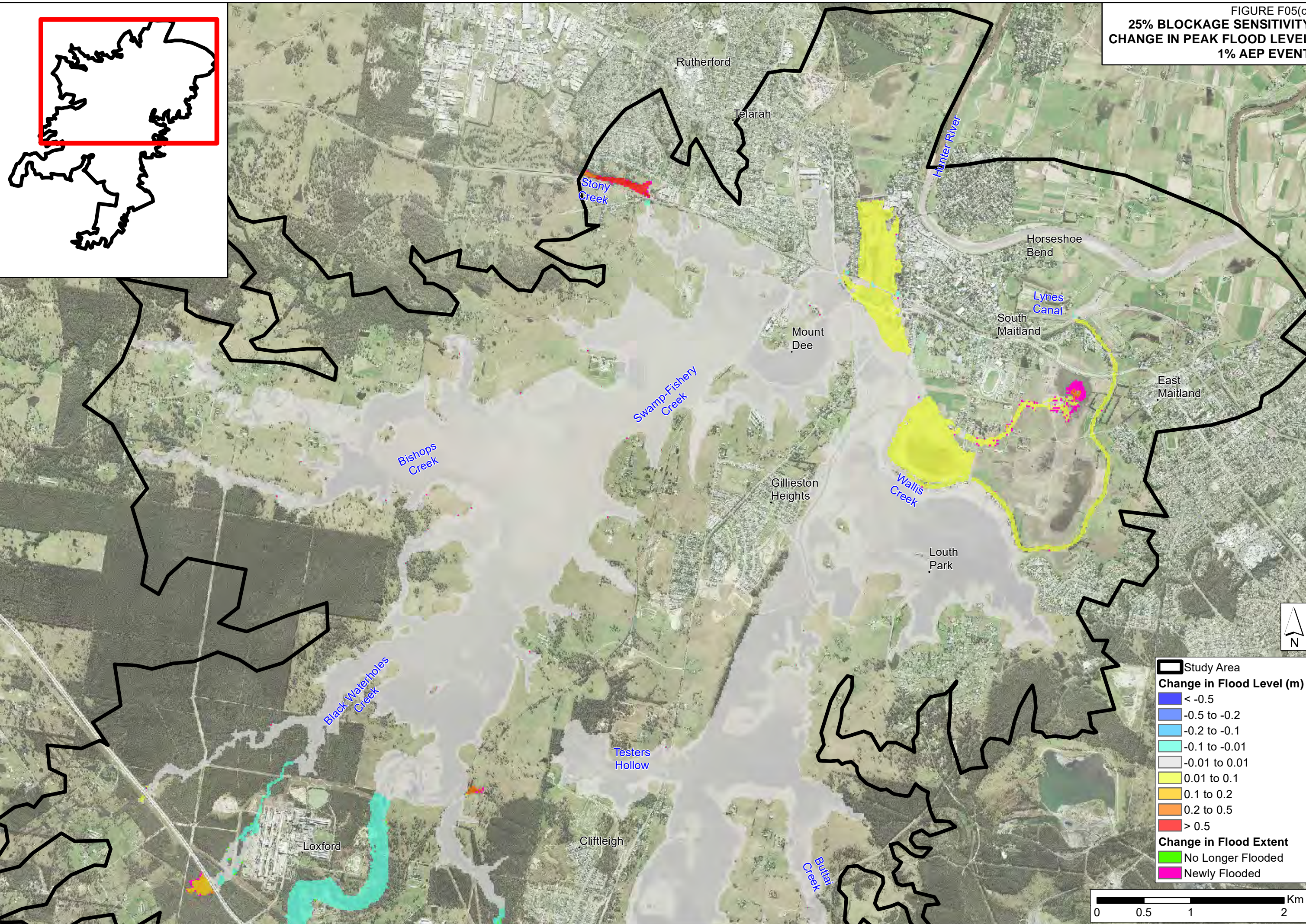
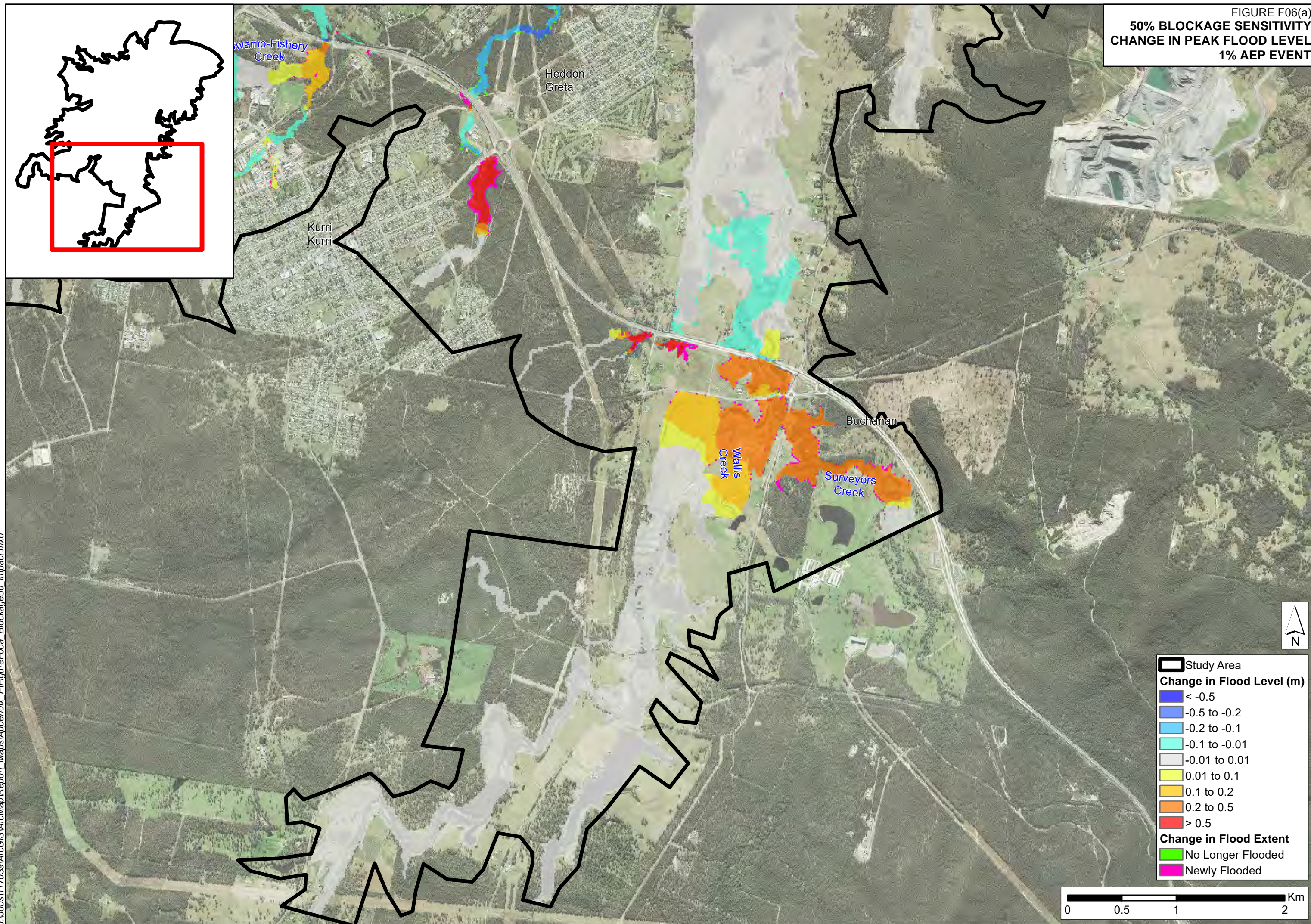


FIGURE F06(a)
50% BLOCKAGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
1% AEP EVENT



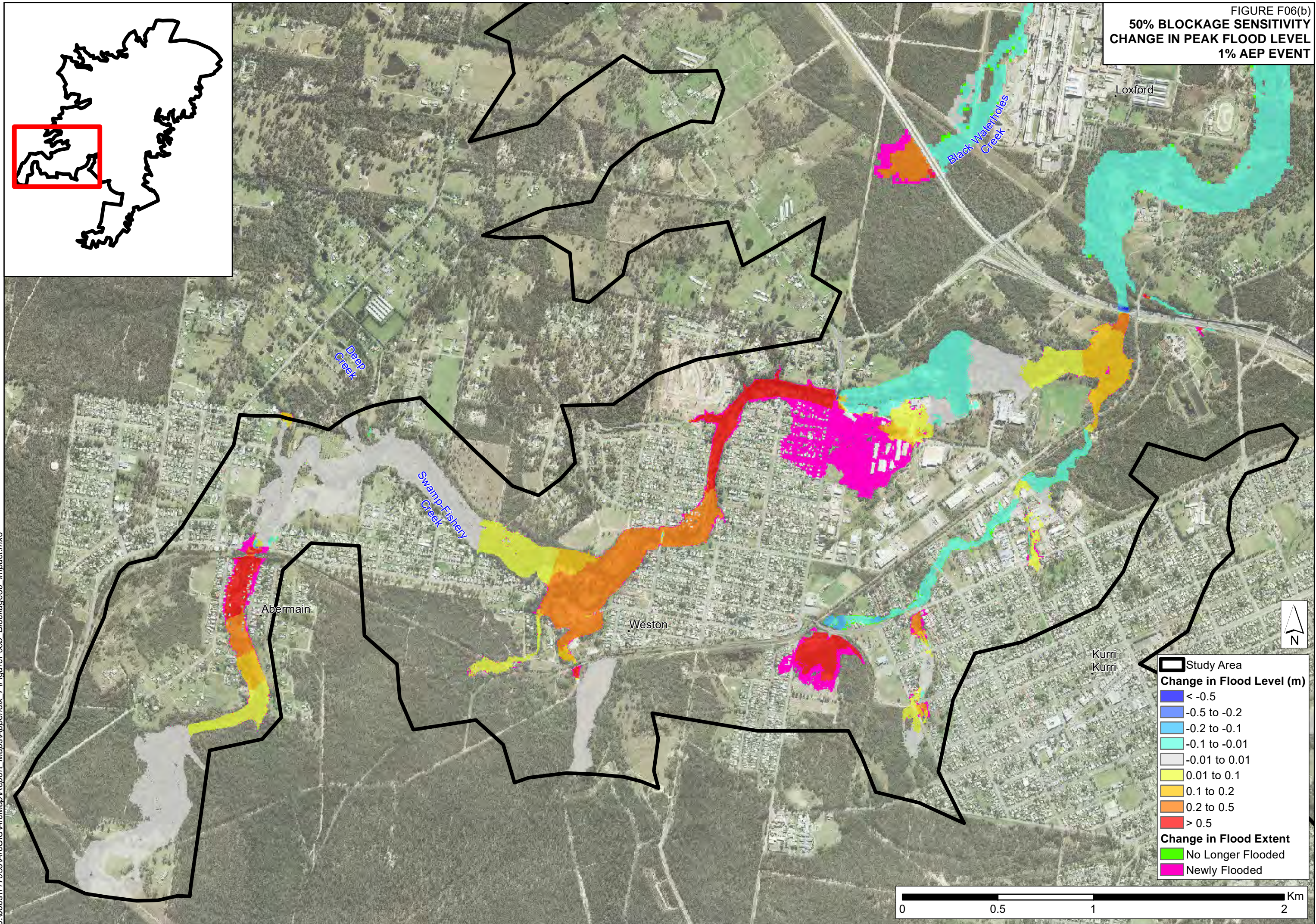


FIGURE F06(c)
50% BLOCKAGE SENSITIVITY
CHANGE IN PEAK FLOOD LEVEL
1% AEP EVENT

