

# PARKES SHIRE COUNCIL

COOKAMIDGERA FLOOD STUDY

OCTOBER 2024

**VOLUME 2 – FIGURES** 

# DRAFT REPORT FOR PUBLIC EXHIBITION

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File: CFS_V2_Figures [Rev 1.2].docx



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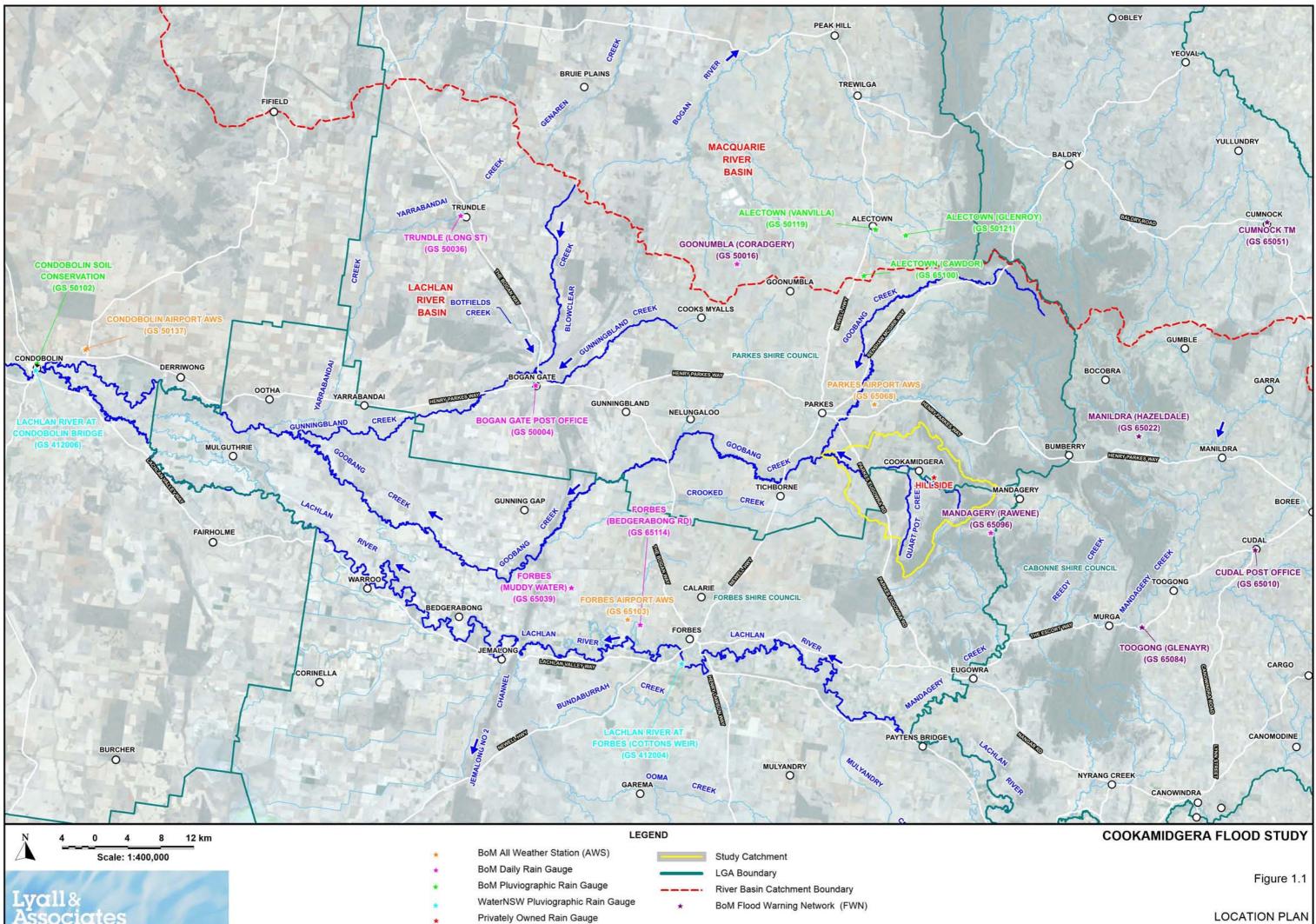


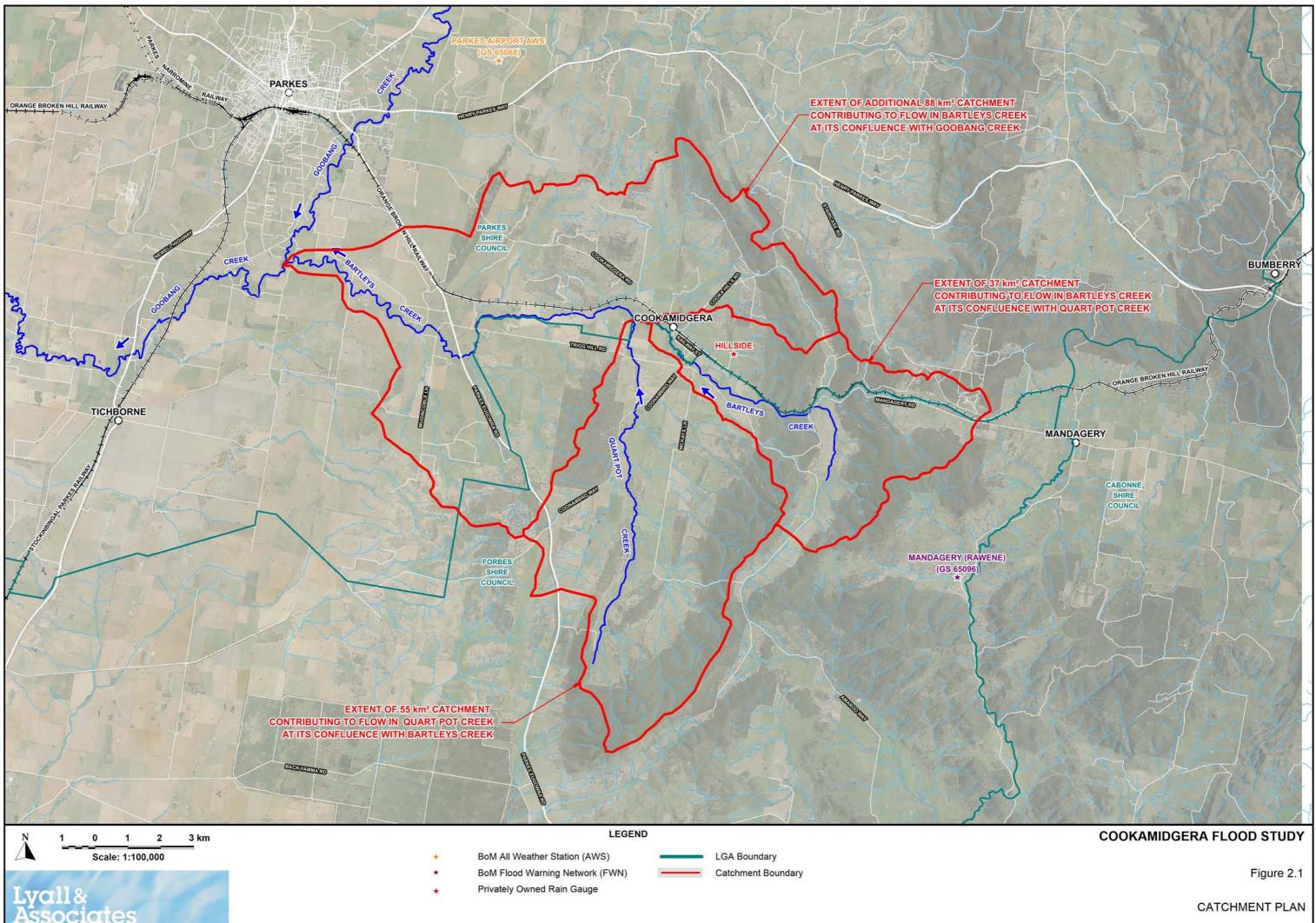
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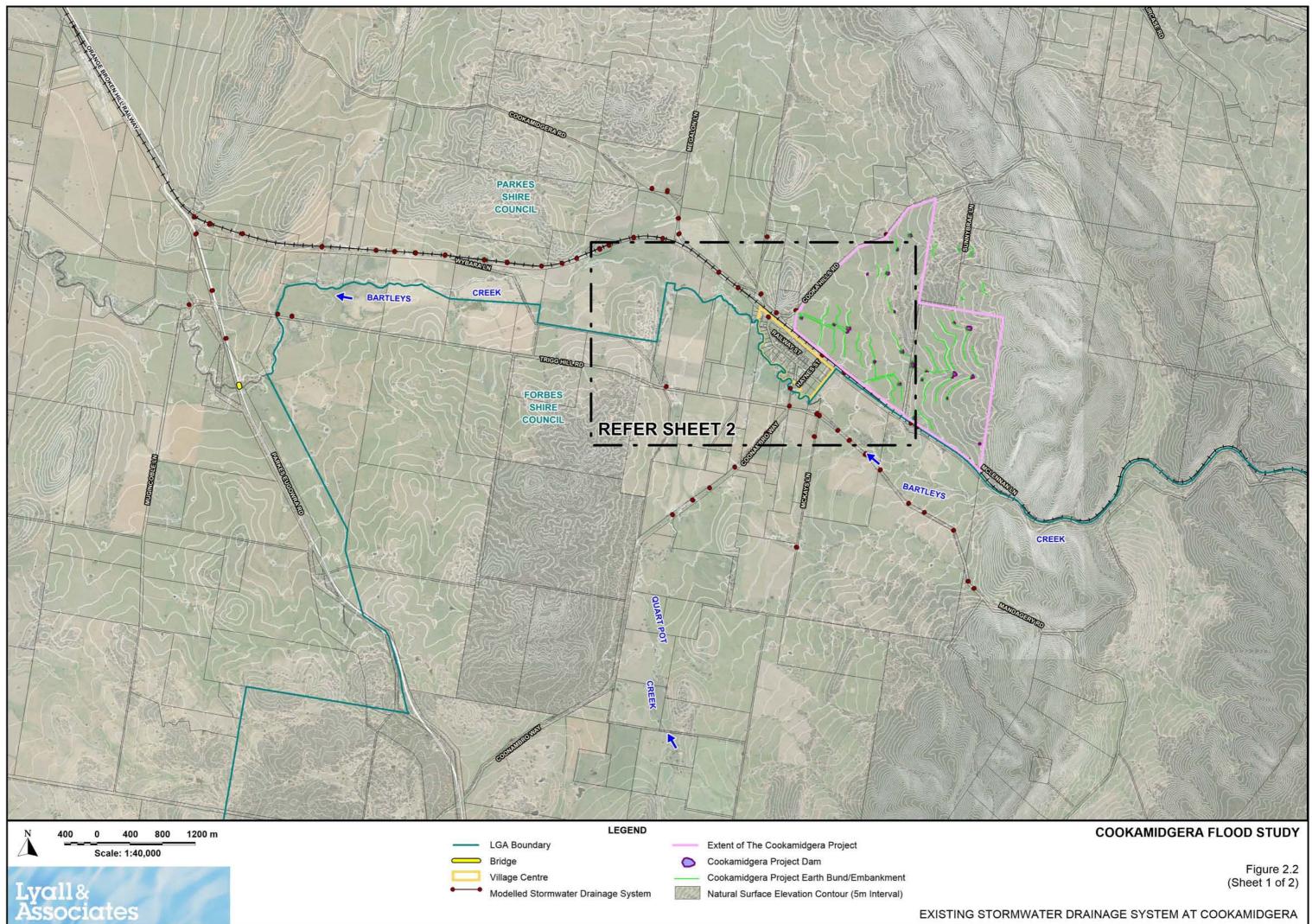
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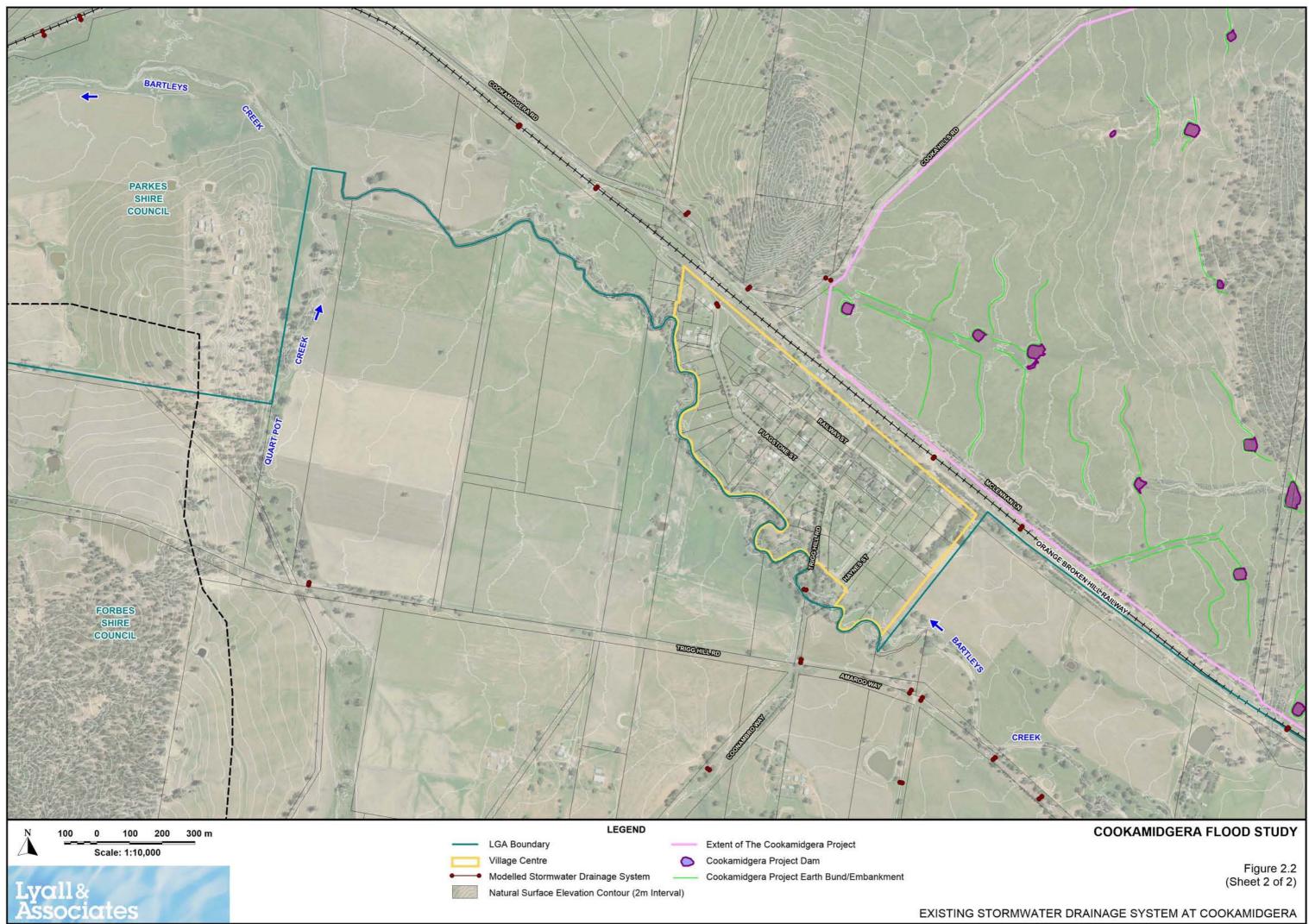
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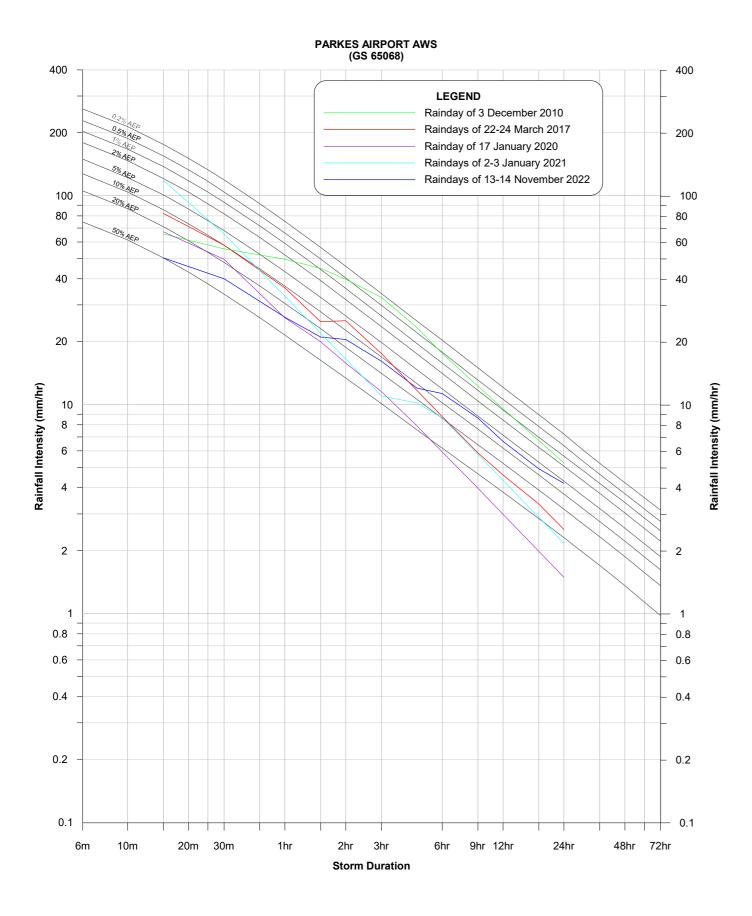


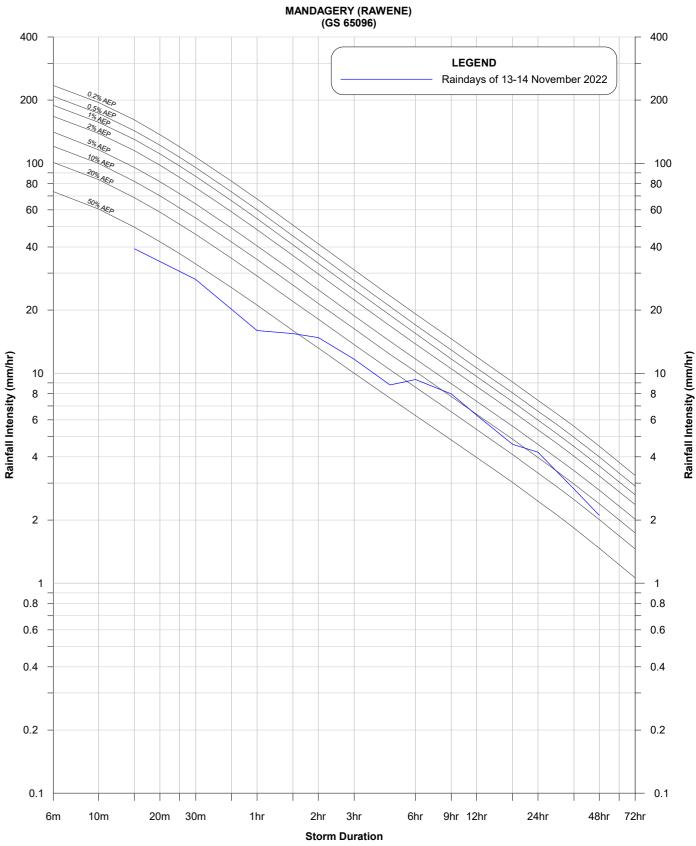








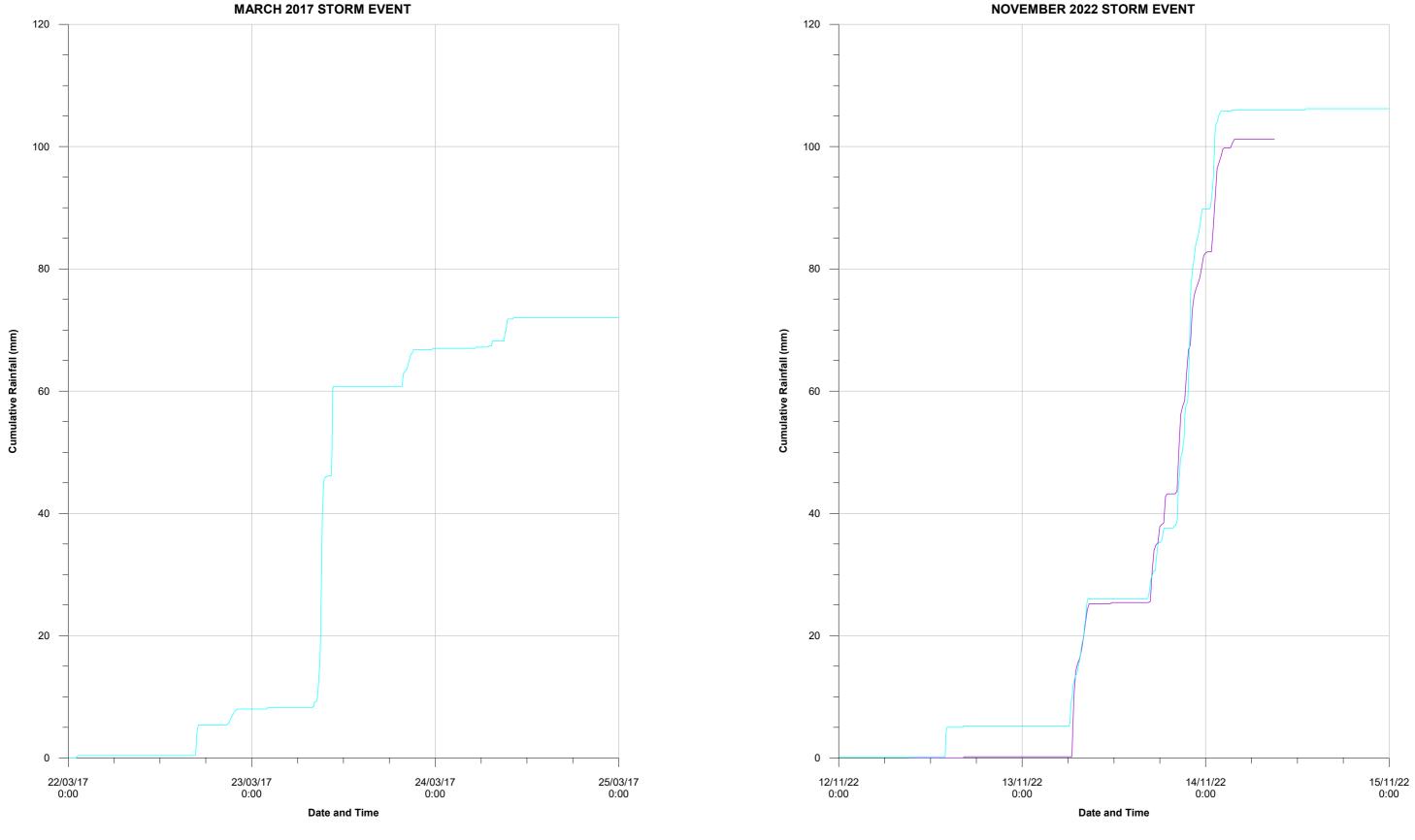






COOKAMIDGERA FLOOD STUDY Figure 2.3

INTENSITY-FREQUENCY-DURATION CURVES AND HISTORIC RAINFALL

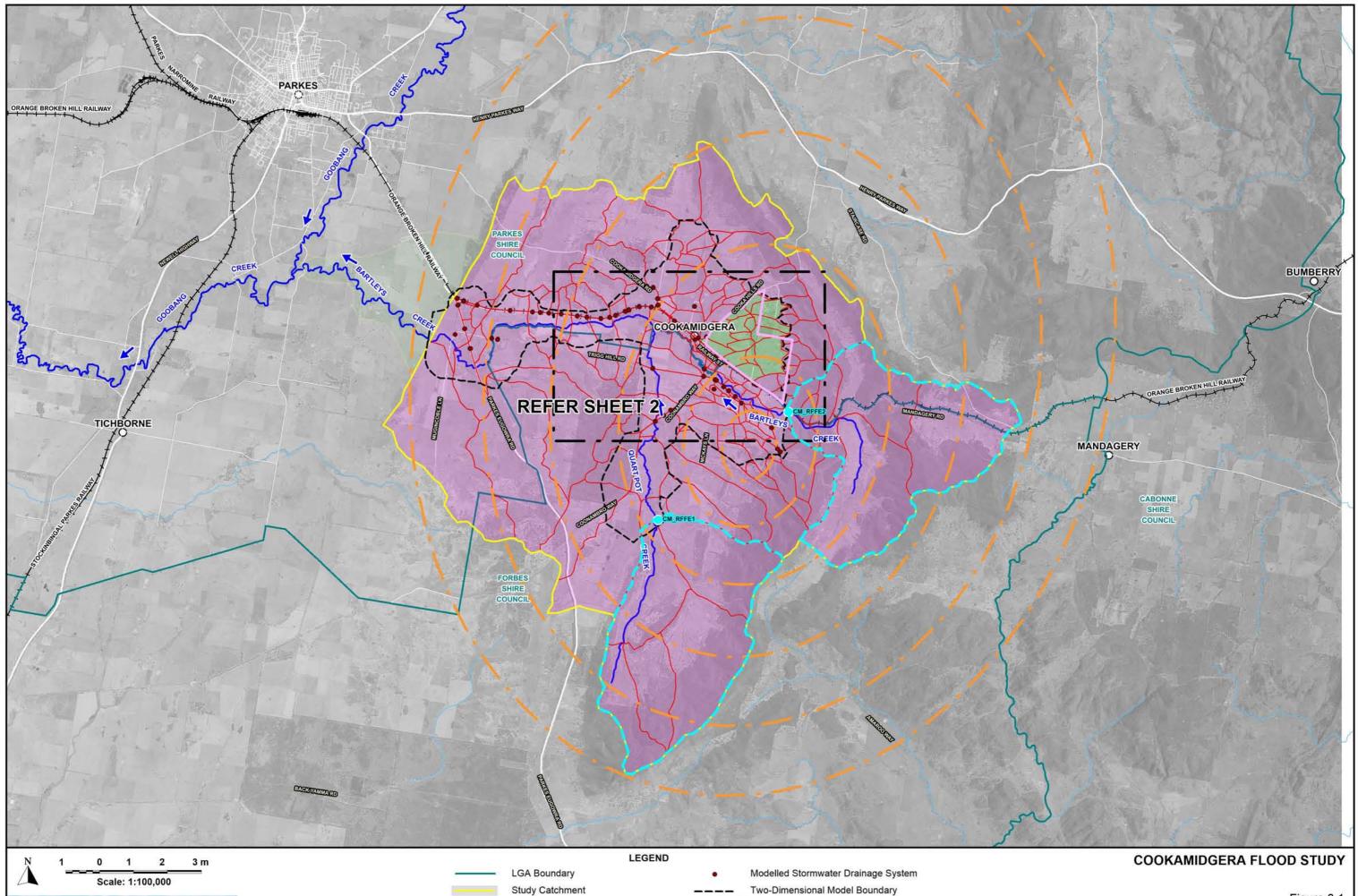


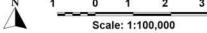




COOKAMIDGERA FLOOD STUDY Figure 2.4

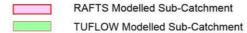
CUMULATIVE RAINFALL HISTORIC STORM EVENTS









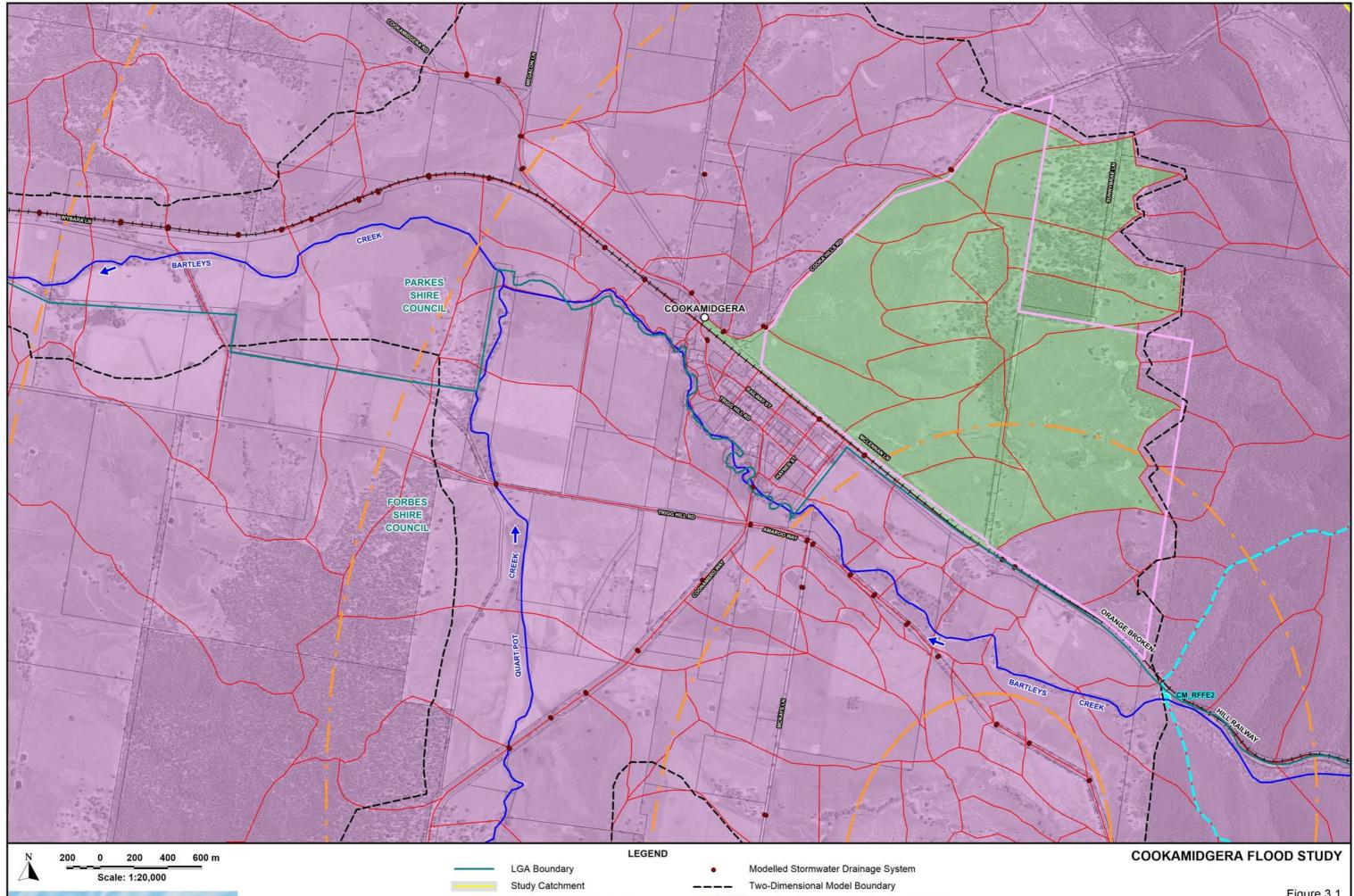


PMP Ellipses

Two-Dimensional Model Boundary CM\_RFFE1 Peak Flow Comparison Catchment and Identifier Extent of The Cookamidgera Project

Figure 3.1 (Sheet 1 of 2)

COOKAMIDGERA DRAINS MODEL LAYOUT



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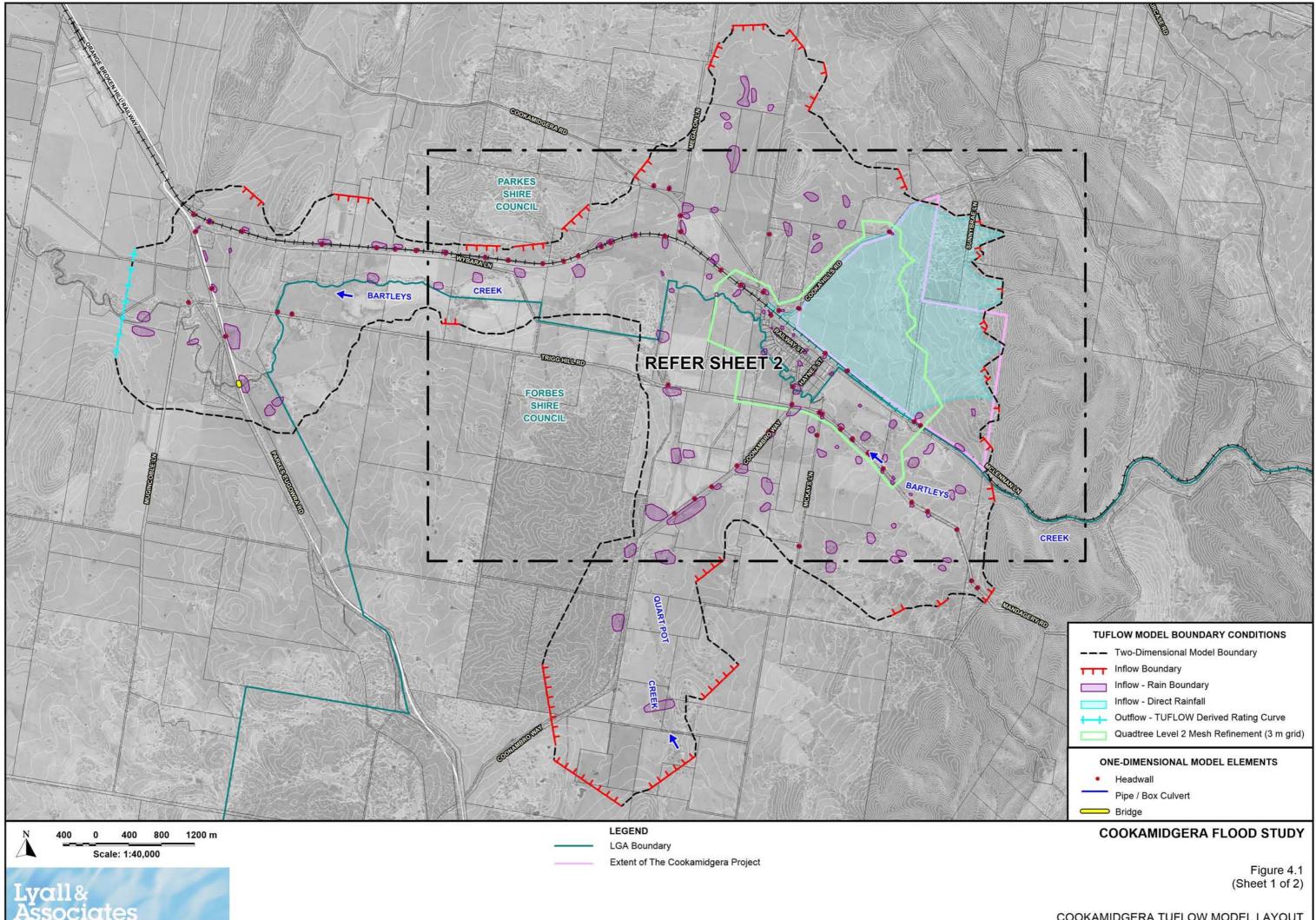
**RAFTS Modelled Sub-Catchment** TUFLOW Modelled Sub-Catchment

PMP Ellipses

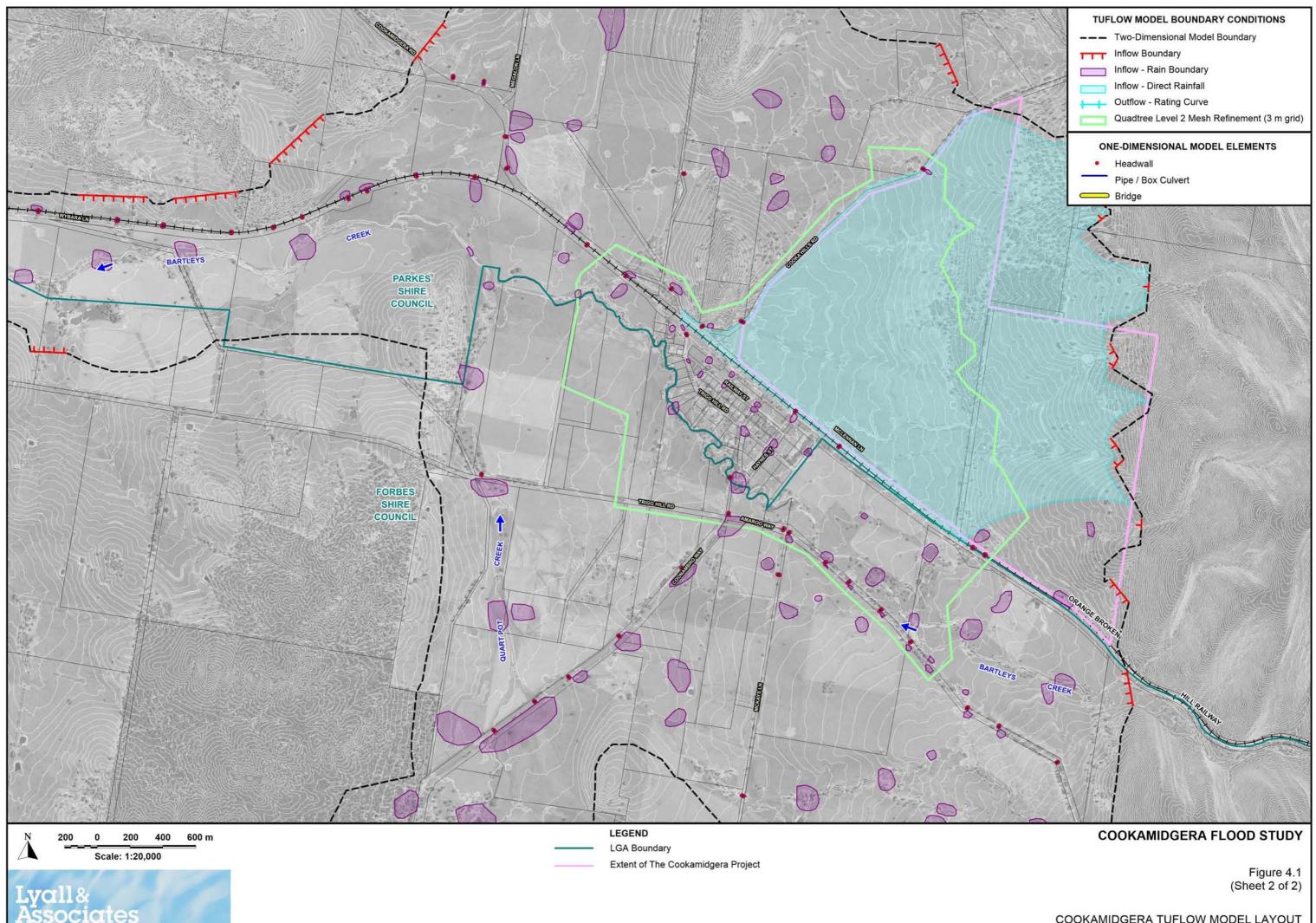
CM\_RFFE1 Peak Flow Comparison Catchment and Identifier Extent of The Cookamidgera Project

Figure 3.1 (Sheet 2 of 2)

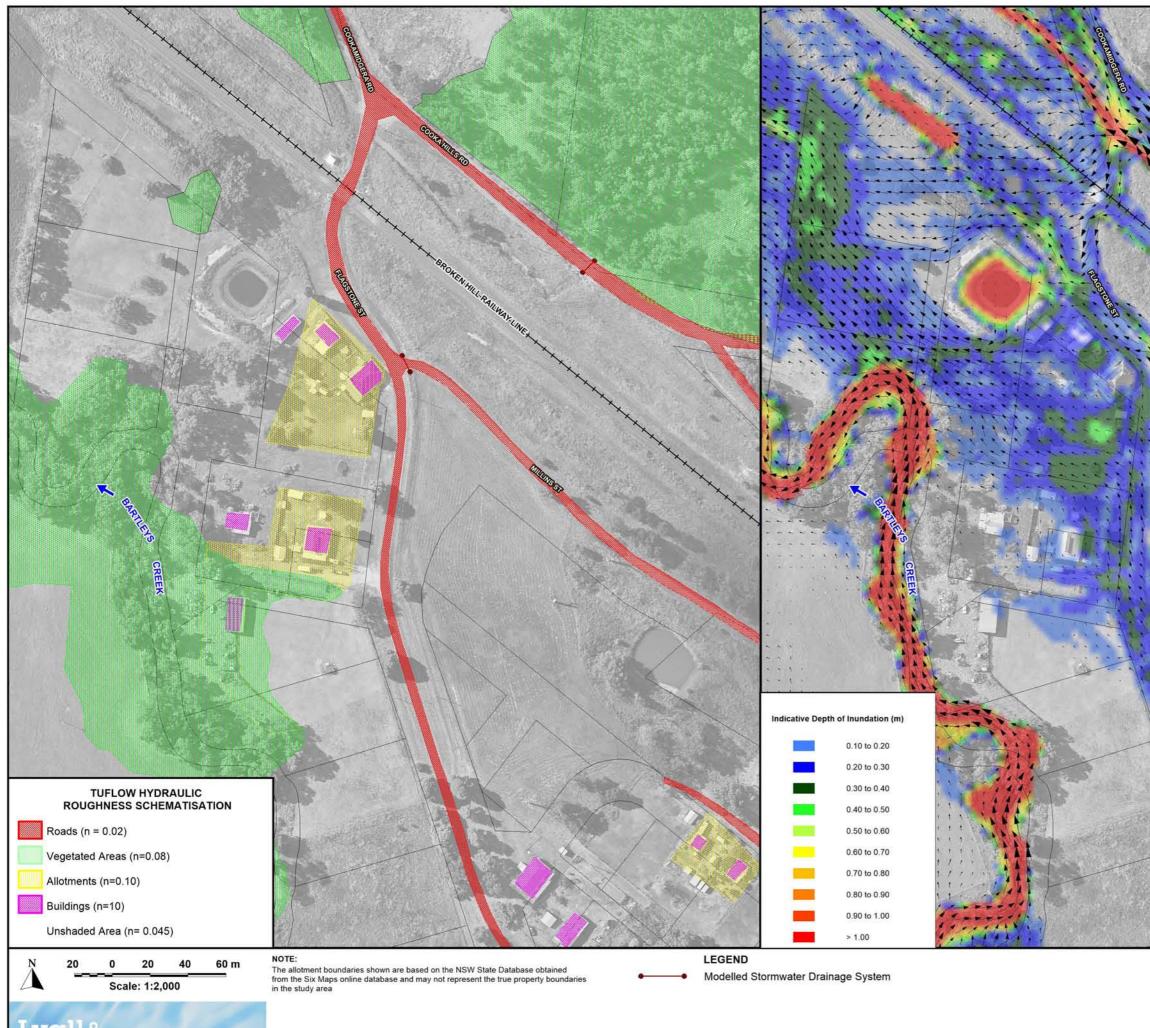
COOKAMIDGERA DRAINS MODEL LAYOUT



COOKAMIDGERA TUFLOW MODEL LAYOUT

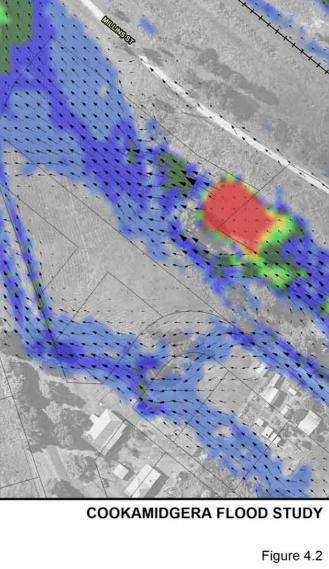


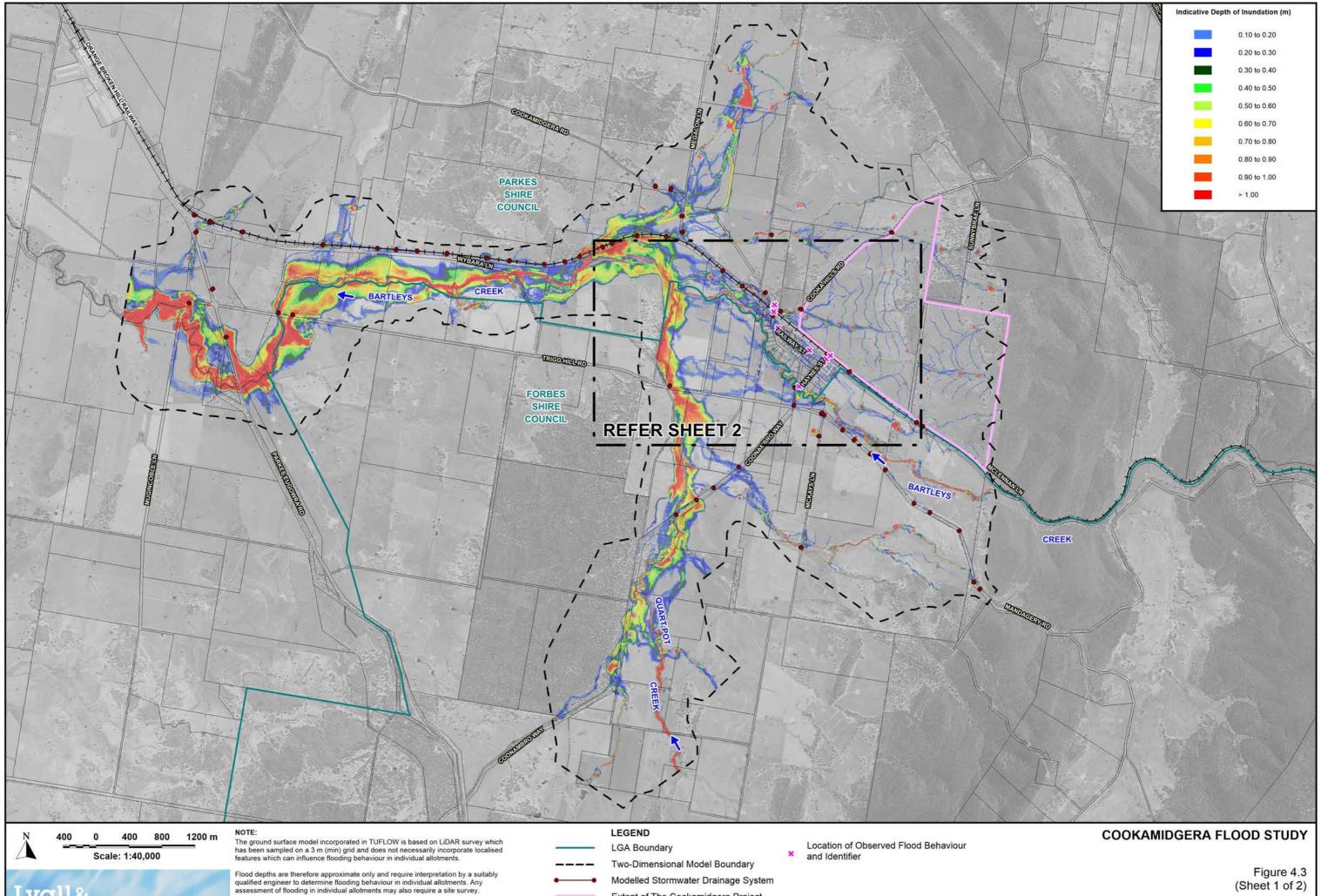
COOKAMIDGERA TUFLOW MODEL LAYOUT



# Lyall & Associates

TUFLOW SCHEMATISATION OF FLOODPLAIN



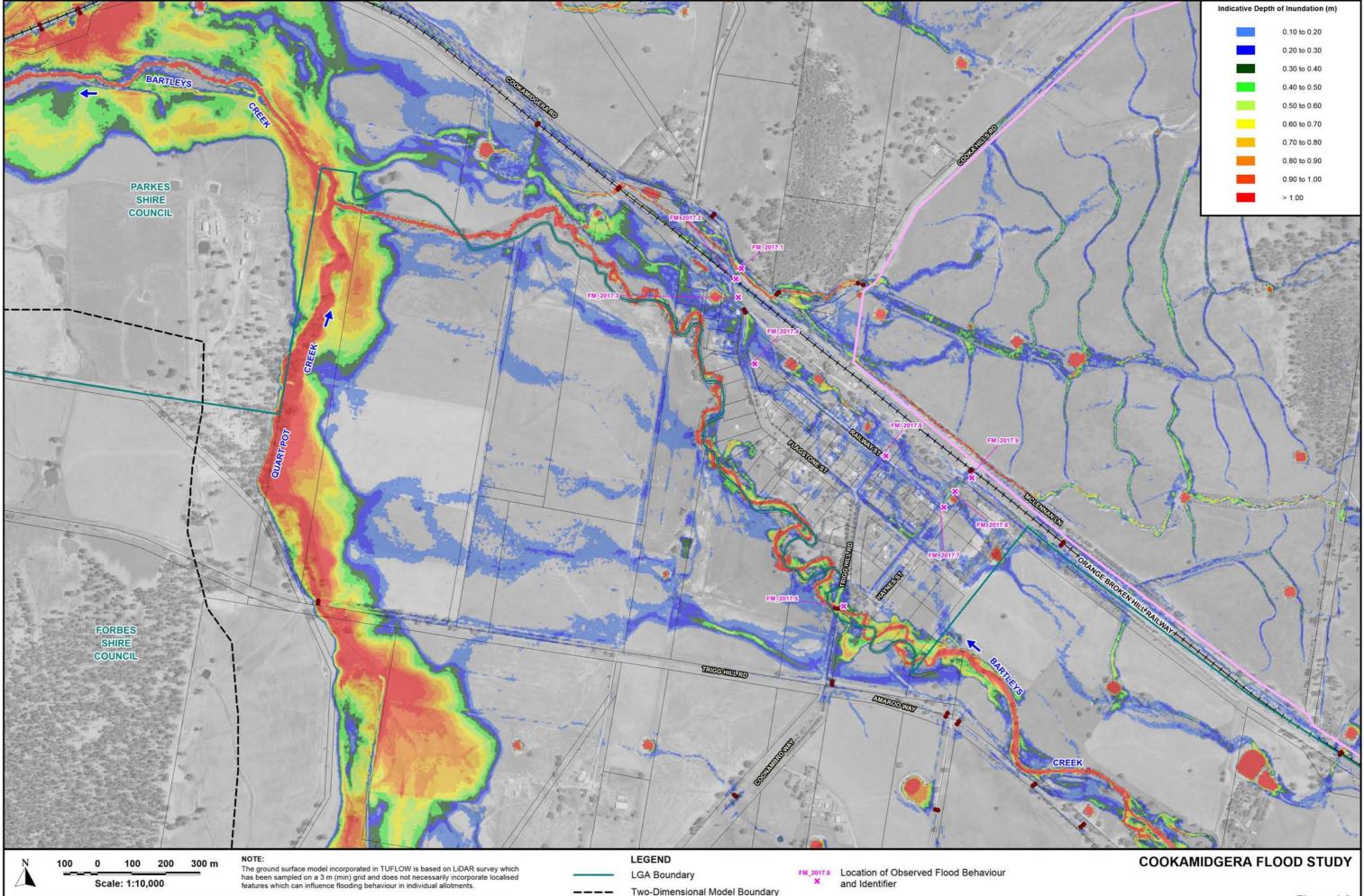


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Extent of The Cookamidgera Project

(Sheet 1 of 2)

COOKAMIDGERA TUFLOW MODEL RESULTS MARCH 2017 STORM EVENT



Lyall&

Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

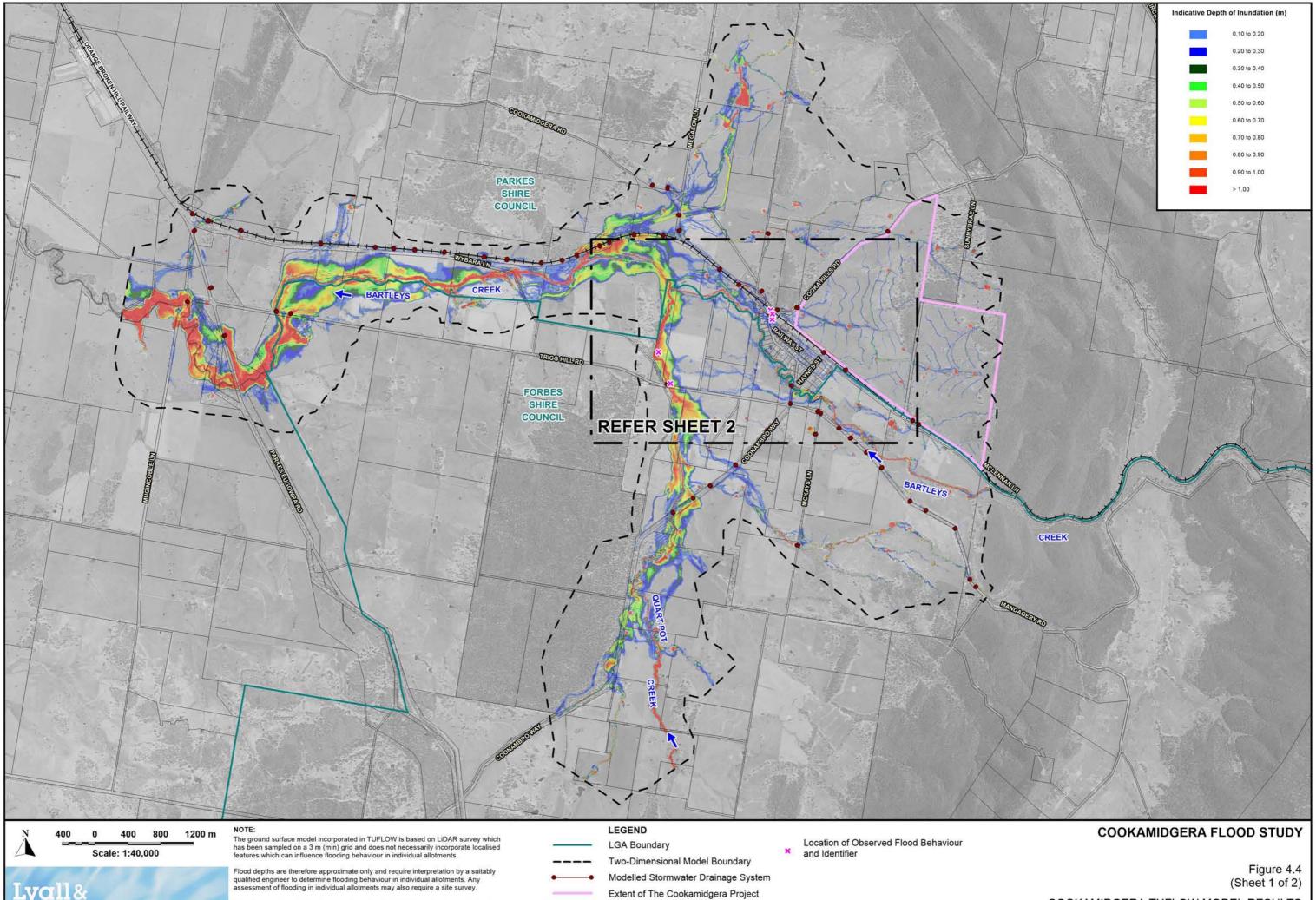
The allotment boundaries shown are based on the NSW State Database obtained from the Six Maps online database and may not represent the true property boundaries in the study area

	Two-Dimensional Model Boundary		
-	Modelled Stormwater Drainage Sys		
	Extent of The Cookamidgera Project		

FM\_2017.6 Location of Observed Flood Behaviour and Identifier

- d Stormwater Drainage System
- of The Cookamidgera Project

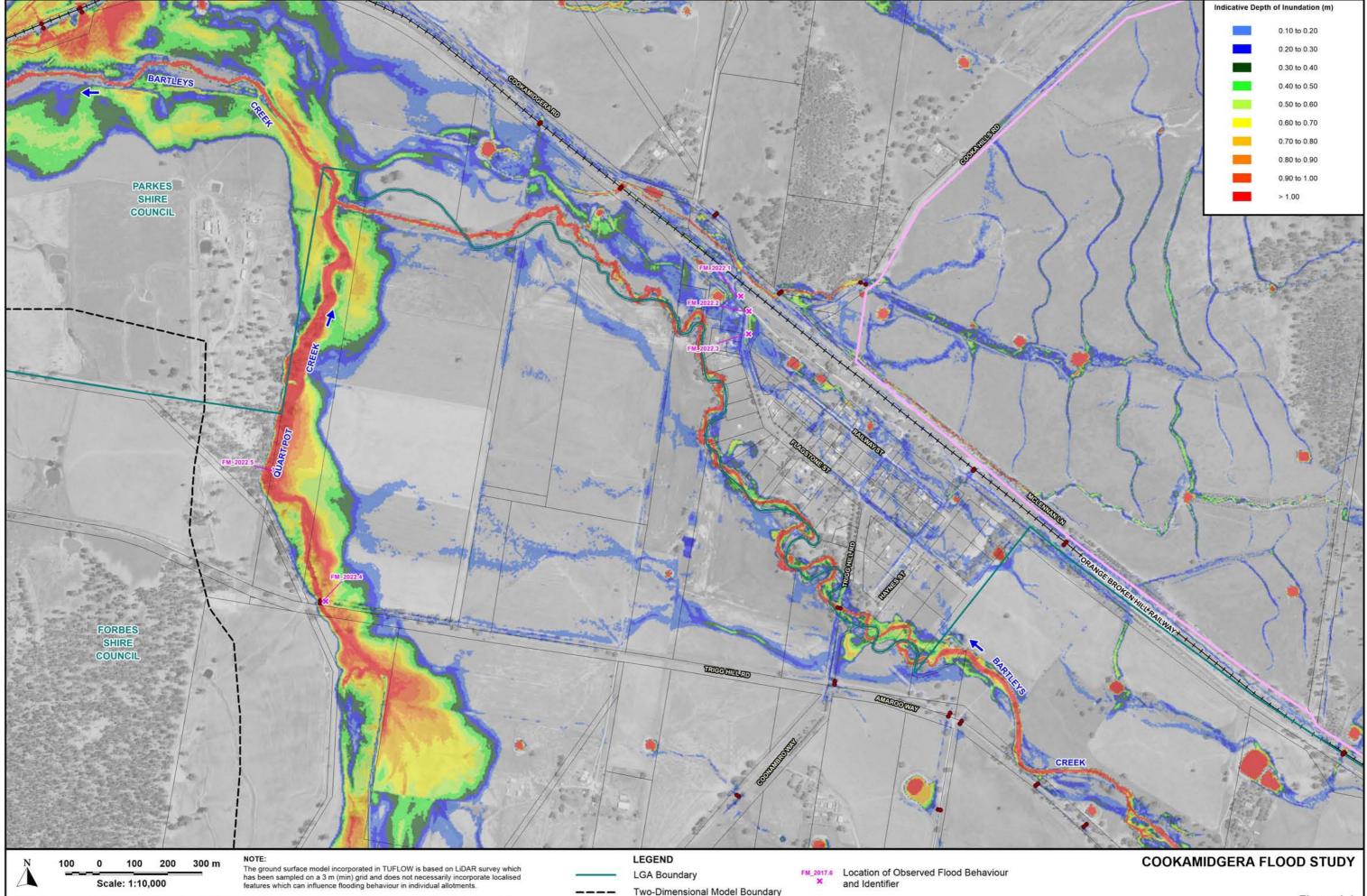
Figure 4.3 (Sheet 2 of 2) COOKAMIDGERA TUFLOW MODEL RESULTS MARCH 2017 STORM EVENT



Extent of The Cookamidgera Project

(Sheet 1 of 2)

COOKAMIDGERA TUFLOW MODEL RESULTS NOVEMBER 2022 STORM EVENT



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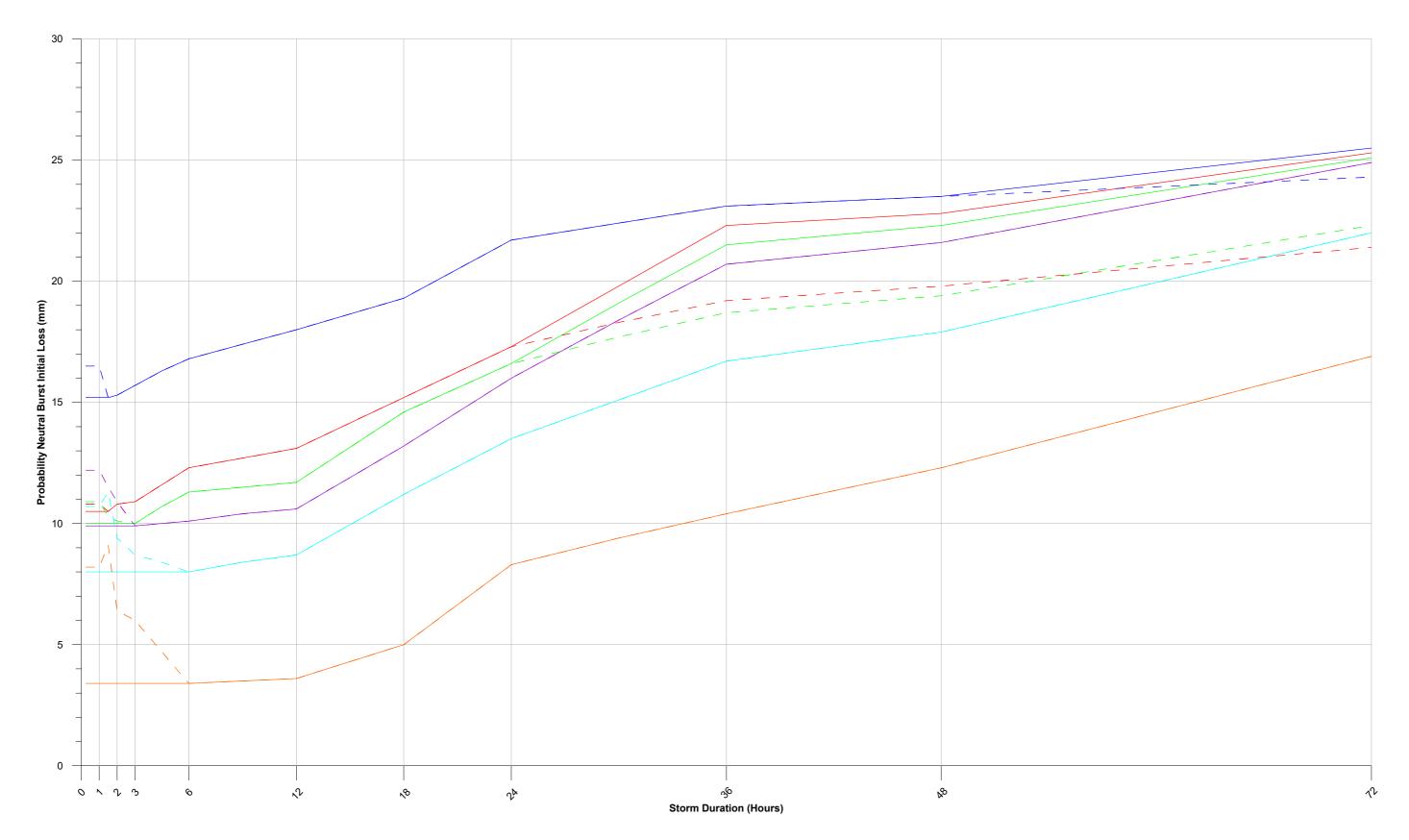
	Two-Dimensional Model Boundary		
•	Modelled Stormwater Drainage Sys		
	Extent of The Cookamidgera Project		

and Identifier

- Stormwater Drainage System The Cookamidgera Project

Figure 4.4 (Sheet 2 of 2)

COOKAMIDGERA TUFLOW MODEL RESULTS NOVEMBER 2022 STORM EVENT



LEGEND

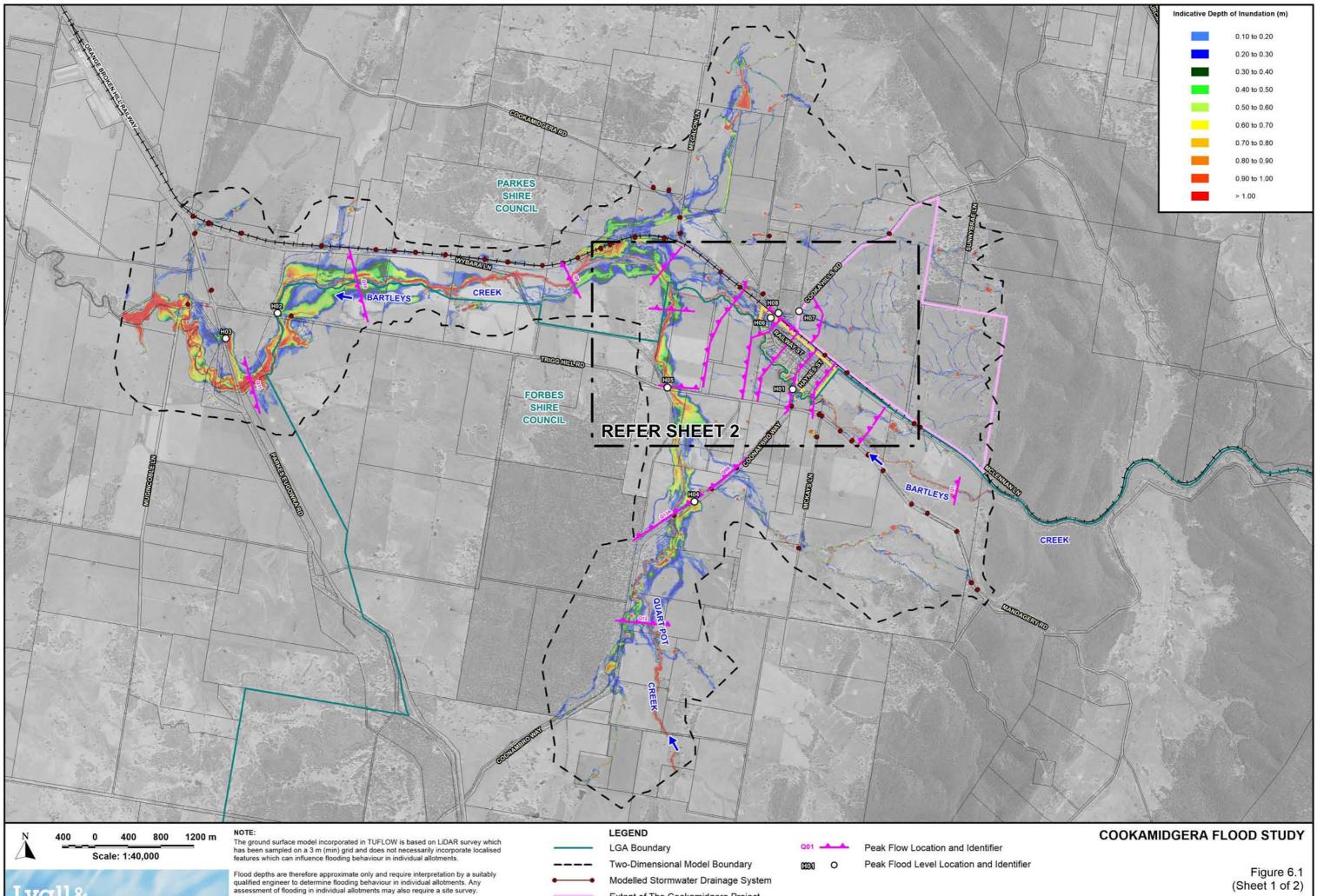


	Raw (Unadjusted) ARR Data Hub Loss Values	Adjusted ARR Data Hub Loss Values
50% AEP		
20% AEP		
10% AEP		
5% AEP		
2% AEP		
1% AEP		

ADJUSTED PROBABILITY NEUTRAL BURST INITIAL LOSS VALUES

# COOKAMIDGERA FLOOD STUDY

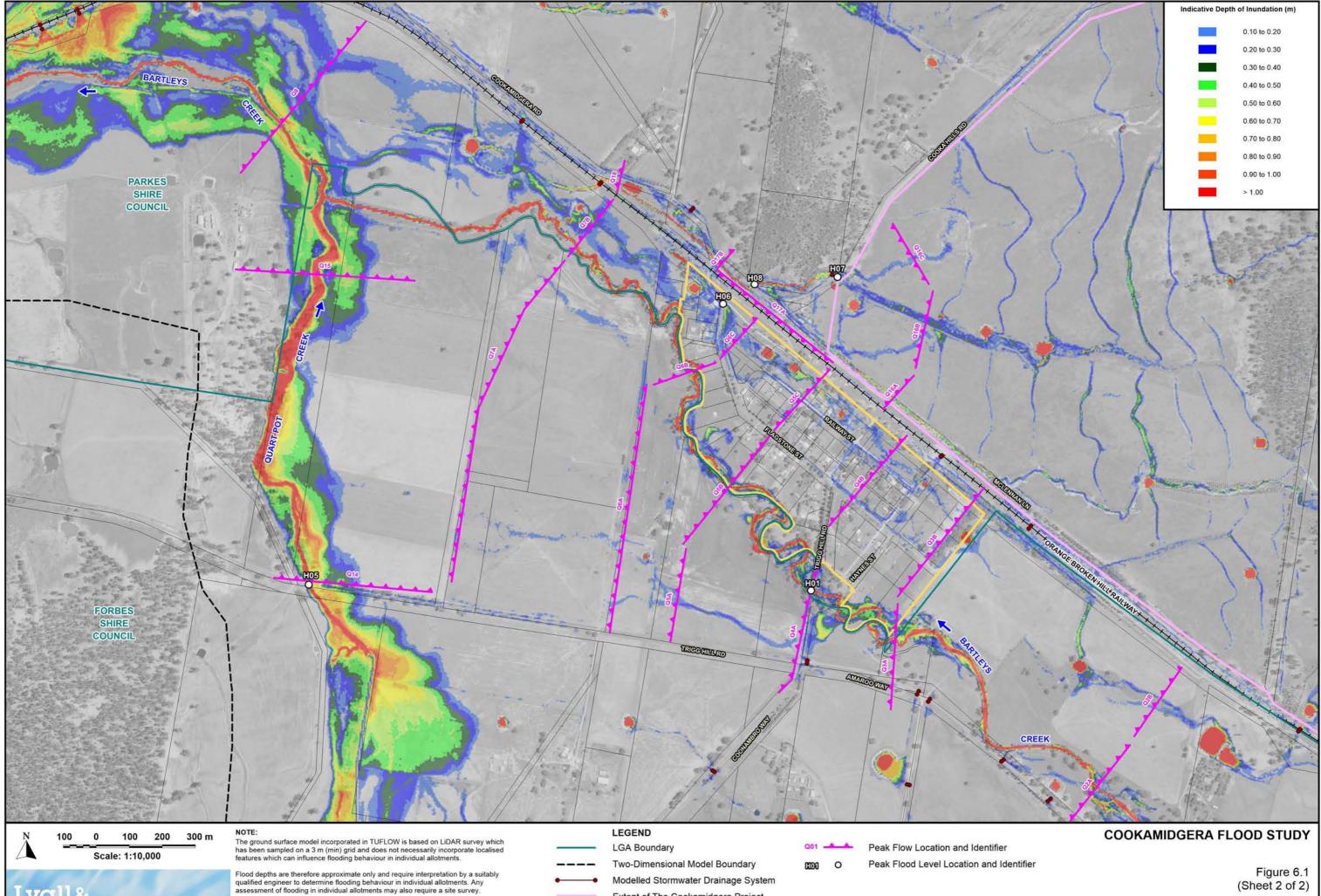
Figure 5.1



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Extent of The Cookamidgera Project Village Centre

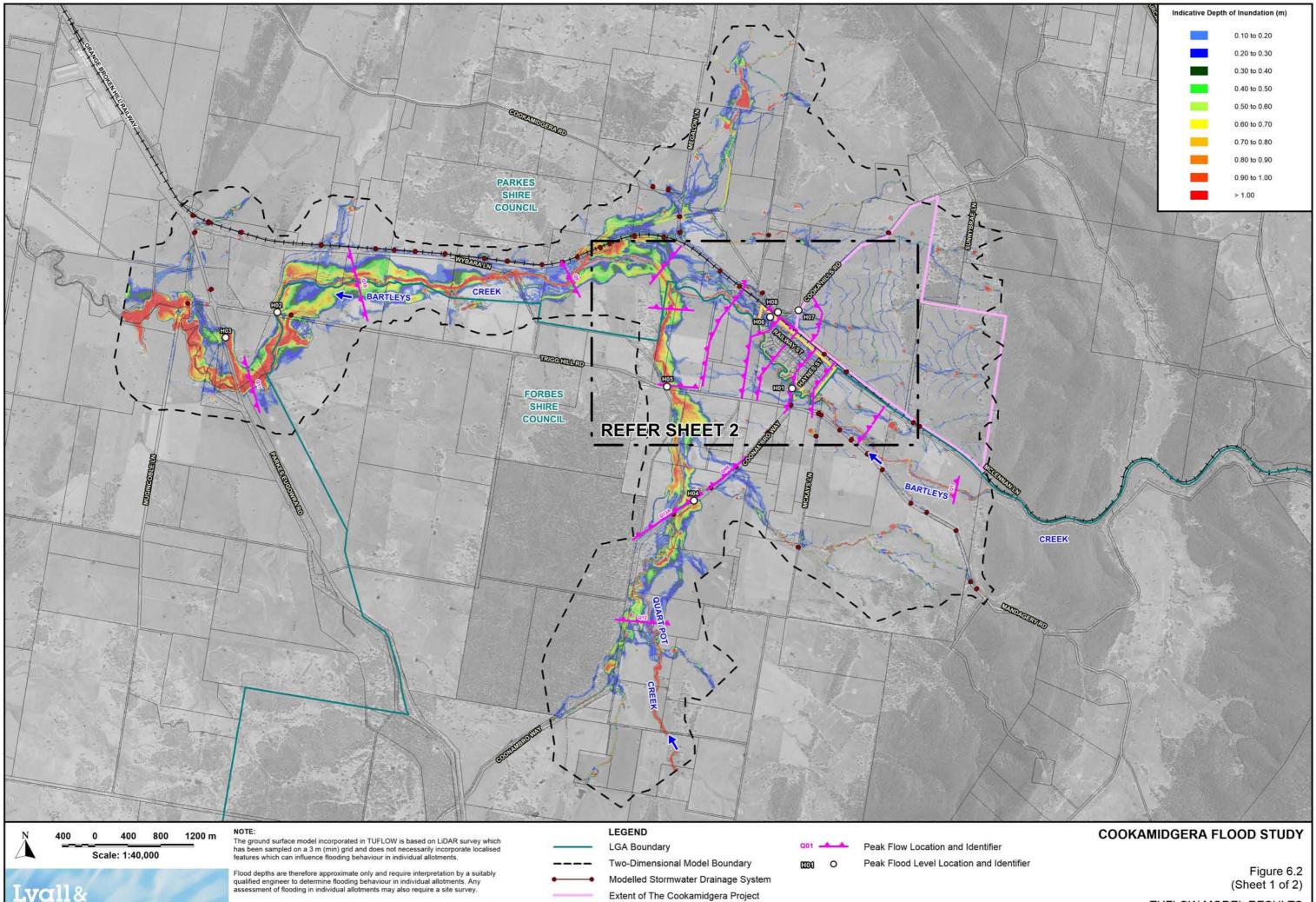
Figure 6.1 (Sheet 1 of 2) TUFLOW MODEL RESULTS 20% AEP



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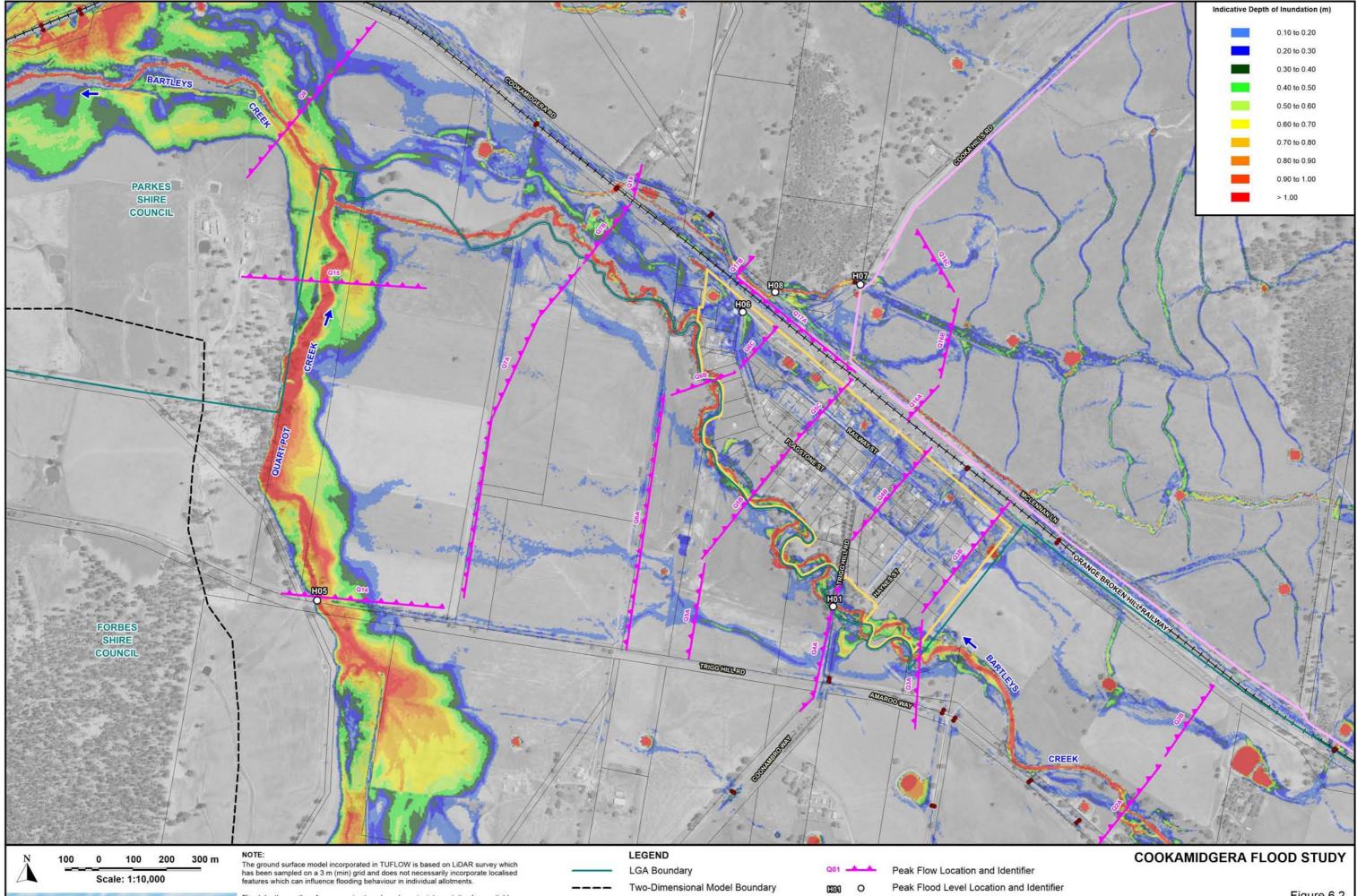
Extent of The Cookamidgera Project Village Centre

Figure 6.1 (Sheet 2 of 2) TUFLOW MODEL RESULTS 20% AEP



Extent of The Cookamidgera Project Village Centre

Figure 6.2 (Sheet 1 of 2) TUFLOW MODEL RESULTS 10%AEP



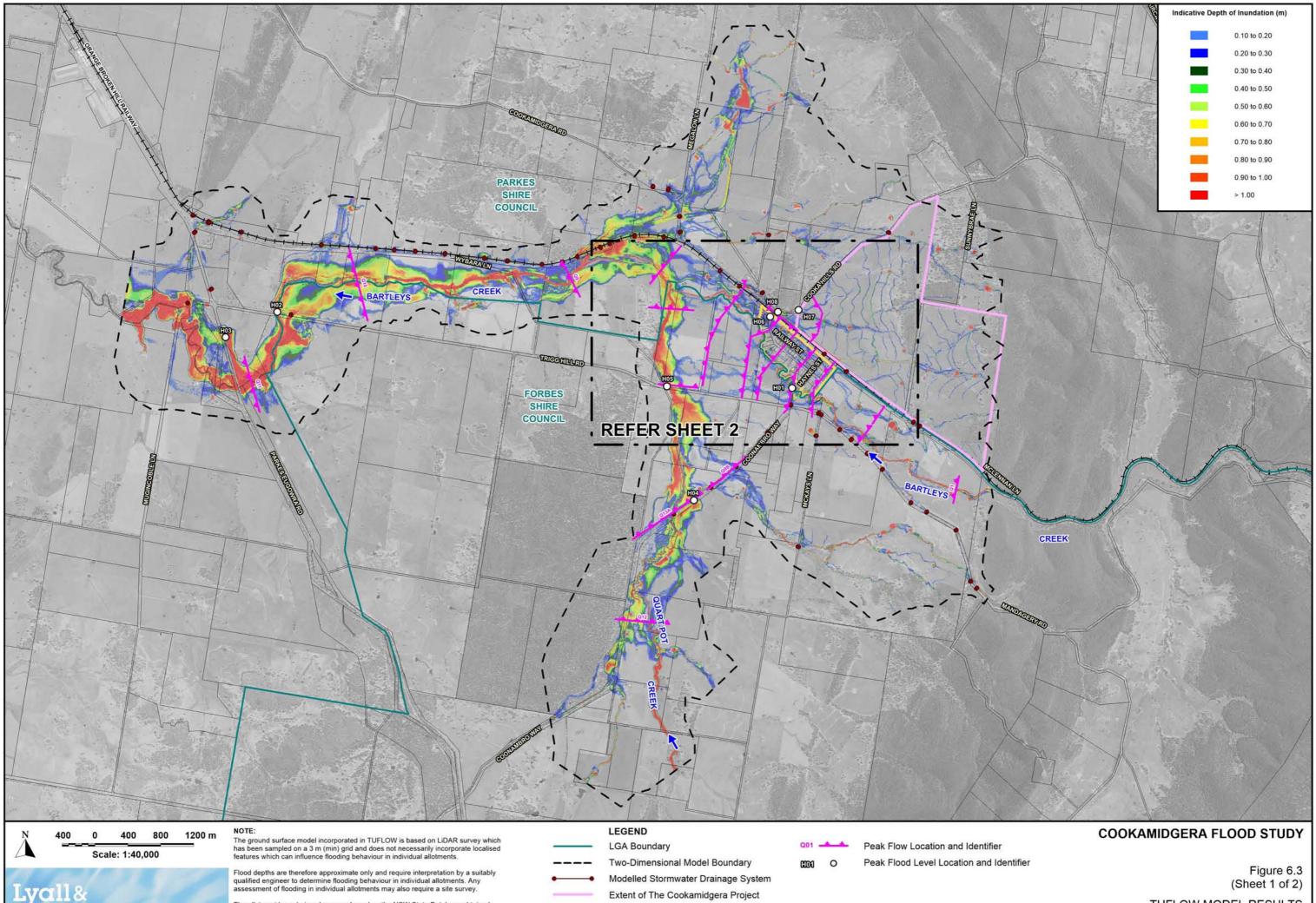
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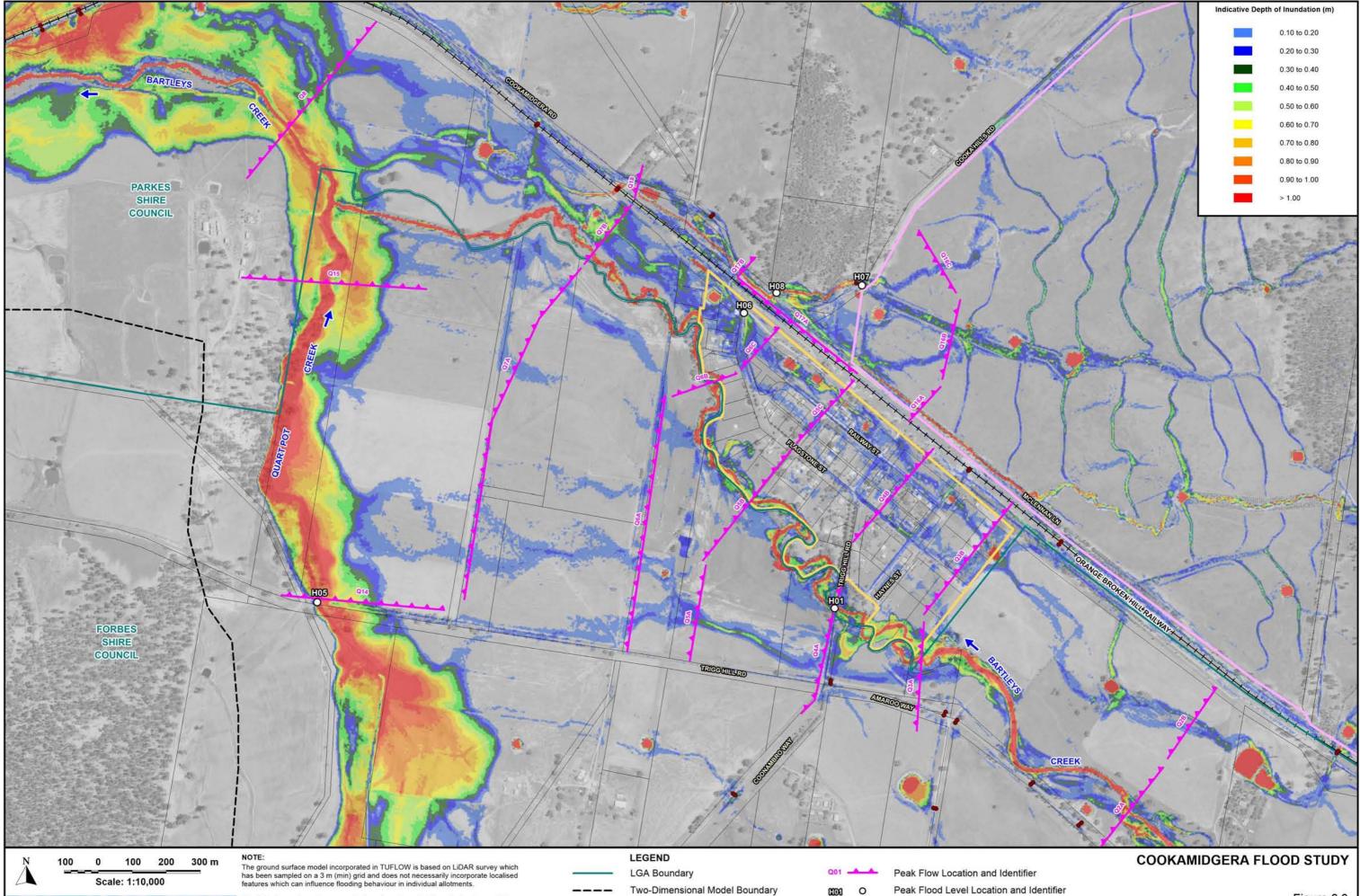
Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

Figure 6.2 (Sheet 2 of 2) TUFLOW MODEL RESULTS 10%AEP



Extent of The Cookamidgera Project Village Centre

TUFLOW MODEL RESULTS **5% AEP** 



Modelled Stormwater Drainage System

Extent of The Cookamidgera Project

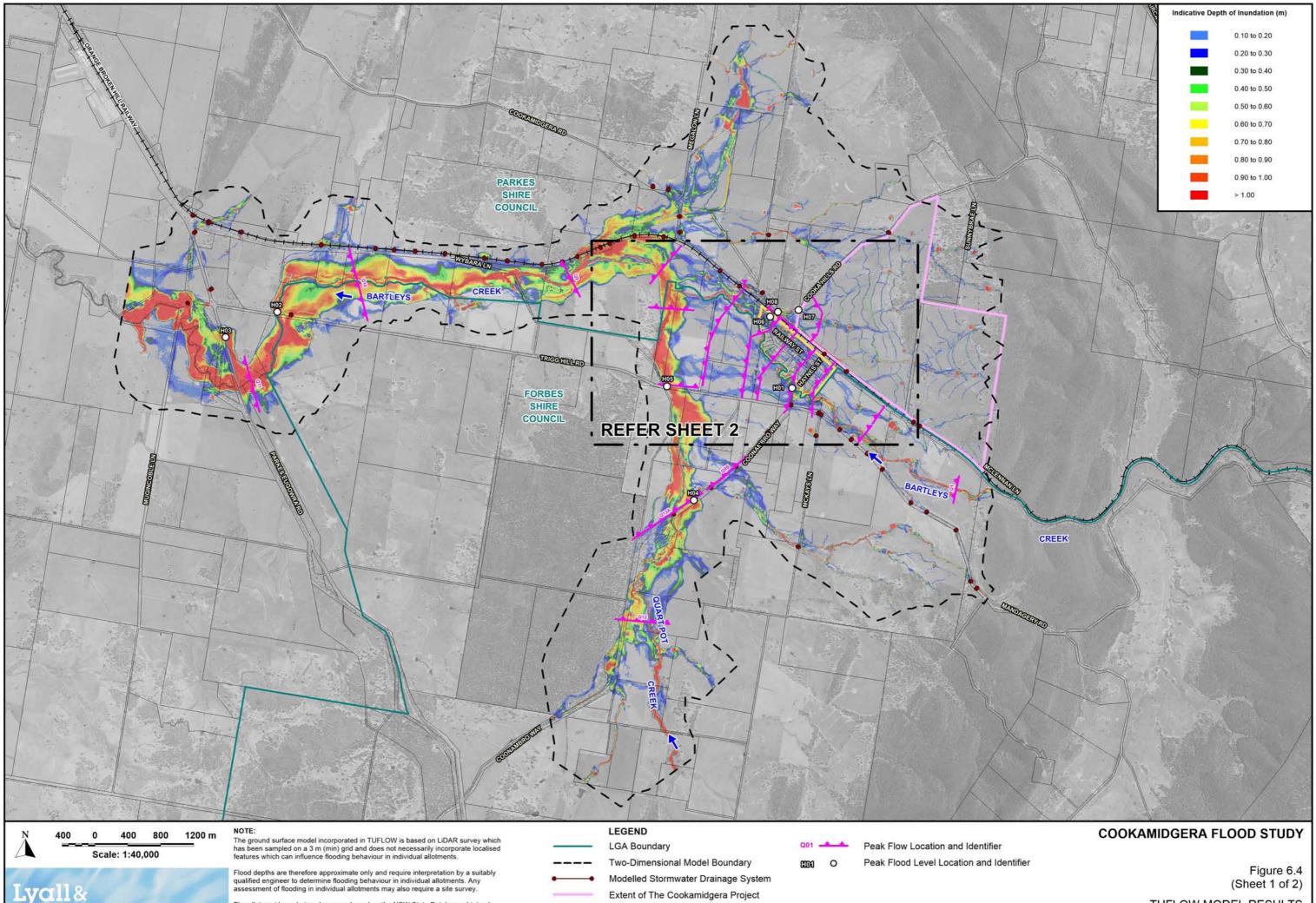
Village Centre

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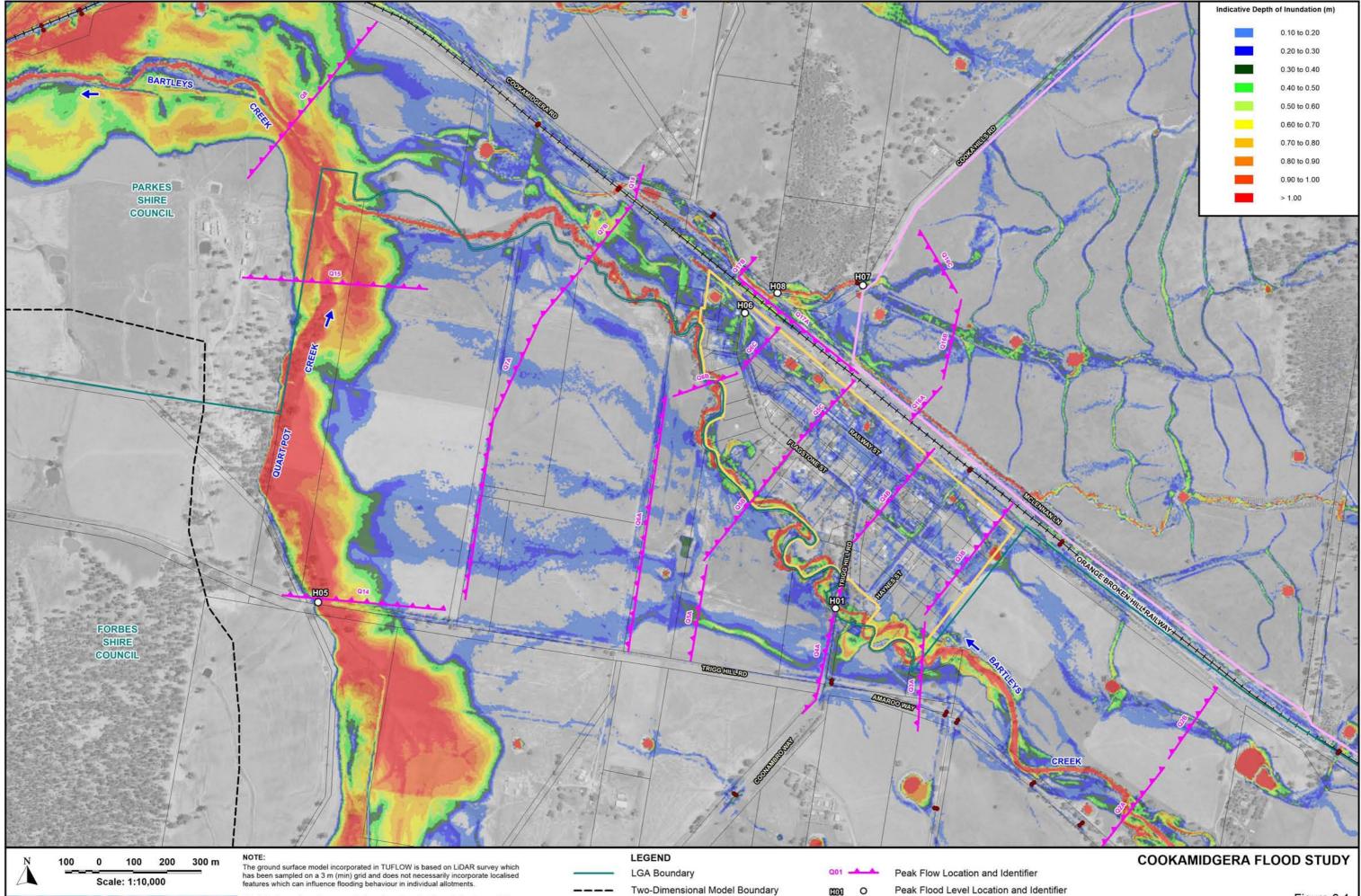
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Figure 6.3 (Sheet 2 of 2) TUFLOW MODEL RESULTS **5% AEP** 



Extent of The Cookamidgera Project Village Centre

Figure 6.4 (Sheet 1 of 2) TUFLOW MODEL RESULTS 2% AEP

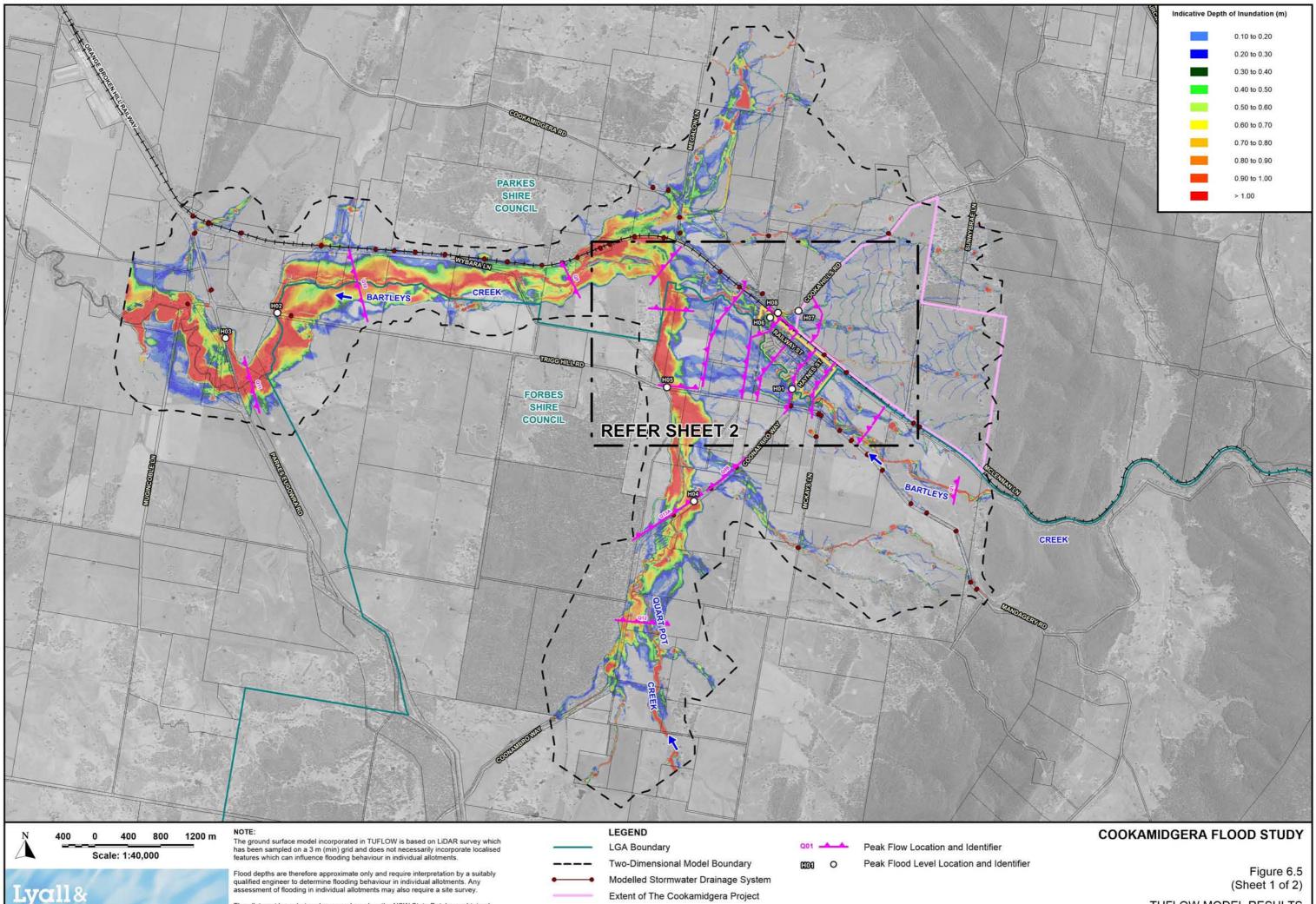


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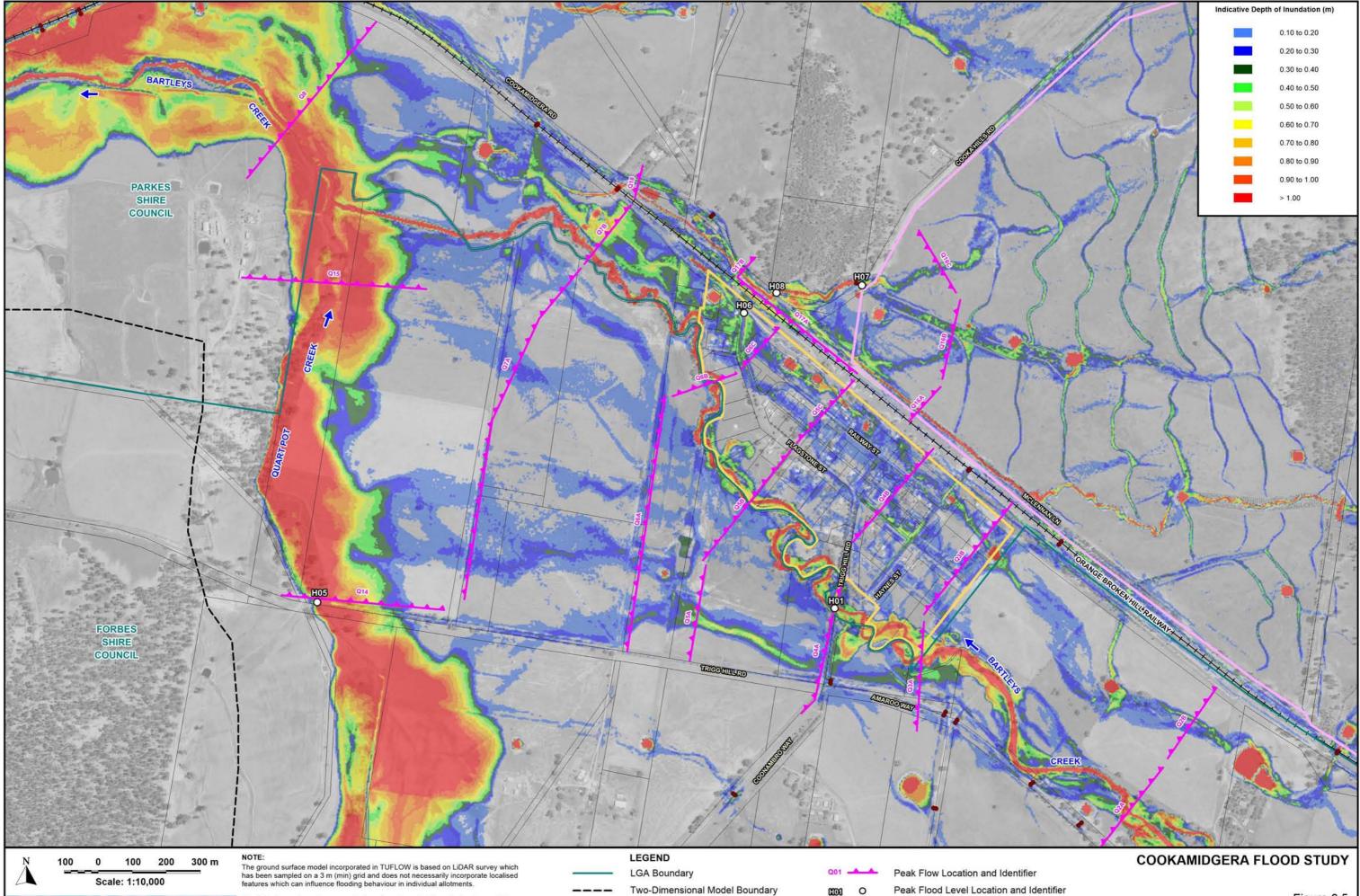
Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

Figure 6.4 (Sheet 2 of 2) TUFLOW MODEL RESULTS 2% AEP



Village Centre

TUFLOW MODEL RESULTS 1% AEP



Lyall& 

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Figure 6.5 (Sheet 2 of 2) TUFLOW MODEL RESULTS 1% AEP

Peak Flood Level Location and Identifier

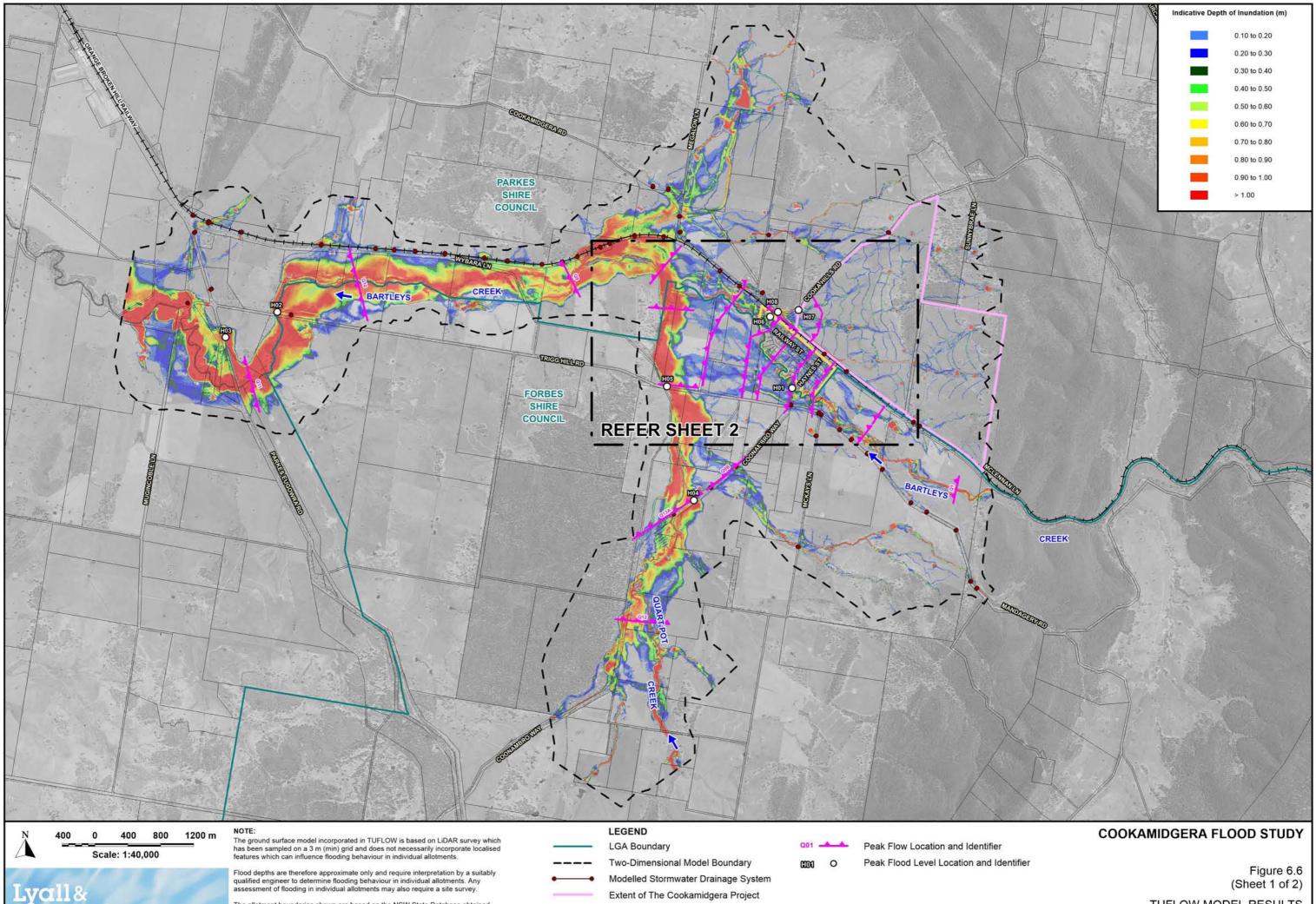
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Modelled Stormwater Drainage System

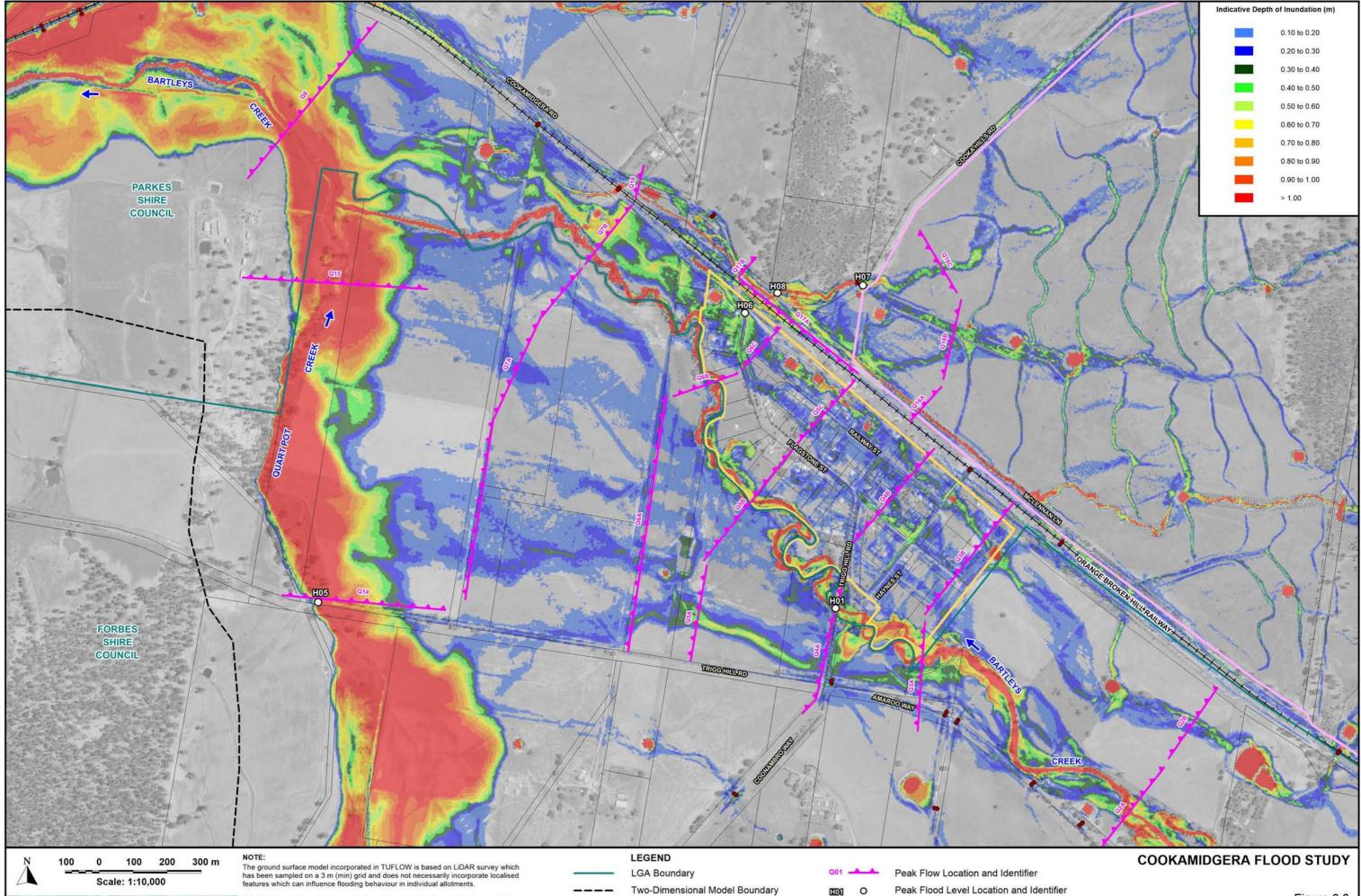
Extent of The Cookamidgera Project

Village Centre



Village Centre

TUFLOW MODEL RESULTS 0.5% AEP



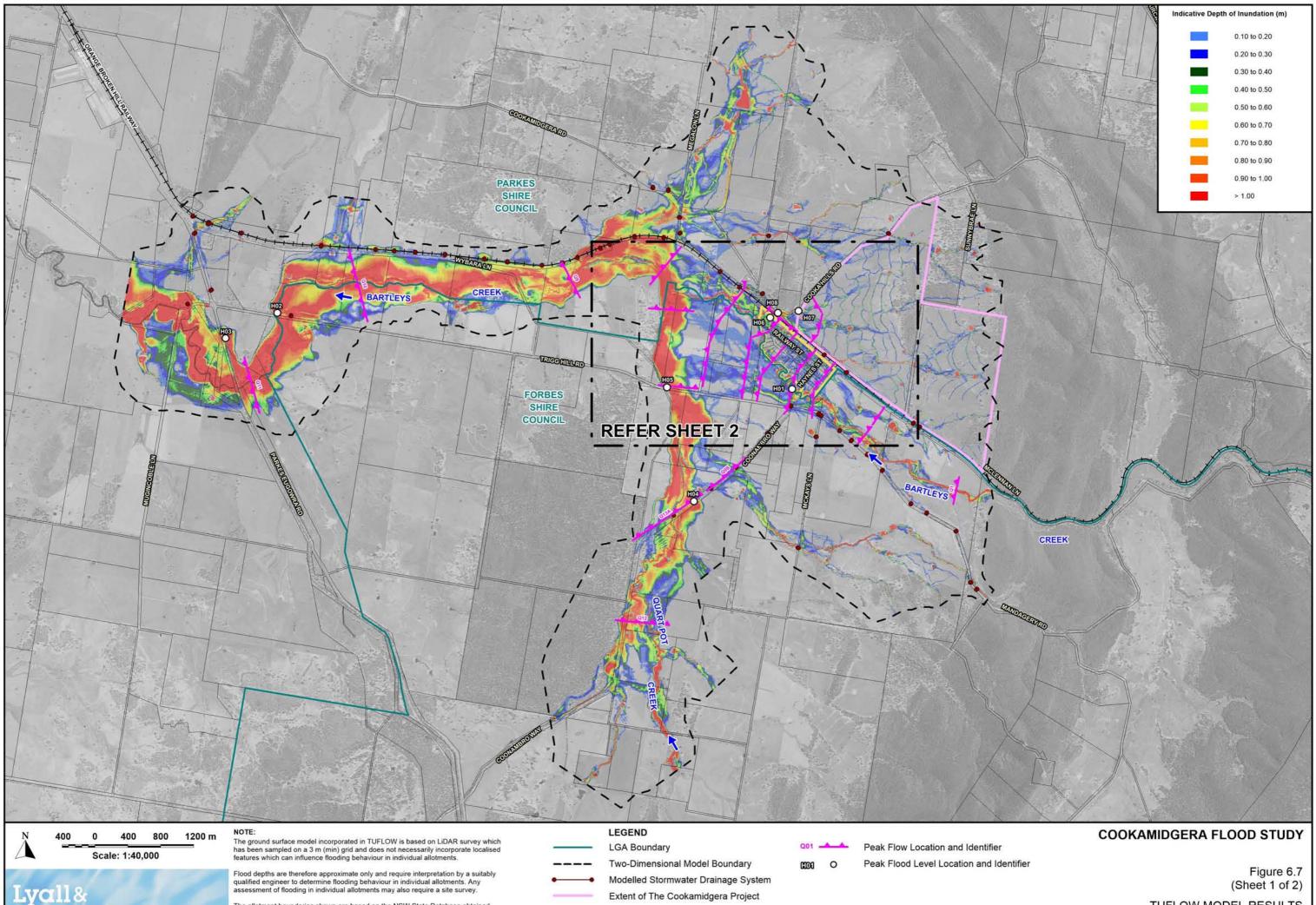
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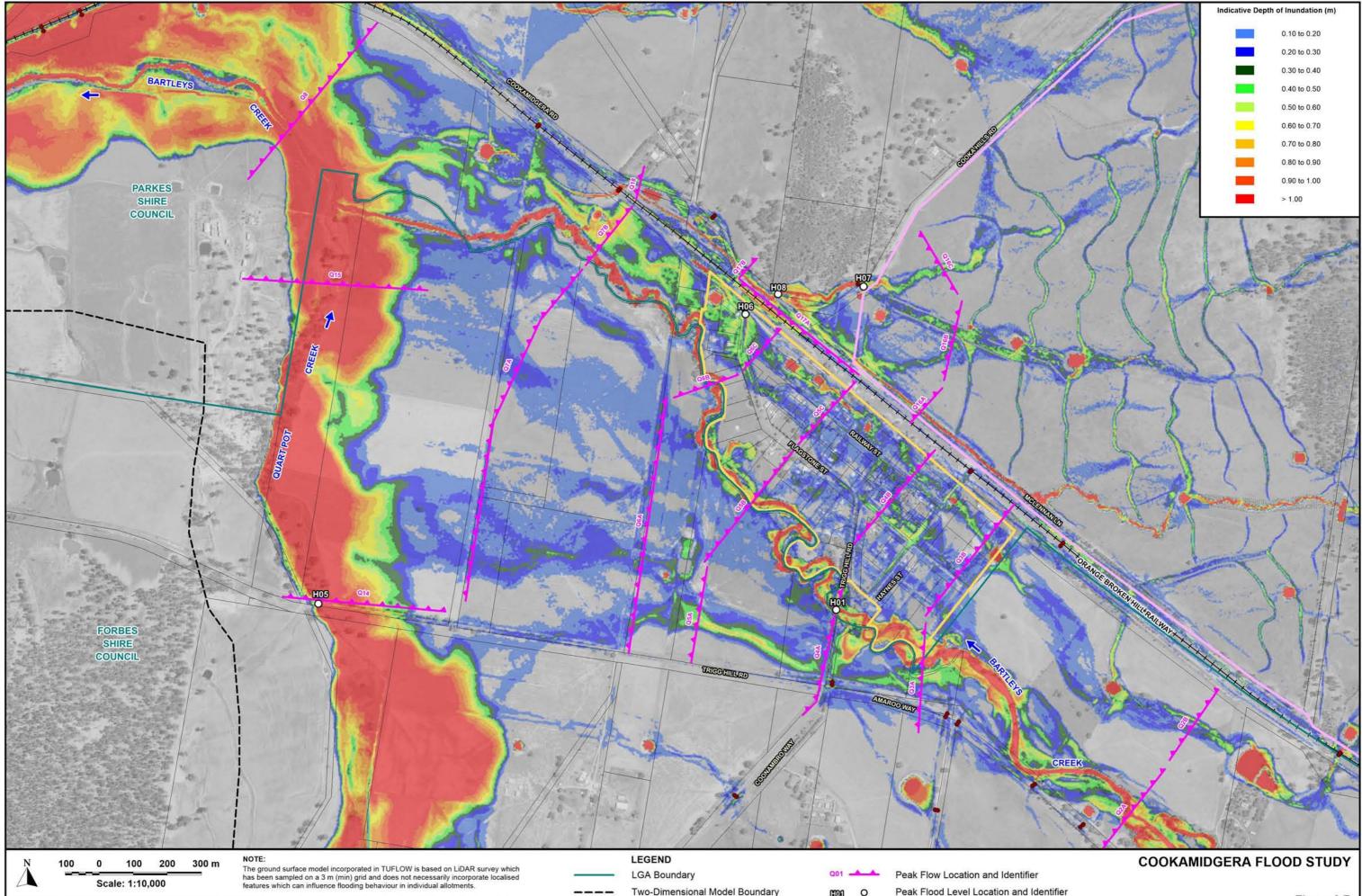
Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

Figure 6.6 (Sheet 2 of 2) TUFLOW MODEL RESULTS 0.5% AEP



Village Centre

TUFLOW MODEL RESULTS 0.2% AEP



Lyall & 

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	Two-Dimensional Model Boundary		
• •	Modelled Stormwater Drainage System		
	Extent of The Cookamidgera Project		
	Village Centre		

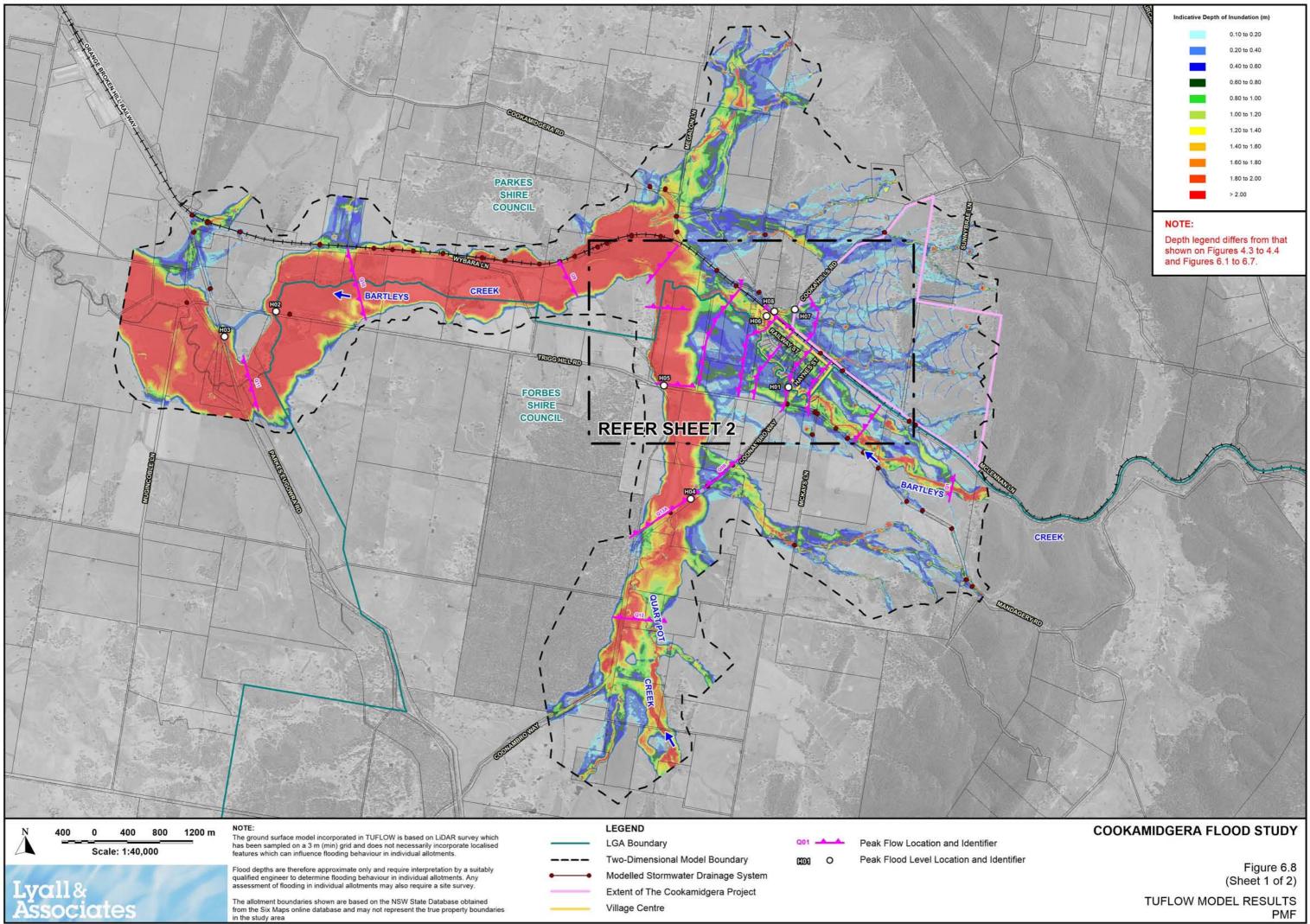
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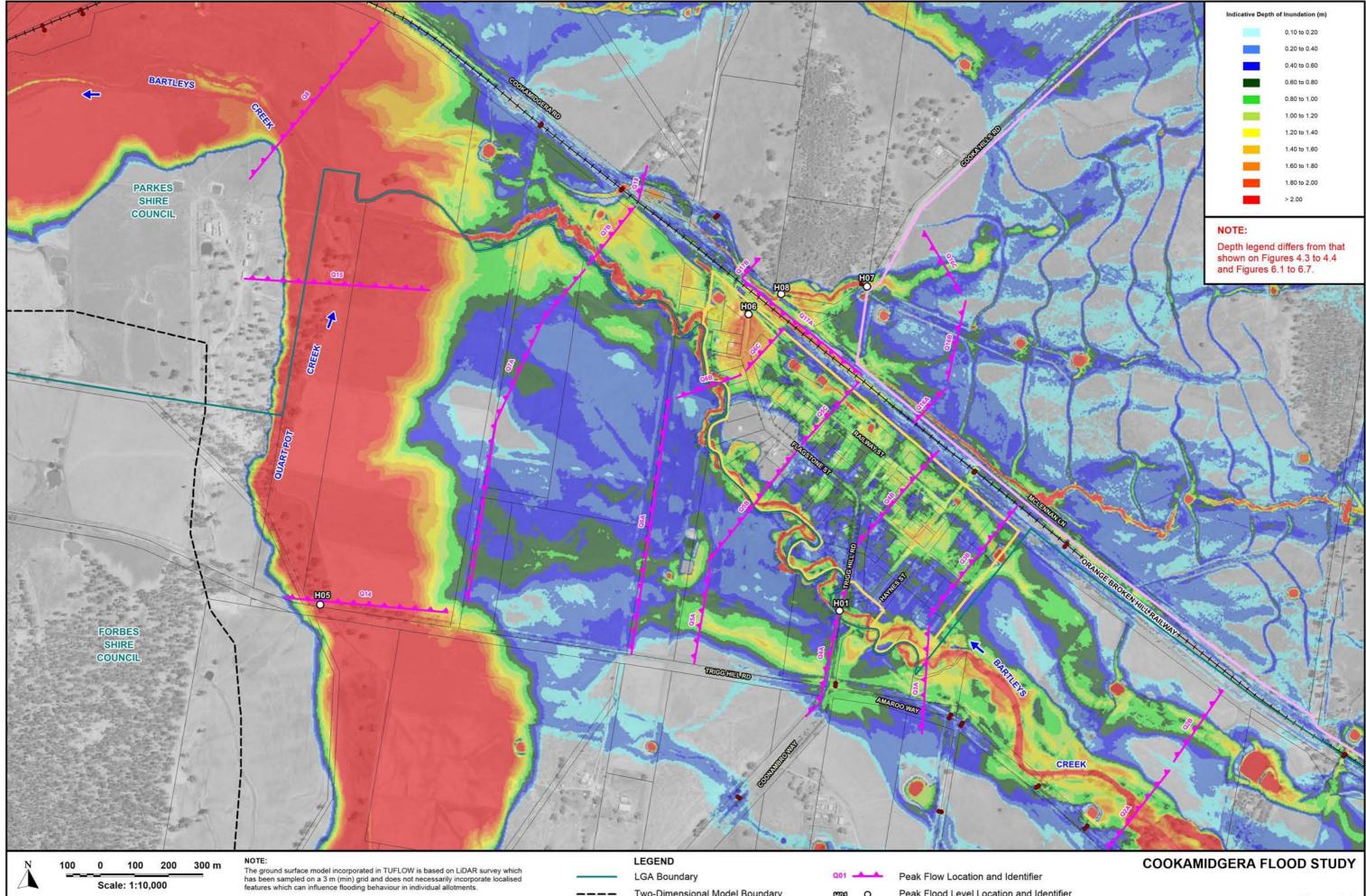
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Peak Flood Level Location and Identifier

Figure 6.7 (Sheet 2 of 2) TUFLOW MODEL RESULTS 0.2% AEP



TUFLOW MODEL RESULTS PMF



Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

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Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

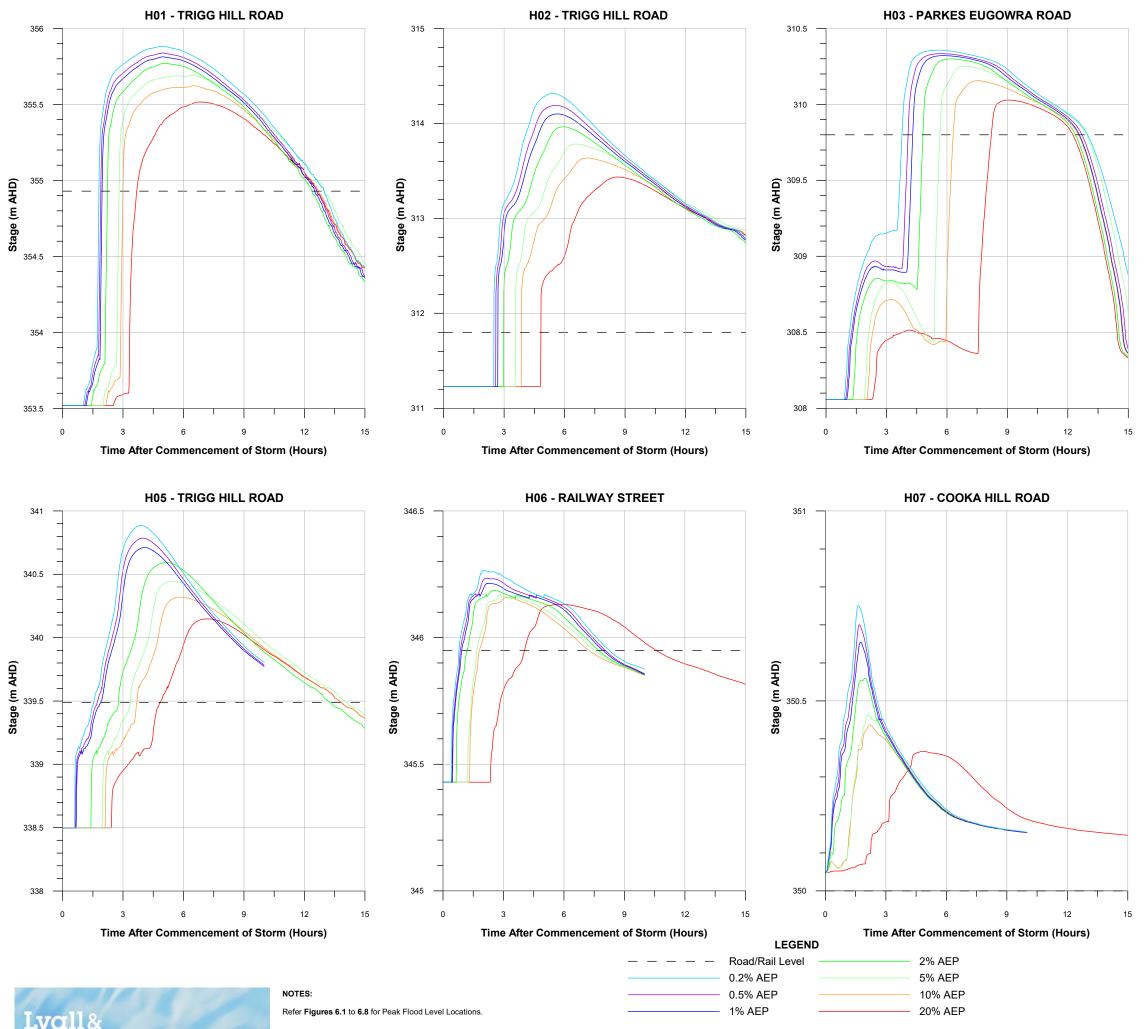
Two-Dimensional Model Boundary

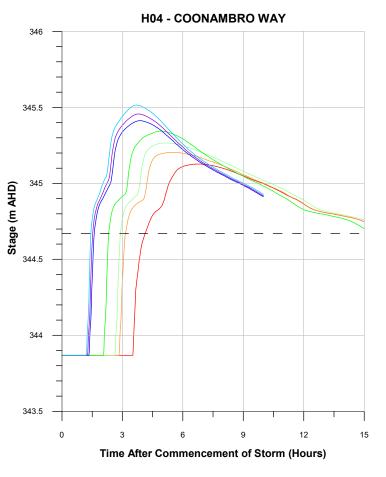
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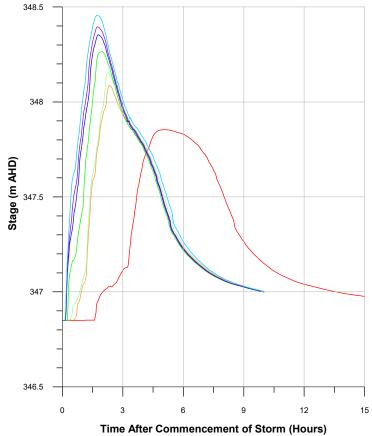
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Peak Flood Level Location and Identifier

Figure 6.8 (Sheet 2 of 2) TUFLOW MODEL RESULTS PMF



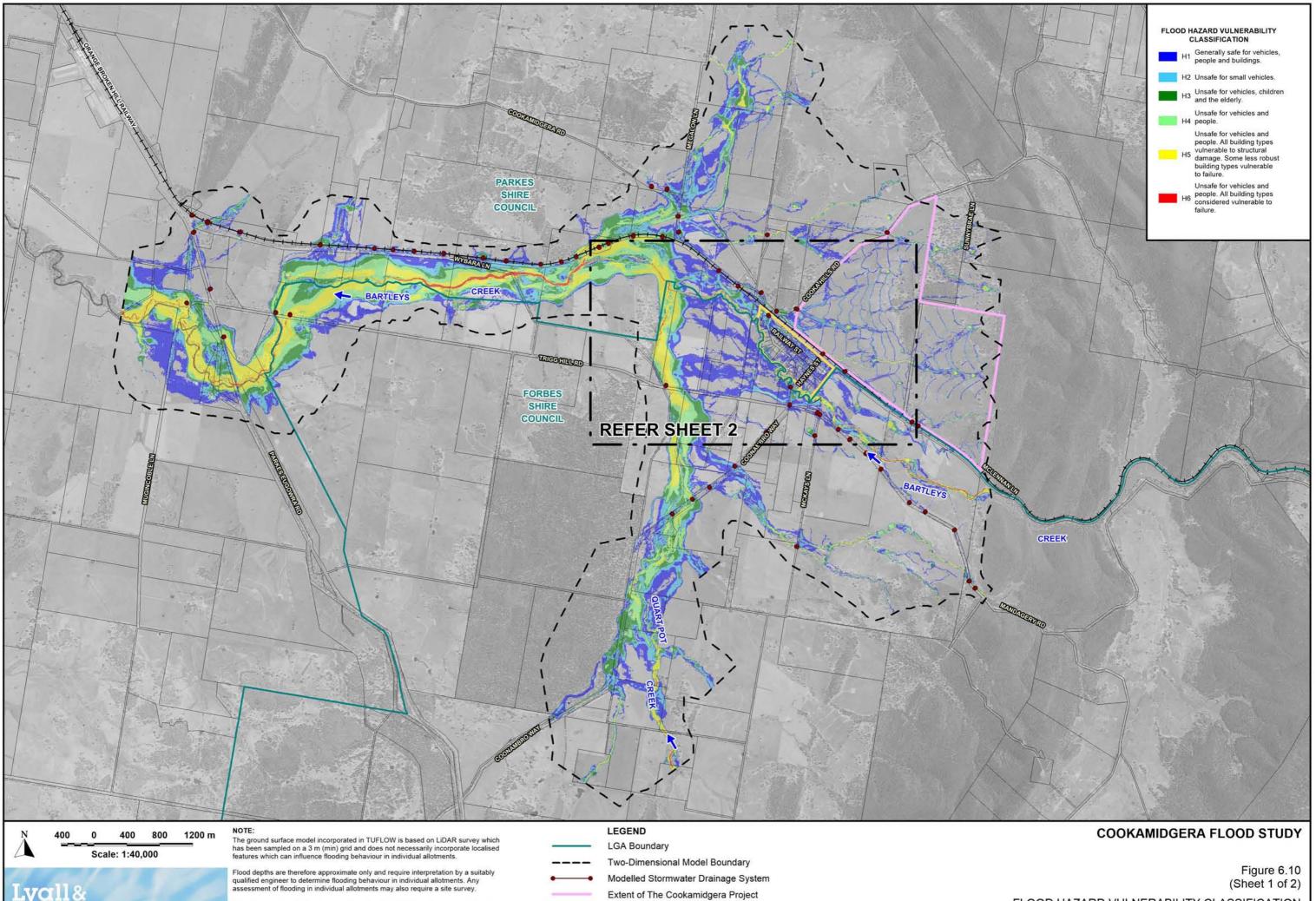




H08 - COOKA HILL ROAD

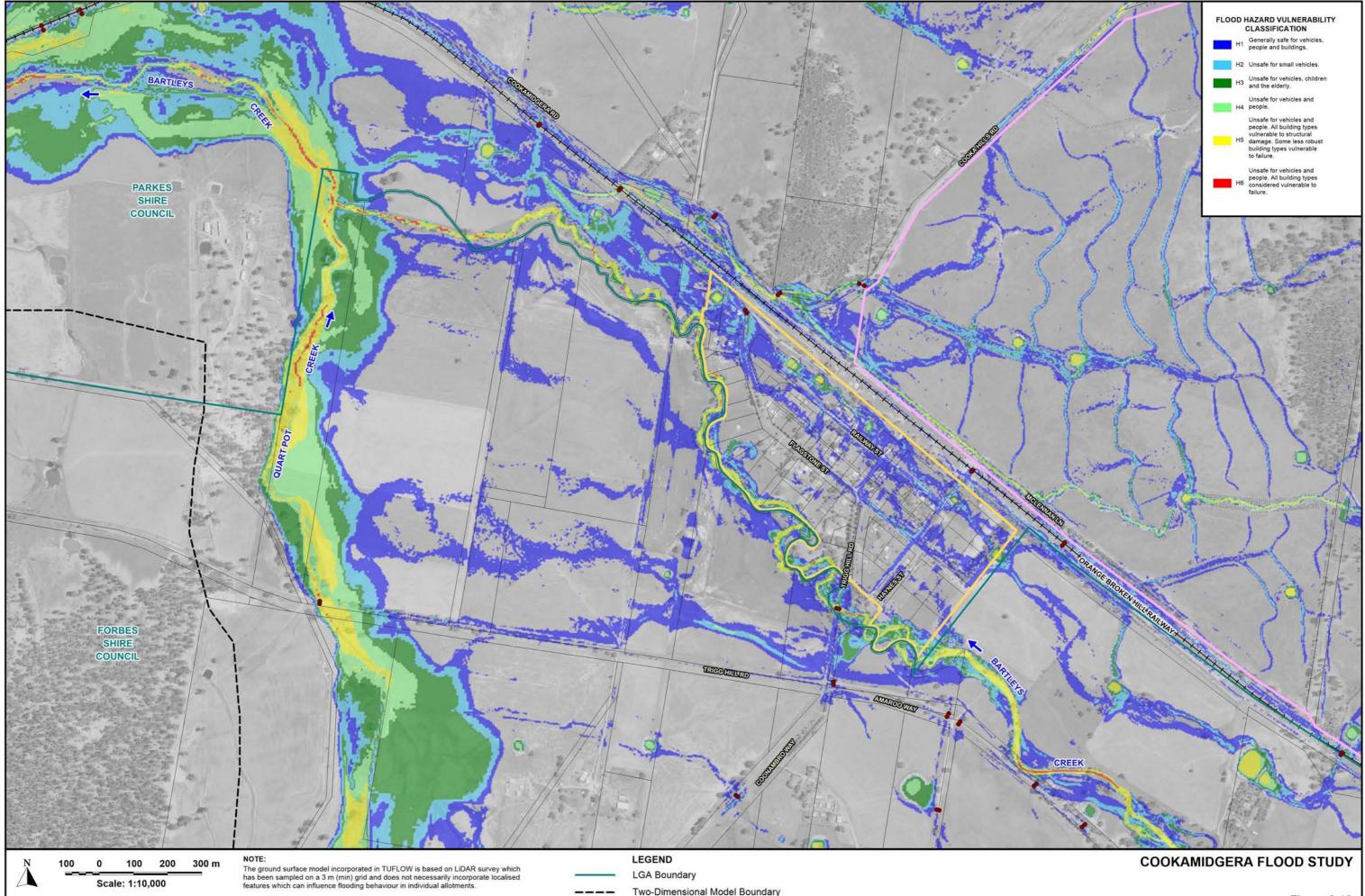
**COOKAMIDGERA FLOOD STUDY** Figure 6.9

> STAGE HYDROGRAPHS DESIGN STORM EVENTS



Village Centre

FLOOD HAZARD VULNERABILITY CLASSIFICATION **5% AEP** 





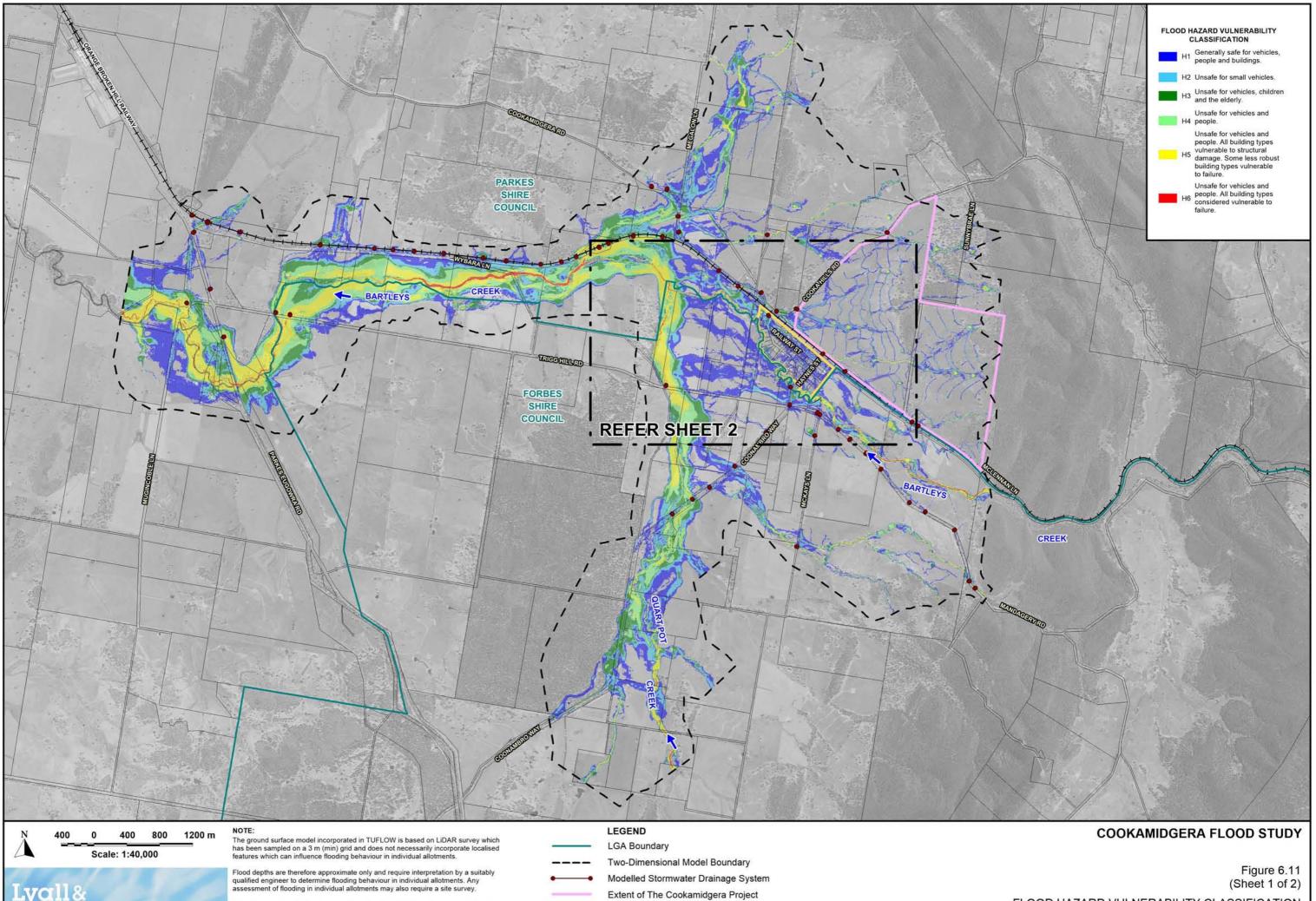
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	LGA Boundary
5	Two-Dimensional Model Boundary
	Modelled Stormwater Drainage System
	Extent of The Cookamidgera Project
	Village Centre

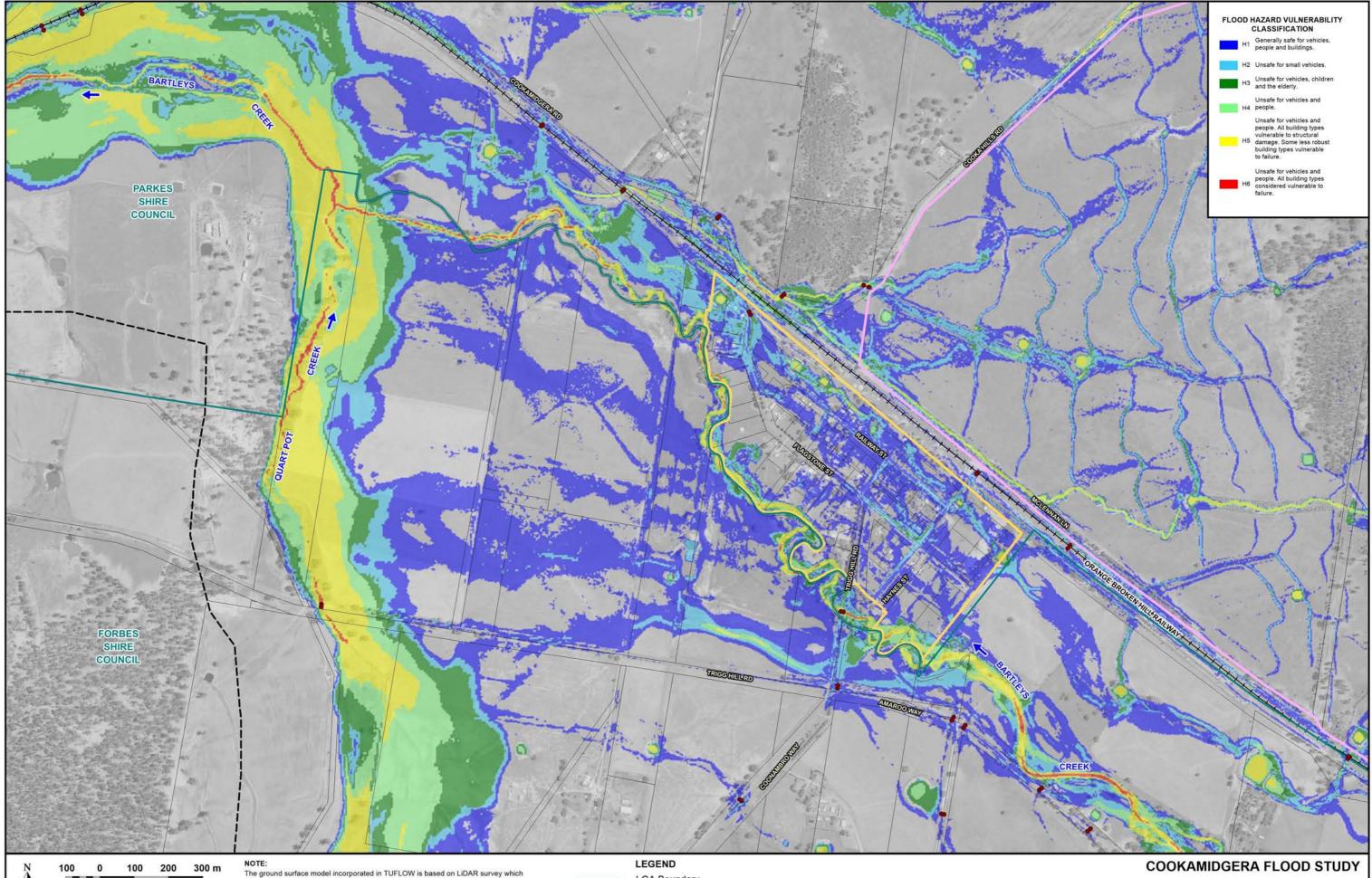
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Figure 6.10 (Sheet 2 of 2) FLOOD HAZARD VULNERABILITY CLASSIFICATION 5% AEP



Village Centre

FLOOD HAZARD VULNERABILITY CLASSIFICATION 1% AEP



Scale: 1:10,000 Lyall&

NOTE: The ground surface model incorporated in TUFLOW is based on LiDAR survey which has been sampled on a 3 m (min) grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

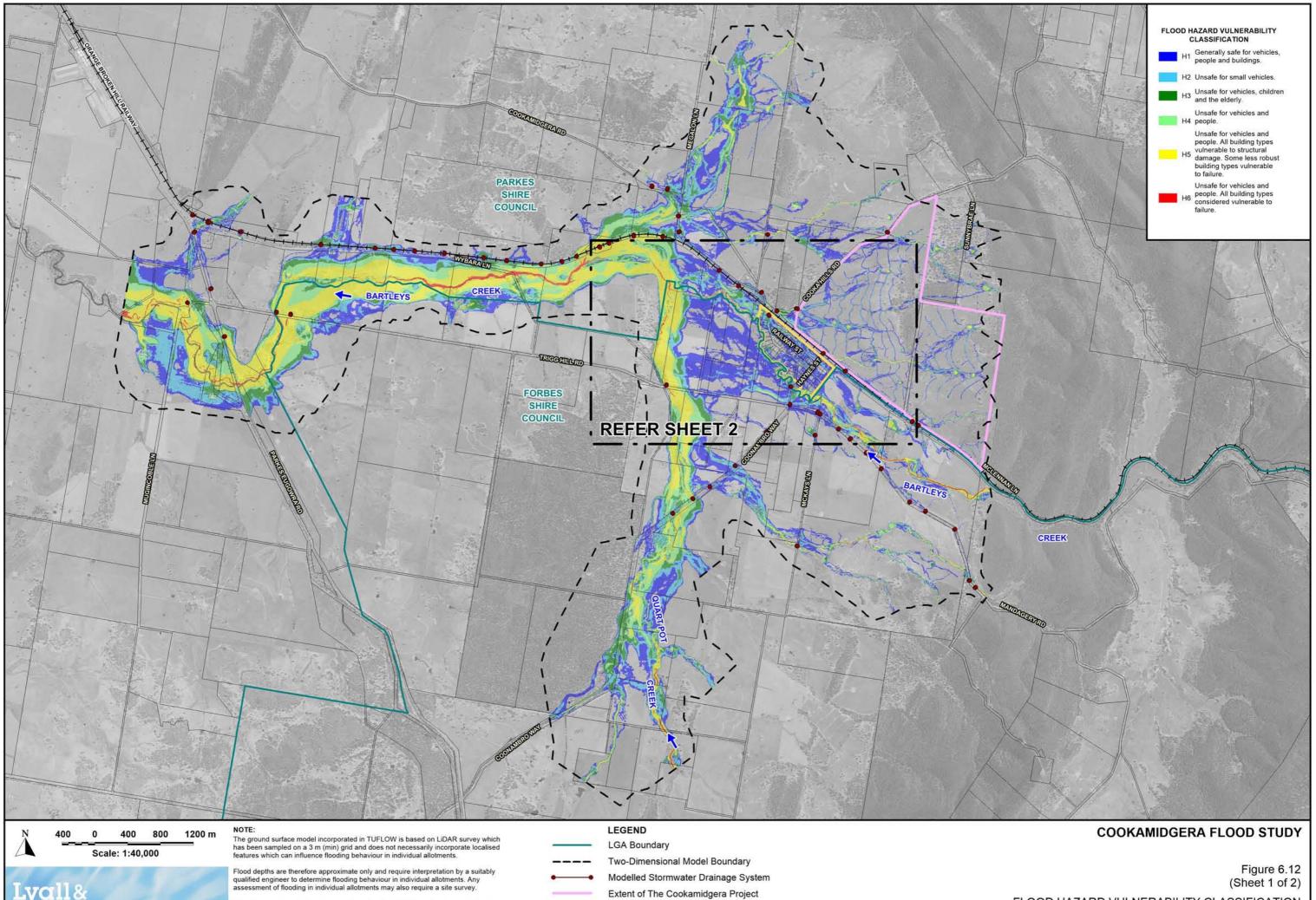
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-	LGA Boundary
	Two-Dimensional Model Boundary
•	Modelled Stormwater Drainage System
-	Extent of The Cookamidgera Project
-	Village Centre

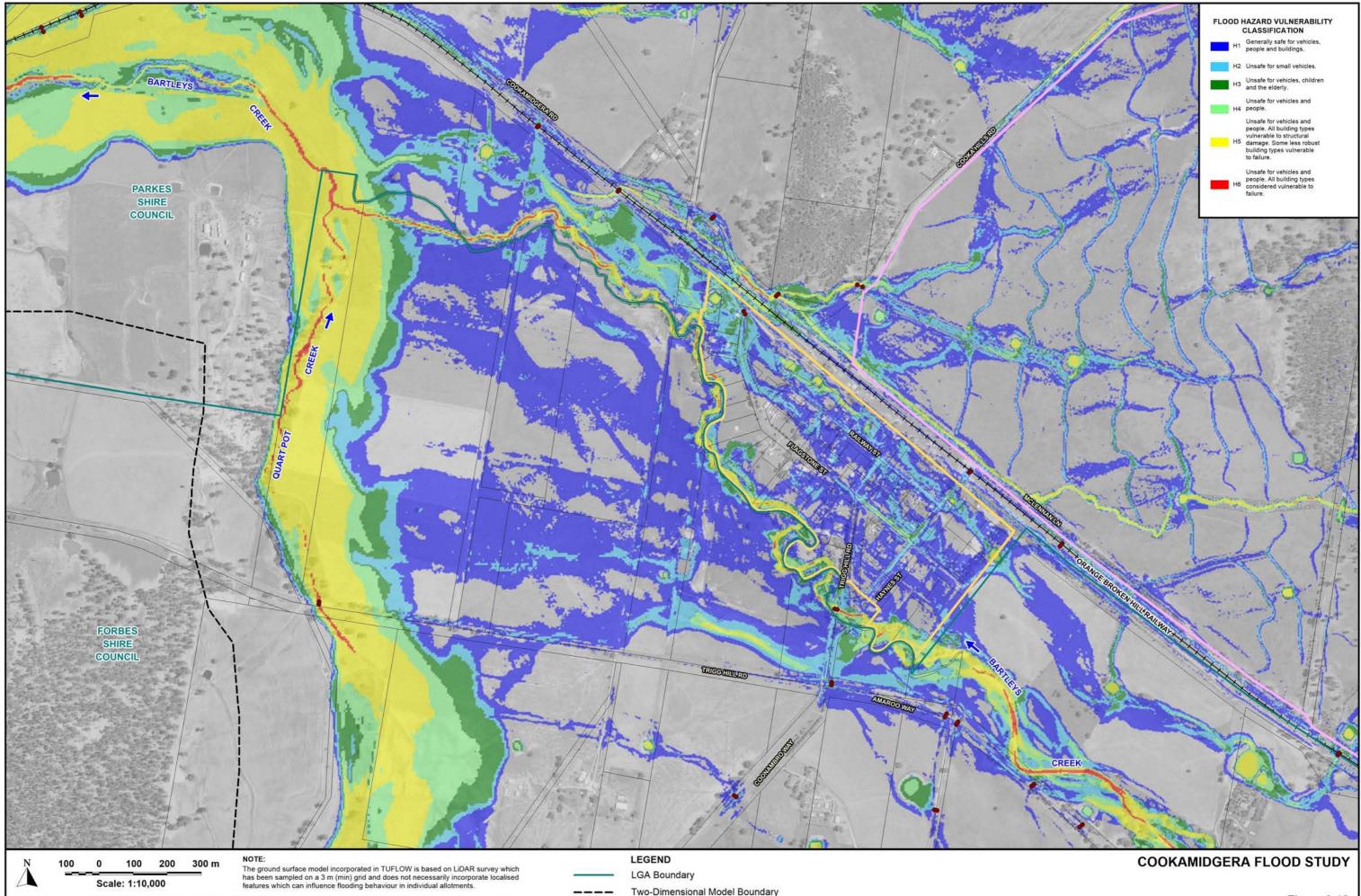
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Figure 6.11 (Sheet 2 of 2) FLOOD HAZARD VULNERABILITY CLASSIFICATION 1% AEP



Extent of The Cookamidgera Project Village Centre

(Sheet 1 of 2) FLOOD HAZARD VULNERABILITY CLASSIFICATION 0.2% AEP



Lyall& 

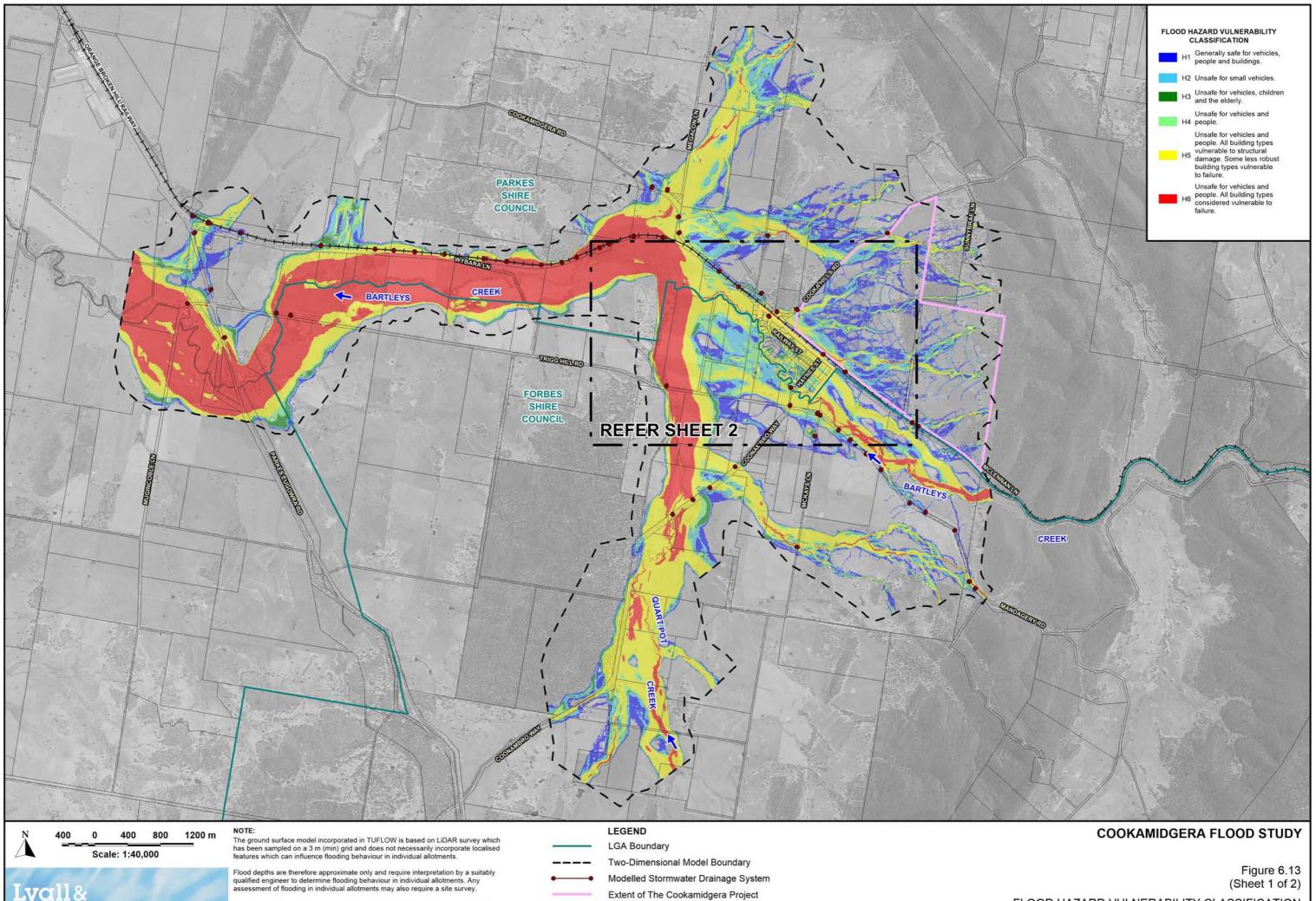
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5	Two-Dimensional Model Boundary
	Modelled Stormwater Drainage System
	Extent of The Cookamidgera Project
	Village Centre

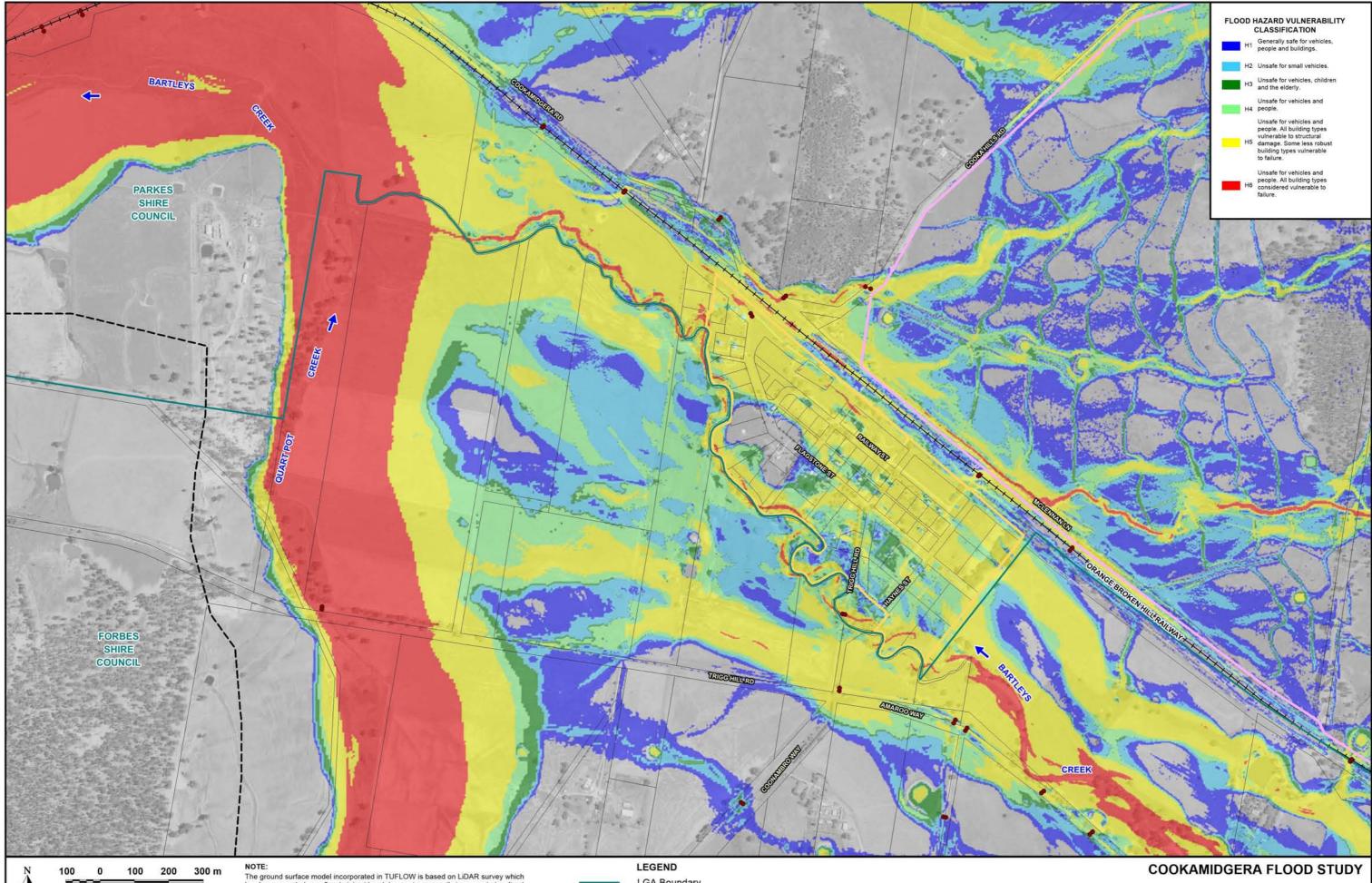
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Figure 6.12 (Sheet 2 of 2) FLOOD HAZARD VULNERABILITY CLASSIFICATION 0.2% AEP



Extent of The Cookamidgera Project Village Centre

FLOOD HAZARD VULNERABILITY CLASSIFICATION PMF



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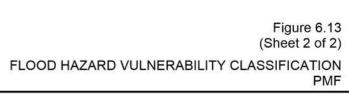
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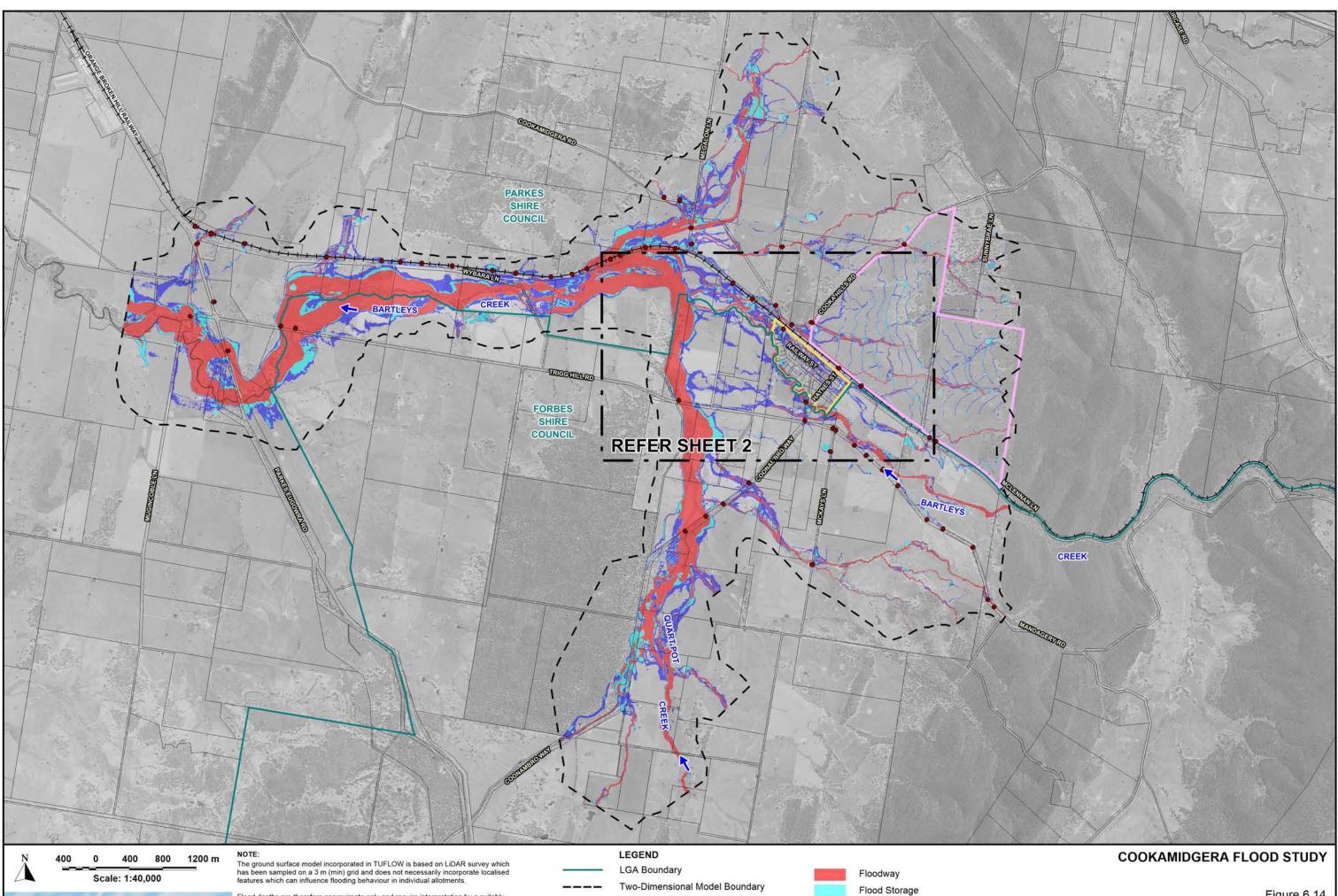
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•	LGA Boundary
3	Two-Dimensional Model Boundary
•	Modelled Stormwater Drainage System
	Extent of The Cookamidgera Project
	Village Centre







Modelled Stormwater Drainage System

Extent of The Cookamidgera Project

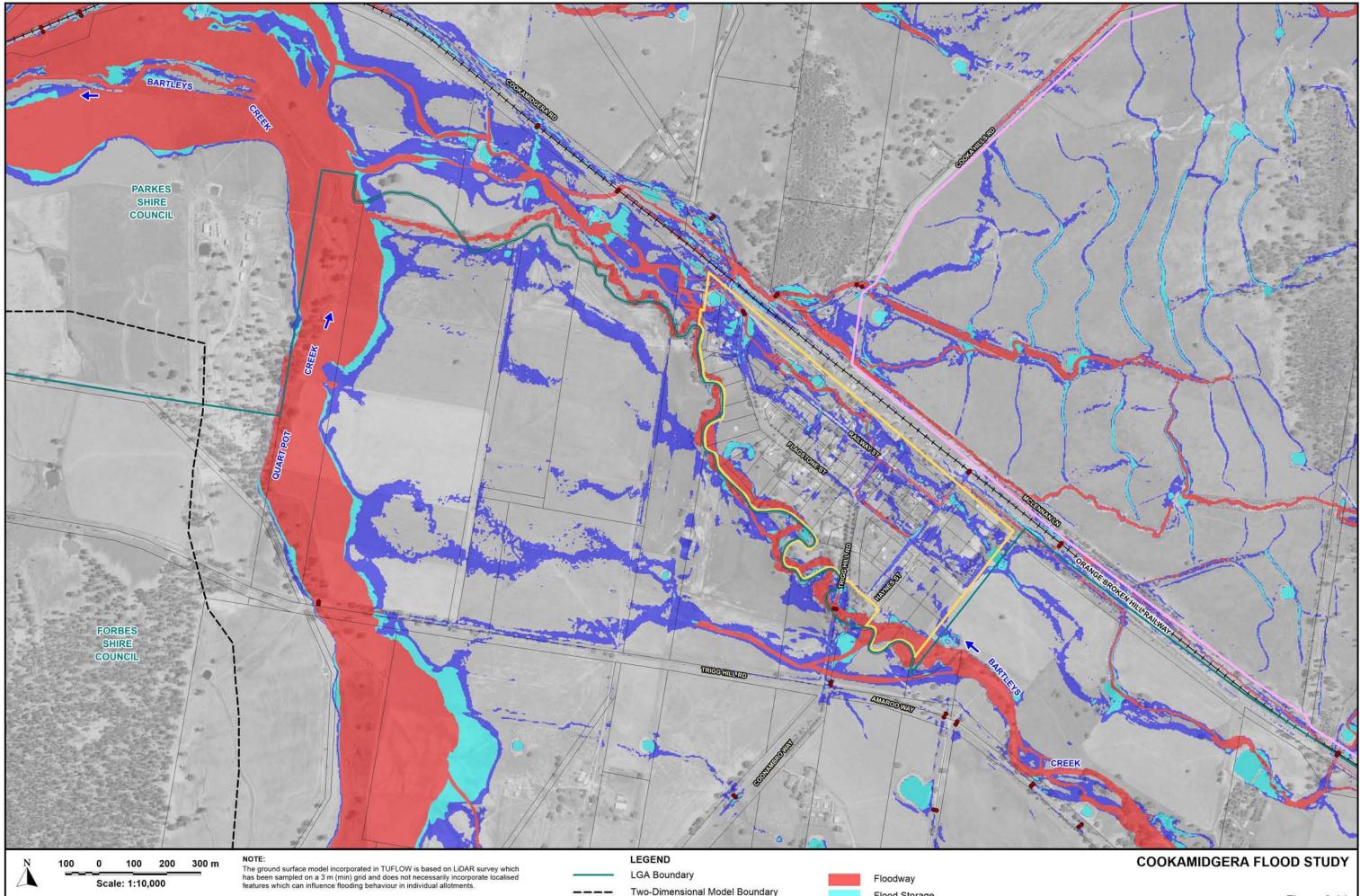
Village Centre

Flood Fringe

Lyall& clotes Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

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Figure 6.14 (Sheet 1 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN **5% AEP** 



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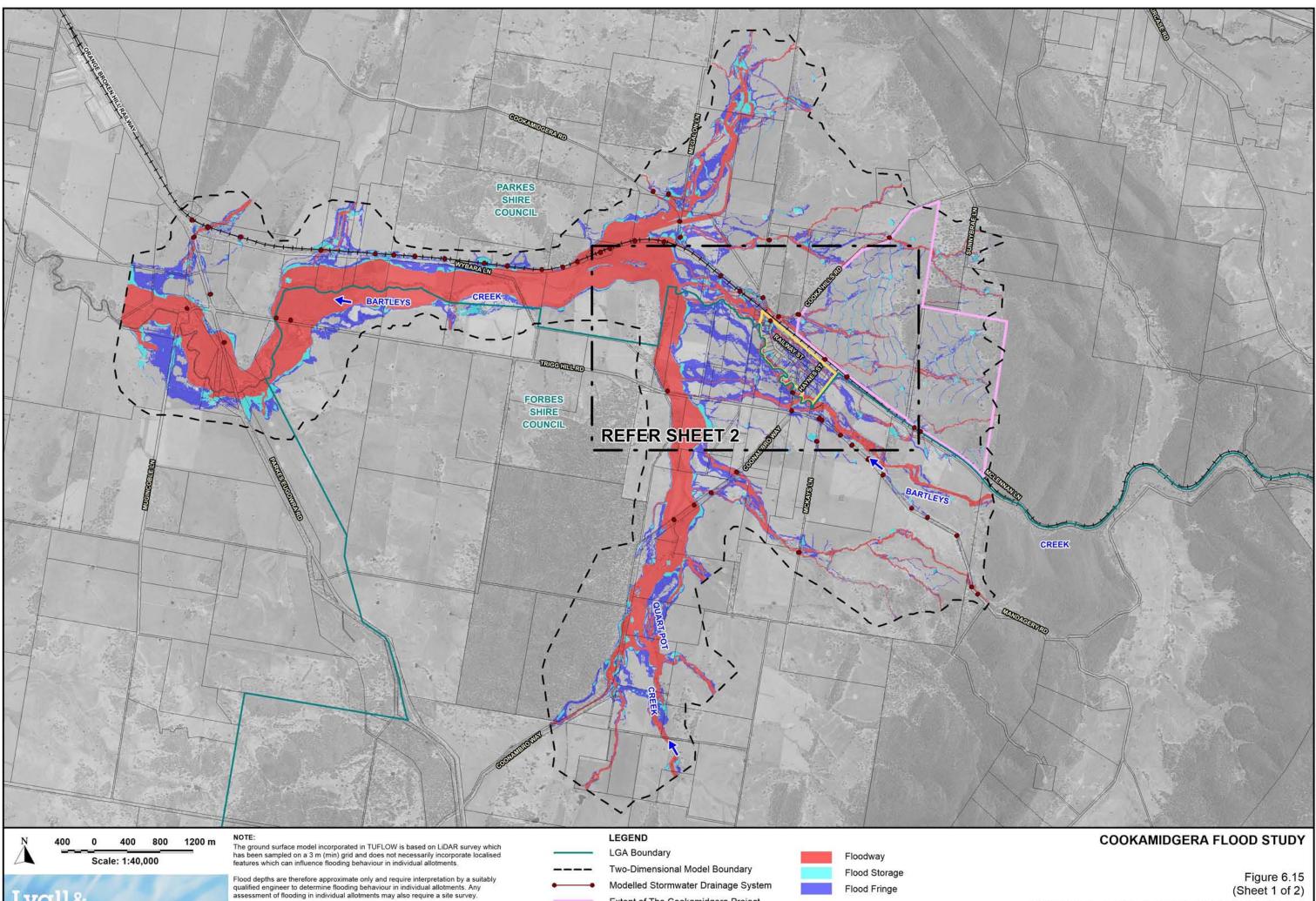
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# Two-Dimensional Model Boundary

Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre



Figure 6.14 (Sheet 2 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN **5% AEP** 



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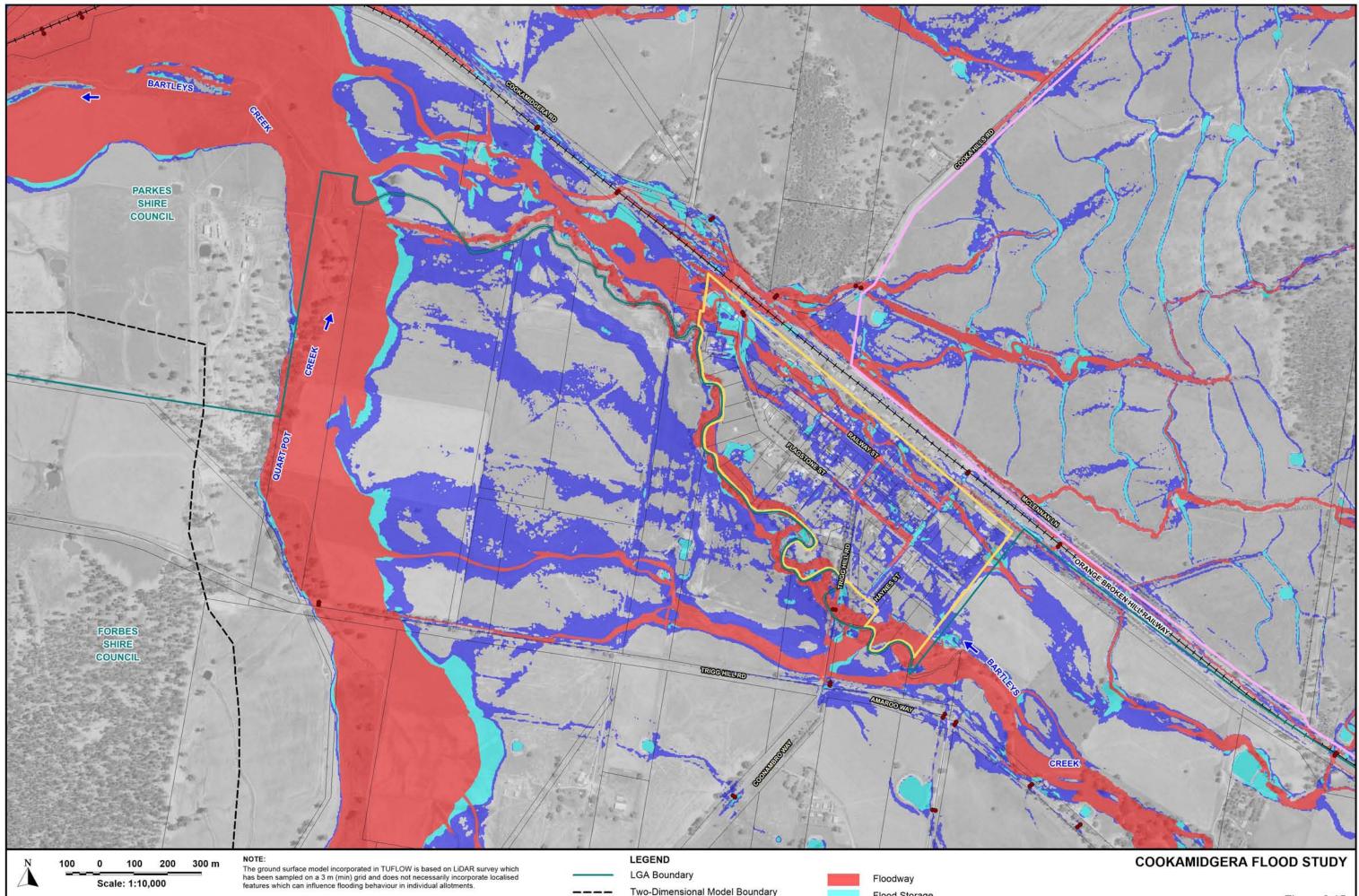
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Extent of The Cookamidgera Project

Village Centre

Flood Fringe

Figure 6.15 (Sheet 1 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN 1% AEP



Flood depths are therefore approximate only and require interpretation by a suitably qualified engineer to determine flooding behaviour in individual allotments. Any assessment of flooding in individual allotments may also require a site survey.

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The allotment boundaries shown are based on the NSW State Database obtained from the Six Maps online database and may not represent the true property boundaries in the study area

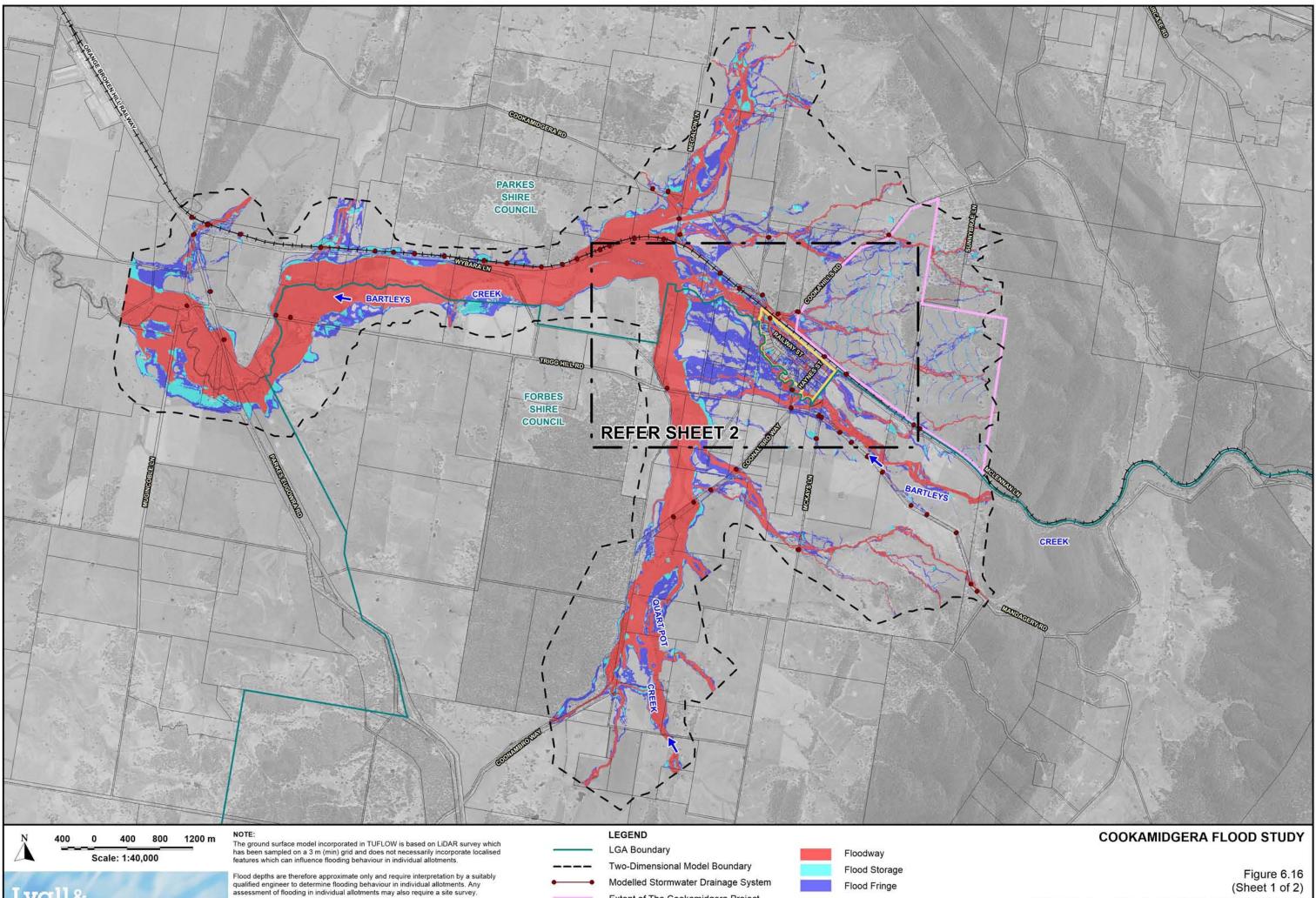
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Figure 6.15 (Sheet 2 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN 1% AEP



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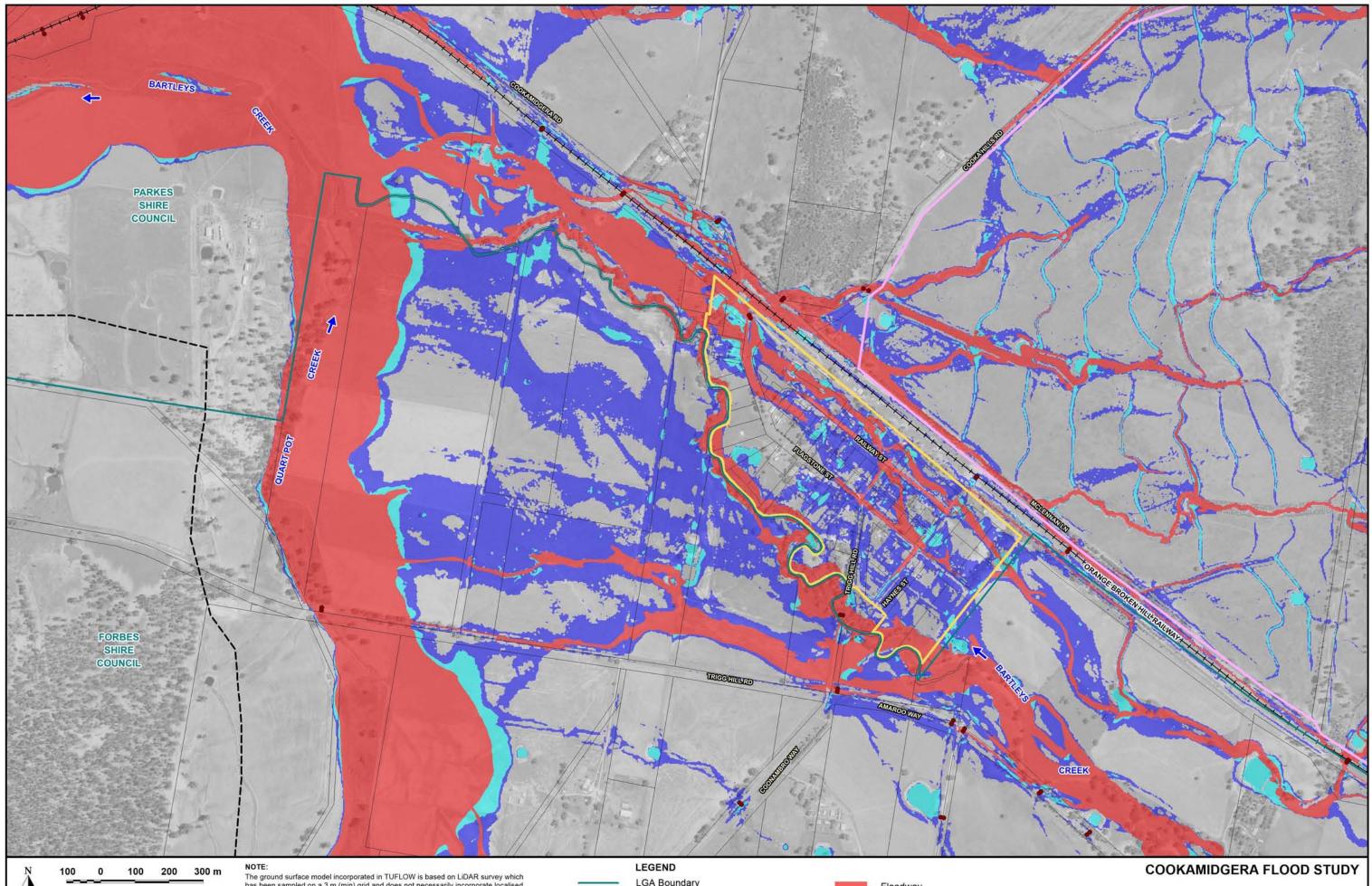
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Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

Flood Fringe

Figure 6.16 (Sheet 1 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN 0.2% AEP



Scale: 1:10,000

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Lyall&

NOTE: The ground surface model incorporated in TUFLOW is based on LiDAR survey which has been sampled on a 3 m (min) grid and does not necessarily incorporate localised features which can influence flooding behaviour in individual allotments.

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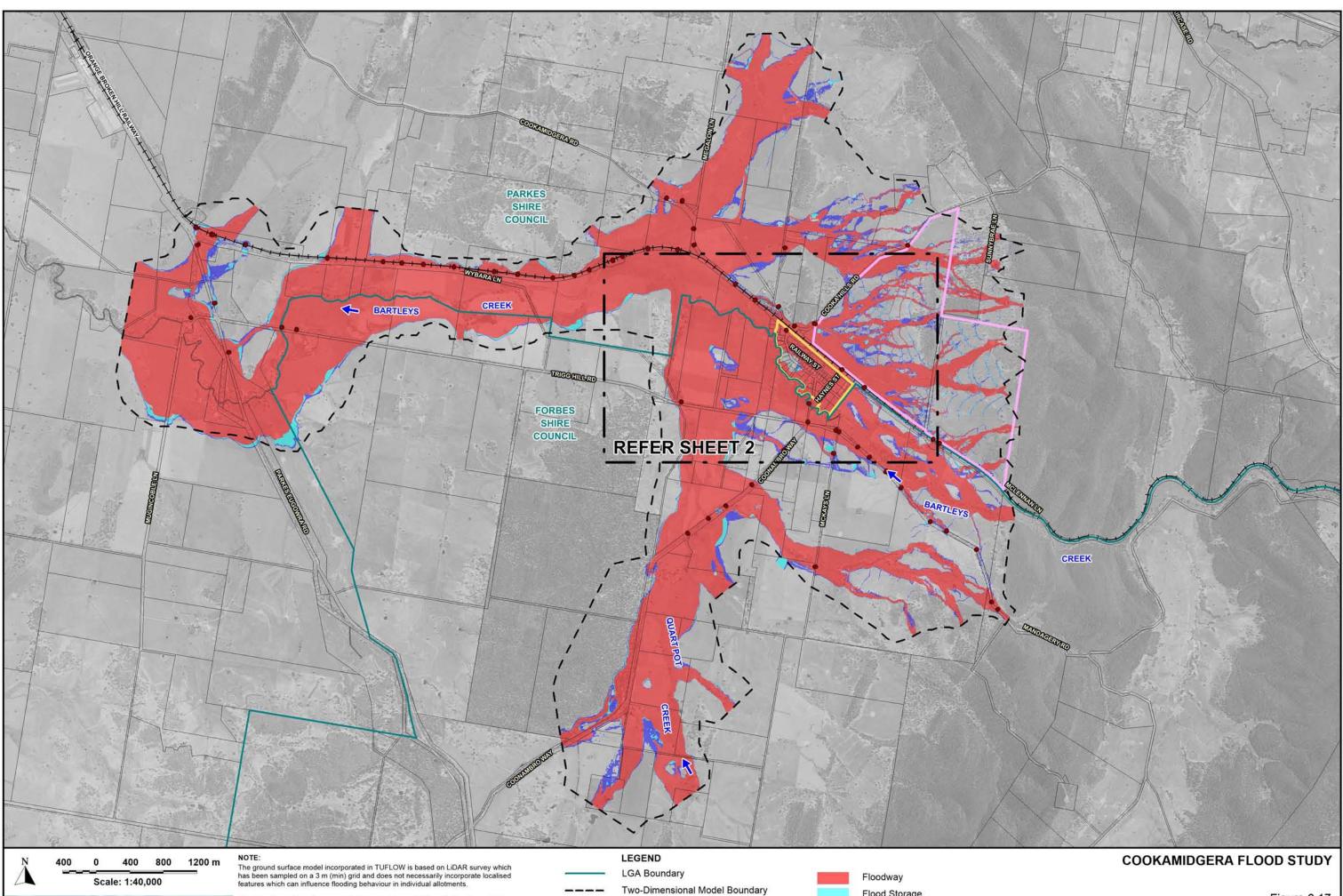
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Dimensional Model Boundary elled Stormwater Drainage System nt of The Cookamidgera Project



Figure 6.16 (Sheet 2 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN 0.2% AEP





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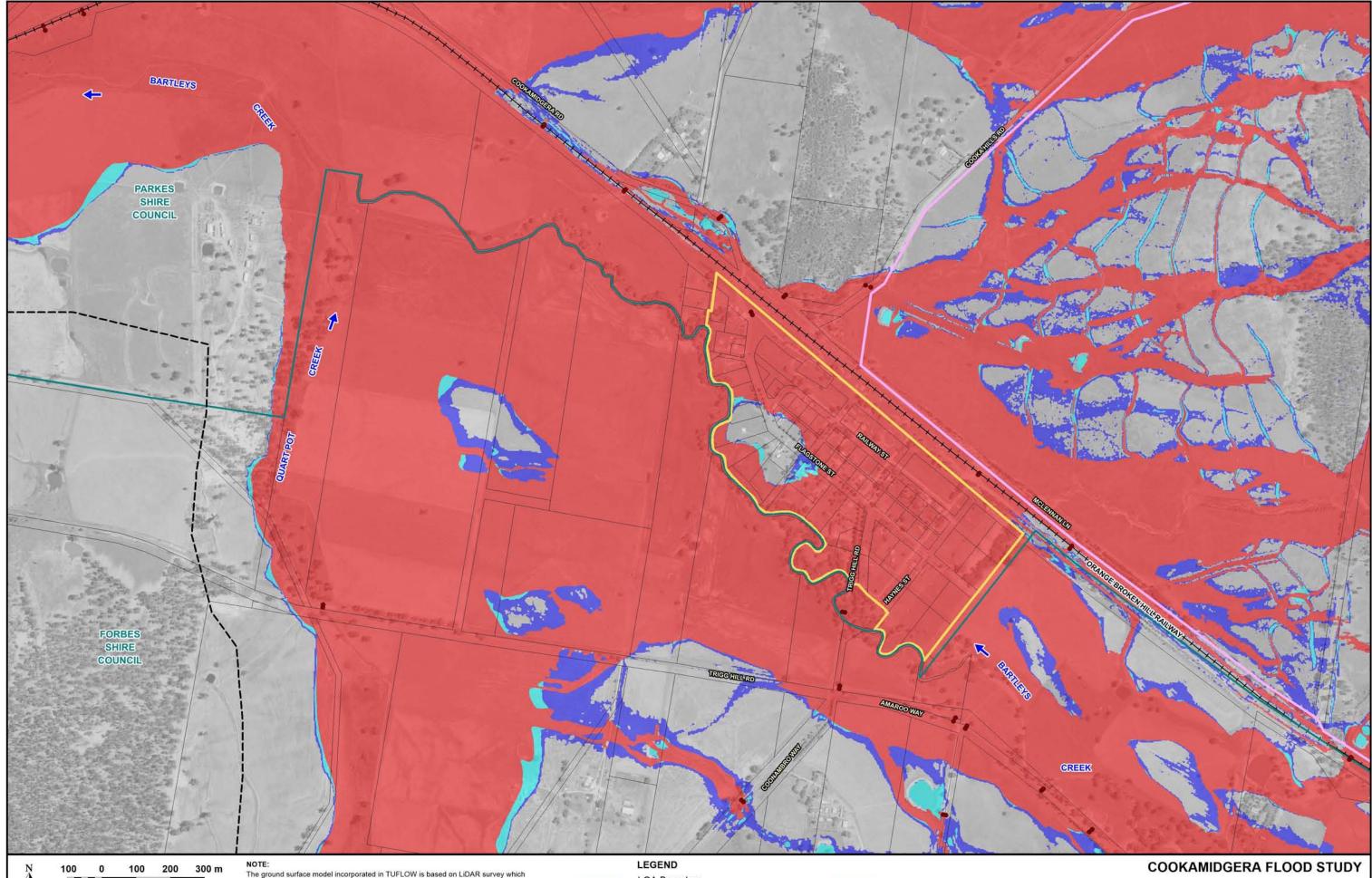
The allotment boundaries shown are based on the NSW State Database obtained from the Six Maps online database and may not represent the true property boundaries in the study area

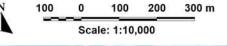
Village Centre

Modelled Stormwater Drainage System Extent of The Cookamidgera Project



Figure 6.17 (Sheet 1 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN PMF





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Lyall&

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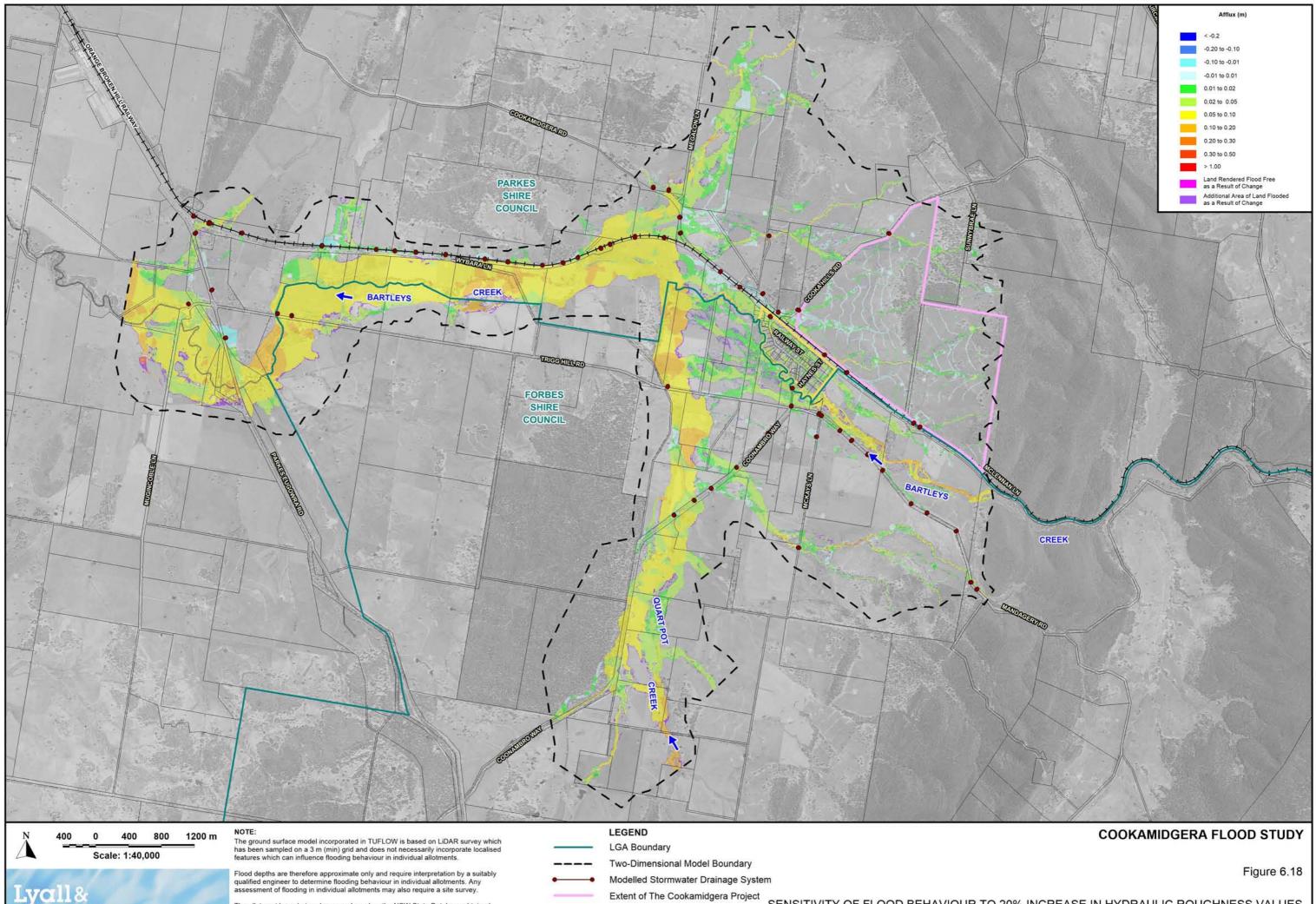
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## LGA Boundary

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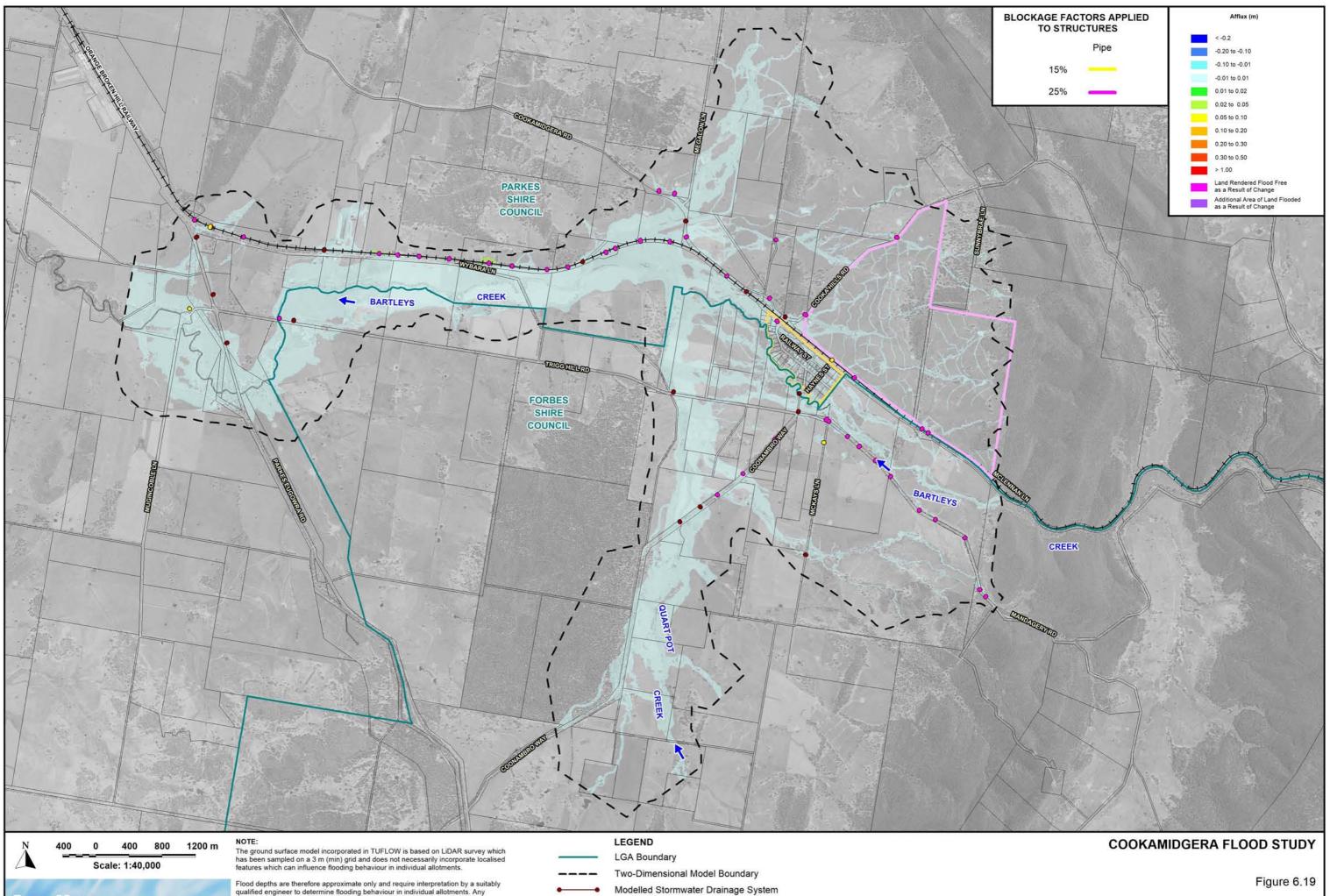
Figure 6.17 (Sheet 2 of 2) HYDRAULIC CATEGORISATION OF FLOODPLAIN PMF



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Village Centre

SENSITIVITY OF FLOOD BEHAVIOUR TO 20% INCREASE IN HYDRAULIC ROUGHNESS VALUES 1% AEP



Village Centre

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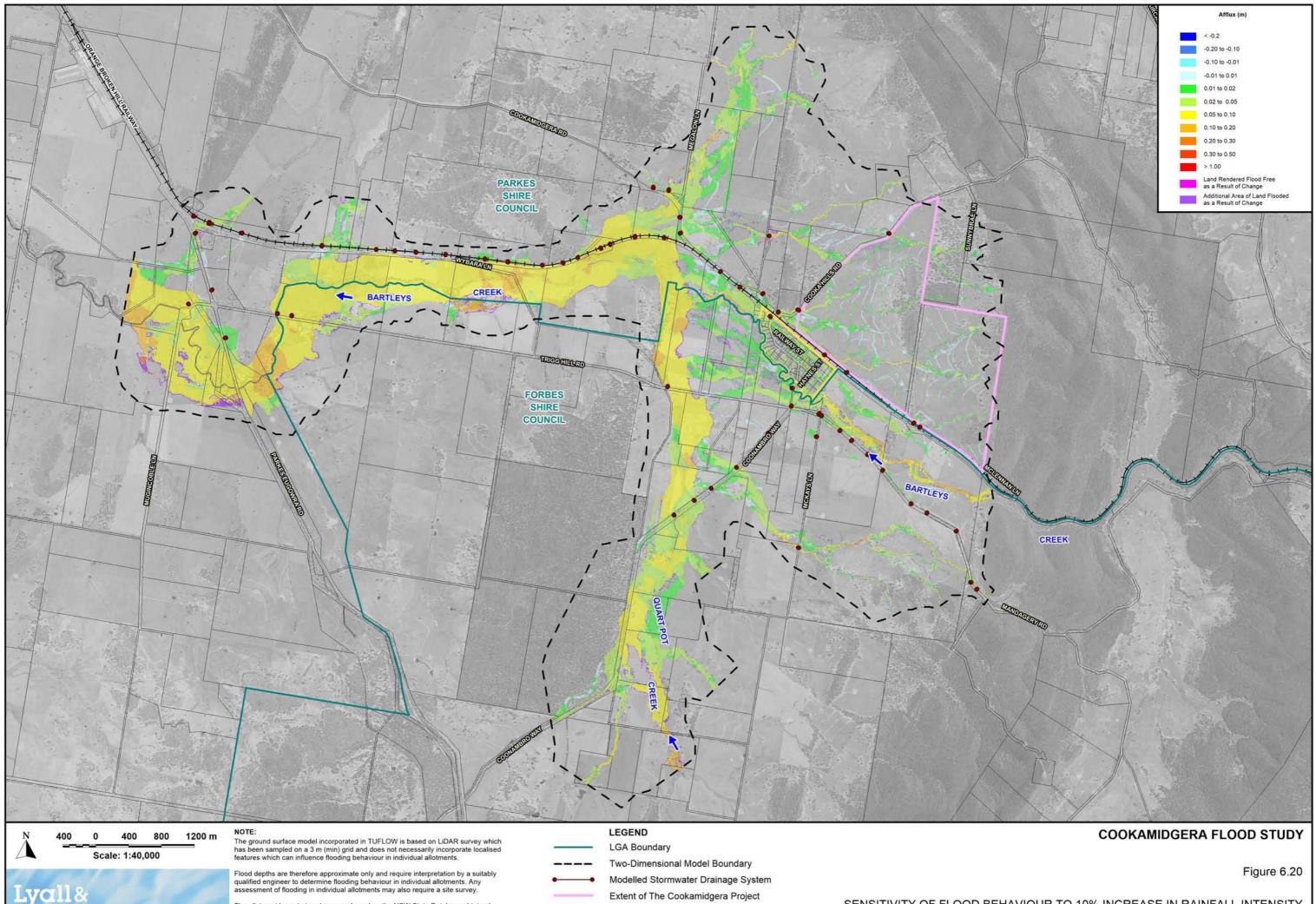
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The allotment boundaries shown are based on the NSW State Database obtained from the Six Maps online database and may not represent the true property boundaries in the study area

Extent of The Cookamidgera Project

SENSITIVITY OF FLOOD BEHAVIOUR TO PARTIAL BLOCKAGE OF HYDRAULIC STRUCTURES 1% AEP

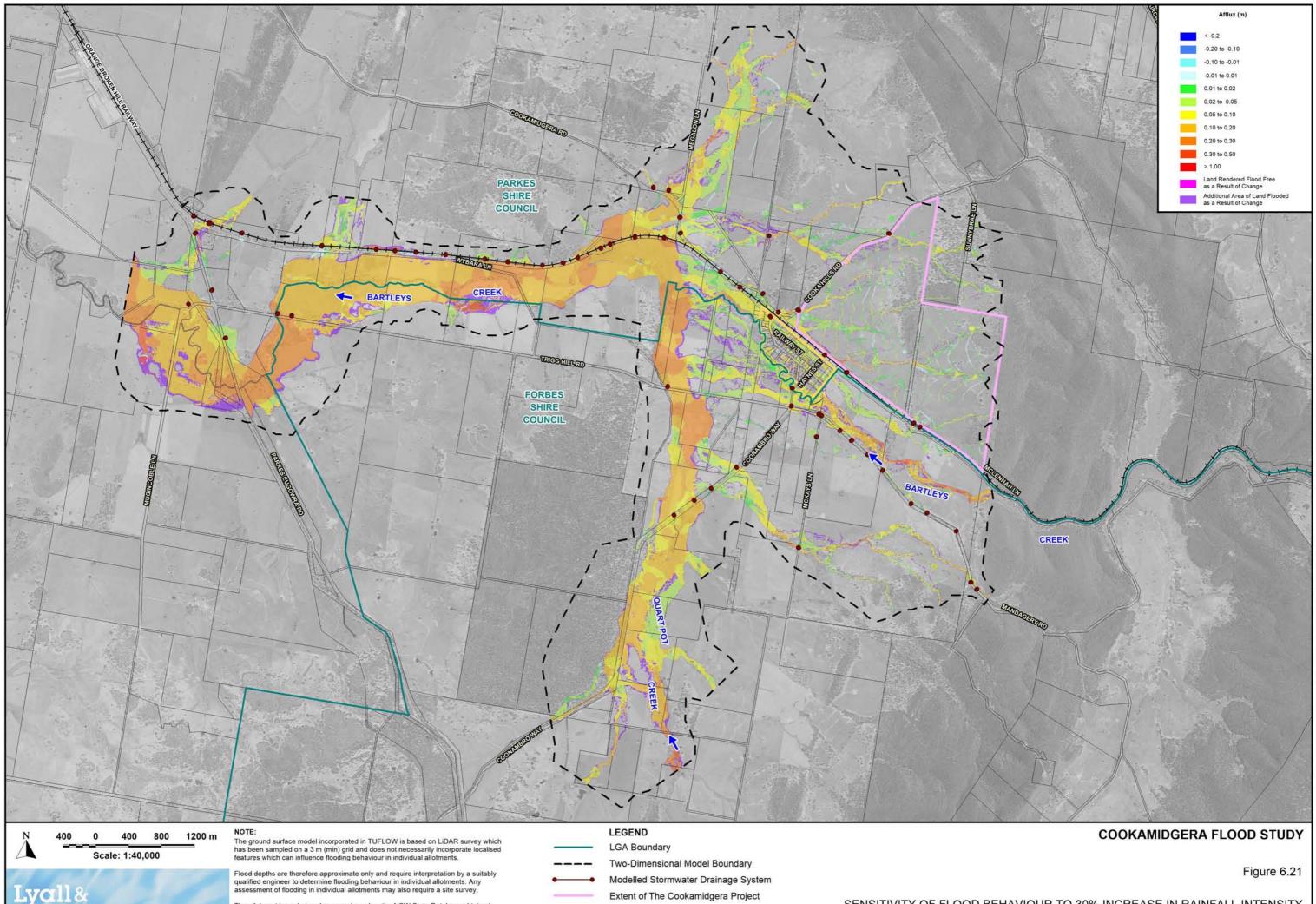


Village Centre

The allotment boundaries shown are based on the NSW State Database obtained from the Six Maps online database and may not represent the true property boundaries in the study area

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SENSITIVITY OF FLOOD BEHAVIOUR TO 10% INCREASE IN RAINFALL INTENSITY 1% AEP

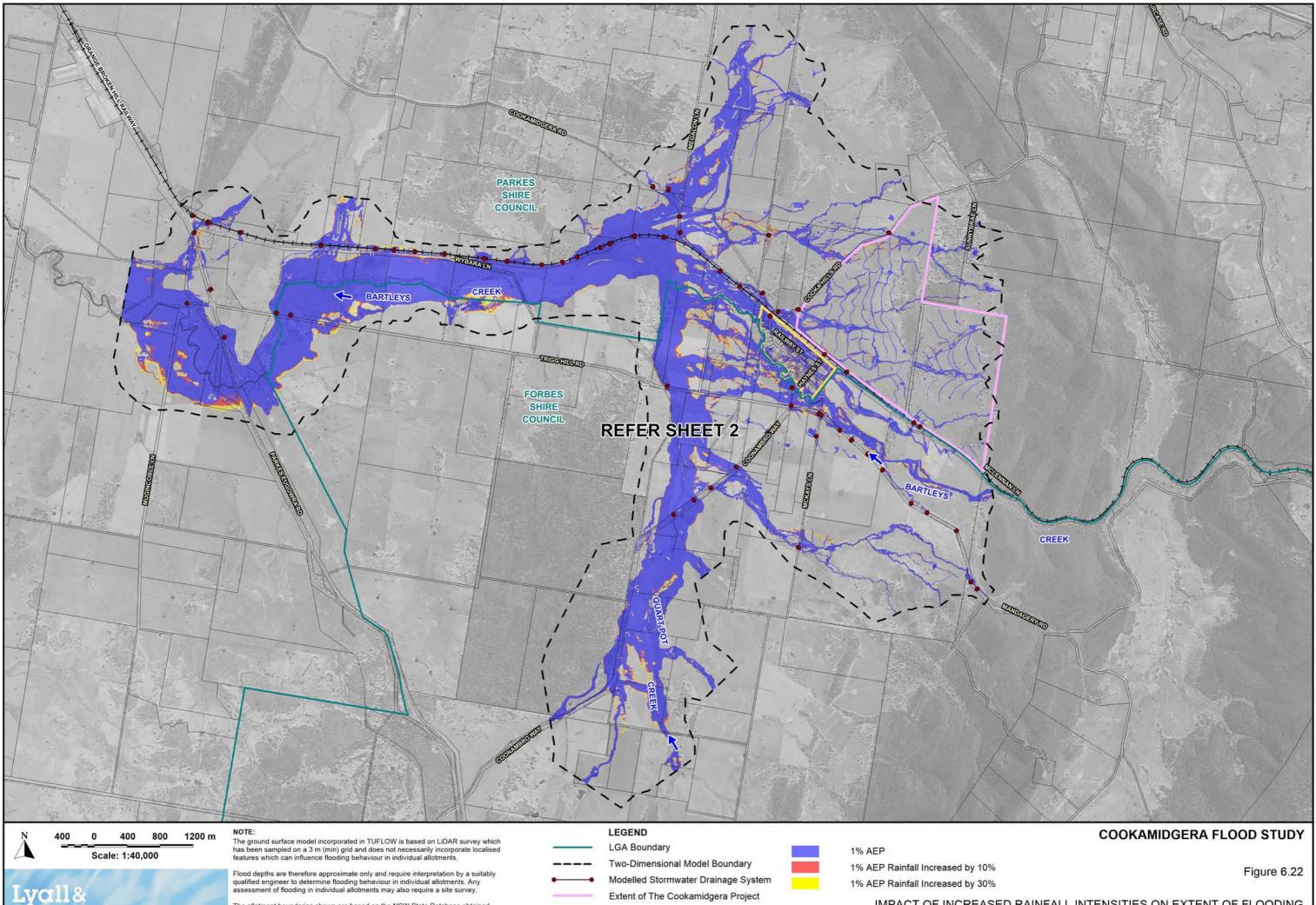


Village Centre

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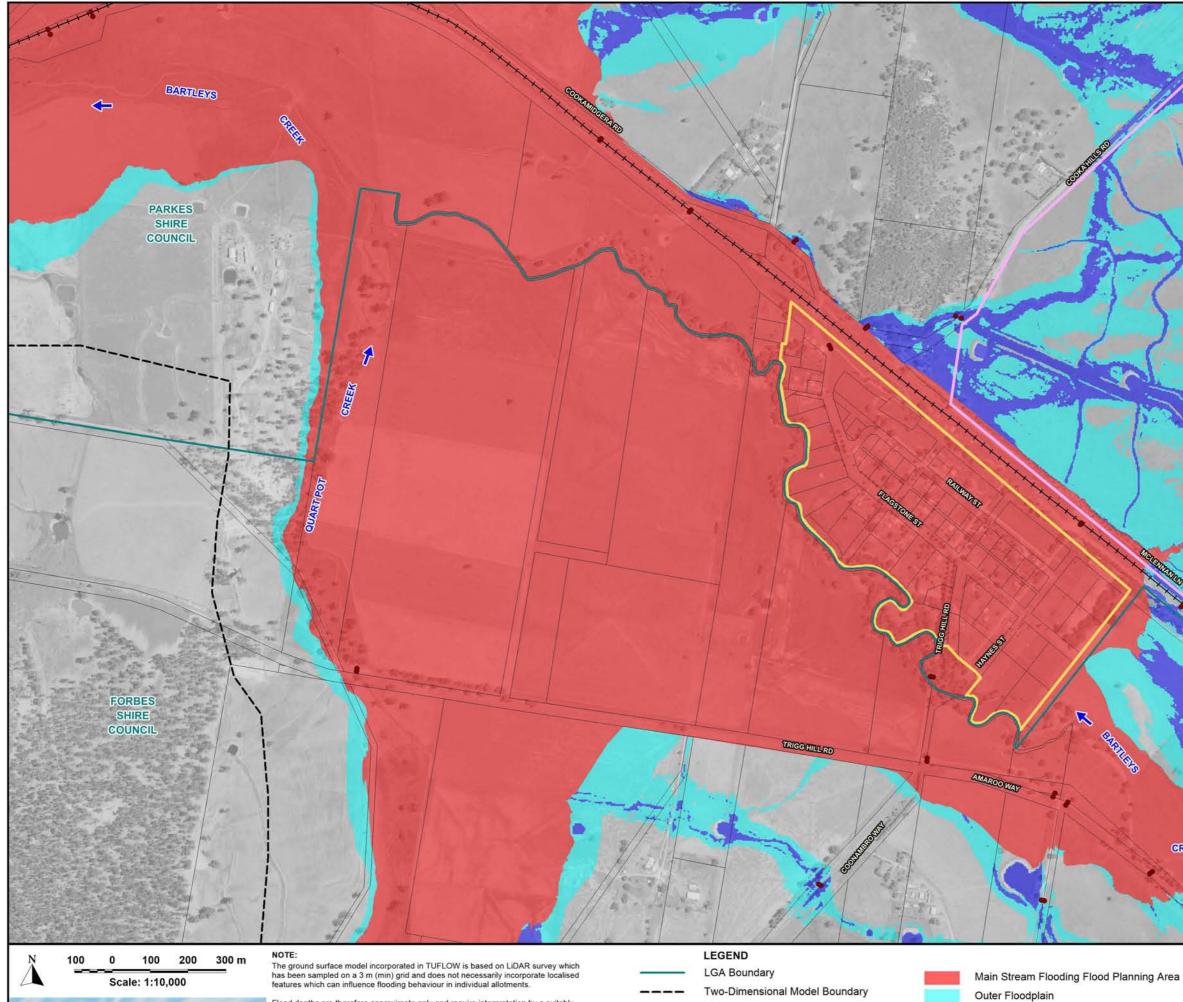
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SENSITIVITY OF FLOOD BEHAVIOUR TO 30% INCREASE IN RAINFALL INTENSITY 1% AEP



Village Centre

IMPACT OF INCREASED RAINFALL INTENSITIES ON EXTENT OF FLOODING 1% AEP



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-- Two-Dimensional Model Boundary
Modelled Stormwater Drainage System
Extent of The Cookamidgera Project
Village Centre

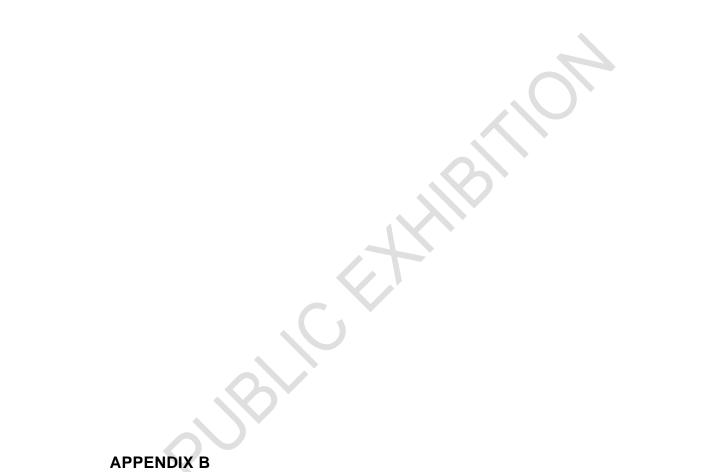
INTERIM FLOOD PLANNING AREA MAIN STREAM FLOODING AND MAJOR OVERLAND FLOW AFFECTED AREAS

COOKAMIDGERA FLOOD STUDY

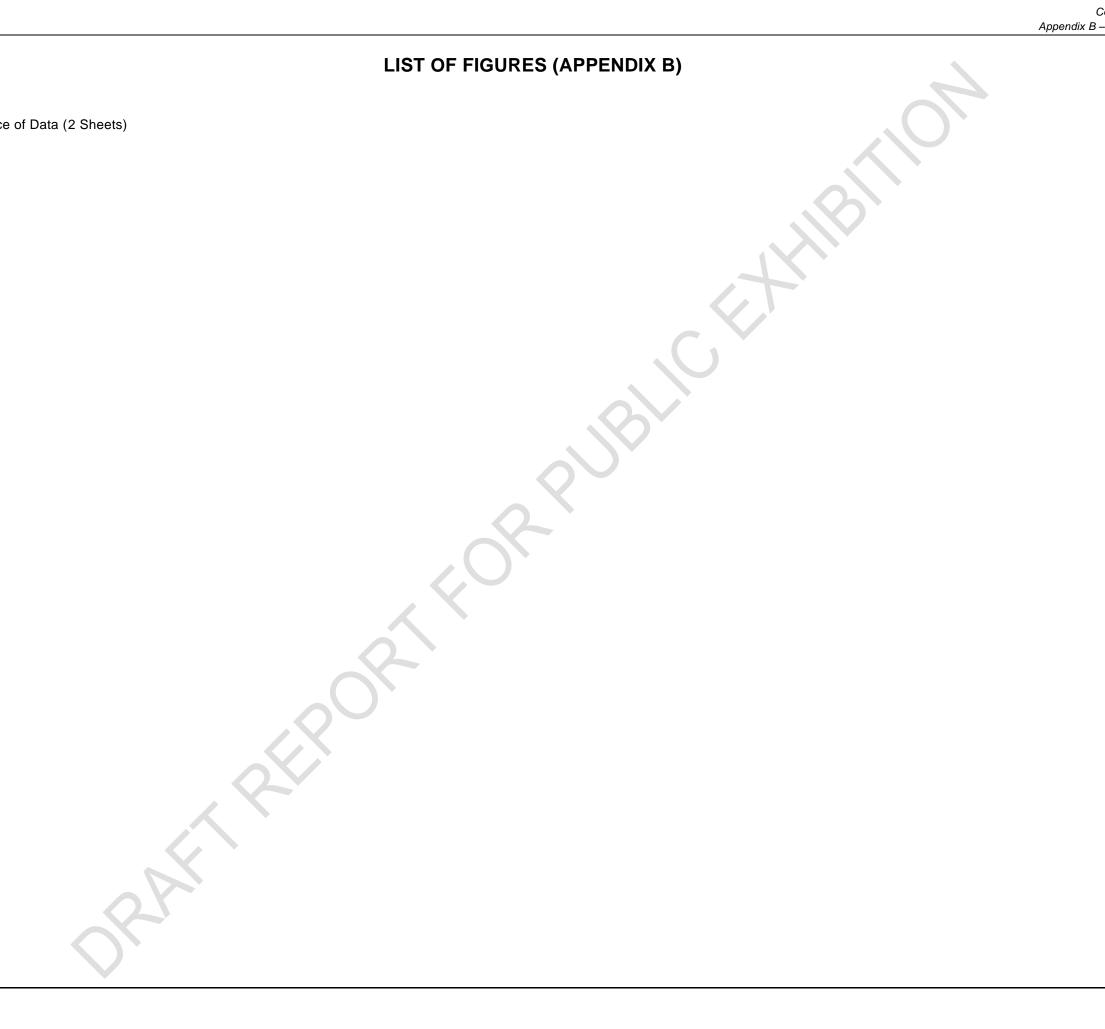
Figure 6.23

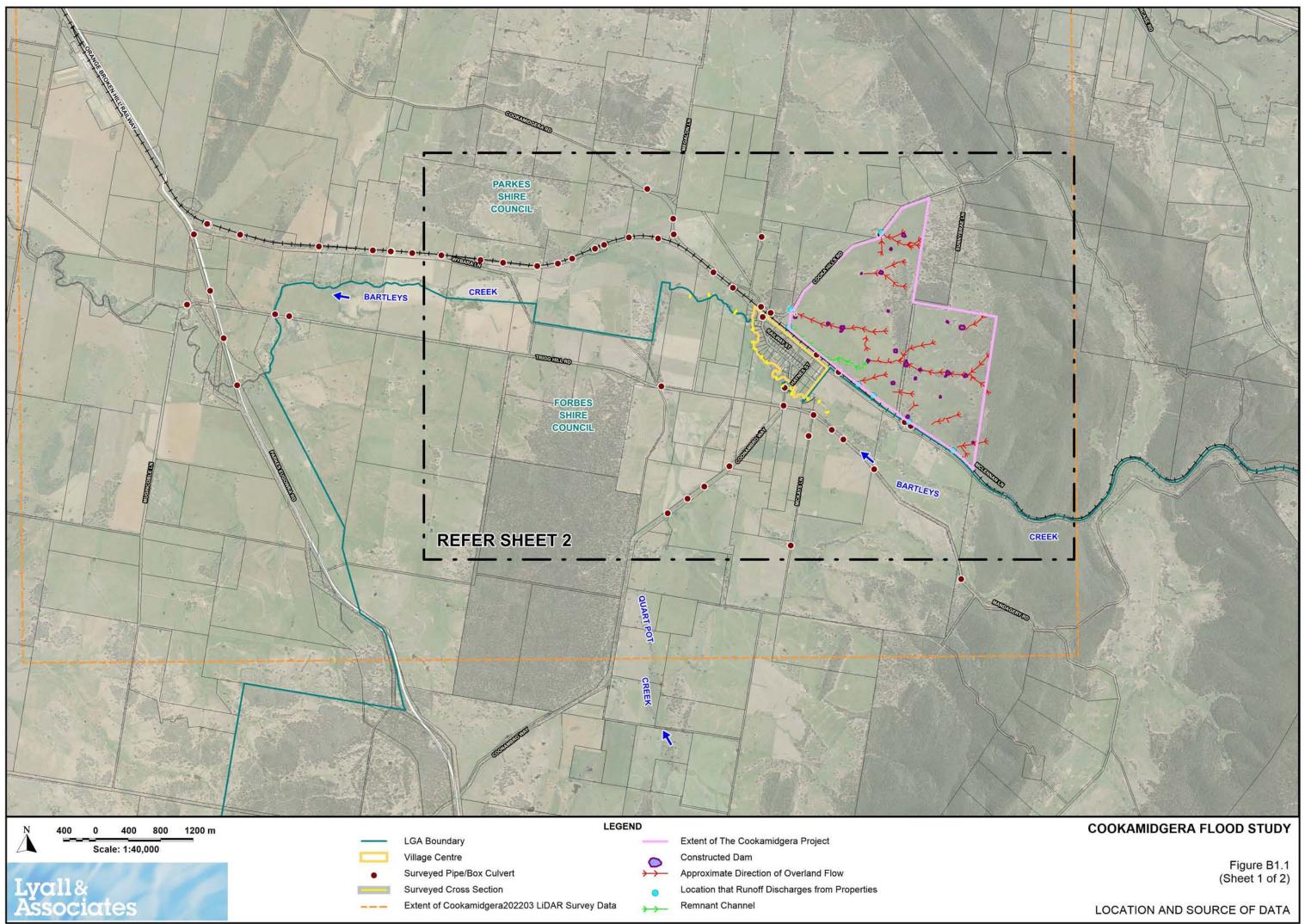
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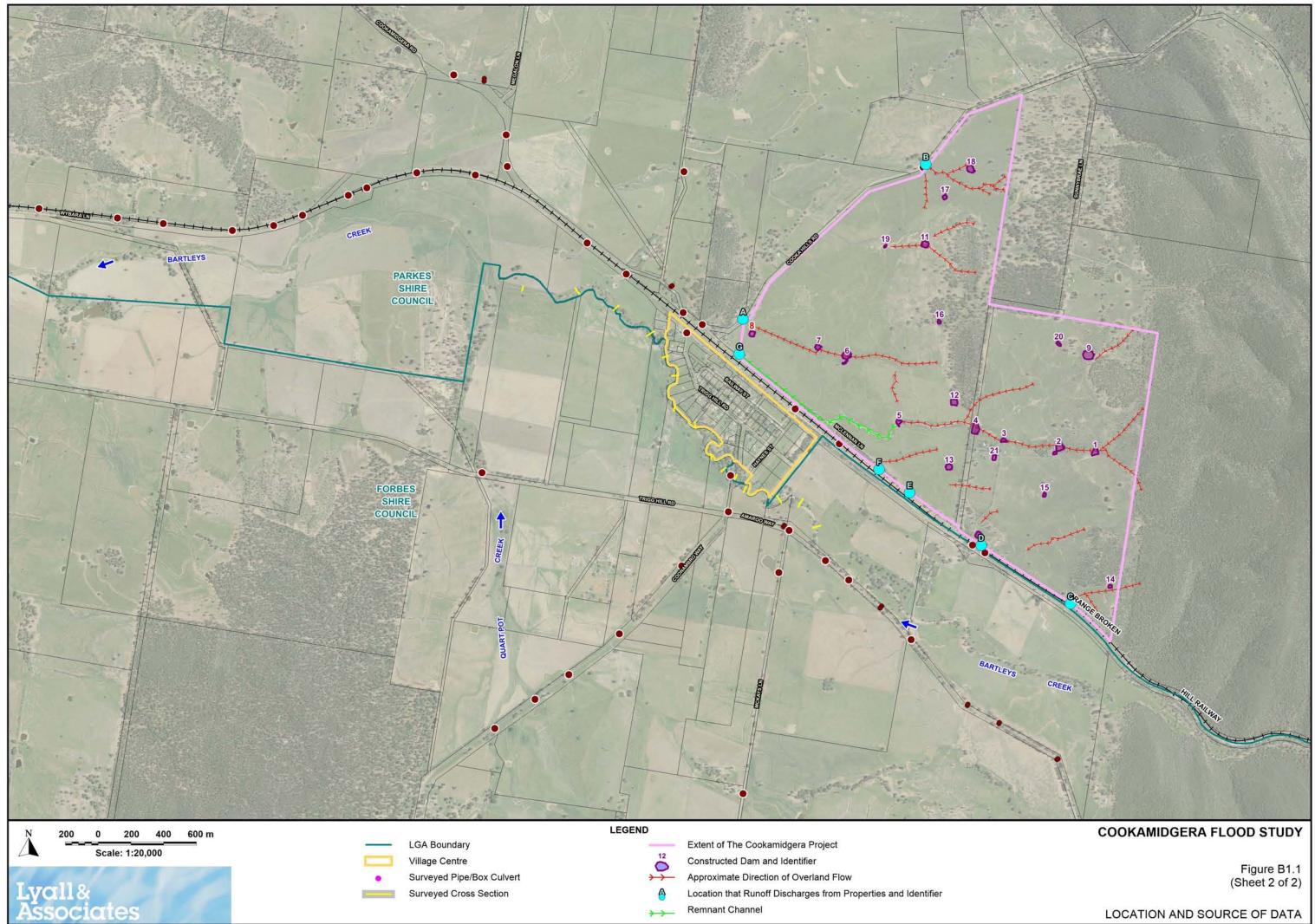
Outer Floodplain Major Overland Flow Flood Planning Area Dr. APPENDIX B



B1.1 Location and Source of Data (2 Sheets)







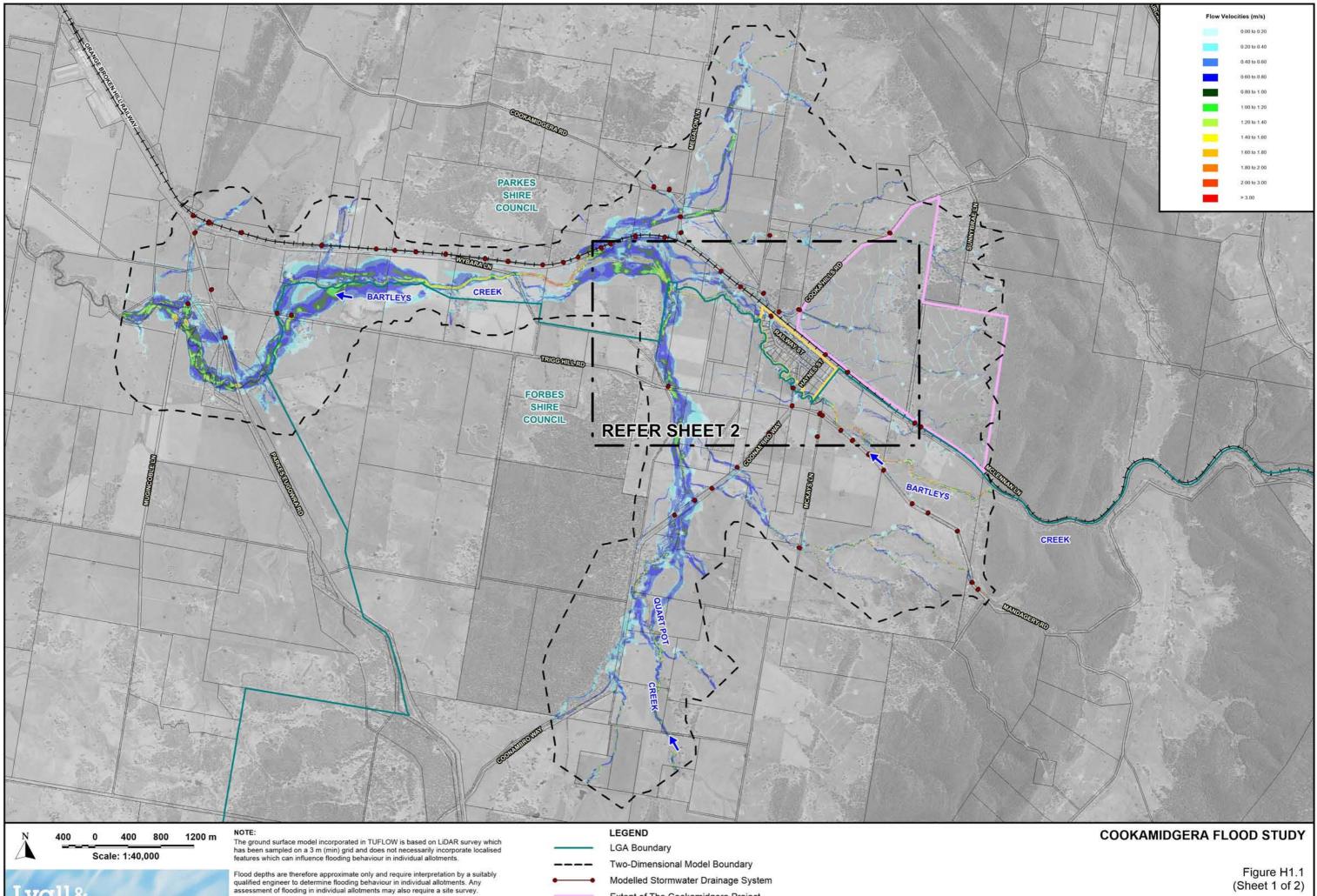
DESIGN . APPENDIX H **DESIGN MAXIMUM FLOW VELOCITY MAPS** 



# PART PERPORT FOR PUBLIC ENTIDINO LIST OF FIGURES (APPENDIX H)

- H1.1. Maximum Flow Velocities 20% AEP (2 Sheets)
- Maximum Flow Velocities 10% AEP (2 Sheets) H1.2.
- Maximum Flow Velocities 5% AEP (2 Sheets) H1.3.
- Maximum Flow Velocities 2% AEP (2 Sheets) H1.4.
- H1.5. Maximum Flow Velocities - 1% AEP (2 Sheets)
- Maximum Flow Velocities 0.5% AEP (2 Sheets) H1.6.
- H1.7. Maximum Flow Velocities – 0.2% AEP (2 Sheets)
- Maximum Flow Velocities PMF (2 Sheets) H1.8.

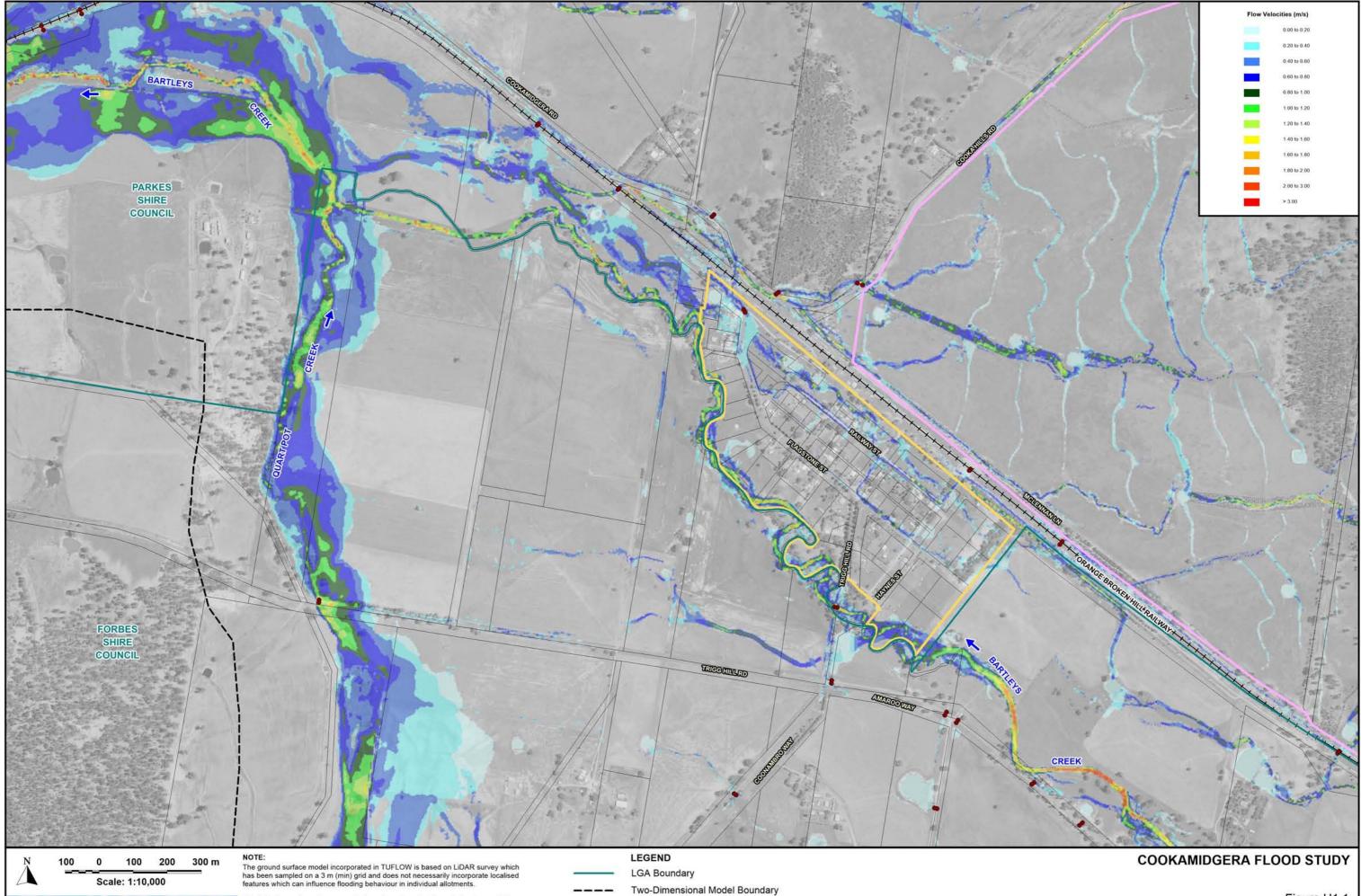




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Extent of The Cookamidgera Project Village Centre

Figure H1.1 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 20% AEP



Modelled Stormwater Drainage System

Extent of The Cookamidgera Project

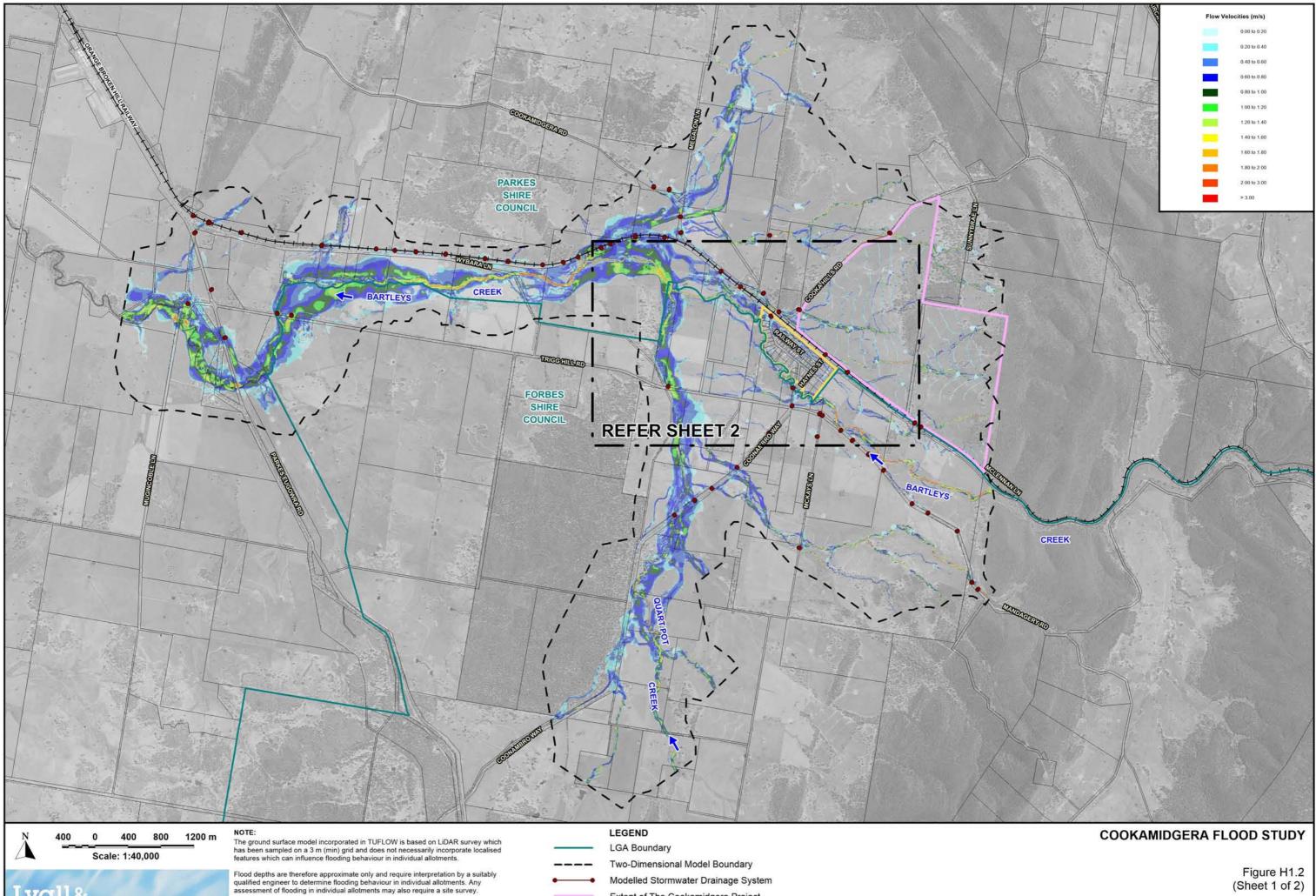
Village Centre

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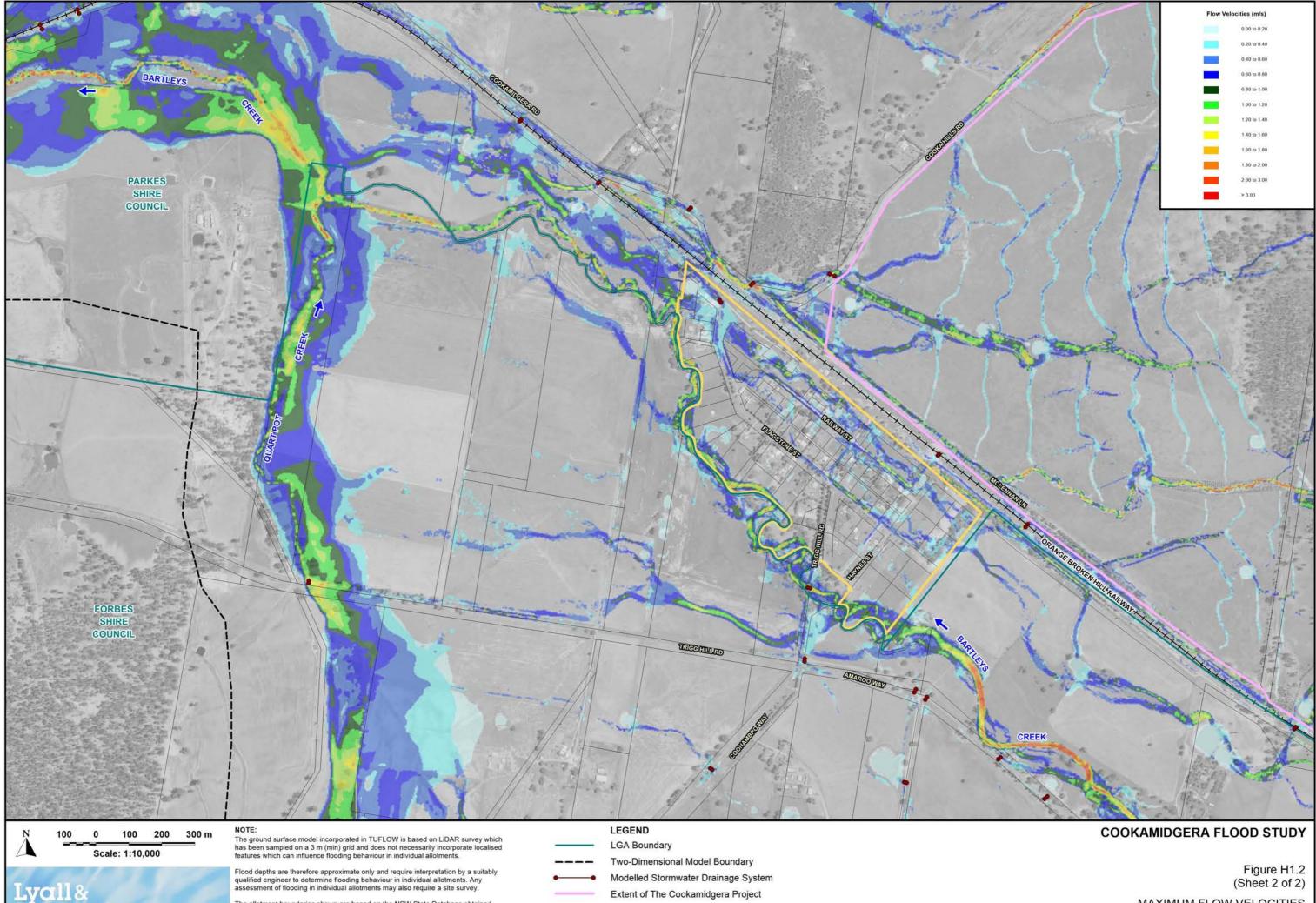
Figure H1.1 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES 20% AEP



Extent of The Cookamidgera Project Village Centre

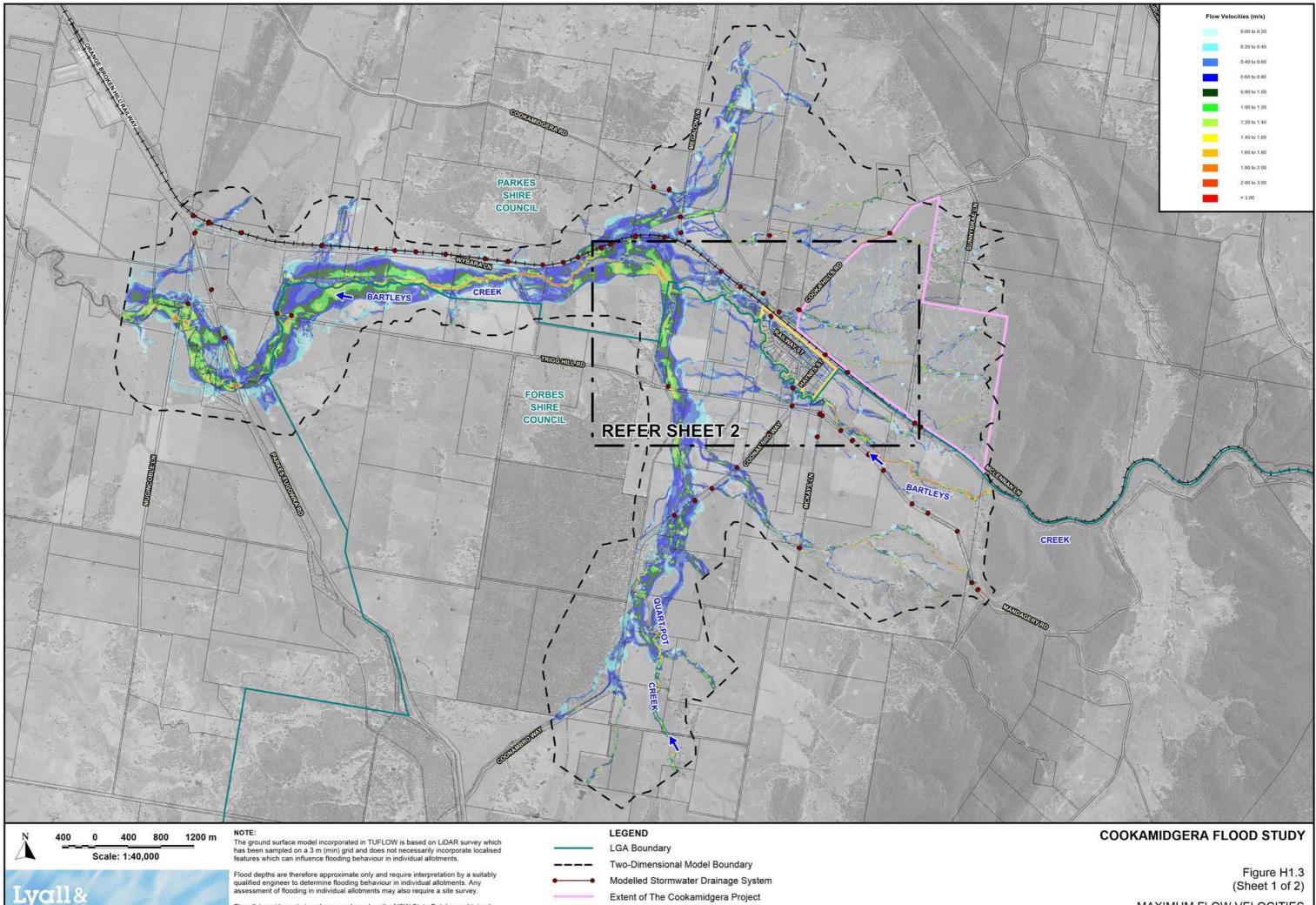
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Figure H1.2 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 10% AEP



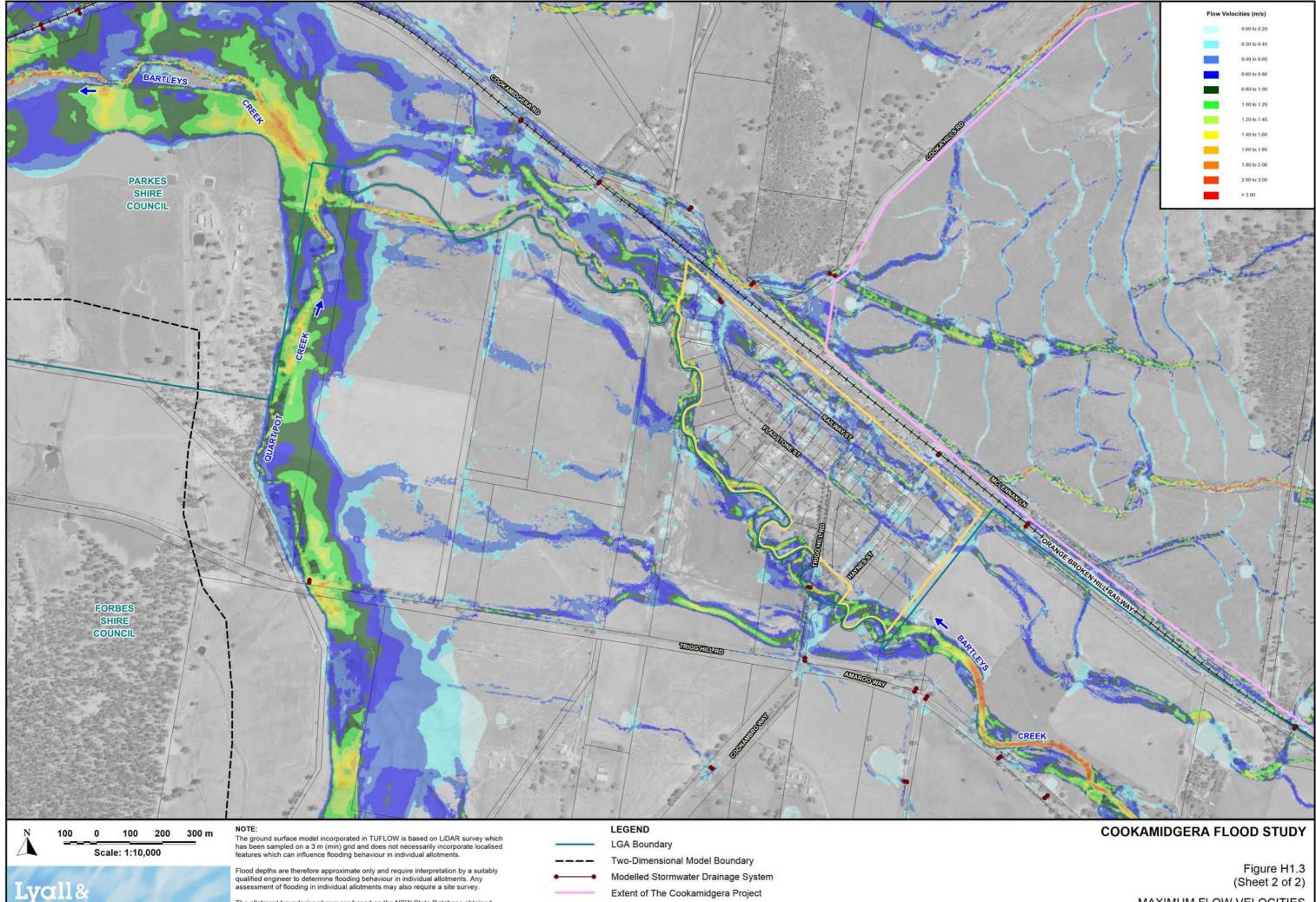
Extent of The Cookamidgera Project Village Centre

MAXIMUM FLOW VELOCITIES 10% AEP



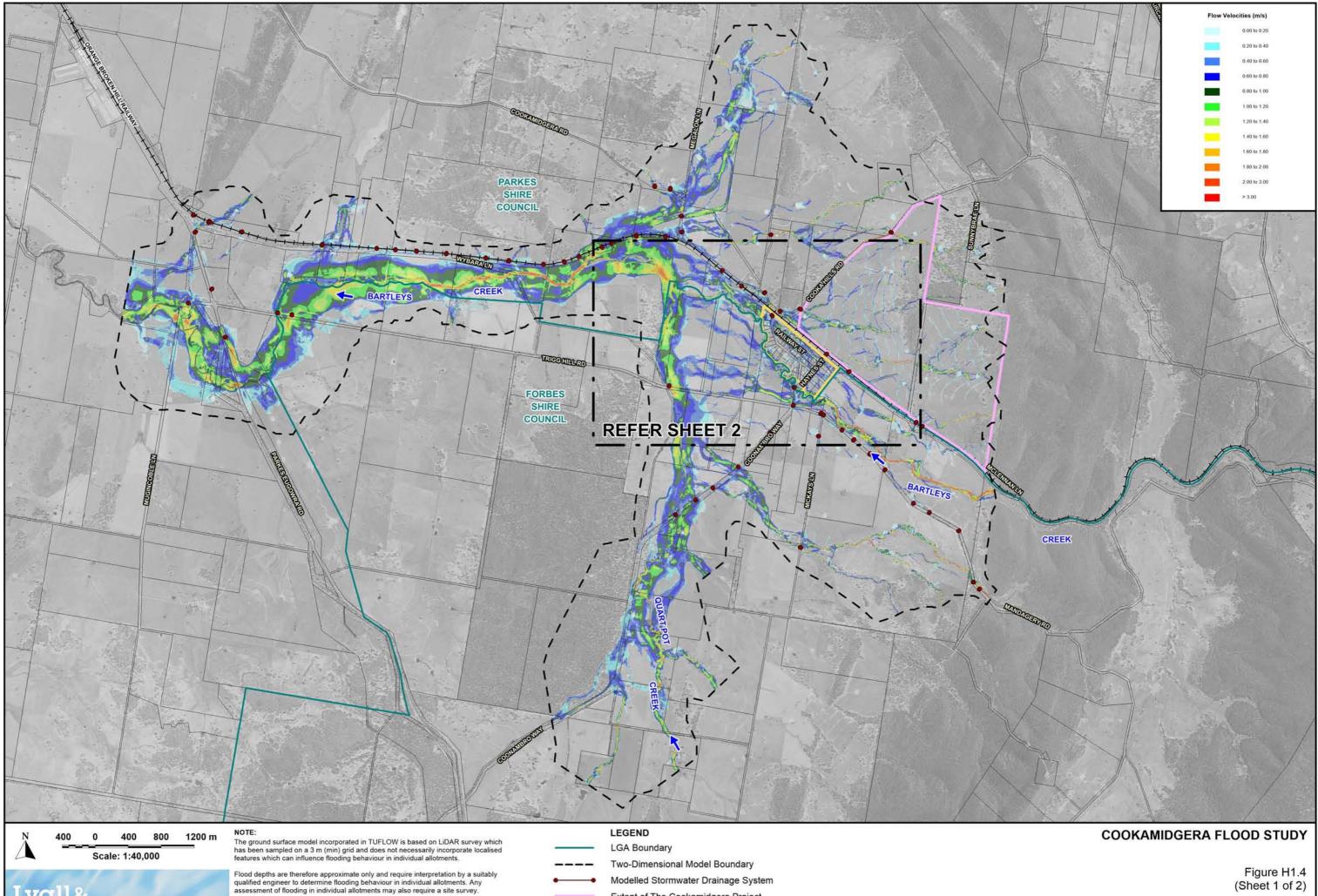
Extent of The Cookamidgera Project Village Centre

Figure H1.3 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES **5% AEP** 



Extent of The Cookamidgera Project Village Centre

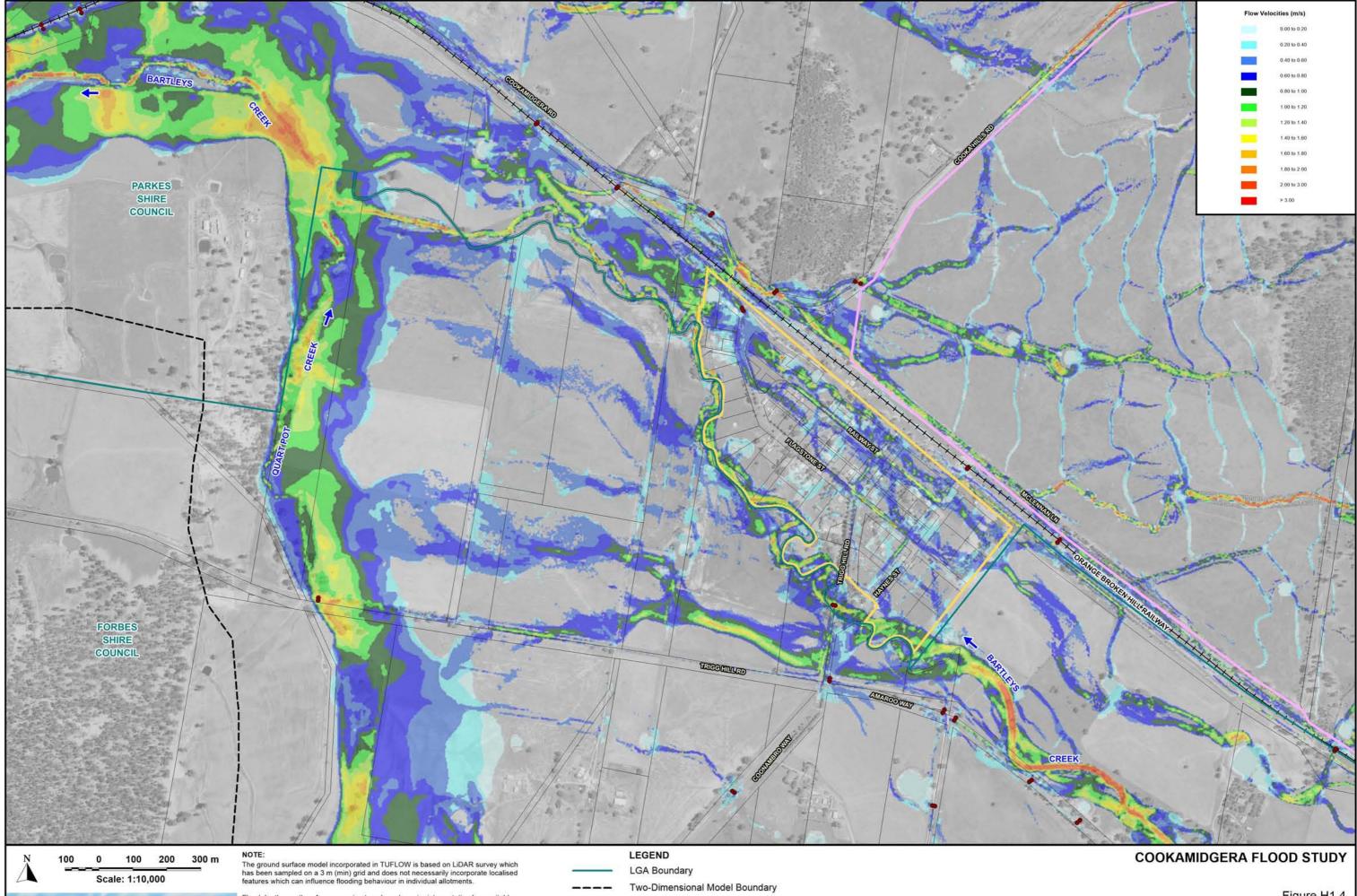
Figure H1.3 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES **5% AEP** 



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Extent of The Cookamidgera Project Village Centre

Figure H1.4 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 2% AEP

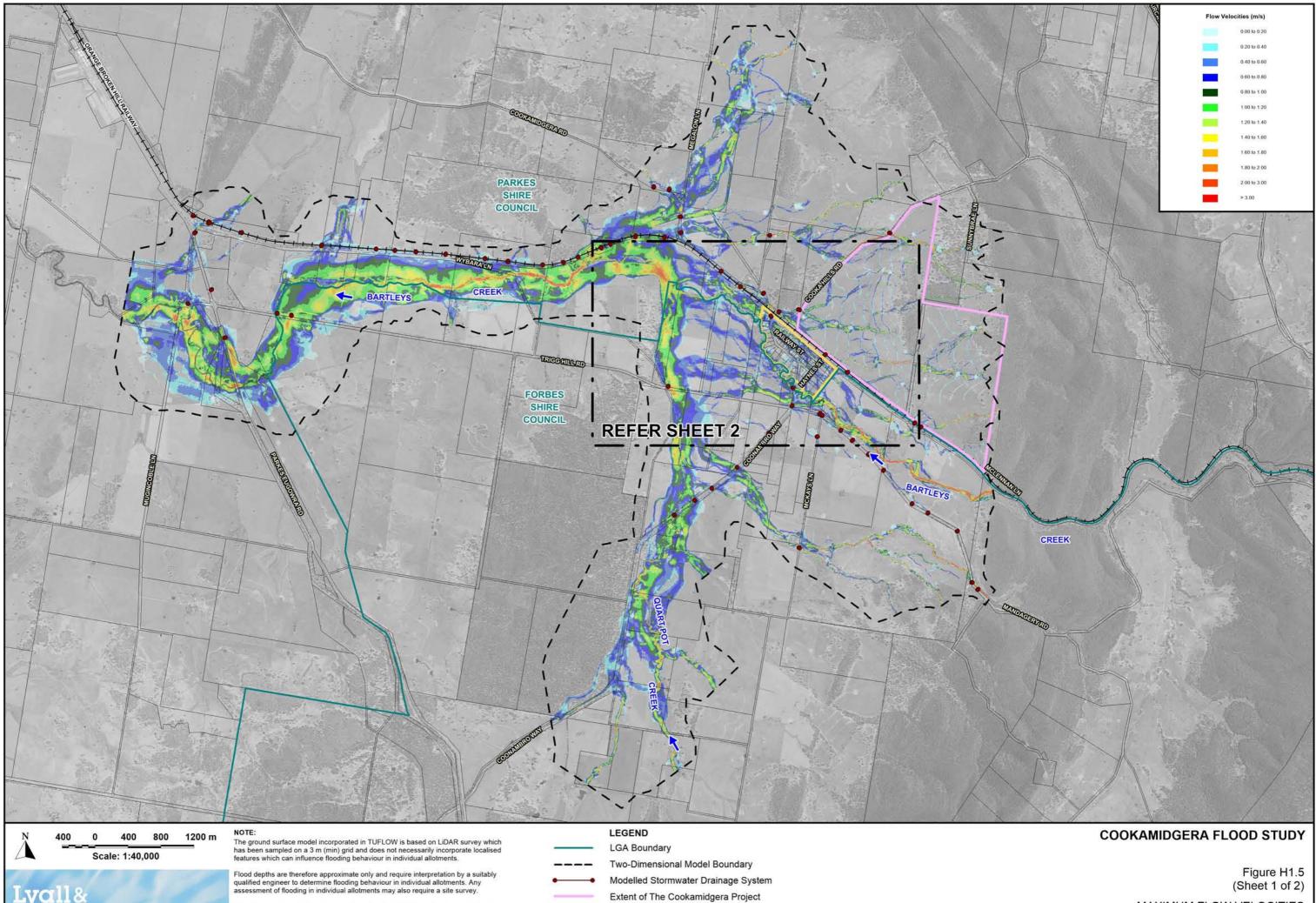


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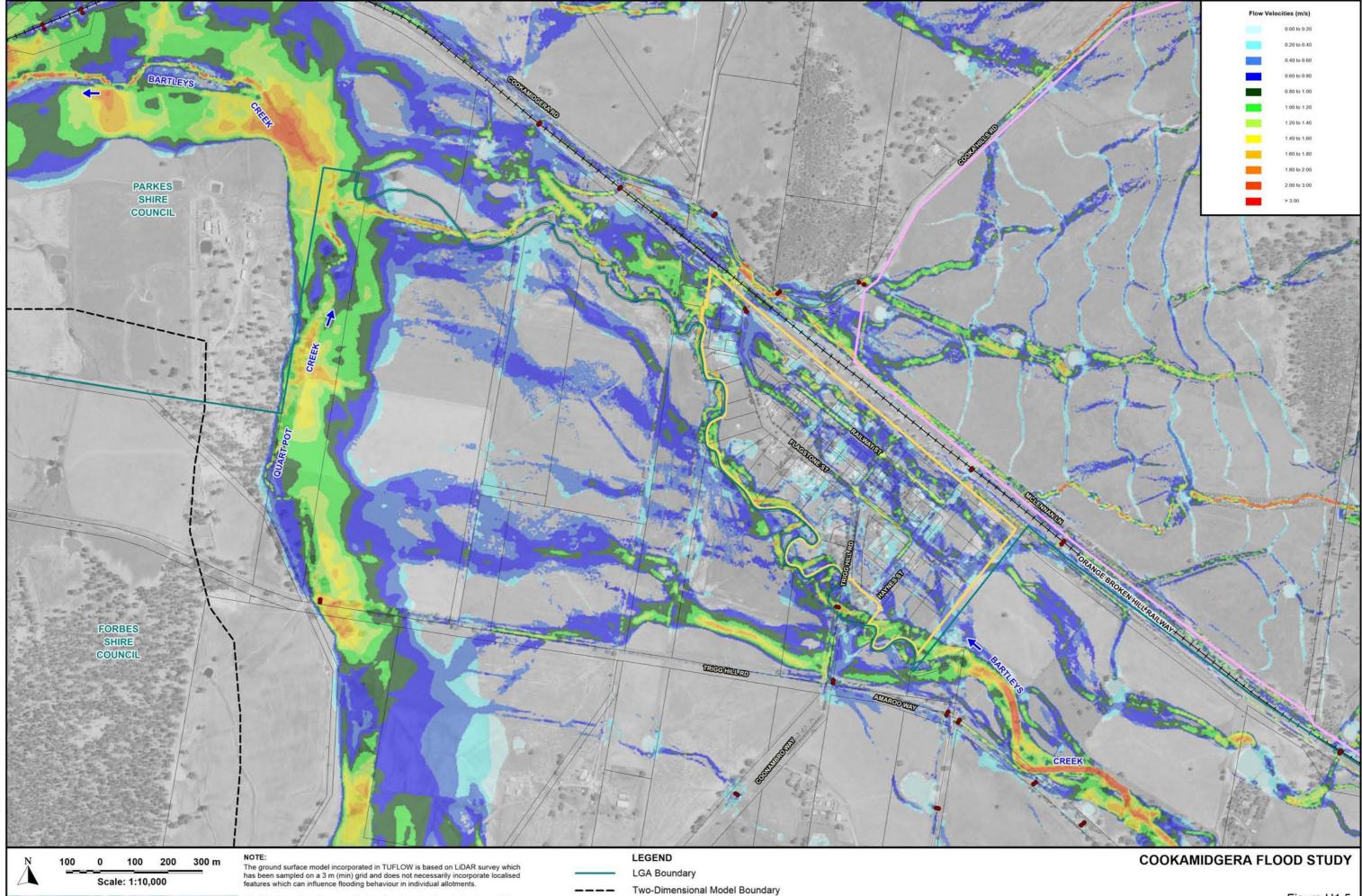
Modelled Stormwater Drainage System Extent of The Cookamidgera Project Village Centre

Figure H1.4 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES 2% AEP



Extent of The Cookamidgera Project Village Centre

Figure H1.5 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 1% AEP

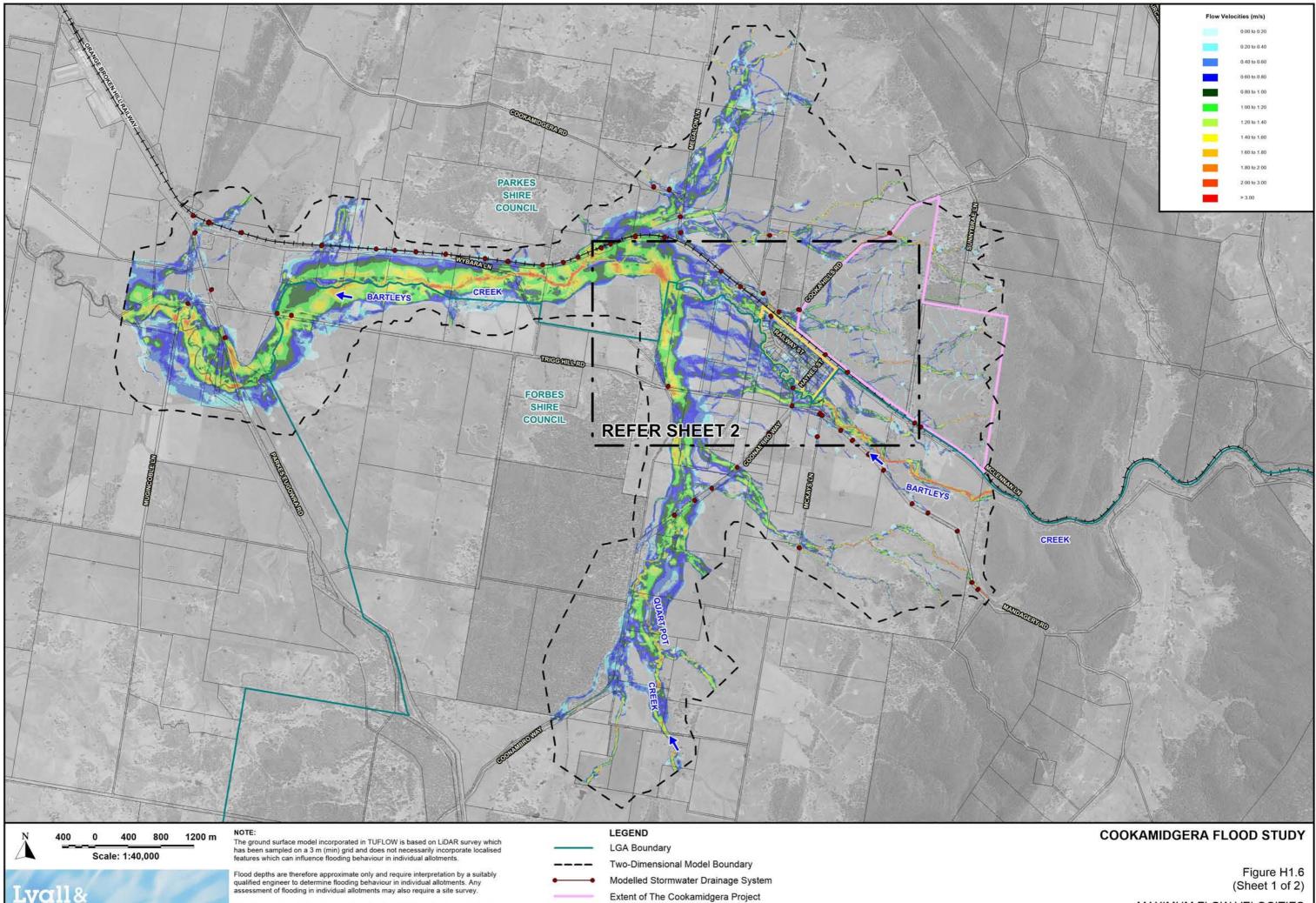


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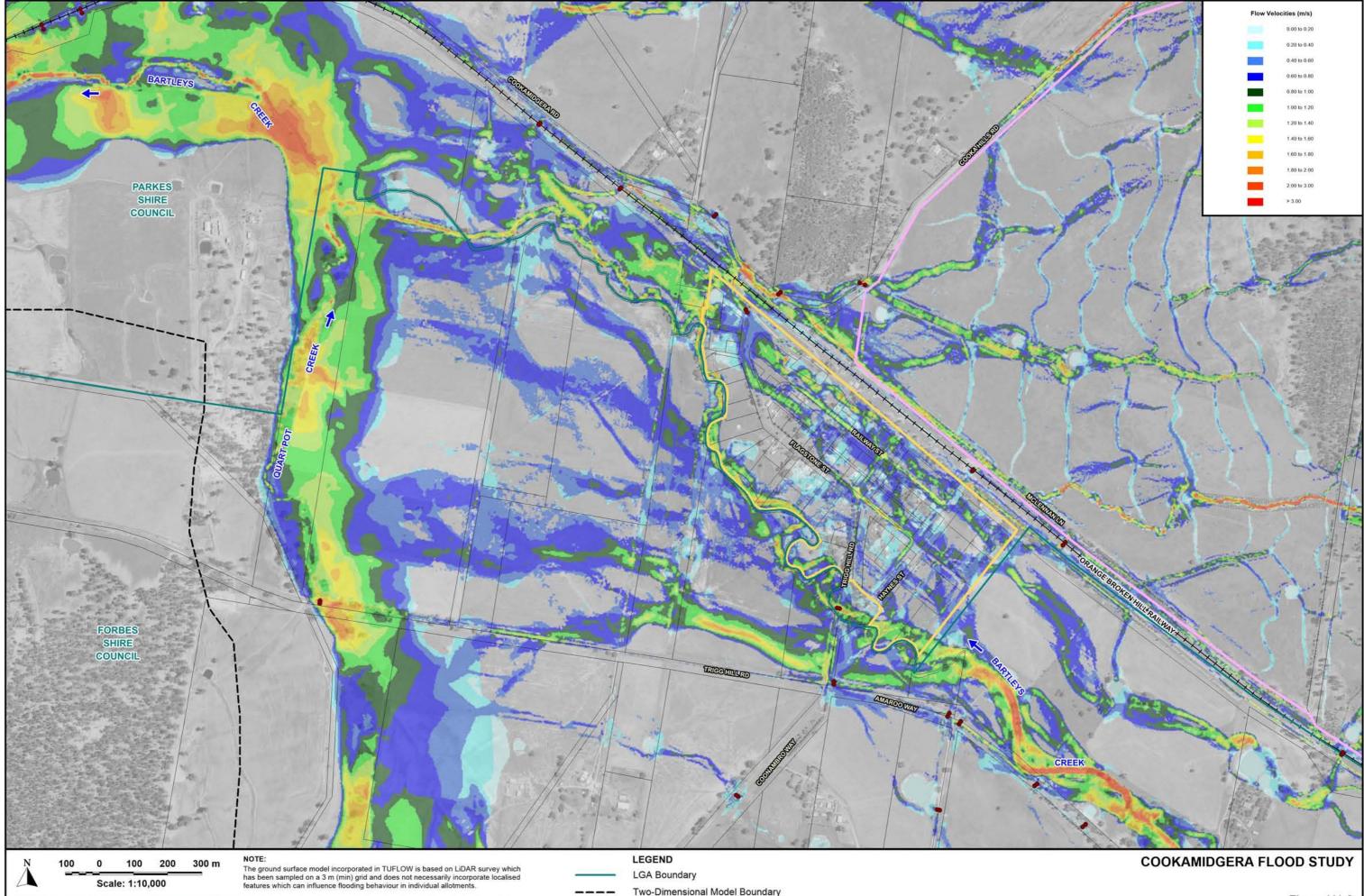
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	Two-Dimensional Model Boundary
•	Modelled Stormwater Drainage System
-	Extent of The Cookamidgera Project
-	Village Centre

Figure H1.5 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES 1% AEP



Extent of The Cookamidgera Project Village Centre

Figure H1.6 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 0.5% AEP



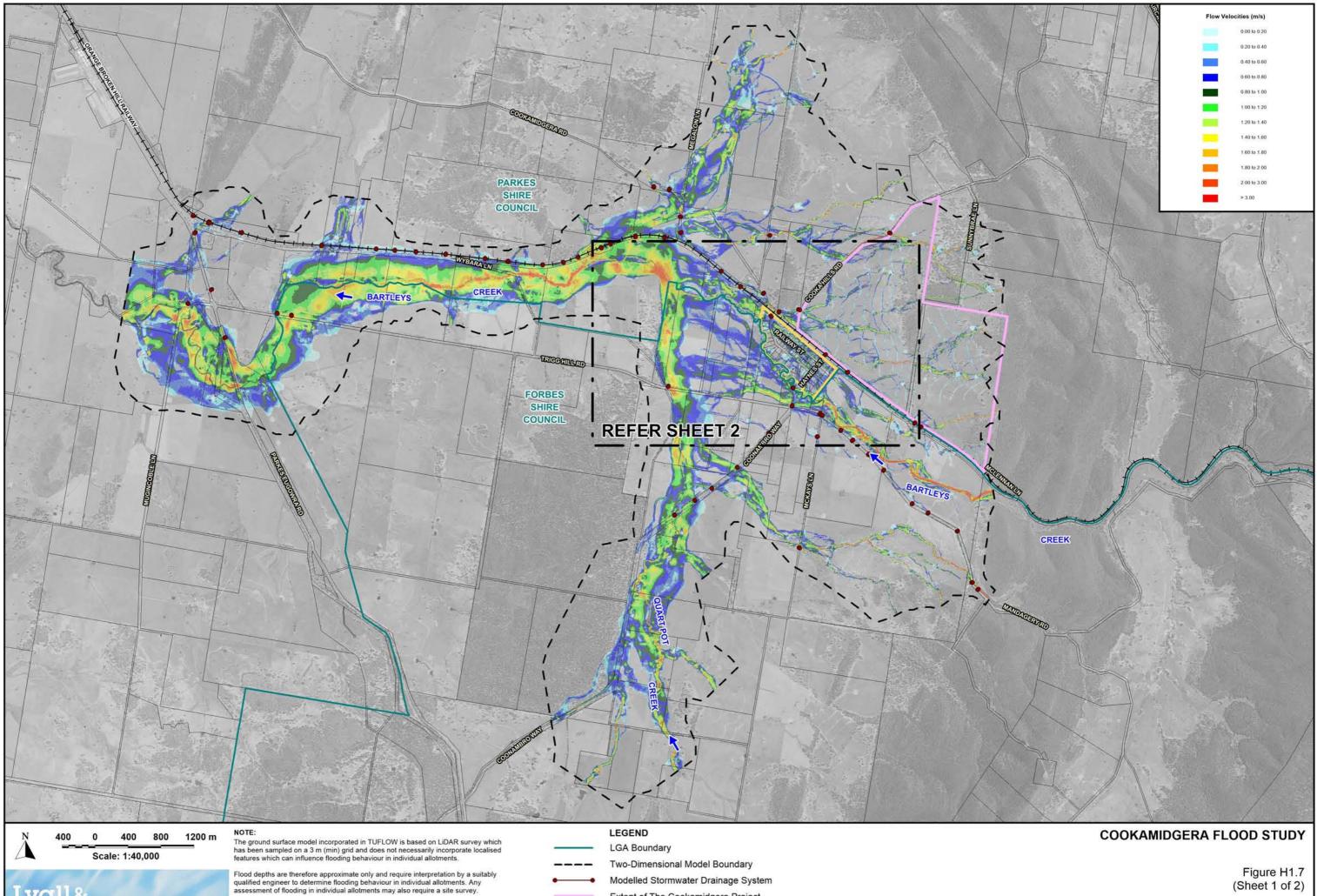
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•	Modelled Stormwater Drainage System
	Extent of The Cookamidgera Project
	Village Centre

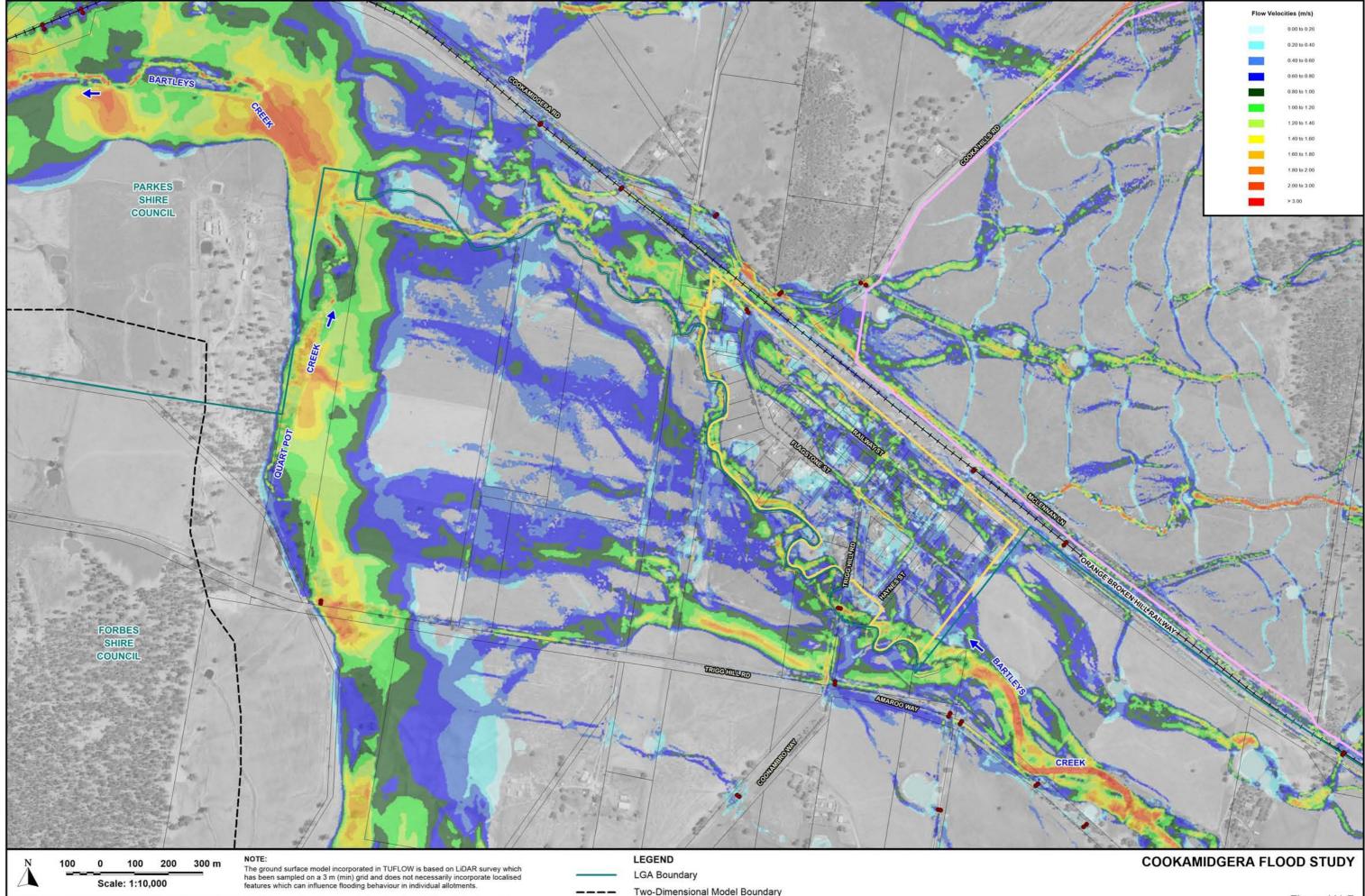
Figure H1.6 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES 0.5% AEP



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Extent of The Cookamidgera Project Village Centre

Figure H1.7 (Sheet 1 of 2) MAXIMUM FLOW VELOCITIES 0.2% AEP



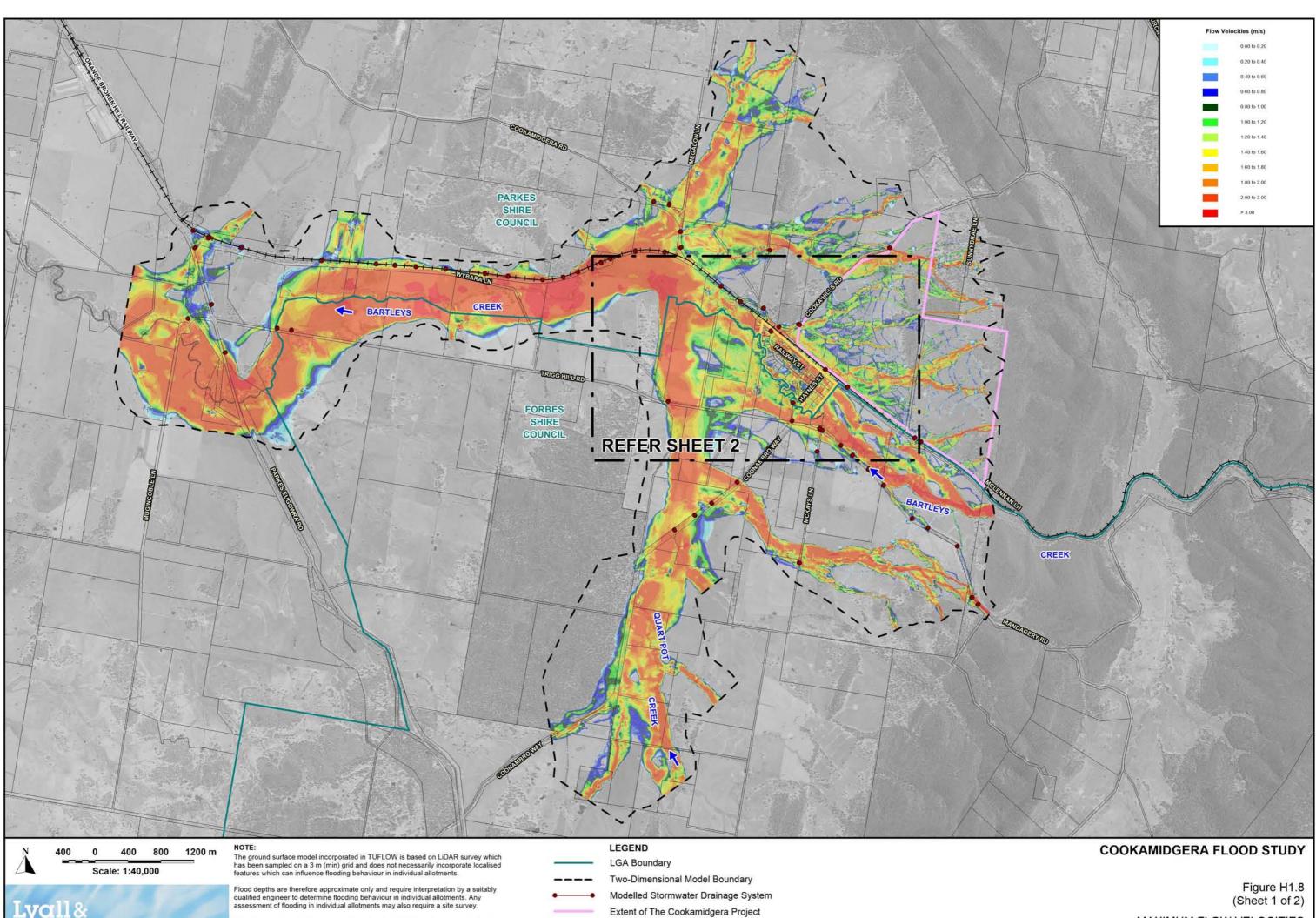
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•	LGA Boundary
	Two-Dimensional Model Boundary
•	Modelled Stormwater Drainage System
-	Extent of The Cookamidgera Project
-	Village Centre

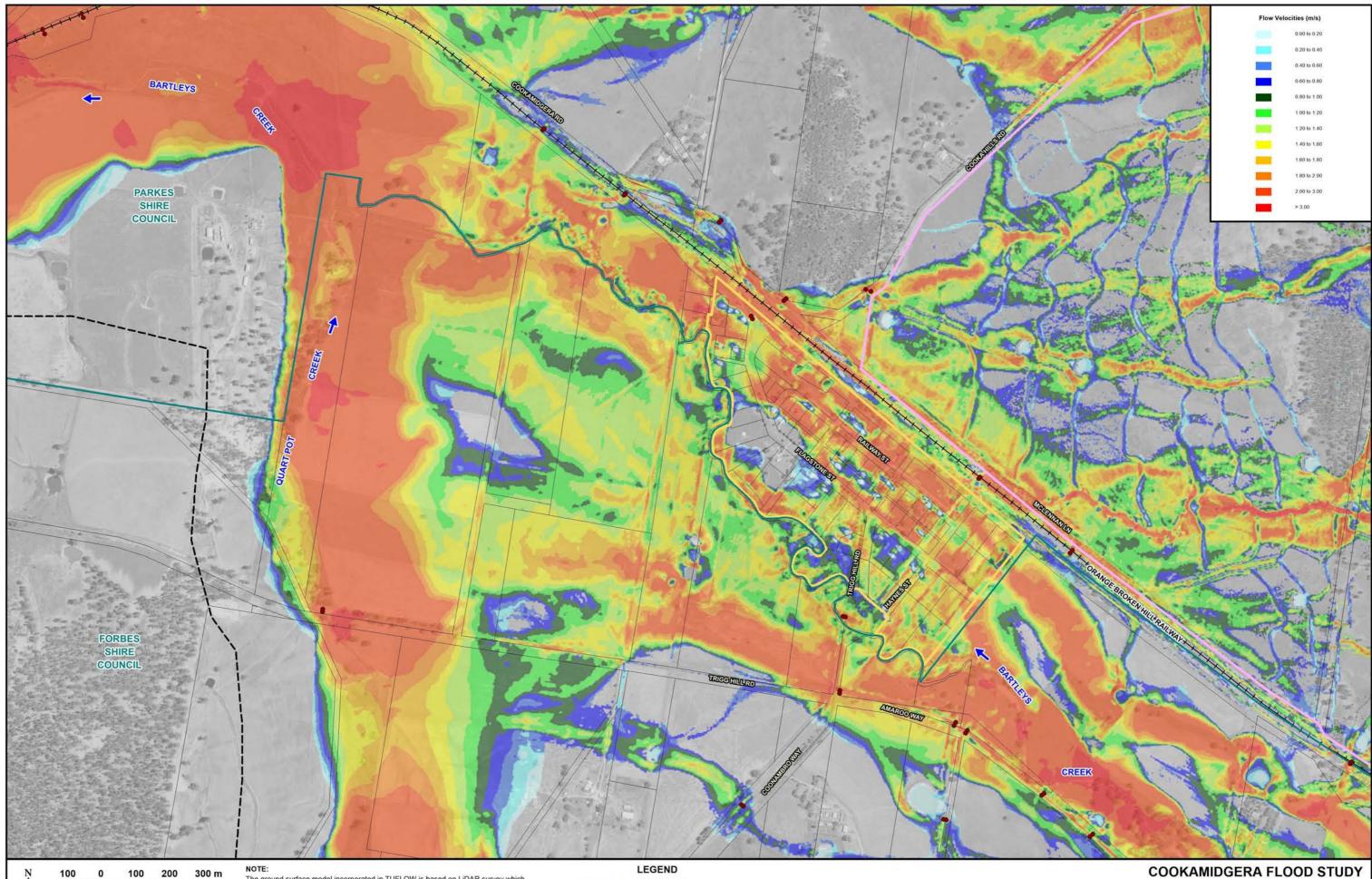
Figure H1.7 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES 0.2% AEP

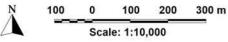


Village Centre

MAXIMUM FLOW VELOCITIES PMF







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•	LGA Boundary
	Two-Dimensional Model Boundary
•	Modelled Stormwater Drainage System
-	Extent of The Cookamidgera Project
-	Village Centre

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Figure H1.8 (Sheet 2 of 2) MAXIMUM FLOW VELOCITIES PMF