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MORETON BAY REGIONAL COUNCIL
REGIONAL FLOODPLAIN DATABASE
HYDROLOGIC AND HYDRAULIC MODELLING REPORT: MARY RIVER (MAR)

APPENDIX D: MODELLING QUALITY REPORT

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TECHNICAL NOTE

DATE	10 July 2010
то	Moreton Bay Regional Council
FROM	Leonard Cheung
СОРУ	
PROJECT	301001-01156
SUBJECT	Mary River Modelling Quality Report
DOC NO	
FILE LOC	

INTRODUCTION

A detailed TUFLOW model of the Mary River (MAR) minor basin has been developed as part of Moreton Bay Regional Council's (MBRC) Regional Floodplain Database (RFD) Stage 2 project.

This technical note is prepared to demonstrate that the performance of the NEU model is suitable for the intended use and the associated model outputs can be adopted by MBRC for the RFD to deliver reliable flood information across the Mary River minor basin.

MODEL PERFORMANCE

Model stability, warning messages and mass errors were monitored throughout model simulation periods to ensure that the model performance was acceptable. Careful attention has been paid to ensure that flows over the 2D domain were stable during model simulation period.

Overland flow hydrographs were checked at key locations and especially at the areas near the downstream boundaries (PO lines) to ensure the simulation extended well beyond the peak throughout the MAR study area.

To demonstrate there are no significant loss or gain of flood volumes during model runs, a check of the mass balance of the flood volumes for the two selected critical durations of the 10Yr, 100Yr ARI and PMF flood events has been undertaken and presented in the following Table 1.



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Table 1: Mass Balance Check

Event	10Yı	10Yr ARI 100Yr ARI		PI	PMF	
Critical Duration	60M	120M	60M	120M	60M	120M
Volume at Start (m3)	5339	5339	5339	5339	5339	5339
Volume at End (m3)	1789694	1481931	2286890	1925088	4583577	9680677
Total Volume In (m3)	4127635	5863975	6521171	9267453	31550614	45651573
Total Volume Out (m3)	2321503	4350295	4187065	7274454	26731359	35879365
Volume Error (m3)	-21777	-37088	-52554	-73250	-241017	-96870
Final Cummulative ME (%)	-0.34%	-0.36%	-0.49%	-0.44%	-0.41%	-0.12%

The above table shows that there are no significant loss and gain of flood volume during the modelling and the mass balance errors are within the range of -0.44% to -0.12% for the critical duration runs of the three design events.

CONCLUSIONS

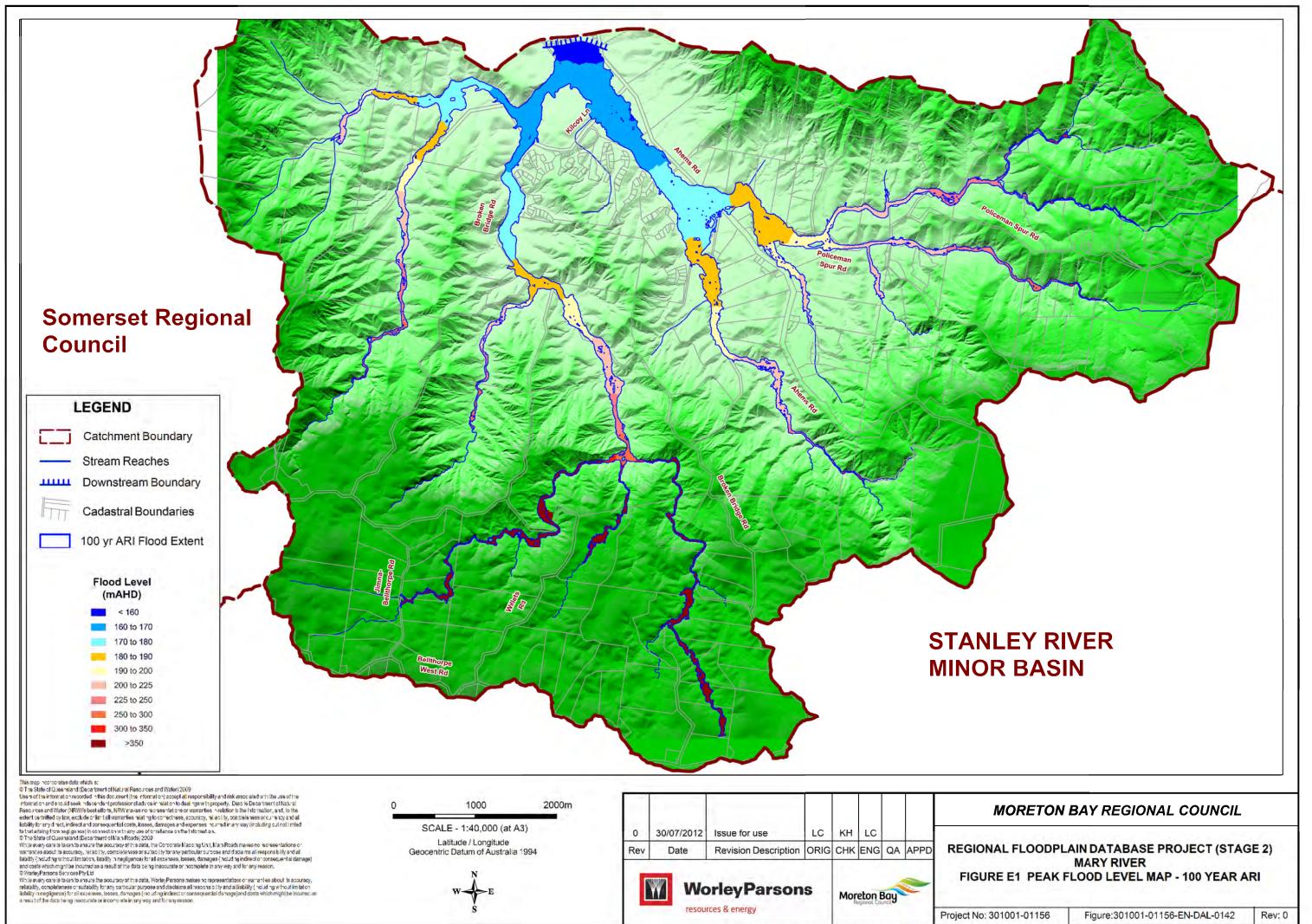
The quality of the MAR model run has been reviewed. It is considered that the overall model performance is suitable for the intended use and the associated model outputs can be adopted for the MBRC RFD to deliver reliable flood information across the Mary River minor basin.

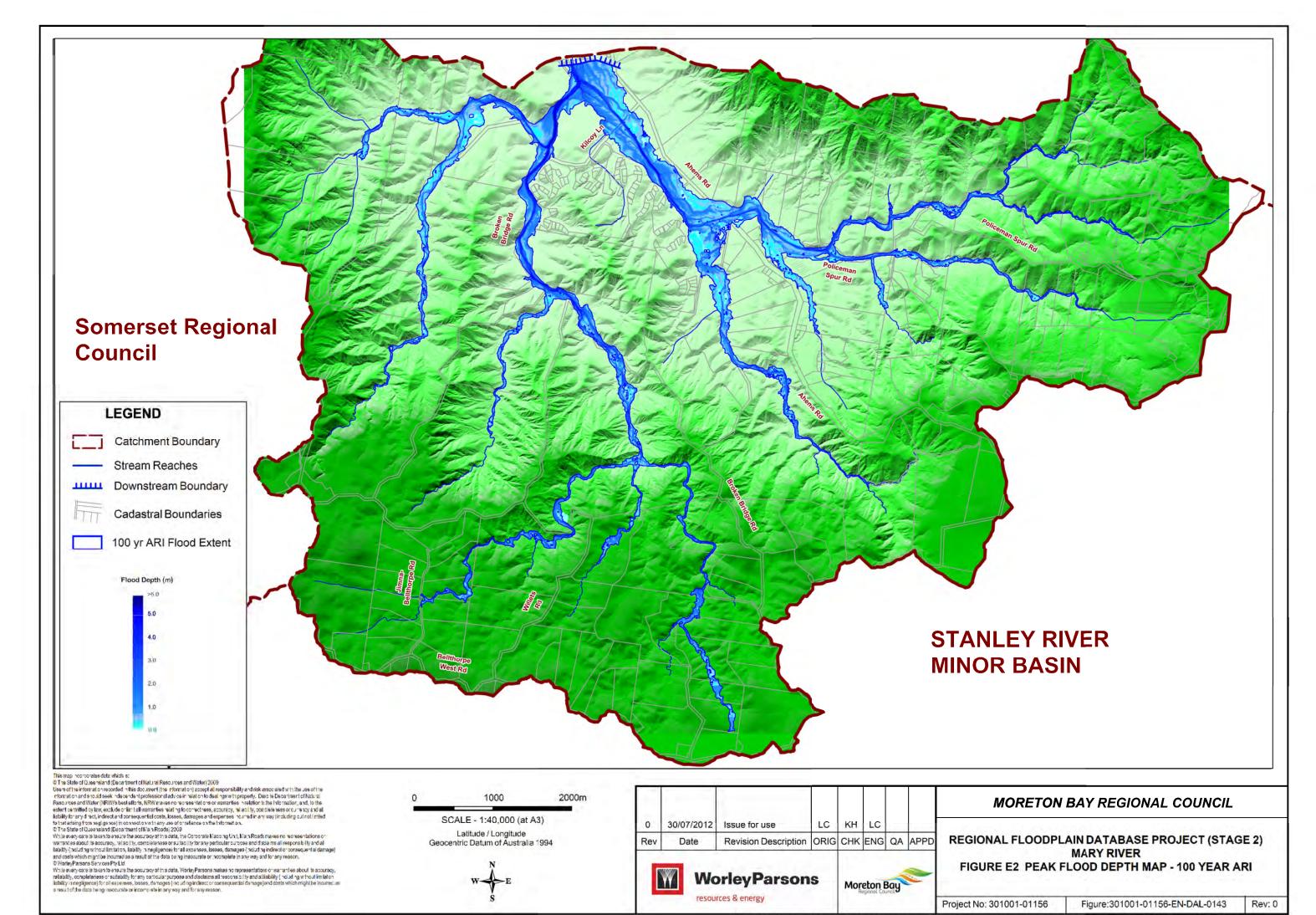


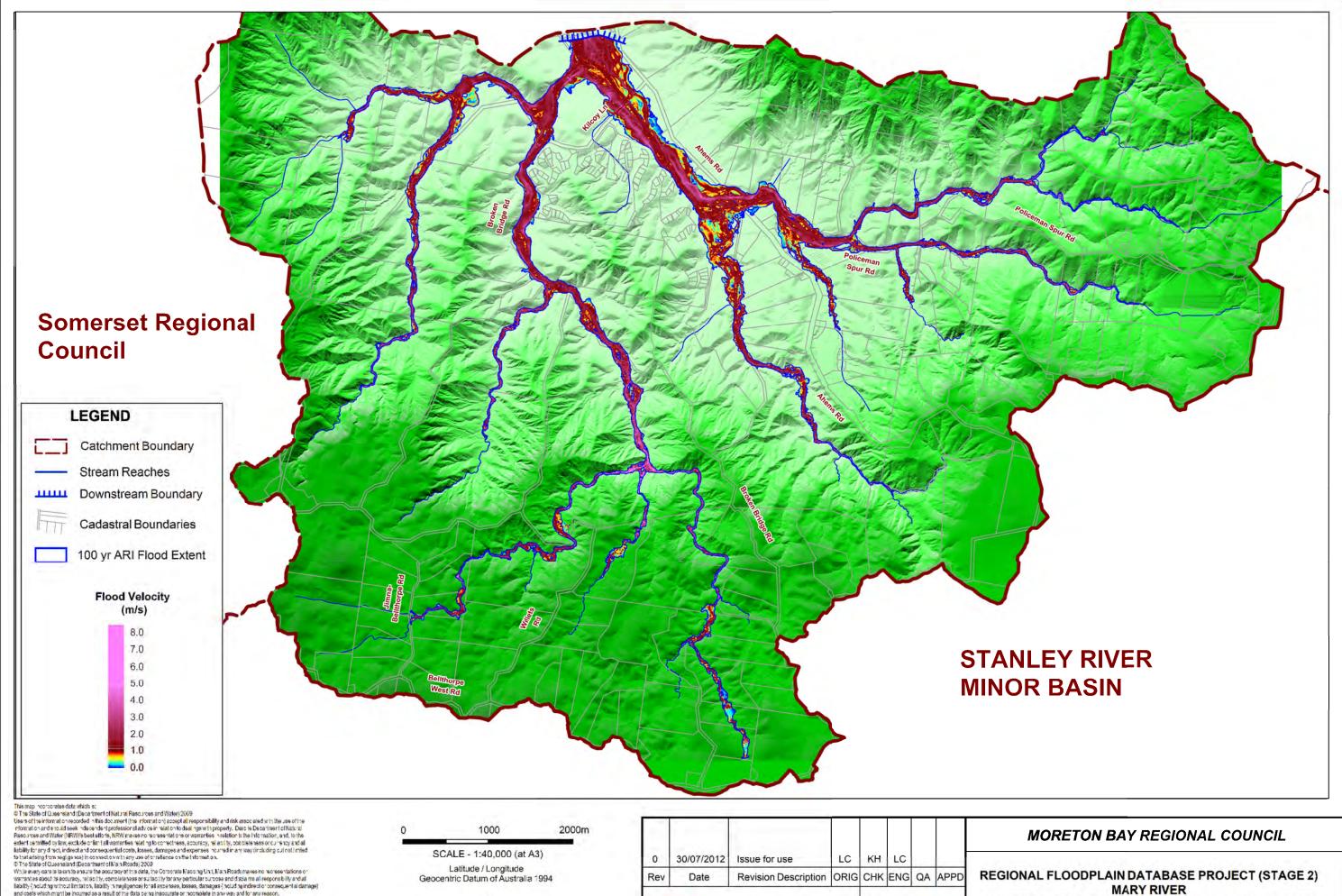
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APPENDIX E: FLOOD MAPS - 100 YEAR ARI







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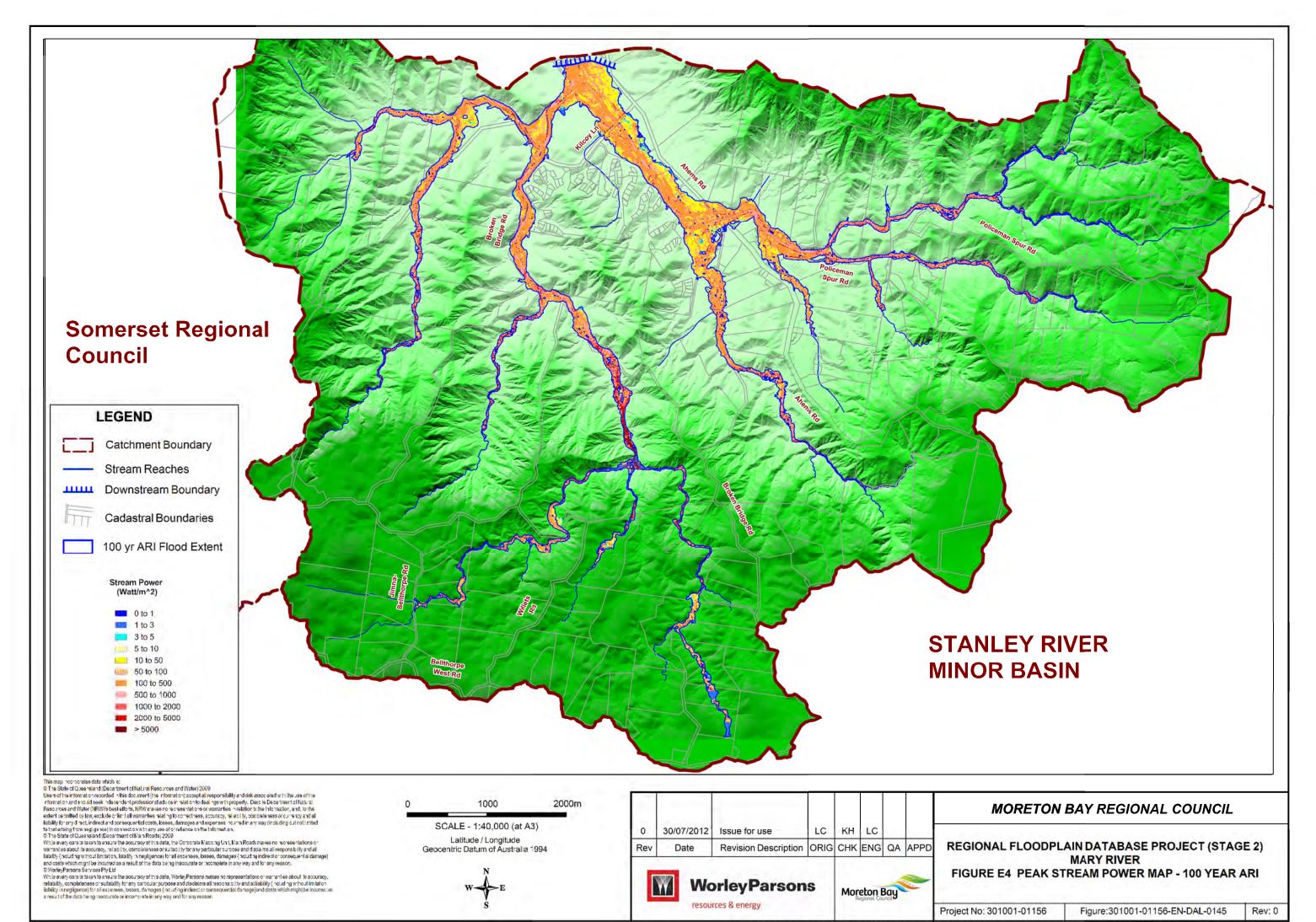
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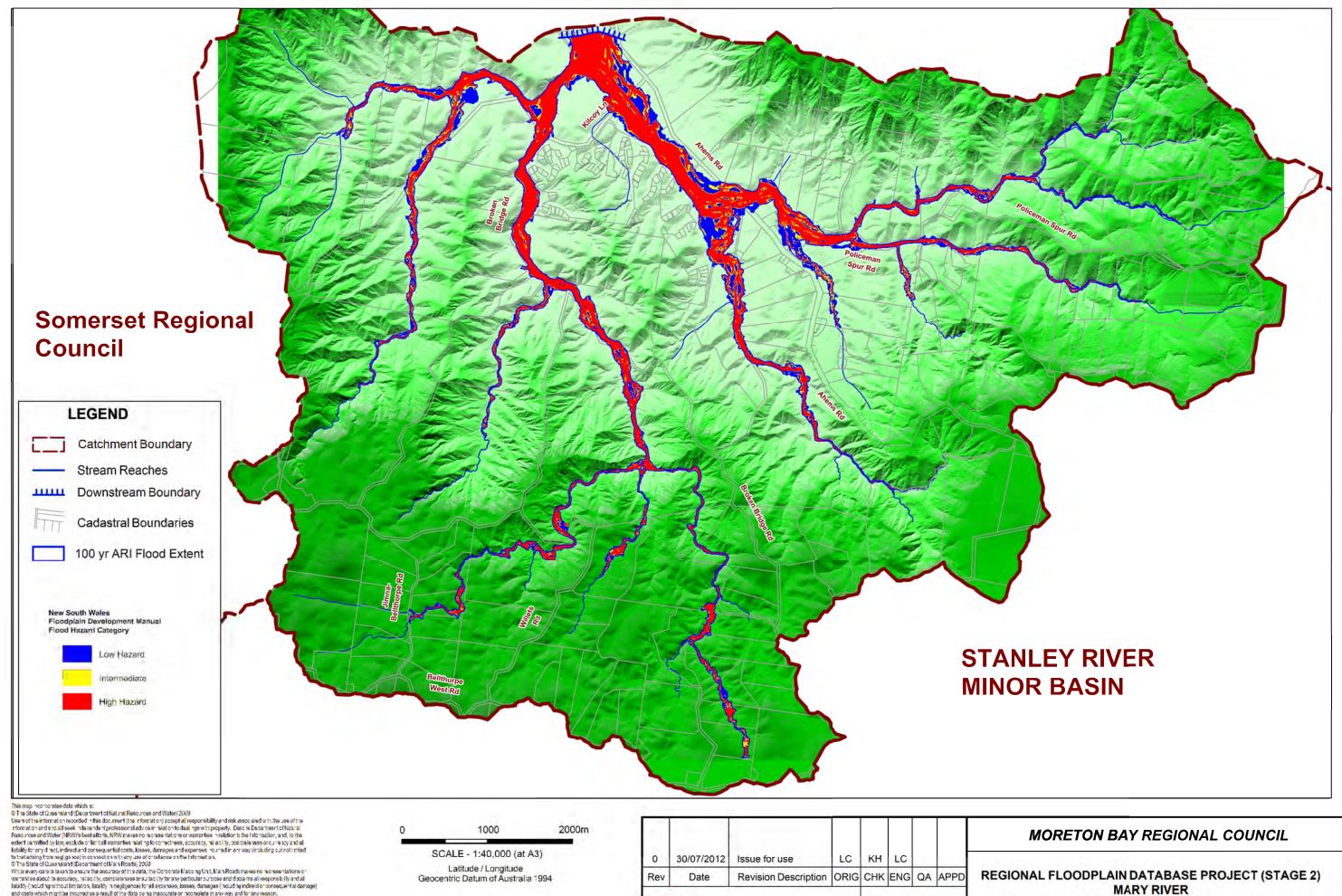
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MARY RIVER FIGURE E3 PEAK FLOOD VELOCITY MAP - 100 YEAR ARI

Project No: 301001-01156

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REGIONAL FLOODPLAIN DATABASE PROJECT (STAGE 2) MARY RIVER FIGURE E5 PEAK FLOOD HAZARD MAP - 100 YEAR ARI

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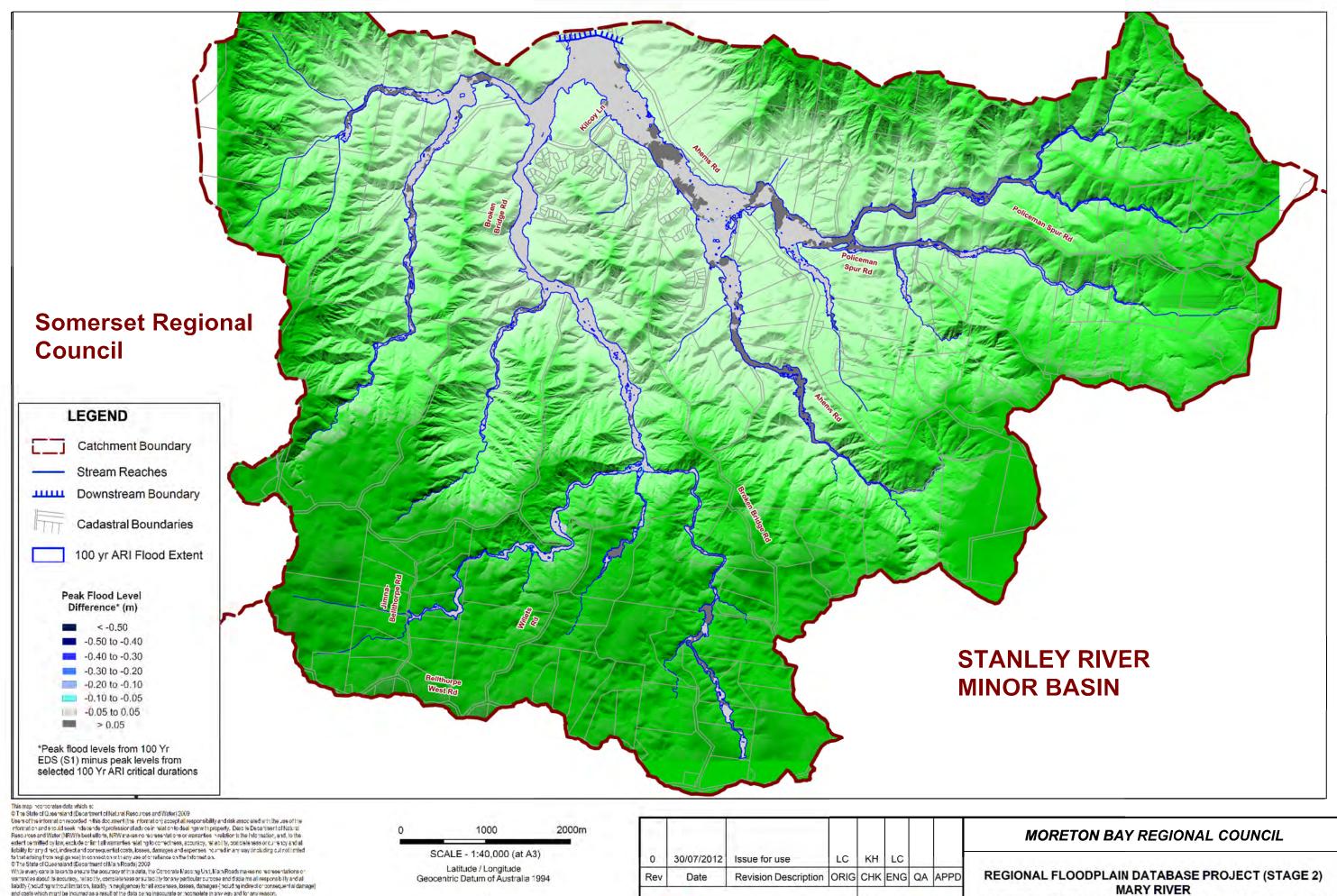
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APPENDIX F: MODEL SENSITIVITY ANALYSIS MAPS



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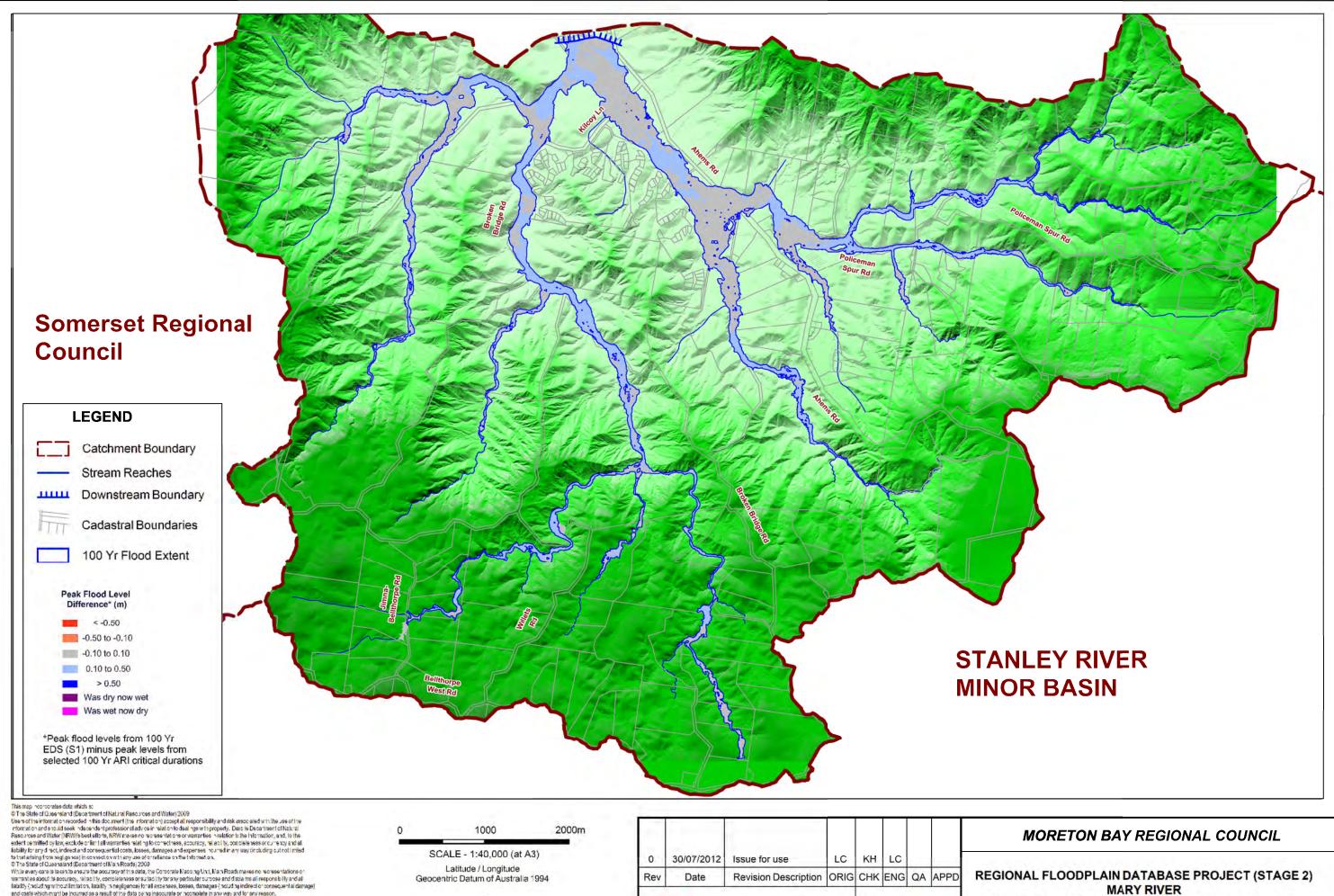


MARY RIVER

FIGURE F1 FLOOD LEVEL DIFFERENCE BETWEEN EDS AND SELECTED CRITICAL STORM DURATIONS - 100 YR ARI (S1)

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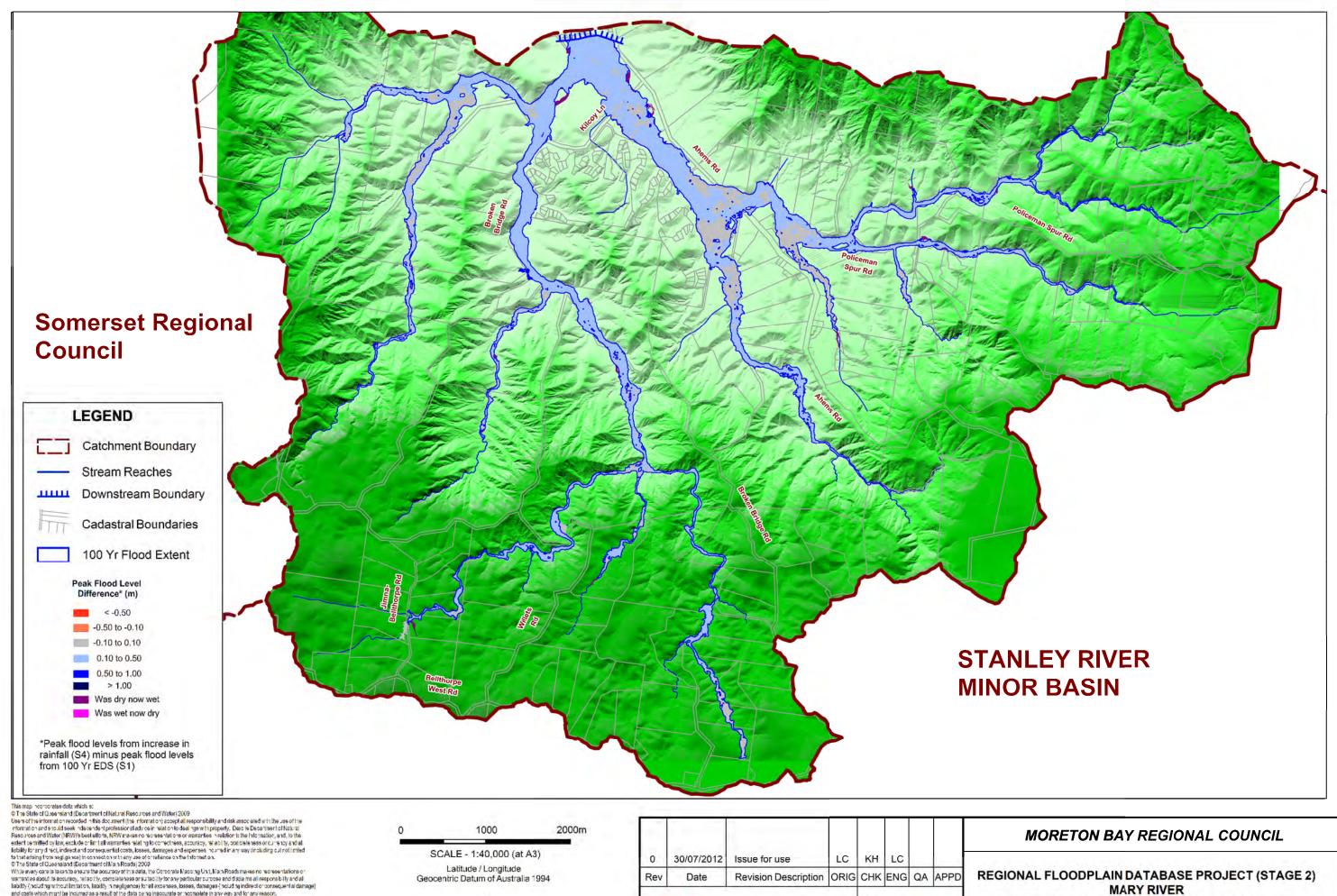
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FIGURE F2 INCREASE IN ROUGHNESS FLOOD LEVEL IMPACT - 100 YEAR EDS (S2)



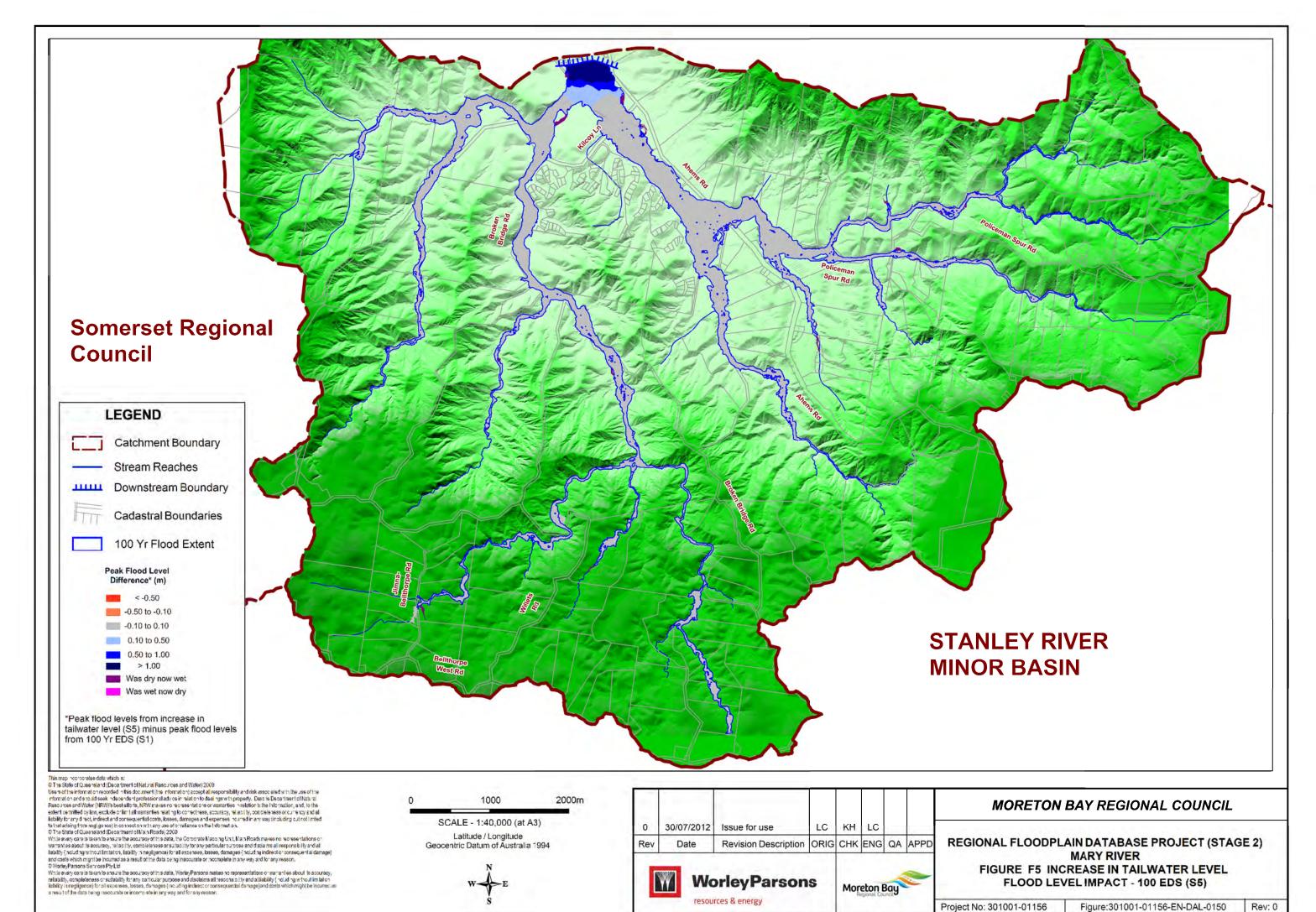
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MARY RIVER FIGURE F4 INCREASE IN RAINFALL FLOOD LEVEL IMPACT - 100 EDS (S4)

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