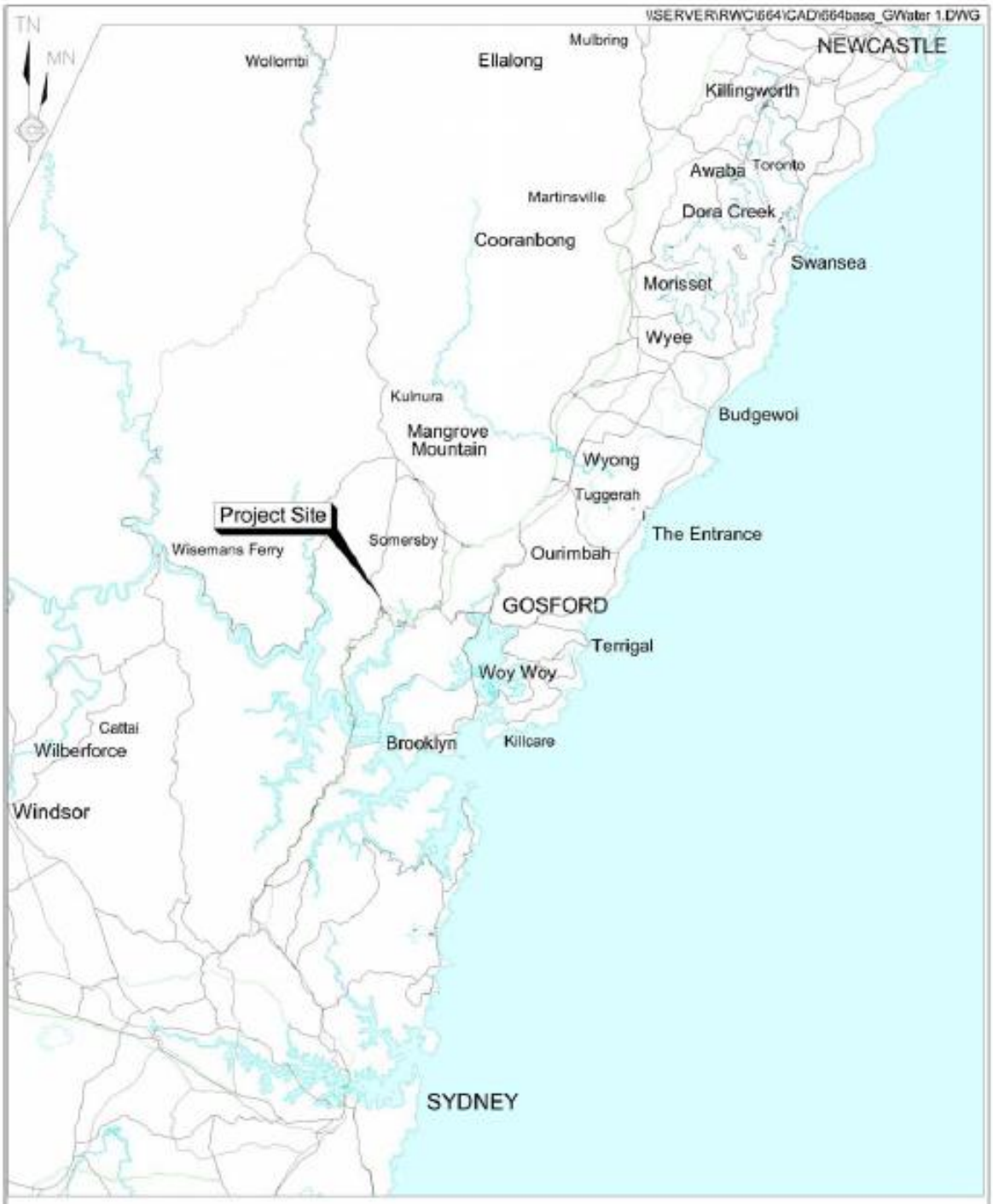


SCALE 1:600 000

10 0 10 20 30km

Note: This figure is available in colour on the Project CD

Figure 1
LOCALITY PLAN

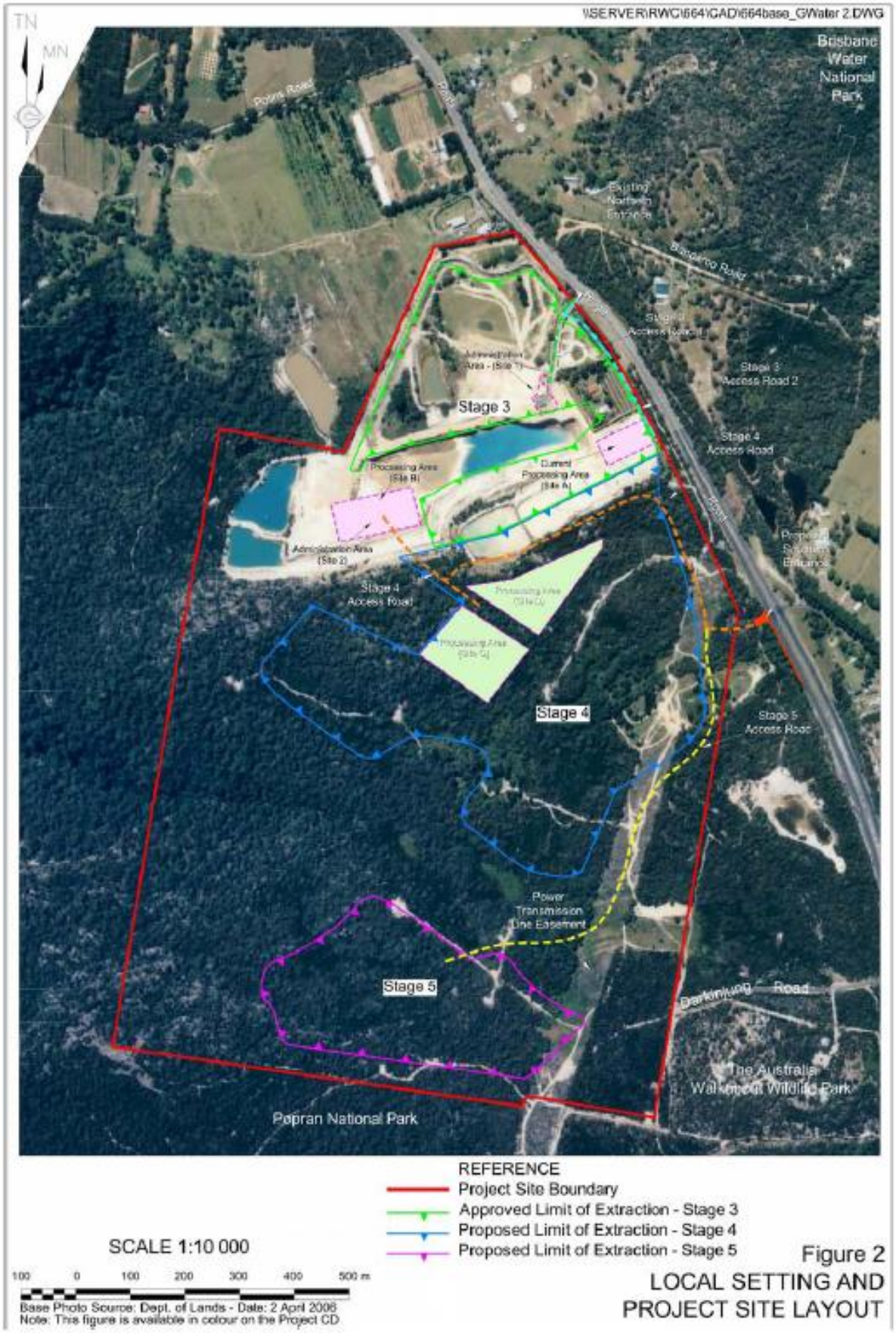


Figure 2
LOCAL SETTING AND PROJECT SITE LAYOUT

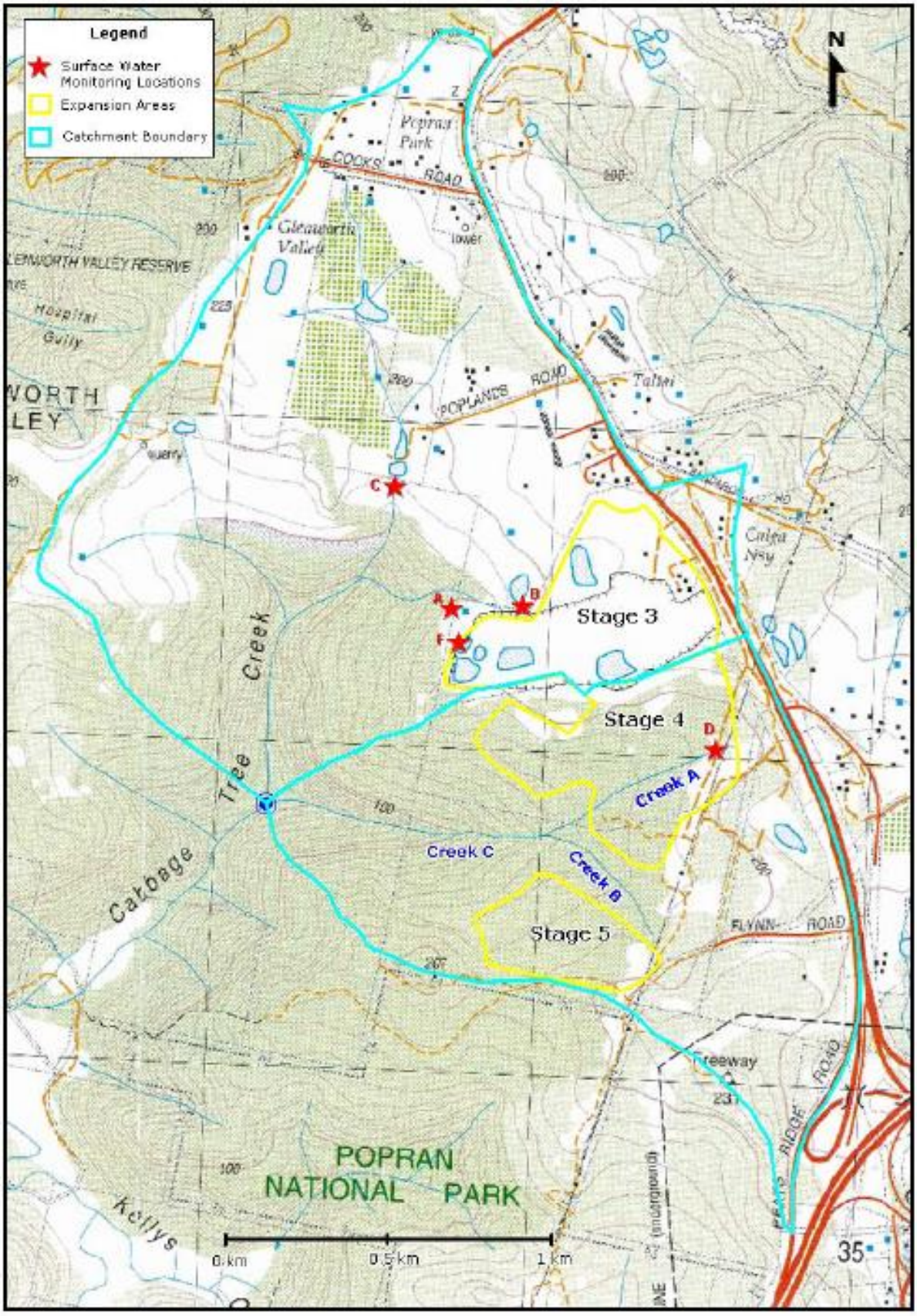


Figure 3. Catchments draining to Cabbage Tree Creek [after Evans & Peck, 2008]

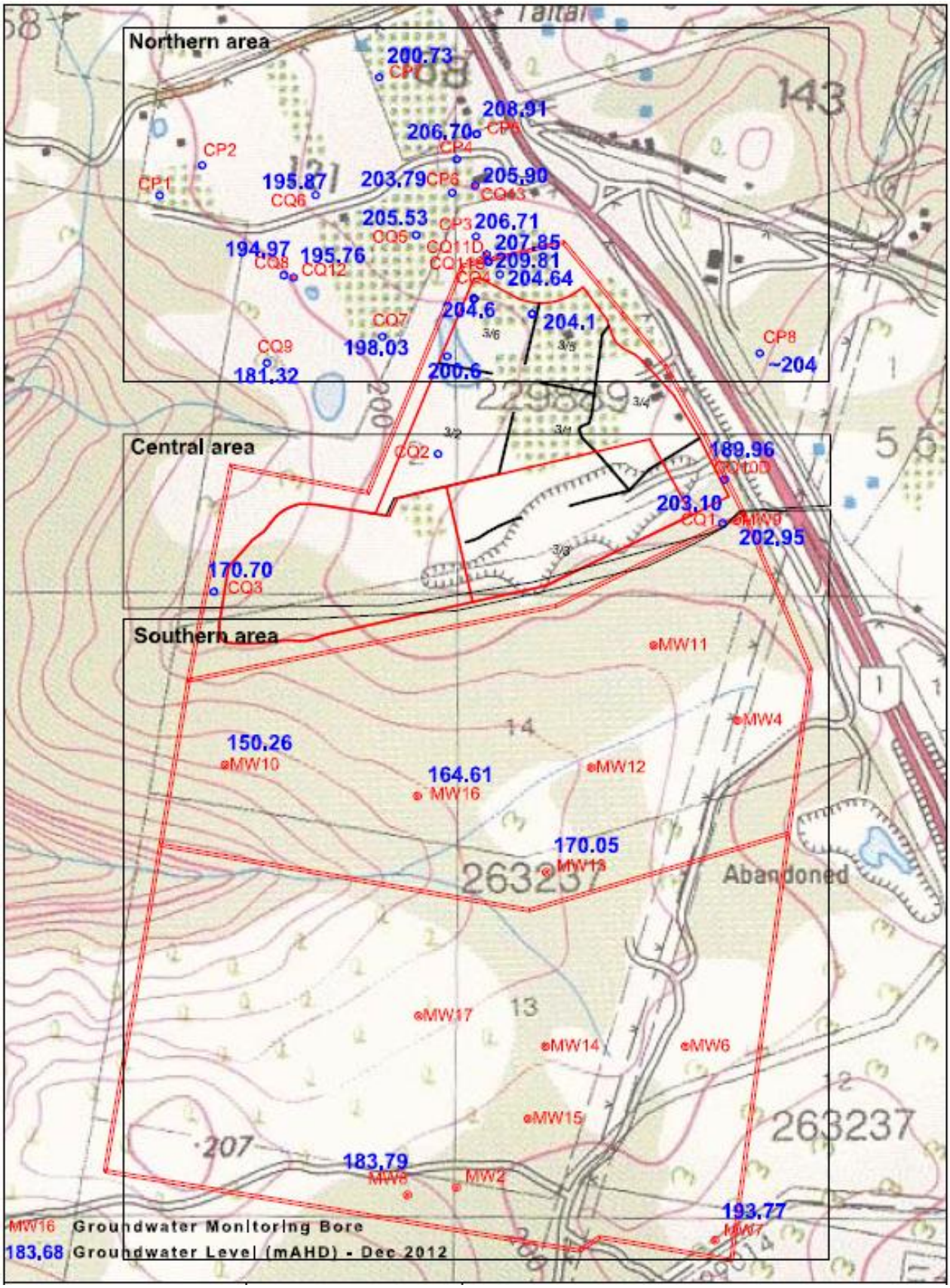


Figure 4. Groundwater Monitoring Bore Network [after Dundon, 2013]

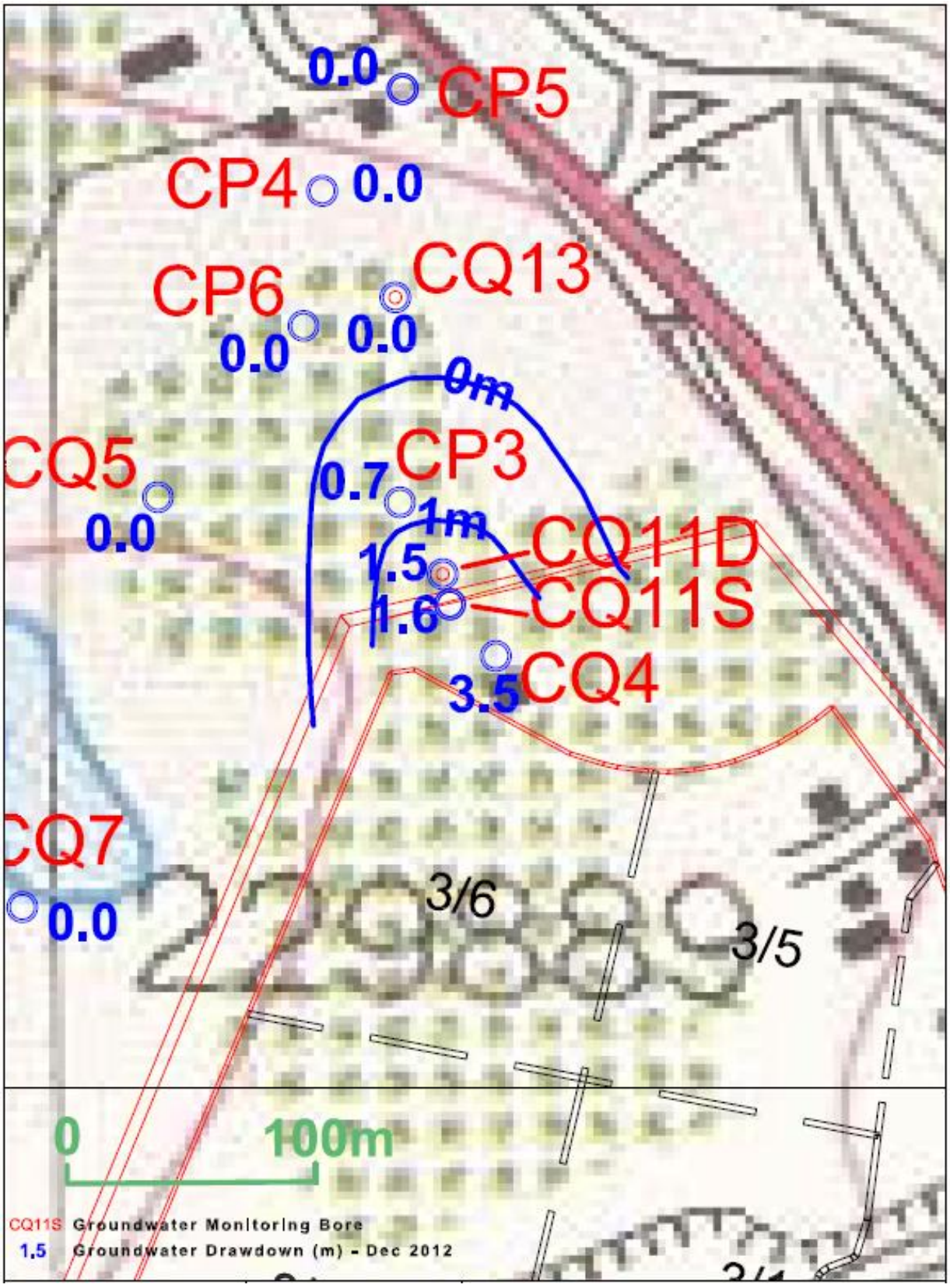


Figure 5. Groundwater Drawdown Attributed to Quarry Activity [after Dundon, 2013]

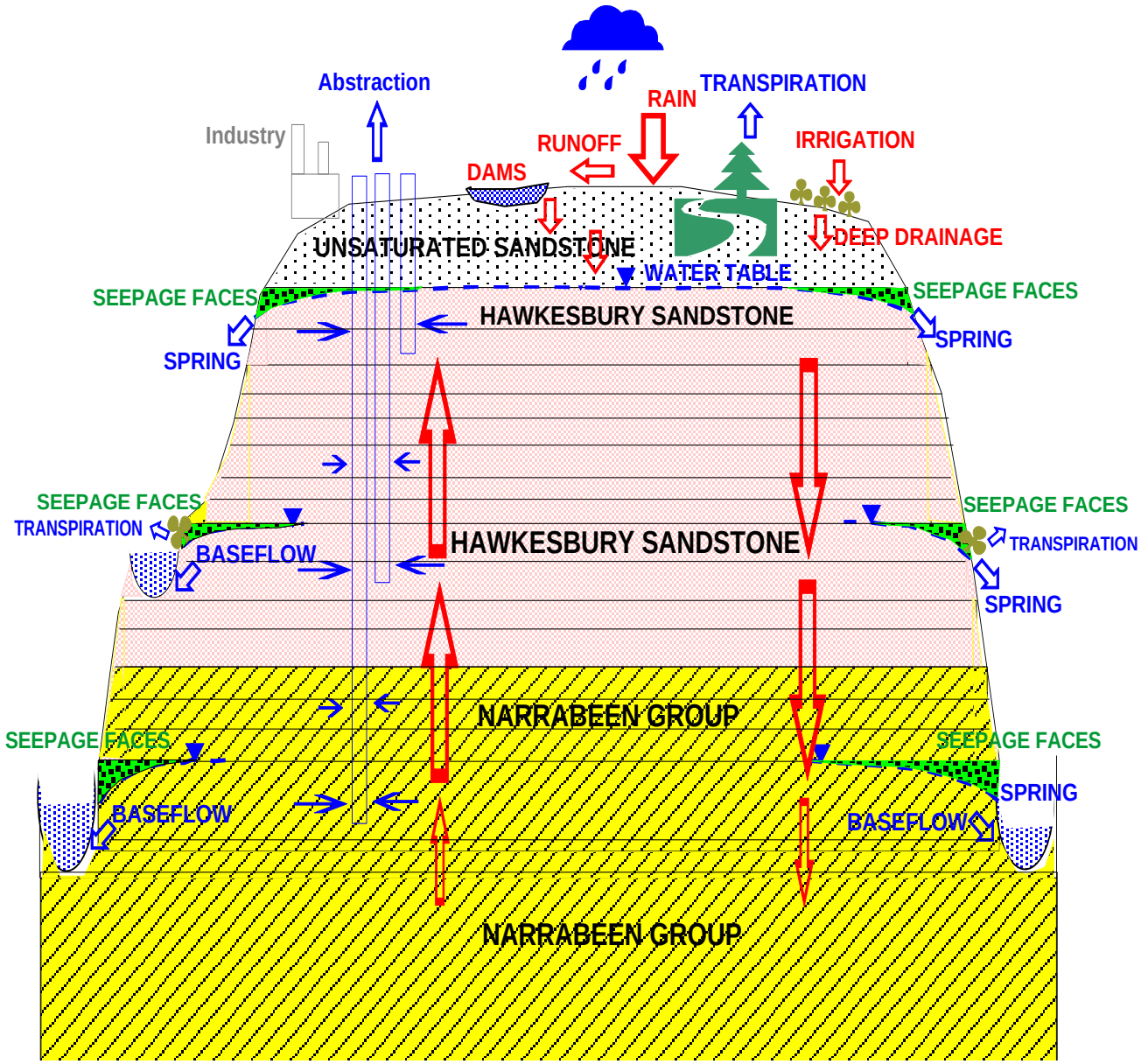
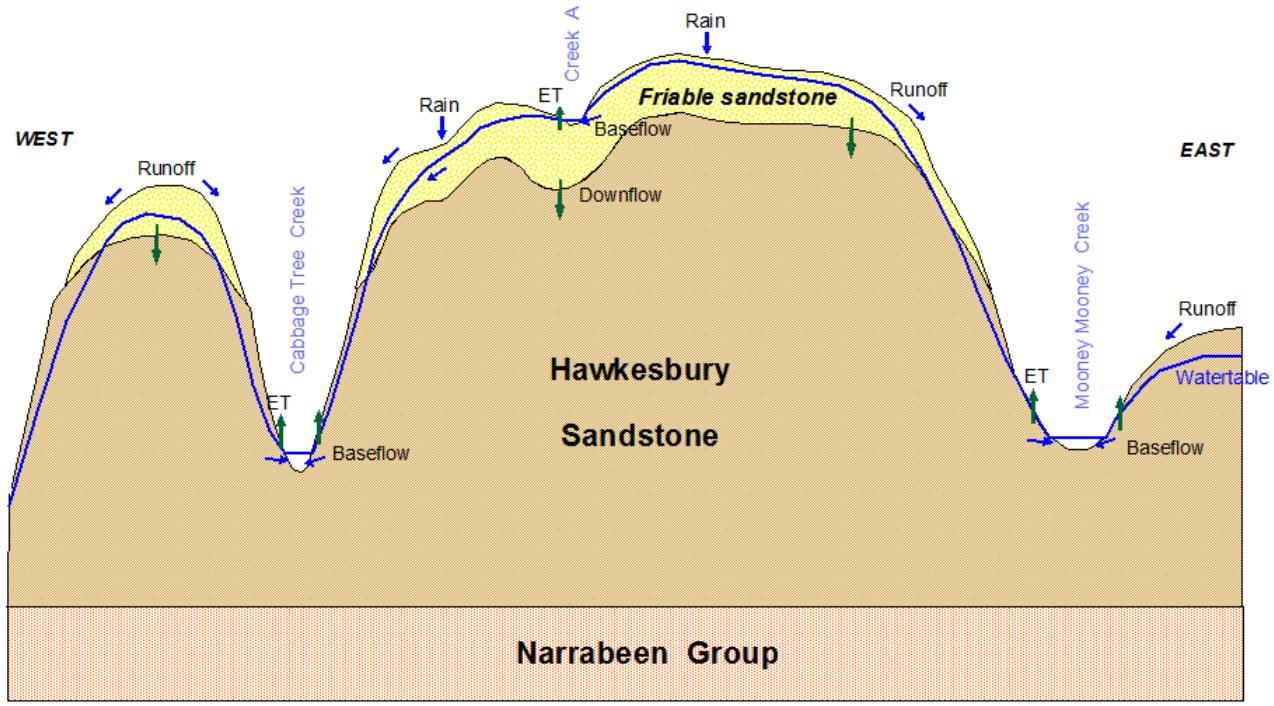


Figure 6. Regional Hydrogeological Conceptual Model [after Alkhatib and Merrick, 2006]

[a]



[b]

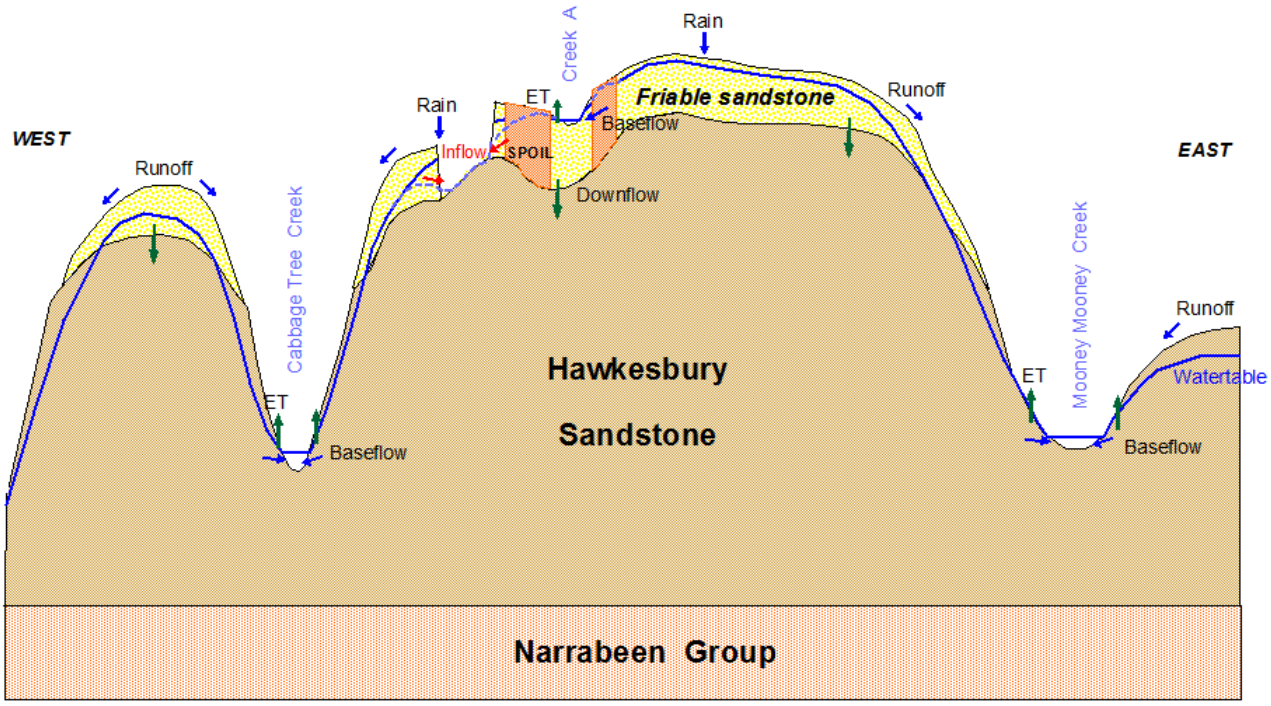


Figure 7. Local Hydrogeological Conceptual Model [a] Before Extraction; [b] During Extraction.

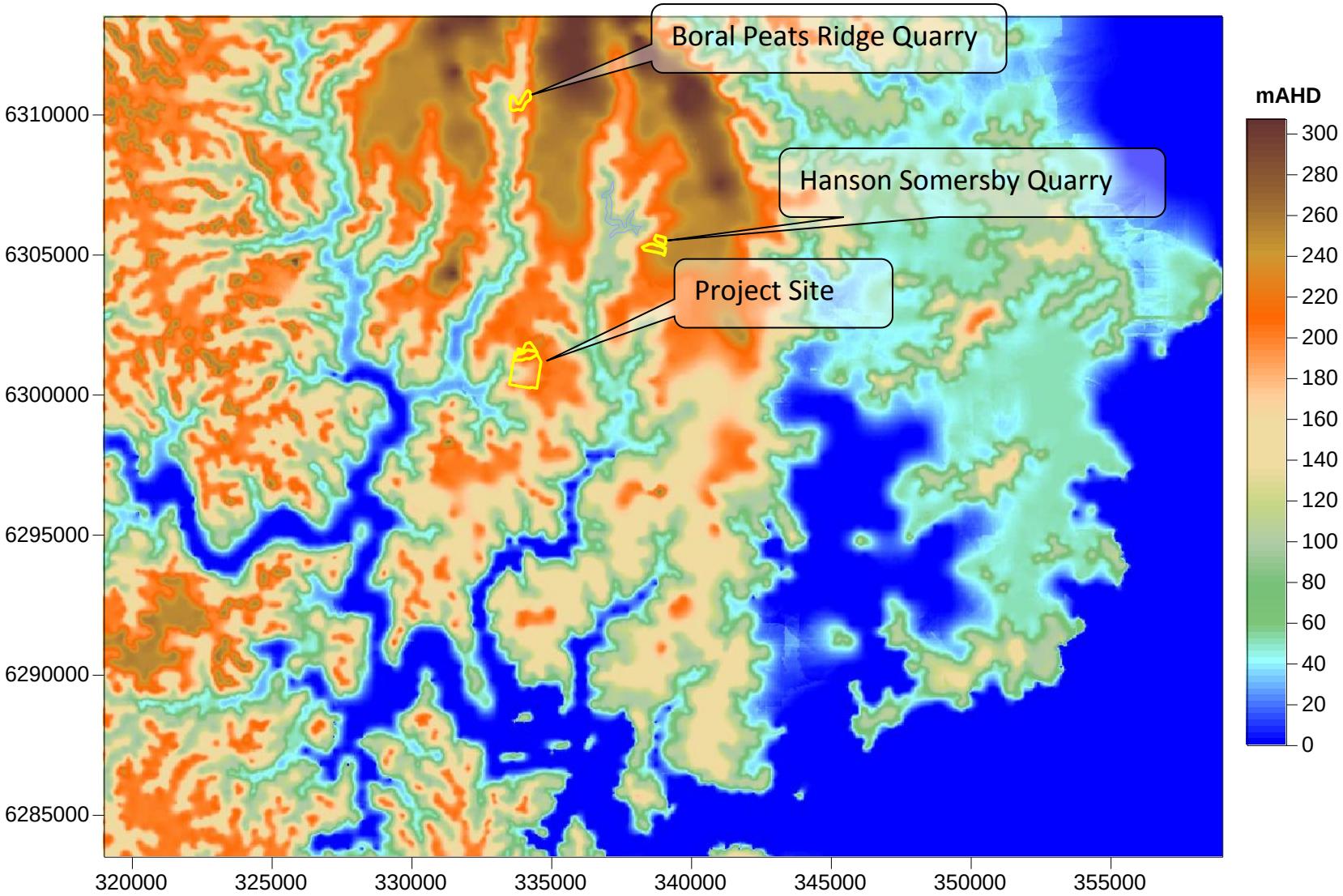


Figure 8. Topography across the Model Domain [mAHD]

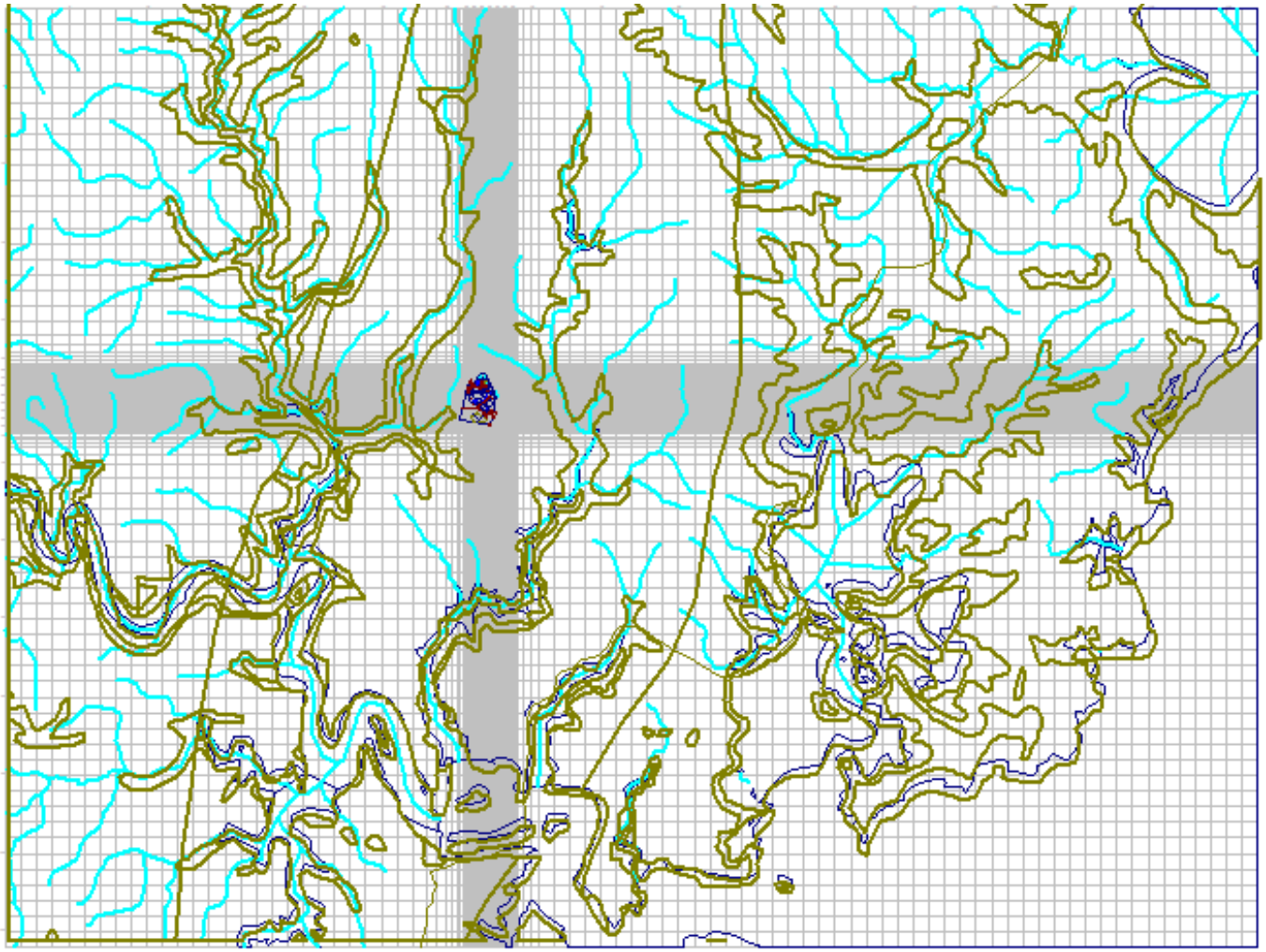


Figure 9. Model Grid with Geological Boundaries, Watercourses and Project Site. [cell dimension 50-500m]

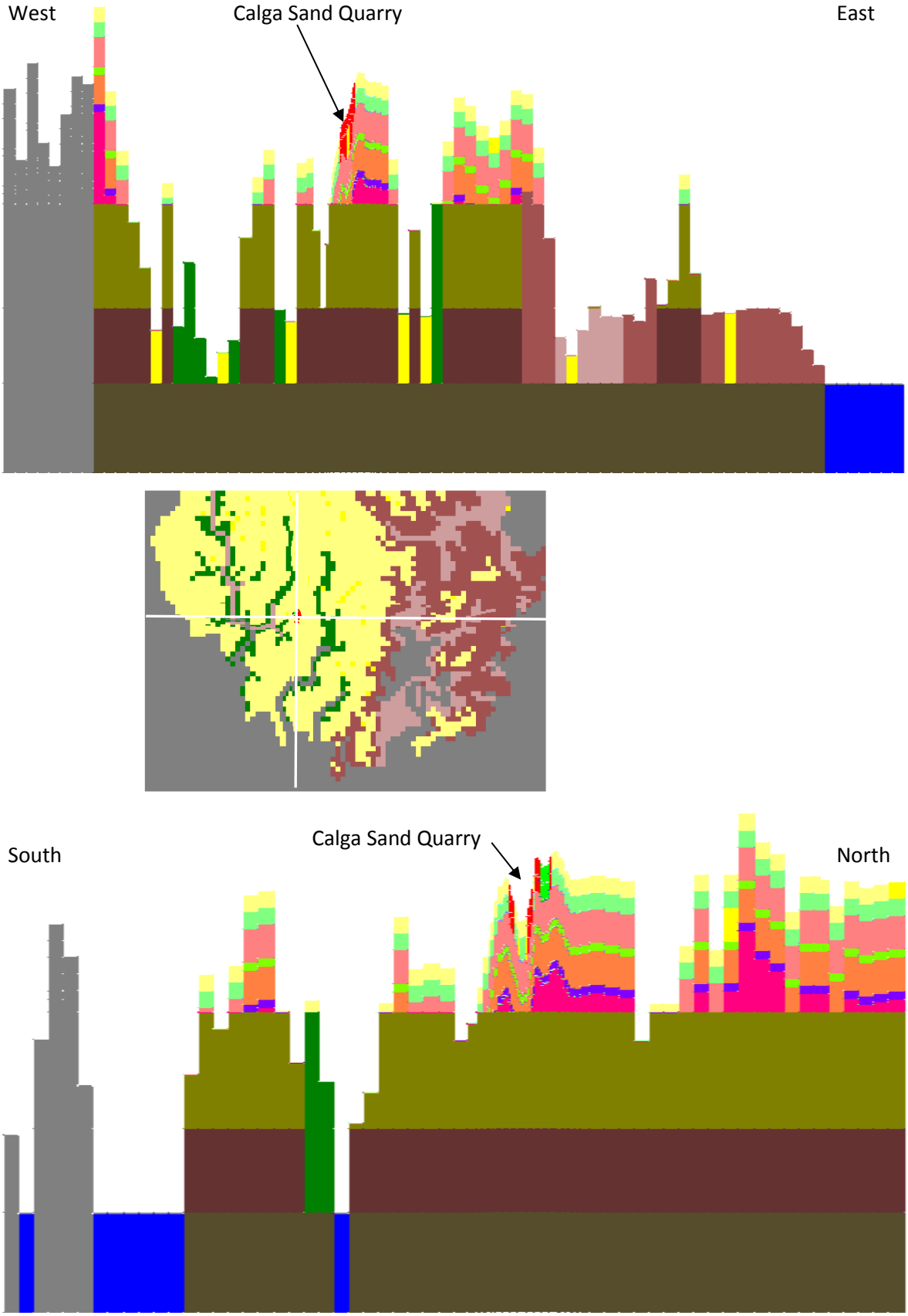
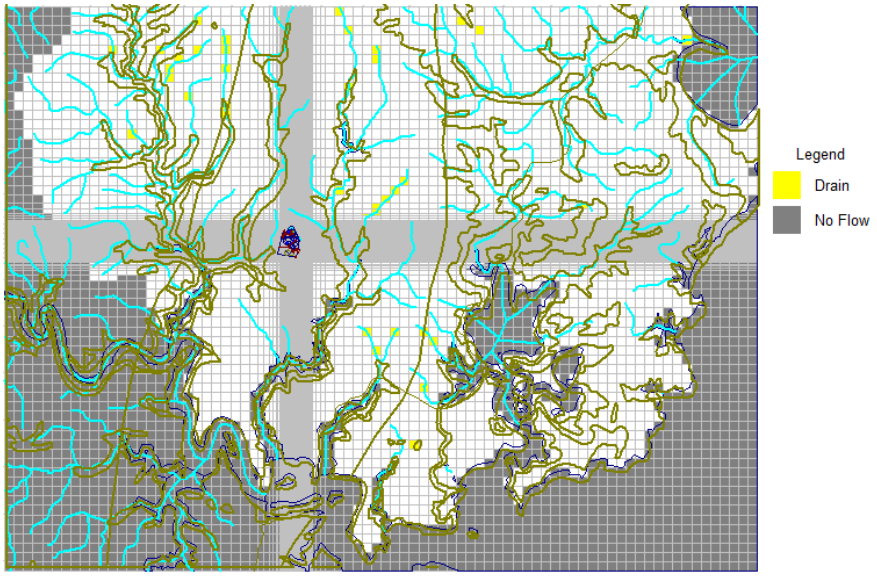
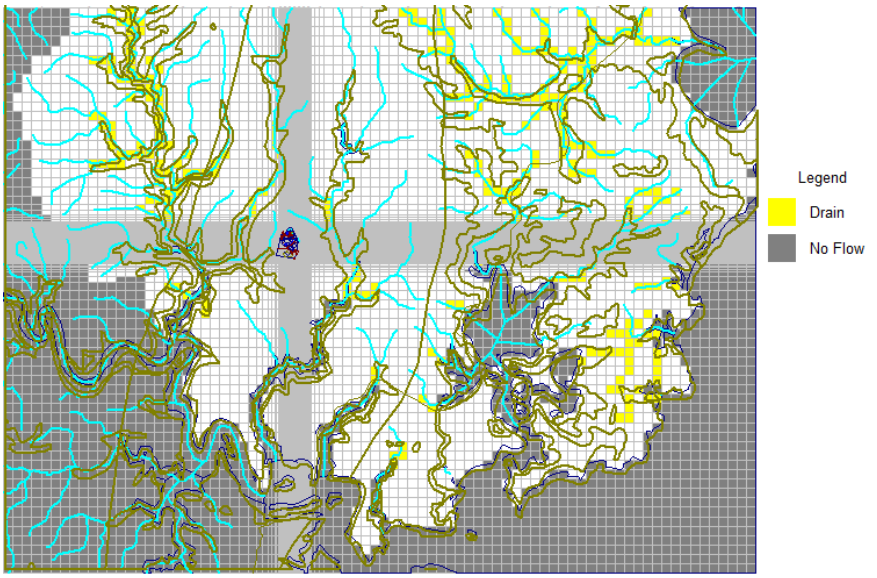


Figure 10. Representative Model Cross-sections through Calga Sand Quarry at Easting 334200 and Northing 6300900

[a]



[b]



[c]

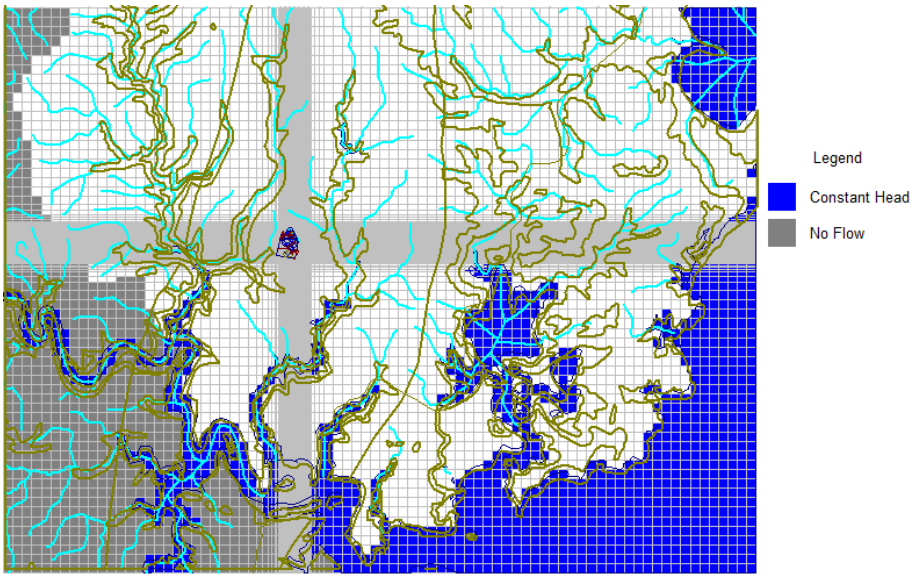


Figure 11. Model Boundary Conditions: [a] Layer 1; [b] Layer 9 and [c] Layer 10

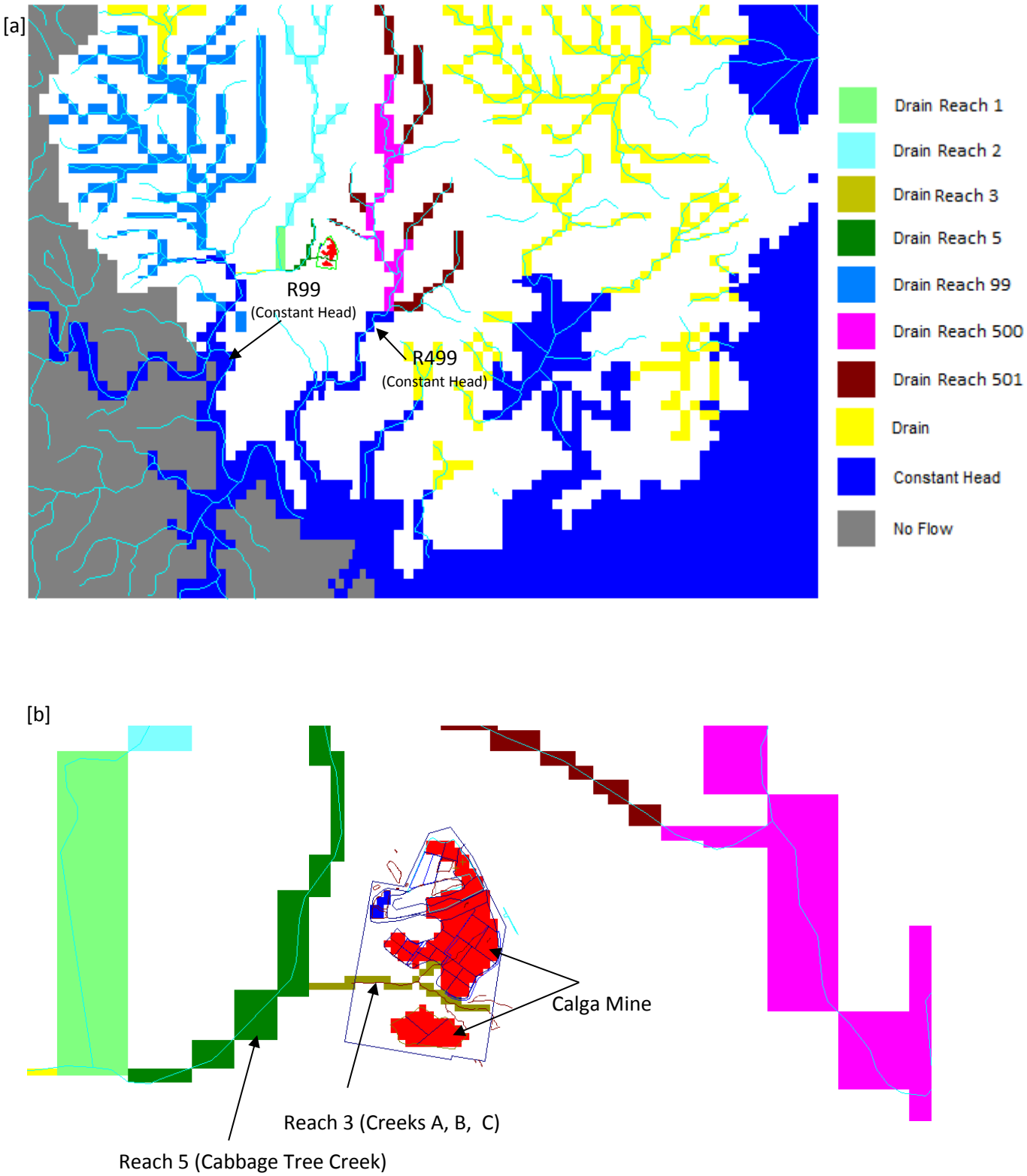


Figure 12. Stream Reach Definitions: [a] Regional area; [b] Local area

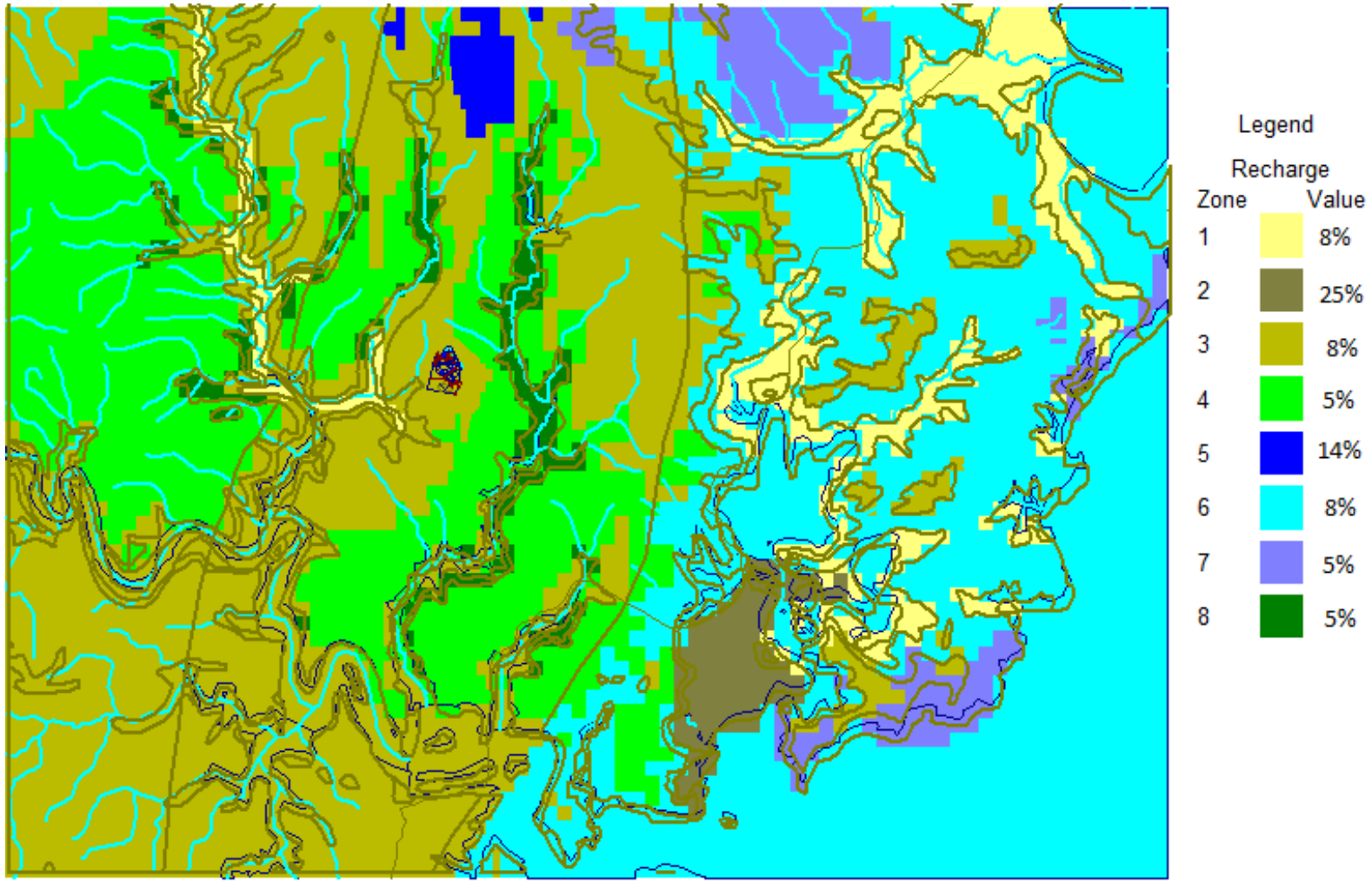


Figure 13. Rainfall Recharge Distribution as a Percentage of Rainfall

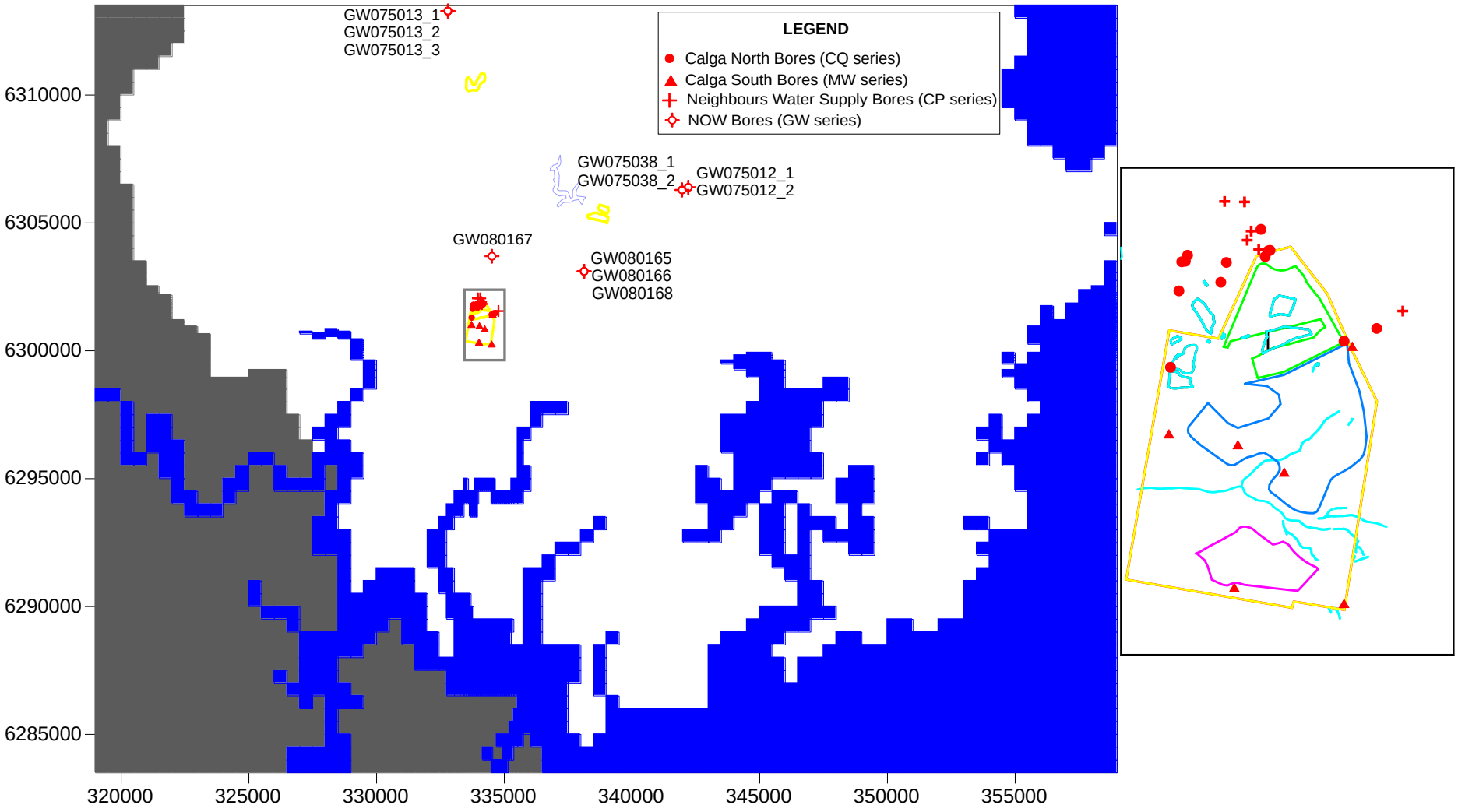


Figure 14 Locations of Monitoring Bore Calibration Sites

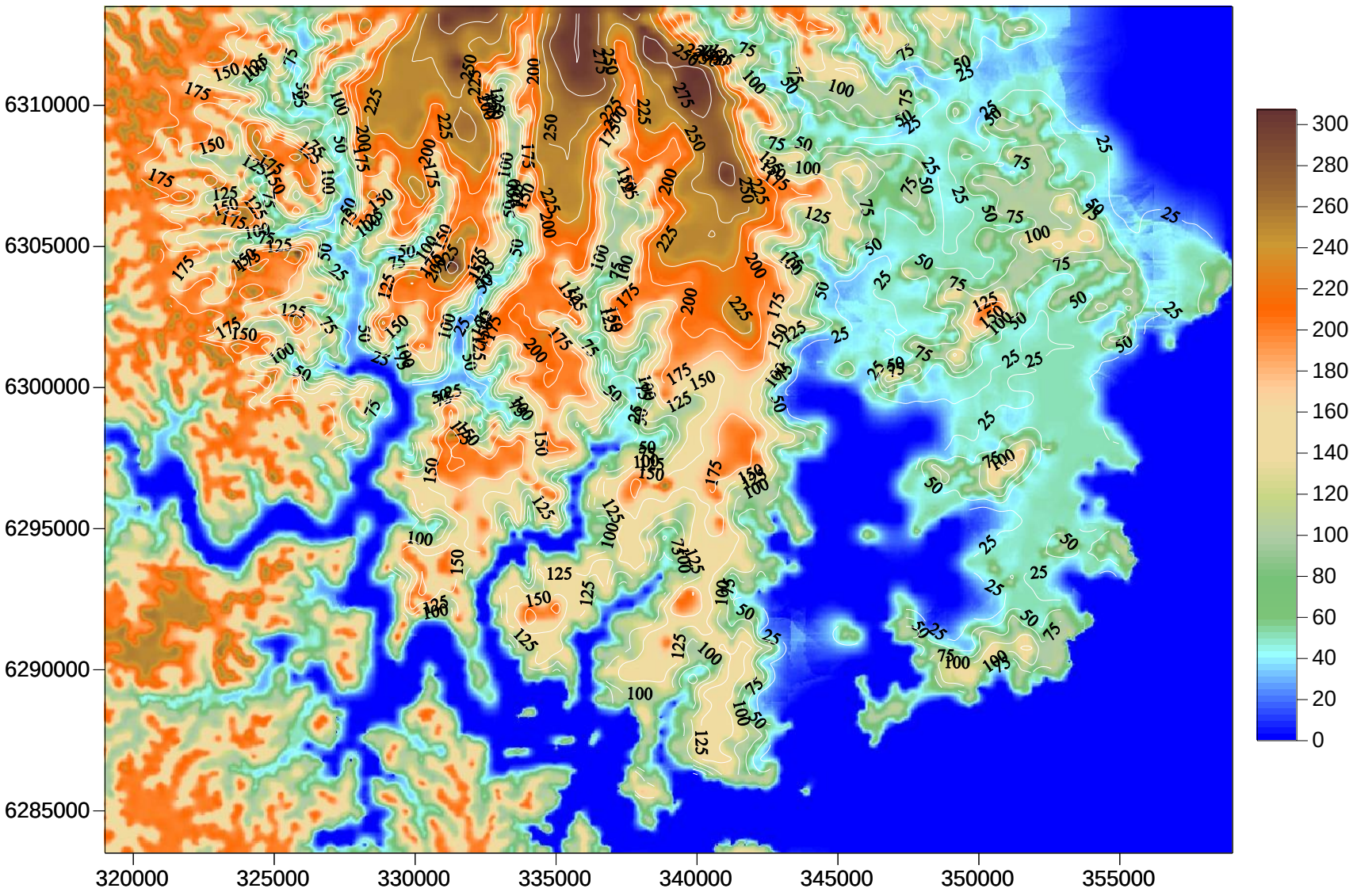


Figure 15. Simulated Steady State Watertable Contours in Model Layer 1 with Topography Underlay [mAHD]

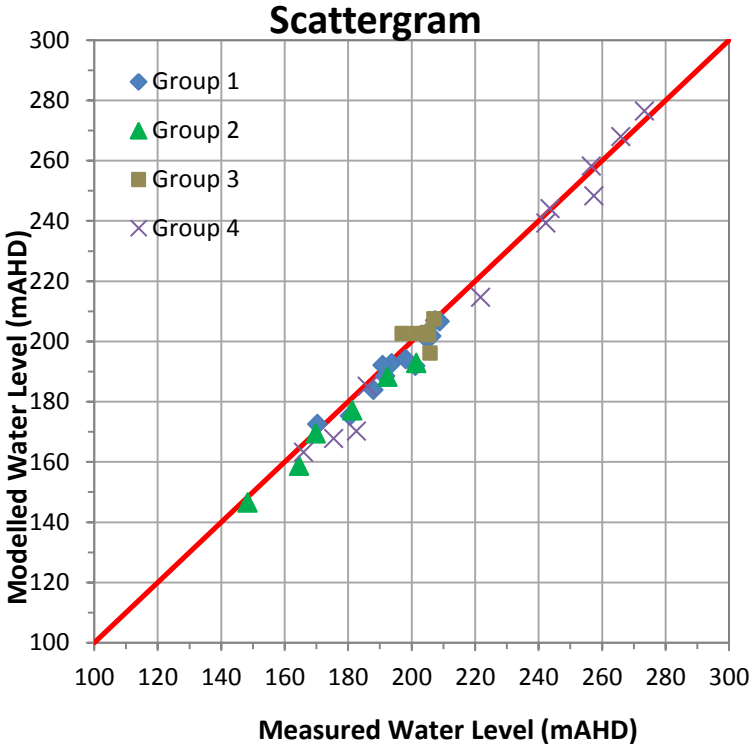


Figure 16. Scattergram of Simulated and Measured Heads for Steady State Calibration

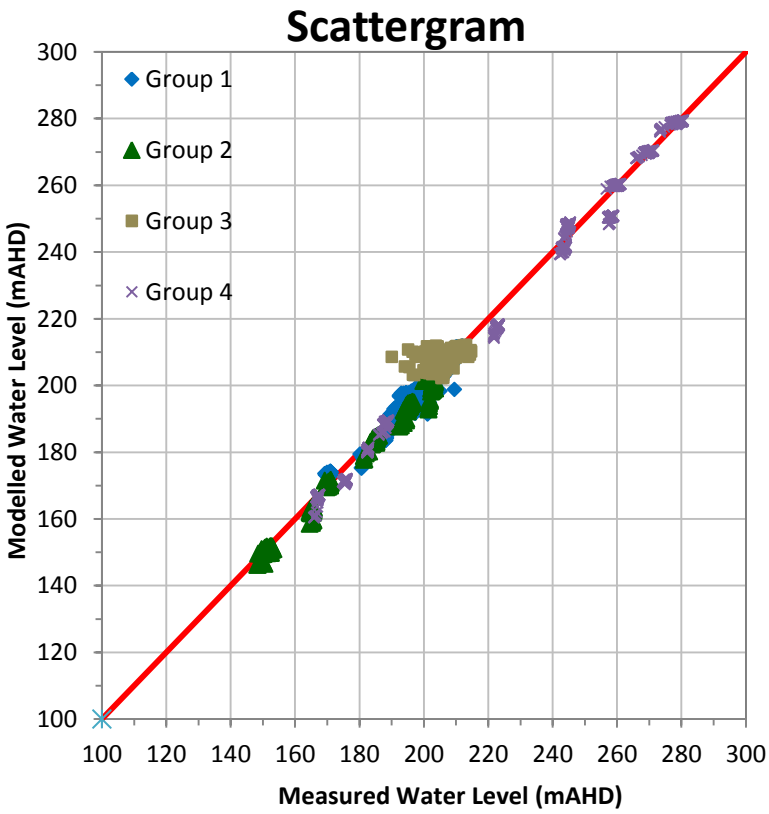
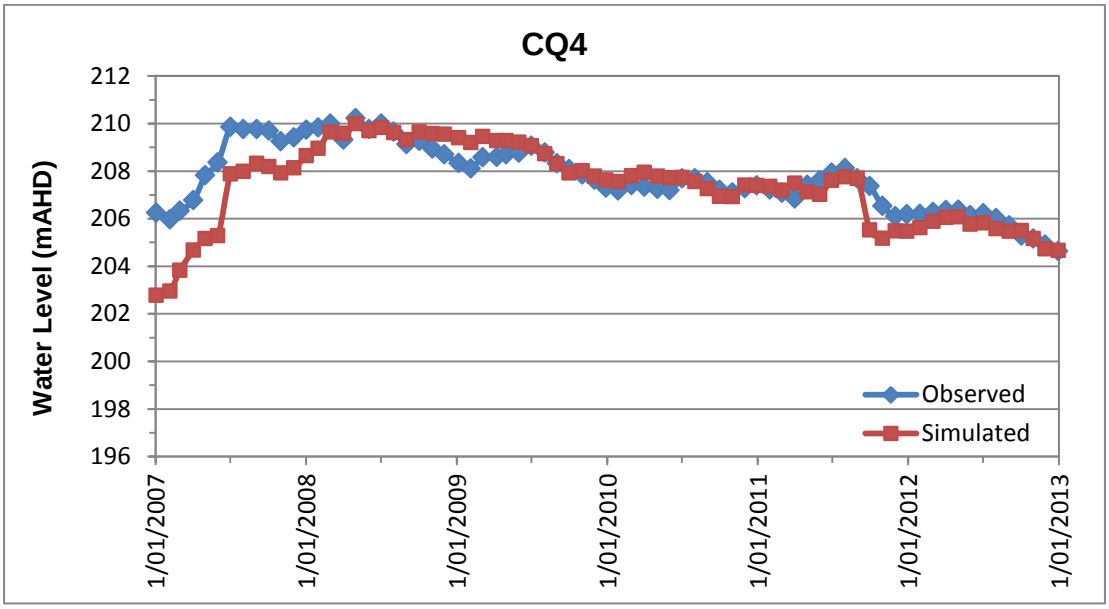


Figure 17. Scattergram of Simulated and Measured Heads for Transient Calibration

[a]



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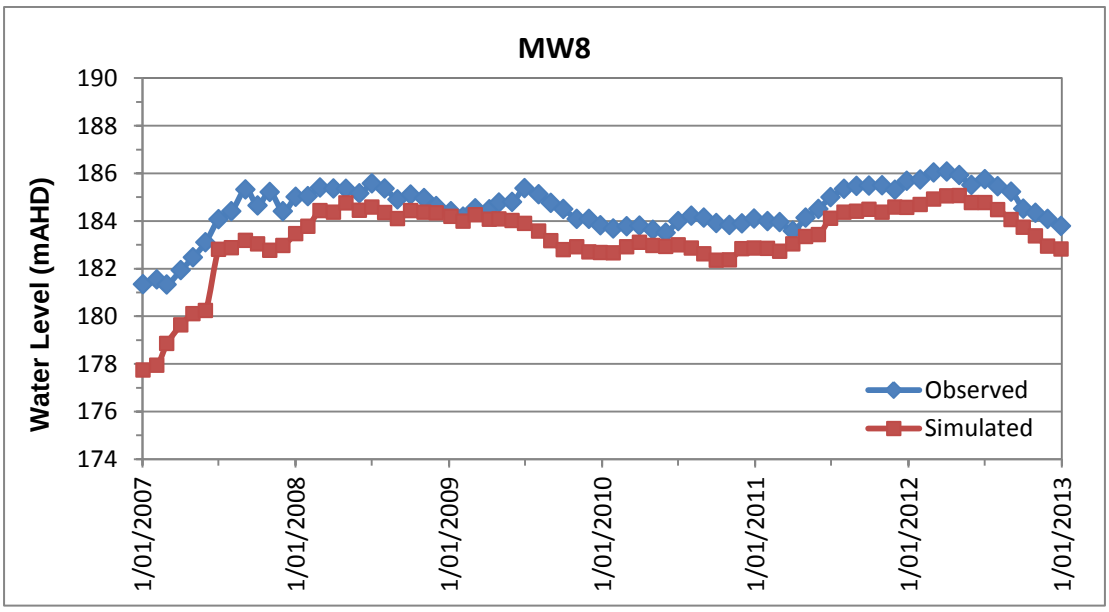
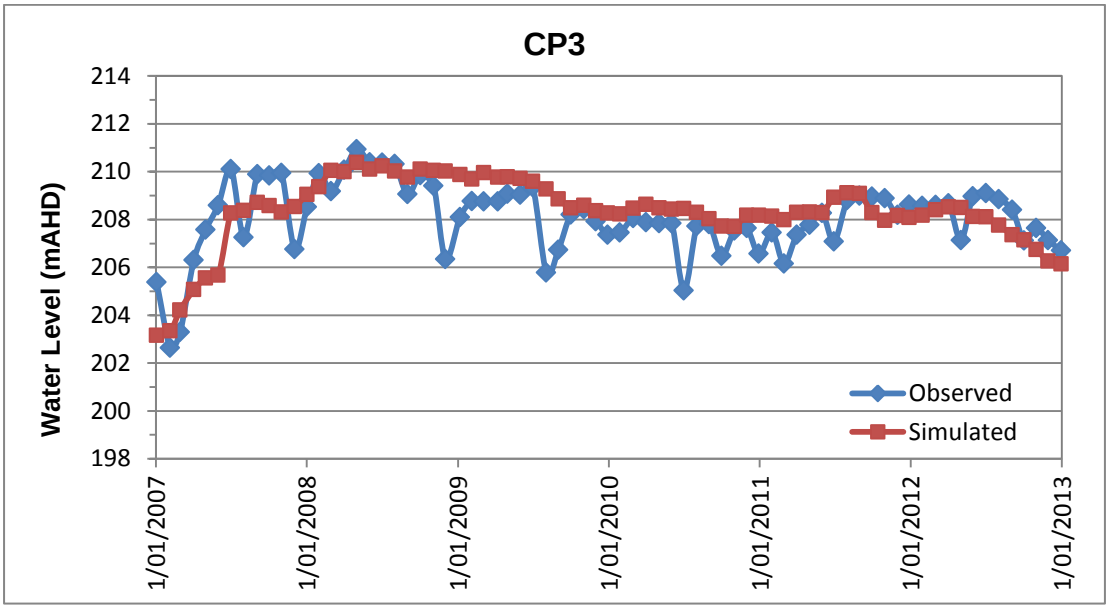


Figure 18. Representative Simulated and Observed Hydrographs: [a] Group 1, Calga North; [b] Group 2, Calga South

[a]



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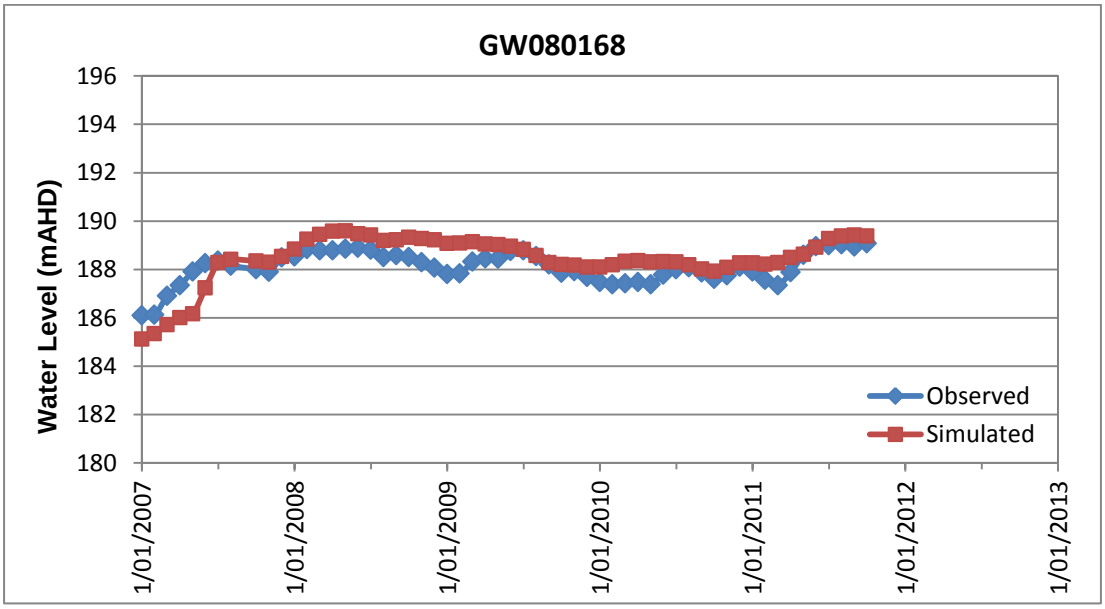


Figure 19. Representative Simulated and Observed Hydrographs: [a] Group 3, Private Bores; [b] Group 4, NOW Bores

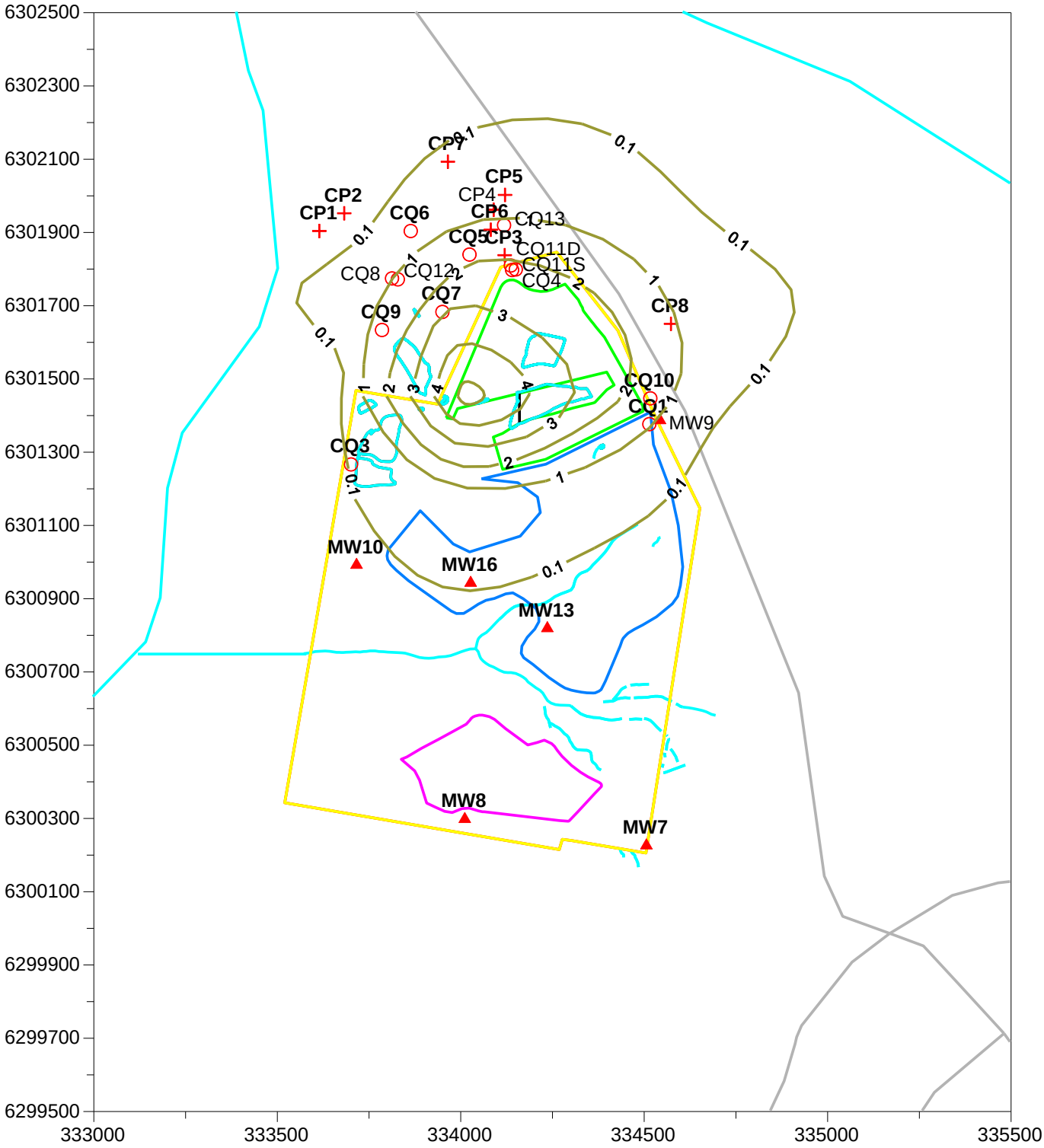


Figure 20. Simulated Watertable Drawdown at December 2012

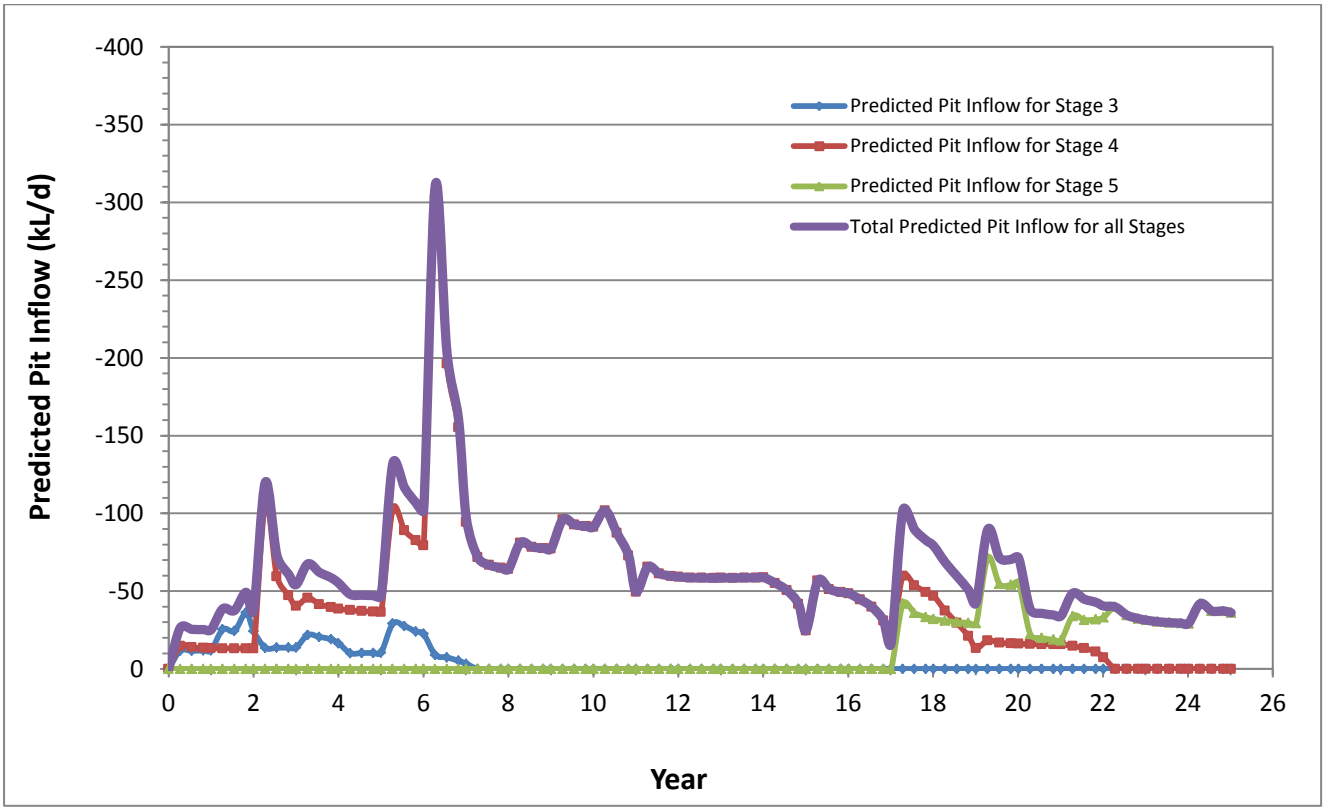
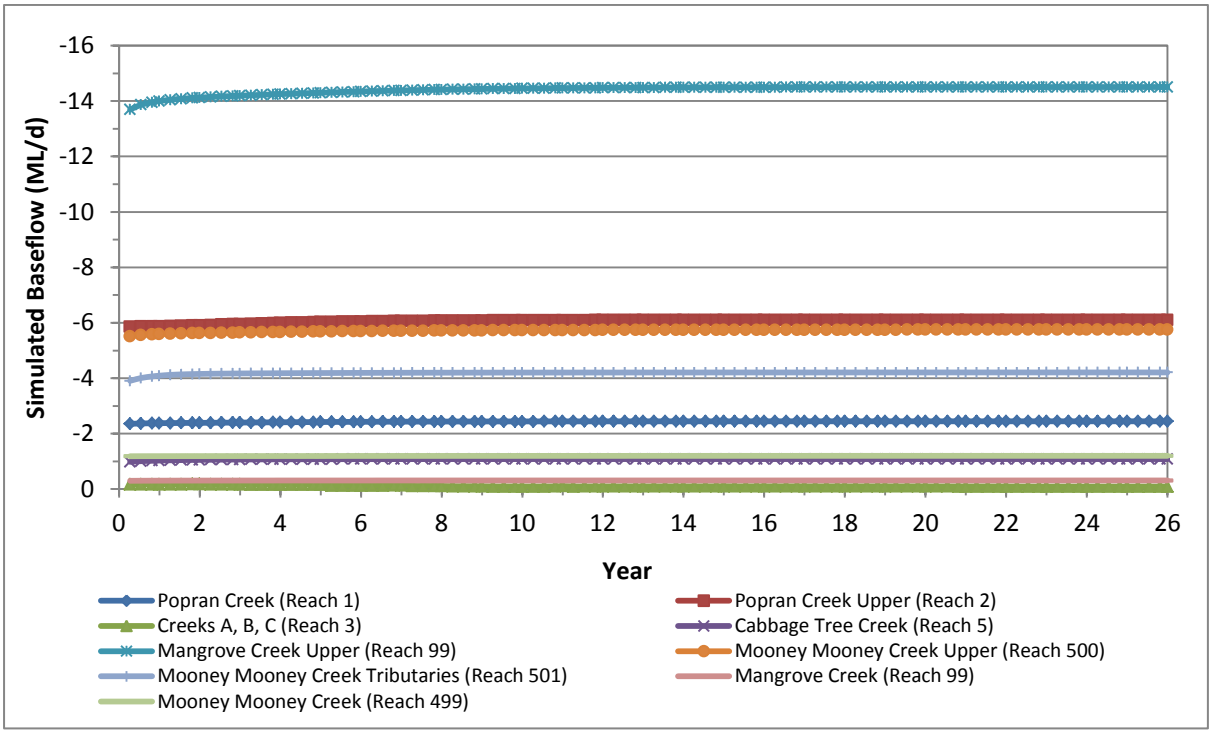


Figure 21. Predicted Pit Inflow

[a]



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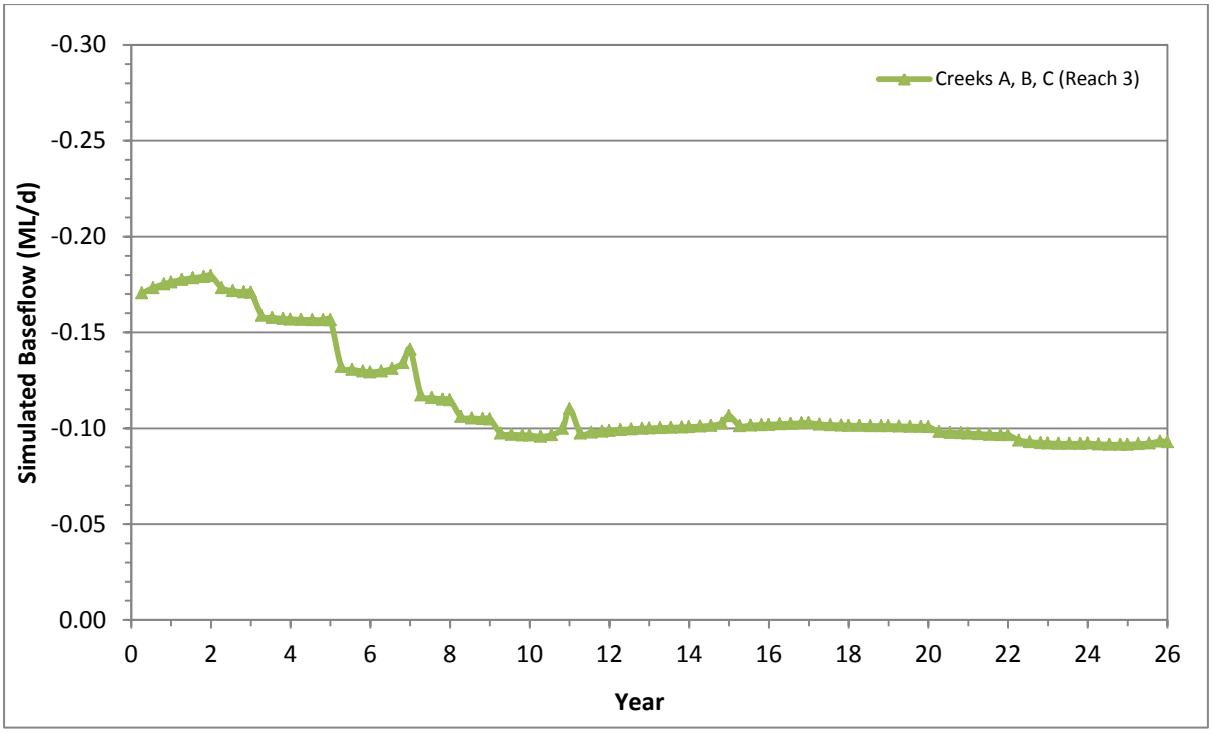


Figure 22. Predicted Baseflow: [a] For all reaches; [b] For Reach 3 (Creeks A, B, C)

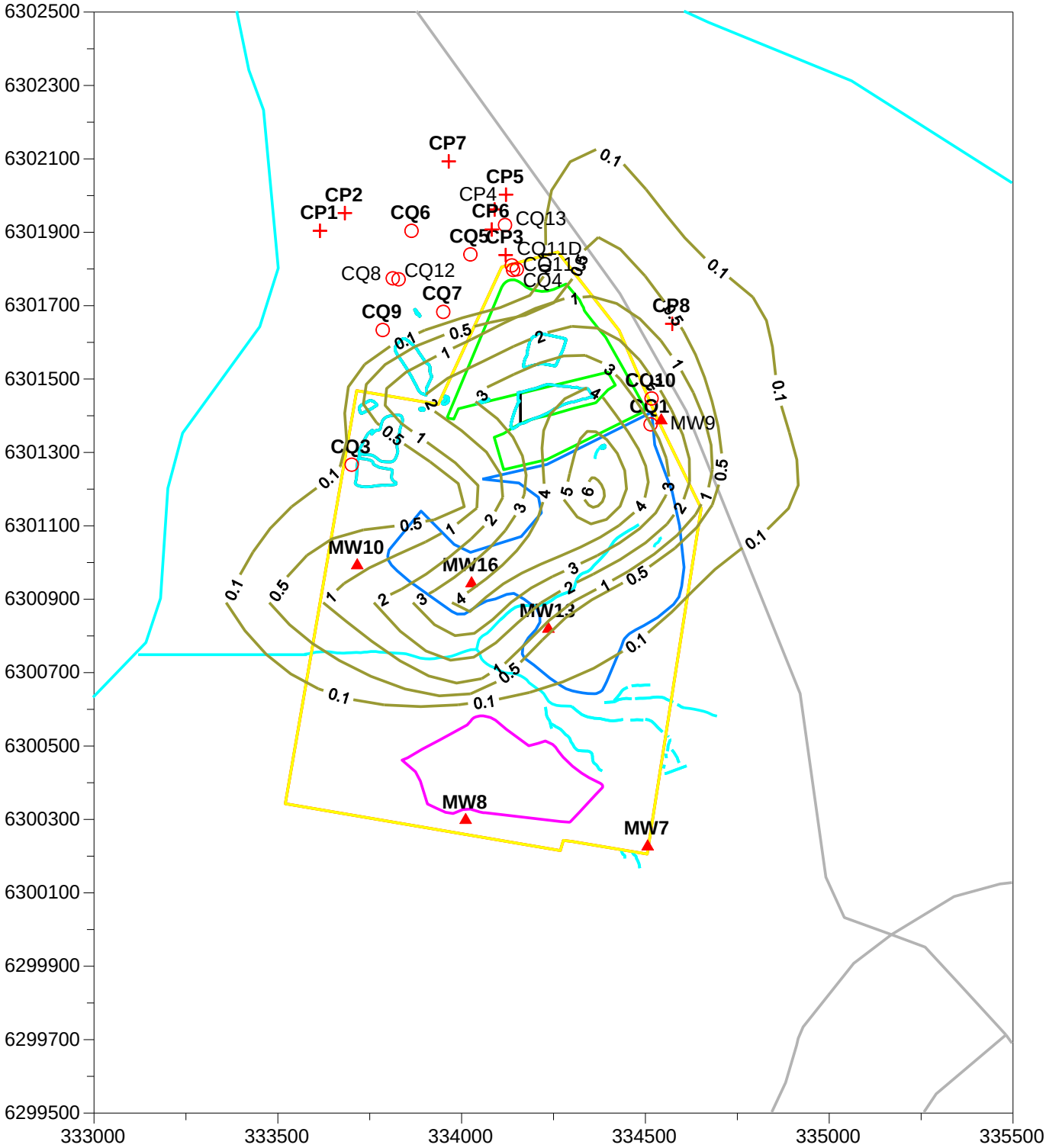


Figure 23. Predicted Watertable Drawdown (m) after 5 Years of Extraction

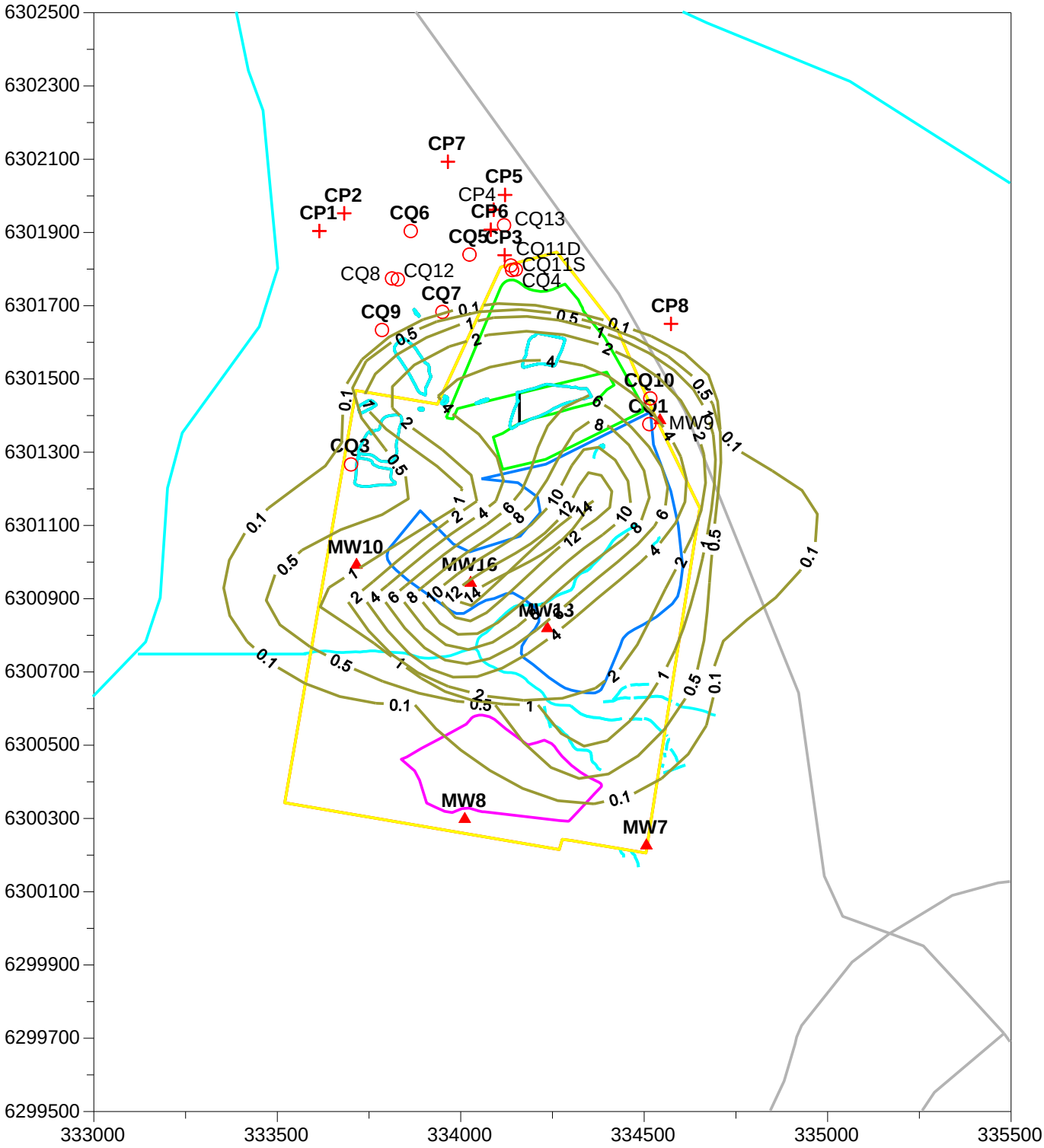


Figure 24. Predicted Watertable Drawdown (m) after 10 Years of Extraction

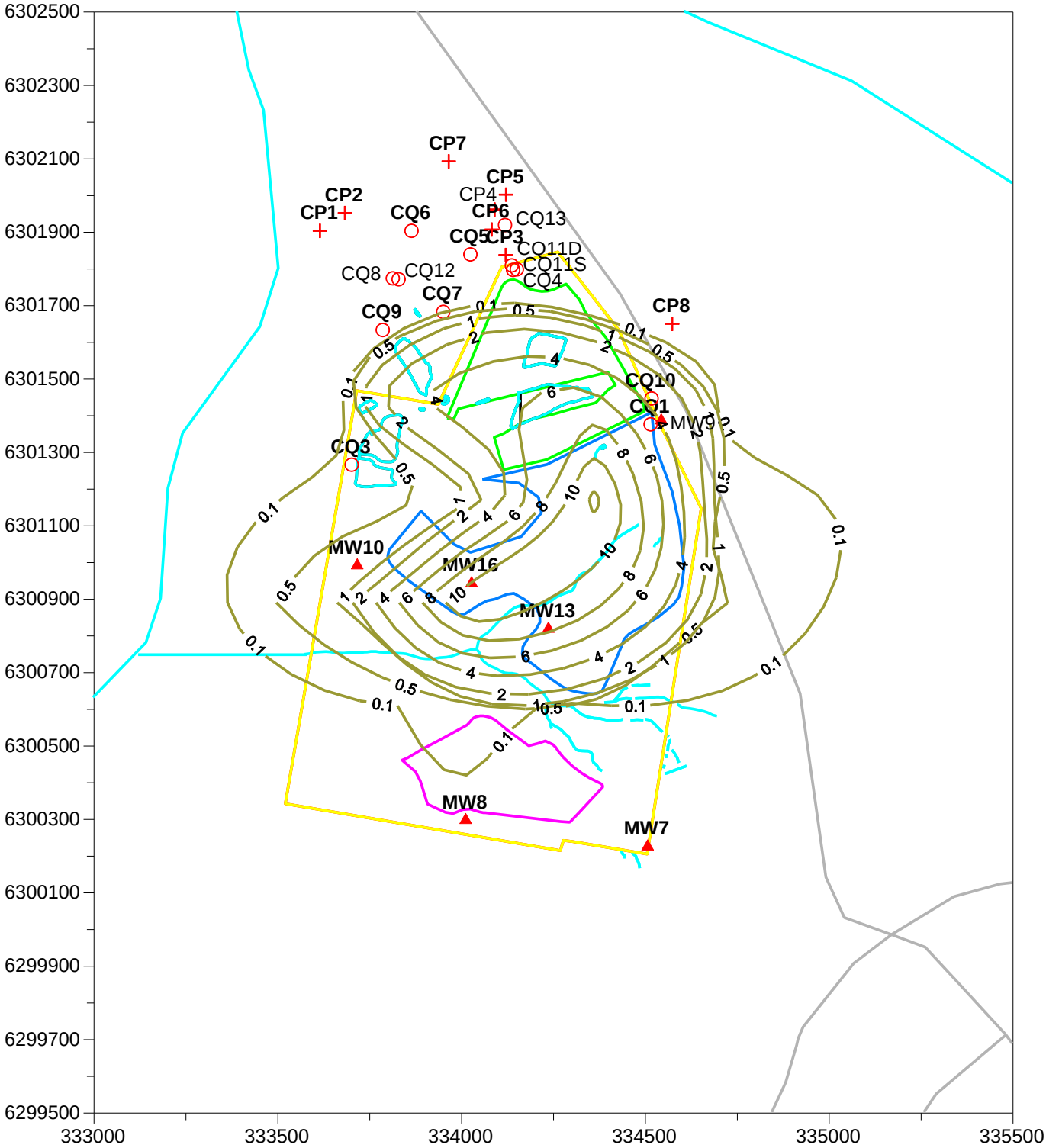


Figure 25. Predicted Watertable Drawdown (m) after 15 Years of Extraction

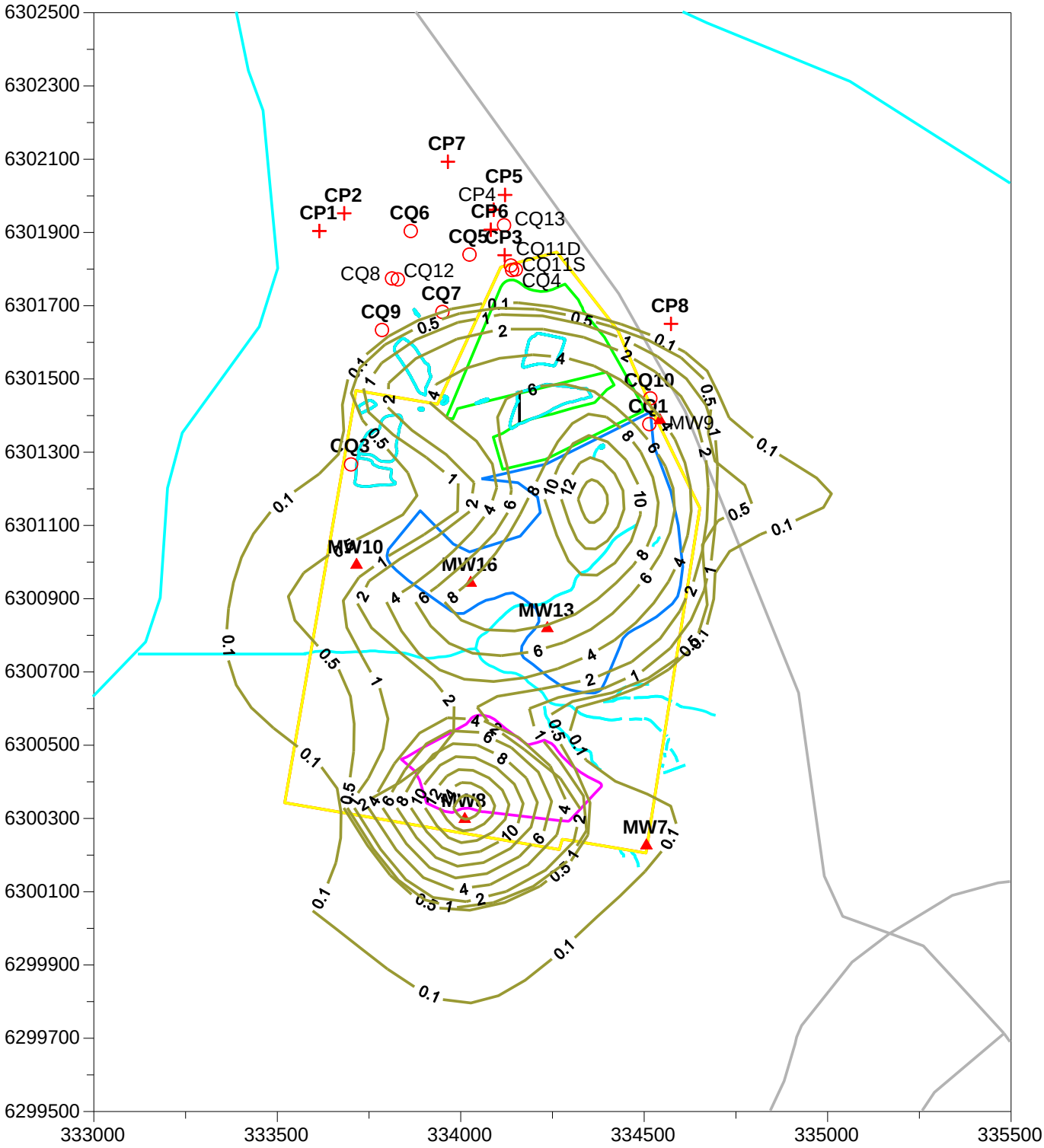


Figure 26. Predicted Watertable Drawdown (m) after 20 Years of Extraction

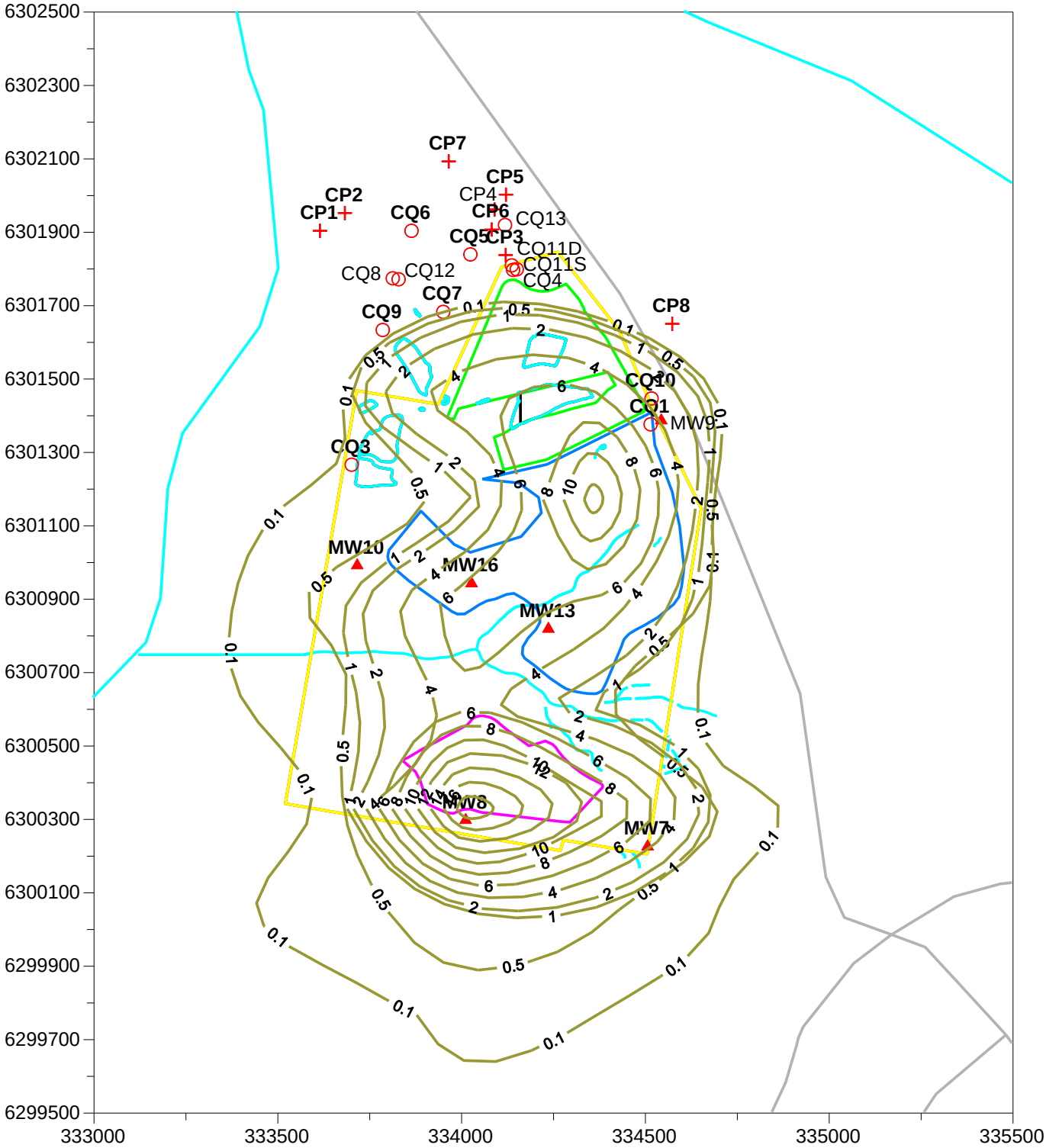


Figure 27. Predicted Watertable Drawdown (m) after 25 Years of Extraction

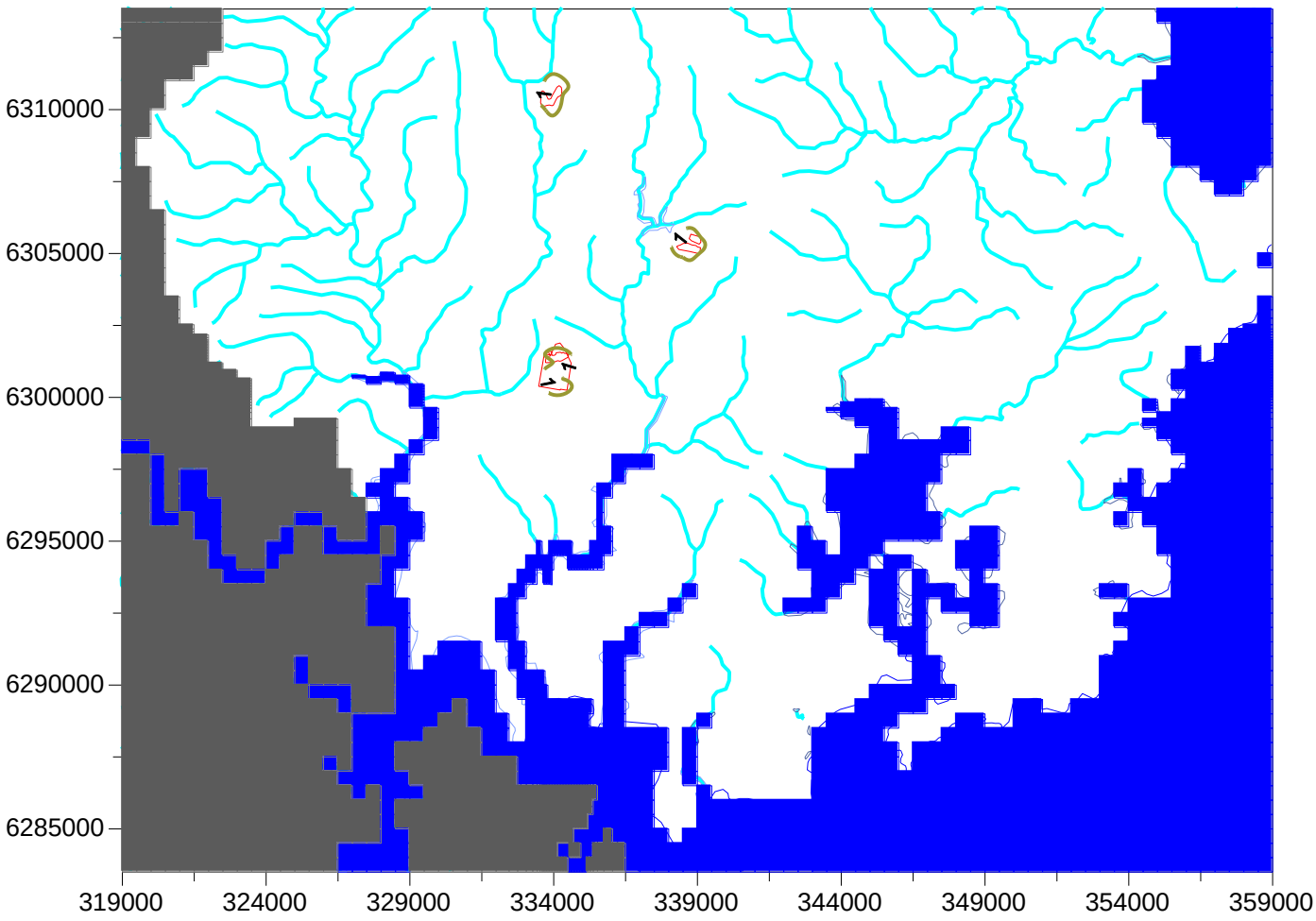
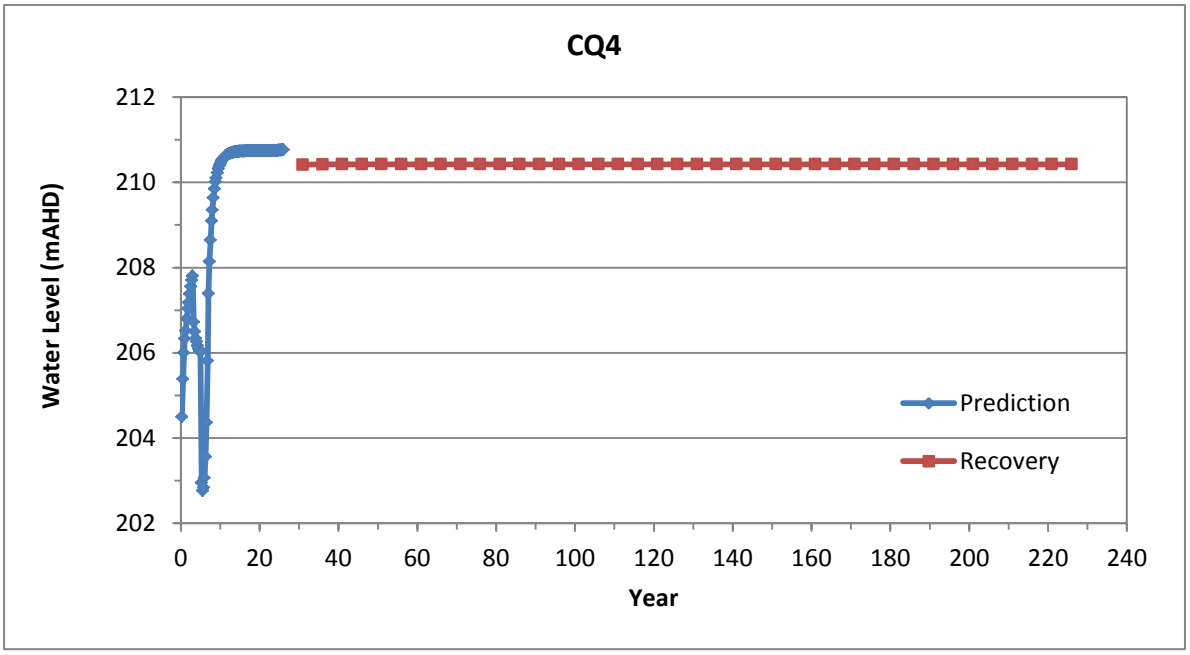


Figure 28. Drawdown Extent (1 m Contour) in Layer 1 from All Extraction at the End of the Prediction Period (Year 25)

[a]



[b]

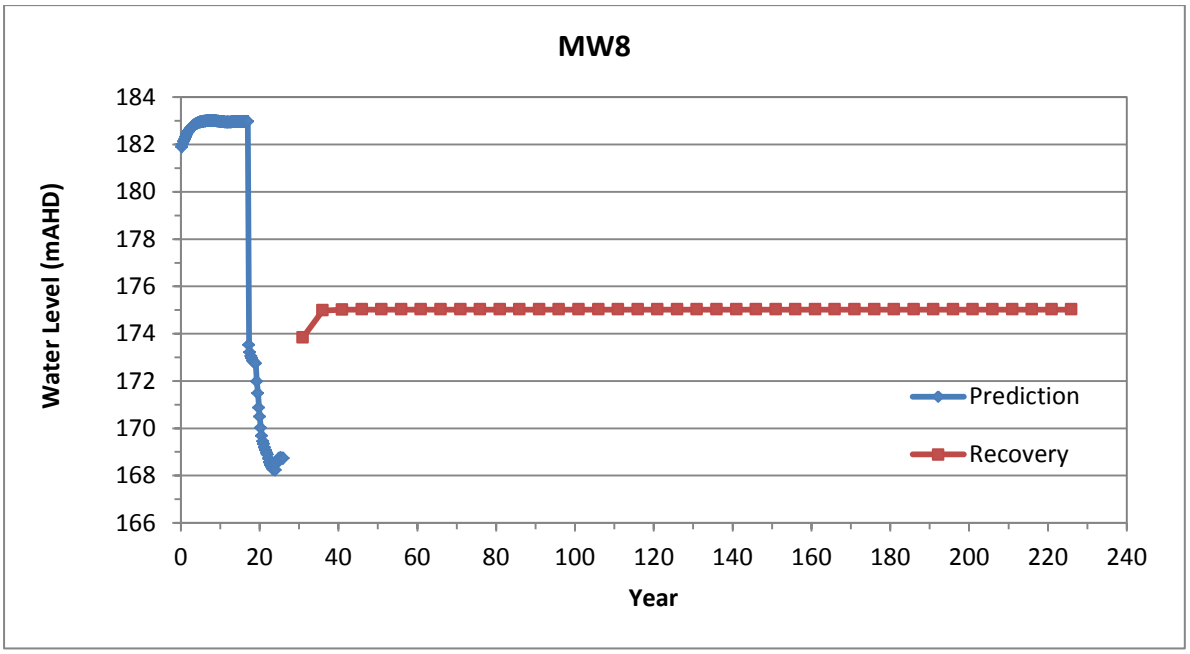
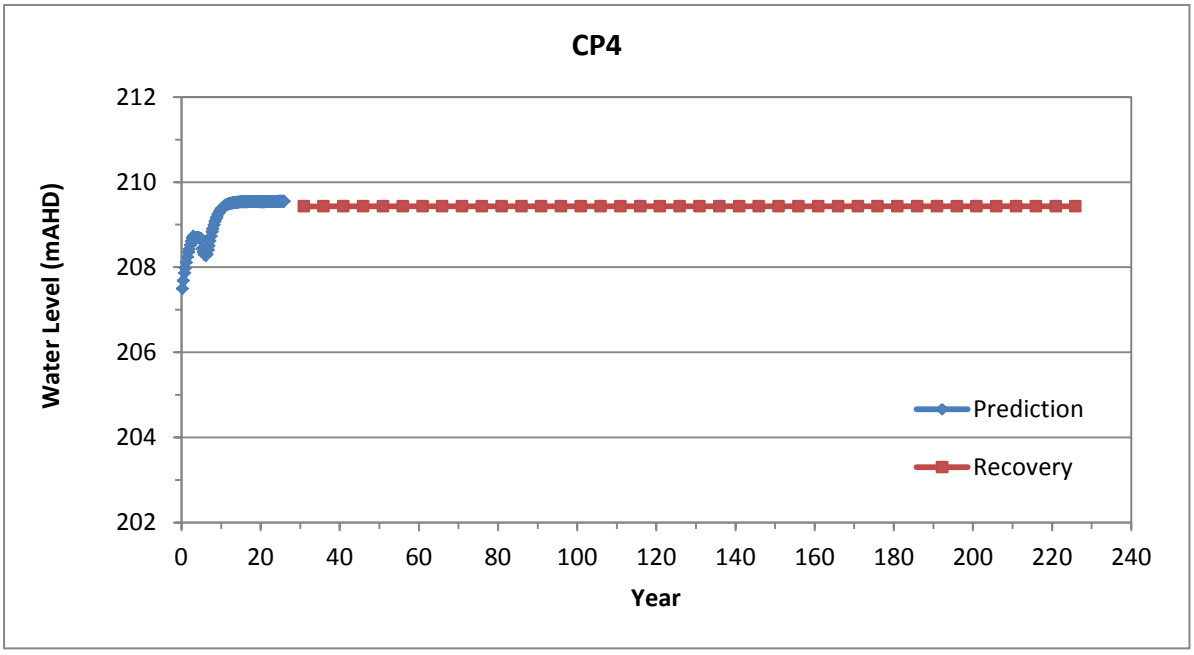


Figure 29. Representative Prediction and Recovery Hydrographs: [a] Group 1, Calga North; [b] Group 2, Calga South

[a]



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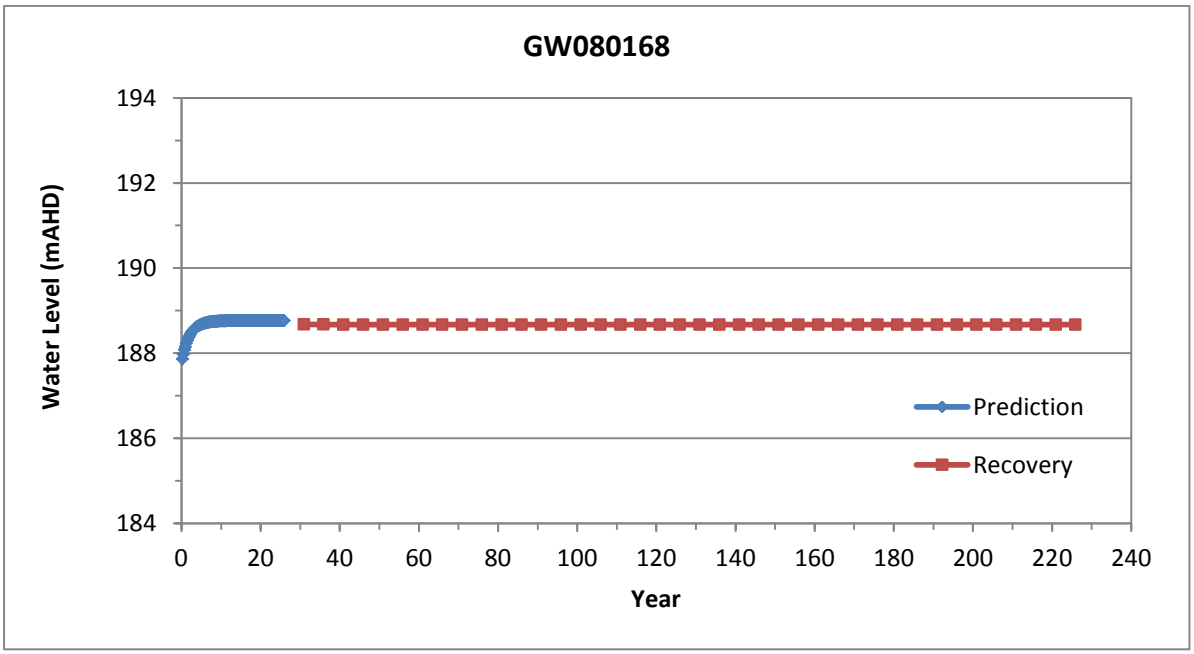

Figure 30. Representative Prediction and Recovery Hydrographs: [a] Group 3, Private Bores; [b] Group 4, NOW Bores

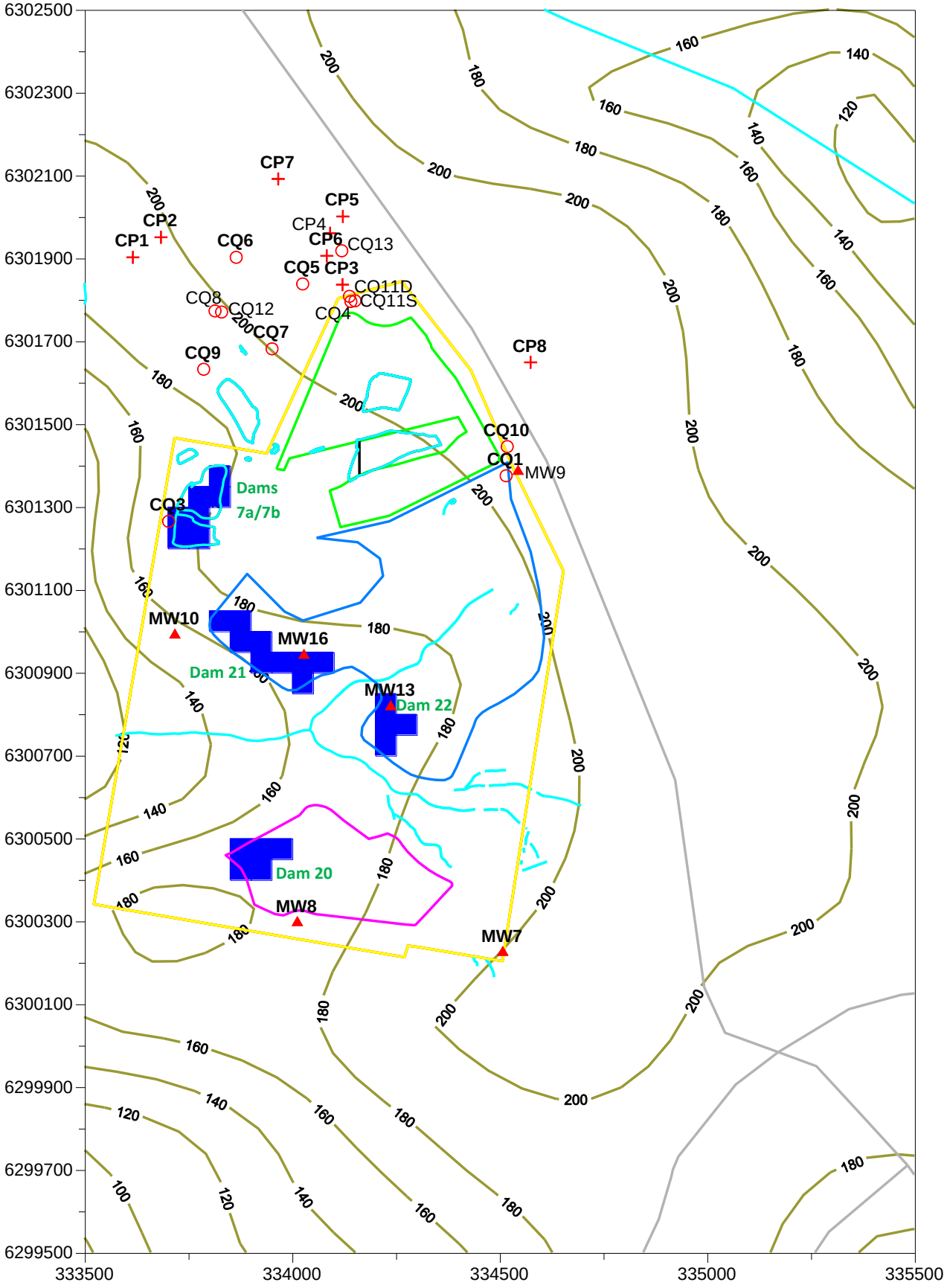

Figure 31. Predicted Watertable Elevation in Hawkesbury Sandstone after 200 Years [mAHD]

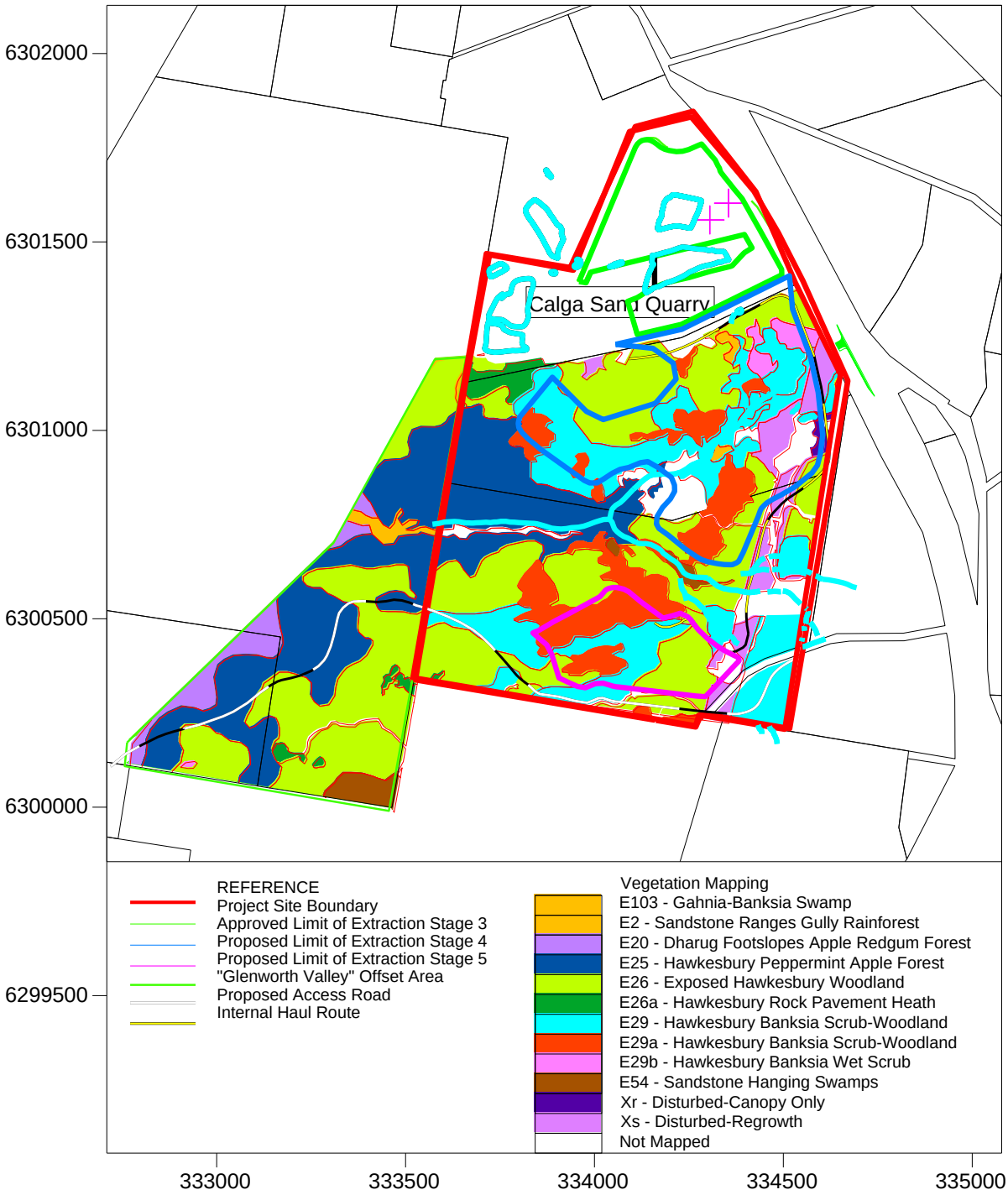

Figure 32. Vegetation Cover Map

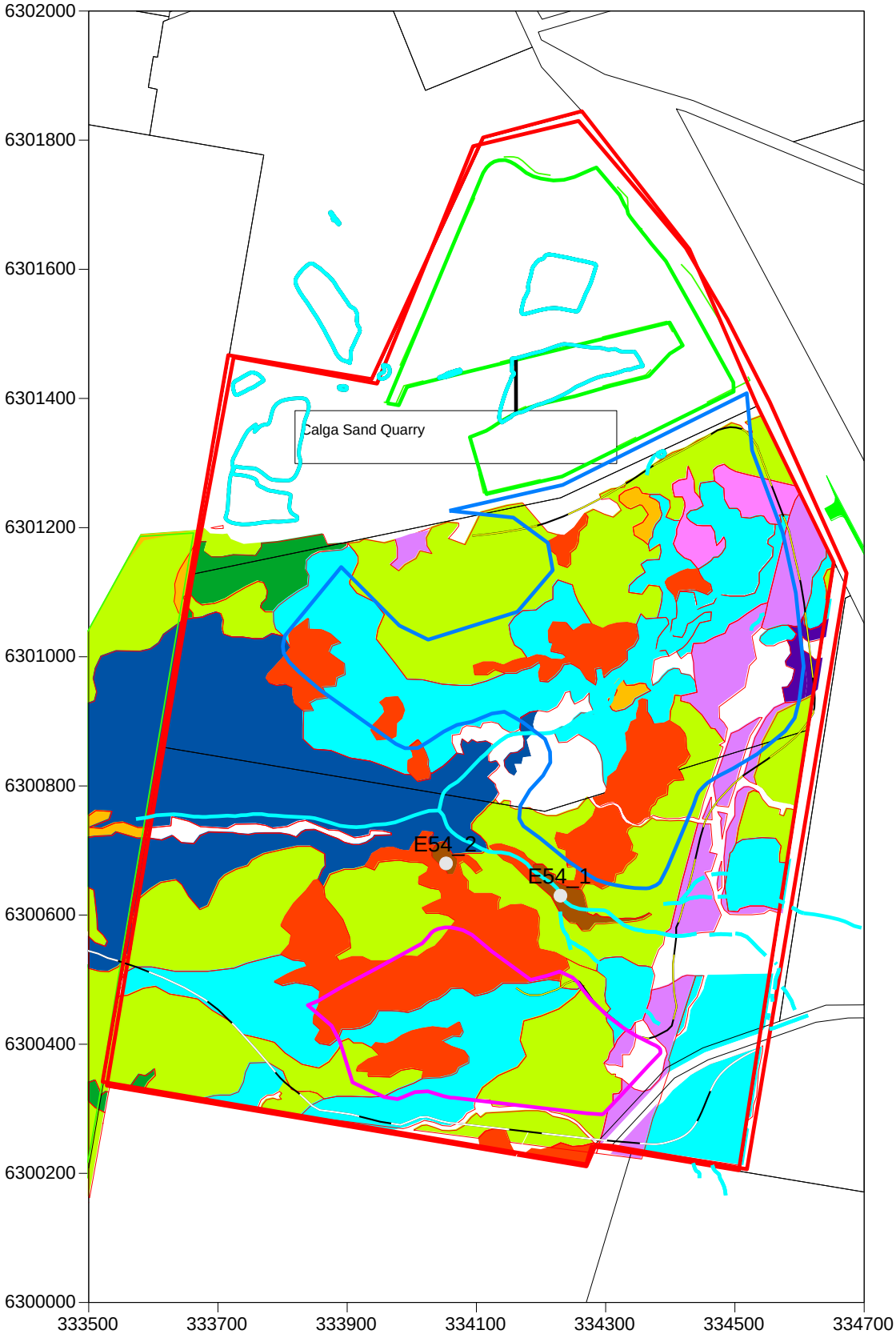

Figure 33. Hypothetical Bores (E54_1 and E54_2) Location Map on E54 areas

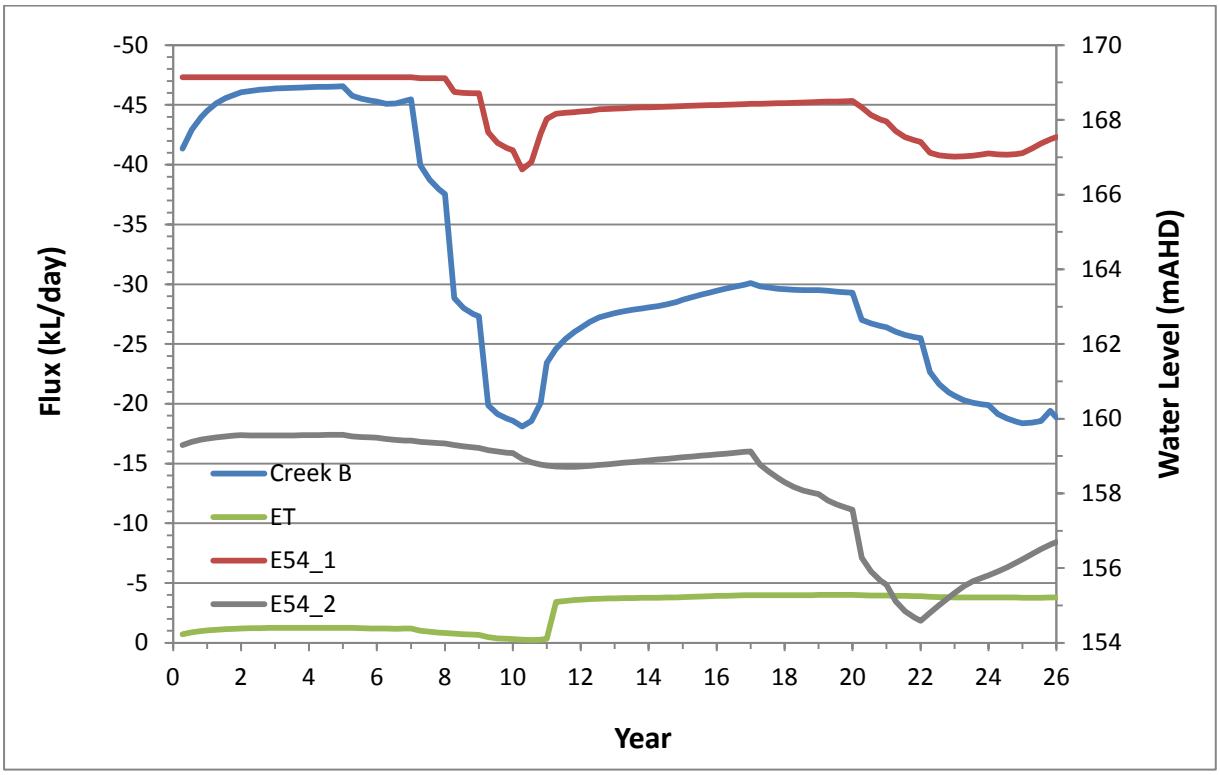

Figure 34. Creek B Baseflow and Simulated hydrographs at E54_1 and E54_2

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