

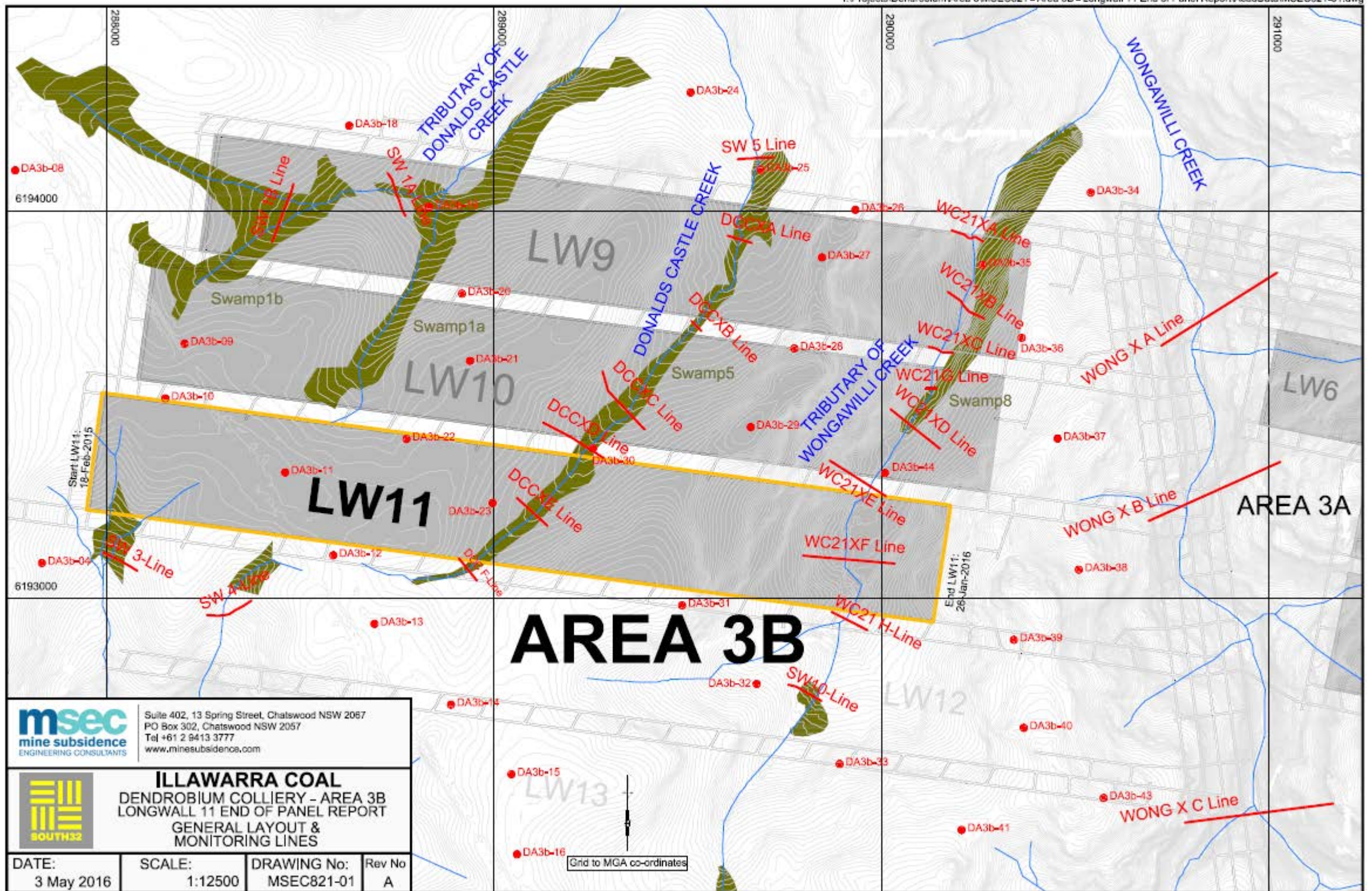


DENDROBIUM MINE – LW11 EOP REPORT

ILLAWARRA COAL



LW11 EOP REPORT



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ILLAWARRA COAL
 DENDROBIUM COLLIERY - AREA 3B
 LONGWALL 11 END OF PANEL REPORT
 GENERAL LAYOUT & MONITORING LINES

DATE: 3 May 2016	SCALE: 1:12500	DRAWING No: MSEC821-01	Rev No: A
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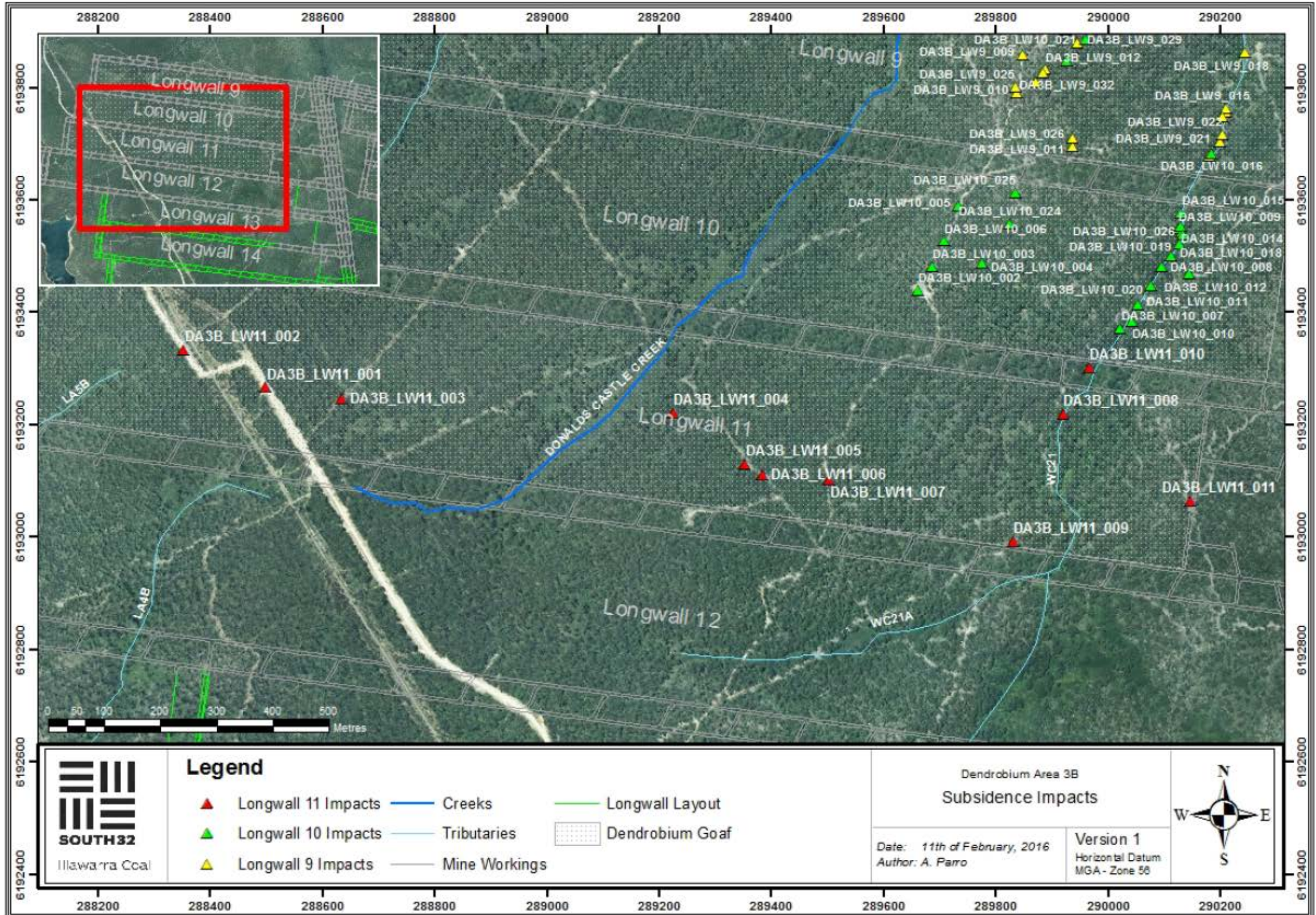




Photo 5: DA3B_LW11_008- Rock fracture, looking upstream along WC21. Taken on 14/01/2016.



Photo 6: DA3B_LW11_008- Rock fracture, looking along WC21. Taken on 14/01/2016.

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Photo 13: DA3B_LW11_001- Soil crack across Fire Road 6A. Uplift on the southern side of crack is only slightly evident in the photo. Taken on 1/06/2015.



Photo 14: DA3B_LW11_001- Uplift on southern side of crack. Taken on 1/06/2015.



Photo 15: DA3B_LW11_002- Soil crack across Fire Road 6A. Uplift evident on the northern side of crack, more pronounced to the east of Fire Road 6A. Taken on 1/06/2015.



Photo 16: DA3B_LW11_002- Eastern end of soil crack. Taken on 1/06/2015.

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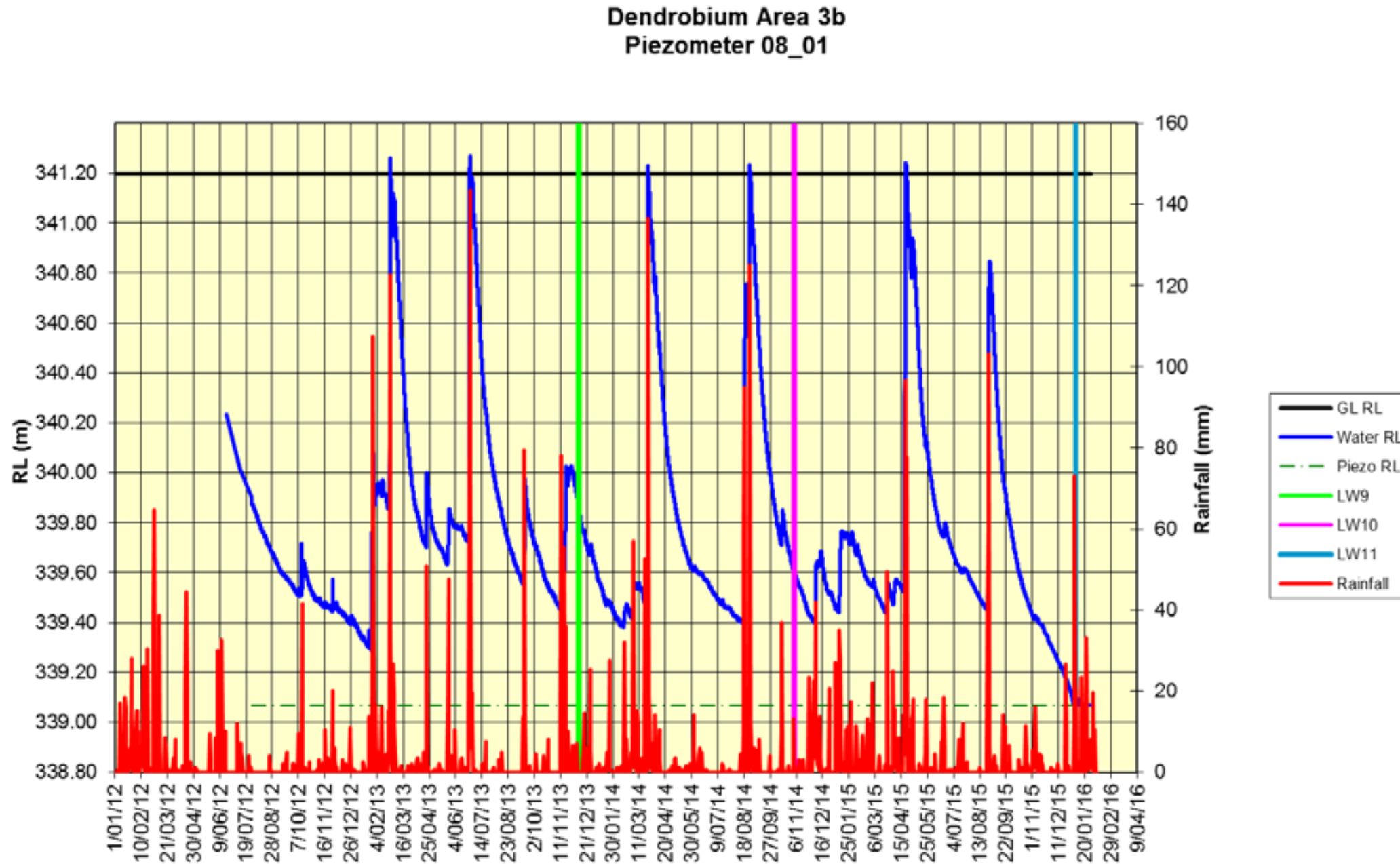


Figure 5.1: Groundwater levels measured borehole site 08_01.

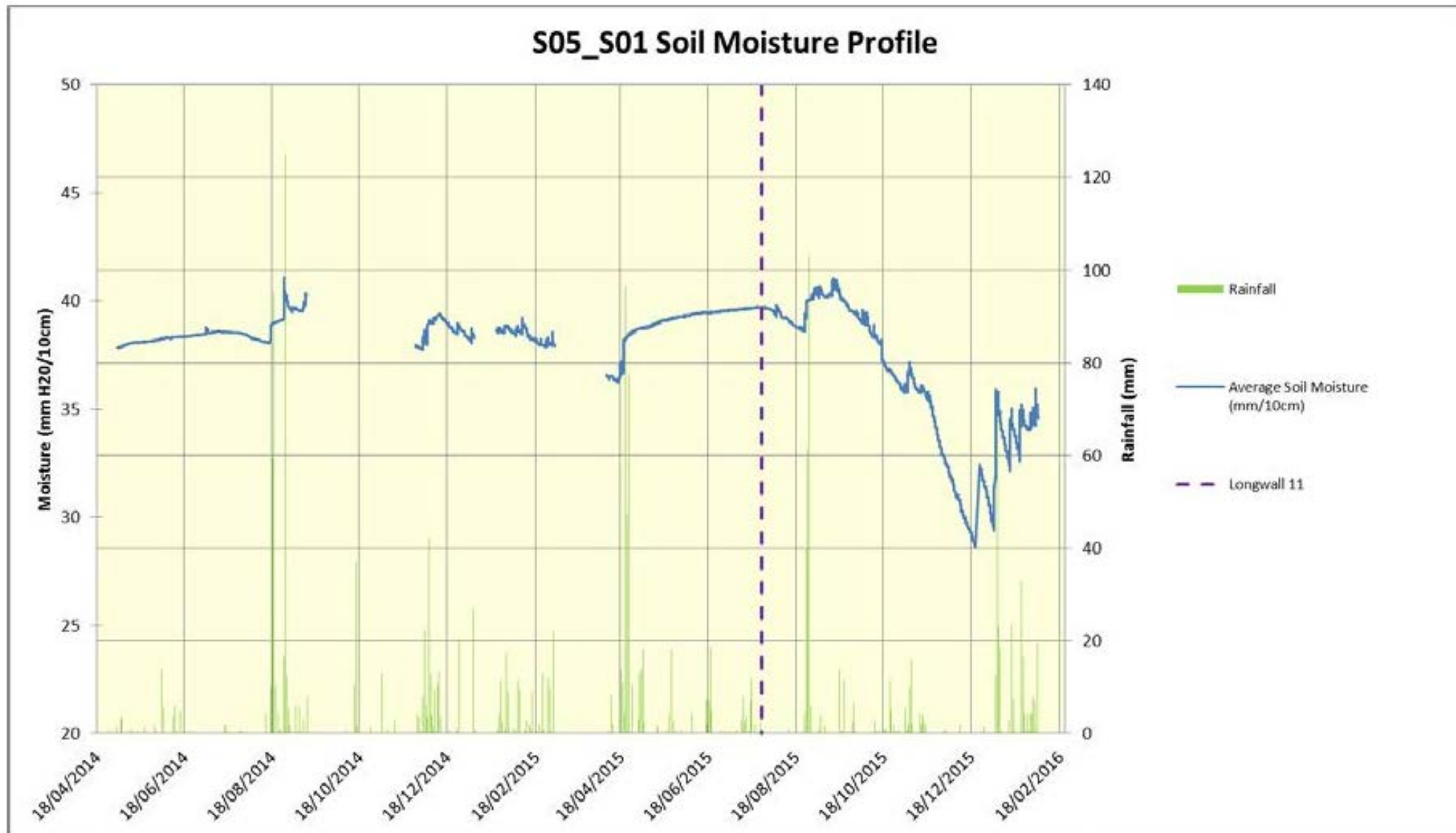


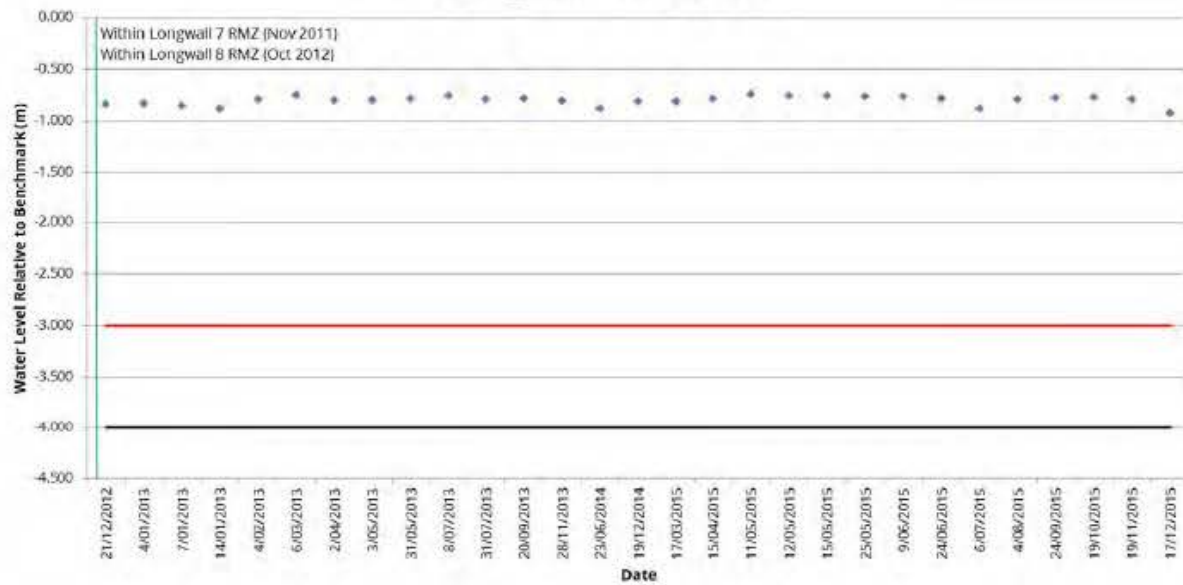
Figure 5.2: Soil moisture levels recorded at S05_S01.

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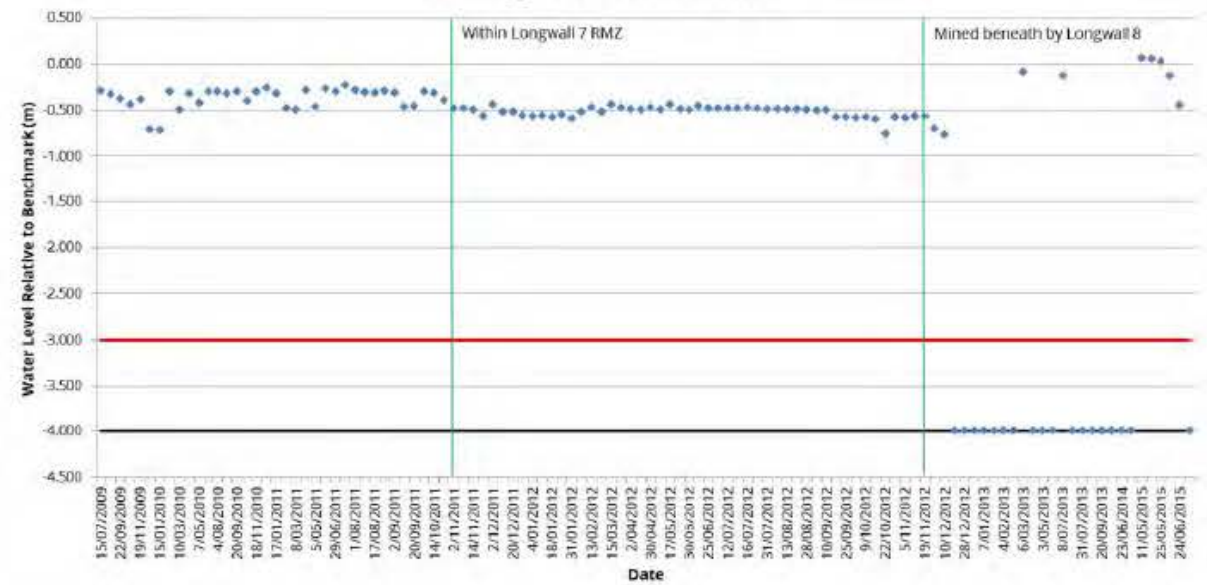


Graph 1 Water level at four pools along SC10C including three known breeding pools for Littlejohn's Tree Frog; Pool 1, Pool 3 and Pool 5 (data provided by Illawarra Coal Environmental Field Team). Red lines represent water levels below nail and black lines represent dry pool.

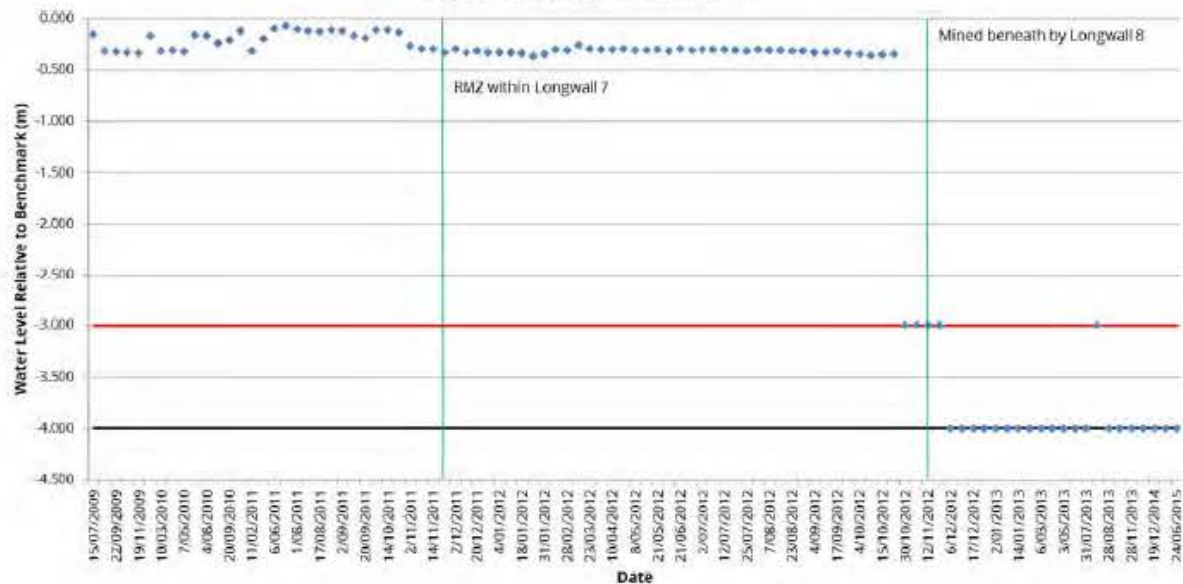
SC10C_Pool 1 Water Level



SC10C_Pool 3 Water Level



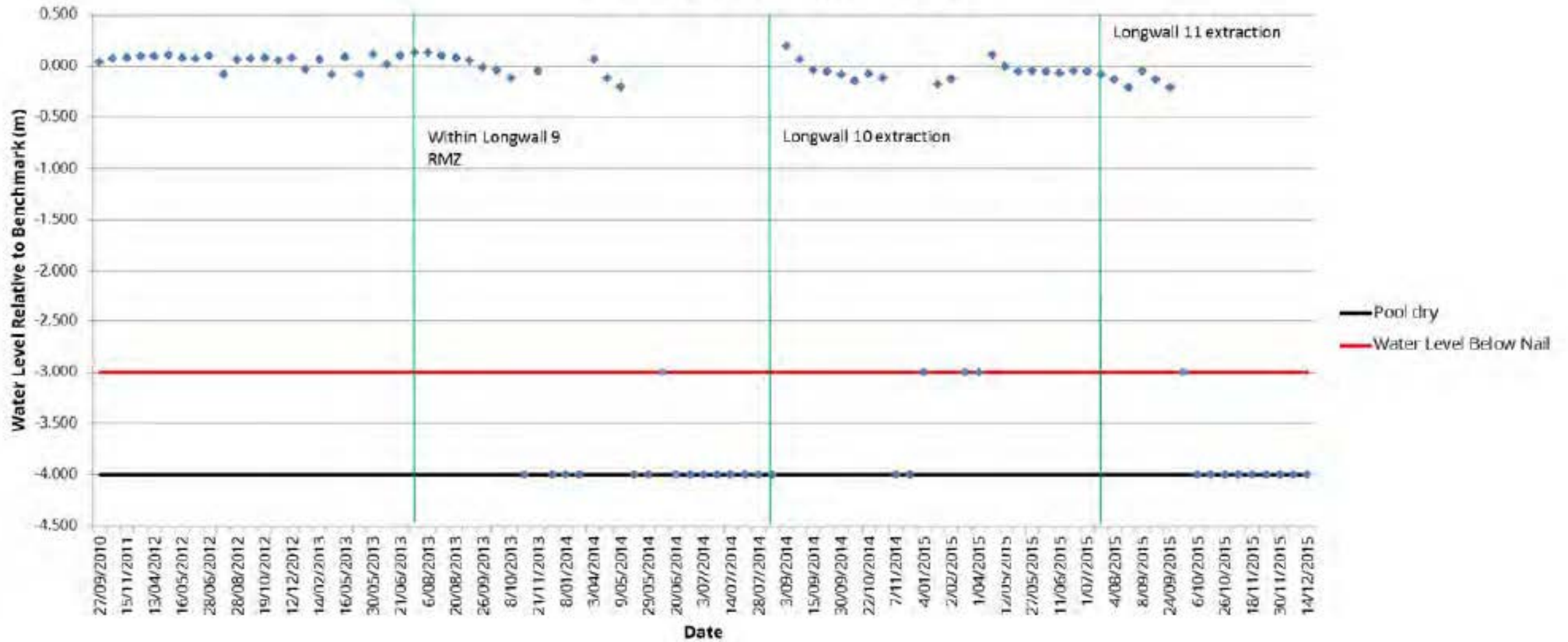
SC10C_Pool 5 Water Level



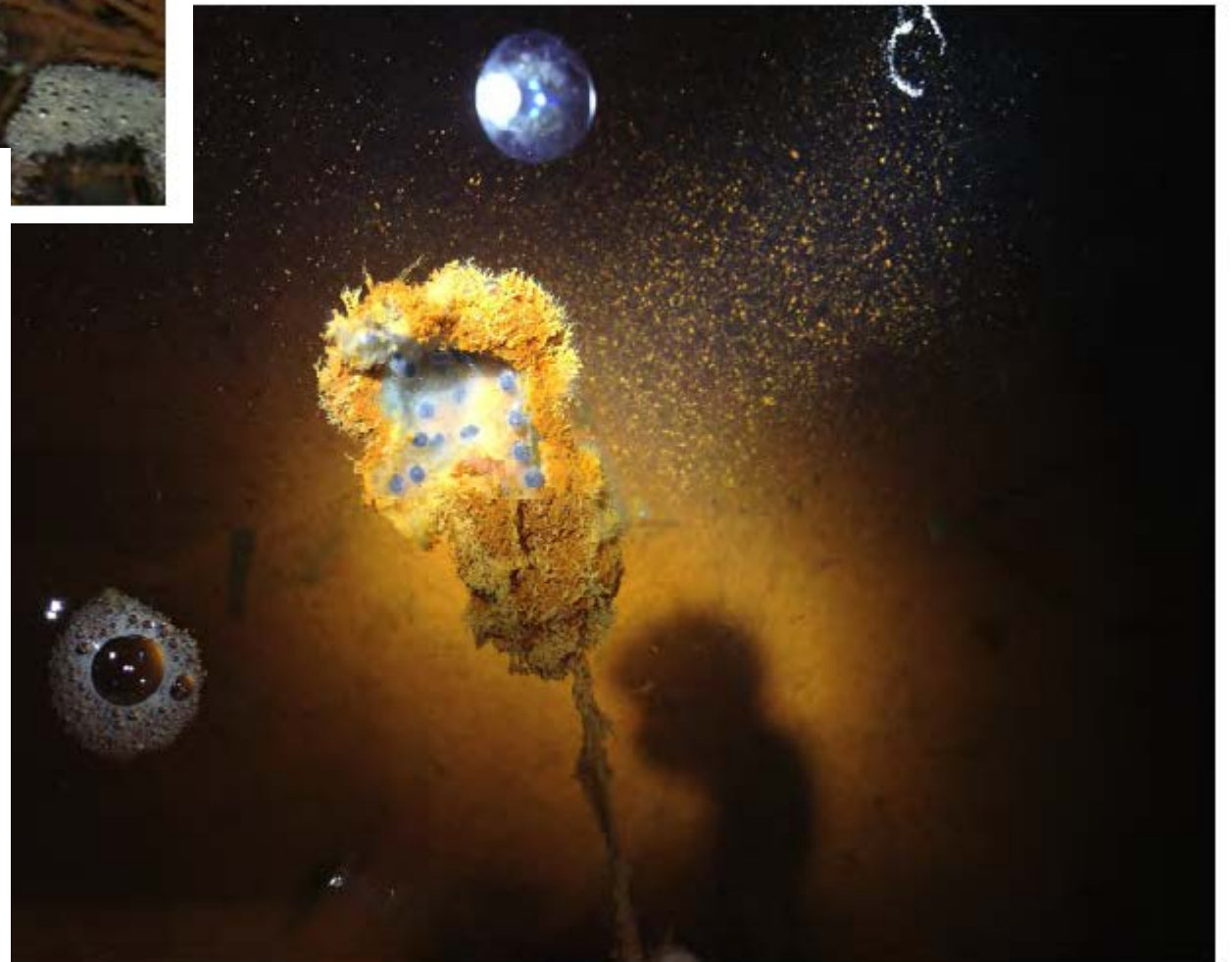
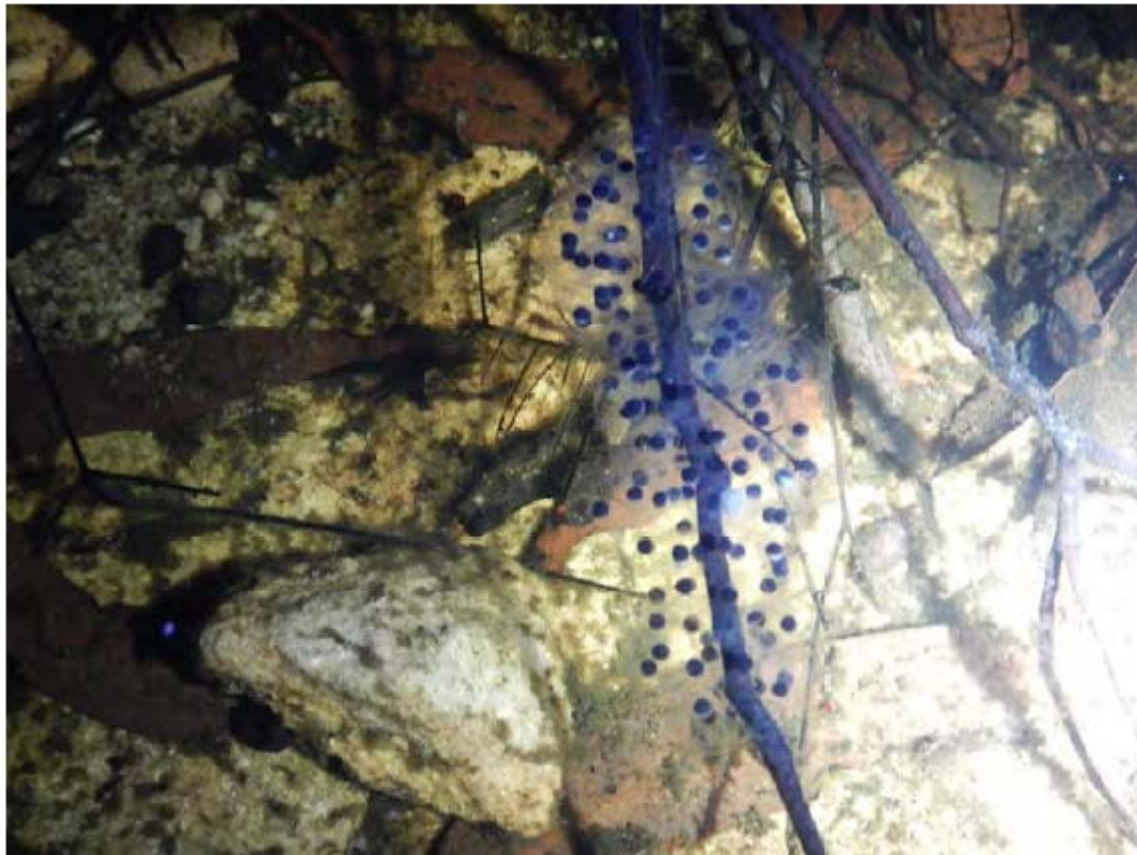
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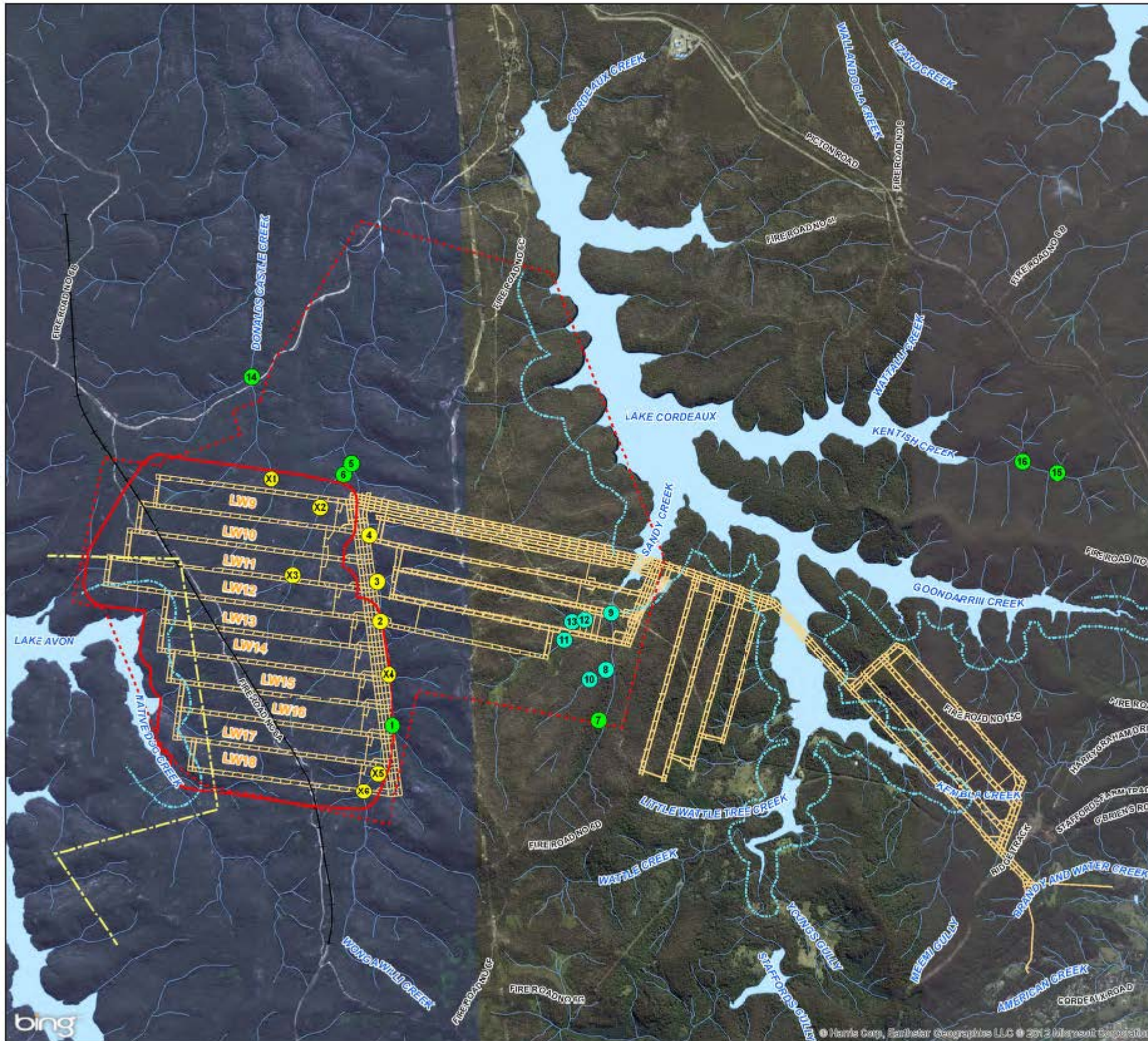
DC(1)_Pool 34 Water Level



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Aquatic Ecology Monitoring Locations

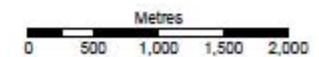
DENDROBIUM AREA 3B SMP

- Legend**
- Monitoring Sites (Cardno Ecology Lab)**
- Area 3A Monitoring Sites
 - Control Sites
 - Potential Impacts Sites
 - Watercourses (LPI)
 - SMP Area (1,199 ha)
 - - - Maximum Footprint Area 3
 - - - Restricted Zone
 - - - DGC Notification Zone
 - + Maldon to Dombarton Rail
 - Longwall Layout (BHPBIC, 2012)
 - Waterbodies (LPI)



FIGURE 2-57

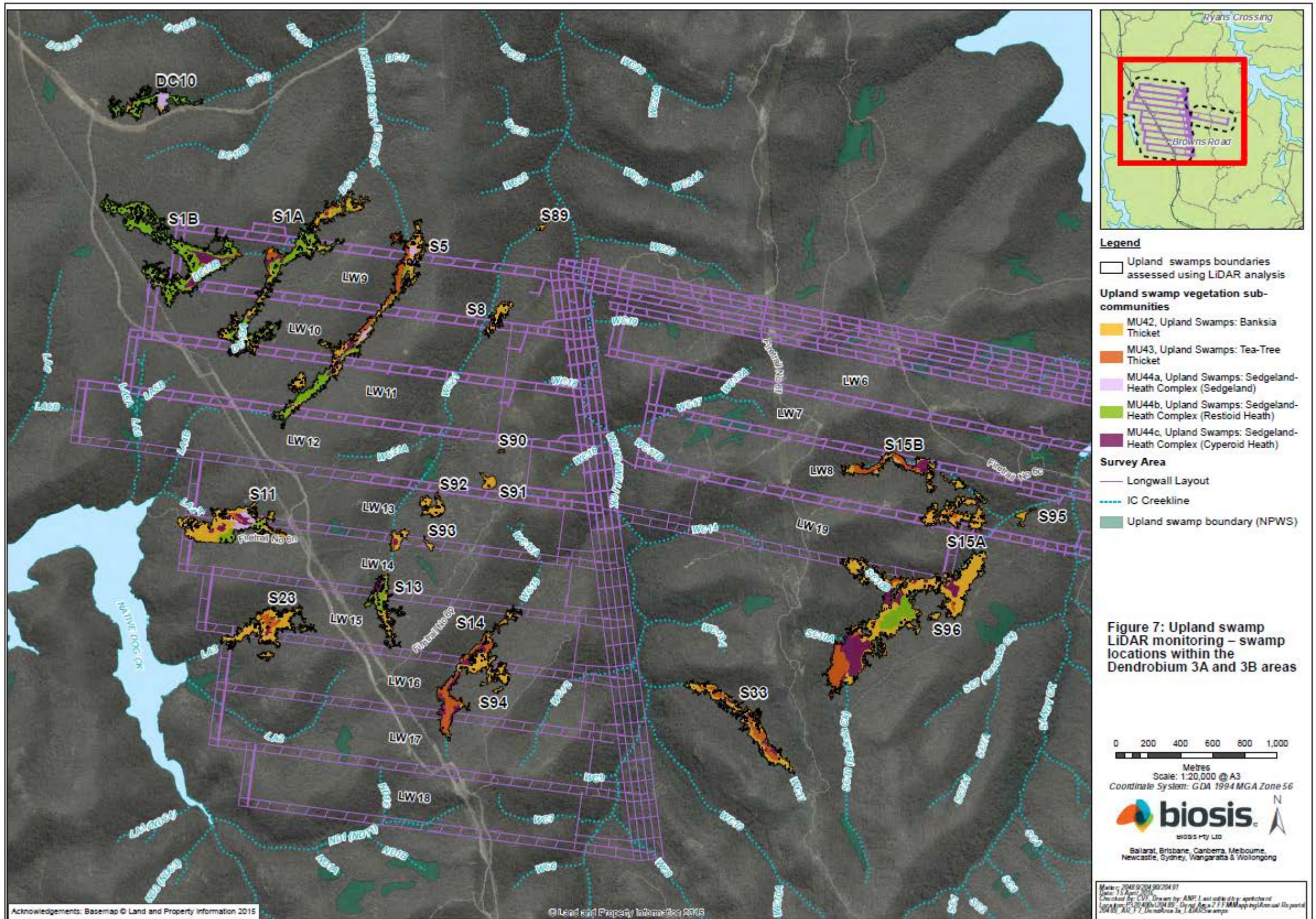
1:45,000 Scale at A3



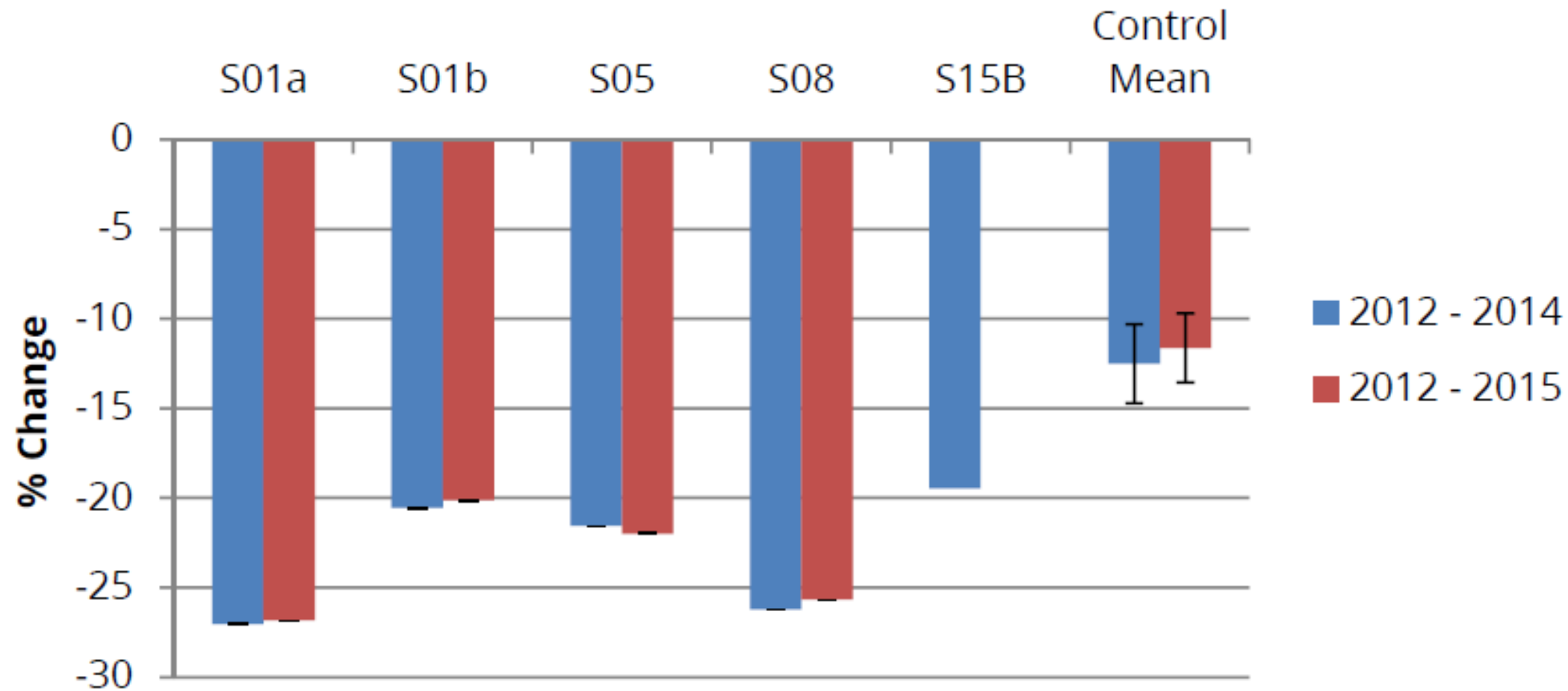
Map Produced by Cardno NSWACT Pty Ltd (WOL)
Date: 2012-09-21
Coordinate System: GDA 1994 MGA Zone 58
Project: 112041-01
Map: G1038_AquaticMonitoringSiteTypes.mxd 01

Date supplied by MSEC (2012) unless otherwise stated
Aerial imagery supplied by Bing Maps and associated third party suppliers

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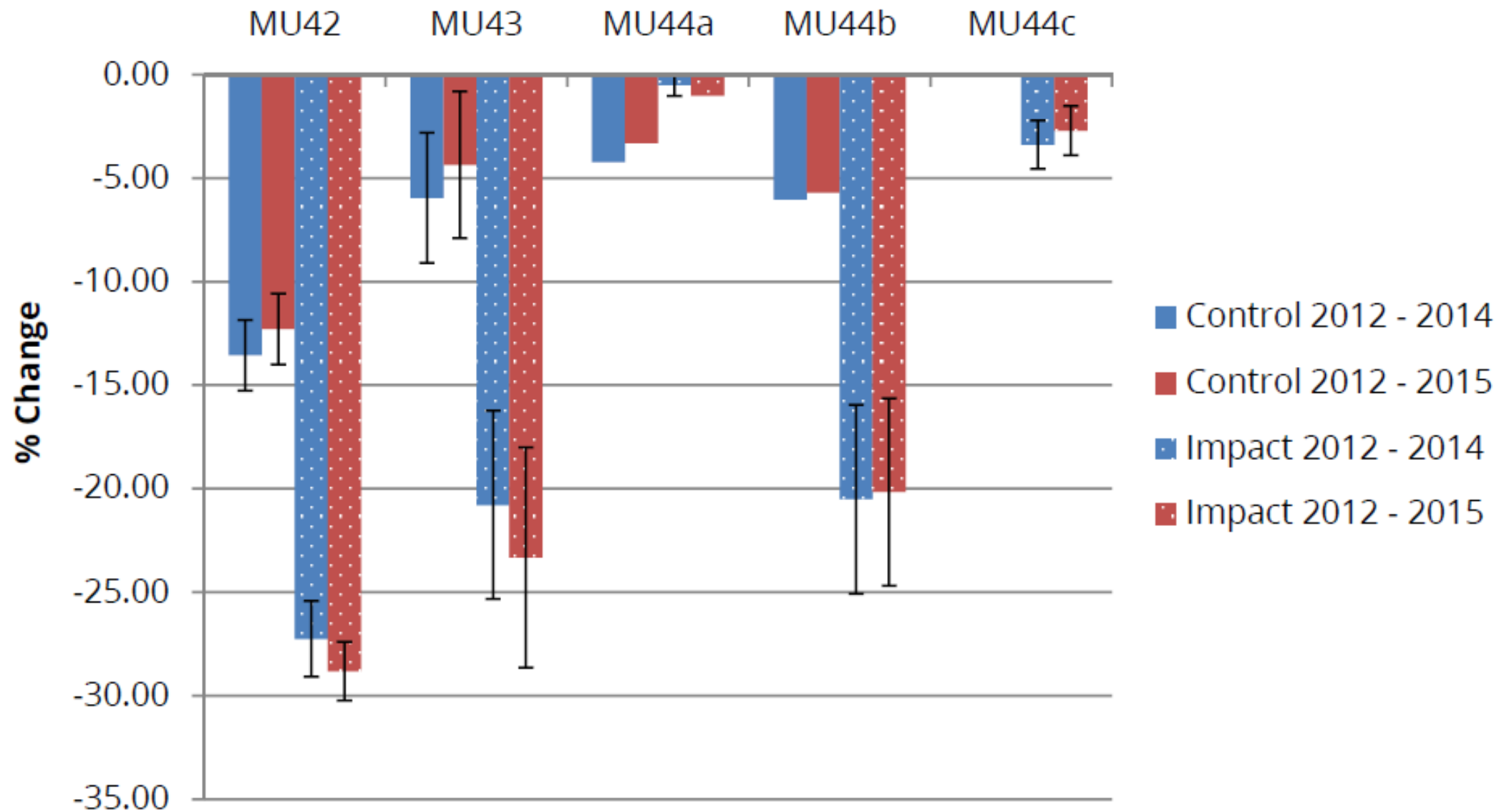


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Percent change in swamp extent from 2012 - 2014 and 2012 - 2015 at impacted swamps and mean (\pm SE) change in swamp extent from 2012 - 2014 and 2012 - 2015 at control sites.

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Graph 8 Mean (\pm SE) decrease in swamp sub-community extent at impacted and control swamps across the Dendrobium 3A and 3B Areas during the periods 2012 - 2014 and 2012 - 2015.

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Spring 2009



Spring 2014



Spring 2015

Plate 3 Comparison of vegetation colouration at S1B-F2 South between spring 2009, spring 2014 and spring 2015.



Spring 2009

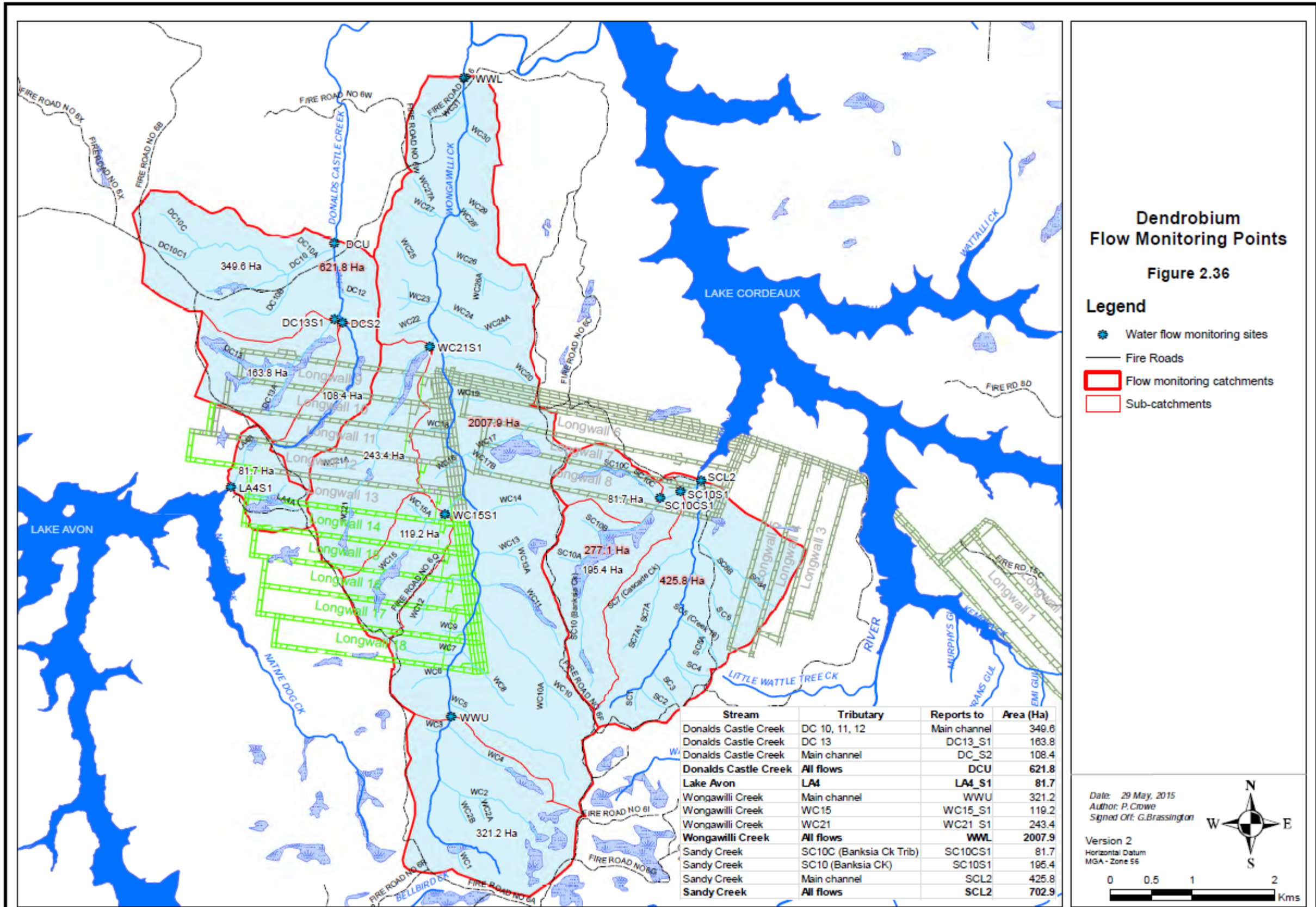


Spring 2014

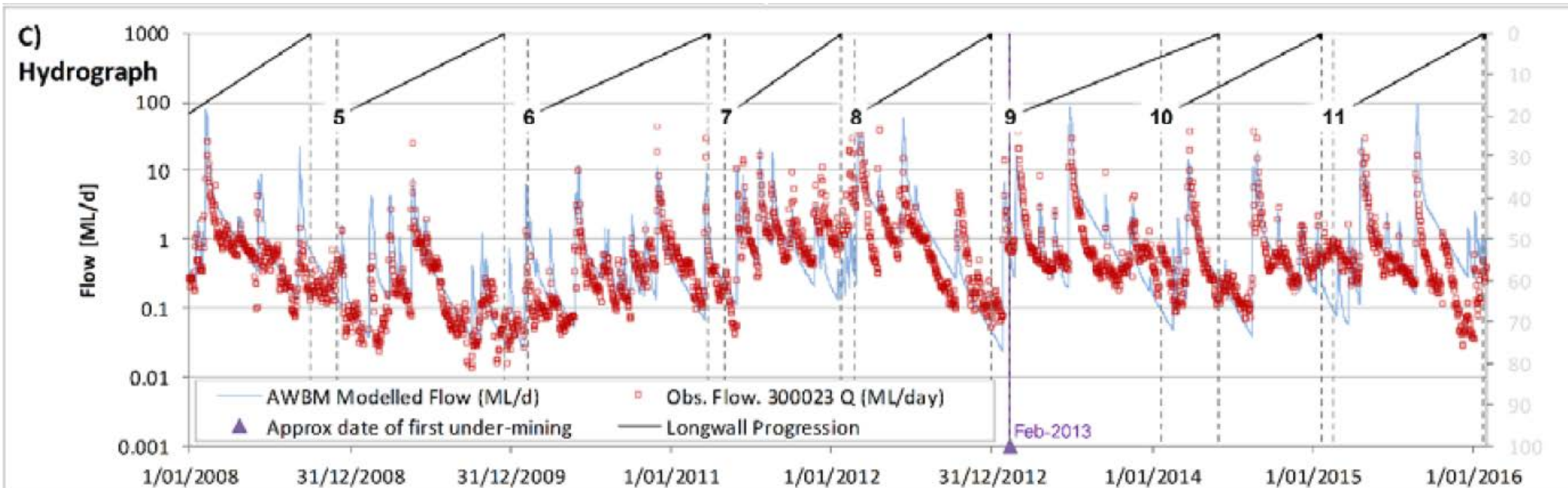
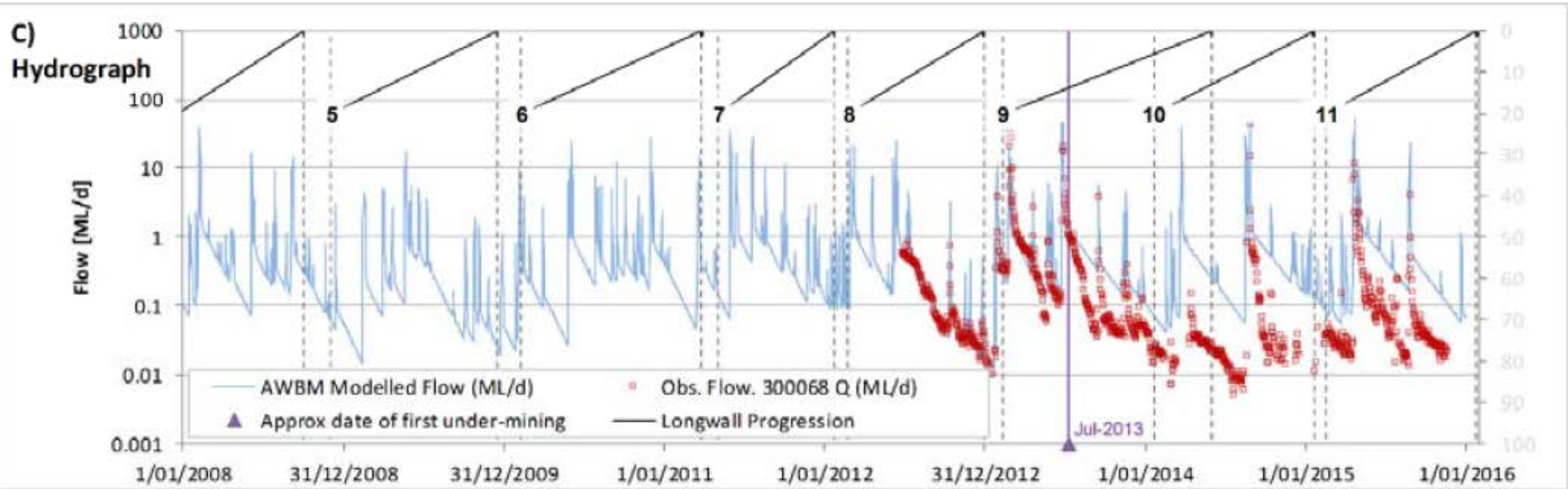


Spring 2015

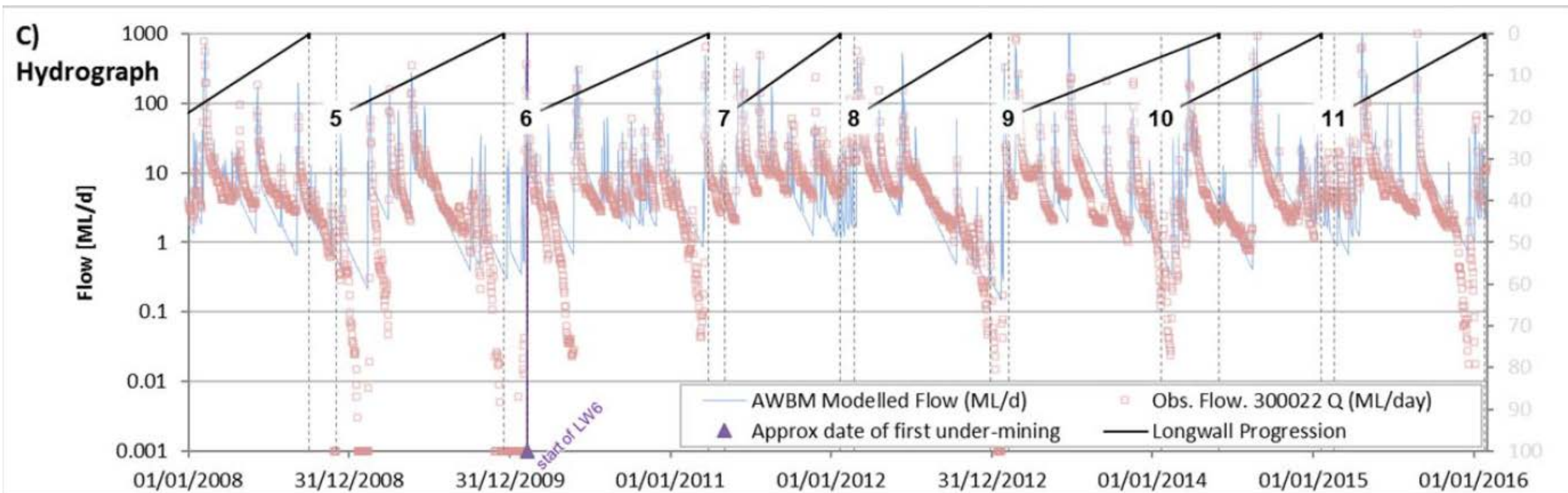
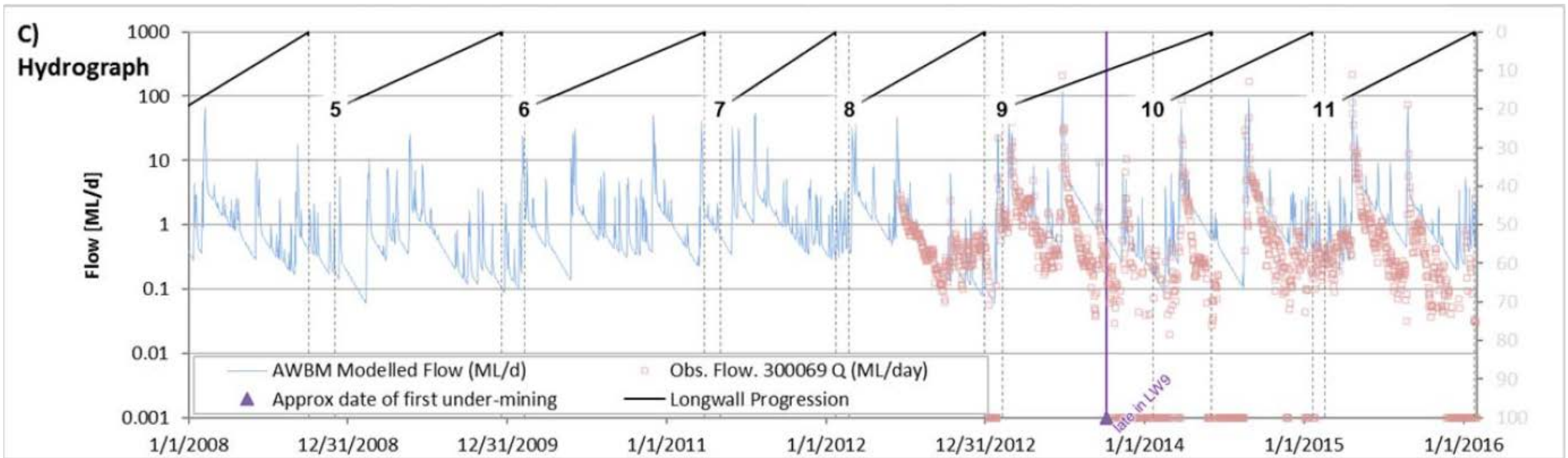
LW11 EOP REPORT



LW11 EOP REPORT



LW11 EOP REPORT

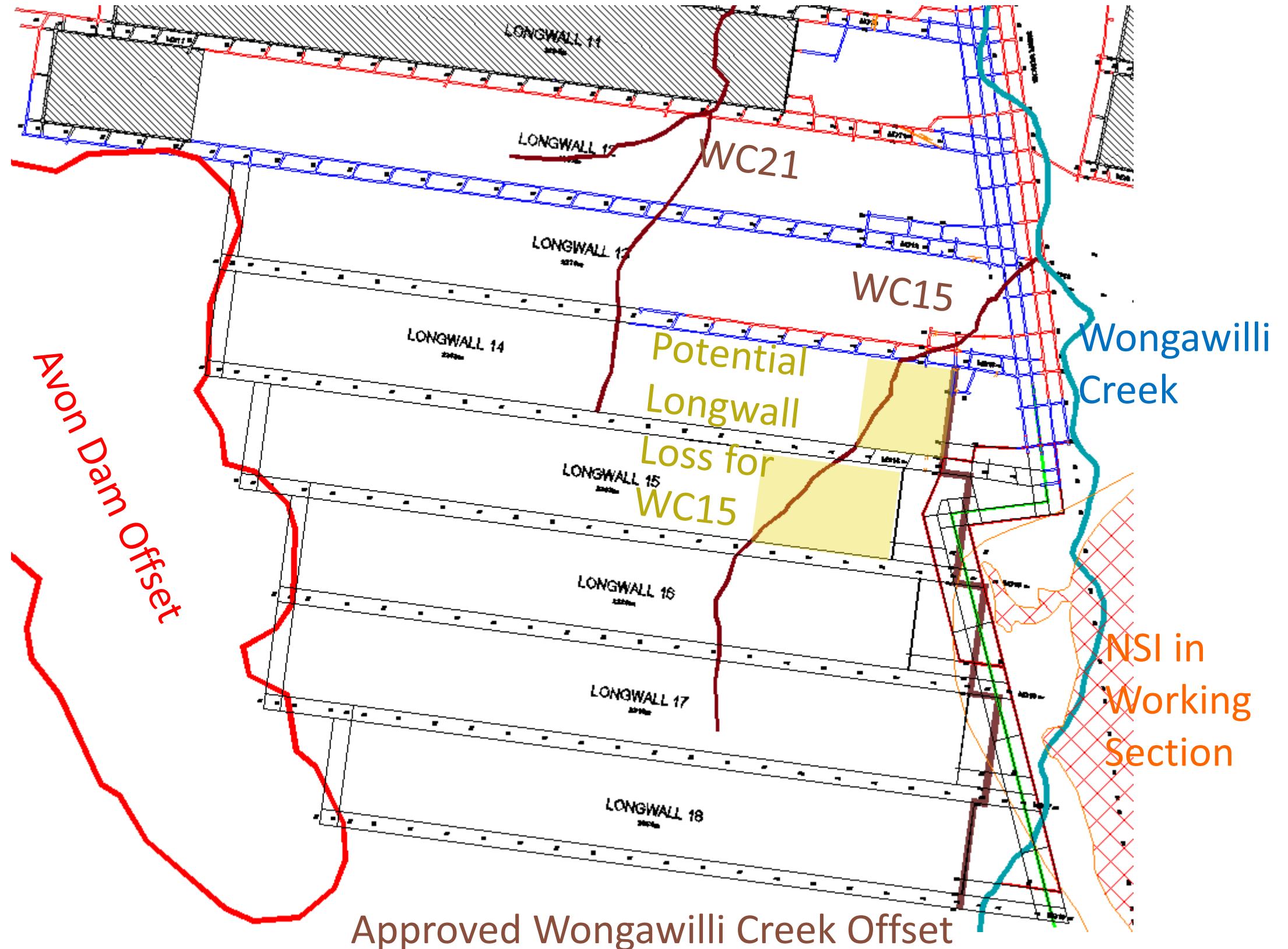


LW11 EOP REPORT

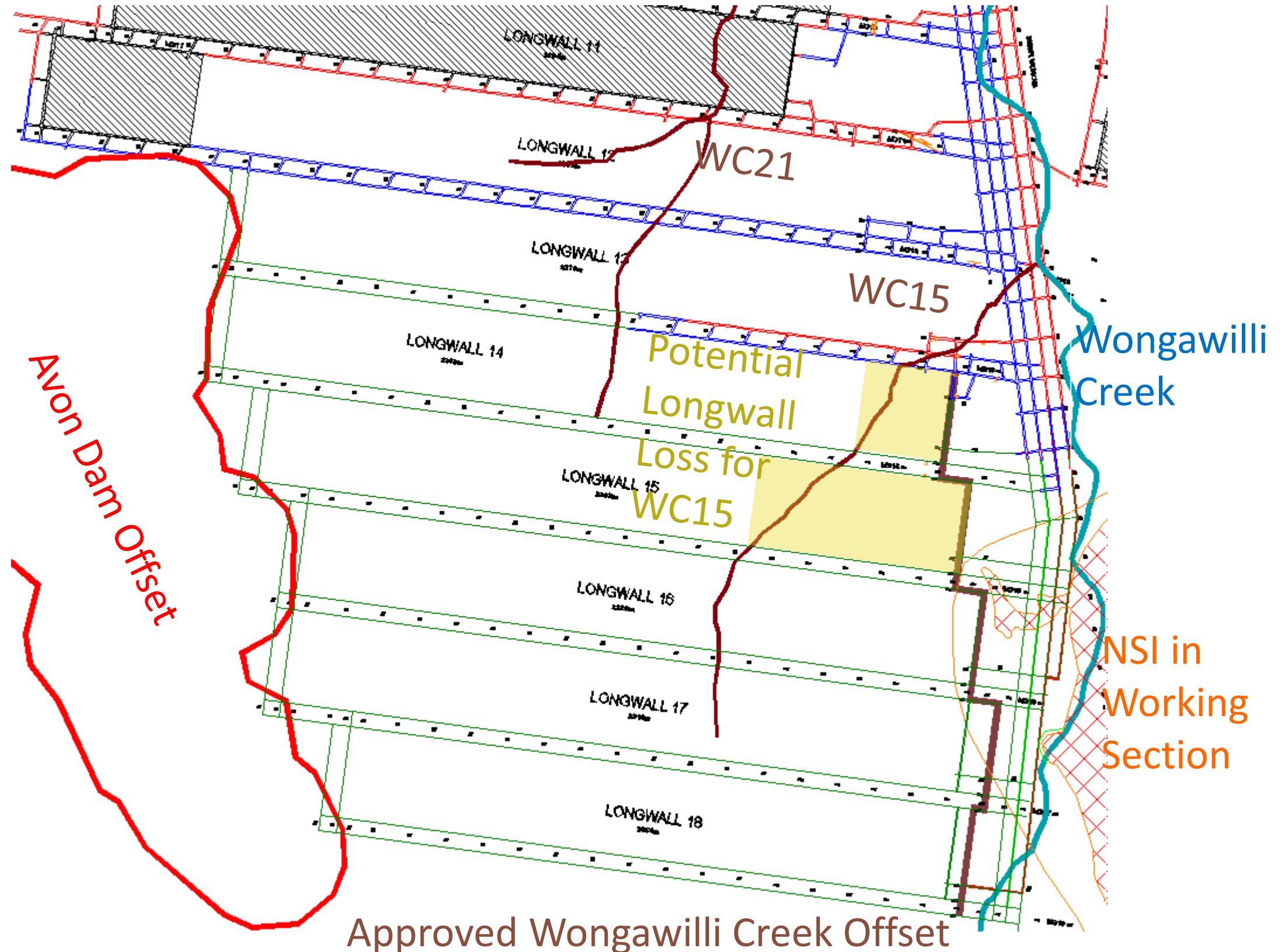


LW 11 Surface water TARP Assessment		Catchment Yield TARP Assessment			Surface water quality TARP Assessment	
Catchment	Site	TARP Trigger	Yield change	Comment	TARP Trigger	Comment
Donalds Castle	DCS2	Level 3	-20%	Probably should have been triggered in LW10 (L2)	Level 1	Donalds Castle Ck (FR6); DO below TARP on one occasion
	DC13S1	Level 2	-15%	Probably should have been triggered in LW10 (L2)	N/A	
	DCU	not triggered			N/A	
Wongawilli Ck	WC15S1	not triggered			Level 2	Wongawilli Ck (FR6); DO below TARP on two non-consecutive occasions
	WC21S1	Level 1	-11% (so almost L2)		N/A*	* Not a TARP site, but an increase in pH, Fe and Mn noted in WC21_Pool 5 during LW10 and LW11
	WWL	not triggered			N/A	
Lake Avon trib	LA4_S1	[not triggered? – TBC]		not yet modelled, but suspect no issue	not triggered	

DESIGN THEMES – AVOID NSI



DESIGN THEMES – SIMPLIFY LAYOUT



DESIGN THEMES – MAXIMISE RECOVERY

