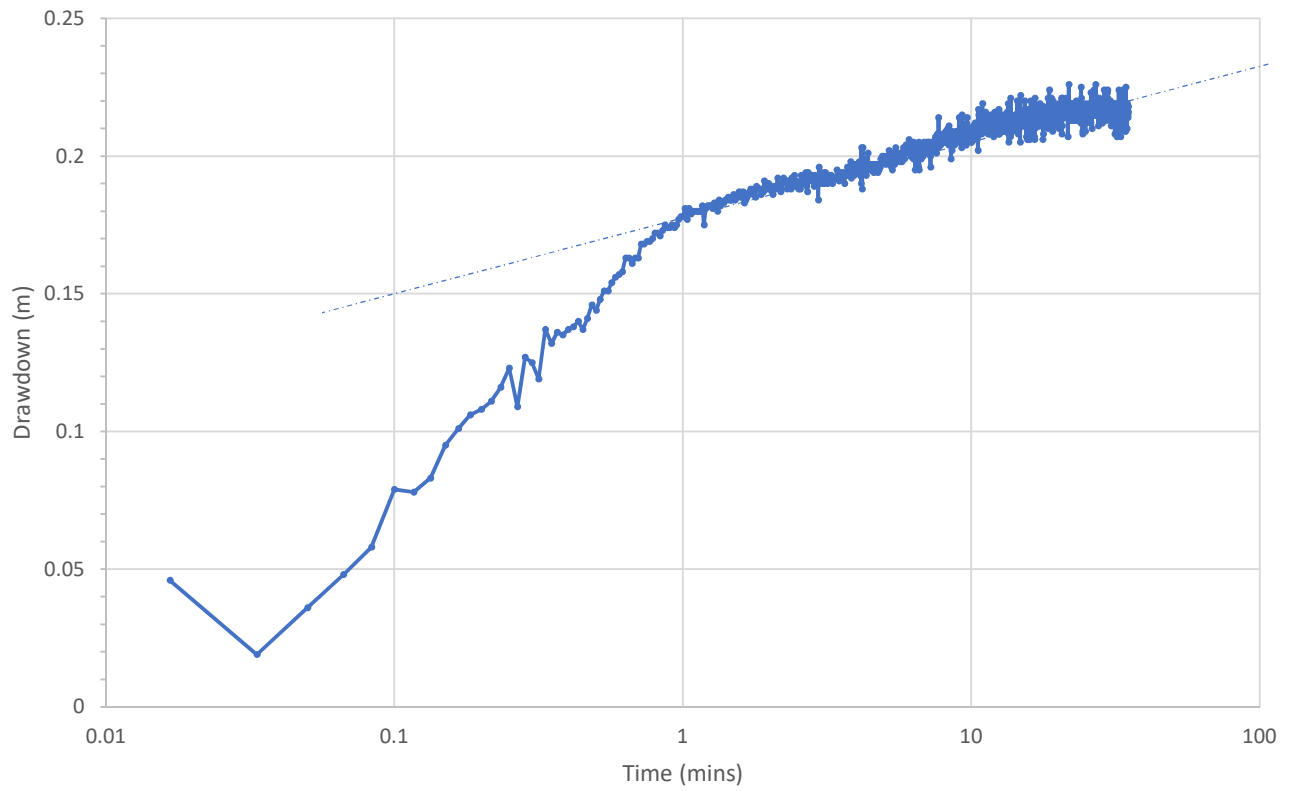
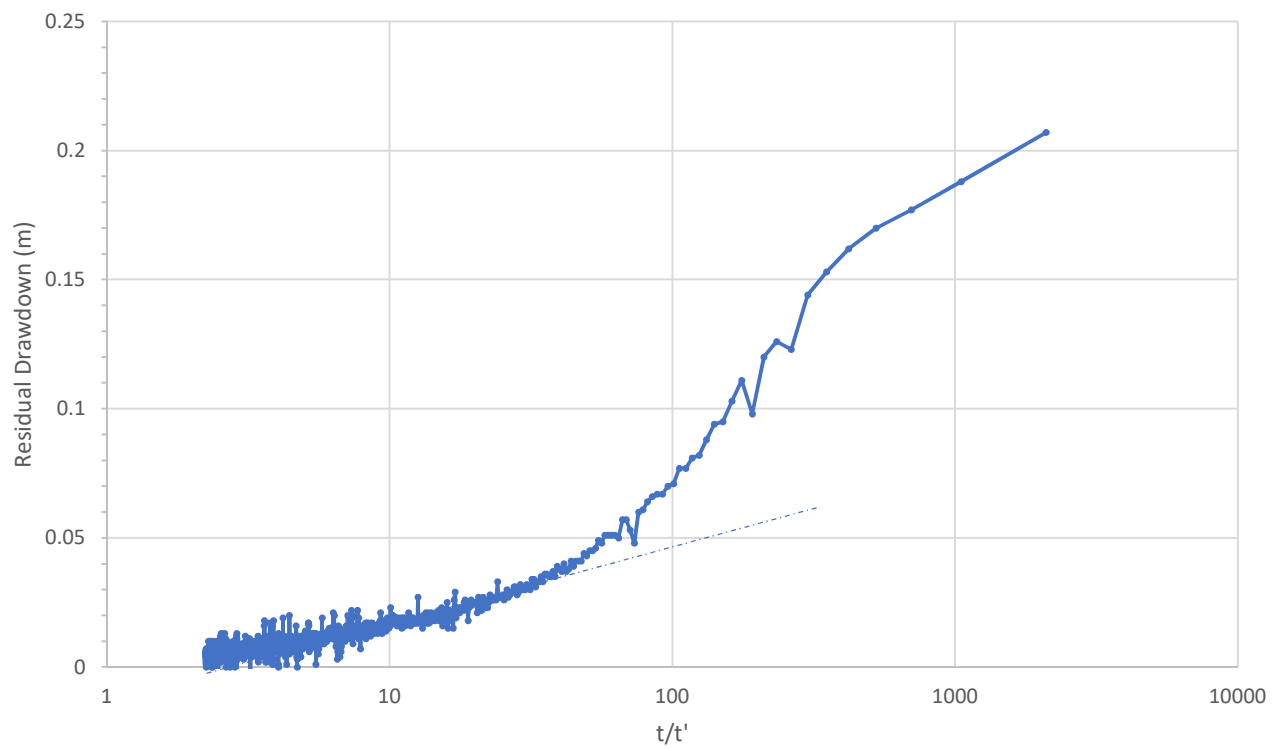


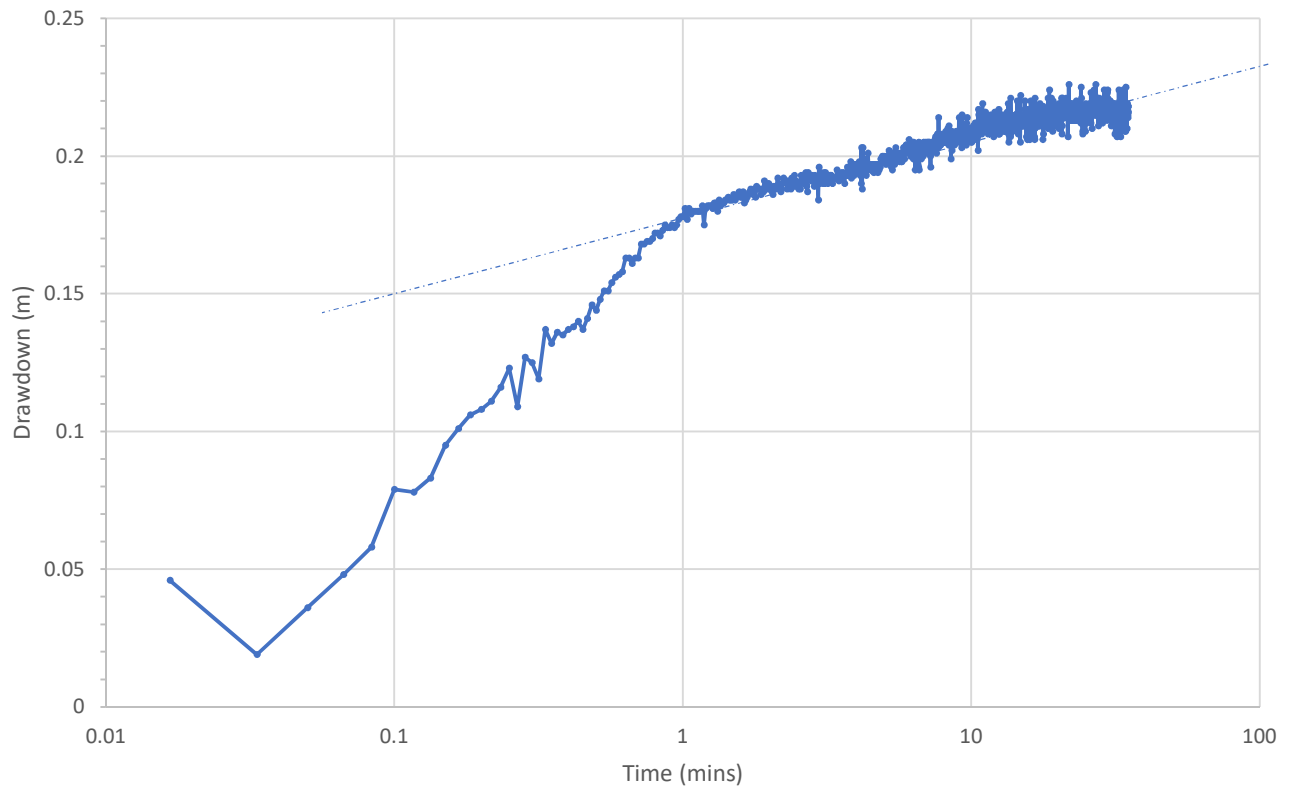
Drawdown Plot



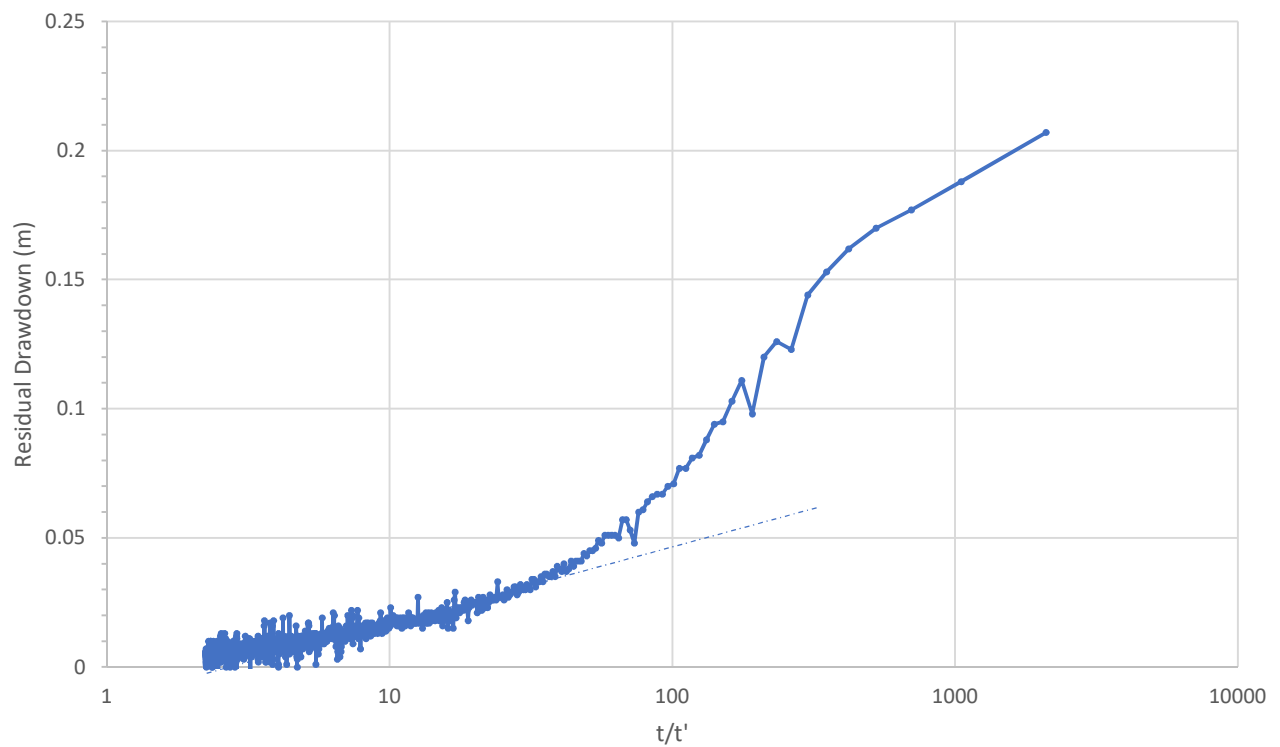
Recovery Plot



Drawdown Plot

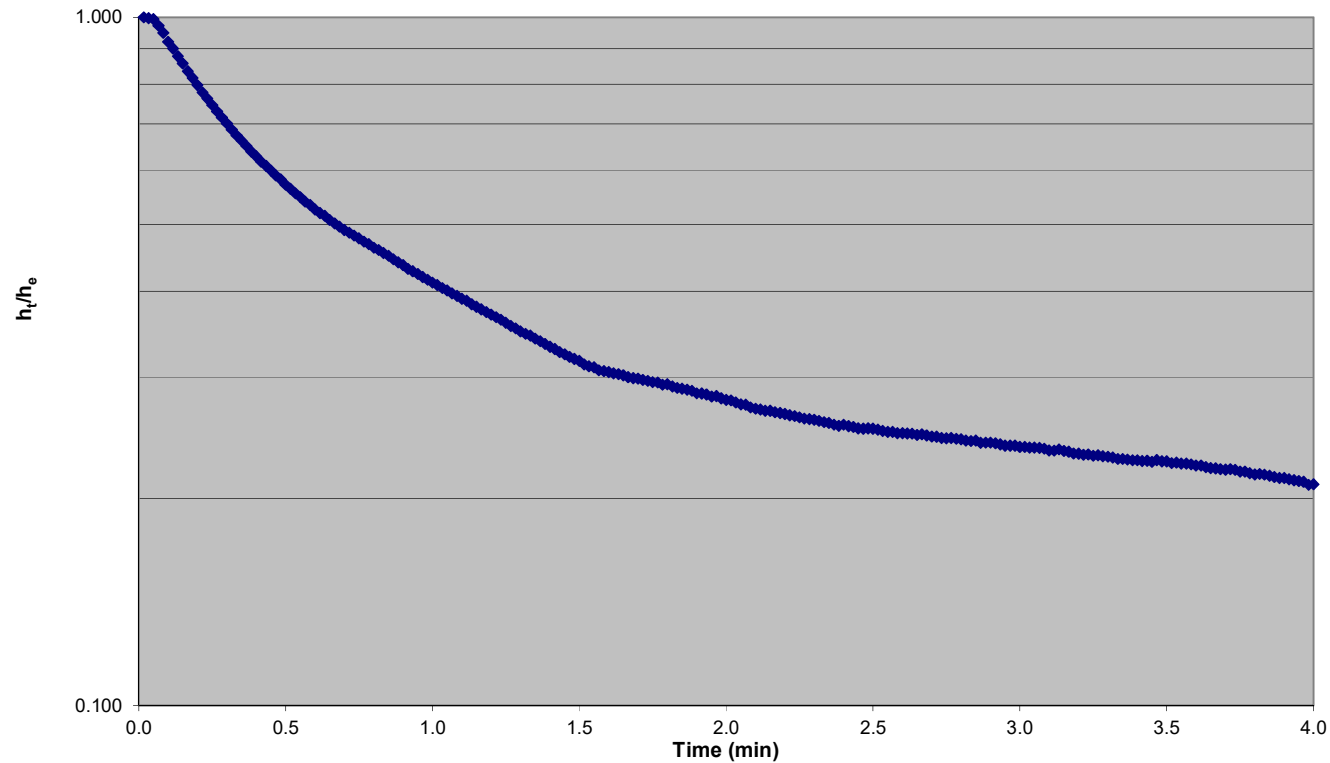


Recovery Plot



Bore No:	YA_MB09S	Test No:	0	Job No:	136	Date:	30-Apr-19	Logged by:	BDK
Borehole co-ordinates: Easting:	0	Northing:	0	Collar elevation (m):	0	Length of test section, L (m):	4.23	Radius of borehole, r (m):	0.07
Depth to top of test section (m):	2	Excess head, h_e (m):	3.75	Radius of standpipe or casing, r_c (m):	0.025				

Head - time graph (slope of graph is S)



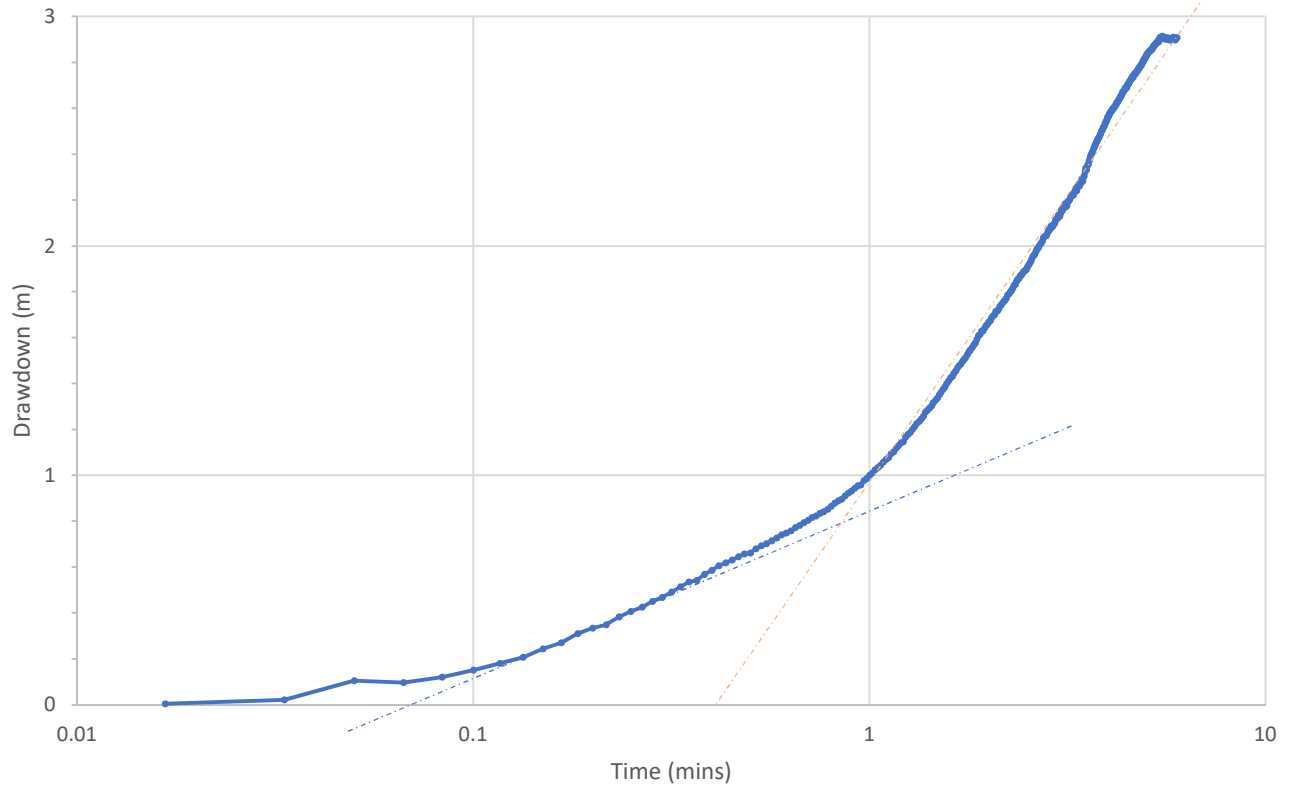
Calculations:

h_1	0.53	
t_1	0.6	
h_2	0.41	
t_2	1.0	
S	2.7E-01	
k	5.23E-06	

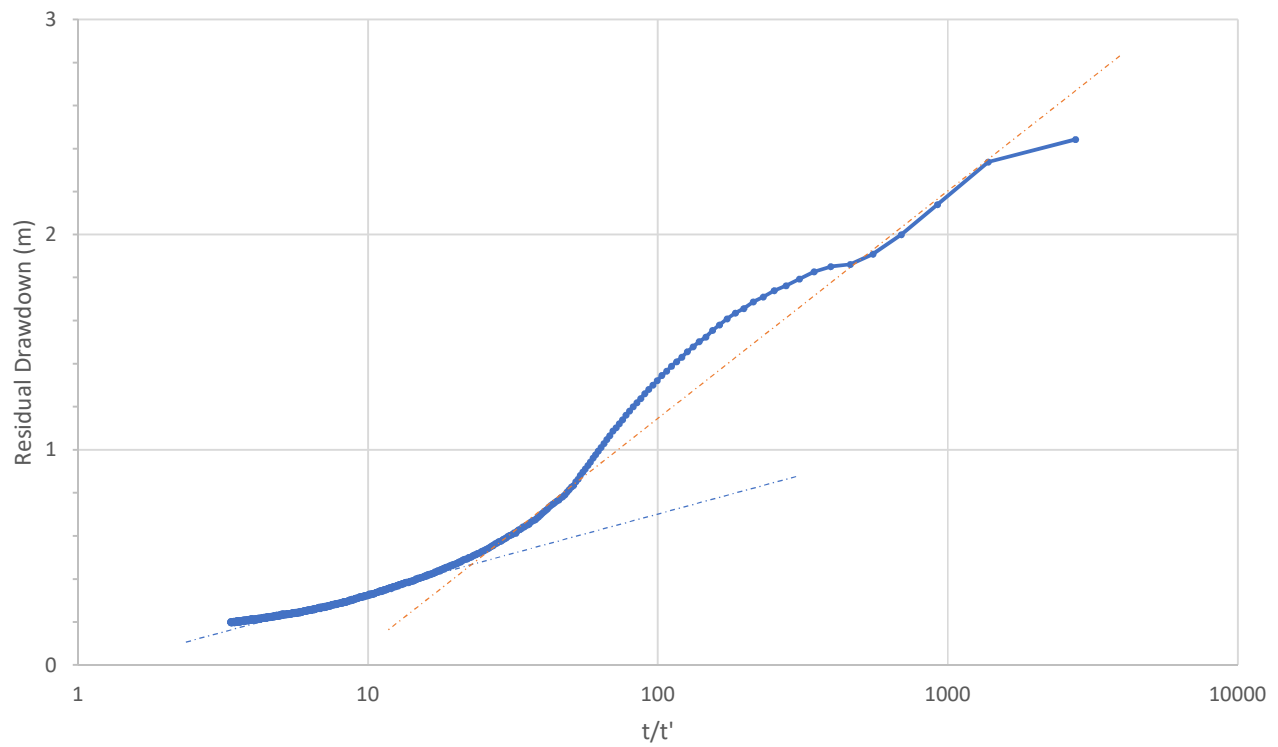
m/d 0.45

Permeability, $k = 0.133 \times S \times (rc^2/L)$, (m/sec)
 where $S = (\log (h_1/h_2))/(t_2 - t_1)$,
 (ie slope of plot, t in mins)

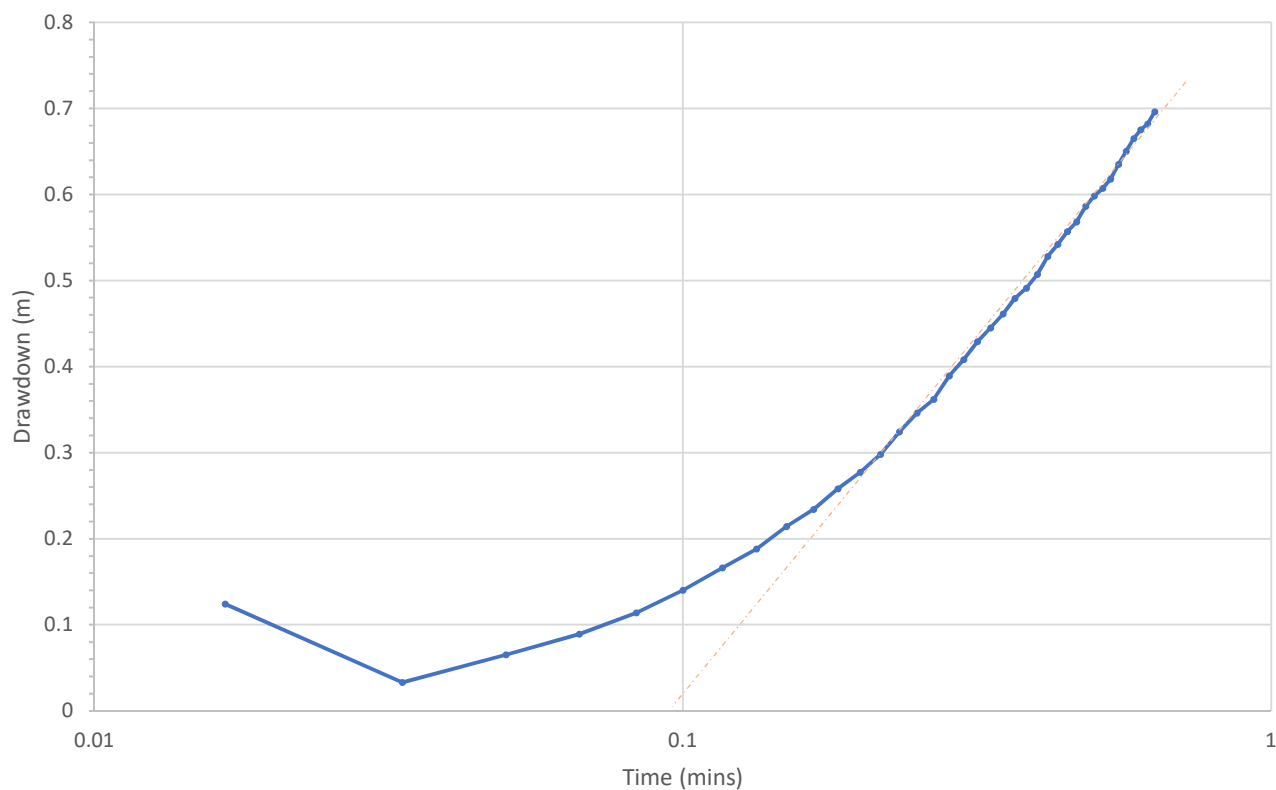
Drawdown Plot



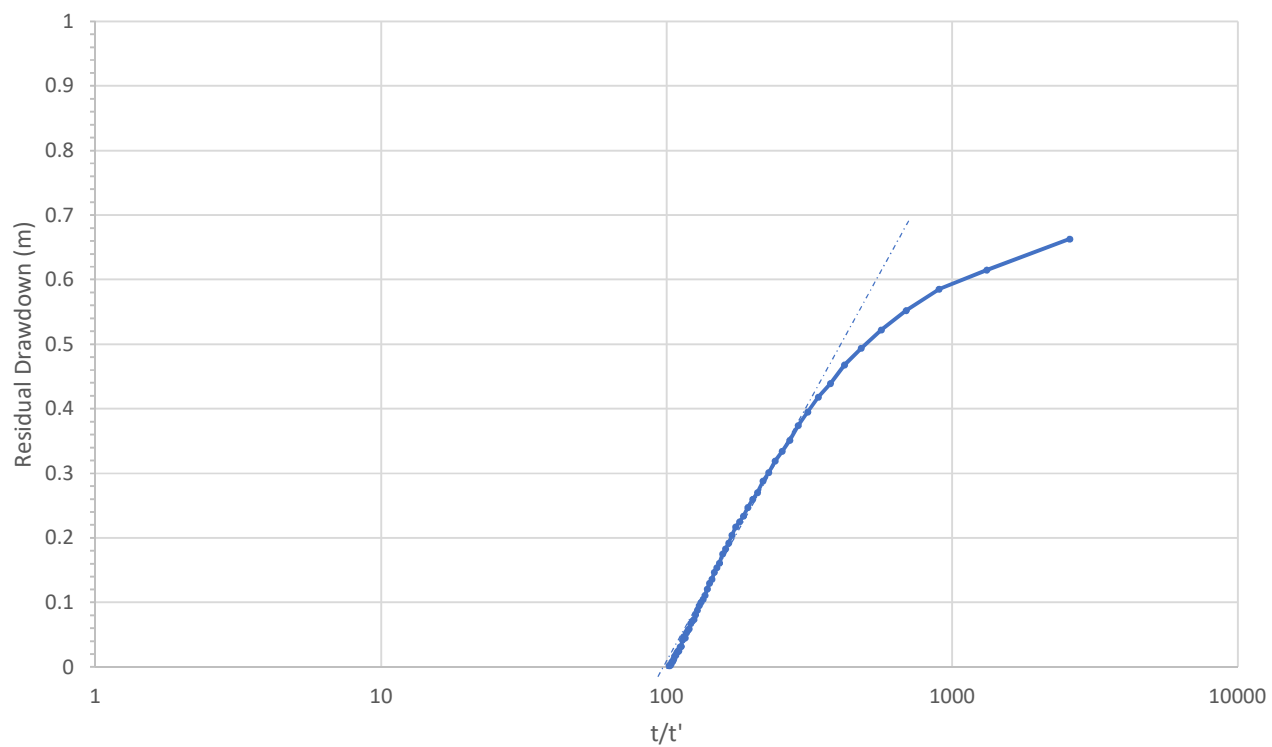
Recovery Plot



Drawdown Plot

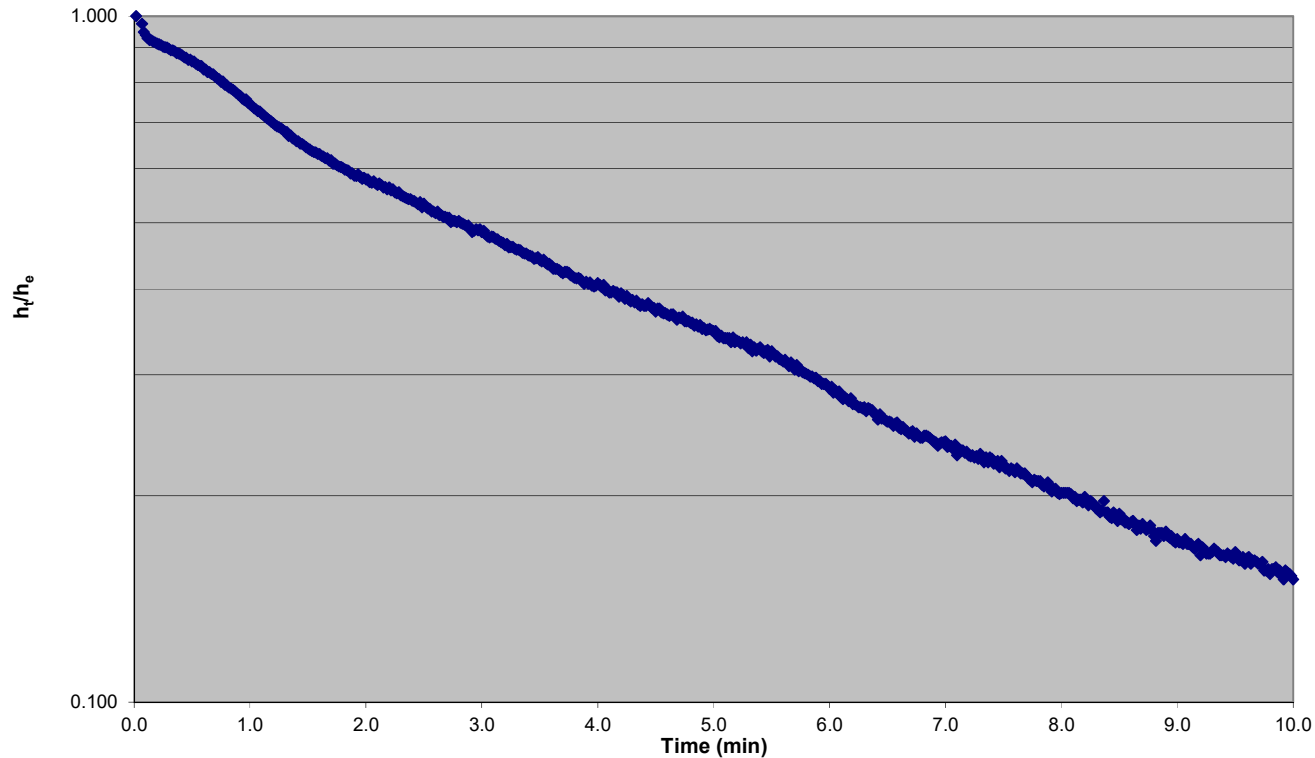


Recovery Plot



Bore No:	YA_MB10S	Test No:	0	Job No:	136	Date:	30-Apr-19	Logged by:	BDK
Borehole co-ordinates: Easting:	0	Northing:	0	Collar elevation (m):	0	Length of test section, L (m):	2.85	Radius of borehole, r (m):	0.07
Depth to top of test section (m):	2	Excess head, h_e (m):	1.10	Radius of standpipe or casing, r_c (m):	0.025				

Head - time graph (slope of graph is S)



Calculations:

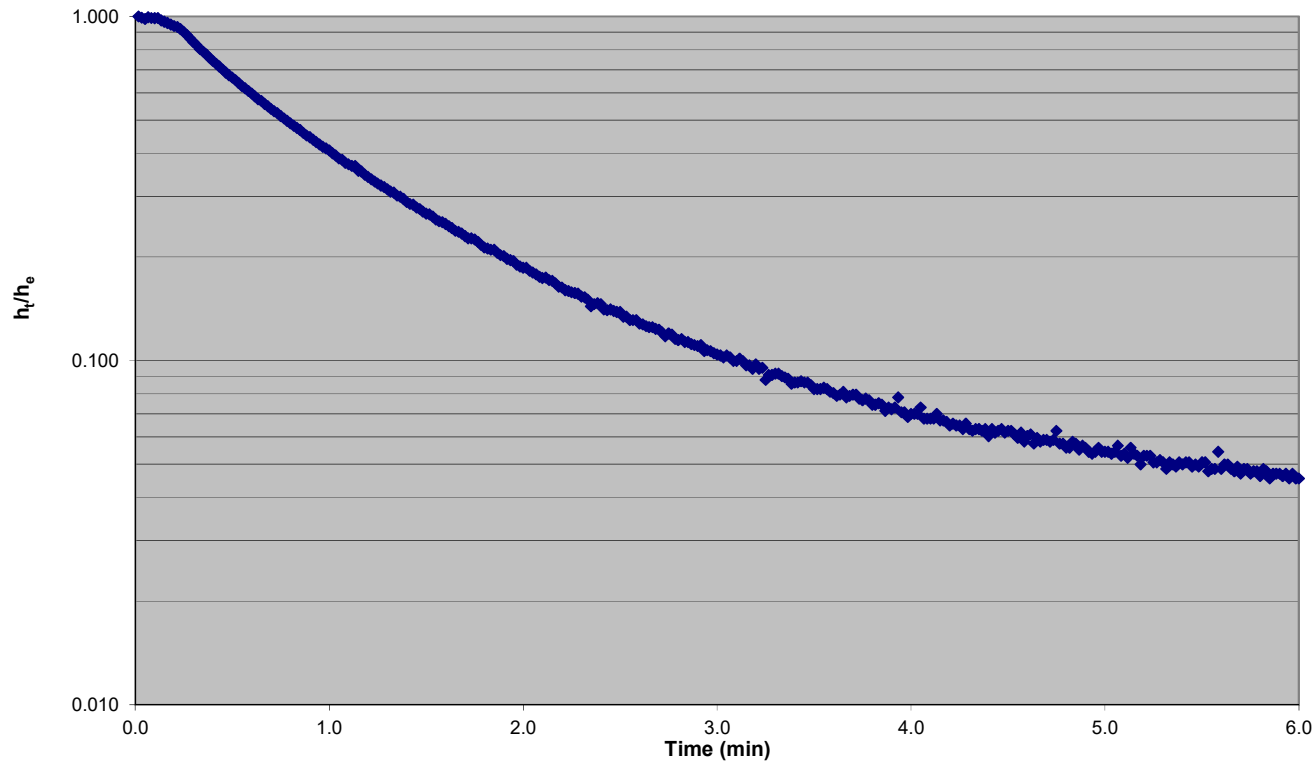
h_1	0.37	
t_1	4.5	
h_2	0.29	
t_2	6.0	
S	7.5E-02	
k	2.18E-06	

m/d 0.19

Permeability, $k = 0.133 \times S \times (rc^2/L)$, (m/sec)
 where $S = (\log (h_1/h_2))/(t_2 - t_1)$,
 (ie slope of plot, t in mins)

Bore No:	YA_MB11S	Test No:	0	Job No:	136	Date:	30-Apr-19	Logged by:	BDK
Borehole co-ordinates: Easting:	0	Northing:	0	Collar elevation (m):		0			
Depth to top of test section (m):	2			Length of test section, L (m):		7.54			
Depth of static water level, H_w (m):	1.2			Radius of borehole, r (m):		0.13			
Excess head, h_e (m):	1.34			Radius of standpipe or casing, r_c (m):		0.05			

Head - time graph (slope of graph is S)



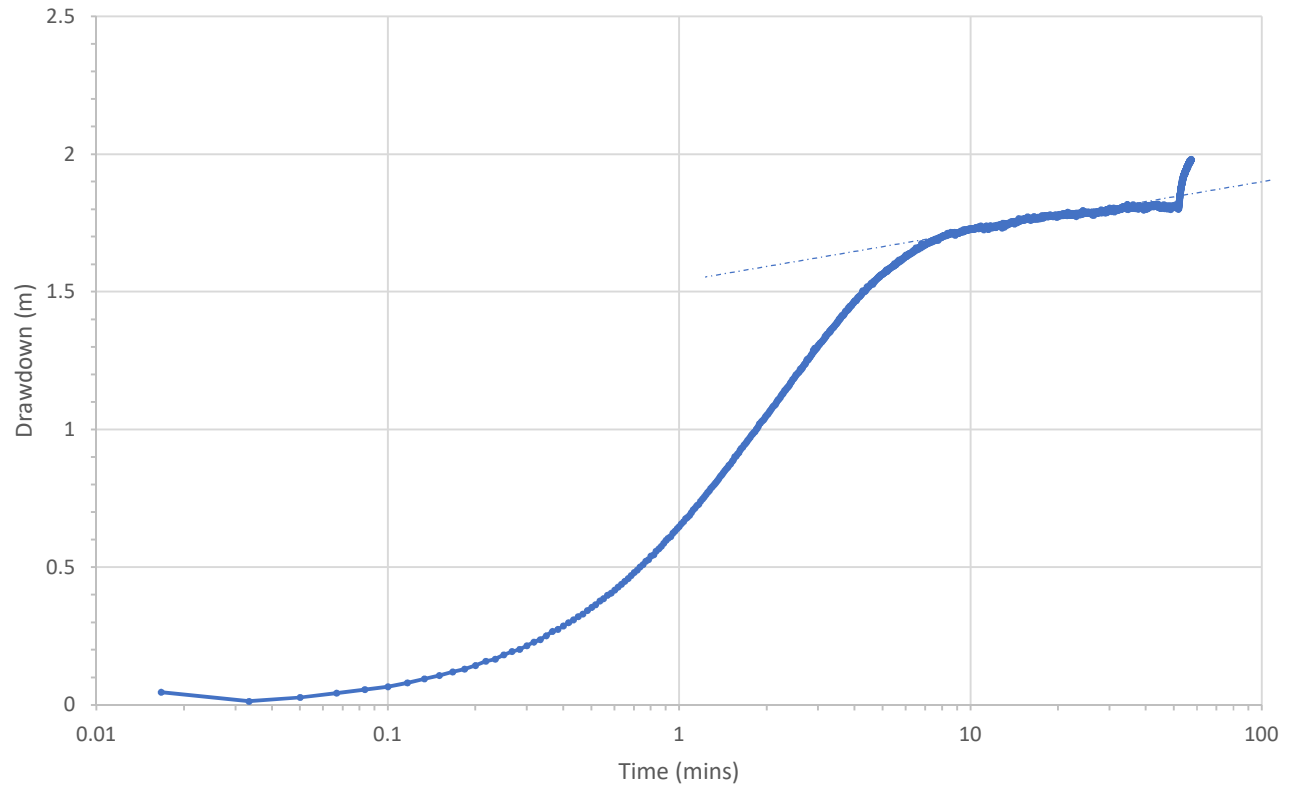
Calculations:

h_1	0.37	
t_1	1.1	
h_2	0.27	
t_2	1.5	
S	3.6E-01	
k	1.58E-05	

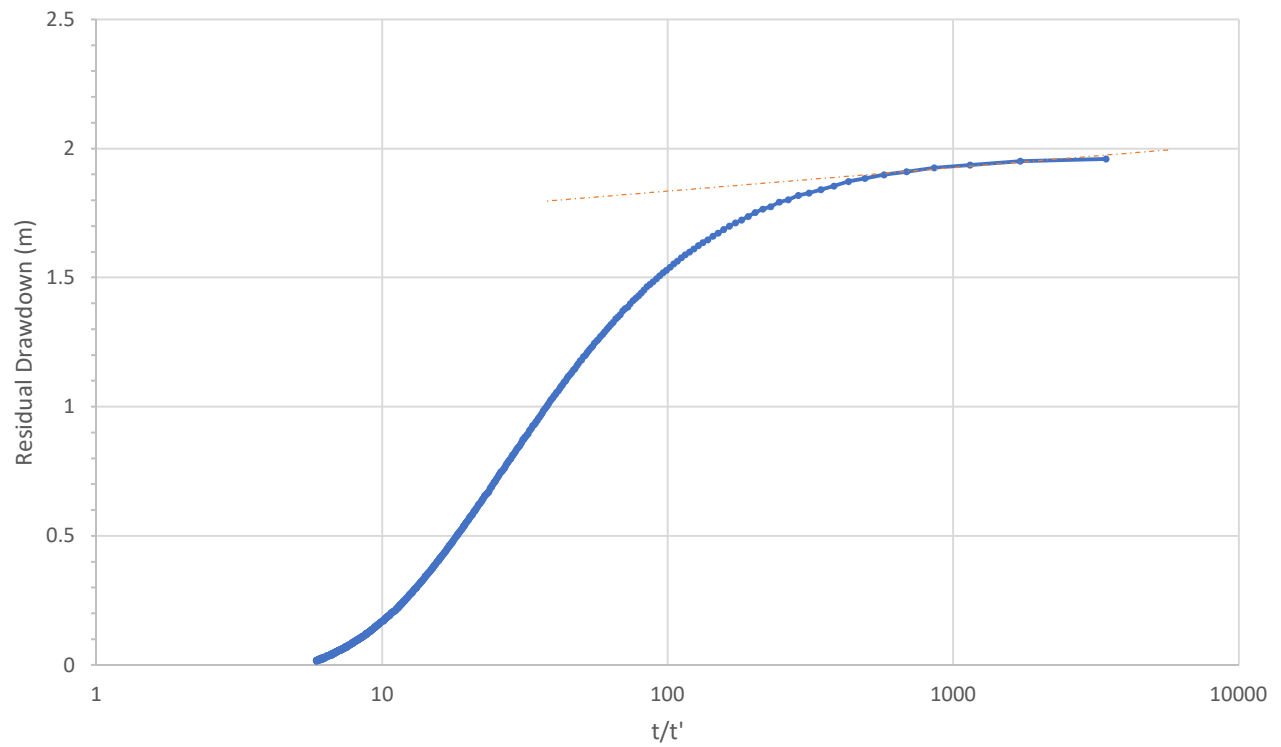
m/d 1.36

Permeability, $k = 0.133 \times S \times (rc^2/L)$, (m/sec)
 where $S = (\log (h_1/h_2))/(t_2 - t_1)$,
 (ie slope of plot, t in mins)

Drawdown Plot



Recovery Plot



APPENDIX C
DETAILS OF PRIVATE LANDOWNER BORES

Appendix C

Bore ID	Bore ID (Other Name)	Eastings (m)	Northings (m)	Ground Elevation (mAHD)	Screened Depth (mbtoc)
Superficial Aquifer					
20005101	61012243	358052	6272283	20.5	3.6
20005111	61012249	358054	6270091	25	6.5
20005114	61012250	358644	6270521	25	5.5
20005115	61012251	357995	6269748	28	8.54
20005165	61012287	357282	6270170	23.5	3.7
20005166	61012288	357402	6269919	23.8	4.3
20005167	61012289	356360	6270395	22	4.88
20005168	61012290	355790	6271295	17.8	7.93
20005169	61012291	356737	6271639	18.1	3.8
20005171	61012293	356627	6269888	23	6.2
20005251	61012359	360319	6270483	33.4	4.2
20005252	61012360	359563	6269510	34.8	4
20005253	61012361	359000	6269832	30.5	3.4
LOT1464_WELL	LOT1464_WELL	359520	6270925	29	4.2
LOT421_BORE2	LOT421_BORE2	356993	6269791	23.2	6
SCPD28A	61000055	358612	6271752	21.2	9
SCPD28B	61000056	358612	6271751	21.2	3.3
SCPD29A	61000057	359916	6269605	34.8	9.5
SCPD29B	61000058	359917	6269588	34.8	2.6
TS012M	TS012M	358329.71	6270015.68	29.24	9
TS012S	TS012S	358329.55	6270016.58	29.33	5.5
Leederville Aquifer					
20005254	61012362	359572	6270576	30	17
20005347	61012435	358537	6269856	28.5	67.6
20005356	61012444	357207	6270142	23.5	16.5
20083645	61014661	358326	6272028	20.5	42
23040930	61010183	357928	6271837	19.8	48
23073124	61070112	357993	6269748	28	69
LOT1661_SOLAR	LOT1661_SOLAR	360330	6270474	33.4	20.45
LOT1661_WM1	LOT1661_WM1	359864	6269833	33	28.6
LOT200_BORE	LOT200_BORE	356347	6270064	22.25	70
LOT229_WM2	LOT229_WM2	356712	6271194	19.2	16
LOT3773_WM	LOT3773_WM	359644	6270317	31	Unknown
LOT421_BORE1	LOT421_BORE1	357323	6269971	25	48
LOT552_BORE	LOT552_BORE	356220	6269870	23	70
LOT667_WM1	LOT667_WM1	358311	6269190	29	11
LOT667_WM2	LOT667_WM2	357571	6269300	26	16.8
LOT668_BORE2	LOT668_BORE2	357996	6269745	28	25.3
LOT758_BORE	LOT758_BORE	358002	6270118	25.5	30

APPENDIX D
GROUNDWATER LICENCES

Appendix D

Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer	Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer
106564	7/1/2012	7/1/2022	5200	Perth - Superficial Swan	106643	17/08/2011	17/08/2021	1500	Perth - Leederville
100725	26/05/2012	9/05/2022	4500	Perth - Superficial Swan	106573	22/01/2018	22/01/2028	1150	Perth - Leederville
108973	9/12/2010	9/12/2020	29000	Perth - Superficial Swan	106642	23/01/2018	22/01/2028	3400	Perth - Leederville
150672	12/10/2011	30/09/2021	46200	Perth - Superficial Swan	1903/2019	18/03/2019	18/03/2029	31500	Perth - Leederville
151053	3/12/2018	9/11/2026	68500	Perth - Superficial Swan	107540	18/01/2010	13/01/2020	1500	Perth - Leederville
153717	13/08/2012	9/7/2022	175000	Perth - Superficial Swan	107623	30/04/2012	13/03/2022	2850	Perth - Leederville
158625	4/05/2018	3/05/2028	5000	Perth - Superficial Swan	108124	22/01/2018	21/01/2028	4000	Perth - Leederville
167315	29/07/2014	30/07/2024	108187	Perth - Superficial Swan	1203/2012	12/03/2012	12/03/2022	5700	Perth - Leederville
168348	29/10/2009	28/10/2019	5300	Perth - Superficial Swan	109161	27/05/2015	20/05/2025	1000	Perth - Leederville
169567	16/07/2019	15/07/2029	3500	Perth - Superficial Swan	109388	20/06/2016	19/06/2026	36000	Perth - Leederville
171459	19/09/2010	31/08/2020	91500	Perth - Superficial Swan	109507	11/02/2014	10/02/2024	1500	Perth - Leederville
171988	17/06/2010	18/06/2020	7500	Perth - Superficial Swan	110289	24/02/2017	23/02/2027	1500	Perth - Leederville
173523	5/04/2017	4/04/2027	600000	Perth - Superficial Swan	110326	28/11/2017	27/11/2027	1500	Perth - Leederville
174358	21/12/2011	21/12/2021	6900	Perth - Superficial Swan	110459	8/02/2012	30/11/2021	19000	Perth - Leederville
174443	12/10/2011	30/09/2021	16800	Perth - Superficial Swan	110692	9/02/2012	11/12/2021	7500	Perth - Leederville
175693	22/05/2012	21/05/2022	2500	Perth - Superficial Swan	110699	13/12/2011	11/12/2021	46000	Perth - Leederville
175953	12/07/2012	12/07/2022	2000	Perth - Superficial Swan	110798	13/02/2012	13/01/2022	24750	Perth - Leederville
176528	5/11/2012	25/08/2022	60000	Perth - Superficial Swan	110850	24/07/2015	23/07/2025	500000	Perth - Leederville
180159	24/03/2016	15/03/2026	43300	Perth - Superficial Swan	111112	18/05/2012	18/05/2022	1500	Perth - Leederville
180363	24/03/2013	31/03/2026	50000	Perth - Superficial Swan	111252	27/03/2012	25/03/2022	1500	Perth - Leederville
181005	29/04/2015	28/04/2025	30000	Perth - Superficial Swan	111257	10/02/2012	15/03/2022	1500	Perth - Leederville
182032	11/12/2015	10/12/2025	30000	Perth - Superficial Swan	150028	12/04/2012	13/03/2022	1500	Perth - Leederville
182770	23/03/2017	31/12/2022	110000	Perth - Superficial Swan	150165	27/02/2012	21/03/2022	1000	Perth - Leederville
182775	23/03/2017	31/12/2022	220000	Perth - Superficial Swan	150210	9/03/2012	27/03/2022	1500	Perth - Leederville
184187	6/03/2016	5/03/2026	16000	Perth - Superficial Swan	150516	18/05/2012	18/05/2022	5000	Perth - Leederville
200101	22/06/2017	22/06/2027	14000	Perth - Superficial Swan	150671	10/07/2019	9/03/2027	45417	Perth - Leederville
202224	7/09/2017	7/09/2027	80000	Perth - Superficial Swan	151076	27/08/2012	27/08/2022	120000	Perth - Leederville
201866	23/08/2018	22/08/2028	60000	Perth - Superficial Swan	151273	4/10/2012	13/09/2022	500	Perth - Leederville
201933	14/09/2018	31/12/2021	5600	Perth - Superficial Swan	151468	15/11/2012	15/11/2022	1500	Perth - Leederville
202089	30/10/2018	29/10/2028	1400000	Perth - Superficial Swan	151556	18/02/2014	17/02/2024	1500	Perth - Leederville
202242	17/12/2018	16/12/2028	40200	Perth - Superficial Swan	151912	16/01/2013	16/01/2023	1500	Perth - Leederville
202723	3/05/2019	2/05/2020	21000	Perth - Superficial Swan	152655	6/03/2013	6/03/2023	1500	Perth - Leederville
48992	13/06/2013	12/06/2023	6000	Perth - Superficial Swan	152873	6/03/2013	6/03/2023	1500	Perth - Leederville
49627	26/10/2017	25/10/2027	100000	Perth - Superficial Swan	152909	6/03/2013	6/03/2023	1500	Perth - Leederville
50640	7/11/2012	10/10/2022	16500	Perth - Superficial Swan	152983	6/09/2013	5/09/2023	1500	Perth - Leederville
53093	9/03/2012	30/01/2022	6000	Perth - Superficial Swan	153046	8/04/2013	8/04/2023	1000	Perth - Leederville
62779	8/04/2013	1/08/2023	240000	Perth - Superficial Swan	153239	21/10/2014	14/09/2024	1500	Perth - Leederville
63163	21/06/2012	20/06/2022	30000	Perth - Superficial Swan	153281	17/01/2012	17/01/2022	1500	Perth - Leederville
65878	12/02/2014	8/1/2024	195000	Perth - Superficial Swan	153843	8/04/2013	8/04/2023	1500	Perth - Leederville
97116	23/05/2013	22/05/2023	28000	Perth - Superficial Swan	153872	11/12/2012	10/12/2022	53400	Perth - Leederville
97450	21/08/2012	12/07/2022	97000	Perth - Superficial Swan	153934	28/08/2013	27/08/2023	1500	Perth - Leederville
99298	19/10/2012	18/09/2022	28800	Perth - Superficial Swan	154380	28/11/2018	28/11/2028	218500	Perth - Leederville
100012	11/06/2012	2/05/2022	1500	Perth - Leederville	154392	22/10/2013	21/10/2023	1500	Perth - Leederville
100013	13/08/2014	12/08/2024	1500	Perth - Leederville	154931	18/02/2014	17/02/2024	2500	Perth - Leederville
100079	5/05/2017	4/05/2027	3000	Perth - Leederville	155123	8/02/2012	7/02/2022	10000	Perth - Leederville
100587	7/11/2012	7/11/2022	60000	Perth - Leederville	155147	7/03/2014	6/03/2024	1500	Perth - Leederville
102033	12/08/2014	17/05/2024	1500	Perth - Leederville	155264	26/02/2014	25/02/2024	1500	Perth - Leederville
102045	11/06/2012	4/05/2022	1000	Perth - Leederville	155304	7/03/2014	6/03/2024	1500	Perth - Leederville
102569	12/08/2014	20/05/2024	1500	Perth - Leederville	155650	18/08/2017	17/08/2027	3500	Perth - Leederville
104367	10/09/2016	9/05/2026	6000	Perth - Leederville	155670	8/07/2014	7/07/2024	1500	Perth - Leederville
104996	19/01/2011	19/01/2021	1000	Perth - Leederville	155719	11/02/2014	10/05/2024	1500	Perth - Leederville
105032	14/09/2011	14/09/2021	2200	Perth - Leederville	155888	1/08/2014	31/07/2024	7500	Perth - Leederville
105387	6/02/2012	30/11/2021	2500	Perth - Leederville	156006	19/03/2015	18/03/2025	2220	Perth - Leederville
105714	14/09/2011	14/09/2021	1500	Perth - Leederville	156010	21/10/2014	19/09/2024	1500	Perth - Leederville
105844	30/03/2010	25/08/2019	262000	Perth - Leederville	156845	21/10/2014	23/09/2024	1500	Perth - Leederville
106356	4/10/2011	4/10/2021	1500	Perth - Leederville	156768	6/11/2015	5/11/2025	1500	Perth - Leederville
106376	12/09/2011	12/09/2021	1500	Perth - Leederville	157265	10/03/2015	12/01/2025	1500	Perth - Leederville
106399	17/05/2013	16/05/2023	1500	Perth - Leederville	157367	22/11/2011	14/11/2021	105000	Perth - Leederville
106400	30/03/2011	30/03/2021	500	Perth - Leederville	157504	14/11/2012	30/09/2022	1500	Perth - Leederville
106404	11/08/2011	11/08/2021	1500	Perth - Leederville	157883	23/04/2015	22/04/2025	1500	Perth - Leederville
106410	17/08/2011	17/08/2021	250	Perth - Leederville	158078	17/12/2013	16/12/2023	15868	Perth - Leederville

Appendix D

Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer	Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer
158446	8/04/2015	7/04/2025	1500	Perth - Leederville	169527	15/08/2009	15/08/2019	500	Perth - Leederville
158731	27/05/2015	20/05/2025	1500	Perth - Leederville	169656	12/10/2010	12/10/2020	500	Perth - Leederville
159002	16/10/2009	15/10/2019	1500	Perth - Leederville	169658	4/11/2009	23/10/2019	1500	Perth - Leederville
159521	23/11/2015	22/11/2025	1500	Perth - Leederville	170322	1/12/2014	30/11/2024	5500	Perth - Leederville
159604	1/05/2018	30/04/2028	1500	Perth - Leederville	170363	19/11/2010	22/11/2020	114000	Perth - Leederville
159609	23/11/2015	22/11/2025	1500	Perth - Leederville	170387	4/12/2009	3/12/2019	250	Perth - Leederville
159642	27/01/2010	27/01/2020	33500	Perth - Leederville	170440	28/07/2016	16/06/2020	18523	Perth - Leederville
160466	2/05/2016	29/04/2026	1000	Perth - Leederville	170523	22/12/2009	30/12/2019	1150	Perth - Leederville
160626	2/05/2016	29/04/2026	500	Perth - Leederville	170658	28/04/2010	1/04/2020	109600	Perth - Leederville
160990	11/03/2013	1/12/2020	34300	Perth - Leederville	170707	29/01/2010	27/01/2020	500	Perth - Leederville
161079	4/11/2009	4/11/2019	26000	Perth - Leederville	170849	6/10/2016	6/10/2026	14000	Perth - Leederville
161219	6/10/2010	6/10/2020	5000	Perth - Leederville	170839	2/03/2010	26/02/2020	500	Perth - Leederville
161259	15/07/2016	14/07/2026	1500	Perth - Leederville	171035	11/03/2010	11/03/2020	500	Perth - Leederville
161294	31/07/2016	30/01/2028	1500	Perth - Leederville	171169	30/03/2010	30/03/2020	15000	Perth - Leederville
161923	24/10/2013	25/10/2023	380000	Perth - Leederville	171186	8/04/2010	8/04/2020	1500	Perth - Leederville
162221	1/06/2016	30/05/2026	1500	Perth - Leederville	171208	8/04/2010	8/04/2020	500	Perth - Leederville
162311	24/07/2017	23/07/2027	1500	Perth - Leederville	171296	19/04/2010	19/04/2020	1500	Perth - Leederville
162453	29/01/2010	22/01/2020	1000	Perth - Leederville	171623	26/10/2011	26/10/2021	7500	Perth - Leederville
162527	15/02/2017	14/02/2027	1500	Perth - Leederville	171797	20/07/2010	19/07/2020	500	Perth - Leederville
162549	15/02/2017	14/02/2027	1500	Perth - Leederville	171897	5/06/2010	5/06/2020	1000	Perth - Leederville
162622	15/02/2017	14/02/2027	1000	Perth - Leederville	172183	5/10/2016	1/10/2020	500	Perth - Leederville
162708	15/02/2017	14/02/2027	1500	Perth - Leederville	172263	12/10/2010	12/10/2020	500	Perth - Leederville
162804	15/02/2017	14/02/2027	1500	Perth - Leederville	172307	10/03/2011	10/03/2021	500	Perth - Leederville
162839	6/05/2014	6/05/2024	1500	Perth - Leederville	172385	10/03/2011	10/03/2021	500	Perth - Leederville
162865	15/02/2017	14/02/2027	1500	Perth - Leederville	172434	16/11/2019	17/11/2020	28000	Perth - Leederville
162960	27/02/2017	26/02/2027	1500	Perth - Leederville	172517	6/04/2011	6/04/2021	1500	Perth - Leederville
163280	27/03/2017	26/03/2027	1500	Perth - Leederville	172910	23/04/2012	23/04/2022	1500	Perth - Leederville
163388	7/08/2017	6/08/2027	500	Perth - Leederville	172933	10/08/2011	12/08/2021	3000	Perth - Leederville
163767	27/02/2017	26/02/2027	1100	Perth - Leederville	173303	25/05/2011	25/05/2021	1500	Perth - Leederville
164038	16/07/2019	15/07/2029	65000	Perth - Leederville	173308	17/05/2011	17/05/2021	500	Perth - Leederville
164326	24/07/2017	23/07/2027	500	Perth - Leederville	173338	20/06/2011	20/06/2021	4000	Perth - Leederville
164407	5/12/2018	4/12/2028	3200	Perth - Leederville	173425	24/05/2011	24/05/2021	1500	Perth - Leederville
164408	10/11/2017	10/11/2027	1500	Perth - Leederville	173438	3/06/2011	3/06/2021	1000	Perth - Leederville
164409	28/07/2017	27/07/2027	65000	Perth - Leederville	173484	29/09/2011	30/09/2021	1000	Perth - Leederville
164550	23/01/2012	23/01/2022	21000	Perth - Leederville	173536	17/06/2011	16/06/2021	500	Perth - Leederville
164801	28/11/2017	27/11/2027	1500	Perth - Leederville	173546	17/06/2011	16/06/2021	500	Perth - Leederville
164804	7/09/2017	6/09/2027	1500	Perth - Leederville	173680	15/03/2012	15/03/2022	10000	Perth - Leederville
164970	22/01/2018	21/01/2028	1000	Perth - Leederville	173731	9/06/2011	5/06/2021	11500	Perth - Leederville
164991	21/02/2019	20/02/2029	1500	Perth - Leederville	173834	6/07/2011	6/07/2021	1000	Perth - Leederville
165137	23/01/2018	22/01/2028	500	Perth - Leederville	173957	1/08/2011	1/08/2021	1540	Perth - Leederville
165340	28/11/2017	27/11/2027	1500	Perth - Leederville	173972	4/08/2011	4/08/2021	100	Perth - Leederville
165809	18/01/2018	17/01/2028	1150	Perth - Leederville	173992	4/08/2011	4/08/2021	500	Perth - Leederville
165828	20/11/2009	9/11/2019	10000	Perth - Leederville	173997	4/08/2011	4/08/2021	100	Perth - Leederville
165883	15/04/2019	14/04/2029	1500	Perth - Leederville	174021	4/08/2011	4/08/2021	1000	Perth - Leederville
165965	27/02/2019	26/02/2029	500	Perth - Leederville	174212	7/09/2011	7/09/2021	2000	Perth - Leederville
166220	21/02/2019	20/02/2029	500	Perth - Leederville	174228	8/05/2012	1/05/2022	3000	Perth - Leederville
166564	9/08/2019	8/08/2029	11000	Perth - Leederville	174309	18/11/2011	18/11/2021	500	Perth - Leederville
166566	15/04/2019	14/04/2029	500	Perth - Leederville	174314	18/11/2011	18/11/2021	1000	Perth - Leederville
167410	3/06/2009	27/05/2019	1400	Perth - Leederville	174331	18/11/2011	18/11/2021	1000	Perth - Leederville
167930	5/05/2014	4/05/2024	2400	Perth - Leederville	174348	5/10/2011	5/10/2021	500	Perth - Leederville
168061	30/10/2012	29/10/2022	40000	Perth - Leederville	174355	12/10/2011	12/10/2021	2000	Perth - Leederville
168736	26/04/2013	26/04/2023	9000	Perth - Leederville	174360	14/03/2012	14/03/2022	1000	Perth - Leederville
168796	15/04/2019	14/04/2029	500	Perth - Leederville	174404	10/11/2011	10/11/2021	1500	Perth - Leederville
168795	5/08/2019	4/08/2029	500	Perth - Leederville	174624	12/01/2012	12/01/2022	500	Perth - Leederville
168807	22/03/2019	21/03/2029	1000	Perth - Leederville	174715	17/02/2012	15/02/2022	13480	Perth - Leederville
168831	3/05/2017	31/05/2027	63700	Perth - Leederville	174720	3/04/2013	3/04/2023	44300	Perth - Leederville
168990	4/05/2010	30/04/2020	4200	Perth - Leederville	174763	23/12/2011	20/12/2021	1000	Perth - Leederville
169309	19/06/2019	18/06/2029	32000	Perth - Leederville	174905	6/01/2012	6/01/2022	1800	Perth - Leederville
169469	21/04/2011	21/04/2021	7200	Perth - Leederville	174931	12/01/2012	11/01/2022	1000	Perth - Leederville
169471	19/10/2010	1/11/2020	1700	Perth - Leederville	174976	20/02/2012	1/02/2022	5000	Perth - Leederville

Appendix D

Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer	Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer
175245	21/02/2012	20/02/2022	1500	Perth - Leederuille	180151	19/11/2014	8/11/2024	500	Perth - Leederuille
175098	15/02/2012	14/02/2022	1500	Perth - Leederuille	180167	22/12/2014	21/12/2024	82000	Perth - Leederuille
175171	7/11/2016	6/11/2026	33000	Perth - Leederuille	180230	26/11/2014	25/11/2024	500	Perth - Leederuille
175364	23/03/2012	23/03/2022	1000	Perth - Leederuille	180240	13/04/2015	12/04/2025	20000	Perth - Leederuille
175535	3/12/2013	1/12/2023	51500	Perth - Leederuille	180293	15/12/2014	14/12/2024	1500	Perth - Leederuille
175682	18/05/2012	18/05/2022	1500	Perth - Leederuille	180310	22/12/2014	21/12/2024	500	Perth - Leederuille
175763	6/06/2012	4/06/2022	1500	Perth - Leederuille	180326	22/12/2014	21/12/2024	500	Perth - Leederuille
175766	6/06/2012	5/06/2022	1650	Perth - Leederuille	180337	25/02/2015	24/02/2025	500	Perth - Leederuille
175769	26/07/2019	15/08/2023	15040	Perth - Leederuille	180362	1/06/2017	31/05/2027	100000	Perth - Leederuille
175929	12/07/2012	12/07/2022	10650	Perth - Leederuille	180417	14/01/2015	13/01/2025	1500	Perth - Leederuille
175931	12/07/2012	12/07/2022	2600	Perth - Leederuille	180468	27/01/2015	26/01/2025	500	Perth - Leederuille
176081	20/09/2012	20/09/2022	6500	Perth - Leederuille	180496	28/01/2015	27/01/2025	1500	Perth - Leederuille
176096	14/08/2012	14/08/2022	1500	Perth - Leederuille	180513	4/02/2015	3/02/2025	1500	Perth - Leederuille
176097	21/08/2012	21/08/2022	12500	Perth - Leederuille	180597	23/02/2015	22/02/2025	500	Perth - Leederuille
176103	14/08/2012	14/08/2022	2500	Perth - Leederuille	180608	17/02/2015	16/02/2025	1500	Perth - Leederuille
176242	20/09/2012	19/09/2022	1500	Perth - Leederuille	180692	25/02/2015	24/02/2025	500	Perth - Leederuille
176262	17/09/2012	14/09/2022	1500	Perth - Leederuille	180704	5/03/2015	4/03/2025	500	Perth - Leederuille
176284	20/09/2012	20/09/2022	3500	Perth - Leederuille	180715	4/03/2015	3/03/2025	1500	Perth - Leederuille
176334	27/09/2012	26/09/2022	8000	Perth - Leederuille	180729	10/03/2015	9/03/2025	500	Perth - Leederuille
176338	27/09/2012	27/09/2022	500	Perth - Leederuille	180771	13/03/2015	12/03/2025	500	Perth - Leederuille
176438	12/10/2012	12/10/2022	500	Perth - Leederuille	180841	2/04/2015	1/04/2025	500	Perth - Leederuille
176457	26/10/2012	25/10/2022	500	Perth - Leederuille	180888	5/06/2015	4/06/2025	15820	Perth - Leederuille
176552	1/11/2012	31/10/2022	2000	Perth - Leederuille	180898	2/04/2015	1/04/2025	4500	Perth - Leederuille
176692	20/12/2012	20/12/2022	19500	Perth - Leederuille	181102	29/05/2015	28/05/2025	17000	Perth - Leederuille
176760	25/07/2018	30/01/2028	624000	Perth - Leederuille	181194	17/08/2015	16/08/2025	18400	Perth - Leederuille
176927	8/02/2013	8/02/2023	1000	Perth - Leederuille	181283	17/12/2015	16/12/2025	3000	Perth - Leederuille
176861	8/02/2013	8/02/2023	5900	Perth - Leederuille	181325	15/07/2015	14/07/2025	1500	Perth - Leederuille
176901	8/02/2013	8/02/2023	1000	Perth - Leederuille	181384	18/08/2015	17/08/2025	3000	Perth - Leederuille
176943	8/02/2013	7/02/2023	1500	Perth - Leederuille	181391	18/08/2015	17/08/2025	500	Perth - Leederuille
177079	25/03/2013	25/03/2023	500	Perth - Leederuille	181807	26/10/2015	25/10/2025	1500	Perth - Leederuille
177184	15/04/2013	15/04/2023	1500	Perth - Leederuille	181855	5/11/2015	4/11/2025	1500	Perth - Leederuille
177236	25/07/2018	30/01/2028	1500	Perth - Leederuille	181977	1/12/2015	30/11/2025	1500	Perth - Leederuille
177291	23/04/2013	22/04/2023	500	Perth - Leederuille	182008	27/11/2015	26/11/2025	1500	Perth - Leederuille
177312	1/05/2013	30/04/2023	7500	Perth - Leederuille	182080	16/02/2016	15/02/2026	1500	Perth - Leederuille
177323	10/1/2014	9/1/2024	53500	Perth - Leederuille	182098	22/12/2015	21/12/2025	500	Perth - Leederuille
177351	22/04/2013	22/04/2023	500	Perth - Leederuille	182128	23/12/2015	22/12/2025	500	Perth - Leederuille
177482	4/12/2015	3/12/2025	12000	Perth - Leederuille	182145	5/01/2016	4/01/2026	500	Perth - Leederuille
177533	28/06/2013	27/06/2023	1500	Perth - Leederuille	182294	20/01/2016	19/01/2026	3000	Perth - Leederuille
177628	18/01/2019	11/01/2029	10500	Perth - Leederuille	182674	13/04/2016	12/04/2026	500	Perth - Leederuille
177959	30/08/2013	29/08/2023	500	Perth - Leederuille	182887	18/04/2016	17/04/2026	500	Perth - Leederuille
178017	2/09/2013	1/09/2023	1500	Perth - Leederuille	182803	20/05/2016	19/05/2026	500	Perth - Leederuille
178189	7/10/2013	6/10/2023	1500	Perth - Leederuille	182912	10/06/2016	9/06/2026	500	Perth - Leederuille
178421	28/11/2013	27/11/2023	2000	Perth - Leederuille	182914	3/06/2016	2/06/2026	1500	Perth - Leederuille
178462	6/03/2019	5/03/2029	2000	Perth - Leederuille	183203	16/08/2016	15/08/2026	4500	Perth - Leederuille
178467	18/12/2013	18/12/2023	1500	Perth - Leederuille	183288	1/09/2016	31/08/2026	1500	Perth - Leederuille
178676	5/02/2014	4/02/2024	1500	Perth - Leederuille	183295	2/09/2016	1/09/2026	2000	Perth - Leederuille
178880	6/03/2014	5/03/2024	1500	Perth - Leederuille	183334	5/09/2016	4/09/2026	500	Perth - Leederuille
178964	12/03/2014	11/03/2024	500	Perth - Leederuille	183574	27/10/2016	26/10/2026	500	Perth - Leederuille
179187	28/04/2014	27/04/2024	1500	Perth - Leederuille	183625	3/11/2016	2/11/2026	500	Perth - Leederuille
179198	2/05/2014	1/05/2024	1500	Perth - Leederuille	183637	7/11/2016	6/11/2026	500	Perth - Leederuille
179296	19/05/2014	18/05/2024	500	Perth - Leederuille	183730	28/11/2016	27/11/2026	500	Perth - Leederuille
179339	27/05/2014	27/05/2024	500	Perth - Leederuille	183733	28/11/2016	27/11/2026	500	Perth - Leederuille
179391	11/08/2014	10/08/2024	1500	Perth - Leederuille	183736	28/11/2016	27/11/2026	1500	Perth - Leederuille
179411	11/08/2014	10/08/2024	1500	Perth - Leederuille	183782	2/12/2016	1/12/2026	500	Perth - Leederuille
179441	19/06/2014	18/06/2024	500	Perth - Leederuille	183816	19/12/2016	18/12/2026	500	Perth - Leederuille
179506	2/07/2014	1/07/2024	500	Perth - Leederuille	183817	10/01/2017	10/01/2027	60000	Perth - Leederuille
179530	2/07/2014	1/07/2024	500	Perth - Leederuille	183834	21/12/2016	20/12/2026	500	Perth - Leederuille
179606	24/07/2014	23/07/2024	500	Perth - Leederuille	183838	22/12/2016	21/12/2026	500	Perth - Leederuille
179621	24/07/2014	23/07/2024	1500	Perth - Leederuille	183968	25/01/2017	24/01/2027	500	Perth - Leederuille
179625	1/08/2014	31/07/2024	500	Perth - Leederuille	184042	10/02/2017	9/02/2027	500	Perth - Leederuille
179689	16/09/2014	15/09/2024	1500	Perth - Leederuille	184046	10/02/2017	9/02/2027	500	Perth - Leederuille
180130	5/11/2014	4/11/2024	500	Perth - Leederuille	184212	17/03/2017	16/03/2027	500	Perth - Leederuille

Appendix D

Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Acquirer	Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Acquirer
184328	18/04/2017	17/04/2027	1500	Perth - Leederville	4990	18/06/2019	17/06/2029	41000	Perth - Leederville
184358	28/07/2019	25/04/2027	24990	Perth - Leederville	50571	22/08/2012	9/07/2022	322500	Perth - Leederville
184385	28/04/2017	27/04/2027	1500	Perth - Leederville	50966	15/06/2016	14/06/2026	14500	Perth - Leederville
184433	2/05/2017	1/05/2027	500	Perth - Leederville	51370	18/12/2013	17/12/2023	1500	Perth - Leederville
184436	5/05/2017	4/05/2027	30200	Perth - Leederville	52395	21/08/2012	18/07/2022	8500	Perth - Leederville
200067	18/07/2017	17/07/2027	2000	Perth - Leederville	52636	22/06/2010	22/06/2020	2000	Perth - Leederville
200103	26/07/2017	25/07/2027	1500	Perth - Leederville	56357	13/07/2012	12/07/2022	32000	Perth - Leederville
200129	2/08/2017	2/08/2027	300000	Perth - Leederville	56766	30/04/2013	30/04/2023	1500	Perth - Leederville
200191	25/08/2017	24/08/2027	500	Perth - Leederville	58458	15/11/2012	15/11/2022	1500	Perth - Leederville
200250	12/09/2017	11/09/2027	200000	Perth - Leederville	58659	13/11/2012	17/10/2022	10000	Perth - Leederville
200298	21/02/2017	1/10/2027	500	Perth - Leederville	58886	19/02/2013	19/02/2023	2500	Perth - Leederville
200408	24/10/2017	23/10/2027	500	Perth - Leederville	59469	12/03/2013	12/03/2023	2500	Perth - Leederville
200419	26/10/2017	25/10/2027	500	Perth - Leederville	59850	20/02/2012	21/03/2022	40000	Perth - Leederville
200441	31/10/2017	30/10/2027	500	Perth - Leederville	59837	1/03/2017	1/03/2027	360000	Perth - Leederville
200595	30/11/2017	29/11/2027	1500	Perth - Leederville	59846	16/01/2013	16/01/2023	15000	Perth - Leederville
200650	12/12/2017	11/12/2027	500	Perth - Leederville	60211	18/02/2014	17/02/2024	2500	Perth - Leederville
200654	13/12/2017	12/12/2027	500	Perth - Leederville	60407	6/08/2012	1/08/2022	15000	Perth - Leederville
200660	13/12/2017	12/12/2027	1500	Perth - Leederville	61077	6/09/2011	6/09/2021	500	Perth - Leederville
200687	19/12/2017	18/12/2027	1500	Perth - Leederville	61709	29/08/2012	2/08/2022	2000	Perth - Leederville
200770	16/01/2018	15/01/2028	1500	Perth - Leederville	61838	19/03/2015	18/03/2025	10000	Perth - Leederville
200781	17/01/2018	16/01/2028	500	Perth - Leederville	62335	16/08/2011	18/07/2021	1000	Perth - Leederville
200786	18/01/2018	17/01/2028	500	Perth - Leederville	62365	27/09/2012	25/08/2022	39000	Perth - Leederville
200797	18/01/2018	17/01/2028	1500	Perth - Leederville	62582	8/09/2011	8/09/2021	1000	Perth - Leederville
200808	19/01/2018	18/01/2028	500	Perth - Leederville	63018	21/08/2012	10/08/2022	6000	Perth - Leederville
200884	2/02/2018	1/02/2028	500	Perth - Leederville	63090	7/09/2011	7/09/2021	500	Perth - Leederville
200986	9/02/2018	5/02/2028	500	Perth - Leederville	63214	21/08/2012	16/07/2022	3000	Perth - Leederville
200958	21/02/2018	20/02/2028	1500	Perth - Leederville	63254	6/04/2010	15/04/2020	20500	Perth - Leederville
200974	23/02/2018	22/02/2028	500	Perth - Leederville	63335	22/10/2018	21/10/2028	40000	Perth - Leederville
201078	28/07/2018	20/03/2028	19000	Perth - Leederville	65611	7/11/2012	12/10/2022	1500	Perth - Leederville
201119	29/03/2018	28/03/2028	1500	Perth - Leederville	65692	6/09/2011	6/09/2021	1000	Perth - Leederville
201159	9/04/2018	8/04/2028	500	Perth - Leederville	65802	29/11/2018	29/11/2028	195000	Perth - Leederville
201182	13/04/2018	12/04/2028	1500	Perth - Leederville	66006	12/10/2011	12/10/2021	1000	Perth - Leederville
201227	27/04/2018	26/04/2028	1500	Perth - Leederville	66645	7/12/2012	7/12/2022	2000	Perth - Leederville
201245	3/05/2018	2/05/2028	3500	Perth - Leederville	67672	1/05/2015	30/04/2025	9500	Perth - Leederville
201283	10/05/2018	9/05/2028	1500	Perth - Leederville	75496	10/06/2014	28/05/2024	1500	Perth - Leederville
201532	25/06/2018	24/06/2028	1500	Perth - Leederville	77976	29/07/2019	20/03/2028	30500	Perth - Leederville
201645	13/07/2018	12/07/2028	500	Perth - Leederville	84276	9/10/2012	11/09/2022	15500	Perth - Leederville
201648	13/07/2018	12/07/2028	500	Perth - Leederville	83559	11/06/2012	15/05/2022	15000	Perth - Leederville
201994	4/10/2018	3/10/2028	1500	Perth - Leederville	84291	7/06/2018	6/06/2028	3100	Perth - Leederville
202163	2/11/2018	19/11/2028	1500	Perth - Leederville	85377	23/05/2012	30/06/2022	3000	Perth - Leederville
202190	28/11/2018	27/11/2028	500	Perth - Leederville	85808	19/07/2012	15/06/2022	22000	Perth - Leederville
202197	29/11/2018	28/11/2028	1500	Perth - Leederville	85886	10/06/2014	25/05/2024	1000	Perth - Leederville
202302	8/01/2019	7/01/2029	500	Perth - Leederville	96069	9/06/2014	8/06/2024	1500	Perth - Leederville
202443	15/02/2019	14/02/2029	1500	Perth - Leederville	96090	23/05/2012	30/06/2022	1000	Perth - Leederville
202444	15/02/2019	14/02/2029	1500	Perth - Leederville	97020	10/06/2014	30/05/2024	1000	Perth - Leederville
202466	20/02/2019	19/02/2029	500	Perth - Leederville	97098	30/06/2010	30/06/2020	39100	Perth - Leederville
202488	22/02/2019	21/02/2029	1500	Perth - Leederville	98883	18/12/2013	17/12/2023	1500	Perth - Leederville
202518	6/03/2019	5/03/2029	1500	Perth - Leederville	99166	6/06/2012	6/07/2022	3000	Perth - Leederville
202648	4/04/2019	3/04/2029	500	Perth - Leederville	99236	19/10/2012	18/09/2022	28800	Perth - Leederville
202658	5/04/2019	4/04/2029	1500	Perth - Leederville	99745	19/03/2015	18/03/2025	4000	Perth - Leederville
202665	11/04/2019	10/04/2029	500	Perth - Leederville					
202674	12/04/2019	11/04/2029	1500	Perth - Leederville					
202980	15/04/2019	14/04/2029	1500	Perth - Leederville					
48980	5/10/2021	5/10/2021	500	Perth - Leederville					
48995	28/03/2013	28/03/2023	27625	Perth - Leederville					
49285	5/11/2012	5/11/2022	45000	Perth - Leederville					
49286	31/01/2012	30/01/2022	500	Perth - Leederville					
49598	4/10/2011	4/10/2021	1500	Perth - Leederville					
49645	25/03/2014	24/03/2024	1500	Perth - Leederville					
49843	6/09/2011	6/09/2021	1500	Perth - Leederville					
49902	19/06/2019	18/06/2029	27000	Perth - Leederville					

Licence Number	Issue Date	Expiry Date	Licence Allocation (KL/year)	Aquifer
100586	19/12/2012	19/12/2022	10000	Perth - Yarragadee South
102795	27/07/2010	30/06/2020	72000	Perth - Yarragadee South
110298	13/02/2017	11/01/2027	37000	Perth - Yarragadee South
110434	20/11/2015	20/11/2025	640000	Perth - Yarragadee South
110491	14/09/2011	14/09/2021	2087500	Perth - Yarragadee South
110851	25/07/2015	23/07/2025	7600000	Perth - Yarragadee South
150287	16/12/2011	31/12/2021	695000	Perth - Yarragadee South
151407	19/12/2018	18/12/2028	6664450	Perth - Yarragadee South
156149	19/10/2017	19/10/2027	270000	Perth - Yarragadee South
156423	7/01/2013	7/01/2023	400000	Perth - Yarragadee South
156671	11/11/2014	10/11/2024	30000	Perth - Yarragadee South
156778	12/04/2017	11/04/2027	34500	Perth - Yarragadee South
157168	19/12/2017	19/12/2027	188300	Perth - Yarragadee South
157241	19/06/2013	17/06/2023	150000	Perth - Yarragadee South
161847	17/05/2010	31/03/2020	6500000	Perth - Yarragadee South
163655	19/05/2017	18/05/2027	3600	Perth - Yarragadee South
166893	20/11/2018	19/11/2028	100000	Perth - Yarragadee South
168825	16/12/2009	16/12/2019	150000	Perth - Yarragadee South
171525	30/03/2012	31/03/2022	430000	Perth - Yarragadee South
200489	10/11/2017	10/11/2027	1500	Perth - Yarragadee South
202591	21/03/2019	20/03/2029	194000	Perth - Yarragadee South
49826	20/09/2010	20/09/2020	11250	Perth - Yarragadee South
66588	23/06/2017	23/06/2027	2960000	Perth - Yarragadee South
98218	11/12/2012	11/12/2022	40000	Perth - Yarragadee South
161841	1/01/2000	18/03/2025	3100000	Perth - Yarragadee South

APPENDIX E

DETAILS OF MODEL PREDICTIONS WITH EXTENDED IRRIGATION

Appendix E

E1 Background

Model predictions described in Section 9.8 and 9.9 of the main report include groundwater pumping from other users in the modelled catchment. Abstraction is included for all Groundwater Well Licences (GWLs), including non-agricultural and agricultural users. Abstraction is included for agricultural users at 80% of the licences allocation over the summer months (August to April). Abstraction for non- agricultural users is included at 80% of the licenced allocation, with pumping distributed equally throughout the year.

It has been identified that water use may increase in the south west of Western Australia in the future. To address this, model predictions were re-run assuming that groundwater pumping from all other users in the catchment was increased to 100% of the current licenced allocations and was extended for a month. Model predictions were run to assess the impact of the extended and increased pumping periods on model predicted drawdown as requested by the Department of Water and Environmental Regulation (DWER). The impact of the extended and increased pumping periods on dewatering requirements for the Yalyalup mine were not completed as part of this assessment.

The distribution of abstraction throughout the year included in model predictions is outlined below:

- For agricultural users, 100% of the licenced allocations was assumed to be abstracted from August to May of each year. This represents an increase in the pumping period of one month compared to the model predictions described in Section 9.8 and 9.9.
- For non-agricultural users, 100% of the licenced allocation was assumed to be abstracted throughout the year.

The model was re-run for the same scenarios as covered in Section 9.9 of the main report - all other details of model predictions remain unchanged, except for the change to pumping of 100% of the GWL allocation, with pumping for one month longer.

A summary of model predictions completed is presented in Table E1.

Table E1: Summary of Model Predictions

Scenario	Operational Period (July 2021 to December 2024)	Closure Period (January 2025 to December 2034)
Yalyalup Dewatering Scenario 1	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (August to May for agricultural users and all year for non-agricultural users). Dewatering at Yalyalup. Dry Climatic Conditions (July 2003 to December 2006).	No further mining at Yalyalup No further water supply pumping for Yalyalup Abstraction from other users at 100% of GWL allocation (September to April for agricultural users and all year for non-agricultural users). Climatic conditions from 1 January 2007 to 31 December 2016
Yalyalup Dewatering Scenario 2	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (August to May for agricultural users and all year for non-agricultural users). Dewatering at Yalyalup. Wet Climatic Conditions (July 1997 to December 2000).	No further mining at Yalyalup No further water supply pumping for Yalyalup Abstraction from other users at 100% of GWL allocation (September to April for agricultural users and all year for non-agricultural users). Climatic conditions from 1 January 2001 to 31 December 2010
Yalyalup Water Supply Scenario 1	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (August to May for agricultural users and all year for non-agricultural users). Yalyalup Yarragadee Water Supply Dry Climatic Conditions (July 2003 to December 2006)	Abstraction from other users at 100% of GWL allocation (September to April for agricultural users and all year for non-agricultural users). No further water supply pumping for Yalyalup Climatic conditions from 1 January 2007 to 31 December 2016
Yalyalup Water Supply Scenario 2	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (August to May for agricultural users and all year for non-agricultural users). Yalyalup Yarragadee Water Supply Wet Climatic Conditions (July 1997 to December 2000)	Abstraction from other users at 100% of GWL allocation (September to April for agricultural users and all year for non-agricultural users). No further water supply pumping for Yalyalup Climatic conditions from 1 January 2001 to 31 December 2010
No Yalyalup Development Scenario 1	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (August to May for agricultural users and all year for non-agricultural users). Dry Climatic Conditions (July 2003 to December 2006)	Abstraction from other users at 100% of GWL allocation (September to April for agricultural users and all year for non-agricultural users). Climatic conditions from 1 January 2007 to 31 December 2016
No Yalyalup Development Scenario 2	Initial conditions from calibrated model Abstraction from other users at 100% of GWL allocation (October to May for agricultural users and all year for non-agricultural users). Wet Climatic Conditions (July 1997 to December 2000)	Abstraction from other users Climatic conditions from 1 January 2001 to 31 December 2010

E2 Results**E2.1 Predicted Water Levels****E2.1.1 Yalyalup Dewatering and Closure**

Predicted water levels for selected shallow (Superficial aquifer) observation locations over the calibration period (1987 to 2019), the operational period (2021 to 2024) and the subsequent closure period (2025 to 2034) for the *Yalyalup Dewatering* Scenarios for the Extended Irrigation and the Base Case that include dry climatic conditions are shown in Figures E1 and E2. Predicted water levels for the Leederville aquifer are shown in Figures E3 and E4. For locations of observation locations refer to Figure 70 of the main report.

Predicted water levels suggest that increasing the amount of irrigation to 100% of the GWL allocation as well as extending the irrigation by a month has very little impact on predicted Superficial water levels over the operational and closure periods.

Predicted water levels for the Leederville aquifer show the water levels impact of additional and extended pumping. As would be expected, the annual period of depressed water levels due to pumping is extended by a month. Additionally, the predicted reduction in water level at Leederville observation locations is increased, but by less than 0.5 m when 100% of the GWL allocations are abstracted. During the period when there is no abstraction for irrigation however, water levels are predicted to recover rapidly each year. Water level recovery during winter months is similar for the 80% and 100% of GWL allocation abstraction cases.

E2.1.2 Yalyalup Water Supply

Predicted water levels for selected shallow (Superficial aquifer) observation locations over the calibration period (1987 to 2019), the operational period (2021 to 2024) and the subsequent closure period (2025 to 2034) for the *Yalyalup Water Supply* Scenarios for the Extended Irrigation Predictions and the Base Case Predictions and dry climatic conditions are shown in Figures E5 and E6. Predicted water levels for the Leederville aquifer are shown in Figures E7 and E8. For locations of observation locations refer to Figure 70.

Predicted water levels suggest that increasing the amount of irrigation to 100% of the GWL allocation, as well as extending the irrigation by a month, has very little impact on predicted Superficial water levels over the operational and prediction periods. Similar to the Yalyalup Dewatering Scenario, the period of depressed water levels due to pumping is extended by a month. Additionally, the predicted reduction in water level at Leederville observation locations is increased by less than 0.5 m when 100% of the GWL allocations are abstracted

E2.2 Water Balance

E2.2.1 Operational Period

The model predicted water balances for August 2023 and February 2024 are shown in Tables E2 and E3 for the Extended Irrigation *Yalyalup Dewatering and Water Supply* Predictions. Water balances are shown for wet and dry climatic inputs. Also shown in brackets and italics are the predicted water balance components for the corresponding Base Case *Yalyalup Dewatering* and *Yalyalup Water Supply* Scenarios.

The model predicted water balances for the Extended Irrigation and Base Case Predictions show the additional licenced abstraction in the catchment included in the Extended Irrigation Prediction. However, other components of the modelled water balance are similar for the Base Case and Extended Irrigation predictions, apart from a small increase in catchment inflow and a decrease in catchment outflow. These results suggest that the additional pumping has a small impact on the modelled catchment water balance.

Table E2: Yalyalup Dewatering Dry Climate Model Predicted Water Balance

Water Budget Component	Wet Season (August 2023)		Dry Season (Feb 2024)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	1,320	237,640	84,530	280
	<i>(1,260)</i>	<i>(237,800)</i>	<i>(84,360)</i>	<i>(280)</i>
Recharge	486,620	0	0	0
	<i>(486,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	69,680	0	80,700	0
	<i>(66,540)</i>	<i>(0)</i>	<i>(77,910)</i>	<i>(0)</i>
Catchment Outflow	0	25,760	0	16,930
	<i>(0)</i>	<i>(27,850)</i>	<i>(0)</i>	<i>(18,800)</i>
Estimated Cristal Dewatering*	0	5,780	0	2,370
	<i>(0)</i>	<i>(5,830)</i>	<i>(0)</i>	<i>(2,410)</i>
Doral Dewatering	0	3,000	0	340
	<i>(0)</i>	<i>(2,320)</i>	<i>(0)</i>	<i>(350)</i>
Doral Water Supply	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	221,180	0	81,050
	<i>(0)</i>	<i>(222,590)</i>	<i>(0)</i>	<i>(82,400)</i>
Total	557,620	557,620	165,230	165,230
	<i>(554,420)</i>	<i>(554,420)</i>	<i>(162,270)</i>	<i>(162,270)</i>

Water balance components for the Base Case Yalyalup Dewatering and Water Supply Scenario shown in brackets and italics

Table E3: Yalyalup Dewatering Wet Climate Model Predicted Water Balance

Water Budget Component	Wet Season (August 2023)		Dry Season (Feb 2024)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	46,110	20,500	90,350	250
	<i>(45,710)</i>	<i>(20,440)</i>	<i>(90,090)</i>	<i>(250)</i>
Recharge	348,620	0	0	0
	<i>(348,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	67,230	0	80,310	0
	<i>(64,270)</i>	<i>(0)</i>	<i>(77,550)</i>	<i>(0)</i>
Catchment Outflow	0	30,490	0	16,930
	<i>(0)</i>	<i>(32,460)</i>	<i>(0)</i>	<i>(18,830)</i>
Estimated Cristal Dewatering*	0	7,020	0	2,480
	<i>(0)</i>	<i>(7,060)</i>	<i>(0)</i>	<i>(2,510)</i>
Doral Dewatering	0	1,060	0	360
	<i>(0)</i>	<i>(1,070)</i>	<i>(0)</i>	<i>(360)</i>
Doral Water Supply	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	338,630	0	86,380
	<i>(0)</i>	<i>(339,540)</i>	<i>(0)</i>	<i>(87,660)</i>
Total	461,960	461,960	170,660	170,660
	<i>(458,600)</i>	<i>(458,600)</i>	<i>(167,640)</i>	<i>(167,640)</i>

Water balance components for the Base Case Yalyalup Dewatering and Water Supply Scenario shown in brackets and italics

The model predicted water balances for August 2023 and February 2024 for the Extended Irrigation *Yalyalup Water Supply* Predictions are shown in Tables E4 and E5. Water balances are shown for wet and dry climatic inputs. Also shown in brackets and italics are the predicted water balance components for the corresponding Base Case *Yalyalup Water Supply* Scenarios.

Similar to the Yalyalup Dewatering Scenario for the Extended Irrigation and Base Case Predictions the model predicted water balances show the additional licenced abstraction in the catchment included in the Extended Irrigation Predictions. However, other components of the modelled water balance are similar for the Base Case and Extended Irrigation predictions, apart from a small increase in catchment inflow and a decrease in catchment outflow. These results suggest that the additional pumping has a small impact on the modelled catchment water balance.

Table E4: Yalyalup Water Supply Only Dry Climate Model Predicted Water Balance

Water Budget Component	Wet Season (August 2023)		Dry Season (Feb 2024)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	1,370	239,030	84,960	20
	<i>(1,280)</i>	<i>(238,040)</i>	<i>(84,780)</i>	<i>(20)</i>
Recharge	486,620	0	0	0
	<i>(486,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	72,130	0	83,370	0
	<i>(68,870)</i>	<i>(0)</i>	<i>(80,500)</i>	<i>(0)</i>
Catchment Outflow	0	24,970	0	16,100
	<i>(0)</i>	<i>(27,020)</i>	<i>(0)</i>	<i>(17,870)</i>
Estimated Cristal Dewatering*	0	5,740	0	2,350
	<i>(0)</i>	<i>(5,800)</i>	<i>(0)</i>	<i>(2,390)</i>
Doral Dewatering	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Doral Water Supply	0	4,380	0	4,380
	<i>(0)</i>	<i>(4,380)</i>	<i>(0)</i>	<i>(4,380)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	221,740	0	81,220
	<i>(0)</i>	<i>(223,500)</i>	<i>(0)</i>	<i>(82,590)</i>
Total	560,120	560,120	168,330	168,330
	<i>(556,770)</i>	<i>(556,770)</i>	<i>(165,280)</i>	<i>(165,280)</i>

Water balance components for the Base Case Yalyalup Water Supply Scenario shown in brackets and italics

Table E5: Yalyalup Water Supply Only Wet Climate Model Predicted Water Balance

Water Budget Component	Wet Season (August 2023)		Dry Season (Feb 2024)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	46,380	18,990	90,770	0
	<i>(46,160)</i>	<i>(19,020)</i>	<i>(90,430)</i>	<i>(0)</i>
Recharge	348,620	0	0	0
	<i>(348,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	69,870	0	82,990	0
	<i>(66,640)</i>	<i>(0)</i>	<i>(80,150)</i>	<i>(0)</i>
Catchment Outflow	0	29,630	0	16,120
	<i>(0)</i>	<i>(31,600)</i>	<i>(0)</i>	<i>(17,890)</i>
Estimated Cristal Dewatering*	0	7,020	0	2,480
	<i>(0)</i>	<i>(7,060)</i>	<i>(0)</i>	<i>(2,510)</i>
Doral Dewatering	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Doral Water Supply	0	4,380	0	4,380
	<i>(0)</i>	<i>(4,380)</i>	<i>(0)</i>	<i>(4,380)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	340,590	0	86,520
	<i>(0)</i>	<i>(341,330)</i>	<i>(0)</i>	<i>(87,770)</i>
Total	464,870	464,870	173,760	173,760
	<i>(461,420)</i>	<i>(461,420)</i>	<i>(170,580)</i>	<i>(170,580)</i>

Water balance components for the Base Case Yalyalup Water Supply Scenario shown in brackets and italics

E2.2.2 Closure Period

The model predicted water balances for August 2033 and February 2034 for the Extended irrigation *Yalyalup Dewatering and Water Supply* Scenarios, ten years after dewatering and water supply pumping has ceased, are shown in Tables E6 and E7. Water balances are shown for wet and dry climatic inputs. Also shown in brackets and italics are the predicted water balance components for the corresponding Base Case Prediction.

Similar to the Yalyalup Dewatering and the Yalyalup Dewatering Scenarios for the Extended Irrigation and Base Case Predictions the model predicted water balances show the additional licenced abstraction in the catchment included in the Extended Irrigation Prediction.

However, other components of the modelled water balance are similar for the Base Case and Extended Irrigation predictions, apart from a small increase catchment inflow and a decrease in catchment outflow. These results suggest that the additional pumping has a small impact on the modelled catchment water balance.

Table E6: Yalyalup Dewatering Dry Climate Model Predicted Water Balance (Closure)

Water Budget Component	Wet Season (August 2033)		Dry Season (February 2034)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	1,390	181,780	70,900	0
	<i>(1,330)</i>	<i>(180,930)</i>	<i>(70,740)</i>	<i>(0)</i>
Recharge	440,620	0	0	0
	<i>(440,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	69,190	0	81,440	0
	<i>(65,940)</i>	<i>(0)</i>	<i>(78,620)</i>	<i>(0)</i>
Catchment Outflow	0	26,120	0	16,650
	<i>(0)</i>	<i>(28,290)</i>	<i>(0)</i>	<i>(18,530)</i>
Estimated Cristal Dewatering*	0	5,890	0	1,980
	<i>(0)</i>	<i>(5,940)</i>	<i>(0)</i>	<i>(2,010)</i>
Doral Dewatering	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Doral Water Supply	0	64,260	0	0
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(0)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	233,150	0	69,450
	<i>(0)</i>	<i>(234,700)</i>	<i>(0)</i>	<i>(70,790)</i>
Total	511,200	511,200	152,340	152,340
	<i>(507,890)</i>	<i>(507,890)</i>	<i>(149,360)</i>	<i>(149,360)</i>

Water balance components for the Base Case Yalyalup Dewatering and Water Supply Scenario shown in brackets and italics

Table E7: Yalyalup Dewatering Wet Climate Model Predicted Water Balance (Closure)

Water Budget Component	Wet Season (August 2033)		Dry Season (February 2034)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	0	413,690	69,130	0
	<i>(0)</i>	<i>(412,000)</i>	<i>(68,220)</i>	<i>(0)</i>
Recharge	627,040	0	0	0
	<i>(627,040)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	48,060	0	81,590	0
	<i>(47,480)</i>	<i>(0)</i>	<i>(78,770)</i>	<i>(0)</i>
Catchment Outflow	0	47,080	0	16,600
	<i>(0)</i>	<i>(48,290)</i>	<i>(0)</i>	<i>(18,500)</i>
Estimated Cristal Dewatering*	0	6,120	0	1,920
	<i>(0)</i>	<i>(6,170)</i>	<i>(0)</i>	<i>(1,960)</i>
Doral Dewatering	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Doral Water Supply	0	7,790	0	64,260
	<i>(0)</i>	<i>(6,230)</i>	<i>(0)</i>	<i>(58,030)</i>
Licensed Abstraction	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
ET	0	200,420	0	67,940
	<i>(0)</i>	<i>(201,830)</i>	<i>(0)</i>	<i>(68,500)</i>
Total	675,100	675,100	150,720	150,720
	<i>(674,520)</i>	<i>(674,520)</i>	<i>(146,990)</i>	<i>(146,990)</i>

Water balance components for the Base Case Yalyalup Dewatering and Water Supply Scenario shown in brackets and italics

The model predicted water balances for August 2033 and February 2034 for the Extended Irrigation *Yalyalup Water Supply Only* Scenarios, ten years after dewatering and water supply pumping has ceased, are shown in Tables E8 and E9. Water balances are shown for wet and dry climatic inputs. Also shown in brackets and italics are the predicted water balance components for the corresponding Base Case Prediction.

Similar to the other water balances presented for the Extended Irrigation and Base Case Predictions the model predicted water balances show the additional licenced abstraction in the catchment included in the Extended Irrigation Prediction. However, other components of the modelled water balance are similar for the Base Case and Extended Irrigation predictions, apart from a small increase catchment inflow and a decrease in catchment outflow. These results suggest that the additional pumping has a small impact on the modelled catchment water balance.

Table E8: Yalyalup Water Supply Only Dry Climate Model Predicted Water Balance (Closure)

Water Budget Component	Wet Season (August 2033)		Dry Season (February 2034)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	1,390	181,780	70,850	0
	<i>(1,330)</i>	<i>(180,950)</i>	<i>(70,740)</i>	<i>(0)</i>
Recharge	440,620	0	0	0
	<i>(440,620)</i>	<i>0</i>	<i>0</i>	<i>0</i>
Catchment Inflow	69,190	0	81,440	0
	<i>(65,940)</i>	<i>(0)</i>	<i>(78,620)</i>	<i>(0)</i>
Catchment Outflow	0	26,120	0	16,600
	<i>(0)</i>	<i>(28,280)</i>	<i>(0)</i>	<i>(18,530)</i>
Estimated Cristal Dewatering*	0	5,890	0	1,980
	<i>(0)</i>	<i>(5,940)</i>	<i>(0)</i>	<i>(2,010)</i>
Doral Dewatering	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Doral Water Supply	0	0	0	0
	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>	<i>(0)</i>
Licensed Abstraction	0	64,260	0	64,260
	<i>(0)</i>	<i>(58,030)</i>	<i>(0)</i>	<i>(58,030)</i>
ET	0	233,150	0	69,450
	<i>(0)</i>	<i>(234,690)</i>	<i>(0)</i>	<i>(70,790)</i>
Total	511,200	511,200	152,290	152,290
	<i>(507,890)</i>	<i>(507,890)</i>	<i>(149,360)</i>	<i>(149,360)</i>

Water balance components for the Base Case Yalyalup Water Supply Scenario shown in brackets and italics

Table E9: Yalyalup Water Supply Only Wet Climate Model Predicted Water Balance (Closure)

Water Budget Component	Wet Season (August 2033)		Dry Season (February 2034)	
	In (kL/d)	Out (kL/d)	In (kL/d)	Out (kL/d)
Storage	0	413,690	68,280	0
	(0)	(412,000)	(68,220)	(0)
Recharge	627,040	0	0	0
	(627,040)	0	0	0
Catchment Inflow	48,060	0	81,600	0
	(47,480)	(0)	(78,770)	(0)
Catchment Outflow	0	47,080	0	16,600
	(0)	(48,290)	(0)	(18,500)
Estimated Cristal Dewatering*	0	6,120	0	1,920
	(0)	(6,170)	(0)	(1,960)
Doral Dewatering	0	0	0	0
	(0)	(0)	(0)	(0)
Doral Water Supply	0	0	0	0
	(0)	(6,230)	(0)	(58,030)
Licensed Abstraction	0	7,790	0	64,260
	(0)	(0)	(0)	(0)
ET	0	200,420	0	67,100
	(0)	(201,830)	(0)	(68,500)
Total	675,100	675,100	149,880	149,880
	(674,520)	(674,520)	(146,990)	(146,990)

Water balance components for the Base Case No Yalyalup Water Supply Scenario shown in brackets and italics

E2.3 Drawdown

E2.3.1 Yalyalup Dewatering

Contours of predicted water table drawdown, over the mine life, for the Extended Irrigation *Yalyalup Dewatering* Scenarios are shown in Figures E9 to E12 for the dry climatic conditions. These drawdowns are the difference between the water levels predicted at each selected time interval for the *Yalyalup Dewatering* Scenario and the corresponding *No Yalyalup Development* Scenario and are shown for Quarter 4 for each year of mining (2021 to 2024). Also shown on these figures are the corresponding Base Case contours of predicted drawdown (80% of GWL allocation abstracted). The contours of predicted drawdown shown, suggest that there is very little impact of extended and increased GWL pumping in the catchment.

Contours of predicted drawdown in the Leederville aquifer in September 2023, when maximum drawdown is predicted, are shown in Figure E13 for the dry climatic conditions. These contours show the difference between water levels predicted for the *Yalyalup Dewatering* Scenario and the corresponding *No Yalyalup Development* Scenario. Also shown in Figure E13 is the corresponding Base Case predicted drawdown (80% of GWL allocation abstracted). The contours of predicted drawdown suggest there is very little impact of extended and increased GWL pumping in the catchment.

E2.3.2 Yalyalup Water Supply Only

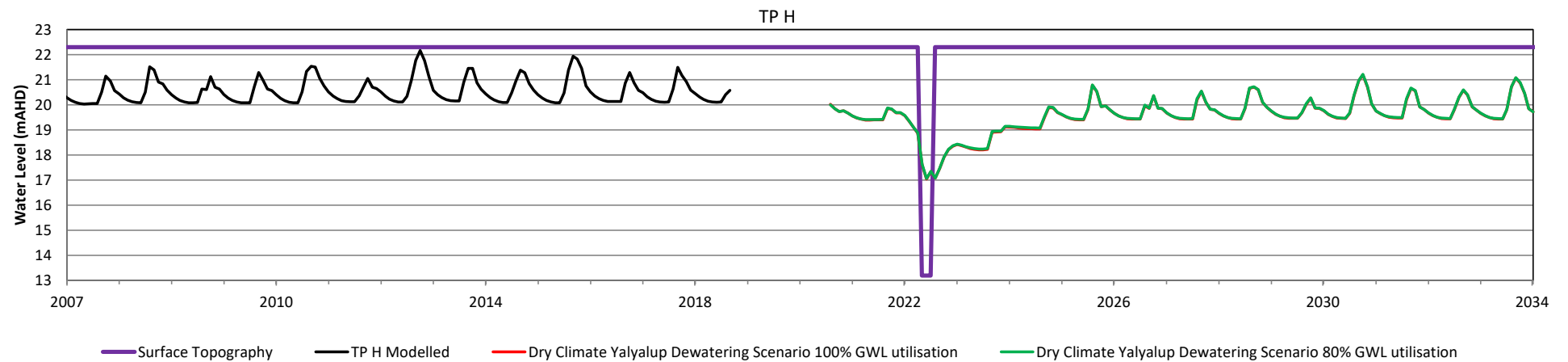
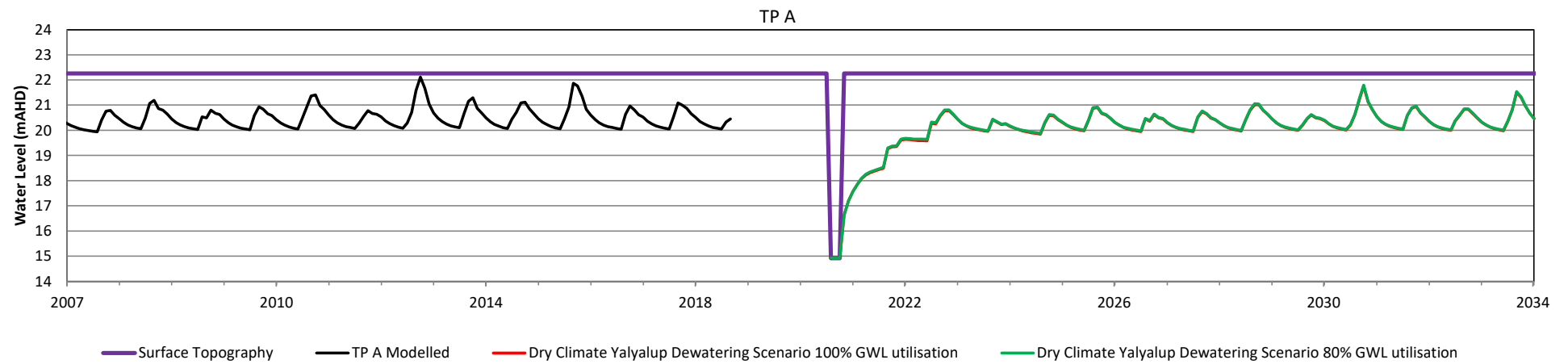
Contours of predicted drawdown in the Leederville aquifer for the *Yalyalup Water Supply* Scenario for the end of 2024 (end of mining at Yalyalup and the cessation of water supply pumping for Yalyalup) are shown in Figure E14. These contours shown the difference between the water levels predicted for the *Yalyalup Water Supply* Scenario and the corresponding *No Yalyalup Development* Scenario. Also shown are the corresponding Base Case contours of predicted drawdown (80% of GWL allocation abstracted). The contours of predicted drawdown suggest that there is very little impact of extended and increased GWL pumping in the catchment.

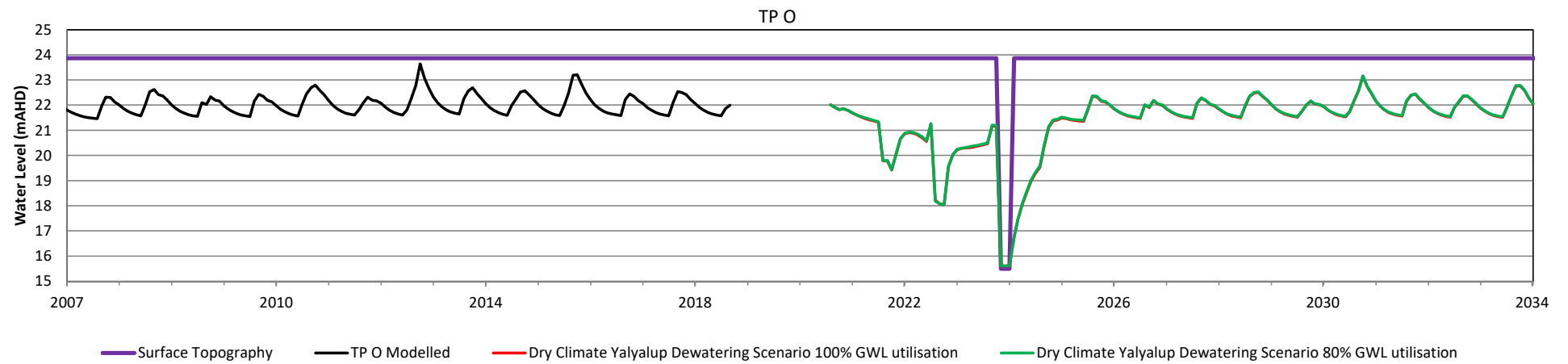
Contours of predicted drawdown for the Yarragadee aquifer for the *Yalyalup Water Supply* Scenario for the end of 2024 (end of mining at Yalyalup and the cessation of water supply pumping for Yalyalup) are shown in Figure E15. These contours shown the difference between the water levels predicted for the *Yalyalup Water Supply* Scenario and the corresponding *No Yalyalup Development* Scenario. Also shown are the corresponding Base Case contours of predicted drawdown (80% of GWL allocation abstracted). The contours of predicted drawdown also suggest that there is very little impact of extended and increased GWL pumping in the catchment.

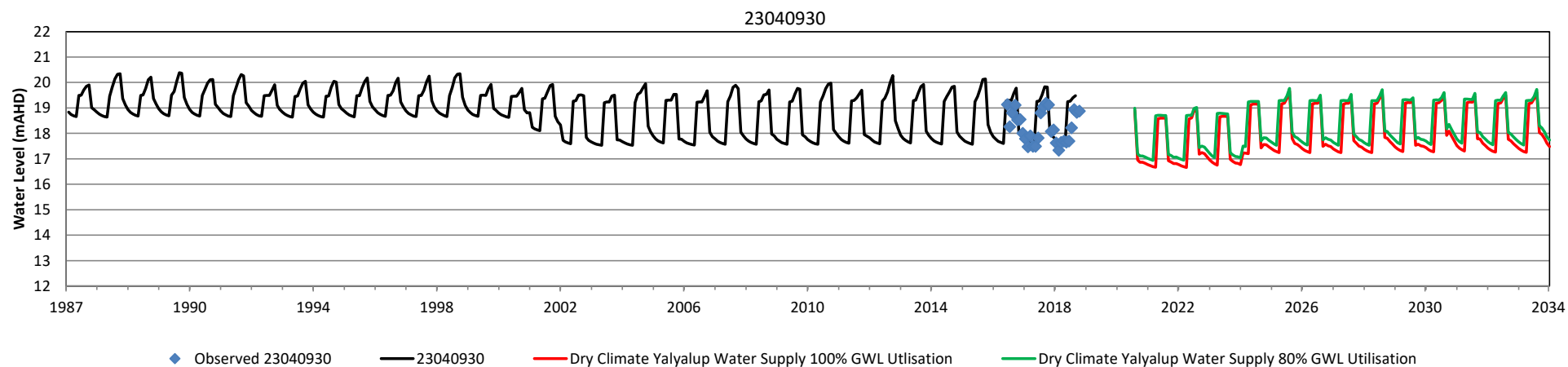
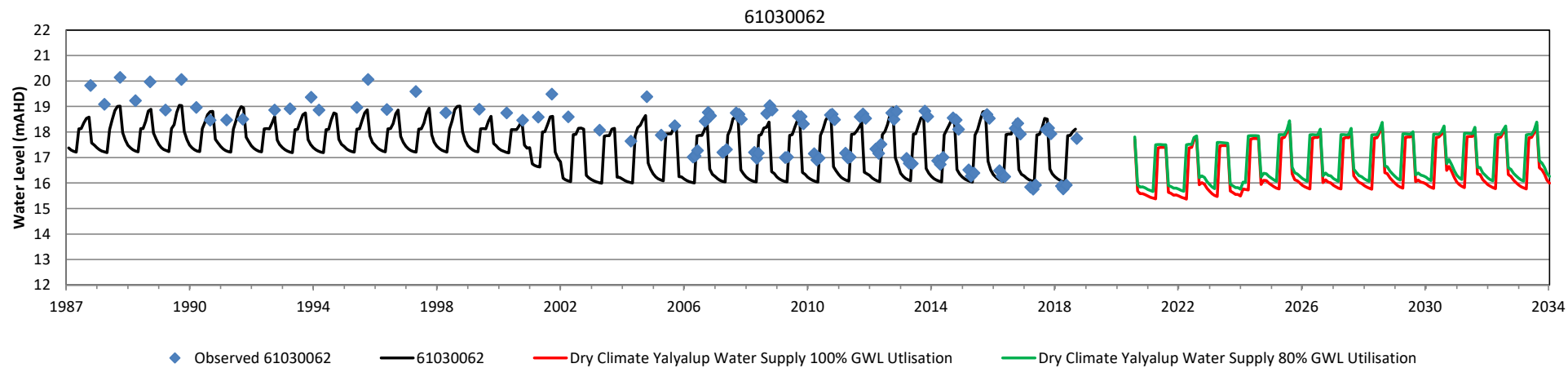
E3 Conclusions

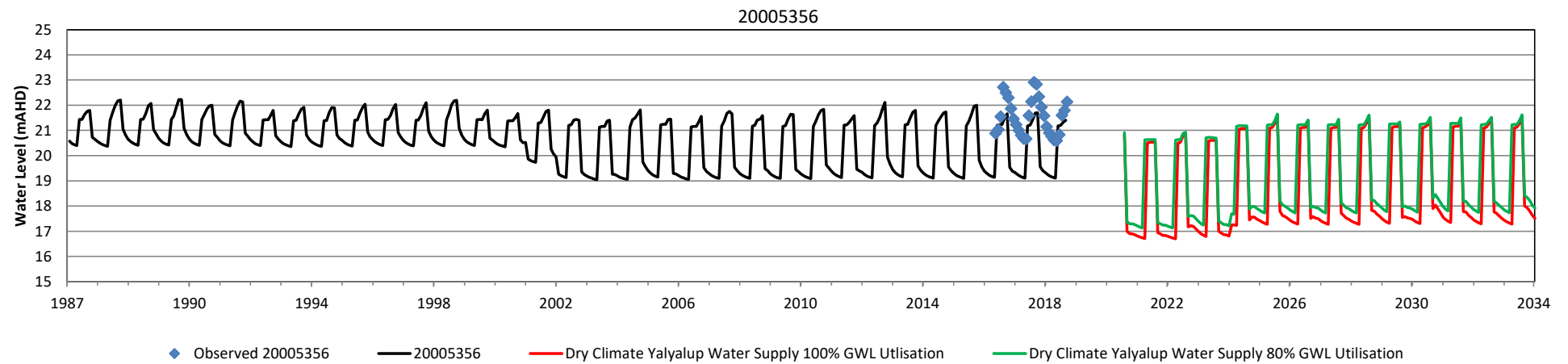
The model predicted water levels, water balances and contours of predicted drawdown suggest that the modelled increases in groundwater abstraction from 80% to 100% of the GWL allocation for all users in the modelled catchment (including the extension of the irrigation period by one month for agricultural users) results in the following differences, when compared to Base Case predictions (described in Sections 9.8 and 9.9 of the main report):

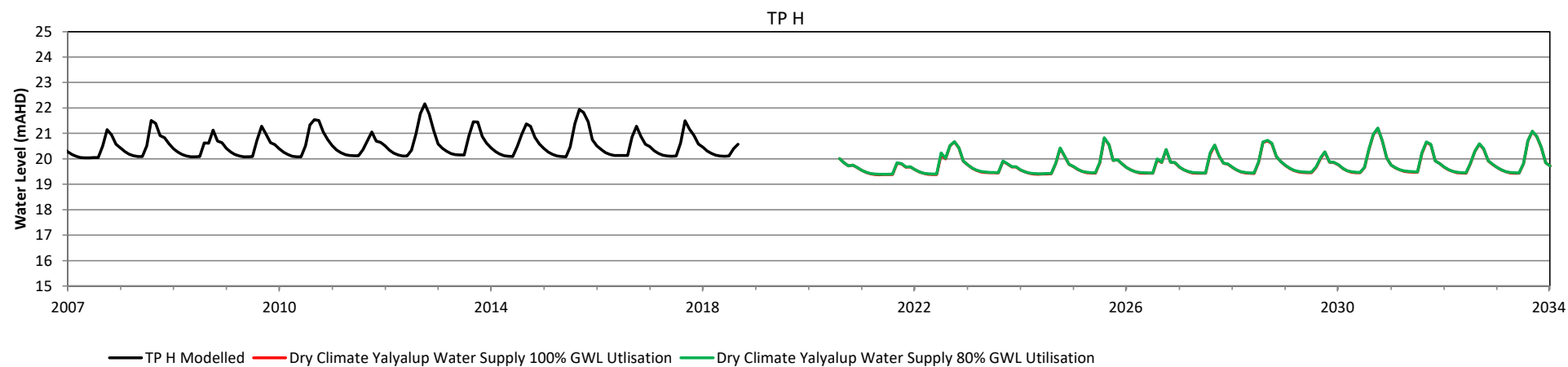
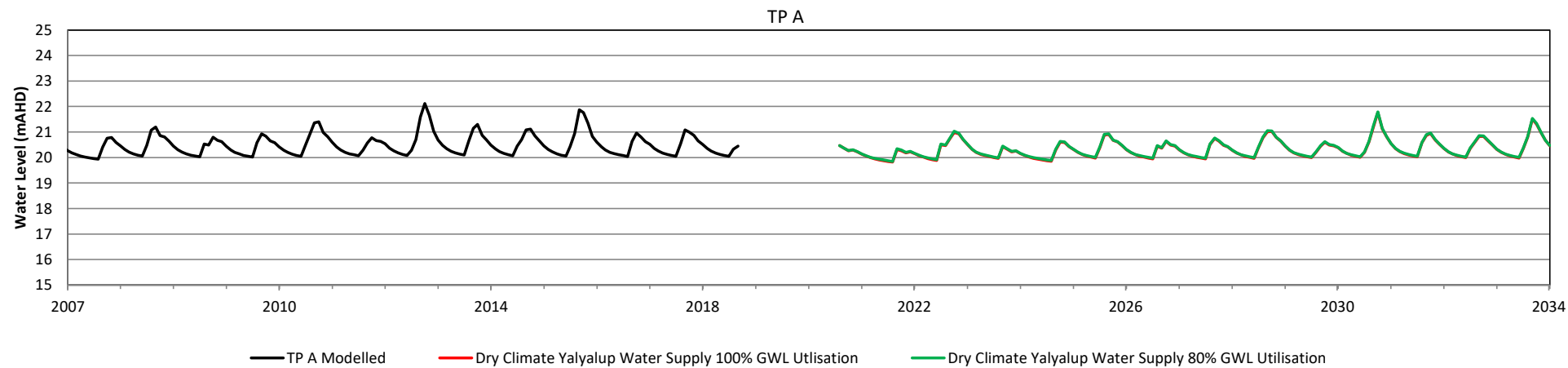
- There is very little impact of extended and increased GWL licence abstraction predicted in the Superficial aquifer over the life of the mine (2021 to 2024) and during the simulated mine closure period (2025 to 2034) for both the *Yalyalup Dewatering* and *Yalyalup Water Supply* Scenarios.
- There is some impact of extended and increased GWL abstraction predicted in the Leederville and Yarragadee aquifers. Reduced water levels are predicted for an additional month each year, however the additional drawdown predicted is generally less than 0.5m at selected monitoring points across the modelled catchment. Additionally, water levels are predicted to recover to a similar elevation during winter months in both the 80% and 100% of GWL allocation abstraction cases.
- Contours of predicted drawdown for the end of 2024 (when water supply pumping at Yalyalup ceases) for the Base and Extended Irrigation Cases are similar for the Leederville and Yarragadee aquifers.

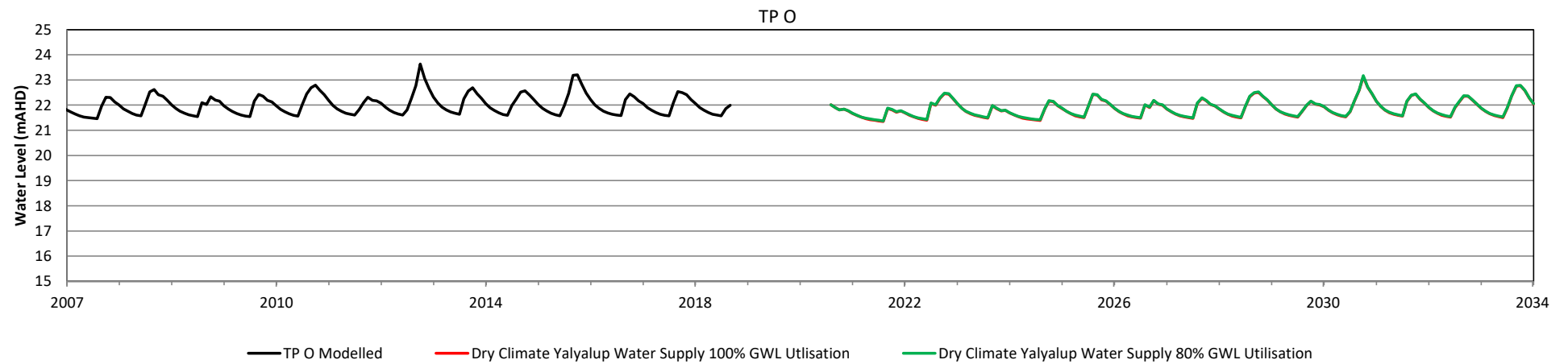


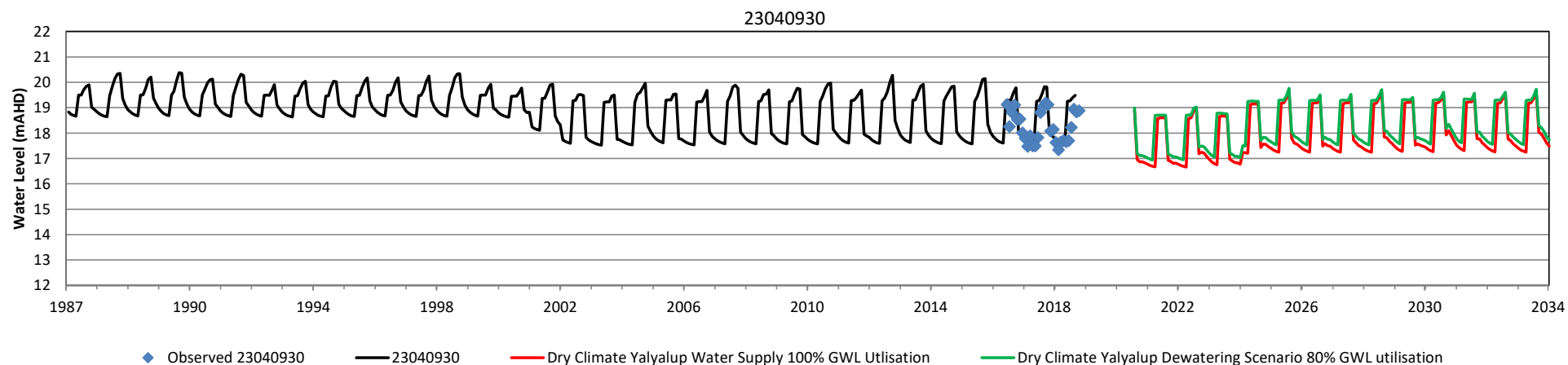
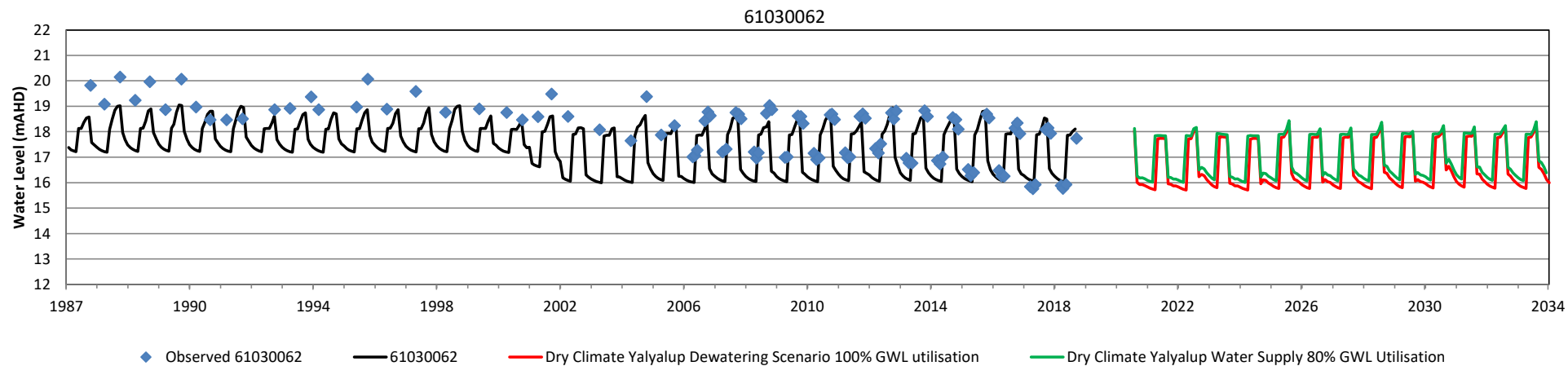


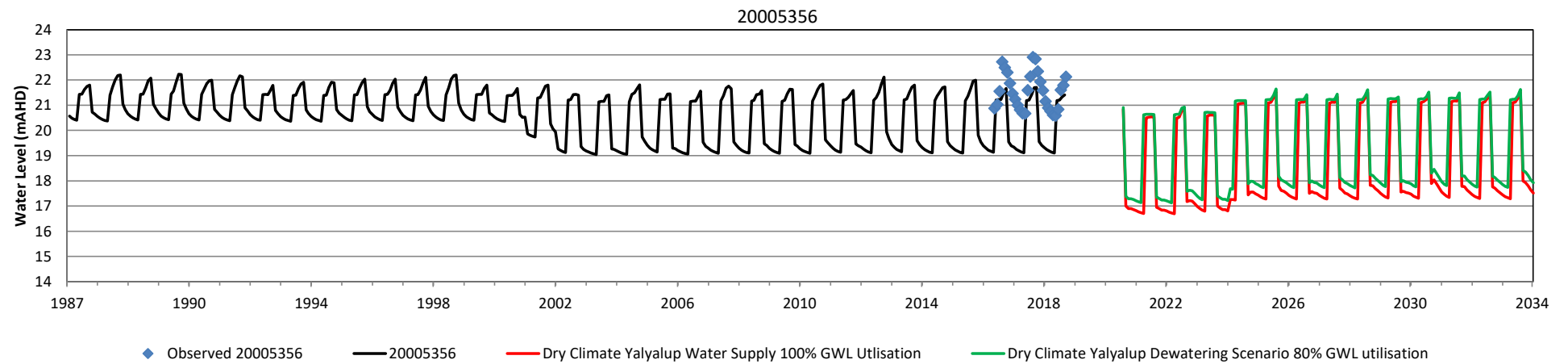


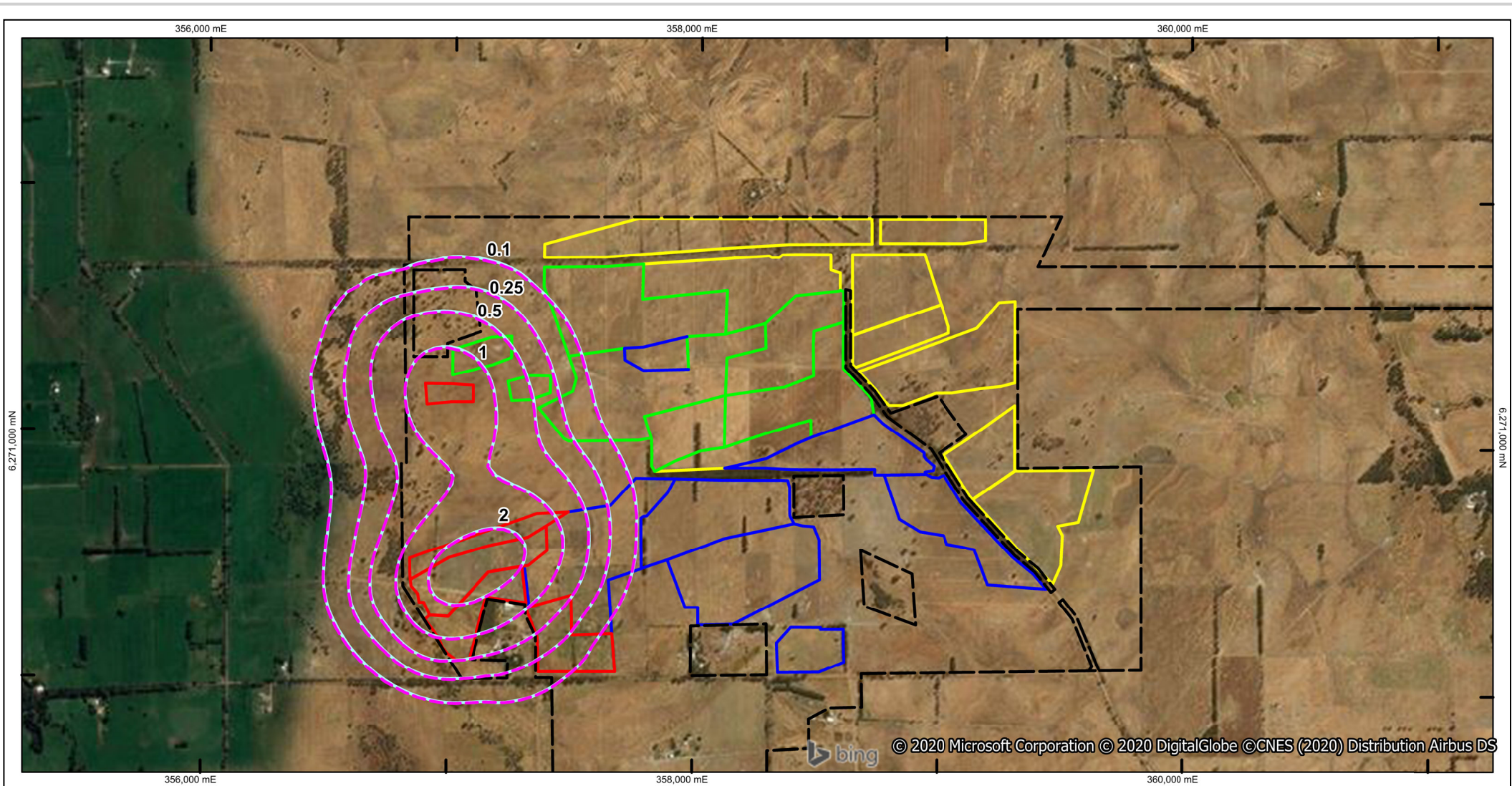










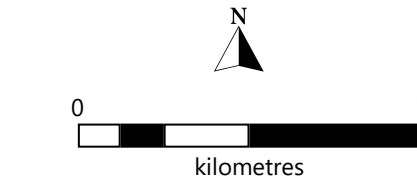


LEGEND

- Extended irrigation drawdown in meters at 0.1, 0.25, 0.5, 1 and 2
- Base case drawdown in meters at 0.1, 0.25, 0.5, 1 and 2
- Mining outline for year 2021
- Mining outline for year 2022
- Mining outline for year 2023
- Mining outline for year 2024
- Potential Disturbance Envelope

AUTHOR: GC
 DRAWN: LDS
 DATE: 14/05/2020

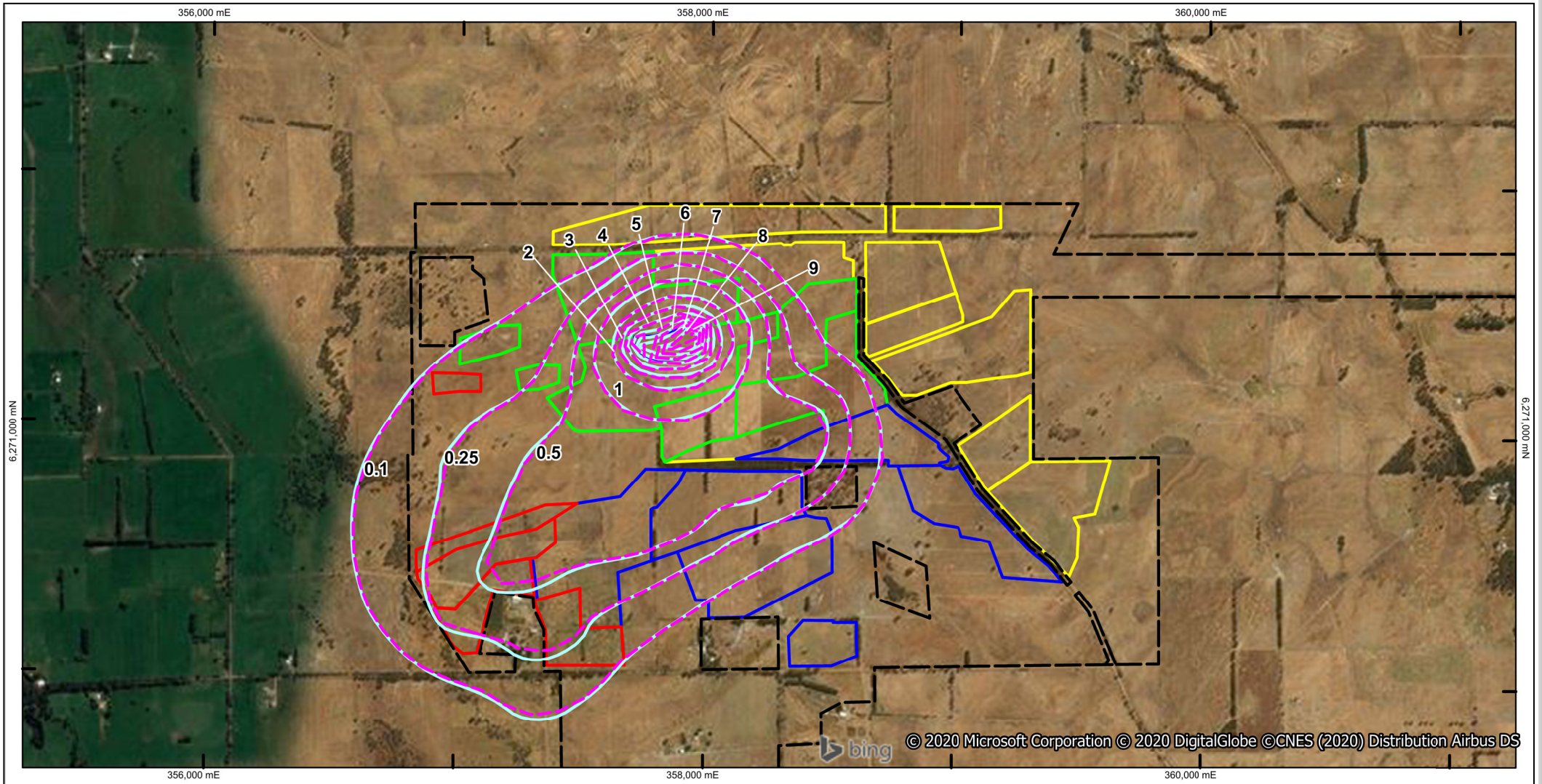
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 JOB NO: 136



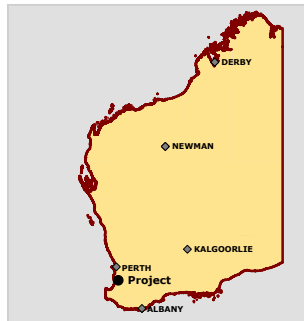
NOTES & DATA SOURCES:
 Mine outlines provide by Doral



FIGURE E9
Q4 – 2021
CONTOURS OF PREDICTED
DRAWDOWN IN SUPERFICIAL
AQUIFER DRY CONDITIONS
EXTENDED IRRIGATION AT
100% OF GWL ALLOCATION



LOCATION MAP



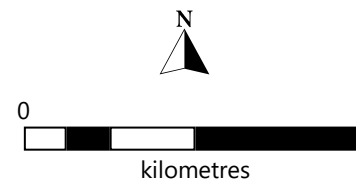
LEGEND

- Extended irrigation drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8 and 9
- - - Base case drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8 and 9
- Mining outline for year 2021
- Mining outline for year 2023
- Mining outline for year 2022
- Mining outline for year 2024
- - - Potential disturbance envelope

AUTHOR: GC
DRAWN: LDS
DATE: 14/05/2020

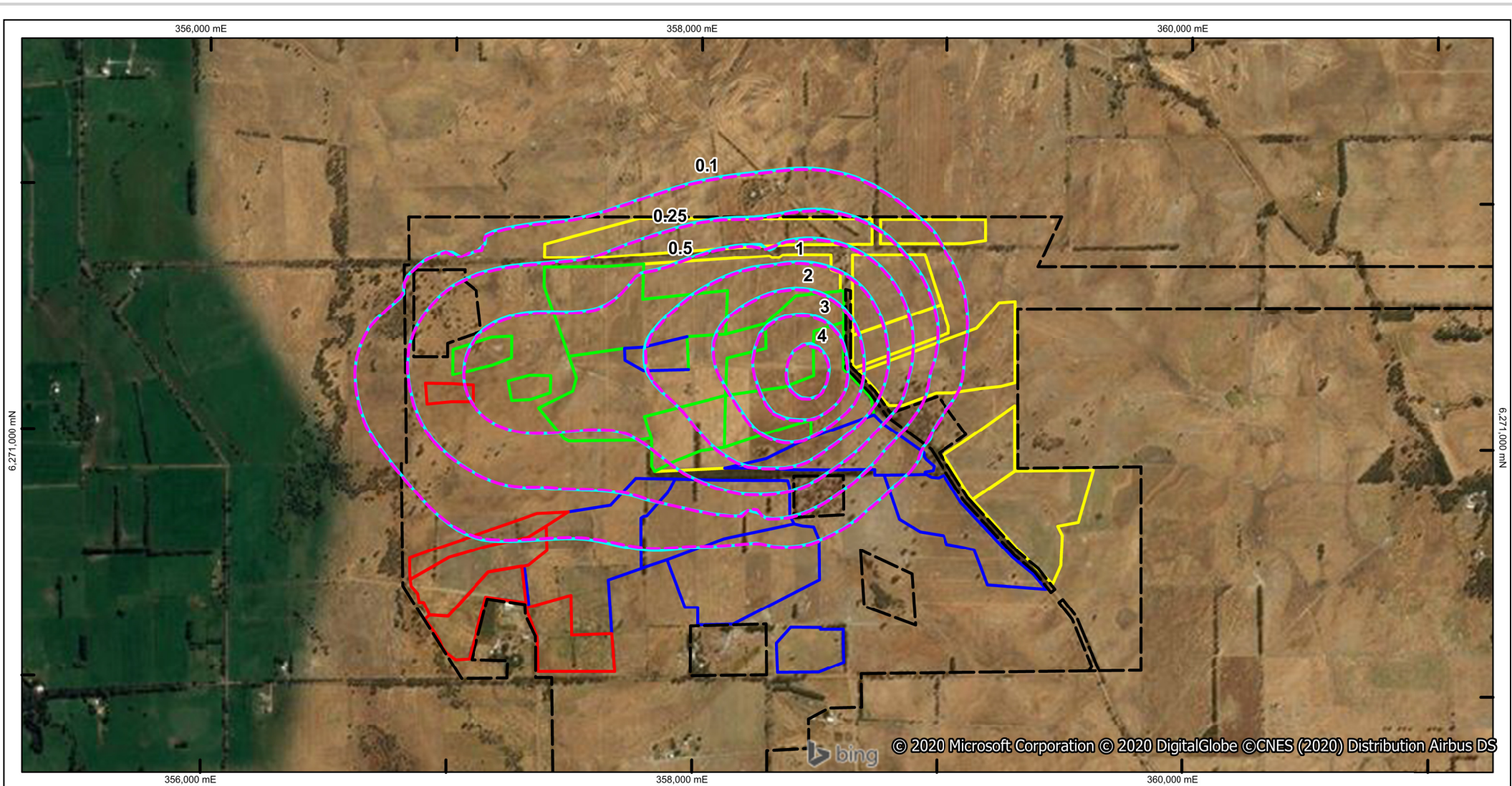
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JOB NO: 136

NOTES & DATA SOURCES:
Mine outlines provide by Doral



AQ2

FIGURE E10
Q4 – 2022
CONTOURS OF PREDICTED
DRAWDOWN IN SUPERFICIAL
AQUIFER DRY CONDITIONS
EXTENDED IRRIGATION AT
100% OF GWL ALLOCATION

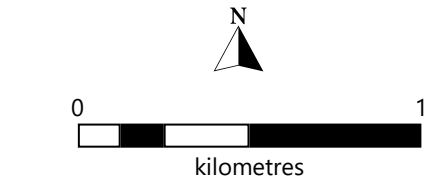


LEGEND

- Extended irrigation drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8 and 9
- Base case drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5, 6, 7, 8 and 9
- Mining outline for year 2021
- Mining outline for year 2023
- Mining outline for year 2022
- Mining outline for year 2024
- Potential disturbance envelope

AUTHOR: GC
 DRAWN: LDS
 DATE: 14/05/2020

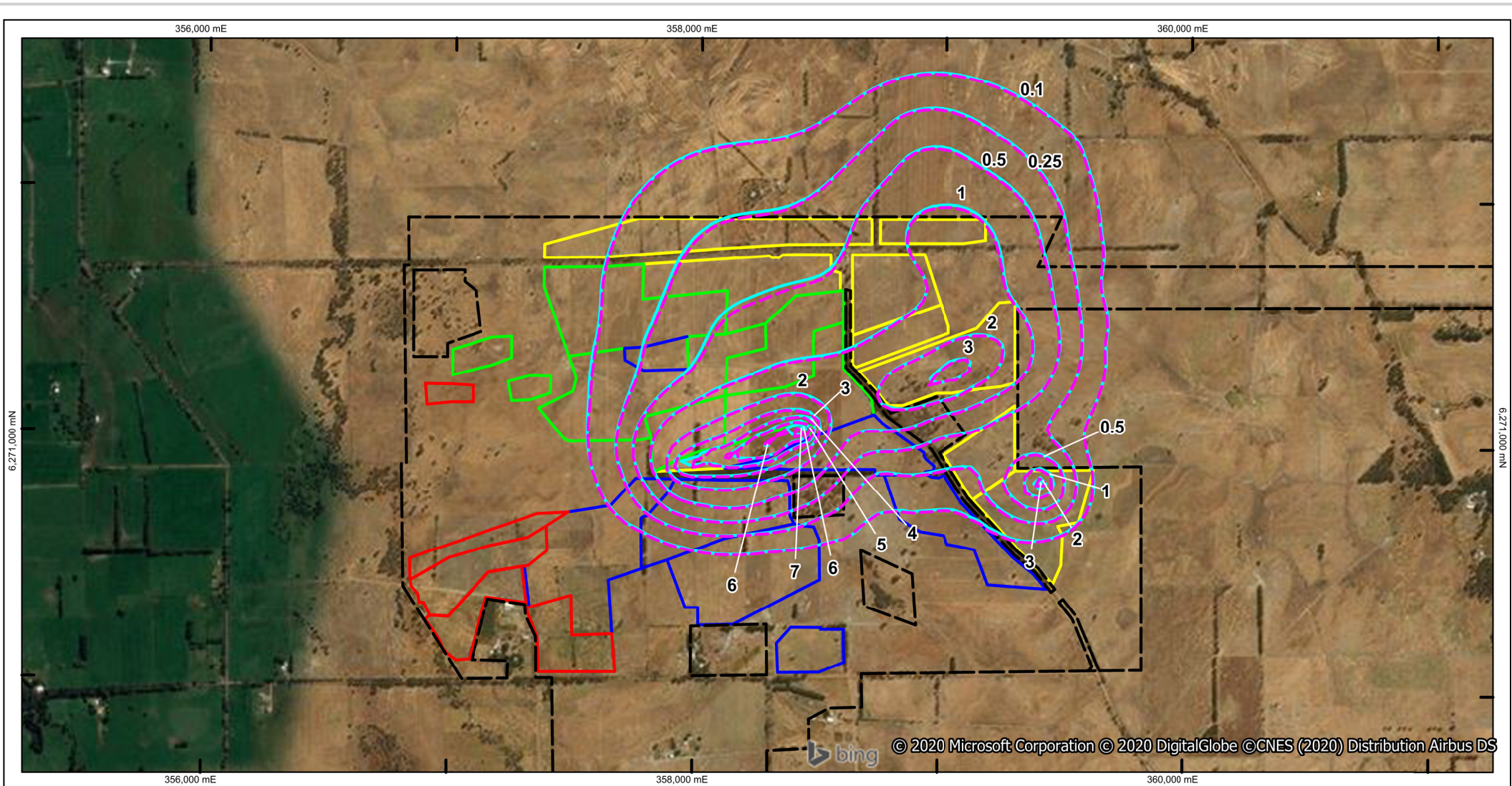
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NOTES & DATA SOURCES:
 Mine outlines provide by Doral



FIGURE E11
Q4 – 2023
CONTOURS OF PREDICTED
DRAWDOWN IN SUPERFICIAL
AQUIFER DRY CONDITIONS
EXTENDED IRRIGATION AT
100% OF GWL ALLOCATION

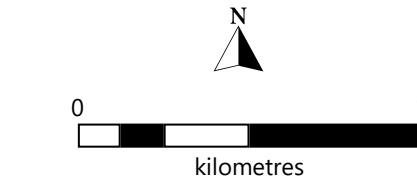


LEGEND

- Extended irrigation drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5 and 6
- Base case drawdown in meters at 0.1, 0.25, 0.5, 1, 2, 3, 4, 5 and 6
- Mining outline for year 2021
- Mining outline for year 2023
- Mining outline for year 2022
- Mining outline for year 2024
- Potential disturbance envelope

AUTHOR: GC
 DRAWN: LDS
 DATE: 14/05/2020

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FIGURE E12
Q4 – 2024
CONTOURS OF PREDICTED
DRAWDOWN IN SUPERFICIAL
AQUIFER DRY CONDITIONS
EXTENDED IRRIGATION AT
100% OF GWL ALLOCATION