MACRAES PHASE 4 PROJECT CONSENT CONDITIONS

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Table 1: ANZG (2026) freshwater 95% species-protection guideline values for ammoniacal nitrogen (g N/m3) at different pH and temperature values

Temp. (°C)	pH																														
	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0
10	1.8	1.8	1.8	1.8	1.8	1.8	1.7	1.7	1.7	1.6	1.6	1.5	1.4	1.3	1.2	1.2	1.0	0.94	0.84	0.74	0.64	0.55	0.47	0.40	0.34	0.29	0.24	0.21	0.17	0.15	0.13
11	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.5	1.4	1.4	1.3	1.2	1.1	1.0	0.90	0.80	0.71	0.61	0.53	0.45	0.38	0.33	0.27	0.23	0.20	0.17	0.14	0.12
12	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.4	1.4	1.3	1.2	1.1	1.0	0.95	0.85	0.76	0.67	0.58	0.50	0.43	0.36	0.31	0.26	0.22	0.19	0.16	0.13	0.12
13	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.1	1.1	0.99	0.90	0.81	0.72	0.63	0.55	0.47	0.41	0.34	0.29	0.25	0.21	0.18	0.15	0.13	0.11
14	1.5	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.0	0.94	0.85	0.77	0.68	0.60	0.52	0.45	0.39	0.33	0.28	0.23	0.20	0.17	0.14	0.12	0.10
15	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.1	1.0	0.98	0.90	0.82	0.74	0.66	0.58	0.50	0.43	0.37	0.31	0.27	0.22	0.19	0.16	0.14	0.12	0.10
16	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.1	1.1	1.0	0.93	0.86	0.78	0.70	0.63	0.55	0.48	0.41	0.35	0.30	0.25	0.21	0.18	0.15	0.13	0.11	0.096
17	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.0	0.95	0.89	0.82	0.75	0.67	0.60	0.52	0.46	0.39	0.34	0.29	0.24	0.20	0.17	0.15	0.12	0.11	0.091
18	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.13	1.10	1.1	1.0	0.97	0.91	0.85	0.78	0.72	0.64	0.57	0.50	0.44	0.38	0.32	0.27	0.23	0.20	0.17	0.14	0.12	0.10	0.087
19	1.2	1.2	1.2	1.2	1.2	1.15	1.13	1.11	1.09	1.06	1.0	0.98	0.93	0.88	0.82	0.75	0.69	0.62	0.55	0.48	0.42	0.36	0.31	0.26	0.22	0.19	0.16	0.13	0.11	0.098	0.084
20	1.1	1.1	1.1	1.1	1.1	1.09	1.08	1.06	1.03	1.00	0.97	0.93	0.88	0.83	0.78	0.72	0.65	0.59	0.52	0.46	0.40	0.34	0.29	0.25	0.21	0.18	0.15	0.13	0.11	0.093	0.080
21	1.1	1.1	1.1	1.0	1.0	1.03	1.01	0.99	0.97	0.94	0.91	0.87	0.83	0.78	0.73	0.67	0.61	0.55	0.49	0.43	0.37	0.32	0.28	0.23	0.20	0.17	0.14	0.12	0.10	0.087	0.075
22	1.0	1.0	1.0	1.0	1.0	0.99	0.98	0.96	0.94	0.91	0.88	0.84	0.80	0.76	0.71	0.65	0.59	0.53	0.47	0.42	0.36	0.31	0.27	0.23	0.19	0.16	0.14	0.12	0.099	0.084	0.072
23	0.98	0.98	0.97	0.96	0.95	0.94	0.93	0.91	0.89	0.87	0.84	0.80	0.76	0.72	0.67	0.62	0.56	0.51	0.45	0.40	0.34	0.30	0.25	0.22	0.18	0.15	0.13	0.11	0.093	0.080	0.069
24	0.93	0.92	0.92	0.91	0.90	0.89	0.88	0.86	0.84	0.82	0.79	0.76	0.72	0.68	0.63	0.58	0.53	0.48	0.42	0.37	0.32	0.28	0.24	0.20	0.17	0.15	0.12	0.10	0.088	0.075	0.065
25	0.88	0.88	0.87	0.87	0.86	0.85	0.83	0.82	0.80	0.78	0.75	0.72	0.68	0.65	0.60	0.55	0.51	0.45	0.40	0.36	0.31	0.27	0.23	0.19	0.16	0.14	0.12	0.099	0.084	0.072	0.062
26	0.84	0.83	0.83	0.82	0.81	0.80	0.79	0.78	0.76	0.74	0.71	0.68	0.65	0.61	0.57	0.53	0.48	0.43	0.38	0.34	0.29	0.25	0.22	0.18	0.16	0.13	0.11	0.094	0.080	0.068	0.058
27	0.79	0.79	0.78	0.78	0.77	0.76	0.75	0.74	0.72	0.70	0.68	0.65	0.62	0.58	0.54	0.50	0.45	0.41	0.36	0.32	0.28	0.24	0.20	0.17	0.15	0.12	0.11	0.089	0.075	0.064	0.056
28	0.75	0.75	0.74	0.74	0.73	0.72	0.71	0.70	0.68	0.66	0.64	0.61	0.58	0.55	0.51	0.47	0.43	0.39	0.34	0.30	0.26	0.23	0.19	0.16	0.14	0.12	0.099	0.084	0.071	0.061	0.052
29	0.71	0.71	0.70	0.70	0.69	0.68	0.67	0.66	0.64	0.62	0.60	0.58	0.55	0.52	0.48	0.45	0.41	0.37	0.32	0.29	0.25	0.21	0.18	0.16	0.13	0.11	0.094	0.079	0.067	0.058	0.050
30	0.66	0.66	0.66	0.65	0.65	0.64	0.63	0.62	0.60	0.58	0.57	0.54	0.52	0.49	0.45	0.42	0.38	0.34	0.30	0.27	0.23	0.20	0.17	0.15	0.12	0.10	0.088	0.074	0.063	0.054	0.046

Notes: For conditions outside the ranges of 10-30°C and 6-9 pH, the trigger value corresponding to the nearest boundary condition within the validated range should be applied.

Table 2: ANZG (2024a) freshwater 95% species-protection guideline values for dissolved nickel (g/m3) at different pH, hardness and DOC values.

Parameter		DGV (g/m³)							
pH		6.0							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.0027	0.0041	0.0048	0.0055	0.0079	0.011	0.012	0.016
	1	0.0039	0.0061	0.0073	0.0084	0.012	0.017	0.02	0.025
	3	0.0065	0.01	0.013	0.015	0.023	0.033	0.039	0.051
	5	0.0081	0.013	0.016	0.019	0.03	0.044	0.051	0.068
	10	0.011	0.017	0.02	0.024	0.04	0.061	0.072	0.106
	15	0.013	0.02	0.023	0.028	0.046	0.071	0.086	0.118
	20	0.015	0.022	0.026	0.03	0.05	0.079	0.096	0.134
pH		6.5							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.0024	0.0034	0.0039	0.0044	0.0061	0.0079	0.0089	0.011
	1	0.0034	0.005	0.0058	0.0066	0.0094	0.012	0.014	0.018
	3	0.0053	0.0082	0.0099	0.012	0.017	0.024	0.028	0.035
	5	0.0065	0.01	0.012	0.014	0.022	0.032	0.037	0.047
	10	0.0084	0.013	0.016	0.019	0.03	0.044	0.052	0.069
	15	0.0099	0.015	0.018	0.022	0.035	0.053	0.062	0.084
	20	0.011	0.017	0.02	0.024	0.038	0.059	0.07	0.096
pH		7.0							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.0019	0.0026	0.0029	0.0033	0.0043	0.0056	0.0062	0.0077
	1	0.0027	0.0038	0.0043	0.0048	0.0065	0.0085	0.0095	0.012
	3	0.0043	0.0063	0.0074	0.0084	0.012	0.016	0.018	0.023
	5	0.0051	0.0077	0.0091	0.01	0.015	0.021	0.024	0.03
	10	0.0065	0.0098	0.012	0.014	0.021	0.03	0.034	0.044
	15	0.0074	0.011	0.013	0.016	0.024	0.035	0.041	0.055
	20	0.0082	0.012	0.015	0.017	0.027	0.04	0.047	0.062

Parameter		DGV (g/m³)							
pH		7.5							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.0014	0.0018	0.002	0.0022	0.0028	0.0034	0.0038	0.0046
	1	0.002	0.0027	0.003	0.0033	0.0042	0.0052	0.0057	0.0068
	3	0.0032	0.0045	0.0052	0.0057	0.0077	0.0098	0.011	0.013
	5	0.0038	0.0055	0.0064	0.0072	0.01	0.013	0.014	0.017
	10	0.0047	0.0069	0.0082	0.0093	0.014	0.019	0.021	0.026
	15	0.0052	0.0078	0.0093	0.011	0.016	0.022	0.025	0.032
	20	0.0057	0.0085	0.01	0.012	0.018	0.025	0.029	0.037
pH		8.0							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.001	0.0012	0.0013	0.0014	0.0016	0.002	0.0023	0.003
	1	0.0014	0.0018	0.002	0.0021	0.0024	0.0029	0.0031	0.0039
	3	0.0023	0.003	0.0034	0.0037	0.0047	0.0055	0.0059	0.0067
	5	0.0026	0.0037	0.0042	0.0047	0.0062	0.0075	0.008	0.009
	10	0.0031	0.0045	0.0053	0.006	0.0084	0.011	0.012	0.014
	15	0.0033	0.005	0.0059	0.0067	0.0097	0.013	0.015	0.018
	20	0.0035	0.0053	0.0063	0.0072	0.011	0.015	0.017	0.02
pH		8.5							
Hardness (g/m³ $CaCO_3$)		12	23	31	39	83	166	223	397
DOC (g/m³)	0.5	0.0007	0.0008	0.0008	0.0008	0.0011	0.0015	0.0017	0.0021
	1	0.001	0.0012	0.0012	0.0013	0.0014	0.0019	0.0022	0.0028
	3	0.0015	0.002	0.0022	0.0023	0.0028	0.003	0.0032	0.004
	5	0.0017	0.0023	0.0026	0.0029	0.0037	0.0042	0.0043	0.0049
	10	0.0019	0.0027	0.0032	0.0036	0.0049	0.0062	0.0067	0.0073
	15	0.002	0.0029	0.0034	0.0039	0.0056	0.0074	0.0082	0.0094
	20	0.002	0.003	0.0036	0.0041	0.006	0.0082	0.0092	0.011

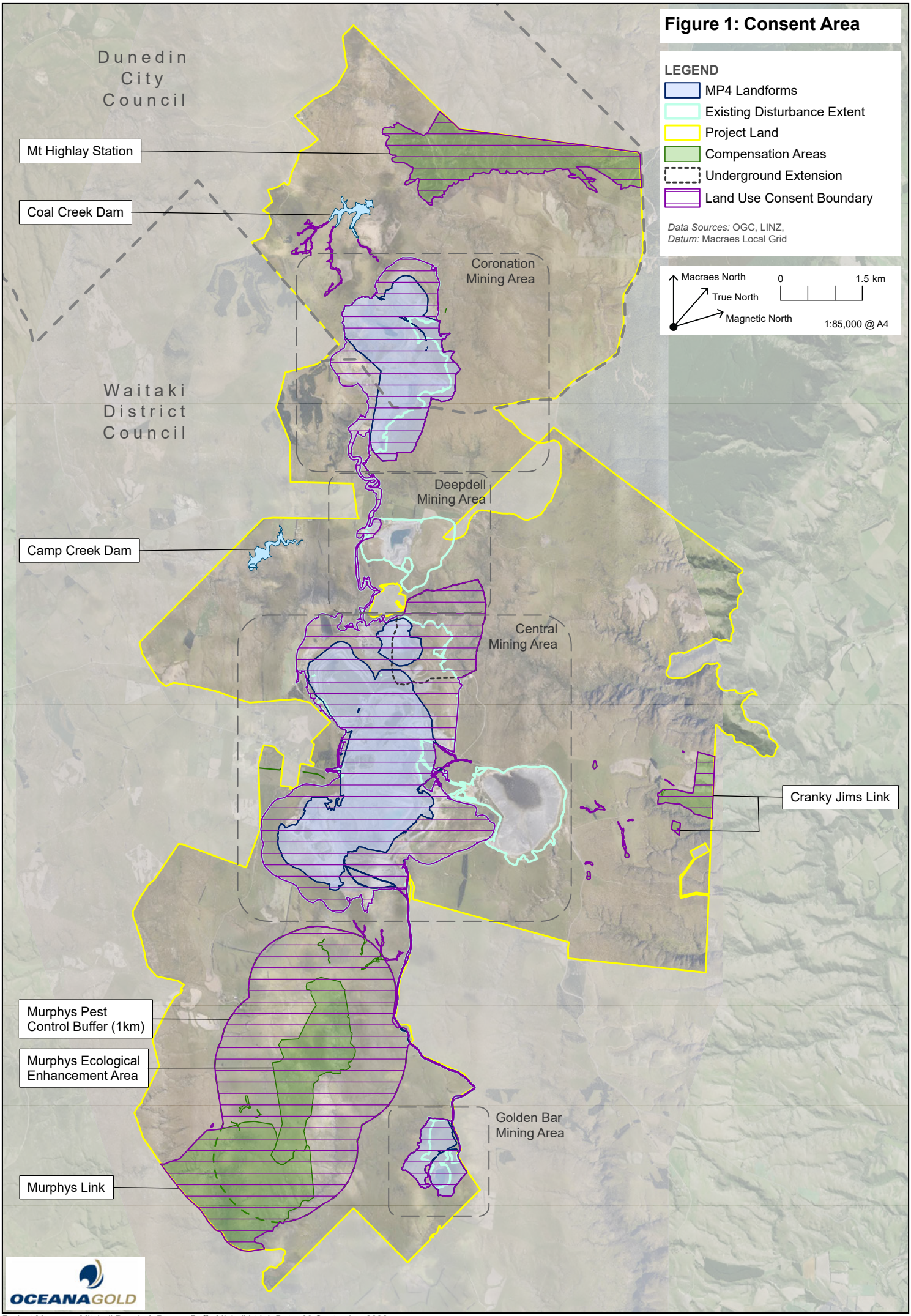
Notes: For conditions outside pH 6-8.5, hardness 12-397 g/m³ and DOC 0.5-20 g/m³, the trigger value corresponding to the nearest boundary condition within the validated range should be applied.

Table 3: ANZG (2024b) freshwater 95% species-protection guideline values for dissolved zinc (g/m3) at different pH, hardness and DOC values.

Parameter		DGV (g/m³)							
pH		6.2							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0079	0.0092	0.012	0.013	0.015	0.017	0.019	0.021
	1	0.0087	0.01	0.013	0.015	0.016	0.019	0.021	0.023
	2	0.0096	0.011	0.014	0.016	0.018	0.021	0.024	0.026
	5	0.011	0.013	0.016	0.019	0.021	0.025	0.028	0.03
	10	0.012	0.014	0.018	0.021	0.024	0.028	0.031	0.033
	15	0.013	0.015	0.019	0.023	0.026	0.029	0.032	0.035
pH		6.5							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0065	0.0076	0.0097	0.011	0.012	0.014	0.016	0.017
	1	0.0075	0.0087	0.011	0.013	0.014	0.017	0.018	0.02
	2	0.0086	0.01	0.013	0.015	0.017	0.019	0.021	0.023
	5	0.01	0.012	0.015	0.018	0.02	0.023	0.026	0.028
	10	0.012	0.014	0.018	0.021	0.023	0.027	0.03	0.033
	15	0.013	0.015	0.019	0.023	0.025	0.03	0.033	0.035
pH		7.0							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0048	0.0056	0.0072	0.0083	0.0092	0.011	0.012	0.013
	1	0.0059	0.0068	0.0087	0.01	0.011	0.013	0.015	0.016
	2	0.0072	0.0083	0.011	0.012	0.014	0.016	0.018	0.019
	5	0.0094	0.011	0.014	0.016	0.018	0.021	0.023	0.025
	10	0.011	0.013	0.017	0.02	0.022	0.026	0.029	0.031
	15	0.013	0.015	0.019	0.022	0.025	0.029	0.032	0.035

Parameter		DGV (g/m³)							
pH		7.5							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0035	0.0041	0.0053	0.0061	0.0068	0.0079	0.0088	0.0096
	1	0.0045	0.0053	0.0068	0.0079	0.0088	0.01	0.011	0.012
	2	0.0059	0.0069	0.0088	0.01	0.011	0.013	0.015	0.016
	5	0.0083	0.0097	0.012	0.014	0.016	0.018	0.02	0.022
	10	0.011	0.013	0.016	0.018	0.02	0.024	0.026	0.028
	15	0.013	0.015	0.019	0.021	0.024	0.027	0.03	0.033
pH		8.0							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0025	0.003	0.0039	0.0045	0.0051	0.0059	0.0066	0.0072
	1	0.0035	0.0041	0.0053	0.0062	0.0069	0.008	0.0089	0.0097
	2	0.0048	0.0056	0.0073	0.0084	0.0093	0.011	0.012	0.013
	5	0.0072	0.0085	0.011	0.013	0.014	0.016	0.018	0.019
	10	0.0097	0.011	0.015	0.017	0.019	0.021	0.023	0.025
	15	0.012	0.014	0.018	0.02	0.022	0.025	0.028	0.03
pH		8.3							
Hardness (g/m³ $CaCO_3$)		20	30	60	90	120	180	300	440
DOC (g/m³)	0.5	0.0021	0.0025	0.0033	0.0038	0.0042	0.005	0.0055	0.006
	1	0.003	0.0035	0.0046	0.0053	0.0059	0.0069	0.0077	0.0084
	2	0.0042	0.005	0.0065	0.0075	0.0083	0.0095	0.011	0.011
	5	0.0065	0.0077	0.01	0.012	0.013	0.015	0.016	0.017
	10	0.0089	0.011	0.014	0.016	0.018	0.02	0.022	0.023
	15	0.011	0.013	0.017	0.019	0.021	0.024	0.026	0.028

Notes: For conditions outside 6 pH.2-8.3, hardness 20-440 g/m³ and 0.5-15 g/m³ DOC, the trigger value corresponding to the nearest boundary condition within the validated range should be applied.



Project Manager: Mitchell Daysh | Drawn: Boffa Miskell Ltd | Date: 03 September 2026

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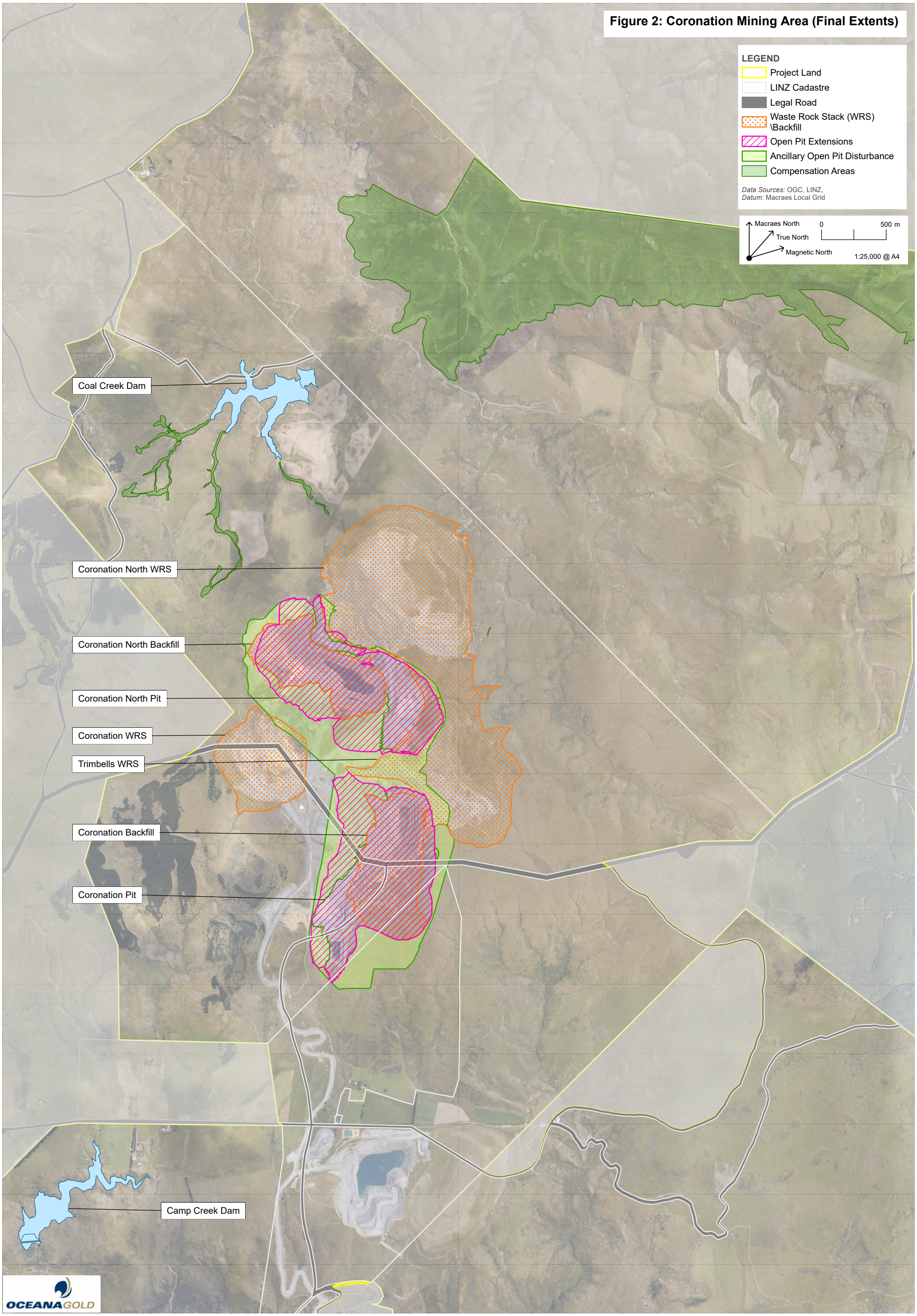


Figure 2: Coronation Mining Area (Final Extents)
LEGEND
Project Land
LINZ Cadastre
Legal Road
Waste Rock Stack (WRS) \Backfill
Open Pit Extensions
Ancillary Open Pit Disturbance
Compensation Areas
Data Sources: OGC, LINZ,
Datum: Macraes Local Grid
Macraes North
True North
Magnetic North
0
500 m
1:25,000 @ A4
Coal Creek Dam
Coronation North WRS
Coronation North Backfill
Coronation North Pit
Coronation WRS
Trimbells WRS
Coronation Backfill
Coronation Pit
Camp Creek Dam
OCEANAGOLD

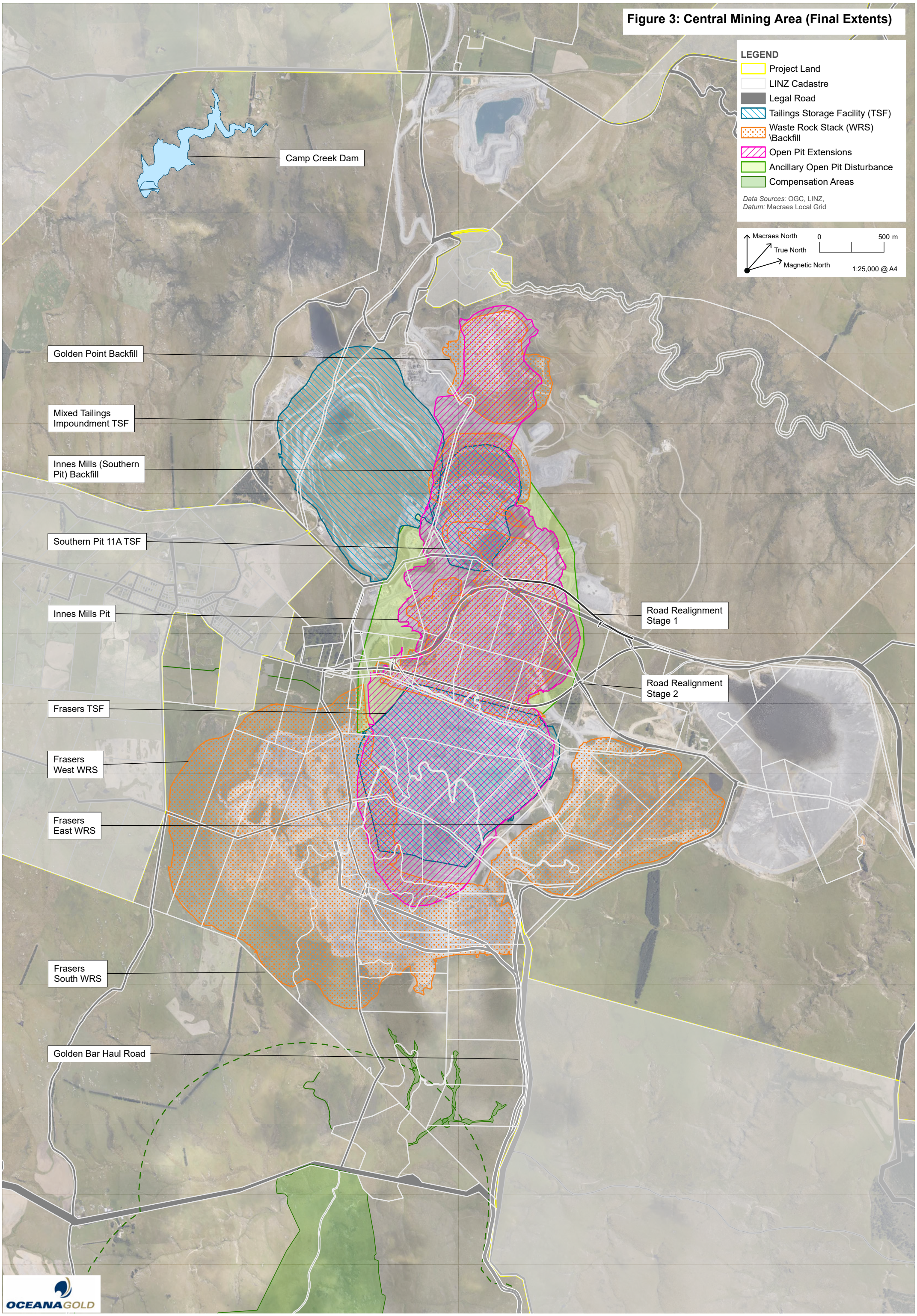
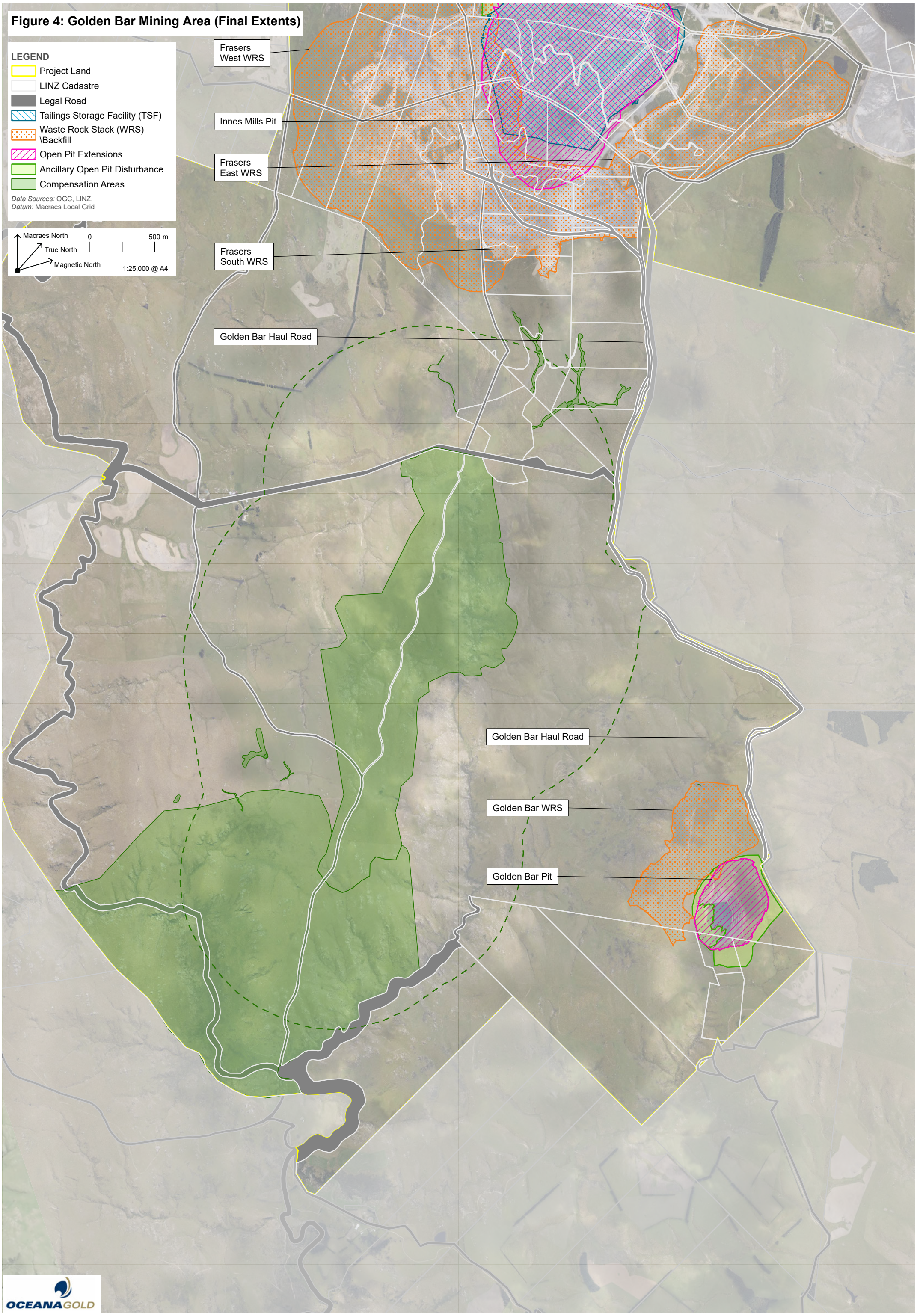


Figure 3: Central Mining Area (Final Extents)
LEGEND
Project Land
LINZ Cadastre
Legal Road
Tailings Storage Facility (TSF)
Waste Rock Stack (WRS) \Backfill
Open Pit Extensions
Ancillary Open Pit Disturbance
Compensation Areas
Data Sources: OGC, LINZ,
Datum: Macraes Local Grid
Macraes North
True North
Magnetic North
0
500 m
1:25,000 @ A4
Camp Creek Dam
Golden Point Backfill
Mixed Tailings Impoundment TSF
Innes Mills (Southern Pit) Backfill
Southern Pit 11A TSF
Innes Mills Pit
Road Realignment Stage 1
Road Realignment Stage 2
Frasers TSF
Frasers West WRS
Frasers East WRS
Frasers South WRS
Golden Bar Haul Road
OCEANAGOLD

Figure 4: Golden Bar Mining Area (Final Extents)



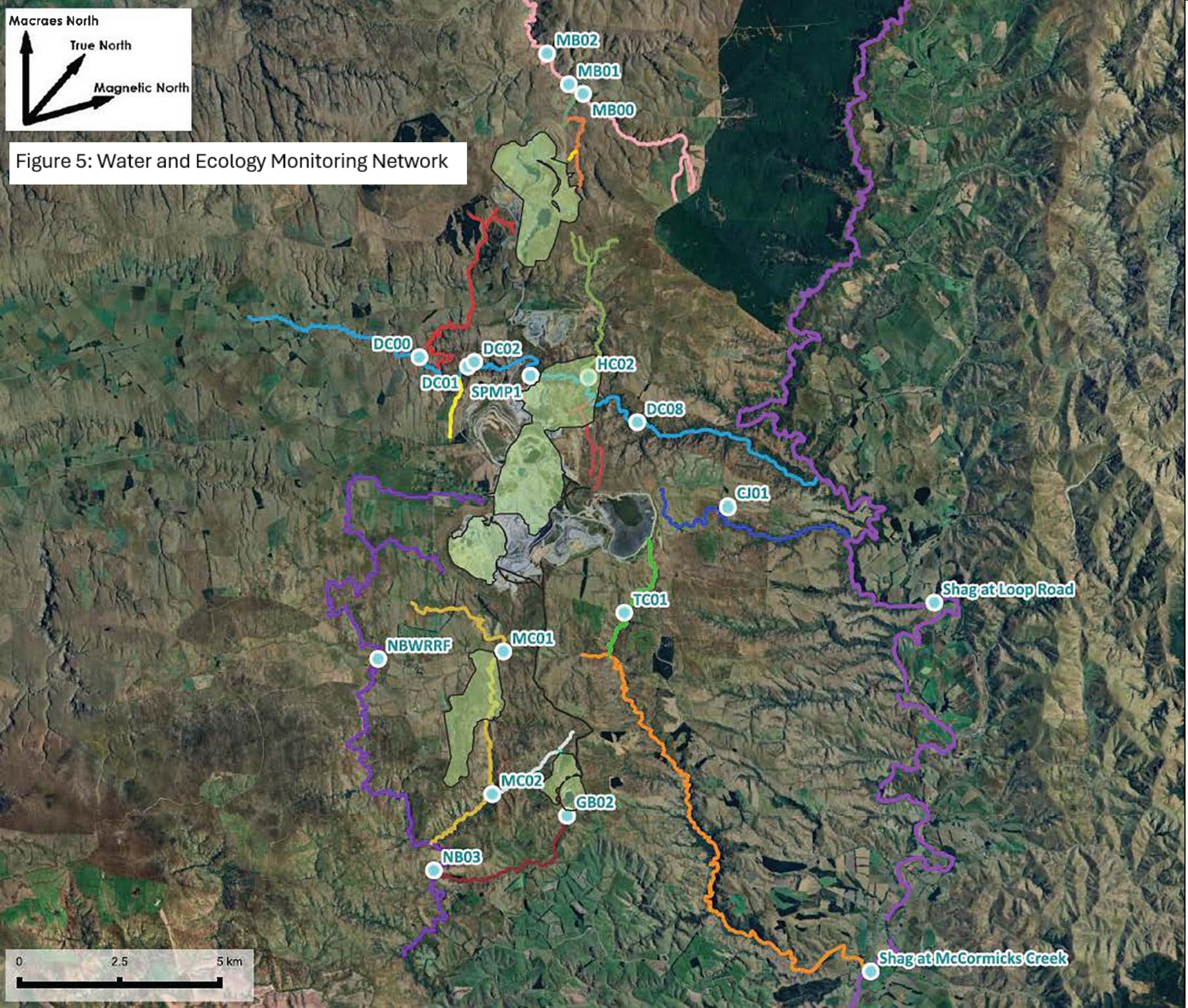


Figure 5: Water and Ecology Monitoring Network

VIRIDIS
Environmental Consultants

Macraes MP4 footprint and key water quality monitoring sites.

- Proposed footprint
- Water quality sites
- Clydesdale Creek
- Trimbells Gully Creek
- Tipperary Creek
- Shag River
- North Gully Creek
- Murphys Creek
- McCormicks Creek
- Mare Burn
- Maori Hen Creek
- Highlay Creek
- Golden Bar Creek
- Deepdell Creek
- Waikouaiti River NB
- Crank Jims Creek
- Camp Creek

SOURCES
Google Satellite 2023

DISCLAIMER: This map/plan is not an engineering draft. This map/plan is illustrative only and all information should be independently verified on site before taking any action.

SCALE **1:120,000** @ A4

PROJECT NO.	10023
DRAWN BY:	AJC
DATE:	12/08/2026

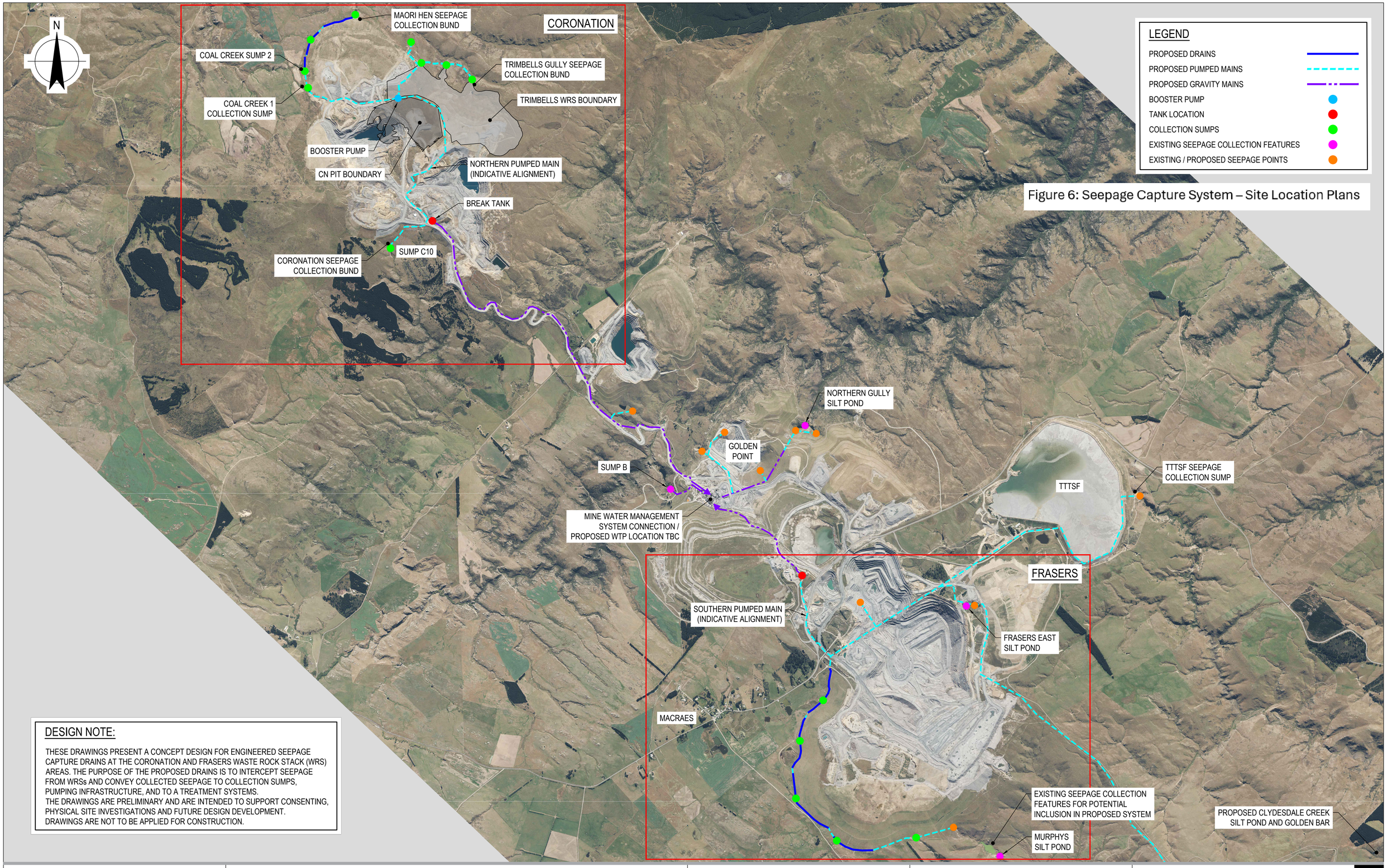


Figure 6: Seepage Capture System – Site Location Plans

DESIGN NOTE:

THESE DRAWINGS PRESENT A CONCEPT DESIGN FOR ENGINEERED SEEPAGE CAPTURE DRAINS AT THE CORONATION AND FRASERS WASTE ROCK STACK (WRS) AREAS. THE PURPOSE OF THE PROPOSED DRAINS IS TO INTERCEPT SEEPAGE FROM WRSs AND CONVEY COLLECTED SEEPAGE TO COLLECTION SUMPS, PUMPING INFRASTRUCTURE, AND TO A TREATMENT SYSTEMS.
THE DRAWINGS ARE PRELIMINARY AND ARE INTENDED TO SUPPORT CONSENTING, PHYSICAL SITE INVESTIGATIONS AND FUTURE DESIGN DEVELOPMENT.
DRAWINGS ARE NOT TO BE APPLIED FOR CONSTRUCTION.

Rev	Description	Checked	Approved	Date
P01	PRELIMINARY ISSUE	TO	JT	03/07/26

Author: S. SEATH | Drafting Check | Reg No.
Designer: L. WARDENAAR | Design Check: J. TUCK | Date

0 200 400 600 800 1000m
SCALE 1:20,000 AT ORIGINAL SIZE

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Client: OCEANAGOLD
Project: MACRAES ENGINEERED DRAIN DESIGN
Status: PRELIMINARY
Drawing Title: SITE LOCATION PLANS
Size: A1
Drawing No.: 12682240-GHD-00-00-DRG-00010
Rev: P01

Plot Date: 18 August 2026 - 2:31 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00010-00012.dwg

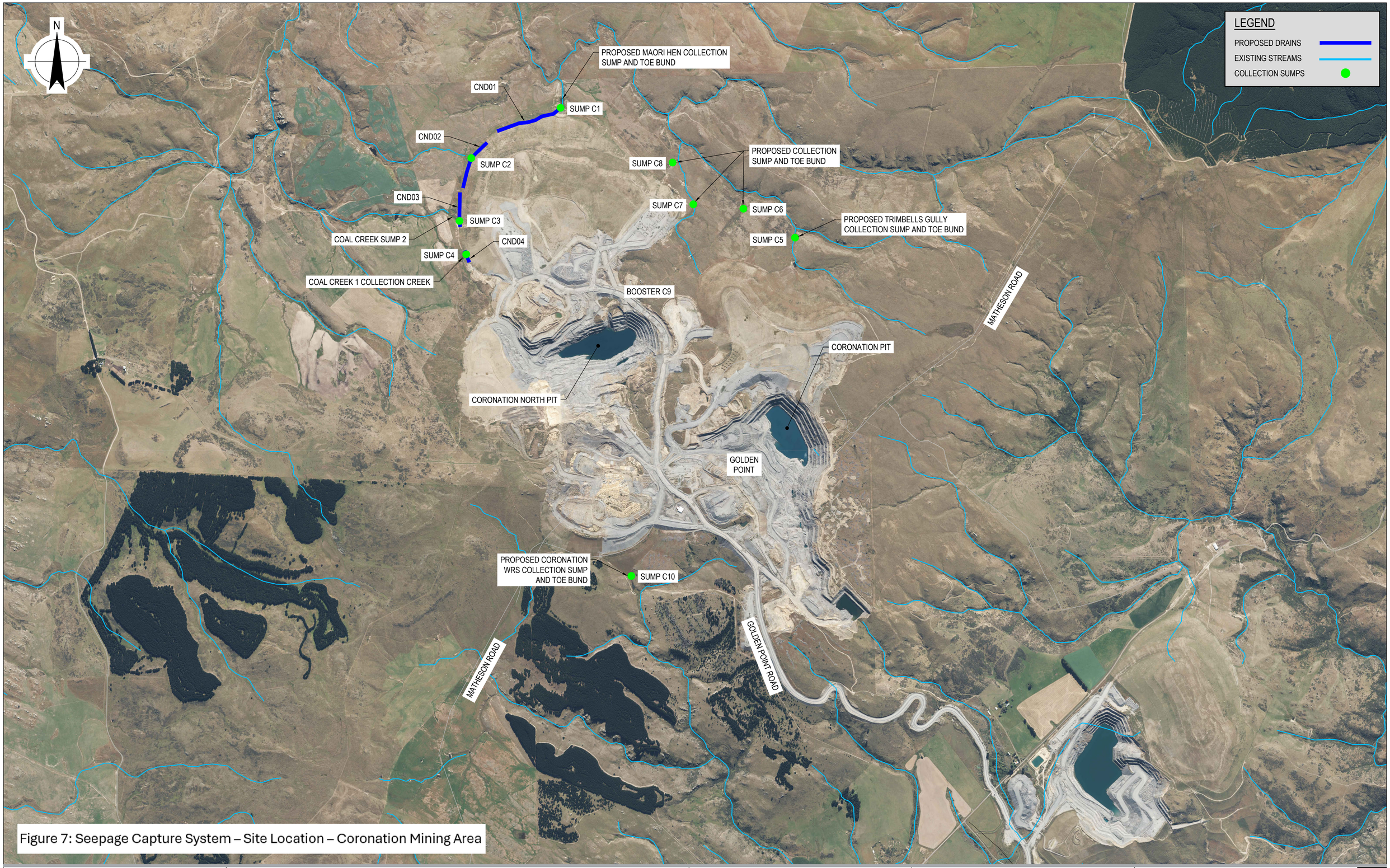

Figure 7: Seepage Capture System – Site Location – Coronation Mining Area

Rev	Description	Checked	Approved	Date
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Author: S. SEATH — Drafting Check — Reg No.
Designer: L. WARDENAAR — Design Check: J. TUCK — Date

0 100 200 300 400 500m
SCALE 1:10,000 AT ORIGINAL SIZE

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Project No. 12682240

Client: OCEANAGOLD
Project: MACRAES ENGINEERED DRAIN DESIGN
Status: PRELIMINARY

Drawing Title: SITE LOCATION - CORONATION
Size: A1
Drawing No.: 12682240-GHD-00-00-DRG-00011
Rev: P01

Plot Date: 9 July 2026 - 10:34 AM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00010-00012.dwg

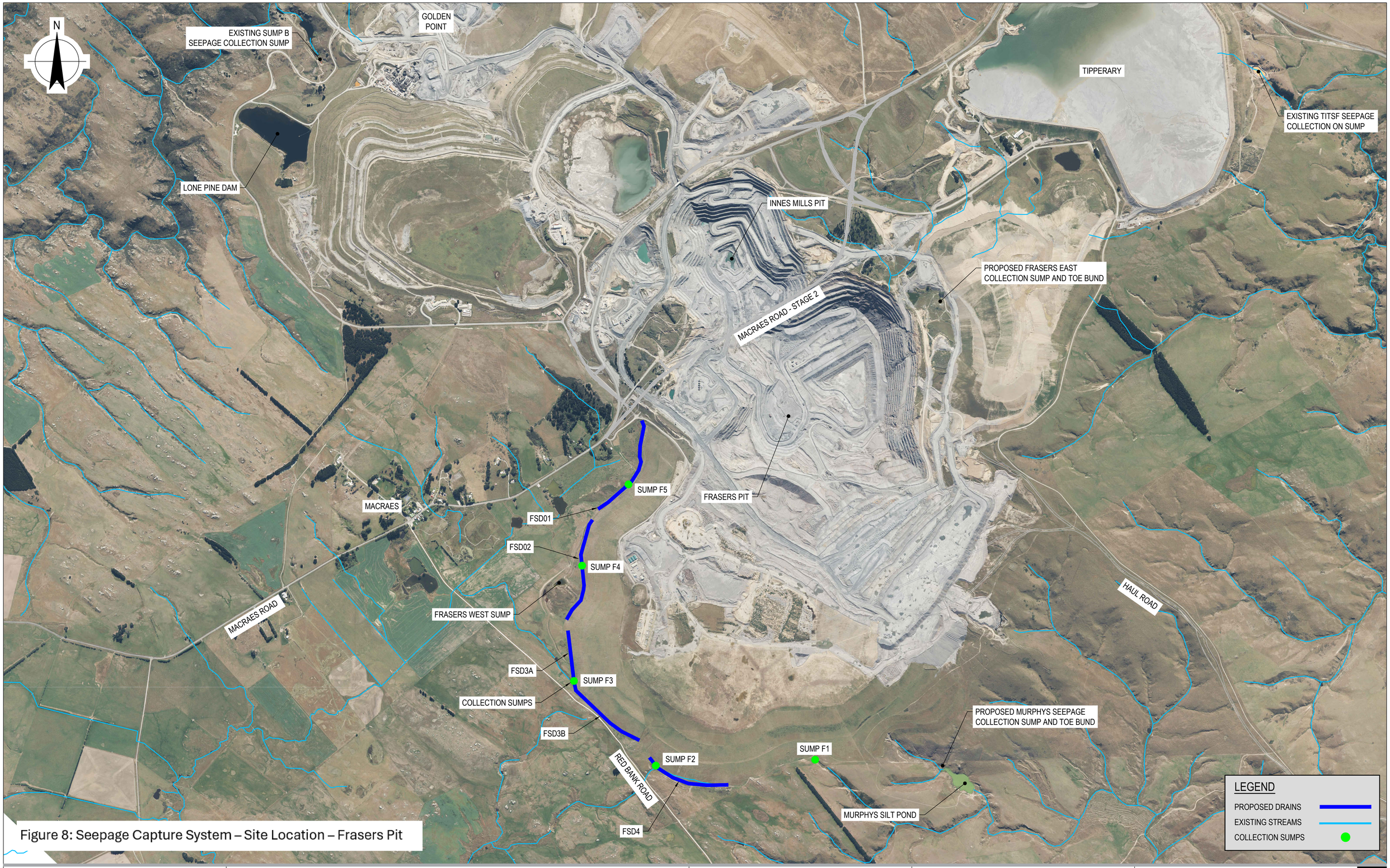

Figure 8: Seepage Capture System – Site Location – Frasers Pit

Rev	Description	Checked	Approved	Date
P01	PRELIMINARY ISSUE	TO	JT	03/07/26

Author S. SEATH Drafting Check Reg No.
Designer L. WARDENAAR Design Check J. TUCK Date

0 100 200 300 400 500m
SCALE 1:10,000 AT ORIGINAL SIZE

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Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

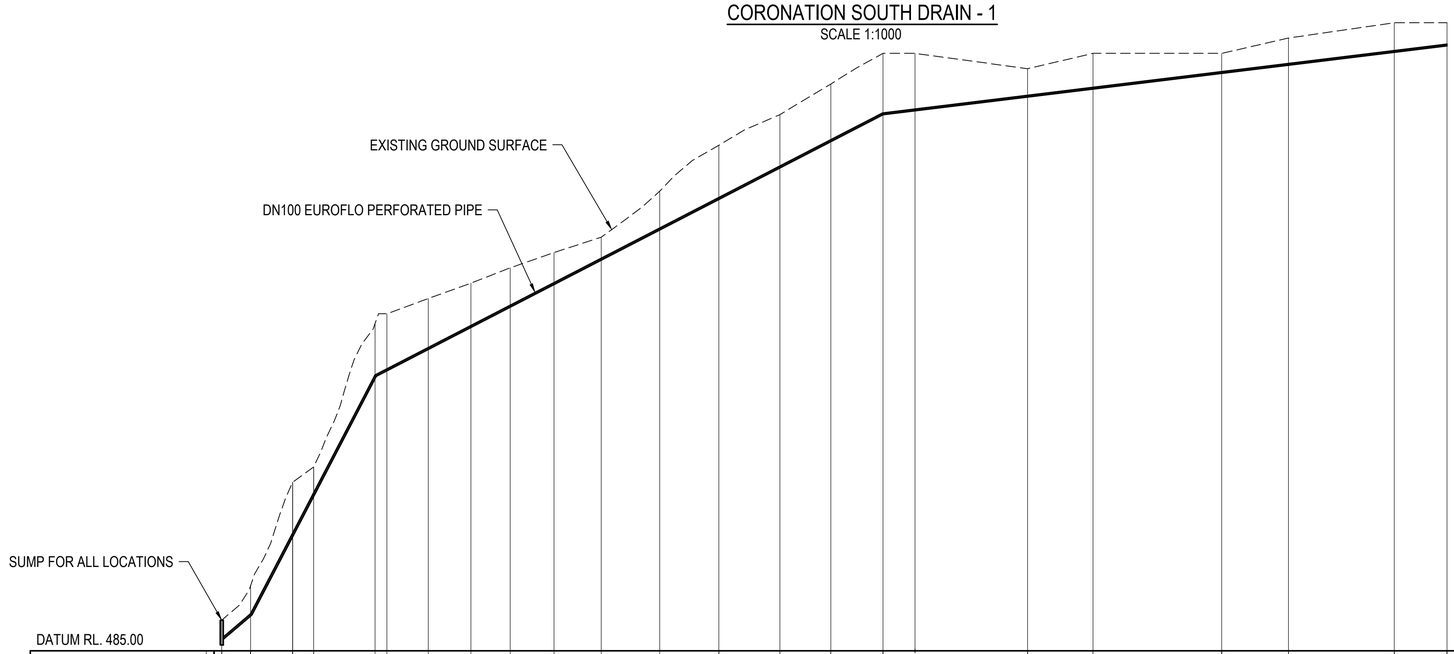
Drawing Title SITE LOCATION - FRASERS

Size A1
Drawing No. 12682240-GHD-00-00-DRG-00012
Rev P01

Plot Date: 9 July 2026 - 10:35 AM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00010-00012.dwg

Figure 9: Seepage Capture System – Plan and Long Section – Coronation North Drain 1

PLAN VIEW
CORONATION SOUTH DRAIN - 1
SCALE 1:1000



EXISTING SURFACE LEVEL	487.00	489.26	496.00	497.00	506.36	507.00	508.00	509.00	510.00	511.00	512.00	515.00	518.00	520.00	522.00	524.00	524.00	523.00	524.00	524.00	525.00	526.00	526.00
DEPTH OF COVER	1.20	1.85	3.34	1.70	3.37	3.61	3.21	2.77	2.45	1.97	1.38	2.41	3.42	3.36	3.64	3.90	3.64	1.75	2.22	1.20	1.67	1.82	1.40
DESIGN PIPE TOP LEVEL	485.8	487.4	492.7	495.3	503.0	503.4	504.8	506.2	507.5	509.0	510.6	512.6	514.6	516.6	518.4	520.1	520.4	521.2	521.8	522.8	523.3	524.2	524.6
GRADE	-17%		-38.5%								-10.4%									-2.4%			
PIPE MATERIAL	DN100		DN100								DN100									DN100			
CHAINAGE	0.00	9.40			50.00				100.00			150.00			200.00	216.00		250.00		300.00		350.00		400.00

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

LONG SECTION
CORONATION NORTH DRAIN - 1
SCALE 1:1000

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Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

Drawing Title PLAN AND LONG SECTION CORONATION SOUTH DRAIN - 1

Size A1
Drawing No. 12682240-GHD-00-00-DRG-00015
Rev P01

Plot Date: 7 July 2026 - 2:47 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00015-00017.dwg

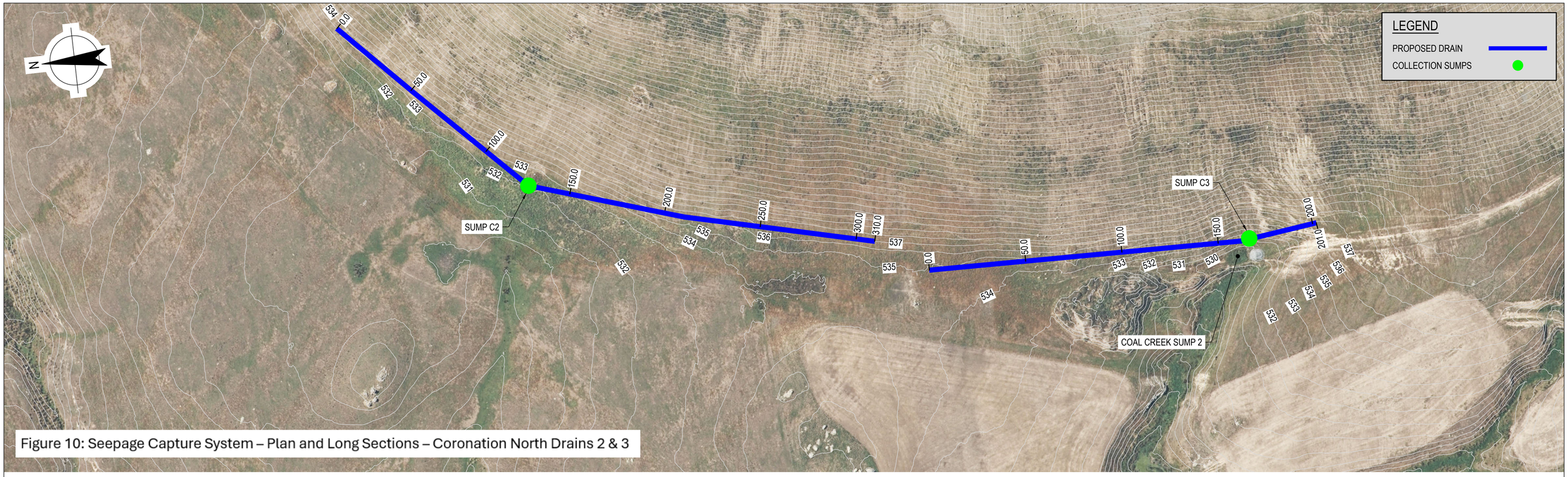
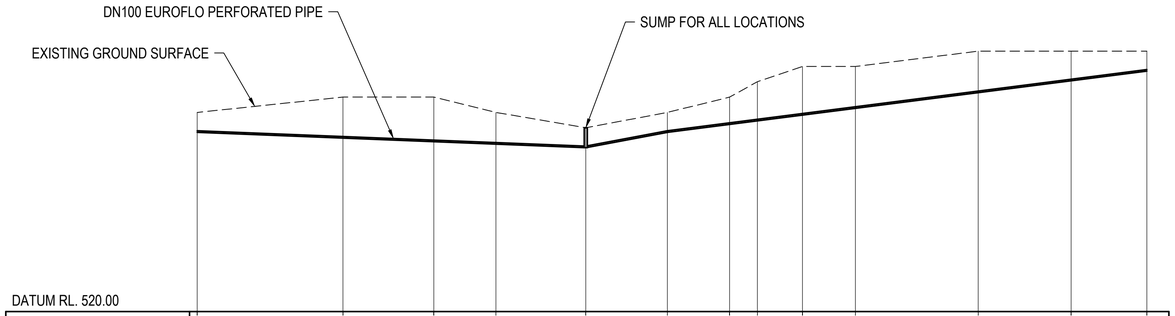


Figure 10: Seepage Capture System – Plan and Long Sections – Coronation North Drains 2 & 3

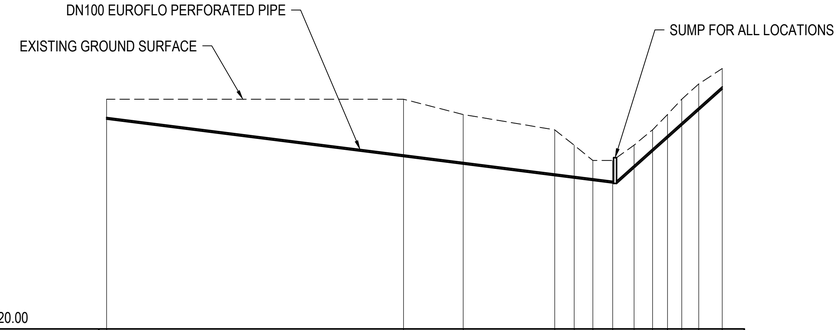
PLAN VIEW
CORONATION NORTH DRAINS - 2 & 3
SCALE 1:1000



DATUM RL. 520.00

EXISTING SURFACE LEVEL	533.0	534.0	534.0	533.0	532.0	533.0	534.0	535.0	536.0	536.0	537.0	537.0	537.0
DEPTH OF COVER	1.20	2.57	2.80	1.97	1.20	1.20	1.88	2.45	3.17	2.73	2.70	1.87	1.20
DESIGN PIPE TOP LEVEL	531.8	531.4	531.2	531.0	530.8	531.8	532.3	532.5	532.8	533.3	534.3	535.1	535.8
GRADE	0.79%				-3.7%	-2.55%							
PIPE MATERIAL	DN100				DN100	DN100							
CHAINAGE	0.00	50.00		100.00	126.00	150.00 153.00		200.00		250.00		300.00	310.00

LONG SECTION
CORONATION NORTH DRAIN - 2
SCALE 1:1000



DATUM RL. 520.00

EXISTING SURFACE LEVEL	535.0	535.0	534.0	533.0	532.0	531.0	531.0	532.0	533.0	534.0	535.0	536.0	537.0		
DEPTH OF COVER	1.20	3.64	3.13	2.88	2.05	1.20	1.36	1.35	1.26	1.39	1.56	1.57	1.20		
DESIGN PIPE TOP LEVEL	533.8	531.4	530.8	530.1	530.0	529.8	529.6	530.6	531.7	532.6	533.4	534.4	535.8		
GRADE	-2.53%							-17.7%							
PIPE MATERIAL	DN100							DN100							
CHAINAGE	0.00	50.00		100.00		150.00	166.00						200.00 201.00		

LONG SECTION
CORONATION NORTH DRAIN - 3
SCALE 1:1000

VERTICAL 1:200 AT ORIGINAL SIZE: 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE: 0 10 20 30 40 50m

Rev	Description			
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		Checked	Approved	Date

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Designer L. WARDENAAR Design Check J. TUCK Date

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Project No. 12682240

Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

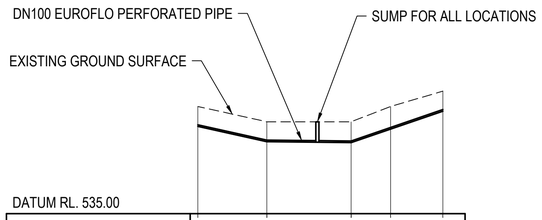
Drawing Title PLAN AND LONG SECTIONS CORONATION NORTH DRAINS - 2 & 3

Size A1
Drawing No. 12682240-GHD-00-00-DRG-00016
Rev P01

Plot Date: 7 July 2026 - 2:46 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00015-00017.dwg

Figure 11: Seepage Capture System – Plan and Long Section – Coronation North Drain 4

PLAN VIEW
CORONATION NORTH DRAIN - 4
SCALE 1:1000



EXISTING SURFACE LEVEL	542.0	541.0	541.0	542.0	543.0
DEPTH OF COVER	1.20	1.20	1.20	1.33	1.20
DESIGN PIPE TOP LEVEL	540.8	539.8	517.2	409.0	541.8
GRADE	4.5%	1%	6.6%		
PIPE MATERIAL	DN100				
CHAINAGE	0.00	22.00	50.00	73.00	80.00

LONG SECTION
CORONATION NORTH DRAIN - 4
SCALE 1:1000

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m

HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

Rev	Description	Checked	Approved	Date
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Project MACRAES ENGINEERED DRAIN DESIGN

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Drawing Title PLAN AND LONG SECTION CORONATION NORTH DRAIN - 4

Size A1

Drawing No. 12682240-GHD-00-00-DRG-00017

Rev P01

Plot Date: 7 July 2026 - 2:46 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00015-00017.dwg

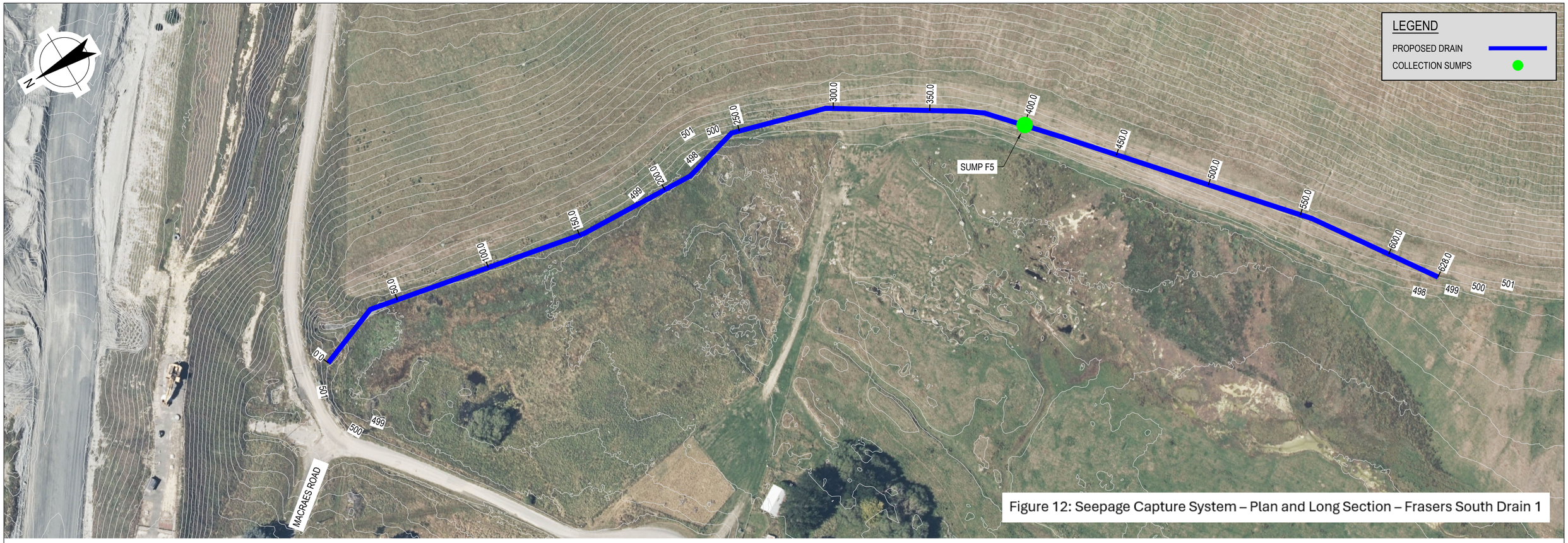
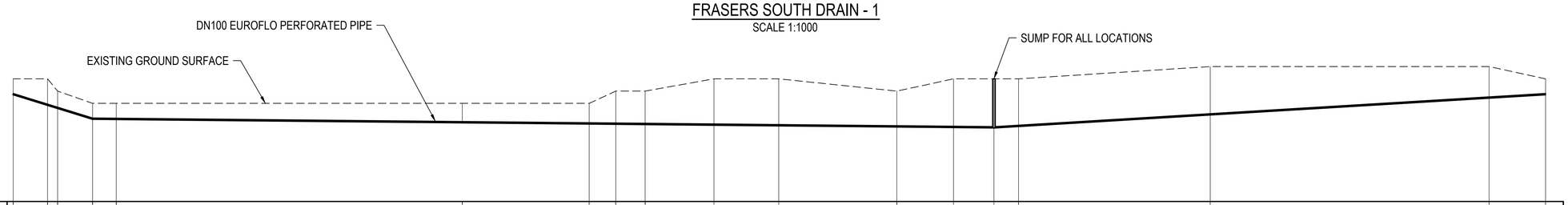


Figure 12: Seepage Capture System – Plan and Long Section – Frasers South Drain 1

PLAN VIEW
FRASERS SOUTH DRAIN - 1
SCALE 1:1000



DATUM RL. 490.00

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DEPTH OF COVER	1.20	2.06	1.32	1.20	1.22	1.49	1.59	2.61	2.63	3.68	3.73	2.52	3.87	3.91	3.78	3.85	2.48	1.20
DESIGN PIPE TOP LEVEL	498.8	497.9	497.7	496.8	496.7	496.5	496.4	496.4	496.4	496.3	496.2	496.5	496.1	496.0	496.2	497.1	498.5	498.8
GRADE	6.2%					0.22%										-1.2%		
PIPE MATERIAL	DN100					DN100										DN100		
CHAINAGE	0.00			32.00	50.00	100.00			150.00		200.00		250.00		300.00		350.00	400.00	450.00		500.00		550.00		600.00	625.00

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

LONG SECTION
FRASERS SOUTH DRAIN - 1
SCALE 1:1000

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Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

Drawing Title PLAN AND LONG SECTION FRASERS SOUTH DRAIN - 1

Size A1
Drawing No. 12682240-GHD-00-00-DRG-00020
Rev P01

Plot Date: 7 July 2026 - 1:24 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00020-00024.dwg

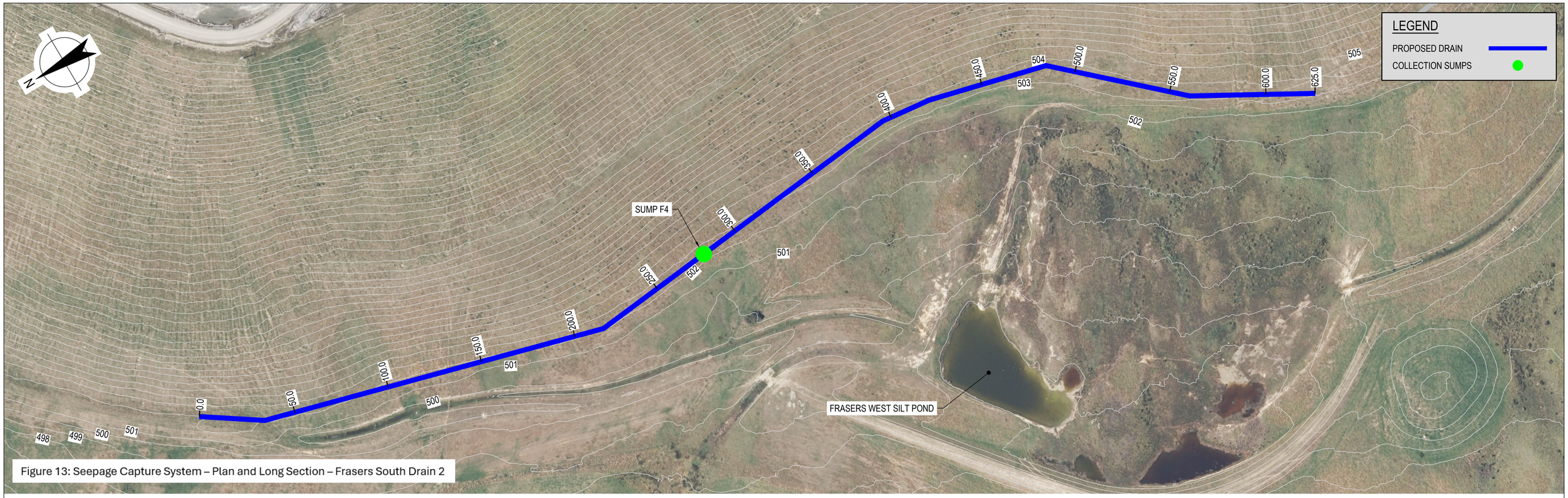
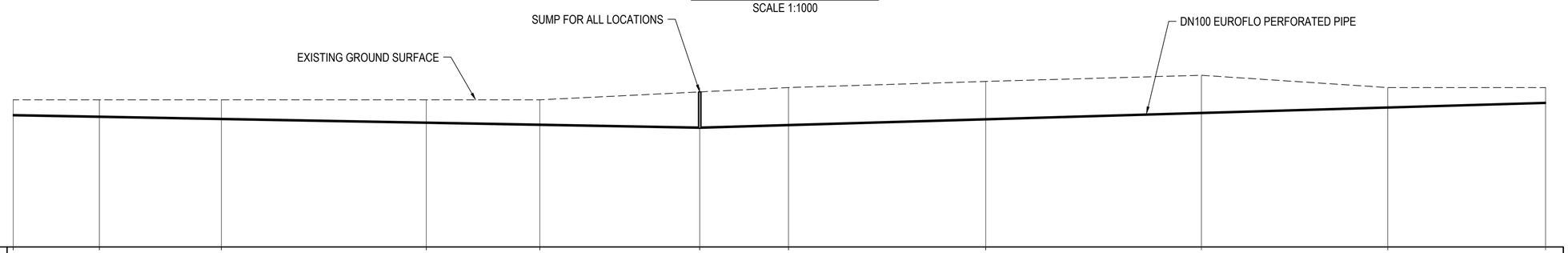


Figure 13: Seepage Capture System – Plan and Long Section – Frasers South Drain 2

PLAN VIEW
FRASERS SOUTH DRAIN - 2
SCALE 1:1000



DATUM RL. 490.00

EXISTING SURFACE LEVEL	502.0	502.0	502.0	502.0	502.0	502.0	503.0	503.5	504.0	503.0	503.0		
DEPTH OF COVER	1.20	1.33	1.51	1.81	1.98	3.22	3.00	3.02	2.99	1.54	1.20		
DESIGN PIPE TOP LEVEL	500.8	500.7	500.5	500.2	500.0	498.8	500.0	500.5	501.0	501.5	501.8		
GRADE	0.71%						-0.87%						
PIPE MATERIAL	DN100						DN100						
CHAINAGE	0.00	50.00	100.00	150.00	200.00	250.00	280.00	300.00	350.00	400.00	450.00	500.00	550.00	600.00	625.00

VERTICAL 1:200 AT ORIGINAL SIZE — 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE — 0 10 20 30 40 50m

LONG SECTION
FRASERS SOUTH DRAIN - 2
SCALE 1:1000

Rev	Description	Checked	Approved	Date
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Designer: L. WARDENAAR — Design Check: J. TUCK — Date:

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Project No. 12682240

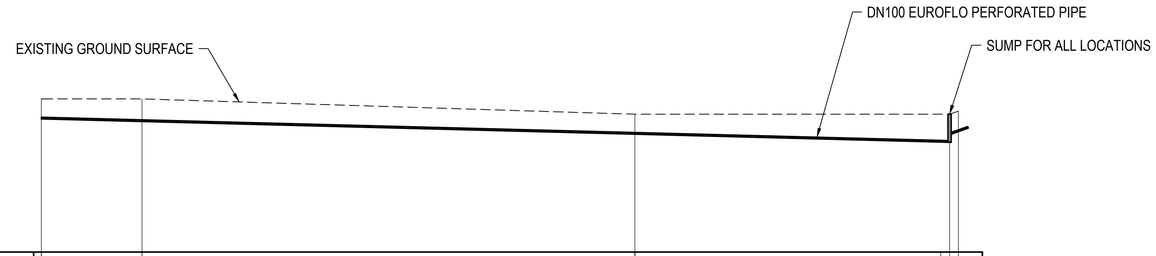
Client: OCEANAGOLD
Project: MACRAES ENGINEERED DRAIN DESIGN
Status: PRELIMINARY

Drawing Title: PLAN AND LONG SECTION FRASERS SOUTH DRAIN - 2
Size: A1
Drawing No.: 12682240-GHD-00-00-DRG-00021
Rev: P01

Plot Date: 7 July 2026 - 1:25 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00020-00024.dwg

Figure 14: Seepage Capture System – Plan and Long Section – Frasers South Drain 3A

PLAN VIEW
FRASERS SOUTH DRAIN - 3A
SCALE 1:1000



DATUM RL. 495.00

EXISTING SURFACE LEVEL	505.0	505.0	504.0	504.0	504.0
DEPTH OF COVER	1.20	1.37	1.20	1.82	1.30
DESIGN PIPE TOP LEVEL	503.8	503.6	502.8	502.2	502.7
GRADE	0.5%				
PIPE MATERIAL	DN100				
CHAINAGE	0	0.00	50.00	100.00	150.00	193.00	200.00	250.00	286.00	300.00

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

LONG SECTION
FRASERS SOUTH DRAIN - 3A
SCALE 1:1000

Rev	Description	Checked	Approved	Date
P01	PRELIMINARY ISSUE	TO	JT	03/07/26

Author S. SEATH Drafting Check Reg No.
Designer L. WARDENAAR Design Check J. TUCK Date

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Project No. 12682240

Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

Drawing Title PLAN AND LONG SECTION FRASERS SOUTH DRAIN - 3A
Size A1
Drawing No. 12682240-GHD-00-00-DRG-00022
Rev P01

Plot Date: 7 July 2026 - 1:25 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00020-00024.dwg

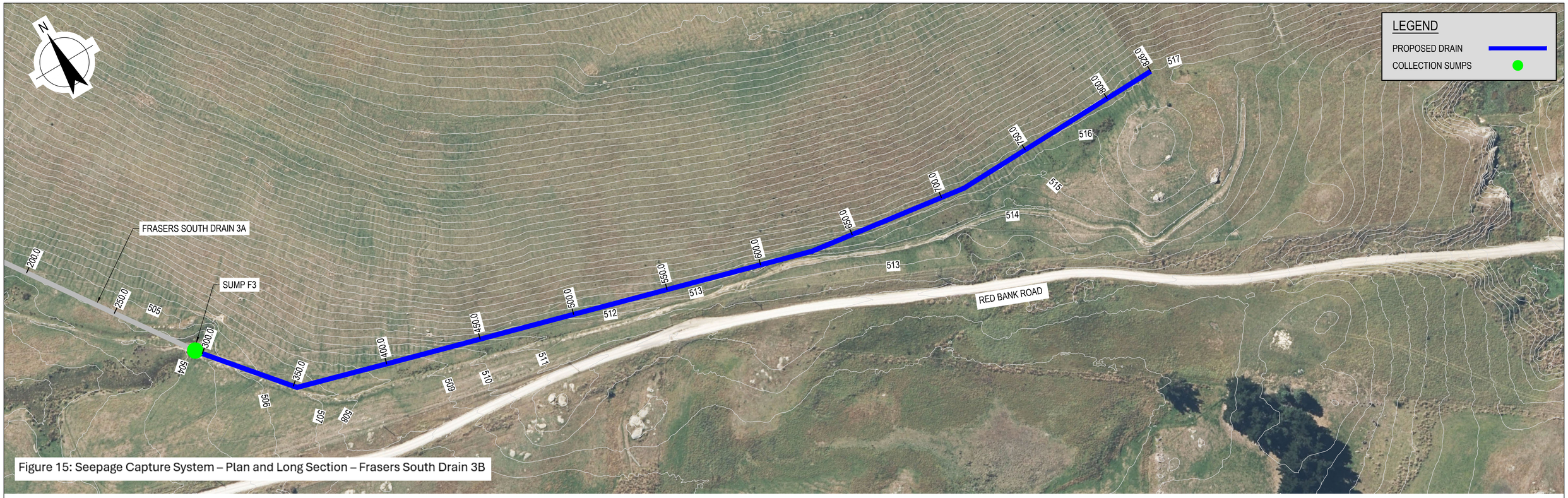
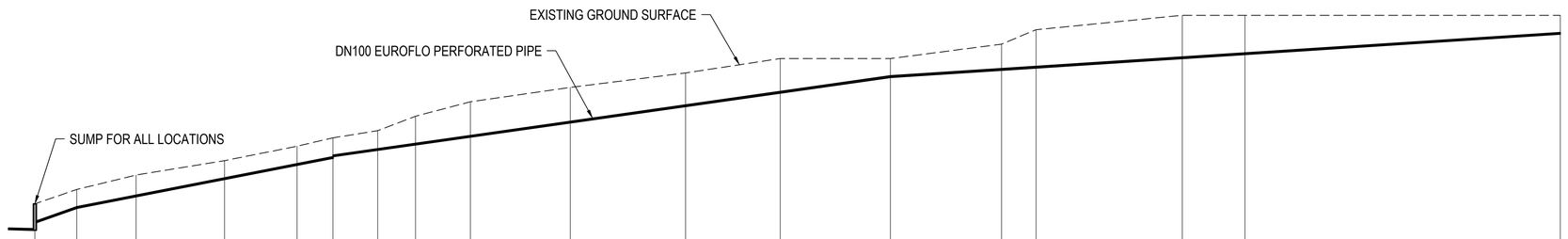


Figure 15: Seepage Capture System – Plan and Long Section – Frasers South Drain 3B

PLAN VIEW
FRASERS SOUTH DRAIN - 3B
SCALE 1:1000



DATUM RL. 500.00

EXISTING SURFACE LEVEL	504.0	504.0	505.0	506.0	507.0	508.0	508.5	509.0	510.0	511.0	512.0	513.0	514.0	514.0	515.0	516.0	517.0	517.0	517.0
DEPTH OF COVER	1.82	1.30	1.20	1.40	1.20	1.22	1.20	1.26	1.88	2.34	2.36	2.22	2.29	1.20	1.70	2.55	2.89	2.61	1.20
DESIGN PIPE TOP LEVEL	502.2	502.7	503.8	504.6	505.8	506.8	507.3	507.7	508.1	508.7	509.6	510.8	511.7	512.8	513.3	513.4	514.1	514.4	515.8
GRADE		-7.8%			-3.9%						-2.8%							-1.29%	
PIPE MATERIAL		DN100			DN100						DN100							DN100	
CHAINAGE	296.00	300.00	311.00		350.00		400.00			450.00		500.00		550.00	594.00	600.00	650.00		700.00	750.00	800.00	826.00

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

LONG SECTION
FRASERS SOUTH DRAIN - 3B
SCALE 1:1000

Rev	Description	Checked	Approved	Date
P01	PRELIMINARY ISSUE	TO	JT	03/07/26

Author S. SEATH Drafting Check Reg No.
Designer L. WARDENAAR Design Check J. TUCK Date

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Project No. 12682240

Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

Drawing Title LONG SECTION FRASERS SOUTH DRAIN - 3B
Size A1
Drawing No. 12682240-GHD-00-00-DRG-00023
Rev P01

Plot Date: 7 July 2026 - 1:26 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00020-00024.dwg

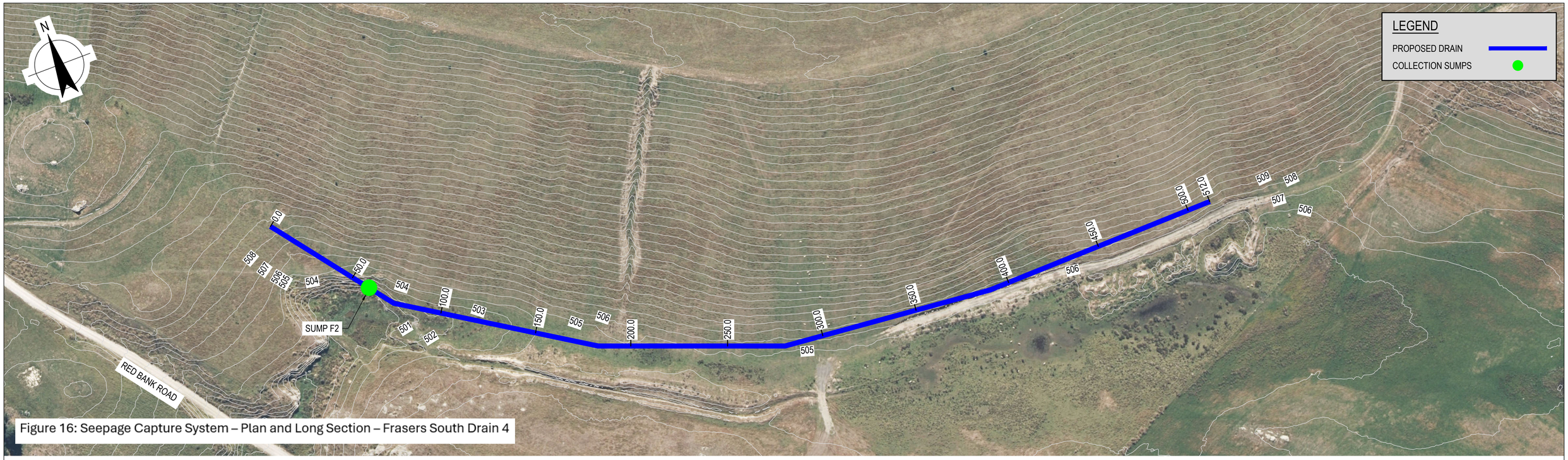
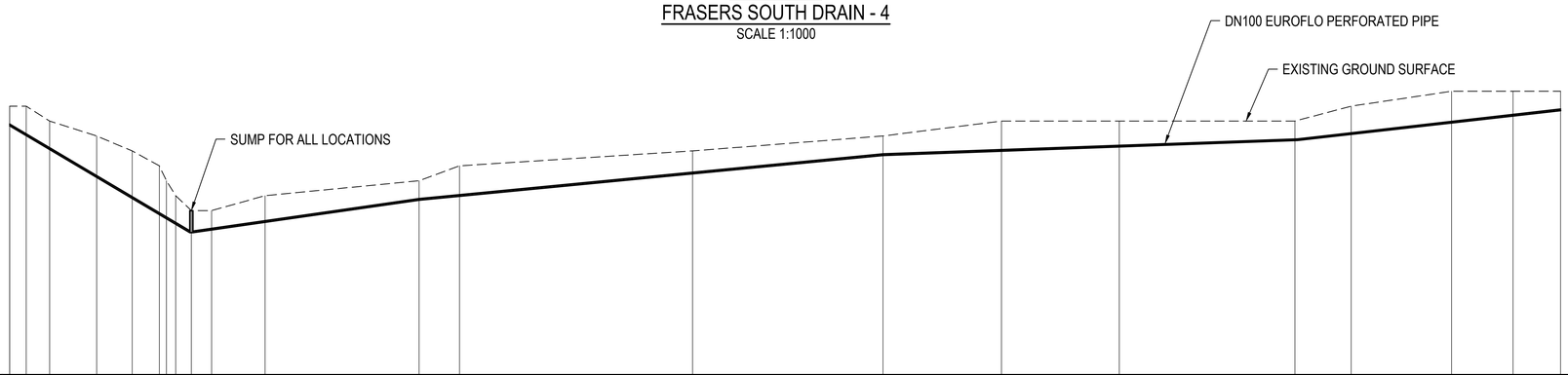


Figure 16: Seepage Capture System – Plan and Long Section – Frasers South Drain 4

PLAN VIEW
FRASERS SOUTH DRAIN - 4
SCALE 1:1000



DATUM RL. 490.00

EXISTING SURFACE LEVEL	508.0	508.0	507.0	506.0	505.0	504.0	503.0	502.0	501.0	501.0	502.0	503.0	503.0	505.0	506.0	507.0	507.0	507.0	508.0	509.0	509.0	509.0
DEPTH OF COVER	1.20	1.86	1.78	2.66	3.07	1.79	1.48	1.20	1.68	1.20	1.94	1.43	1.20	1.91	1.63	1.20	1.79	2.03	1.56	1.20
DESIGN PIPE TOP LEVEL	506.8	506.1	502.2	503.3	501.9	500.2	499.5	499.8	500.3	501.8	501.1	503.6	504.8	505.1	505.3	505.8	506.2	506.9	507.4	507.8
GRADE	12.1%						-2.9%					-1.9%				-0.72%				-2.25%		
PIPE MATERIAL	DN100						DN100					DN100				DN100				DN100		
CHAINAGE	0.00					50.00	60.00		100.00	137.00	150.00		200.00	250.00	292.00	300.00		350.00		400.00	430.00	450.00		500.00	519.00

VERTICAL 1:200 AT ORIGINAL SIZE 0 2 4 6 8 10m
HORIZONTAL 1:1000 AT ORIGINAL SIZE 0 10 20 30 40 50m

LONG SECTION
FRASERS SOUTH DRAIN - 4
SCALE 1:1000

Rev	Description	Checked	Approved	Date
P01	PRELIMINARY ISSUE	TO	JT	03/07/26

Author S. SEATH Drafting Check Reg No.
Designer L. WARDENAAR Design Check J. TUCK Date

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Project No. 12682240

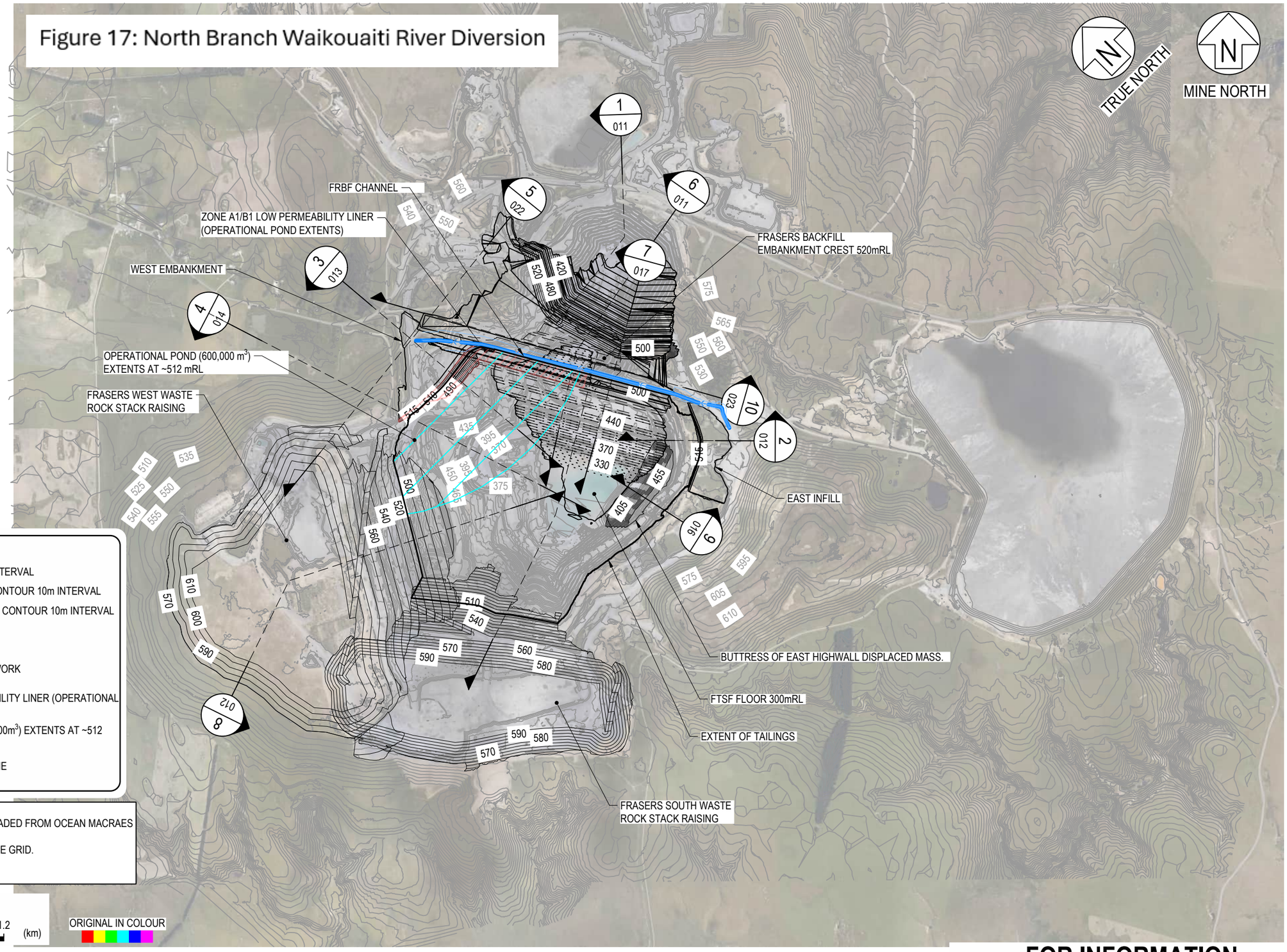
Client OCEANAGOLD
Project MACRAES ENGINEERED DRAIN DESIGN
Status PRELIMINARY

Drawing Title PLAN AND LONG SECTION FRASERS SOUTH DRAIN - 4

Size A1
Drawing No. 12682240-GHD-00-00-DRG-00024
Rev P01

Plot Date: 7 July 2026 - 1:26 PM Plotted by: Sharon Seath File Name: N:\NZ\Christchurch\Projects\51\12682240\CADD\Drawings\12682240-GHD-00-00-DRG-00020-00024.dwg

Figure 17: North Branch Waikouaiti River Diversion



LEGEND

- 545 — EXISTING CONTOURS 5m INTERVAL
- 580 — PROPOSED ROCKSTACK CONTOUR 10m INTERVAL
- 450 — PROPOSED BUTTRESS FILL CONTOUR 10m INTERVAL
- FTSF STAGE 1 LINEWORK
- 545 — FTSF STAGE 2 LINEWORK
- 580 — PROPOSED STAGE 3 LINEWORK
- ZONE A1/B1 LOW PERMEABILITY LINER (OPERATIONAL POND EXTENTS)
- OPERATIONAL POND (600,000m³) EXTENTS AT ~512 mRL
- FRBF CHANNEL CENTERLINE

NOTES:
1. AERIAL IMAGE IN PROJECT AREA IS DOWNLOADED FROM OCEAN MACRAES SHAREPOINT SITE ON 07/04/2026.
2. HORIZONTAL COORDINATES IN MACRAES MINE GRID.
3. VERTICAL DATUM IS MACRAES MINE DATUM.

1:20,000 (A3)
0 0.4 0.8 1.2 (km)

ORIGINAL IN COLOUR

ISSUED: **FOR INFORMATION**

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OCEANAGOLD MACRAES OPERATION

EGL Geotechnical, Earthquake and Dam Engineers
Engineering Geology Ltd www.egl.co.nz

No.	DATE	REVISION	BY
A	21/08/2026	FOR INFORMATION	E.T.

NOT FOR CONSTRUCTION

DESIGNED BY	E.M.	1/05/2026
DRAWN BY	R.M.	1/05/2026
DRAWING CHECKED	T.O.	
DESIGN CHECKED	E.T.	

MACRAES PHASE 4 FRASERS TSF - STAGE 3
PLAN
STAGE 3 LAYOUT PLAN
OPERATIONAL

JOB No	DRAWING NUMBER	SCALE (A3)	REV.
10092	10092-005	1:20000	A

PRINTED: 2026-08-21 17:21:03

CAD FILE: C:\12dS\data\EGLSYN\MP4 FTA_14\CAD\DWG\10092-005.dwg

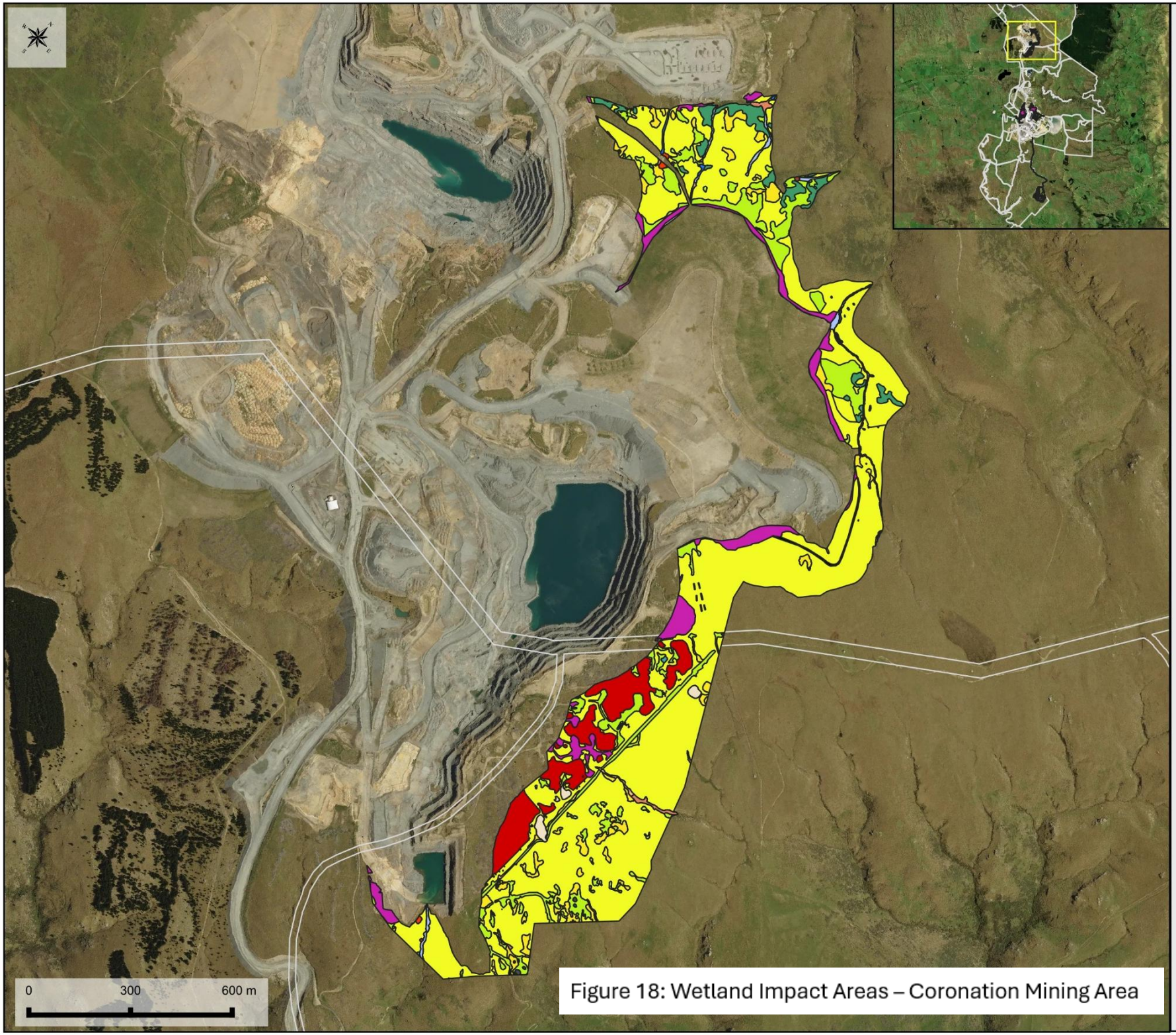


Figure 18: Wetland Impact Areas – Coronation Mining Area

Coronation Mining Area ecosystem extents (impact area only)

Date: 30/06/2026
Drawn By: MA
Client: OceanaGold New Zealand Ltd
Scale: 1:15,000

Legend

OGL landholdings

Coronation North Ecosystems

- Ephemeral Wetland
- Exotic Grassland
- Gorse
- Mine - disturbed
- Pine
- Pine forest (felled)
- Pond
- Rehabilitated mine workings
- Riparian - Freshwater Herbaceous
- Riparian - Sedgeland
- Road
- Rock
- Shrubland
- Tussock - Dense
- Tussock - Moderately Dense
- Wetland - Freshwater Herbaceous
- Wetland - Sedgeland
- Wetland - Seepage
- Wetland - Shrubland

SOURCES
LINZ Basemap aerial

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

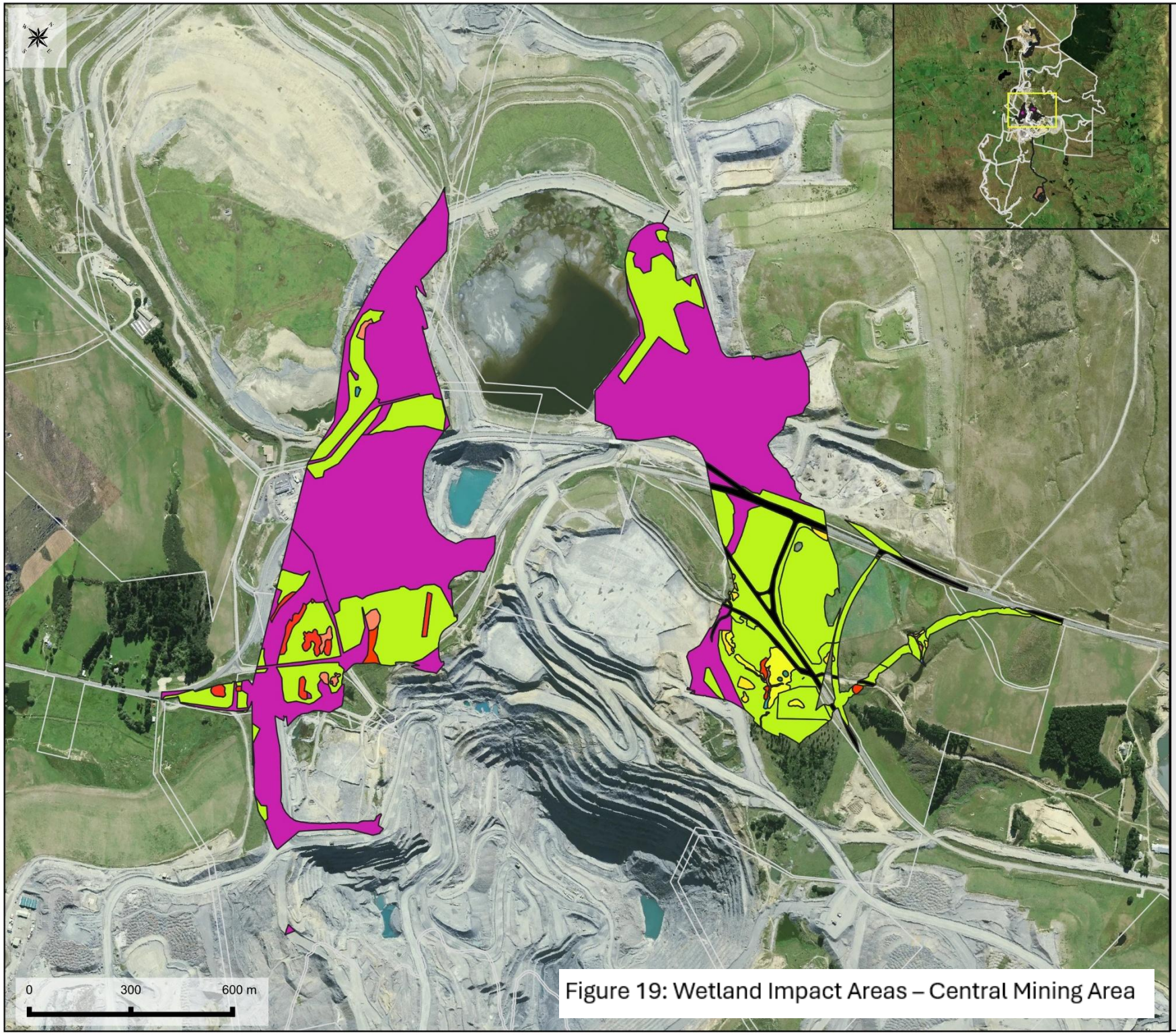


Figure 19: Wetland Impact Areas – Central Mining Area

Central Mining Area ecosystem extents (impact area only)

Date: 30/06/2026
Drawn By: MA
Client: OceanaGold New Zealand Ltd
Scale: 1:15,000

Legend

OGL landholdings

Central Mining Area Ecosystems

- Exotic Grassland
- Gorse
- Mine - disturbed
- Pine
- Pond
- Rehabilitated mine workings
- Road
- Shrubland
- Tussock - Dense
- Tussock - Moderately Dense
- Wetland - Freshwater Herbaceous
- Wetland - Sedgeland
- Woody Exotic

SOURCES
LINZ Basemap aerial

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

Figure 20: Wetland Impact Areas – Golden Bar Haul Road

Golden Bar Haul Road ecosystem extents (impact area only)

Date: 30/06/2026
Drawn By: MA
Client: OceanaGold New Zealand Ltd
Scale: 1:15,000

Legend

OGL landholdings

Golden Bar Haul Road Ecosystems

- Exotic Grassland
- Road
- Tussock - Dense
- Tussock - Moderately Dense

SOURCES
LINZ Basemap aerial

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

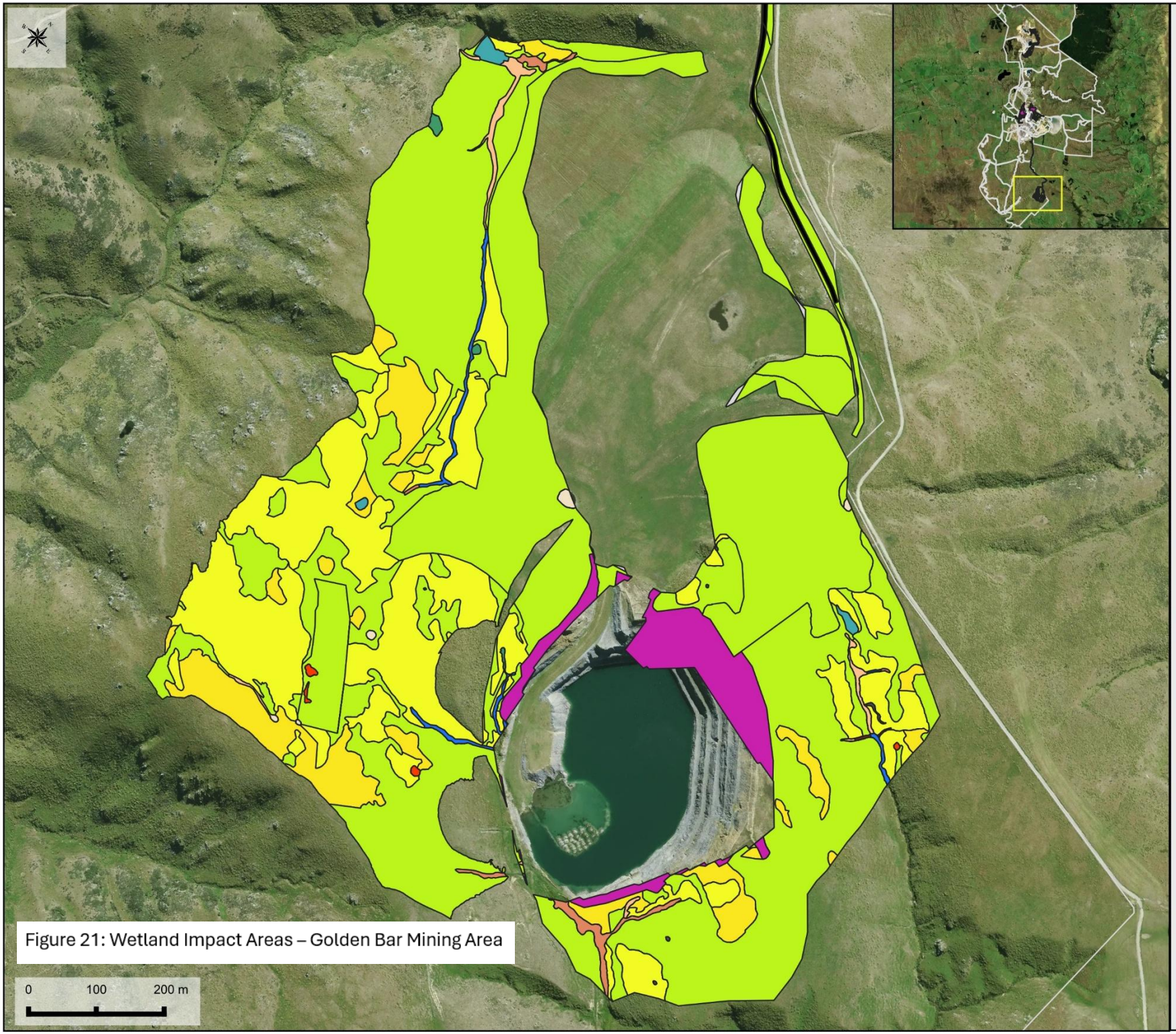


Figure 21: Wetland Impact Areas – Golden Bar Mining Area

Golden Bar Mining Area ecosystem extents (impact area only)

Date: 30/06/2026
Drawn By: MA
Client: OceanaGold New Zealand Ltd
Scale: 1:7,500

Legend

OGL landholdings

Golden Bar Ecosystems

- Ephemeral Wetland
- Exotic Grassland
- Gorse
- Mine - disturbed
- Pond
- Rehabilitated mine workings
- Riparian - Sedgeland
- Riparian - Shrubland
- Road
- Rock
- Shrubland
- Tussock - Dense
- Tussock - Moderately Dense
- Wetland - Freshwater Herbaceous
- Wetland - Sedgeland
- Wetland - Shrubland

SOURCES
LINZ Basemap aerial

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

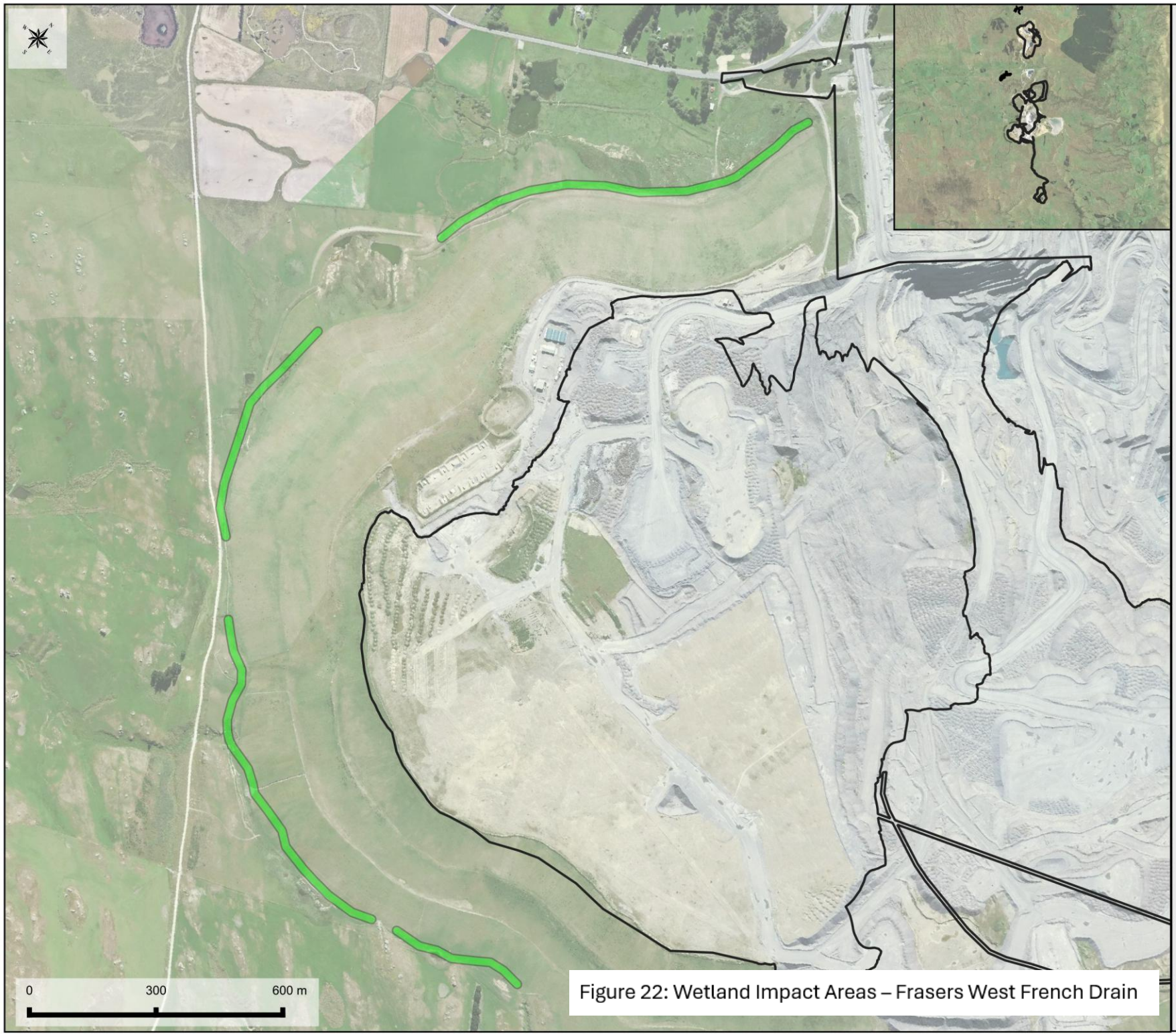


Figure 22: Wetland Impact Areas – Frasers West French Drain

Frasers West - French Drain (impact area only)

Date: 30/06/2026
Drawn By: MA
Client: OceanaGold New Zealand Ltd
Scale: 1:12,040

Legend

- OGL landholdings
- Frasers West French Drain - 5.5 Ha (Exotic Grassland)
- MP4 Components

SOURCES
LINZ Basemap aerial

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

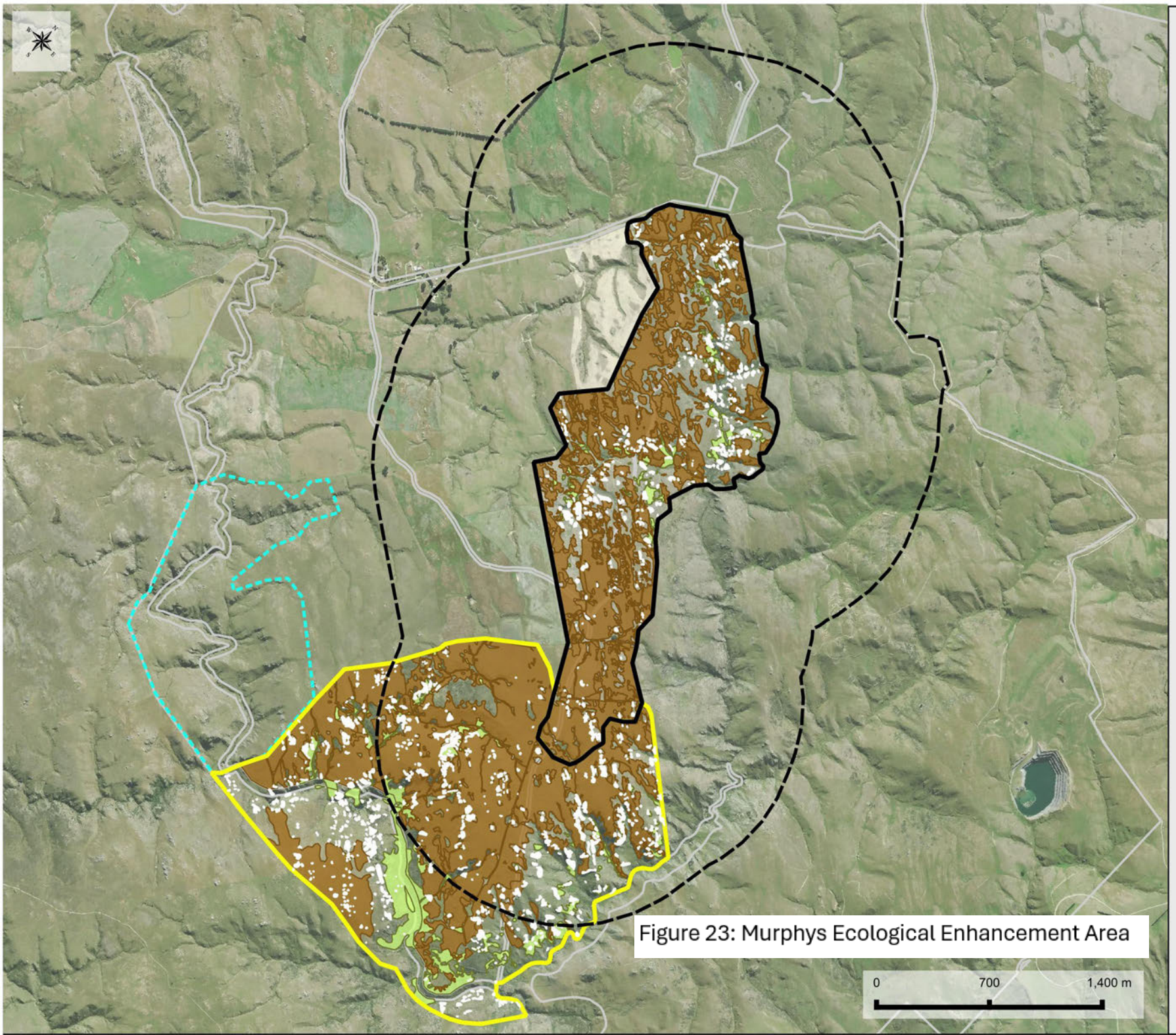


Figure 23: Murphys Ecological Enhancement Area

MEAA

Protected Vegetation

Date: 23/07/2026
Drawn By: CG
Client: OceanaGold New Zealand Ltd
Scale: 1:31,500

Legend

OGL Landholdings

Redbank Covenant

Proposed Actions

Predator Exclusion Fence: 252 ha

Predator Control Buffer: 1170 ha

Murphy's Link: 395 ha

Vegetation Protected via Covenant

Rock Outcrop: 26.96 ha

Tussock grassland: 336.25 ha

Dry shrubland: 58.78 ha

SOURCES
Google Earth Aerial: November 2024

MAP PROJECTION
NZGD2000 / New Zealand Transverse Mercator 2000

Bioresearches
A Babbage Company

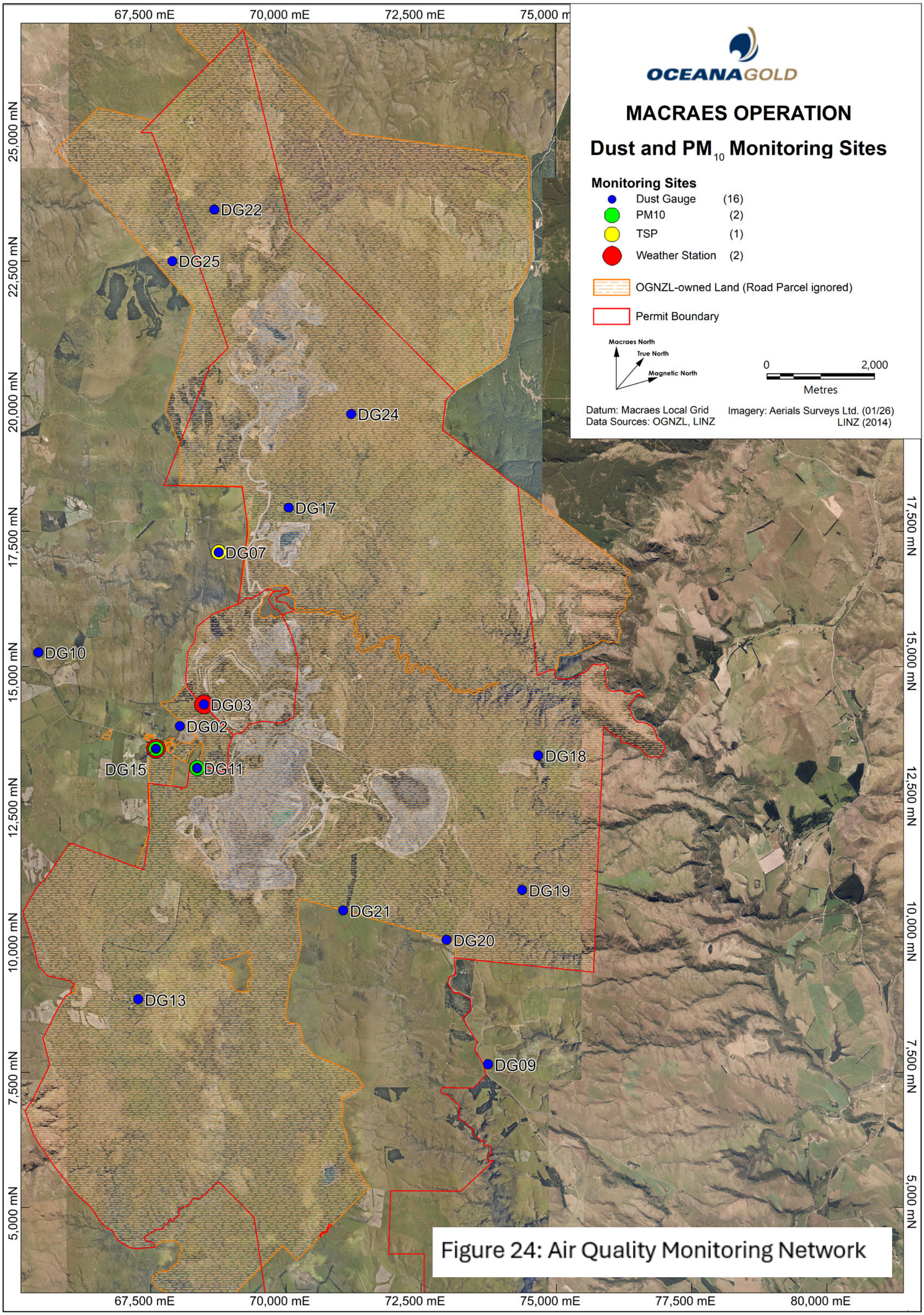


Figure 24: Air Quality Monitoring Network

K. Wellnitz 18/08/2026. M_MP4FasT_Project_Desscription_Series

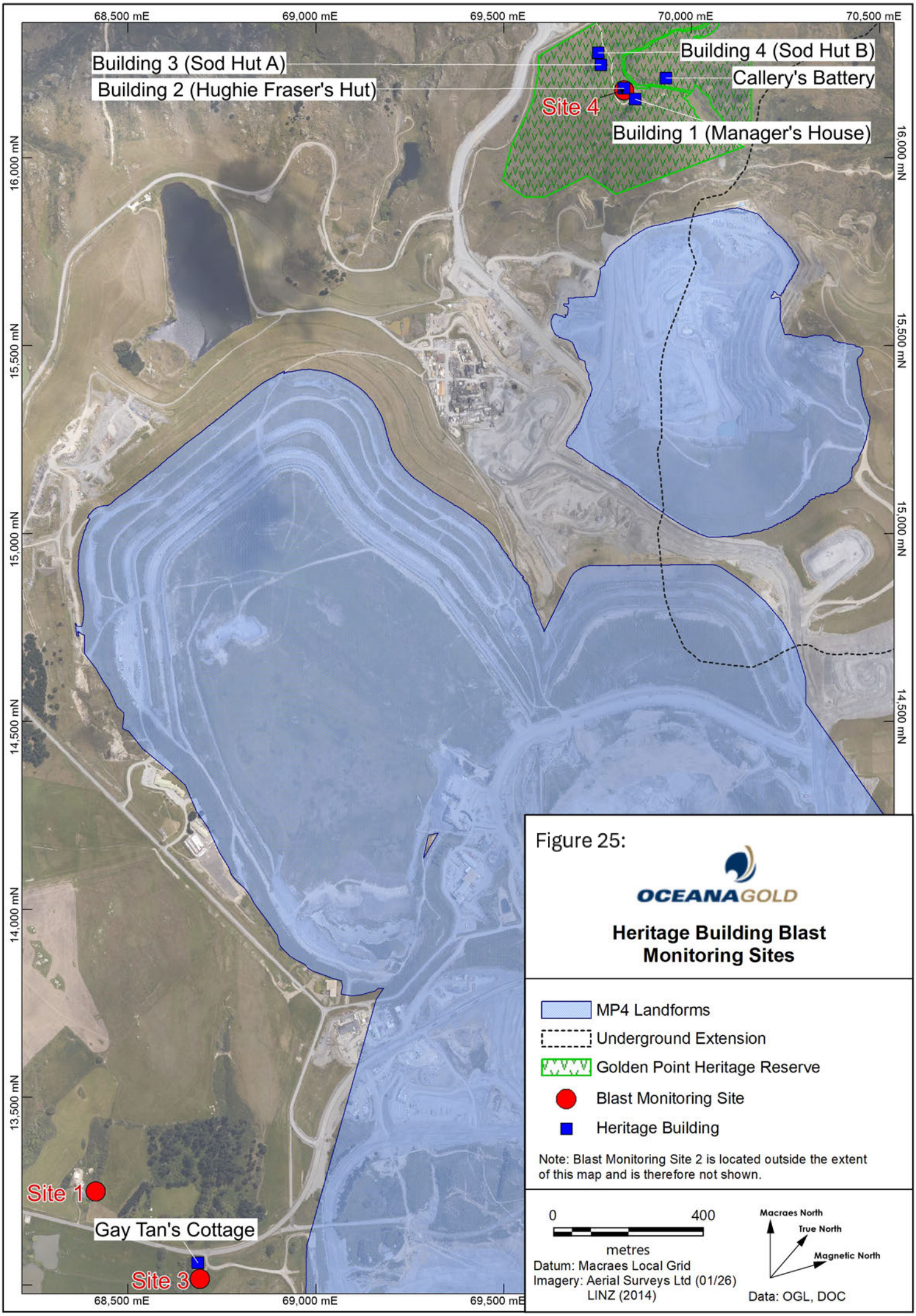

68,500 mE
69,000 mE
69,500 mE
70,000 mE
70,500 mE
16,000 mN
15,500 mN
15,000 mN
14,500 mN
14,000 mN
13,500 mN
Building 3 (Sod Hut A)
Building 2 (Hughie Fraser's Hut)
Building 4 (Sod Hut B)
Callery's Battery
Site 4
Building 1 (Manager's House)
Site 1
Gay Tan's Cottage
Site 3
Figure 25:
OCEANAGOLD
Heritage Building Blast Monitoring Sites
MP4 Landforms
Underground Extension
Golden Point Heritage Reserve
Blast Monitoring Site
Heritage Building
Note: Blast Monitoring Site 2 is located outside the extent of this map and is therefore not shown.
0
400
metres
Datum: Macraes Local Grid
Imagery: Aerial Surveys Ltd (01/26)
LINZ (2014)
Macraes North
True North
Magnetic North
Data: OGL, DOC
Created by K. Wellnitz. M_MP4Fast_Project_Description_Series. 31/08/2026.

Figure 26: Noise Bund at Section 41 I Highlay SD (Record of Title OT187/159)

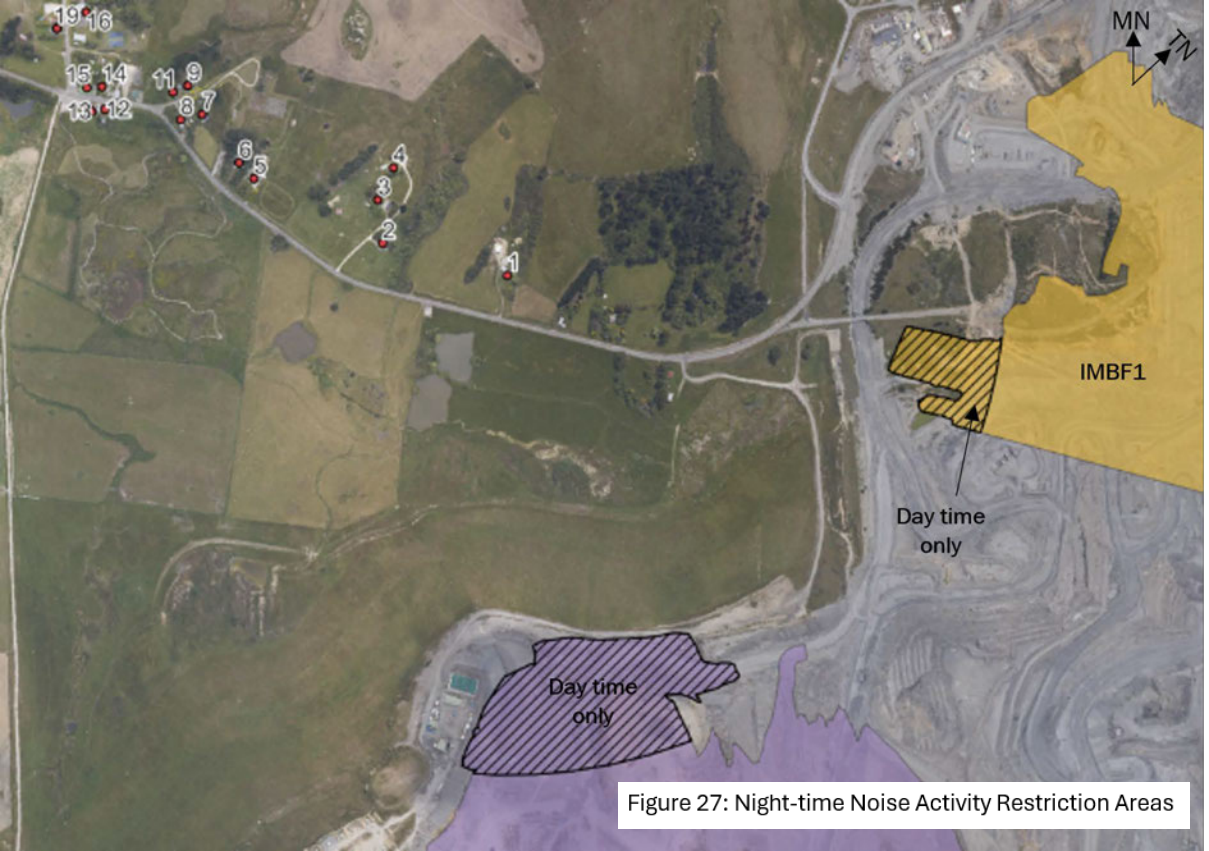
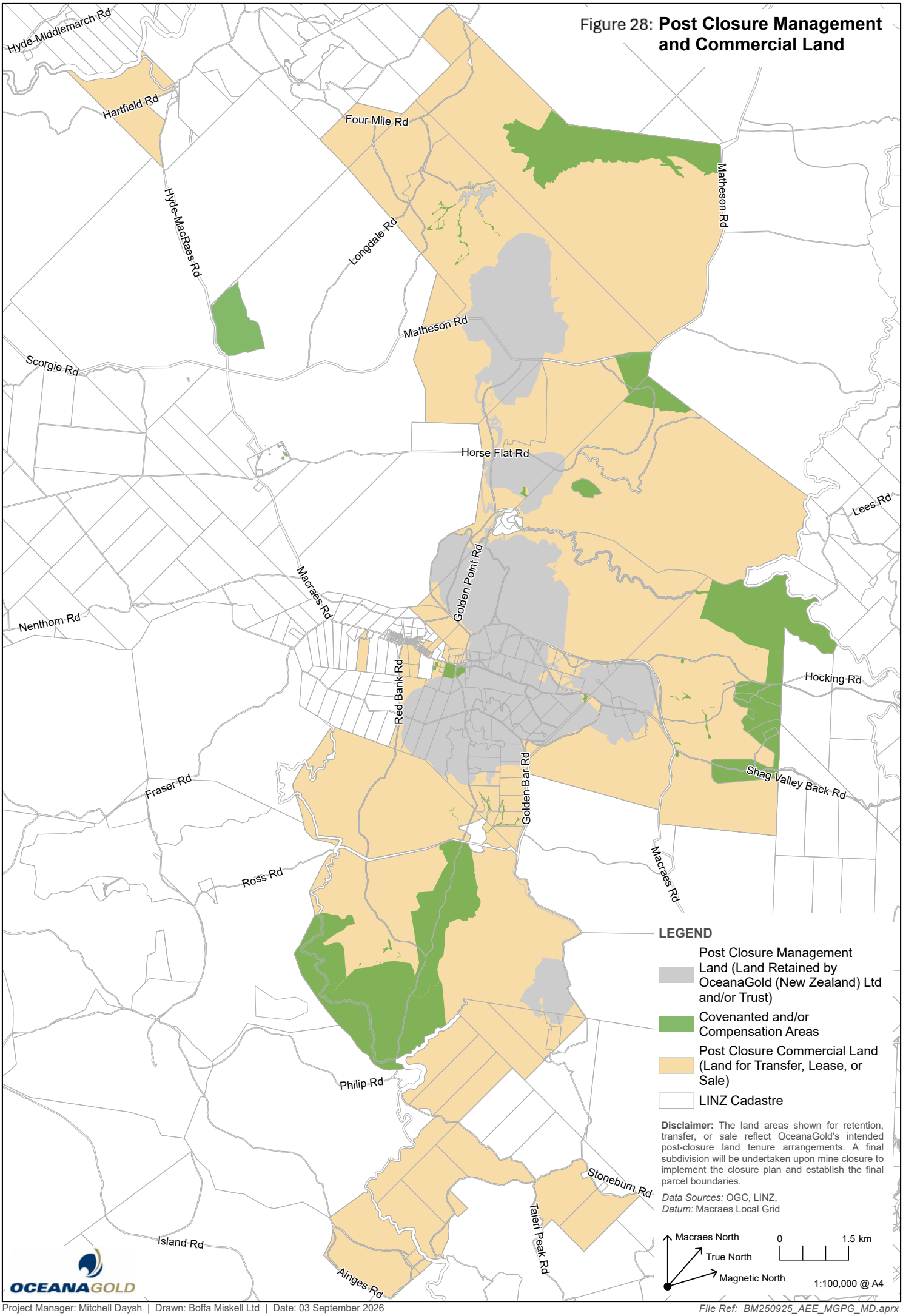
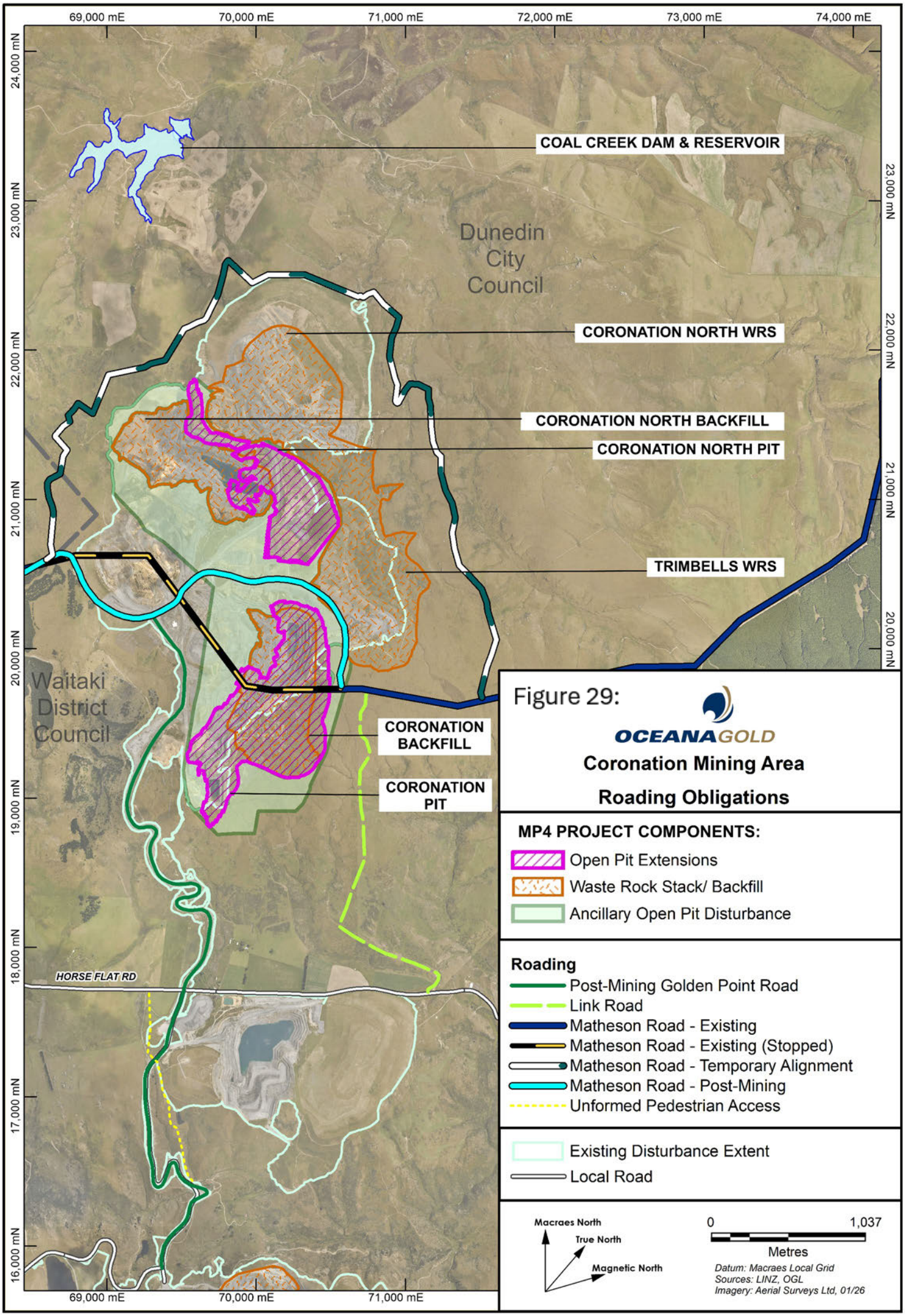


Figure 27: Night-time Noise Activity Restriction Areas



Project Manager: Mitchell Daysh | Drawn: Boffa Miskell Ltd | Date: 03 September 2026

File Ref: BM250925_AEE_MGPG_MD.aprx


69,000 mE
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71,000 mE
72,000 mE
73,000 mE
74,000 mE
24,000 mN
23,000 mN
22,000 mN
21,000 mN
20,000 mN
19,000 mN
18,000 mN
17,000 mN
16,000 mN
COAL CREEK DAM & RESERVOIR
Dunedin City Council
CORONATION NORTH WRS
CORONATION NORTH BACKFILL
CORONATION NORTH PIT
TRIMBELLS WRS
Waitaki District Council
CORONATION BACKFILL
CORONATION PIT
HORSE FLAT RD
Figure 29:
OCEANAGOLD
Coronation Mining Area
Roading Obligations
MP4 PROJECT COMPONENTS:
Open Pit Extensions
Waste Rock Stack/ Backfill
Ancillary Open Pit Disturbance
Roading
Post-Mining Golden Point Road
Link Road
Matheson Road - Existing
Matheson Road - Existing (Stopped)
Matheson Road - Temporary Alignment
Matheson Road - Post-Mining
Unformed Pedestrian Access
Existing Disturbance Extent
Local Road
Macraes North
True North
Magnetic North
0
1,037
Metres
Datum: Macraes Local Grid
Sources: LINZ, OGL
Imagery: Aerial Surveys Ltd, 01/26
Created by K. Wellnitz - M_MP4FAST_Project_Description_Series 25/08/2026

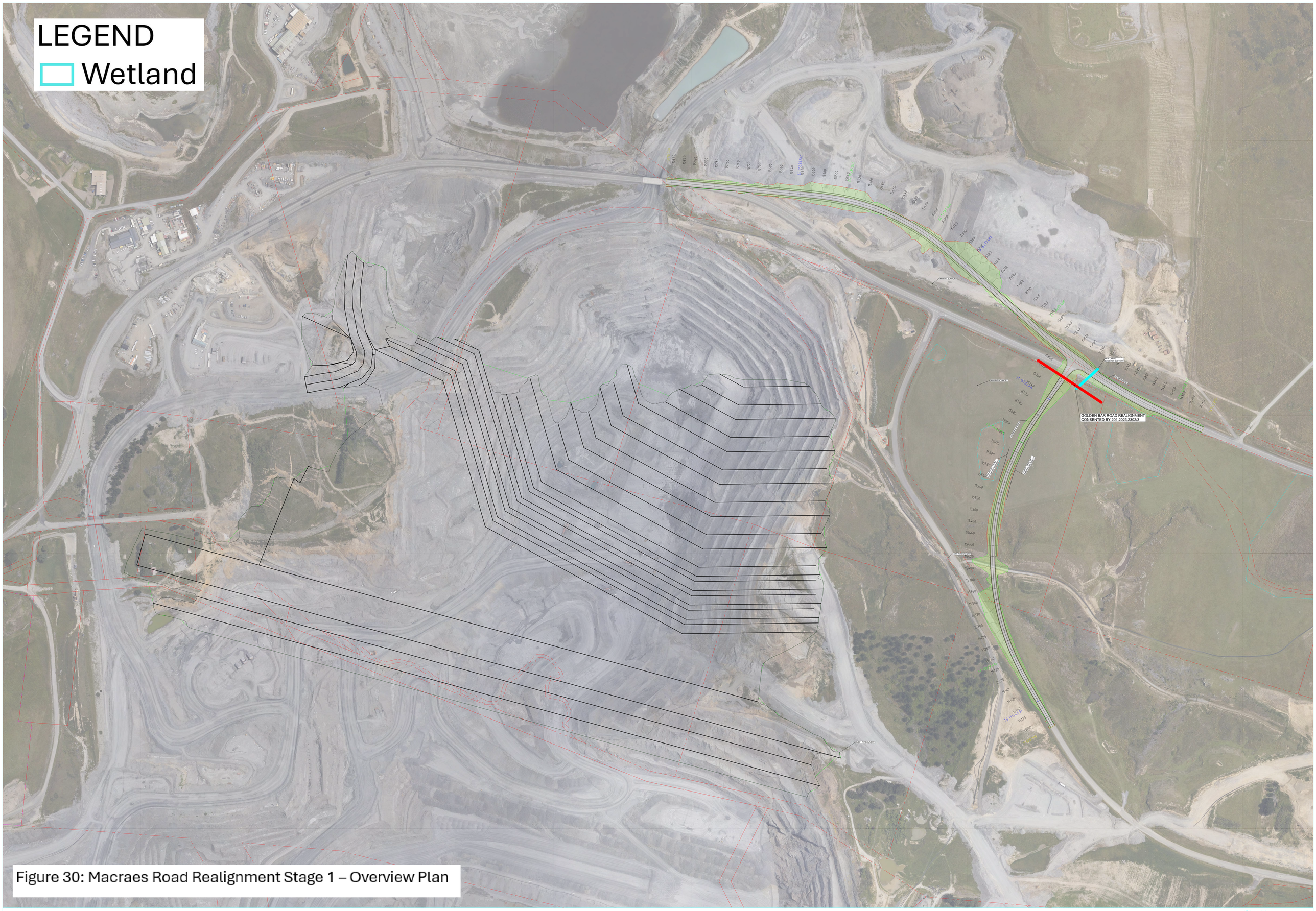

Figure 30: Macraes Road Realignment Stage 1 – Overview Plan

12d Model
Scale 1:1000
Mon May 11 13:12:06 2026