KIRKLAND LAKE GOLD

GROUP ANNUAL TECHNICAL REPORT

MLN's 833, 856, 1109,
ML's 27999, 31122
and MA's 398-402

Union Reefs Project

Union Reefs Gold Mine

Group Report
GR192/11

16 August 2017 to 15 August 2018

Distribution: -

1. DPIR Darwin, NT
2. Kirkland Lake Gold, Darwin
3. PNX Metals, Adelaide
4. Rockland Resources, Brisbane

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October 2018

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1 EXECUTIVE SUMMARY

The Union Reefs Group of mineral leases consists of ten tenements: MA398, MA399, MA400, MA401, MA402, MLN833, MLN856, MLN1109, ML27999 and ML31122. The leases are located approximately 170 km's southeast of Darwin, along the Stuart Highway, and 12 km north of the Pine Creek Township (Figure 1-1). Kirkland Lake Gold Inc. acquired the leases on November 6, 2009, after purchasing the liquidated assets held by GBS Gold Australia Pty Ltd. The group of tenements also includes the site of the Gravity and Carbon-in-leach plant.

The group of tenements are situated within the Pine Creek Orogen (PCO), a sequence of tightly folded rocks of Lower Proterozoic age which extends from Darwin in the north to Katherine in the south. It varies in thickness, from 10 km in some areas to 14 km in others, for a total area of 66,000 km^2. The area consists of rocks from the Burrell Creek and Mount Bonnie Formations, the known hosts of gold mineralisation in the district.

During the reporting period the Kirkland Lake Gold ceased mining and production, and increased their exploration activity at the Union Reefs and Cosmo underground project areas. A total of 28,229.91m were drilled at Union Reefs during the reporting period, with 24,183.91m being diamond and 4,046m meters being RC. This report shall detail the exploration activity undertaken over the Union Reefs project area during the reporting period.

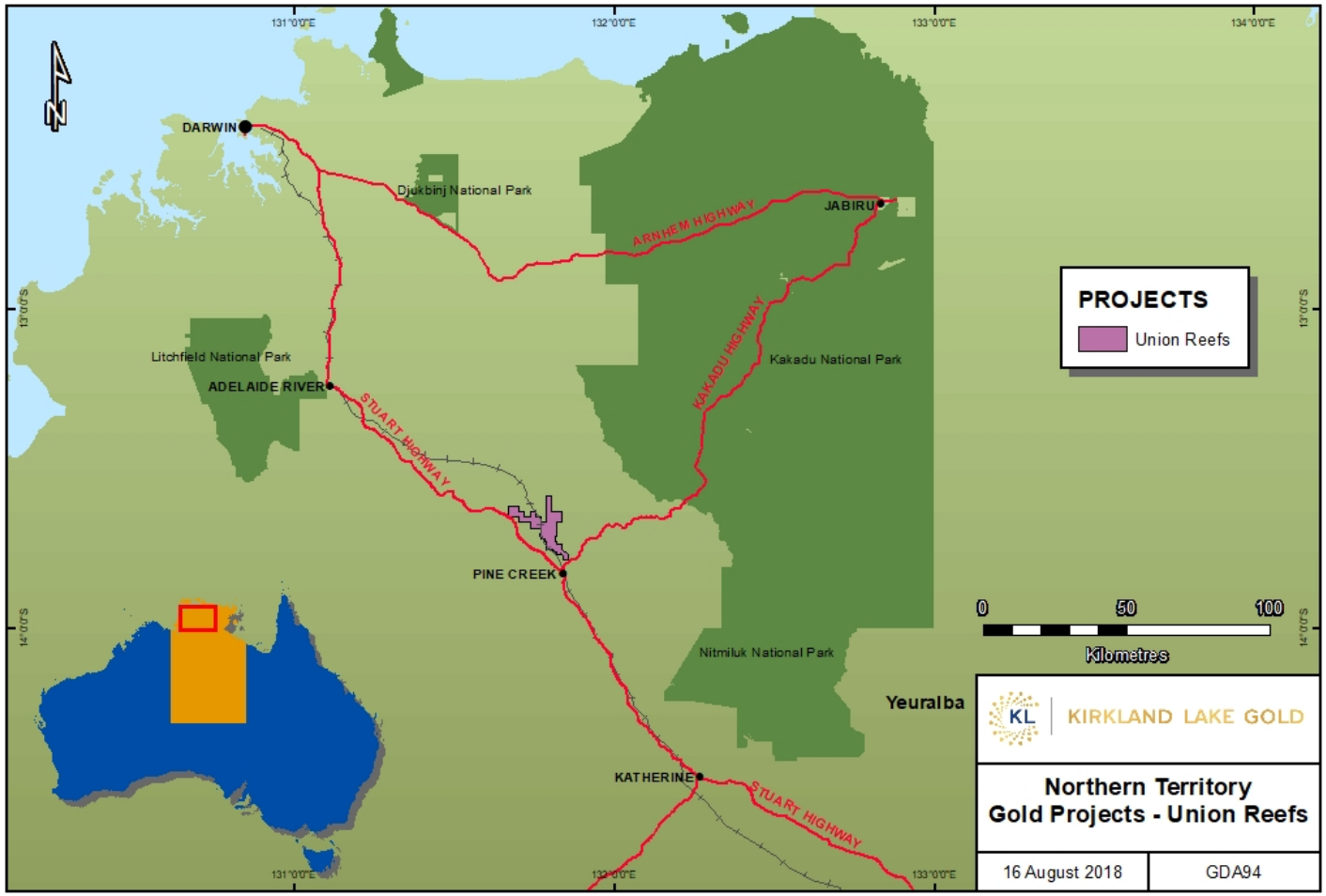


FIGURE 1-1 UNION REEFS PROJECT AREA TENEMENT LOCATION MAP

2 COPYRIGHT

3 INTRODUCTION

The Union Reefs project area consists of three Mineral Lease Northern's, two Mineral Lease's and five Mineral Authorities. The area was first discovered by prospectors during 1873, which led to approximately 1,600 open pits, shafts and adit's being worked to a depth of 60m within the area (Shields, White, & Ivanac, 1965). It is estimated that during 1880 to 1910, approximatly 1.76 t of gold was produced from 0.58 Mt of ore, mostly by Chinese workers (Shields, White, & Ivanac, 1965). The Union Reefs Project Area is a highly prosperous area with many years of exploration being conducted over the associated leases since its discovery. During 1995 open pit mining was commenced by Acacia Resources, following the extensive exploration programs undertaken by the Shell Company of Australia Ltd in 1994 (Ahmad, Wygralak, & Ferenczi, 2009). A total of 20,225,360t of ore was milled averaging 1.47 g/t Au during their tenure over the area (Edwards, 2015).

During 2018, Kirkland Lake Gold released the resources of nine deposits within the project area, which was reported in the 2018 Canadian National Instrument 43-101 technical report (Table 3-1).

EXCLUSIVE		INDICATED MINERAL RESOURCE				INFERRED MINERAL RESOURCE			
Project	**Deposit**	**Cut-off (Au g/t)**	**Tonnes**	**Grade (Au g/t)**	**Ounces Gold**	**Cut-off (Au g/t)**	**Tonnes**	**Grade (Au g/t)**	**Ounces Gold**
Union Reefs	Prospect Claim	0.5/2.0	957,320	3.07	94,400	0.5/2.0	377,002	7.18	87,018
	Crosscourse E-Lens	1.0	2,301,000	1.85	136,900	1.0	479,000	1.96	30,200
	Crosscourse Western Lode	2.0	191,000	3.67	22,500	2.0	96,000	4.05	12,500
	Esmeralda*	0.5/2.0	195,473	2.43	15,302	0.5/2.0	130,734	2.27	9,542
	Lady Alice					0.5	57,400	2.14	4,000
	Millars/BigTree/PingQue					0.5	462,431	1.96	29,072
	Orinoco	0.5	86,553	1.40	3,887	0.5	31,625	2.04	2,071
	Union North					0.5	484,744	1.58	24,677
	Union South/ Temple					0.5	491,356	1.22	19,229
	Total		**3,731,346**	**2.28**	**272,989**		**2,610,292**	**2.60**	**218,309**

TABLE 3-1 MINERAL RESOURCE ESTIMATIONS FOR DEPOSITS IN THE UNION REEFS AREA - DECEMBER 31, 2017

An application for amalgamated reporting was submitted to the DME at the end of 2010 which saw the amalgamation of annual technical reports for the Elizabeth and Union Reefs Project Areas. This was approved in December of 2010 and was assigned the group reporting number of GR192/11. In 2016, Newmarket Gold Inc. submitted an amendment to the DME to have Mineral Lease 27999 added to GR192/11. This application was approved by the DME in August of 2016.

4 LOCATION AND ACCESS

The Union Reefs mineral leases are located approximately 170 Km's southeast from Darwin, and 12 km north of the Pine Creek Township (Figure 1-1). Access to the area is via the Stuart Highway and then along the private Ping Que road, which intersects with the Darwin and Adelaide railway line. Access to MLN856 and ML31122 is via Ping Que Road and then onto the Union Reefs Haul Road, then north on unsealed tracks. Access to the leases is also gained via the Kakadu Highway and then along the Mt. Wells unsealed road, which intersects with ML27999. The Elizabeth leases (Mineral Lease 31122 and Mineral Lease N 856) are located approximately 7 km north west of the Union Reefs Gold Mine, with access being granted via the Springhill and Mt Wells Roads. The project area is located on both the Pine Creek (SD 5208) 1:250,000 scale map sheet and the Pine Creek (5270) 1: 100,000 scale map sheet.

The tenements lie between 13°35'0" south and 13°50'0" south and 131°50'0" east and 131°55'0"east. The leases also fall on Pastoral Lease 815 (Mary River West), Pastoral Lease 1134 (Mary River East) and Pastoral Lease 1111 (Ban Ban Springs).

Figure 4-1 shows the location of the group of leases.

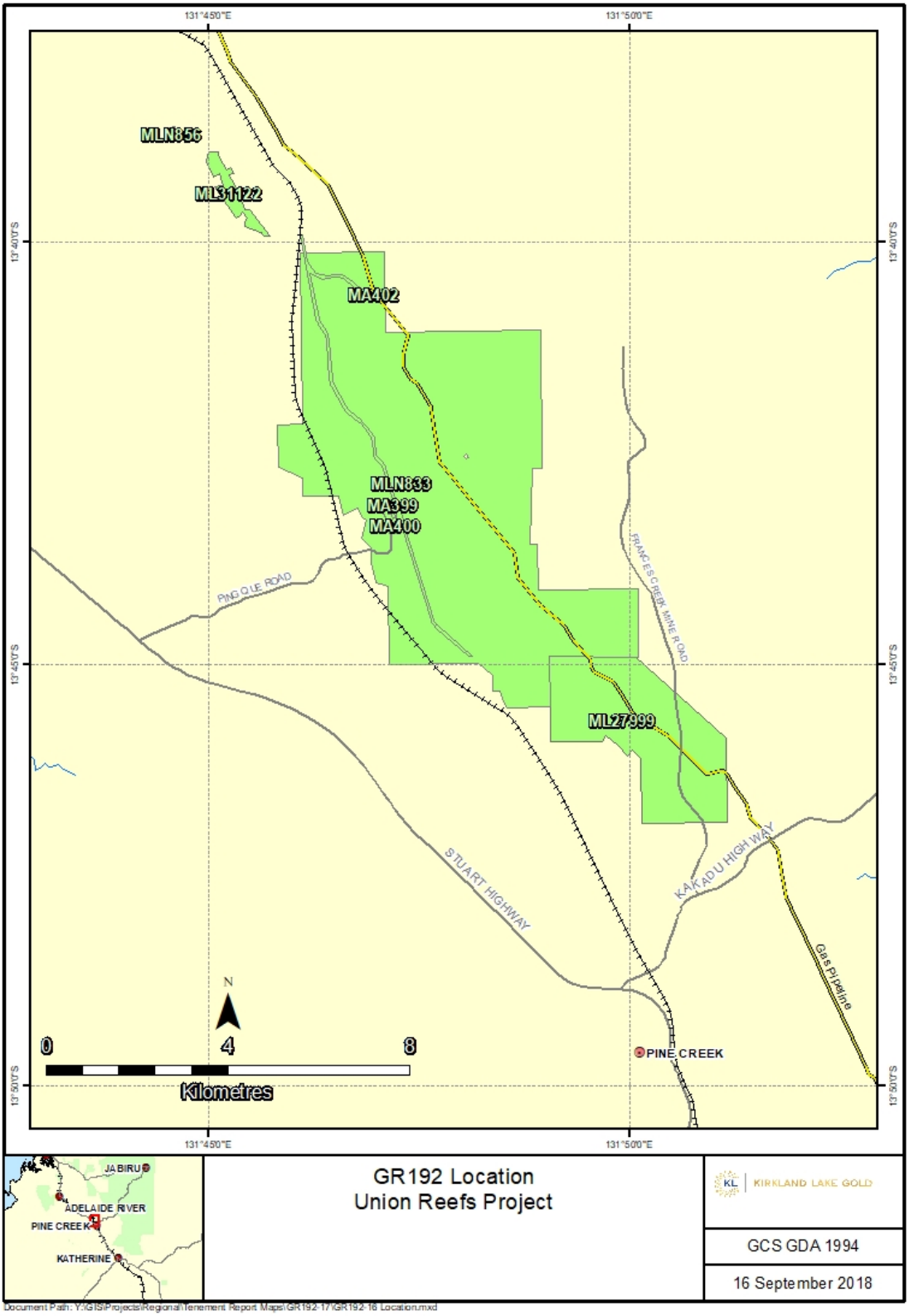


FIGURE 4-1 GR192 LOCATION MAP

5 TENEMENT DETAILS

The Union Reefs project area consists of Mineral Lease Northern's 833, 856 and 1109, Mineral Leases 31122 and 27999 and Mineral Authority 398, 399, 400, 401 and 402. The details for the Union Reefs project area are listed in Table 5-1 (below).

Tenement ID	Grant Date	Expiry Date	Area (Ha)
MA398	11/03/1994	31/12/2034	1.16
MA399	11/03/1994	31/12/2034	1.21
MA400	11/03/1994	31/12/2034	1.41
MA401	11/03/1994	31/12/2034	0.35
MA402	11/03/1994	31/12/2034	73.7
ML27999	2/02/2016	29/12/2040	861.9
ML31122	2/02/2016	11/02/2030	59.92
MLN833	6/03/1978	21/12/2018	1.12
MLN856	8/12/1978	21/12/2029	4.5
MLN1109	16/12/1993	31/12/2034	3998
Total			5003.27

TABLE 5-1 GR192 TENEMENT DETAILS

Mineral Lease 31122 was granted on February 2, 2016, following the conversion of the Elizabeth Mineral Lease Claims 506, 507, 734, 735, 738 and Mineral Lease Numbers 135, 779, 780 and 822. The lease comprises of 59.92 ha and is situated to the north of Mineral Lease N 1109. The lease has been granted for a period of 14 years and expires on February 11, 2030.

Mineral Lease 27999 was granted by the DME on December 30, 2015 for a period of 25 years. The lease is set to expire on December 29, 2040. ML 27999 replaces Exploration Licence in Retention (ELR) 130 and the Caroline leases MLN 51-57. The lease is situated southeast of MLN 1109 and covers a total of 861.9 Ha.

Mineral Lease Northern 1109 was first granted on December 16, 1993 for a period of 25 years. The lease was renewed at the beginning of 2015 for a period of 19 years and is set to expire on December 31, 2024. It is the largest of the mineral leases within the Union Reefs Project Group and consists of 3998 hectares. The Union Reefs gravity and carbon-in-leach plant (Figure 5-2), which processed gold from the Cosmo Deeps mine, is situated on MLN1109 (Figure 5-1).

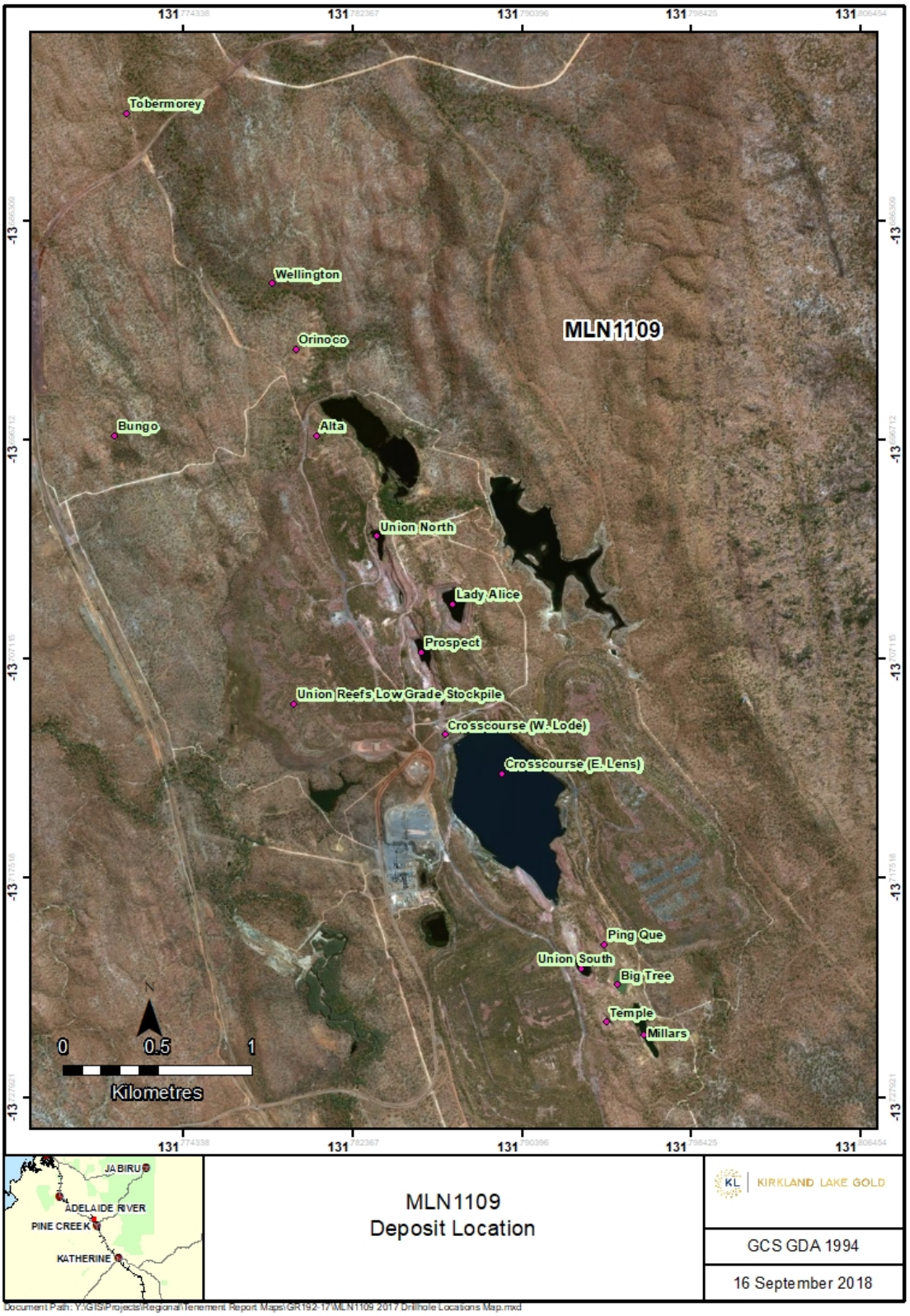


FIGURE 5-1 MLN DEPOSIT LOCATIONS MAP

Mineral Lease N 833 was first granted on March 6, 1978 for a period of 21 years. The lease is set to expire on December 31, 1998. A renewal application was lodged in November 1998, which was approved in 2001 for 20 years and is set to expire on December 31, 2018. The lease comprises of 1.12 hectares and is located within MLN1109 (Figure 5-2).

Mineral Lease (N) 856 is located approximately 825 km northwest of MLN1109 in the Spring Hill area and covers an area of 4.5 hectares. The lease was first granted on December 8, 1978 for a period of 21 years with an application for renewal being submitted to the DME in 1998. This was granted in 2000 for a period of 10 years, expiring on December 31, 2008. A second renewal was submitted to the Department in October of 2008, which was granted on December 11, 2008 for a period of 21 years. MLN856 is set to expire on December 31, 2029.

The project area is also made of five Mineral Authorities: 398, 399, 400, 401 and 402. Like MLN 833, this group of authorities are also located within MLN1109, with MA402 covering the haul road that extends to the north of MLN1109. Other infrastructure, such as the tailings dam, Union Reef site administration building and ROM are also found on the MA's (Figure 5-2). The leases cover a total of 77.87 hectares, with of the grant date for this group of Mineral Authorities being March 11, 1994. The leases are set to expire on December 31, 2034.

An application for amalgamated reporting for the Elizabeth and Union Reefs Project areas was submitted to the DPIR at the end of 2010. This was approved in December of 2010 and was assigned the group reporting number of GR192/11. In 2016, Kirkland Lake Gold submitted an amendment to the DPIR to have Mineral Lease 27999 added to GR192/11. This application was approved by the DPIR in August of 2016.

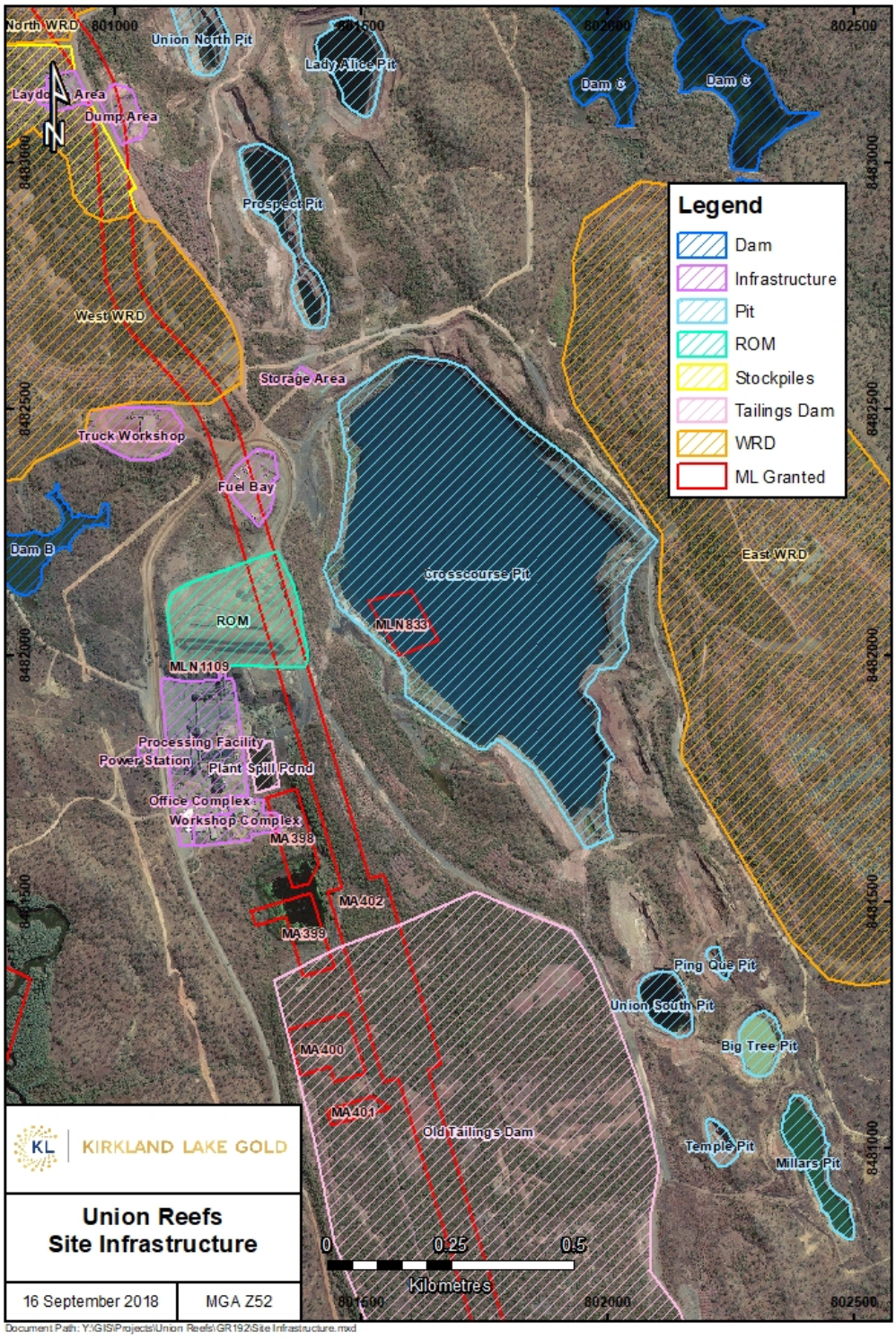


FIGURE 5-2 GR192 INFRASTRUCTURE LOCATION

6 GEOLOGICAL SETTING

6.1 REGIONAL GEOLOGY

The tenements of the Union Reefs Project Area are situated within the Pine Creek Orogen (PCO), one of the prospective basements associated with the Paleoproterozoic metasedimentary and igneous rocks of the North Australian Craton (Figure 6-1).

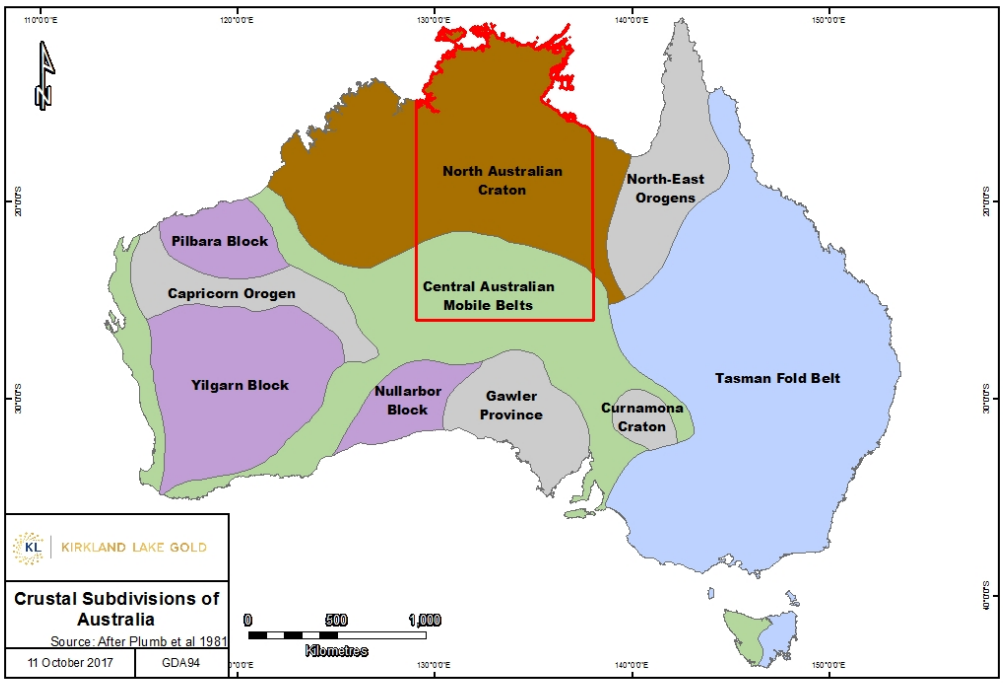


FIGURE 6-1 CRUSTAL SUBDIVISIONS OF AUSTRALIA (GILLMAN, MULLER, ANDREWS, & GERRITSEN, 2009)

The PCO is a tightly folded sequence of Lower Proterozoic rocks that formed on a cleaved granitic Archaean basement (~2.2-1.87 Ga). It is known to include almost half of known gold occurrences in the Northern Territory (Figure 6-1), which occur over an area of 66,000 km² on a northwest trending belt, which extends from Darwin in the north to Katherine in the south. The belt varies in thickness between the two points, from 10 km in some area to 14 km in others.

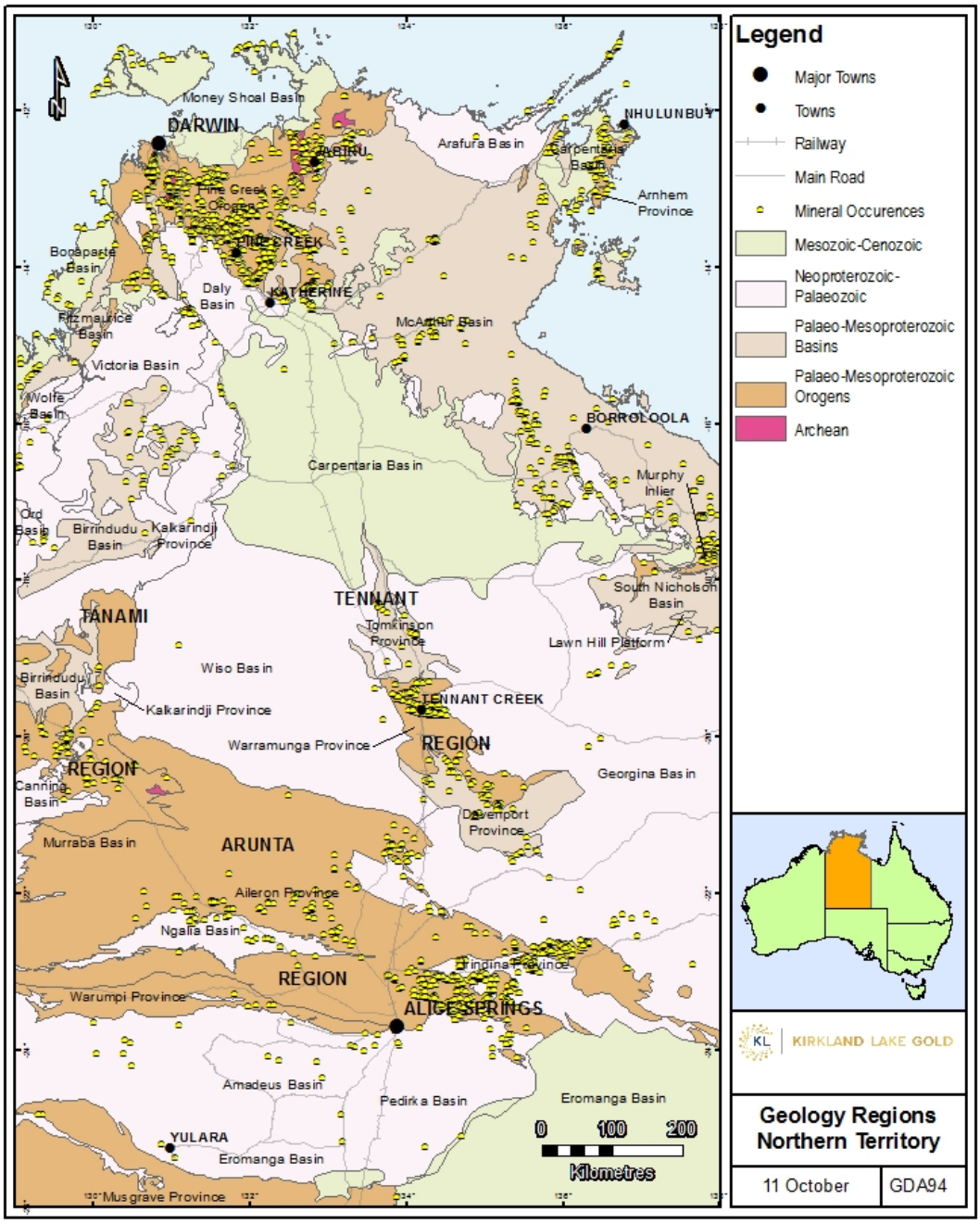


FIGURE 6-2 GEOLOGY REGIONS AND GOLD OCCURRENCES IN THE PINE CREEK OROGEN, NORTHERN TERRITORY

The PCO belt comprises several sedimentary formations associated with tidal to deeper water turbidite depositional environments as summarised in Figure 6-3.

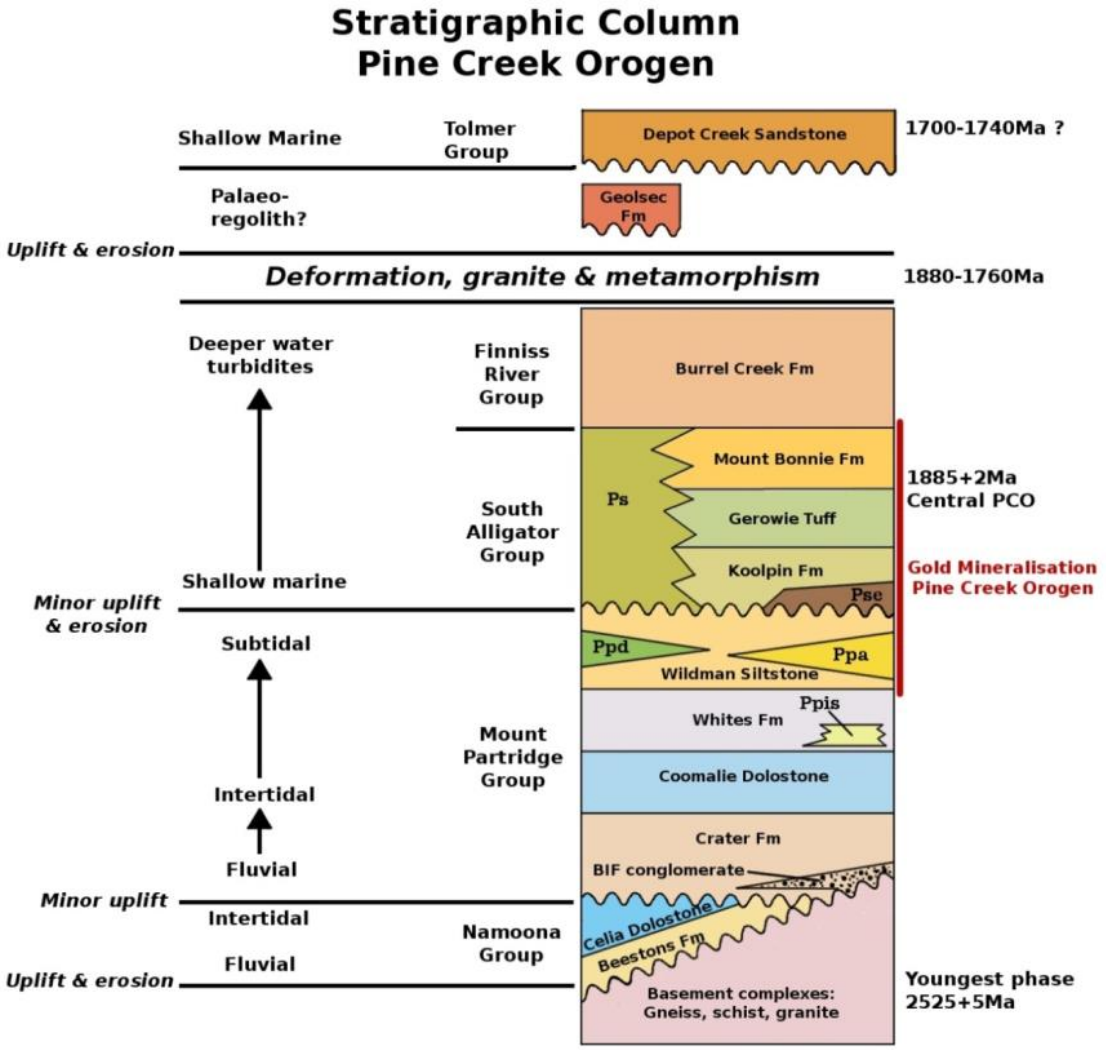


FIGURE 6-3 STRATIGRAPHIC COLUMN, PINE CREEK OROGEN (GILLMAN, MULLER, ANDREWS, & GERRITSEN, 2009)

The Finnis River Group consists of the Burrell Creek Formation, a sequence of sedimentary rocks formed from turbidite rocks which were deposited during a time of basin subsidence (Ahmad & Munson, 2013).

The South Alligator Group comprises of greywacke, siltstone, shale, carbonaceous rocks and iron-rich sedimentary rock. The group is divided into three formations: the Mount Bonnie Formation; the Gerowie Tuff; and the Koolpin Formation (Figure 6-4). Mafic sills intruded the formations of the South Alligator Group during the Zamu Dolerite intrusive

event (~1.87Ga), after which, the sequence underwent folding and faulting during the Nimbuwah Event (~1.87-1.85Ga).

It was during the Cullen Intrusive Event (~1.84-1.80Ga) that fractionated calc-alkaline granite batholiths were introduced into the sequence. This then went on to produce andalusite hornfels facies and regionally extensive biotite metamorphism from the high temperature I-types intrusives.

Gold mineralisation has typically been found within the anticlines associated with the South Alligator Group and some parts of the Finnis River Group (Figure 6-3).

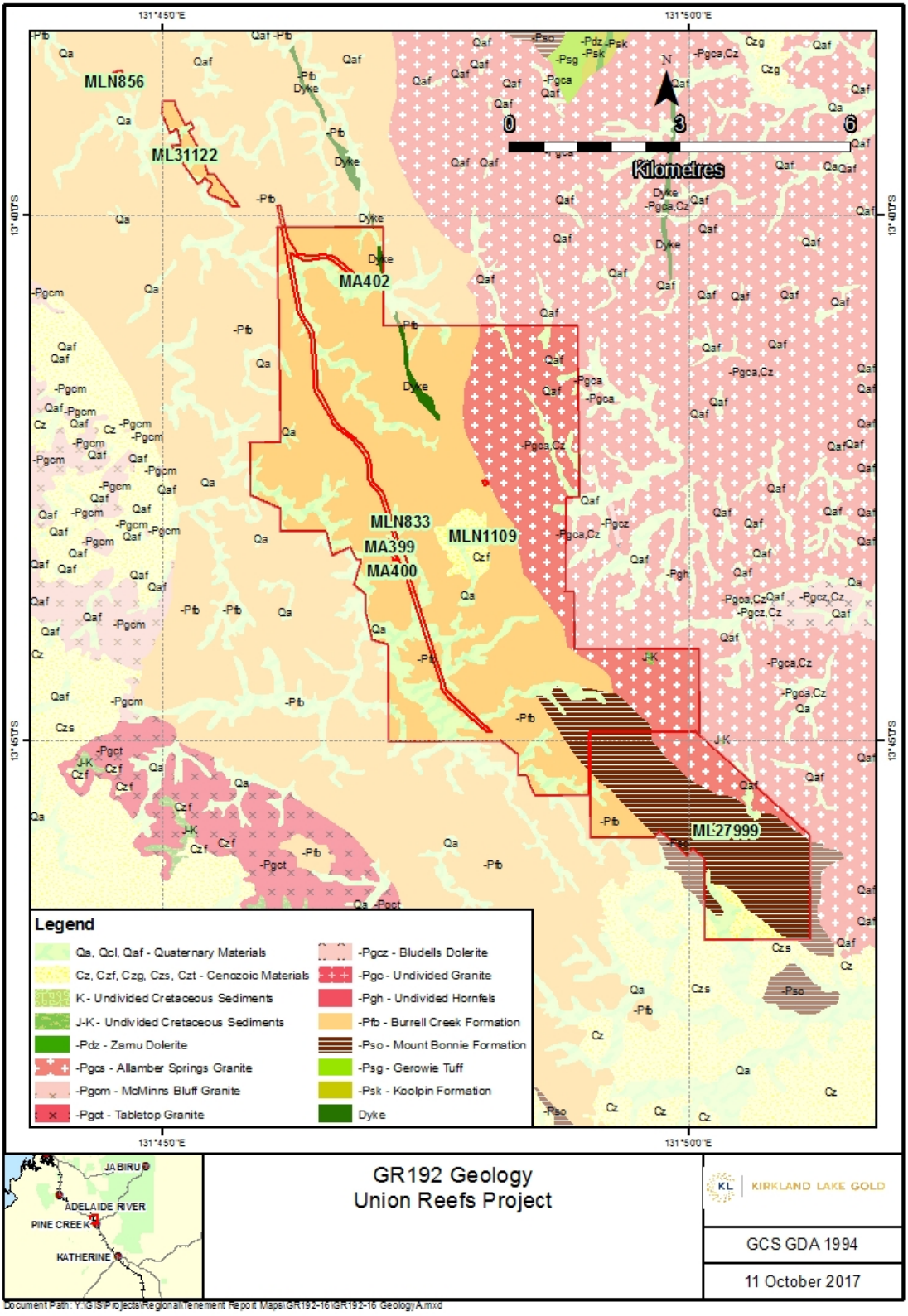


FIGURE 6-4 GR192 REGIONAL GEOLOGY MAP

6.2 LOCAL GEOLOGY

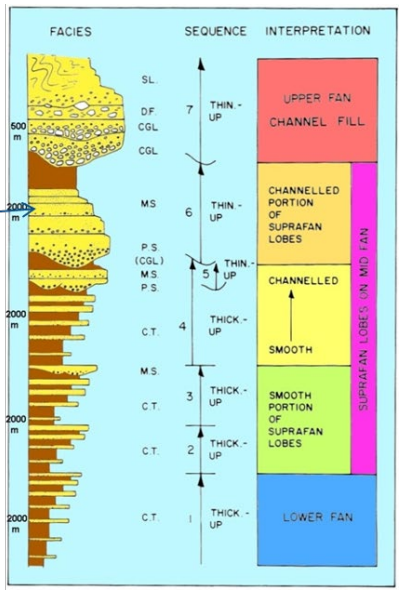
During 2011, Kirkland Lake Gold (then Crocodile Gold) hired the services of consulting geologist Paul Karpeta (Karpeta, 2011), who was charged with investigating the Union Reefs area. Krpeta's report describes the geology of the Union Reefs project area as followed:

The geology of the Union Reefs mining centre is dominated by the NW striking Pine Creek Shear zone, a 300m wide corridor of folded and sheared metasediment package that largely comprises Burrell Creek Formation (Finniss River Group) and structurally generated inliers of Mt Bonnie Formation (South Alligator Group).

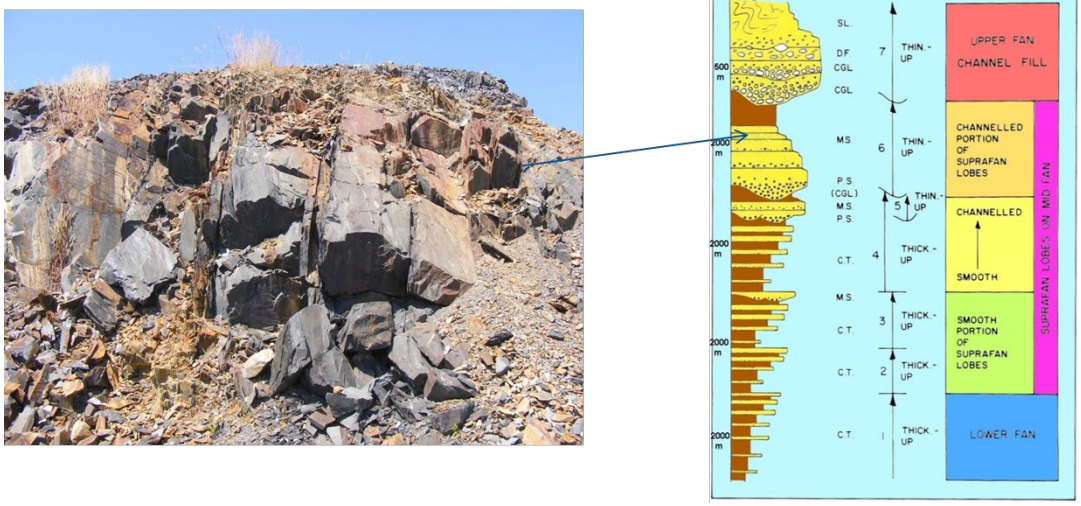
The host sequence including the Pine Creek Shear Zone is confined to the east by the Allamber Springs Granite and to the west by the Tabletop and McCarthys Granites. Rocks within this zone have been tightly folded and in high strain areas, subjected to fold limb failure. Axial planes and bedding tend to dip steeply to the west. Spotted hornfels to garnet hornfels facies metamorphism is attributed to the influence of the Cullen intrusive event.

The sedimentology of the Union Reefs deposit is made up of several lithological units, these are summarised below (From Karpeta 2011);

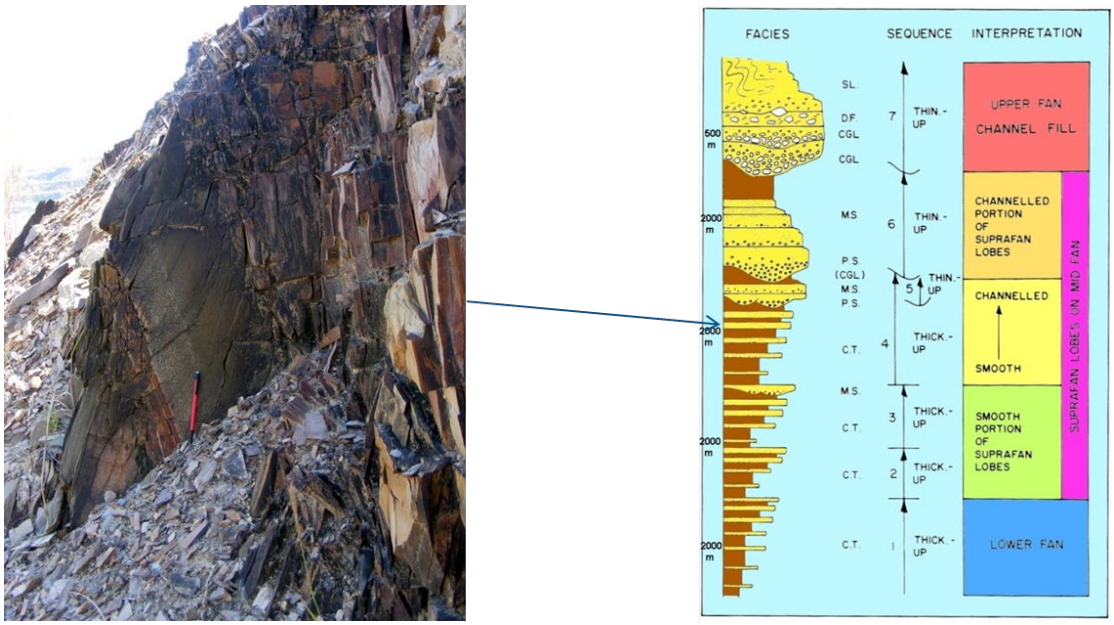
Lady Alice Grits



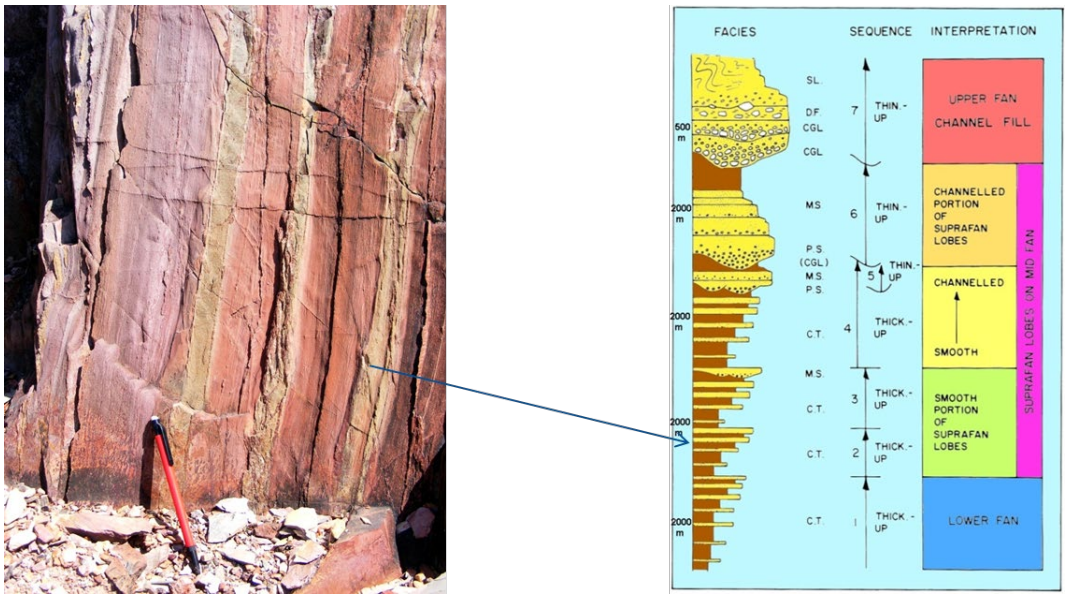
Massive Greywakes



Interbedded Greywacke and Pelite



Thinly Bedded Metapelite and Greywacke



Gold mineralisation extends over a length of 3.5km, 400 meters' width and to a vertical depth of 300 metres. Numerous historical workings have been developed over the northwest striking Pine Creek Shear Zone and associated Union and Lady Alice Lines. The Lady Alice Line follows the axis of the Lady Alice Anticline. Mineralisation is associated with quartz-sulphide veining, compromising 1mm to 2-metre-thick lode-style veins in sheared pelites, stockwork veins in greywacke and sheeted vein systems in thinly interbedded pelites and psammites.

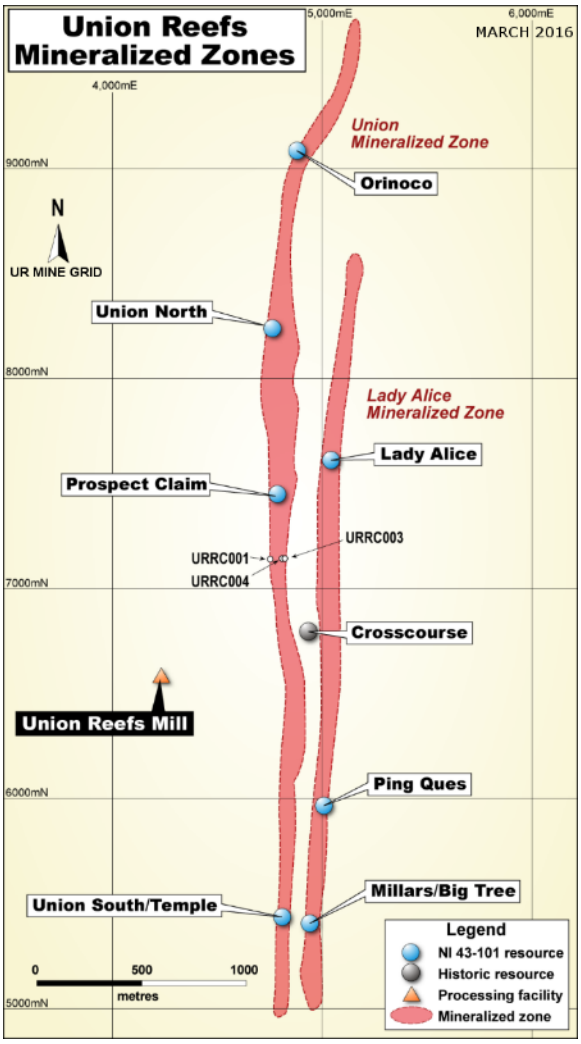


FIGURE 6-5 UNION REEFS MINERALIZED ZONES AND DEPOSITS – PLAN VIEW

The deposits occur along a major NNW-SSE striking shear zone, the Pine Creek Shear Zone and are largely hosted by the Burrell Creek Formation slates and greywackes.

Bedding (S0) in the Union Reefs area is unimodal and subvertical averaging 87˚ to 255˚, through way-up structures indicate the presence of tight, upright, isoclinal folds. Bedding strike varies along the Pine Creek Shear from 350˚ in Union North through 355˚ at Lady Alice and 335˚ at Crosscourse to 352˚ in Union South indicating a 20˚ swing in strike to the east at Crosscourse Pit corresponding to the swing in shear direction.

Foliation (S1) in the Union Reefs area generally dips 80˚ to 270˚ and appears to be axial planar to the isoclinal folding (F1). Shallow plunging minor fold axial planes dip 80˚ to 280˚ and represent folds parasitic to the major 1st order folding. The plunge of these shallowly plunging folds varies between 33˚ to 114˚ at Lady Alice through 18˚ to 325˚ at Crosscourse to 15˚ to 145˚ at Union South indicating reversals in plunge from north to south related to cross folding.

Steeply plunging minor fold axial planes also dip 80° to the west but have plunges varying between 85° to 354° at Union North and Lady Alice through vertical (90°) at Crosscourse back to 85° to 353° at Union South. These steeply plunging minor folds (F3) appear to be later than the shallow plunging folds (F2) occurring in shear zones with a sinistral sense of movement.

At least two sets of bedding plane parallel lineations have been observed in the Union Reefs area, an earlier steeply plunging set (L1) and a later shallowly plunging set (L2). The earlier set is probably related to bedding plane movement during F1 flexural slip isoclinal folding. Plunge of L1 varies from 80° to 340° at Union North through 84° to 346° at Lady Alice and 80° to 142° at Crosscourse to 82° to 332° at Union South, again indicating a change in plunge along the Pine Creek Shear. The later shallowly plunging lineations (L2) appear to be related to the sinistral shearing event and plunge again shows a north-to-south variation. At Union North they plunge 7° to 170°, at Lady Alice 9° to 160° whereas at Crosscourse this changes to 15° to 330° reverting to 10° to 150° at Union Reefs South. Total quartz vein orientation data for Union Reefs shows an overwhelming sub-vertical north-south striking population, which may represent bedding plane and shear zone parallel veins.

The bedding plane parallel veins (QV1) are usually boudinaged parallel to the fold axes by bedding-plane movement associated with the flexural slip folding. The shallow plunges of these boudins show a north-to-south variation plunging 15° to 155° at Union North, at Lady Alice, 7° to 345°, at Crosscourse, 10° to 334° and 8° to 160° at Union South. The later shear zone parallel veins (QV2) plunge steeply varying between 80° to 340° at Union North through 85° to 345° at Lady Alice and 80° to 140° at Crosscourse to 80° to 335° at Union South. These variations in plunge of various structures are attributed to low amplitude E-W striking cross folding. Late north-south striking, E-over-W and W-over-E brittle thrusts are also recognized dipping 30° to 245°, flat and 45° to 070°.

The structural evolution of the Union Reefs area involved initially horizontal E-W compression (D1) and the formation of tight, upright, N-S striking, isoclinal flexural slip folding (F1) accompanied by bedding plane slip and boudinaged bedding plane parallel quartz veins (QV1). This folding would have been buttressed against the Pine Creek Fault Zone, which was originally a normal fault.

The Zamu dolerite sills were also folded by D1. Subsequently the horizontal compression direction rotated clockwise to NW-SE producing a sinistral shear couple on the Pine Creek Fault, which then became reactivated as a sinistral shear zone (D2). Subordinate sinistral shears formed on optimally oriented bedding planes either side of the main shear. However, it appears that at the aptly named Crosscourse Pit, the Pine Creek Fault has a left-hand extensional stepover, which forms an area of dilation. Vertically plunging quartz veins were formed on the hinges of sinistral shear folds within these shear zones (QV2). The horizontal compression direction then rotated clockwise to approximately north-south (D3), producing

E-W striking, open (30° interlimb angle), long wavelength (~1,000m) folds (F3), which tilted previously formed lineations, boudins and mineralization bodies to the north or south depending on which limb of the fold they were on. Subsequently the Pine Creek Shear Zone appears to have been reactivated as a dextral shear though this was not directly observed in the field (D4) but has been documented elsewhere. The last deformation event was the conjugate, E-over-W and W-over-E, brittle thrusting (D5) possibly a result of horizontal E-W compression.

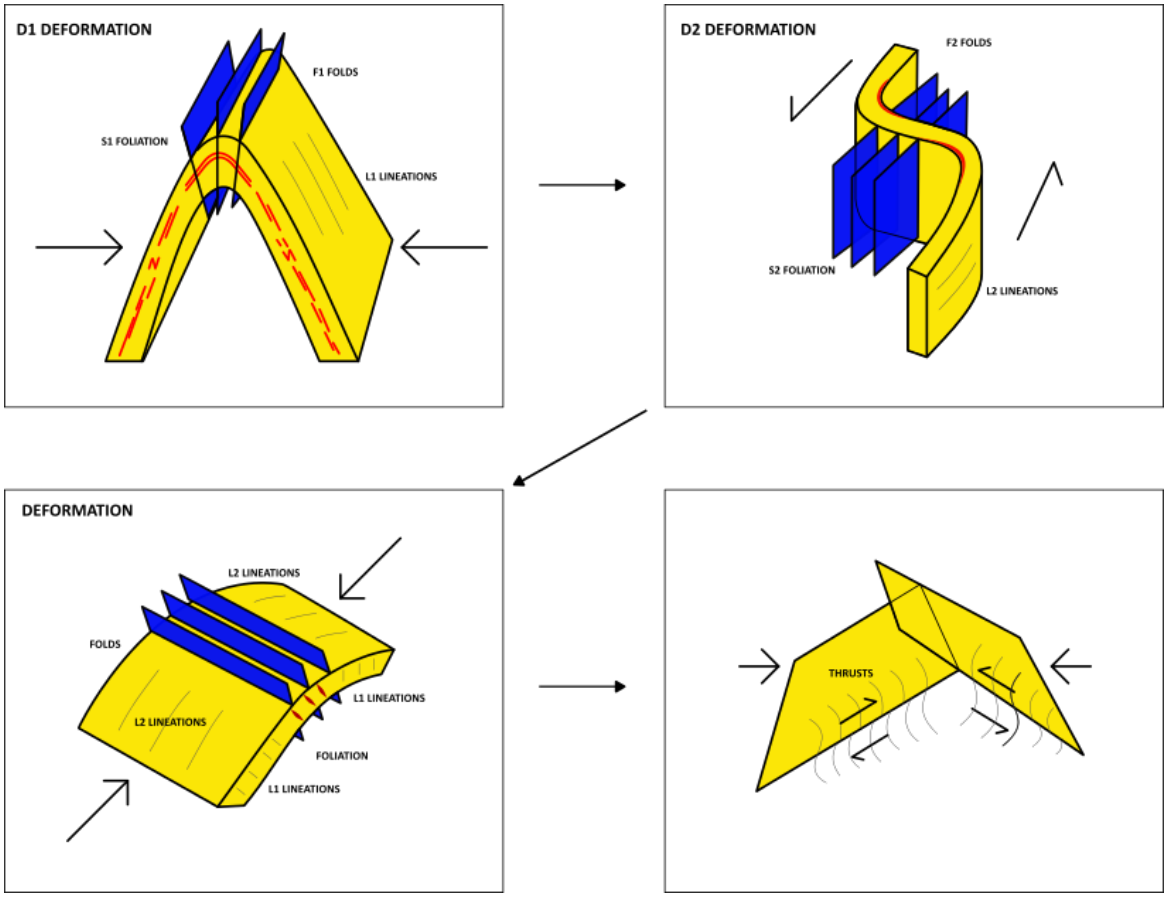


FIGURE 6-6 DEFORMATION SUMMARY UNION REEFS

Gold mineralization at Union Reefs appears to be related to the two major sets of quartz veins and lodes (QV1 & QV2). The first set comprises bedding plane parallel veins having a shallow plunge parallel to the F1 upright fold hinges and produced by bedding plane movement on the hinges of these flexural slip folds. Gold mineralized quartz veins are associated with folding and are probably therefore similar to the saddle reefs reported worldwide from slate belts. The second set is found on the D2 sinistral shear zones but plunging steeply down them. Since the D2 shears are usually bedding plane parallel, both sets of veins are effectively bedding-plane parallel.

The intensity of gold mineralization appears to be highest in the Crosscourse Pit, where the Pine Creek Shear Zone undergoes a left handed extensional step over. Such an extensional step over would produce an area of better permeability to allow the migration of mineralizing fluids and is therefore similar to the model proposed for shear zone hosted gold deposits.

The turbiditic Burrell Creek Formation of Union Reefs has thick, more competent beds of greywacke in mudstones producing a series of large amplitude, long wavelength folds. These folds would have been initiated against a normal fault and propagated backwards (westwards). Therefore at Union Reefs the first and biggest fold to form would have been immediately to the west of the Pine Creek Fault (the Lady Alice Anticline). Subsequent rotation of the compression direction to NW-SE would result in a sinistral shear fault reactivation of both the Howley Structure and the Pine Creek Fault, and thrusting/folding in the Rising Tide and Hayes Creek Faults.

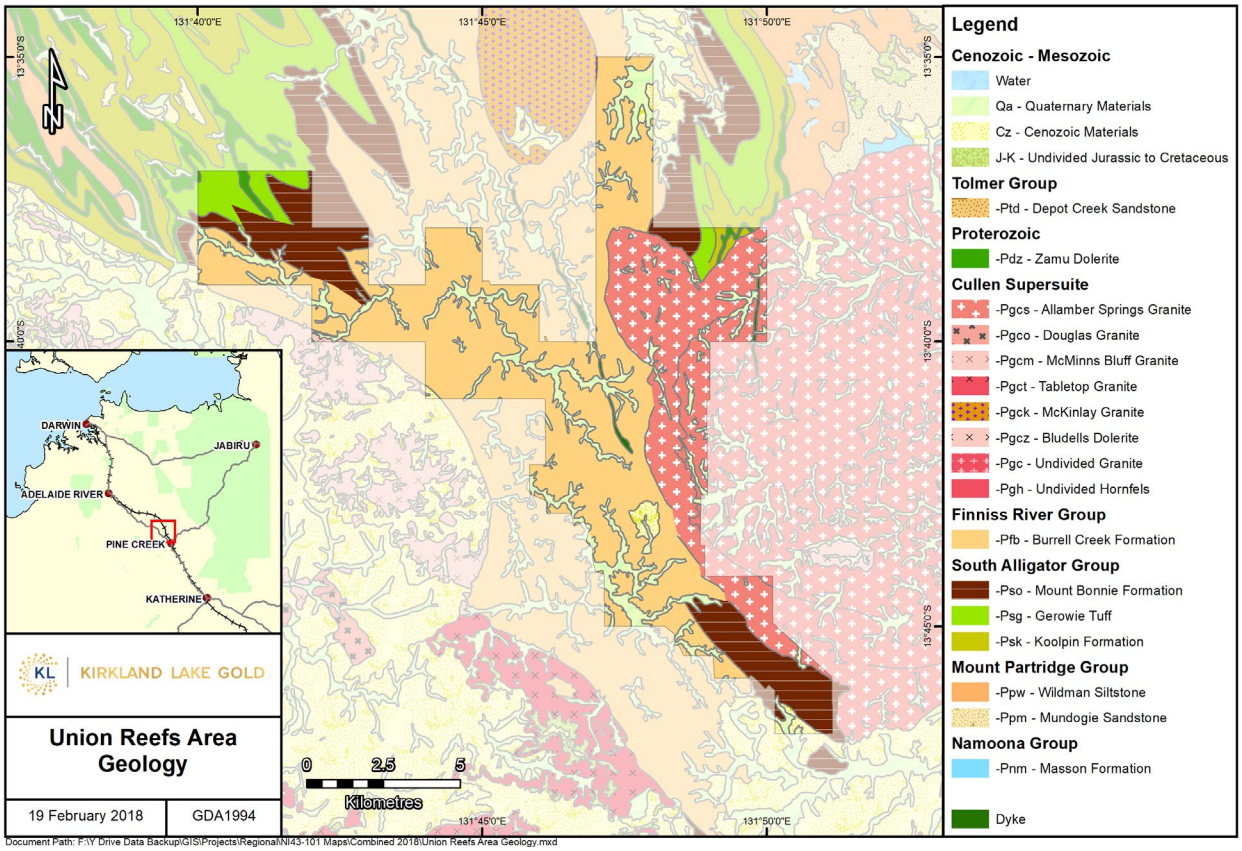


FIGURE 6-7 LOCAL GEOLOGY FOR UNION REEFS GOLD PROJECT

7 PREVIOUS EXPLORATION

Gold was first discovered in the Northern Territory during the late 1800's and it wasn't until 1873, that alluvial gold was found at Union Reefs, by prospectors Adam John's and Phil Saunders (Jones, 1987). By 1875, mining had increased in the Northern Territory, which saw the demand (and introduction) of Chinese workers to the area. Large amounts of gold are said to have been extracted from the area, however no complete records have been found, which can substantiate this (Hossfeld, 1936). It is believed that between 1880, and 1910 approximatly 1.76 tonnes of gold was produced from 0.58 Mt of ore, mostly by Chinese workers (Shields, White, & Ivanac, 1965) at the Union Battery, which were predominantly workings from the Union Reefs lodes. It had also been reported that during the period between 1875 and 1897 approximately 107 kg of gold was extractred from the Elizabeth workings.

During 1905 and 1906, the government funded two diamond drill holes (DDH No. 1 and DDH No. 2) at Union Reefs, with a further four drilled during 1913 and 1914 DDH No. 3, DDH No. 4, DDH No. 5 and DDH no. 6). Holes 1, 2, 3, 4 and 6 all contained grains of gold. The precision of the coordinates of these holes is not known as none of the holes were surveyed for their dip. Shields et al discusses the results from this drilling in their 1965 report (Shields, White, & Ivanac, 1965).

Between 1963 and 1964 further drilling of the gold-quartz lodes at Millers, Crosscourse and Prospect Claim was undertaken at Union Reefs by the Bureau of Mineral Resources, on behalf of the Department of Territories (Shields, White, & Ivanac, 1965). A total of 1,890.98m was drilled in the area, with five diamond holes drilled at Millers, three diamond holes drilled at Crosscourse and four diamond holes drilled at Prospect Claim.

In 1965, a total of 13 diamond drill holes were drilled in the Union Reefs area. Five holes were drilled at Miller's, four holes were three holes were drilled at Prospect Claim, three holes were drilled at Crosscourse and one hole was drilled at Union Central. Also during this time, seven percussion holes were drilled at Crosscourse and Prospect Claim through the joint work of the BMR and United Uranium NL (Wegmann, 1993).

During 1967, a detailed survey of the Union Reefs area was conducted by the Bureau of Mineral Resources. This included a small diamond drill program consisting of 13 diamond holes as well as extensive mapping and electromagnetic surveys (Vakil, 1988).

During 1969-1970 four diamond holes were drilled on MLN 1109 by Central Pacific Minerals in conjunction with the DME. Three of these holes (DDH NT.20-1, NT.20-2, NT.20-3) were drilled at Crosscourse, while the fourth hole was drilled at Lady Alice North One diamond hole (NT.20-4) was drilled on the northern edge of Lady Alice, which were designed to confirm the grade from the two zones of mineralisation (Shields, 1970).

Also during 1969, Geomin Exploration Pty Ltd discovered the area which became the Caroline Leases through the definition of a number of lead, copper and zinc anomalies. Two lead-zinc anomalies were discovered through soil sampling which lead to 11 costeans

being excavated on the lease (Cox, 1969). The MLN's were granted in 1971 to United Uranium on November 4, 1971 for a 20-year period.

In August of 1979, the Northern Territory Department of Mines drilled one diamond hole at Elizabeth which was then assayed. The results proved to be discouraging and no further holes were drilled at Elizabeth.

In 1980 the Union Reefs project area was acquired by Enterprise Gold Mines. From 1984 and 1988, Enterprise Gold Mines NL conducted exploration on the project area, which involved the drilling of 25 holes at the Crosscourse and Ping Que areas. The results from this drilling showed promising grades from the Crosscourse area (Read & Associates, 1986). A preliminary resource for both Ping Que and Crosscourse is displayed in Table 7-1.

Prospect	Ping Que		Crosscourse		Total	
	mT @	g/t Au	mT @	g/t Au	mT @	g/t Au
Weathered & Transitional	0.69	1.56	1.32	1.72	2.00	1.67
Fresh	0.52	1.77	0.58	1.62	1.1	1.69
Total	1.2	1.65	1.9	1.69	3.1	1.68

TABLE 7-1 ENTERPRISE GOLD MINE ESTIMATED RESOURCE- COURSECOURSE & PING QUE (Wegman, 1992)

During 1987 Enterprise Gold Mines undertook an extensive exploration program on the Union Reefs lease, which included bulk sampling, exploration drilling for groundwater, metallurgical testing and rock chip sampling. The results from the rock chip samples were seen as encouraging, which recommended further drilling to be conducted over the area (Vakil, 1988).

At the beginning of 1988, Enterprise Gold Mines undertook a diamond drill program in the Ping Ques area. This drilling assisted in locating additional oxide resources, which could be treated by heap leach (Mulroney, 1989).

Later in 1988, Mineral Horizon NL purchased the Union Reefs tenements held by Enterprise Gold Mines. A reverse circulation program was conducted along the Union and Lady Alice lines of mineralisation which saw 70 holes drilled during October and December of 1988. Through the partnership between Mineral Horizons NL and Togar Pty Ltd, a jig-based alluvial production plant was erected and began gold production in December of 1988. A total of 149.7 ounces from 15,000 loose cubic meters of alluvial gold was produced during December 1988 and June 1989.

Also during 1988, a small exploration program was carried out on ML 31122 by Pine Creek Goldfields (Large, 2001). This included rock chip sampling, mapping and seven RC holes being drilled. A total of 464m was drilled from the seven holes, with significant intercepts from two of the holes drilled (Table 7-2).

Hole_ID	Width (m)	Au g/t	Intercept_Description
EL88/3	1	4	1m @ 4.0 g/t Au
EL886/6	1	4.6	1m @ 4.6 g/t Au

TABLE 7-2 1988 RC SIGNIFICANT INTERCEPTS

United Uranium went into receivership which saw Nicron Resources NL (a wholly owned subsidiary of Aztec Mining Company Ltd) purchase the Caroline Leases in September of 1988 (Spurway, 1996).

In 1991, Billiton Australia (the metals division of the Shell Company of Australia) acquired the Union Reefs project area from Mineral Horizon NL. A drilling campaign of 68 percussion holes at Lady Alice North and Union, focusing on the lines of mineralisation, as well as the re-evaluation of the resource for Crosscourse and Ping Que (Table 7-3) was undertaken during the year.

Prospect	Ping Que		Crosscourse		Total	
	mT @	g/t	mT @	g/t	mT @	g/t
Weathered	0.16	3.06	0.63	2.37	0.80	2.51
Transitional	0.03	2.63	0.18	3.69	0.20	3.54
Fresh	0.07	3.71	0.63	2.78	0.7	2.87
Total	0.26	3.2	1.44	2.72	1.7	2.79

TABLE 7-3 BILLITON AUSTRALIA RE-EVALUATED RESOURCE - CROSSCOURSE & PING QUE (WEGMAN, 1992)

Also during the period, Billiton focused their efforts on geological mapping, rock chip sampling, geophysics and soil sampling. From the drilling they undertook on Union Central, Union North, Lady Alice North and Union South, Billiton released an updated preliminary resources estimate for the Union Reefs area (Table 7-4).

Prospect	MTonnes	g/t Au
Union Central (a)		
Weathered	1.59	2.48
Transitional & Fresh	1.79	2.88
Total	3.37	2.69
Union North (b)	0.49	1.7
Lady Alice North (b)	0.16	2.46
Union Central (b)	0.6	2.1
Union South (b)	0.54	2.01
Total	**5.2**	**2.5**

(a) includes Crosscourse and Ping Que's (6265N-6630N) 0.7 g/t Au cut off to RL 100
(b) 1.0 g/t cut off - less than 50m pit depth

TABLE 7-4 BILLITON AUSTRALIA PRELIMINARY GLOBAL RESOURCE ESTIMATE (1991) (WEGMAN, 1992)

Billiton tested the drainage systems around MLN 1109, through bulk leach extractable gold stream sediment samples. A total of fifty samples were collected from around the leases which were sent to Australian Assay Laboratories (AAL) in Pine Creek.

Between March and May of 1992, Billiton began a drilling campaign at Union Reefs through the use of Gaden Drilling Pty Ltd. Six costeans were also excavated during 1992, to test the potential for alluvial gold. Five of these were dug at Union North while the other costean was dug near the McKinlay River (Wegmann, 1993).

Also during 1992 Nicron Resources Limited sold their Caroline Lease to Solomon Pacific Resources and Astron Resources NL. It was under this joint venture that Solomon Pacific retained 60% for equity.

In 1992 Astron Resources NL and Solomon Pacific Resources purchase the Caroline Leases from Nicron Resources Limited. During the following year (1993), Cypress withdrew from a farm-in Agreement with Acacia Resources Ltd, which saw Acacia going into to a farm-in agreement with Solomon and Astron Resources.

In the year ending December 1993, mapping and rock chip sampling was completed on the Elizabeth leases which identified areas of gold mineralisation. A total of 338 soil samples were also collected, whereon sample returned a result of 4650 ppb of gold (Large, 2001).

During the following year (1994) five RC holes were drilled on the Elizabeth leases for a total of 300m (Tornatora, 1996). These holes were drilled over the soil anomalies, which was also carried out during the year.

During December of 1995, Acacia Resources began exploring the area previously known as the Caroline Leases. This was under a joint venture agreement with Solomon Pacific Resources NL, after Acacia Resources purchased Astron Resources share of the joint venture. Four rockchip samples were also taken from the area, which returned a result of 49 ppm Au (Spurway, 1996). Five reverse circulation drill holes were also drilled on the leases, which failed to locate any significant areas of gold mineralisation. On Mineral Lease N 1109, Acacia Resources Ltd began open cut mining at Crosscourse (Ahmad, Wygralak, & Ferenczi, 2009).

In 1996, Acacia Resources conducted exploration activities over the Union Reefs Gold Mine area, which saw a total of 449 holes being drilled on the area. Out of the 499 holes, 387 were reverse circulation holes, 15 were diamond holes and 47 were RAB holes (Table 7-5).

Hole Type	No of Holes	Total (m)
RC	387	44,086
Diamond	15	3,499
RAB	47	1,105

TABLE 7-5 1996 UNION REEFS DRILLING SUMMARY

Acacia also continued exploration efforts on the Elizabeth leases during the year, which saw 16 reverse circulation holes drilled for a total of 1359m. Significant intercepts were obtained from three of the holes and are displayed in Table 7-6 (Spurway C. , 1997).

Hole_ID	Width (m)	Au g/t	Intercept_Description
RC96EZ14	1	13.5	1m @ 13.5 g/t Au
	1	71.6	1m @71.6 g/t Au
	6	2.9	6m @ 2.9 g/t Au
RC96EZ18	2	3	2m @ 3.0 g/t Au
RC96EZ19	1	17.6	1m @ 17.6 g/t Au

TABLE 7-6 ACACIA RESOURCES 1996 RC SIGNIFICANT INTERCEPTS (SPURWAY C. , 1997)

From January 1997 to October 1997, Acacia Resources drilled a total of 323 RC drillholes on MLN 1109, for a total of 50,258m. During the same time, a total of 19 diamond holes were drilled on the lease, totalling 1,927.4m. Drilling occurred at Millers, Union South, Crosscourse, Ping Que, Western Cutback, Crosscourse South, Alice Hills and Union North (Acacia Resources, 1998).

Within the Elizabeth leases, Acacia Resources continued with exploration activities of the area, with rock chip sampling being conducted on exposed veining and the shear and seven reverse circulation holes for a total of 699m (Ham, 1997). Even though the results from this drill program proved to indicate no continuous economic mineralisation along the strike, three of the seven holes did hit significant intercepts that were greater than 1.5 g/t of gold (Table 7-7).

Hole_ID	mFrom (m)	mTo (m)	Width (m)	Au g/t	Intercept_Description
RC97EZ35	27	28	1	2.4	1m @ 2.4 g/t Au
RC97EZ38	86	87	1	1.68	1m @ 1.68 g/t Au
RC97EZ42	57	59	2	4.06	2m @ 4.06 g/t Au

TABLE 7-7 ACACIA RESOURCES 1997 RC SIGNIFICANT INTERCEPTS (Ham, 1997)

During the 1998 exploration campaign (16 June to 16 December), Acacia Resources drilled a total of 224 reverse circulation holes totalling 22,638 m and 14 diamond drillholes, totalling 2,223.3 m, within MLN 1109 (Acacia Resources, 1999). The drillholes were concentrated within the Alice Hills, Alta; Dam A, Crosscourse, Orinoco, Proposed Tailings Dams and the North Waste Dump locations.

Minor exploration work was conducted on the Elizabeth leases in 1998 which included a surface geochemical survey being conducted over the MCN's.

In 1999, a total of 119 bore and reverse circulation drillholes, totalling 10,330m, were drilled on MLN 1109 by Acacia Resources. The drilling took place at Alta, Union North, Crosscourse, Ping Que, Crosscourse South and Millers (Acacia Resources, 1999), with all samples (minus the samples produced from bore holes), being sampled. A summary of drilling for the year can be seen in Table 7-8.

Location	No of Holes	Total (m)
Bore Holes	12	484
Alta	47	2,422
Union North	9	1,349
Crosscourse	8	1,580
Ping Que	6	596
Crosscourse South	23	2,904
Millars	14	995
Total	**119**	**10,330**

TABLE 7-8 1999 UNION REEFS DRILLING SUMMARY BY LOCATION

At the end of 1999, AngloGold (Ashanti) acquired Acacia Resources Ltd, including their leases and began their exploration activities over the Union Reefs Project Area between June and October of 2000. A total of 76 reverse circulation drillholes were drilled on Union Reefs, totalling 5528m, which were devised to test the continuity of the known oxide and mineralised zones in the area (AngloGold, 2001). The 2000 Drill Summary is presented in Table 7-9 (below).

Location	No of Holes	Total (m)
Alta	28	840
Dam A	16	1782
Crosscourse Pit	2	199
Ping Que South	24	2213
Crosscourse South	6	494
Total	**76**	**5528**

TABLE 7-9 2000 UNION REEFS DRILLING SUMMARY BY LOCATION (ANGLOGOLD, 2001)

No exploration work was conducted on the Elizabeth leases during 2000, due to expenditure limitations and the AngloGold (Ashanti) takeover.

Mining activities by AngloGold continued on MLN 1109 up until the closure of the mine in 2003. Rehabilitation of the mine was commenced during 2003. In November of 2003, AngloGold entered into an agreement to sell its assets to Greater Pacific Gold Ltd.

In 2004, the leases were purchased by Burnside Joint Venture (a joint venture between Northern Gold NL and Harmony Gold) who, during the same time, sold the mill at Brocks Creek to Tanamai Gold NL.

During 2005, the leases were acquired by GBS Gold, through the purchase of Northern Gold NL and by buying the remaining 50% shares held by Harmony Gold. A technical review was undertaken on Prospect Claim during 2005 which found significant tonnes and grade existed at the Prospect Claim Main lode (Makar, 2005).

Between 2006 and 2007, a total of six reverse circulation holes, for a total of 591m, were drilled at Bongo, a prospect located on the north western side of MLN 1109 (Figure 7-1). The drilling campaign had levels of gold, zinc, arsenic, copper and lead, however levels were considered disappointing.

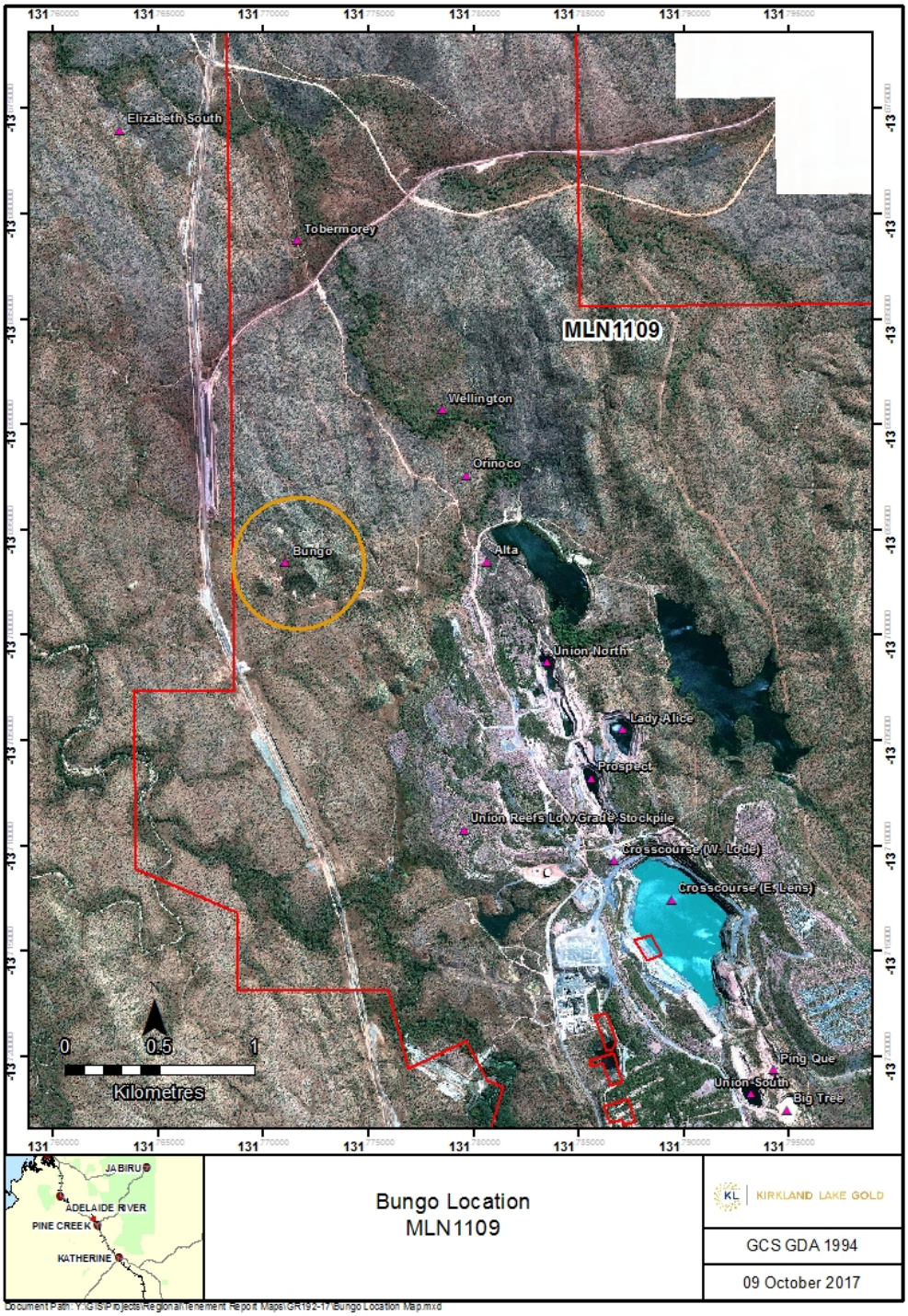


FIGURE 7-1 BUNGO LOCATION MAP

Within the Elizabeth leases, a small rock chip and mapping program was undertaken during 2007, which focused on the quartz veins along the ridge associated with the historic Elizabeth workings. A total of 26 samples were collected from the Elizabeth workings, all returned disappointing results (Masterman, 2007).

During 2009, GBS Gold went into voluntary administration, which saw a technical review and tenement ranking being undertaken in preparation for the sale of their assets. Newmarket Gold Inc. (then Crocodile Gold) acquired the assets from GBS Gold late in 2009, which included the Union Reefs mill, Elizabeth and Caroline leases.

During 2010 the Company released an updated review of the Union Reefs resource model. This model was based on the information relating to Union North, Union South, Lady Alice, Millars, Big Tree, Prospect, Esmeralda and Orinoco.

At the start of 2011, an exploration drill program began at Union Reefs which included 35 reverse circulation holes, for a total of 3,431m, and 16 diamond holes, for a total of 3,641m. The results from the drilling were used to update the Union Reefs mineralogical and geological wireframes as well as the resource model were updated from the 2011 drilling.

Drilling continued into 2012 on MLN 1109; with the main focus of drilling occurring on the Elizabeth area and the Prospect deposit (Figure 7-2). A total of 61 diamond drillholes for around 15,000m of drilling was undertaken at the Prospect Claim deposit, with the results being used in a new mineral resource estimate. A further twelve holes were drilled at the Lady Alice prospect for a total of 2014.5m. Fourteen reverse circulation holes were drilled at the Orinoco prospect for a total of 1003m. The results of this drilling were used in upgrading sections of the resource from inferred to indicated resource category.
A reconnaissance visit was made to the Elizabeth prospect, which then led to the review of historical data to assist in assessing the potential of further work.

During 2012 and 2013 an NI 43-101 report was published, which detailed the extensive work done on the Union Reefs project area during the reporting period.

Exploration activity between August 2013 and August 2014 exploration activity included the continual validation of the northern prospects within the tenement area. These areas included Alta, Orinoco, Prospect Claim, Lady Alice and Dam A. Three grab samples were also collected from the Wellington prospect, while seven grab samples were taken from the Millers Battery Sands area. Grades from the samples were encouraging; with one sample returning 8.72 g/t Au.

FIGURE 7-2 MLN1109 2011/2012 DRILL CAMPAIGN LOCATIONS

In April of 2014, Newmarket Gold completed a geological mapping campaign of the Esmeralda and Caroline deposits, which was undertaken by Paul Karpeta of Bastilion Consulting over a 1:1000 scale (Figure 7-3).

A report was compiled from this work, which summarised the area as follows (Karpeta, 2014):

Sedimentology & Palaeovolcanology:

- *Five lithofacies (Lithofacies A to E) have been identified in the Mount Bonnie Formation in the Esmeralda area; slates, greywackes, cherts & massive and banded siliceous rocks and are thought to represent a shallow mostly muddy marine shelf environment (slates and greywackes) influenced by occasional submarine felsic volcanic eruptions (cherts, massive and banded siliceous rocks). These felsic volcanic systems may have produced VMS which could have had low-grade gold mineralization (~0.1g/t) that was remobilized during regional and/or thermal metamorphism and concentrated in suitable sites. The mechanism appears to be quite common elsewhere in the world.*

Intrusives:

- *A single example of an aplitic sill, 5cm thick, was seen in the Esmeralda A area in a greywacke/slate sequence approximately 100m away from the granite/sediment contact. This may be associated with the Allamber Springs granite.*
- *A deeply weathered, NW-SE striking 5m thick dolerite (?) dyke was seen in the road cut in the southern part of Esmeralda and another deeply weathered NW-SE striking 2m thick dolerite (?) dyke was seen in an old trench just north of Caroline. These may represent strike continuations of the same intrusive and can be traced from geophysics. They may represent Zamu type dolerites. Two other thin (<1m) NW-SE striking lamprophyric dykes were seen in the Esmeralda A area and south of Caroline Hill.*
- *The large irregular intrusive body of the Allamber Springs Lobe of the Cullen Batholith marks the eastern boundary of the Esmeralda area. Its intrusion has hornfelsed the sediments in contrast with it.*

From this, Karpeta's recommendations included:

- *At Caroline, a ground geophysical survey may locate larger blind VMS-type ore bodies.*
- *At Esmeralda D, only the southern limit has been established at a cross-fault, the other limits being unconstrained. This area needs a soil geochemical survey, costeaning and drilling.*
- *At Esmeralda A, the mineralization is confined to the north by the cross fault, to the east and south by the hornfels and to the west by a shear and drilling has established its full extent. Moving the gas pipeline further to the east by at least 300m into the alluvium appears possible and would possibly make this area mineable.*
- *At Esmeralda B, the mineralization has been constrained to the north by the cross fault, to the east and west by two shears and to the south by a cover of siliceous rubble. The drilling only covers the central area of B and should be extended to the*

north to the cross fault and south under the siliceous rubble possibly after costeaning and sampling.

- *At Esmeralda C the mineralization has been constrained to the north by a cross fault and to the east and west by the limits of the shear. This area should be drilled and its southern limit established by costeaning.*

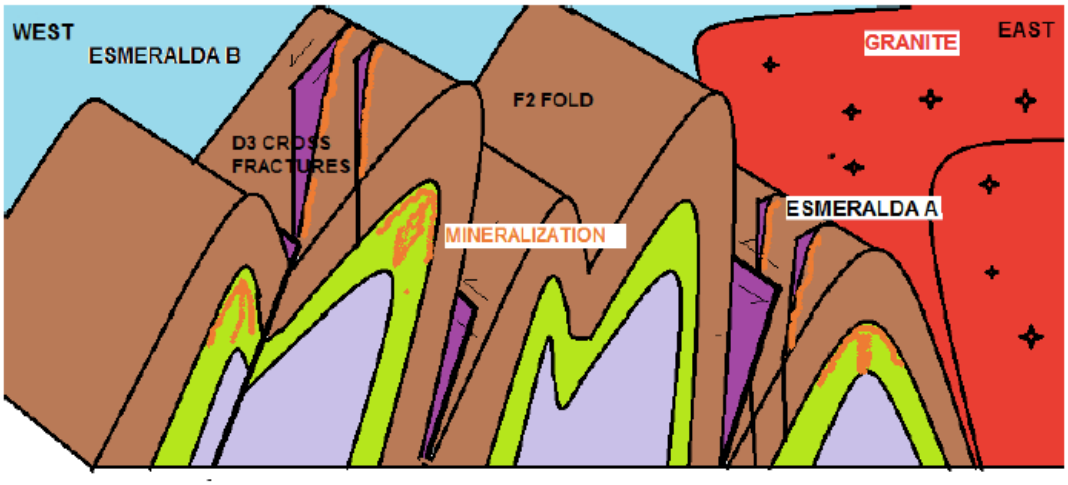


FIGURE 7-3 SCHEMATIC EAST-WEST SECTION THROUGH ESMERALDA A AND B WITH MINERALIZATION MARKED IN ORANGE (KARPETA, 2014)

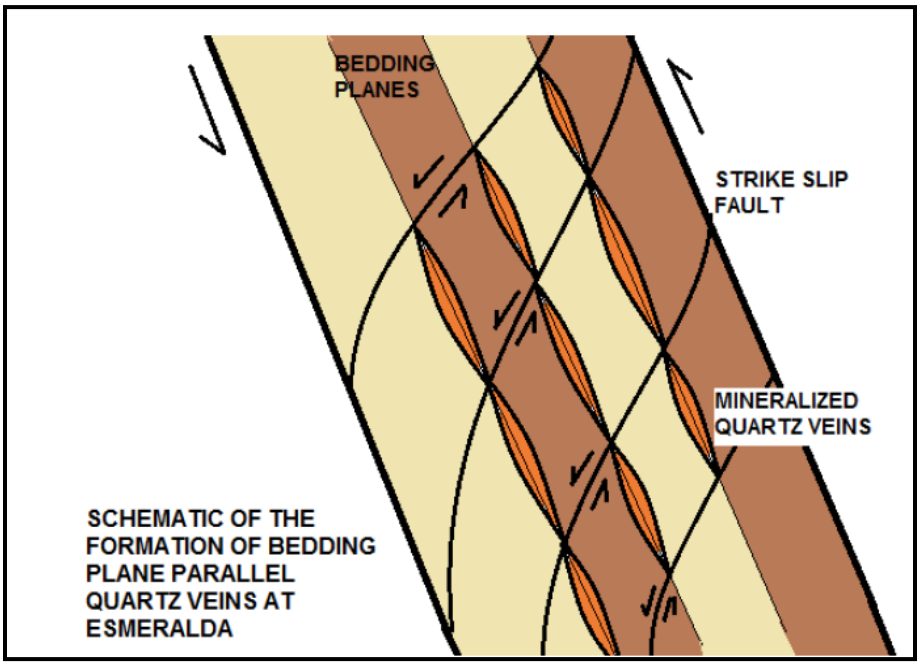


FIGURE 7-4 SCHEMATIC PLAN SHOWING THE FORMATION OF MINERALIZED BEDDING PLANE PARALLEL QUARTZ VEINS DURING THE F3 SINISTRAL STRIKE-SLIP DEFORMATION (KARPETA, THE GEOLOGY OF THE ESMERALDA PROSPECT, 2014)

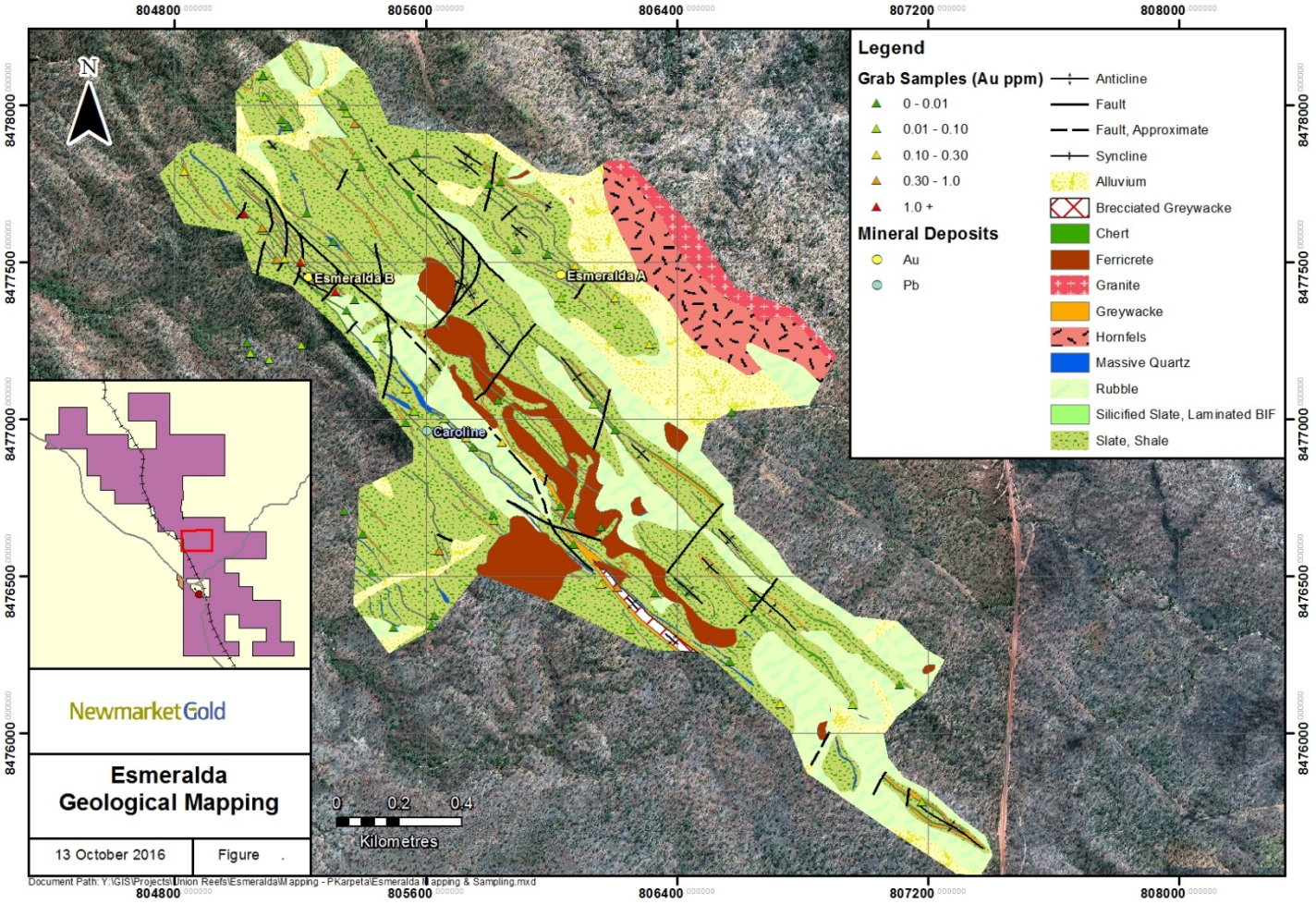


FIGURE 7-5 2014 ESMERALDA GEOLOGICAL MAPPING

While undertaking the geological mapping of the Esmeralda deposit, Karpeta also collected a total of 85 structural measurements, which are displayed in Table 7-10 below. He summarised the findings as followed (Karpeta, 2014):

- *Early bedding plane parallel SW-over-NE thrusting, which may locally have produced imbricate fans of fault bend folds where the thrusts stepped up through the stratigraphy (D1).*
- *SW-NE oriented compression tightened the D1 folds and producing new folding such as second order parasitic folds on the SW limbs of the first order folds (D2).*
- *Clockwise rotation of the shortening to W-E orientation resulting in sinistral strike-slip faulting often reactivating the now-subvertical thrust planes (D3).*
- *Further clockwise rotation of the shortening direction to NW-SE producing resulting in subtle cross-folding and the doubly plunging axial planes of the D2 folds (D4).*
- *Local reactivation of the strike slip faults as dextral faults (D5).*
- *Intrusion of the Allamber Springs Lobe of the Cullen Batholith resulting in the uplift of the Mount Bonnie Formation and the formation of the late fracture cleavage (D6).*
- *This model for the structural evolution of the Esmeralda area resembles that proposed for the Union Reefs area with the exception of the early bedding plane parallel thrusting D1, which is probably present at Union Reefs but was not recognized.*

EASTING	NORTHING	DIP	DIP DIRECTION	Lease	EASTING	NORTHING	DIP	DIP DIRECTION
806924	8476034	80	222	MLN52	806087	8476773	80	198
807000	8476046	85	16	MLN52	806117	8476778	82	228
806949	8476117	68	226	MLN52	806032	8476778	58	40
806533	8476232	55	45	MLN53	806088	8476778	65	204
806618	8476283	20	226	MLN53	805707	8476779	55	214
806299	8476296	80	218	MLN54	805709	8476781	75	217
806274	8476318	78	222	MLN54	806090	8476791	55	220
806774	8476343	45	252	MLN53	805550	8476793	82	28
806613	8476349	75	216	MLN53	806093	8476796	47	205
806228	8476409	45	190	MLN54	805952	8476823	76	230
806182	8476435	72	204	MLN54	805575	8476830	45	224
806031	8476452	45	202	MLN55	805564	8476832	50	218
806667	8476453	85	50	MLN53	805649	8476844	76	218
806088	8476471	68	211	MLN55	805486	8476862	70	216
806273	8476475	80	42	MLN54	805620	8476879	25	214
806551	8476485	78	210	MLN54	805873	8476904	80	212
806093	8476497	55	232	MLN55	805592	8476912	62	236
806514	8476515	77	229	MLN54	805568	8476933	55	52
806096	8476519	40	206	MLN55	805557	8476953	75	228
806013	8476520	87	218	MLN55	805550	8476970	75	230
806242	8476523	23	223	MLN55	805607	8476974	66	220
805766	8476531	70	212	MLN56	805542	8476983	72	218
806216	8476534	80	45	MLN55	805501	8477096	62	222
805786	8476539	81	308	MLN56	805593	8477099	75	238
805636	8476544	80	30	MLN56	805597	8477117	80	222
805629	8476550	28	38	MLN56	805494	8477119	68	230
806158	8476554	40	40	MLN55	805606	8477120	80	218
806487	8476559	80	216	MLN54	805820	8476675	40	208
806176	8476573	57	212	MLN55	805629	8476676	70	70
806170	8476575	80	30	MLN55	806065	8476677	83	40
806361	8476576	82	220	MLN54	806071	8476680	72	34
805659	8476578	60	220	MLN56	805812	8476684	25	211
806438	8476614	82	210	MLN54	805719	8476691	70	225
806289	8476614	80	210	MLN55	805817	8476692	72	216
805995	8476625	60	46	MLN55	806021	8476695	83	39
805754	8476639	80	210	MLN56	806065	8476696	85	26
805815	8476651	52	234	MLN56	806065	8476696	85	66
805795	8476737	75	230	MLN56	806065	8476696	85	50
805797	8476738	80	30	MLN56	806065	8476698	42	181
806013	8476743	80	220	MLN55	805805	8476700	72	220
806082	8476746	81	26	MLN55	805584	8476723	75	214
806000	8476757	54	190	MLN56	805435	8476737	56	22
805537	8476767	55	221	MLN57				

TABLE 7-10 ESMERALDA DIP/STRIKE DETAILS

A total of 27 grab samples were also collected from the Esmeralda project area, which were sent to North Australia Laboratories in Pine Creek for gold analysis. The results of the sampling are displayed in Table 7-11 below.

Negotiations between Newmarket Gold and the Northern Land Council also began for the approved land use agreement.

SampleID	Easting	Northing	Grid	Assay_No	Au
TGU0006984	805537.6	8476986.8	MGA Zone 52	D15507	-0.01
TGU0006985	805563.1	8477025.4	MGA Zone 52	D15507	0.22
TGU0006986	805565.7	8477023.2	MGA Zone 52	D15507	0.04
TGU0006987	805661.6	8476999.8	MGA Zone 52	D15507	0.08
TGU0006991	806158	8476654	MGA Zone 52	D15513	-0.01
TGU0006992	806065	8476696	MGA Zone 52	D15513	-0.01
TGU0006994	805729.9	8476940.5	MGA Zone 52	D15513	0.11
TGU0006995	805752.2	8476909.9	MGA Zone 52	D15513	0.01
TGU0006996	806030.6	8476721.7	MGA Zone 52	D15513	-0.01
TGU0006997	805845	8476925.1	MGA Zone 52	D15513	0.18
NTD0039021	806571	8476226	MGA Zone 52	D15532	0.01
NTD0039022	806732	8476090	MGA Zone 52	D15532	0.22
NTD0039023	807183	8475778	MGA Zone 52	D15532	0.06
NTD0039025	806963	8476089	MGA Zone 52	D15532	0.03
NTD0039026	806628	8476385	MGA Zone 52	D15532	0.03
NTD0039027	806607	8476283	MGA Zone 52	D15532	0.03
NTD0039028	805817	8476692	MGA Zone 52	D15538	-0.01
NTD0039029	805820	8476675	MGA Zone 52	D15538	0.1
NTD0039030	805643	8476578	MGA Zone 52	D15538	0.11
NTD0039031	805643	8476578	MGA Zone 52	D15538	0.89
NTD0039040	806165	8476475	MGA Zone 52	D15560	0.25
NTD0039041	806159	8476472	MGA Zone 52	D15560	0.26
NTD0039042	806212	8476462	MGA Zone 52	D15560	0.19
NTD0039043	806213	8476463	MGA Zone 52	D15560	0.34
NTD0039044	806252	8476328	MGA Zone 52	D15560	0.04
NTD0039045	806331	8476443	MGA Zone 52	D15560	-0.01
NTD0039046	806073	8476599	MGA Zone 52	D15560	-0.01

TABLE 7-11 2014 ESMERALDA GRAB SAMPLE LOCATION & RESULTS (PPM)

Exploration activity during August 2014 and August 2015 was focused on the Esmeralda area, permitting the granting of Mineral Lease 27999. A drill program was created for the Esmeralda project area as well as the creation of the Notice of Intent and supporting information such as environmental baseline studies and mining plans.

Between 16 August 2015 and 15 August 2016, the majority of exploration activities at the Union Reefs project area concentrated on the Esmeralda project. During the period, a new Land Use Agreement with the Wagiman, Warai and Jawoyn peoples was signed, which saw the granting of Mineral Lease 27999 at the beginning of 2016.

Also during the period, Newmarket Gold also undertook a resource estimate, using the data collected from the 2015 drilling, and was reported on within the 2015 NI 43-101 technical report (please refer to 2017 technical report)

During 16 August, 2016 and 15 August, 2017, Kirkland Lake Gold began a small diamond drill program on MLN1109, consisting of two parent holes and a wedges off both (Figure 7-6). The purpose of the drilling was set to target the intersection between the Prospect and Crosscourse Deposit.

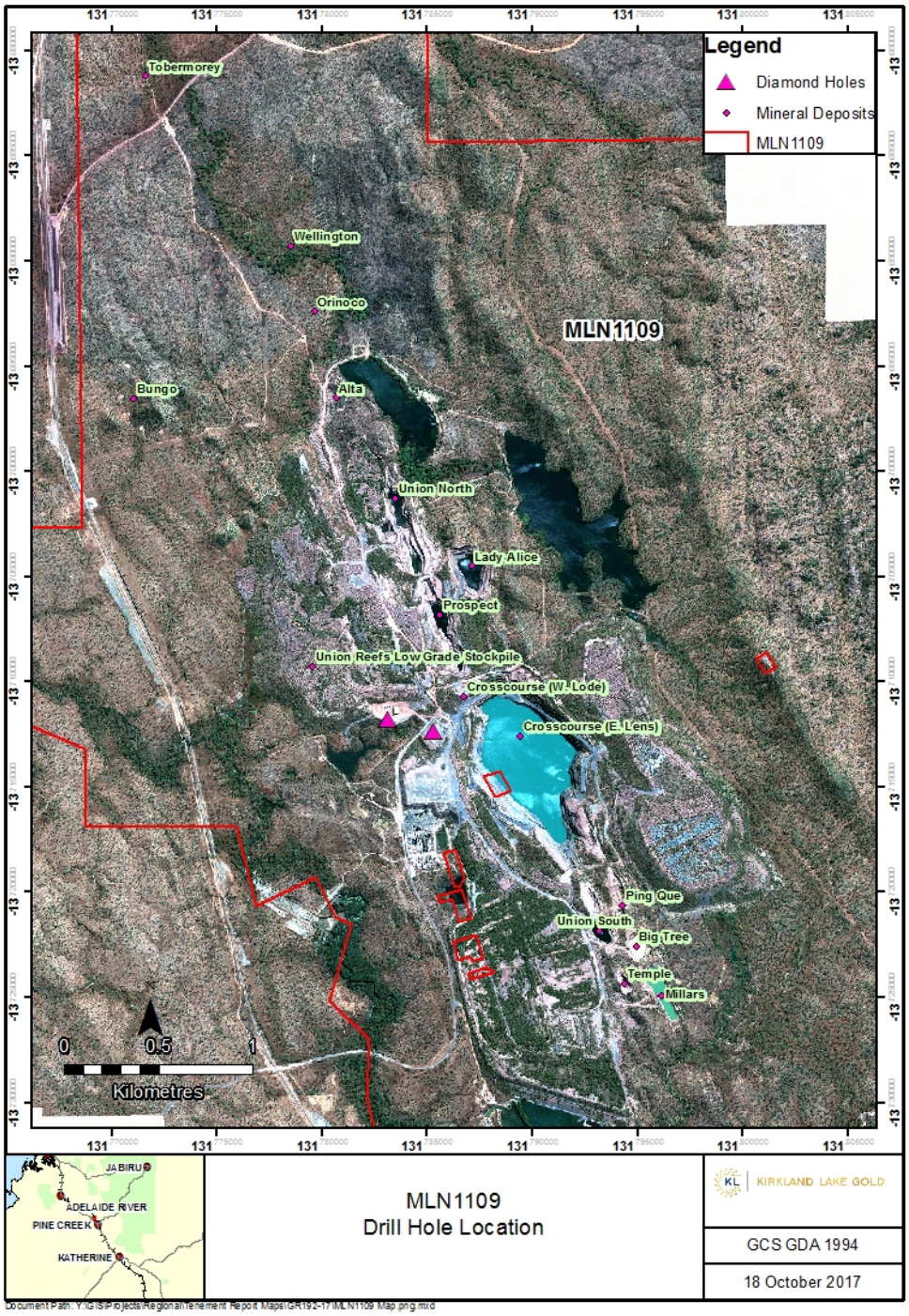


FIGURE 7-6 2017 DRILLHOLE LOCATIONS MAP ON MLN1109

In a report written by Edwards and Keiley (Edwards & Cole, 2017), the following summary of work for the drilling undertaken was provided:

The Prospect Deposit is located along the Union Line of deposits, one of 2 linear trends within the Union Reefs Area. Mineralization occurs in sub-vertical quartz veins with a surrounding sulphide halo. Current resources at Prospect total 450kt @ 5.1 g/t Au for 73.2koz.

The Crosscourse Deposit is associated with a linking structure between the two lines of lodes. Mineralization at Crosscourse is strongly structurally controlled with a steep north-northwesterly plunge. Approximately 828koz of gold has been mined from the Crosscourse pit, with the majority coming from the E-Lens, the north-northwest plunging mineralization.

It is interpreted that the structural control on mineralization in the Crosscourse pit plunges northwards where it intersected the linear sub-vertical prospect deposit. The point of intersection is interpreted to be influenced by the higher-grade Prospect Deposit, with the width of the Crosscourse mineralization.

The Union Reefs Project occurs along the northwest striking Pine Creek Shear Zone about 15km north along strike from Pine Creek. The Union Reefs deposits form 2 lines of lodes orientated north south, sub-parallel with approximately 3 degrees' difference in strike, with the deposit lines diverging to the north. The eastern trend is known as the 'Lady Alice Line' and the western trend as the 'Union Line'.

The Lady Alice Line mineralization occurs in a sub vertical shears on the western limb of the large Lady Alice Anticline and is parallel to the axial plane; deposits include Millars, Ping Que, Lady Alice and Lady Alice North. The Union Line is a steeply east dipping shear on which the Union South, Union Central, Prospect and Union North deposits are located. As the structures converge to the south, a cross linking 'transfer fault' links the east and west lines of lodes. This zone is known as the Crosscourse Deposit, which is the largest known deposit within the Union Reefs Project.

The Crosscourse Deposit (current Resources of 2,300kt @ 1.85 g/t Au for 136.8koz (E-Lens) & 191kt @ 3.7 g/t Au for 22.5koz West Lode) has been mined extensively from several lodes with a total of 18Mt of ore mined at 1.43g/t for 828Koz during open pit operations. The final Crosscourse pit was 265m deep suggesting an ounces per vertical metre of 3,100oz/vm. The east and west lodes from the Lady Alice and Union Lines as well as the intersection of the E-Lens structure is thought to be associated with a linking transfer fault. The linking structure introduces an element of structural complexity with a combination of dip-slip and strike-slip movement opening up areas of dilation allowing the deposition of mineralization. However, the controls on the mineralization of E-Lens are not well understood. The lens has a definite plunge as shown in Figure 7-2.

The Prospect Deposit is located on the Union Line of deposits just to the north of Crosscourse. It is a sub vertical vein system situated in an isoclinal upright anticline fold hinge. Mineralization at Prospect occurs within a high grade bedding parallel quartz tourmaline veins surrounded by a lower grade sulphide halo. The Prospect Deposit was drilled during 2012 below 200m RL, with some of the significant results summarised below:

- URNDD0028 - 2.4m @ 41.9 g/t Au from 425m including:
    - 0.3m @ 304.5 g/t Au
- URNDD0029 – 2.0m @ 5.6 g/t Au from 379m:
- URNDD0029A – 14.3m @ 1.92 g/t Au from 435m including:
    - 0.3m @ 12.6 g/t Au
    - 0.3m @ 13.8 g/t Au
    - 0.3m @ 16.8 g/t Au
- URNDD0030w1 – 9.65m @ 3.11 from 219.5m including:
    - 0.4m @ 9.85 g/t Au
    - 0.7m @ 30.1 g/t Au

URP72502 (4.0m @ 11.5 g/t Au from 310m) is another significant intersection from deep within the Prospect Deposit.

It is interpreted that the structural control on the E-Lens Deposit, continues to plunge and should intersect the Prospect Deposit structure at depth. The high grade mineralization associated with the Prospect Deposit at depth, combined with the dilatational structural environment of the E-Lens is a highly attractive target.

The objective of the drilling is to test for potential extensive high grade mineralization around the projected intersection of the Prospect and Crosscourse Deposits.

It is proposed to drill 1 diamond drill hole and 1 daughter hole totalling 1,436m in length targeting the projection of the Crosscourse mineralization where it intersects the projected Prospect Deposit

The parent hole will be drilled testing the lower extents of the projection to a depth of approximately 1,070m. Once completed, it is planned to wedge up from the parent hole in BQ from approximately 640m and test between 50m and 80m above the parent depending on the lift achieved.

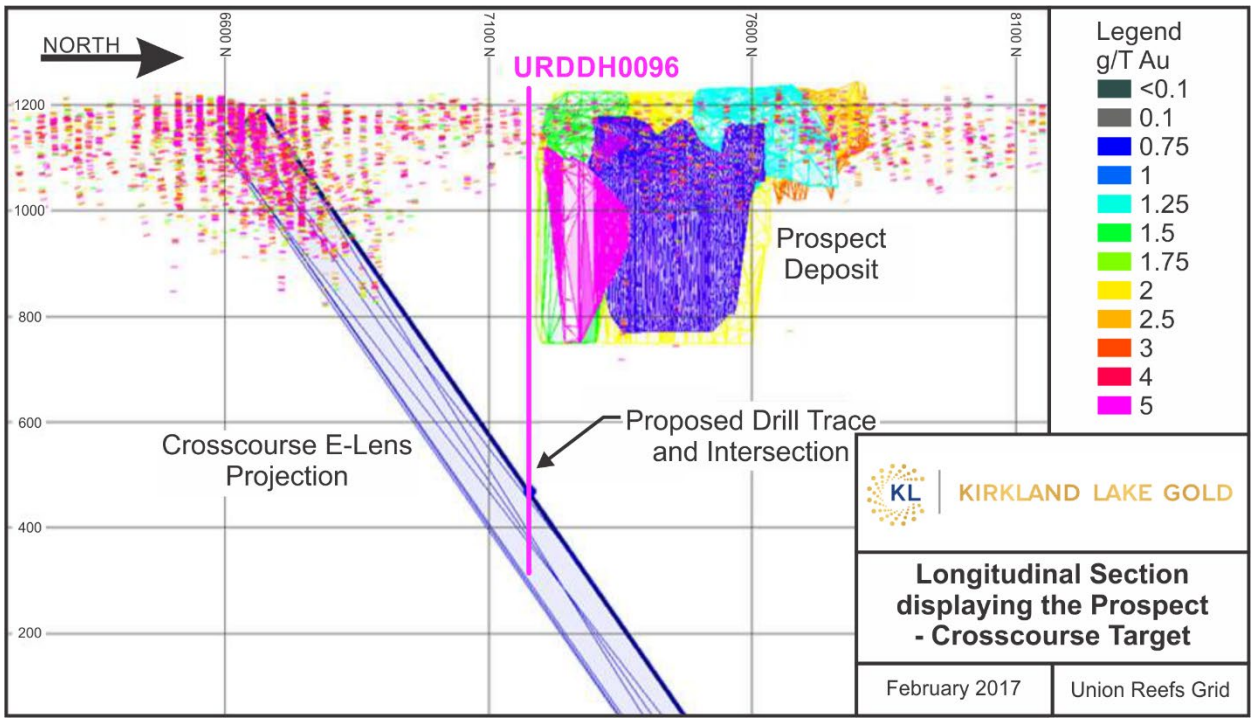


FIGURE 7-7 LONGITUDINAL SECTION DISPLAYING THE PROPSECT - CROSSCOURSE TARGET LOOKING WEST

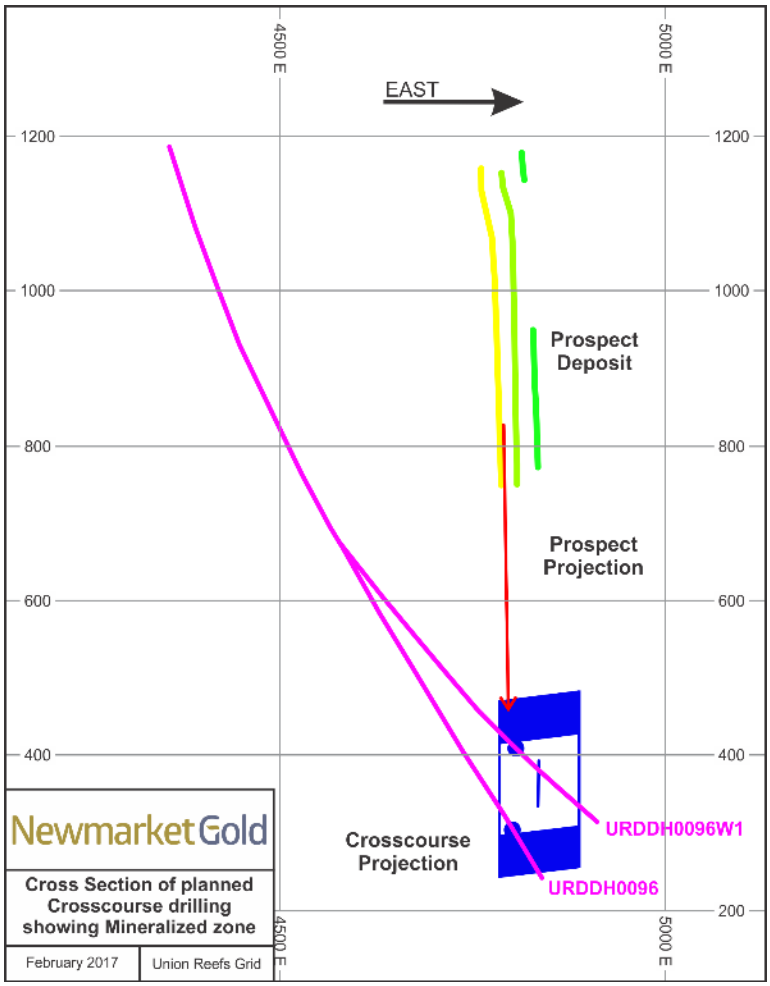


FIGURE 7-7 7075MN CROSS SECTION SHOWING THE PLANNED CROSSCOURSE DRILLING, WITH THE PROJECTED MINERALIZED ZONES, LOOKING NORTH

Results from the 2017 drilling has been encouraging with significant intercepts found in URDDD0096W1, which are displayed in Table 10-1 below.

Hole_ID	Metre	Au g/t
URNDD0096W1	3	10.81
	3	2.86
	7	2.75
	13.7	1.5

TABLE 7-12 SIGNIFICANT INTERCEPT'S FOR URNDD0096W1

Mineralisation was seen to be located within areas of thin quartz, chlorite carbonate veining that is hosted within weakly sericite altered chloritic metasediments. Common sulphides within the area consisted of arsenopyrite, pyrite, sphalerite, galena with the occasionally minor chalcopyrite. This is representative of the E-Lense mineralisation associated with the up plunge of the Crosscourse Pit.

All holes were sampled and assayed except for URNDD0097 and URNDD0097W1, which was in the process of being sampled at the time this report was written. The results for these holes will be reporting in the next annual report.

8 MINERAL RESOURCE ESTIMATE

The following Mineral Resource Estimate has been taken from the 2016 Canadian Technical Report NI43-101, written by Edwards and Keiley (Edwards & Cole, 2017):

EXCLUSIVE		INDICATED MINERAL RESOURCE				INFERRED MINERAL RESOURCE			
Project	**Deposit**	**Cut-off (Au g/t)**	**Tonnes**	**Grade (Au g/t)**	**Ounces Gold**	**Cut-off (Au g/t)**	**Tonnes**	**Grade (Au g/t)**	**Ounces Gold**
Union Reefs	Prospect Claim	0.5/2.0	957,320	3.07	94,400	0.5/2.0	377,002	7.18	87,018
	Crosscourse E-Lens	1.0	2,301,000	1.85	136,900	1.0	479,000	1.96	30,200
	Crosscourse Western Lode	2.0	191,000	3.67	22,500	2.0	96,000	4.05	12,500
	Esmeralda*	0.5/2.0	195,473	2.43	15,302	0.5/2.0	130,734	2.27	9,542
	Lady Alice					0.5	57,400	2.14	4,000
	Millars/BigTree/PingQue					0.5	462,431	1.96	29,072
	Orinoco	0.5	86,553	1.40	3,887	0.5	31,625	2.04	2,071
	Union North					0.5	484,744	1.58	24,677
	Union South/ Temple					0.5	491,356	1.22	19,229
	Sub-total		**3,731,346**	**2.28**	**272,989**		**2,610,292**	**2.60**	**218,309**

TABLE 8-1 MINERAL RESOURCE ESTIMATIONS FOR DEPOSITS IN THE UNION REEFS AREA - DECEMBER 31, 2017

Notes for Table 8-1:

1. Mineral Resources have been estimated in accordance with CIM Standards (2014).
2. Mineral Resources are stated as of December 31, 2017.
3. Mineral Resources are exclusive of Mineral Reserves.
4. Mineral Resources are calculated using these parameters:
   (a) Gold Price of US$1,280/oz ($A1,600/oz), metallurgical recovery of 90-92.0% depending on Mineral Resource;
   (b) Cut-off of 2.0 g/t Au is used to calculate the Mineral Resources for underground deposits and 0.5 g/t Au for open pit Mineral Resources. A cut-off grade of 1.0 g/t Au is used for underground Mineral Resources at Crosscourse due to size of potential deposit; and
   (c) All tonnes are rounded to the closest 1,000t and ounces are rounded to the closest 100oz.
5. Mineral Resources that are not Mineral Reserves do not have demonstrated economic viability.
6. The Mineral Resource estimates were prepared under the supervision of Mark Edwards, B.SC. FAusIMM (CP) MAIG, Geology Manager.

8.1 INTRODUCTION

At this point in time there are no known events or situations which would materially affect the Mineral Resource as stated for the Union Reefs Deposits, these include metallurgical, social, permitting, political, legal or environmental impacts.

The Mineral Resources for the Union Reefs deposits are given in Table 8-1 and Figure 8-1.

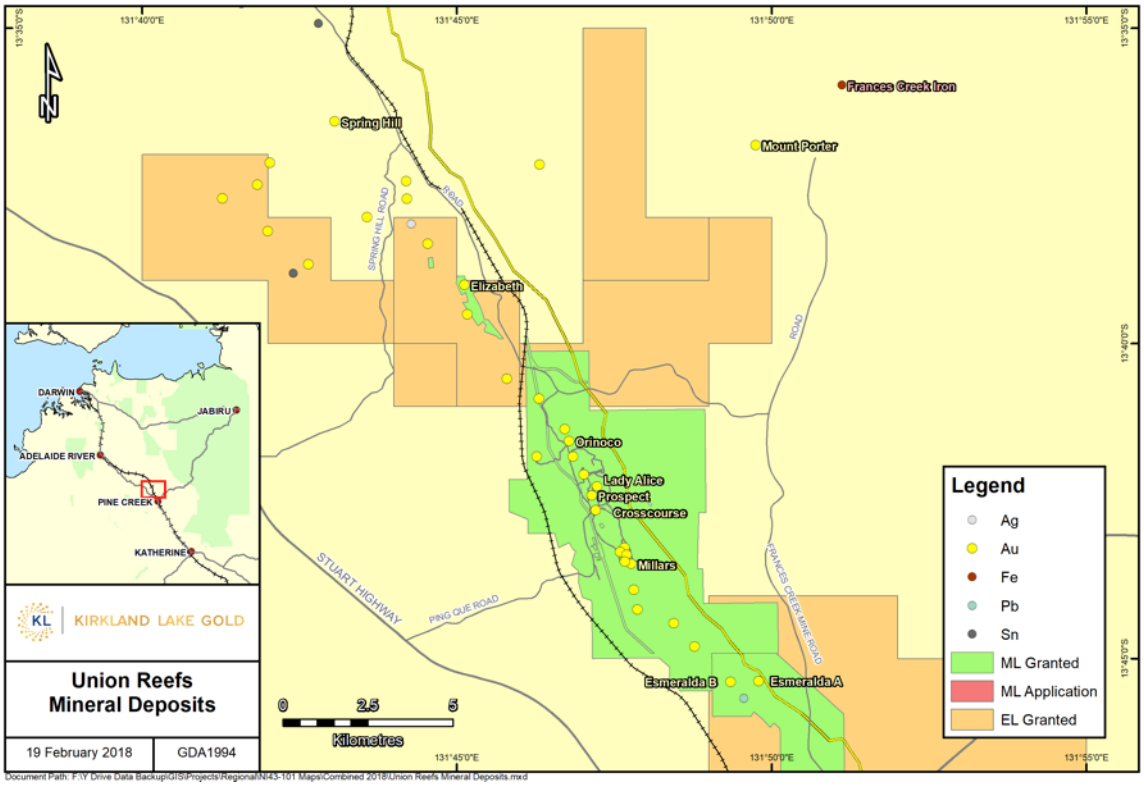


FIGURE 8-1 LOCATION OF DEPOSITS WITH MINERAL RESOURCES AT UNION REEFS

During 2017 all Union Reefs Mineral Resource estimations were reviewed, Table 8-3. Further work will be required on some of the Mineral Resources but all have been reviewed and assessed as being suitable for Mineral Resource Reporting. There were no updates to any of the Union Reef Mineral Resource Models during the reporting period. The previously reported Low Grade Stockpiles were depleted from the inventory due to the low likelihood that they will be mined.

All Union Reefs Mineral Resources were re-optimized using MineMapTM Software using the Learch Grossman approach to calculate the open pit resource; with the current mining costs and a gold price of $A1,600/oz (US$1,280/oz). This has resulted in a small adjustment to the reported metal from the previous reporting period.

A summary of all the Union Reefs Model inputs is given in Table 8-3.

Project	Deposit	Mineral Resources	Type	2016 Model	QA/QC 2016	SG 2016	Twinned Holes	Model Completed by	Year of Model
Union Reefs	Prospect	Ind & Inf	UG	N	N	N	Y	Newmarket Gold	2012
	Esmeralda	Ind & Inf	OP	N	N	N	Y	Newmarket Gold	2015
	Lady Alice	Inf	OP	N	N	N	Y	Makar	2003

Project	Deposit	Mineral Resources	Type	2016 Model	QA/QC 2016	SG 2016	Twinned Holes	Model Completed by	Year of Model
	Millars/Big Tree/Ping Que	Inf	OP	N	N	N	Y	Makar	2003
	Orinoco	Ind & Inf	OP	N	N	N	Y	Newmarket Gold	2012
	Crosscourse	Ind & Inf	UG	N	N	N`	Y	Newmarket Gold	2013
	Union North	Inf	OP	N	N	N	Y	Makar	2003
	Union South/ Temple	Inf	OP	N	N	N	Y	Makar	2002

TABLE 8-2 MODEL SUMMARY FOR UNION REEFS DEPOSITS

Project	Mineral Resource	Method	Grade cap Au g/t	Block size E x N x RL (meters)
Union Reefs	Prospect	OK	30 g/t (All)	1 x 20 x 20 (Vein) 2 x 10 x 5 (Stockwork)
	Esmeralda	OK	10-13 g/t	2.5 x 10 x 5
	Lady Alice	ID	25 g/t	2.5 x 10 x 2.5
	Millars/Big Tree/Ping Que	ID	20 g/t	2.5 x 10 x 2.5
	Orinoco	OK	5, 8 & 10 g/t depending on lode	2.5 x 10 x 2.5
	Crosscourse	2D OK (West) MIK E-Lens	10 g/t (West) NA (E-Lens)	2 x 10 x 5 (West) 5 x 25 x 25 (E-Lens)
	Union North	ID	20 g/t	2.5 x 10 x 2.5
	Union South/ Temple	ID	20 g/t	2.5 x 10 x 2.5

TABLE 8-3 UNION REEFS DEPOSITS MODEL SUMMARY OF MODEL INPUTS

8.1.1 Prospect Deposit

The Prospect Mineral Resource Model was generated by Cube Consulting in 2012 and reported and approved by the Author in the December 31, 2012 technical report (Bremner & Edwards, 2012). It uses a 30 g/t Au grade cap. The Mineral Resource has been depleted by open pit mining as the deposit was mined by AngloGold. Wireframing was completed for twelve mineralized zones and these were generated by Company geologists using both older and current drilling completed on the deposit. Of the twelve mineralized zones some were higher-grade cores or larger mineralized systems. Lode 400

for example is the larger and lower grade system with Lode 40 the higher-grade (+5 g/t Au) core, which was modelled continuously throughout Lode 400 mineralization (using 0.4 g/t Au). Based on this interpretation the deposit can be split into two distinct domain types, stockwork and vein.

Two modelling techniques were used on the Prospect Mineral Resource estimation around the two distinct mineralization types. The first was a method that allowed estimation of metal content on a projected plane, which is considered to be an appropriate approach to addressing the vein like feature. This Mineral Resource modelling approach is best achieved using geological intercept composites and accumulation estimation. Vein domain gold grades are composited across the entire coded interval resulting in a single geological intercept composite at each intercept location. The geological composites are projected onto a vertical 2D plane approximately parallel with the vein structure. The mid-point of each geological composite is assigned the horizontal width of the vein structure and used to compute a 'metal accumulation' variable. The second technique was a standard three dimensional single or two pass Ordinary Kriging methodology has been used for the estimation of the cut gold 1.0m down hole composite data within each stockwork domain.

The block dimensions used in the vein model process was 20mN x 1mE and 20mRL. Within the stockwork model process the block dimensions used were 10mN x 2mE x 5mRL. The bulk density used was based on both historic numbers from AngloGold's mining team and those numbers generated from the Company's drilling activities.

8.1.2 Crosscourse Deposit

The Crosscourse Mineral Resource Model was generated by Cube Consulting in 2012 and reported and approved by the Author in the December 2012 technical report (Bremner & Edwards, 2012). It uses a 10 g/t Au grade cap. The Mineral Resource has been depleted by open pit mining as the deposit was mined by AngloGold. Wireframing was completed for three mineralized zones, these were generated by company geologists using both older and current drilling completed on the deposit. Two types of mineralization were also noted in the Crosscourse Deposit, vein and stockwork. This resulted in a similar modelling process as outlined for the Prospect Deposit above.

The first technique was a method that allowed estimation of metal content on a projected plane, which is considered to be an appropriate approach to addressing the vein-like feature. This Mineral Resource modeling approach is best achieved using geological intercept composites and accumulation estimation. Vein domain gold grades are composited across the entire coded interval resulting in a single geological intercept composite at each intercept location. The geological composites are projected onto a vertical 2D plane approximately parallel with the vein structure. The mid-point of each geological composite is assigned the horizontal width of the vein structure and used to compute a 'metal accumulation' variable. The second technique was a Multiple Indicator Kriging (MIK) process as the estimation methodology for the E-Lens Mineral Resource area as this method is known to deal with highly skewed distributions and erratic spatial variability more appropriately than Ordinary Kriging. MIK involves the individual Kriging of a set of increasing grade indicators to yield a suite of probability estimates above a

range of grade cut-offs. These probability estimates can be used to calculate grade class probabilities, and ultimately a block grade estimate (called the e-type estimate). Prior to calculating grade bin probabilities, any order relations problems must first be rectified (i.e. the estimated probabilities above successively higher cut-offs should always be decreasing). The probability of being within a particular grade bin is then weighted by a "mean" grade for that bin, which is usually calculated from the grade sample data, or by discretization of a function defined using the results of the Kriging.

The block dimensions used in the vein model process was 25mN x 1mE and 25mRL. Within the stockwork model process the block dimensions used were 25mN x 5mE x 25mRL. The bulk density used was based on both historic numbers from AngloGold's mining team and those numbers generated from recent drilling activities.

8.1.3 Orinoco Deposit

The Orinoco Mineral Resource Model was generated by Cube Consulting in 2012 and reported and approved by Mark Edwards in the December 31, 2012 technical report (Basile & Edwards, 2013). It uses top cuts ranging from 5.0 g/t Au to 10.0 g/t Au depending on the lode. The model has not been mined from surface so no mining depletion has been applied to this Mineral Resource. Wireframing was completed in fifteen mineralized zones and these were generated by Company geologists using drilling completed on the deposit.

The modelling technique used was a standard three dimensional single pass Ordinary Kriging methodology. A constant minimum of three and maximum of 10 data have been set and a discretization of 1 in X, 5 in Y and 1 in Z has been used throughout. The block size used was 10mN x 2.5mE x 2.5mRL.

8.1.4 Esmeralda Deposit

The Esmeralda Mineral Resource Model was generated by Company geologists and reported and approved by the Author in the December 2015 technical report (Smith, et al., 2015). It uses a variable top cut ranging from 10 g/t Au to 13 g/t Au depending on the domain. The model has not been mined from surface, therefore no mining depletion has been applied. Wireframing was completed for nine mineralized zones using both older and current drilling completed on the deposit.

The modelling technique used was a standard three dimensional single pass Ordinary Kriging methodology. A constant minimum of one and maximum of 30 composites have been set for most domains except for Domain 11 where a maximum of 15 composites was used. In addition, a maximum of five composites per hole was also applied. Parent block size used was 10mN x 2.5mE x 5.0mRL with a sub-block of 2mN x 0.5mE x 1mRL.

8.1.5 Mineral Resource Models Generated Prior to 2017

Kirkland Lake Gold previously reported on several other Mineral Resources in the Union Reefs area. The Mineral Resource estimations for Union North, Union South, Millar/Big Tree and Lady Alice Deposits were completed prior to Crocodile/Newmarket/Kirkland Lake Gold's ownership of these deposits. Each Mineral Resource has been reviewed by the Author and has been deemed as appropriate for reporting and inclusion in this report.

All block models were generated using MineMap™ software. The same software was used to re-optimize using the Learch Grossman approach as mentioned above, for the 2017 Reporting period. There was a small metal adjustment for each Mineral Resource due to the re-optimization from the previous reporting period. No new models have been completed.

The block model parameters are outlined in Table 8-4 below.

	Model Base Point and Parameters				Algorithm
Pit/ deposit	Easting	Northing	Top Seam	Rotation degree	
Union North	4900	7670	1210	6	ID
Union South	4900	5240	1220	3.5	ID
Millar/Big Tree	5040	4950	1220	2.5	ID
Lady Alice	5100	7410	1240	5	ID

	Cell Size			Number of Cells		
Pit/ deposit	X	Y	Z	X	Y	Z
Union North	2.5	10	2.5	130	90	57
Union South	2.5	10	2.5	80	90	65
Millar/Big Tree	2.5	10	2.5	85	65	65
Lady Alice	2.5	10	2.5	75	60	73

TABLE 8-4 UNION REEFS DEPOSITS – BLOCK MODEL SET UP PARAMETERS

Estimation Parameters and Methodology

- The block model parameters, algorithm (Inverse Distance) and search ellipsoid were defined. The search ellipsoid was re-set for each run;
- An empty block model was generated with a background value assigned for each cell: Au –1, SG 2.5, mineralization_Type –1;
- The empty block model was intersected with the horizontal flitch interpretations and sub-set drillhole assays to generate a filled block model. Only blocks constrained within the wireframes were assigned a grade. The grades have been interpolated using Inverse Distance (ID) weighting of assays into blocks in two passes with an applied top-cut, using assays within the diluted wireframes;
- Densities values were applied globally by weathering zone, using 2.5t/m^3, 2.6t/m^3 and 2.7t/m^3 for oxide, transitional and fresh respectively; and
- Search ellipses used are tabulated below in Table 8-5.

	Rotation about axis 1st pass			Rotation about axis 2nd pass		
Pit/ deposit	**X**	**Y**	**Z**	**X**	**Y**	**Z**
Union North	7	90	20			
Union South	2.5	90	25			
Millar/Big Tree	2.5	90	30			
Lady Alice	5	90	20	5	90	60

	Search 1st pass			Search 2nd pass		
Pit/ deposit	**X**	**Y**	**Z**	**X**	**Y**	**Z**
Union North	40	60	6	20	30	6
Union South	40	50	6	20	30	6
Millar/Big Tree	40	50	6	20	30	6
Lady Alice	40	60	10	20	30	10

TABLE 8-5 UNION REEFS MODEL PARAMETERS

Model Validation

Model validation was performed by using historical mining data and reconciling the in-pit mined tonnes and grade.

Overall, ore mined produced 120% of the tonnes at 78% of the grade to produce 94% of the ounces compared to the Mineral Resource model. This, in part, could be explained by the net effect of dilution (dilution and ore loss).

In all pits, positive tonnage reconciliation was recorded in conjunction with negative grade reconciliations against the Mineral Reserve. This is mostly due to extra "visual" mineralization being mined, supervized by geologists and pit technicians. The majority of extra ore mined was grab sampled and assayed and returned grades well within the 0.6 g/t Au lower cut-off. In short, "ore" which was not delineated by grade control was mined near the marginal grade, thus reducing the "As mined" predicted grade and increasing tonnes. Results showing positive call factors recorded in the same period illustrate the potential for ore/grade misallocation by grade control (Figure 14-26).

Throughout 2003 reconciliations figures were offset by positive mine to mill call factors (Figure 14-26). January 2003 to July 2003, mine to mill call factors averaged 119%, while ounce reconciliations averaged 95%. This factor illustrates that the ounces lost between Mineral Resource and grade control are made up in ounces recovered from the mill.

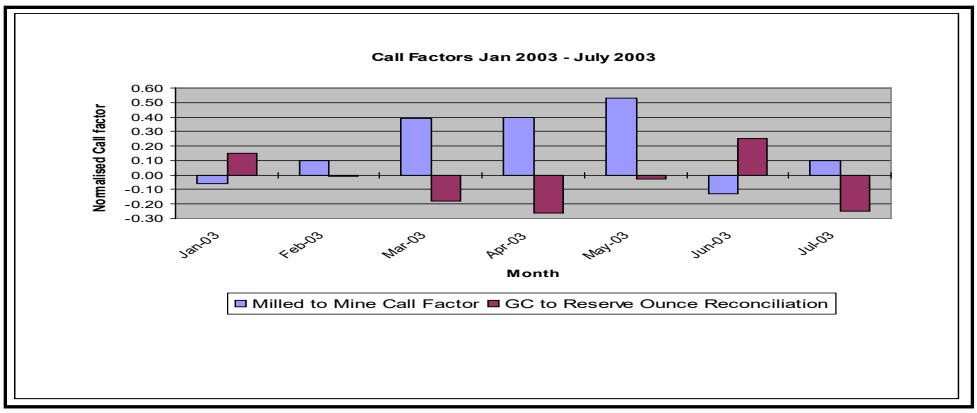


FIGURE 8-2 UNION REEFS RECONCILIATION OF MINED VALUES AGAINST MILL RECOVERY

Classification

All Mineral Resources have been classified as Inferred, mainly due to them not being estimated by Company geologists. All estimates have been reviewed by the Authors and are deemed as appropriate for reporting. Drilling completed in 2011 confirms the grades of the deposits.

Below is a brief summary of other deposits in the Union Reefs area:

8.1.5.1 Lady Alice Deposit

No additional drilling has been completed at the Lady Alice Deposit since 2011, however, a significant change in the Mineral Resource generated prior to the Company's involvement in the deposit is not expected as most of the drilling completed to date is infill and not expansive in nature. Work is planned to review this drilling to determine if an update is required.

The Lady Alice Deposit Model used in this reporting is an open pit style estimation, which has been previously optimized. The model is estimated using an ID^2 methodology with at top cut in the order of 25 g/t Au. Wireframing was done on specific lodes by Bill Makar, who was the Chief Mine Geologist of the operation at the time.

The Lady Alice Deposit is a possible location for the exploration portal that would be used to access mineralization from the Prospect Deposit. If this were the case then it would allow for the exploration of the Lady Alice Deposit from underground.

Drilling in 2011 and 2012 into the Lady Alice Deposit showed higher grade mineralization was present but with limited continuity. Further work on the re-modeling process is required to better understand this issue.

For this report the previously reported Mineral Resource estimation will be included until a new Mineral Resource estimation can be completed. This is due to the Author reviewing the data available and concluding that no material change would occur in the generation of a new Mineral Resource estimation on this deposit so the previously generated estimation is suitable for inclusion in this technical report.

8.1.5.2 Millars/Big Tree/Ping Que Deposit

The Millars/Big Tree/Ping Que Deposit is located on the Lady Alice Line to the South of the Crosscourse open pit mine. There is historic evidence of significant underground workings in this area down to the water table with the Millars Deposit having one of the largest shafts recorded in the Union Reefs area.

Crocodile Gold drilled this deposit in early 2011 before focus shifted to the Prospect and Crosscourse Deposits. The mineralization that was noted in this area seems to be similar to that seen at Prospect with intersections in the order of 1.3m @ 27.8 g/t Au and 1.7m @ 10.3 g/t Au reported. Follow up work is required to incorporate these results into a new model using both older and newly acquired drilling data.

For this report the previously reported Mineral Resource estimation will be included until a new Mineral Resource estimation can be completed. This is due to the Author reviewing the data available and concluding that no material change would occur in generation of a new Mineral Resource estimation on this deposit so the previously generated estimation is suitable for inclusion in this technical report.

8.1.5.3 Union North Deposit

The Union North Deposit is of interest as it is directly on strike from the Prospect Deposit and any future underground mining could easily access mineralization from this location. Union North is one of the deepest open pit mines completed in the Union Reefs area nearing 100m deep when completed. Some drilling was done in this area in 2011 and 2012 and new mineralization wireframes were completed, however, despite the potential of changing the current Mineral Resource an update has not been completed.

For this report the previously reported Mineral Resource estimation will be included until a new Mineral Resource estimation can be completed. This is due to the Author reviewing the data available and concluding that no material change would occur in generation of a new Mineral Resource estimation on this deposit so the previously generated estimation is suitable for inclusion in this technical report.

8.1.5.4 Union South/Temple Deposit

Limited work has been completed on the Union South Deposit; however, during a site visit and limited mapping exercise it was noted that the mineralization and alteration at the Union South open pit would be suitable for future large-scale mining. Work is required to update the Mineral Resource, however, at the time of writing this report this work had not been completed.

For this report the previously reported Mineral Resource estimation will be included until a new estimation can be completed. This is due to the Author reviewing the data available and concluding that no material change would occur in generation of a new estimation on this deposit so the previously generated estimation is suitable for inclusion in this technical report.

9 MINERAL RESERVES

The following Mineral Reserves for Union Reefs has been adopted from the 2017 Canadian Technical Report NI 43-101, written by Edwards and Cole (Edwards & Cole, 2017):

9.1 UNION REEFS OPEN PIT - PROSPECT

The Mineral Reserves for the Prospect deposit are based on the open pit mining techniques. Table 9-1 shows the Mineral Reserve classification figures which are inclusive of the modifying factors for mining recovery and dilution.

Classification	Tonnes (t)	Gold Grade (g/t)	Gold (ozs)
Proven			
Probable	269,000	2.16	18,600
Total Mineral Reserve	**269,000**	**2.16**	**18,600**

TABLE 9-1 MINERAL RESERVE CLASSIFICATION FOR PROSPECT OPEN PIT AS OF DECEMBER 31, 2017

Notes to accompany Table 9-1:

7. The Mineral Reserve is stated as of December 31, 2017.
8. All Mineral Reserves have been estimated in accordance with the JORC code and have been reconciled to CIM standards.as prescribed by the National Instrument 43-101.
9. Mineral Reserves were estimated using the following mining and economic factors:
   (d) Dilution of 15% and mineralization loss of 5%;
   (e) Mining costs of $3.96/t and processing costs of $30/t;
   (f) A gold price of US$1,240/oz ($A1,550/oz) and exchange rate of US$0.80:A$1.0;
   (g) An overall processing recovery of 93%; and
   (h) Tonnes are rounded to the closest 1,000t and ounces to the closest 100 oz.
10. The cut-off grade for Mineral Reserves has been estimated at 0.76 g/t Au for oxide and 0.8 g/t Au for fresh ore.
11. Mineral Reserve estimates were prepared under the supervision of Russell Cole, FAusIMM.

9.2 UNION REEFS UNDERGROUND – PROSPECT DEPOSIT

Table 9-2 shows the Mineral Reserve classification figures, which are inclusive of the modifying factors for mining recovery and dilution.

Classification	Tonnes	Grade Au g/t	Gold oz
Proven			
Probable	276,000	4.42	39,200
Total Mineral Reserve	**276,000**	**4.42**	**39,200**

TABLE 9-2 MINERAL RESERVE CLASSIFICATION PROSPECT DEPOSIT UNDERGROUND

Notes to accompany Table 9-2:

12. The Mineral Reserve is stated as of December 31, 2017.
13. All Mineral Reserves have been estimated in accordance with the JORC code and have been reconciled to CIM standards as prescribed by the NI 43-101.
14. Mineral Reserves were estimated using the following mining and economic factors:
    (i) A 0.2m hangingwall and footwall skin has been added to the economic stope shape to allow for dilution in narrow vein stopes;
    (j) 10% dilution at 0.5 g/t has been added to stopes greater than 3m wide;
    (k) Minimum stope width is 2m;
    (l) Stope recovery is 95%;
    (m) 15% dilution at the Mineral Resource grade is added to all development;
    (n) Mineralization development recovery of 100% is assumed;
    (o) A gold price of US$1,280/oz ($A1,600/oz) and exchange rate of US$0.80:A$1.0;
    (p) An overall processing recovery of 93% at a cost of $28.90/t;
    (q) Total mining cost of $87.10/t; and
    (r) Tonnes are rounded to the closest 1,000t and ounces to the closest 100oz.
15. The lower cut-off grade for Mineral Reserves has been estimated at 2.7 g/t Au.
16. Mineral Reserve estimates were prepared under the supervision of Russell Cole, FAusIMM.

The mining sequence includes permanent rib pillars that separate individual stopes. If a consolidated fill was introduced into the mining sequence a high proportion of these pillars could be extracted thereby potentially increasing the Mineral Reserve.

Sensitivity analysis conducted as part of the economic assessment shows that a 10% decrease in grade, recovery or gold price will still result in a positive NPV being maintained by the project.

A 5% decrease in metallurgical recovery or a 10% increase in costs would increase the cut-off grade from 2.7 g/t to approximately 2.9 g/t Au. As the Mineral Reserve relies on a high-grade core, an increase in cut-off grade of this range will have very little effect on the reserve.

9.3 UNION REEFS OPEN PIT – ESMERALDA DEPOSIT

Table 9-3 shows the Mineral Reserve classification figures, which are inclusive of the modifying factors for mining recovery and dilution.

Classification	Tonnes	Grade Au g/t	Gold oz
Proven			
Probable	244,000	1.61	12,700
Total Mineral Reserve	**244,000**	**1.61**	**12,700**

TABLE 9-3 MINERAL RESERVE CLASSIFICATION ESMERALDA OPEN PIT, AS AT DECEMBER 31, 2017

Notes for Table 9-3:

17. The Mineral Reserve is stated as of December 31, 2017.

18. All Mineral Reserves have been estimated in accordance with the JORC code and have been reconciled to CIM standards as prescribed by the National Instrument 43-101.
19. Mineral Reserves were estimated using the following mining and economic factors:
    (s) Dilution of 10% and mineralization loss of 5%;
    (t) Mining costs of $4.83/t, processing costs of $26/t;
    (u) A gold price of US$1,280/oz ($A1,600/oz) at an exchange rate of US$0.80:A$1.0;
    (v) An overall processing recovery of 90%; and
    (w) Tonnes are rounded to the closest 1,000t and ounces to the closest 100oz.
20. The lower cut-off grade for Mineral Reserves has been estimated at 0.7 g/t Au.
21. Mineral Reserve estimates were prepared under the supervision of Russell Cole, FAusIMM.

10 EXPLORATION ACTIVITY 16 AUGUST 2017 TO 15 AUGUST 2018

During 16 August, 2017 and 15 August, 2018, Kirkland Lake Gold conducted an extensive diamond and RC drill program across MLN1109 following the successful drill during the previous reporting period. Results from the two parent holes and wedges were assayed, prompting an acceleration of drilling. This program consisted of 21 RC holes and 57 Diamond holes focusing on a combination of infill and extensional drilling around the Lady Alice and Prospect Claim deposits, deep scoping holes to in the Millars area of Union South and deep scoping holes between Lady Alice and Crosscourse, beneath Millars prospect and between Millars and the northern end of the Crosscourse pit. Assays for 15 of the diamond holes and 5 of the RC holes are yet to be finalized.

A number of internal studies have been conducted to support the commencement of underground mining on MLN1109. These studies are ongoing and include work on groundwater, geotechnical work, waste rock characterisation and metallurgy.

Desktop studies assessing the future exploration targets, targeting methods and ranking were also conducted during the reporting period. A total of 78 drill holes were drilled over MLN1109 during the reporting period, with 57 holes being diamond holes, and the remaining 21 holes being RC (Figure 10-1). Planned work at the Varna, Great Uncle Bulgaria and Elizabeth South prospects were delayed due to the increased priority within the Prospect, Lady Alice and Millars areas. These targets reamin in the development pipeline and will progess as a part of the upcoming exploration program.

FIGURE 10-1 2018 DRILLHOLE LOCATIONS MAP ON MLN1109

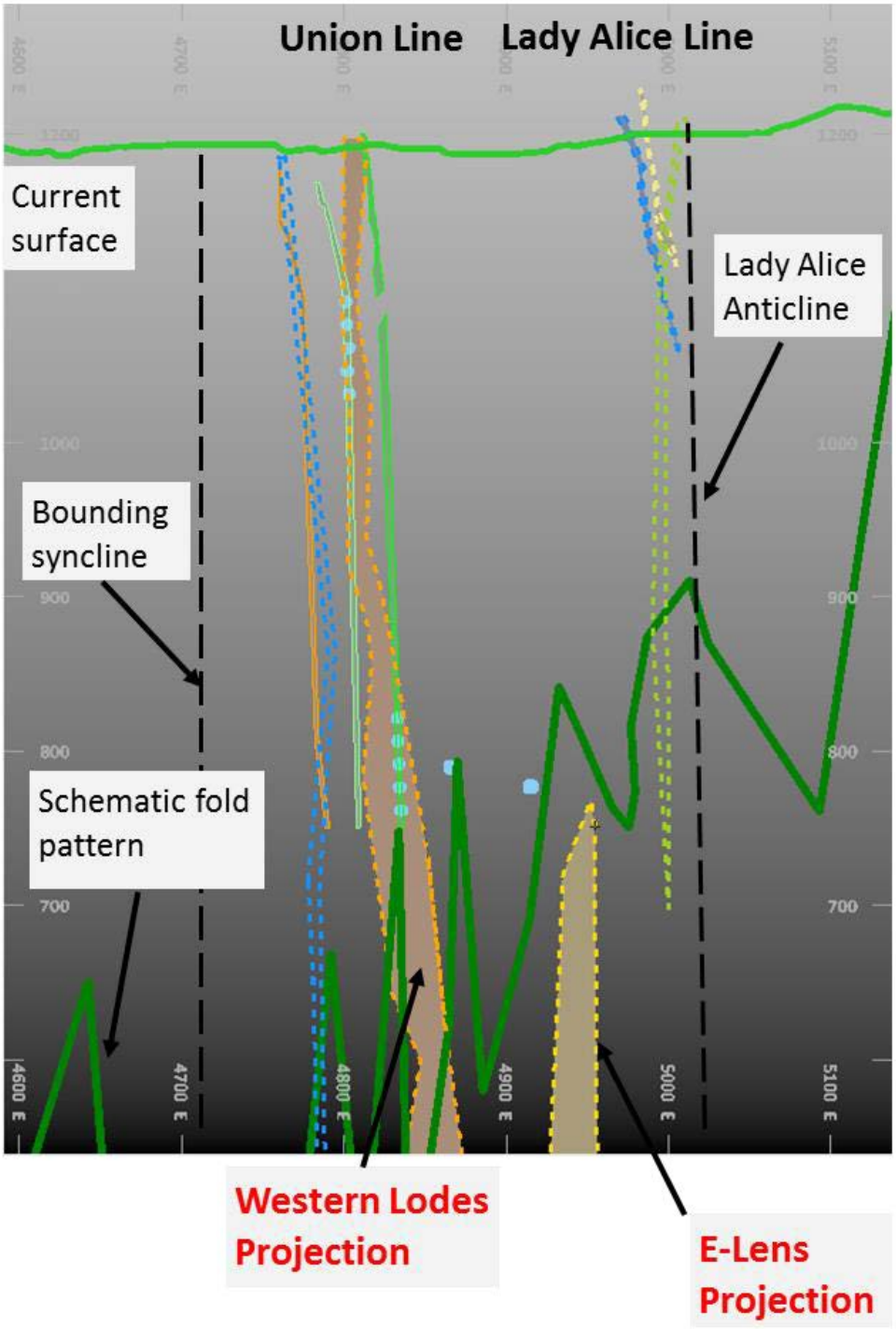


FIGURE 10-2 SCHEMATIC SECTION THROUGH 7100 GRID N

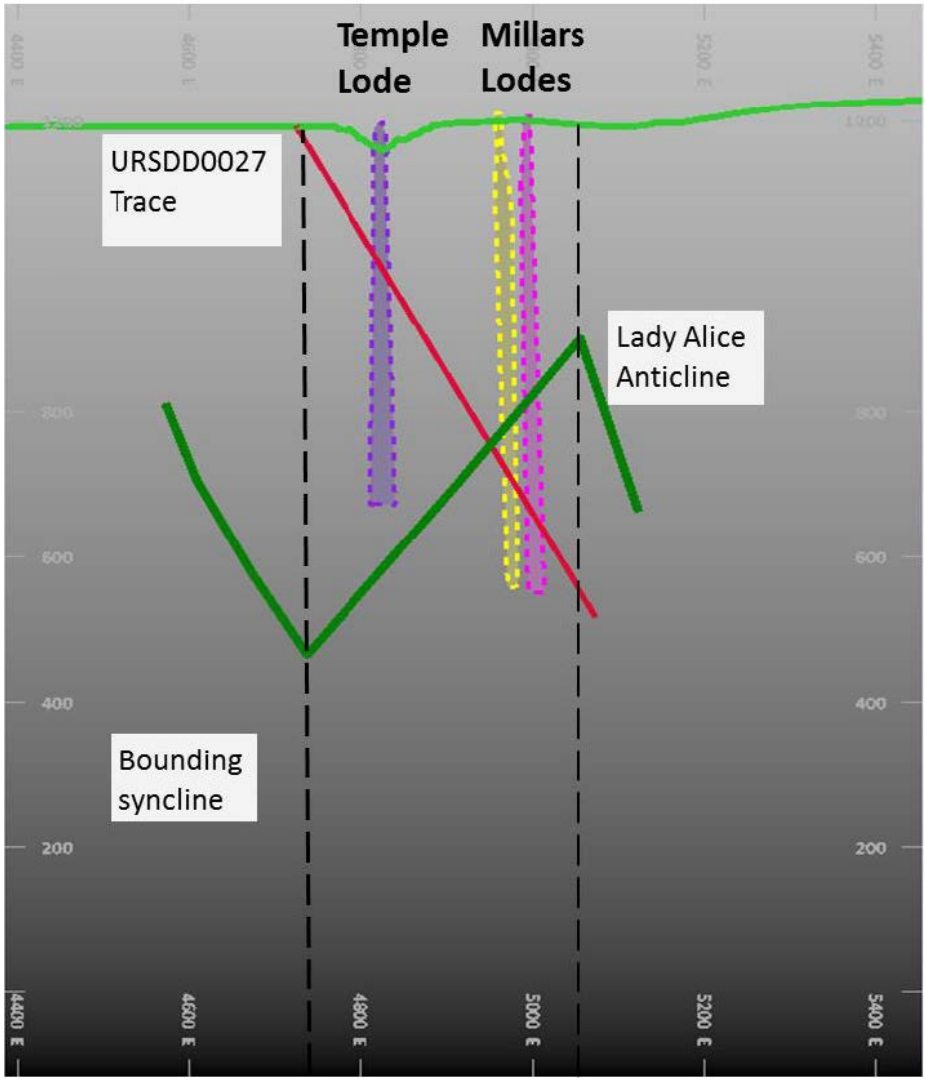


FIGURE 10-3 SCHEMATIC SECTION THROUGH 5600 GRID N; DRILLING INTERPRETATION FROM MILLARS DEEP DRILLING

Folding with west limb parasitic kink folding

Lady Alice Anticline and syncline

Primary anastomosing shear trends. **Gold Bearing 1-5m typical true widths**

Parasitic kink related tension shears. **Gold Bearing 0.3-1.0m true width typical true widths**

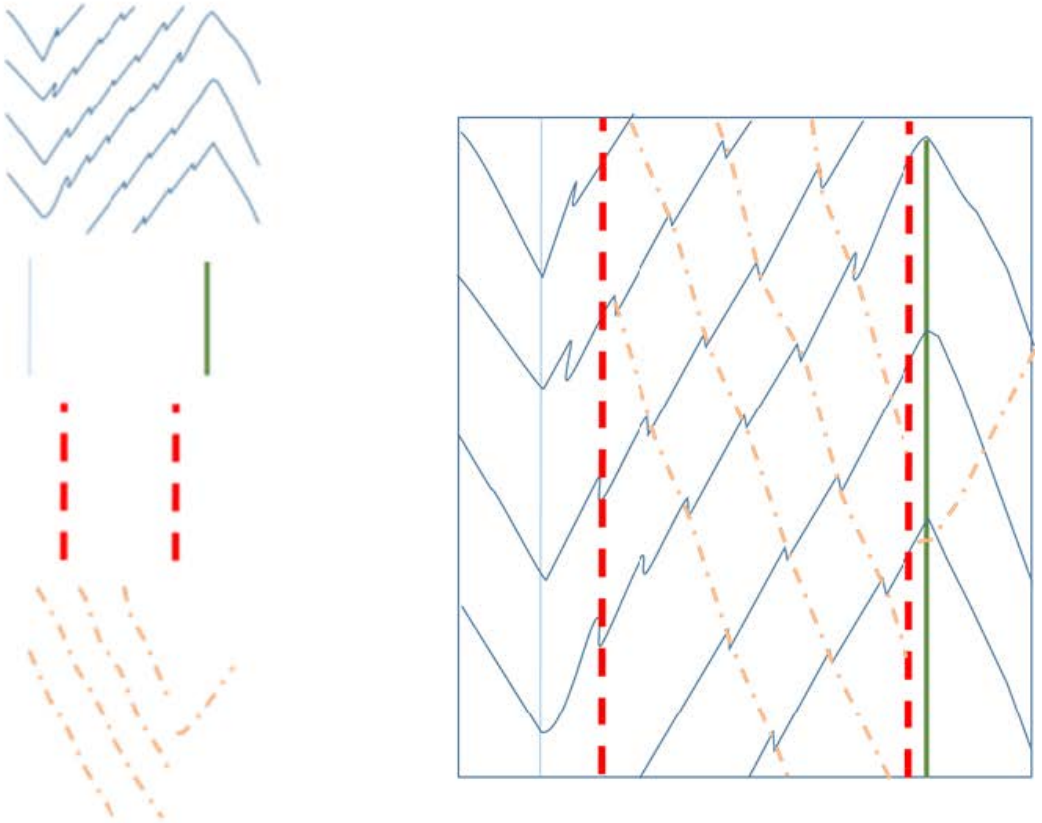


FIGURE 10-4 SCHEMATIC INTERPRETATION OF UNION REEFS MINERALISING STRUCTURES

11 CONCLUSION AND RECOMMENDATIONS

The drilling conducted on MLN1109 during the reporting period demonstrated a deep, persistent mineralized system at Union Reefs. The results of the drilling and updated interpretations from the new drilling has led to the acceleration of further drilling on MLN1109 with the intention of progressing to commence underground mining of the Prospect and Lady Alice prospects during the next reporting period. In addition, further diamond exploration and resource definition drilling on MLN1109 is planned for the next reporting period with the intent to define additional prospects with underground mining potential (Figure 11-1 showing the locality of the proposed work). Underground drilling of both the Prospect Claim and Lady Alice Prospects is anticipated once commencement of underground mining has occurred.

Drilling proposed for the upcoming reporting period comprises of approximately 13,000m of resource definition and near mine exploration drilling around the Lady Alice, Millars Alta, Union North and Union South Prospects. An additional follow up of 27,000m of surface diamond drilling is planned to follow up on the most prospective results from this phase of drilling .In addition, a 10,000m aircore drilling program through shallow cover in the area south of the Millars prospect has been proposed to test mineralization trends south of the existing Union Reefs prospects (Figure 11-1, Figure 11-3).

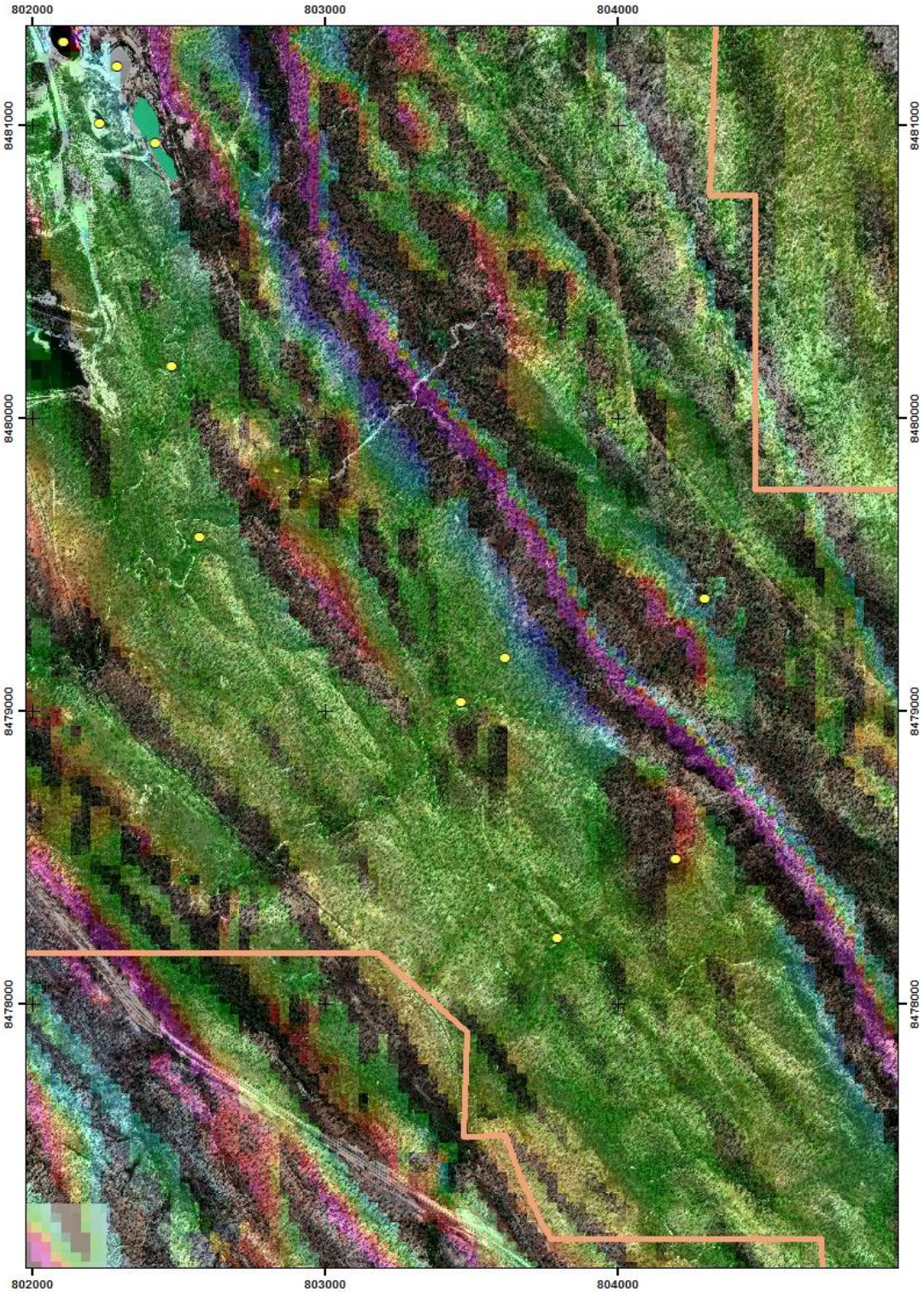


FIGURE 11-1 PROPOSED 10,000M AIRCORE PROGRAM LOCATION, SOUTHERN END OF MLN1109. NOTE THE LOCATION OF THE MILLARS PIT IN THE TOP LEFT OF THE IMAGE

35 days of field mapping, rock chipping and desktop studies have been allocated to follow up previously proposed exploration targets.

Finally, a 3,500 sample site combined field XRF, rock chip and field mapping program has been proposed over the northern section of the Union Reefs tenement area. This is to assist in delineating priority exploration targets going forward (Figure 11-2).

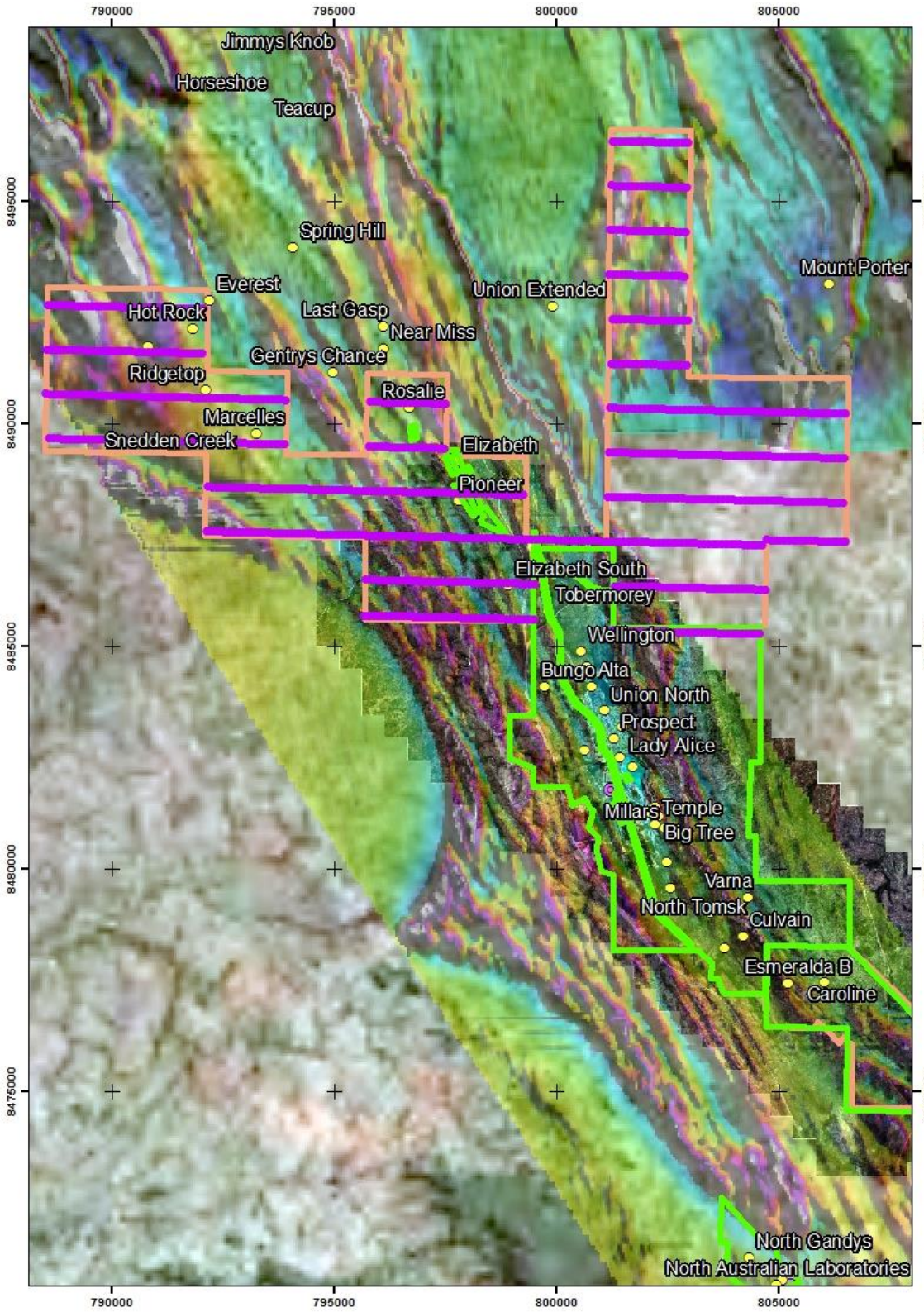


FIGURE 11-2 SAMPLE LINES FOR 3500 SAMPLE XRF, ROCK CHIP AND FIELD MAPPING WORK

FIGURE 11-3 EXAMPLE OF TWO OF THE PROPOSED FIELD WORK AREAS ("IRON SIDING ON THE WEST AND 2 MILE HILL TO THE EAST). THESE AREAS ARE PROPOSED TO HAVE DESKTOP FOLLOW UP STUDY, FIELD XRF, MAPPING AND CHIP SAMPLING UNDERTAKEN. 5-10 DAYS PER SITE IS PLANNED.

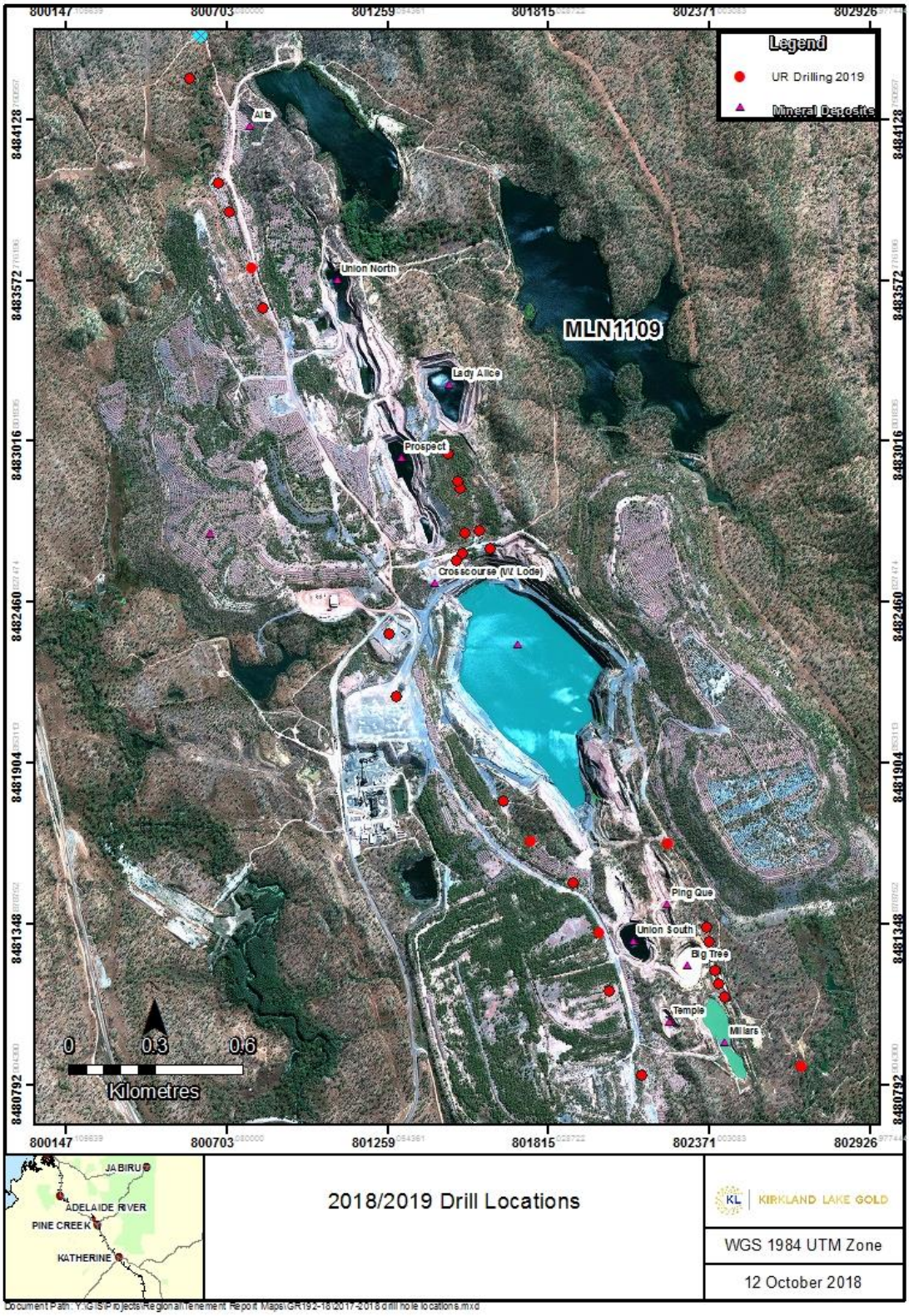


FIGURE 11-4 2019 PROPOSED DIAMON DRILLING LOCAIONS

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13 APPENDIX 1 – DRILL COLLARS

Hole_id	Easting_MGA	Northing_MGA	Elevation	Total Hole Depth	Drill Code	STARTDATE	ENDDATE
URNDD0097W1	801030.3228	8482413.455	184.41	1362	NQ2	01-08-17	01-09-17
URNDD0120	801817.1913	8482802.367	199.41	1128.6	NQ2	05-01-18	06-02-18
URNDD0100	801507.969	8482848.811	207.84	456.56	HQ3	01-02-18	10-02-18
URNDD0105	801450.9739	8482962.084	208.51	457.85	HQ3	07-02-18	17-02-18
URNDD0121	801493.6138	8482873.673	208.25	449.9	HQ3	11-02-18	19-02-18
URNDD0122	801464.9239	8482944.455	208.77	423.1	HQ3	20-02-18	02-04-18
URNRC0121	801367.1868	8482623.039	192.77	151	RC	25-02-18	25-03-18
URNRC0113	801414.8443	8482591.139	192.22	193	RC	26-02-18	27-02-18
URNDD0119	801409.9795	8483034.786	206.73	360.3	HQ3	27-02-18	07-03-18
URNRC0119	801393.0658	8482610.658	192.29	218	RC	28-02-18	04-03-18
URNRC0120	801352.507	8482586.943	192.79	270	RC	05-03-18	07-03-18
URNDD0138	801292.961	8483277.897	197.24	639.8	HQ3	07-03-18	19-03-18
URNRC0123	801251.4485	8482567.753	191.71	120	RC	08-03-18	08-03-18
URNRC0101	801608.6673	8482642.72	191.84	198	RC	11-03-18	12-03-18
URNRC0102	801620.5502	8482643.43	192.31	198	RC	11-03-18	12-03-18
URNDD0139	801294.9749	8483282.195	197.29	533.7	HQ3	20-03-18	30-03-18
URNRC0116	801569.5584	8482689.003	191.21	202	RC	20-03-18	22-03-18
URNRC0115	801573.2242	8482684.651	191.51	174	RC	22-03-18	23-03-18
URNRC0105	801483.5196	8482589.801	192.32	96	RC	24-03-18	25-03-18
URNRC0117	801513.294	8482672.081	189.76	204	RC	24-03-18	25-03-18
URNRC0107	801379.9829	8482527.444	191.97	258	RC	26-03-18	29-03-18
URNRC0122	801311.759	8482542.058	191.42	156	RC	30-03-18	01-04-18
URNDD0144	801510.8893	8482851.025	207.83	456.3	HQ3	01-04-18	09-04-18
URNRC0111	801478.231	8482638.817	191.77	168	RC	02-04-18	02-04-18
URNRC0114A	801345.7462	8482555.648	192.07	30	RC	03-04-18	03-04-18
URNRC0114	801340.8078	8482571.432	192.58	282	RC	04-04-18	07-04-18
URNRC0106	801434.3784	8482563.25	192.27	168	RC	06-04-18	07-04-18
URNRC0104	801465.7088	8482592.232	192.38	200	RC	07-04-18	09-04-18
URNDD0147	801270.3761	8482349.51	186.8	888.8	HQ3	10-04-18	06-05-18
URNDD0145	801482.597	8482896.824	208.57	430.4	HQ3	11-04-18	20-05-18
URNRC0110	801519.729	8482626.074	191.36	258	RC	21-04-18	22-04-18
URNDD0146	801468.4921	8482942.63	208.58	460.2	HQ3	22-04-18	01-05-18
URNRC0108	801573.602	8482663.756	192.08	252	RC	22-04-18	30-04-18
URNRC0109	801568.8221	8482661.646	191.93	250	RC	24-04-18	27-04-18
URNDD0152	801410.7635	8483035.804	206.62	527.6	HQ3	03-05-18	15-05-18
URNDD0153	801445.5726	8482964.996	208.06	312.1	HQ3	09-05-18	14-05-18
URNDD0154	801445.5726	8482964.996	208.06	387.5	HQ3	15-05-18	22-05-18
URNDD0148	801498.2239	8482869.143	208.06	92.7	HQ3	17-05-18	18-05-18

URNDD0149	801493.3975	8482867.133	207.99	101.7	HQ3	19-05-18	20-05-18
URNDD0150	801507.0574	8482848.872	207.83	119.7	HQ3	21-05-18	23-05-18
URNDD0155	801412.4869	8483036.962	206.46	462.7	HQ3	23-05-18	01-06-18
URNDD0151	801457.916	8482939.24	208.14	92	HQ3	24-05-18	25-05-18
URNDD0159	801477.6725	8482895.331	208.81	455.9	HQ3	26-05-18	03-06-18
URNDD0156	801816.5397	8482926.856	186.79	576.5	HQ3	02-06-18	12-06-18
URNDD0160	801506.8211	8482853.068	207.85	422.8	HQ3	04-06-18	15-06-18
URNDD0157	801811.2327	8483006.289	187.65	737	HQ3	14-06-18	30-06-18
URNDD0158	801462.4166	8482941.12	208.48	436.5	HQ3	16-06-18	24-06-18
URNDD0169	801482.5172	8482896.687	208.57	284	HQ3	25-06-18	25-06-18
URNDD0169A	801475.3234	8482893.881	208.62	284.3	HQ3	26-06-18	30-06-18
URNDD0167	801488.6707	8482871.321	208.36	277.6	HQ3	01-07-18	06-07-18
URSDD0027	802019.0032	8481201.259	193.09	567.8	HQ3	01-07-18	14-07-18
URNDD0172	801463.3299	8482942.452	208.42	263.4	HQ3	06-07-18	17-07-18
URNDD0170	801474.0031	8482921.172	208.99	269.8	HQ3	06-07-18	12-07-18
URSDD0029	802018.8756	8481201.178	193	759.6	HQ	15-07-18	01-08-18
URNDD0173	801451.1341	8482961.551	209	70.6	HQ3	19-07-18	22-07-18
URNDD0173A	801448.7237	8482968.135	208.24	266.6	HQ3	23-07-18	27-07-18
URNDD0162	801524.9564	8482830.258	207.02	200.7	HQ3	28-07-18	30-08-18
URNDD0163	801524.7425	8482830.246	207.706	185.6	HQ3	31-07-18	04-08-18
URSDD0028	802026.0053	8481114.464	192.696	519.3	HQ3	03-08-18	14-09-18
URNDD0161	801522.7695	8482830.063	207.646	238.2	HQ3	05-08-18	09-08-18
URNDD0164	801521.4728	8482830.853	207.638	145.5	HQ3	10-08-18	12-08-18
URNDD0165	801520.4018	8482830.318	207.628	164.7	HQ3	12-08-18	14-08-18
URNDD0171	801484.1465	8482923.952	206.37	190.2	HQ3	15-08-18	18-08-18
URSDD0031	802024.9138	8481114.063	192.621	798.5	HQ3	15-08-18	08-09-18
URNDD0168	801499.8699	8482876.074	208.24	209.7	HQ3	18-08-18	21-08-18
URNDD0166	801508.3727	8482849.839	207.75	167.6	HQ3	22-08-18	26-08-18
URNDD0174	801467.093	8482972.314	209	192.8	HQ3	27-08-18	29-08-18
URNDD0179	801554.0071	8482726.164	191.074	242.9	HQ3	30-08-18	04-09-18
URNDD0178	801557.3238	8482727.167	191.11	215.3	HQ3	05-09-18	08-09-18
URSDD0030	801290.477	8482132.279	199	1040	HQ3	09-09-18	18-09-18
URNDD0177	801556.6565	8482726.744	191.026	259.6	HQ3	09-09-18	13-09-18
URNDD0176	801555.1058	8482726.165	191.016	260.4	HQ3	13-09-18	17-09-18
URNDD0180	801557.2959	8482728.561	190.952	480	HQ3	17-09-18	25-09-18
URSDD0030A	801658.141	8481770.499	191.1	680	HQ3	19-09-18	
URNDD0181	801558.2636	8482728.917	191.156	526	HQ3	25-09-18	26-09-18
URNDD0181A	801558.2636	8482728.917	191.156	526	HQ3	26-09-18	
URNDD0182	801560.5433	8482729.669	191.027	575	HQ3	03-10-18	
URSDD0033	801899.9298	8481489.11	191.13	550	HQ3	11-10-18	

14 APPENDIX 2 – LITHOLOGIES

LithCode	DESCRIPTION
Psl	siltstone
TUF	Tuff
Pgtb	Greywacke with boudins
Pgt	Greywacke
Pm	Mudstone
Pmc	Carbonaceous Mudstone
Pdz	Dolerite
UNKN	Unknown from Datashed Transfer
Fault	Fault
Vqz	Vein Quartz
VEIN	Vein
GYWK	Greywacke
Pph	Phyllite
DLT	Dolerite
SHLE	Shale
Qtz	Quartz
Pis	Ironstone
SLST	Siltstone
Pca	Dolomite/Carbonate
SDST	Sandstone
Bx	Breccia
Shear	Shear
Psd	Dolomitic Siltstone
Vcb	Calcite Vein
LC	Lost Core
Qtt	Quartzite
Pps	Silt with patchy/ weak foliation - semi phyllite
CLY	Clay
SOIL	Soil
Pshc	Carbonaceous Shale
NSMP	NULL
CHRT	Chert
Pch	Chert
MDST	Mudstone
BLT	Basalt
Pgtbp	Pgtb - small boudins with sulphide halo/rim
CLCR	Calcrete
VEBX	Vein Breccia
MUD	Mud
Pslcd	Silt with cordierite
Pvt	Tuff

Ppscd	Sitl/ Phyllite with cordierite
Pphcd	Phyllite with cordierite
LTUF	Lapilli Tuff
Pslc	Carbonaceous Siltstone
BIF	Banded Iron Formation
SCHT	Schist
Psh	Shale
Cla	clay
Sap	Saprolite
Pslb	Silt with biotite
IGM	Ignimbrite
Lcl	No Data (no samples taken/return/information lost etc.)
SLA	Slate
FILL	Unspecified Fill
Pst	sandstone
Pcl	Schist
CBSH	Carbonaceous Shale
PcaSi	Calc Silicate
Sol	Soil
CNGL	Conglomerate
Vpy	Pyrite Vein
Pam	Amphibolite
Ppsb	silt/ Phyllite with biotite
Pslcb	Silt with cordierite and biotite
GOUG	Gouge
Ms	Massive sulphides
Pphb	Phyllite with biotite
Ppscb	Silt/ Phyllite with Cord and Biotite
MYL	Mylonite
JASP	Jasper
PHYL	Phyllite
Col	Colluvium
UN	Unknown conversion
Pclcd	Schist with cordierite
Alu	aluvium
Pclcb	Schist with Cord and Biotite
Pphcb	Phyllite with Cord and Biotite
LAT	Laterite
Psp	Soapstone/Talc
Shotcrete	Shotcrete
Stope	Stope
ALUV	Alluvium
Elu	Elluvium

Fct	Ferricrete
GO	Gossan
Lcd	Dump
NS	Not Sampled
Pgr	Granite
Phf	Hornfels
Gra	gravel
Pmb	Marble
SPLT	Saprolite
Arg	Argillite
Cpbx	Calcopyrite Breccia
Pmcd	Mudstone with Cordeirite
Aspbx	Arsenopyrite Breccia
CBRK	Carbonate Rock
Lcw	Mine workings
LOM	Loam
MBL	Marble
MSU	Massive Sulphide
SC	Sludge sample containing graphite
SPRK	Saprock