

**BURNSIDE OPERATIONS PTY LTD**

**MCN 4293-4296 and MCN 4956-4958**

***BRIDGE CREEK NORTH***

***ANNUAL EXPLORATION REPORT***

**Year Ending June 26<sup>th</sup> 2004**

**Burnside (14/2-II) 1:50,000**

**Title Holder:- Northern Gold N.L. & Camelot Northern  
Territory Limited**

**Distribution**

- 1. DBIRD Darwin NT**
- 2. Northern Gold N.L., Perth Office**
- 3. BOPL office Brocks Creek NT**
- 4. BOPL Perth Office WA.**

**Compiled by:-**

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## **SUMMARY**

The tenements that comprise the Bridge Creek North report group are MCNs 4293-4296 and 4956–4958. They are located approximately 35.0km SE of Adelaide River NT and are contiguous with the Bridge Creek prospect to the south.

The mineral claims cover the northern continuation of the Howley Anticline, approximately 12 km along strike from the Cosmo Howley Gold Mine and 12 km from the Brocks Creek treatment plant.

The geology of the area is similar to that found at the Cosmopolitan Howley gold mine, and is dominated by north striking asymmetric folds within the South Alligator Group and the Finniss River Group. Pre orogenic dolerite sills are interleaved with the mineralised sequence. North east striking dextral faults intersecting the fold axes along with west dipping reverse faults have been important in localising gold mineralisation.

The tenement group was included in a joint venture agreement between Territory Goldfields NL, Camelot Northern Territory Ltd and Buffalo Creek Mining NL that was finalised in April 2002.

The Burnside Joint Venture was formed with the objective of commencing gold mining centred on the Brocks Creek gold treatment plant. To realise this objective the joint venture has undertaken extensive RC drilling of local priority targets during 2002-2004. In addition the development of underground resources at the Zapopan decline in 2003 has been supplemented by diamond drilling and modelling work at the nearby Cosmo Howley project.

Exploratory work carried out by Territory Goldfields NL prior to formation of the Burnside JV showed that the Bridge Creek North group tenements host gold occurrences that are presently sub economic. They have been ranked low on the Burnside priority listing. The best of these includes the Ios resource that has been encroached upon by the new Darwin-Adelaide Railway.

Further reviews by the Burnside JV confirmed their low ranking compared with other Burnside JV targets. Development of these lesser prospects is to a degree dependent on the economic success of the Zapopan and Cosmo Howley projects that are now at an advanced stage.

Pending favourable economic outcomes for exploration at the Burnside JV operation, work on the Bridge Creek North group mineral claims has been limited to data review and reporting. The adjacent Bridge Creek gold resource will continue to be further evaluated and reinterpreted as part of the updated ranking process.

The expenditure over the mineral claims, during the year ending 26<sup>th</sup> June 2004, totalled \$300.00.

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## **1.0 INTRODUCTION**

The Bridge Creek North MCNs 4293-4296 and 4956-4958 are located approximately 35km SE of Adelaide River NT and form part of the Burnside Joint Venture tenements.

They are contiguous with and enclose a structural continuation of the Bridge Creek group tenements. Previous exploration programs have shown both Bridge Creek North and Bridge Creek contain presently sub economic gold resources.

The Burnside area is under joint venture management with access to the mothballed treatment plant at Brocks Creek. The operating entity, Burnside Operations P/L, comprises Territory Goldfields NL and Buffalo Creek Mines P/L which in turn are controlled by Northern Gold NL and Harmony Gold (Australia) P/L.

## **2.0 TENEMENT DETAILS**

The Bridge Creek North tenement group comprises MCN4293 to MCN4296 inclusive and MCN4956 to MCN4958 inclusive and total 272.0ha. See Fig. 1

They fall within Pastoral Lease No. 718, Mount Ringwood, held by W. E. & V. J. Moon, Pastoral Lease No. 903, Douglas, held by Tovehead Pty. Ltd. and Crown Lease (Perpetual) No. 900, held by the Northern Territory Land Corporation. The Darwin-Adelaide railway reserve encumbers the two northernmost tenements.

**MCNs 4293 - 4296** were originally granted to Mr. R. J. Edwards on the 1<sup>st</sup> of July 1992, expiring on the 30<sup>th</sup> of June 1997.

Northern Gold N.L. and Reynolds Australia Metals Limited entered into an option agreement over all its Bridge Creek tenements on the 5<sup>th</sup> of May 1993.

Ranford Gold Mines Pty. Ltd. carried out alluvial mining over MCNs 4293-4296 under an agreement with R. J. Edwards. A transfer of these tenements from R. J. Edwards to Northern Gold N.L. (50%) and Camelot Northern Territory Limited (50%), formerly Reynolds Australia Metals Ltd., was registered on the 4<sup>th</sup> of July 1995.

The mineral claims were renewed on the 4<sup>th</sup> of December, 1997, for a period expiring on the 31<sup>st</sup> of December, 2001. A further renewal has been applied for.

**MCNs 4956 - 4958** were granted to Northern Gold N.L. on the 26<sup>th</sup> of June, 1995, for a period of 10 years, expiring on the 31<sup>st</sup> of December 2004. These claims were added to the Bridge Creek alluvial agreement in October 1995.

The Bridge Creek alluvial agreement was terminated in December 1998.

The tenements were incorporated into the Burnside Joint Venture (50% Territory Gold NL, 50% Buffalo Creek Mines Pty Ltd) on 4<sup>th</sup> April 2002, under the management of Burnside Operations Pty Ltd.

### **3.0 LOCATION AND ACCESS**

The mineral claims lie between latitudes 13°24'S and 13°26'S, and longitudes 131°18'E and 131°20'E. (See location and setting plans Figures 1 and 2).

Access to the tenements may be achieved via the Stuart Highway that passes just west of the group. A seasonal track traverses longitudinally through the tenements passing north from Bridge Creek. Access is severely affected during the wet season due to creek crossings and black soil flats associated with Bridge Creek.

## **4.0 GEOLOGICAL SETTING**

### **4.1 Regional Geology**

The Bridge Creek North tenements are situated within the Pine Creek Geosyncline, a tightly folded sequence of fine to coarse grained clastic basinal sediments of Lower Proterozoic age.

In the report area the sequence has been regionally metamorphosed to greenschist facies and has been intruded by late syn-orogenic to post orogenic granitoid intrusions. These intrusions imparted thermal contact metamorphic and metasomatic effects and contributed to the deposition of a range of economic minerals in structurally permissive sites.

There is a tendency for gold mineralisation to be focused in anticlines within strata of the South Alligator Group and lower parts of the Finnis River Group. This sequence evolved from initial low energy shallow basinal sedimentation to higher energy deeper water flysch facies. A water-lain tuffaceous component is present and the prospective sequence was intruded by a suite of pre orogenic mafic sills.

Less deformed Middle Proterozoic sedimentary and volcanic sequences unconformably overlie the Lower Proterozoic. In the broader region, Cambro-Ordovician lavas and sediments of the Daly River Group, as well as Cretaceous strata, onlap the older sequences.

Cainozoic sediments, laterite and Recent black soil and sand alluvium may obscure parts of the Pine Creek Geosyncline lithologies, but exposure of the more resistate units of the prospective sequence is generally good.

## **4.2 Local Geology**

The Bridge Creek North group covers a sector of the Howley Anticline, approximately 12km north along strike from the Cosmo Howley Gold Mine. The Howley Anticline is a macroscopic fold structure, which has been traced from the Cosmo Howley Gold Mine in the south to Mount Paqualin in the north, a distance of 30.0km.

The fold can be described as a doubly plunging upright, asymmetric, tight, non-cylindrical fold, which plunges north in the vicinity of the Cosmo Howley Mine and to the south, at approximately 12°, in the Bridge Creek area.

The geology of the area is dominated by units from the South Alligator Group and the Finnis River Group. At Bridge Creek these comprise Koolpin Formation, Gerowie Tuff, and Mt Bonnie Fm. Finnis River Group is represented by Burrell Creek Formation. Zamu Dolerite is expressed as concordant pre orogenic sills that have dilated the sequence and have been folded with it.

At Bridge Creek, erosion of the north striking Howley Anticline and parasitic folds has exposed foliated, sulphidic and carbonaceous black mudstones and wackes of the Koolpin Formation. These are in turn overlain by foliated epiclastics and felsic tuffites of the Gerowie Tuff Formation. Units of the Zamu Dolerite have served to act as stratigraphic markers and help to define fold limbs and the position of the axis and core of the Howley Anticline. The contact zone between the Zamu Dolerite and the Gerowie Tuff is locally strongly deformed with some apparent tectonic interleaving of lithologies.

In gold-mineralised locations the axial zone is cut and dextrally offset by a series of NE striking anastomosing brittle-ductile shears with associated quartz veining. These are commonly in association with reverse faults that generally dip westerly.

## **5.0 PREVIOUS EXPLORATION**

The axial closure of the Howley Anticline has historically been the subject of alluvial gold exploration and mining for over 100 years. Surficial gravels shed from extensive vein deposits within the Koolpin Formation, Gerowie Tuff and sheared sectors of the Zamu Dolerite have been worked intermittently to the present day. An alluvial treatment agreement existed until 1998 on MLN766 and MLN 1060 at Bridge Creek, just south of the report area and treatment also extended into the Bridge Creek North Group itself. Extensive RC drilling of the Bridge Creek primary gold resource extended onto MCN4295 and at the Ios prospect at the north end of MCN4956 a significant gold resource was outlined.

The Bridge Creek North tenement group was previously covered by EL 5319. Soil sampling over this tenement gave anomalous results which corresponded with soil sampling by Northern Gold N.L. to the south, at Bridge Creek, on MLN 1060.

During the **1992/93** field season, Northern Gold N.L. completed a reverse circulation drilling program over MCN4293-4296 comprising 1,273m in 22 angled holes. Drilling was directed at testing beneath a previously delineated gold soil anomaly, which was coincident with the Howley Anticline. The area tested was along strike, and to the north of the Bridge Creek mineralisation. The drilling intersected minor anomalous mineralisation with assay results indicating a weak discontinuous mineralised system.

Between **December 1992 and December 1996** .Ranford Gold Mines Pty. Ltd. carried out alluvial mining under an agreement with R. J. Edwards, who held the alluvial rights over the area.

In the **1999-2001** seasons no field exploration was carried out. Work was restricted to a review of existing geological, geochemical and geophysical data as part of a target generation and ranking exercise for the whole Howley Anticline trend.

During the **2001-2003** work comprised a ranking and technical review of the Bridge Creek North gold prospects under the Burnside Joint Venture. This confirmed the current low priority ranking of the Bridge Creek North area.

## **6.0 EXPLORATION YEAR ENDING JUNE 26<sup>TH</sup> 2004**

On April 4<sup>th</sup> 2002 Northern Gold NL and Buffalo Creek Mines Pty Ltd concluded a joint venture agreement that comprised a merging of mining assets in the Burnside region. The merged entity includes scheduled tenements of both parties plus the gold treatment infrastructure at Brocks Creek.

The principal objective of the joint venture was to commence mining at Zapopan near Brocks Creek, supplemented by the known open pit gold resources within the surrounding tenements, using the central treatment facility. The Zapopan decline was completed to the 1000 and 980RLs in 2003 and underground diamond drilling of the lode continued until July. Diamond drilling and modelling was also carried out at the Cosmo Howley mine.

The resources already identified by exploration within the Bridge Creek North mineral claims are presently ranked as sub economic. The better of these, the Ios prospect has been partly encumbered by the new Darwin-Adelaide railway.

While no field work apart from brief reconnaissance was done on the ground during the past year, some attention was given to the structural setting of the Bridge Creek area using remote sensing data. See Fig. 3

This work including reporting duties amounted to \$300.00.

## **7.0 PROPOSED WORK PROGRAM to JUNE 26<sup>TH</sup> 2005**

During this generative phase of the Burnside Operation, exploration work by the Joint Venture will be focused on the Zapopan, Cosmo Howley, Chinese Howley, Woolwonga, Fountain Head and Yam Creek areas, the Bridge Creek North group of tenements with a mature record of exploration, and presently sub economic gold concentrations, will be assigned a lower priority.

Remote sensing data will be used to further understanding of the structural setting of the Bridge Creek mineralised area.

An estimation of the cost of this work including reporting is \$400.00



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