

## Quarterly Report

### For the three month period ended 30 September 2004

#### HIGHLIGHTS

- Analysis of 1m samples from RC drilling at the **Golden Crown Prospect** has confirmed the significant narrow high grade intercepts from the Golden Crown and Faugh-a-Ballagh areas.

Results include:

- ♦ **2m @ 174.68 g/t** from 12.0m (GCP-017),
- ♦ **2m @ 4.60 g/t** from 5.0m, **1m @ 7.13g/t** from 51.0m, **3m @ 4.89g/t** from 86.0m and **2m @ 11.37g/t** from 97m (GCP-012),
- ♦ **1m @ 6.01 g/t** from 11m and **1m @ 7.78 g/t** from 20.0m (GCP-013),
- ♦ **3m @ 3.60 g/t** from 25m (GCP-015),
- ♦ **1m @ 18.36 g/t** from 53.0m (GCP-016).
- Further RC drilling is planned at Golden Crown and Faugh-a-Ballagh later this year.
- Anomalous gold results received from sampling at the Range Prospect (**Wilson River Project**). No gold mineralisation has previously been documented in the area.
  - ♦ High grade gold values including **38.34 g/t, 10.92 g/t, 5.91 g/t and 5.61 g/t** returned from rock chip sampling of quartz veins.
  - ♦ Gold values of 224 ppb, 197 ppb and 88 ppb returned from infill soil sampling.
  - ♦ Anomalous gold mineralisation now identified over a 1.7 km length.
- Ground assessment testing targets, including those from the electromagnetic surveys, within the East Kimberley Nickel Project Group is continuing.

#### INTRODUCTION

Northern Star Resources (ASX Code: NST) has three projects centred on Halls Creek in the largely under-explored East Kimberley region of Western Australia (Figure 1). The projects cover an area of approximately 2,900 km<sup>2</sup> and are highly prospective for nickel-copper-cobalt and platinum group metals mineralisation, gold, diamonds and base metals.

The East Kimberley region hosts a number of major mineral deposits, including the world-class Argyle diamond mine, Sally Malay nickel project with reserves of 3.4mt @ 1.56% nickel, Panton platinum project with resources of 75.2mt @ 1.9 g/t platinum group elements plus gold, and the previously mined 70,000 ounce Palm Springs gold mine.

## EXPLORATION

### **HALLS CREEK PROJECT GROUP (100% NST)**

The project group is located east and south of Halls Creek covering an area of approximately 570 km<sup>2</sup> and includes the Golden Crown, Bailey Range, Balara and Cummins Range projects.

#### **Golden Crown Prospect**

Golden Crown, located 20 km east of Halls Creek and about 4 km north-east of the previously mined 70,000 oz Palm Springs gold mine, comprises two exploration licences (ELs) covering an approximate 40 km<sup>2</sup> area (Figure 2).

A 1,795 metre reverse circulation (RC) drilling programme tested numerous structural gold targets at the Golden Crown, Faugh-a-Ballagh and Titan prospects.

Assaying of 1m samples from the anomalous 4 metre composite RC drill samples reported last quarter has returned high gold grades; including:

- **2m @ 174.68 g/t** from 12.0m (GCP-017),
- **2m @ 4.60 g/t** from 5.0m, **1m @ 7.13g/t** from 51.0m, **3m @ 4.89g/t** from 86.0m and **2m @ 11.37g/t** from 97m (GCP-012),
- **1m @ 6.01 g/t** from 11m and **1m @ 7.78 g/t** from 20.0m (GCP-013),
- **3m @ 3.60 g/t** from 25m (GCP-015),
- **1m @ 18.36 g/t** from 53.0m (GCP-016).

Significant gold results (>1.0 g/t) are summarised in Tables 1 and 2.

The results are very encouraging and confirm that numerous quartz veins with high grade gold have been intersected over a 250m strike length at Faugh-a-Ballagh (Figure 3) and 130m strike length at Golden Crown. A number of new quartz veins not previously drilled in the Faugh-a-Ballagh area were also gold bearing, including that in GCP-017.

These results are in line with the previously reported intersections from diamond drill holes in the same areas that included **0.8m @ 521 g/t Au** from 23.0m (GCD010), **0.4m @ 47.24 g/t Au** from 126.6m (GCD011), and **1m @ 19.06 g/t Au** from 29.0m (GCD005).

The current RC drilling at the Golden Crown and Faugh-a-Ballagh historical gold workings provides the first systematic test of the distribution of significant high grade gold mineralised veins. The south west orientation of most of the drilling has allowed an optimal test of the north striking veins within the north east striking syenite host rocks.

The recent results, together with the work from the previous geological assessment, indicate there are several vein orientations in the Faugh-a-Ballagh area. In order to assess the resource potential of the gold mineralisation it will be necessary to confirm these orientations and to further test the newly identified veins. Additional RC drilling (some 500m) has been planned and is

expected to be completed prior to the end of the northern field season, which is typically early in December.

At the Titan prospect, 3km west of the Golden Crown workings, drilling tested the recently identified 350m long by 120m wide north-south trending zone of gold anomalous soils (>100 ppb). This zone also contains a 150m by 40m area of >500 ppb gold, which returned peak gold in soil values of **2.3 g/t, 1.92 g/t and 1.48 g/t**. RC drilling returned a number of significant results including **1m @ 3.97 g/t** from 106.0m (GCP019) and **1m @ 3.31 g/t** from 29.0m (GCP020).

Target generation work and geochemical testing of other syenite rocks within the project area is ongoing.

### **EAST KIMBERLEY PROJECT GROUP (100% NST)**

The project comprises five tenement holdings, Springvale, Toby, Foal Creek, Red Billabong and Castlereagh, and totals an area of approximately 1,460 km<sup>2</sup>.

This commanding land holding covers known and inferred mafic/ultramafic intrusive rocks, which are considered prospective for nickel-copper-platinum and base metal mineralisation.

#### **Red Billabong Project**

Red Billabong, located between 30-70 km west and southwest of Halls Creek, comprises ELs and one exploration licence application (ELA) covering approximately 710 km<sup>2</sup>.

The prospect covers a number of mafic-ultramafic rock units, including the Lamboo ultramafics, Emull gabbro, Eaglehawk Crossing gabbro and the informally named Moola Bulla or Station Creek complex.

Evaluation of data from the airborne magnetic survey completed earlier this year highlighted a number of areas, including three priority targets that have the potential to host nickel-copper-cobalt and platinum group metals mineralisation.

The priority targets include areas adjacent to previously identified electromagnetic (EM) anomalies, including those associated with the Moola Bulla complex, as well as the area over the base metal mineralisation at the Emull prospect.

Testing of the priority targets with a helicopter borne EM (HoistEM) survey has recently been completed, with 1,284 line kilometres covering about 240 km<sup>2</sup>. Final data from the survey has yet to be received. A number of conductive anomalies have been identified from the data in all three target areas.

Field work to resolve whether these EM anomalies could be sourced from nickel sulphide mineralisation continues. Geochemical testing of a number of EM responses in the Emull area has been undertaken. Results from the surveys are still awaited.

#### **Springvale Project**

Springvale, located between 30-60 km north of Halls Creek, comprises two ELs covering an area of approximately 254 km<sup>2</sup>.

Northern Star controls the majority of the margin of the Springvale layered mafic-ultramafic intrusive complex, which has an areal extent of 13 km x 6 km. Sampling of a number of geological contacts has returned previously reported anomalous rock chip and gossanous assay results. These include the undrilled western and southern contacts where values of up to 0.3% Ni, 1.0% Cu and 0.035% Co have been reported in separate rock chip samples.

The geophysical contractor has completed a systematic ground EM survey to test the southern margin of the intrusive. An initial moving loop TEM survey of 18 line km with 308 recording stations covered about a 7 km length of the shear zone. Although no significant conductors were located, an area of interest was defined near the central portion of the grid. A follow up fixed loop survey of 2.6 line km with recording 68 stations was completed over this zone. The sources for the number of responses returned from the survey are currently being assessed in light of the results from recently completed soil geochemical sampling.

### **Toby Project**

The Toby project is located 75 km north of Halls Creek and consists of two ELs covering about 281 km<sup>2</sup>.

The project encompasses the majority of a 20 km x 12 km intrusive body of layered mafic rocks, which is poorly exposed and largely covered by black soil, sand and gravel.

It is the largest, and one of the most fractionated, layered intrusives in the East Kimberley region, making it prospective for nickel sulphide and/or PGE mineralisation. The project also contains all of the layered Wilagee intrusion and approximately 25 km<sup>2</sup> of the Sandy Creek intrusion. The small Egg mafic intrusion and a possibly related dyke-like intrusion lie in the northeast portion of the project area.

The potential for hydrothermal and structurally controlled PGE, gold-PGE, and nickel-copper mineralisation has been inadequately tested. The modern models of hydrothermal PGE mineralisation largely post-date the past exploration campaigns.

Exploration by past explorers rarely analysed samples for gold, and surface PGE surveys were targeted for strata bound PGE-sulphide and chromite mineralisation. Rock chips of quartz rich gossanous samples near the northern margin of the Toby intrusion returned up to 0.3% Cu, 0.2% Co and 0.3% Ni in separate samples. No analysis for gold or PGE was carried out.

The Company has commenced a stream sediment survey to systematically test for potentially economic hydrothermal PGE ± nickel-copper mineralisation. Results from the survey are still awaited.

### **WILSON RIVER PROJECT GROUP (100% NST)**

The project group, situated about 150km north of Halls Creek and within a 40 to 90km radius west and southwest of the Argyle Diamond mine, is comprised of three ELs and four ELAs covering approximately 1,350 km<sup>2</sup>.

Rocks within the Wilson River Project Group are dominated by felsic volcanics and felsic porphyries of the Whitewater Volcanics.

Systematic rock chip sampling of seven quartz veins (at 10m to 20m intervals) at the Range prospect has returned high grade gold values from a number of the veins, with peak results from individual veins of **38.34 g/t, 10.92 g/t, 5.91 g/t and 5.61 g/t** (Figure 4).

At least five, generally sub-vertical to steeply north dipping east-west trending veins, ranging in length from 150 to 400m, have been identified to date. The silicified quartz veins, displaying internal open space fill brecciation, are generally between 5 to 6m wide, and are internal to a 25 to 30m wide zone of altered and often weakly sheared volcanic rocks.

Soil sampling on 100m spaced lines with 20m spaced samples returned elevated gold values adjacent to veins reporting high gold values. Peak gold in soil values are 224 ppb, 197 ppb and 88 ppb. The southern end of the soil grid has not been sampled where a rock chip sample from a quartz vein outside the grid area returned 1.41 g/t gold.

Stream sediment sampling, nominally at six samples per km<sup>2</sup>, was completed in and around the prospect area. At least three other areas outside the prospect were identified as requiring follow up geochemical sampling.

Further work will include mapping, additional rock chip and soil sampling, submission of the samples for base metal analysis, prioritisation of the other low level anomalies for follow up geochemical sampling, and analysis of the recently completed low level aeromagnetics to determine the controlling structures with the aim of defining drill targets.

Limited assessment of the leases and validation of some sample results will take place in early November. The bulk of the follow up work will occur as soon as access is available next year after the wet season.

The Company is highly encouraged by the recent results at the Range prospect. Not only do they occur in an area where no previous gold mineralisation has been documented, but they are the highest grade gold results reported in the East Kimberley district from quartz veins exhibiting low sulphidation epithermal textures.

Examples of low sulphidation epithermal gold mineralisation in Australia are the multi-million ounce Pajingo-Vera-Nancy and Cracow deposits in Queensland, although these are of a younger age.

The Company is strategically placed to take advantage of the emerging epithermal style of gold mineralisation in the Kimberley region. Following the success within the Range prospect the Company has secured additional ground holding over prospective host lithologies in the district with three licence applications. Together with the present ground holdings at the Wilson River and Dunham projects, the tenement holding has nearly doubled to approximately 1,350 km<sup>2</sup>.

## **CORPORATE**

Cash at the end of the quarter was \$4.17 million.

Charles Wilkinson

**Managing Director  
Northern Star Resources Ltd**

*Information in this report has been compiled by Mr C S Wilkinson, MAusIMM, Managing Director of the Company, who is a competent person as defined in the Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves, September 1999, and accurately reflects the information compiled by the competent person.*

**Table 1: Golden Crown and Faugh-a-Ballagh Percussion Drill Results  
(1m Samples)**

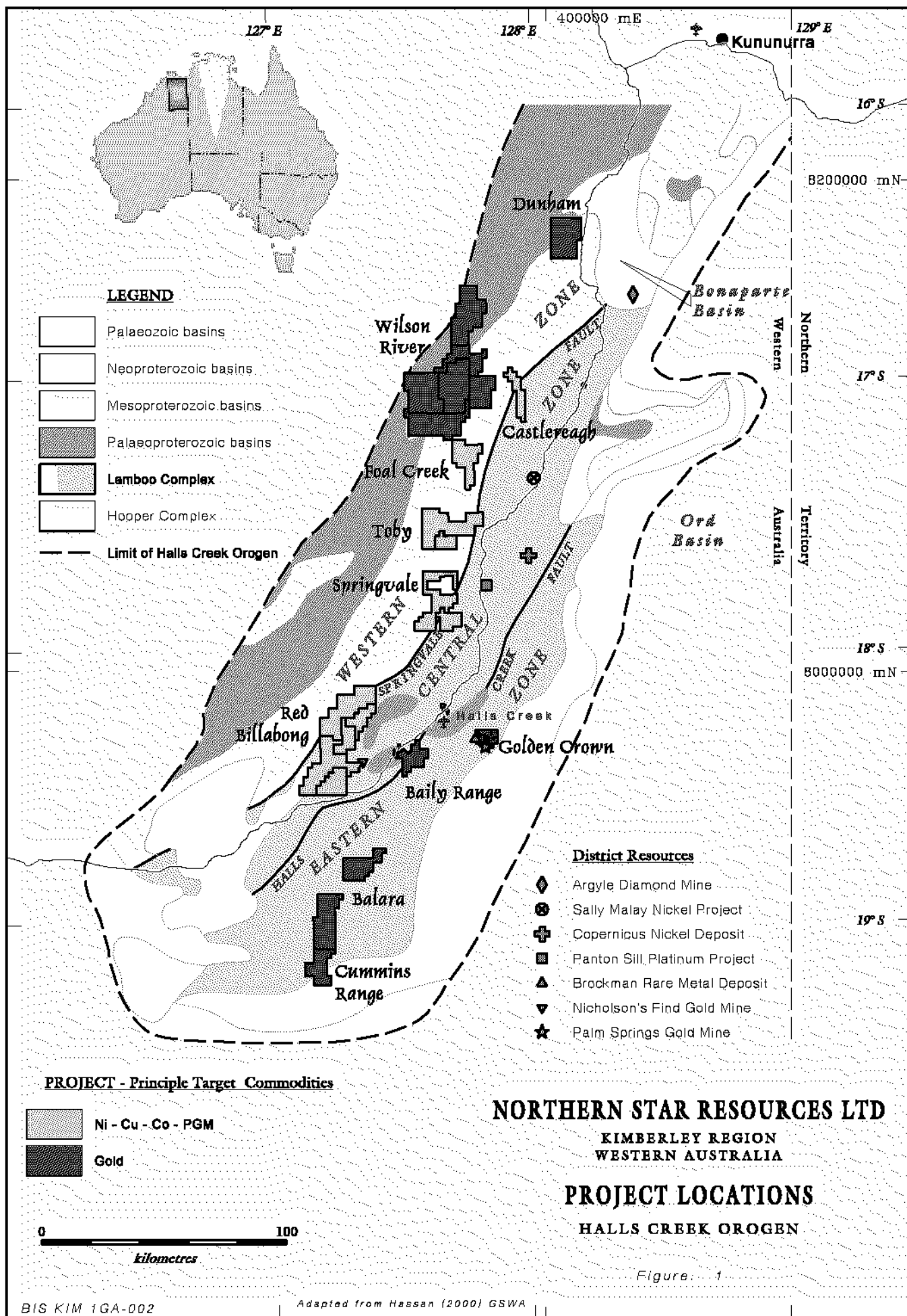
| Drill Hole | Prospect        | Easting | Northing | Azimuth | EOH (m) | From(m) | To(m) | Intersection (Au)      |
|------------|-----------------|---------|----------|---------|---------|---------|-------|------------------------|
| GCP003     | Golden Crown    | 377806  | 7973321  | 40      | 100     | 25      | 26    | 1m @ 1.34 g/t          |
|            |                 |         |          |         |         | 32      | 33    | 1m @ 1.58 g/t          |
|            |                 |         |          |         |         | 40      | 42    | 2m @ 2.38 g/t          |
|            |                 |         |          |         |         | 47      | 48    | 1m @ 1.31 g/t          |
|            |                 |         |          |         |         | 58      | 59    | 1m @ 1.41 g/t          |
| GCP006     | Golden Crown    | 377894  | 7973406  | 220     | 52      | 26      | 29    | <b>3m @ 3.12 g/t</b>   |
|            |                 |         |          |         |         | 38      | 39    | 1m @ 4.07 g/t          |
| GCP007     | Golden Crown    | 377873  | 7973420  | 40      | 74      | 20      | 22    | 2m @ 2.18 g/t          |
| GCP008     | Golden Crown    | 377896  | 7973453  | 40      | 88      |         |       | N/S                    |
| GCP009     | Golden Crown    | 377907  | 7973469  | 40      | 83      |         |       | N/S                    |
| GCP012     | Faugh-a-Ballagh | 378574  | 7974134  | 240     | 143     | 5       | 7     | <b>2m @ 4.60 g/t</b>   |
| including  |                 |         |          |         |         | 5       | 6     | <b>1m @ 8.16 g/t</b>   |
|            |                 |         |          |         |         | 45      | 47    | 2m @ 2.27 g/t          |
|            |                 |         |          |         |         | 51      | 52    | <b>1m @ 7.13 g/t</b>   |
|            |                 |         |          |         |         | 79      | 80    | 1m @ 1.17 g/t          |
|            |                 |         |          |         |         | 86      | 89    | <b>3m @ 4.89 g/t</b>   |
| including  |                 |         |          |         |         | 87      | 88    | 1m @ 10.92 g/t         |
|            |                 |         |          |         |         | 97      | 99    | <b>2m @ 11.37 g/t</b>  |
| including  |                 |         |          |         |         | 97      | 98    | 1m @ 19.38 g/t         |
|            |                 |         |          |         |         | 102     | 103   | 1m @ 2.71 g/t          |
|            |                 |         |          |         |         | 116     | 117   | 1m @ 1.52 g/t          |
| GCP013     | Faugh-a-Ballagh | 378588  | 7974155  | 240     | 100     | 8       | 9     | 1m @ 1.09 g/t          |
|            |                 |         |          |         |         | 11      | 12    | <b>1m @ 8.73 g/t</b>   |
|            |                 |         |          |         |         | 20      | 21    | <b>1m @ 7.78 g/t</b>   |
|            |                 |         |          |         |         | 26      | 27    | <b>1m @ 4.78 g/t</b>   |
|            |                 |         |          |         |         | 49      | 50    | <b>1m @ 6.30 g/t</b>   |
|            |                 |         |          |         |         | 76      | 78    | 2m @ 1.82 g/t          |
| GCP014     | Faugh-a-Ballagh | 378622  | 7974204  | 200     | 100     | 20      | 21    | 1m @ 3.2 g/t           |
|            |                 |         |          |         |         | 47      | 49    | 2m @ 1.82 g/t          |
|            |                 |         |          |         |         | 52      | 54    | 2m @ 2.92 g/t          |
|            |                 |         |          |         |         | 85      | 86    | 1m @ 1.71 g/t          |
| GCP015     | Faugh-a-Ballagh | 378648  | 7974234  | 200     | 100     | 25      | 29    | <b>4m @ 3.60 g/t</b>   |
| including  |                 |         |          |         |         | 26      | 27    | 1m @ 6.38 g/t          |
| GCP016     | Faugh-a-Ballagh | 378675  | 7974265  | 200     | 96      | 19      | 20    | 1m @ 1.96 g/t          |
|            |                 |         |          |         |         | 28      | 29    | 1m @ 1.84 g/t          |
|            |                 |         |          |         |         | 32      | 33    | 1m @ 1.33 g/t          |
|            |                 |         |          |         |         | 47      | 48    | 1m @ 1.26 g/t          |
|            |                 |         |          |         |         | 53      | 54    | <b>1m @ 18.36 g/t</b>  |
|            |                 |         |          |         |         | 67      | 68    | 1m @ 2.13 g/t          |
|            |                 |         |          |         |         | 71      | 72    | <b>1m @ 6.47 g/t</b>   |
|            |                 |         |          |         |         | 74      | 75    | 1m @ 2.74 g/t          |
| GCP017     | Faugh-a-Ballagh | 378698  | 7974298  | 200     | 101     | 2       | 4     | 2m @ 1.54 g/t          |
|            |                 |         |          |         |         | 9       | 10    | 1m @ 2.96 g/t          |
|            |                 |         |          |         |         | 12      | 14    | <b>2m @ 174.68 g/t</b> |
| including  |                 |         |          |         |         | 12      | 13    | 1m @ 340.17 g/t        |
|            |                 |         |          |         |         | 59      | 61    | 2m @ 2.50 g/t          |
|            |                 |         |          |         |         | 65      | 67    | 2m @ 1.95 g/t          |
|            |                 |         |          |         |         | 73      | 74    | 1m @ 1.39 g/t          |
|            |                 |         |          |         |         | 88      | 89    | 1m @ 3.05 g/t          |
| GCP018     | Faugh-a-Ballagh | 378521  | 7974128  | 240     | 100     |         |       | N/S                    |

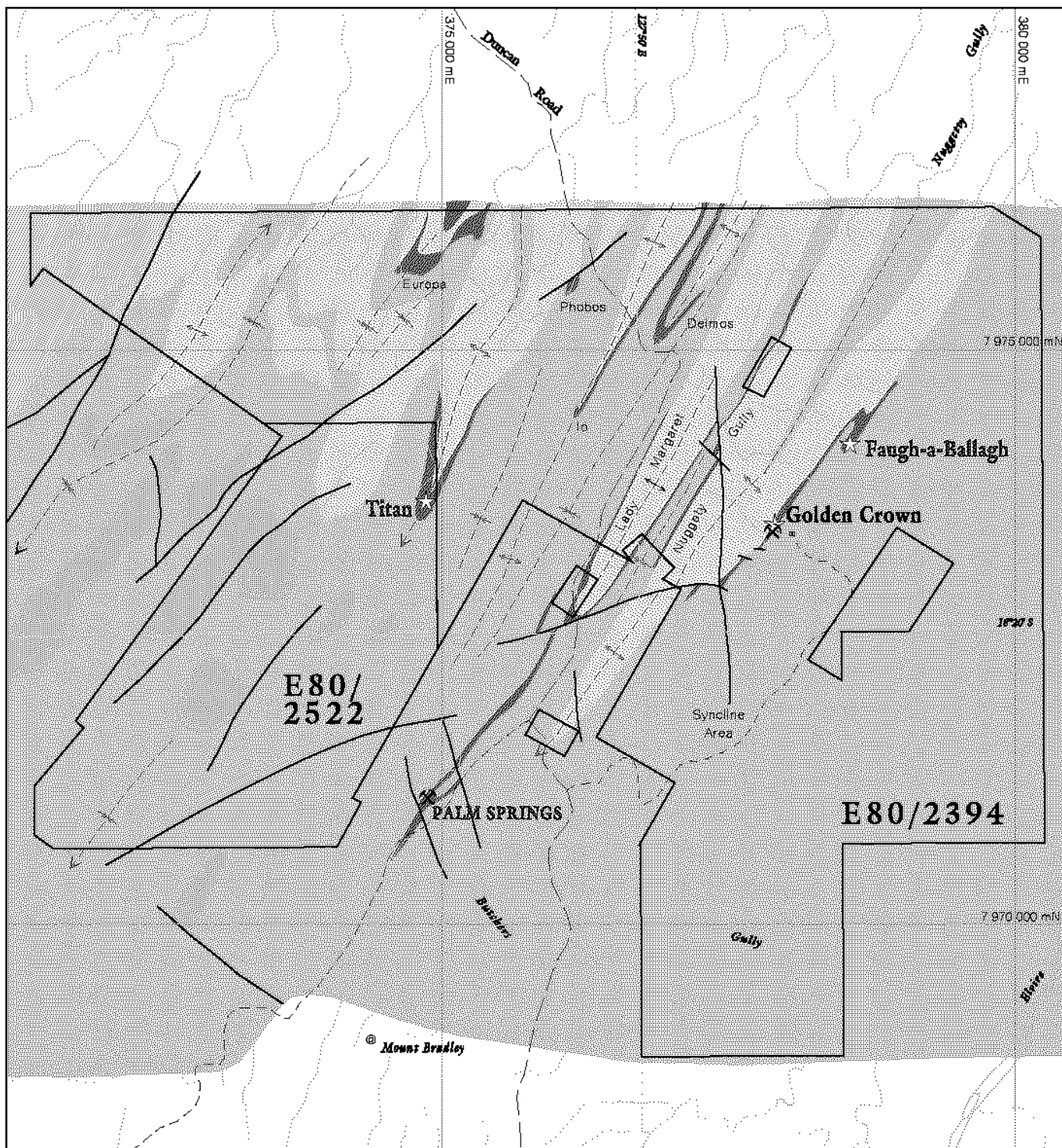
Note: Grid Co-ordinates are quoted in AGD66. All holes drilled at nominal -60° dip. All widths quoted are downhole intervals. Grades are uncut. Determination of gold by 50g lead collection fire assay with analyses by flame Atomic Absorption Spectrometry (AAS). N/S – No assays > 1.0 g/t Au.

**Table 2 Golden Crown Project – Titan Percussion Drill Results  
(1m Samples)**

| <b>Drill Hole</b> | <b>Prospect</b> | <b>Easting</b> | <b>Northing</b> | <b>Azimuth</b> | <b>EOH (m)</b> | <b>From(m)</b> | <b>To(m)</b> | <b>Intersection (Au)</b> |
|-------------------|-----------------|----------------|-----------------|----------------|----------------|----------------|--------------|--------------------------|
| GCP019            | Titan           | 374815         | 7973645         | 85             | 124            | 106            | 107          | 1m @ 3.97 g/t            |
| GCP020            | Titan           | 374915         | 7973723         | 55             | 88             | 29             | 30           | 1m @ 3.31 g/t            |
| GCP021            | Titan           | 374904         | 7973674         | 55             | 52             |                |              | N/S                      |
| GCP022            | Titan           | 374870         | 7973612         | 55             | 64             |                |              | N/S                      |
| GCP023            | Titan           | 374865         | 7973605         | 160            | 65             |                |              | N/S                      |
| GCP024            | Titan           | 374845         | 7973575         | 70             | 71             | 6              | 7            | 1m @ 1.40 g/t            |
|                   |                 |                |                 |                |                | 10             | 11           | 1m @ 1.30 g/t            |
| GCP025            | Titan           | 374755         | 7973451         | 55             | 100            | 37             | 38           | 1m @ 1.24 g/t            |
|                   |                 |                |                 |                |                | 64             | 66           | 2m @ 1.36 g/t            |

Note: Grid Co-ordinates are quoted in AGD66. All holes drilled at nominal -60° dip. All widths quoted are downhole intervals. Grades are uncut. Determination of gold by 50g lead collection fire assay with analyses by flame Atomic Absorption Spectrometry (AAS). N/S – No assays > 1.0 g/t Au.





# LEGEND

## OLYMPE FORMATION

**Pho** Metamorphosed Turbiditic Sediments

## BUTCHERS GULLY MEMBER c1848Ma

**Phobv** Metamorphosed Dermal Trachytic Volcanic and Subvolcanic rocks

**Phobv** Metasediments - Minor Volcanics

**Phobv** Metamorphosed Syenite

**Phobv** Metamorphosed Mafic Volcanics - Minor Sediments

## BISCAY FORMATION

**Phit** Metamorphosed basaltic volcanics and sediments, calcareous sediments and minor felsic volcanics and other sediments, dolerite sills

## Geological boundary

— Fault

↕ Anticline

↗ Syncline

— Creek

— Highway

--- Track



Scale 1 : 50 000  
0 2.5  
kilometres

**NORTHERN STAR RESOURCES LTD**  
KIMBERLEY REGION  
WESTERN AUSTRALIA

**Golden Grown Project**  
**Geology and Mineralisation**  
**E 80/2394 & 2522**

AMG zone 52 AGD66  
(Geology after GSWA)

BIS GCR 1GA-001 Figure: 2

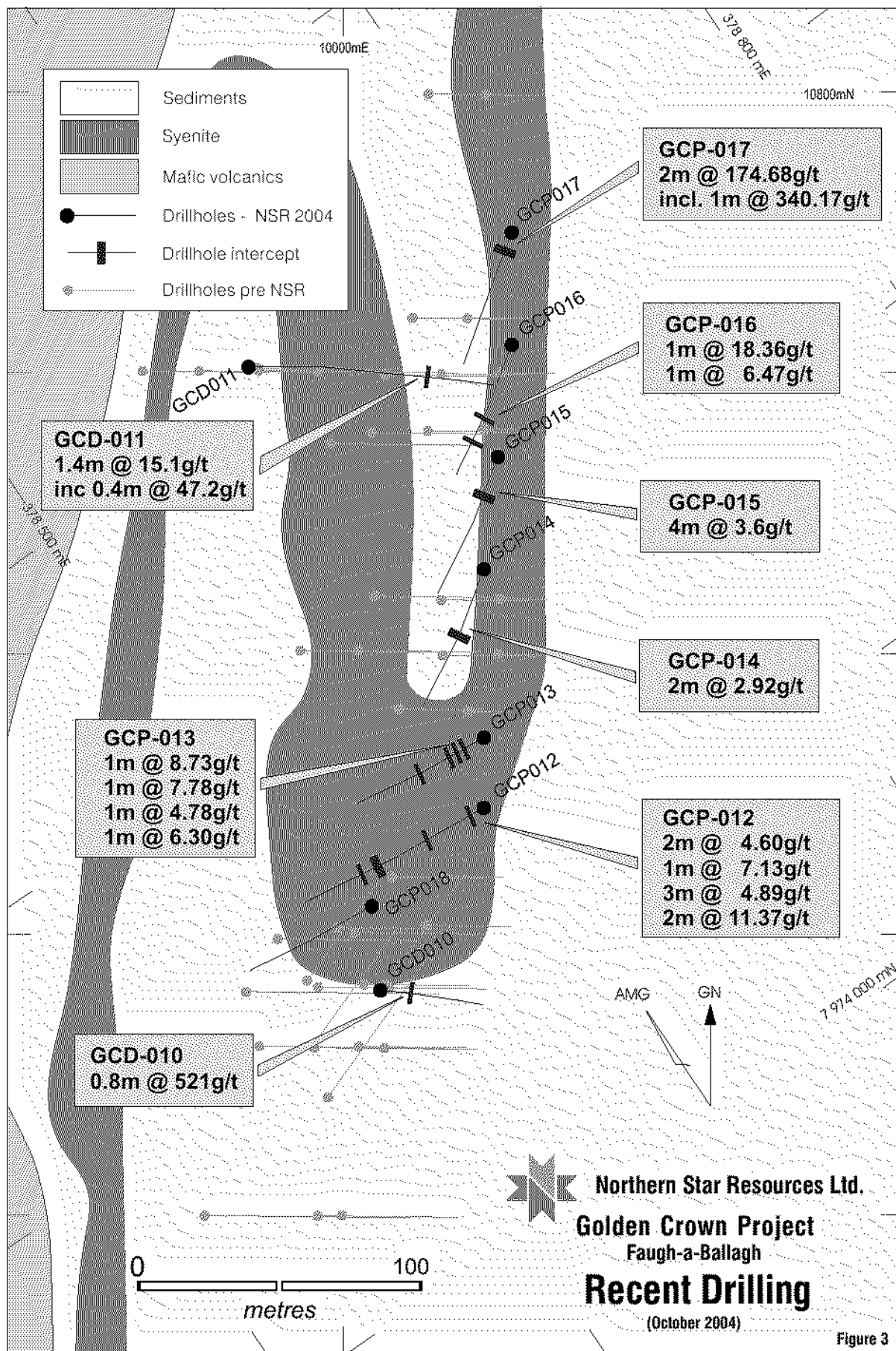


Figure 3

