2023

# TECHNICAL REPORT ON THE OTAGO REGION GOLD PROPERTIES, NEW ZEALAND

**REPORT FOR NI 43-101**

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| Effective Date: | 1 February 2023 |
| Report Date: | 6 April 2023 |

# Date and Signature

## Report issued by

RSC Consulting Ltd

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## Report prepared for

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| **Project name** | Otago Gold Properties |
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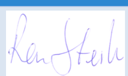
| **René Sterk, FAusIMM CP(Geo) MAIG (RPGeo) MSEG MInstG** |  | 6 April 2023 |

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## Acronyms

| Acronym | Definition | Acronym | Definition |
|---|---|---|---|
| **4WD** | Four Wheel Drive | **ICP-OES/MS** | Inductively Coupled Plasma–Optical Emission Spectrometry/Mass Spectrometry |
| **AAS** | Atomic Absorption Spectrometry | **IP** | Induced Polarisation |
| **AGC** | Automatic Grain Control | **JORC** | Joint Ore Reserves Committee |
| **AS** | Analytical Signal | **LMS** | Land Mineral Status |
| **ASTER** | Advanced Spaceborne Thermal Emission and Reflection Radiometer | **LOQ** | Limit of Quantification |
| **AusIMM** | Australian Institute of Mining and Metallurgy | **MBIE** | Ministry of Business Innovation and Employment |
| **AVG** | Average | **MR** | Mineral Report |
| **BLEG** | Bulk Leach Extractable Gold | **NZD** | New Zealand Dollar |
| **CIM** | Canadian Institute of Mining, Metallurgy and Petroleum | **NZGVM** | New Zealand Geodetic Vertical Marker |
| **CP** | Chartered Professional Geologist | **NZP&M** | New Zealand Petroleum and Minerals |
| **CRM** | Certified Reference Material | **OGL** | OceanaGold Ltd |
| **CRS** | Coordinate Reference System | **ORC** | Otago Regional Council |
| **DD** | Diamond Drill | **PL** | Prospecting Licence |
| **DDH** | Diamond Drillhole | **PP** | Prospecting Permit |
| **DEM** | Digital Elevation Model | **pXRF** | Portable X-ray Fluorescence |
| **DOC** | Department of Conservation | **QA** | Quality Assurance |
| **DQO** | Data Quality Objectives | **QC** | Quality Control |
| **DSM** | Digital Surface Model | **QAT** | Quality Acceptance Testing |
| **DVG** | Dunedin Volcanic Group | **QP** | Qualified Person |
| **EL** | Exploration Lease | **QQ** | Quantile-Quantile |
| **EM** | Electromagnetic | **RC** | Reverse Circulation |
| **EOD** | Extension of Duration | **RL** | Reduced Level |
| **EOH** | End of Hole | **RQD** | Rock Quality Designation |
| **EP** | Exploration Permit | **RSC** | RSC Consulting Ltd |
| **GIS** | Geographic Information System | **RTK** | Real Time Kinematic |
| **GNS** | Geological Nuclear Sciences | **RTP** | Reduction to Pole |
| **GPS** | Global Positioning System | **SGM** | Semi-Global Matching |
| **GSD** | Ground Surface Distance | **SOP** | Standard Operating Procedure |
| **HMSZ** | Hyde Macrae's Shear Zone | **TMI** | Total Magnetic Intensity |
| **ICP-MS** | Inductively Coupled Plasma Mass Spectrometry | | |

| Symbol | Element | Symbol | Element |
|---|---|---|---|
| **Ag** | Silver | **Pb** | Lead |
| **Al** | Aluminium | **PGM** | Platinum Group Metals |
| **As** | Arsenic | **REE** | Rare Earth Elements |
| **Au** | Gold | **Rb** | Rubidium |
| **Bi** | Bismuth | **Sb** | Antimony |
| **Co** | Cobalt | **Sn** | Tin |
| **Cr** | Chromium | **Sr** | Strontium |
| **Cu** | Copper | **Ta** | Tantalum |
| **Fe** | Iron | **Th** | Thorium |
| **Li** | Lithium | **Ti** | Titanium |
| **Mg** | Magnesium | **V** | Vanadium |
| **Mn** | Manganese | **W** | Tungsten |
| **Mo** | Molybdenum | **Y** | Yttrium |
| **Na** | Sodium | **Zn** | Zinc |
| **Ni** | Nickel | **Zr** | Zirconium |

| Symbol | Unit |
|---|---|
| **Ha** | hectare |
| **km** | kilometre |
| **km/hr** | kilometres per hour |
| **m** | metre |
| **mm** | millimetre |
| **Moz** | million ounces |
| **°C** | degree Celsius |
| **oz** | ounce |
| **pbb** | part per billion |
| **ppm** | part per million |

# 1. Summary

KO Gold Inc. (KO Gold) commissioned RSC Consulting Ltd (RSC) to prepare an independent technical report (the Report), in compliance with National Instrument 43-101 (NI 43-101) and Form 43-101F1, for its 100%-owned Prospecting Permits (PP) 60674, PP60705, PP60727, and Exploration Permit (EP) 60702 in the Otago Region of New Zealand held by KO Gold NZ Limited, a wholly-owned NZ-based subsidiary of KO Gold. This Report also covers EP60129 (Glenpark) and EP60389 (Smylers Gold), which are currently owned by Hyde Resources Limited (Hyde Resources) and Smylers Gold Limited (SGL) and are collectively known as the 'Smylers Gold Project' by KO Gold. The Report documents the exploration work completed at the Smylers Gold Project and all other KO Gold permits and has the effective date of 1 February 2023.

## 1.1 Property Description and Ownership

The KO Gold Otago gold properties are located in the Otago region of the South Island, New Zealand and consist of four non-contiguous and two contiguous prospecting and exploration permits, for a total area of ~990 km$^2$. All the KO Gold permits are currently classified as tier-2 prospecting and exploration permits. Exploration permits are granted for a maximum term of five years, and prospecting permits are granted for two years.

KO Gold is a private exploration company with its corporate head office located in Toronto, Ontario, Canada. KO Gold has 100% ownership of EP60702, PP60674, PP60705 and PP 60727. Hyde Resources own the Smylers Gold Project; however, KO Gold entered into an option agreement with Hyde Resources and SGL, granting KO Gold the option to acquire a 100% undivided interest in the Smylers Gold Project. As the Effective Date of this Report, KO Gold is now the Operator of the Smylers Gold Project, after having met the first state of exploration expenditures on the Smylers Gold Project as outlined by the option agreement.

## 1.2 Geology and Mineralisation

New Zealand straddles the boundary between the Australian and Pacific plates, with the boundary marked by the Alpine Fault. The Alpine Fault has been active as a right-lateral transcurrent feature since the Miocene, resulting in significant uplift of the Southern Alps and exposure of basement rocks, comprised largely of garnet and biotite schists of the Mesozoic Haast Schist Group (Rose, 2011). The basement geology of New Zealand is comprised of accreted tectonostratigraphic terranes related to intrusive batholiths and an accretionary wedge and subduction-arc system (Bradshaw, 1989; Mortimer, 2004). These fault-bounded terranes exhibit distinctive depositional settings and compositions. The terranes relevant to the Project are the Caples Terrane and Rakaia Terrane, a member of the composite Torlesse Terrane. The Caples Terrane is composed primarily of mid-fan, turbiditic, argillite-greywacke sequences, and rare chert and limestone/marble beds. It is a structurally complex terrane, consisting of imbricate stacks of isoclinally-folded sediment packages on a 5–10 km scale, separated by ductile deformation zones marked by schist or broken formations (Adams et al., 2009). The Rakaia Terrane is thought to be predominantly progressive erosion of various continental volcanic/plutonic arc sequences, active from the Carboniferous to the latest Middle Triassic (Wandres et al., 2004). Both these terranes have undergone metamorphism (Haast or Otago Schist) and metamorphic grade varies from low-grade zeolites to amphibolite facies.

Regional metamorphism of the Otago Schist occurred in the Jurassic during crustal thickening (Coombs et al., 1976; Korsch & Wellman, 1988; Mortimer, 2000), as indicated by K-Ar and Ar-Ar dating (Gray & Foster, 2004; Little et al., 1999). Exhumation of the schist began at ~130 Ma (Gray & Foster, 2004). Rock types are typically psammitic schist, pelitic schist, metavolcanic, and metachert with fine intercalated pelitic units and minor thin greenschist units. The schists predominantly consist of quartz, albite, chlorite, epidote, and muscovite. There are no regionally extensive marker horizons and no recognisable stratigraphy; hence, the unit has been subdivided into metamorphic zones, textural zones, tectonostratigraphic terranes, and lithological associations. Basement rocks of the Otago Schist outcrop at every permit.

Hard-rock mineralisation in Otago is most prominent within the greenschist facies rocks of the Otago Schist and is widely thought to be orogenic in style (Craw & Norris, 1991; Mortensen et al., 2010). The majority of this mineralisation is found as syn- to post-accretionary Au-(±W-Sb)-quartz reefs and shear zones inferred to be of hydrothermal-metamorphic origin.

There are two structural styles of Au mineralisation in Otago; high-angle fault systems and low-angle shear zones (Mortensen et al., 2010). Of the more than 200 historically-mined Au-mineralised hard-rock systems in Otago, the vast majority are the high angle, fault-hosted type. These are associated with northwest striking, steeply-dipping (50–80°) faults (Paterson, 1986).

Gold mineralised veins in Otago are typically composed of massive and/or euhedral quartz, and to a lesser extent, carbonates and micas. Ore minerals most commonly associated with Au are pyrite, arsenopyrite, scheelite, and stibnite, along with minor chalcopyrite, sphalerite, galena, and cinnabar (McKeag & Craw, 1989; Craw & Norris, 1991). Gold can be found as native Au-blebs in quartz, or as microcrystalline inclusions inside pyrite or arsenopyrite (Craw & Norris, 1991). Deposits typically display wall rock alteration surrounding mineralised quartz veins, which may also contain Au (Craw, 2002).

Mineralisation in the Smylers Gold Project is associated with shallow to moderately dipping shears (±quartz veins). These structures are generally orientated oblique to the regional schistosity, dipping northeast to east, with the dip trend swinging to the east south of OceanaGold's Pipeline Prospect. The mineralisation is characterised by shear concordant silicified cataclasites with 'lode' schist, quartz-cemented breccias, and shear-parallel quartz veins that contain arsenopyrite, pyrite, and rare visible Au.

## 1.3 Exploration

As of the Effective Date of this Report, exploration conducted by KO Gold has only occurred at EP60389 and EP60129 (Smylers Gold Project), and PP60674 (Tokomairiro).

Extensive geological and structural mapping was conducted at the Smylers Gold Project and compiled with historical data to understand the mineralisation and plan surface sampling and drilling. KO Gold, Hyde Resources and SGL have collected a total of 349 rock-chip samples, 5,330 soil samples, dug 14 trenches totalling 832 m, and drilled 41 diamond and 64 reverse circulation (RC) drillholes for a combined total of 15,591 m. Exploration has identified seven gold prospects within EP60389. Gold mineralisation has been intercepted at depth, and some of the best intercepts include 5 m @ 3.4 g/t from 32 m (incl. 1 m @ 8.3 g/t), 2 m @ 4.7 g/t from 22 m, 3.6m @ 2.14 g/t from 142.7 m.

Geological and structural mapping was conducted contemporaneously with soil, stream and rock-chip sampling. The mapping was focussed around areas of known historical Au mining, and noted shafts, adits, pits, and abandoned mining equipment. Outcrop of in situ basement schist is limited within PP60674; therefore, only 14 rock-chip samples were collected. The best rock-chip sample was collected nearby the Canada/Ocean View reef, and returned 135.5 ppm Au. All major streams except the Wai-o-Te-Meho Creek were sampled, and a total of 72 samples were collected. The Wai-o-Te-Meho Creek was not sampled following consultation with Te Rūnanga o Ōtākou as sampling was conducted during the spawning season of a threatened native freshwater fish species. The stream-sediment analysis identified two anomalous catchments with an Au z-score >2. Soil sampling was conducted over four prospects (historical Au mines), and a total of 531 samples were collected. Samples were analysed by pXRF, and sent off for laboratory Au analysis. Thirteen samples returned ≥0.01 ppm Au.

The existing (1997–2000) geophysical data (magnetic, radiometric, and electromagnetic) was reviewed. While the radiometric and electromagnetic maps did not delineate any distinguishable features, the magnetic maps indicate the presence of two magnetic structural boundaries that warrant further investigation.

## 1.4 Conclusions and Recommendations

Overall, the QP author considers that the exploration work conducted at the KO Gold properties is of reasonable standard and fit for purpose. The QP has identified several recommendations, organised into two phases of work, to help progress the exploration at each property. A summary of the Phase 1 and 2 recommendations is described below with a proposed exploration budget in Table 1-1. Proceeding to Phase 2 would be contingent on the results of Phase 1. Estimated costs are in Canadian dollars (CAD).

Smylers Gold Property:

- Drill nine holes to test the mineralisation at Hidden Gully, Kensington, and Williams prospects.

EP60702 Hyde:

- Undertake a desktop study of the permit including reinterpret existing geophysical data and update the GIS database of all the exploration data.

PP60727 Carrick Range:

- Undertake a desktop study of the permit including review all literature and geophysical data, review the applicability of remote-sensed data and machine learning to remote-sensed and geophysical data, validate historical data and compile a complete database and GIS workspace.

PP60705 Rough Ridge South:

- Undertake a desktop study of the permit including review all literature and geophysical data, review the applicability of remote-sensed data and machine learning to remote-sensed and geophysical data, validate historical data and compile a complete database and GIS workspace.

Table 1-1: Proposed exploration budget (CAD) for Phase 1 and Phase 2.

| Project | Phase | Exploration Task | Estimated Cost (CAD) |
|---|---|---|---|
| **Smylers Gold Project** | 1 | Nine-hole (1,000 m) reverse circulation (RC) drilling programme testing Hidden Gully, Kensington, and Williams prospects | 150,000 |
| **EP60702 Hyde, EP60705 Rough Ridge South, PP60727 Carrick Range** | 1 | Additional desktop studies, GIS data compilation work, and updating existing exploration database | 25,000 |
| | | **Total Phase 1** | **175,000** |
| **Smylers Gold Project** | 2 | RC or diamond drilling programme testing Smylers East Prospect (2,500 m) | 300,000 |
| | | Infill or resource definition drilling (5,000 m) | 500,000 |
| | | Maiden mineral resource estimate and technical report | 150,000 |
| | | Metallurgical test work (bench-scale testing) (*drilling costs include drilling contractor, logging, sampling, and assay analyses, and labour) | 150,000 |
| **EP60702 Hyde** | 2 | Geophysical survey (IP or 2D seismic) | 175,000 |
| | | Geological mapping and prospecting | 50,000 |
| | | Diamond drilling (500 m) | 100,000 |
| **PP60727 Carrick** | 2 | Regional stream-sediment sampling programme and follow up soil sampling survey | 100,000 |
| **PP60705 Rough Ridge South** | 2 | Regional stream-sediment sampling programme and follow up soil sampling survey | 100,000 |
| | | **Total Phase 2** | **1,675,000** |

Note: Completion of Phase 2 recommended work programme is contingent on the results of Phase 1. Drilling costs shown include drilling contractor, logging and sampling, assay analyses, and labour.

# 2. Introduction

## 2.1 Scope

KO Gold Inc. (KO Gold) commissioned RSC Consulting Ltd (RSC) to prepare an independent technical report (the Report), in compliance with National Instrument 43-101 (NI 43-101) and Form 43-101F1, for its 100%-owned Prospecting Permits (PP) 60674, PP60705, PP60727, and Exploration Permit (EP) 60702 in the Otago Region of New Zealand held by KO Gold NZ Limited, a wholly owned NZ-based subsidiary of KO Gold. This Report also covers EP60129 (Glenpark) and EP60389 (Smylers Gold), which are currently owned by Hyde Resources Limited (Hyde Resources) and Smylers Gold Limited (SGL) and are collectively known as the 'Smylers Gold Project' by KO Gold. In March 2021, KO Gold entered into an option agreement with Hyde Resources and SGL granting KO Gold a 100% undivided interest in the Smylers Gold Project, subject to KO Gold completing certain exploration expenditures on the Smylers Gold Project over a period of three years. All five permits are located in the Otago Region of the South Island, New Zealand. This Report documents all data and data collection procedures for the Otago gold properties up to and including 15 July 2022.

KO Gold is a private exploration company with its corporate head office in Toronto, Ontario, Canada. The Company plans to use this Report to support the public listing of its common shares on a Canadian stock exchange.

## 2.2 Sources of Information

The scientific and technical information disclosed in this Report is based on data supplied by KO Gold, Hyde Resources, and SGL, and information on the properties available in the public domain and from government sources.

A list of the sources of information, data, and reports reviewed as part of this Report can be found in Section 27. The Qualified Person takes responsibility for the content of this Report and confirms the data review to be accurate and complete in all material aspects.

## 2.3 Qualified Persons

The work completed by RSC, and the subject of this Report, was carried out by Qualified Person (QP) author René Sterk who was supported by Stephie Tay. Mr Sterk is the Qualified Person author responsible for all sections of this Report.

**René Sterk** (QP) is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM), and a Chartered Professional Geologist (CP(Geo)) with the AusIMM. Mr Sterk is a full-time employee and principal geologist of RSC. Mr Sterk holds an MSc in structural geology and tectonics from the Vrije Universiteit Amsterdam (2002), and is the managing director of RSC, an independent consulting group based in Dunedin, New Zealand. He has practiced continuously as a mining geologist, exploration geologist, manager and consultant for mining and exploration firms in a range of commodities since 2003. Mr Sterk takes responsibility for all sections of this Report.

**Stephie Tay** is an Associate of the Australasian Institute of Mining and Metallurgy (AusIMM) and holds an MSc in Geology from the University of Otago, Dunedin, New Zealand. Ms Tay is a full-time employee and Project Geologist at RSC. She has practiced continuously as a tenement advisor and consulting for mining and exploration firms in a range of commodities since 2019. Ms Tay under the guidance of the Qualified Person helped prepare this Report.

## 2.4 Personal Inspection (Site Visit)

The QP author visited EP60129 (Glenpark) and EP60389 (Smylers Gold) on 15 July 2022.

QP audits and Personal Inspections follow a first-principles approach that start with determining whether appropriate procedures are in place to assure the quality of data and output information, and to determine compliance to best practice (Figure 2-1). Following this, the QP reviews the performance of checks and balances that are in place to ensure that these processes are in control and delivering consistent data/information to inform down-stream processes or reports. Finally, conclusions on the quality of the data are presented, in the context of these being fit for the stated purpose.

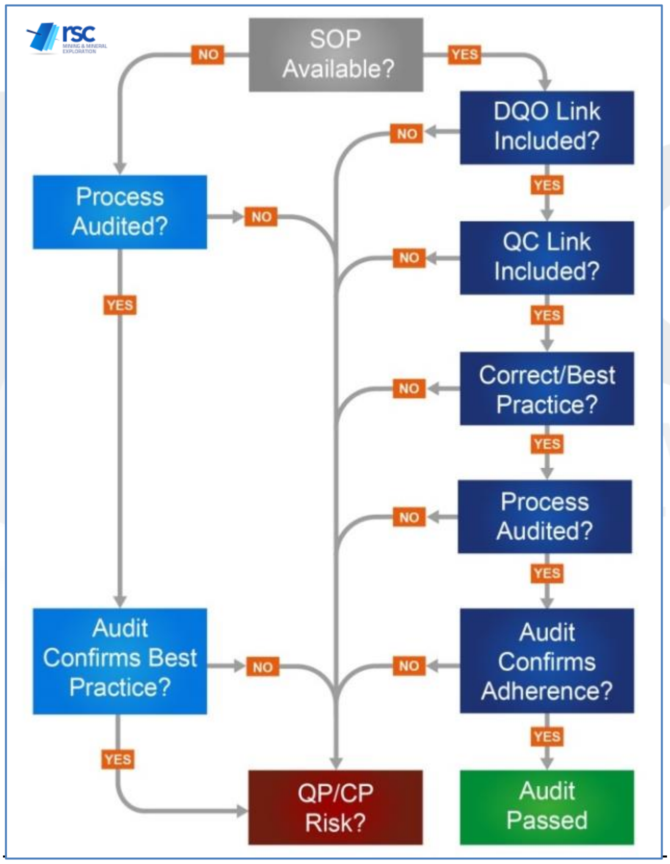



Figure 2-1: A flow-chart component of the RSC Personal Inspection Process

During the site visit, the QP checked whether all exploration processes conformed to SOPs, checked core trays and chip trays against the database and logging sheets, and collected 20 diamond core repeat samples. Overall, in the QP's opinion, the work done and the data collected at the Smylers Gold Project data are of a good standard, and the data and data management systems are appropriate with respect to the data quality objectives. Detailed results of the site visit are integrated into sections 10, 11 & 12.

The QP did not visit the other permit areas. However, RSC personnel, under the supervision of the QP, planned and managed field exploration activities on Tokomairiro between January and March 2021. Senior RSC geologists supervised the field activities and conducted field visits to the area to observe sampling activities and geological observations.

# 3. Reliance on Other Experts

The QP has not independently verified the legal status of KO Gold's prospecting and exploration permits and has not investigated the legality of any of the underlying agreement(s) that exist concerning the Smylers Gold Project. The QP is relying on KO Gold for providing the Option Agreement dated March 8, 2021 for the Smylers Gold Project between KO Gold and Hyde Resources Ltd and Smylers Gold Ltd, which has been reviewed and discussed in Section 4.4 of the Report.

The QP has reviewed the KO Gold permit status information on the New Zealand Mineral and Petroleum (NZP&M) website. However, the QP is not qualified to give a legal opinion with respect to the property titles contained within this Report and discussed in Section 4.2 and 4.3 of the Report.

# 4. Property Description and Location

## 4.1 Location

The KO Gold properties are located in the Otago Region of the South Island, New Zealand (Figure 4-1). The properties consist of four non-contiguous and two contiguous prospecting and exploration permits, for a total area of ~990 km². The Smylers Gold and Glenpark exploration permits are contiguous and are collectively known as the Smylers Gold Project. The coordinates for each permit are provided in Table 4-1.

1. **Smylers Gold (EP60389):** is located ~26 km east of Macraes Mine and ~45 km north of Dunedin. This permit is adjacent to EP60129 Glenpark and covers 38.28 km².
2. **Glenpark (EP60129):** is located ~14 km east of Macraes Mine and ~55 km north of Dunedin. This permit is adjacent to EP60389 Smylers Gold and covers 42.31 km².
3. **Hyde (EP60702):** is located ~21 km west of Macraes Mine and ~27 km north of Middlemarch. This permit covers 22.56 km².
4. **Tokomairiro (PP60674):** is located ~35 km southwest of Dunedin and ~6 km north of Milton. This permit covers 214.32 km².
5. **Rough Ridge South (PP60705):** is located ~40 km west of Middlemarch. This permit covers 247.10 km².
6. **Carrick Range (PP60727):** is located ~17 km west of Alexandra. This permit covers 425.61 km².

Table 4-1: Coordinates, given as centroid locations, for the KO Gold properties. Coordinate reference system (CRS) = NZTM2000.

| Permit No. | Project Name | Easting | Northing |
|---|---|---|---|
| **EP60389** | Smylers Gold | 1414744.964 | 4961950.783 |
| **EP60129** | Glenpark | 1408900.756 | 4972004.775 |
| **EP60702** | Hyde | 1385699.987 | 4980240.557 |
| **PP60674** | Tokomairiro | 1362739.904 | 4900582.017 |
| **PP60705** | Rough Ridge South | 1348967.980 | 4971915.897 |
| **PP60727** | Carrick Range | 1301846.565 | 4981001.646 |

## 4.2 Mineral Tenure

New Zealand Petroleum & Minerals (NZP&M) issues permits to prospect, explore and mine Crown-owned minerals in New Zealand. All gold (Au), silver (Ag), uranium and petroleum that occur naturally in New Zealand are owned by the Crown. Ownership of other minerals depends on the legislation in place, at the time the land was alienated from the Crown.

Exploration and mining permits are only granted over minerals that have been identified as Crown-owned. Prospecting permits are granted over land containing Crown and/or privately owned minerals. To upgrade a prospecting permit to an exploration permit, the permit holder must check the title history to confirm the minerals are owned by the Crown. Unless a permit is a non-exclusive prospecting permit, the rights granted by a permit are exclusive to the permit holder; however, permits may be granted over an area where there are already permits for other mineral groups.

Minerals permits are classified as tier 1 or tier 2. All prospecting permits are tier 2. Exploration permits for Au are classified as tier 1 unless the expected total work programme expenditure for the final five years of its life, is less than NZD 1,250,000. Mining permits for Au, Ag and platinum group metals (PGMs) are classified as tier 1 if, in any one permit year in the next five years of its life, the annual royalty will be equal to or more than NZD 50,000. All underground operations are as tier 1.

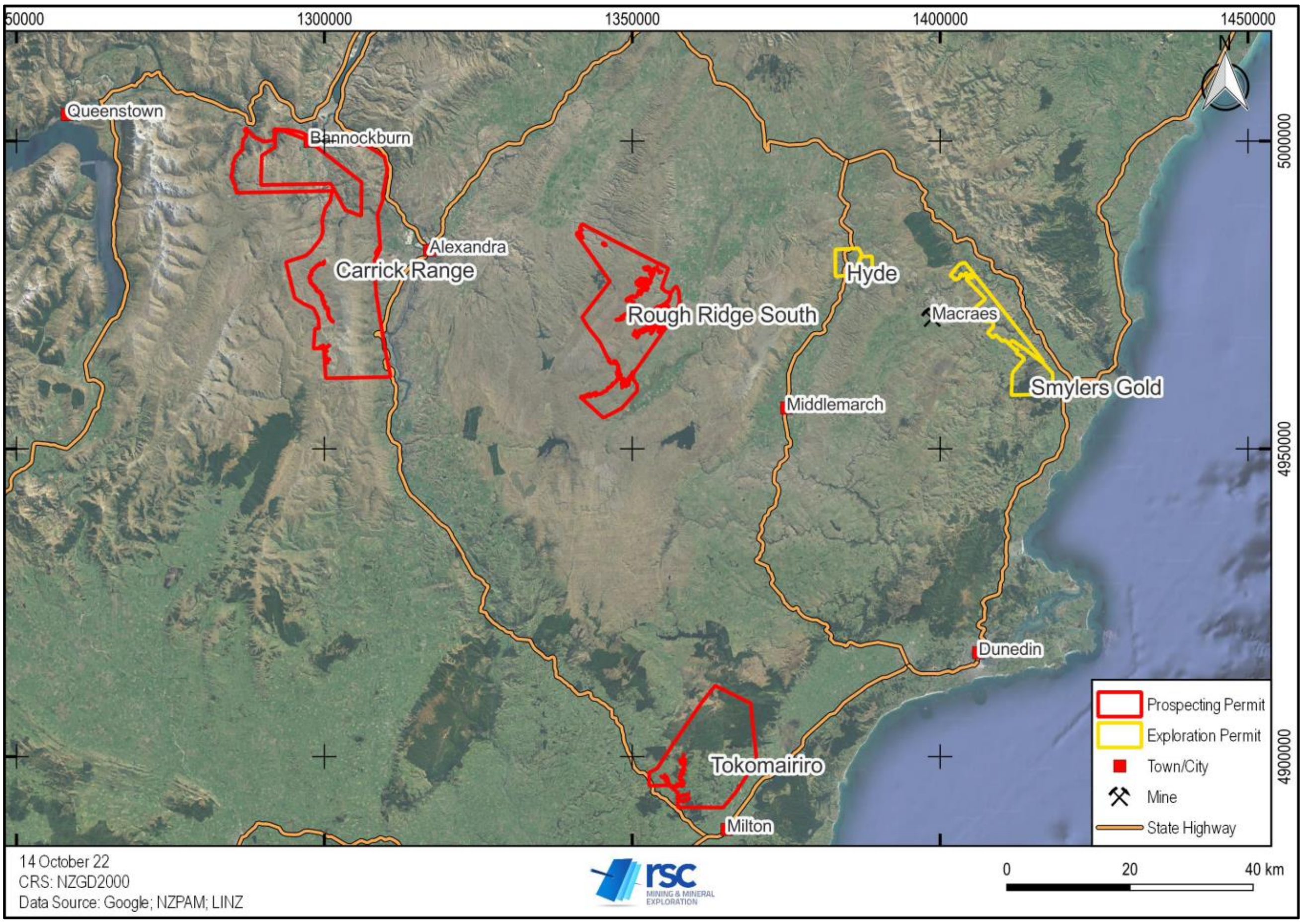



Figure 4-1: KO Gold properties.

A summary of the permits held by KO Gold and Hyde Resources is provided in Table 4-2. KO Gold NZ Limited, KO Gold Inc., Hyde Resources and SGL have a signed option agreement in place, effective from March 8, 2021 (see Section 4.4).

All the KO Gold permits are currently classified as tier 2 prospecting and exploration permits. The permit tiers may change in the future, e.g. as work programme expenditures increase over the life of the permits. Exploration permits are granted for a maximum term of five years, and prospecting permits are granted for two years. At the end of the permit period, KO Gold has the option of upgrading the permit type (e.g. prospecting to exploration permit or exploration permit to mining permit), applying for an extension of duration (EOD) of the current permit, or surrendering the permit. If KO Gold (or Hyde Resources/SGL) decides to extend the duration of any of its permits, it must relinquish 50% of the permit area. The original five-year term for EP60129 (Glenpark) expired before the effective date of this Report; however, Hyde Resources was granted an EOD with NZP&M on 19 July 2022. EP60219 now expires on 12 October 2026. EP60389 (Smylers Gold) expires on 2 November 2022. Hyde Resources applied for an EOD with NZP&M on 20 July 2022. As part of the application, Hyde Resources must relinquish 50% of the permit area. The exact boundary of the relinquishment will not be published until NZP&M has finished reviewing the application. KO Gold has also applied for an EOD for PP60674 (Tokomairiro). As part of the application process, KO Gold must relinquish 50% of the permit area. The exact boundary of the relinquishment will not be published until NZP&M has finished reviewing the application. KO Gold also plans to submit a Change of Conditions (COC) application for PP60727 with NZP&M by March 3, 2023 to change the date to complete the required exploration activities on the permit. A COC must be filed with NZP&M no later than 90 days prior to the expiry date of the permit.

Table 4-2: Status of the mineral licences.

| Permit No. | Permit Name | Permit Ownership | Commodities | Date Granted | Expiry Date | Size ($km^2$) | Comment |
|---|---|---|---|---|---|---|---|
| **PP60674** | Tokomairiro | 100% KO Gold | Al, Sb, Bi, Cr, Co, Cu, Au, ilmenite, Fe, iron sand, Pb, Li, Mg, magnetite, Mn, Mo, Ni, PGM, REE, rutile, Ag, Na, Sr, Ta, Sn, Ti, W, V, Y, Zn, Zr | 16 December 2020 | 15 December 2022 | 214.32 | EOD pending |
| **EP60702** | Hyde | 100% KO Gold | Au, Ag | 23 February 2022 | 22 February 2027 | 22.56 | |
| **PP60705** | Rough Ridge South | 100% KO Gold | Al, Sb, Bi, Cr, Co, Cu, Au, ilmenite, Fe, iron sand, Pb, Li, Mg, magnetite, Mn, Mo, Ni, PGM, REE, rutile, Ag, Na, Sr, Ta, Sn, Ti, W, V, Y, Zn, Zr | 23 February 2022 | 22 February 2024 | 247.10 | |
| **PP60727** | Carrick Range | 100% KO Gold | Al, Sb, Bi, Cr, Co, Cu, Au, ilmenite, Fe, iron sand, Pb, Li, Mg, magnetite, Mn, Mo, Ni, PGM, REE, rutile, Ag, Na, Sr, Ta, Sn, Ti, W, V, Y, Zn, Zr | 2 June 2021 | 1 June 2023 | 425.61 | |
| **EP60389** | Smylers Gold | 100% Hyde Resources | Al, Sb, Bi, Co, Cu, Au, ilmenite, Fe, iron sand, Pb, Mg, magnetite, Mn, Mo, Ni, PGM, REE, rutile, Ag, Ta, Sn, Ti, W, V, Zn | 3 November 2017 | 2 November 2022 | 38.28 | EOD pending |
| **EP60129** | Glenpark | 100% Hyde Resources | Al, Sb, Bi, Co, Cu, Au, ilmenite, Fe, iron sand, Pb, Mg, magnetite, Mn, Mo, Ni, PGM, REE, rutile, Ag, Ta, Sn, Ti, W, V, Zn | 13 October 2016 | 12 October 2026 | 42.31 | EOD granted |

Each permit has a number of conditions that form the minimum work programme. The minimum work programme for each permit is outlined in Table 4-3: Minimum work requirements for EP60389 (Smylers Gold). to Table 4-8. KO Gold has completed all the work requirements for PP60674, has completed, or is underway on, all items of work for EP60389, and has made good progress on the updated work programme for EP60129. However, no work has begun on any of the work requirements for EP60702, PP60727 or PP60705.

Table 4-3: Minimum work requirements for EP60389 (Smylers Gold).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| **1a** | Data Compilation | 3 November 2020 | Complete a literature review and compile all available geological and geophysical data into a GIS database. | Complete |
| **1b** | Mapping | 3 November 2020 | Complete a geological mapping programme and create a detailed, geological map of the permit area. | Complete |
| **1c** | Other Activity | 3 November 2020 | Complete a hyperspectral mapping programme and create a series of hyperspectral mineral maps of the permit area. | Complete |
| **1d** | Geochemical | 3 November 2020 | Complete a programme of soil sampling, consisting of a minimum of 1000 samples. | Complete |
| **1e** | Drilling | 3 November 2020 | Complete a programme of drilling for a minimum of 1000 m. | Complete |
| **1f** | Other Activity | 3 November 2020 | Create a geological model. | Complete |
| **1g** | Data Compilation | 3 November 2020 | Compile a GIS database of all data obtained. | Complete |
| **1h** | Reporting | 3 November 2020 | Prepare a technical report detailing all work completed during this stage of the work programme to be submitted to the chief executive in accordance with the regulations. | Complete |
| **2a** | Drilling | 3 November 2022 | Complete a further programme of drilling for a minimum of 1000 m. | Complete |
| **2b** | Trenching | 3 November 2022 | Complete a programme of trenching. | Complete |
| **2c** | Data Compilation | 3 November 2022 | Update the GIS database with all new sampling and drilling data. | Complete |
| **2d** | Other Activity | 3 November 2022 | Review and update the geological model. | Complete |
| **2e** | Other Activity | 3 November 2022 | Complete a resource estimate. | Underway |
| **2f** | Reporting | 3 November 2022 | Prepare a technical report detailing all work completed during this stage of the work programme to be submitted to the chief executive in accordance with the regulations. | Underway |

Table 4-4: Minimum work requirements for EP60129 (Glenpark).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| **4a** | Data Compilation | 12 October 2024 | Update the GIS database. | Complete |
| **4b** | Trenching | 12 October 2024 | Complete a programme of trenching. | Complete |
| **4c** | Geochemical | 12 October 2024 | Complete a programme of geochemical sampling for a minimum of 50 samples. | Not started |
| **4d** | Drilling | 12 October 2024 | Complete a programme of drilling for a minimum of 800 m. | Not started |
| **4e** | Other Activity | 12 October 2024 | Update geological model. | Underway |
| **4f** | Reporting | 12 October 2024 | Provide the chief executive with a report detailing all work completed during this stage of exploration, and the results of that work, including submission of digital data in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision. | Not started |
| **5a** | Drilling | 12 October 2026 | Carry out a further programme of drilling for a minimum of 1,200 m. | Not started |
| **5b** | Other Activity | 12 October 2026 | Update the geological model. | Not started |
| **5c** | Other Activity | 12 October 2026 | Identify mining targets. | Not started |
| **5d** | Other Activity | 12 October 2026 | If appropriate, calculate a resource estimate. | Not started |
| **5e** | Other Activity | 12 October 2026 | If appropriate, complete a mining feasibility study. | Not started |
| **5f** | Reporting | 12 October 2026 | Provide the chief executive with a report detailing all work completed during this stage of exploration, and the results of that work, including submission of digital data in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision. | Not started |

Table 4-5: Minimum work requirements for EP60702 (Hyde).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| **1a** | Literature review | 22 February 2024 | Reinterpret existing geophysical data. | Not started |
| **1b** | Mapping | 22 February 2024 | Complete a programme of geological mapping. | Not started |
| **1c** | Geophysical | 22 February 2024 | Complete a geophysical survey. | Not started |
| **1d** | Other activity | 22 February 2024 | Identify potential exploration targets. | Not started |
| **1e** | Drilling | 22 February 2024 | Complete a programme of drilling for a minimum of 500 m. | Not started |
| **1f** | Data compilation | 22 February 2024 | Compile a GIS database of all available exploration data. | Not started |
| **1g** | Reporting | 22 February 2024 | Provide the chief executive with a report detailing all work completed during this stage of exploration, and the results of that work, including submission of digital data in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision. | Not started |
| **2a** | Drilling | 22 February 2027 | Complete a further programme of drilling for a minimum of 500 m. | Not started |
| **2b** | Other activity | 22 February 2027 | If appropriate, complete a mineral resource estimate. | Not started |
| **2c** | Other activity | 22 February 2027 | If appropriate, complete a mining study. | Not started |
| **2d** | Data compilation | 22 February 2027 | Update the GIS database with all new data obtained. | Not started |
| **2e** | Reporting | 22 February 2027 | Provide the chief executive with a report detailing all work completed during this stage of exploration, and the results of that work, including submission of digital data in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision. | Not started |

Table 4-6: Minimum work requirements for PP60674 (Tokomairiro).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| 1a | Literature review | 15 December 2022 | Complete a review of all relevant literature and geological and geophysical data. | Complete |
| 1b | Other activity | 15 December 2022 | Complete a review of the applicability of satellite data. | Complete |
| 1c | Mapping | 15 December 2022 | Complete a programme of geological and structural mapping to produce a geological map of the permit area. | Complete |
| 1d | Geochemical | 15 December 2022 | Complete a regional stream survey for a minimum of 70 samples. | Complete |
| 1e | Geochemical | 15 December 2022 | Complete a programme of geochemical soil and rock chip samples for a minimum of 200 samples. | Complete |
| 1f | Other activity | 15 December 2022 | Identify potential exploration targets. | Complete |
| 1g | Data compilation | 15 December 2022 | Compile a GIS database of all relevant data. | Complete |
| 1h | Reporting | 15 December 2022 | Prepare a technical report detailing all work completed during this stage of the work programme, in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision, to be submitted to the chief executive in accordance with the regulations. | Complete |

Table 4-7: Minimum work requirements for PP60705 (Rough Ridge South).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| 1a | Literature review | 22 February 2024 | Complete a literature review. | Not started |
| 1b | Geophysical | 22 February 2024 | Reprocess existing geophysical data. | Not started |
| 1c | Mapping | 22 February 2024 | Complete a programme of geological and structural mapping. | Not started |
| 1d | Mapping | 22 February 2024 | Produce an updated geological map of the permit area. | Not started |
| 1e | Geochemical | 22 February 2024 | Complete a programme of geochemical river sediment samples for a minimum of 100 samples. | Not started |
| 1f | Geochemical | 22 February 2024 | Complete a programme of geochemical soil sampling for a minimum of 500 samples. | Not started |
| 1g | Geochemical | 22 February 2024 | Complete a programme of geochemical rock chip sampling for a minimum of 50 samples. | Not started |
| 1h | Other activity | 22 February 2024 | Identify exploration targets. | Not started |
| 1i | Data compilation | 22 February 2024 | Compile a GIS database of all available exploration data. | Not started |
| 1j | Reporting | 22 February 2024 | Prepare a technical report detailing all work completed during this stage of the work programme, in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision, to be submitted to the chief executive in accordance with the regulations. | Not started |

Table 4-8: Minimum work requirements for PP60727 (Carrick Range).

| Item | Type of Activity | Due Date | Comment | Status |
|---|---|---|---|---|
| 1a | Literature review | 1 June 2023 | Complete a review of all relevant literature and geological and geophysical data. | COC |
| 1b | Geophysical | 1 June 2023 | Complete a review of the applicability of remote sensed data. | COC |
| 1c | Mapping | 1 June 2023 | Complete a review of the applicability of machine learning to remote sensed and geophysics data. | COC |
| 1d | Mapping | 1 June 2023 | Complete a programme of geological and structural mapping to produce a geological map of the permit area. | COC |
| 1e | Geochemical | 1 June 2023 | Complete a programme of regional stream sediment survey of 60 samples. | COC |
| 1f | Geochemical | 1 June 2023 | Complete a programme of geochemical soil and rock chip sampling for a minimum of 250 samples. | COC |
| 1g | Other activity | 1 June 2023 | Identify exploration targets. | COC |
| 1h | Data compilation | 1 June 2023 | Compile a GIS database of all available exploration data. | COC |
| 1i | Reporting | 1 June 2023 | Prepare a technical report detailing all work completed during this stage of the work programme, in conjunction with QA/QC information and data sufficient to demonstrate levels of accuracy and precision, to be submitted to the chief executive in accordance with the regulations. | COC |

## 4.3 Surface Rights and Permits

Mineral permits do not give the permit holder automatic rights of land access to the permit area. Access arrangements are required for all onshore activities other than minimum impact activities. Minimum impact activities generally do not require landowner and occupier consent for access (except on Crown land), but the permit holder is required to give 10 working days' notice to the landowner and occupier. For exploration and mining activities, the permit holder is generally required to negotiate an access arrangement with each landowner and occupier.

Access to Crown land requires permission from the relevant Minister of the Crown with responsibility for the land. To sample Crown land, held or managed under the Conservation Act (1987) or in other Acts specified in Schedule 1 of the Conservation Act, the permit holder must gain consent or an access arrangement from the Department of Conservation (DOC). Permit holders require consent (this differs from an access arrangement, which is stricter) from DOC to conduct minimum impact activities on conservation land. For all other exploration and mining activities on conservation land, the permit holder will require an access arrangement from DOC. If an access arrangement is sought for conservation land, the Minister of Conservation must determine whether the proposed mining activities are 'significant'. If the activities are considered to be 'significant mining activities', the application for land access must be publicly notified with a submission period.

Prospecting permits give the permit holder the right to prospect for specified minerals by very low-impact methods, such as literature searches, geological mapping, hand sampling or aerial surveys. Exploration permits give the permit holder the exclusive right to explore for the specified minerals in the permit area using higher impact exploration methods, such as drilling and earthworks. However, any exploration activity must be allowed under the Resource Management Act (1991) or permitted by a granted resource consent.

The Resource Management Act classifies activities into six primary categories: permitted, controlled, restricted discretionary, discretionary, non-complying, and prohibited. These different categories determine whether resource consent is required before carrying out an activity, and what will be considered when resource consent application is assessed. National Environmental Standards and Regional and District Plans regulate which category an activity falls in, and therefore whether resource consent is required.

Most of the KO Gold permits are within the Otago Regional Council (ORC) territorial authority, except for a slither of PP60727 in the Southland Regional Council territory (Table 4-9). Resource consent from the ORC and local district councils will be required for exploration drilling and any substantial earthworks or future mining.

Table 4-9: Summary of regional and district council plans for each permit.

| Permit No. | Permit Name | Regional Council | District Council |
|---|---|---|---|
| **PP60674** | Tokomairiro | Otago | Clutha District |
| **EP60702** | Hyde | Otago | Dunedin City |
| **PP60705** | Rough Ridge South | Otago | Central Otago District |
| **PP60727** | Carrick Range | Otago, Southland | Central Otago District, Southland District |
| **EP60389** | Smylers Gold | Otago | Waitaki District |
| **EP60129** | Glenpark | Otago | Waitaki District |

### 4.3.1 EP60129 Glenpark

EP60129 covers properties owned by 15 unique landowners with 27 separate land titles. All land is owned by farming companies. All titles are zoned general rural, scenic rural or mining zones. No residential land is covered. Nine landowners have provided access for exploration. Many of the landowners are shared with EP60389. A land mineral status (LMS) report was commissioned in 2018, by Land Information Services Limited for the properties within the original EP area (which includes all the properties in the current permit area). The LMS report identified 230 titles with 195 having private ownership of non-statutory minerals, and the remaining properties having the minerals owned by the Crown.

### 4.3.2 EP60389 Smylers Gold

EP60389 covers properties owned by 30 unique landowners with 47 separate land titles. Most of the land is owned by larger farms and small-to-large forestry companies. All titles are zoned general rural. No residential land is covered. A total of 17 landowners have been approached for land access. All 17 have granted access, providing access to most of EP60389 at various stages of exploration. Hardie Pacific owns two properties within EP60389 totalling 88 Ha. The properties are adjoining and land use is plantation forestry. An LMS report was commissioned in 2018, by Land Information Services Limited, for the properties within the original EP area (which includes all the properties in the current permit area). The LMS report identified 47 titles, with 16 having private ownership of non-statutory minerals and the minerals rights of the remaining 31 properties owned by the Crown.

#### 4.3.3 PP60674 Tokomairiro

PP60674 covers properties owned by 54 unique landowners. Most land in PP60674 is owned by a few farm or forestry companies. Residential land is typically found in the southeast of PP60674, close to the town of Milton. In general, the residential properties are small. A total of 16 property owners have been approached by KO Gold for land access, and 12 access agreements have been signed, providing access to most of PP60674, including all the areas covering identified gold-bearing quartz reefs.

The northernmost area of the permit is on government owned land and is part of the Waipori Falls Scenic Reserve. This area, along with marginal strips along the banks of some streams/rivers and swamps, is protected by DOC.

#### 4.3.4 EP60702 Hyde

EP60702 mostly covers private land; however, several small parcels of protected land are present in the centre and south, including a segment of the Central Otago Rail Trail and the Hyde Recreation Reserve. There are 38 unique landowners. No landowners have been approached for land access at this stage.

#### 4.3.5 PP60705 Rough Ridge South

PP60705 covers property owned by 16 landowners and a small portion of Crown land (Serpentine Scenic Reserve) managed by DOC. The reserve is protected by DOC and requires consent for minimum impact (prospecting) activities such as sampling. The majority of land in PP60705 is owned by farm companies. No landowners have been approached for land access at this stage.

#### 4.3.6 PP60727 Carrick Range

Most of PP60727 is freehold land predominantly used for farming. This is accompanied by several areas of Crown land that are leased to farmers under Pastoral Legislation. Protected land is found in the south of the permit as the Old Man Range/Kopuwai Conservation and Scenic Reserve. This area is protected by DOC and requires consent for minimum impact (prospecting) activities such as sampling. There are 226 unique landowners. No landowners have been approached for land access at this stage.

### 4.4 Option Agreements, Royalties, and Encumbrances

#### 4.4.1 Option Agreement for Smylers Gold Project

On March 8, 2021 (Effective Date), KO Gold entered into an option agreement with Hyde Resources and SGL (collectively the Optionors), granting KO Gold the option to acquire a 100% undivided interest in the Smylers Gold Project, comprising EP60129 (Glenpark) and EP60389 (Smylers Gold), subject to the following terms and conditions.

1. KO Gold must incur exploration expenditures in the amount of NZD 4,000,000 (plus GST) on the Smylers Gold Project over a three-year period during the Option Period, as follows:
    a) KO Gold shall incur and fund a minimum of NZD 1,000,000 in Expenditures (plus GST) on the Smylers Gold Project on or before the date that is 18 months from the Effective Date ***(completed)***; and

b) KO Gold shall incur and fund an additional NZD 3,000,000 in Expenditures (plus GST) on the Smylers Gold Project on or before the third anniversary of the Effective Date.

2. After completion of the required exploration expenditures, KO Gold shall issue common shares to the Optionors in accordance with a specific valuation formula. The valuation formula factors in other exploration and mining properties owned by KO Gold and its working capital at the time. The property valuations would be completed by RSC or another independent mining consulting firm with valuation experience.
3. KO Gold becomes the Operator of the Smylers Gold Project after completion of 1a) condition indicated above. As of the Effective Date of this Report, KO Gold is now the Operator of the Smylers Gold Project, after having met the first stage of exploration expenditures on the Smylers Gold Project.
4. Once Hyde Resources and SGL have been transferred to KO Gold, the Optionor shall retain a royalty equal to 2% Net Returns (defined below).

The QP author has reviewed this option agreement and although has not investigated the legality of the underlying agreement or conducted a financial audit of the expenditure, it does not identify any major concerns with the agreement.

#### 4.4.2 Royalties and Encumbrances

Hyde Resources and SGL shall have the right to a royalty of the Smylers Gold Project equal to 2% Net Returns. A Net Return shall mean the 'Gross Value' received by the Grantor (KO Gold or Affiliate), from the sale or other disposition of minerals on the Smylers Gold Project, less the following expenses incurred by the Grantor with respect to such minerals after they leave the Smylers Gold Project:

- actual charges for treatment in the smelting and refining process (including handling, assaying, processing, penalties, impurity charges, metal losses and other processor deductions);
- actual sales, marketing and brokerage costs;
- any sales, severance, gross production, privilege or similar taxes assessed on, or in connection with, the sale or other disposition of minerals; and
- actual costs of transportation (including freight, insurance, security charges, transaction taxes, import and export duties, levies, imposts, handling, port, demurrage, delay, stowage and forwarding expenses incurred by reason of, or in the course of, such transportation) of such minerals to the mill, smelter or other purchaser, user or customer.

The Grantor shall be permitted to sell concentrates in the form usually commercially marketable to an Affiliate of the Grantor provided that such sales shall be considered, solely for the purpose of computing Net Returns, to have been sold at prices and on terms no less favourable than those which would be extended to an unaffiliated third party, in a bona fide arm's length transaction under similar circumstances. Similarly, if the Grantor or an Affiliate of the Grantor incurs costs that are deductible, or treats the minerals in a smelter that the Grantor or the Affiliate of the Grantor owns or controls, the Grantor or the Affiliate of the Grantor may deduct treatment charges and costs, but only to the extent they are no more than the amount that the Grantor or the Affiliate of the Grantor would have charged an unaffiliated third party, in a bona fide arm's length transaction under similar circumstances.

If minerals are produced from any of the permit areas, KO Gold will also be liable for payment of a royalty to the Crown calculated in accordance with the Crown Minerals (royalties for minerals other than petroleum) Regulations 2013. The royalty payable will depend on the tier of the permit. KO Gold currently has tier-2 permits; however, this could change in the future.

The holder of a tier-2 exploration or mining permit for gold must pay an *ad valorem* royalty of 1% of the net sales revenues of the minerals obtained under the permit.

The holder of a tier-1 exploration or mining permit must pay an *ad valorem* royalty of 2% of the net sales revenue of the minerals obtained under the permit, if the accounting profits of the permit holder, for the minerals for the reporting period (calendar year), are less than or equal to NZD 2 million. If the accounting profits of the permit holder, for the minerals for the reporting period, are greater than NZD 2 million, the holder must pay the higher of:

- an *ad valorem* royalty of 2% of the net sales revenue of the minerals obtained under the permit; and
- an accounting profits royalty of 10% of the accounting profits, or provisional accounting profits, as the case may be, of the minerals obtained under the permit.

## 4.5 Environmental Liabilities and Permits

Key environmental legislation concerning exploration and mining activities includes the Resource Management Act 1991 and the Wildlife Act 1953. Under the Resource Management Act, local authorities manage the environmental consenting process. Resource and land use consent must be obtained before commencing most exploration and mining activities. Other legislation regulating industrial activities, environmental effects, and the health and safety of the workplace also apply to mining activities, such as the Health and Safety at Work Act (2015) and the Heritage New Zealand Pouhere Taonga Act 2014.

Under the Crown Minerals Act 1991, NZP&M must act in accordance with the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) that underpin the relationship between Māori and the Crown. These principles include partnership, active protection, and redress. As such, when assessing a permit application, NZP&M consults with iwi and hapū whose rohe includes some or all of a permit area, or who may be directly affected by a permit. Iwi and hapū can provide recommendations and requests based on the Treaty principles.

During the permit application assessments, Aukaha, a consultancy that represents iwi (Māori tribes), put forth submissions on behalf of Kāti Huirapa Rūnaka ki Puketeraki,Te Rūnanga o Ōtākou, Te Rūnanga o Moeraki and Hokonui Rūnanga (local iwi). The submissions requested KO Gold make the following provisions when planning work programmes.

- Consider the Kāi Tahu ki Otago Natural Resource Management Plan.
- Keep any vegetation disturbance to a minimum (necessary to establish access and undertake the bed disturbance works).
- Limit any activities within the watercourse to outside the duration of spawning seasons or periods when the native fishery is considered sensitive.
- Adhere to the Heritage New Zealand Pouhere Taonga Archaeological Discovery Protocol.

- Ensure any prospecting activity is discrete and selective, and does not change the shape or form of the existing landscape.

#### 4.5.1 EP60389 Smylers Gold

Hyde Resources has a current resource consent with Waitaki District Council for exploration drilling (consent number 201.2021.1789). The consent was granted on 21 October 2021 for a two-year term. The consent allows for unlimited drilling across a total of seven drill pads, earthworks and temporary site buildings and infrastructure associated with drilling activity. An extension to the term, or amendment of scope of the consent, is permitted through a consent amendment application.

#### 4.5.2 PP60674 Tokomairiro

Te Rūnanga o Ōtākou also made a specific request relating to Wai-o-Te-Meho Creek, which is located near the central-eastern boundary of PP60674 and drains into the nearby Lake Waihola (Figure 4-2). This stream is a habitat for the Giant Kōkopu (*Galaxias argenteus*), a threatened species of native freshwater fish, and is considered a wāhi tapu site (holy place). Te Rūnanga o Ōtākou has no specific concerns with sampling being undertaken in/around Wai-o-Te-Meho Creek, provided:

- stream-sediment samples collected from the Wai-o-Te-Meho Creek and its tributaries are not collected between December and June (inclusive), which are the spawning seasons for Īnanga (Common galaxias; *Galaxias maculatus*) and other large Galaxiid species; Galaxiid being the family of native freshwater fish (Smith, 2014);
- a maximum of 2 kg of material is collected per stream-sediment sample;
- only one stream-sediment sample is collected from within the active creek;
- samples are collected from 20–50 cm below the turf; and
- holes excavated during stream-sediment sampling have a diameter no larger than ~20 cm.

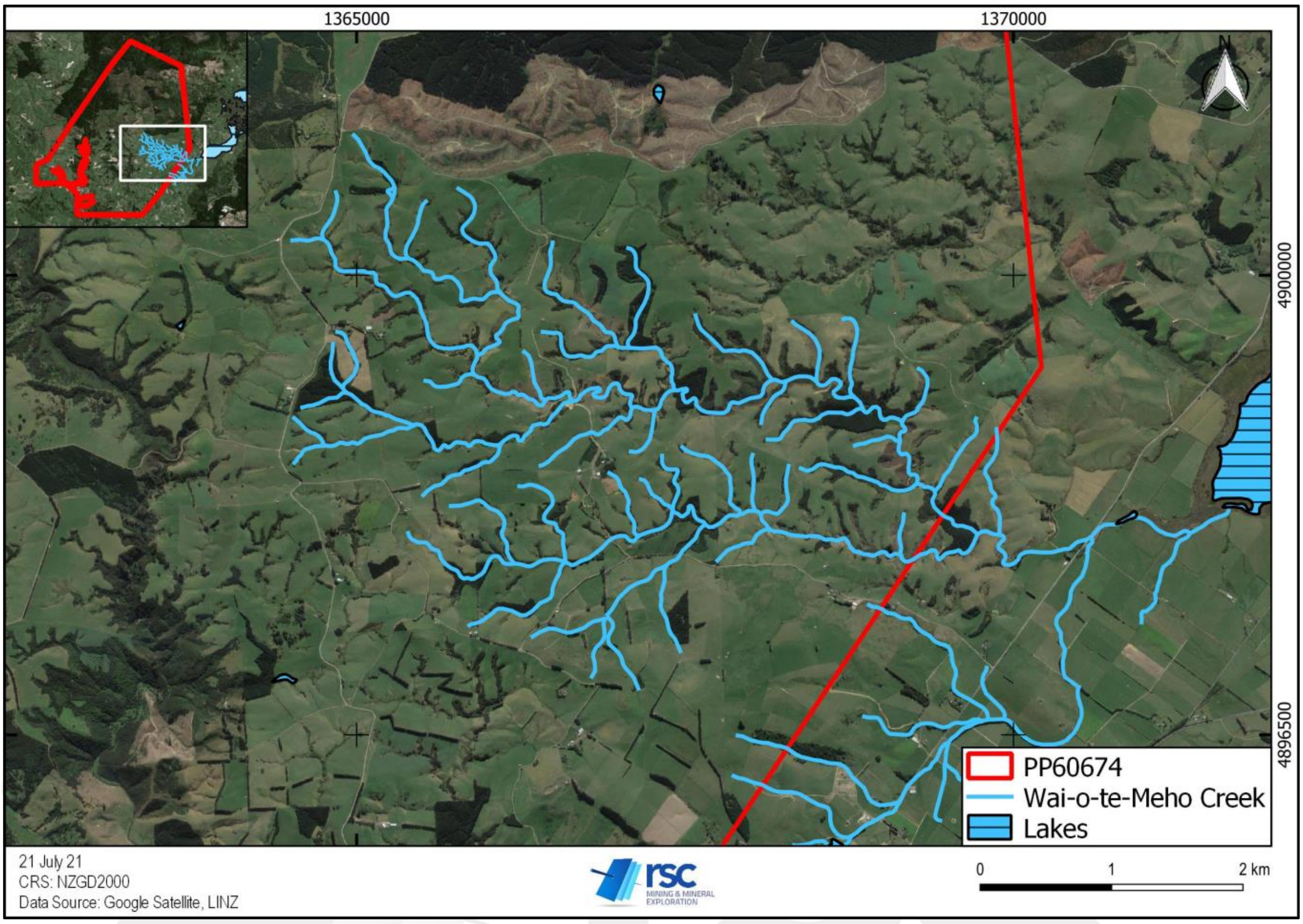



Figure 4-2: Wai-o-Te-Meho Creek and its tributaries.

## 4.6 Other Significant Factors and Risks

The QP author is not aware of any other significant factors or risks that could impact any of the KO Gold properties.

# 5. Accessibility, Climate, Local Resources, Infrastructure and Physiography

## 5.1 Accessibility

All of KO Gold's properties are located within the Otago region and are generally well connected by state highways and public roads to nearby towns (Figure 4-1). Most roads within the permits are gravel farm or forestry roads.

### 5.1.1 EP60389 and EP60129 Smylers Gold Project

The Smylers Gold Project is accessible by State Highway 1 from Dunedin, with sealed and gravel farm and forestry roads from both Middlemarch and Palmerston providing access to the interior. The project area lies ~7 km inland from the township of Palmerston. Palmerston is a service town that supports the Macraes Au mine and local farming. The main prospects are accessed from Taieri Peak Road which links Palmerston and Macraes townships.

### 5.1.2 PP60674 Tokomairiro

PP60674 is readily accessible via State Highway 1 and State Highway 8, with numerous small public roads, farm roads, and forestry roads providing access to the interior (Figure 5-1).

The permit can be accessed by driving south from Dunedin for ~50 minutes on State Highway 1. A further 30–40 minute drive is needed to access the southwest of PP60674 via State Highway 8, and a similar time is needed to access the interior of PP60674 via Table Hill Road or Circle Hill Road.

The small public roads are only paved for the first few hundred metres extending from the State Highways and then turn to gravel. Basic concrete fords are in place to cross most streams. Locked gates are placed over the road where these public roads enter forestry; field crews have had access to keys from the relevant forestry landowners.

Many small farm and forestry roads on private land can be used to access the interior of the permit. In general, these small private roads are of a high enough standard for 4WD vehicle access, but in some areas roads are washed out or fallen trees prevent vehicle access. Where there is no vehicle access, the damaged roads provide good access on foot, except for some of the smaller forestry roads that are covered in thick undergrowth and scrub, significantly increasing travel time.

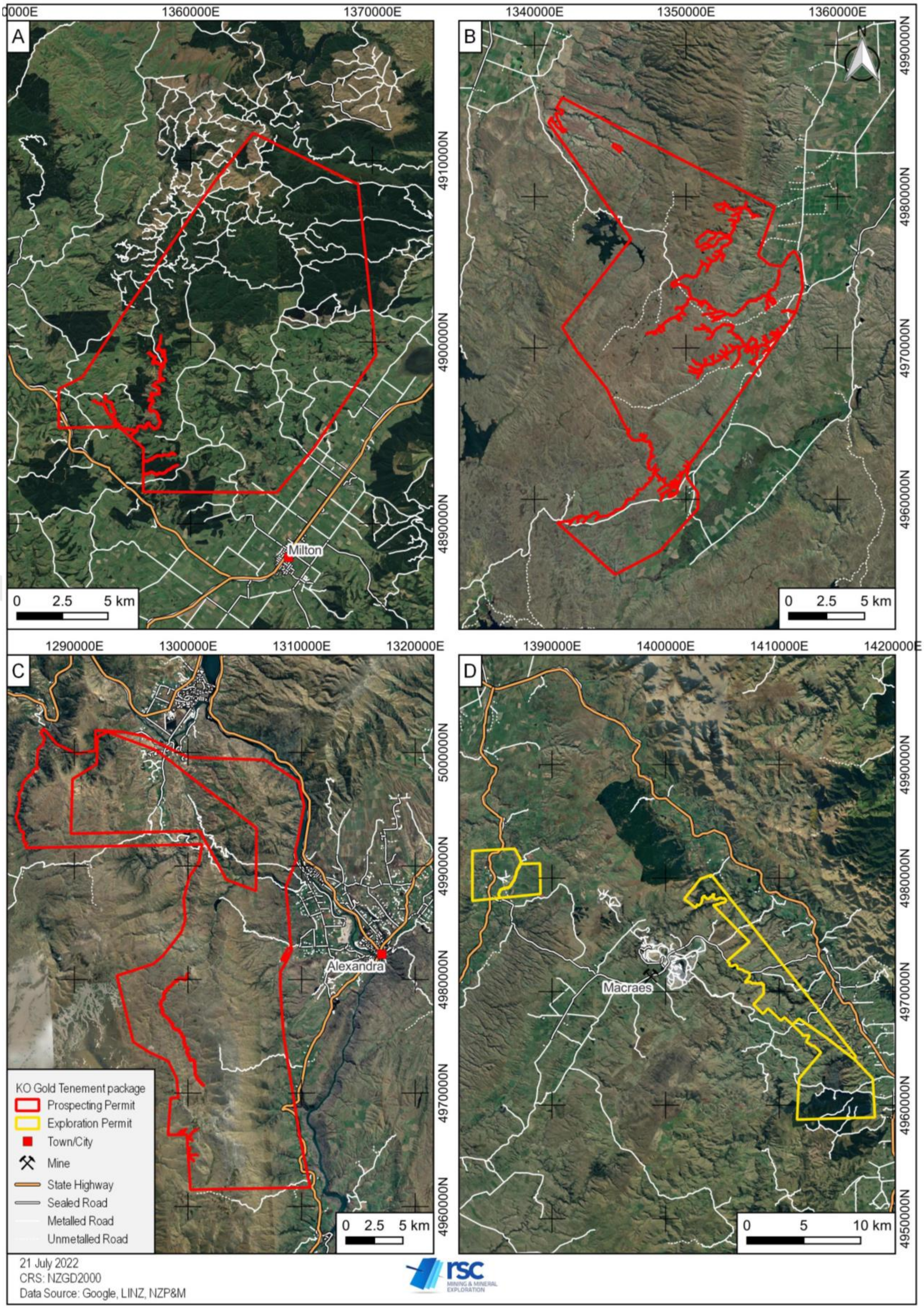



Figure 5-1: Road access to KO Gold permits. A) PP60674 Tokomairiro; B) PP60705 Rough Ridge South; C) PP60727 Carrick Range; D) EP60702 Hyde, EP60129 Glenpark and EP60389 Smylers Gold.

### 5.1.3 EP60702 Hyde

EP60702 is readily accessible via State Highway 87 and State Highway 85. Several small public country roads and farm roads provide access to the interior.

The permit can be accessed by driving north from Dunedin for ~45 minutes on State Highway 1. A further 40-minute drive is needed to access the south of EP60702 via State Highway 85, Macraes Road, Hyde-Macraes Road, and State Highway 87. A similar time is needed to access the permit by driving south from Dunedin to Mosgiel on State Highway 1 and then driving north to Hyde on State Highway 87.

The only sealed roads within EP60702 are State Highway 87, the small section of Hyde-Macraes Road in the south, and portions of Newtown and Cemetery Roads. The small public roads are only paved for the first few hundred metres extending from the State Highways, and for several small sections with the remainder being gravel. The Taieri River can be crossed by the bridge on Hyde-Macraes Road just south of the permit or at Tiroiti on Horseburn Road ~3 km north of EP60702.

Many small farm and forestry roads on private land can be used to access the interior of the permit. In general, these small private roads are of a high enough standard for 4WD vehicle access. Access in the winter may be limited due to periodic snowfall.

### 5.1.4 PP60705 Rough Ridge South

PP60705 is accessible by several gravel country roads from Poolburn, Paerau and Patearoa. Access to PP60705 from Dunedin takes ~2–2.5 hours. The permit is located northwest of Dunedin; however, it can only be accessed from Dunedin by either travelling north on State Highway 1, northwest on State Highway 85 and then slightly south on local roads, or by travelling southwest on State Highway 1, northwest on Stage Highway 8 to Alexandra and then inland on local roads. The permit is about an hour's drive from Alexandra heading towards Poolburn Dam via Old Dunstan Road and Long Valley Ridge Road. Long Valley Ridge Road is always closed to vehicles in winter (between late June and late September) and can be closed at other times of poor weather.

Many small farm roads on private land can be used to access the interior of the permit. Basic concrete fords are in place to cross some but not all streams. In general, the small private roads are of a high enough standard for 4WD vehicle access, however, some are in poor condition and should not be accessed during poor weather conditions. Where there is no vehicle access, the damaged roads provide good access on foot. Access in the winter may be limited due to periodic snowfall and muddy tracks.

### 5.1.5 PP60727 Carrick Range

PP60727 is readily accessible via State Highway 8 from Clyde and Cromwell. The permit can be accessed by driving south from Dunedin for ~50 minutes on State Highway 1. A further hour’s drive northwest on State Highway 8 is needed to access the south of the permit.

Several gravel country roads and farm roads on private land provide access to the interior from the north, south, and east. Several 4WD tracks traverse the Old Man Range. Most of the stream crossings do not have concrete fords.

The Kopuwai Conservation Area has several vehicle entry points: a northern entrance via Nevis Road near Duffers Saddle, two eastern entrances via either Symes Road or Waikaia Bush Road (the Waikaia Bush Road is closed in winter) and a southwest entrance via Whitecoomb Road – Piano Flat. Road access to Kopuwai Conservation Area is on dry weather, largely unmaintained legal roads.

This area is subject to weather extremes at any time of year and roads can become very wet and swampy. Access in the winter may be particularly limited due to periodic snowfall and ground conditions.

## 5.2 Climate

The climate of Otago is diverse due to varying topography and distance from the coast. Central Otago experiences a semi-arid climate due to its location in the rain shadow cast by the Southern Alps. Typically, the weather becomes wetter and milder in temperature towards the east coast (Figure 5-2). Winds are generally stronger towards the coast and weaker inland. Winter is typically the driest and least windy time of year in Central Otago. Inland Otago experiences a more typical continental climate compared to the rest of New Zealand, with summer temperatures frequently reaching ~30°C and winter temperatures below 0°C. Snow can last for several months a year in alpine areas such as the Old Man Range (Carrick Range) and Rough Ridge. Coastal Otago often experiences more rainfall than the inland areas.

### 5.2.1 EP60389 and EP60129 Smylers Gold Project

The Smylers Gold Project is ~10 km from the east coast and experiences typical coastal weather. Temperatures sit around 10–15°C in summer and 5–8°C in winter (Table 5-1). Snow occasionally covers the ground a few days a year within the winter months but rarely restricts site access. Dry spells of more than two weeks occur relatively frequently throughout summer. Exploration can occur year round; however, it can occasionally be disrupted through the winter months due to snow or heavy rain events.

Table 5-1: Climate data from the township of Palmerston, 7 km from Smylers Gold Project (source: climate-data.org).

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Avg. Temperature (ºC)** | 14.3 | 14.2 | 13.0 | 10.3 | 7.7 | 5.0 | 4.4 | 5.7 | 7.9 | 9.5 | 11.2 | 13.2 |
| **Precipitation (mm)** | 89 | 72 | 57 | 58 | 55 | 48 | 47 | 51 | 50 | 71 | 76 | 93 |
| **Humidity (%)** | 74 | 75 | 75 | 77 | 79 | 80 | 79 | 79 | 74 | 72 | 71 | 74 |
| **No. of Rainy Days** | 10 | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 8 | 10 | 10 | 11 |

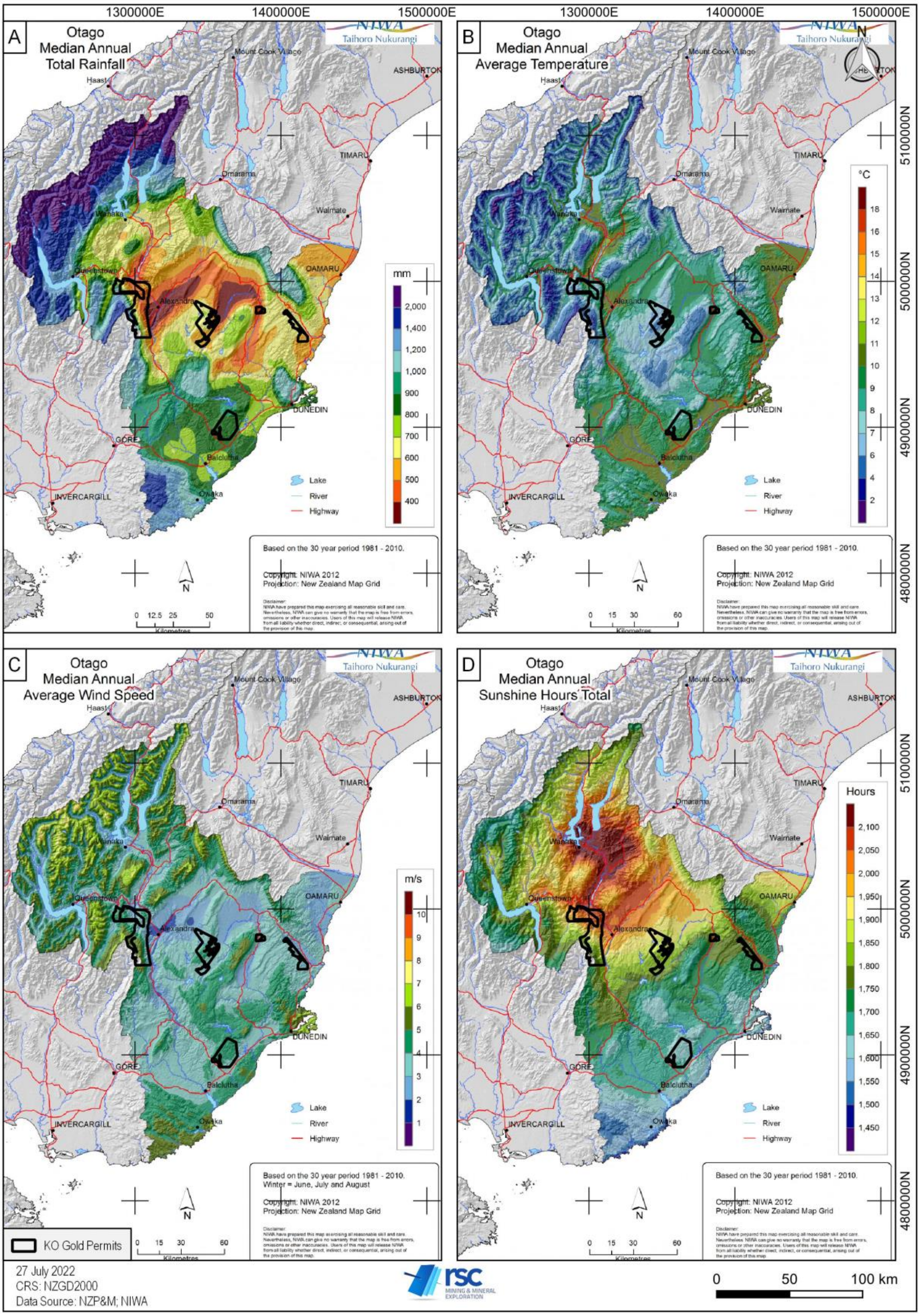



Figure 5-2: Otago climate maps. Climate data are sourced from NIWA. A) median annual rainfall in Otago; B) median annual average temperature in Otago; C) median annual average wind speed; D) median annual total sunshine hours in Otago.

### 5.2.2 PP60674 Tokomairiro

PP60674 is ~15 km from the east coast and experiences typical coastal weather. It is shielded from the worst of the coastal weather by the <450-m-tall coastal Otago Range. Temperatures sit around 13–18°C in the summer and reach below 0°C in the winter. The area is generally driest in the winter and wettest at the start of summer (Table 5-2). While fieldwork can be conducted all year round, it is not recommended during the cold, icy periods in winter.

Table 5-2: Climate data from the township of Milton, 6 km from PP60674 (source: climate-data.org).

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Avg. Temperature (ºC)** | 13.7 | 13.6 | 12.5 | 10 | 7.7 | 5.3 | 4.7 | 5.7 | 7.6 | 9 | 10.6 | 12.7 |
| **Precipitation (mm)** | 110 | 84 | 76 | 68 | 73 | 62 | 49 | 57 | 66 | 96 | 96 | 116 |
| **Humidity (%)** | 75 | 77 | 77 | 79 | 81 | 82 | 80 | 80 | 76 | 74 | 74 | 75 |
| **No. of Rainy Days** | 11 | 9 | 9 | 9 | 10 | 9 | 8 | 9 | 10 | 13 | 12 | 13 |

### 5.2.3 EP60702 Hyde

EP60702 is ~25 km northwest of the Middlemarch and experiences a hybrid of coastal and inland Otago weather. Temperatures are more akin to coastal weather — cooler summer highs (13–18°C) and can reach below 0°C in winter (Table 5-3). During the winter months (June to August), the area can also experience hoarfrost. Rainfall in the region is similar to typical inland Otago weather, with an average annual rainfall of ~500 mm (based on a 30-year period between 1981 and 2020; Figure 5-2A; NIWA, 2015). While fieldwork can be conducted all year round, it is not recommended during the cold, icy periods in winter.

Table 5-3: Climate data for the township of Middlemarch, 25 km from EP60702 (source: climate-data.org).

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Avg. Temperature (ºC)** | 13.3 | 13 | 11.5 | 8.2 | 4.9 | 1.6 | 1 | 2.7 | 5.6 | 7.5 | 9.7 | 12.1 |
| **Precipitation (mm)** | 103 | 79 | 70 | 65 | 70 | 59 | 51 | 55 | 62 | 85 | 93 | 109 |
| **Humidity (%)** | 71 | 74 | 74 | 79 | 84 | 88 | 86 | 84 | 76 | 73 | 71 | 72 |
| **No. of Rainy Days** | 11 | 9 | 9 | 8 | 9 | 9 | 8 | 9 | 9 | 12 | 12 | 13 |
| **Wind Speed (km/hr)[1]** | 10.4 | 9.4 | 9.2 | 7.9 | 8.0 | 8.2 | 7.5 | 7.9 | 10.8 | 10.7 | 11.2 | 10.6 |

[1] wind speed data sourced from NIWA (2015).

### 5.2.4 PP60705 Rough Ridge South and PP60727

Both PP60705 and PP60727 are located in Central Otago and experience a semi-arid climate. Summer days are frequently in the high 20s to low 30s (°C). Cool temperatures around 0°C are also frequent during the winter months (Table 5-4). Rainfall in the area is low, although the Old Man Range (southern end of PP60727) experiences higher rainfall than

PP60702. Snowfall during winter is also common, particularly in the Old Man Range and Rough Ridge South (PP60702). Exploration can occur year round; however, it can be disrupted through the winter months due to snow.

Table 5-4: Climate data for the township of Alexandra, ~32 km away from PP60705 and ~10 km away from PP60727 (source: NIWA 2015).

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Avg. Temperature (ºC)[1]** | 17.4 | 17.2 | 14.8 | 11.1 | 7.1 | 3.4 | 3.2 | 5.7 | 9 | 11.7 | 13.8 | 16 |
| **Precipitation (mm)** | 48 | 36 | 29 | 24 | 28 | 31 | 19 | 23 | 19 | 31 | 31 | 47 |
| **No. of Rainy Days** | 9 | 8 | 8 | 9 | 10 | 9 | 9 | 8 | 8 | 9 | 9 | 10 |
| **Wind Speed (km/hr)[2]** | 7.4 | 6.6 | 5.9 | 4.5 | 4.3 | 4.1 | 3.7 | 4.8 | 6.7 | 7.3 | 7.8 | 7.4 |

[1] Source: Promote Alexandra Inc (2022).
[2] Wind speed data were collected from Clyde, 8 km northwest of Alexandra.

## 5.3 Physiography

### 5.3.1 EP60389 and EP60129 Smylers Gold Project

The project area is situated on the margin of an elevated (~200 m above sea level) schist plateau, drained by a network pattern of north-westerly and north-easterly trending streams. Streams in the north feed the Shag River, while streams in the south feed the Pleasant River. Parts of the plateau within the Glenpark permit are deeply incised. Elevations range from 150–700 m above sea level. In the southeast, remnant Miocene volcanic cones protrude from the plateau.

### 5.3.2 PP60674 Tokomairiro

PP60674 is located on a set of rolling hills on the western edge of the Taieri Plains. The altitude varies from ~2 m in the southeast up to ~650 m in the northwest of the permit (Figure 5-3). The hills tend to increase in altitude at a relatively shallow incline, but several large, steeply incised, northwest- or northeast-trending gullies and gorges cut the interior of PP60674. Notable landmarks in PP60674 include Circle Hill, Table Hill, and Table Mound. The central area of PP60674 covers plateaus at altitudes of ~250–400 m, which are largely covered in farmland.

Several large watersheds are located in PP60674, mostly in the western to north-western margins. The largest rivers in the permit include the Tokomairiro River and the Meggat Burn. Within PP60674, there are two branches of the Tokomairiro River: an east branch and the slightly larger west branch. The Meggat Burn is approximately the same size as the Tokomairiro River East Branch. Several other sizeable streams flow into both branches of the Tokomairiro River, most notably the Nugget Stream (named after its historical production of Au nuggets), Burn Stream, Wai-o-Te-Meho Creek, and Fishers Stream. Much of the Tokomairiro River West Branch, Nugget Stream, Shepherd Stream, Burn Stream, and two un-named streams are covered by pre-existing alluvial mining permits (MP60530 and MP60552). Small dams are common on farmland.

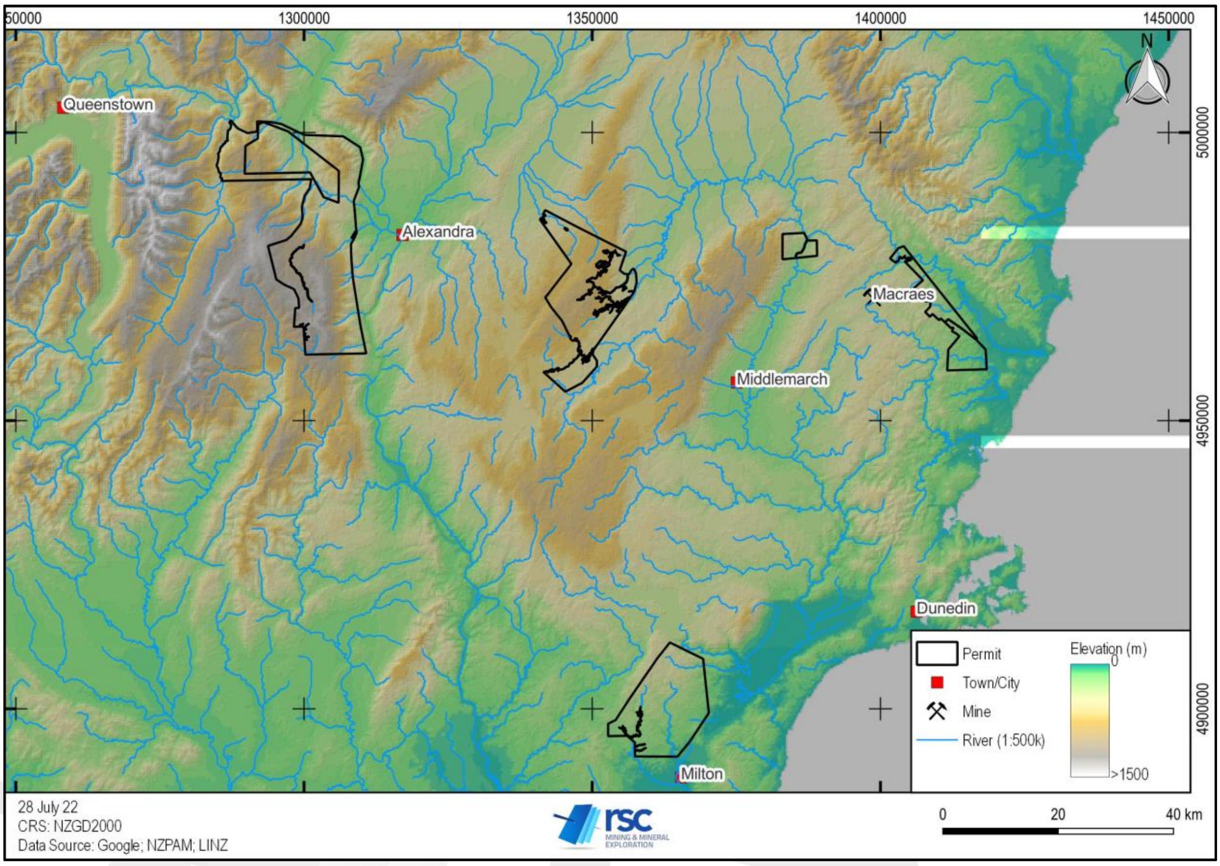



Figure 5-3: Otago DEM shaded from the northeast.

### 5.3.3 EP60702 Hyde

EP60702 is located on the northeastern flank of the Rock and Pillar Range, which grades into undulating land surrounding the Taieri River. The altitude varies from ~300 m in the middle of the permit to ~700 m in the west. The flanks of the Rock and Pillar Range are steeply incised with east-trending gullies.

The Taieri River runs through the permit from north to south. The area surrounding the Taieri River is not included as part of EP60702. A number of creeks flow into the Taieri River, including Shepherds Creek and Coal Creek in the west, and Mare Burn in the east.

### 5.3.4 PP60705 Rough Ridge South

PP60705 is located over the southern extent of the Rough Ridge Range. Rough Ridge Range trends north-northeast through the length of PP60705. The highest point in PP60705 is located in the south of the permit at ~1,200 m above sea level. A number of creeks drain off Rough Ridge Range to the northwest and to the southeast, which has formed steep, incised gullies. Totara Creek has incised orthogonally across the range, forming a steep northwest gully in the centre of the permit area. To the northwest of Rough Ridge Range is a large terrace (~3 km wide) parallel to the range.

The north of the permit lies on a schist plateau, which is cut by the Pool Burn.

#### 5.3.5 PP60727 Carrick Range

PP60727 is located over the Old Man Range to the south and the Cairnmuir Mountains to the north. The majority of the permit is steep, and care is required when undertaking exploration activities within the permit. The highest point in PP60727 is Hyde Rock, in the Old Man Range, at 1,673 m above sea level. The permit dips to ~300 m above sea level in the north of the permit, near the township of Bannockburn. A number of creeks and rivers have incised into the local geology including Bannock Burn, Nevis River, Hawkes Burn, and Fraser River.

### 5.4 Vegetation

All permits are located within the Otago region and cover farmland pastures, tussock grassland, forestry (exotic *Pinus Radiata)* or alpine areas. Ground cover in alpine areas is dwarf, tundra-like vegetation of wind-blasted cushion plants including dracophyllum, mountain daisies and tussocks. Matagouri and gorse dominate streams and gullies, with isolated pockets of native vegetation. Farms in the area are most commonly sheep (wool/lamb) or beef farms, with minor dairy farming.

### 5.5 Local Resources and Infrastructure

All of the properties are located within the Otago region and are generally well connected by state highways and public roads to nearby towns. Dunedin is the nearest major city, port, airport, and hospital to the projects. Queenstown airport is the closest international airport.

Most roads within the permits are gravel, farm or forestry roads.

Cell phone coverage for much of the project areas is moderate to poor. There are discrete areas where mobile phone signal is consistently poor or absent.

The Smylers Gold Project has an exploration base set up within the project area (Figure 5-4). This site includes container storage, core logging shed, portable office, toilets, water bore, small workshop, and power generator. The exploration base is accessed from Taieri Peak Road on a well-formed forestry road.

Figure 5-4: Smylers Gold Project site exploration base infrastructure, located within EP60389.

# 6. History

## 6.1 Tenure and Operating History

Otago was the place where New Zealand's first gold rush started in the mid-1800s, lasting until the beginning of the 20th century. Hard-rock Au was found at numerous sites across the Otago Schist belt. The discovery of these occurrences followed earlier alluvial Au findings, and mining targeted high-grade veins and occurred from surface or shallow shafts.

### 6.1.1 EP60389 and EP60129 Smylers Gold Project

The earliest alluvial mining in the district commenced at Murphy's Flat in 1862, with Macraes Flat, Deepdell and some parts of Horse Flat being worked soon after (Hamel, 2001). Murphy's Creek was the major early alluvial workings and there is evidence that all its tributaries were being worked in the 1860s. Early hard-rock mining within the Macraes District focussed on the mining of quartz veins, with the first notable mining occurring at the Duke of Edinburgh prospect located northeast of the main Frasers Pit, within the OceanaGold permit area. It was believed at the time that the main structure consisted of two sub-parallel quartz veins that were understood to be continuous over distance, along strike and down dip. Along with the two main structures, numerous outlying small quartz vein exposures in the area were also found to be Au-bearing (Williamson, 1939; Williams, 1974).

Early mining focussed on shallow surface pits and short underground drives which targeted and extracted quartz. The quartz was crushed, and Au was extracted from nearby processing sites. The historical production was small and approximately 100,000 tonnes of quartz were processed, yielding ~ 5,000 oz of Au over half a century. Miners also encountered local quartz veins containing scheelite, which was of economic significance at the time, due to the high tungsten prices during war periods (Williams, 1974). Other areas mined included Maritana, Golden Bell, and Deepdell, but quantities were small with a total reported of 8,463 tons of crushed ore for 1,630 ounces of Au and 50 tons of scheelite (Williamson, 1939).

Near-surface quartz veins exhibit varying oxidation levels up to 50 m in depth, in the Macraes area. The oxidation of sulphide minerals, within the shallow mineralised structures, liberated encapsulated microparticulate Au, and associated supergene enrichment further facilitated the increases in Au particle sizes within the oxidised structures (Craw et al., 2015).

Coarse free Au was readily extracted within shallow mineralised structures, by the historical miners from the crushed ore, via gravity settling and partly via mercury amalgamation processes. However, miners soon realised that once tunnelling reached the unoxidised mineralised structures at depth, the ore contained little to no coarse-grained Au, and that the Au without surface oxidation and supergene enrichment was encapsulated by pyrite and arsenopyrite sulphides (Craw et al., 2015). Attempts were made to liberate this Au through roasting techniques; however, the economic conditions at the time were difficult and the techniques were not pursued to any extent, and mining subsequently ceased within the area in the 1940s (Mains and Craw, 2005).

Mining recommenced in 1990 at Macraes, and the combined Macraes open pits and underground mines have produced to date more than 5 Moz Au.

### 6.1.2 PP60674 Tokomairiro

The Tokomairiro area has a long history of alluvial Au mining dating back to the 1850s, boasting the supposed first workable goldfield in Otago at Glenore, on the Tokomairiro River west branch (Figure 6-1). Mining began in 1859, and alluvial mining has continued in the area on and off to the present day. Many of the old workings were named after the old names for the local rivers; e.g. the Woolshed workings were named after the Woolshed Creek, which is now known as the west branch of the Tokomairiro River (Figure 6-2); and the Burnt Creek Reef was named after the Burnt Creek, now known as the Burn Stream.

Gold was chased upstream from Glenore, and several Au-bearing quartz reefs were identified in the host schist. Most notable in the area were two parallel reefs ~100 m from one another, the Canada and Ocean View reefs, discovered in 1862 (MacDonell, 1998). Try Again Reef, found 2 km north of the above-mentioned reefs, was also a productive mine in the late 1800s. Three reefs in Burn Stream were mined for a short period. Very little is known about mining operations at both Burn Stream and Try Again Reef. Several smaller reefs were identified, but they do not appear to have been mined, including Nuggety Gully Reef, Meggat Burn Reef and Lawsons Reef (Figure 6-2). The locations of Canada and Ocean View reefs are known to be within a few metres, but the locations of the other mentioned reefs are unknown.

Two other major hard-rock Au mines are found in the area: OPQ Reef (~8.5 km northwest) and Gabriel's Gully Reef (~17.5 km northwest). Gabriel's Gully was also the site of one of the most extensive alluvial goldfields in Otago.

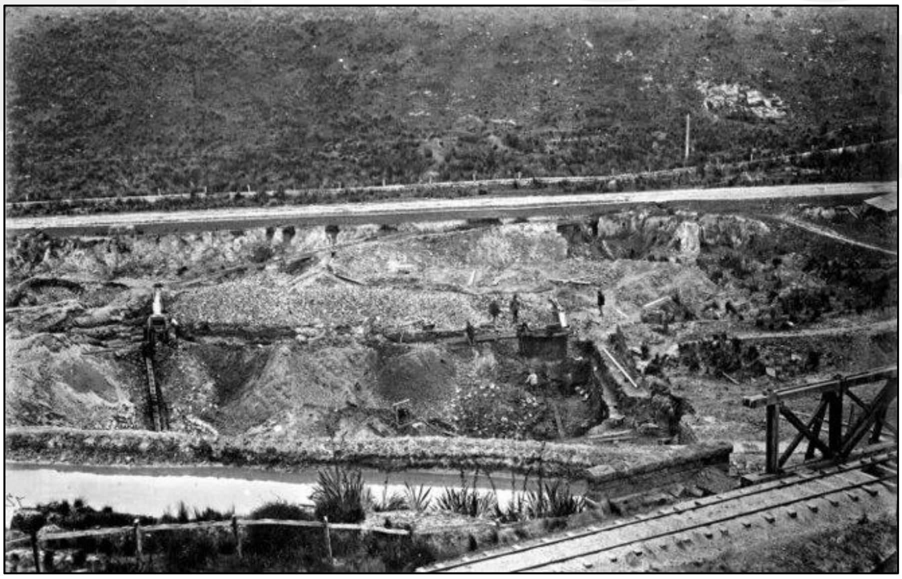


Figure 6-1: The historical Woolshed alluvial Au workings on the Tokomairiro River west branch; the supposed first workable goldfield discovered in Otago. The photo was taken sometime during the 1870s–1880s by H. Deveril (1840–1911).

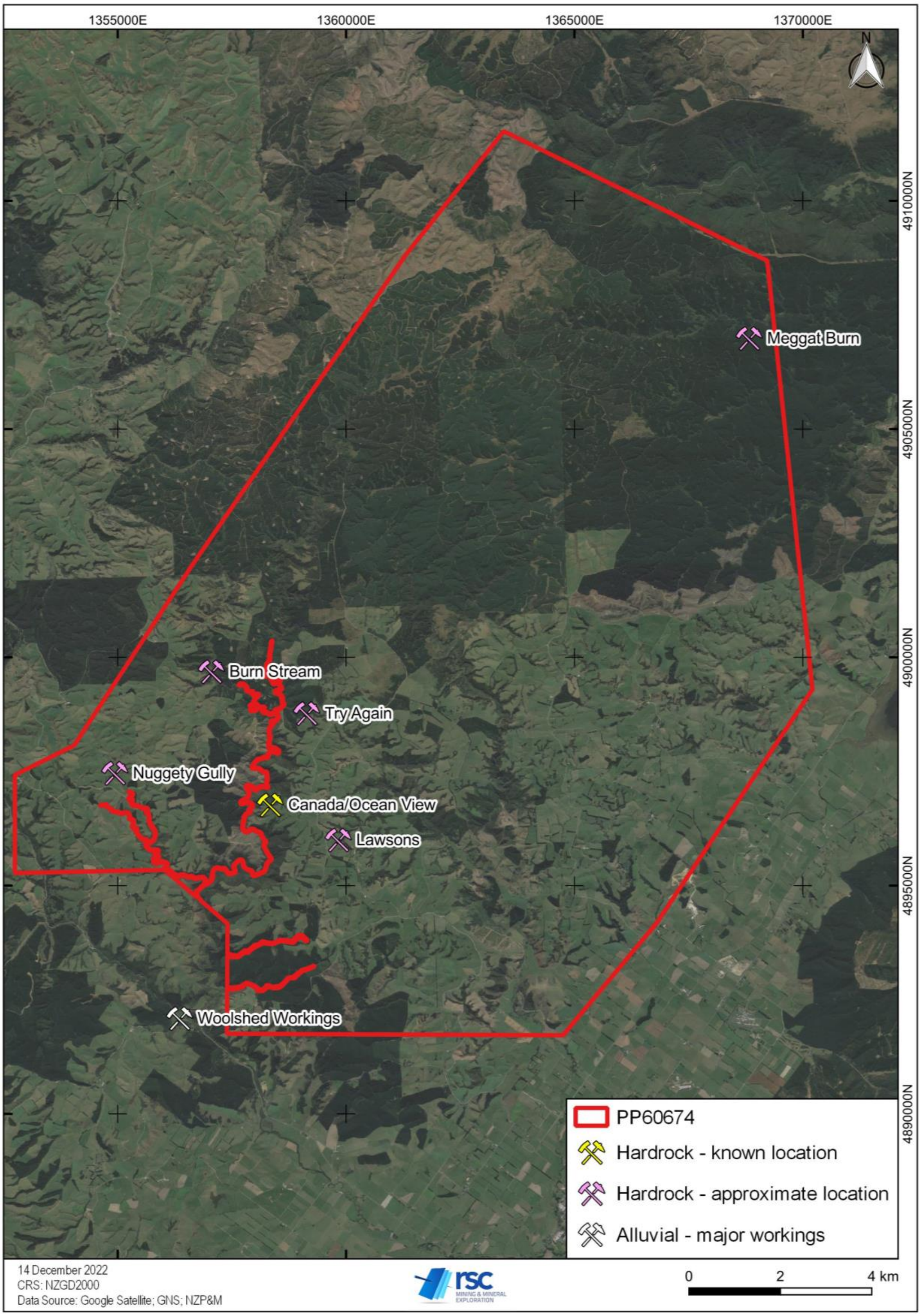



Figure 6-2: Historical Au-bearing quartz reefs and major alluvial mines in the area of PP60674.

#### 6.1.3 EP60702 Hyde

The Hyde area has been a well-known alluvial-Au bearing area since the 1860s, with mining beginning in 1864 (Mackay, 1896). McKay (1896) wrote that the 'quartz drifts', as he called the Eocene Hogburn Formation quartz gravels, "at their junction with the slates (Otago Schist) in the bed of the creek were very rich in gold." He further wrote that "much more ground would have been worked but for the scarcity of water." The area was originally known as 'Eight Mile' because it was eight miles from the very rich Hamilton's Diggings across the Rock and Pillar Range. At least three water races were constructed (Ramsay & Harrison, 2009; Stanaway, 2017). Worked faces as high as 20 m, revealing 10 m or more of quartz gravel, lying on schist and overlain by sands then silts and lignite beds are present in the old workings, only in the north of EP60702. These workings were mapped as part of the work on PP54616 by Mineral Rangahau Limited. The higher faces above the Eocene quartz gravels, from 5–20 m, as opposed to the lower ones (no more than 6 m), where only the Quaternary clastics were worked, are probably indicative of the grades of Au obtained. Stanaway (2017) concluded two small workings visible on the north side of Coal Creek were probably for lignite.

#### 6.1.4 PP60705 Rough Ridge South

The bulk of alluvial Au production in Central Otago came from Tertiary-age sediments, mostly quartz conglomerates, although some came from younger alluvium. Numerous alluvial Au deposits occur at the Serpentine Diggings. The entire region was prospected for Au as early as 1876 but activity had ceased by 1899. A shaft was sunk to 90 ft and two levels were driven at the Serpentine quartz reef locality, an east-striking reef ~0.5 m wide.

#### 6.1.5 PP60727 Carrick Range

Historically, a large number of auriferous lode systems were prospected and mined intermittently from 1871–1921 near and within PP60727. Mining was undertaken in a non-systematic way by small companies and syndicates on individual reef systems. Complete production figures for the Carrick Goldfield are not available, although incomplete figures are available for some mines (see section 6.3). Mining peaked from 1871–1877 when averaged grades were ~30 g/t Au but up to 214 g/t Au being recorded. The mines operated within the enriched oxidised zone, which extended to a depth of 50 m below the present surface. The unoxidised ore was generally of lower tenor and, being refractory, was very difficult to treat and thus not mined. Several lodes were identified and mined in the south of PP60727, although production figures could not be found. The lodes were found near the Obelisk (a prominent tor on the top of the Old Man Range) and in the headwaters of the Fraser (Earnscleugh) River.

### 6.2 Exploration History

#### 6.2.1 EP60389 and EP60129 Smylers Gold Project

The first modern exploration in the Stoneburn-Taieri Peak area was conducted by Homestake NZ Ltd between 1984 and 1986 (Bleakley, 1995, 1996). BHP Gold Mines undertook more detailed work from 1988–1989 (Grieve, 1989).

From the late 1980s to mid-1990s, Macraes Mining Company Ltd held the northwest part of the permit area under their prospecting licences 31-2322 and 31-2135 (Meadowbank and Lots Daughter, respectively) (Bleakley, 1996; Bleakley and Yeo, 1997). GDR Macraes held the area in the late 1990s. OceanaGold Ltd. was granted the original Stoneburn Permit in 2001 (Aldrich, 2006; Grant, 2009; Jones et al., 2011). OceanaGold progressively relinquished areas of the permit in 2006 and 2010. The rest of the permit expired in December 2011.

Parts of the Glenpark permit were previously held by Prophecy Mining from 2003–2006, although only limited work was undertaken (Prophecy Mining Ltd, 2006).

#### 6.2.1.1 Homestake NZ Ltd

The first modern exploration in the Stoneburn-Taieri Peak area was conducted by Homestake NZ Ltd between 1984 and 1986 (Bleakley, 1995, 1996).

#### 6.2.1.2 BHP Gold Mines

BHP Gold Mines undertook more detailed work from 1988–1989, including geological mapping undertaken by Grieve (1989).

#### 6.2.1.3 Prophecy Mining Ltd

Parts of the Glenpark permit were previously held by Prophecy Mining from 2003–2006, although only limited work was undertaken, but included collecting 105 soil samples (Table 6-1; Prophecy Mining Ltd, 2006).

Prophecy Mining drilled five RC holes within EP60129 (Glenpark). A total of 220 m was drilled, and two-metre composite samples were collected. Samples were analysed for Au by fire assay and for As by aqua regia acid digest. No significant intercepts were encountered; the best intercept being 2 m at 0.12 g/t Au from 88 m (MNRC1) (Prophecy Mining, 2006).

#### 6.2.1.4 OceanaGold Ltd

From the late 1980s to mid-1990s, Macraes Mining Company Ltd held the northwest part of the permit area under their prospecting licences 31-2322 and 31-2135 (Meadowbank and Lots Daughter, respectively) (Bleakley, 1996; Bleakley and Yeo, 1997). GDR Macraes held the area in the late 1990s. OceanaGold Ltd. was granted the original Stoneburn Permit in 2001 (Aldrich, 2006; Grant, 2009; Jones et al., 2011). OceanaGold progressively relinquished areas of the permit in 2006 and 2010. The rest of the permit expired in December 2011.

Hardie Pacific compiled the historical structural data and the data are summarised below.

- EP60389 (Smylers Gold): a total of 548 structural measurements (341 from Bleakley (1997), 126 from Aldrich (2006) and 61 from Jones et al. (2011)). The data includes 474 foliation, 36 lineation and 13 joint measurements.
- EP60129 (Glenpark): a total of 413 measurements (409 from Cox (1999), and four from Jones (2011)) The data includes 363 foliation, 41 lineation and eight joint measurements.

Mapped locations of quartz outcrops and outcropping schist are also included in the database.

Soil geochemistry was applied widely in the Smylers Gold Project for delineating the trace of the HMSZ and related eastern lode mineralisation. Arsenic is recognised as the most reliable pathfinder element for Au and tungsten mineralisation in the Macraes area (Allibone et al., 2018). Between 1994 and 2011, a total of 1,227 soil samples (617 in EP60389 **(**Table 6-2**,** Figure 6-3)) and 610 in EP60129 (Table 6-1**,** Figure 6-4) were collected by Macraes Mining Company, GDR Macraes, and OceanaGold Ltd. Samples were collected using a 50 mm hand or motorised auger and targeted the B and C soil horizons (soil depth of 0.2–1 m). Samples collected before 2007 were analysed at Greyson Laboratories for Arsenic (As) (acid digest with atomic absorption spectrometry (AAS) finish) and Au (fire assay). From 2007 onwards, soil samples were analysed by inductively coupled plasma mass spectrometry (ICP-MS) at SGS Waihi for Au, As, Sb and W. Soil geochemistry was used successfully to determine the position of the HMSZ and associated shear strands across the Smylers Gold Project, where As values greater than 40 ppm are considered anomalous.

Table 6-1: Historical soil sampling summary at Glenpark (EP60129).

| Year | Company | Report No | No Samples | Elements |
|---|---|---|---|---|
| **1994–1996** | Macraes Mining Company | MR3464 | 266 | As, Au |
| **2006** | Prophecy Mining Ltd | MR4172 | 105 | As, Au |
| **2007** | OceanaGold Ltd | MR4444 | 58 | As, Au Sb, W |
| **2011** | OceanaGold Ltd | MR4768 | 181 | As, Au Sb, W |
| | | Total Glenpark EP: | 610 | |

Table 6-2: Historical soil sampling summary at Smylers Gold (EP60389).

| Year | Company | Report No | No Samples | Elements |
|---|---|---|---|---|
| **1994–1995** | Macraes Mining Company | MR3422 | 569 | As |
| **1996–1997** | Macraes Mining Company | MR3525 | 55 | As, Au |
| **1996** | Macraes Mining Company | MR3453 | 239 | As, Au |
| **2001** | GDR Macraes | MR4179 | 79 | As, Au |
| **2006** | OceanaGold Ltd | MR4355 | 95 | As, Au |
| **2007** | OceanaGold Ltd | MR4444 | 169 | As, Au Sb, W |
| **2008** | OceanaGold Ltd | MR4443 | 4 | As, Au Sb, W |
| **2010** | OceanaGold Ltd | MR4792 | 366 | As, Au Sb, W |
| **2011** | OceanaGold Ltd | MR4768 | 78 | As, Au Sb, W |
| | | Smylers EP Total: | 617 | |

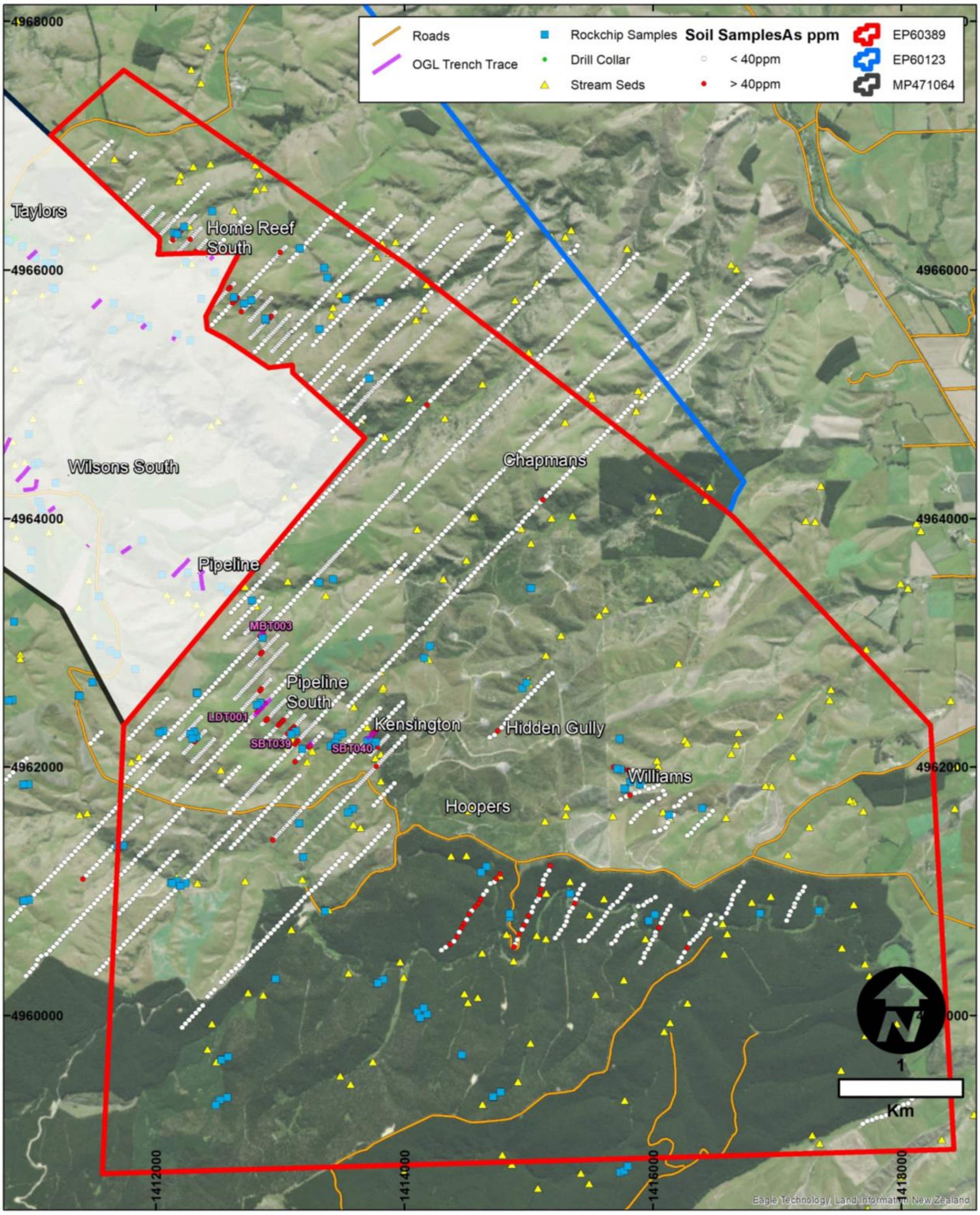



Figure 6-3: Location of the historical soil, stream-sediment and rock-chip samples, and trenches at EP60389 (Smylers Gold).

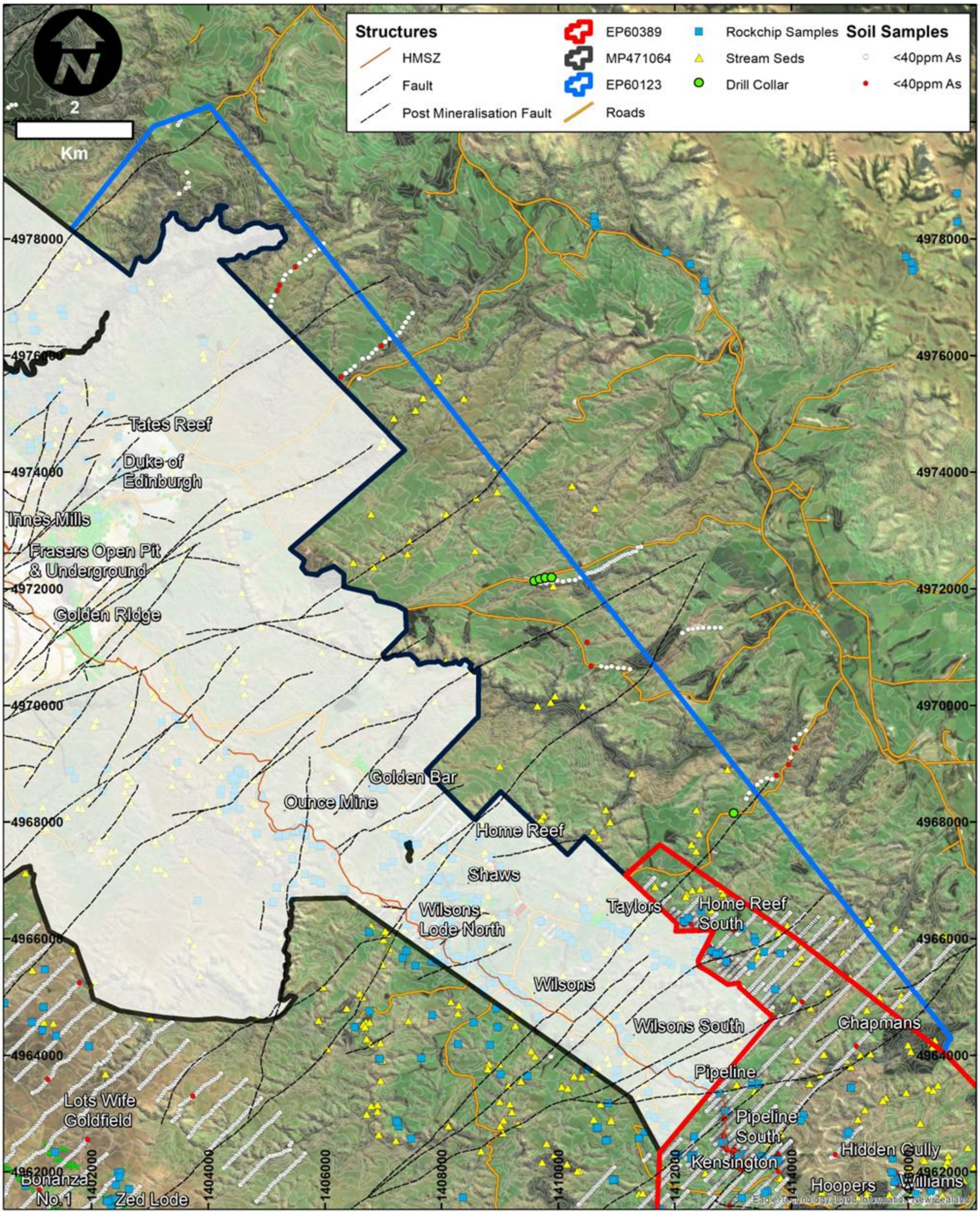



Figure 6-4: Location of the historical soil, stream-sediment and rock-chip samples, and trenches at EP60129 (Glenpark).

A total of four trenches were excavated by Macraes Mining Co Ltd within EP60389 totalling 399.5 m (Table 6-3). Trenches were excavated across soil anomalies to expose weathered schist transects. Joyces Contracting was used to dig and rehabilitate trenches using a 20-tonne excavator. Trenches were mapped at a 1:100 scale with horizontal channel samples collected over 1–5 m intervals. All samples were submitted for Au (fire assay) and As (acid digest/AAS).

No historical trenches were excavated within EP60129 (Glenpark).

Table 6-3: Historical trenches Smylers Gold EP. CRS = NZTM.

| Year | Trench ID | Report No | Start X | Start Y | Azi | Length (m) | Samples | Sig Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **1995** | MBT003 | MR3418 | 1,412,832 | 4,963,066 | 045 | 67.5 | 26 | 2 m @ 0.90 g/t |
| **1995** | LDT001 | MR4321 | 1,412,789 | 4,962,406 | 045 | 200 | 48 | 2 m @ 2.01 g/t<br>3 m @ 2.58 g/t<br>3 m @ 1.57 g/t |
| **1996** | SBT039 | MR3525 | 1,413,253 | 4,962,161 | 350 | 17 | 11 | 2 m @ 0.88 g/t |
| **1996** | SBT040 | MR3525 | 1,413,700 | 4,962,221 | 050 | 115 | 48 | 1 m @ 0.90 g/t<br>1 m @ 0.73 g/t<br>1 m @ 1.12 g/t |
| | | | | | Total: | 399.5 | 133 | |

A total of 97 rock-chip samples were collected within EP60389 (Smylers Gold) by BP Oil NZ Ltd, Macraes Mining Company, GDR Macraes, and OceanaGold (Table 6-4). Rock-chip sampling targeted quartz veins and altered and/or sheared schist (Bleakey and Yeo, 1997). Samples collected before 1997 were submitted to Grayson Laboratory for Au by fire assay, As by acid digest with AAS finish, and W by ICP-MS analysis. Samples collected between 1997 and 2001 were submitted to Grayson Laboratory for Au (fire assay) and As (acid digest/AAS). Samples collected post-2006 were sent to SGS Mineral Services Laboratory for sample preparation and analysed for Au (fire assay), and As, Sb, and W (aqua regia ICP-MS) at the SGS Waihi Laboratory.

Fourteen samples returned Au values above 1 g/t, with the highest returning 34.6 g/t Au.

Table 6-4: Summary of rock-chip samples collected at Smylers Gold.

| Year | Report No | Company | No Rock Chips |
|---|---|---|---|
| **1987** | MR1983 | BP Oil NZ Ltd | 1 |
| **1995** | MR3327 | Macraes Mining Company | 11 |
| **1996–1997** | MR3525 | Macraes Mining | 53 |
| **2001** | MR4179 | GDR Macraes | 11 |
| **2006** | MR4178 | OceanaGold | 2 |
| **2007** | MR4444 | OceanaGold | 14 |
| **2011** | MR4792 | OceanaGold | 5 |
| | | Total: | 97 |

Macraes Mining Company collected a total of 349 stream-sediment samples (63 within EP60129 and 286 within EP60389) across the Smylers Gold Project area as part of a larger regional sampling programme. Approximately 2–5 kg (dry weight) of <2-mm sediment was collected from multiple locations, ranging from trap sites in active creek channels to over bank fines (Bleakley and Yeo, 1997). Samples were analysed for Au by bulk leach extractable gold (BLEG) and As by acid digest with

AAS finish analysis. Duplicate samples were collected in 1997 and sent to Amdel laboratory in Adelaide for analysis of As, Sb, W, Mo, Cr, Ni, Bi by aqua regia digest ICP-OSE/MS.

No drilling was conducted by the previous permit holders within EP60389. Although, hundreds of drillholes were drilled in the adjacent OceanaGold mining permit across known shear strand prospects between 1994–2011.

### 6.2.2 PP60674 Tokomairiro

Modern exploration has been relatively limited, with only five permits/licences that partially overlap with PP60674. These include EL33305, PL311900/EL400151, PP39128, EP40367, and PP39322 (Figure 6-5).

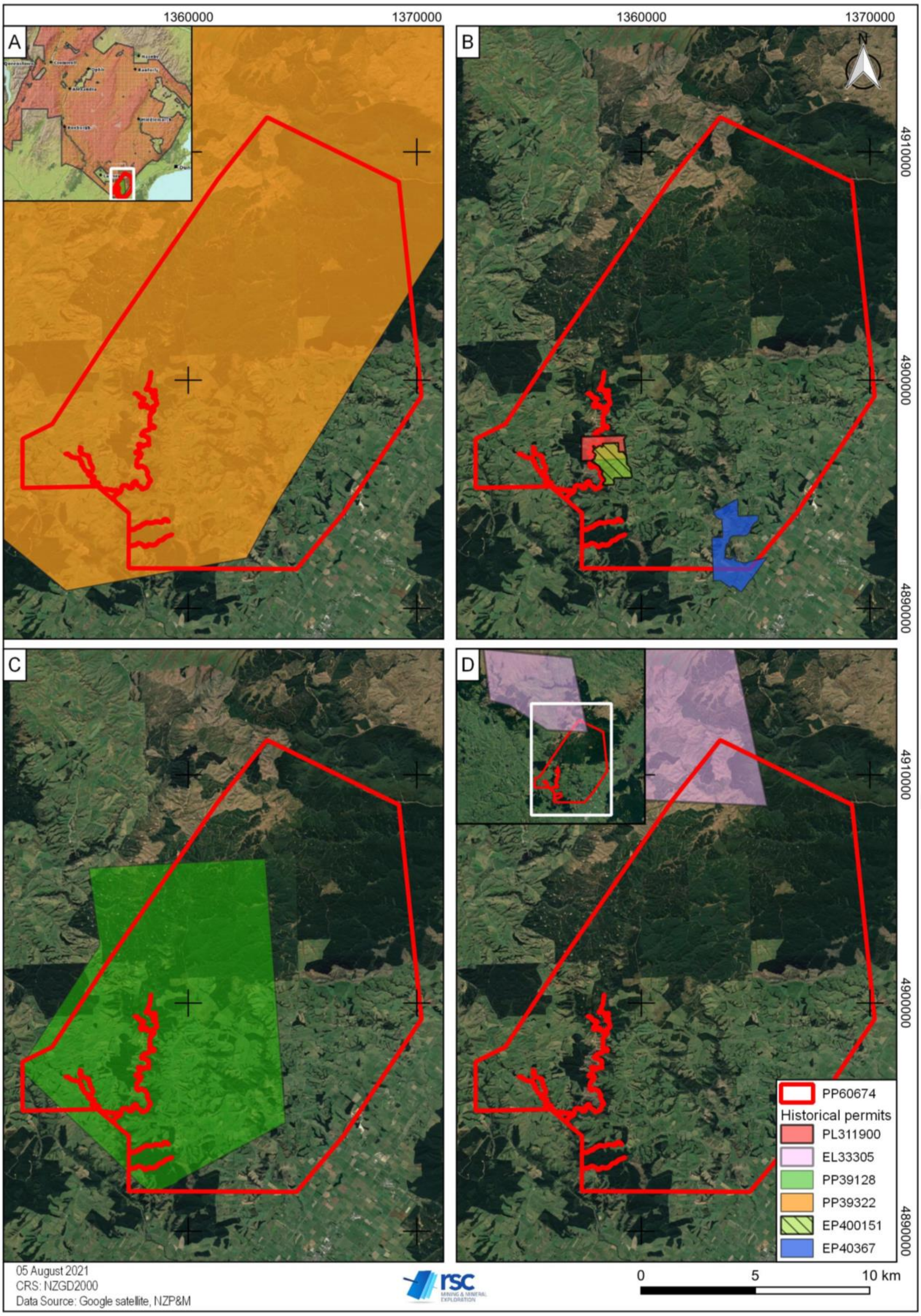



Figure 6-5: Historical permits and licenses that coincide with PP60674. A) PP39322 (inset image modified from Glass Earth (2008)); B) PL311900, EL400151 and EP40367; C) PP39128; D) EL33305.

### 6.2.2.1 Homestake NZ Exploration Ltd.

EL33305 covered only the northwest corner of PP60674 (Figure 6-5D). This licence was operated from 1986–1987 by Homestake NZ Exploration Ltd and by BHP Gold Mines NZ Ltd from 1987–1988. EL33305 was primarily looking for hard-rock Au mineralisation in the Waipori area, immediately to the northwest of the PP60674. Most of the exploration was conducted outside of PP60674, with only two stream-sediment samples taken within PP60674 on the Meggat Burn. Two more samples were taken on branches flowing into the Meggat Burn, <50 m outside of PP60674 (Figure 6-6). Two further stream-sediment samples were collected from stream catchments that are predominantly located inside of PP60674; however, the samples were collected outside of PP60674 on streams draining into the Waipori River (Figure 6-6).

The two samples on the Meggat Burn, collected within PP60674, returned assays of 0.82 ppb Au and 2.23 ppb Au, and the two samples on the Meggat Burn, immediately outside of PP60674, returned assays of 1.18 ppb Au and 1.45 ppb Au (Kerber, 1988). The two samples on branches flowing into the Waipori River returned assays of 1.11 ppb Au and 0.95 ppb Au.

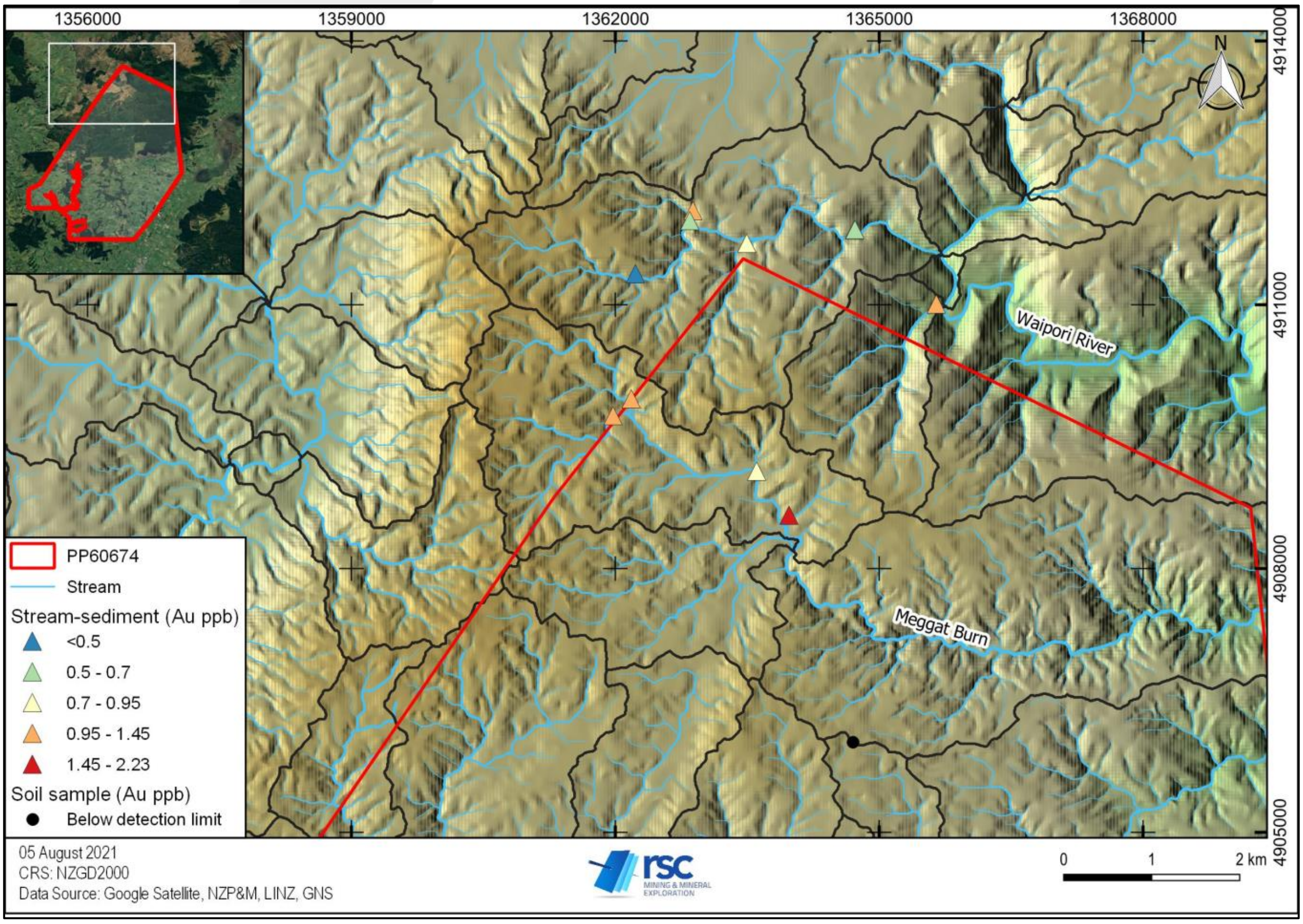



Figure 6-6: Historical stream-sediment samples in the vicinity of PP60674.

#### 6.2.2.2 Aurum Reef Resources NZ Ltd

PL311900 and EP400151 were operated by Aurum Reef Resources NZ Ltd (Aurum) from 1989–1995, covering the Canada/Ocean View Reef and Lawsons Reef area. PL311900 was ~2.0 km$^2$ in size and covered only the Canada/Ocean View Reef area. In 1992, PL311900 was converted to an exploration licence (EL400151), and the size of the licence increased to 2.14 km$^2$ to include a shaft ~750 m south of Ocean View Reef (Figure 6-5; Davies & Baker, 1992; Aurum, 1995).

Work conducted consisted of fieldwork (sampling, geophysics, geological mapping) on the Canada/Ocean View Reef area and a literature review. Aurum opened historically-mined tunnels and collected several grab and channel samples on reef outcrops as well as float samples, and later conducted a magnetic anomaly survey in three small locations (1,400–22,000 m$^2$) over the vicinity of the reefs.

Three rock-chip samples collected from outcrops at Canada Reef returned values of 0.82 ppm Au, 0.14 ppm Au, and 0.29 ppm Au. A further two rock-chip samples collected from surface float in the immediate vicinity of Canada Reef returned assays of 1.3 ppm Au and 6.4 ppm Au (Figure 6-7; Aurum, 1995). The magnetic surveys identified several small anomalies, including notable east–west anomalies. Aurum (1995) notes that this may be due to steel left underground in abandoned mine workings (Davies & Baker, 1992). Mapping of the reef revealed an approximate east-trending orientation (Figure 6-7).

#### 6.2.2.3 Commonwealth Resources NZ Ltd

PP39128 was operated by Commonwealth Resources NZ Ltd (Commonwealth) until the late 1990s. This is the only permit that covers a large portion of PP60674, but sampling was mostly restricted to the Canada/Ocean View Reef area (MacDonell, 1998).

Mapping of the reefs confirmed an east-trending orientation, and Commonwealth hypothesised the reef extends across the Tokomairiro Gorge and into the Nuggety Gully area, although this has not been observed (MacDonell, 1998). Rock-chip samples returned values of <0.01–1.16 ppm Au (Figure 6-7).

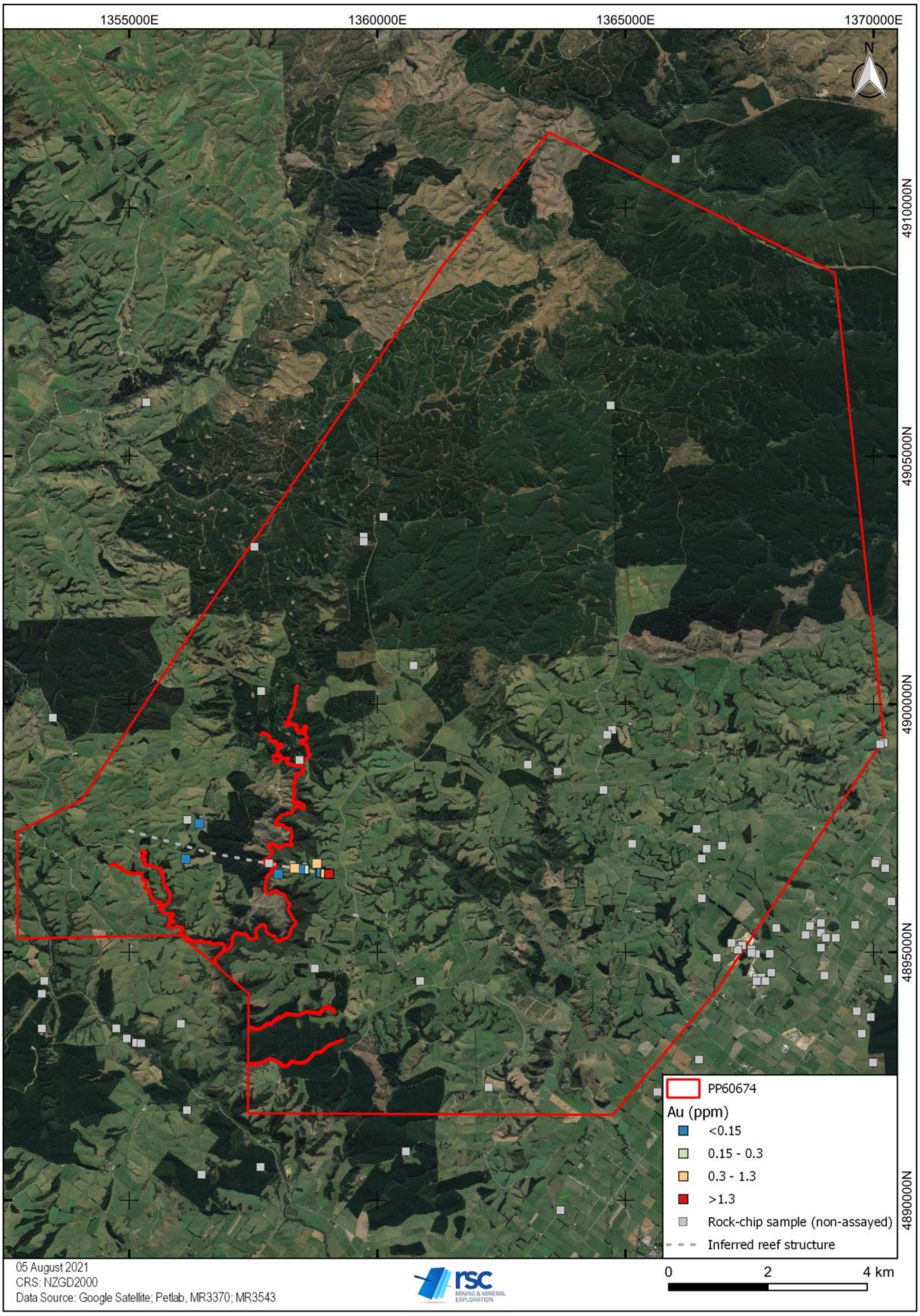



Figure 6-7: Historical rock-chip samples collected by Aurum Reef Resources and Commonwealth Resources.

#### 6.2.2.4 L&M Mining Ltd

EP40367 was a relatively small permit (4.48 km$^2$) covering the very southeastern corner of PP60674. This permit was operated by L&M Mining Ltd. (L&M) from the late 1990s to early 2000s (Wopereis & Cotton, 1998). EP40367 focussed on a thick sequence of alluvial gravels built up where the Tokomairiro River east branch meets the near-sea-level Taieri Plains. The main economic target was alluvial Au in Recent-to-Pleistocene river gravels (Wopereis & Cotton, 1998).

Exploration conducted involved 18 scout RC drillholes and four lines of ground radar surveys. The precise location of the drillholes and radar lines were not reported, and maps obtained are hand-drawn with no coordinates; therefore, the location of these holes could not be identified (Wopereis & Cotton, 1998). Gold grades for both recent and Pleistocene gravels were low and averaged 71 mg/m$^3$, with the best results (1,134 mg/m$^3$ and 1,214 mg/m$^3$) from holes NT5 and NT7 targeting the base of the recent gravels (Table 6-5). L&M notes there is no association between Au and quartz-rich gravels. Ground radar indicates that rock bottom is relatively level with some incised channels present. L&M notes that the incised channels may hold higher Au grades that its drilling did not detect.

Table 6-5: Results from the EP40367 drillholes (Wopereis & Cotton, 1998).

| Drillhole Number | Drilled | Overburden Thickness (m) | Wash Thickness (m) | Basement Depth (m) | Total Depth (m) | Wash Grade (mg/m$^3$) |
|---|---|---|---|---|---|---|
| **1** | 1997 | 4.0 | 26.0 | 30.0 | 31.7 | 49 |
| **2** | 1997 | 4.0 | 21.7 | 25.7 | 27.8 | 99 |
| **3** | 1997 | 20. | 33.1 | 35.1 | 35.3 | 13 |
| **4** | 1998 | 1.1 | 5.0 | 6.1 | 7.0 | 60 |
| **5** | 1998 | 1.6 | 5.3 | 6.9 | 7.5 | 184 |
| **6** | 1998 | 3.0 | 5.5 | 8.5 | 9.0 | 253 |
| **7** | 1998 | 1.0 | 10.6 | 11.6 | 12.0 | 83 |
| **8** | 1998 | 4.1 | 1.4 | 5.5 | 6.0 | 57 |
| **9** | 1998 | 1.8 | 5.2 | 7.0 | 7.2 | 287 |
| **10** | 1998 | 3.1 | 5.2 | 8.3 | 9.0 | 80 |
| **11** | 1998 | 1.5 | 3.4 | 4.9 | 6.0 | 53 |
| **12** | 1998 | 2.4 | 1.5 | 3.9 | 4.2 | 13 |
| **13** | 1998 | 2.0 | 9.1 | 11.1 | 12.0 | 52 |
| **14** | 1998 | 1.5 | 9.8 | 11.3 | 11.5 | 55 |
| **15** | 1998 | 1.5 | 4.2 | 5.7 | 6.5 | 52 |
| **16** | 1998 | 3.0 | 14.4 | 17.4 | 17.6 | 22 |
| **17** | 1998 | 2.3 | 17.2 | 19.5 | 19.9 | 84 |
| **18** | 1998 | 3.7 | 12.8 | 16.5 | 18.0 | 72 |
| **Total/Average** | | 2.4 | 10.6 | 13.1 | 248.2 | 71 |

#### 6.2.2.5 *Glass Earth (New Zealand) Ltd*

PP39322 was a very large permit (12,790 km$^2$) covering a large portion of Otago. This permit was held by Glass Earth (New Zealand) Ltd in the mid-2000s. Only a small part of PP39322 lies within PP60674 (Figure 6-5), and no sampling or exploration was undertaken inside the boundaries of PP60674 (Glass Earth, 2008).

#### 6.2.2.6 *GNS Science New Zealand*

A geochemical atlas of the lower South Island of New Zealand was published in 2016 (GNS, 2016). The aim of the survey was to map soil geochemistry across Southland and southern Otago. The survey was conducted on an 8 km x 8 km soil-sampling grid. Two samples from this programme were collected within PP60674: one close to Nuggety Gully, and one close to the Meggat Burn (Figure 6-6, Figure 6-7). Assays of the Nuggety Gully sample returned values of 1.9 ppb Au and 3.9 ppm As, and the Meggat Burn sample returned below-detection-limit Au values and 7.7 ppm As.

### 6.2.3 EP60702 Hyde

The area covered by EP60702 has been previously explored by five companies, who collectively collected a total of 367 soil samples, 14 rock-chip samples, 32 stream-sediment samples and drilled 10 drillholes (Table 6-6; Figure 6-8). Nine rock-chip samples have also been collected as part of various academic studies by the University of Otago (https://pet.gns.cri.nz).

Table 6-6: Summary of the historical soil, rock-chip, stream-sediment samples, and drillholes collected within EP60702.

| Company | Soil Samples | Stream-Sediment Samples | Rock-Chip Samples | Drillholes |
|---|---|---|---|---|
| **Aurora Minerals** | 83 | 9 | 5 | |
| **Kiwi International** | 13 | | 3 | |
| **Macraes Mining** | | 11 | | |
| **Hyde Resources** | 222 | | | 5 |
| **Mineral Rangahau** | 49 | 12 | 6 | 5 |
| **Total** | 367 | 32 | 14 | 10 |

#### 6.2.3.1 *Kiwi International Exploration Company Ltd*

Kiwi International Exploration Company Ltd (Kiwi International) conducted exploration during the early 1990s on prospecting licence (PL) 311758. Kiwi International completed reconnaissance and detailed geological mapping, and collected soil and rock-chip samples. A programme of scout drilling was also completed, but no holes lie within EP60702. None of the rock-chip or soil samples returned detectable Au or As, and the prospecting licence was left to expire in 1992 (Murfitt, 1992).

#### 6.2.3.2 *Macraes Mining Company Ltd*

Macraes Mining explored the Hyde area for Au mineralisation during the mid-1990s. Exploration permit 40217 was granted to Macraes in January 1995, and exploration started soon after with the collection of stream-sediment and rock-chip samples (Bleakley, 1996). None of the rock-chip samples collected lie within the permit boundaries of EP60702.

#### *6.2.3.3 Aurora Minerals Ltd*

Aurora Minerals Ltd (Aurora) held the PP39267, which stretched from just to the north of Macraes Mine up to Rough Ridge and overlapped with EP60702. Aurora undertook a soil sampling programme across their permit, with lines oriented to the north and spaced 600 m apart. Samples were collected on 50-m spacings. The top 10 cm of soil was collected for analysis. Aurora collected 83 soil samples from within EP60702. A further 32 samples were collected ~50 m west of EP60702's western boundary (Taylor, 2005).

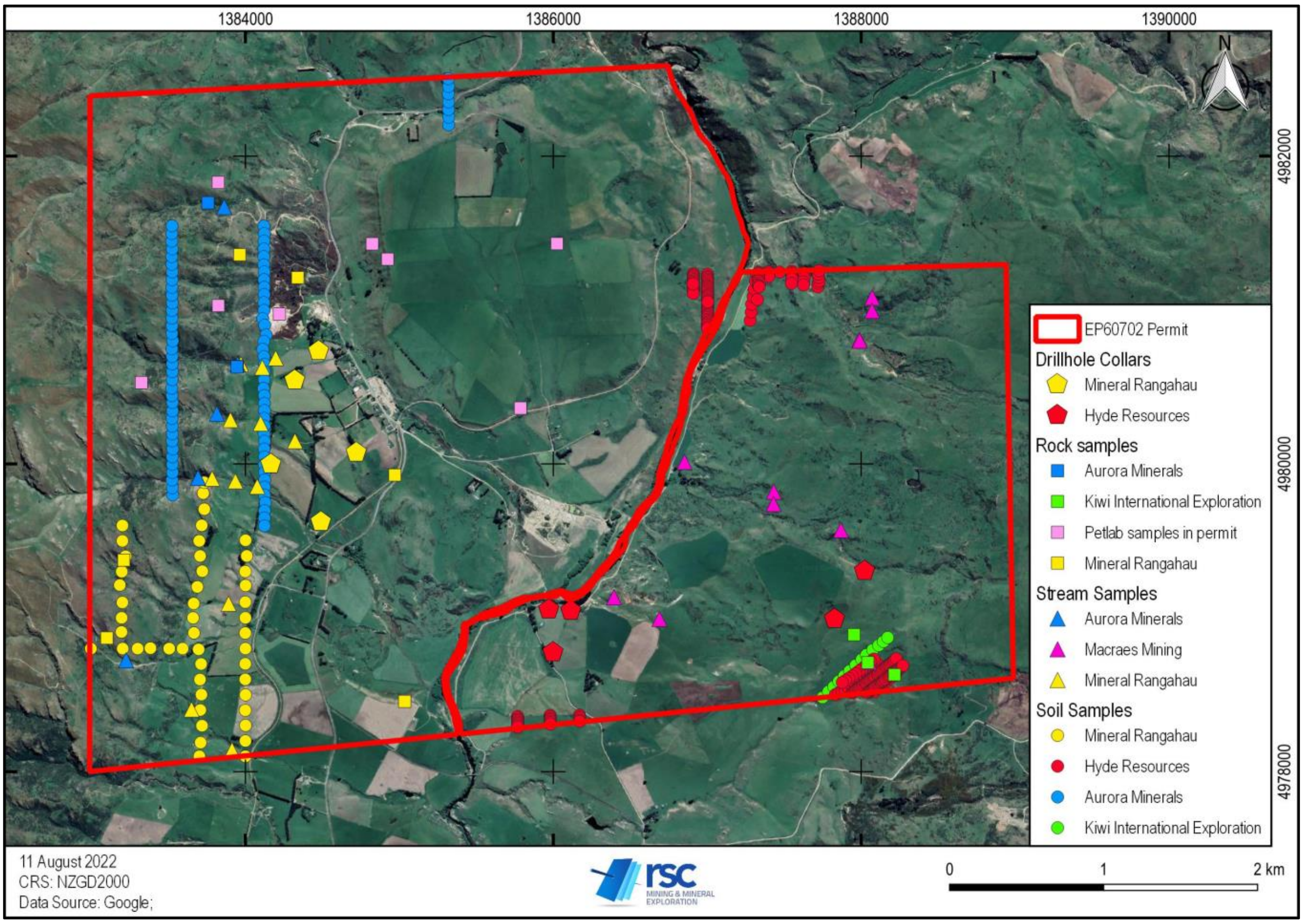



Figure 6-8: Historical exploration undertaken within EP60702.

Results of the soil sample assays from within EP60702 were typically <10 ppb Au; however, four samples returned values up to 65 ppb Au. Analysis for As returned less than 16 ppm. The area that returned 65 ppb Au was termed a low amplitude anomaly by Aurora.

Aurora concluded that despite the probable westward continuation of the Hyde-Macraes shear zone into its permit (PP39267), soil sample results for Au and As do not suggest the presence of widespread bedrock Au mineralisation. However, the low amplitude anomaly in the south of the grid remains unexplained.

#### 6.2.3.4 Mineral Rangahau Ltd

Mineral Rangahau Ltd (Mineral Rangahau) and director Mr K. Stanaway held two permits in the area of EP60702 exploring for alluvial and hard-rock Au. Their early exploration focussed on Au in shear zones related to the Cap Burn Fault. Mineral Rangahau collected a total of 49 soil samples, 12 stream-sediment samples and four rock samples in the west of EP60702. In 2017, Mineral Rangahau drilled five RC holes within EP60702 targeting the Hogburn Formation.

From the soil and rock-chip samples, no indications of anomalous As or Au were found.

All five RC holes failed to intersect the targeted Hogburn Formation Eocene quartz gravel river channel facies, and subsequently, the project was abandoned. The drillholes penetrated Eocene overbank floodplain alluvial facies consisting of mostly silts, clays, and lignite. Fine sands were a minor proportion of the sediment, medium, coarse and granule sands a tiny portion, with gravels absent. Gravels appeared only in the overlying Quaternary cover. The drilled holes did not go deep enough to determine if the quartz gravels were present on the old schist surface. Five samples were collected and panned for Au. None of which contained visible Au.

#### 6.2.3.5 Hyde Resources Limited

Hyde Resources held a large exploration permit, which included the area of EP60702, before the current option agreement between KO Gold and Hyde Resource was in place. Hyde Resources undertook a relatively in-depth programme, it included 222 soil samples and five drillholes within EP60702. Hyde Resources also conducted a ground-based magnetic survey.

The soil samples were collected using a 50-mm hand auger and assayed using portable x-ray fluorescence (pXRF). From the soil sample survey, Hyde Resources identified mineralised lodes, mostly in the very southeast of EP60702. Arsenic was the main pathfinder element monitored, with some attention paid to W and Sb. The W values, however, proved to be erratic. Background As concentrations are typically ~5-10 ppm; this is consistent with GNS's regional geochemical soil survey. Six samples returned anomalous As values over 20 ppm.

Five aircore drillholes were drilled for a total of 280 m. Seventeen two-metre composite samples were analysed at SGS Westport, but did report any anomalous Au, W or As (Pye, 2017).

### 6.2.4 PP60705 Rough Ridge South

The land covered by PP60705 was previously held under a number of previous permits, which are detailed below. Exploration was conducted by these permit holders which is summarised in Figure 6-9 and Table 6-7.

#### 6.2.4.1 Tasman Gold Development Ltd

Quartz schist lodes were worked at two localities (Serpentine and Long Valley). They recorded east-trending veins ~0.5 m thick at Serpentine and four thin, northwest-trending veins extending up to 4 km and mined to ~24 m wide. Bulk leach extractable gold (BLEG) stream-sediment sample programmes were undertaken, followed by a rock-chip and soil sampling programme in 1995 (Dacey, 1995b). Soil samples were collected outside PP60705 and are therefore not reported here. Five rock-chip samples were collected from within PP60705; however, none returned detectable Au results.

Table 6-7: Summary of the historical soil, rock-chip, and stream-sediment samples collected within PP60705.

| Company | Soil Samples | Stream-Sediment Samples | Rock-Chip Samples |
|---|---|---|---|
| Glass Earth | 493 | | 3 |
| Tasman Gold | | 5 | |
| Welcome Gold | | 74 | |
| J.H. Williamson | | | 1 |
| Mineral Rangahau | 75 | | |
| Total | 568 | 79 | 4 |

#### 6.2.4.2 Welcome Gold Mines Ltd

Welcome Gold Mines Ltd (Welcome Gold) held PP39039 for a two-year term from February 1994. Welcome Gold collected one stream-sediment sample per five square kilometres, including 74 samples within PP60705. Samples were analysed for Au and Ag by BLEG at Multilabs, Perth and Cu, Pb, Zn, Bi, Sb, As, Fe, W, and Mn by ICP-MS at ALS Brisbane. Samples returned up to 24 ppb Au and 132 ppm As (Torckler, 1995).

#### 6.2.4.3 Broken River Company Ltd

Broken River Company Ltd (Broken River) held PP39186 which overlaps with the southern extent of PP60705. Broken River was targeting alluvial-eluvial-colluvial Au deposits in the upper Deep Creek area and the lode or fissure-controlled schist hosted Au mineralisation, in the Long Valley-Serpentine area. Six rock-chip/channel samples of argillised schist were collected to the south of PP60705 over widths from 0.7–1.8 m, returning 1.3–15.1 g/t Au (Broken River Co Ltd, 2003).

#### 6.2.4.4 Glass Earth Limited

Glass Earth airborne undertook a magnetic and EM survey flown in 2007 at 300-m line spacing and with a detector elevation of 30 m (Glass Earth, 2008).

Glass Earth also collected three rock-chip samples and 493 soil samples from within PP60705. The soil samples were collected on northeast-trending grid lines. Lines were spaced 500 m apart, and samples collected typically every 50 m. Rock-chip samples were analysed by fire assay for Au and soil samples analysed for Au by aqua regia digest by AA (detection limit of 1 ppb). The depth of soil and horizon sampled were not recorded.

Youngson et al. (2008), working for Glass Earth in the Serpentine area, noticed a coincidence between linear magnetic highs and the centre or edge of EM lows correlating well with mineralised structures, when comparing airborne EM and magnetic maps. New mineral shear zones were discovered by a study of the shape of panned placer Au, which revealed whether Au came from nearby sources or had travelled long distances. No details locating such Au-source discoveries have been reported in the public domain.

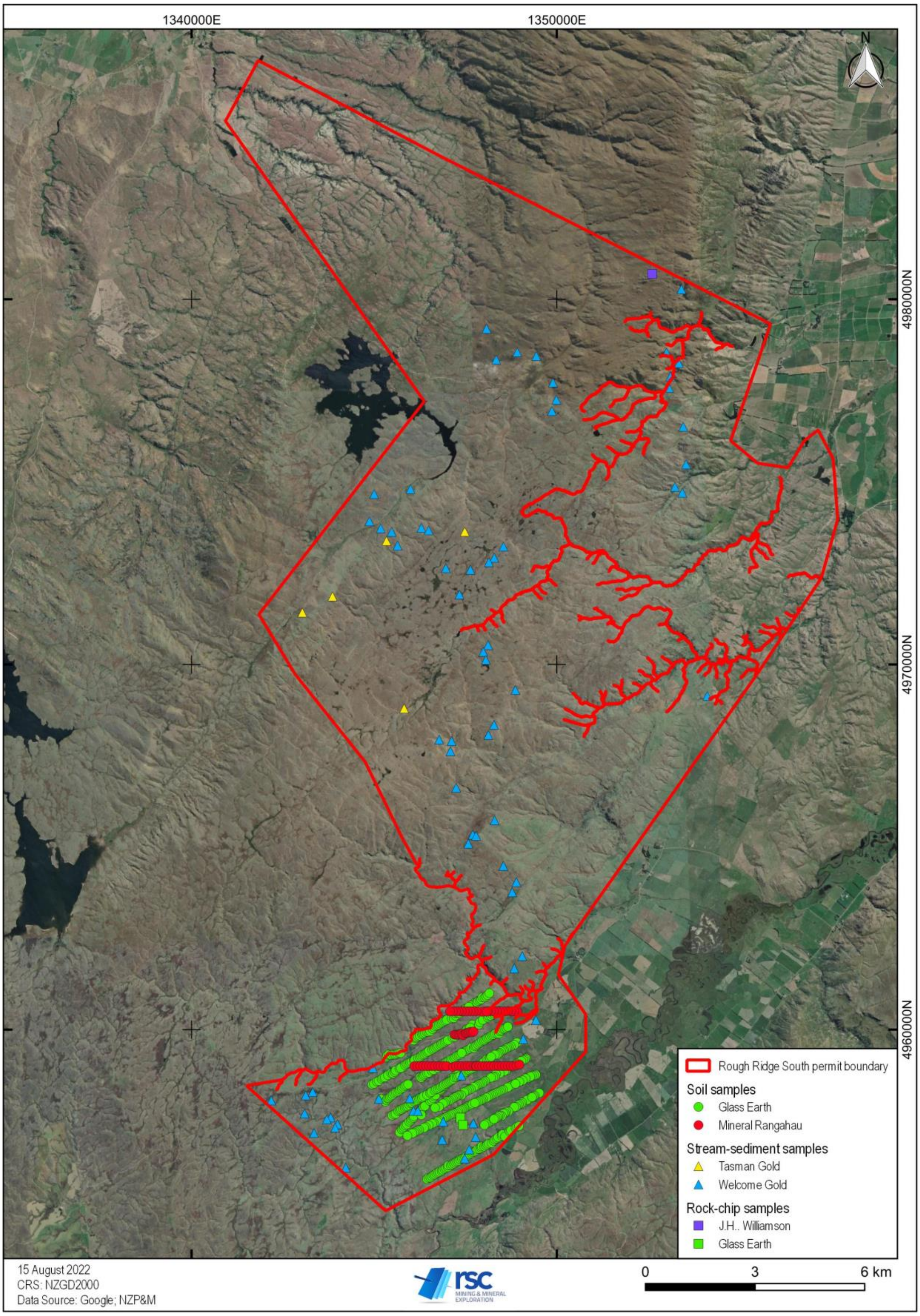



Figure 6-9: Historical exploration undertaken within PP60705.

#### *6.2.4.5 Minerals Rangahau Ltd*

PP60210 was held by Minerals Rangahau from 19 October 2016 to its surrender on 14 February 2018 and overlapped with PP60705 to the south and southwest. Minerals Rangahau conducted a programme of soil sampling, collecting 231 samples, including 75 samples within PP60705 (Stanaway, 2018). The soil samples were collected from the C-horizon at depths of 10–200 cm and were analysed by pXRF. One sample from within PP60705 returned an As grade >20 ppm. No check analyses were completed by a laboratory. Geological mapping was also conducted with structural and lithologic data collected from 17 outcrops in PP60705. Four chert or quartz vein samples were collected but were lost in the post and never analysed by the laboratory.

There is no correlation between the soil samples and a northwest-trending high conductivity feature mapped from an airborne EM survey by Glass Earth. No correlation was found with previous Glass Earth soil sampling for Au.

Portable XRF analyses of Zr, Ti, Y, Th, Rb, Fe, Mn, Cu, and Ni yielded more interesting results. Maps of soil elemental distribution for Ti, Th, Rb, Fe, Mn, Cu, and Ni (but not Zr or Y) indicated modest correspondence with underlying lithology for their higher value sites. The observation that higher-grade concentrations of hydrolysate elements such as Rb, Fe, Mn, Cu, and Ni are not yet strongly correlated to underlying lithology, together with the lack of visible B horizon in the soils, suggests that the Serpentine area soils are not only transported loess, but also have not reached chemical maturity. This may explain the low As values near known Au placers. The modest correspondence with underlying lithology confirms that the soils are transported but does not indicate how far. Analysis of soil W indicated that scheelite, a high specific gravity mineral subject to lag sorting (i.e., that should not travel as far as most other mineral particles such as quartz, feldspar mica or clay), is spread over a 12 $km^2$ area with the limits not yet defined.

### 6.2.5 PP60727 Carrick Range

Exploration to date has predominantly been focussed around the Carricktown goldfield. Carricktown is excluded from PP60727 as it is currently held by another operator; however, some exploration sampling that has occurred on the periphery of the goldfield is within PP60727 and is described below. Sampling at Nicholson's Reef and Obelisk Prospect was also conducted within the boundary of the Carrick Range project. A summary of the sampling conductor prior to KO Gold's acquisition of PP60727 is described in Figure 6-10 and Table 6-8. In addition to sampling conducted by exploration companies, 140 rock-chip samples were collected by primarily the University of Otago and GNS for academic research.

#### *6.2.5.1 Amoco Minerals NZ Ltd*

Amoco Minerals NZ Ltd (Amoco) held prospecting licence (PL) 31570 over Nicholson's Reef, which overlaps with the south of PP60727. Amoco conducted geological mapping, sampling (panned concentrates, soil samples, trench samples), and drilling (Clarke, 1980). Seven stream-sediment samples were collected, 50 m apart, downstream of Nicholson's Reef and were panned and analysed for Au, As, Cu, Pb, Zn and Ag. No unit is reported, but the QP assumes grades are reported in ppm.

Amoco collected 36 soil samples following six northwest-trending lines. Additionally, Amoco excavated and sampled four trenches. The quartz reef was exposed, and the best grab sample returned 0.57 ppm Au from Trench 1 (Clarke, 1980).

Four Winkie drillholes failed to intersect mineralisation, and the option agreement between Amoco and the permit holders was terminated.

Amoco also held PL31586 over the Carrick goldfield. No map for this permit was published in the Mineral Report submitted to Crown Minerals (now NZP&M), and therefore, theQP is unsure of its exact location. However, based on a description of the project by Barnes (1981), the QP believes the permit did not significantly overlap with PP60727 as the exploration work conducted was concentrated on Au lodes known to be outside PP60727. Therefore, this exploration work is not reported in this Report.

Table 6-8: Summary of the historical samples collected within PP60727.

| | Soil | Stream-Sediment | Pan Concentrate | Rock-Chip | Drillholes |
|---|---|---|---|---|---|
| **Amax Gold** | | 23 | | | |
| **Amoco Minerals** | 36 | 7 | | 40 | 4 |
| **Central Otago Mining** | 12 | 30 | | 33 | |
| **CRA Exploration** | 72 | 24 | 21 | 35 | |
| **Prophecy Mining** | | 20 | | 9 | |
| **Sigma Resources** | | | | 26 | 8 |
| **Tasman Gold Development** | | 53 | | 34 | |
| **Waihi Mines** | 68 | | | 2 | |
| **Total** | 188 | 157 | 21 | 179 | 12 |

#### *6.2.5.2 Sigma Resources NL*

During the late 1980s, Sigma Resources NL (Sigma Resources) held PL 311337 over the Obelisk Prospect. Initial sampling conducted included rock-chip sampling from 10 trenches. The aim of the trenches was to investigate Au mineralisation at Bud's Reef. Samples were analysed by Analabs, Auckland and W. Grayson & Associates Ltd, Palmerston for Au, Ag, As, Sb, and W. The best sample returned 2.7 m at 3.68 ppm Au including 0.9 m at 6.36 ppm Au (start of mineralisation is not recorded).

In 1989, an RC drill programme was conducted to test the near-surface grade, thickness, and continuity of the Au mineralisation in crush zones, in the vicinity of the main Whites-Exhibition workings and Bud's Reef. Five-metre composites were assayed, with one-metre samples from within the five-metre composite analysed subsequently. Analysis was conducted at W. Grayson & Associates and Analabs (Nicholson, 1989). The best sample was returned from OBR 6, for 5 m at 2.03 ppm Au from 15 m depth, including 1 m at 18.4 ppm Au from 17 m (Nicholson, 1989). Hole depth averaged 51 m.

Sigma Resources recommended conducting a soil sampling programme; however, there is no record this was ever completed.

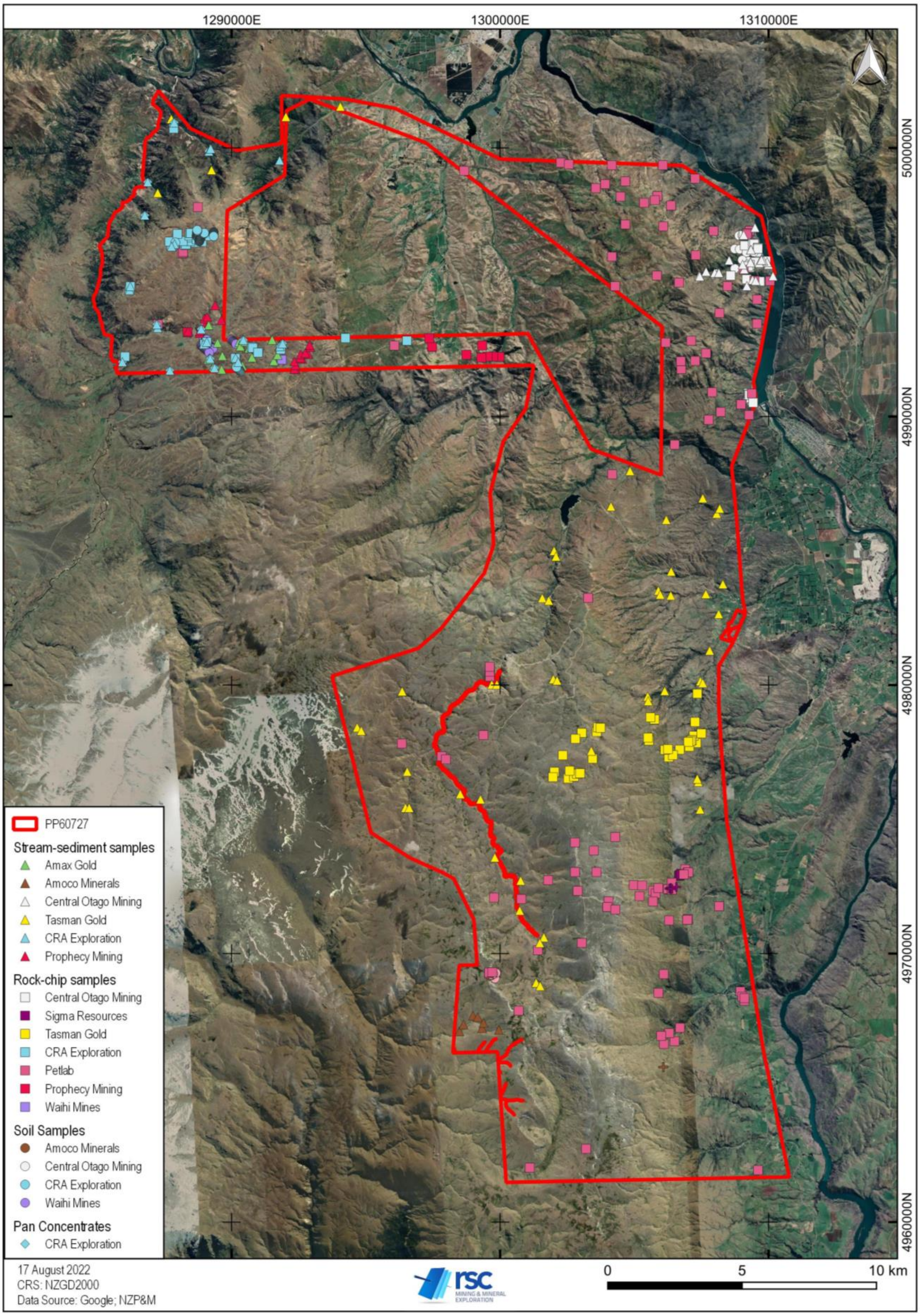



Figure 6-10: Historical exploration undertaken within PP60727.

#### 6.2.5.3 CRA Exploration Pty Ltd

CRA Exploration Pty Ltd (CRA Exploration) held EL 33-476 over the Carrick Range area for a one-year term commencing November 1988. During its tenure, CRA Exploration conducted stream-sediment, pan concentrate, soil and rock-chip sampling, and collected a total of 152 samples within PP60727.

Rock-chip samples returned up to 240 ppm As. All samples returned below detection limit Au, except for two samples from northwest of the permit, returning 0.03 ppm Au. Stream-sediment samples returned up to 60 ppm As, and up to 3.3 ppm Au. Pan concentrate samples returned up to 82 ppm As, and up to 15.5 ppm Au. Soil samples returned up to 190 ppm As, 40 ppb Au and 23 ppm Sb (Corner, 1990).

#### 6.2.5.4 Central Otago Mining Company Ltd

Central Otago Mining Company Ltd (Central Otago Mining) held EL 33-519 over the Clyde region, which overlapped with northeastern PP60727 in the vicinity of Hydes Spur, Jackson Creek, Byford Creek, and the western bank of the Clyde Dam. In 1991, an initial stream-sediment, rock-chip and soil sampling programme was conducted, identifying anomalous Au results in the Jackson Creek area (Ian R. Brown Associates Ltd, 1991). The Jackson Creek area returned up to 0.1 ppm Au, and samples contained anomalous As (up to 3%) and Sb. Mineralised rock contained visible, moderately coarse, euhedral arsenopyrite and pyrite (Ian R. Brown Associates Ltd, 1991).

Follow-up sampling was conducted in 1992, with the collection of additional stream-sediment and pan concentrate samples. Minor Au mineralisation was detected in the Jackson Creek Drive, derived from narrow fault zones (Ian R. Brown Associates Ltd, 1992). Due to the typically narrow, discordance features with relatively low Au geochemistry, Central Otago Mining did not progress with any additional work in the area. By the end of the sampling programmes, a total of 75 samples were collected within PP60727.

#### 6.2.5.5 Amax Gold Mines New Zealand Limited and Waihi Mines Limited

Amax Gold Mines New Zealand Limited (Amax Gold) held two licences over the Carrick region in a joint venture with Summit Gold (New Zealand) Limited. Prospecting licence 31-2641 was granted over the Carricktown goldfield, and EP40049 (Carrick Southwest) was granted south of the PL. Exploration was predominantly focussed on the Carricktown goldfield, which is outside PP60727; however, a total of 23 stream sediment samples were collected within PP60727. Samples were analysed at Grayson & Associates for Au and As. Samples from within PP60727 returned up to 20 ppm As. Six samples returned Au above the detection limit (0.005 ppm), with the best sample returning 2.04 ppm Au (Rutherford, 1993).

In 1994, Amax Gold changed to Waihi Mines Limited (Waihi Mines). Waihi Mines continued exploration on PL 31-2641 and EP40049, focussing on the Upper Carrick-Potters area, Pipeclay area, and the Lower Carrick area (Torckler, 1994). Four lines of soil samples (68 samples), with samples spaced 20 m apart, and two rock-chip samples in the Lower Carrick area were collected by Waihi Mines. Neither rock-chip sample returned detectable Au. Thirteen soil samples returned detectable Au, up to 0.07 ppm, and two samples returned anomalous As (above 20 ppm) (Torckler, 1994).

#### 6.2.5.6 *Tasman Gold Development Ltd*

Tasman Gold Development Ltd (Tasman Gold) conducted exploration in 1995 in the Omeo and Conroys creek area. Tasman Gold collected 53 stream-sediment samples and 34 rock-chip samples within the current PP60727 boundary, which were analysed by BLEG. None of the rock-chip samples returned detectable Au, and only two samples returned detectable Au (660 ppb and 1,000 ppb) (Dacey, 1995a).

#### 6.2.5.7 *Prophecy Mining Ltd*

Prophecy Mining Ltd (Prophecy Mining) conducted exploration of the Carrick region from 1997, and during the 2000s and early 2010s due to the granting of additional permits. Exploration focussed on prospects at the Carricktown goldfield (outside PP60727); however, sampling did extend into PP60727, and a total of 29 samples (stream-sediment and rock-chips) were collected. Samples returned up to 0.11 ppm Au and up to 89 ppm As (Prophecy Mining NL, 1997; Prophecy Mining Ltd, 2005).

## 6.3 Production History

Historical Au production in Otago (excluding Macraes) totals ~8.5 Moz Au from placer deposits and ~0.7 Moz Au from hard-rock sources (Henderson et al., 2016). Hard-rock Au production is noted in Figure 6-11. There have been a number of historical hard-rock Au mines within the permits including Home Reef South in EP60389, Ocean View and Canada Lodes, Try Again Lod and Burn Stream in PP60674, and Eight Mile in EP60702. There are also a number of historical Au productions adjacent to the Project area, including Serpentine Diggings to the southwest of PP60705, the Carrick Goldfield which is cut out of PP60727 (covered by an existing permit held by NewPeak NZ Limited), and Macraes Gold Mine east of the Smylers Gold Project.

Total Au production on all the historical workings is not available; however, the available data for Au production are summarised in Table 6-9.

Table 6-9: Historical hard-rock Au production within and neighbouring the Project area.

| Site Name | Location | Site Type | Operating From | Operating To | Total Production (koz) | Resource (koz) | Endowment (koz) |
|---|---|---|---|---|---|---|---|
| **Canada & Ocean View Lodes** | Within PP60674 | Mine closed | 1877 | 1890 | 0.23 | | 0.23 |
| **Macraes** | ~8 km W of EP60129 | Mine working | 1990 | 2019 | 4,300 | 4,800 | 9,100 |
| **Carrick Gold Field** | Excluded from PP60727 | Field closed | | | 14.6 | | 14.6 |
| | Heart of Oak | Mine closed | 1871 | 1888 | 2.12 | | 2.12 |
| | Star of the East | Mine closed | 1896 | 1897 | 0.39 | | 0.39 |
| | Try Again | Mine closed | 1880 | 1881 | 0.30 | | 0.30 |
| | Elizabeth | Mine closed | 1872 | 1884 | 0.64 | | 0.64 |
| **Bonanza Lode** | ~3.5 km E of EP60389 | Mine closed | 1890 | 1904 | 1.99 | | 1.99 |
| **Conroys** | ~3 km W of PP60727 | Mine closed | | | 0.55 | | 0.55 |
| **Golden Gully** | ~7 km SE of PP60705 | Mine closed | 1877 | 1890 | 0.23 | | 0.23 |

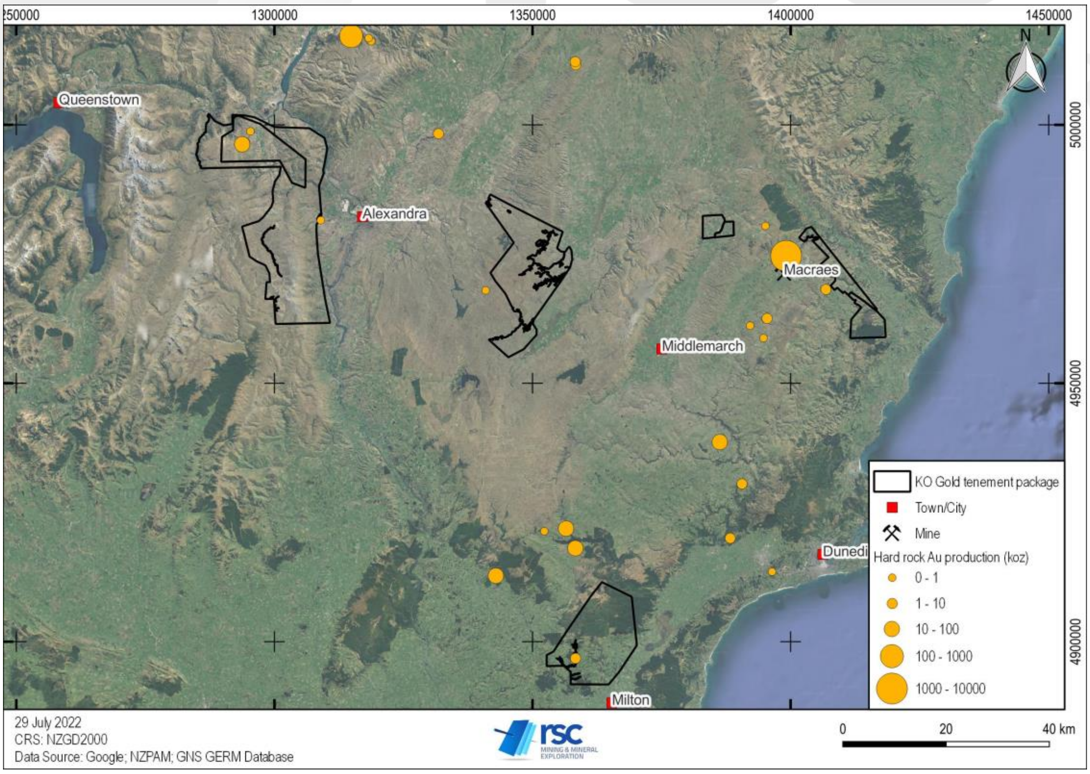



Figure 6-11: Total hard rock Au production in Otago.

## 6.4 Regional Geophysical Data

### 6.4.1 1997 DIGHEM EM survey

In 1997, Macraes Mining Company commissioned a regional DIGHEM multi-frequency, helicopter-mounted electromagnetic and magnetic survey, flown by Geoterrex-Dighem Pty Ltd (Craven, 1997). The survey comprised 3,700-line kilometres of 50-m-spaced EM/magnetic data. The survey covered two 6-km-wide blocks: a northern block from Deepdell to Ounce, with flight lines trending 090 (Macraes Grid), and a southern block from Ounce to south of Taieri Peak, with flight lines trending 080 (Macraes Grid). Terrain clearance was -40 m for the magnetic sensor (a caesium vapour split-beam total field sensor) and -30 m for the electromagnetic sensor. Conductivities were tested at frequencies of 450, 900, 5,500, 7,200 and 56,000 Hz. The DIGHEM survey covers the majority of EP60389 (Smylers Gold) and a small portion of EP601289 (Glenpark) (Figure 6-12). The DIGHEM survey data were used by GRD Macraes Ltd to map major lithological variations, within the hanging wall schists, to help understand structural settings and controls on Au distribution along the shear zone (Cox, 1999). Areas of high resistivity are interpreted to be dominated by psammitic (sand-derived) schists, whereas low resistivity areas are rich in pelitic (mud-derived) schists (Cox 1999).

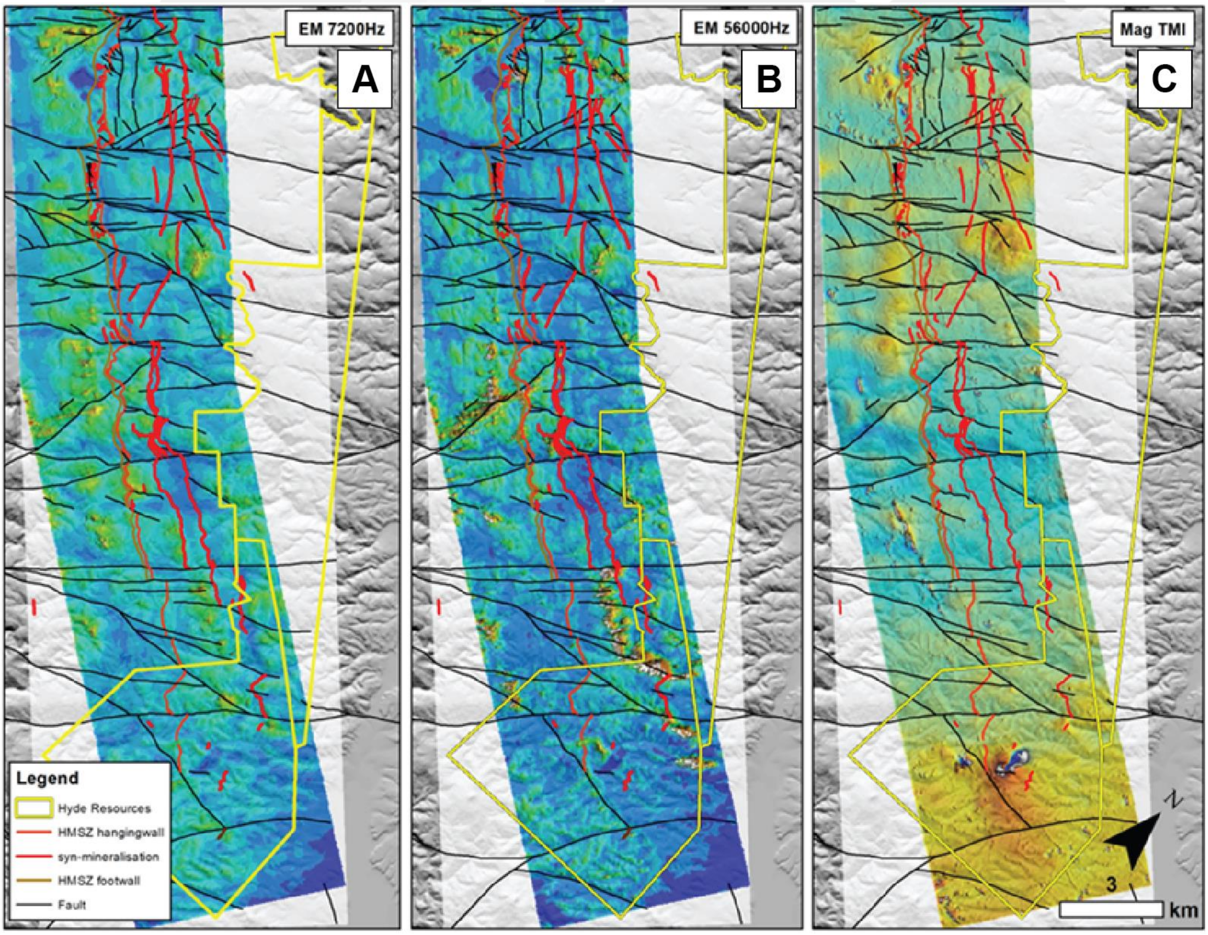



Figure 6-12: Regional DIGHEM multi-frequency, helicopter-mounted electromagnetic and magnetic survey (Craven, 1997). Maps detail Smylers and Glenpark EP's and major structural and mineralised features. A) EM 7,200 Hz — deep; B) EM 56,000 Hz — shallow; C) total magnetic intensity.

### 6.4.2 2007 Glass Earth EM-Mag Survey

In 2007, an airborne geophysical survey was conducted by Fugro Airborne Surveys Ltd for Glass Earth Gold (Fugro Airborne Surveys Pty Ltd 2007). The equipment used was Fugro's RESOLVE™ electromagnetic system, a compact state-of-the-art airborne EM and magnetic sensors which contain five pairs of coils to measure EM signals at frequencies 140,000, 40,000, 8,200, 1,800 and 400 Hz, and two high sensitivity caesium magnetometers, separated by four metres horizontal distance. An elevation was maintained at a height of 30 m ± 10 m (the helicopter flying at a height of 60 m). Flight line spacing was 300 m with some infill flight lines to obtain 150-m spacing over part of the survey area. This regional survey covered the entire Carrick, Rough Ridge South, and Hyde Projects, and also covered a small portion of the Smylers, Glenpark and Tokomairiro Projects. (Figure 6-13, Figure 6-14, Figure 6-15).

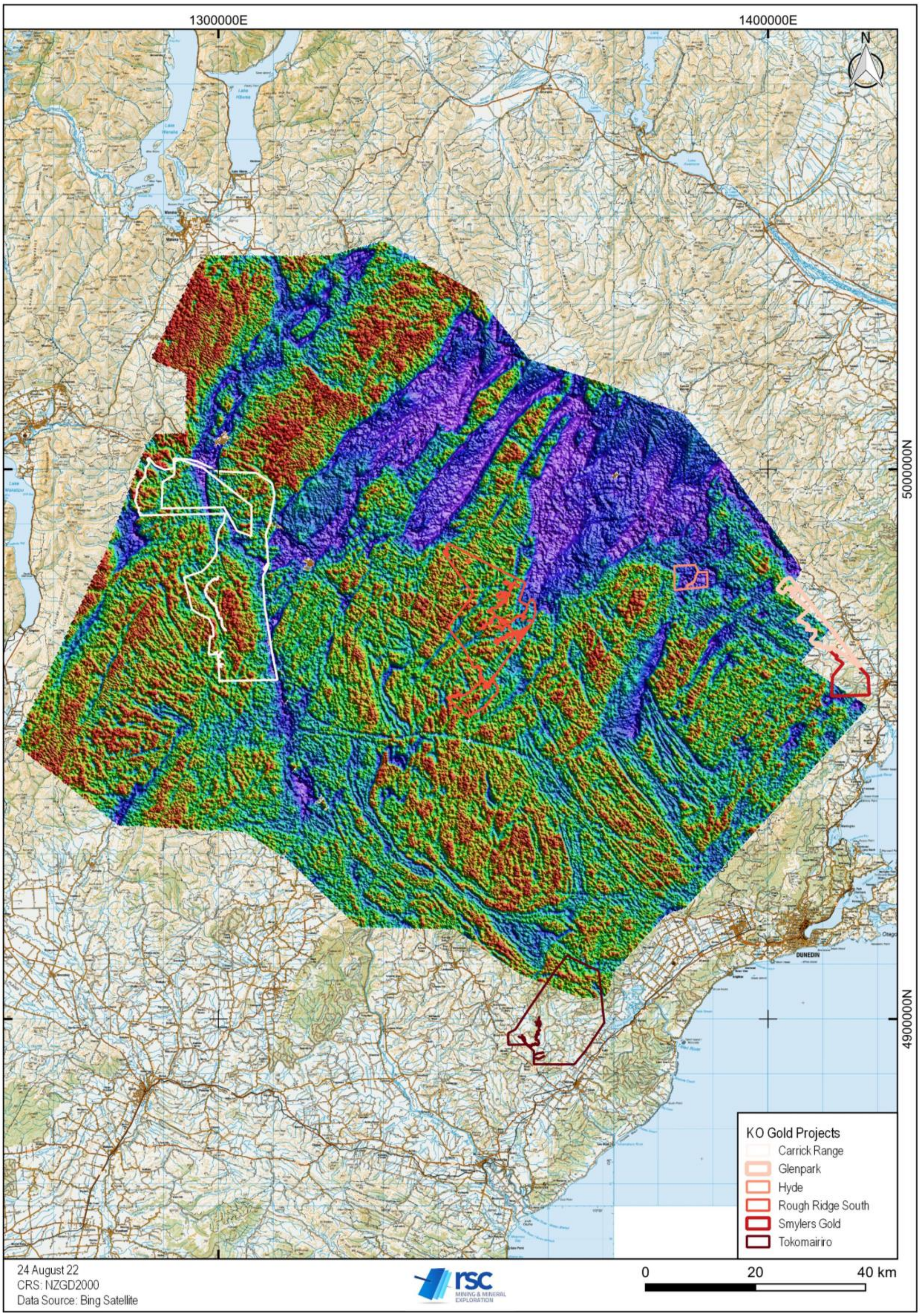



Figure 6-13. Airborne geophysical data acquired by Fugro Airborne Surveys and Glass Earth, displaying apparent resistivity at 8,200 Hz.

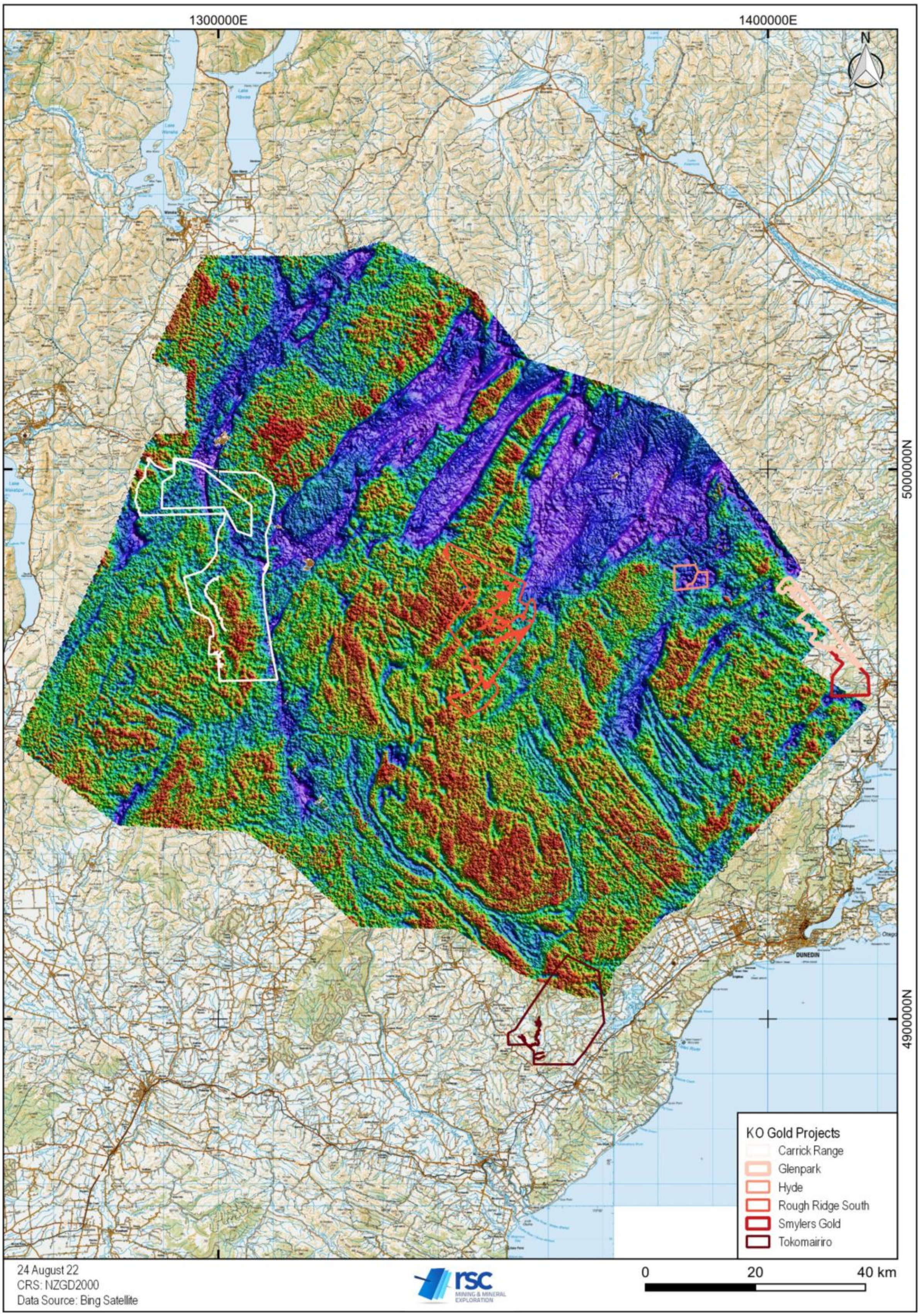



Figure 6-14: Airborne geophysical data acquired by Fugro Airborne Surveys and Glass Earth, displaying apparent resistivity at 1,800 Hz.

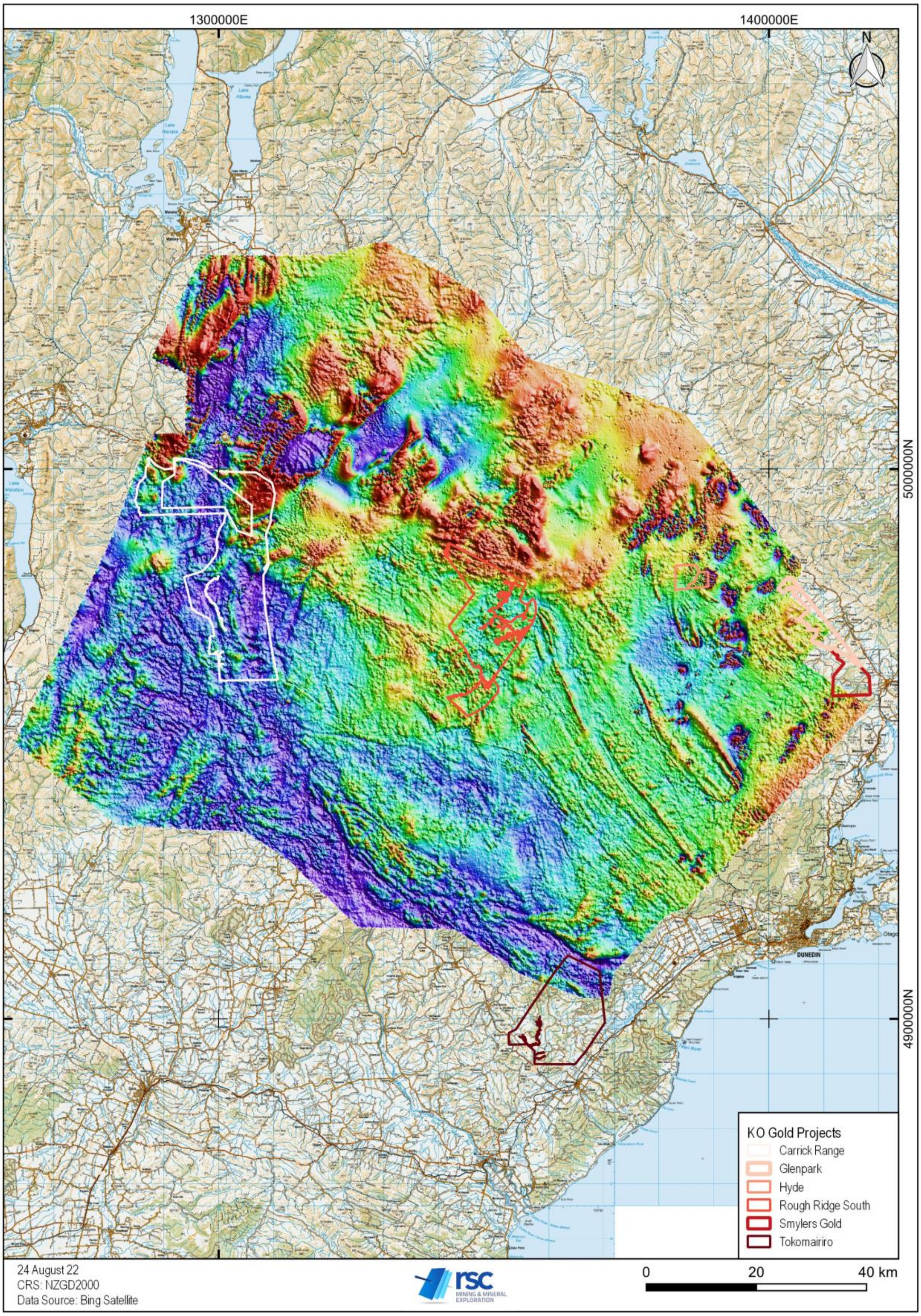



Figure 6-15: Total magnetic intensity reduced to pole. Data acquired by Fugro Airborne Surveys and Glass Earth

### 6.4.3 2016 Thompson Aviation Aeromagnetic Survey

In 2016, the Ministry of Business, Innovation and Employment (MBIE) funded regional aeromagnetic and radiometric surveys across New Zealand. Survey Block D wrapped around the north of the Glass Earth 2007 survey and covered Glenpark and Smylers EPs (Thomson Aviation, 2016). The survey was flown between 2016 and 2017, with a total survey line kilometres of 22,234 at 200-m line spacing and an average height of 39.5 m (Figure 6-16 to Figure 6-19; Thomson Aviation, 2020).

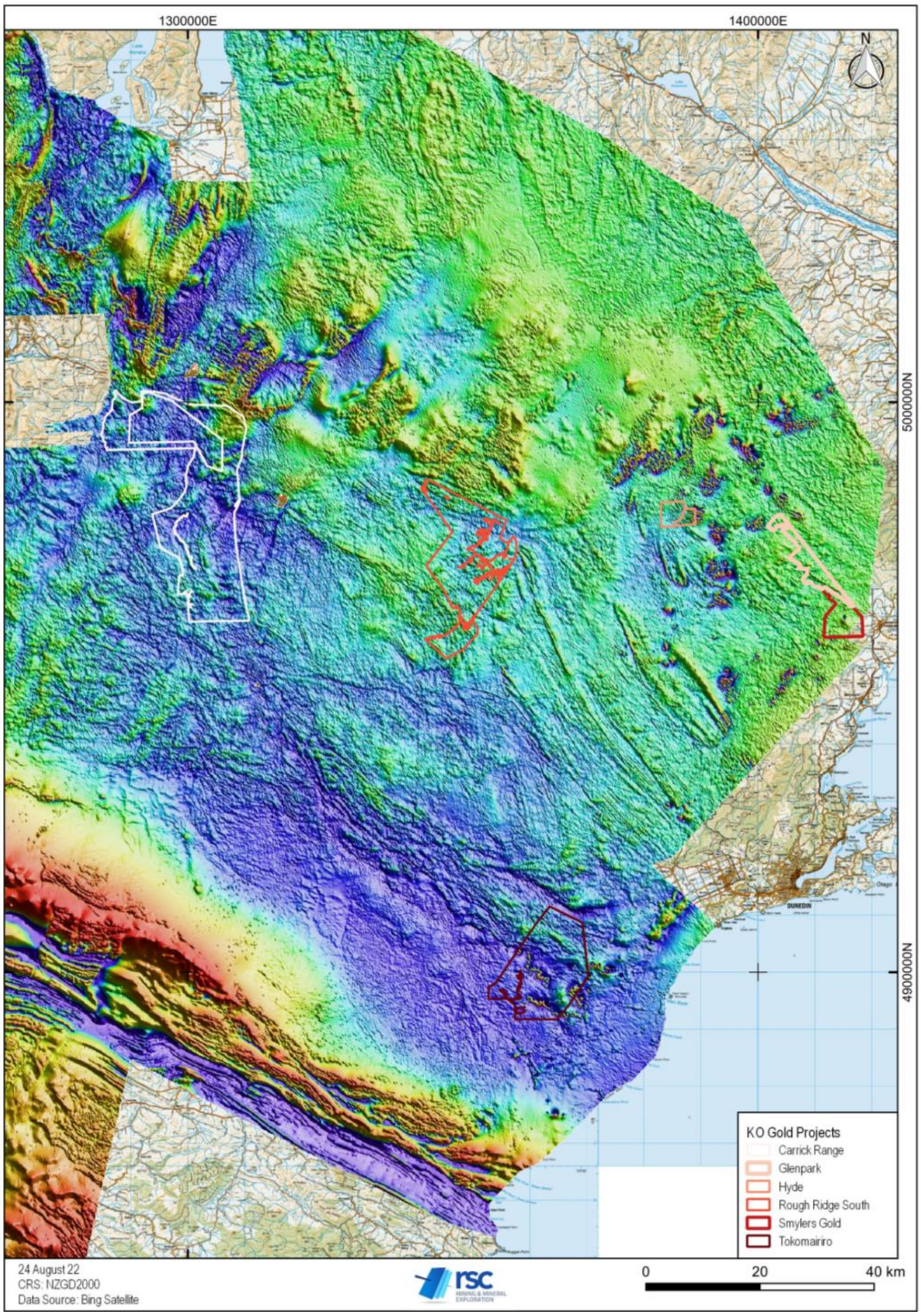



Figure 6-16: Total magnetic intensity. Data were acquired by Thompson Aviation Airborne and Glass Earth Airborne.

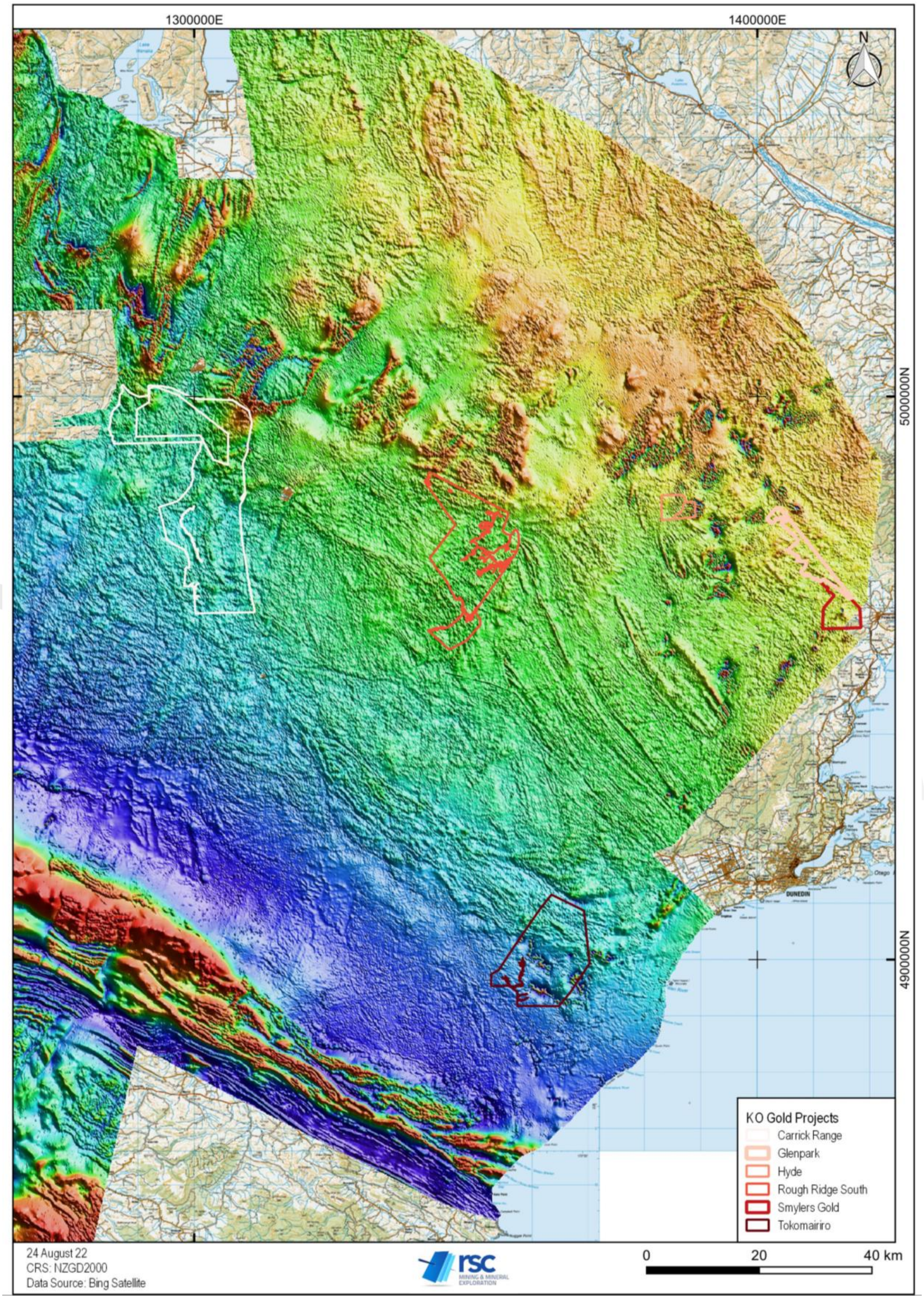



Figure 6-17: Total magnetic intensity reduced to pole. Data acquired by Thompson Aviation Airborne and Glass Earth.

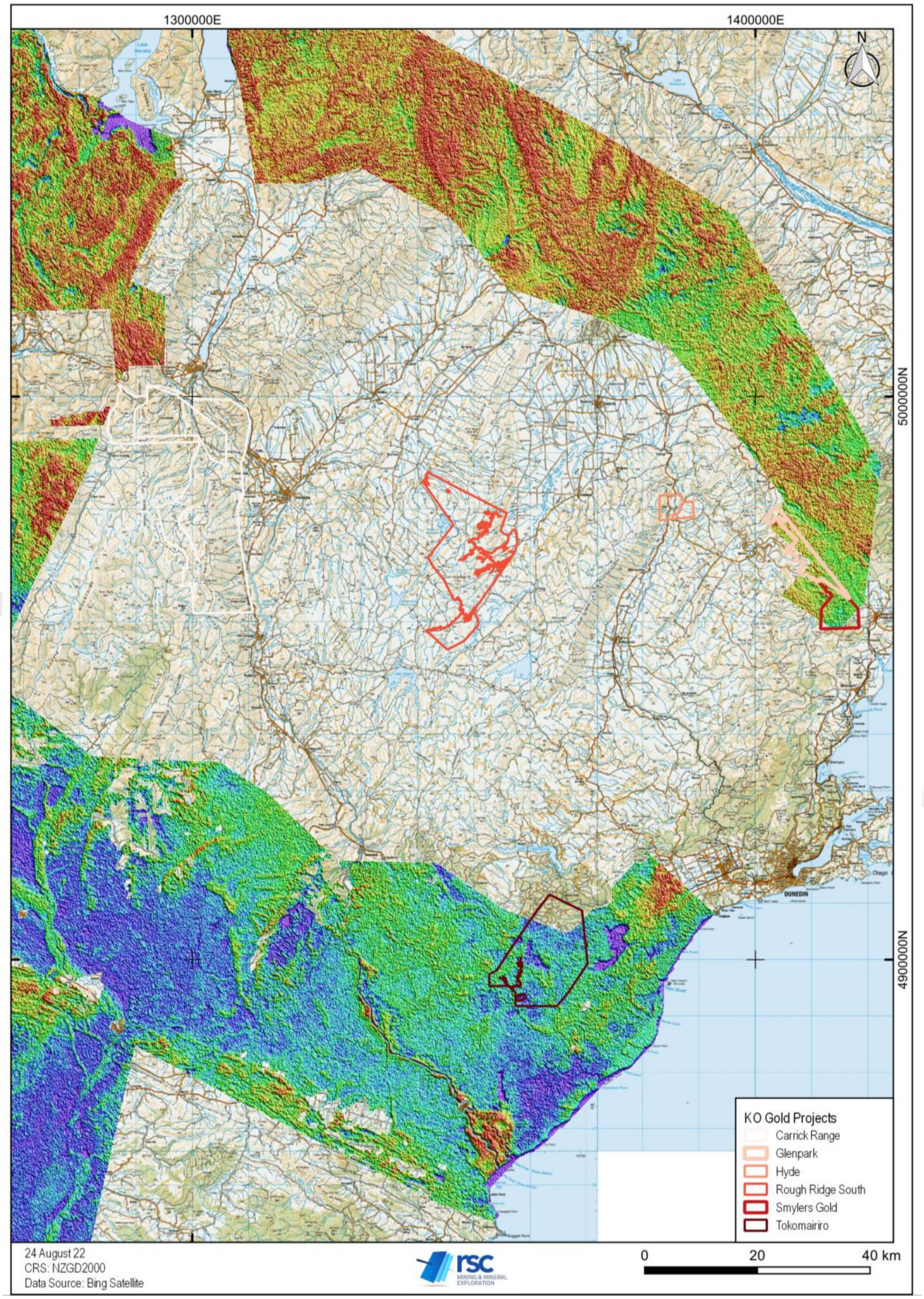



Figure 6-18: Radiometric data (potassium) acquired by Thompson Aviation Airborne.

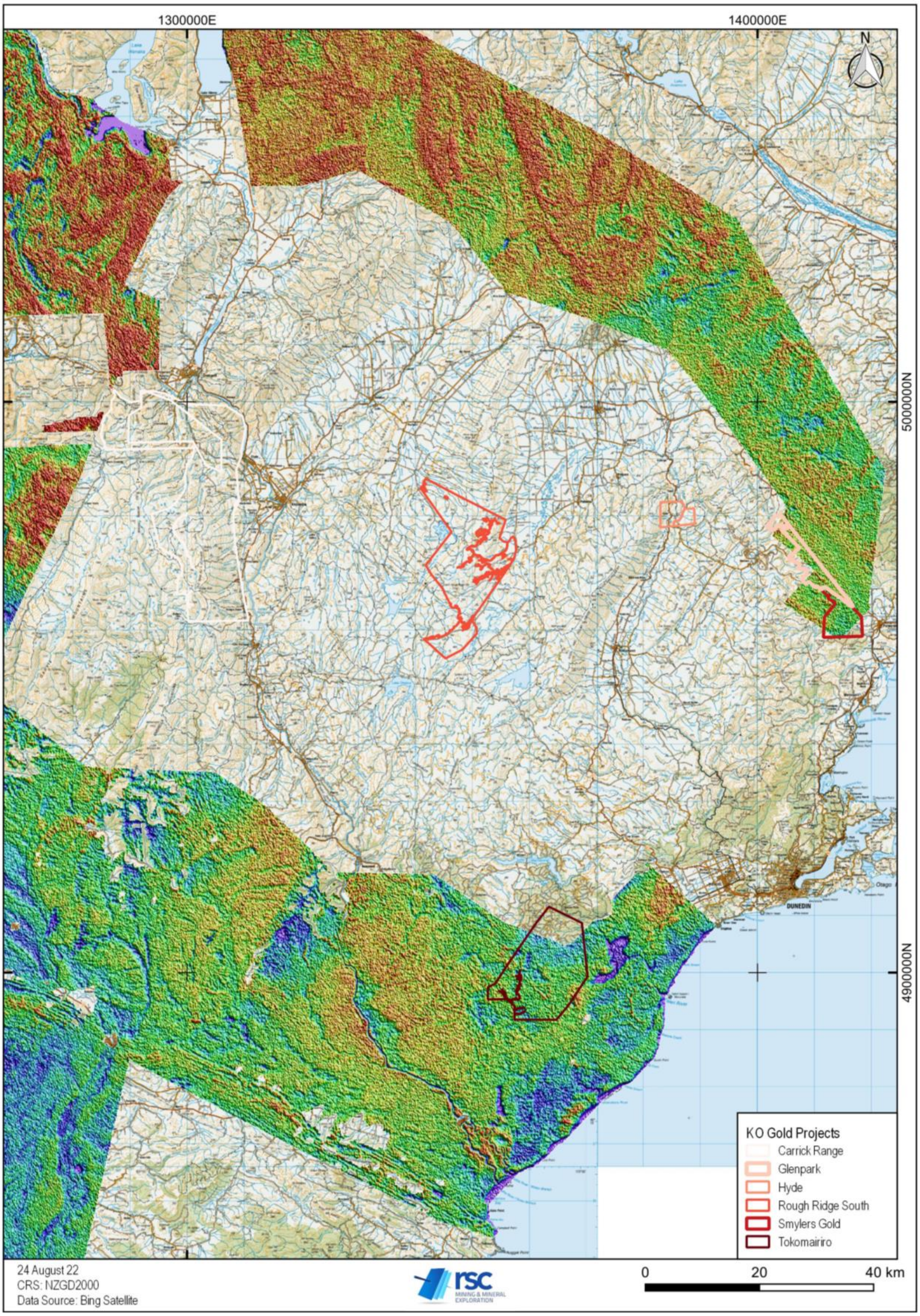



Figure 6-19: Radiometric data (thorium) acquired by Thompson Aviation Airborne.

## 6.5 Previous Mineral Resource Estimates

No Mineral Resource estimates have been completed within any of the KO Gold properties.

# 7. Geological Setting and Mineralisation

## 7.1 Regional Geology

New Zealand straddles the boundary between the Australian and Pacific plates, with the boundary marked by the Alpine Fault. Western New Zealand is interpreted to have originally been part of Gondwana, lying adjacent to eastern Australia until ~83 Ma (Cooper & Tulloch, 1992; Adams, 2004). The basement geology of New Zealand is comprised of accreted tectonostratigraphic terranes related to intrusive batholiths and an accretionary wedge and subduction-arc system (Bradshaw, 1989; Mortimer, 2004). These fault-bounded terranes exhibit distinctive depositional settings and compositions. The major South Island basement terranes can be divided into a younger Eastern Province and older Western Province (Landis & Coombs, 1967; Tulloch & Challis, 2000). The eastern part of the South Island comprises an Eastern Terrane group of Upper Palaeozoic to Cretaceous greywacke-dominated turbidite sequences of siliciclastic and volcanoclastic affinity (Adams et al., 1998). The terranes are separated by the Alpine Fault in the central part of the island and to the north and south by the Median Tectonic Zone, marked by a series of Triassic-Cretaceous (mostly) plutonic rocks (Adams et al., 1998). The Alpine Fault has been active as a right-lateral transcurrent feature since the Miocene, resulting in significant uplift of the Southern Alps and exposure of basement rocks, comprised largely of garnet and biotite schists of the Mesozoic Haast Schist Group (Rose, 2011). The younger Eastern Province contains several terranes composed of lithic and feldspathic metagreywackes, volcanics, intrusives, and ophiolites (Sutherland, 1999). The terranes relevant to the Project are the Caples Terrane and Rakaia Terrane, a member of the composite Torlesse Terrane.

The Caples Terrane forms a long belt of low-grade metasedimentary rocks (Caples and Pelorus Groups) bounded by the Dun Mountain-Maitai Terrane to the west, and Aspiring, Waipapa, and Torlesse Terranes to the east (Adams et al 2009). It is the westernmost portion of an accretionary-style terrane group (Torlesse, Waipapa, and Caples) and adjacent to the arc/forearc/backarc terrane group (Dun Mountain-Maitai, Murihiku, and Brook Street). The Caples Terrane is composed primarily of mid-fan, turbiditic, argillite-greywacke sequences, and rare chert and limestone/marble beds. It is a structurally complex terrane, consisting of imbricate stacks of isoclinally-folded sediment packages on a 5–10 km scale, separated by ductile deformation zones marked by schist or broken formations (Adams et al., 2009). The metamorphic grade is at minimum prehnite-pumpellyite facies to, more commonly, pumpellyite-actinolite facies (Turnbull, 1979a,b; Johnston, 1981, 1993, 1996). The textural reconstitution of the greywacke members indicates a transition from the topmost textural zone (TZ) I through IIA/IIB to III, where TZI is the lowest textural zone and TZIV is the highest textural zone (Turnbull et al., 2001). Despite a metamorphic overprint, relict sedimentary textures are present, commonly as preserved Bouma sequences. Rare fossiliferous beds in the cherts and limestones/marbles have been used to tentatively assign the Caples Terrane to the late Permian; however, these beds are often associated with melanges (Adams et al., 2009, and references therein). Volcaniclastic sediments are the primary sedimentary source of the Caples Terrane (Adams et al., 2009).

The Rakaia Terrane is a Permian to Late-Triassic accretionary sequence of interbedded quartzofeldspathic sandstones and mudstones, with minor conglomerates deposited in deep marine gravity flow environments, such as submarine fans (Wandres et al., 2005; MacKinnon, 1983). The provenance of the clastic material that now forms the Rakaia Terrane is thought to be predominantly progressive erosion of various continental volcanic/plutonic arc sequences, active from the Carboniferous to the latest Middle Triassic (Wandres et al., 2004). Minor, shallow-marine marbles, terrestrial clastic rocks, volcanic and volcaniclastic rocks are also present (Forsyth et al., 2006; MacKinnon, 1983).

The only terrane boundary in the Eastern Province that is not a faulted contact is the boundary between the Caples Terrane and the southern portion of the Torlesse Terrane. During the Rangitata Orogeny, the amalgamation of the two terranes resulted in metamorphic overprinting, obscuring this contact. This metamorphic overprinting is known as the Haast Schist Belt (Coombs et al., 1976; Roser & Korsch, 1999; Mortimer, 2004). Metamorphic grades of the Haast Schist are prehnite-pumpellyite to greenschist facies, although some areas of lower-grade zeolite facies and higher-grade amphibolite facies exist (Wandres et al. 2004; Roser & Cooper, 1990). Outcropping Haast Schist is typically composed of semi-schist greywackes and argillites that retain some original sedimentary features (e.g., Bouma sequences), grading into complexly folded and foliated schists (Roser & Cooper, 1990).

The Otago Schist is a local portion of the greater Haast Schist metamorphic belt. The belt is made up of metamorphosed Torlesse-Rakaia Terrane to the north and Caples Terrane to the south. It stretches 2,000 km from the Alpine Fault in the west to the Chatham Rise in the east (Bishop, 1972; Coombs et al., 1976; Mortimer, 1993a; Adams & Graham, 1997).

## 7.2 Local Geology

The outcropping Otago Schist belt is ~150 km wide, extending from the Southern Alps in the west to the Otago coast in the east, and covers an area of 30,000 km$^2$. The belt is comprised predominantly of metamorphosed quartzofeldspathic greywackes and argillites (psammitic and pelitic greyschists) from the Torlesse-Rakaia Terrane, and greywacke with a volcaniclastic origin from the Caples Terrane (Gray & Foster, 2004; Mortimer, 2004). These were both deposited in the Permian to Late Triassic (Norris et al., 1990; Craw, 1994).

Regional metamorphism of the Otago Schist occurred in the Jurassic during crustal thickening (Coombs et al., 1976; Korsch & Wellman, 1988; Mortimer, 2000), as indicated by K-Ar and Ar-Ar dating (Gray & Foster, 2004; Little et al., 1999). Exhumation of the schist began at ~130 Ma (Gray & Foster, 2004). The antiformal dome structure in the core of the Otago Schist (Figure 7-1) was formed during middle Cretaceous extension ~110 Ma (Mortimer, 1993a, 1993b, 2004; Gray & Foster, 2004) that resulted in the break-off of the Zealandia continent from Gondwana (Bradshaw, 1989). The highest metamorphic-grade rocks, reaching up to biotite-garnet zone greenschist facies, are found in the core, within the Torlesse-Rakaia Terrane (Mortimer, 1993a, 1993b, 2000), while lower-metamorphic grade rocks flank either side of the core (Landis & Coombs, 1967). Rock types are typically psammitic schist, pelitic schist, metavolcanic, and metachert with fine intercalated pelitic units and minor thin greenschist units. The schists predominantly consist of quartz, albite, chlorite, epidote, and muscovite. There are no regionally extensive marker horizons and no recognisable stratigraphy; hence, the unit has been subdivided into metamorphic zones, textural zones, tectonostratigraphic terranes, and lithological associations.

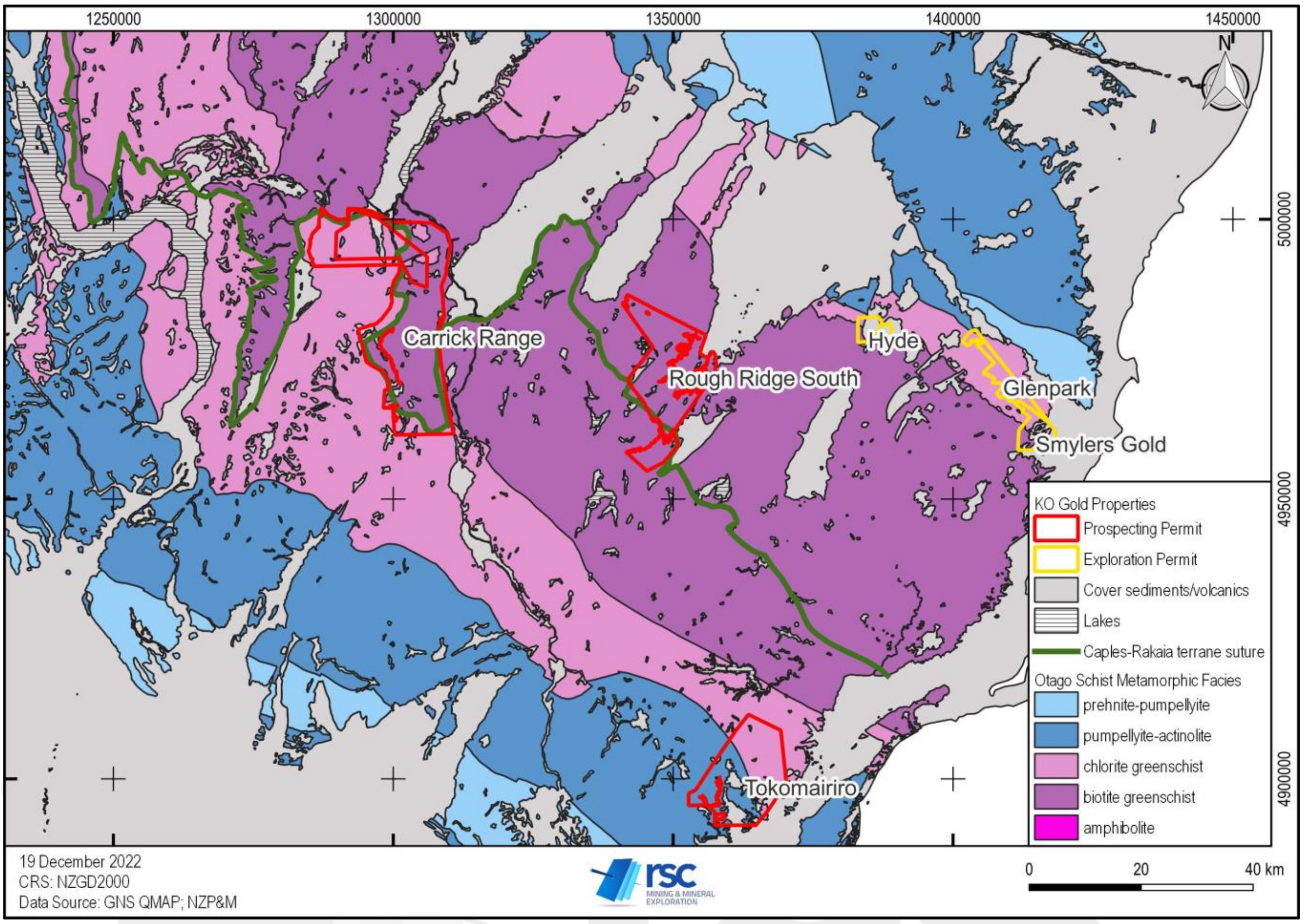



Figure 7-1: Regional geology of Otago.

Exhumation in the Jurassic to Early Cretaceous was followed by Middle Cretaceous to Tertiary regional extension, giving rise to a set of northeast- and northwest-striking normal faults cross-cutting the Otago Schist belt (MacKenzie & Craw, 2005a). Compressional tectonics related to the Alpine Fault have produced a gentle folding of the eroded, low-relief schist basement that has resulted in the present basin and range topography (Jackson et al., 1996). Symmetrical mesoscopic folding is present throughout the Otago Schist, and may be associated with hinge failure or over-thrusting that resulted in the development of extensive shear zones, including the Hyde-Macraes and Rise and Shine shear zones.

Textures associated with the schist belt tend to follow similar patterns to the metamorphic zones, with increased white mica grain size with increased textural grade (Norris & Bishop, 1990; Turnbull et al., 2001). The Caples Terrane schist contains rocks up to TZIII and is in the southern portion of the Otago Schist belt. The Torlesse-Rakaia Terrane schist occurs up to TZIV and is in the northern portion of the Otago Schist belt. (Mortimer, 1993a; Turnbull et al., 2001). In east Otago, a subtle change in lithology across the boundary, and geochemical variation in the indeterminate zone, places the Caples/Torlesse boundary in an area north of Lake Mahinerangi and south of Lake Onslow (Mortimer & Roser, 1992, MacKenzie & Craw, 2005b).

## 7.3 Property Geology

### 7.3.1 EP60389 and EP60129 Smylers Gold Project

The Smylers Gold Project sits within the regionally significant HMSZ. EP60389 (Smylers Gold) covers the easternmost portion, while EP60129 (Glenpark) is situated down dip of the central and southeast portions of the shear zone. The ~30-km-long and 1–2 km wide shear zone hosts >10 Moz of Au, making it the largest known accumulation of Au in the Otago Schist and one of the more richly endowed Phanerozoic structures globally (Allibone et al. 2018). Most Au discovered and mined to date within the HMSZ, is located within the Macraes deposit, in the central zone of shear; however, other ore bodies have been identified along the length of the shear (Figure 7-5). Gold mineralisation is present along the length of the shear, but drilling confirms considerable variability in grade width, continuity, and geometry. This variability is attributed to the localised geometry influences on the HMSZ structure during the mineralisation event and the influence of host rock lithology.

The HMSZ is several hundred metres thick, although the most-mineralised part is in the lower portions of the zone. Despite the extensive mining and exploration of the area, the uppermost limit of shear-hosted hydrothermal alteration and mineralisation is still poorly defined. There is a distinct structural and lithological contrast between the lower greenschist facies rocks that host the HMSZ, and the upper greenschist facies rocks that now structurally underlie the shear zone across the Footwall Fault.

Tectonic extension in the Macraes area continued through the Early Cenozoic, resulting in subsidence and erosion to a low relief land mass in the area. Numerous normal faults formed an orthogonal grid of northwest and northeast striking structures that disrupted the basement structures (Figure 7-5) (Craw & Mackenzie, 2016). In particular, a set of northeast-striking structures cut across the HMSZ, locally offsetting it on a scale of tens to hundreds of metres.

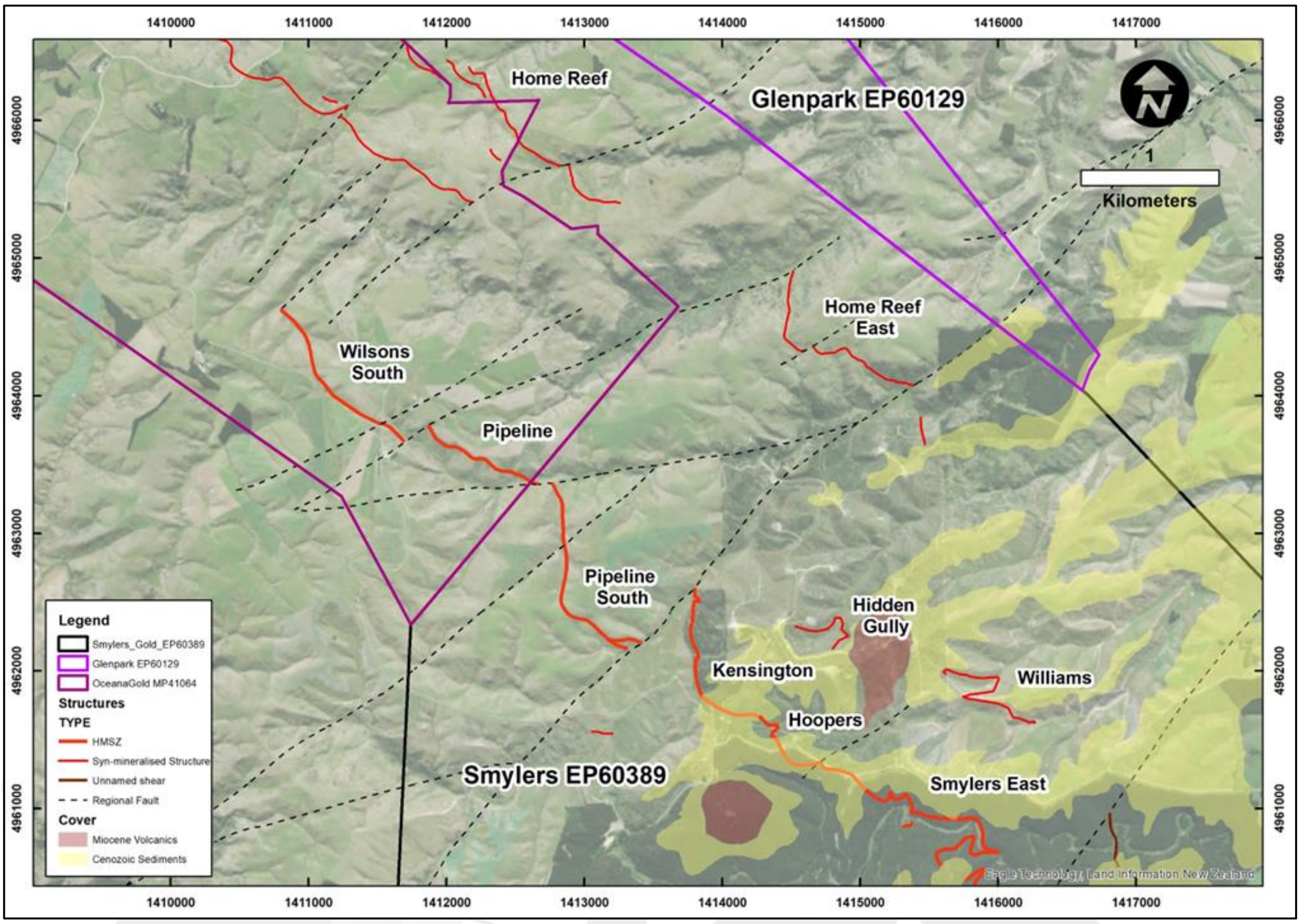



Figure 7-2: Map of the different prospects in the Smylers Gold Project.

Relative to the regional structure of the HMSZ, EP60389 (Smylers Gold) is located 8 km along strike (to the southeast) of Ounce Mine and Golden Bar (Figure 7-5). Mineralised areas have been given prospect names by Hardie Pacific, typically the landowner's surname at the time of discovery (Figure 7-2). The host rocks within the Smylers Gold Project generally consist of interlayered massive and laminated schists of the footwall (TZIV) and hanging wall (TZIV). The hanging wall schists typically reveal a higher degree of folding compared to the relatively planar footwall schists (Figure 7-4). Mineralisation at Smylers Gold Project is hosted wholly within the hanging wall schist, with the package of rock between the uppermost or 'hanging wall shear' and Footwall Fault being termed and modelled as intra-sheared schist. Within the Pipeline South and Kensington prospects, mineralisation is generally truncated by the Footwall Fault, which forms the contact between the hanging wall and footwall rocks (Figure 7-3). The Home Reef South, Hidden Gully, and Williams prospects are at higher structural levels within the HMSZ, in lower metamorphic grade schist, and are more analogous to Macraes style 'Eastern Lodes'.

The Pipeline prospect contains a ~15-m package of moderately sheared and intra-sheared schists, with three sub-concordant mineralised shear structures of varying thicknesses of 1–3 m, identified within the sheared package. The hanging wall schist present at Pipeline is comprised of TZIII micaceous schist interlayered with quartzo-feldspathic schists. The footwall is comprised of TZIV chlorotic rich quartzo-feldspathic schist.

The Kensington prospect contains a ~15–20 m thick package of moderately to intensely sheared and intra-sheared schists, with two sub-concordant mineralised shear structures of varying thickness, from 1–8 m. Like Pipeline, the hanging wall schist present at Kensington is comprised of TZIII micaceous schist interlayered with quartzo-feldspathic schists. The footwall is comprised of TZIV chlorotic-rich quartzo-feldspathic. The footwall schist is separated by the Footwall Fault which is regarded as the regional base to mineralisation. The post mineralisation (Cenozoic), northeast-trending Glenpark Fault separates Pipeline South and Kensington prospects. Approximately 400–500 m of dextral strike-slip offset is interpreted across the fault.

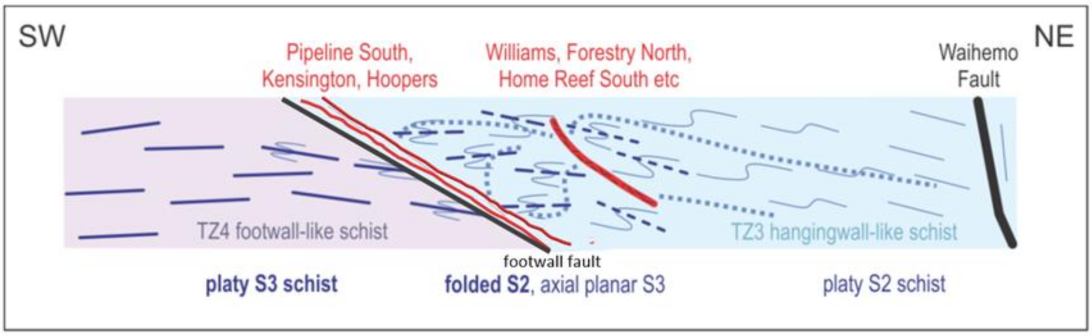



Figure 7-3: Sketch cross-section across Smylers prospect, detailing major structural features. The scale of folding ranges from metres to kilometres.

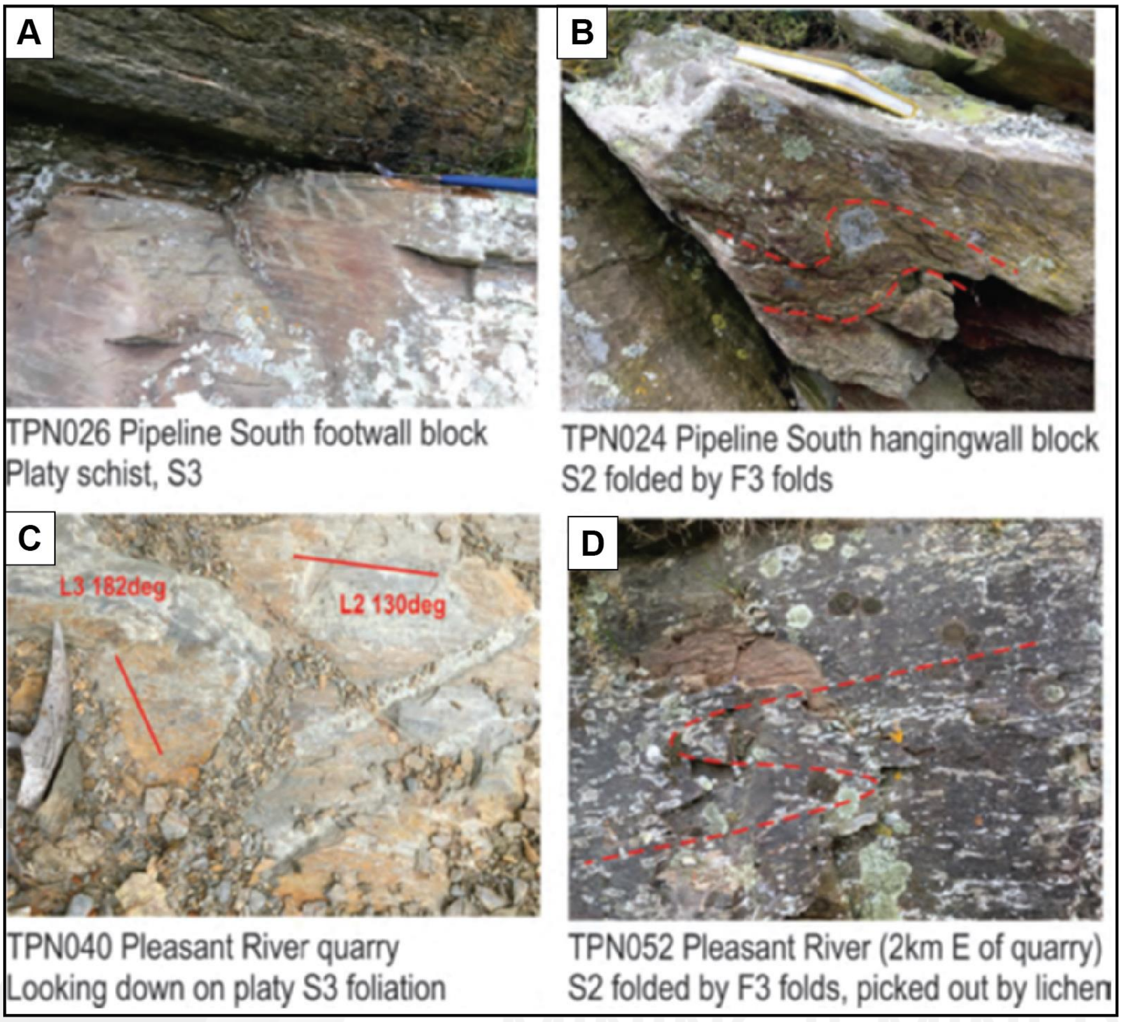



Figure 7-4: Selection of field images of host schists from within Smylers Gold Project displaying mesoscopic structures from high structural levels (right) and lower structural levels (left) relative to the present position and orientation of the HMSZ.

Basement schists are generally exposed or under shallow (>10 m) loess cover within EP60129 (Glenpark) and the northern portion of EP60389 (Smylers Gold). The weathering horizon, the zone of oxidised shist, is typically 20 m thick. The schist was significantly oxidised near surface, decreasing gradually to unweathered/unoxidised schist. Sedimentary and/or volcanic cover increases in both prevalence and thickness towards the south and east within EP60389. Sedimentary cover is dominated by the Late Cretaceous Taratu, quartz gravel conglomerates unconformably overlying the schist. Miocene (14.4 Ma) basaltic volcanic centres of the Dunedin Volcanic Group (DVG) intrude and overly the sediments in the Taieri Peak area. Windows of schist basement are often found in the lower portions of incised gullies in these areas.

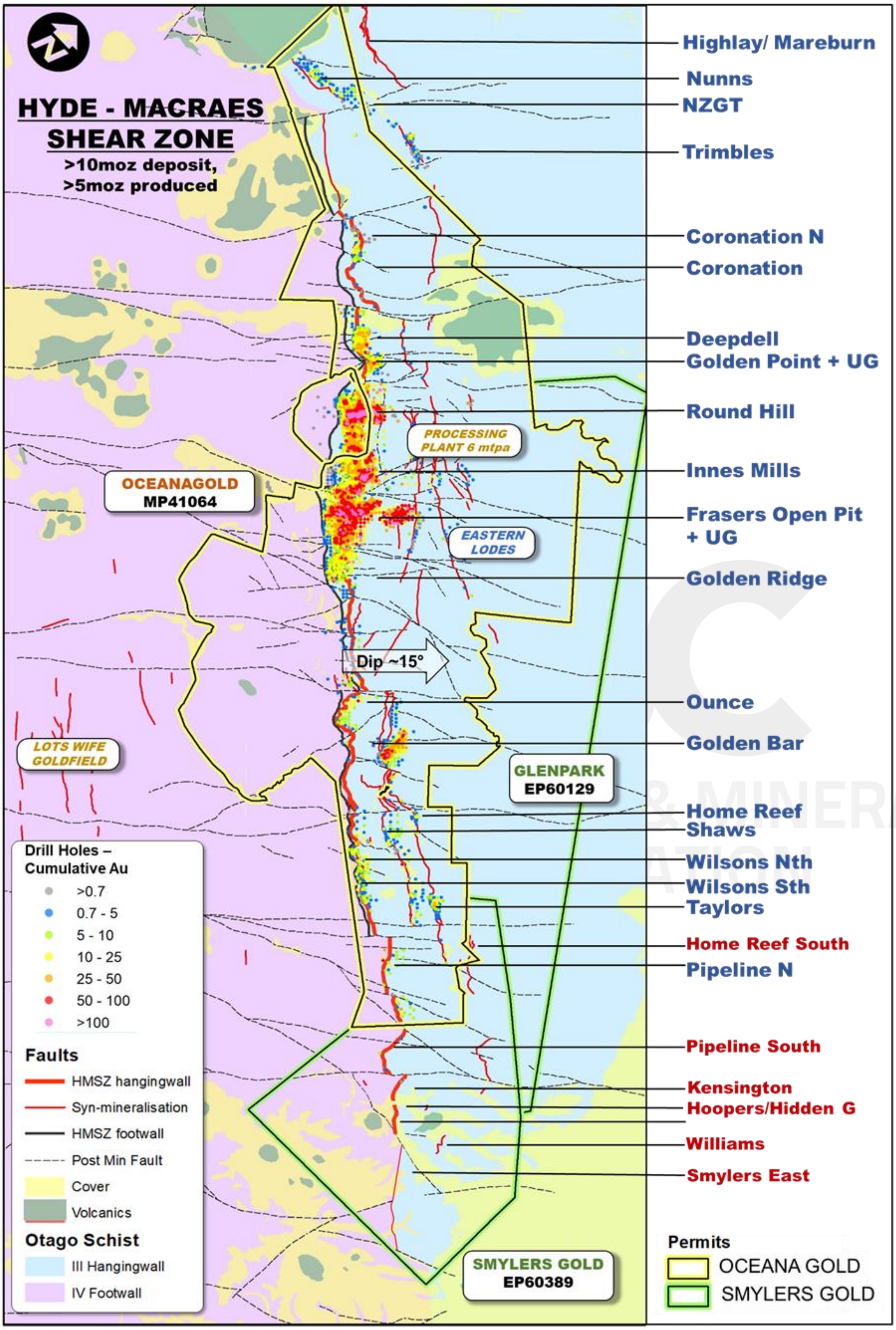



Figure 7-5: Regional geological map of the HMSZ indicating known prospects/orebodies. Major regional structures, rock types and mineralised features are detailed. Cumulative drillholes are prior to 2010. Hyde Resource permits are marked in green.

#### 7.3.2 PP60674 Tokomairiro

The basement geology of PP60674 predominantly consists of lower greenschist facies, Haast Schist of the Caples Terrane. The schist in the area has a general strike of 135/15° to the northeast. At PP60674, schist from two textural zones is present: TZIII schist in the northern half of the permit area, and TZIIB semischists in the southern half (Figure 7-6; Bishop & Turnbull, 1996; Turnbull et al., 2001). Relict sedimentary bedding can still be recognised in the schist, particularly in the south. There is minimal evidence of metamorphic segregation and massive, unmineralised quartz veins cut the schist (Figure 7-7A).

In the south of the permit area, the schist is overlain by Cenozoic sediments of the Onekakara and Otakou groups. The Onekakara Group is the most extensive and is composed of two formations: the late-Cretaceous, terrestrial, Taratu Formation, and an as-yet-unnamed Eocene marine formation (Figure 7-7B). In PP60674, the Taratu Formation comprises predominantly fluvial quartz sandstones, and to a lesser extent mudstones, siltstones, conglomerates, and coal. The unnamed formation of the Onekakara Group comprises marine limestones and shell beds, and occasional conglomerates, mudstones, and siltstones (Bishop & Turnbull, 1996). The southeast of PP60674 hosts a small area (~160 $m^2$) of the Miocene Otakou Group, composed of calcareous sandstones and minor tuffs. Regionally, the Otakou Group also contains phosphatic limestones, and phosphate was historically mined from the Clarendon Sand, ~5 km southeast of PP60674 (Bishop & Turnbull, 1996).

Most of the above-mentioned sedimentary rocks have been preserved from erosion due to being capped by members of the DVG (Figure 7-6). Within PP60674, the DVG is mapped as early-mid Miocene, undifferentiated mafic tuff pyroclastics, but regionally the DVG is well known for basanitic lava flows and injections (Bishop & Turnbull, 1996; Scott et al., 2020). The DVG is not known to be connected to economic metallic mineral mineralisation.

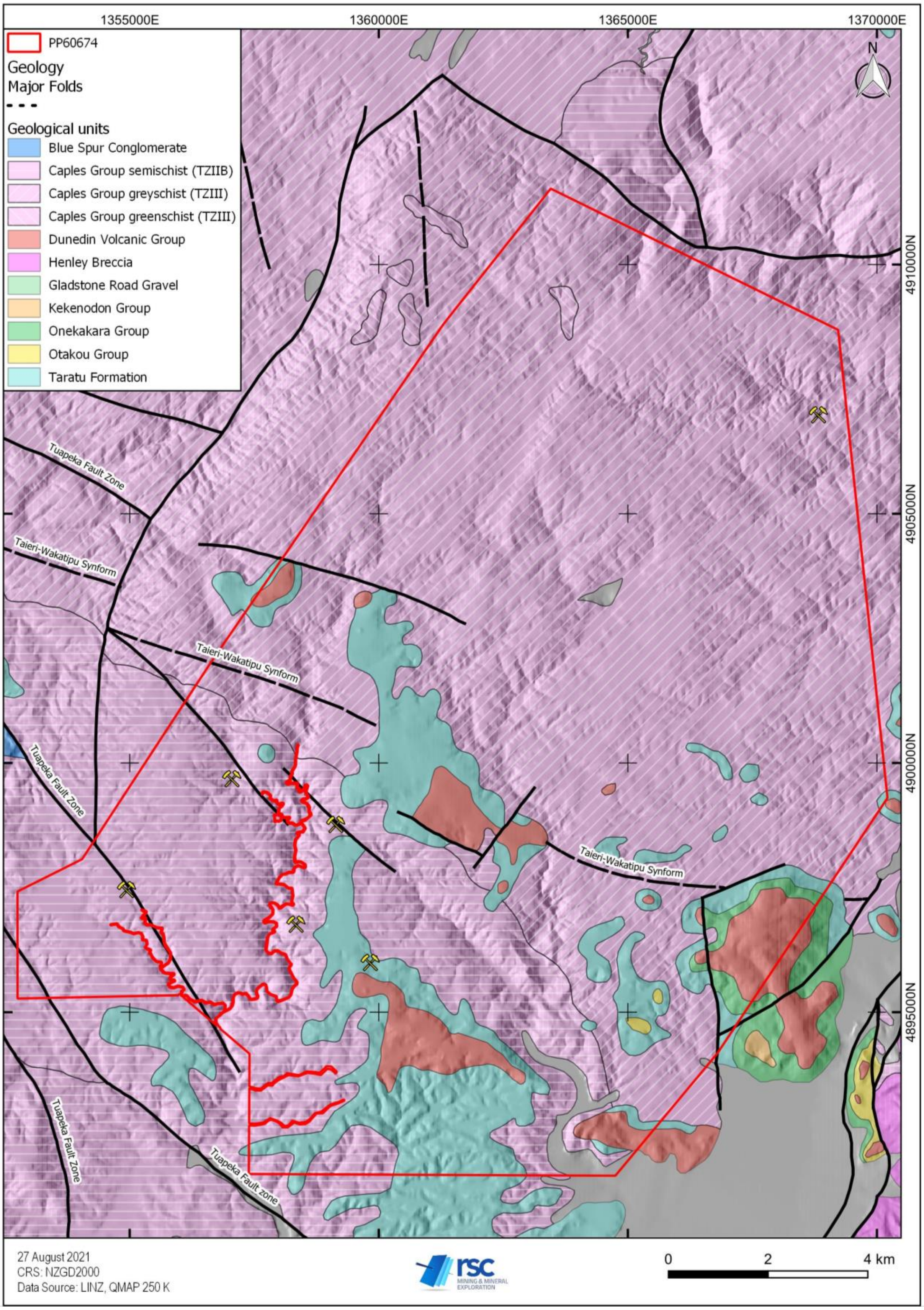



Figure 7-6: Geology of the PP60674 area with DEM (8 m) underlain. Hill shade from the northwest.

Quaternary sediments are mostly found in the south of PP60674, where they are mapped as alluvial sandy-peat. One small zone of sandy peat is also mapped in the centre of PP60674. In the immediate vicinity of PP60674, zones of the Blue Spur Conglomerate are found to the west, with the Kekenodon Group and the Henley Breccia found to the east.

Several relatively large faults within the Tuapeka Fault Zone are mapped in the area (Bishop & Turnbull, 1996). The faults generally strike southeast and commonly mark the contact between the DVG and Cenozoic-Mesozoic sediments. Segments of the southeast-striking Taieri Wakatipu Synform are mapped within the schist basement in the south of the permit area, and several approximately north-orientated folds are located immediately northwest of the permit area (Figure 7-6; Bishop & Turnbull, 1996).

Two principal reef structures occur within the permit area: Canada and Ocean View reefs (Figure 6-2). Both strike approximately to the east and dip steeply to the north, cross-cutting the schist country-rock foliation at a high angle. This suggests the reef structures represent a normal fault-hosted Au-quartz mineralisation system. The known reefs are narrow, with the walls of the reefs well defined and often sheared. Schist-float in the vicinity of the reefs is siliceous, and boulders of massive meta-volcanics occur. Another major reef, the Try Again Reef, is located ~2.5 km north of the Canada/Ocean View Reef.

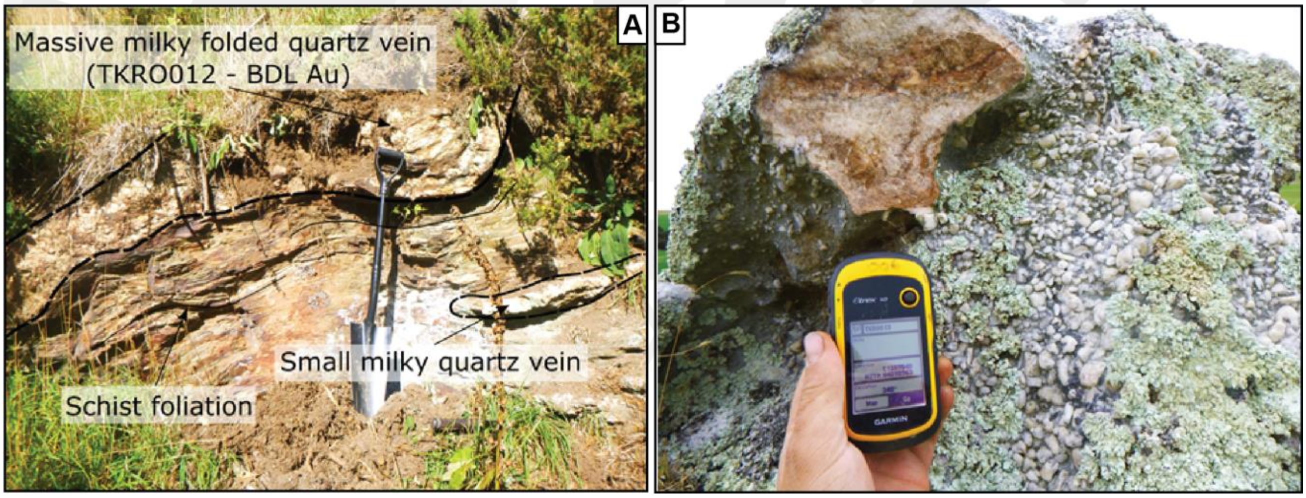



Figure 7-7: Examples of outcrop from PP60674. A) Folded schist and massive quartz vein outcrop from Canada/Ocean View Reef area; B) Ex-situ Taratu Formation silicified quartz conglomerate boulder. Table Mound area. Sample TKRO013.

### 7.3.3 EP60702 Hyde

The Mesozoic basement rocks within EP60702 comprise predominantly of greenschist facies pelitic and psammitic schists of the Otago Schist. Stratigraphic units within the basement rocks can be differentiated only locally, owing to metamorphic effects and the intensity of deformation. Three textural zones are present within the area: TZIIB (foliated greywacke, semi-schist), TZIII (quartzofeldspathic schist), and TZIV (quartzofeldspathic schist-gneiss) (Forsyth, 2001). Three volcanic plugs of the Miocene-aged Dunedin Volcanic Group make up the majority of surface outcrop within EP60702 (Figure 7-8); these are all composed of alkali basalts and related agglomerate tuffs (Forsyth, 2001; Scott et al., 2020).

The volcanics have penetrated and covered Tertiary sediments, protecting them from erosion and as such the sediments within EP60702 are predominantly found in rings around the volcanics (Figure 7-8). The Tertiary sediments belong to the Onekakara Group. These are mapped mostly as the Hogburn Formation, which is a well-known Au-bearing unit in Central Otago and, indeed, has been targeted for Au at Hyde in the past. The Eocene Hogburn Formation is composed of fluvial quartzose sandstones, and locally can be cemented due to silicification. Stratigraphically above the Hogburn Formation lies an Eocene aged un-named formation, also of the Onekakara Group, which is composed of marine glauconitic siltstones to greensands (Forsyth, 2001). Only one extensive unit of quaternary sediments is located within the area, along the Taieri River, which is mapped as alluvial gravels (Forsyth, 2001).

To the east of the permit, the last known surface location of the HMSZ is found at Mt Highlay station (~1.5 km). Gold and scheelite mineralisation are known to occur within the HMSZ, a large, complex northwest-striking structure. The active Macraes mine is situated in the HMSZ, ~13 km to the south, where the structure dips shallowly (~15 degrees). The HMSZ near Mt Highlay is comparatively simple compared to the deposits further south, comprising of a narrow (1–10 m thick) hanging wall shear, which has a generally planar geometry and dips 15–20° towards the northeast and could well continue downdip underneath the volcanics in EP60702. The HMSZ is known to be up to 100 m thick in some areas of the Macraes mine. At the mine, concordant lodes sub-parallel to the bounding faults or vertical quartz veins contain significant amounts of Au.

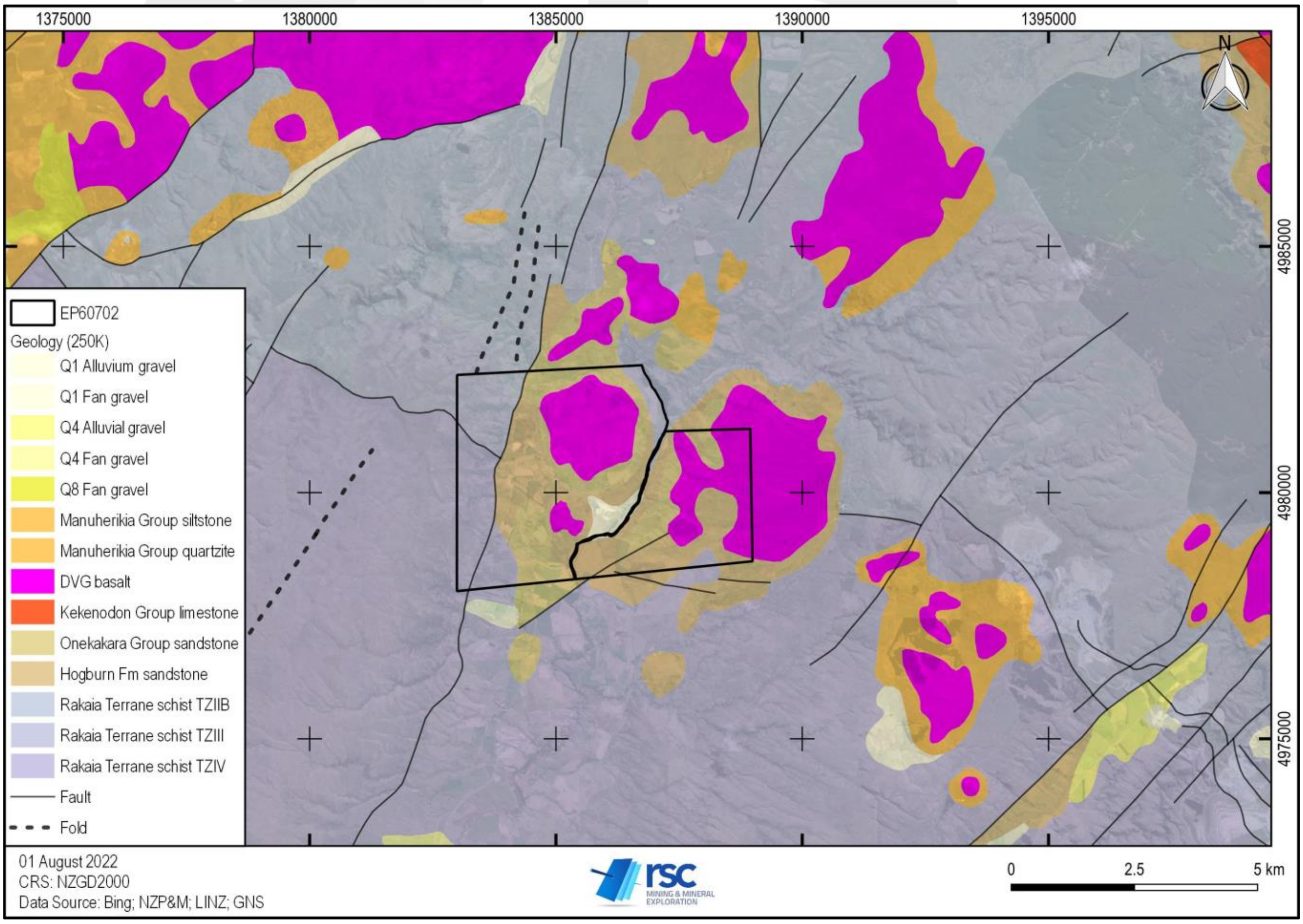



Figure 7-8: Geology at EP60702.

### 7.3.4 PP60705 Rough Ridge South

The geology of the Central Otago region is dominated by Upper Palaeozoic-Middle Mesozoic Otago Schist exposed as resistant pillars (tors) and in gullies. PP60705 consists of chlorite and biotite zones of greenschist facies Otago Schist (TZIII and IV) of Caples and Torlesse (Rakaia) Terrane affinity (Figure 7-9) (Turnbull, 1988). PP60705 lies within the high-grade metamorphic core of the Otago Schist belt (upper greenschist facies, TZIV, quartzofeldspathic schist), which transitions to lower metamorphic and textural grades (TVIII) in the south of PP60705.

It has been hypothesised by KO Gold geologists that the joint of two different terranes (Caples and Torlesse) could be a place of faulting and shearing that has a significant control on gold mineralisation at Golden Gully, similar in nature to the HMSZ that hosts the Macraes mine to the northeast, and the shear that controls mineralisation at Ophir, to the northwest.

Higher conductivity shear zones characterised by graphite and hydrous mica were given focus following the results of an airborne EM and magnetic survey completed by Glass Earth in 2007. Glass Earth (2007) hypothesised that the placer deposits at the Pylep Diggings and Lower Deep Creek, and even those in the placer workings near Long Creek might have weathered from an undiscovered shear zone. Veins, but not shears, in the past were easily discoverable.

The schists are characterised by well-developed metamorphic segregation laminae of quartz-albite and/or epidote chlorite-muscovite-calcite, and muscovite-chlorite and or actinolite-epidote-biotite-sphene-quartz-albite mineral assemblages. While primary sedimentary structures can no longer be recognised in outcrop, there is lithological variation indicated by massive, laminated and interlayered and micaceous schist lithologies. The different types of schist correspond to a range of sand-derived or mud-derived schist and/or spatial variations in the effects of metamorphic segregation processes. The schists of the area are predominantly quartzofeldspathic with two varieties- a) quartz-rich, and b) mica-rich. Within PP60705, psammitic to pelitic schists are present within these two varieties of quartzofeldspathic schist and lesser greenschist horizons (basic meta-volcanics).

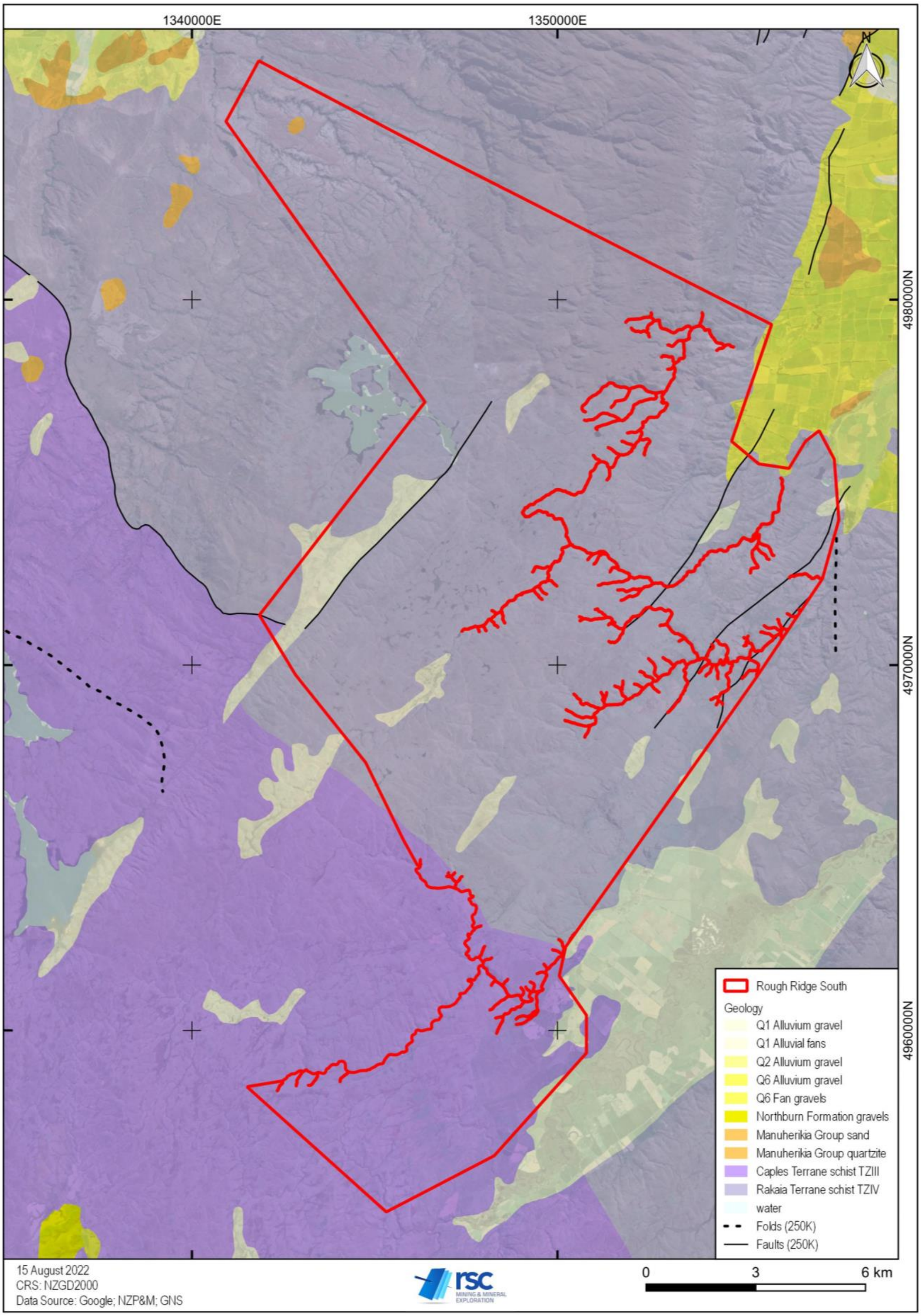



Figure 7-9: Geology at PP60705.

### 7.3.5 PP60727 Carrick Range

The local geology of the Carrick area is indicated by Turnbull (2000) on the GNS 1:250,000 scale geological map, and in more detail by Turnbull (1987) on the 1:63,360 NZ Geological Survey S133 Cromwell map sheet (Figure 7-10). PP60727 is underlain by Palaeozoic to Mesozoic aged Haast Schist (Otago) Group rocks of the Caples tectono-stratigraphic terrane. The main lithology is mapped (Turnbull, 2000) as undifferentiated volcaniclastic sandstone and siltstone metamorphosed to greenschist facies (quartzo-feldspathic) largely of the chlorite TZIV type, along with some areas of TZIII found in the northwest of PP60727. The provenance of the sediments is considered to be volcaniclastic with a depositional setting likely to be a trench-slope-basin environment.

A Lower Tertiary sedimentary sequence comprising non-marine lacustrine clay, silt, and oil shale with minor lignite seams, often with basal quartz sands and conglomerate, was deposited in a large freshwater lake that extended across the entire area. The schist-derived Manuherikia Group, observed at Bannockburn along the flanks of the Carrick Range to the north and east of the permit, forms part of this sequence. The Tertiary sediments are locally unconformably overlain by Quaternary fanglomerate deposits such as the Au-bearing Carrick Gravel at Bannockburn.

The area has only sparse outcrop, as low as 2–5%. The basement schist is characterised by a strong, northeast-striking, second-generation foliation (S2), with segregation lamellae of quartz and feldspar, that is locally offset by a number of north-trending faults. The TZIV schists are characterised by a strong foliation with metamorphic laminae of quartz and albite.

Large areas of PP60727 are obscured by landslide and solifluction deposits, and much of the area is mantled by a thin veneer of loess. On leeward slopes and in gully bottoms, the loess is locally in excess of 1 m thick.

Perhaps the most significant regional structure relates to a northeast-trending, second generation fold in S1 with a moderately southeast dipping axial plane, referred to as the Potters Parasitic Antiform. The fold axis strikes through PP60727 and appears to be spatially related to the overall line of known mineralised workings at Carrick.

A set of northeast-trending faults lie subparallel to the fold, but are progressively offset to the northwest by a series of closely spaced north-trending faults on the northeast side of the Carrick Range. A recumbent second generation antiform, the east-trending Range Antiform, is mapped from the Nevis Valley to the Pipeclay Gully area.

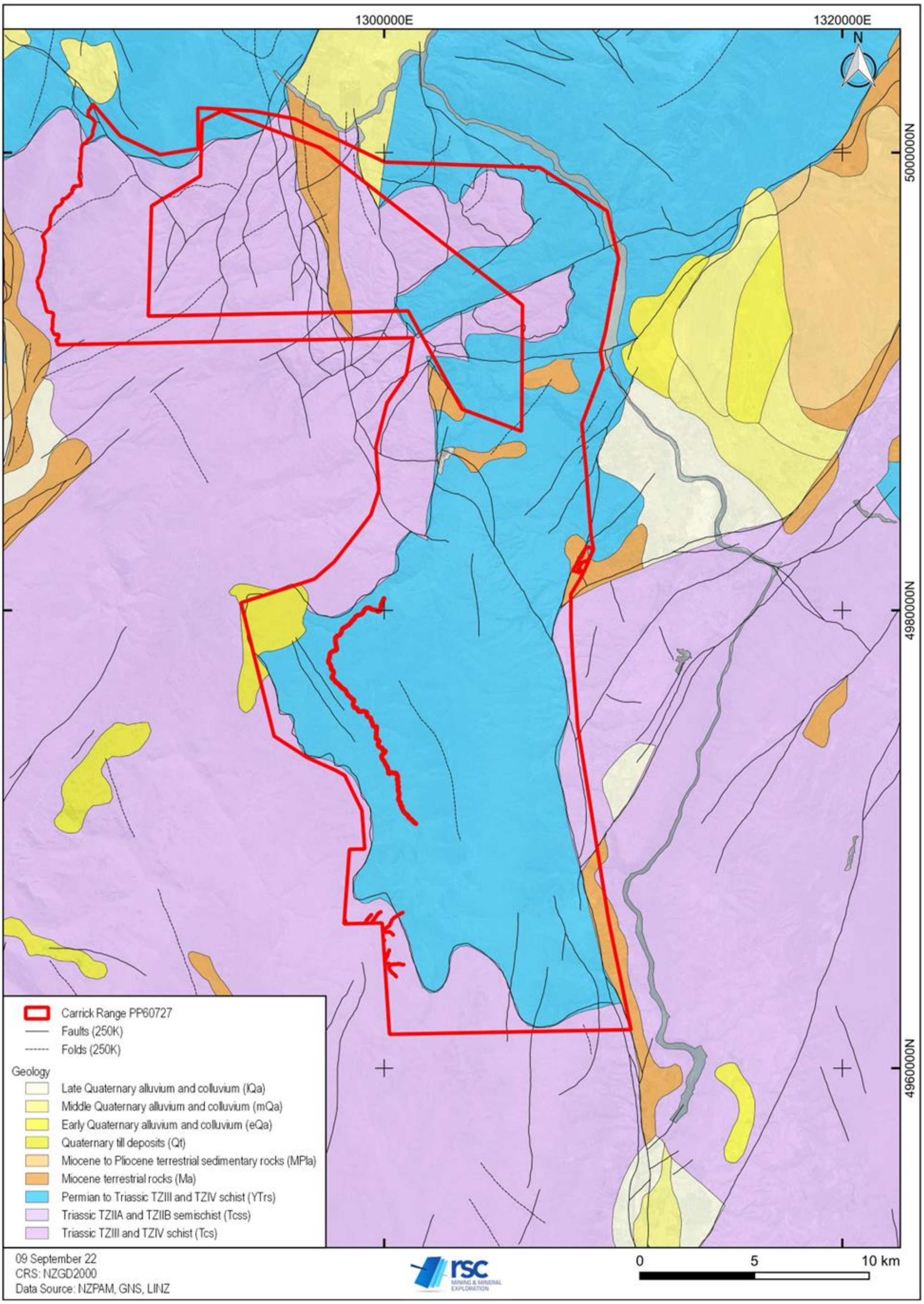



Figure 7-10: Geology at PP60727.

## 7.4 Mineralisation

### 7.4.1 Otago Schist Mineralisation

Hard-rock mineralisation in Otago is most prominent within the greenschist facies rocks of the Otago Schist (Craw & Norris, 1991; Mortensen et al., 2010). The majority of this mineralisation is found as syn- to post-accretionary Au-(±W-Sb)-quartz reefs and shear zones inferred to be of hydrothermal-metamorphic origin. Some pre-accretionary stratiform Cu and Mn deposits also occur within Otago Schist.

Otago's hard-rock Au mineralisation is widely thought to be orogenic in style. Hydrothermal fluids were generated via metamorphic dehydration reactions within the deep sedimentary pile at the greenschist-amphibolite facies transition. Metals were leached from the wall rock into the metamorphic fluids during the migration of the fluids to higher crustal levels, whereby the metals were concentrated and eventually precipitated inside shear zones/fault zones and quartz veins. Orogenic style Au deposits typically host gold at >90% Au purity, with Ag-Hg comprising the bulk of the remaining <10% (Morrison et al., 1991; Knight et al., 1999).

Hard-rock Au mineralisation typically crosscuts greenschist facies TZIII or TZIV quartzofeldspathic Torlesse Terrane (Paterson, 1986). Mineralisation is present but less common in the volcanogenic-quartzofeldspathic Aspiring Terrane and the volcanogenic-quartzofeldspathic Caples Terrane (Ashley & Craw, 1995).

There are two structural styles of Au mineralisation in Otago; high-angle fault systems and low-angle shear zones (Mortensen et al., 2010). Of the more than 200 historically mined Au-mineralised hard-rock systems in Otago, the vast majority are the high-angle, fault-hosted type. These are associated with northwest-striking, steeply-dipping (50–80°) faults (Paterson, 1986). In eastern Otago, typical examples are found at Oturehua, Nenthorn and Barewood. Less common, but higher grade, are the Au deposits at Macraes, and the prospective historical goldfield in Thompson's Gorge, hosted in the gently northeast-dipping Hyde-Macraes Shear Zone, and Rise and Shine Shear Zone, respectively. The two contrasting structural deposit types formed at different times and levels during the exhumation of the schist belt may be distinguished by their different structural style, alteration, and primary vein textures (Mortensen et al., 2010; MacKenzie et al., 2017).

Gold mineralised veins in Otago are typically composed of massive and/or euhedral quartz, and to a lesser extent, carbonates and micas. Ore minerals most commonly associated with Au are pyrite, arsenopyrite, scheelite, and stibnite, along with minor chalcopyrite, sphalerite, galena, and cinnabar (McKeag & Craw, 1989; Craw & Norris, 1991). Gold can be found as native Au-blebs in quartz, or as microcrystalline inclusions inside pyrite or arsenopyrite (Craw & Norris, 1991). Deposits typically display wall rock alteration surrounding mineralised quartz veins, which may also contain Au (Craw, 2002).

Supergene processes are an important factor for the concentration of the near-surface high-grade Au-mineralisation historically targeted in the 1800s–1900s, as well as in alluvial settings (Craw et al., 2015). The process of supergene concentration is thought to have occurred via Au having been chemically mobilised by groundwater from host sulphide minerals, in the orogenic Au deposits of Otago. Mobilisation occurred near the Cenozoic Otago Schist erosional surface beneath the sedimentary cover. Initial Au mobilisation, on a scale of micrometres, occurred when solid solution and microparticulate Au in pyrite and arsenopyrite grains were liberated by sulphide oxidation to iron oxyhydroxide pseudomorphs (Craw et al., 2015). Larger-scale mobilisation involved leaching of Au from up to 100-m-thick zones, which were the target of historical mining, with up to 10x the enrichment of Au in reprecipitation zones. Gold in the supergene zones is commonly crystalline with octahedral shapes and nuggety forms, which fill cavities and coat prismatic quartz crystals. This Au typically retains some or all of its Ag content (typically 2–8 wt%) from the primary Au source.

Tungsten mineralisation (± minor Au), in the Caples Terrane, includes the well-known Glenorchy vein system in northwest Otago, that was mined up until the mid-1960s. Sections of quartz veins in the Old Man Range at the boundary with the Rakaia Terrane returned assay values of up to 8.64% W. (Christie & Brathwaite, 1995a; Clarke, 1980; Scanlan et al., 2018). The Caples Terrane also hosts some of the only reef-style mercury (cinnabar; ± minor Au) in New Zealand, specifically at Waikaka, Waipori, and Waitahuna, the latter two of which are located within 10 km of PP60674. Historically mined alluvial Au workings in Caples Terrane also contain accessory cinnabar (Christie & Brathwaite, 1995b).

### 7.4.2 Smylers Gold Project

Mineralisation in the Smylers Gold Project is associated with shallow to moderately dipping shears (±quartz veins). These structures are generally orientated oblique to the regional schistosity, dipping northeast to east, with the dip trend swinging to the east south of OceanaGold's Pipeline Prospect. Collectively these structures form the eastern continuation of the HMSZ. Typically, there are two mineralised shears, upper and lower, within the main 10–30 m wide shear package above the footwall fault.

Gold mineralisation at Smylers is characterised by shear concordant silicified cataclasites with 'lode' schist, quartz-cemented breccias, and shear-parallel quartz veins that contain arsenopyrite, pyrite, and rare visible Au (Figure 7-11A). Mineralisation is confined to broader zones of shearing and is structurally controlled. Mineralised quartz is generally grey in colour with visible sulphides (pyrite, ±arsenopyrite). As a general rule, higher quartz content is associated with stronger mineralisation. High As values, as measured by portable XRF (>250 ppm), are associated with mineralised shears and quartz veins. Mineralisation types are presented in Figure 7-11 and Figure 7-12.

### 7.4.3 Tokomairiro

Gold mineralisation in PP60674 is hosted by the Caples Terrane. Notable Au mineralisation within the Caples Terrane includes the Waipori goldfield, (Au-Sb) 10 km to the north of PP60674 (now largely drowned by the dammed Lake Mahinerangi hydroelectric scheme). Isolated Au-bearing quartz veins of varying grades also occur in the Rees Valley, Garvie Mountains, and Gabriels Gully (Figure 7-1; Hay & Craw, 1993; Thompson et al., 1995).

Gold is recorded as being distributed throughout fine-grained, dense, rusty, limonitic-stained quartz as equidimensional particles <1 mm in size (Aurum, 1995). The dominant sulphide is arsenopyrite, but sulphides are rare in surface-exposed, semi-oxidised 'ore'. Aurum Reef Resources notes that coarsely crystalline, vuggy, quartz float is common, and this 'indicates that the mineralisation was precipitated from silica-rich fluids circulating within the shear zone' (Aurum,1995).

Many of the known Au-bearing quartz reefs in PP60674 are close to large faults of the Tuapeka Fault Zone, although notably not the Canada or Ocean View reefs. Given the proximity of the reefs to the Tuapeka Fault Zone, the QP considers it plausible to hypothesise a link between the fault zone and Au mineralisation.

The most recent exploration work conducted by RSC, on behalf of KO Gold, showed that mineralisation appears to follow approximately east-striking, north-dipping reefs. There appears to be a link between mineralisation and geomorphology. Mineralisation tends to occur on shallowing ledges on north-dipping slopes. At Canada/Ocean View, the slopes moderately dip ~10–20° north. A break in slope is also present, forming a shallowing ledge, dipping <3°, before continuing to dip 10–20° north. It is along these breaks in slope that historical workings are predominantly found. A less pronounced break in slope is also present at Meggat Burn and Nuggety Gully (Lilley, 2021).

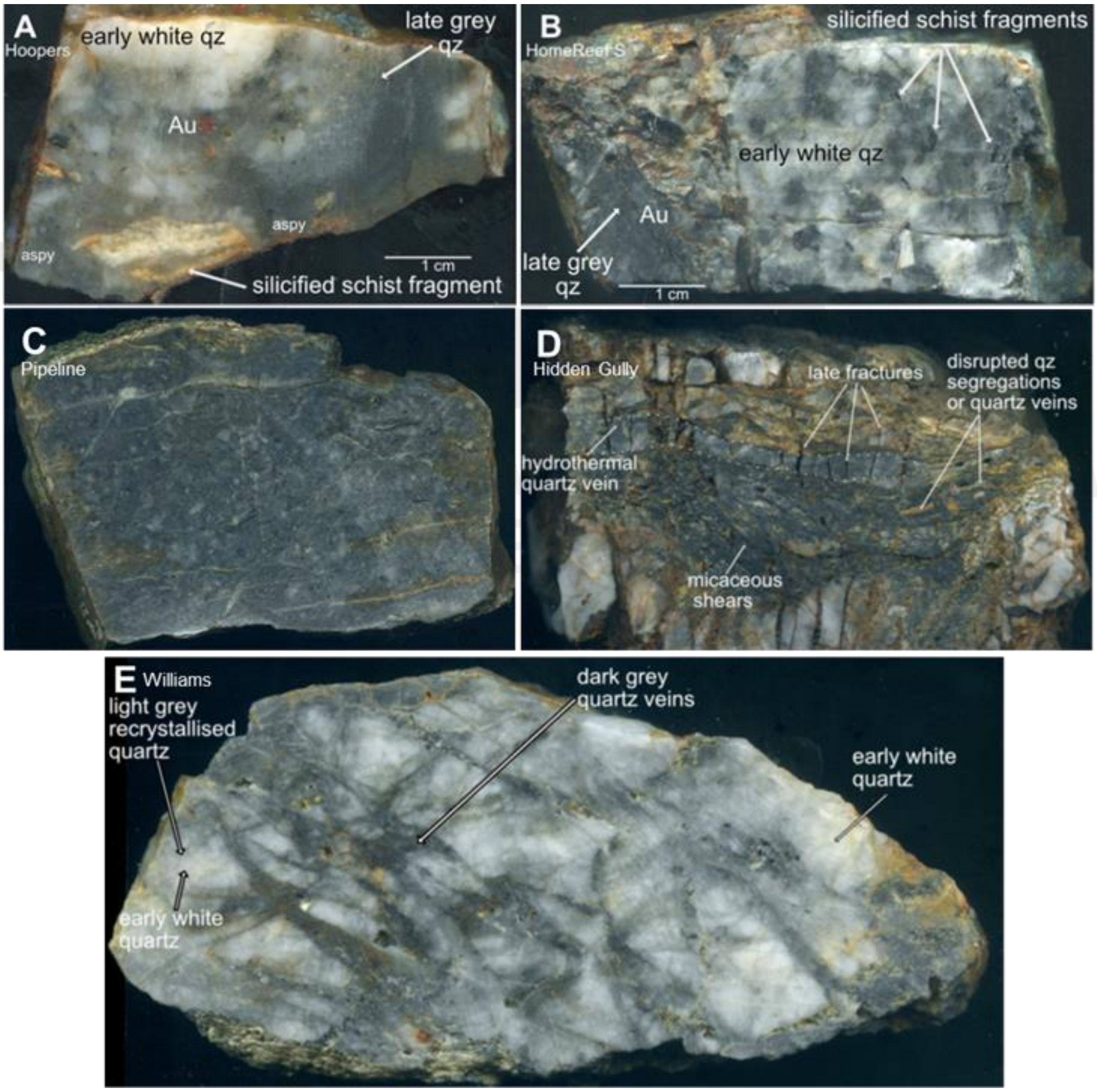



Figure 7-11: Photos of mineralised rocks across the various prospects Smylers Gold project. A) Mineralised quartz vein from Hoopers prospect with silicified schist fragments, grey arsenopyrite quartz, and free gold (MacKenzie 2018); B) quartz vein breccia from Home Reef South (MacKenzie 2018); C) mineralised quartz-cemented breccia. Breccia fragments

of silicified schist are cemented by grey quartz. The schist fragments and grey quartz matrix contain fine grained arsenopyrite and trace pyrite; D) sheared schist and quartz. A dark grey, banded quartz vein (outlined by dashed white lines) lies subparallel to the shears. The white quartz at the bottom of the sample is cut by dark grey micro-veinlets and is either metamorphic quartz or hydrothermal quartz that is deformed and been infilled with a later generation of dark hydrothermal quartz; E) hydrothermal quartz vein. Early white vein quartz is cut by subtle light grey recrystallised quartz. Both generations of quartz are cut by relatively late dark grey quartz veins.

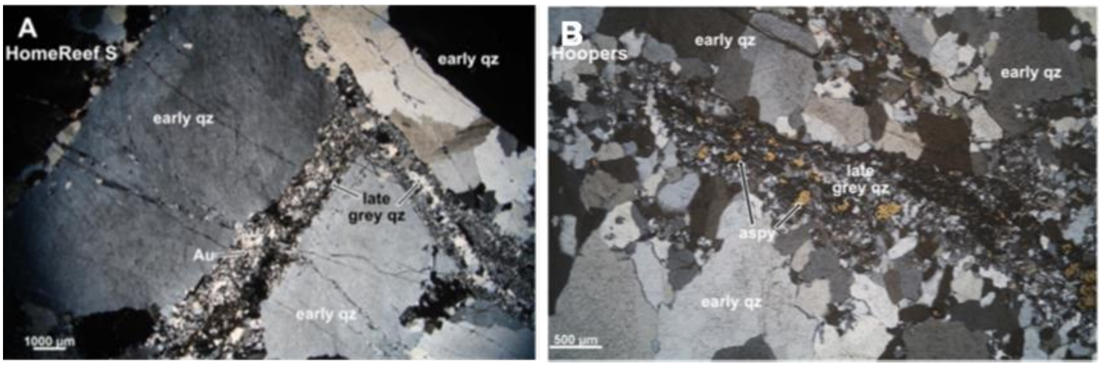



Figure 7-12: Transmitted light, crossed polar photomicrographs of typical shear-parallel and hydrothermal quartz veins from the Smylers Gold Project. A) Vein quartz from the adit at Home Reef South indicating relatively coarse grained, early quartz with undulatory extinction. The early quartz is cut by fine grained grey quartz with gold; B) Combined transmitted and reflected light photomicrograph of Hoopers vein quartz cut by finer grained grey quartz and arsenopyrite. Photomicrographs from Mackenzie 2018.

### 7.4.4 Hyde

KO Gold hypothesises that the Au mineralisation within EP 60702 Hyde Project is hosted within gently northeast-dipping shears, given the proximity of the permit to the Macraes mine, and the probability of the Hyde-Macraes Shear Zone (HMSZ) striking through the permit area. Data suggests that any hard rock mineralisation found in relation to HMSZ will be related to the ~140–135 Ma mineralisation event. As such, Au-mineralisation occurs as two types within this model. The first occurs in the upper ~20 m, where the schist is oxidised and supergene enrichment of the Au has been able to occur: in this oxidised zone Au is typically found as free blebs within the quartz and can reach exceptionally high levels (Craw et al., 2015). This is the type of mineralisation historically targeted due to its high-grade, low-tonnage style. The second type of mineralisation occurs below this oxidised supergene zone: in this zone, the Au is typically found as dissolved Au or microparticulate Au hosted within sulphides (pyrite, arsenopyrite), which are in turn found inside of shear pods (Craw et al., 2015). This style of mineralisation is the target of the Macraes mine, and is low grade, high tonnage.

### 7.4.5 Rough Ridge South

Mineralisation at Rough Ridge South is prominent throughout lower greenschist facies TZIII and upper greenschist facies TZIV schists as part of the wider Otago Schist belt (Craw & Norris, 1991; Mortensen et al., 2010; Paterson, 1986). It has been hypothesised that Au deposits in the Serpentine prospect (just to the south of PP60705) were mineralised during the mid-Cretaceous period contemporaneous with other Au deposits in Otago. Veins in the rocks surrounding the Project formed when the rocks were cooler and shallower, and therefore, are brittle (Paterson, 1986). Typical vein systems in the Serpentine prospect are high angle, fault-hosted and strike northwest with a steep dip of ~50–80° (Paterson, 1986). These structures cross-cut schist foliation.

Veins are composed of quartz, subordinate carbonate, pyrite, arsenopyrite, scheelite and minor chalcopyrite, sphalerite, galena, Au, cinnabar, and stibnite (McKeag & Craw, 1989; Craw & Norris, 1991). Material from the Serpentine quartz reef was recorded as milky quartz with rubbly country rock; pyrite is abundant, which could cause treatment problems.

Gold can be found as native blebs or associated with sulphides such as pyrite and arsenopyrite (Craw & Norris, 1991). The area also exhibits wall rock alteration associated with the veins, where increased permeability of the host rock can lead to greater wall rock alteration. The altered wall rock may also host Au mineralisation (Craw, 2002).

#### 7.4.6 Carrick Range

Mineralisation at Carrick Range occurs in quartz lodes and reefs hosted in argillaceous mica-schist, grading in places to phyllite (Park, 1908). The lodes typically dip steeply and tend to strike either north-south or east-west, and are not controlled by local bedding or foliation. These narrow quartz reefs are of a loose, broken nature. The irregularity of the reefs was considered to be the chief limitation by historical miners, as they were curved in both strike and dip directions and were faulted. The soft nature of the quartz reefs also adversely affected ground support in the mine workings. The lodes in the south have had little exploration and study, and as such their orientations are not well recorded.

The Carrick lodes were categorised by Park (1908) as mineralised zones of crushed rock lying between two parallel lines of fracture. The crushed rock is silicified and replaced by quartz to a variable degree and is veined by quartz as well. The country rocks were described by Park (1908) as "soft argillaceous mica-schist and phyllite", which probably represents pelitic schist.

The worked lodes at Carrick are <1.2 m thick and were locally high grade. Primary sulphide mineralisation is typically pyrite and arsenopyrite with minor accessory sphalerite, chalcopyrite, and possibly galena (McPherson, 1984). Scheelite was noted in a few lodes and small stibnite-bearing lodes were found in the northern sector of the Carrick Range area.

# 8. Deposit Types

The Hyde Macraes Shear Zone (HMSZ) is an example of an orogenic style gold deposit. Orogenic gold deposits are found to have formed throughout earth's history, the oldest dating back to the Archean. Most of the mined deposits occur in greenschist facies metamorphic belts, and deposit formation has been intimately related to the metamorphic evolution of those metamorphic belts. The most productive orogenic deposits are found within Archean cratons hosted by greenstone belts dominated by metabasic rocks, such as Yilgarn of Western Australia and the Abitibi of Canada (Goldfarb et al. 2005). In contrast, Phanerozoic orogenic deposits are mainly hosted in metasedimentary schist belts, formed as accretionary complexes at convergent tectonic margins such as the Otago Schist. Most orogenic Au deposits like the HMSZ and including the Smylers Gold Project and other KO Gold projects occur in greenschist facies rocks.

Orogenic Au deposits are structurally controlled features, typically focussed in fault and shear zones (Goldfarb et al. 2005). The deposits form where flow of hydrothermal fluids in the middle crust has been controlled by the structures. The fluids deposit quartz and sulphide minerals along the structure, particularly in extensional sites where fault motion has created wider cavities. These depositional processes occur between 200ºC and 400°C and 5–15 km depth (Goldfarb et al. 2005). The hydrothermal fluids are mostly derived from metamorphic processes occurring in the host schist terrane, although many of the deposits have formed after the immediate host schist has been uplifted from metamorphic depths (Craw and Mackenzie 2016).

Gold within orogenic deposits typically occurs either as free particles within the quartz veins or is enclosed within the sulphide minerals (typically pyrite and/or arsenopyrite) as microparticles, nanoparticles, or in solid solution (Craw and MacKenzie 2016). In addition to the deposition of the Au-bearing quartz veins, some hydrothermal fluid penetrates the immediate host rocks and causes alteration of the pre-existing minerals, forming a halo containing sulphide minerals ± Au. All these characteristics of orogenic Au mineralisation are found within the HMSZ.

The Otago region hosts numerous orogenic Au deposits that are well studied and understood. The Macraes deposit on the HMSZ is the most productive orogenic Au system found to date in Otago. The Macraes deposit has been studied extensively over the past 30 years. Craw and MacKenzie (2016) summarise the academic work and current understanding of the Hyde-Macraes orogenic Au deposit.

# 9. Exploration

## 9.1 Summary

As of the effective date of this Report, exploration conducted by KO Gold has only occurred at EP60389 and EP60129 (Smylers Gold Project), and PP60674 (Tokomairiro). Exploration, as part of the minimum work programme, is yet to begin at EP60702 (Hyde), PP60705 (Rough Ridge South) or PP60727 (Carrick Range). The information presented in this section pertains only to exploration activities conducted at the Smylers Gold Project and Tokomairiro.

## 9.2 EP60389 and EP60129 Smylers Gold Project

### 9.2.1 Mapping

From 2017–2022, geological and structural mapping was progressively undertaken (Figure 9-1). Data were compiled into GIS and Access databases and combined with historical data. The position of mineralised features identified in soil geochemistry was mapped, although often poorly exposed. The location of field measurements was recorded using a Garmin 64s GPS or a Trimble Juno3b with data logged into notebooks/Trimble.

In 2018, GNS Science was contracted to undertake field mapping at both permit and prospect scales in EP60389 (Smylers Gold) to improve the geological understanding of drillhole targeting. The work involved 19 person-days in the field, 773 structural measurements, 27 new rock thin-section slides and petrographic analysis, and analysis of 183 in-situ samples by portable X-Ray fluorescence (pXRF). Following the fieldwork completed by GNS Science, GNS updated the GIS dataset, and models of prospective structures were developed. Mapping was undertaken by Simon Cox and Nick Mortimer, both highly experienced in mapping within the Otago Schist Belt. Data from the programme were incorporated with previous mapping data into the regional database.

Following the 2018 GNS mapping programme, Hardie Pacific completed several mapping campaigns. Once the broad orientations of mineralised structures were determined, through initial drilling and trenching campaigns, follow-up mapping was undertaken to map the corridors of likely long strike extensions, i.e. in the Smylers east area.

A total of 1,899 (1,452 within EP60389 and 447 within EP60129) structural measurements have been collected and collated from within the Smylers Gold Project Area (Figure 9-1).

#### *9.2.1.1 Assessment of Textural Zone Boundary in EP60389*

GNS Science collected 55 rock-chip (hand) samples during its mapping programme at EP60389. From that, 27 samples were made into thin sections. The rock-chip and thin-section samples were analysed to help aid in mapping the change in textural and metamorphic grade of the schist at EP60389, based on Turnbull et al.'s (2001) classification.

Northeast of EP60389, near Macraes Flat, the Footwall Fault truncates the base of the mineralised HMSZ, and major breaks in textural and metamorphic grade occur across the Footwall Fault (Mortimer, 2000; 2003; Forsyth, 2001). Hyde Resources' hypothesis is that a similar textural and metamorphic break would occur in EP60389, and petrographic samples were analysed to prove this hypothesis.

Hand sample and thin-section observations in the Smylers Gold Project (Figure 9-1, Table 9-1) reveal an overall south-westward increase in textural and metamorphic grade across the permit area, which corresponds to increasing structural depth in the schist pile. The TZIII/TZIV transition coincides approximately with mapped, small shear zones along the Pipeline, Pipeline South, Kensington and Hoopers trend, and possibly with a silicified shear zone in the Pleasant River at E1415893, N4960694 (sample TPN44). However, because TZIII rocks are present everywhere in the footwalls of these local shear zones, the change in textural zone is not as obvious or consistent in the permit area compared to the change in the Footwall Fault of the HMSZ. Nonetheless, the coincidence of the aforementioned prospects and mineral occurrences with the TZIII/TZIV transition lends support to these small, mapped shear zones being related to the Footwall Fault and, immediately overlying, HMSZ.

Overall, it seems likely that displacement on the Footwall Fault, as identified by sharp and clear textural zone break, decreases from the Macraes area to EP60389. In contrast, Home Reef South, Chapmans, Forestry North, Hidden Gully, and Williams prospects all lie within TVIII schist, and thus may be in an analogous structural and metamorphic position to Golden Bar or the so-called 'Eastern Lodes' near Macraes.

#### 9.2.2 Rock-Chip Sampling

From 2017–2022, rock-chip sampling has been progressively undertaken by Hardie Pacific in the Smylers Gold Project area, typically concurrent with trenching and field mapping/soil sampling campaigns. Sampling predominantly targeted mineralised quartz veins, sheard schist, breccias, catalases, and schist outcrops. Rock-chip samples included float, grab, and channel samples. As of the effective date of this Report, 349 rock-chip samples have been collected within EP60389 (Figure 9-2) and 20 rock-chip samples collected within EP60129 (Figure 9-3). Sample data from rock chip samples above 2 g/t Au are detailed in (Table 9-2).

Samples collected typically weighed ~1 kg and were collected in labelled calico or plastic sample bags. Outcrop and sample data were recorded in the field along with GPS coordinates. A Garmin 62s, 64s or 66i or a Trimble juno3b were used to record the location of the samples. Field notes were either collected in a field notebook or in a Trimble. A sample ID was assigned to each sample and submitted to SGS Westport for sample preparation (crushing and pulverising). Rock-chip samples were also analysed for Au by fire assay at SGS Waihi, As, Sb by aqua regia ICP-MS at SGS Waihi, and W by XRF at SGS Westport. No CRMs were submitted to the laboratory with rock-chip samples. All data are contained within an Access database.

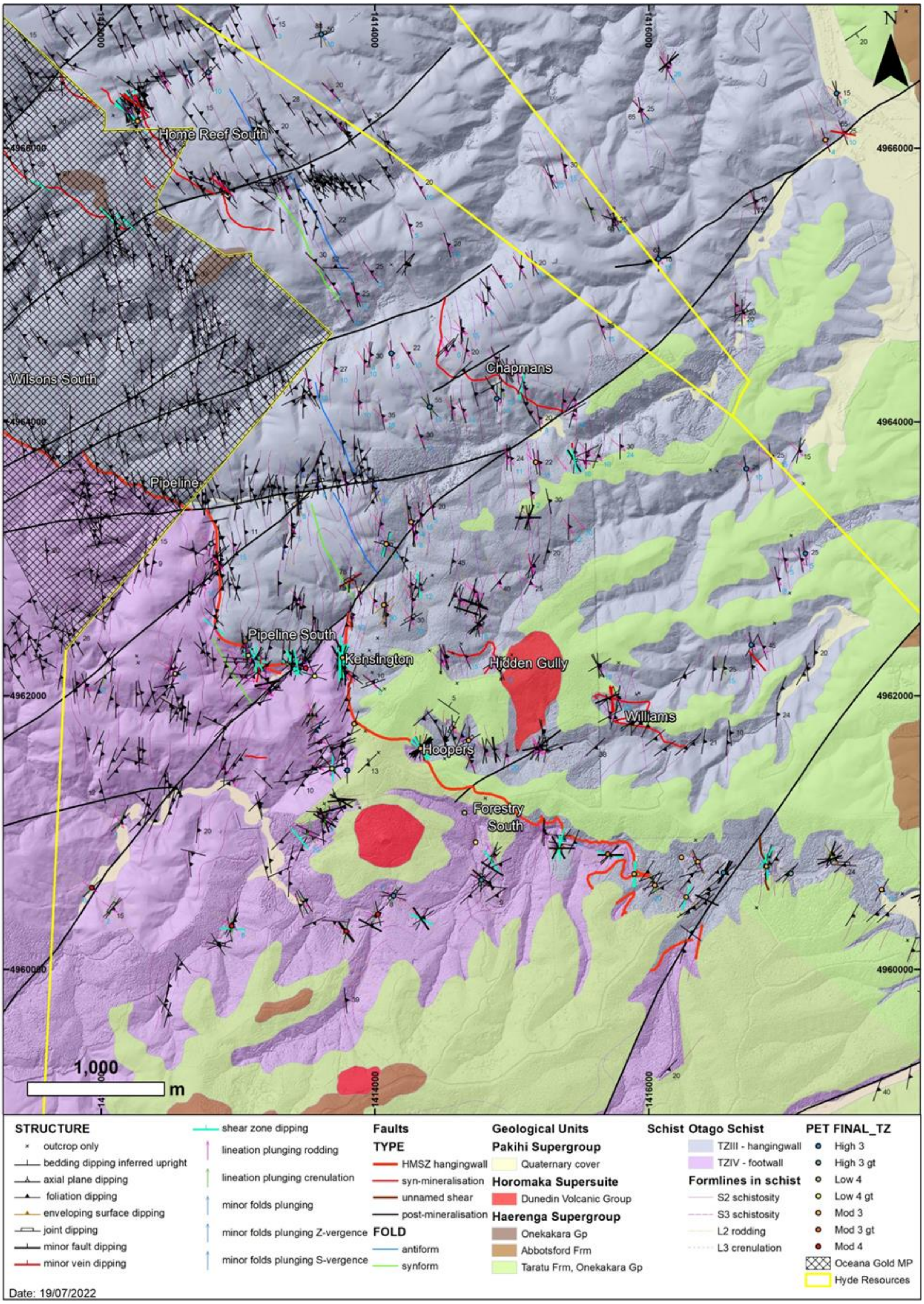



Figure 9-1: Geological map of Smylers Gold Project. This includes all historical third party and current data.

Table 9-1: Summary of schist textural grade and metamorphic garnet (gt) occurrences in hand samples and thin sections. TS indicates thin-section samples. NA = not applicable.

| SAMPLE | NZTM_E | NZTM_N | NOTES | TS | FINAL TEXTURAL GRADE |
|---|---|---|---|---|---|
| SC150 | 1417370 | 4966400 | Psammitic | | High 3 |
| SC152 | 1417290 | 4966060 | Psammitic | | Moderate 3 |
| SC154 | 1416070 | 4965190 | Pelitic | | High 3 |
| SC162 | 1414120 | 4964500 | Pelitic | | High 3 |
| SC171 | 1414400 | 4964110 | Psammo-pelitic | | High 3 |
| SC175 | 1414890 | 4964170 | Psammitic | | High 3 |
| H71387 | 1413560 | 4962141 | Pelitic | Y | Low 4 gt |
| H71388 | 1413849 | 4961793 | Psammitic weathered | Y | Moderate 3 |
| H71390 | 1413798 | 4961454 | Psammitic | Y | High 3 |
| H71392 | 1413686 | 4961465 | Psammitic | Y | Low 4 |
| H71393 | 1413494 | 4962199 | Psammitic | Y | Moderate 4 |
| H71396 | 1412804 | 4963108 | Psammitic | Y | High 3 gt |
| H71400 | 1414022 | 4960402 | Pelitic | | Moderate 4 |
| H71405 | 1414789 | 4960660 | Pelitic | Y | Low 4 gt |
| H71406 | 1417039 | 4960700 | Pelitic | Y | High 3 |
| H71409 | 1416546 | 4960706 | Pelitic | | High 3 |
| H71411 | 1414654 | 4961144 | Pelitic | | Low 4 |
| H71412 | 1414737 | 4960927 | Pelitic | Y | Low 4 gt |
| H71415 | 1415701 | 4960842 | Psammitic | Y | Moderate 3 gt |
| H71417 | 1416238 | 4960818 | Pelitic | | Moderate 3 |
| TPN012 | 1414083 | 4963107 | Pelitic | Y | Moderate 3 |
| TPN026 | 1413077 | 4962293 | Pelitic | Y | Low 4 |
| TPN031 | 1411933 | 4960595 | Pelitic | | Moderate 4 |
| TPN034 | 1412955 | 4960316 | Pelitic | Y | Moderate 4 |
| TPN036 | 1413790 | 4960277 | Pelitic | Y | Moderate 4 |
| TPN038 | 1414137 | 4960538 | Psammitic | Y | High 3 |
| TPN039 | 1414341 | 4960366 | Cataclastic | | NA |
| TPN040 | 1414779 | 4960652 | Psammitic | | High 3 |
| TPN044 | 1415894 | 4960695 | Silicified cataclastic | Y | Moderate 3 |
| TPN045 | 1416044 | 4960614 | Pelitic | | Moderate 3 |
| TPN046 | 1416275 | 4960528 | Psammo-pelitic | Y | Moderate 3 |
| TPN047 | 1416358 | 4960785 | Psammitic | | Moderate 3 |
| TPN050 | 1417700 | 4960581 | Psammitic | | Moderate 3 |
| TPN052 | 1416859 | 4960751 | Psammitic | | Moderate 3 |
| TPN055 | 1414684 | 4961673 | Psammitic | | Moderate 3 |

| SAMPLE | NZTM_E | NZTM_N | NOTES | TS | FINAL TEXTURAL GRADE |
|---|---|---|---|---|---|
| **TPN057** | 1414332 | 4961612 | Pelitic | | Moderate 3 |
| **TPN058** | 1412267 | 4966197 | Pelitic | Y | Moderate 3 |
| **TPN061** | 1412782 | 4966554 | Pelitic | Y | High 3 |
| **TPN062** | 1413608 | 4966831 | Psammitic | | High 3 |
| **TPN063** | 1414008 | 4969225 | Psammitic | Y | High 3 |
| **TPN064** | 1413637 | 4971299 | Psammitic | | Low 4 |
| **TPN065** | 1411162 | 4970495 | Psammitic | | Moderate 3 |
| **TPN066** | 1408925 | 4961461 | Pelitic | | Moderate 4 |
| **TPN067** | 1408766 | 4962416 | Pelitic | Y | Moderate 4 |
| **TPN069** | 1405769 | 4964636 | Pelitic | | Moderate 4 |
| **TPN070** | 1404353 | 4963695 | Pelitic | Y | Moderate 4 |
| **SC009** | 1413764 | 4962277 | More massive schist from track, Kensington | | Moderate 3 |
| **SC021** | 1414065 | 4962661 | Laminated schist, rodded, dominant S2, locally crosscut by S3 | | Moderate 3 |
| **SC043** | 1414265 | 4963267 | Outcrop with lots of quartz veins ('Hawea' like) | | Moderate 3 |
| **SC054** | 1412541 | 4962160 | Large outcrop laminated schist, isoclinal folds | Y | Low 4 |
| **SC083** | 1414911 | 4962202 | Disrupted quartz veins, strong rods | | Moderate 3 |
| **SC099** | 1415174 | 4963705 | massive schist | Y | Moderate 3 |
| **SC113** | 1416712 | 4963658 | Planar laminated schist | Y | High 3 |
| **SC118** | 1417144 | 4963037 | Laminated schist, rodded, dominant S2, locally crosscut by S3 | Y | High 3 |
| **SC124** | 1416748 | 4962369 | Zone where S3 dominant | Y | High 3 |

Table 9-2: Rock-chip samples above 2 ppm gold from Smylers Gold Project. Detection limits are listed.

| ID | Lithology | Type | Interval (m) | Au (ppm) | As (ppm) | Sb (ppm) | W (ppm) |
|---|---|---|---|---|---|---|---|
| **Method** | | | | FAA303 | IMS12R AAS15Q | IMS12R | XRF74V |
| **Lower Detection Limit** | | | | 0.01 | 0.01 | 0.1 | 6 |
| **Upper Detection Limit** | | | | 100 | 2,000 | 1,000 | 10,000 |
| **71381** | Schist & Quartz | Float | | 15.2 | 3,100[1] | 0 | 61 |
| **69821** | Quartz Vein | Float | | 9.06 | 32 | 0.4 | 49 |
| **69860** | Shear Rock | Chip | | 8.42 | 3,000[1] | 0 | 28 |
| **71367** | Quartz vein | Chip | | 7.53 | 23 | 0.5 | 27 |
| **19376** | Schist | Channel | 1 | 6.34 | 87 | 3.8 | 100 |
| **71423** | Quartz Vein | Channel | 1 | 5.56 | 1,860 | 5.8 | 42 |
| **71384** | Quartz Vein | Chip | | 5.35 | 2,900[1] | 0 | -999 |
| **19374** | Shear Rock | Channel | 1 | 4.95 | 28 | 1.4 | 52 |
| **71422** | Quartz Vein | Channel | 1 | 4.91 | 4,800[1] | 9 | 63 |
| **71399** | Quartz Vein | Chip | | 4.28 | 1,580 | 3.6 | 24 |
| **71382** | Shear Rock | Chip | | 4.26 | 3,200[1] | 0 | 29 |
| **52686** | Quartz Vein | Chip | | 4.14 | 2,000 | 18.6 | 34 |
| **19375** | Shear Rock | Channel | 1 | 3.82 | 23 | 1.6 | 88 |
| **71441** | Shear Rock | Channel | 1 | 3.63 | 1,920 | 4.6 | 48 |
| **71442** | Shear Rock | Channel | 1 | 2.5 | 2,400[1] | 4.1 | 34 |
| **19372** | Shear Rock | Channel | 1 | 2.47 | 6 | 0.7 | 68 |
| **71455** | Schist | Channel | 1 | 2.23 | 68 | 1.2 | 43 |
| **19371** | Quartz Vein | Channel | 1 | 2.09 | 32 | 2.2 | 83 |

[1]samples reported As above the upper IMS12R upper detection limit and were re-analysed using AAS (AAS15Q).

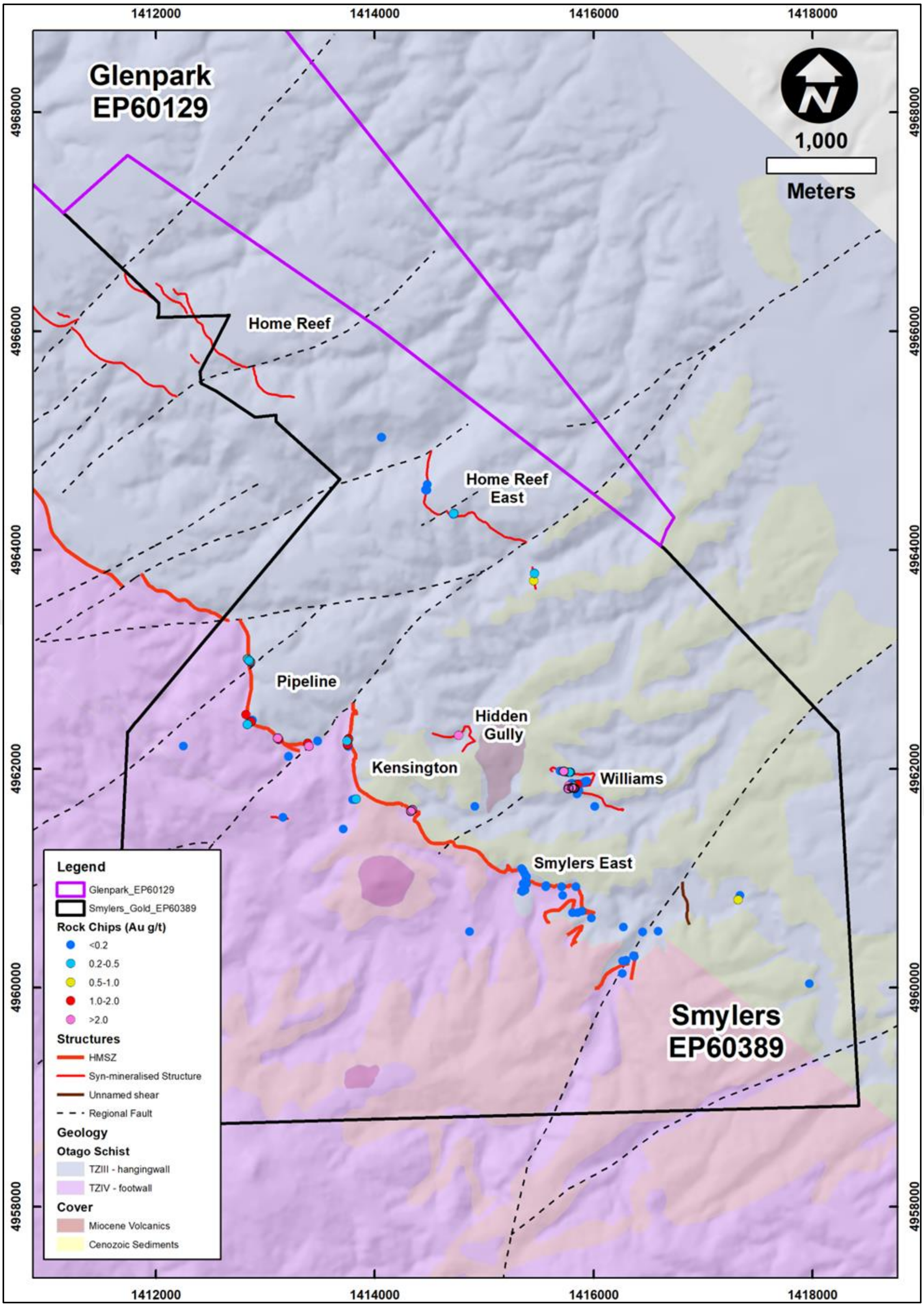



Figure 9-2: Rock-chip samples collected in EP60389 (Smylers Gold).

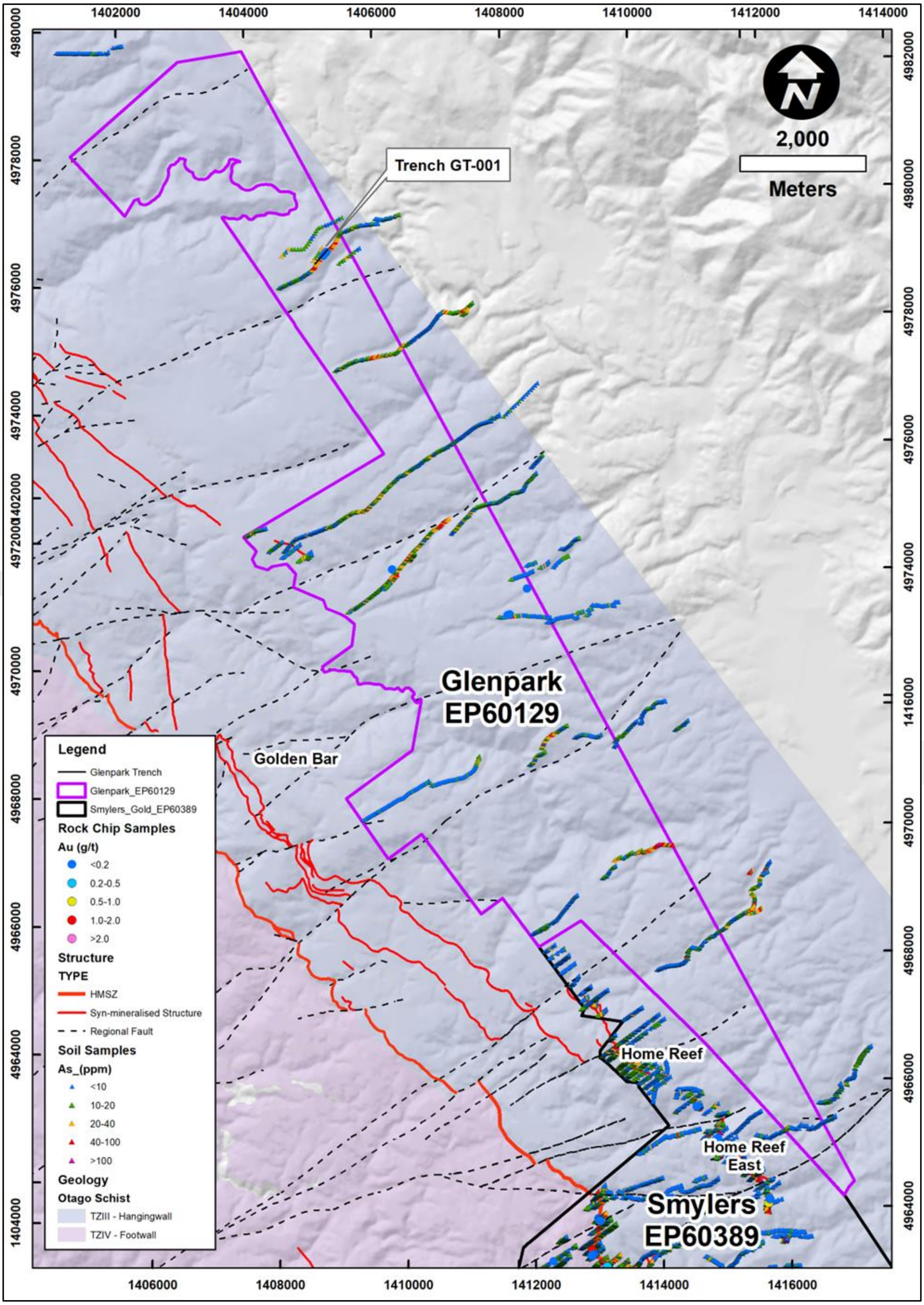



Figure 9-3: Soil and rock-chip samples collected from EP60129.

### 9.2.3 Trenching

#### *9.2.3.1 EP60389 Smylers Gold*

Fourteen trenches totalling 832 m have been excavated within EP60389. A summary of the trenches is included in Table 9-3. Trenching was used prior to drilling to confirm the presence and orientation of mineralised structures identified during soiling sampling. Trenches have been used widely as an exploration tool in the region to map and sample mineralised structures that are often poorly exposed.

Trenches were positioned perpendicular to the inferred orientation of the structure identified by soil sampling and geological mapping (Figure 9-4). A 20-tonne excavator was used to dig and rehabilitate the trenches. The beginning of each trench was marked with flags. The coordinates for the start and end of the trench were recorded with a GPS. The excavator dug the trench until the supervising geologist(s) from Hardie Pacific was confident the structure of interest was exposed. Trenches were ~1 m wide and up to 2 m deep. Excavated trenches were marked up at 1-m intervals using a 50-m tape measure (Figure 9-5D). Geological mapping and structural data were collected and recorded in notebooks for each metre. A pXRF was used to scan each metre of the trench to ascertain which sections of the trench contained anomalous arsenic (Figure 9-5E). Mineralised and prospective mineralised zones were sampled at 1-m intervals using a rock hammer and chisel. A tarpaulin, 1.5 m x 1.0 m in size, was laid out along the trench floor to catch rock chips during sampling. Samples were assigned a sample ID and placed into labelled sample bags. Trenches were photographed, backfilled, and rehabilitated as per agreements with the landowners.

Table 9-3: Overview of EP60389 (Smylers Gold) trenching results.

| Trench ID | Length (m) | X Coord Start | Y Coord Start | X Coord End | Y Coord End | Date | Mineralised Intercepts |
|---|---|---|---|---|---|---|---|
| **02** | 6 | 1415768.5 | 4961819.5 | 1415773.1 | 4961815.6 | 2018 | 7 m @ 3.12 g/t Au |
| **03** | 129 | 1416011.4 | 4961652.2 | 1415885.4 | 4961679.1 | 2018 | No significant intercepts. |
| **04** | 176 | 1415773.4 | 4961869.5 | 1415942.4 | 4961885.6 | 2018 | 3 m @ 1.35 g/t Au |
| **05** | 135 | 1415663.2 | 4961972.9 | 1415796.6 | 4961966.6 | 2018 | 11 m @ 0.64 g/t Au (incl. 3 m @ 1.33 g/t Au) |
| **06** | 36 | 1413830.9 | 4961722.8 | 1413796 | 4961713.7 | 2018 | 4 m @ 0.17 g/t Au |
| **07** | 68 | 1412883 | 4962442.1 | 1412830.4 | 4962399 | 2018 | 6 m @ 0.79 g/t Au (incl. 2 m @ 1.06 g/t Au) |
| **08** | 88 | 1412824.7 | 4963017.4 | 1412881.3 | 4962950.4 | 2018 | 8 m @ 0.63 g/t Au (incl. 2 m @ 1.74 g/t Au) |
| **09** | 32 | 1414482.9 | 4964544.7 | 1414451.3 | 4964549.7 | 2018 | No significant intercepts. |
| **10** | 38 | 1414727 | 4964337.8 | 1414704.9 | 4964306.8 | 2018 | 4 m @ 0.19 g/t Au (incl. 2 m @ 0.27 g/t Au) |
| **11** | 49 | 1415826.8 | 4962039.4 | 1415784.7 | 4962064.9 | 2018 | Not sampled. No mineralisation intercepted. |
| **12** | 28 | 1415773.3 | 4961812.5 | 1415745 | 4961814.8 | 2018 | Not sampled. Ten metres along strike of Trench 02. |
| **13** | 17 | 1415806.8 | 4963386.6 | 1415836 | 4963382.5 | 2021 | Not sampled. Loess too thick to reach schist. |
| **14** | 30 | 1415473.2 | 4963772.5 | 141546 | 4963762.5 | 2021 | No significant intercepts. |
| **GT001** | 85 | 1405913.5 | 4977358.7 | 1405863.3 | 4977316.8 | 2019 | No significant intercepts. |

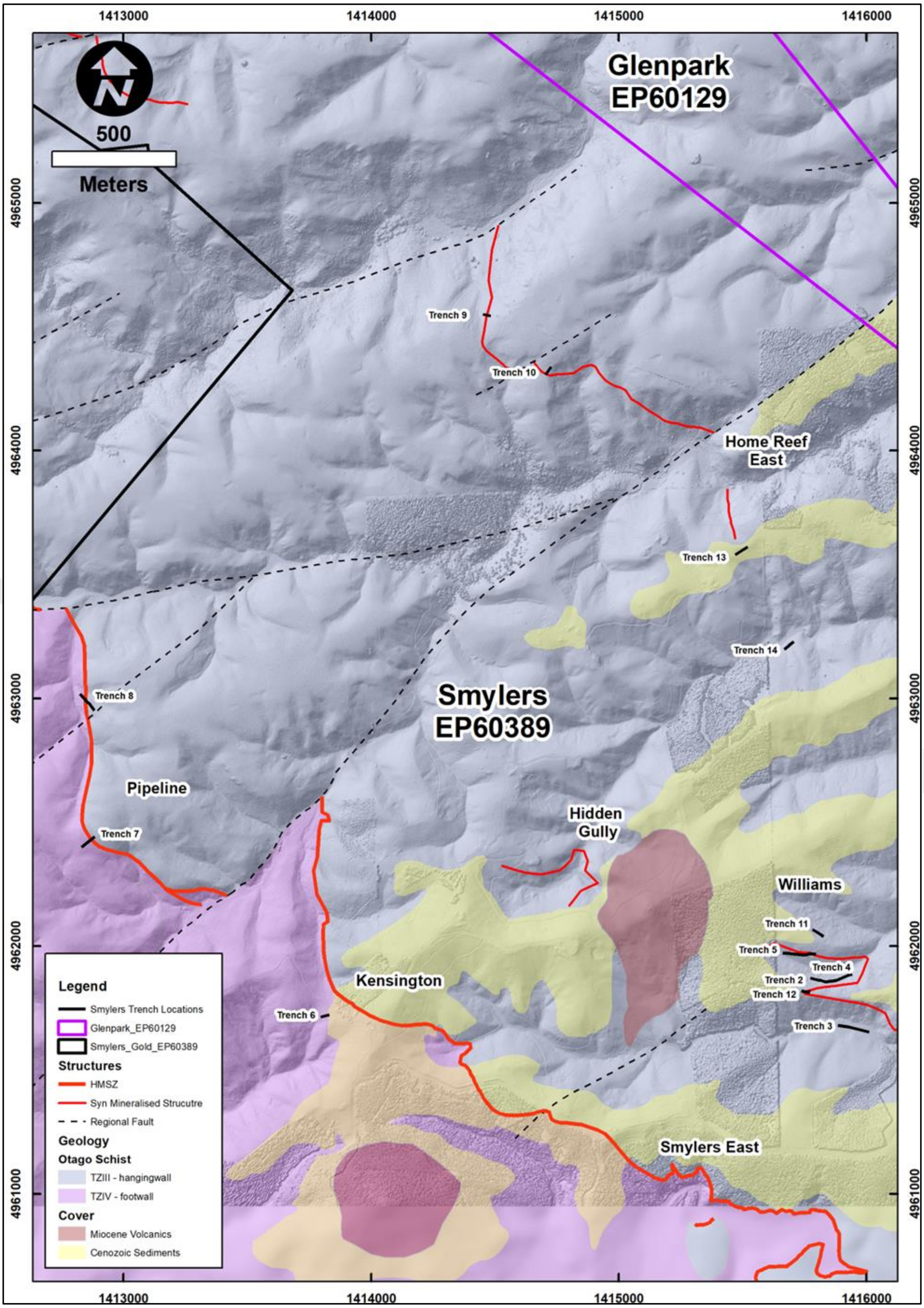



Figure 9-4: Trench locations at EP60389 (Smylers Gold).


Figure 9-5: Photographs from the trenching campaigns. A) Trench 12 before mark-up; B) Trench 13 after mark-up; C) quartz vein outcrop in Trench 02; D) close-up photograph of the trench mark-up with the tarpaulins laid to collect the sample; E) pXRF analysis of one of the trenches.

#### *9.2.3.2 EP60129 Glenpark*

A single 85-m-long trench was completed within EP60129 to test soil As anomalies identified during regional soil sampling campaigns (Figure 9-3; Figure 9-6). The trench encountered a single high-angle brittle fault structure with As anomalies, measured by pXRF, of up to 150 ppm. Little to no mineralisation was observed within the high-angle structure. Eleven samples were collected from zones of interest over the 85-m trench, including the brittle fault structure. Samples were submitted to SGS Westport for fire assay. No significant intercepts were recorded (Table 9-3), and the best sample returned 0.05 ppm Au. The high-angle fault structure and northeast-orientated joint sets returned highly anomalous arsenic values, when analysed by pXRF in the field, and are interpreted to be responsible for the corresponding anomaly in overlying soil. Similar broad arsenic soil anomalies have been identified across EP60129 (Figure 9-3). Follow-up mapping and pXRF analysis of proximal out cropping schists, across several of the soil anomalies, also suggest unmineralised faults and joints are responsible for the elevated concentrations of arsenic in soils (Figure 9-6).

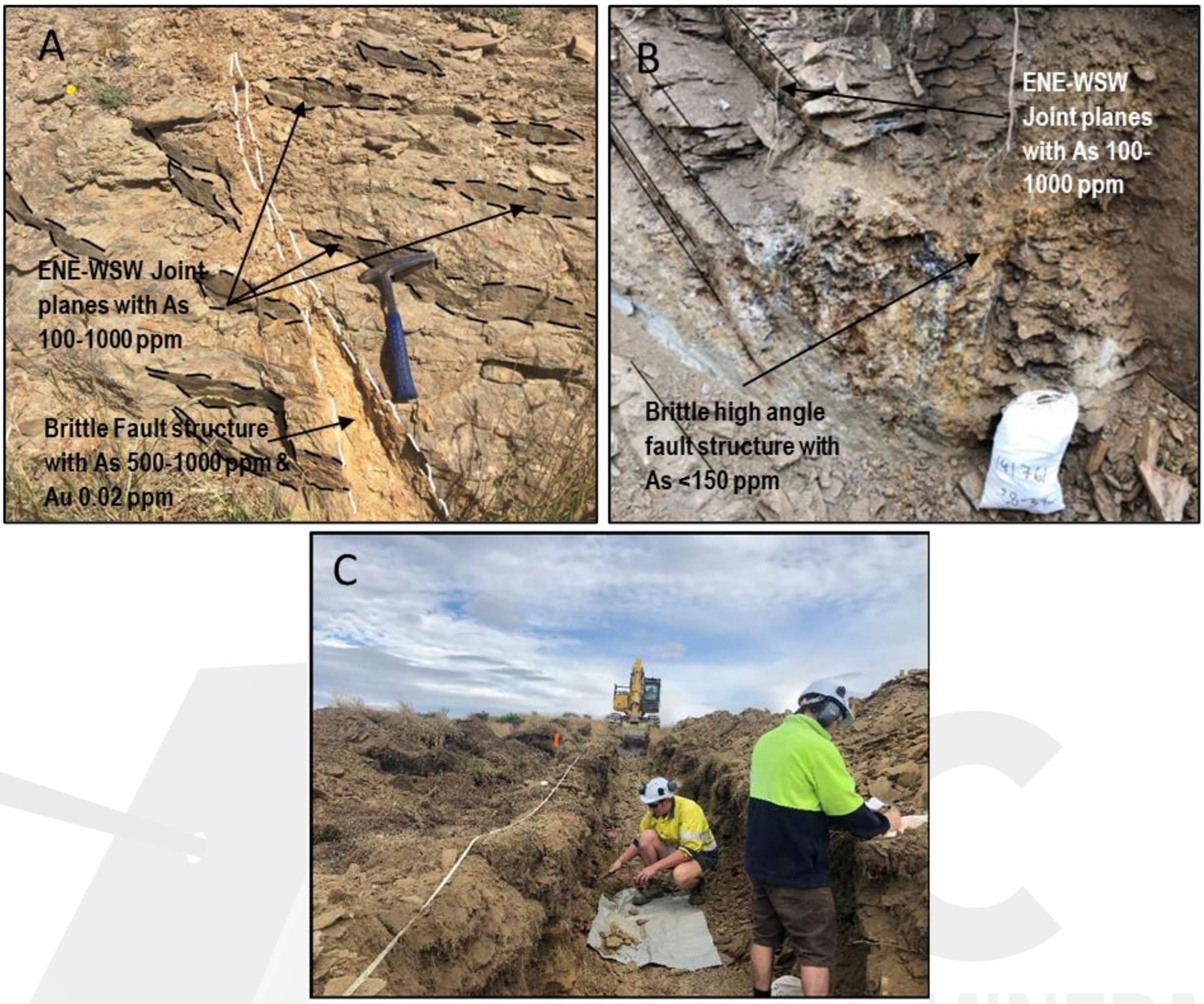



Figure 9-6: Photographs from Trench GT01 in EP60129. A) Looking east at joint faces and planes in schist crosscut by a high angle brittle fault structure with anomalous arsenic (500–1,000 ppm As); B) Trench GT01 indicating east-northeast joint faces with a small high angle brittle fault structure with anomalous arsenic (100–200 ppm As). Sample 141761 (in foreground) returned 0.05 ppm Au; C) sampling and mapping of trench GT01.

Hyde Resources interpreted that these high-angle faults and a series of northeast-orientated joint structures, identified in the field, were formed during regional brittle deformation and post main phase of HMSZ mineralisation, when the schist package was being exhumed through the brittle-ductile transition zone. During this period of exhumation, recirculated low-temperature fluids, elevated in arsenic and low-anomalous Au, possibly remobilised from structures (shears associated with the HMSZ) at depth. The fluid was transported through the high-angle fault structures and along joint planes precipitating arsenic. The relationship between anomalous arsenic within joint planes and brittle fault structures, and their relationship to HMSZ style Au and tungsten mineralisation at depth remains largely unknown. It has not been ruled out that a mineralised structure at depth is responsible for the elevated arsenic signatures seen within these structures.

### 9.2.4 Soil Sampling

In total, 5,330 soil samples have been collected within the Smylers Gold Project area including 3,649 from EP60389 (Figure 9-7) and 1,681 from EP60129 (Figure 9-3). Table 9-4 summarises the number of soil samples collected since 2017, and Table 9-5 and Table 9-6 summarise the soil sample results from EP60389 and EP60129, respectively. Resampling of historical soil sample grids was conducted where the previous sampling had failed to sample through the thick loess cover.

Soil samples were pre-planned in ArcGIS along transect lines. Where possible, sample lines were orientated perpendicular to the inferred shear trace. Due to loess cover on northern and eastern facing slopes, some soil lines were sub-optimally orientated, offset, or followed topographic contours to allow C-horizon sampling. The soil samples were from a soil depth of 0.2–4 m at each site. Sample spacing was typically 20-m intervals; however, areas of interest were sampled at 10-m intervals. Line spacing of 100 m was used along the HMSZ corridor. Handheld GPS units were used to navigate to pre-planned sample site. A 50-mm hand or motorised auger was used to collect the sample from the soil-schist interface or the C-horizon (Figure 9-8). A sample of ~250 g was collected and placed into re-sealable plastic or paper kraft bags. The sample data (sample type, colour, sample depth, location, moisture topography type, land use) were recorded in Trimble 3B field tablets.

Arsenic is the most reliable pathfinder element for identifying orogenic Au mineralisation (Allibone et al., 2018). In the Smylers Gold Project, 50–150 m wide soil anomalies (>40 to 1,000 ppm As) delineate the trace of the HMSZ (Figure 9-7). The mineralised structures, Home Reef South, Williams, and Hidden Gully lie structurally above the HMSZ and are observed in the soil geochemistry data, although the anomalies are often less broad and discontinuous in nature.

The soil sampling analytical methodology and uncorrected data are deemed fit for purpose by Hyde Resources in delineating As soil anomalies associated HMSZ-style Au mineralisation.

Table 9-4: Number of soil samples collected within the Smylers Gold Project area.

| Year | Smylers EP60389 | Glenpark EP60129 |
|---|---|---|
| **2017** | 3,075 | 1,236 |
| **2018** | - | 105 |
| **2019** | - | 340 |
| **2021** | 443 | - |
| **2022** | 131 | - |
| **SUM TOTAL** | 3,649 | 1,681 |

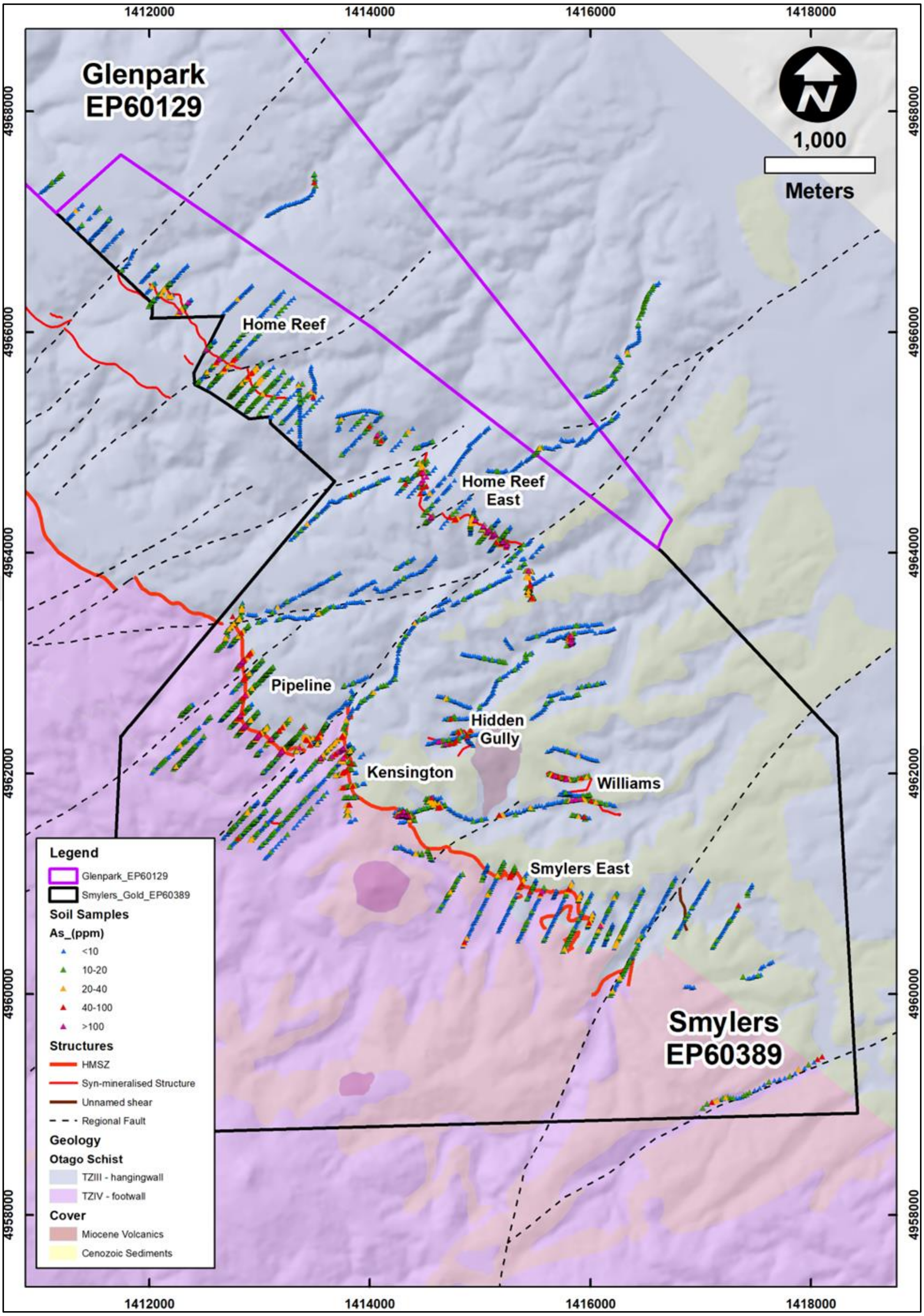



Figure 9-7: Soil samples collected within EP60389.

Table 9-5: Summary of soil sample results for As, Ag, W, and Sb in EP60389.

| EP60389 | As | Ag | W | Sb |
|---|---|---|---|---|
| **No. of Samples** | 3,649 | 3,649 | 3,649 | 3,649 |
| **Analytical Method** | pXRF | pXRF | pXRF | pXRF |
| **Minimum (ppm)** | 1 | 1 | 1 | 1 |
| **Maximum (ppm)** | 1,175 | 10.6 | 167 | 44 |
| **Average (ppm)** | 18.2 | 2.40 | 14.0 | 6.29 |
| **Limit of Quantification (LOQ)** | 2 | 20 | 20 | 20 |
| **No. of Samples above LOQ** | 3,538 | 0 | 177 | 4 |
| **No. of Anomalous Samples >40 ppm** | 255 | 0 | 59 | 1 |

Table 9-6: Summary of soil sample results for As, Ag, W, and Sb in EP60129

| EP60129 | As | Ag | W | Sb |
|---|---|---|---|---|
| **No. of Samples** | 1,681 | 1,681 | 1,681 | 1,681 |
| **Analytical Method** | pXRF | pXRF | pXRF | pXRF |
| **Minimum (ppm)** | 2 | 4 | 6 | 13 |
| **Maximum (ppm)** | 1451 | 6 | 33 | 18 |
| **Average (ppm)** | 15.6 | 4.80 | 10.8 | 15.8 |
| **Limit of Quantification (LOQ)** | 2 | 20 | 20 | 20 |
| **No. of Samples above LOQ** | 1,679 | 15 | 149 | 6 |
| **No. of Anomalous Samples >40 ppm** | 83 | 0 | 0 | 0 |

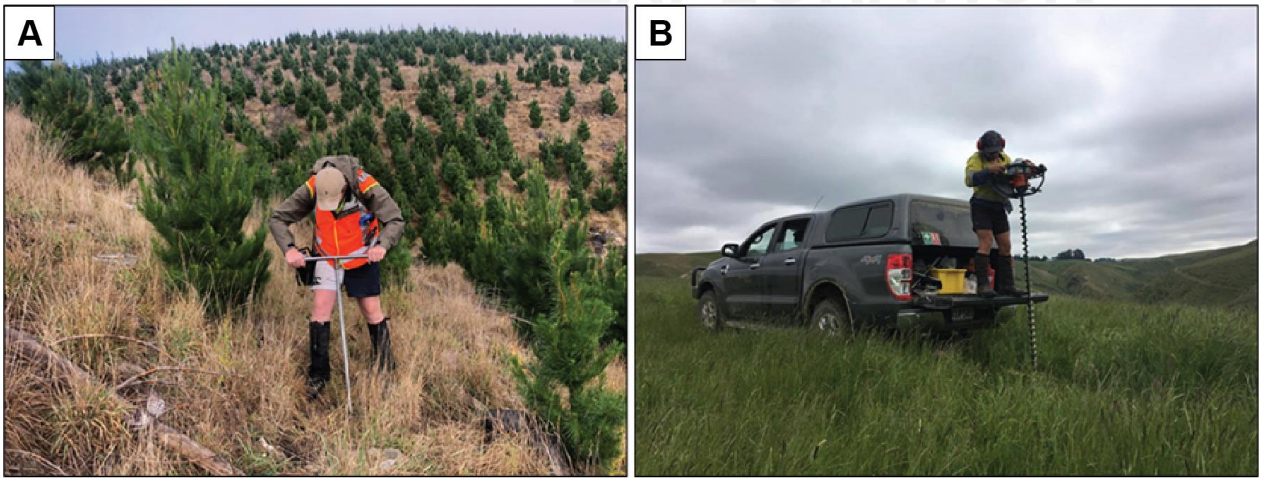



Figure 9-8: Soil sampling within Smylers Gold Project A) using a 50-mm hand auger; B) using a motorised 50-mm auger.

### 9.2.5 Geophysical E-SCAN Res/IP Survey

Hyde Resources engaged Canada-based Crone Geophysics to complete a high-resolution 3-D resistivity and induced polarisation (IP) E-SCAN survey. The survey occurred from 24 January to 17 February 2018 and covered 1,000 m x 2,300 m of EP60389 (Figure 9-9). The 3-D E-SCAN survey was comprised of 264 electrode stations and spaced on a 100 m x 100 m primary grid across the survey area. Each station served as a potential (measurement) station until conversion to a current injection station. For each current injection site (C1), measurements were made at every station (P1) within a 310-m radius, at every second station within an extended radius of 510 m, and at every fourth station located beyond a 510-m radius, to a maximum radius of 1,210 m. In total, 10,590 measurements were collected for each of DC resistivity and IP survey. The data were configured for 3-D inversion purposes as 494 unique and complete electric potential fields. The total working dataset is 21,180 effective data points for each of DC resistivity and IP.

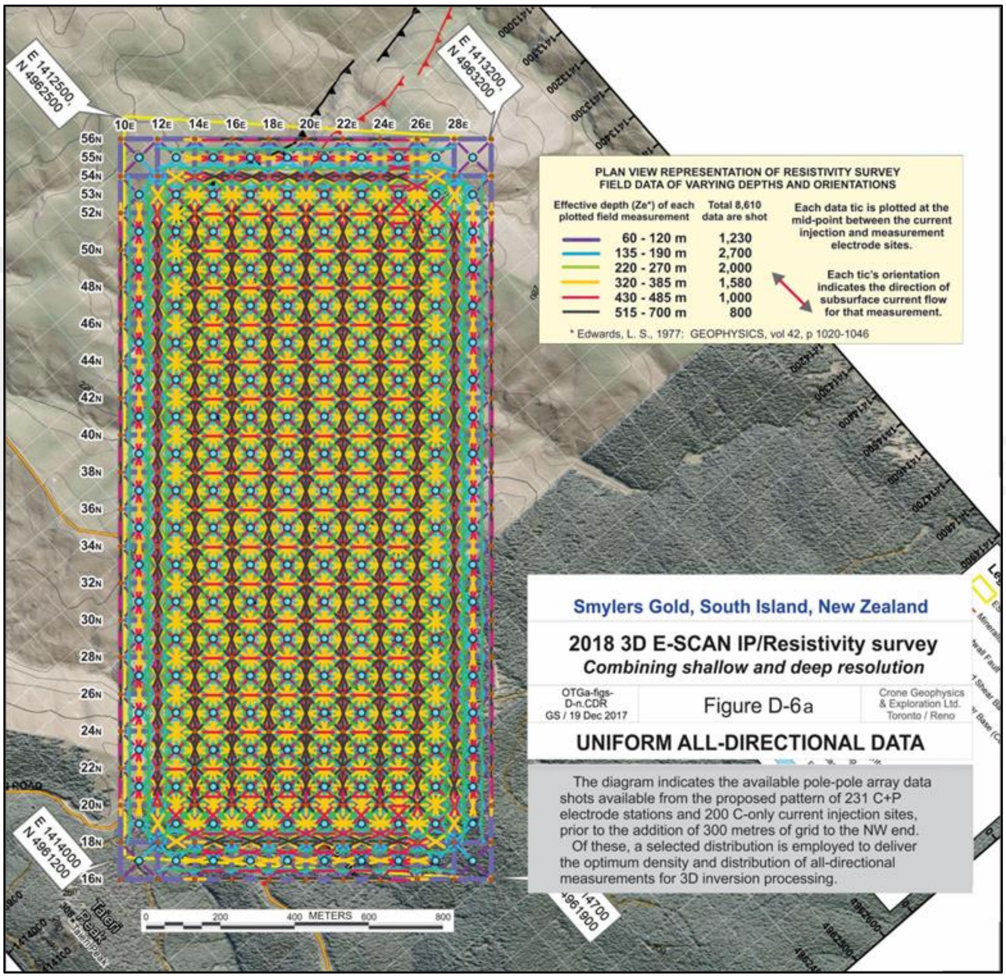



Figure 9-9: E-SCAN survey design, indicating electrode array and mapped potential fields.

#### 9.2.5.1 E-SCAN Survey Results

The 3-D E-SCAN field dataset was processed using the Geosoft VOXI 3DIP inversion programme, as supplied by Geosoft, and overseen by a senior Geosoft scientist. The resistivity data supported a 3-D inversion model that contains remarkably detailed linear features along with several larger-volume conductive bodies. The complete dynamic range of the E-SCAN

3-D resistivity capability is seen in the resolution of the resistive layer, overlying the sequence of conductive 'banana' shaped anomalies, in the survey area. The conductive bodies have been subsequently drilled and no mineralisation was found to be associated with them.

The survey reveals a high-resolution contrast in resistivity delineating features that are interpreted to be reflective of the lithological variation and structural fabric of the schist, and not direct responses of mineralisation. A contrast between the hanging and footwall schists is observed in the data (Figure 9-10). This is thought to represent the hanging wall schists having a higher degree of folding compared to the relatively planar footwall schists. The footwall fault is not observable in the dataset. A large, northeast deep conductive zone, that dissects the survey area, coincides with the regional scale Glenpark fault. The quartz conglomerate cover rocks are delineated as a zone of low conductivity (Figure 9-10A, B). Conductive zones at the surface are interpreted to represent thick loess and schist weathering profiles, and are prominent on southwest slopes.

The IP data set proved unusually resistant to a smooth inversion, due to the widespread blanket of noise, particularly in the shallowest of data. Extensive pro-active and remedial measures were applied to the IP data set, yet the result remains less than satisfactory. Caution is advised in employing the present 3D IP anomaly patterns for drill targeting.

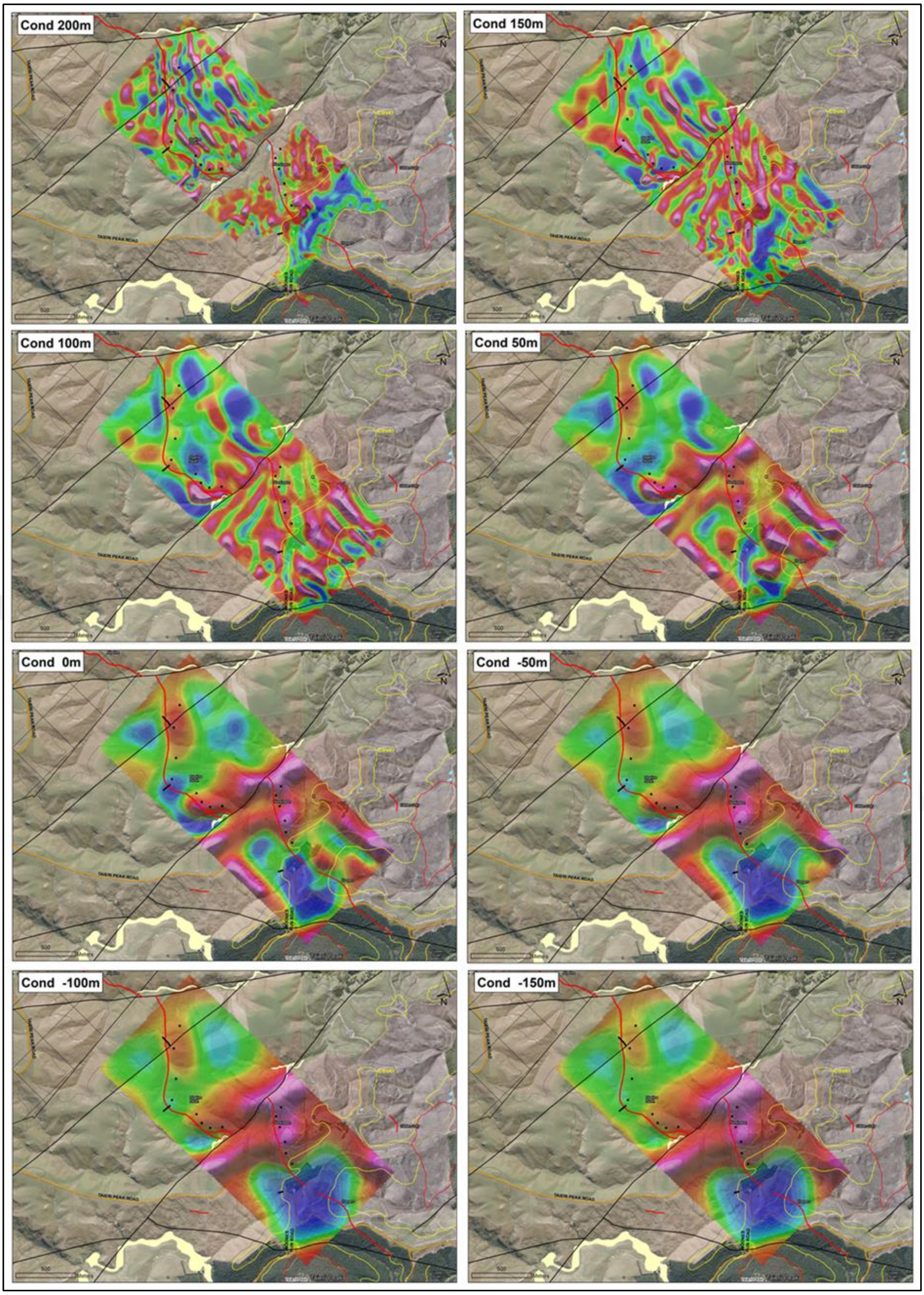



Figure 9-10: ESCAN conductivity level plans in metres above sea level. Conductive rocks are displayed in pinks and reds; Resistive rocks are represented in blues.

#### 9.2.6 Digital Surface Model

In 2017, GNS Science was engaged to produce a digital surface model (DSM) (Figure 9-11). The DSM covered the entire HMSZ within the Smylers Gold Project and was built from 187 digital photographs taken over the area in February 2014. The DSM is a model of the 'visible surface' which includes vegetation, buildings etc. and is distinct from a model of the ground or terrain which can be produced from LiDAR surveys. The photographs have a 0.4 m ground surface distance (GSD) per pixel that can be used to generate a DSM that is accurate to ~0.2 m horizontally and ~0.6 m vertically. The DSM was created using the semi-global matching (SGM) technique in the ERDAS Imagine Photogrammetry software suite. An elevation point cloud and orthophotograph of the study area were produced from the modelling, with the final gridding of the DSM, made by inverse distance weighted interpolation, to generate the 1-m cell size grid. A two-phase method was used to reference the DSM to a true ground position. Initially, the location and direction of the camera in each photograph were used, and then control points were introduced, to the model, at key triangulation points, with elevations obtained from existing digital elevation models (DEM). The elevation values in the DEM were compared to 52 regional ground check points obtained from the New Zealand geodetic vertical marker (NZGVM) database; these points were generally within 1 m vertically of our DSM model. An orthophotomosaic, a simplified 10-m contour model, and a series of processed shade and slope models were also produced from the DSM.

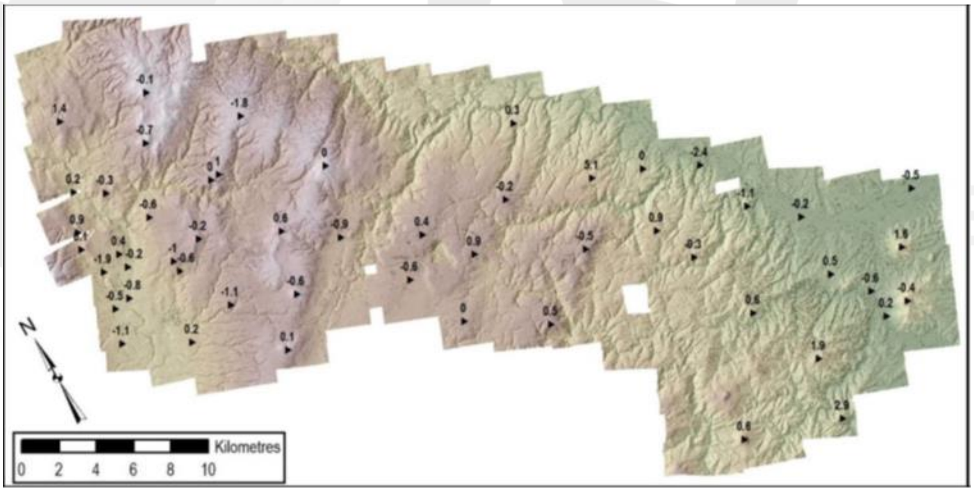



Figure 9-11: Shaded DSM from the Hyde to the Smylers study areas indicating the location of ground control points and the difference (in m) between the modelled DSM elevation and the NZGVM markers.

In late 2017, Overview Surveying was engaged to complete a drone photogrammetry survey of ~4 km$^2$ of recently felled forestry in the main Smylers Gold Project. The data were processed at 10-cm resolution and were stitched into the regional DSM by GNS science (Figure 9-12).

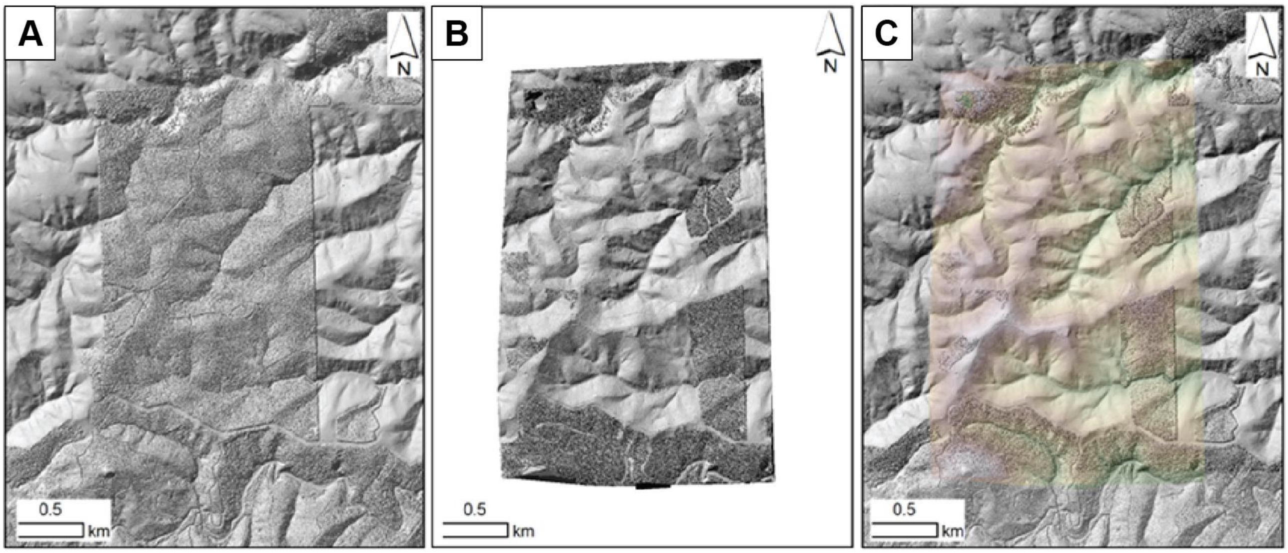



Figure 9-12: A) Original 2017 GNS DSM hill shade, Smylers Gold Project with pine forest; B) 2017 overview drone survey with DSM hill shade post forest felling; C) Combined DSM hill shade surveys stitched together.

### 9.2.7 Hyperspectral

On 29 January 2019, an airborne hyperspectral and digital photography survey, of a 62-km$^2$ area, was conducted over EP60389 (Smylers Gold) as a part of a partnership with GNS Science and Massey University. This survey was conducted using a Cessna 185 aircraft, equipped with AisaFENIX hyperspectral sensor and a Nikon D810 digital camera. The ongoing study uses laboratory and airborne hyperspectral remote sensing to localise Au mineralisation using biogeochemistry. The objective of this study is to attempt the use of innovative remote sensing technologies, coupled with ground sampling, to develop new ways to collect biogeochemistry data to help identify Au mineralisation. The pilot study uses the plant species, Pinus radiata, in close proximity to a mineralised shear zone. Although the study is ongoing, modelling suggests lab-based hyperspectral data, linked with biogeochemistry, could delineate the HMSZ (Chakraborty et al., 2022).

## 9.3 PP60674 Tokomairiro

### 9.3.1 Review of Regional Geophysical Data

From 1997–2020, a number of geophysical surveys were conducted collecting airborne magnetic, radiometric and elevation data over Otago. PP60674 covers two survey blocks: block Glass Earth was collected by Fugro Airborne Surveys, east of Dunedin (Glass Earth, 2007) and block F East was collected by Thomson Aviation, south of the Glass Earth block. Geophysical data over the Glass Earth block includes magnetic and electromagnetic data, collected using line spacing of 300 m. Geophysical data over the F East block includes magnetic and radiometric data, collected along 200-m line spacing. The data were compiled by Thomson Aviation (2020) and reprocessed by Fathom Geophysics Australia (Buckingham & Core, 2020). The data were reprocessed using several different filters to highlight geophysical features. Data that have been reprocessed include magnetic, radiometric, electromagnetic, topography, and sentinel.

Total magnetic intensity (TMI) and reduction to pole (RTP) are particularly useful datasets to identify the specific orientation of the structures. Structure detection used a phase congruency algorithm based on the oriented exponential filters. The structure detection filter allows the major structural orientations to be quantified in a belt, and it also highlights features with certain orientations, or that are parallel or perpendicular/oblique to a feature of interest.

Northwest and southeast-dominant orientated structures were extracted to display strike-parallel features at a small scale with cross structures at a larger scale. This is because the strike-parallel features tend to highlight individual units, while cross structures are larger-scale features that might offset the units.

#### *9.3.1.1 Magnetic Data*

The magnetics data reveal a clear, broad-scale, geophysical structure that splits PP60674 approximately in half and is visible in reduction to pole (RTP) magnetic maps. The geophysical structure is broadly east-striking, subparallel to the inferred orientation of the Canada/Ocean View reefs (Figure 9-13A, B). This structure is visible in the first vertical derivative (1VD) RTP data, analytical signature (AS), and RTP residual data. Structural detection and enhancement filters highlight faults and lithological contacts at different depths. The east-striking geophysical structure is visible throughout the geophysical profile, from surface/shallow to depth (Figure 9-13C, D; Figure 9-14).

Furthermore, a similar geophysical structure is present and branches off from the east-trending structure. This southeast-striking structure is located through the southwestern area of PP60674 and is visible in the shallow-to-intermediate RTP residual data. Structural detection maps also highlight the southeast-trending structure from a shallow-to-intermediate source (Figure 9-14).

In the area between the two geophysical structures, a wedge-shaped zone of low magnetism is observed in the automatic gain control (AGC) filtered RTP magnetics (Figure 9-13A). The AGC filter normalises anomalies so that subtle anomalies are visible. This area has no clear geophysical features except for isolated magnetic highs that represent the Dunedin Volcanic Group (DVG) rocks, as confirmed by geological maps (QMAP 250K). RTP magnetic data also picks out several smaller magnetic highs interpreted as previously un-mapped volcanics. An obvious circular magnetic low is present in the central east of PP60674 and is interpreted to be an un-mapped maar due to its shape (Figure 9-13A, C). Maars are not known to have formed in this area of Otago, but several other DVG maars are well-recorded northeast of PP60674 in Central Otago. The DVG is regionally not known to host economic mineralisation (excluding quarries), and these areas are not thought to be prospective for metallic mineralisation.

The historically identified Au-bearing reefs do not align with any of the structures identified in the magnetics. However, the location of some of the reefs is not precisely known. The Canada Reef area and Nuggety Gully correspond with a large magnetic low, and no clear distinguishing features are identified in the geophysical data. The Meggat Burn Reef is associated with magnetic high from an intermediate source (Figure 9-13C). Five of the six known mineralised areas are located within 2.5 km of the southeast-striking structure in the southwest of PP60674 (Figure 9-14).

North of the east-striking structure, a series of southeast-trending linear magnetic highs are observed. These magnetic highs are loosely reflected in the topography. In the northwest of the permit there is a magnetic high from a source at depth. The exact source is unknown but could be an intrusion (Figure 9-13D).

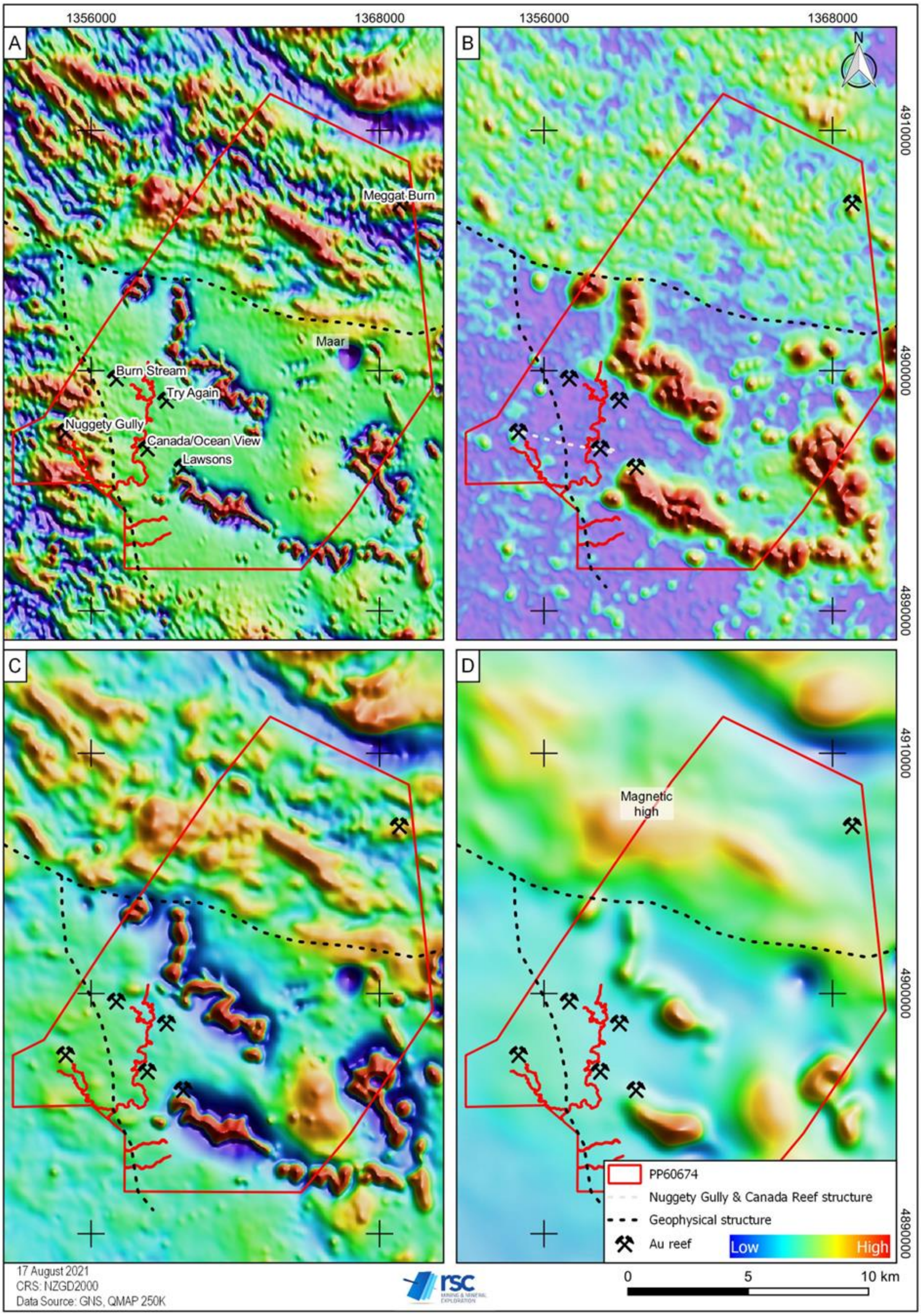



Figure 9-13: Magnetic RTP maps. A) Automatic gain control filtered; B) Analytical signal; C) Residual from an intermediate source; D) Residual from a deep source.

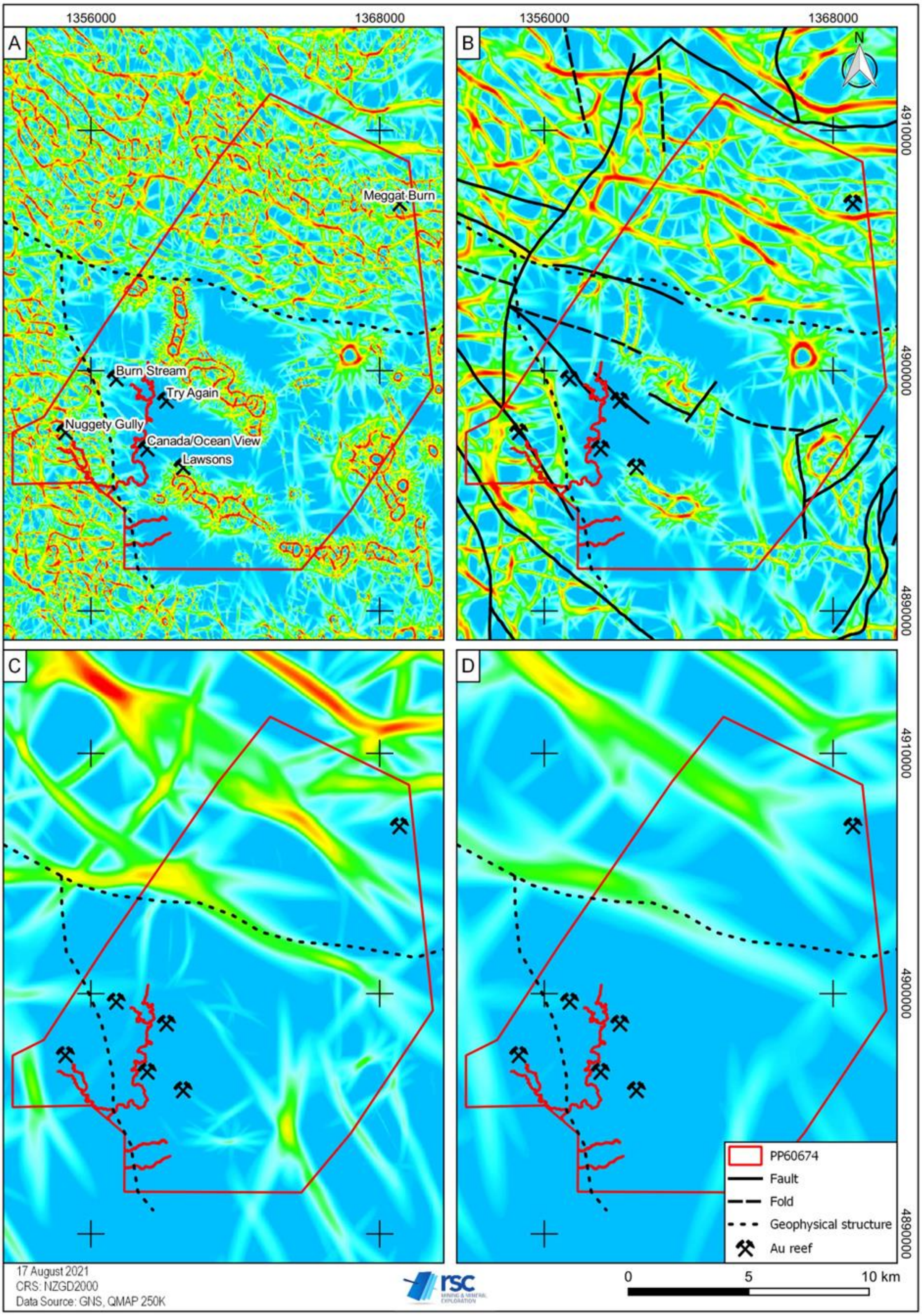



Figure 9-14: Magnetic RTP structural detection map displaying all structures. A) Ultra-shallow structures; B) Shallow structures; C) Intermediate structures D) Deep structures. The east-trending structure is present throughout the rock package, whereas the southeast-trending structure is not present at depth.

#### 9.3.1.2 Radiometric Data

Radiometric data are only available for the southern three-quarters of PP60674. The radiometric data delineate topographical features such as the main river valleys (Figure 9-15A). No distinguishable features representing any of the known Au-bearing reef structures could be identified.

#### 9.3.1.3 Electromagnetic Data

Electromagnetic data are only available for the northernmost quarter of PP60674. The data extend northwards over the Waipori goldfield. Due to the limited extent of the data, not much information can be extracted for PP60674. However, PP60674 is associated with similar electromagnetic highs observed over Waipori goldfield (Figure 9-15B).

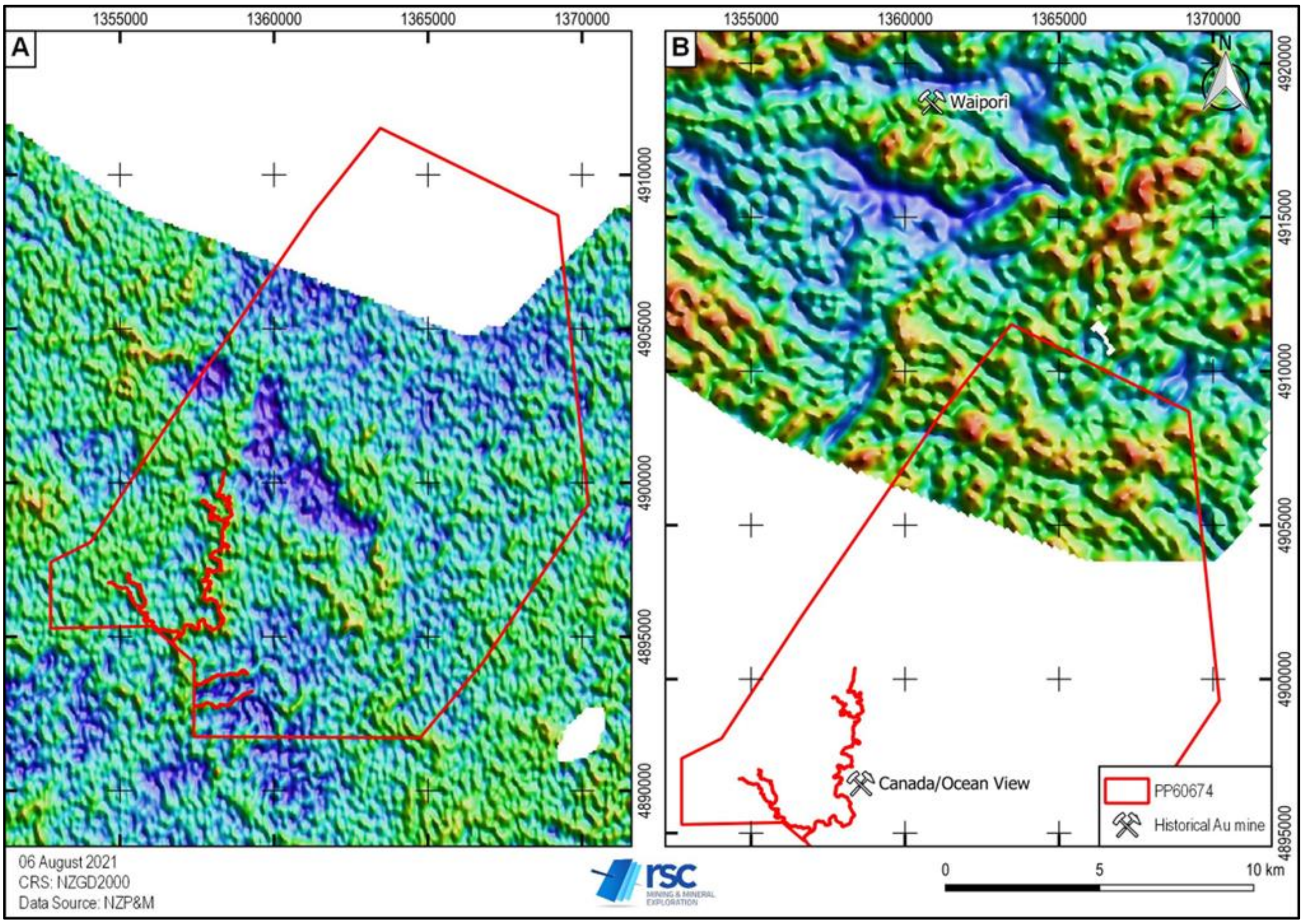



Figure 9-15: Radiometric and electromagnetic geophysical data over the area of PP60674. A) Radiometric total count data with a northeast shade imposed. B) electromagnetic data 40K heq with a northeast shade imposed.

### 9.3.2 Review of Satellite Data

RSC personnel under the supervision of the QP undertook a review of Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) data covering PP60674. ASTER is the only high spatial resolution instrument on the Terra platform, which obtains high-resolution (15–90 $m^2$/pixel) images of the Earth in 14 different wavelengths of the electromagnetic spectrum, ranging from visible to thermal infrared light. As the satellite orbits Earth, it collects the data. For the best results, geophysical parameters are derived from clear-sky-only pixels, as cloud cover, and smoke can cause issues with data interpretation. The ASTER data covering PP60674 have significant cloud cover; therefore, meaningful interpretation of the data cannot be made.

### 9.3.3 Soil Sampling

Soil samples were pre-planned, targeting the historical prospects and Au mines. Four prospects with historical Au production (Canada & Ocean View Lodes, Nuggety Gully Lode, Try Again Reef, Meggat Burn) were targeted using first pass 50 m x 50 m soil sampling grids. Sample spacing of 100 m x 100 m was used to test the broader area of the targets, and a 100 m x 200 m grid was used as corridor between Nuggety Gully Lode and the Canada & Ocean View Lode (Figure 9-16).

Handheld GPS units were used to navigate to the pre-planned sample site. A narrow head spade was used to collect the sample from the soil-schist interface or the C-horizon; a sample weighing ~1.5 kg was collected and placed into calico bags.

A total of 531 soil samples have been collected to date: 130 at the Canada/Ocean View reefs grid, 230 at the Nuggety Gully grid, 77 at the Try Again Reef grid (Figure 9-16), and 94 at the Meggat Burn Reef grid (Figure 9-17). Approximately 80% of the planned soil samples were collected. Some samples had to be moved or skipped due to ground conditions. Farmland was typically easy to access and easy to sample; however, some samples in swampy areas had to be skipped. Sampling in forestry ground was more challenging due to the presence of thick undergrowth or low branches, making travel slow.

The B horizon (subsoil) was generally well consolidated and well developed, forming a distinct tan- to orange-coloured horizon, easily distinguishable from the overlying O-A horizons (organic matter to surface soil). The B horizon often merged with the C horizon (parent rock) below it. In places, there was very little B horizon, instead going straight from A to C horizon. The C horizon commonly contained pieces of weathered schist, occasionally in conjunction with quartz. At the Canada/Ocean View reefs and Try Again Reef some of this quartz may have been silicified quartz conglomerate-sandstone of the Taratu Formation. No C horizon with weathered volcanics was found.

In the forests, the soil was very dry and the B horizon was often crumbly and poorly consolidated. Where possible, the A horizon was removed prior to sampling, but due to the crumbly nature of the soils in forestry, some A horizon contamination is likely in these areas.

The Meggat Burn area was particularly challenging to sample due to the crumbly nature of the forestry soils and the presence of thin, poorly developed B horizons on the hillsides. The geology of the area was found to be composed of highly silicified schists, and it is hypothesised by RSC that the poor soil development at the Meggat Burn grid is related to this.

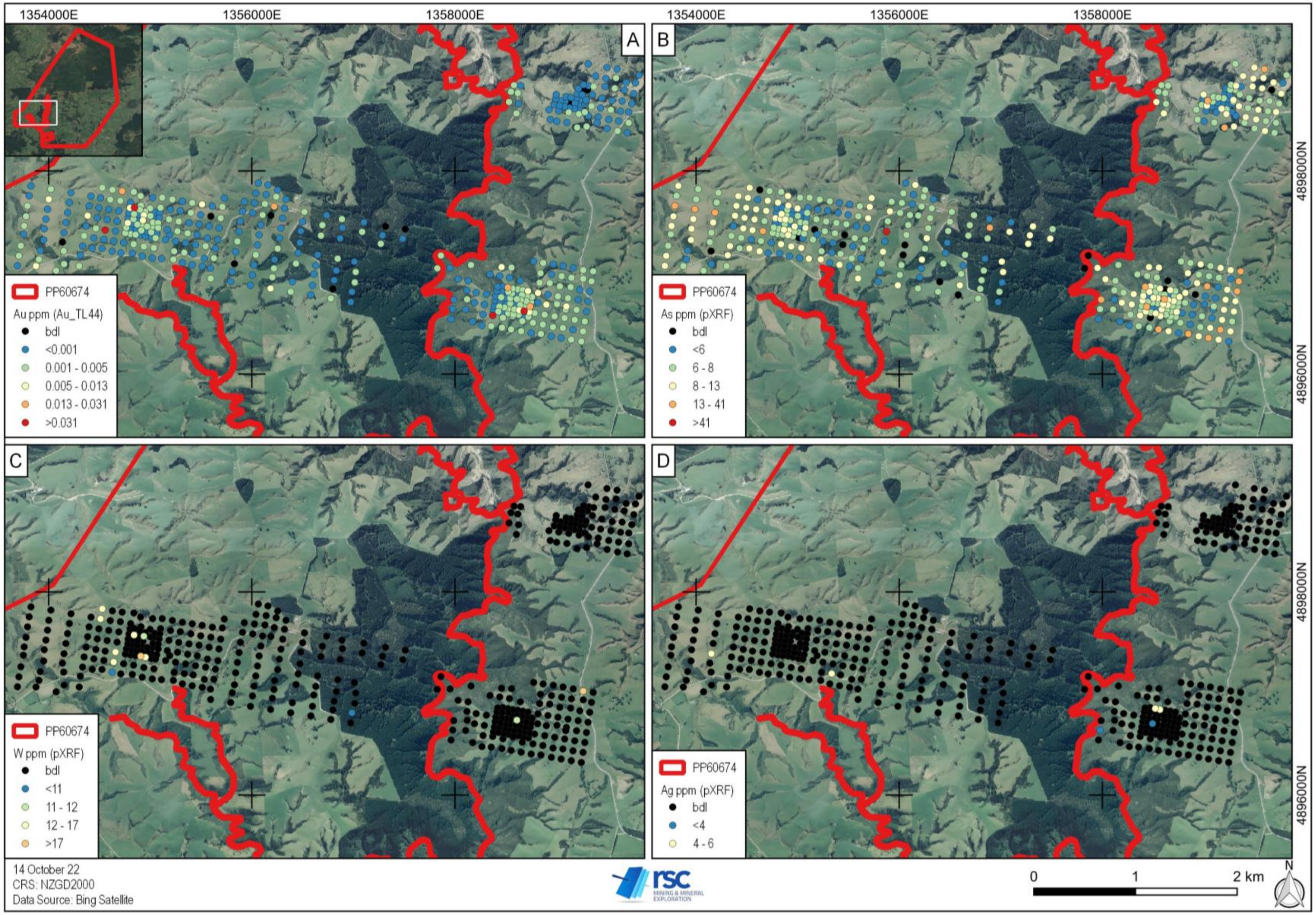



Figure 9-16: Soil sample assays in the Nuggety Gully, Canada/Ocean View and Try Again Reef areas. A) Laboratory Au results in ppm; B) pXRF results for As (ppm); C) pXRF results for W (ppm); D) pXRF results for Ag (ppm).

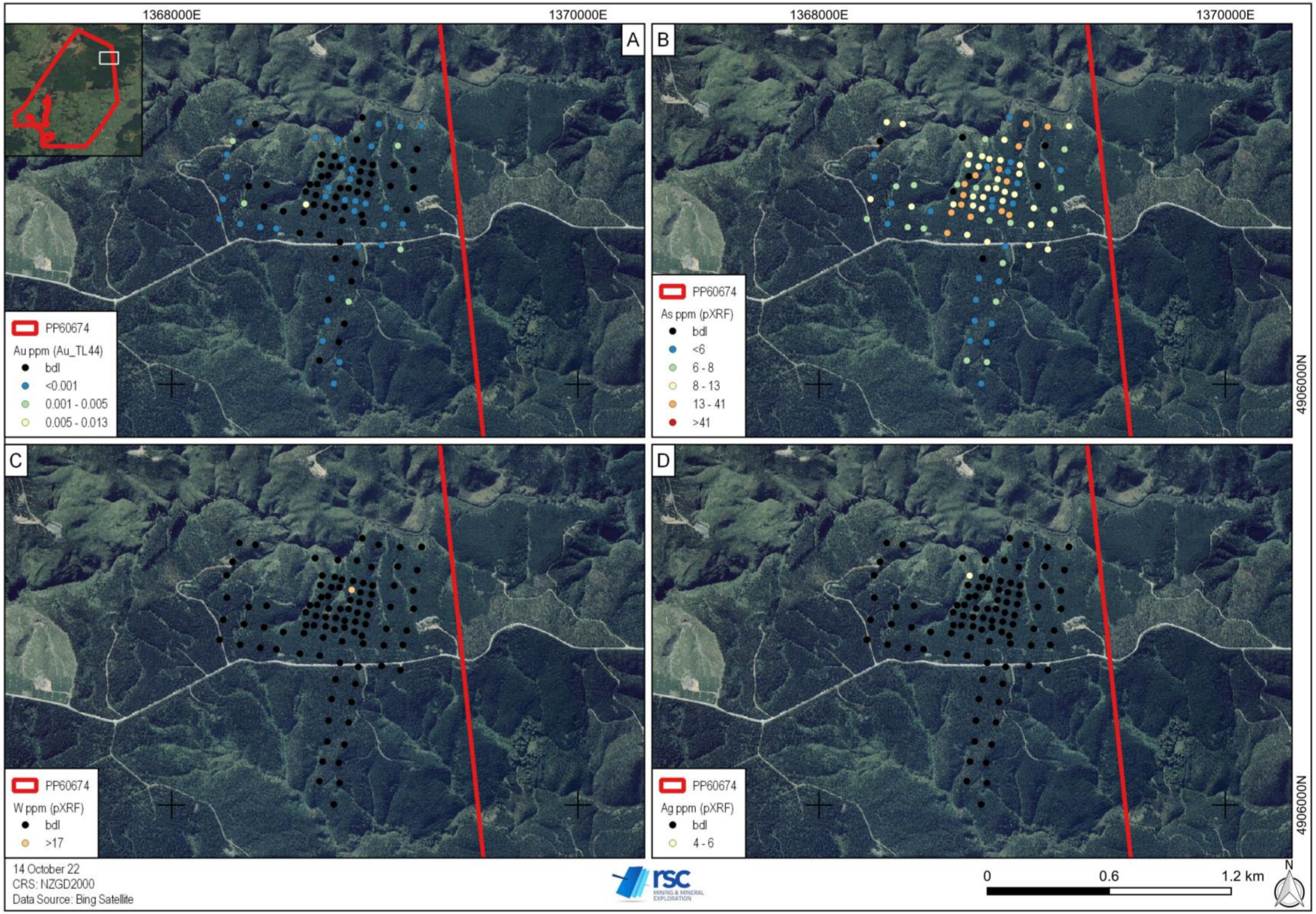



Figure 9-17: Soil sample assays in the Meggat Burn Reef area. A) Laboratory Au results in ppm; B) pXRF results for As (ppm); C) pXRF results for W (ppm); D) pXRF results for Ag (ppm).

#### 9.3.3.1 pXRF Results

All soil samples collected were analysed using a pXRF instrument. The pXRF analyses a large suite of multi-element data, and the elements of interest are As, Ag, W, and Sb. The summary of the assay results for these elements is reported in Table 9-7.

A total of seven samples returned assays above the limit of detection for Ag (Table 9-7). These samples were collected from Nuggety Gully and Canada/Ocean View area, except for one sample, which was collected from the Meggat Burn grid (Figure 9-16D, Figure 9-17D). All samples with detectable Ag contain 4–6 ppm Ag.

Ninety-nine per cent (99%) of the soil samples contain detectable As (Table 9-7). Using Jenks natural break optimisation, soil samples with >13 ppm As are considered anomalous. This equates to 24 anomalous samples, including three samples with ≥25 ppm As; two from the Canada/Ocean View and Nuggety Gully area, and one from the Meggat Burn area. The highest As assay is from sample TKSL0190 (112 ppm As) from the Nuggety Gully. The two other anomalous As grades are from samples TKSL0403 (Canada Reef), TKSL0261 (Nuggety Gully), returning 31 ppm and 41 ppm As, respectively.

A total of 13 soil samples returned assays above the detection limit for W. These samples were collected from Nuggety Gully and the Canada/Ocean View reefs areas, except one sample, which was collected from the Meggat Burn grid. All detectable samples returned W grades from 11–24 ppm.

A total of seven samples returned detectable Sb. Three of the samples were collected from the Canada/Ocean View reefs area, and four samples were collected from the Meggat Burn area. All detectable samples returned assays of 30–37 ppm Sb.

Table 9-7: Summary of soil-sample results for Au, Ag, As, W, and Sb.

| | Au | Ag | As | W | Sb |
|---|---|---|---|---|---|
| **No. of Samples** | 531 | 531 | 531 | 531 | 531 |
| **Analytical Method** | Au-TL44 | pXRF | pXRF | pXRF | pXRF |
| **Minimum (ppm)** | 0.001 | 4 | 3 | 11 | 30 |
| **Maximum (ppm)** | 0.056 | 6 | 112 | 24 | 37 |
| **Average (ppm)** | 0.002 | 4.9 | 8.9 | 15.5 | 32 |
| **No. of Samples above Detection Limit** | 479 | 7 | 507 | 13 | 7 |
| **Limit of Quantification** | 0.005 | 20 | 2 | 20 | 20 |
| **No. of Anomalous Samples** | 5 | - | 51 | - | - |

#### 9.3.3.2 Laboratory Results: Au

Of the 531 soil samples collected, 13 returned Au analyses ≥0.01 ppm, and two returned values of ≥0.05 ppm Au. The highest Au values recorded were from samples TKSL0039 and TKSL0072, which recorded 0.056 ppm and 0.053 ppm Au, respectively. Both these samples were collected from the Nuggety Gully grid. The other eleven anomalous soil samples were collected in the Nuggety Gully and Canada/Ocean View areas (Figure 9-16A). Most of the soil samples from the Try

Again Reef grid and the Meggat Burn grid returned assays of ≤0.005 ppm Au, or below detection limit (Figure 9-16A, Figure 9-17A).

### 9.3.4 Stream-Sediment Sampling

A total of 72 stream-sediment samples have been collected to date. Due to the previous consultation with Te Rūnanga o Ōtākou, no stream-sediment samples have been taken from Wai-o-Te-Meho Creek, and it remains the only major stream system that has not been sampled in PP60674. Two moderate-sized, unnamed streams in the southeast of PP60674 are also not sampled, as the landowner has not provided access permission.

Many of the streams in PP60674 are hard to access; therefore, stream-sediment sampling was time-consuming. Many of the samples needed to be moved tens of metres or be skipped because of the difficult access. Some samples were moved following consultation with landowners.

All stream sediments sampled were collected from active streams, except for one dry stream bed in the Canada/Ocean View reefs area (TKSS012). The streams varied from small side streams that were little more than a trickle and clogged with weeds, to streams deeper than knee-high and 4–6 m wide (e.g. Tokomairiro River east branch; Figure 9-18).

Figure 9-18: RSC field staff en route to sample side streams in the Tokomairiro River west branch.

Stream sediments sampled were generally poorly sorted, with boulder to fine silt being found in the stream beds. Most samples collected were dominated by sand and silt. Where possible, samples were collected from a ~20-m transect in the stream bed, from a variety of energy settings. In some areas, this was not possible, and the sample was collected from a single location. Some areas were easy to sample, with plenty of sediment <1 cm in grain size. At some sample locations, thick deposits of silt to small pebbles were the only sediments available, while at other locations the streams had scoured the area to bedrock and very little sediment of a suitable size for sampling was present. On farmland or forestry, many of the smaller streams were often clogged with invasive weeds or forestry slash, and the sample collected was essentially mud, likely containing high organic content.

#### *9.3.4.1 Results*

Two stream-sediment samples (TKSS0047 and TKSS0046) returned Au assays of >0.1 ppm (Figure 9-19). TKSS0047 sampled the west branch of the Tokomairiro River and returned the highest grade of 0.37 ppm Au. However, approximately half of the upstream catchment is located outside of PP60674. TKSS0046 sampled the Tokomairiro River east branch and returned an assay of 0.15 Au ppm. Two additional samples (TKSS0033 and TKSS0034) were collected ~3 km upstream, returning an assay of below 0.03 Au ppm. All remaining stream-sediment samples retuned an assay below 0.09 ppm.

Portable XRF analysis of the stream-sediment samples returned low As grades (averaging 7.9 ppm). The stream-sediment samples also contained very low detectable Ag, Sb and no W (Table 9-8).

Table 9-8: Summary of stream-sediment sample assay results for Au, Ag, As, W, and Sb.

| | Au | Ag | As | W | Sb |
|---|---|---|---|---|---|
| **No. of Samples** | 72 | 72 | 72 | 72 | 72 |
| **Analytical Method** | Au-CN12 | pXRF | pXRF | pXRF | pXRF |
| **Minimum (ppm)** | 0.0001 | 5 | 4 | - | 31 |
| **Maximum (ppm)** | 0.37 | 5 | 21 | - | 39 |
| **Average (ppm)** | 0.015 | 5 | 7.9 | - | 35 |
| **No. of Samples above Detection Limit** | 72 | 2 | 70 | 0 | 2 |

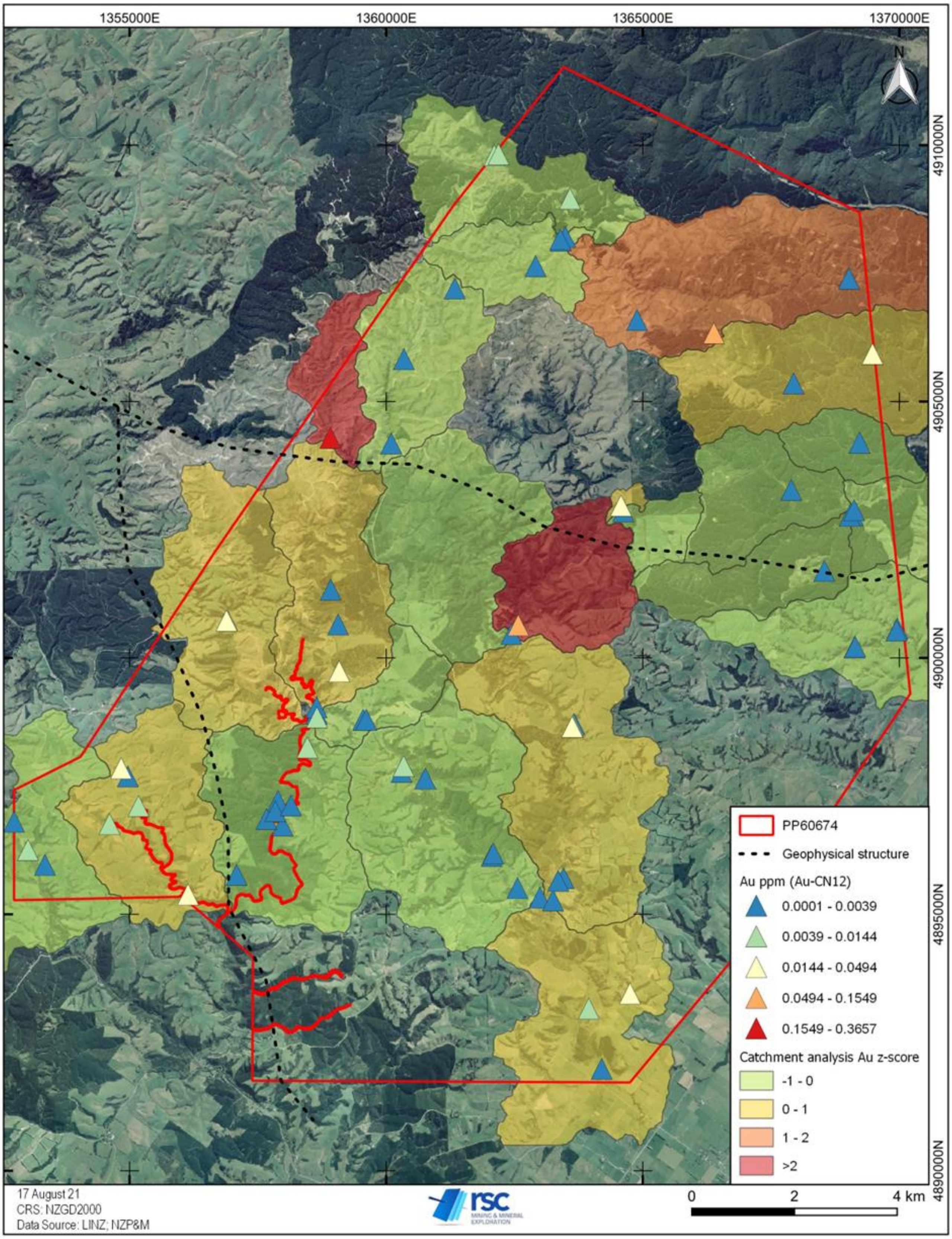



Figure 9-19: Stream-sediment sample Au grades with graded catchment analysis.

### 9.3.5 Rock-Chip/Float Sampling

A total of 14 rock-chip/float samples have been collected from PP60674 (Figure 9-20). Samples were collected contemporaneously with soil and stream-sediment sampling. Samples were collected from both in-situ outcrop and surface float. Samples were predominantly collected from areas surrounding historically known mineralisation, but a small number of samples were collected from areas of no known mineralisation.

The rock-chip/float samples collected were predominantly of schist and quartz veins. The samples did not appear to be mineralised at a macroscopic scale but displayed characteristics indicative of potential microscale mineralisation, e.g. oxidisation, presence of quartz veins, or evidence of shearing. Some samples contain euhedral quartz, which has precipitated into open cavities in the rock (Figure 9-21). Two float samples from the Canada/Ocean View area consist of a stylolitic quartz vein with visible arsenopyrite (Figure 9-21). These samples could be pieces of ore from the historical mines. One sample of quartz conglomerate sandstone was collected from the Tartu Formation in the Try Again Reef area.

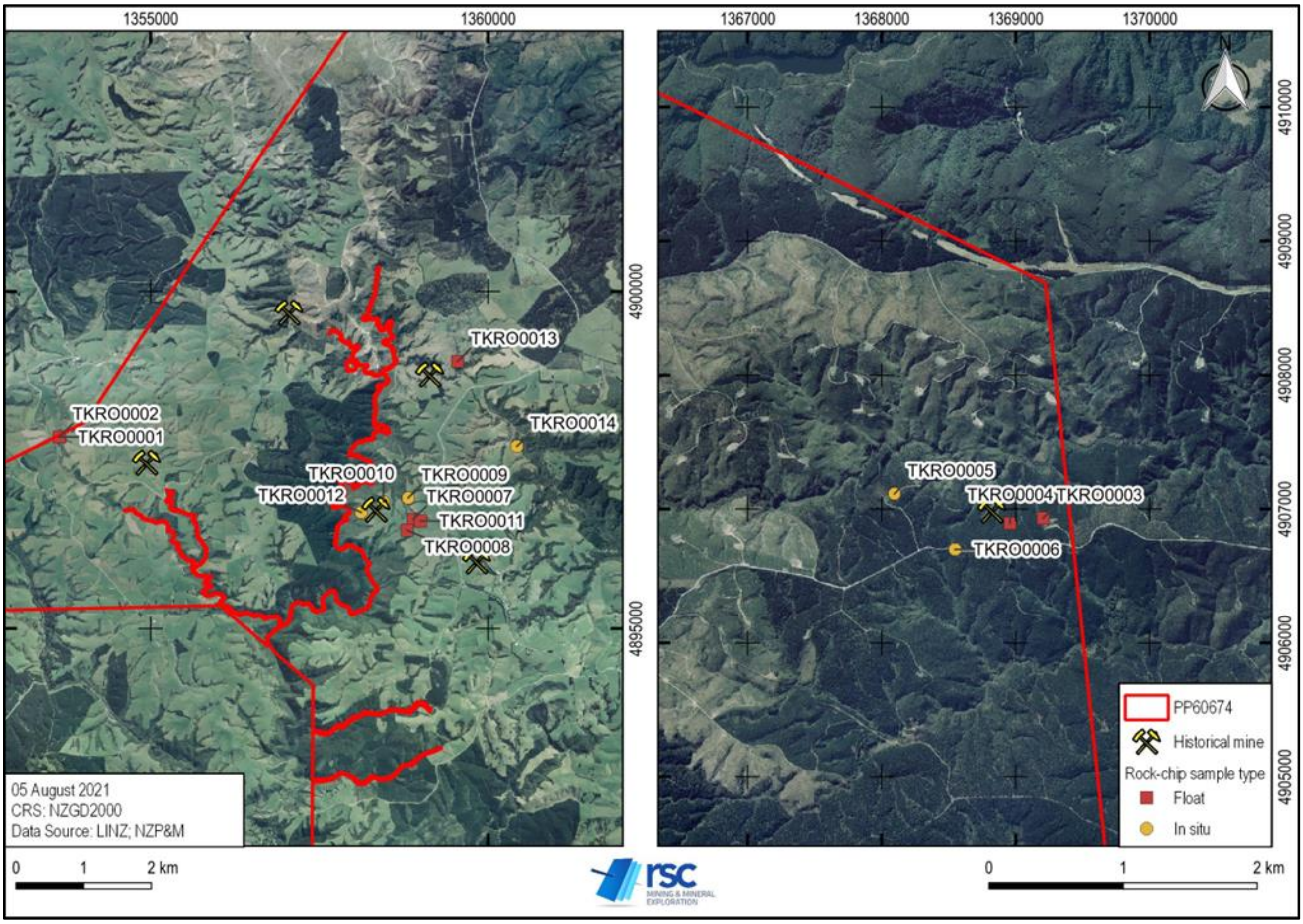



Figure 9-20: Rock-chip samples collected from PP60674.

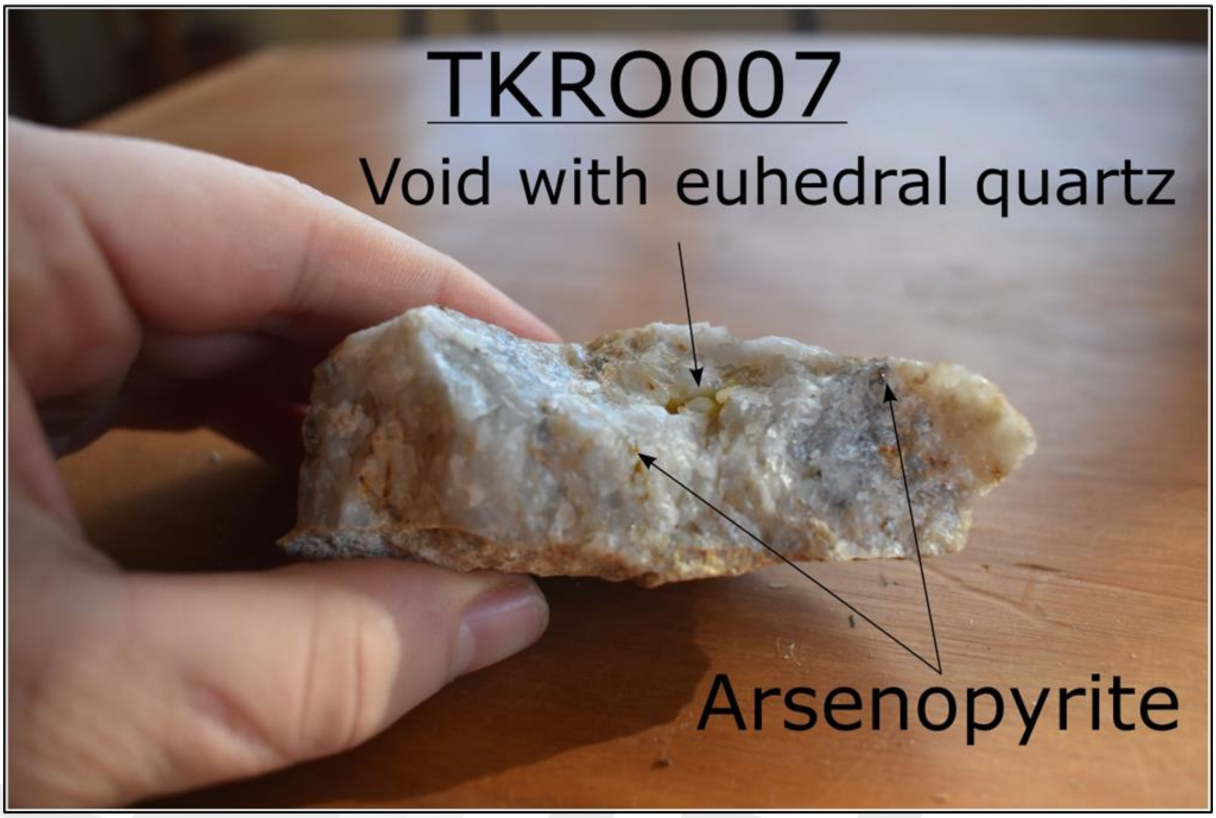



Figure 9-21: A chip from sample TKRO007 which contains visible arsenopyrite. TKRO007 returned an assay of 1,269 ppm As and 135.5 ppm Au.

#### 9.3.5.1 Results

The 14 rock-chip samples were analysed for Au (laboratory) and a large multi-element suite by pXRF. A summary of the results is presented in Table 9-9, and the best results are presented in Table 9-10.

Two float samples returned high-grade Au assays of 135.5 ppm (TKRO007) and 14.1 ppm (TKRO011; Figure 9-22; Table 9-10). Both TKRO007 and TKRO011 were collected from quartz veins in float rock with visible arsenopyrite. RSC assumes these samples are discarded rocks from historically mined reefs due to their relatively clean angular appearance and their location near historical workings (Figure 9-20). These two rock-chip samples returned high As grades of 1,269 ppm (TKRO007) and 3,334 ppm (TKRO011), which is not unexpected due to the visible arsenopyrite. TKRO011 is the only sample with detectable Sb (46 ppm), and TKRO007 is the only sample with detectable W (20 ppm). Both TKRO007 and TKRO011 returned low Cu levels (73 ppm and 38 ppm, respectively). The low concentration of Sb, W, and Cu could indicate the presence of other minerals (e.g. stibnite, scheelite and chalcopyrite), which are found in other mineralised zones across Otago (e.g. Glenorchy, Mt Stoker, Barewood). However, a further mineralogical study is required to confirm the presence of these minerals.

Sample TKRO004 was collected from a float sample near Meggat Burn workings, which returned an assay of 0.39 ppm Au. This indicates there is the potential for low-grade mineralisation in the area. Furthermore, in situ rock-chip sample TKRO006 from the Meggat Burn area returned 124 ppm As.

Table 9-9: Summary of rock-chip sample assay results for Au, Ag, As, W, and Sb. Portable XRF data have not been corrected.

| | Au | Ag | As | W | Sb |
|---|---|---|---|---|---|
| **No. of Samples** | 14 | 14 | 14 | 14 | 14 |
| **Analytical Method** | Au-AA26 | pXRF | pXRF | pXRF | pXRF |
| **Minimum (ppm)** | 0.01 | - | 6 | 20 | 46 |
| **Maximum (ppm)** | 135.5 | - | 3,343 | 20 | 46 |
| **Average (ppm)** | 0.05* | - | 345 | 20 | 46 |
| **No. of Samples above Detection Limit** | 7 | 0 | 13 | 1 | 1 |

* Average Au grade is reported as the median, due to the influence the anomalously high outliers.

Table 9-10: Best assay results of rock-chip samples.

| Sample ID | In situ | Rock Type | Au (ppm) | As (ppm) | W (ppm) | Sb (ppm) | Cu (ppm) |
|---|---|---|---|---|---|---|---|
| **TKRO007** | No | Quartz vein | 135.5 | 1,269 | 20 | - | 73 |
| **TKRO011** | No | Quartz vein | 14.1 | 3,334 | - | 46 | 38 |
| **TKRO004** | No | Silicified schist | 0.39 | 11 | - | - | 21 |
| **TKRO006** | Yes | Silicified schist | 0.01 | 124 | - | - | 86 |

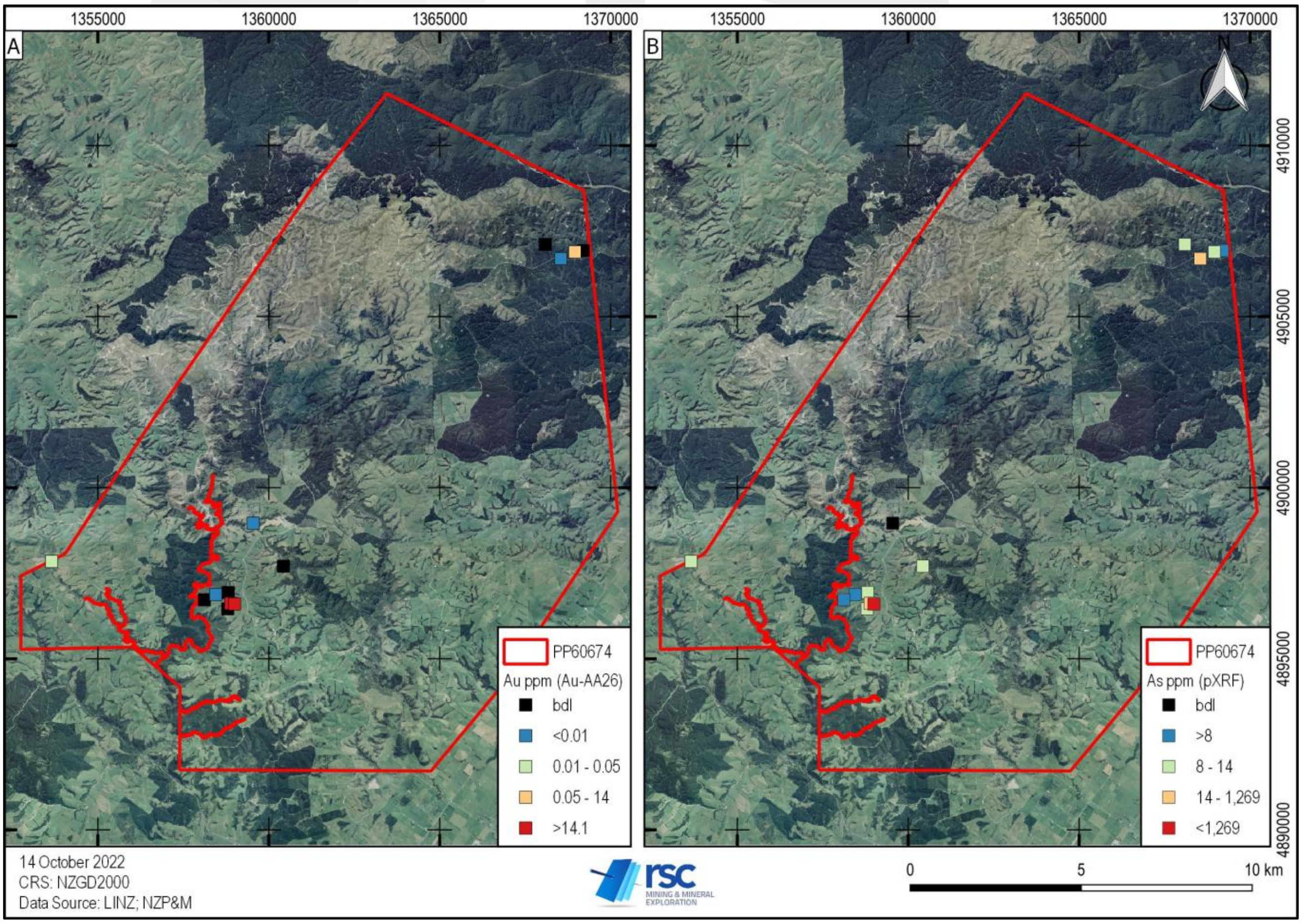



Figure 9-22: Rock-chip results for PP60674. A) Laboratory Au assay results; B) pXRF results for As.

### 9.3.6 Geological and Structural Mapping

RSC conducted geological and structural mapping on in-situ outcrops and also mapped the location and characteristics of historical mining activity, including shafts, adits, pits, and abandoned mining equipment (Figure 9-23).

Visible outcrop in PP60674 is very limited, with much of the land covered by pastures, crops or forestry. A lot of the rocks present in the permit area are ex situ (float). Therefore, it is unknown if these rocks are originally sourced close to where they are found or have been moved hundreds of metres due to farming processes. This makes it difficult to map the geology and collect structural data. Soil samples can be used as a proxy to interpret the geology.

Schist was the only rock type observed in situ. Structural measurements were only recorded from schist outcrops. The structural measurements collected were predominantly from foliation, quartz veins, fractures, fold hinges, and small faults. The orientation and dip of the schist varied widely throughout PP60674 (Figure 9-23). Additional structural mapping will be required to constrain the structural features present in PP60674.

Several pits, adits, and shafts were observed throughout PP60674 (Figure 9-24). The majority are located in the Canada/Ocean View area. Two adits were also located at Nuggety Gully and one in Meggat Burn Reef. The landowners confirmed the adits, pits and shafts from Nuggety Gully and Canada/Ocean View are related to historical Au mining. The orientation of adits and pits suggest mineralisation strikes south-southeast in the Nuggety Gully and Canada/Ocean View areas. Two side-by-side pits were identified at the centre of the Meggat Burn Reef soil grid. RSC cannot confirm the pits are related to historical Au workings, although this seems likely given their location and nature. The Meggat Burn pits are oriented to the north and are interpreted as test digs into the east-striking hillside. No workings were identified at the Try Again Reef area.

An area of alluvial Au workings (sluice channels, large pits) was identified on the banks of an un-named tributary to the Tokomairiro River east branch. No hard-rock mineralisation is known upstream of alluvial workings. The unnamed stream drains off the eastern side of a plateau. Canada/Ocean View, Lawsons, and Try Again reefs are located on the western side of the plateau.

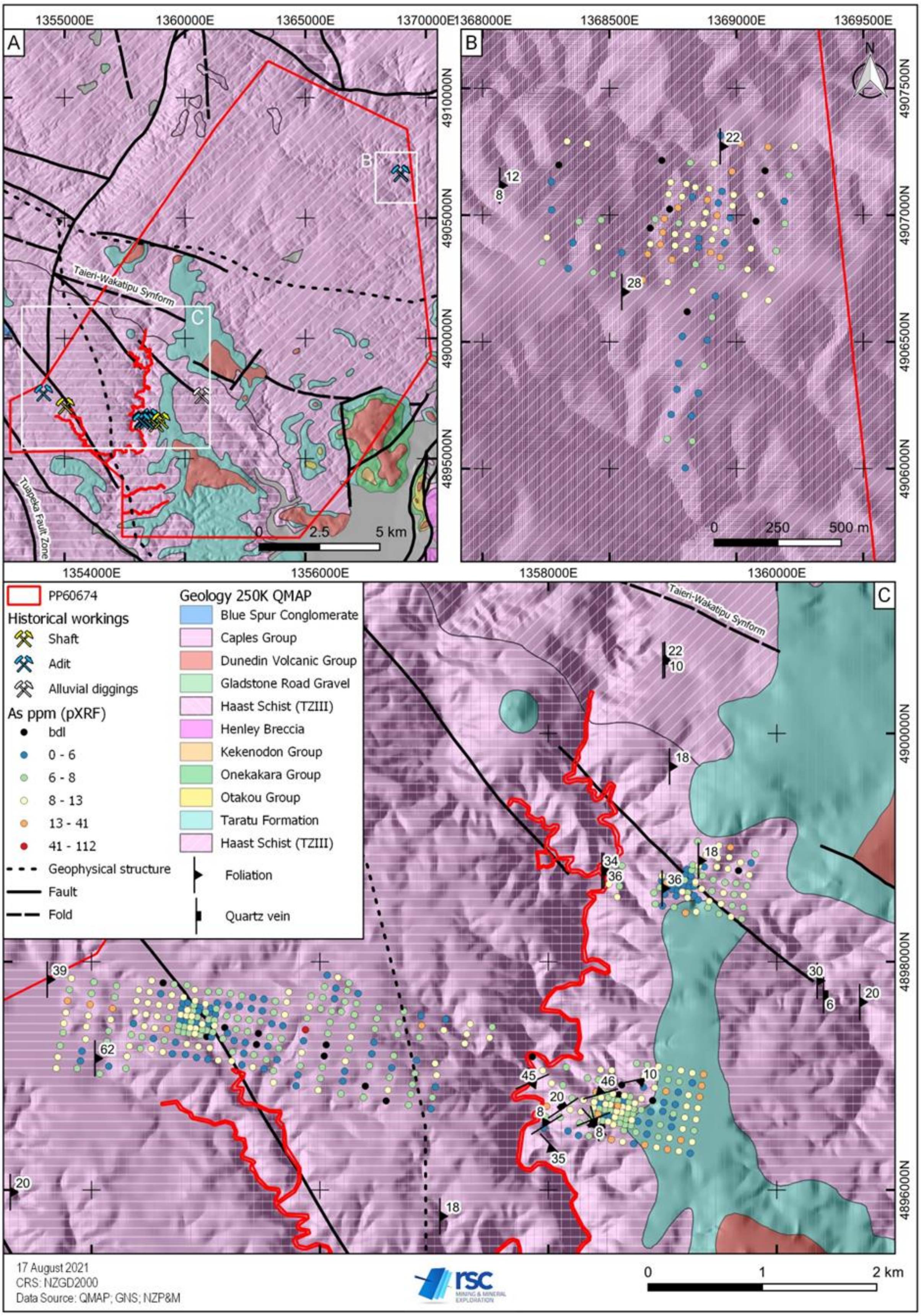



Figure 9-23: Structural and geological mapping that has occurred at PP60674. Due to the lack of outcrop, soil sampling is used as a proxy to understand the geology. A) Overview of PP60674, with the location of historical workings; B) mapping at Meggat Burn; C) mapping at Try Again, Nuggety Gully and Canada/Ocean View areas.

Figure 9-24: Open adit at Canada Reef. Adit orientated approximately north into the hillside.

# 10. Drilling

## 10.1 Summary

As of the effective date of this Report, drilling conducted by KO Gold has only occurred at EP60389 and EP60129 (Smylers Gold Project). No drilling has been conducted at EP60702 (Hyde). Due to prospecting permit restrictions, no drilling can be conducted at PP60674 (Tokomairiro), PP60705 (Rough Ridge South) or PP60727 (Carrick Range). The information presented in this section pertains only to drilling activities conducted at the Smylers Gold Project by KO Gold, Hyde Resources, and SGL.

## 10.2 Smylers Gold Project

As of the effective date of this Report, Hyde Resources and SGL have drilled 105 drillholes within the Smylers Gold Project area for a total of 15,591 m. (Table 10-1). Two programmes of reverse circulation (RC) drilling were conducted in 2018 and 2021. A total of 64 RC drillholes totalling 5,305 m were drilled within the Smylers Gold EP. Successive programmes of diamond drilling have occurred from 2018–2022 for a total of 41 diamond (DD) drillholes and over 10,000 m of diamond drilling. Two holes were drilled within EP60129 totalling 1,145.6 m, the remaining 39 diamond drillholes were drilled within EP601389 for 14,556.71 m. Drilling was targeting Au mineralisation at the Williams, Pipeline South, Kensington, Hoopers, Home Reef South, Smylers East, and Golden Bar prospects (Figure 7-2, Figure 10-1 to Figure 10-4).

RC chip and half core samples were submitted to SGS New Zealand Limited Laboratories for preparation and 30-g fire assays (see section 11). An Olympus Vanta M-series pXRF was regularly used to identify elevated concentrations of As as a pathfinder for Au mineralisation.

Table 10-1: Drill summary for Smylers Gold Project.

| Permit | Year | Method | Holes | Metres | Assay | Hole IDs | Company | Prospects |
|---|---|---|---|---|---|---|---|---|
| **EP60389 Smylers Gold** | 2018 | RC | 38 | 2,570 | 2,541 | SMRC0001–38 | Alton Drilling | Williams, Pipeline South, Kensington, Home Reef S |
| | 2021 | RC | 26 | 2,735 | 681 | SMRC0039–64 | Washingtons | Pipeline South, Kensington, Hoopers, Smylers East |
| | 2018–2021 | DD | 39 | 9,140.71 | 733 | SD001–045 | IMDEX | Pipeline South, Kensington, Hoopers |
| **Total** | | | 103 | 14,445.71 | 3,955 | | | |
| **EP60129 Glenpark** | 2021 | DD | 2 | 1,145.6 | 91 | GB001–002 | IMDEX | Golden Bar Deep/South |
| **Total** | | | 2 | 1,145.6 | 91 | | | |
| **Grand Total** | | | 105 | 15,591.31 | 4,046 | | | |

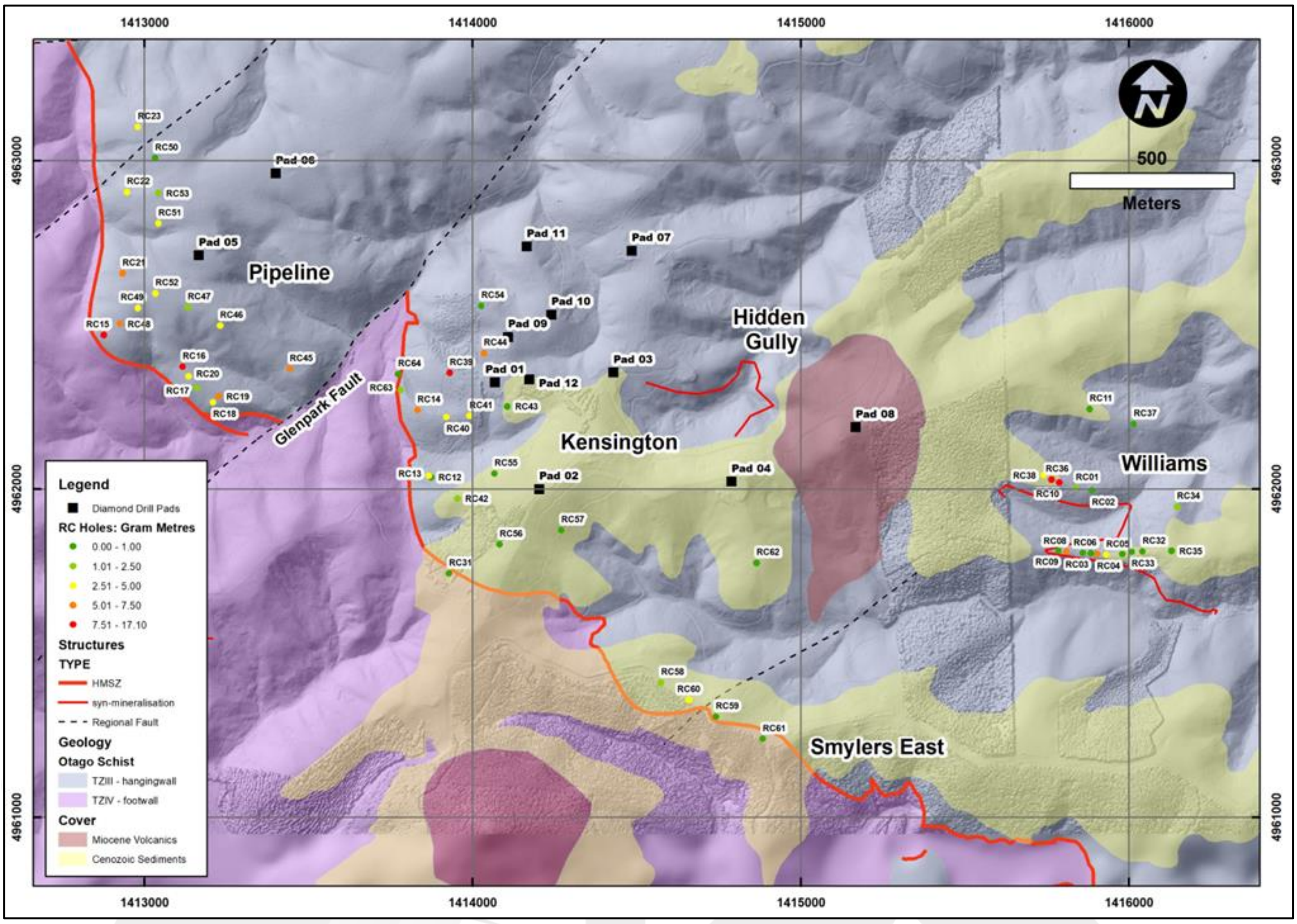



Figure 10-1: RC collar and diamond drill pad locations at Pipeline, Kensington, Williams and Smylers East prospects within Smylers Gold Project.

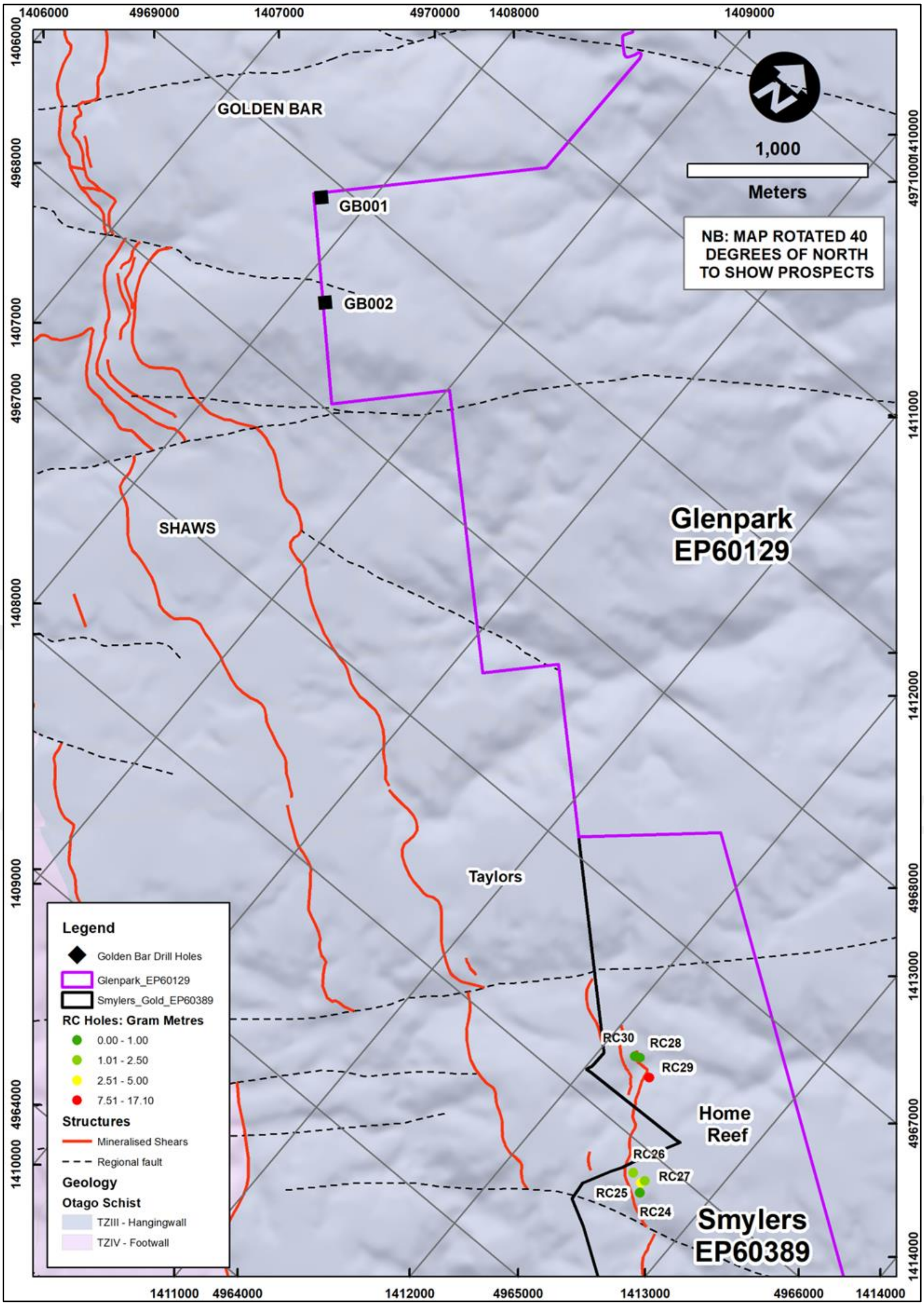



Figure 10-2: RC collar locations at Golden Bar and Home Reef South prospects.

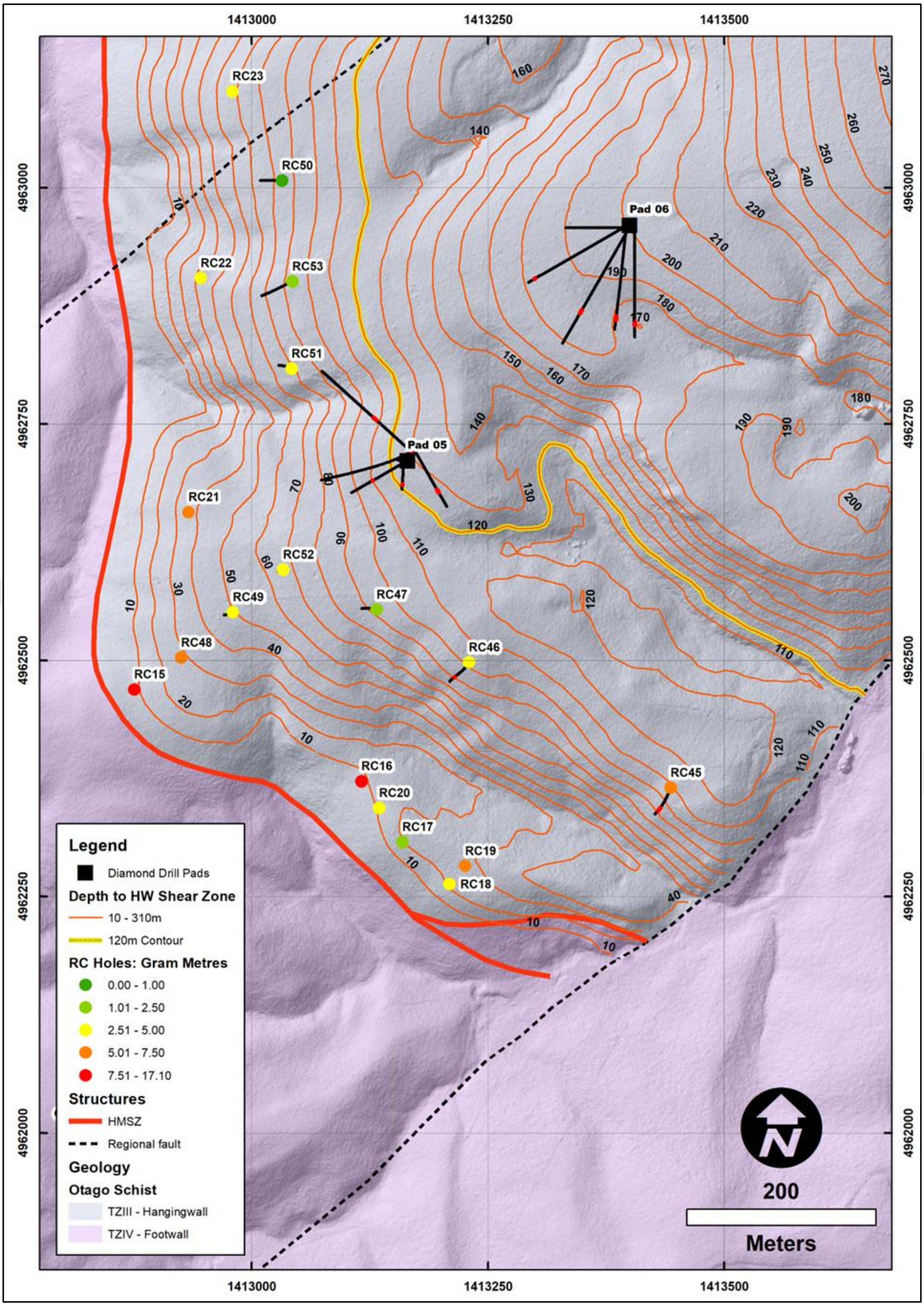



Figure 10-3: Drillhole collars at Pipeline South Prospect.

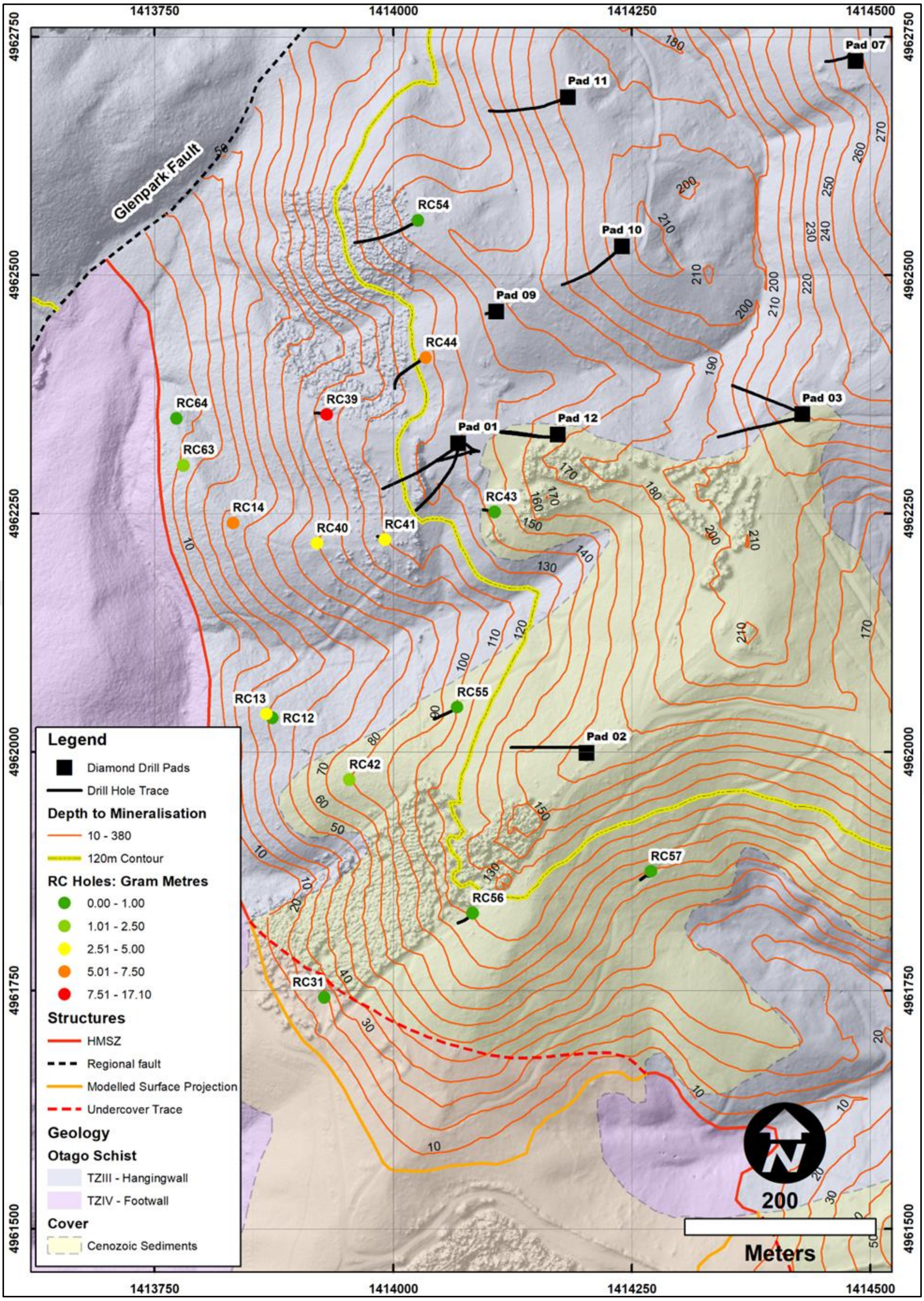



Figure 10-4: Drillhole collars at Kensington Prospect.

### 10.2.1 RC Drilling

#### *10.2.1.1 2018 RC Drill Programme*

Stage 1 RC drilling was conducted from 1 May to 17 June 2018 by Hyde Resources and SGL. A total of 2,570 m of RC drilling were completed over 38 vertical holes (SMRC0001–38). Collar location and significant intercepts are presented in Table 10-2. All holes were drilled using Alton Drilling's LT-35 Morooka rig with a 98.2-m bit and a compressor/booster unit mounted on a support Morooka (Figure 10-5). The Stage 1 drill programme was aimed to test four prospects within the Smylers Gold Project (Williams, Kensington, Pipeline South, and Home Reef). Prior to this drilling, the Smylers area was relatively under explored and no drilling had previously been conducted within the area. The scout programme was designed to test for grade thickness and continuity of mineralised features, identified at surface from previous mapping, soil sampling, and trenching.


Figure 10-5: Photos of 2018 drill rig and logging set-up.

Table 10-2: Stage 1 (2018) RC holes collar data including significant intervals. All drillholes are from EP60389. Coordinates are in NZTM2000.

| Hole ID | Prospect | Northing | Easting | RL (m) | Azimuth | Dip | Depth (m) | Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **SMRC0001** | Williams | 4962003.3 | 1415838.0 | 151 | 0 | -90 | 68 | 2 m @ 0.7 g/t from 8 m |
| **SMRC0002** | Williams | 4961995.6 | 1415887.7 | 145 | 0 | -90 | 104 | 1 m @ 0.4 g/t from 21 m |
| **SMRC0003** | Williams | 4961805.3 | 1415859.4 | 144 | 0 | -90 | 60 | 2 m @ 0.2 g/t from 11 m<br>1 m @ 0.2 g/t from 47 m |
| **SMRC0004** | Williams | 4961801.4 | 1415902.8 | 147 | 0 | -90 | 60 | 4 m @ 1.8 g/t from 8 m<br>(incl. 1 m @ 3.86 g/t) |
| **SMRC0005** | Williams | 4961800.0 | 1415930.8 | 150 | 0 | -90 | 60 | 1 m @ 3.9 g/t from 11 m |
| **SMRC0006** | Williams | 4961804.0 | 1415884.2 | 146 | 0 | -90 | 26 | 1 m @ 0.15 g/t from 14 m |
| **SMRC0007** | Williams | 4961802.3 | 1415980.1 | 152 | 0 | -90 | 55 | 1 m @ 0.13 g/t from 33 m |
| **SMRC0008** | Williams | 4961809.4 | 1415810.3 | 147 | 0 | -90 | 24 | 4 m @ 1.8 g/t from 11 m<br>(incl. 1 m @ 5.8 g/t) |

| Hole ID | Prospect | Northing | Easting | RL (m) | Azimuth | Dip | Depth (m) | Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **SMRC0009** | Williams | 4961813.0 | 1415785.9 | 148 | 0 | -90 | 15 | 3 m @ 0.3 g/t from 7 m |
| **SMRC0010** | Williams | 4962019.7 | 1415787.8 | 159 | 0 | -90 | 46 | 2 m @ 4.7 g/t from 22 m<br>(incl. 1 m @ 8.9 g/t) |
| **SMRC0011** | Williams | 4962243.5 | 1415880.8 | 161 | 0 | -90 | 110 | 1 m @ 0.5 g/t from 100 m |
| **SMRC0012** | Kensington | 4962035.9 | 1413872.9 | 210 | 0 | -90 | 32.4 | No significant intercepts.<br>Hole abandoned early |
| **SMRC0013** | Kensington | 4962039.9 | 1413867.1 | 210 | 0 | -90 | 68 | 9 m @ 0.4 g/t from 43 m<br>2 m @ 0.3 g/t from 54 m |
| **SMRC0014** | Kensington | 4962240.4 | 1413831.9 | 216 | 0 | -90 | 68 | 1 m @ 0.64 g/t from 45 m<br>1 m @ 0.45 g/t from 48 m<br>9 m @ 0.45 g/t from 54 m |
| **SMRC0015** | Pipeline S | 4962469.2 | 1412875.6 | 296 | 0 | -90 | 45 | 3 m @ 2.54 g/t from 8 m<br>(incl. 1 m @ 5.8 g/t)<br>2 m @ 0.8 g/t from 20 m |
| **SMRC0016** | Pipeline S | 4962372.2 | 1413115.9 | 254 | 0 | -90 | 60 | 2 m @ 1.2 g/t from 8 m<br>2 m @ 1.4 g/t from 18 m<br>2 m @ 1.7 g/t from 23 m<br>1 m @ 0.8 g/t from 26 m |
| **SMRC0017** | Pipeline S | 4962307.8 | 1413159.5 | 254 | 0 | -90 | 60 | 1 m @ 0.34 g/t from 20 m<br>1 m @ 0.9 g/t from 34 m<br>2 m @ 0.4 g/t from 36 m |
| **SMRC0018** | Pipeline S | 4962263.4 | 1413209.3 | 243 | 0 | -90 | 60 | 1 m @ 0.4 g/t from 8 m<br>1 m @ 1.3 g/t from 23 m<br>4 m @ 0.6 g/t from 33 m |
| **SMRC0019** | Pipeline S | 4962282.5 | 1413226.1 | 243 | 0 | -90 | 60 | 2 m @ 0.8 g/t from 26 m<br>4 m @ 1.0 g/t from 39 m<br>1 m @ 0.2 g/t from 49 m |
| **SMRC0020** | Pipeline S | 4962343.7 | 1413134.7 | 256 | 0 | -90 | 50 | 2 m @ 0.4 g/t from 12 m<br>1 m @ 0.3 g/t from 25 m<br>1 m @ 0.9 g/t from 29 m<br>2 m @ 0.4 g/t from 32 m |
| **SMRC0021** | Pipeline S | 4962656.9 | 1412933.1 | 284 | 0 | -90 | 70 | 2 m @ 1.7 g/t from 38 m<br>2 m @ 0.4 g/t from 44 m<br>2 m @ 0.4 g/t from 51 m |
| **SMRC0022** | Pipeline S | 4962904.7 | 1412945.9 | 277 | 0 | -90 | 74.5 | 5 m @ 0.5 g/t from 45 m<br>1 m @ 0.6 g/t from 54 m<br>1 m @ 0.4 g/t from 63 m |
| **SMRC0023** | Pipeline S | 4963102.4 | 1412979.4 | 285 | 0 | -90 | 107 | 3 m @ 0.2 g/t from 68 m<br>2 m @ 0.4 g/t from 76 m<br>4 m @ 0.2 g/t from 82 m<br>1 m @ 0.5 g/t from 32 m |
| **SMRC0024** | Home Reef | 4965791.6 | 1412678.7 | 347 | 0 | -90 | 86 | 1 m @ 0.4 g/t from 19 m<br>1 m @ 0.5 g/t from 68 m |
| **SMRC0025** | Home Reef | 4965837.4 | 1412648.3 | 350 | 0 | -90 | 62 | 3 m @ 1.4 g/t from 30 m |
| **SMRC0026** | Home Reef | 4965852.4 | 1412580.6 | 350 | 0 | -90 | 95 | 1 m @ 0.5 g/t from 6 m |
| **SMRC0027** | Home Reef | 4965859.3 | 1412658.3 | 349 | 0 | -90 | 97 | 2 m @ 1 g/t from 39 m |
| **SMRC0028** | Home Reef | 4966365.2 | 1412198.3 | 314 | 0 | -90 | 90 | 1 m @ 0.1 g/t from 22 m |

| Hole ID | Prospect | Northing | Easting | RL (m) | Azimuth | Dip | Depth (m) | Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **SMRC0029** | Home Reef | 4966313.2 | 1412308.4 | 292 | 0 | -90 | 59 | 1 m @ 10 g/t from 20 m<br>1 m @ 0.3 g/t from 26 m |
| **SMRC0030** | Home Reef | 4966352.5 | 1412171.6 | 318 | 0 | -90 | 55 | 1 m @ 0.4 g/t from 9 m<br>1 m @ 0.4 g/t from 43 m |
| **SMRC0031** | Kensington | 4961742.8 | 1413927.6 | 226 | 0 | -90 | 100 | 1 m @ 0.2 g/t from 34 m<br>2 m @ 0.15 g/t from 44 m |
| **SMRC0032** | Williams | 4961810.1 | 1416041.1 | 151 | 0 | -90 | 95.5 | 2 m @ 0.12 g/t from 32 m |
| **SMRC0033** | Williams | 4961808.5 | 1416008.6 | 153 | 0 | -90 | 65 | 1 m @ 0.62 g/t from 18 m |
| **SMRC0034** | Williams | 4961946.4 | 1416146.5 | 137 | 0 | -90 | 94 | 4 m @ 0.3 g/t from 89 m |
| **SMRC0035** | Williams | 4961811.5 | 1416130.4 | 155 | 0 | -90 | 120 | No significant intercepts |
| **SMRC0036** | Williams | 4962029.4 | 1415764.6 | 161 | 0 | -90 | 44 | 5 m @ 3.4 g/t from 32 m<br>(incl. 1 m @ 8.3 g/t)<br>1 m @ 0.3 g/t from 37 m |
| **SMRC0037** | Williams | 4962197.8 | 1416015.1 | 151 | 0 | -90 | 80 | No significant intercepts |
| **SMRC0038** | Williams | 4962042.3 | 1415740.7 | 162 | 0 | -90 | 44.5 | 4 m @ 0.8 g/t from 38 m |

#### *10.2.1.2 2021 RC Drill Programme*

The Stage 2 RC drill programme was conducted between 21 June and 22 August 2021 by KO Gold under the option agreement with Hyde Resources and SGL. A total of 2,735 m of RC drilling was completed over 26 holes (SMRC0039–64). Collar location and significant intercepts are presented in Table 10-3. Drilling was conducted by Washington Exploration Ltd’s Schramm T660 H Rotadrill, mounted on a CAT325 wide track unit with a Sullair 900 cfm x 350 psi air compressor, and Komatsu CD1 crawler unit, with an additional M41 1,800 cfm x 870 psi booster for addition air pressure (Figure 10-6). Stage 2 RC drilling was followed on from the Stage 1 RC and ongoing diamond drilling operations. The aim of the programme was designed to target blind to surface ore shoots, extending the known strike of the shear zone to the east under cover and test for grade, thickness, and continuity of previously identified structures. Three prospects, including Kensington, Pipeline South and Smylers East were targeted. Twenty-one of the 26 holes intercepted the full shear package. Drill collars were capped with PVC lid and left in place. Several collars have been removed during drill pad rehabilitation as part of access requirements.


Figure 10-6: A) Photography of the Schramm T660 H Rotadrill drill rig mounted on a CAT325 wide track unit with a Sullair 900cfm x 350 psi air compressor. B) Komatsu CD1 crawler unit with an additional M41 1800 cfm x 870 psi booster assisting the rig. C) View of the sample set-up and rig with a three-tier splitter. D) Splits A, B and C attached to the splitter with scales nearby for weighing samples. E) Logging set up with iPad for recording entered data and chip trays, with wet sieved RC chips. F) Split A and B side by side, post weighing, ready for pXRF analyses and data recording.

Table 10-3: Stage 2 (2021) RC holes collar data including significant intervals. All drillholes are from EP60389. Coordinates are in NZTM2000.

| Hole ID | Prospect | Northing | Easting | RL (m) | Azimuth | Dip | Depth (m) | Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **SMRC0039** | Kensington | 4962354.0 | 1413930.0 | 232 | 0 | -90 | 114 | 9 m @ 0.98 g/t from 94 m |
| **SMRC0040** | Kensington | 4962219.0 | 1413920.0 | 136 | 0 | -90 | 97 | 1 m @ 0.51 g/t from 82 m<br>3 m @ 0.89 g/t from 87 m |
| **SMRC0041** | Kensington | 4962223.0 | 1413991.0 | 182 | 0 | -90 | 126 | 8 m @ 0.52 g/t from 110 m |
| **SMRC0042** | Kensington | 4961971.0 | 1413954.0 | 232 | 0 | -90 | 96 | 3 m @ 0.38 g/t from 83 m |
| **SMRC0043** | Kensington | 4962252.0 | 1414106.0 | 235 | 0 | -90 | 132 | Target not reached due to water. |
| **SMRC0044** | Kensington | 4962414.0 | 1414034.0 | 391 | 252 | -70 | 148 | 3 m @ 1.89 g/t from 123 m<br>1 m @ 0.3 g/t from 135 m |
| **SMRC0045** | Pipeline S | 4962242.0 | 1413395.0 | 292 | 224 | -75 | 108 | 2 m @ 1.39 g/t from 80 m<br>3 m @ 0.89 g/t from 90 m<br>1 m @ 0.27 g/t from 96 m |
| **SMRC0046** | Pipeline S | 4962498.0 | 1413230.0 | 345 | 228 | -80 | 126 | 1 m @ 2.16 g/t from 96 m<br>1 m @ 0.85 g/t from 99 m<br>2 m @ 0.59 g/t from 103 m |
| **SMRC0047** | Pipeline S | 4962554.0 | 1413132.0 | 273 | 0 | -90 | 124 | 2 m @ 0.45 g/t from 91 m<br>1 m @ 0.25 g/t from 100 m |
| **SMRC0048** | Pipeline S | 4962503.0 | 1412925.0 | 342 | 0 | -90 | 54 | 1 m @ 0.43 g/t from 29 m<br>1 m @ 0.27 g/t from 31 m<br>2 m @ 1.76 g/t from 33 m<br>3 m @ 0.9 g/t from 39 m |
| **SMRC0049** | Pipeline S | 4962551.0 | 1412980.0 | 277 | 0 | -90 | 78 | 2m @ 1.62 g/t from 50 m |
| **SMRC0050** | Pipeline S | 4963008.0 | 1413032.0 | 371 | 0 | -90 | 120 | 1 m @ 0.27 g/t from 99 m<br>1 m @ 0.37 g/t from 102 m |
| **SMRC0051** | Pipeline S | 4962809.0 | 1413042.0 | 292 | 0 | -90 | 101 | 11 m @ 0.34 g/t from 77 m |
| **SMRC0052** | Pipeline S | 4962596.0 | 1413033.0 | 343 | 0 | -90 | 93 | 3 m @ 0.95 g/t from 72 m<br>1 m @ 1.59 g/t from 82 m<br>1 m @ 0.29 g/t from 86 m |
| **SMRC0053** | Pipeline S | 4962901.0 | 1413043.0 | 252 | 270 | -75 | 114 | 2 m @ 0.40 g/t from 40 m<br>2 m @ 0.55 g/t from 94 m<br>1 m @ 0.27 g/t from 99 m<br>1 m @ 0.34 g/t from 105 m |
| **SMRC0054** | Kensington | 4962558.0 | 1414026.0 | 243 | 236 | -65 | 168 | 1 m @ 0.56 g/t from 167 m<br>Rods stuck in mineralisation. Not full intercept. |
| **SMRC0055** | Kensington | 4962047.0 | 1414067.0 | 228 | 252 | -80 | 126 | No significant intercepts. |
| **SMRC0056** | Kensington | 4961831.0 | 1414083.0 | 244 | 228 | -80 | 120 | No significant intercepts. |
| **SMRC0057** | Smylers E | 4961875.0 | 1414270.0 | 241 | 220 | -82 | 132 | 1 m @ 0.63 g/t from 75 m |
| **SMRC0058** | Smylers E | 4961411.0 | 1414574.0 | 200 | 0 | -90 | 84 | 2 m @ 0.42 g/t from 50 m<br>1 m @ 0.42 g/t from 62 m |
| **SMRC0059** | Smylers E | 4961307.0 | 1414741.0 | 223 | 0 | -90 | 96 | No significant intercepts. |
| **SMRC0060** | Smylers E | 4961358.0 | 1414659.0 | 206 | 0 | -90 | 66 | 2 m @ 0.33 g/t from 34 m<br>3 m @ 1.09 g/t from 39 m |

| Hole ID | Prospect | Northing | Easting | RL (m) | Azimuth | Dip | Depth (m) | Au Intercept |
|---|---|---|---|---|---|---|---|---|
| **SMRC0061** | Smylers E | 4961239.0 | 1414884.0 | 210 | 316 | 87 | 48 | No significant intercepts. |
| **SMRC0062** | Smylers E | 4961775.0 | 1414865.0 | 155 | 0 | -90 | 180 | 1 m @ 0.93 g/t from 172 m |
| **SMRC0063** | Kensington | 4962301.0 | 1413780.0 | 312 | 0 | -90 | 48 | 4 m @ 0.78 g/t from 12 m<br>3 m @ 0.34 g/t from 17 m<br>2 m @ 0.46 g/t from 28 m |
| **SMRC0064** | Kensington | 4962350.0 | 1413773.0 | 191 | 0 | -90 | 36 | 3 m @ 0.28 g/t from 8 m |

### 10.2.2 Diamond Drilling

#### *10.2.2.1 2018–2022 Diamond Drill Programme*

Since 2018, 9,140 m (47 holes) of diamond drilling has been conducted within EP60389 (Smylers Gold) and 1,145 m of drilling within the EP60129 (Glenpark). Collar locations are present in Table 10-4 and significant intercepts are presented in Table 10-5. KO Gold and Hyde Resources have an arrangement with Flexidrill/IMDEX for ongoing diamond drilling in the Project area. Flexidrill/IMDEX is product testing new drilling technologies and provides KO Gold and Hyde Resources with drill core in return for access to the drilling sites. This is an unconventional drilling client/contractor relationship with both parties needing an agreement on drill sites and target depths. Diamond core drilled within the project ranges vary in width and include PQ, HQ, NQ and BQ-3 sized core. Multiple drill rigs have been used throughout the programme (Figure 10-7). Fourteen drill pads were set up as part of the drill programme, and half of these were used to drill multiple holes with different dips and azimuths. Within EP60389 (Smylers Gold), 31 diamond drillholes intersected the shear zone and footwall schist. Fourteen holes failed to reach the shear zone target for various reasons, predominantly related to product testing requirements and not ground conditions (Table 10-6). The deeper of the failed holes, where core was recovered, were logged, and photographed. The two holes drilled in EP60129 (Glenpark), targeted the down dip extension of the Golden Bar shear. The target shear zone was encountered, although only weakly mineralised. PVC drill collars were capped on completion of drilling. Some of the drill pads have been rehabilitated as part of consent or land access agreements.

Table 10-4: Drill collar locations for diamond drillholes at the Smylers Gold Project (EP60129 and EP60389).

| Hole ID | N NZTM | E NZTM | RL m | Dip | Azimuth |
|---|---|---|---|---|---|
| **GB001** | 4968884.0 | 1407776.0 | 553 | -80 | 227 |
| **GB002** | 4968450.0 | 1408167.0 | 598 | -80 | 225 |
| **SD001** | 4962316.2 | 1414082.1 | 234.36 | -90 | |
| **SD002** | 4962315.5 | 1414085.1 | 234.085 | -90 | |
| **SD003** | 4962315.6 | 1414087.7 | 234.192 | -90 | |
| **SD004** | 4962315.7 | 1414082.0 | 234.355 | -80 | 200 |
| **SD006** | 4962317.3 | 1414062.6 | 233.558 | -80 | 250 |
| **SD007** | 4962319.7 | 1414068.6 | 233.858 | -70 | 220 |
| **SD010** | 4962709.1 | 1413164.3 | 293.672 | -90 | |

| Hole ID | N NZTM | E NZTM | RL m | Dip | Azimuth |
|---|---|---|---|---|---|
| SD011 | 4962720.5 | 1413168.6 | 293.364 | -70 | 270 |
| SD012 | 4962721.0 | 1413168.9 | 293.802 | -68 | 312 |
| SD013 | 4962711.5 | 1413164.5 | 293.849 | -70 | 240 |
| SD014 | 4962720.5 | 1413169.0 | 293.364 | -90 | |
| SD015 | 4962721.5 | 1413172.6 | 293 | -70 | 150 |
| SD017 | 4962715.5 | 1413160.0 | 293 | -70 | 180 |
| SD018 | 4962960.0 | 1413396.5 | 286 | -90 | |
| SD019 | 4962964.2 | 1413403.2 | 283 | -60 | 210 |
| SD020 | 4962960.0 | 1413396.5 | 286 | -60 | 240 |
| SD021 | 4962958.0 | 1413396.0 | 286 | -70 | 270 |
| SD022 | 4962964.2 | 1413405.5 | 286 | -60 | 180 |
| SD023 | 4962002.6 | 1414210.7 | 253.9 | -90 | 0 |
| SD024 | 4962352.8 | 1414435.1 | 217.82 | -90 | 0 |
| SD025 | 4962352.8 | 1414435.1 | 217.82 | -70 | 310 |
| SD026 | 4962352.8 | 1414435.1 | 217.82 | -70 | 270 |
| SD027 | 4962357.0 | 1414424.0 | 216 | -90 | |
| SD028 | 4962004.8 | 1414196.9 | 246 | -90 | |
| SD029 | 4962004.8 | 1414196.9 | 246 | -70 | 270 |
| SD030 | 4962000.8 | 1414190.9 | 246 | -70 | 270 |
| SD031 | 4962000.0 | 1414190.0 | 246 | -90 | |
| SD032 | 4962025.0 | 1414788.0 | 236 | -90 | |
| SD034 | 4962007.0 | 1414792.0 | 236 | -90 | |
| SD038 | 4962726.0 | 1414485.0 | 238 | -85 | 270 |
| SD039 | 4962462.4 | 1414108.7 | 161 | -85 | 240 |
| SD040 | 4962185.0 | 1415170.0 | 194 | -70 | 286 |
| SD041 | 4692530.0 | 1414240.0 | 289 | -82 | 244 |
| SD042 | 4962687.0 | 1414182.0 | 129.9019 | -80 | 244 |
| SD043 | 4962687.0 | 1414182.0 | 129.9019 | -90 | |
| SD044 | 4962330.0 | 1414179.0 | 145.4375 | -80 | 272 |
| SD045 | 4962332.0 | 1414178.0 | 170 | -80 | 270 |

Table 10-5: Diamond holes with Au intercept intervals. Core widths: HQ = 61.1 mm, NQ – 50.7 mm, BQ = 36.5 mm.

| Hole ID | Year | Prospect | Pad No. | Dip | Azimuth | Sampled Core Width | EOH (m) | HW Depth (m) | FW Depth (m) | Intercept Au | Survey Data |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **SD002** | 2018 | Kensington | 1 | 90 | - | HQ | 283.3 | 148.4 | 164.6 | 2.6 m @ 1.09 g/t from 148.6 m | Y |
| **SD003** | 2018 | Kensington | 1 | 90 | - | HQ | 297.1 | 148.9 | 165 | 3.5 m @ 0.69 g/t from 149.5 m | Y |
| **SD004** | 2018 | Kensington | 1 | 80 | 200 | HQ | 183.5 | 142.7 | 157 | 3 6m @ 2.14 g/t from 142.7 m (incl. 2 m @ 3.12 g/t) | Y |
| **SD006** | 2018 | Kensington | 1 | 80 | 250 | HQ | 345.6 | 135.7 | 150 | 3.2 m @ 1.61 g/t from 135.7 m | Y |
| **SD007** | 2018 | Kensington | 1 | 70 | 220 | HQ | 278 | 140 | 155 | 2 m @ 1.38 g/t from 140 m<br>1.6 m @ 1.64 g/t from 143.3 m | Y |
| **SD010** | 2019 | Pipeline S | 5 | 90 | - | NQ2 | 260 | 128 | 147.6 | 2.8 m @ 0.66 g/t from 128.2 m<br>2.03 m @ 0.56 g/t from 136 m | Y |
| **SD011** | 2019 | Pipeline S | 5 | 70 | 270 | HQ | 301.4 | 119 | 138.8 | 1.43 m @ 0.49 g/t from 120.65 m<br>2.15 m @ 0.37 g/t from 128.85 m | Y |
| **SD012** | 2019 | Pipeline S | 5 | 68 | 312 | HQ | 350 | 124 | 143.6 | 0.7 m @ 0.49 g/t from 124.3 m<br>0.62 m @ 0.59 g/t from 131.38 m<br>2.05 m @ 1.34 g/t from 134 m<br>0.7 m @ 2.06 g/t from 142.3 m | N |
| **SD013** | 2019 | Pipeline S | 5 | 70 | 240 | NQ2 | 176 | 120 | 139 | 0.5 m @ 1.01 g/t from 124 m<br>1.2 m @ 0.76 g/t from 127 m | N |
| **SD014** | 2019 | Pipeline S | 5 | 90 | - | HQ | 155.5 | 129 | 144.6 | 1 m @ 0.49 g/t from 130 m<br>2.7 m @ 0.6 g/t from 133.3 m<br>0.6 m @ 1.45 g/t from 141.5 m | N |
| **SD015** | 2019 | Pipeline S | 5 | 70 | 150 | HQ | 198.1 | 136 | 155 | 2.1 m @ 1.27 g/t from 137.5 m<br>6.5 m @ 0.7 g/t from 141.2 m | N |
| **SD017** | 2019 | Pipeline S | 6 | 70 | 180 | NQ2 | 158.8 | 125 | 144 | 1.5 m @ 0.38 g/t from 126.5 m<br>1 m @ 0.81 g/t from 131 m<br>2.2 m @ 0.74 g/t from 133.3 m | Y |
| **SD018** | 2019 | Pipeline S | 6 | 90 | - | NQ2 | 243.1 | 212 | 229.7 | 1.5 m @ 1.36 g/t from 212.5 m<br>2.3 m @ 1.28 g/t from 216 m<br>1.5 m @ 0.78 g/t from 219.5 m<br>1 m @ 0.34 g/t from 228 m | N |
| **SD019** | 2019 | Pipeline S | 6 | 60 | 210 | NQ2 | 297.2 | 216 | 232.4 | 0.6 m @ 1.24 g/t from 216 m | N |

| Hole ID | Year | Prospect | Pad No. | Dip | Azimuth | Sampled Core Width | EOH (m) | HW Depth (m) | FW Depth (m) | Intercept Au | Survey Data |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 2 m @ 0.93 g/t from 221 m<br>1 m @ 0.73 g/t from 231 m<br>0.6 m @ 0.6 g/t from 208.4 m | |
| **SD020** | 2019 | Pipeline S | 6 | 60 | 240 | NQ2 | 239.3 | 208.4 | 224.6 | 6 m @ 0.45 g/t from 209 m<br>0.6 m @ 0.39 g/t from 220.4 m<br>2 m @ 1.61 g/t from 222 m | N |
| **SD022** | 2019 | Pipeline S | 6 | 60 | 180 | NQ2 | 244.2 | 212 | 230.1 | 9 m @ 0.5 g/t from 212 m<br>2 m @ 0.35 g/t from 225 m | N |
| **SD024** | 2019 | Kensington | 3 | 90 | - | NQ2 | 261.6 | 230.5 | 251.6 | 2.4 m @ 2.16 g/t from 230.5 m<br>1 m @ 0.38 g/t from 245 m | N |
| **SD025** | 2019 | Kensington | 3 | 70 | 310 | NQ2 | 270.1 | 234.2 | 249 | 2.4 m @ 1.8 g/t from 233.5 m<br>1.7 m @ 0.36 g/t from 246.5 m | N |
| **SD026** | 2019 | Kensington | 3 | 70 | 270 | NQ2 | 282.1 | 226.2 | 241.2 | 1 m @ 1.6 g/t from 226.2 m<br>2.2 m @ 0.39 g/t from 239 m | N |
| **SD028** | 2020 | Kensington | 2 | 90 | - | NQ2 | 246.2 | 161.25 | 171.75 | 0.65 m @ 0.67 g/t from 161.25 m<br>0.8 m @ 0.57 g/t from 170.2 m | Y |
| **SD029** | 2020 | Kensington | 2 | 70 | 270 | NQ2 | 215.6 | 160.5 | 168.2 | 3.0 m @ 0.67 g/t from 154 m<br>1.27 m @ 0.3 g/t from 164.4 m | Y |
| **SD030** | 2020 | Kensington | 2 | 70 | 270 | - | 219.5 | 166.5 | 174.35 | Not sampled | Y |
| **SD032** | 2020 | Kensington | 4 | 90 | - | HQ | 295.5 | 171.75 | 225.38 | 3.71 m @ 0.47 g/t 208.6 m<br>1 m @ 0.51 g/t from 217 m<br>4.6 m @ 0.28 g/t from 220.8 m | N |
| **SD034** | 2020 | Kensington | 4 | 90 | - | HQ | 374 | 189.89 | 225.27 | 1.98 m @ 1.07 g/t from 208.62 m | N |
| **SD038** | 2021 | Kensington | 7 | 85 | 270 | NQ2 | 362.5 | 264 | 270.77 | 5.2 m @ 0.38 g/t from 265.6 m<br>(incl. 0.9 m @ 0.73 g/t) | Y |
| **SD039** | 2021 | Kensington | 9 | 85 | 240 | NQ2 | 180.7 | 153.09 | 170 | 1.8 m @ 1.9g/t from 155.86 m<br>(incl. 0.3 m at 7.1 g/t)<br>0.5 m at 2.51 g/t from 155.35 m | Y |
| **SD040** | 2021 | Kensington | 8 | 70 | 286 | NQ2 | 352.3 | 271 | 346 | 6.83 m @ 1.05 g/t from 338 m<br>0.4 m @ 1.33 g/t from 271 m | Y |
| **SD041** | 2021 | Kensington | 10 | 82 | 244 | NQ2 | 315.1 | 189.2 | 203 | 2.4 m @ 1.31 g/t from 189.6 m | Y |

| Hole ID | Year | Prospect | Pad No. | Dip | Azimuth | Sampled Core Width | EOH (m) | HW Depth (m) | FW Depth (m) | Intercept Au | Survey Data |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | 1 m @ 0.6 g/t from 201 m | |
| **SD042** | 2021 | Kensington | 11 | 80 | 244 | NQ2 | 398 | 226 | 234 | No significant intercept | Y |
| **SD044** | 2022 | Kensington | 12 | 79 | 270 | NQ2 | 312 | 172 | 187.6 | 3.32 m @ 1.26 g/t from 172 m (incl. 0.98 m @ 3.03 g/t) | Y |
| **SD045** | 2022 | Kensington | 12 | 80 | 270 | BQ | 360.26 | 168.9 | 186.7 | 3.1 m @ 2.35 g/t from 170.9 m | Y |
| **GB001** | 2021 | Golden Bar | GB 1 | 80 | 225 | NQ2 | 599.8 | 399.9 | - | 3.54 m @ 0.59 g/t from 399.92 m | Y |
| **GB002** | 2021 | Golden Bar | GB 2 | 80 | 225 | NQ2 | 545.8 | 329 | - | 0.94 m @ 0.28 g/t from 347.26 m | Y |

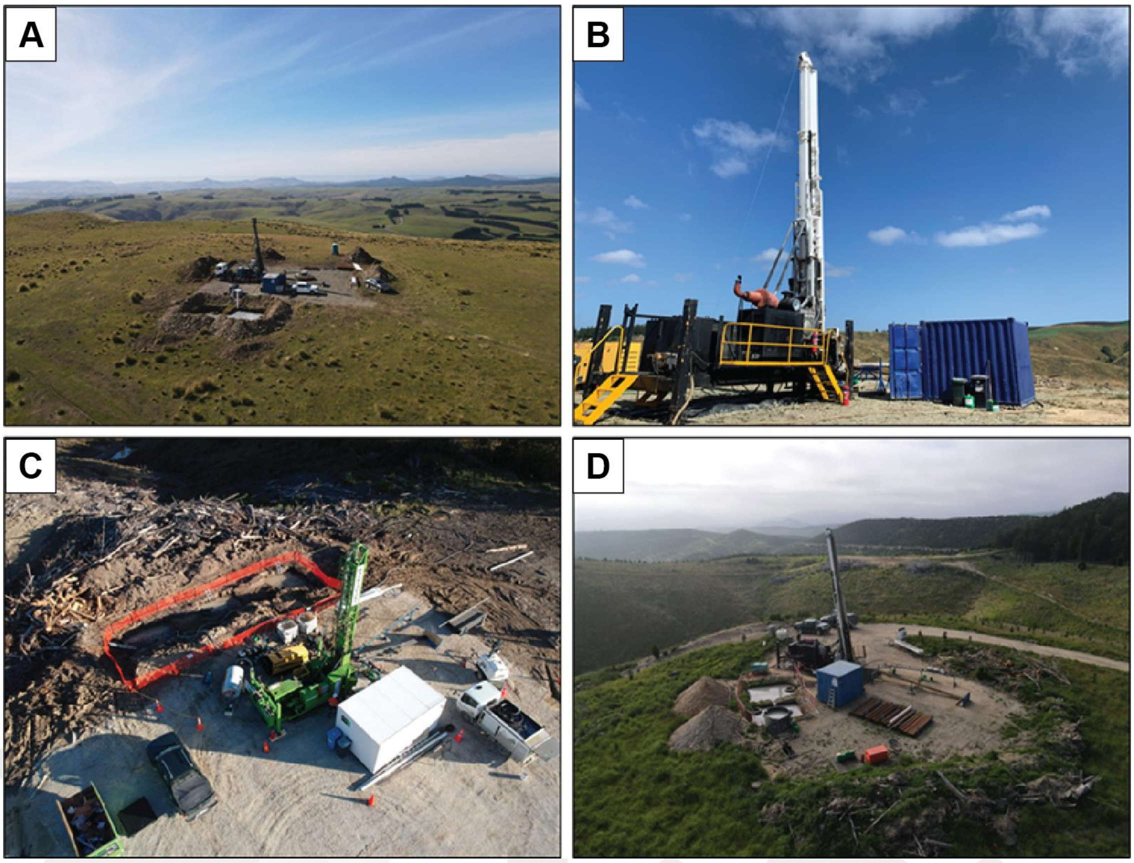



Figure 10-7: Diamond drill pad set-up with the different drill rigs used. A) GB002 at Golden Bar; B) Kensington Pad 10; C) Kensington Pad 1; D) Kensington Pad 7.

Table 10-6: List of diamond drillholes that did not intercept the shear zone.

| Hole ID | Year | Prospect | Pad No. | Dip | Azimuth | EOH m |
|---|---|---|---|---|---|---|
| **SD001** | 2018 | Kensington | 1 | 90 | - | 42.9 |
| **SD005** | 2018 | Kensington | 1 | 90 | - | 70 |
| **SD008** | 2018 | Kensington | 1 | 70 | 220 | 20 |
| **SD009** | 2019 | Kensington | 1 | 90 | - | 120 |
| **SD016** | 2019 | Kensington | 6 | 90 | - | ~5 |
| **SD021** | 2019 | Pipeline S | 6 | 70 | 270 | 186 |
| **SD023** | 2019 | Kensington | 2 | 90 | - | 34.3 |
| **SD027** | 2020 | Kensington | 3 | 90 | - | 168.6 |
| **SD031** | 2020 | Kensington | 2 | 90 | - | 159.5 |
| **SD033** | 2020 | Kensington | 4 | 90 | - | ~10 |
| **SD035** | 2021 | Kensington | 8 | 90 | - | ~5 |
| **SD036** | 2021 | Kensington | 8 | 90 | - | ~8 |
| **SD037** | 2021 | Kensington | 8 | 90 | - | 47.4 |
| **SD043** | 2022 | Kensington | 11 | 80 | 244 | 64.35 |

## 10.3 Surveys

### 10.3.1 2018 RC

Drill collar locations were surveyed on 3 July 2018 by Jared Reeves (Overview Surveying Ltd., Dunedin), using a Topcon HiPer Ga base receiver, and a Topcon HiPer Ga rover receiver, employing the RTK (Real Time Kinematic) method. The measured values were compared to the previously recorded (handheld) GPS coordinates to check for errors. The measurement accuracy of this survey was reported at better than ±30 mm both horizontally and vertically. No downhole orientation surveys were completed during the 2018 drill programme, all holes were vertical and less than 120 m deep.

### 10.3.2 2021 RC

Drill collar locations were surveyed using a Garmin 64s GPS. Downhole surveys were taken every 30 m using the Reflex EZ-TRAC tool.

### 10.3.3 2018–2022 Diamond Drilling

Prior to 2020, diamond drill collars were surveyed by a surveyor using RTK GPS. From 2020 onwards, drill collars were surveyed using a Garmin 64s GPS. Downhole surveys have been collected at intervals between 1 m and 30 m using Reflex EZ-TRAC and EZ-SHOT survey tools. Thirteen holes were not surveyed downhole (Table 10-6) because no tool was available.

## 10.4 Logging Procedures

### 10.4.1 2018 & 2021 RC Drill Logging Procedures

All RC drillholes were logged at one-metre intervals over the entire length of the hole during drilling. Logging was completed by geologists using chips samples, collected from a scoop from the reject bulk split. RC chips were dry and wet sieved prior to logging. A spoon was placed into a labelled chip tray for each metre logged (Figure 10-6E).

Lithologies were assigned to each metre using the lithological codes listed in Table 10-7**.** Lithological rock classification was based on those used in the adjacent Macraes project although psammitic, and pelitic lithologies were replaced with quartzofeldspathic and micaceous schist based on Craw and McKenzie (2016). Basic lithologies were also assigned to each metre to be used in simple geological models (i.e. footwall, hanging wall or cover; Table 10-7). Logging of estimated quartz percentage, colour, oxidation, sulphide percentage, and additional geological notes were also recorded. All logging data were recorded using field laptops or field tablets in Excel using an RC logging template, and then uploaded into the drillhole database MX Deposit.

Table 10-7: Summary of lithological codes used for RC and diamond interval logging.

| Name | Code | Description |
|---|---|---|
| **LITHOLOGY 1 & 2** | | |
| **Alluvium/Colluvium/Soil** | alv | A mix of sedimentary cover overlying schist. |
| **Basalt** | ba | Basaltic Rock |
| **Cataclasite** | ca | Quartz poor (<15%) dark grey/black fine grained cataclasite |
| **Chloritic Schist** | chlsch | Light green/brown massive quartz-mica schist |
| **Clay** | cl | Clay of variable colour and origin; may form through weathering or deposition. |
| **Fill/Backfill/Stockpile (not in situ)** | fill | Fill or non in-situ material encountered during surface drilling. |
| **Faulted Rocks** | flt | Fault rocks, gouge, crush and catalclasite |
| **Gravels** | grav | Coarse to fine sedimentary gravels or river gravels |
| **Greenschist** | gs | Light green/brown massive quartz-mica schist |
| **Fault Gouge** | gu | Light to medium grey gouge or pug, may be associated with mineralisation |
| **Lost Core** | lost | Core that is lost during drilling. |
| **Micaceous Schist** | msc | Massive to laminated medium-to-dark grey mica-quartz-chlorite schist |
| **Quartz Cataclasite** | qca | Quartz-rich (15–50%), dark grey/black fine-grained cataclasite |
| **Quartzofeldspathic Schist** | qfs | Massive to light grey-green quartz-feldspar-mica-chlorite schist, 90% quartzofeldspathic |
| **Quartz Vein** | qv | >50% banded or milky quartz veins with no associated brecciation or cataclasite |
| **Silicified Breccia** | sb | >50% brecciated quartz, typically associated with cataclasite |
| **Sheared Schist** | ss | Sheared schist with minor cataclasite/brecciated quartz |
| **Sandstone** | sst | Sandstone of variable origin and colour; may form through weathering or deposition. |
| **Lapilli Tuff** | tuff | Basaltic fragments 2–64 mm in diameter in fine matrix. Product of ashfall from basaltic eruptions. |
| **BASIC LITHOLOGIES** | | |
| **Hanging Wall Schist** | HW | TZIV schist sitting structurally above the Footwall Fault |
| **Hanging Wall Shear Zone** | HW_SZ | Shear package of the HMSZ immediately above the Footwall Fault |
| **Shear Zone** | SZ | Shears within the hanging wall but not representing the HMSZ |
| **Quartz Veins** | QV | Mineralised quartz veins found within the hanging wall schist. 'Eastern lodes' style |
| **Footwall Schist** | FW | Schist which sits structurally below the HMSZ |
| **Cover** | Cover | A mix of sedimentary cover overlying schist |

### 10.4.2 2018–2022 Diamond Drill Logging Procedures

All diamond drillholes were logged over the entire length of the drillhole. A standard operating procedure (SOP) was typically followed to insure logging consistency between different geologists. Diamond drill core was marked up with metre intervals and geologically logged and photographed by geologists at a purpose-built core shed within the Smylers Gold Project. Core was logged by lithological intervals with a basic and lithological rock code as listed in Table 10-7 applied to each interval.

Information on core loss, recovery, oxidation/weathering, structural data, sulphide percentages, vein types, mineral modes and geological notes were recorded along with geotechnical information such as rock quality designation (RQD), rock strengths, defect types, jointing and geotechnical notes (Figure 10-8). All logging data were entered into a field tablet with access to the MX database containing a purpose-built diamond logging sheet (Figure 10-8).

Drill core was periodically orientated throughout the diamond drilling campaign. A Reflex Act III orientating device was used by drillers to mark the bottom of core which was then transferred onto the core by geologists using a core orientation table set up (Figure 10-9). Alpha and beta angles of structures, mostly schistosity foliation, shear planes, quartz veins, and faults were measured on orientated core using a Kenometers for HQ or NQ core. These data were logged with depth and properties.

Portable XRF analysis of uncut drill core was routinely undertaken to support identification of mineralised intervals and guide intervals for sampling. The pXRF data are used in qualitative way (e.g. not anomalous, anomalous or high arsenic) as analysis times are short <20 seconds, and no QC was undertaken. Approximate As values were noted on core with pencil.

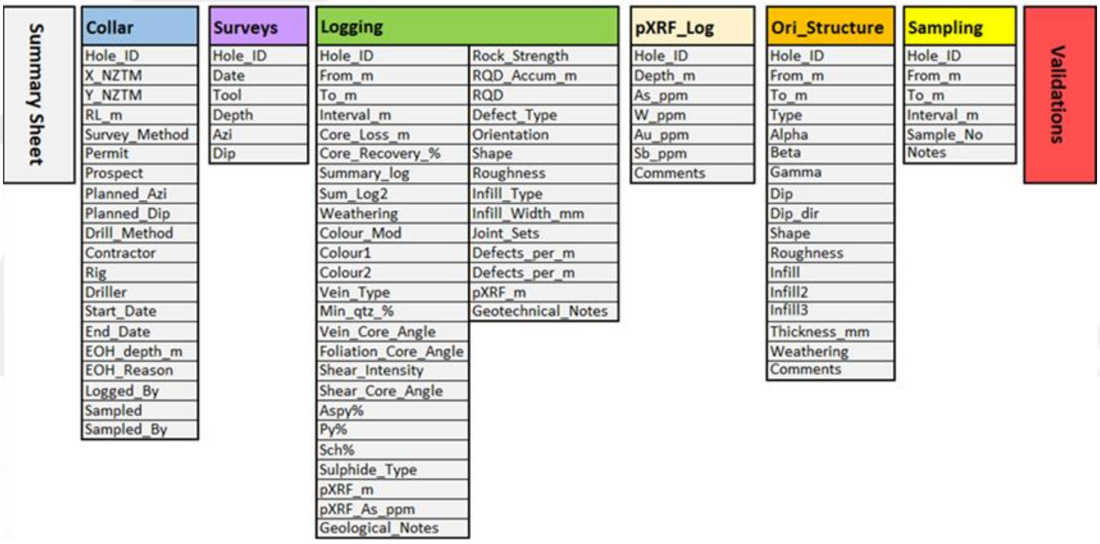



Figure 10-8: Diamond logging template sheet with a list of the different fields logged.


Figure 10-9: SD039, box #36, 134.2–138.1 m, displaying marked up core with orientation marks.

### 10.4.3 Relative Moisture Content

Relative sample moisture content of the RC samples was recorded during logging as ‘wet’, ‘moist’ or ‘dry’. A summary of sample moisture, recovery, spit ratios and mineralised samples is given in Table 10-8 for the 2018 and 2021 RC programmes. No calculation or analysis of wet sample bias has been undertaken.

Table 10-8: Average recovery, split ratios and the number of samples above 0.2 ppm Au for dry, moist and wet samples.

| **2018** | | | | |
|---|---|---|---|---|
| **Moisture Logged** | Count of Sample Moisture | Average of Recovery% | Average of Split Ratio (target 0.25) | Count Au >0.2 ppm |
| **Dry** | 2,335 | 80% | 0.265 | 106 |
| **Moist** | 208 | 82% | 0.254 | 12 |
| **Wet** | 17 | 36% | 0.432 | 1 |
| **Total** | 2,560 | | | 119 |
| **2021** | | | | |
| **Moisture Logged** | Count of Sample Moisture | Average of Recovery% | Average of Split Ratio (target 0.1) | Count Au >0.2 ppm |
| **Dry** | 2,488 | 76% | 0.093 | 103 |
| **Moist** | 25 | 62% | 0.083 | 0 |
| **Wet** | 88 | 61% | 0.197 | 12 |
| **Total** | 2,601 | | | 115 |

## 10.5 Drilling Orientation

All holes in the 2018 RC programme were drilled vertically (Table 10-2). The majority of the RC holes drilled in 2021 were also drilled vertically, unless target was estimated to be greater than 100–120 m deep, the approximate depth limit of the rig to recover dry samples. Nine holes were drilled at an angle, with dip varying from 65–85° towards an azimuth of 220–270, perpendicular to the shear trace (Table 10-3 and Table 10-5).

The 2018–2022 diamond drill programme were drilled at a dip varying from 60–90°. Multiple holes were drilled from single drill pads as a requirement of the drilling contract (Table 10-3 to Table 10-6); therefore, a range of drill orientations were used to maximise intercept spacings. At the Pipeline prospect, drillholes were drilled towards an azimuth between 150 and 312, with the shear zone modelled as dipping 15° towards 075 (striking 165). At the Kensington prospect, drillholes were drilled towards an azimuth between 200 and 310, with the shear zone modelled as dipping 16° towards 062 (striking 152).

# 11. Sample Preparation, Analyses and Security

## 11.1 Sample Preparation

### 11.1.1 RC Percussion Sample Preparation

#### *11.1.1.1 2018*

RC sample splits were collected on one-metre intervals after being split in two at the drill rig through a hydraulic rotary splitter —'Split A', a bulk sample (~75% or 12–18 kg) and 'Split B', a sample for assaying (~25%, 4–6 kg). Assay samples were collected in prelabelled calico bags. Both samples were weighed at the rig with weights entered in the logging sheet for recovery and split ratio calculations. Weighing samples at the rig allowed for the real time monitoring of sample recovery and sample splits ratios to manage recovery together with the drillers. A theoretical dry recovery weight for the 98.2-mm-diameter hole was 20.7 kg. All Split B samples were submitted to the laboratory for assaying. The bulk samples (Split A) were retained in a 'bag farm' in the event re-assaying was required (Figure 11-1A). Portable XRF analysis was undertaken on the bulk sample during the logging procedure, with the approximate As values recorded into the logging sheet as a proxy for mineralisation to aid in determining when the target was reached and calling the end of hole (EOH).

#### *11.1.1.2 2021*

Sample preparation of drill chips was done with a three-tier riffle splitter. The splitter was mounted below the cyclone which has a hydraulic operated up/down/swing hinged shut off doors. Three samples were produced during the splitting phase for each sample — Split A, 10% sample split in prelabelled calico bag; Split B, 10% duplicate sample split in polythene bag; and Split C, 80% bulk reject in polythene bag. The splitter could be accessed from each side and was air blasted after each 6-m drill run to remove residue and was cleaned thoroughly between each hole. All three sample splits were weighed at the rig side and the weights entered into the logging sheet. The weights allowed real-time monitoring of split accuracies, sample recovery and splitter performance. This method allowed the supervising geologist to monitor recovery and inform the driller when sampling fell outside acceptable parameters (<80%).

Logging and pXRF analysis of drill chips was used to determine the mineralised interval of each drill hole. Once the drillhole was logged and analysed, geologists reviewed the data and logs and determined which samples (split A) were to be submitted for assay. A buffer of 4–8 m above and below the mineralised section was also submitted for analysis. These samples were collected and stored in polyweave sacks for transport. Rig duplicates (split B) were selected from the identified mineralised domains. Samples not selected for laboratory analysis were stored in polyweave sacks for future analysis if required.

### 11.1.2 Diamond Core Sample Preparation

After the drill core was logged, the sections of core considered to be mineralised (identified visually or by arsenic concentration measured by pXRF), or proximal to mineralised zones were marked out with a red pencil and intervals recorded on MX deposit. Photographs of the core with sample intervals, metre marks and lithological boundaries were taken prior to cutting. The core was cut along the orientation line if available or along the apex of the foliation using a diamond blade core saw (Figure 11-1C). The drill core was sampled at intervals from 0.3–1.3 metres determined by lithological boundaries identified by the logging geologists; however, several samples with intervals less than 0.3 m were submitted to test the grade of thin mineralised features. Standard core sampling length is one metre, not crossing lithological boundaries. Half of the core was sampled, leaving the half with orientation and metre mark intervals in the tray. The half core sample was placed into a labelled calico bag and assigned a corresponding sample ticket and check against the database.


Figure 11-1: A) core storage and logging facility at the Smylers Gold Project; B) core logging set up; C) core saw.

11.1.3 EP60129 & EP60389 RC Chips Sample Preparation

RC chip sample preparation was conducted at SGS Macraes. The samples were dried at 105°C, coarse crushed to a nominal -6 mm, rotary split and then pulverised with a chromium steel grinding head to 95% passing -75 µm (preparation code: PRP86). The sample was then mat rolled and sub-sampled to 250 g. A 30-g pulp was collected from the 250-g split and sent for Au analysis, also conducted at SGS Macraes (see section 11.2.1).

11.1.4 EP60129 & EP60389 Diamond Core Sample Preparation

Diamond core samples were prepared at SGS Macraes, SGS Waihi, and SGS Westport. The samples were prepared following slightly different methods at each preparation facility.

At SGS Macraes, the core was jaw crushed to 2 mm (code CRU2486). The sample was rotary split before pulverisation using a chromium steel grinding head to 95% passing -75 µm. The sample was then mat rolled and sub-sampled to 250 g. A 30-g pulp sample was collected for assaying.

At SGS Waihi, core samples were dried for 12 hrs at 110°C before being coarse crushed using a Boyd Crusher (80% passing 3.35 mm; code CRU2486), milled using a LM2 mill (90% passing -75 µm) and a 300-g split sample taken (code PRP86). A 30-g pulp sample was collected Au analysis.

At SGS Westport, core was dried at 105°C in a large oven. The dried samples were crushed (code CRU2486) using Rocklabs jaw crusher/rotary splitter with minimum jaw width set to 2 mm. A rotating sample divider (RSD) split of 500–1,000 g of 2-mm crush was collected for pulverising. The reject material was returned to the original bag as reject crush. Pulverisation was conducted using a Rocklabs RM2000 mill. Samples were milled until >85% passing -75 µm. This was tested daily. Approximately 200 g of pulp was split into a paper bag for analysis; the remainder retained in a plastic bag as reject pulp.

### 11.1.5 EP60129 & EP60389 Rock-Chip Sample Preparation

Rock-chip samples were prepared at SGS Westport, following the same method used for preparing diamond core (see section 11.1.4).

### 11.1.6 EP60129 & EP60389 Soil Sample Preparation

Prior to 2020, samples collected were collected in plastic zip-lock bags. Samples were crushed to break up fragments and air dried in their bags.

Post 2020, paper geochem bags were used to collect soil samples. All samples were air-dried for at least 48 hours or until dry. Samples with clumps of soil were placed into a cleaned pestle and mortar and gently crushed into a medium to fine consistency.

The soil samples were not sieved prior to analysis.

### 11.1.7 PP60674 Soil Sample Preparation

Soil samples were air-dried in the calico bag at the RSC storage facility. To prepare the soil samples, the dried samples were (hand) crushed and poured from a calico bag in a -2 mm sieve, which was stacked on a -150 µm sieve. The sieve tower was placed over a receiver to catch the sieved sample. The sieve tower and receiver were gently shaken until about 120 g of sample material passed through the 150 µm sieve. The -150 µm fraction was poured into a labelled kraft bag, and the oversize material was returned to the calico bag. If insufficient sample material passed through the sieves, the coarse reject was lightly crushed and sieved again. Further crushing was mostly required for samples that were not completely dry or had dried into lumps. In some cases, the material was further dried in a portable oven before fine sieving.

### 11.1.8 PP60674 Stream-Sediment Sample Preparation

After sample collection, the samples were laid out in drying racks at the RSC storage facility. The wettest samples were placed on the bottom shelf, and the samples were rotated as they dried. The aim was to remove the bulk of excess water.

The stream-sediment samples were sent to the Verum Group Ltd in Christchurch, New Zealand, for sample preparation. The stream-sediment samples were dried at 70°C. The dried samples were split using a riffle splitter. The split sample was crushed in a ring mill. Only 200 g was crushed at a time and crushed to ≥90% passing 75 µm. The crushed samples were split again into 100-g and 1,100-g samples for RSC and ALS, respectively.

### 11.1.9 PP60674 Rock-Chip Sample Preparation

Rock-chip samples were sent to Verum Group Ltd, Christchurch, for sample preparation. First, the samples were broken up with a mallet, and then placed into a jaw crusher to break the sample to 10 mm. The samples were then split using a riffle splitter to 240-g sub-samples and pulverised in a ring mill for 90 seconds. Samples were crushed to ≥90% passing 75 µm.

The pulverised samples were split again using a riffle splitter. A 100-g sample was returned to RSC for pXRF analysis, and the remainder was sent to ALS Geochemistry, Brisbane, for Au analysis.

## 11.2 Analysis

### 11.2.1 EP60129 & EP60389 Laboratory Analysis (SGS)

Diamond core, RC chips and rock-chip samples were analysed at SGS laboratories (Macraes, Waihi and Westport) in New Zealand for laboratory analysis of Au, As, Sb, and W. The three SGS laboratories used for this analysis are ISO 19011 certified. SGS is independent to KO Gold, Hyde Resources and SGL. A summary of the analysis methods is presented in Table 11-1. Gold was analysed using aqua regia digest with fire assay and measured by atomic adsorption spectrometry (AAS). This method has a detection limit of 0.01 ppm Au. Drill samples were only analysed for Au.

Rock-chip samples were analysed for As and Sb by aqua regia finished with inductively coupled plasma mass spectrometry (ICP-MS). This method has a lower detection limit of 1 ppm As and 0.1 ppm Sb and an upper detection limit of 2,000 ppm As and 1,000 ppm Sb. Samples with >2,000 ppm As were reanalysed using AAS finish, which has an upper detection limit of 5% As (50,000 ppm As). Tungsten was analysed by x-ray fluorescence (XRF) with a detection limit of 6 ppm.

### 11.2.2 EP60129 and EP60389 Portable XRF Analysis

Portable XRF analysis of any material was only undertaken to support sample selection and all results reported in this report are reported by ISO-accredited laboratories. Two different pXRF instruments were used to analyse samples from the Smylers Project. Prior to June 2017, samples were analysed using a Niton XL3t, and from mid-2017 to 2022, samples were analysed with an Olympus Vanta VMR pXRF instrument, with a 4 W, 50 kV rhodium anode and a large-area silicon-drift detector.

Table 11-1: Summary of laboratory analytical methods used for samples collected from the Smylers Gold Project.

| Element | Code | Sub Size | Digest | Analysis | LD Limit | UD Limit | SGS Labs | Sample Type |
|---|---|---|---|---|---|---|---|---|
| **Au** | FAA303 | 30 g | Aqua Regia | fire/AAS | 0.01 ppm | 100 ppm | Macraes, Waihi | RC, diamond core; Rock-chip |
| **As** | AAS15Q | 30 g | Aqua Regia | AAS | 0.01% | 5% | Waihi | Rock-chip |
| **As** | IMS12R | 30 g | Aqua Regia | ICP-MS | 1 ppm | 2,000 ppm | Waihi | Rock-chip |
| **Sb** | IMS12R | 30 g | Aqua Regia | ICP-MS | 0.1 ppm | 1,000 ppm | Waihi | Rock-chip |
| **W** | XRF74V | 20 g | - | XRF | 6 ppm | 10,000 ppm | Westport | Rock-chip |

##### *11.2.2.1 RC Chips*

Portable XRF analysis was undertaken on all RC chips, and only to support identification of mineralised intervals. The RC chips were analysed through the plastic bag using an analysis time of <20 seconds. The short analysis time is not considered good practice; therefore, the pXRF data were used qualitatively (e.g. to identify 'not anomalous', 'anomalous' or 'high arsenic').

##### *11.2.2.2 Diamond Core*

Portable XRF analysis of uncut drill core was routinely undertaken to support identification of mineralised intervals and guide intervals for sampling. No systematic analysis of intervals was conducted. The core was analysed using an analysis time of <20 seconds. The short analysis time is not considered good practice, and pXRF data were only used qualitatively (e.g. not anomalous, anomalous or high arsenic).

##### *11.2.2.3 Soil Samples*

Hyde Resources analysed all 5,330 soil samples by pXRF.

The analysis time used to analyse samples collected prior to 2020 varied from 60–90 seconds with equal time per beam. Samples were analysed directly through the plastic bag, which is not considered good practice.

From 2020, soil samples were analysed using a field test stand and a laptop with the Vanta PC Software. A tablespoon of sample was poured into cleaned reusable XRF sample cups with one end covered by 4-µm polypropylene film. Samples were analysed using 3-beam soil mode. An analysis time of 30 seconds per beams was used. No correction or statistical analysis was undertaken.

#### 11.2.3 PP60674 Portable XRF Analysis

All soil samples were analysed using an Olympus Vanta VMR pXRF instrument with a 4W, 50kV rhodium anode tube and a large-area, silicon-drift detector. The instrument was operated using a field test stand and a laptop with the Vanta PC Software. During the process of analysis, about 20 g of sample material was collected from the kraft bag using a spoon and poured into a 40-mm sample cup with one end covered by 4-µm polypropylene film. The sample cup was put in the test stand and analysed using 3-beam Geochem mode. An analysis time of 15 s for each beam was used.

#### 11.2.4 PP60674 Laboratory Analysis (ALS)

A portion of each fine-sieved (<150 µm) soil sample was sent to ALS Geochemistry, Brisbane, for Au-TL44 analysis. During the analysis, 50 g of each sample was digested by aqua regia, followed by trace Au analyses by ICP-MS. The detection limit for Au by this method is 1 ppb.

Pulverised stream-sediment samples (~1 kg) were sent directly from Verum to ALS Geochemistry, Brisbane, for bulk leach extractable gold (BLEG) analysis (Au-CN12). The detection limit for this method is 0.0001 ppm Au.

Pulverised rock-chip samples (110 g) were sent directly from Verum to ALS Geochemistry, Brisbane, for Au analysis by fire assay with AAS finish (Au-AA26). The detection limit for this method is 0.01 ppm Au. One sample (TKRO0007) was analysed by fire assay with gravimetric finish (Au-GRA22) due to its high Au content. The detection limit for this method is 0.05 ppm Au.

Verum Group Ltd and ALS Geochemistry, Brisbane are independent to KO Gold, Hyde Resources and SGL.

## 11.3 Density and Moisture Content

Density and moisture content were not assessed as part of this work programme.

## 11.4 Security

### 11.4.1 Smylers Gold Project Samples

Soil and rock-chip samples were stored securely either in locked containers at the exploration base or Hyde Resources office/workshop in Dunedin. Pulps returned from laboratory were stored in locked 20-ft shipping containers at Smylers drill base (Figure 11-1 and Figure 11-2).

All the retained and cut half core, laboratory pulps for all drill samples (RC and diamond), and RC chip trays were stored in a locked shipping container on site, which was only accessible to company geologists. Un-mineralised and un-sampled drill core were stored outside in the 'core farm' after the samples were logged and photographed. The drill base is secured by locked gate when unattended.

Samples were submitted in person to the Macraes SGS laboratory or couriered to SGS Waihi or SGS Westport laboratories by PBT Transport Limited. No specific security measures were in place to ensure sample security during courier. The different SGS laboratories have secure sample storage areas and policies in place.

### 11.4.2 Tokomairiro Samples

Soil, rock-chip and stream-sediment samples were stored securely at the RSC sample warehouse. The facility is secured by means of automatic roller door and padlocked fence.


Figure 11-2: Mineralised core and pulp stored in lockable 20 ft shipping containers at Smylers Gold Project. A) View of the open shipping container storing mineralised core; B) and C) close up view of the storage set-up.

## 11.5 Data Quality

### 11.5.1 Data Quality Objective

Every data collection process implicitly comes with expectations for the accuracy and precision of the data being collected. Data quality can only be discussed in the context of the objective for which the data are being collected. In the minerals industry, the term 'fit for purpose' is commonly used to convey the principle that data should suit the objective. In the context of data quality objectives (DQOs), fit for purpose could be translated as 'meeting the DQO'.

The Smylers and Tokomairiro projects are early-stage exploration projects. Most of the project data relate to surface and drill samples that are collected for the purpose of defining exploration targets, and the quality of the data should support this objective. The quality of RC and diamond drilling reported here was aimed to be sufficient to support future mineral resource estimation and classification into at least the Inferred category, under international reporting guidelines and codes such as CIM and JORC.

### 11.5.2 Quality Assurance

Quality assurance (QA) is about error prevention and establishing processes that are repeatable and self-checking. The simpler the process and the fewer steps required the better, as this reduces the potential for errors to be introduced into the sampling process. This goal can be achieved using technically sound, simple, and prescriptive SOPs and management systems.

#### *11.5.2.1 Location Data*

EP60129 & EP60389 Smylers Gold Project

An SOP detailing the location data process was not available for review and the process of determining collar positions using (D)GPS was not audited. However, from discussions with geologists during the site visit by the QP, the process involves measuring the location of samples or drill collars with handheld GPS units. Onsite geologists estimate ~20% of the soil sample locations may have lower accuracy because of poor signal quality due to tree interference. This was not an issue for recording the location of drill collars, as they were positioned away from forestry blocks. The QP considers this acceptable practice and providing data suitable with respect to the DQO of identifying exploration targets.

PP60674 Tokomairiro

An SOP detailing the collection of location data was not available for review and the process of determining collar positions using (D)GPS was not audited. From discussions with geologists during the site visit by the QP, the process involved locating a pre-determined sample site using a Garmin eTrex GPS, which has an accuracy of ±3 m. Where possible, the sample was taken within this ±3 m error range. In forests or steep-sided gullies, the accuracy of the GPS decreased. The QP considers this acceptable practice and providing data suitable with respect to the DQO of identifying exploration targets.

#### 11.5.2.2 *Primary Sample*

EP60129 & EP60389 Smylers Gold Project

The QP considers the provided SOPs contain some useful information on general drilling practices. They cover important aspects of logistics, preparation, and safety around the drilling campaign; however, important aspects of drilling that affect core recovery (the key variable that determines the primary sample quality) are not covered.

The QP recommends that the drilling procedure SOP is updated to contain information on drilling techniques; the use of fluids; management of core recovery, broken ground, RC shroud tolerance, swelling clays, water, vortex finder sample loss; use of blow-down valve, the collar-setting strategy, and management of metre delineations, etc. The SOP updates should be made in collaboration with the drillers.

The drilling SOP should have a section on the quality objectives with respect to target recovery percentage, target sample loss through vortex finder, target water tolerance, etc. It may be difficult to capture these aspects quantitatively; however, it will lead to improved alignment on acceptable tolerances for important quality aspects of the drilling. The data quality objectives should be stated clearly in the SOPs.

The drilling SOP should have a section detailing how the quality of the drilling process is controlled during drilling. For DD drilling, this usually involves a continuous feedback system for core recovery, a proxy for drilling quality. The QP author did not visit an active drill site; however, given the feedback of the geologists on site during the audit, the generally sufficient core recovery as noted in the core trays by the QP, there is low risk with respect to the stated objectives. The work on managing the RC drill sampling and recovery is excellent and considered industry best practice

PP60674 Tokomairiro

An SOP detailing the collection of soil and stream-sediment samples was reviewed by the QP. It is of a good standard and describes industry best practice; however, it does not include clear enough language and instructions as to what the data quality objectives are. The SOP states the collection of soil and stream-sediment repeats is not required for this exploration programme but does note that a repeat sample should be collected at a later date if the original sample returns an anomalous result. The QP considers this acceptable with respect to the DQO of identifying exploration targets.

An SOP detailing rock-chip sampling was not available for review. From discussions with geologists, in-situ outcrops of schist are rare in the Tokomairiro area, and rock-chip and float samples were collected with a rock hammer where possible. The QP considers this standard practice.

The process of collecting soil, stream-sediment and/or rock-chip samples was not audited by the QP. The QP considers that there is low risk with respective to the quality objectives, and this has been taken into account when identifying exploration targets.

#### *11.5.2.3 First Split*

EP60129 & EP60389 Smylers Gold Project

An SOP detailing the splitting of diamond core was reviewed by the QP. It is of an acceptable standard and describes industry good practice; however, it could be further improved by including clear data quality objectives and information on how the process is quality controlled. The marking, selecting, and cutting process itself was not audited by the QP; however, the audit showed that the remaining core, sample marks and sampling documentation were all in order and demonstrated the SOPs were followed correctly. The QP considers that there is low risk with respect to the quality objectives.

The processes describing on-board RC sample splitting were reviewed by the QP and considered of a good standard; however, it was not audited in the field as the site visit took place after drilling had been finished. During the site visit, the geologists confirmed the processes involved in splitting 1-m composites at the rig using a rotary splitter. The QP considers the practice of monitoring split weights in real time to be excellent and considers that there is low risk with respect to the DQO.

PP60674 Tokomairiro

An SOP describing the preparation/first split of the soil samples at the laboratory was not reviewed and the laboratory preparation process was not audited; however, this process to split samples at the laboratory is industry standard and unlikely to influence the objectives of the programme. RSC has been involved in some of the preparation challenges and discussions and is aware that changes to the process were introduced in response to the wet nature of the soil samples, where it was impractical to sieve wet soil in the field.

The stream-sediment and rock-chip samples were split by the laboratory (Verum). An SOP detailing the process was not available for review and the QP has not audited the process; however, the splitting process as discussed in section 11.1 is considered standard practice and of low risk to the quality of interpretation of any results.

The QP considers that there is low risk with respect to the DQO.

#### *11.5.2.4 Second Split*

EP60129 & EP60389 Smylers Gold Project & PP60674 Tokomairiro

An SOP detailing the process was not available for review and the QP has not audited the process; however, the splitting process as discussed in section 11.1 is considered standard practice and of low risk to the quality of interpretation of any results.

##### 11.5.2.5 *Third Split*

EP60129 & EP60389 Smylers Gold Project & PP60674 Tokomairiro

An SOP describing the preparation of the final pulp for analysis at the laboratory was not reviewed and the laboratory preparation process was not audited; however, this process to split samples at the laboratory is industry standard and unlikely to influence the objectives of the programme.

##### 11.5.2.6 *Analytical Process*

EP60129 & EP60389 Smylers Gold Project & PP60674 Tokomairiro

An SOP detailing the analytical processes was not available for review; however, the analytical processes are industry standard, properly quality controlled (see section 11.5.3), and unlikely to influence the objectives of the programme.

### 11.5.3 Quality Control

The purpose of quality control (QC) is to detect and correct errors while a measuring or sample-collection system is in operation. The outcome of a good QC programme is that it can be demonstrated that errors were fixed during operation and that the system delivering the data was always in control. Together with good QA (covered in previous section), it ensures that objectives are met.

Good QC is achieved by inserting and constantly evaluating checks and balances. These checks and balances can be incorporated at every stage of the sample process (location, primary sample collection, preparation, and analytical phases) and, if in place, should be monitored during data collection, allowing the operator to identify and fix errors as they occur.

##### 11.5.3.1 *Location Data*

EP60129 & EP60389 Smylers Gold Project & PP60674 Tokomairiro

Quality control of the sample location data, as derived from a combination of drillhole collar positions and downhole surveys, should occur on site as surveys are being conducted by conducting check measurements and applying performance thresholds such as dog-leg severity for down-hole surveys. Check or duplicate readings of the collar locations by handheld GPS were not conducted and no quantitative data for down-hole surveying are available. The QP considers this of low risk with regards to establish and interpreting exploration potential; however, if data were to be included into any future resource estimates, these data should be collected as a matter of course.

##### 11.5.3.2 *Density and Moisture Data*

No density or moisture data were collected from any of the samples collected at the Smylers or Tokomairiro projects.

#### 11.5.3.3 *Primary Sample*

EP60129 & EP60389 Smylers Gold Project

The quality of the RC drill primary sample (RC chips) was monitored by reviewing samples weights as the drilling was ongoing. It was assumed the geology of the drillhole was relatively uniform (Otago Schist lithology, with the exception of loess cover at the top of some of the holes). Sample recovery was calculated at the rig and on-site geologists monitored sample weights (Figure 11-3) and alerted the drillers when sample weights dropped below 80% of the expected weight, this was to ensure the primary sampling process stayed in control. The QP considers this excellent practice.

The results show some periods of poor recovery, which is to be expected from RC drilling. Improvement of recovery with time can be demonstrated from the data, which is one of the key principles of QC.

The quality and consistency of the primary sample for diamond drilling was monitored by core recovery (Figure 11-4). The drillers used drill blocks to record drill recovery, which were checked by the logging geologist during core mark-up. When low core recovery was identified by the logging geologist, the geologists alerted the drillers. This is good practice.

In the QP's opinion, good practices were in place to control the quality of the primary diamond core sample; and RC samples that have any anomalous grades in them can be back-flagged with quality tags for sample recovery to assist in interpreting results.

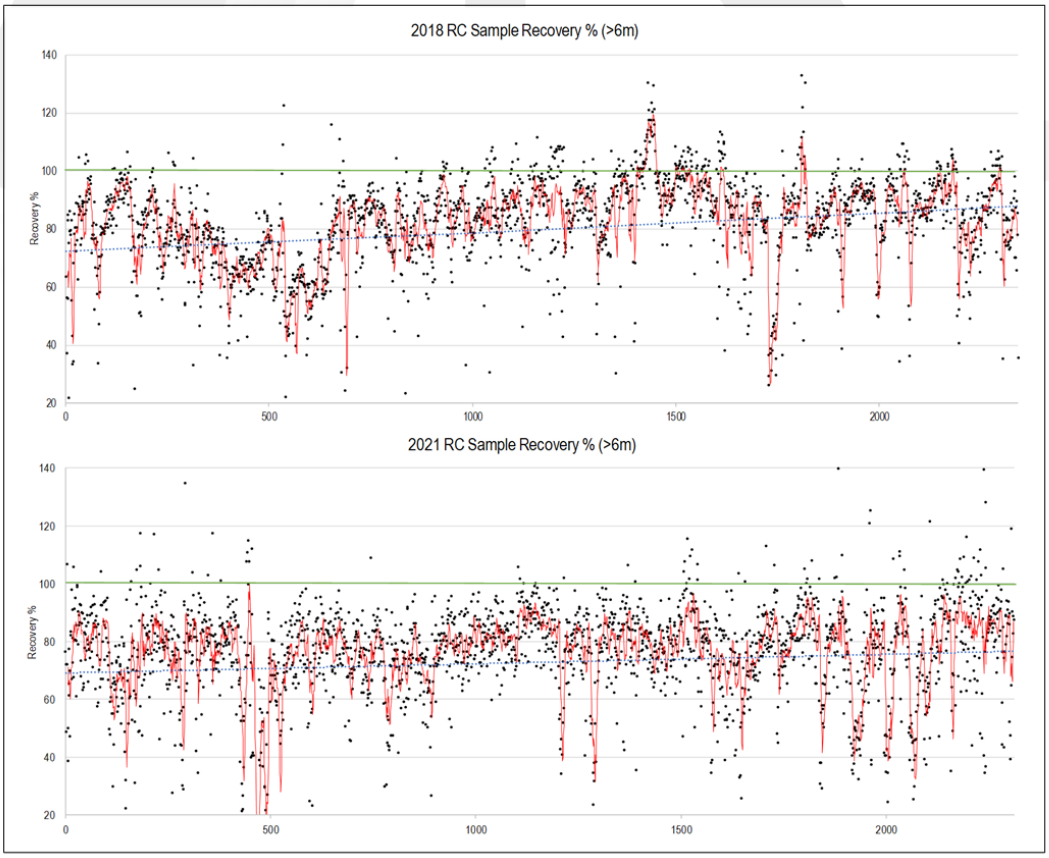



Figure 11-3: Sample recovery (%) for the 2018 and 2020 RC drill programme. Data excludes the first 6 m of each hole. Red line represents 6-m moving average.

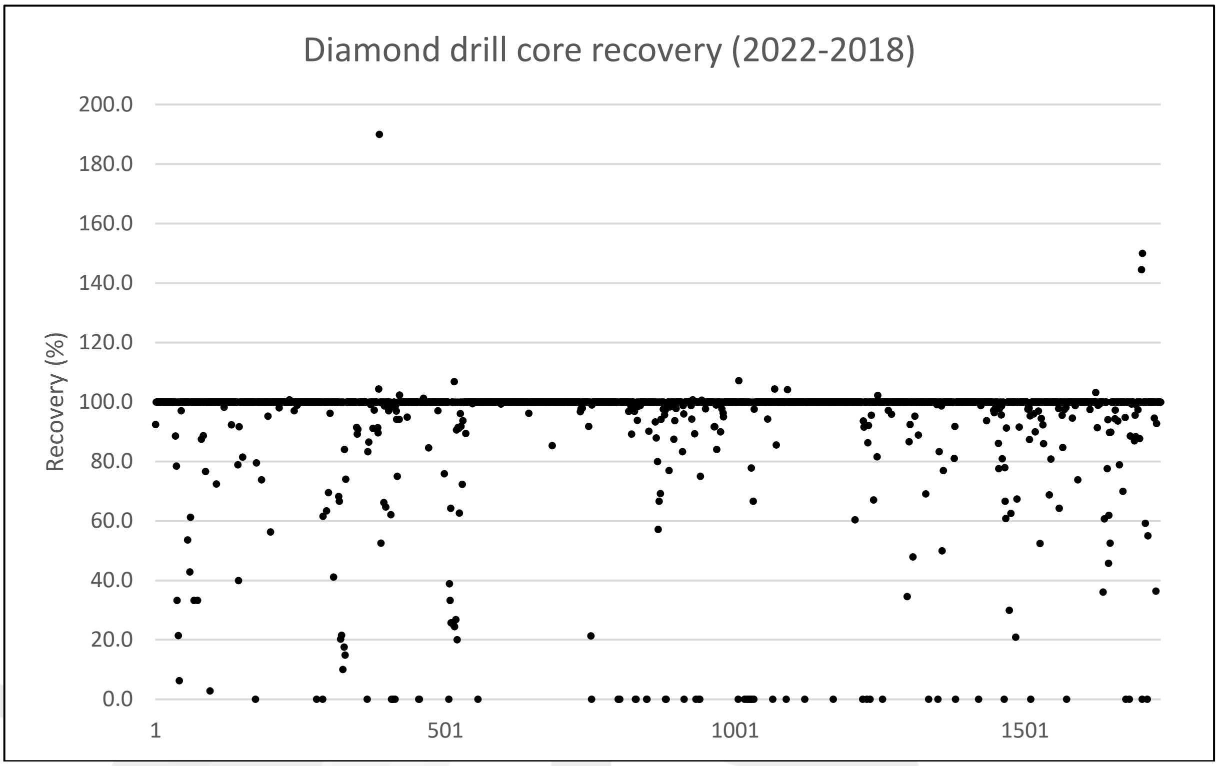



Figure 11-4: Sample recovery (%) for the diamond drill programme.

PP60674 Tokomairiro

There were no processes in place for quantitatively controlling the quality of the primary sample of the surface samples (soil, rock-chip, or stream-sediment) at the Tokomairiro Project. No repeat samples were collected. In the QP's opinion, this is acceptable with respect to the DQO of delineating exploration targets.

*11.5.3.4 Sample Preparation (First, Second, Third Splits)*

The quality of the various sample splitting processes is commonly monitored by the collection of a duplicate and repeat sample (e.g. RC chip split, half-core duplicate, coarse-crush duplicate, pulp repeats). The consistency of this splitting process can be broadly assessed by tracking the relative difference of the duplicate/repeat pairs over time.

EP60129 & EP60389 Smylers Gold Project

Fourteen first-split duplicates (often called 'field duplicates') were collected during the 2021 RC drill programme ('Split B') (Figure 11-5). The relative difference of the sample weights for the duplicate pair ranges from -40% to +30%. There are not sufficient data to make any meaningful analysis of these data.

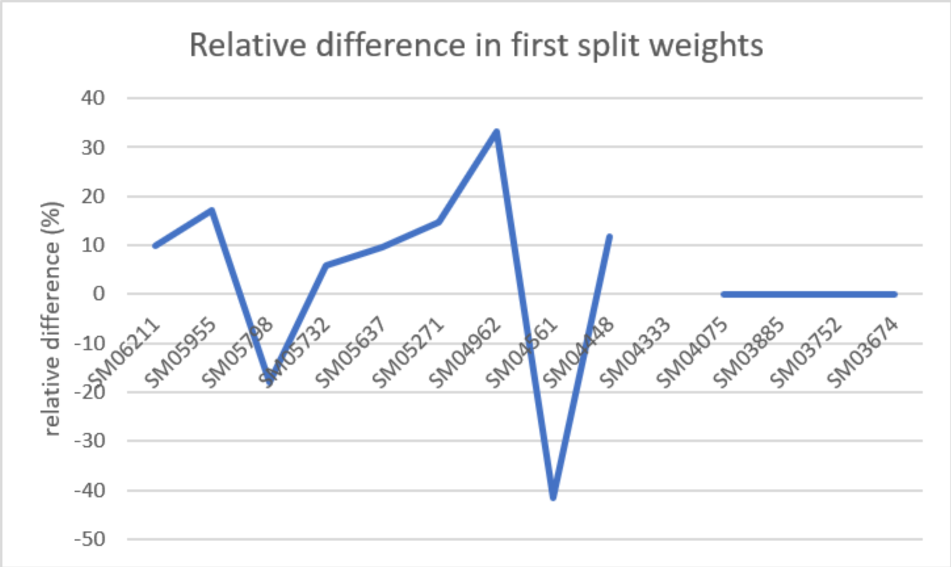



Figure 11-5: Relative difference in first split sample weights.

No first-split duplicates were collected as part of the 2018 RC drill programme, and no second, third or fourth split duplicates or repeats collected by SGS for either the 2018 or 2021 RC drill programmes are available for review. Therefore, the QP cannot comment on whether the splitting processes conducted at SGS were in control. However, for the purpose of interpreting exploration results, this likely carries a low risk, given the standard practices and equipment applied to such splitting techniques.

No diamond core (first-split) duplicates were submitted to the laboratory for assay, nor any second-, third-, or fourth-split duplicates or repeats are available for review. Therefore, the QP cannot comment on whether the splitting and laboratory preparation processes conducted at SGS were in control.

PP60674 Tokomairiro

Second (pulp) split repeats were collected from pulverised sieved soil samples.

*11.5.3.5 Analytical Process*

The procedure for controlling the quality of the analytical process involves the repeated and continuous evaluation of certified reference material (CRM) samples. The laboratory inserts such reference material samples into the sample stream, evaluates these, and makes corrections to the system when errors occur, as part of its requirements under ISO accreditation. RSC notes that when clients receive the analytical results of internal reference material (IRM) used by the laboratory, these are commonly already corrected (e.g. proper QC should have taken place, the system should have been stopped when transgressions were identified, and the values superseded by new and correct values). This process, upon auditing of these results, appears to have taken place correctly, but without the original data, it is difficult to verify.

EP60129 & EP60389 Smylers Gold Project

In addition to laboratory internal RMs, third-party certified reference materials (CRM) were routinely inserted by Hardie Pacific into the sample assay chain for RC and diamond drilling. At least three CRMs per batch were included for sample submission at a minimum of one CRM for every 30 samples. Certified reference material was sourced from Rocklabs Ltd, a division of Scott Technology. Prior to 2021, CRM material (SE86, SF85, and SG84) was scooped from a 2-kg jar and 35 g was deposited into a paper geochemical sample bag. From 2021, pre-packaged 30-g sachets were ordered to reduce any possible error associated with manual handling of the CRM material into geochemical bags. Table 11-2 reports the CRMs used throughout the analysis of the drill samples.

Shewhart control plots for the CRMs SG84, SF85, and ES86 are presented in Figure 11-6. The results for CRM SH98 and SF100, and SC100 were not reviewed due to the low number of analyses (<25). Both CRM SG84 and SF85 reported at least one analysis above or below three standard deviations; however, these could well be sample swaps. The QP considers that drawing meaningful conclusions from Shewhart control plots that show many large datum gaps (sometimes gaps of several weeks between subsequent CRM analysis) to be purposeless. In general, the charts show some special cause variation, suggesting a process that wasn't always in control.

RSC further notes that synthetic CRMs from Rocklabs, scooped from a jar, are not ideal to control analytical performance at the laboratory. Jar scooping will lead to increased grouping and segregation errors/variance between the CRMs, and the synthetic nature of the CMRs does not make them suitable to test the laboratory's ability to extract gold from sulphide-locked gold in routine samples.

Table 11-2: Certified reference material analysed for the Smylers Gold Project.

| CRM | Source | Material | Cert. Value Au ppm | Standard Deviation | Number of Assays |
|---|---|---|---|---|---|
| **SE86** | Rocklabs Ltd | Sulphide | 0.595 | 0.015 | 44 |
| **SF85** | Rocklabs Ltd | Sulphide | 0.848 | 0.018 | 39 |
| **SG84** | Rocklabs Ltd | Sulphide | 1.026 | 0.008 | 39 |
| **SH98** | Rocklabs Ltd | Sulphide | 1.4 | 0.028 | 12 |
| **SF100** | Rocklabs Ltd | Sulphide | 0.86 | 0.016 | 11 |
| **SC110** | Rocklabs Ltd | Sulphide | 0.235 | 0.009 | 9 |

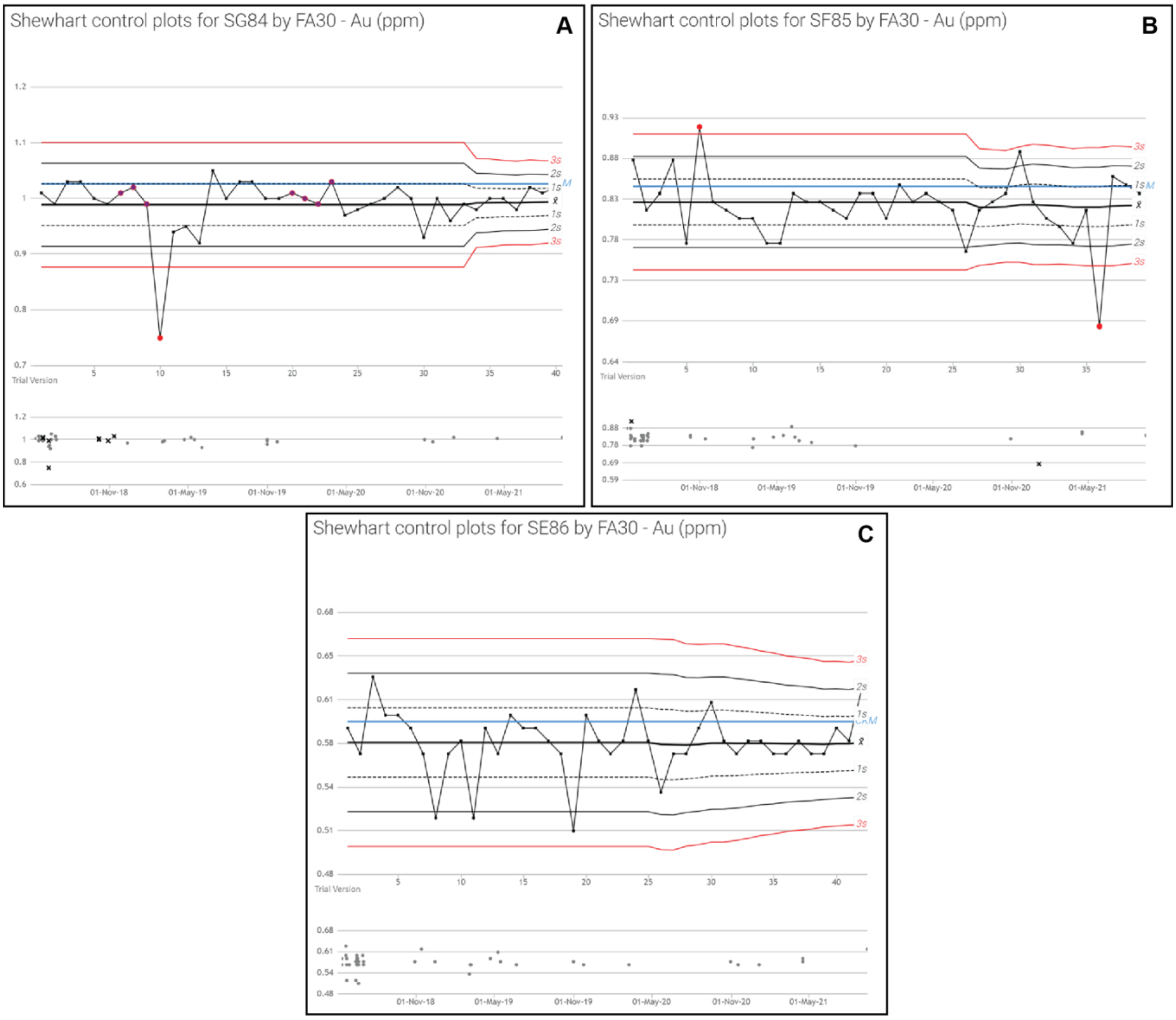



Figure 11-6: Shewhart control plots for CRM analysis for Au at SGS. A) CRM SG84; B) CRM SF85; C) SE86.

Blanks were routinely inserted at a rate of around one in 50 samples, with at least one blank per laboratory submission. Blanks, crushed AP40 gravel basalt, were sourced from the Logan Point Quarry in Dunedin. The blank material was not certified. A total of 73 blank samples have been assayed since drilling began in 2018 (Figure 11-7). Five blanks (6%) returned 0.02 ppm Au, which is above ten times the limit of detection. This may suggest there was some minor cross contamination, or as the blank material was not certified, it may inadvertently have contained some natural Au. The QP does not consider this to represent a risk to the objective of interpreting exploration results.

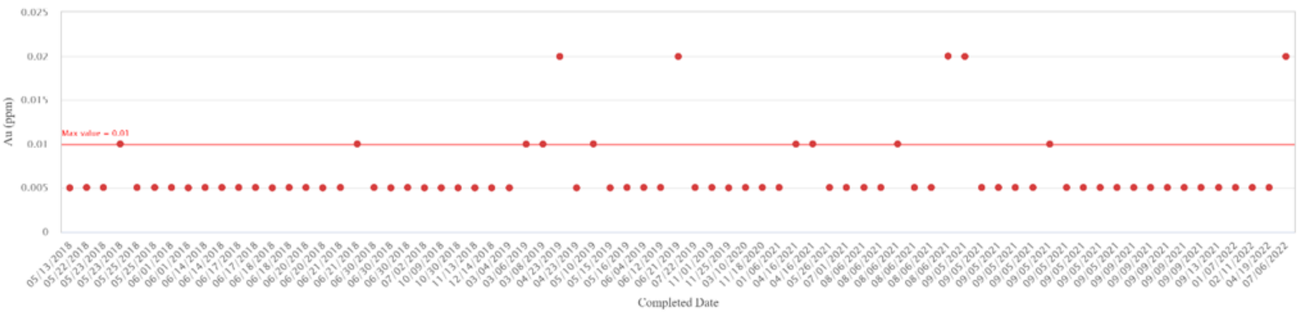



Figure 11-7: Results (Au) of the blank analysed by fire assay (FAA303) since 2018 at the Smylers Gold Project. The detection limit is 0.01 ppm Au.

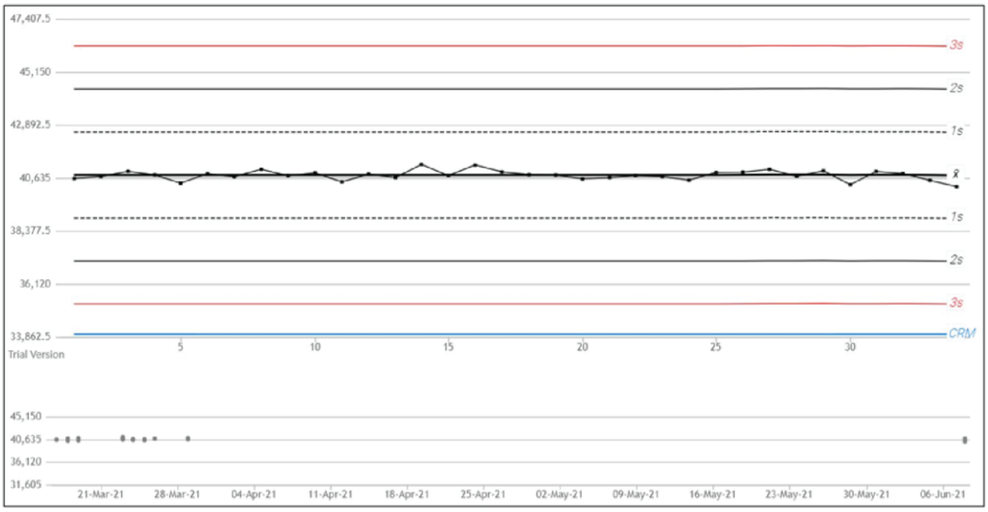
Quality control was also applied to the pXRF data collection from Smylers soil samples. During the analysis of the soil samples, a CRM, blank ($SiO_2$) or replicate sample was inserted into the sample stream at a rate of 1:5. The following CRMs were analysed: OREAS700, OREAS209 and OREAS904. Certified reference material was used to monitor any drift in As values. Blanks were analysed to monitor contamination. The QP considers this good practice and the soil sample data are fit for purpose of interpreting exploration targets.

<u>PP60674 Tokomairiro</u>

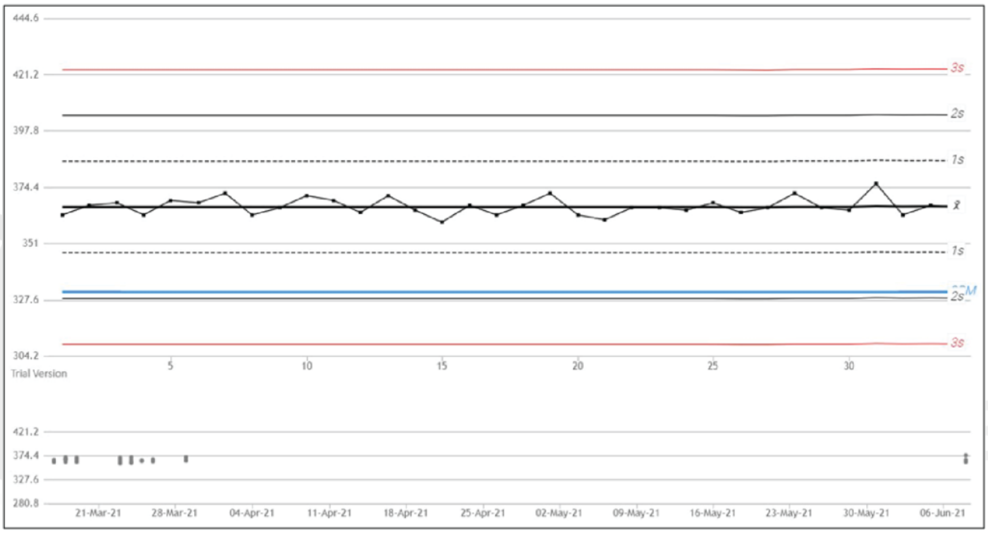
The process of collecting soil, stream-sediment and/or rock-chip samples was controlled by insertion of a series of CRMs with a range of compositions (OREAS60d, OREAS232, OREAS235, OREAS239, and OREAS60), which were analysed by pXRF throughout every batch. The CRM data indicate that the pXRF instrument was in control throughout the entire period that the data were analysed (Figure 11-8). No obvious drift was observed during the multiple analytical sessions, and the sample variance falls within one standard deviation (1σ) of the mean, which is considered to be very good precision. There is no evidence of special cause variation throughout the analytical period.

Certified reference material and sample blanks were not inserted into the sample stream of soil, stream-sediment, and rock-chip samples analysed at ALS Brisbane. The QP reviewed the internal QC data from ALS and identified no issues.

A) OREAS235: Fe (ppm)




B) OREAS235: As (ppm)




C) OREAS235: Rb (ppm)

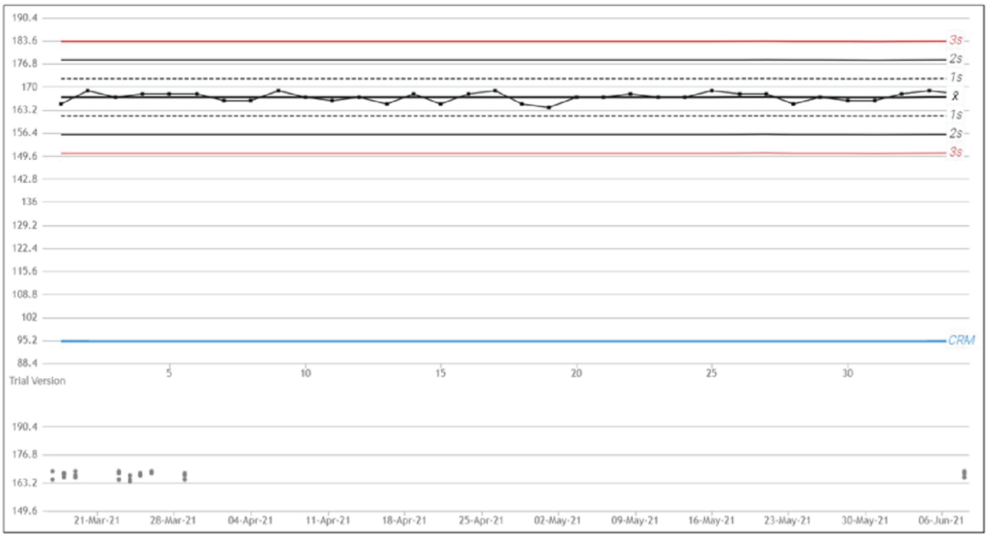



Figure 11-8: Shewhart control plots for OREAS235 A) Fe; B) As; C) Rb.

### 11.5.4 Quality Acceptance Testing

Quality acceptance testing (QAT) is where a final judgement of the data is made by assessing the accuracy and precision of the data for those periods where the process was demonstrated to be in control, and separately for those periods where the process was demonstrated to be not in control. Accuracy and precision are evaluated, and a final pass/fail assessment is made based on the DQO.

#### *11.5.4.1 Location Data*

EP60129 & EP60389 Smylers Gold Project

The accuracy and precision of the location data for 38 RC collars was assessed by comparing the handheld GPS and RTK GPS measurements in the x, y, and z direction. Figure 11-9 presents quantile-quantile (QQ) plots for the x,y,z directions. The QQ plots indicate there is excellent correlation and no significant bias in the x and y coordinate data. The z coordinate exhibits a bias (~5%) to the handled GPS coordinate. The QP considers the overall quality of the location data to be fit for purpose.

There exists no quantitative QC data on the location recording process for the diamond drillholes and remaining RC holes, and accepting the quality of the data, based on statistically defined thresholds, is therefore not possible. Based on the adequacy of the operating procedures (section 11.5.2.1), the QP considers the overall quality of the location data to be fit for the purpose of defining exploration targets. The location error is assumed to be minimal.

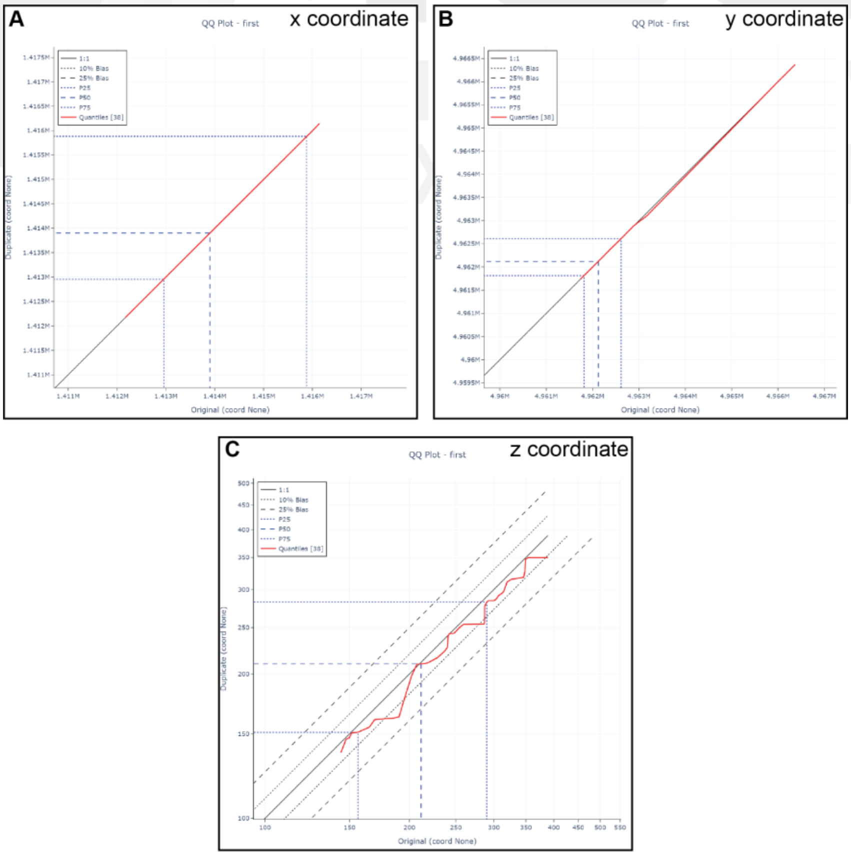



Figure 11-9: QQ plot of the location data, A) x coordinate; B) y coordinate; C) z coordinate.

PP60674 Tokomairiro

There exists no quantitative QC data on the location recording process, and accepting the quality of the data based on statistically defined thresholds is therefore not possible. Based on the adequacy of the operating procedures (section 11.5.2.1), the QP considers the overall quality of the location data to be fit for the purpose of defining exploration targets. The location error is assumed to be minimal, although slightly larger in forested areas, but is low risk with respect to the DQO.

#### *11.5.4.2 Density and Moisture Data*

No density or moisture data were collected at the Smylers or Tokomairiro projects. The QP considers this acceptable with respect to the DQO of identifying exploration targets.

#### *11.5.4.3 Primary Sample*

EP60129 & EP60389 Smylers Gold Project

The representativity of the primary sample can be assessed by drilling twin holes using a method that provides a superior (i.e. more representative) sample quality. No twin holes were drilled at the Smylers Gold Project; therefore, it is not possible to accept the quality of the data based on statistically define thresholds.

The quality of the primary sample can be assessed, by proxy, through assessing sample recovery rates. Sample recovery was actively monitored during drilling (section 11.5.3.3). The RC drilling programmes average a recovery of 77%. The sample recovery for both programmes is highly variable. Approximately 9% of the primary samples recovered less than 50% of the full 1-m sample, and 5% recovered more than one metre's worth of material. Typically, the recovery of the first 6-m rod was typically very poor. The average recovery, excluding the first six metres of each hole was 82% in 2018 and 76% in 2021. The QP notes that ~80% is a relatively standard recovery target for RC drilling under most conditions. The data are fit for purpose of interpreting exploration results but should be further reviewed in case of any future resource estimation.

Typically, diamond drilling has a higher sample recovery relative to RC drilling through mineralised sections. The core recovery from the diamond drilling averaged 94%. Sample recovery increased with sample depth (Figure 11-10). The QP notes that ~95% is a relatively standard recovery target for diamond drilling under most conditions, and the data fit for purpose.

Based on the adequacy of the operating procedures (section 11.5.2.2) and the qualitative control processes in placed (section 11.5.3.3), the QP considers the overall quality of the primary sampling to be fit for the purpose of interpreting exploration targets.

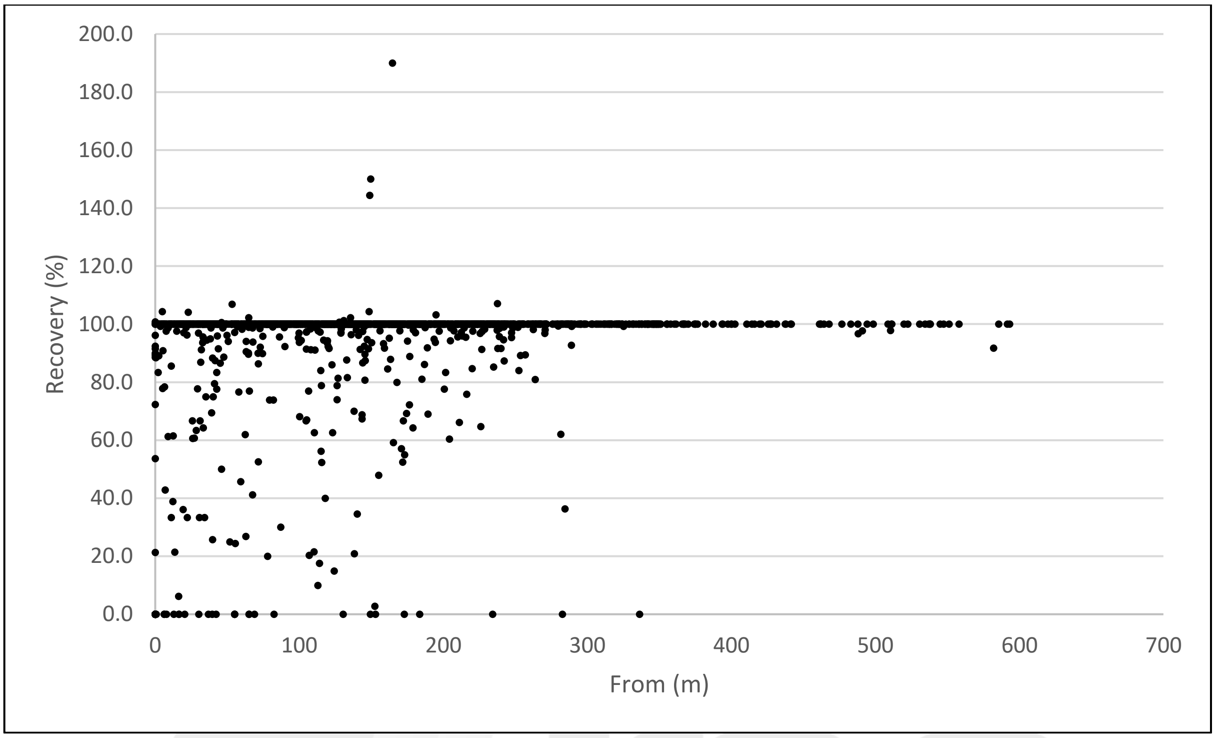



Figure 11-10: Comparison between diamond core recovery and location down the drillhole given by the from metre mark.

EP60674 Tokomairiro

There exists no quantitative QC data on the primary sampling process. It is therefore not possible to quantify the quality of the primary samples collected by soil, stream-sediment and rock-chip methods. Typically, duplicate sampling is used to assess the precision of surface samples; however, none were collected as part of the Tokomairiro Project.

Based on the adequacy of the operating procedures (section 11.5.2.2), the QP considers the overall quality of the primary sampling data collected at Tokomairiro to be fit for the purpose of interpreting exploration results.

#### *11.5.4.4 First Split*

EP60129 & EP60389 Smylers Gold Project

First-split duplicate samples were collected as part of the RC drill programme, and Figure 11-11 presents the scatter and QQ plots for Au. The QQ plot indicates a minor bias toward the original sample at high grades; however, there are not enough pairs to make a suitable assessment on whether this is statistically significant.

Based on the understanding of the operating procedures of the first split (section 11.5.2.3), and the quality control process in place, the QP considers the overall quality of the first split process to be fit for purpose.

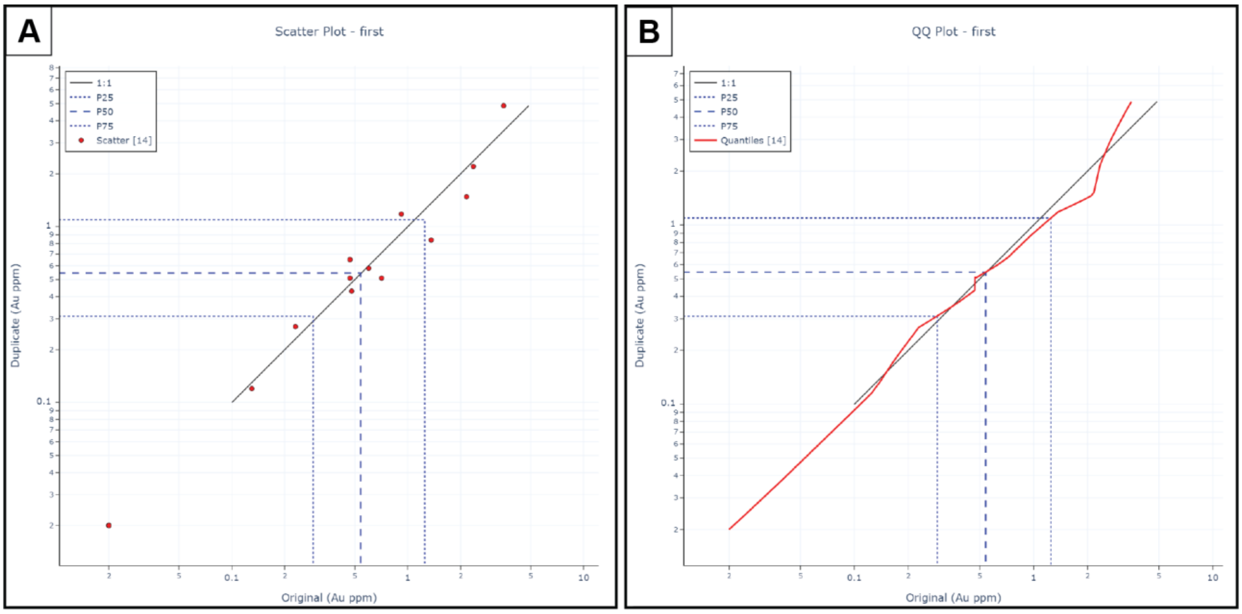



Figure 11-11: Scatter and QQ plot of first-split duplicate pairs from the RC drill programme.

<u>PP60674 Tokomairiro</u>

There exists no quantitative QC data on the first splitting processes for the Tokomairiro surface sampling, and accepting the quality of the data based on statistically defined thresholds is therefore not possible. Based on the adequacy of the operating procedures (section 11.5.2.3), the QP considers the overall quality of the first split to be fit for the purpose of defining exploration targets.

#### *11.5.4.5 Second, Third and Fourth Splits*

<u>EP60129 & EP60389 Smylers Gold Project</u>

There exist no quantitative QC data on the second, third or fourth splitting processes for the diamond or RC drill samples, and accepting the quality of the data based on statistically defined thresholds is therefore not possible. Based on the adequacy of the operating procedures (sections 11.5.2), the QP considers the overall quality of the splitting data to be fit for the purpose of interpreting exploration results.

<u>PP60674 Tokomairiro</u>

The precision of the second split (sieved) soil sample (-150 µm sieved) can be assessed by reviewing the paired results of the original sample and duplicate sample. The duplicate samples were scooped from the same kraft bag as the original samples. Iron, Al and Rb were reviewed and confirmed no major bias was introduced during the sample split. These three elements were selected as a proxy for the entire data as they include a light and heavy element, and Rb has similar peak intensities compared with elements of interest (e.g. As and Zn).

#### *11.5.4.6 Analytical Process*

Quantitative acceptance criteria for the performance of CRMs, based on statistical thresholds, are set in RSC's QC WebApp, and match the expectations set in the DQO. Precision acceptance is assessed by comparing the total variance of the analysis of CRMs as determined by the laboratory with the certified variance for each CRM. This is done by using a Fisher test, which determines if the variance in the laboratory assay data of the CRMs is statistically different to the certified variance at the 95% confidence limits. Accuracy is assessed by comparing the process mean grade of the analysis of CRMs as determined by the laboratory with the certified mean value of the CRM, using t-tests, or absolute average z-score tests. The t-tests determine whether the difference between the two grades is statistically significant at a 95% confidence limit.

EP60129 & EP60389 Smylers Gold Project

The CRM data indicate a couple of significant outliers, which RSC assumes to likely be sample swaps. Given that the CRMs do not show great coverage, have several large datum gaps between them, as well as showing some special cause variation in the process, carrying out a meaningful statistical analysis of the data is difficult. The three CRMs with the most data all show a negative exact bias between 2 and 4% (Table 11-3).

The QP considers that data are acceptable for interpreting of exploration results but recommends that future quality control processes are improved.

Table 11-3: Summary of the CRM results analysed for Au.

| CRM | N | Mean | SD | Certified Mean | Certified SD | Bias |
|---|---|---|---|---|---|---|
| **SE86** | 42 | 0.579 | 0.024 | 0.595 | 0.015 | -2.72% |
| **SF85** | 39 | 0.825 | 0.039 | 0.848 | 0.0018 | -2.76% |
| **SG84** | 40 | 0.991 | 0.048 | 1.026 | 0.008 | -3.46% |

PP60674 Tokomairiro

The CRMs analysed by pXRF as part of the surface sampling programme show low variance (see narrow spread of data in Figure 11-8); however, the data have poor accuracy, reporting a high bias (up to 77%) compared to the certified values. The Tokomairiro Project is in the early stages of exploration, only analysing common rock-forming and alteration elements to identify exploration targets. The QP considers the overall risk with respect to ability to establish exploration targets to be low.

## 11.6 Summary

Following a review of the available quality data and SOPs, the QP considers the location, sampling, preparation, and analyses data to be fit for purpose for the identification of exploration targets and interpretation of exploration results. A summary of the data quality is presented in Table 11-4, where the process has been divided into the various sampling and preparation stages.

Table 11-4: Summary of data quality review for Smylers Gold Project (EP60129 and EP60389) and Tokomairiro (PP60674) projects. NA = not available.

| Permit | Data Type | QA | QC | Accuracy | Precision | Fit for Purpose | Comment |
|---|---|---|---|---|---|---|---|
| **Smylers Gold Project (EP60129 & EP60389)** | Location | NA | Pass | Pass | Pass | Yes | No SOPs, but a description of the process and equipment is fit for purpose. Quantitative QC data and data verification (section 12) revealed no major issues. |
| | Primary Sample | Pass | Pass | Unknown | Unknown | Yes | SOP available to review for diamond drilling. No SOP was available for RC drilling. Good, responsive QC was conducted. Core recovery was monitored. |
| | First Split | Pass | Pass | Pass | Pass | Yes | SOP available for diamond core splitting. No SOP was available for RC splitting. No quantitative QC data for diamond core, but quantitative QC data were available for RC first split. |
| | Second Split | NA | NA | Unknown | Unknown | Yes | No SOPs or quantitative control data were available. Process is standard; data are fit for purpose. |
| | Third Split | NA | NA | Unknown | Unknown | Yes | No SOPs or quantitative control data were available. Process is standard; data are fit for purpose. |
| | Analytical Processes | NA | Fail | Unknown | Unknown | Yes | No SOPs. Quantitative control data were collected. Blank data acceptable. CRM data shows some issues, but low risk to DQO. |
| **Tokomairiro (PP60674)** | Location | NA | NA | Unknown | Unknown | Yes | No SOPs, but description of process and equipment is fit for purpose. |
| | Primary Sample | Pass | NA | Unknown | Unknown | Yes | SOP available for review, but no quantitative control data collected. |
| | First Split | Pass | NA | Unknown | Unknown | Yes | SOP available for review, but no quantitative control data collected. |
| | Second Split | NA | Pass | Unknown | Unknown | Yes | No SOP available for review. Duplicate soil sample collected and analysed. Process is standard; data are fit for purpose. |
| | Third Split | NA | NA | Unknown | Unknown | Yes | No SOP available for review, and no quantitative control data collected. Process is standard; data are fit for purpose. |
| | Analytical Processes | NA | NA | Reject | Pass | Yes | Portable XRF SOP available for review. Quantitative control data were collected, precision of the data acceptable, but accuracy of the data not good. Overall, the data pose a low risk with respect to DQO. |

# 12. Data Verification

## 12.1 Smylers Gold Project Samples

Data verification is the process of checking and verifying hard-copy logs and digital records for accuracy, making sure that the data, on which the exploration targets are based, can be linked from digital databases or records to logs sheets and drilling or sampling intervals. It is an additional verification process to determine that QA and QC processes have been effectively applied and that these were working to assure and control the quality of the data. Data verification is carried out after samples have been collected, assays have been returned, and data have been stored in the database. Where relevant, data verification may also include check sampling carried out by the QP during a site visit, especially if SOPs are not available or difficult to audit, and QC data are limited to demonstrate processes were in control.

### 12.1.1 Drillhole Database

The drillhole database was compiled digitally; therefore, there are no paper logs to verify against the database. During the site visit, the QP checked the drillhole database against the retained core and noticed to discrepancies between database entries and core in core trays (e.g. sample intervals, grades, recovery).

RSC under the supervision of the QP reviewed the calculations for diamond drill core recovery. During the review, RSC noticed multiple transcription errors, where core loss was incorrectly recorded as core gain (i.e. recorded +1.0 m instead of -1.0 m). There were also intervals where no core loss was recorded (blank entry), and cases where core loss for two consecutive intervals was recorded on the second interval. These errors were highlighted, and subsequently updated by Hardie Pacific who manages the Smylers Gold Project drill database.

### 12.1.2 Collar Locations

During the site visit, the QP visited and checked the location data of the collars, all of which matched what is recorded in the database (Figure 12-1).

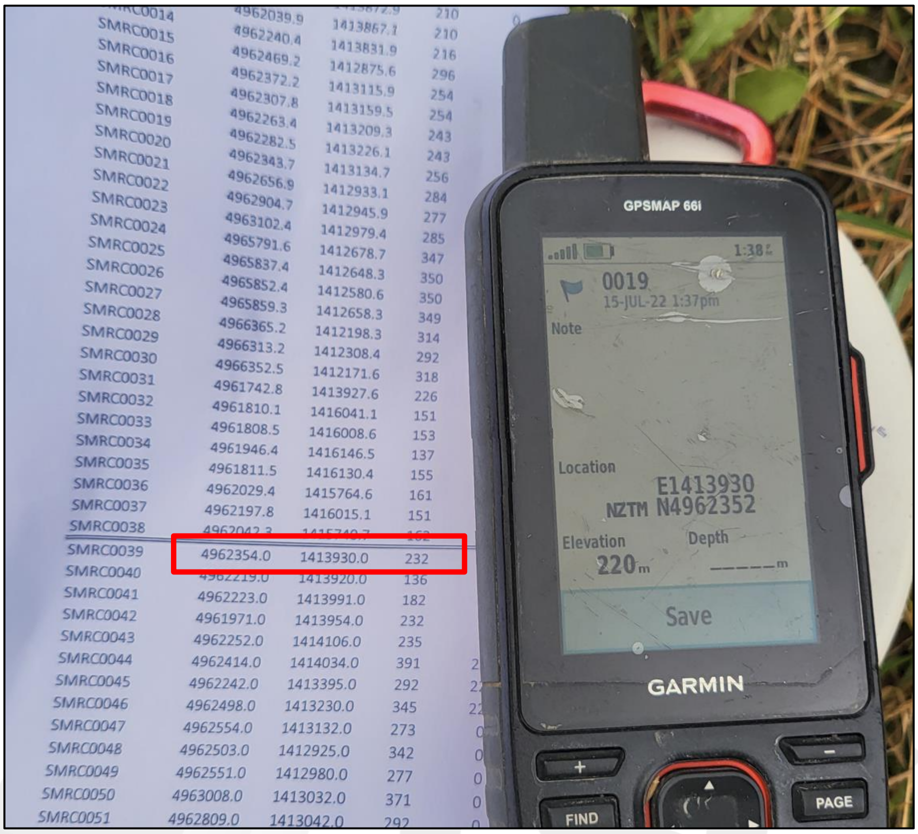



Figure 12-1: Verification of collar locations.

### 12.1.3 Core Tray and Chip Tray Verification

During the site visit, the QP checked database entries with chip trays, and core retained on site. The QP also checked the SOP (Figure 12-2B) against core sample specifics. No issues or discrepancies were observed.

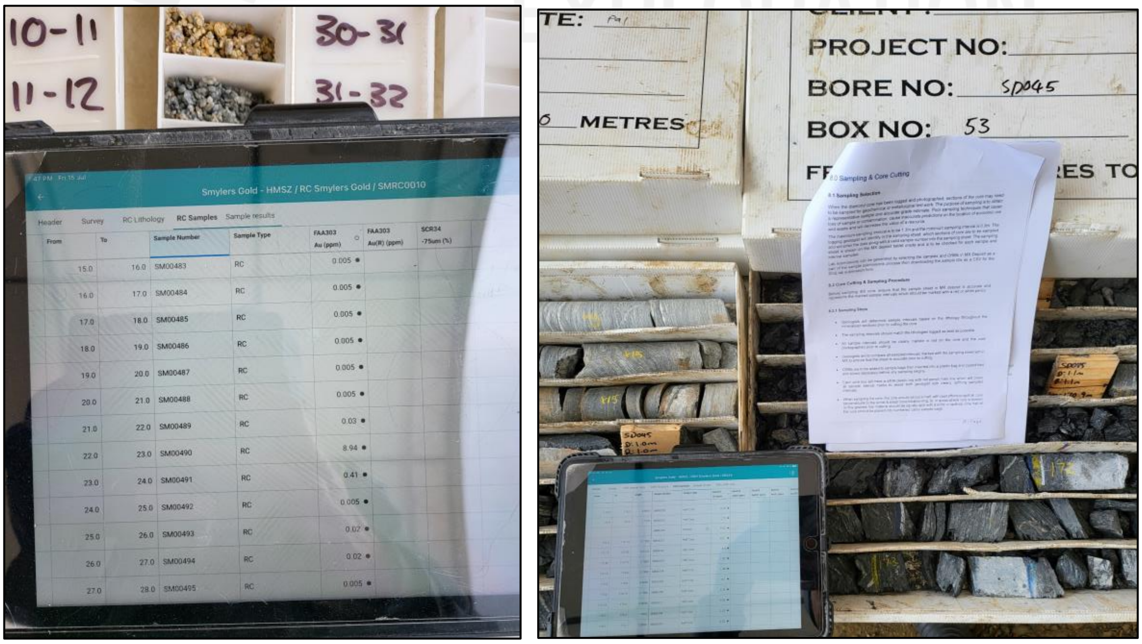



Figure 12-2: Verification of sample data against the database and SOP. (A) Verification of collar RC sampling; (B) verification of core sampling and logging.

### 12.1.4 Half Core Check Sample Analysis

During the site visit, the QP collected 20 half-core duplicates of mineralised intervals to confirm grade tenor. These samples were bagged and sent to SGS Waihi by the QP for sample preparation and sample analysis (Figure 12-3see sections 11.1.4 and 11.2.1 for details).

The analysis indicates an expected bias at lower grades, created by the sample selection by grade threshold (Figure 12-4). No bias above 2 g/t Au is apparent.


Figure 12-3: Verification sampling undertaken by the QP.

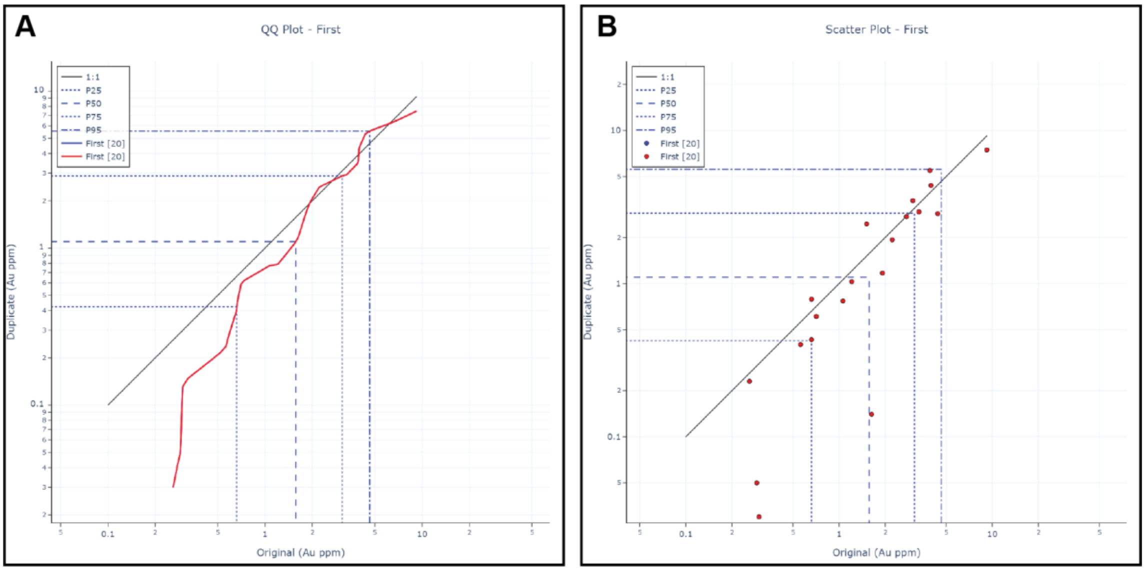



Figure 12-4: Comparison between half-core check samples. (A) QQ plot, original sample on x-axis, check sample on y-axis; (B) scatterplot.

#### 12.1.5 Summary

Checks completed by the QP only uncovered minor database errors which were corrected. The QP collected 20 check samples which indicated an expected correlation compared with the original sampling. Overall, in the QP's opinion, the data were collected though proper processes, quality controlled to be fit for the purpose of exploration targeting and the data resulting from the process managed well in appropriate management systems.

## 12.2 Tokomairiro Samples

The QP did not undertake validation checks on the Tokomairiro samples. However, all work was conducted under the supervision of RSC geologists and senior management. During the fieldwork, data validation was part of the sampling SOPs and involved checking records for consistency and transcription errors by matching digital data entries with hard-copy logs, photos and physical samples.

# 13. Mineral Processing and Metallurgical Testing

No metallurgical work has been completed on any of the KO Gold permits to date.

# 14. Mineral Resource Estimates

No Mineral Resources have been estimated for any of the KO Gold projects to date

# 23. Adjacent Properties

There are a large number of prospecting and exploration permits in the Otago Region (Figure 23-1). Many of these have been picked up since 2020, when the gold price increased, partly in response to the COVID-19 pandemic. It has been stated that Otago is "on the cusp of another gold rush" (Morgan & Thomson, 2022). The adjacent permits for EP60389, EP60129, EP60702, PP60674, PP60705 and PP60727 are discussed in this section.

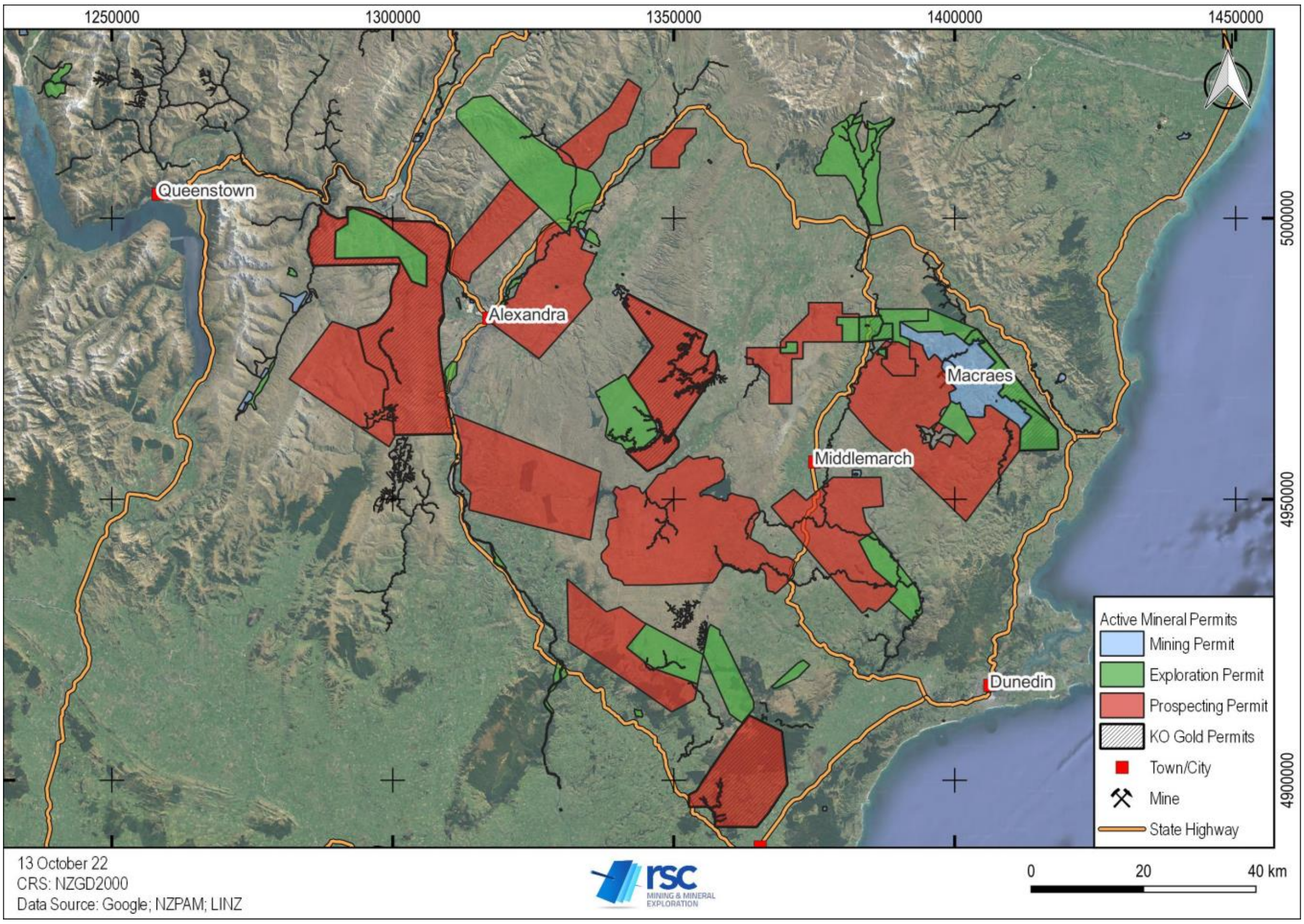



Figure 23-1: Active mineral permits in the Otago Region.

## 23.1 Macraes Gold Mine

OceanaGold's Macraes Gold Mine (MP41064) is adjacent to the north-western boundary of Smylers Gold Project. MP41064 was granted to OceanaGold on the 22 March 1993 and the permit is valid for 36 years, and due to expire on the 31 January 2030. The permit covers a total area of ~140 km$^2$.

Macraes Gold Mine is New Zealand's largest Au producing operation and has been operational since 1990. Up to 30 June 2020, over 5 million ounces of Au have been produced. The Macraes Gold Mine covers several historical orogenic Au prospects that were mined. Notable historical prospects include Duke of Edinburgh and Golden Point/Round Hill. All ore mined at Macraes is hosted within the central portion of the Hyde Macraes Shear Zone.

The project consists of large-scale open pits, underground mining, and an adjacent processing plant inclusive of an autoclave for pressure oxidation of the ore (Figure 23-2). The Macraes processing plant can treat ~5.9 Mtpa of ore and incorporates a semi-autogenous grinding (SAG) mill, flotation circuit, autoclave for pressure oxidation of the concentrate, CIL plant, and smelting facilities (Edwards et al., 2020).

The current combined open pit, stockpile and underground reserves of 1.31 Moz support a mine life at Macraes extending to 2030 (Table 23-2). There is a further 3.6 Moz Mineral Resources classified in the Measured and Indicated category and 0.99 Moz Inferred Mineral Resource (Table 23-1; Table 23-2; Edwards et al., 2020).

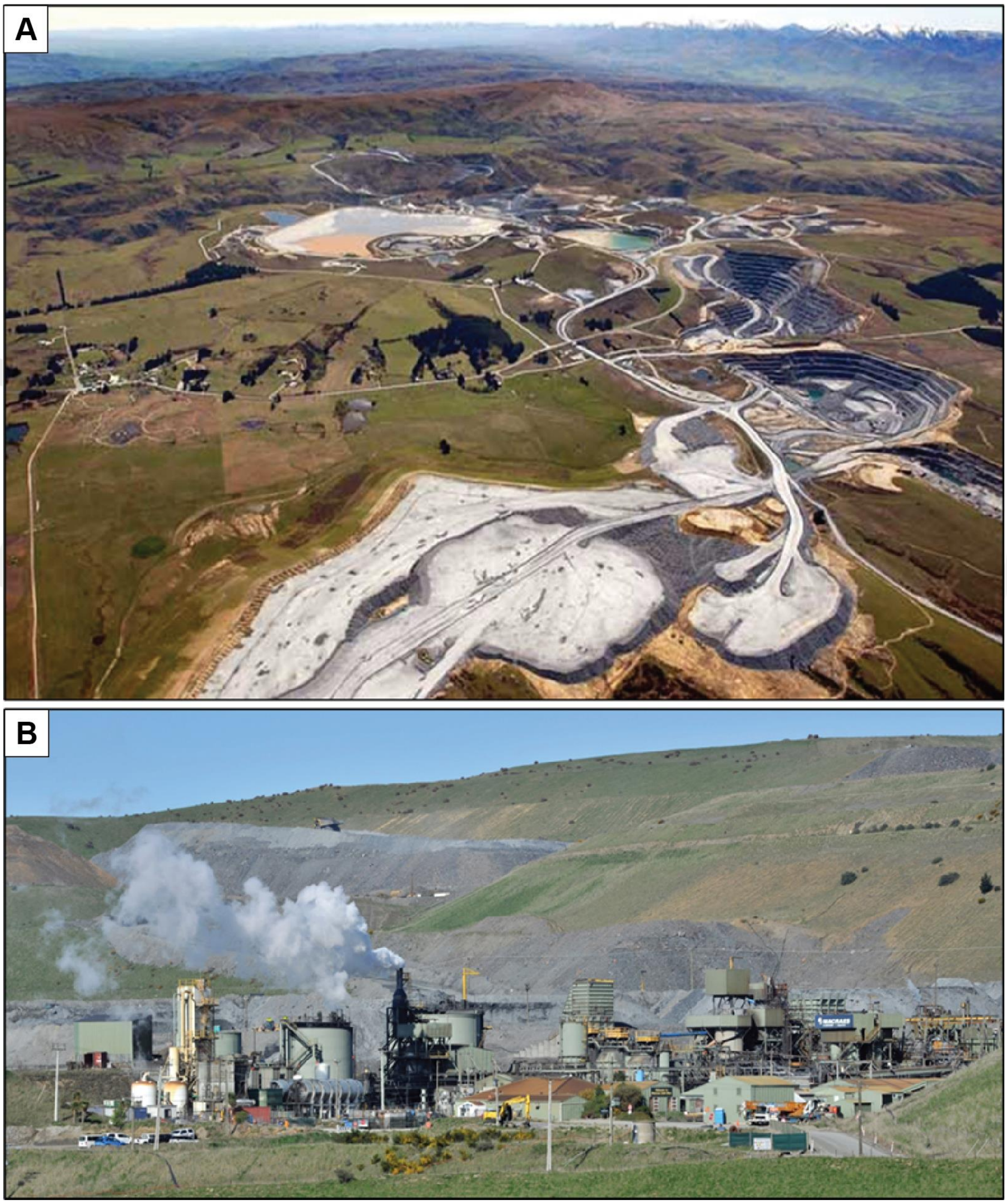



Figure 23-2: A) Aerial view of the Macraes Mine operation, looking northwest ; B) View of the Macraes processing plant.

Table 23-1: Macraes Project Mineral Resource Statement as of June 30, 2020 (From Edwards et al., 2020).

| Resource Area | Resource Cut-Off (g/t Au) | Measured | | Indicated | | Measured & Indicated | | | Inferred Resource | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mt | Au g/t | Mt | Au g/t | Mt | Au g/t | Au Moz | Mt | Au g/t | Au Moz |
| **Nunns** | 0.4 | - | - | 0.23 | 0.83 | 0.23 | 0.83 | 0.01 | 0.64 | 0.92 | 0.02 |
| **Coronation North** | 0.3 | 1.3 | 1.26 | 4.32 | 0.75 | 5.61 | 0.87 | 0.16 | 2.82 | 0.65 | 0.06 |
| **Coronation** | 0.3 | - | - | 2.43 | 1.06 | 2.43 | 1.06 | 0.08 | 1.67 | 0.74 | 0.04 |
| **Deepdell** | 0.3 | 2.25 | 1.06 | 1.81 | 0.96 | 4.06 | 1.02 | 0.13 | 2.09 | 0.54 | 0.04 |
| **Round Hill** | 0.3 | 8.72 | 1.25 | 44.2 | 0.82 | 53 | 0.89 | 1.51 | 11.6 | 0.65 | 0.24 |
| **Golden Point Underground** | 1.34 | 0.15 | 2.97 | 2.86 | 2.68 | 3 | 2.69 | 0.26 | 0.95 | 2.54 | 0.08 |
| **Innes Mills** | 0.3 | 2.53 | 1.07 | 17.2 | 0.72 | 19.7 | 0.76 | 0.48 | 9.61 | 0.52 | 0.16 |
| **Frasers West** | 0.3 | 2.47 | 1.04 | 8.21 | 0.7 | 10.7 | 0.78 | 0.27 | 3.76 | 0.56 | 0.07 |
| **Gay-Tan** | 0.3 | 2.98 | 0.57 | 10.8 | 0.54 | 13.8 | 0.55 | 0.24 | 1.04 | 0.65 | 0.02 |
| **Frasers Underground** | 1.2 | 1.48 | 2.9 | 1.71 | 2.16 | 3.18 | 2.5 | 0.26 | 0.32 | 2.14 | 0.02 |
| **Ounce** | 0.4 | - | - | - | - | - | - | - | 0.76 | 0.75 | 0.02 |
| **Golden Bar** | 0.4 | 0.09 | 1.54 | 1.21 | 1.35 | 1.3 | 1.37 | 0.06 | 4.31 | 1.33 | 0.18 |
| **Taylors** | 0.4 | - | - | 0.23 | 0.84 | 0.23 | 0.84 | 0.01 | 0.43 | 0.76 | 0.01 |
| **Stoneburn** | 0.4 | - | - | - | - | - | - | - | 1.44 | 0.72 | 0.03 |
| **Stockpiles** | 0.3 | 4.36 | 0.55 | - | - | 4.36 | 0.55 | 0.08 | - | - | - |
| | Totals | 26.3 | 1.11 | 95.2 | 0.85 | 121.5 | 0.91 | 3.54 | 41.5 | 0.74 | 0.99 |

Table 23-2: Macraes Mineral Reserve Estimate as of June 30, 2020 (From Edwards et al., 2020).

| Area | Proven | | Probable | | Total | | |
|---|---|---|---|---|---|---|---|
| | Mt | Au g/t | Mt | Au g/t | Mt | Au g/t | Au Moz |
| **Coronation North** | 0.98 | 1.39 | 1.23 | 0.92 | 2.21 | 1.13 | 0.08 |
| **Coronation** | 0.22 | 1.1 | 0.22 | 1.1 | 0.01 | | |
| **Deepdell** | 1.67 | 1.06 | 1.29 | 0.98 | 2.96 | 1.03 | 0.1 |
| **Round Hill** | 3.89 | 1.32 | 8.21 | 1 | 12.1 | 1.1 | 0.43 |
| **Innes Mills** | 1.73 | 1.26 | 5.81 | 0.84 | 7.54 | 0.94 | 0.23 |
| **Frasers** | 1.52 | 0.69 | 6.89 | 0.71 | 8.41 | 0.71 | 0.19 |
| **Stockpiles** | 4.36 | 0.55 | | | 4.36 | 0.55 | 0.08 |
| **Subtotal - Open Pit** | 14.1 | 0.98 | 23.6 | 0.87 | 37.8 | 0.91 | 1.11 |
| **Frasers Underground** | 0.69 | 2.11 | 0.58 | 1.47 | 1.28 | 1.82 | 0.07 |
| **Golden Point Underground** | 0.12 | 2.39 | 2.26 | 2.12 | 2.34 | 2.13 | 0.16 |
| **Subtotal - Underground** | 0.81 | 2.15 | 2.84 | 1.99 | 3.62 | 2.02 | 0.23 |
| **Total Macraes** | 14 | 1.04 | 26.5 | 0.99 | 41.4 | 1.01 | 1.34 |

## 23.2 Bendigo-Ophir

Santana Minerals Limited's (Santana) Bendigo-Ophir Project (EP60311) is located 90 km northwest of Macraes Gold Mine. The Bendigo-Ophir Project is also ~20 km northeast of PP60727 (Carrick) and ~40 km northwest of PP60705 (Rough Ridge South). EP60311 was granted to Matakanui Gold Limited, a New Zealand private entity 100% owned by Santana, on 13 April 2018, and the permit is valid for a five-year term.

The Bendigo-Ophir Project covers a number of orogenic Au prospects that were historically mined. Notable prospects include Bendigo, Rise and Shine, Come-in-Time, Shreks, Shreks East, Thomsons Saddle, and Upper Thomsons. The Project shares a similar geological setting to Macraes.

As an exploration permit, Santana is not actively conducting any mining at the project. Exploration to date consists of RC and diamond drilling. On 11 July 2022, Santana announced an Inferred Mineral Resources of 2 Moz in accordance with the JORC Code (2012) (Santana Minerals, 2022[1]). The MRE was estimated using a cut-off grade of 0.25 g/t Au. Eighty-five percent of the resource is within the Rise and Shine prospect (Table 23-3).

[1] SMI ASX Announcement *A new 2 million ounce global inferred gold resource platform*, dated 11 July 2022, Competent Persons: Mr Richard Keevers and Mr Kerrin Allwood.

Table 23-3: Inferred Mineral Resources estimated at the Bendigo-Ophir Project (Santana Minerals, 2022[1]).

| Deposit | Cut-off (Au g/t) | Category | Tonnes (Mt) | Au Grade (g/t) | Ounces (koz) |
|---|---|---|---|---|---|
| **Global (Bendigo-Ophir Project)** | 0.25 | Inferred | 46.7 | 1.4 | 2,090 |
| **Rise and Shine** | 0.25 | Inferred | 33.1 | 1.7 | 1,760 |
| **Come-in-Time** | 0.25 | Inferred | 3.2 | 0.8 | 81 |
| **Shreks** | 0.25 | Inferred | 9.7 | 0.7 | 230 |
| **Shreks East** | 0.25 | Inferred | 0.7 | 0.7 | 15 |

## 23.3 Properties Adjacent to EP60129 and EP60389 Smylers Gold Project

The Smylers Gold Project (EP60129 and EP60389) is adjacent to OceanaGold Macraes Mine (Figure 23-1; see section 23.1). The Project also borders two other permits: EP60663 (Mareburn) held by Midway Resources Limited is to the northwest of Glenpark, and PP60700 held by Nimitz Resources Limited is to the west of Smylers Gold Project (Figure 23-3D). EP60663 is due to expire in December 2025, and PP60700 is due to expire December 2022. Exploration is for metallic minerals including Au.

## 23.4 Properties Adjacent to PP60674 Tokomairiro

Three separate mineral permits or mineral permit applications overlie PP60674: MP60530, MP60652, PP606743.01 (Figure 23-3A).

Two alluvial hobby mining permits (MP60530 and MP60652) transect the middle of PP60674. These were in place prior to PP60674 being granted and were excluded from its boundaries from the beginning. MP60530 was granted on 18 March 2020 and expires on 17 March 2030. MP60652 was granted on 23 October 2020 and expires on 22 October 2030. Access to these permits is possible with landowner permission, but samples cannot be taken.

A large prospecting permit (PP60743.01, ~160 km$^2$) was applied for after mining permit PP60674 was granted. PP606743.01 is prospecting for industrial minerals (phosphate, glauconite), and is therefore legally allowed to be placed on the same land as metallic mineral permits. As of 15 July 2022, PP60743.01 is still under review by NZP&M and its outcome is unclear.

Several other mineral permits are active or have been lodged in the area surrounding PP60674. Four of these permits (one prospecting permits, three exploration permits) are prospective for similar mineralisation styles to PP60674. Notably, New Age Exploration holds a large prospecting permit (PP60544, ~132 km$^2$) covering the historically productive Waipori goldfield ~15 km northwest of PP60674. After identifying an anomalous Au-As soil zone (NAE, 2021), New Age Exploration applied to convert a portion of their prospecting permit (~75 km$^2$) to an exploration permit. Exploration Permit 60807 was granted to New Age Exploration on 16 December 2021.

One EPIT application is present ~4 km south of PP60674 on alluvial sediments well known to host Au. Many of the streams that have deposited these sediments drain from within PP60674.

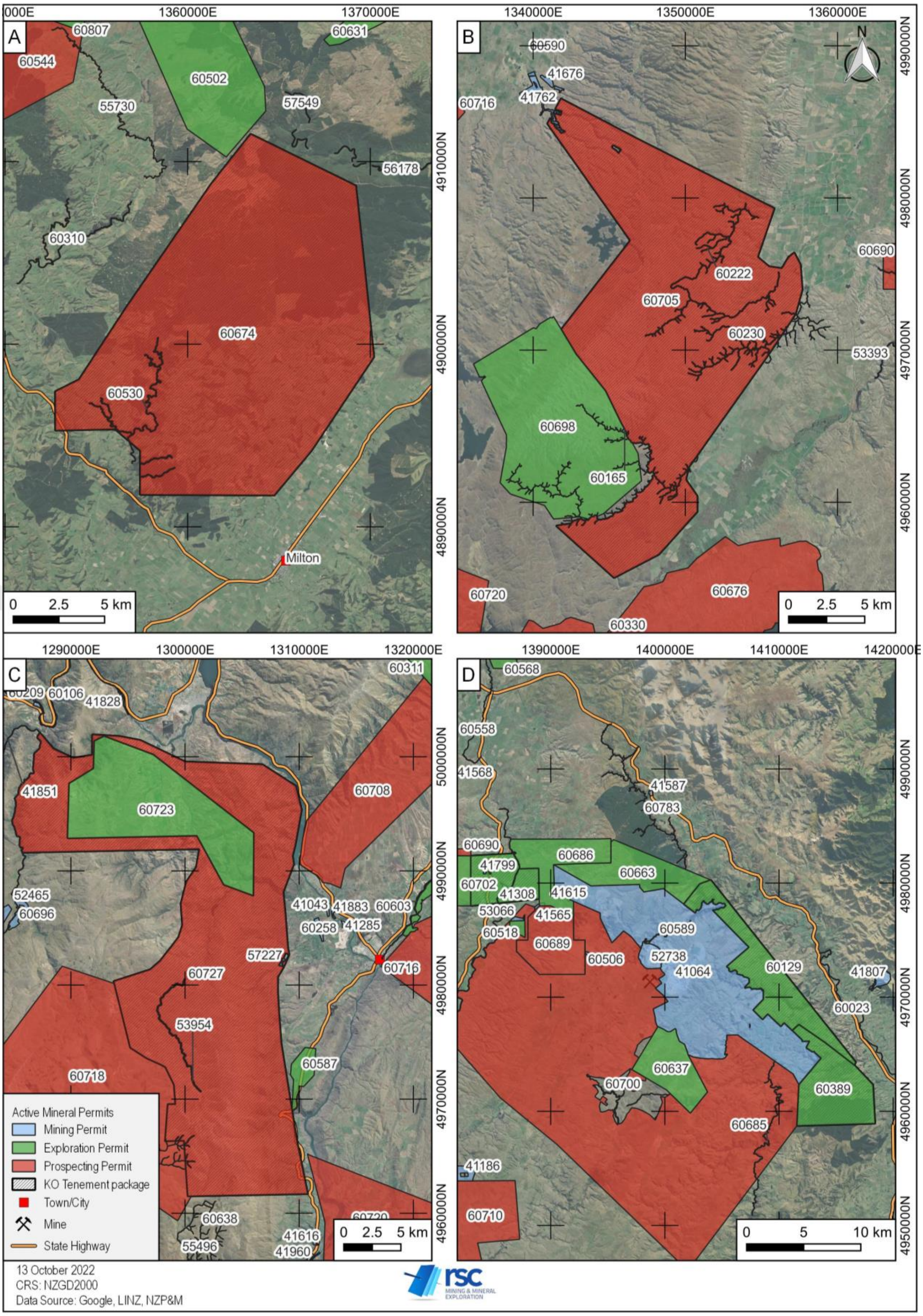



Figure 23-3: Active mineral permits adjacent to A) Tokomairiro Project (PP60674); B) Rough Ridge South (PP60705); C) Carrick Range (PP60727); D) Glenpark (EP60129), Smylers Gold Project (EP60389), and Hyde (EP60702).

## 23.5 Properties Adjacent to EP60702 Hyde

Four mining permits overlie EP60702: MP41799, MP51578, MP41308 and MP53066 (Figure 23-3D). Three of the permits (MP41799, MP51578, MP41308) are for industrial rock and building stone. All three permits were granted prior to EP60702. As EP60702 is a metallic mineral group exploration permit, it can legally be placed on the same land as the industrial rock and building stone permits. Access to these permits is possible with landowner permission, and samples can be collected.

Alluvial hobby mining permit 53066 runs north-south through the entire permit, cutting it into two portions: a west portion and east portion. MP53066 was granted before EP60702; therefore, the area covered by MP53066 was excluded from its boundaries from the beginning. Access to MP53066 is possible with landowner permission, but samples cannot be taken.

Several other mineral permits surround EP60702. To the immediate west is EP60300, owned by Minerals Rangahau Limited, NewPeak Metals Limited, Western NZ Limited, and Western Wood NZ Limited. EP60300 expired on 21 March 2022, but an extension of duration is currently being assessed by NZP&M. East of EP60702 is EP60686, owned by NewPeak NZ Limited. This permit was granted on 16 December 2021 and is valid for five years. There are also several other prospecting, exploration, and mining permits in the vicinity of EP60702. All these permits are exploring for metallic minerals including Au. The northernmost part of the Macraes Mine permit is located ~2 km east of EP60702.

## 23.6 Properties Adjacent to PP60705 Rough Ridge South

Two alluvial hobby mining permits are located within PP60705: MP60222, owned by Mr A. Footner, covers branches of Stoney Creek and Totara Creek, and MP60230, owned by Mr P. Barrett, covers branches of Linn Burn (Figure 23-3B). Both these permits were granted in 2016 before PP60705 was granted. The land covering MP60222 and MP60230 are excluded from the boundaries of PP60705.

To the northwest of PP60705 is MP41762, owned by Mrs S. Falconer. MP41762 covers branches of Pool Burn, which have been excluded from the boundaries of PP60705.

One EPIT application (1034) is present to the north of PP60705, which covers North Rough Ridge.

## 23.7 Properties Adjacent to PP60727 Carrick Range

The Carrick Range Project surrounds EP60723, held by NewPeak NZ Limited, and contains the historical Carrick Goldfield. Over 25 Au and stibnite lodes were worked in the Carrick Goldfield near Carricktown, from the mid 19th century until the early 20th century, for a combined reported production of ~14.5 koz.

Three alluvial hobby mining permits are located within or directly adjacent to PP60727: MP53954, MP54375, MP57227 (Figure 23-3C).

To the southwest, the Carrick Range project is adjacent to PP60718 — a prospecting permit for Au and Ag, held by Gondwana Gold NZ Ltd. This permit covers ~200 km$^2$ over the southern end of Old Woman Range.

# 24. Other Relevant Data and Information

There is no other known relevant data or information other than that which has been presented in this Report.

# 25. Interpretation and Conclusions

Over the past two years, KO Gold has acquired a significant amount of gold properties in Otago, New Zealand, consisting of three exploration permits (two under an option agreement) and three prospecting permits. As of the effective date of this Report, KO Gold, Hyde Resources, and SGL combined have undertaken ~4 years of exploration work on the ~75 km$^2$ Smylers Gold Project. Exploration work includes surface sampling, trenching and 15,591 m of drilling (combined RC and diamond drilling) leading to the identification of seven gold prospects. Gold mineralisation has been intercepted at depth, and some of the best intercepts include 5 m @ 3.4 g/t from 32 m (incl. 1 m @ 8.3 g/t), 2 m @ 4.7 g/t from 22 m, 3.6m @ 2.14 g/t from 142.7 m.

KO Gold has also conducted early-stage exploration on its 100%-owned PP60674 (Tokomairiro) including geological mapping and soil, rock-chip and stream-sediment sampling. During mapping and soil sampling of the permit, 14 rock-chip samples were collected. Two float samples returned high Au grades of 14 ppm and 136 ppm from the Canada/Ocean View reef, suggesting the presence of high-grade mineralisation that warrants further investigation. There is an overall lack of in-situ outcrop, which inhibits geological and structural mapping, and the collection of in-situ rock-chip samples.

A total of 531 soil samples were collected over four historical workings: Canada/Ocean View, Nuggety Gully, Try Again, and Meggat Burn reefs. The soil samples typically returned low As and Au grades, with only three samples reporting As >25 ppm from Nuggety Gully, Canada/Ocean View, and Meggat Burn. The QP deems the Canada/Ocean View reef system as the most prospective, and additional soil sampling should be conducted to further delineate the structure.

Two geophysical structures are present in the magnetic data over PP60674. A large-scale geophysical feature striking approximately east is present in all the RTP magnetic data, marking a clear, near-abrupt boundary between magnetic lows to the south and magnetic highs to the north. The structure extends through much of southern Otago, including immediately north of Gabriels Gully, a productive historical hard-rock quartz reef and alluvial Au mine. A second, less pronounced geophysical structure is present in AGC-filtered magnetic data, striking southeast through the southwest portion of the permit area. These geophysical structures may represent the extension of the Tuapeka Fault Zone or a change in metamorphic facies. RSC has identified these two geophysical structures as exploration targets that warrant further exploration. The true source of the anomaly is unknown and may be a structural conduit that has allowed the migration of Au-rich fluids.

For the purpose of defining exploration targets, KO Gold's practices are considered appropriate by the QP for an exploration project. However, further work needs to be supported by better processes and more dedicated monitoring of quality. Learnings from exploration at the Smylers Gold Project and Tokomairiro permit should be incorporated into the planning and execution of exploration at the Hyde, Rough Ridge South, and Carrick Range projects.

# 26. Recommendations

A programme of work recommended by the QP author has been broken down into two phases, with Phase 2 being contingent on the results of Phase 1. Items of work included in both Phase 1 and Phase 2 are broken down below by project.

The QP has not made any recommendations for PP60674 (Tokomairiro), as the permit is currently waiting for a decision to be made on its extension of duration.

## 26.1 Phase 1

### 26.1.1 Smylers Gold Project

Work programme obligations for Smylers Gold (EP60389) are largely complete with an extension of duration pending and expected to be granted by NZP&M within the next six months. A drilling programme to test new targets identified through previous mapping, rock-chip sampling, trenching, and strike extensions from previous drilling is planned for Phase 1 of the work programme. No additional field mapping or soil sampling is proposed.

#### *26.1.1.1 RC Drilling*

A nine-hole, 1,000-m drill programme is planned to test the Hidden Gully, and Williams prospects, with two infill holes planned at the Kensington prospect to target higher-grade Au mineralisation identified on drill pads 01 and 09. Proposed holes are given in Figure 26-1 and Table 26-1.

Hidden Gully prospect was identified through soil sampling and mapping. The outcrop is poor throughout the gully; however, nearby in-situ rock-chip samples have returned grades up to 15.2 g/t Au and crushed samples have yielded coarse Au when panned. It is interpreted to be an eastern load-style mineralisation and a possible continuation of the Williams prospect. The orientation is poorly constrained; however, the structure is interpreted to be sub-parallel to the main HMSZ.

The Williams prospect was drilled in 2018 and the best intercepts were returned from RC36 (5 m @ 3.4 g/t Au from 32 m), RC10 (2 m @ 4.7 g/t Au from 22 m), and RC04 (4 m @ 1.8 g/t Au from 8 m), in addition to Trench 02 returning 7 m @ 3.12 g/t. Prior to drilling, the general orientation of the structure was interpreted to be north-trending based on mapping by GNS; therefore, several drillholes failed to intercept the target. Drilling suggests the strike is likely northwest-trending, and sub-parallel with the HMSZ trend through the Smylers Gold Project area. Four drillholes are planned to test the inferred western extent of the structure under sediment cover and the relationship between Williams and Hidden Gully prospects.

Table 26-1: Proposed drill collars for EP60389, Phase 1 work programme.

| | Hole ID | NZTM_X | NZTM_Y | Approximate Depth to Mineralisation (m) | Hole Depth (m) |
|---|---|---|---|---|---|
| Williams | WS-01 | 1415539.201 | 4962013.56 | 40 | 60 |
| | WS-02 | 1415395.86 | 4962206.52 | 50 | 70 |
| | WS-03 | 1415478.557 | 4962239.6 | 80 | 100 |
| | WS-04 | 1415269.057 | 4962388.45 | 40 | 60 |
| Hidden Gully | HG-01 | 1414712.229 | 4962410.5 | 80 | 100 |
| | HG-02 | 1414924.2 | 4962109 | 80 | 100 |
| | HG-03 | 1414587.868 | 4962359.36 | 60 | 80 |
| Kensington | KN-01 | 1414044.016 | 4962556.08 | 140 | 160 |
| | KN-02 | 1414078.941 | 4962394.95 | 140 | 160 |
| **Total (m)** | | | | | **1,450** |

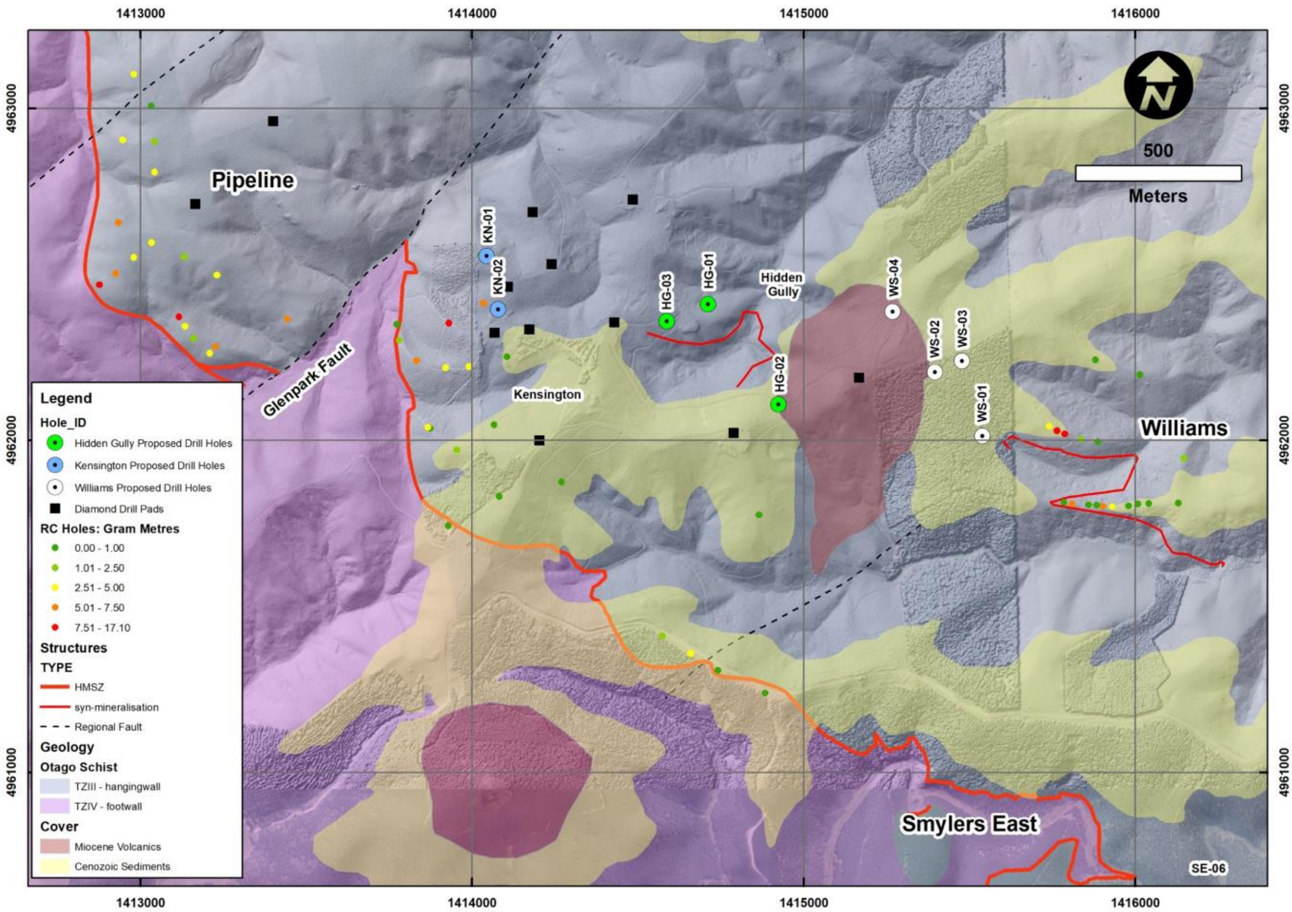



Figure 26-1: Proposed Phase 1 drill collars at EP60389.

#### 26.1.2 EP60702 Hyde, PP60705 Rough Ridge South, PP60727 Carrick Range

As of the effective date of this Report, KO Gold has not conducted any exploration at Hyde, Rough Ridge South or Carrick Range. The QP recommends KO Gold begins a desktop study of the project during Phase 1. This desktop study can be broken down into the following items for each project:

EP60702 Hyde

- reinterpret existing geophysical data over the project — in 2007, Fugro Airborne Surveys conducted a geophysical survey over the wider Otago area, including the Hyde project (see section 6.4.2); and
- compile a GIS database of all the available exploration data.

PP60705 Rough Ridge South and PP60727 Carrick Range

- reviewing all relevant literature, and geological and geophysical data;
- reviewing all the applicability of remote-sensed data;
- reviewing applicability of machine learning to remote-sensed and geophysical data;
- validating all the available historical data; and
- compiling a complete database and GIS workspace.

The QP considers the review and collation of available satellite data an important first step in the exploration programme at Rough Ridge South and Carrick Range, and efficiently helps narrow down the target area.

### 26.2 Phase 2

#### 26.2.1 Smylers Gold Project

Contingent on results of Phase 1, the following Phase 2 work programme is outlined for the Smylers Gold Project.

- Field mapping and soil sampling, at the Smylers East prospect, has confirmed the position of the eastern portion of the HMSZ east from drillhole SMRC0061. The shear zone outcrops poorly throughout Smylers East but has been tracked ~2.5 km. Sampling of the limited surface outcrops indicates low-grade Au mineralisation is present. RC or diamond drillholes will test the mapped strike extension and possible blind to surface mineralisation beneath cover sediments. The drilling will test ~1.2 km of strike to the east of hole SMRC0062.
- Complete a scout diamond drill programme (1,000–1,500 m) targeting the down dip Au mineralisation associated with HMSZ within the Stoneburn prospect (Glenpark EP). This drilling would target both undrilled portions of the shear zone and the down dip extensions of known ‘ore shoots’ identified in neighbouring permit MP41064 such as Wilsons, Shaw’s, Home Reef, Taylors and Golden Bar (Figure 7-5).
- Upon satisfactory drilling results, conduct resource drill out/infill programme. Drilling will also target extensions to areas identified in Phase 1.
- Upon satisfactory drilling results, the QP recommends KO Gold complete an initial MRE for contained Au at the Smylers Gold Project.

- Undertake initial metallurgical test work to accompany MRE studies. Samples of drill core will be used to determine optimal Au recovery methodology and recoveries.

#### 26.2.2 EP60702 Hyde

Following the completion of Phase 1 (desktop study), KO Gold should complete geophysical survey, and identify drill targets, followed by a programme of drilling at Hyde. A minimum of 500 m of drilling should be conducted in order to meet the minimum work programme. The method of drilling (RC or diamond), number of holes, and location of holes will be determined by the outcomes of the work completed under Phase 1 and geophysical survey.

#### 26.2.3 PP60727 Carrick Range

After the completion of data review in Phase 1, the QP suggests that KO Gold add to existing knowledge by completing a regional stream-sediment sampling programme and catchment analysis across the permit during Phase 2. Catchment-based geochemical data, and summaries of geophysical and geological data, can be combined to highlight areas that potentially host previously unrecognised Au mineralisation. RSC has identified an initial 133 stream-sediment samples sites in PP60727, which cover all the different water catchment areas in the permit area (Figure 26-2). The QP recommends conducting rock-chip sampling and geological/structural mapping concurrently with the stream-sediments sampling programme. The QP expects that this work will identify anomalous areas that might be sources of hard rock (shear- or vein-hosted) Au mineralisation.

Anomalous results will be followed with systematic soil sampling programme over targets identified from the catchment analysis, rock-chip sampling, and mapping programme. The sample grid spacing and the number of samples will be planned following the review of these exploration results.

#### 26.2.4 PP60705 Rough Ridge South

Contingent on the results of the desktop studies during Phase 1, the QP recommends that KO Gold add to existing knowledge by completing a regional stream-sediment sampling programme and catchment analysis across the permit. Catchment-based geochemical data and summaries of geophysical and geological data can be combined to highlight areas that potentially host previously unrecognised Au mineralisation. The number of stream-sediment samples will be determined following Phase 1 desktop studies, but should be aligned with the minimum work programme. The QP recommends rock-chip sampling and geological and structural mapping be conducted alongside the stream-sediment sampling programme.

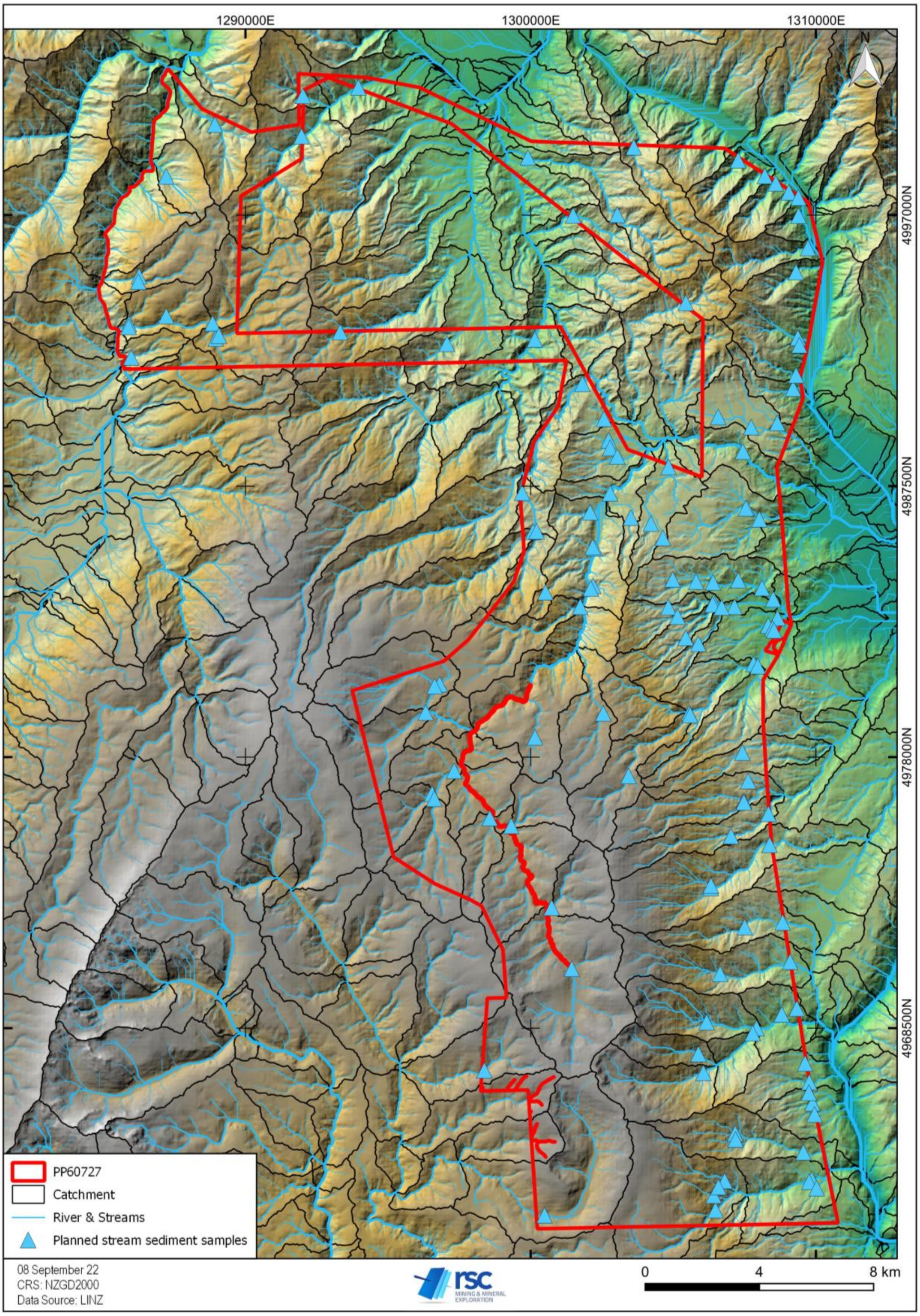



Figure 26-2: Planned Phase 2 stream sediment samples in PP60727.

## 26.3 Budget

The QP's recommended budget and tasks for Phase 1 and Phase 2 exploration programmes are presented below in Table 26-2. Proceeding to Phase 2 would be contingent on the results of Phase 1. Estimated costs are in Canadian dollars (CAD).

Table 26-2: Proposed exploration budget (CAD) for Phase 1 and Phase 2.

| Project | Phase | Exploration Task | Estimated Cost (CAD) |
|---|---|---|---|
| **Smylers Gold Project** | 1 | Nine-hole (1,000 m) reverse circulation (RC) drilling programme testing Hidden Gully, Kensington, and Williams prospects | 150,000 |
| **EP60702 Hyde, EP60705 Rough Ridge South, PP60727 Carrick Range** | 1 | Additional desktop studies, GIS data compilation work, and updating existing exploration database | 25,000 |
| | | **Total Phase 1** | **175,000** |
| **Smylers Gold Project** | 2 | RC or diamond drilling programme testing Smylers East Prospect (2,500 m) | 300,000 |
| | | Infill or resource definition drilling (5,000 m) | 500,000 |
| | | Maiden mineral resource estimate and technical report | 150,000 |
| | | Metallurgical test work (bench-scale testing) (*drilling costs include drilling contractor, logging, sampling, and assay analyses, and labour) | 150,000 |
| **EP60702 Hyde** | 2 | Geophysical survey (IP or 2D seismic) | 175,000 |
| | | Geological mapping and prospecting | 50,000 |
| | | Diamond drilling (500 m) | 100,000 |
| **PP60727 Carrick** | 2 | Regional stream-sediment sampling programme and follow up soil sampling survey | 100,000 |
| **PP60705 Rough Ridge South** | 2 | Regional stream-sediment sampling programme and follow up soil sampling survey | 100,000 |
| | | **Total Phase 2** | **1,675,000** |

Note: Completion of Phase 2 recommended work programme is contingent on the results of Phase 1. Drilling costs shown include drilling contractor, logging and sampling, assay analyses, and labour.

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# 28. Certificate of Qualified Person: René Sterk

I, **René Sterk**, MSc, FAusIMM CP(Geo) MAIG (RPGeo) MSEG MInstD of 349 Coast Road, Dunedin 9471, New Zealand, do hereby certify that:

- I am Managing Director of the mining and exploration consultancy firm RSC, located at 245 Stuart Street, Dunedin 9016, New Zealand.
- The Technical Report to which this certificate applies is titled *"Technical Report on the Otago Region Properties, New Zealand"* with an effective date of 1 February 2023.
- I was awarded an MSc degree in Structural Geology & Tectonics from the Vrije Universiteit Amsterdam in 2002.
- I am a Fellow registered and in good standing with the AusIMM (FAusIMM) in Australia (recognised overseas professional organisation) as member #303499.
- Throughout my career, I have practiced continuously as a mining geologist, exploration geologist, manager and consultant for mining and exploration firms in a range of commodities. I have undergone continuing professional development with recognised courses and training seminars.
- I have read the definition of "qualified person" set out in National Instrument 43-101 (NI 43-101) and certify that by reason of my education, affiliation with professional associations (as defined in NI 43-101), and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
- I completed a site visit (personal inspection) of the Project on 15 July 2022.
- I am responsible for all sections of this Technical Report.
- I am independent of the issuer, KO Gold Inc., applying all of the tests in section 1.5 of National Instrument 43-101.
- I have no prior involvement with the Property that is the subject of this Technical Report.
- I have read National Instrument 43-101 and Form 43-101F1, and this Technical Report has been prepared in compliance with that Instrument and Form.
- As of the effective date of this Technical Report, to the best of my knowledge, information and belief, this Technical Report contains all scientific and technical information that is required to be disclosed to make this Technical Report no misleading.

Signed this 6th Day of April 2023 in Dunedin, New Zealand.

(Original signed and sealed)
René Sterk, MSc FAusIMM CP(Geo) MAIG (RPGeo) MSEG MInstD
Principal Consultant, RSC