



# FRASER RANGE PROJECT

## TECHNICAL OVERVIEW OCTOBER 2020



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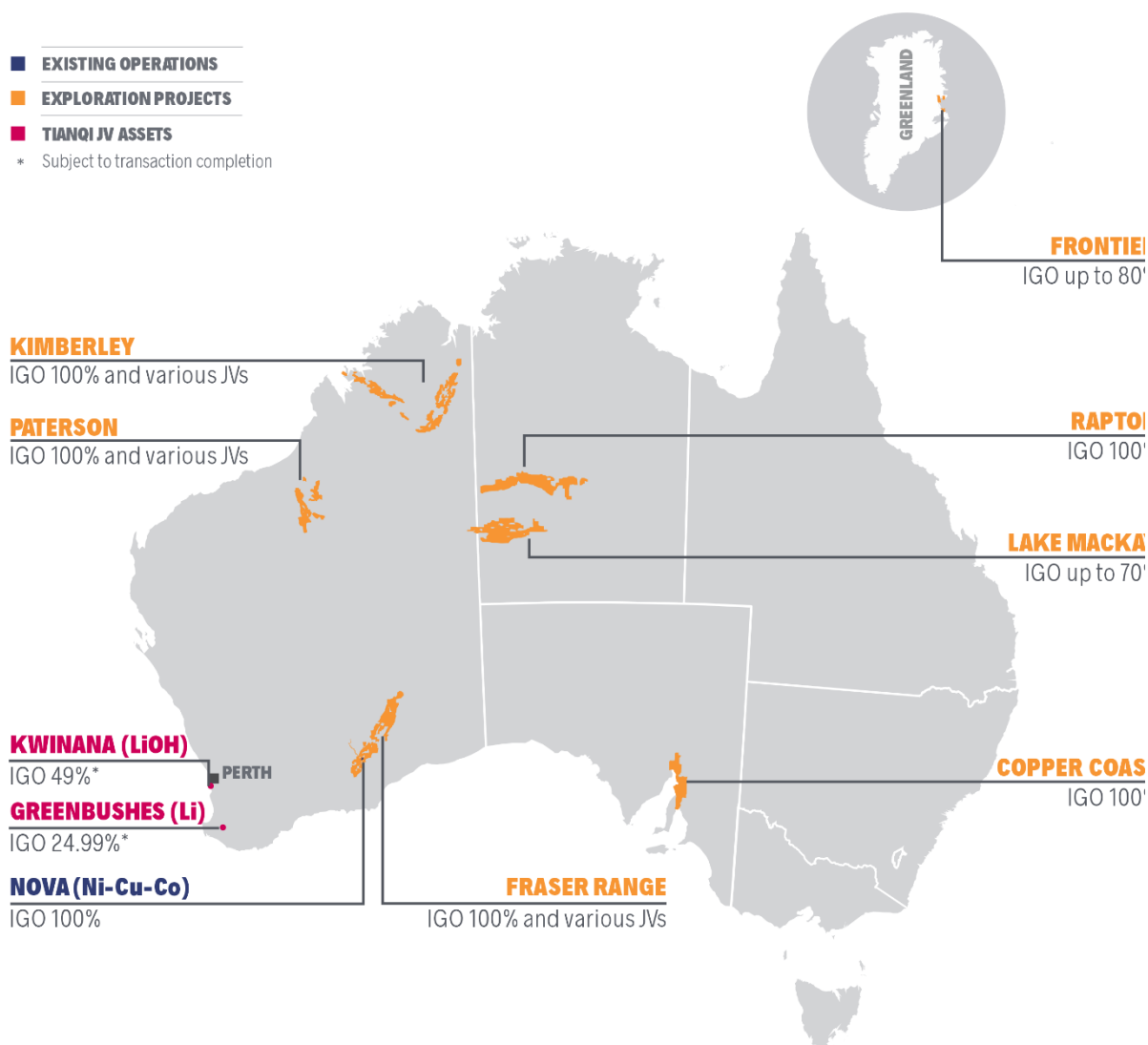
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## INTRODUCTION

To align with IGO’s strategic focus on clean energy metals IGO prioritises the exploration of terranes prospective for magmatic nickel sulphide and sediment hosted copper deposits.

The Company has acquired exploration access to extensive belt-scale land positions across Australia and in Greenland, and all are highly prospective for multiple Tier-1 base and precious metals discoveries (Figure 1).



**Figure 1 – Location Map of IGO’s Belt-scale Exploration Projects and Operations**

The Fraser Range Project in Western Australia is a belt-scale project, which is highly prospective for high-value magmatic nickel-copper sulphide discoveries. IGO is the dominant landholder on the Fraser Range and 100% owns the Nova Operation, which is mining and processing the Nova-Bollinger nickel-copper-cobalt deposit that was discovered in 2015. Since that time, magmatic nickel-copper discoveries by other explorers, including Silver Knight and Mawson, have demonstrated the mineral fertility of the area and the potential for the belt to host multiple economic deposits of similar style.



## TECHNICAL OVERVIEW

### Project Overview

IGO entered the Fraser Range region in 2015 through the acquisition of Sirius Resources' Fraser Range assets, which included the Nova Operation mine development. Following that transaction IGO commenced the consolidation of exploration ground surrounding Nova.

At that time, the general understanding of the Fraser Range belt and its prospectivity was nascent with little to no exploration along the approximate 450km of strike extent of the belt. The Nova-Bollinger discovery, along with other known magmatic nickel-copper sulphide occurrences in the Fraser Range, are proof of IGO's current exploration processes, and IGO's exploration team is convinced that this extensive belt should host multiple Tier-1 and Tier-2 deposits, analogous to the discovery of Thompson Belt nickel deposits in Canada.

Over the last four years IGO has taken a systematic belt-scale approach to the consolidation and exploration of the Fraser Range.

Nova-Bollinger and then Silver Knight (Figure 2), were discovered using conventional soil geochemistry surveys followed by aircore (AC) drilling for discovery. However, the more recent Fraser Range discovery at Mawson occurs under 80m of transported cover. The Mawson discovery relied heavily on Moving Loop Electromagnetics (MLEM) and follow-up AC drilling prior to discovery. IGO considers that these and other nickel prospects in the belt, such as Octagonal, Lantern, Talbot and Crux are significant because they demonstrate that the nickel-copper mineralisation in the Albany Fraser Orogen (AFO) is not confined to a specific geological domain. Importantly, these different discoveries highlight that multiple, large, translithospheric faults have acted as conduits for nickel-copper-bearing mafic and ultramafic magmas and that the rare magmatic processes that are required to form massive nickel-copper sulphide deposits have occurred along the entire length of the AFO.

IGO has made significant progress in understanding the magmatic nickel-copper sulphide settings in the AFO having completed extensive regional geophysical and geochemical screening of some 15,000km<sup>2</sup> of tenure (Figure 2). IGO's access to most of the known nickel-copper sulphide mineralisation occurrences is through various joint ventures (JVs) and these have enabled IGO to determine that mafic-ultramafic (UM) intrusions cluster in structurally and geophysically complex areas that coincide with iron sulphide, carbon and carbonate-bearing metasediments. IGO considers that these features are key to understanding where the next major deposit will be found. With over 400,000m of AC and 120,000m of RC and diamond drilling completed since 2017, IGO have found that identifying isolated mafic-UM intrusions is only one part of the key to discovery.

IGO has identified over 600 mafic and UM intrusions on the AFO but has found that only a few contain nickel-copper sulphides and only a few to date host economic grades of mineralisation. Our in-house geochemical screening tool, which is based on key chemical element ratios in end-of-hole AC drilling assays (called the Mafic Prospectivity Index, or MPI), can identify the most prospective intrusions in the AFO by defining levels of crustal contamination, nickel and copper fertility and intrusions that have chemical composition most similar to those at Nova-Bollinger. This MPI tool has identified over 466 intrusions with a better than moderate MPI score, 104 intrusions with a better than strong MPI score and 49 intrusions that have a very strong MPI match to the Nova-Bollinger (Figure 3).

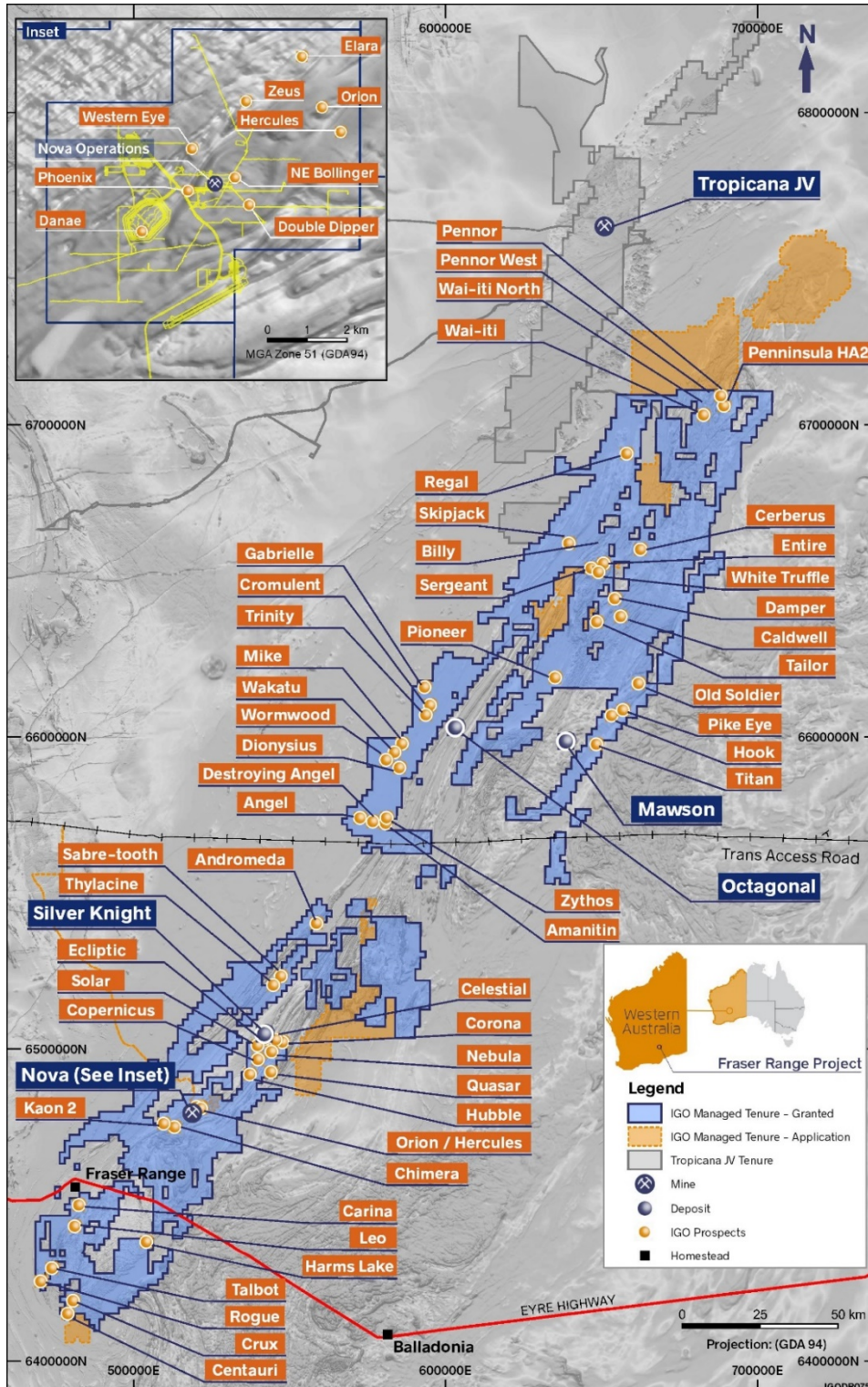
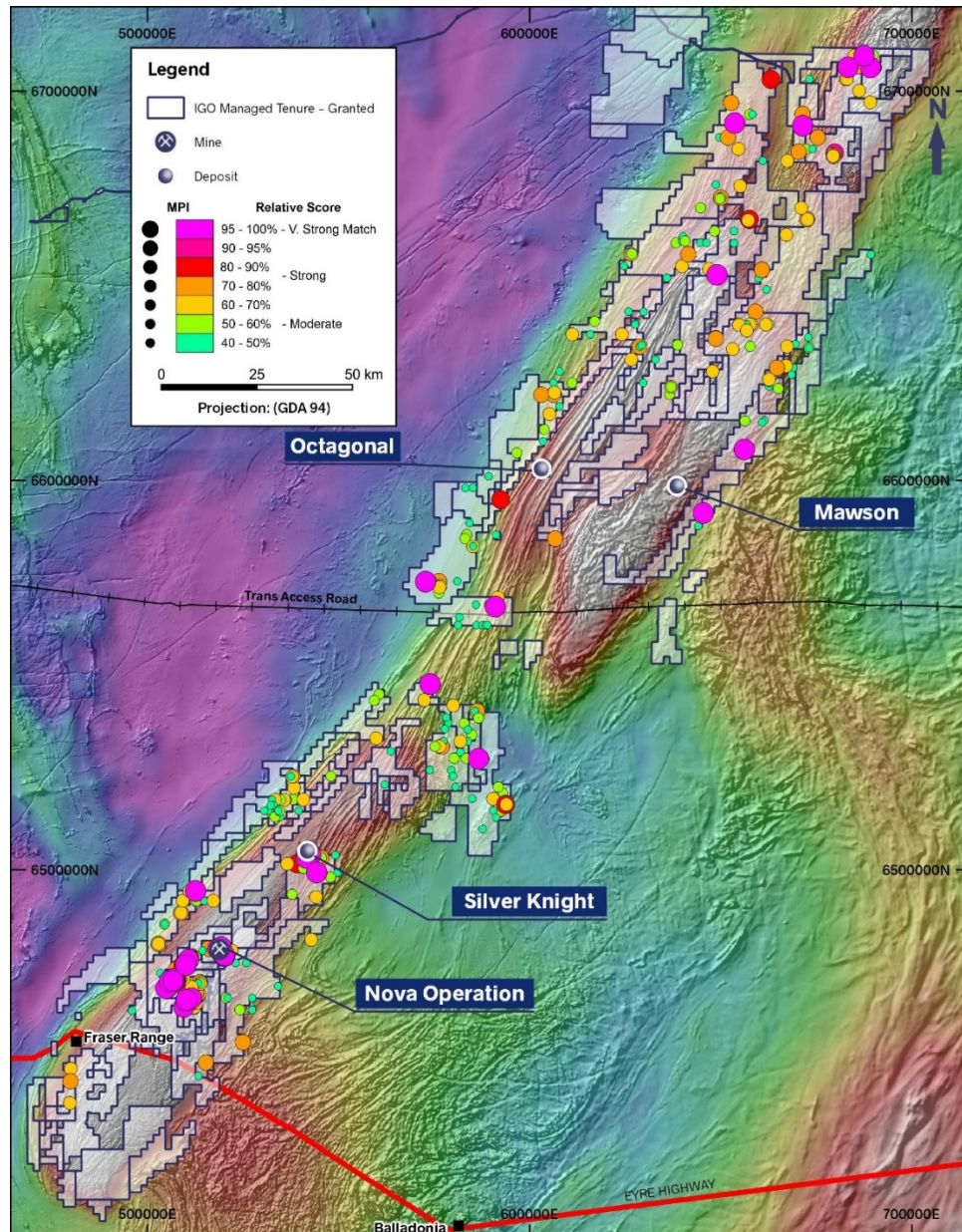


Figure 2 – IGO’s AFO tenement portfolio and prospects for follow-up testing



**Figure 3 – IGO’s Mafic Prospectivity Index (MPI) map applied in the AFO (background image: colour Bouguer gravity draped on greyscale TMI aeromagnetic image)**

These intrusions have been identified by drilling on a wide-spaced 1.5km × 0.8km or 3.0km × 0.8km drilling pattern and usually represent single point anomalies. Any one of these intrusions could be part of a much larger, complex mafic-UM intrusive system and every anomaly requires follow-up by AC drilling and MLEM geophysical surveying over the next few years. Over the last year alone, IGO has added and tested more than 110 geochemical and geophysical anomalies to its target pipeline that are considered important enough to warrant follow-up (Figure 4).

IGO is constantly adding to and reinterpreting its pipeline of identified targets at the Fraser Range Project (Figure 4). Many of our anomalies are airborne electromagnetic targets that IGO generated from the regional Spectrem Airborne Electromagnetic (AEM) survey completed in 2019, while others are the single point aircore MPI anomalies discussed above and several are generated through ongoing interpretation of magnetic, gravity and seismic datasets. All initial anomalies are tested by a ground-based MLEM or Down-Hole Electromagnetic (DHEM) team or infill AC before being prioritised for reverse circulation (RC) and/or diamond core (DD) drill testing.

Testing the number of targets generated on an annual basis requires up to five geophysics teams, three aircore drill rigs and two full-time diamond drill rigs. Negative geophysical or drilling results during follow-up work results in a down-grade to initial anomalies, which may be reassigned for further assessment or dropped from the portfolio. However, fifty targets have been elevated to RC or DD testing in the past year and three have been promoted to prospect status for more intensive exploration.

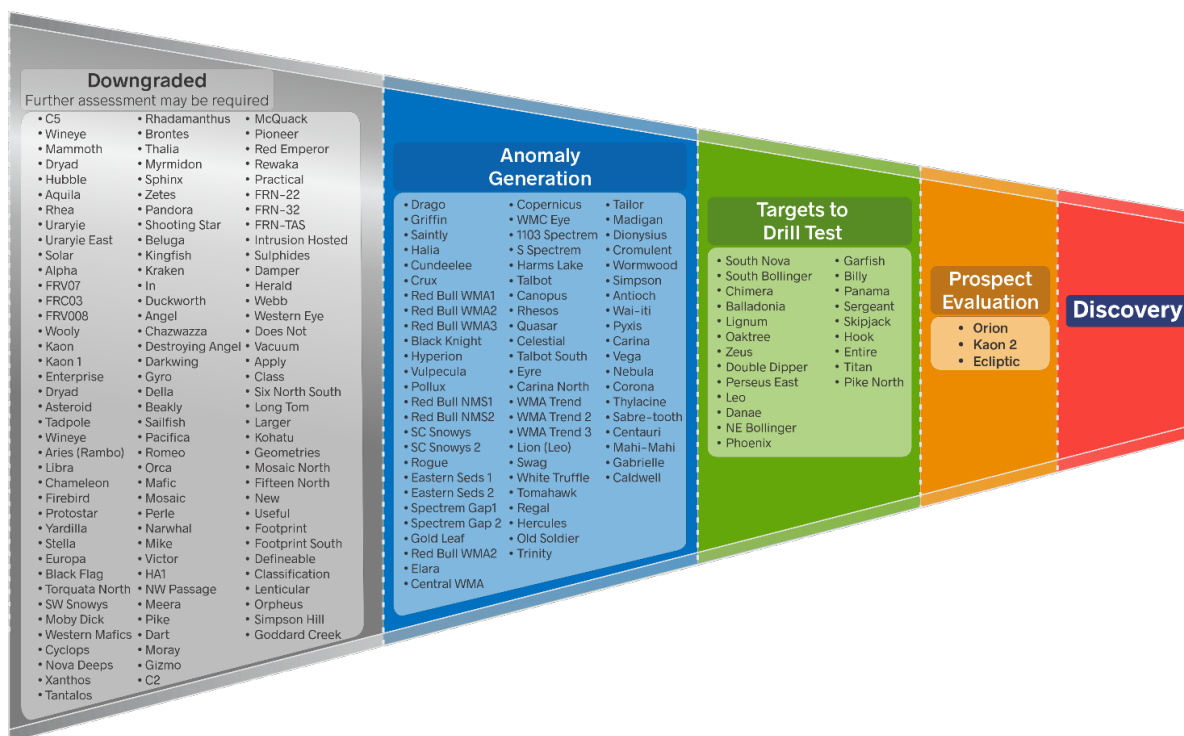


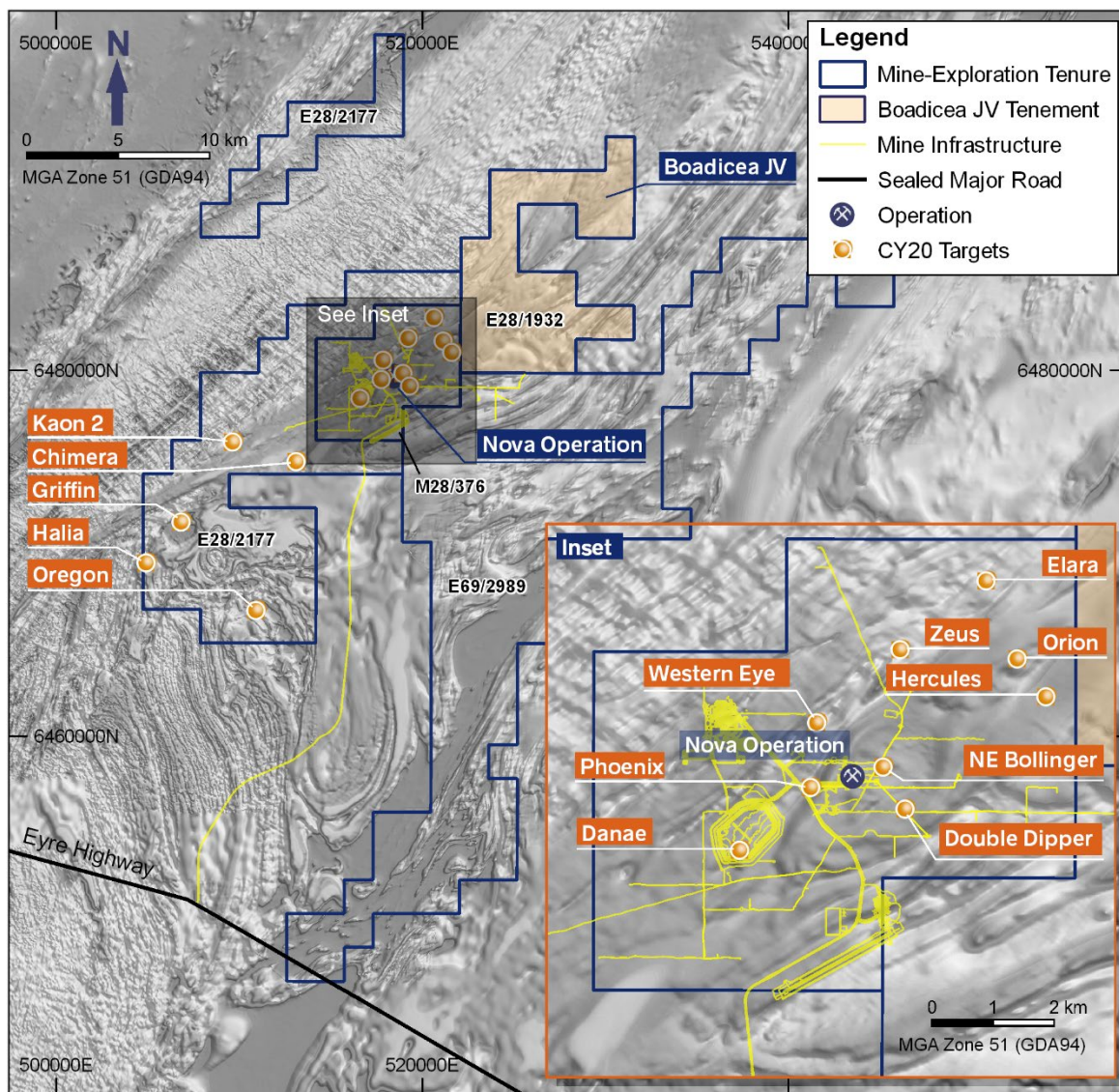
Figure 4 – The AFO prospect pipeline

Many of the anomalies listed in Figure 4 are grouped in Priority Target areas. The Priority Target areas that will be tested during the next 12 months include:

- Nova Near Mine
- Southern Hills
- Bunningonia
- Waddy Eye
- Heatwave
- Central Western
- Kanandah

## Nova Near Mine

The Nova Near Mine portfolio includes those prospects that are within 25km of IGO's Nova Operation (Figure 5).

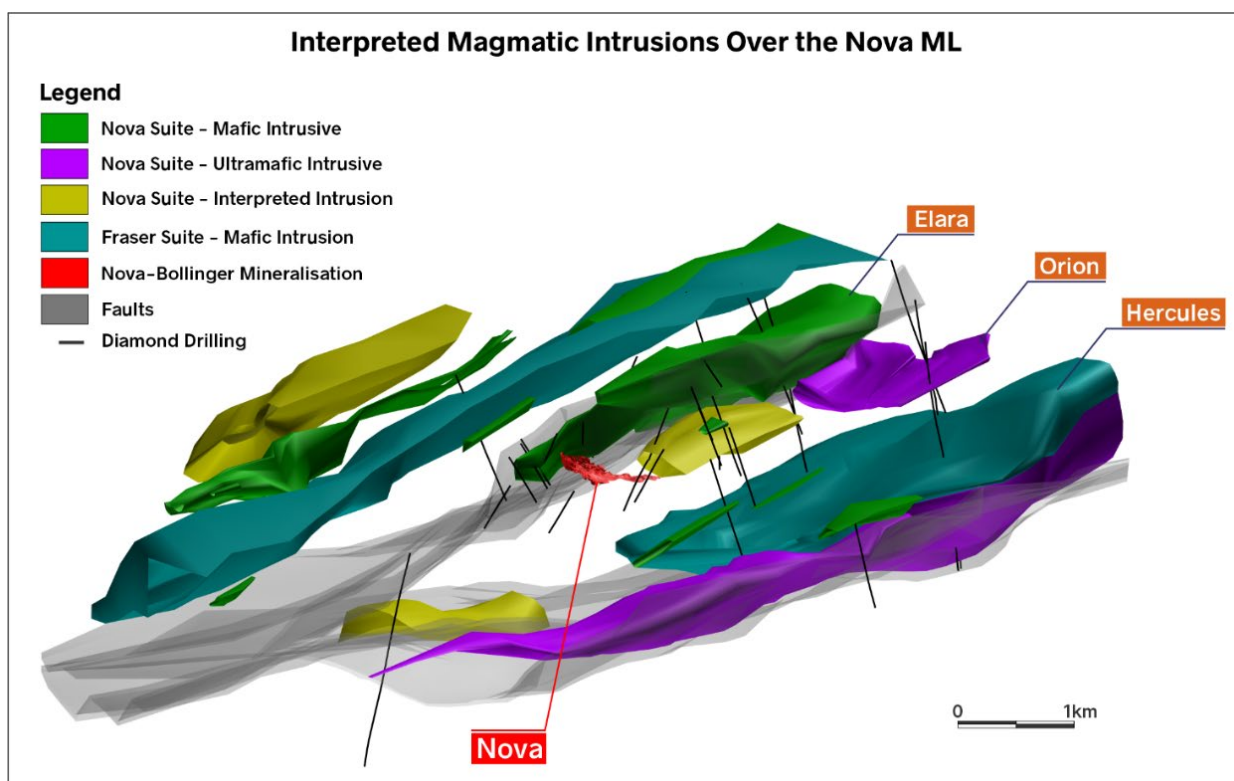


**Figure 5 – Near Nova Target Map**

A discovery in this area would be within feasible ore trucking distance to IGO's Nova Operation. Nova Near Mine targets have been generated from datasets that include soil geochemistry, AC drilling, MLEM and 3D seismic surveys. IGO has prepared a robust 3D model of the Nova Mining Lease and its immediate surrounds from the 3D seismic dataset and deep DD drilling. This modelling has identified a series of stacked, fertile, mafic and UM intrusions within a structurally complicated architecture that would have been impossible to identify using conventional near surface exploration methods (Figure 6).

The drilling of the larger intrusions identifiable in the 3D dataset reveals that they have textural and compositional similarities to the Nova Upper Intrusion, which is spatially immediately above the mineralised Nova Intrusion. These larger intrusions are linked by smaller intrusions that host minor to blebby nickel-copper sulphides throughout. The targets are difficult to identify in the seismic data, but

they are also the most likely places to find mineralisation. Identifying targets such as Elara, Hercules, Zeus, Double Dipper, Phoenix, Western Eye and more recently Orion from the 3D seismic data justifies an ongoing, deep exploration effort in this area.



**Figure 6 – The Nova Near-mine 3D intrusion model (looking downward towards North)**

Further afield, IGO have generated and tested several targets using conventional AC drilling and MLEM. Current prospective targets include the Chimera and Kaon 2 prospects.

New JVs and option agreements adjacent to the Nova Mining Lease, including the recently concluded transaction with Boadicea Resources (BOA), ensure that IGO have a pipeline of near mine targets for the foreseeable future.

### **Orion Prospect**

The Orion Prospect is just 3km NE of Nova Operation and is a highly prospective polyphase sulphide-bearing mafic-UM intrusion that exhibits textural and lithological features indicative of a productive nickel copper-sulphide-hosting chonolith (tube-like intrusion). The chonolith intrusion has been intercepted in multiple DD holes that constrain the morphology of the intrusion to over ~1,000m in strike and from ~80m to ~250m in diameter. Modelling of drilling and 3D seismic data shows the chonolith following a fold hinge, intruding into a chemically reactive carbonate unit.

The chonolith is both laterally and vertically zoned comprising variably contaminated gabbro-norite, olivine-bearing websterite and thin cumulate norites (Figures 7 and 8). Blebby, multiphase magmatic sulphides (pyrrhotite-pentlandite-chalcopyrite) are present in the intrusion with sulphide content increasing towards the northeast. The sulphides are concentrated on internal contacts and at the base of the intrusion where stringers are present. Importantly, calcite-filled cavities occur with some sulphide blebs providing strong evidence that a mechanism to enhance sulphide droplet accumulation within the melt has occurred. The observed lateral zonation in the chonolith is accompanied by increases in nickel



and copper sulphide tenors (grade of the sulphides) that suggest that the intrusion is becoming more dynamic and therefore more prospective for nickel-copper mineralised systems towards the northeast.

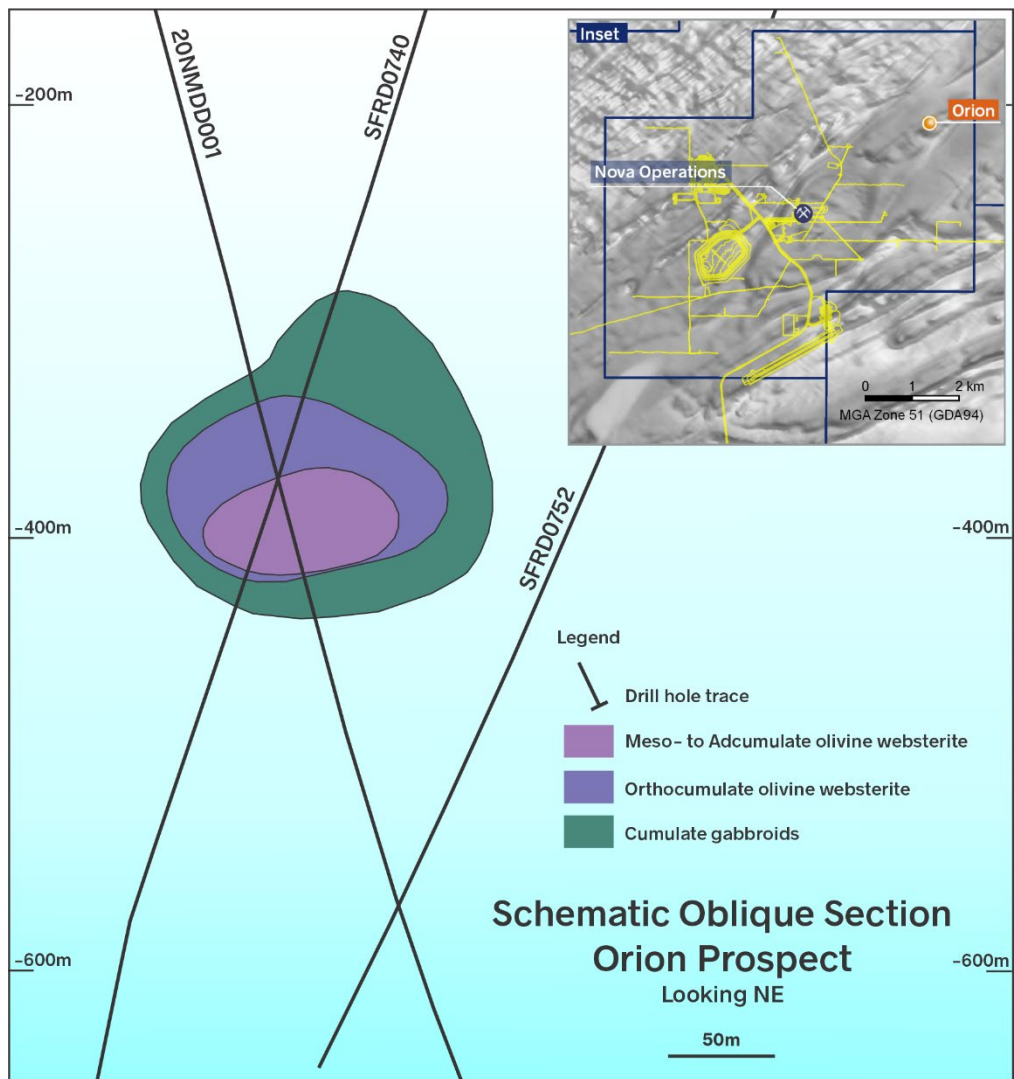


Figure 7 – Cross section through the Orion chonolith

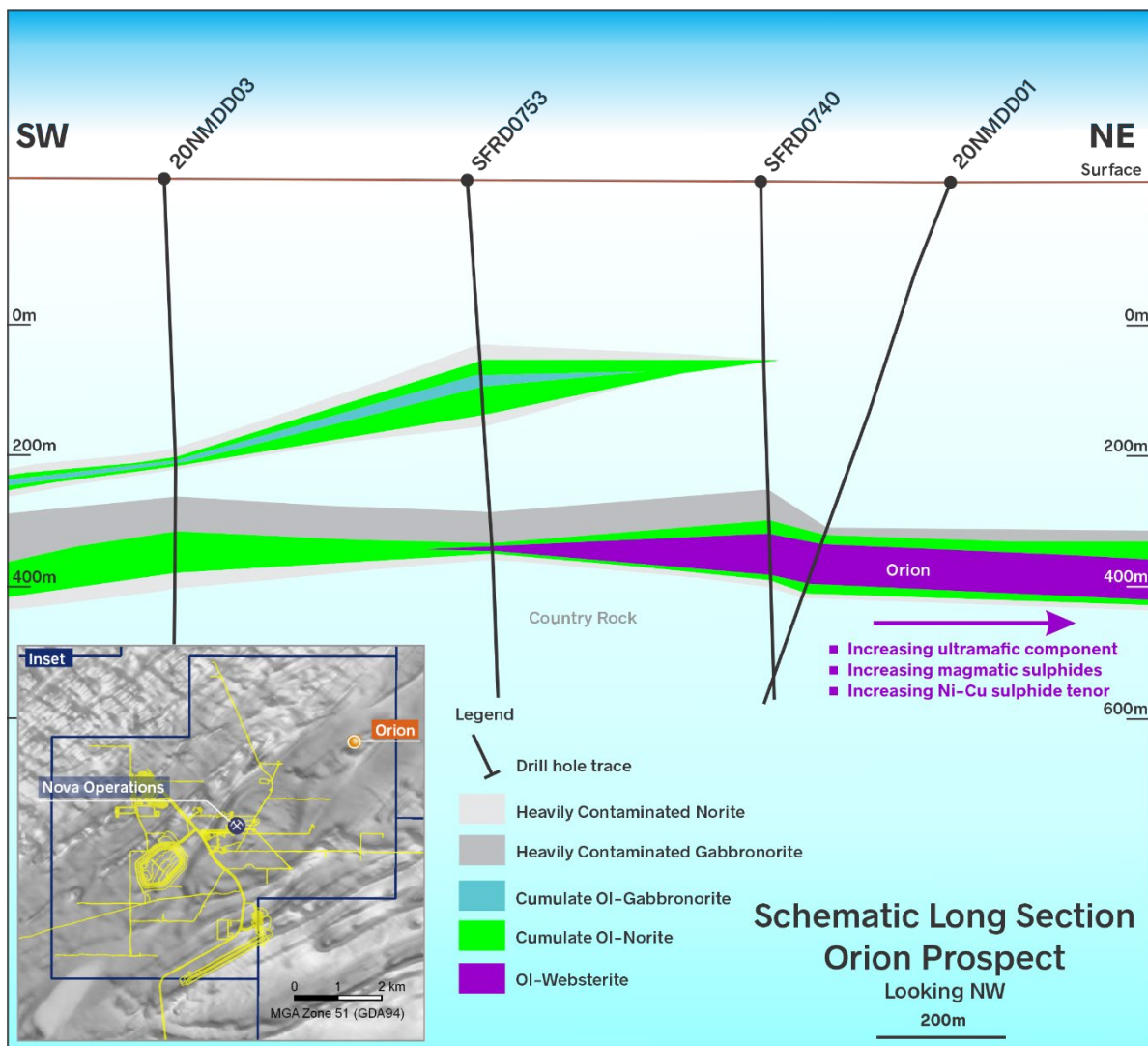
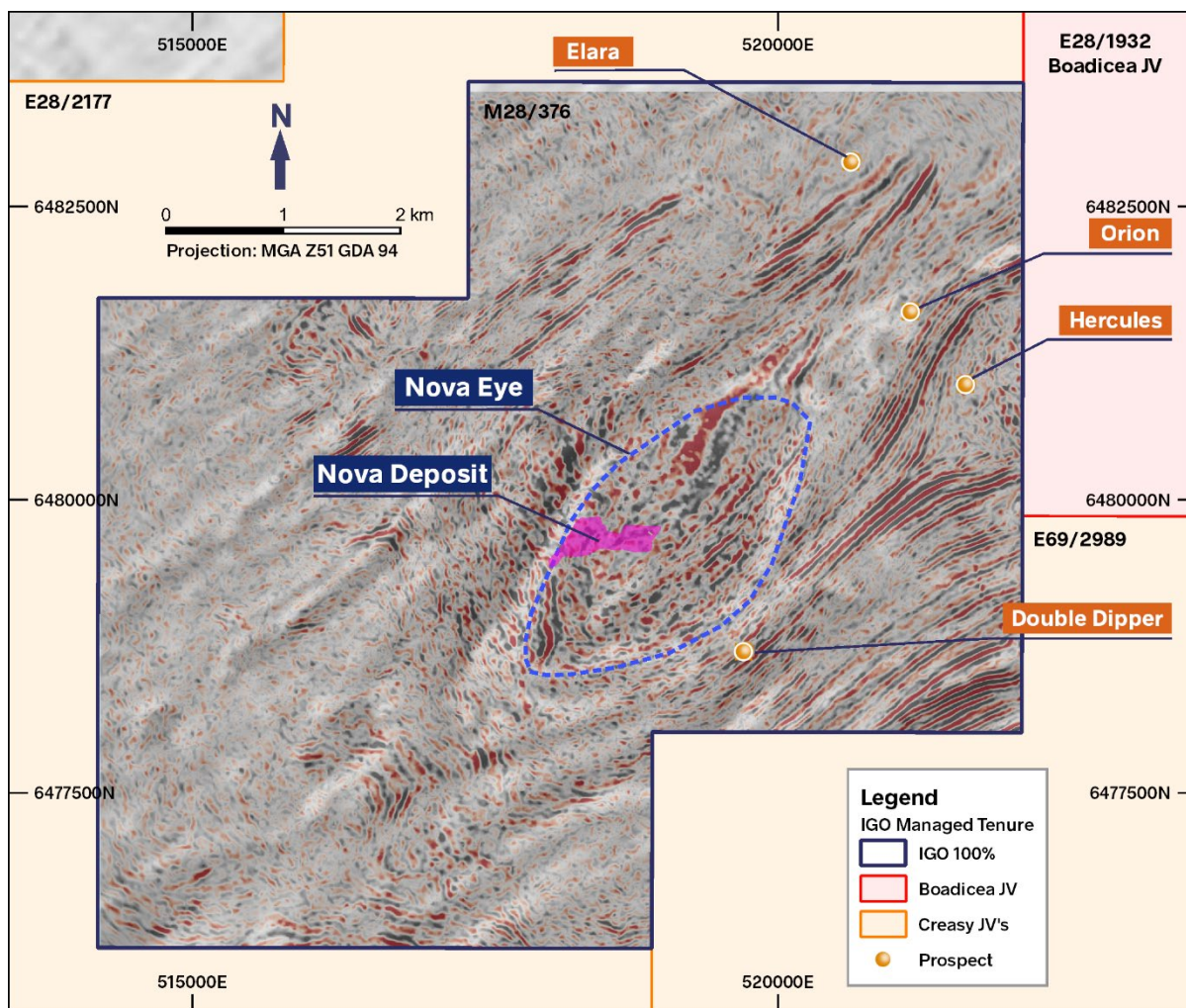


Figure 8 – Long section through the zoned Orion chonolith

### Elara and Hercules Prospects

Elara and Hercules prospects contain large, tabular, layered mafic-UM intrusions comprising modally layered mafic and UM cumulates (>600m thick, >1,000m wide and >3,000m long). Both are readily identifiable in the 3D seismic data as presenting as a large portion of a distinct eye-feature that has the same geometry, size and lithological characteristics as the Nova Eye geophysical feature (Figure 9).

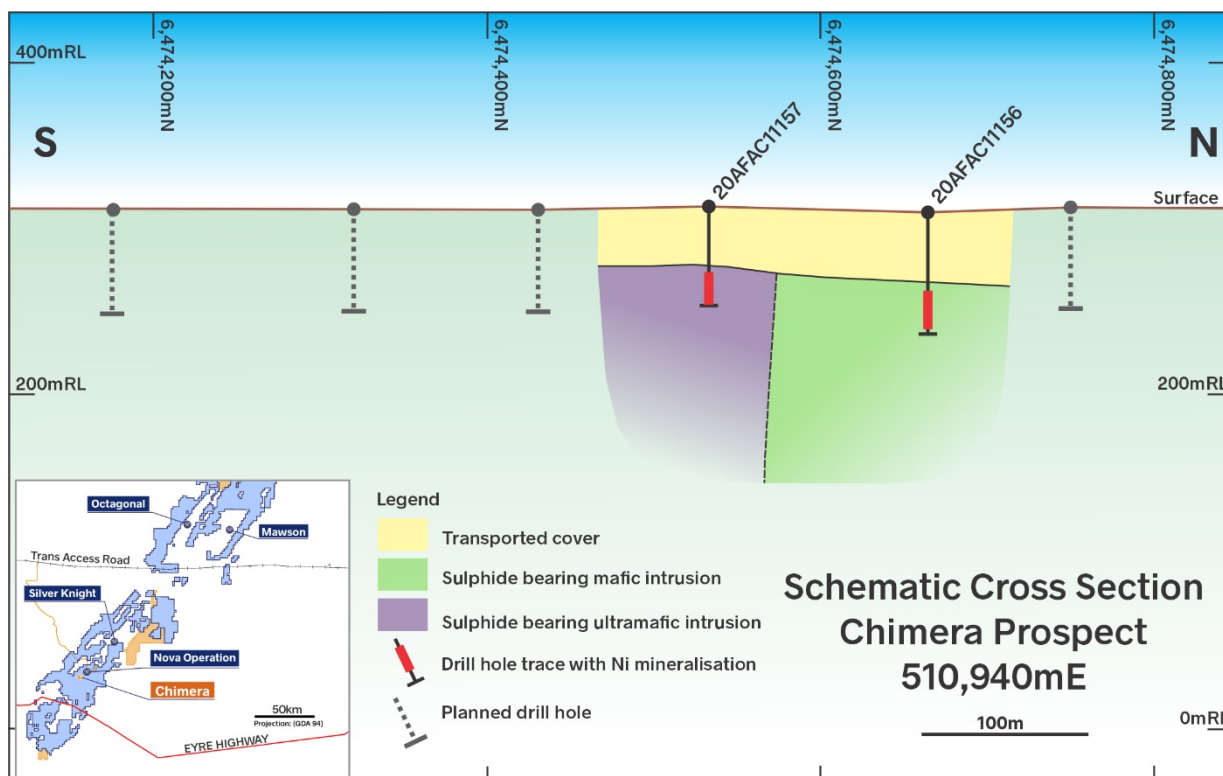
Diamond drilling has intersected blebby magmatic sulphides (pyrrhotite-pentlandite-chalcopyrite) and veins up to 20cm thick are present within the ultramafic layers and tend to be of medium tenor (nickel tenor up to ~3-4% Ni, Cu tenor of ~1-2% Cu). The geometry and internal layering of the intrusion suggest that the Elara and Hercules intrusions are not the principal target on the Nova Mining Lease, but the presence of blebby and vein sulphides associated with the mafic phases in the intrusion indicate that narrower intrusions that feed into these intrusive bodies, such as Orion, are valid targets that need to be tested.



**Figure 9 – A seismic depth slice over the Nova Mining Lease at 1,000m into the 3D seismic cube showing the very distinct Hercules Eye and its proximity to the Orion prospect. The seismic data is draped over a grey scale total magnetic intensity (TMI) aeromagnetic image that outlines the Nova Eye for comparison.**

### Chimera Prospect

The Chimera Prospect is 9 km to the southwest of IGO's Nova Operation and is characterised by low-level nickel-copper anomalism in highly prospective mafic and UM intrusive rocks (Figure 10). A first-pass AC program in early 2020 identified the intrusive complex and AC results demonstrated that the nickel and copper concentrations of the complex are like those that occur in the intrusion above the Nova- Bollinger deposit.



**Figure 10 – Cross section through the Chimera prospect where aircore drilling has intersected promising nickel and copper anomalism in shallow AC drill holes.**

The geochemical results are associated with polyphase magmatic sulphides, including chalcopyrite (copper sulphide) and pentlandite (nickel sulphide). A forty-hole AC program is planned for FY21 to further define the Chimera “eye structure” on a 250m × 250m grid. Results from the AC drilling will be used to direct a pending DD program.

## **Kaon 2 Prospect**

Kaon 2 Prospect is approximately 10km SW of Nova and is characterised by a thick taxitic cumulate gabbronorite and olivine-bearing norite intrusion complex containing low to moderate tenor disseminated, net-textured and semi-massive pyrrhotite-pentlandite-chalcopyrite sulphides over narrow intervals.

The prospect was initially identified by systematic AC drilling in 2019 and a follow-up MLEM survey identified a deep-seated conductor. Four DD holes testing the intrusive complex up to 1,200m found that the basal contact of the intrusion preserves evidence of local assimilation of sulphidic metasediments, including the local pooling of multiphase sulphides. While these highly encouraging characteristics that strongly suggest that Kaon 2 is capable of hosting massive nickel-copper sulphides the target is unfortunately beyond the depth detection capabilities of our MLEM instruments.

Future drilling programs will continue to constrain the morphology of the intrusive complex and follow up the semi-massive and net texture sulphides which are fundamental vectoring tools towards the most prospective part of the intrusion in the absence of effective EM data.

## Southern Hills Project Area

The Southern Hills Project Area is south of the Eyre Highway, 35km SSW of Nova. The area has had almost no exploration for two years while the Company has negotiated access with local landowners, completed flora surveys in the Southern Hills Protected Environmental Community to comply with DBAC requirements, and waited for COVID-19 restrictions to be lifted that allow a recommencement of heritage surveying.

The area is considered highly prospective for magmatic nickel-copper sulphide mineralisation with several mafic and UM intrusions known to occur in the area, with many apparently controlled by the regionally significant Symons Hill Shear Zone. Several AEM and soil geochemistry anomalies identified prior to 2018 require follow-up by on-ground MLEM surveying and AC drilling. There are more than 30 geophysical or geochemical anomalies, including AEM anomalies that have yet to be followed-up (Figure 10), some of which include:

- Scorpio: a 1,000S conductive geophysical plate coincident with an area of low-level nickel-copper soil anomalism identified after following-up two closely spaced AEM anomalies
- Central WMA: a strong gold-in-soil anomaly broadly coincident with a mafic intrusion and two low grade AEM anomalies
- Red Bull 1 and 2: a series of coincident magnetic lows and gravity highs, some known to be caused by UM intrusions
- Harms Lake: a large area comprising anomalous nickel  $\pm$  copper in soil coincident with a complex magnetic and gravity signature beneath relatively thick transported cover

Some of the more compelling prospects in the Southern Hills project area include Rogue, Carina, South Central Snowy's, Leo, Crux, Talbot and Centauri (Figure 10):

### Rogue Prospect

The Rogue Prospect is represented by a series of untested AEM anomalies that are coincident with a soil copper anomaly. These anomalies are located near the Symons Hill Shear Zone that controls the location of other mafic and UM intrusions at Talbot and Talbot South. A deep penetrating MLEM survey is required to confirm the AEM anomalism.

### Carina Prospect

The Carina Prospect is represented by a gossanous manganese-rich rock coincident with a cluster of three AEM anomalies. Seven gossan samples analysed contain highly anomalous cobalt, zinc, copper, nickel and gold concentrations, which are consistent with results from sulphidic metasediments. However, a limited AC drilling program on 400m-spaced collar intervals intersected gabbro-norite on either side of the gossan and a circular magnetic feature immediately east of the AEM anomalies is coincident with a local gravity high. The presence of mafic intrusions adjacent to a sulphidic metasediment and proximal to the Symons Hill Shear Zone warrants systematic follow-up with MLEM and diamond drilling.

### South Central Snowy's Prospect

The South Central Snowy's Prospect is near to the Browns Dam Shear Zone, which at this location demonstrates a significant jog that appears to have helped facilitate emplacement of a large, late-stage intrusion represented by a large magnetic low coinciding with a modest gravity response. Elevated nickel concentrations in soil samples are consistent with those that lead to the discovery of Nova-Bollinger and fringe the magnetic feature, but these are being treated with caution owing to the

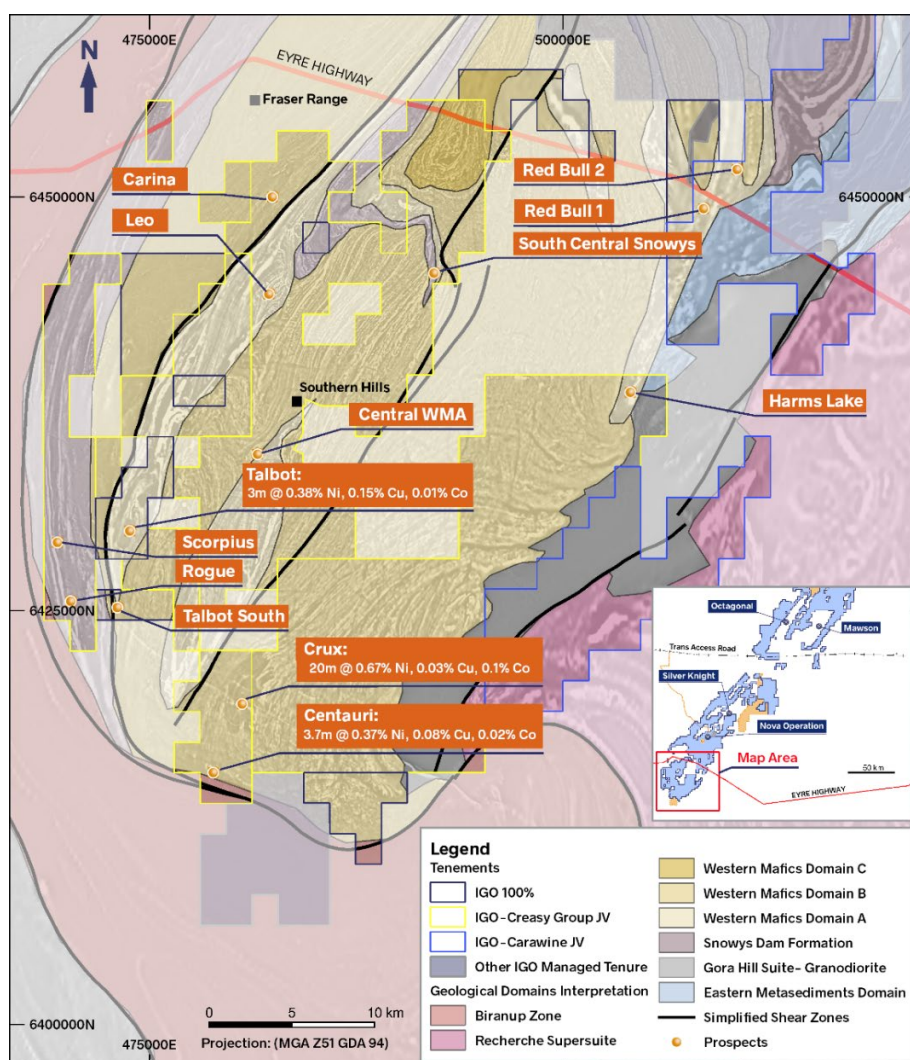
moderate depth of cover in this area. IGO intends to test this prospect with a MLEM survey and an AC drilling program both testing for massive sulphides in mafic and UM intrusion.

### Leo Prospect

The Leo Prospect covers an area that includes the Symons Hill Shear Zone, multiple magnetic anomalies (some of which are related to mafic intrusions) with coincident surface nickel-copper anomalies that fringe a large mapped mafic intrusion, and a late-time AEM anomaly. A Low Temperature Squid MLEM survey is required to resolve the coincident anomalism at this prospect.

### Crux, Talbot, Talbot South and Centauri

The Crux, Talbot, Talbot South and Centauri prospects are all mafic-UM intrusive suites that were extensively drill tested by previous exploration companies. Deep DD and RC drill holes intersected rock types very similar to those from Nova-Bollinger, but massive sulphide accumulations remained elusive despite some encouraging intersections (Figure 11).



**Figure 11 – A geological map overlying a greyscale TMI aeromagnetic image of IGOs tenements within the Southern Hills project area showing some anomalies and the most advanced targets that require follow-up in the area. The included drill intercept results were reported to the ASX in 2015<sup>1</sup>.**

<sup>1</sup> ASX Announcement, 17 July 2015, Sirius Resources NL - "June 2015 Quarterly", and Newmont Mining 1969 Annual Progress Report to GSWA "Fraser Range Project (A402, M157)".



Surface MLEM and DHEM surveys completed by the previous explorers failed to identify any conductor that could represent massive sulphide accumulation, but IGO's in-house modelling suggests that the depth of investigation was <400m below surface. IGO intends to revisit these prospects in FY21 with a Low Temperature SQUID EM system capable of detecting conductive bodies up to 1,000m below the surface. Significant conductors detected by this survey will be tested with diamond drilling.

## Bunningonia Project Area

The Bunningonia Project covers a large area of the AFO from the Trans Australian Rail Line to the Ecliptic prospect approximately 35km northeast of Nova Operation. The project area is highly prospective and hosts mafic and UM intrusions with nickel copper mineralisation (such as Silver Knight<sup>2</sup>, Lantern<sup>3</sup> and Mammoth<sup>4</sup>), Volcanogenic Hosted Massive Sulphide deposits such as Andromeda<sup>5</sup>, and paleochannel-hosted gold mineralisation such as Themis<sup>6</sup>.

### Ecliptic Prospect

The Ecliptic Prospect is located 33km to the north east of IGO's Nova Operation and 1.5km south of the Silver Knight deposit. Multiple mafic and ultramafic intrusions that are geologically and geochemically comparable to the intrusions that host the Nova-Bollinger deposit have been intersected during AC, RC and DD campaigns. Several of these intrusions host polyphase magmatic sulphides typical of those found proximal to massive sulphide mineralisation. These intrusions are interpreted to be related to the same intrusive event that formed the Silver Knight deposit. Electromagnetic surveys at Ecliptic have so far failed to identify any large-scale conductors consistent with massive sulphides. However, the mineralisation identified to-date does indicate that sulphide accumulations at Ecliptic have a high nickel and copper tenor which indicates that both small pods of massive sulphide mineralisation and associated non-massive sulphide mineralisation could be economically viable at this prospect if found together with sufficient volume.

### Sabretooth & Thylacine Prospects

The Sabretooth and Thylacine prospects are 42km NNE of IGO's Nova Operation. Sabretooth is a broad, nickel-copper-cobalt soil geochemical anomaly associated with a series of mafic intrusions. The prospect covers approximately 3km of prospective stratigraphy. The intrusions lie along the same stratigraphic trend as the Mammoth nickel-copper occurrence, which is 10km along strike to the north. Two untested Versatile Time Domain Electromagnetic (VTEM) anomalies occur adjacent to the Sabretooth intrusions. The Thylacine Prospect is located 3km to the south of, but within the same stratigraphic horizon that hosts Sabretooth. The anomaly is smaller than Sabretooth, but nickel, copper and cobalt concentrations are strongly anomalous. This anomalism is also proximal to an untested VTEM anomaly and a discrete magnetic feature that has a similar signature to the Mammoth nickel-copper mineralisation. Both Sabretooth and Thylacine will be tested with a high-powered MLEM survey in FY21.

## Kanandah Project Area

The Kanandah project area (Figure 12) abuts the translithospheric Boonderoo Shear Zone on the eastern margin of the Fraser Zone that extends for approximately 30km along the same gravity ridge that hosts Legend Mining's Mawson nickel-copper discovery. Aeromagnetic data reveals a structurally complex area comprising tight folding, eye features and major faults. Wide-spaced AC drilling at Kanandah has identified moderate to very thick transported cover, ranging from 49m to 201m, and

<sup>2</sup> Refer to Mineralisation Report published by Great Southern Nickel Pty Ltd in support of a Mining Lease Application

<sup>3</sup> ASX Announcement, 17 March 2020, Galileo Mining - "Nickel Sulphide Discovery at Lantern Prospect, Fraser Range"

<sup>4</sup> ASX Announcement, 12 December 2013, Classic Minerals - "New Nickel-Copper Mineralised Horizon Discovered on Fraser Range"

<sup>5</sup> Refer ASX Release: 20 February 2019, IGO - "Annual Mineral Resource and Ore Reserve Statement"

<sup>6</sup> ASX Announcement, 6 October 2020, Rumble Resources - "16m @ 6.69 g/t Gold Intersected at Fraser Range"

averaging 103m. Nevertheless, prospective intrusions including norite, gabbronorite, anorthosite and pyroxenite have been intercepted and this resulted in the completion of multiple MLEM surveys and an interpretation of all available geophysical datasets. Key prospects to arise from this work include Hook, Pike-Eye, Titan and Old Soldiers.

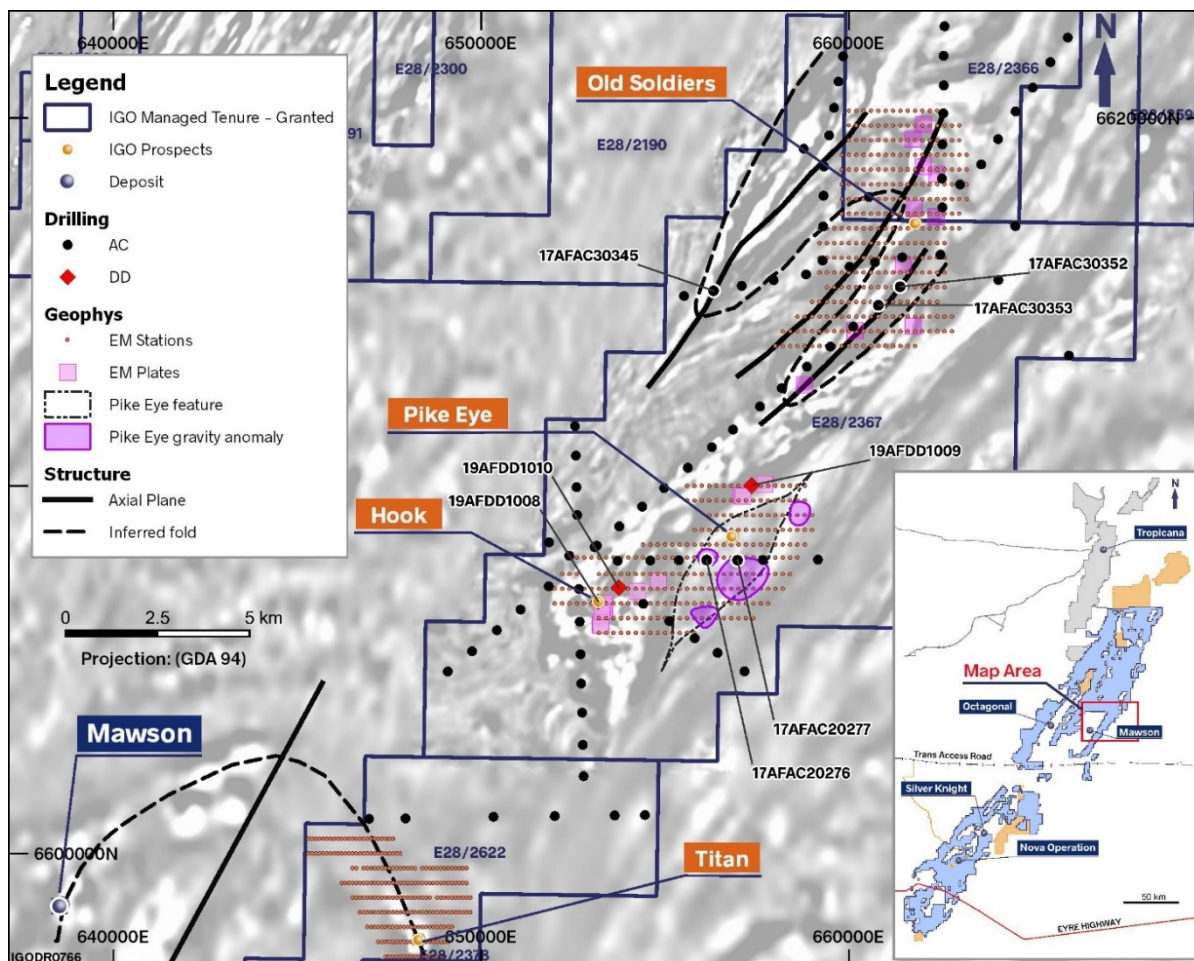


Figure 12 – Kanandah project area showing IGO tenements and drill ready targets relative to the Mawson nickel-copper discovery. Background image is greyscale TMI aeromagnetics.

## Hook Prospect

The Hook prospect occurs at the southern end of a complex fold hinge inferred from regional aeromagnetic surveys. Two DD holes at Hook in 2019 tested a 7,000S conductive plate that coincided with highly anomalous copper and zinc concentrations identified by earlier AC drilling. The drilling identified a complex stratigraphy of pelitic metasediments, including almost 20m of graphite and sulphide-bearing metasediments that overlie mafic rocks with concentrations up to 12% MgO. The 7,000S EM response detected from surface is attributed to the graphitic metasediments, however, an 18,000S off-hole conductor has been identified by down-hole electromagnetics (DHEM), 100m beyond the end-of-hole and this target remains untested. The presence of mafic intrusions within reduced sulphidic metasediments towards the end of hole where a large off-hole anomaly is located is significant.

## Titan Prospect

Titan Prospect is a discrete, coincident magnetic and gravity target on an inferred fold limb shared by the Mawson nickel-copper discovery that is 9km to the east. Titan is represented by a 2,000m × 800m coincident magnetic and gravity anomaly. The core of the gravity anomaly lies between 350 and 500m



depth and has a gravity density of 3.2 mgal, which is similar in magnitude to the Mawson anomaly originally targeted by Legend Mining. AC drilling around the Titan anomaly has identified a thick blanket of transported cover that has prevented effective testing by MLEM. However, the presence of mafic and UM intrusions in some of the AC drill holes near Titan and along strike at the Hook prospect has upgraded the nickel-sulphide potential of the area.

### **Pike Eye**

The Pike Eye Prospect is an elliptical magnetic feature with the same dimensions as Nova-Bollinger and Silver Knight that occurs along strike from Mawson. The basement geology of Pyke Eye lies beneath 100m of transported cover and is therefore poorly understood. However, two 2km-spaced AC drill holes within the eye have intersected mafic intrusions, and diamond drilling outside the eye has intersected reactive metasediments that are known to be conducive to hosting intrusions with magmatic nickel deposits. A 7,000S conductive plate identified on the western side of the eye feature will be diamond drill tested in FY21, as will a large gravity anomaly that potentially represents a mafic/UM intrusion on the eastern side of the eye. An AC drilling campaign is required over the entire eye feature to define the extent and geochemistry of the mafic-UM intrusions that occur there.

### **Old Soldiers**

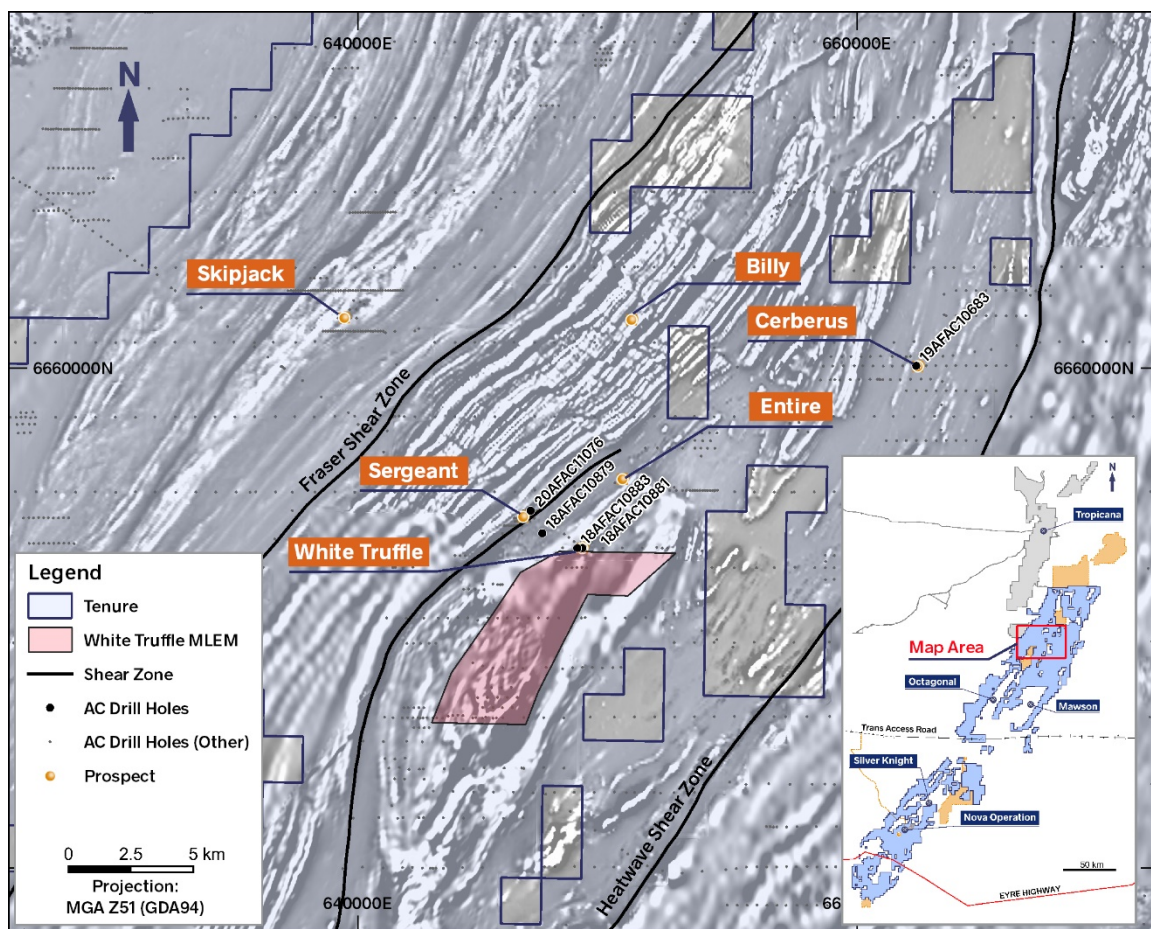
The Old Soldiers Prospect is at the northern end of the same gravity feature that hosts the Mawson discovery. It is a structurally complex area of tightly folded metasediments that MLEM surveying has shown to comprise many stratigraphic conductors that can mask massive sulphide mineralisation in mafic-UM intrusions. Multiple mafic intrusions have already been intersected in >1km spaced AC drill holes within the same fold planes as the EM conductors. The area has many similarities to early work completed at the Mawson Prospect and IGO's FY21 field season will focus on increasing the AC drilling density to identify the extent of mafic/UM intrusions. DD will be utilised to test any favourable results for the presence of massive sulphides.

### **Waddy Area**

The Waddy Area is a complexly deformed region in the northern AFO that is dominated by a large elliptical feature that comprises multiple mafic-UM intrusions hosted by reactive metasediments like those observed at Nova-Bollinger (Figure 13). IGO considers the area to be highly prospective for nickel-copper sulphide mineralisation having identified several prospects within and around this feature. Among the most significant prospects are White Truffle, Sergeant, Billy, Entire and Cerberus. AC drilling and MLEM surveys are ongoing in this area to identify new targets for follow-up by diamond drilling.

### **White Truffle Prospect**

The White Truffle Prospect is a deeply buried mafic-ultramafic intrusive complex that has many similarities with early results from Nova-Bollinger. AC drilling has identified UM intrusions below >100m of transported cover at the end of multiple drill holes. Some of the UM intrusions contain highly anomalous nickel concentrations and coincide with a moderate gravity anomaly within what appears to be the axis of a synformal fold bounded by translithospheric shear zones. Petrographic description of thin sections prepared from drill cuttings has identified serpentinised cumulus dunite with preserved olivine, which are the closest analogue to the Upper Nova Intrusion identified so far in the northern part of the Fraser Range. New MLEM results are currently being interpreted.



**Figure 13 – Waddy Area showing drill targets defined using MLEM. The large White Truffle target is being tested by a 400m × 400m MLEM survey. Background image is greyscale TMI aeromagnetics.**

## Billy and Entire Prospects

The Billy and Entire prospects are EM conductors that were confirmed by MLEM surveys following up AEM anomalies identified in 2018 and 2019. IGO has modelled multiple conductors in this area, among which Billy (600m × 200m; 1,600S) and Entire (650m × 160m; 1,800S) are the best constrained in size and have a conductance consistent with massive sulphide accumulation. These two prospects are being diamond drill tested in the December 2020 quarter.

## Cerberus Prospect

The Cerberus Prospect is the latest addition to the Waddy Area. Located approximately 15km northeast of White Truffle, Cerberus is IGO's first and most exciting hydrogeochemical anomaly that is not on the Nova mining lease. Groundwater has been collected from AC drill holes along the AFO for the past four years and the water data has been interpreted in-house with regular consultation with CSIRO.

The Cerberus water sample is strongly anomalous in nickel, copper and cobalt, with concentrations being equal to or better than those that occur around Nova-Bollinger. The coincident nickel-copper-cobalt anomaly at Cerberus suggests that the groundwater in this area has interacted with sulphides of the same chemistry. An infill AC drilling program is currently underway to identify the source rocks that were not seen in the original wide-spaced drill program but could be near-by, and a MLEM survey is planned to cover the prospect later this year.

## **Skipjack Prospect**

The Skipjack Prospect was identified by a MLEM survey completed in FY20 following up mafic lithologies intersected by AC drilling in FY18. A single conductor (4,400S) was modelled and presents as potential massive sulphides accumulated at the base of a mafic intrusion. A DD hole tested this target in October, with assay results pending.

## **Heatwave Project Area**

The Heatwave Shear Zone (HSZ) is in the northern half of the AFO and runs sub-parallel to the major northeast-trending Fraser Shear Zone to the west and the Boonderoo Shear Zone to the east. The HSZ can be traced through the entire northern half of IGO's tenure and appears to be a favourable structure controlling the emplacement of mafic and UM intrusions. Recent and historic drilling along the HSZ has identified several intrusions, including some highly prospective UM intrusions that host finely disseminated sulphides that are anomalous with nickel and copper. The Mahi Mahi, Area N, Caldwell and Blowfish prospects are the most advanced prospects along this trend.

## **Mahi Mahi / Area N Prospects**

Mahi Mahi and Area N have been systematically tested by MLEM and diamond drilling. Electromagnetic conductors at both prospects were found to be graphitic metasediments, but the drill holes also intersected mafic and UM intrusions with highly anomalous nickel concentrations and require follow up work. Hootie and Blow Fish will be tested by a MLEM survey which is planned for FY21.

## **Caldwell Prospect**

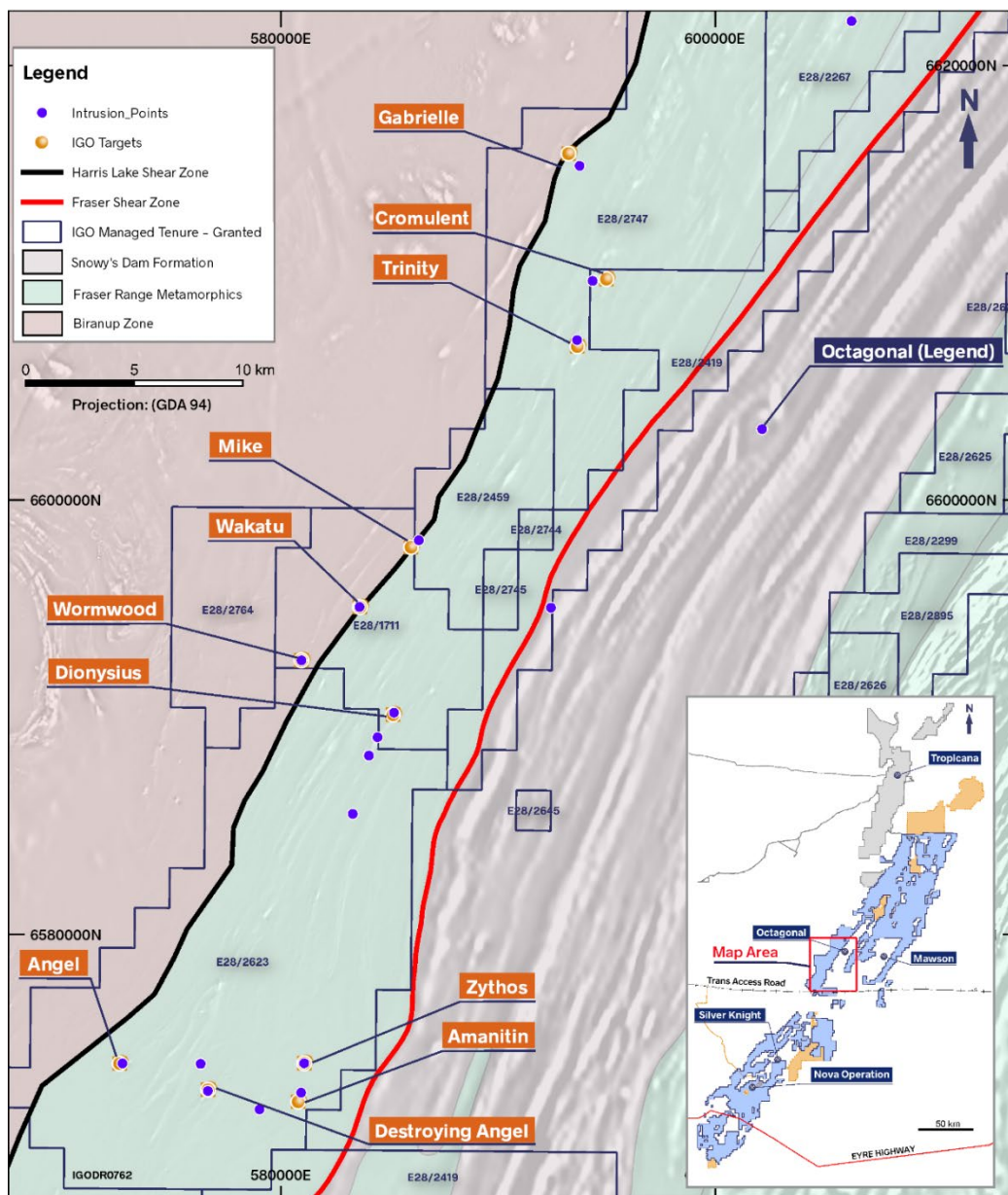
The most recently added prospect within the Heatwave Project is Caldwell. This prospect is located ~4km to the east of the HSZ. Wide-spaced AC drilling targeting a coincident gravity-high and a discrete magnetic low has encountered several mafic intrusions that have geochemical signatures that indicate good fertility for Ni sulphides. Planning is now underway for a MLEM survey over this prospect area to identify the presence of any underlying basement conductors suggestive of magmatic nickel sulphide mineralisation.

## **Blowfish Prospect**

The Blowfish target is defined by a 7,000S near vertical 50 × 50m modelled EM plate surveyed in 2019. The target is located approximately 2km east of the Heatwave Shear Zone. Aircore drilling conducted in 2017 identified two intrusions with highly anomalous nickel and copper in an ultramafic intrusion having MPIs almost identical to the Nova intrusions.

## **Central Western Project Area**

The Central Western Project area occurs just north of the Trans-Australian Rail Line within IGO's western-most tenements (Figure 14). These tenements are bound by the Harris Lake Shear Zone (HLSZ) to the west and the Fraser Shear Zone (FSZ) to the east. Deep, 2D seismic data indicates that both structures are linked at approximately 20km depth and are major translithospheric structures that could have provided passageways for mafic and UM intrusions. The FSZ has long been favoured as a controlling structure responsible for the location of Nova-Bollinger, Silver Knight and Octagonal.



**Figure 14 - The Central Western project area is between the Harris Lake Shear Zone and the Fraser Shear Zone, both inferred from seismic data to be mantle tapping structures that control the emplacement of intrusions. The blue points are identified mafic-ultramafic intrusions. Background image is greyscale TMI aeromagnetics.**

IGO has redefined the location of the HLSZ based on a reinterpretation of its regional AC drilling, AEM, detailed aeromagnetic data and the 2D seismic data, shifting it further west and thereby increasing the area within which the prospective Fraser Zone host metasediments occur. A second-pass AC drilling campaign based on this reinterpretation is now completed as a follow up on the previous, wide-spaced drilling results.

IGO's exploration efforts in the Central Western Project have been rewarded with the identification of several prospective mafic-UM intrusions along the targeted metasedimentary corridor that extends north-to-south for at least 50km. AC drilling in 2020 has confirmed the presence of several mafic-ultramafic intrusions as shown in Figure 16. Drillhole assays are pending for most of these drill holes, but future work in this area will likely include targeted MLEM and further infill aircore drilling to follow up the clustering of mafic-UM intrusions.



One cluster of mafic intrusions at the Gabrielle anomaly was found to be coincident with a 9,000S EM conductor at the northern end of the Central Western Project. AC drilling at Gabrielle identified chalcopyrite stringer veins 450m to the west of the EM conductor, and anomalous nickel, copper and cobalt occurs in a mafic intrusion 650m to the east. DD holes at Gabrielle intersected a thick sequence of graphite and pyrrhotite-bearing metasediments, which are responsible for the EM response that was targeted. However, as Gabrielle is structurally complicated and coincides with multiple stratigraphic conductors and mafic-ultramafic intrusions exploration work will continue here in FY21 despite the initial negative drill results.



## **COMPETENT PERSON'S STATEMENTS**

Any references to IGO Mineral Resource and Ore Reserve estimates should be read in conjunction with IGO's Annual Update of Exploration Results, Mineral Resources and Ore Reserves dated 30 January 2020 (Annual Statement) and lodged with the ASX for which Competent Person's consents were obtained, which is also available on the IGO website.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original ASX announcements released 12 December 2013, 17 July 2015, 20 February 2019, 17 March 2020, 6 October 2020 and, (i) in the case of estimates or Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the original ASX announcement continue to apply and have not materially changed, (ii) the Competent Person's consents remain in place for subsequent releases by the Company of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent, and (iii) the form and context in which the Competent Person's findings are presented have not been materially modified from the original ASX announcement.

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