MATERIAL INFORMATION SUMMARY

A Material Information Summary pursuant to ASX Listing Rules 5.8 and 5.9 is provided below for the Waihi Projects resource and reserve estimates. The Assessment and Reporting Criteria in accordance with JORC Code 2012 is presented in Appendix 1.

1.0 Waihi Projects

The Waihi operation is located 142 km Southeast of Auckland in the Township of Waihi, Hauraki, New Zealand. The Waihi township is known as a gold mining town and has a notable history gold production. Open pit mining commenced at the site in 1988 with the first ore processed in that year and underground mining commenced in 2004 with the extraction of ore commencing in late 2006. The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to operate the Martha open pit and the Correnso underground mine.

The Waihi Projects comprises several areas of mineralization, which are at different stages of development. The major components are the Martha Underground Project, the Correnso underground mining operation, the Martha pit and the Wharekirauponga (WKP) Project.

The Martha Underground project and Martha Phase 4 pit were successfully consented in January 2019, this project relates directly to the mineralisation contained within the Martha vein system beneath the companies open pit mine within the Waihi Township.

WKP is located 10 km north of the Township of Waihi, Hauraki, New Zealand. The WKP Project is a high grade, low sulphidation epithermal vein gold-silver deposit hosted within a Miocene rhyolite dome complex.

The Correnso project including subsidiary veins is in the mature production phase. This underground mine is comprised of the main Correnso vein, the Daybreak and Empire veins and are referred to collectively as the Correnso Project.

The Martha pit is in the detailed planning phase for the recommencement of operations to complete a remedial cut to the north wall to recover the Ore Reserve, termed Martha Phase 4 and;

The Gladstone Project is based on a conceptual open pit centred around the Gladstone hill and Winner hill area. The resource model describes the mineralisation within Gladstone and Winner hills and includes part of the Moonlight orebody, depleted for underground mining.

2.0 Geology and Geologic Interpretation

The major gold - silver deposits of the Waihi District are classical low sulphidation adularia-sericite epithermal quartz vein systems associated with north to northeast trending faults. Larger veins have characteristically developed in dilational sites in the steepened upper profile of extensional faults with narrower splay veins developed in the hanging wall of major vein structures. Figure 1 shows a general geology plan of the Waihi epithermal gold-silver mineralised vein system that is hosted in Miocene andesite lavas beneath the Waihi township area.

Host andesitic volcanics have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy. Characteristic alteration assemblages include quartz, albite, adularia, carbonate, pyrite, illite, chlorite, interlayered illite-smectite and chlorite-smectite clays extending over tens of metres laterally from major veins. There is also an association of quartz + interlayered chlorite-smectite (corrensite) + chlorite, producing a distinctive pale green colouration. Mineralization is structurally controlled.

Gold-silver mineralisation occurs in localized bands within multiphase quartz veins. There is an association of sphalerite, galena and chalcopyrite with gold-silver mineralisation throughout the deposit. Parts of the deposit towards the base are base metal rich with galena (up to 3% lead) and sphalerite (up to 1% zinc).

Low sulphidation epithermal quartz veins at WKP are hosted in a rhyolite flow dome complex with overlying and interfingering lithic lapilli tuffs which are in turn partially overlain by post-mineral andesites. The rhyolites have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy by quartz and adularia with minor illite and/or smectite clay alteration. The vein system lies within, NNE trending magnetic low, which likely represents a combination of weakly magnetic primary lithology and magnetite-depleted hydrothermally altered lithologies. The well-defined edges of this magnetic low to the SE and NW suggests it represents a NE trending district-scale graben

The geologic interpretation processes utilised in construction of all Waihi Models utilises log data, assay data, underground face and backs mapping and, where available, digital core photos and oriented core measurements, all of which are systematically collected and validated. The dip and dip direction of significant veins, faults, bedding and geological contacts are estimated from oriented core measurements.

Figure 1: Project Geology Plan

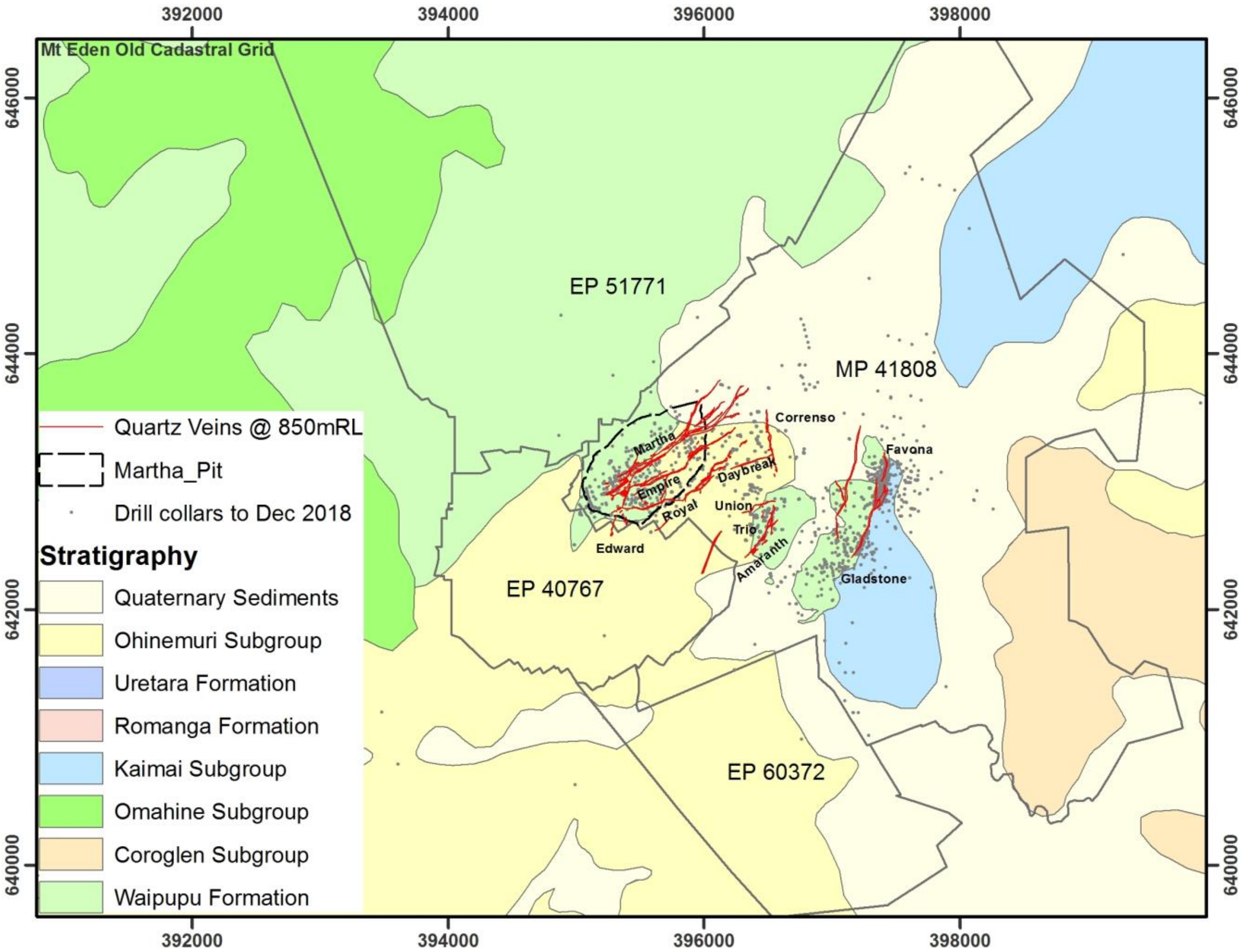
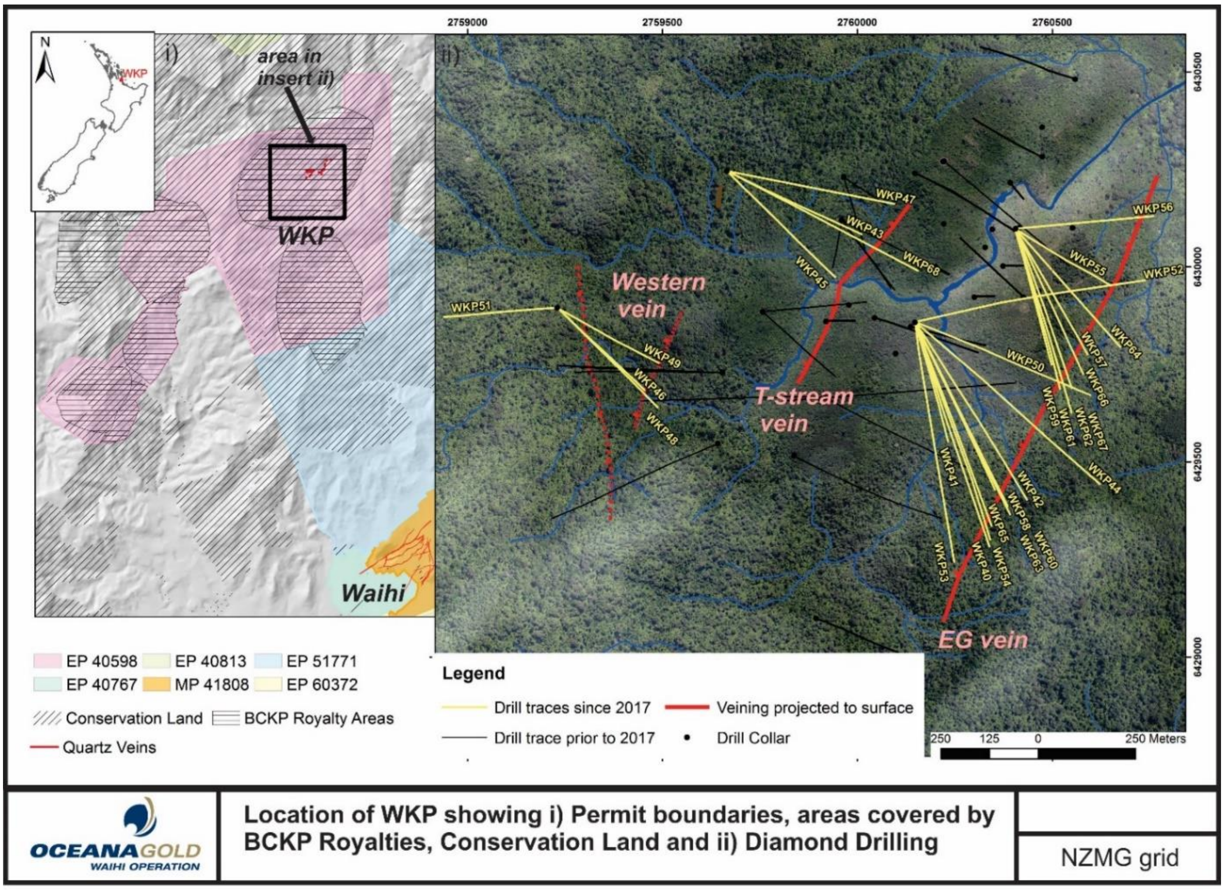


Figure 2: WKP Project Plan



Gold mostly occurs as electrum in the Waihi epithermal vein deposits and has a particle size between <10µm. The main ore minerals are electrum and silver sulphides with ubiquitous pyrite and variable, though usually minor, sphalerite, galena and chalcopyrite in a gangue consisting of quartz, locally with calcite, chlorite, rhodochrosite and adularia. Base metal sulphides increase with depth.

3.0 Drilling, Sampling and Sub-Sampling

Approximately 625,000m has been drilled in 3,800 core and RC drill holes on the Projects since 1980. All drill core since approximately 1990 was routinely oriented below the base of the post-mineral stratigraphy, either by plasticine imprint or using the Ezimark or Reflex core orientation tool.

Drill hole data is initially captured in an Access Database used for drill hole planning and management. That data is validated during data-entry and imported from Access into the main AcQuire database interface.

After geological logging, sample intervals are defined and marked up by OceanaGold geologists.

Current standardised sample preparation procedures are:

- Jaw crushing of half core to 95% passing 5mm to 24th September 2004 (UW212 & UW222); to 95% passing 7mm from 24th September 2004 to May 2013 (all other drill hole samples); to 80% passing 3.3mm from May 2013 (844 series holes).
- Rotary split to produce 800g crushed product;

- Ring milled to a nominal 80% finer than 75µm;
- Approximately 300g of pulverized sample placed by scoop into paper sachets to which the original sample tag is affixed.

Sample preparation has been monitored through sieve checks on samples selected at random in each batch and through insertion of duplicate samples at the crushing step.

4.0 Sample Analysis Methods

Gold analysis is undertaken using 30gram fire assay with AAS finish, silver is by acid digest with AAS finish, multielement copper, arsenic, lead, zinc and antimony is analysed by acid digest with ICP finish. Multi-element data is obtained routinely from the Waihi SGS Laboratory for all exploration assay samples for the elements silver, copper, arsenic, lead, zinc and antimony, which are potential pathfinders for epithermal mineralization.

5.0 Estimation Methodology

Gold is modelled via ordinary kriging or inverse distance methods within structural domains dependent on data density. Dry bulk densities ranging between 1.8 and 2.5 t/m^3 are assigned by rock type.

Estimation is completed using either ordinary kriging (OK) or inverse distance weighting to the second or third power (ID2/ID3), as deemed suitable by the density of data in each domain.

Models are rotated in bearing to align with the dominant strike of the veins and they are run using Vulcan® software. Sub-blocking is used to define narrow veins and to maintain volume integrity with the geology solids. The grade estimation for all models is tightly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids. Gold is estimated using one of the following methods; either a single pass with a combined channel and drilling dataset; or two-pass estimation using a combined dataset with short search range first, then followed by a second pass using drill hole data only with longer search ranges to estimate blocks not estimated in the first pass. Tetra unfolding is utilised to address local variations in vein orientation.

Gold grades are top capped and length-composited within the vein wireframes and lithological unit. Grade estimates are prepared utilising unfolding and ordinary kriging. Nearest neighbour and Id2 estimates are also prepared for validation and assessment.

Estimates of tonnage are prepared on a dry insitu basis

6.0 Resource Classification

The resource classification is based on drill hole spacing and assessment of the risk that can be attributed to legacy mining influence. Ranges for classification in the vein style mineralisation are greater than the ranges chosen for the stockwork style domains. Classification is based on the requirement for the average distance to the closest three holes to be within specific ranges determined from drill spacing studies.

There is significant experience in mining and assessing the continuity of mineralisation with the veins for Martha and the adjacent deposits. The vein style mineralisation has strong visual controls and is well understood, with historic mapping and cross-cut sampling demonstrating continuity over significant ranges. Classification is based on the requirement for the average distance to the closest three holes.

To classify the Mineral Resource, appropriate account was taken of geology, drill hole spacing, search criteria, location and geometry of historic mining voids, reliability of input data, and the Competent Person's confidence in the continuity of geology and metal values.

7.0 Cut-off Grade

Variable cut-off grades are used for the Waihi and the WKP Projects. Ore Reserves are based on a gold price of NZD$1806 and Mineral Resources are based on a gold price of NZD$2083. Inputs to the calculation of cut-off grades for the Waihi open pit and underground mine include mining costs, metallurgical recoveries, treatment and refining costs, general and administration costs, royalties, and commodity prices. Silver is treated as a by-product.

8.0 Mining, Metallurgy and Other Modifying Factors

Open pit mining was undertaken by a contractor from 1988 to 2015 under a schedule of rates, and production rates and mining costs are therefore well understood. The model block size reflects the selective mining unit and dilution and recovery Modifying Factors are not required.

Long hole bench stoping with rock backfill is the predominant mining method for extraction of underground Ore Reserves and has been in use since 2006. Stope dilution has been estimated based on expected geotechnical conditions, stope spans and site reconciliation. Recovery of the Ore Reserve requires the use of remote loaders, and allowances have been made for loss of Ore Reserves and for dilution from back fill and overbreak.

The Mineral Resource associated with the Martha Underground project is based on a combination of long hole bench stoping and the side ring mining method. Stope shapes were developed using the Alford mineable stope optimiser and the Mineral Resource reported within these shapes above a cut-off grade. No Modifying Factors are applied to the WKP Mineral Resource.

Recovery of gold at Waihi uses a conventional CIP plant and a conventional SABC grinding circuit. The plant has an established skilled workforce and management team in place. Recent cost estimates and processing recoveries support the reporting of the stated Ore Reserves.

The technical and economic viability of the reported Ore Reserves is supported by studies which meet the definition of a Feasibility Study. All permits and consents are in place for the extraction of the Correnso underground and Martha pit Ore Reserves.

9.0 Competent Person

Information relating to Exploration Results and Mineral Resources in this document was prepared by or under the supervision of Mr Peter Church, information relating to Correnso underground Ore Reserves was prepared by or under the supervision of Mr David Townsend, and open pit Ore Reserves were prepared under the supervision of Mr Trevor Maton. Messrs Church, Maton and Townsend are members and Chartered Professionals of the Australasian Institute of Mining and Metallurgy. Mr Church is the Principal Resource Geologist and is a full-time employee of OceanaGold (New Zealand) Limited, whilst Mr Townsend is the Underground Technical Services Superintendent and is also a full-time employee of OceanaGold (New Zealand) Limited, whilst Mr Maton is the Studies Manager and is also a full-time employee of OceanaGold (New Zealand) Limited. Messrs Church, Maton and Townsend have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Messrs Church, Maton and Townsend consent to the inclusion in the report of the matters based on the information in the form and context in which it appears.

SUMMARY OF TABLE 1 - 2012 JORC: Waihi Gold Mine

The Waihi operation is located 142 km Southeast of Auckland in the Township of Waihi, Hauraki, New Zealand. The Waihi township is known as a gold mining town and has a notable history gold production. Open pit mining commenced at the site in 1988 with the first ore processed in that year and underground mining commenced in 2004 with the extraction of ore commencing in late 2006. The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to operate the Martha open pit and Correnso underground mine.

Resources

The Waihi resource estimates, as at 31 December 2018, are presented in Table 1, Table 2, and Table 3, and are classified in accordance with CIM and JORC 2012.

The resource estimate is sub-divided for reporting purposes: an open-cut resource that includes material within the limits of the Martha Phase 4 pit and the Gladstone Pit; and underground Resources within the Correnso Extended Permit Area, for the Wharekirauponga (WKP) project area and for the Martha Underground project. The Resources are depleted for mining as at 31 December 2018.

Table 1: Open Cut Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0.156	3.05	30.46	0.015	0.152
Indicated	2.074	2.38	12.44	0.159	0.829
Measured & Indicated	**2.230**	**2.43**	**13.69**	**0.174**	**0.981**
Inferred	0.300	1.28	2.01	0.012	0.019

Table 2: Underground Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0.342	5.63	11.25	0.062	0.124
Indicated	2.790	6.75	18.69	0.605	1.676
Measured & Indicated	**3.132**	**6.63**	**17.88**	**0.667**	**1.800**
Inferred	5.572	5.96	16.97	1.068	3.040

Table 3: Combined Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	0.498	4.81	17.24	0.077	0.276
Indicated	4.864	4.89	16.02	0.764	2.505
Measured & Indicated	**5.362**	**4.88**	**16.13**	**0.841**	**2.781**
Inferred	5.872	5.72	16.20	1.08	3.059

Notes to Accompany Mineral Resource Table:

1. Mineral Resources are inclusive of Ore reserves;
2. Mineral Resources are reported on a 100% basis;
3. Mineral Resources are reported to a gold price of NZD$2,142/oz;
4. Martha underground Mineral Resource is reported below the consented Martha Phase 4 open pit design. This Resource is constrained within a conceptual underground design based upon the incremental cut-off grade.

5. WKP Mineral Resource is reported at a nominal cut-off of 3 grams per tonne Au.
6. No dilution is included in the reported figures and no allowances have been made to allow for mining recoveries. Tonnages include no allowances for losses resulting from mining methods. Tonnages are rounded to the nearest 1,000 tonnes;
7. Ounces are estimates of metal contained in the Mineral Resource and do not include allowances for processing losses. Ounces are rounded to the nearest thousand ounces;
8. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
9. Tonnage and grade measurements are in metric units. Gold ounces are reported as troy ounces.

The Waihi Projects comprise several areas of mineralization, which are at different stages of development. The major components are the Martha Underground Project, the Correnso underground mining operation and the Wharekirauponga (WKP) Project.

The Martha Underground project was successfully consented in February 2019, this project relates directly to the mineralisation contained within the Martha vein system beneath the companies open pit mine within the Waihi Township.

WKP is located 10 km north of the Township of Waihi, Hauraki, New Zealand (Figure 2). The WKP Project is a high grade, low sulphidation epithermal vein gold-silver deposit hosted within a Miocene rhyolite dome complex.

The Correnso project is in the mature production phase. This underground mine is comprised of the main Correnso vein, the Daybreak and Empire veins referred to collectively as the Correnso project.

Additional minor components include:

- The Martha pit is in the planning phase for the recommencement of operations to complete a remedial cut to the north wall, termed Martha Phase 4 and;
- The Gladstone Project is based on a conceptual open pit centred around the Gladstone hill and Winner hill area. The resource model describes the mineralisation within Gladstone and Winner hills and includes part of the Moonlight orebody, depleted for underground mining.

Exploration activity has continued in proximity to the Martha Project. Over the course of the next 2 years, the Company will continue to drill from the two exploration drives beneath the Martha Open Pit for resource conversion with upwards of 100 km of additional drilling likely to be required to test the full extent of the mineralised system. The resource is associated with Martha, Edward, Empire, Royal and Welcome veins and numerous minor veins located beneath the existing Martha Pit.

Exploration is also planned to continue throughout the coming year on the WKP project with a further 14.5km of diamond drilling planned in 2019.

The major gold - silver deposits of the Waihi District are classical low sulphidation adularia-sericite epithermal quartz vein systems associated with north to northeast trending faults. Larger veins have characteristically developed in dilational sites in the steepened upper profile of extensional faults with narrower splay veins developed in the hanging wall of major vein structures. Figure 1 shows a general geology plan of the Project, including the major vein locations. The Waihi epithermal gold-silver mineralised veins are hosted in Miocene andesite lavas beneath the Waihi township area.

Low sulphidation epithermal quartz veins at WKP are hosted in a rhyolite flow dome complex with overlying and interfingering lithic lapilli tuffs which are in turn partially overlain by post-mineral andesites. The rhyolites have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy by quartz and adularia with minor illite and/or smectite clay alteration. The vein system lies within, NNE trending magnetic low, which likely represents a combination of weakly magnetic primary lithology and magnetite-depleted hydrothermally altered lithologies. The well-defined edges of this magnetic low to the SE and NW suggests it represents a NE trending district-scale graben

Approximately 625,000m has been drilled in 3,800 core and RC drill holes on the Project since 1980. All drill core, since about 1990, was routinely oriented below the base of the post-mineral stratigraphy, either by plasticine imprint or using the Ezimark or Reflex core orientation tool.

Gold mostly occurs as electrum in the Waihi epithermal vein deposits and has a particle size less than10µm. The main ore minerals are electrum and silver sulphides with ubiquitous pyrite and variable, though usually minor, sphalerite, galena and chalcopyrite in a gangue consisting of quartz, locally with calcite, chlorite, rhodochrosite and adularia. Base metal sulphides increase with depth.

Gold is modelled via ordinary kriging or inverse distance methods dependent on data density. Dry bulk densities ranging between 1.8 and 2.5 t/m^3 are assigned by rock type.

Estimation is completed using either ordinary kriging (OK) or inverse distance weighting to the second or third power (ID2/ID3), as deemed suitable by the density of data in each domain.

The quantity and quality of the lithological, geotechnical, collar and down hole survey data collected in the exploration, delineation, underground, and grade control drill programs are sufficient to support the Mineral Resource and Ore Reserve estimation.

To classify the Mineral Resource, appropriate account was taken of geology, drill hole spacing, search criteria, location and geometry of historic mining voids, reliability of input data, and the Competent Person's confidence in the continuity of geology and metal values.

Figure 1: **Project Geology Plan (drill collars 2017 and 2018)**

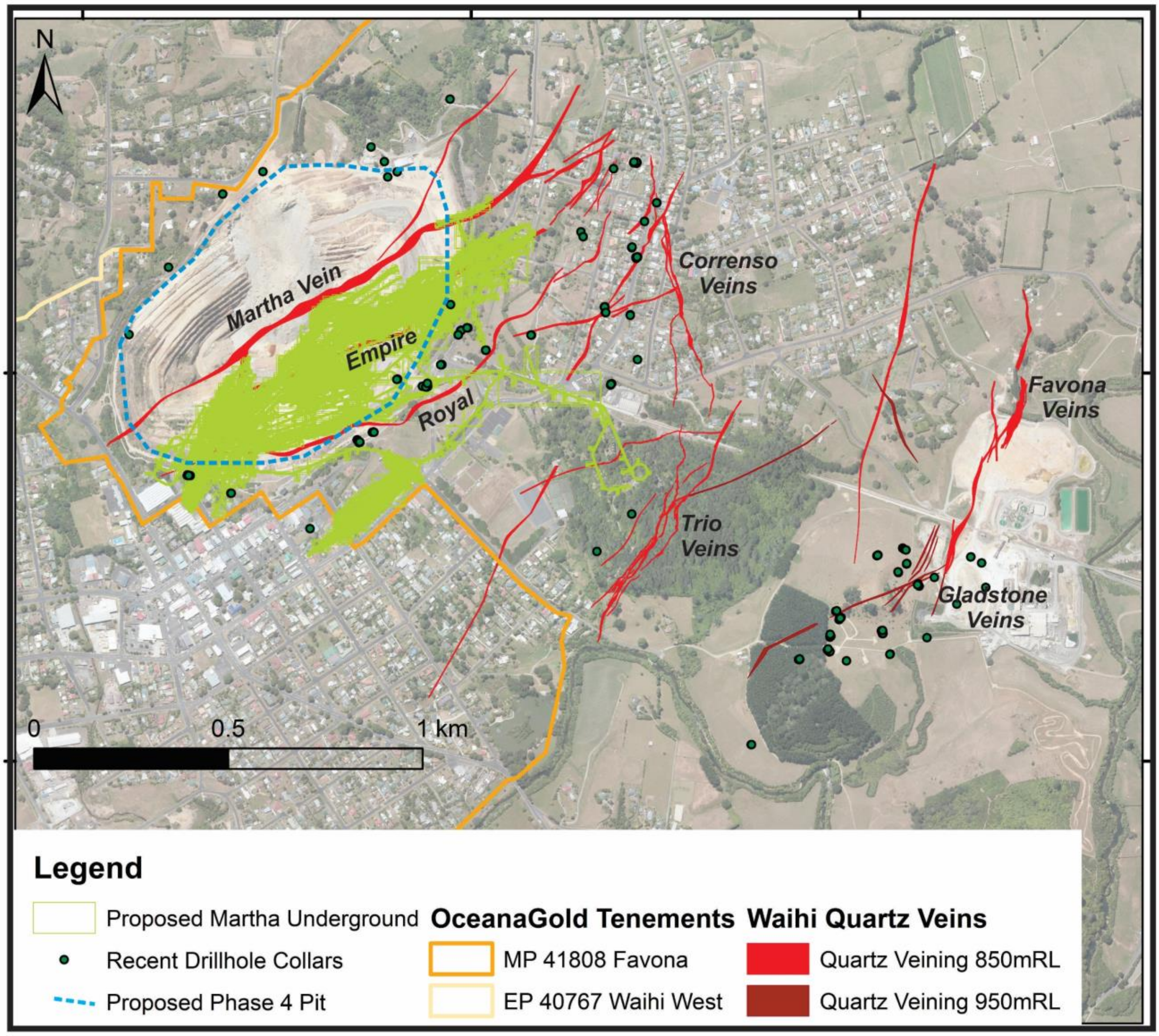
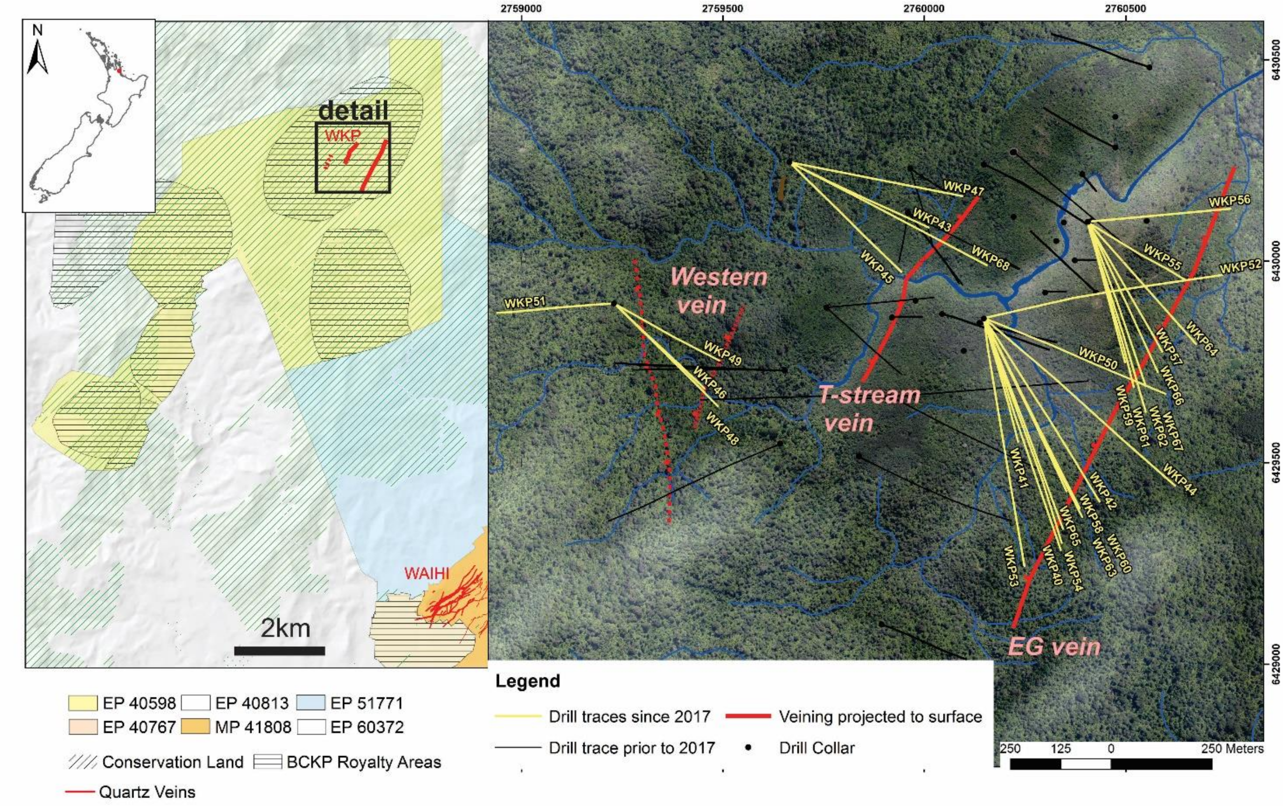


Figure 2: Maps showing WKP Location and Drilling



Reserves

The Ore Reserve estimate for the Waihi operation as at 31 December 2018 is shown in Table 4:

Table 4: Waihi Reserve Estimate

Reserve Area	Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Open Pit	Proven	0.156	3.05	30.46	0.015	0.152
	Probable	0.656	2.91	29.11	0.061	0.614
Underground	Proven	0.342	5.63	11.25	0.062	0.124
	Probable	0.256	4.88	9.76	0.040	0.080
Total Proven		0.498	4.81	17.24	0.077	0.276
Total Probable		0.912	3.44	23.67	0.101	0.694
Total		**1.410**	**3.93**	**21.4**	**0.178**	**0.970**

Notes to Accompany Mineral Reserve Table:

1. Ore reserves are reported on a 100% basis;
2. Ore reserves are reported to a gold price of NZD$1,806/oz;
3. Tonnages include allowances for losses and dilution resulting from mining methods. Tonnages are rounded to the nearest 1,000 tonnes;
4. Ounces are estimates of metal contained in the Ore reserves and do not include allowances for processing losses. Ounces are rounded to the nearest thousand ounces;
5. Rounding of tonnes as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
6. Tonnage and grade measurements are in metric units. Gold ounces are reported as troy ounces.
7. Previously reported Gladstone underground Ore Reserve has been transferred to Gladstone open pit Mineral Resource.

The change in Ore Reserves reported at December 30, 2018 compared with those previously reported at December 31, 2017 is reported in Table 5.

Table 5: December 2017 Reserve Estimate vs. December 2018 Reserve Estimate

Reserve Area	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
December 31, 2017 Reserve					
Open Pit	0.812	2.94	29.4	0.077	0.766
Underground	0.968	5.62	11.2	0.175	0.348
Total (Dec 31, 2017)	1.740	4.35	19.7	0.242	1.099
Changes to Reserve, December 2017 vs. December 2018					
Open Pit	0	0.00	0.00	0.000	0.000
Underground	-0.370	6.14	12.11	-0.073	-0.144
Total	-0.207	9.62	19.38	-0.064	-0.129
December 31, 2018 Reserve					
Open Pit	0.812	2.94	29.4	0.077	0.766
Underground	0.598	5.31	10.61	0.102	0.204
Total (Dec 31, 2018)	1.410	3.93	21.4	0.178	0.970

Changes between the December 31, 2017 Reserve and the December 31, 2018 Reserve estimate primarily reflect depletion of ore from the underground.

Inputs to the calculation of cut-off grades for the Martha open pit and Correnso underground mine include mining costs, metallurgical recoveries, treatment and refining costs, general and administration costs, royalties, and commodity prices.

Open pit mining was undertaken by a contractor from 1997 to 2015 under a schedule of rates, and production rates and mining costs are therefore well understood.

Long hole bench stoping with rock backfill is the current mining method for extraction of underground Ore Reserves. Stope dilution has been estimated based on expected geotechnical conditions, stope spans and site reconciliation. Recovery of ore requires the use of remote loaders, and allowances have been made for loss of Ore Reserves and for dilution from back fill.

Recovery of gold at Waihi uses a conventional CIP plant and a conventional SABC grinding circuit. The plant has an established skilled workforce and management team in place. Recent cost estimates and processing recoveries support the reporting of the stated Ore Reserves.

The technical and economic viability of the reported Ore Reserves is supported by studies which meet the definition of a Feasibility Study. All permits and consents are in place for the extraction of the Ore Reserve.

Competent Persons

Information relating to Exploration Results and Mineral Resources in this document was prepared by or under the supervision of Mr Peter Church, information relating to underground Ore Reserves was prepared by or under the supervision of Mr David Townsend, and open pit Ore Reserves are prepared under the supervision of Mr Trevor Maton. Messrs Church, Maton and Townsend are members and Chartered Professionals of the Australasian Institute of Mining and Metallurgy. Mr Church is the Principal Resource Geologist and is a full-time employee of OceanaGold (New Zealand) Limited, whilst Mr Townsend is the Underground Technical Services Superintendent and is also a full-time employee of OceanaGold (New Zealand) Limited, whilst Mr Maton is the Studies Manager and is also a full-time employee of OceanaGold (New Zealand) Limited. Messrs Church, Maton and Townsend have sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Messrs Church, Maton and Townsend consent to the inclusion in the report of the matters based on the information in the form and context in which it appears.

Section 1 Sampling Techniques and Data

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Sampling techniques</td><td>

The Mineral Resource estimates of individual projects in Waihi use a combination of sampling techniques including:

Martha Underground (MUG): DD core, Reverse Circulation (RC) chips from exploration drilling, RC chips from open pit grade control drilling, and grade control channel samples,
Gladstone Project: DD core, RC chips from exploration drilling,
Correnso Project: DD core and underground grade control channel samples.
WKP Project: DD core.

DD and RC drilling sampling techniques are discussed in further detail under 'drilling techniques'.
Pit channel Sampling: Channel sampling was undertaken on a regular basis prior to 2006 an occasionally since then as a method of grade control sampling in the Martha open pit. The sample material was chipped off the berm rock face using a manual hammer along 1-2m sample intervals and collected in a pre-labelled calico bag. Three QAQC samples were assigned per channel including a blank sample, a crush duplicate and a standard. Prior to 2006, this was common practice, however after 2006 RC drilling was used as the preferred method of pit grade control until mining ceased in 2016.
Underground Face Sampling: The Correnso Resource estimate includes data collected by underground face sampling (channels). The sample intervals were determined by the ore control geologist based on changes in lithology, vein texture and/or alteration observed in the face. Where possible, a discrete vein has a sample start point along the left-hand contact and a sample end point along the right-hand contact of the structure. Minimum sample interval widths of 0.3m and maximum widths of 2.0m were allocated along each face. The sample material was chipped off the rock face using a hammer and collected in a pre-labelled calico bag. Three QAQC samples were assigned per face including a blank sample, a crush duplicate and a standard.
Diamond drilling sample intervals are guided by logged geological boundaries and vary in length between 0.3 and 1.3m in length. Where possible, a discrete vein will have a sample start point along the uphole contact and sample end point along the downhole contact of the structure.
Checks used to verify sample representivity include the collection and analysis of field and pulp duplicates and analysis of a selection of samples through third party laboratories.
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<tr><td>Drilling techniques</td><td>
<u>Diamond Drilling:</u>

The Martha Underground Resource Estimation uses 135,786m of diamond drill (DD) core in 542 holes, of which 7179m in 18 holes have been added since June 2018.
All diamond drilling is triple tube wireline diamond core drilling from surface or underground. PQ, HQ,NQ and BQ core diameters are used in the Mineral Resource estimate. All drill core is routinely oriented either by plasticine imprint or using Ezimark, Reflex or TruCore core orientation tools.
DD core diameter is PQ (85mm diameter), HQ3 (61mm diameter), NQ3 (45mm diameter) or BQ (36.4 mm diameter). Surface holes are collared using large-diameter PQ core, both as a means of improving core recovery and to provide greater opportunity to case off and reduce diameter when drilling through broken ground and historic stopes. Underground holes are collared using HQ3 core diameter. HQ3 is the dominant core diameter used in the resource estimations.
All DD core is routinely oriented either by plasticine imprint or using Ezimark, Reflex or TruCore core orientation tools.
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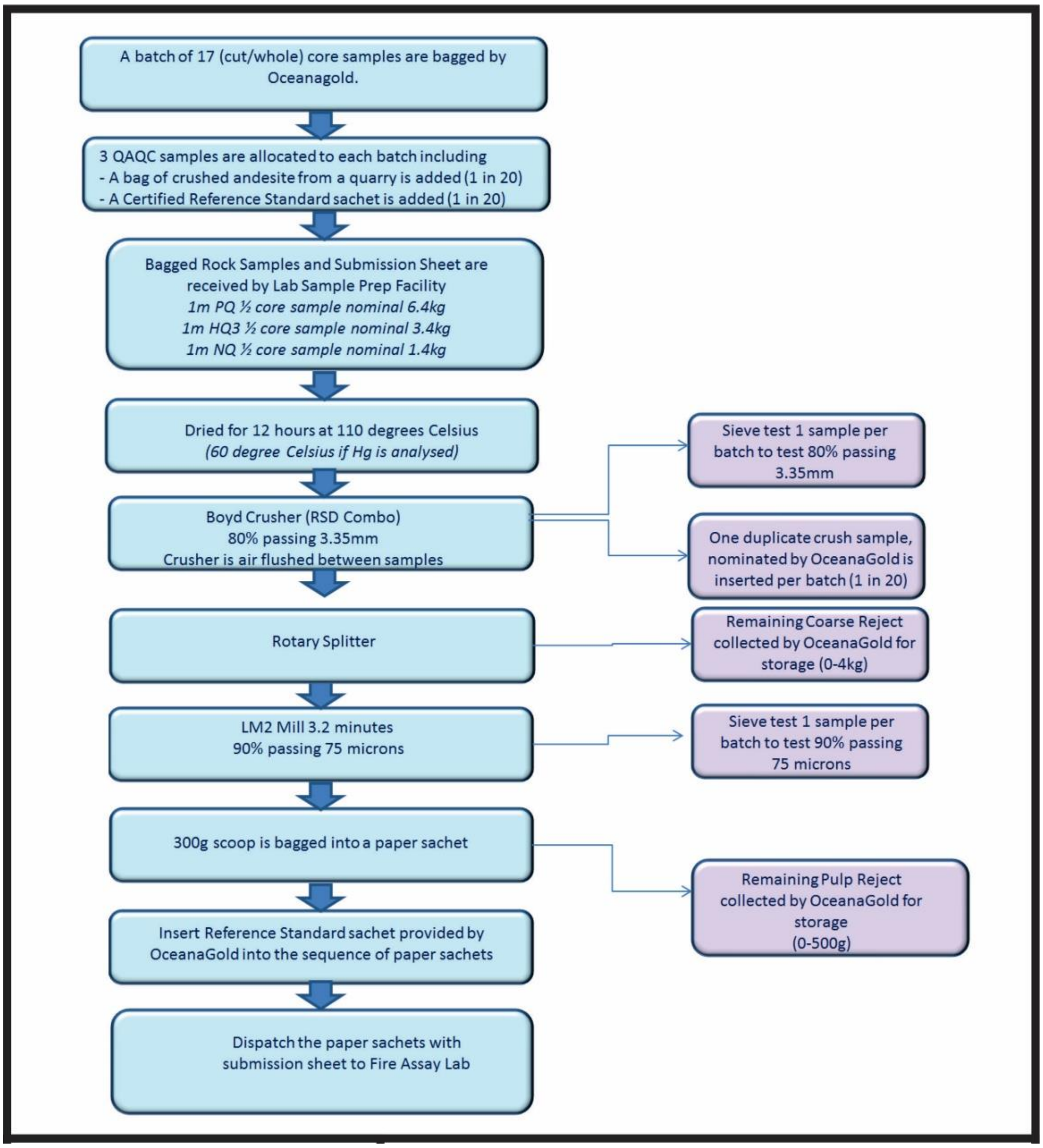
Criteria	Commentary
	RC Drilling: • RC drill chips were collected predominantly as part of the grade control process during the Martha Open Pit operation but also on a minor scale for exploration purposes (approximately 4309m used in MUG estimate). 88,000m have been drilled in 4,445 reverse circulation (RC) grade control holes in the open pit between May 2007 and May 2015, using a 114mm hole diameter and rig-mounted cyclone sampler. This grade control, RC drilling is only used in the Phase 4 pit estimation. • Grade control RC collars were designed along on a 10x5m horizontal grid, with exception of areas in proximity to highwalls or known historical voids and the holes angled at a -50° dip. o Samples were collected in a bag attached to the cyclone at 1.5m intervals from which a 3-5kg sample was split using a cone splitter.

Drill sample recovery	• Diamond drilling recovery is estimated by measuring the recovered core length against the drilled length and is uploaded to an AcQuire Database.
	• Recovery data has been captured for all sample intervals for all diamond drill holes
	• There is no observed relationship between core recovery and grade.
	• Core from the Martha project is monitored for recovery daily to rationalize actual core loss against the intersection of historic mining voids with re-drilling actioned if necessary.
	• Core recovery within veined material (>40% vein in sample interval) varies between projects and is summarized as follows:
	  o 92.5% within the Martha Underground project,
	  o > 95% for the extended Correnso project,
	  o 89-90% for the Gladstone project,
	  o 96.2% for the WKP project.
	• RC drill sample recoveries were assessed by weight for representivity by the sampling technician and dispatching geologist. Samples were discarded where the recovered sample weight did not correlate well with the drilled interval.

Logging	• Some logging processes have varied over time. Since June 2015 core has been logged using an excel spreadsheet and uploaded to an AcQuire database. • Log intervals are based on geological boundaries or assigned a nominal length of one metre. • For all recent drilling (2009 onwards) the logging has been validated using inbuilt validation tables and has been checked for consistency throughout the history of the project. • A complete digital photographic record is maintained for all drill core. • Unsampled drill core is stored in a core shed. • DD core and RC chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation. Logging includes geotechnical parameters, lithology, weathering, alteration, structure and veining. • DD sample length is determined by geological boundaries and ranges from 0.3 to 1.3m. Where possible, a discrete vein will have a sample start point along the uphole contact and sample end point along the downhole contact of the structure. In relatively homogenous core intervals are assigned a nominal length of one metre.

Criteria	Commentary
Sub-sampling techniques and sample preparation	• Once the core is logged, photographed and sample intervals allocated, it is cut in half length ways. If a vein is present, the cut line is preferentially aligned to intercept the downhole apex of the structure. Within each sample interval, one half of the core is bagged for sampling and the other is kept in storage. Whole core has been sampled on an occasion where there was significant core loss coupled with visible electrum and for all BQ core due to reduced sample volumes. • Labelled calico bags containing the core samples were either transported to the local Waihi SGS Laboratory or the Westport SGS laboratory for crushing and sample preparation. Refer to the sample preparation flow sheet illustrated in Figure 1.1 below. • Sample size for resource DD holes drilled from surface is optimised through initial collection of large-diameter diamond drill core samples, generally PQ3 or HQ3. Current drilling from underground utilises an HQ3 or NQ3 diameter core size for advanced exploration and resource conversion drilling. The core is then split using a core saw to produce an initial sample size of 3.5-4kg (HQ3) or 1.7-2kg (NQ3). Drilling for the purposes of grade control utilises an HQ3 or NQ3 diameter core size which is whole core sampled to produce an initial sample size of 7-8kg or 3.5-4kg respectively. • If core is being cut in half lengthways and there is a vein present, the cut line is preferentially aligned to intercept the downhole apex of the structure. Within each sample interval, one half of the core is bagged for sampling and the other is kept in storage for a holding period. Unsampled drill core (excluding post mineral cover) is stored in a core shed for a period of time. • Since mid-2006, sample preparation has been carried out at the SGS laboratory in Waihi. Current standardised sample preparation procedures are summarised in the flow sheet below. Prior to mid-2006, the sample preparation facility was located at the Martha mine site and operated by Waihi Gold personnel. SGS has continued to use the same methods and protocols that were established by the Martha Mine geologists. • Standardised sample preparation procedures are based on nomograms that were developed using Gy's Estimation of the Fundamental Sampling Error. Gold particle liberation size for the Waihi gold deposits is based on petrographic studies, which indicate that gold mostly occurs as electrum in the Waihi epithermal vein deposits and has a particle size between <5 to 10µm. • Representivity of samples is checked by duplication at the crush stage, one in every 17-20 samples

Criteria	Commentary
	Figure 1.1 Sample Preparation Flow Sheet, SGS, Waihi 
Quality of assay data & laboratory tests	• All exploration samples are assayed for gold by 30g Fire Assay with AAS finish • Multi-element ICP data is obtained routinely from the Waihi SGS Laboratory for all exploration assay samples for the elements silver, copper, arsenic, lead, zinc and antimony, which are potential pathfinders for epithermal mineralisation. For samples with over-range silver and lead, these elements are found to be extracted more efficiently by using a more dilute Aqua Regia digest (1-gram sample weight rather than the standard 10-gram per 50 ml).

Criteria	Commentary
	• Quality of exploration assay results has been monitored in the following areas: o Sample preparation at the SGS Waihi and Westport labs through sieving of jaw crush and pulp products, o Monitoring of assay precision through routine generation of duplicate samples from a second split of the jaw crush and calculation of the fundamental error. o Monitoring of accuracy of the primary SGS assay and ALS results through insertion Certified Reference Materials (CRM's) and blanks into sample batches. • Analyses of drill sample pulps from WKP were undertaken at the ALS laboratory in Brisbane, the ALS laboratory in Townsville and SGS laboratory in Waihi. • Blank, duplicate and CRM results are reviewed prior to uploading results in the AcQuire database and again on a weekly basis. The Waihi protocol requires CRMs to be reported to within 2 standard deviations of the certified value. The criterion for preparation duplicates is that they have a relative difference (R-R1/mean RR1) of no greater than 10%. Blanks should not exceed more than 4 times the lower detection method of the assay method. Failure in any of these thresholds triggers an investigation and re-assay.
Verification of sampling and assaying	• CRMs performance is regularly scrutinised and the database QAQC function thresholds are reviewed bi-annually. CRMs are currently assigned to batches on a rotational roster in a "pigeon pair" system. • Monthly QAQC reporting and review is undertaken on all assay results from SGS • In addition to routine quality control procedures, umpire assay has been carried out on 248 samples (Correnso Project) at Ultratrace Laboratories in Perth. Results for gold were consistent with original SGS assay results and showed no effective bias, apart from 3 umpire samples that returned significantly higher gold values than the original assays. Those three samples were repeat assayed by SGS, the re-assay producing results consistent with the Ultratrace umpire assays; the second set of SGS assays have therefore replaced the initial assays in the database. • Multi-element data is obtained routinely from the Waihi SGS Laboratory for all exploration assay samples for the elements silver, copper, arsenic, lead, zinc and antimony, which are potential pathfinders for epithermal mineralisation. Comparison of the Ultratrace data with routine multi-element data produced by SGS Laboratory in Waihi showed good correlation between the parent (SGS) and umpire (Ultratrace) data sets for silver, lead, zinc and arsenic, which gives confidence in the accuracy of SGS data for these elements. For samples with over-range silver and lead, these elements are found to be extracted more efficiently by using a more dilute Aqua Regia digest (1-gram sample weight rather than the standard 10 grams per 50 ml). Antimony is not efficiently extracted by the current Aqua Digest method at SGS and consideration should be given to using the Peroxide Fusion extraction if more accurate antimony results are required. • Generally, elements including mercury, arsenic, selenium and antimony increase at shallow levels within epithermal deposits. The presence of sinter and high-level quartz vein textures in the Gladstone project area indicate that the resource is at the top of an epithermal system. As a result, multi element data with an extended suite of elements (Au, Bi, Hg, Sb, Se, Sn, Te, Th, Ti, U, W, Ag, Al, As, B, Ba, Be, Ca, Cd, Ce, Co, Cr, Cu, Fe, Ga, K, La, Mg, Mn, Mo, Na, Ni, P, Pb, S, Sc, Sc, Sr, Ti, V, Zn) has been undertaken at ALS in Brisbane. Sample preparation was conducted at SGS Waihi following standardised procedures with a variation to sample drying temperature. A reduced temperature of 60 °C has been used to limit Hg volatilisation. • Underground Face samples contain one blank, one crush duplicate and one standard per channel. Results are required to pass QAQC validation prior to being imported to a Microsoft Access database. • Open pit RC samples contained one blank, one crush duplicate and one standard every 20 samples. Results were required to pass QAQC validation prior to being imported to an AcQuire database. • SGS routinely release its internal QAQC data to OceanaGold for review. The performance of

Criteria	Commentary
	SGS internal standards appears satisfactory. • No data from geophysical tools, spectrometers or handheld XRF instruments have been used for the estimation of Mineral Resources. • A limited number of twinned holes were completed during the initial investigations for the Correnso project. These indicated that there is some short-range variability in gold mineralisation. No twinned holes have been drilled for the Martha Underground project. There are strong visual indicators for high grade mineralisation observed both in drill core and in underground development. • All laboratory result files are uploaded directly into an AcQuire database. Below level detection limit assay results are stored in the database as (negative) half the detection limit. No other modification of the assay results is undertaken. • All intercepts are reviewed during the construction of the geological wire frames prior to grade estimation, this review involves visual comparison of core photography, assay and logging data and spatial relationships to adjacent data. Significant intercepts are reported internally on a weekly basis for peer review purposes. • Check assay programs have been undertaken for projects previously as a part of the project advancing past milestones such as feasibility level studies.
Location of data points	• All historic mine data in Waihi was recorded in terms of Mt Eden Old Cadastral grid (MEO). This is the grid utilised for all underground and exploration activity within 3km of the Waihi Mine beyond which New Zealand Map Grid is utilised. • The MEO grid is offset from New Zealand Transverse Mercator (NZTM Grid) by 5215389.166 (shift mN) and 1456198.997 (shift mE). • The Martha Open Pit operation has historically used a local mine grid, referred to as 'Martha Mine Grid', derived from Mt Eden Old Cadastral grid but oriented perpendicular to the main veins. The grid origin is based at No.7 Shaft (1700mE, 1600mN) and rotated 23.98° west of Mt Eden Old Cadastral North. All open pit channel and drilling data has been converted to Mt Eden Old Cadastral for the resource estimation of the Martha Underground resource. • Relative level (RL) is calculated as Sea Level + 1000m. • Drill collars are surveyed using a total station by a registered professional land surveyor. At the start of the hole the drillers line up the mast in the correct azimuth using an Azimuth Aligner. • The positions of underground Face Sampling channel samples are located by the geologist using digital Leica Disto Meter from known survey stations within headings underground. • The positions of Open Pit channel samples were surveyed using a total station by a registered professional land surveyor. • For the underground mine, a transformation is used to convert all data to NZGD2000 as per the regulations for the purpose of all statutory underground plans. Checks show that all underground coordinates are within the allowed 1:5000. • Down hole surveys are recorded at 30m intervals by using a Reflex digital downhole survey camera tool. • New Zealand Map Grid (NZMG) is used at WKP, which is in the NZGD1949 projection. False northing 6,023,150m north; False easting 2,510,000m east. • Drill collars at WKP are currently located using a handheld GPS with an accuracy of +/- 5m for x and y coordinates. Drill pads have been surveyed using a total station, however individual collars within each drill pad still require survey pickups. Plans to more accurately survey the individual hole collars using a total station are in place for the near future, therefore there will be some minor collar adjustments at a future date. • A topographical surface was created in Leapfrog using Light Detection and Ranging (LIDAR)

Criteria	Commentary
	survey data. This surface was used to generate the elevation of drill collars which is within +/- 2m accuracy.
Data spacing and distribution	• The Correnso ore body uses a 30m drill spacing to support classification of Indicated Mineral Resources, instead of 40m previously used for the Favona and Trio deposits. • The Gladstone deposit has been drilled targeting a nominal drill hole spacing of 30m on the major mineralised veins. A tighter spacing of 22.5m has been implemented in the more complicated zones exhibiting strong brecciation and/or stockwork veining. • The Martha UG project uses an average spacing to three drill holes of 60m for inferred and 40m for indicated. The extensive mining history of Martha (>135 years+) has developed significant experience in assessing the continuity of mineralisation and mining the Martha vein system and the adjacent deposits. The vein style mineralisation has a strong visual control, is well understood and has demonstrated continuity over significant ranges. An estimation run utilizing a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This formed the basis for the resource classification. • For Martha Phase 4 pit, the sample composite length was based on the nominal sample interval of 1.5m for DD and RC drill data and 1m for grade control channel data. Compositing was by fixed-length, honouring the domain boundaries. • The WKP project area contains 67 diamond drill holes (plus 5 redrills along portions of holes) at the time of writing this report. The bulk of recent drilling has been targeted toward the East Graben Vein Zone. • The East Graben Vein zone has been intersected in drilling over a strike length of ~1km, this structure is larger than those typically encountered in the Waihi project area and on this basis the average drill hole spacing required for classification as an inferred resource has been increased by 15% to 80 metres average distance to the three closest drill holes. All other mineralisation has been classified using a distance threshold of 70 metres to the three closest drill holes for classification as inferred. • Diamond Drill samples are not composited prior to being sent to the laboratory. • DD samples are not composited prior to being sent to the laboratory.
Orientation of data in relation to geological structure	• Drill holes are designed to intersect known mineralised features in a nominally perpendicular orientation is much as practicable given the availability of drilling platforms. Sample intervals are selected based upon observed geological features. • All drill core is oriented downhole to assist modelling and interpretation of mineralised structures. • Sample intervals are selected based upon observed geological features. • Structural orientation measurements recorded during logging inform vein modelling for resource estimation and true width interpretation for reporting of significant intercepts. • Face sketches drawn during underground grade control sampling in Correnso are uploaded into 3D software and used to update the vein model for the reserve estimation.
Sample security	• Access to site is controlled; Drill core is stored with secure facilities on site. Site employees transport samples to the analytical lab. The laboratory compound is secured.
Audits or reviews	• The SGS laboratory in Waihi has been audited on a quarterly basis by OceanaGold geologists and the Competent Person when possible. No sampling risks have been recorded during these visits. • Sampling techniques and data handling processes are reviewed annually during internal OceanaGold technical service reviews.

Criteria	Commentary
	• External reviews of sampling techniques and data have been undertaken during third-party technical assessments. • No external audits or reviews of sampling techniques and data related specifically to WKP have been performed in the last 3 years

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	• The mineralisation occurs on granted permits Mining Permit 41808 and Exploration Permits 40767, 51771 and 40598 (Figure 2.1). • The mining permit was granted in March 2004 for a duration of 25 years, under the provisions of the Crown Minerals Act 1991. MP41808 underwent an Extension of Land in 2006 and again in July 2017 to incorporate the Martha open pit mine and tailings storage facility (TSF) that previously operated under Mining Licence 322388. The current mining permit covers an area of 1485.38 hectares and encompasses the current Correnso underground mine and Martha open pit mine. • On MP41808 the higher of a 1.0% royalty on net sales revenue from gold and silver or 5% accounting profits is payable to the Crown. • EP 51771 is subject to a 1% Net Smelter Return royalty payable to Newmont Mining Corporation to a cap of 300,000oz gold. • EP 40767 is subject to a 2% royalty payable to BCKP Ltd (acquired from Geoinformatics) with respect to certain “target” areas. • The Martha Mine is authorised partly by way of resource consents, and partly by way of Rule 5.17.4.1 P1 of the Hauraki District Plan. Rule 5.17.4.1 P1 authorises activities conducted in accordance with the relevant terms and conditions of, and within the area covered by Mining Licence 32-2388 following its expiry on 16 July 2017. Rule 5.17.4.1 P1 and Land Use Consent 97/98-105 authorise activities within the Mining Licence and Extended Project areas respectively. In combination they authorise mining, stockpiling, conveying, the processing of ore and the disposal of tailings to the existing tailings storage facilities, subject to conditions. While ML 32 2388 expired in July 2017 and Land Use Consent 97/98-105 expires in June 2019, the regime set out in these existing authorizations is continued after their respective expiry dates through the permitted activity rule framework set out in the Proposed District Plan. • Resource consents granted by Hauraki District Council (HDC) authorise mining of the Favona, Trio and Correnso underground mines. These consents for underground mining include authority for blasting, mining and the placement of rock underground as backfill, subject to conditions to protect amenity. • In addition to the authorisations required by HDC, a suite of consents from Waikato Regional Council (WRC) covers such matters as vegetation removal, water takes, diversions and discharges of water, discharges to air, and construction of the tailings storage facilities. Both HDC and WRC have conditions in place relating to mine closure, bonds and a post closure trust. • Consent to mine the Martha Underground resource and the remainder of the Phase 4 Martha Pit was granted on 4th February 2019. • Consent has not been sought for mining the Gladstone Project. • The Correnso, Gladstone and the Martha Underground Projects are situated below land owned by various landowners including government agencies, private land owners and OceanaGold. Office blocks, the processing plant, the underground portal and the tailings facilities are on land owned by OceanaGold. A significant portion of the area covered by the Martha open pit is owned by the Crown and administered by Land Information New Zealand (LINZ). OceanaGold holds a current access agreement for work in this area.
Exploration by	• Waihi Gold Company held exploration and mining licences and permits over the Open Pit

other parties	portion of the Martha deposit and the current underground mine since the early 1980's. The Waihi East area covering the Correnso deposit and easterly extensions of the Martha system was historically held and explored by Amoco Minerals, Cyprus Minerals and a Coeur Gold-Viking Mining joint venture from whom Waihi Gold Company purchased the tenement area, EP40428, in 1998. These companies drilled approximately 18km in 60 holes in the Waihi East area and identified some remnant resources on the eastern end of the Martha vein system on which they undertook scoping studies. OceanaGold purchased the Waihi Gold Company in 2015.
Geology	The Au-Ag deposits of the Waihi District and WKP are classical low-sulphidation adularia-sericite epithermal quartz vein systems associated with north to northeast trending faults. Larger veins have characteristically developed in dilational sites in the steepened upper profile of extensional faults often with narrower splay veins developed in the hanging wall of-, or between more than one- major vein structure. Gold occurs exclusively within quartz vein structures, usually as electrum. Free gold is only rarely observed. **<u>Martha Underground and Phase 4 Projects</u>** • These two projects fall within the large Martha Vein System, a complex vein network largely comprising a dominant southeast-dipping Martha vein (up to 30m thick in places) and several NW-dipping hangingwall splays including the Empire, Welcome, Royal, Daybreak and Rex veins. • Two additional steeply dipping, NNE-trending and well mineralised vein structures known as the Edward and Albert veins also form an important part of the overall Martha Vein System. • The host rocks are andesitic flows and volcaniclastics which have undergone pervasive hydrothermal alteration. Much of the Waihi area, including the Martha open pit is overlain by post-mineral volcanics (Figure 2.2). **<u>Correnso</u>** • The veining associated with the Correnso ore body is a steeply-dipping, NNW-trending array situated between the Martha Vein System in the NW and the Trio ore body in the south. • The veining is characterized by a more intermediate-sulphidation style of mineralization compared to the other veins in Waihi, with abundant green-coloured, mixed chlorite-smectite clays (corrensite) and higher concentrations of base metal and Mn-bearing minerals within the multiphase veining. • Gold-silver minerals are often developed in localized bands within the quartz-clay veins. There is an association of sphalerite, galena and chalcopyrite with gold-silver mineralisation throughout the deposit. The lower part of the deposit is base metal rich with galena (up to +3% Pb) and sphalerite (up to +1% Zn). • The host rocks are andesitic flows and volcaniclastics which have undergone pervasive hydrothermal alteration. **<u>Gladstone</u>** • The Gladstone deposit forms the southwestern extent of the mined Favona and Moonlight deposits. • Mineralisation at Gladstone is characterized by shallow-level, hydrothermal breccias and associated banded quartz veins between 1000mRL and 1150mRL. The breccias are rooted in the tops of mineralised quartz veins, flaring upwards into hydrothermal explosion breccias. The dominant veining at Gladstone trends ENE to NNE between 215° and 260° and dips steeply to the SE. **<u>WKP</u>**

	• Low sulphidation epithermal quartz veins at WKP are hosted in a rhyolite flow dome complex with overlying and interfingering lithic lapilli tuffs which are in turn partially overlain by post-mineral andesites. The rhyolites have undergone pervasive hydrothermal alteration, often with complete replacement of primary mineralogy by quartz and adularia with minor illite and/or smectite clay alteration. • Gold mineralization occurs in quartz veining developed along two types of structurally-controlled vein arrays. The principal veins occupy laterally continuous, NE trending (025-47°), moderately dipping (60-65°) district-scale graben step faults, reaching up to 10m in width. Subsidiary, extensional veins (1-100cm wide) are developed between or adjacent to the principle fault hosted veins. These veins often form significant arrays are moderate to steeply dipping with a more northerly to NNE strike and appear to lack lateral and vertical continuity compared to the fault hosted veins. The ore zone covered by much of drilling at WKP is the Eastern Graben Vein (EG-Vein), compared to the more westerly T-Stream and Western Veins (Figure 2.3). In general, there are very few sulphides other than pyrite in the WKP veins.
Drill hole Information	• See Table 2 in the announcement, which lists for each hole with a significant intercept, the hole ID, intersection depth, downhole length and estimated true width of the intersect where possible to determine.
Data aggregation methods	• Compositing of data for grade estimation is within distinct geological boundaries, typically within modelled veins. • The grades are compiled using length weighting. • Grades are not cut in the database; however appropriate statistically derived top-cuts are assigned by domain in the estimation process.
Relationship between mineralisation widths and intercept lengths	• Drill intercepts are typically reported in true length where reliable orientation data is available, alternately down hole length are reported when orientation data is not available, holes are designed to intersect veins at more than 60 degrees to the vein as much as practicable.
Diagrams	**Figure 2.1 Waihi-WKP Tenement Map showing areas of Conservation Land and**

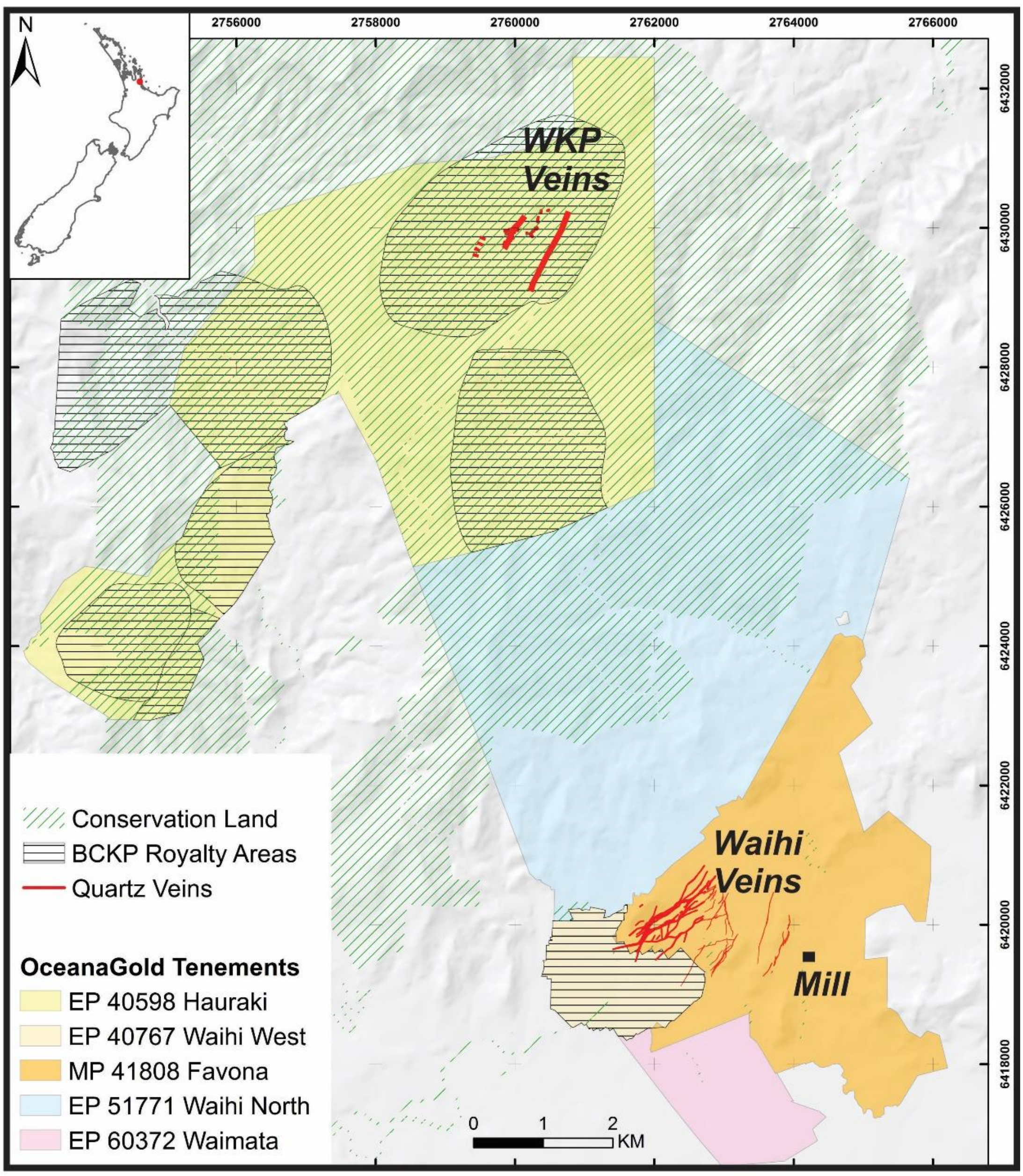
	BCKP Royalties
	

Figure 2.2: Simplified Geology of the Waihi Area and drill collars from 2017 onwards.

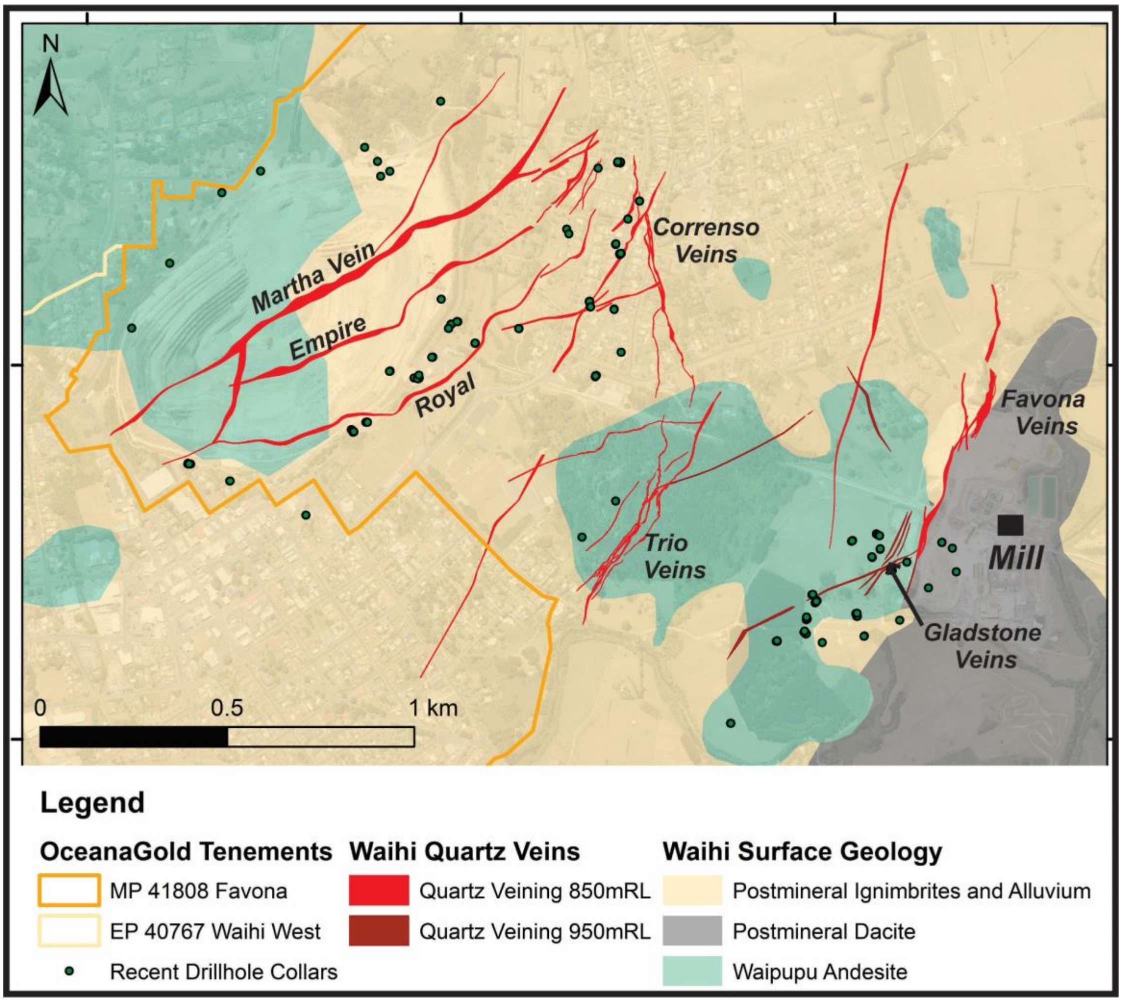


Figure 2.3: Simplified map showing drilling and veining at the WKP project

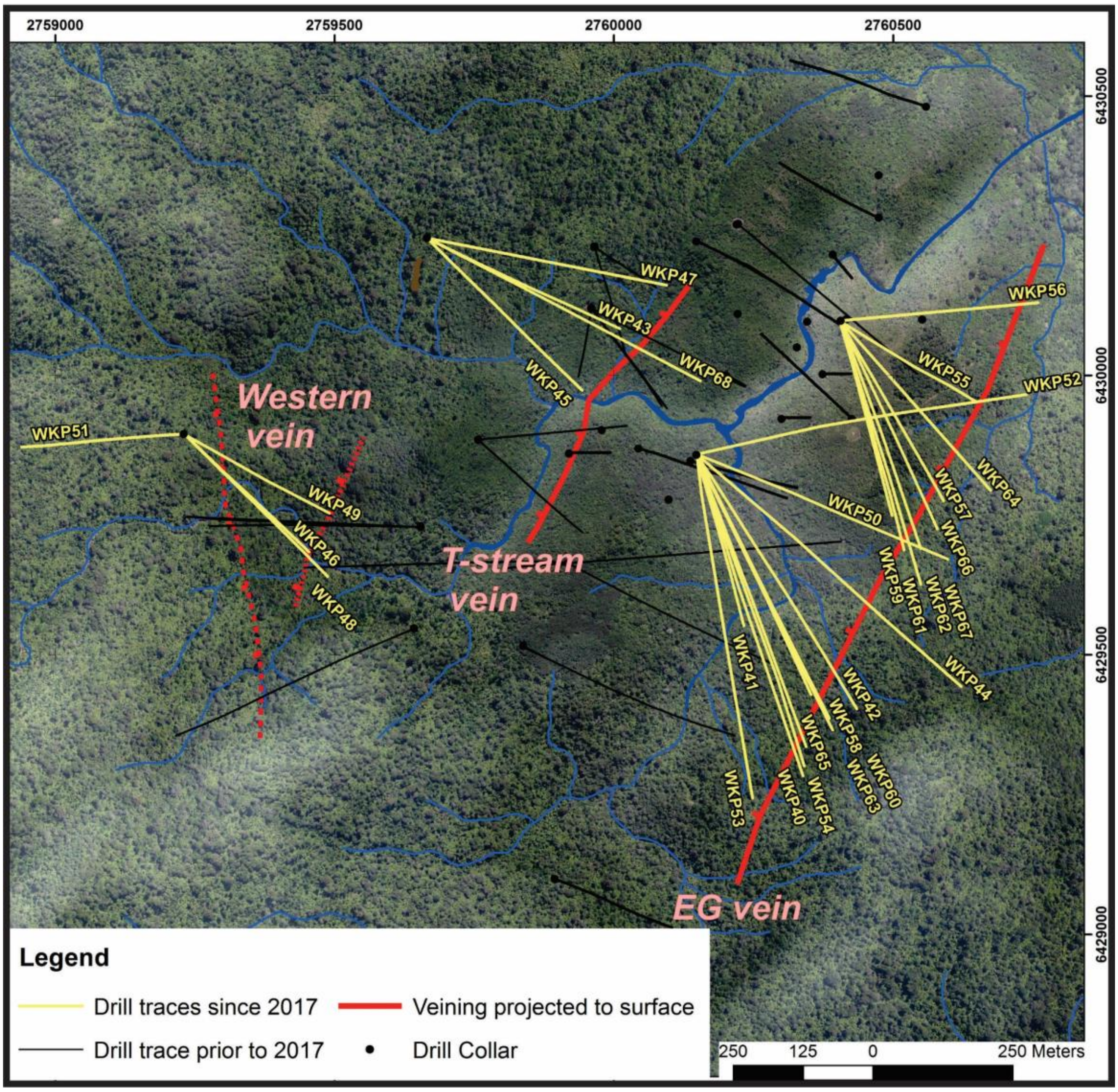
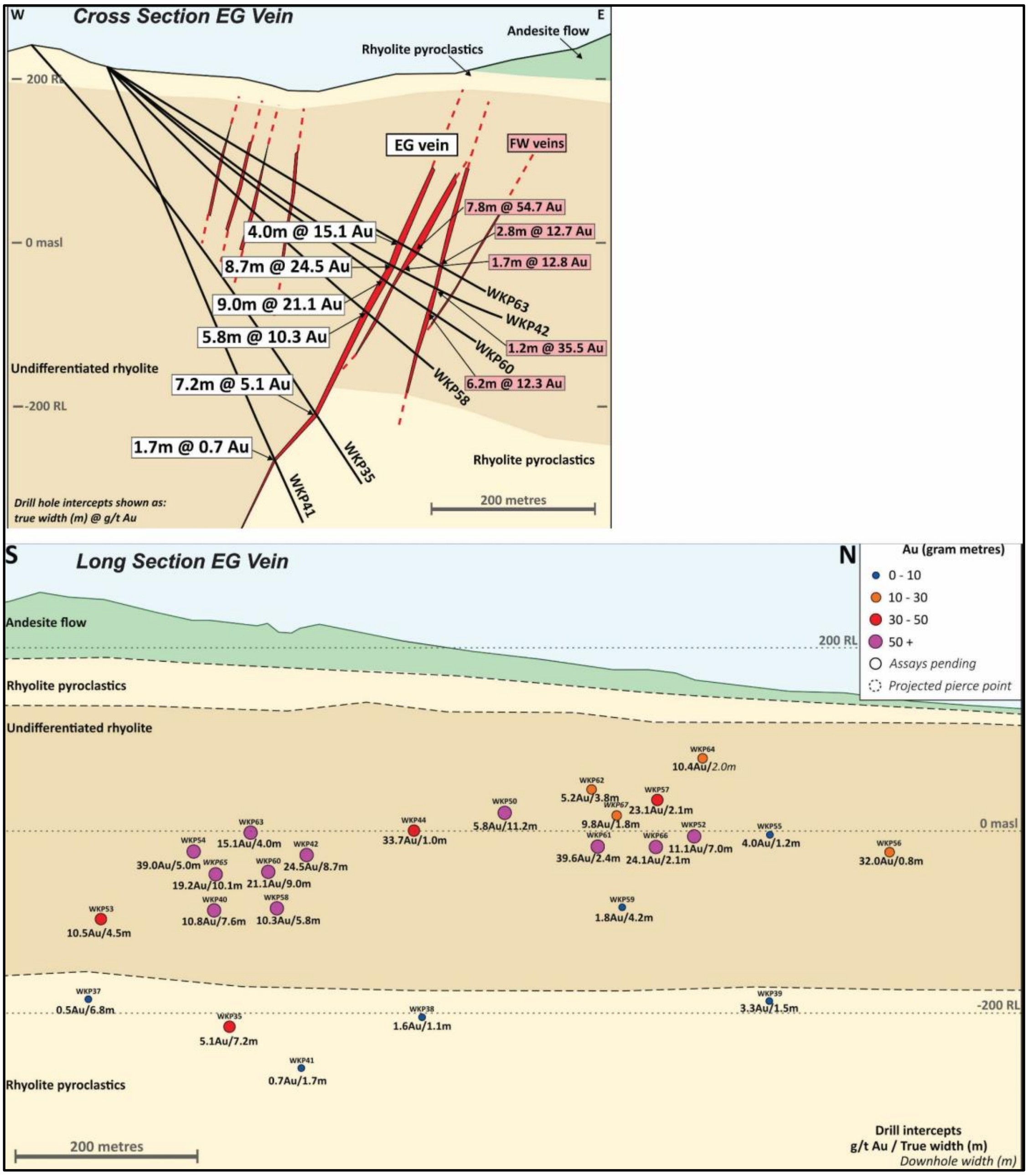

2759000
2759500
2760000
2760500
6430500
6430000
6429500
6429000
Western vein
T-stream vein
EG vein
WKP51
WKP49
WKP46
WKP48
WKP47
WKP43
WKP45
WKP68
WKP56
WKP55
WKP52
WKP64
WKP57
WKP50
WKP66
WKP59
WKP61
WKP62
WKP67
WKP41
WKP44
WKP42
WKP58
WKP65
WKP60
WKP63
WKP53
WKP40
WKP54
Legend
Drill traces since 2017
Veining projected to surface
Drill trace prior to 2017
Drill Collar
250 125 0 250 Meters

	Figure 2.4: Simplified Cross and Long Sections of the EG vein at WKP 
Balanced reporting	• The Waihi drill hole information is available from www.oceanagold.com.
Other substantive exploration data	• OceanaGold is continuing an intensive drilling program within the district on permits MP 41808, EP 51771, EP 60372 and EP 40767 with thirteen diamond drill rigs currently dedicated to various projects, this work is planned to continue throughout 2019.
Further work	• OceanaGold continues to drill in the Waihi area, with 27km of drilling planned for resource infill and 20km planned for reserve conversion for the Martha Underground project and 14 km planned for the WKP project in 2019.

Section 3 Estimation and Reporting of Mineral Resources

Criteria	Commentary
Database integrity	• Drill hole data is initially captured in an Access Database used for drill hole planning and management. That data is validated by several inbuilt data-entry checks. • The data is imported from Access into the main AcQuire database interface which includes validation protocols. • Personnel are well trained and routinely check source versus input data during the entry process. • The Martha Underground model r1218_mug_subblocked_fnl.bmf incorporates all available data, Exploration Diamond Drilling, in-pit channel grade control data and in-pit RC grade control data have all been utilised in both the building of the geologic model and in the grade estimate. • In the construction of the MUG model it was recognised that there is significant historic cross cut data from the historic level development (circa 1880 to 1930) that could be utilised to aid in estimating grade particularly in the poorly drilled portions of the deposit. This legacy cross cut data is of unknown quality, grade historically was recorded as an economic value and a gold equivalent value was back calculated for this data set previously. The legacy cross cut data is utilised in the construction of vein wireframes. This data is excluded from the grade estimation for material reported under this report. • The cross-cut data was reviewed spatially and only data that spanned the full width of the vein was selected for utilisation in the vein wireframe construction. This data was further limited to only the second pass grade estimation pass which is utilised on an on-site basis purely as an aid to drill planning. • Each dataset was extracted independently from the parent Waihi AcQuire database for EDA purposes. Local Vulcan isis databases are created with the extracted data. These local databases are then flagged with domain codes and utilised for all subsequent processes
Site visits	• Peter Church has been employed at the operating mine since 2011. He is employed in the role of Principal Resource Geologist with responsibility for resource estimation. In the preparation of the Martha Underground model, OceanaGold Group Geologist Tim O'Sullivan was consulted with regards to some technical considerations in the construction of the model. Past Group Geologist Mike Stewart has also been widely consulted in the construction of various other models that contribute to the combined Waihi Resource and Wharekirauponga (WKP) Resource.
Geological interpretation	<u>**Martha, Correnso and Gladstone Resources**</u> • Open pit and underground mining since 1988 has provided a large database of mapping and grade control sampling, which has confirmed the geological interpretation to date. • The geologic interpretation processes utilised in construction of all Waihi Models utilizes log data, assay data, underground face and backs mapping – where available, digital core photos and oriented core measurements, all of which are systematically collected and validated. The dip and dip direction of significant veins, faults, bedding and geological contacts are estimated from oriented core measurements. • For production grade control modelling structural data is imported into an ISIS geotechnical database in Vulcan®. A 3-D display of the orientation data is then created in Vulcan® and used to guide the geological interpretation. Vein intercept points are snapped to drill holes in Vulcan® and additional control points are added, as required, to inform the geological interpretation. The point data sets are then exported to Leapfrog™, where vein and fault contact iso-surfaces - and solids - are created. The solids are then imported back to Vulcan®, where they are validated against drilling and known geological features and undergo final processing; this involves booleaning (truncating) against / merging with adjacent features – where applicable – and checking for consistency. Gold mineralisation is confined to quartz veins and is not disseminated

Criteria	Commentary
	in wall rock; therefore, the main vein boundaries are usually coincident with assay intervals, which attempt to honour the geology. There are a small number of instances where high grade assay results located immediately outside the main vein boundary have been included within the vein wireframe; such as where the grade is interpreted as belonging to small-scale, localized, parallel or sub-parallel veins / stringers rather than being attributed to contamination or a cross-cutting structure. • Geological modelling of the Martha Underground project was performed in Leapfrog Geo 4.2.1 using the interval selection and vein systems tools. The project was linked directly to the ADMWAIHIEXP AcQuire database using the AcQuire API. • Key geological features are interpreted from a combination of spatially referenced Logging, Assay and Mapping data. Domain-specific grade and geological continuity characteristics were created to create representative wireframes of vein structures. The following data sources contribute to final wireframe shapes: o Exploration drilling data – Diamond and rare RC o Open Pit Grade Control channel samples and RC samples o Historic Quartz Vein Mapping o Historic mining triangulations o Surface mapping o Full width historic x-cuts o Core Photography and Logs • Diamond drilling intersects were assigned to structures from a merged assay and geology table. Discrete colourmaps were used to ensure that only distinguishing features were selectable. Criteria commonly used to determine inclusion within a vein include; o Au and Ag values o VnQtz% o Lithcomp - commonly Q, QC o Lithtype including void intercepts (STF, STO, CAV, OPEN) o Brecciation type and intensity • Filters were commonly applied to identify primary structures within dense data. These were modified on a vein-by-vein basis and compared to core photography to establish geological consistency between veins. • A structural database was constructed using the structural modelling functions in Leapfrog Geo. Oriented discs were used to inform intercept relationships, with structure type, thickness and measurement confidence commonly used as filters. • The digital core photographic record is used extensively during the modelling process. Identifiable characteristics of veins can be recognised, such as mineralogical and textural characteristics, the nature of contacts, and the existence and relative timing of mineral phases within the vein zones. The mineralized veins have a distinctive appearance, and common textures and mineralogy - consisting of chlorite-smectite clays and base-metal sulphides, along with quartz, and which are commonly complex due to internal multi-phase syn- and post-mineralisation deformation - quite different to barren veins such as the 5995 (calcite-quartz lode). Another reference used to guide the geological interpretation is the mapped geometry of veins that have been mined previously, Waihi veins are characterised by sinuous deflections that tend to be continuous over a considerable vertical extent. Where the orientation data varies along the length of a given vein, or down dip, it is considered in context of the overall geometry of the deflections. • Geological models are integrated with regional geology and with detailed surface topographic models, which are routinely updated by mine surveyors. Geological models

Criteria	Commentary
	and geological concepts have been routinely reviewed by internal and external reviewers. **<u>Wharekirauponga (WKP)</u>** • The Wharekirauponga (WKP) Au-Ag prospect in the Hauraki Goldfield is a narrow vein, high grade, low sulphide epithermal deposit hosted within a rhyolite dome complex (Miocene). The controls in mineralisation are not dissimilar to those of the other epithermal vein hosted deposits of the Thames Coromandel goldfield. • Major structures strike NNE and dip steeply to the west with extensional linking vein sets striking in a more northerly direction. • Many characteristics of veins can be recognised in the logging and from core photos such as mineralogy, vein textures, vein contacts and the presence and relative timing of mineral phases within the vein zones. Domain-specific grade and geological continuity are defined by a geological model and representative 3D wireframes of vein structures. The geological interpretation process used in the construction of the WKP model incorporates drill log data, assay data, digital core photos and where available oriented core measurements of vein contacts, structure or bedding. Surface geological mapping is also incorporated into the geological modelling process. These are all systematically collected and validated. • Geological models are integrated with regional geology and detailed surface topographic models (LiDAR). Geological models and concepts have been routinely reviewed by internal and external reviewers.
Dimensions	**<u>Martha, Correnso and Gladstone Resources</u>** • The Correnso, Daybreak Empire and Trio underground projects have been consolidated at the end of 2018 into the Correnso project. This mining project is nearing completion; the resource estimates for the various component projects have been well documented in previous Table 1 reports. All resources relating to the Correnso project are based upon grade control models with 100% conversion to reserve. On the basis that the associated resource is now less than 10% of the site resource base these minor deposits will not be covered in significant detail within this report. Should the reader seek further detail on these deposits then it is recommended that the previous Waihi Table 1 report is sought. • Martha open pit resources are not of significant scale in the context of this report and consequently will not be covered in significant detail. The reader is urged to refer to previous Table 1 documents if more detail is required on this deposit • The WKP project resource estimate has been covered in a standalone Table 1 document released in February 2019. Reported resources are included in the tabulated figures for site however details relating to the model should be sourced from the appropriate Table 1 report referenced above. **<u>Martha Underground</u>–** r1218_subblocked_MUG_fnl.bdf The block model was constructed in Mt Eden old grid. ○ Origin: X 395150; Y 642330; Z 500 (Mine Grid) ○ Rotation: Bearing 065; Plunge 0; Dip 0 ○ Parent cell size 5.0m X, 5.0m Y, and 5.0m Z ○ Sub blocking cell size 1.25m X, 1.25m Y, and 1.25m Z ○ Offset in X direction 1700m ○ Offset in Y direction 950m ○ Offset in Z direction 700m **<u>Martha Phase 4 Pit</u> –** 07m15.v0; project control file 515m10.dat Minesight generated model • The block model was oriented relative to mine grid.

Criteria	Commentary
	(continued)

- Parent cell size 10.0m X, 3.0m Y, and 2.5m Z
- Offset in X direction 55m
- Offset in Y direction 200m
- Offset in Z direction 120m
- Origin: X 1700; Y 1200; Z 870
- Rotation: Bearing 090; Plunge 0; Dip 0

Gladstone Project - Block definition for the Gladstone deposit

- r0218_GLOP_small_reg.bdf
- Regularised block model – cell size. 2.5 m
- Offset in X direction 400m
- Offset in Y direction 800m
- Offset in Z direction 300m
- Origin: X 396600: Y 642200: Z 900.0
- Rotation: Bearing 135; Plunge 0; Dip 0

WKP

- Block Model Dimensions – WKP0219_USC.bmf

Variable	X	Y	Z
Origin	2759150	6429410	-345
Extents (m)	1400	1640	620
Block Size (Parent)	5	10	10
No. of Blocks (Parent)	280	164	62
Sub Block Size	0.5	0.5	0.5
Orientation	+100 degrees	X axis around Z	

Estimation and modelling techniques

Martha, Correnso and Gladstone Resources

- Vulcan® software has been used to construct the Martha underground, Correnso, and Gladstone models. The estimation techniques discussed below are considered to be appropriate.
- The Martha Open Pit model is run using MineSight® software and is a non-sub-blocked model. Estimation is completed using either ordinary kriging (OK) or inverse distance weighting to the second or third power (ID2/ID3), as deemed suitable by the density of data in each domain. This estimation technique discussed is considered to be appropriate.

Grade Capping

- Reconciliation history for the Waihi project has demonstrated that some level of high grade restriction is necessary to limit the influence of outliers on grade estimates for the epithermal veins that have been mined during the operations history.
- Statistical assessment of the input data is undertaken by domain, typical top-cut selection is based on the assessment of the population distribution characteristics and for inverse distance estimates cutting at the 98th percentile on the log probability distribution has been a long-standing methodology that has produced acceptable results. Estimates using an ordinary kriged estimation scheme utilise a 99th percentile threshold.
- The use of this method in determining top cuts has resulted in good reconciliation historically. Typically, different data types are assessed independently in the capping analysis process.
- The Martha Underground estimate is based on an Ordinary Kriged Estimation plan and

Criteria	Commentary

based on comparative assessment of the Ordinary Kriged outputs a top-cut % of 99 has been adopted for kriged estimates.

- The metal removed analysis includes tabulation of the following:
    - Number of samples above the cap
    - Percentage of samples above the cap
    - Minimum, maximum, mean, and variance of samples above the cap
    - Mean and variance of uncapped data
    - Mean and variance of capped data
    - Capped % difference:

      $$\frac{(\text{uncapped mean} - \text{capped mean})}{\text{uncapped mean}} \times 100\%$$

    - Contribution of the samples above the cap to the uncapped variance:

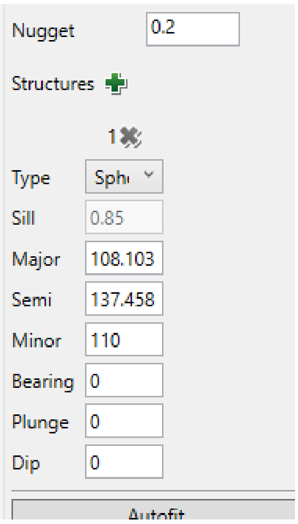
      $$(\text{mean above the cap} - \text{uncapped mean})^2 \times \frac{\%\text{ of data above the cap}}{\text{uncapped variance}}$$

    - Contribution of the samples above the cap to the total metal:

      $$(\%\text{ of data above the cap}) \times \frac{\text{mean of data above cap}}{\text{uncapped mean}}$$

<u>Variography</u>

- Down hole and directional variography are typically run using Snowden Supervisor v7 software or Vulcan Version 11.0. Variograms are run to test spatial continuity within the selected geological domains.
- The process of domaining in the Waihi deposits removes the majority of the variance and consequently compromises the variogram modelling process. The best variography is therefore obtained for the Martha deposit when un-domained data is utilised, Variogram orientation is defined for each domain based on the strike and dip of the veins as modelled. Both downhole and omni-direction variograms have been defined that fitting of a variogram model. The variogram structure is defined using a standardised spherical single structure model with parameters as follows:



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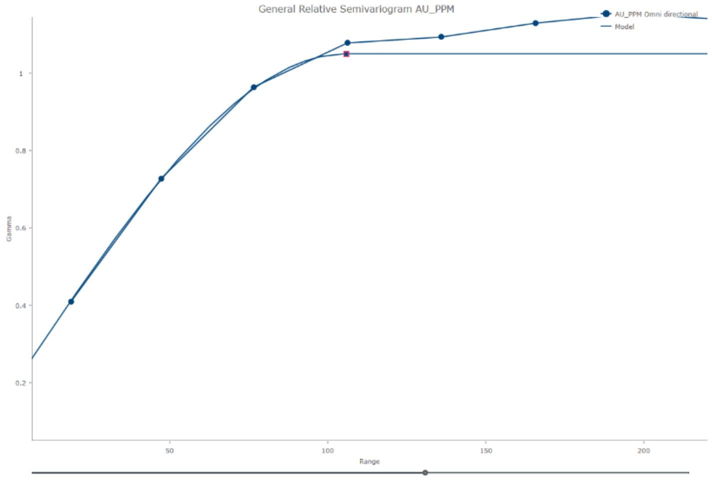

<u>Estimation / Interpolation Methods</u>

- Veins for the Martha underground model were interpreted using Leapfrog software. Vein and geology wireframes were then utilised to construct a block model within Vulcan. Compositing of data for grade estimation is within distinct geological boundaries. For this model the vein domains were estimated using Ordinary kriging and tetra unfolding was employed to deal with complex vein geometries and to aid in resolution of the grade distribution and sample selection for the estimation.
- The Martha Underground block model is rotated in bearing to align with the dominant strike of the veins and they are run using Vulcan® software. Sub-blocking is used to define narrow veins and to maintain volume integrity with the geology solids. The grade estimation for all models is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids. Gold is estimated using one of the following methods; either - a single pass with a combined channel and drilling dataset; OR - two-pass estimation using a combined dataset with short search range first, then followed by a second pass using drill hole data only with longer search ranges to estimate blocks not estimated in the first pass.
- Gladstone grade estimation is undertaken using similar methodology as that used for Correnso with the exception being the use of regularised blocks. Gladstone deposit veins are interpreted using Leapfrog software. Vein and geology wireframes are then utilised to construct a block model within Vulcan. Drilling data is then length composited within the vein wireframes and lithological units and grade estimates are prepared utilising unfolding and ordinary kriging. Nearest neighbour and Id2 estimates are also prepared for validation and assessment. The grade estimation is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids. Gold is estimated using data;

<u>**WKP**</u>

<u>Grade Capping</u>

- Reconciliation history for the Waihi project has demonstrated that some level of high grade restriction is necessary to limit the influence of outliers on grade estimates for the epithermal veins that have been mined during the operations history. Statistical assessment of the input data is undertaken by domain, typical top-cut selection is based on the assessment of the population distribution characteristics and for inverse distance estimates cutting at the 98th percentile on the log probability distribution has been a long-standing methodology that has produced acceptable results. For the WKP project the approach of cutting to the 98th percentile is considered appropriate.

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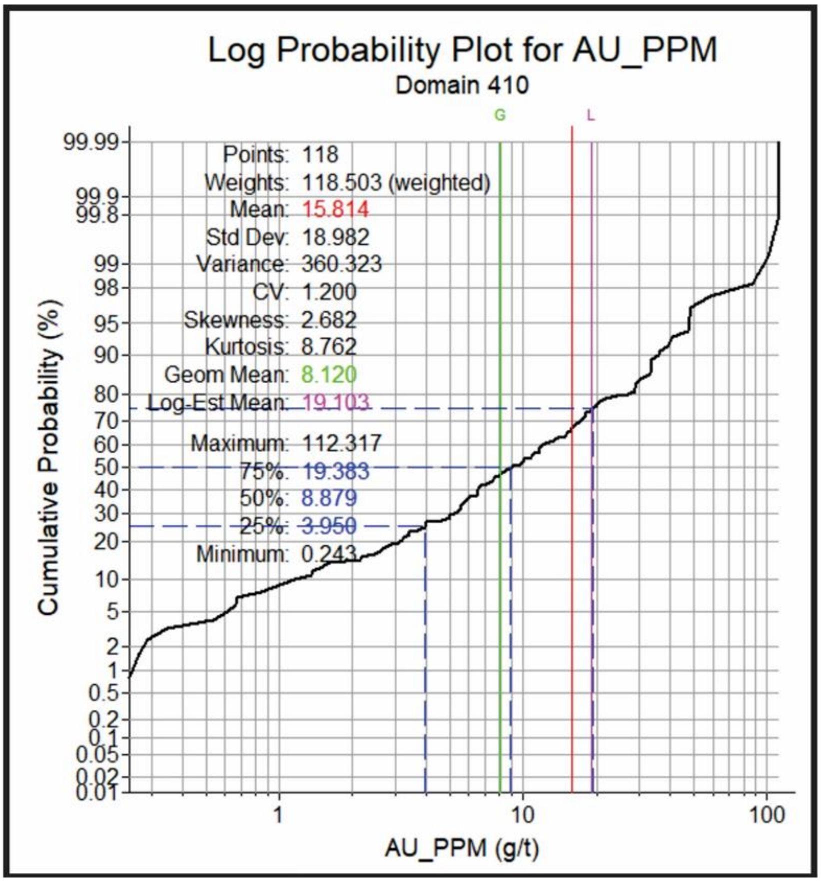
Figure 3.1: Log Probability Plot for the Eastern Graben (EG) Vein



<u>Variography</u>

- Down hole and directional variography are typically run using Snowden Supervisor v7 software. Variograms are run to test spatial continuity within the selected geological domains. Variograms are modelled for defined veins, Due to the planar nature of the vein data, variogram models often are not easily obtained so in this instance anisotropic ratios are based on geological observation rather than on fitting data to the variogram models. Dominant mineral continuity is set along the strike of the modelled veins. While Ordinary Kriged estimates have been run for comparison, the estimates selected as final have used standard Inverse Distance methodology.

<u>Estimation / Interpolation Methods</u>

- Veins for the WKP deposit model were interpreted using Leapfrog software. Vein and geology wireframes were then utilised to construct a block model within Vulcan. The WKP estimate is prepared using a sub-blocked model.
- Drilling data is then length composited within the vein wireframes and lithological units.
- The grade estimation for all models is strictly controlled by the geology, with both sample selection and estimation of blocks limited to domains defined by the geological interpretation solids; grade interpolation is via inverse distance weighting to the second power (ID2).
- No previous estimates for the WKP project are available for comparative assessment.

</td></tr>
<tr><td>Moisture</td><td>

- Estimates of tonnage are prepared on a dry basis.

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<tr><td>Cut-off</td><td>

<u>Correnso and Associated Veins</u>

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Criteria	Commentary
parameters	• Underground mining cut-offs were based on a gold price NZ$1806, mining costs of NZ$90 / ore tonne and processing costs of NZ$68 / tonne (which includes all general and administrative charges). • Cut-off grades applied to the underground mine are shown in the Table 3.1 below:

Table 3.1: Underground Cut-offs Used

Area	Stoping	Ore Development
Correnso, Daybreak, Empire, Correnso Deeps, Trio Deeps, Christina.	2.9g/t	3.1g/t

Martha Underground Project

- A cut-off grade of 2.15g/t has been used for the Martha Underground Resource mine design.
- Cut off grades are estimated at a USD 1500 gold price and based on projected (2018) processing costs of NZD 30/tonne, general and administration costs of NZD 20/tonne, current mining costs (including sustaining capital development) of NZD80 / resource tonne. Additional sustaining capital costs of NZD 6 / resource tonne have been allowed for to cater for fixed and mobile plant.

Martha Open Pit

- A cut-off of 0.5 g/t has been utilised for Open Pit Mining in Waihi.
- There are no Inferred Resources in the Martha Open Pit.

Gladstone Open Pit

- Cut-off grades are calculated based on rock type as the cost of processing divided by the equivalent price multiplied and process recovery.
- The equations developed in the study were based on a gold price of USD 1500/oz. and silver price of USD20/oz.
- For the optimisation, the equivalent gold price was estimated at NZD 68.05/gm, the cost of processing at NZD 33.73/t and process recoveries developed from regression analysis of testwork. The process recovery relationships are shown below:
  - Weathered resources at 90micron grind:
    - $\text{Au grade x } 68.05 \text{ x } (0.902 \text{ x Au grade } - 0.049) \,/\, \text{Au grade} = 33.73$
  - Un-weathered resources at 90micron grind:
    - $Au\ grade\ x\ 68.05\ x\ (0.85\ x\ Au\ grade\ - 0.452)\ /\ Au\ grade = 33.73$
  - Cut-off grade for breccia resources 0.67 based on a fixed recovery of 74%.

Cut- off grades for weathered and un-weathered resources are as shown in Table 3.2:

Table 3.2: Gladstone Pit Cut-offs Used

Area	Cut-off grade
Weathered mineral resources	0.6 g/t
Un-weathered resources	1.1 g/t
Hydrothermal breccias	0.7 g/t

WKP

- The WKP Resource is calculated above a cut-off grade of 3.0 g/t Au based on the

Criteria	Commentary
	assumptions provided below. Silver was not included in the cut-off grade calculation due to its small contribution to the value of the mineralization. Parameters used to calculate the cut-off grade were derived from the nearby Waihi operation with additional costs allowed for surface and underground haulage of the Resource to the Waihi process plant. o Metal recovery (%): 90 o Operating cost (NZD$/t): 170 o Gold price (USD$/oz): 1,500
Mining factors or assumptions	**<u>Correnso and Associated Veins</u>** • Mining options available for Correnso and associated veins are limited because of the consent conditions, specifically relating to blasting vibration limits and backfill constraints. Long-hole bench mining (Avoca) with waste rock backfill was selected as the preferred mining method for extraction of Correnso with overhand cut and fill in areas particularly sensitive to vibration. Other supplementary methods involve floor benching. • Correnso has been designed with a 15m to 18m level spacing, floor to floor, primarily to limit blast vibration but this also assists hanging wall and footwall stability. Conventional cross cut accesses are designed for Avoca stoping levels. More detail can be found in Section 4 of this table. <u>Hydrogeology</u> • GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's. Regular monitoring is compared to the modelled predictions and is discussed in the annual settlement and dewatering monitoring report submitted to the Regulators. • GWS report that a shallow groundwater system associated with volcanic ash, alluvium and completely weathered rhyolite tephra is present at shallow depth. Monitoring data shows that it is unaffected by mine dewatering except immediately adjacent to the Martha Pit. Shallow groundwater levels are controlled principally by rainfall infiltration, low surface soil permeability and natural and assisted drainage to surface water systems. • GWS report that the higher volumes of water in the deeper aquifer are contained primarily in the quartz vein, the historic underground workings and infiltrated through the open pit which is more permeable than the surrounding andesite country rock. Water levels are maintained at the lowest underground mine level (730mRL) by the current underground pumping system. Further drawdown of the water table is required at a rate of 10,000 to 12,000m^3/d to extract the Correnso Mineral Resource. • Permits are in place for the drawdown of the water table to 700mRL. The mine is currently dewatered to 705mRL. The preferred option is of developing sumps at intervals as the mine develops downwards. These sumps are then pumped to the permanent staging pump station established at 790mRL which pumps direct to the water treatment plant. Water can be drained ahead of the work with short wells or water that drains and accumulates behind the face can be pumped using portable submersible drainage pumps back to the last stage sump. A slurry pump system has been installed capable of handling the high level of entrained solids for the permanent pump stations. <u>Geotechnical</u> • Geotechnical studies were completed by various external consultants (Engineering Geology Ltd, Entech, SRK, Laurie Richards and Beck Engineering) during the Waihi

Criteria	Commentary
	Correnso study.

- The extensions of the Correnso vein above 915mRL are for the most part hosted within the Lower Andesite unit with the upper extents of the mineralization persisting through the transition to the upper andesite. Host rock conditions are mostly favourable although the rock mass appears to become slightly less competent than at greater depth. Visual estimates suggest Fair to Good rock quality classifications.
- Lower Correnso ground conditions appear to be simply an extension to those already exposed by developments along the Correnso Vein on 795 and 810 levels. The vein zone as exposed on 795 and 810 is heavily structured with sugary quartz /calcite veins but overall ground conditions are classed as Good.
- Overall both the host rock and vein zone of the Daybreak vein appears relatively competent. Daybreak is now intersected on most levels with no apparent adverse impact on ground conditions and no additional ground support was necessary.
- The Empire host rock characteristics in the immediate vicinity of the ore-bodies are mostly favourable. Ore body conditions are variable. A zone of broken veining occurs at the northern end of the ore-body which may restrict stope spans to 15m.

Mining Recovery and Dilution

- The mining recovery factors applied for Correnso underground are summarized in the table below. Over-break is included in the capital and operating lateral waste development dimensions so that no additional over-break is assigned. No over-break is assumed for operating lateral ore development as the over-break tonnes are generally ore which are included in the stope tonnes. Assuming zero over-break in the ore drives removes the risk of either double counting or under calling ore tonnes and metal.
- Stopes are designed with nominally 0.5m dilution applied on both the footwall and the hanging wall. This is based on experience gained when stoping Correnso, Trio, and Favona orebodies.
- Tonnage recovery factors shown in the table following for stoping include in-situ ore, plus dilution material. Metal recovery factors consider the difficulties associated with recovering all ore from a stope, particularly under remote control operations. Additionally, it allows for the potential loss of metal due to excess dilution burying ore and not recovering all the ore.

Table 3.3: Tonnage Recovery Factors

Activity	Tonnage recovered	Metal recovered
Lateral Development — Capital Waste	100%	-
Lateral Development — Operating Waste	100%	-
Lateral Development — Operating resource	100%	100%
Vertical Development — Capital Waste	100%	-
15m high Long Hole Stope (includes 5% fill dilution at zero grade)	108%	95%

- Underground resource is trucked to the ROM pad and underground waste will generally be directly hauled to stope fill or to the surface waste dump as required and subsequently returned to the underground as backfill.

Martha Underground Project

Historic Stope Modelling

Criteria	Commentary
	Stope Fill • Accurate definition and appropriate treatment of risk associated with historic stopes is important for the Martha Underground project. • Wireframes of the historic workings contain development levels, open stopes and filled stopes, shafts, passes and the Milking Cow caved zone. Adjustments to development levels and stopes have been made based on interaction with current underground mining activity, additional historic plans made available through the Auckland War Memorial Museum and the current Martha diamond drilling campaign. • Current mining interactions have provided a source of more accurate information to base adjustments to the immediate area intersected. In some areas sufficient evidence has been determined to enable further adjustment to surrounding and wider areas. These are achieved either through directly mining into/ through old workings, targeted probe holes and scanning of the old voids. • The collection of mine plans held at Auckland War Museum are in the process of becoming available as high-resolution scans. The collection consists of level development plans, stope long sections for each lode, cross-sections that display level positions, lode interpretation and stope shape, and schematic plans of shaft depths. • Logging of diamond drill holes identified voids and stope fill within the drill core and provided an interpretation of voids as open stopes or levels, filled stopes or collapsed stope zones. • Void and Fill data collected from probe holes drilled by blast-hole rigs during open pit voids management processes. This dataset contains ~12k holes intersecting historic voids and provides a high-resolution record of as-mined level and stope positions as well as their interactions with pit walls. ***Methodology*** • As the latest information either physical or on paper becomes available the current data for that old level/s are reviewed and updated accordingly. • Some additional stopes on the Ulster lode have been digitised and added to the void model based on information from a scanned long section made available through the Auckland War Memorial Museum. Stope shapes were digitised using stope widths annotated on the long-section plans, and stope orientation was determined by wireframes and/or drill hole intercepts. • The individual stope files that are situated entirely within the open pit shell and the Milking cow collapsed zone were archived and not included in the stope model for this update. • Stope shapes and levels were validated for closure, consistency, and crossing triangles to ensure they could be evaluated for volume, then re-merged into a complete set of development levels, filled stopes and open stopes. All stope files were peer reviewed and validated against previous files. All updates to stope shapes were recorded in the stope adjustment register. • Merged files are published concurrently with the estimation wireframes and are fit for use during model interrogation and subsequent drill hole planning. Merged sets can be considered as best available complete information at the date of publish. Interactions between modern mining and historic workings are managed by the underground survey department using high resolution adjustments to localized void information. ***Modelling of voids*** • Fill is captured in the model via the *mined* variable,

Criteria	Commentary

Mined Variable value	Material Type	Modifying factors
0	In-situ	As estimated
1	Back filled stopes	Density and grade modified
2	subsidence	Density and grade modified
5	Open stope	Density set to zero, grade removed
6	Open development	Density set to zero, grade removed

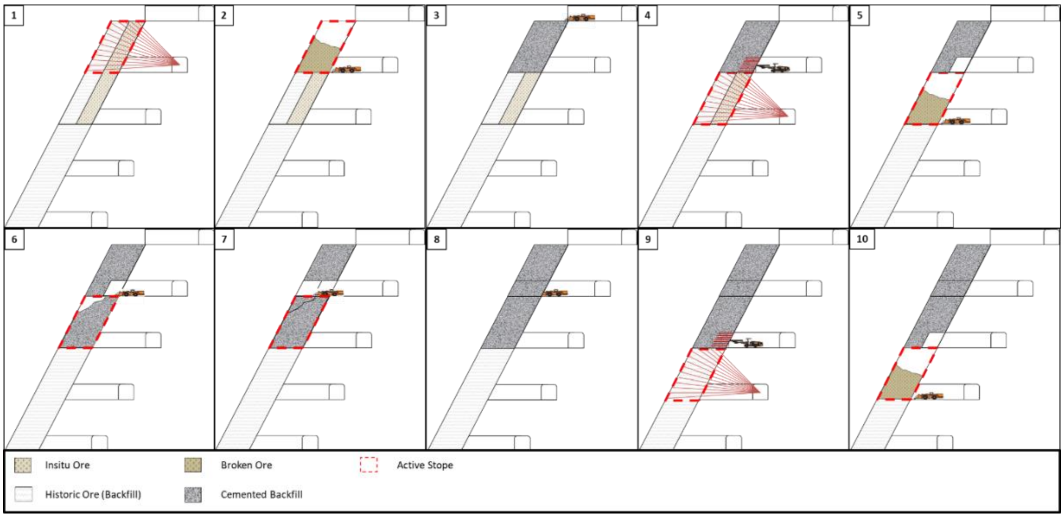
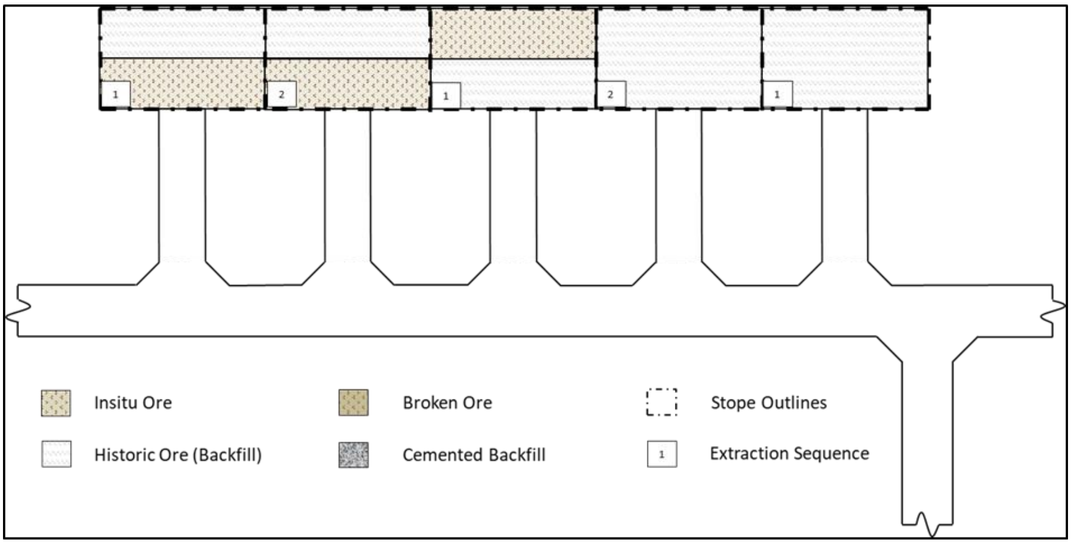
- Back filled stope blocks are assigned grade based on an average from available data collected through drilling and open pit grade control processes. Stopes in the Martha Vein are assigned a grade of 5 g/t. All other stope fill is assigned a grade of 3.6 g/t. Within the current model there is a modelled void volume of approximately 2.5 million cubic metres, this being open voids from historic underground mining (stopes, shafts, passes and level development). No back filled material is incorporated in the reported resource, this material is regarded as an exploration target and will be derisked through further exploration work.

<u>Hydrogeology</u>

- GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's. A specific groundwater model was prepared for the Martha Underground Project and a technical report issued.
- GWS concluded that:
    - The ore body to be mined comprises near-vertical quartz veining with relatively elevated permeability and storage within an Andesite rock mass of lower permeability and storage. Vein and fault intersections provide interconnections between Martha, Trio and Correnso mines. These intersections have been enhanced by mine developments.
    - Because of the interconnections, dewatering of one vein also dewaters the interconnected veins to a similar elevation, but the Andesite rock mass surrounding and between the veins is dewatered to a lesser degree such that steep hydraulic gradients develop between the veins and the rock mass.
    - While the current dewatering level of the Martha, Trio and Correnso vein systems is at approximately 705 mRL, historical dewatering has been undertaken to approximately 540 mRL and with the proposed Martha Underground Project to extend to 500 mRL only some 40m of previously non-dewatered ground would be dewatered.
    - An estimate of the expected averaged daily pumping rates to dewater range from 14,000m^3/day to 16,700m^3/day.
    - Monitoring data collected over the period since dewatering began in the late 1980s has indicated no adverse effects on shallow groundwater or baseflow to surface waters. This is, largely, a consequence of the perched nature of the surface water bodies in the shallow groundwater system. The proposed deepening will have no additional effect to surface waters than that already experienced.

<u>Geotechnical</u>

Criteria	Commentary
	• Ground conditions within the Martha Underground Project will be impacted due to proximity to historic mining voids. Mechanisms for mitigating the associated risks will be considered as part of the project scoping study to be undertaken in the coming year. • Pells Sullivan Meynink (PSM) engineering consultants reported on the effect of the Martha Underground Project on the Martha Pit wall stability and concluded that the Martha underground will run in parallel with the Martha Pit and this will have several benefits: o A proportion of the existing unfilled historical stopes will be stabilised by filling with rockfill and half of these lie in the upper levels immediately below the Martha Pit. o A proportion of the total planned mining is re-mining of historical stopes, it will be mining from the top down, a very large proportion of these lie immediately below the Martha Pit; and cemented aggregate fill will be used extensively in this mining. o These two factors will result in a significant improvement in overall rock mass conditions; firstly, by improving pit stability conditions both in the short and long term, secondly by reducing any impacts of the Martha underground mining and thirdly by reducing the longer-term creep of the rock mass around the historical underground. • AMC investigated the stability of the underground workings and reported that based on the current understanding of ground conditions, the planned ongoing investigation of conditions as suitable drilling positions become available, and the proposed cautious approach to development using close ground control techniques where required, AMC is confident that the proposed Martha underground mine can be developed and brought into production without any compromise to underground or surface stability. • AMC reported that the ground conditions influence the mining method, the means of access, and the design of stopes and access tunnels. A critical aspect of the Martha Underground Project is to undertake investigations to understand those conditions so that a safe and efficient mining method and well-informed approach to developing the mine is used. <u>Mining Method</u> • Mining method selection work for the Martha Underground Project was undertaken by SRK in 2011, 2016 and 2017 and confirmed by Entech in 2018. The Mineral Resource has applied the same recommended mining methods recommended by SRK and Entech. • A proportion of the Mineral Resource inventory will involve the extraction of remnant ore skins in the footwall or hangingwall of previously mined stopes, or the extraction of both remnant ore skins and historical backfill (which contains economic gold grades). This mining method utilising remote drilling and loading methods, combined with remote LHD equipment for ore extraction from remnant mining areas. This method involves additional waste development adjacent to the remnant stopes, which increases overall development quantities and mining costs. SRK and Entech conclude that once established, the method is expected to achieve acceptable ore recovery with few safety issues anticipated. The proposed mining method is illustrated in Figure 3.2 and Figure 3.3.

Criteria	Commentary
	Figure 3.2 Side Ring Mining Method  **Figure 3.3 Side Ring Mining Method** 

Criteria	Commentary
	Mining Recovery and Dilution

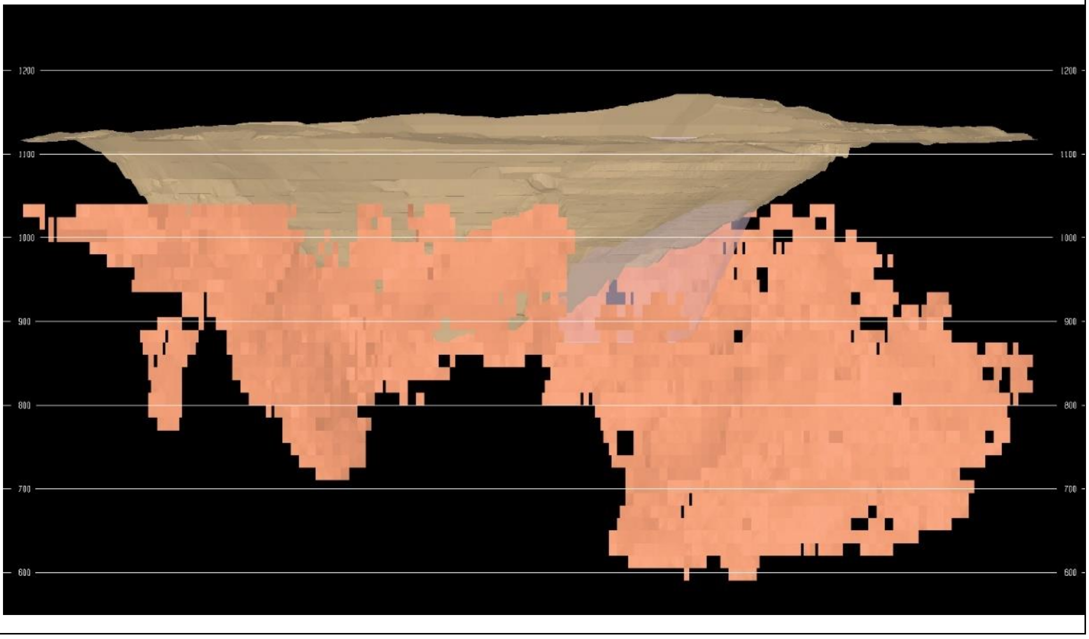
Mining Recovery and Dilution

- No mining recovery or dilution was applied to the Mineral Resource estimate.

Mineral Resource Estimate

- OceanaGold has estimated the Mineral Resource using the Alford stope optimiser. All stope shapes were created automatically using MSO (Mineable Shape Optimiser).
- Nominal stope dimensions of 15m high by 10m in length were selected for the design with a small number of sub-shapes of 7.5m along strike where these could form part of a larger block.
- Stope widths vary, depending on the thickness of the mineralisation. A minimum stope width of 0.5 m was used for both the side ring drilling method (for remnant mining) and for the Avoca bench mining method. 0.5m of dilution was applied to both the footwall and hangingwall resulting in a minimum stope width of 1.5m.
- A maximum stope width of 15m was used with a minimum pillar width between stopes of 8m. A maximum percentage of historical stoping of 10% was allowed in each MSO shape.
- The method of specifying the strike and dip angles for the initial stope-seed-shapes in MSO was to apply a stope control surface wireframe over the full extent of the orebody where stope shapes are to be generated.
- Stope control surfaces were generated in Deswik and the medial surface generation tool was applied to the hangingwall and footwall vein surfaces of each lode resulting in separate medial surfaces for each lode. These surfaces were then combined into a single wireframe file and used inside MSO as a stope control surface.
- Figure 3.4 present the MSO shapes prior to exclusion based on geotechnical and economic assessment.

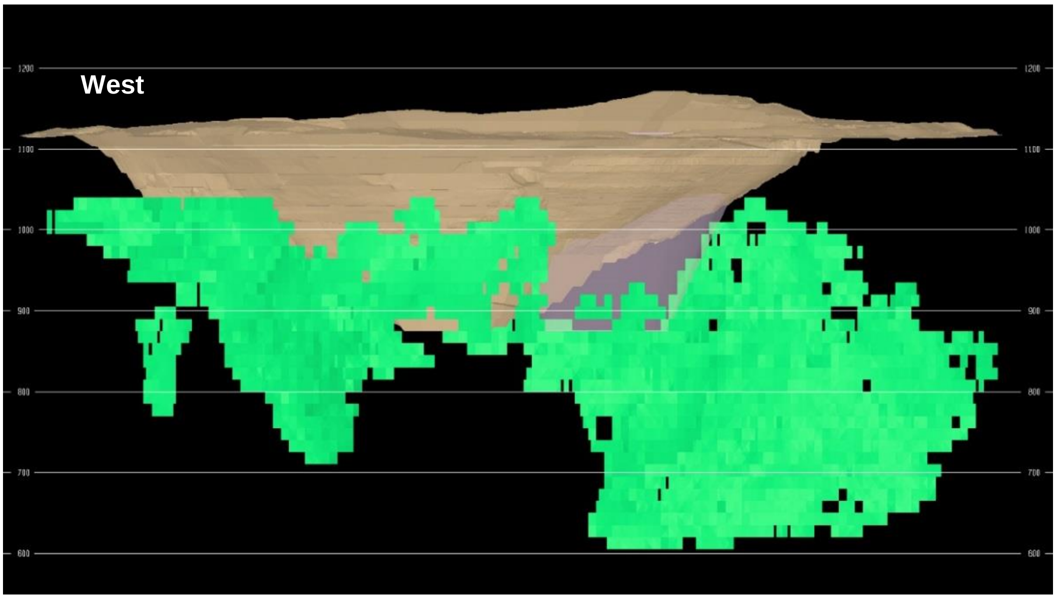
Figure 3.4 Martha Underground MSO shapes



<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td></td><td>

- Stope shapes from the MSO run were manually inspected for proximity and any isolated stopes removed.
- The following stopes were manually excluded from the Mineral Resource estimate:
  - Stopes closer than 50m from the surface.
  - Within a solid created as an exclusion solid around the historical “Milking Cow” zone by projecting the base of the cave zone outwards by 20 m and projecting it upwards at an angle of 65° from horizontal.
  - All stopes intersecting the base of the Martha Reserve pit.
- Figure 3.5 presents the MSO shapes after exclusion based on geotechnical and economic assessment.

Figure 3.5 Martha Underground Mineral Resource Long Section



- The Mineral Resource is reported within the MSO shapes above the 2.15 cut-off grade.

<u>Martha Open Pit</u>

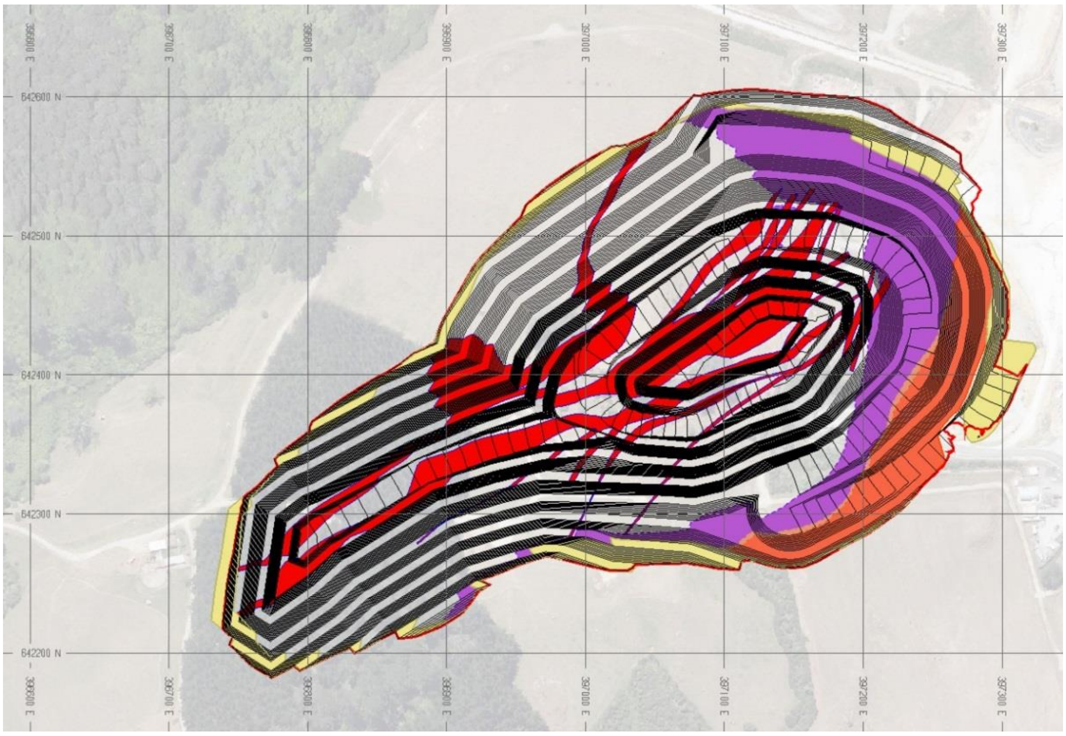
- There are no Inferred Resources in the Martha Open Pit.

<u>Gladstone Open Pit</u>

- The Gladstone Resource is reported within a conceptual pit shell defined using a USD 1500 gold price, this resource is largely indicated however approximately 10% of the contained metal within the Resource reporting pit shell is classified as inferred.
- The method for estimating the Mineral Resource involved a 2018 pit optimisation study using the “Whittle” Lerch-Grossman algorithm to determine the economic limits.
- Operating costs were estimated based on contract rates for the Martha open pit conventional drill, blast, load and haul with standard mid-sized mining equipment. The selected mining method and design is appropriate for the Gladstone open pit.

</td></tr>
</table>

Criteria	Commentary

	• Allowances in the costs estimates were made for separating waste into hard and soft material and further categorised into potentially acid forming or non-acid forming rock and placing in engineered structures.
	• Capital costs allowed for relocating the underground portal and installation of a crushing facility.
	• The conceptual pit design in shown in Figure 3.6.
	
	Figure 3.6: Gladstone Open Pit Conceptual Design
	
	
	• Ore is planned to be trucked 0.25 km to the process plant and placed in a 40,000t stockpile. A surge (Polishing Pond) stockpile (up to 1.2MT) is available close to the water treatment plant for excess ore. Waste is planned to be trucked direct to the Waste Development site and used for construction of the Tailings Dams or placed in an engineered rock stack.
	
	Hydrogeology
	• Two aquifers are interpreted across the site, an upper aquifer within the surficial materials and young volcanics, and a lower aquifer within the andesite with the two aquifers partially separated by the lower permeability, weathered and hydrothermally altered cap at the top of the andesite sequence.
	• The model at Gladstone comprises:
	  ○ An upper perched groundwater system within the surficial materials of moderate to low hydraulic conductivity, with pore pressures below hydrostatic and a standing water level at ~1096mRL with seasonal fluctuation;
	  ○ A lower groundwater system in the Andesite with a standing water level of approximately ~1075mRL.

Criteria	Commentary

<u>Geotechnical</u>

- Geotechnical studies during 2017 on preliminary design concepts including geotechnical drilling, rock / soil testing and detailed core logging showed that the slopes in the Winner Hill pit and the northern slopes in Gladstone Hill were generally satisfactory under fully saturated or partially drained conditions. However, the southern and eastern upper slopes were shown to be marginally stable under fully or partially saturated conditions particularly where there was a significant depth of the surficial deposits.
- The geological model shows the north-western wall will comprise andesite, overlain by a thin band of hydrothermal breccia and a relatively thin sheet of rhyolitic tuff/ignimbrite thickening to the south. The south-eastern wall has a thicker band of rhyolitic tuff/ignimbrite and hydrothermal breccia overlying andesite; and the east wall has the greatest thicknesses of dacite and volcaniclastics.
- Design pit slopes were modified based on a detailed geotechnical study completed by PSM in early 2018 including three additional geotechnical holes and geotechnical modelling. Geotechnical domains were re-defined based on the recent analysis. The design criteria used to support calculation of Mineral Resources are reported in Table 3.5 below.

Table 3.5: Gladstone Pit Slopes

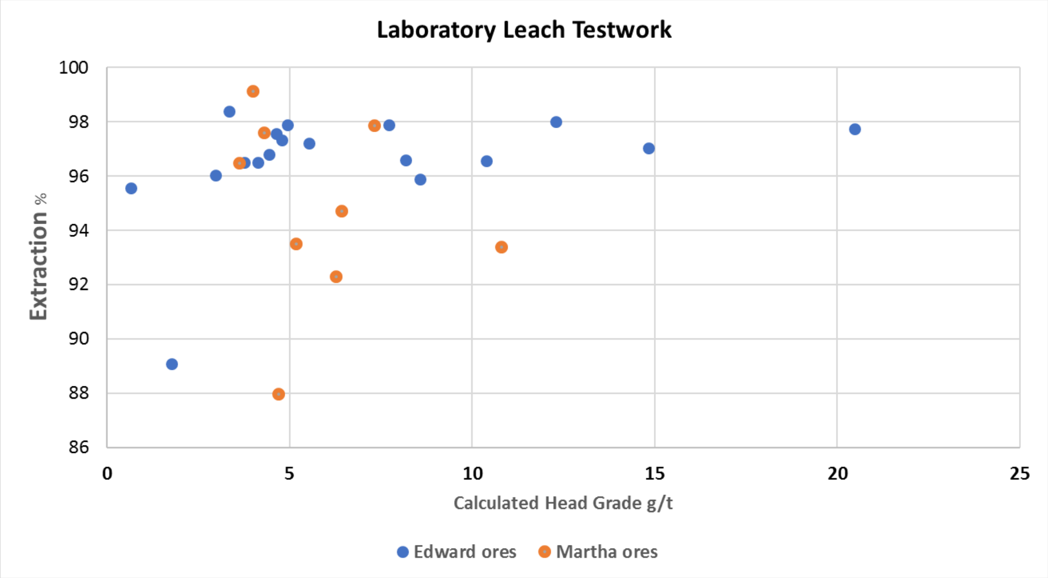
Pit Design Parameter	Bench Height m	Face Slope degrees	Berm Width m
Gladstone Pit			
• 1040 to 1100	15	60	5
• 1100 to 1140	10	40	5
• Breccias / Dacites	10	40	5
• Surface to 6m depth		35	
Haul Road Width	• 20m wide @1 in 10, surface to 1070, • 12m wide @ 1 in 9 to 1040		
Winner Pit			
• 1060 to 1085	15	60	5
• 1085 to 1100	15	55	5
• 1100 to 1130	10	55	5
• Surface to 8m depth		30	
Haul Road Width		18m wide 1 in 10	

Mining Recovery and Dilution

- The minimum mining width has been set at 2.5 metres wide. The selective mining unit developed for the geological block model is a bench height of 2.5metres, and east west dimension of 2.5 metres and north south dimension of 2.5 metres with orientation reflecting the main trend of the mineralised veins in an east westerly direction.
- The Mineral Resource zones are broad on each mining bench, and the overall dilution edge effects are minimal, with the result that there is expected to be little difference between the overall in situ and diluted tonnes and grade. The Mineral Resource block model has a block dimension which is larger than the optimum selective mining unit (SMU) for the equipment currently operating at Waihi.
- No mining losses were applied. It is considered that the resource estimation technique applied to the broad mineral resource zones provides an adequate estimate of the Mineral Resource tonnes and grades. Reconciliation data from mining the Martha open pit also supports this approach.

Criteria	Commentary
	WKP No Mining Factors were applied to the Resource calculation.
Metallurgical factors or assumptions	**Correnso and Associated Veins** • Laboratory scale test work has been conducted on drill hole samples obtained between 2010 and 2012 for the Correnso upper and lower extensions and Empire. The key focus of the metallurgical work has been to derive gold recovery, throughput rates, reagent consumption and to confirm the suitability of current Plant configuration. This test work has shown the Correnso mineral resources to be amenable for processing via the existing Waihi treatment plant flow-sheet. • A grind size P_{80} of 53 microns has been selected for the estimated throughput rates, as plant operating experience has shown that an equivalent laboratory gold recovery at a P_{80} of 38 microns is achieved. This relationship is due to the laboratory grind test work being in open circuit, whereas in the plant the grinding circuit is in closed circuit. This results in the higher density sulphides being preferentially ground finer and hence liberating more gold particles that are disseminated within the sulphides. • It is determined that a grind size P_{80} of 53 microns is the optimum that maximizes value for the Correnso resource. • Recovery is estimated from test work. Recovery at 88tph throughput is estimated at: *Recovery % = [Au Head grade – (0.09*Au Head grade + 0.25+0.02)] / Au Head grade * 100%.* • This relationship predicts an average recovery for the Correnso Extensions of 87.4% based on the average project head grade of 7.47g/t Au. • Both gold and arsenic have been identified as the statistically significant predictors for estimating residue grade for the Correnso Extensions resource. **Martha Underground Project** • Metallurgical test work has been completed on 30 composite samples of mineral resource intercepts from Edward (18) and Martha (9) and Welcome (1) and Empire East (2). Twenty-three samples were submitted to the Newmont Inverness testing facility. Six samples representing the Edward vein were submitted to Ammtec Laboratory in Perth. Samples were mostly submitted both as quarter core and as jaw crush reject material (95% <7mm), if both were available. • Leach tests showed a range of recoveries from 89% to 98% for the Edward mineral resources and 87% to 99% for Martha mineral resources, as shown in Figure 3.7 below where calculated head grade is plotted against recovery or extraction. • It was found that the recoveries of the Martha resources achieved a minimum of 90% leach extraction at a P80 of 53 µm across the 30 samples. This high base recovery indicates there may be less refractory gold in Martha mineral resources than Correnso. • Project work and metallurgical testing have shown Martha underground mineral resources to be amenable for processing via the existing Waihi treatment plant flow-sheet and achieve practicable throughput rates, reagent and consumable consumption and process recovery. • A metallurgical recovery of 90% been used for the Mineral Resource calculation. **Figure 3.7: Laboratory Leach Testwork Chart**

Criteria	Commentary



Martha Open Pit

- There are no Inferred Resources in the Martha Open Pit.

Gladstone Open Pit

- Laboratory scale test work has been conducted on the drill hole samples obtained for the Gladstone Mineral Resource. The key focus of the metallurgical work has been to derive gold recovery, throughput rates, reagent consumption and to confirm the suitability of current Plant configuration. This test work has shown the Gladstone mineral resource to be amenable for processing via the existing Waihi treatment plant flow-sheet. Recovery is shown to vary with the weathering extent of the Gladstone resource.
- The weathered domain achieves higher recoveries than the primary un-weathered domain. Separate recovery relationships have been determined for the weathered and un-weathered domains. A small separate metallurgical domain characterised by the hydrothermal breccia host rock was also identified.
- A grind size of P_{80} of 90 microns has been selected, as plant operating experience has shown that this is equivalent to a laboratory gold recovery at a P_{80} of 75 microns. The gold and arsenic relationship identified in Correnso resource is not observed in the Gladstone Resource. The statistically significant drivers of recovery within the Gladstone resource are weathering and gold head grade.
- The recovery estimate from the test work is calculated at a P_{80} of 75 microns
    - Weathered: Recovery % = 100 * (0.902 – (0.049 / Head Grade Au))
    - Un-weathered: Recovery % = 100 * (0.85 – (0.452 / Head Grade Au))
    - Hydrothermal Breccia: Recovery % = 74%
- This relationship predicts an average recovery for the Gladstone Resource of 77.8% based on the average Mineral Resource grade of 1.99 g/t Au.

Criteria	Commentary
	WKP • To date a total of 5 samples from the WKP EG structure have been metallurgically tested by ALS Metallurgy, Perth. • The average total gold cyanide leach recovery from the EG structure is 91.42%. Both WKP 42 and composite 1 are ~89% whilst WKP40 was 95%. The gold recovery of the main EG structure is therefore classed as 'Free-milling' at this stage. • The cyanide leach recovery of gold in the hanging wall and footwall veins are borderline refractory and refractory respectively. It is not yet known if they are sulphide refractory or silicate refractory.

Composite #		1	2	3	WKP42	WKP40
Location		EG	F/W	H/W	EG	EG
Head Grade (calc.)	g/t	9.78	5.09	4.46	28.69	7.96
Au: Ag		1:1.4	1:1.6	1:4	1:1.2	1:1.2
Grind P80	um	53	53	53	53	106
Gravity	%	25	8.09	12.45	15.06	35.09
CN	%	64.26	57.52	68.51	74.45	60.39
Total	**%**	**89.2%**	**66.4%**	**80.9%**	**89.5%$**	**95.4%**

Criteria	Commentary
Environmental factors or assumptions	• The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to conduct its current operations, and to construct and operate the Correnso underground, the Martha open pit and the Martha underground. **Correnso and Associated Veins** • Environmental assessment studies were conducted by independent consultants as part of the Correnso underground consenting. The environment assessment reports are all independently reviewed by consultants employed by the Council regulators. • Studies have included air quality, water quality and ecology, noise, blast vibration effects, traffic, potential for subsidence, ground settlement in response to dewatering, property values, de-watering, and geochemistry of tailings, waste and groundwater. • All waste produced from the underground mines is classified as potentially acid forming (PAF) and is returned underground as stope backfill. The Correnso consent requires material to be classified according to acid forming potential, and PAF material requires lime dosing. • Vibration modelling has been completed for the Correnso by John Heilig and Partners. Modelling of the likely scale of blasting has been based upon vibration relationships developed from the underground blasting at Waihi over the last six years. Vibration modelling shows that the Correnso underground, can comply with the consent conditions. **Martha Underground Project** • During 2017 and 2018, environmental studies were conducted by independent consultants. Studies have included air quality, water quality and ecology, noise, blast vibration effects, traffic, potential for subsidence, ground settlement in response to dewatering, property values, de-watering, and geochemistry of tailings, waste and groundwater. • The consent application described the Project and assessed the effects on land use and zoning, land ownership, existing and authorised mining activities, socio-economic context, cultural values, landscape context and character, transportation network, noise and vibration, geotechnical, hydrogeology, surface water, ecology, heritage values, significant trees, and air quality, meteorology and climate.

Criteria	Commentary
	• Consent applications for the project were lodged with the Hauraki District Council and Waikato regional Council on the 25th May 2018. • Hauraki District Council has issued the final resource consent and subdivision consent conditions for Project Martha. • Waikato Regional Council is yet to issue the final resource consent conditions • Consent conditions impose restrictions on blasting magnitudes and firing times, mine design, geotechnical monitoring, dewatering and surface stability. **Martha Open Pit** • There are no Inferred Resources in the Martha Open Pit. **Gladstone Open Pit** • Gladstone project environmental studies have commenced, environmental factors are assumed to be in line with those previously experienced on site. • Studies have assumed that the rehabilitation of the Gladstone pit will require backfilling to the original topography with rock sourced from the Martha pit. **WKP** • Baseline monitoring and surveys are currently underway by experienced and qualified third-parties. The assessment will include terrestrial and aquatic biodiversity.
Bulk density	• Oxidation and rock hardness wireframe surfaces / solids based on sectional interpretation of diamond drilling data, with modification based on the current geology model, are used as the basis for assigning density. • Dry bulk densities for all deposits have been estimated using a water displacement method modified from NZS 4402: 1986, which is considered appropriate for competent half-core (Lipton, 2001). The method involves weighing the sample before and after a series of steps, which include oven-drying a drill core sample, filling surface pores with modelling clay, coating the entire sample with wax and immersing it in water. Ore intercepts were relogged and assigned to several identified geological classes based on the physical properties that are considered most likely to affect density, including porosity, clay content, oxidation, sulphide content, vein percent and vein texture. Analysis of the data shows a relatively uniform range of density values within each geological class. Porosity, clay content and oxidation contribute to lower density values, while sulphide content contributes to higher density values. Dry bulk densities were determined for 247 samples of Correnso drill core, including representative vein and wall rock material from mineralized intercepts over a downhole depth range of 182.2m to 519.35m, corresponding to approximately 1000mRL to 750mRL. Geological classes were identified based on logged physical characteristics and each main geological class is represented by SG measurements from at least 30 drill core samples. An overall mean value of 2.52g/cm^3 was obtained for all 247 density values. There is a slight increase in density with depth which corresponds to increasing base metal sulphide content. There is no relationship between the density and the Au grade. • The default density used for the Correnso Resource model is 2.5 g/cm^3. • Gladstone densities range from 2.0 to 2.5 g/cm3, densities are assigned based on geologic unit. • Martha Underground density (sg) assignment is based on an updated density assessment completed in May 2018. Density samples are routinely collected during logging of DD core. Specific Gravity is automatically calculated using the following formula: $$\frac{\text{Weight in Air}}{(\text{Weight in Air} - \text{Weight in water})} = SG$$

Criteria	Commentary

Domain	Sample Count	Mean SG	Standard Deviation
Qtz Andesite	1361	2.52	0.15
Vein	634	2.53	0.09
Base Metal content logged (some overlap in above)	426	2.56	0.08
Global Average	2156	2.50	0.16

- The specific gravity of the Quartz Andesite and vein structures in the Martha Underground are influenced by several different factors. The Quartz Andesite is affected by reduced level when it is exposed to the surface weathering profile mainly seen in UW surface drill holes. At depth the rocks density can be affected by the degree of hydrothermal alteration it has been exposed to-higher alteration often results in lower rock density, the unit has a clear upper limit of less than 2.8 grams per cubic/cm. Quartz veining density is influenced less by surface weathering in the Martha Underground but by weathering due to historic workings. Other influencing factors are base metal mineralization, clay content, calcite content and overprinting.
- In assigning density within the Resource estimate, historic stope fill is assigned a density of 1.8. Collapse zones associated with the Milking Cow subsidence zone has been assigned a density of 1.9.
- WKP density measurements are routinely collected during logging of diamond drill core. A field in the AcQuire database is setup to automatically calculate the specific gravity (SG) from these density measurements using the formula: SG= W(air) /(W(air)-W(water)), where W(air) =weight of sample in air and W(water) =weight of sample in water.

	Sample Count	Mean SG
Waste Rock	156	2.45
Vein	79	2.54
Global Average	235	2.50

Classification

<u>Martha, Correnso and Gladstone Resources</u>

- The resource classification is based on an assessment of average drilling density in conjunction with an assessment of the mineability and risk associated with proximity of historic voids and adjacent mineralised structures.
- This is undertaken via capturing the confidence category as a measure of drilling density within the model. The model is then passed through a stope optimisation algorithm to assess the influence of voids, assumed project economics. Stope outlines are then generated as an output. These outputs are then used to interrogate the model to define the confidence classification of the contained resource
- Confidence category is defined by average drill hole spacing, the ranges employed in classification of the Martha underground model are consistent with the ranges used in classification of other vein zones currently being mined within the larger Waihi operation.
- There is significant experience in mining and assessing the continuity of mineralisation with the veins for Martha and the adjacent deposits, the vein style mineralisation has a strong visual control and is well understood and has demonstrated continuity over significant ranges.
- An estimation run utilizing a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This forms the basis for the drill hole spacing and therefore the confidence categorisation.

Criteria	Commentary
	Table 3.6: Average Drill hole spacing required for resource classification

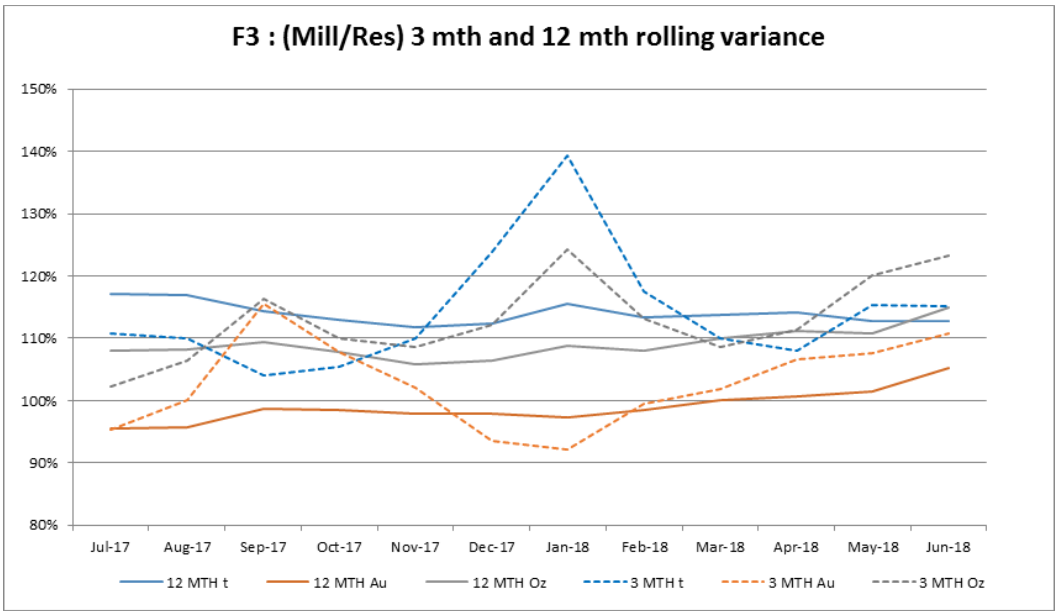
Confidence category	Vein Zones Average distance to 3 closest holes	Stope backfill	2nd estimation pass
1	—		
2	0 to 40 m		
3	40 to 60 m	All material	
Mineral inventory I	>60m		
Mineral inventory II			All material estimated utilising Cross cut data to inform block

- Mine fill within the historic stopes is not classified as Mineral Resource at this point in time. Although there is significant mining history with this reworked material and extensive sampling data exists, this has been in the context of past open pit mining operations at Waihi. It may be possible to upgrade the resource classification based on future risk characterisation work however at this time it is not prudent to assign higher confidence to this material.
- The resource estimate outlined in this document appropriately reflects the Competent Person's view of the deposit.

WKP

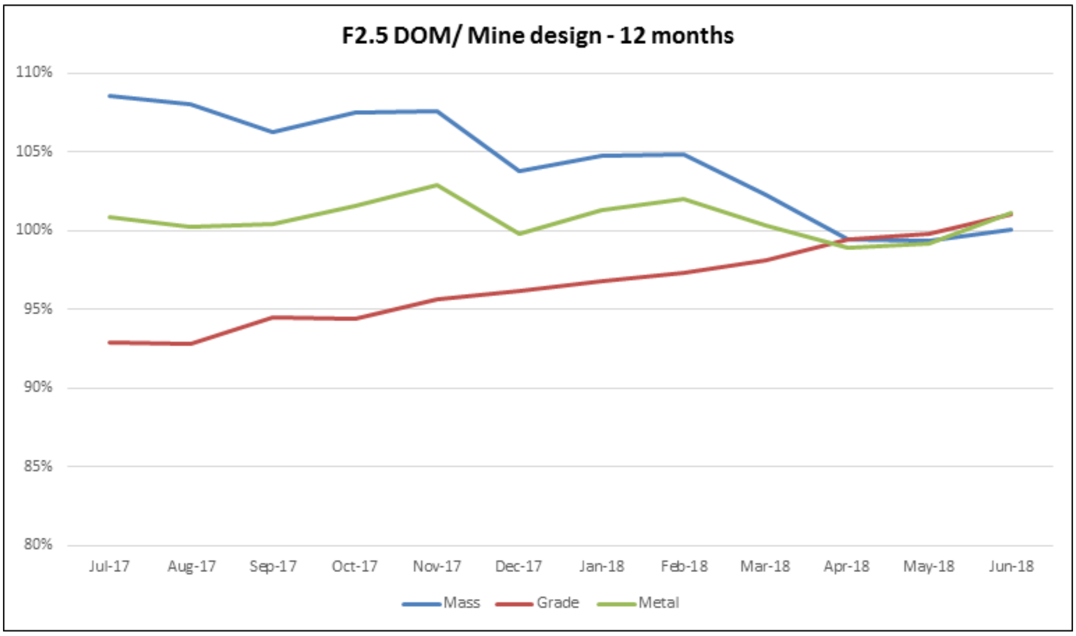
- The resource classification is based on average drill hole spacing. The ranges employed in classification of the WKP scoping resource model are slightly greater than ranges used in classification of other vein zones currently being mined within the larger Waihi operation, based on the demonstrated continuity of the EG vein over approximately 1,000 metres along strike.
- Indicated resource is defined using an average distance to the three closest drill holes of 50 metres, at this point only the EG vein has been considered for classification as indicated resource.
- There is significant local experience in mining and assessing the continuity of epithermal mineralisation with the nearby veining in Waihi. The vein style mineralisation present at WKP is not too different from Waihi, it also has a strong visual control and a demonstrated continuity over significant ranges.
- An estimation calculated using a maximum of three drill holes with a single sample per drill hole was undertaken storing the average distance to the three drill holes used to estimate the block. This forms the basis for the drill hole spacing and therefore the resource classification. Polygons are developed based on the results of this estimation pass for coding into the block model for the higher confidence category zones to overcome spotty distribution of classification criteria. At present no material in the veins other than the EG vein has been considered for classification as indicated resource category.
- The resource estimate outlined in this document appropriately reflects the Competent Person's view of the deposit.

Criteria	Commentary
Audits or reviews	• The models are regularly cross checked by OceanaGold employees that are familiar with the resource estimation practices employed on site. • OceanaGold Group Geologist - Tim O'Sullivan has undertaken a site review for the Martha Underground Model. • Mike Stewart (ex OceanaGold Group Geologist) has reviewed the Gladstone and

Criteria	Commentary
	Correnso estimates. • Entech Senior Geologist Andrew Finch has also undertaken an independent review of the Martha Underground resource model. • SRK have been engaged to undertake an independent assessment of this WKP resource estimate
Discussion of relative accuracy/ confidence	<u>**Correnso**</u> • Model performance is formally reviewed monthly. Investigation of variance between Ore control vs. Resource model (F1), Received at mill vs. Claimed delivered to mill (F2) and Mill vs. Resource (F3) is undertaken at monthly, 3 month rolling and 12 month rolling resolutions. Mitigating actions are identified to minimise sources of variance where practicable. • Figure 3.8 shows 12-month and 3-month reconciliation between the mill and the ore resource model which indicates that over 12 months, ore tonnes were 13% higher, with grade 5% higher and ounces 15% higher than prediction. • Resource data in the F3 comparison includes the indicated and inferred resource declared. A separate Empire lode was identified, grade control modelled and mined at the end of 2017 that was not in the 2017 resource model. The resource component of the F3 factor is calculated by evaluating the portion of resource that matches the reconciled stopes mining during a given month. There is a slight variation on a monthly basis as this is compared with the total tonnes through the mill during the month including reconciled and un-reconciled stopes. **Figure 3.8: Mine / Mill Reconciliation**  • Figure 3.9 shows the 12-month reconciliation between the mill and the grade control model with mining dilution and recovery factors included (108% mass, 95% metal). Dilution has been trending down and recovery up with the modifying factors appropriate for the first half of 2018.

Criteria	Commentary

Figure 3.9: Mine / Mill Reconciliation



WKP

- In reviewing the nature of the WKP deposit it is considered appropriate to employ the same modelling and estimation work flows used for the Waihi deposits to estimate the insitu resource for this deposit. This opinion is formed based on the geologic knowledge and the detailed statistical evaluation of the data obtained through drilling.
- Numerous methods have been used to validate the integrity of the WKP0219_USC resource model. The validation has included:
  - validation of the new data,
  - a review of the interpretation, including classification shapes,
  - a review of the methodology,
  - a review of the exploratory data analysis (EDA), including variography and search neighbourhoods,
  - global grade and tonnage comparisons with the previous model
  - a visual sectional validation of the block model with interpretation and drilling, and
  - Swath plots are generated using the Vulcan drift analysis tools.

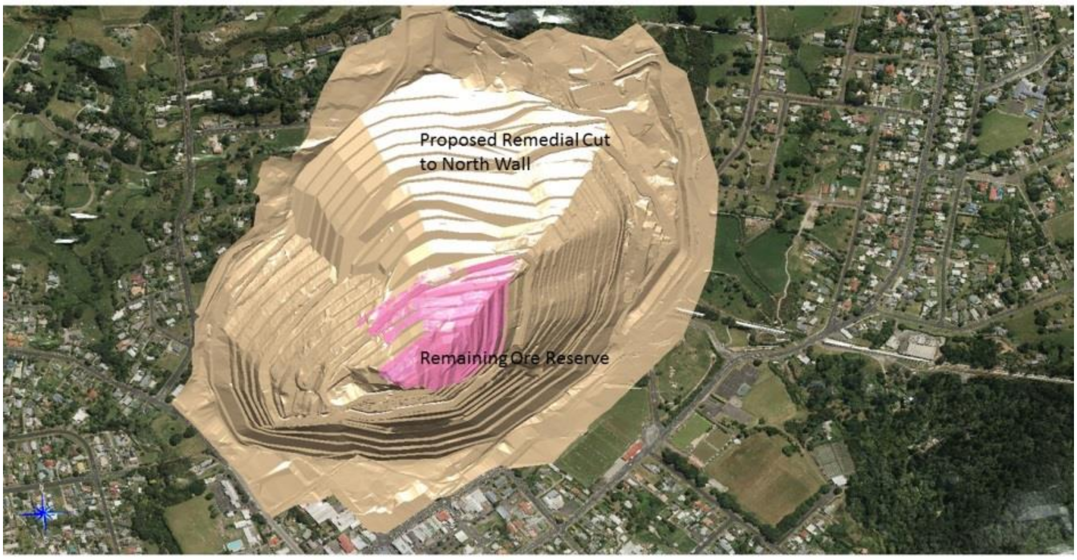
Section 4 Estimation and Reporting of Ore Reserves

(Criteria listed in section 1, and where relevant in sections 2 and 3, also apply to this section.)

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td>Mineral Resource estimate for conversion to Ore Reserves</td><td>The Mineral Resource estimate used as a basis for conversion to an Ore Reserves is described in Section 3 of this Table 1.
Mineral Resources are reported inclusive of the Ore Reserves.</td></tr>
<tr><td>Site Visits</td><td>The Competent Person for Underground Ore Reserves is David Townsend who has been employed at Waihi from 2006. He has been involved in the design and development of the underground mine since 2006 and oversees all technical aspects of the underground mine.
The Competent Person for Open Pit Ore Reserves is Trevor Maton who has been employed at Waihi from 2003 and has been involved in the design and development of the open pit mine since 2003.</td></tr>
<tr><td>Study status</td><td>Open pit mining and ore processing at Waihi has been in continuous operation since 1988. A localised failure of the north wall that undercut the main access ramp suspended open pit mining operations in April 2015. A 1 million tonne failure of the north wall occurred in April 2016 and a mining study has been completed to recover the remaining Ore Reserve. The small cutback is referred to as Martha Phase 4 (MP4). PSM has reviewed the MP4 design for geotechnical stability and have concluded that:
MP4 is a remedial cutback of a failure undertaken in order to re-establish the mine, which is a normal part of conventional mining activities and there is nothing unique or special in the planned cutback.
Monitoring has now been in place for up to two decades and does not show large scale pit wall instability movements. Consequently, in engineering terms there has been a mine scale validation of the ultimate material properties used for the design of the pit walls.
The MP4 pit is much flatter overall than the north wall of the East Layback and this is necessitated by the operational need to incorporate additional haul roads and wide benches.
The stability has been checked and overall there are high Factors of Safety for the MP4. The lower slope is potentially affected by underground stopes and disturbed rock mass.
Underground mining and ore processing at Waihi has been in continuous operation since 2004.
The study work undertaken for Correnso underground mine meets Feasibility Study level standard. Mining studies have been conducted for mine design, mine planning, ventilation, cut-off grade, detailed cost estimation and economic evaluation. The site has had a 12year operating experience with mineral resource reconciliation and metallurgical recovery performance of the underground resources. Actual costs for underground mining, ore processing, G&A and selling costs are known.
A mine plan has been developed which is technically achievable and economically viable. All Modifying Factors have been considered.
Consents are in place for all underground mining covered by this Section of the report and all planned mining methods are in accordance with the license, permit and consent conditions, principally related to placement of backfill, blast vibration limits, method of working and hydrogeological controls.
Consents have been received to enable mining of MP4 to recover the Martha pit Ore Reserve.
Studies accompanying the MP4 application include blast vibration, noise, air quality, hydrology, hydrogeology and groundwater, property values, social impact, geotechnical, ecology, geochemistry, heritage and consultation.</td></tr>
</table>

Criteria	Commentary

Cut-off parameters	• Cut –off grade is based on Ore Reserve metal prices of NZ$1,806 per ounce. A silver price of NZ$26 per ounce for silver is applied as a by-product credit to the operating costs.
	• Inputs to the calculation of cut-off grades for Waihi open pit and underground include mining costs, metallurgical recoveries, treatment and refining costs, general and administrative costs, royalties and metal prices.
	
	<u>Martha Open Pit</u>
	• The cut-off grade used to determine Ore Reserves for the Open Pit is 0.5 g/t Au.
	
	<u>Correnso Underground</u>
	• The following cut-off grades have been used to determine the Underground Ore Reserve:
	  o Ore development and stoping beyond designed limits 3.2g/t Au,
	  o Ore development beyond stope limits 3.1g/t Au,
	  o Incremental stopes (ore development in place) 2.9g/t Au,
	  o Incremental ore development 2.8g/t Au.
	• The cut-off grades are determined from a mining cost of NZ$90/ore tonne and processing cost of NZ$68/ore tonne (which include all general and administrative charges).

Mining factors or assumptions	**<u>Martha Open Pit</u>** • The method for conversion of Mineral Resource to Ore Reserve involved a 2010 pit optimisation study using the “Whittle” optimiser to determine the economic limits of the Ore Reserve. Mining of this layback commenced in 2010. • A localised failure of the north wall occurred in April 2015 which undercut the main access ramp. Operations were suspended in April 2015 and the open pit mining contract terminated in June 2015. A 1 million tonne failure of this wall occurred during April 2016 and studies have been completed to regain access to the bottom of the pit. The small cutback is referred to as Martha Phase 4 (MP4) and is shown in the Figure below: **Figure 4.1 Martha Pit Phase 4 cutback**  • Martha open pit utilises conventional drill, blast, load and haul with standard mid-sized

Criteria	Commentary
	mining equipment. A mining contractor was employed for open pit operations under a schedule of rates, which was in place from May 2014 until its termination in June 2015. • The selected mining method and design is appropriate for the Martha open pit. The open pit pre-strip has been completed and access for materials handling has been operating effectively since 2010. • The open pit mining process at Martha is determined largely by the land use consents granted to the Company. Waste and ore is categorised into hard and soft material. Waste is further categorised into potentially acid forming or non-acid forming rock. Ore sampling is conducted in-pit by RC drilling. Ore blocks are blocked out based on this sampling and consider the capacities of the equipment to selectively mine these blocks. • Soft material is ripped by D9 dozer whereas all hard material is blasted. Strict controls on blast vibration determine the blast hole spacing and the maximum allowable charge weight per delay. Generally, ore is blasted in 5metre vertical intervals (two flitches), but blast vibration limitations may require blast holes to be drilled at 2.5metre vertical intervals. Electronic detonators are used in all holes to ensure detonation of charges occur as per the design sequence. The Company monitors each blast for vibration conformance at a number of monitoring stations in the surrounding community. • All ore and waste is loaded via 190 tonne backhoe excavators into 85 tonne rear dump trucks and trucked via a 1 in 10 ramp and generally direct tipped to a jaw crusher or Stamler breaker station. Small quantities of ore and waste are stockpiled close to the jaw crusher. • The presence of historic workings in the open pit requires probe drilling to identify voids or weak pillars which create both a safety hazard and an operating constraint. Underground voids are either bunded off or marked with hazard tape. Excavators and trucks must operate around the void working in towards the void. This process can at times influence the bench extraction sequence. • All ore and waste is crushed. Ore is conveyed 1.5 km to the process plant and placed in a 40,000t stockpile. A surge (Polishing Pond) stockpile (up to 1.2MT) is available close to the water treatment plant for excess ore. Waste is directed to the Waste Development site and used for construction of the Tailings Dams or for underground backfill. • The minimum mining width has been set at 3 metres wide, determined by the observed width of many of the small narrow veins that are being mined. Equipment has been sized to suit these design parameters. The selective mining unit developed for the geological block model is a bench height of 2.5metres, and east west dimension of 3metres and north south dimension of 10metres reflecting the drill spacing and the main trend of the mineralised veins in an east westerly direction. • A detailed geotechnical study was completed for Waihi by PSM for the recovery of the remaining Ore Reserve in 2017 / 2018 including the drilling of dedicated geotechnical boreholes, laboratory test work, numerical modelling and structural pit mapping. Geotechnical domains were re-defined based on the recent analysis. The design criteria used to support calculation of Ore Reserves are reported in the table below. • PSM concluded that overall there are high Factors of Safety for the MP4. The lower slope is potentially affected by underground stopes and disturbed rock mass. • MP4 comprises a north wall cut back with all other walls remaining as currently built. The design slopes for the north wall are shown in Table 4.1. **Table 4.1: Slope Design Criteria to Support Calculation of Ore Reserves**

Criteria	Commentary

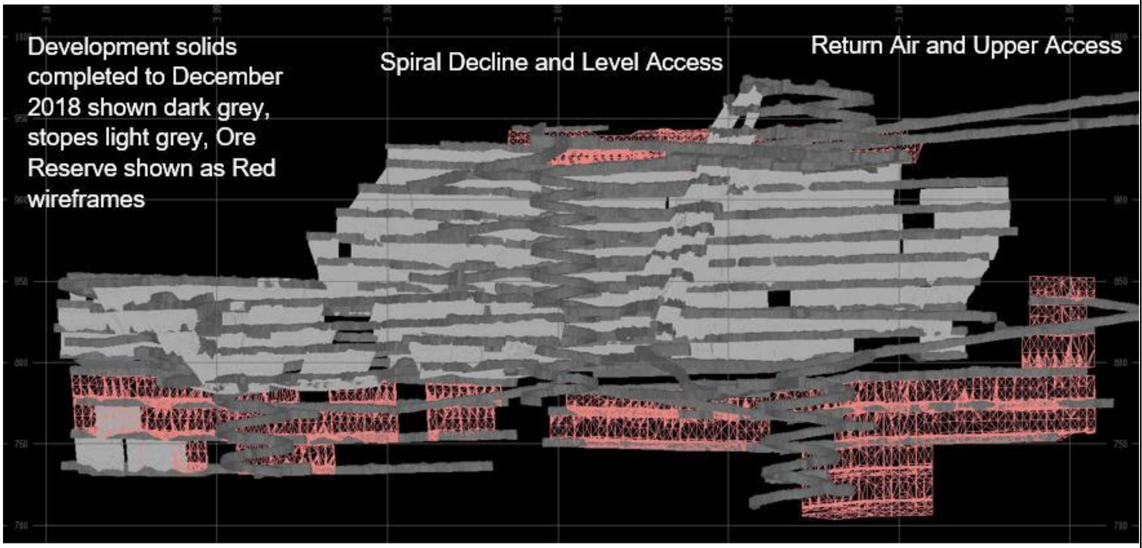
Bench		Face Slope	Face Height	Inter-Ramp
	>1135	35	15	35
1135	1120	45	15	
1120	1104	45	15	
1104	1090	50	15	
1090	1070	60	20	
1070	1050	60	20	33
1050	1030	60	20	
1030	1010	60	20	
1010	990	60	20	
990	970	70	20	
970	950	70	20	55
950	930	70	20	
930	910	70	20	
910	875	70	20	

- The open pit geotechnical conditions are impacted by the presence of extensive historic mine workings, particularly on the south and east walls of the pit. Caving initiated during historic mining has resulted in zones of poor quality rock mass within and outside of the pit slope limits. There has been ongoing large-scale block movement over the last seventy years and this large-scale block movement will continue into the caved zones in the future beyond the life of the open pit.
- Geotechnical robotic monitoring has continued following the localised failure of the north wall that undercut the main access ramp and suspended operations in April 2015. This monitoring shows that the pit wall has stabilised.
- Reverse Circulation grade control drilling has been used since 2006 and is drilled to an approximate 10m x 5m pattern with 1.5m down hole sample lengths. Drill holes are inclined to the north.
- The ore zones are broad on each mining bench, and the overall dilution edge effects are minimal, with the result that there is little difference between the overall in situ and diluted tonnes and grade. The Mineral Resource block model has a block dimension which is larger than the optimum selective mining unit (SMU) for the equipment size operating at Waihi. When estimating open pit Ore Reserves there is no requirement for additional mining dilution after the geological modelling stage. OceanaGold will continue to monitor dilution assumptions during on-going operations.
- No mining losses were applied. It is considered that the resource estimation technique applied to the broad ore zones provides an adequate estimate of the run of mine (ROM) tonnes and grades. Reconciliation data from mining the Martha open pit supports this approach.
- There are no Inferred Mineral Resources included in the open pit economic evaluation. The studies have demonstrated that the open pit operation is technically and economically viable without the inclusion of Inferred Mineral Resources.
- All fixed infrastructure required for the chosen mining method to extract the open pit Ore Reserve is in place.

Correnso Underground

Mining Methods

- There are multiple orebodies within the current underground mine including Correnso,

Criteria	Commentary
	Daybreak, Empire, Trio, and Louis. All mining areas share the same stoping method and have very similar modifying factors and assumptions and design criteria applied. For simplicity all these areas are hereafter collectively referred to as "Correnso", and exceptions to the collective factors are discussed where appropriate. • Mining options available for Correnso are limited because of the consent conditions which include blasting and backfill constraints. Modified Avoca long hole bench mining with waste rock backfill was selected as the preferred mining method for extraction of Correnso. Small areas of the Louis orebody use an overhand cut and fill method due to the narrow, shallow dipping nature of the orebody. • Access to underground workings is via a decline from previously mined areas, which also serves as a fresh air intake. The primary ventilation is exhausted through a raise bored shaft to surface and a return air drive breakthrough into the Martha pit. An escapeway rise that has been raise bored to surface and equipped also serves as a fresh air intake. The portal is located close to the processing plant. • Figure 4.2 shows a long section view of the Correnso Ore Reserve (in red). Note that the image below does not show the final design but is indicative of the overall design. Development and stoping shown in grey has been completed prior to January 2019. **Figure 4.2: Long Section of Underground Ore Reserve**  • In general mining areas are designed with either a 15m or 18m level spacing, floor to floor. This is primarily to limit blast vibration, but this also assists hanging wall and footwall stability. This is in line with previously mined areas and has proven to be successful and efficient. The mine layout for the current underground workings can be summarized as follows: ○ Primary accesses via the existing development that was used for the Favona, and Trio mines. ○ Exhaust ventilation from the development levels travels to a dedicated return air raise adjacent to the spiral decline. ○ Ore and level development at the level spacing discussed above ○ All material movements on and off levels are via stockpiles developed on the level access. ○ The permitted mining method requires all stopes and selected development to be backfilled. Mine waste supplemented with waste rock from the surface Waste Rock

Criteria	Commentary
	Embankment is planned to be used. ◦ The backfill material of loose rockfill is the most economical solution whilst still complying to the consent conditions of eliminating and future surface subsidence. <u>Hydrogeology</u> • GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's. Regular monitoring is compared to the modelled predictions and is discussed in the annual settlement and dewatering monitoring report submitted to the Regulators. • GWS report that a shallow groundwater system associated with volcanic ash, alluvium and completely weathered rhyolite tephra is present at shallow depth. Monitoring data shows that it is unaffected by mine dewatering except immediately adjacent to the Martha Pit. Shallow groundwater levels are controlled principally by rainfall infiltration, low surface soil permeability and natural and assisted drainage to surface water systems. • GWS report that the higher volumes of water in the deeper aquifer are contained primarily in the quartz vein, the historic underground workings and infiltrated through the open pit which is more permeable than the surrounding andesite country rock. This system has been drained from the mine dewatering system within the underground mine. Currently the water level is at approximately 730mRL. This needs to be lowered to 700mRL to enable the mining of the current Ore Reserves and Resources. The main pumping station within the mine, as well as the planning extensions is capable of dewatering to this level. • Consents are in place to dewater to 700mRL. <u>Geotechnical Model</u> • The geotechnical model for stoping assessments was based on empirical modelling using Q ratings for the rock mass quality and applying the Mathews method to determine stable spans. Geotechnical modelling is impacted by mine design where level spacing was set by blast vibration limits and modelling had to ensure stable pillars were left. • Geotechnical assessments indicate that rock mass conditions within the ore zones and immediately adjacent to the ore zones are generally of good to very good quality except for the northern portion of the Correnso Vein (which has now been fully extracted). In general, the ground conditions do not require any special remediation other than standard first pass ground support. • It has been proven that stable stope strike spans of up to 30m can be mined in all the orebodies except for Empire where 15m is used due to poor host rock conditions in the Hangingwall. Caving and surface subsidence potential has been assessed for development and stoping with the risk being low if recommendations for ground support, allowable spans, and management techniques are followed. Numerical modelling was undertaken to assess the global effects of mining including global mine stability, risk due to chimney failure of individual stopes, and the effects on ground surface subsidence. The numerical modelling concluded that the likely effects on ground surface stability due to mining would be negligible. <u>Mining Recovery and Dilution</u> • The mining recovery factors applied for Correnso are summarized in the table below. Over-break is included in the capital and operating lateral waste development dimensions so that no additional over-break is assigned. No over break is assumed for the lateral ore development as the design parameters account for the dynamic widths that the drives are mined to. • Stopes are designed with dilution on both the footwall and the hanging wall based on geotechnical assessment for the immediate mining area, which when applied with the stope recovery factors reconciles with performance of stopes in active mining areas. • Tonnage recovery factors shown in the table below for stoping include in-situ ore plus dilution material. Metal recovery factors consider the difficulties associated with recovering all

Criteria	Commentary
	ore from a stope, particularly under remote control operations. Additionally, it allows for the potential loss of metal due to excess dilution burying ore and limiting recovering of all the ore.

Table 4.2: Tonnage Recovery Factors

Activity	Tonnage recovered	Metal recovered
Lateral Development — Capital Waste	100%	-
Lateral Development — Operating Waste	100%	-
Lateral Development — Operating Ore	100%	100%
Vertical Development — Capital Waste	100%	-
15m high Longhole Stope (includes 5% fill dilution at zero grade)	108%	95%

- Other mine design constraints used in determining the underground Ore Reserves were
  - Minimum ratio of 1:1 pillar width separating development openings
  - Maximum 12.5m Avoca stope width
  - Ore drive width after stripping to be no wider than 9.5m
- No Inferred Mineral Resource metal has been included in the Ore Reserve. Each individual design item was interrogated to report against each Mineral Resource category, and the average grade of each design item reassessed only allowing contribution of metal from Measured and Indicated Mineral Resource categories. As such, any Inferred Resource material was effectively included as diluting material at zero grade.
- Underground ore is trucked to the ROM pad and underground waste will be directly hauled to stope fill or to the surface waste dump as required. There is no interaction between underground and open pit mobile equipment.
- All the infrastructure required for the chosen mining method to extract the underground Ore Reserve is already in place. Additional detail is provided under the heading Infrastructure later in this table.

Metallurgical factors or assumptions

- The metallurgical process at Waihi is well-tested and proven technology, having been in operation for 29 continuous years.
- Ore processing consists of five stages: comminution, leaching/adsorption, elution, electro-winning and smelting. Underground stockpile ore is reclaimed at between 40 to 100 tonnes per hour by front end loader and fed onto a static grizzly with an aperture of 200 mm. Martha open pit ore is fed at the rate of 155 tonnes per hour.
- The Processing Plant has the capacity to treat up to 1.25 million tonnes of Martha ore or 800,000 tonnes of Correnso ore per annum.
- Martha pit Ore Reserve metallurgical recovery of gold is estimated at 90.5% and silver recovery is estimated at 60% based on the process plant performance and reconciliations over the last 28 years of operation extracting similar veins.
- Both gold (Au) and arsenic (As) have been identified as the statistically significant predictors for estimating residue (tailings) grade for the Correnso resource. Gold recovery regression models were developed from laboratory bench scale test work and plant actual results for the Correnso resources, as shown below:

Criteria	Commentary
	◦ Head grade >7g/t: Predicted Au residue grade = 0.028 x Au head grade (g/t) + 0.0012 x As head grade (ppm) + 0.264. ◦ Head Grade < 7g/t: Predicted Au residue grade = 0.051 x Au head grade (g/t) + 0.0011 x As head grade (ppm) + 0.151. ◦ Gold Recovery Estimate = (Au head grade – (Predicted Au Residue grade))/Au head grade x 100. • Arsenic modelling was not included in the mining plan and schedule and process recoveries for Correnso ore are estimated from a gold tales relationship. The recovery at 88tph throughput is estimated as: ◦ Recovery % = [Head grade – (0.09*Head grade + 0.25+0.02)] / Head grade * 100%.
Environmental	• The Waihi operation holds the necessary permits, consents, certificates, licences and agreements required to operate the Correnso underground mine and the Martha open pit. • Environmental data has been collected over the last 29 years of Waihi operations and baseline data was collected prior to the start of operations and reported in the original mining license application. Data is routinely collected for noise levels, blast vibration, air quality, and discharge water quality from various sources, ground settlement and ground water levels. Data collected in relation to hydrogeology, open pit and tailings storage facility, geotechnical engineering, geochemistry, closure and rehabilitation is peer reviewed on an annual basis by independent reviewers engaged by the Regional Council, District Council and central Government • Environmental studies conducted by independent consultants and company staff as part of the Correnso underground project are more extensive than would normally be required but was required to provide sufficient information to support a consent application for Waihi Correnso. Environmental assessment was carried out on a larger Waihi Correnso project which included potential additions from the Daybreak and Empire Grace deposits. The environmental effects-based reports are all independently reviewed by consultants employed by the regulators (consent issuers) and are also subject to an extensive hearing process were the issues are thoroughly assessed by independent commissioners. • Studies have included air quality, water quality and ecology, noise, blast vibration effects, traffic, potential for subsidence, ground settlement in response to dewatering, property values, de-watering, and geochemistry of tailings, waste and groundwater. • The 29-year operational history since attainment of commercial production in 1988 has provided a good understanding of performance of the waste rock dumps and tailings storage facility. • All waste produced from the underground mine is classified as potentially acid forming and is returned underground as stope backfill. The Correnso consent requires material to be classified according to acid forming potential, and PAF material requires lime dosing. • Waste from the open pit is crushed and conveyed 2.0km from the open pit to the waste development load-out site where it is transported a further 1km to the Waste Development Area or stockpiled for future use. At the Waste Development Area, the waste is selectively placed in accordance with a quality control and geochemical control program to form a dam for the tailings impoundment. All waste is compacted in accordance with strict design specifications • Vibration modelling has been completed for Correnso by Heilig and Partners to ensure mining methods can meet the consent conditions. Modelling of the likely scale of blasting has been based upon vibration relationships developed from the underground blasting at Waihi over the last six years. When mining the lower levels (more than 300m below surface), blasting can use simplified stope blasting procedures (i.e. single deck of column per blast hole). The upper sections of the mine (220m to 300m below surface) will be blasted with conventional stoping practices using several discrete columns of explosive within a single blast hole to control vibration levels. Above 220m below surface, blasting is limited to 3.5m long development rounds.
Infrastructure	• The Waihi operation has been in commercial production since 1988 and all mine site

Criteria	Commentary
	infrastructure has been completed to support the open pit and underground operations including; tailings storage facility, workshops, water treatment plant and ore processing facilities. • The Company has sufficient consented tailings storage capacity to accommodate all the Ore Reserve.

Costs	**<u>Martha Open Pit</u>**
	• Only minor capital expenditure is required for the open pit Ore Reserve. The north-east layback is largely included under operating expenditure. Capital expenditure is related to relocation of a minor public road and re-establishment of the noise bund.
	• A detailed cost model provides the basis for the estimate of open pit operating costs. The cost model was developed using first principles derived from contractor rates, supplier quotations and current cost data. The model develops cash flows based on:
	  ○ mining schedules, processing stockpiles and mine feed to process plant,
	  ○ application of driver and non-driver costs to mining, processing and G&A,
	  ○ application of capital costs, closure costs, exploration and employee severance costs, and
	  ○ calculation of cash flows including provision of royalties, working capital and depreciation and taxation.
	  ○ Processing, concentrate treatment, freight, insurance and general and administrative costs have been developed using data sourced from recent operating activities.
	  ○ No penalty elements have been recorded in concentrates produced to date that affects the full calculation of payable metal.
	• The detailed cost model is in New Zealand currency. The commodity assumptions used in the determination of Ore Reserves were US$1,300 per ounce for gold and US$18 per ounce for silver. An exchange rate of 0.72 has been used.
	• The Martha royalty applicable to the Martha open pit is governed by the Mining License. The royalty is one per cent on net sales revenue from gold and silver or 5% accounting profits whichever is greatest.
	
	<u>Correnso Underground</u>
	• Capital costs for the Waihi Underground comprise mainly capital mine development and installation of fixed underground equipment such as refuge chambers, ladder-ways, communication systems, minor pump stations and substations. Other capital costs include the Property and Community Investment Program, plant and administration sustaining capital. For the mining of the Ore Reserves covered by this Table only minor fixed capital of escapeways, fans and minor pumps are required. A detailed cost model provides the basis for the estimate of underground operating costs. The cost model was developed using first principles derived from supplier quotations and current cost data. The model develops cash flows based on:
	  ○ mining schedules, processing stockpiles and mine feed to process plant,
	  ○ application of driver and non-driver costs to mining, processing and G&A,
	  ○ application of capital costs, closure costs, exploration and employee severance costs, and
	  ○ calculation of cash flows including provision of royalties, working capital and depreciation and taxation
	• Processing, concentrate treatment, freight, insurance and general and administrative costs have been sourced from recent operating activities.
	• No penalty elements have been recorded in concentrates produced to date that affect the

Criteria	Commentary
	calculation of payable metal. • The detailed cost model is in New Zealand currency. The commodity assumptions used in the determination of Ore Reserves were US$1300 per ounce for gold and US$18 per ounce for silver. An exchange rate of 0.72 has been used. • Correnso falls within the Favona Mining Permit 41 808 (MP 41 808) area which is governed by the 1996 Minerals Program for Crown royalty purposes. The Favona Mining Permit provides for the higher of one per cent royalty on net sales revenue from gold and silver, or five per cent royalty on accounting profits.
Revenue factors	• Detailed mine designs were undertaken for both the open pit and underground operations. Diluted and recovered grades were calculated for all material being mined, which were in turn assessed against the relevant cut-off grades for determination of inclusion within the Ore Reserve estimate. Head grades for material sent to the process plant directly correspond to mined grades calculated. • Silver credits are not included in the revenue factors but as a by-product cost offset. • All costs at the Waihi operation are based in New Zealand Dollars. Costs have been converted using the following exchange rates, which are long-term OceanaGold benchmark rates: o USD 0.72: NZD 1.00 • Charges for transportation, treatment and refining charges are based on operational history and in part based on existing contracts that are periodically reviewed and renewed. • Metal prices used for in economic evaluation were US$1,300 per ounce for gold and US$18 per ounce for silver, fixed for the life of the mine.
Market assessment	• Long-term market assessments are provided by a number of independent companies. There are no hedge contracts in respect of production from the Waihi operation. • The market for gold doré is well-established.
Economic	• Open pit mining costs, underground mining costs, processing costs and general and administrative costs at Waihi are well understood, with 28 years of continuous operation. • Correnso underground and Martha pit showed a positive free cash flow.
Social	• The Correnso underground project has an established grouping of stakeholders and project affected people whom have been engaged via the various stakeholder engagement structures such as Iwi, Resident Groups, Community based organizations and local government. • Prescribed Peer Review meetings held between OceanaGold, Hauraki District Council, Waikato Regional Council and the Ministry of Business and Innovation. • The operation has already established complaints and grievance systems / procedures for the ongoing management of all project grievances. This procedure will be a key process by which any associated complaints and grievances that arise from the operations will be addressed. • The Correnso consent is prescriptive in terms of stakeholder engagement with the Community: o Upon the first exercise of this consent, and at six-monthly intervals thereafter, the consent holder shall invite representatives of those tangata whenua who have a particular interest in the Waihi area, of the Hauraki District Council and of the Waikato Regional Council to attend a meeting.

Criteria	Commentary
	○ At least 1 month prior to exercising this consent, the consent holder shall appoint a person (the "Liaison Officer"), and any replacement person subject to the approval of the Hauraki District Council and the Waikato Regional Council (the "Councils"), to liaise between the consent holder, the community and the Councils. ○ The Liaison Officer shall also be active in informing the Waihi community regarding any new proposed underground mining beyond the Correnso, Grace/Empire and Daybreak orebodies. • In addition to stakeholder engagement, the consent requires OceanaGold to maintain a Property Policy to support property values in the area. This requires the Company to provide funds to purchase properties above stopes and pay ex-gratia payments to property owners above mine development as well as maintaining a property purchase fund and funding for community projects. The consent caps the funding available for the property purchase fund.
Other	• The Waihi operation is in a high rainfall area, and heavy rain events are not unexpected. Procedures and costing are in place to deal with such events for the open pit operation and will not impact on the viability of extracting the Ore Reserve. • The Waihi operation holds the permits, consents, certificates, licences and agreements required to conduct its current operations. • New Zealand has an established framework that is well regulated and monitored by a range of regulatory bodies. OceanaGold has dedicated programs and personnel involved in monitoring consent compliance and works closely with authorities to promptly address additional requests for information. Risks associated with review and renewal of operating consents is, upon that basis, regarded as manageable within the ordinary course of business. • Contracts are in place covering underground mining, transportation and refining of bullion, and the purchase and delivery of fuel, electricity supply, explosives and other commodities. These agreements conform to industry norms. • OceanaGold maintains a number of operating permits for the importation of reagents into New Zealand. New Zealand has an established framework that is well regulated and monitored by a range of regulatory bodies. Risk associated with renewal of importation permits, is upon that basis regarded as manageable. • There is no material, unresolved matters dependent upon a third party on which extraction of the underground Ore Reserve is contingent.
Classification	• The Proved Ore Reserve is a sub-set of Measured Mineral Resources, and the Probable Ore Reserve is derived from Indicated Mineral Resources. Inferred Mineral Resource material has been included as dilution only, with no Inferred Resource metal included in the Ore Reserve estimate. • No Probable Ore Reserves have been derived from Measured Mineral Resources. • It is the opinion of the Competent Person for Ore Reserve estimation that the Mineral Resource classification adequately represents the degree of confidence in the orebody.
Audits or reviews	• In 2017, OceanaGold conducted an internal technical review for the Waihi operation. The guiding principles for the review included quality of data, supporting information, methodologies employed, conformance to acceptance industry practice and professional standards, and site coverage and capability. The review concluded: ○ Historically the reserve models at Waihi have reconciled well against production, providing confidence in the LOMP reserve estimates and the ability to deliver them. ○ The reconciliation process is well understood and well documented. Stopes are routinely closed out, with an analysis of mining performance, dilution and ore-loss. ○ The underground mine geology team is stable and is appropriately resourced for the level of geological complexity and production rate.

Criteria	Commentary
	○ The Martha Phase 4 pit has been technically reviewed over the last year through the assessment of environmental effects and associated specialist technical reports. ○ The mineralisation of the Martha system below the existing open pit provides the largest potential for Mineral Resource available at Waihi.
Discussion of relative accuracy/ confidence	• Reconciliation of actual production to the Mineral Resource model since the commencement of operations indicates that the estimate is representative of the deposit (see resource model versus mine versus mill reconciliation in "discussion of relative accuracy/ confidence" in Section 3).