SUMMARY OF TABLE 1 - 2012 JORC: Waihi Gold Mine

The Martha Underground Project is an advanced stage exploration project at OceanaGold's Waihi operation, 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 had a notable history of gold production since 1883. More recent mining commenced with the Martha open pit in 1988 with the first ore processed in that year, modern underground mining started 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, the Martha Underground Project and the Correnso underground mine.

Resources

The Martha underground project resource estimates, as at 31 December 2019, are presented in Table 1, and are classified in accordance with CIM and JORC 2012.

The resource estimate reported here relates exclusively to the Martha Underground Project. Resources relating to the sites other projects will be reported later. The Martha Underground Mineral Resources are depleted for historic mining as at 31 December 2019.

Table 1: Martha Underground Mineral Resource Estimate

Class	Tonnes (Mt)	Au (g/t)	Ag (g/t)	Au (Moz)	Ag (Moz)
Measured	-	-	-	-	-
Indicated	4.926	5.20	18.69	0.824	1.676
Measured & Indicated	**4.926**	**5.20**	**17.88**	**0.824**	**1.800**
Inferred	4.096	4.66	16.97	0.614	3.040

Notes to Accompany Mineral Resource Table:

1. There are no Ore Reserves associated with the Martha underground project at this time, however normal practice for the company would be to report Mineral Resources inclusive of Ore reserves where appropriate;
2. Mineral Resources are reported on a 100% basis;
3. Mineral Resources are reported to a gold price of NZD$2,083/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. 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;
6. 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;
7. Rounding as required by reporting guidelines may result in apparent summation differences between tonnes, grade and contained metal content;
8. 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 information contained in the Table 1 report relates exclusively to the Martha Underground Project

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

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 60 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 open pit.

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.

Approximately 655,000m has been drilled in 9,400 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 than 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.

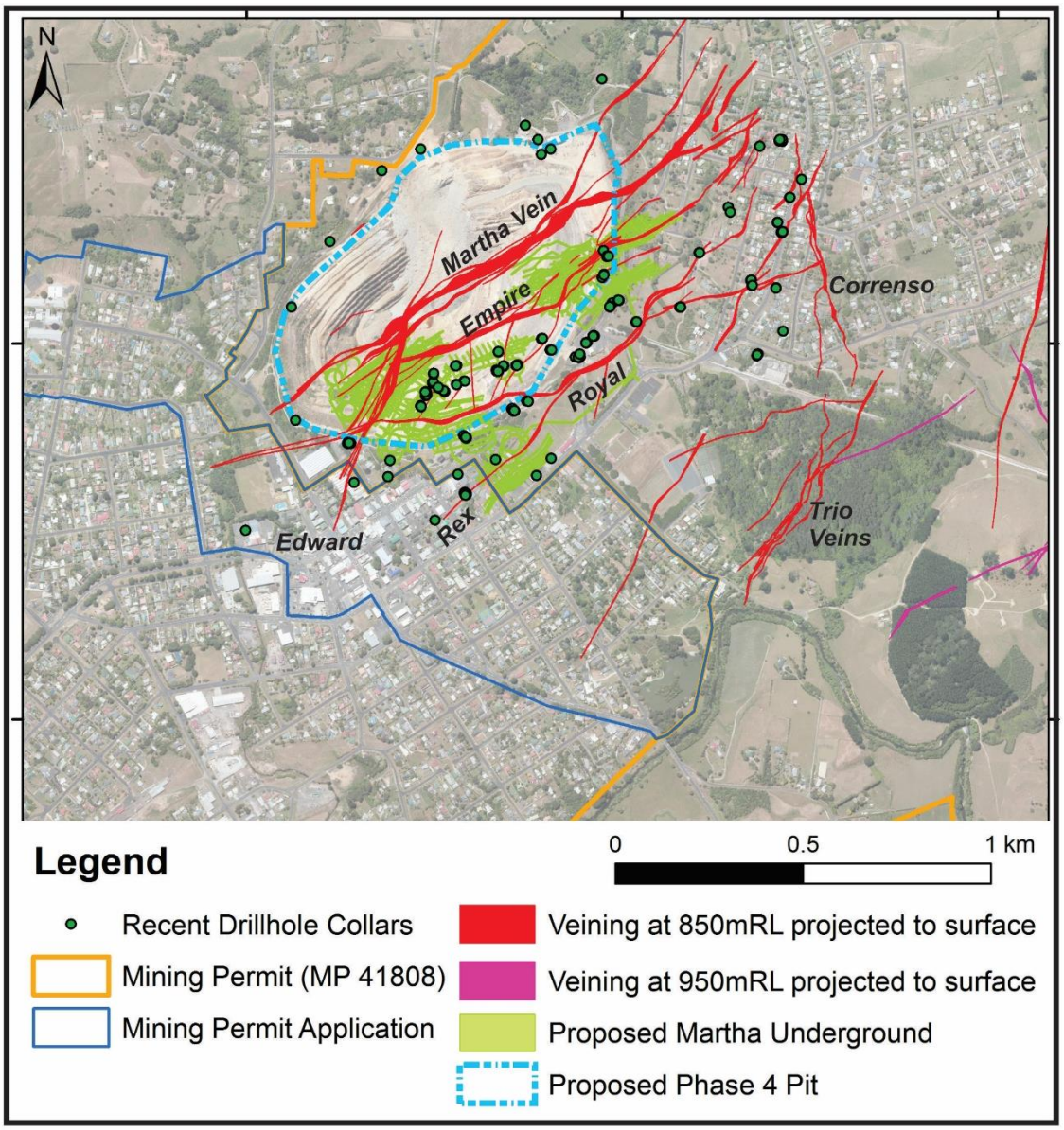
Domaining is performed based on geological observation from logging of Diamond Drill core and mapping of exposure in both the open pit and underground. Mineralised geologic domains are typically narrow, subvertical epithermal veins within which gold is modelled via ordinary kriging or inverse distance 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 to Dec 2019)**



Reserves

There are no Ore Reserves relating to the Martha Underground Project at this time.

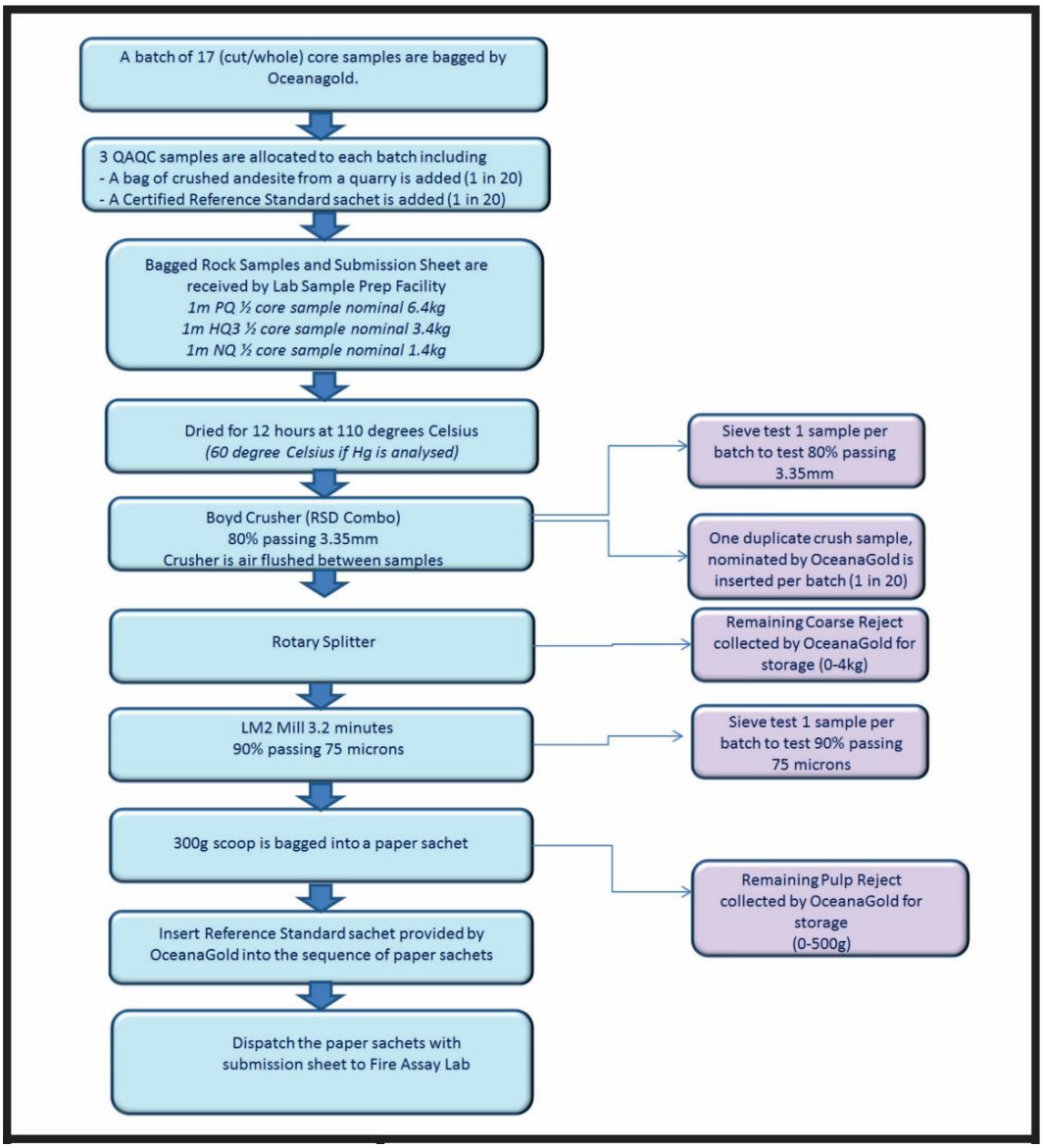
Competent Persons

Information relating to Exploration Results and Mineral Resources in this document were prepared by, or under the supervision of Mr Peter Church. Mr Church is a member and Chartered Professional 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. Mr Church has 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'. Mr Church consents 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

Criteria	Commentary
Sampling techniques	• The Mineral Resource estimate for the Martha Underground in Waihi uses a combination of sampling techniques including diamond drill (DD) core, Reverse Circulation (RC) chips from exploration drilling, RC chips from open pit grade control drilling and grade control channel samples. • DD and RC drilling sampling techniques are discussed further in 'drilling techniques' criteria. • Pit channel Sampling: Channel sampling was undertaken on a regular basis prior to 2006 and 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. • 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 up hole 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.
Drilling techniques	**Diamond Drilling:** • The Martha Underground Resource Estimation uses 232,730m of diamond drill (DD) core in 960 holes. The increase in holes utilised in modelling is a function of both additional drilling in 2019 and an increase in modelling extent in the direction of the Correnso orebody • 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. **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 used to inform the estimate for the Martha Underground project in proximity to the open pit. • Grade control RC collars were designed 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. ○ 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.

Criteria	Commentary
	• 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: ○ 92.5% within the Martha Underground 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.
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 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

Criteria	Commentary
	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.  **Figure 1.1 Sample Preparation Flow Sheet, SGS, Waihi**

Criteria	Commentary

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).
	• Quality of exploration assay results has been monitored in the following areas:
	  ○ Sample preparation at the SGS Waihi and Westport labs through sieving of jaw crush and pulp products,
	  ○ Monitoring of assay precision through routine generation of duplicate samples from a second split of the jaw crush and calculation of the fundamental error.
	  ○ 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.

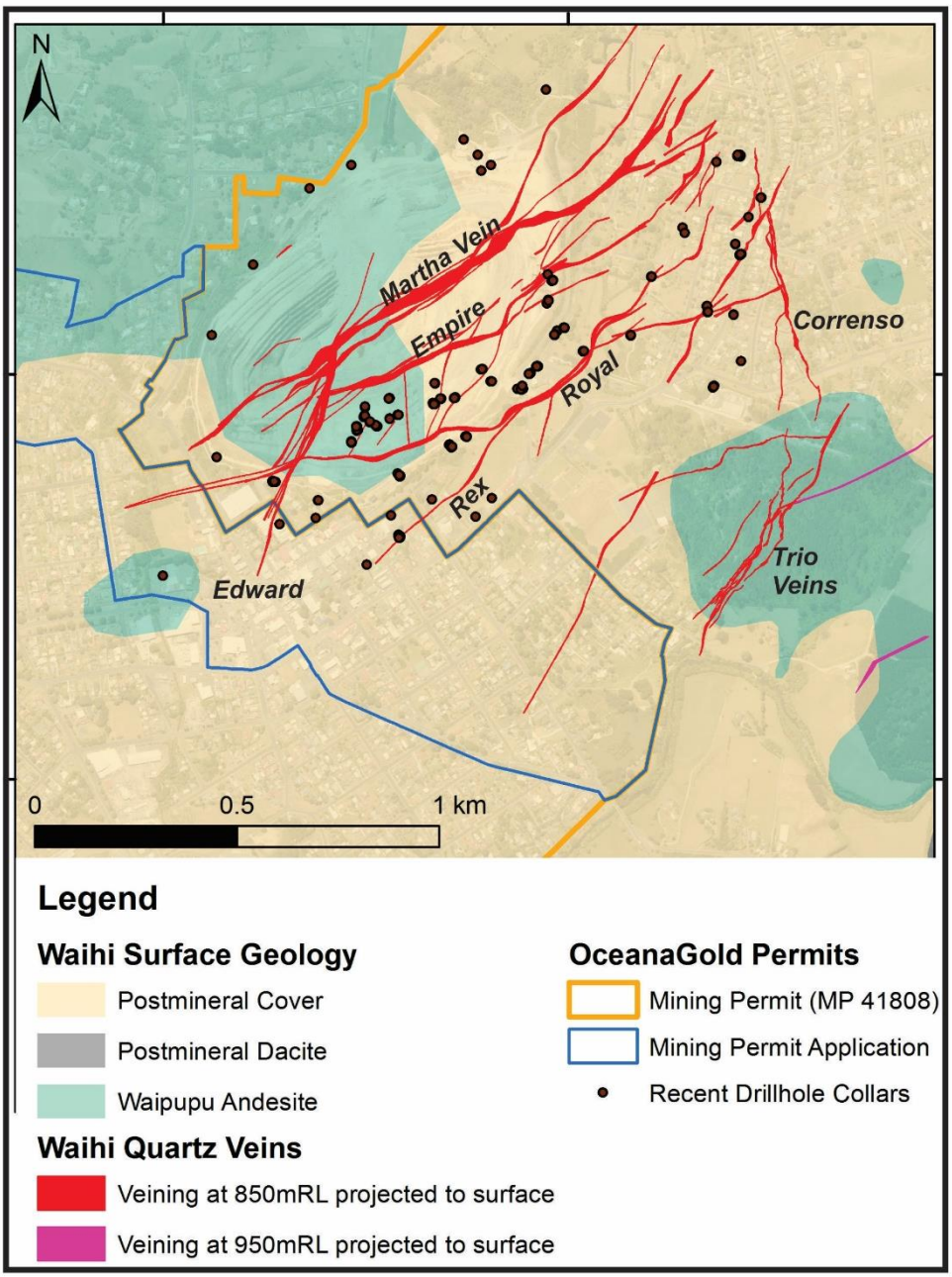
Verification of sampling and assaying	• CRMs performance is regularly scrutinised and the database QAQC function thresholds are reviewed bi-annually. CRMs are currently assigned to batches on a rotational roster in a "pigeon pair" system. • Monthly QAQC reporting and review is undertaken on all assay 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. • SGS routinely release its internal QAQC data to OceanaGold for review. The performance of SGS internal standards appears satisfactory. • No data from geophysical tools, spectrometers or handheld XRF instruments have been used for the estimation of Mineral Resources. • 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.

Criteria	Commentary
	• 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). • 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.
Data spacing and distribution	• 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. • Diamond Drill 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 as much as practicable given the availability of drilling platforms. Sample intervals are selected based upon observed geological features. • All drill core is oriented downhole. Structural orientation measurements recorded during logging are used to inform vein modelling for resource estimation and true width interpretation for reporting of significant intercepts. • Sample intervals are selected based upon observed geological features. • Face sketches drawn during underground grade control sampling are uploaded into 3D software and used to update the vein model for the reserve estimation.
Sample security	• Drill core is stored within secure facilities where access is controlled. 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. External reviews of sampling techniques and data have been undertaken during third-party technical assessments

Section 2 Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	• The majority of mineralisation within the resource occurs on a granted mining permit MP41808 with a small portion within an area of EP40767 which is currently under an application for an extension to the current Mining Permit (MP41808). • 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 Correnso underground mine (nearing completion) and Martha open pit mine (currently not operational). • 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 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 authorise activities within the Mining Licence and Extended Project areas respectively. In combination they authorise mining, stockpiling, conveying, processing of ore and the disposal of tailings to the existing tailings storage facilities, subject to conditions. An updated Land Use Consent (202.2018.00000857) was granted by Hauraki District Council (HDC) on the 1st of February 2019 and commenced on the 27th July 2019. This Land Use Consent allows for mining of the Martha Underground resource and the remainder of the Phase 4 Martha Pit. • 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 tailing's storage facilities. Both HDC and WRC have conditions in place relating to mine closure, bonds and a post closure trust. The area covered by the Martha resource is 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 other parties	Waihi Gold Company held exploration and mining licences and permits over the Open Pit 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 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.

Criteria	Commentary
	<u>Martha Underground</u> • This project is focused on 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 hanging wall 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 2.1).
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.

Criteria	Commentary
Diagrams	 **Figure 2.1: Simplified Geology of the Waihi Area showing drill collars drilled between 2017 and December 2019**
Balanced reporting	• Recent Waihi drill hole information is available from www.oceanagold.com.
Other substantive exploration data	• OceanaGold is continuing with exploration programs within the district on permits EP 51771, EP40598, EP40813, EP51041, EP51630, EP52804, EP60148 and EP60149.
Further work	• OceanaGold continues to drill in the Waihi area, with 3.3km of drilling planned for resource infill and 21.8km planned for reserve conversion for the Martha Underground project.

Section 3 Estimation and Reporting of Mineral Resources

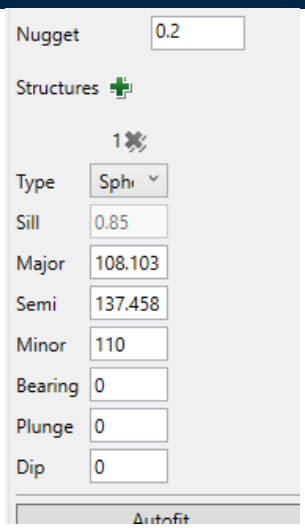
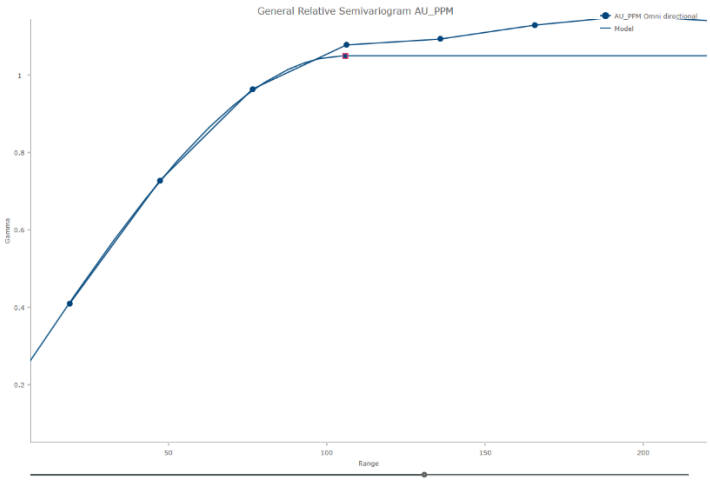
Criteria	Commentary
Database integrity	• Drill hole data is initially captured in an Access Database used for drill hole planning and management. That data is validated by several inbuilt data-entry checks. • The data is imported from Access into the main AcQuire database interface which includes validation protocols. • Personnel are well trained and routinely check source versus input data during the entry process. • The Martha underground model r0120_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.
Geological interpretation	**Martha Resources** • Open pit and underground mining since 1988 have 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. • Gold mineralisation is confined to quartz veins and is not disseminated 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.

Criteria	Commentary

	• 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:
	  ○ Exploration drilling data – Diamond and rare RC
	  ○ Open Pit Grade Control channel samples and RC samples
	  ○ Historic Quartz Vein Mapping
	  ○ Historic mining triangulations
	  ○ Surface mapping
	  ○ Full width historic x-cuts
	  ○ 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;
	  ○ Au and Ag values
	  ○ Vein quartz percentage
	  ○ Composition of the interval, commonly quartz or quartz+calcite
	  ○ Lithology type, including void intercepts (for example stope fill, open stope, cavity)
	  ○ 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 and geological concepts have been routinely reviewed by internal and external reviewers.

Dimensions	**Martha underground Resources**
	Martha Underground – r0120_MUG_subblocked_ fnl.bdf 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

Criteria	Commentary
	○ 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
Estimation and modelling techniques	**Martha Resources** • Vulcan® software has been used to construct the Martha underground model. The estimation techniques discussed below are 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 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: $(\%\text{ of data above the cap}) \times \frac{\text{mean of data above cap}}{\text{uncapped mean}}$ Variography • 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:

Criteria	Commentary
	  <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.
Moisture	• Estimates of tonnage are prepared on a dry basis.

Criteria	Commentary
Cut-off parameters	• A cut-off grade of 2.15g/t has been used for the Martha Underground Project Mineral Resource. • Cut off grades are estimated at a USD 1500 gold price and based on processing costs of NZD 30/tonne, general and administration costs of NZD 20/tonne and underground mining costs of NZD85/tonne.
Mining factors or assumptions	**Martha Underground Project** Hydrogeology • GWS Limited Consulting (GWS) have modelled the groundwater system in Waihi since the late 1980's. • 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 (700mRL) by the current underground pumping system. Further drawdown of the water table is required to extract the Martha Underground resource and a borehole pumping project from the 800mRL is being implemented. • GWS estimate the average daily pumping rates to dewater to 500mRL range from 14,000m^3/day to 16,700m^3/day. Historic Stope Modelling ***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. • 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. ***Methodology*** • As the latest information either physical or on paper becomes available the current data for the old level/s are reviewed and updated accordingly. • Stope shapes are digitised using stope widths annotated on the historic long-section plans, and stope orientation was determined by wireframes and/or drill hole intercepts.

Criteria	Commentary

- The individual stope files that are situated entirely within the open pit shell and the Milking cow collapsed zone are archived and not included in the stope model.

Modelling of voids

- Fill is captured in the model via the *mined* variable,

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

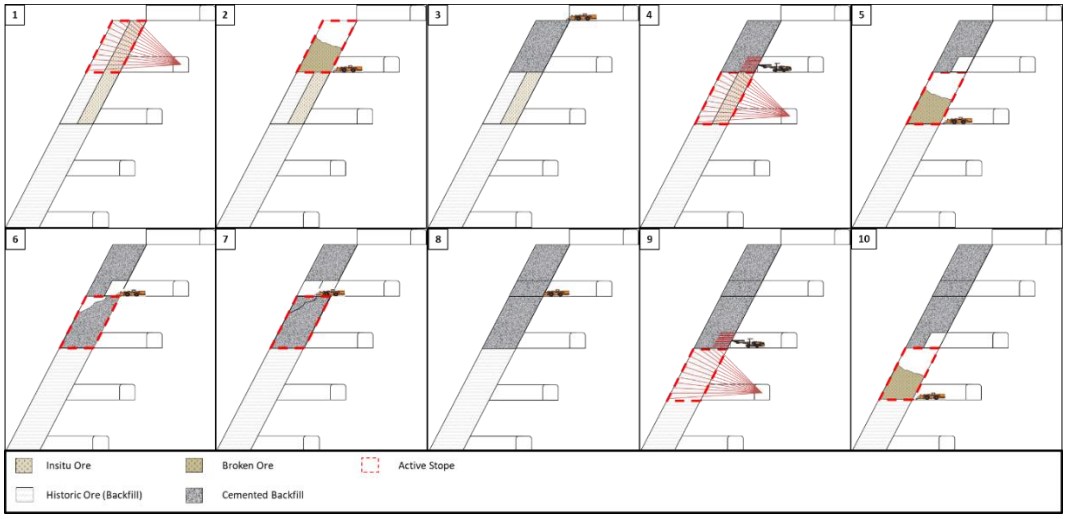
No back filled material is included in the reported Mineral Resource, this material is regarded as an exploration target and will be de-risked through further exploration work.

<u>Geotechnical</u>

- 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 feasibility 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:
    - A proportion of the existing unfilled historical stopes will be stabilised by filling with rockfill immediately below the Martha Pit.
    - 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.
    - These two factors will result in a significant improvement in overall rock mass conditions
- AMC, engineering consultants, 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 Pty Ltd in 2018. The Mineral

Criteria	Commentary
	Resource estimate has applied the same recommended mining methods recommended by SRK and Entech. • Much of the deposit will be extracted using Avoca which has been the predominant mining method at Waihi since 2004. • A proportion of the Mineral Resource inventory will involve the extraction of remnant ore skins in the footwall or hanging wall of previously mined stopes, or the extraction of both remnant ore skins and historical backfill. The proposed mining method is illustrated in Figure 3.1, this mining method will utilise remote drilling and loading methods combined with remote LHD equipment for ore extraction. • SRK and Entech conclude that once established, the mining method is expected to achieve acceptable ore recovery, productivity with few safety issues anticipated.  **Figure 3.1 Side Ring Mining Method** <u>Mining Recovery and Dilution</u> • No mining recovery or dilution were applied to the Mineral Resource estimate. <u>Mineral Resource Estimate</u> • OceanaGold has estimated the Mineral Resource using the Deswik Stope Optimiser (SO). • The Mineral Resource is reported within the SO shapes above the 2.15 g/t cut-off grade. No unclassified material contained within the SO shapes is reported. • Nominal stope dimensions of 15m high by 10m in length were selected for the design. • Stope widths vary, depending on the thickness of the mineralisation. A minimum stope width of 0.5 m was used and 0.5m of dilution was applied to both the footwall and hanging wall 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 SO shape. • The method of specifying the strike and dip angles for the initial stope-seed-shapes in SO was to apply a stope control surface wireframe over the full extent of the orebody where stope shapes are to be generated. • Figure 3.2 present the SO shapes prior to exclusion based on geotechnical and economic assessment.

Criteria	Commentary

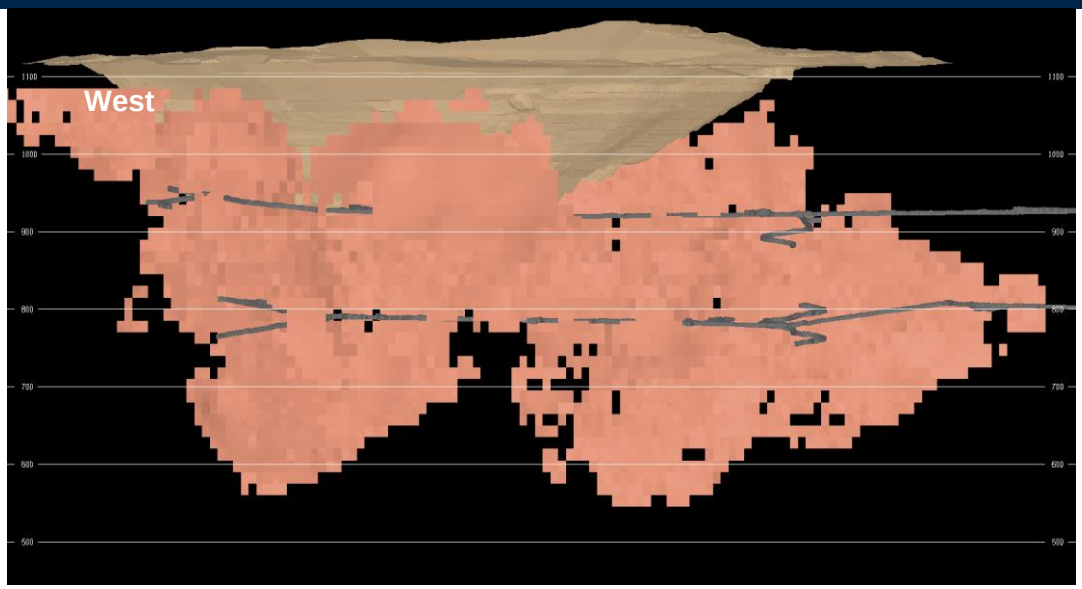


Figure 3.2 Martha Underground SO shapes

- The following stope shapes were manually excluded from the Mineral Resource estimate:
  - Isolated stope shapes either showing lack of continuity or distant from the main concentrations of shapes.
  - Stopes closer than 50m from the surface.
  - Within a solid created as an exclusion solid around the historical “Milking Cow” zone by projecting the cave zone outwards by 20 m.
  - All stopes intersecting the base of the Martha Reserve pit.
- Figure 3.3 presents the SO shapes after exclusion based on geotechnical and economic assessment.

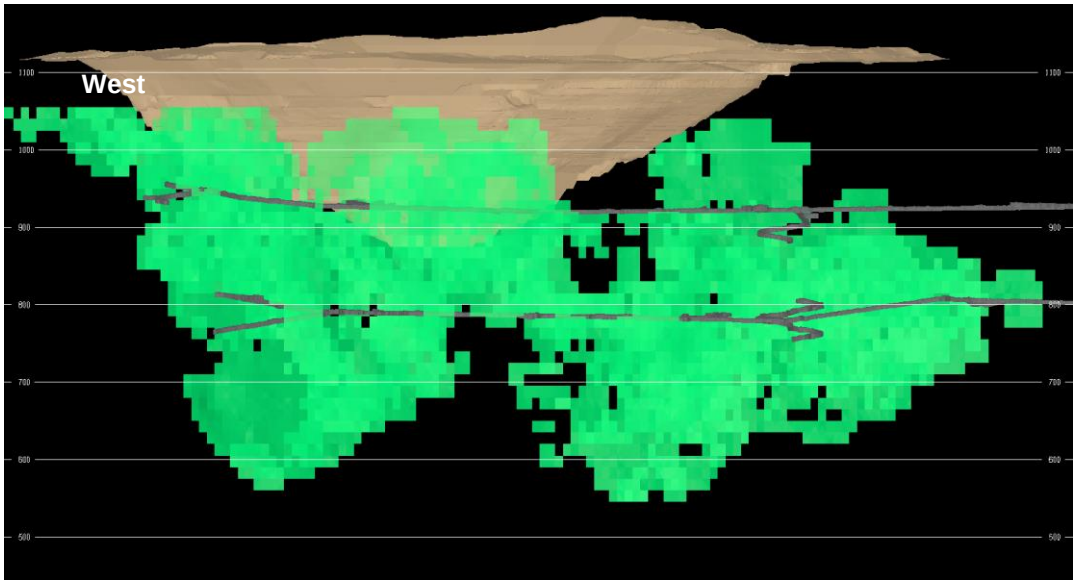
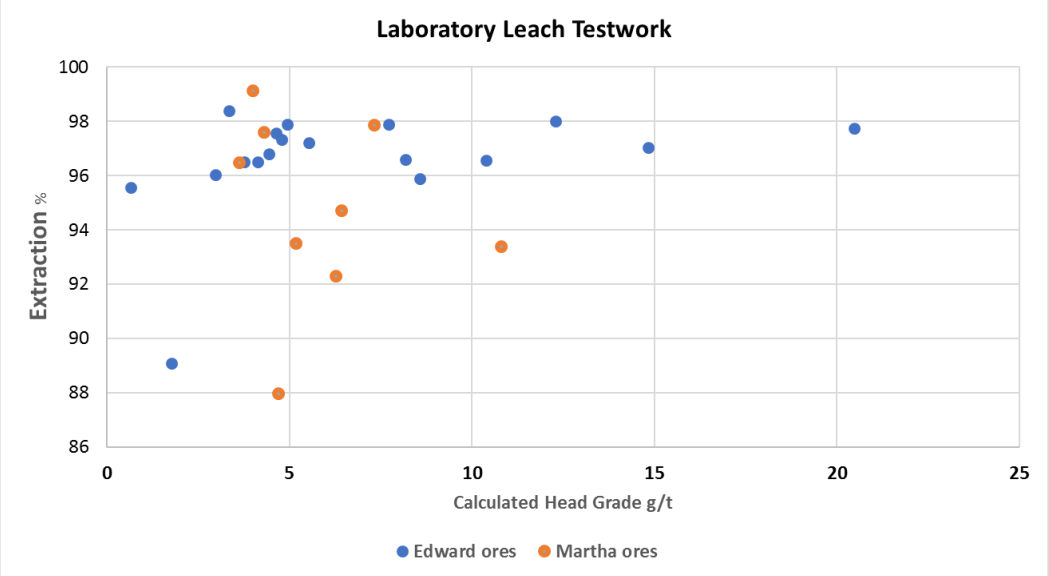


Figure 3.3 Martha Underground Mineral Resource Long Section

Criteria	Commentary
Metallurgical factors or assumptions	**<u>Martha Underground Project</u>** • Metallurgical test work has been completed on 30 composite samples of mineral resource intercepts from Edward (18), Martha (9), 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, Western Australia. 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 3.4 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 92% been used for the Mineral Resource calculation.  **Figure 3.4: Laboratory Leach Testwork Chart**
Environmental factors or assumptions	**<u>Martha Underground Project</u>** • During 2017 and 2018, environmental studies were conducted by independent consultants to support resource consenting. 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 Hauraki District Council and Waikato Regional Councils have issued resource consent conditions for Project Martha. These conditions impose restrictions on blasting magnitudes and firing times, mine design, geotechnical monitoring, dewatering and surface stability.

<table>
<tr><th>Criteria</th><th>Commentary</th></tr>
<tr><td></td><td></td></tr>
<tr><td>Bulk density</td><td>
<u>Martha Underground Resources</u>

Martha Underground density (sg) assignment is based on a density assessment completed in 2018. Density samples are routinely collected during logging of diamond drill core. Specific Gravity is automatically calculated using the following formula:

Weight in Air
(Weight in Air – Weight in water) = SG
<table>
<tr><th>Domain</th><th>Sample Count</th><th>Mean SG</th><th>Standard Deviation</th></tr>
<tr><td>Quartz Andesite</td><td>1,361</td><td>2.52</td><td>0.15</td></tr>
<tr><td>Quartz Vein</td><td>634</td><td>2.53</td><td>0.09</td></tr>
<tr><td>High Base Metal content logged</td><td>426</td><td>2.56</td><td>0.08</td></tr>
<tr><td>Global Average</td><td>2,156</td><td>2.50</td><td>0.16</td></tr>
</table>

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, exposure 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.

</td></tr>
<tr><td>Classification</td><td>
<u>Martha Underground Resources</u>

The resource classification is based on an assessment of average drilling density.
Confidence category is defined by average drill hole spacing, the ranges employed in classification of the Martha Underground Project Mineral Resource 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.

Table 3.6: Average Drill hole spacing required for resource classification
<table>
<tr><th>Confidence category</th><th>Vein Zones Average distance to 3 closest holes</th><th>Stope backfill</th></tr>
<tr><td>Measured</td><td>N/A</td><td>N/A</td></tr>
<tr><td>Indicated</td><td>0 to 40 m</td><td>N/A</td></tr>
<tr><td>Inferred</td><td>40 to 60 m</td><td>N/A</td></tr>
</table>
</td></tr>
</table>

Criteria	Commentary
	• Mine fill within the historic stopes is not classified as Mineral Resource. • The resource estimate outlined in this document appropriately reflects the Competent Person's view of the deposit.
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. • Entech Senior Geologist Andrew Finch has also undertaken an independent review of the Martha Underground resource model.
Discussion of relative accuracy/ confidence	**Martha Underground Resource.** • Mining operations have not commenced on the Martha Underground resource at this time so there is no reconciliation history on this deposit with which to validate the model. Notwithstanding though the grade estimate and modelling techniques in preparing this estimate are consistent with the techniques utilised in estimates for the Correnso project and other narrow vein epithermal vein systems in the Waihi district, many of which have been extensively mined and have reconciled well with production records at the time of mining