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February 29, 2024

ELECTRONIC DELIVERY

Mr. Patrick Lennberg
Environmental Protection Specialist
Colorado Department of Natural Resources
Division of Reclamation, Mining and Safety
Office of Mined Land Reclamation
1313 Sherman Street, Room 215
Denver, Colorado 80203

Re: Division Adequacy Review No. 2; Technical Revision 141 (TR-141) Grassy Valley Monitoring Well Installation – Phase 1, Permit No. M-1980-244

Dear Mr. Lennberg:

On February 22, 2024, Newmont Corporation's Cripple Creek and Victor Gold Mining Company (CC&V) received the Division of Reclamation, Mining and Safety (DRMS) Adequacy Review No. 2 of Technical Revision (TR) 141 to Permit M-1980-244, regarding Grassy Valley Monitoring Well Installation – Phase I. Below are DRMS comments in **bold** and CC&V's responses in *italics*.

1. **Provide an explanation why there were no resistivity survey transects performed further down in Grassy Valley as depicted in Figure 1 of the Golder report.**

   Multiple Electrical Resistivity Imaging (ERI) transects were performed in Lower Grassy Valley during an investigation by WSP Golder in August 2022; however, the primary focus of the geophysical investigations was to identify potential seepage pathways between ECOSA and GVMW-25 in order to determine where mitigation could be merited to prevent further migration. The follow up geophysical survey targeted this area along the toe of ECOSA to further define the source. The WSP Golder "Report on East Cresson Overburden Storage Area Acid Rock Drainage Sustainable Solutions Evaluations" is included in Attachment 1. The results from this investigation do not conclusively indicate a preferred flow path of seepage between the ECOSA and GVMW-25 or other Grassy Valley monitoring wells.

2. **The Golder report mentions a seepage collection trench to be constructed along the toe of the ECOSA. The various phases included in the report assume the seep collection trench is installed. Please provide design details of this seep collection trench, otherwise provide a technical justification why this recommendation will not be implemented as a part of this TR.**

   A shallow seepage collection trench alone was not anticipated to effectively mitigate impacts to shallow groundwater; therefore, CC&V elected to pursue the groundwater

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interception well system as the preferred ECOSA seepage mitigation. This decision was primarily based on field observations during trenching to replace the water pipeline(dry ground within the trench to a reasonable excavation depth, except for one small area), and the Collier geophysical survey results showing high conductivity zones deeper than a feasible trench depth. CC&V has continued to use an adaptive management approach as more information is acquired to provide an optimal mitigation strategy, and will continue to adapt as more information is gathered through the installation of the proposed wells.

As requested in "Additional Information Required and Issuance of Corrective Action, Grassy Valley Groundwater and Surface Water Monitoring Report September 2023," CC&V is currently working to contract an engineering consultant to support designs for a seepage collection facility compliant with Environmental Protection Facility requirements. The scope for the consultant will also include designs to support an interception well system as a potential part of a comprehensive approach to ECOSA seepage management that includes mitigation for seepage surface expressions and shallow groundwater, to be informed by investigation results from the proposed additional monitoring wells.

3. **What is the Operators plan for containment of investigational derived waste material that is generated during drilling that may contain low pH water and/or contaminated soils?**

   CC&V plans to construct earthen sumps at each drilling location to contain the drill cuttings. Sumps will be constructed of adequate size to handle all anticipated drill cuttings and will only be filled to approximately 75% of the total capacity. If the volume of drill cuttings approaches the capacity of the sump, drilling will be stopped as a new sump is constructed to contain the additional volume. As the water evaporates and the material in the sumps dries, it will be excavated, hauled, and placed on top of the ECOSA.

4. **What size slot screen will be used? While the Golder report includes this information it is unclear how closely the Operator will be following the information contained in it.**

   CC&V plans to utilize 4" Schedule 80 PVC screen with a 0.020" screen slot size along with a #8 silica sand filter pack, similar to what was utilized in the construction of GVMW-25. The slightly larger screen slot size is anticipated to decrease the potential for plugging to reduce the well yield.

5. **Will any bulk undisturbed colluvial samples, from depth, be collected for grain size analysis and other geotechnical properties? These properties may assist the Operator in developing extraction wells in the future.**

   CC&V anticipates utilizing reverse circulation (RC) drilling for the proposed monitoring wells which will not allow for collection of undisturbed samples. CC&V will have a geologist or qualified individual log the materials encountered during drilling and use the field observations to determine the well screen interval. CC&V will also retain the RC

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chips from the wells and hold for future analysis, if necessary.

As part of the interception well design, CC&V also intends to perform aquifer testing at the new wells, as necessary, to gather the data required for effective engineering/design of the extraction wells and to understand seepage flow characteristics.

6. **The cross-sections given in Attachment 2 does not show a clear distinction between colluvial and bedrock material, is there a way to define the depth to bedrock through the surveys?**

   Bedrock is typically associated with higher resistivity values (warm colors of yellow, orange, & red) which can be interpreted to represent intact rock with little pore water at depth. In this instance it is difficult to conclusively define the depth to bedrock from the survey. Due to the uncertainty in the hydrogeologic setting of colluvial and shallow bedrock, the bore hole logs from the installation of the proposed monitoring wells will be used to characterize the subsurface conditions.

7. **In the last figure, Attachment 2, there is an area of low resistivity shown in the SE section (800 m) portion of the transect. Why is this section not being investigated further?**

   CC&V's primary focus for investigation and mitigation are potential seepage pathways downgradient of the ECOSA that could be leading to the observed impacts at GVMW-25. The location at 800m on Attachment 2 is not evaluated to be in the hydrogeological path between the ECOSA facility and receiving groundwater system. This location is approximately 1,500 feet laterally to the south of the ECOSA facility with no mine facilities hydrogeologically upgradient of the location.. The proposed monitoring well locations were selected to better characterize the subsurface immediately adjacent to the ECOSA and potentially intercept shallow groundwater prior to migration downgradient into Grassy Valley.

8. **Revise the last figure of Attachment 2 to project the locations of GVMW-24A/B, OSABH-12 and GVMW-25 on to it.**

   Attachment 2 contains the revised figure with the projected locations of GVMW-25, GVMW-24A/B, and OSABH-12. Please note that the figure is not to scale, and the well locations are approximate.

9. **In the original TR-141 submittal, page 6 first paragraph, the Operator states GVMW-35A will be installed within the bedrock to intersect the observable deep low resistivity zone. How will the Operator verify this borehole, and all others, are correctly located in the low resistivity zone?**

   The locations and depths of the proposed wells were based on the results of the geophysical survey and will be verified within the low resistivity zone by the depth of the well. The low resistivity zone targeted with the GVMW-35A location spans from approximately 195 ft-bgs to

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400 ft-bgs therefore, the anticipated depth of 320 ft-bgs for GVMW-35A will be in the center of this observed low resistivity zone, with the final depth guided by the conditions observed in the field during drilling. The 10 shallow wells will be drilled and installed to the bedrock/colluvium interface to monitor and potentially extract shallow groundwater. The impacts to shallow groundwater as observed at GVMW-25 are within the unconsolidated colluvial aquifer that is the targeted with the proposed shallow wells.

We trust that the additional information described above and provided in the attachments addresses the comments provided by DRMS regarding the Adequacy Review No. 2 of Technical Revision (TR) 141 to Permit M-1980-244 for the Grassy Valley Monitoring Well Installation. Should you require further information, please do not hesitate to contact Antonio Matarrese at (719) 851-4185, Antonio.Matarrese @Newmont.com, or myself at (719) 237-3442 or Katie.Blake@Newmont.com.

Sincerely,

DocuSigned by:
Katie Blake
5A3D013B629844B...

Katie Blake
Sustainability & External Relations Manager
Cripple Creek & Victor Gold Mining Co

EC:

M. Cunningham – DRMS
T. Cazier - DRMS
E. Russell - DRMS
A. Matarrese – CC&V
J. Gonzalez – CC&V
K. Blake – CC&V

Attachments:

Attachment 1: WSP Golder Geophysical Survey Memo
Attachment 2: Collier Geophysical Transect Figure

File: "C:\Users\19012214\Newmont USA Limited\CC&V – S&ER Environmental - Permits\Technical Revisions\TR 141 Grassy Valley Monitoring Wells\Adequacy Review 2"

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Attachment 1

January 9, 2023 Project No. 31405490.000

Craig Watkins, Senior Project Engineer
Cripple Creek & Victor Mining Company LLC
1632 Co Rd 82
Cripple Creek, CO 80813

REPORT ON EAST CRESSON OVERBURDEN STORAGE AREA ACID ROCK DRAINAGE SUSTAINABLE SOLUTIONS EVALUATIONS; CRIPPLE CREEK & VICTOR MINE

Dear Mr. Watkins,

WSP Golder is pleased to present this letter report to Cripple Creek & Victor Mining Company LLC documenting our geophysical investigation to evaluate shallow groundwater and acid rock drainage at East Cresson Overburden Storage Area (ECOSA) at the Cripple Creek & Victor Mine (CC&V), Colorado. This letter report presents a project background, summary of the methods used, data processing, results, interpretation, and concluding remarks.

EXECUTIVE SUMMARY

In August 2022 a geophysical investigation was conducted east of the CC&V ECOSA in Grassy Valley to determine if seepage flowpaths can be traced in the subsurface and to identify any other areas on, or adjacent to, the ECOSA that may be contributing impacts to groundwater. Two electromagnetic instruments, sensing the upper 15 and upper 50 feet, respectively, were utilized to generate a color-contoured map of the apparent conductivity and/or metal detected along the survey transects as shown in Figures 2 and 3 of this report. Additionally, Electrical Resistivity Imaging (ERI) data were collected along five transects to produce a high resolution geo-electric cross-section representing the distribution of varying apparent resistivity values at depth along each transect. The ERI profiles shown in Figures 4, 5, 6 and 7 of this report were generated to assess the vertical and spatial variability of the Grassy Valley subsurface and identify any potential seepage pathways.

The patterns observed in EM and ERI results from this investigation do not indicate an apparent preferred flowpath or zones of seepage between the ECOSA and GVMW-25 or other Grass Valley monitoring wells. It appears moderate EM conductivity areas detected downgradient of the ECOSA are representative of zones of increased surface moisture. ERI results show several anomalously low resistivity features that could either be the result of an unmapped utility (i.e., interference) or could represent preferential flow path(s) for high TDS groundwater.

Based on interpretation of the geophysical data presented, three potential locations for new monitoring wells are shown on Figure 8 and labeled PB23-# (potential boring 2023) but will likely be renamed. These locations are approximate and can be modified to accommodate field conditions considering accessibility, land ownership, utilities, and surface conditions. Each of these locations were selected where anomalously low resistivity features appear in the ERI data and loosely correlate with areas of moderate EM conductivity.

It is recommended that at each location, a shallow well be installed (estimated 25-35 feet deep) screened in colluvium, and a deeper well be installed in the fractured rock (estimate to be 30 to 50 feet bgs) to better characterize the subsurface conditions and possibly intercept degraded quality water.

1.0 BACKGROUND

The area known as Grassy Valley is located immediately to the north and east of the ECOSA facility. subsurface bedrock structure, known as the Cripple Creek Diatreme, to direct water infiltrating through the surface mine operations toward and through an igneous diatreme and ultimately discharge via the historic Carlton Tunnel. Most of the ECOSA and a large portion of Grassy Valley is located within the footprint of the diatreme (see Figure 2). The east-most portion of Grassy Valley area is located beyond the eastern extent of the diatreme structure. Grassy Valley is underlain by colluvium and granitic bedrock with groundwater present in the bedrock and, at some locations, within the colluvium.

Groundwater impacts (elevated metals concentrations) observed at monitoring well GVMW-25, which is screened within the Grassy Valley colluvium, suggest that some quantity of infiltration through the ECOSA is not being captured, either by the volcanic diatreme or through shallow sumps constructed by Mine Operations in 2021 to collect and manage visible seepage from the ECOSA toe. CC&V staff have indicated that monitoring well GVMW-25 is currently the only monitoring well completed within the colluvium in Grassy Valley. Existing wells in Grassy Valley within the geophysical investigation area are shown in Table 1. The objective of the geophysical investigation, conducted in August 2022, was to determine if seepage flowpaths can be traced in the subsurface and to identify any other areas on, or adjacent to, the ECOSA that may be contributing impacts to groundwater. The ultimate objective of the geophysical investigation was to inform seepage mitigation plan.

It is evident by the number of existing monitoring wells in Grassy Valley that CC&V has previously invested in the targeted characterization and monitoring of bedrock groundwater units. However, in the absence of data associated with the completion and/or monitoring of the shallow colluvial monitoring wells, an adequate characterization of the shallow colluvium is not complete. This geophysical investigation seeks to provide a spatial distribution of conditions in the subsurface that may correlate to areas where seepage from the ECOSA is present.

Table 1: Summary of Grassy Valley Wells Within Geophysical Investigation Area

Well ID	X-Coordinate (NAD83 UTM)	Y-Coordinate (NAD83 UTM)	Screen Depth (ft)	Screened Lithology	Thickness of Colluvium (ft)
GVMW-4A	488352	4289090	430 – 480	Bedrock	15
GVMW-4B	488354	4289090	30 – 50	Fractured rock	15
GVMW-7A	489191	4288790	155 – 195	Bedrock	30
GVMW-7B	489187	4288790	20 – 50	Fractured rock	20
GVMW-8A	490350	4288020	210 – 250	Bedrock	20
GVMW-8B	489557	4288080	20 – 50	Fractured rock	20
GVMW-9A	489965	4288900	160 – 200	Bedrock	20
GVMW-10	488352	4289090	210 – 270	Bedrock	35
GVMW-12B	?	?	? >50	Colluvium	>50
GVMW-15A	489965	4288900	700 – 800	Bedrock	15
GVMW-22A	490350	4288020	50 – 70	Bedrock	30
GVMW-22B	490347	4288020	5 – 30	Colluvium	15 or 35?
GVMW-23A	490322	4288440	40 – 90	Fractured rock	20?
GVMW-23B	490323	4288440	10 – 30	Fractured rock	10?
GVMW-24A	489681	4287690	210 – 250	Bedrock	?
GVMW-24B	489683	4287680	80 – 100?	Bedrock	?
GVMW-25	489602	4287960	68 – 78	Fractured rock	?
OSABH-12	489602	4287960	?	?	?
OSABH-14	489682	4287680	?	?	?
OSABH-16	489543	4288080	?	?	?
OSABH-17	489105	4288430	?	?	?
OSABH-18	488467	4288860	?	?	?

2.0 GEOPHYSICAL SURVEY METHODS

To determine if seepage flowpaths can be traced in the subsurface and to identify any other areas on, or adjacent to, the ECOSA that may be contributing impacts to groundwater, electromagnetic induction was used to evaluate subsurface ground conditions and to provide a reconnaissance level map of bulk conductivity of the subsurface within Grassy Valley. For this project, because seepage from the ECOSA has a higher TDS and specific conductance, it was anticipated that any seepage will appear as higher EM conductivity zones. Using elevated conductivity as a proxy for seepage, EM was used to evaluate the fluid flow conditions/moisture distribution of the materials in the areas of interest (AOI).

EM data were collected relatively rapidly by walking along the ground surface with an instrument and recording apparent conductivity measurements concurrently with GPS position. A series of transects of EM data were collected with two different EM instruments to evaluate the spatial distribution of conditions in the subsurface and used to generate a map of conductivity to correlate to areas with seepage impact.

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2.1 Electromagnetic Induction (EM) Method Description and Data Collection

Electromagnetic (EM) induction instruments measure the apparent electrical conductivity of the near surface soils. A transmitter coil is used to induce an electrical (eddy) current into the ground. These induced currents produce secondary EM fields, and a receiver coil measures the strength of the secondary EM field generated by these currents. For this survey, quadrature-phase measurements were collected to provide a profile of measured apparent conductivity (given in units of milli-Siemens per meter [mS/m]).

Apparent conductivity is a measure of the bulk apparent conductivity of the subsurface, which is a function of mineralogy, interconnected porosity, moisture content, the dissolved ion concentration, temperature, phase state of the pore water, and the amount and composition of any suspended colloids in the pore fluid. A change in any of these properties results in a variation of apparent conductivity.

The EM phase of the investigation took place on August 24, 25, 26, 27, 28, and 29, 2022 and consisted of walking surveys on ECOSA roads in the mine, and outside of the mine in Grassy Valley using two EM instruments. Due to the large aerial extent, presence of fences and roads, and observed metallic surface features, some data gaps remain in the EM dataset.

WSP Golder used a Geonics LTD. EM31-MKII (EM31), a one-person operable instrument with a fixed coil spacing of approximately 12 feet for measuring apparent conductivity and detecting metal in the upper 16 feet of the subsurface during this investigation (Image 1). The EM31 quadrature component is calibrated to give a measure of the bulk apparent conductivity of the subsurface for a hemispherical volume of radius approximately 16 feet, centered at the measurement point. The in-phase EM31 response is sensitive to metal, given in parts per thousand (ppt), and used to delineate elevated conductivity readings from metallic materials.

Image 1 – EM31 in operation at CC&V Mine

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To investigate deeper subsurface materials, a two-person Geonics EM34 was employed along similar transects. EM tracklines and monitoring locations are shown on Figure 1. The EM34 was used in horizontal dipole model with 20-meter (65.5 feet) separation providing a 50-foot investigation depth. Conductivity values represent weighted mean values of all the layer conductivities from the ground surface to the maximum depth that is sensed by the EM instrument. The contribution to the measured conductivity from a single layer depends on its conductivity, depth, and thickness. Deeper layers generally contribute less to the final values than do near-surface layers.

EM31 and EM34 data were collected at 1 Hertz (1 time per second) with each data reading recorded on a Windows-based data logger (Juniper Systems Allegro CX) concurrently with positional information from a global navigational satellite system (GNSS) receiver with sub-meter accuracy. The resultant EM31 dataset is composed of 31,909 individual data points and the EM34 dataset is 11,613 points. Each data point is georeferenced.

The EM34 was not used along the toe of the ECOSA and locations within 50 feet of surface metal were generally avoided as the instrument is laterally sensitive to metal within the same distance as the investigation depth.

EM31 data processing and analysis was performed using commercially available DAT31W software while EM34 data were processed much the same way using DAT34W software. The resulting datasets are presented as a color-contoured map of the apparent conductivity and/or metal detected along the survey transects in Figures 2 and 3.

2.2 Electrical Resistivity Imaging (ERI) Method Description and Data Collection

ERI is geophysical method that measures the resistivity (or conversely, conductivity) of the subsurface using injection of electrical current and measurement of voltage potentials along a series of surface electrodes to produce a high resolution geo-electric cross-section representing the distribution of varying apparent resistivity values at depth along the transect.

Electrical resistivity is a fundamental property of a material that describes how easily the material can transmit electrical current. High values of resistivity imply that the material is resistant to the flow of electricity; low values of resistivity imply that the material transmits electrical current easily. The primary properties that affect the resistivity of subsurface materials are porosity, water content, clay mineral and metal content, pore interconnectivity, and pore water conductivity. Since most soil and rock-forming minerals are essentially nonconductive, most current flow takes place through the material's pore water and conductive interconnected features such as clay or brine-filled karst voids. Therefore, water-bearing fracture zones with a high porosity and water saturation or karst features filled with clay will appear as low resistivity zones in contrast to the surrounding more resistive, dry, unfractured bedrock (see Inset 1). Above the groundwater table, air-filled karst voids typically appear as high resistive areas since air does not conduct electrical current. Resistivity values of common rocks and soil materials are provided in Table 1.

Table 2: Resistivity Values of Common Rock and Soil Materials

Material	Resistivity (ohm-m)
Rocks	
Granite/Granodiorite	5000 - 10^6
Basalt	1000 - 10^6
Sandstone	100 – 4000

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Material	Resistivity (ohm-m)
Shale	20 – 2000
Porous Limestone	100 – 1000
Dense Limestone	10^3 - 10^6
Evaporates, Salt	10^4 - 10^6
Soil and Water	
Clay	1 - 20
Sand (wet to moist)	20 – 200
Dry Loose Sand	500 - 10^5
Groundwater (fresh)	10 – 100
Sea Water	0.2

Electrical measurements are made using an automated meter and high voltage power source connected to a linear series of metal stakes (electrodes) as depicted in Graphic 1. The meter applies a potential difference to the ground surface in a fixed sequence of electrode pairs and measures the resulting current between them. A reverse model then calculates the apparent electrical resistivity at depth based on surficial measurements. The product of the modelling process is a two-dimensional (2D) profile showing resistivity (measured in Ohm-m) of the subsurface. ERI data may identify contrasts or anomalies associated with highly resistive bodies such as air-filled

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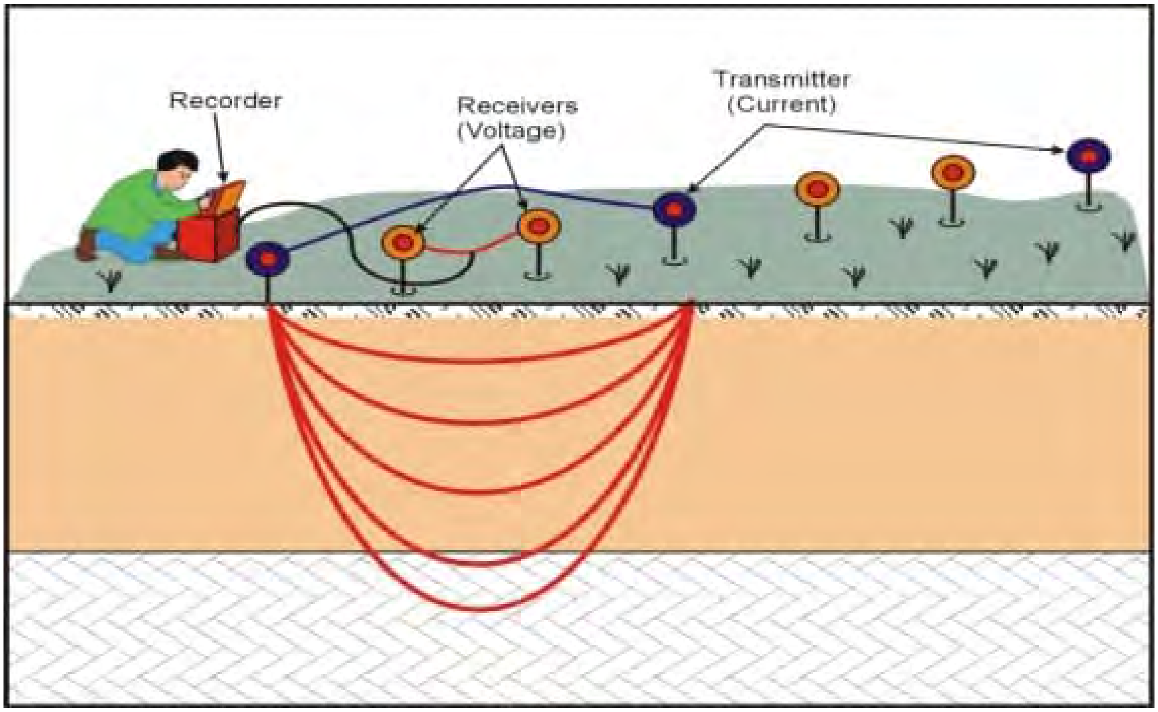
voids, bedrock, or low moisture zones, or low resistive bodies such as water-filled voids or fractures, saturated soil, and impacted soil or groundwater.



Graphic 1 - Electrical Resistivity Imaging Tomography Field Schematic

2.3 ERI Instrumentation and Software

For this project, WSP Golder used an Advanced Geosciences, Inc. (AGI) SuperSting R8 ERI system, consisting of an engineering resistivity meter, four multi-core electrode cables each containing 14 connectors, and 56 stainless steel stakes. The electrode spacing varied from 9 feet to 20 feet, resulting in spread lengths of 495 to 1100 feet in a single setup. Table 3 presents a summary of the ERI lines collected and the ERI lines are shown in red on Figure 1. A dipole-dipole array type was used.

Table 3: Summary of ERI Lines

Line ID	ELECTRODE SPACING (FT)	TOTAL LENGTH (FT)
GL22-1	20	1110
GL22-2	15	825
GL22-3	20	1110
GL22-4	9	495
GL22-5	10	550

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Once the resistivity data was collected, it was downloaded to a laptop computer, processed, and interpreted. Apparent resistivity values collected in the field were processed using inversion and forward modeling techniques to generate cross sections of actual modeled resistivity values. This was completed using RES2DINV which uses a least-squares linear inversion techniques to generate a model of predicted two-dimensional resistivity values along the profile, which were then contoured to evaluate spatial trends in subsurface resistivity values.

3.0 RESULTS AND DISCUSSION

3.1 EM31 and EM34 Conductivity and Metal Detection Results

Figures 2 and 3 present the EM data as color-contoured maps of apparent resistivity. Areas of higher EM apparent conductivity appear as warmer/hot colors, such as yellow, orange and red; while lower conductivity areas are shown as purple and blue areas. Low conductivity areas (up approximately 25 mS/m) are interpreted to represent background conditions and/or dry subsurface. Low conductivity areas appear minimally disturbed with native soils at the surface and areas with no seepage impacts in the upper 16 feet of the subsurface.

Areas of moderate conductivity (25 to 35 mS/m) are interpreted to represent either locations with significant near surface groundwater (which may or may not be impacted by seepage) or areas immediately adjacent to nearby surface/near-surface metal features (e.g., fences and guardrails). Because of their impact on the EM data, known metallic surface features are added to Figures 2 and 3.

Areas of high conductivity (above 35 mS/m) are generally interpreted to be areas of where seepage may be present within the upper 16 feet, or where fences, guardrails and/or other near surface metal generate high apparent conductivity. The area of highest metallic object influence (conductivity values over 90 mS/m) are blanked out in Figures 2 and 3.

In the shallower EM31 dataset, elevated / moderate conductivity (21 to 45 mS/m) is generally present where surface conditions are wettest. There are also isolated pockets of moderate conductivity within the Grassy Valley drainage. These areas are likely localized areas of moist to saturated clayey soil, not sources of seepage. There do not appear to be continuous plume-like distributions of moderate or high conductivity.

Within a filled area at approximately 45200E, 61900N (see Figure 2) the EM31 data indicate highly variable conductivity and the metal detection component of EM31 response suggests several pieces of buried metal are present within the upper 16 feet of the subsurface. Northwest of this area, along the toe of the ECOSA, EM31 values are generally near background / low conductivity.

Along the mine access road east of the ECOSA only one area of elevated EM31 conductivity is seen in the dataset, but only a limited portion of the road was surveyed. Where EM31 data were collected at the toe of the ECOSA elevated EM31 conductivity does not correlate with observed seepage or staining at the surface. EM34 data were not collected along the road east of the ECOSA due to the presence of nearby metal and expectation that meaningful data would not be obtained.

In both EM31 and EM34 data, the highest conductivity areas not attributed to metallic feature influence appear to be in topographically low areas with no obvious surface expression of seeps, staining or other evidence of seepage from the ECOSA. An area of elevated EM conductivity is observed approximately 250 feet east of GVMW-25 which may warrant further investigation and is labeled AOI (area of interest) on Figures 2 and 3. There does not appear to be a significant change in either EM31 or EM34 conductivity where the diatreme contact is mapped.

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3.2 Discussion of ERI Results

Electrical Resistivity Imaging results are presented in Figures 4, 5, 6 and 7 as two-dimensional (2D) profiles showing the modeled electrical resistivity values of the subsurface beneath each transect. Where a borehole location from previous investigations is close enough to project on a resistivity profile, it is shown. Since ERI measures the contrasting electrical properties of the subsurface material, these data are useful for identifying the top of bedrock surface, changes in lithology, weathering, fracturing, saturated zones, and changes in pore fluid chemistry such as salinity, pH or total dissolved solids. In the ERI dataset, low resistivity areas (blue zones with resistivity less than 50 ohm-meters) are interpreted to be areas of wet sediments in the shallow subsurface or seepage impacted areas. High resistivity areas ("warm" colors of orange, red, and brown with resistivity above 580 ohm-meters) are interpreted to represent intact rock with little pore water at depth or relatively well-draining soils and fill in the near surface.

Review of the ERI data presented in Figure 4 (ERI line GL22-1) indicates a low resistivity zone near the surface along most of the line which may be interpreted to be areas of moist to wet sediments. Below the low resistivity zone at an elevation of approximately 9900 feet, resistivity increases along most of the line, suggesting bedrock may be at this elevation, but this higher resistivity layer appears absent from the south-southwest start of the line to approximately 200 feet along the line. This may indicate either deeper bedrock, or the presence of low-resistivity impacted water.

Along ERI Line GL22-2 (Figure 5) relatively low resistivity appears from the southern start of the line to approximately 315 feet along the line. The low resistivity (high conductivity) zone appears at depth to the south of GVMW-25 but abruptly changes at approximately 325 feet along the line which may indicate a change in lithology or changes in pore fluid chemistry such as salinity, pH or total dissolved solids. The high resistivity at depth on the north end of the ERI line is interpreted as competent bedrock with minimal interconnected fractures to allow groundwater movement. The projected location of a shallow 8-inch steel pipe is shown on the resistivity model (Figure 5) and it does not appear the pipe significantly impacts the model response.

Low to moderate resistivity is present along most of the ERI Line GL22-3 (Figure 6) suggesting the presence of moist to saturated sediments and fractured rock. The most prominent feature in the geoelectric model is at approximately 690 feet along the line (between GVMW-25 and Lazy S Ranch Road) where the model resistivity is anomalously low. It is likely this is due to an unmapped utility, but that could not be confirmed. If this low resistivity/high conductivity feature is not related to an unmapped utility, it could represent a preferential flowpath for high TDS groundwater. The projected location of a shallow 8-inch steel pipe is shown on the resistivity model (Figure 6) and it does not appear the pipe significantly impacts the model response.

Along ERI Line GL22-4 (lower left panel of Figure 7) a similar pattern of a prominent low resistivity/high conductivity feature is observed in the resistivity model centered near 310 feet along the line (near a road crossing). To the south of this feature, subsurface resistivity generally follows a pattern of high resistivity near the surface and low to moderate resistivity at depth. To the north of this feature a band of low resistivity (blue colors) appears in the subsurface between 10 and 40 feet below ground surface. It is unclear whether the patterns in resistivity variations observed along GL22-4 represent lithologic changes, groundwater chemistry changes, or impacts of an unmapped utility. The projected location of a shallow 8-inch steel pipe is shown on the resistivity model and it does not appear the pipe significantly impacts the model response.

Along ERI Line GL22-5 (lower right panel of Figure 7) low resistivity/high conductivity is observed at depth throughout most of the resistivity model. This low resistivity is interpreted to be due to the presence of presence of moist to saturated sediments and fractured rock. Groundwater encountered along GL22-5 would be expected to be high TDS, which could be natural or the result of impacted groundwater. The projected location of a shallow

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8-inch steel pipe is shown on the resistivity model and it does not appear the pipe significantly impacts the model response.

4.0 CONCLUSIONS

EM and ERI results from this investigation do not conclusively indicate a preferred flowpath of seepage between the ECOSA and GVMW-25 or other Grass Valley monitoring wells. While no apparent flowpath was detected, it may still be that the areas of high EM conductivity are zones of high-TDS water and/or sulfate material that act as the source of elevated sulfates detected in monitoring well GVMW-25 downgradient of the uncapped ECOSA but that subsurface heterogeneity limits the ability to identify a seepage pathway.

A data gap remains along portions of the toe of the ECOSA where EM and ERI data were not collected.

It appears moderate EM conductivity areas detected downgradient of the ECOSA are representative of zones of increased surface moisture. ERI results show several anomalously low resistivity features that could either be the result of an unmapped utility (i.e., interference) or could represent preferential flow path(s) for high TDS groundwater.

5.0 RECOMMENDATIONS

Due to continuing uncertainty in the hydrogeologic setting of alluvial and shallow bedrock in Grassy Valley, it is recommended that a two or three monitoring wells be installed in the colluvial materials in Grassy Valley to better characterize the subsurface conditions and possibly intercept degraded quality water.

Based on interpretation of the geophysical data presented, three potential locations for new monitoring wells are shown on Figure 8 and labeled PB23-# (potential boring 2023) but will likely be renamed. These locations are approximate and can be modified to accommodate field conditions considering accessibility, land ownership, utilities, and surface conditions. Each of these locations were selected where anomalously low resistivity features appear in the ERI data and loosely correlate with areas of moderate EM conductivity. In addition, these locations are spatially well-distributed within Grassy Valley.

Table 4: Potential New Monitoring Well Locations

Boring ID	MINE EASTING (FT)	MINE NORTHING (FT)	COMPLETION INTERVAL
PB23-01 A&B	47956	59126	Colluvium (A) & Shallow Fractured Rock (B)
PB23-02 A&B	48870	58946	C Colluvium (A) & Shallow Fractured Rock (B)
PB23-03 A&B	46489	60309.5	Colluvium (A) & Shallow Fractured Rock (B)

It is recommended that at each location, a shallow well be installed (estimated 25-35 feet deep) screened in colluvium, and a deeper well be installed in the fractured rock (estimate to be 30 to 50 feet bgs) to better characterize the subsurface conditions and possibly intercept degraded quality water. These wells may be completed as a nested pair, or drilled as a separate set of two adjacent boreholes.

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At this time, limited additional geophysics may be considered to fill data gaps. A relatively low effort EM31 survey along the toe of the ECOSA, within 100-200 feet of the surface seeps along the toe, and a more dense set of transects between ECOSA and GWMW-25 would provide a more robust dataset to evaluate potential shallow (less than 16 feet bgs) seepage pathways. An ERI line collected parallel to the ECOSA toe, 100-200 feet east, and away from metal fences would allow identification of vertical and lateral changes in subsurface conditions close to the toe that may be the result of seepage.

6.0 LIMITATIONS OF GEOPHYSICAL METHODS

WSP Golder services were conducted in a manner consistent with that level of care and skill ordinarily exercised by other members of the geophysical community currently practicing under similar conditions, subject to the time limits, and financial and physical constraints applicable to the services. Electromagnetic induction is a remote sensing geophysical method that may not detect all subsurface features of concern as this method is based on detecting changes in subsurface material conductivity and background properties of subsurface bulk materials or groundwater may influence or distort survey results causing limitations to interpretation.

7.0 CLOSURE

WSP Golder is pleased to have the opportunity to support CC&V on this investigation and to have worked with you on this project. We trust that this document meets your expectations and needs. We look forward to the prospect of similar endeavors and collaborations in the future and thank you for your continued collaboration with us. Please contact the undersigned if you have any questions, comments, or if you require any additional information.

Golder Associates USA Inc.

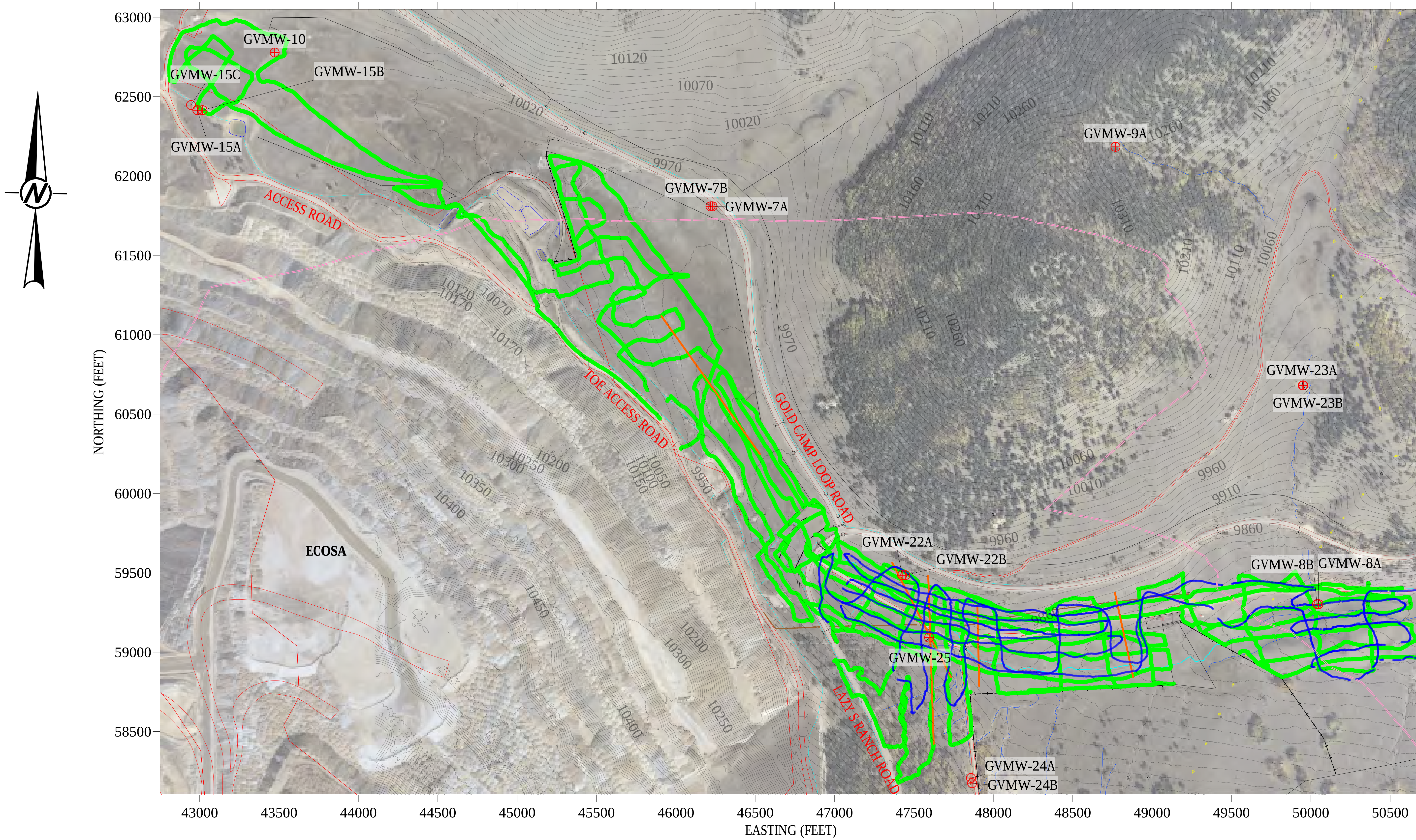
for

David Moussa
Geophysicist

Peter Fahringer, PGp, LG, PG (CA, WA, PA)
Director, Senior Geophysicist

DM/PF/mb

https://wsponlinenam-my.sharepoint.com/personal/peter_fahringer_wsp_com/documents/!projects/202218714 cc&v grassy valley/letter report/31405490.000_09jan2023_technical memorandum.docx



NOTES

1) LOCATIONS COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY & COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) MAP DATUM: CC&V MINE GRID, FEET.

LEGEND

- MONITORING WELL
- ELECTRICAL RESISTIVITY LINE
- EM31 TRACKLINE
- EM34 TRACKLINE
- DIATREME BOUNDARY

CLIENT
CC&V / NEWMONT

Newmont CRIPPLE CREEK & VICTOR

CONSULTANT
WSP GOLDER

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PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR

PROJECT
ECOSA GRASSY VALLEY GEOPHYSICS
CRIPPLE CREEK & VICTOR (CC&V) MINE
TELLER COUNTY, CO

TITLE
INVESTIGATION AREA MAP

PROJECT No.	Rev.	Figure
31405490.000	1	1

31405490_FIGURE2.srf | revised: January 11, 2023
1 inch
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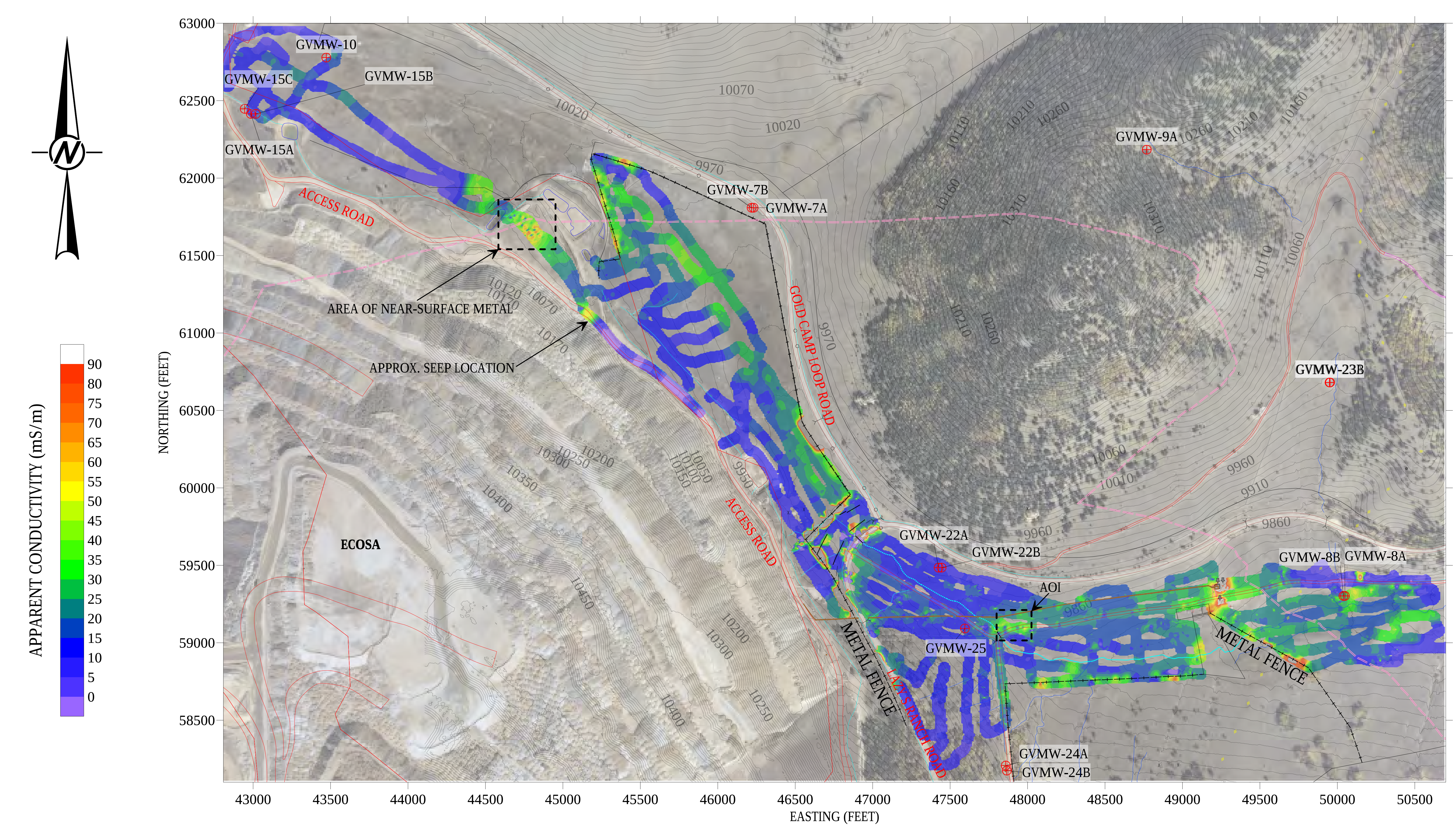

NOTES

1) LOCATION COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY & COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) APPARENT CONDUCTIVITY DATA COLLECTED WITH GEONICS LTD. EM31
4) MAP DATUM: CC&V MINE GRID, FEET
5) BASE AERIAL PROVIDED BY CC&V, SEPT 2022
6) KNOWN UTILITIES FROM: *XREF-CC&V Utilities etc.DWG*

LEGEND

- STEEL PIPE
- ROAD EDGE
- METAL FENCE
- DRAINAGE
- MONITORING WELL
- DIATREME BOUNDARY

CLIENT
CC&V
NEWMONT

Newmont
CRIPPLE CREEK & VICTOR

CONSULTANT

wsp GOLDER

YYYY-MM-DD	2023-01-11
PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR

PROJECT
ECOSA GRASSY VALLEY GEOPHYSICS
CRIPPLE CREEK & VICTOR (CC&V) MINE
TELLER COUNTY, CO

TITLE
GEONICS EM31 APPARENT CONDUCTIVITY (TO ~16 FT DEPTH)

PROJECT No.	Rev.	Figure
31405490.000	1	2

31405490_FIGURE2.srf | revised: January 11, 2023

1 inch IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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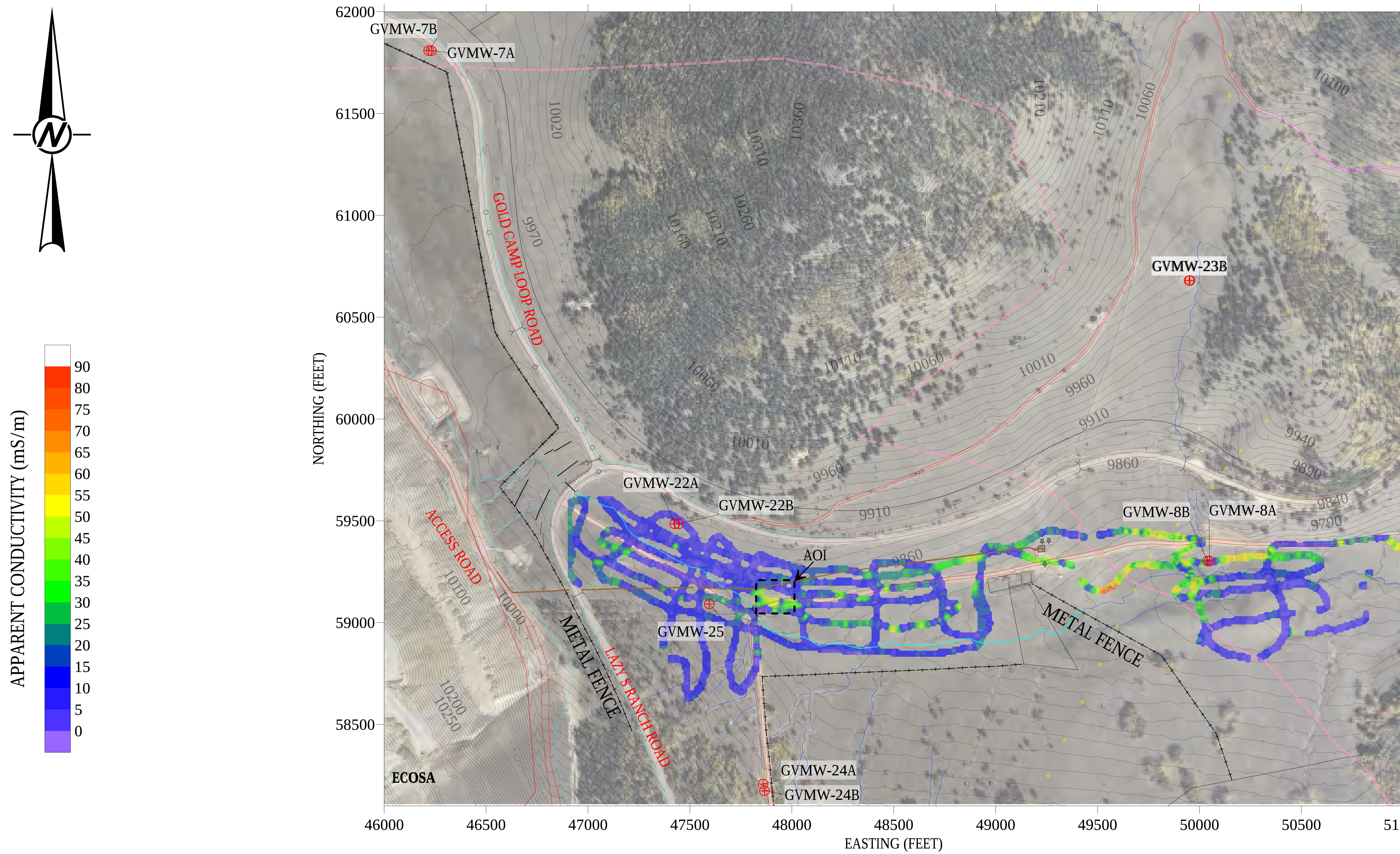


NOTES

1) LOCATION COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY
& COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) APPARENT CONDUCTIVITY DATA COLLECTED WITH GEONICS LTD. EM34
4) MAP DATUM: CC&V MINE GRID, FEET
5) BASE AERIAL PROVIDED BY CC&V, SEPT 2022
6) KNOWN UTILITIES FROM: *XREF-CC&V Utilities etc.DWG*

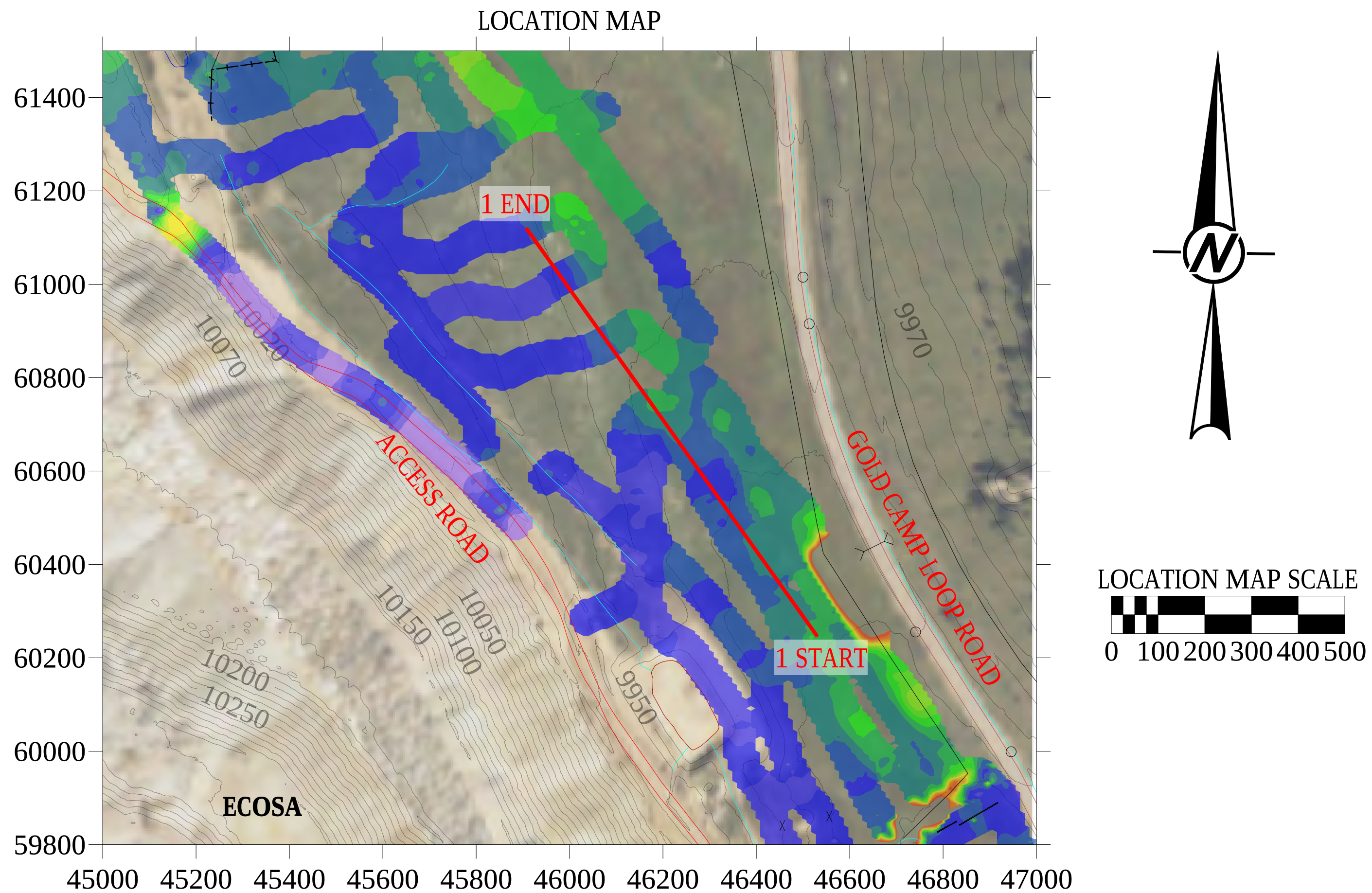
LEGEND

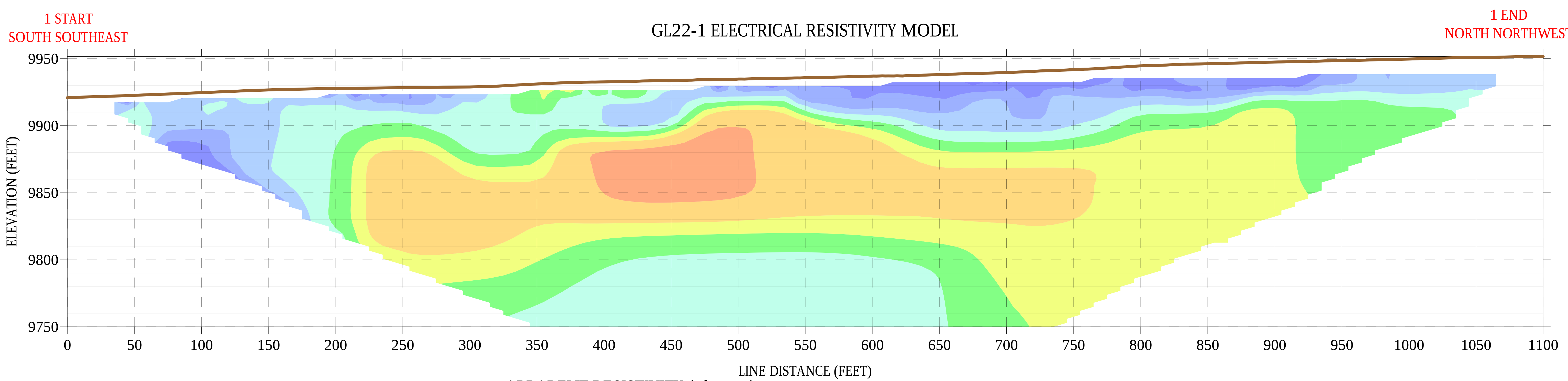
- STEEL PIPE
- ROAD EDGE
- METAL FENCE
- DRAINAGE
- WELL LOCATION
- DIATREME BOUNDARY

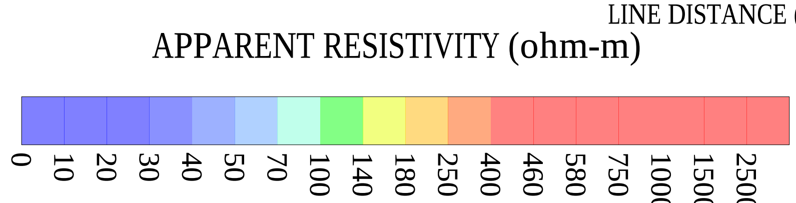
CLIENT	CC&V NEWMONT
	Newmont CRIPPLE CREEK & VICTOR
CONSULTANT	WSP GOLDER
YYYY-MM-DD	2023-01-11
PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR
PROJECT	ECOSA GRASSY VALLEY GEOPHYSICS CRIPPLE CREEK & VICTOR (CC&V) MINE TELLER COUNTY, CO
TITLE	**GEONICS EM34 APPARENT CONDUCTIVITY** **20M HORIZONTAL DIPOLE (~50 FT DEPTH)**
PROJECT No.	31405490.000
Rev.	1
Figure	3

31405490_FIGURE3.srf | revised: January 11, 2023

1 inch IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B







NOTES

1) LOCATIONS COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY & COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) ELECTRICAL RESISTIVITY DATA COLLECTED WITH 56-CHANNEL AGI SUPERSTING

CLIENT	CC&V / NEWMONT	Newmont CRIPPLE CREEK & VICTOR	
CONSULTANT	WSP GOLDER	YYYY-MM-DD	2023-01-11
		PREPARED	PEF
		DESIGN	PEF
		REVIEW	DAM
		APPROVED	JR

PROJECT
ECOSA GRASSY VALLEY GEOPHYSICS
CRIPPLE CREEK & VICTOR (CC&V) MINE
TELLER COUNTY, CO

TITLE
ELECTRICAL RESISTIVITY LINE GL22-1 MODEL PROFILE

PROJECT No.	Rev.	Figure
31405490.000	1	4

31405490_FIGURE4.srf | revised: January 11, 2023

1 inch

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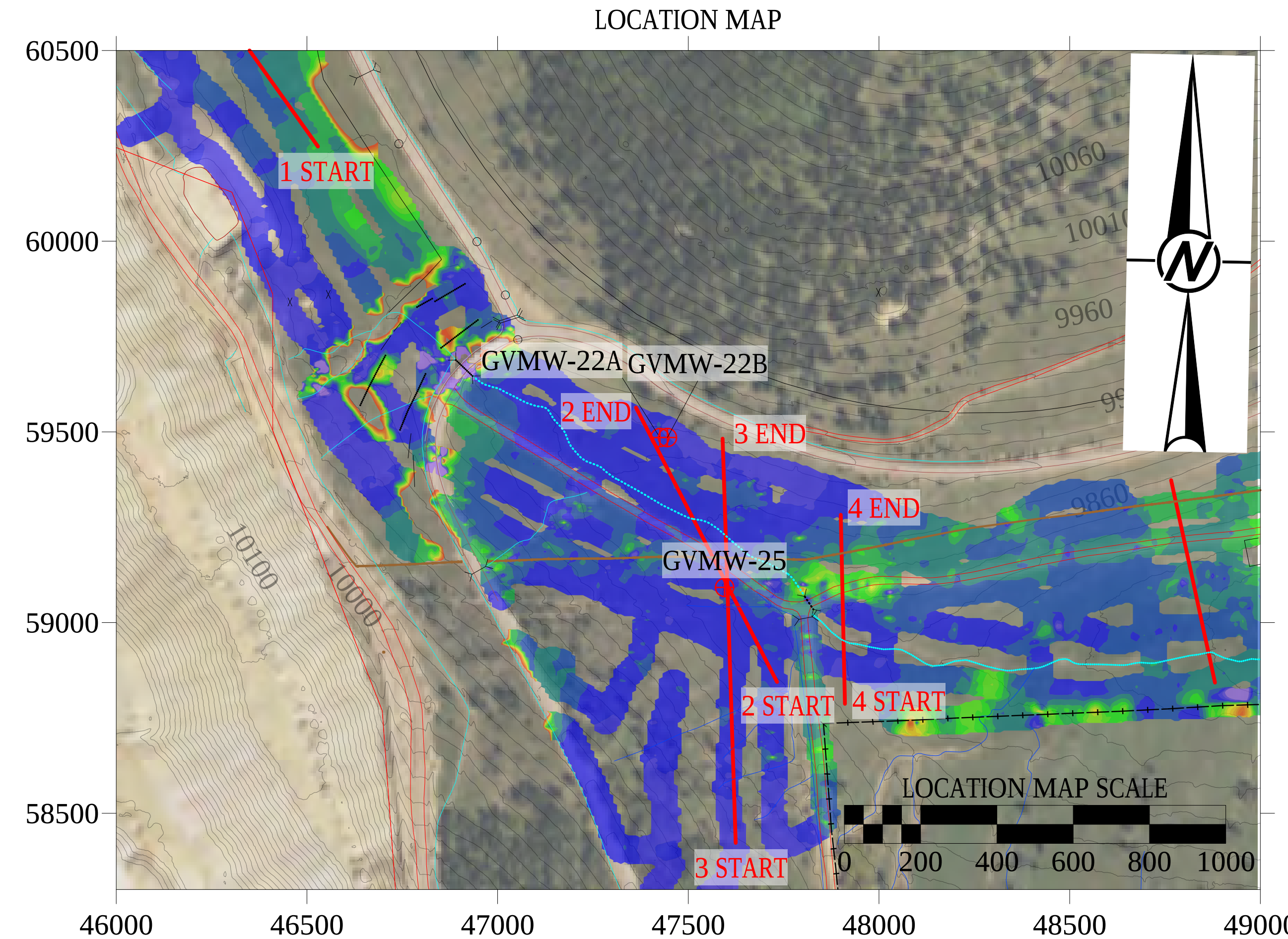

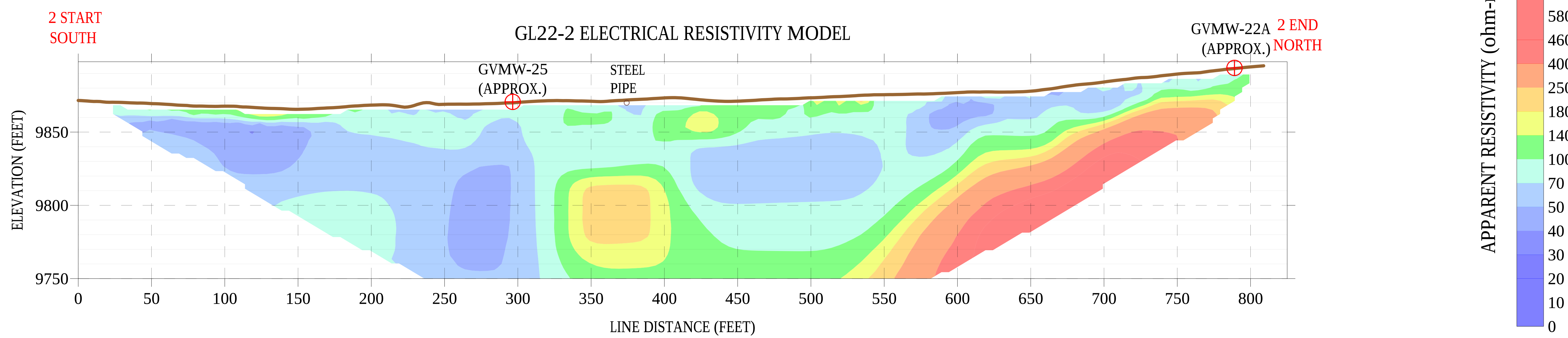

NOTES

1) LOCATION COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY
& COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) ELECTRICAL RESISTIVITY DATA COLLECTED WITH 56-CHANNEL AGI SUPERSTING

CLIENT: CC&V / NEWMONT	Newmont CRIPPLE CREEK & VICTOR	PROJECT: ECOSA GRASSY VALLEY GEOPHYSICS, CRIPPLE CREEK & VICTOR (CC&V) MINE, TELLER COUNTY, CO	
CONSULTANT: WSP GOLDER	YYYY-MM-DD: 2023-01-11	TITLE: ELECTRICAL RESISTIVITY LINE GL22-2 MODEL PROFILE	
	PREPARED: PEF		
	DESIGN: PEF		
	REVIEW: DAM		
	APPROVED: JR	PROJECT No. 31405490.000	Rev. 1 / Figure 5

31405490_FIGURES.srf | revised: January 11, 2023

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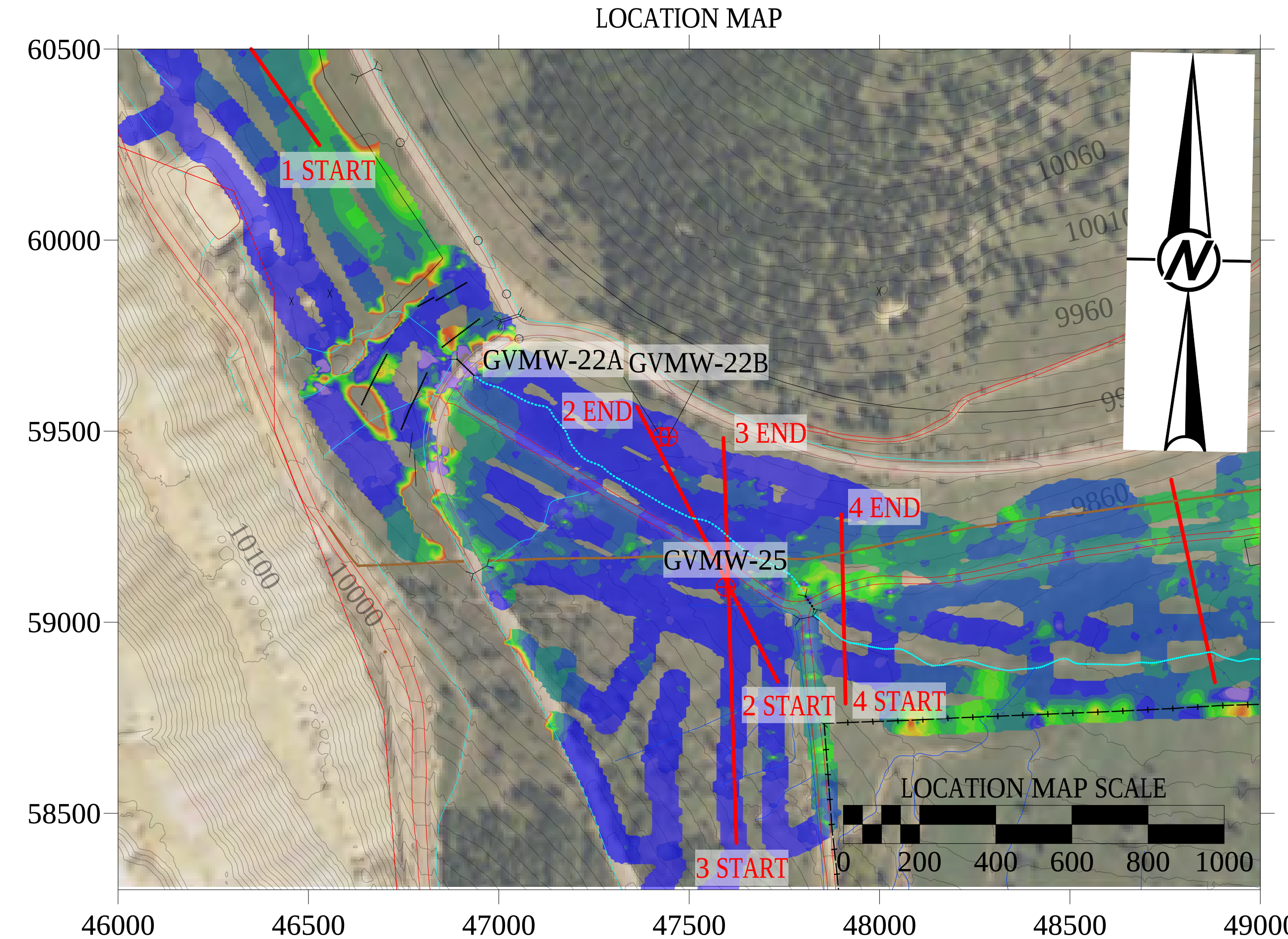

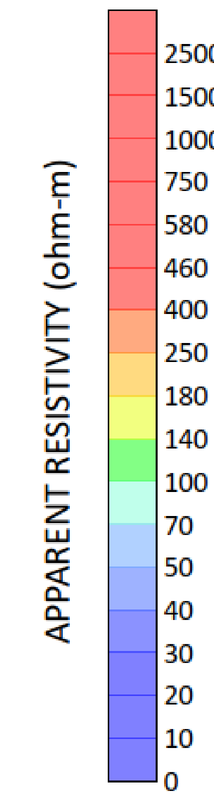

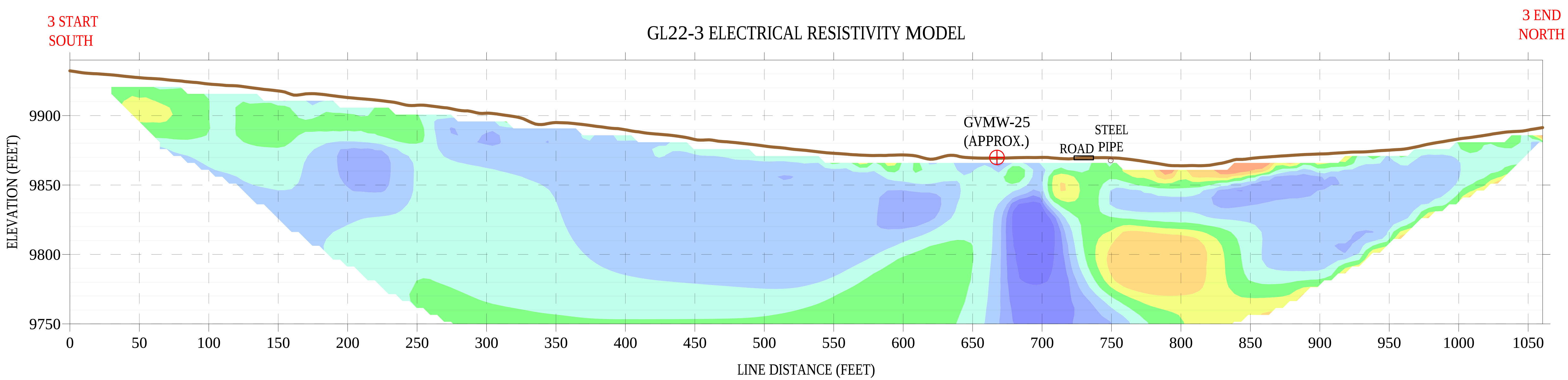

NOTES

1) LOCATION COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY
& COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) ELECTRICAL RESISTIVITY DATA COLLECTED WITH 56-CHANNEL AGI SUPERSTING

CLIENT
CC&V /
NEWMONT

Newmont
CRIPPLE CREEK & VICTOR

PROJECT
ECOSA GRASSY VALLEY GEOPHYSICS
CRIPPLE CREEK & VICTOR (CC&V) MINE
TELLER COUNTY, CO

CONSULTANT

WSP GOLDER

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PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR

TITLE
ELECTRICAL RESISTIVITY LINE GL22-3 MODEL PROFILE

PROJECT No.	Rev.	Figure
31405490.000	1	6

31405490_FIGURE6.srf | revised: January 11, 2023

1 inch — IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

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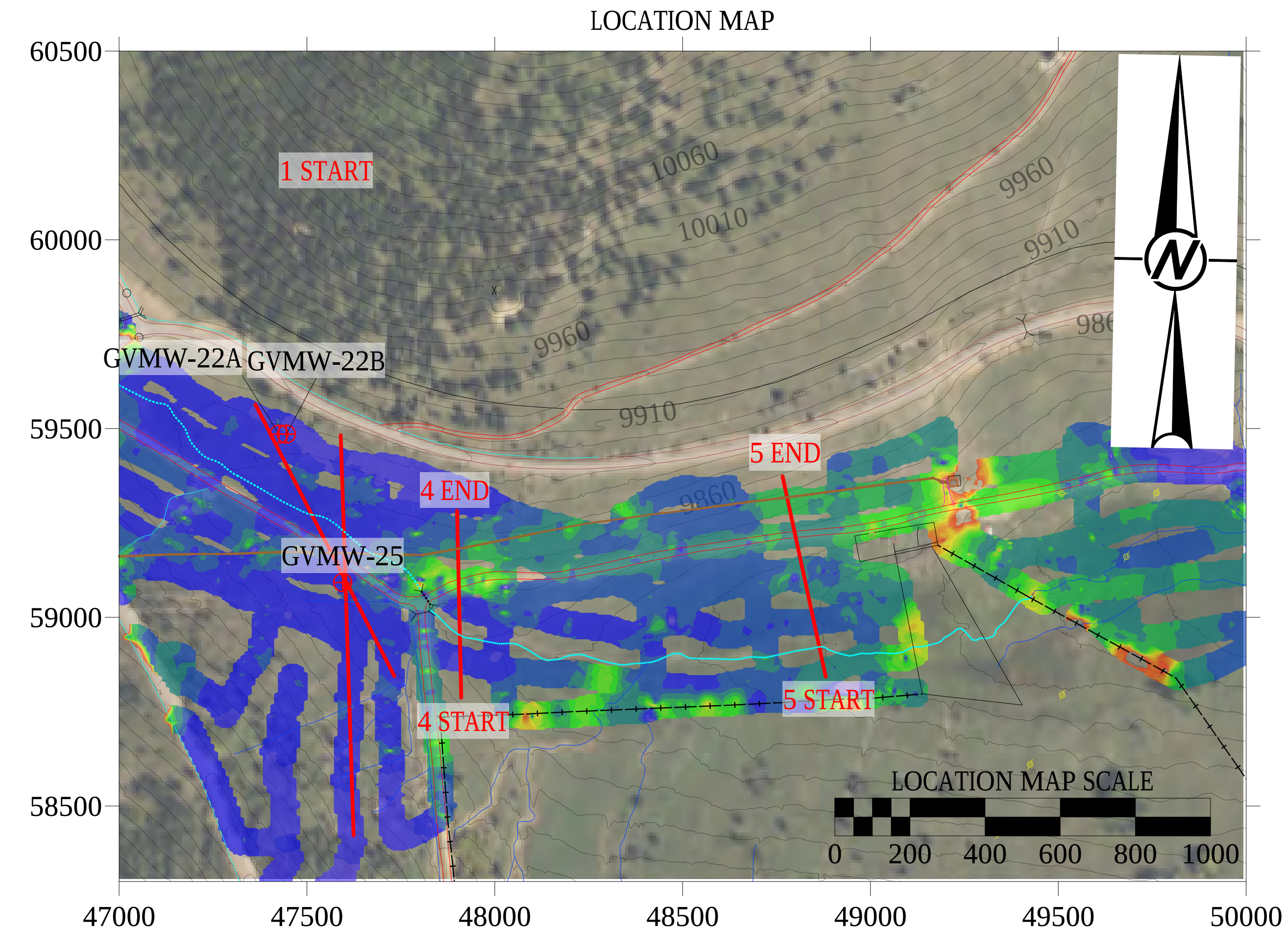

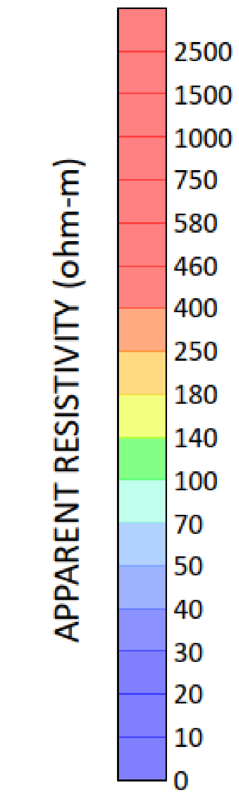

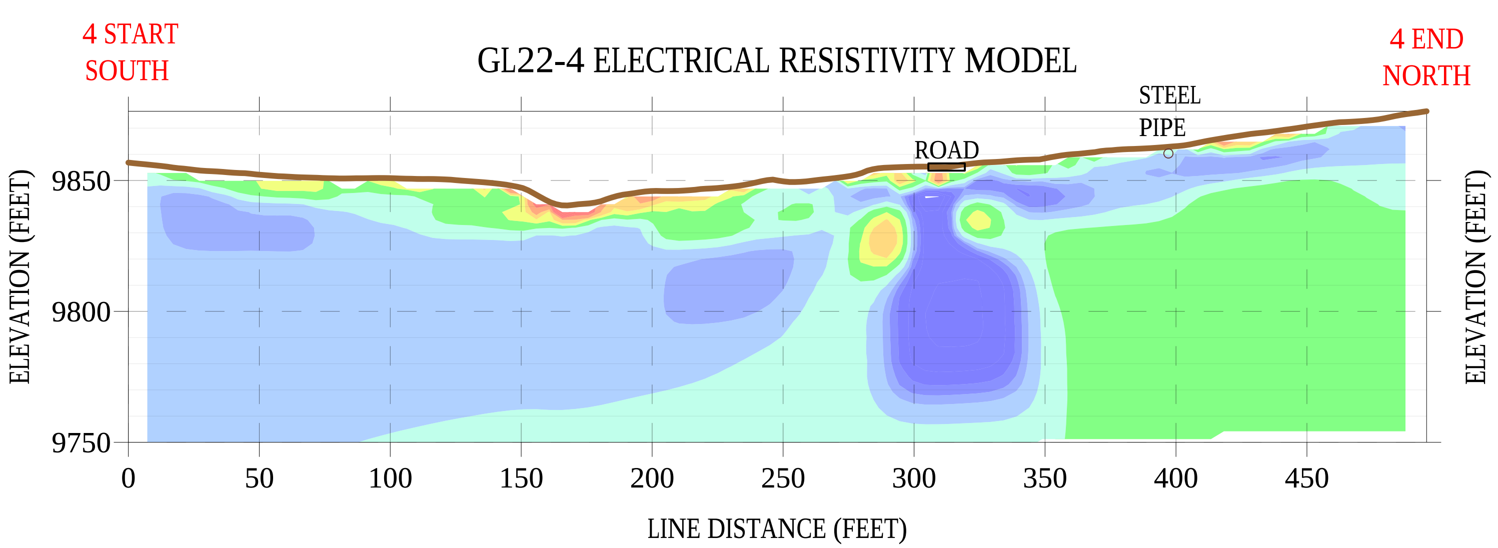

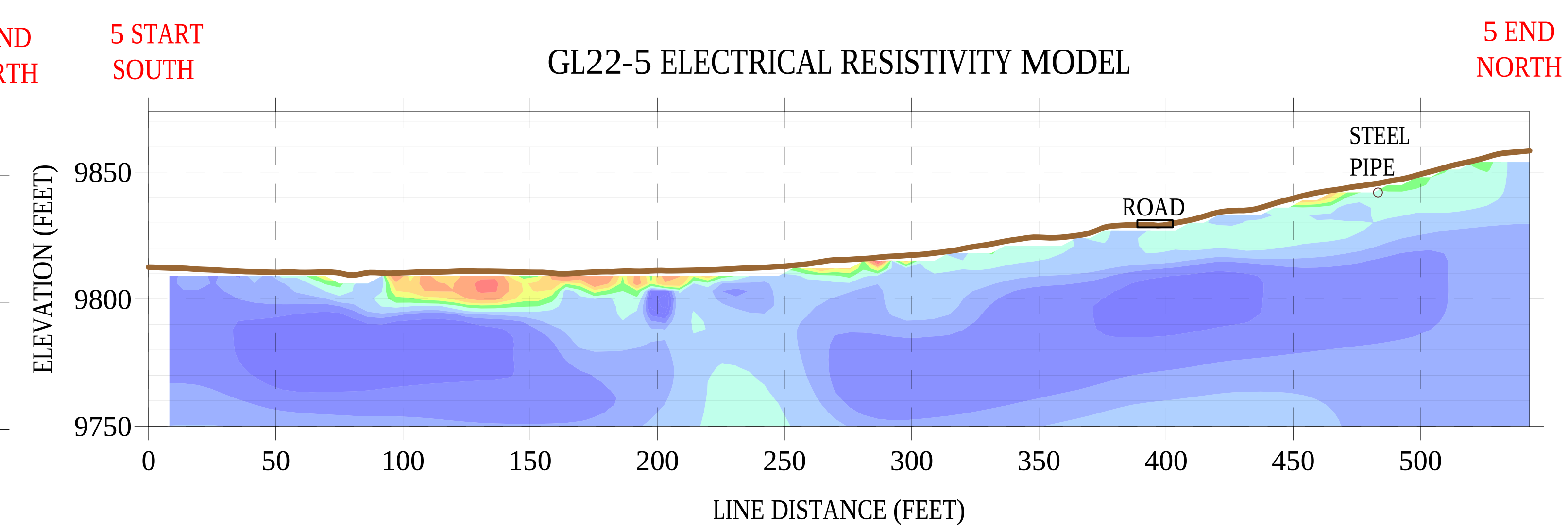

NOTES

1) LOCATION COLLECTED WITH HANDHELD GNSS (1-3M ACCURACY)
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY & COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.
3) ELECTRICAL RESISTIVITY DATA COLLECTED WITH 56-CHANNEL AGI SUPERSTING

CLIENT	CC&V / NEWMONT — Newmont CRIPPLE CREEK & VICTOR
PROJECT	ECOSA GRASSY VALLEY GEOPHYSICS CRIPPLE CREEK & VICTOR (CC&V) MINE TELLER COUNTY, CO
CONSULTANT	WSP GOLDER
YYYY-MM-DD	2023-01-11
PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR
TITLE	ELECTRICAL RESISTIVITY LINES GL22-4 & -5 MODEL PROFILES
PROJECT No.	31405490.000
Rev.	1
Figure	7

31405490_FIGURE7.srf | revised: January 11, 2023

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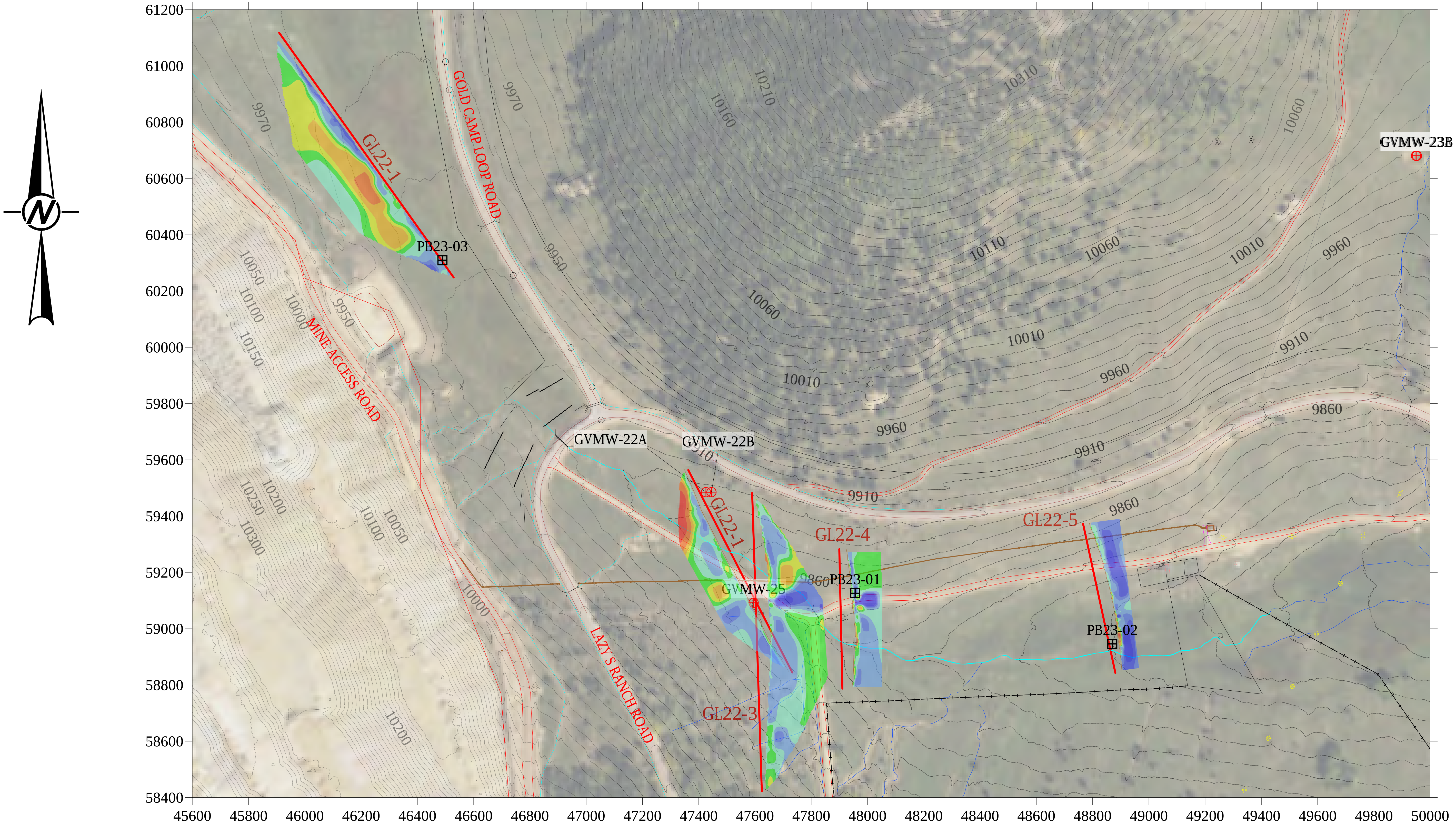

NOTES

1) LOCATIONS APPROXIMATE
2) ELEVATION DATA (NAVD88) DERIVED FROM TELLER COUNTY & COLORADO WATER CONSERVATION BOARD LIDAR DATA, 2016.

CLIENT	CC&V NEWMONT
CONSULTANT	WSP GOLDER
YYYY-MM-DD	2023-01-12
PREPARED	PEF
DESIGN	PEF
REVIEW	DAM
APPROVED	JR
PROJECT	ECOSA GRASSY VALLEY GEOPHYSICS CRIPPLE CREEK & VICTOR (CC&V) MINE TELLER COUNTY, CO
TITLE	**ELECTRICAL RESISTIVITY PROFILES PROJECTED ON SCALED MAP VIEW**
PROJECT No.	31405490.000
Rev.	1
Figure	8

Newmont
CRIPPLE CREEK & VICTOR

31405490_FIGURE8.srf | revised: January 12, 2023

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NORTH AMERICA

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newmont.com
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100 N. 3rd Street
Victor CO 80860

Attachment 2

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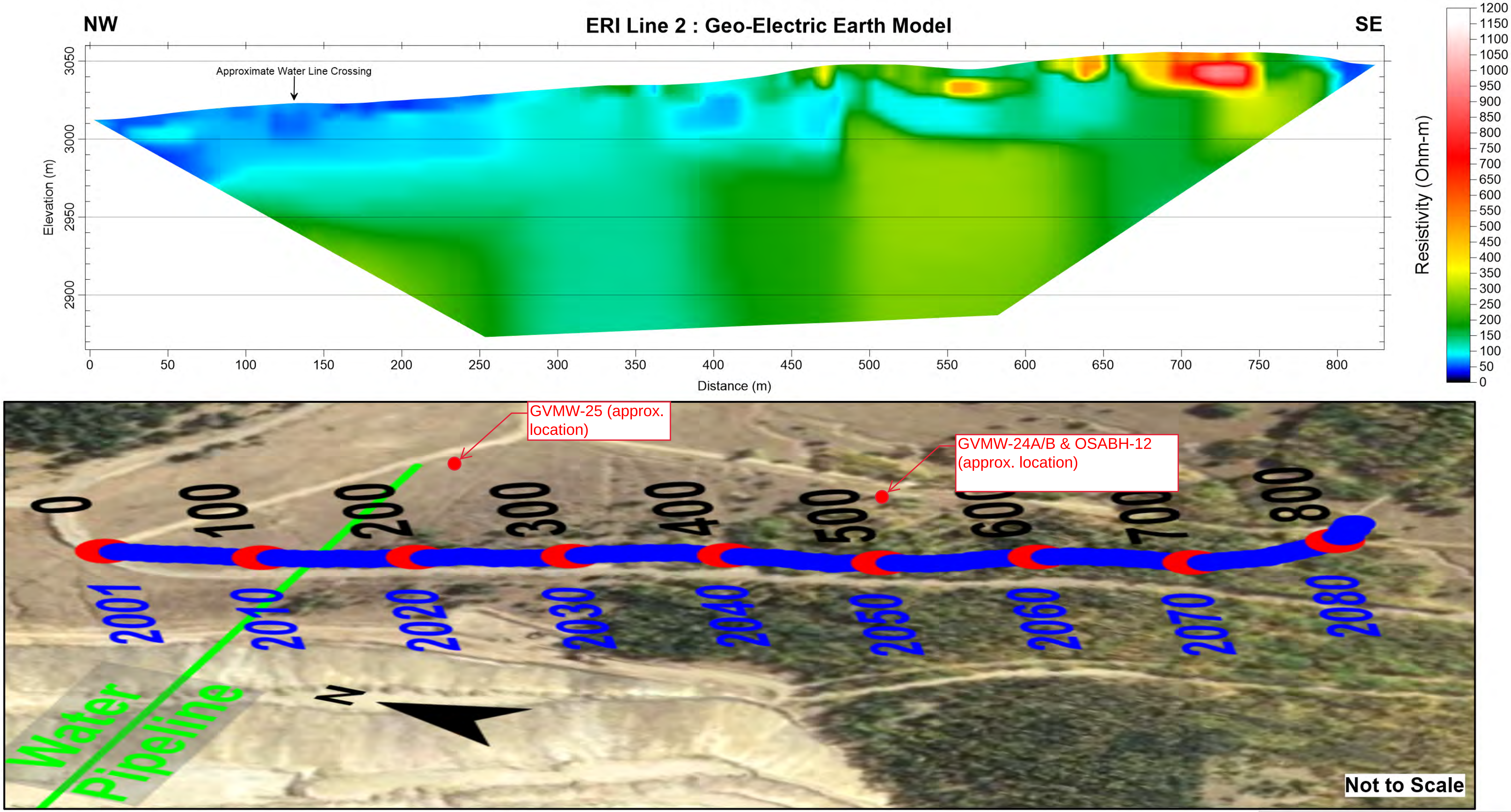

Legend:

Distance Along Profile (m): 200

Electrode Station #: ***2001***

Newmont NORTH AMERICA

COLLIER GEOPHYSICS Surface • Marine • Borehole

ERI Survey CC&V Mine *Cripple Creek, CO*	
Newmont	COLLIER GEOPHYSICS
Project #: 230218	August 2023
Drafted by: J. Pfeiffer	Checked by: N.P.
	Figure 10