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**Grant Soil and Water Conservation District**  
721 S. Canyon Blvd. - John Day, OR 97845 - Phone (541) 575-0135

**GRANT SOIL & WATER CONSERVATION DISTRICT**

**REQUEST FOR PROPOSALS (RFP)**

**FOR**

**AIRBORNE TIME-DOMAIN ELECTROMAGNETIC (AEM) SURVEY**  
**FOR THE UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT**

**Date of Issuance:.....April 17<sup>th</sup>, 2024**

**Written Questions/Request for Modification.....April 26<sup>th</sup>, 2024**

**Proposal Due Date:.....3:00 P.M. PDT, May 10<sup>th</sup>, 2024**

**Tentative Issuance of Notice of Intent to Award:.....May 17<sup>th</sup>, 2024**

**Tentative Date to Begin Services:.....June 17<sup>th</sup>, 2024**

**COVER PAGE**

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## **SECTION 1 - INTRODUCTION**

Oregon Soil and Water Conservation District Laws guide establishment and operations of Oregon Soil and Water Conservation Districts. Oregon Revised Statute 568.225 establishes the policy of the Legislative Assembly to provide for the conservation of the renewable natural resources of the state and further authorizes Soil and Water Conservation Districts to cooperate with land owners and land managers to conserve, protect and develop those renewable natural resources for the benefit of its residents.

Groundwater systems within the Grant Soil and Water Conservation District (District) are poorly understood. In order to gain additional information about aquifer characteristics, the District is seeking proposals from qualified vendors to provide all necessary equipment and personnel to conduct an airborne time-domain/transient electromagnetic (AEM) survey of a select study area near John Day, Oregon. The requested survey data is to be used for hydrogeologic framework studies to forecast aquifer locations and characteristics, groundwater flow paths, recharge zones, and calculate water storage capacities.

This RFP has been compiled with the assistance of the Bureau of Reclamation (BOR) Technical Service Center who is a partner with the District on this effort. The BOR will provide technical review and related services to the District throughout the project.

## **SECTION 2 – PURPOSE**

The purpose of this Statement of Work (SOW) is to obtain digital airborne transient (AKA, time-domain) electromagnetic (AEM) geophysical surveys within in Upper John Day Basin valley, Oregon.

Target hydrogeologic layers of interest primarily include 1) coarse sandy/gravel ancestral river channels believed to be near the base of the valley infill materials and underlying finer-grained and presumably more electrically conductive alluvial and colluvial fan deposits, and 2) fractured basalt aquifers underlying the valley infill. Total desired depth of investigation is approximately 750ft to 1000ft below ground surface.

As part of this characterization study, the District has a requirement for AEM Geophysical surveys in the Upper John Day Basin, OR vicinity. The area of interest encompasses the majority of the basin, extending from southeast of Prairie City and downstream of Dayville to where the John Day River exits the basin through Picture Gorge. The area of interest covers approximately 325 square miles (approx. 84,253 hectares) in total. With the requested flight line density prescribed in this SOW, this area equates to approximately 2,961 ln-km of data coverage (includes 2,889 ln-km of production flight-lines, 68 ln-km of tie lines, and a 4km test line). The specific flight line spacings are detailed in this SOW, and an overview map of the AEM survey area of interest and approximated flight-line orientations and spacings are provided in Figure A-1 in Appendix A.

The Contractor shall be capable of performing the required data acquisition tasks as detailed below and hold current valid federal and state permits for low-altitude helicopter operations in the John Day, OR vicinity. The anticipated schedule for these airborne geophysical surveys includes: mobilization and AEM flights start within 30 days after notice to proceed, preliminary data and draft report package delivered to the District and BOR within 60 days after survey completion, and final data delivery and Final Report package within 30 days after draft package review is completed (see Section 10.26 for schedule of deliverables). For additional background information, including site-specific geophysical data, see figures in Appendix B.

The term of the Contract resulting from this RFP (the “Contract”) shall initiate from the last date of signature by all parties thereto. The District may make amendments to the Contract for the purpose of extending the term of the Contract, adjusting the maximum not-to-exceed compensation payable under the Contract or to modify the services to be provided by the Contractor.

This solicitation process shall be carried out pursuant to applicable Oregon Revised Statutes (“ORS”) 279B.070. This RFP is open to all independent contractors who submit a written response (“Proposal”) which complies with the Mandatory Proposal Contents described in Section 6.3, hereinafter the “Proposer(s)”.

## **SECTION 3 – SITE CONDITIONS**

The Upper John Day Basin Area is a heavily-farmed agricultural areas in the United States. While there are some small towns and one regional airport within the basin, the Survey Area is generally characterized by agricultural fields with sparse rural communities. There is not extensive civil infrastructure throughout the basin that would cause frequent or excessive system interference or result in large portions of the survey area not to be flown due to FAA regulations.

During certain times of the year, less human activities are present in the agriculture fields. When crops are not being harvested, there is a lesser chance of human interference to complicate the AEM flights. To minimize obstructions and issues, the performance period of this SOW was chosen accordingly. All field operations under this requirement shall be conducted per Federal Aviation Administration (FAA) guidelines.

## **SECTION 4 - SOLCITATION ADDENDA**

Any substantive interpretation, correction or change to this solicitation will be made by written addendum and will be issued by the District. Interpretations, corrections or changes to this RFP made in any other manner will not be binding. Oral instructions or information concerning the RFP or its requirements given by the District shall not be binding until documented by written addenda.

## **SECTION 5 - RESERVATION OF RIGHTS**

The District reserves all rights regarding this RFP including, without limitation, the right to:

- 5.1.** Cancel the solicitation, or reject in whole or in part, any or all Proposals when the cancellation or rejection is in the best interest of the contracting agency as determined by the District, in accordance with ORS 279B.100;
- 5.2.** Modify the proposed time line for the solicitation process for this RFP with appropriate notice to prospective Proposers. The proposed dates represent a tentative schedule of events. All times are local, Pacific Time Zone times;
- 5.3.** Waive any minor irregularity, informality, or non-conformance with the provisions or procedures of this RFP, and to seek clarification of each Proposal, if required;
- 5.4.** Reject any Proposal that fails to substantially comply with all prescribed RFP procedures and requirements including the alteration of forms required to be submitted as part of the response;
- 5.5.** Require interview(s) of some or all of the Proposers;
- 5.6.** Postpone award or execution of the resulting contract to complete reference check(s);
- 5.7.** Reject a Proposal based on (a) negative reference check, negative claims history, negative financial audit or for any reason within the scope of ORS 279B.110.
- 5.8.** Amend, within the Scope of Work, any contracts that are a result of this RFP;
- 5.9.** Engage contractors by selection or procurement independent of this RFP and/or any contracts under it;
- 5.10.** Negotiate with the successful Proposer to develop a Statement of Work within the Scope of Work described in this RFP;
- 5.11.** Enter into direct negotiations with a Proposer without evaluation of Scored Evaluation Components if there is only one Proposal to this solicitation and that Proposal is judged responsive to this solicitation;
- 5.12.** Reject Proposals that are deemed illegible or too difficult to read; and
- 5.13.** Reject Proposals considered by the District to be non-responsive to this solicitation.

## **SECTION 6 - PROPOSAL FORMAT**

To simplify and expedite Proposal evaluation and to ensure that each Proposal receives the same orderly review, all Proposals must follow the format described in this Section .

- 6.1.** Proposals must be in the form of a Proposal “package”.
- 6.2.** Proposals should be prepared in a simple, economical manner, without stiff binders or covers, fastened in the top left-hand corner.

6.3. Proposals shall include the following completed items.

- Attachment 1 – Cover Sheet
- Attachment 2 – Scored Proposal Components Form
- Attachment 3 – Price Proposal and Certification Form
- Forward and Inversion Models, if no prior survey example(s) with client contact(s) are made available (Section 10.4)
- A draft Quality Control Plan (Section 10.9).

6.4. Proposals may be submitted by hand delivery, mail, or E-mail.

## SECTION 7 - DISTRICT CONTACT PERSON AND PROPOSAL DELIVERY INSTRUCTIONS

7.1. Proposals shall include the following completed items.

District Contact Person

All contact regarding this RFP must be directed to the District Contact Person identified below.

District Contact: Kyle Sullivan, District Manager  
Phone: (541) 575-0135 ext. 111  
E-mail: [ksullivan@grantswcd.net](mailto:ksullivan@grantswcd.net)

7.2. Proposals shall include the following completed items.

Proposal Delivery

The Proposal must be addressed as indicated below. Proposers are solely responsible for the means of Proposal delivery. **PROPOSERS ARE ENCOURAGED TO CONFIRM DELIVERY WITH THE CONTACT PERSON PRIOR TO PROPOSAL DUE DATE.**

**PROPOSALS MUST BE RECEIVED NO LATER THAN THE PROPOSAL DUE DATE SPECIFIED ON THE COVER PAGE. LATE PROPOSALS SHALL NOT BE ACCEPTED.**

Mail, E-Mail, or Deliver Proposals in person, addressed as follows:

Mail: AEM Survey for Upper John Day Aquifer Characteristics Project  
Grant Soil and Water Conservation District  
721 South Canyon Boulevard  
John Day, OR 97845

E-Mail: [ksullivan@grantswcd.net](mailto:ksullivan@grantswcd.net)  
When E-Mailing in Proposals, Proposers must address the Subject line as follows:  
Subject: **AEM Survey for Upper John Day Aquifer Characteristics Project**

## **SECTION 8 - ACCEPTANCE OF TERMS AND CONDITIONS**

The Proposal is an offer to enter into a Contract that, if accepted for award by the District will result in a Contract substantially in the form attached hereto as Attachment #4. A Proposer shall not make a Proposal contingent upon the District's acceptance of specifications or Contract terms that conflict with or are in addition to those contained in the RFP. Proposers must submit requests for changes of particular RFP or sample Contract provisions, specifications, or other Contract terms and conditions in accordance with Section 9.

Questions, including requests for explanations of the meaning or interpretation of provisions of the RFP should be directed to the District Contact Person. E-mails (including Proposer's return information) are acceptable.

## **SECTION 9 - METHODS OF SEEKING MODIFICATIONS TO RFP**

### **9.1. Procedure**

The appropriate means of seeking modifications to provisions of the RFP are through a written (a) request for clarification; or (b) formal submittal of requests for changes to the RFP, contractual terms or specifications.

### **9.2. Request for Clarification**

Any Proposer requiring clarification of any provision of the RFP, contractual terms or specifications may submit to the District Contact Person a written request for clarification. To be considered, the request for clarification shall be received by the District Contact Person by the deadline specified on the Cover Page of this RFP or any extension made by subsequent Addenda.

### **9.3. Request for Changes to RFP, Contractual Terms or Specifications**

Any Proposer may submit to the District Contact Person a written request for changes to the RFP, contractual terms or specifications. To be considered, the request for changes shall be received by the District Contact Person by the deadline specified on the Cover Page of this RFP or any extension made by subsequent Addenda. The request shall include the reason for requested changes, supported by factual documentation, any proposed changes and shall contain all other information required by ORS 279B.405.

### **9.4. Method of Submitting Requests for Modification of RFP Provisions**

Envelopes containing requests for clarification and requests for change shall be marked as follows:

- Request for Clarification /Change
- RFP Name or Number
- RFP Closing Date



Envelopes shall be received by the District Contact Person by the date and time specified on the Cover Page of the RFP. This deadline may be extended by Addendum. No requests for clarification or requests for change regarding the RFP, contractual terms or specifications shall be considered if received after the date specified in this Section or the date specified in a subsequent Addendum.

#### **9.5. Response to Requests for Clarification or Change**

The District shall respond to each properly-submitted written request for clarification and request for change in accordance with ORS 279B.405. Where appropriate, the District shall issue revisions and clarify RFP provisions via Addenda. The District may also informally respond to Proposer questions. **Informal responses, however, do not affect the provisions of the RFP. The RFP, contractual terms and specifications can only be changed via formal addenda issued by the District.**

## SECTION 10 – SCOPE OF WORK (SOW) & SPECIFICATIONS

**10.1.** The project is located near John Day, OR. The project extent consists of the Upper John Day Basin Area depicted including generalized flight-line locations in Figure No. A-1, Appendix A. These approximated flight-lines as drawn in the figure total approximately 2,961 In-km of data collection. This total includes 2,889 In-km of production flight-lines, 68 In-km of tie lines, and a 4km test line. A shapefile (.shp) of the project boundary will be provided upon request.

**10.2.** Mobilization and demobilization costs for equipment should be based on shipment from the Contractor's location to suggested bases.

**10.3.** The Contractor shall furnish all labor, materials, and facilities, except as otherwise specified herein, required for conducting geophysical surveys. The contractor shall provide digitally recorded and processed data in accordance with the terms, conditions and specifications set forth in this SOW.

**10.4.** Survey Examples with References, or Forward and Inverse Models - The Contractor shall provide *one* of the following as part of their proposal:

1) A relevant example of AEM results from a recent survey, along with reference/client name and contact information, that utilized the same AEM system and software proposed for this project/RFP, ideally with ground-truthing data (i.e., drilling/lithology data) superimposed for comparison with inverted resistivity/conductivity values, or;

2) 1-D forward and inverse models of the proposed AEM system and software using the six earth electrical models in resistivity (ohm-m) versus depth (meters) as specified below in Sections 10.4.1 through 10.4.3.

**10.4.1.** Forward and Inversion Models - If option 2 above in Section 10.4 is selected, The Contractor shall conduct and provide the following as part of their proposal:

The forward models shall produced and then be inverted using a 1-D inversion to provide an estimate of the proposed AEM system and modeling software's ability to image the earth electrical model. The inversion of the 1-D forward model will include a realistic bandwidth of the system as well as realistic noise values added to the forward-calculated data. The realistic bandwidth and noise should be referenced to actual field data collected with the system, and generally be representative of the John Day area. The noise should be referenced to the time gates and should be given as (Volts/meter-squared and/or decibels). A uniform noise can be used but is undesirable. In addition to the bandwidth and noise of the system, a 60 Hz power grid should be assumed and repetition rates selected for that power grid. The models should include:

1. an inverted height of 30 meters (height of AEM system above ground surface);
2. a clear description of the transmitter waveform current (ampere) versus time (seconds);
3. the filters type and bandwidth used on the receiver including cut-off frequency (hertz);
4. size and relative position of the transmitter loop (meters) including number of turns;
5. size and relative position of the receiver loops (meters) including number of turns;
6. description of time gates with begin time and end time; and
7. transmitter repetition rates (hertz). If a dual-moment or multi-pulse system is proposed the modeling and inversion should reflect the details of those systems.

**10.4.2.** The results should show a comparison of the 1-D forward models and 1-D inversion as dB/dt, apparent resistivity (ohm-m), and a comparison of the 1-D forward models to the 1-D inverted earth models as resistivity (ohm-m) versus depth (meters).

**10.4.3. Table of Electrical Earth Models:**

Model #1: Layer Depths (m)

From (top)	To (bottom)	ohm-m
0	30	100
30	60	30
60	90	10
90	120	15
120	250	50
250	infinity	500

Model #2: Layer Depth (m)

From (top)	To (bottom)	ohm-m
0	15	30
15	60	10
60	90	30
90	120	50
120	250	5
250	infinity	500

Model #3: Layer Depth (m)

From (top)	To (bottom)	ohm-m
0	15	25
15	30	75
30	33	100
33	60	500
60	250	200
250	infinity	500

Model #4: Layer Depth (m)

From (top)	To (bottom)	ohm-m
0	15	25
15	30	75
30	33	5
33	60	150
60	250	250
250	infinity	500

Model #5: Layer Depth (m)

From (top)	To (bottom)	ohm-m
0	15	25
15	35	10

35	40	30
40	70	100
70	85	5
85	infinity	500

Model #6: Layer Depth (m)

From (top)	To (bottom)	ohm-m
0	30	30
30	60	10
60	90	30
90	120	15
120	250	1000
250	infinity	500

### 10.5. Survey Logistics

**10.5.1. Test Line:** In advance or immediately prior to the production flights survey, the system will be flown in both directions at typical production speeds at three (3) altitudes (30 m, 50 m, and 70 m) over a 4 km long test line. To the extent possible, and as deemed necessary or otherwise beneficial by the Contractor, system parameters shall be optimized during test flights and before production surveying is started. The test line data and AEM system performance will be evaluated by the District and BOR. The test line data and AEM system performance quality assurance/quality control (QA/QC) evaluations shall be completed (in the field and/or remotely) and reported to the District and BOR within 24hrs following completion of the test flights. Additionally, the contractor shall provide a preliminary inversion/Earth resistivity model for at least one test flight conducted along the entirety of the test line. The preliminary Earth resistivity model shall be provided in graphic format (e.g., PDF, or image file) to the District and BOR within 24hrs following completion of test line flights. Where prior ground truth information has been obtained along the test line, the District reserves the right to utilize this data to validate the calibration and performance of the airborne system along the test line. If deemed adequate, an immediate “Notice To Proceed With Production Survey” will be issued by the District Contact. If the District determines that Test Lines are unacceptable based on the SOW parameters, the Contractor shall reperform the Test Line until they are determined acceptable.

**10.5.2.** The Contractor Team shall provide the necessary personnel, geophysical equipment, supplies, and helicopter to perform the survey.

**10.5.3. Survey Personnel:** At a minimum the Contractor will provide a licensed pilot, a geophysical equipment deployment/operation crew who will monitor the equipment at all times during data acquisition, and a project geophysicist (or other qualified specialist, if necessary), who will be responsible for calibration and preliminary processing of data in the field (or remotely).

**10.5.4. Daily Data Quality Assurance:** Raw data are to be compiled at the end of each day and examined by the Contractor for quality assurance. The Contractor shall bring to the field a computer capable of copying/backing up data, transmitting back to Contractor’s office as needed, and verifying survey data quality on a daily basis.

**10.5.5.** Daily production reports shall be provided via email to the District and BOR that convey general/basic information on each day's production, such as completed survey coverage, data quality, any system or surveying issues or concerns, and shall include daily production flight-line maps and/or flight navigation data.

## **10.6. Flight Specifications**

**10.6.1.** Flight speed: Production flights shall target speeds of 70 to 80 kph, as feasible, to help minimize AEM sounding spacings along flight lines. Neither helicopter air speed nor ground speed shall exceed 110 kph during the survey.

**10.6.2.** Data Recording Rate: This will be a function of the along line data density dictated by the nature of the survey target. Nominally a data recording/sample interval of no more than of 0.1 second shall be used.

**10.6.3.** Sensor height: Nominally 30m; Ground clearance of the electromagnetic sensor shall be maintained as close to 100 feet (30 meters) as possible (i.e., a topographically draped survey). Helicopter ground clearance shall be approximately 200 feet (60 meters), or as otherwise required by the AEM system/sling.

**10.6.4.** Flight Line Spacing: Flight line spacing over the survey area shall be as required to meet the specifications/SOW herein; however, flight line spacing in no case shall exceed 300 meters (see draft requested survey coverage/flight map in Appendix A- ESRI GIS Shape files of the requested test line and production flight lines can be provided upon request).

**10.6.5.** Tie-Line Spacing: Contractor shall collect data along tie-lines as specified in, or similar to, the requested flight line map. The currently requested seven tie lines are placed in a manner as to intersect and "tie" all production flight lines. If the contractor's proposed/optimized flight line orientations are generally perpendicular to the main (long) axis of the requested AEM survey footprint, then the minimum required tie-line count shall be no less than three tie-lines oriented along the main (long) axis of the survey area (see draft requested survey coverage/flight map in Appendix A- ESRI GIS Shape files of the requested test line and production flight lines can be provided upon request).

**10.6.6.** All production flight-lines within the given polygonal survey area shall be intersected by at least one tie-line.

## **10.7. Data Acquisitions Specifications**

**10.7.1.** Laser altimetry - A laser altimeter shall be used to record the ground clearance of the electromagnetic sensors. The absolute accuracy of the altimeter over flat terrain shall be specified by the Contractor and shall become a requirement. The methods used to calibrate the altimeter shall be specified. The altimeter shall be calibrated at the beginning of the survey and as often as required to ensure that it is operating within specifications. The altimeter information shall be recorded by the data acquisition system with sample interval of no more than 0.1 second. The final report shall describe the method of altimeter calibration. The data shall be of sufficient quality to plot altitude paths and terrain topography maps. A laser altimeter shall be installed in the electromagnetic bird to

measure altitude of the bird above the land surface. The absolute accuracy of the laser altimeter over flat terrain shall be specified and shall become a requirement. The use of both a radar and laser altimeter are required. A continuously recording barometric altimeter shall be operated during all flights. The altimeter shall be certified under FAA regulations.

**10.7.2.** Submeter GPS data accuracy using GPS receivers on the sensor frame . The acceptable datums for the system are NAD83 and the NAVD88 vertical datum, or similar (e.g., WGS84/EGM96).

**10.7.3.** Sensor frame attitude measurements including an Inclinator(s) on the sensor frame. A minimum of one inclinometer shall be on the sensor frame and shall be recorded by the data acquisition system with sample interval of no more than 0.1 second.

**10.7.4.** System response consistency checks: The platform shall be periodically elevated until the earth response vanishes. The raw data shall be recorded during ascent, at altitude, and upon descent. Such system response measurements shall be performed at the beginning and end of each production flight and/or survey day to inform any variation in system calibration/performance from flight-to-flight or day-to-day.

**10.7.5.** Airborne magnetometer - Total intensity magnetometer used to perform the surveys shall have a sensitivity of 0.1 nT or better. Values shall be obtained along flight lines at intervals no greater than 33 feet (10 m). The error envelope due to turbulence and the internal magnetometer noise shall not exceed  $\pm 0.1$  nT for more than 10% of any flight line. If mounted in the aircraft, the magnetometer shall be compensated for errors caused by the magnetic field of the aircraft such that maneuver noise shall not exceed 3 nT for pitches or rolls of  $\pm 20^\circ$  and heading changes shall not cause a variation of more than 1 nT in the magnetic reading. If mounted in a bird, the magnetometer shall be compensated for errors that may be caused by the magnetic field of the aircraft, and other possible sources of errors. Aeromagnetic data shall not be acceptable when gathered during magnetic storms or short-term disturbances of magnetic activity at the ground station. See Section 10.7.8 for maximum allowed magnetic field variations.

**10.7.6.** Diurnal magnetometer - One or more continuously recording ground (base) magnetometer shall be located within 50 miles (80 km) of all survey points.

**10.7.7.** A total intensity magnetometer shall be used to monitor diurnal drift. One or more locations for each survey area will be designated. The magnetometer shall have a resolution of 0.2 nT or better, have absolute control of 0.5 nT or better and a noise envelope of less than or equal to 0.1 nT. It shall be located so that sources of man-made noise such as vehicular traffic do not exceed 1 nT. It shall be sampled at less than or equal to 1-second intervals during airborne data acquisition.

**10.7.8.** Airborne survey data shall not be acceptable when gathered during magnetic storms or short-term disturbances of magnetic activity at the ground station used that exceeds the following:

1. Monotonic changes in the magnetic field of 5 nT in any five-minute period.
2. Pulsations having periods of 5 minutes or less shall not exceed 2 nT.
3. Pulsations having periods between 5 and 10 minutes shall not exceed 4 nT.
4. Pulsations having periods between 10 and 20 minutes shall not exceed 8 nT.

**10.7.9.** The period of a pulsation is defined as the time between adjacent peaks or troughs. The amplitude of a pulsation is one-half the sum of the positive and negative excursions from trough to trough or peak to peak.

**10.7.10.** Digital recordings of the ground magnetometer made during times of data acquisition aboard the aircraft shall be available at all times during the survey. The digital data shall include the date, an absolute value of the magnetometer, and GPS time with accurate synchronization to the aircraft data acquisition system.

**10.7.11.** Electromagnetic System - A digital transient/time-domain electromagnetic (EM) system: For time domain measurements the system should have selectable repetition rates, transmitter pulse widths and duty cycles, and the receiver electronics shall have operator-adjustable time-gates.

**10.7.12.** Spheric, power line, and general system noise shall be monitored and recorded and included as part of the data deliverables.

**10.7.13.** Data Acquisition/Recording System - The geophysical and navigational data shall be recorded using a digital data acquisition system with a sampling interval of no more than 0.1 second. The geophysical data channels to be recorded shall include raw voltage measurements from all electromagnetic time gates, spheric and power line monitoring channels, magnetics, measured current waveform, inclinometer, altitude (laser, radar, barometric), GPS positioning of bird and frame, and any other channels which the Contractor deems necessary for satisfactory processing and interpretation of the data. In addition to these geophysical channels, navigational information including flight line, flight number, position, altimeter readings, and any other information required for data processing and interpretation shall also be recorded. Specified geophysical data channels shall become a requirement of the contract.

**10.7.14.** Flight path recovery - A real-time, high resolution, differential GPS system shall be used for navigation. Positioning accuracy shall be better than 3 feet (1 m). The navigational information shall be recorded at 1 second intervals as northing and easting by the digital data acquisition system in a form that can be used for flight path recovery. The performance of the GPS system shall be described. The flight path of the system frame will be recorded.

## **10.8. Data Processing and Modeling Requirements**

### **10.8.1. Navigation Data:**

1. Flight path recovery - The flight path shall be derived from the recorded electronic navigation data. The recorded navigation data shall be used to compute UTM locations using NAD83/NAVD88 horizontal/vertical datum or other appropriate datum as specified by project geophysicist for the flight lines similar (e.g., WGS84/ EGM96).
2. All GPS data shall be post-processed for precise system position recovery (e.g., correcting for any lag/latency effects existing between positional and geophysical data), and to provide positional information in UTM formatted coordinates, using NAD83/NAVD88 horizontal/vertical datum or similar (e.g., WGS84/ EGM96), appropriate local UTM zone(s). Final selected

coordinate systems shall be used consistently throughout processing, modeling, and reporting, and shall be explicitly reported with the final deliverables.

3. Altitude data corrections/filtering to provide accurate system altitudes and account for this information in final inversions.

#### **10.8.2. AEM Data:**

1. All data processing steps, models, and assumptions which correct, transform, alter, or change the original collected AEM data (e.g., dB/dT versus time), prior to performing final inversions, shall be recorded and reported in the final report.
2. All of the original (AKA, "raw" or "observed") data, and all of the final processed data used in final inversions shall be provided as part of the final data delivery/report.
3. A lag correction will be applied to the AEM data, as needed, in order to properly determine the AEM system/measurement coordinates. The Contractor shall clearly specify the method of determining and applying the lag offset.
4. The AEM data will be digitally processed to remove noise due to spheric events and filtered to reduce any system or external noise (i.e., inductive or capacitive coupling). Following filtering, leveling adjustments will be made by a qualified geophysicist, as required.
5. If significant daily (or otherwise) changes in AEM system's response or transmitted waveform is experienced between calibration/system checks/recordings (as required by the Quality Control Plan of this SOW), data normalization/corrections shall appropriately account for this change in system characteristics (AKA, "system drift") via linear or otherwise appropriate interpolation of applicable normalization/correction factors.
6. All AEM data/soundings shall be normalized by Tx/Rx effective areas, transmitter current/moment or other pertinent variables prior to final inversions, or accounted for in the inverse modeling workflow.
7. All AEM data/soundings shall be corrected for system altitude/3D orientation prior to inverse modeling, or accounted for in the inverse modeling workflow.
8. Temporal and spatial averaging/stacking of data as appropriate to maximize SNR prior to final inversion while avoiding over-filtering/over-smoothing of the data and resulting models.
9. Extraction/filtering of contaminated data due to inductive or capacitive coupling with major infrastructure (i.e., high-power transmission line noise - 60Hz and any harmonics, electrified train tracks, or other structures that negatively impact the recorded data significantly). Color contour maps/figures shall be produced in order to depict original/complete AEM data coverage with appropriate system responses/amplitudes plotted as to depict spatial distribution and intensity of power line noise/coupling, and also the post-filtered data coverage and corresponding filtered system responses/amplitudes as to depict area where filtering/removal of noisy or biased data has been removed.
10. Filtering or removal of AEM data contaminated by magnetic storms or other sources of external magnetic field-induced noise.
11. Filtering or removal of AEM data contaminated by the presence of underlying or nearby infrastructure that results in inductive and/or capacitive coupling and related system response: All AEM data/soundings should be minimally filtered spatially and temporally, as appropriate, to minimize noise and coupling effects that may negatively impact the resultant modelling results (e.g., adjacent soundings due to application of in-line and cross-line spatial smoothness constraints used during final inversions, or vertically adjacent model parameters due to the



application of vertical smoothness constraints). Filtering used should be the minimum required to achieve the technical requirements, using care not to over-filter.

12. Spatial and temporal data gaps arising from required flight-line geometry deviations, and from inherent AEM system behaviors (e.g., data gaps inherent to duty cycles or other relevant system characteristics) shall be gridded/interpolated appropriately, when feasible or deemed useful, prior to or following final inversions.

### **10.8.3. Magnetic data:**

1. All data processing steps, models, and assumptions which correct, transform, alter, or change raw measured magnetic data in any way shall be described in detail in the final report.
2. The total field airborne magnetometer data shall be corrected for diurnal variation and instrument drift. Diurnal corrections may be determined from temporarily deployed ground-based (base station) magnetometers or other permanently-installed reference stations when they are located within 50 miles (80 km) of the survey area.
3. A lag correction will be applied to the mobile/airborne magnetic data, as needed, in order to properly determine the sensor/measurement coordinates. The Contractor shall clearly specify the method of determining and applying the lag offset.
4. Pre-processing of static (i.e., “base station” or “reference station”) total field or componential magnetic data shall include the following standard steps:
  - a. Filtering to remove outliers, dropouts, or other erroneous base station data values or other influences of noise.
  - b. Removal of static International Geomagnetic Reference Field (IGRF) component.
  - c. Calculations of diurnal variation magnitudes.
  - d. Calculation of peak-to-peak maximum variations within a given timeframe, throughout the entirety of the AEM surveying, as specified in the Quality Control Plan of this SOW.
  - e. Calculation of QC parameters.
  - f. If using a temporary magnetic base station: Plots of all original base station data (amplitude versus date/time), with superimposed plots of corresponding final filtered/corrected base station data.
5. Processing of mobile/airborne total field or componential magnetic data shall include the following standard steps:
  - a. Filtering to remove outliers, dropouts, or other erroneous airborne sensor data or other influences of noise.
  - b. Removal of static International Geomagnetic Reference Field (IGRF) component: The residual magnetic data shall be determined by removing the most up-to-date International Geomagnetic Reference Field (currently The 13th-Generation IGRF, 2020). IGRF values shall be computed at precise XYZ positions of observed field measurements. Since the IGRF is nonlinear, its values shall be computed at XY intervals no larger than 500 meters latitude or longitude and at Z intervals where elevation changes cause no more than a 5-nT change in IGRF value. Linear interpolation is permissible between computed values.
  - c. Removal of diurnal variations using the processed base station data.
  - d. Application of heading corrections, as needed.
  - e. Either manual or statistically automated line/data leveling at tie-points (flight line intersections with tie-lines).

- f. Spatial and temporal interpolation of any significant data gaps arising from required flight-line geometry deviations, and from required filtering as described above.
- g. Gridding final processed data using appropriate interpolation algorithms/settings.
- h. Production of magnetic data/figures: Original (leveled) magnetic data/map, residual magnetic data/map, and reduced-to-pole (RTP) magnetic data/map shall be produced and included in the Final Report/Deliverables.

#### **10.8.4. AEM Inverse Modeling:**

1. Data misfits for all soundings shall be weighted appropriately by their corresponding noise statistics as derived from data used in a given stacked/averaged sounding/decay.
2. Final filtered and averaged AEM data shall be inverted using a smooth-model (i.e., “multi-layered”) approach that utilizes at least 25 layers, uses a consistent number of model layers for all soundings, uses a consistent set of layer thicknesses (e.g., logarithmic increase in layer thickness versus depth) for all soundings, and with both in-line and cross-line spatial/model roughness constraints (e.g., 3D model constraints in X-Y-Z directions), as appropriate.
3. Models shall account for topography during the inversion process (i.e., do not invert a flat model space and then warp the inverted model to fit the ground surface post-inversion).
4. Final models utilizing both in-line and cross-line spatial constraints (i.e., 3D spatial constraints on recovered model parameters) shall be obtained for each “stand-alone” survey area (e.g., if the survey area is broken up into multiple grids that are geographically separated due to field site conditions precluding continuous data coverage) by simultaneously utilizing/inverting all of the data available for each given area. In other words, all final inversions that incorporate 3D spatial smoothness constraints for a given “stand-alone” survey area/polygon must be performed using inversion software and hardware that is capable of handling all final processed AEM data within that survey area simultaneously. Contractor shall not split model spaces/inversions within a given survey area/polygon.
5. Regularization of the inversion process, and the related weight given to spatial/model roughness constraints, shall be carefully selected/implemented by the contractor in order to avoid the recovery of overly regularized/smoothed models.
6. Final inverse models shall be obtained using advanced local forward modelling and associated sensitivity calculations assumptions that account for relevant 1D model descriptions of the physics involved (e.g., based on 1D EM diffusion/Maxwell’s equations, and accurate system responses). The contractor shall not utilize empirical or otherwise simplified forward modeling calculations (e.g., approximated causal transforms), and shall, at a minimum, account for the following system parameters that are implemented and/or realized during data collection:
  - a. System low pass filters (if applicable).
  - b. Front gate filter (if applicable).
  - c. Width of the individual time gates.
  - d. Transmitted waveforms.
  - e. Transmitter and receiver coil geometries, 3D orientations, and altitudes above ground surface.
7. Depths of Investigation (DOI) estimates shall be provided (as .XYZ or .GDB or other appropriate digital file format) throughout the entire lateral extent of the model space for each “final” inverse model (e.g., final smooth models). DOI shall also be plotted on all Earth Resistivity Section figures provided in the Final Report and other Deliverables.

8. Any external ground-truthing data used by the Contractor to help constrain final inversions shall be listed in detail, and a discussion of how the data were utilized shall be included in the final report.
9. All of the data residuals from final inversions, all of the recovered final modeled resistivity/conductivity values shall be exported to digital files, as described in the Deliverables/Reporting Requirement section below.

### **10.9. Quality Control Plan**

A Quality Control Plan is required under this SOW. However, data quality assurance procedures shall, at a minimum, include items described in Sections 10.9.1 through 10.9.8 and meet normal industry standards. The Contractor, as part of their quality control procedures, shall be responsible for adjustment and calibration of their equipment, operation to meet specifications, and maintaining quality control of processing and interpretational procedures applied to the data. A draft Quality Control Plan shall be provided as part of The Contractor's proposal. The final Quality Control Plan shall be submitted by Contractor within 7 days after receipt of award, and shall include the following at a minimum:

**10.9.1.** All geophysical and navigational equipment shall be checked, adjusted, and calibrated according to manufacturer's recommendations immediately before commencing data acquisition or within the time-period specified by the manufacturer.

**10.9.2.** As relevant, the analog portion of the data acquisition system that are calibrated by injecting known signals from a standard source and recording and recovering the output shall be stated and provided.

**10.9.3.** Static and in-flight system noise levels over a specified averaging time shall be specified assuming that spheric levels are typical for morning hours. The specified noise levels shall become a requirement. Measurements of static noise levels and in-flight noise level at altitude shall be made before the survey, as well as at the beginning and end of each flight or survey day.

**10.9.4.** All geophysical and navigational equipment shall be checked, adjusted, and calibrated according to manufacturer's recommendations immediately before commencing data acquisition or within the time period specified by the manufacturer.

**10.9.5.** Calibration of the electromagnetic sensors shall be verified and documented. The calibration shall take place at an identified location or nearby the survey area. Calibration shall take into account the ground conductivity at the test site. This and other procedures deemed necessary by the Contractor shall be performed before the start of survey and at regular intervals. These procedures shall be specified and become a requirement. Documentation of these procedures shall be provided in the Contractor's Quality Control Plan and in the final report.

**10.9.6.** The manner of calibration and the method of verifying drift in the instrument shall be specified and will become a requirement. All calibration procedures shall be stated, shall become a requirement, and included in the Deliverables. A detailed description of all calibration procedures shall be included in the final report as well as delivered the morning after each day's data acquisition. It is

required that calibrations and post processing produce data that can be used to invert for subsurface electrical structure using industry standard EM inversion and imaging methods. The Contractor will provide examples of results of calibration from recent surveys. A clear indication on system band width will also be provided with details on usable time gates.

**10.9.7.** Calibration of the electromagnetic sensors housed in the bird or array shall be verified and documented. The calibration shall take place at an identified location or nearby the survey area. Calibration shall take into account the ground conductivity at the test site. This and other procedures deemed necessary by the Contractor shall be performed before the start of survey and at regular intervals. These procedures shall be specified and become a requirement. Documentation of these procedures shall be provided in the final report.

**10.9.8.** All information on pre- and post-processing filters will also be provided and stated and shall become a requirement and included in the Deliverables.

## **10.10. Deliverables/Reporting Requirements**

### **10.10.1. Final Report**

The Final Report shall be provided as a .PDF file and shall include the following at a minimum:

1. Overview of the AEM survey project, including entities involved as part of the Contractor team, their roles and responsibilities, and contact information.
2. Overview descriptions of the types of data collected, where they were collected, and dates of data collection.
3. Records/descriptions of types of equipment used (aircraft, magnetometer, laser altimeter, navigation/GPS system, AEM system, and base/reference magnetometer).
4. Records/descriptions of type and accuracy of navigation/altimeter systems used, and all navigation data processing performed.
5. AEM transmitter current waveform data plots that show current versus time, and indicate the
14. A list of all time-gates used during the survey, with an indication of the first/earliest usable (i.e., unbiased) time-gate(s) for this project.
15. Records/descriptions of System response data including:
  - a. AEM and magnetometer data collected during ascent and descent (in raw unprocessed format).
  - b. System response corrections for each time gate applied to minimally-processed data.
  - c. Method of applying system response corrections between each measured system response.
  - d. Altitude and positioning data and system frame inclination data.
  - e. Static and in-flight noise level data, as available.
6. Geometric parameters of the AEM system (graphic and/or tabular formats), including dimensions of the transmitter loop as a segmented polygon, number of turns in the Tx, length of the cable connecting the helicopter and platform, relative XYZ position of the transmitter and receiver coils, magnetometer, GPS receivers, laser altimeters, and inclinometers.
7. Electrical parameters including base repetition frequency, nominal peak Tx current, generalized current waveform, timing between the beginning of the waveform and the first gate center

- time, slope and cut-off frequency of the receiver coil, slope and cut-off of any system filters, gate center time, width, and integration envelope specified for each gate.
8. Data processing parameters including the type and widths of averaging filters as part of a detailed description of all processing methods applied to the data. All data processing steps, modeling steps, and assumptions which correct, transform, alter, or change raw measured data in any way.
  9. Records/descriptions of the latest compensation test flights.
  10. Records/descriptions of all instrument calibrations.
  11. Records/descriptions of prior ground calibrations including (coils, phasing, etc.).
  12. Descriptions of data acquisition and compilation procedures including type of gridding algorithm, method used for leveling, QA/QC procedures, projections, etc.
  13. System geometry, including AEM transmitter and receiver coil sizes, spatial configurations, location of altimeter and magnetometer sensors, and heights below the aircraft of each component/sensor.
  14. Any other system or survey-specific information deemed essential by the Contractor.
  15. General flight log information indicating production dates/times, number of production and tie lines flown, any operational problems, and other relevant data.
  16. Map-view flight-path figure superimposed on aerial imagery that shows spatial locations/extents of all original/unfiltered data collected, and the locations/extents of all final filtered data used for magnetic map production or AEM inverse modeling.
  17. Color-contour map that depicts the “final processed” digital elevation model (DEM) developed from laser altimetry and used in AEM resistivity inversions superimposed on aerial imagery.
  18. Location(s) of the magnetic base station(s) used for magnetic data corrections.
  19. Description of the inverse modeling software and settings used for AEM data modeling.
  20. Tabular data on AEM model layers used in inverse modeling, including the number of layers used, the thickness of each layer, the depth to top of each layer, and the depth to bottom of each layer.
  21. At least one example color contour resistivity (or conductivity) cross-section figure for an entire production flight line that includes vertical and horizontal scales with units labeled, a color scale with units labeled, a corresponding flight line location map, the corresponding recorded and filtered AEM data, and the corresponding residuals for soundings along the flight line.
  22. At least one example color contour resistivity (or conductivity) depth-slice figure for a given layer throughout the entire AEM survey footprint superimposed on aerial imagery.
  23. Magnetic survey color contour maps for the entire AEM survey footprint including the original (leveled) data, a residual magnetic field, and a reduced-to-pole magnetic map.
  24. A Power Line Noise Intensity map, as derived from the AEM data, plotted as a color contour map superimposed on aerial imagery.
  25. See Sections 10.8.1, 10.8.2, 10.8.3, 10, 10.9.5, 10.9.6, 10.9.7, and 10.9.8 for additional report requirements.
  26. A list of auxiliary files supplied, including the general format and content of the files.

#### **10.10.2. Digital Data Delivery Specifications**

In addition to the Final Report, the Contractor shall provide the following digital data deliverables on DVD, external drive, or downloadable from a secure website depending on the size of the data sets and the Contractor’s preferred method of delivery. As relevant, any external drive or disc supplied shall

have a unique visual label attached to allow correlation with supplied descriptive material of its contents. The digital data shall not introduce noise beyond the noise specifications of the instrument supplying the data (e.g., the airborne magnetometer). If any digital copy of deliverables supplied cannot be read by a District/BOR computer, additional copies shall be supplied at no extra cost until a completely successful reading of the data is performed. Data delivered shall be organized in an intuitive directory structure and/or contain a Readme file listing and describing in detail the locations, types, and formats of files:

1. Raw unprocessed data: Uncorrected data, i.e., data as they are originally recorded. All digital records for airborne systems and any ground monitoring systems, as collected.
2. Minimally processed data. These are data that have been corrected based on the system response/internal calibration check. Data that have been corrected for bias response and have been stacked/averaged into discrete soundings. Lag correction is applied to the coordinates at this step. No data leveling or smoothing is applied.
3. Fully processed data. These are data that have been further smoothed and/or leveled prior to final figure generation or inverse modeling.
4. All final inverted resistivity/conductivity models shall be delivered in a standard format compatible with Geosoft Oasis Montaj (.GDB files).
5. All final inverted resistivity/conductivity models shall also be exported to a space- or tab-delimited ASCII XYZ file(s) that include the following column-wise data for each sounding, at a minimum (see example header row labels below). Any omitted or filtered model layers/points (e.g., sounding layers/values below the calculated depth of investigation) shall be included in the XYZ file with padding/placeholder values used in place of modeled resistivity/conductivity values (e.g., '-9999,' or '\*\*\*\*\*'). The listed elevations and depths to layers shall be specified as the either the top, center, or bottom of the layer. This should be specified in the Final Report or in a separate ReadMe.rtf file provided with the digital deliverables:

```
[UniqueSounding# LINE# UTM-E(m) UTM-N(m) GroundSurfaceElevation(m) Residual
DepthOfInvestigation(m) LAYER#1 ConductivityLayer#1 DepthLayer#1(m) ElevationLayer#1(m) ...
LAYER#N ConductivityLayer#N DepthLayer#N(m) ElevationLayer#N(m)]
```

6. Final processed DEM data shall be delivered in Oasis Montaj (.GDB) and Golden Software grid (.GRD) file formats.
7. Digital copies of the raw and final processed MAG dataset(s) shall be delivered with the final report in Oasis Montaj (.GDB) and Golden Software grid (.GRD) file formats.
8. A separate color contour resistivity (or conductivity) cross-section figure for each production flight line that includes vertical and horizontal scales with units labeled, a color scale with units labeled, a corresponding flight line location map, the corresponding recorded and filtered AEM data, and the corresponding residuals for soundings along the flight line. These cross-section figures can be provided as individual graphics files (e.g., .JPEG or .PNG files), or as .PDF files. Alternatively, these figures can be included in an Appendix with the Final Report, and do not need to be provided separately.
9. A separate color contour resistivity (or conductivity) depth-slice figure for each model layer throughout the entire AEM survey footprint superimposed on aerial imagery. These depth-slice figures can be provided as individual graphics files (e.g., .JPEG or .PNG files), or as .PDF files. Alternatively, these figures can be included in an Appendix with the Final Report, and do not need to be provided separately.

10. Digital copies of each depth slice shall also be delivered in Oasis Montaj (.GDB) and Golden Software grid (.GRD) file formats.

#### **10.11. Categorical and Physical Airborne EM System Requirements**

**10.11.1.** The airborne EM system must consist of a time-domain/transient EM system, incorporating a rigid-frame mounted horizontal-loop active-source transmitter coil with vertical (Z) dipole moment orientation, and a Z oriented planar receiver coil (at a minimum), or dual rigid-frame mounted X and Z oriented planar receiver coils (preferred), that are either centered (symmetric system) or located off-center (asymmetric system configuration) relative to the transmitter coil.

**10.11.2.** The airborne EM system must be a helicopter-mounted (or slung) platform, capable of deployment via vertical take-off and landing in remote areas without constant access to an airport runway.

**10.11.3.** The airborne EM system platform is desired to include its own power supply, capable of performing data collection without the need of an auxiliary power source supplied from the helicopter.

**10.11.4.** The airborne EM system platform must be capable of data collection at elevations as low as 30m above any obstacles and terrain, allowing for detailed/draped survey flight lines in order to maximize ground coupling and resultant data/model resolution/sensitivity (or as otherwise limited by FAA regulations applicable to survey area).

**10.11.5.** The transmitter and receiver coil geometric configuration shall not encompass a total horizontal planar area greater than 300m<sup>2</sup>, for the sake of collecting data with adequately high lateral resolution (small horizontal sensitivity distribution/minimal lateral averaging of earth resistivities per sounding).

#### **10.12. Standardized Airborne EM System Calibration Prior to and During Commencement of the Airborne Geophysical Survey:**

**10.12.1.** The system used for the airborne survey must be calibrated for various elevations above the ground, at a standard and well-characterized calibration site, prior to mobilization to the survey location. This shall be done for the purpose of ensuring system responses and resulting data/models match expected values, as determined by comparison with repeated ground-based system responses and resulting data/models, within some negligible error level. These pre-mobilization calibration results must be furnished to the client in the form of a stand-alone and concise report, prior to mobilizing to the survey site.

**10.12.2.** Prior to commencement of survey data collection, an on-site calibration test at various representative elevations above ground shall be performed at a single test location chosen by the client. This on-site calibration test will be performed at a pre-selected location of existing ground-based electrical soundings/profiles, as determined by the client.

#### **10.13. Sounding Location, System Altitude/Orientation, and Other Auxiliary Data:**

- 10.13.1.** The Airborne EM system/data shall include integrated survey grade 3D positioning information associated with each sounding curve/transient, via system platform-mounted differential global positioning system (DGPS).
- 10.13.2.** The Airborne EM system/data shall include integrated altitude data collection via system platform-mounted laser altimeter.
- 10.13.3.** The Airborne EM system/data shall include integrated coil orientation data collection for roll/pitch via system platform-mounted inclinometer/accelerometer type sensor(s).
- 10.13.4.** The Airborne EM system response and resultant data quality shall have negligible influence from reasonable levels of aircraft yaw (rotation co-planar to transmitter coil) relative to the flight path/direction.
- 10.13.5.** The Airborne EM system shall include a platform-mounted total field magnetometer.

**10.14. Flexibility of Data Acquisition/System Configuration Parameters Prior to and During Data Acquisition:**

- 10.14.1.** The airborne EM system must have remote operation capabilities, and not require an operator on-board the helicopter at all times during data collection. This should allow for in-flight changes to data acquisition parameters, as well as pseudo-real-time QA/QC of data by the operator and client representative(s). If real-time remote operation capabilities are not available for the proposed AEM system, a plan for pseudo-real-time QA/QC of data by the operator shall be included in the Contractor's final Quality Control Plan to be submitted within 7 days after notification of receipt of award.
- 10.14.2.** The contractor shall have several systems and/or system configuration options/specifications that are readily available to select from, potentially subsequent to contracting of survey work/terms. This may be required in order to optimize trade-off between near-surface resolution and depth of investigation, dependent upon results/findings from ground-based geophysical reconnaissance work and forward modelling/sensitivity analysis yet to be completed by the client.

**10.15. Additional Technical Airborne EM System Specifications/Capabilities:**

- 10.15.1.** The airborne EM system's transmitter waveform shall be a (near) square-wave.
- 10.15.2.** The airborne EM system's transmitter current ramp-down shall be fast enough to allow for un-bias off-time measurements as early as 15 micro-seconds or less for the first off-time time-gate (calibrated). This will likely require a system with a peak dipole moment (Number of turns X Current X Area, or NIA) that is low enough (approximately  $\leq 4,000$  NIA) to accommodate fast current ramp-down.
- 10.15.3.** The airborne EM system transmitter coil's NIA shall be high enough (approximately  $\geq 150,000$  NIA) to allow for usable data collection within time-gates as late as 10-15 milli-seconds. This system/data characteristic will be required in order to maximum the chances of achieving average



depths of investigation up to approximately 250-300m below ground surface throughout the project area. This value may be changed after ground-based geophysical reconnaissance/ground-truthing work/forward modeling/sensitivity analysis.

**10.15.4.** If the proposed system is not capable of performing concurrent dual NIA data acquisition, two separate system configurations (either physical or current injection levels) must be used, and the flight lines must be flown twice to ensure adequate near-surface resolution and depth of investigation required to meet the client's project goals. Alternatively, the proposed system must demonstrate an appropriate transmitter waveform/adequate system bandwidth using a single dipole moment setting to achieve both early and late time-gate measurements as specified above. This is not negotiable, as it is critical to the goals of the project.

#### **10.16. 1989 Electrical Resistivity and Magnetic Profiling**

**10.16.1.** In order to provide a better background understanding of the geologic structure and electrical properties (electrical resistivity structure) throughout the general survey area, information obtained during a 1989 geophysical study performed within the AEM survey footprint and near the town of Prairie City is provided in Figure B- 1 through Figure B- 5 in Appendix B. These figures provide the original resistivity data (pseudo sections), as well as 2017 reprocessed resistivity sections obtained by means of performing 1D inversion on the 1989 data.

#### **10.17. Inspection and Acceptance**

**10.17.1.** Before mobilization, the District shall be given a copy of the flight plan including the preplanned flight surface, if applicable, for discussion and approval. This flight plan will be provided to the District within seven (7) calendar days following the NOTICE TO PROCEED (NTP). The District and its assigns reserve the right to visit the contractor in the field to observe survey data acquisition and reduction procedures or to visit the contractor at the contractor's place of business to ascertain that proper procedures are being employed in compiling the data. Any data processing or field techniques that are deemed proprietary by the contractor will be maintained proprietary by the inspector(s).

**10.17.2.** During the course of the survey, the flight crew will maintain contact with the District. Preliminary data shall be sent to the District daily via e-mail, or download link. Daily reports shall include preliminary digital flight-path (navigation) data, as described in Section 10.5.5.

**10.17.3.** All preliminary digital flight-path (navigation) data and base station magnetics data shall be submitted at the time the flying is completed via e-mail or download link. The survey crew will remain in the field while the preliminary data is reviewed. This review will take no longer than 24 hours after the District and BOR receives the data. If the District and BOR determines that Preliminary Data is unacceptable based on the SOW parameters, the Contractor shall reperform the work until it is determined acceptable.

**10.17.4.** All preliminary digital data and Draft Report shall be submitted within sixty (60) days after the completion of flying. The District and BOR will conduct their review of the preliminary set of the digital data within seven (7) calendar days after receipt of the preliminary data package. (See Section 10.25 below for performance period.)

**10.17.5.** If the review exceeds the seven (7) day period referenced in Section 10.17.4 above, the performance period end date shall be automatically extended one (1) day for each day of delay caused by the review.

**10.17.6.** The contractor shall then have thirty (30) days to correct all errors or problems identified through the review of preliminary digital data and Draft Report package (Section 10.17.4 above) and submit all final deliverables. See Section 10.10 for summary of deliverables.

**10.17.7.** With the submittal of all final deliverables as listed in Section 10.10, the contractor shall have met all criteria as specified herein and shall have made all required corrections. The District reserves the right to review again the deliverables for compliance prior to acceptance. Until final acceptance, deliverables may be returned to the contractor for compliance with corrections listed during the review.

### **10.18. Preservation, Packaging, Packing, and Marking**

**10.18.1.** Preservation, packing, packaging, and marking for shipment of deliverable items called for by this SOW shall be in accordance with the best commercial practice to assure acceptance by common carrier at the most economical rate(s).

**10.18.2.** Packages containing software or other magnetic media shall be marked on external containers with a notice reading substantial as follows: "CAUTION: SOFTWARE/MAGNETIC MEDIA ENCLOSED. DO NOT EXPOSE TO HEAT OR MAGNETIC FIELDS."

### **10.19. Inspection Period**

The District will require 14 days to review the Final Deliverables.

### **10.20 Special Requirements**

Permits and Licenses – General: In the performance of work hereunder, the Contractor shall obtain and maintain in effect all necessary permits, visas, and licenses required by Federal, State, or local government, or subdivision thereof, or of any other duly constituted public authority. At no separate or additional cost to the government, the contractor shall comply with all laws and regulations applicable to work to be performed hereunder, including any revised statutes or regulations effective during the life of the contract.

### **10.21 Aircraft or Equipment Breakdown**

Should the helicopter or other essential equipment break down and cause delay or termination of the operation, the equipment shall be repaired or replaced within 48 hours to allow continuance of the project. Failure to do so may result in a \$500/day penalty until deficiencies are corrected. In the event weather conditions force a long-term shutdown during the project, and it is agreed the airship has to return to its home base then one-half the ferry time will be paid. All aircraft repairs must be made in accordance with Federal Aviation Regulations Standards before the operation proceeds.

### **10.22 Additional or Substitute Aircraft(s) or Pilot(s)**

If for any reason an additional or substitute aircraft(s) or pilot(s) are required to complete the Work required under this Contract, it will be the responsibility of the Contractor to supply or subcontract the same, within 48 hours, and with District approval, at the Contractor's expense. The Contractor must specify names of pilot(s) provided for this Contract, and may not provide substitute pilot(s) without prior approval by the District. All additional aircraft(s) and pilot(s) shall meet the minimum qualifications specified by the Contract.

### **10.23 Poor Pilot Performance**

The District reserves the right to ground or reject any pilot(s) who, in its sole opinion, violates Contract requirements, is unsafe, or otherwise performs unsatisfactorily. Contractor will be required, within 48 hours, to replace the grounded pilot(s). All replacements shall be approved in advance of use under the contract by the District. Failure to furnish a replacement pilot(s) within the specified time will authorize the District to assess liquidated damages as outlined in Section 10.24.

### **10.24 Damages**

Contractor shall deliver within the time indicated in Sample Contract (Attachment 4). Should the contractor fail to meet the delivery schedule, thereby making it necessary for the District to purchase urgently needed services from another source, contractor shall pay the difference between the accepted bid price and the purchase price of replacement services, for costs in excess of the original contract amount.

### **10.25 Period of Performance**

The period of performance shall be 135 calendar days after receipt of award. Milestone deliveries under this SOW shall be in accordance with the following:

1. **Flying:** FLIGHT OPERATIONS SHALL BEGIN WITHIN THIRTY (30) CALENDAR DAYS FOLLOWING THE DATE OF THE CONTRACTOR'S NOTICE TO PROCEED AND BE COMPLETED WITHIN FORTY FIVE (45) CALENDAR DAYS AFTER FLYING HAS COMMENCED.
2. **Preliminary Copies:** Preliminary digital flight-line data shall be submitted at the time the flying is completed for each area. Revised preliminary digital data sets shall be submitted within sixty (60) calendar days after flying for each area is completed. These completed data in rough draft form shall be submitted before the final maps and DVDs are prepared, for the purpose of inspection and to resolve any problems prior to preparation of the completed final data.
3. **Final Deliverables:** The contractor shall complete the requirement to provide all drafts, make all required corrections, and submit all final deliverables to the point of acceptance by the District in accordance with Section 7. ALL FINAL PRODUCTS SHALL BE DELIVERED WITHIN 90 CALENDAR DAYS AFTER FLYING HAS BEEN COMPLETED.

## 10.26 Summary of Schedule of Deliverables

Ref.	Deliverable	Due (Calendar Days)	Electronic Copy To:
10.11-10.15	Airborne System Specifications	7 days after NTP	District
10.12	Airborne EM System Calibration	Prior to mobilization to survey site, and prior to production flights	District
10.6, 10.17.1	Flight Plan	7 days after NTP	District
10.5.1	Test line-data	24hrs prior to the production survey	District
10.9	Final Quality Control Plan	7 days after NTP	District
10.25.1	Flight Operations	Begin within 30 days after NTP but no earlier than June 17, 2024. Complete within 45 days after initial flight.	NA
10.5.5, 10.17.2	Survey progress reports with completed flight-line maps/ navigation data via email	Daily once production flights begin	District
10.10.2	Preliminary digital data delivery and draft report	60 days after completion of flights and no later than October 31, 2024.	District
10.10.1	Final digital data delivery, Final Report	30 days after revised preliminary digital data sets and draft report are submitted and reviewed.	District

## SECTION 11 - PROPOSAL CONTENTS AND EVALUATION CRITERIA

This section of the RFP identifies areas that the District has determined are necessary to evaluate whether the proposer can successfully accomplish the services covered by this RFP. Proposals shall clearly address each of the areas identified. Proposer’s failure to comply with the instructions or submittal of an incomplete Proposal may result in Proposal being deemed non-responsive, except that the District reserves the right to waive minor irregularities.

### 11.1 Proposal Components

Proposals will be evaluated and scored based on the price and non-price factors listed in this section. All responsible vendors shall submit responses and requested references specified in the evaluation

criteria for consideration by the District. Proposals failing to respond to each of the evaluation criteria will be considered non-responsive and removed from scoring process.

#### **11.1.1 Understanding of Requested Services/Project**

Proposer shall clearly and concisely describe their understanding of the services to be performed based on the expressed Project information, including its purpose, key issues to be addressed, and the methods proposed to ensure the Project is completed successfully.

#### **11.1.2 Aircraft to be Provided**

The contractor is required to provide an approved aircraft (authorized to perform the requirements of this contract in compliance with the current Federal Aviation Administration (FAA) and Oregon State Division of Aeronautics' Rules and Regulations, as applicable to such requirements), including specified Airborne Electromagnetic Survey and Global Positioning System equipment to perform survey operations. The aircraft must currently be maintained in accordance with Federal Aviation Regulations Standards. Aircraft must be qualified to perform rotorcraft external-load operations required in accomplishing the work, in accordance with Federal Aviation Regulations Part 133. Substitute or back-up aircraft must meet the same standards as the original aircraft requirements as specified. The District reserves the right to check the background of any aircraft, and may reject any bid if unqualified or unfavorable aircraft information is detected.

#### **11.1.3 Pilot(s) to be Provided**

Pilot(s) will have flight experience as follows, substantiated by pilot log book:

1. Minimum of 1000 hours of helicopter flight time with equivalent to the aircraft to be provided under the contract requirements.
2. Minimum of 100 hours of experience in performing equivalent Airborne Electromagnetic Survey Operations to be completed under the contract requirements.
3. Aircraft pilots must be qualified in accordance with Federal Aviation Regulations Part 133 – Rotorcraft External-Load Operations. Substitute or back-up pilots must meet the same standards as the original pilot requirements as specified. All approved pilots shall be authorized to perform the requirements of this contract in compliance with the current Federal Aviation Administration and Oregon State Division of Aeronautics' rules and regulations, as applicable to such requirements. The District reserves the right to check the background of any pilot through the Federal Aviation Administration. If substantiated information is found showing poor performance, safety violations, failure to fulfill contractual obligations, minimum requirements not being met, or any other unfavorable information; the District reserves the right to reject any pilot, and may discard any bid if unqualified or unfavorable pilot information is detected.

#### **11.1.4 Bidder Qualifications & References**

Bidder Qualifications and Reference forms are provided in this RFP as Attachment 3. Bidders shall complete these forms and return them with their bid. Failure to provide complete and/or accurate information may be cause for bid rejection.

- Bidder must have a minimum of 3 years of successful professional experience providing goods and/or performing services comparable to those required under this contract.
- Bidder must provide at least two current professional references from different firms or clients, supportive of bidder's ability to perform and comply with the requirements of this contract.
- Bidder must provide copies of required Aircraft & Pilot Federal Aviation Regulations Certifications, including Part 133 – Rotorcraft External-Load Operations with Proposal.

### 11.1.5 Price Proposal

Provide specified bid amounts to furnish all supplies, materials, equipment, and labor, and perform all Project Work Elements for the District in lump sum and/or unit prices.

### 11.2 Scored Proposal Components

Bidders shall articulate responses to the proposal components upon the forms provided or equivalent format in Attachments 2 and 3 in this RFP. Attached information and/or exhibits shall be clearly referenced to the associated evaluation criteria response. All responses should be concise, direct, and substantive. Proposers shall return all forms and information in a combined package.

Proposals will be evaluated and assigned points as indicated below.

#### 11.2.1 Understanding of Requested Services/Project - Use Attachment 2 = 50 Points

Proposer shall clearly and concisely describe their understanding of the services to be performed based on the expressed Project information, including its purpose, key issues to be addressed, and the methods proposed to ensure the Project is completed successfully.

#### 11.2.2 Bidder Qualifications, Experience, & References - Use Attachment 2 = 50 Points

Proposer shall submit qualifying responses and exhibits for each of evaluation criteria listed in Sections 11.1.2 through 11.1.4.

#### 11.2.3 Price Proposal - Use Attachment 3 = 50 Points

The Proposer must bid pursuant to requirements on Attachment 3 for the proposed services. The District will award to the Pricing Proposal with the lowest Estimated Total Price the maximum points possible (**50 Points**). The District will award to Pricing Proposals with higher Estimated Total Prices a percentage of the maximum possible points available relative to the lowest Pricing Proposal Total Price. The District will use the following formula for this purpose:

$(L/X)*Y = A$ , where:

X = Proposed Estimated Total Price being scored

L = Lowest Estimated proposed Total Price scored

Y = Maximum possible points (50)

A = Awarded points

### 11.3 Proposal Contents Checklist Summary

Proposals not containing this listed information may be considered non-responsive and be rejected by the District.

- Completed Cover Sheet (Attachment 1)
- Proposal Components Forms (Attachment 2)
- Price Proposal and Certification Forms (Attachment 3)
- Relevant prior survey/results examples with references *or* forward and inverse models (Section 10.4)
- A draft Quality Control Plan (Section 10.9).

## SECTION 12 - PROPOSAL OPENING

Proposals will be opened at the Proposal delivery location, and at the time the Proposals are due as specified on the cover page of this RFP. In accordance with ORS 279B.060, Agency shall make available the identity of all Proposers after the opening of the Proposals; and Proposals will be available for inspection at the specified delivery location after the Notice of Intent to Award a contract is issued. No information shall be given to any Proposer relative to their standing with other Proposers during the RFP process until a Notice of Intent to Award has been issued.

## SECTION 13 - PROPOSAL EVALUATION PROCESS

The District will conduct an evaluation of the responses received to this solicitation. An Evaluation Committee will be established to evaluate and score the Scored Proposal Components. Any attempt by a Proposer to improperly influence a member of the Evaluation Committee during the Proposal review and evaluation process will result in the elimination of that Proposer's Proposal from consideration.

The evaluation of the responses will be conducted in up to five phases:

- Phase 1: Evaluation of Proposal Components
- Phase 2: Evaluation of Scored Proposal Components
- Phase 3: Ranking of Proposals
- Phase 4: Reference Checks
- Phase 5: Interviews, If Necessary

### 13.1 Evaluation of Proposal Components

The purpose of this phase is to determine if the Proposal meets the Proposal requirements listed in Section 11.1. Proposals will be reviewed by the Contract's Administrator to determine if they are complete. Complete Proposals will be forwarded to the Evaluation Committee for evaluation and scoring.

### 13.2 Evaluation of Scored Proposal Components

Proposals will be scored according to how well the Proposer responds to each of the elements described in Section 9.2, Scored Proposal Components. Each member of the Evaluation Committee will evaluate the Scored Proposal Components of each Proposal. Points given by each evaluator will be summed and divided by the number of evaluators to compute an average performance score for each Proposal.

Points Possible Scored Proposal Component:

50	Understanding of Requested Services/Project (11.2.1)
50	Bidder Qualifications, Experience, & References (11.2.2)
50	Price Proposal (11.2.3)
<hr/>	
150	<b>Total Maximum Points Possible</b>

### 13.3 Ranking of Proposals

Points awarded to each Scored Proposal Component will be added together to determine the total score and the ranking of each Proposal.

### 13.4 References

Proposers must provide a minimum of two references, where indicated on Attachment 4. Additional references may be provided on a separate page. The District may contact references of highest scoring Proposer(s).

References must have specific knowledge of experience described in qualifications of the Proposer's Key and Managing Personnel. Negative reference information may result in elimination from consideration.

### 13.5 Copies of Federal Aviation Regulations (FAR) Certifications

Proposers must provide **copies** of required Aircraft & Pilot Federal Aviation Regulations Certifications, including Part 133 – Rotorcraft External-Load Operations with Bid.



### **13.6 Interviews, If Necessary**

At the District's discretion, an interview process with the top ranked Proposers may be conducted. If an interview process is initiated, the District shall decide on the number of high-scored Proposers to be invited for an interview. The method of evaluation, content of interview questions, and other specifics shall be announced at the time Proposers are invited for interview.

## **SECTION 14 - PROPOSER SELECTION AND CONTRACT AWARD**

Subject to the provisions of Section 5 and other applicable law, the final selection will be made based upon the highest Proposal score, or, if interviews are held, the final selection will be made based upon the highest total score of Proposal score plus interview score.

The District will notify the apparent successful Proposer ("Notice of Award") and request that the apparent successful Proposer sign a Contract in substantially the form set forth as Attachment 4 of this RFP. If the apparent successful Proposer is not able to execute the contract offered within ten (10) business days of Apparent Successful Proposer's receipt of the Contract, or such later date as the District may authorize, the District may make another selection. If all Proposals are rejected, all Proposers will be promptly notified.

## **SECTION 15 - INSURANCE REQUIREMENTS**

During the term of any Contract which may result from this RFP, Contractor shall maintain in force, at its own expense, each insurance noted below. A Contract will not be executed, and the District will not issue a "Notice to Proceed", until acceptable proof of all required coverage is received.

### **15.1 Workers' Compensation - Required by District**

All employers, including Contractor, that employ subject workers, as defined in ORS 656.027, shall comply with ORS 656.017 and provide workers' compensation insurance coverage for those workers, unless they meet the requirement for an exemption under ORS 656.126. Contractor shall require and ensure that each of its subcontractors complies with these requirements. If Contractor is a subject employer, as defined in ORS 656.023, Contractor shall also obtain employers' liability insurance coverage with limits not less than \$1,000,000 each accident. If Contractor is an employer subject to any other state's workers' compensation law, Contractor shall provide workers' compensation insurance coverage for its employees as required by applicable workers' compensation laws including employers' liability insurance coverage with limits not less than \$1,000,000 and shall require and ensure that each of its out-of-state subcontractors complies with these requirements.

### **15.2 Commercial General Liability - Required by District**

Commercial General Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Commercial General Liability Insurance covering bodily injury and

property damage in a form and with coverages that are satisfactory to the State. This insurance shall include personal injury liability, products and completed operations, and contractual liability coverage for the indemnity provided under this Contract (to the extent contractual liability coverage for the indemnity is available in the marketplace), and shall be issued on an occurrence basis. Contractor shall provide proof of insurance of not less than the amounts listed in the following schedules:

**Per Occurrence Limit for any single claimant:**

**From commencement of the Contract term to July 1, 2024: \$830,300.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

**Per Occurrence Limit for multiple claimants:**

**From commencement of the Contract term to July 1, 2024: \$1,660,400.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

**15.3 Automobile Liability - Required by District**

Automobile Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Automobile Liability Insurance covering owned, non-owned and/or hired vehicles, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than the amounts listed in the following schedules:

**Per Occurrence Limit for any single claimant:**

**From commencement of the Contract term to July 1, 2024: \$830,300.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

**Per Occurrence Limit for multiple claimants:**

**From commencement of the Contract term to July 1, 2024: \$1,660,400.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

**15.4 Aircraft Liability - Required by District**

Aircraft Liability: Contractor shall obtain, at Contractor's expense, and keep in effect during the term of this Contract, Aircraft Liability Insurance covering owned, non-owned and/or hired aircraft, as applicable. The coverage may be written in combination with the Commercial General Liability Insurance. Contractor shall provide proof of insurance of not less than the amounts listed in the following schedules:

**Per Occurrence Limit for any single claimant:**

**From commencement of the Contract term to July 1, 2024: \$830,300.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

**Per Occurrence Limit for multiple claimants:**

**From commencement of the Contract term to July 1, 2024: \$1,660,400.**

July 1, 2024 and thereafter the adjusted limitation as determined by the State Court Administrator pursuant to Oregon Laws 2009, chapter 67, section 3 (Senate Bill 311).

### **15.5 Excess/Umbrella Insurance**

Excess/Umbrella Insurance: A combination of primary and excess/umbrella insurance is acceptable to meet the minimum coverage requirements for Commercial General Liability, Automobile Liability, and Aircraft Liability Insurance. In such case, the insurance certificate must include a list of the policies that fall under the excess/umbrella insurance. Sample wording is "The Excess/Umbrella policy is excess over primary Commercial General Liability, primary Automobile Liability, and primary Aircraft Liability Insurance."

### **15.6 Additional Insured**

Additional Insured: The liability insurance coverage, except Professional Liability if included, required for performance of this Contract shall include the District, as Additional Insureds but only with respect to the Contractor's activities to be performed under this Contract.

### **15.7 Certificate(s) of Insurance**

Certificate(s) of Insurance: As evidence of the insurance coverage required by this Contract, the Contractor shall furnish certificate(s) of insurance to the District prior to execution of the Contract. The certificate(s) will specify all of the parties who are Additional Insureds or Loss Payees. Insurance coverage required under this Contract shall be obtained from insurance companies or entities acceptable to the District that are allowed to provide such insurance under Oregon law. Contractor shall pay for all deductibles, self-insured retention and self-insurance, if any. The Contractor shall immediately notify the District of any change in insurance coverage.

The apparent successful Proposer will provide all required proofs of insurance to the District within ten (10) business days of notification of Intent to Award. Failure to present the required documents within ten (10) business days may be grounds for bid rejection. A Contract will not be executed until acceptable proof of all required coverage is received.

## **SECTION 16 - PUBLIC RECORDS**

This RFP and one copy of the subsequent selected Proposal(s), together with copies of all documents pertaining to the award of a contract, shall be kept by the District and made a part of a file or record which shall be open to public inspection. If a Proposal contains any information that Proposer considers a trade secret under ORS 192.501(2), each sheet of such information must be marked with the following legend:

"This data constitutes a trade secret under ORS 192.501(2) and shall not be disclosed except in accordance with the Oregon Public Records Law, ORS Chapter 92."

The Oregon Public Records Law exempts from disclosure only bona fide trade secrets, and the exemption from disclosure applies only "unless the public interest requires disclosure in the particular instance", ORS 192.501(2). Therefore, nondisclosure of documents or any portion of a document submitted as part of a Proposal may depend upon official or judicial determinations made pursuant to the Public Records Law.

The above restriction may not include fee schedule information, which is generally open to public inspection.

Identifying the Proposal in total as a trade secret is not acceptable, and may result in rejection of the Proposal. Failure to identify a trade secret within the Proposal shall preclude Proposer from thereafter claiming that the information was a trade secret.

## **SECTION 17 - COST OF PROPOSALS**

All costs incurred in preparing and submitting a Proposal and participating in interview(s), if required, in response to this RFP will be the responsibility of the Proposer and shall not be reimbursed by the District. All Proposers who respond to this RFP do so solely at their own expense.

## **SECTION 18 - NO CONTRACTUAL OBLIGATION**

All Proposers who submit a Proposal in response to this RFP understand, acknowledge and agree that the District is not obligated thereby to enter into a Contract with any Proposer.

## **SECTION 19 - RECYCLABLE PRODUCTS**

Contractors shall use recyclable products to the maximum extent economically feasible in the performance of the contract work set forth in this document.

## **SECTION 20 - ANTICIPATED CONTRACT AMENDMENTS**

The Contract, if any, resulting from this RFP may be amended as needed for additional Work to meet the District's continued need for Services as described within the Scope of Work of this RFP. The District will directly negotiate with Contractor to finalize the details and costs of applicable amendment(s).

## **SECTION 21 - NON-DISCRIMINATION**

All Proposers who submit a Proposal in response to this RFP certify that the Proposer has not and will not discriminate against a subcontractor in the awarding of a subcontract because the subcontractor is a minority, women or emerging small business enterprise certified under ORS 200.055.

## Appendix A – Requested Flight Lines Map

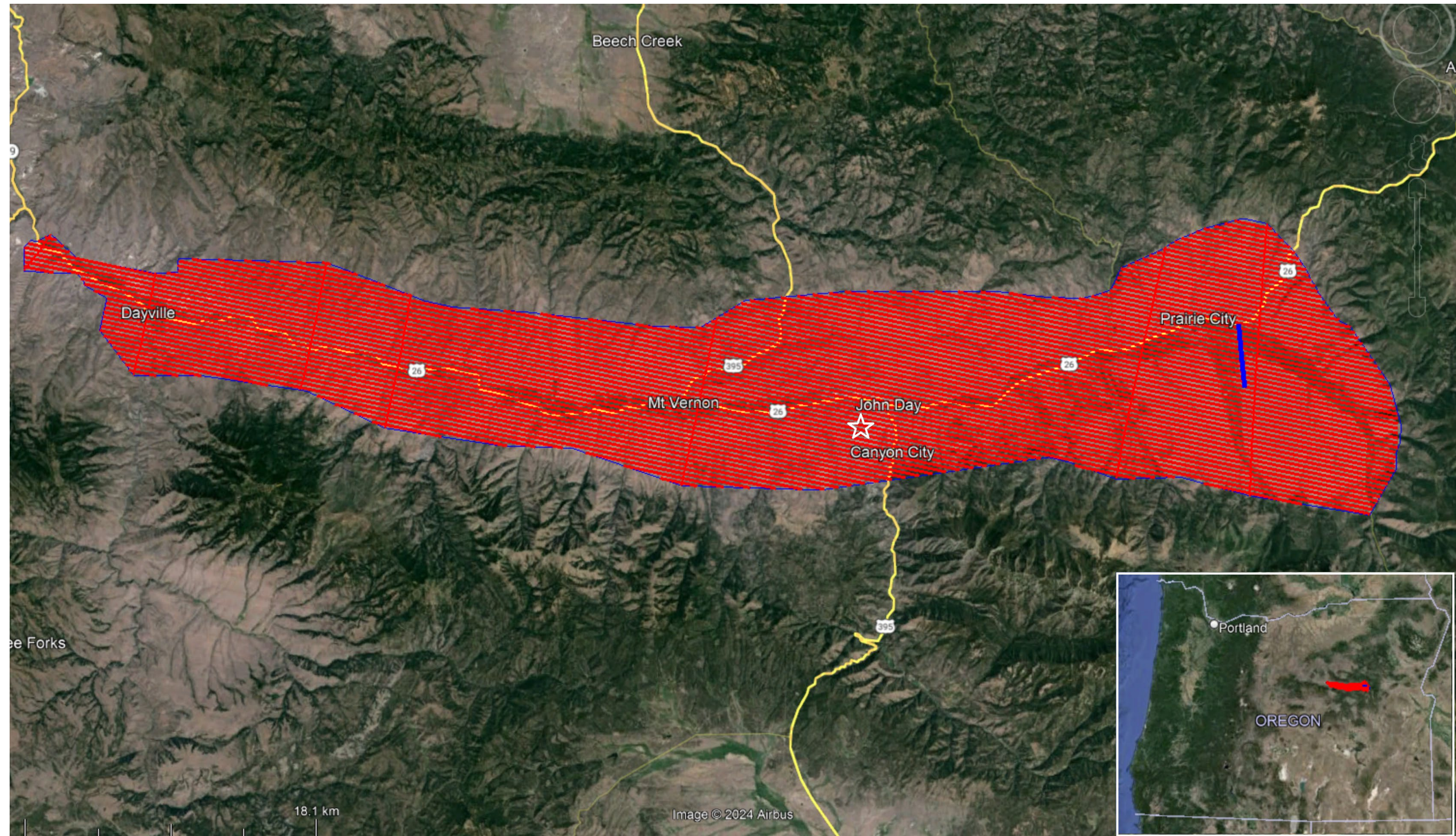
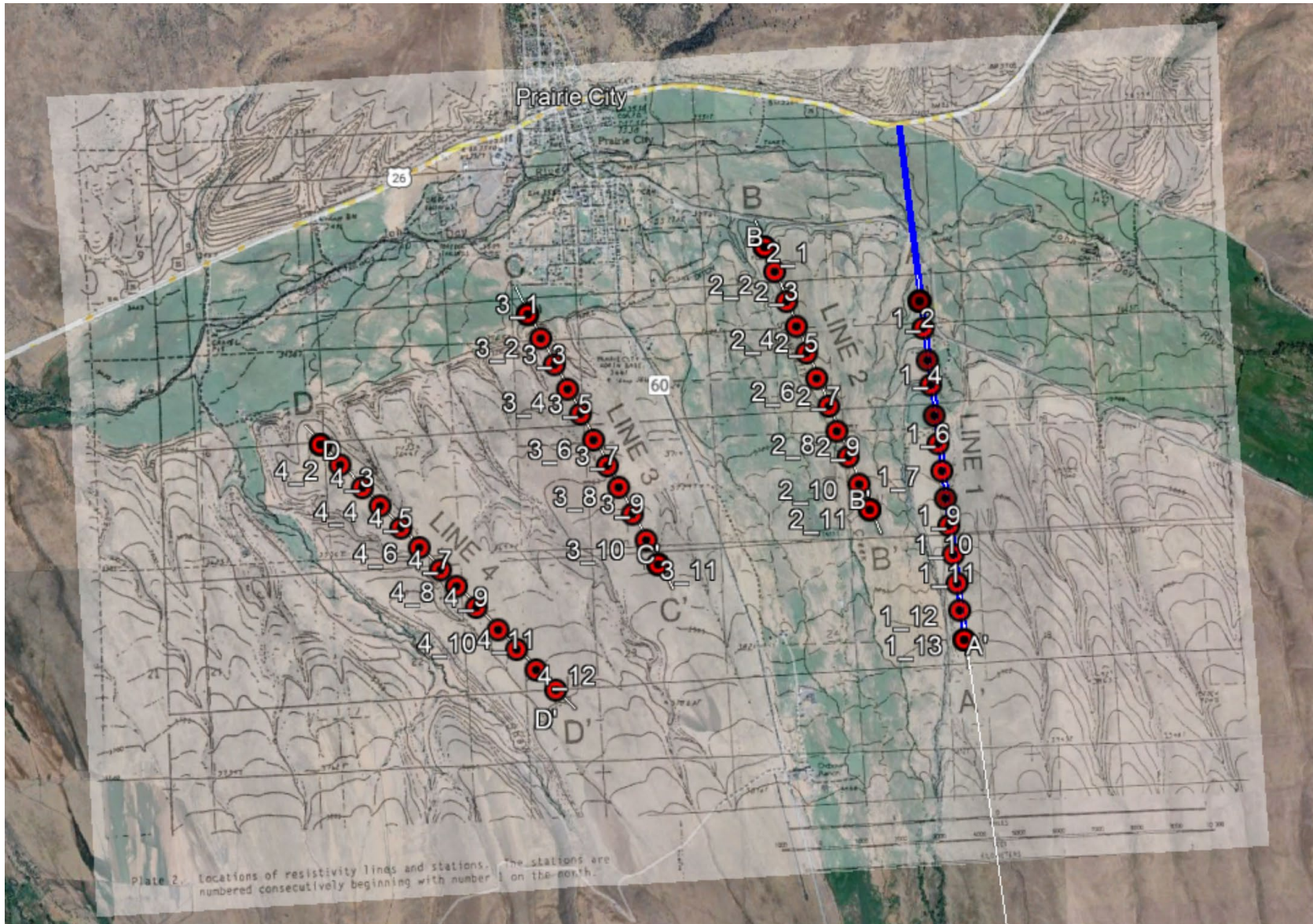


Figure A - 1. Overview of requested flight line map showing production lines and tie lines (red lines), the location of the Grant County Regional Airport (white star), and the location of the requested test line (blue line). This comprises a total of approximately 2,961 In-km of data collection. This total includes 2,889 In-km of production flight-lines, 68 In-km of tie lines, and a 4km test line.

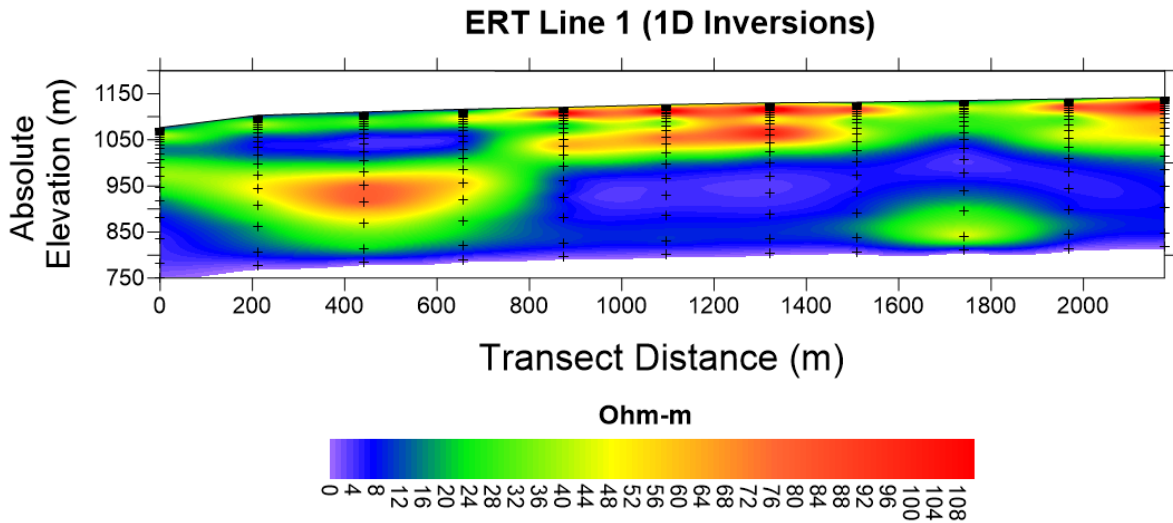
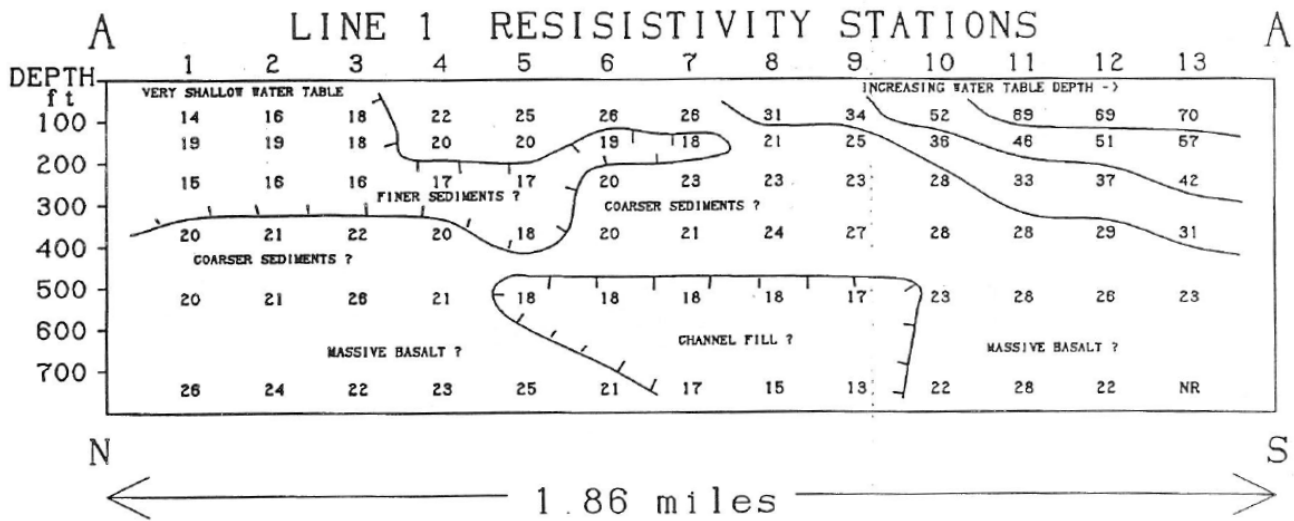
## **Appendix B – 1989 1D Resistivity Profiling Data with 2017 Inverted Cross-Sections**

In order to provide a better background understanding of the geologic structure and electrical properties (electrical resistivity structure) throughout the general survey area, information obtained during a 1989 geophysical study performed within the AEM survey footprint and near the town of John Day is provided in Figure B- 1 through Figure B- 5 in Appendix B. These figures provide the original resistivity data (pseudo sections), as well as 2017 reprocessed resistivity sections obtained by means of performing 1D inversion on the 1989 data.



**Figure B - 1. Overview map showing the locations of four geophysical survey transects designated Lines 1 through 4 (AKA, lines A through D, respectively). In 1989, a series of 1D Schlumberger resistivity soundings (labeled red points) were performed along each transect, and a magnetic profile was also collected along transect A. The requested AEM test line (blue line) coincides with transect A.**





**Figure B - 2. 1989 Schlumberger resistivity soundings apparent resistivity values (ohm-m) plotted as a pseudo-section for Line 1 (top). These data were later inverted as a series of 1D soundings and combined into a 2D color contour plot in 2017 (bottom). The requested AEM test line coincides with this transect.**

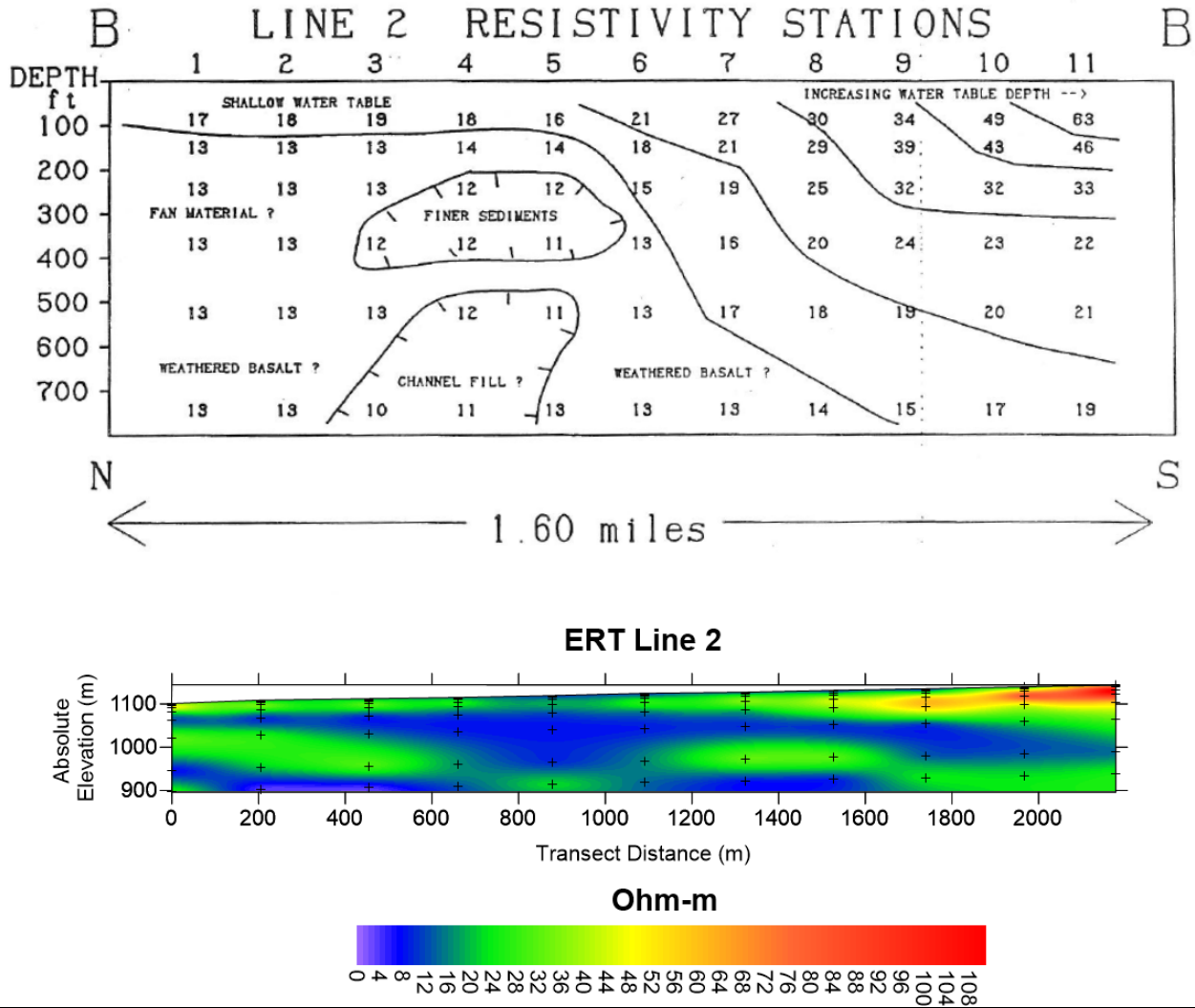


Figure B - 3. 1989 Schlumberger resistivity soundings apparent resistivity values (ohm-m) plotted as a pseudo-section for Line 2 (top). These data were later inverted as a series of 1D soundings and combined into a 2D color contour plot in 2017 (bottom).

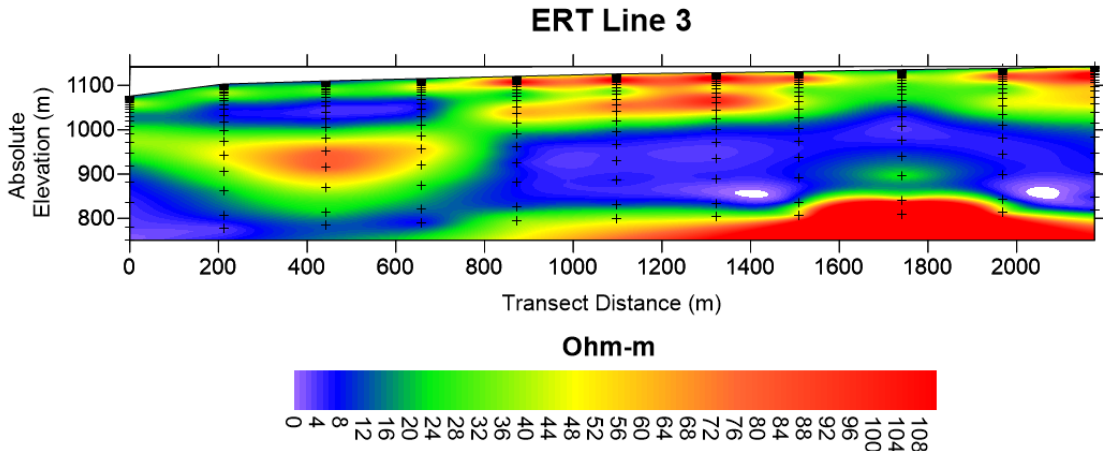
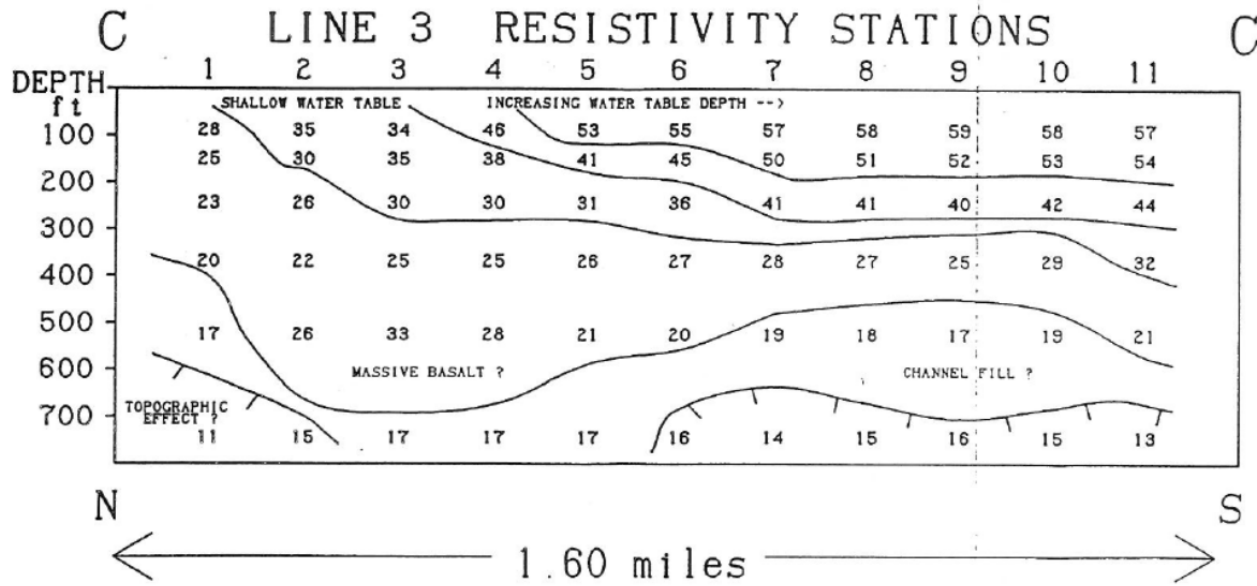


Figure B - 4. 1989 Schlumberger resistivity soundings apparent resistivity values (ohm-m) plotted as a pseudo-section for Line 3 (top). These data were later inverted as a series of 1D soundings and combined into a 2D color contour plot in 2017 (bottom).

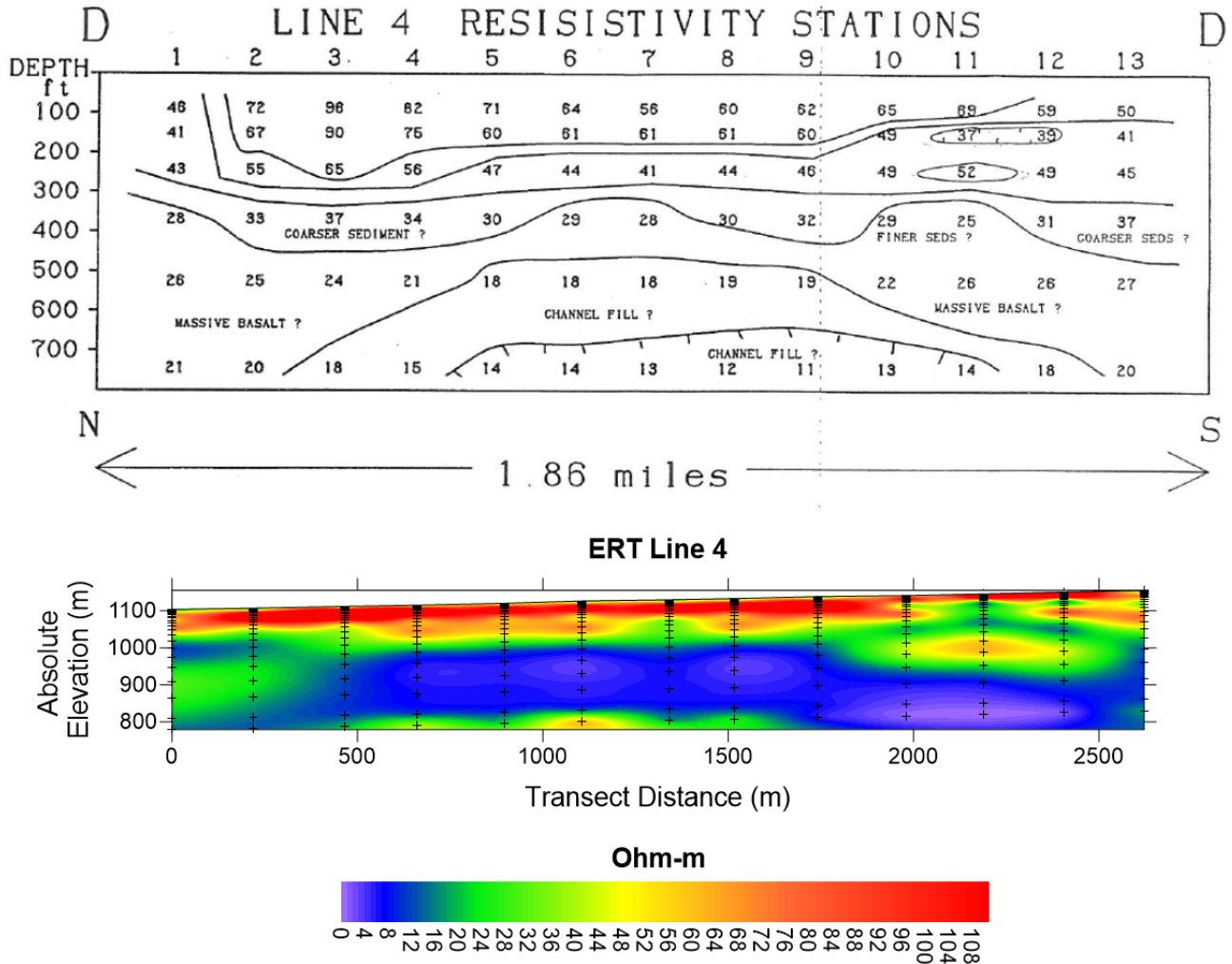


Figure B - 5. 1989 Schlumberger resistivity soundings apparent resistivity values (ohm-m) plotted as a pseudo-section for Line 4 (top). These data were later inverted as a series of 1D soundings and combined into a 2D color contour plot in 2017 (bottom).

## ATTACHMENT 1 - PROPOSAL COVER SHEET

### “AEM SURVEY FOR UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT”

Name of Firm (Tax Filing):	Street Address:
	E-mail Address:
Federal Tax ID or SS No.:	Telephone No.:
<p>Business Designation (check one):</p> <p> <input type="checkbox"/> Corporation (what state? _____)                     <input type="checkbox"/> Partnership                     <input type="checkbox"/> Sole Proprietorship  <input type="checkbox"/> Professional Corporation                     <input type="checkbox"/> Limited Partnership                     <input type="checkbox"/> Other _____  <input type="checkbox"/> Limited Liability Company                     <input type="checkbox"/> Limited Liability Partnership             </p>	
<p>The individual signing on behalf of Proposer has the authority to bind Proposer, and certifies that Proposer possesses, or has the ability to obtain, all necessary permits and licenses to perform the Work; and hereby accepts on Proposer's behalf, all terms and conditions contained in this Request for Proposal(s) for <b><i>“AEM Survey for Upper John Day Aquifer Characteristics Project”</i></b>, and the attached sample Contract.</p>	
Signature of Authorized Representative:	Date:
Printed Name of Authorized Representative:	Title:
<p><b>**List all Addenda of the RFP Received:</b></p>   	











## ATTACHMENT 3 - PRICE PROPOSAL & MANDATORIES CERTIFICATION FORM

(Page 1 of 3)

### “AEM SURVEY FOR UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT”

The Bidder proposes to furnish all supplies, materials, equipment, and labor, and perform all Work for the District designated as **AEM SURVEY FOR UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT** for the lump sum and/or unit prices as follows:

Note: The Bidder shall specify the Bid item unit price (U.S. Dollars); both written out in words and in figures, in addition to providing the total item amount (unit price multiplied by the approximate quantity) and total extended amount (sum of all total item amounts) in figures. All words and figures shall be in ink or typed.

ITEM NO.	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE (U.S. Dollars)		TOTAL
				UNIT PRICE WRITTEN IN FIGURES	UNIT PRICE WRITTEN OUT IN WORDS	
1	Travel Costs, Mobilization & Demobilization of Equipment, Personnel, Materials, and Supplies to Project Location	All Required	Lump Sum	\$		\$
2	Conduct AEM Survey (Include Any and All Appropriate Subcontractor Fees)	2,961	Per Linear Km	\$		\$
3	AEM Data Processing and Inverse Modeling	2,961	Per Linear Km	\$		\$
4	AEM Surveying Weather/Wildfire Standby Rates	1 <sup>1</sup>	Per Day	\$		\$

<sup>1</sup> Please provide a field crew standby rate on a fixed-cost per-day basis. In the case of unforeseeable inclement weather or wildfire conditions (e.g., excessive wind or precipitation, lighting, wildfire smoke, lack of helicopter availability due to nearby wildfire re-prioritization or temporary groundings) the crew may be required to go on temporary standby until site conditions/circumstances allow for reasonable and safe flight and data collection. Every precaution should be taken by the Contractor to avoid poor weather conditions during scheduling of the survey/mobilization, and every reasonable effort should be made by the Contractor to avoid standby days due to impending weather or wildfire situations. However, if unpredicted weather or wildfire conditions result in standby status once mobilized to the project site, the Contractor should immediately contact the District point of contact to discuss the situation and to select the most appropriate course of action from the following: 1) extension of the trip via temporary standby under the same mobilization until all data is collected successfully, 2) demobilize the crew and re-mobilize at the next available/appropriate time to complete the full SOW, 3) submit a change-of scope request, and proceed with what data is available/already collected and decrease the cost and deliverables accordingly.

**TOTAL OF ITEMS 1 THROUGH 3 (Omit Standby Rate in Item 4) \$ \_\_\_\_\_**

**ATTACHMENT 3 (Page 2 of 3)**

**PRICE PROPOSAL & MANDATORIES CERTIFICATION FORM**

**“AEM SURVEY FOR UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT”**

**A. References:**

Please provide the reference name/entity, contact person, contact telephone number, and describe the nature of the work or services performed for each reference.

**Reference #1:**

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**Reference #2:**

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**B. Type and number of aircraft, aircraft history and equipment:**

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**C. List each pilot('s) name. Identify which pilot(s) are primary and which pilots are back-up:**

**Primary Pilot** = \_\_\_\_\_

**Back Up Pilot #1** = \_\_\_\_\_

**Back Up Pilot #2** = \_\_\_\_\_

**Back Up Pilot #3** = \_\_\_\_\_



# ATTACHMENT 4 - SAMPLE CONTRACT FORM

## “AEM SURVEY FOR UPPER JOHN DAY AQUIFER CHARACTERISTICS PROJECT”

### PROFESSIONAL SERVICES CONTRACT

“AEM Survey For Upper John Day Aquifer Characteristics Project”

THIS PROFESSIONAL SERVICES CONTRACT (the “Contract”) is between the Grant Soil and Water Conservation District, hereafter call “**District**”, and:

Vendor Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City, State Zip: \_\_\_\_\_  
 Phone: \_\_\_\_\_  
 Email: \_\_\_\_\_

Hereafter called “**Contractor**”. Collectively District and Contractor are referred to as the “**Parties**”.

District’s Contract Administrator for this Contract is:

Kyle Sullivan, District Manager  
 Grant Soil and Water Conservation District  
 721 South Canyon Boulevard  
 John Day, OR 97845  
 Telephone Number: (541) 575-0135 ext. 111  
 Email: sullivan@ortelco.net

**1. Contract Period.** This Contract shall become effective on the date this Contract has been fully executed by the Parties. Unless extended or terminated earlier in accordance with its terms, this Contract shall terminate when District accepts Contractor’s completed performance or #####, whichever date occurs first. Contract termination shall not extinguish or prejudice District’s right to enforce this Contract with respect to any default by Contractor that has not been cured.

**2. Statement of Work.** Contractor shall perform the work (the “Work”) as set forth in the Statement of Work, which includes the delivery schedule for such Work, and that is attached hereto as **Exhibit A**. Contractor shall perform the Work in accordance with the terms and conditions of this Contract.

**3. Consideration**

**a.** The maximum, not-to-exceed compensation payable to Contractor under this Contract, which includes any allowable expenses, is **\$000.00**. District will not pay Contractor any amount in excess of the not-to-exceed compensation of this Contract for completing the Work, and will not pay for Work performed before the date this Contract becomes effective or after the termination of this Contract. If the maximum compensation is increased by amendment of this Contract, the amendment must be fully effective before Contractor performs Work subject to the amendment.

**b.** Interim payments to Contractor shall be subject to ORS 293.462, and shall be made in accordance with the payment schedule and requirements in **Exhibit A**.

**c.** District will pay only for completed Work that is accepted by District.

**d.** Contractor shall submit invoices to District for Work performed. The invoices shall describe all Work performed with particularity and by whom it was performed and shall itemize and explain all expenses that this Contract requires District to pay and for which Contractor claims reimbursement. Reference Exhibit A, Part V. for Contractor Compensation.

**4. Contract Documents.** This Contract consists of the following documents, which are listed in descending order of precedence: this Contract less all exhibits, attached Exhibit A (the Statement of Work), Exhibit B (Required Insurance), Exhibit C (Project Vicinity Map). Exhibits A-C are attached hereto and incorporated herein by this reference.

**5. Independent Contractor; Responsibility for Taxes and Withholding**

- a. Contractor shall perform all Work as an independent contractor. The District reserves the right (i) to determine and modify the delivery schedule for the Work and (ii) to evaluate the quality of the Work Product, however, the District may not and will not control the means or manner of Contractor's performance. Contractor is responsible for determining the appropriate means and manner of performing the Work.
- b. If Contractor is currently performing work for the State of Oregon or the federal government, Contractor by signature to this Contract, represents and warrants that: Contractor's Work to be performed under this Contract creates no potential or actual conflict of interest as defined by ORS 244 and no statutes, rules or regulations of the state or federal agency for which Contractor currently performs work would prohibit Contractor's Work under this Contract.
- c. Contractor understands and agrees that it is not an "officer", "employee", or "agent" of the State of Oregon or District, as those terms are used in ORS 30.265.
- d. Contractor shall be responsible for all federal or state taxes applicable to compensation or payments paid to Contractor under this Contract and, unless Contractor is subject to backup withholding, District will not withhold from such compensation or payments any amount(s) to cover Contractor's federal or state tax obligations. Contractor is not eligible for any social security, unemployment insurance or workers' compensation benefits from compensation or payments paid to Contractor under this Contract, except as a self-employed individual.

**6. Subcontracts, Successors, and Assignments**

- a. Contractor shall not enter into any subcontracts for any of the Work required by this Contract without District's prior written consent. In addition to any other provisions District may require, Contractor shall include in any permitted subcontract under this Contract provisions to ensure that District will receive the benefit of subcontractor performance as if the subcontractor were the Contractor with respect to Sections 5, 6, 7, 9, 10, 11, 14, 15, 16, 18, and 23. District's consent to any subcontract shall not relieve Contractor of any of its duties or obligations under this Contract.
- b. The provisions of this Contract shall be binding upon and inure to the benefit of the parties, their respective successors, and permitted assigns, if any.
- c. Contractor shall not assign, delegate or transfer any of its rights or obligations under this Contract without District's prior written consent.

**7. No Third Party Beneficiaries.** District and Contractor are the only parties to this Contract and are the only parties entitled to enforce the terms of this Contract. Nothing in this Contract gives, is intended to give, or shall be construed to give or provide any benefit or right not held by or made generally available to the public, whether directly, indirectly or otherwise, to third persons unless such third persons are individually identified by name herein and expressly described as intended beneficiaries of the terms of this Contract.

**8. Funds Available and Authorized; Payments.** Contractor shall not be compensated for Work performed under this Contract by any other agency or department of the State of Oregon. District certifies that it has sufficient funds currently authorized for expenditure to finance the costs of this Contract. Contractor understands and agrees that District's payment of amounts under this Contract is contingent on District receiving appropriations, limitations, allotments or other expenditure authority sufficient to allow District, in the exercise of its reasonable administrative discretion, to continue to make payments under this Contract.

**9. Representations and Warranties.**

- a. **Contractor's Representations and Warranties.** Contractor represents and warrants to District that (1) Contractor has the power and authority to enter into and perform this Contract, (2) this Contract, when executed and delivered, shall be a valid and binding obligation of Contractor enforceable in accordance with its terms, (3) Contractor has the skill and knowledge possessed by well-informed members of its industry, trade or profession and Contractor will apply that skill and knowledge with care and diligence to perform the Work in a professional manner and in accordance with standards prevalent in Contractor's industry, trade or profession, (4) Contractor shall, at all times during the term of this Contract, be qualified, professionally competent, and duly licensed to perform the Work, (5) all computer hardware and software delivered under this Contract will, individually and in combination, correctly process, sequence, and calculate all date and date-related data for all dates prior to, through and after January 1, 2000, (6) any software products delivered under this Contract that process date or date-related data shall recognize, store and transmit date data in a format which explicitly and unambiguously specifies the correct century, and (7) Contractor prepared its proposal related to this Contract, if any, independently from all other proposers, and without collusion, fraud, or other dishonesty.
- b. **Warranties cumulative.** The warranties set forth in this section are in addition to, and not in lieu of, any other warranties provided.

**10. Ownership of Work Product.**

- a. **Definitions.** As used in this Section 10, and elsewhere in this Contract, the following terms have the meanings set forth below:
  - (i) "Contractor Intellectual Property" means any intellectual property owned by Contractor and developed independently from the Work.
  - (ii) "Third Party Intellectual Property" means any intellectual property owned by parties other than District or Contractor.
  - (iii) "Work Product" means every invention, discovery, work of authorship, trade secret or other tangible or intangible item and all intellectual property rights therein that Contractor is required to deliver to District pursuant to the Work.
- b. **Original Works.** All Work Product created by Contractor pursuant to the Work, including derivative works and compilations, and

whether or not such Work Product is considered a work made for hire or an employment to invent, shall be the exclusive property of District. District and Contractor agree that such original works of authorship are “work made for hire” of which District is the author within the meaning of the United States Copyright Act. If for any reason the original Work Product created pursuant to the Work is not “work made for hire,” Contractor hereby irrevocably assigns to District any and all of its rights, title, and interest in all original Work Product created pursuant to the Work, whether arising from copyright, patent, trademark, trade secret, or any other state or federal intellectual property law or doctrine. Upon District’s reasonable request, Contractor shall execute such further documents and instruments necessary to fully vest such rights in District. Contractor forever waives any and all rights relating to original Work Product created pursuant to the Work, including without limitation, any and all rights arising under 17 USC §106A or any other rights of identification of authorship or rights of approval, restriction or limitation on use or subsequent modifications.

In the event that Work Product created by Contractor under this Contract is a derivative work based on Contractor Intellectual Property, or is a compilation that includes Contractor Intellectual Property, Contractor hereby grants to District an irrevocable, non-exclusive, perpetual, royalty-free license to use, reproduce, prepare derivative works based upon, distribute copies of, perform and display the pre-existing elements of the Contractor Intellectual Property employed in the Work Product, and to authorize others to do the same on Agency’s behalf.

**c. Contractor Intellectual Property.** In the event that Work Product is Contractor Intellectual Property Contractor hereby grants to District an irrevocable, non-exclusive, perpetual, royalty-free license to use, reproduce, prepare derivative works based upon, distribute copies of, perform and display the Contractor Intellectual Property, and to authorize others to do the same on District’s behalf.

**d. Third Party Works.** In the event that Work Product is Third Party Intellectual Property, Contractor shall secure on the District’s behalf and in the name of the District, an irrevocable, non-exclusive, perpetual, royalty-free license to use, reproduce, prepare derivative works based upon, distribute copies of, perform and display the Third Party Intellectual Property, and to authorize others to do the same on District’s behalf.

#### **11. Indemnity.**

**a. GENERAL INDEMNITY.** CONTRACTOR SHALL DEFEND, SAVE, HOLD HARMLESS, AND INDEMNIFY THE STATE OF OREGON AND DISTRICT AND THEIR OFFICERS, EMPLOYEES AND AGENTS FROM AND AGAINST ALL CLAIMS, SUITS, ACTIONS, LOSSES, DAMAGES, LIABILITIES, COSTS AND EXPENSES OF ANY NATURE WHATSOEVER, INCLUDING ATTORNEYS FEES, RESULTING FROM, ARISING OUT OF, OR RELATING TO THE ACTIVITIES OF CONTRACTOR OR ITS OFFICERS, EMPLOYEES, SUBCONTRACTORS, OR AGENTS UNDER THIS CONTRACT.

**b. INDEMNITY FOR INFRINGEMENT CLAIMS.** WITHOUT LIMITING THE GENERALITY OF SECTION 11.a, CONTRACTOR EXPRESSLY AGREES TO DEFEND, INDEMNIFY, AND HOLD DISTRICT, THE STATE OF OREGON AND THEIR AGENCIES, SUBDIVISIONS, OFFICERS, DIRECTORS, AGENTS, AND EMPLOYEES HARMLESS FROM ANY AND ALL CLAIMS, SUITS, ACTIONS, LOSSES, LIABILITIES, COSTS, EXPENSES, INCLUDING ATTORNEYS FEES, AND DAMAGES ARISING OUT OF OR RELATED TO ANY CLAIMS THAT THE WORK, THE WORK PRODUCT OR ANY OTHER TANGIBLE OR INTANGIBLE ITEMS DELIVERED TO DISTRICT BY CONTRACTOR THAT MAY BE THE SUBJECT OF PROTECTION UNDER ANY STATE OR FEDERAL INTELLECTUAL PROPERTY LAW OR DOCTRINE, OR THE DISTRICT’S USE THEREOF, INFRINGES ANY PATENT, COPYRIGHT, TRADE SECRET, TRADEMARK, TRADE DRESS, MASK WORK, UTILITY DESIGN, OR OTHER PROPRIETARY RIGHT OF ANY THIRD PARTY; PROVIDED, THAT STATE SHALL PROVIDE CONTRACTOR WITH PROMPT WRITTEN NOTICE OF ANY INFRINGEMENT CLAIM.

**c. CONTROL OF DEFENSE AND SETTLEMENT.** CONTRACTOR SHALL HAVE CONTROL OF THE DEFENSE AND SETTLEMENT OF ANY CLAIM THAT IS SUBJECT TO SECTIONS 11.a OR 11.b; HOWEVER, NEITHER CONTRACTOR NOR ANY ATTORNEY ENGAGED BY CONTRACTOR SHALL DEFEND THE CLAIM IN THE NAME OF THE STATE OF OREGON OR ANY AGENCY OF THE STATE OF OREGON, NOR PURPORT TO ACT AS LEGAL REPRESENTATIVE OF THE STATE OF OREGON OR ANY OF ITS AGENCIES, WITHOUT FIRST RECEIVING FROM THE OREGON ATTORNEY GENERAL, IN A FORM AND MANNER DETERMINED APPROPRIATE BY THE ATTORNEY GENERAL, AUTHORITY TO ACT AS LEGAL COUNSEL FOR THE STATE OF OREGON, NOR SHALL CONTRACTOR SETTLE ANY CLAIM ON BEHALF OF THE STATE OF OREGON WITHOUT THE APPROVAL OF THE ATTORNEY GENERAL. THE STATE OF OREGON MAY, AT ITS ELECTION AND EXPENSE, ASSUME ITS OWN DEFENSE AND SETTLEMENT IN THE EVENT THAT THE STATE OF OREGON DETERMINES THAT CONTRACTOR IS PROHIBITED FROM DEFENDING THE STATE OF OREGON, OR IS NOT ADEQUATELY DEFENDING THE STATE OF OREGON’S INTERESTS, OR THAT AN IMPORTANT GOVERNMENTAL PRINCIPLE IS AT ISSUE AND THE STATE OF OREGON DESIRES TO ASSUME ITS OWN DEFENSE.

**12. Insurance.** Contractor shall maintain insurance as set forth in **Exhibit B**, which is attached hereto.

#### **13. Default; Remedies; Termination.**

**a. Default by Contractor.** Contractor shall be in default under this Contract if:

(i) Contractor institutes or has instituted against it insolvency, receivership or bankruptcy proceedings, makes an assignment for the benefit of creditors, or ceases doing business on a regular basis; or

(ii) Contractor no longer holds a license or certificate that is required for Contractor to perform its obligations under the Contract and Contractor has not obtained such license or certificate within fourteen (14) calendar days after District’s notice or such longer period as District may specify in such notice; or

(iii) Contractor commits any material breach or default of any covenant, warranty, obligation or agreement under this Contract, fails to perform the Work under this Contract within the time specified herein or any extension thereof, or so fails to pursue the Work as to endanger Contractor's performance under this Contract in accordance with its terms, and such breach, default or failure is not cured within fourteen (14) calendar days after District’s notice, or such longer period as District may specify in such notice.

**b. District’s Remedies for Contractor’s Default.** In the event Contractor is in default under Section 13.a, District may, at its option, pursue any or all of the remedies available to it under this Contract and at law or in equity, including, but not limited to:

- (i) termination of this Contract under Section 13.e(ii);
- (ii) withholding all monies due for Work and Work Products that Contractor has failed to deliver within any scheduled completion dates or has performed inadequately or defectively;
- (iii) initiation of an action or proceeding for damages, specific performance, or declaratory or injunctive relief; or
- (iv) exercise of its right of setoff.

These remedies are cumulative to the extent the remedies are not inconsistent, and District may pursue any remedy or remedies singly, collectively, successively or in any order whatsoever. If a court determines that Contractor was not in default under Sections 13.a, then Contractor shall be entitled to the same remedies as if this Contract was terminated pursuant to Section 13.e(i).

**c. Default by District.** District shall be in default under this Contract if:

- (i) District fails to pay Contractor any amount pursuant to the terms of this Contract, and District fails to cure such failure within thirty (30) calendar days after Contractor's notice or such longer period as Contractor may specify in such notice; or
- (ii) District commits any material breach or default of any covenant, warranty, or obligation under this Contract, and such breach or default is not cured within thirty (30) calendar days after Contractor's notice or such longer period as Contractor may specify in such notice.

**d. Contractor's Remedies for District's Default.** In the event District terminates the Contract under Section 13.e(i), or in the event District is in default under Section 13.c and whether or not Contractor elects to exercise its right to terminate the Contract under Section 13.e(iii), Contractor's sole monetary remedy shall be (a) with respect to services compensable on an hourly basis, a claim for unpaid invoices, hours worked within any limits set forth in this Contract but not yet billed, authorized expenses incurred and interest within the limits permitted under ORS 293.462, and (b) with respect to deliverable-based Work, a claim for the sum designated for completing the deliverable multiplied by the percentage of Work completed and accepted by District, less previous amounts paid and any claim(s) that District has against Contractor. In no event shall District be liable to Contractor for any expenses related to termination of this Contract or for anticipated profits. If previous amounts paid to Contractor exceed the amount due to Contractor under this Section 13.d, Contractor shall pay immediately any excess to District upon written demand provided in accordance with Section 20.

**e. Termination.**

**(i) District's Right to Terminate at its Discretion.** At its sole discretion, District may terminate this Contract:

- (A) For its convenience upon thirty (30) days' prior written notice by District to Contractor;
- (B) Immediately upon written notice if District fails to receive funding, appropriations, limitations, allotments or other expenditure authority at levels sufficient to pay for the Work or Work Products; or
- (C) Immediately upon written notice if federal or state laws, regulations, or guidelines are modified or interpreted in such a way that the District's purchase of the Work or Work Products under this Contract is prohibited or District is prohibited from paying for such Work or Work Products from the planned funding source.

**(ii) District's Right to Terminate for Cause.** In addition to any other rights and remedies District may have under this Contract, District may terminate this Contract immediately upon written notice by District to Contractor, or at such later date as District may establish in such notice, or upon expiration of the time period and with such notice as provided in Section 13.e(ii)(B) and 13.e(ii)(C) below, upon the occurrence of any of the following events:

- (A) Contractor is in default under Section 13.a(i) because Contractor institutes or has instituted against it insolvency, receivership or bankruptcy proceedings, makes an assignment for the benefit of creditors, or ceases doing business on a regular basis;
- (B) Contractor is in default under Section 13.a(ii) because Contractor no longer holds a license or certificate that is required for it to perform services under the Contract and Contractor has not obtained such license or certificate within fourteen (14) calendar days after District's notice or such longer period as District may specify in such notice; or
- (C) Contractor is in default under Section 13.a(iii) because Contractor commits any material breach or default of any covenant, warranty, obligation or agreement under this Contract, fails to perform the Work under this Contract within the time specified herein or any extension thereof, or so fails to pursue the Work as to endanger Contractor's performance under this Contract in accordance with its terms, and such breach, default or failure is not cured within 14 calendar days after District's notice, or such longer period as District may specify in such notice.

**(iii) Contractor's Right to Terminate for Cause.** Contractor may terminate this Contract with such written notice to District as provided in Sections 13.e(iii)(A) and 13.e(iii)(B) below, or at such later date as Contractor may establish in such notice, upon the occurrence of the following events:

- (A) District is in default under Section 13.c(i) because District fails to pay Contractor any amount pursuant to the terms of this Contract, and District fails to cure such failure within thirty (30) calendar days after Contractor's notice or such longer period as Contractor may specify in such notice; or
- (B) District is in default under Section 13.c(ii) because District commits any material breach or default of any covenant, warranty, or obligation under this Contract, fails to perform its commitments hereunder within the time specified or any extension thereof, and District fails to cure such failure within thirty (30) calendar days after Contractor's notice or such longer period as Contractor may specify in such notice.

**(iv) Return of Property.** Upon termination of this Contract for any reason whatsoever, Contractor shall immediately deliver to District all of District's property (including without limitation any Work or Work Products for which District has made payment in whole or in part) that is in the possession or under the control of Contractor in whatever stage of development and form of recordation such District property is expressed or embodied at that time. Upon receiving a notice of termination of this Contract, Contractor shall immediately cease all activities under this Contract, unless District expressly directs otherwise in such notice of



termination. Upon District's request, Contractor shall surrender to anyone District designates, all documents, research or objects or other tangible things needed to complete the Work and the Work Products.

**14. Records Maintenance; Access.** Contractor shall maintain all financial records relating to this Contract in accordance with generally accepted accounting principles. In addition, Contractor shall maintain any other records pertinent to this Contract in such a manner as to clearly document Contractor's performance. Contractor acknowledges and agrees that District and the Oregon Secretary of State's Office and the federal government and their duly authorized representatives shall have access to such financial records and other books, documents, papers, plans, records of shipments and payments and writings of Contractor that are pertinent to this Contract, whether in paper, electronic or other form, to perform examinations and audits and make excerpts and transcripts. Contractor shall retain and keep accessible all such financial records, books, documents, papers, plans, records of shipments and payments and writings for a minimum of six (6) years, or such longer period as may be required by applicable law, following final payment and termination of this Contract, or until the conclusion of any audit, controversy or litigation arising out of or related to this Contract, whichever date is later.

**15. Compliance with Applicable Law.** Contractor shall comply with all federal, state and local laws, regulations, executive orders and ordinances applicable to the Contract. The District's performance under the Contract is conditioned upon Contractor's compliance with the provisions of ORS 279B.220, 279B.225 (if applicable to this Contract), 279B.230, and 279B.235 (if applicable to this Contract, which are incorporated into this Contract by reference. Contractor shall, to the maximum extent economically feasible in the performance of this Contract, use recycled paper (as defined in ORS 279A.010(ee)), recycled PETE products (as defined in ORS 279A.010(ff)), and other recycled products (as "recycled product" is defined in ORS 279A.010(gg)).

**16. Foreign Contractor.** If Contractor is not domiciled in or registered to do business in the State of Oregon, Contractor shall promptly provide to the Oregon Department of Revenue and the Secretary of State Corporation Division all information required by those agencies relative to this Contract. Contractor shall demonstrate its legal capacity to perform the Work under this Contract in the State of Oregon prior to entering into this Contract.

**17. Force Majeure.** Neither District nor Contractor shall be held responsible for delay or default caused by fire, riot, acts of God, terrorist acts, or other acts of political sabotage, or war where such cause was beyond the reasonable control of District or Contractor, respectively. Contractor shall, however, make all reasonable efforts to remove or eliminate such a cause of delay or default and shall, upon the cessation of the cause, diligently pursue performance of its obligations under this Contract.

**18. Survival.** All rights and obligations shall cease upon termination or expiration of this Contract, except for the rights and obligations set forth in Sections 1, 7, 8, 9, 10, 11, 12, 13, 14, 18, 23, and 24.

**19. Time is of the Essence.** Contractor agrees that time is of the essence under this Contract.

**20. Notice.** Except as otherwise expressly provided in this Contract, any communications between the parties hereto or notices to be given hereunder shall be given in writing by email, personal delivery, facsimile, or mailing the same, postage prepaid, to Contractor or District at the address, number or email address set forth in this Contract, or to such other addresses or numbers as either party may indicate pursuant to this Section 21. Any communication or notice so addressed and mailed shall be effective five (5) days after mailing. Any communication or notice delivered by facsimile shall be effective on the day the transmitting machine generates a receipt of the successful transmission, if transmission was during normal business hours, or on the next business day, if transmission was outside normal business hours of the recipient. To be effective against District, any notice transmitted by facsimile must be confirmed by telephone notice to District's Contract Administrator. Any communication or notice given by personal delivery shall be effective when actually delivered. Any communication or notice given by email shall be effective upon the sender's receipt of confirmation generated by the recipient's email system that the notice has been received by the recipient's email system.

**21. Severability.** The parties agree that if any term or provision of this Contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the Contract did not contain the particular term or provision held to be invalid.

**22. Counterparts.** This Contract may be executed in several counterparts, all of which when taken together shall constitute one agreement binding on all parties, notwithstanding that all parties are not signatories to the same counterpart. Each copy of the Contract so executed shall constitute an original.

**23. Governing Law; Venue; Consent to Jurisdiction.** This Contract shall be governed by and construed in accordance with the laws of the State of Oregon without regard to principles of conflicts of law. Any claim, action, suit or proceeding (collectively, "Claim") between District (and/or any other agency or department of the State of Oregon) and Contractor that arises from or relates to this Contract shall be brought and conducted solely and exclusively within the Circuit Court of Marion County for the State of Oregon; provided, however, if a Claim must be brought in a federal forum, then it shall be brought and conducted solely and exclusively within the United States District Court for the District of Oregon. In no event shall this section be construed as a waiver by the State of Oregon of any form of defense or immunity, whether it is sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of

the United States or otherwise, from any Claim or from the jurisdiction of any court. CONTRACTOR, BY EXECUTION OF THIS CONTRACT, HEREBY CONSENTS TO THE IN PERSONAM JURISDICTION OF SAID COURTS.

**24. Merger Clause; Waiver.** This Contract and attached exhibits constitute the entire agreement between the parties on the subject matter hereof. There are no understandings, agreements, or representations, oral or written, not specified herein regarding this Contract. No waiver, consent, modification or change of terms of this Contract shall bind all parties unless in writing and signed by both parties and all necessary State approvals have been obtained. Such waiver, consent, modification or change, if made, shall be effective only in the specific instance and for the specific purpose given. The failure of District to enforce any provision of this Contract shall not constitute a waiver by District of that or any other provision.

**25. Amendments.**

District may amend this Contract to the extent permitted by applicable statutes and administrative rules. Additionally, for Anticipated Amendments District may amend this Contract to the extent i) provided in the solicitation document, if any, from which this Contract arose, and ii) to the extent described in Exhibit A. No amendment to this Contract shall be effective unless it is in writing signed by the parties, and all approvals required by applicable law have been obtained before becoming effective.

**26. Contractor Data and Certification.**

**a. Contractor Tax Identification Information.** Contractor shall provide Contractor's Social Security number or Contractor's federal tax ID number and the additional information set forth below. This information is requested pursuant to ORS 305.385. Social Security Numbers provided pursuant to this Section will be used for the administration of state, federal and local tax laws.

Name (tax filing):

Address:

Citizenship, if applicable: Non-resident alien ( ) Yes ( ) No

Business Designation (check one):

( ) Professional Corporation ( ) Partnership ( ) Limited Partnership ( ) Limited Liability Company  
( ) Limited Liability Partnership ( ) Sole Proprietorship ( ) Other

Federal Tax ID#: \_\_\_\_\_-\_\_\_\_\_ or SSN#: \_\_\_\_\_-\_\_\_\_\_

District may report the information set forth above to the Internal Revenue Service (IRS) under the name and social security number or taxpayer identification number provided.

**b. Certification.** The individual signing on behalf of Contractor hereby certifies and swears under penalty of perjury that: (a) the number shown on this form is Contractor's correct taxpayer identification; (b) Contractor is not subject to backup withholding because (i) Contractor is exempt from backup withholding, (ii) Contractor has not been notified by the IRS that Contractor is subject to backup withholding as a result of a failure to report all interest or dividends, or (iii) the IRS has notified Contractor that Contractor is no longer subject to backup withholding; (c) s/he is authorized to act on behalf of Contractor, s/he has authority and knowledge regarding Contractor's payment of taxes, and to the best of her/his knowledge, Contractor is not in violation of any Oregon tax laws named in ORS 305.380(4), including without limitation the state inheritance tax, gift tax, personal income tax, withholding tax, corporation income and excise taxes, amusement device tax, timber taxes, cigarette tax, other tobacco tax, 9-1-1 emergency communications tax, the homeowners and renters property tax relief program and local taxes administered by the Department of Revenue, including the Multnomah County Business Income Tax, Lane Transit District Tax, Tri-Metropolitan Transit District Employer Payroll Tax, and Tri-Metropolitan District Self-Employment Tax; (d) Contractor is an independent contractor as defined in ORS 670.600; and (e) the supplied Contractor data is true and accurate.

CONTRACTOR, BY EXECUTION OF THIS CONTRACT, HEREBY ACKNOWLEDGES THAT CONTRACTOR HAS READ THIS CONTRACT, UNDERSTANDS IT, AND AGREES TO BE BOUND BY ITS TERMS AND CONDITIONS.

**CONTRACTOR**

By: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

**DISTRICT**

By: \_\_\_\_\_ Title: District Manager Date: \_\_\_\_\_  
                    Kyle Sullivan