

## **Oro Hondo Fan Backup**

### **Questions & Answers**

- 1) Does the Spendrup fan go away and what is the shutdown window?

For the Spendrup fan please review section 5.2.1 OHFC Construction Boundary and Constraints specifically “Purple Area”: Secondary Spendrup fan and VFD building. This fan and building shall be removed and disposed of and is not required to function or exist upon project completion. While not a project requirement, SDSTA would like to keep the Spendrup fan operational as long as possible during construction.

For the shutdown outage window please review section 5.2.2 OHFC Outage Restrictions During Installation: To reduce the impact to underground operations, offerors must limit powered ventilation outages to no more than 72 hours at a time. Multiple 72-hour outages during the installation are allowed with a minimum of 14 days between each outage. Work shall be performed 24 hours/day during any ventilation outage. Outages must be built into the offerors project schedule. A minimum of two weeks’ notice must be provided if changes to scheduled outages are needed. Additionally, if multiple 72 hour outages are needed back to back SDSTA/FRA may be open to taking a much longer single outage to complete all the needed work. However, the outage window will be underground construction schedule dependent and will require much more coordination and planning.

- 2) Instead of the duct bank can contractor do directional bore?

Yes, if it meets NEC codes and an inner duct is installed for all runs.

- 3) How much CFM is coming out of the fan?

The current operational point of the fan will increase significantly from what it is today. All proposed fans must operate at the points (and constraints) called out in the “Bid Specification Package for The Oro Hondo Backup Fan” (Appendix B of the RFP) that was created by Ventilation Innovation for this project.

- 4) What are the minimum requirements needed for site security/access during the project?

Please review section 11.0 Additional Requirements listed in the RFP which references the SDSTA’s Division 1 specifications (Exhibit 12). Specifically:

- Exhibit 12 Section 2.1 (2.1.1 Barricades): Erect and maintain temporary barricades to limit public access to hazardous areas. Whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic barricades will be required. Securely place barricades clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

- Exhibit 12 Section 3.4 (3.4.3 Security Provisions): Provide adequate outside security lighting at the Contractor's temporary facilities. The Contractor will be responsible for the security of its own equipment.

- 5) Substation – Extent of abandon in place for one of the 69kv to 2300 v existing American Davidson Fan transformers (just pull fuses or something else)?

Just pulling fuses is acceptable.

- 6) Is contractor responsible to do grounding on transformer during construction?

Yes as per contractor safety plan. SDSTA will assist the contractor in lock out tag out of electrical equipment. However, as part of the contractors own electrical safety program they should be responsible for installing their own grounding before working on the de energized equipment.

- 7) What is the cut off point for removing the powerline wires going back to the switchgear during demo?

Offeror's shall remove the wires all the way back to and inside the transfer switch at the base of the powerline.

- 8) Are we allowed to take down the fence at the substation for directional boring?

Fencing may be taken down. However, old perimeter fencing that is removed may not be reused and will need to be removed and disposed of and replaced with new. Additionally, all construction debris/waste generated from demolition or installation as part of this project shall be removed and disposed of by the offeror.

- 9) Does the power pole within the substation fenced perimeter need to be demoed? If so, how long of an outage will SDSTA allow at the substation so it can be removed safely?

The twin power pole inside the substation can stay. Conductors and hardware on this pole shall be removed to the extent that does not require an outage at the substation level.

- 10) How should the overhead communication line be handled that runs overhead to the substation from the pole just outside the substation fence line?

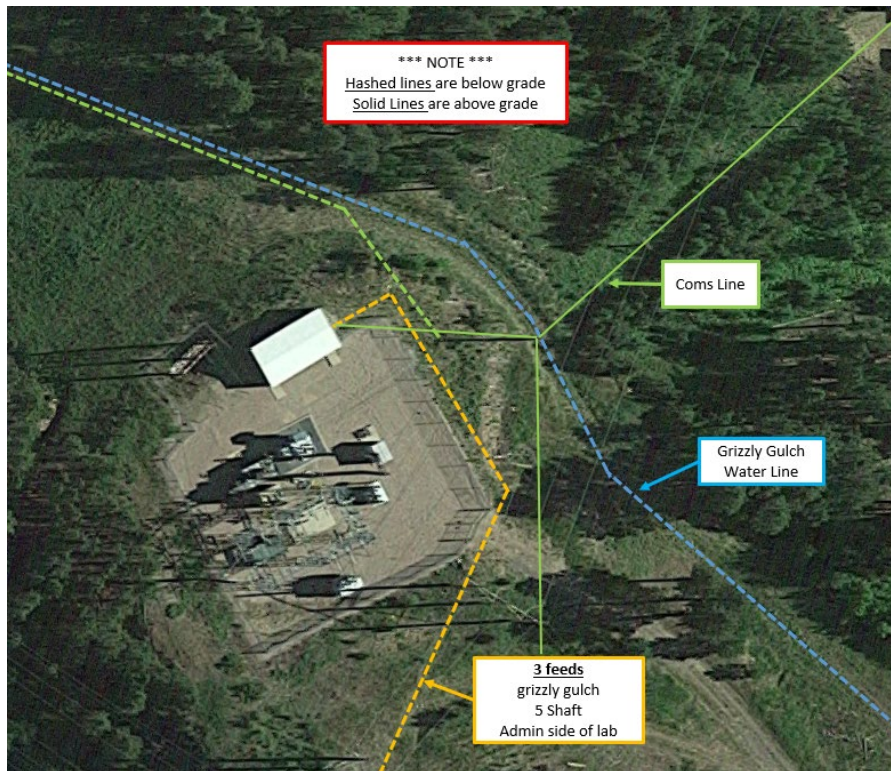
Please see the graphics below. The overhead communication line coming from substation building to the power pole shall be installed according to bid documents with the addition of a grade level junction box on the bench just outside the perimeter fencing. The junction box shall consist of appropriately sized PVC conduit with PVC coated rigid galvanized conduit (RGC) elbows with a polymer concrete Quazite box rated for overhead traffic. The power pole outside the substation fence shall remain as a communication pathway for the other overhead

communications lines that are not part of this project. The power conductors and hardware shall be removed from this pole communication lines shall remain.

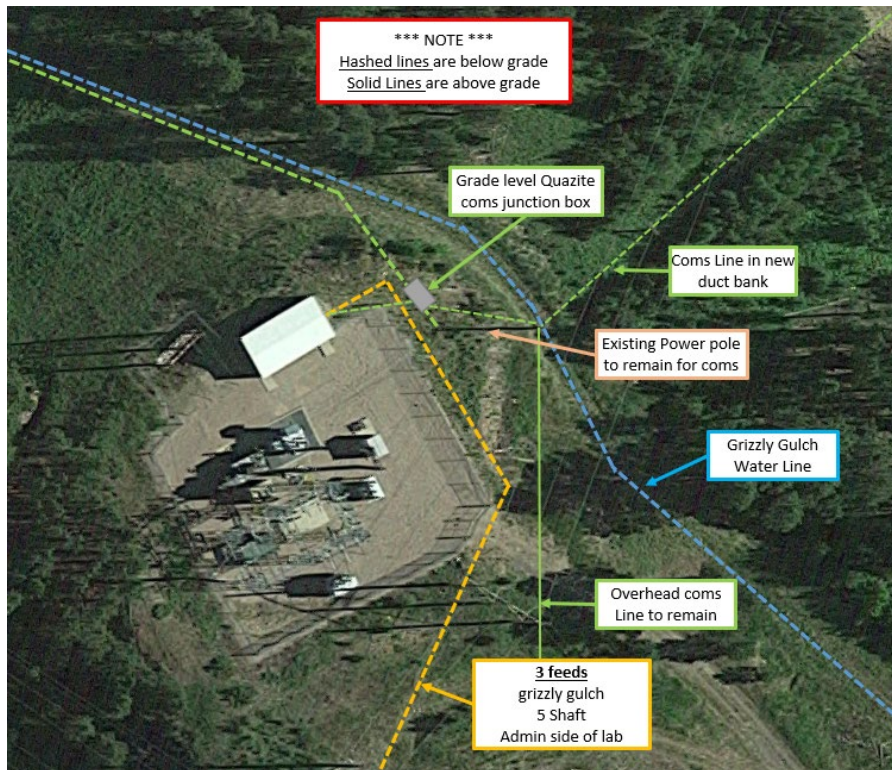
Coms Line highlighted in yellow



Existing Condition



After Construction (layout provided for information purposes only, the final design may differ)



11) Is there a stub to get to existing conduit? (conduit to switch end of building)

At this time we are unsure.

12) Are you asking for a Synchronized motor? If so is it going to affect reactive power?

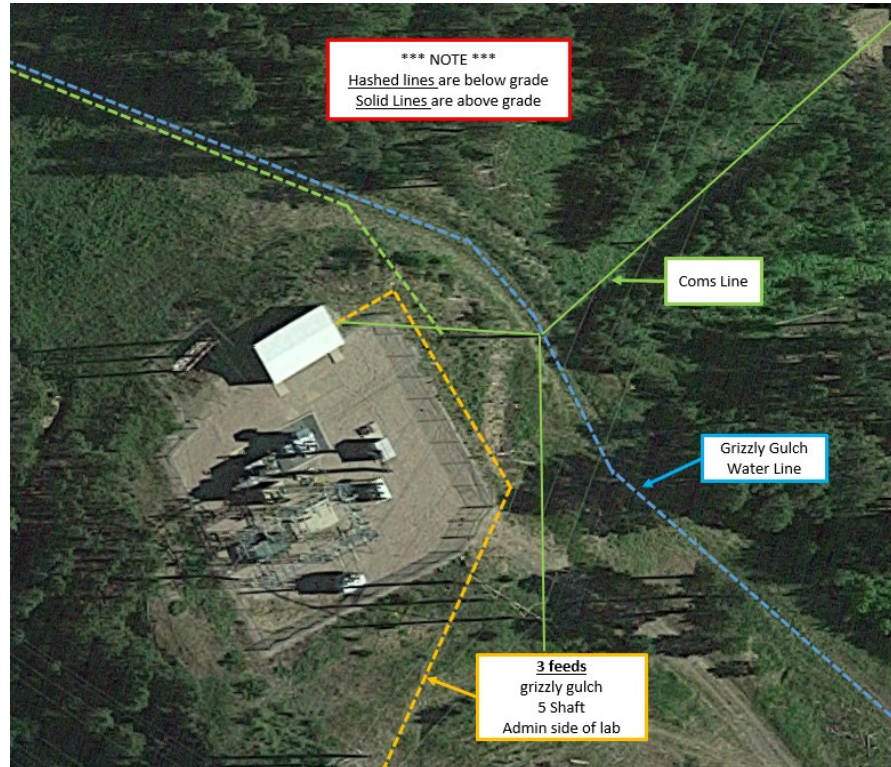
SDSTA is only specifying the drive type (Allen-Bradley Powerflex 7000). The Offeror shall select the motor option that best fits their fan package. The offeror is responsible for the complete design of this package. If power factor correction equipment is determined to be needed from the design process, then the offeror shall provide and install the needed equipment from the design.

13) What is the fan performance?

Please review the "Bid Specification Package for The Oro Hondo Backup Fan" (Appendix B of the RFP) that was created by Ventilation Innovation for this project that lists the fan performance requirements.

14) During the walkthrough it was found that there are 3 feeds of electrical lines and the Grizzly Gulch waterline that cross the path (below grade) of the planned duct bank location (see sketch below). After you review this can you provide some direction on the following:

Offeror's shall plan to field verify the depths and locations (during the design of the project) of the 3 electrical feeds, underground communication line and Grizzly Gulch water line to determine if the new duct bank path can go over, under, or around these lines. The Grizzly gulch water line has a 6ft bury depth. Offeror's shall field verify and adjust design accordingly for the new duct bank. The drawing below shows the approximate locations of these lines.



15) While the VFD rating/horsepower required will be determined by the Fan supplier, there are a number of other specific features that may be of importance to SDSTA. These specific features/options include things like:

- a. Input Contactor options for upstream
- b. Upstream Protection Relay design
- c. Upstream Power Quality Meter
- d. Power Supply ride through and/or Power Supply Redundancy
- e. N+1 Design (may not be necessary as this is already a redundant fan and VFD)
- f. Redundant main cooling fan.
- g. UPS ride through to keep controls up
- h. Integrated PLC controller in the Incomer section with inputs for
  - i. Drive Monitoring
  - ii. Motor RTDs
  - iii. Ventilation monitoring equipment
  - iv. Condition/Vibration Monitoring
- i. Secondary PanelView option for viewing ventilation monitoring system data and other drive and motor system information.

These are potential design preferences could be developed with SDSTA as a consultant in advance of the Fan supplier submitting their proposal. This would help ensure that SDSTA

would be receiving and reviewing proposals that utilize a standardized VFD specification that includes the design elements that are important to SDSTA. If Fan suppliers/Primes know that these good faith efforts have been made it would improve the quality of their submissions. This would in turn reduce the review efforts by SDSTA and minimize the number of change-order modifications after the fact.

From the RFP development we eliminated the requirement for the power quality meter and the only other requirements we have for monitoring were listed in Ventilation Innovation's supplied fan specification (copied section below)

(From Ventilation Innovation) section 4.4 Instrumentation

SDSTA uses the Maestro Digital Mine series of instrumentation throughout the facility, and will require any proposed fan installation to include this brand/type of instrumentation in order to provide a seamless integration into the existing SURF network.

Fan manufacturer shall provide remote monitoring capability and equipment where noted on the Fan Specification Data Sheet for the following items (at a minimum):

- Fan bearing vibration
- Fan and motor bearing temperature
- Motor winding temperature
- Fan static pressure
- Fan flow volume
- CO content of air at the fan (ppm)
- Inlet and outlet psychrometric data (barometric pressure, temperature and humidity)

Fan manufacturer shall provide a system capable of permanently recording or digitally archiving the fan monitoring data as listed above

- 16) Please confirm that the new back up fan needs to meet the same performance criteria as the primary American Davidson fan?

No, the new backup fan does not need to meet the same performance criteria as the primary American Davidson fan. However, the new fan must be capable of efficiently operating at the points called out in "Bid Specification Package for The Oro Hondo Backup Fan" (attached as Appendix B to the RFP on the website). This document also lists the required features of the new backup fan.

The information listed throughout the RFP relating to the American Davidson Fan was provided so transformers and electrical connections and switch gear could be properly sized.

- 17) The spec is leaning toward an Axial fan design, can a Centrifugal fan be used instead?

See question 19 also. Any solution that meets the technical requirements of the project will be considered. Any inference to the preference of a certain type of fan is inferred and entirely unintentional.

- 18) Will the backup fan to the new Primary spec be VFD controlled as well? If so will the VFD be purchased at a different time?

The new backup fan must be VFD controlled and capable of operating at the points called out in "Bid Specification Package for The Oro Hondo Backup Fan" (attached as Appendix B to the RFP on the website). The offeror shall provide a suitably sized VFD that complements the proposed fan as part of an all-inclusive fan package that will also be installed and commissioned by the offeror.

- 19) Can the existing Spendrup fan be upgraded to the primary requirements rather than replacing the Spendrup fan in its entirety?

The specification is intended to be descriptive rather than prescriptive: if the provider has a solution meeting all technical requirements as outlined in the bid document, that design/configuration will be given equal consideration in the bid selection process.

- 20) Will the Submittal Questions dead line be extended as well as the final due date for the full proposal? If so to when?

See Addendum 1

- 21) Would it be possible to extend the Q&A as well. This would allow all of us to better develop scope between principals and subs and develop meaningful questions for you and your team to evaluate. With this upcoming weekend being a holiday and many of us traveling this hinders our abilities to gather questions from our suppliers and subs.

See Addendum 1

- 22) What fan design Inlet density shall we use?

Fan inlet density is specified as 0.059 lb/ft<sup>3</sup>. Typical operating densities will range between 0.063 and 0.059 lb/ft<sup>3</sup>.

- 23) What are the durations of each operating point? Or shall the fan be able to operate at each of these duties at any given time?

Points 1 and 2 in the fan specification are transient, with an approximately duration of 1+ years each. Point 3 is the long-term steady-state target for fan operation, and this point should be prioritized in terms of efficiency/operation.

- 24) Which operating point shall we optimize the fan selection to?

See Question 24

- 25) Can we get the fan specification data sheet in Excel format?

The FSDS should be filled out and submitted in pdf format. The PDF is attached.

- 26) The specifications indicate 85 db site noise level. Is this to be interpreted as 85dbA at 1m and is this casing radiated noise?

The site noise level will apply to all noise sources associated with the fan; both internal and external. Fan housing radiated noise and airborne noise levels should both be controlled below 85 dB. Fan testing should comply with AMCA Standards 300 and 301.

- 27) Is there a requirement for airstream noise so we may properly determine if silencer is needed? If so please specify sound measurement location.

See question 27. Some tolerance to total sound pressure levels at or below 85 dB may be extended to the area outside of the secured (fenced) site area- (approximately 10-20m from the fan) at the ground level.

- 28) When looking at the exhibit 3- One line Oro Hondo sub to fan site, there is no interlock between American Davidson VFD and upstream SWGR. Please confirm that the new solution with VFD does not need an interlock between the new E-House and upstream 12 KV SWGR. An alternative solution would be to provide 12KV CB's at the fan site rather than fused disconnects.

No, an interlock is not needed.

- 29) Who are the local engineering firms that perform work on your property?

Ferber Engineering (John) John Van Beek [johnvanbeek@ferberengineering.com](mailto:johnvanbeek@ferberengineering.com)  
West Plains Engineering (Mike Sigman) Mike Sigman [Mike.Sigman@WestPlainsEngineering.com](mailto:Mike.Sigman@WestPlainsEngineering.com)  
TSP - Mark Averett ([averettmd@teamtsp.com](mailto:averettmd@teamtsp.com)).

- 30) Will there be any opportunity to ask additional questions as the engineering and design progresses for the project?

See Addendum 1