ADDENDUM NO. TWO

GRANGE CREEK IRRIGATION PUMP HOUSE

PROJECT NO. 22-33

CITY OF THORNTON, CO

TO: Prospective Bidders and all others concerned

DATE: December 14, 2023

PURPOSE: To provide additional information and clarification to the solicitation documents for the above-referenced Project.

1. The following questions and answers are provided for additional clarification to the Contract Documents.

   Question 1: "Sheet EC-2 calls for seeding and hydro mulching, but Item No. 9 on the bid schedule and page 01 22 20 – 5 call for using sod to replace the disturbed area?"

   Answer 1: Seeding is Incidental to Bid Item #2 "Erosion and Sediment Control;

   Question 2: "Should we disregard the seeding and mulching and only include the sod.?"

   Answer 2: Upon completion, the disturbed existing sod shall be replaced with sod per the bid tab and specifications;

   Question 3: "What are the "Plantings" referenced in Item No. 8 on the Bid Schedule? Is it the sod shown in Detail 7/ Sheet C-4?"

   Answer 3: The plantings identified on bid item #8 is to cover any plants that are damaged during construction and must be replaced in kind. No planting replacement is currently anticipated;

   Question 4: "Can you confirm that "Pumps shall be owner-furnished" (pg 01 22 20 -6 in Bid Documents) is only referring to (2) Xylem Gould 15HP Vertical Turbine Pumps and all other portions of the assembly shown on sheet M-2 have not been purchased?"

   Answer 4: Correct. The two (2) vertical turbine pump and motor assemblies are owner furnished and installed by the contractor per the specifications. Everything else shown on M-2 shall be furnished by the contractor.

Question 5: “Can Thornton provide information on the purchased pumps?”

Answer: 5: Quotes for the pumps with model information is attached to this Addendum Two

Question 6: “When does the City expect to Award this project?”

Answer 6: January 2024;

Question 7: “Please consider adjusting the 4/15/2023 substantial completion milestone due to long lead procurement times?”

Answer 7: No adjustment to substantial completion date milestone at this time;

Question 8: “Should the contractor expect to encounter groundwater or rock/boulders during the excavation? Is there a Geotech report that can be provided?”

Answer 8: There is no Geotech report available for this project;

Question 9: “Addendum 1, Question 3 discusses documenting the existing sidewalk and bid item 4 associated with it. Please confirm the repair/replacement of 6” concrete sidewalk will be a unit price item under bid item 4 even if it’s damaged by the contractor as a result of contractor’s normal execution of the work. (contractor will need to travel/track heavy equipment and materials to and from the site from 108th Avenue throughout the duration of the project)?”

Answer 9: Yes, that is what is indicated in Addendum One, a line item for damaged sidewalk that occurs during construction has been provided;

Question 10: “Please provide P&ID drawings?”

Answer 10: A P&ID was not prepared for this project due to the straightforward and linear nature of the pump station process;

Question 11: “Documents indicate the PLC will be owner furnished but section 40 95 00 PLC’s is written around a contractor furnished PLC. Please clarify who should include programming costs?”

Answer 11: PLC will be provided by Browns Hill Engineering and Controls;

Question 12: “Reference 40 95 00, 1.6A: Is Brown’s Hill the System Integrator? Are they sole sourced as the instrumentation and panel supplier as well? Please clarify”

Answer 12: Browns Hill Engineering and Controls will be the sole provider of the instrumentation and control panels;

Question 13: “Reference 40 95 00, 1.7: Is this warranty relevant considering this project has an owner furnished PLC?”

Answer 13: Owner will be responsible for the PLC Hardware warranty, the systems integrator will be responsible for the remainder from the equipment in the PLC Cabinet;

Question 14: “The special conditions state Thornton will pay QC testing costs (concrete cylinders, compaction, rebar and masonry special inspections, etc. Several technical sections indicate these are to be paid by the contractor. Please confirm what if any 3rd party testing is required for this project”

Answer 14: The City will be responsible for their own directed Quality Assurance (QA) testing as outlined in the special conditions. The contractor will be responsible for all Quality Control (QC) testing as outlined in the special conditions and technical specifications. Reference the technical specifications for the required 3rd party testing;

Question 15: “Reference sheet G-8, general notes 2 thru 5. The limits of construction shown does not include adequate storage outside of the floodway. Is the large construction area to the north (where the pump station is at) the “flood fringe”? Should the contractor require additional space outside of the floodway please indicate where that should be, or will the contractor be required to store materials, tools and equipment offsite each night?”

Answer 15: Staging area on site as indicated on the plan sheet C-1. Construction limits may be expanded to accommodate required storage, if necessary and approved by the Engineer;

Question 16: “Will the contractor be required to store owner furnished equipment offsite starting in January or can the contractor take possession of these items later when ready for installation?”

Answer 16: Contractor may take possession at such time as they are ready to install;

Question 17: “Reference sheet M-4, details 2, A and 3: Please confirm the existing manhole is the “pump can” and that there isn’t separate steel pump cans required. Details 2 and 3 and the pump submittal are unclear. Will the Goulds pumps’ sole plates level off of the new concrete pad or will a separate steel leveling plate be required and furnished by the contractor?”

Answer 17: Refer to the vertical turbine pump submittal included with the technical specifications. Owner supplied pump is a Goulds VIT model, which does not have an integrated pump can. Pumps will install directly in the existing well as shown on the plans. Installation of the pumps should be as prescribed by the manufacturer. A separate leveling base plate is not currently anticipated;

Question 18: “Sheet M-2, please provide a spec and detail for the ¾ HP exhaust fan. Does this exhaust outside? If so, where will it get make up air? What controls this fan?”

Answer 18: The exhaust fan will exhaust to the outside and fresh air will be provided to the building by the louver in the door (reference sheet A-101). For the exhaust fan control, provide a combination thermostat/humidistat controller as the fan will serve both purposes (dehumidification and cooling). Fan schedule has been provided as an attachment to this Addendum Two;

Question 19: “Please provide a spec for the unit heater?”

Answer 19: Unit Heater is not required;

Question 20: “Dwg. E1 – The 480V power distribution panel PDP-1 is called out NEMA 12. Considering current procurement issues, would NEMA 3R be acceptable?”

Answer 20: Nema 1 and Nema 3R will both be acceptable;

Question 21: “Please confirm that a Unit Heater is not required. Only a Unit Heater Plug as called out in the electrical drawings?”

Answer 21: Correct, Unit Heater is not required;

Question 22: “Are there any other specifications for the exhaust fan other that ¾ HP?”

Answer 22: Fan schedule and specifications are provided via this Addendum Two as an attachment.

2. This Addendum becomes part of the Contract Documents. All other conditions and requirements of the Contract Documents will remain unchanged. Receipt of this Addendum must be acknowledged in the space provided on the Bid Proposal Form in the Project Manual.

END OF ADDENDUM NO. TWO

DocuSigned by:
Dennis Laurita
A450F4EFA8C24E5...

12/14/2023

Dennis Laurita
Contracts Supervisor

Date

ENERGY MANAGEMENT CORPORATION
Motors • Drives • Generators
Visit www.emcsolutions.com

Utah
Corporate Headquarters
501 W 700 S
Salt Lake City, UT 84101
801.366.4100
800.433.4548

Colorado
4905 B Ironton St
Denver, CO 80239
303.574.9448
800.511.7734

Idaho
7292 W Airway Ct
Boise, ID 83709
208.322.8100

California
EMEC dba:
GP Electric Motor
1020 Price Street
Pomona, CA 91767
909.865.2291

Wyoming
839 Elk Street,
Rock Springs, WY
82901
800.433.4548

Nevada
Las Vegas, NV
800.433.4548

March 13, 2023

SOP 39738 City of Thornton East Cooley

Attn: Mathew Vandas – Browns Hill

We are pleased to provide our quotation for the variable frequency drives (VFDs) on this project. We are quoting our custom Motor Drives International build-up package to meet the highest level of quality available for this application. Our quotation includes the following:

2 each 15 HP 480V VFD system matching previous East Cooley job 124731

Each system contains the following equipment and features:

MDI, FF1, fan force filtered enclosure with thermostat control
Mitsubishi F800 Series Inverter, VT Rated
Main circuit breaker, door interlocked and pad lockable
5% line input reactor
(5) PTT 30MM Lights on door- remote HOA by others
120V control power transformer with primary and secondary fuses
Relays and terminals shown on redlined 124731 drawing
Advanced door mounted programming/display unit
All wiring marked for ease of troubleshooting
UL 508A listed
1 Year warranty

Sub Total VFD package (2 units)
1-day VFD start-up available

Total:

Submittals:	2-4 weeks ARO
Delivery:	22 to 26 weeks after approval (depending on Mitsubishi drive availability)
Freight:	Prepay and Add
Terms:	Net 30 with approved credit
Sales Tax:	Not included
Quotation:	Valid for 30 days

WATER TECHNOLOGY GROUP
A COGENT COMPANY

cogentcompanies.com

April 24, 2023

ATTN: **Nicolas Lozano Ordonez - Consor**

PH: 303-601-6413
Email: Nicolas.Ordonez@consoreng.com

Quote: **OP-556186 R1**
Project: Thornton Irrigation PS
Subject: Budget Proposal
Bid Due:

Madeline,
Cogent / WTG is pleased to present the following Scope of Supply:

Item	Description	Qty	Extended Price
A)	Xylem Goulds Short Set Lineshaft Vertical Turbine Pumps model 7WALC - 12 Stage, including Driver - Water Lubricated Bearings - 110GPM @ 260' TDH - Cast Iron #150 Discharge Flange - Cast Iron with Glass Enamel Bowls - Bronze Alloy Bearings - 316SS Impeller and 416SS Bowl Shaft - Impellers securely fastened to the bowl shaft with taper locks - Threaded Carbon Steel Column - 416SS Threaded Coupled Line shaft - Cast Iron Housing - Chesterton 155 Mechanical Seal - Galvanized Steel Basket Strainer - Carbon Steel Baseplate - 15HP VHS 460V TEFC Motor	1	
		Total:	

THORP CONTROLS
AUTOMATION SOLUTIONS
800-473-9123 - www.tcas.com

Quotation

EXPIRATION DATE	QUOTE NUMBER
06/02/2023	S1623482

THORP CONTROLS
6051 WASHINGTON ST. UNIT D
DENVER (ADAMS CO.), CO 80216
Phone 303-623-5313
Fax 303-573-8536

PAGE NO.
1 of 1

THORP CONTROLS
6051 WASHINGTON ST. UNIT D
DENVER (ADAMS CO.), CO 80216
Phone 303-623-5313
Fax 303-573-8536

QUOTE TO:

CITY OF THORNTON
ATTN: ACCOUNTS PAYABLE
9500 CIVIC CENTER DRIVE
THORNTON, CO 80229-1220
Phone: 303-538-7230

SHIP TO:

CITY OF THORNTON
ATTN: ACCOUNTS PAYABLE
9500 CIVIC CENTER DRIVE
THORNTON, CO 80229-1220
Phone: 303-538-7230

ORDERED BY	CUSTOMER PO NUMBER	REFERENCE NUMBER	SALESPERSON
KEITH GRIESS	1700100 OP	MODICON	Kyle Sutherland

WRITER	SHIP VIA	TERMS	EST.SHIP DATE	FREIGHT	BR
Jay Smith	BEST WAY PP/ADD	CREDIT CARD CC	05/18/2023	No	4

ORDER QTY	DESCRIPTION	UNIT PRICE	EXT PRICE
2ea	SE BMXCPS3500 HIGH POWER AC POWER SUPPLY		
1ea	SE BMXP342020 CPU340-20 MODBUS ETHERNET		
2ea	SE BMXDAI1604 DIG 16I 100 TO 120 VAC		
1ea	SE BMXDRA1605 DIG 16Q RELAYS		
1ea	SE BMXAMI0810 ANA 8 U/I IN ISOLATED FASTP		
1ea	SE BMXAMO0410 ANA 4 U/I OUT ISOLATED		
1ea	SE BMXXBP1200 12 SLOTS BACKPLANE		
7ea	SE BMXFTB2010 SCREW TERMINAL STRIP 20 CIR. POINTS		

Quotations are valid for 30 days unless otherwise stated. Ship dates are estimates only. Special orders are not cancelable or returnable. Expedited and nonstock orders are subject to shipping fees. Customers must communicate claims of damage or shortage within 5 days of receipt of order. We do not accept returns without a valid Return Goods Authorization. Manufacturer's warranty is the sole remedy in the event of product failure or defect.

Subtotal	5794.65
S&H Charges	0.00
Amount Due	5794.65

SECTI

ON

15830

FANS

PART 1 GENERAL

1.01 SUMMARY

A. Section includes: Fans, including:
   1. Type 4 - Sidewall propeller fans.

1.02 REFERENCES

A. American Bearing Manufacturers Association (ABMA):
   1. 9, Load Ratings and Fatigue Life for Ball Bearings.
   2. 11, Load Ratings and Fatigue Life for Roller Bearings.

B. Air Movement and Control Association International, Inc. (AMCA):
   1. 210, Laboratory Methods of Testing Fans for Certified Aerodynamic Performance Rating.
   2. 211, Certified Rating Program- Product Rating Manual for Fan Air Performance.
   3. 300, Reverberant Room Method for Sound Testing of Fan.
   4. 301, Methods for Calculating Fan Sound Ratings from Laboratory Test Data.

C. American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE):
   1. 52.2 - Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size.
   2. 68 - Laboratory Methods of Testing to Determine Sound Power in a Duct.

D. ASTM International (ASTM):
   1. A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished.
   2. D4167 - Standard Specification for Fiber Reinforced Plastic Fans and Blowers.
   3. E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

E. National Electrical Code (NEC).

F. National Electrical Manufacturers Association (NEMA):
   1. 250 - Enclosures for Electrical Equipment (1000 V Maximum).

G. National Fire Protection Association (NFPA):
   1. 90A - Standard for Installation of Air Conditioning and Ventilating Systems.
   2. 820 - Standard for Fire Protection in Wastewater Treatment and Collection Facilities.

H. National Roofing Contractors Association (NRCA).

I. Occupational Safety and Health Administration (OSHA).

J. Underwriters' Laboratories, Inc. (UL).

1.03 DEFINITIONS

A. As used in this Section and on the drawings, abbreviations and Fan Schedule headings have the following meaning:
   1. SF or SPF: Supply Fan.
   2. EF or EXF: Exhaust Fan.
   3. Type: Fan type as specified in this Section.
   4. SP or ESP: Fan External Static Pressure in inches water column.
   5. Size: Nominal fan blade or wheel diameter in inches.
   6. Hp: Fan motor horsepower.
   7. V/Ph: Fan motor voltage and power phases.

B. NEMA:
   1. Type 1 enclosure in accordance with NEMA 250.
   2. Type 3R enclosure in accordance with NEMA 250.

1.04 SYSTEM DESCRIPTION

A. Design requirements:
   1. Provide fans that have sharply rising pressure characteristics which extend throughout the operating range and continue to rise beyond the efficiency peak.
   2. Provide fans that peak as close as possible to the maximum efficiency and whose operating range is within the normal fan selection range.
   3. When scheduled, provide guided vibration isolator for fans, so that not more than 10 percent of the vibration amplitude of the fan and motor is transmitted to the supporting structure.
   4. Design fan inner scroll and air stream surfaces to maintain

smoothness for entire fan service life.

5. Electrical components: UL listed and meeting the design and installation requirements of the NEC.
6. Insulation and adhesives: Meet NFPA 90A requirements for flame spread and smoke generation.
7. Belt drive systems: Adjustable for minimum within 5 percent speed change, rated for 1.5 times maximum horsepower motor available for the scheduled fan size or model.
8. Screens: Provide bird or insect screen as specified with the fan type or as listed on the Fan Schedule:
   a. Bird screen: Stainless steel; 0.5-inch mesh 18-gauge.
   b. Insect screen: Stainless steel mesh and frame.
9. Finishes: When not specified with fan type, coat ferrous.
10. Accessories: Provide accessories specified and those scheduled.

B. Performance requirements:

1. Performance requirements are included in the Fan Schedule located at the end of this Section.
2. Fan performance: Rated and licensed to bear the AMCA label in accordance with AMCA 210 and AMCA 211.
3. Total sound power levels in the 8 octave band range as measured in accordance with ASHRAE 68, AMCA 301, or AMCA 300 as appropriate for each fan: Not to exceed the lesser of the following or the Sones levels on the Fan Schedule.

Sound Power Level, decibel levels referenced to 10-12 watts								
Frequency, Hz	63	125	250	500	1,000	2,000	4,000	8,000
General	100	98	94	88	84	84	78	75

4. Air filters supplied with fans: 25 to 30 percent dust spot efficiency when rated per ASHRAE Testing Standard 52.2.
5. Bearings: Rated per ABMA 9 or 11 for a L10 life rating of not less than 50,000 hours; provide greater life when specified with each fan type.

1.05 SUBMITTALS

A. Product data:

1. Materials.
2. Primary and ancillary equipment.
3. Sound Power Level in each of 8 octave bands and overall Sones.
4. Fan system layout, mechanical, electrical power, and control diagrams.
5. Supports, vibration isolators, and seismic bracing calculations and details.
6. Calculated fan vibration levels and field-testing method.

7. Bearing life.
8. Fan performance curves showing specified operating condition.

B. Provide vendor operation and maintenance manual as specified.
   1. Furnish bound sets of installation, operation, and maintenance instructions for each type fan.

C. Provide Manufacturer's Certificate of Source.

1.06 QUALITY ASSURANCE

A. Provide fans:
   1. Listed by UL.
   2. Rated in accordance with AMCA.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver units in 1 piece, factory assembled, internally wired, and lubricated.

B. Protect equipment from dust and atmospheric exposure as recommended by the unit manufacturer.
   1. As a minimum provide temporary closures for equipment openings designed for airflow.

1.08 EXTRA MATERIALS

A. Provide 2 extra sets (3 sets total) of filters per installed fan for fans specified with filters.

B. Provide 1 extra set of belts per installed fan for fans specified with belt drives.

PART 2 PRODUCTS

2.01 TYPE 4, SIDEWALL PROPELLER FANS

A. Manufacturers: One of the following or equal:
   1. Greenheck, Model SBC.
   2. Loren Cook, Model AWD or AWB.
   3. Penn Ventilator, similar model.

B. Type: Wall-mounted, low noise propeller type, packaged unit.
   1. Fan: Statically and dynamically balanced propeller with aluminum blades, unless noted otherwise.
   2. Motor: Permanently lubricated; selected to avoid running in the service factor.

C. Accessories:
   1. Motor and fan side OSHA guards.
   2. Wall mount collar when necessary for installation as indicated on the Drawings.
   3. Dampers with damper guards when damper scheduled.
   4. Weather hood when scheduled.
   5. Bird screen: Provide bird screen if no screen is listed on the Fan Schedule.
   6. Finish: Coat fan, housing, and accessories with polyester finish.
   7. Diffusers and louvers when scheduled.
   8. Mounting hardware.

2.02 SOURCE QUALITY CONTROL

A. Factory test fans listed on the Fan Schedule for proper operation, performance, and electrical controls.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine and verify that Work is in condition to receive installation specified in this Section.

B. Take measurements and verify dimensions to ascertain fit of installation.

C. Ascertain support and openings are correctly located.

3.02 PREPARATION

A. Before installation, remove dust and debris from equipment and ducts.

B. During installation and until equipment is operated, protect equipment and ducts from dust and debris by covering openings with tape or plastic.

3.03 INSTALLATION

A. Observe applicable installation requirements.

B. Anchoring and support:
   1. Provide anchoring and support for fans and appurtenances.
   2. Provide anchoring to sustain seismic and wind forces.

C. Adjust alignment of ducts where necessary to resolve conflicts with architectural features or to resolve conflicts with the work of other trades.

D. Install and wire unit fans and controls in accordance with manufacturer's recommendations.

E. Install flexible connections to fans.

F. Install roof curb and fan as recommended by fan manufacturer.

G. For fan housings with threaded water trap drain, provide drain piped from fan housing to the nearest drain channel, floor drain, or sump.

3.04 FIELD QUALITY CONTROL

A. Test equipment and installation to verify tightness, operation, and unit vibration is within manufacturer's submitted maximum.

B. Test equipment performance and balance equipment as specified in Section 15954
- Testing, Adjusting, and Balancing for HVAC.

3.05 COMMISSIONING

A. As specified .

B. Manufacturer services:
   1. Provide certificates:
      a. Manufacturer’s Certificate of Source Testing.
      b. Manufacturer’s Certificate of Installation and Functionality Compliance.
   2. Manufacturer’s Representative onsite requirements:
      a. Installation: 1 trip, 1 day minimum.
      b. Functional Testing: 1 trip, 1 day minimum each.
   3. Training:
      a. Maintenance: 2 hours per session, 2 sessions.
      b. Operation: 1 hours per session, 2 sessions.
   4. Process Operational Period.
      a. As required by Owner or Contractor.

C. Source testing:
   1. Test as specified.
   2. Equipment:
      a. Test witnessing: Not witnessed.
      b. Conduct Level 1 General Equipment Performance Test.
      c. Conduct Level 1 Vibration Test.
      d. Conduct Level 1 Noise Test.
      e. Each unit shall be factory tested including control functions and economizer operation prior to shipment.

3. Electrical Instrumentation and Controls:
    a. Test witnessing: Not witnessed.
    b. Conduct testing as specified in Section 17950 - Commissioning for Instrumentation and Controls.

D. Functional testing:
1. Equipment:
    a. Test witnessing: Witnessed.
    b. Conduct Level 2 General Equipment Performance Test.
    c. Conduct Level 2 Vibration Test.
    d. Conduct Level 2 Noise Test.
    e. Test equipment and installation to verify tightness, operation, and unit vibration is within manufacturer's submitted maximum.
    f. Test equipment performance and balance equipment as specified in Section 15954 - Testing, Adjusting, and Balancing for HVAC.
2. Electrical Instrumentation and Controls:
    a. Test witnessing: Witnessed.
    b. Conduct testing as specified in Section 17950 - Commissioning for Instrumentation and Controls.

3.06 SCHEDULES

A. Refer to Contract Drawings for Fan Schedule.

END OF
SECTION