Memo To: Plan Holders

From: Tom Williams, P.E.
HWU General Manager

Re: Generator Project - Addendum No. 2
Bid Reference: 2020 - 04

Date: 9 September 2020

Questions from Bidders, and Answers, so far:

1. **Question**: Will gas regulators and meters be furnished?
   
   **Answer**: Yes, HWU will furnish the gas service to within 20’ of the generator location, and that includes everything, ready to hook up to.

2. **Question**: What length of outage will be allowed at each location for hookups?
   
   **Answer**: Outages of up to one (1) hour will be allowed for hookups at each location. Timing will require coordination with the Plant Chief Operators.

3. **Question**: On Sheet E-1, the feed into the ATS is shown as being from the existing power pole. Is this correct?
   
   **Answer**: On Sheet E-1, the feed into the ATS will be from an existing pad mounted transformer, behind the Admin Building, and not from the existing power pole, as shown. The two disconnects at this transformer are secondary to the transformer.

4. **Question**: Keynote 3 on Sheet E-2 shows installing the ATS on the second floor of the North WTP, when the transformer and the existing main panel are in the basement. Would we allow the ATS to be installed in the basement, if proper clearances can be preserved?
   
   **Answer**: The ATS needs to be installed in the basement. This has been updated on the drawings.
5. **Question:** At Admin Office/North WTP, The Transfer switch on prints is listed as a 200 amp with one set of 4/0 wires from generator to transfer switch. This transfer switch feeds two 200 disconnects. These disconnects each feed a 200-amp main lug only panel fused in disconnects at 200 amps. Does this transfer switch need to be a 400 amp? If so, do we need to install a parallel 4/0 feed from generator to transfer switch?

**Answer:** The 125kW generator is feeding (2) 200A ATS. Since the generators are only being used for essential services, HWU will have to power down non-essential services when they are used. The essential services will not be greater than 200A per ATS.

6. **Question:** At South WTP, do we need to supply a 200-amp breaker for the existing 480-volt panel to provide overcurrent and short circuit protection for the A.T. S. on utility supply?

**Answer:** Contractor will need to supply new breaker if one isn’t available. This has been updated on the drawing.

7. **Question:** At all locations, do we need to supply a 20-amp 120-volt circuit from a 120-volt panel to the generator for battery charger and crankcase heaters? Do we need to supply a 20-amp circuit with a G F I outlet for maintenance and service?

**Answer:** This has been added to the drawings.

8. **Question:** At Admin Office/North WTP, does the Generator have two breakers install in it to protect both load feeds? They can be ordered this way. One breaker for the Main Office and one Breaker for the North Water Plant. This would provide over current and short circuit protection on both circuits as well as giving a way to isolate them if needed.

**Answer:** The generator needs to be ordered to protect dual feeds.

9. **Question:** At Admin Office/North WTP, the prints show reworking underground from utility pole to new A T S location. There is a pad mounted 480-volt transformer located behind building that belongs to H. W. U. This transformer is fed from H. W. U. Do we rework the secondary side 240-volt side of this transformer to the A.T.S.?

**Answer:** This has been updated on the drawing showing reworking the feed from the transformer to the ATS.

10. **Question:** Are the drawings being updated and reissued?

**Answer:** Updated drawings are available for download on the HWU web site.
11. **Question:** How will the Bid Opening be made public, when Kentucky is still under modified lock-down procedures?

**Answer:** Bidders should submit their sealed bids by customary means, prior to the bid opening time. At the specified time, a video teleconference will be broadcast to the public as allowed under KRS 61.826 and KRS 45A.080(4).

No primary location will be set for public attendance as per Kentucky Attorney General Opinion 20-05, and no public attendance will be permitted at this meeting due to the highly contagious nature of COVID-19.

**The Bid Opening will be broadcast on Zoom:**

When: 16 September 2020, 01:30 PM Central Time (US and Canada)

Register in advance for this meeting:

[https://zoom.us/meeting/register/tJclc-ygrDwiGtyATjJ0KVbetDk7dbEPofQP](https://zoom.us/meeting/register/tJclc-ygrDwiGtyATjJ0KVbetDk7dbEPofQP)

After registering, you will receive a confirmation email containing information about joining the meeting.

Bid opening date/time remains the same: 1:30 p.m., 16 September 2020, online, as noted above.

If you have further questions, feel free to call me at 270.826.2421 (Office).

**Cc:** Bart Boles, HWU Project Engineer
Kathy Manker, HWU Procurement Manager
KEYNOTES:
1. CONTRACTOR TO INSTALL CONCRETE PAD IN THE PARKING LOT. SEE SHEET S1 FOR PAD DETAILS.
2. CONTRACTOR TO INSTALL 125KW, 120/208V, THREE PHASE GENERATOR ON THE CONCRETE PAD IN THE PARKING LOT.
3. CONTRACTOR TO INSTALL 200A, 120/240V SINGLE PHASE AUTOMATIC TRANSFER SWITCH (ATS) ON A UNISTRUT PLATFORM AGAINST THE SIDE OF THE BUILDING. SUPPORT PLATFORM FROM THE GROUND.
4. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE GENERATOR TO THE ATS.
5. CONTRACTOR TO DISCONNECT AND PULL BACK THE WIRING AND CONDUIT, FOR REUSE IF AVAILABLE, FROM THE UTILITY TRANSFORMER THAT WAS GOING TO THE TWO DISCONNECT SWITCHES BEHIND THE BUILDING.
6. Rework the conduit so that it goes to the ATS.
7. MATCH EXISTING CONDUIT AND WIRE SIZE.
8. CONTRACTOR TO INSTALL NEW CONDUIT AND WIRE FROM THE NEW ATS TO THE EXISTING TWO DISCONNECT SWITCHES BEHIND THE BUILDING.
9. CONTRACTOR TO INSTALL NEW TRIAD GROUNDING SYSTEM AND GROUNDING BUS BAR ON UNISTRUT PLATFORM AGAINST THE SIDE OF THE BUILDING. SEE GROUNDING ELECTRODE SYSTEM DETAIL ON SHEET E6.
10. CONTRACTOR TO INSTALL NEW 1" CONDUIT FROM GENERATOR AND ATS TO THE CONTROL ROOM IN THE MAIN OFFICE FOR CONTROL MONITORING.
11. CONTRACTOR TO INSTALL NEW 120V 30A NEMA 3R DISCONNECT AND GFCI RECEPTACLE. INSTALL 3/4" CONDUIT FROM EXISTING POWER PANEL WITH SPARE 20A BREAKER. INSTALL (2) #12 AWG AND (1) #12 GND FROM PANEL TO DISCONNECT.

GENERAL NOTES:
1. See sheet E6 for cable and conduit schedule, grounding detail and conduit duct bank detail.
2. Contractor to install conduit 36" below grade. Lay red tape with black lettering saying "DANGER - ELECTRICAL", 6" above conduit. Coordinate conduit penetration locations in buildings with client and coordinate conduit penetration in concrete slab with manufacturer. See sheet E6 for conduit and cable schedule.

LEGEND:
- TO BE REMOVED
- MAIN CONCEPT
- OPERATING SYSTEM
- SPECIFICATION
- EXISTING TO REMAIN
- TO BE REMOVED
- NEW CONCEPT
- GROUNDING SYSTEM
- TO NORTH WATER PLANT
- SEE SHEET E2
- GFCI RECEPTACLE
- NEW TRANSFORMER
- OLD TRANSFORMER
- OLD
- PANEL
- DISCONNECT
- NEW

ONE-LINE DIAGRAM - MAIN OFFICE

UTILITY

NEW GENERATOR

NEW PANEL

DISCONNECT 1

DISCONNECT 2

PANEL

DISCONNECT
KEYNOTES:
1. EXISTING MAIN (IN BASEMENT) 480V PANEL FED FROM UTILITY EXISTING TRANSFORMER IN BASEMENT
CONTRACTOR TO INSTALL CONCRETE PAD IN THE PARKING LOT. SEE SHEET S1 FOR PAD DETAILS.
CONTRACTOR TO INSTALL 125KW, 120/208V, THREE PHASE GENERATOR ON THE CONCRETE PAD IN THE PARKING LOT.
CONTRACTOR TO INSTALL 200A, 208V AUTOMATIC TRANSFER SWITCH (ATS) ON A UNISTRUT PLATFORM IN THE BASEMENT OF THE BUILDING NEXT TO THE EXISTING TRANSFORMER.
CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE GENERATOR TO THE ATS.
CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE ATS TO THE 208V PANEL IN THE BASEMENT.
CONTRACTOR TO REWORK THE WIRING TO THE 208V, THREE PHASE PANEL IN THE BASEMENT THAT IS BEING FED FROM THE TRANSFORMER AND 480V PANEL IN THE BASEMENT AND CONNECT TO THE ATS.
DISCONNECT AND PULL BACK THE WIRING FOR REUSE IF AVAILABLE, OTHERWISE REPLACE WITH MATCHING SPECS.
THE 208V PANEL IN THE BASEMENT FEEDS TWO MORE PANELS, ONE ON THE FIRST FLOOR AND ONE ON THE SECOND FLOOR. COORDINATE WITH CLIENT ON WHAT CIRCUITS IN THE NORTH WATER PLANT NEED TO BE MOVED TO THESE PANELS.
EXISTING 480V PANEL AND TRANSFORMER IN THE BASEMENT THAT IS FEED FROM THE UTILITY.
CONTRACTOR TO INSTALL NEW 1" CONDUIT FROM GENERATOR TO THE CONTROL ROOM IN THE MAIN OFFICE FOR CONTROL MONITORING.

GENERAL NOTES:
1. SEE SHEET E6 FOR CABLE AND CONDUIT SCHEDULE, GROUNDING DETAIL AND CONDUIT DUCT BANK DETAIL.
2. CONTRACTOR TO INSTALL 208V PANEL IN THE BASEMENT NEXT TO THE TRANSFORMER AS SHOWN. CONTRACTOR TO INSTALL 208V PANEL CONNECTED TO 208V, THREE PHASE GENERATOR. CONTRACTOR TO INSTALL 208V PANEL CONNECTED TO 208V, THREE PHASE TRANSFORMER. CONTRACTOR TO INSTALL NEW 200A, 208V AUTOMATIC TRANSFER SWITCH (ATS) ON A UNISTRUT PLATFORM IN THE BASEMENT OF THE BUILDING NEXT TO THE TRANSFORMER AND CONNECT TO THE 208V PANEL IN THE BASEMENT.
3. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE TRANSFORMER TO THE ATS.
4. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE ATS TO THE 208V PANEL IN THE BASEMENT.
5. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE 208V PANEL IN THE BASEMENT TO THE TRANSFORMER AND CONNECT TO THE 480V PANEL IN THE BASEMENT.
6. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE TRANSFORMER TO THE 480V PANEL IN THE BASEMENT.
7. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE 480V PANEL IN THE BASEMENT TO THE TRANSFORMER.
8. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE TRANSFORMER TO THE 480V PANEL IN THE BASEMENT.
9. CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE 480V PANEL IN THE BASEMENT TO THE TRANSFORMER.

LEGEND:
- EXISTING TO REMAIN
- TO BE REMOVED
- MAIN CONSULT
- OPERATING SYSTEM
- SPEC INQUIRY

ONE-LINE DIAGRAM - NORTH WATER PLANT

NORTH WATER PLANT PLAN
CONTRACTOR TO INSTALL CONCRETE PAD AT THE DESIRED LOCATION BEHIND THE MAIN BUILDING. SEE SHEET S1 FOR PAD DETAILS.

CONTRACTOR TO INSTALL 50KW, 120/240V, SINGLE PHASE GENERATOR ON THE CONCRETE PAD AT THE DESIRED LOCATION BEHIND THE MAIN BUILDING.

CONTRACTOR TO INSTALL 200A, 240V AUTOMATIC TRANSFER SWITCH (ATS) ON A UNISTRUT PLATFORM INSIDE OF THE BUILDING BY THE EXISTING 120V PANEL IN THE BASEMENT.

CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE GENERATOR TO THE ATS.

CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE ATS TO THE 120V PANEL IN THE BASEMENT.

CONTRACTOR TO REWORK THE WIRING FROM THE EXISTING TRANSFORMER IN THE BASEMENT THAT IS BEING FED FROM THE 480V PANEL IN THE BASEMENT AND CONNECT TO THE ATS. DISCONNECT AND PULL BACK THE WIRING FOR REUSE IF AVAILABLE, OTHERWISE REPLACE WITH MATCHING SPECS.

THE 120V PANEL IN THE BASEMENT FEEDS ONE MORE PANEL ON THE FIRST FLOOR. THESE PANEL WILL BE EMERGENCY PANELS.

EXISTING 480V PANEL AND TRANSFORMER IN THE BASEMENT THAT IS FEED FROM THE UTILITY.

CONTRACTOR TO INSTALL NEW TRIAD GROUNDING SYSTEM AND GROUNDING BUS BAR ON UNISTRUT PLATFORM AGAINST THE SIDE OF THE BUILDING. SEE GROUNDING ELECTRODE SYSTEM DETAIL ON SHEET E6.

CONTRACTOR TO INSTALL NEW 1" CONDUIT FROM GENERATOR TO THE CONTROL ROOM IN THE MAIN OFFICE FOR CONTROL MONITORING.

CONTRACTOR TO INSTALL NEW 120V 30A NEMA 3R DISCONNECT AND GFCI RECEPTACLE. INSTALL 3/4" CONDUIT FROM EXISTING POWER PANEL WITH SPARE 20A BREAKER. INSTALL (2) #12 AWG AND (1) #12 GND FROM PANEL TO DISCONNECT.
CONTRACTOR TO INSTALL CONCRETE PAD AT THE DESIRED LOCATION BESIDE THE MAIN BUILDING. SEE SHEET S1 FOR PAD DETAILS.

CONTRACTOR TO INSTALL 100KW, 480/277V, THREE PHASE GENERATOR ON THE CONCRETE PAD AT THE DESIRED LOCATION BESIDE THE MAIN BUILDING.

CONTRACTOR TO INSTALL 200A, 480V AUTOMATIC TRANSFER SWITCH (ATS) ON A UNISTRUT PLATFORM INSIDE OF THE BUILDING BY THE EXISTING 480V PANEL.

CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE GENERATOR TO THE ATS.

CONTRACTOR TO INSTALL NEW 480V EMERGENCY PANEL ON A UNISTRUT PLATFORM INSIDE OF THE BUILDING BY THE ATS.

CONTRACTOR TO INSTALL CONDUIT AND WIRE FROM THE ATS TO THE 480V PANEL IN THE BUILDING.

CONTRACTOR TO REWORK THE WIRING FROM THE EXISTING 480V PANEL TO THE EMERGENCY 480V PANEL IN THE BUILDING. DISCONNECT AND PULL BACK THE WIRING FOR REUSE IF AVAILABLE, OTHERWISE REPLACE WITH MATCHING SPECS. COORDINATE WITH CLIENT ON WHAT CIRCUITS IN THE SOUTH WATER PLANT NEED TO BE MOVED TO THESE PANELS. CIRCUITS WILL INCLUDE THE FEEDS FOR THE MAIN OFFICE PANEL, THE CARBON BUILDING PANEL, AND THE BLENDER BUILDING PANEL.

EXISTING 480V PANEL IN THE BUILDING THAT IS FEED FROM THE UTILITY. PROVIDE NEW 200A BREAKER IF NEEDED FOR FEED TO NEW ATS. MATCH EXISTING EQUIPMENT.

CONTRACTOR TO INSTALL NEW TRIAD GROUNDING SYSTEM AND GROUNDING BUS BAR ON UNISTRUT PLATFORM AGAINST THE SIDE OF THE BUILDING. SEE GROUNDING ELECTRODE SYSTEM DETAIL ON SHEET E6.

CONTRACTOR TO INSTALL NEW 1" CONDUIT FROM GENERATOR TO THE CONTROL ROOM IN THE MAIN OFFICE FOR CONTROL MONITORING.

CONTRACTOR TO INSTALL CONDUIT 36" BELOW GRADE. LAY RED TAPE WITH BLACK LETTERING SAYING "DANGER - ELECTRICAL", 6" ABOVE CONDUIT. COORDINATE CONDUIT PENETRATION LOCATIONS IN BUILDINGS WITH CLIENT AND COORDINATE CONDUIT PENETRATION IN CONCRETE SLAB WITH MANUFACTURE. SEE SHEET E6 FOR CONDUIT AND CABLE SCHEDULE.

CONTRACTOR TO INSTALL NEW 120V 30A NEMA 3R DISCONNECT AND GFCI RECEPTACLE. INSTALL 3/4" CONDUIT FROM EXISTING POWER PANEL WITH SPARE 20A BREAKER. INSTALL (2) #12 AWG AND (1) #12 GND FROM PANEL TO DISCONNECT.
REFERENCES: NONE

PRELIMINARY
03/11/20

REV.
DATE
BY
ITEM

A
03/11/20

B
09/10/20

ISSUED FOR PRELIMINARY

CONCRETE WITH REBAR AND MARKED WITH RED OXIDE POWDER.

BURIED A MINIMUM OF 36" BELOW NEW GRADE, OR AS REQUIRED TO CLEAR OTHER BURIED UTILITIES.

CONTINUOUS LONGITUDINAL RUNS OF #4 REBAR RUNNING THE ENTIRE LENGTH IN EACH CORNER, WITH #4 LOOPS CONNECTING TO THE LONGITUDINAL REBARS SPACED EVERY 48". COORDINATE WITH SPEC 33 71 19.

KEYNOTES:

1. PACKED CLEAN SAND.
2. #4/0 BARE COPPER GROUND ROD BONDING CONNECTION.
3. 8"Ø x 3'-0" SCHEDULE 80 PVC CABLE AND CONDUIT SCHEDULE.
4. 3'-0" 60° FINISHED GRADE FOR CONDUIT AND CABLE.
5. GROUNDING APPROVED MECHANICAL CONNECTOR.
6. BURNDY PART NO. BBB144126 4/0 LUG
7. BURNDY PART NO. QA282N 2/0 LUG

GROUNDING ELECTRODE SYSTEM

2 CONDUIT DUCT BANK

BURY DUCT BURNDY GROUNDING LUG DETAIL

BURY DUCT BURNDY GROUNDING BUS BAR DETAIL

GROUNDED ELECTRODE TEST WELL

PLAN VIEW

SECTION VIEW

GROUNDING ELECTRODE SYSTEM

BURY DUCT

GROUNDED ELECTRODE TEST WELL

1. CONDUIT DUCT BANK

CABLE AND CONDUIT SCHEDULE

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<th>CONDUCTOR QUANTITY AND SIZE</th>
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<td>OFFICE ATS</td>
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1. ELECTRICAL WIRING IS TO BE PER CODE.
2. SIGNATURES ARE TO BE PROVIDED ON THE ORIGINAL.
3. APPROVED/REVISED/REVISION DATES MENTIONED ON THIS DRAWING ARE PERTAINING TO THE ORIGINAL.
4. THIS DRAWING IS ISSUED FOR PRELIMINARY USE.