Weaver
CONSTRUCTION MANAGEMENT
3679 S Huron Street, Suite 404 Englewood, Colorado 80110
Phone: (303) 789-4111 FAX: (303) 789-4310

SUBMITTAL TRANSMITAL

May 1, 2012
Submittal #: 16231-001.A

PROJECT: **Harold Thompson Regional WRF**
Birdsall Rd.
Fountain, CO 80817
Job No. 2908

ENGINEER: **GMS, Inc.**
611 No. Weber St., #300
Colorado Springs, CO 80903
719-475-2935 Roger Sams

OWNER: **Lower Fountain Metropolitan Sewage Disposal District**
901 S. Santa Fe Ave.
Fountain, CO 80817
719-382-5303 James Heckman

CONTRACTOR: **McDade Woodcock, Inc.**
7222 Commerce Center Drive, #245
Colorado Springs, CO 80909
719-264-1236

SUBJECT: Resubmittal - Response to April 9th Review of the Packaged Engine Generators: 600 kW & 1250 kW GenSets w/ 800 Amp & 2000 Amp ATS's

SPEC SECTION: 16231

PREVIOUS SUBMISSION DATES: 2/20/12

DEVIATIONS FROM SPEC: ___ YES _x_ NO

CONTRACTOR'S STAMP: This submittal has been reviewed by Weaver Construction Management and, unless indicated otherwise, has been found to be in conformance with the intent of the contract documents.

Contractor's Stamp:	Engineer's Stamp:
Date: 5/1/12 Reviewed by: John Jacob (X) Reviewed Without Comments ( ) Reviewed With Comments	

ENGINEER'S COMMENTS:_____
_____

Date: April 27, 2012

TO: David R. Frisch, GMS inc.

From: Nathan Zeleski, Cummins Rocky Mountain Technical Support

Attn: Wes Weaver, Weaver Construction Management inc.

RE: Harold D. Thompson Water Reclamation Facility (HDTRWRF)
Lower Fountain Metropolitan Sewage Disposal District (LFMSDD)

Submittal Number and Description: 16231-001 600kW & 1250kW Generator Sets

Supplemental information is listed below when applicable. The response on the above referenced submittal comments dated 4/9/12, are as follows:

1. 600 kW Generator"

a.) "Mini-power zone system: The power supply feed from panel board PD-H1 to the mini-power zone must be revised to match system arrangements. The feeder breaker shall be changed to 50A, 2-pole, and feeder conductors shall be revised to 3 #6, #10G. This will be reflected in the PD building electrical drawings when issued for construction."

Cummins Response: For information only, no action required by Cummins Rocky Mountain.

b.) Control and signaling

1.) "Provide emergency stop switch for generator and locate adjacent to generator remote annunciator."

Cummins Response: A flush mount emergency stop switch will ship loose to be installed be the contractor with the remote annunciator. This will require 2 wires to be ran from the emergency stop switch to the generator.

2.) "Control and reporting components as submitted appear acceptable. Please verify signaling arrangements will include connection to SCADA system to indicate:"

- Normal source available
- Alternate source available
- Transfer switch position
- Generator running
- Generator alarm

Cummins Response: These will be available as dry contacts out of the 800Amp transfer switch.

Nathan Zeleski
Technical Support

Cummins Rocky Mountain
8211 East 96th Avenue
Henderson, CO 80640

Phone Number:303-287-0201
nathan.zeleski@cummins.com
rockymountain.cummins.com

c.) **"Generator Layout: Drawings indicate generator main breaker to be located left side of generator (South side on plan). Change main breaker location to right side (North side, facing PD building). Fuel fill location as shown on South side facing road is correct."**

Cummins Response: ***The circuit breaker will be located on the right side of the control.***

2. **800A Transfer Switch:**

a.) **"Change transfer switch to 3-pole, 3 wire."**

Cummins Response: ***The 800 Amp Transfer Switch will be switched to 480Vac 3-pole, 3 wire. The 2000 Amp switch will remain 277/480 3-pole, 4 wire unless mentioned.***

b.) **"Verify that transfer switch back bay adapter is required for the proposed feeder arrangements. The adapter submitted is acceptable, but additional floor space is required to fit the adapter behind the transfer switch."**

Cummins Response: ***The back bay adapter is absolutely necessary when connections enter and exit through the ground in order to maintain bend radii.***

3. **1250 kW Generator:**

a.) **"Mini-power zone system: The power supply feed from switchboard EDB-1 to the mini-power zone must be revised to match system arrangements. The feeder breaker shall be changed to 70A, 2-pole, and feeder conductors shall be revised to 2#3, #6G."**

Cummins Response: ***For information only, no action required by Cummins Rocky Mountain.***

b.) **Control and signaling**

1.) **"Provide emergency stop switch for generator and locate adjacent to generator remote annunciator as noted on drawing EEM-2."**

Cummins Response: ***An flush mount emergency stop switch will ship loose to be installed be the contractor with the remote annunciator. This will require 2 wires to be ran from the emergency stop switch to the generator.***

2.) **"Control and reporting components as submitted appear acceptable. Please verify signaling arrangements will include connection to SCADA system to indicate:"**

- **Normal source available**

Nathan Zeleski
Technical Support

Cummins Rocky Mountain
8211 East 96th Avenue
Henderson, CO 80640

Phone Number:303-287-2205
nathan.zeleski@cummins.com
rockymountain.cummins.com

- **Alternate source available**
- **Transfer switch position**
- **Generator running**
- **Generator alarm**

Cummins Response: ***These will be available as dry contacts out of the dim modules.***

c.) Generator Layout: Drawings indicate generator main breaker to be located left side of generator (west side). Change main breaker location to right side (east side, facing EM building).

Cummins Response: ***The circuit breaker will be located on the right side of the control.***

Nathan Zeleski
Cummins Rocky Mountain
Technical Support Specialist
nathan.zeleski@cummins.com
(303) 927-2205

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Response #1.b.1 Supplemental Information

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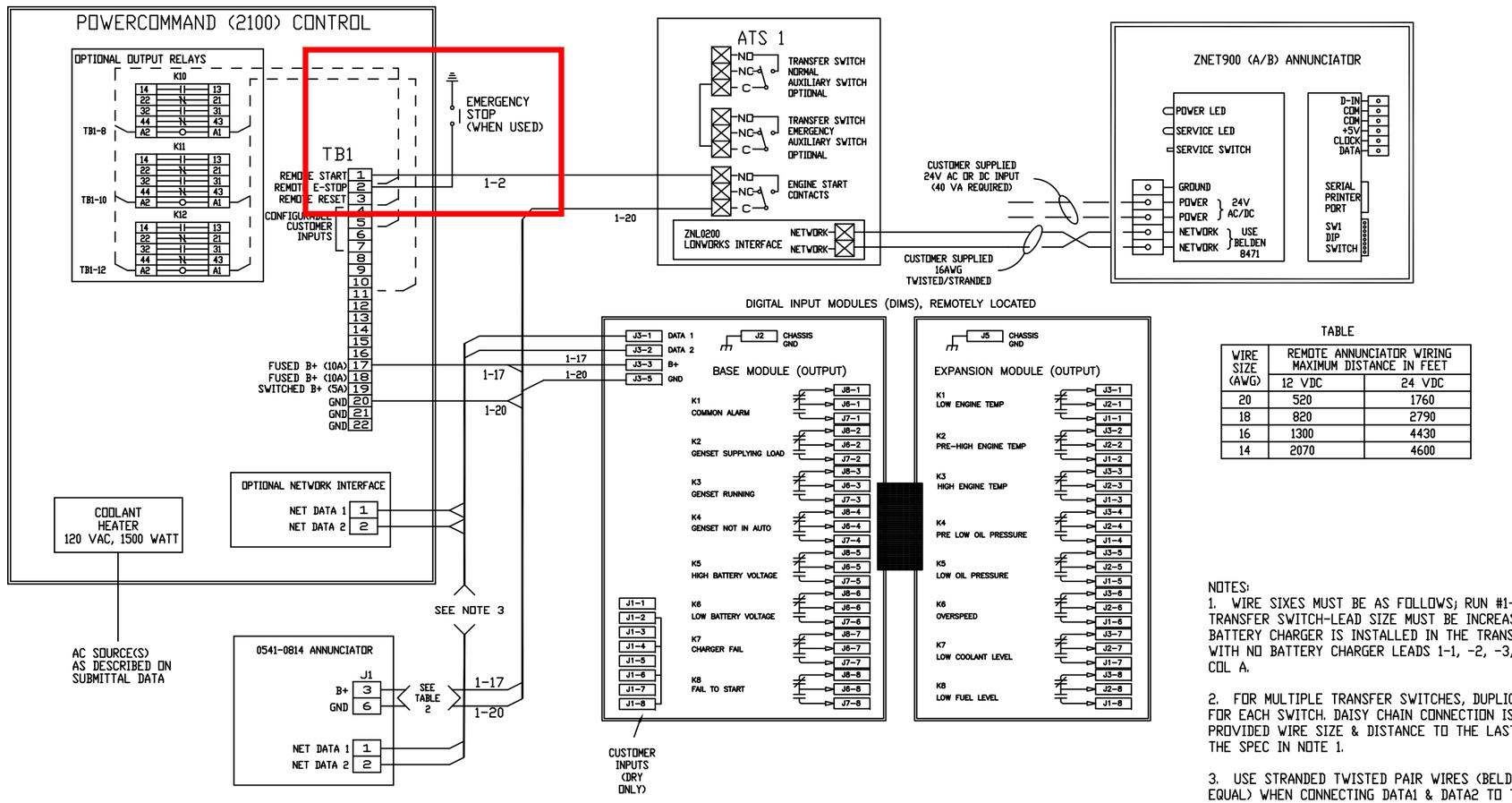
UNLESS OTHERWISE SPECIFIED, ALL DIMS ARE IN INCHES

TOLERANCES:
FRACTIONAL: 1/4
.X: .06
.XX: .03
.XXX: .01
ANGLES: 5°

REFERENCES:
–

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED



TABLE

WIRE SIZE (AWG)	REMOTE ANNUNCIATOR WIRING MAXIMUM DISTANCE IN FEET	
	12 VDC	24 VDC
20	520	1760
18	820	2790
16	1300	4430
14	2070	4600

NOTES:
1. WIRE SIXES MUST BE AS FOLLOWS; RUN #1-GENSET TO TRANSFER SWITCH-LEAD SIZE MUST BE INCREASED IF A BATTERY CHARGER IS INSTALLED IN THE TRANSFER SWITCH. WITH NO BATTERY CHARGER LEADS 1-1, -2, -3, -4, -5 USE COL A.

2. FOR MULTIPLE TRANSFER SWITCHES, DUPLICATE RUN #1 FOR EACH SWITCH. DAISY CHAIN CONNECTION IS ACCEPTABLE PROVIDED WIRE SIZE & DISTANCE TO THE LAST SWITCH MEET THE SPEC IN NOTE 1.

3. USE STRANDED TWISTED PAIR WIRES (BELDEN 8471 OR EQUAL) WHEN CONNECTING DATA1 & DATA2 TO THE NETWORK.

4. CONSULT APPLICABLE ZENITH WIREING DIAGRAMS FOR ENGINE START CONTACT CONNECTIONS.

5. ATS SHOWN WITH NO UTILITY POWER PRESENT. SWITCH IS IN THE NORMAL POSITION.

FINISH: N/A			
MODIFIED BY: –	CHKD BY: –	PREP. BY: NDZ	1/18/12
–	–	ENGINE FAMILY: –	

Rocky Mountain
8211 E 96th AVE
HENDERSON, COLORADO 80640
PH: 303-287-0201
FAX: 303-287-4837

SITE NAME: HAROLD D THOMPSON WATER RECLAMATION	CONTACT NAME: –	CUSTOMER PROJECT NO: –	TITLE: INTERCONNECT PCC2100 NETWORK&Z-NET ANNUNCIATOR
CONTRACTOR NAME: MCDADE WOODCOCK	CONTACT NO: –	CRM PROJECT NO: 63439	SIZE B DWG NO: 5000537 REV: A
			SCALE: NONE DO NOT SCALE SHEET: 1 OF 1

TB-B-07 REV-D

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Response #1.c Supplemental Information

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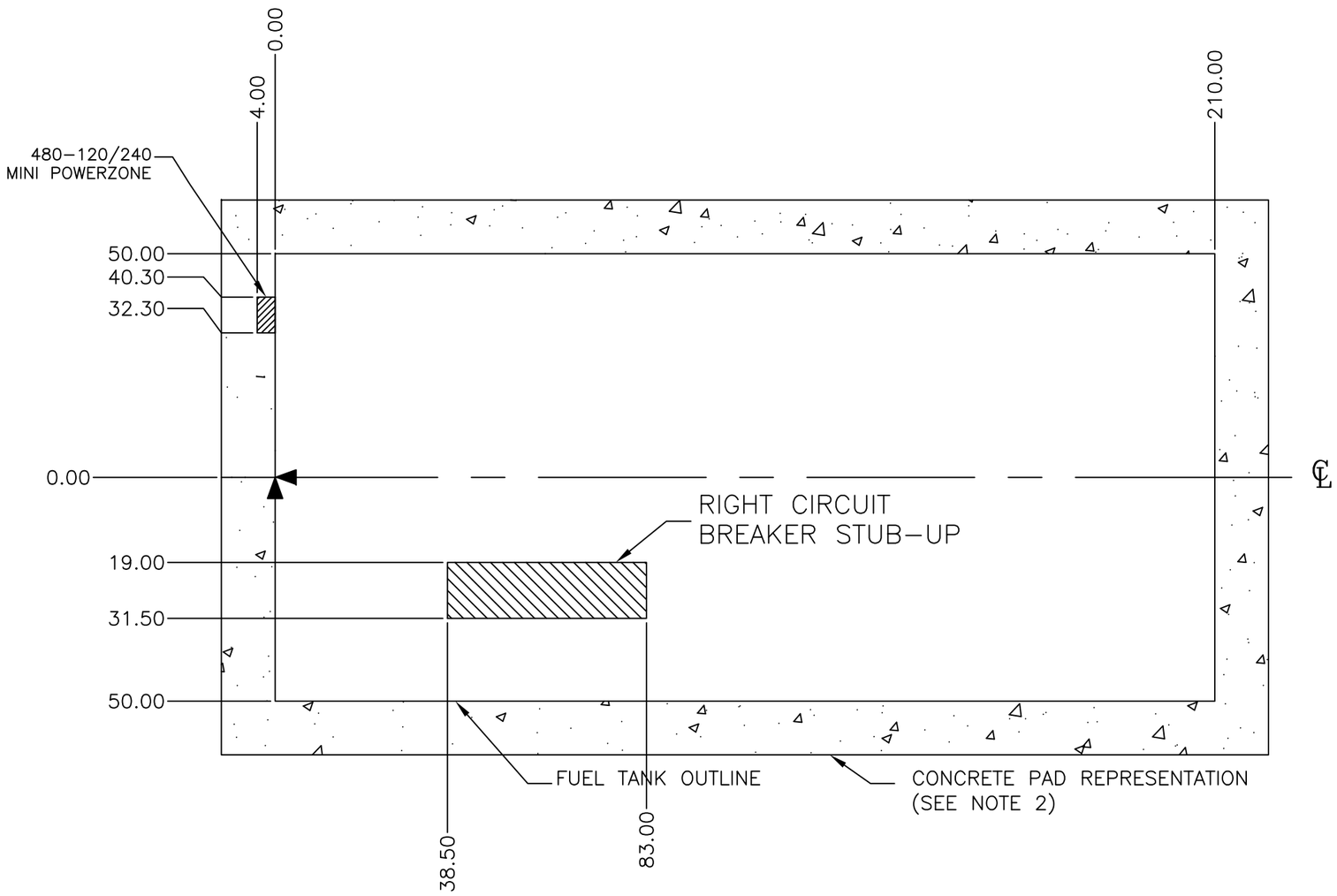
REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

NOTES:

1. ALL DIMENSIONS ARE IN INCHES.
2. CONCRETE MAINTENANCE PAD IS SHOWN FOR REPRESENTATION ONLY. NOT FOR CONSTRUCTION. FINAL SIZE & DESIGN BY OTHERS.
3. 0,0 DIMENSION STARTS AT REAR OF TANK.



UNLESS OTHERWISE SPECIFIED, ALL DIMS ARE IN INCHES

TOLERANCES:
FRACTIONAL: 1/16
.X: .06
.XX: .03
.XXX: .01
ANGLES: 5°

REFERENCES:	PREP. BY:	CHKD BY:	MODIFIED BY:	FINISH:
4072005	CLS	–	CLS	–
–	8–26–11	–	4–19–12	–

ENGINE FAMILY: QSK23

Cummins Rocky Mountain
8211 E 96th AVE
HENDERSON, COLORADO 80640
PH: 303-287-0201
FAX: 303-287-4837

SITE NAME: HAROLD D THOMPSON WRF	CONTACT NAME: –	CUSTOMER PROJECT NO: –	TITLE: ELECTRICAL STUB–UP
CONTRACTOR NAME: –	CONTACT NO: –	CRM PROJECT NO: –	SIZE: B / DWG NO: P2011–0140A / REV: B
			SCALE: 1:30 / DO NOT SCALE / SHEET: 4 OF 4

TB-B-07 REV-D

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Response #2.a Supplemental Information

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MHI

McCLURE–HILL INCORPORATED

Attn: **Brian Taylor/Cummins**
Date**: April 20, 2012**
Reference**: Harold D Thompson Water** **Quote Number: DB101011-5**

McClure-HILL, INC **(MHI)** is pleased to quote the following **GE Zenith Controls, Inc** bypass/isolation, automatic transfer switch

Item 2:

Model Number**: ZBTS00B00080EZEC01ZVC50MEXE**
Poles**: 3**
Enclosure**: NEMA 1**
Lugs: **4 #2 to 600 MCM-mech style lugs for all connections**
(no ground lugs or ground bus included)
Dimensions**: 90"H x 40"W x 42.25"D***

Amps**: 800**
Volts**: 480 - 3Ø, 3W**
Designation**: ----------**
Cable entry**: Top & bottom**
Weight**: 1355 lbs**
WCR**: 85,000 AIC (w/specific MCCB)**
200,000 AIC (w/current limiting fuse)

***(please note this ATS requires front and one other side access and this ATS has ventilation requirements on all sides) – 1600-4000 A only**

This ATS is equipped with the following accessories (microprocessor based, MX 250 and the MEXES option package):
A1-aux contact S.P.D.T. – normal (source 1) failure
A1E-aux contact S.P.D.T. – emergency (source 2) failure
BBA: Back Bay Adapter
2xA3- emergency (source 2) position aux contact
2xA4- normal (source 1) aux contact
Calibrate-microprocessor activated calibration feature
CD/P-programmable exerciser daily, 7-14-28-365 days user- selectable, with or without load
E-engine start relay
EL/P-event log of last 16 events
J2E-adjustable over/under frequency sensor (source 2 or emergency)
J2N-adjustable over/under frequency sensor (source 1 or normal)
K/P-frequency indication (on the controller)
K2-voltmeter & frequency on MX 250 LCD three phase display for both sources
L1-LED source 2 (emergency) position indicator
L2-LED Source 1(normal) position indication
L3-LED source 1 (normal) source availability indication
L4-LED source 2 (emergency) source availability indication
LN/P-center-off position / LCD indication on microprocessor
LBE-red indicating LED, bypass to "emergency, stand by or alternate" position
LBN-green indicating LED, bypass to "normal" position
LI-amber indicating indicating LED, ATS is "isolate" position
LT-amber indicating LED, ATS is "test" position
LDS-red indicating LED, "disconnect switch activated"
L12-red indicating LED, ATS is "inhibited" mode due to activation of bypass feature and/or DS switch activated
P1-engine start timer
Q2-peak shave/remote load test/area protection- relay (specify voltage)
R2E-Under voltage sensing (source 2 or emergency) (single phase)
R7-over voltage sensing (source 2 or emergency) single phase

Attn: **Brian Taylor/Cummins**
Date**: October 10, 2011**
Reference**: Harold D Thompson Water** **Quote Number: DB101011-5**

Item 2 continued:

R8-over voltage sensing (source 2 or emergency) 3 phase
R16-phase rotation sensing of source 1 and source 2
R17-under voltage sensing: source 2 (emergency) (3 phase)
R50-in phase monitor between source 1 and source 2 to allow transfer (with enable/disable)
S13/P-microprocessor activated commit/no commit on transferring to emergency source (with enable/disable)
T-retransfer to normal adjustable time delay
TS-test switch, "standard, quick and no load" options all embedded on MX 250 control panel and protected by security code
U-engine stop/cool adjustable cool down timer CD/P-programmable exerciser
VI-voltage imbalance between phases (applies to 3 phase only)
W-adjustable time delay on transfer to emergency source
YEN/P-bypass transfer timer function (soft switch in controller)
6/P-microprocessor activated test switch : a momentary test switch
ZNETL: Lon works communication module

All ATS's are equipped with password protected alpha numeric keypads for all adjustments, settings and configurations. All ATS's are equipped with event logging, transfer counter, LED test function, frequency and volt meters (both normal and alternate sources) on MX 250 control panel

Response #3.b.1 Supplemental Information

Our energy working for you.™

Cummins Power Generation

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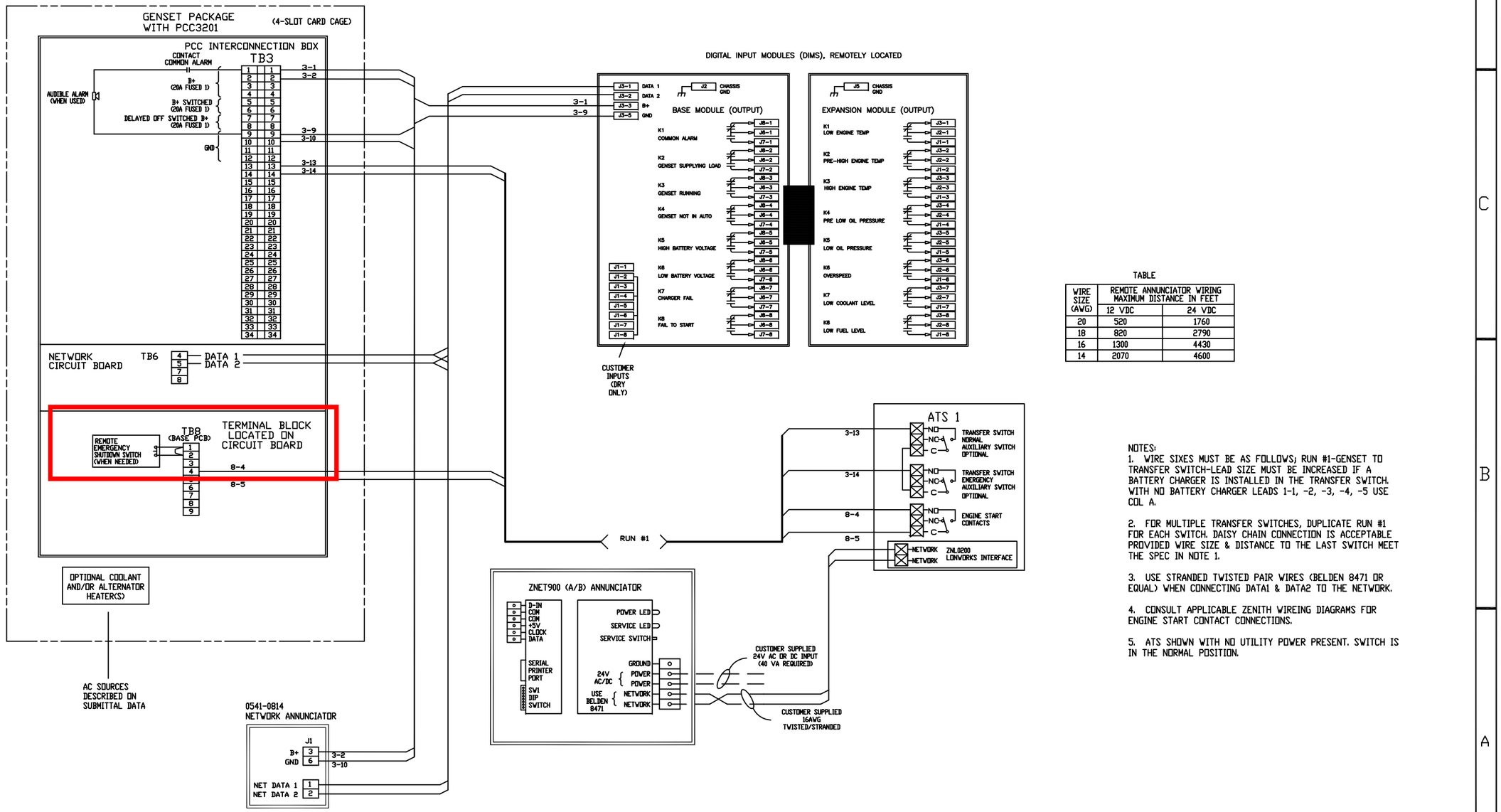
UNLESS OTHERWISE SPECIFIED, ALL DIMS ARE IN INCHES

TOLERANCES:
FRACTIONAL: 1/4
.X: .06
.XX: .03
.XXX: .01
ANGLES: 5°

REFERENCES: –

FINISH: N/A

REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED
B	D	MODIFIED BY: NDZ	CHKD BY: –	PREP. BY: CLS	1/18/12	–	8/26/09
A	–	ENGINE FAMILY: –					



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Cummins Rocky Mountain
8211 E 96th AVE
HENDERSON, COLORADO 80640
PH: 303-287-0201
FAX: 303-287-4837

SITE NAME: HAROLD D THOMPSON WATER RECLAMATION	CONTACT NAME: –	CUSTOMER PROJECT NO: –	TITLE: INTERCONNECT PCC3201 NETWORK&Z-NET ANNUNCIATOR
CONTRACTOR NAME: MCDADE WOODCOCK	CONTACT NO: –	CRM PROJECT NO: 63439	SIZE B / DWG NO: 5000536 / REV: A
			SCALE: NONE / DO NOT SCALE / SHEET: 1 OF 1

TB-B-07 REV-D

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Response #3.c Supplemental Information

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REVISIONS				
ZONE	REV	DESCRIPTION	DATE	APPROVED

NOTES:

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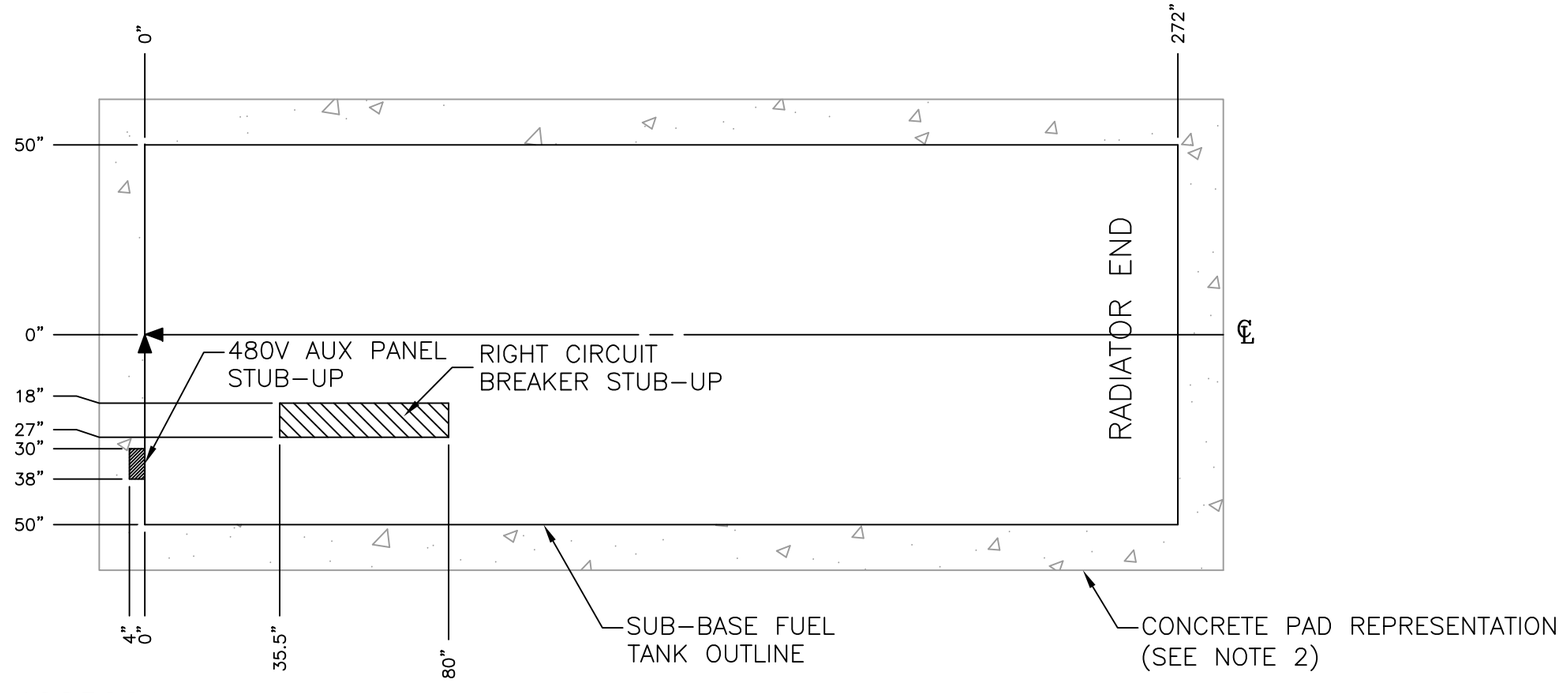
2. CONCRETE MAINTENANCE PAD IS SHOWN FOR REPRESENTATION ONLY. NOT FOR CONSTRUCTION. FINAL SIZE & DESIGN BY OTHERS.
3. 0,0 DIMENSION STARTS AT REAR OF THE TANK.
4. 120" MINIMUM CLEARANCE IS REQUIRED ON THE OUTLET OF THE ENCLOSURE TO AVOID AIRFLOW RESTRICTION ON THE AIR INLET.
5. A MINIMUM OF 60" REQUIRED BETWEEN THE FUEL TANK AND ANY BUILDING OR PROPERTY LINE, UNLESS APPROVED BY THE LOCAL A.H.J.



ENCLOSURE MODEL: 4085021

UNLESS OTHERWISE SPECIFIED, ALL DIMS ARE IN INCHES

TOLERANCES: FRACTIONAL: 1/16 .X: .06 .XX: .03 .XXX: .01 ANGLES: .5°

FINISH: N/A

REFERENCES:	PREP. BY:	CHKD BY:	MODIFIED BY:	
-	CLS	-	CLS	4/18/12
4085021	CLS	-	-	8/31/11
-	-	-	-	-

ENGINE FAMILY: QSK50

-

Cummins Rocky Mountain
8211 E 96th AVE
HENDERSON, COLORADO 80640
PH: 303–287–0201
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SITE NAME: HAROLD D THOMPSON WRF	CONTACT NAME: -	CUSTOMER PROJECT NO: -	TITLE: ELECTRICAL STUB UP	
CONTRACTOR NAME: -	CONTACT NO: -	CRM PROJECT NO: 63439	SIZE: B	DWG NO: P2011-0139A REV: B
			SCALE: 1:40	DO NOT SCALE SHEET: 3 OF 3

TB–B–07 REV–D

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