

DECKER ELECTRIC

Decker Electric, Inc

4500 W Harry Wichita, KS 67209

T: 316-265-8182

Submittal

Job: 1606-037
Wildcat Const-Pump Station
Sewage Treatment Plt 2
2305 E 57th Street S.
Wichita, KS 67213

Spec Section No: 26-0000
Submittal No: 1
Revision No: 1
Sent Date: 7/12/2016
Due Date: 7/19/2016

Spec Section Title:

Submittal Title: Switchgear & VFD's

Submitted by:

Decker Electric, Inc.
Jarret Bergkamp
4500 W Harry St
Wichita, KS 67209-2736

Sent to:

General Contractor:
Wildcat Construction Co Inc
Tyler Dehn
3219 W May
Wichita, KS 67213

Contractor's Stamp

DECKER ELECTRIC, INC.

Reviewed Jarret Bergkamp

Date 7/12/2016

Submittal No. 1

Rev No. 1

REVIEW OF ITEMS DOES NOT RELIEVE VENDOR
FROM COMPLYING WITH REQUIREMENTS OF
CONTRACT PLANS AND SPECIFICATIONS,
CONTRACT AND CITY, STATE, AND LOCAL CODES.

General Contractor/Owner's Stamp

Architect's Stamp

Engineer's Stamp **MKEC ENGINEERING, INC.**
411 N. WEBB ROAD • WICHITA, KS 67208

- Reviewed Revise and Resubmit
 Reviewed as Noted Rejected
 Not Required by the Contract Documents

Reviewed for conformance with the design concept of
the Project and compliance with the information given
in the Contract Documents. Contractor is responsible
for dimensions to be confirmed and correlated at the
job site; for information that pertains solely to the
fabrication process or to techniques of construction;
and for coordination of the work of all trades.

BY Byron Z. Baskins DATE 7-25-16



****RESUBMITTAL****

| | |
|---|---|
| Customer Decker Electric | Date 7/12/2016 |
| Address 4500 W. Harry Wichita, KS 67209 | Job Ref Reuse Water Pump Station-COW |
| Attention Jarret Bergkamp | PO N/A |
| | Our SO # N/A |

We are enclosing herewith 1 copies of cuts/drawings. Please complete section below marked "To Be Completed By Customer" and return this form with approved cuts to the Sender noted below.

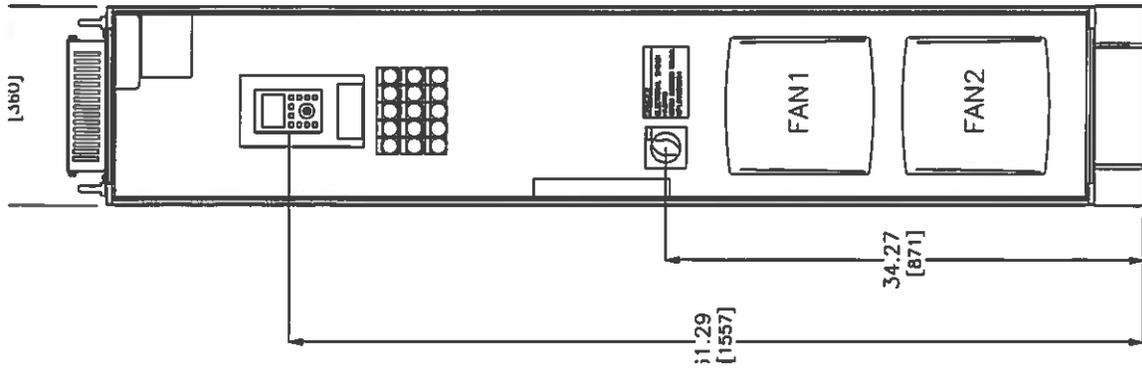
| Type | Catalog Number or Drawing Number and Date | Manufacturer | Approximate Lead Time in Weeks |
|------|---|--------------------------------|--------------------------------|
| VFDs | Q2C 38325400Q1 | Square D by Schneider Electric | 6 Weeks |
| | | CITY WANTS ABB SWITCHGEAR ONLY | |
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|---|--|---|--------------------------------------|
| To Be Completed By Graybar | | To Be Completed By Customer | |
| <input checked="" type="checkbox"/> For Approval | <input type="checkbox"/> For Record Only | <input type="checkbox"/> Approved | <input type="checkbox"/> Disapproved |
| <input checked="" type="checkbox"/> Please return <u>1</u> copies of approved cuts. | | <input type="checkbox"/> To be revised and resubmitted for final approval | |
| | | <input type="checkbox"/> Approved as noted | |

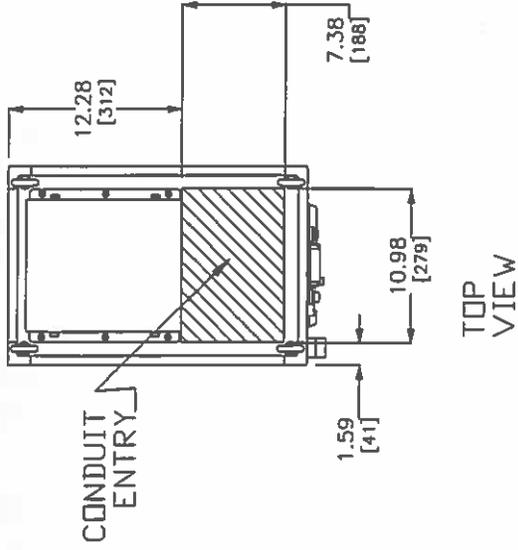
- PLEASE NOTE THE APPROXIMATE LEAD TIMES INDICATED ABOVE. WE ASK THAT YOU ALLOW AT LEAST THAT AMOUNT OF TIME AFTER THE RETURN OF YOUR APPROVED CUTS. THIS SUBMITTAL REPRESENTS OUR INTERPRETATION OF THE PROJECTED PLANS AND SPECIFICATIONS AS THEY RELATE TO THE EQUIPMENT COVERED.
- VOLTAGES ARE SHOWN FOR FLUORESCENT AND H.I.D. EQUIPMENT. IF VOLTAGE REQUIREMENTS ARE OTHER THAN INDICATED, THE SUBMITTAL SHOULD BE APPROVED AS NOTED, AND THE CORRECT VOLTAGE SHOWN. IF NO VOLTAGE IS SHOWN, IT IS OUR INTENT TO FURNISH 120 VOLT.
- PLASTER FRAMES AND OTHER AUXILIARY EQUIPMENT SUCH AS STEMS, CHAIN HANGERS, SPECIAL FUSING, ETC., ARE NOT INCLUDED EXCEPT WHEN SPECIFICALLY INDICATED, OR WHEN FURNISHED AS AN INTEGRAL PART OF THE EQUIPMENT AS DESCRIBED BY CATALOG NUMBER.
- SPECIAL FINISHES SHOULD BE NOTED, IF NOT SPECIFICALLY INDICATED. EVERY EFFORT HAS BEEN MADE TO SUBMIT THE CORRECT FIXTURE FOR THE CEILING REQUIRED. FINAL DETERMINATION IS THE RESPONSIBILITY OF THE CONTRACTOR.
- WE ASSUME THE RESPONSIBILITY FOR FURNISHING MATERIAL ONLY AS SUBMITTED. ANY DEVIATION MUST BE NOTED ON THE COPIES RETURNED.

Remarks: This is an electronic resubmittal set of approval drawings for the VFDs only.

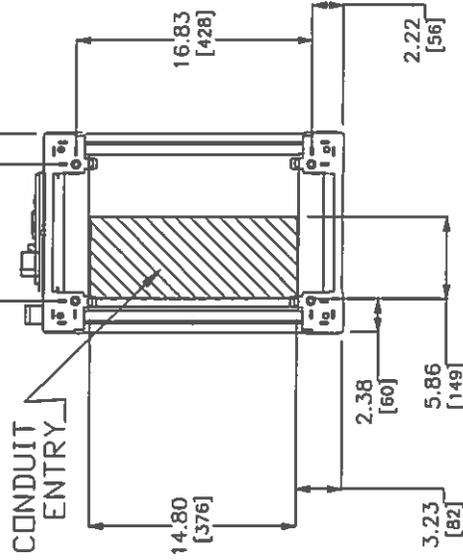
| |
|---|
| Sender Jonathan Ensz % Graybar Electric Company, Inc. |
| Address 3609 W. Pawnee Wichita, KS 67213 |



FRONT VIEW



TOP VIEW



BOTTOM VIEW
MOUNTING
LOCATIONS

PILOT DEVI



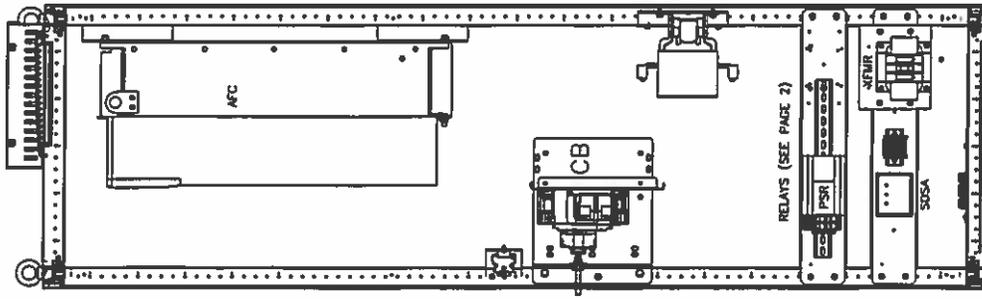
NOTES:

△ REFER TO CONTROL

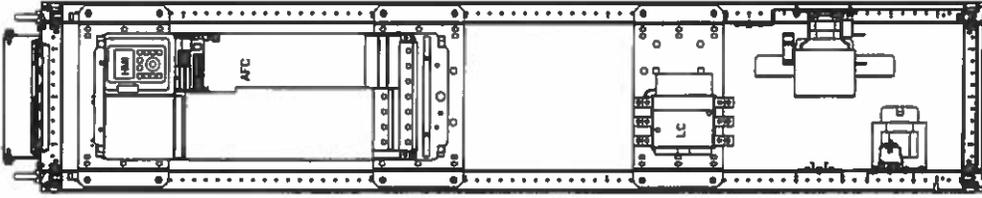
ENCLOSURE OUTLINE & GENERAL ARRANGEMENT

△ ATV660 D75 T4 N G

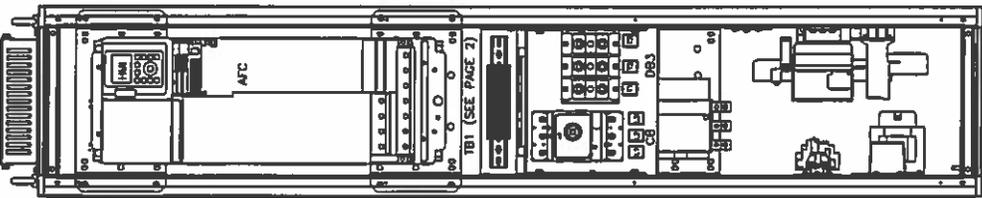
| MAX FLA | KILOWATTS/HP | VOLTAGE/PH | DUTY TYPE |
|----------|--------------|------------|-----------|
| 124 AMPS | 75KW/100HP | 460V/3 PH | NORMAL |



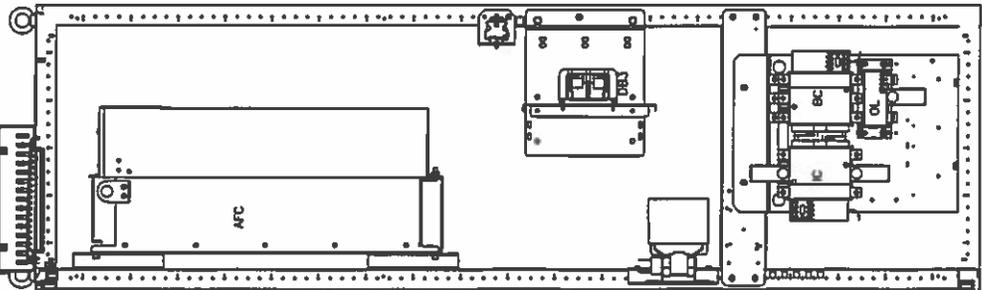
RIGHT VIEW



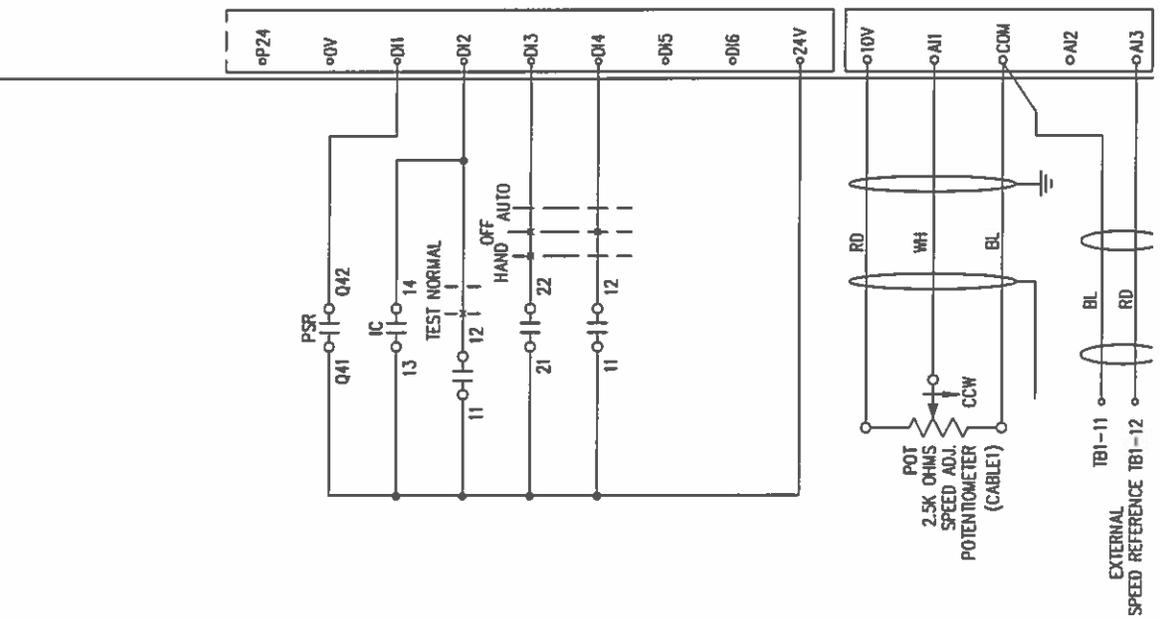
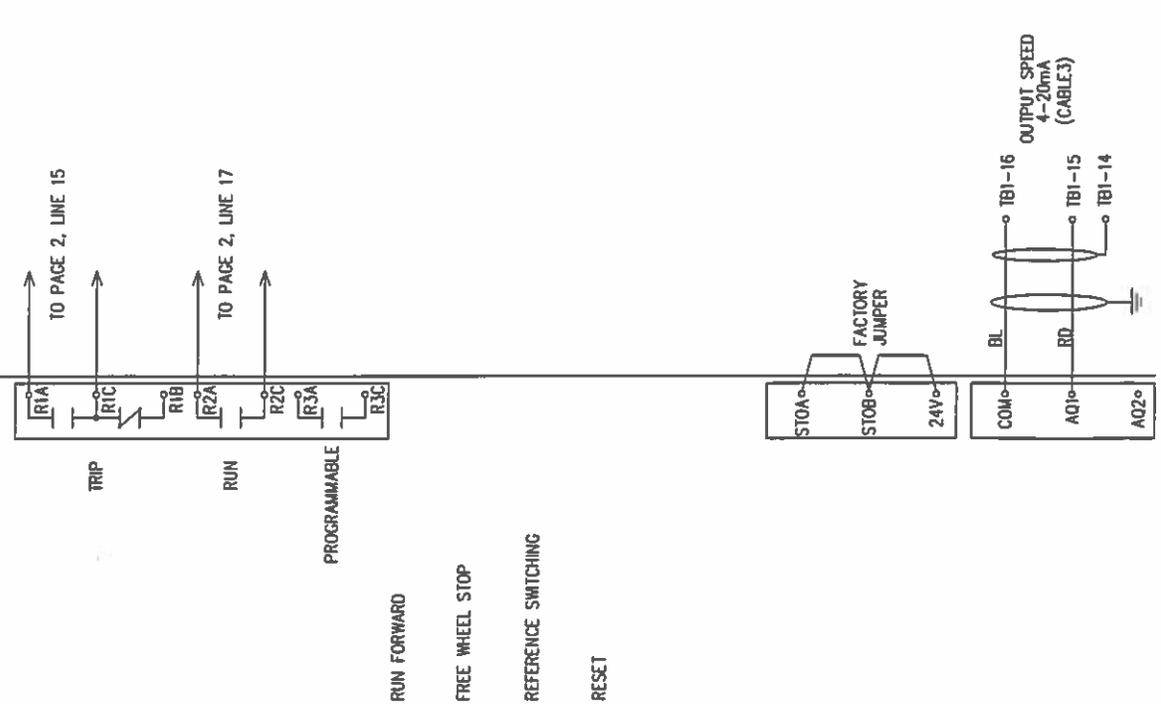
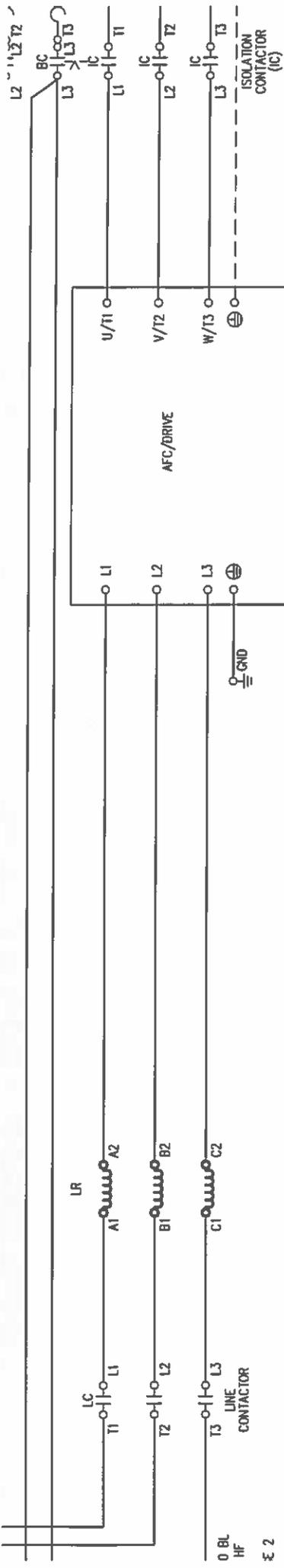
FRONT VIEW (BACK PANEL ONLY)



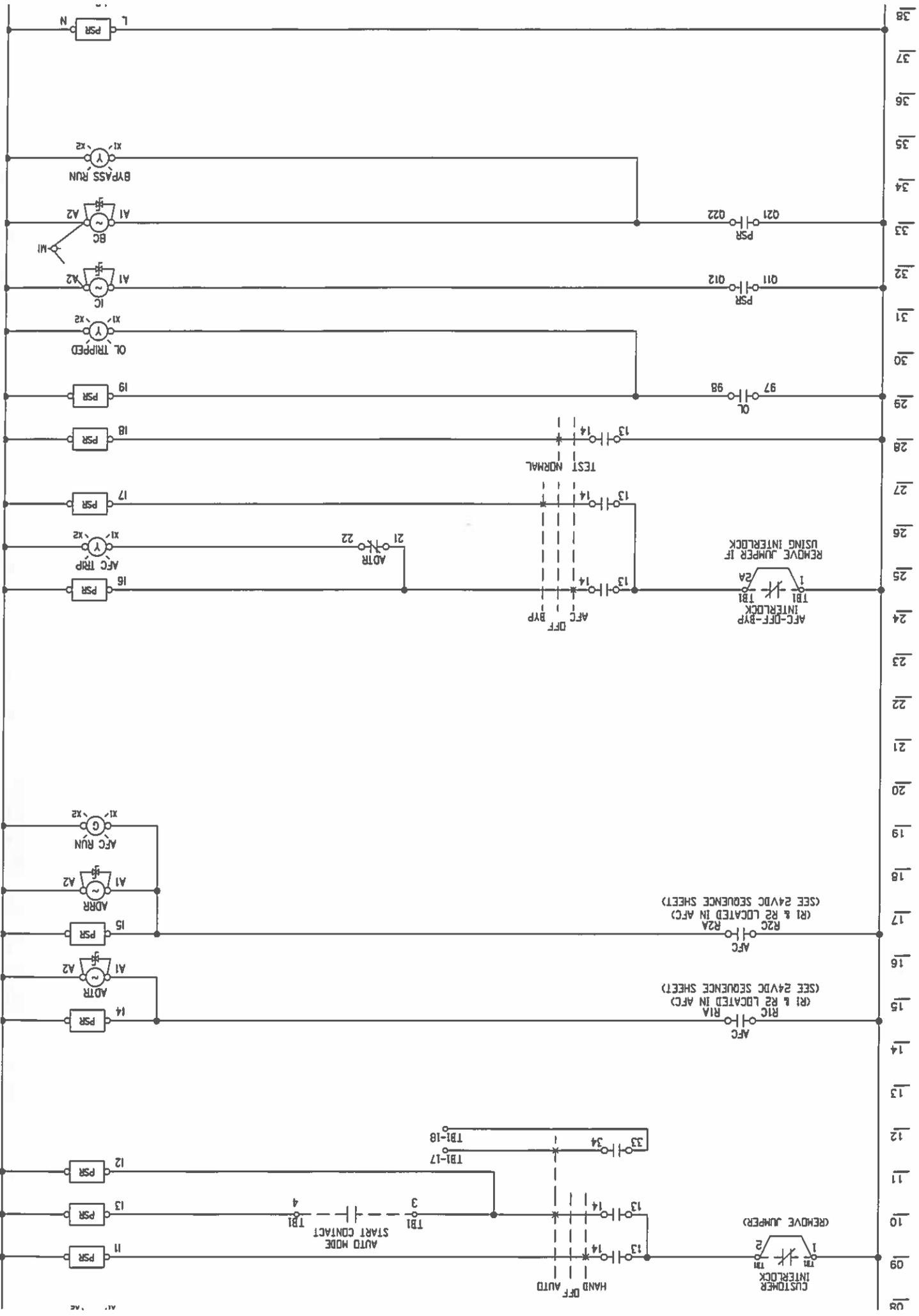
FRONT VIEW



LEFT VIEW



| SETTING | CODE | ADJ |
|--------------------------|------|-----|
| 2C | TCC | 2C |
| 60HZ NEMA | BFR | 60 |
| 60 | IFR | 60 |
| 3 | LSP | 3 |
| 10 | ACC | 10 |
| 10 | DEC | 10 |
| 2.5 | SFR | 2.5 |
| AJ3 | FRI | AJ3 |
| DJ3 | RFC | DJ3 |
| LEVEL | TCT | LEL |
| A11 | FR2 | A11 |
| CONTROL MODE I/O PROFILE | CHCF | 10 |
| DJ3 | CCS | DJ3 |
| TERMINAL | CD1 | TER |
| TERMINAL | CD2 | TER |
| CURRENT | AJ3T | 0A |
| 4 | CRL3 | 4 |
| MOTOR FREQUENCY | A01 | 0FR |
| 4 | A01L | 4 |
| OPERATING STATE | R1 | FLT |
| DRIVE RUNNING | R2 | RUN |
| FREEWHEEL STOP | NST | DJ2 |
| YES | FLR | YES |
| DJ4 | RSF | DJ4 |



| Terminal | Component / Description |
|----------|----------------------------------|
| 31-5 | AFC RUN STATUS (SHOWN STOPPED) |
| 31-6 | AFC TRIP STATUS (SHOWN TRIPPED) |
| 31-7 | AFC TRIP STATUS (SHOWN TRIPPED) |
| 31-8 | AFC TRIP STATUS (SHOWN TRIPPED) |
| 31-9 | AFC TRIP STATUS (SHOWN TRIPPED) |
| 31-10 | AFC TRIP STATUS (SHOWN TRIPPED) |
| 31-17 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-18 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-19 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-20 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-21 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-22 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-23 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-24 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-25 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-26 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-27 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-28 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-29 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-30 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-31 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-32 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-33 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-34 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-35 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-36 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-37 | AUTO MODE STATUS (SHOWN IN HAND) |
| 31-38 | AUTO MODE STATUS (SHOWN IN HAND) |

R2A
R2C
(R1 & R2 LOCATED IN AFC)
(SEE 24VDC SEQUENCE SHEET)

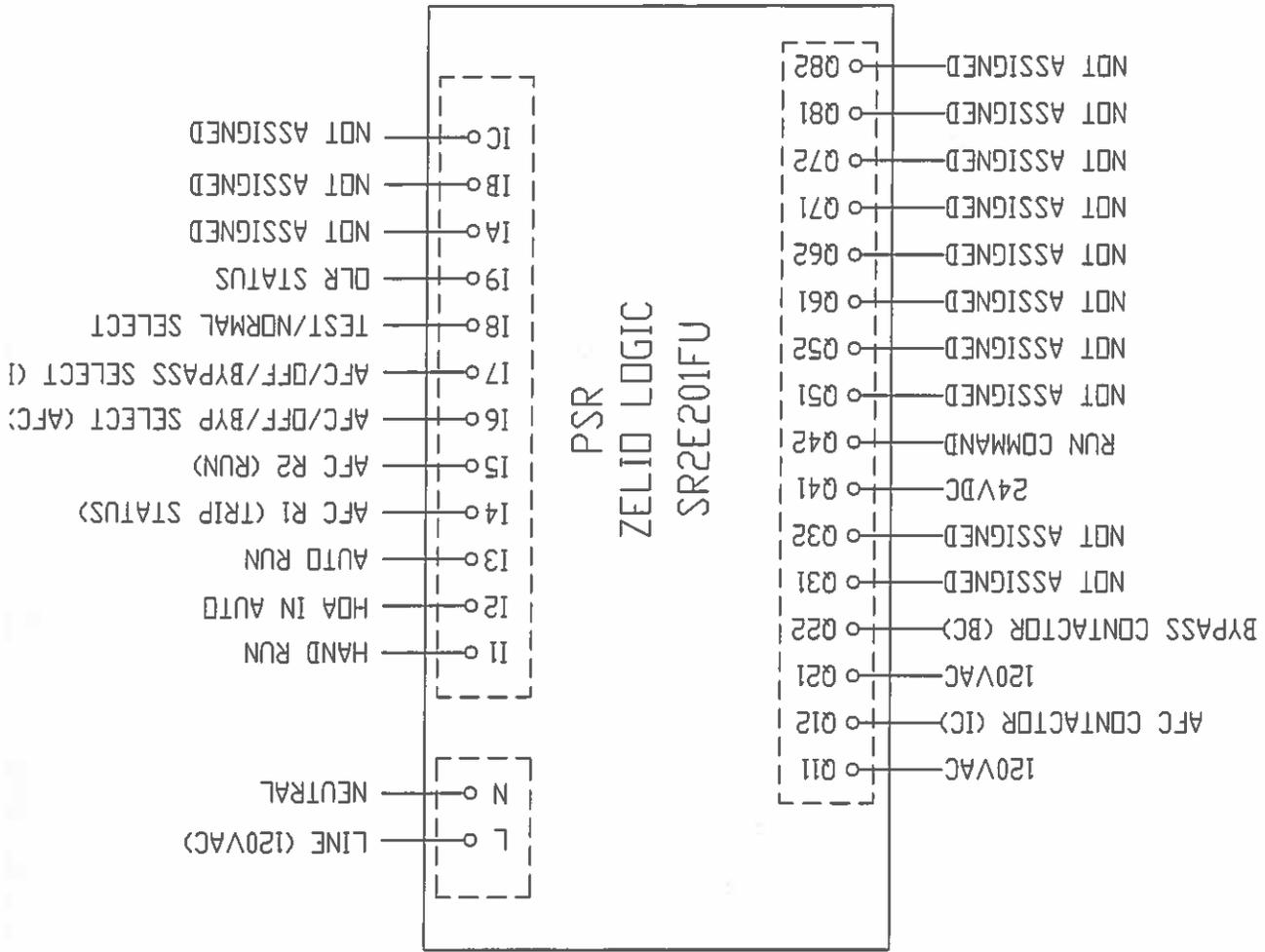
R1A
R1C
(R1 & R2 LOCATED IN AFC)
(SEE 24VDC SEQUENCE SHEET)

AFC-DEF-BYP
INTERLOCK
REMOVE JUMPER IF
USING INTERLOCK

AFC-DEF-BYP
INTERLOCK
TEST NORMAL

CUSTOMER
INTERLOCK
REMOVE JUMPER

AUTO MODE
START CONTACT



Re-Use Water Pump Station / City of Wichita, Kansas

Switchgear & VFDs – Spec Section 26-000 – Submittal No. 1 Review Notes – Supplier Responses

Items were highlighted in yellow for verification and green for provision, and are so noted below.

Section

8.1.1 Verified the drive system is rated for 40 deg C continuous duty. The VFD is rated for 145 amps output current, but the drive system and bypass is rated for 124 amps at 480 volts.

8.2.7 A 5% impedance line reactor has been added to the bill of material and will be provided.

8.2.8 A UL Type 1 Surge Protective Device for AC Transient Protection has been added to the bill of material and will be provided.

8.3.1 Verified that two PID setpoints are available and can be programmed as required during start-up services.

8.3.4 Three Form C Relays will be wired to the VFD extended relay module, and customer wiring for the Form C contacts will be supplied on the field wiring terminal block.

8.4.1 Verified with Ed McGrath of R E Pedrotti that all interface with the control system will be via hard wiring. Field wiring terminals will be provided for the following signal requirements: an analog input for speed reference, an analog output for speed feedback, three discrete relay outputs for Run / Fail / Auto indication, and one discrete input for the auto start command. An RS485 port is available with Modbus and CAN open comms. Additionally, an Ethernet port is available for communications. Optional networks available are Profibus and DevuceNet.

8.5 The drive includes a Category C3 EMC Filter and RFI shielding to meet IEC 1000: (Electromagnetic Compatibility) and IEC 801-2,-3,-4,-5: (Immunity Tests) standards.

8.6.3 Fast acting fuses are exclusive to the VFD and the bypass circuit is protected by the circuit breaker disconnect. Additionally, an input contactor to the VFD is provided to provide isolation for service during bypass operation.

8.6.6 Additional relays to those found on the drawings or the bill of materials can be provided. In addition to function, please provide the device (ie, VFD, bypass contactor interlock, control power, selector switch) that is expected to provide the function . A wiring diagram or notes added to the drawings in addition to the description is desirable.

8.6.11 Manual or automatic bypass functionality can be provided. **Automatic bypass is not recommended by the drive manufacturer**, because a motor fault that would trip the drive and initiate a transfer to bypass could cause further system damage.

8.6.12 An adjustable current sensor will be provided to detect loss of load when in Bypass mode.