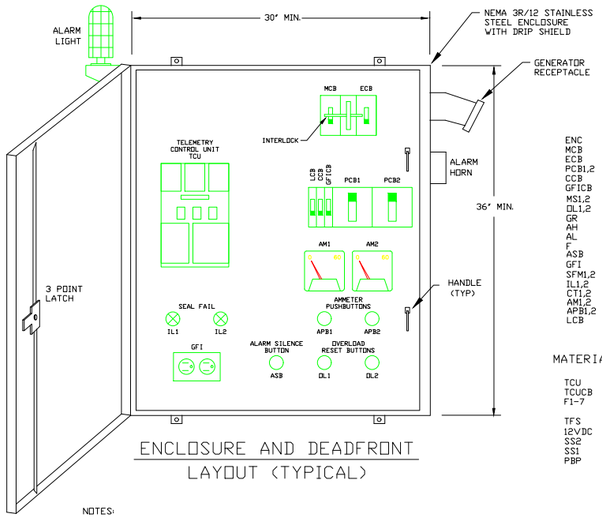
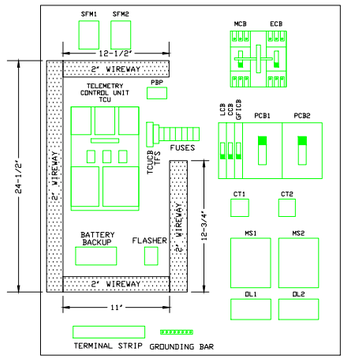



ENCLOSURE AND DEADFRONT
LAYOUT (TYPICAL)

NOTES:

1. OUTER BOX SIZE WILL BE A MINIUM OF 30"W X 36"H X 12"D.
2. DEAD FRONT DOOR SHALL HAVE A MINIMUM OF TWO LATCHES




ENCLOSURE BACKPLATE
LAYOUT (TYPICAL)

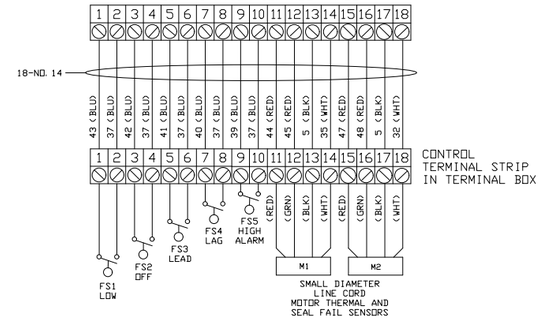
## BILL OF MATERIALS

| | | |
|---|---|---|
| ENC | ENCLOSURE,304SS | HOFFMAN, A-36H3012SSLP W/3PT LATCH |
| MCB | MAIN CIRCUIT BREAKER | SQ-D, QOU, FAL, FHL (DEPENDING ON AIC) |
| ECB | EMERGENCY CIRCUIT BREAKER | SQ-D, QOU, FAL (DEPENDING ON AIC) |
| PCB1,2 | PUMP CIRCUIT BREAKER | SQ-D, FAL |
| CCB | CONTROL CIRCUIT BREAKER | SQ-D, QOU120 |
| GFICB | GFI CIRCUIT BREAKER | SQ-D, QOU120 |
| MS1,2 | MOTOR STARTER | SQ-D, 8536 |
| OL1,2 | OVERLOAD UNIT | SQ-D, MOTOR LOGIC SSOLR TYPE SF OR ST W/GROUND FAULT |
| GR | GENERATOR RECEPTACLE | RUSSELL STOLL, JRSB1044FR (100A) OR JRSB2044FR (200A) |
| AH | ALARM HORN | FEDERAL 350-WB-120 |
| AL | ALARM LIGHT | RAB, VBR1/GD100D/GL100R |
| F | FLASHER | INGRAM, SSF150W |
| ASB | ALARM SILENCE BUTTON | SQ-D, 9001 SKR1BH5 |
| GFI | CONVIENENCE RECEPTACLE | LEVITON, 8898-I |
| SFM1,2 | SEAL FAIL MODULE | SSAC, LLC54BA |
| IL1,2 | INDICATING LIGHT | SQ-D, 9001 SKP3BR9 |
| CT1,2 | CURRENT TRANSFORMER | INST. TRANSFORMERS, INC. 2SFT-___ |
| AM1,2 | AMMETER | YOKOGAWA, YE-250-340-LS__ |
| APB1,2 | AMMETER PUSH BUTTON | SQ-D, 9001 SKR1BH13 |
| LCB | LIGHTING CIRCUIT BREAKER | SQ-D, QOU120 |

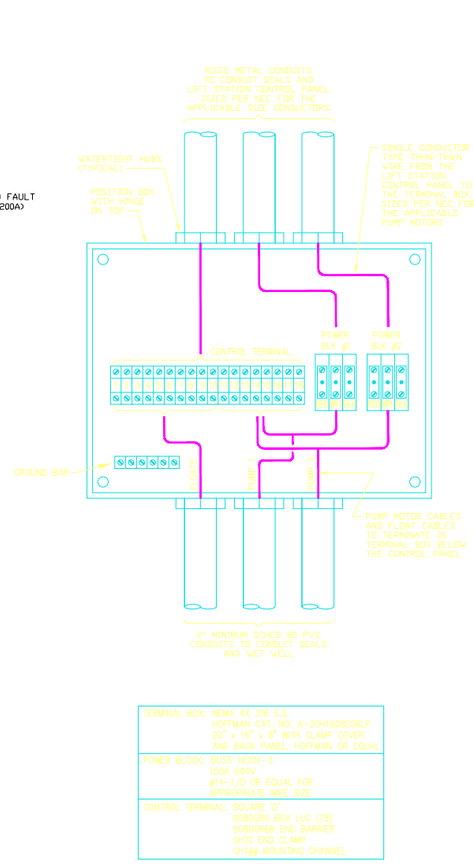
## MATERIAL ITEMS TO BE INCLUDED WITH DFS TCU001 CONTROLLER

| | | |
|---|---|---|
| TCU | TELEMETRY CONTROL UNIT | DATA FLOW, DFS TCU001 W/TAC PAC |
| TCUCB | RTU CIRCUIT BREAKER | E-T-A, ETA-42-01, 10AMP. |
| F1-7 | FUSE AND HOLDER | WAGO, DFS-00271-008-9 SLOW BLOW |
| | FUSE HOLDER END | WAGO, 281-309 |
| TFS | TRASIENT FILTER SHIELD | DATA FLOW TFS001-02 |
| 12VDC | BATTERY BACKUP | YUASA, NP2.6-12 12 VDC @ 2.6AM |
| SS2 | 230V SURGE SUPRESSDR (TPS001) | DITEK, DFS PN# 005-0062 |
| SS1 | 120V SURGE SUPRESSDR (SPS001) | DITEK, DFS PN# 005-0061 |
| PBP | POLYPHASER BROADBAND PROTECTOR | POLYPHASER, IS-B50LN-C2-MA |

CONTROL TERMINAL STRIP
IN LIFT STATION CONTROL PANEL

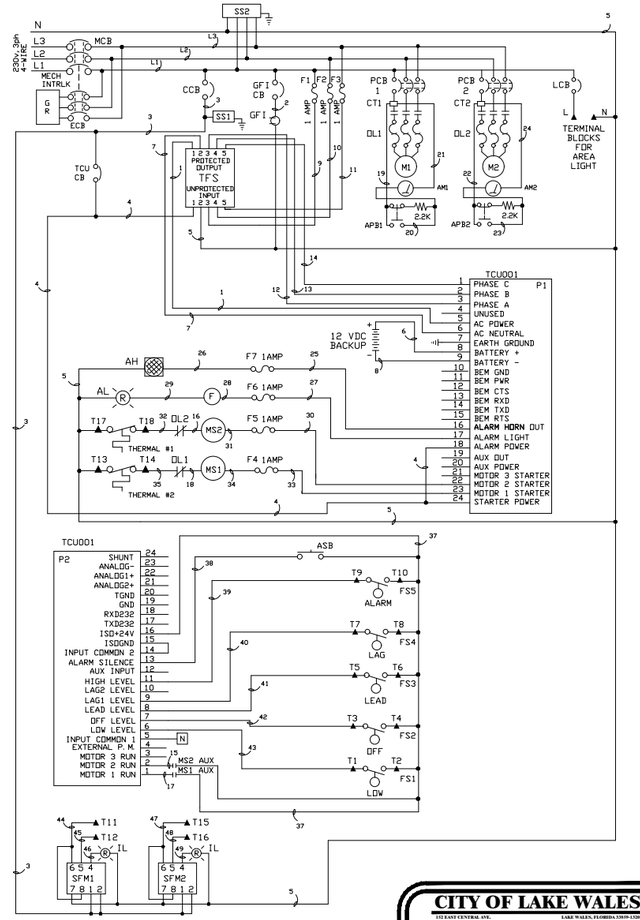



DETAIL NO.2 TERMINAL BOX CONNECTIONS
DUPLEX STATION




| | |
|---|---|
| TERMINAL BOX: | NEMA 4X 316 S.S. HOFFMAN CAT. NO. A-20H1608SSGLP 20" x 16" x 8" WITH CLAMP COVER AND BACK PANEL, HOFFMAN OR EQUAL |
| POWER BLOCK: | BUSS 16201-3 150A 600V #14-1/0 OR EQUAL FOR APPROPRIATE WIRE SIZE |
| CONTROL TERMINAL: | SQUARE 'D' 9080GR6 BOX LUG (18) 9080GR6B END BARRIER QHB5 END CLAMP QHB## MOUNTING CHANNEL |

DETAIL NO.1 TERMINAL BOX
DUPLEX STATION




SCHEMATIC DIAGRAM

NOTES:

1. WIRING SHOWN IS FOR A DUPLEX LIFT STATION WITH 230/120V, 3 PHASE, 4 WIRE SERVICE CONNECTION. LIFT STATIONS WITH 480V, 3 PHASE SERVICE CONNECTIONS SHALL HAVE A 1.5KVA, 480-120VAC CONTROL POWER TRANSFORMER WITH TWO PRIMARY AND ONE SECONDARY CONTROL POWER FUSES TO SERVE THE 120VAC CIRCUIT BREAKERS IN THE PANEL.
2. MAIN AND EMERGENCY CIRCUIT BREAKERS MCB AND ECB SHALL BE MECHANICALLY INTERLOCKED TO PREVENT BOTH CIRCUIT BREAKERS FROM BEING ON AT THE SAME TIME.
3. THREE PHASE POWER MONITOR IS CONTAINED IN THE DFS TCU TELEMETRY CONTROL UNIT.
4. MOTOR OVERLOAD DEVICES SHALL BE PROVIDED WITH GROUND FAULT PROTECTION FOR PUMP MOTOR CABLES.
5. THE CONTRACTOR SHALL CONTACT DATA FLOW SYSTEMS (DFS) AT PHONE 321-259-5009 FOR THE COMPLETE TELEMETRY CONTROL SYSTEM INCLUDING TCU TAC PACK EQUIPMENT AND ANTENNA. DFS SHALL PERFORM THE REQUIRED FCC SURVEY FOR THE TELEMETRY CONTROL SYSTEM. THE CONTRACTOR SHALL INCLUDE ALL COSTS ASSOCIATED WITH THE DFS WORK IN THE CONTRACTOR'S BID PRICE INCLUDING ANY MISCELLANEOUS MATERIAL REQUIRED BY DFS TO COMPLETE THE INSTALLATION.
6. THE CONTRACTOR SHALL FURNISH AND INSTALL THE COMPLETE LIFT STATION CONTROL PANEL AND ASSOCIATED EQUIPMENT. THE CONTROL PANEL SHALL INCLUDE ALL ENGINEERING, FABRICATION AND TESTING PER UL 508A. THE CONTROL PANEL SHALL BE UL508A LISTED AND LABELED AS A COMPLETE ASSEMBLY FOR INDUSTRIAL CONTROL PANELS.

| ISSUE CODE | |
|---|---|
| MODIFIED | ROS 01-29-25 |

CITY OF LAKE WALES
111 EAST CENTRAL AVE. LAKE WALES, FLORIDA 33859-3328

Crown Jewel of the Ridge

| REV NO. | CODE | LOCATION | DATE |
|---|---|---|---|
| REV. BY | | | |

NOTE:
1. The information on this map is provided by the department of UTILITIES.
2. The location of UTILITIES are to be located by a city employee. With a minimum 48 hour notice.
3. For more information call UTILITIES at 863-678-4189 or fax 863-678-4074

| ISSUE CODE | | | |
|---|---|---|---|
| A | PRELIMINARY | B | DESIGN |
| C | BIDS | D | CONSTRUCTION |
| | | E | APPROVAL |

DESIGN: AND CHK'D BY: SCALE: N.T.S.
DATE: 9/1/07
DRAWN BY: JHH-34243 ENGR. APPR.

DRAWING TITLE
LIFT STATION CONTROL PANEL
JOB NO.
WASTEWATER CONTROL PANEL
AREA
CITY-OF-LAKE-WALES
REV. 0

TECHNICAL SPECIFICATION "TAC PACK TCU"

1. TAC PACK TCU

1.1 TELEMETRY CONTROL UNIT

The Telemetry Control Unit (TCU) shall be a microprocessor-based multi-pump controller mainly designed for automatic pump station control. The TCU shall include an integrated radio as specified in paragraph 1.2. The TCU shall incorporate the following features:

a) On-Board 12-button operator interface keypad and 4x20-character LCD display. Configuration parameters shall be adjustable via the 12-button operator interface keypad or required RS-232 service port.

b) The LCD display shall provide the elapsed runtime of each pump, the average runtime of each pump, the flow of each pump, the flow of the station and the time of day.

c) Triplex/Duplex/Simplex configurable. The device shall have the capability of easily being configured for one, two or three pumps via the on-board keypad.

d) Three (3) on-board HOA switches. Local manual control provided by the HOA switches. Each HOA switch shall be fail safe and operable in the OFF and HAND position without power. Alarms shall indicate that an HOA switch has been left in the HAND or OFF position.

e) Integrated pump alternation. The pump alternation function will operate based on the number of pumps configured. Automatic alternation around non-operational pumps shall be provided.

f) Pumps/Starter/Breaker Fault alarms shall be determined by the unit automatically. These conditions are activated when a pump is called to run, but fails to run, or if the pump is turned off by the TCU, but continues to run.

g) Multiple level control input options. The unit shall provide local automatic level control from float, bubbler, transducer, or ultrasonic inputs. Redundancy of level control input shall be supported. An alarm shall be generated when floats are operating out of sequence.

h) On-board 240 / 480 VAC three-phase-power monitor. The phase monitor shall be transient-isolated and detect loss of phase, phase reversal, low phase and high phase faults. All phase monitor adjustments shall be adjustable from the keyboard. Phase voltages from phase A to B and from phase A to C shall be transmitted to the central site computer.

i) Integrated Alarm Light output and Alarm Horn output, each capable of driving 120 VAC loads to ½ amp. An input shall be supplied for external alarm silence button, which shall be used to silence the Alarm horn.

j) The unit's internal power supply shall keep the backup battery at a float charge. The backup battery shall not be damaged by deep discharges.

k) All inputs and outputs shall be optically or magnetically isolated and surge suppressed.

l) A local RS-232 service port shall provide local access to all the functions of the unit.

m) The TCU shall be easily removed/replaced by removing two industry standard wire terminal connectors.

n) Wire terminals shall be used as an interface between the TCU and field wiring. Fuses and voltage reducing resistors shall be used where required by the manufacturer. Wire terminals shall be housed in the same enclosure as the TCU.

o) Supply voltage shall be 115 VAC. Ambient operating temperature shall be -10OC to 60OC (14OF to 140OF). The upper temperature limit is 50OC (122OF) when using the backup battery. Unit shall be UL Listed and surge tested for EMI Susceptibility to IEC 61000-4-5 Surge Immunity Tests.

1.2 INTEGRATED RADIO

The Integrated Radio shall function as the interface between the TCU and TAC II central site. The Integrated Radio shall be installed inconcentric radio enclosure provided by electronics. The Integrated Radio shall be mounted inside the TCU radio compartment. The combination of the TCU / Integrated Radio is referred to as model TAC Pack TCU. The Integrated Radio shall have the following features:

a) Surge protected radio power.

b) On board communications and functional firmware.

c) Watchdog Timer.

d) On board voltage regulation and radio power supply control.

e) Radio current, receiver sensitivity and operating temperature are monitored for system diagnostics.

1.3 "BACKUP" BATTERY

The TAC Pack TCU shall be provided with a 3.0 AHr backup battery. The unit's internal power supply shall keep the backup battery at a float charge. The backup battery shall not be damaged by deep discharges.

1.4 SURGE PROTECTION

Multiple staged surge protection shall be provided for all power supply and power monitoring circuits. One stage of protection shall be equipped with both energy limiting and clamping circuits with slow blow fuses designed for overload conditions. This design shall provide a very high level of non-destructive transient immunity with the exception of a direct lightning strike, the device shall protect the TCU power supply and power monitoring circuits from damage due to voltage transients. The unit shall provide circuit protection to withstand multiple transients in excess of 6,500 volts, 3,250 amps, without damage. Damage shall be limited to a blown fuse when exposed to larger transients. The device shall be transient-tested to ANSI standard C62.41. The unit shall be the Transient Filter Shield TFS001 as manufactured by Data Flow Systems. The AC power input protection shall be the Single Phase Suppresser SPS001 as supplied by Data Flow Systems. Three phase power input protection shall be the Three Phase Suppresser, TPS001 as supplied by Data Flow Systems. 480V three phase power applications shall include in the required 480V component assembly. The RTU shall be protected from electrical surge or transients entering through the coaxial cable by use of a coaxial cable surge protector. The coaxial cable surge protector shall be model IS-B50LN-C2M manufactured by Polyphaser. This specified surge protection is required by the manufacturer for warranty purposes and must be properly installed with the TAC Pack TCU.

1.5 ANTENNA SUBSYSTEM

Data Flow Systems shall determine the antenna height above ground level. A high gain directional antenna shall be used to transmit and receive data. The directional antenna shall have all welded aluminum elements, and a single radiator element connected to a type 'N' female connector. Element connections utilizing nuts and bolts are not acceptable. The antennas shall be the RTA series as provided by Data Flow Systems. When an antenna mast/pole is utilized, it shall be hot dipped galvanized for corrosion protection. All mounting hardware shall be made of stainless steel. The coax cable shall be the type that utilizes an inert semi-liquid compound to flood the copper braid. The coax cable shall be of the RG-8 construction type and have the RF-loss characteristic of foam flex. The coax cable shall be the RTG 400 as supplied by Data Flow Systems. Type 'N' connectors shall be utilized at both ends of the coax. The Type 'N' connectors shall be sealed with 3-inch sections of Alpha FIT321-1200 heat shrink-tubing. The coax cable shall be secured to the mast/pole with EVA-coated.316 stainless steel cable ties. The cable ties shall be AE112 cable ties manufactured by Band-It.

2. WARRANTY

The equipment supplier shall warrant all hardware provided under this contract against all defects in material and workmanship for a period of one year. The TAC Pack TCU shall carry an additional 2-year return-to-manufacturer warranty and shall be warranted against damage due to lightning and surge the entire three year period.

3. SERVICE

The equipment supplier shall offer full factory support of the installed products through the use of factory employees. Service representatives who are not direct employees of the system supplier shall be unacceptable. The customer shall have 24 hours per day access to service personnel through the use of cell phone.