



# CITY OF TAMPA

Bob Buckhorn, Mayor

CONTRACT ADMINISTRATION DEPARTMENT

David L. Vaughn, AIA, Director

## ADDENDUM NO. 2

**DATE: November 22, 2013**

Contract 14-C-00006; Lake Eckles Pump Station and Force Main Replacement

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.

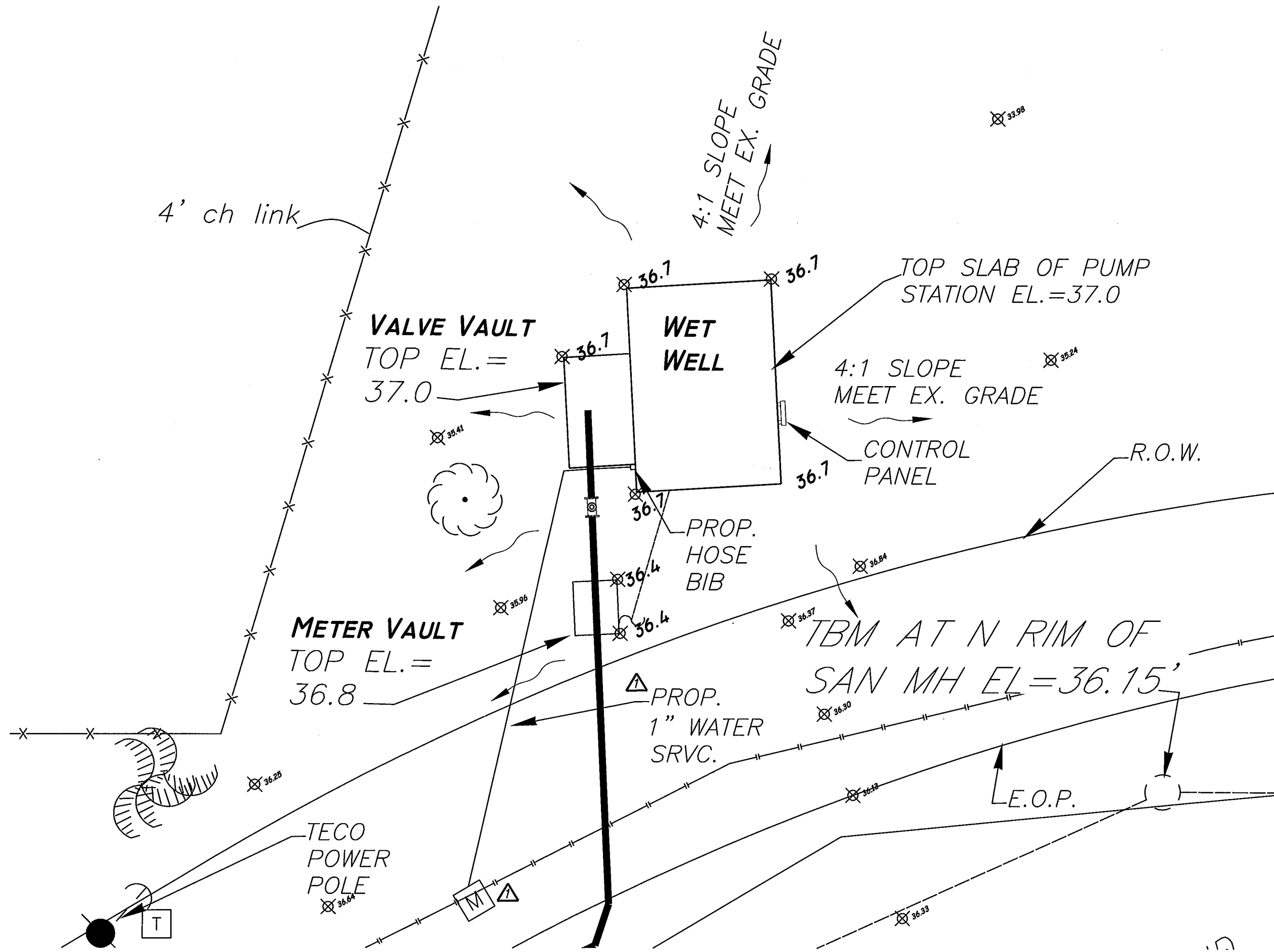
- Item 1: Replace Plan Sheet C-2 with the attached Plan Sheet C-2
- Item 2: Replace Plan Sheets E-1 through E-20 with the attached Plan Sheets E-1 through E-20.
- Item 3: Replace Plan Sheet C-15 with the attached Plan Sheet C-15.
- Item 4: Replace Plan Sheet S-5 with the attached Plan Sheet S-5.
- Item 5: Replace Proposal page P-3 with the attached page P-3R.
- Item 6: Add, on page C-9 of the Specifications, to Contract Item 0420-2, in the third paragraph, third line after "screen", the following: one 1-inch diameter water service from meter to hose bib location, hose bib and mounting post,
- Item 7: Add, on page C-11 of the Specifications, to Contract Item 6940-10, in the second paragraph, after "station," the following: rain gauge and associated wiring, mounting and instrumentation,
- Item 8: Attached for reference is a subsurface exploration report, a monitoring well installation report, and a monitoring well map.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect. Questions are to be e-mailed to [ContractAdministration@tampagov.net](mailto:ContractAdministration@tampagov.net).

*Jim Greiner*

Jim Greiner, P.E., Contract Management Supervisor

User: ss17 Drawing Name: K:\Stormwater Drafting\Active Projects\510H (Lake Eckles)\Lake Eckles Force Main.dwg  
Layout- Nov 12, 2013 - 3:29pm CTB - Monochrome.ctb



SW

B-11  
SEC.14 T28S R18E

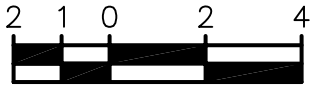
0 10  
1"=10'

| REVISIONS |          |   | REVISIONS |      |  | DES: MTM<br>DRN: MP<br>CKD:<br>DATE: | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES PUMP STATION<br>SITE GRADING PLAN | W.O. 510H<br>SHEET<br>C-2<br>OF 53 |
|-----------|----------|---|-----------|------|--|--------------------------------------|---|---|------------------------------------|
| No.       | DATE     |   | No.       | DATE |  |                                      |   |   |                                    |
| 3         |          |   | 6         |      |  |                                      |   |   |                                    |
| 2         |          |   | 5         |      |  |                                      |   |   |                                    |
| 1         | 11/12/13 | ADDED NEW WATER METER & 1" SERVICE LINE | 4         |      |  |                                      |   |   |                                    |

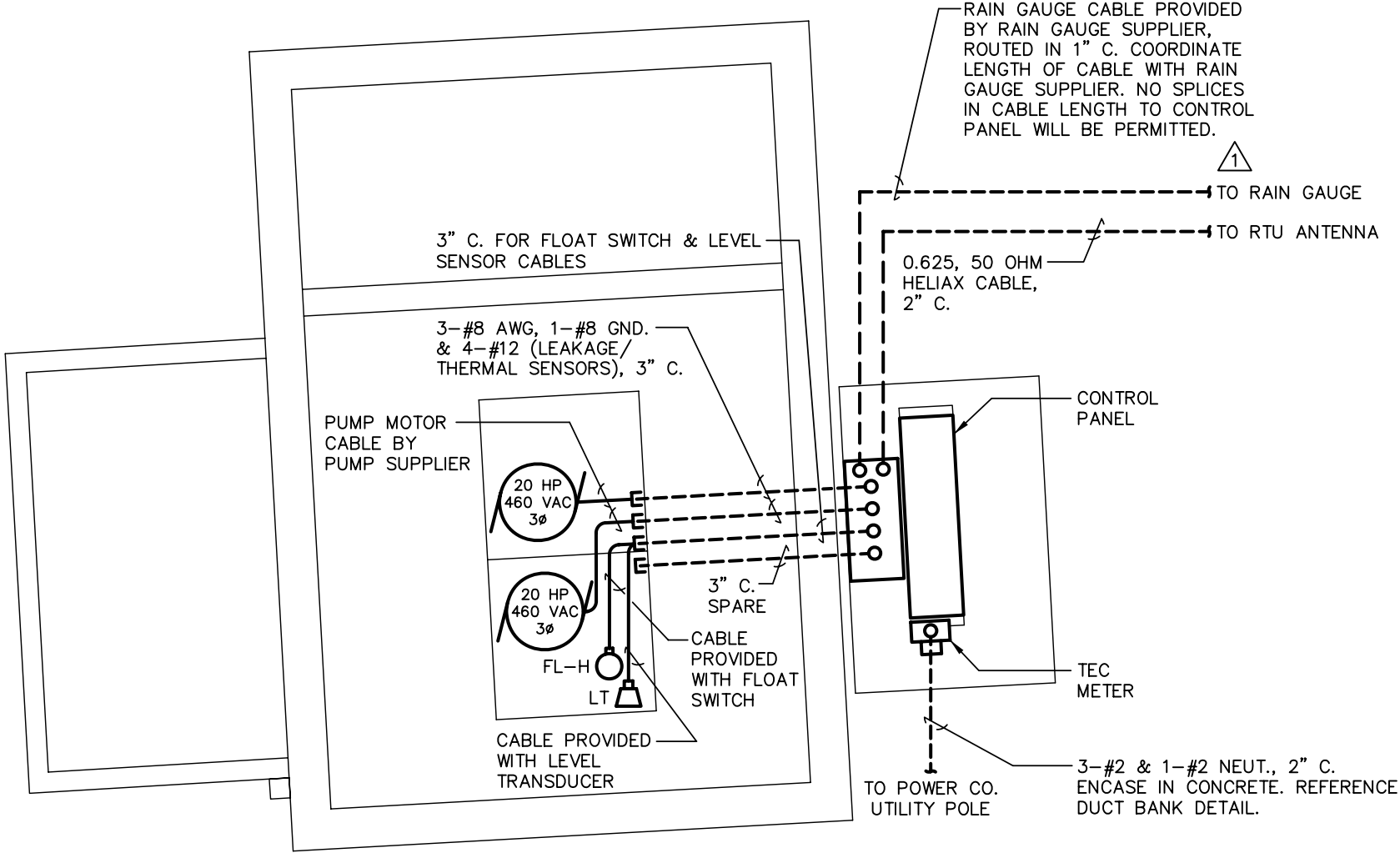




SW



SCALE: 1/4" = 1'-0"



ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
FLORIDA REGISTRATION NO. 20761



**Engineering Design Technologies Corp.**

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Certificate of Authorization Number: 4795

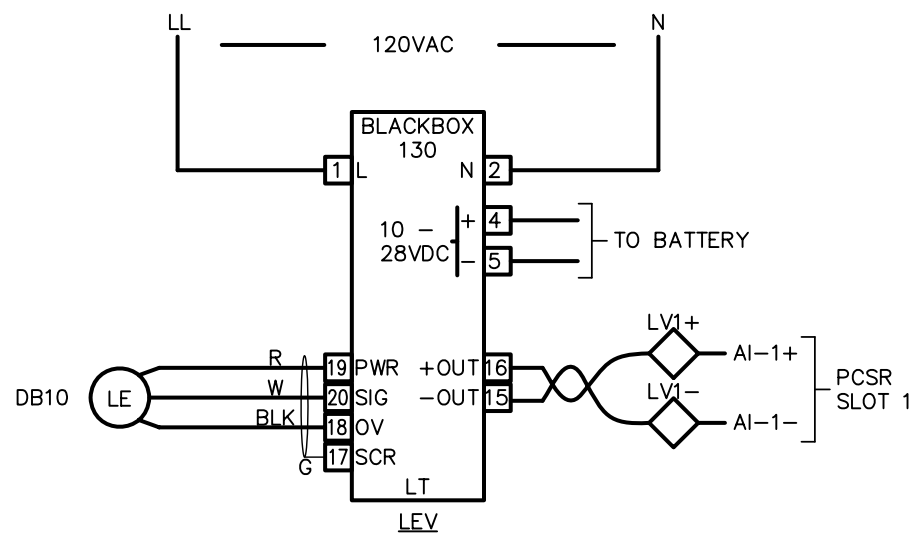
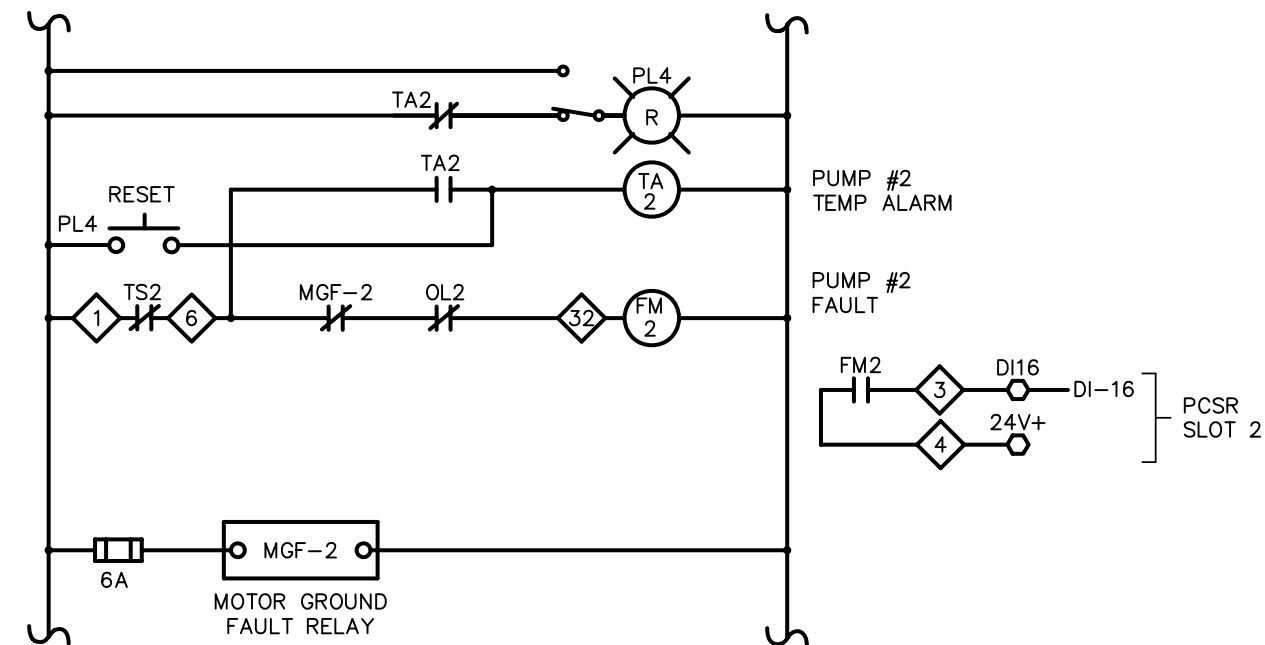
| No. | DATE     | REVISIONS      | No. | DATE | REVISIONS | DES: STK       | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>ELECTRICAL<br>SITE PLAN | W.O. 510H |
|-----|----------|----------------|-----|------|-----------|----------------|---|--|-----------|
| 3   |          |                | 6   |      |           | DRN: RWB       |   |  | SHEET     |
| 2   |          |                | 5   |      |           | CKD:           |   |  | E-3       |
| 1   | 11/04/13 | ADD RAIN GAUGE | 4   |      |           | DATE: 09/27/13 |   |  |           |



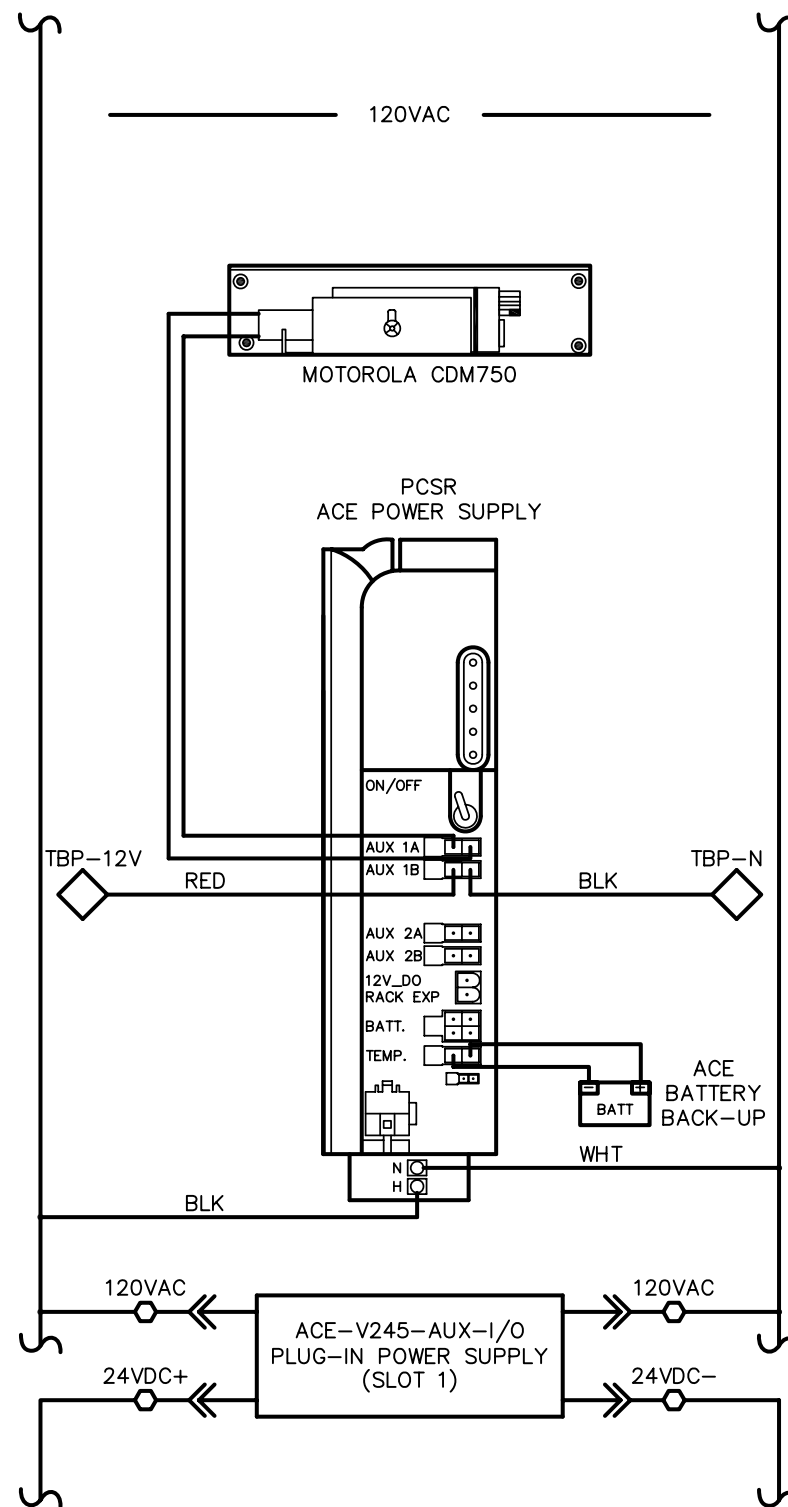








○ TERMINALS ON ACE I/O MODULE (GENERAL)  
◇ TERMINALS IN PUMP CONTROL PANEL



SEE NOTES ON SHEET E-14

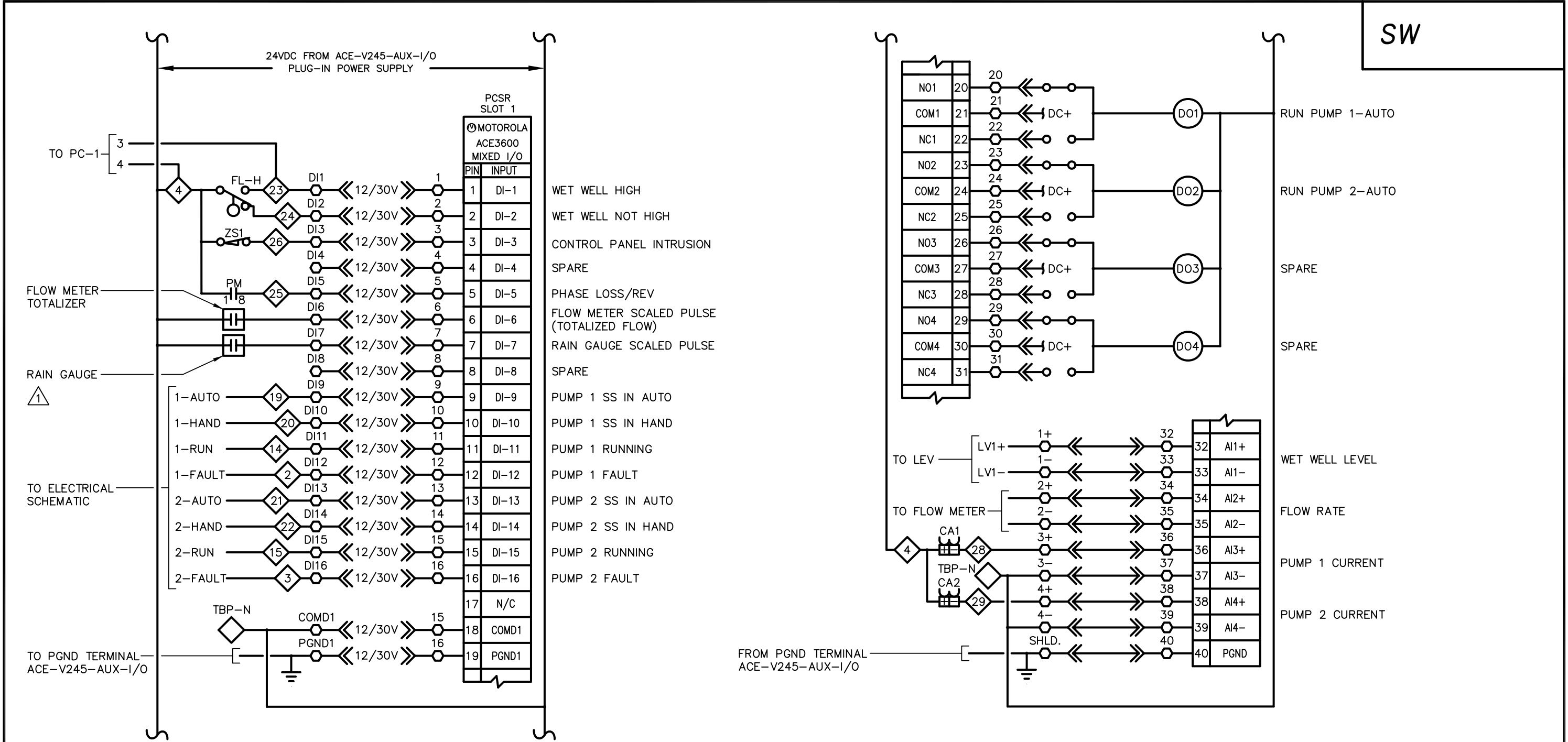
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| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>ELECTRICAL SCHEMATIC DIAGRAM<br>(SHEET 3 OF 5) | W.O. 510H<br>SHEET<br>E-7 |
|-----|------|-----------|-----|------|-----------|--|---|---|---------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                           |
| 2   |      |           | 5   |      |           |  |   |   |                           |
| 1   |      |           | 4   |      |           |  |   |   |                           |



**SEE NOTES ON SHEET E-14**

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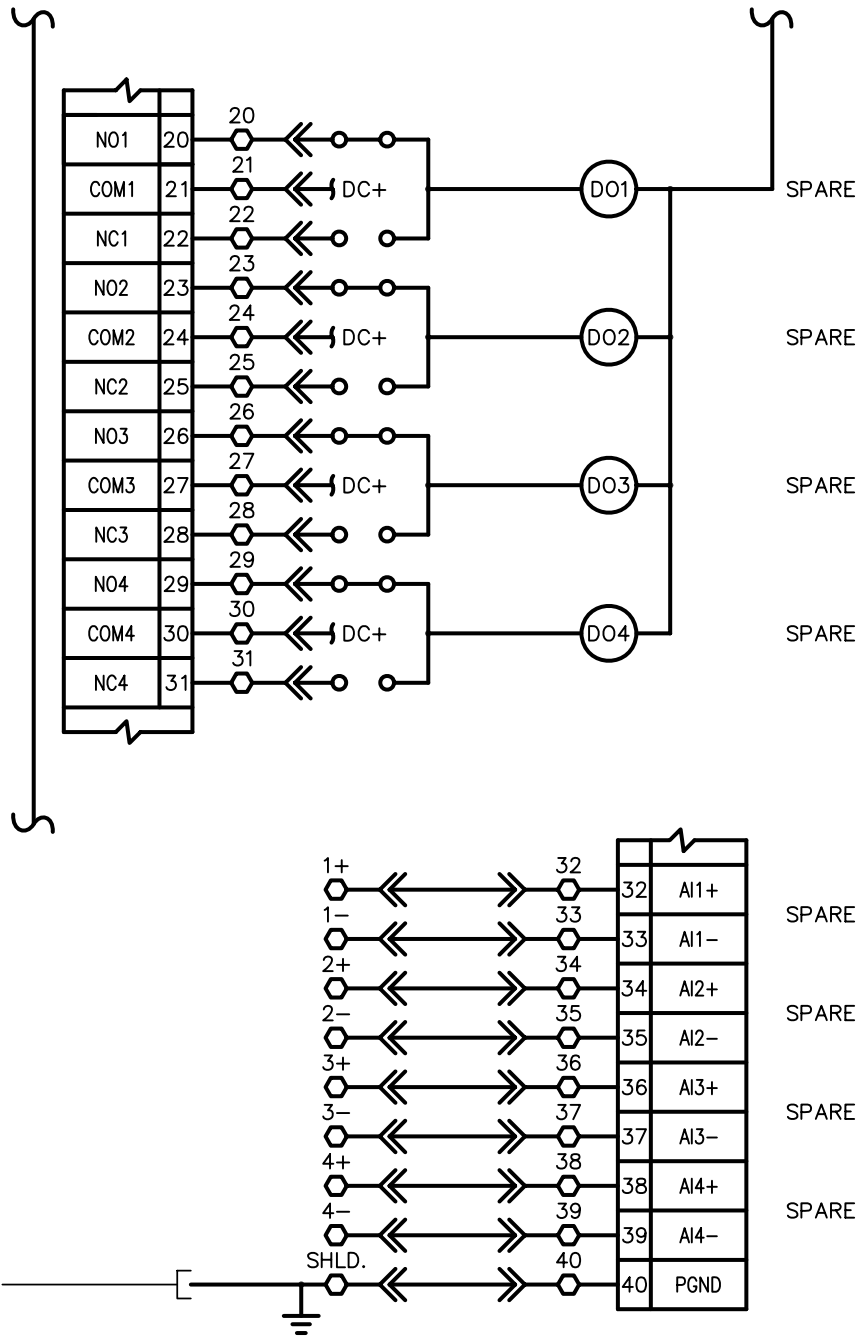
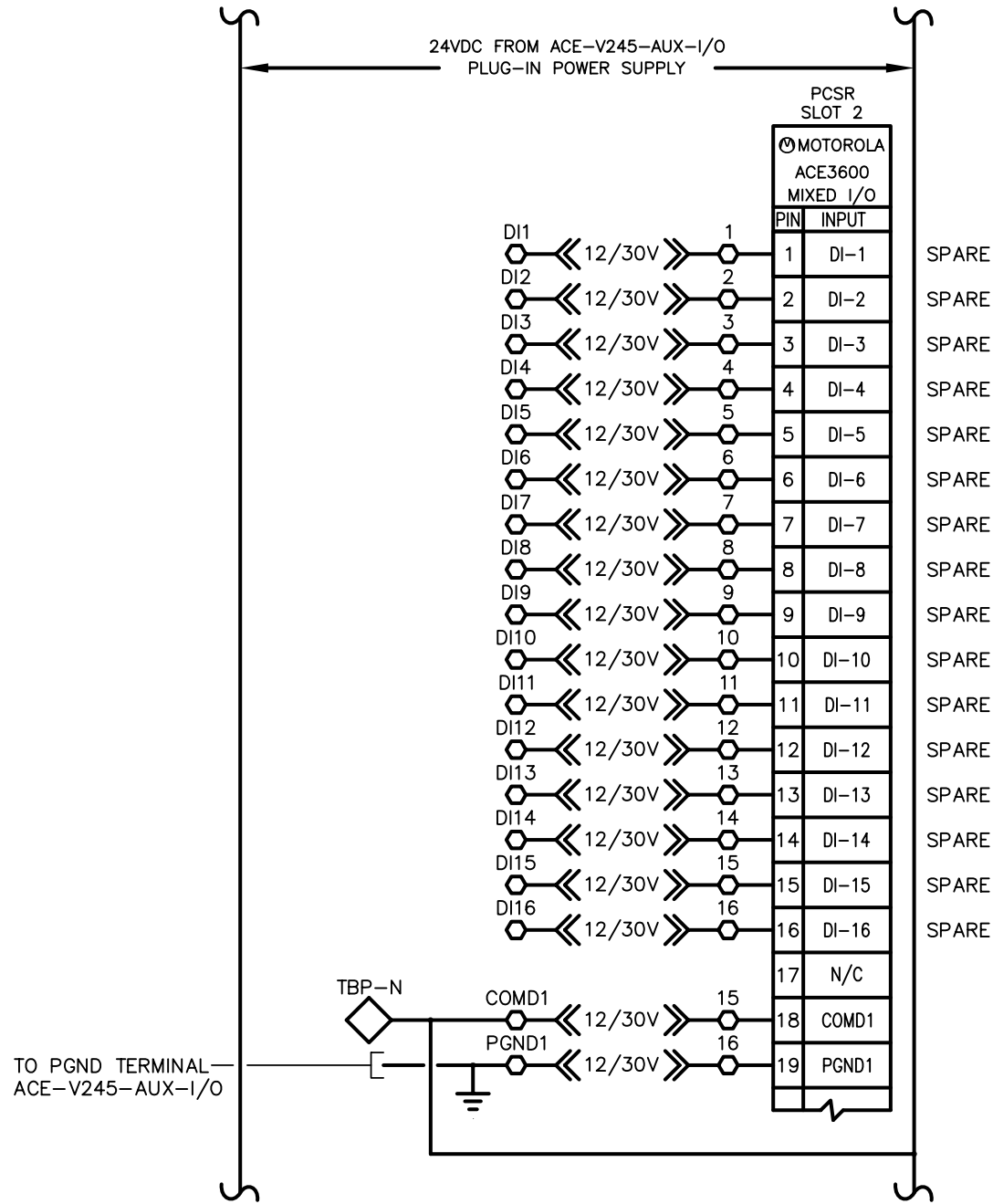


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- TERMINALS ON ACE I/O MODULE (GENERAL)
- ◇ TERMINALS IN PUMP CONTROL PANEL

| No. | DATE     | REVISIONS      | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>ELECTRICAL SCHEMATIC DIAGRAM<br>(SHEET 4 OF 5) | W.O. 510H<br>SHEET<br>E-8 |
|-----|----------|----------------|-----|------|-----------|--|---|---|---------------------------|
| 3   |          |                | 6   |      |           |  |   |   |                           |
| 2   |          |                | 5   |      |           |  |   |   |                           |
| 1   | 11/04/13 | ADD RAIN GAUGE | 4   |      |           |  |   |   |                           |



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TERMINALS ON ACE I/O MODULE (GENERAL)

TERMINALS IN PUMP CONTROL PANEL

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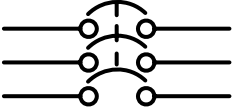

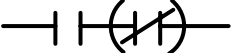







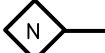






SEE NOTES ON SHEET E-14

| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>ELECTRICAL SCHEMATIC DIAGRAM<br>(SHEET 5 OF 5) | W.O. 510H<br>SHEET<br>E-9 |
|-----|------|-----------|-----|------|-----------|--|---|---|---------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                           |
| 2   |      |           | 5   |      |           |  |   |   |                           |
| 1   |      |           | 4   |      |           |  |   |   |                           |

| TBI-  MOUNTED ON MAIN PANEL (MP) |                                   |
|--|-----------------------------------|
| TERM.  | DESCRIPTION                       |
| 1  | CB7 OUT<br>PUMPS CONTROL POWER    |
| 2  | PUMP 1 FAULT<br>CONTROL INTERLOCK |
| 3  | PUMP 2 FAULT<br>CONTROL INTERLOCK |
| 4  | SLOT-1 PCSR 24V +                 |
| 5  | STATOR TEMP<br>SWITCH FROM P1     |
| 6  | STATOR TEMP<br>SWITCH FROM P2     |
| 7  | } P1 SEAL LEAK<br>PROBE           |
| 8  |                                   |
| 9  | } P2 SEAL LEAK<br>PROBE           |
| 10   |                                   |
| 11   | M1 "RUN" CMD                      |
| 12   | M2 "RUN" CMD                      |
| 13   | NEUTRAL                           |
| 14   | P1 "ON" DISCRETE                  |
| 15   | P2 "ON" DISCRETE                  |
| 16   | P1, P2 "ON" EXCITATION            |
| 17   | P1 "ON" TO PCSR                   |
| 18   | P2 "ON" TO PCSR                   |
| 19   | P1 "AUTO" TO PCSR                 |
| 20   | P1 "HAND" TO PCSR                 |
| 21   | P2 "AUTO" TO PCSR                 |
| 22   | P2 "HAND" TO PCSR                 |
| 23   | } HIGH WATER FLOAT SWITCH         |
| 24   |                                   |
| 25   | PM                                |

| TB1 CONT'D |                   |
|------------|-------------------|
| 26         | PANEL INTRUSION   |
| 27         | SLOT-2 PCSR 24V + |
| 28         | PUMP 1 CURRENT    |
| 29         | PUMP 2 CURRENT    |
| 30         | SPARE             |
| 31         | M1 FAULT          |
| 32         | M2 FAULT          |
| 33         | } FLOW METER      |
| 34         |                   |
| 35         | SPARE             |
| 36         | SPARE             |
| 37         | SPARE             |
| 38         | SPARE             |
| 39         | SPARE             |
| 40         | SPARE             |
| 41         | SPARE             |
| 42         | SPARE             |
| 43         | SPARE             |
| 44         | SPARE             |
| 45         | SPARE             |
| 46         | SPARE             |
| 47         | SPARE             |
| 48         | SPARE             |
| 49         | SPARE             |
| 50         | SPARE             |

CONTROL SCHEMATIC SYMBOLS

|   |   |   |   |
|---|---|---|---|
|    | TRANSFORMER   |    | AIR LINE  |
|    | PUSH BUTTON   |    | CIRCUIT BREAKER<br>(SINGLE-POLE)                  |
|    | 115 V, 60 Hz, DUPLEX<br>RECEPTACLE  |    | CIRCUIT BREAKER<br>(THREE-POLE)                   |
|    | SWITCH  |    | CONTACT NORMALLY OPEN<br>(CLOSED)                 |
|    | CONNECTED   |    | SPLIT BOLT SPLICE                                 |
|    | OVERLOAD<br>HEATER COIL   |    | NOT CONNECTED                                     |
|    | COIL {<br>TD - TIME DELAY RELAY<br>CR - CONTROL RELAY<br>ETI - TIMEMETER<br>M - MOTOR STARTER |    | GROUND BUS  |
|    | PILOT LIGHT - RED<br>(PRESS-TO-TEST)  |    | NEUTRAL BUS<br>(INSULATED)                        |
|  | PRESSURE LEVEL<br>SWITCH CONTACT  |  | FUSE  |
|  | "ON DELAY" CONTACT  |  | TB2 TERM STRIP MTD<br>ON MP-- (PCSR<br>INTERFACE) |
|  | INSTANT CLOSE<br>CONTACT  |  | TERMINAL STRIP<br>IN PCSR                         |

SW

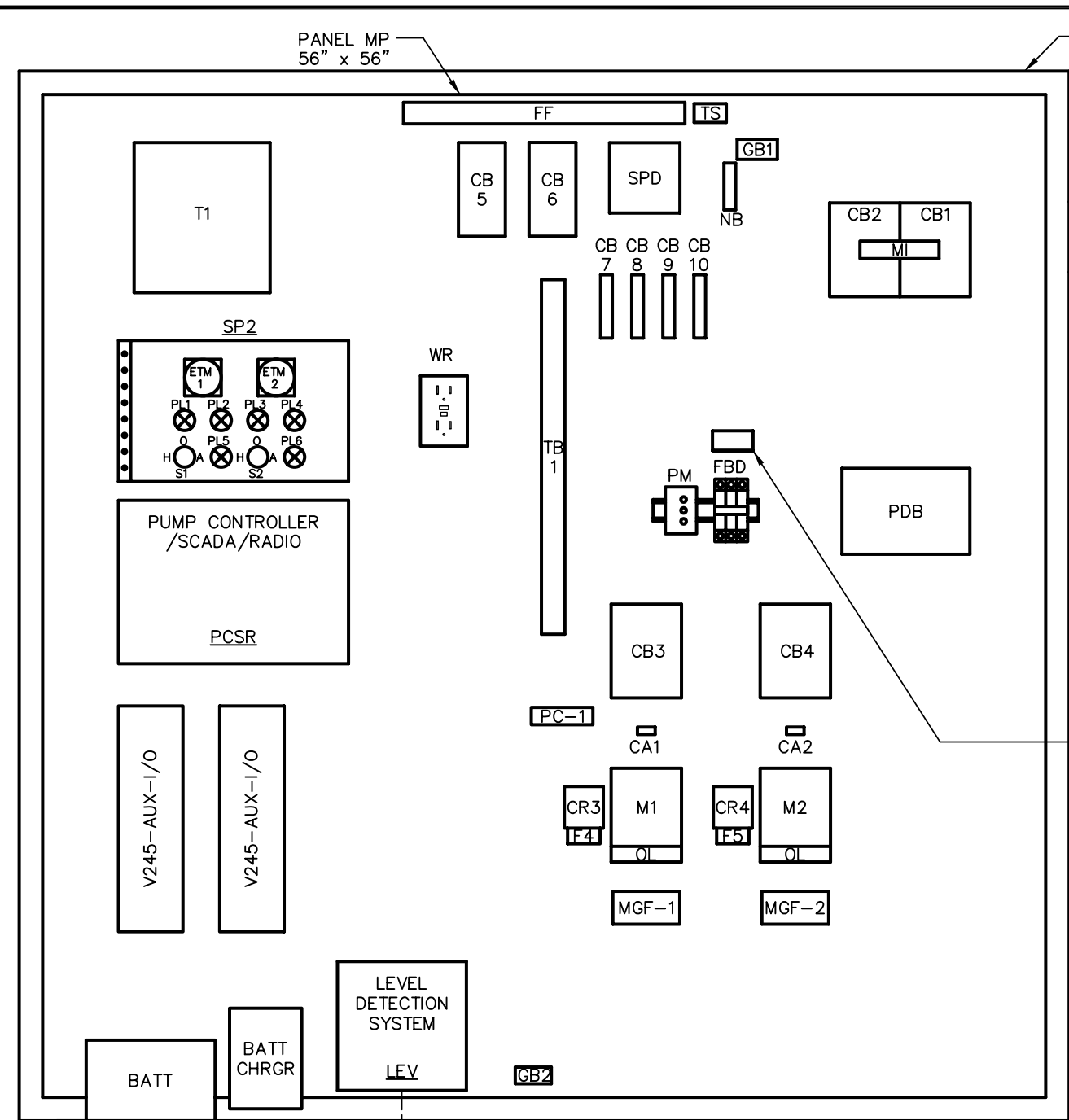
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|-----|------|-----------|-----|------|-----------|--|---|---|----------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                            |
| 2   |      |           | 5   |      |           |  |   |   |                            |
| 1   |      |           | 4   |      |           |  |   |   |                            |

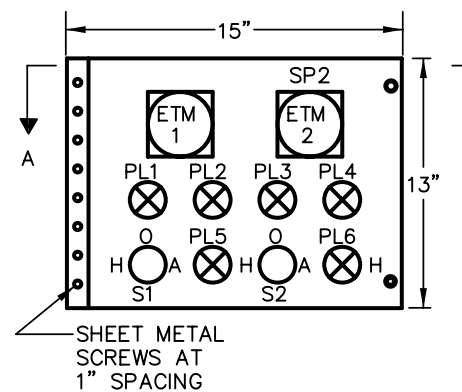


CONTROL PANEL ENCLOSURE\* – FRONT VIEW  
NOT TO SCALE

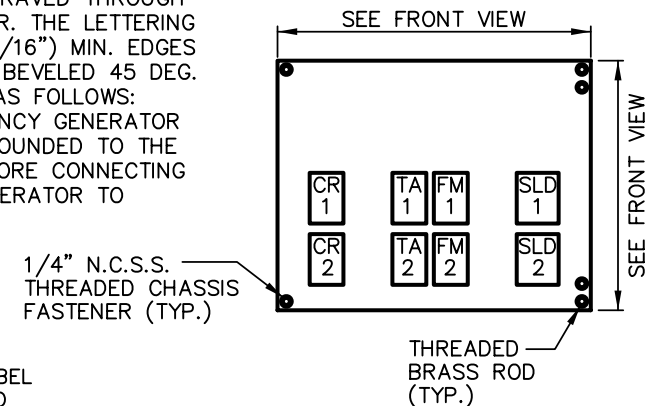
ENCLOSURE ME 60" x 60" x 12"  
(ADJUST SIZE AS NECESSARY TO  
SUIT FINAL COMPONENT SELECTION-  
TYP.)

PROVIDE A PHENOLIC WARNING LABEL  
ABOVE THE GENERATOR RECEPTACLE. THE  
LABEL SHALL BE A THREE PLY PHENOLIC  
RED-WHITE-RED ENGRAVED THROUGH  
THE FIRST RED LAYER. THE LETTERING  
SHALL BE 0.5 CM (3/16") MIN. EDGES  
OF LABEL SHALL BE BEVELED 45 DEG.  
LABEL SHALL READ AS FOLLOWS:  
"WARNING – EMERGENCY GENERATOR  
FRAME SHALL BE GROUNDED TO THE  
CONTROL PANEL BEFORE CONNECTING  
THE EMERGENCY GENERATOR TO  
THE RECEPTACLE".

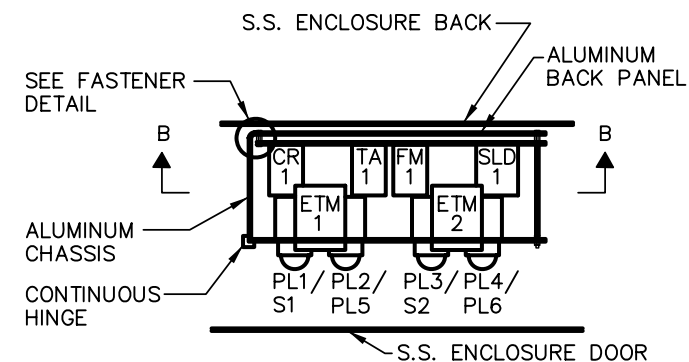
PROVIDE WARNING LABEL  
ABOVE FBD. LABEL TO  
READ "WARNING –  
OPENING MAIN CIRCUIT  
BREAKER DOES NOT  
DE-ENERGIZE VOLTAGE  
TO THIS DISCONNECT".



FRONT VIEW

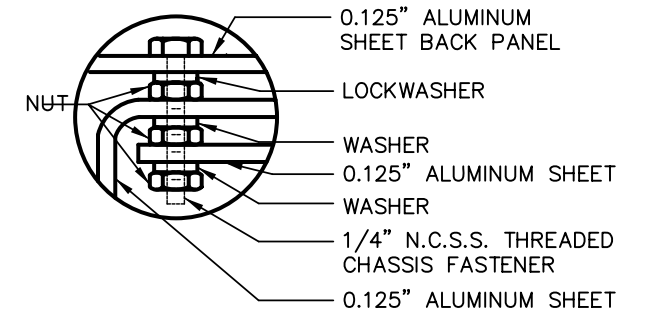


SECTION B-B



SECTION A-A

CONTROL CHASSIS LAYOUT



FASTENER DETAIL

SW

SEE NOTES ON SHEET E-14



Certificate of Authorization Number: 4795


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| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK       | CITY of TAMPA              | LAKE ECKLES STORMWATER PUMP STATION | W.O. 510H |
|-----|------|-----------|-----|------|-----------|----------------|----------------------------|-------------------------------------|-----------|
| 3   |      |           | 6   |      |           | DRN: RWB       | Department of Public Works | ELECTRICAL                          | SHEET     |
| 2   |      |           | 5   |      |           | CKD:           | Stormwater Engineering     | CONTROL PANEL LAYOUT                | E-II      |
| 1   |      |           | 4   |      |           | DATE: 09/27/13 |                            |                                     |           |

| PARTS SCHEDULE      |                         |                                 |                                |                                |                      |                                    |
|---------------------|-------------------------|---------------------------------|--------------------------------|--------------------------------|----------------------|------------------------------------|
| SYMBOL              | NAME                    |                                 |                                |                                |                      | REMARKS                            |
|                     |                         | MAKE                            | TYPE                           | MODEL or CAT. #                | RATING               |                                    |
| CB1                 | CIRCUIT BREAKER         | SQUARE D                        | 3 POLE                         | FHL36100                       | 600V, 100A           |                                    |
| CB2                 | CIRCUIT BREAKER         | SQUARE D                        | 2 POLE                         | FAL34100                       | 480V, 100A           |                                    |
| CB3, CB4            | CIRCUIT BREAKER         | SQUARE D                        | 3 POLE                         | FAL34060                       | 480V, 60A            |                                    |
| CB5                 | CIRCUIT BREAKER         | SQUARE D                        | 2 POLE                         | FAL24015                       | 480V, 15A            |                                    |
| CB6                 | CIRCUIT BREAKER         | SQUARE D                        | 2 POLE                         | FAL22015                       | 240V, 15A            |                                    |
| CB7, CB8, CB9, CB10 | CIRCUIT BREAKER         | SQUARE D                        | 1 POLE                         | QOU115                         | 120V, 15A            |                                    |
| M1, M2              | MOTOR STARTER           | SQUARE D                        | NEMA SIZE 2                    | CLASS 8536, TYPE SD01          | 120 VAC (COIL)       | 25 HP (MAX), 1 N.O.                |
| FBD                 | FUSE BLOCK/DISCONNECT   | ABB SSAC                        | THREE PHASE – HIGH INTER. CAP. | P0700–241 BLOCK, P0600–11 FUSE | 500 VAC, 2A FUSE     | 100,000 AIC KLK TYPE FUSES         |
| PM                  | 3 PHASE VOLTAGE MONITOR | MOTOR CONTROLS CORP.            | DISCRETE/ANALOG                | PM–440–118A                    | 480 VAC              | DIN RAIL MOUNTING                  |
| PC–1                | BACKUP PUMP CONTROLLER  | WILKERSON                       | DUPLEX LIFT STATION            | DR1920                         | 10A CONTACTS         | DIN RAIL MOUNTING                  |
| T1                  | TRANSFORMER             | SQUARE D                        | DRY TYPE                       | CLASS 7400–2S1F                | 480//240/120 V 2 KVA |                                    |
| PL1, PL3            | INDICATOR LIGHT         | SQUARE D                        | CLASS 9001                     | SKT38LYY9                      | 120V LED TYPE        | YELLOW LENS & PRESS TEST           |
| PL2, PL4            | ILLUM. PUSH BUTTON      | SQUARE D                        | CLASS 9001                     | SK2L38LRRH13                   | 120V LED TYPE        | RED LENS & 1 N.O., 1 N.C.          |
| PL5, PL6            | INDICATOR LIGHT         | SQUARE D                        | CLASS 9001                     | SKT38LRR9                      | 120V LED TYPE        | RED LENS & PRESS TEST              |
| S1, S2              | HOA SWITCH ASSEMBLY     | SQUARE D                        | OILTIGHT CLASS 9001            | SKS – 43B H2                   | 10A @ 120V           |                                    |
| ETM1, ETM2          | ELAPSE TIME METER       | CRAMER                          | NON–RESET                      | 635                            | 120V                 |                                    |
| FF & TS             | FLUORESCENT FIXTURE     | DAYTON                          | INDUSTRIAL                     | 2 V 811                        | 120V, 20W            | w/ TOGGLE SWITCH–TS AND TUBE GUARD |
| WR                  | RECEPTACLE              | HUBBELL                         | DUPLEX w/ GFI                  | GF 5262                        | 125 VAC, 15A GFI     | w/ CAST ALUMINUM BOX AND COVER     |
| SPD                 | SURGE SUPPRESSOR        | ADVANCE PROTECTION TECHNOLOGIES | MAIN PANEL SPD                 | TE04XDS104X                    | 277/480 VAC, 3Ø, WYE |                                    |
| FL                  | FLOAT SWITCH            | ANCHOR SCIENTIFIC               | SPDT                           | S20N0NC                        | 10A @ 120V           |                                    |
| LA                  | LIGHTNING ARRESTER      | GENERAL ELECTRIC                | TRANQUELL                      | 9L15ECC001                     | 650V                 |                                    |
| TB1                 | TERMINAL BOARD          | ALLEN–BRADLEY                   | STYLE AA                       | 1492–15T                       | 600V                 | 30 CONTACTS (MIN)                  |

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| PARTS SCHEDULE                  |                          |  |                               |   |   |   |  |
|---------------------------------|--------------------------|--|-------------------------------|---|---|---|--|
| SYMBOL                          | NAME                     |  |                               |   |   | REMARKS   |  |
|                                 |                          | MAKE   | TYPE                          | MODEL or CAT. #   | RATING  |   |  |
| CA1, CA2                        | CURRENT SENSOR           | ENERCOP<br>INSTRUMENTS                             | 4–20 mA OUTPUT                | 200–2   | 0–100A  | ADJUSTABLE RANGE  |  |
| NB                              | INSULATED TERMINAL STRIP | ALLEN–BRADLEY                                      | STYLE AA                      | 1492–15T  | 600 VAC, NEUTRAL<br>BLOCK   | 4 CONTACTS (MIN)<br>w/ SHORTING BARS                    |  |
| ME                              | CONTROL ENCLOSURE *      | QUALITY METALS                                     | NEMA 3R THREE POINT LATCH     | 60" x 60" x 16" SS 3R   | 304 SS, 14 GAUGE  | w/ DOOR STOP KIT –<br># A–DSTOPK                        |  |
| MP                              | ENCLOSURE PANEL *        | QUALITY METALS                                     | 56" x 56", STEEL              | S56 P56, WHITE<br>AS REQUIRED   | STEEL, 12 GAUGE   |   |  |
| GB1, GB2                        | GROUNDING BLOCK          | ILSCO  | AS REQUIRED                   |   |   |   |  |
| SLD1, SLD2                      | SEAL LEAK DETECTOR       | SYRELEC  | 8 PIN PLUG–IN                 | PNRU110   | 110V INPUT, 10A CONTACTS  | SPDT w/ SOCKET  |  |
| TA1, TA2, FM1,<br>FM2, CR1, CR2 | CONTROL RELAY            | POTTER & BRUMFIELD                                 | 8 PIN PLUG–IN                 | KRPA–11AG–120   | 120V COIL, 10A CONTACTS   | DPDT w/ SOCKET AND HOLD<br>DOWN SPRING                  |  |
| LEV                             | LEVEL DETECTION SYSTEM   | PULSAR INC.  | CONTROLLER                    | BLACKBOX 130 (TROPICALIZED)<br>w/ KEYPAD & DISPLAY<br>130–110–300–OOP–KP–TROP | 120V, 5 WATT  | PROVIDE TRANSDUCER<br>MODEL DB10                        |  |
| BATT.                           | BATTERY                  | POWERSONIC AGM                                     |                               | PS–1270 F2  | 12V, 7.0 AH   |   |  |
| BATT. CHRГ.                     | BATTERY CHARGER          | DELTRAN CORP.                                      |                               | WATERPROOF 800  | 12V, 0.800A OUTPUT  |   |  |
| PCSR                            |                          | PLC BASED PUMP CONTROLLER,<br>SCADA & RADIO SYSTEM | MOTOROLA<br>CORPORATION       | DUPLEX PUMP CONTROLLER BASED<br>ON ACE 3600 PROG. CONTROLLER                  | ACE 3600 RTU w/<br>CONVENTIONAL UHF RADIO CDM<br>750, 403–470, 450–512 MHZ &<br>ACE–V245–AUX–I/O INTERFACE<br>BOARD | 24 VDC w/ BATTERY<br>BACKUP                             | COORDINATE w/ DCR<br>ENG. SERVICES OR<br>SCADAONE, LLC |
|                                 | SLOTS 1 & 2              | I/O MODULE FOR ACE 3600<br>RTU                     | MOTOROLA<br>CORPORATION       | MIXED I/O   | ACE 3600 MIXED I/O  | (4) 4–20 mA ANALOG IN, (16) DIGITAL IN, (4) DIGITAL OUT |  |
| MS                              | METER SOCKET             | MILBANK  | 7–TERMINAL                    | SELF CONTAINED  | 277/480 VAC, 3ø, 200A   | COORD. w/ TECO  |  |
| PDB                             | POWER DIST. BLOCK        | ILSCO  | 3 POLE                        | PDB–26–2/0–3  | 600V, 350A  |   |  |
| CR3 & CR4                       | CONTROL RELAY            | SQUARE D   | TYPE "X" (IND. CONTROL RELAY) | CL 8501 X20–V04   | 277V (COIL)   | 2 N.O.  |  |
| F4 & F5                         | FUSE BLOCK               | SQUARE D   | CLASS 9999                    | SF3   | 600V  | SCREW TERMINALS   |  |
| WITH                            | FUSE                     | BUSSMANN   |                               | KTK   | 600V, 1A  |   |  |
|                                 |                          |  |                               |   |   |   |  |
|                                 |                          |  |                               |   |   |   |  |
|                                 |                          |  |                               |   |   |   |  |

NOTES:

1. ITEMS MARKED "\*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.



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Certificate of Authorization Number: 4795

ENGINEER OF RECORD:  
BOB E. HALLMAN, P.E.  
FLORIDA REGISTRATION NO. 20761

| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>PARTS SCHEDULE<br>(SHEET 2 OF 2) | W.O. 510H<br>SHEET<br>E-13 |
|-----|------|-----------|-----|------|-----------|--|---|---|----------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                            |
| 2   |      |           | 5   |      |           |  |   |   |                            |
| 1   |      |           | 4   |      |           |  |   |   |                            |

NOTES:

1. TEC SERVICE: 277/480V, 100A, 3ø, 4W, WYE.  
CALCULATED FAULT CURRENT – 4,860A; CB1 AIC  
RATING – 25,000A SYMMETRICAL.
2. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE  
WITH THE LATEST EDITION OF THE NEC AND CITY OF TAMPA/  
HILLSBOROUGH COUNTY CODES AND SHALL BE INSPECTED BY  
CITY OF TAMPA/HILLSBOROUGH COUNTY ELECTRICAL INSPECTORS  
AS APPLICABLE.
3. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS  
SPECIFIED, OR AS APPROVED BY THE ENGINEER.
4. THE ENCLOSURE SHALL BE NEMA 3, SHALL BE  
CONSTRUCTED OF MINIMUM 14 GAUGE 304 SS, SHALL HAVE  
BRUSH FINISHED SURFACE, AND THE CLOSING SURFACE SHALL  
HAVE ROLLED LIPS. PROVIDE HINGED DOOR WITH 3–POINT  
AND LOCKABLE HANDLE. REFERENCE PARTS SCHEDULE.
5. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED  
HOLES.
6. ALL WIRING SHALL BE COPPER. ALL CONTROL WIRING SHALL BE  
STRANDED THWN COPPER, MINIMUM AWG #14, AND SHALL  
HAVE SPADE LUG TERMINATIONS.
7. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED ‘\*’ TO BE DETERMINED  
AFTER EQUIPMENT SELECTION.
8. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL  
OR MANUFACTURERS SPECIFICATIONS.
9. INSTALL LAMINATED SCHEMATIC AND LAMINATED DATA SHEET ON BACK  
FACE OF THE DOOR INSIDE THE ENCLOSURE.
10. ENSURE THAT LINE CONNECTIONS TO METER SOCKET PROVIDE  
CORRECT METER ROTATION.
11. ROUTE AND SECURE SERVICE ENTRANCE CONDUCTORS SO AS NOT TO  
INTERFERE WITH OR CONTACT EQUIPMENT AND COMPONENTS IN THE  
PANEL. ALSO, PROVIDE SPACING BETWEEN THE ENCLOSURE AND ALL  
CONDUCTORS.
12. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS,  
SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL  
FASTENERS. FASTENERS SECURED WITH ADHESIVE ARE NOT  
ACCEPTABLE.
13. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER  
SECURED TO THE ENCLOSURE OR BACK PANEL.
14. THE PCSR SHALL BE A MOTOROLA ACE 3600 MOSCAD PACKAGE AS  
DISTRIBUTED BY DCR ENGINEERING SERVICES INC. OR SCADAONE, LLC.  
THE PUMPING STATION CONTRACTOR SHALL COORDINATE HIS EFFORTS  
WITH DCR OR SCADAONE, LLC TO ENSURE SYSTEM COMPATIBILITY. THE  
CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE DUPLEX CONTROL  
SYSTEM PACKAGE, AS ASSEMBLED AND PROGRAMMED BY DCR OR  
SCADAONE, LLC.
15. A WET WELL LEVEL DETECTION SYSTEM SHALL BE PROVIDED AND  
INSTALLED BY THE CONTRACTOR. THE OUTPUT SHALL BE A LINEAR  
4–20mA SIGNAL WITH RANGE AND CALIBRATION SUITABLE FOR  
THIS APPLICATION. THE SYSTEM SHALL BE OF THE ULTRASONIC  
TYPE— PULSAR, INC. MODEL dB10 W/ BLACKBOX 130  
TRANSMITTER. CITY INSTRUMENTATION PERSONNEL WILL ASSIST  
THE CONTRACTOR WITH TRANSDUCER MOUNTING AND CALIBRATION.

SW

LEGEND PLATE SCHEDULE

| SYMBOL | DEVICE                      | LEGEND                         |
|--------|-----------------------------|--------------------------------|
| ETM1   | ELAPSED TIME METER          | PUMP NO. 1 HOURS               |
| ETM2   | ELAPSED TIME METER          | PUMP NO. 2 HOURS               |
| PL1    | YELLOW PILOT LIGHT          | PUMP NO. 1 ON                  |
| PL2    | RED ILLUMINATED PUSH BUTTON | PUMP NO. 1<br>HIGH TEMPERATURE |
| PL3    | YELLOW PILOT LIGHT          | PUMP NO. 2 ON                  |
| PL4    | RED ILLUMINATED PUSH BUTTON | PUMP NO. 2<br>HIGH TEMPERATURE |
| PL5    | RED PILOT LIGHT             | PUMP NO. 1<br>SEAL LEAK        |
| PL6    | RED PILOT LIGHT             | PUMP NO. 2<br>SEAL LEAK        |
| S1     | 3–POSITION SWITCH           | PUMP NO 1<br>HAND–OFF–AUTO     |
| S2     | 3–POSITION SWITCH           | PUMP NO. 2<br>HAND–OFF–AUTO    |

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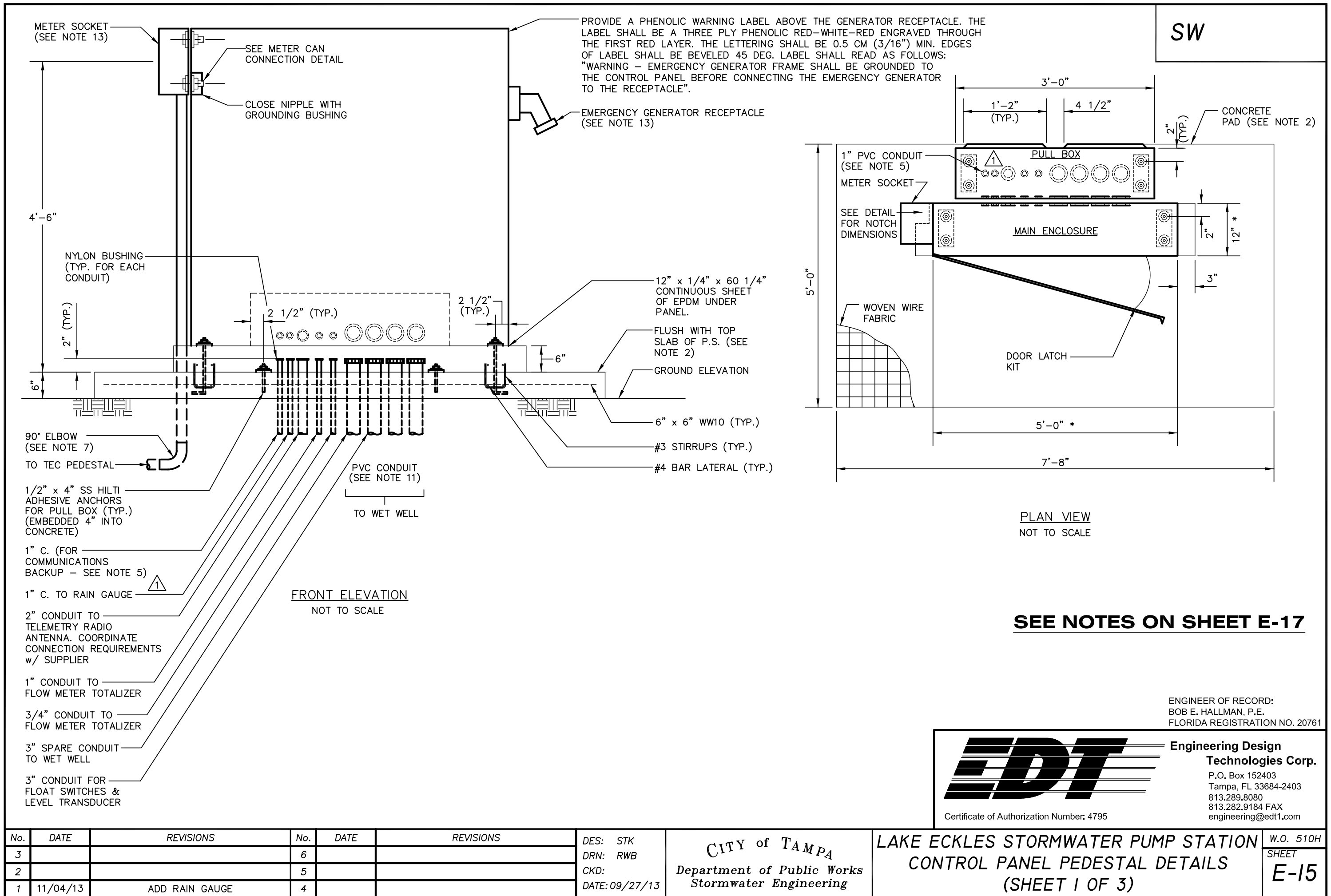


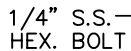
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| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>ELECTRICAL<br>CONTROLS LEGEND PLATES | W.O. 510H<br>SHEET<br>E-14 |
|-----|------|-----------|-----|------|-----------|--|---|---|----------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                            |
| 2   |      |           | 5   |      |           |  |   |   |                            |
| 1   |      |           | 4   |      |           |  |   |   |                            |








NOTES:

1. THWN CONDUCTORS (3-AWG #8 & 1-AWG #8 GND. COPPER EACH PUMP) SHALL EXTEND FROM THE CONTROL PANEL OUT OF THE NYLON BUSHING A MINIMUM OF 18". WHEN INSTALLING THE PUMPS, THE MOTOR CONDUCTORS SHALL BE SPLICED USING SPLIT BOLTS. FOR INSULATION USE MATERIALS THAT ARE RECOMMENDED BY THE MANUFACTURER TO EQUAL INSULATION ON CONDUCTORS. FOLLOW THE SAME PROCEDURE FOR THE LEAKAGE AND THERMAL SENSOR CONDUCTORS.
2. CONCRETE PAD TOP ELEVATION SHALL BE ADJUSTED TO EQUAL TOP ELEVATION OF P. S. TOP SLAB.
3. GROUNDING ELECTRODE CONDUCTOR SHALL BE AWG #2 STRANDED COPPER MINIMUM. SEE SERVICE CONDUCTOR SIZE ON ELECTRICAL SCHEMATIC DRAWING.
4. APPROVED GROUND CLAMPS SHALL BE ATTACHED TO TWO APPROVED 5/8" DIA. x 10'-0" GROUNDING RODS (MINIMUM SPACING 6'-0") AND THE METAL WATER PIPE (IF AVAILABLE ON PREMISES). CONDUCTOR SHALL BE AWG #4 MIN. BARE STRANDED COPPER. SEE CONDUCTOR SIZE ON ELECTRICAL SCHEMATIC DRAWING.
5. 1" PVC CONDUIT w/ PULL WIRE BURIED IN TRENCH WITH POWER CONDUITS. THE CONDUIT SHALL EXTEND FROM THE CONTROL PANEL 3' BEYOND EDGE OF SLAB, CAP & STAKE LOCATION.
6. CITY APPROVED LIGHTNING ARRESTER SHALL BE INSTALLED ON LOAD SIDE OF METER SOCKET.
7. ELBOWS TO BE LONG BUSHED AND THE HORIZONTAL PVC CONDUIT SHALL EXTEND TO A TAMPA ELECTRIC COMPANY HAND-HOLE AT THE BASE OF THE POWER POLE. COORDINATE THIS WORK WITH TEC.
8. ALL CONDUIT TERMINATIONS SHALL BE FITTED WITH NYLON BUSHINGS.
9. WATER SERVICE RISER SHALL BE LOCATED ON SIDE OF PANEL OPPOSITE TO THE TEC METER SOCKET, OR AS INDICATED IN THE DRAWINGS.
10. FRONT OF PULL BOX IS TO BE COVERED BY A LOUVERED ALUMINUM METAL SHEET (MIN. THICKNESS 0.125") AND FASTENED WITH MIN. OF FOUR 1/2" STAINLESS STEEL BOLTS ANCHORED IN THE CONCRETE. LOUVERED PANEL TO BE REMOVABLE AND ATTACHED TO PULL BOX WITH STAINLESS STEEL BOLTS.
11. MINIMUM 3" PVC CONDUITS SIZED FOR NO MORE THAN 35% FILL SHALL BE INSTALLED.
12. REINFORCEMENT SHALL BE AT LEAST 3" FROM EDGE OF PEDESTAL.
13. TEC PREFERS STRAIGHT UNDERGROUND SERVICE CONNECTION TO THE METER BOX. TO AVOID ANY CONFIGURATION CHANGES, THE ENCLOSURE HOLES FOR THE METER BOX AND EMERGENCY CONNECTOR SHALL BE CUT AFTER THE TEC ROUTING IS VERIFIED AT THE TIME OF INSTALLATION.
14. POSITION CONTROL PANEL 90° TO WET WELL HATCH OPENING.
15. COORDINATE WITH CONTROL PANEL MANUFACTURER CONDUIT NIPPLE INSTALLATION IN REAR OF PANEL.
16. DIMENSIONS, ITEMS OR ELEVATIONS MARKED "\*" SHALL BE DETERMINED AFTER EQUIPMENT SELECTION.
17. CONDUIT THAT IS IN CONCRETE SHALL BE COATED WITH TWO COATS ASPHALT VARNISH (FED. SPEC. TT-V-51) TO 4" ABOVE AND BELOW CONCRETE.

ENGINEER OF RECORD:  
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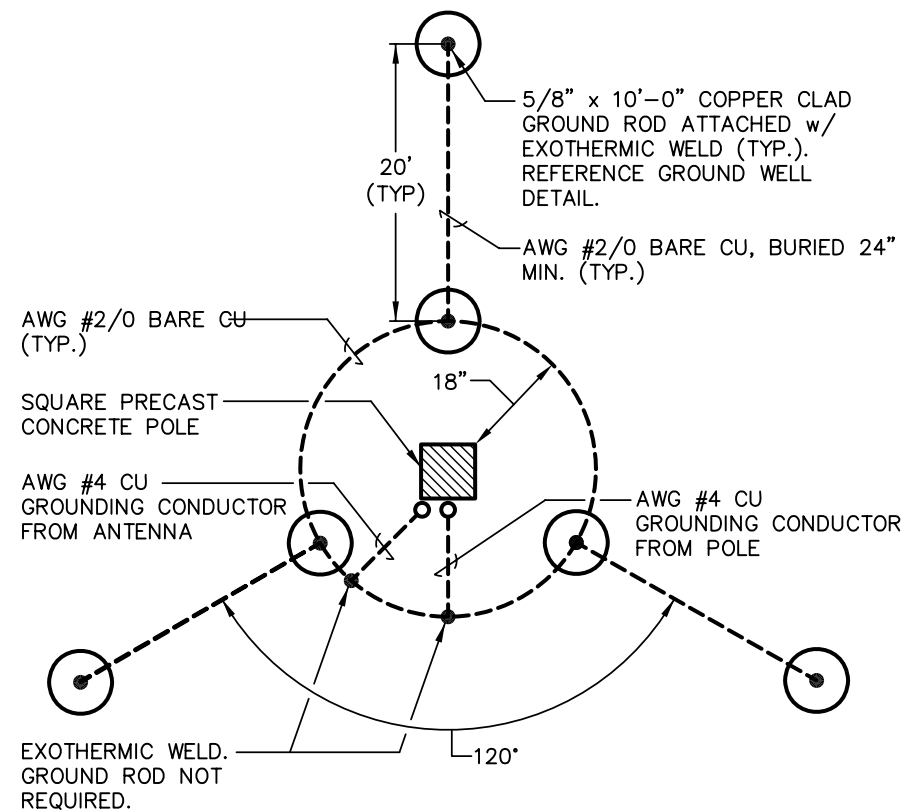
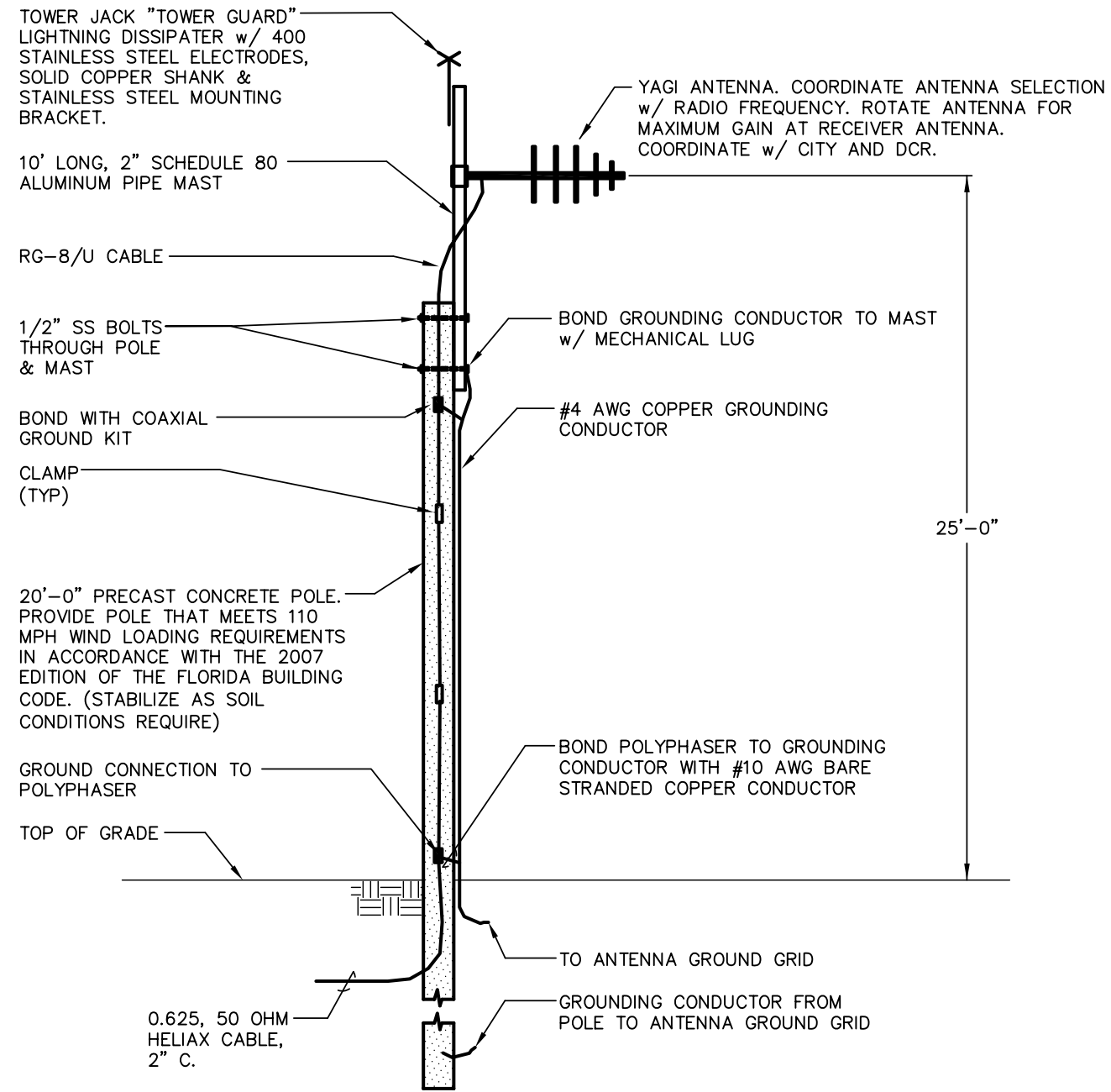
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| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK<br>DRN: RWB<br>CKD:<br>DATE: 09/27/13 | CITY of TAMPA<br>Department of Public Works<br>Stormwater Engineering | LAKE ECKLES STORMWATER PUMP STATION<br>CONTROL PANEL PEDESTAL DETAILS<br>(SHEET 3 OF 3) | W.O. 510H<br>SHEET<br>E-17 |
|-----|------|-----------|-----|------|-----------|--|---|---|----------------------------|
| 3   |      |           | 6   |      |           |  |   |   |                            |
| 2   |      |           | 5   |      |           |  |   |   |                            |
| 1   |      |           | 4   |      |           |  |   |   |                            |

SW



#### ANTENNA GROUND GRID DETAIL

#### NOTES:

1. CONTRACTOR SHALL DETERMINE FINAL TOWER HEIGHT & WIND LOADING REQUIREMENTS. BURIAL DEPTH OF POLE SHALL BE SUITABLE FOR SOIL CONDITIONS TO ENDURE A 120 MPH WIND SPEED w/ A 3 SECOND GUST OF 140 MPH AS DETERMINED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER. PROVIDE CALCULATIONS.
2. ADJUST PLACEMENT OF GROUND RODS AS NECESSARY SO GROUND GRID DOES NOT EXTEND BEYOND PROPERTY LINE OF PUMPING STATION.
3. A RADIO COMMUNICATION PATH SHALL LINK THE STORMWATER PUMPING STATION WITH RECIEVER ANTENNA. THE CONTRACTOR SHALL PERFORM A RADIO PATH SURVEY TO ESTABLISH THE RADIO FREQUENCY, POWER, ANTENNA REQUIREMENTS & ANTENNA HEIGHT FOR THIS COMMUNICATION PATH.

SHOP DRAWINGS SHALL BE IN CONFORMANCE WITH CHAPTER 16, SECTION 1609 OF THE FBC2004 FOR A BASIC WIND SPEED OF 120 MPH AS SHOWN IN FIGURE 1609 OF THE CODE. THE SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.

### ANTENNA DETAILS

ENGINEER OF RECORD:  
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FLORIDA REGISTRATION NO. 20761

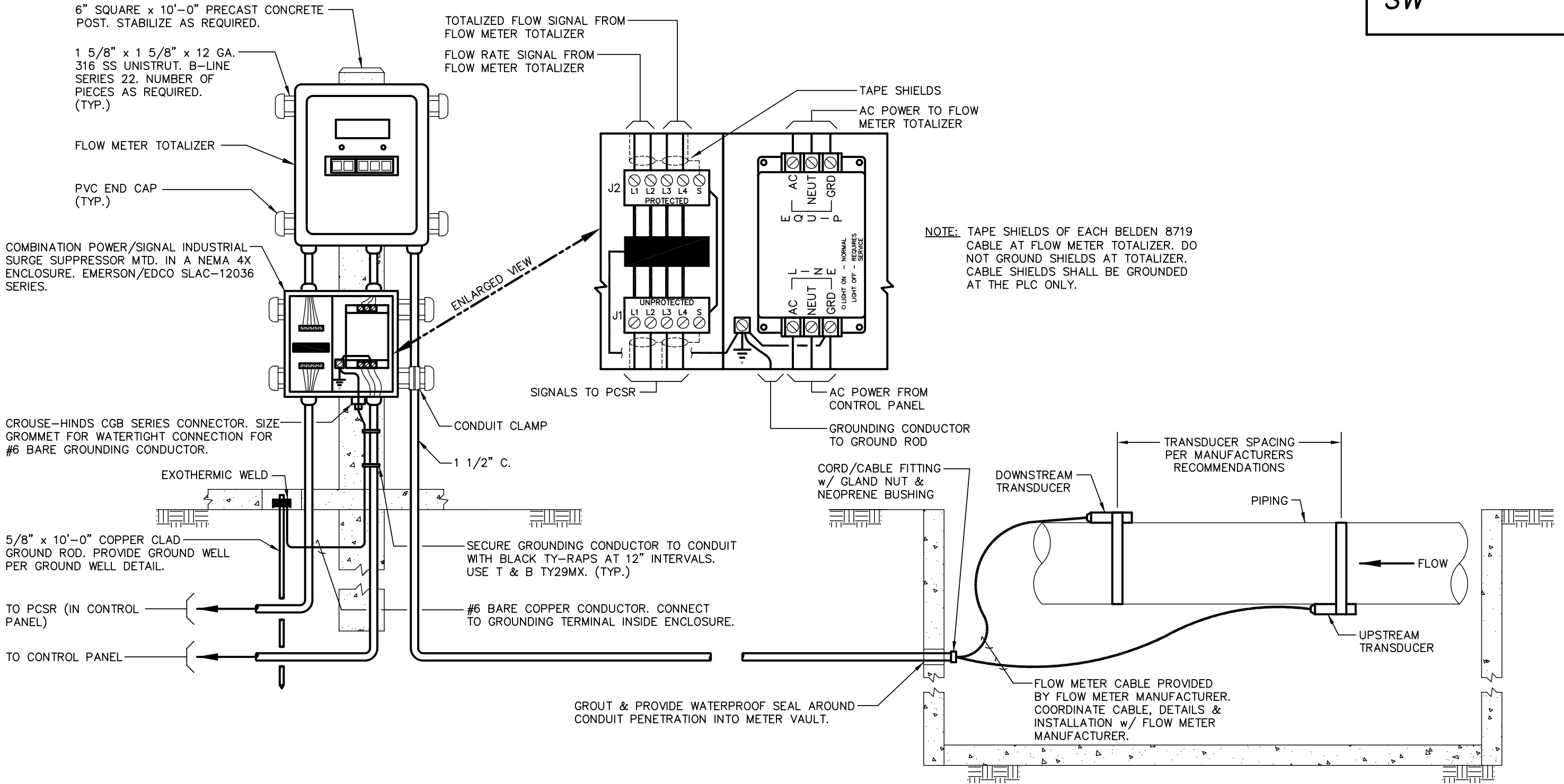


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| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK       | CITY of TAMPA              | LAKE ECKLES STORMWATER PUMP STATION | W.O. 510H |
|-----|------|-----------|-----|------|-----------|----------------|----------------------------|-------------------------------------|-----------|
| 3   |      |           | 6   |      |           | DRN: RWB       | Department of Public Works | ANTENNA                             | SHEET     |
| 2   |      |           | 5   |      |           | CKD:           | Stormwater Engineering     | DETAILS                             | E-18      |
| 1   |      |           | 4   |      |           | DATE: 09/27/13 |                            |                                     |           |



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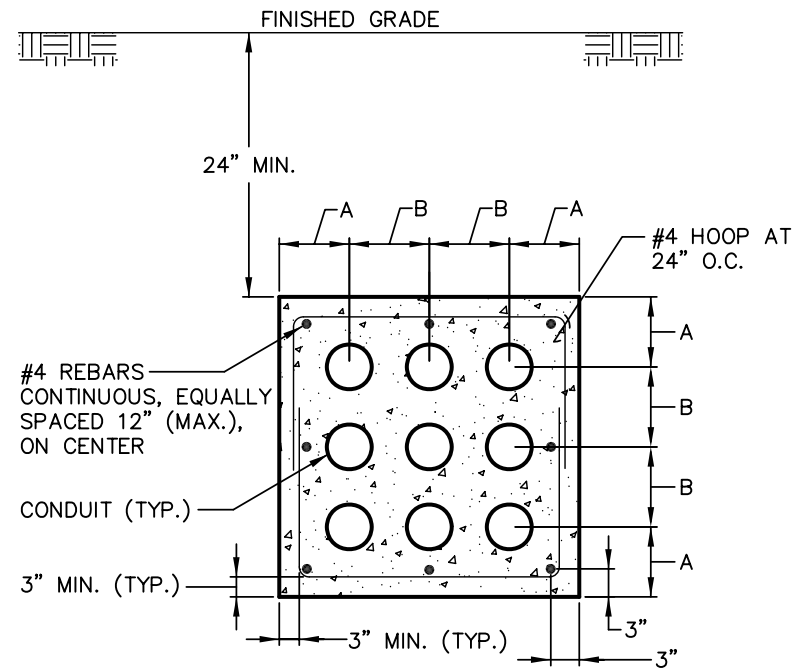
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**CLAMP-ON ULTRASONIC TRANSIT TIME FLOW METER CONNECTION DETAIL**

- NOTES:
- 1. ALL EDGES OF UNISTRUT SHALL BE FILED SMOOTH.
  - 2. ALL FASTENING AND MOUNTING HARDWARE SHALL BE 316 SS.

| No. | DATE | REVISIONS | No. | DATE | REVISIONS | DES: STK       | CITY of TAMPA              | LAKE ECKLES STORMWATER PUMP STATION | W.O. 510H |
|-----|------|-----------|-----|------|-----------|----------------|----------------------------|-------------------------------------|-----------|
| 3   |      |           | 6   |      |           | DRN: RWB       | Department of Public Works | CLAMP-ON ULTRASONIC TRANSIT         | SHEET     |
| 2   |      |           | 5   |      |           | CKD:           | Stormwater Engineering     | TIME FLOW METER CONNECTION DETAIL   | E-19      |
| 1   |      |           | 4   |      |           | DATE: 09/27/13 |                            |                                     |           |



| DUCT BANK CONDUIT SPACING DIMENSIONS |             |              |        |        |        |        |        |        |        |        |  |
|--------------------------------------|-------------|--------------|--------|--------|--------|--------|--------|--------|--------|--------|--|
| CONDUIT SIZE                         | DIMENSION A | CONDUIT SIZE |        |        |        |        |        |        |        |        |  |
|                                      |             | 3/4"         | 1"     | 1 1/4" | 1 1/2" | 2"     | 2 1/2" | 3"     | 3 1/2" | 4"     |  |
|                                      |             | DIMENSION B  |        |        |        |        |        |        |        |        |  |
| 3/4"                                 | 3 5/8"      | 3 1/8"       | 3 1/4" | 3 3/8" | 3 1/2" | 3 3/4" | 4"     | 4 3/8" | 4 5/8" | 4 7/8" |  |
| 1"                                   | 3 3/4"      | 3 1/4"       | 3 3/8" | 3 1/2" | 3 5/8" | 3 7/8" | 4 1/4" | 4 1/2" | 4 3/4" | 5"     |  |
| 1 1/4"                               | 3 7/8"      | 3 3/8"       | 3 1/2" | 3 3/4" | 3 7/8" | 4 1/8" | 4 3/8" | 4 5/8" | 4 7/8" | 5 1/8" |  |
| 1 1/2"                               | 4"          | 3 1/2"       | 3 5/8" | 3 7/8" | 4"     | 4 1/4" | 4 1/2" | 4 3/4" | 5"     | 5 1/4" |  |
| 2"                                   | 4 1/4"      | 3 3/4"       | 3 7/8" | 4 1/8" | 4 1/4" | 4 3/8" | 4 5/8" | 5"     | 5 1/4" | 5 1/2" |  |
| 2 1/2"                               | 4 1/2"      | 4"           | 4 1/8" | 4 3/8" | 4 1/2" | 4 5/8" | 4 7/8" | 5 1/4" | 5 1/2" | 5 3/4" |  |
| 3"                                   | 4 3/4"      | 4 3/8"       | 4 1/2" | 4 5/8" | 4 3/4" | 5"     | 5 1/4" | 5 1/2" | 5 3/4" | 6"     |  |
| 3 1/2"                               | 5"          | 4 5/8"       | 4 3/4" | 4 7/8" | 5"     | 5 1/4" | 5 1/2" | 5 3/4" | 6"     | 6 1/4" |  |
| 4"                                   | 5 1/4"      | 4 7/8"       | 5"     | 5 1/8" | 5 1/4" | 5 1/2" | 5 3/4" | 6"     | 6 1/4" | 6 1/2" |  |

NOTES:

1. CONCRETE SHALL BE 3000 PSI. MINIMUM COMPRESSION STRENGTH.
2. TOP OF DUCT BANK SHALL BE DYED RED.
3. TOP OF DUCT BANK SHALL BE 24" BELOW FINISHED GRADE.
4. 4" CONDUIT BEND RADIUS SHALL BE A MINIMUM OF 48".
5. ALL EMPTY CONDUITS SHALL INCLUDE A PULL WIRE AND SHALL BE CAPPED.
6. DUCT BANKS MAY BE RE-ARRANGED FOR CONVENIENCE OF EGRESS.
7. REFERENCE ELECTRICAL DRAWINGS FOR CONDUIT SIZE.
8. THIS DETAIL IS FOR LAYOUT PURPOSES ONLY. FOR THE ACTUAL NUMBER OF CONDUITS & FEEDERS SEE PLAN DRAWINGS.

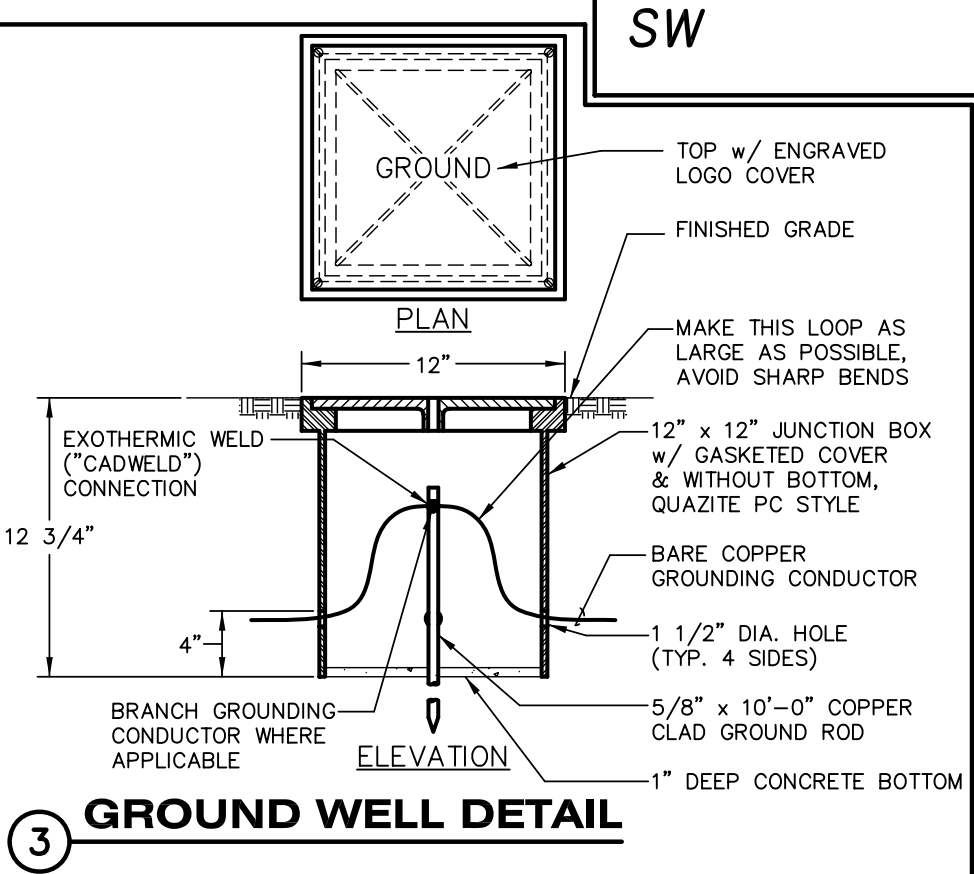
4 DUCT BANK DETAIL

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FLORIDA REGISTRATION NO. 20761

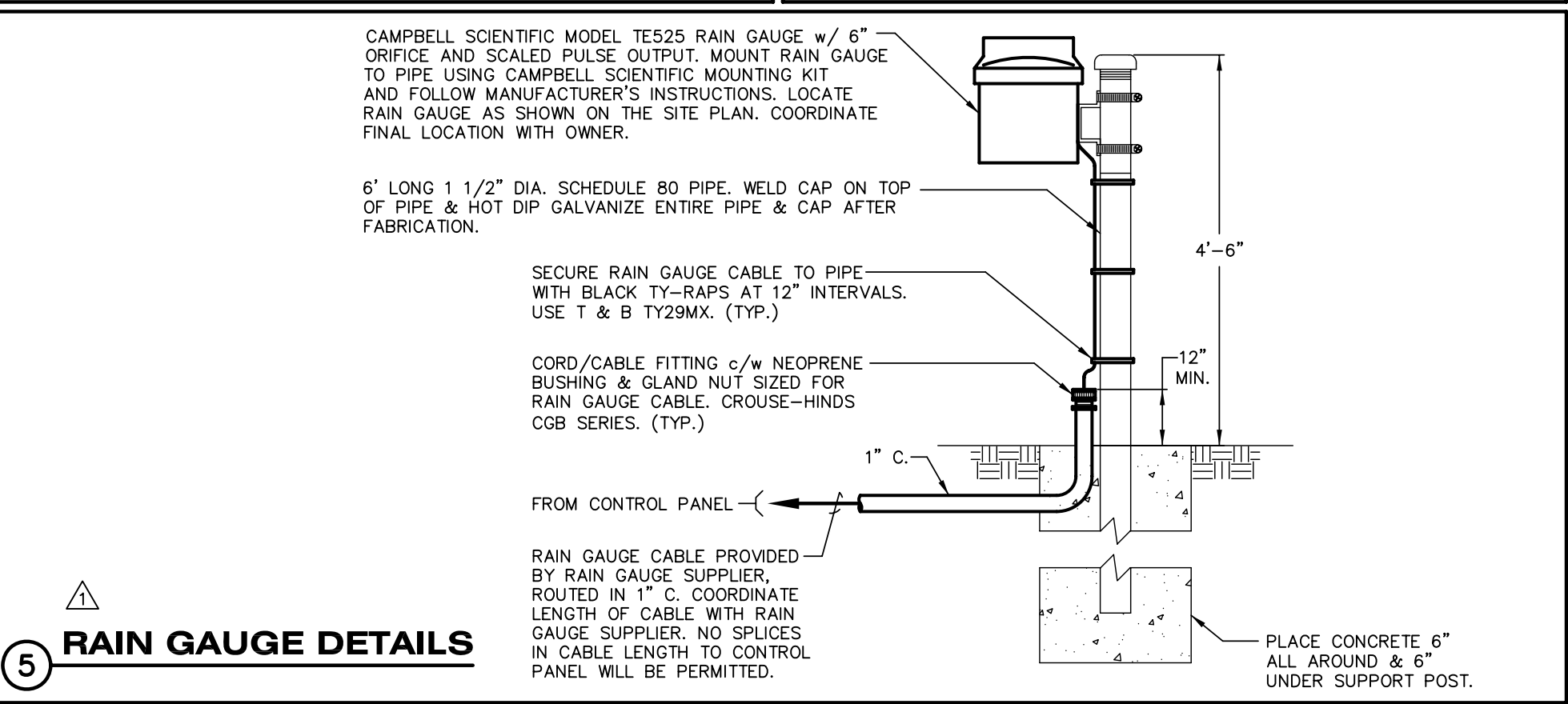
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|-----|----------|----------------|-----|------|-----------|--|---|--|----------------------------|
| 3   |          |                | 6   |      |           |  |   |  |                            |
| 2   |          |                | 5   |      |           |  |   |  |                            |
| 1   | 11/04/13 | ADD RAIN GAUGE | 4   |      |           |  |   |  |                            |



3 GROUND WELL DETAIL



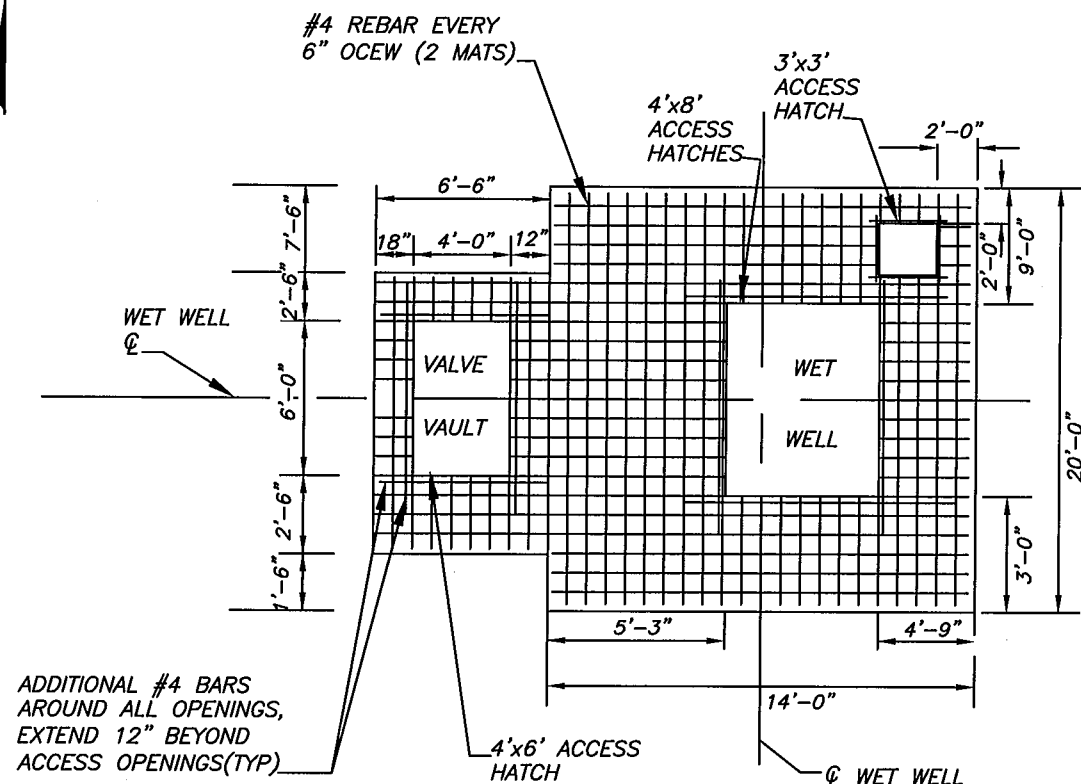
5 RAIN GAUGE DETAILS



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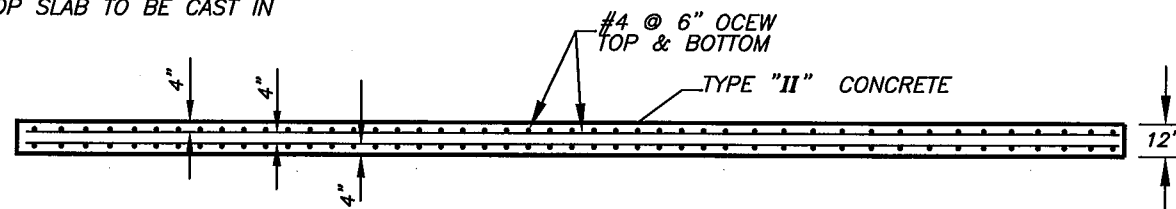


B-11  
SEC.14 T28S R18E



PLAN

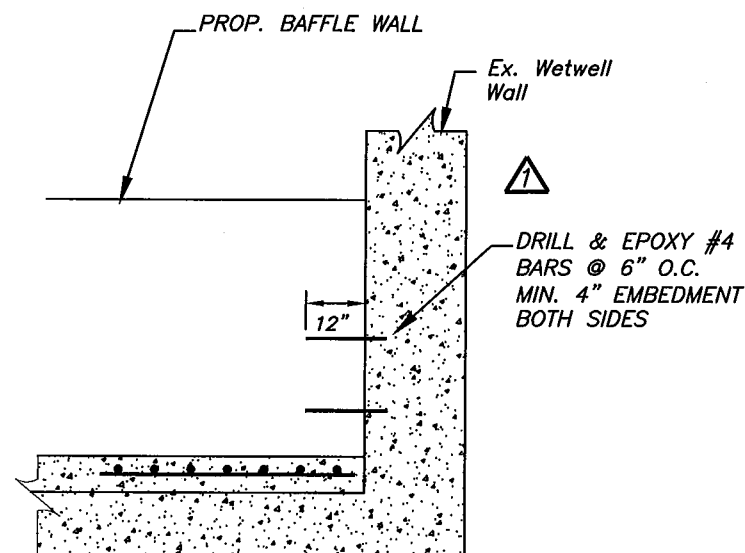
NOTE: TOP SLAB TO BE CAST IN PLACE



SECTION

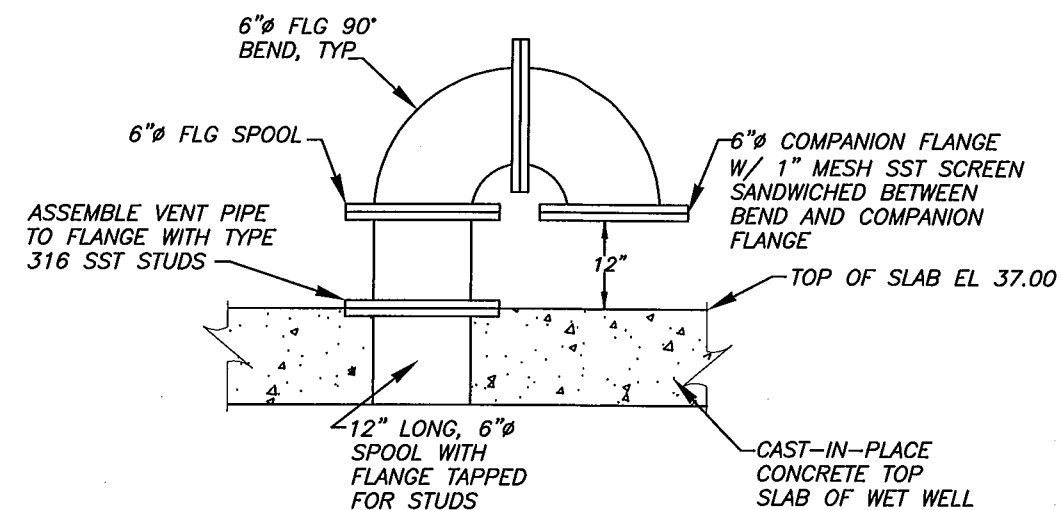
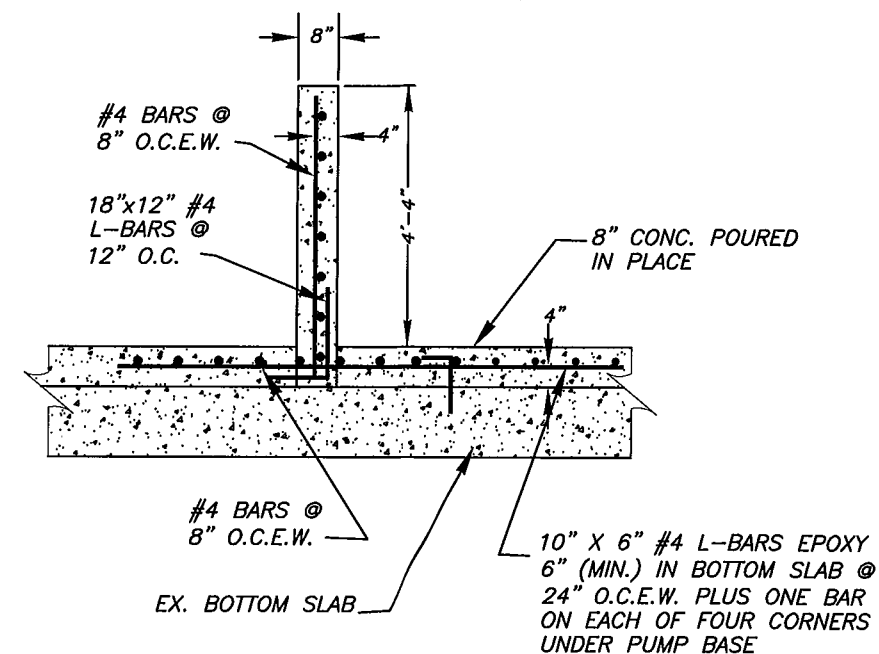
TOP SLAB REINFORCING DETAIL

NOT TO SCALE



BAFFLE WALL/FLOOR DETAIL

NOT TO SCALE



VENT PIPE DETAIL

NOT TO SCALE

| No. | DATE     | REVISIONS                    | No. | DATE | REVISIONS |
|-----|----------|------------------------------|-----|------|-----------|
| 3   |          |                              | 6   |      |           |
| 2   |          |                              | 5   |      |           |
| 1   | 11/12/13 | ADDED NEW BAFFLE WALL DETAIL | 4   |      |           |

DES: MTM  
DRN: MP  
CKD:  
DATE:

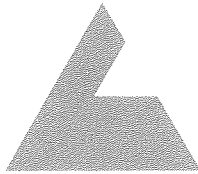
CITY of TAMPA  
Department of Public Works  
Stormwater Engineering

LAKE ECKLES FORCE MAIN  
PUMP STATION

W.O. 510H  
SHEET  
S-5  
OF 53



| Item No. | Description                                     | Unit  | Approx.<br>Quantity | Unit Price in Words                                     | Unit Price   | Total Computed Price |
|----------|---|-------|---------------------|---|--------------|----------------------|
| 0100-1   | Contingency                                     | LS    | 1                   | Seventy Five Thousand Dollars and No Cents              | \$ 75,000.00 | \$ 75,000.00         |
| 0101-1   | Mobilization                                    | LS    | 1                   | Forty Seven Thousand Three Hundred Dollars and No Cents | \$ 47,300.00 | \$ 47,300.00         |
| 0102-1   | Maintenance of Traffic                          | LS    | 1                   |   | \$           | \$                   |
| 0104-1   | Erosion and Tree Protection                     | LS    | 1                   |   | \$           | \$                   |
| 0105-1   | Tree and Root Pruning                           | LS    | 1                   |   | \$           | \$                   |
| 0108-1   | Dewatering and By-Pass Pumping                  | LS    | 1                   |   | \$           | \$                   |
| 0113-1   | Irrigation Repairs                              | LS    | 1                   |   | \$           | \$                   |
| 0120-3   | Grading   | LS    | 1                   |   | \$           | \$                   |
| 0127-10  | Demolition                                      | LS    | 1                   |   | \$           | \$                   |
| 0285-7   | Permanent Pavement Base - 8"                    | CY    | 291                 |   | \$           | \$                   |
| 0327-1   | Milling 1 Inch Asphalt                          | SY-IN | 2700                |   | \$           | \$                   |
| 0334-1   | Permanent Pavement Surface Replacement - 1" S-3 | TN    | 140                 |   | \$           | \$                   |
| 0334-4   | Permanent Pavement Replacement - 1.5" S-1       | TN    | 80                  |   | \$           | \$                   |
| 0350-20  | Concrete Driveway Replacement                   | SY    | 38                  |   | \$           | \$                   |
| 0400-10  | Wetwell Construction                            | LS    | 1                   |   | \$           | \$                   |
| 0400-15  | Valve Vault Construction                        | LS    | 1                   |   | \$           | \$                   |
| 0400-20  | Wetwell and Valve Vault Top Slab                | LS    | 1                   |   | \$           | \$                   |



**LAW ENGINEERING TESTING COMPANY**

geotechnical, environmental & construction materials consultants

4919 WEST LAUREL STREET  
P.O. BOX 24183 • TAMPA, FLORIDA 33623  
(813) 879-0750

January 27, 1981

City of Tampa  
Department of Public Works  
City Hall Plaza  
Tampa, Florida 33602

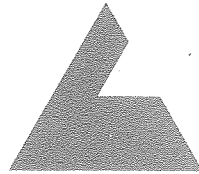
Attention: Mr. Chris Barquin  
Project Engineer

Subject: Report of Subsurface Exploration  
Lake Eckles Pumping Station  
Tampa, Florida  
LETCO Job No. T-4035

Gentlemen:

Law Engineering Testing Company has completed a subsurface exploration for the proposed Lake Eckles Pumping Station. This exploration was authorized by your Work Order No. 10 of our contract with the City of Tampa dated November 20, 1980, and was specifically requested by Mr. Fred Huntley, project engineer. Law Engineering previously presented the results of a soil test boring drilled at that site in our report of December 8, 1980.

Our engineer, Mr. A. David Alcott, P.E., made an inspection of this site with the project's structural engineer, Mr. Jorge Fernandez of Diaz, Seckinger and Associates (DSA). We were also provided with Drawings No. S-1 and C-3 of DSA's project plans. This current report describes our evaluation of subsurface conditions at the site relative to support of the proposed facility. Specific soils-related recommendations relative to site pre-



paration and construction are included. The data obtained during the exploration and descriptions of the testing procedures are attached.

#### EXPLORATORY PROCEDURES

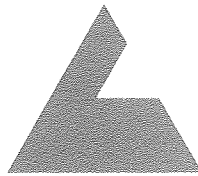
A soil test boring was drilled to a depth of 30 feet as specified by Mr. Barquin in a telephone conversation with our Mr. James L. Studer on December 5, 1980. The test boring location was staked in the field by personnel from the City of Tampa. The boring location appears to be some 30 feet east of the actual new pumping station location. The drilling and testing procedures were described in our earlier report and a Test Boring Record which graphically shows penetration resistances and visual soil classifications is attached to this report.

#### SITE AND SUBSURFACE CONDITIONS

The proposed pumping station will be located on the south side of Lake Eckles. The site slopes gently down to the north from Country Club Drive toward Lake Eckles. In the specific structure area, existing ground surface elevations range from approximately +34 down to +33 feet. The area has a ground cover of mowed grass and weeds.

The test boring which was drilled between the proposed new pumping station location and the existing structure indicates a sub-surface profile comprised almost completely of sands. A fill of loose to firm sands extended from the ground surface to a depth of 6 feet. Penetration resistance values recorded within this stratum were 6 and 14 blows per foot. The fill appeared to overlie an old topsoil or lake-side stratum of dark-colored silty sand. This stratum was about 2.5 feet thick and had a loose relative density with a penetration resistance value of 8 blows per foot.

The boring next encountered loose to firm slightly silty to clean fine sands which extended to a depth of approximately 27.5 feet,



where the limestone formation was encountered. Penetration resistance values ranging from 5 to 16 blows per foot were recorded in this sandy layer. The boring was terminated at a depth of 30 feet, just into the upper portion of the calcareous limestone formation.

At the time of our exploration, a groundwater level of 7 feet below ground surface was recorded. This level is likely closely associated with the level of water in the adjacent Lake Eckles and may be expected to vary significantly depending upon rainfall and lake fluctuations.

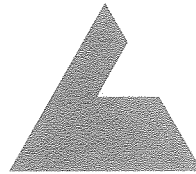
#### FOUNDATION-RELATED STRUCTURAL INFORMATION

The following is the foundation-related structural information which we have taken from the provided drawings or which have been provided to us verbally by Mr. Fernandez. Should actual structural conditions vary significantly from those described below, we should be informed so that we may have the opportunity to review our recommendations in light of these variations.

The proposed pumping station will be a concrete box structure having overall plan dimensions of approximately 20 by 14 feet supported on a concrete slab. The top of the box section will be at elevation +37 feet and the base of the bottom slab will be at elevation +20 feet. An excavation of approximately 14 to 15 feet below existing ground surface will be required to construct the pumping station. Mr. Fernandez has indicated that the unit load at the base of the structure will be approximately 1800 psf. Considering the unloading resulting from the excavation of soil required to construct the structure, we estimate that the net load at the base of the excavation should be between approximately 700 to 800 psf.

#### EVALUATION AND RECOMMENDATIONS

The following evaluation of subsurface conditions has been based on the foundation-related structural information discussed above

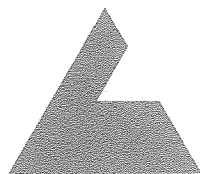


and the information obtained during the exploration. In evaluating the test boring data, we have used correlations previously established between standard penetration resistances and engineering performance characteristics of soils similar to those at your site.

It is our opinion that if subsurface conditions at the location of the proposed pumping station are similar to those encountered in the nearby soil test boring, soil conditions at the site are adequate for support of the proposed pumping station. There are two primary factors which we have considered in this evaluation. The first of these is the fact that the test boring was not drilled at the specific pumping station location. Therefore, our evaluation has been made assuming that subsurface conditions are the same at both locations. It is important that Law Engineering be retained to inspect the soils exposed as the excavation work is in progress. The proposed pumping station is somewhat closer to the lake than the test boring and there is the probability that the thickness of surface fill will be greater at the pumping station location than in the test boring. There is also the possibility that less stable, possibly more organic, soils will be encountered underlying the surface fill. These observations can be made as the excavation is in progress and any variations from the recommendations presented in this report can be addressed at that time. We do not have information which suggests that subsurface conditions between the two locations would be so different as to prevent the successful construction of the pumping station at its intended location.

The second factor which we have considered is the necessity for completion of a substantial dewatering effort to permit construction of the proposed pumping station "in-the-dry". It is our opinion that a system of wellpoints or wells will be required to lower the groundwater level from its elevation at the time of construction, probably around elevation +28 to +30, down to below the under-slab level of +20 feet. This dewatering must be accomplished prior to excavating below the existing groundwater level. We consider it possible, if not probable, that due to the proximity of the pumping station to Lake Eckles, temporary sheeting may have to be driven around that portion of the pumping station which is adjacent to Lake Eckles to permit effective dewatering.

City of Tampa  
Tampa, Florida



January 28, 1981  
Page 5

We recommend that once the groundwater level has been lowered to a position of at least two feet below the base of the base slab for the pumping station that the excavation be extended down to elevation +19 feet and that one foot of washed coarse limerock gravel be placed to form a stable working mat. The gravel should be compacted with a small manually guided vibratory sled or single-drum vibratory roller. A sump may be placed in the gravel working mat to control seepage which may bypass the dewatering system.

Once the base, walls and possibly the surface slab of the pumping station have been constructed, backfill should be placed. The backfill should be a clean, cohesionless sand which contains less than 10 percent, by weight, of silt or clay-sized soil fines. The backfill should be placed in thin lifts and compacted with light vibratory equipment to a density of at least 92 percent of its Modified Proctor maximum dry density. The Modified Proctor maximum dry density is determined in accordance with the laboratory test procedures of ASTM D 1557. The dewatering system should be maintained in operation until backfill has been placed to a level sufficient to prevent hydrostatic uplift from raising the newly constructed pumping station.

We have appreciated the opportunity of performing geotechnical engineering and testing services on this project. We look forward to providing engineering inspection and field testing services during both the excavation and construction phase of work on this structure. If there are any questions concerning this report or if we may provide further information, please call us.

Very truly yours,

LAW ENGINEERING TESTING COMPANY

*JAMES L. STUDER*  
James L. Studer *ADA*  
Geotechnical Engineer  
Registered, Florida - 26878

*A. David Alcott*  
A. David Alcott  
Senior Geotechnical Engineer  
Registered, Florida - 16779

JLS/ADA/jt

Copies Submitted: 2 - Addressee  
1 - Diaz, Seckinger and Associates  
Attn: Mr. Jorge Fernandez

# KEY TO CLASSIFICATIONS AND SYMBOLS

## CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

|      | <u>NO. OF BLOWS, N</u> |      | <u>RELATIVE DENSITY</u> |
|------|------------------------|------|-------------------------|
| SAND | 0                      | - 4  | VERY LOOSE              |
|      | 5                      | - 10 | LOOSE                   |
|      | 11                     | - 20 | FIRM                    |
|      | 21                     | - 30 | VERY FIRM               |
|      | 31                     | - 50 | DENSE                   |
|      | OVER                   | - 50 | VERY DENSE              |

|                 |      |   |    | <u>CONSISTENCY</u> |
|-----------------|------|---|----|--------------------|
| SILTS AND CLAYS | 0    | - | 1  | VERY SOFT          |
|                 | 2    | - | 4  | SOFT               |
|                 | 5    | - | 8  | FIRM               |
|                 | 9    | - | 15 | STIFF              |
|                 | 16   | - | 30 | VERY STIFF         |
|                 | 31   | - | 50 | HARD               |
|                 | OVER | - | 50 | VERY HARD          |

### SYMBOLS



Undisturbed Sample (UD) Recovered

100/2"

- Number of Blows (100) to Drive the Spoon a Number of Inches (2)

AX, BX, NX

- Core Barrel Sizes Which Obtain Cores 1-1/8, 1-5/8 and 2-1/8 Inches in Diameter Respectively

65%

- Percentage (65) of Rock Core Recovered

RQD

- Rock Quality Designation - % of Core Segments 4 or More Inches Long



- Water Table At Least 24 Hours After Drilling



- Water Table One Hour or Less After Drilling



- Loss of Drilling Water

PP

- Pocket Penetrometer Reading in TSF (kg/cm<sup>2</sup>)

TV

- Torvane Reading in TSF (kg/cm<sup>2</sup>)

## SOIL TEST BORING

A soil test boring provides small soil samples and standard penetration resistances (blow counts) from selected depth intervals. The samples are used for soil classification. Penetration resistances provide a general indication of soil strength and density.

Drilling and standard penetration testing were performed in general accordance with ASTM D 1586-67. The borings were advanced to the desired test depth by a rotary drilling process which utilized a viscous bentonite drilling fluid to flush the cuttings and stabilize the hole. The drill bit was withdrawn and the penetration test was performed with a standard 1.4 inch I.D., 2.0 inch O.D., split-barrel sampler. The test interval varied from 2.5 feet to a maximum of 5.0 feet.

In penetration testing, the sampler was driven with blows of a 140-pound hammer falling 30 inches until either: 1) 18 inches of penetration was achieved, or 2) 50 blows were applied and resulted in less than six inches of penetration. The number of hammer blows required to drive the sampler each six inches was recorded. The first six inches in considered to be a seating drive. The number of blows required to drive the sampler the final foot is designated the "penetration resistance". Where the sampler advanced less than 18 inches, the number of hammer blows applied and the penetration achieved were recorded.

After each penetration test, the split-barrel sample was classified by the driller and a representative portion was sealed in a glass jar. The samples were transported to our laboratory where they were examined by an engineer to verify the field classifications. The boring data are shown as soil classifications and plots of penetration resistances.



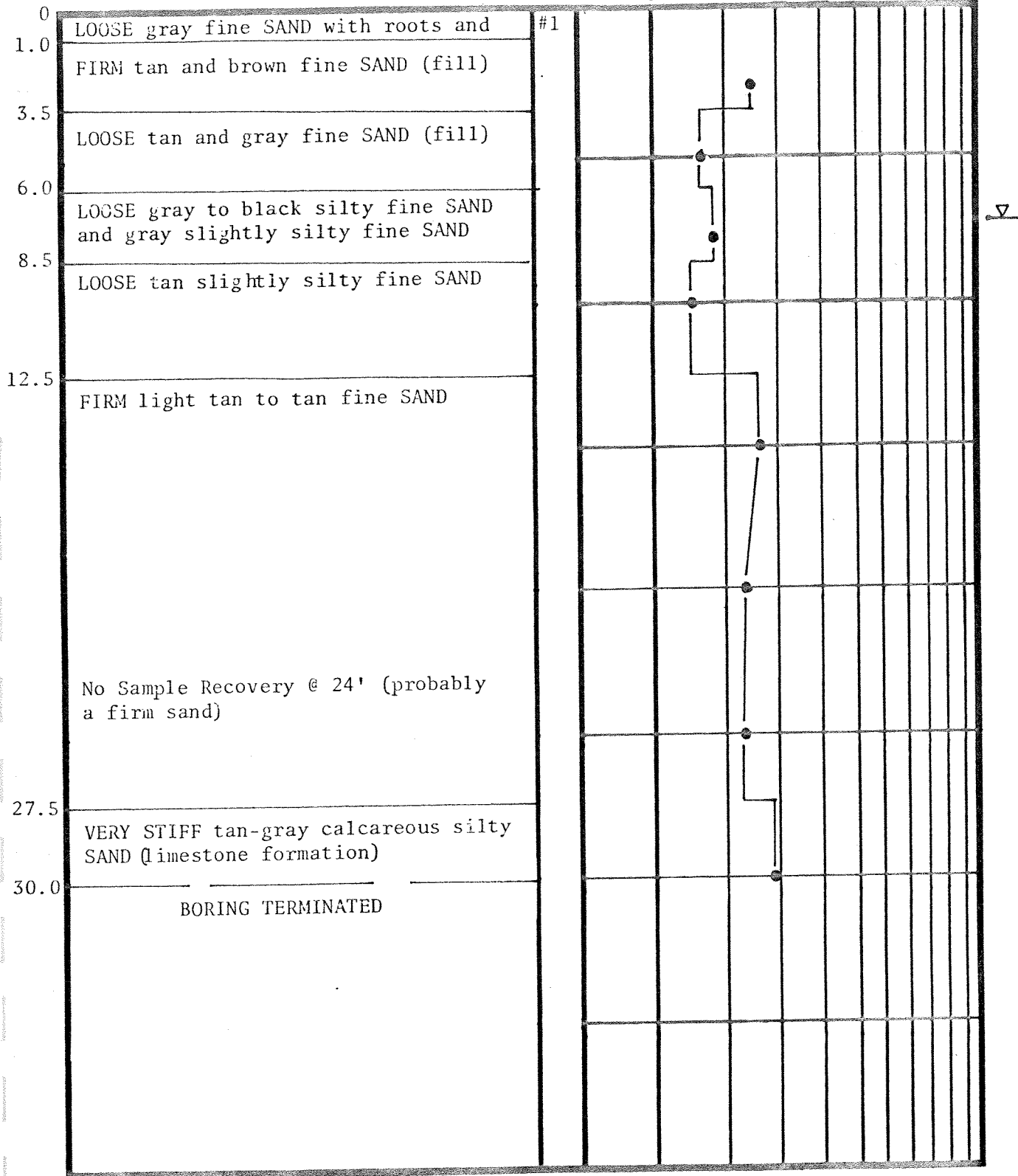
DEPTH  
FT.

DESCRIPTION

ELEV.

● PENETRATION-BLOWS PER FT.

0 10 20 30 40 60 80 100

0.5 hour grout time  
1.0 bag cement

## TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586  
CORE DRILLING MEETS ASTM D-2113PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER  
FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE



WATER TABLE, 24 HR.



WATER TABLE, TOB



C/O ROCK CORE RECOVERY



LOSS OF DRILLING WATER

BORING NO. B-1  
DATE DRILLED 12/8/80  
JOB NO. T-4035

LAW ENGINEERING TESTING CO.



November 2, 1990

City of Tampa  
Department of Sanitary Sewers  
City Hall Plaza - 6th Floor East  
Tampa, Florida 33602

Attention: Desiree Davis, P.E.

Subject: Monitor Well Installation  
Lake Eckels Stormwater Pumping Station  
Tampa, Florida  
Project No. 90-598

Gentlemen:

As authorized, four monitor wells were installed around the underground fuel storage tank at the referenced site. The approximate location of the wells are shown on the accompanying plan. The following report briefly describes the field test and well installation procedures used and presents the findings.

#### EXPLORATION PROGRAM

Four auger borings were made with the CME-55 drilling rig at the locations shown on the attached plan. A four inch diameter continuous flight auger was mechanically twisted into the ground to the desired depth. The auger was then withdrawn to permit a continuous examination of the soils penetrated.

#### FINDINGS

The subsurface data obtained from the field exploration program are presented on the accompanying logs.

MONITOR WELL INSTALLATION

The monitor wells were installed adjacent to the borings. The wells were constructed of 2 inch diameter PVC pipe with the lower 10 foot section slotted. The tip of the wells were set at a depth of approximately  $12\frac{1}{2}$  feet. Each well is protected with a manhole-type cover set in a concrete pad and has a locking cap. I have enclosed the keys for the locks. Also attached are copies of the well permit and completion reports submitted to the Southwest Florida Water Management District.

LIMITATIONS

The boring logs represent the subsurface conditions at the specific location at the time of the investigation. The subsurface conditions at other locations may differ, and no warranty as to the subsurface conditions elsewhere is either expressed or implied by the data presented herein. Furthermore, the lines on the boring logs designating the interface between the various strata may only be approximate boundaries when the transition is gradational or could not be detected by the drilling operations.

If there are any questions concerning this project, or if we may be of further assistance, please do not hesitate to call.

Respectfully submitted,

*Robin DeRose*

Robin DeRose, P.E.  
Geotechnical Engineer

CPD  
11/5/90

### AUGER BORING A-1

| <u>Depth</u> | <u>Description</u>                       | <u>Soil Classification</u> |
|--------------|--|----------------------------|
| 0' to 2½'    | dark brown fine SAND w/trace of organics | SP                         |
| 2½' to 7'    | dark brown fine SAND                     | SP                         |
| 7' to 9'     | brown fine SAND                          | SP                         |
| 9' to 11½'   | dark brown fine SAND                     | SP                         |
| 11½' to 15'  | brown fine SAND                          | SP                         |
| 15'          | boring terminated                        |                            |
|              | groundwater encountered at 3'4"          |                            |

### AUGER BORING A-2

| <u>Depth</u> | <u>Description</u>                         | <u>Soil Classification</u> |
|--------------|--|----------------------------|
| 0' to 2½'    | brown fine SAND w/trace of shell fragments | SP                         |
| 2½' to 6'    | brown fine SAND                            | SP                         |
| 6' to 6½'    | dark brown fine SAND w/trace of organics   | SP                         |
| 6½' to 12'   | dark brown fine SAND                       | SP                         |
| 12' to 15'   | brown fine SAND                            | SP                         |
| 15'          | boring terminated                          |                            |
|              | groundwater encountered at 5'4"            |                            |

AUGER BORING A-3

| <u>Depth</u> | <u>Description</u>                                  | <u>Soil<br/>Classification</u> |
|--------------|---|--------------------------------|
| 0' to 6'     | dark brown fine SAND                                | SP                             |
| 6' to 10½'   | dark brown fine SAND w/lenses of brown<br>fine sand | SP                             |
| 10½' to 20'  | brown fine SAND                                     | SP                             |
| 20'          | boring terminated                                   |                                |
|              | groundwater encountered at 6'8"                     |                                |

AUGER BORING A-4

| <u>Depth</u> | <u>Description</u>                                 | <u>Soil<br/>Classification</u> |
|--------------|--|--------------------------------|
| 0' to 1'     | gray-brown fine SAND w/trace of shell<br>fragments | SP                             |
| 1½' to 3½'   | dark brown fine SAND                               | SP                             |
| 3½' to 5½'   | gray-brown fine SAND                               | SP                             |
| 5½' to 8'    | brown fine SAND                                    | SP                             |
| 8' to 11'    | brown very slightly clayey fine SAND               | SP                             |
| 11' to 16'   | brown fine SAND                                    | SP                             |
| 16' to 18½'  | light brown fine SAND                              | SP                             |
| 18½' to 20'  | light brown slightly clayey fine SAND              | SP-SC                          |
| 20'          | boring terminated                                  |                                |
|              | groundwater encountered at 6'5"                    |                                |



*Please complete in black ink or type*

# WELL COMPLETION REPORT

Owner's Name City of Tampa

Permit Number: 5-5940 & 5-5931 thro 5-5938 14

X N. F. Buchanan 10/26/90  
Water Well Contractor's Signature Completion Date

License No. 90 84

**SURFACE CASING, CASING  
AND LINER MATERIAL:**

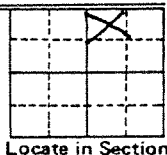
IRON: \_\_\_\_ ppm SULFATES: \_\_\_\_ ppm CHLORIDES: \_\_\_\_ ppm

**FINISH:** Screen: \_\_\_\_\_ (Ft.) Open Hole: \_\_\_\_\_ (Ft.)

## WELL LOCATION

1/4 NW 1/4 NE 1/4 of Section 14

28
5
18
E  
 Township (N-S) Range (E-W)



## DRILL METHOD

☒ Rotary ☐ Cable Tool ☐ Jet ☒ Auger Other \_\_\_\_\_

Measured Static Water Level \_\_\_\_\_ + \_\_\_\_\_ - \_\_\_\_\_ Ft.

Measured Pumping Water Level \_\_\_\_\_ + \_\_\_\_\_ - \_\_\_\_\_ Ft.

After \_\_\_\_\_ Hours At \_\_\_\_\_ G.P.M.

Measuring Pt. (Describe): \_\_\_\_\_

Which is 6'8" Ft. ☐ Above ☒ Below Land Surface

Driller's Name R. A. Guichon

*Please complete in black ink or type*

# WELL COMPLETION REPORT

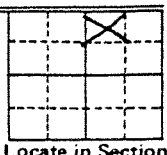
Owner's Name City of Tampa

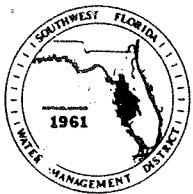
Permit Number: 5-5940 & 5-5936 thro 5-5938 14

X A. Buchara 10/26/90  
Water Well Contractor's Signature Completion Date

License No. 9084.

**SURFACE CASING, CASING  
AND LINER MATERIAL:**





# SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)

2379 Broad St., Brooksville, Florida 34609-6899  
904/796-7211

## APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

In compliance with the Rules and Regulations of the Southwest  
Florida Water Management District (Regulatory)

|                     |                   |               |
|---------------------|-------------------|---------------|
| RUEUS E. Buchanan   |                   | 9084          |
| Drilling Contractor | License Number    |               |
| C/O TEST LAB INC    |                   |               |
| 4619 W. Curtis St   | Tampa             | 33614         |
| Address             | Street or Box No. | City Zip Code |

(Please type or print in above space)

PERMIT NO.: 5-5940  
5-5936  
5-5938 14

STIPULATIONS REQUIRED: (23)

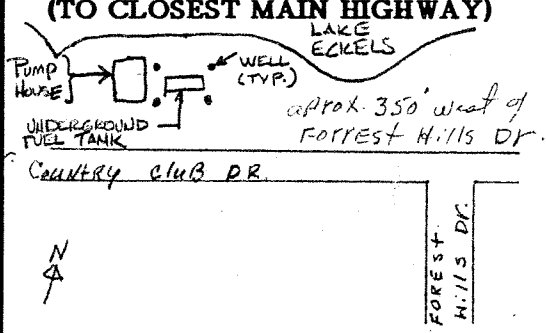
(See Reverse)

DATE: 10-24-90

Requests authorization to construct repair, modify a well for: 4 WELLS  
(Circle One)

City of Tampa at Pump House on North Side of Country Club Drive,  
APPROX. 350' WEST OF FOREST HILLS DRIVE  
(ADDRESS UNKNOWN)  
Name of Well Owner Address of Well Location Street or Box No. City Zip Code  
1 City Hall Plaza 5N (STORMWATER MANAGEMENT) Tampa 33602

Owners Mailing Address Street or Box No. City Zip Code

|  |   |   |                                 |
|--|---|---|---------------------------------|
| TYPE OF EQUIPMENT: <u>Rotary Drill</u> |   | LOCATION SKETCH<br>(TO CLOSEST MAIN HIGHWAY)  |                                 |
| APPROXIMATE DEPTH: <u>15'</u>          | DIAMETER: <u>2"</u>                                   |  |                                 |
| APPROXIMATE CASSED DEPTH: <u>15'</u>   | CASING MATERIAL: <u>PVC</u>                           |   |                                 |
| SEAL: _____                            | PURPOSE: <u>UNDERGROUND FUEL STORAGE TANK MONITOR</u> |   |                                 |
| LEGAL DESCRIPTION:                     |   |   |                                 |
| QTR: <u>NW</u>                         | QTR: <u>NE</u>  | SEC. <u>14</u>  | TWP. <u>28S</u> RGE. <u>18E</u> |
| LOT _____                              | BLK. _____  | UNIT _____  | SUBDIVISION _____               |
| COUNTY <u>Hillsborough</u>             |   |   |                                 |

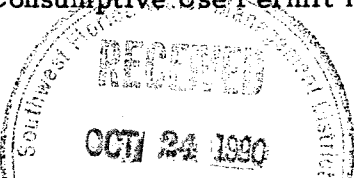
I agree to furnish a Completion Report within 30 days after drilling operations cease and to comply with all the provisions of the Rules and Regulations of the SWFWMD (R) relative to well construction. Driller should supply a copy of the Completion Report to the owner.

I understand if the withdrawal is from a well having an inside diameter of six inches (6") or more or if the withdrawal during any single day is to exceed one-million (1,000,000) gallons or if the average annual daily withdrawal is to exceed one hundred thousand (100,000) gallons average per day on an annual basis, then a Consumptive Use Permit must be approved prior to the Construction Permit being authorized.

Signature of Drilling Contractor R.E. Buchanan

Signature of Owner \_\_\_\_\_

or His Authorized Agent R.E. Buchanan



DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

GRANTED BY: [Signature] DATE: 10/24/90

TITLE: Field Service Permit

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OF SWFWMD(R). IT SHALL BE KEPT AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

CUP NO. \_\_\_\_\_



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

TAMPA SERVICE OFFICE

STIPULATION # 23 - TEST/MONITOR WELL (Gasoline Monitor)

- A. This well is to be used as a test/monitor well. If it is to be converted into a production well, an additional permit shall be obtained.
- B. There shall be no injection of fluids into the monitor well without prior written approval from the District. This includes, but is not limited to treated ground water, or the introduction of microbes for In-Situ aquifer restoration.
- C. The well shall be constructed in such a manner to prevent the unauthorized interchange of water between different water bearing zones (i.e., breaching of confining beds, clays or hardpan intervals) as per Chapter 17-532.500 (2)(C), Florida Administrative Code (F.A.C.). This includes, but is not limited to the screened or open hole interval and the annular space.
- D. Prior written approval from the District shall be required if the monitor well will be pumped for use in hydrodynamic control and/or contaminant plume management.
- E. All monitor wells constructed at facilities which store petroleum products in underground tanks, shall adhere to construction standards set forth in the Department of Environmental Regulation Chapter 17-61.05(5), F.A.C., Stationary Tanks.
- F. In the event the well needs to be abandoned, an abandonment permit shall be obtained prior to commencing with abandonment operations.
- G. An observer from our Field Services Office is required on all abandonments to ensure compliance with Chapter 17-532, F.A.C. Please contact Field Services Coordinator Tom Nolan in our Tampa Field Services Office at (813) 985-7481 for additional information.

Approved by: Dayl Eppay Permit # 5-5940 d  
Date \_\_\_\_\_ 5-5936 thru  
5-5938

Stip#23--TPA  
(7/90)



COPY TO OWNER



WATER LEVEL  
11/14/80 - EL. 29.4

SHADED AREA TO  
BE ABANDONED N.I.C.

EXISTING P  
HOUSE AND  
STRUCTURE

COUNTRY

