CITY OF NAPLES
PURCHASING DIVISION
CITY HALL, 735 8TH STREET SOUTH
NAPLES, FLORIDA 34102
PH: 239-213-7100 FX: 239-213-7105

ADDENDUM NUMBER 1

NOTIFICATION DATE:	BID TITLE:	BID NUMBER:	BID OPENING DATE & TIME:
01/15/14	WRF Aeration Monitor and Control Instrumentation Improvements	14-016	01/27/14 2:00PM

THE FOLLOWING INFORMATION IS HEREBY INCORPORATED INTO, AND MADE AN OFFICIAL PART OF THE ABOVE REFERENCED BID.

The following clarifications are issued as an addendum identifying the following changes for the referenced solicitation. Please note REVISED Technical Drawings as Exhibit A.

Below are answers to written submitted questions:

1) **Will there be any qualification requirements (regarding system integrators) or a list of approved system integrators provided?**

ANSWER: Please see section 16748, Part 2, 2.01, "The software services shall be fulfilled by the organization selected as "Equipment Supplier" under Section 13410" (1.03).

2) **Please provide a specification for the 'programming terminal' referenced on pg. 56, section 13410, part 1, subsection 1.03G.**

ANSWER: "Programming terminal" refers to a device/interface/computer with the software required to configure all the programming equipment associated with this project.

3) **Please provide a specification for the new PLC.**

ANSWER: Allen-Bradley ControlLogix.

4) **Please advise the type of Operator Interface Terminals and HMI/SCADA system to be modified and whether it is proprietary.**

ANSWER: The SCADA system is licensed with Trihedral Engineering and has sufficient room for expansion within the limits of the City's license.

5) **Is it the intent of the field equipment design for each analtical sensor to be paired with its own transmitter?**

ANSWER: The drawings depict that each BB2 Controller is required to handle 3 to 4 sensors; therefore each BB2 Controller must have the expanded four boards included.

6) **Who is the SCADA system software manufacture?**

ANSWER: Trihedral Engineering.

7) **Will a SCADA system license upgrade be required for this project and if so how large of an increase and what phase?**

ANSWER: No additional licensing is required.

8) **Can new SCADA screens be in a plain spread sheet numeric format or is a graphic view required?**

ANSWER: A graphical display is required.

Exhibit A - REVISED Technical Drawings

Exhibit B – Pre-Bid Attendees List

IMPORTANT MESSAGE

PLEASE ACKNOWLEDGE RECEIPT OF THIS ADDENDUM ON THE BID COVER SHEET.

THE CITY OF NAPLES
WRF AERATION MONITOR & CONTROL
INSTRUMENTATION IMPROVEMENTS

10600 CHEVROLET WAY, SUITE 300
ESTERO, FLORIDA 33928
Ph: 239-390-1467 Fax: 239-390-1769
www.tetratech.com

TETRA TECH

ATTACHMENT A - BID 14-016

REVISED 01/14/2014

100% DESIGN
REVISED IN OCTOBER 2013

CITY OF NAPLES, FLORIDA
ON THE GULF

PREPARED FOR

THE CITY OF NAPLES

735 EIGHT ST. S
NAPLES, FLORIDA 34102

JOHN SOREY III	MAYOR
GARY PRICE	VICE MAYOR
BILL MOSS	CITY MANAGER
BOB MIDDLETON	UTILITIES DIRECTOR

CITY COUNCIL

TERESA HEITMANN
MARGARET "DEE" SULIK
BILL BARNETT
DOUG FINLAY
SAM SAAD III

811 KNOW WHAT'S BELOW ALWAYS CALL 811 BEFORE YOU DIG
It's fast. It's free. It's the law.
www.callsunshine.com

11 October 2013

TETRA TECH, INC.
Infrastructure Offices Throughout Florida
Orlando * Fort Myers
10600 CHEVROLET WAY - SUITE 300 - ESTERO - FL 33928
TELEPHONE (239) 390-1467 - FAX (239) 390-1769 - WWW.TETRATECH.COM

Daniel M. Nelson, P.E.
Florida Registration 56152
Tetra Tech Inc.
10600 Chevrolet Way, Ste. 300
Estero, Florida 33928
Engineering Business No. 2429

DATE ____________

PROJECT LOCATION:
380 RIVERSIDE CIRCLE
NAPLES, FLORIDA 34102

CLIENT INFORMATION:
CITY OF NAPLES
735 EIGHT ST. S
NAPLES, FLORIDA 34102

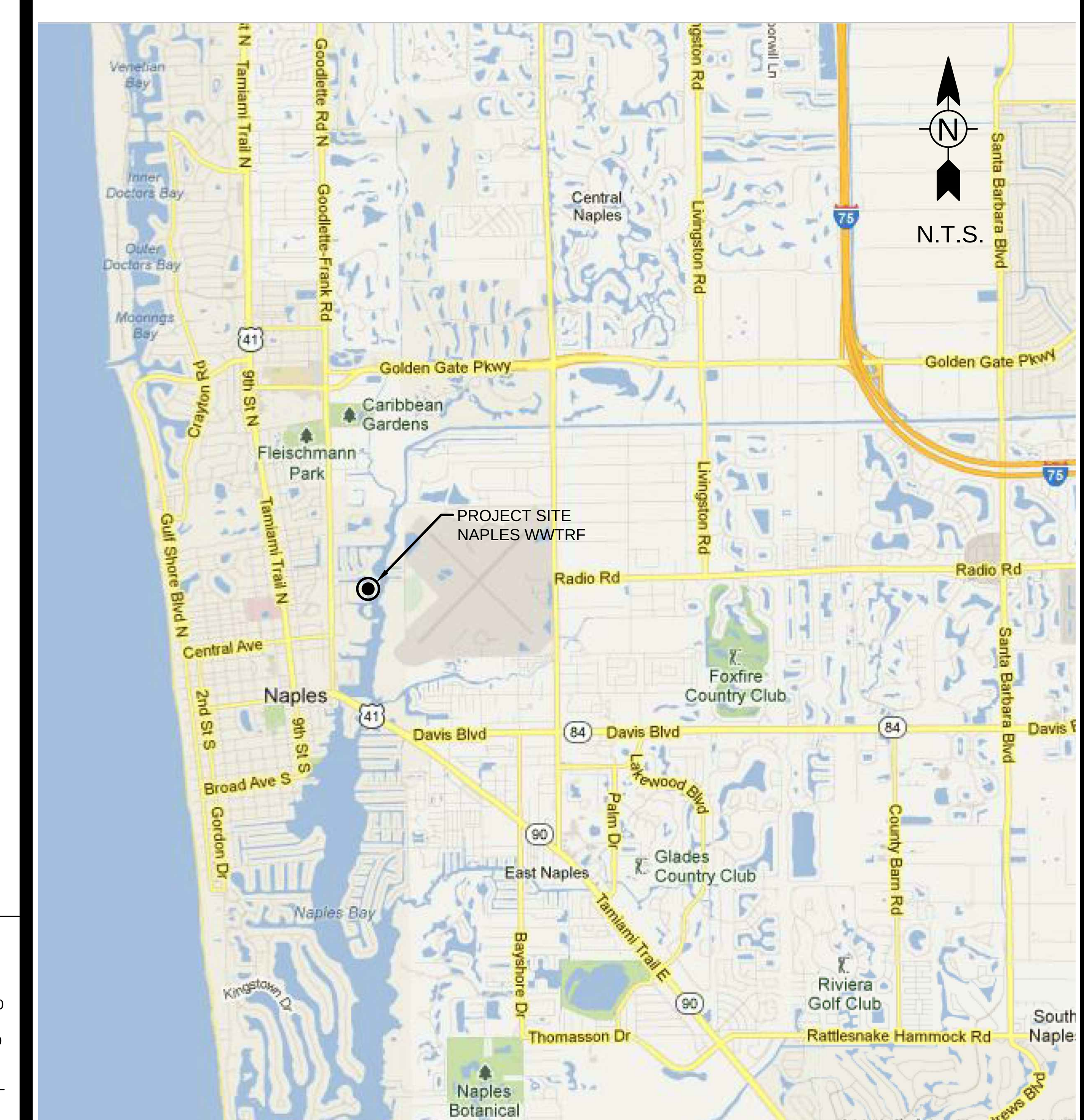
Tt PROJECT No.:
200-08516-12001

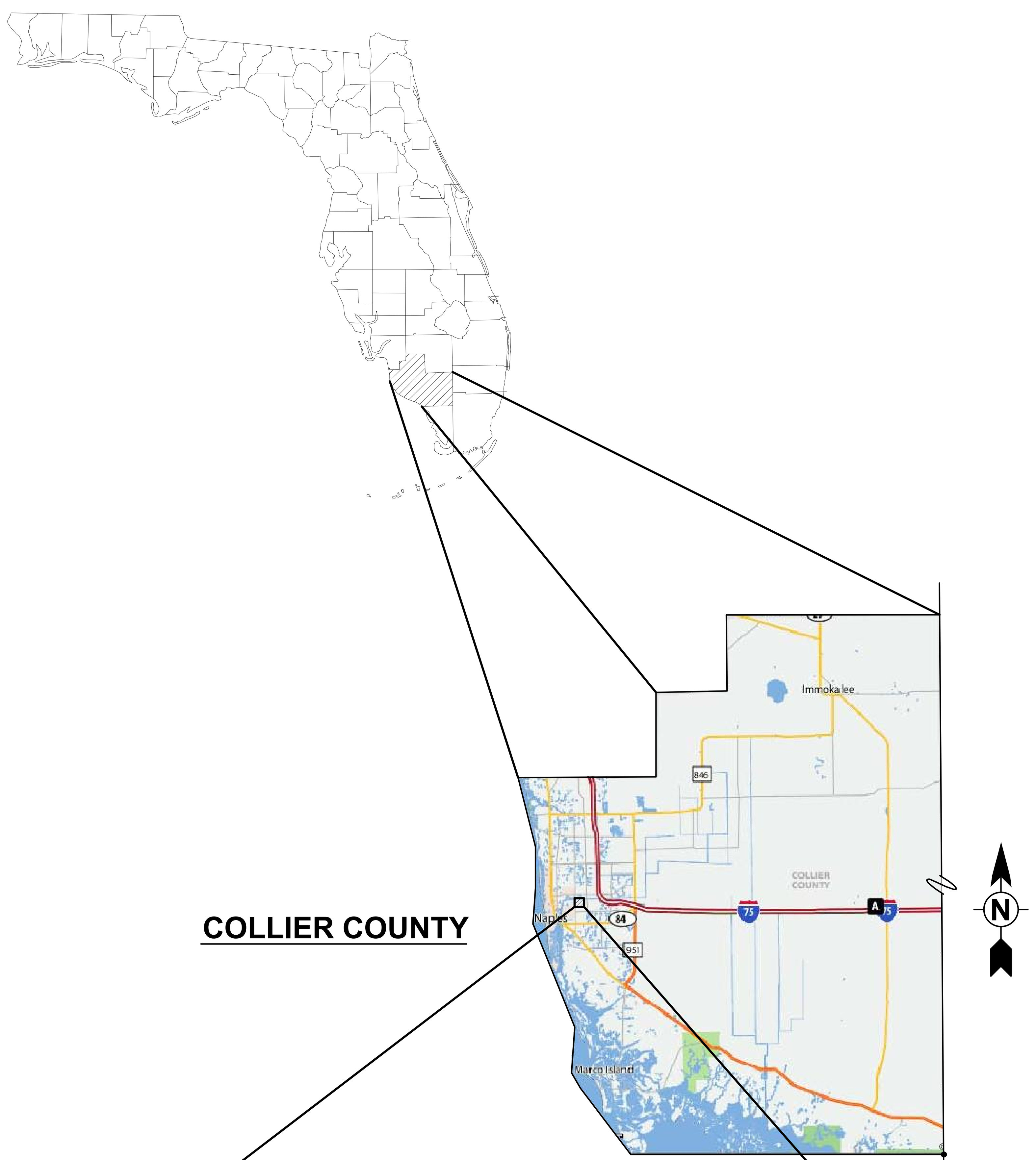
CLIENT PROJECT No.:

PROJECT DESCRIPTION / NOTES:
Installation of All Monitoring Devices (DO, SS, Sludge Level, & Thermal Mass Flow), PLC, power, communications, junctions, conduits, conductors, integration, and all related and required hardware, materials, and assemblies necessary for complete and operational systems that will allow real time monitoring, tracking, and control for the Blower systems of the aeration basins and improve treatment throughout various stages of the treatment plant.

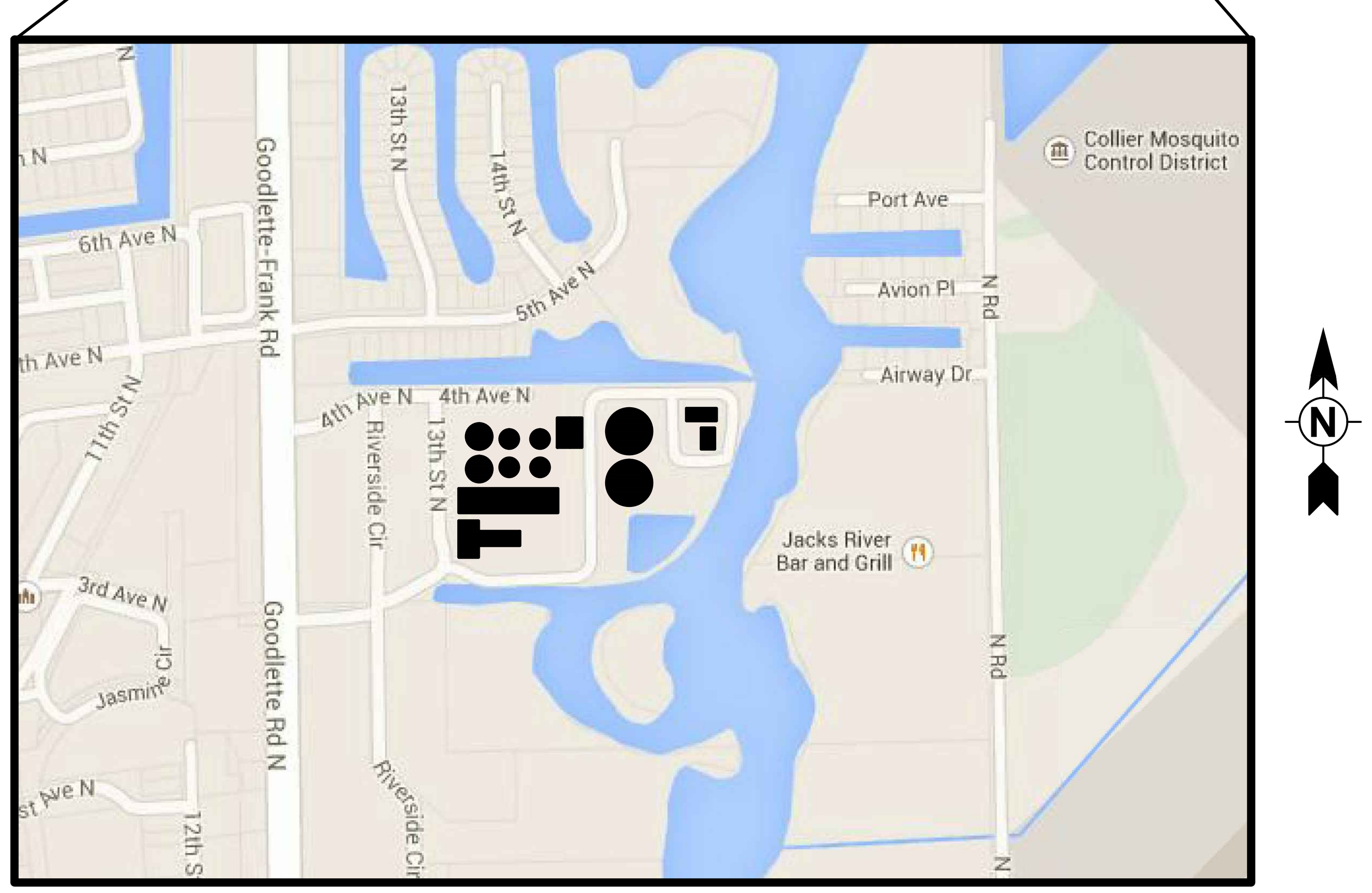
ISSUED:
10/11/13 - 100% DESIGN REVISED

VICINITY MAP:





COLLIER COUNTY



NAPLES WWTRF PROJECT SITE

GENERAL NOTES

1. ALL LABOR, MATERIALS, AND METHODS OF CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH THE MINIMUM ENGINEERING AND CONSTRUCTION STANDARDS ADOPTED BY THE CITY OF NAPLES, THE PLANS, AND CONSTRUCTION SPECIFICATIONS. WHERE CONFLICTS OR OMISSIONS EXIST, THE CITY OF NAPLES STANDARDS SHALL DICTATE. SUBSTITUTIONS AND DEVIATION FROM PLANS AND SPECIFICATIONS SHALL BE PERMITTED ONLY WHEN WRITTEN APPROVAL HAS BEEN ISSUED BY THE ENGINEER.
2. SHOP DRAWINGS OF ALL MATERIALS BEING USED SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.
3. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL REQUIRED PERMITS ARE OBTAINED AND IN HAND BEFORE BEGINNING ANY CONSTRUCTION. NO CONSTRUCTION OR FABRICATION OF ANY ITEM SHALL BEGIN UNTIL THE CONTRACTOR HAS RECEIVED ALL PLANS AND ANY OTHER DOCUMENTATION FROM ALL OF THE PERMITTING AND ANY OTHER REGULATORY AUTHORITIES. ANY PENALTIES, STOP WORK ORDERS ON ADDITIONAL WORK RESULTING FROM THE CONTRACTOR BEING IN VIOLATION OF THE REQUIREMENTS ABOVE SHALL BE FULLY BORNE BY THE CONTRACTOR.
4. THE LOCATION OF ALL EXISTING UTILITIES AND STORM DRAINAGE SHOWN ON THE PLANS HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR INACCURACY. PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITY IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE VARIOUS UTILITIES AND TO MAKE THE NECESSARY ARRANGEMENTS FOR ANY RELOCATION OF THESE UTILITIES WITH THE OWNER OF THE UTILITY. THE CONTRACTOR SHALL EXERCISE CAUTION WHEN CROSSING UNDERGROUND UTILITY, WHETHER SHOWN ON THE PLAN OR LOCATED BY THE UTILITY COMPANY. ALL UTILITIES WHICH INTERFERE WITH THE PROPOSED CONSTRUCTION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FIRST. ANY FEES ASSOCIATED WITH UTILITY RELOCATIONS SHALL BE BORNE IN ACCORDANCE WITH RESPECTIVE UTILITY COMPANY STANDARDS. IT IS REQUESTED UTILITY COMPANIES MOVE THEIR PARTICULAR UTILITIES. ANY DELAY OR INCONVENIENCE CAUSED TO THE CONTRACTOR BY THE RELOCATION OF THE VARIOUS UTILITIES SHALL BE INCIDENTAL TO THE CONTRACT AND NO EXTRA COMPENSATION WILL BE ALLOWED.
5. THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION AND AT LEAST 48 HOURS BEFORE REQUIRED INSPECTION ON EACH AND EVERY PHASE OF WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER A MINIMUM OF 48 HOURS NOTICE PRIOR TO ANY SCHEDULED TESTING. NO PRESSURE TESTING, OR FINAL TESTING WILL BE ACCEPTED UNLESS WITNESSED BY THE ENGINEER'S REPRESENTATIVE.
6. ALL CONTRACTORS, CITY REPRESENTATIVES, AND UTILITY COMPANIES ARE RESPONSIBLE FOR THEIR RESPECTIVE SURVEYING AND LAYOUT FROM BENCHMARK PROVIDED ON CONSTRUCTION PLANS. ANY SURVEY MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED UPON COMPLETION OF THE WORK BY A REGISTERED LAND SURVEYOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING ANY CONSTRUCTION ACTIVITIES FROM TAKING PLACE OUTSIDE OF THE LIMITS OF CONSTRUCTION SHOWN ON THE PLANS. ANY ON-SITE OR OFFSITE AREAS DISTURBED SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER.
8. THE CONTRACTOR SHALL MAINTAIN A CURRENT SET OF CONSTRUCTION PLANS AND ALL PERMITS ON THE JOB SITE DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE TWO (2) SETS OF RECORD DRAWINGS TO THE ENGINEER OF RECORD WITHIN TWO (2) WEEKS AFTER CONSTRUCTION HAS BEEN COMPLETED ON EACH PHASE.
9. PRIOR TO BID PREPARATION, THE CONTRACTOR MUST BECOME FAMILIAR WITH THE OVERALL SITE CONDITIONS AND PERFORM ADDITIONAL INVESTIGATIONS AS DETERMINED NECESSARY TO UNDERSTAND THE LIMIT AND DEPTH OF EXPECTED ORGANIC SILT PEAT AREAS, ADEQUACY OF EXISTING MATERIALS AS FILL, DE-WATERING REQUIREMENTS, CLEAN FILL REQUIRED FROM OFFSITE, AND MATERIALS TO BE DISPOSED OF OFFSITE, ALL OF WHICH WILL AFFECT HIS PRICING. ANY DELAY, INCONVENIENCE, OR EXPENSE CAUSED TO THE CONTRACTOR DUE TO INADEQUATE INVESTIGATION OF EXISTING CONDITIONS SHALL BE INCIDENTAL TO THE CONTRACT, AND NO EXTRA COMPENSATION WILL BE ALLOWED. THE MATERIALS ANTICIPATED TO BE ENCOUNTERED DURING CONSTRUCTION MAY REQUIRE DRYING PRIOR TO USE AS BACKFILL, AND THE CONTRACTOR MAY HAVE TO IMPORT MATERIALS, AT NO EXTRA COST, FROM OFFSITE TO MEET THE REQUIREMENTS FOR COMPACTION AND PROPER FILL.
10. THE CONTRACTOR SHALL SEED AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION UNLESS SODDING, OR OTHER MORE READILY EFFECTIVE STABILIZATION PRACTICES ARE SPECIFIED ON THE PLANS.

SHEET INDEX

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

LOCATION MAP, GENERAL NOTES, AND DRAWING INDEX

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

Project No.:	200-08516-12001
Designed By:	JAS
Drawn By:	GM
Checked By:	FWY

G-001

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:39:38 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\G-001 LOC MAP-GENERAL NOTES-DWG INDEX.DWG - MARQUEZ, GERMAIN

BACKGROUND PLAN AND ONE LINE SYMBOLS

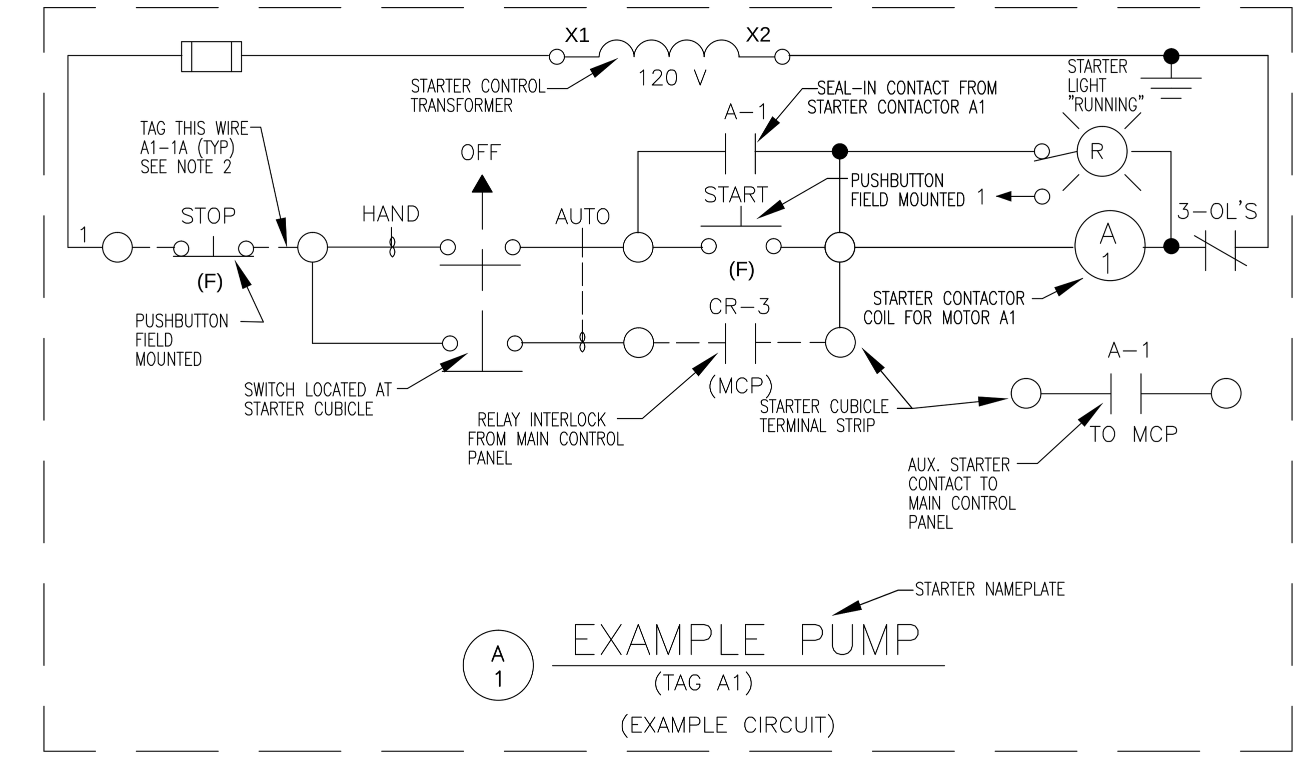
SYMBOL	DESCRIPTION
	CONTROL SWITCH (SEL. OR P.B.) SEE CIRCUITS FOR SPECIFIC TYPE
F FL	SEE CIRCUITS FOR SPECIFIC TYPE FLOAT SWITCH - FLOW SWITCH
T M	TEMPERATURE - HUMIDISTAT SWITCH (SUBSCRIPT = NO. OF STAGES)
L P V	LIMIT - PRESSURE - VACUUM SWITCH
ALT	ELECTRICAL OR MECHANICAL ALTERNATOR (SEE WIRING)
OS	OVERLOAD SWITCH OR DEVICE
TB	TERMINAL BOX
	SOLENOID VALVE
PC	PHOTOCELL LINE VOLTAGE
3H	ITEM NO. INTERCOM EQUIPMENT
A WS LB	INTERCOMMUNICATION SYSTEM AMPLIFIER - WALL STATION - LINE BALANCE
DS	INTERCOMMUNICATION DESK SET
	FLOAT SWITCH
	INTERCOM. SPEAKER (CEILING LAY-IN)
	TELEPHONE OUTLET OR JUNCTION BOX
	WELDING RECEPTACLE - NEMA L9-50R 600V, 2P, 3W, SIMPLEX
HS	INTERCOM HANDSET - SURFACE MOUNTED WITH REMOTE SPEAKER AMPLIFIER
VC	INTERCOM VOLUME CONTROL
	INTERCOM SPEAKER - SURFACE MOUNTED
HS	INTERCOM HANDSET - FLUSH MOUNTED WITH REMOTE SPEAKER AMPLIFIER
	AS NOTED (LIGHTING PANEL, CONTROL PANEL, DISTRIBUTION PANEL ETC.) WALL MOUNTED
JB	JUNCTION BOX
	HEATER
	TRANSFORMER
	CONDUIT WITH CONDUIT SEAL FITTING
	CONDUIT EXPOSED
	CONDUIT CONCEALED
E	DIRECT BURIED CONDUIT
UG	DIRECT BURIED CABLE
OH	OVERHEAD LINE
DB	UNDERGROUND DUCT BANK
1 2 3 4 5 6	CONCRETE ENCASED DUCT BANK, WITH CABLE LOCATIONS AND SPARE DUCTS AS INDICATED ON DRAWINGS
	CABLE REEL
FOPP	16-PORT FIBER OPTIC PATCH PANEL (ST CONNECTORS)

SYMBOL	DESCRIPTION
	LOW VOLTAGE DISCONNECT SWITCH
	LOW VOLTAGE FUSE (BELOW 600V)
1 RV 2 FVR 3 2S,2W	ALL STARTERS SHALL BE FULL VOLTAGE NON-REVERSING UNLESS OTHERWISE INDICATED (FVR) FULL VOLTAGE REVERSING (RV) REDUCED VOLTAGE (2S,2W) TWO SPEED, TWO WINDING
	600V, 3 POLE MOLDED CASE CIRCUIT BREAKER, FRAME & RATING AS SHOWN
1/2 A-3	SINGLE PHASE, FRACTIONAL HP MOTOR TO LOCATION INDICATED (SEE GEN. NOTE 4)
A 1	THREE PHASE LOAD WITH IDENTIFICATION
	HIGH VOLTAGE FUSE (ABOVE 600 V)
T 15	TAG NO. (BALLOON) FOR DEVICE INDICATED
A-3 T 15 MCP OR CP-1	FOR POWER (SEE GEN. NOTE 4) 3/4"C(2/C#18 SHLD.)CONDUIT AND WIRE RUN FROM DEVICE INDICATED TO LOCATION INDICATED
	CAPACITOR, 3 PHASE, SIZE AS INDICATED
F C	DISCONNECT SWITCH (F) = FUSED (C) = CIRCUIT BREAKER
	MAGNETIC STARTER (BACKGROUND DRAWINGS ONLY)
SIZE 2	COMBINATION MAGNETIC STARTER FUSED UNLESS NOTED (CIRCUIT BREAKER)
LC	COMBINATION LIGHTING CONTACTOR WITH HAND-OFF-AUTO SWITCH
	MANUAL STARTER (R) = REVERSING
CP	CONTROL PANEL
TCP	TEMPERATURE CONTROL PANEL
1/8 UH-19	UNIT HEATER, 1/8 HORSEPOWER
BUS DUCT	600 VOLT FEEDER BUS DUCT (AMPERAGE AS INDICATED)
	LIGHTNING ARRESTOR
A-3	LOW VOLTAGE HOME RUNS 120/208 V 120/240 V (SEE GEN. NOTE 4)
NEMA 4	WATERTIGHT
NEMA 4X	WATERTIGHT AND CORROSION PROOF
NEMA 7	EXPLOSION PROOF - CLASS I, DIVISION I, GROUP D
NEMA 9	EXPLOSION PROOF - CLASS II, DIVISION 1
K	KEYLOCK
SD	SMOKE DETECTOR
E	EXIT LIGHT
	FLUORESCENT LUMINAIRE
	INCANDESCENT LUMINAIRE
	HIGH INTENSITY DISCHARGE LIGHT
EM	EMERGENCY BATTERY PACK

CONTROL CIRCUIT & PILOT DEVICE LEGEND

SYMBOL	DESCRIPTION
	PRESS. ACTUATED SWITCH
	FLOAT ACTUATED SWITCH
	FLOW ACTUATED SWITCH
	TEMP. ACTUATED SWITCH
	LIMIT SWITCH- NORMALLY OPEN
	LIMIT SWITCH- NORMALLY CLOSED
	LIMIT SWITCH-NORMALLY CLOSED-HELD OPEN
	LIMIT SWITCH-NORMALLY OPEN-HELD CLOSED
	LATCHING CABLE SWITCH
	TIME-DELAY FUSE
CR	CONTROL RELAY COIL
	CONTROL RELAY CONTACT-NORMALLY OPEN
	CONTROL RELAY CONTACT-NORMALLY CLOSED
CR L CR U	TWO COIL LATCHING RELAY
T	TIMING RELAY COIL
	TIMED CLOSED CONTACT ON ENERGIZATION
	TIMED OPEN CONTACT ON ENERGIZATION
	TIMED OPEN CONTACT ON DE-ENERGIZATION
	TIMED CLOSED CONTACT ON DE-ENERGIZATION
X1 X2	120 VAC TRANSFORMER

SYMBOL	DESCRIPTION
H O A	SELECTOR SWITCH OPERATOR WITH FUNCTION SHOWN
	MOMENTARY PUSHBUTTON OPERATOR-NORMALLY OPEN
	MOMENTARY PUSHBUTTON OPERATOR-NORMALLY CLOSED
	PUSHBUTTON OPERATOR WITH MUSHROOM HEAD
(F)	FIELD LOCATED STOP BUTTON
	MAINTAINED PUSH-PULL OPERATOR
	MAINTAINED STOP-START PUSHBUTTON OPERATOR
	SOLENOID OR CLUTCH
R	PUSH-TO-TEST INDICATING LIGHT
	MAINTAINED STOP- MOMENTARY START PUSHBUTTON (JOG)
	ZERO SPEED OR ANTI- PLUGGING SWITCH
	LOCAL TERMINALS WITH EXTERNAL WIRING
ETI	ELAPSED TIME INDICATOR
INST. INST.	TIMING RELAY INSTANTANEOUS CONTACTS



GENERAL NOTES:

1. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN LIGHT LINE WEIGHTS ON THE DRAWINGS ARE EXISTING ITEMS TO REMAIN. ELECTRICAL MATERIALS AND EQUIPMENT ITEMS SHOWN IN HEAVY LINE WEIGHTS ARE NEW THIS CONTRACT.
2. ITEMS SHOWN CROSSHATCHED ON THE DRAWINGS ARE EXISTING ITEMS TO BE REMOVED.
3. FOR ITEMS INDICATED AS "FIELD LOCATE" CHECK DRAWINGS OF OTHER TRADES (IN PARTICULAR PIPING AND STRUCTURAL) FOR INTERFERENCE AND FOR LOCATIONS OF MOUNTING FLANGES, CONNECTION POINTS, ETC.
4. INSTALL A SINGLE CONDUCTOR INSULATED (RHW, THHN, OR XHHW) COPPER GROUND WIRE IN EACH CONDUIT, SIZE AS SHOWN ON DRAWINGS OR AS A MINIMUM PER THE NATIONAL ELECTRICAL CODE. THIS GROUND WIRE SHALL BE CONNECTED AT EACH END TO THE EQUIPMENT GROUND. CONDUIT SHALL BE 3/4" MIN.
5. ELECTRICAL EQUIPMENT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. INSTALLATION SHALL BE PLUMB AND LEVEL.
6. ELECTRICAL EQUIPMENT REMOVED FROM SITE SHALL BE RETURNED TO OWNER INCLUDING, BUT NOT LIMITED TO, MCC, MCC BUCKETS AND COMPONENTS, AND WIRING.
7. ELECTRICAL WIRES SHOWN SHALL BE RATED FOR 90-DEGREES CELSIUS, MINIMUM.

NOTES:

1. THE FOLLOWING COMPONENT IDENTIFICATION SHALL BE USED AS APPROPRIATE:

   (F) FIELD MOUNTED NOT AT STARTER OR OTHER CONTROL PANELS.
   (S) STARTER PANEL MOUNTED.
   (TCP) AT TEMPERATURE CONTROL PANEL.
   (MCP) AT MAIN CONTROL PANEL.
   (1) AT CONTROL PANEL NO. 1.
   (2) AT CONTROL PANEL NO. 2.

2. WIRE NUMBERS (1,3 & 5) ETC. SHALL BE PREFIXED WITH STARTER TAG NUMBERS. THE WIRE NUMBER AFTER THE PREFIX, MAY BE THE MANUFACTURERS WIRE NUMBERING SYSTEM. WIRE MARKERS MAY BE USED AT EACH WIRE TERMINATION POINT.
3. CONTRACTOR SHALL PROVIDE A LIST OF EQUIPMENT AND MATERIALS NECESSARY FOR CONSTRUCTION, PER COUNTY STANDARDS, TO COUNTY PRIOR TO BID. CONTRACTOR'S LIST SHALL BE APPROVED BY COUNTY PRIOR TO SUBMITTING BID, ANY ADDITIONAL COST ASSOCIATED WITH ADHERING TO COUNTY STANDARDS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

FLOW DIAGRAM SYMBOL LEGEND

SYMBOL	DESCRIPTION		
	FIELD OR LOCALLY MOUNTED DEVICE		
	BOARD OR PANEL MOUNTED DEVICE -(DASHED LINR THRU CIRCLE INDICATES DEVICE MOUNTED INSIDE OF PANEL)		
	ELECTRICAL SIGNAL		
	AIR LINE		
	HYDRAULIC SIGNAL		
	ELECTROMAGNETIC OR SONIC SIGNAL		
	CONNECTION TO PROCESS, OR MECHANIICAL LINK		
	PROGRAMMED FUNCTION NOT NORMALLY ACCESSIBLE TO OPERATOR		
	PROGRAMMED FUNCTION ACCESSIBLE THROUGH OPERATOR'S INTERFACE DEVICE		
	PROGRAMMABLE CONTROLLER INPUT/OUTPUT POINT		
R	RESET	F.O.	FAIL OPEN
T	TRIP	F.C.	FAIL CLOSE
AS	AIR SUPPLY		
DO	DISSOLVED OXYGEN		
GS	GAS SUPPLY		
HS	HYDRAULIC SUPPLY		
NS	NITROGEN SUPPLY		
ORP	OXYGEN REDUCTION POTENTIAL		
SS	STEAM SUPPLY		
SP	SET POINT		
WS	WATER SUPPLY		
PV	PROCESS VARIABLE		

SYMBOL	DESCRIPTION
	CHECK VALVE
S S	SOLENOID VALVE OPERATOR, SOLENOID VALVE OPERATOR-DETENTED
	BUTTERFLY VALVE, DAMPER OR LOUVER
	GATE VALVE OR KNIFE GATE
	PLUG VALVE
	GLOBE VALVE
	FLOW ORIFICE
	VENTURI OR INSERT FLOW TUBE
	IN-LINE FLOW ELEMENT (MAGNETIC TYPE)
	IN-LINE FLOW ELEMENT (PROPELLER TYPE)
	IN-LINE FLOW ELEMENT (ULTRA SONIC)
	PNEUMATIC DIAPHRAGM OR POSITIONER (OPEN-SHUT & THROTTLING)
	STROKE OR POSITION ACTUATOR CYLINDER (OPEN-SHUT & THROTTLING)
M M	MOTOR OPERATED (OPEN-SHUT & THROTTLING)
	ROTAMETER
	TURBIDIMETER
	BALL VALVE
	SLUICE GATE
	SLIDE-STOP GATE
	INTERLOCKING / AND / MOTOR STARTER / PURGE / ALTERNATOR / OR / EXCLUSIVE OR
	PARSHALL FLUME
	COMPUTOR LOGIC SYSTEM, INPUT OR OUTPUT
	AIR SET ASSEMBLY
	TERMINAL OR TRANSITION POINT
	MOTOR

SYMBOL	DESCRIPTION
%	GAIN OR PROPORTIONAL CONTROL
∫	INTEGRAL OR RESET CONTROL
D	DERIVATIVE OR RATE CONTROL
V	VELOCITY ALGORITHM
1-0	ON-OFF CONTROL
√	SQUARE ROOT EXTRACTOR
Σ	ADD OR TOTALIZE
Δ	SUBTRACT OR DIFFERENCE
>	HIGHEST MEASURED VARIABLE
<	LOWEST MEASURED VARIABLE
E/I , I/P	CONVERT ONE TO ANOTHER
X , ÷	MULTIPLY , DIVIDE
∈	BIAS OR REVERSING
f(x)	CHARACTERIZE - (EQUATION / /D/%/ETC.)

I.S.A. STANDARD LETTER FUNCTIONS

SYMBOL	FIRST LETTER	SUCEEDING LETTERS
A	ANALYSIS , ANALOG	ALARM
B	BURNER , FLAME	BATCH
C	CONDUCTIVITY , COMMAND	CONTROL (FEEDBACK TYPE)
D	DENSITY , SPECIFIC GRAVITY	
E	VOLTAGE	PRIMARY ELEMENT
F	FLOW RATE	RATIO
G	GAGING	GLASS
H	HAND , MANUAL	HIGH
I	CURRENT	INDICATE
J	POWER	SCAN
K	TIME , TIME SCHEDULE	CONTROL (NO FEEDBACK)
L	LEVEL , LIGHT	LOW
M	MOISTURE , HUMIDITY	MIDDLE , MODULATE
N		
O	OVERLOAD	ORIFICE
P	PRESSURE , VACUUM	POINT
Q	QUANTITY	TOTALIZE , INTEGRATE
R	RADIOACTIVITY	RECORD , PRINT , RECEIVE
S	SPEED , FREQUENCY , SOLENOID	SWITCH
T	TEMPERATURE , TURBIDITY	TRANSMIT , TRANSFORM
U	MULTIVARIABLE	MULTIFUNCTION
V	VIBRATION , VISCOSITY	VALVE , DAMPER , LOUVER
W	WEIGHT , FORCE	
X		
Y		RELAY , COMPUTE
Z	POSITION	DRIVE , ACTUATE

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL
CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

ELECTRICAL LEGEND

Project No.:	200-08516-12001
Designed By:	JAS
Drawn By:	JAS
Checked By:	FWY

E-001

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:39:57 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-001 - LEGEND.DWG - MARQUEZ, GERMAIN

PHASE 1 - DO & SS MONITORING

M (E-103) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM B)

1. JBOX#1A->PWR
2. JBOX#1B->CTP (HOME RUNS)

A (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM B)

1. JBOX#2A->1A
2. JBOX#2B->1B->CTP (HOME RUNS)

B2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#7 BELOW 1A-BB2 CONTROLLER TO JBOX#8 @ 1A-SSP/1B-DOP

B (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1.25"C(3EA-4/C#18SH)

1. JBOX#3A->2A
2. JBOX#3B->2B->1B->CTP (CONTINUOUS RUNS)

C2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#5 BELOW 1B-BB2 CONTROLLER TO JBOX#6 @ 1B-SSP/1C-DOP

C (E-101) SECTION — NO SCALE

1. 2"C(1-5/16" FLUSH TUBING & 1-PROBE CABLE[SS])

1. JBOX#5 BELOW 1B-BB2 CONTROLLER TO JBOX#4 @ ITX-IL MLSS PROBE

L (E-103) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM E)

1. JBOX#1A->PWR
2. JBOX#1B->CTP (HOME RUNS)

D (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM E)

1. JBOX#12A->15A
2. JBOX#12B->15B->CTP (HOME RUNS)

D2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#13 BELOW 2A-BB2 CONTROLLER TO JBOX#14 @ 2A-SSP/2B-DOP

E (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1.25"C(3EA-4/C#18SH)

1. JBOX#11A->12A
2. JBOX#11B->12B->15B->CTP (CONTINUOUS RUNS)

E2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#10 BELOW 2B-BB2 CONTROLLER TO JBOX#9 @ 2B-SSP/2C-DOP

K (E-103) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM G)

1. JBOX#22A->PWR
2. JBOX#22B->CTP (HOME RUNS)

F (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM G)

1. JBOX#19A->22A
2. JBOX#19B->22B->CTP (HOME RUNS)

F2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#20 BELOW 3A-BB2 CONTROLLER TO JBOX#21 @ 3A-SSP/3B-DOP

G (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1.25"C(3EA-4/C#18SH)

1. JBOX#11A->18A
2. JBOX#18B->19B->22B->CTP (CONTINUOUS RUNS)

G2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#16 BELOW 3B-BB2 CONTROLLER TO JBOX#17 @ 3B-SSP/3C-DOP

J (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM E)

1. JBOX#29A->PWR
2. JBOX#29B->CTP (HOME RUNS)

H (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 2"C(2EA-4/C#18SH) + (3EA-4/C#18SH FROM E)

1. JBOX#26A->29A
2. JBOX#26B->29B->CTP (HOME RUNS)

H2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#27 BELOW 4A-BB2 CONTROLLER TO JBOX#28 @ 4A-SSP/4B-DOP

I (E-101) SECTION — NO SCALE

1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1.25"C(3EA-4/C#18SH)

1. JBOX#25A->26A
2. JBOX#25B->26B->29B->CTP (CONTINUOUS RUNS)

I2 (E-101) SECTION — NO SCALE

1. 2"C(2-5/16" FLUSH TUBING[DO&SS] & 2 - PROBE CABLES[DO&SS])

1. JBOX#24 BELOW 4B-BB2 CONTROLLER TO JBOX#23 @ 4B-SSP/4C-DOP

NOTES:

1. THIS PHASE OF THE PROJECT (DO & SS MONITORING) SHALL REQUIRE 26 ANALOG INPUTS INTO THE PLC.
2. PHASE 2 OPTION (SLUDGE BLANKET MONITORING) SHALL REQUIRE 6 ANALOG INPUTS INTO THE PLC. (TO BE PERFORMED UNDER SEPARATE CONTRACT)
3. PHASE 3 OPTION (THERMAL MASS FLOW MONITORING) SHALL REQUIRE 20 ANALOG INPUTS INTO THE PLC. (TO BE PERFORMED UNDER SEPARATE CONTRACT)

N (E-101,102, 103) SECTION — NO SCALE

1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#30A->PWR
2. JBOX#30B->CTP (HOME RUNS)

P (E-102) SECTION — NO SCALE

1. 2"C(1-5/16" FLUSH TUBING[DO&SS] & 1 - PROBE CABLES[DO])

1. JBOX#33 BELOW 5-BB2 CONTROLLER TO JBOX#32 @ 5A-DOP

O (E-102) SECTION — NO SCALE

1. 2"C(1-5/16" FLUSH TUBING[DO&SS] & 1 - PROBE CABLES[DO])

1. JBOX#33 BELOW 5-BB2 CONTROLLER TO JBOX#31 @ 5A-DOP (USE LB'S TO TRANSITION WALL)

Q (E-101 102) SECTION — NO SCALE

1. 1¼"C(4-STRAND FIBER)
2. 1¼"C(3#4,1#8G)

1. FIBER CONVERTER AT NEW PLC TO FIBER CONVERTER AT EXISTING PLC IN GNERATOR BUILDING
2. GENERATOR BUILDING FROM MCC #8 TO NEW 40 CIRCUIT PANEL.

PLC — THE NEW PLC SHALL BE INSTALLED IN AN ALUMINUM PANEL (HINGED DOOR, NEMA 3R, STAINLESS STEEL SNAP LATCHES, DRIP EDGE, AND BACK PLATE) OF SUFFICIENT SIZE TO MOUNT A RACK SYSTEM FOR THE CPU AND OF THE ANALOG MODULES FOR THE DEVICES SHOWN IN THE PROJECT WITH PROPER SPACING FOR REQUIRED WIRING DUCTS. PROVIDE ENCLOSURE SIZED TO ACCOMMODATE THE FULL BUILD OUT OF THREE PHASES. THE PROGRAMMABLE LOGIC CONTROLLER SHALL BE ALLEN BRADLEY CONTROLLOGIX SERIES, WITH A L6 PROCESSOR. PROVIDE PLC RACK SIZED TO ACCOMMODATE THE I/O SHOWN FOR THREE PHASES PLUS 10% SPARE PER I/O TYPE. PROVIDE I/O MODULES AS REQUIRED FOR PHASE I I/O ONLY. PROVIDE UPS SIZED TO MAINTAIN POWER TO PLC AND NETWORK EQUIPMENT ONLY FOR 45 MINUTES MINIMUM. PANEL SHALL NOT REQUIRE A LOCAL INTERFACE. PROVIDE ROOM IN ENCLOSURE TO INSTALL THE REQUIRED FIBER CONVERTERS.

CTP — THE NEW COMM TERMINAL PANEL WILL BE INSTALLED IN AN ALUMINUM PANEL (HINGED DOOR, 3R OR 12, SS SNAP LATCHES, DRIP EDGE, AND BACK PLATE) OF SUFFICIENT SIZE TO MOUNT THE PROTECTIVE TERMINAL STRIPS THAT YOU NORMAL SPECIFY FOR THESE PROJECTS. THE FOLLOWING DIN RAIL MOUNTED DEVICES SHALL BE INSTALLED IN LINE FOR EACH LOOP: INVENSYS EUROTHERM ULTRA SLIMPAKII #WV408 DC VOLTAGE CURRENT INPUT SIGNAL CONDITIONER.

PWR — THE NEW 40 CIRCUIT POWER PANEL SHALL BE A STANDARD, SURFACE MOUNT, WITH MAIN AND COVER AND SHALL BE INSTALLED IN AN ALUMINUM PANEL (HINGED DOOR, 3R OR 12, SS SNAP LATCHES, DRIP EDGE, AND BACK PLATE) OF SUFFICIENT SIZE TO MOUNT THE CIRCUIT BREAKER PANEL AND HAVE SUFFICIENT SPACE FOR REQUIRED WIRING.

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

PHASE 1
SECTION LEGENDS

Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WP

E-002

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:53:27 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-002 & E-003 - LEGENDS.DWG - MARQUEZ, GERMAIN

PHASE 2 OPTION - SLUDGE BLANKET MONITORING

T E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#37A->PWR
2. JBOX#37B->CTP (HOME RUNS)

S E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#36A UNDER #6 BB1 ->37A
2. JBOX#36B UNDER #6 BB1 ->37B->CTP (HOME RUNS)

R E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(1EA-4/C#18SH)

1. JBOX#35A UNDER #5 BB1 ->36A
2. JBOX#35B UNDER #5 BB1 ->36B->CTP (HOME RUN)

W E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#40A->PWR
2. JBOX#40B->CTP (HOME RUNS)

V E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#39A UNDER #4 BB1 ->40A
2. JBOX#39B UNDER #4 BB1 ->40B->CTP (HOME RUNS)

U E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(1EA-4/C#18SH)

1. JBOX#38A UNDER #3 BB1 ->39A
2. JBOX#38B UNDER #3 BB1 ->39B->CTP (HOME RUN)

AA E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#44A->PWR
2. JBOX#44B->CTP (HOME RUNS)

Z E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1.25"C(2EA-4/C#18SH)

1. JBOX#43A ->44A
2. JBOX#43B ->44B->CTP (HOME RUNS)

Y E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(1EA-4/C#18SH)

1. JBOX#42A UNDER #2 BB1->43A
2. JBOX#42B UNDER #2 BB1->43B->44B->CTP(HOME RUN)

X E-103 — SECTION, NO SCALE
1. 1"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(1EA-4/C#18SH)

1. JBOX#41A UNDER #1 BB1->43A
2. JBOX#41B UNDER #1 BB1->43B->44B->CTP(HOME RUN)

PHASE 3 OPTION - THERMAL MASS FLOW MONITORING

A1 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 3/4"C(1EA-4/C#18SH)

1. FROM SSLAC JBOX#50@ 1E TMFT ->JBOX#51A
2. FROM SSLAC JBOX#50@ 1E TMFT->JBOX#51B->HOME RUN THRU->53B->CTP

A2 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(2EA-4/C#18SH)

1. JBOX#51A (@1D&1C TMFT) ->JBOX#53A(@1B&1A TMFT)
2. JBOX#51B (@1D&1C TMFT) ->JBOX#53B(@1B&1A TMFT) HOME RUNS TO CTP

A3 E-104 — SECTION, NO SCALE
1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1¼"C(3EA-4/C#18SH)

1. JBOX#53A(@1B&1A TMFT) -> CTP
2. JBOX#53B(@1B&1A TMFT) -> CTP

B1 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 3/4"C(1EA-4/C#18SH)

1. FROM SSLAC JBOX#55@ 2E TMFT ->JBOX#57A
2. FROM SSLAC JBOX#55@ 2E TMFT->JBOX#57B->HOME RUN THRU->58B->CTP

B2 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(2EA-4/C#18SH)

1. JBOX#57A (@2D&2C TMFT) ->JBOX#58A(@2B&2A TMFT)
2. JBOX#57B (@2D&2C TMFT) ->JBOX#58B(@2B&2A TMFT) HOME RUNS TO CTP

B3 E-104 — SECTION, NO SCALE
1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1¼"C(3EA-4/C#18SH)

1. JBOX#58A(@2B&2A TMFT) -> CTP
2. JBOX#58B(@2B&2A TMFT) -> CTP

C1 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 3/4"C(1EA-4/C#18SH)

1. FROM SSLAC JBOX#60@ 3E TMFT ->JBOX#61A
2. FROM SSLAC JBOX#60@ 3E TMFT->JBOX#61B->HOME RUN THRU->63B->CTP

C2 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(2EA-4/C#18SH)

1. JBOX#61A (@3D&3C TMFT) ->JBOX#63A(@3B&3A TMFT)
2. JBOX#61B (@3D&3C TMFT) ->JBOX#63B(@3B&3A TMFT) HOME RUNS TO CTP

C3 E-104 — SECTION, NO SCALE
1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1¼"C(3EA-4/C#18SH)

1. JBOX#63A(@3B&3A TMFT) -> CTP
2. JBOX#63B(@3B&3A TMFT) -> CTP

D1 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 3/4"C(1EA-4/C#18SH)

1. FROM SSLAC JBOX#65@ 4E TMFT ->JBOX#66A
2. FROM SSLAC JBOX#65@ 4E TMFT->JBOX#66B->HOME RUN THRU->JBOX#68B->CTP

D2 E-104 — SECTION, NO SCALE
1. 3/4"C(2#12BLK, 1#12WT, 1#12G)
2. 1"C(2EA-4/C#18SH)

1. JBOX#66A (@4D&4C TMFT) ->JBOX#68A(@4B&4A TMFT)
2. JBOX#66B (@4D&4C TMFT) ->JBOX#68B(@4B&4A TMFT) HOME RUNS TO CTP

D3 E-104 — SECTION, NO SCALE
1. 1"C(3#12BLK, 2#12WT, 1#12G)
2. 1¼"C(3EA-4/C#18SH)

1. JBOX#68A(@4B&4A TMFT) -> CTP
2. JBOX#68B(@4B&4A TMFT) -> CTP

<u>REQUIRED 6" THERMAL MASS FLOW TRANSMITTERS</u>
1A, 1D, 2A, 2D, 3A, 3D, 4A, & 4D = 8 TOTAL

<u>REQUIRED 8" THERMAL MASS FLOW TRANSMITTERS</u>
1B, 2B, 3B, & 4B = 4 TOTAL

<u>REQUIRED 10" THERMAL MASS FLOW TRANSMITTERS</u>
1C, 2C, 3C, & 4C = 4 TOTAL

<u>REQUIRED 16" THERMAL MASS FLOW TRANSMITTERS</u>
1E, 2E, 3E, & 4E = 4 TOTAL

MAGNETROL TA2 THERMAL MASS FLOW TRANSMITTERS (ONLY)

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

PHASE 2 & PHASE 3 SECTION LEGENDS

Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WP

E-003

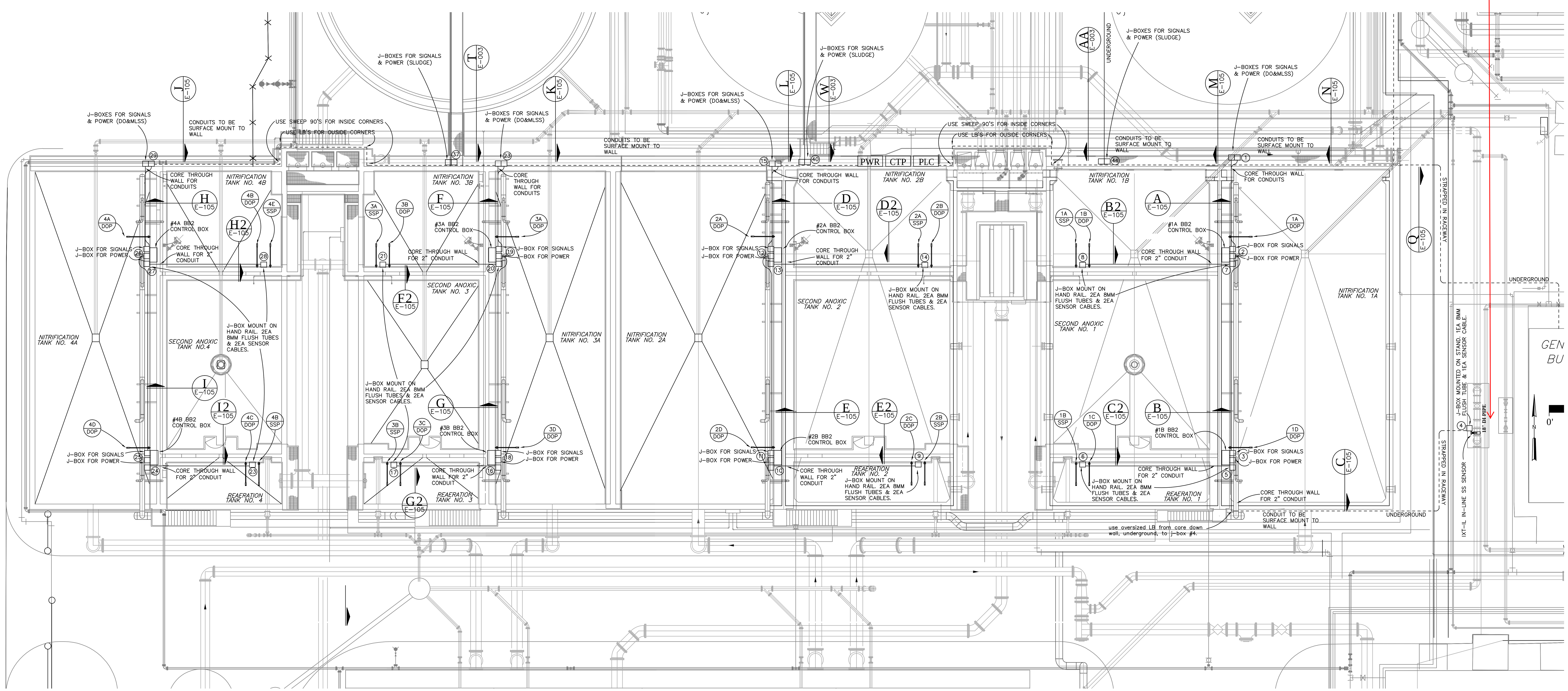
Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:53:28 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-002 & E-003 - LEGENDS.DWG - MARQUEZ, GERMAIN

SCALE: 1/16"=1'-0"

SEE NOTE ON REVISED SHEET E-102
FOR RELOCATION OF 1C-SSP UNIT



AERATION BASINS AND CLARIFIERS

SCALE: 1/16" = 1'-0"

REVISED 01/14/2014

NOTE: ALL TAGS REFERENCING "E-105" ON THIS SHEET SHALL BE CHANGED TO "E-101" TO CORRESPOND WITH TAGS ON SHEET E-002 FOR DESCRIPTIONS OF CONDUITS, PROBE &FLUSH LINES.

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

AERATION BASINS AND CLARIFIERS

Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WAP

E-101

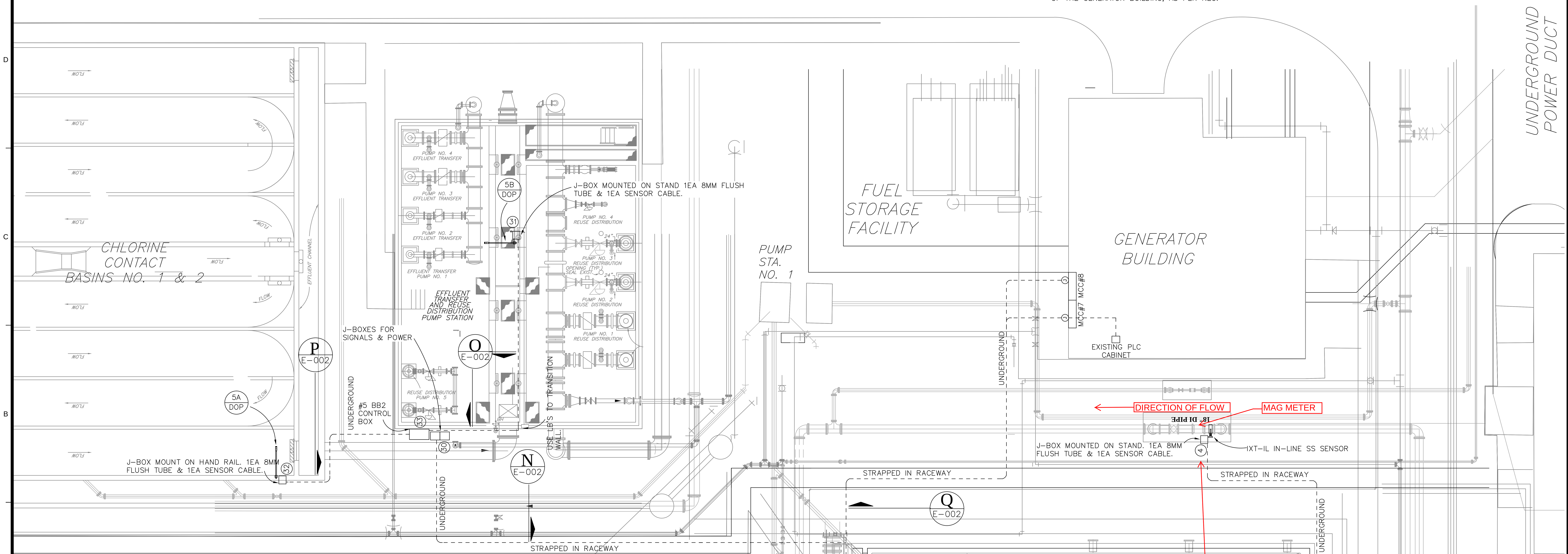
Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:40:30 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-101 - AERATION BASINS AND CLARIFIERS.DWG - MARQUEZ, GERMAIN

REVISED 01/14/2014

NOTES:
1. PROVIDE A 5KVA TRANSFORMER 480V–208V/120VAND CONNECT TO SPARE BREAKER IN MCC #8. REFER TO SECTION 'Q' ON E–002.
2. EQUIPMENT AND CONDUIT RUNS THAT REFER TO SHEET E–003 SHALL BE PERFORMED UNDER SEPARATE CONTRACT.
3. CONTRACTOR MAY USE EXISTING WIREWAY ON THE SIDE OF THE GENERATOR BUILDING, AS PER NEC.



EFFLUENT/RAS
SCALE: 3/32" = 1'-0"

0 2' 4' 8'
SCALE: 3/32"=1'-0"

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

EFFLUENT/RAS

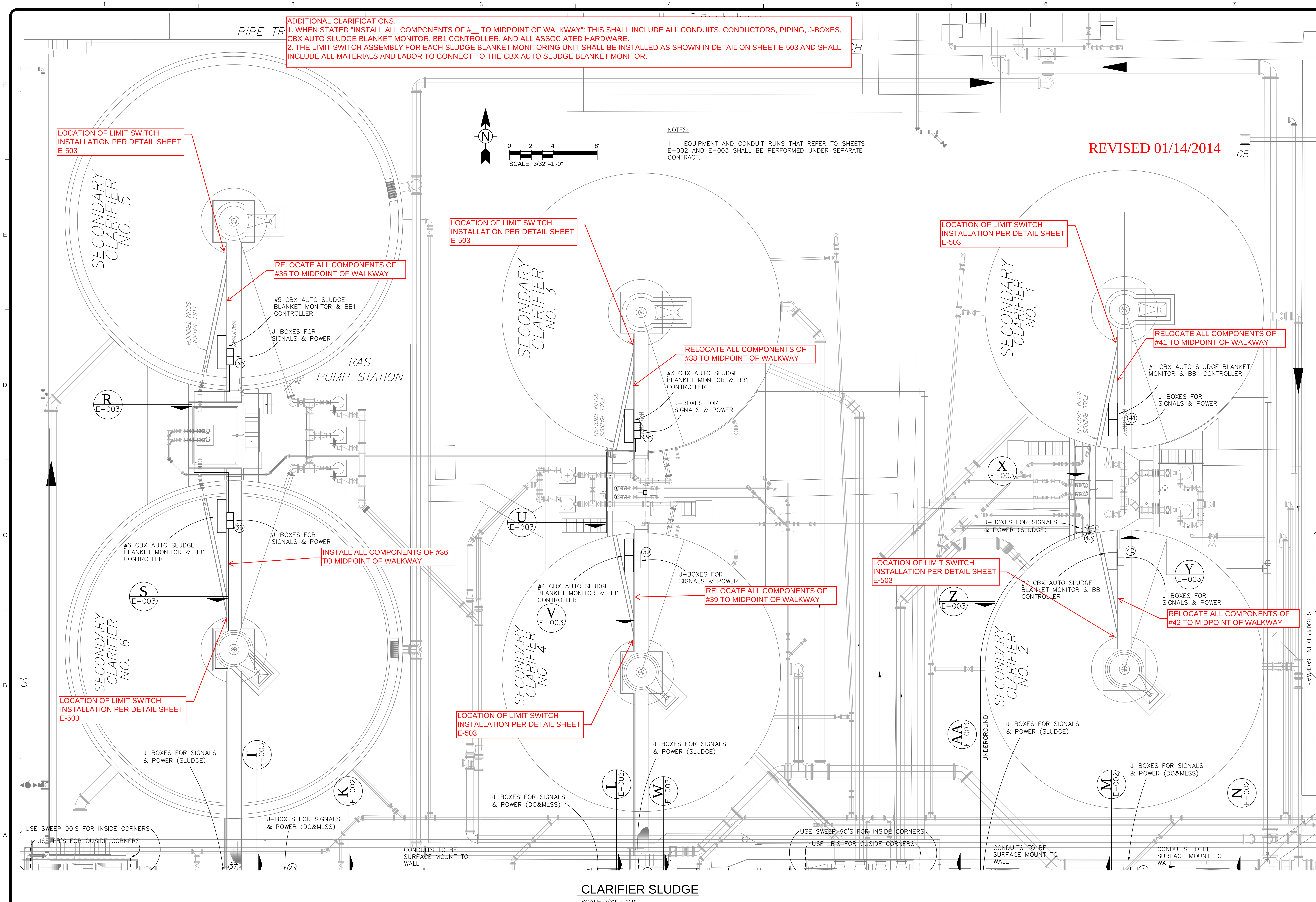
Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WP

E-102

10/11/2013 4:40:45 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-102 - EFFLUENT RAS.DWG - MARQUEZ, GERMAIN

Copyright: Tetra Tech

Bar Measures 1 inch



CLARIFIER SLUDGE

SCALE: 3/32" = 1'-0"

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL
CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

CLARIFIER SLUDGE

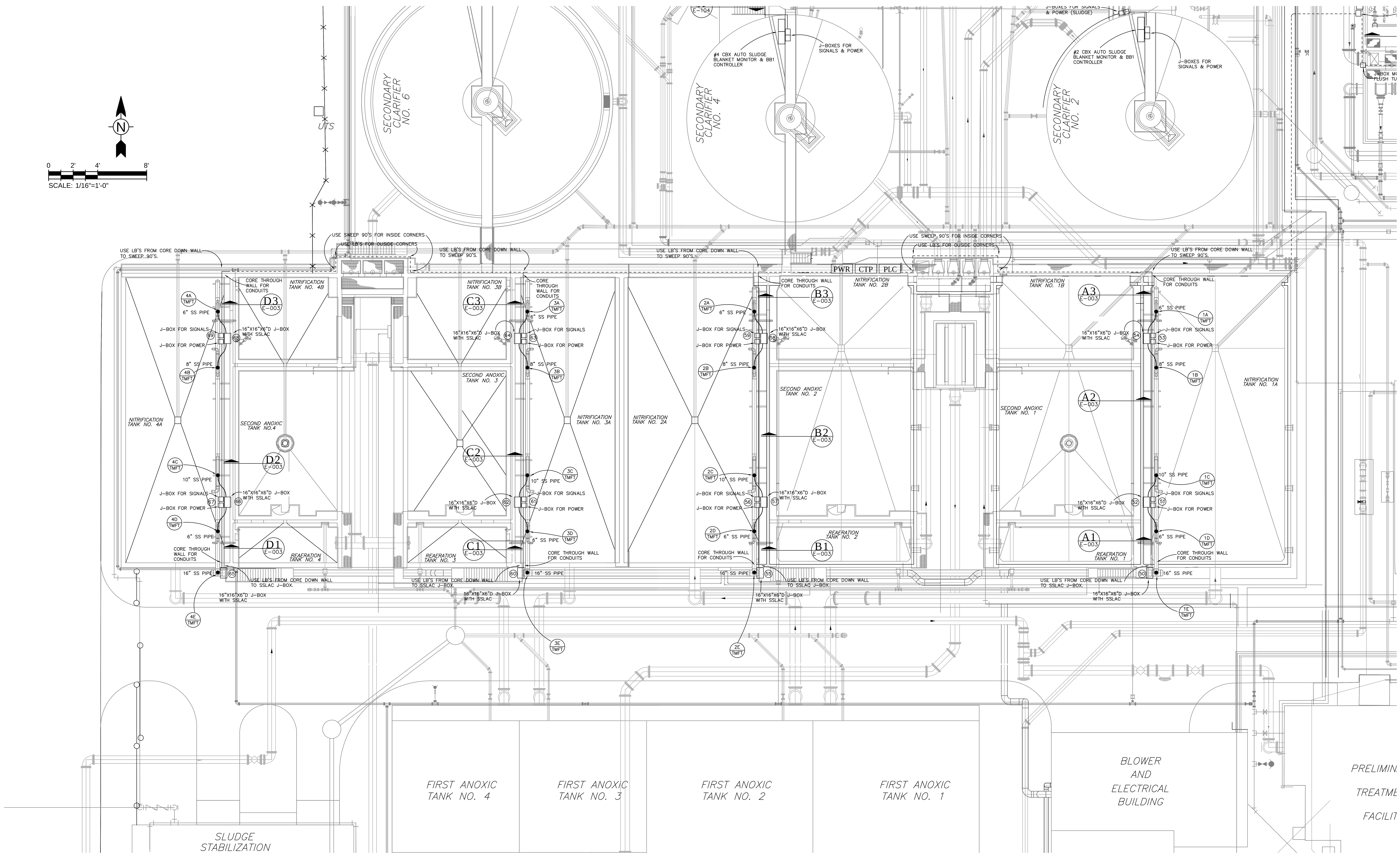
Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WP

E-103

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:41:00 PM - P:\ER\08516\200-08516-12001\CAD\SHEETFILES\E-103 - CLARIFIER SLUDGE.DWG - MARQUEZ, GERMAIN



AERATION BASIN THERMAL MASS FLOW

SCALE: 1/16" = 1'-0"

TETRA TECH

www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

TMFT

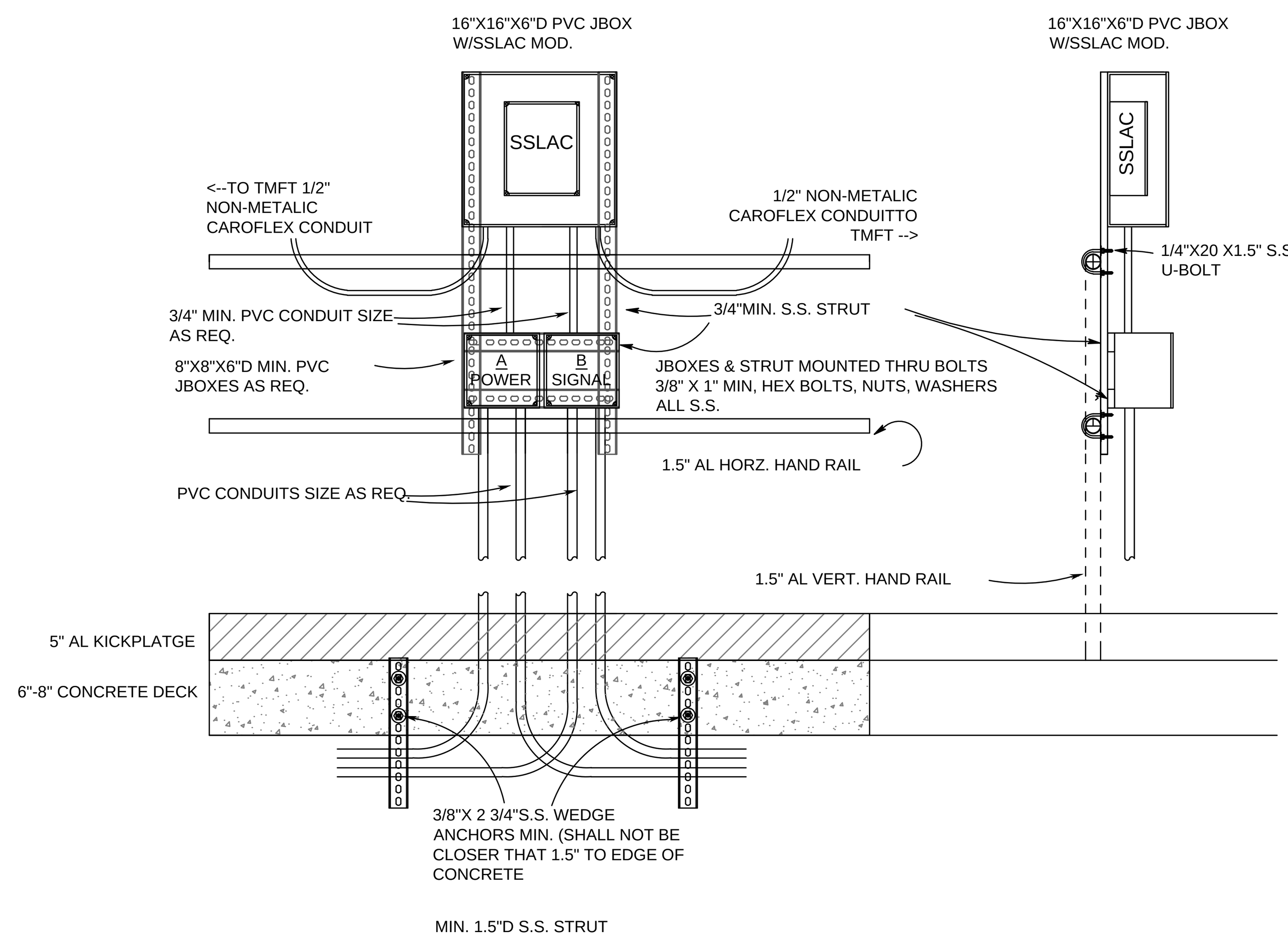
Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	WP

E-104

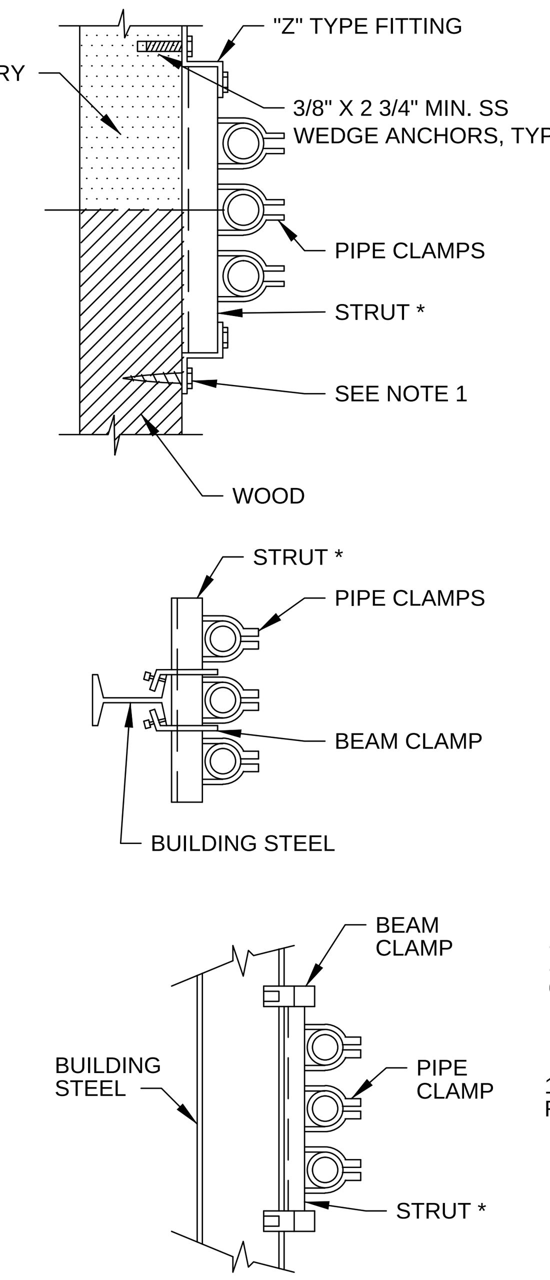
Copyright: Tetra Tech

Bar Measures 1 inch

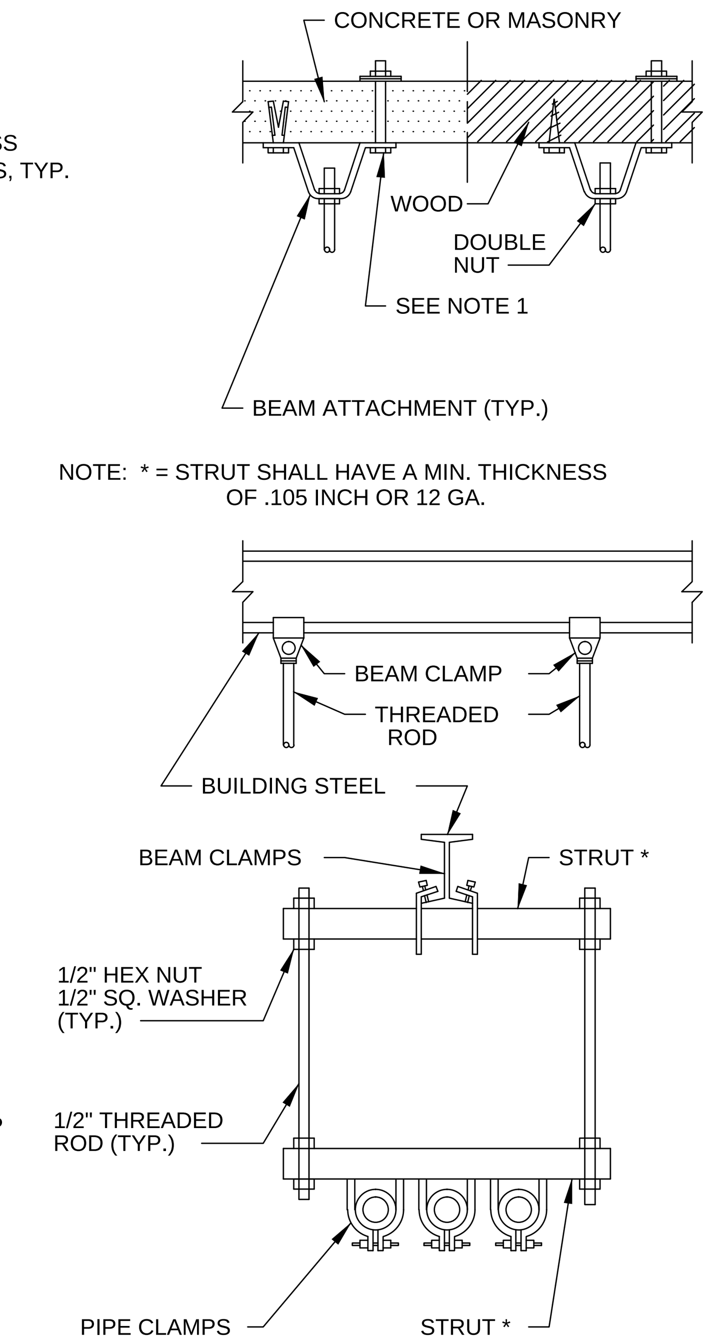
10/11/2013 4:41:16 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-104 - AERATION BASIN & THERMAL MASS FLOW.DWG - MARQUEZ, GERMAIN



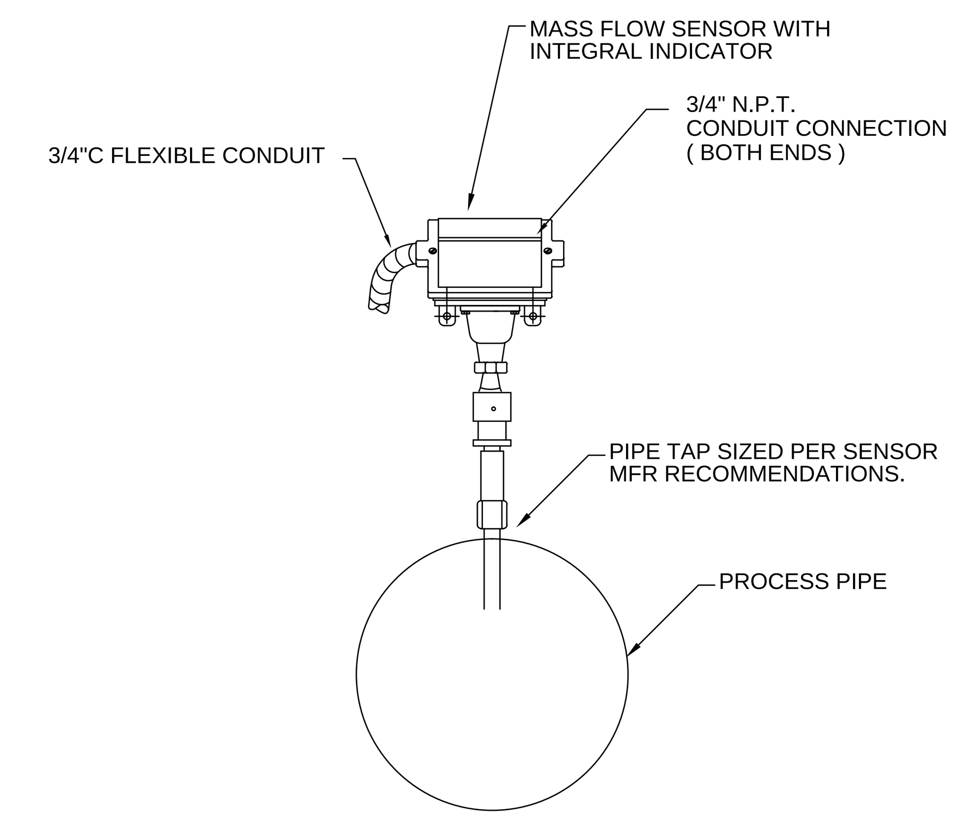
TYPICAL JBOX INSTALLATION ON HAND RAILS
(LAYOUTS MAY VARY) NO SCALE



VERTICALLY RACKED AND VERTICAL RUNS
NO SCALE



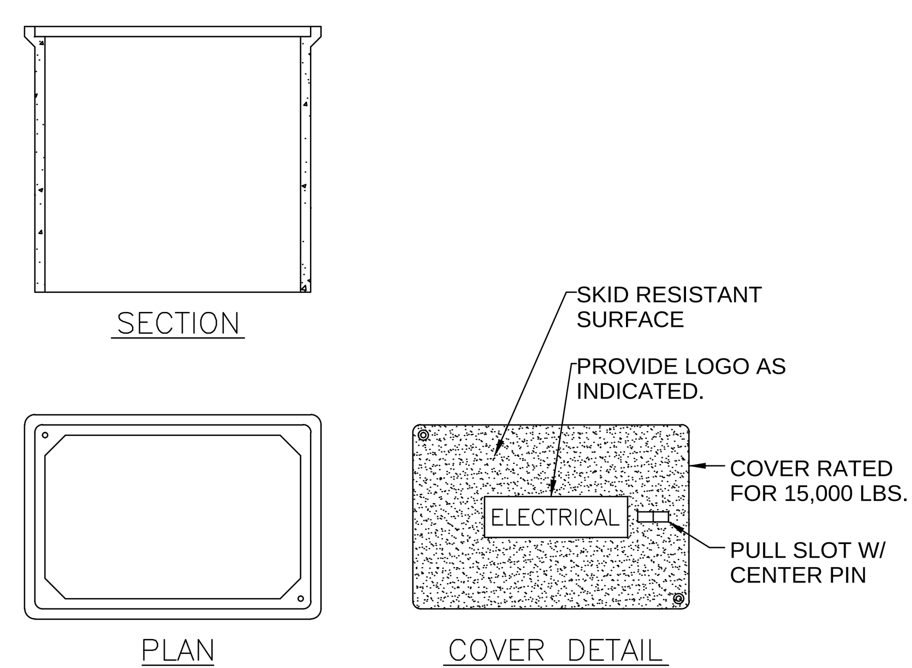
HORIZ. RACKED SUSPENDED RUN
NO SCALE



MASS FLOW SENSOR DETAIL
NO SCALE

NOTE:

1. ALL MOUNTING HARDWARE SHALL BE 304 STAINLESS STEEL (I.E.: ANCHORS, BOLTS, WASHERS, NUTS, THREADED ROD, CLAMPS, STRUTS, ETC.)

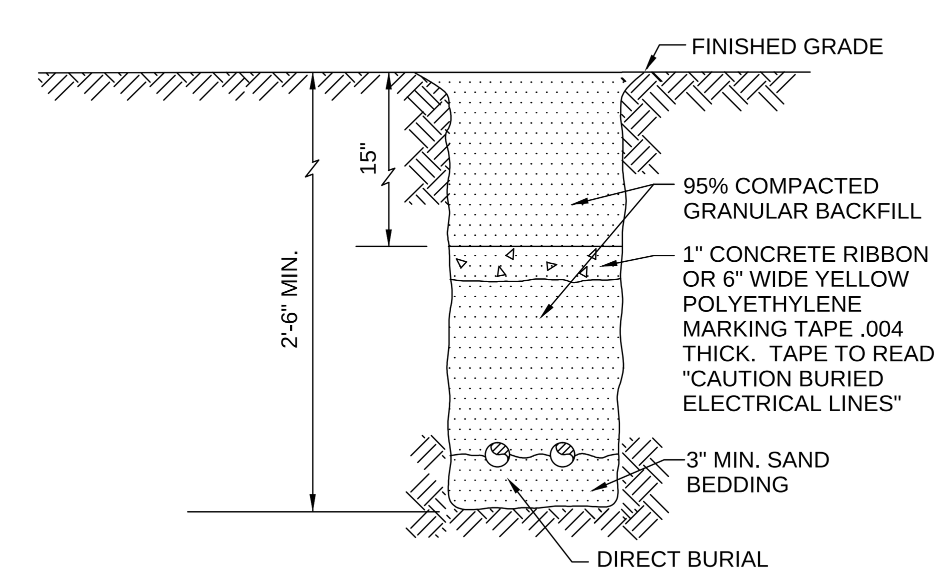


NOTES:

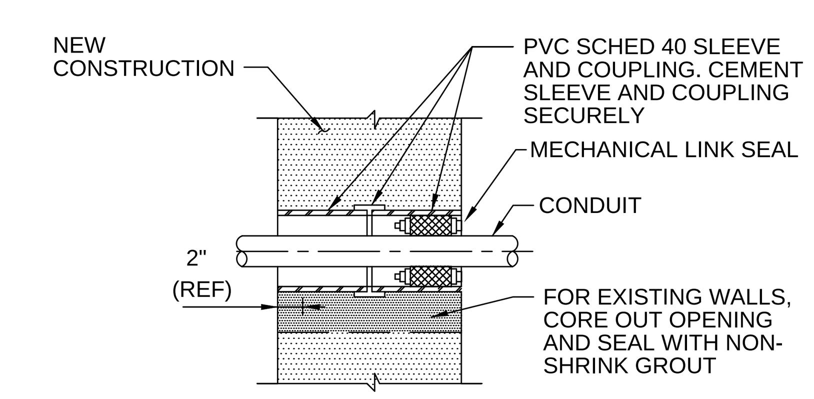
1. HANDHOLES FOR LOW VOLTAGE CABLES INSTALLED IN PARKING LOTS, SIDEWALKS, AND TURFED AREAS SHALL BE FABRICATED FROM AN AGGREGATE CONSISTING OF SAND AND WITH CONTINUOUS WOVEN GLASS STRANDS HAVING AN OVERALL COMPRESSIVE STRENGTH OF AT LEAST 10,000 PSI AND A FLEXURAL STRENGTH OF AT LEAST 5,000 PSI. PULLBOX AND HANDHOLE COVERS IN SIDEWALKS, AND TURFED AREAS SHALL BE OF THE SAME MATERIAL AS THE BOX. CONCRETE PULLBOXES SHALL CONSIST OF PRECAST REINFORCED CONCRETE BOXES, EXTENSIONS, BASES, AND COVERS.
2. IN PAVED AREAS, FRAMES AND COVERS FOR HANDHOLE ENTRANCES IN VEHICULAR TRAFFIC AREAS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE PAVING. IN UNPAVED AREAS, THE TOP OF MANHOLE COVERS SHALL BE APPROXIMATELY 1/2" ABOVE THE FINISHED GRADE.

QUAZITE COMPOSOLITE OR EQUAL

HANDHOLE DETAIL
NO SCALE



TRENCHING DETAIL
NO SCALE



EXTERIOR WALL CONDUIT SLEEVE DETAIL
NO SCALE DO NOT USE BELOW GRADE

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL
CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

DUCTBANK SECTIONS

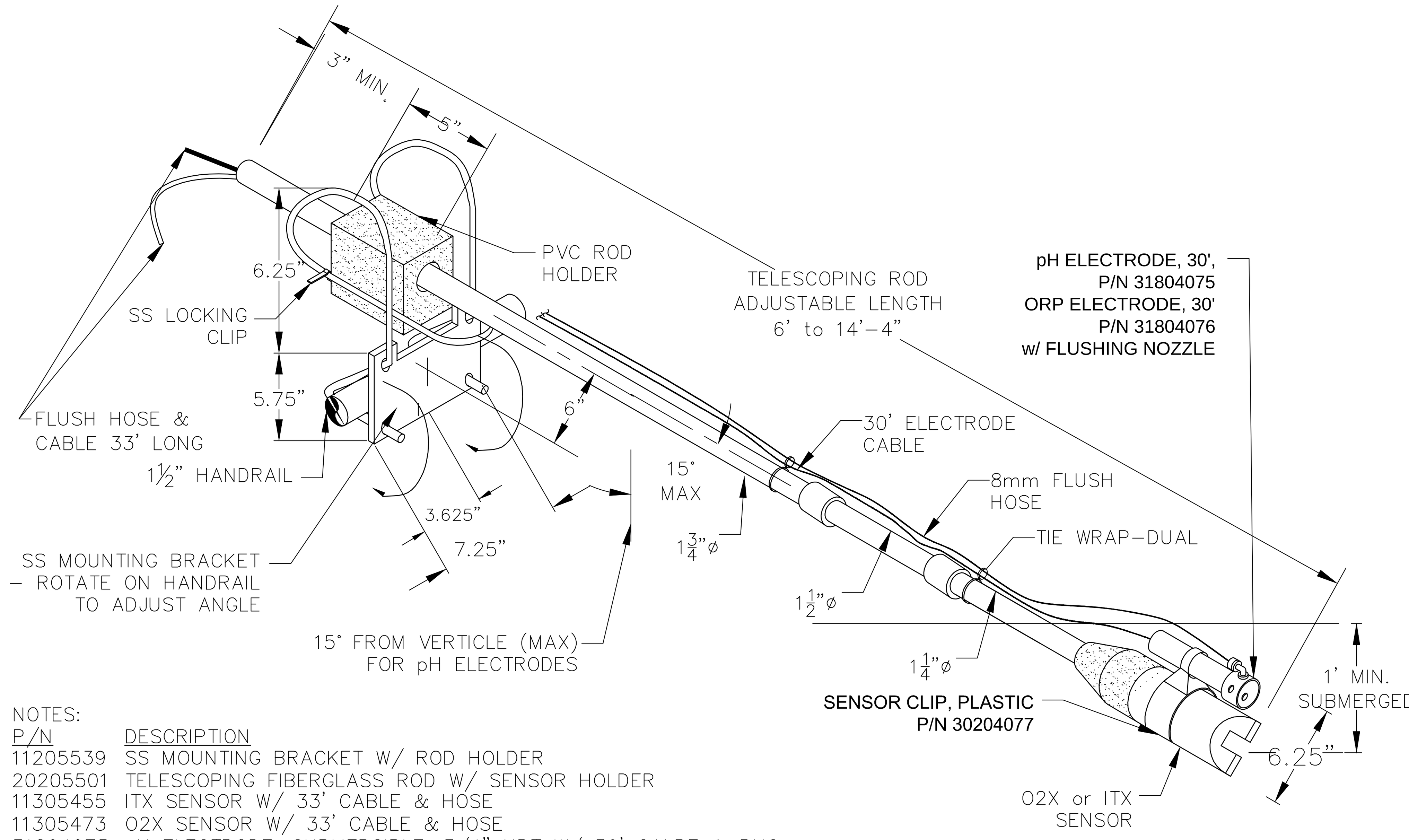
Project No.:	200-08516-12001
Designed By:	JAS
Drawn By:	JAS
Checked By:	FWY

E-105

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:41:32 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-105 - DUCTBANK SECTIONS.DWG - MARQUEZ, GERMAIN

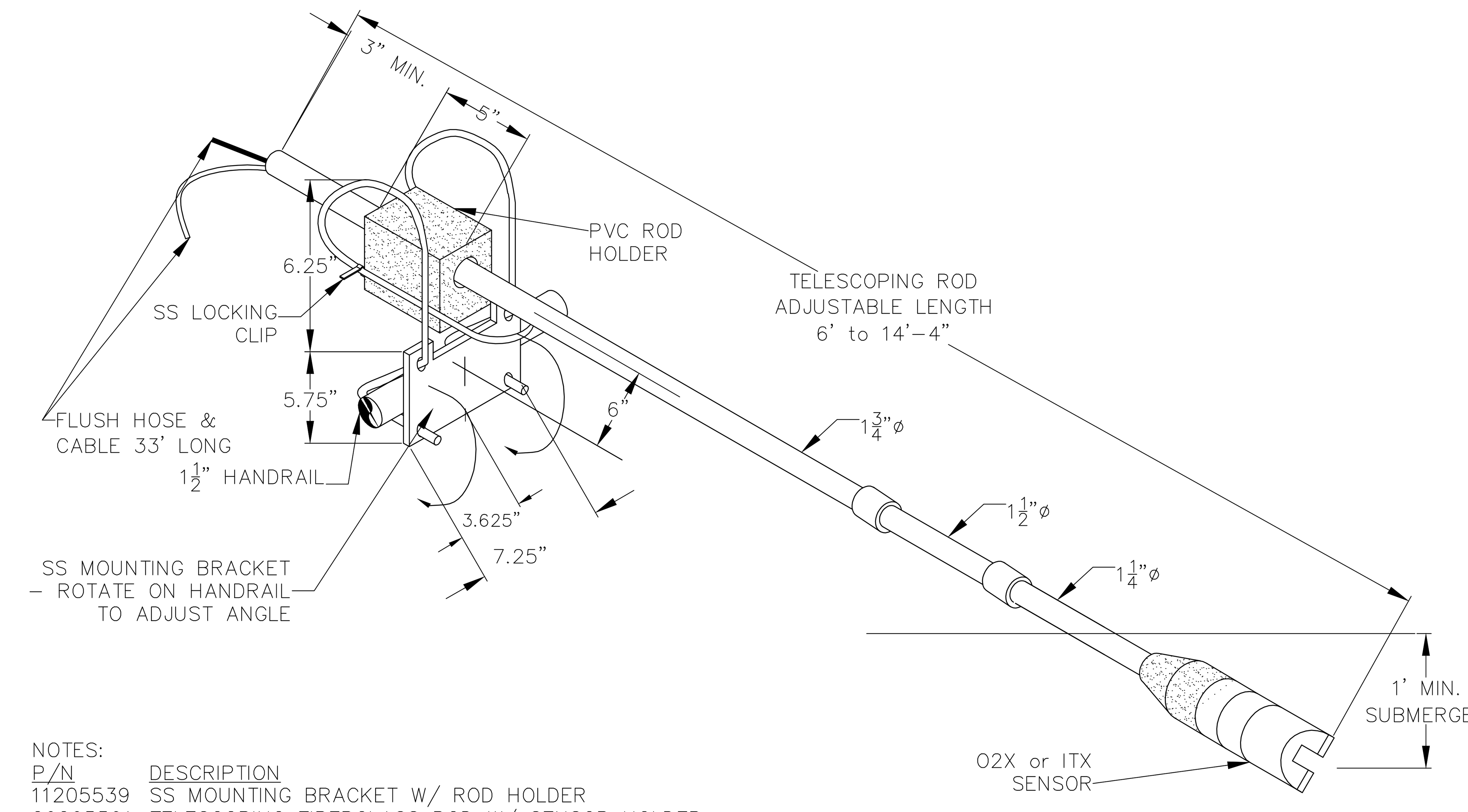


NOTES:

P/N	DESCRIPTION
11205539	SS MOUNTING BRACKET W/ ROD HOLDER
20205501	TELESCOPING FIBERGLASS ROD W/ SENSOR HOLDER
11305455	ITX SENSOR W/ 33' CABLE & HOSE
11305473	O2X SENSOR W/ 33' CABLE & HOSE
31804075	pH ELECTRODE, SUBMERSIBLE, 3/4" NPT W/ 30' CALBE & BNC
31804076	ORP ELECTRODE, SUBMERSIBLE, 3/4" NPT W/ 30' CALBE & BNC
30204077	SENSOR CLIP, PLASTIC, pH/ORP ELECTRODE TO ITX/O2X

TELESCOPING ROD ASSEMBLY FOR O2X/ITX SENSOR W/ pH/ORP ELECTRODE

NO SCALE

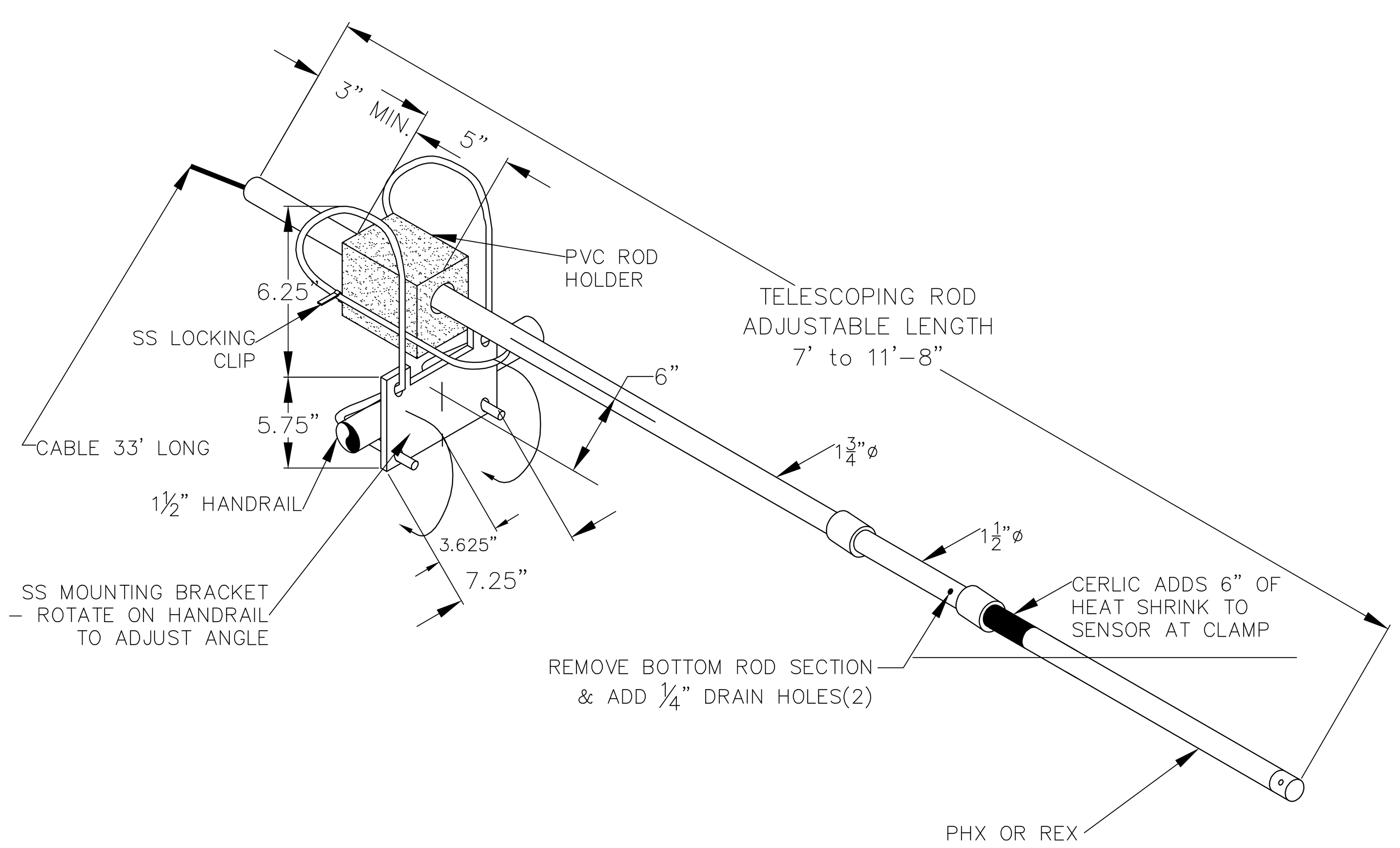


NOTES:

P/N	DESCRIPTION
11205539	SS MOUNTING BRACKET W/ ROD HOLDER
20205501	TELESCOPING FIBERGLASS ROD W/ SENSOR HOLDER
11305455	ITX SENSOR W/ 33' CABLE & HOSE
11305473	O2X SENSOR W/ 33' CABLE & HOSE

SS HANDRAIL MOUNTING BRACKET & RODTO 1-1/2" HANDRAIL

NO SCALE



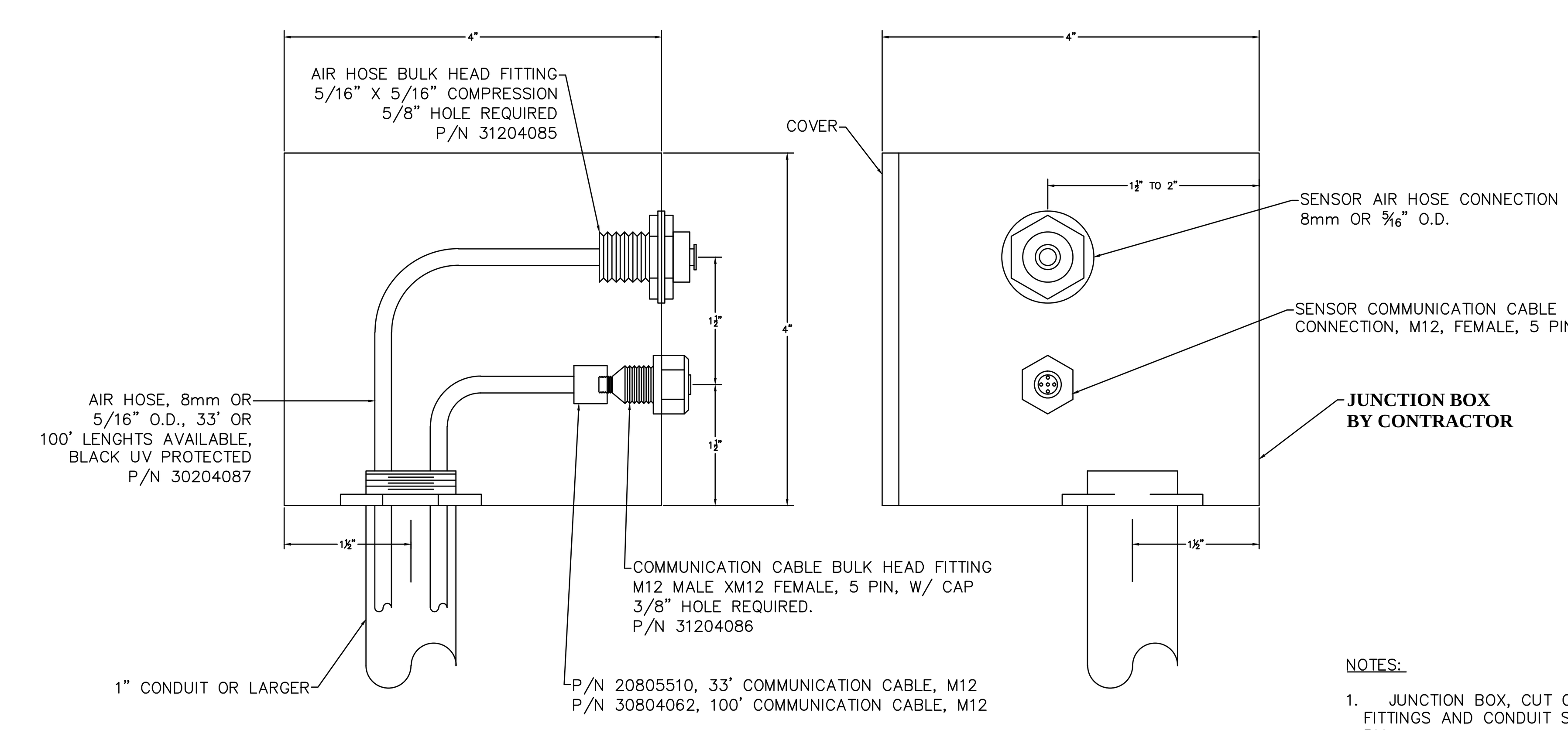
NOTES:

P/N	DESCRIPTION
11205539	SS MOUNTING BRACKET W/ ROD HOLDER
20205501	TELESCOPING FIBERGLASS ROD
11305552	PHX SENSOR W/ 33' CABLE
11305598	REX SENSOR W/ 33' CABLE

PHX & REX ROD DRAWING W/
SS BRACKET & ROD FOR
1 1/2" HANDRAIL

PHX & REX ROD DETAIL WITH SS BRACKET & ROD FOR 1-1/2" HANDRAIL

NO SCALE



FRONT VIEW
W/O COVER

SIDE VIEW

NOTES:

1. JUNCTION BOX, CUT OUTS FOR FITTINGS AND CONDUIT SUPPLIED BY **CONTRACTOR**.
2. JUNCTION BOX – 4"X4"X4" (MIN) PVC OR SS AS REQUIRED ON PROJECT.

JUNCTION BOX FOR M12 CABLE & 5/16" HOSE MINIMUM SIZE 4"x4"x4"

NO SCALE

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

DETAILS

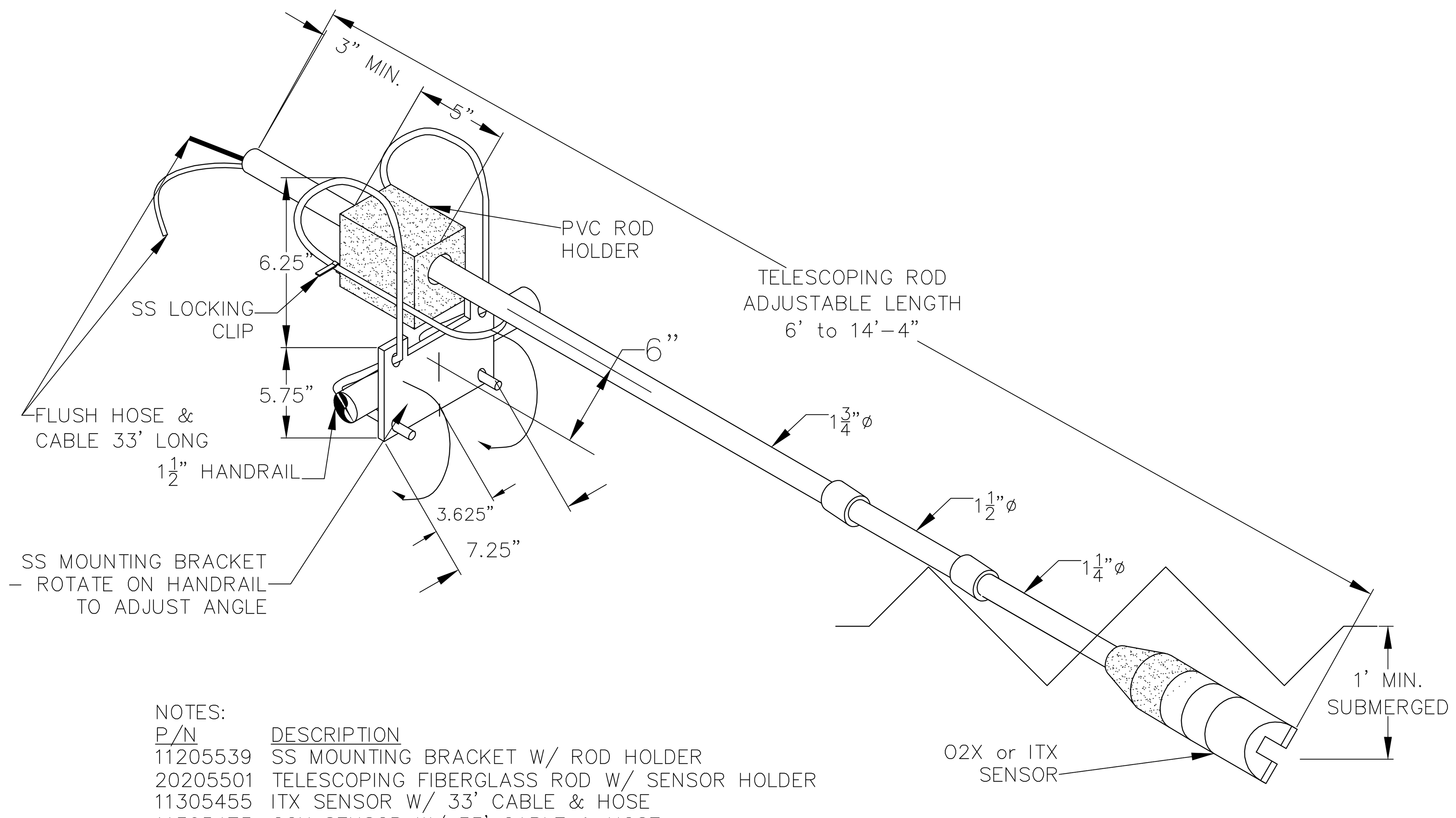
Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	DMB

E-501

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:41:46 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-501 DETAILS.DWG - MARQUEZ, GERMAIN

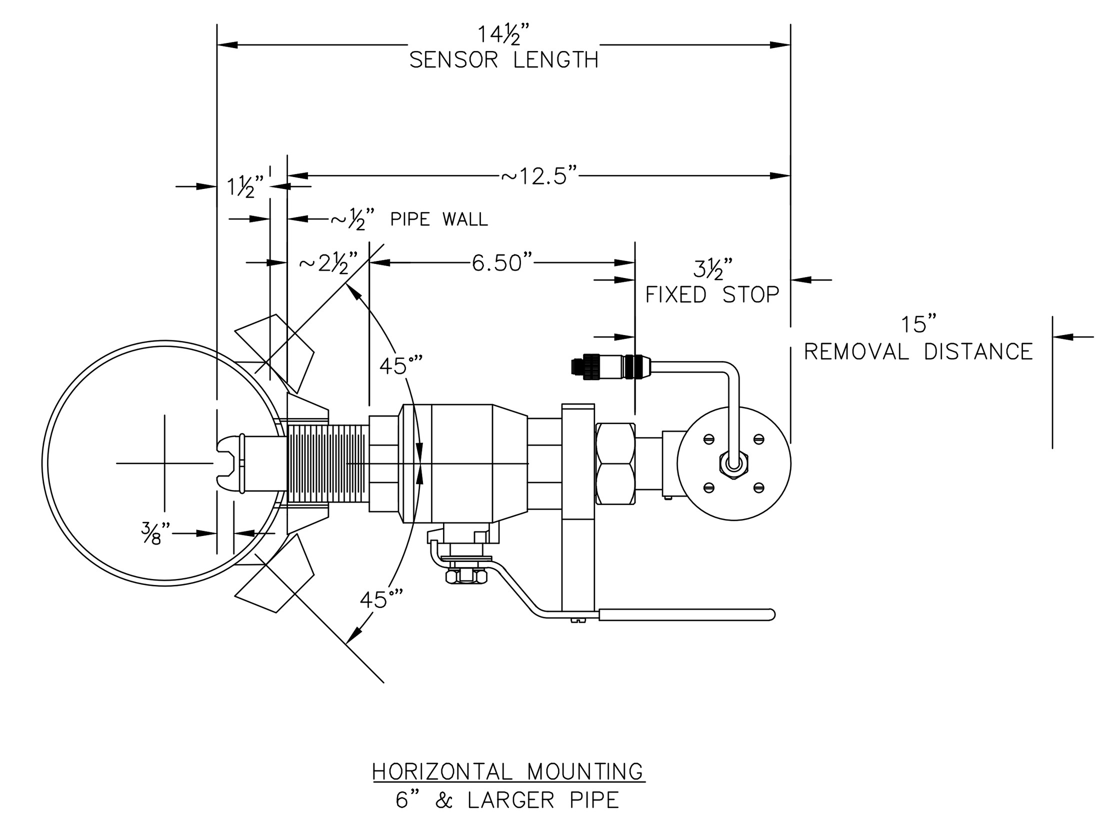


NOTES:

P/N	DESCRIPTION
11205539	SS MOUNTING BRACKET W/ ROD HOLDER
20205501	TELESCOPING FIBERGLASS ROD W/ SENSOR HOLDER
11305455	ITX SENSOR W/ 33' CABLE & HOSE
11305473	O2X SENSOR W/ 33' CABLE & HOSE

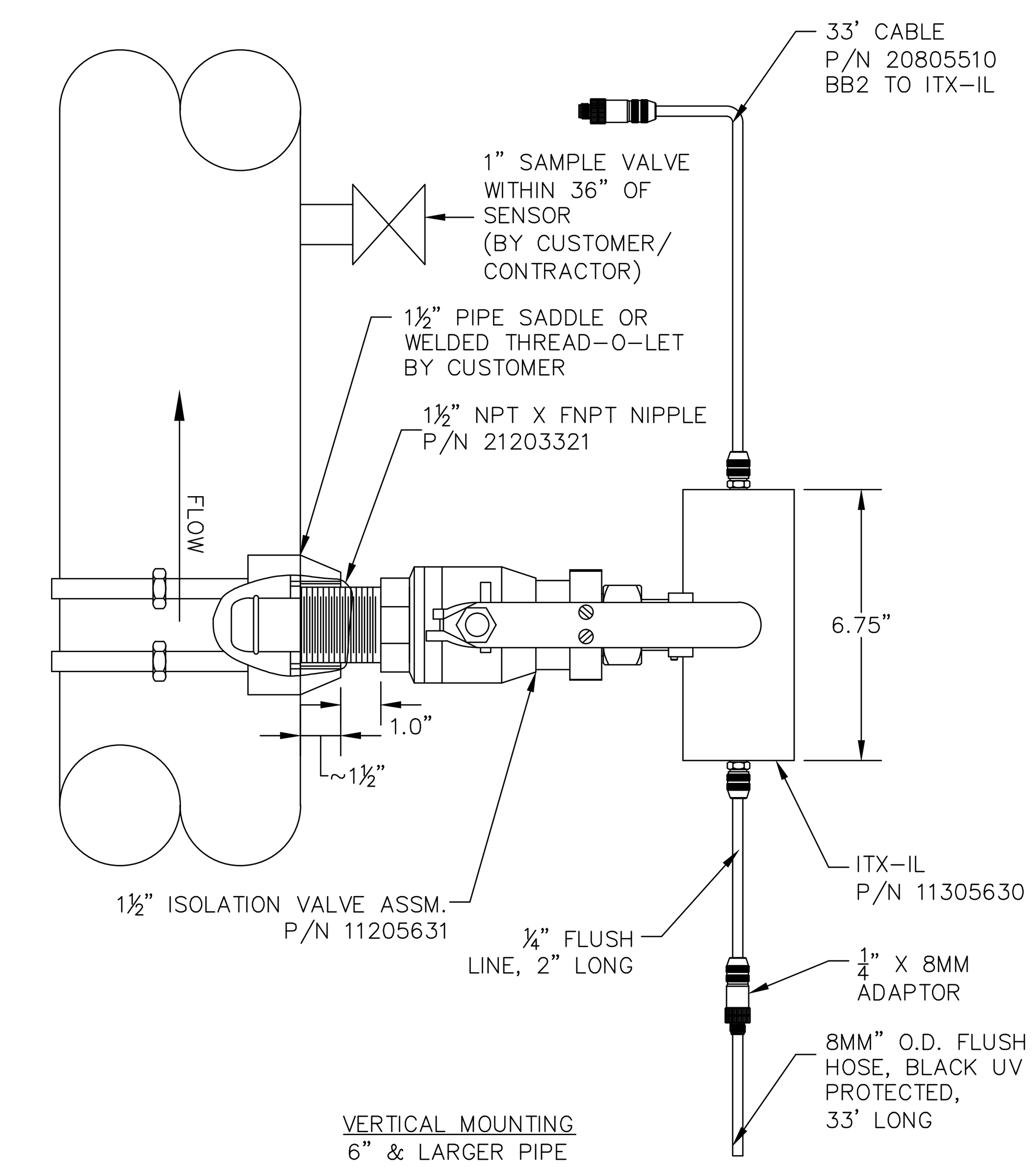
SS HANDRAIL MOUNTING BRACKET & ROD TO 1-1/2" HANDRAIL

NO SCALE



HORIZONTAL MOUNTING
6" & LARGER PIPE

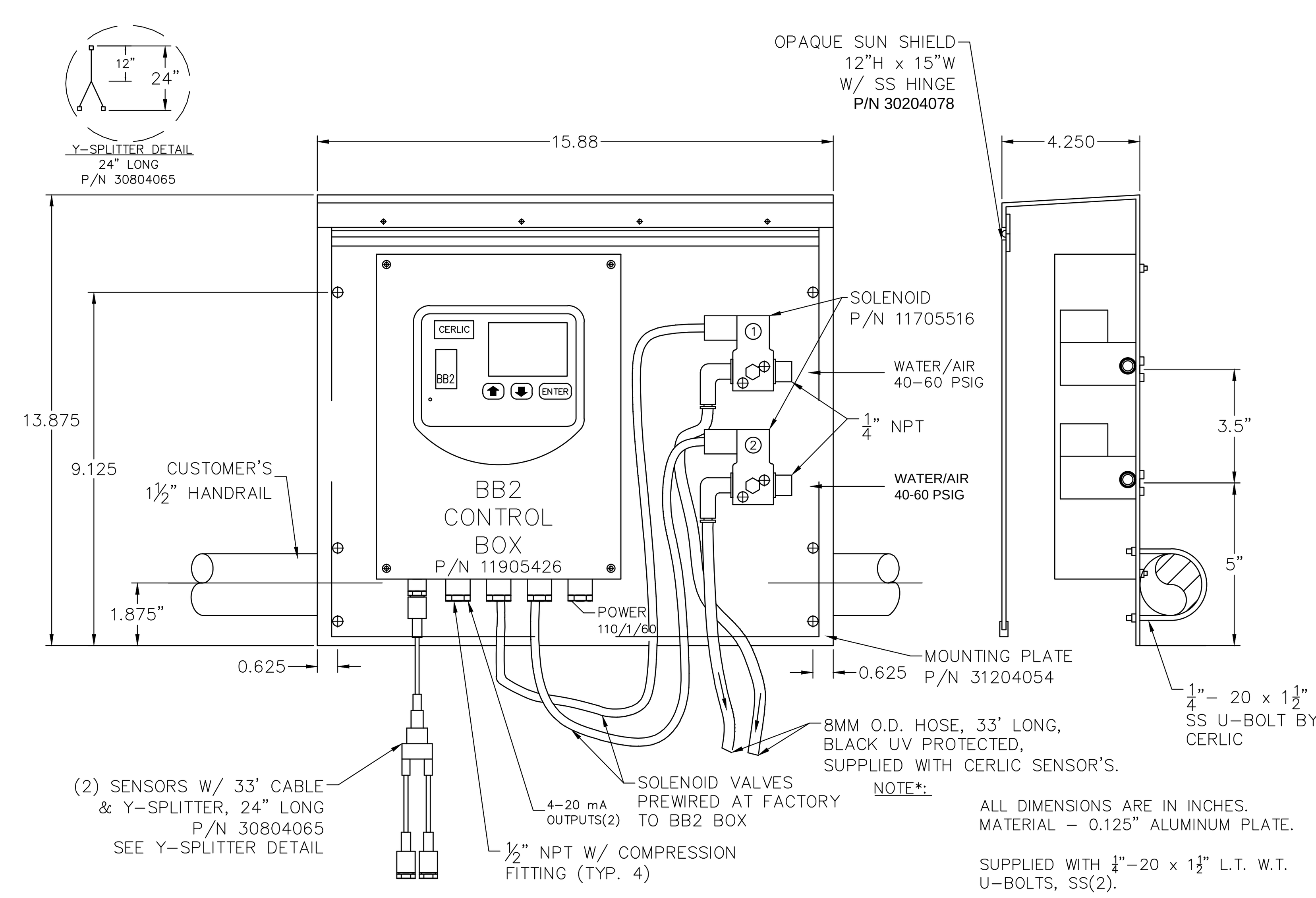
NOTES:
1. FLUSHING PRESSURE TO BE 20 PSIG ABOVE MAX. LINE PRESSURE.
2. LIQUID VELOCITY SHOULD BE AT LEAST 4 FPS FOR BEST RESULTS BUT WILL WORK AT 1.5 FPS AND HIGHER VELOCITIES IF FLUSHING IS USED.
3. CHECK CLEARANCE BEHIND SENSOR FOR REMOVAL.
4. MAX. LINE PRESSURE DESIGN OF 90 PSIG OR 6 BARS.
5. FLOW CAN BE IN EITHER DIRECTION.



VERTICAL MOUNTING
6" & LARGER PIPE

ITX-IL VERTICAL & HORIZONTAL MOUNTING DETAILS FOR 6" OR LARGER PIPE

NO SCALE



BB2 CONTROL BOX W/ 2 SOLENOID VALVES, MOUNTING PLATE & SUN SHIELD

NO SCALE

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

DETAILS

Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	DMB

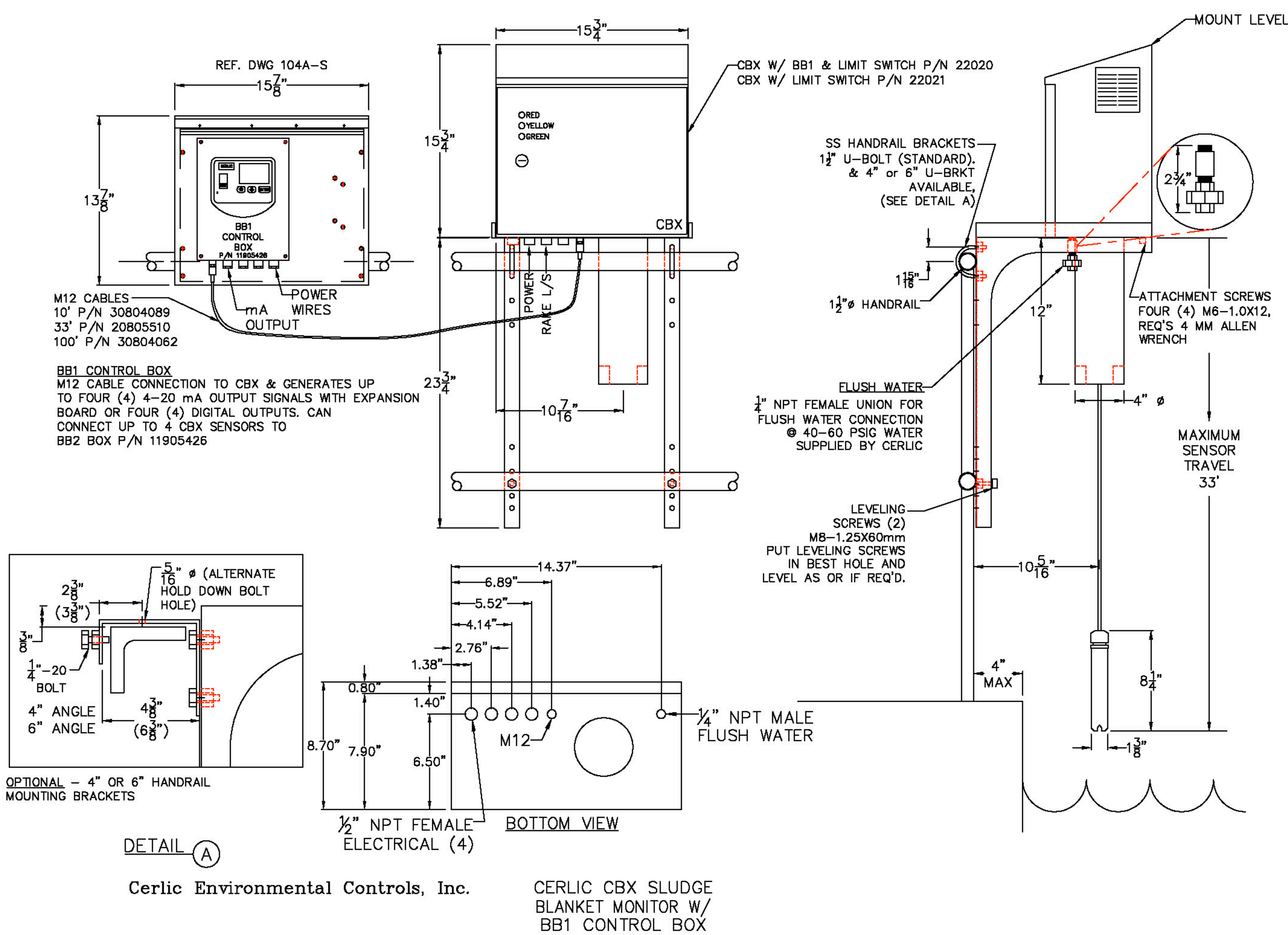
E-502

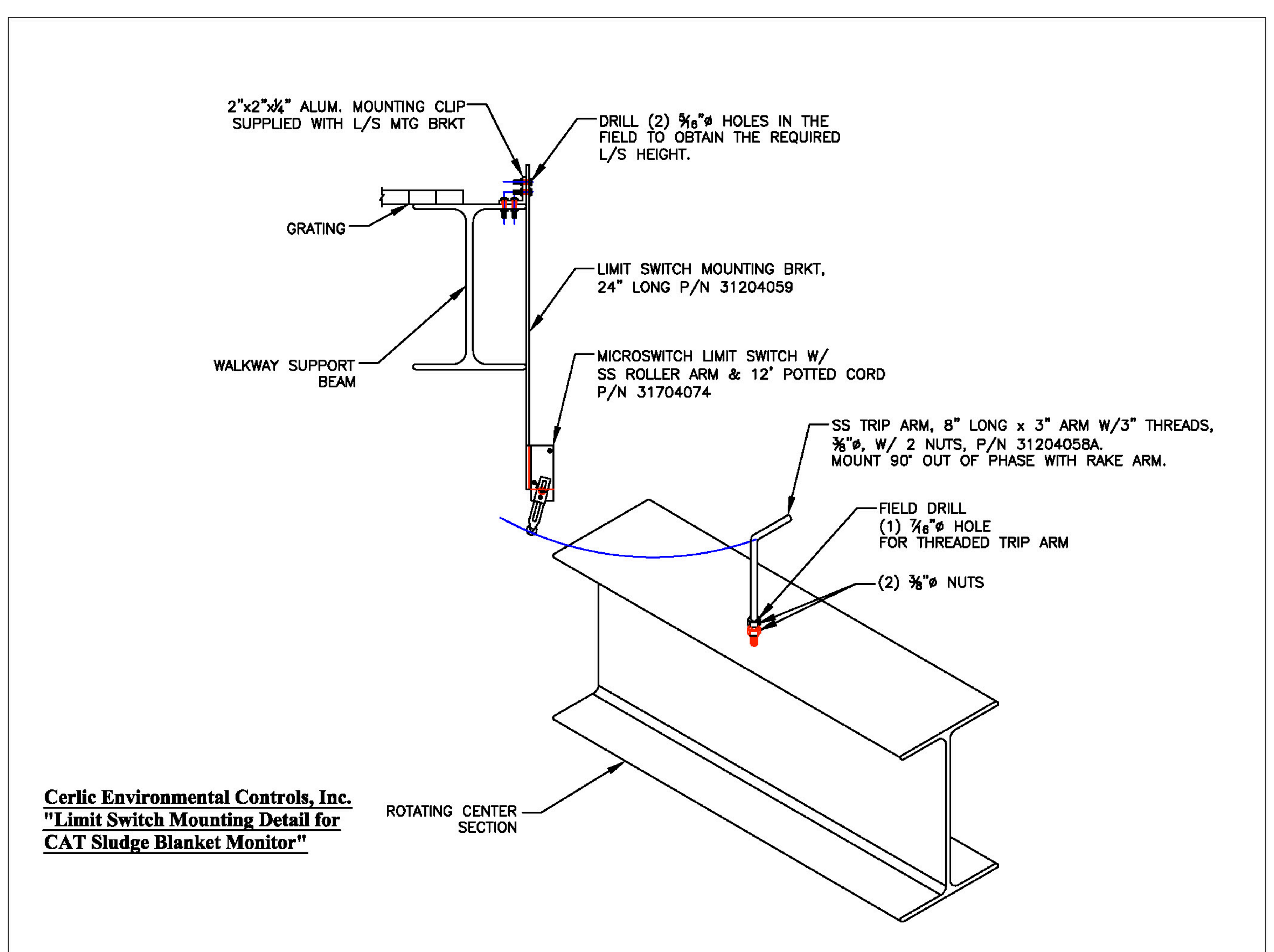
Copyright: Tetra Tech

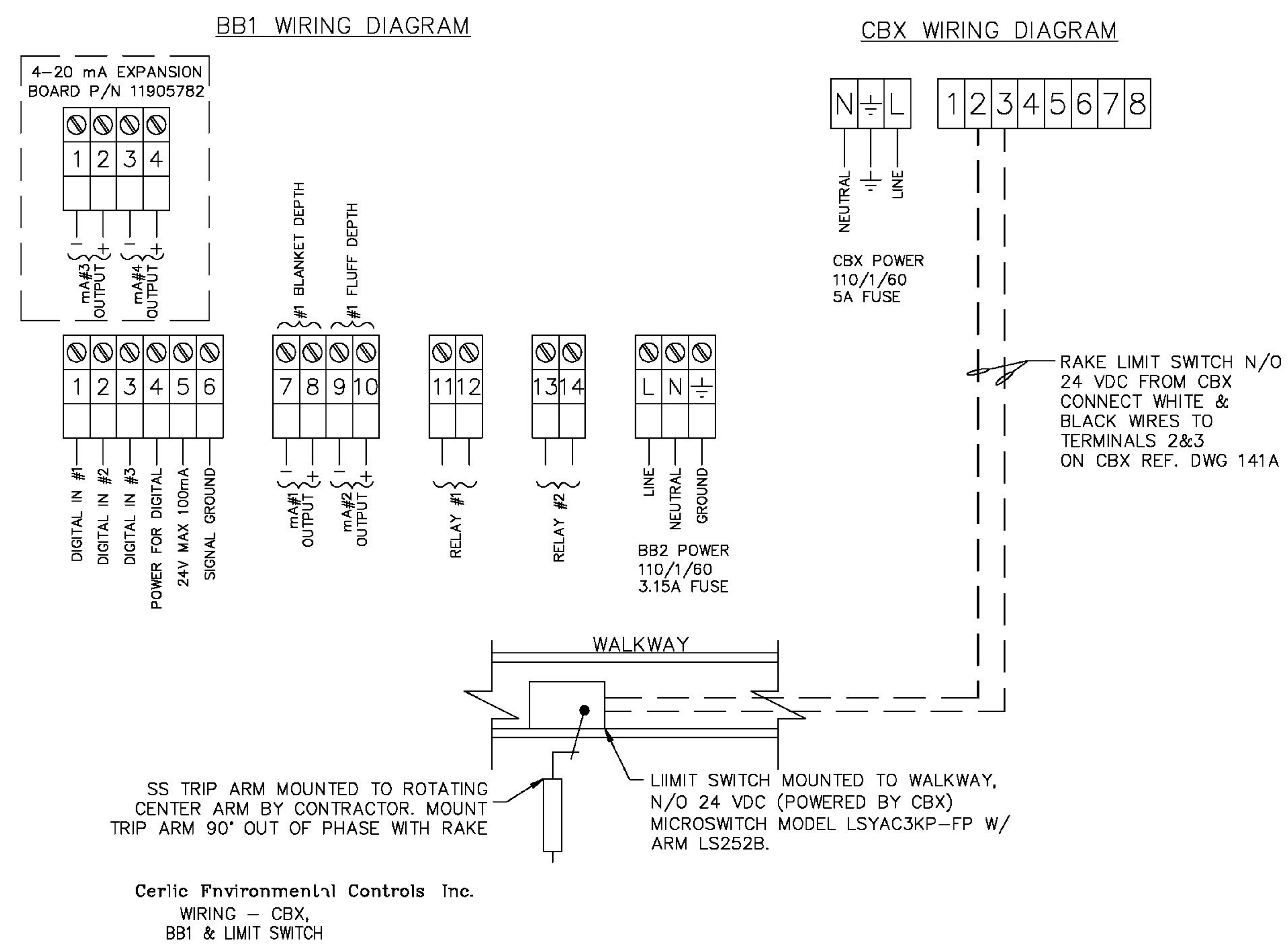
Bar Measures 1 inch

10/11/2013 4:42:00 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-502 DETAILS.DWG - MARQUEZ, GERMAIN

ADDED SHEET 01/14/2014







TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WWTRF
BLOWER IMPROVEMENTS

DETAILS

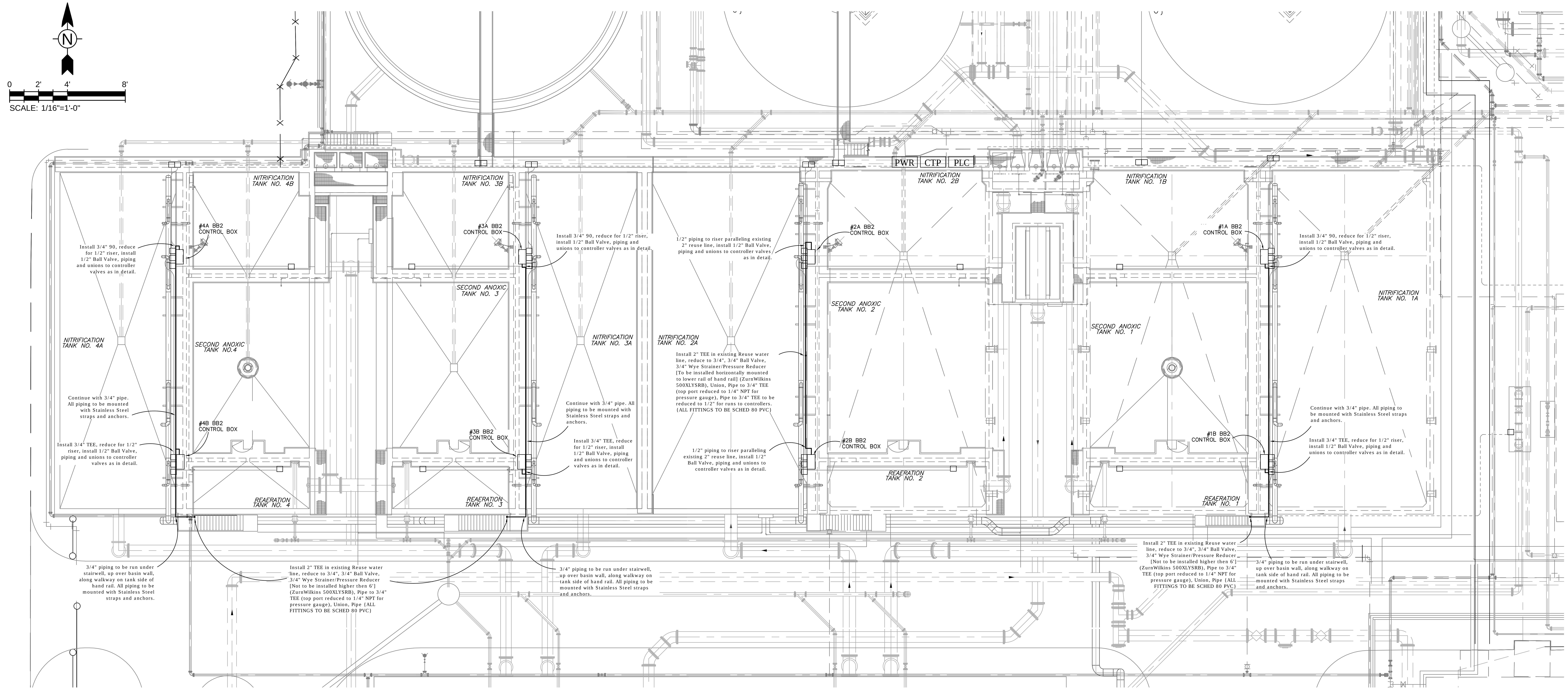
Project No.:	200-08516-12001
Designed By:	BCS
Drawn By:	BCS
Checked By:	DMB

E-503

Copyright: Tetra Tech

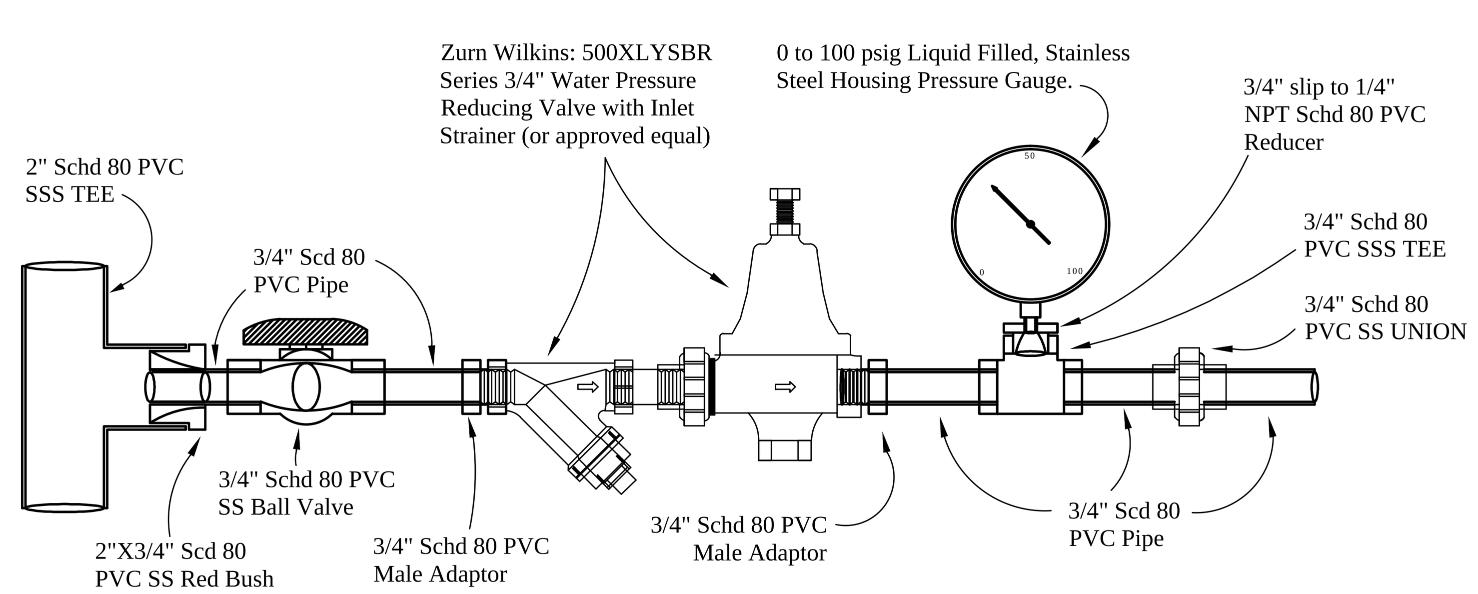
Bar Measures 1 inch

10/11/2013 4:42:00 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\E-502 DETAILS.DWG - MARQUEZ, GERMAIN



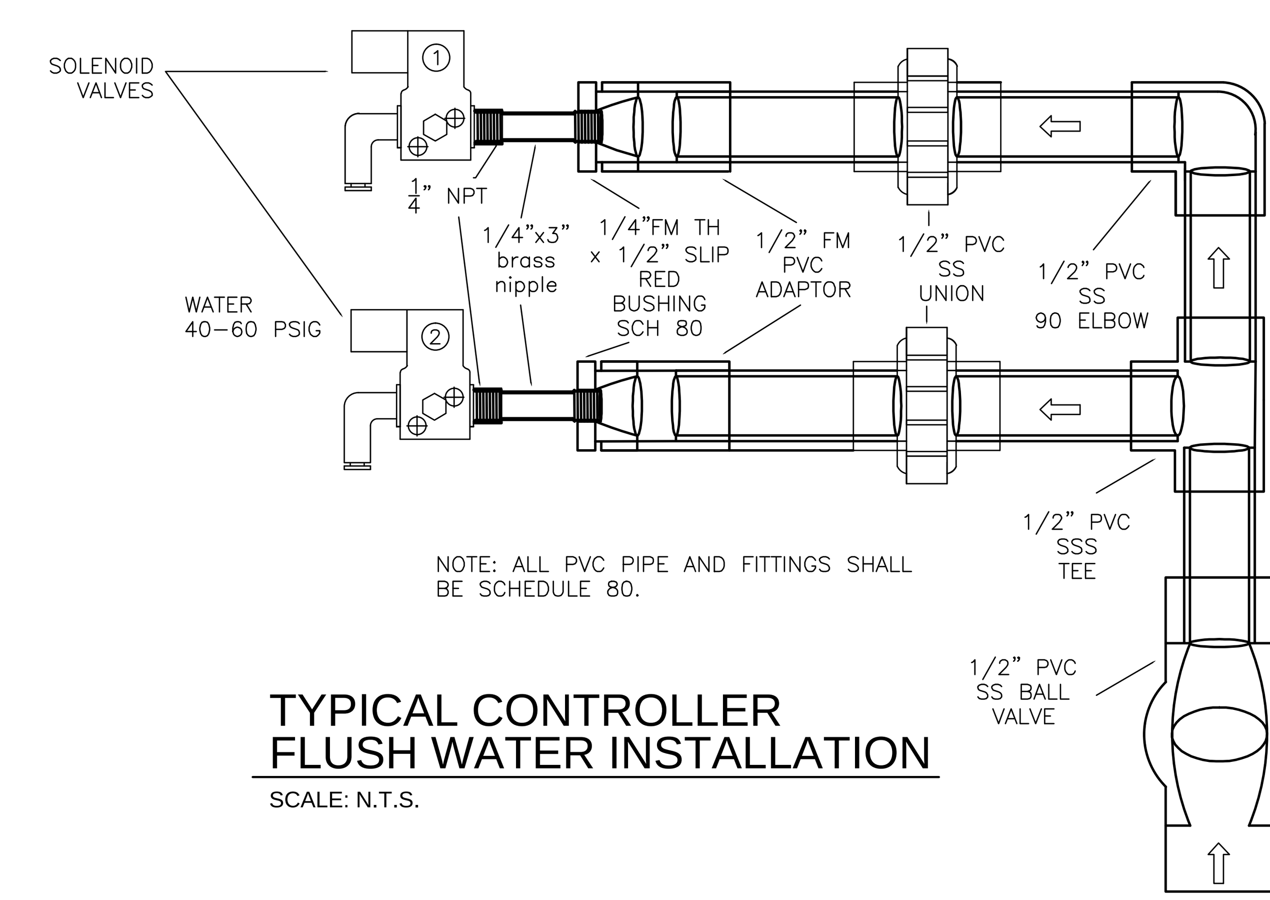
AERATION BASINS AND CLARIFIERS

SCALE: 1/16" = 1'-0"



TYPICAL PRESSURE REDUCING ASSEMBLY INSTALLATION

SCALE: N.T.S.



TYPICAL CONTROLLER FLUSH WATER INSTALLATION

SCALE: N.T.S.

TETRA TECH
www.tetratech.com
10600 CHEVROLET WAY, SUITE 300
ESTERO, FL 33928
PHONE: (239) 390-1467 FAX: (407) 839-3790

NOT FOR CONSTRUCTION

MARK	DATE	DESCRIPTION	BY

CITY OF NAPLES, FL

CITY OF NAPLES WRF AERATION MONITOR & CONTROL INSTRUMENTATION IMPROVEMENTS

PHASE 1 - FLUSH WATER PIPING REQUIREMENTS

Project No.: 200-08516-12001
Designed By:
Drawn By: GM
Checked By:

M-001

Copyright: Tetra Tech

Bar Measures 1 inch

10/11/2013 4:42:17 PM - P:\IER\08516\200-08516-12001\CAD\SHEETFILES\M-001 PHASE-1 FLUSH WATER PIPING REQUIREMENTS.DWG - MARQUEZ, GERMAIN

EXHIBIT B

City of Naples
NON-MANDATORY PRE-BID
WRF Aeration Monitor and Control Instrumentation Improvements
BID #14-016
January 10, 2014 10:00 AM Local Time
380 Riverside Circle, Naples FL, 34102

NAME Doug Lehmann
COMPANY BCI Technologies
TELEPHONE 239-433-9600 x210
E-MAIL DougL@BCITech.com

NAME Mike Costello
COMPANY Fluid Flow
TELEPHONE 561. 531. 3897
E-MAIL mikecostello@fluidflow.com

NAME Matthew C. Mossman
COMPANY WES Industries Inc.
TELEPHONE 941-320-6834
E-MAIL mmossman@wesinc.com

City of Naples
NON-MANDATORY PRE-BID
WRF Aeration Monitor and Control Instrumentation Improvements
BID #14-016
January 10, 2014 10:00 AM Local Time
380 Riverside Circle, Naples FL, 34102

NAME Greg Givens
COMPANY City
TELEPHONE 239-213-7101
E-MAIL ggivens@naplesgov.com

NAME Dave Graff
COMPANY CoN
TELEPHONE 239-213-4716
E-MAIL DGraff@naplesgov.com

NAME ______
COMPANY ______
TELEPHONE ______
E-MAIL ______