

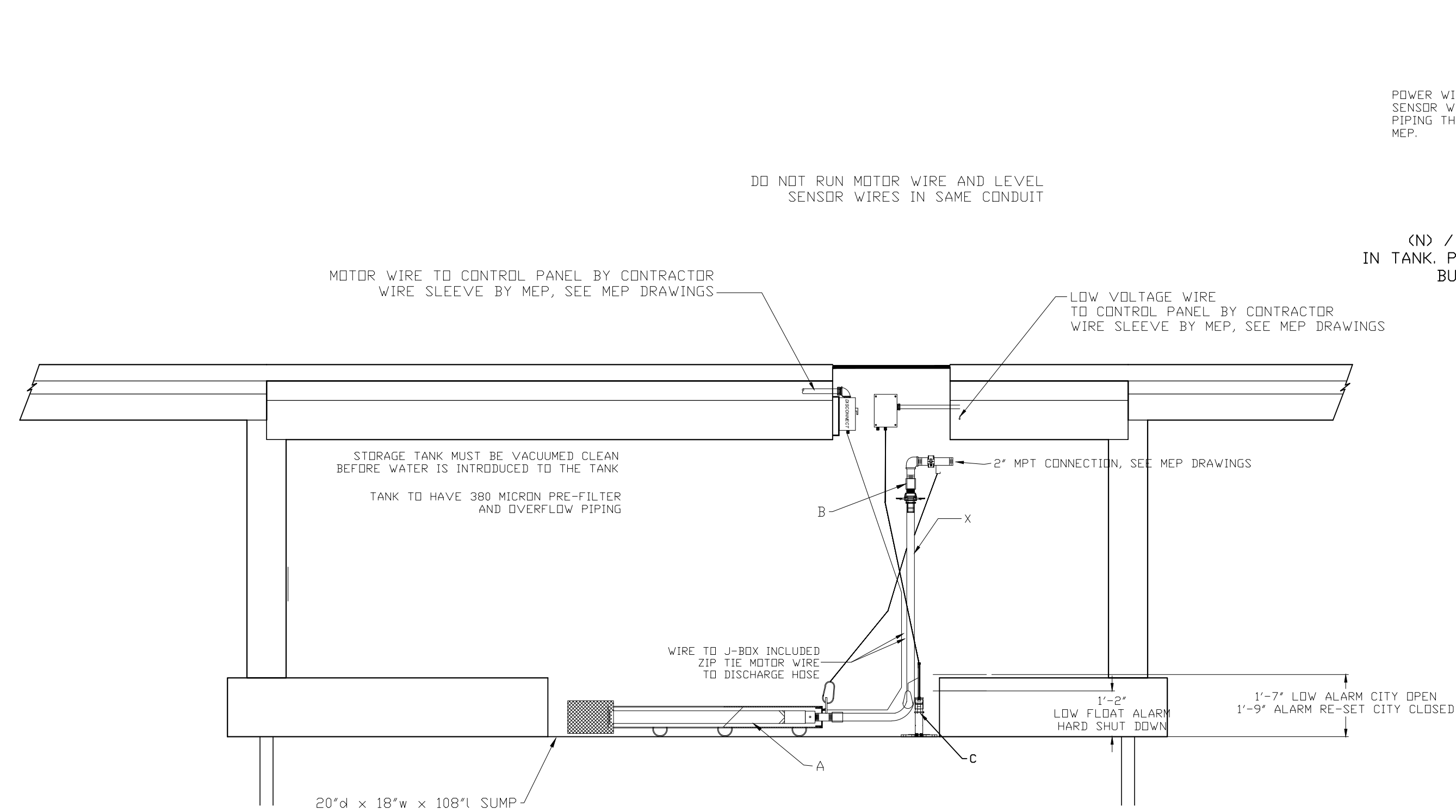
1 RECLAIMED WATER PUMP/SKID PLAN IN R/O ROOM
1/100 1/32" = 1'-0"

CONTROL PANEL TO INCLUDE:

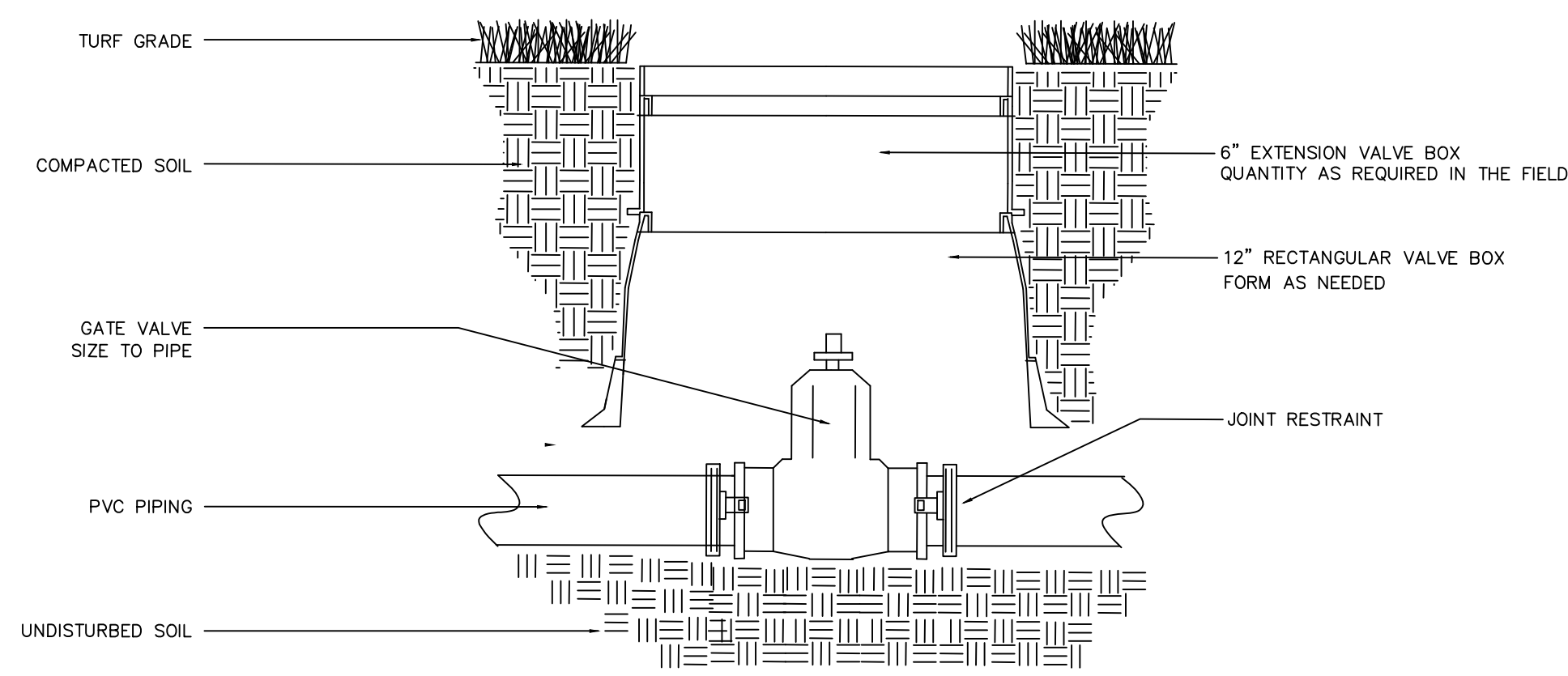
- COLOR TOUCHSCREEN OPERATOR INTERFACE
- FILTER CONTROLS AND DISPLAY
- FLOW SENSOR DISPLAY AND TOTALIZERS
- PSI DISPLAY AND SET POINTS
- AUTO RE-ENABLING OF PUMP BASED UPON WATER AVAILABILITY
- PUMP RUNNING STATUS & RUN-TIME HRS
- LEVEL CONTROLS AND DISPLAY IN "INCHES" & "GALLONS"
- USER ABILITY TO ADJUST ALL SYSTEM PARAMETERS
- VFD PRESSURE REGULATION FOR ENERGY EFFICIENCY
- BRANCH CIRCUIT PROTECTION
- UL 508 LISTED CONTROL PANEL ASSEMBLY
- PROGRAMMABLE PLC (programmable logic controller)
- NON-FUSABLE MAIN DISCONNECT
- HQA (hand, off, auto) SWITCH FOR PUMP
- SERIAL MODBUS PLC CAPABILITY

STATION COMPONENTS:

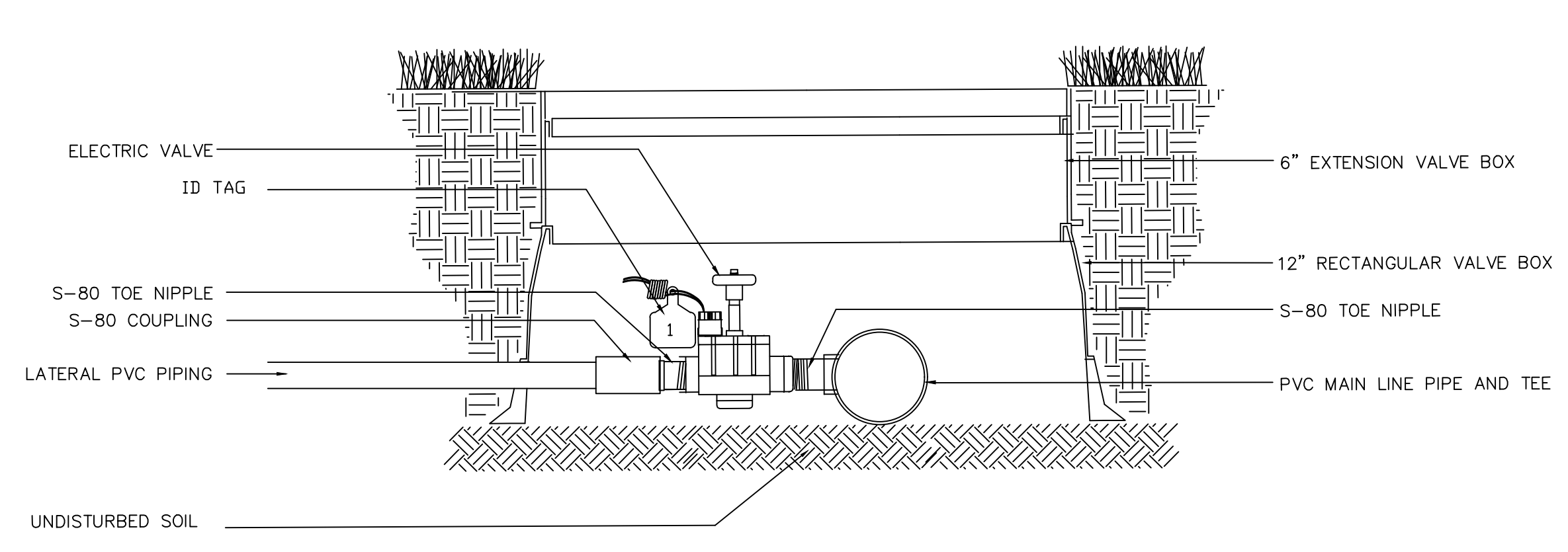
- A 5 HP PUMP AND MOTOR
- B 2" PUMP CHECK VALVE
- C LEVEL TRANSDUCER & FLOAT ASSEMBLY
- D PRESSURE TRANSDUCER ASSEMBLY
- E PRESSURE RELIEF VALVE ASSEMBLY
- F AUTOMATIC SELF-CLEANING FILTER w/ 25 MICRON SCREEN
- G FILTER ISOLATION VALVE
- H FILTER FLUSH VALVE
- I NEMA PUMP STATION CONTROL PANEL
- J U.V. UNIT 50 GPM @ 32 nJ/cm2 @ 75% UVT w/ AUTO WIPER
- K U.V. UNIT ISOLATION VALVE
- L AIR COMPRESSOR FOR U.V. UNIT WIPER
- M PUMP FLOW SENSOR
- N 2" STATION INLET ISOLATION VALVE
- O 2" STATION DISCHARGE ISOLATION VALVE
- P PAINTED STEEL STATION BASE (SANDSTONE)
- Q PAINTED STEEL PIPING (UPV PURPLE)
- R 2" N/C SOLENOID PSI REDUCING VALVE
- S 2" CITY WATER ISOLATION VALVE
- T WATER TEMP SENSOR IFM #2233 - REMOTE MOUNT AFTER HEAT/EXCHANGE FROM PUMP IN TANK. PIPING THROUGH BUILDING BY MEP
- U U.V. UNIT COOLING VALVE
- V U.V. UNIT COOLING VALVE
- W 35 GALLON ASME BLADDER TANK
- X PUMP DISCHARGE PIPE ASSEMBLY



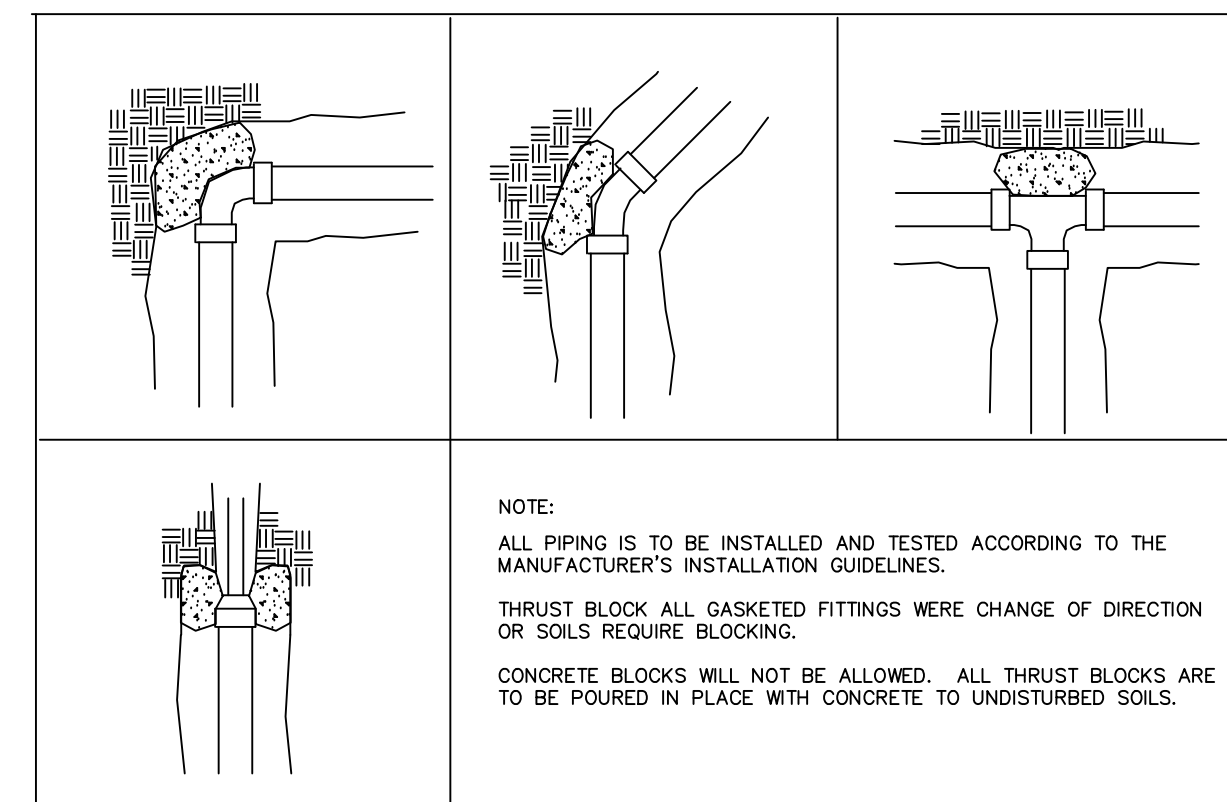
2 RECLAIMED WATER PUMP/SKID PLAN
1/100 1/32" = 1'-0"



3 PUSH-ON GATE VALVE - 4" and greater
4" AND LARGER NO SCALE



4 ELECTRIC VALVE - PVC Piping
NO SCALE

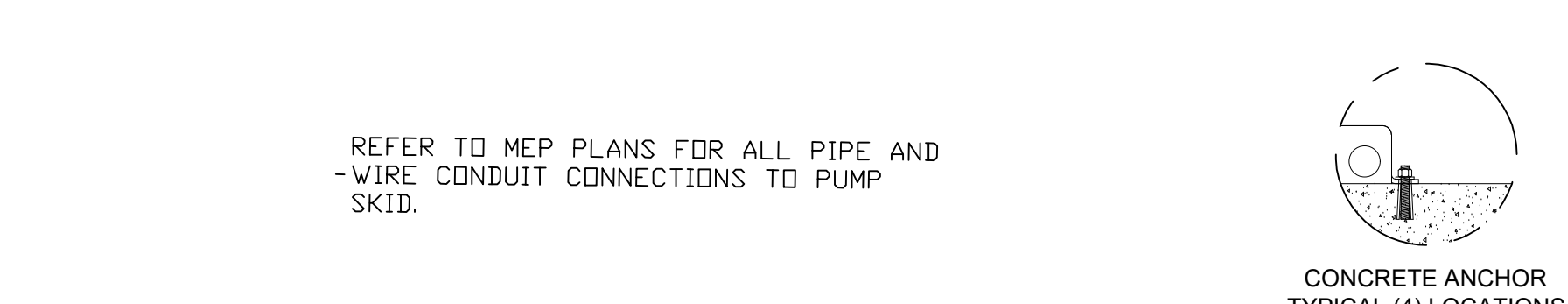
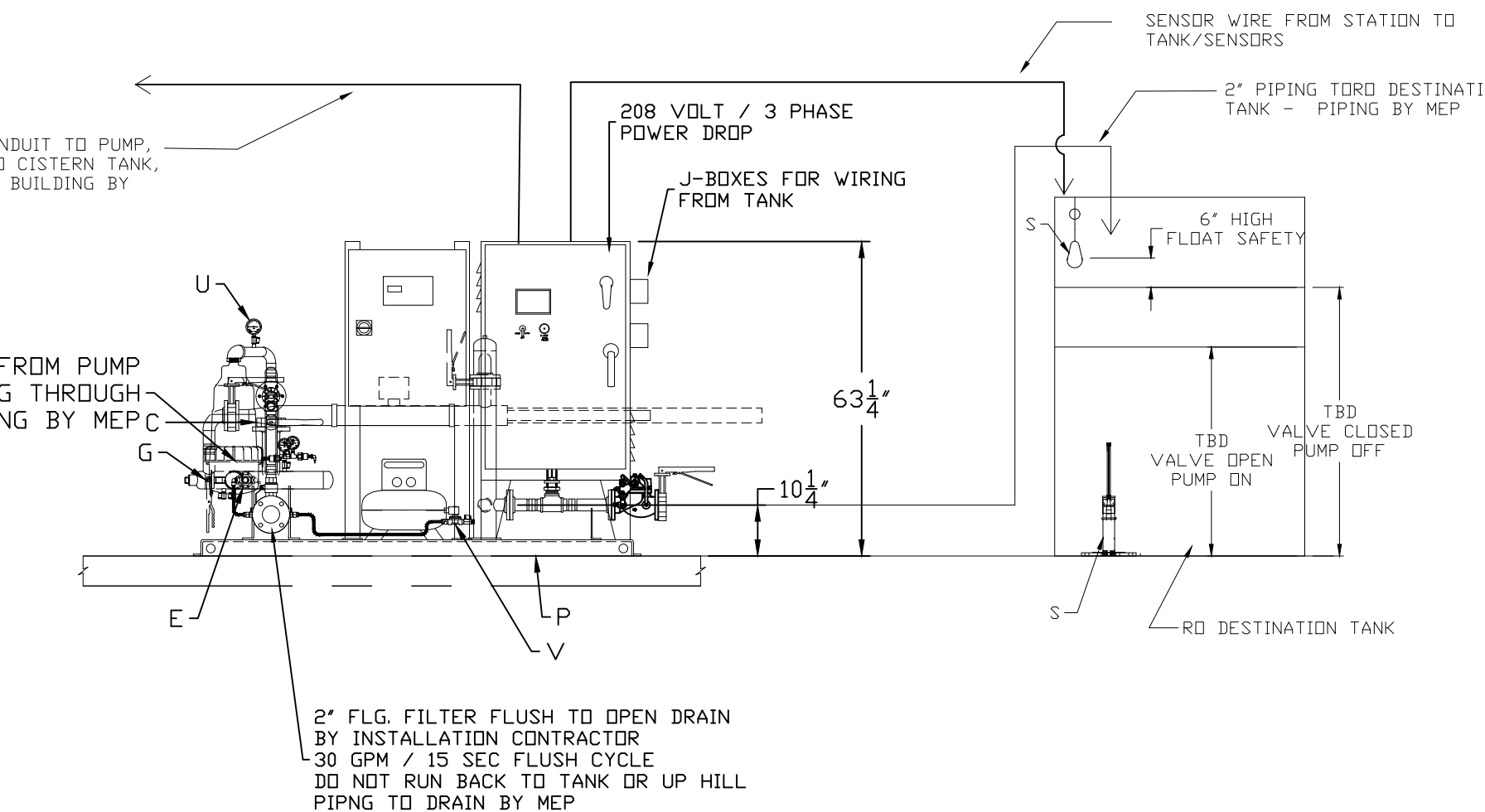
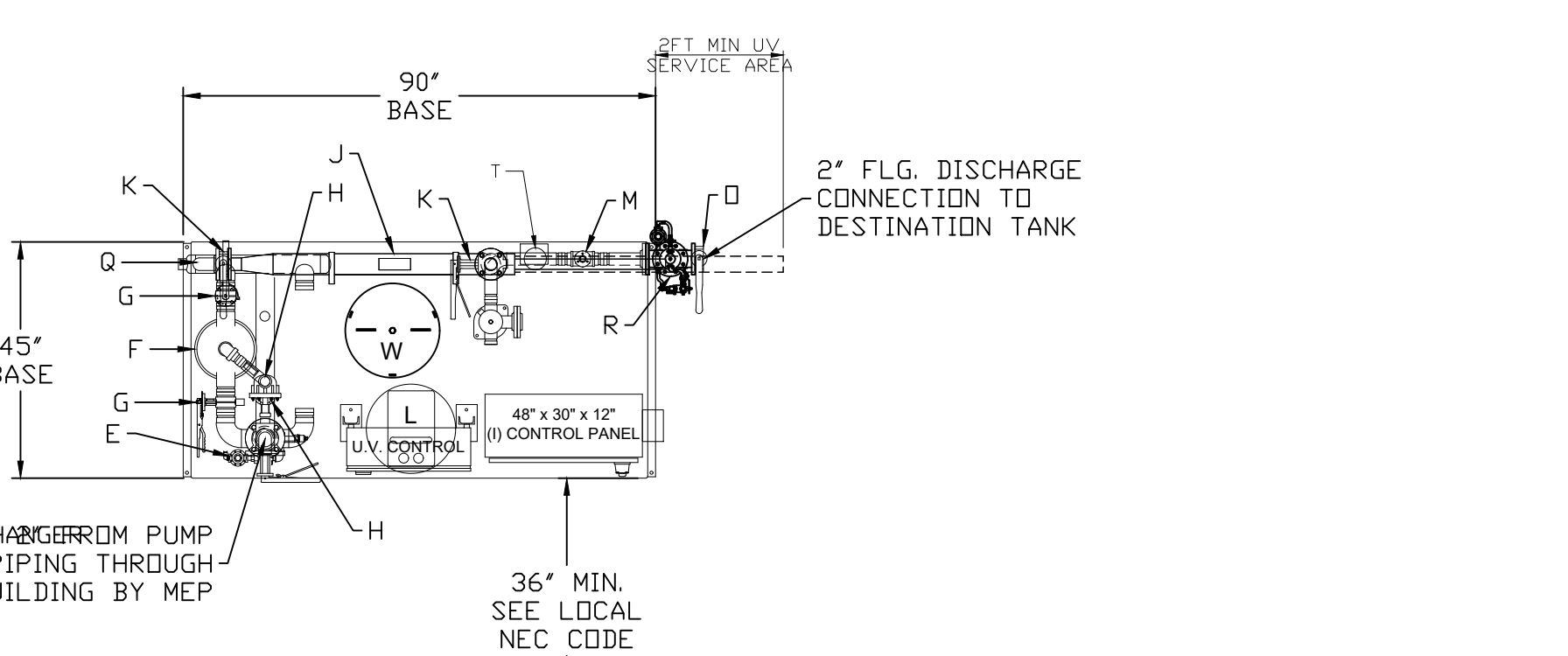


5 THRUST BLOCKING
NO SCALE

GENERAL IRRIGATION NOTES

1. CONTACT ALL UTILITIES AND GENERAL CONTRACTOR AT LEAST 5 DAYS PRIOR TO THE START OF CONSTRUCTION.
2. MAINTAIN ALL CODES REQUIRED BY LOCAL AUTHORITIES.
3. COORDINATE ELECTRICAL HOOKUPS WITH GENERAL CONTRACTOR, ELECTRICIAN AND OWNER. VERIFY EXISTING AND PROPOSED CONTROLLER LOCATIONS WITH OWNER. CONTROLLER 2 WILL BE REMOVED AND A NEW CONTROLLER PROVIDED BY THE OWNER AND WILL BE INSTALLED BY THE CONTRACTOR. CONTROLLER 1 WILL BE A NEW CONTROLLER PROVIDED BY THE OWNER AND WILL BE INSTALLED BY THE CONTRACTOR.
4. COORDINATE ALL SLEEVES AND PENETRATIONS WITH GENERAL CONTRACTOR. IRRIGATION CONTRACTOR IS RESPONSIBLE FOR BORES, SLEEVES OR PENETRATIONS RELATED TO THE IRRIGATION.
5. IRRIGATION HEADS AND LINES ARE SCHEMATIC - MINOR FIELD ADJUSTMENTS MAY BE REQUIRED.
6. INSTALL ALL PIPING AND FITTINGS USING GLUE METHODS CONSISTANT WITH MANUFACTURER'S RECOMMENDATIONS.
7. MAINLINE PIPING SHALL BE INSTALLED AT 15" TO THE TOP OF PIPE.
8. CAP OR PLUG ALL OPENINGS AS SOON AS LINES ARE INSTALLED TO PREVENT DEBRIS IN THE LINE.
9. THOROUGHLY FLUSH ALL LINES PRIOR TO THE OPERATION OF SPRINKLER HEADS.
10. THE IRRIGATION SYSTEM SHALL BE TESTED AT OPERATING PRESSURE FOR A MINIMUM OF 4 HOURS WITH NO MORE THAN 2% DROP IN THAT PERIOD. REPAIR ALL LEAKS AND RETEST AFTER CURING.
11. PROVIDE 'AS BUILT' DRAWINGS SHOWING ALL COMPONENTS OF THE SYSTEM PRIOR TO FINAL PAYMENT.
12. SLEEVE UNDER ROAD, WALLS, PAVERS, AND DRIVES.
13. ALL GASKETED PRESSURE PIPE AND FITTINGS SHALL BE THRUST BLOCKED.
14. NO CONCRETE PREFORMED BLOCKS WILL BE ALLOWED.
15. ALL EXISTING UTILITIES WHICH ARE NOT SHOWN ON THESE DOCUMENTS WHICH NEED TO BE REMOVED, RELOCATED AND/OR ADJUSTED SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR.
16. CONTRACTOR IS RESPONSIBLE FOR SUBMITTING AND ACQUIRING ALL PERMITS.
17. CONTRACTOR TO FIELD LOCATE ALL COMPONENTS OF THE IRRIGATION INSTALL WITH LATH PRIOR TO ANY INSTALLATION. GET OWNER'S APPROVAL OF FINAL LOCATIONS BEFORE BEGINNING WORK.
18. CONTRACTOR SHALL ALSO COORDINATE WITH THE GENERAL CONTRACTOR FOR DIGITAL SURVEY OF AS-BUILT PRIOR TO BACKFILLING. THE DIGITAL SURVEY SHALL INCLUDE ALL OF THE COMPONENTS OF THE IRRIGATION SUCH AS, BUT NOT LIMITED TO, MAINLINES, LATERALS, QUICK COUPLERS, ISOLATION VALVES, SPARE WIRES, ELECTRIC VALVES AND CONTROLLERS.
19. THE CONTRACTOR IS TO REMOVE THE EXISTING CONTROLLER IN THE SUNKEN GARDEN AND REPLACE IT WITH AN OWNER PROVIDED HUNTER HC PRO 2400 CONTROLLER.
20. THE CONTRACTOR IS TO INSTALL A NEW HUNTER HC PRO 600 ON THE WEST SIDE OF THE LEARNING CENTER.
21. THE CONTRACTOR IS TO COORDINATE PROGRAMMING THE CONTROLLERS WITH THE OWNER.
22. ANY TRENCH THAT HAS MORE THAN ONE PIPE IN IT, MUST SEPARATE THE PIPES BY 12"
23. ALL MAINLINES AND LATERAL LINES ARE TO HAVE A #14GA DIRECT BURY TRACER WIRE.

THE OWNER ANTICIPATES SPRING START UP OF THE SYSTEM ON OR ABOUT MAY 1, 2019. COORDINATE TEMPORARY SHUTDOWNS WITH OWN A MINIMUM OF 24 HOURS IN ADVANCE. NO SHUT DOWNS WILL BE PERMITTED OVERNIGHT. THE CONTRACTOR IS TO COORDINATE TEMPORARY SHUTDOWNS DURING FALL OF 2018 WITH OWNER A MINIMUM OF 24 HOURS IN ADVANCE. THE OWNER ANTICIPATES WINTERIZING THE SYSTEM ON OR ABOUT OCTOBER 31, 2018. NO SHUT DOWNS WILL BE PERMITTED OVERNIGHT.



STATION MODEL: SHSTV-1-(7K)-5-208-3-45-65

STATION TOTAL PERFORMANCE: 45 GPM @ 60 PSI

PUMP HORSEPOWER:
PUMP ND1: 5 HP (3600RPM)

MIN SUGGESTED CIRCUIT BREAKER: 30 AMP

POWER REQUIREMENTS: 208 V, 3 PH, 60 HZ, 40 FLA

DESCRIPTION OF OPERATION:

PUMP WILL OPERATE AS FOLLOWS:
The pump is off if one of the following conditions is met:
If the temp reading is 69 degrees or lower
If the level sensor in the cistern hits the low level
The high limit on the discharge R/D tank is met.

The pump is on if the following is met:
The temp reading is 70 degrees or higher
The level sensor in the cistern is above the low level cut off
The low level in the discharge R/D tank has been reached to turn the pump on

PUMP SYSTEM WILL TOTALIZE ALL RAIN WATER PUMPED.

PUMP STATION TO CONTAIN A WATER TEMP SENSOR. WHEN WATER LEVEL IS LOWER THAN 70DEG F PUMP WILL SHUT DOWN ON WATER TEMP ALARM. PUMP WILL AUTO RE-ENABLE WHEN WATER LEVEL RISES ABOVE 70DEG F.

AUTOMATIC DISCHARGE FILTRATION SHALL BE FLUSHED UPON (3) INPUTS. DIFFERENTIAL PRESSURE, TOTAL GALLONS PUMPED, AND TIMED INTERVAL WHICH EVER OCCURS FIRST. FILTER SHALL ALSO HAVE ALARM AFTER (3) FLUSH CYCLES AND PRESSURE. DIFFERENTIAL IS NOT RESTORED TO CLEAN SCREEN.

WATER IN STORAGE TANK IS ASSUMED TO BE FILTERED TO 350 MICRONS OR BETTER AND BE FREE OF COLOR AND ODR. WATERTRONICS DOES NOT RECOMMEND THE USE OF WATER COLLECTED FROM GREEN ROOF SYSTEMS, PARKING LOTS, OR LANDSCAPED AREAS. WATERTRONICS DOES NOT ACCEPT RESPONSIBILITY FOR THE QUALITY OF THE WATER IN THE STORAGE TANK.

UV UNITS WILL BE ENABLED WHENEVER PUMP IS ENABLED. A UV COOLING SOLENOID VALVE WILL OPEN FOR 30-sec WHEN NO FLOW IS SEEN FOR 20 MINUTES. IF PUMP IS DISABLED, THE UV UNIT WILL TURN OFF AFTER 20 MINUTES. UV UNIT WILL TURN ON WHEN PUMP IS RE-ENABLED. UV PANEL SHALL SIGNAL PUMP PANEL UPON ANY ALARM, AND SHUT DOWN PUMP STATION.

OWNER RESPONSIBLE FOR CITY WATER METER, BACK FLOW PREVENTOR AND ANY OTHER REGULATING DEVICES THAT MAY BE REQUIRED. OWNER RESPONSIBLE FOR VERIFYING CITY WATER CAPACITY MUST SUPPLY A MIN 45 GPM @ 65PSI TO RAINWATER SKID.

SYSTEM SHALL HAVE THE FOLLOWING ALARMS AT MINIMUM:
-HIGH DISCHARGE PRESSURE
-LOW DISCHARGE PRESSURE
-VFD FAULT
-LOW LOW LEVEL SHUT DOWN (HARD FAULT)
-LOW LEVEL ALARM (SOFT FAULT)
-FILTER ALARM
-PIPE FILL ALARM (SYSTEM CAN NOT PRESSURIZED)
-LOSS OF PHASE OR PHASE REVERSAL
-HIGH VOLTAGE
-LOW VOLTAGE
-CONTROL POWER ALARM
-UV ALARM

**Olbrich Botanical Gardens
Expansion Phase 1**
BPW Project #8162
3330 Atwood Avenue
Madison, WI 53704

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Architect under the Laws of the State of Wisconsin. ARCHITECT SEAL

Signature: _____
Print Names: _____
Date: MAY 4, 2018 License No: _____

ISSUE	DATE	DESCRIPTION
	09.29.2017	SCHEMATIC DESIGN SUBMISSION
	12.08.2017	DD PRICING SET
	01.10.2018	DESIGN DEVELOPMENT SUBMISSION
	01.17.2018	UDC SUBMISSION
	03.30.2018	10% CD PRICING ISSUE
	04.06.2018	PARKING LOT AND SITE PLAN SUBMISSION
	04.30.2018	90% CD SUBMISSION
	06.01.2018	IBD ISSUE
	06.04.2018	PERMIT ISSUE

PROJECT NO: 2017016

BID DOCUMENTS

DRAWN BY: FRS CHECKED BY: FRS
Checked by: [Signature]

IRRIGATION PUMP/SKID

**Olbrich Botanical Gardens
 Expansion Phase 1**
 BPW Project #8162
 3330 Atwood Avenue
 Madison, WI 53704

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	01.17.2018	LDIC SUBMISSION
	03.30.2018	70% CD PRICING ISSUE
	04.08.2018	PARKING LOT AND SITE PLAN SUBMISSION
	04.30.2018	90% CD SUBMISSION

PROJECT NO.	2017016
PROJECT PHASE	BID DOCUMENTS
DRAWN BY:	FRS
CHECKED BY:	FRS

**IRRIGATION DEMO
 AND QUICK COUPLER
 PLAN**

LEGEND

- NEW LATERAL LINE TO QUICK COUPLERS CL200 PVC PIPE -2"
 - MAINLINE TO REMAIN - FIELD VERIFY SIZE
 - NEW MAINLINE CL 200 PVC PIPE -4"
 - 4" ISOLATION GATE VALVE - LEEMCO LGA SERIES. Size to pipe
 - 3/4" BUCKNER QUICK COUPLER NEW OR SALVAGED
 Provide owner with one Valve Key and Hose Swivel FOR EACH NEW QUICK COUPLER
 - EXISTING QUICK COUPLER TO BE SALVAGED AND RELOCATED
 Use a new swing joint for all re-located quick couplers
 - NEW 3/4" BUCKNER QUICK COUPLER
 Provide owner with one Valve Key and Hose Swivel FOR EACH NEW QUICK COUPLER
 - 2" Pipe size
 - TORO 252 SERIES 1" AND 1.5" ELECTRIC VALVES
 - HUNTER HC PRO 2400 CONTROLLER - OWNER WILL PROVIDE THE CONTROLLER CONTRACTOR IS TO INSTALL AND MOUNT CONTROLLER ON A TREATED 4"x4" POST REMOVE THE EXISTING CONTROLLER AT THIS LOCATION AND PROVIDE TO OWNER CONTRACTOR IS TO VERIFY THAT ALL ZONES WORK AND ARE PROGRAMMED
 - HUNTER HC PRO 600 CONTROLLER - OWNER WILL PROVIDE THE CONTROLLER CONTRACTOR IS TO INSTALL AND MOUNT CONTROLLER ON A TREATED 4"x4" POST CONTRACTOR IS TO VERIFY THAT ALL ZONES WORK AND ARE PROGRAMMED
- EXISTING QUICK COUPLERS TO REMAIN ACTIVE
- EXTRA WIRE DROPS
 Spare wire drop, label ends in valve box and controller with a permanent waterproof tag.
- PVC Class 200 Sleeve - Size per plan
- 4"/2" Sleeve or Bore
- Wire Sleeve Size
- Pipe Sleeve
- Valve Size
- Zone GPM
- Zone GPM
- Station Number
- Controller Number
- Pulse Wire Color Code #14 ga.:
- | Valve # | Color |
|---------|--------|
| 1 | Red |
| 2 | Yellow |
| 3 | Orange |
| 4 | Blue |
- Tracer wire to be 14ga purple, all piping will have tracer wire. Bring tracer wire into and out of all valve boxes and quick couplers. White - Common #14 ga.

