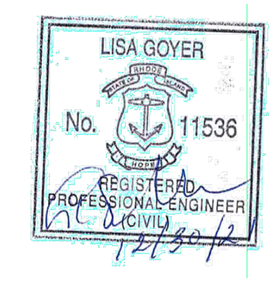
WATER SYSTEM CHLORINATION & PRETREATMENT

Prepared For:

PRUDENCE ISLAND WATER DISTRICT

024 HOMESTEAD AVE
PRUDENCE ISLAND, RHODE ISLAND



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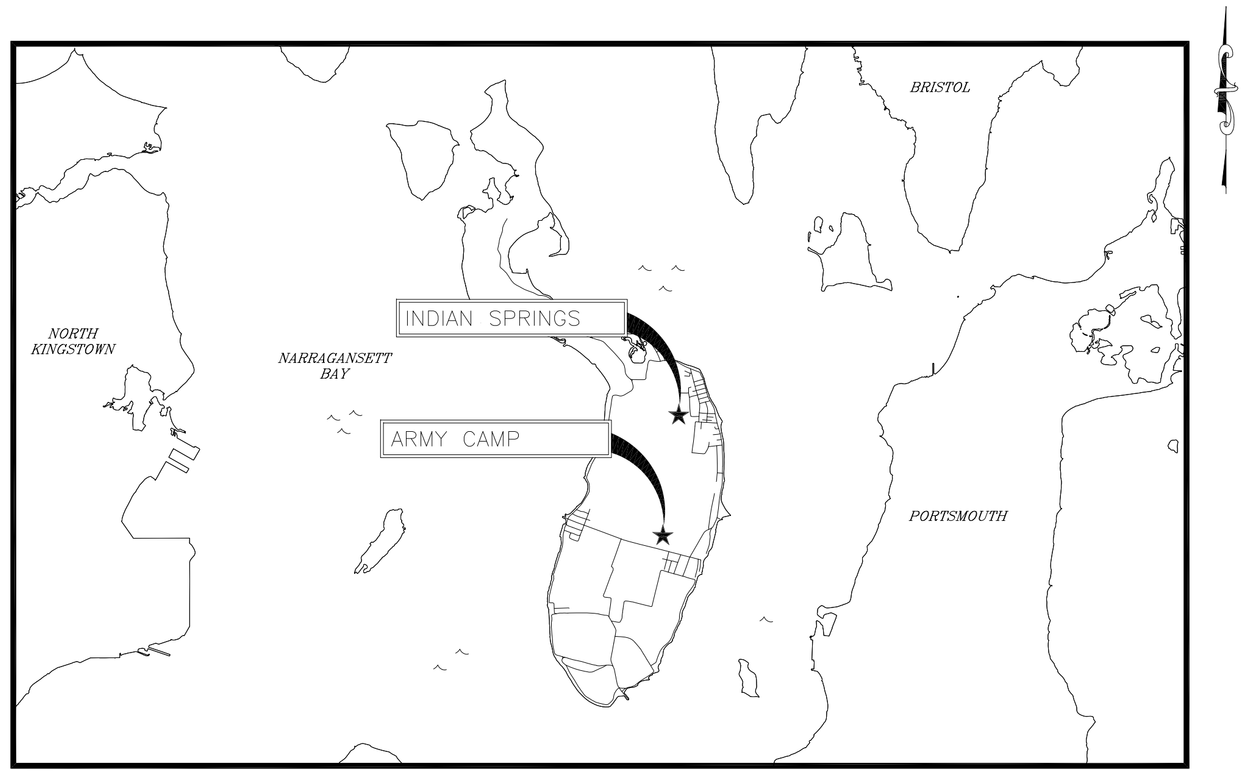

Locus Plan
SCALE: 1"=6,000'

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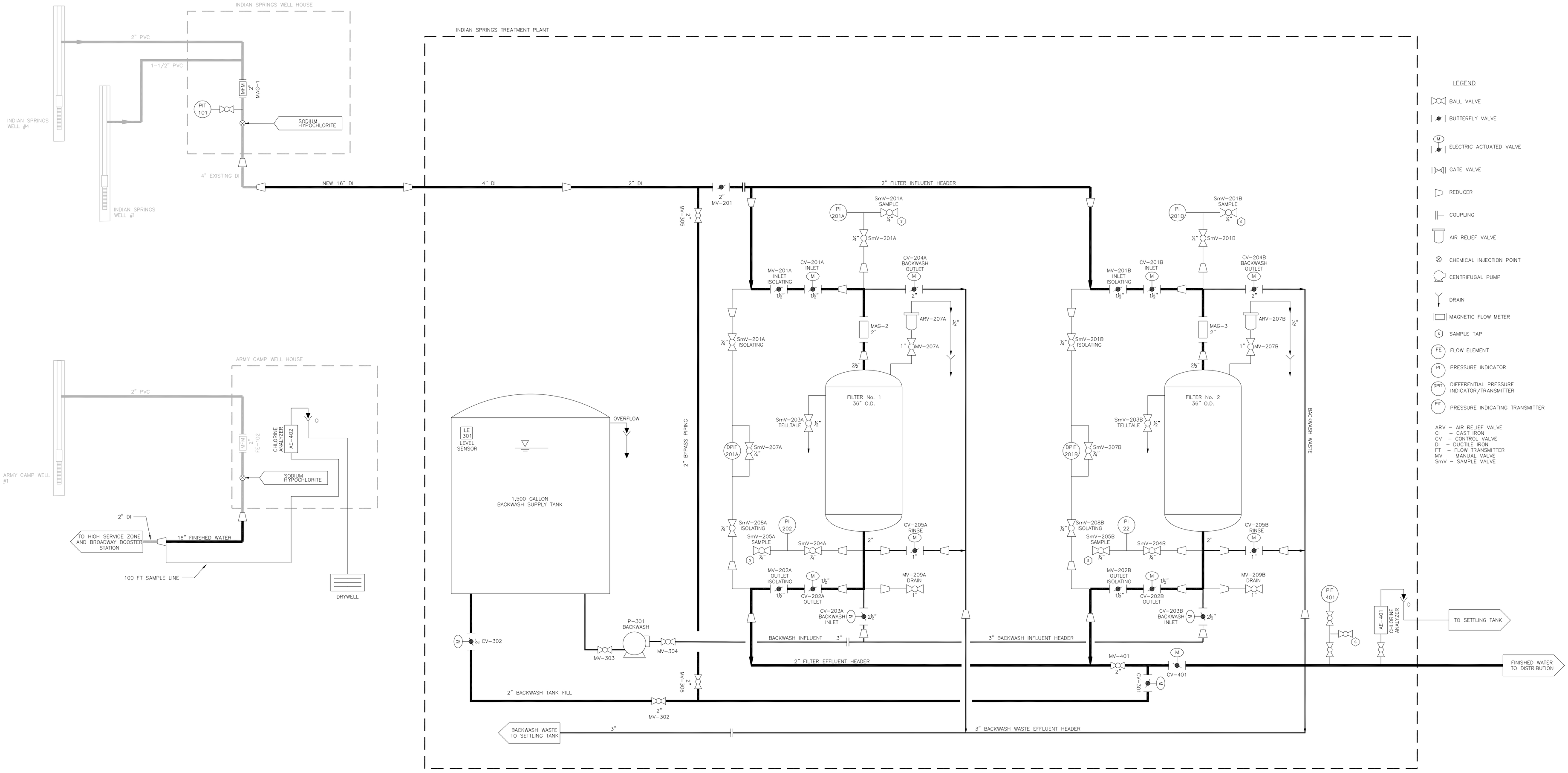
PROJECT No. 19.21.01
FOR PERMITTING
DECEMBER 2021

H2Olson Engineering, Inc.
DRINKING WATER PROFESSIONALS



LEGEND

- BALL VALVE
- BUTTERFLY VALVE
- M — ELECTRIC ACTUATED VALVE
- GATE VALVE
- REDUCER
- COUPLING
- AIR RELIEF VALVE
- CHEMICAL INJECTION POINT
- CENTRIFUGAL PUMP
- DRAIN
- MAGNETIC FLOW METER
- S — SAMPLE TAP
- FE — FLOW ELEMENT
- PI — PRESSURE INDICATOR
- DPIT — DIFFERENTIAL PRESSURE INDICATOR/TRANSMITTER
- PIT — PRESSURE INDICATING TRANSMITTER

ARV – AIR RELIEF VALVE
CI – CAST IRON
CV – CONTROL VALVE
DI – DUCTILE IRON
FT – FLOW TRANSMITTER
MV – MANUAL VALVE
SmV – SAMPLE VALVE

FOR PERMITTING

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS

NO.	DATE	DESCRIPTION

LISA GOYER — No. 11536 — REGISTERED PROFESSIONAL ENGINEER (CIVIL)

PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	RAT
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
PROCESS FLOW DIAGRAM

DRAWING NO.:
G-1

SHEET NO. 1 OF 26

A. GENERAL NOTES

1. CONTRACTOR'S WORK SHALL NOT INTERFERE WITH NORMAL ON-GOING OPERATIONS OF THE EXISTING WATER TREATMENT PLANT. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE ENGINEER, OWNER, AND OTHER CONTRACTORS ON SITE, ALL WORK, ESPECIALLY SEQUENCING, LOCATION, AND ACTIVITY OF HIS FORCES OR HIS SUBCONTRACTORS. ANY AND ALL WORK ACTIVITIES WHICH REQUIRE A DISRUPTION OF NORMAL OPERATIONS OF THE EXISTING FACILITIES MUST BE APPROVED BY THE ENGINEER, AND ALL REQUESTS FOR CHANGES TO NORMAL OPERATIONS TO PERFORM WORK MUST BE MADE IN WRITING TO THE ENGINEER AT LEAST 7-DAYS IN ADVANCE, AND ARE SUBJECT TO THE REVIEW AND APPROVAL OF THE ENGINEER.
2. THE CONTRACTOR IS ADVISED THAT IT MAY BE NECESSARY TO WORK DURING PERIODS OUTSIDE NORMAL WORKING HOURS FOR THE PURPOSE OF OBTAINING SHUT DOWNS AND/OR TO FACILITATE THE INSTALLATION OF NEW WORK. ALL PROPOSED WORK TO BE PERFORMED OUTSIDE NORMAL WORKING HOURS WILL BE SUBMITTED TO THE ENGINEER IN WRITING AT LEAST 7-DAYS IN ADVANCE FOR REVIEW AND APPROVAL, AND SHALL BE COORDINATED WITH THE TOWN OF WEYMOUTH.
3. NOTICE TO CONTRACTOR: THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AND STRUCTURES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF VARIOUS UTILITY COMPANIES AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE LOCATION OF ALL UNDERGROUND UTILITIES AND STRUCTURES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR MUST CONTACT THE APPROPRIATE UTILITY COMPANY, ANY GOVERNING PERMITTING AUTHORITY, AND "DIGSAFE" 1-888-344-7233 AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION WORK TO REQUEST EXACT FIELD LOCATION OF UTILITIES. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.
4. DATUM: THE PROJECT VERTICAL DATUM IS A LOCAL DATUM. SEE PROJECT BENCHMARKS SHOWN ON THE PLANS.
5. COORDINATE SYSTEM: HORIZONTAL PROJECT CONTROL IS LOCAL SYSTEM AND IS PROVIDED THROUGH CONSTRUCTION BASELINE.
6. CONSTRUCTION STAKING CONTROL: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL CONTROL POINTS AND BENCH MARKS NECESSARY TO PERFORM THE WORK.
7. IT SHOULD BE NOTED THAT ADDITIONAL UTILITY STRUCTURES MAY EXIST. THE LOCATION AND SIZES OF EXISTING PIPES, DUCTS, CONDUITS AND ANOTHER UNDERGROUND STRUCTURES SHOWN ON THE DRAWINGS ARE NOT WARRANTED TO BE EXACT NOR IS IT WARRANTED THAT ALL UNDERGROUND STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL BEAR FULL RESPONSIBILITY FOR OBTAINING ALL LOCATIONS OF UNDERGROUND STRUCTURES BEFORE BEGINNING CONSTRUCTION.
8. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO REVIEW THE SITE CONDITIONS BEFORE THE PREPARATION AND SUBMITTAL OF HIS BID. CONCRETE, BOULDERS, ROCK AND STOCK PILES OF SOIL, EXISTING EQUIPMENT LAYDOWN AREAS, AND ORGANIC MATERIALS ARE PRESENT. THE CONTRACTOR SHALL HANDLE THESE MATERIALS AS NECESSARY TO COMPLETE THE WORK OF THIS PROJECT, AND ASSUMES ALL COSTS (REFLECTED IN HIS BID) FOR THE EXECUTION OF THIS WORK.
9. DO NOT SCALE DRAWINGS UNLESS OTHERWISE NOTED. WRITTEN DIMENSIONING AND STATIONING SHALL PREVAIL. REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.
10. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REGULATIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA.)
11. THE CONTRACTOR SHALL OBTAIN AND PAY THE FEES FOR ANY AND ALL ADDITIONAL PERMITS REQUIRED FOR THE PROPER EXECUTION OF ALL PHASES OF THE PROJECT.
12. REFER TO EARTHWORK SPECIFICATION SECTION AND/OR CONSTRUCTION DETAIL SHEETS FOR BEDDING AND BACKFILL REQUIREMENTS.
13. THE CONTRACTOR SHALL BE REQUIRED TO FURNISH AND MAINTAIN A TELEPHONE NUMBER WHERE THE CONTRACTOR CAN BE REACHED 24 HOURS A DAY, 7 DAYS A WEEK, UNTIL THE PROJECT HAS REACHED SUBSTANTIAL COMPLETION.
14. THE LOCATION AND LIMITS OF ALL ON-SITE WORK AREAS SHALL BE REVIEWED/COORDINATED WITH, AND ACCEPTABLE TO PRUDENCE ISLAND WATER DISTRICT AND THE ENGINEER. THE CONTRACTOR SHALL LIMIT HIS ACTIVITIES TO THESE AREAS.
15. ALL UTILITY SIZES, LOCATIONS, AND APPURTENANCES ARE SUBJECT TO THE APPROVAL AND/OR REVISION OF THE RESPECTIVE UTILITY HAVING JURISDICTION.
16. ALL MATERIALS TO BE REMOVED MUST BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
17. ALL TEMPORARY SEDIMENTATION BASINS AND DEWATERING EQUIPMENT TO BE INSTALLED PRIOR TO ANY DEWATERING ACTIVITIES ON THE SITE AS REQUIRED.
18. ANY ALTERATIONS REQUIRED ON THESE DRAWINGS DURING CONSTRUCTION SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION AND RECORDED BY THE CONTRACTOR ON THE AS-BUILT DRAWINGS.
19. CONTRACTOR SHALL BE RESPONSIBLE FOR THE PREPARATION, SUBMITTAL AND APPROVAL OF ALL REQUIRED STORMWATER, DRAINAGE AND GROUNDWATER DISCHARGE OR CONSTRUCTION PERMITS AND PLANS, SUCH AS NPDES CONSTRUCTION PERMIT AND THE DEVELOPMENT OF SITE SPECIFIC SWPPP. SUGGESTED SWPPP NOTES ARE INCLUDED IN SECTION D OF THIS SHEET FOR CONSTRUCTOR'S USE.
20. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES WHICH HOLD WATER IN THE SYSTEM, UNLESS GRANTED APPROVAL TO DO SO BY THE PRUDENCE ISLAND WATER DISTRICT
21. ALL EQUIPMENT SHALL BE DE-ENERGIZED AND MADE SAFE BEFORE DEMOLITION.
22. THE CONTRACTOR IS ADVISED THAT HAZARDOUS CHEMICALS MAY BE PRESENT IN PROPOSED AREAS OF WORK. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO ENSURE THE SAFETY OF PERSONNEL WORKING IN AND AROUND THE AREAS.

B. DIMENSIONS AND QUANTITIES

1. ALL DIMENSIONS AND QUANTITIES SHALL BE DETERMINED OR VERIFIED BY THE CONTRACTOR.
2. THE CONTRACTOR IS ADVISED TO TAKE ALL PRECAUTIONS AND MAKE ALL INVESTIGATIONS NECESSARY TO PERFORM THE WORK. THE OWNER WILL NOT CONSIDER CONTRACTOR'S UNFAMILIARITY WITH THE PROJECT OR SITE CONDITIONS AT THE TIME OF BID AS A BASIS FOR ADDITIONAL COMPENSATION.

C. PROTECTION NOTES

1. ADEQUATE PROTECTION OF PERSONS AND PROPERTY SHALL BE PROVIDED AT ALL TIMES. THE WORK SHALL BE EXECUTED IN SUCH A WAY AS TO AVOID HAZARD TO PERSONS AND PROPERTY. WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE REQUIREMENTS OF LOCAL, STATE AND FEDERAL AUTHORITIES HAVING JURISDICTION OVER THE WORK.
2. PROVIDE ALL NECESSARY TEMPORARY PROTECTION AND BARRIERS TO SEGREGATE THE WORK AREA AND TO PREVENT DAMAGE TO ADJACENT AREAS, AS REQUIRED BY ALL JURISDICTION REGULATIONS.
3. PROVIDE PROPER PROTECTION AND BARRIERS BETWEEN THE WORK OF THIS CONTRACT AND EXISTING STRUCTURES TO REMAIN.
4. THE CONTRACTOR SHALL RESTORE ALL DAMAGED PRIVATE AND PUBLIC PROPERTY DURING CONSTRUCTION TO ITS PRE-CONSTRUCTION CONDITION, AT NO COST TO THE OWNER.
5. THE CONTRACTOR IS TO TAKE SPECIAL CARE NOT TO DAMAGE TREES, BUSHES, PLANTS, FLOWERS, STONEWALLS, FENCES, BUILDING ETC. WITHIN THE CONSTRUCTION AREA UNLESS THEY ARE NOTED TO BE REMOVED.
6. CONTRACTOR SHALL REMOVE AND REPLACE, OR REPAIR, ALL CURBS, SIDEWALKS, STONE WALLS, PAVEMENT, GRAVEL ACCESS ROAD, LANDSCAPING, TREES AND OTHER ITEMS INTENDED TO REMAIN IN PLACE THAT ARE DAMAGED BY HIS CONSTRUCTION ACTIVITIES TO AT LEAST THEIR ORIGINAL CONDITION, AND TO THE SATISFACTION OF THE PRUDENCE ISLAND WATER DISTRICT AND THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
7. THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER, SHALL REPAIR ANY EXISTING UTILITIES TO REMAIN, WHICH ARE DAMAGED DURING CONSTRUCTION.
8. IN THOSE INSTANCES WHERE POWER OR TELEPHONE POLE SUPPORT IS REQUIRED, THE CONTRACTOR SHALL PROVIDE A MINIMUM 48-HOUR NOTIFICATION TO THE RESPECTIVE UTILITY COMPANY. NO ADDITIONAL PAYMENT WILL BE PROVIDED FOR TEMPORARY BRACING OF UTILITIES.
9. ALL STRUCTURES AND PIPELINES LOCATED ADJACENT TO THE TRENCH EXCAVATION SHALL BE PROTECTED AND FIRMLY SUPPORTED BY THE CONTRACTOR UNTIL THE TRENCH IS BACKFILLED. INJURY TO ANY SUCH STRUCTURE CAUSED BY, OR RESULTING FROM, THE CONTRACTORS OPERATIONS SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE. ALL UTILITIES REQUIRING REPAIR, RELOCATION OR ADJUSTMENT AS A RESULT OF THE PROJECT SHALL BE COORDINATED THROUGH THE RESPECTIVE UTILITY AND THE TOWN.
10. OPEN TRENCHES MUST BE BACKFILLED AT THE END OF THE WORKDAY OR COVERED WITH STEEL PLATES.

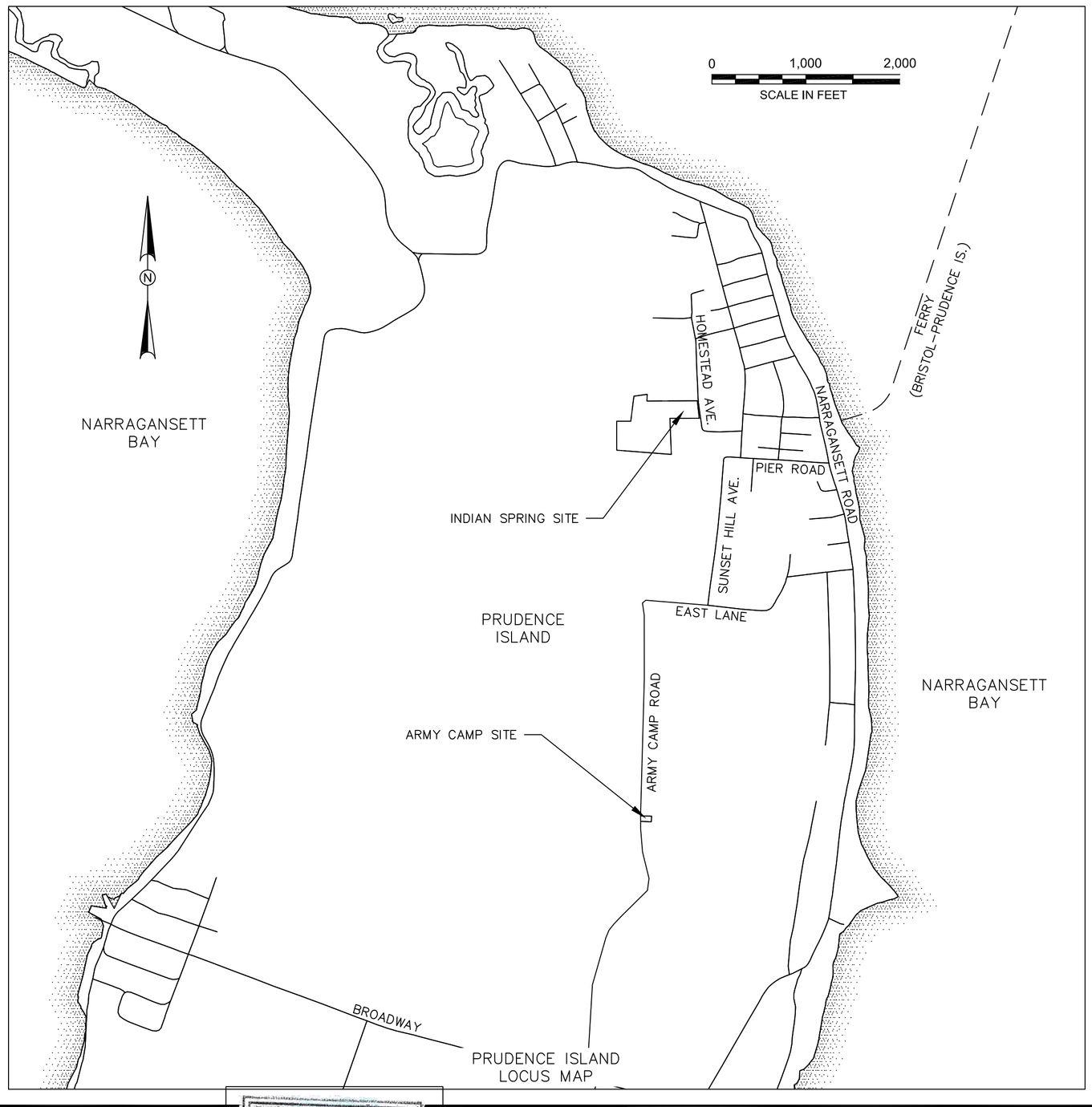
D. STORMWATER POLLUTION PREVENTION PLAN

1. DEMOLITION, SEDIMENTATION, AND EROSION CONTROL (STORMWATER POLLUTION PREVENTION PLAN):
2. THE FIRST STAGE INVOLVES ACTIVITIES NEEDED TO ADDRESS STORMWATER MANAGEMENT, EXCAVATING MATERIAL DESIGNATED FOR OFF-SITE DISPOSAL OR ON-SITE RELOCATION AND FENCING SELECTED AREAS. STAGE ONE WILL PREPARE SITE FOR CONSTRUCTION.

D. STORMWATER POLLUTION PREVENTION PLAN (CONT.)

4. TYPICAL PRACTICES TO BE APPLIED TO THE SITE INCLUDE THE FOLLOWING:
   - A. PRIOR TO EARTH DISTURBANCE IN ANY WORK AREA, CHECK PREVIOUSLY INSTALLED SILTATION BARRIERS (STRAW WATTLE) BETWEEN THE WORK AREA AND ANY WETLAND AREAS OR OTHER RECOGNIZED SENSITIVE AREA WHERE CONSTRUCTION AREA RUNOFF MAY DRAIN TOO, AND IN FULL ACCORD WITH THE DEMOLITION AND EROSION CONTROL PLANS. EROSION CONTROL MEASURES WILL BE INSPECTED AND REPAIRED AS NEEDED WEEKLY OR FOLLOWING EACH MAJOR RAINFALL EVENT (GREATER THAN 0.5") WHICHEVER IS SOONER.
   - B. DISCHARGE WATER FROM DEWATERING OPERATIONS TO A TEMPORARY SILTATION TRAP OR SEDIMENTATION BASIN. ALL EXISTING STOCKPILES OF MATERIAL AS SHOWN ON THE DRAWINGS SHALL BE STABILIZED AND SURROUNDED BY EROSION CONTROLS.
   - C. PROVIDE TEMPORARY BERMS AND SWALES TO DIVERT SURFACE WATER AWAY FROM THE AREAS THAT WILL BE EXPOSED BY CONSTRUCTION ACTIVITY TO MINIMIZE THE AMOUNT OF SURFACE WATER COMING INTO CONTACT WITH EXPOSED SOILS. PROVIDE STABLE OUTLETS FOR THESE DEVICES, AND LINE OR VEGETATE THESE DIVERSIONS TO PROVIDE FOR THEIR STABILITY DURING CONSTRUCTION.
   - D. LIMIT THE EXTENT OF EXPOSED SOILS TO AREAS THAT CAN BE WORKED AND RESTABILIZED WITHIN THE CONSTRUCTION SEASON AND DURING THE SPECIFIC CONSTRUCTION PHASE.
   - E. WHEN EARTHWORK CONSTRUCTION ACTIVITY IN AN AREA IS COMPLETE, STABILIZE THE AREA WITH A SUITABLE SURFACE AS DESCRIBED BELOW.
   - F. ALL CONSTRUCTION VEHICLES EXITING THE SITE WILL BE HOSED DOWN (AS NEEDED) TO REMOVE ALL SOIL. REFER TO CIVIL CONSTRUCTION DETAILS FOR ENTRANCE PAD CONSTRUCTION DETAIL, WHICH SHALL BE MAINTAINED DURING CONSTRUCTION.
   - G. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE CONTROL OF DUST AND IMPLEMENT CONSTRUCTION MEASURES WITH THE INTENT TO PRECLUDE THE GENERATION OF EXCESS DUST, AND AS DIRECTED BY THE OWNER'S REPRESENTATIVE.
   - H. EXISTING HAUL ROADS AND PARKING LOTS AND ROADWAYS ADJACENT TO THE SITE WILL BE SWEPT BY A MOTORIZED STREET SWEEPER WEEKLY OR AS NEEDED TO REMOVE LOSE SOIL MATERIALS ACCUMULATED ON PAVED SURFACES. IN ADDITION TO THESE PRACTICES, THE CONTRACTOR SHALL FOLLOW THE SPECIAL PRACTICES DESCRIBED BELOW. COMPLY WITH THE DIRECTIONS OF THE APPLICANT'S REPRESENTATIVE TO ADDRESS EROSION AND SEDIMENTATION CONDITIONS THAT MAY ARISE ON A CASE BY CASE BASIS DURING CONSTRUCTION.
5. THE FOLLOWING IS A DESCRIPTION OF MINIMUM CONSTRUCTION REQUIREMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITIES WITH REGARD TO DETERMINING THE ADEQUACY OF MEANS AND METHODS OF CONSTRUCTION.
6. THE ANTICIPATED CONSTRUCTION SEQUENCING IS DESCRIBED IN SECTION 01010 OF THE SPECIFICATIONS. THE CONTRACTOR SHALL SUBMIT A HIS SEQUENCE OF WORK FOR THE OVERALL PROJECT FOR THE ENGINEER'S REVIEW AND APPROVAL.
7. MAINTENANCE:

   DURING THE PERIOD OF CONSTRUCTION:
   - A. TEMPORARY DEWATERING SEDIMENTATION BASINS, IF REQUIRED, WILL BE CHECKED AFTER EACH SIGNIFICANT RAINFALL AND CLEANED AS NEEDED TO RETAIN STORAGE CAPACITY.
   - B. TEMPORARY DRAINAGE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY.
   - C. THE HAYBALE AND SILTATION FENCING BARRIERS AND OTHER EROSION AND SEDIMENT CONTROL MEASURES/DEVICES SHALL BE INSPECTED, CLEANED, REPLACED AND/OR REPAIRED AS NECESSARY, WEEKLY AND AFTER EACH SIGNIFICANT RAINFALL.



EXISTING LEGEND

- 100 — CONTOUR LINE
- CHAIN LINK FENCE
- OHW — OVERHEAD WIRES
- E — UNDERGROUND ELECTRIC
- BRUSH/SHRUB LINE
- D — DRAINAGE PIPE
- W — WATER PIPE
- PROPERTY LINE (APPROXIMATE)
- 50-FT PROPERTY LINE SET BACK
- EDGE OF GRAVEL ROAD
- EDGE OF SOIL STOCKPILE
- EDGE OF LAYDOWN AREA (EQUIPMENT OR PIPE)
- GRAVEL ROAD
- STONE WALL
- TREE (DECIDIOUS) WITH CALIPER SIZE
- TREE (EVERGREEN) WITH CALIPER SIZE
- W — DRINKING WATER WELL
- TEST PIT
- SIGN
- IRON ROD
- MAIL BOX
- BENCH MARK
- HUB & TACK
- WV — GATE VALVE (WATER)
- UTILITY POLE
- MW — MONITORING WELL
- TEST PIT

PROPOSED LEGEND

- 100 — CONTOUR LINE
- OHW — OVERHEAD WIRES
- E — UNDERGROUND ELECTRIC
- E — UNDERGROUND ELECTRIC DUCT BANK
- BRUSH/SHRUB LINE
- D — DRAINAGE PIPE
- W — WATER PIPE
- LIMIT OF WORK
- EROSION CONTROL BARRIER
- DENSE GRADED CRUSHED STONE
- WV — GATE VALVE (WATER)
- REDUCER FITTING (WATER)
- YARD HYDRANT
- 176.23 — SPOT ELEVATION

FOR PERMITTING

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS

NO.	DATE	DESCRIPTION

LISA GOYER — RHODE ISLAND — No. 11536 — REGISTERED PROFESSIONAL ENGINEER (CIVIL) — 12/30/21

PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	RJK
CHECKED BY:	SCO
DRAWN BY:	RJK
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE: LEGEND & GENERAL NOTES

DRAWING NO.: C-1

SHEET NO. 2 OF 26

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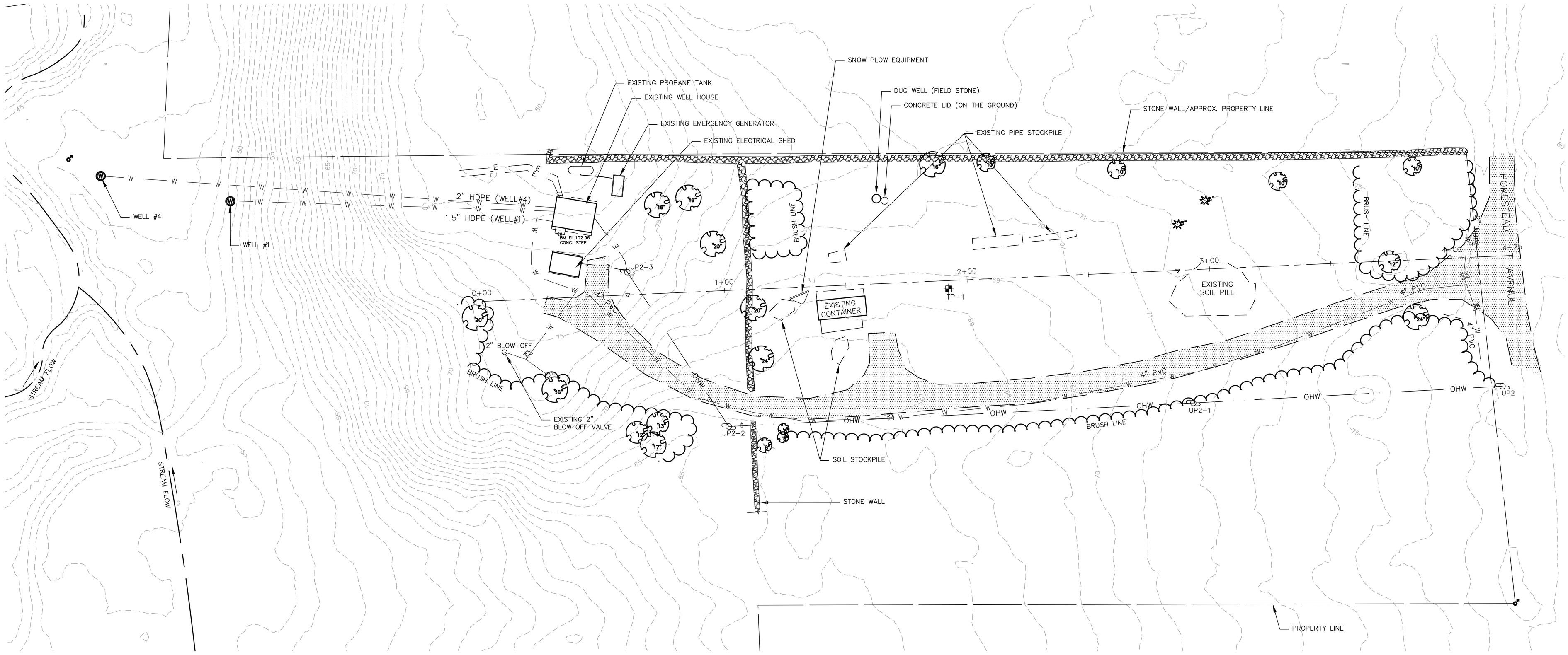

GENERAL NOTES

1. HORIZONTAL AND VERTICAL DATUM IS BASED ON LOCAL DATUM.
2. PROJECT BENCH MARK ESTABLISH IN THE MIDDLE OF THE CONCRETE STEP TO THE PUMP HOUSE. BENCH MARK ELEVATION IS 102.96.
3. CONSTRUCTION BASELINE HUB & TACK ESTABLISHED AT STA.0+60.00 AND STA.2+86.86.

N

0 20' 40'
SCALE IN FEET

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WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
INDIAN SPRING
EXISTING CONDITIONS PLAN

DRAWING NO.:
C-2

SHEET NO. 3 OF 26

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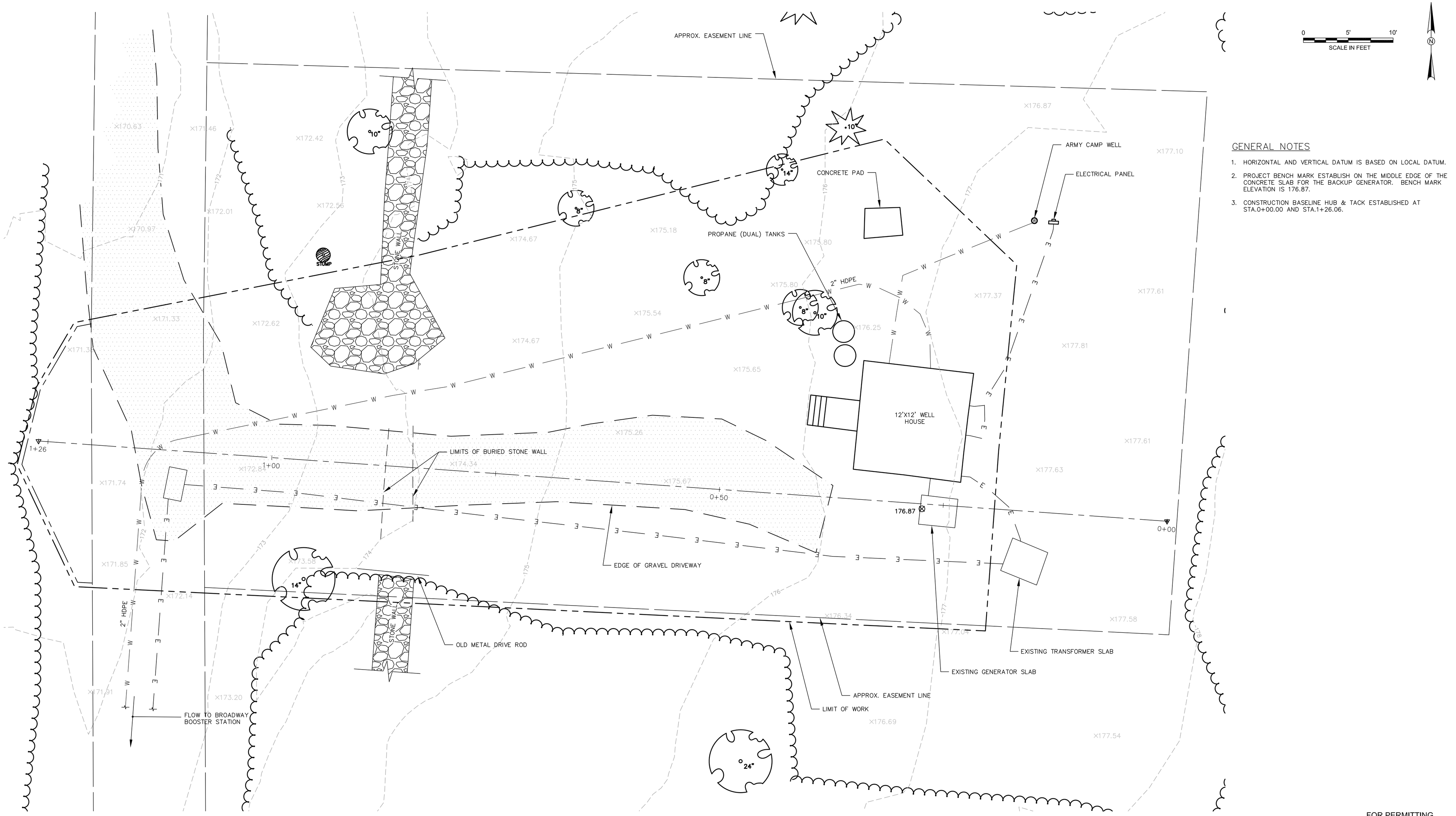

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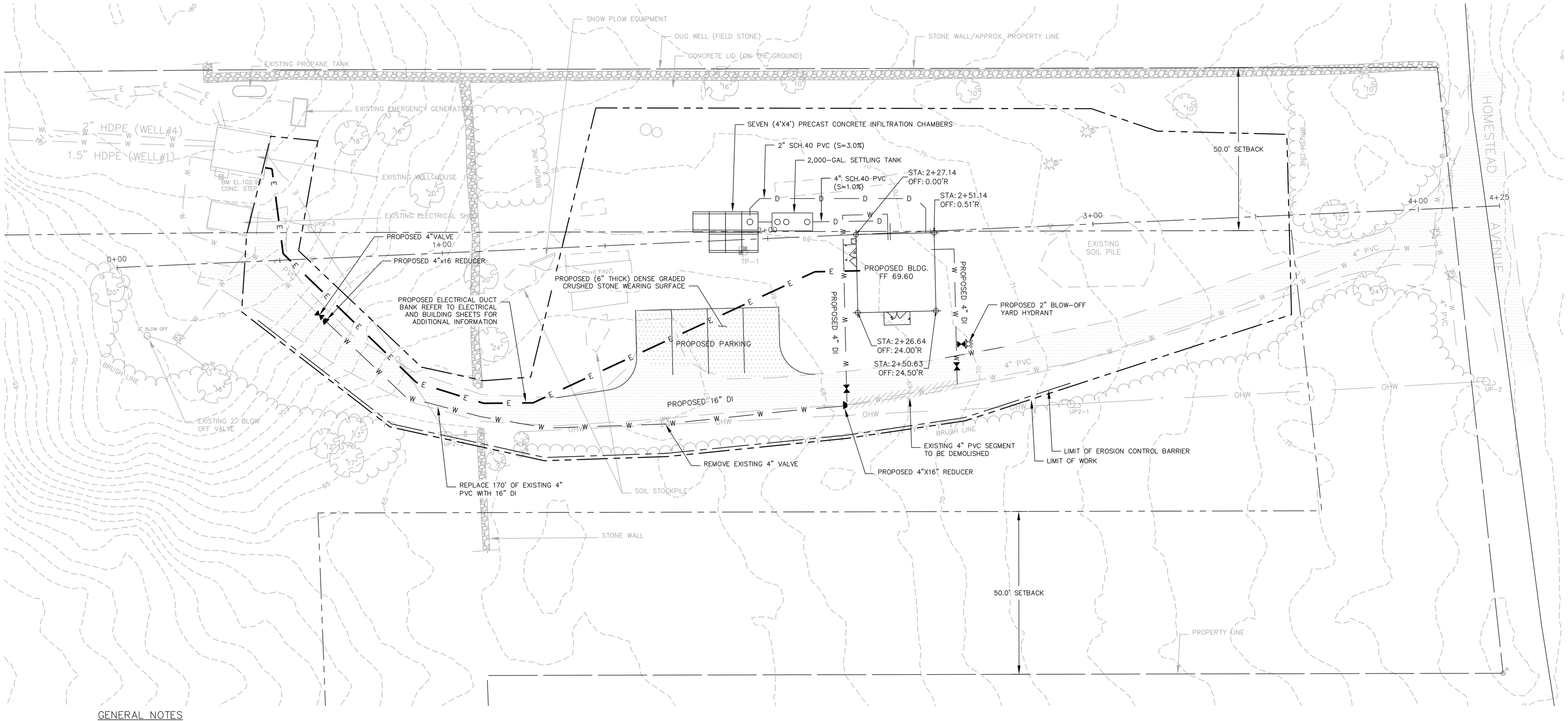
WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
ARMY CAMP
EXISTING CONDITIONS PLAN

DRAWING NO.:
C-3

SHEET NO. 4 OF 26



GENERAL NOTES

1. THE STATION AND OFFSET FROM THE CONSTRUCTION BASELINE FOR THE PROPOSED BUILDING CORNERS ARE AS FOLLOWS:

   NE CORNER – STA.2+27.14, 0.00'R
   NW CORNER – STA.2+51.14, 0.51'R
   SW CORNER – STA.2+50.64, 24.50'R
   SE CORNER – STA.2+26.64, 24.00'R

2. SUBSURFACE EXPLORATION WAS PERFORMED NOVEMBER 1, 2021 BY MEANS OF TEST PITTING. AS SHOWN ON THIS SHEET, TEST PIT #1 (TP-1) WAS PERFORMED WEST OF THE PROPOSED BUILDING. A SUMMARY OF SOIL CONDITIONS ARE ENCOUNTERED ARE AS FOLLOWS:

DEPTH	SOIL DESCRIPTION
0.0'–1.0'	MOIST, BLACK, TOPSOIL, WITH ROOT MATTER FROM VEGETATED (GRASSED) GROUND SURFACE.
1.0'–7.0'	DRY, TAN, FINE SAND, TRACE SILT.
7.0'–9.5'	DRY, GRAY, FINE SAND, TRACE SILT.
9.5'–10.5'	DRY, GRAY, FINE SAND, TRACE SILT AND OCCASIONAL COBBLE.
10.5'	BOTTOM OF EXCAVATION

3. REFER APPENDIX IN CONTRACT DOCUMENTS FOR TEST PIT LOG INFORMATION.

N

0 15' 30'
SCALE IN FEET

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PROJECT NO.:	119.21.01
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SCALE:	AS NOTED
DESIGNED BY:	RJK
CHECKED BY:	SCO
DRAWN BY:	RJK
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
INDIAN SPRING
PROPOSED CONDITIONS
PLAN

DRAWING NO.:
C-4

SHEET NO. 5 OF 26

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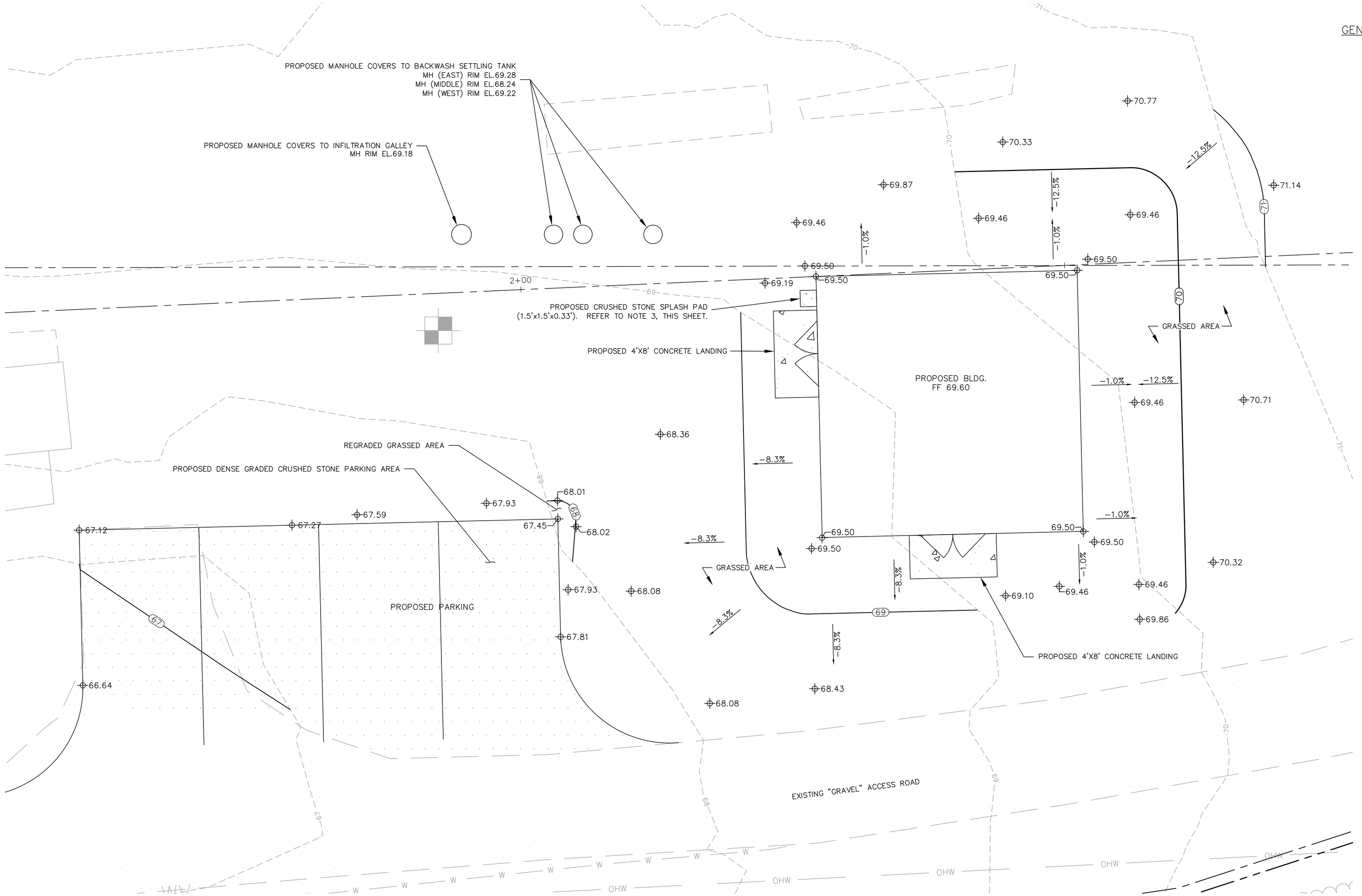

GENERAL NOTES

1. CONTRACTOR SHALL LOAM, SEED AND FERTILIZE ALL DISTURBED VEGETATIVE AREAS OUTSIDE THE LIMIT OF WORK, AT NO COST TO THE OWNER. LOAM THICKNESS SHALL BE 4–INCH MINIMUM.
2. UNDER THE LUMP SUM BID ITEM, ALL NEW VEGETATIVE SURFACE AREAS CALLED OUT WITHIN THE LIMITS OF WORK AND ON THE PLANS SHALL BE COMPRISED OF 4–INCH LOAM, SEED, FERTILIZER AND WHERE APPLICABLE SHALL INCLUDE EROSION CONTROL BLANKET. IN ADDITION, THE CONTRACTOR SHALL ALSO BE PREPARED TO LOAM, SEED AND FERTILIZE ANY ANY AREA DISTURBED AS PART OF CONSTRUCTION ACTIVITY, AT NO ADDITIONAL COST TO THE OWNER.
3. PROPOSED CRUSHED STONE SPLASH PAD, LOCATED NEAR THE NORTHWEST CORNER OF THE PROPOSED BUILDING, SHALL BE CONSTRUCTED OF 4–INCH THICK LAYER OF 3/4–INCH CRUSHED STONE, IN A 1.5–FT BY 1.5–FT FOOTPRINT. MIDDLE OF CRUSHED STONE PAD IS TO BE CENTERED BELOW THE PROPOSED PROCESS PIPING IN THIS LOCATION. CRUSHED STONE PAD SHALL BE INSTALLED OVER A 4–OZ, NONWOVEN GEOTEXTILE. GEOTEXTILE IS TO BE PLACED ACROSS THE BOTTOM OF THE PAD AND EXTEND UP THE CRUSHED STONE SIDEWALL TO THE SURFACE.

N

0 15' 30'
SCALE IN FEET

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS

NO.	DATE	DESCRIPTION

LISA GOYER
RHODE ISLAND
No. 11536
REGISTERED PROFESSIONAL ENGINEER
CIVIL
12/30/21

PROJECT NO.:	119.21.01
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WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
INDIAN SPRING
PROPOSED GRADING
PLAN

DRAWING NO.:
C-5

SHEET NO. 6 OF 26

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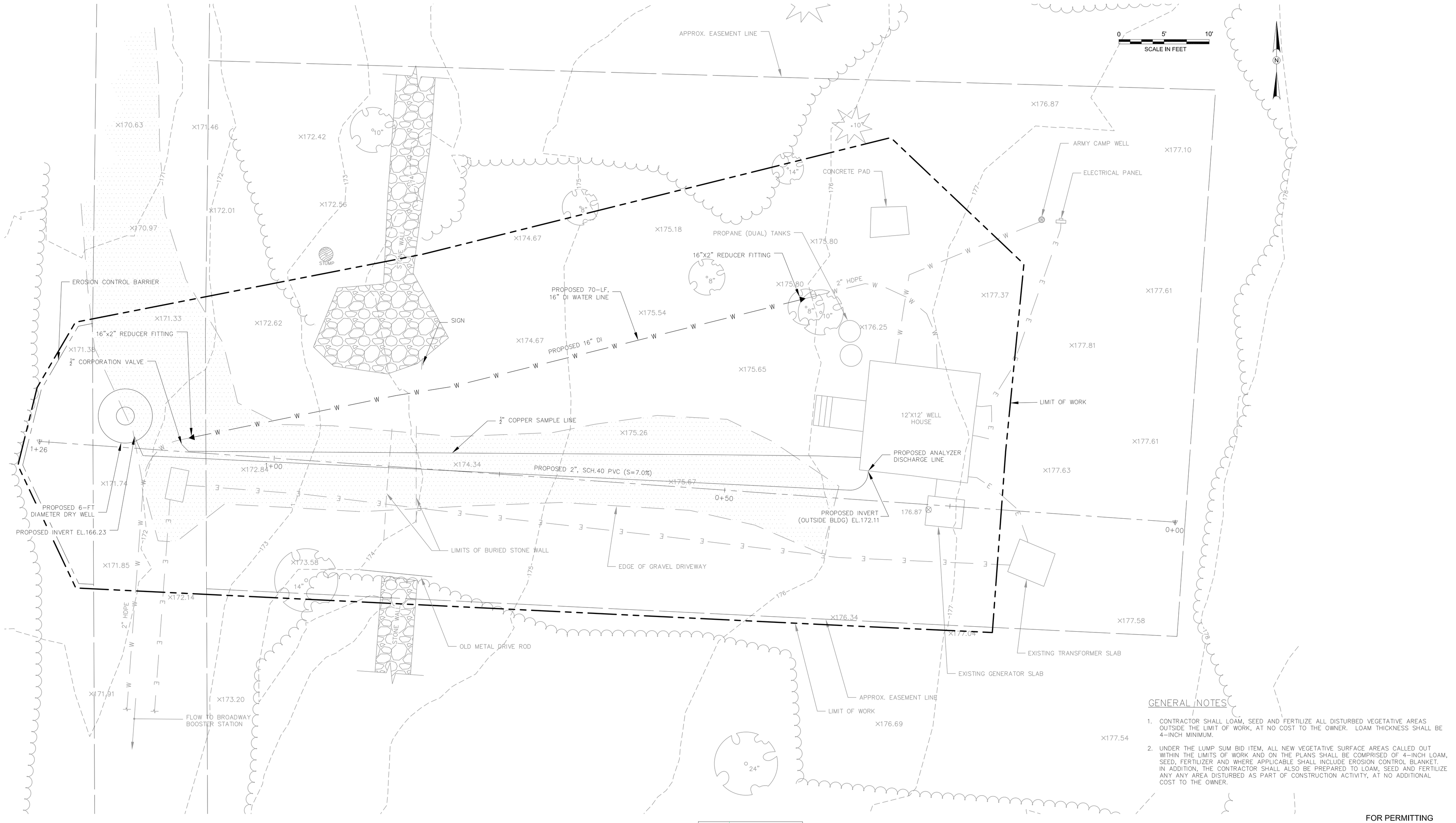

GENERAL NOTES

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CIVIL
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WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
ARMY CAMP
PROPOSED CONDITIONS PLAN

DRAWING NO.:
C-6

SHEET NO. 7 OF 26

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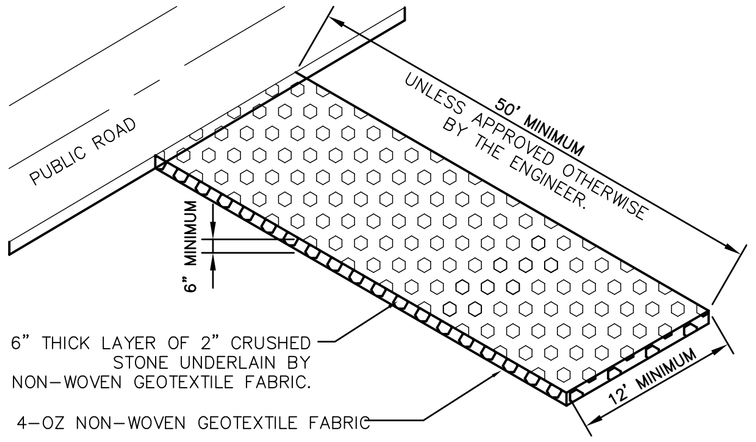
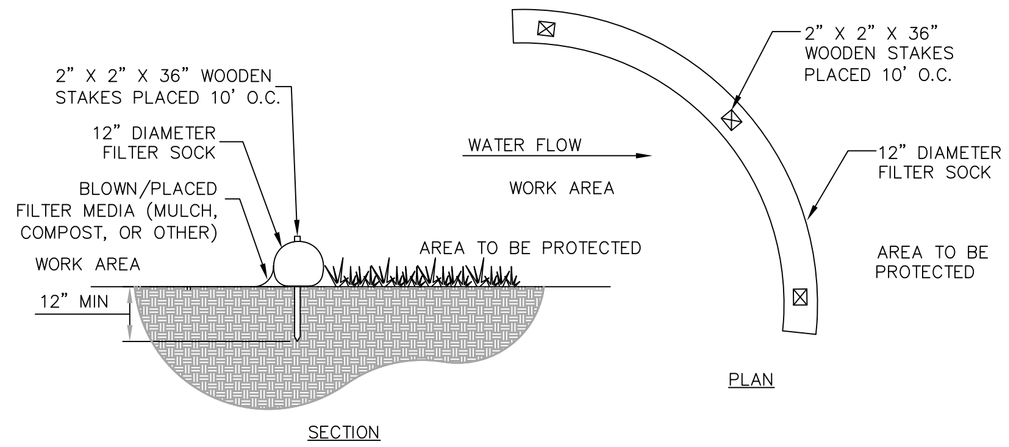


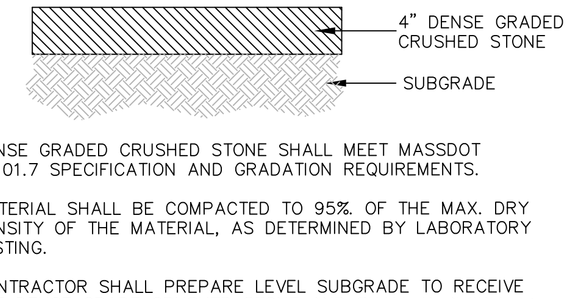
ENTRANCE PAD NOTES:

1. NON-WOVEN GEOTEXTILE FABRIC SHALL BE PLACED OVER THE ENTIRE AREA OF THE CONSTRUCTION ENTRANCE PRIOR TO PLACING STONE.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING SEDIMENT ONTO PUBLIC RIGHT-OF WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
3. AT THE COMPLETION OF CONSTRUCTION THE CONTRACTOR SHALL REMOVE THE CONSTRUCTION ENTRANCE PAD AND RESTORE THE SURFACE TO ORIGINAL CONDITION.

CONSTRUCTION ENTANCE PAD
SCALE: NOT TO SCALE

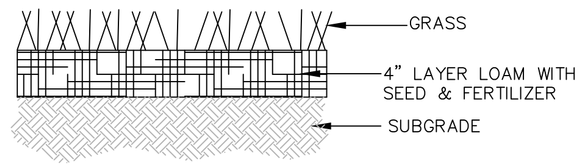


SEDIMENTATION CONTROL BARRIER
SCALE: NOT TO SCALE



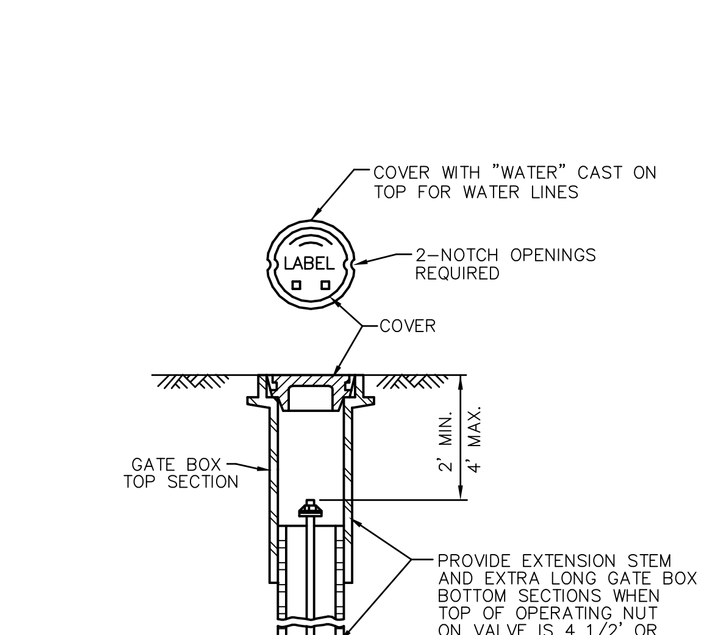
NOTE:
1. DENSE GRADED CRUSHED STONE SHALL MEET MASSDOT M2.01.7 SPECIFICATION AND GRADATION REQUIREMENTS.
2. MATERIAL SHALL BE COMPACTED TO 95% OF THE MAX. DRY DENSITY OF THE MATERIAL, AS DETERMINED BY LABORATORY TESTING.
3. CONTRACTOR SHALL PREPARE LEVEL SUBGRADE TO RECEIVE THE DENSE GRADE CRUSHED STONE AND SHALL PERFORM AT A MINIMUM PROOF ROLLS THE SUBGRADE FOUR TIMES WITH A 10-TON SMOOTH DRUM ROLLER. BEFOR PLACING DENSE GRADE CRUSHED STONE.

DENSE GRADED CRUSHED STONE ACCESS ROAD DETAIL
SCALE: N.T.S.



NOTES
1. ALL GRASSED SURFACE SLOPES STEEPER THAN 7H:1V SLOPE SHALL INCLUDE THE INSTALLATION OF EROSION CONTROL BLANKET AFTER THE LOAM, SEED AND FERTILIZER HAVE BEEN PLACE.
2. MATERIAL SPECIFICATIONS FOR THE EROSION CONTROL BLANKET SHALL MEET CURLEX II EROSION CONTROL BLANKET AS MANUFACTURED BY AMERICAN EXCELSIOR COMPANY, OR EQUAL.

GRASSED VEGETATED SURFACE
SCALE: NOT TO SCALE



1) MINIMUM SURFACE AREA OF CONCRETE THRUST BLOCK AGAINST UNDISTURBED EARTH – SF (SQUARE FEET)
2) MINIMUM RESTRAINED LENGTH OF PIPE ON EITHER SIDE OF FITTING – LF (LINEAR FEET)

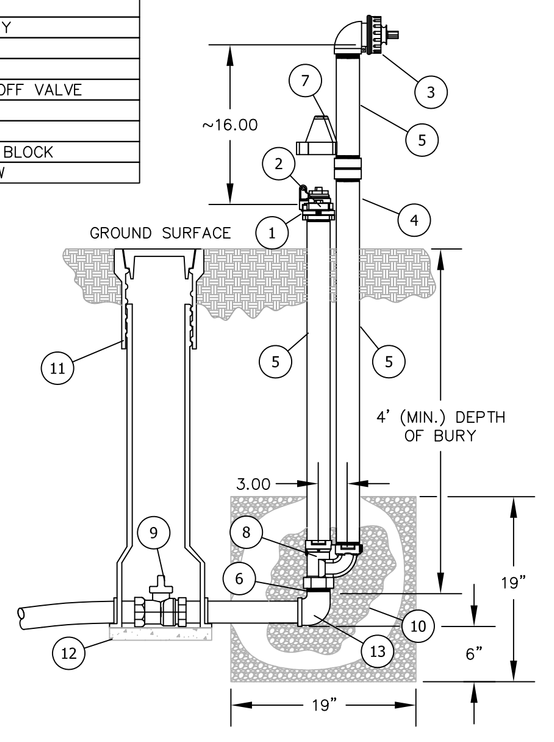
PIPE SIZE	PLUG SF	PLUG LF	TEE SF	TEE LF	90° BEND SF	90° BEND LF	45° BEND SF	45° BEND LF	22 1/2° BEND SF	22 1/2° BEND LF	11 1/4° BEND SF	11 1/4° BEND LF
6"	2.8	37	2.8	32	4.0	18	2.1	7	1.1	4	1.0	2
8"	4.8	48	4.8	43	6.8	23	3.7	10	1.9	5	1.0	2
10"	7.3	58	7.3	53	10.3	28	5.6	12	2.8	6	1.4	3
12"	10.3	69	10.3	63	14.5	33	7.9	14	4.0	6	2.0	3
16"	17.8	89	17.8	83	25.2	42	13.6	17	7.0	8	3.5	4
20"	27.5	108	27.5	102	38.9	51	21.0	21	10.7	10	5.4	5
24"	39.2	127	39.2	121	55.4	59	30.0	25	15.3	12	7.7	6

NOTES:
1. THE "SF" VALUES IN THE ABOVE TABLE ARE BASED ON 3,000 P.S.F. SOIL BEARING CAPACITY, 150 P.S.I. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY.
2. THE "LF" VALUES IN THE ABOVE TABLE ARE BASED ON A TYPE 3 LAYING CONDITION, A SAND SILT SOIL DESIGNATION, A 5 FOOT RUN LENGTH, 150 P.S.I. TEST PRESSURE AND A 1.5 FACTOR OF SAFETY.

RESTRAINT AT FITTINGS
SCALE: NOT TO SCALE

GATE VALVE AND VALVE BOX DETAIL
SCALE: N.T.S.

ITEM	ITEM / DESCRIPTION
1	TOP CAP
2	SLOTTED OPERATING NUT
3	2-1/2" NST OUTLET
4	2" COUPLING
5	2" STEEL PIPE
6	INLET VALVE BODY
7	LOCKING COVER
8	DRAIN HOLE
9	HYDRANT SHUT-OFF VALVE
10	CRUSHED ROCK
11	VALVE BOX
12	SOLID CONCRETE BLOCK
13	2" STREET ELBOW



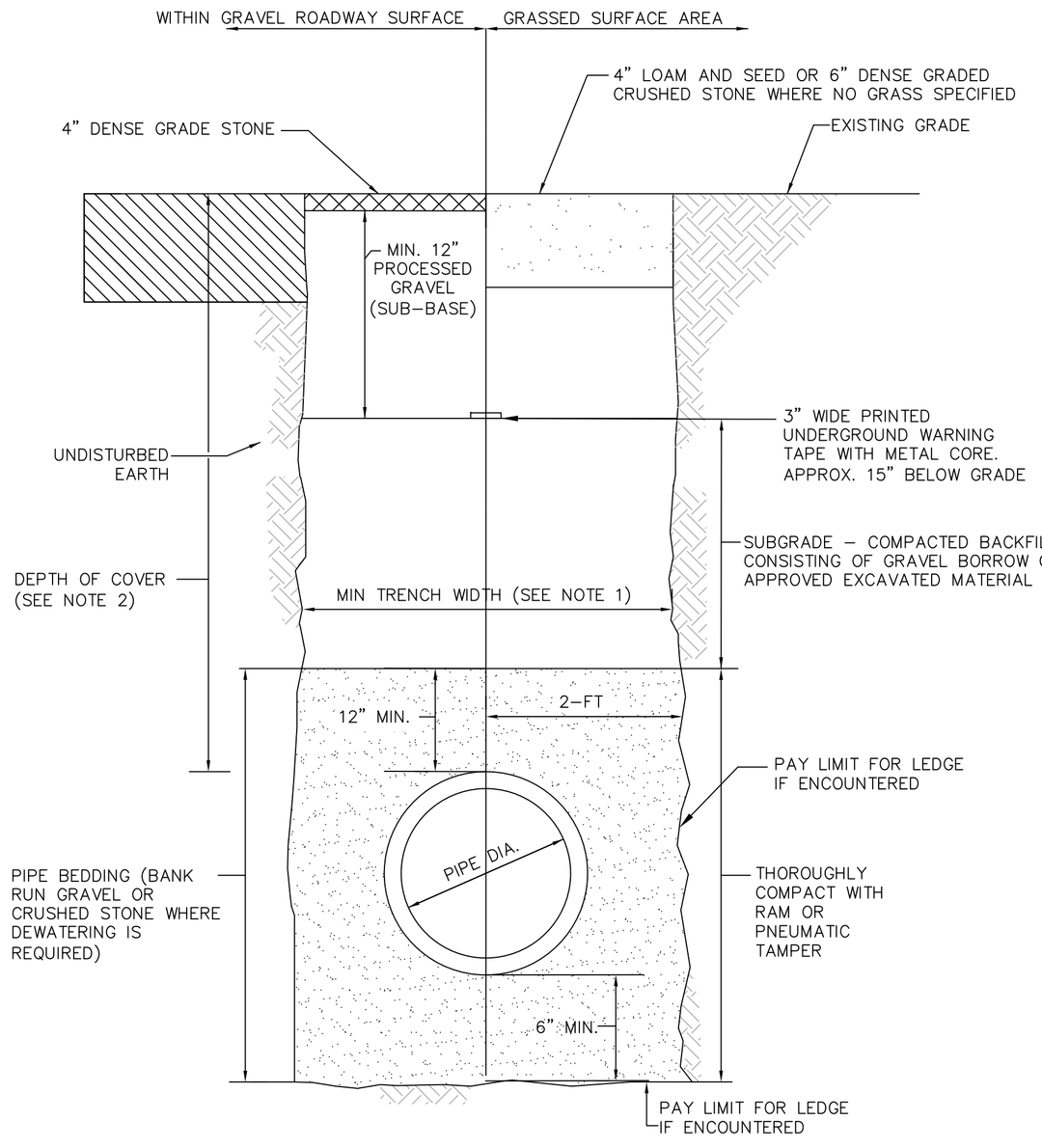
HYDRANT NOTES:
BLOW-OFF HYDRANT SHALL BE SELF-DRAINING, NON-FREEZING TYPE WITH A 4' DEPTH OF BURY. HYDRANT SHALL BE FURNISHED WITH A 2" FIP VERTICAL INLET CONNECTION, A NON-TURNING OPERATING ROD AND SHALL OPEN TO THE LEFT. OUTLET SHALL BE 2-1/2" NST OR SMALLER (MUST SPECIFY ON ORDER WITH CAP AND EXTEND A MINIMUM OF 12" ABOVE THE GROUND.

ALL WATER FLOW SHALL PASS THRU A 2" STEEL PIPE AND WATERWAY. THE OPERATING DRIVE MECHANISM SHALL RAISE AND LOWER A PLUNGER TO CONTROL THE FLOW OF WATER AND SHALL BE SERVICEABLE FROM ABOVE GROUND WITH NO DIGGING, WITH ALL WORKING PARTS BEING BRASS, GALVANIZED STEEL, OR PVC. SAID OPERATING DRIVE SHALL OPERATE WITH A STANDARD UNIVERSAL SLOTTED VALVE WRENCH. WHEN OPEN THE FLOW OF WATER SHALL BE UNOBSTRUCTED AND THE DRAIN HOLE SHALL BE COVERED.

HYDRANT SHALL BE SET IN 4 CUBIC FEET OF CRUSHED STONE TO ALLOW FOR PROPER DRAINAGE OF HYDRANT. CRUSHED STONE SHALL BE WRAPPED WITH 4-OZ. NONWOVEN GEOTEXTILE. ALL GEOTEXTILE SEAMS SHALL HAVE MINIMUM 12" LAP. RECOMMENDATION OF THE AWWA SHOULD BE FOLLOWED WHEN INSTALLING THE HYDRANT.

THE MAINGUARD MODEL #77 BLOW-OFF HYDRANT AS MANUFACTURED BY THE KUPFERLE FOUNDRY, ST. LOUIS MO. 63102 OR APPROVED EQUAL.

2-INCH BLOW-OFF HYDRANT
SCALE: NOT TO SCALE



TYP. TRENCH NOTES:

1. MIN. COVER 5' COVER FOR WATER MAIN
2. MIN. 3' COVER FOR STORM DRAIN

TYPICAL TRENCH DETAIL
SCALE: N.T.S.

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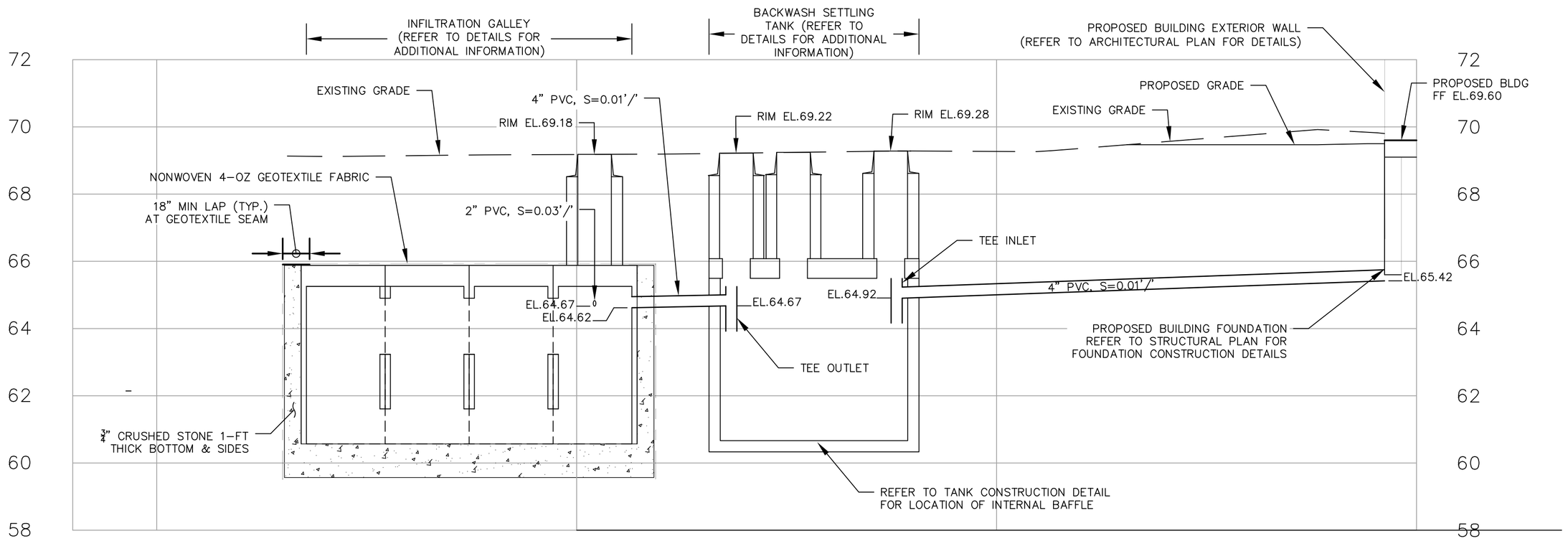
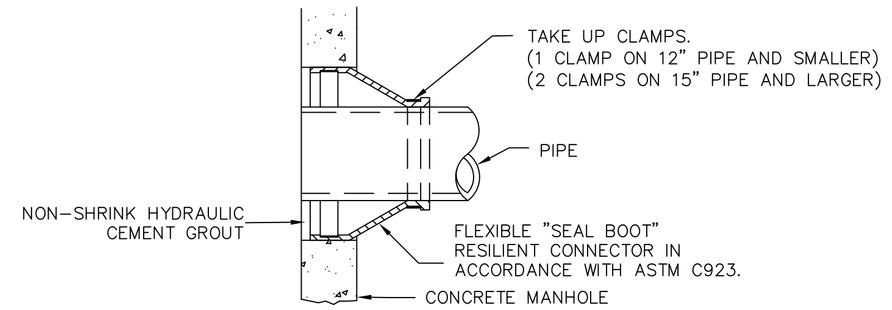
SHEET NO. 8 OF 26



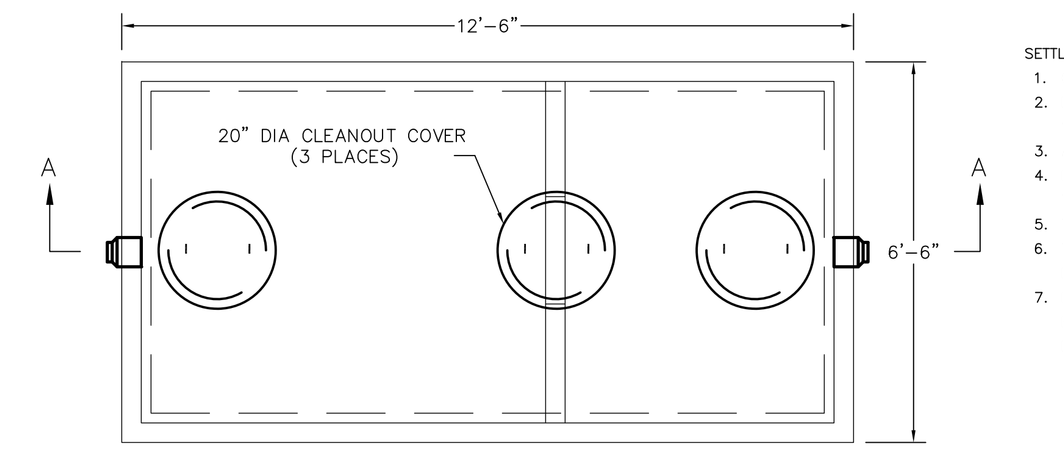
FILTER BACKWASH INFILTRATION SYSTEM - SECTION

SCALE: N.T.S.



TYPICAL PIPE BOOT SEAL

SCALE: N.T.S.

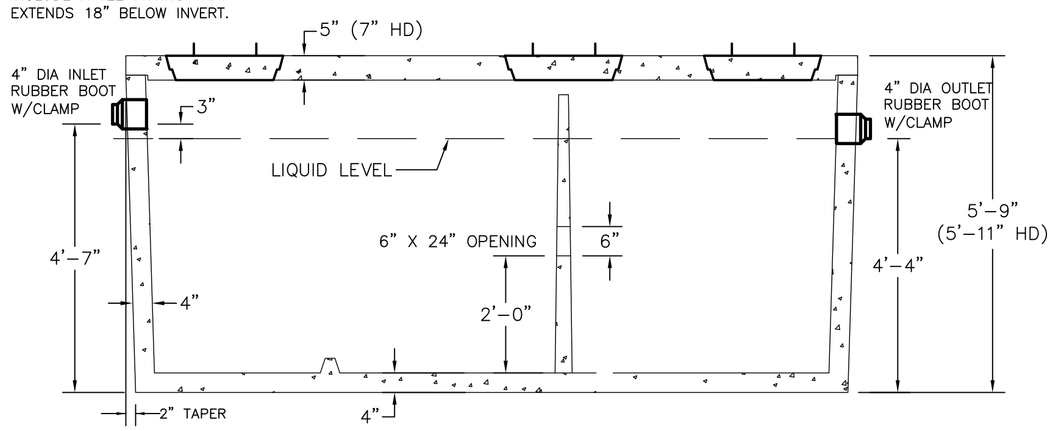


PLAN VIEW

SETTLING TANK NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGN CONFORMS WITH 310 CMR, SECTION 15.00 DEP TITLE 5 REGS FOR SEPTIC TANKS
3. ALL REINFORCEMENT PER ASTM C1227.
4. BAFFLE WALL OPTIONAL FOR TWO COMPARTMENT TANKS.
5. TEES AND GAS BAFFLE SOLD SEPARATELY.
6. TONGUE & GROOVE JOINT SEALED WITH BUTYL RESIN.
7. IF COVER EXCEEDS 4 FEET, HEAVY DUTY TANK REQUIRED. ALSO AVAILABLE IN AASHTO HS-20 LOADING.

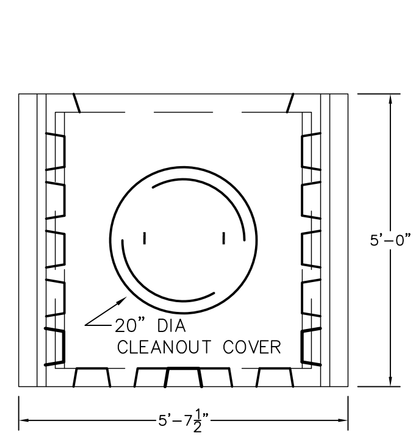
NOTE:
TANK INLET & OUTLET PIPING TO INCLUDE A TEE FITTING THAT EXTENDS 18" BELOW INVERT.



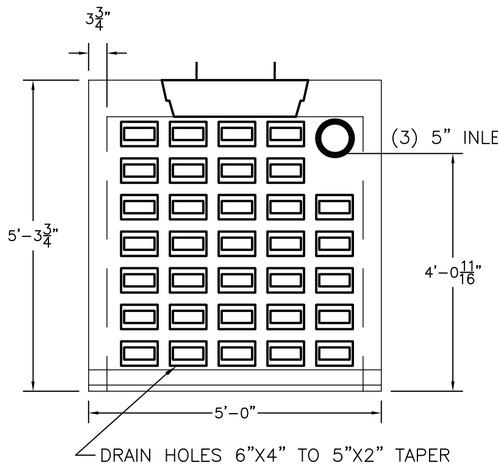
SECTION VIEW A-A

BACKWASH (2,000 GALLON) SETTLING TANK DETAIL

SCALE: N.T.S



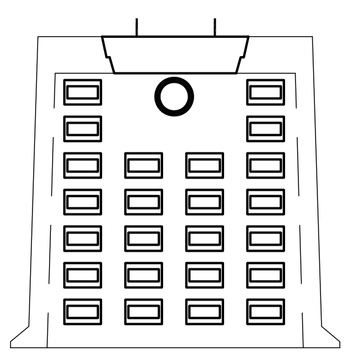
PLAN VIEW



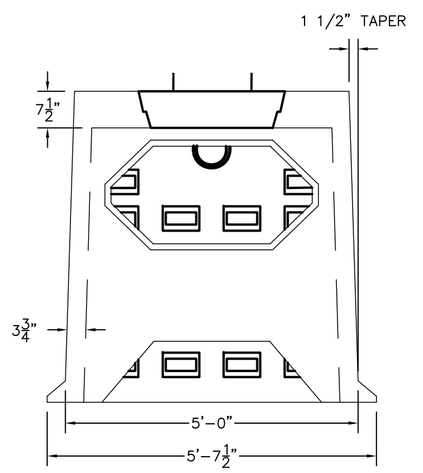
SIDE VIEW

GALLEY NOTES:

1. CONCRETE: 4,000 PSI MINIMUM AFTER 28 DAYS.
2. DESIGNED FOR AASHTO HS-20 LOADING, 1 TO 3 FEET COVER.
3. GALLEY AVAILABLE IN BOTH END AND CENTER SECTIONS. CENTER SECTIONS HAVE LARGE OPENING IN BOTH THE BACK AND FRONT SIDES.



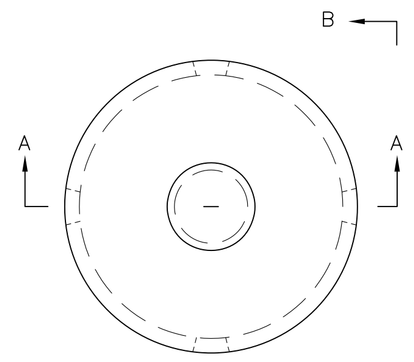
FRONT VIEW



SIDE VIEW

BACKWASH INFILTRATION (4'X4') GALLEY DETAIL

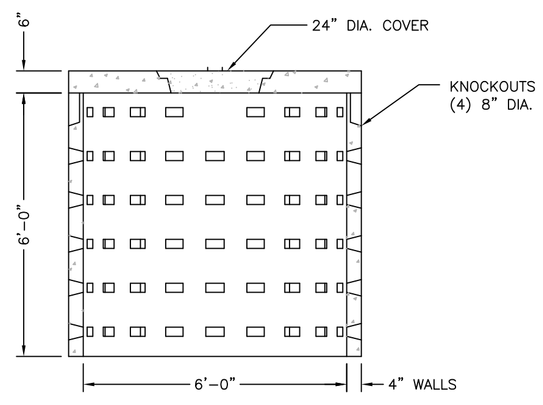
SCALE: N.T.S.



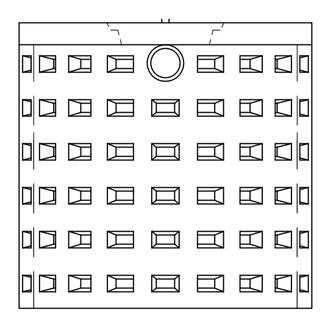
PLAN VIEW

DRY WELL NOTES:

1. CONCRETE: 28 DAY COMPRESSIVE STRENGTH f'e = 4,000 PSI
2. STEEL REINFORCEMENT: ASTM A-615, GRADE 60
3. COVER TO STEEL-1" MINIMUM
4. DESIGN LOADING-AASHTO HS-20
5. EARTH COVER-0 to 5 Feet MAX.
6. CONSTRUCTION JOINT-LAPPED



SECTION VIEW A-A



SECTION VIEW B-B

6-FT DIAMETER DRY WELL

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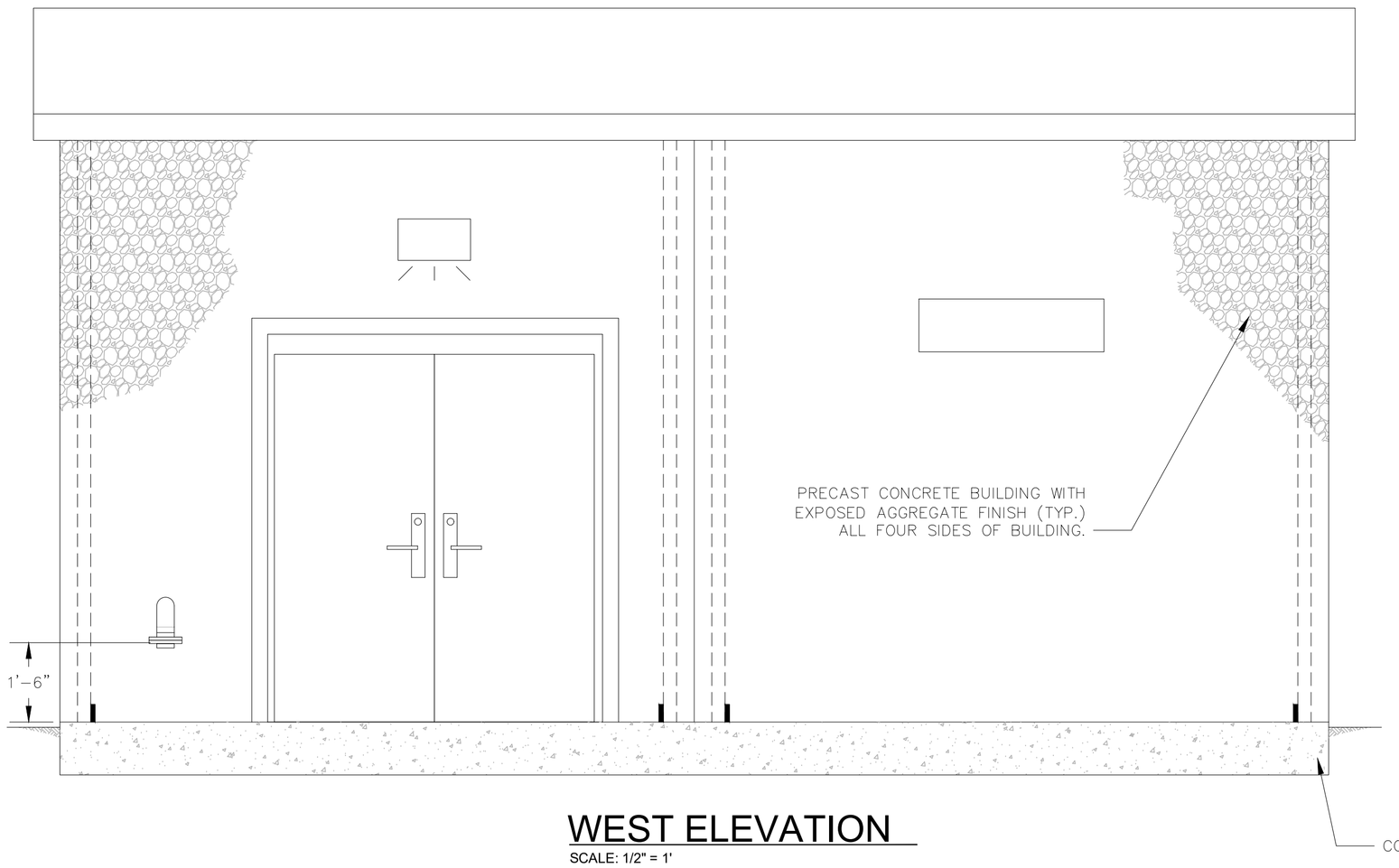
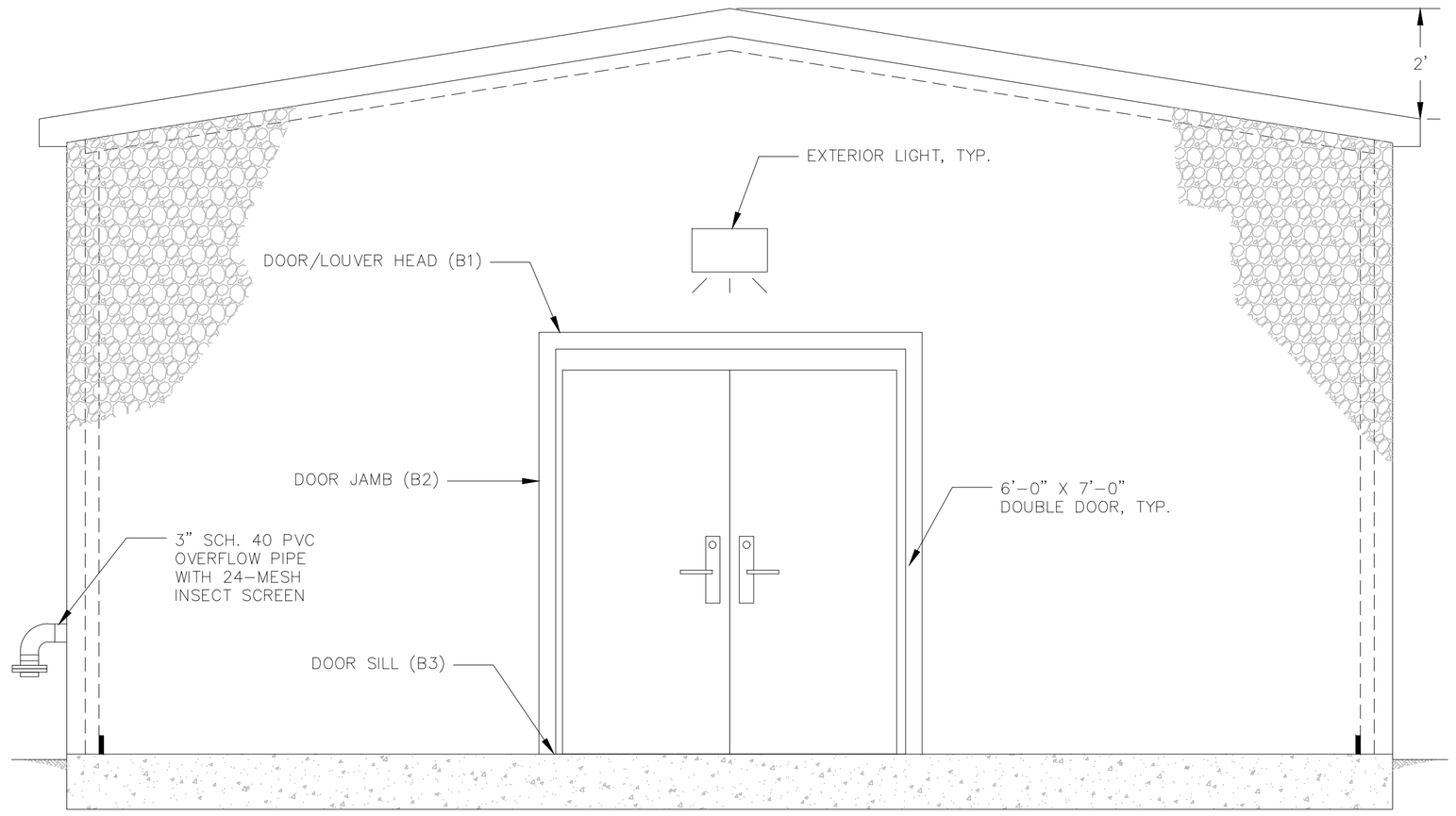


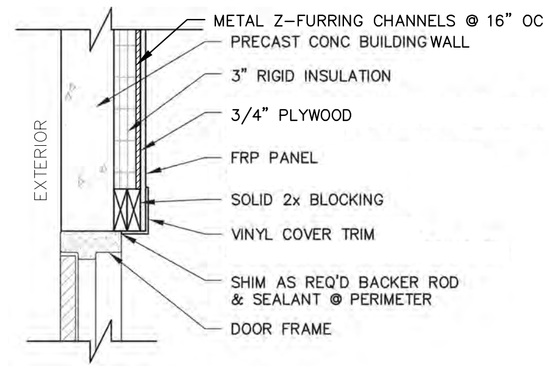
WEST ELEVATION

SCALE: 1/2" = 1'



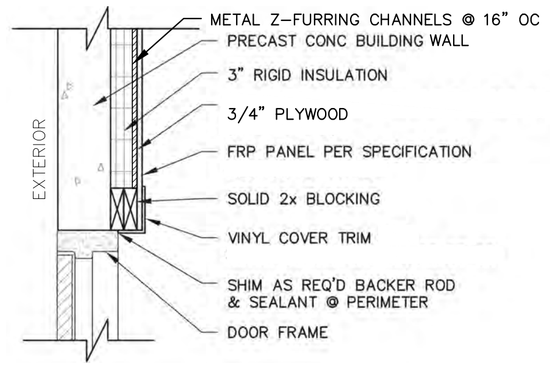
SOUTH ELEVATION

SCALE: 1/2" = 1'



B1 - DOOR AND LOUVER HEAD DETAIL

SCALE: N.T.S.



B2 - DOOR JAMB DETAIL

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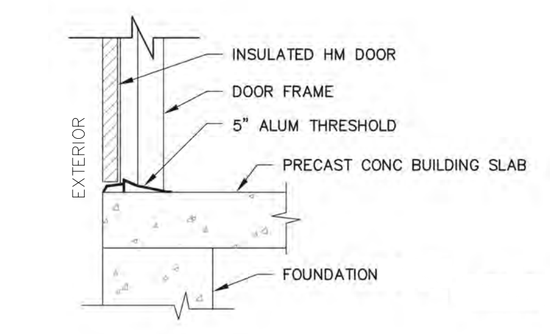
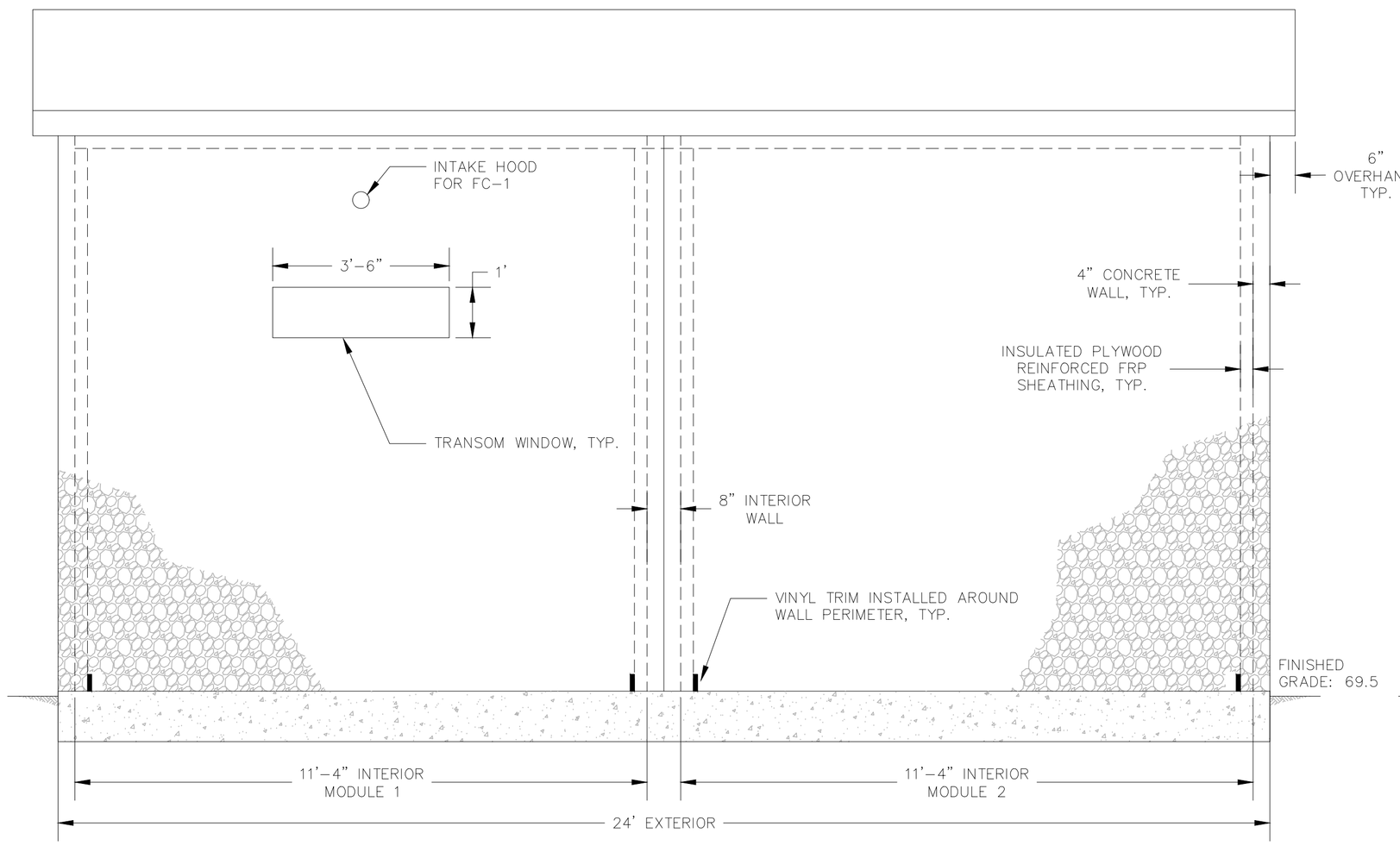


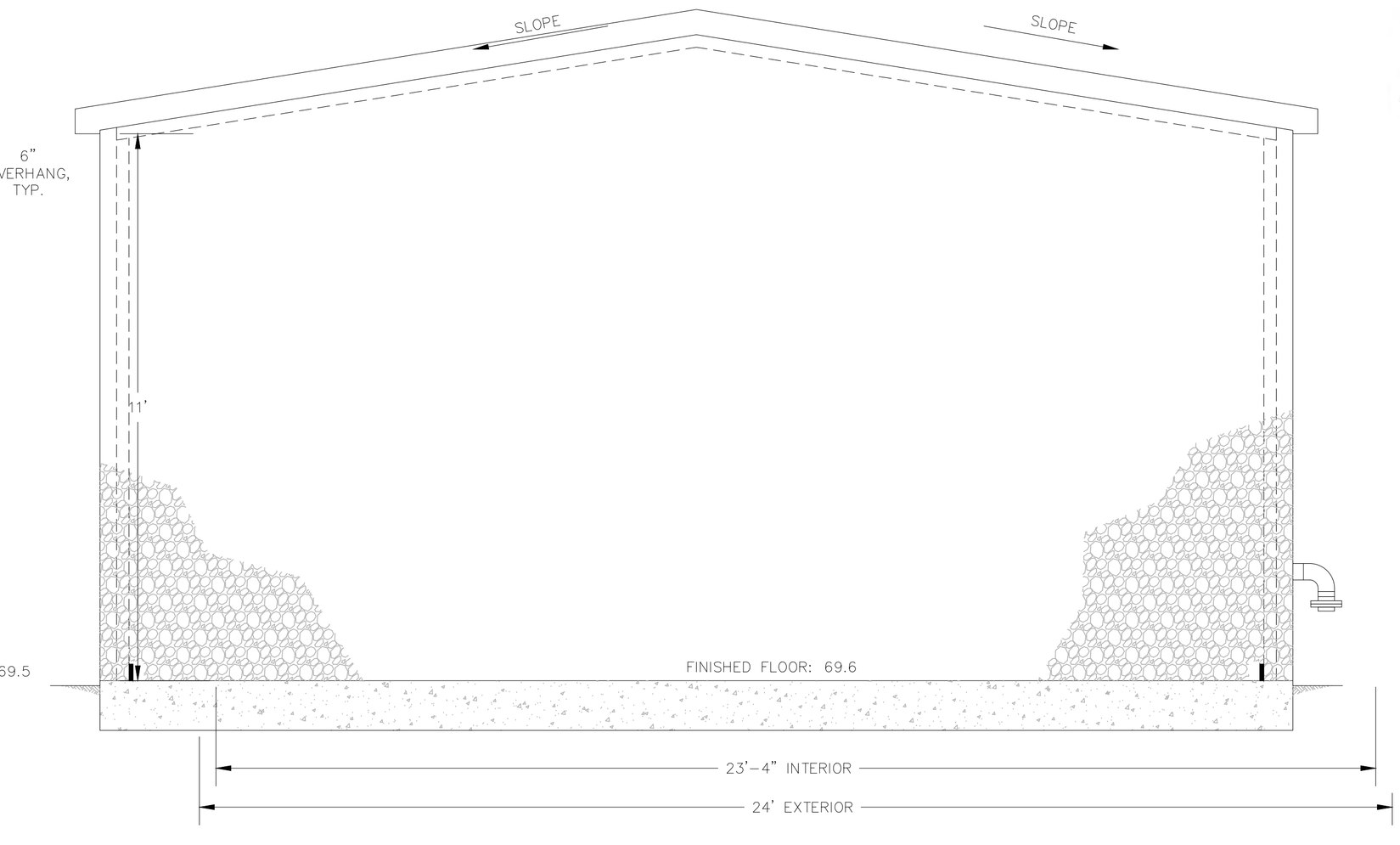
B3 - DOOR SILL DETAIL

SCALE: N.T.S.



EAST ELEVATION

SCALE: 1/2" = 1'



NORTH ELEVATION

SCALE: 1/2" = 1'

FOR PERMITTING

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS		
NO.	DATE	DESCRIPTION

LISA GOYER
No. 11536
REGISTERED PROFESSIONAL ENGINEER
CIVIL

PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	LMG
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:

INDIAN SPRINGS
PRECAST CONCRETE
BUILDING ELEVATIONS

DRAWING NO.:

B-1

SHEET NO. 10 OF 26

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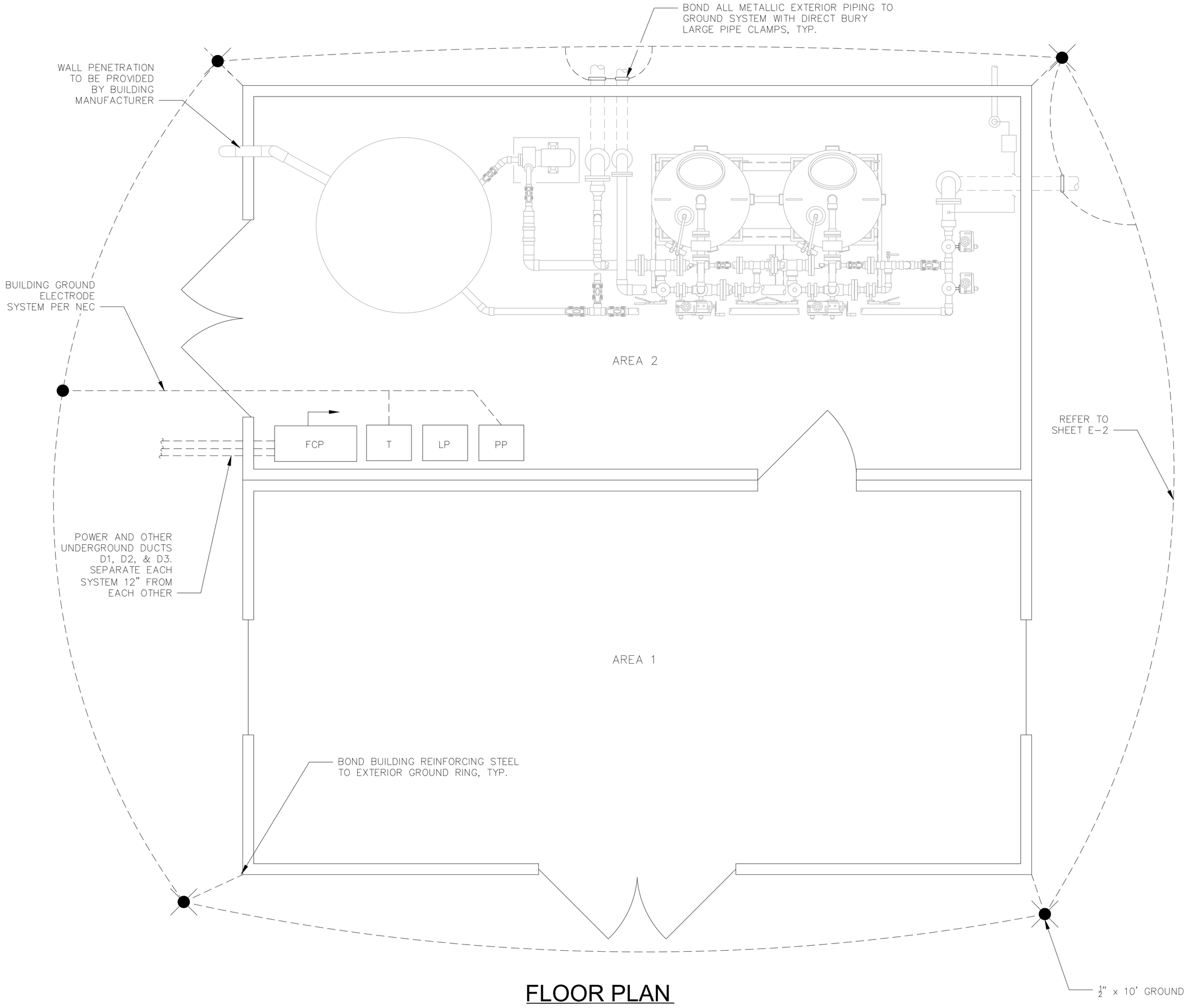
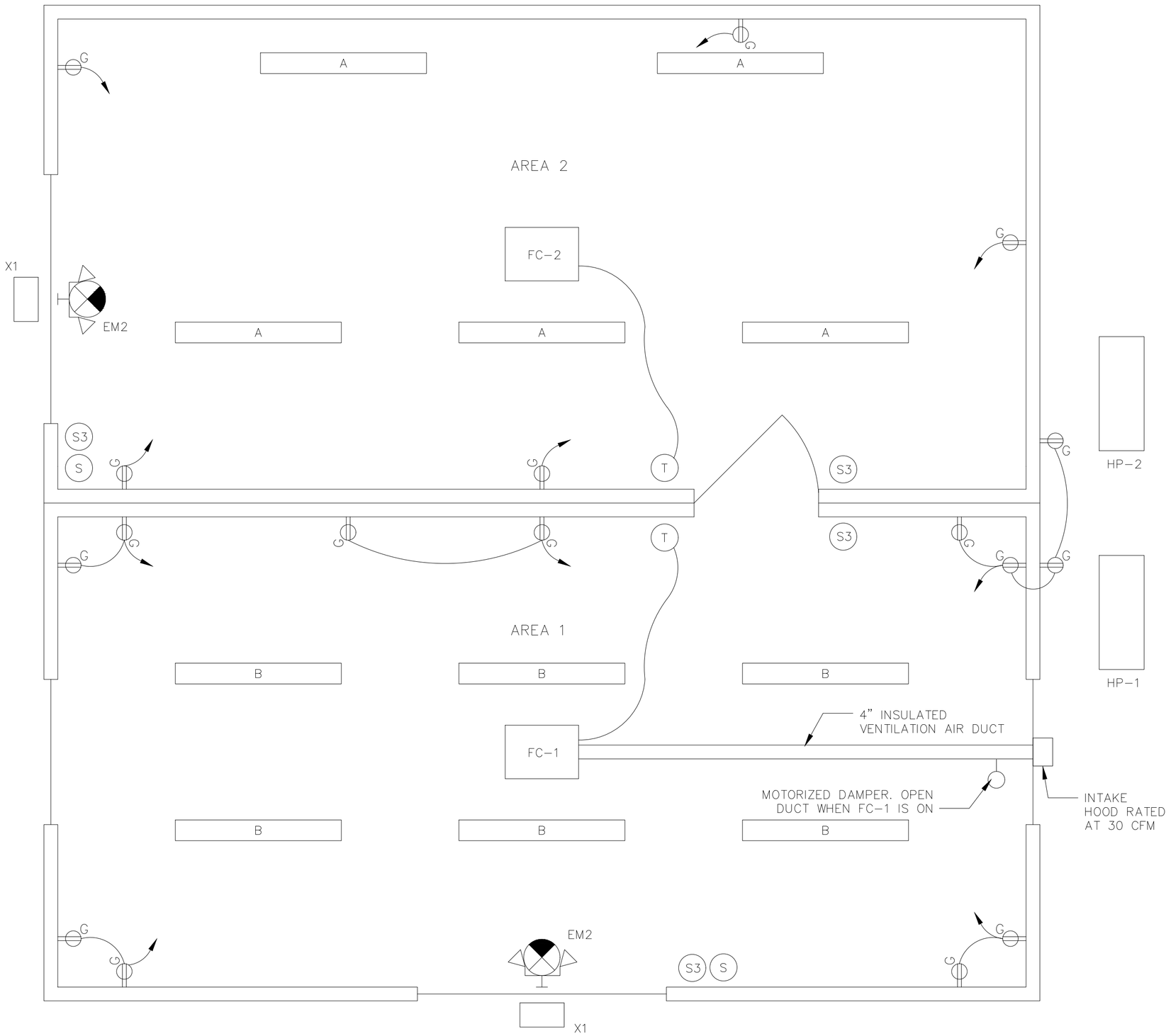


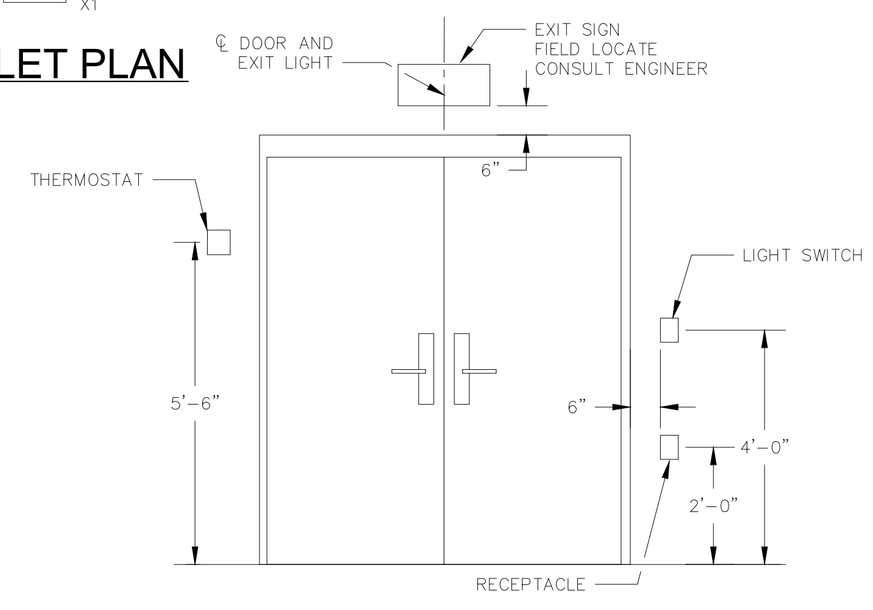
FLOOR PLAN

SCALE: 1/2" = 1'



HVAC, LIGHTING, AND OUTLET PLAN

SCALE: 1/2" = 1'



TYPICAL MOUNTING PLAN FOR PERMITTING

SCALE: 1/2" = 1'

NOTES:
1. REFER TO ELECTRICAL PLANS FOR NOMENCLATURE.
2. REFER TO ELECTRICAL SHEETS FOR ALL ELECTRICAL DETAILS AND HOMERUNS.
3. PENETRATIONS/EQUIPMENT PADS:
   - CONTRACTOR TO VERIFY THE NUMBER, SIZE, AND LOCATIONS OF ALL PENETRATIONS AND EQUIPEMNT PADS PRIOR TO CONSTRUCTION – ALL PENETRATIONS AND PADS MAY NOT BE SHOWN ON THE DRAWINGS.
   - PROVIDE WATERTIGHT SEAL FOR ALL PIPE PENETRATIONS IN WALLS AND FLOORS.
4. PROVIDE WEATHER STRIPPING FOR ALL EXTERIOR DOORS.
5. REFER TO MECHANICAL HVAC DRAWINGS FOR ALL HVAC DETAILS.

LIGHTING AND SWITCH LEGEND	
S3	3-WAY SWITCH (INTERIOR LIGHTS)
S	SWITCH (EXTERIOR LIGHTS)
	6"x48" LED CEILING LIGHTING FIXTURE • A – INTERIOR LIGHT A • B – INTERIOR LIGHT B
	COMBO EXIT SIGN EM LIGHT (EM2)
	LED EXTERIOR LIGHT (X1)

POWER LEGEND	
G	DUPLEX GFCI RECEPTACLE
	GROUND ROD
	HOMERUN
FCP	FILTER CONTROL PANEL
T	TRANSFORMER
LP	LIGHTING PANEL
PP	POWER PANEL

HVAC LEGEND	
T	THERMOSTAT
FC	FAN COIL
HP	HEAT PUMP

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SCALE ADJUSTMENT GUIDE
0" 1"
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LISA GOYER
No. 11536
REGISTERED PROFESSIONAL ENGINEER
CIVIL

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DRAWN BY:	LMG
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
INDIAN SPRINGS BUILDING FLOOR PLANS

DRAWING NO.:
B-2

SHEET NO. 11 OF 26

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A GENERAL

A1 STRUCTURAL WORK SHALL CONFORM TO THE RHODE ISLAND STATE BUILDING CODE (SBC-1-2019).

A2 ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL, BUILDING, MECHANICAL, ELECTRICAL, HEATING AND VENTILATING DRAWINGS AND SPECIFICATIONS.

A3 THE CONTRACTOR SHALL REVIEW, COORDINATE AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FOUNDATION. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER, OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING THE WORK.

A4 THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL STABILITY DURING CONSTRUCTION. THE STRUCTURE SHOWN ON THE DRAWINGS HAS BEEN DESIGNED FOR STABILITY UNDER THE FINAL CONFIGURATION ONLY.

A5 TYPICAL DETAILS AND NOTES SHOWN ON STRUCTURAL DRAWINGS SHALL BE APPLICABLE TO ALL PARTS OF THE STRUCTURAL WORK EXCEPT WHERE SPECIFICALLY REQUIRED OTHERWISE BY CONTRACT DOCUMENTS.

A6 DETAILS NOT SPECIFICALLY SHOWN SHALL BE SIMILAR TO THOSE SHOWN FOR THE MOST NEARLY SIMILAR CONDITION AS DETERMINED BY THE ENGINEER.

A7 GENERAL CONTRACTOR TO COORDINATE CONCRETE FOUNDATION WITH APPROVED PRECAST CONCRETE BUILDING FOR DETAILS AND DIMENSIONS.

B FOUNDATION

B1 FOUNDATIONS FOR THIS PROJECT CONSISTS OF SPREAD FOOTINGS AND FOUNDATION WALLS.

B2 SPREAD FOOTING SHALL REST ON UNDISTURBED SOIL OR COMPACTED STRUCTURAL FILL WITH MIN. BEARING CAPACITY OF 5 KIPS PER SQUARE FOOT AS SPECIFIED IN THE "TEST PIT SOIL DESCRIPTION" MEMORANDUM BY H2OLSON ENGINEERING, INC. DATED NOVEMBER 17, 2021.

B3 ALL STRUCTURAL FILL SHALL BE COMPACTED TO 95% DRY DENSITY TO ACHIEVE BEARING CAPACITY SHOWN UNLESS OTHERWISE NOTED.

B4 FOUNDATION UNITS SHALL BE CENTERED UNDER SUPPORTED STRUCTURAL MEMBERS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

B5 SLAB OUTSIDE THE BUILDING FOOTPRINT SHALL BE SUPPORTED ON COMPACTED FILL, SELECTED AND COMPACTED AS REQUIRED BY THE SPECIFICATIONS.

B6 EXTERIOR CONSTRUCTION SHALL BE CARRIED DOWN BELOW FINISHED EXTERIOR GRADE TO MINIMUM DEPTH OF 4'-0", UNLESS NOTED OTHERWISE.

B7 CARRY OUT CONTINUOUS CONTROL OF SURFACE AND SUBSURFACE WATER DURING CONSTRUCTION SUCH THAT FOUNDATION WORK IS DONE IN DRY AND ON UNDISTURBED SUBGRADE MATERIAL, AS APPLICABLE.

B8 NO FOUNDATION CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN SUBGRADE MATERIAL.

B9 BACKFILL TYPICAL FOUNDATION WALLS WITH MAXIMUM ONE FOOT DIFFERENTIAL IN ELEVATION OF BACKFILL BETWEEN EACH SIDE OF THE WALL.

C CONCRETE

C1 CONCRETE WORK SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI CODE 318; 318R)" AND "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS (ACI SPEC 301)".

C2 CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF:
FOUNDATION WALL AND FOOTING ..... 4000 PSI (NORMAL WEIGHT)
PRECAST CONCRETE BUILDING ..... 5000 PSI (NORMAL WEIGHT)

C3 SIZE OF CONCRETE PLACEMENT UNLESS NOTED OTHERWISE SHALL BE AS FOLLOWS:

	MAX LENGTH (FEET)	MAX AREA (SQ. FEET)
(A) FOOTINGS AND WALLS	30*	–

* EXCEED ONLY IF INTERMEDIATE CONTROL JOINTS ARE PERMITTED AND PROVIDED.

C4 MINIMUM OF 72 HOURS SHALL ELAPSE BETWEEN ADJACENT CONCRETE PLACEMENTS.

C5 CONSTRUCTION, EXPANSION AND CONTROL JOINTS SHOWN ON DRAWINGS ARE MANDATORY; ANY OMISSIONS, ADDITIONS, OR CHANGES SHALL BE SUBMITTED FOR REVIEW IN THE FORM OF A WRITTEN REQUEST TOGETHER WITH DRAWINGS OF THE PROPOSED JOINT LOCATIONS.

C6 CONCRETE SHALL BE PLACED WITHOUT HORIZONTAL CONSTRUCTION JOINTS EXCEPT WHERE SHOWN OR NOTED; VERTICAL CONSTRUCTION JOINTS AND STOPS IN CONCRETE WORK SHALL BE MADE AT MIDSPAN OR AT POINTS OF MINIMUM SHEAR.

C7 ALL EDGE OF CONCRETE EXPOSED TO VIEW SHALL HAVE 3/4" CHAMFER.

C8 CONCRETE MIX DESIGN SHALL BE:
NORMAL WEIGHT, 4000 PSI 28-DAY COMPRESSIVE STRENGTH
WATER/CEMENT RATIO = 0.40
1% TO 3% AIR ENTRAINED
CEMENT TO BE TYPE II PORTLAND CEMENT PER ASTM C150
CONCRETE MIX TO CONTAIN 25% FLY ASH BY WEIGHT PER ASTM C618, CLASS F
COURSE AND FINE 3/4" AGGREGATES TO CONFORM TO ASTM C33
DESIGN SLUMP OF 4" CONFIRMING TO ASTM C94, EXTEND SLUMP WITH MID-RANGE WATER REDUCER/SUPERPLASTICER ADMIXTURE UP TO 8" MAX. FOR WORKABILITY

D REINFORCING

D1 REINFORCEMENT WORK, INCLUDING DETAILING, FABRICATION, AND ERECTION SHALL CONFORM TO "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI CODE 318; 318R)", "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT (ACI PRC 315) (SP-66 FIRST PART)", "MANUAL OF ENGINEERING AND PLACING DRAWINGS FOR REINFORCED CONCRETE STRUCTURES (AC1 PRC 315R) (SP-66 SECOND PART)", "CRSI MANUAL OF STANDARD PRACTICE (DA4)."

D2 STEEL REINFORCEMENT, UNLESS NOTED OTHERWISE, SHALL CONFORM TO THE FOLLOWING:
(A) BARS, TIES, AND STIRRUPS ..... ASTM A615 GRADE 60 (Fy=60,000 PSI)
(B) WELDED WIRE FABRIC ..... ASTM A185, FLAT SHEETS
(C) BARS TO BE WELDED ..... ASTM A706, GRADE 60 (Fy=60,000 PSI)

D3 PROVIDE SCHEDULE ON SHOP DRAWINGS INDICATING NECESSARY ACCESSORIES TO HOLD REINFORCEMENT SECURELY IN POSITION, MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS, 4'-0" O.C. WITH CONTINUOUS #5 SUPPORT BAR; SLAB BOLSTERS, 3'-6" OC; BEAM BOLSTERS, 5'-0" OC.

D4 REINFORCING STEEL SHALL HAVE THE FOLLOWING MINIMUM CLEAR CONCRETE COVER, UNLESS OTHERWISE NOTED:
(A) CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH---- 3 INCHES
(B) CONCRETE SURFACE IN CONTACT WITH SOIL, WATER OR EXPOSED TO WEATHER (INCLUDING BOTTOM COVER OVER LIQUID CONTAINING STRUCTURES)--- 2 INCHES
(C) CONCRETE SURFACES NOT IN CONTACT WITH SOIL, WATER OR EXPOSED TO WEATHER
(1) BEAMS AND COLUMNS:
STIRRUPS AND TIES-------- 1 1/2 INCHES
PRINCIPAL REINFORCEMENT---- 2 INCHES
(2) WALLS AND SLABS---------- 1 INCHES

D5 SPLICES SHALL BE LAPPED IN ACCORDANCE WITH CONTRACT DRAWINGS.

D6 UNLESS SPECIFICALLY SHOWN OR NOTED, PROVIDE CONTINUOUS REINFORCEMENT, IT WILL BE EXTENDED CONTINUOUSLY AROUND CORNERS, LAPPED AT SPLICES AND HOOKED AT DISCONTINUOUS ENDS.

D7 WHERE REINFORCEMENT IS NOT SHOWN ON DRAWINGS, PROVIDE REINFORCEMENT IN ACCORDANCE WITH APPLICABLE DETAILS AS DETERMINED BY THE ENGINEER; IN NO CASE SHALL REINFORCEMENT BE LESS THAN THE MINIMUM REINFORCEMENT PERMITTED BY THE APPLICABLE CODES.

E DESIGN LOADS

E1 STRUCTURAL DESIGN LOAD: CONFORMING TO THE RHODE ISLAND STATE BUILDING CODE (SBC-1-2019).

E2 DEAD LOADS
(A) WEIGHT OF BUILDING COMPONENTS ..... ACTUAL WEIGHT
(B) ROOF: ..... 20 PSF

E3 LIVE LOADS
(A) PROCESS FLOOR ..... 300 PSF

E4 SNOW LOAD
(A) GROUND SNOW LOAD, Pg..... 30 PSF
(B) FLAT ROOF SNOW LOAD, Pf..... 30 PSF (Pf MIN.)
(C) SNOW EXPOSURE FACTOR Ce = 0.9
(D) SNOW LOAD IMPORTANCE FACTOR Is =1.1 WITH RISK CATEGORY III
(E) THERMAL FACTOR Ct = 1.0
(F) UNBALANCED, DRIFTING, AND SLIDING SNOW PER SBC-1-2019.

E5 WIND LOAD
(A) ULTIMATE DESIGN WIND SPEED, Vult = 149 MPH
(B) NOMINAL DESIGN WIND SPEED, Vasd = 115 MPH
(C) RISK CATEGORY III
(D) WIND EXPOSURE D
(E) INTERNAL PRESSURE COEFFICIENT GCpi = +/- 0.18
(F) DESIGN WIND PRESSURE FOR EXTERIOR COMPONENTS AND CLADDING:

WIND PRESSURE (PSF)			
BLDG. SURFACE	EFFECTIVE WIND AREA (SF)		
	0-10	10^2-1000	500^2-1000
1	+23.9,-58.7	+18.9,-53.7	–
2	+23.9,-98.5	+18.9,-63.7	–
3	+23.9,-148.3	+18.9,-63.7	–
4	+58.7,-63.7	–	+43.8,-48.8
5	+58.7,-78.6	–	+43.8,-48.8

NOTES:
1. FOR BUILDING SURFACE SEE FIGS 30.4-1 AND 30.4-2A ASCE 7-10
2. INTERPOLATE BETWEEN 10 SF AND 100 SF
3. INTERPOLATE BETWEEN 10 SF AND 500 SF

E6 SEISMIC LOAD
(A) EARTHQUAKE DESIGN FACTORS Ss..... 0.170
S1..... 0.059
(B) SITE CLASS "D", Fa..... 1.6
Fv..... 2.4
(C) SEISMIC IMPORTANCE FACTOR, Ie = 1.25 WITH RISK CATEGORY III
(D) MCE SPECTRAL RESPONSE ACCELERATION, SMs..... 0.272
SM1..... 0.142
(E) SEISMIC DESIGN CATEGORY = "B"
(F) DESIGN SPECTRAL RESPONSE ACCELERATION SDs..... 0.181
SD1..... 0.094

E7 ALLOWABLE SOIL BEARING PRESSURE..... 5.0 KSF

F PRECAST CONCRETE BUILDING

F1 PRECAST CONCRETE BUILDING MANUFACTURER SHALL BE RESPONSIBLE FOR THE DESIGN, FABRICATION AND ERECTION OF ALL PRECAST CONCRETE STRUCTURE.

F2 COORDINATE ALL DETAILING WITH ALL PROJECT REQUIREMENTS OF THE CONTRACT DRAWINGS.

F3 ALL PRECAST CONCRETE FLOOR AND ROOF SHALL BE DESIGNED TO ACT AS DIAPHRAGM FOR LATERAL LOAD TRANSFER OF THE BUILDING, INCLUDING THOSE FROM ROOF TO THE SUPPORTING PRECAST WALLS AND FOUNDATIONS.

F4 ALL ATTACHMENTS, LOOSE REINFORCING REQUIRED FOR ERECTION OF THE BUILDING SHALL BE FURNISHED AND INSTALLED BY THE PRECAST CONCRETE BUILDING MANUFACTURER.

F5 THE PRECAST CONCRETE BUILDING MANUFACTURER SHALL BE FULLY RESPONSIBLE FOR THE ROOF, WALL AND FLOOR SYSTEM AND IT'S DESIGN, INCLUDING ANCHORING TO THE FOUNDATION, AND OTHER NECESSARY FRAMING REQUIRED BY THE PROJECT. THE SYSTEM SHALL BE FULLY SELF-SUFFICIENT, TRANSFERRING ALL VERTICAL AND LATERAL LOADS TO THE FOUNDATION. PRECAST CONCRETE BUILDING MANUFACTURER'S ENGINEER REGISTERED IN RHODE ISLAND TO COORDINATE AND DESIGN ALL FRAMING AND LOADING REQUIREMENT INCLUDING EQUIPMENT SUPPORTED BY THE PRECAST CONCRETE BUILDING.

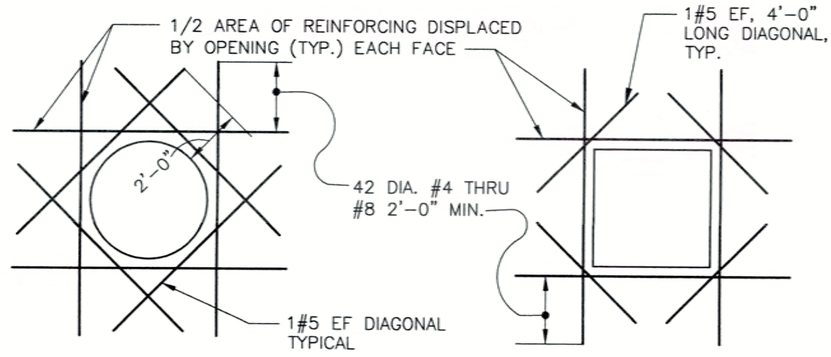
F6 PROVIDE TEMPORARY BRACING AS REQUIRED DURING CONSTRUCTION TO PREVENT DAMAGE TO FOUNDATION.

F7 THE PRECAST CONCRETE BUILDING SYSTEM CONTRACTOR SHALL FIELD VERIFY THAT ALL FOUNDATION AND ANCHORING REQUIREMENT ARE COORDINATED AGAINST APPROVED PRECAST CONCRETE BUILDING SHOP DRAWINGS PRIOR TO THE START OF PRECAST CONCRETE BUILDING ERECTION. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR DEVIATIONS.

F8 SUBMITTALS SHALL CONFORM TO REQUIREMENTS SET FORTH IN THE TECHNICAL SPECIFICATIONS.

F9 MAXIMUM BUILDING DRIFT = HEIGHT/240.

F10 PRECAST CONCRETE BUILDING SHALL HAVE THE FOLLOWING MINIMUM STRENGTHS:
COMPRESSIVE STRENGTH @ 28 DAYS f'c = 5,000 psi.
COMPRESSIVE STRENGTH @ TRANSFER fc' = 3,500 psi.



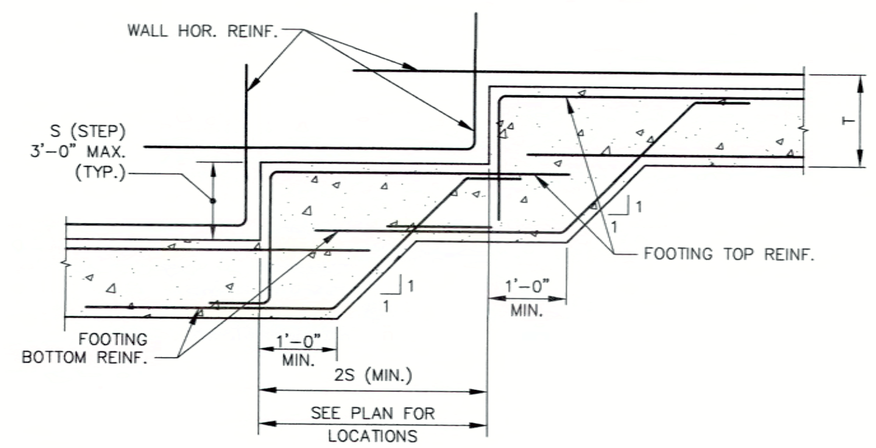
NOTES:
1. DETAILS ARE TYPICAL FOR ALL OPENINGS 8" AND GREATER IN CONCRETE WALLS AND SLABS, UNLESS OTHERWISE NOTED. SPREAD REINFORCING AT SMALLER OPENINGS.
2. HOOK ALL HORIZONTAL AND VERTICAL RE-BARS WHICH ARE INTERRUPTED AT OPENINGS.
3. REINFORCING STEEL IS TO BE CARRIED ACROSS ALL CONSTRUCTION JOINTS.

TYPICAL ADDITIONAL REINF. AT OPENINGS

SCALE: N.T.S.

SPLICE SCHEDULE

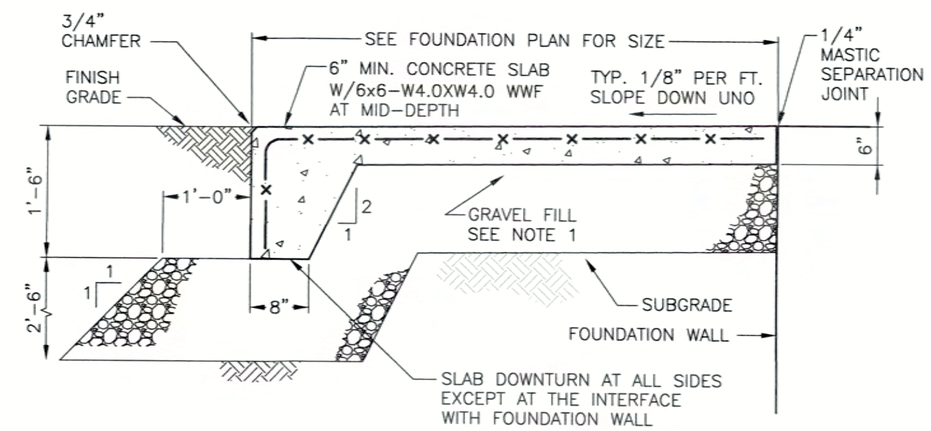
REINFORCING BAR DEVELOPMENT AND LAP SPLICE LENGTHS FOR f'c = 4000 PSI AND Fy = 60 KSI							
BAR SIZE	TENSION DEVELOPMENT		TENSION SPLICE (CLASS B)		STANDARD 90° HOOK	COMPRESSION BARS	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS	EMBEDMENT Ldh	DEVELOPMENT Ldb	SPLICE LENGTH
#4	25"	20"	33"	25"	10"	10"	15"
#5	32"	24"	41"	32"	12"	12"	19"
#6	38"	30"	49"	38"	15"	15"	24"



NOTE:
1. REFER TO PLANS, SECTIONS, AND OTHER DETAILS FOR WALL REINFORCING, DOWELS, ADDITIONAL FOOTING REINFORCING AND OTHER INFORMATION AND REQUIREMENTS.

STEPPED FOOTING DETAIL

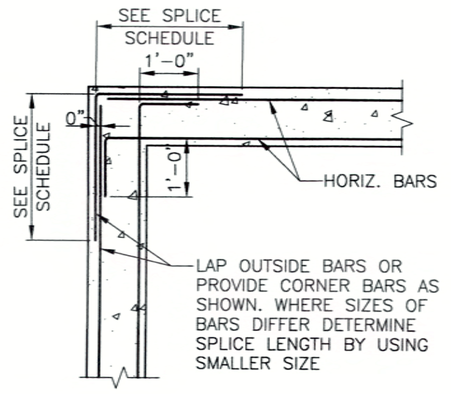
SCALE: N.T.S.

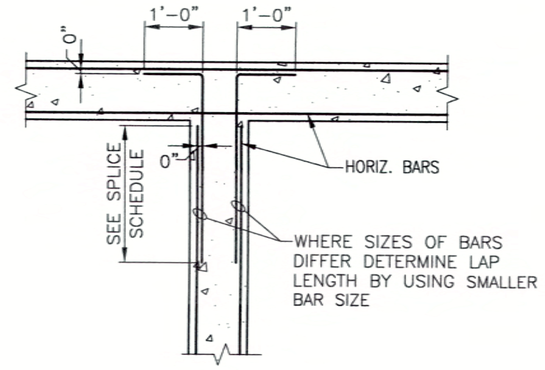


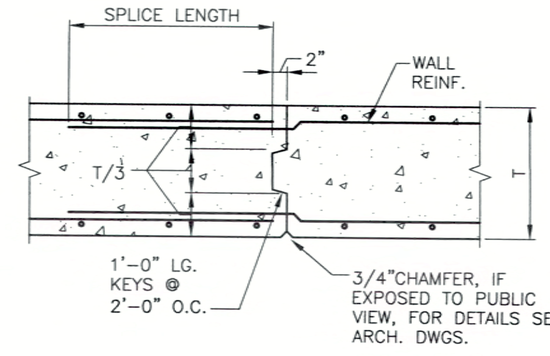
NOTES:
1. BELOW THE CONCRETE APRON PROVIDE A MINIMUM 12 INCHES OF GRAVEL FILL EXTEND LATERALLY BEYOND THE LIMITS OF THE FOUNDATION CONCRETE A DISTANCE EQUAL TO THE DEPTH OF THE FILL PLUS 1 FEET IN ALL PLAN DIRECTIONS. THE GRAVEL FILL SHALL BE PLACED IN 6-INCH LIFTS, AND EACH LIFT SHALL BE COMPACTED TO 95 PERCENT OF THE MAXIMUM MODIFIED PROCTOR DENSITY. PRIOR TO PLACING THE GRAVEL FILL, THE SUBGRADE SHALL BE PROOF COMPACTED WITH AT LEAST 6 PASSES OF A 5-TON VIBRATORY ROLLER.
2. FOR THE EXTEND AND ELEVATION OF THE CONCRETE APRON SEE ARCH. DWGS.

CONCRETE ENTRANCE PAD DETAIL

SCALE: N.T.S.







HORIZONTAL WALL REINF. PLAN AT CORNER

SCALE: N.T.S.

HORIZONTAL WALL REINF. PLAN AT INTERSECTIONS

SCALE: N.T.S.

WALL CONSTRUCTION JOINT

SCALE: N.T.S.

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS		
NO.	DATE	DESCRIPTION

LISA GOVER
No. 11536
REGISTERED PROFESSIONAL ENGINEER
12/17/21

PROJECT NO.:	1119.21.01.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	GK
CHECKED BY:	GK
DRAWN BY:	RWL
APPROVED BY:	GK

WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE: GENERAL NOTES AND TYPICAL DETAILS

DRAWING NO.: S-1

SHEET NO. 12 OF 26

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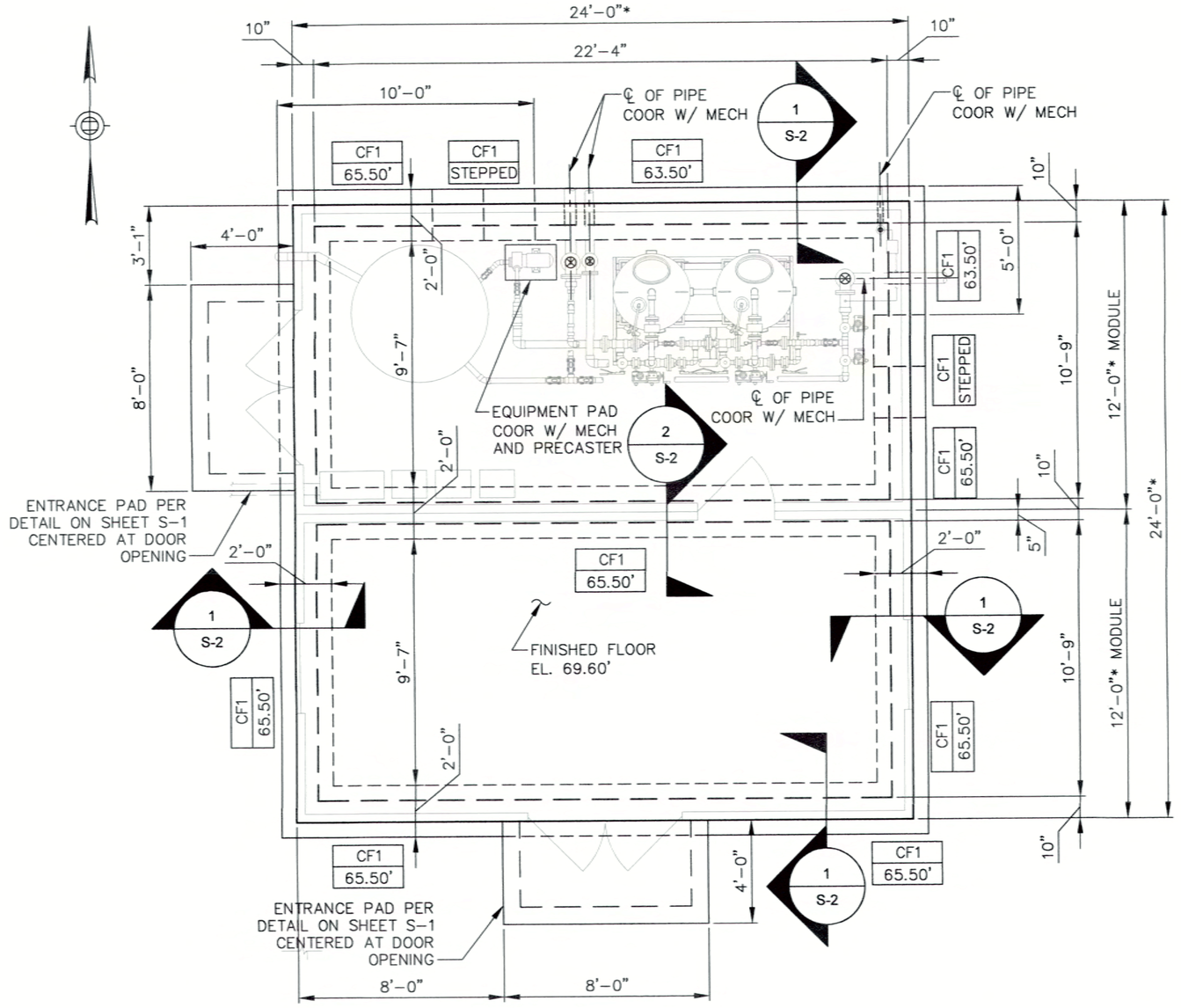
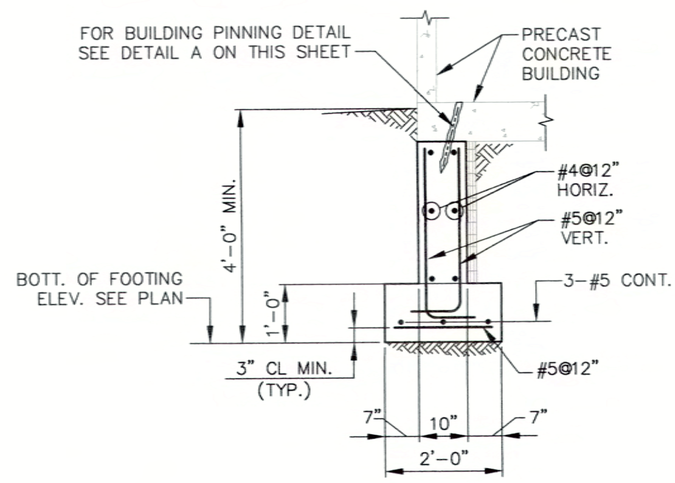


FOUNDATION PLAN

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

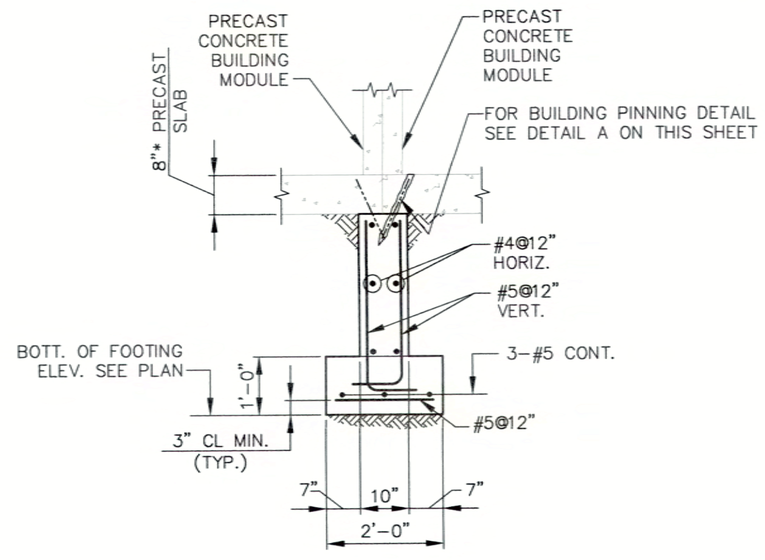
NOTES:

1. REFER TO BUILDING AND MECHANICAL DRAWINGS FOR BUILDING LAYOUT.
2. CF1 / 65.50' — CF1 INDICATES FOOTING TYPE. SEE FOOTING SCHEDULE. 65.50' INDICATES BOTTOM FOOTING ELEVATION.
3. (*) ASTERISKS INDICATES DIMENSIONS TO BE COORDINATED WITH PRECAST CONCRETE WITH APPROVED PRECAST CONCRETE BUILDING SHOP DRAWINGS PRIOR TO FABRICATIONS.
4. COORDINATE PRECAST CONCRETE BUILDING PINNING LAYOUT AND REQUIREMENT BETWEEN THE FOUNDATION PLAN AND DETAIL A ON THIS SHEET AND THE PINNING REQUIREMENT ON THE APPROVED PRECAST CONCRETE BUILDING SHOP DRAWINGS PRIOR TO INSTALLATION.



SECTION 1/S-2

SCALE: 1/2"=1'-0"



SECTION 2/S-2

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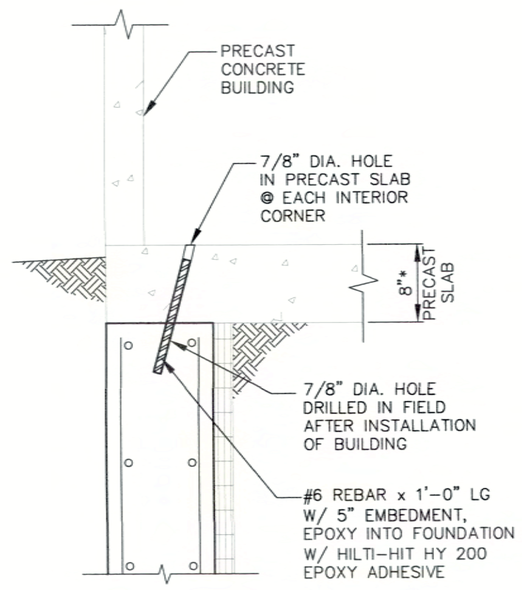

TYP. BUILDING PINNING DETAIL

SCALE: 1"=1'-0"

A / S-2

NOTES:

1. BUILDING PINNING DETAIL, ITS LAYOUT AND REQUIREMENTS TO BE COORDINATED, VERIFIED AND APPROVED BY PRECAST CONCRETE BUILDING'S PROFESSIONAL ENGINEER PRIOR TO FABRICATION AND INSTALLATION. REVISE AS REQUIRED.

FOOTING SCHEDULE

TYPE	SIZE	REINFORCING
CF1	2'-0" X 1'-0" DEEP X CONT.	3-#4 LONG. & #5@12" TRANS. BOTT.

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DARTMOUTH, MA | PAWTUCKET, RI | NEW BEDFORD, MA | BRIDGEWATER, MA

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS		
NO.	DATE	DESCRIPTION

LISA GOYETTE No. 11536 REGISTERED PROFESSIONAL ENGINEER (CIVIL)

PROJECT NO.:	1119.21.01.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	GK
CHECKED BY:	GK
DRAWN BY:	RWL
APPROVED BY:	GK

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE: FOUNDATION PLAN, SECTIONS AND DETAILS

DRAWING NO.: S-2

SHEET NO. 13 OF 26

E:\2021.024 Prudence Island Water District WTP Foundation Design & CA (H2Olson\STRU\Prudence S-1 TO S-2.dwg

NOTES

1. THE REQUIREMENTS INCLUDED IN THESE NOTES ARE SUPPLEMENTARY TO THE CONTRACT, GENERAL CONDITIONS, TECHNICAL REQUIREMENTS, AND OTHER REQUIREMENTS SPECIFIED HEREIN.
2. MOUNTING DETAILS PROVIDED ARE GENERIC FOR EQUIPMENT AND DEVICES OF VARIOUS MANUFACTURERS. THE INSTALLING CONTRACTOR MUST STRICTLY COMPLY WITH MANUFACTURER'S INSTRUCTION IN THE INSTALLATION OF THESE DEVICES. IF THERE ARE ANY ENGINEERING ISSUES THEY MUST BE REFERRED TO THE ENGINEER PRIOR TO INSTALLATION.
3. IT IS NOT THE INTENT OF THESE DRAWINGS TO PORTRAY EVERY DETAIL OF THE REQUIRED WORK. THE CONTRACTOR SHALL PROVIDE THE EQUIPMENT AND SYSTEMS COMPLETE SO THAT WHEN ASSEMBLED AND INSTALLED IN THE WORK, THEY SHALL OPERATE AND PERFORM AS DESCRIBED HEREIN.
4. COORDINATE THE WORK REQUIRED BY THESE DRAWINGS ("M" SERIES) WITH THE WORK REQUIRED BY OTHER DRAWINGS.
5. PROVIDE FILLER FLANGES (OR OTHER ENGINEER APPROVED METHOD) TO LIMIT INTERFERENCE BETWEEN WAFER BUTTERFLY VALVES AND DUCTILE IRON PIPE LINING OR CAST IRON FITTINGS.
6. THE CONTRACTOR SHALL NOT OPEN OR CLOSE ANY VALVES WHICH HOLD WATER IN THE SYSTEM, UNLESS GRANTED APPROVAL TO DO SO BY THE PRUDENCE ISLAND WATER DISTRICT.
7. ALL WALL AND FLOOR SLEEVES SHALL BE LARGE ENOUGH TO ACCOMMODATE FLANGES AS REQUIRED. FLOOR SLEEVES SHALL PROJECT AT LEAST 4-IN ABOVE FINISH FLOOR UNLESS OTHERWISE SHOWN. IF SLEEVES ARE TO BE SEALED, PROVIDE GROOVED COUPLING PIPING CONNECTION TO FACILITATE INSTALLATION AND REMOVAL OF PIPING.
8. ALL PIPE PENETRATIONS THROUGH INTERIOR AND EXTERIOR WALLS AND FLOORS SHALL BE SEALED WATERTIGHT.
9. SMALL PIPING (SAMPLE, SERVICE WATER, ETC.) IS SHOWN DIAGRAMMATICALLY: FIELD-ROUTING SUBJECT TO APPROVAL OF THE ENGINEER. SMALL PIPE ROUTING MUST NOT INTERFERE WITH ACCESS TO OR OPERATION OF ANY OTHER PIPE, VALVE, EQUIPMENT, OR BUILDING SYSTEM.
10. ALL PROCESS EQUIPMENT, INCLUDING PUMPS, SHALL BE ISOLATED FROM PIPING LOADS AND DYNAMICS BY FLEXIBLE CONNECTORS IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND SPECIFICATIONS.
11. ALL PIPING, VALVES, EQUIPMENT, ETC. SHALL BE LABELED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
12. CONRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE LOCATION FOR ALL WALL PENETRATIONS WITH THE VARIOUS TRADES. WALL PIPES AND WALL SLEEVES SHALL BE REQUIRED FOR ALL PIPE PENETRATIONS THROUGH CONCRETE WALLS WHETHER SHOWN ON THE DRAWINGS OR NOT. ALL WALL AND FLOOR SLEEVES SHALL BE LARGE ENOUGH TO ACCOMMODATE FLANGES, IF REQUIRED.
13. WHEN MAKING NEW CONNECTIONS TO EXISTING PIPING, THE CONTRACTOR MAY, AT ITS OPTION:
    A. REPLACE PIPING BACK TO NEAREST FITTING.
    B. USE SLEEVE COUPLING OR FLANGE ADAPTERS (RESTRAINED ON PRESSURE LINES).
14. PROVIDE EXPANSION JOINTS WITH CONTROL RODS FOR ALL EXPOSED PIPING CROSSING STRUCTURAL EXPANSION JOINTS.
15. ALL SLEEVE TYPE COUPLINGS ON PRESSURE PIPING SHALL BE HARNESSED UNLESS OTHERWISE INDICATED. WHERE COUPLINGS ARE PROVIDED TO PROVIDE AXIAL FLEXIBILITY, PIPING MUST BE SECURELY RESTRAINED.
16. MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE A STANDARD, HIGH-GRADE QUALITY, AND OF THE BEST WORKMANSHIP AND DESIGN. ALL LIKE PARTS OF EQUIPMENT OF THE SAME SIZE OR CAPACITY SHALL BE INTERCHANGEABLE. SUITABLE PROVISION SHALL BE MADE FOR EASY ADJUSTMENT OR REPLACEMENT OF ALL PARTS REQUIRING ADJUSTMENT OR REPLACEMENT.
17. ALL MECHANICAL LAYOUTS ARE GENERALLY DIAGRAMMATIC AS SHOWN ON THESE DRAWINGS. THE WORK OF THE VARIOUS TRADES SHALL BE COORDINATED TO AVOID INTERFERENCE AND TO SECURE MAXIMUM HEAD ROOM. PARTICULAR ATTENTION IS DRAWN TO CONGESTED SPACES INSIDE AND OUTSIDE OF THE STRUCTURES. IF, IN THE INTEREST OF COORDINATION AND EXPEDIENCY, IT BECOMES NECESSARY TO DEVELOP "INTERFERENCE DRAWINGS" (DEFINED AS DRAWINGS EMBODYING THE WORK OF TRADES INVOLVED, ILLUSTRATING DETAILS OR CONSTRUCTION PROPOSED BY THE CONTRACTOR AND ARRANGEMENT OF ACTUAL EQUIPMENT AND APPARATUS PURCHASED), SUCH DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR AND SHALL BE COORDINATED WITH OTHER TRADES AT NO ADDITIONAL EXPENSE TO THE OWNER.
18. THE INSTALLATION OF FACILITIES AND APPURTENANT WORK SHALL BE PROVIDED IN ACCORDANCE WITH THE REQUIREMENTS OF ALL FEDERAL, STATE, AND MUNICIPAL CODES AND REGULATIONS GOVERNING THE WORK. IN INSTANCES WHERE THE REQUIREMENT OF DRAWINGS AND SPECIFICATIONS ARE IN EXCESS OF THE REQUIREMENTS OF THE APPLICABLE CODES AND REGULATIONS, AND ARE PERMITTED THEREUNDER, THEN, IN SUCH INSTANCES, THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL GOVERN, UNLESS DIRECTED OTHERWISE IN WRITING BY THE ENGINEER.
19. UNLESS OTHERWISE SPECIFIED, NEAT BRASS PLATE, OR OTHERWISE SUITABLE MATERIAL, HAVING THE SERIAL NUMBER, THE MAKE, HORSEPOWER, CAPACITY, SPEED, AND OTHER PERTINENT DATA, AND ANY IMPORTANT OPERATING OR MAINTENANCE INSTRUCTIONS PERMANENTLY AND CLEARLY MARKED ON THE PLATE, SHALL BE MOUNTED ON EACH ITEM OF EQUIPMENT. ALL IMPORTANT PARTS OF EQUIPMENT,AS DIRECTED BY ENGINEER/OWNER SHALL BE STAMPED FOR IDENTIFICATION AND LOCATION.
20. ALL NECESSARY ANCHOR BOLTS, NUTS, WASHERS, SETTING TEMPLATES, AND SUCH OTHER PARTS SHALL BE PROVIDED AS REQUIRED FOR THE PROPER INSTALLATION OF THE WORK, AND WHEREVER PRACTICABLE, THEY SHALL BE BUILT IN AS THE WORK PROGRESSES. THE PARTS SHALL BE OF THE MATERIALS SPECIFIED, AND WHERE NOT SPECIFIED OR INDICATED, THEY SHALL BE OF APPROVED TYPES AND MATERIALS FOR EACH APPLICATION. THE SETTING OF ANCHOR BOLTS BY DRILLING AND GROUTING WILL NOT BE PERMITTED.
21. ALL EQUIPMENT SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER, AS APPROVED, TRULY LEVEL AND PLUMB, AND SHALL BE PROVIDED COMPLETE WITH ALL NECESSARY PIPING, FITTINGS, VALVES, CONTROLS, WIRING, AND APPURTENANCES AND ACCESSORIES SO THE EQUIPMENT WILL BE LEFT COMPLETE AND IN SATISFACTORY OPERATION. PARTICULAR CARE SHALL BE TAKEN IN THE INSTALLATION OF PUMPS IN ORDER TO PREVENT A STRAIN ON THE PIPING OR PUMP FLANGES AND THE CONTRACTOR SHALL INSURE THE CORRECT ALIGNMENT OF SHAFTS, COUPLINGS, AND BEARINGS.
22. ALL WEDGES, SHIMS, FILLING PIECES, KEYS, PACKING, GROUT, OR OTHER MATERIALS NECESSARY TO PROPERLY ALIGN, LEVEL, AND SECURE APPARATUS IN PLACE SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. ALL PARTS INTENDED TO BE PLUMB OR LEVEL MUST BE PROVEN EXACTLY SO. ANY GRINDING NECESSARY TO BRING PARTS TO PROPER BEARING AFTER INSTALLATION SHALL BE DONE AT THE EXPENSE OF THE CONTRACTOR.
23. THE CONTRACTOR SHALL PROVIDE ALL OPENINGS, CHANNELS, CHASES, ETC. AS REQUIRED TO COMPLETE THE WORK UNDER THIS CONTRACT, TOGETHER WITH THOSE REQUIRED BY OTHER CONTRACTORS.
24. EXISTING PROCESS SYSTEMS, PIPELINES, EQUIPMENT, AND APPURTENANCES ARE SHOWN ON THESE DRAWINGS FOR REFERENCE ONLY AND WERE OBTAINED FROM THE BEST AVAILABLE SOURCES. THE EXACT LOCATION AND ELEVATION OF THESE ITEMS SHALL BE INVESTIGATED AND FIELD VERIFIED BY THE CONTRACTOR. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.
25. CONTRACTOR SHALL PROVIDE RESTRAINT OF ALL EXPANSION JOINTS/FLEX CONNECTORS WITH TIE-RODS.
26. WHERE CONNECTION OF NEW PIPING SYSTEMS TO EXISTING PIPING SYSTEMS IS REQUIRED, CONTRACTOR SHALL PROVIDE MISCELLANEOUS FITTINGS, FILLER FLANGES, COUPLINGS, ETC. AS MAY BE REQUIRED TO COMPLETE THE WORK, WHETHER SHOWN ON THE DRAWINGS OR NOT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING PIPING DIMENSIONS.
27. CONTRACTOR SHALL SUBMIT PIPING LAYOUT DIAGRAMS TO THE ENGINEER FOR APPROVAL PRIOR TO ANY PIPING INSTALLATION. PIPING LAYOUT DIAGRAMS SHALL SHOW DIMENSIONS OF ALL VALVES, FITTINGS, PIPE RUNS, AND SUPPORTS.
28. ALL PIPING SYSTEMS AND EQUIPMENT SHALL BE ADEQUATELY AND SAFELY SUPPORTED. CONTRACTOR SHALL DESIGN, PROVIDE, AND INSTALL ALL SUPPORTS AS REQUIRED BY THE PIPING AND EQUIPMENT PROVIDED. AT A MINIMUM, ALL PIPING SYSTEMS SHALL BE SUPPORTED PER THE REQUIREMENTS OF MANUFACTURER'S STANDARDIZATION SOCIETY (MSS) SP-58 AND MSS SP-69. SUPPORT DESIGN SHALL ACCOMMODATE ALL STATIC AND OPERATIONAL CONDITIONS TO WHICH THE PIPING AND EQUIPMENT MAY BE SUBJECTED. SUPPORTS SHALL BE IN ADDITION TO THOSE SHOWN ON THE CONTRACT DRAWINGS.

MECHANICAL PROCESS LEGEND

VALVES, COUPLING, & APPURTENANCES

- BURIED GATE VALVE
- BURIED PLUG VALVE
- BALL VALVE
- BUTTERFLY VALVE
- M — ELECTRIC ACTUATED BUTTERFLY VALVE
- BALL CHECK VALVE
- SWING CHECK VALVE
- WAFER CHECK VALVE
- GATE VALVE
- DIAPHRAGM VALVE
- PINCH VALVE
- PLUG VALVE
- MUD VALVE
- NEEDLE VALVE
- S — SOLENOID VALVE
- SLEEVE TYPE COUPLING
- SPLIT SLEEVE ADAPTER
- FLANGED COUPLING ADAPTER
- EXPANSION JOINT (METAL)
- FLEX CONNECTOR/EXPANSION JOINT (RUBBER)
- EXPANSION JOINT (REDUCING)
- QUICK CONNECT
- MAGMETER
- TURBINE FLOWMETER
- PRESSURE REDUCING VALVE
- AS — BACK PRESSURE/ANTISIPHON VALVE
- VACUUM BREAKER
- RELIEF VALVE
- COMBINATION VALVE
- PI — PRESSURE INDICATOR (LIQUID SERVICE)
- PIT — PRESSURE INDICATING TRANSMITTER (LIQUID SERVICE)
- PI — PRESSURE INDICATOR (AIR SERVICE)
- FS — FLOW SWITCH
- PS — PRESSURE SWITCH
- AS — ANTI-SIPHON VALVE
- T — TEMPERATURE INDICATOR
- S — SAMPLE TAP
- PDS — PRESSURE DIFFERENTIAL SWITCH
- QUICK DISCONNECT FEMALE COUPLER
- REDUCER/INCREASER
- STRAINER
- UNION
- FLEXIBLE HOSE
- CENTRIFUGAL PUMP
- DIAPHRAGM METERING PUMP
- ROTAMETER
- DIAPHRAGM ISOLATOR (GAUGE GUARD)
- CALIBRATION COLUMN
- VENT
- VENT
- 4 FUNCTION VALVE
- EJECTOR
- D — DRAIN
- FLEX COUPLING (CHEMICAL SERVICE)
- FLOAT SWITCH
- ULTRASONIC LEVEL SENSOR
- SUBMERSIBLE CENTRIFUGAL PUMP
- AIR FILTER/INSECT SCREEN
- NHMP-2 — ELECTRIC DIAPHRAGM METERING PUMP
- BASKET STRAINER
- QUICK DISCONNECT MALE ADAPTER
- HOSE COUPLING
- EXPANSION JOINT
- CAST-IN-PLACF WALL PIPE

PROCESS STREAM ABBREVIATIONS

BW	BACKWASH
FE	FILTER EFFLUENT
FI	FILTER INFLUENT
NaOCl	SODIUM HYPOCHLORITE

PIPING AND TUBING MATERIALS

CI	CAST IRON PIPE
CPVC	CHLORINATED POLYVINYL CHLORIDE PIPE
CS	CARBON STEEL
CU	COPPER
DI	DUCTILE IRON PIPE
FRP	FIBERGLASS REINFORCED PLASTIC PIPE
GALV	GALVANIZED STEEL
HDPE	HIGH DENSITY POLYETHYLENE
HOSE	FLEXIBLE HOSE
PE	POLYETHYLENE
PVC	POLYVINYL CHLORIDE
RCP	REINFORCED CONCRETE PIPE
SS	STAINLESS STEEL PIPE OR TUBING
STL	STEEL

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REVISIONS

NO.	DATE	DESCRIPTION

LISA GOYER — No. 11536 — REGISTERED PROFESSIONAL ENGINEER — CIVIL — 12/30/21

PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	LMG
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
PLANT MECHANICAL NOTES AND LEGEND

DRAWING NO.:
M-1

SHEET NO. 14 OF 26

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PROCESS VALVE SCHEDULE

Mechanical Tag No.	Size	Type	Description	Location	Application	Service	Valve Position	Valve Operator
CV-201A	1-1/2"	BUTTERFLY VALVE	FILTER #1 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	OPEN FOR ONLINE, CLOSED FOR OFFLINE	MOTOR
MV-201A	1-1/2"	BUTTERFLY VALVE	FILTER #1 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
CV-201B	1-1/2"	BUTTERFLY VALVE	FILTER #2 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	OPEN FOR ONLINE, CLOSED FOR OFFLINE	MOTOR
MV-201B	1-1/2"	BUTTERFLY VALVE	FILTER #2 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
CV-202A	1-1/2"	BUTTERFLY VALVE	FILTER #1 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	OPEN FOR ONLINE, CLOSED FOR OFFLINE	MOTOR
MV-202A	1-1/2"	BALL VALVE	FILTER #1 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
CV-202B	1-1/2"	BUTTERFLY VALVE	FILTER #2 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	OPEN FOR ONLINE, CLOSED FOR OFFLINE	MOTOR
MV-202B	1-1/2"	BALL VALVE	FILTER #2 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
CV-203A	2-1/2"	BUTTERFLY VALVE	FILTER #1 BACKWASH INLET	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-203B	2-1/2"	BUTTERFLY VALVE	FILTER #2 BACKWASH INLET	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-204A	1"	BUTTERFLY VALVE	FILTER #1 BACKWASH OUTLET	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-204B	1"	BUTTERFLY VALVE	FILTER #2 BACKWASH OUTLET	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-205A	1"	BUTTERFLY VALVE	FILTER #1 RINSE VALVE	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-205B	1"	BUTTERFLY VALVE	FILTER #2 RINSE VALVE	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
ARV-207A	1"	AIR RELEASE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	-
ARV-207B	1"	AIR RELEASE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	-
MV-207A	1"	BALL VALVE	ARV ISOLATION FILTER #1	FILTER VESSEL	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
MV-207B	1"	BALL VALVE	ARV ISOLATION FILTER #2	FILTER VESSEL	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
MV-209A	1"	BALL VALVE	WASTE/DRAIN FILTER #1	FILTER VALVE SKID	DRAIN	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
MV-209B	1"	BALL VALVE	WASTE/DRAIN FILTER #2	FILTER VALVE SKID	DRAIN	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
CV-301	2"	BUTTERFLY VALVE	BACKWASH TANK FILL	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
CV-302	2"	BUTTERFLY VALVE	BACKWASH TANK FILL	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	MOTOR
MV-302	2"	BALL VALVE	BACKWASH TANK FILL	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
MV-303	1-1/2"	BALL VALVE	BACKWASH PUMP SUCTION	BACKWASH SUPPLY	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
MV-304	1-1/4"	BALL VALVE	BACKWASH PUMP DISCHARGE	BACKWASH SUPPLY	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
MV-305	2"	BALL VALVE	TREATMENT SKID BYPASS	BYPASS	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
MV-306	2"	BALL VALVE	TREATMENT SKID BYPASS	BYPASS	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
CV-401	2"	BUTTERFLY VALVE	FILTER EFFLUENT HEADER	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	MOTOR
MV-401	2"	BALL VALVE	FILTER EFFLUENT HEADER	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-201A	1/4"	BALL VALVE	FILTER #1 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-201B	1/4"	BALL VALVE	FILTER #2 INFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-202A	1-1/2"	BALL VALVE	FILTER #1 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORALLY CLOSED	HANDLE
SmV-202B	1-1/2"	BALL VALVE	FILTER #2 EFFLUENT	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORALLY CLOSED	HANDLE
SmV-203A	1/2"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-203B	1/2"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-204A	1/4"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-204B	1/4"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-205A	1/4"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-205B	1/4"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-206A	1/4"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-206B	1/4"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-207A	1/4"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-207B	1/4"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY CLOSED	HANDLE
SmV-208A	1/4"	BALL VALVE	FILTER #1	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE
SmV-208B	1/4"	BALL VALVE	FILTER #2	FILTER VALVE SKID	WATER	OPEN/CLOSE	NORMALLY OPEN	HANDLE

PUMP SCHEDULE

EQUIPMENT ID	P&ID TAG NO.	EQUIPMENT DESCRIPTION	LOCATION	TYPE	RATING POINTS	DRIVE	MOTOR			VOLTAGE			REMARKS
							HP	RPM	ENCL	VAC	Hz	PH	
P-301	BWP-301	BACKWASH SUPPLY PUMP	INDIAN SPRINGS TREATMENT PLANT	CENTRIFUGAL	85 GPM @ 40 FT TDH	CONSTANT	1.5	1200	ODP	460	60	3	
P-302	ISMP-501	METERING PUMP	INDIAN SPRINGS WELL HOUSE	PERISTALTIC	0.0002 - 33.3 GPH @ 125 PSI	VARIABLE	3.5 AMPS (MAX)			120	60	1	ELECTRICAL 3-PRONG TWIST-LOCK PLUG CONNECTION
P-303	ISMP-502	METERING PUMP	INDIAN SPRINGS WELL HOUSE	PERISTALTIC	0.0002 - 33.3 GPH @ 125 PSI	VARIABLE	3.5 AMPS (MAX)			120	60	1	ELECTRICAL 3-PRONG TWIST-LOCK PLUG CONNECTION
P-304	ACMP-503	METERING PUMP	ARMY CAMP WELL HOUSE	PERISTALTIC	0.0002 - 33.3 GPH @ 125 PSI	VARIABLE	3.5 AMPS (MAX)			120	60	1	ELECTRICAL 3-PRONG TWIST-LOCK PLUG CONNECTION
P-305	ACMP-504	METERING PUMP	ARMY CAMP WELL HOUSE	PERISTALTIC	0.0002 - 33.3 GPH @ 125 PSI	VARIABLE	3.5 AMPS (MAX)			120	60	1	ELECTRICAL 3-PRONG TWIST-LOCK PLUG CONNECTION

FLOW ELEMENT SCHEDULE

EQUIPMENT ID	P&ID TAG NO.	EQUIPMENT DESCRIPTION	LOCATION	TYPE	Size	Flow Range	VOLTAGE			REMARKS
							VAC	Hz	PH	
MAG-1	FE-101	RAW WATER FLOW METER	INDIAN SPRINGS WELL HOUSE	MAG	2"	5 - 100 GPM	110	6	1	
MAG-2	FE-201A	FILTER NO. 1 INFLUENT	INDIAN SPRINGS TREATMENT PLANT	MAG	2"	5 - 100 GPM	110	6	1	
MAG-3	FE-201B	FILTER NO. 2 INFLUENT	INDIAN SPRINGS TREATMENT PLANT	MAG	2"	5 - 100 GPM	110	6	1	

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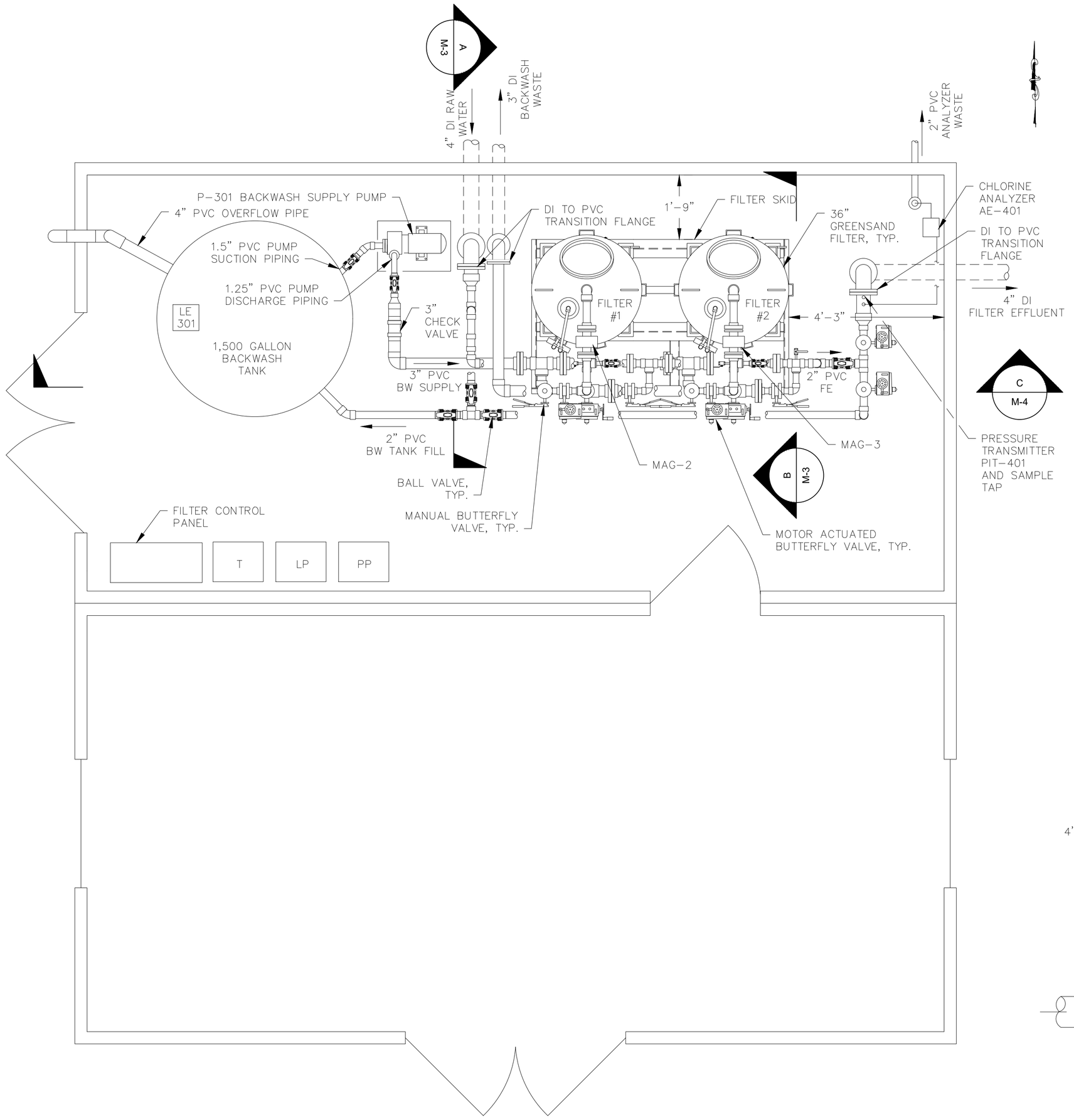
WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

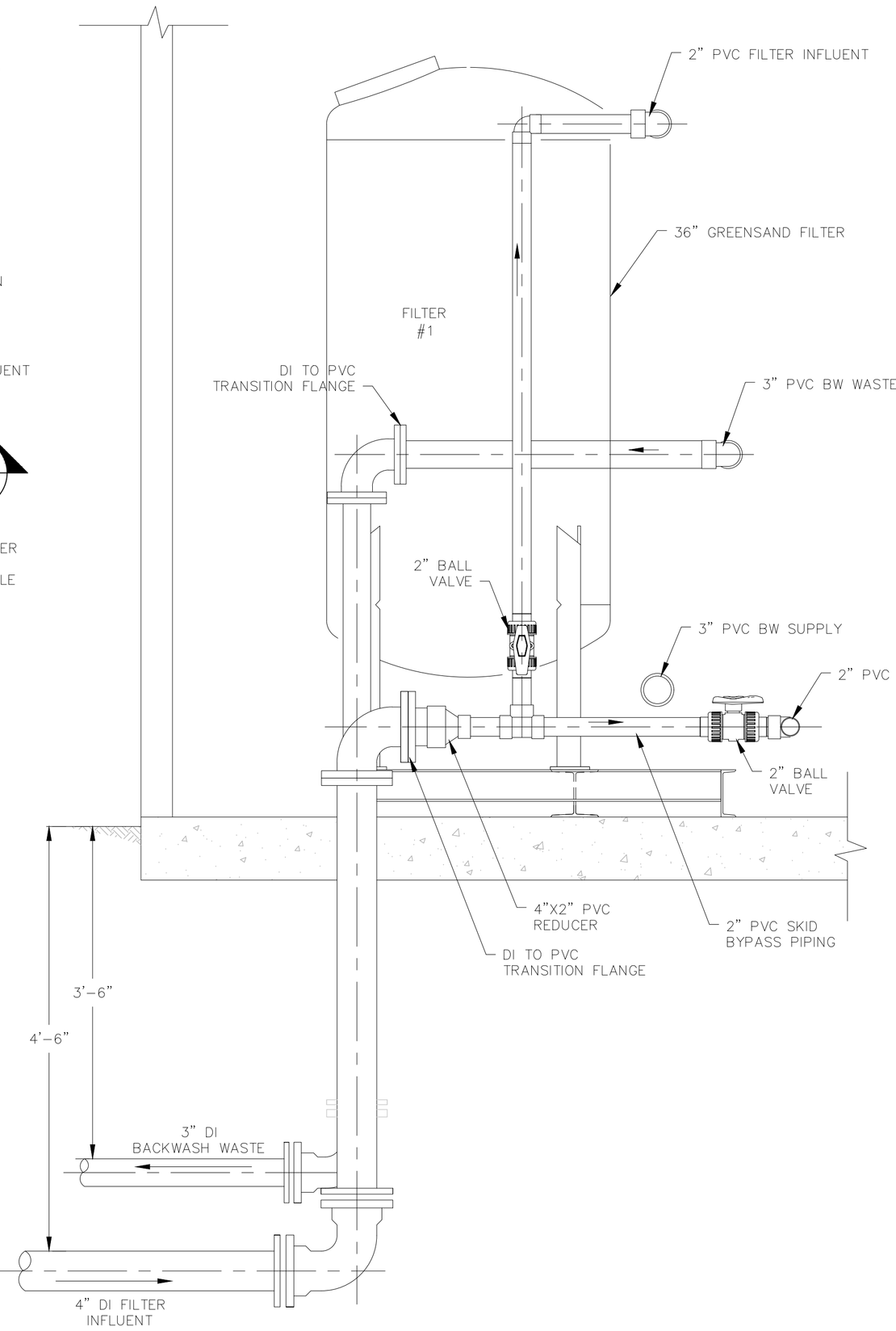
DRAWING TITLE:
MECHANICAL SHEDULES

DRAWING NO.:
M-2

SHEET NO. 15 OF 26

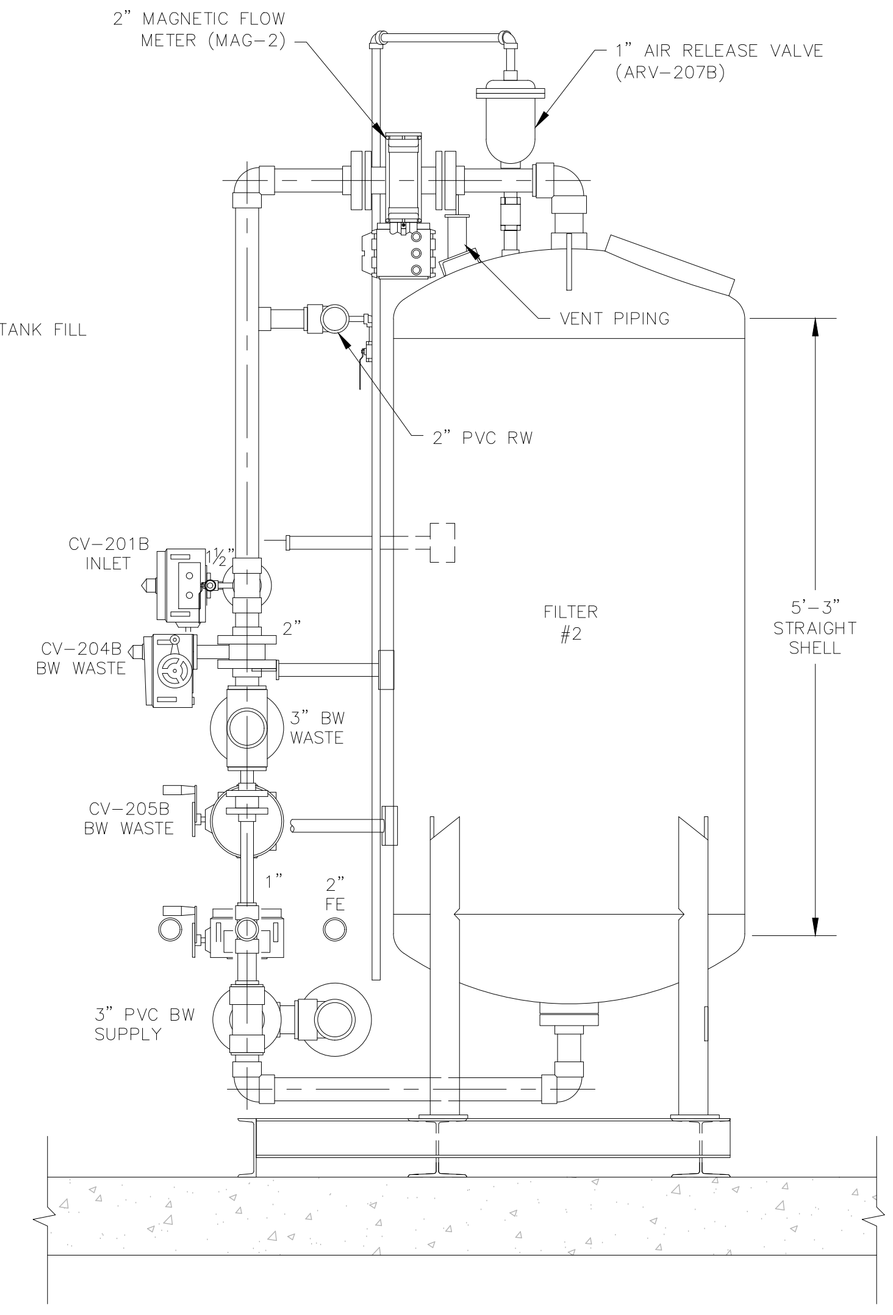


FLOOR PLAN
SCALE: 1/2" = 1'



SECTION
SCALE: 1" = 1'

A / M-3



SECTION
SCALE: 1" = 1'

B / M-3

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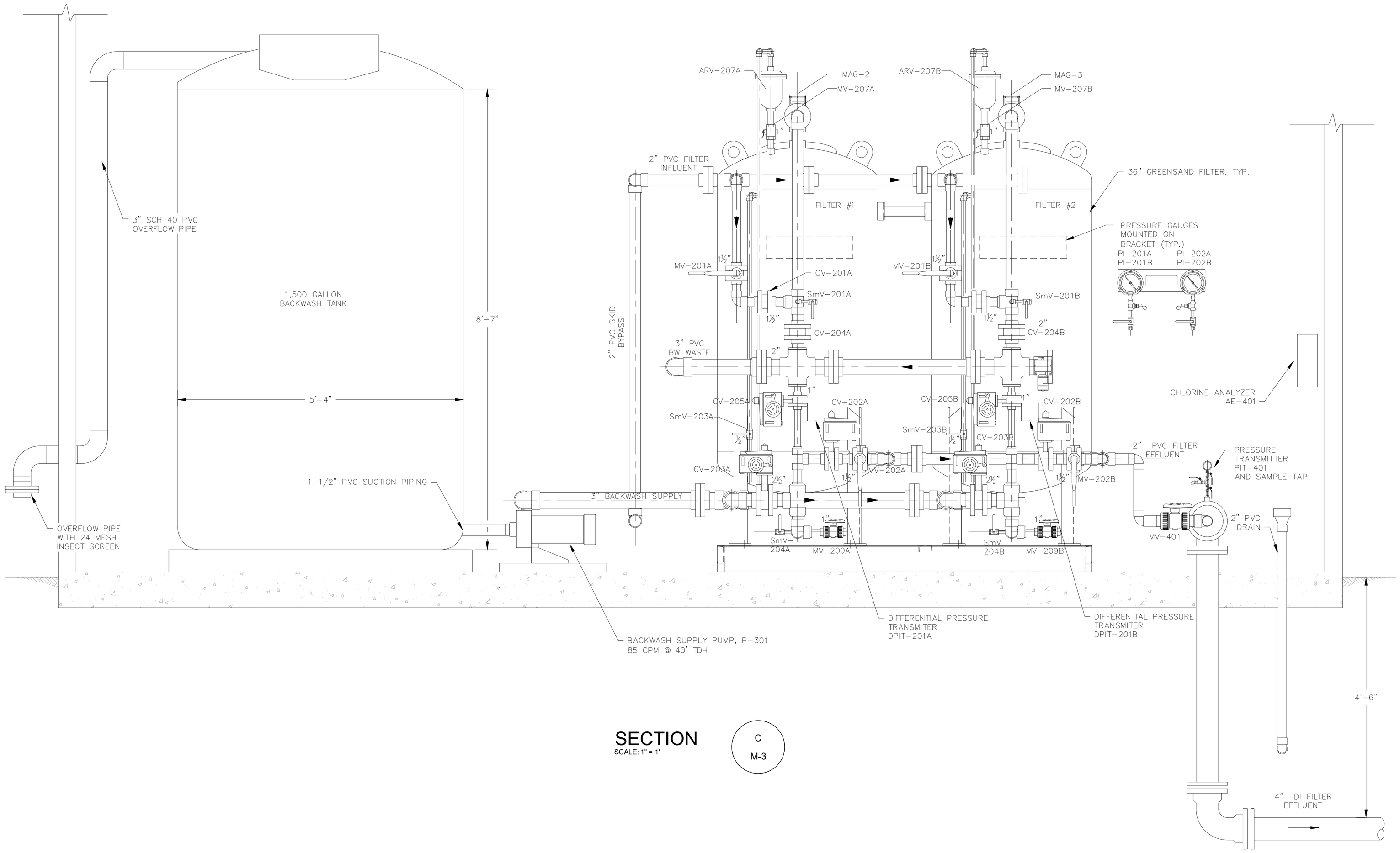
WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
MECHNICAL PROCESS PIPING PLAN

DRAWING NO.:
M-3

SHEET NO. 16 OF 26



SECTION C
SCALE: 1" = 1'

M-3

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(508) 375-7007

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS		
NO.	DATE	DESCRIPTION

LISA GOYER
No. 11536
REGISTERED PROFESSIONAL ENGINEER
CIVIL
12/30/21

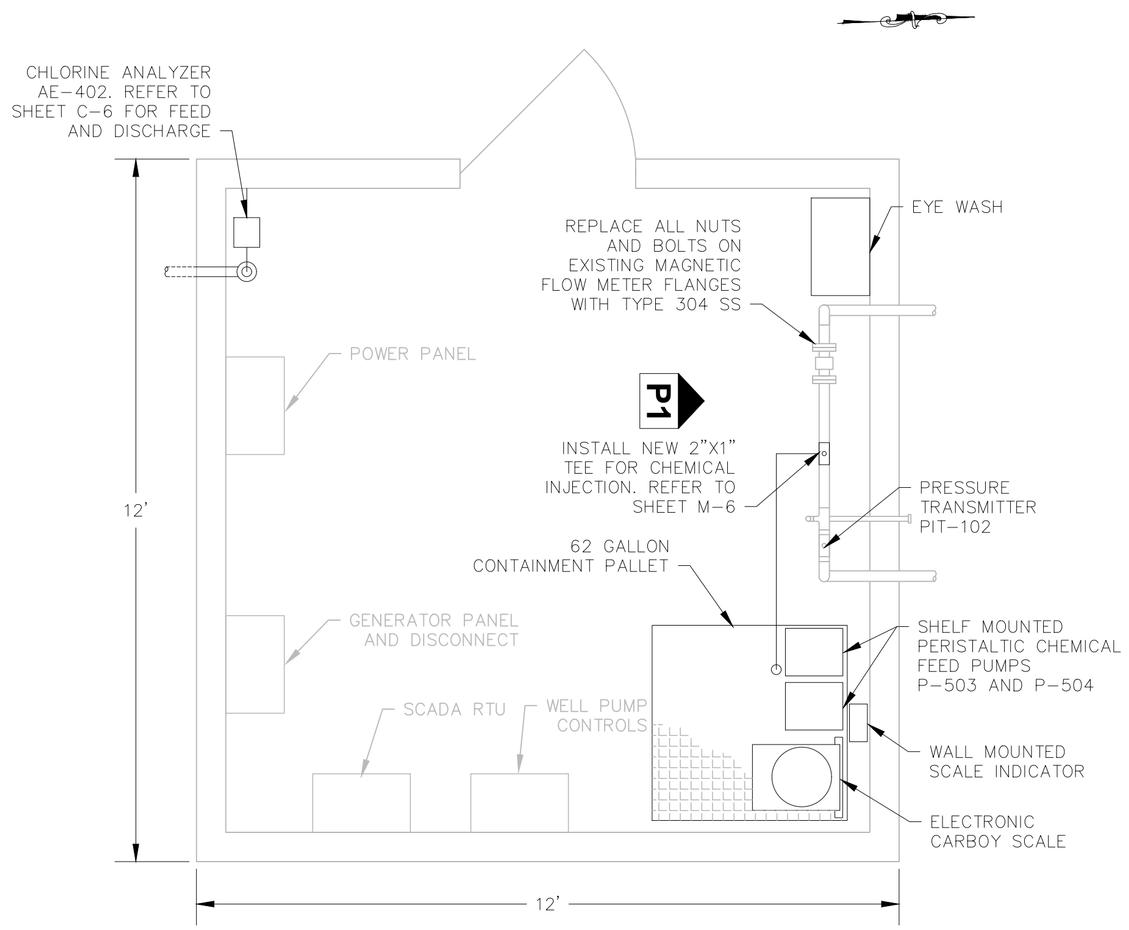
PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	LMG
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
MECHNICAL PROCESS PIPING SECTIONS

DRAWING NO.:
M-4

SHEET NO. 17 OF 26



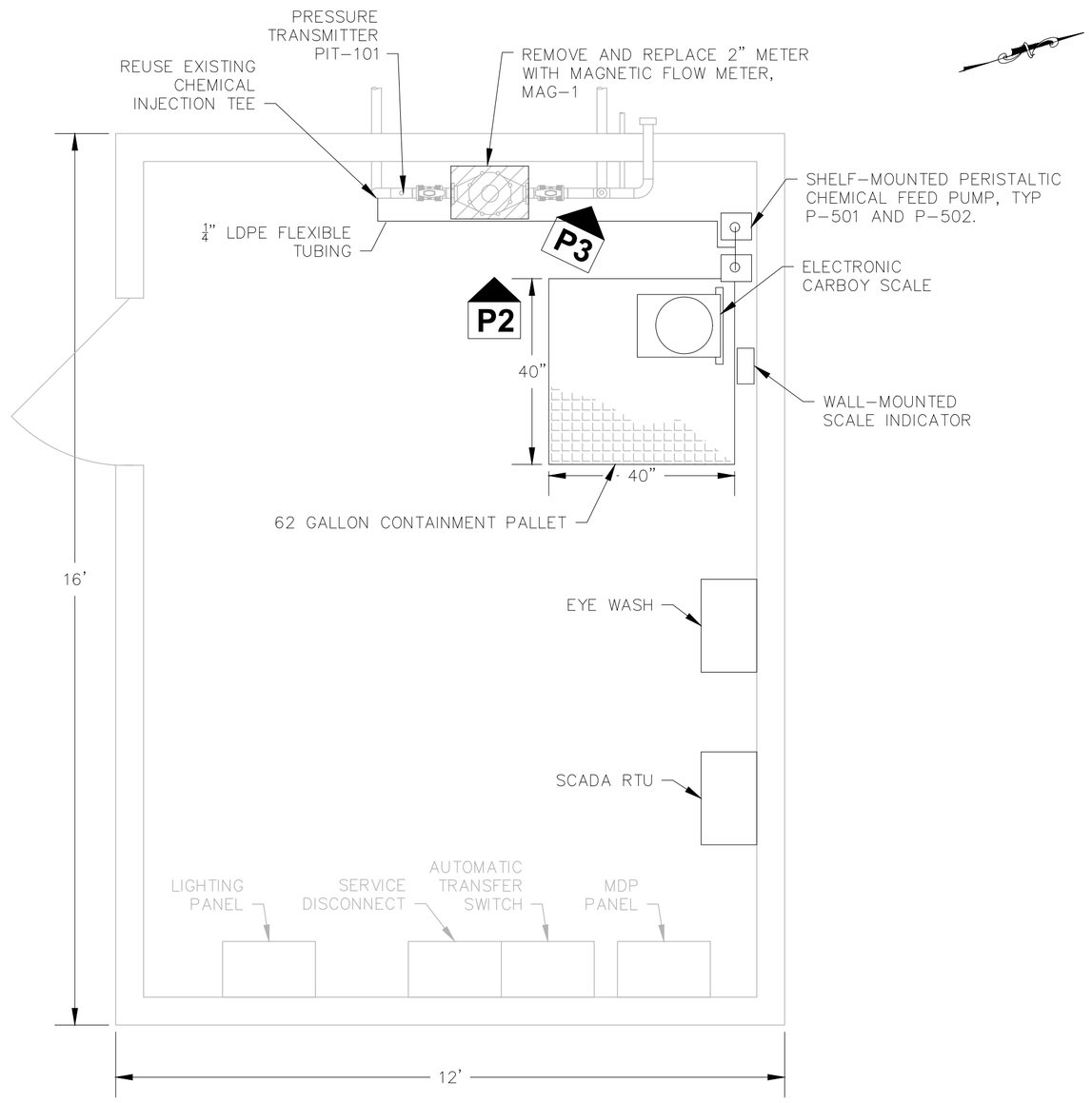
ARMY CAMP WELL HOUSE
FLOOR PLAN

SCALE: 1/2" = 1'

PHOTO 1

PHOTO 2

PHOTO 3



INDIAN SPRINGS WELL HOUSE
FLOOR PLAN

SCALE: 1/2" = 1'

NOTE:
1. CHLORINE SYSTEM SCHEMATIC IS FOR BOTH INDIAN SPRINGS AND ARMY CAMP.

CHLORINE FEED SYSTEM SCHEMATIC

SCALE: nts

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WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
WELL HOUSE
CHEMICAL FEED SYSTEMS

DRAWING NO.:
M-5

SHEET NO. 18 OF 26

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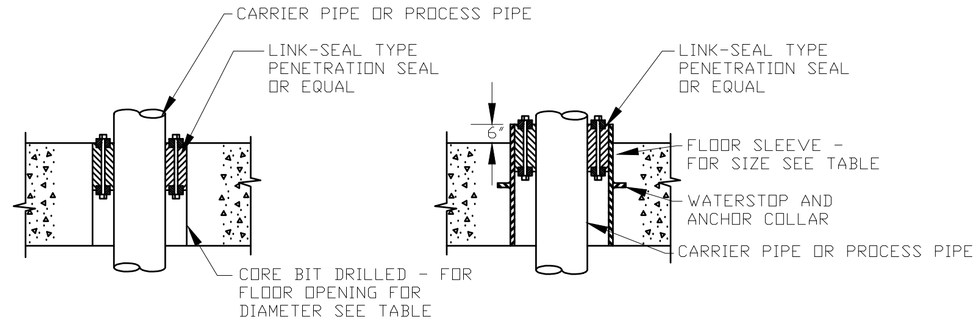


EXISTING CONCRETE FLOOR
SCALE: NTS

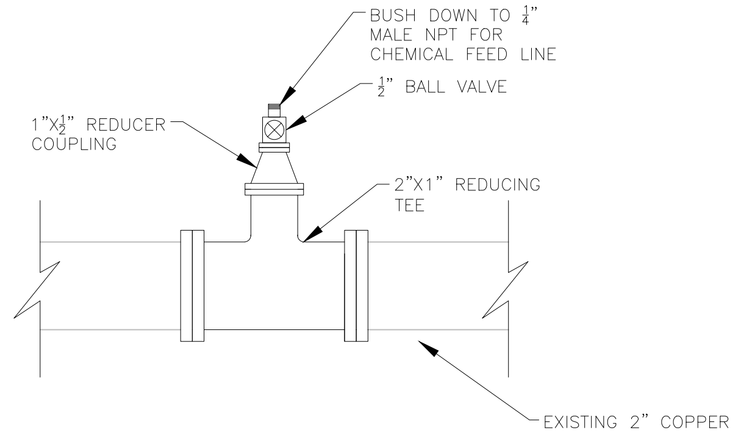
NEW CONCRETE FLOOR
SCALE: NTS

CARRIER PIPE NOMINAL SIZE	CARRIER PIPE O.D.	FLOOR SLEEVE SIZE	CORE DRILLED I.D.
1 1/2''	1.625''	3''	3''
2''	2.50''	4''	4''
4''	4.80''	8''	8''
6''	6.90''	10''	10''
8''	9.05''	12''	12''
16''	17.40''	20''	20''
18''	19.50''	24''	24''
24''	25.80''	30''	29''

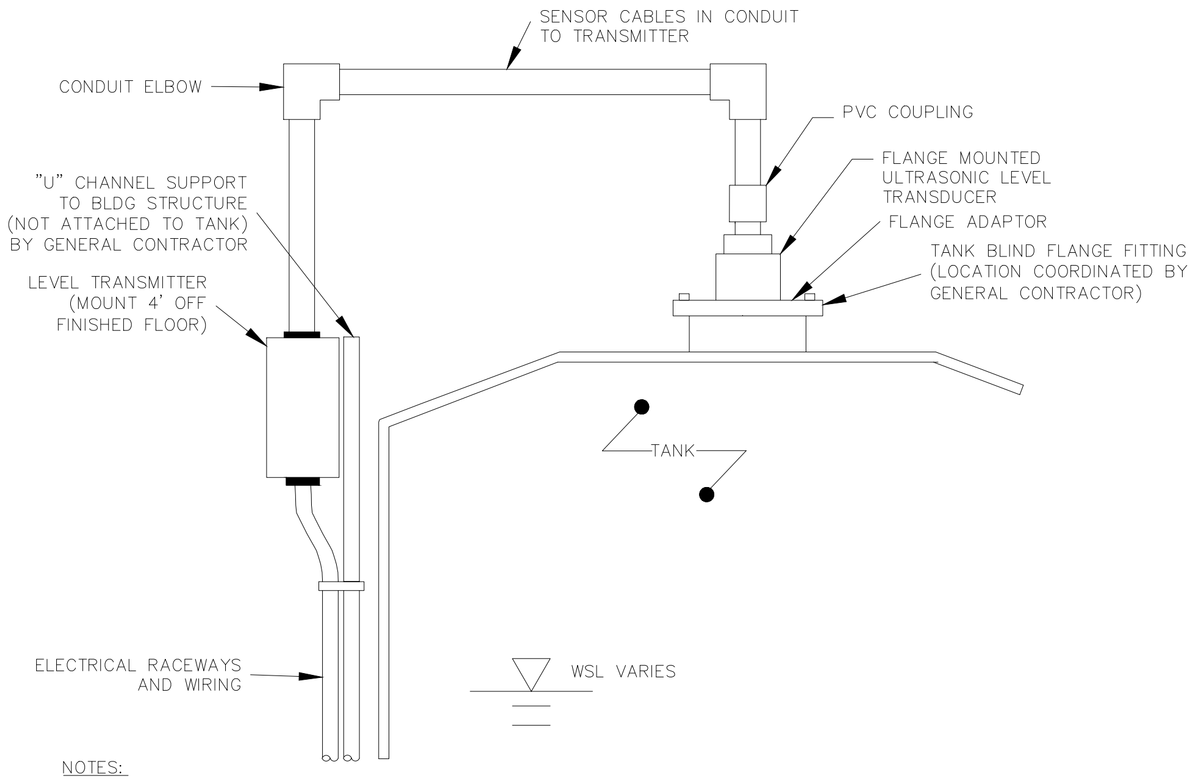
NOTES:

1. SIZES SHOWN ARE FOR DUCTILE IRON PIPE, FOR OTHER MATERIALS AND PIPE SIZES CONSULT MANUFACTURER'S SPECIFICATIONS.
2. FILL ANNULAR SPACE WITH GROUT.

TYPICAL PIPE SLAB PENETRATION DETAIL
SCALE: N.T.S.



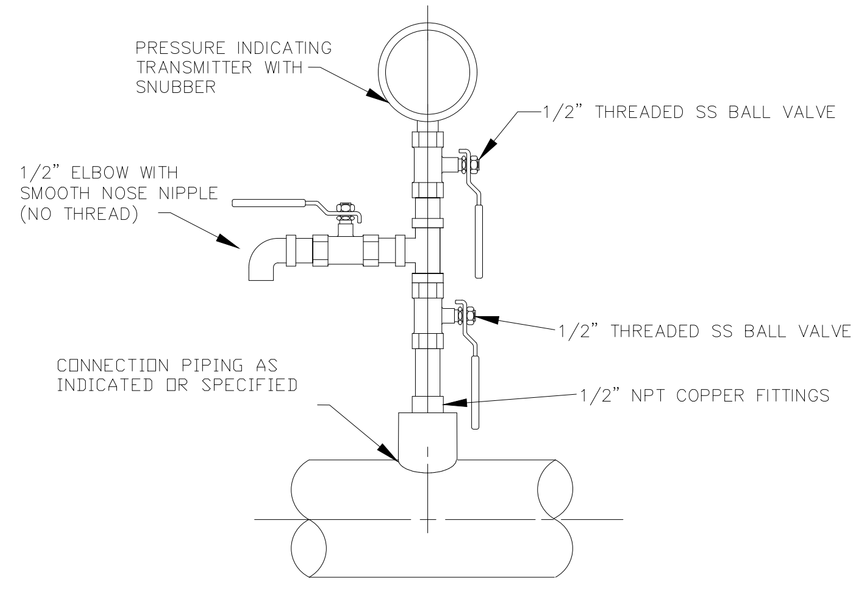
CHEMICAL FEED TEE DETAIL
SCALE: N.T.S.



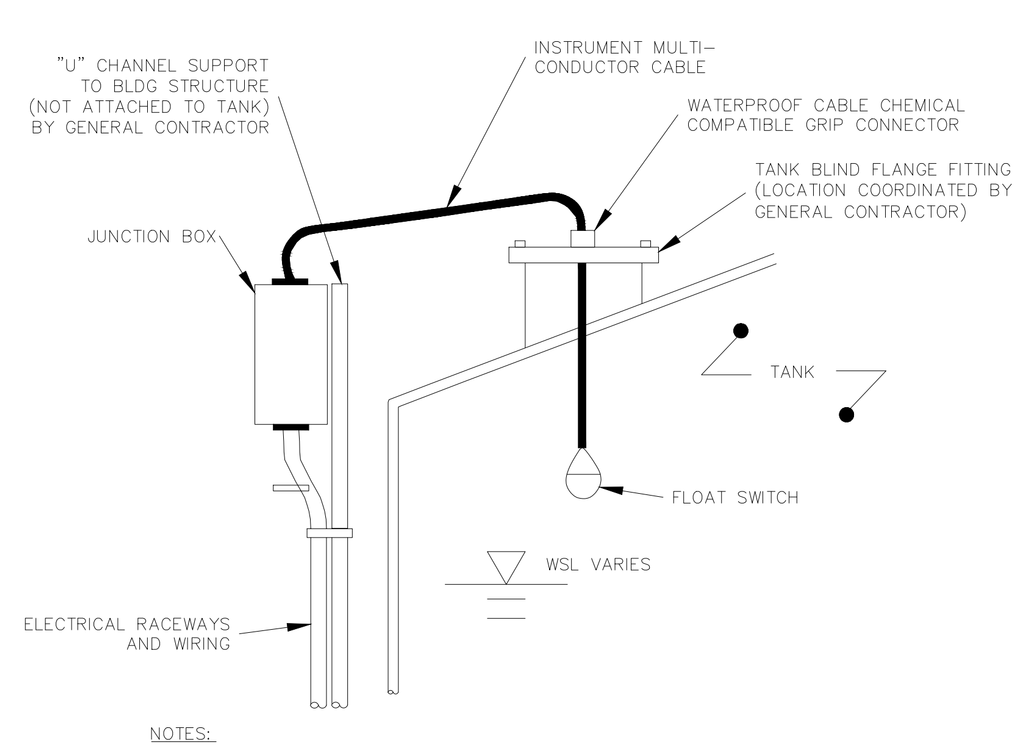
NOTES:

1. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL DIVISION 16 DEVICES, EQUIPMENT, COMPONENTS, AND ANCILLARY ITEMS ASSOCIATED WITH POWER AND SIGNAL WIRING FOR I&C DEVICES.
2. THE MOUNTING DETAILS PROVIDED ARE GENERIC FOR ULTRASONIC DEVICES OF VARIOUS MANUFACTURERS. THE INSTALLING CONTRACTOR MUST STRICTLY COMPLY WITH MANUFACTURER'S INSTRUCTION IN THE INSTALLATION OF THESE DEVICES. IF THERE ARE ANY ENGINEERING ISSUES THEY MUST BE REFERRED TO THE ENGINEER PRIOR TO INSTALLATION.

BACKWASH TANK ULTRASONIC LEVEL DETAIL
SCALE: N.T.S.



PRESSURE TRANSMITTER MOUNTING DETAIL TRANSMITTER AND SAMPLE TAP
SCALE: N.T.S.



NOTES:

1. ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL ALL DIVISION 16 DEVICES, EQUIPMENT, COMPONENTS, AND ANCILLARY ITEMS ASSOCIATED WITH POWER AND SIGNAL WIRING FOR I&C DEVICES.
2. THE MOUNTING DETAILS PROVIDED ARE GENERIC FOR LEVEL SWITCH DEVICES OF VARIOUS MANUFACTURERS. THE INSTALLING CONTRACTOR MUST STRICTLY COMPLY WITH MANUFACTURER'S INSTRUCTION IN THE INSTALLATION OF THESE DEVICES. IF THERE ARE ANY ENGINEERING ISSUES THEY MUST BE REFERRED TO THE ENGINEER PRIOR TO INSTALLATION.

BACKWASH TANK FLOAT SWITCH DETAIL
SCALE: N.T.S.

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PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
MECHANICAL DETAILS

DRAWING NO.:
M-6

SHEET NO. 19 OF 26

GENERAL SYMBOLS

1 / E001 PLAN TITLES

SCALE: 1/4" = 1'-0" (0, 2', 4', 8')

NORTH ARROW

HVAC DUCTWORK LEGEND

12ø — DOUBLE LINE ROUND DUCT (DIMENSIONS IN INCHES)

24X12 — DOUBLE LINE RECTANGULAR DUCT, FIRST NUMBER IS VIEW SIZE, SECOND NUMBER IS DEPTH SIZE (DIMENSIONS IN INCHES)

SUPPLY AIR FLOW

RETURN / EXHAUST AIR FLOW

HVAC CONTROL LEGEND

T1 T — TEMPERATURE \ THERMOSTAT

HVAC ABBREVIATIONS

% – PERCENT
˚ or DEG – DEGREE
ø or DIA – DIAMETER
A – AREA
AC – ALTERNATING CURRENT
AFF – ABOVE FINISHED FLOOR
ANG – ANGLE
ANSI – AMERICAN NATIONAL STANDARDS INSTITUTE
AWG – AMERICAN WIRE GAUGE
BHP – BRAKE HORSEPOWER
CC – CEILING CONCEALED UNIT (DUCTLESS SPLIT SYSTEM)
CFM – CUBIC FEET PER MINUTE
CUH – CABINET UNIT HEATER
DB – DECIBEL
DC – DIRECT CURRENT
DENS – DENSITY
DIFF – DIFFERENCE or DELTA
DN – DOWN
DP – DEPTH
DWG – DRAWING
EF – EXHAUST FAN
EL – ELEVATION
ENT – ENTERING
EXG – EXISTING
F – FARENHEIT
FP – FIRE PROTECTION
FPM – FEET PER MINUTE
FPS – FEET PER SECOND
FS – FLOW SWITCH
FT – FEET
FTLB – FOOT POUND
GA – GAUGE
GAL – GALLON(S)
GHU – GAS UNIT HEATER
GPM – GALLONS PER MINUTE
HD – HEAD
HGT – HEIGHT
HOR – HORIZONTAL
HP – HORSEPOWER
HR – HOUR(S)
HZ – HERTZ FREQUENCY
ID – INSIDE DIAMETER
IPS – INTERNATIONAL PIPE STANDARD
IPS – IRON PIPE SIZE
KW – KILOWATT(S)
KWH – KILOWATT HOUR
LBS – POUNDS
LG – LENGTH
LVE – LOUVER (EXHAUST)
LVI – LOUVER (INTAKE)
MAX – MAXIMUM
MIN – MINIMUM
N/A – NOT APPLICABLE
NC – NOISE CRITERIA
NC – NORMALLY CLOSED
NO – NORMALLY OPEN
NO – NUMBER
NTS – NOT TO SCALE
OD – OUTSIDE DIAMETER
OS&Y – OUTSIDE STEM & YOKE
OZ – OUNCE
PD – PRESSURE DROP oR DIFFERENCE
PH – PHASE
PIV – POST INDICATING VALVE
PSI – POUNDS PER SQUARE INCH
PSIA – PSI ABSOLUTE
PSIG – PSI GAUGE
QTY – QUANTITY
RPDA – REDUCE PRESSURE PRINCIPLE DETECTOR ASSEMBLY
RPM – REVOLUTIONS PER MINUTE
RS – RISING STEM
SF – SAFETY FACTOR
SF – SQUARE FEET
SP – SPRINKLER PIPE
SPEC – SPECIFICATIONS
SPLY – SUPPLY
STD – STANDARD
TC – TEST CONNECTION
TEMP – TEMPERATURE
TYP – TYPICAL
U.O.N. – UNLESS OTHERWISE NOTED
V – VOLT
VA – VOLT AMPERE
VEL – VELOCITY
VERT – VERTICAL
VOL – VOLUME
VP – VELOCITY PRESSURE
W – WATT(S)

HVAC GENERAL NOTES & REQUIRMENTS

1. CONSTRUCTION\CONTRACT DOCUMENTS: CONTRACT DOCUMENTS INCLUDING PLANS, DETAILS, AND ONE–LINE DIAGRAMS SHOW THE GENERAL LOCATION AND ARRANGEMENT OF THE WORK.

2. COORDINATION:
   A) BEFORE SELECTING MATERIAL, EQUIPMENT AND PROCEEDING WITH WORK, INSPECT AREAS WHERE MATERIAL AND EQUIPMENT ARE TO BE INSTALLED TO INSURE SUITABILITY, AND CHECK NEEDED SPACE FOR PLACEMENT, CLEARANCES AND INTERCONNECTIONS.
   B) PLANS AND DETAILS DO NOT SHOW ALL INTERFERENCE'S AND CONDITIONS, VISIBLE AND/OR HIDDEN THAT MAY EXIST; THUS, REQUIRING THE CONTRACTOR TO INSPECT AND SURVEY THE SPACE BEFORE PERFORMING THE WORK.
   C) BEFORE CUTTING OR DRILLING INTO BUILDING ELEMENTS INSPECT AND LAYOUT WORK TO AVOID DAMAGING STRUCTURAL ELEMENTS AND BUILDING UTILITIES.

3. CODES AND STANDARDS: FOLLOW ALL FEDERAL, STATE AND LOCAL CODES THAT HAVE JURISDICTION WHERE THE WORK IS BEING PERFORMED.

4. PERMITS: THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE FOR ALL REQUIRED INSPECTIONS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL GOVERNING AUTHORITIES.

5. WORKMAN: ALL WORK SHALL BE DONE WITH LICENSED WORKMEN IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL GOVERNING AUTHORITIES CODES AND REGULATIONS.

6. EQUIPMENT AND MATERIAL INSTALLATIONS:
   A) ALL EQUIPMENT AND MATERIALS SHALL BE LABELED AND LISTED, AND INSTALLED IN ACCORDANCE WITH THEIR LISTING AND MANUFACTURER'S REQUIREMENTS.
   B) WHEN A MANUFACTURER RECOMMENDS AN OPTION OR ACCESSORY ITEM FOR THE INSTALLED CONDITION, OPERATION, OR ENVIRONMENT THAT IS TO BE EXPERIENCED, SUCH ITEM SHALL BE SUPPLIED AT NO ADDITIONAL COST TO THE OWNER.
   C) IF AN EQUIPMENT MANUFACTURER REQUIRES LARGER CAPACITY, CIRCUITRY AND/OR EQUIPMENT, THE CONTRACTOR SHALL PROVIDE SUCH CAPACITY AND/OR EQUIPMENT UNDER HIS CONTRACT AT NO ADDITIONAL COST TO THE OWNER.
   D) LOCATE ALL EQUIPMENT, WHICH REQUIRES SERVICING IN FULLY ACCESSIBLE POSITIONS. IF REQUIRED FOR BETTER ACCESSIBILITY, FURNISH ACCESS DOORS FOR THAT PURPOSE.
   E) INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE, AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING, WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
   F) BEFORE TRENCHING OR DIGGING, CONTACT THE UTILITY COMPANIES BY CALLING THE "CALL BEFORE YOU DIG" SERVICE AT 1–800–922–4455 FOR CONNECTICUT OR "DIG SAFE" AT 1–800–322–4844 FOR MASSACHUSETTS FOR INFORMATION REGARDING THE LOCATION OF UNDERGROUND UTILITIES. DO NOT RELY ON CONTRACT SITE AND BUILDING DRAWINGS FOR UTILITY INFORMATION AS THEY ARE SCHEMATIC IN NATURE AND DO NOT SHOW EXACT INFORMATION OR ALL UTILITY LINES THAT MAY BE PRESENT.
   G) FURNISH AND INSTALL CONCRETE LAGBOLT SYSTEM OR THREADED ROD WITH ALL HARDWARE TO FC–1 AND FC–2 TO GABLED CEILING.
   H) FURNISH AND INSTALL CONCRETE PRECAST PADS FOR GROUND MOUNTED EQUIPMENT.

7. SERVICE LABELING: LABEL EQUIPMENT, PIPING, CONDUITS, INCLUDING FANS, AIR HANDLERS, TERMINAL UNITS, PANELBOARDS, ETC. WITH LABELS MADE OF SELF–STICKING, PLASTIC FILM DESIGNED FOR PERMANENT INSTALLATION. LABELS SHALL MATCH DESIGNATIONS AS INDICATED ON CONTRACT DRAWINGS. IDENTIFY PIPING AND CONDUITS IN ACCORDANCE WITH OSHA 29 CFR 1910.144, EXCEPT THAT LABELS OR TAPES MAY BE USED IN LIEU OF PAINTING OR STENCILING. SPACING OF IDENTIFICATION MARKING ON RUNS SHALL NOT EXCEED 50 FEET. MATERIALS FOR LABELS AND TAPES SHALL CONFORM TO CID A–A–1689, AND SHALL BE GENERAL PURPOSE TYPE AND COLOR CLASS.
   A) IN ADDITION IDENTIFY SERVICES AS INDICATED BELOW:
   B) EACH POINT OF ENTRY AND EXIT OF PIPE OR CONDUITS PASSING THROUGH WALLS.
   C) EACH CHANGE IN DIRECTION, I.E., ELBOWS, TEES.
   D) IN CONGESTED OR HIDDEN AREAS AND AT ALL ACCESS PANELS AT EACH POINT REQUIRED TO CLARIFY SERVICE OR INDICATED HAZARD.
   E) IN LONG STRAIGHT RUNS, LOCATE LABELS AT DISTANCES WITHIN EYESIGHT OF EACH OTHER NOT TO EXCEED 50 FEET. ALL LABELS SHALL BE VISIBLE AND LEGIBLE FROM THE PRIMARY SERVICE AND OPERATING AREA.

8. MANUFACTURER'S NAMEPLATES: EACH ITEM OF EQUIPMENT SHALL HAVE A NAMEPLATE BEARING THE MANUFACTURER'S NAME, ADDRESS, MODEL NUMBER, AND SERIAL NUMBER SECURELY AFFIXED IN A CONSPICUOUS PLACE; THE NAMEPLATE OF THE DISTRIBUTING AGENT WILL NOT BE ACCEPTABLE.

9. POSTED OPERATING INSTRUCTIONS: PROVIDE FOR EACH SYSTEM AND PRINCIPAL ITEM OF EQUIPMENT AS SPECIFIED FOR USE BY OPERATION AND MAINTENANCE PERSONNEL. PRINT OR ENGRAVE OPERATING INSTRUCTIONS AND FRAME UNDER GLASS OR IN APPROVED LAMINATED PLASTIC. POST INSTRUCTIONS WHERE DIRECTED. FOR OPERATING INSTRUCTIONS EXPOSED TO THE WEATHER, PROVIDE WEATHER–RESISTANT MATERIALS OR WEATHERPROOF ENCLOSURES. OPERATING INSTRUCTIONS SHALL NOT FADE WHEN EXPOSED TO SUNLIGHT AND SHALL BE SECURED TO PREVENT EASY REMOVAL OR PEELING. THE OPERATING INSTRUCTIONS SHALL INCLUDE THE FOLLOWING:
   A) WIRING DIAGRAMS, CONTROL DIAGRAMS, AND CONTROL SEQUENCE FOR EACH PRINCIPAL SYSTEM AND ITEM OF EQUIPMENT.
   B) START UP, PROPER ADJUSTMENT, OPERATING, LUBRICATION, AND SHUTDOWN PROCEDURES.
   C) SAFETY PRECAUTIONS.
   D) THE PROCEDURE IN THE EVENT OF EQUIPMENT FAILURE.
   E) OTHER ITEMS OF INSTRUCTION AS RECOMMENDED BY THE MANUFACTURER OF EACH SYSTEM OR ITEM OF EQUIPMENT.

10. WARNING SIGNS: PROVIDE WARNING SIGNS FOR THE ENCLOSURES OF ELECTRICAL EQUIPMENT INCLUDING SUBSTATIONS, PAD–MOUNTED TRANSFORMERS, PAD–MOUNTED SWITCHES, GENERATORS, AND SWITCHGEAR HAVING A NOMINAL RATING EXCEEDING 600 VOLTS.

11. EXTERIOR FERROUS MATERIALS: ALL EXTERIOR FERROUS MATERIALS SHALL BE PROTECTED FROM CORROSION BY ONE OF THE FOLLOWING METHODS:
   A) COVERED WITH A NON–FERROUS OR NON–CORRODING MATERIAL.
   B) MATERIALS THAT ARE INSULATED ON THE EXTERIOR.
   C) MATERIALS THAT ARE GALVANIZED.
   D) MATERIALS THAT ARE PAINTED. EXTERIOR PAINTING SHALL CONSIST OF A BASE COAT OF AN APPROPRIATE PRIMER AND TWO COATS OF FINAL PAINT. FINAL PAINT COLOR SHALL BE SELECTED BY THE OWNER'S REPRESENTATIVE.

DUCTLESS SPLIT SYSTEM SCHEDULE		
INDOOR UNIT		
DESIGNATION	FC-1	FC-2
SERVICE	AREA 1	AREA 2
DESCRIPTION	CEILING CASSETT	CEILING CASSETT
SUPPLY AIR FLOW (CFM)	265	265
VENTILATION AIR FLOW (CFM)	30	N/A
TOTAL COOLING (BTU/HR)	12,000	12,000
TOTAL HEATING (BTU/HR), NOTE 3	13,800	13,800
LIQUID LINED SIZE (IN), NOTE 4	1/4	1/4
VAPOR LINE SIZE, NOTE 4	3/8	3/8
CONDENSATE CONNECTION SIZE (IN), NOTE 5	1-1/4	1-1/4
THERMOSTAT	PROVIDE DELUX WIRED THERMOSTAT	PROVIDE DELUX WIRED THERMOSTAT, NOTE 1
ACCESSORIES	CONDENSATE PUMP	CONDENSATE PUMP
LOCAL ELECTRICAL DISCONNECT	PROVIDE	PROVIDE
ELECTRICAL (V/PH/HZ)	INDDOR UNIT IS POWERED BY OUTDOOR UNIT	INDDOR UNIT IS POWERED BY OUTDOOR UNIT
MODEL	SLZ-KF12NA	SLZ-KF12NA
OUTDOOR UNIT		
DESIGNATION	HP-1	HP-1
LOCATION	EXTERIOR GRADE	EXTERIOR GRADE
SERVICE	FC-1	FC-1
DESCRIPTION	VARIBLE SPEED HEAT PUMP WITH HYPER-HEATING	VARIBLE SPEED HEAT PUMP WITH HYPER-HEATING
TOTAL COOLING (BTU/HR)	12,000	12,000
TOTAL HEATING (BTU/HR)	13,800	13,800
ACCESSORIES	STAND, BLUE FIN ANTI-CORROSION COIL TREATMENT	STAND, BLUE FIN ANTI-CORROSION COIL TREATMENT
CONCRETE PAD	PROVIDE	PROVIDE
LOCAL ELECTRICAL DISCONNECT	PROVIDE	PROVIDE
ELECTRICAL (V/PH/HZ)	208/1/60	208/1/60
ELECTRICAL MCA (AMPS)	14	14
ELECTRICAL MOCP (AMPS)	20, NOTE 2	20, NOTE 2
MODEL	SUZ-KA12NAHZ	SUZ-KA12NAHZ
MANUFACTURER	MISUBISHI ELECTRIC	MISUBISHI ELECTRIC

NOTES:
1. SET THERMOSTAT TO PROVIDE DEHUMIDIFICATION MODE FOR 10 MINUTES FOR EVERY HOUR.
2. VERIFY WITH MANUFACTURER.
3. BASED ON AN OUTDOOR AIT TEMPERATURE OF 5°F.
4. PROVIDE PIPING BETWEEN FC AND HP.
5. RUN CONDENSATE PIPING FROM FC TO THE EXTERIOR.

DUCTWORK INSULATION SCHEDULE										
DUCT SYSTEM	LOCATION	DUCT TEMP. (°F)	INSULATION MATERIAL, NOTE 3	INSULATION DENSITY (LB/CF)	INSULATION THICKNESS (IN), NOTE 1	K-FACTOR AT A 75°F MEAN TEMP. (BTU*IN/HR*ST*F)	MIN. INSTALLED R-VALUE (H*FT^2/BTU)	JACKET TYPE, NOTE 3	PRODUCT, NOTE 2	MANUFACTURER, NOTE 2
VENTILATION	CONDITIONED SPACE	0 TO 95	INORGANIC GLASS MINERAL WOOL BLANKET	0.75	2	0.29	6	FSK	FRIENDLY FEEL DUCT WRAP WITH ECOSE TECHNOLOGY	KNAUF

NOTES:
1. THICKNESS IS BASED ON LABEL.
2. OR EQUAL MANUFACTURERS ARE ACCEPTABLE.
3. INSULATION AND JACKET SHALL HAVE A MAXIMUM FLAME SPREAD OF 25 & SMOKE DEVELOPMENT OF 50 PER ASTM E 84.

DUCTWORK CONSTRUCTION SCHEDULE, NOTE 1			
DUCTWORK SYSTEM	DUCTWORK MATERIAL	PRESSURE CLASS (IWG), NOTE 2	SEAL CLASS, NOTE 3
VENTILATION NEGATIVE PRESSURE	GALVANIZED STEEL	-1	B

NOTES:
1. ALL DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SMACNA 2005 "HVAC DUCT CONSTRUCTION STANDARDS".
2. PRESSURE CLASSIFICATIONS ARE BASED ON SMACNA 2005 "HVAC DUCT CONSTRUCTION STANDARDS".
3. SEAL CLASS A: SEAL ALL TRANSVERSE JOINTS, LONGITUDINAL SEAMS & DUCT WALL PENETRATIONS. SEAL CLASS B: SEAL ALL TRANSVERSE JOINTS & LONGITUDINAL SEAMS .

MECHANICAL PIPING & EQUIPMENT INSULATION SCHEDULE													
PIPING SYSTEM, NOTE 1	LOCATION	PIPING TEMP. (°F)	INSULATION THICKNESS BASED ON PIPE DIAMETER (IN), NOTE 2						INSULATION MATERIAL, NOTE 3	K-FACTOR AT A 75°F MEAN TEMP.	JACKET TYPE, NOTE 3	FITTING COVER TYPE	PRODUCT, NOTE 4	MANUFACT-URER, NOTE 4
			RUNOUTS <2	<=1	1.0 - 1.25	1.5 - 3.5	4 - 6	>=8						
REFRIGERANT VAPOR	INTERIOR	45	0.5	0.5	1.0	1.0	1.0	1.0	CLOSED CELL ELASTOMERIC FOAM	0.25	N/A	N/A	AP ARMAFLEX	ARMACELL
REFRIGERANT VAPOR	EXTERIOR	45	1.0	1.0	1.5	1.5	1.5	1.5	CLOSED CELL ELASTOMERIC FOAM	0.25	N/A	N/A	AP ARMAFLEX	ARMACELL

NOTES:
1. SEE PIPING SCHEDULE FOR PIPING TYPES.
2. RUNOUTS ARE AREAS WERE PIPING IS RUN IN PARTITIONS WITHIN CONDITIONED SPACES.
3. INSULATION AND JACKET SHALL HAVE A MAXIMUM FLAME SPREAD OF 25 & SMOKE DEVELOPMENT OF 50 PER ASTM E 84.
4. OR EQUAL MANUFACTURERS ARE ACCEPTABLE.

MECHANICAL PIPING MATERIAL SCHEDULE						
PIPING SYSTEM	ABBREVIATION	OPERATING TEMPERATURE (°F) OR PRESSURE (PSI)	SERVICE PRESSURE (PSI)	PIPE DIAMETER, NPS (INCH)	PIPE MATERIAL \ SCHEDULE OR TYPE \ SPECIFICATION	JOINT MATERIAL \ TYPE \ SPECIFICATION
COOLING COIL CONDENSATE	C	55°F	N/A	0.5 - 4.0	PVC\ 40 \ ASTM D 2665	PVC \ SOCKET SOLVENT CEMENT \ ASTM F 891
REFRIGERANT	LL & VL	45°F - 150°F	150	0.5 - 2.0	CPR-ACR \ \ ASTM B280	WC \ SOCKET BRAZED \ ASME B16.22

NOTES:
1. VALVE JOINT TYPE INCLUDES OTHER VALVES AND ITEMS NOT SHOWN IN SCHEDULE (I.E. STRAINERS, BALANCING VALVES)
2. DRAWINGS MAY INDICATE DIFFERENT VALVE TYPE. VALVE TYPE SHALL BE AS SHOWN ON DRAWINGS UNLESS OTHERWISE INDICATED.
3. MXIMUM WORKING PRESSURE OF 62 PSI AT 180°F.

PIPE MATERIAL SCHEDULE	
CPR-ACR	COPPER AIR-CONDITIONING REFRIGERATION
PVC	POLYVINYLCHLORIDE

JOINT MATERIAL SCHEDULE	
PVC	POLYVINYLCHLORIDE
WC	WROUGHT COPPER

FOR PERMITTING

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SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS		
NO.	DATE	DESCRIPTION

KURT W. KUEGLER No. 8156 REGISTERED PROFESSIONAL ENGINEER MECHANICAL

PROJECT NO.:	1119.21.01.01
DATE:	DECEMBER 2021
SCALE:	AS INDICATED
DESIGNED BY:	ERK
CHECKED BY:	ERK
DRAWN BY:	GJG
APPROVED BY:	SCO

WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
MECHANICAL
HVAC
NOTES, SYMBOLS, & ABBREVIATIONS

DRAWING NO.: H-1

SHEET NO. 20 OF 26

M:\C27-03 Prudance Island\20 Dwg\C27-03 Prudance Island H1.dwg

ELECTRICAL ABBREVIATIONS

CNTL – CONTROL
DH – DOOR HOLDER
EF – EXHAUST FAN
EGC – EQUIPMENT GROUNDING CONDUCTOR
EMT – ELECTRICAL METALLIC TUBING
EOLD – END OF LINE DEVICE
EQPM – EQUIPMENT
EWH – ELECTRIC WATER HEATER
EXG – EXISTING
FA – FIRE ALARM
FAAP – FIRE ALARM ANNUNCIATION PANEL
FACP – FIRE ALARM CONTROL PANEL
FMP – FIRE MANUAL PULL STATION
FT – FEET
FU – FUSED
GEC – GROUNDING ELECTRODE CONDUCTOR
GFCI – GROUND FAULT CIRCUIT INTERRUPTER
GFI – GROUND FAULT INTERRUPTER
GFP – GROUND FAULT PROTECTION
HOA – HAND OFF AUTO
HP – HORSEPOWER
IEGC – INSULATED EQUIPMENT GROUNDING CONDUCTOR
IMC – INTERMEDIATE METAL CONDUIT
KA.I.C. – KILO–AMPERES INTERRUPTING CURRENT
KVA – KILO VOLT–AMPERES
KW – KILOWATT
LTG – LIGHTING
MCCB – MOLDED CASE CIRCUIT BREAKER
MDP – MAIN DISTRIBUTION PANEL
MOCP – MAXIMUM OVERCURRENT PROTECTION
MLO – MAIN LUG ONLY
N/A – NOT APPLICABLE
N.C. – NORMALLY CLOSED
NEC – NATIONAL ELECTRIC CODE
NF – NON–FUSED
N.O. – NORMALLY OPEN
P – POLE
PC – PHOTOCELL
PNL – PANEL
PWR – POWER
QTY – QUANTITY
RECPT – RECEPTACLE
REQ'D – REQUIRED
RM – ROOM
RSC – RIGID STEEL CONDUIT
SQ – SQUARE
SWBD – SWITCHBOARD
T–STAT – THERMOSTAT
TC – TIME CLOCK
(TYP.) – TYPICAL FOR OTHER LOCATIONS
VA – VOLTS–AMPERES
VAC – VOLTS–ALTERNATING CURRENT
VAV – VARIABLE AIR VOLUME
W – WIRE
WP – WEATHERPROOF

INDIAN SPRINGS POWER AND CONTROL WIRING WORK ITEMS AND INTERCONNECTION SCHEDULE

WORK ITEM	USE	WORK ITEM	CONDUIT / WIRING	ADDITIONAL REQUIREMENT
W1	PROVIDE POWER TO WATER TREATMENT PLANT BUILDING FROM MAIN BUILDING	PROVIDE 3 PHASE 100AMP 408Y/277 FEEDER FROM EXISTING MDP PANEL, PROVIDE 100AMP BREAKER TO FIT EXISITNG PANEL,, PROVIDE AND INSTALL TREATMENT MAIN PANEL, TRANSFORMER AS SHOWN	SEE D1	SEE ONE LINE DIAGRAM AND PANEL SCHEDULES AND SIZES OF EQUIPMENT AND CONDUCTORS
W2	PROVIDE SCADA BACKBONE BETWEEN WELL HOUSE AND TREATMENT BUILDING	PROVIDE AND INSTALL WIRING FOR SCADA SYSTEM, PROVIDE BACK BONE CONNECTION FROM SCADA RTU IN THE PUWELL HOUSE TO THE FCP IN TREATMENT BUILDING, ALSO PROVIDE WIRING TO DEVICES SEE W4	SEE D2	CONTRACTOR SHALL COORDINATE WITH CONTROLS INSTALLER FOR INSTALLATION AND FINAL PUNCH DOWN LOCATION OF ALL CONTROLS AND WIRING.
W3	SPARE DUCTS AND CONDUITS FOR BUILDING INTERCONNECTIONS	SPARE: CONDUITS AND DUCTS FOR FUTURE COMMUNICATIONS AND CONTROL CONNECTION BETWEEN BUILDINGS	SEE D3	
W4	CONTROLS WIRING GENERAL	PROVIDE WIRING AND CONNECTIONS OF CONTROLS/RTUS TO EQUIPMENT PER THE PROCESS DRAWINGS, PROVIDE BACK BONE CONECTION AND DEVICE CONNECTION TO PID DRAWINGS	3/4"PVC	SEE PROCESS AND INSTRUMENTATION DRAWINGS. FOR EVERY DO OR DI PROVIDE (1) UTP CABLE. FOR EVERY AO OR AI PROVIDE (1) STP CABLE, SEE SPECIFICATIONS FOR BINARY AND ANALOG SIGNALS.
W5	CHEMICAL FEED PUMP CONTROLLED OUTLETS ON WHEN WELL PUMPS ARE ON (INDIAN SPRINGS WELL HOUSE)	PROVIDE DUPLEX OUTLET FED FROM EXISITNG PANEL AND CONTROLED BY WELL PUMP STARTER VIA A CONTACTOR PANEL, TO BE PROVIDED. CONTRACTOR TO VERIFY AND UTILIZE EXISITNG "OVER LOAD/OUTPUT CONTACT" OF THE EXISING STARTER. CONTACTOR PANEL SHALL HAVE TRANSFORMER AND CONTACTOR COIL SUITIBLE FOR THE REMOTE CONTACTS ON THE EXISITNG STARTER . THE EXISITNG STARTER SHALL ENERGIZE AND CLOSE THE OUT PUT CONTACT ON THE CONTACTOR POWERING THE DUPLEX OULET WHEN MOTOR IS RUNNING. IF SUITABLE CONTACTS ARE NOT AVAIALBE THEN ALTERNATE CONTROL METHOD IS AS FOLLOWS: PROVIDE CONTACTOR WITH COIL ENTERGIZED BY DIRECTLY POWER BY POWER TO PUMP BY TAPPING POWER TO WELL PUMP AT ITS STARTER OUTPUT. INTERCEPT TWO LEADS LINE TO LINE (480V)PROVIDE (2) POLE 20AMP BREAKER WITH LEADS AS SHORT AS POSSIBLE FOR THE TAP, TAP SHALL FOLOW TAP RULES FOR WIRE SIZE ACROSS LINE TO LINE . THE CONTACTOR COILD VOLTAGE IN THIS INSTANCE IS 480V.	3/4"PVC	PROVIDE (2) 120V 20AMP CIRCUIT FROM EXISITNG 120V PANEL FOR RECEPTICAL POWER AND CONTACTOR POWER, PROVIDE 1 POLE 20AMP BREAKER FOR THE OUTLET AND A 1 POLE 15 AMP BREAKER FOR THE CONTACTOR CONTROL POWER. THESE BREAKERS SHALL MATCH EXISITNG TYPE. IF THE ALTERNATE METHOD IS USED CONTROL POWER IS NOT NEEDED SINCE CONTROL POWER IS THE PUMP POWER. IF ALTERNATE METHOD IS USED (2) RELAYS/COILS ARE REQUIRED FOR EACH PUMP AND THEIR OUTPUTS ARE WIRED IN PARALLEL (OR FUNCTION, EITHER PUMP ON , THEN OUTLET IS ON.
W6	RTU / CONTOL SYSTEM (SCADA) POWER (INDIAN SPRINGS WELL HOUSE)	PROVIDE POWER TO RTU/PANEL VIA A HARDWIRE CONNECTION ON A DEDICATED CIRCUIT FED FROM 120V EXISITNG PANEL	3/4"PVC	FOR EACH CIRCUIT, PROVIDE (1) 120V 20AMP CIRCUIT FROM EXISITNG 120V PANEL FOR RECEPTICAL POWER, PROVIDE 1 POLE 20AMP BREAKER FOR THE EXITING PANEL, THESE BREAKERS SHALL MATCH EXISITNG TYPE.

DUCTS (D#)	USE	WORK ITEM	CONDUIT	(QTY) X (QTY) WIRE/CABLE
D1	UNDERGROUND DUCT FOR POWER FEED TO WATER TREATMENT PLANT P FROM EXISTING WELL HOUSE	PROVIDE 3 PHASE UNDERGROUND POWER FEEDER SEE WORK ITEM 1	(2) 2-1/2"	(1) ACTIVE (1) SPARE, ACTIVE WITH (4) 3/0 AND & (1) #4 EGC,
D2	CONTROL/T BACKBONE TO WATER TREATMENT BUILDING FROM EXISTING WELL HOUSE	PROVIDE UNDERGROUND CONDUIT FOR SCADA BACK BONE	(2) 2-1/2"	(1) ACTIVE (1) SPARE CONDUIT, ACTIVE WITH CAT 6 CABLE, SEE WORK ITEM W2
D3	SPARE: FUTURE TELECOMM / SECURITY BETWEEN BUILDINGS	PROVIDE (2) CONDUITS IN DUCT BANK	(2) 2-1/2"	(2) SPARE

BRANCH CIRCUITS	USE	WORK ITEM	CONDUIT	(QTY) X (QTY) WIRE/CABLE
B1	BACK WASH PUMP POWER AND CONTROL, GRUNDFOS 1.5HP, VIA STARTER	PROVIDE COMBINATION STARTER WITH DISCONNECT SIZED TO MOTOR WITH HOMERUN TO PANEL HV1. STARTER SHALL BE ELECTRONIC SOFT START WITH ACROSS THE LINE CONTACTOR IN A NEMA 1 ENCLOSURE. PROVIDE HOA SWITCH, PROVIDE START WIRING TO CONTROL PANEL	3/4"	SEE PANEL SCHEDULE FOR WIRE SIZE AND CIRCUIT INFO
B2	VARIOUS BRANCH CIRCUITS FOR LIGHTING AND POWER	PROVIDE DEVICES AND HOMERUNS TO CIRCUIT BREAKER PANEL WITH ITEMS SHOWING HOME RUNS ON THE B2 DRAWINGS	3/4"	SEE PANEL SCHEDULE FOR CIRCUITS AND WIRE SIZE INFO
B3	HVAC POWER	PROVIDE POWER FOR OUT DOOR UNITS AND WIRING FROM OUT DOOR TO INDOOR UNIT PER MANUFACTURES INSTRUCTION	3/4"	SEE PANEL SCHEDULE FOR WIRING AND CIRCUIT SIZE FOR OUT DOOR UNIT HOME RUN.

ARMY CAMP POWER AND CONTROL WIRING WORK ITEMS AND INTERCONNECTION SCHEDULE

WORK ITEM	USE	WORK ITEM	CONDUIT / WIRING	ADDITIONAL REQUIREMENT
W7	CHEMICAL FEED PUMP CONTROLLED OUTLETS ON WHEN WELL PUMPS IS ON (ARMY CAMP)	PROVIDE DUPLEX OUTLET FED FROM EXISITNG PANEL AND CONTROLED BY WELL PUMP STARTER VIA A CONTACTOR PANEL, TO BE PROVIDED. CONTRACTOR TO VERIFY AND UTILIZE EXISITNG "OVER LOAD/OUTPUT CONTACT" OF THE EXISING STARTER. CONTACTOR PANEL SHALL HAVE TRANSFORMER AND CONTACTOR COIL SUITIBLE FOR THE REMOTE CONTACTS ON THE EXISITNG STARTER . THE EXISITNG STARTER SHALL ENERGIZE AND CLOSE THE OUT PUT CONTACT ON THE CONTACTOR POWERING THE DUPLEX OULET WHEN MOTOR IS RUNNING. IF SUITABLE CONTACTS ARE NOT AVAIALBE THEN ALTERNATE CONTROL METHOD IS AS FOLLOWS: PROVIDE CONTACTOR WITH COIL ENTERGIZED BY DIRECTLY POWER BY POWER TO PUMP BY TAPPING POWER TO WELL PUMP AT ITS STARTER OUTPUT. INTERCEPT TWO LEADS LINE TO LINE (480V)PROVIDE (2) POLE 20AMP BREAKER WITH LEADS AS SHORT AS POSSIBLE FOR THE TAP, TAP SHALL FOLOW TAP RULES FOR WIRE SIZE ACROSS LINE TO LINE . THE CONTACTOR COILD VOLTAGE IN THIS INSTANCE IS 480V.	3/4"PVC	PROVIDE (2) 120V 20AMP CIRCUIT FROM EXISITNG 120V PANEL FOR RECEPTICAL POWER AND CONTACTOR POWER, PROVIDE 1 POLE 20AMP BREAKER FOR THE OUTLET AND A 1 POLE 15 AMP BREAKER FOR THE CONTACTOR CONTROL POWER. THESE BREAKERS SHALL MATCH EXISITNG TYPE. IF THE ALTERNATE METHOD IS USED CONTROL POWER IS NOT NEEDED SINCE CONTROL POWER IS THE PUMP POWER.
W8	CLHORINE ANALYZER POWER	HARDWIRE ON A DEDICATED CIRCUIT FOR EACH HOME RUN SHOWN	3/4"PVC	FOR EACH CIRCUIT, PROVIDE (1) 120V 20AMP CIRCUIT FROM EXISITNG 120V PANEL FOR RECEPTICAL POWER, PROVIDE 1 POLE 20AMP BREAKER FOR THE EXITING PANEL, THESE BREAKERS SHALL MATCH EXISITNG TYPE.
W9	CONTROLS WIRING GENERAL	PROVIDE POWER TO RTU/PANEL VIA A HARDWIRE CONNECTION ON A DEDICATED CIRCUIT FED FROM 120V EXISITNG PANEL	3/4"PVC	SEE PROCESS AND INSTRUMENTATION DRAWING. FOR EVERY DO OR DI PROVIDE (1) UTP CABLE AND FOR AO OR AI PROVIDE (1) Stp CABLE, SEE SPECIFICATIONS FOR BINARY AND ANALOG SIGNALS

GENERAL ELECTRICAL NOTES & REQUIRMENTS

ELECTRICAL NOTES & SPECIFICATIONS:

PART 1 GENERAL:

1. SEE SPECIFICATIONS, DIVISION 16 ELECTRICAL AND THE OTHER SPECIFICATIONS REFERENCED IN DIVISION 16 SPECIFICATIONS.
2. PROVIDE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM INCLUDING ALL NECESSARY MATERIAL, LABOR, EQUIPMENT AND TESTING REQUIRED.
3. ELECTRICAL PLANS, DETAILS, AND ONE–LINE DIAGRAMS SHOW THE GENERAL LOCATION AND ARRANGEMENT OF THE ELECTRICAL SYSTEM. THEY ARE DIAGRAMMATIC AND DO NOT SHOW ALL CONDUIT BODIES, CONNECTORS, BENDS, FITTINGS, HANGERS, AND ADDITIONAL PULL AND JUNCTION BOXES WHICH THE CONTRACTOR MUST PROVIDE TO COMPLETE THE ELECTRICAL SYSTEM. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
4. ELECTRICAL PLANS AND DETAILS DO NOT SHOW ALL INTERFERENCES AND CONDITIONS, VISIBLE AND/OR HIDDEN, THAT MAY EXIST, THUS REQUIRING THE CONTRACTOR TO INSPECT AND SURVEY THE SPACE BEFORE PERFORMING THE WORK.
5. ALL EQUIPMENT AND MATERIAL SHALL BE LABELED AND LISTED AND INSTALLED IN ACCORDANCE WITH THEIR LISTING.
6. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS AND ARRANGE FOR ALL REQUIRED INSPECTIONS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL GOVERNING AUTHORITIES.
7. ALL WORK SHALL BE DONE BY LICENSED WORKMEN IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL GOVERNING AUTHORITIES AND CODES.
8. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE RHODE ISLAND STATE BUILDING CODE, RHODE ISLAND ELECTRIC CODE AND ITS ADOPTION AND ITS MODIFICATIONS TO THE NATIONAL ELECTRIC CODE (NEC) ANSI/NFPA 70.
9. THE DEFINITION OF ELECTRICAL TERMS USED SHALL BE AS DEFINED IN THE 2017 EDITION OF THE NATIONAL ELECTRICAL CODE (NEC).
10. THE TERM "INDICATED" SHALL MEAN, "AS SHOWN ON CONTRACT DOCUMENTS (SPECIFICATIONS, DRAWINGS, AND RELATED ATTACHMENTS)".
11. THE TERM "PROVIDE" SHALL MEAN, "TO FURNISH, INSTALL, AND CONNECT COMPLETELY".
12. THE TERM "SIZE" SHALL MEAN ONE OR MORE OF THE FOLLOWING: "LENGTH, CURRENT AND VOLTAGE RATING, NUMBER OF POLES, NEMA SIZE, AND OTHER SIMILAR ELECTRICAL CHARACTERISTICS".
13. THE TERM "SPACE" ON PANELBOARD AND SWITCHBOARD SCHEDULES SHALL MEAN, "PROVIDE SPACE TO INSTALL THE NUMBER OF POLES AND SIZE OF THE PROTECTIVE DEVICE INDICATED WITH ALL THE NECESSARY SPACE ON THE BUSBAR AND FITTINGS TO INSTALL THE DEVICE AT SOME FUTURE DATE".
14. THE TERM "COORDINATE" SHALL MEAN ONE OR MORE OF THE FOLLOWING: "TO MANAGE, INTERFACE, COMMUNICATE, MAKE ARRANGEMENT, BRING INTO ORDER, ADMINISTER AND HANDLE COMPLETELY".
15. WRITTEN REQUESTS FOR APPROVAL FOR PLANNED SHUTDOWNS OR INTERRUPTION OF OWNER'S ELECTRIC SERVICE AND EQUIPMENT SHALL BE MADE 72 HOURS PRIOR TO THE START OF THE REQUESTED SHUTDOWN PERIODS.
16. COORDINATE ELECTRICAL WORK WITH OWNER.
17. COORDINATE ELECTRICAL WORK WITH OTHER DIVISIONS OF THIS PROJECT.
18. PROVIDE SHOP DRAWINGS, CATALOG CUTS FOR ALL EQUIPMENT USED ON THE PROJECT.
19. PROVIDE AS–BUILTS, AND OPERATIONAL AND MAINTENANCE (O&M) DOCUMENTATION TO OWNER..

PART 2 PRODUCTS AND EXECUTION

20. THE CONTRACTOR SHALL VISIT THE SITE OF WORK AND FAMILIARIZE HIMSELF WITH ALL AVAILABLE INFORMATION CONCERNING THE NATURE OF THE INSTALLATION AND CONDITIONS. FAILURE OF THE CONTRACTOR TO ACQUAINT HIMSELF WITH ALL AVAILABLE INFORMATION CONCERNING THE ABOVE CONDITIONS WILL NOT RELIEVE THE CONTRACTOR FROM THE RESPONSIBILITY FOR ESTIMATING THE DIFFICULTIES AND COSTS FOR SUCCESSFULLY PERFORMING THE COMPLETE WORK UNDER THIS PROJECT.
21. THE RIGHT IS RESERVED BY THE ENGINEER OR OWNER TO MAKE REASONABLE CHANGES IN LOCATIONS OF EQUIPMENT, OUTLETS, OR WIRING PRIOR TO THE INSTALLATION WITHOUT INVOLVING ADDITIONAL COST OR EXPENSE TO THE OWNER.
22. TURN OVER TO THE OWNER ALL MANUFACTURER'S WARRANTIES FOR EQUIPMENT AND MATERIALS PROVIDED.
23. UNLESS OTHERWISE INDICATED, ALL ELECTRICAL EQUIPMENT HAS BEEN BASED ON GENERAL ELECTRIC PRODUCTS. THE CONTRACTOR MAY SUBSTITUTE PRODUCTS OF ANOTHER MANUFACTURER IF IT IS OF EQUAL QUALITY AND RATING, SUBJECT TO ENGINEER'S REVIEW AND OWNER'S ACCEPTANCE.
24. WHEN A MANUFACTURER RECOMMENDS AN OPTION OR ACCESSORY ITEM FOR THE INSTALLED CONDITION, OPERATION, OR ENVIRONMENT THAT IS TO BE EXPERIENCED, SUCH ITEM SHALL BE SUPPLIED AT NO ADDITIONAL COST TO THE OWNER.
25. BEFORE SELECTING MATERIAL, EQUIPMENT AND PROCEEDING WITH WORK, INSPECT AREAS WHERE MATERIAL AND EQUIPMENT ARE TO BE INSTALLED TO ENSURE SUITABILITY, AND CHECK NEEDED SPACE FOR PLACEMENT, CLEARANCES AND INTERCONNECTIONS.
26. PROVIDE TRENCHING, SAND, BACKFILL, WARNING TAPES AND PATCHING OF SURFACES FOR ALL UNDERGROUND UTILITY LINES SUCH AS ELECTRICAL, POWER DISTRIBUTION AND COMMUNICATIONS UNDERGROUND DUCTS.
27. PROVIDE GROUNDING AND BONDING OF WATER TREATMENT EQUIPMENT.
28. PROVIDE GROUND ELECTRODE SYSTEM FOR THE BUILDING INCLUDING A 2/0 GROUND RING AROUND THE BUILDING, WITH (4) GROUND RODS (1 EACH CORNER) BONDED TO THE FOUNDATION REBAR, SHELTER STEEL. BOND ELECTRIC DISTRIBUTION EQUIPMENT AND PROCESS EQUIPMENT TO THE GROUND RING AND GROUND ELECTRODE SYSTEM.

FOR PERMITTING

H2Olson Engineering, Inc.
DRINKING WATER PROFESSIONALS
www.h2olsonengineering.com
(508) 375-7007

Kurt Kuegler, P.E.
198 Cutler Street
Watertown, CT
06795
203–233–1583

SCALE ADJUSTMENT GUIDE
0" 1"
BAR IS ONE INCH ON ORIGINAL DRAWING

REVISIONS

NO.	DATE	DESCRIPTION

KURT W. KUEGLER
No. 8156
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

PROJECT NO.:	1119.21.01.01
DATE:	DECEMBER 2021
SCALE:	AS INDICATED
DESIGNED BY:	ERK
CHECKED BY:	ERK
DRAWN BY:	GJG
APPROVED BY:	SCO

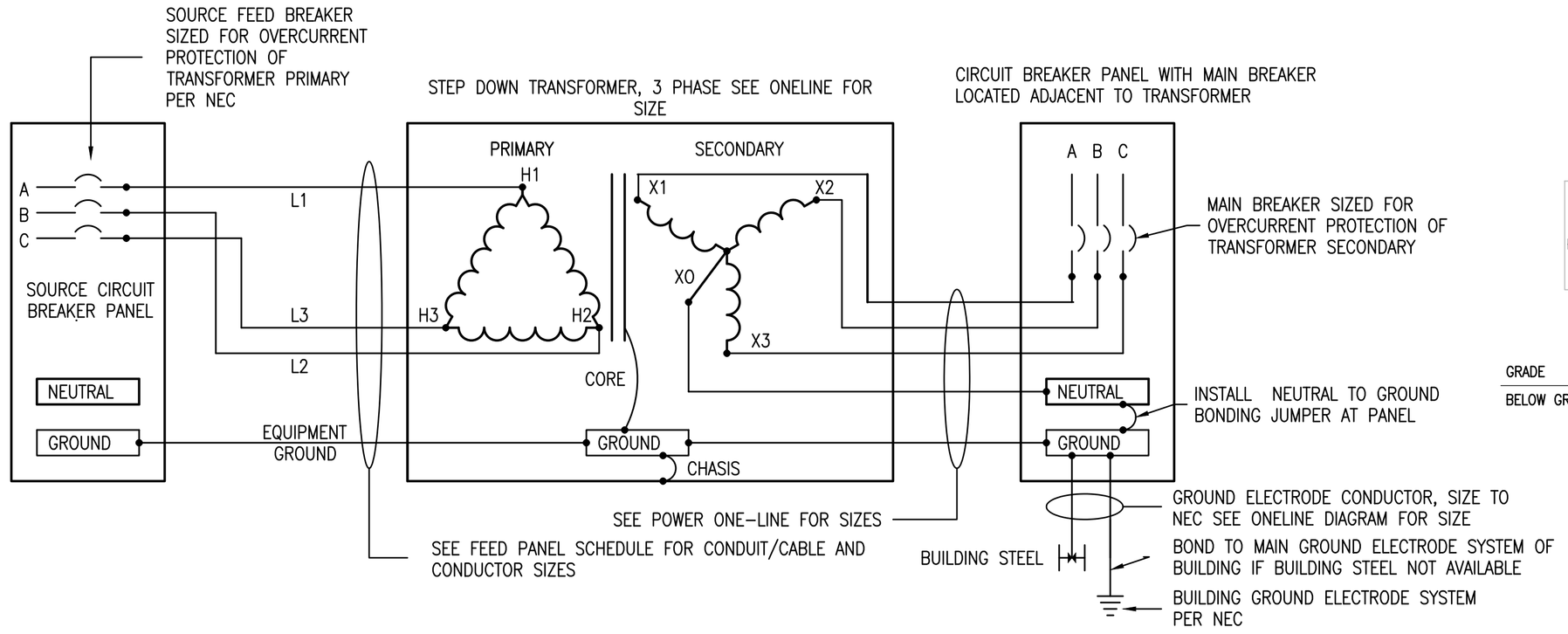
WATER SYSTEM CHLORINATION & PRETREATMENT
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
ELECTRICAL NOTES, SYMBOLS, & ABBREVIATIONS

DRAWING NO.:
E-1

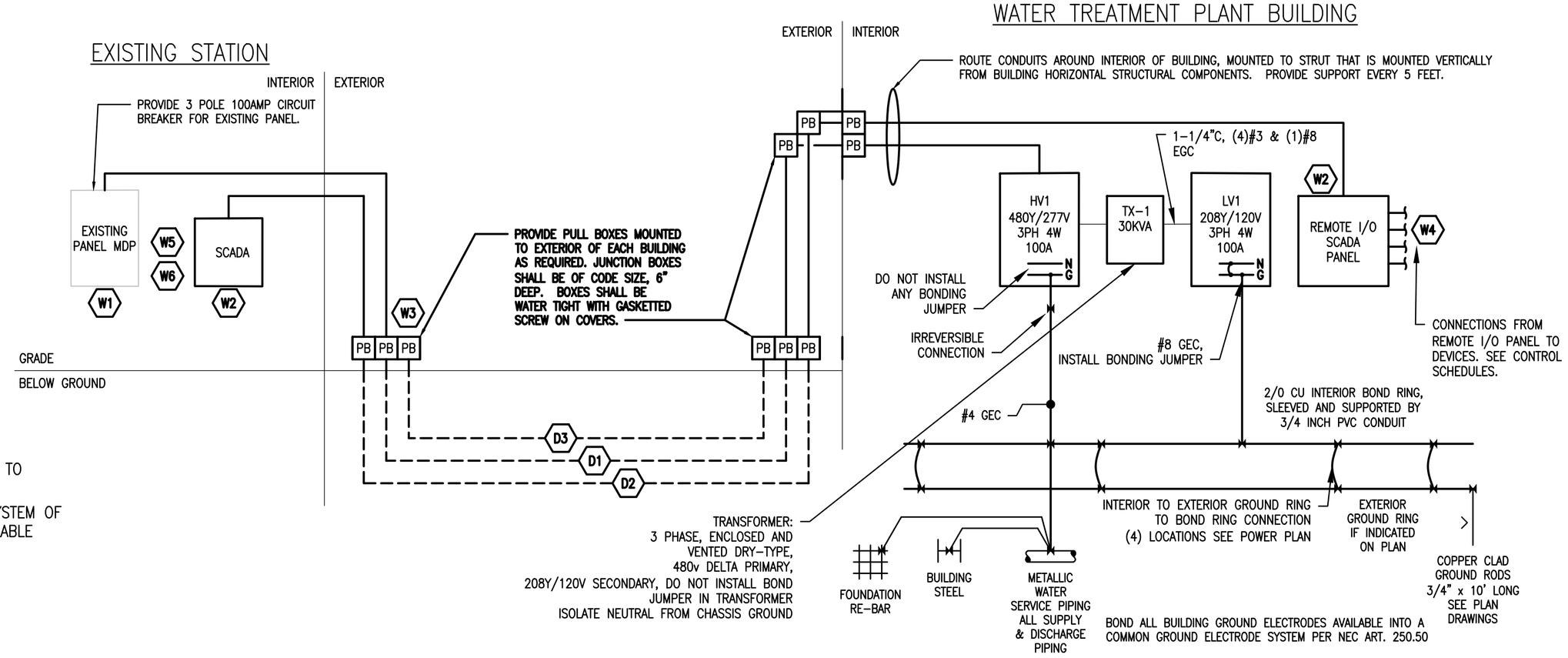
SHEET NO. 21 OF 26

M:\C27-03 Prudance Island\20 Dwg\C27-03 Prudance Island E1.dwg



STEP DOWN TRANSFORMER CONNECTION DIAGRAM

NO SCALE



ELECTRICAL ONE-LINE

SCALE: NTS

ONE-LINE NOTES:
1) SEE POWER AND CONTROL INTERCONNECTION SCHEDULES AND WORK ITEMS ALONG WITH DUCT SCHEDULE FOR WIRING INFORMATION
2) NOT ALL REQUIRED JUNCTION OR PULL BOXES AND OR HAND HOLES ARE SHOWN WHICH ARE REQUIRED TO COMPLETE THE INSTALLATION, PULL BOXES SHOWN MUST BE INSTALLED AS NOTED.
3) SEE OTHER DRAWINGS FOR LOCATIONS AND SCHEDULE INFORMATION FOR ALL EQUIPMENT, WIRING AND INFORMATION REQUIRED TO COMPLETE THE INSTALLATION

PANELBOARD	Class: LIGHTING	Circuit Short Rating (Min.): 22 KA.I.C.
HV1	Type: G.E. TYPE AE	Remark:
SERVICE	480Y/277V Volts, 3 Phase, 4 Wire	S/E Label: NO, **** DO NOT IS STALL BONDING JUMPER**
PANELBOARD	200 AMPERE TIN PLATED COPPER MAIN BUS	Entrance: TOP
CONFIGURATION	Trim: SURFACE, , Neutral bus ISOLATED FROM GND	Equipment Ground Bus: YES, SEPARATE THAN NEUTRAL
MAIN	Type: 100A 3P MOLDED CASE CIRCUIT BREAKER , LABEL "MAIN DISCONNECT" Wire Size: #3 - 3/0 NUMBER PER PHASE: 1 Wire Material: CU	
BRANCH CIRCUITS	Branch Protective Devices: MOLDED CASE CIRCUIT BREAKERS, BOLT-ON TYPE	

Ckt. No.	Circuit Designation	KVA Load	Num. Pole	Trip Amps	Frame Amps	Wire (min.), PANEL SCHED NOTE #
1	PANEL LV1 VIA TX-1	12.3	3	50	100	1" C, (4) #8 & (1) #10 EGC,
2	BACH WASH PUMP	2.0	3	20	100	3/4" C, (4) #12 & (1) #12 EGC,
3	---		-	-	100	
4	---		-	-	100	
5	---		-	-	100	
6	---		-	-	100	
7	SPARE		3	30	100	
8	SPARE		3	15	100	
9	---		-	-	100	
10	---		-	-	100	
11	---		-	-	100	
12	---		-	-	100	
13	SPARE		1	20	100	
14	SPARE		1	20	100	
15	SPACE		1		100	
16	SPACE		1		100	
17	SPACE		1		100	
18	SPACE		1		100	
19	SPACE		1		100	
20	SPACE		1		100	
21	SPACE		1		100	
22	SPACE		1		100	
23	SPACE		1		100	
24	SPACE		1		100	
25	SPACE		1		100	
26	SPACE		1		100	
27	SPACE		1		100	
28	SPACE		1		100	
29	SPACE		1		100	
30	SPACE		1		100	
	TOTAL CONNECTED	14.3				

PANELBOARD	Class: LIGHTING	Circuit Short Rating (Min.): 10 KA.I.C.
LV1	Type: G.E. TYPE AQ	Remark:
SERVICE	208Y/120V Volts, 3 Phase, 4 Wire	S/E Label: NO
PANELBOARD	125 AMPERE TIN PLATED COPPER MAIN BUS	Entrance: BOTTOM
CONFIGURATION	Trim: SURFACE	Equipment Ground Bus: YES
MAIN	Type: 100AMP 3P MOLDED CASE CIRCUIT BREAKER Wire Size: #6 THROUGH #3 NUMBER PER PHASE: 1 Wire Material: CU	
BRANCH CIRCUITS	Branch Protective Devices: MOLDED CASE CIRCUIT BREAKERS, BOLT-ON TYPE	

Ckt. No.	Circuit Designation	KVA Load	Num. Pole	Trip Amps	Frame Amps	Wire (min.), PANEL SCHED NOTE #
1	RECEPTACLES OFFICE	0.4	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
2	LIGHT OFFICE	0.5	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
3	RECEPTACLES OFFICE	0.4	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
4	CONTROL PANEL POWER	1.0	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
5	RECEPTACLES OFFICE	0.4	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
6	FILTER SYSTEM POWER	1.0	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
7	RECEPTACLES OFFICE	0.4	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
8	SPARE		1		100	
9	RECEPTACLES OFFICE	0.5	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
10	LIGHT TREATMENT	0.5	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
11	RECEPTICAL GP TREATMENT	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
12	SPARE		1	20	100	
13	RECEPTICAL GP TREATMENT	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
14	SPACE		1		100	
15	RECEPTICAL GP TREATMENT	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
16	SPACE		1		100	
17	RECEPTICAL GP TREATMENT	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
18	SPACE		1		100	
19	RECEPTICAL GP TREATMENT	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
20	SPACE		1		100	
21	SPACE		1		100	
22	EXTERIOR LIGHTING	0.1	1	20	100	3/4" C, (2) #12 & (1) #12 EGC,
23	RECEPTACLE EL BACK BOARD	0.1	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
24	SPACE		1		100	
25	SPACE		1		100	
26	EXTERIOR RECEPTICAL, HVAC MAINT.	0.2	1	20	100	3/4" C, (2) #12 & (1) #12 EGC, NOTE A, GFCI
27	HVAC HP-1	2.9	2	20	100	3/4" C, (2) #12 & (1) #12 EGC,
28	HVAC HP-2	2.9	2	20	100	3/4" C, (2) #12 & (1) #12 EGC,
29	-	-	-	-	100	
30	-	-	-	-	100	
	KVA CONNECTED TOTAL	12.3				

NOTE A PROVIDE GFCI GROUND FAULT CIRCUIT BREAKER, MARK OUTLET TO INDICATE GFCI PROTECTED.

LIGHTING FIXTURE AND CONTROL DEVICE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER / CATALOG NO	LUMENS NOMINAL	WATTS	TYPE	COLOR TEMP DEGREES K	CRI	OPERATING VOLTS	INSTALLATION & MOUNTING
A	4FT LED ENCLOSED AND SILICON GASKETED. POLYCARBONATE HOUSING. WHITE FINISH , VAPOR TIGHT	LITHONIA CSVT OR EQUAL	5,000		LED	4000 K	>=80	120-277V	CEILING OR STRUCTURE SURFACE. PROVIDE JUNCTION BOX WITH SHORT FLEXIBLE WHIPTO FIXTURE.
B	4FT LED SURFACE VOLUMETRIC, SURFACE CONDUIT END CAPS BOTH ENDS WHITE FINISH	LITHONIA STL 4L OR EQUAL	4800	45	LED	3500K	>=80	120-277V	CEILING OR STRUCTURE SURFACE. DIRECT
EM2	2-HEAD EMERGENCY LIGHT EXIT SIGN COMBO UNIT WITH A 2 HEAD WEATHER PROOF REMOTE WHITE HIGH-IMPACT THERMOPLASTIC HOUSING WET LOCATION RATED PROVIDES A MINIMUM 90 MINUTES , 12 VOLT SEALED MAINTENANCE-FREE BATTERY WITH TEST SWITCH AND STATUS INDICATOR FOR VISUAL AND MANUAL MEANS OF MONITORING SYSTEM OPERATION, OPTIONAL HIGH OUTPUT LEDS, 12 WATT CAPACITY, WHITE FINISH	LITHONIA WLTC, OR EQUAL WITH REMOTE WEATHERPROOF HEADS	>546	6	LED HI LUM	NA	>=80	120-277V	WALL SURFACE, 6 FT EGRESS WITDTH MH OF 20' SPACING LT EQ TO 40 FT.AIM FIXTURES AT 45 DEGRESS OUT AND CENTERED ON EGRESS PATH OR EXIT WAY
X1	EXTERIOR ARCHITECTURAL WALL, WITH PHOTOCELL AND MOTION PROVIDE SURFACE MOUNT BACK BOX, DARK BRONZE	LIHONIA WDGE1 LED P1 40K 80CRI VW MVOLT, OR EQUAL	1,100	10	LED	4000K	>=80	120-277V	EXTERIOR WALL

LIGHT FIXTURE SCHEDULE NOTES

#	DESCRIPTION
1	GENERAL NOTE - CATALOG NUMBER MAY NOT SPECIFY ALL OPTIONS, ACCESSORIES, ADAPTERS THAT MUST BE PROVIDED FOR A COMPLETE INSTALLATION, OR SPARE ITEMS, SEE OTHER COLUMNS IN THIS SCHEDULE, CONTRACT DOCUMENTS AND ACTUAL CONDITIONS ENCOUNTERED.
2	GENERAL NOTE - MOUNTING INDICATED SHOWS BASIC FIXTURE MOUNTING ARRANGEMENT. SEE ARCHITECTURAL AND OTHER DOCUMENTS FOR ADDITIONAL INFORMATION WHICH AMY EFFECT FIXTURE PLACEMENT AND MOUNTING STRUCTURES (CEILING AND WALL CONSTRUCTION, ETC). PROVIDE MOUNTING ADAPTERS AS REQUIRED.
3	GENERAL NOTE - CONTRACTOR MUST PROVIDE ADJUSTMENTS (ALIGNMENTS AND FOCUSING) FOR FIXTURES WHICH ARE ADJUSTABLE. ADJUSTMENTS SHALL PROVIDE OPTIMAL ILLUMINATION OF AREA TO BE ILLUMINATED. ADJUSTMENTS SHALL BE MADE TO PROVIDE EVEN ILLUMINATION.
4	GENERAL NOTE - ALL LED FIXTURES SHALL HAVE A SINGLE BALLAST OR POWER SUPPLY POWERING ALL LIGHT ENGINES, UNLESS OTHERWISE INDICATED.

FOR PERMITTING

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DRINKING WATER PROFESSIONALS
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198 Cutler Street
Watertown, CT
06795
203-233-1583

SCALE ADJUSTMENT GUIDE
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REVISIONS		
NO.	DATE	DESCRIPTION

KURT W. KUEGLER
No. 8156
REGISTERED PROFESSIONAL ENGINEER
MECHANICAL

PROJECT NO.:	1119.21.01.01
DATE:	DECEMBER 2021
SCALE:	AS INDICATED
DESIGNED BY:	ERK
CHECKED BY:	ERK
DRAWN BY:	GJG
APPROVED BY:	SCO

WATER SYSTEM CHLORINATION & PRETREATMENT

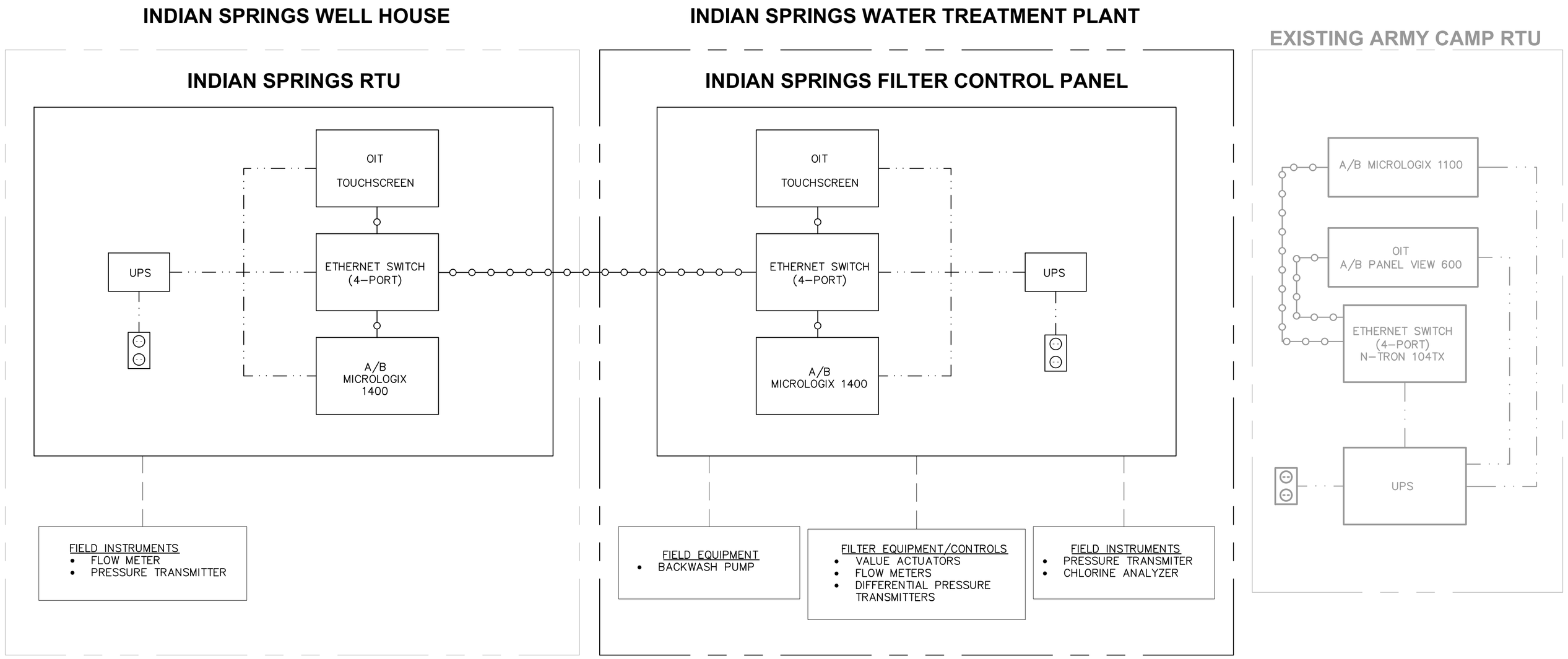
PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
ELECTRICAL POWER DETAILS & SCHEDULES

DRAWING NO.:
E-2

SHEET NO. 22 OF 26

M:\C27-03 Prudance Island\20 Dwg\C27-03 Prudance Island E2.dwg



ALARM AND INTERLOCK SCHEDULE

DEVICE	EVENT	INTERLOCK #	ALARM	SET POINT	RANGE	DELAY	ACTION
AIT-401 & AIT-402	HI-HI CHLORINE	1	YES	2	0 TO 4.0	0 - 300 S	STOP CHLORINE FEED PUMPS; STOP WELL PUMPS
AIT-401 & AIT-402	HI CHLORINE	N/A	YES	1.5	0 TO 4.0	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
AIT-401 & AIT-402	LO CHLORINE	N/A	YES	0.5	0 TO 4.0	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
AIT-401 & AIT-402	LO-LO CHLORINE	2	YES	0.25	0 TO 4.0	0 - 300 S	STOP CHLORINE FEED PUMPS; STOP WELL PUMPS
PIT-101	HI PRESSURE, IS	N/A	YES	85	0 TO 150	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
PIT-101	LO PRESSURE, IS	N/A	YES	55	0 TO 150	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
PIT-401	HI PRESSURE, IS	N/A	YES	75	0 TO 150	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
PIT-401	LO PRESSURE, IS	N/A	YES	50	0 TO 150	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
FIT-101	HI FLOW, IS	N/A	YES	50	0 TO 100	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
IS-P1, IS-P4, AC-P1	WELL PUMP OFF/ON	3	NO	N/A	N/A	N/A	WELL PUMPS ON/OFF = POWER TO CHLORINE PUMPS ON/OFF
LIT-301	HI-HI Level	4	YES	7	0 TO 10	0 - 300 S	CLOSE CV-301; CLOSE CV-202
LSH-301	HI-HI Level	5	YES	7	N/A	N/A	CLOSE CV-301; CLOSE CV-202
LIT-301	HI Level	N/A	YES	6	0 TO 10	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
LIT-301	LO Level	N/A	YES	2	0 TO 10	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
LSL-301	LO-LO Level	6	YES	1	N/A	N/A	STOP BACKWASH PUMP P-301
LIT-301	LO-LO Level	7	YES	1	0 TO 10	0 - 300 S	STOP BACKWASH PUMP P-301
DPIT-201A	HI DIFFERENTIAL PRESSURE	N/A	YES	7	0 TO 20	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
DPIT-201B	HI DIFFERENTIAL PRESSURE	N/A	YES	7	0 TO 20	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
WIT-501	LO Weight	N/A	YES	20	1 TO 100	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT
WIT-502	LO Weight	N/A	YES	20	0 TO 100	0 - 300 S	ANNUNCIATE ON APPLICABLE OIT

LEGEND

- FIELD MOUNTED INSTRUMENT TAG
- PANEL MOUNTED INSTRUMENT TAG (EQUIPMENT MANUFACTURERS PANEL)
- PANEL MOUNTED INSTRUMENT TAG (INSTRUMENTATION CONTRACTORS PANEL)
- SCADA SYSTEM SIGNAL TAG – A=ANALOG, D=DISCRETE I=INPUT, O=OUTPUT
- SCADA ALARM: L = LOW, H = HIGH NF = NO FLOW
- INTERLOCK
- HYDROPNEUMATIC ACTUATION
- DUPLEX TWISTLOCK RECEPTACLE
- PROCESS STREAM TO/FROM LOCATION REFER TO SHEET X

REFER TO SHEET M-1 FOR ADDITIONAL SYMBOLS

- ROOM LINE
- CONTROL PANEL
- LOCATIONAL DIVIDE / BUILDING LINE
- FIELD/SIGNAL WIRING
- DATA / COMMUNICATION
- ELECTRICAL WIRING
- EXISTING

SCADA SYSTEM ARCHITECTURE NOTES

1. COMMUNICATIONS: ETHERNET/IP
2. PLC SYSTEM: ALLEN BRADLEY MICROLOGIX 1400
3. OIT: AUTOMATION DIRECT EA9-T10CL

ISA INSTRUMENT IDENTIFICATION TABLE

MEASURED OR INITIATING VARIABLE	FIRST LETTER MEAS. VARI.	SUCCEEDING LETTERS: SWITCH (HI, LO, OPEN, CLOSE)	PRIM. ELEM. (SENSOR)	INDICATOR	INDICATING CONTROLLER	CONTROL OR CONTR. (BLIND)	RECORDER	INTEGRATOR (TOTALIZER)	TRANSMITTER (INDICTING)	TRANSMITTER	VALVE OR ACTUATOR	RELAY	SOURCE
ANALYSIS	A	ASL	AE	AI			AR		AIT	AT		AY	
BURNER, COMBUSTION	B		BE			BC						BY	
CONDUCTIVITY	C	CSH	CE	CI	CIC	CC	CR		CIT	CT		CY	
DENSITY	D	DSH	DE	DI	DIC	DC	DR		DIT	DT		DY	DX
VOLTAGE	E		EE	EI					EIT	ET		EY	
FLOW RATE	F	FSHL	FE	FI	FIC	FC	FR	FQ	FIT	FT	FV	FY	
USER'S CHOICE	G												
HAND	H	HS											
CURRENT (ELECTRICAL)	I	IS	IE	II	IIC	IC				IT		IY	
POWER	J	JSH	JE	JI	JIC	JC	JR	JQ				JY	
TIME, TIME SCHEDULE	K			KI	KIC	KC		KQ				KY	KS
LEVEL	L	LSH	LE	LI	LIC	LC	LR		LIT	LT	LV	LY	
HUMIDITY	M		ME	MI	MIC	MC	MR		MIT	MT		MY	
USER'S CHOICE	N												
USER'S CHOICE	O												
PRESSURE, VACUUM	P	PSH	PE	PI	PIC	PC	PR		PIT	PT	PV	PY	
QUANTITY	Q						QR						
RADIATION	R												
SPEED, FREQUENCY	S	SSL	SE	SI		SC			SIT	ST		SY	
TEMPERATURE	T	TSL	TE	TI	TIC	TC	TR		TIT	TT	TV	TY	
MULTIVARIABLE	U			UI			UR					UY	
MECHANICAL ANALYSIS	V												
WEIGHT, FORCE	W	WS	WE	WI	WIC		WR		WIT	WT			
VIBRATION	X		XE	XI								XY	
EVENT	Y	YS		YI			YR		YIT	YT		YY	
POSITION, DIMENSION	Z	ZSO	ZE	ZI			ZR		ZIT	ZT		ZY	

PROCESS AND INSTRUMENTATION

A/L/L	AUTO/LEAD/LAG	N/A	NORMAL/ALARM
DPIT	DIFFERENTIAL PRESSURE INDICATOR TRANSMITTER	O/C	OPEN/CLOSE OR OPEN/CLOSED
EFF	EFFLUENT	O/C/A	OPEN/CLOSE/AUTOMATIC
F	FAULT	O/O	ON/OFF
FCP	FIELD CONTROL PANEL	O/O/R	ON/OFF/RESET
FCV	FLOW CONTROL VALVE	O/S/C	OPEN/STOP/CLOSE
F/R	FORWARD/REVERSE	O/S/C/A	OPEN/STOP/CLOSE/AUTOMATIC
FS	FLOW SWITCH	PIC	PANEL INTERFACE CONNECTOR
H/A	HAND/AUTOMATIC	PLC	PROGRAMABLE LOGIC CONTROLER
H/O/A	HAND/OFF/AUTOMATIC	POS	POSITION
INF	INFLUENT	RS	RUN STATUS
L/R	LOCAL/REMOTE	RSL	REMOTE/STOP/LOCAL
L/R/O	LOCAL/REMOTE/OFF	(S)	SAMPLE PORT
MCP	MAIN CONTROL PANEL	SA	SPEED ADJUST

SP	SET POSITION
S/S	START/STOP
YL	EVENT ALARM LOW
YLL	EVENT ALARM LOW LOW
YH	EVENT ALARM HIGH
YHH	EVENT ALARM HIGH HIGH
YNF	EVENT NO FLOW
YF	EVENT FAIL
YM	EVENT IN MANUAL
YS	EVENT STATUS

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SCALE ADJUSTMENT GUIDE
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REVISIONS

NO.	DATE	DESCRIPTION

LISA GOYER
No. 11536
REGISTERED PROFESSIONAL ENGINEER
CIVIL
12/30/21

PROJECT NO.:	119.21.01
DATE:	DECEMBER 2021
SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	RAT
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
SCADA SYSTEM SCHEMATIC

DRAWING NO.:
I-1

SHEET NO. 23 OF 26

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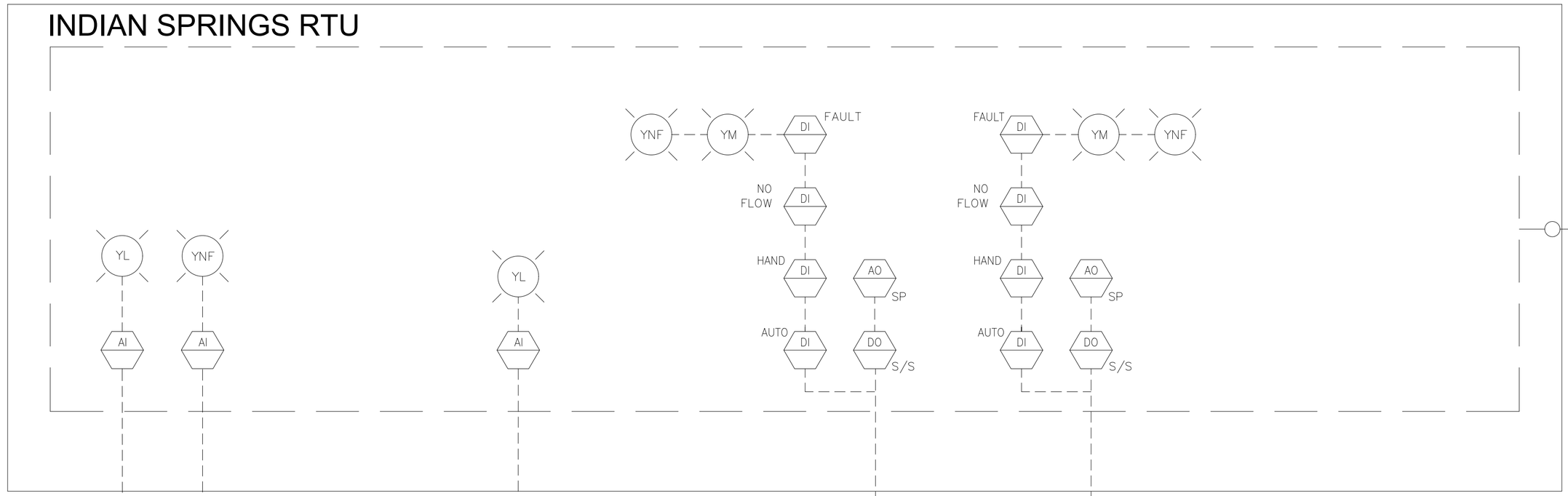
INDIAN SPRINGS WELL HOUSE

EXISTING INDIAN SPRINGS WELL HOUSE



NOTES:

1) POWER SUPPLY FOR THE CHEMICAL FEED PUMPS SHALL BE NEW DUPLEX OUTLET. OUTLET IS TO BE ELECTRICALLY INTERLOCKED WITH THE WELL PUMPS. REFER TO ELECTRICAL SHEETS FOR DETAILS AND SHEET I-1 FOR OTHER INTERLOCKS.

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WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
INDIAN SPRINGS CHLORINATION

DRAWING NO.:
I-2

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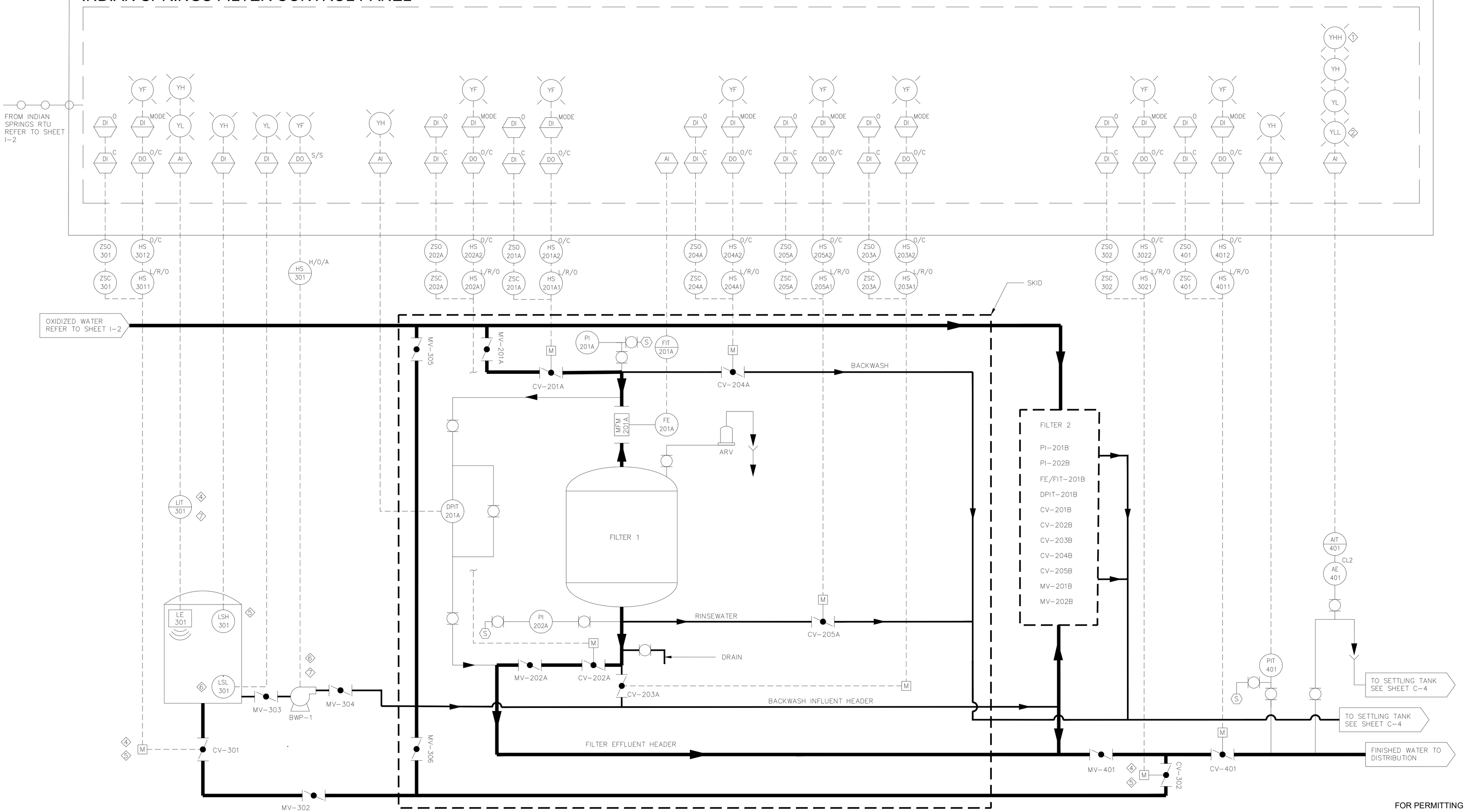
INDIAN SPRINGS WATER TREATMENT PLANT

INDIAN SPRINGS FILTER CONTROL PANEL



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12/30/21

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WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
TREATMENT PLANT INSTRUMENTATION

DRAWING NO.:
I-3

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ARMY CAMP WELL HOUSE

ARMY CAMP RTU

YH
YL
AI
HS 102 O/O
LIT 102
LE 102
WELL #1 AC-P1
1
2
3
YL
AI
PIT 102
YNF
AI
FIT 102
FE 102
MFM 102
YL
AI
YNF
YM
DI FAULT
NO FLOW DI
HAND DI
AUTO DI
AO SP
DO S/S
HS 503C L/R
HS 503B S/S
HS 503A SPEED 0-100%
FAULT DI
YM
YNF
NO FLOW DI
HAND DI
AUTO DI
AO SP
DO S/S
HS 504C L/R
HS 504B S/S
HS 504A SPEED 0-100%
YHH 1
YH
YL
YLL 2
AI
TO HIGH SERVICE ZONE AND BROADWAY BOOSTER STATION
PI
WIT 502
ELECTRICAL WIRE
ACMP-1
ACMP-2
AIT 402
CL2
AE 402
100 FT SAMPLE LINE
D
TO DRYWELL REFER TO SHEET C-6
CHLORINE PAIL
SCALE

NOTES:

1) POWER SUPPLY FOR THE CHEMICAL FEED PUMPS SHALL BE NEW DUPLEX OUTLET. OUTLET IS TO BE ELECTRICALLY INTERLOCKED WITH THE WELL PUMP. REFER TO ELECTRICAL SHEETS FOR DETAILS AND SHEET I-1 FOR OTHER INTERLOCKS

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No. 11536
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SCALE:	AS NOTED
DESIGNED BY:	SCO
CHECKED BY:	SCO
DRAWN BY:	RAT
APPROVED BY:	LMG

WATER SYSTEM CHLORINATION & PRETREATMENT

PRUDENCE ISLAND WATER DISTRICT
PRUDENCE ISLAND, RHODE ISLAND

DRAWING TITLE:
ARMY CAMP CHLORINATION

DRAWING NO.:
I-4

SHEET NO. 26 OF 26

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