CHARLOTTE COUNTY
Utilities

GENERAL NOTES

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GENERAL NOTES:

1. CHARLOTTE COUNTY UTILITIES (CCU) STANDARD SPECIFICATIONS AND STANDARD DETAILS SHALL GOVERN ALL UTILITY WORK. UNDER CERTAIN CIRCUMSTANCES THE STANDARD SPECIFICATIONS AND/OR STANDARD DETAILS MAY BE MODIFIED BY THE SPECIAL PROVISION SECTION OF THE CONTRACT DOCUMENTS IN WHICH CASE THE SPECIAL PROVISIONS SHALL APPLY. WHEN A CONFLICT EXISTS AMONG THE REQUIREMENTS OF A REFERENCED MATERIAL OR INSTALLATION STANDARD, THE REQUIREMENTS OF CCU SHALL PREVAIL. WHERE THE REQUIREMENTS OF A STATE OR LOCAL AGENCY HAVING JURISDICTION ARE MORE STRINGENT, THOSE REQUIREMENTS SHALL PREVAIL.

2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED COUNTY AND STATE PERMITS PRIOR TO COMMENCING WORK AND SHALL KEEP ONE COPY OF ALL ISSUED PERMITS AT THE SITE AT ALL TIMES DURING CONSTRUCTION.

3. THE CONTRACTOR SHALL ASSURE COMPLIANCE WITH ANY OSHA, EPA, AND/OR OTHER FEDERAL OR STATE OF FLORIDA RULES, REGULATIONS OR OTHER REQUIREMENTS, AS EACH MAY APPLY.

4. THE CONTRACTOR SHALL HAVE AVAILABLE AT THE JOB SITE ONE CURRENT COPY OF CCU SPECIFICATIONS AND DESIGN DETAILS AND ONE COPY OF THE CONTRACT DOCUMENTS INCLUDING ENGINEERING DRAWINGS, SPECIFICATIONS AND SPECIAL PROVISIONS. NO FIELD CHANGES OR DEVIATION FROM THE CONTRACT DOCUMENTS SHALL BE MADE BY THE CONTRACTOR WITHOUT PRIOR CCU WRITTEN APPROVAL.

5. THE CONTRACTOR SHALL PROTECT EXISTING UTILITIES FROM DAMAGE. THE CONTRACTOR SHALL NOTIFY "SUNSHINE STATE ONE CALL" PRIOR TO START OF CONSTRUCTION. THE EXISTING UTILITIES SHOWN ON THE ENGINEERING DRAWINGS ARE FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL MARK LOCATIONS OF UTILITIES BY PAINTING AND/OR FLAGGING THE UTILITY ALIGNMENT. THE CONTRACTOR SHALL PERFORM EXPLORATORY EXCAVATION(S) TO FIELD VERIFY THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO CONNECTION TO THE EXISTING UTILITIES. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS AND ORDINANCES COVERING THE PROTECTION OF SUCH WORK AND THE SAFETY MEASURES TO BE EMPLOYED THEREIN.

6. THE CONTRACTOR SHALL REVIEW THE SITE CONDITIONS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL BRING ENGINEERING DRAWING DISCREPANCIES TO THE ATTENTION OF THE ENGINEER PRIOR TO COMMENCING WORK.

7. THE CONTRACTOR SHALL CONTACT THE COUNTY AND ALL UTILITY COMPANIES A MINIMUM OF 48-HOURS PRIOR TO START OF CONSTRUCTION. THE CONSTRUCTION MANAGEMENT OFFICE OF CHARLOTTE COUNTY PUBLIC WORKS CAN BE REACHED AT 941-575-3600 AND CCU AT 941- 764-4515.

8. CONTRACTOR SHALL NOTIFY UTILITY USERS 48 HOURS IN ADVANCE IF WATER AND/OR SEWER SERVICE WILL BE INTERRUPTED DURING CONSTRUCTION.

9. IF EXISTING VALVES OR FITTINGS ARE NOT RESTRAINED, THE CONTRACTOR SHALL RESTRAIN EXISTING UTILITIES AS DIRECTED BY CCU IN ACCORDANCE WITH UTILITY REQUIREMENTS.

DATE: 8/1/2023	GENERAL NOTES REQUIRED	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
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APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: GN-1-R

GENERAL NOTES CONTINUED

10. THE CONTRACTOR SHALL INSTALL INCIDENTAL FITTINGS REQUIRED TO RESOLVE CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES AS DETERMINED IN THE FIELD UNLESS OTHERWISE SHOWN ON THE PLANS. ALL MATERIALS, EQUIPMENT, AND LABOR TO RESOLVE INCIDENTAL CONFLICTS SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE OF THE PROPOSED UTILITY.

11. ALL VALVES SHALL BE INSTALLED OUTSIDE OF PAVEMENTS UNLESS OTHERWISE APPROVED BY CCU.

12. THE CONTRACTOR SHALL INSTALL ALL OPEN TRENCH BURY OR DIRECTIONAL BORE HDPE PIPE IN AN UPRIGHT VERTICAL POSITION SO ALL LETTERING AND/OR STRIPING CAN BE READ FROM ABOVE.

13. THE CONTRACTOR SHALL HOME ALL SPIGOT ENDS OF PVC AND/OR DI PIPE INTO BELL ENDS WITHIN 1/2" OF THE MANUFACTURER'S INSERTION MARK. IF PIPE IS CUT, THE CONTRACTOR SHALL REPLACE AN INSERTION MARK FROM NEW END OF PIPE AS SHOWN ON THE ORIGINAL PIPE.

14. ALL STAINLESS STEEL SHALL BE 316 AUSTENITIC, NON-MAGNETIC UNLESS OTHERWISE APPROVED BY CCU.

15. MARKER BALLS AND METALLIC LOCATION TAPE MUST BE INSTALLED IN ACCORDANCE WITH THE CCU STANDARD DETAILS AND CCU STANDARD SPECIFICATIONS.

DUCTILE IRON EXTERNAL PROTECTIVE COATING

ALL EXPOSED DUCTILE IRON UTILITIES SHALL BE PAINTED AS FOLLOWS IN ACCORDANCE WITH CCU FIELD PAINTING SPECIFICATIONS:

TYPE	COLOR
POTABLE WATER UTILITIES	FED. SAFETY BLUE
FIRE LINES	SAFETY RED
WASTE WATER UTILITIES	FED. SAFETY GREEN
RECLAIMED WATER UTILITIES	PURPLE
FIRE HYDRANTS	YELLOW
FIRE VALVE CAPS	YELLOW

CONSTRUCTION IN STREETS AND ROAD RIGHT-OF-WAYS

1. OPEN ROAD CUTS REQUIRE PRIOR APPROVAL OF THE COUNTY, STATE, OR OTHER AGENCY HAVING JURISDICTION. CONSTRUCTION WITHIN THE FLORIDA DEPARTMENT OF TRANSPORTATION (DOT) RIGHT-OF-WAY SHALL CONFORM TO FLORIDA DOT CONSTRUCTION STANDARDS. CHARLOTTE COUNTY PUBLIC WORKS SHALL BE NOTIFIED 48-HOURS IN ADVANCE OF ALL APPROVED OPEN ROAD CUTS WITHIN COUNTY ROADWAYS.

2. THE CONTRACTOR SHALL PROTECT THE JOB SITE DURING CONSTRUCTION BY THE ERECTION OF SUITABLE BARRICADES. WHEREVER IT IS NECESSARY TO CROSS A PUBLIC WALK, THE CONTRACTOR SHALL PROVIDE A SUITABLE SAFE WALKWAY WITH HAND RAILINGS.

3. EXCAVATION SHALL BE CONDUCTED IN A MANNER TO CAUSE THE LEAST POSSIBLE INTERRUPTION TO TRAFFIC. WHERE TRAFFIC MUST CROSS EXCAVATIONS, THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES AT STREET INTERSECTIONS AND DRIVEWAYS.

4. NOT MORE THAN ONE BLOCK OF EXCAVATION SHALL BE OPEN PER CREW AT ANY ONE TIME, AND THIS DISTANCE SHALL BE REDUCED IF CONSTRUCTION CAUSES EXCESSIVE INTERFERENCE WITH TRAFFIC. EXCAVATED OR OTHER MATERIAL STORED ADJACENT TO OR PARTIALLY UPON A ROADWAY PAVEMENT SHALL BE ADEQUATELY MARKED FOR TRAFFIC AND PEDESTRIAN SAFETY AT ALL TIMES.

5. THE CONTRACTOR SHALL CARRY OUT THE WORK SO AS NOT TO DENY ACCESS TO PRIVATE PROPERTY. ALL UTILITY ACCESS MANHOLES, VALVES, AND FIRE HYDRANTS AND LETTER BOXES SHALL BE ACCESSIBLE AT ALL TIMES DURING CONSTRUCTION.

6. ROAD SURFACE RESTORATION SHALL BE PERFORMED PER CHARLOTTE COUNTY PUBLIC WORKS, FLORIDA DEPARTMENT OF TRANSPORTATION, OR OTHER GOVERNING AGENCY.

7. THE CONTRACTOR SHALL REPLACE PAVEMENT MARKINGS DAMAGED DURING THE PROJECT.

TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC

1. TRAFFIC CONTROL ON ALL COUNTY AND STATE HIGHWAY RIGHT-OF-WAYS SHALL COMPLY WITH THE REQUIREMENTS OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (U.S. DOT/FHA) AND REQUIREMENTS OF THE STATE AND/OR ANY OTHER LOCAL AGENCY HAVING JURISDICTION.

2. WORK AFFECTING TRAFFIC ON ANY COUNTY STREET, ROADWAY, RIGHT-OF-WAY, BIKE PATH, OR SIDEWALK REQUIRES THE PREPARATION AND SUBMITTAL OF A MAINTENANCE OF TRAFFIC (MOT) PLAN BY THE CONTRACTOR TO THE COUNTY ENGINEER. THE MOT PLAN SHALL BE APPROVED BY THE COUNTY ENGINEER OR HIS/HER DESIGNEE PRIOR TO THE START OF CONSTRUCTION.

TRAFFIC REGULATIONS AND MAINTENANCE OF TRAFFIC CONTINUED

3. WORK AFFECTING TRAFFIC ON ANY STATE ROAD OR HIGHWAY REQUIRES THE PREPARATION AND SUBMITTAL OF AN MOT PLAN BY THE CONTRACTOR TO THE FDOT. THE MOT PLAN SHALL BE APPROVED BY THE FDOT PRIOR TO THE START OF CONSTRUCTION.

4. THE CONTRACTOR SHALL BE IN FULL COMPLIANCE WITH THE APPROVED MOT PLAN AT ALL TIMES.

5. THE CONTRACTOR SHALL FURNISH AND MAINTAIN ALL TRAFFIC CONTROL SIGNS AND DEVICES, BARRICADES, FLASHERS, ETC. IN WORKING CONDITION AT ALL TIMES.

6. ROAD CLOSURE WHETHER TEMPORARY ON A DAILY BASIS OR PERMANENTLY DURING CONSTRUCTION REQUIRES THE APPROVAL OF A DETOUR PLAN BY THE AGENCY OR AGENCIES HAVING JURISDICTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL TEMPORARY SIGNAGE WHEN THE ROADWAY IS TO BE CLOSED OR TRAFFIC DETOURED. WHEN ROAD CLOSURES ARE TEMPORARY ALL STREETS SHALL BE RE-OPENED TO TRAFFIC BY THE END OF THE WORK DAY AND ALL DETOUR SIGNS COVERED OR REMOVED. WHEN ROADS ARE PERMANENTLY CLOSED DURING CONSTRUCTION ACCESS MUST BE PROVIDED TO PROPERTIES LOCATED ON THE CLOSED ROAD AT THE END OF EACH WORK DAY AND ON WEEKENDS.

7. WHEN DARK THE CONTRACTOR SHALL FURTHER INDICATE THIS WORK BY THE MAINTENANCE OF SUITABLE LIGHTS OR FLARES ESPECIALLY ALONG OR ACROSS THOROUGHFARES.

SOIL EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, TOOLS, MATERIALS, AND SERVICES TO PROVIDE BEST MANAGEMENT PRACTICES (BMP) FOR SOIL EROSION AND SEDIMENT CONTROL. BMP MEASURES SHALL CONFORM TO THE ENGINEERING DRAWINGS, CCU SPECIFICATIONS, AND STATE AND LOCAL REQUIREMENTS.

2. PRIOR TO THE START OF CONSTRUCTION ACTIVITIES, AREAS WITHIN AND ADJOINING THE LIMITS OF CONSTRUCTION SHALL BE PROTECTED BY ERECTION OF TREE PROTECTION BARRICADES AND/OR SILT BARRIERS. SILT BARRIERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH COUNTY AND STATE REQUIREMENTS.

3. EARTH MOVING ACTIVITIES:

A. THE CONTRACTOR SHALL PRESERVE THE NATURAL LANDSCAPE AND CONDUCT CONSTRUCTION OPERATIONS TO PREVENT THE DESTRUCTION, SCARRING, OR DEFACING OF THE NATURAL SURROUNDINGS WITHIN THE LIMITS OF DISTURBANCE EXCEPT WHERE CLEARING IS REQUIRED FOR PERMANENT WORK, FOR APPROVED CONSTRUCTION OF ROADS, OR FOR REMOVAL OF TREES, NATIVE SHRUBBERY, AND VEGETATION AS INDICATED ON THE PLANS, ALL LOCATIONS WHERE TREES, SHRUBS, AND VEGETATION ARE SHOWN ON THE PLANS TO BE PROTECTED MUST BE PROTECTED AT ALL TIMES.

SOIL EROSION AND SEDIMENT CONTROL CONTINUED

B. GRADED AREAS ARE TO BE SEEDED AND/OR SODDED IN ACCORDANCE WITH CCU SPECIFICATIONS FOLLOWING EARTH MOVING PROCEDURES. IF THE TIME OF YEAR IS NOT CONDUCIVE FOR PERMANENT SEEDING, TEMPORARY MULCH AND/OR SEEDING SHALL BE IN ACCORDANCE WITH CCU SPECIFICATIONS.

4. MAINTENANCE:

A. THE CONTRACTOR SHALL REPAIR ALL DAMAGES CAUSED BY SOIL EROSION OR CONSTRUCTION EQUIPMENT BEFORE THE END OF EACH WORK DAY.

B. THE CONTRACTOR SHALL REMOVE ALL SEDIMENT FROM SUMP AREAS. THE SEDIMENT SHALL BE PLACED IN SUCH A MANNER THAT IT WILL NOT ERODE FROM THE SITE. THE SEDIMENT SHALL NOT BE DEPOSITED DOWNSTREAM FROM THE EMBANKMENT, IN OR ADJACENT TO A STREAM OR FLOOD PLAIN.

BEDDING, BACKFILL, AND COMPACTION

1. ALL PIPE BEDDING MATERIAL SHALL BE NEW UNLESS OTHERWISE APPROVED BY CCU.

2. FOUNDATION MATERIAL OR BEDDING ROCK SHALL BE USED FOR BEDDING OF PIPE AND/OR MANHOLES AS INDICATED ON THE ENGINEERING DRAWINGS. CRUSHED STONE SHALL CONSIST OF HARD, DURABLE, AND SUB-ANGULAR PARTICLES OF PROPER SIZE AND GRADATION, AND SHALL BE FREE FROM ORGANIC MATERIAL, WOOD, TRASH, SAND, LOAM, CLAY, EXCESS FINES AND OTHER DELETERIOUS MATERIALS. THE STONE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C33, SIZE No. 57 (3/4 INCH ROCK) AND BE GRADED WITHIN THE FOLLOWING LIMITS:

U.S. SIEVE SIZE	PERCENT FINER BY WEIGHT
1 1/2 INCH	100
1 INCH	95-100
1/2 INCH	25-100
No. 4	0-10
No. 8	0-5

3. SAND FOR BEDDING POLYVINYL CHLORIDE (PVC) PIPE SHALL BE A DRY SCREENED AND GRADED WITH 100 PERCENT PASSING 1 3/8 INCH SIEVE AND NOT MORE THAN FIVE PERCENT PASSING A No. 200 SIEVE.

4. FOUNDATION STABILIZATION MATERIAL SHALL MEET CCU SPECIFICATIONS OR DESIGN DETAILS. IF DETERMINED BY CCU THE MATERIAL IN THE BOTTOM OF THE TRENCH IS UNSUITABLE FOR SUPPORTING THE PIPE, THE CONTRACTOR SHALL EXCAVATE BELOW THE FLOW LINE OF THE PIPE. THE TRENCH SHALL BE BACKFILLED TO SPECIFIED GRADE WITH FOUNDATION STABILIZATION MATERIAL. IF THE TRENCH IS PROPERLY DEWATERED, CCU APPROVED BACKFILL MATERIAL MAY BE USED FOR STABILIZATION. CRUSHED ROCK SHALL BE USED WHEN A DRY TRENCH CANNOT BE OBTAINED. THE FOUNDATION STABILIZATION MATERIAL SHALL BE PLACED OVER THE FULL WIDTH OF THE TRENCH AND COMPACTED IN LAYERS NOT EXCEEDING SIX INCHES DEEP TO THE REQUIRED GRADE.

BEDDING, BACKFILL, AND COMPACTION CONTINUED

5. BACKFILLING OF TRENCHES SHALL NOT BE ALLOWED UNTIL THE WORK HAS BEEN APPROVED BY CCU. WORK BACKFILLED OR CONCEALED WITHOUT THE KNOWLEDGE OF CCU SHALL BE UNCOVERED OR EXPOSED AT NO COST TO THE OWNER.

6. BROKEN CONCRETE SHALL NOT BE USED. FILL MATERIAL CONTAINING LIMEROCK SHALL HAVE SUFFICIENT SAND TO FILL THE VOIDS IN THE LIMEROCK. NO STONES OR ROCKS LARGER THAN THREE INCHES IN DIAMETER SHALL BE USED IN ANY BACKFILL. BACKFILL MATERIAL PLACED WITHIN ONE FOOT OF PIPING AND APPURTENANCES OR IN THE UPPER SIX INCHES OF ALL BACKFILL AND FILLS SHALL NOT CONTAIN ANY STONES OR ROCKS LARGER THAN ONE INCH IN DIAMETER. EXISTING BACKFILL MATERIAL SHALL MEET THE ABOVE REQUIREMENTS AS APPROVED BY CCU.

7. MATERIAL SUITABLE FOR BACKFILL IN A PROPERLY DEWATERED TRENCH SHALL NOT BE EXPANSIVE NOR HAVE HIGH ORGANIC CONTENT; SHALL BE FREE OF DEBRIS, LUMPS AND CLODS; AND SHALL MEET THE FOLLOWING REQUIREMENTS:

A. MAXIMUM LIQUID LIMIT SHALL NOT EXCEED 12 AS DETERMINED BY ASTM D423

B. MAXIMUM PLASTICITY INDEX SHALL NOT EXCEED 35 AS DETERMINED BY ASTM D424.

C. NOT MORE THAN 10% OF WEIGHT SHALL BE FINER THAN 74 MICRON (NO. 200) U.S. STANDARD SIEVE.

8. READY-MIX FLOWABLE FILL OR CONTROLLED LOW STRENGTH MATERIAL (CLSM) MAY BE SUBSTITUTED AS AN ALTERNATIVE TO COMPACTED SOIL WITH THE APPROVAL OF CCU OR WHERE SHOWN ON THE ENGINEERING DRAWINGS. APPLICATIONS FOR THE MATERIAL INCLUDE BEDDINGS, ENCASEMENTS, CLOSURES FOR TANKS AND PIPES, AND GENERAL BACKFILL APPLICATIONS FOR TRENCHES AND ABUTMENTS. FLOWABLE FILL SHALL BE DESIGNED TO BE EXCAVATED AND PUMPED FOR APPLICATIONS WHERE STRENGTH IS MORE IMPORTANT THAN EXCAVATABLITY. IF FLOWABLE FILL IS SPECIFIED, ULTIMATE COMPRESSIVE STRENGTH SHALL BE LESS THAN 200 PSI AT 28 DAYS. FLOWABLE FILL IS NOT ACCEPTABLE FOR USE AS BACKFILL UNDER PAVEMENT, SIDEWALKS OR OTHER HARD SURFACES UNLESS OTHERWISE APPROVED IN WRITING BY AUTHORITY WITH JURISDICTION.

9. THE CONTRACTOR SHALL COMPACT ALL PORTIONS OF A TRENCH WITHIN 7.5' OF EXISTING EDGE OF PAVEMENT TO 98% DENSITY, AASHTO T-180, AND 95% FOR OTHER AREAS WITHIN THE RIGHT OF WAY. IF MORE STRINGENT COMPACTION REQUIREMENTS ARE SHOWN ON THE PLANS OR IN THE CONTRACT DOCUMENTS THEY SHALL APPLY.

10. . COMPACTION OF BACKFILL MATERIAL UNDER PAVEMENT, SIDEWALKS, OR OTHER HARD SURFACES SHALL BE IN CONFORMANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

11. DENSITY TESTS SHALL BE PERFORMED FOR EACH 12" LIFT AT A MINIMUM OF ONE TEST PER 200 FEET OF TRENCH.

BEDDING, BACKFILL, AND COMPACTION CONTINUED

12. MAGNETIC LOCATION TAPE WITH A MINIMUM WIDTH OF TWO AND ONE HALF (2 1/2) INCHES IS TO BE LAID DIRECTLY ABOVE THE PIPE AND TWENTY-TWO (22) INCHES BELOW THE GROUND SURFACE. THE TAPE SHALL BE OF THE COLOR AND MARKING CORRESPONDING TO THE PIPING INSTALLED. TAPE ENDS ARE TO BE SPLICED TOGETHER TO PRODUCE A CONTINUOUS LENGTH OF LOCATION TAPES. ELECTRONIC MARKER BALLS SHALL BE PLACED IN ACCORDANCE WITH CCU STANDARD DETAILS.

13. ALL WELL POINT HOLES UNDER PARKING, DRIVING, OR ROADWAY SURFACES SHALL BE BACKFILLED WITH CONCRETE IMMEDIATELY AFTER PULLING THE WELL POINTS. ALL OTHER WELL POINT HOLES SHALL BE BACKFILLED WITH FDOT No. 89 STONE IMMEDIATELY AFTER REMOVING THE WELL POINTS UNLESS SPECIFIED OR DIRECTED TO DO OTHERWISE BY CCU.

MATERIALS AND METHODS OF CONSTRUCTION

ALL MATERIALS AND CONSTRUCTION METHODS USED IN THE CONSTRUCTION OF CCU'S UTILITIES INCLUDING BUT NOT LIMITED TO PIPING, VALVES, FITTINGS, RESTRAINTS, FIRE HYDRANTS, BLOW-OFFS, GRAVITY SEWER MAINS, MANHOLES, LIFT STATIONS, WATER AND SEWER SERVICES AND ALL ASSOCIATED APPURTENANCES SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CCU'S STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED IN THE CONTRACT DOCUMENTS

RESTORATION

1. THE CONTRACTOR SHALL RESTORE ALL DISTURBED OR DAMAGED AREAS TO THE SAME OR BETTER CONDITION THAN THAT PRIOR TO THE START OF CONSTRUCTION.

2. ALL AREAS IN EXISTING RIGHT-OF-WAYS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO EQUAL OR BETTER THAN THE ORIGINAL CONDITION AND GROUND COVER TO THE SATISFACTION OF THE LOCAL OR STATE AGENCY HAVING JURISDICTION.

3. ALL DISTURBED SWALE OR CANAL GRADES SHALL BE RESTORED TO THE GRADES AND ELEVATIONS THAT EXISTED PRIOR TO DISTURBANCE UNLESS OTHERWISE SPECFIED ON THE ENGINEERING DRAWINGS OR IN THE CONTRACT DOCUMENTS.

4. IN ALL AREAS TO BE SODDED OR HYDRO-SEEDED THE CONTRACTOR SHALL VERIFY TYPE AND LOCATIONS WITH CHARLOTTE COUNTY PUBLIC WORKS PRIOR TO EXECUTION.

5. IN THE ABSENCE OF APPLICABLE SPECIFICATIONS FOR RESTORATION THE "FDOT STANDARD SPECIFICATION FOR ROAD AND BRIDGE CONSTRUCTION" LATEST EDITION SHALL APPLY.

6. THE CONTRACTOR SHALL COMPLETE RESTORATION WITHIN 21 CALENDAR DAYS OF THE DISTURBANCE UNLESS PERMISSION IS REQUESTED IN WRITING AND SUBSEQUENTLY GRANTED IN WRITING BY CCU TO EXTEND THIS TIME LIMIT.

7. THE CONTRACTOR IS RESPONSIBLE FOR WATERING AND MAINTAINING ALL GROUND COVER INSTALLED ON THE PROJECT IN ACCORDANCE WITH MANUFACTURERS OR SUPPLIERS RECOMMENDATIONS FOR THE DURATION OF THE CONSTRUCTION PERIOD AND THROUGHOUT

RESTORATION CONTINUED

THE CONTRACT MAINTENANCE PERIOD. ANY GROUND COVER THAT FAILS TO GROW SHALL BE REPLACED WITHIN 14 DAYS OR AS OTHERWISE PROVIDED IN THE CONTRACT DOCUMENTS AT NO ADDITIONAL COST TO THE COUNTY.

AS-BUILTS AND RECORD DRAWINGS

AS-BUILT AND RECORD DRAWINGS SHALL BE PREPARED IN ACCORDANCE WITH THE LATEST EDITIONS OF CCU'S MINIMUM DRAWING REQUIREMENTS FOR WATER, WASTEWATER AND RECLAIMED WATER PROJECTS, CCU'S CADD STANDARDS, AND CCU'S STANDARD SPECIFICATIONS.

ISSUE DATE AUGUST 1ST, 2023

CHARLOTTE COUNTY
Utilities

GENERAL DETAILS

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GD-23	TYPICAL UTILITY CROSSING

TABLE 1				
HORIZONTAL BENDS AND ELBOWS				
LENGTH OF RESTRAINED JOINT PIPE (FEET)				
NOMINAL PIPE DIAMETER	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4	14	6	3	2
6	20	9	4	2
8	26	11	6	3
10	30	13	7	4
12	36	15	8	4
16	47	20	10	5
20	57	24	12	6
24	66	28	13	7
30	79	33	16	8
36	91	38	19	9

TABLE 2	
TEES AND WYES	
NOMINAL PIPE DIAMETER OF BRANCH PIPE (IN INCHES)	RESTRAINED LENGTH ALONG BRANCH PIPE (IN FEET)
4	11
6	21
8	32
10	48
12	65
16	97
20	128
24	156
30	196
36	233

TABLE 3		
REDUCERS		
NOMINAL PIPE DIAMETER		RESTRAINED LENGTH ALONG PIPE (IN FEET)
LARGE END	SMALL END	
6	4	33
8	6	35
10	4	81
10	6	61
10	8	34
12	4	103
12	6	86
12	8	63
12	10	35
16	12	65
20	16	66
24	20	66
30	24	94
36	30	95

TABLE 4	
DEAD ENDS	
NOMINAL PIPE DIAMETER	RESTRAINED LENGTH ALONG PIPE (IN FEET)
4	45
6	63
8	83
10	100
12	118
16	153
20	187
24	220
30	267
36	313

NOTES : (ALL TABLES)

1. FITTINGS SHALL BE RESTRAINED JOINT UNLESS OTHERWISE NOTED.
2. ALL PIPE SHALL BE RESTRAINED IN ACCORDANCE WITH THESE TABLES OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.
3. WHERE TWO (2) OR MORE FITTINGS ARE TOGETHER, RESTRAIN JOINTS IN ACCORDANCE WITH FITTING WHICH YIELDS GREATEST LENGTH OF RESTRAINED PIPE.
4. RESTRAINT TABLES APPLY TO TEST PRESSURES OF 150 PSI OR LESS.
5. FOR PIPE ENCASED IN POLYETHYLENE, INCREASE THE GIVEN VALUES BY A FACTOR OF 1.5.
6. LENGTH OF RESTRAINED PIPE INDICATED IN TABLES 1 & 4 SHALL BE THE LENGTH OF PIPE ON EACH SIDE OF FITTING OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.
7. LENGTH OF RESTRAINED PIPE INDICATED IN TABLE 2 SHALL BE THE LENGTH OF PIPE ALONG BRANCH OF PIPE ONLY OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER. PIPE ON BOTH SIDES OF BRANCH SHALL HAVE A MINIMUM LAYING LENGTH OF 10 FEET.
8. LENGTH OF RESTRAINED PIPE INDICATED IN TABLE 3 SHALL BE THE LENGTH OF PIPE ON LARGE END ONLY OR AS PER DESIGN CRITERIA, WHICHEVER IS GREATER.

DATE: 8/1/2023

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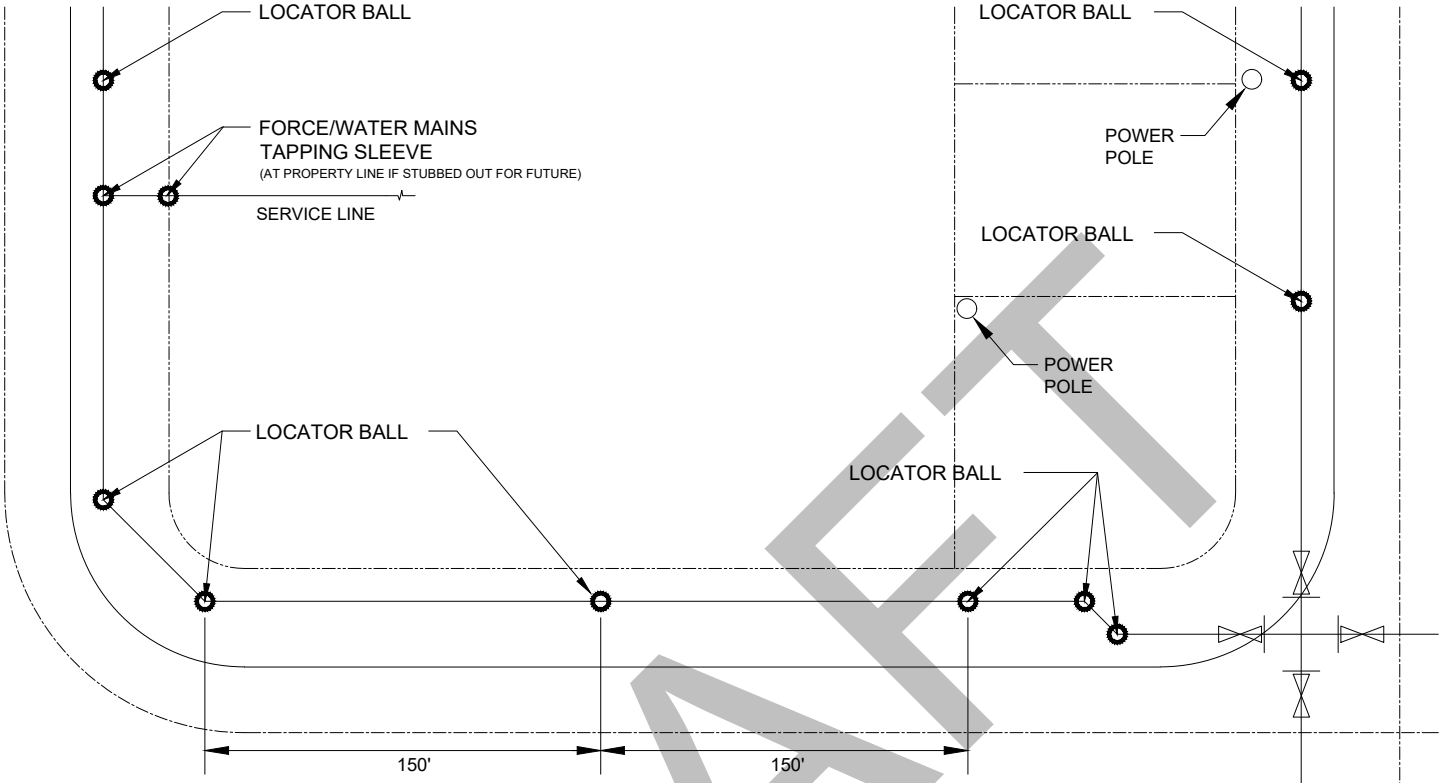
APPROVED BY: BRB

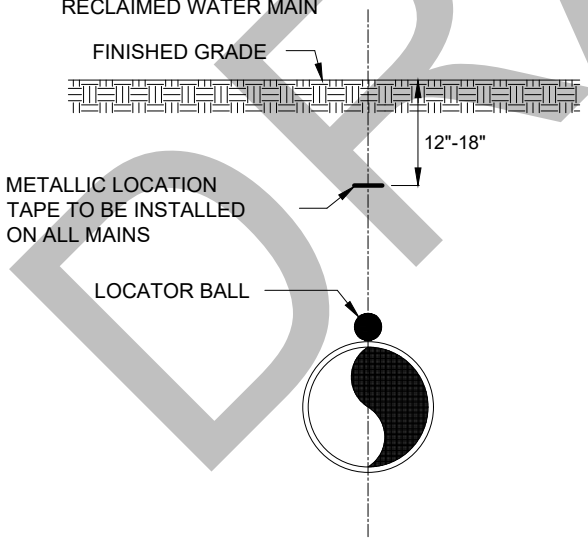
RESTRAINT TABLE

CHARLOTTE COUNTY UTILITIES



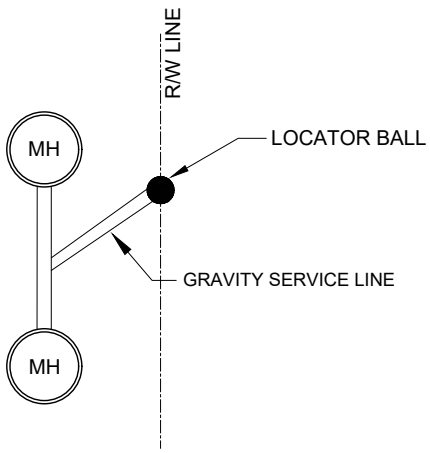
PLAN VIEW

FORCE MAIN, POTABLE WATER MAIN AND RECLAIMED WATER MAIN



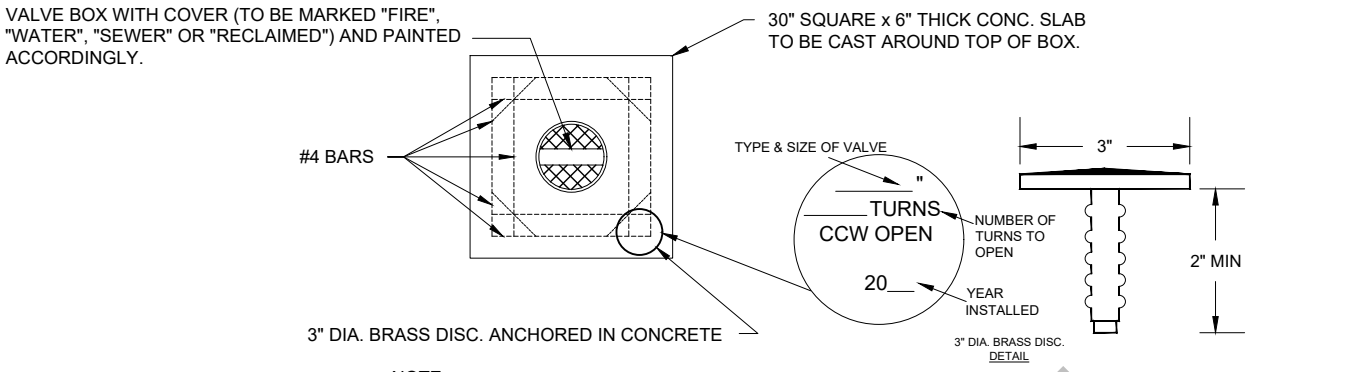
PROFILE VIEW

GRAVITY MAIN

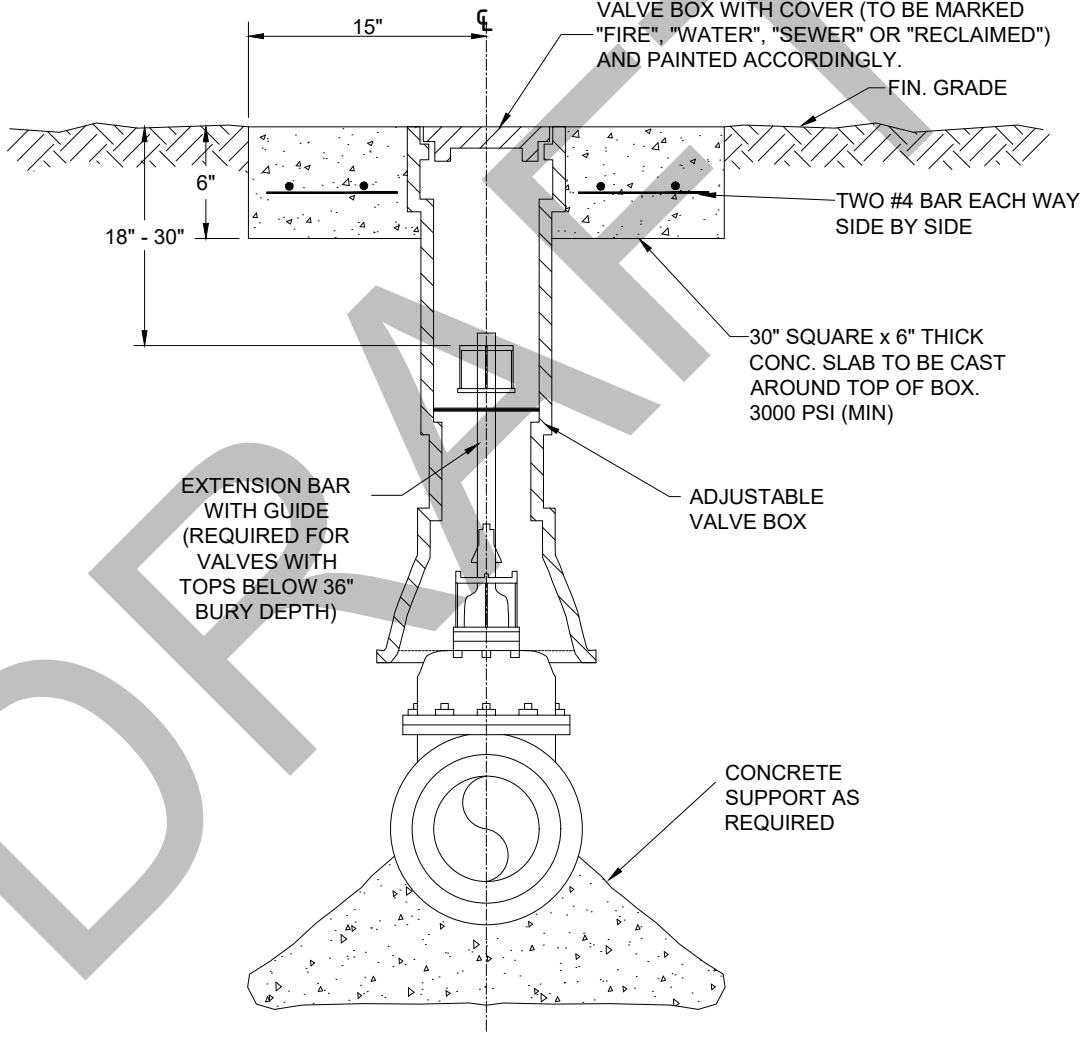


PLAN VIEW

DATE: 8/1/2023	MARKER BALL AND METALLIC LOCATION TAPE INSTALLATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-02-MBL-MARKER BALL LOCATION DETAIL



NOTE:
VALVE PAD SHALL BE USED IN ALL LOCATIONS INCLUDING SIDEWALK, DRIVEWAY AND ROADWAY APPLICATIONS, AND EXPANSION JOINTS SHALL BE USED IN ALL INSTANCES.



NOTE:

ALL VALVES 14" AND LARGER SHALL BE SIDE ACTUATED.

DATE: 8/1/2023	GATE VALVE INSTALLATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-03-GV-GATE VALVE DETAIL

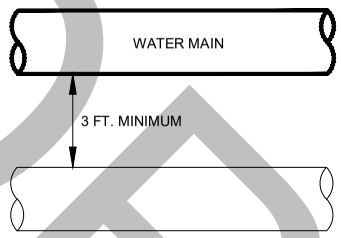
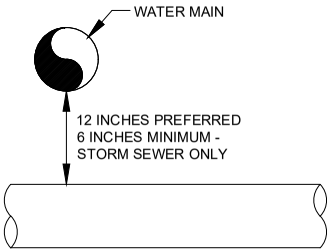
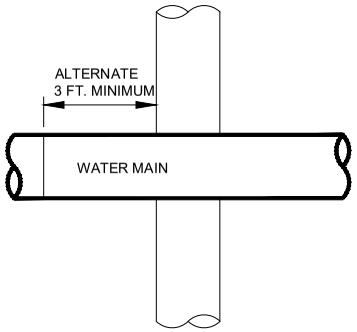
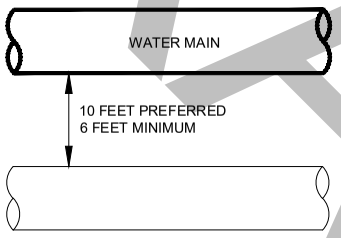
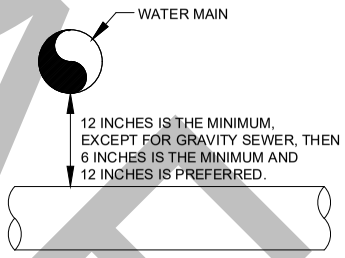
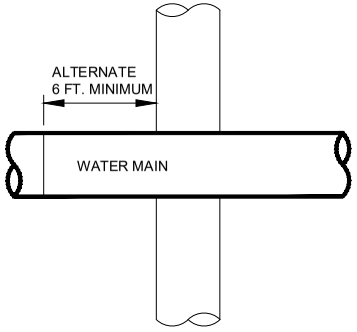
DATE: 8/1/2023

DRAWN BY: DEC

APPROVED BY: BRB

CHARLOTTE COUNTY UTILITIES

MAIN SEPARATION

OTHER PIPE	HORIZONTAL SEPARATION	CROSSINGS	JOINT SPACING @ CROSSINGS (FULL JOINT CENTERED)
• STORM SEWER • STORMWATER FORCE MAIN • RECLAIMED WATER			
• GRAVITY OR LOW PRESSURE SANITARY SEWER (1) • SANITARY SEWER FORCE MAIN • SEPTIC TANKS (2)			

NOTES:

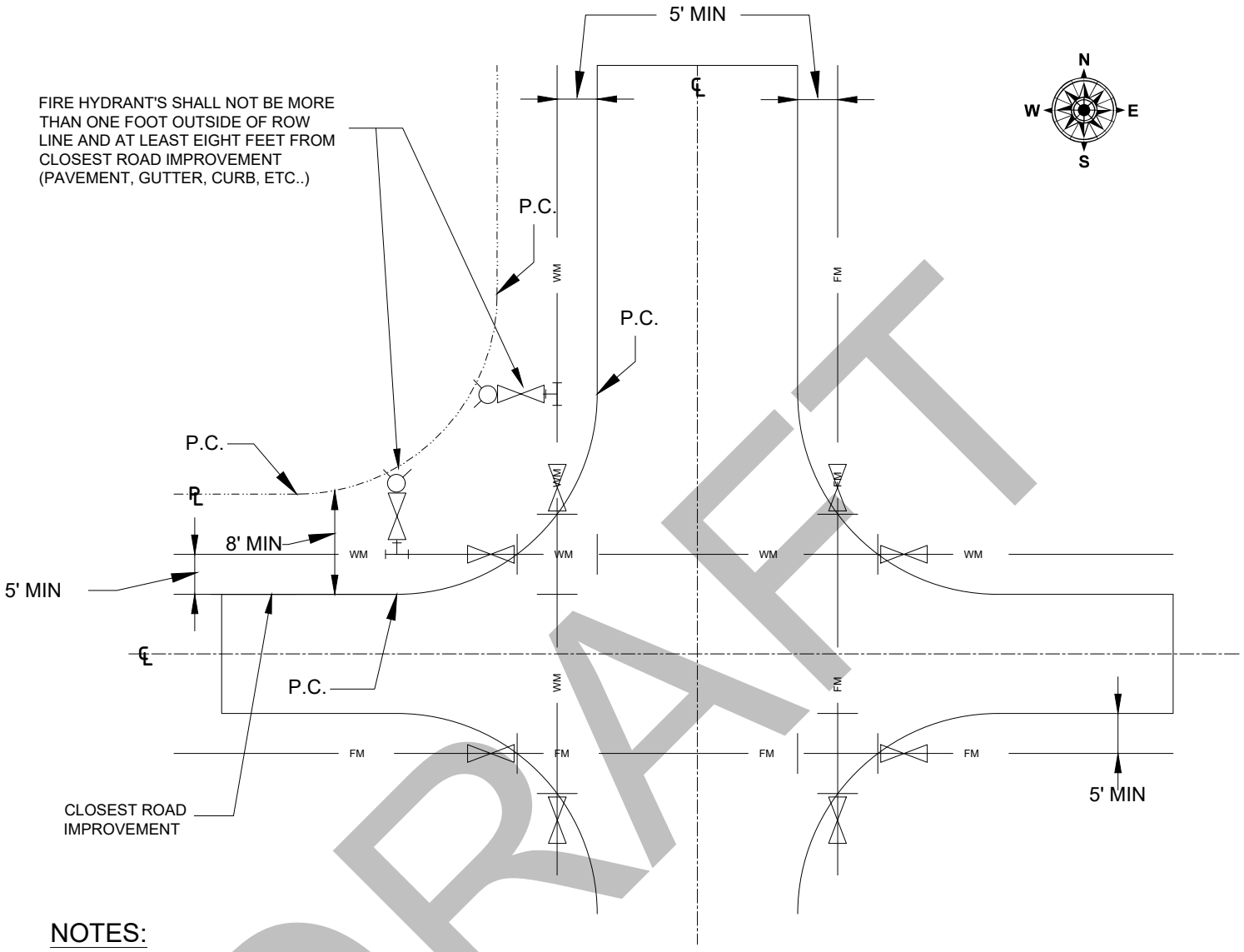
1. 3 FEET FOR GRAVITY TYPE SANITARY SEWERS WHERE THE BOTTOM OF THE WATER MAIN IS LAID AT LEAST 6 INCHES ABOVE THE TOP OF THE GRAVITY TYPE SANITARY SEWER.
2. THE SEPARATION BETWEEN POTABLE WATER, RECLAIMED WATER AND OSTDS (SEPTIC TANKS) SHALL BE 10 FEET.
3. WATER MAIN SHALL CROSS ABOVE OTHER PIPE. WHEN WATER MAIN SHALL BE BELOW OTHER PIPE THE MINIMUM SEPARATION SHALL BE 18 INCHES.

WATER AND SEWER LINE AND SEPTIC TANK SEPARATIONS

n.t.s.

IN ACCORDANCE WITH F.A.C. RULE 62-555.314

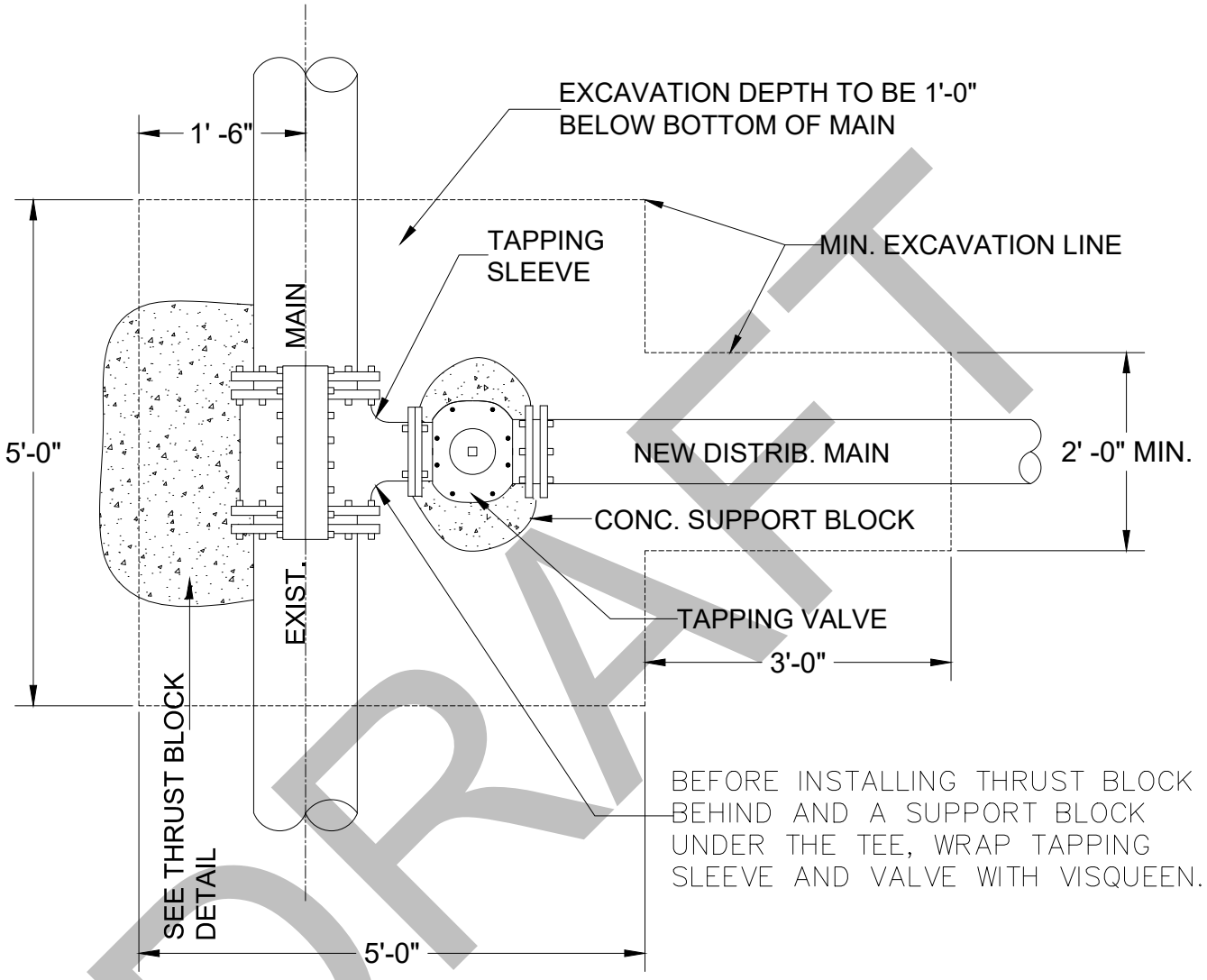
ID: G-04-MS-MAIN SEPARATION



NOTES:

1. (P/L) = PROPERTY LINE, EASEMENT LINE OR RIGHT OF WAY LINE
2. ALL VALVES SHALL BE PLACED AT THE FITTING UNLESS APPROVED BY CCU.
3. ALL MAINS SHALL BE LOCATED A MINIMUM OF 5'-0" FROM EDGE OF ROADWAY IMPROVEMENTS (PAVEMENT, GUTTERS, CURBS, ETC..) UNLESS APPROVED BY CCU.
4. ALL WATER LINES SHALL BE LOCATED ON THE NORTH SIDE OF EAST-WEST STREETS AND ON THE WEST SIDE OF NORTH-SOUTH STREETS UNLESS APPROVED BY CCU.
5. ALL RECLAIMED WATER AND SEWER FORCE MAINS SHALL BE LOCATED ON THE SOUTH SIDE OF EAST-WEST STREETS AND ON THE EAST SIDE OF NORTH-SOUTH STREETS UNLESS APPROVED BY CCU.

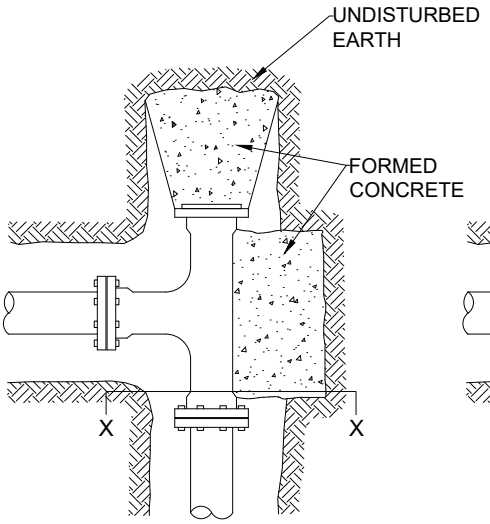
DATE: 8/1/2023	# ALIGNMENT OF MAINS, VALVES, AND HYDRANTS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-05-MA-MAIN-ALIGNMENT



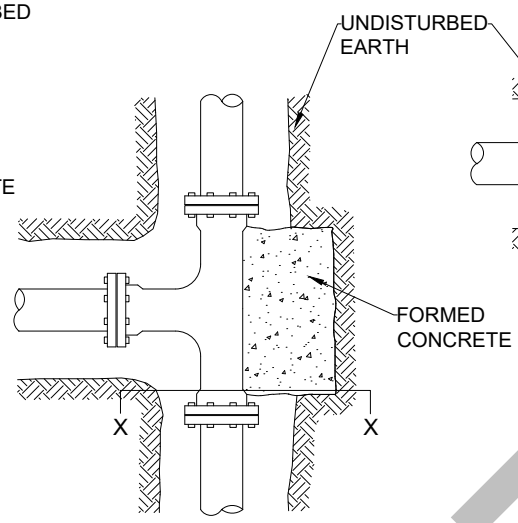
NOTE:

1. CUT IN TEES SHALL BE CONNECTED USING RIGID COUPLER
2. INSTALL A SUPPORT BLOCK UNDER THE TAPPING VALVE IF DIRECTED BY CCU.

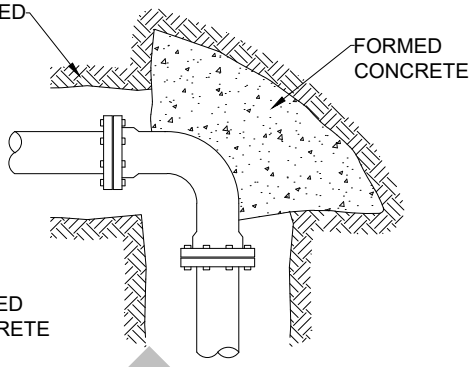
DATE: 8/1/2023	TAPPING SLEEVE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-06-TS_TAPPING SLEEVE



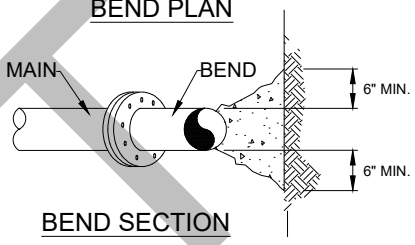
BLANKED TEE & WYE



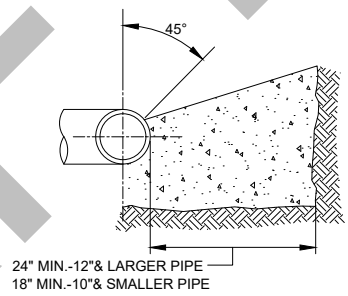
TYPICAL TEE & WYE



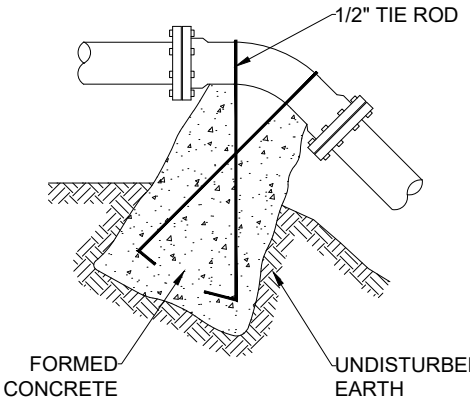
BEND PLAN



BEND SECTION



SECTION X-X



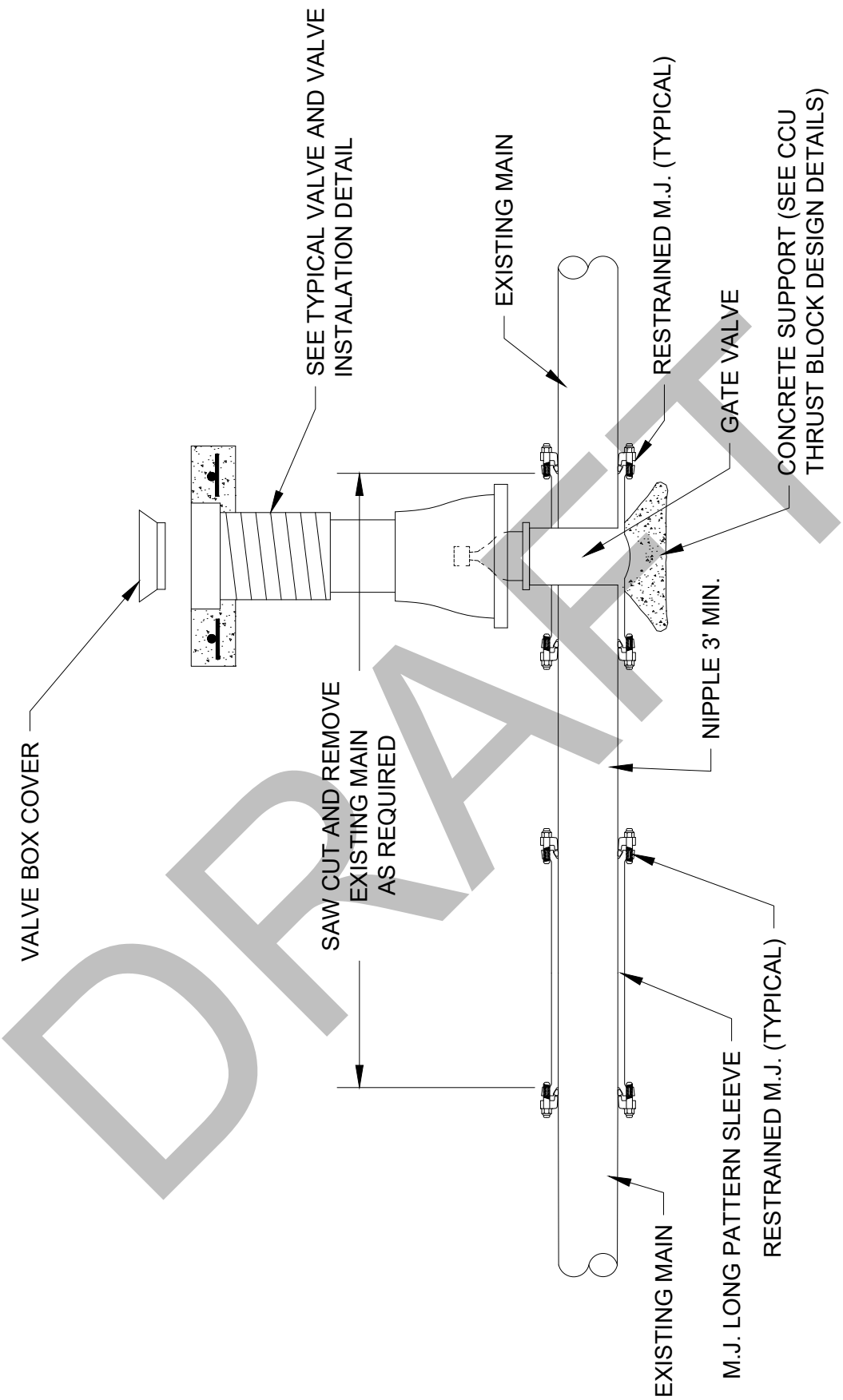
ANCHOR THRUST BLOCK
(VERTICAL BENDS ONLY)

THRUST BLOCK BEARING AREA TABLE (SQ. FT.)					
SIZE OF PIPE	TEES & PLUGS	90° BENDS	45° BENDS	22 1/2° BENDS	11 1/4° BENDS
4"	2.5	2.5	1.5	1.0	1.0
6"	5.0	5.0	3.0	1.5	1.0
8"	9.0	9.0	5.0	2.5	1.5
10"	14.0	14.0	7.5	4.0	2.0
12"	20.0	20.0	11.0	5.5	3.0
14"	27.0	27.0	15.0	7.5	4.0
16"	35.0	35.0	19.0	10.0	5.0

NOTE:

1. THRUST BLOCKS SHALL BE USED IN CONJUNCTION WITH THE RESTRAINED JOINT TABLE WHEN DIRECTED BY THE ENGINEER AND/OR CHARLOTTE COUNTY UTILITIES.
2. WRAP ALL FITTINGS WITH VISQUEEN BEFORE POURING THRUST BLOCKS. ALL THRUST BLOCKS SHALL BE LEFT OPEN FOR INSPECTION BY CCU.
3. ALL BEARING SURFACE SHALL BE CARRIED TO UNDISTURBED SOIL.
4. THESE TABLES SHOW MINIMUM SIZE THRUST BLOCKS FOR SOIL WITH A 2,000 P.S.F. SOIL BEARING (A-1 THRU A-3 CLEAN SAND AND GRAVELS).
5. POOR SOIL (A-1 THRU A-8, SILTY SOILS, CLAYS, MUCK & PEAT) SHALL REQUIRE LARGER THRUST BLOCKS.
6. THRUST BLOCK SIZES SHALL BE BASED ON 150 P.S.I. HYDROSTATIC TEST PRESSURE.
7. ALL THRUST BLOCKING SHALL BE 2500 PSI-28 DAY CONCRETE.
8. VERTICAL BENDS ONLY - 1/2" TIE RODS SHALL BE ANCHORED TO REACTION BLOCK AND COATED WITH 2 COATS OF BITUMINOUS EPOXY (16 MILS DRY THICKNESS).
9. VERTICAL BENDS ONLY - THRUST BLOCKS SHALL BE SIZED BY ENGINEER, AND APPROVED BY CCU PRIOR TO CONSTRUCTION.

DATE: 8/1/2023	# TYPICAL THRUST BLOCK DETAILS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-08
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-07-THB-THRUST BLOCK DETAIL



DATE: 8/1/2023

DRAWN BY: DEC

APPROVED BY: BRB

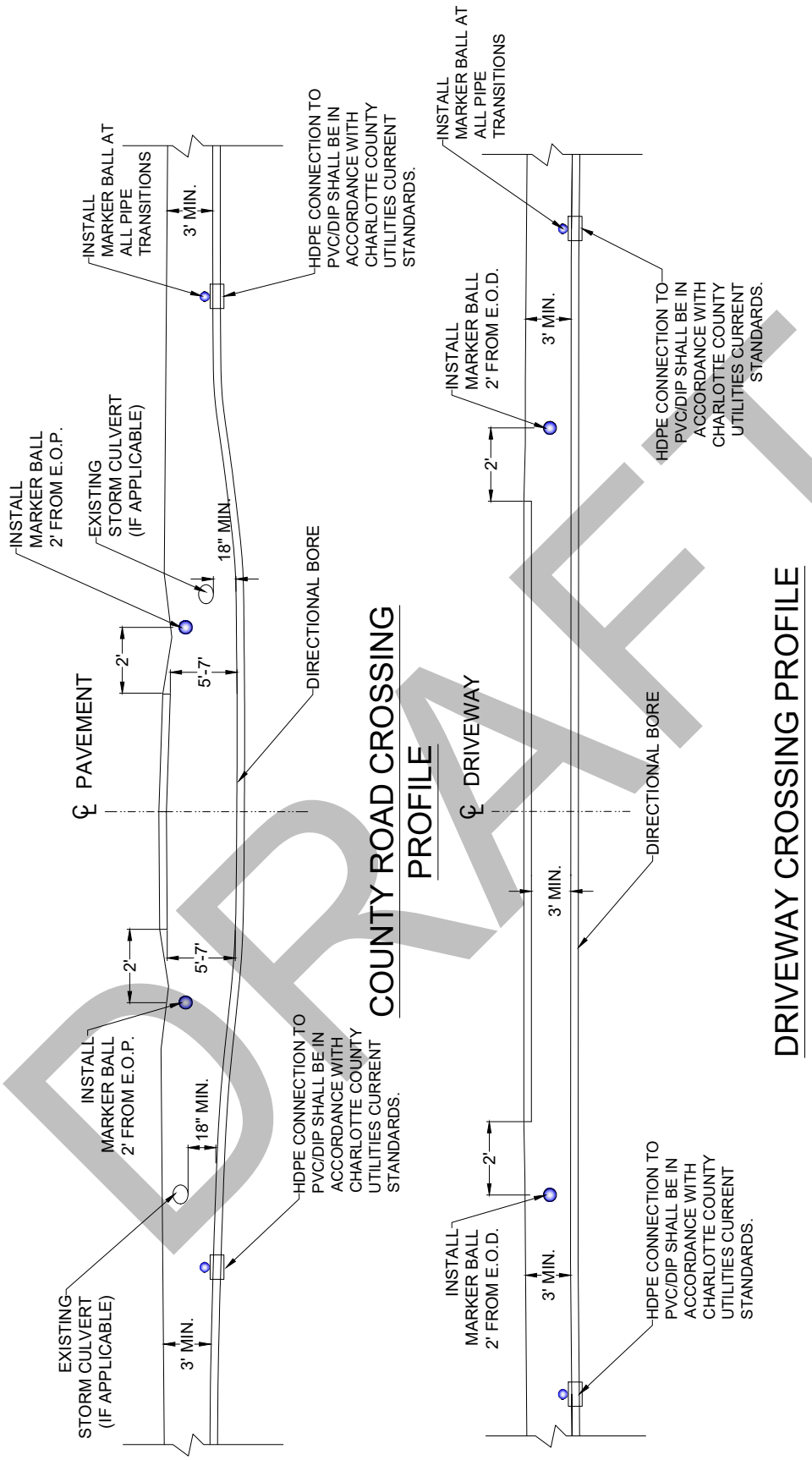
TYPICAL CUT-IN VALVE

CHARLOTTE COUNTY UTILITIES

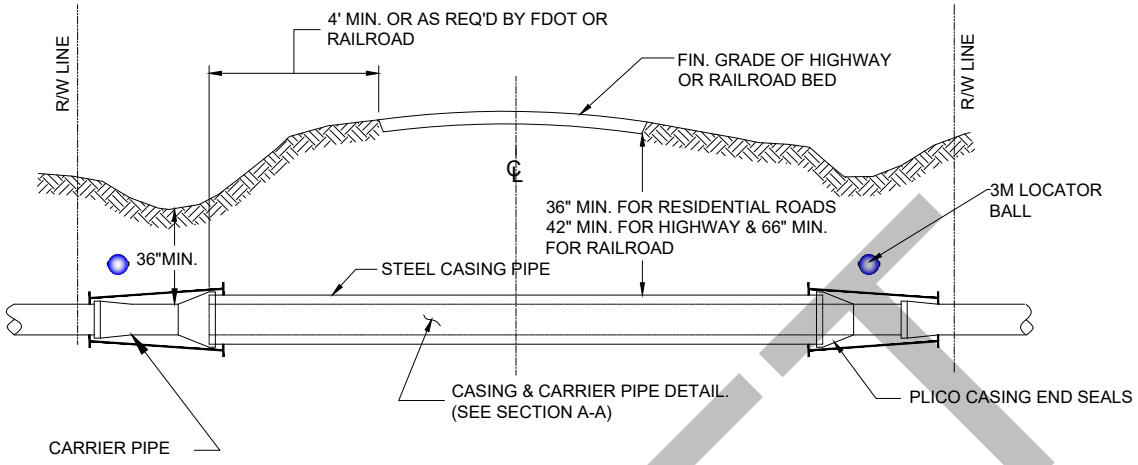
PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

PAGE No. GD-09

ID: G-07.5-CIV_CUTINVALVE

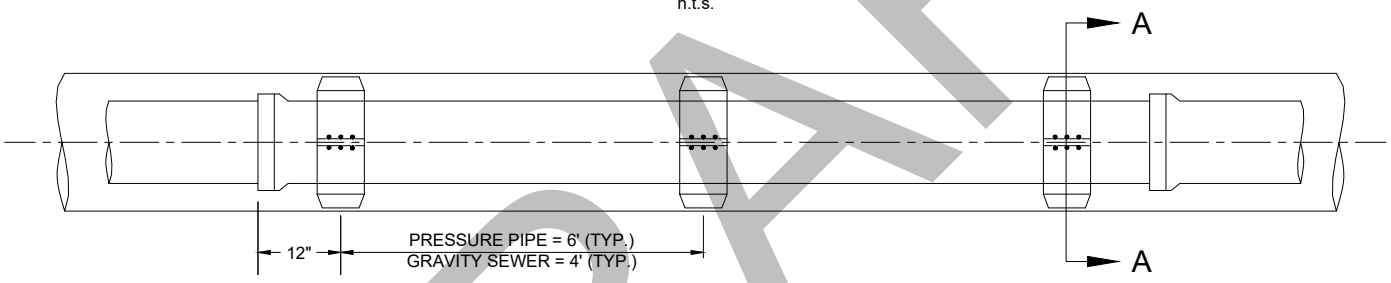


DATE: 8/1/2023	# TYPICAL DIRECTIONAL BORE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-10
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-08-DB_DIRECTIONAL_BORE



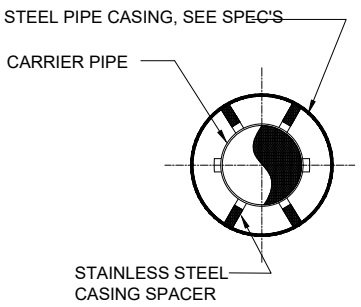
PROFILE
HIGHWAY & RAILROAD CROSSINGS

n.t.s.



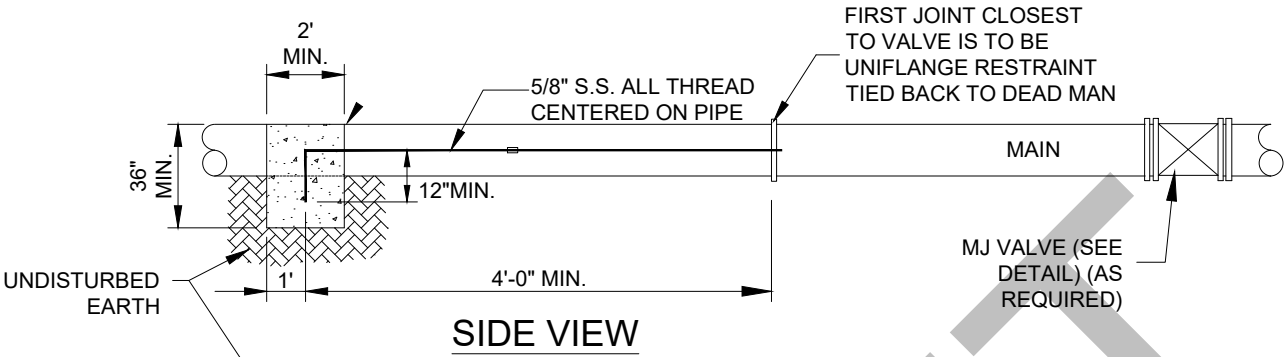
CASING & CARRIER PIPE DETAIL

NOTE:
1. PLACE SPACERS EQUALLY ON CENTER AND A MIN. OF 4 PER JOINT OF PIPE.
2. ALL CARRIER PIPE JOINTS SHALL BE RESTRAINED TO INCLUDE FIRST JOINT OUTSIDE THE CASING.

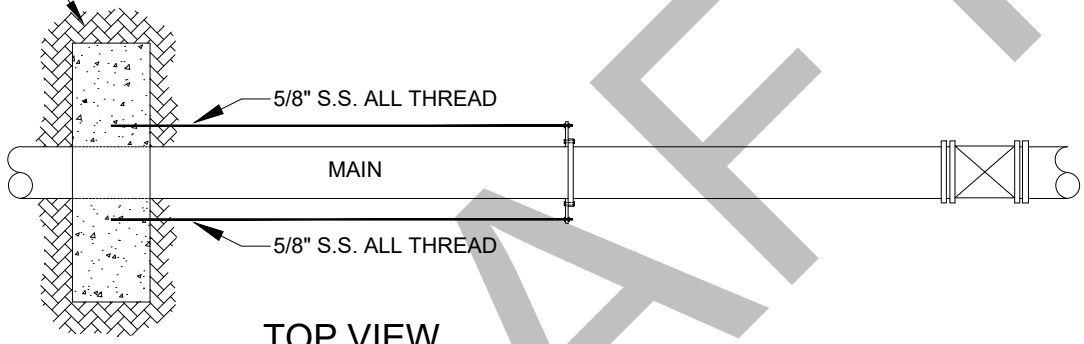


SECTION "A-A"

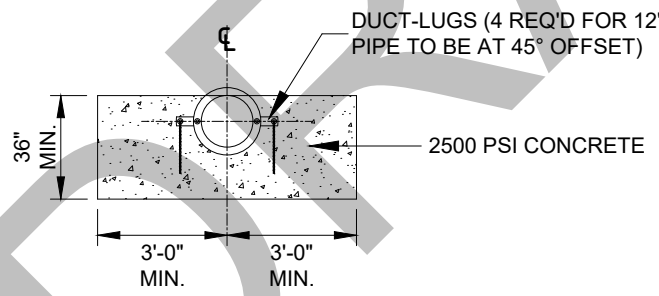
DATE: 8/1/2023	# TYPICAL JACK AND BORE DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-11
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-09-JBC PIPE CASING



SIDE VIEW



TOP VIEW

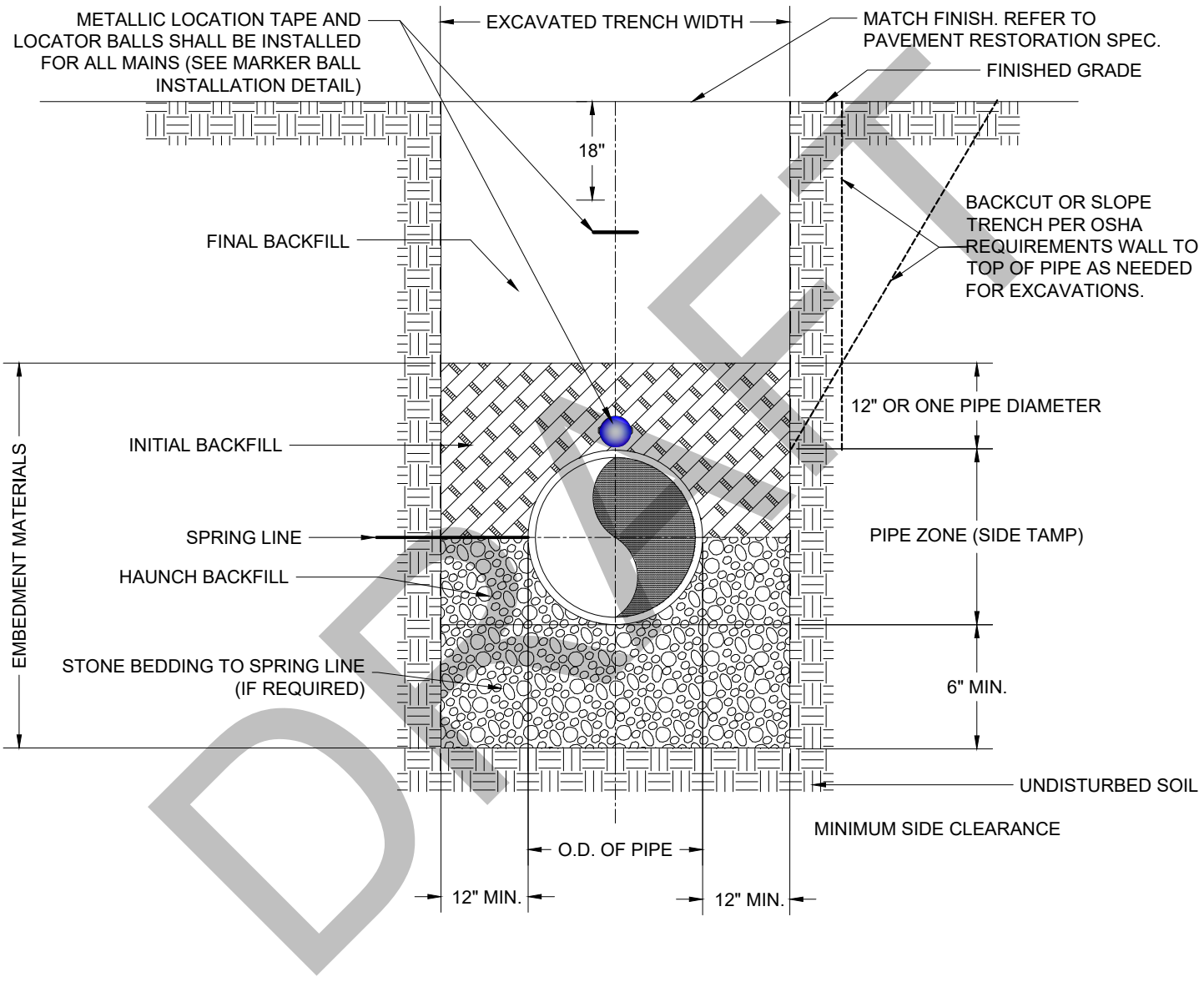


FRONT VIEW

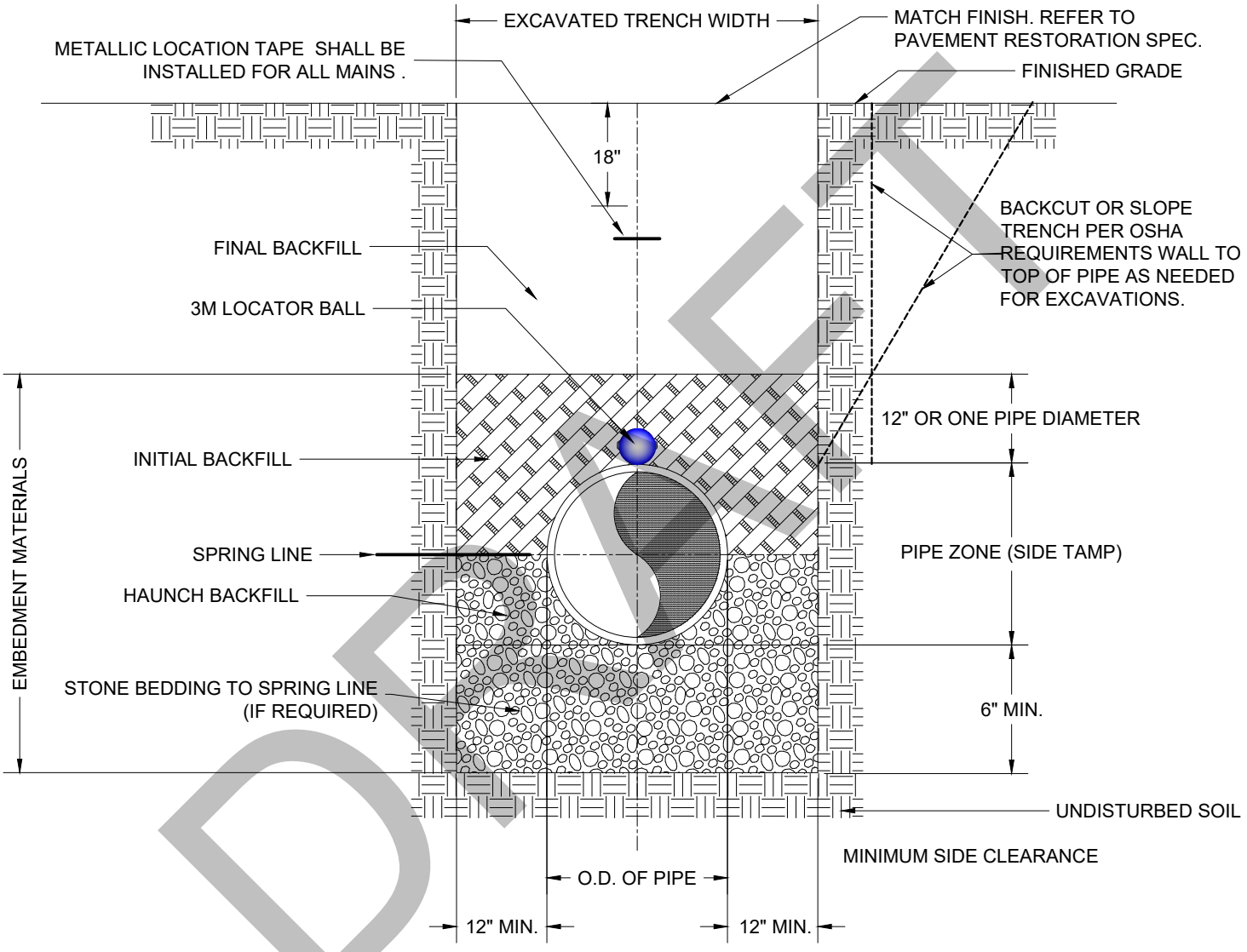
NOTE:

1. DEAD MEN SHALL BE SET PRIOR TO THE FIRST JOINT FROM A VALVE UNLESS IT'S END-OF-LINE, THERE SHALL BE A TIE-BACK ASSEMBLY ON EACH SIDE OF VALVE.
2. ALL JOINTS BETWEEN CONCRETE AND VALVE SHALL BE RESTRAINED.

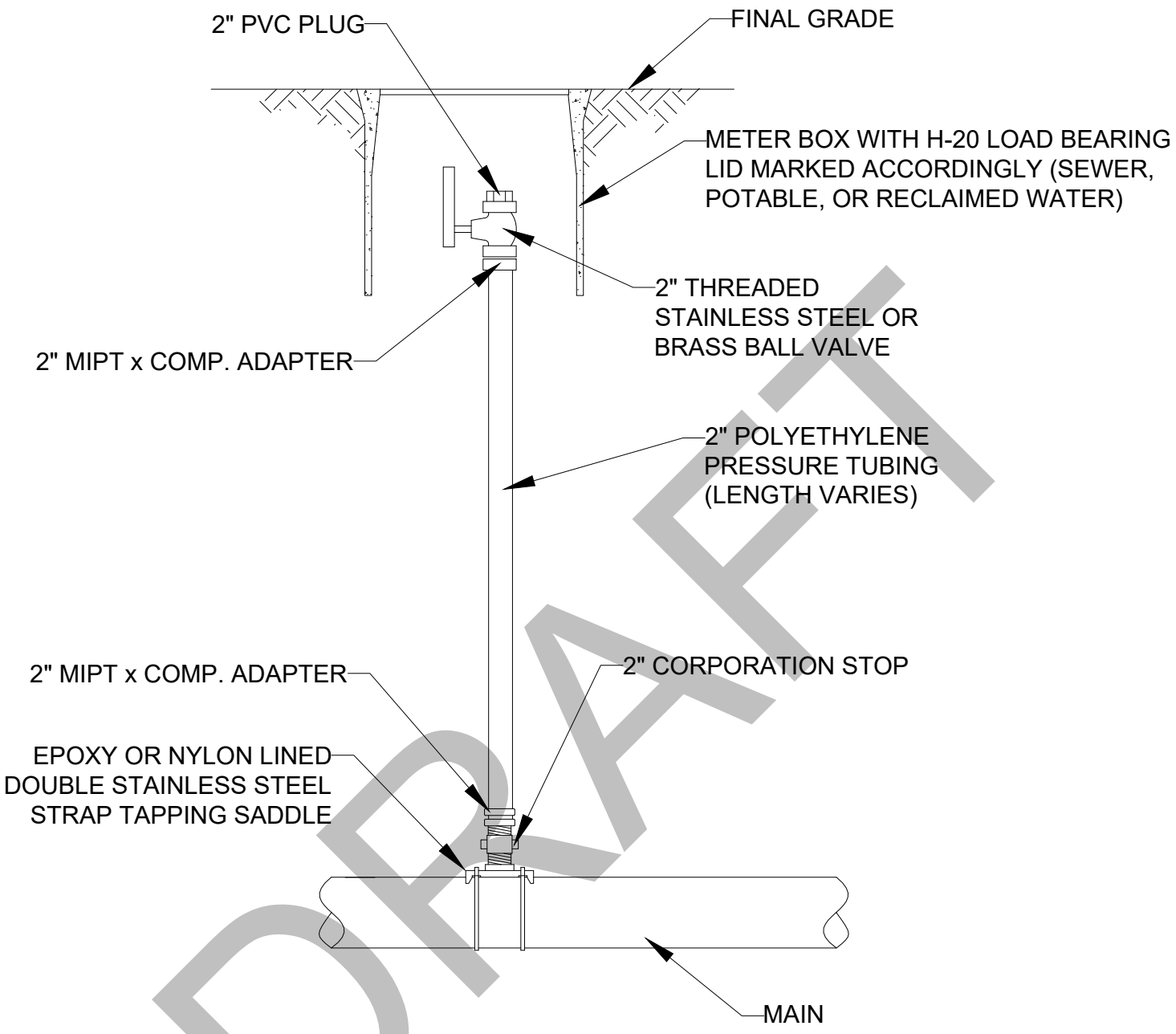
DATE: 8/1/2023	TIE-BACK ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-12
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-11-TB_TIE_BACK



DATE: 8/1/2023	# STANDARD PRESSURE PIPE TRENCH	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-13
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-13-TEBFPP

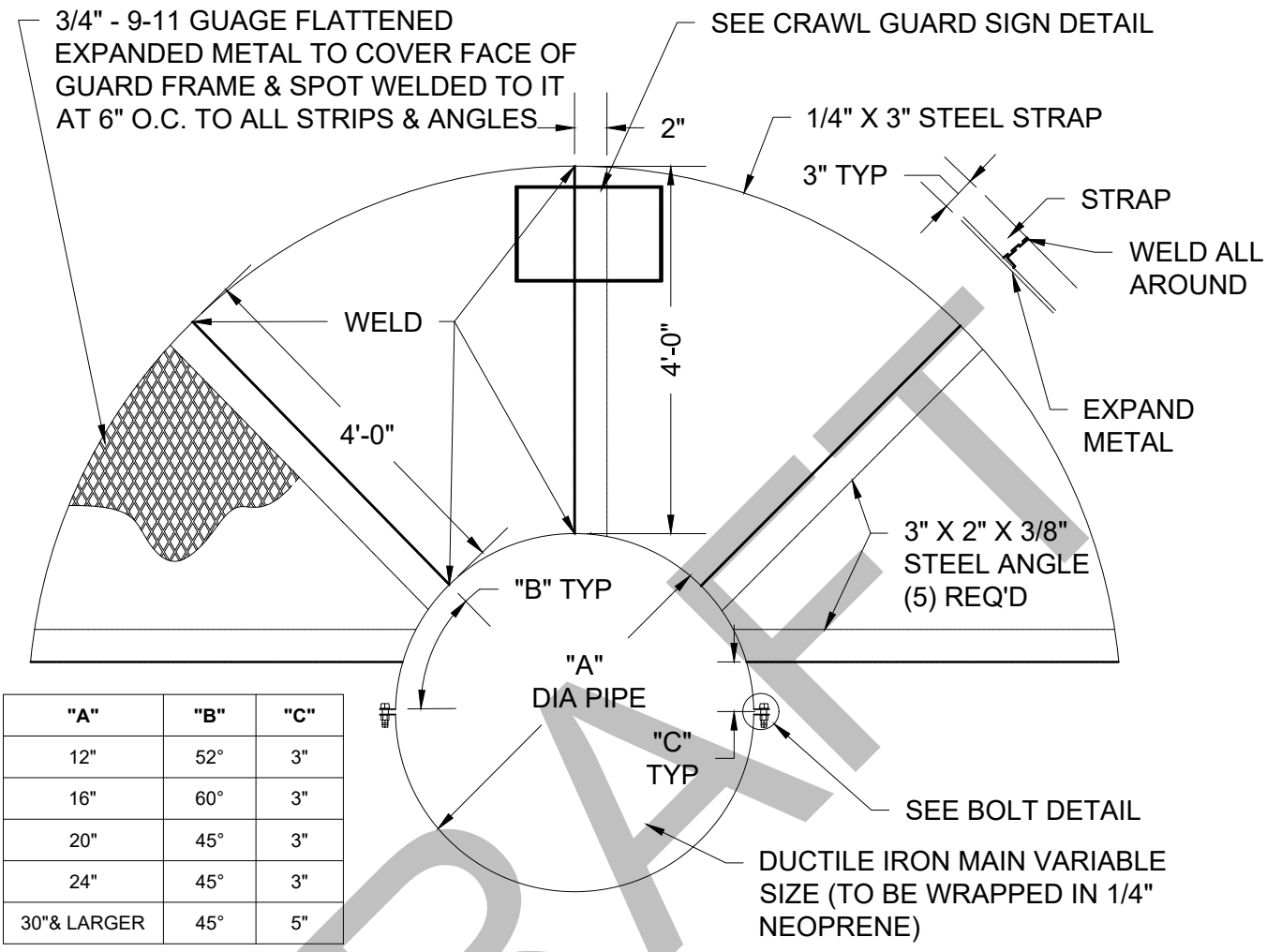


DATE: 8/1/2023	STANDARD GRAVITY SEWER PIPE TRENCH	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-14
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-14-TEBFGS

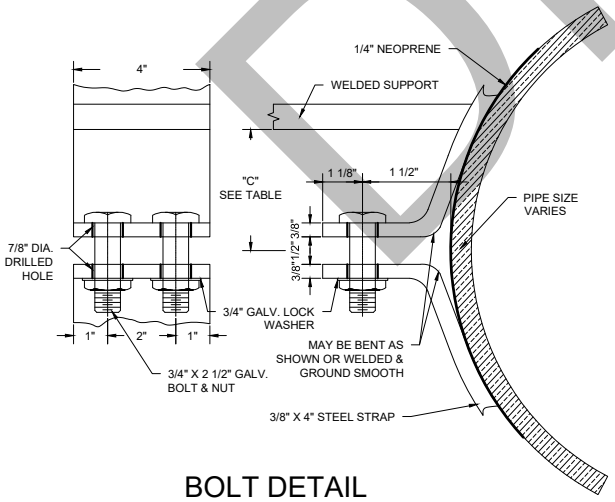


NOTE: MANUAL AIR RELEASE MAY BE USED FOR A BACTERIOLOGICAL SAMPLING POINT WITH A TEMPORARY EXTENSION TO 3' ABOVE GROUND. THIS MUST HAVE CCU APPROVAL OR BE SHOWN ON THE ENGINEERING PLANS. SEE TYPICAL BACTERIOLOGICAL SAMPLE POINT DETAIL.

DATE: 8/1/2023	# MANUAL AIR RELEASE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-15
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-15-MAR

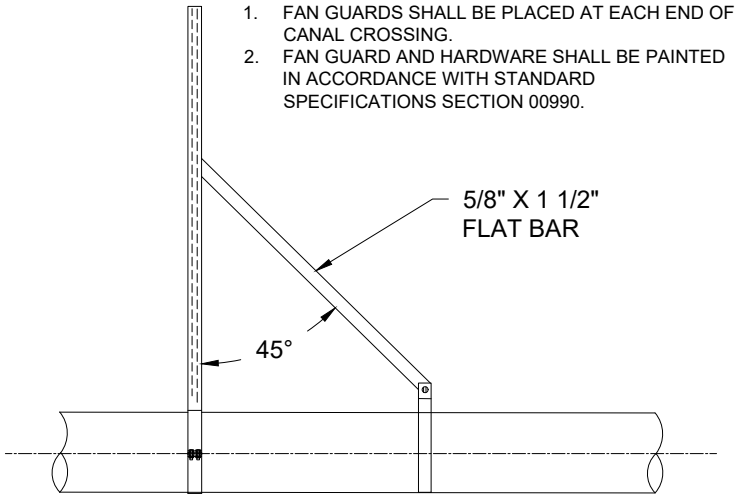


"A"	"B"	"C"
12"	52°	3"
16"	60°	3"
20"	45°	3"
24"	45°	3"
30"& LARGER	45°	5"



BOLT DETAIL

NOTES:
1. FAN GUARDS SHALL BE PLACED AT EACH END OF CANAL CROSSING.
2. FAN GUARD AND HARDWARE SHALL BE PAINTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 00990.



SIDE VIEW

DATE: 8/1/2023

DRAWN BY: DEC

APPROVED BY: BRB

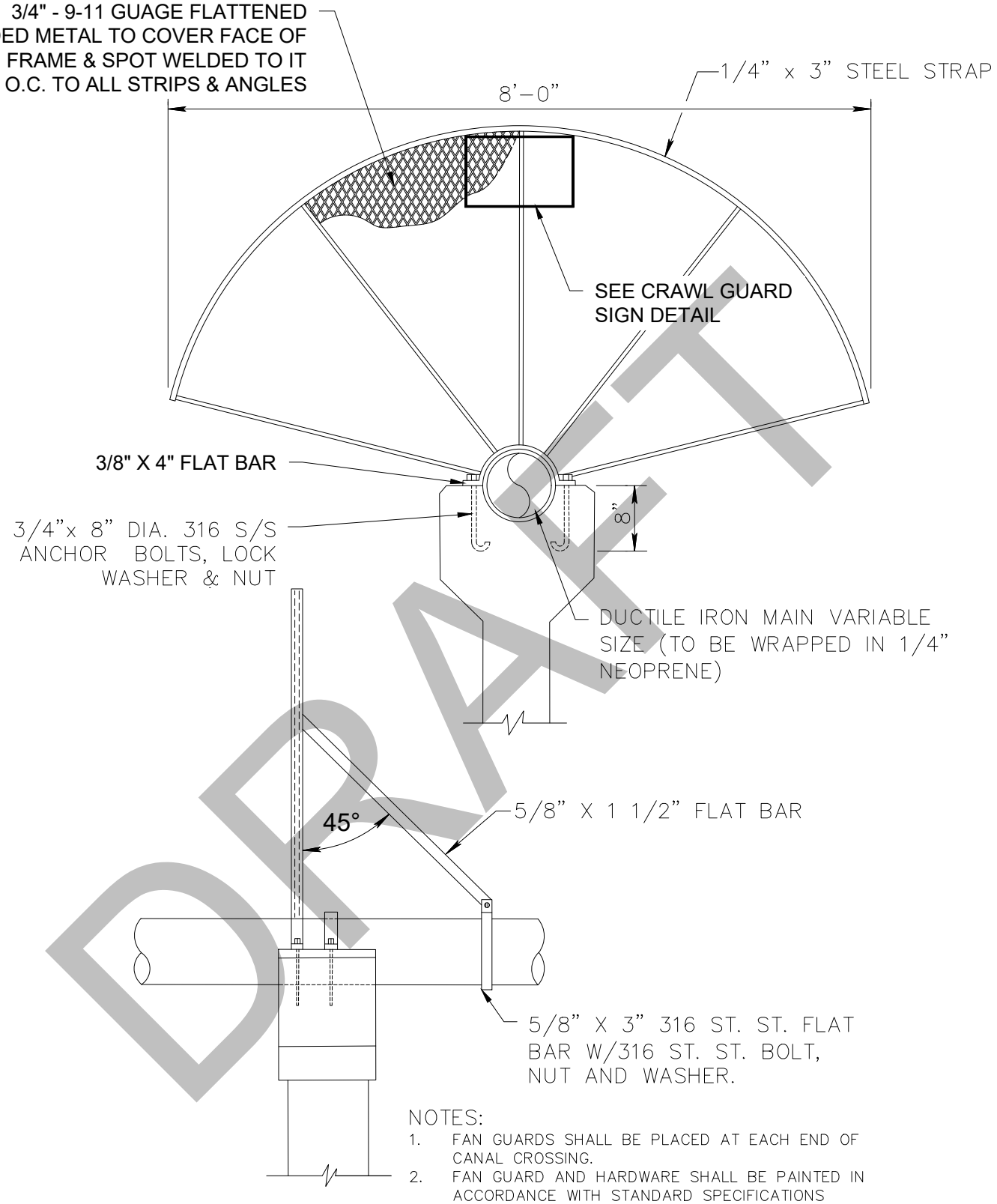
STANDARD CRAWL GUARD ASSEMBLY

CHARLOTTE COUNTY UTILITIES

PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

GD-16

ID: G-16-CGA

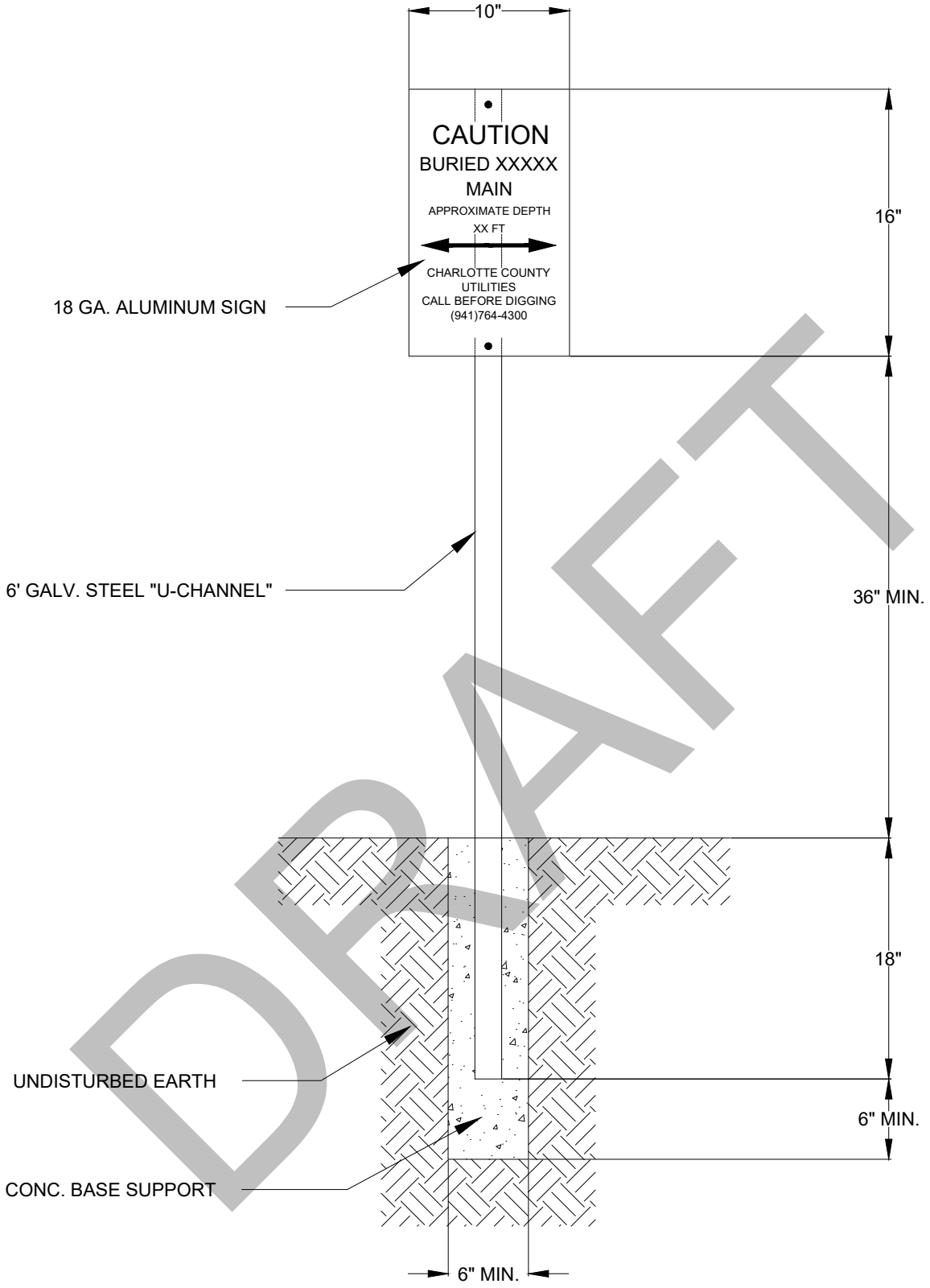


NOTES:

1. FAN GUARDS SHALL BE PLACED AT EACH END OF CANAL CROSSING.
2. FAN GUARD AND HARDWARE SHALL BE PAINTED IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 00990.

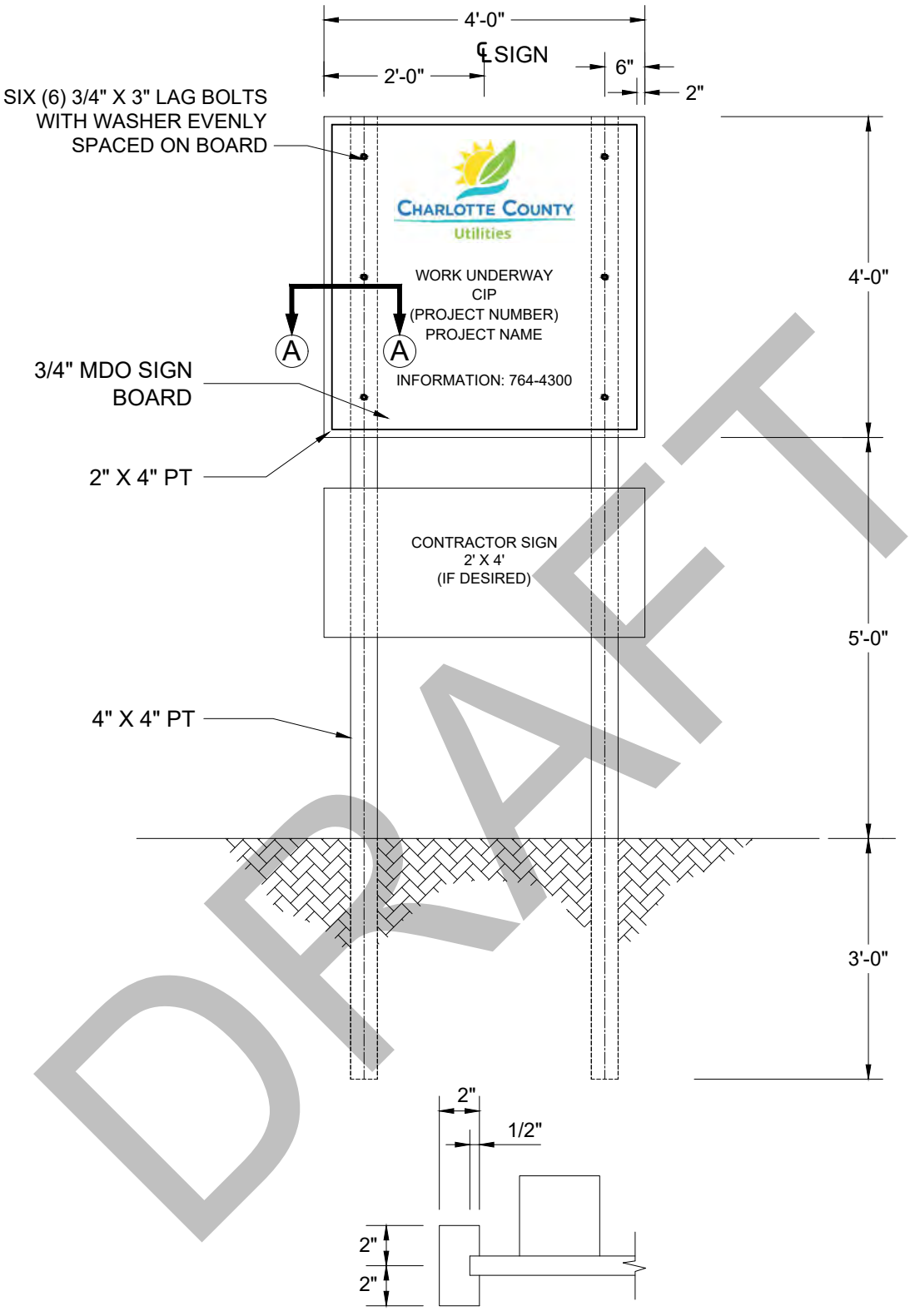
DATE: 8/1/2023	# PILE CAP APPLICATION CRAWL GUARD ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-17
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-16-CGA

DATE: 8/1/2023	CRAWL GUARD SIGN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-18
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: G-16-CGA



1. ALL WATER MAIN TEXT SHALL BE BLUE IN COLOR AND ON WHITE BACKGROUND.
2. ALL SEWER MAIN TEXT SHALL BE GREEN IN COLOR AND ON WHITE BACKGROUND.
3. ALL RECLAIMED MAIN TEXT SHALL BE PURPLE IN COLOR AND ON WHITE BACKGROUND.
4. SIGN SHALL BE MOUNTED SO IT WILL NOT TURN.
5. SIGN SHALL INCLUDE DEPTH TO MAIN AT SIGN LOCATION.

DATE: 8/1/2023	# BURIED MAIN SIGN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-18
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GD-19-BMS



SECTION "A-A"

DATE: 8/1/2023	CCU PROJECT SIGN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-19
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GD-20-PS

Tally Block				
Occupancy	Meter Size	Water ERC	Sewer ERC	Number of Meters
Total				

Water ERC Tally Block: Multi-Family, individually metered				
Occupancy	Usage (gpd/unit)	Number of Units	Total Usage (gpd)	ERC Demand*
Multi-Family	157.5			
Total				
1 ERC = 225 gpd				

Sewer ERC Tally Block: Multi-Family, individually metered				
Occupancy	Usage (gpd/unit)	Number of Units	Total Usage (gpd)	ERC Demand*
Multi-Family	157.5			
Total				
1 ERC = 190 gpd				

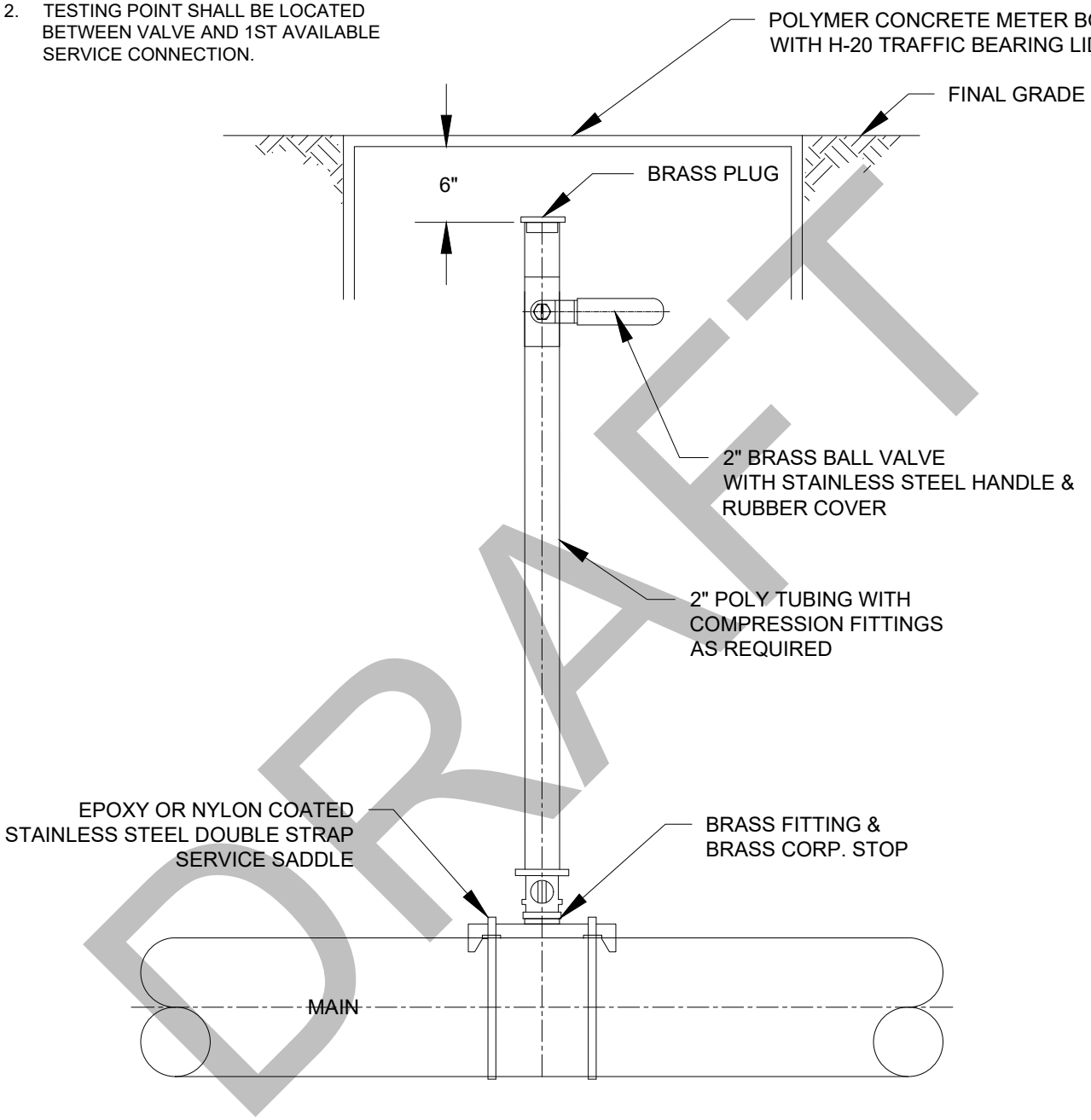
Meter Tally Block: Multi-Family, individually metered		
Occupancy	Size	Number of Meters
Total		

Reclaimed Water Tally Block-Example			
Use	Usage Factor (Acres/Sq. Ft)	Contributory Flow Rate (GPD)	Total Daily Flow (TDF)(GPD)
Landscape		1.0 Inch/Week	
1" of reclaimed water per acre per week			

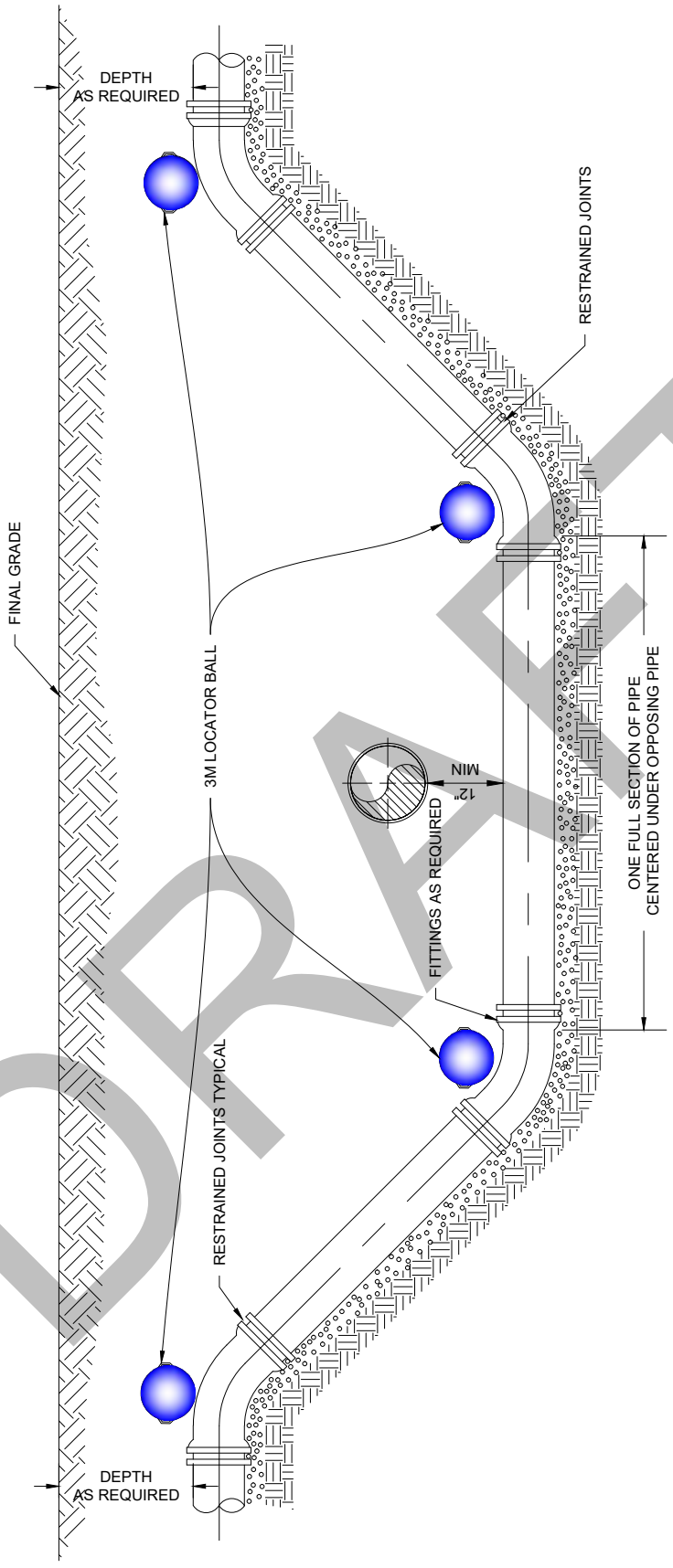
DATE: 8/01/2023	TALLY BLOCK FORMAT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-20
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GD-21-TBERC

NOTE;

1. TWO (2) TESTING POINTS REQUIRED ONE ON EACH SIDE OF UPSTREAM VALVE.
2. TESTING POINT SHALL BE LOCATED BETWEEN VALVE AND 1ST AVAILABLE SERVICE CONNECTION.



DATE: 8/1/2023	SUBAQUEOUS CROSSING TESTING POINT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-21
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GD-22-SXTP



RESTRAINED JOINT FITTING
TYPE UTILITY CROSSING

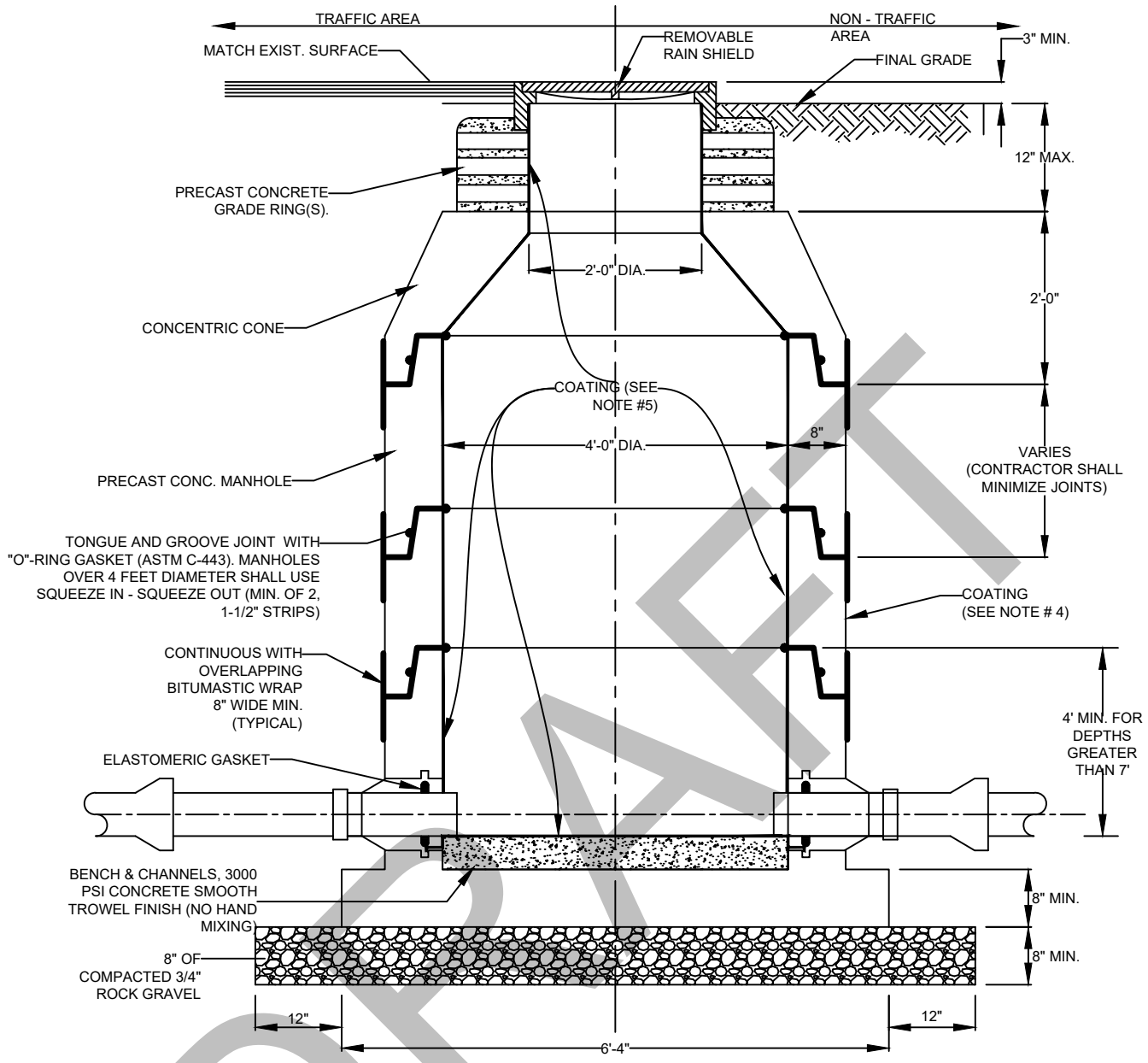
DATE: 8/1/2023	TYPICAL UTILITY CROSSING	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. GD-22
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: GD-23-TUXING

ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

GRAVITY SEWER

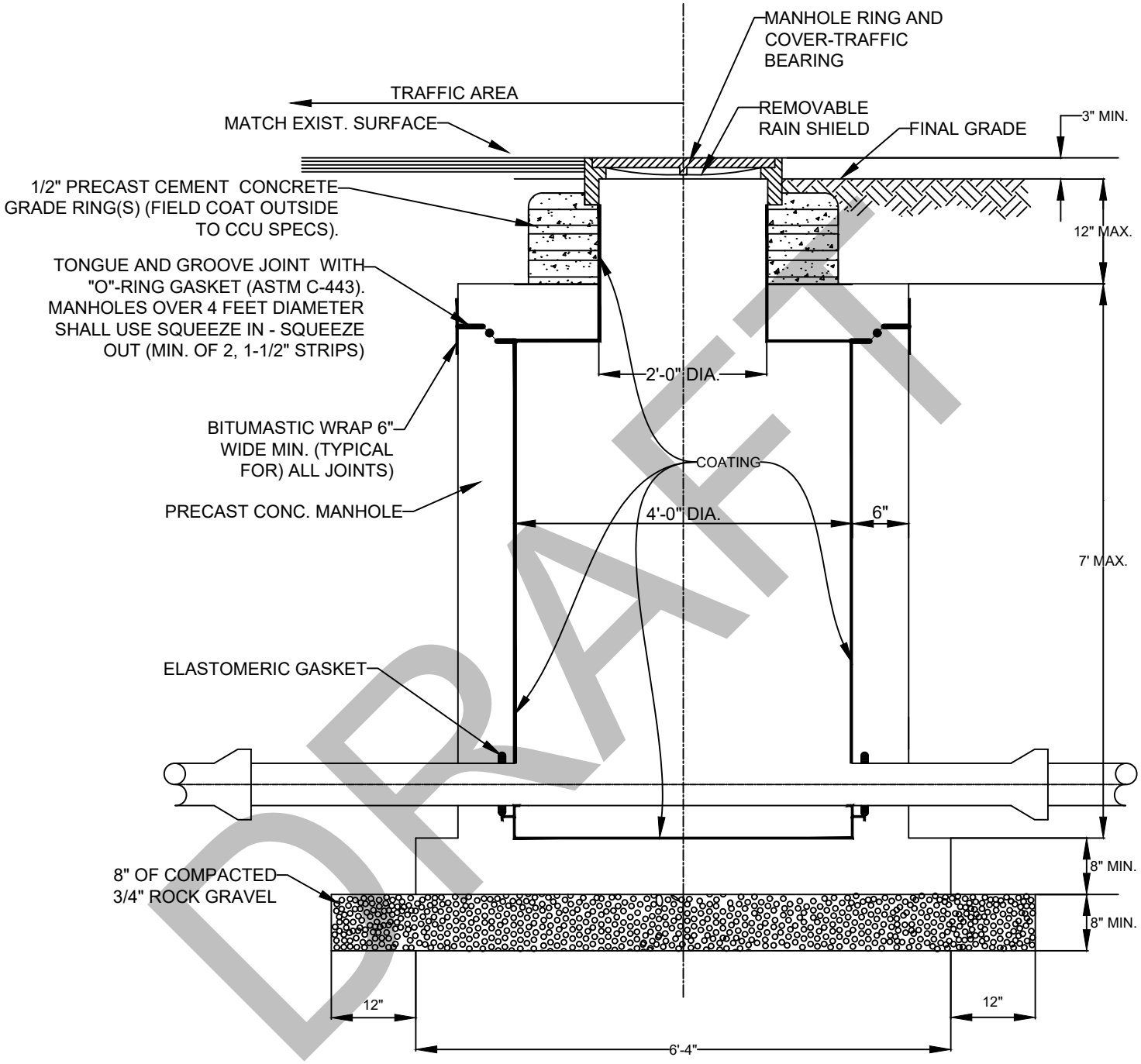
Page List	
Page Number	Page Title
COVER	GRAVITY SEWER COVER
GS-01	STANDARD PRECAST MANHOLE
GS-02	SHALLOW PRECAST MANHOLE
GS-03	OUTSIDE DROP MANHOLE
GS-04	CONNECTIONS TO EXISTING MANHOLE
GS-06	GRAVITY SEWER CUT-IN WYE & SERVICE
GS-07	OPTIONAL GRAVITY SEWER WYE CUT-IN
GS-08	TYPICAL SEWER SERVICE
GS-09	TYPICAL RESIDENTIAL SEWER SERVICE WITH RISER
GS-10	TYPICAL CLEAN OUT
GS-11	TEMPORARY TERMINAL CLEAN-OUT
GS-12	MANHOLE RING AND COVER
GS-13	HINGED MANHOLE RING AND COVER
GS-14	GREASE INTERCEPTOR TANK
GS-15	GREASE INTERCEPTOR VOLUME REQ.
GS-40	SEWER SERVICE DIG REQUIREMENTS



NOTES:

1. PROVIDE 1% SLOPE THROUGH MANHOLE.
2. THE INVERT ELEVATION OF GRAVITY PIPES ENTERING THE MANHOLE WITH SMALLER DIAMETERS THAN THE OUTLET PIPE SHALL BE DETERMINED USING THE TEN STATE STANDARDS 0.8 RULE.

DATE: 3/1/2023	STANDARD PRECAST MANHOLE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. GS-01
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: G-01-PCMH



NOTE:

1. PROVIDE 1% SLOPE THROUGH MANHOLE.
2. THE INVERT ELEVATION OF GRAVITY PIPES ENTERING THE MANHOLE WITH SMALLER DIAMETERS THAN THE OUTLET PIPE SHALL BE DETERMINED USING THE TEN STATE STANDARDS 0.8 RULE.

DATE: 03/1/2023	# SHALLOW PRECAST MANHOLE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-02-SPCMH.dwg

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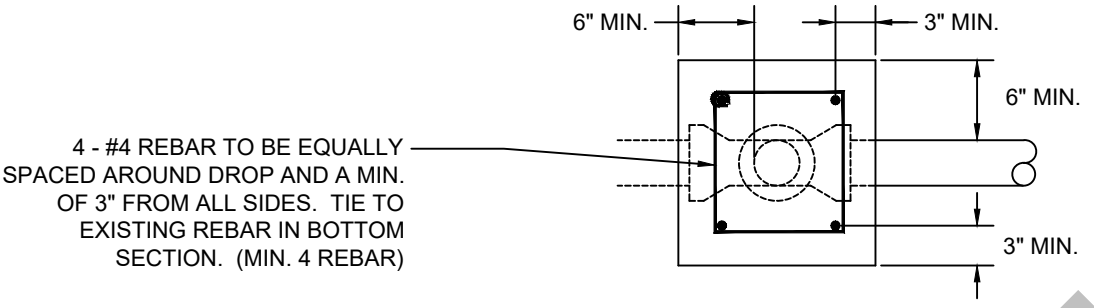
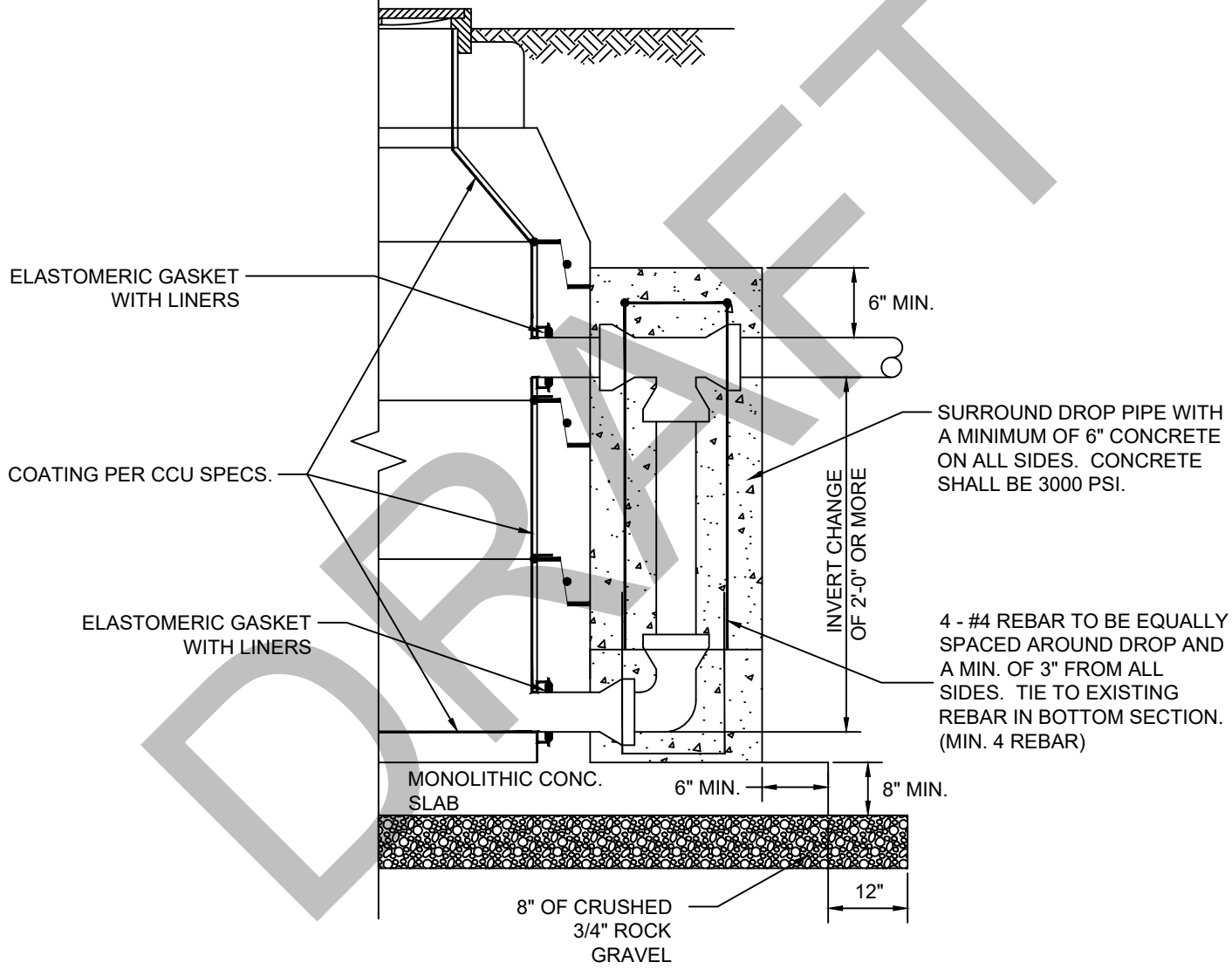


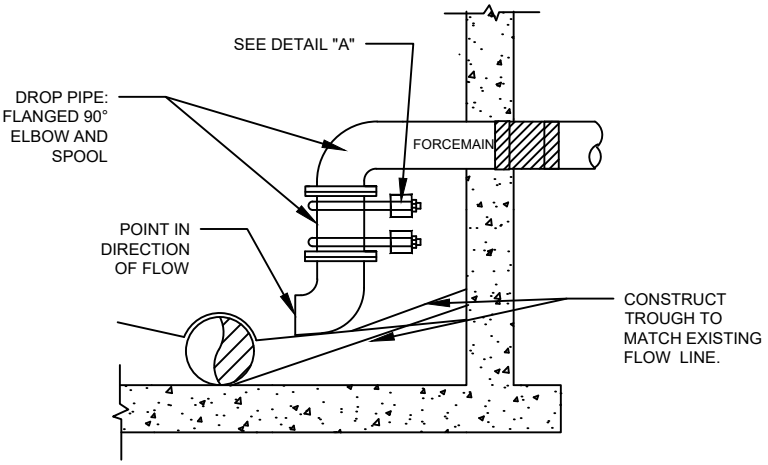
REBAR PLACEMENT DETAIL

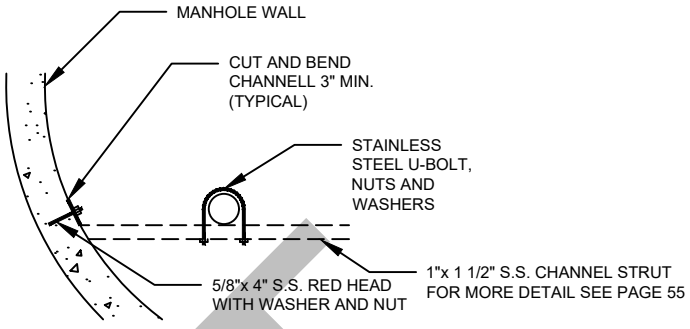


NOTE:

1. PROVIDE 1% SLOPE THROUGH MANHOLE.
2. THE INVERT ELEVATION OF GRAVITY PIPES ENTERING THE MANHOLE WITH SMALLER DIAMETERS THAN THE OUTLET PIPE SHALL BE DETERMINED USING THE TEN STATE STANDARDS 0.8 RULE.

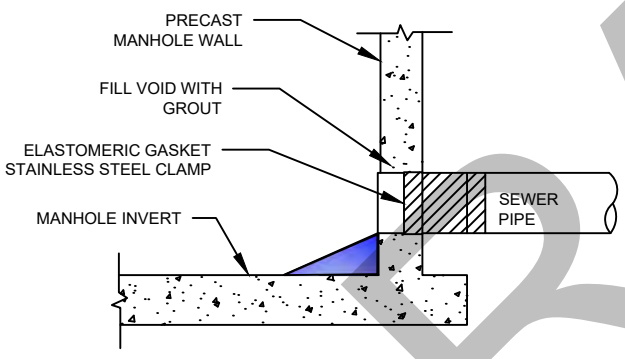
DATE: 03/1/2023	# OUTSIDE DROP MANHOLE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-03
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-03-OSDMH.dwg



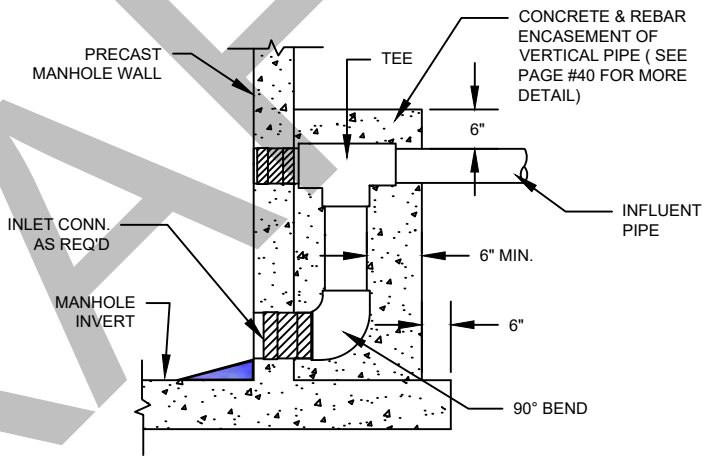


DETAIL "A"

FORCEMAIN & LOW PRESSURE CONNECTION



TYPICAL CONNECTION



DROP CONNECTION

NOTES:

1. PENETRATIONS TO EXISTING MANHOLES SHALL BE CORE BORED, AND ELASTOMERIC GASKET WITH STAINLESS STEEL PIPE CLAMP SHALL BE INSTALLED.
2. DROP CONNECTION SHALL BE REQUIRED WHENEVER THE INVERT OF AN INFLUENT SEWER IS LOCATED TWO (2) OR MORE FEET ABOVE THE MAIN CHANNEL.
3. DROP PIPE SHALL BE OF EQUAL SIZE AS THE INFLUENT SEWER. DROP PIPE SHALL BE PVC WITH STAINLESS STEEL FITTINGS. IF A TRANSITION TO OTHER TYPE OF PIPE, THE TRANSITION SHALL BE OUTSIDE OF MANHOLE.

DATE: 03/1/2023	CONNECTIONS TO EXISTING MANHOLE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-04-MHCON.dwg

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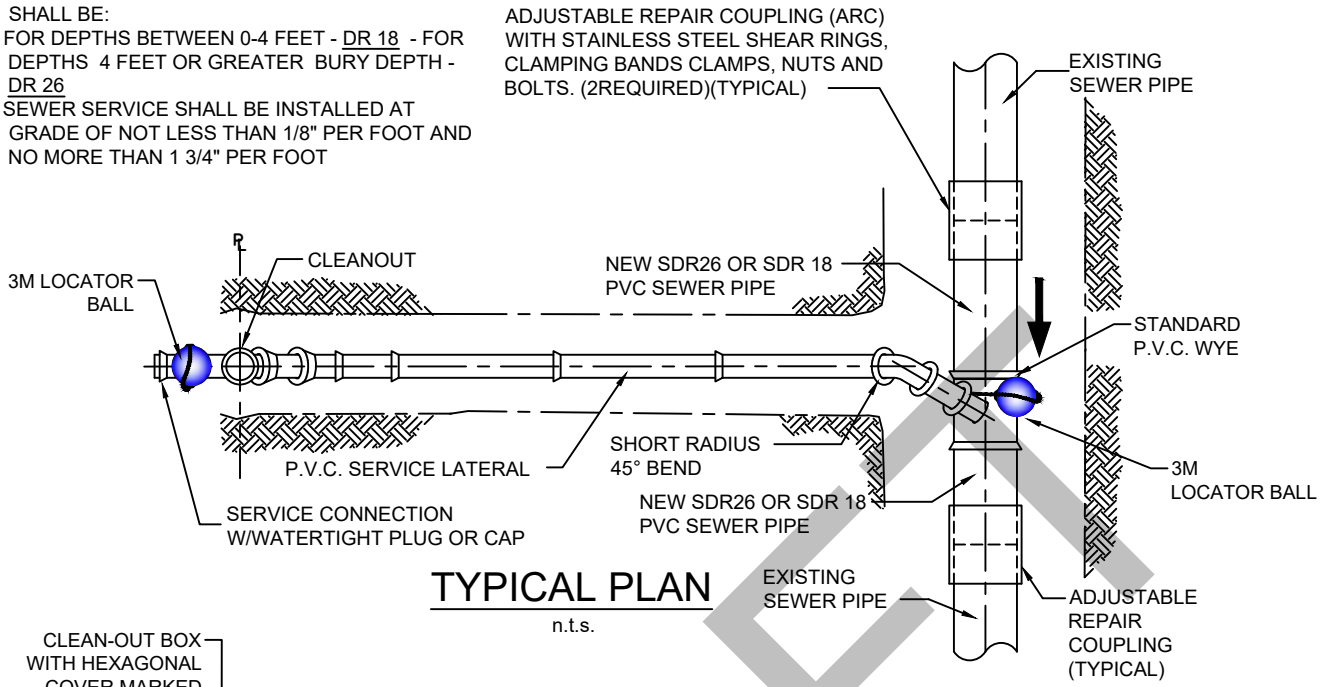
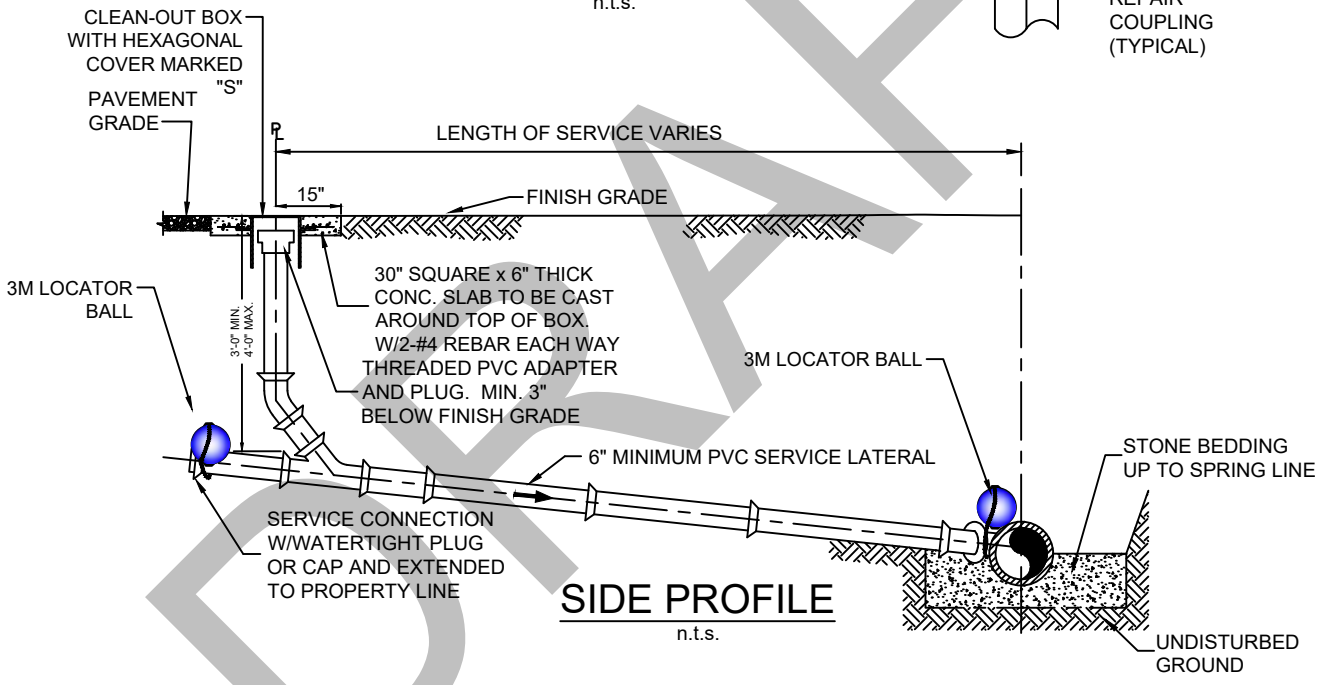
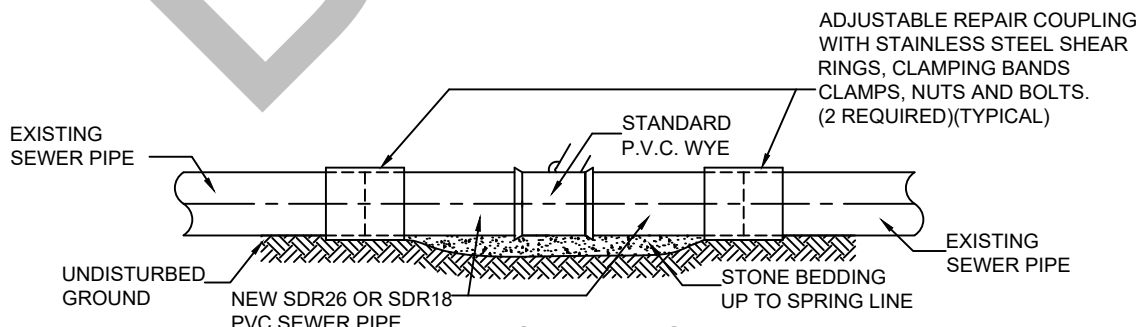
NOTES:
1. ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE:
FOR DEPTHS BETWEEN 0-4 FEET - DR 18 - FOR DEPTHS 4 FEET OR GREATER BURY DEPTH - DR 26
2. SEWER SERVICE SHALL BE INSTALLED AT GRADE OF NOT LESS THAN 1/8" PER FOOT AND NO MORE THAN 1 3/4" PER FOOT



TYPICAL PLAN
n.t.s.



SIDE PROFILE
n.t.s.



FRONT PROFILE
n.t.s.

DATE: 03/1/2023	# GRAVITY SEWER CUT-IN WYE & SERVICE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-06-CIW.dwg

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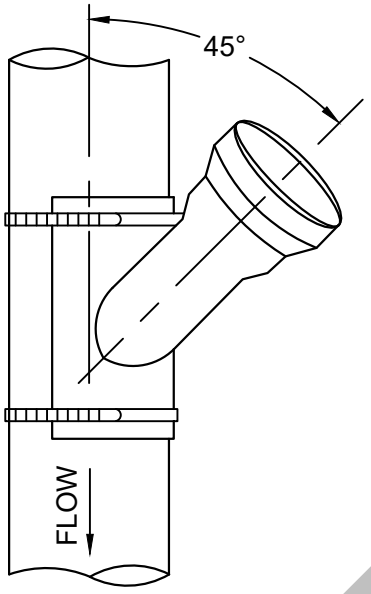
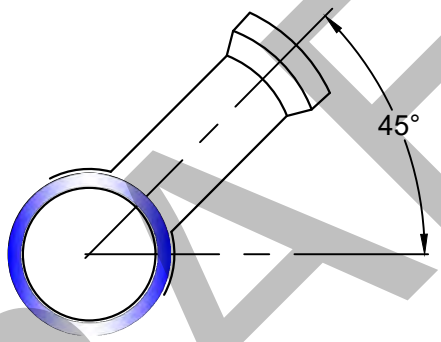


PLAN



ELEVATION

NOTES:

1. CONNECTIONS TO EXISTING SEWER MAINS SHALL BE MADE BY CONTRACTOR IN ACCORDANCE WITH CHARLOTTE COUNTY UTILITIES SPECIFICATIONS.
2. IN NO CASE SHALL CONNECTION BE MADE DIRECTLY ON TOP OF SEWER MAIN.
3. NO MORE THAN ONE CUT IN WYE SHALL BE ALLOWED FOR EACH LENGTH OF SEWER MAIN.
4. TAP SHALL BE MADE AT APPROXIMATELY CENTER OF JOINT LENGTH.
5. THE HOLE FOR THE COLLAR WYE FITTING FOR A SEWER SADDLE SHALL BE MADE WITH A TAPPING MACHINE. THE HOLE SHALL BE CLEANLY MACHINED AND IF NECESSARY WORKED BY HAND WITH A RASP OR SANDED TO ACCOMPLISH A TRUE AND NEAT OPENING FOR THE COLLAR WYE.
6. THE COLLAR WYE SADDLE SHALL BE SECURED TO THE SEWER WITH APPROVED STAINLESS STEEL BANDS.
7. ALL CHIPS, DIRT, EPOXY, MORTAR, AND CONCRETE SHALL BE KEPT OUT OF THE SADDLED SEWER. CLEANING AND BALLING OF THE SADDLED REACH SHALL BE PERFORMED IF REQUIRED BY CCU.
8. ANY DAMAGED PIPE SHALL BE REPAIRED OR REPLACED AS DIRECTED BY CCU.
9. COLLAR WYE SADDLE OR CUT IN WYE TO BE USED WHEN LATERAL IS 4" OR 6" IN DIAMETER. FOR 8" AND OVER, A STANDARD MANHOLE CONNECTION SHALL BE USED.
10. MAIN LINE SHALL BE BROKEN OUT FOR SADDLE ONLY IN THE PRESENCE OF CCU PERSONAL.

DATE: 03/1/2023	OPTIONAL GRAVITY SEWER WYE CUT-IN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-07-OCI.dwg

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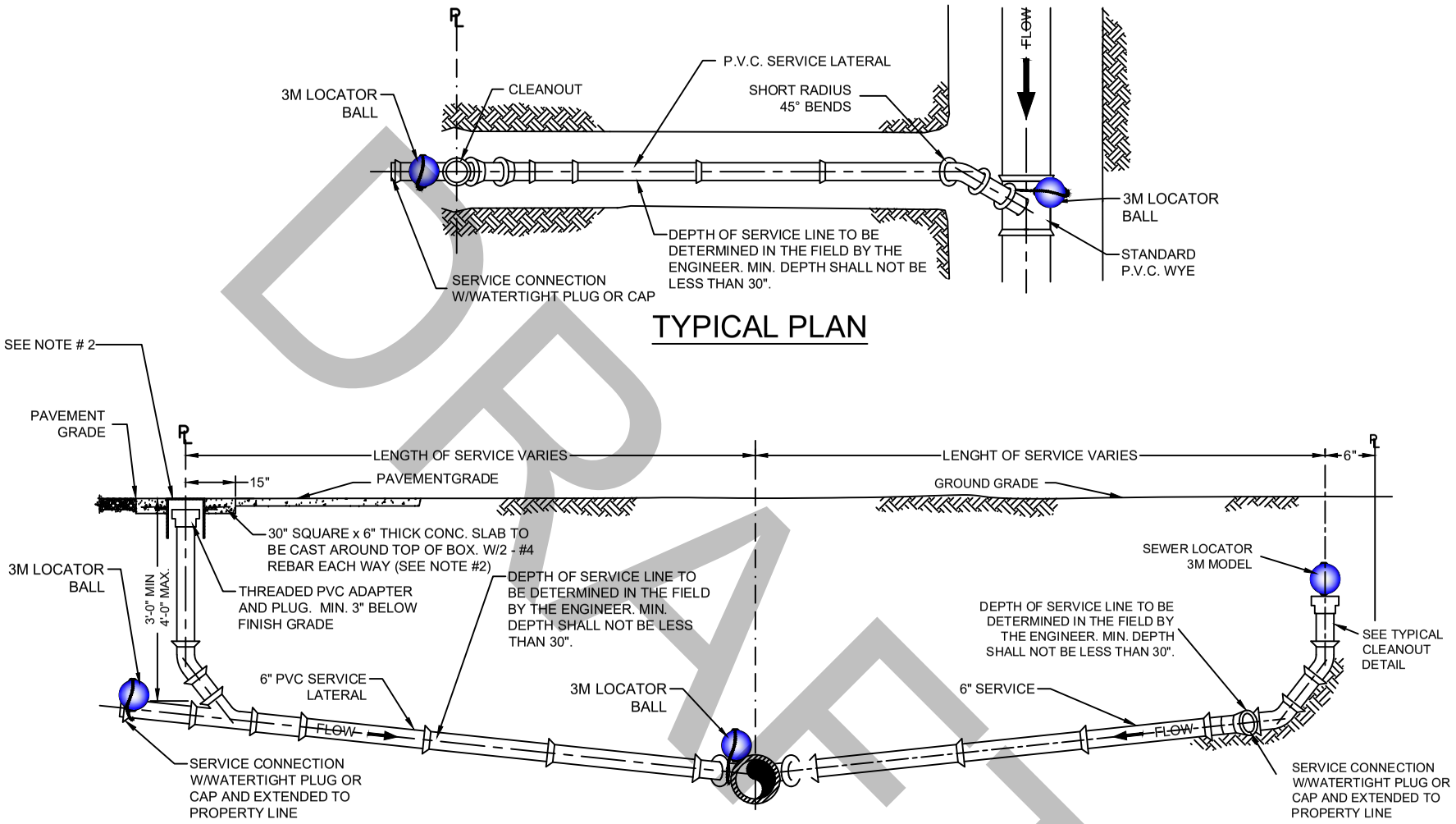
APPROVED BY: BRB

DRAWN BY: DC/LD

DATE: 03/1/2023

TYPICAL SEWER SERVICE

CHARLOTTE COUNTY UTILITIES



NOTE:

1. ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE:
   - 1.a. MINIMUM DEPTH OF GRAVITY SEWER PIPE SHALL BE 5 FEET, UNLESS OTHERWISE APPROVED BY CCU
   - 1.b. FOR DEPTHS 5 FEET OR GREATER BURY DEPTH - DR 26
   - 1.c. SEWER SERVICE SHALL BE INSTALLED AT GRADE OF NOT LESS THAN 1/8" PER FOOT AND NO MORE THAN 1 3/4" PER FOOT
   - 1.c. GASKETED FITTINGS SHALL BE SAME AS OR GREATER THAN GRADE OF PIPE.

2. CLEAN-OUT BOX WITH HEXAGONAL COVER MARKED "S"

ID: GS-08-TSS.dwg

GS-08

PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

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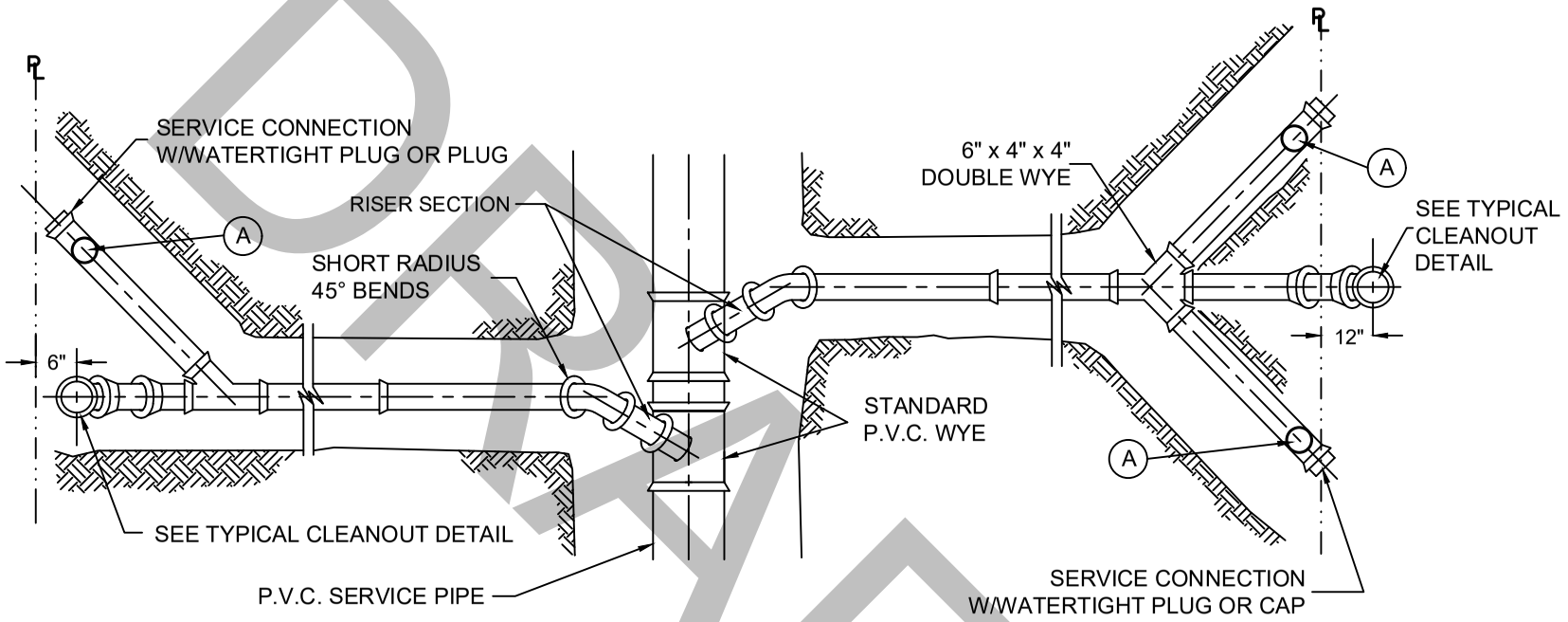
DATE: 03/1/2023

DRAWN BY: DC/LD

APPROVED BY: BRB

TYPICAL RESIDENTIAL SEWER SERVICE WITH RISER

CHARLOTTE COUNTY UTILITIES



(A) ELECTRONIC MARKERS SHALL REMAIN IN POSITION AFTER THE BUILDING PLUMBER HAS COMPLETED THE SERVICE TIE-IN. MARKERS SHALL BE PLACED AT PROPERTY LINE OR ABOVE END OF LINE.

NOTE:
ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE:

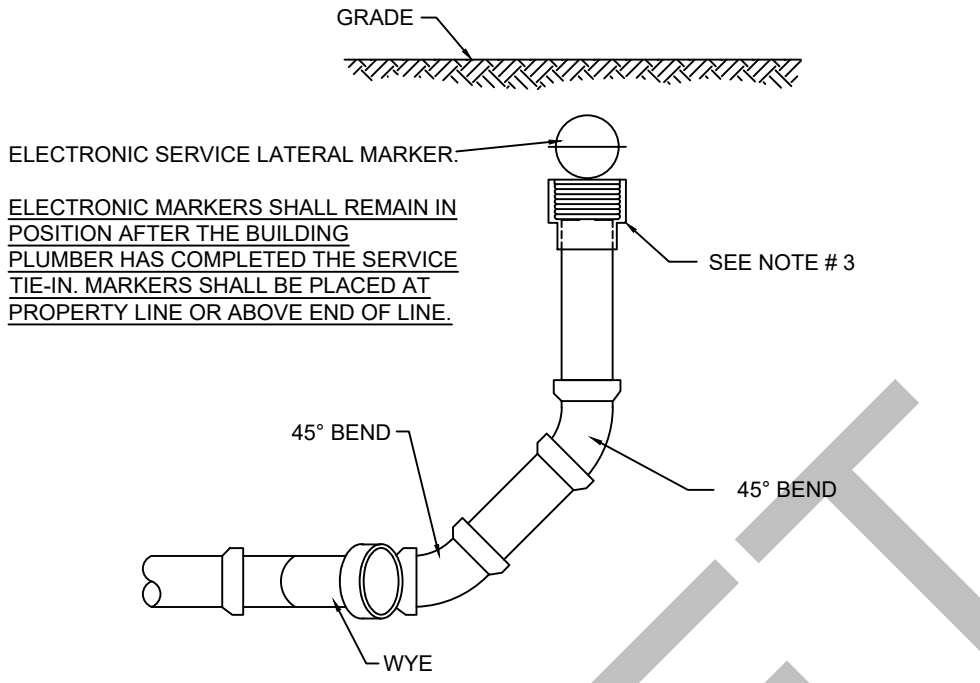
FOR DEPTHS 5 FEET OR GREATER - DR 26

MINIMUM DEPTH FOR GRAVITY SEWER PIPE SHALL BE 5 FEET, UNLESS OTHERWISE APPROVED BY CCU.

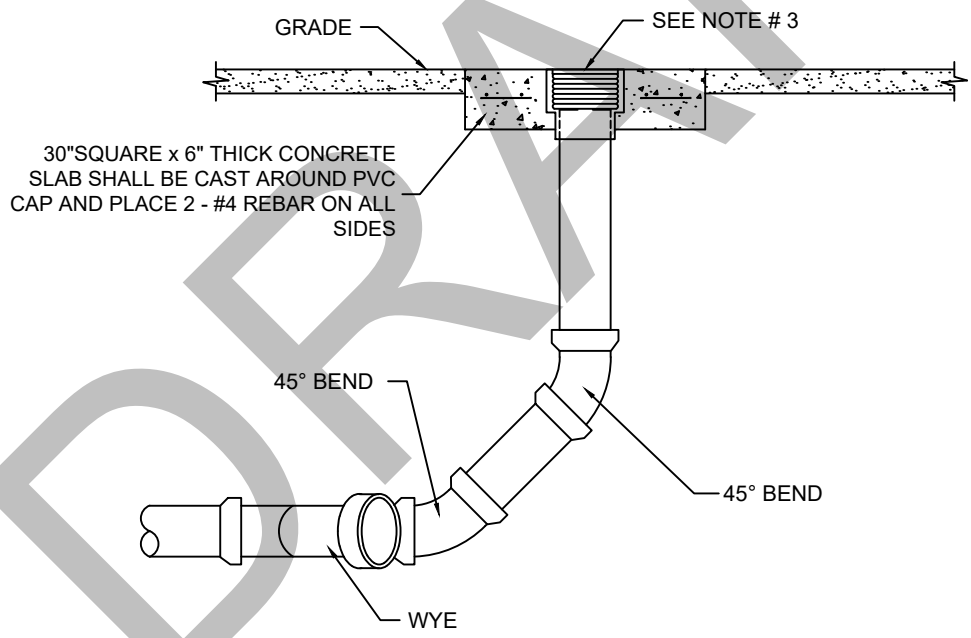
CASKETED FITTINGS SHALL BE THE SAME AS OR GREATER THAN GRADE OF PIPE

GS-09

ID: GS-09-RSR.dwg



(UNPAVED AREAS)

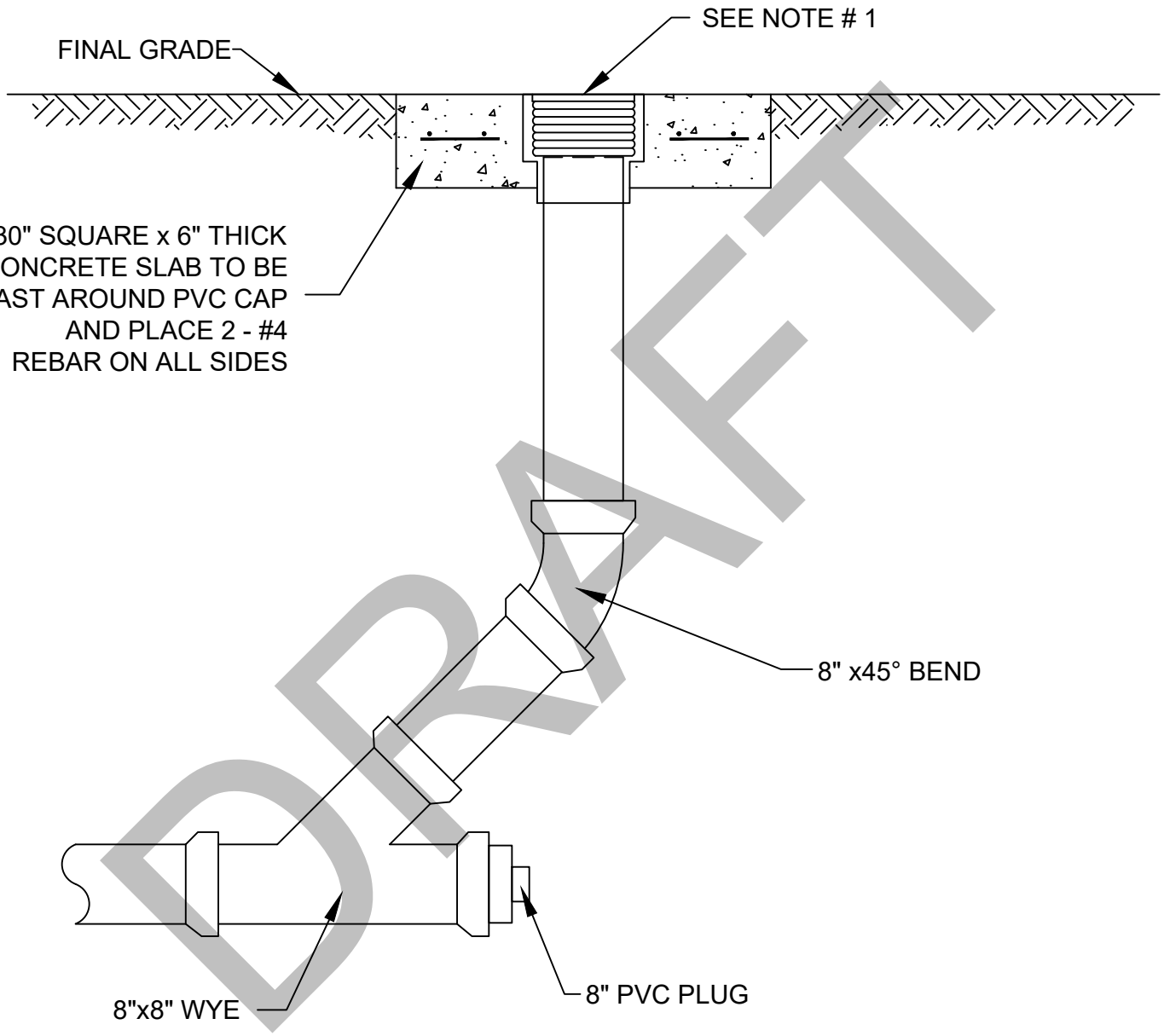


(PAVED AREAS)

NOTES:

1. MINIMUM DEPTH OF GRAVITY SEWER PIPE SHALL BE 5 FEET, UNLESS OTHERWISE APPROVED BY CCU.
2. ALL P.V.C. SANITARY GRAVITY SEWER PIPE SHALL BE:
   2.a. FOR DEPTHS 5 FEET BURY DEPTH - DR 26
3. 6" FITTINGS & PIPE FOR SEWER SERVICES.
4. CLEAN-OUT BOX WITH HEXAGONAL COVER MARKED "S"

DATE: 03/1/2023	TYPICAL CLEANOUT DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-10
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-10-SCO.dwg



NOTE:

1. CLEAN-OUT BOX WITH HEXAGONAL COVER MARKED "S", WITH THREADED BRASS PLUG IN FEMALE SLIP ON COUPLING.

DATE: 03/1/2023	TEMPORARY TERMINAL CLEANOUT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-11
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-11-TCO.dwg

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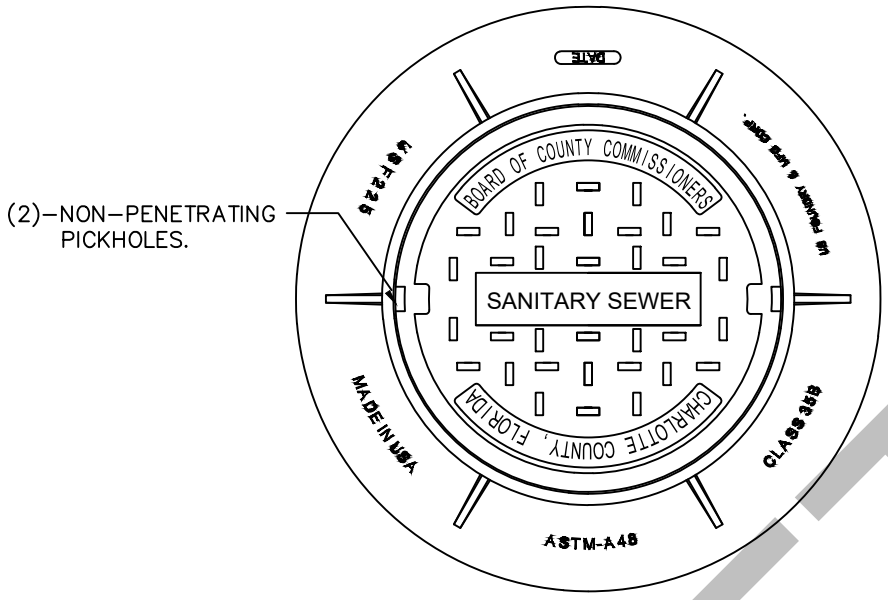

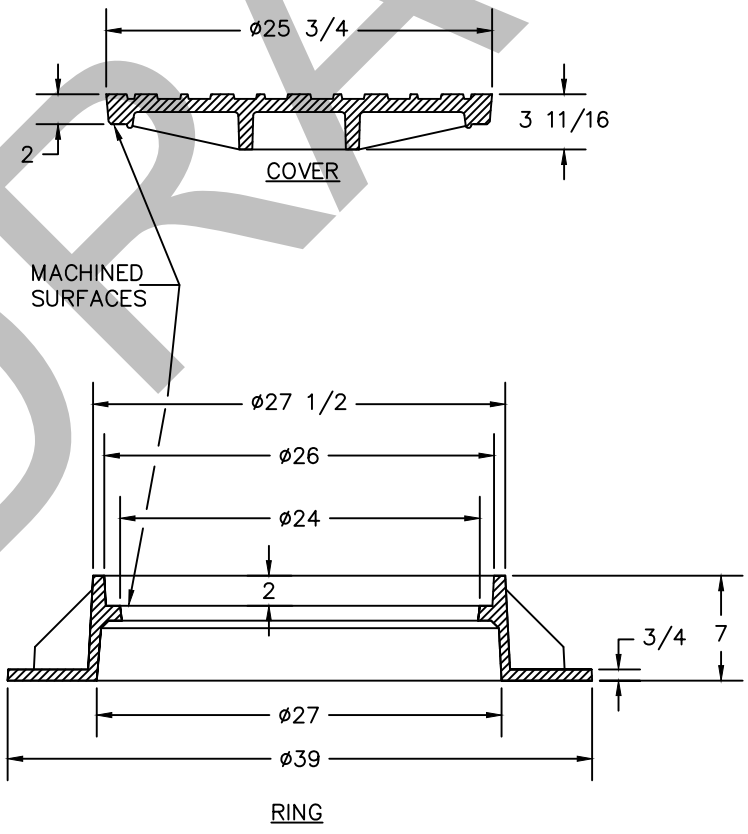

DATE: 03/1/2023	MANHOLE RING & COVER	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-12
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-12-MHRC.dwg

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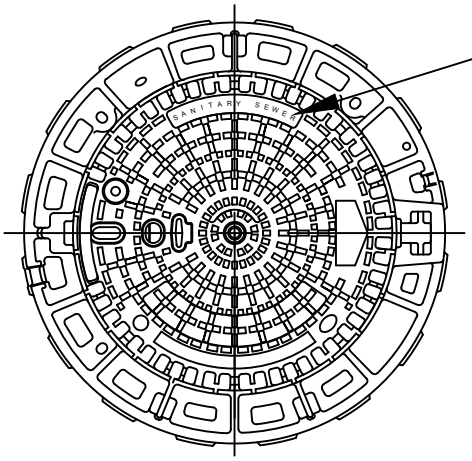
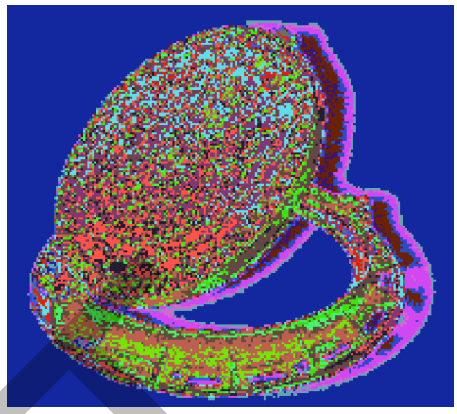
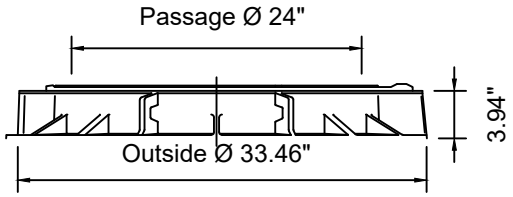


MANHOLE SHALL BE
LABELED SANITARY SEWER

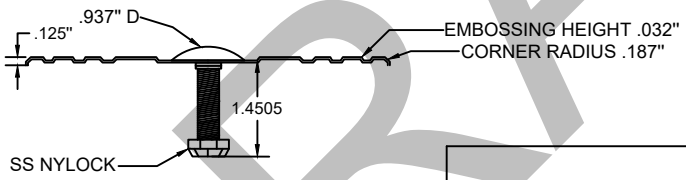
COVER

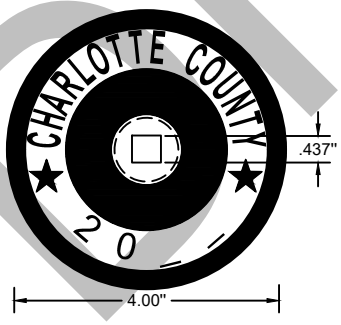


NOTE:
MANHOLE COVER AND FRAME SHALL BE PAMREX OR EQUAL. MIN. FRAME WEIGHT: 73 LBS. COVER WEIGHT: 122 LBS. TOTAL WEIGHT 195 LBS.



RING





FINISH		
NATURAL FINISH		
MATERIAL	THICKNESS	WEIGHT
304 ANNEALED STAINLESS STEEL	.062"	.218 LBS.
OPTIONS / ACCESORIES		
SQUARE HOLE:	.437" FOR S.S. CARRAGE BOLT	

MANHOLE TAG

DATE: 03/1/2023	HINGED MANHOLE RING & COVER	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-13
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-13-HMHRC.dwg

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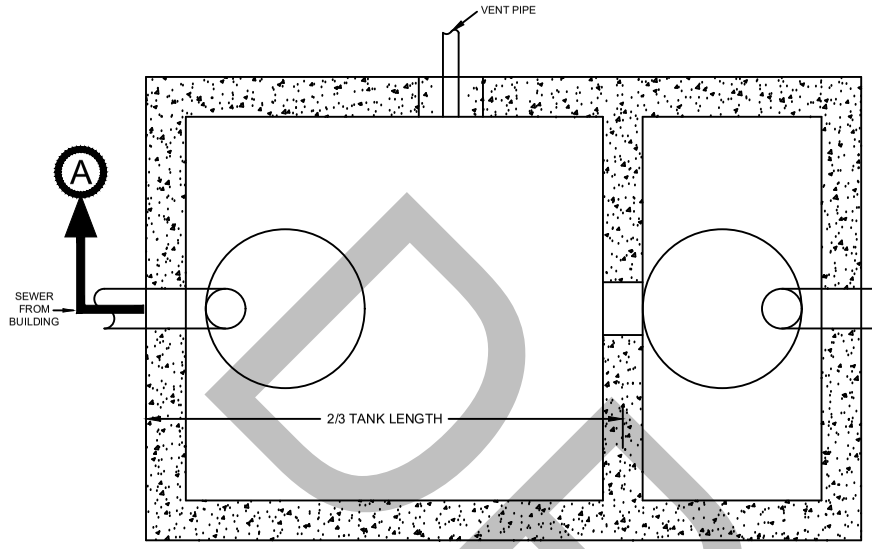
DATE: 03/1/2023

DRAWN BY: DC/LD

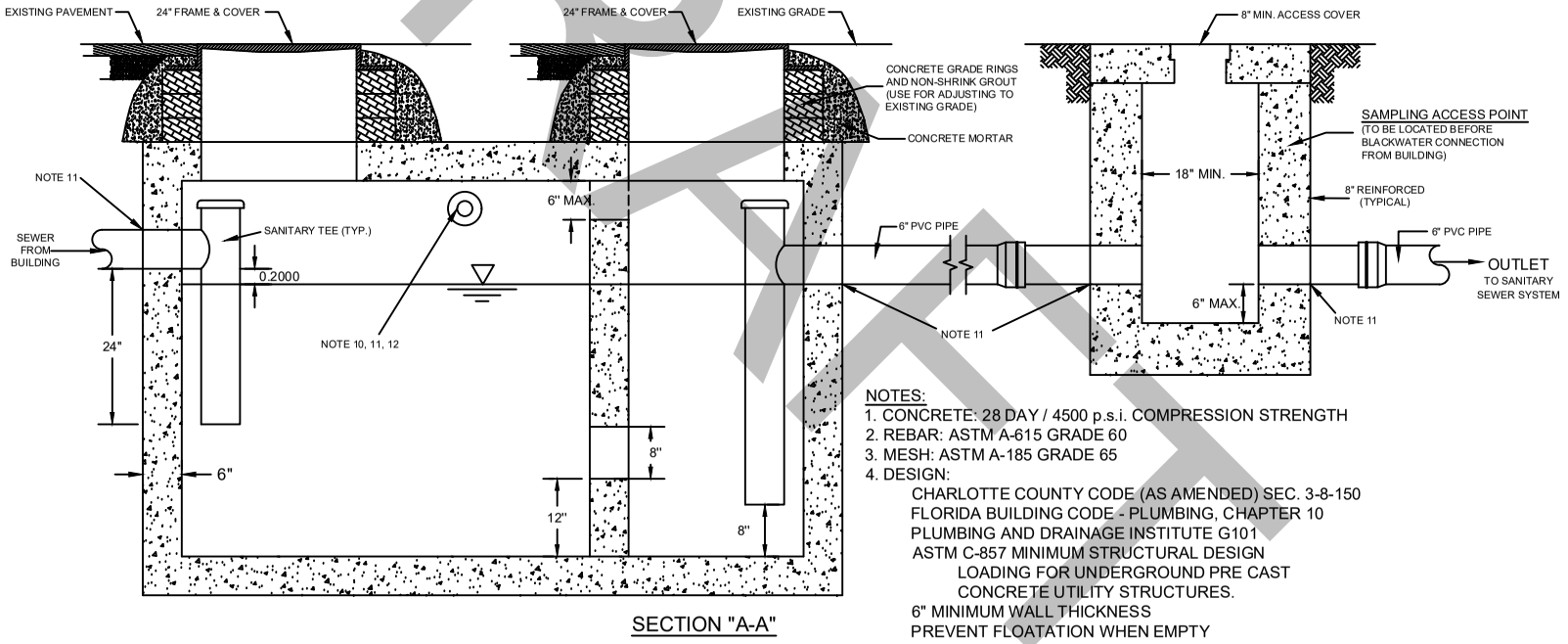
APPROVED BY: BRB

GREASE INTERCEPTOR TANK / SAND SEPARATOR W/ SAMPLE POINT DETAIL

CHARLOTTE COUNTY UTILITIES



PLAN VIEW



SECTION "A-A"

NOTES:

1. CONCRETE: 28 DAY / 4500 p.s.i. COMPRESSION STRENGTH
2. REBAR: ASTM A-615 GRADE 60
3. MESH: ASTM A-185 GRADE 65
4. DESIGN:
   - CHARLOTTE COUNTY CODE (AS AMENDED) SEC. 3-8-150
   - FLORIDA BUILDING CODE - PLUMBING, CHAPTER 10
   - PLUMBING AND DRAINAGE INSTITUTE G101
   - ASTM C-857 MINIMUM STRUCTURAL DESIGN LOADING FOR UNDERGROUND PRE CAST CONCRETE UTILITY STRUCTURES.
   - 6" MINIMUM WALL THICKNESS
   - PREVENT FLOATATION WHEN EMPTY
5. LOADS: H-20 TRUCK WHEEL W/30% IMPACT PER AASHTO
6. COMPLETE STRUCTURE AND PIPING TO BE WATERTIGHT
7. FILL WITH CLEAN WATER PRIOR TO START UP OF SYSTEM
8. CONTRACTOR TO SUPPLY AND INSTALL ALL PIPING AND SANITARY TEES, CLEAN OUTS FOR CLEANING TOWARD INTERCEPTOR AND FOR CLEANING AWAY FROM INTERCEPTOR ON BOTH THE INLET AND OUTLET / ALT. DUAL SWEEP CLEAN OUTS
9. GRAY WATER ONLY, BLACK WATER SHALL BE CARRIED BY SEPARATE SEWER TO A POINT DOWNSTREAM OF THE GREASE INTERCEPTOR.
10. 4" DIAMETER VENT HOLE.
11. BOOT TO BE SUPPLIED WITH TANK.
12. SEAL HOLE IF VENT NOT INSTALLED.

GS-14

ID: GS-14-GIT.dwg

RESTAURANT WITH DISPOSABLE TABLEWARE				
INTERCEPTOR VOLUME (GALLONS) @ X HOURS OF RESTAURANT OPERATIONS PER DAY				
SEATS UP TO	<4 HOURS CLASS 1 & 2	4-8 HOURS CLASS 3 & 4	8-12 HOURS CLASS 5	GREATER THAN 12 HOURS CLASS 6
25	750	750	750	750
50	750	750	750	750
75	750	750	750	1000
100	750	750	1000	1250
125	750	1000	1250	1600
150	750	1000	1600	2000
175	750	1250	2000	2500
200	750	1600	2000	2500
250	1000	2000	2500	3000
>250	SUBMIT DESIGN USING FLORIDA BUILDING CODE - PLUMBING, TABLE 1003.5.1			

EXAMPLE:
125 SEAT RESTAURANT THAT SERVES MEALS IN BASKETS WITH PLASTIC FORKS AND KNIVES (SO SERVICE DISHES WASHED) THAT IS OPEN 8 HOURS A DAY. A MINIMUM SIZE GREASE INTERCEPTOR REQUIRED IS 833 GALLONS CAPACITY. LOCAL AVAILABILITY OF A GREASE INTERCEPTOR MAY REQUIRE THE NEXT LARGEST MANUFACTURED SIZE OF 1,000 GALLONS CAPACITY.

RESTAURANT WITH NON-DISPOSABLE TABLEWARE				
INTERCEPTOR VOLUME (GALLONS) @ X HOURS OF RESTAURANT OPERATIONS PER DAY				
SEATS UP TO	<4 HOURS CLASS 1 & 2	4-8 HOURS CLASS 3 & 4	8-12 HOURS CLASS 5	GREATER THAN 12 HOURS CLASS 6
25	750	750	750	750
50	750	1000	1250	1600
75	750	1250	2000	2500
100	1000	2000	2500	3000
125	1250	2000	3500	4000
150	1250	2500	4000	4500
175	1600	3000	4500	5100
200	2000	3500	5000	5800
250	2000	4500	6250	7300
>250	SUBMIT DESIGN USING FLORIDA BUILDING CODE - PLUMBING, TABLE 1003.5.1			

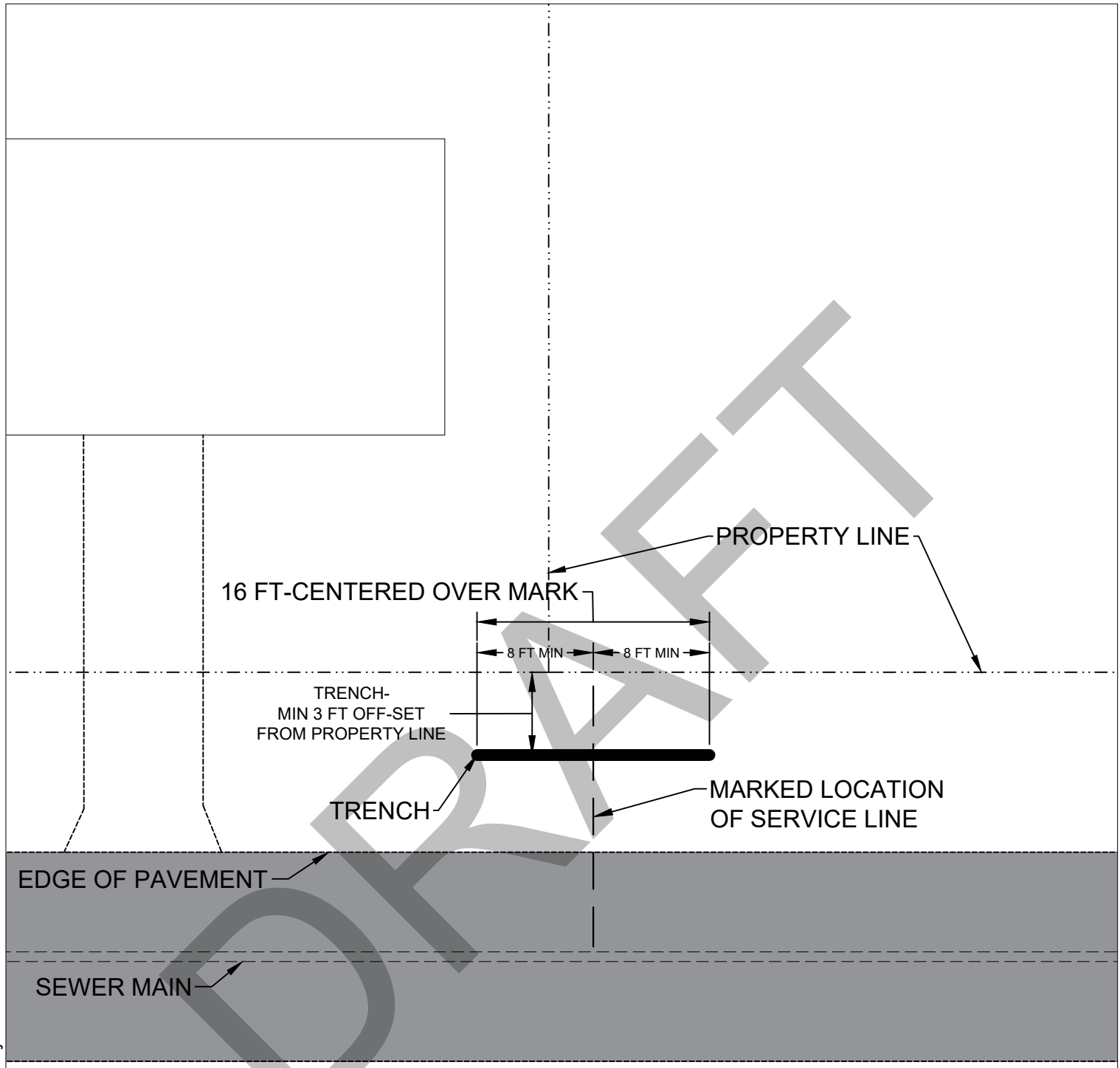
EXAMPLE:
100 SEAT RESTAURANT THAT SERVES MEALS ON WASHABLE PLATES (CHINA) THAT IS OPEN 8 HOURS A DAY. THE MINIMUM SIZE GREASE INTERCEPTOR REQUIRED IS 1,667 GALLONS CAPACITY. LOCAL AVAILABILITY OF A GREASE INTERCEPTOR MAY REQUIRE THE NEXT LARGEST MANUFACTURED SIZE OF 2,000 GALLONS CAPACITY.

GREASE INTERCEPTOR VOLUME REQUIREMENT

NOTES:
1. MINIMUM SIZE IS 1250 GALLONS
2. INTERCEPTOR TANKS MAY BE PLACED IN SERIES TO ACHIEVE TOTAL VOLUME
3. THE RESTAURANT GREASE INTERCEPTOR SIZE TABLE ABOVE IS BASED ON TABLE 1003.5.1, FLORIDA PLUMBING CODE. REFER TO TABLE 1003.5.1 FOR DESIGN OF GREASE INTERCEPTORS THAT ARE REQUIRED FOR OTHER ESTABLISHMENTS WITH COMMERCIAL KITCHENS
4. GREASE INTERCEPTORS SHALL COMPLY WITH FLORIDA BUILDING CODE, PLUMBING, CHAPTER 10 - TRAPS, INTERCEPTORS AND SEPARATORS.

CLASS 1 = BREAKFAST ONLY, CLOSED BY 11:00AM, OPEN <4 HOURS
CLASS 2 = LUNCH ONLY, CLOSED BY 3:00 PM, OPEN <4 HOURS
CLASS 3 = DINNER ONLY, OPEN 4-8 HOURS
CLASS 4 = BREAKFAST & LUNCH, OPEN 4-8 HOURS
CLASS 5 = LUNCH & DINNER, OPEN 8-12 HOURS
CLASS 6 = ALL MEALS, OPEN MORE THAN 12 HOURS

DATE: 03/1/2023	GREASE INTERCEPTOR VOLUME REQUIREMENT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		GS-15
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: GS-15-GIT-TBL



NOTE:
MINIMUM LENGTH OF TRENCH 16 FT CENTERED OVER MARKED LOCATION AT A MINIMUM DEPTH OF 8 FT
CONTRACTOR MUST DIG 8 FT ON EITHER SIDE OF MARK AND 8 FT DOWN. MARK MUST BE VERIFIED BY CHARLOTTE COUNTY UTILITIES.

DATE: 03/1/2023	# SEWER SERVICE DIG REQUIREMENTS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		ID: GS-40
APPROVED BY: BRB	## CHARLOTTE COUNTY UTILITIES	ID: GS-40-DIG.dwg

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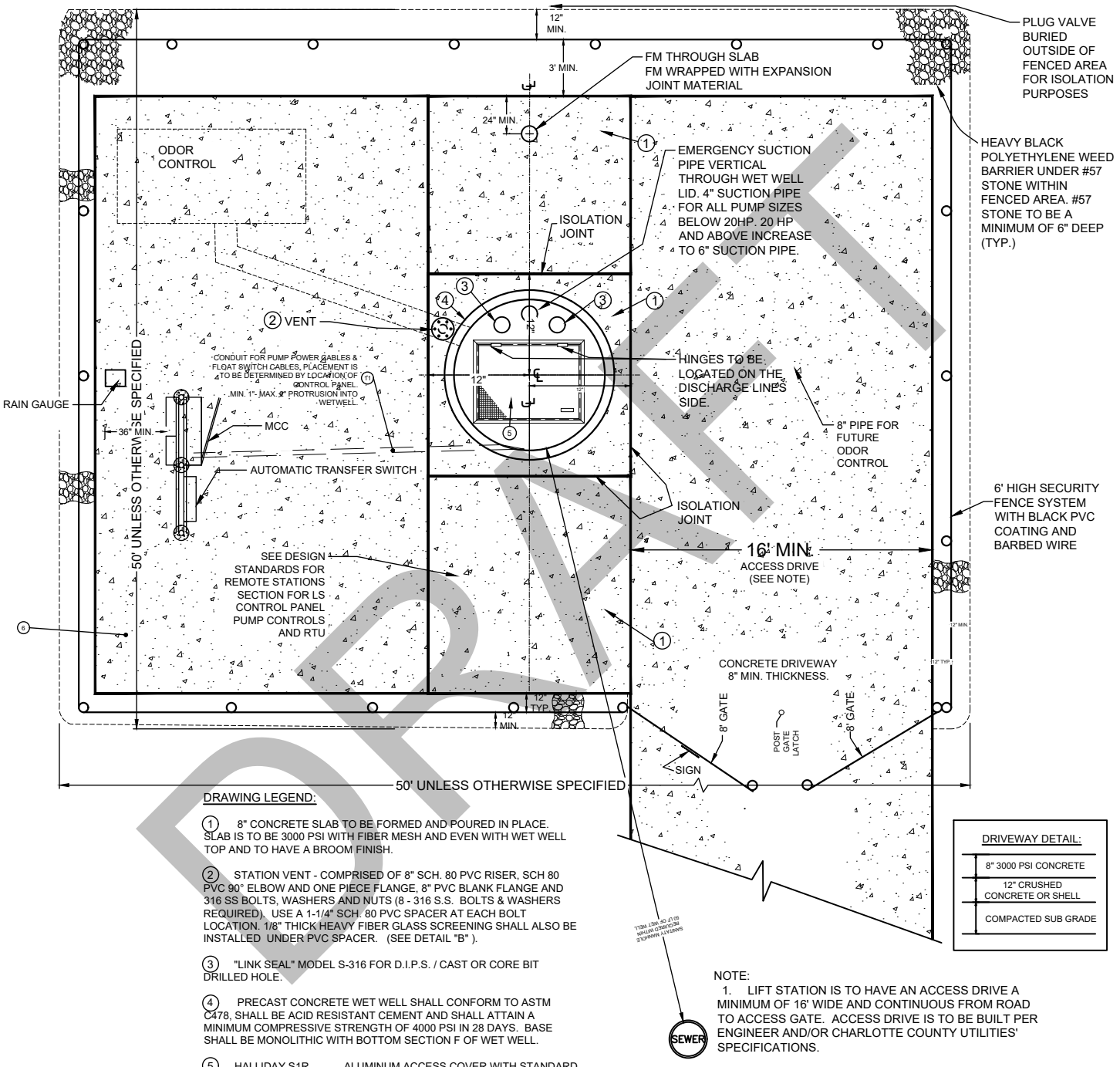
ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

MASTER LIFT STATION

Sheet List Table	
Sheet Number	Sheet Title
LS-0	COVER
LS-01	SITE PLAN
LS-02	PIPING PLAN
LS-03	PIPING SECTION
LS-04	DETAILS A-B-C
LS-06	PIPING LEGEND PAGE 1
LS-07	PIPING LEGEND PAGE 2
LS-08	WASHDOWN ASSEMBLY
LS-09	ODOR CONTROL PLAN_ELEVATION VIEW
LS-10	ODOR CONTROL SIDE VIEW_AIR INLET CONNECTION



DRAFT

DRIVEWAY DETAIL:

8" 3000 PSI CONCRETE
12" CRUSHED CONCRETE OR SHELL
COMPACTED SUB GRADE

DRAWING LEGEND:

(1) 8" CONCRETE SLAB TO BE FORMED AND POURED IN PLACE. SLAB IS TO BE 3000 PSI WITH FIBER MESH AND EVEN WITH WET WELL TOP AND TO HAVE A BROOM FINISH.

(2) STATION VENT - COMPRISED OF 8" SCH. 80 PVC RISER, SCH 80 PVC 90° ELBOW AND ONE PIECE FLANGE, 8" PVC BLANK FLANGE AND 316 SS BOLTS, WASHERS AND NUTS (8 - 316 S.S. BOLTS & WASHERS REQUIRED). USE A 1-1/4" SCH. 80 PVC SPACER AT EACH BOLT LOCATION. 1/8" THICK HEAVY FIBER GLASS SCREENING SHALL ALSO BE INSTALLED UNDER PVC SPACER. (SEE DETAIL "B").

(3) "LINK SEAL" MODEL S-316 FOR D.I.P.S. / CAST OR CORE BIT DRILLED HOLE.

(4) PRECAST CONCRETE WET WELL SHALL CONFORM TO ASTM C478, SHALL BE ACID RESISTANT CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS. BASE SHALL BE MONOLITHIC WITH BOTTOM SECTION F OF WET WELL.

(5) HALLIDAY S1R _____ ALUMINUM ACCESS COVER WITH STANDARD LOCKING BAR & FRAME OR APPROVED EQUAL. INSTALLED PER MFG. ACTUAL HATCH SIZE TO ACCOMMODATE PUMPS (MIN. 36X48)

(6) LOCATION FOR OPTIONAL POWER GENERATOR.

NOTE:

1. LIFT STATION IS TO HAVE AN ACCESS DRIVE A MINIMUM OF 16' WIDE AND CONTINUOUS FROM ROAD TO ACCESS GATE. ACCESS DRIVE IS TO BE BUILT PER ENGINEER AND/OR CHARLOTTE COUNTY UTILITIES' SPECIFICATIONS.

2. ABOVE GROUND METER AND BACKFLOW ASSEMBLY TO BE LOCATED AT PROPERTY LINE.

DATE: 8/1/2023	SITE LAYOUT MASTER LIFT STATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. LS-01
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LS-01 SITE PLAN

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DATE: 8/1/2023

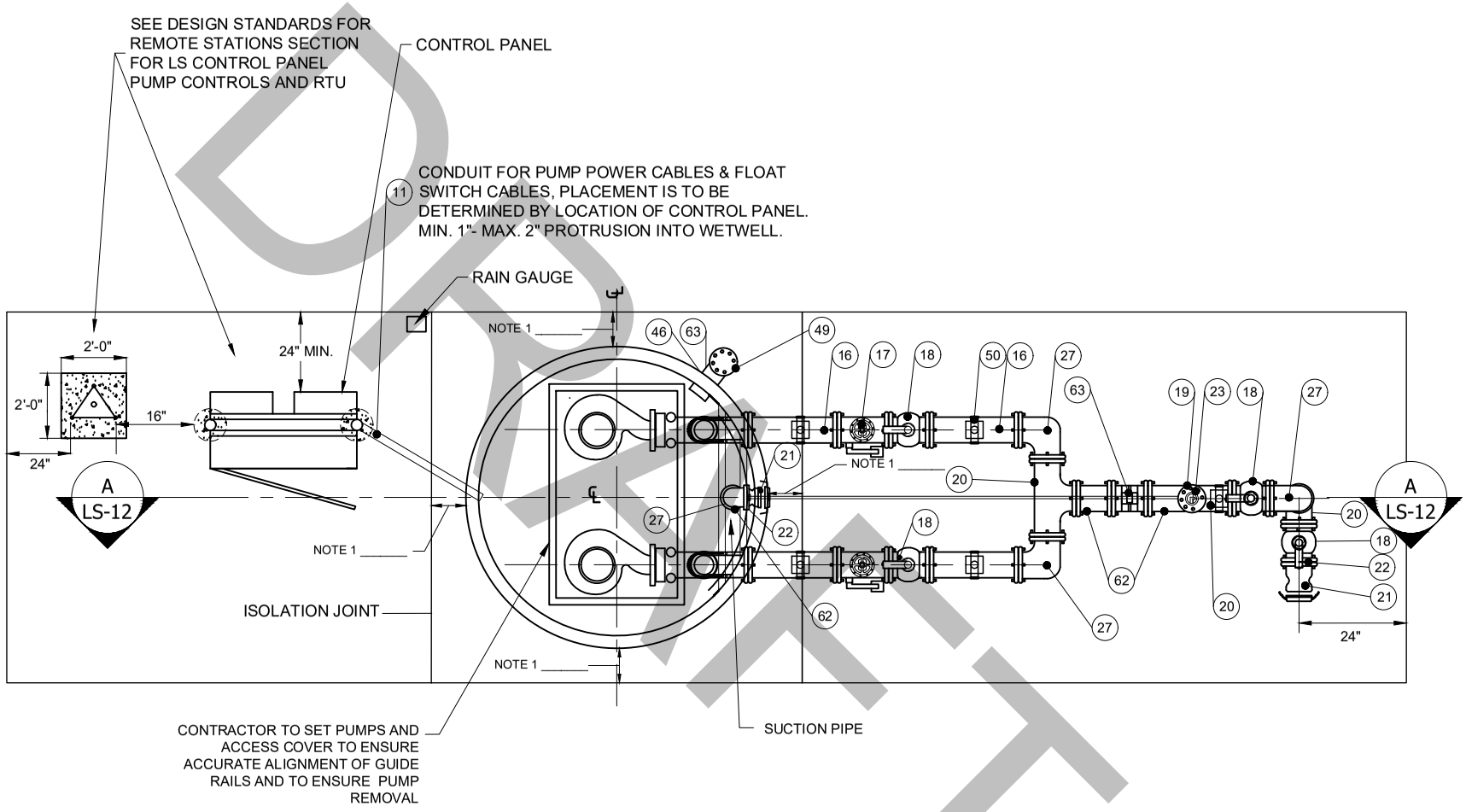
DRAWN BY: DC/LD

APPROVED BY: BRB

PIPING PLAN

MASTER LIFT STATION DETAIL

CHARLOTTE COUNTY UTILITIES



NOTES:

1. DISTANCE (12" MINIMUM) BASED ON WET WELL OUTSIDE DIAMETER.

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LS-02

ID: LS-02-Piping Plan.dwg

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DATE: 08-01-2023

DRAWN BY: DC/LD

APPROVED BY: BRB

LIFT STATION SECTION A-A

MASTER LIFT STATION DETAIL

CHARLOTTE COUNTY UTILITIES

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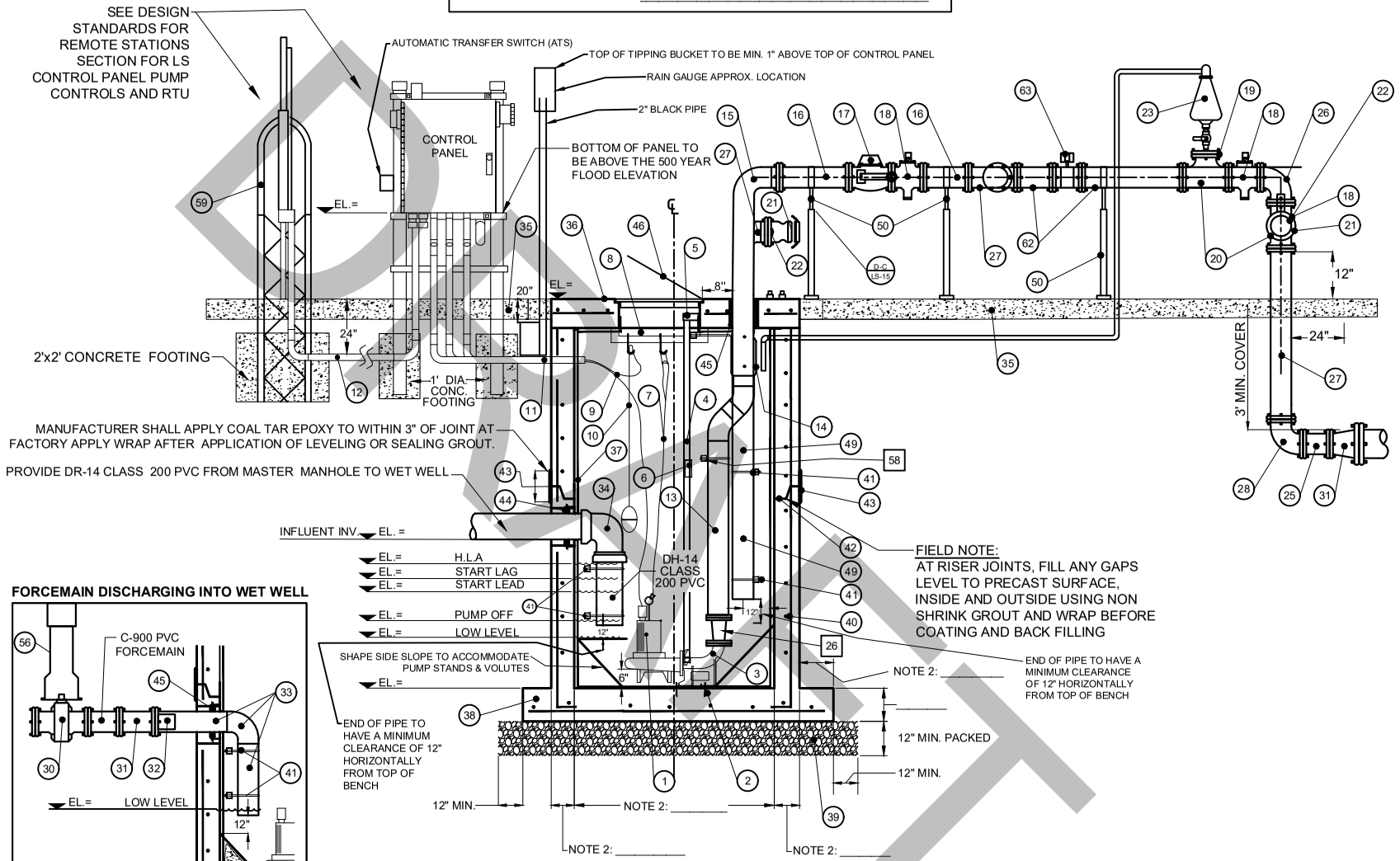
LS-03

ID: LS-03-Piping Section.dwg

25 YEAR FLOOD ELEVATION = _____

100 YEAR FLOOD ELEVATION = _____

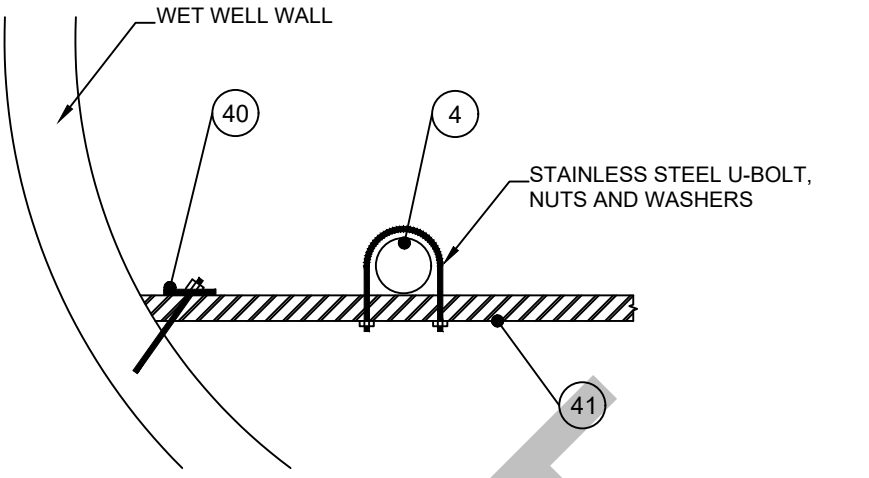
500 YEAR FLOOD ELEVATION = _____



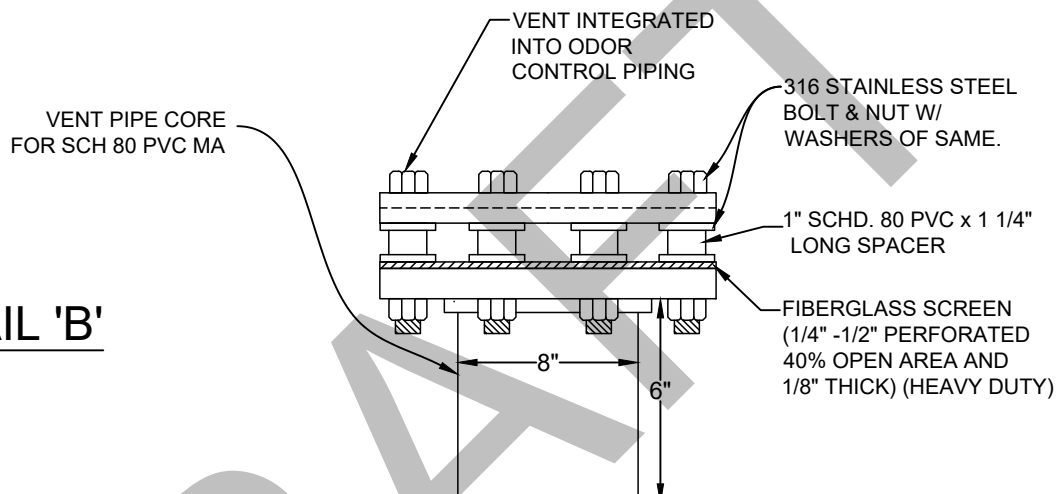
SECTION A-A, THROUGH WET WELL

NOTES:

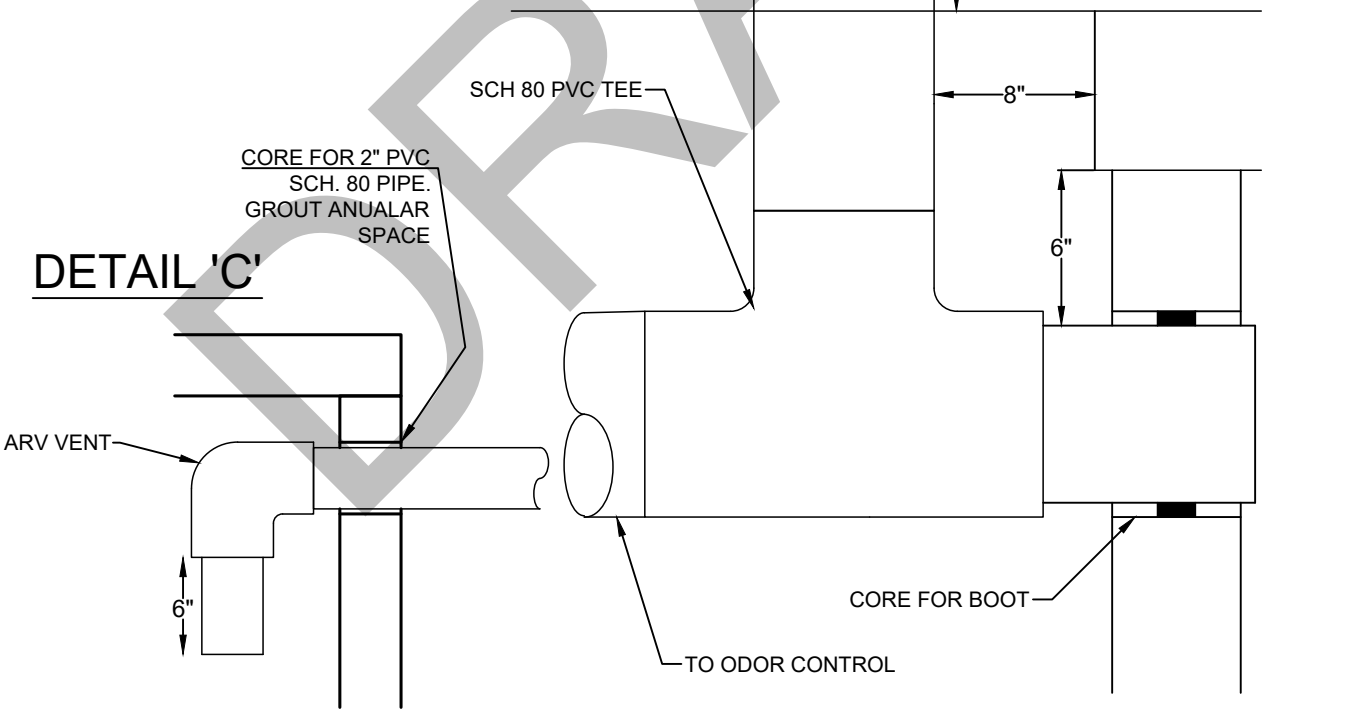
1. MAXIMUM HEIGHT FROM BOTTOM OF PIPE TO TOP OF SLAB 12".
2. FINAL WET WELL DIMENSIONS ARE BASED ON WET WELL ANTI-FLOTATION CALCULATIONS.
3. MINIMUM DISTANCE BETWEEN INFLUENT INVERT AND WETWELL BOTTOM SHALL BE 5 FT.
4. WET WELL DIAMETER MINIMUM OF 96".



DETAIL 'A'



DETAIL 'B'



DETAIL 'C'

DATE: 08-01-23	# DETAILS 'A','B' AND 'C'	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	## MASTER LIFT STATION DETAIL	LS-04
APPROVED BY: BRB	## CHARLOTTE COUNTY UTILITIES	ID: LS-04-Details A-B-C.dwg

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PIPING PLAN & SECTION LEGEND:

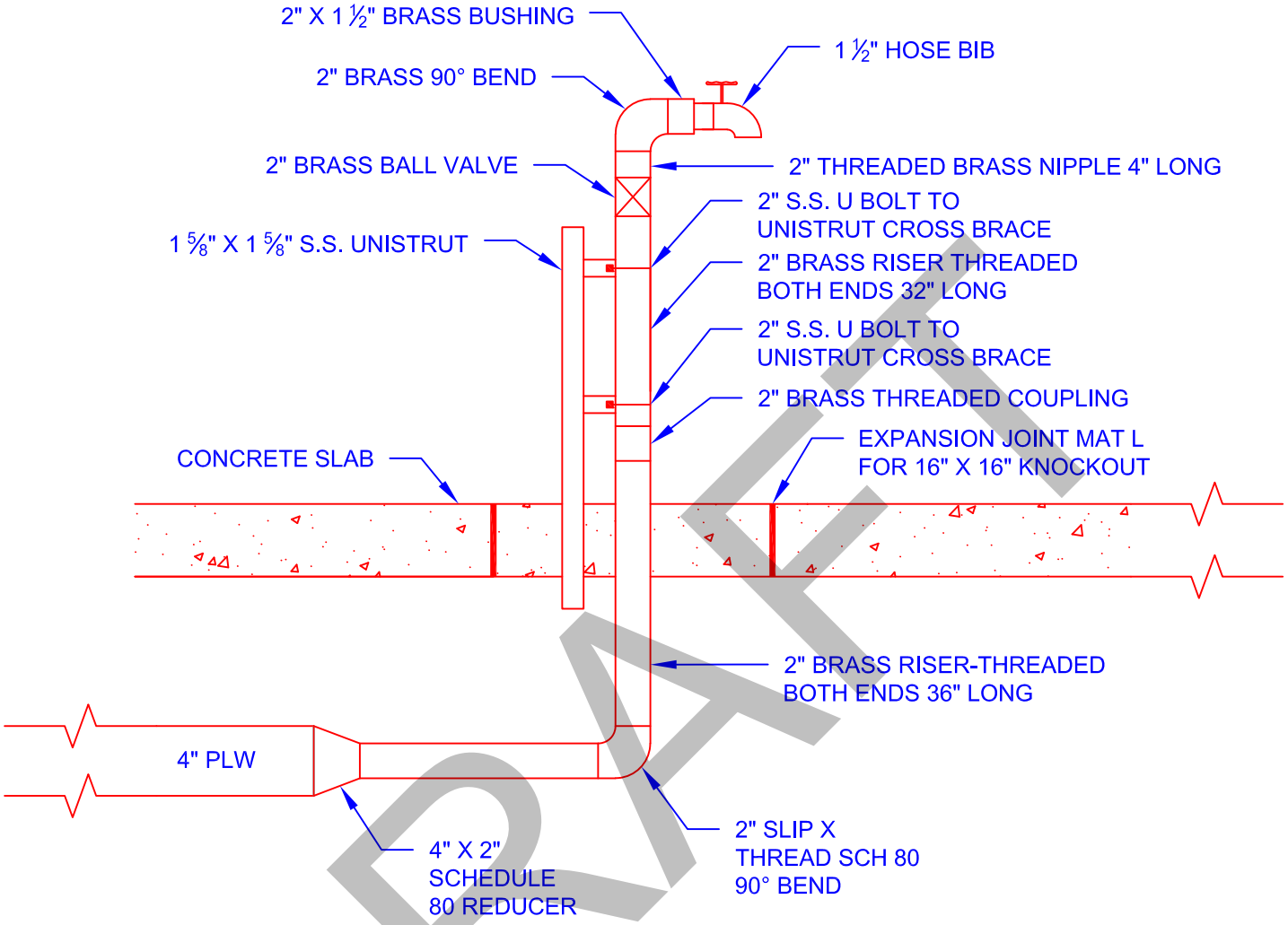
1. CENTRIFUGAL NON-CLOG SUBMERSIBLE PUMP - TYPE _____ , MODEL NO. _____ , IMPELLER NO. _____ , _____ VOLTS, 3 PHASE _____ HP_____ GPM @ _____ TDH, (2 REQUIRED)
2. 316 STAINLESS STEEL ANCHOR BOLTS 4 PER PUMP
3. CHARLOTTE COUNTY UTILITIES APPROVED MANUFACTURER COMPATIBLE _____" STANDARD DISCHARGE CONNECTION (2 REQ'D.) ADJUST FOR PUMP TO WETWELL BOTTOM CLEARANCE AS REQUIRED BY PUMP MANUFACTURER WITH 4000 PSI TYPE II CONCRETE
4. ___2" DIAMETER PVC SCH. 40 WELDED STAINLESS STEEL PIPE TYPE 316, MUST BE WITHIN 1/4" TOLERANCE OF FITTING INTO GUIDE RAIL BRACKETS AS PER MFG. (4 REQUIRED)
5. 316 STAINLESS STEEL UPPER GUIDE RAIL BRACKETS (2 REQUIRED)
6. FOR GUIDE RAILS OVER 15 FT INSTALL 316 STAINLESS STEEL INTERMEDIATE GUIDE RAIL BRACKETS (2 REQUIRED) (SEE LIFT STATION DETAIL "A")
7. PUMP 3/8 316 STAINLESS STEEL LIFTING CHAIN (2 REQUIRED).
8. LIQUID LEVEL SENSOR CABLE HOLDER TYPE 316 SS WITH PUMP LIFTING CABLE RING. FURNISH WITH NOT LESS THAN 6 PRONGS.
9. PUMP POWER CABLE (2 REQUIRED)
10. LIQUID LEVEL SENSOR, EACH SENSOR CABLE SHALL BE CONTINUOUS (NO SPLICES) AND A MINIMUM OF 40 FEET IN LENGTH, 4 REQUIRED, 5 REQUIRED IF TCU EQUIPED
11. 2" CONDUIT FOR CABLES (3 REQUIRED). FROM TOP OF SWEEP TO MCC TO BE 316 STAINLESS STEEL SCH. 80 ELECTRICAL GRADE, FROM TOP OF SWEEP TO INSIDE OF WET WELL TO BE PVC SCH. 80. CLAMP CONDUIT TO BOTTOM STRUT OF MOTOR CONTROL CABINET (MCC). (SEE STANDARD LIFT STATION SECTION A-A DETAIL)
12. 1" CONDUIT FOR CABLE FROM TOP OF SWEEP TO MCC, TO BE PVC SCH. 80 ELECTRICAL GRADE, FROM TOP OF SWEEP TO BOTTOM OF SLAB TO BE PVC SCH. 80
13. _____" DIPS SDR-11 HDPE WITH FUSED FLANGE W/ 316 STAINLESS STEEL BACK UP RING, (USE BENDS AS NECESSARY)
14. _____" HDPE FUSION COUPLER (IF NEEDED)
15. _____" DIPS SDR-11 HDPE 90 DEGREE ELBOW WITH FUSED FLANGE W/ 316 STAINLESS STEEL BACK UP RING AT SPOOL PIECE
16. _____" x 16" LONG FLANGE BY FLANGE DI PIPE CLASS 53 EPOXY LINED.
17. _____" CONTRACTOR SHOULD REFER TO THE APL FOR BRAND NAME "QUIET CLOSING SWING CHECK" WITH WEIGHT AND LEVER (VALVES 10" OR LARGER USE HYDRAULIC DAMPER).
18. _____" PLUG VALVE (4 REQ'D.)
19. _____" D.I. BLIND FLANGE WITH 2" TAP.
20. _____" EPOXY LINED DUCTILE IRON (DI FLANGED) TEE (3 REQ'D.)
21. _____ " COUPLER MALE END X MALE THREAD ALUMINUM CAM AND GROOVE COUPLER W/ ALUMINUM CAP.
22. _____ x _____ " DIP COMPANION FLANGE
23. 2" THREADED STAINLESS STEEL AUTOMATIC AIR-RELEASE VALVE (ARV) WITH STAINLESS STEEL NIPPLES AND BALL VALVE.
24. _____ 2" (MATCH ARV DISCHARGE) PVC SCH. 80. DISCHARGE LINE FROM ARV's, WITH FITTINGS INTO WET WELL.
25. _____" x 16" LONG C900 PVC SEWER PIPE
26. _____" x 90° EPOXY LINED DI FLANGED BEND
27. _____" CLASS 53 DIP EPOXY LINED PIPE, PLAIN END BY FLANGE END (AS NEEDED)
28. _____" x 90° EPOXY LINED MJ BEND. (RESTRAINED JOINT AND THRUST BLOCK AS REQUIRED) (2 REQUIRED)

DATE: 08-01-2023	PIPING PLAN & SECTION LEGEND PG1	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	MASTER LIFT STATION DETAIL	LS-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-06-07-Piping Legend.dwg

PIPING PLAN & SECTION LEGEND (CONTINUED):

29. _____"x_____" EPOXY LINED MJ REDUCER (IF NEEDED)
30. _____ " MJ GATE VALVE
31. _____" CLASS 53 DUCTILE IRON (DI) EPOXY LINED MJ SOLID SLEEVE - RESTRAINED JOINT
32. _____" 316 STAINLESS STEEL INSERT
33. _____" HDPE DIPS SDR-11 FUSED 90° ELBOW W/ PLAIN ENDS
34. _____SDR 35 PVC 90° ELBOW
35. 8" MINIMUM POURED IN PLACE CONCRETE SLAB EVEN WITH WET WELL TOP AND TO HAVE A BROOM FINISH
36. PRECAST CONCRETE WET WELL TOP, WITH BROOM FINISH
37. WET WELL LINING
38. PRECAST CONCRETE WET WELL AND BASE
39. PROVIDE 12 INCHES OF COMPACTED CRUSHED STONE OR PEA GRAVEL LEVELING COURSE. COMPACT TO STABILIZE. WET WELL SHALL BE PLACED ON UNDISTURBED SUB-BASE OR 100% COMPACTED CLEAN FILL
40. #5 REBAR AT 12" ON CENTER EACH WAY
41. 1-5/8"x 1-5/8" SLOTTED 12 GAUGE 316 CHANNEL STRUT, TO BE PLACED 6" FROM BOTTOM OF PIPE AND 6" BELOW 90° ELBOW
42. TONGUE AND GROOVE JOINT WITH SEAL
43. JOINT WRAP SEAL
44. ELASTOMERIC GASKET BOOT
45. "LINK SEAL" MODEL S-316 FOR DIPS / CAST OR CORE BIT DRILLED HOLE, TYPE WALL SLEEVE PIPE SUPPORTS W/ 316 SS BOLTS (2)
46. ALUMINUM ACCESS COVER INSTALLED PER MFG. ACTUAL HATCH SIZE TO ACCOMMODATE PUMPS (MIN. 36"x48")
47. STATION VENT
48. 316 STAINLESS STEEL SUPPORT CRADLE (SEE STANDARD LIFT STATION PIPE SUPPORT DETAIL) (4 REQUIRED)
49. _____" DR18 C900 GREEN PVC PIPE
50. _____" HDPE FUSION COUPLER (IF NEEDED)
51. _____" 316 STAINLESS STEEL INSERT
52. _____" x 90° EPOXY LINED MJ BEND. (RESTRAINED JOINT AND THRUST BLOCK AS REQUIRED) (2 REQUIRED)
53. _____" CLASS 53 DIP EPOXY LINED PIPE, PLAIN END BY FLANGE END (AS NEEDED)
54. _____" x 90° EPOXY LINED DI FLANGED BEND (2 REQUIRED)
55. _____"x_____" DIP COMPANION FLANGE
56. DUCTILE IRON VALVE BOX WITH PVC RISER (AS REQUIRED)
57. ALL GASKETS SHALL BE 1/8" THICK SBR AS MANUFACTURED BY: U.S. PIPE "FLANGE - TYPE" OR AMERICAN CAST IRON PIPE "TORUSEAL"
58. 1-5/8"x 1-5/8" SLOTTED 12 GAUGE 316 CHANNEL STRUT TO BE PLACED AT 6' INTERVALS ON PIPE LONGER THAN 10 FEET (SEE STANDARD LIFT STATION DETAIL 'A'). IF LESS THAN 10 FEET, PLACE AT MIDPOINT OF PIPE
59. SCADA ANTENNA, TOWER AND FOOTING BY OTHERS
60. _____" D.I. PVC FLANGE ADAPTER WITH 316 STAINLESS STEEL BOLTS.
61. 8" SCH 80 SOLVENT WELD 90° ELBOW.

DATE: 08-01-2023	PIPING PLAN & SECTION LEGEND PG2 MASTER LIFT STATION DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-06-07-Piping Legend.dwg

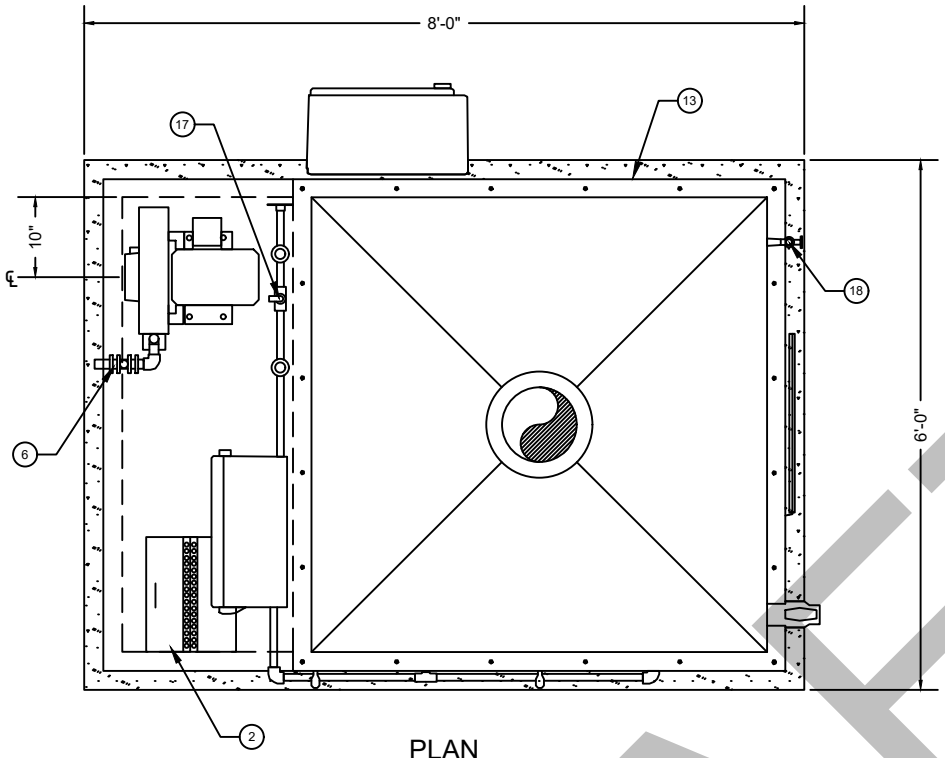


NOTES:

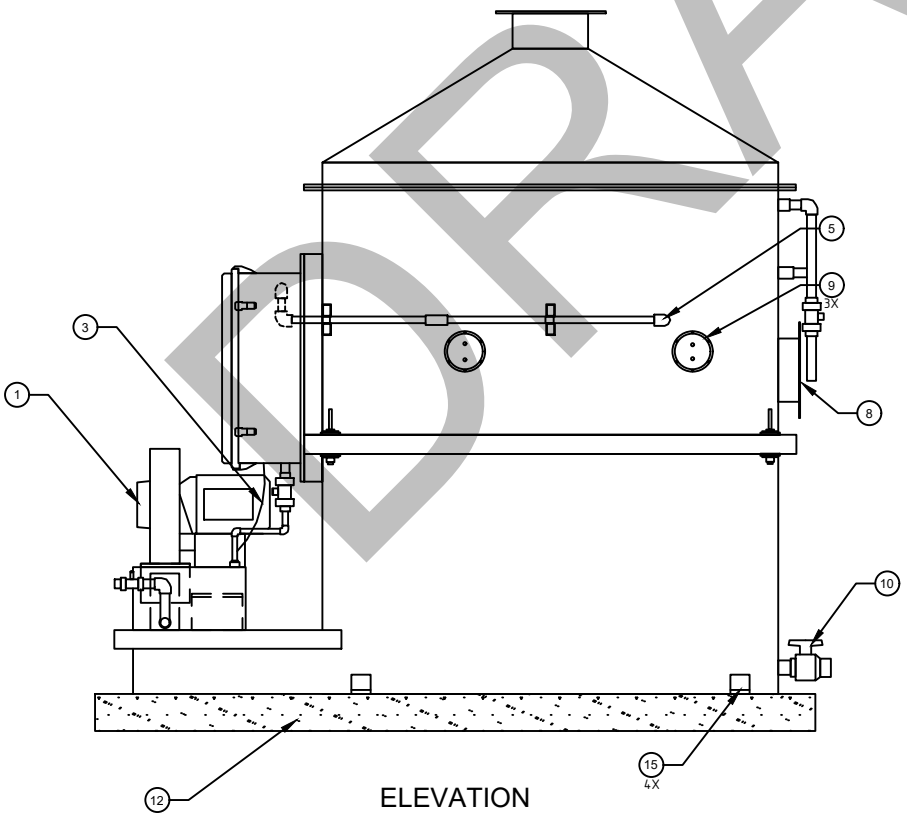
1. (2) 1 ⅝" X 1 ⅝" S.S. UNISTRUT SUPPORTS EMBEDDED IN THE CONCRETE 8" APART ON EITHER SIDE OF THE 2" BRASS RISER, WITH (2) UNISTRUT CROSS BRACES TO FASTEN THE 2" BRASS RISER TO FOR SUPPORT. FASTEN BRASS RISER WITH 2" S.S. U BOLTS, ONE AT EACH CROSS BRACE.

2. INSTALL BOND BREAKER / EXPANSION MAT L ON 2" BRASS RISER WHERE IT PASSES THROUGH THE CONCRETE OF SUFFICIENT THICKNESS TO ACCOMMODATE ANY THERMAL EXPANSION OF THE CONCRETE.

DATE: 8/1/23	MASTER LIFT STATION WASHDOWN ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LD		PAGE No. LS-08
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LS-08



PLAN



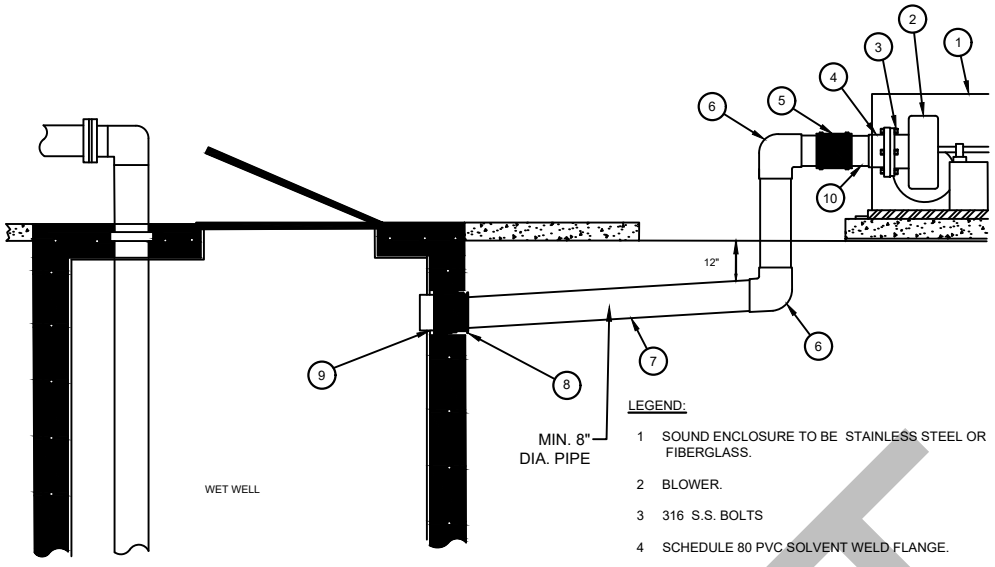
ELEVATION

NOMENCLATURE

1. FAN (7.75" OD INLET)
2. NUTRIENT TANK
3. NUTRIENT FEED LINE
4. WATER CABINET
5. WATER FEED LINE
6. INLET AIR SAMPLE PORT
7. WATER INLET CONNECTION (3/4" FLANGE)
8. MAIN ACCESS FLANGE
9. 6" ACCESS PORTS (TYP. OF 3)
10. SYSTEM DRAIN
11. AIR OUTLET FLANGE - 9" DIA.
12. SLOPED CONCRETE EQUIPMENT PAD
13. ID TAG
14. POSITIONING EYES (TYP. OF 4)
15. ANCHOR LUGS (TYP. OF 4)
16. ELECTRICAL CONTROL PANEL
17. HOSE BIB
18. OUTLET AIR SAMPLE PORT
19. LOCKABLE S.S. KNIFE SWITCH DISCONNECT
20. ELECTRIC METER
21. MAIN FUSE DISCONNECT
22. 3/4 INCH PVC ELECTRICAL CONDUIT-MALE ADAPTER
23. 3/4 INCH PVC ELECTRICAL CONDUIT
24. 3/4 INCH PVC ELECTRICAL CONDUIT SWEEP

Z:\Auto Cad R14\DETAILS\2023 DETAILS\05.LIFT STATIONS\Basins 3 Sets\Master Set\LS-09-10 ODOR CONTROL.dwg

DATE: 8/01/2023	# ODOR CONTROL PLAN/ELEV. VIEW	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LD/DEC		LS-09
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	D: LS-09-10 ODOR CONTROL.dwg



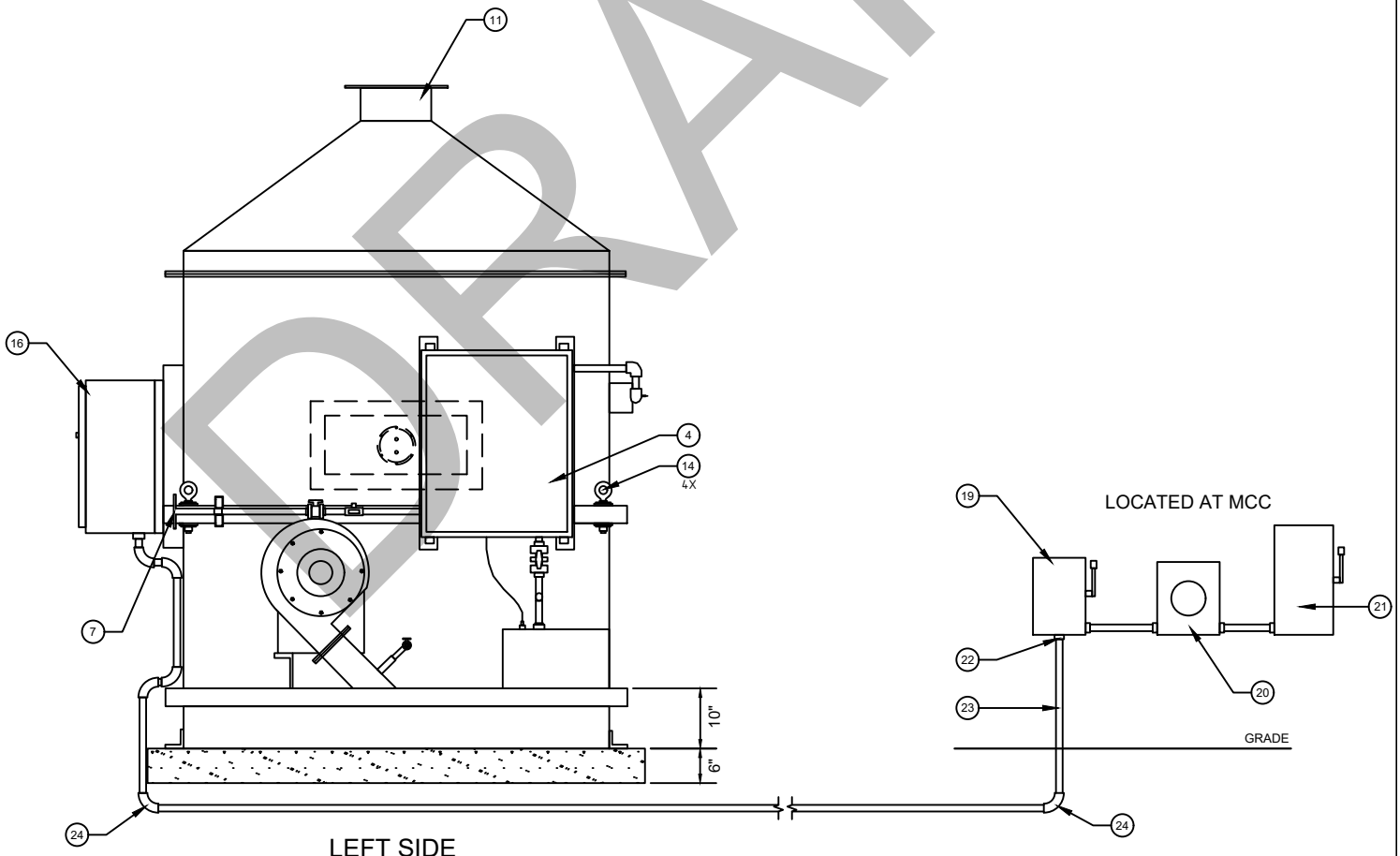
GENERAL NOTES:

1. ANNULAR SPACE AROUND PENETRATION TO BE FILLED WITH NON SHRINK GROUT.
2. ALL JOINTS AND BENDS TO BE SOLVENT WELD.
3. ALL HARDWARE TO BE 316 S.S.

LEGEND:

1 SOUND ENCLOSURE TO BE STAINLESS STEEL OR FIBERGLASS.
2 BLOWER.
3 316 S.S. BOLTS
4 SCHEDULE 80 PVC SOLVENT WELD FLANGE.
5 RUBBER COUPLER WITH S.S. BANDS.
6 SCHEDULE 80 PVC SOLVENT WELD 90 DEGREE ELBOW.
7 AIR INLET PIPE SCHEDULE 80 PVC WITH NEGATIVE FLOW TO WET WELL TYPICAL. BUT MAY VARY BASED ON CONFIGURATION.)
8 ELASTOMETRIC GASKET BOOT WITH S.S. BAND.
9 NON SHRINK GROUT.
10 REDUCER (IF NEEDED)

AIR INLET PIPE BLOWER CONNECTION



LEFT SIDE

DATE: 08/1/2023	ODOR CONTROL SIDE VIEW / LEGEND	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		LS-10
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-09-10 ODOR CONTROL.dwg

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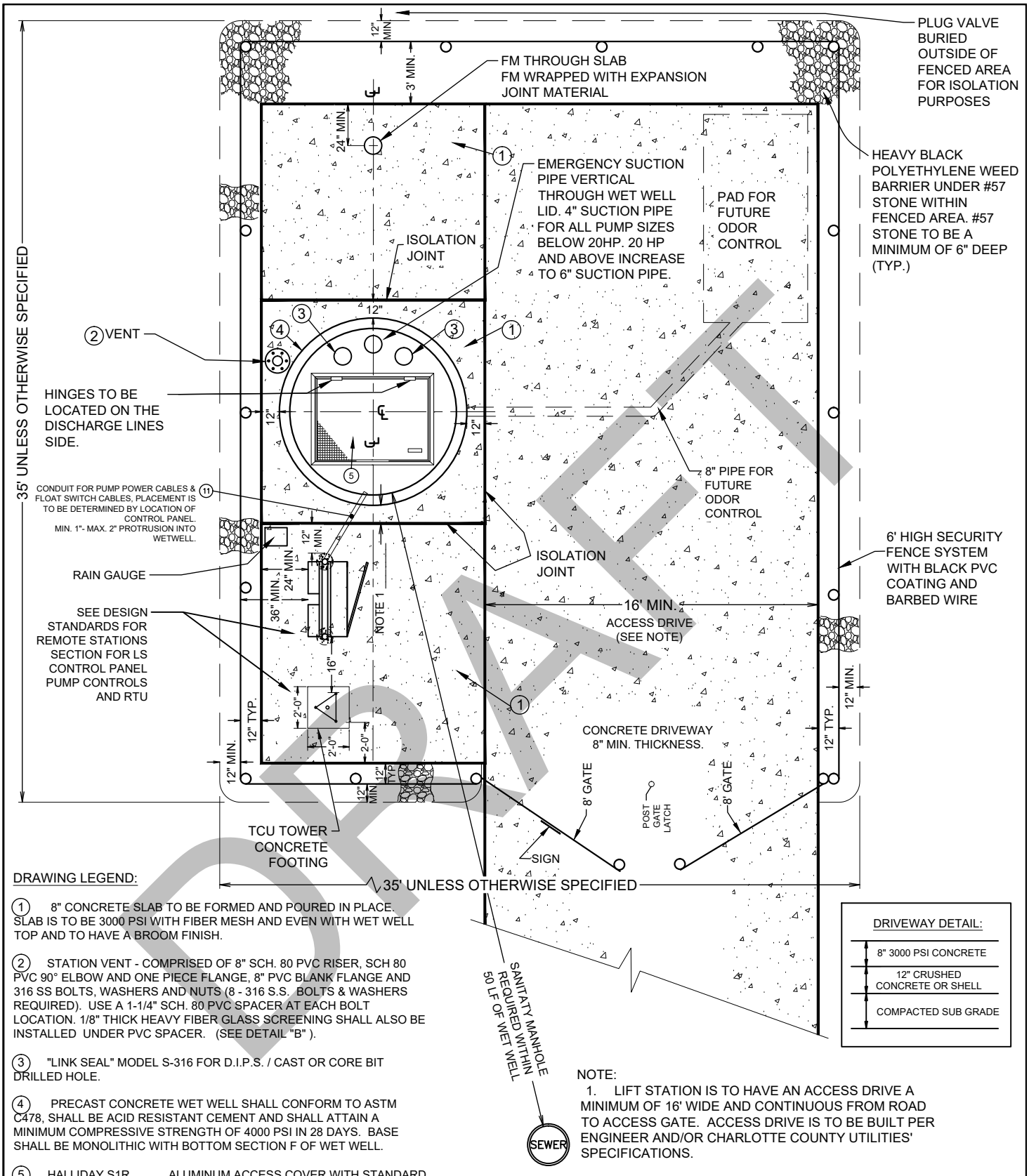
ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

STANDARD LIFT STATION

Sheet List Table	
Sheet Number	Sheet Title
LS-0	COVER
LS-01	SITE PLAN
LS-02	PIPING PLAN
LS-03	PIPING SECTION
LS-04	DETAILS A-B-C
LS-06	PIPING LEGEND PAGE 1
LS-07	PIPING LEGEND PAGE 2
LS-08	WASHDOWN ASSEMBLY



DRIVEWAY DETAIL:

8" 3000 PSI CONCRETE
12" CRUSHED CONCRETE OR SHELL
COMPACTED SUB GRADE

DRAWING LEGEND:

(1) 8" CONCRETE SLAB TO BE FORMED AND POURED IN PLACE. SLAB IS TO BE 3000 PSI WITH FIBER MESH AND EVEN WITH WET WELL TOP AND TO HAVE A BROOM FINISH.

(2) STATION VENT - COMPRISED OF 8" SCH. 80 PVC RISER, SCH 80 PVC 90° ELBOW AND ONE PIECE FLANGE, 8" PVC BLANK FLANGE AND 316 SS BOLTS, WASHERS AND NUTS (8 - 316 S.S. BOLTS & WASHERS REQUIRED). USE A 1-1/4" SCH. 80 PVC SPACER AT EACH BOLT LOCATION. 1/8" THICK HEAVY FIBER GLASS SCREENING SHALL ALSO BE INSTALLED UNDER PVC SPACER. (SEE DETAIL "B").

(3) "LINK SEAL" MODEL S-316 FOR D.I.P.S. / CAST OR CORE BIT DRILLED HOLE.

(4) PRECAST CONCRETE WET WELL SHALL CONFORM TO ASTM C478, SHALL BE ACID RESISTANT CEMENT AND SHALL ATTAIN A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28 DAYS. BASE SHALL BE MONOLITHIC WITH BOTTOM SECTION F OF WET WELL.

(5) HALLIDAY S1R _____ ALUMINUM ACCESS COVER WITH STANDARD LOCKING BAR & FRAME OR APPROVED EQUAL. INSTALLED PER MFG. ACTUAL HATCH SIZE TO ACCOMMODATE PUMPS (MIN. 36X48)

NOTE:

1. LIFT STATION IS TO HAVE AN ACCESS DRIVE A MINIMUM OF 16' WIDE AND CONTINUOUS FROM ROAD TO ACCESS GATE. ACCESS DRIVE IS TO BE BUILT PER ENGINEER AND/OR CHARLOTTE COUNTY UTILITIES' SPECIFICATIONS.

2. ABOVE GROUND METER AND BACKFLOW ASSEMBLY TO BE LOCATED AT PROPERTY LINE.

DATE: 8/01/2023	SITE LAYOUT STANDARD LIFT STATION DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-01
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-01_Site Plan.dwg

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DATE: 8/1/2023

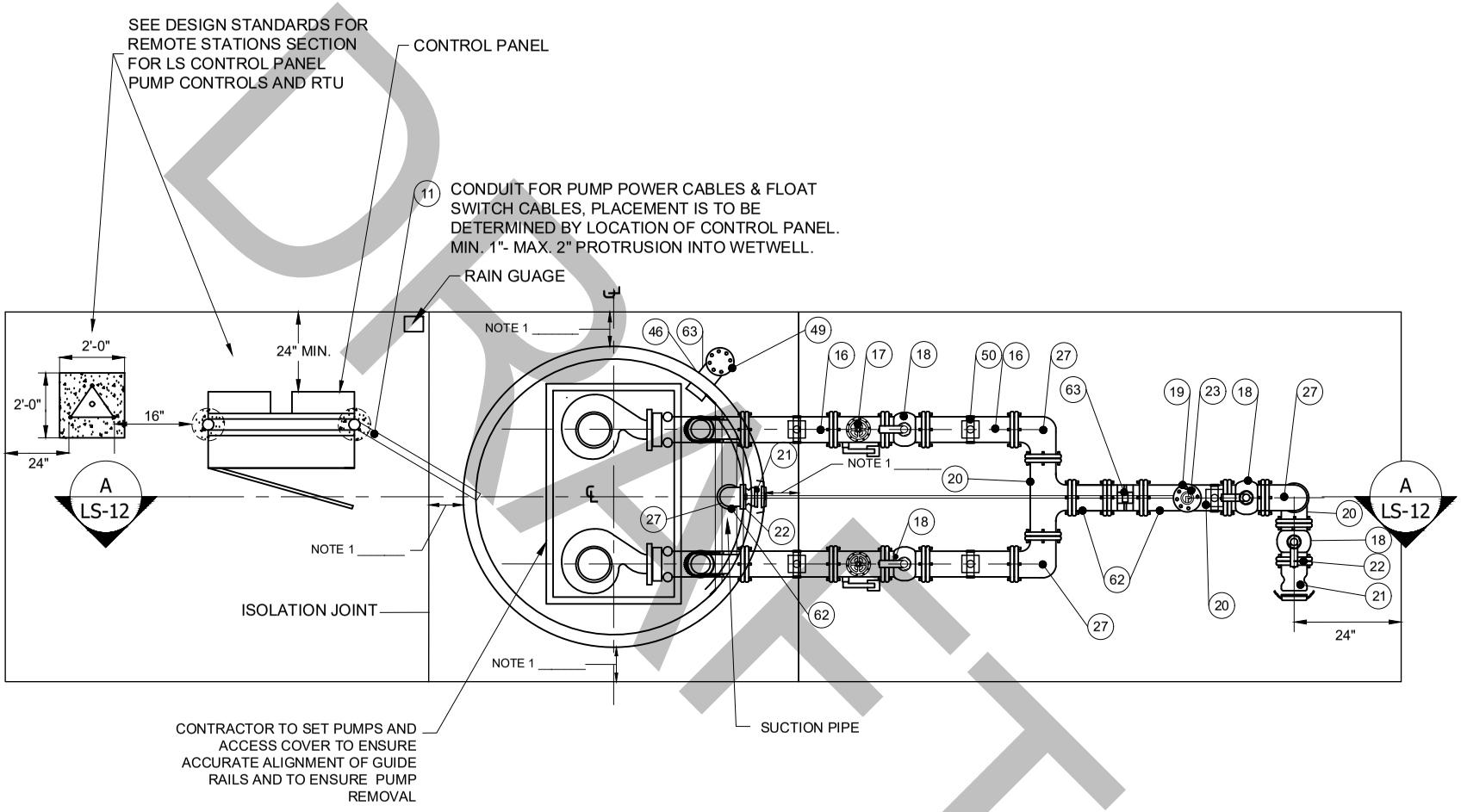
DRAWN BY: DC/LD

APPROVED BY: BRB

PIPING PLAN

STANDARD LIFT STATION DETAIL

CHARLOTTE COUNTY UTILITIES



NOTES:

1. DISTANCE (12" MINIMUM) BASED ON WET WELL OUTSIDE DIAMETER.

PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

LS-02

ID: LS-02-Piping Plan.dwg

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LIFT STATION SECTION A-A

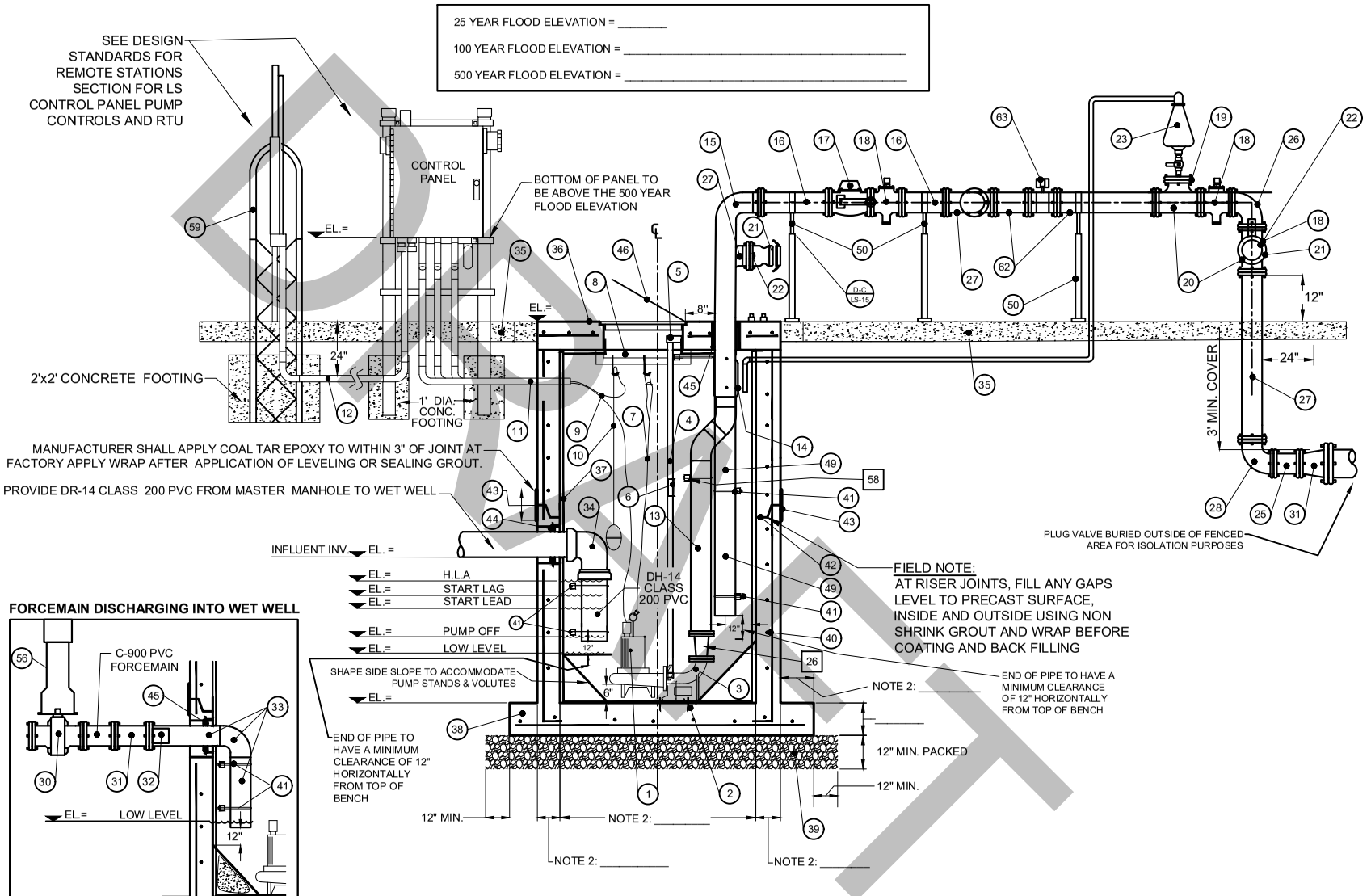
STANDARD LIFT STATION DETAIL

CHARLOTTE COUNTY UTILITIES

DATE: 08-01-2023

DRAWN BY: DC/LD

APPROVED BY: BRB



SECTION A-A, THROUGH WET WELL

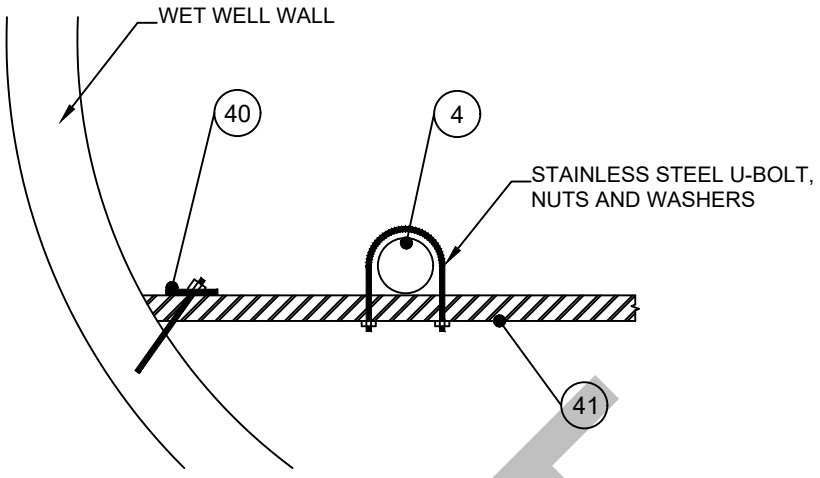
NOTES:

1. MAXIMUM HEIGHT FROM BOTTOM OF PIPE TO TOP OF SLAB 12".
2. FINAL WET WELL DIMENSIONS ARE BASED ON WET WELL ANTI-FLOTATION CALCULATIONS.
3. MINIMUM DISTANCE BETWEEN INFLUENT INVERT AND WETWELL BOTTOM SHALL BE 5 FT.

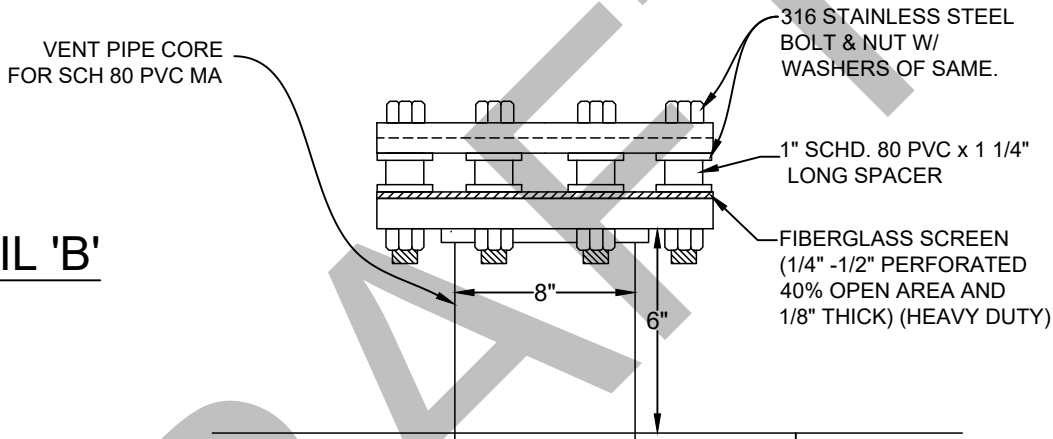
LS-03

ID: LS-03-Piping Section.dwg

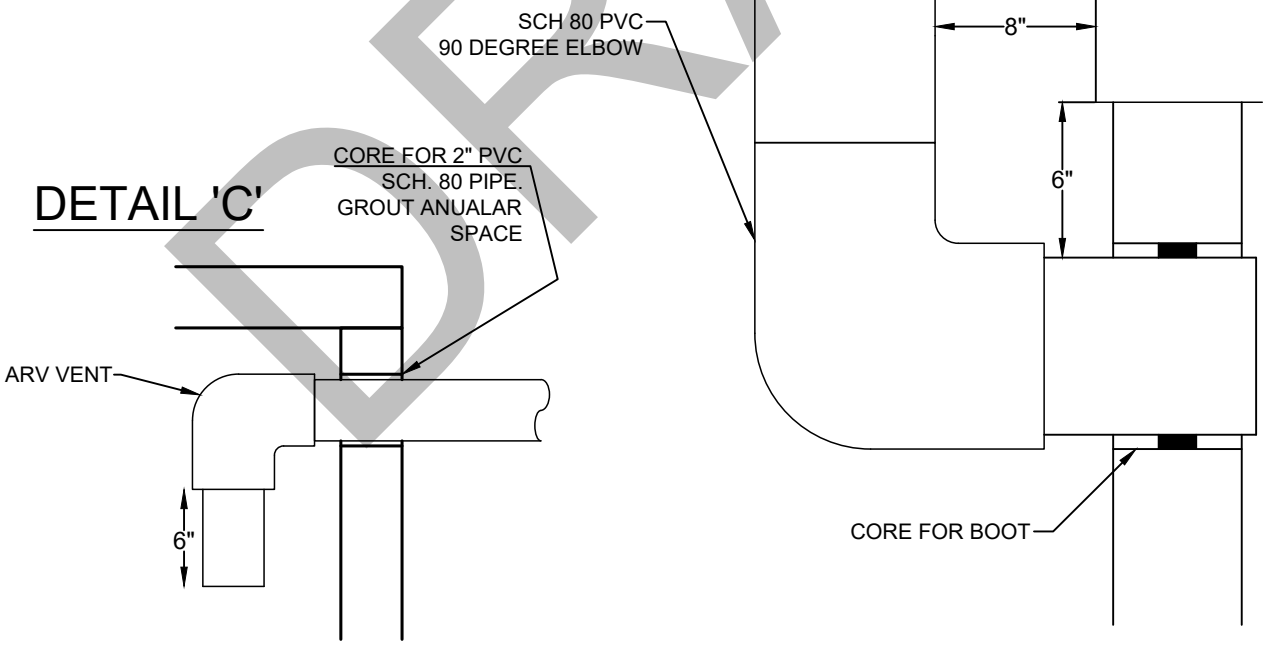
DETAIL 'A'



DETAIL 'B'



DETAIL 'C'



DATE: 08-01-23	DETAILS 'A','B' AND 'C'	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	STANDARD LIFT STATION DETAIL	LS-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-04-Details A-B-C.dwg

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PIPING PLAN & SECTION LEGEND:

1. CENTRIFUGAL NON-CLOG SUBMERSIBLE PUMP - TYPE _____ , MODEL NO. _____ , IMPELLER NO. _____ , _____ VOLTS, 3 PHASE _____ HP_____ GPM @ _____ TDH, (2 REQUIRED)

2. 316 STAINLESS STEEL ANCHOR BOLTS 4 PER PUMP

3. CHARLOTTE COUNTY UTILITIES APPROVED MANUFACTURER COMPATIBLE _____" STANDARD DISCHARGE CONNECTION (2 REQ'D.) ADJUST FOR PUMP TO WETWELL BOTTOM CLEARANCE AS REQUIRED BY PUMP MANUFACTURER WITH 4000 PSI TYPE II CONCRETE

4. ___2" DIAMETER PVC SCH. 40 WELDED STAINLESS STEEL PIPE TYPE 316, MUST BE WITHIN 1/4" TOLERANCE OF FITTING INTO GUIDE RAIL BRACKETS AS PER MFG. (4 REQUIRED)

5. 316 STAINLESS STEEL UPPER GUIDE RAIL BRACKETS (2 REQUIRED)

6. FOR GUIDE RAILS OVER 15 FT INSTALL 316 STAINLESS STEEL INTERMEDIATE GUIDE RAIL BRACKETS (2 REQUIRED) (SEE LIFT STATION DETAIL "A")

7. PUMP 3/8 316 STAINLESS STEEL LIFTING CHAIN (2 REQUIRED).

8. LIQUID LEVEL SENSOR CABLE HOLDER TYPE 316 SS WITH PUMP LIFTING CABLE RING. FURNISH WITH NOT LESS THAN 6 PRONGS.

9. PUMP POWER CABLE (2 REQUIRED)

10. LIQUID LEVEL SENSOR, EACH SENSOR CABLE SHALL BE CONTINUOUS (NO SPLICES) AND A MINIMUM OF 40 FEET IN LENGTH, 4 REQUIRED, 5 REQUIRED IF TCU EQUIPED

11. 2" CONDUIT FOR CABLES (3 REQUIRED). FROM TOP OF SWEEP TO MCC TO BE 316 STAINLESS STEEL SCH. 80 ELECTRICAL GRADE, FROM TOP OF SWEEP TO INSIDE OF WET WELL TO BE PVC SCH. 80. CLAMP CONDUIT TO BOTTOM STRUT OF MOTOR CONTROL CABINET (MCC). (SEE STANDARD LIFT STATION SECTION A-A DETAIL)

12. 1" CONDUIT FOR CABLE FROM TOP OF SWEEP TO MCC, TO BE PVC SCH. 80 ELECTRICAL GRADE, FROM TOP OF SWEEP TO BOTTOM OF SLAB TO BE PVC SCH. 80

13. _____" DIPS SDR-11 HDPE WITH FUSED FLANGE W/ 316 STAINLESS STEEL BACK UP RING, (USE BENDS AS NECESSARY)

14. _____" HDPE FUSION COUPLER (IF NEEDED)

15. _____" DIPS SDR-11 HDPE 90 DEGREE ELBOW WITH FUSED FLANGE W/ 316 STAINLESS STEEL BACK UP RING AT SPOOL PIECE

16. _____" x 16" LONG FLANGE BY FLANGE DI PIPE CLASS 53 EPOXY LINED.

17. _____" CONTRACTOR SHOULD REFER TO THE APL FOR BRAND NAME "QUIET CLOSING SWING CHECK" WITH WEIGHT AND LEVER (VALVES 10" OR LARGER USE HYDRAULIC DAMPER).

18. _____" PLUG VALVE (4 REQ'D.)

19. _____" D.I. BLIND FLANGE WITH 2" TAP.

20. _____" EPOXY LINED DUCTILE IRON (DI FLANGED) TEE (3 REQ'D.)

21. _____ " COUPLER MALE END X MALE THREAD ALUMINUM CAM AND GROOVE COUPLER W/ ALUMINUM CAP.

22. _____ x _____ " DIP COMPANION FLANGE

23. 2" THREADED STAINLESS STEEL AUTOMATIC AIR-RELEASE VALVE (ARV) WITH STAINLESS STEEL NIPPLES AND BALL VALVE.

24. _____ 2" (MATCH ARV DISCHARGE) PVC SCH. 80. DISCHARGE LINE FROM ARV's, WITH FITTINGS INTO WET WELL.

25. _____" x 16" LONG C900 PVC SEWER PIPE

26. _____" x 90° EPOXY LINED DI FLANGED BEND

27. _____" CLASS 53 DIP EPOXY LINED PIPE, PLAIN END BY FLANGE END (AS NEEDED)

28. _____" x 90° EPOXY LINED MJ BEND. (RESTRAINED JOINT AND THRUST BLOCK AS REQUIRED) (2 REQUIRED)

DATE: 08-01-2023	PIPING PLAN & SECTION LEGEND PG1	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	STANDARD LIFT STATION DETAIL	LS-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-06-07-Piping Legend.dwg

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PIPING PLAN & SECTION LEGEND (CONTINUED):

29. _____"x_____" EPOXY LINED MJ REDUCER (IF NEEDED)

30. _____ " MJ GATE VALVE

31. _____" CLASS 53 DUCTILE IRON (DI) EPOXY LINED MJ SOLID SLEEVE - RESTRAINED JOINT

32. _____" 316 STAINLESS STEEL INSERT

33. _____" HDPE DIPS SDR-11 FUSED 90° ELBOW W/ PLAIN ENDS

34. _____SDR 35 PVC 90° ELBOW

35. 8" MINIMUM POURED IN PLACE CONCRETE SLAB EVEN WITH WET WELL TOP AND TO HAVE A BROOM FINISH

36. PRECAST CONCRETE WET WELL TOP, WITH BROOM FINISH

37. WET WELL LINING
38. PRECAST CONCRETE WET WELL AND BASE

39. PROVIDE 12 INCHES OF COMPACTED CRUSHED STONE OR PEA GRAVEL LEVELING COURSE. COMPACT TO STABILIZE. WET WELL SHALL BE PLACED ON UNDISTURBED SUB-BASE OR 100% COMPACTED CLEAN FILL

40. #5 REBAR AT 12" ON CENTER EACH WAY

41. 1-5/8"x 1-5/8" SLOTTED 12 GAUGE 316 CHANNEL STRUT, TO BE PLACED 6" FROM BOTTOM OF PIPE AND 6" BELOW 90° ELBOW

42. TONGUE AND GROOVE JOINT WITH SEAL
43. JOINT WRAP SEAL
44. ELASTOMERIC GASKET BOOT

45. "LINK SEAL" MODEL S-316 FOR DIPS / CAST OR CORE BIT DRILLED HOLE, TYPE WALL SLEEVE PIPE SUPPORTS W/ 316 SS BOLTS (2)

46. ALUMINUM ACCESS COVER INSTALLED PER MFG. ACTUAL HATCH SIZE TO ACCOMMODATE PUMPS (MIN. 36"x48")

47. STATION VENT

48. 316 STAINLESS STEEL SUPPORT CRADLE (SEE STANDARD LIFT STATION PIPE SUPPORT DETAIL) (4 REQUIRED)

49. _____" DR18 C900 GREEN PVC PIPE

50. _____" HDPE FUSION COUPLER (IF NEEDED)

51. _____" 316 STAINLESS STEEL INSERT

52. _____" x 90° EPOXY LINED MJ BEND. (RESTRAINED JOINT AND THRUST BLOCK AS REQUIRED) (2 REQUIRED)

53. _____" CLASS 53 DIP EPOXY LINED PIPE, PLAIN END BY FLANGE END (AS NEEDED)

54. _____" x 90° EPOXY LINED DI FLANGED BEND (2 REQUIRED)

55. _____"x_____" DIP COMPANION FLANGE

56. DUCTILE IRON VALVE BOX WITH PVC RISER (AS REQUIRED)

57. ALL GASKETS SHALL BE 1/8" THICK SBR AS MANUFACTURED BY: U.S. PIPE "FLANGE - TYPE" OR AMERICAN CAST IRON PIPE "TORUSEAL"

58. 1-5/8"x 1-5/8" SLOTTED 12 GAUGE 316 CHANNEL STRUT TO BE PLACED AT 6' INTERVALS ON PIPE LONGER THAN 10 FEET (SEE STANDARD LIFT STATION DETAIL 'A'). IF LESS THAN 10 FEET, PLACE AT MIDPOINT OF PIPE

59. SCADA ANTENNA, TOWER AND FOOTING BY OTHERS

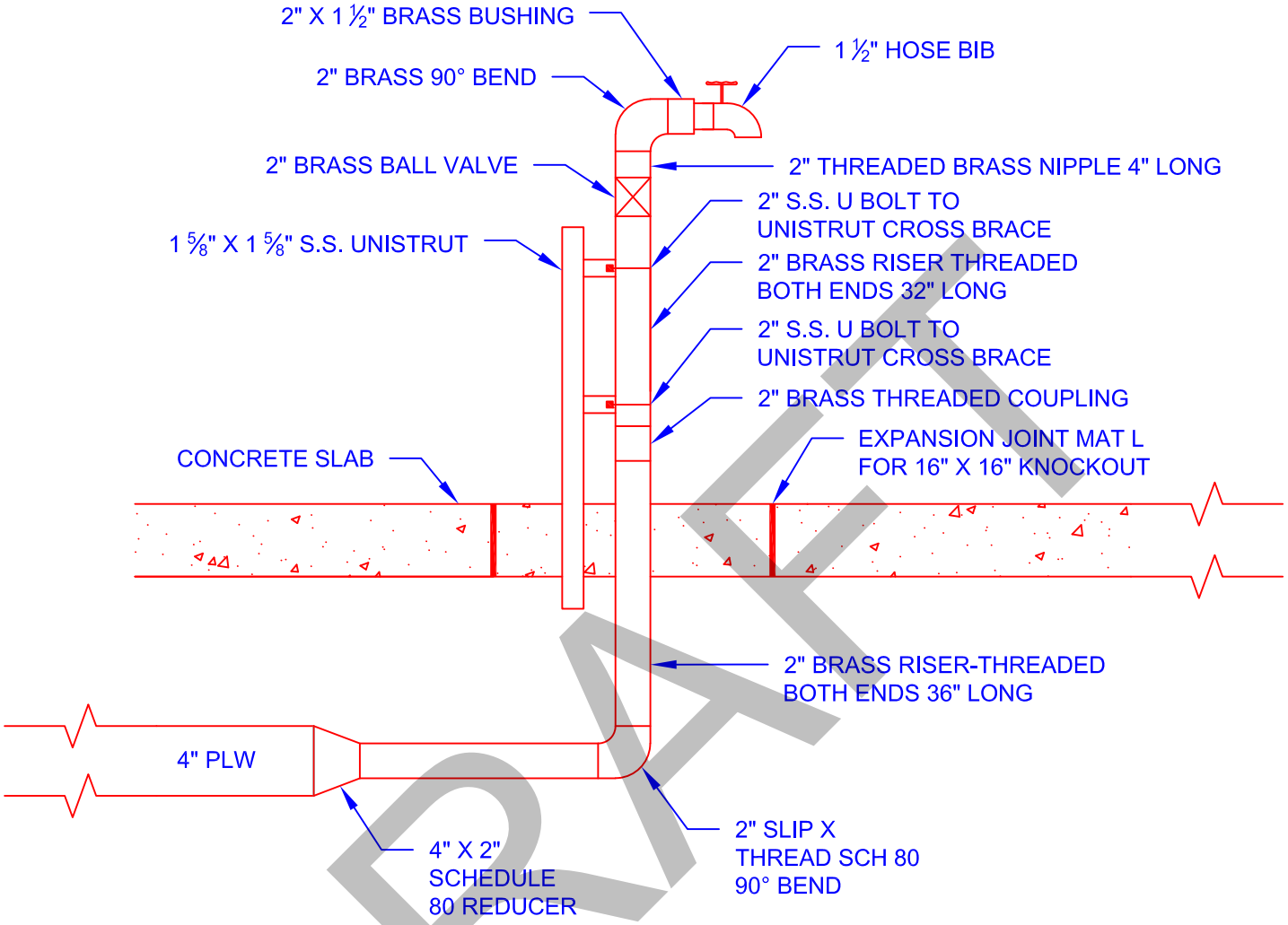
60. _____" D.I. PVC FLANGE ADAPTER WITH 316 STAINLESS STEEL BOLTS.

61. 8" SCH 80 SOLVENT WELD 90° ELBOW.

62. ____" X ____" FLANGEX FLANGE D.I. PIPE CLASS 53 EPOXY LINED. (LENGTH DETERMINED BY METER REQUIREMENTS)

63. ROSEMOUNT FLOW METER MODEL# _____

DATE: 08-01-2023	PIPING PLAN & SECTION LEGEND PG2 STANDARD LIFT STATION DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-06-07-Piping Legend.dwg



NOTES:

1. (2) 1 ⅝" X 1 ⅝" S.S. UNISTRUT SUPPORTS EMBEDDED IN THE CONCRETE 8" APART ON EITHER SIDE OF THE 2" BRASS RISER, WITH (2) UNISTRUT CROSS BRACES TO FASTEN THE 2" BRASS RISER TO FOR SUPPORT. FASTEN BRASS RISER WITH 2" S.S. U BOLTS, ONE AT EACH CROSS BRACE.

2. INSTALL BOND BREAKER / EXPANSION MAT L ON 2" BRASS RISER WHERE IT PASSES THROUGH THE CONCRETE OF SUFFICIENT THICKNESS TO ACCOMMODATE ANY THERMAL EXPANSION OF THE CONCRETE.

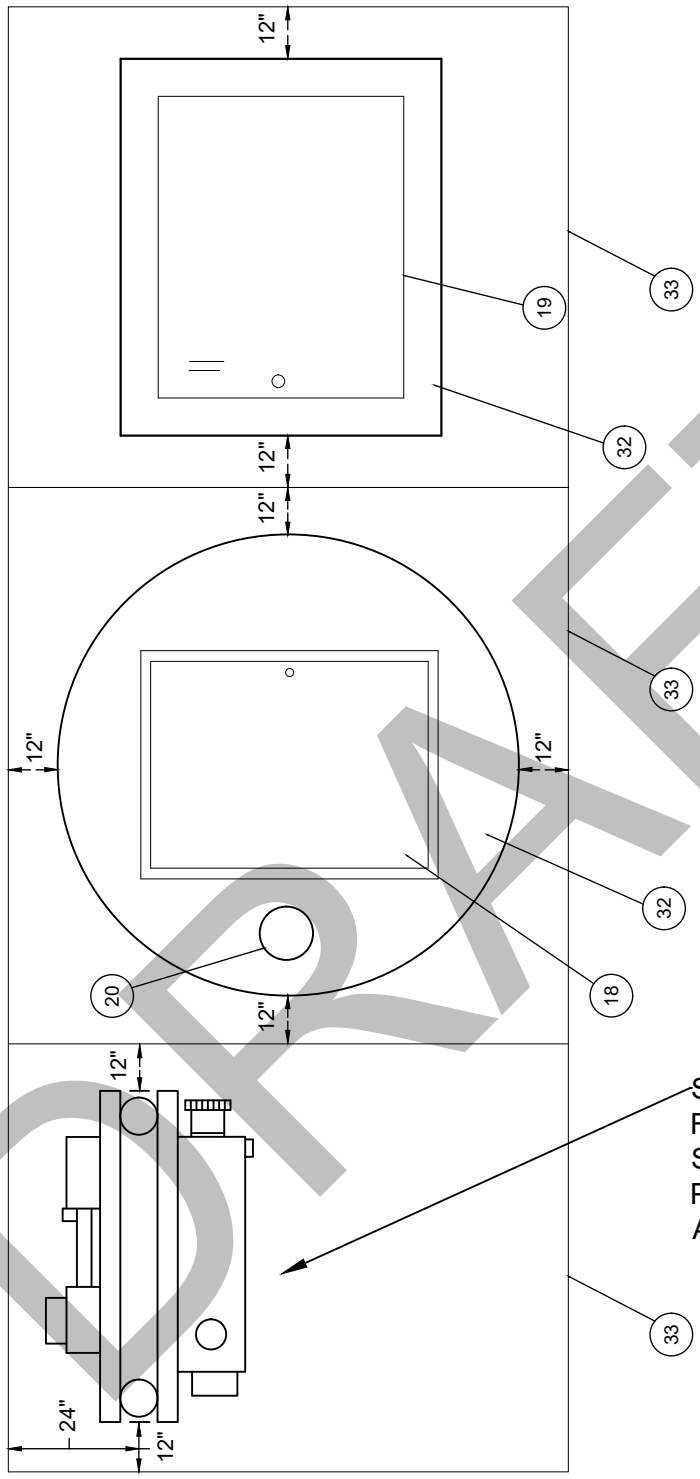
DATE: 8/1/23	LIFT STATION WASHDOWN ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LD		PAGE No. LS-08
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LS-08

ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

INDIVIDUAL LIFT STATION

Sheet List Table	
Sheet Number	Sheet Title
LS-0	LIFT STATION INDIVIDUAL COVER
LS-01	LIFT STATION INDIVIDUAL SITE PLAN
LS-02	LIFT STATION INDIVIDUAL PIPING PLAN
LS-03	CROSS SECTION WETWELL AND VALVE VAULT
LS-04	INDIVIDUAL LIFTSTATION WETWELL LEGEND
LS-05	INDIVIDUAL LIFT STATION NOTES



PLAN SITE LAYOUT-TOP OF WET WELL AND VALVE VAULT

DATE: 8/01/2023	INDIVIDUAL LIFT STATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	SITE PLAN DETAIL	LS-01 INDIVIDUAL LIFT STATION SITE PLAN
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-01 INDIVIDUAL LIFT STATION SITE PLAN.dwg

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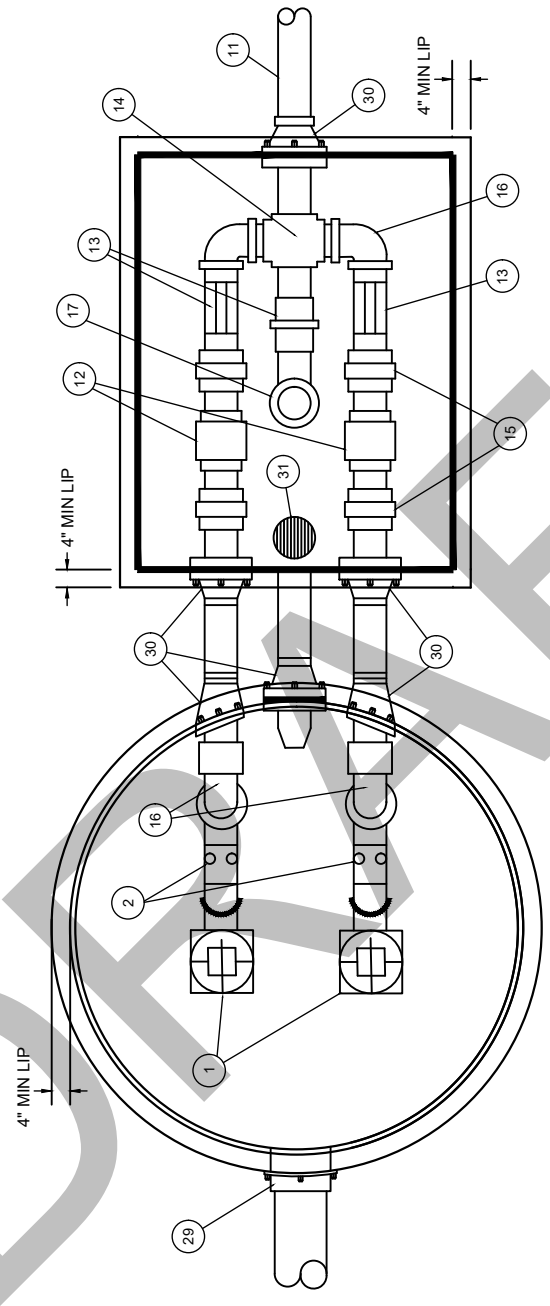

PIPING-WET WELL & VALVE VAULT

DATE: 8/01/2023	FIBERGLASS PACKAGE LS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD	PIPING PLAN DETAIL	LS-02 INDIVIDUAL LIFT STATION PIPING PLAN
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-02 INDIVIDUAL LIFT STATION PIPING PLAN.dwg

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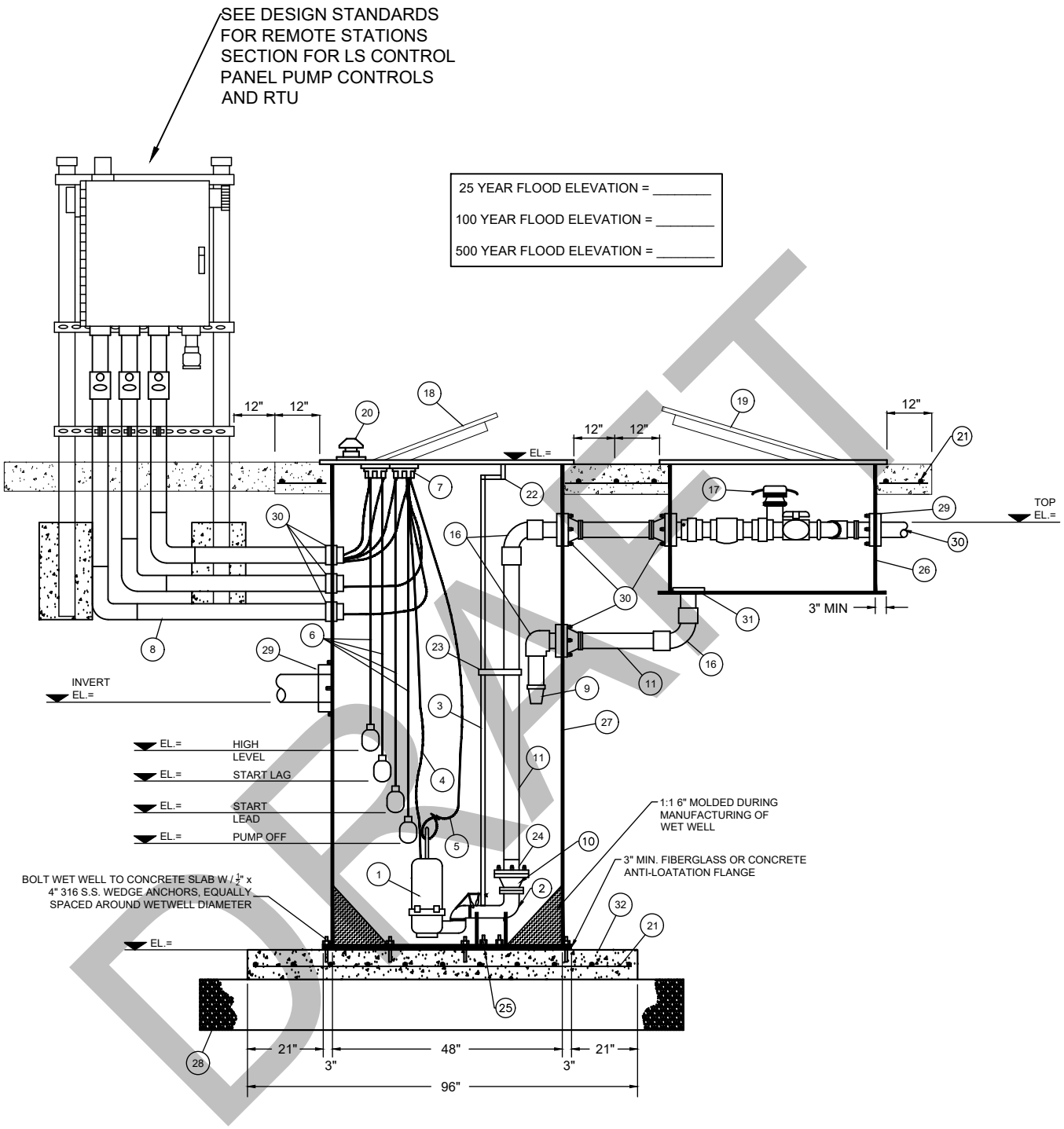

DATE: 8/01/2023	CROSS SECTION WETWELL AND VALVE VAULT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-03 CROSS SECTION WETWELL AND VALVE VAULT
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-03 CROSS SECTION WETWELL AND VALVE VAULT.dwg

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WETWELL VALVE VAULT LEGEND

1. _____" SUBMERSIBLE GRINDER PUMP - MANUFACTURER _____, MODEL NO. _____, IMPELLER NO. _____, _____ VOLTS, ____H.P.,____GPM @____'TDH, 1 PHASE WITH POWER CABLES (2 REQUIRED).
2. _____" STANDARD DISCHARGE CONNECTION (2 REQ'D). ADJUST FOR PUMP TO WETWELL BOTTOM CLEARANCE AS REQUIRED BY PUMP MANUFACTURER WITH 316 STAINLESS STEEL (S.S.) ANCHOR BOLTS.
3. _____" DIAMETER SCH 40 WELDED 304 S.S. PIPE, MUST BE WITHIN 1/4" TOLERANCE OF FITTING INTO GUIDE RAIL BRACKETS AS PER MFG., (4 REQUIRED).
4. PUMP POWER CABLE (FURNISHED BY MANUFACTURER) SHALL BE CONTINUOUS (NO SPLICES) FROM PUMP TO PANEL (2 REQUIRED).
5. PUMP LIFTING CHAIN 3/8" TYPE 316 S.S. SUPPLIED WITH 3/8 CLEVIS TYPE 316 S.S. ON EACH END (2 REQUIRED).
6. ROTO FLOAT TYPE S LIQUID LEVEL SENSOR, EACH SENSOR CABLE SHALL BE A CONTINUOUS (NO SPLICES) AND A MINIMUM OF 40 FEET IN LENGTH (4 REQUIRED).
7. LIQUID LEVEL SENSOR CABLE HOLDER TYPE 304 S.S. WITH PUMP LIFTING CABLE RING. FURNISH WITH NO LESS THAN 6 PRONGS.
8. 2" CONDUIT FOR CABLES (3 REQUIRED). FROM TOP OF SWEEP TO CONTROL PANEL TO BE 316 S.S. & FROM TOP OF SWEEP TO INSIDE OF WETWELL TO BE PVC SCH. 80. CLAMP CONDUIT TO BOTTOM STRUT OF CONTROL PANEL WITH S.S.CONDUIT CLAMPS.
9. DUCKBILL WITH S.S. CLAMP..
10. _____" x _____" MJ REDUCER (IF NEEDED)
11. 2" PVC SCH. 80.
12. 2" SOLVENT WELD SCH. 80 PVC SWING CHECK VALVE.
13. 2" SOLVENT WELD SCH. 80 PVC BALL VALVE.
14. 2" SOLVENT WELD SCH. 80 PVC CROSS
15. 2" SOLVENT WELD SCH. 80 PVC UNION
16. 2" SOLVENT WELD SCH. 80 PVC 90 DEGREE ELBOW.
17. 4" ALUMINUM KAMLOK COUPLER WITH CAP AND CHAIN.
18. HALLIDAY C1R WET WELL ALUMINUM COVER AND ACCESS HATCH WITH LOCKING BAR OR APPROVED EQUAL. ACCESS HATCH SHALL BE HELD OPEN IN VERTICAL POSITION BY MEANS OF A POSITIVE LOCKING ARM. ACTUAL HATCH SIZE TO ACCOMMODATE PUMPS.
19. HALLIDAY S1R VALVE VAULT ALUMINUM COVER AND ACCESS HATCH WITH LOCKING BAR OR APPROVED EQUAL. ACCESS HATCH SHALL BE HELD OPEN IN VERTICAL POSITION BY MEANS OF A POSITIVE LOCKING ARM. ACTUAL HATCH SIZE TO ACCOMMODATE DIRECT VERTICAL ACCESS TO VALVES.
20. STATION VENT - COMPRISED OF 2" ALUMINUM NPT VENT FLANGE WITH 2" 304 S.S. PIPE AND VANDAL PROOF LID.
21. #5 REBAR AT 12" ON CENTER EACH WAY.
22. UPPER GUIDE RAIL BRACKETS (2 REQUIRED) TYPE 304 SS, WITH 316 S.S. HARDWARE. AS PER PUMP MFG.
23. FOR GUIDE RAILS OVER 15 FT INSTALL INTERMEDIATE GUIDE RAIL BRACKETS (2 REQUIRED) TYPE 316 SS, WITH 316 SS MOUNTING HARDWARE.
24. SCH. 80 SOLVENT WELD FLANGE WITH GASKET, 316 S.S. NUTS, BOLTS AND WASHERS.
25. ANCHOR BOLTS TYPE 316 S.S. (PER MANUFACTURERS SPECS.) 4 PER PUMP
26. VALVE VAULT - SHALL BE OF COMMERCIAL GRADE GLASS FIBER REINFORCED POLYESTER PER ASTM D3753 SIZED TO ACCOMODATE VALVE ASSEMBLY.
27. WET WELL - SHALL BE ONE PIECE COMMERCIAL GRADE GLASS FIBER REINFORCED POLYESTER PER ASTM D3753 OR PRECAST CONCRETE AND SHALL BE PROVIDED WITH AN ANTI-FLOATATION RING WITH A MINIMUM DIAMITER OF 3" LARGER THAN THE WET WELL BASIN.
28. PROVIDE 12 INCHES OF COMPACTED CRUSHED STONE OR PEA GRAVEL LEVELING COURSE. COMPACT TO STABILIZE. WETWELL SHALL BE PLACED ON UNDISTURBED SUB BASE OR 100% COMPACTED CLEAN FILL.
29. _____" CAST IRON INLET HUB W/ FLEXIBLE ENTRY BOOT WITH 300 SERIES S.S HARDWARE.
30. _____" RUBBER PIPE GROMMET INLET/OUTLET.
31. PVC DRAIN GRATE WITH GASKET.
32. PRECAST CONCRETE SLAB, A MINIMUM OF 8" X 8" THICK REINFORCED 4000 PSI TYPE II CONCRETE
33. 6" CONCRETE SLAB TO BE FORMED AND POURED IN PLACE AROUND WETWELL TOP AND MMC, SLAB IS TO BE 3000 PSI WITH FIBER MESH AND EVEN WITH WETWELL TOP AND TO HAVE BROOM FINISH.

DATE: 8/01/2023	LS-04 INDIVIDUAL LIFT STATION WETWELL LEGEND	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-04 INDIVIDUAL LIFTSTATION WETWELL LEGEND
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-04 INDIVIDUAL LIFTSTATION WETWELL LEGEND.dwg

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NOTES:

1. ALL NUTS, BOLTS, WASHERS, SET SCREWS AND THEIR FASTENERS INSIDE WET WELL AND VALVE PIT SHALL BE TYPE 316 STAINLESS STEEL.

2. ALL WET WELLS AND VALVE VAULTS SHALL BE EXFILTRATION TESTED FOR A MINIMUM OF 2 HOURS. THE TEST SHALL CONSIST OF PLUGGING ALL INLETS AND OUTLETS, THEN FILLING THE WETWELL OR VALVE VAULT WITH WATER TO THE RIM OF THE STRUCTURE. NO LEAKAGE SHALL BE ALLOWED. FILL STRUCTURE 24 HOURS PRIOR TO THE TIME OF TESTING.

3. IN THE ABSENCE OF A FENCE, ALL HATCHES, PANELS AND ENCLOSURES SHALL BE LOCKED TO PROHIBIT ENTRY OF ANIMALS AND UNAUTHORIZED PERSONS AS REQUIRED BY F.A.C. RULE 62-604.400(2)(D).

4. FINISHED GRADE OF LIFT STATION TOP MUST BE ABOVE 25 YEAR FLOOD ELEVATION AS REQUIRED BY F.A.C. RULE 62-604.400(2)(E).

5. LIFT STATION IS TO HAVE AN ACCESS DRIVE A MINIMUM OF 12' WIDE AND CONTINUOUS FROM ROAD TO WET WELL SLAB. ACCESS DRIVE IS TO BE BUILT PER CHARLOTTE COUNTY PUBLIC WORKS MINIMUM DESIGN STANDARDS FOR DRIVEWAYS.

6. LABELS SHALL BE LAMINATED PLASTIC WITH WHITE 1/4" HIGH ENGRAVED LETTERS.

7. BACKGROUND COLOR OF LABELS SHALL BE AS INDICATED ABOVE.

8. LABELS SHALL BE ATTACHED WITH PERMANENT ADHESIVE.

9. ALL WIRES WITHIN THE CONTROL PANEL SHALL BE STRANDED WIRE AND BE PERMANENTLY NUMBERED

DATE: 8/01/2023	INDIVIDUAL LIFT STATION NOTES	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DC/LD		LS-05 INDIVIDUAL LIFT STATION NOTES
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: LS-05 INDIVIDUAL LIFT STATION NOTES.dwg

CHARLOTTE COUNTY UTILITIES
DESIGN STANDARDS FOR REMOTE STATIONS

LIFT STATION CONTROL PANEL
PUMP CONTROLS AND RTU COMBINATION

LIFT STATION PCP AND RTU COMBO	
Sheet Number	Sheet Title
E1.0	COVER SHEET AND DRAWING INDEX
E1.1	ELECTRICAL SYMBOLS
E1.2	ENCLOSURE DETAILS
E1.3	BACKPANEL DETAIL AND BILL OF MATERIAL
E1.4	COMPONENT REFERENCE TABLE
E1.5	TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL
E1.6	CONTROL POWER WIRING
E1.7	CONTROL AND EMC-SEL DIAGRAM
E1.8	PANEL MOUNTING DETAIL

SHEET INDEX

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
REVISIONS		

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

COVER SHEET AND DRAWING INDEX

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E1.0
DRAWING NO.
0
REVISION

STATUS:

ELECTRICAL SYMBOLS

ISA-5.3 LOOP SYMBOLS

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- AUXILLIARY OPERATOR'S INTERFACE DEVICE
- NOT NORMALLY ACCESSIBLE TO OPERATOR

COMPUTER SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- NOT NORMALLY ACCESSIBLE TO OPERATOR

LOGIC AND SEQUENTIAL CONTROL SYMBOLS

- GENERAL LOGIC
- DISTRIBUTED INTERCONNECTING CONTROLLER, NOT NORMALLY ACCESSIBLE TO OPERATOR
- DISTRIBUTED INTERCONNECTING CONTROLLER, NORMALLY ACCESSIBLE TO OPERATOR
- COMPUTATION/SIGNAL CONDITIONING
- SYSTEM/SOFTWARE/NETWORK LINK

DEVICE SYMBOLS

- RELAY COIL
- CONTACT, N.O.
- CONTACT, N.C.
- TIMER RELAY COIL
- TIME-ON DELAY, N.O. CONTACT
- TIME-ON DELAY, N.C. CONTACT
- TIME-OFF DELAY, N.O. CONTACT
- TIME-OFF DELAY, N.C. CONTACT
- PUSH BUTTON, N.O. CONTACT
- PUSH BUTTON, N.C. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.O. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.C. CONTACT
- SELECTOR SWITCH, N.O. CONTACT
- SELECTOR SWITCH, N.C. CONTACT
- LIMIT SWITCH, N.O. CONTACT
- LIMIT SWITCH, N.C. CONTACT
- PRESSURE SWITCH, N.O. CONTACT
- PRESSURE SWITCH, N.C. CONTACT

DEVICE SYMBOLS

- TEMPERATURE SWITCH, N.O. CONTACT
- TEMPERATURE SWITCH, N.C. CONTACT
- FLOW SWITCH, N.O. CONTACT
- FLOW SWITCH, N.C. CONTACT
- FLOAT SWITCH, N.O. CONTACT
- FLOAT SWITCH, N.C. CONTACT
- FOOT SWITCH, N.O. CONTACT
- FOOT SWITCH, N.C. CONTACT
- TOGGLE SWITCH, N.O. CONTACT
- TOGGLE SWITCH, N.C. CONTACT
- THERMAL OVERLOAD
- SOLENOID
- HORN
- PILOT LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE
- PILOT LIGHT, PUSH TO TEST
- FUSE
- CIRCUIT BREAKER
- GROUND

DEVICE SYMBOLS

- CONTROL POWER TRANSFORMER
- CURRENT TRANSFORMER
- POTENTIOMETER
- RESISTOR
- CAPACITOR, ELECTROLYTIC
- DIODE
- ZENER DIODE
- BATTERY
- TERMINAL BLOCK, "PTB 120VAC"
- TERMINAL BLOCK, "DIGITAL INPUT"
- TERMINAL BLOCK, "DRY CONTACT"
- TERMINAL BLOCK, "ANALOG SIGNAL"
- TERMINAL BLOCK, OTHER (SPECIFY)
- ELAPSED TIME METER

WIRE SYMBOLS

- CONDUCTORS, WITH JUNCTION
- CONDUCTORS, NOT CONNECTED
- SHIELDED CABLE
- TWISTED-PAIR CABLE
- FIELD WIRING

ABBREVIATIONS

AIT	ANALYSIS INDICATING TRANSMITTER
AFD	ADJUST FREQUENCY DRIVE
BC	BYPASS CONTACTOR
BFI	BLOWN FUSE INDICATOR
C	CONTACTOR
CB	CIRCUIT BREAKER
CPT	CONTROL POWER TRANSMFORMER
CR	CONTROL RELAY
CRI	CONTROL RELAY, INTRINSIC
CRL	CONTROL RELAY, LATCH
DFR	DRIVE FAIL RELAY
DI	DIGITAL INDICATOR
DUP	DUPLEXOR
DRR	DRIVE RUN RELAY
DSC	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOAT SWITCH
FSR	FLOAT SWITCH RELAY
FU	FUSE
GRD	GROUND
HS	HAND SWITCH
IC	ISOLATION CONTACTOR
ISO	SIGNAL ISOLATOR/BOOSTER
LT	PILOT LIGHT
LIT	LEVEL INDICATING TRANSMITTER
LS	LIMIT SWITCH
M	MOTOR STARTER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MSP	MAIN SURGE PROTECTOR
OL	OVERLOAD
PB	PUSH BUTTON
PDB	POWER DISTRIBUTION BLOCK
PIT	PRESSURE INDICATING TRANSMITTER
RIO	REMOTE I/O PANEL
POT	POTENTIOMETER
PM	PHASE MONITOR
PS	POWER SUPPLY
RCR	RUN COMMAND RELAY
RES	RESISTOR
S	SWITCH
SP	SURGE PROTECTOR
SS	SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TB	TERMINAL BOARD, TERMINAL BLOCK
TC	TIME CLOCK
TR	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
ZS	LIMIT SWITCH

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

ELECTRICAL SYMBOLS

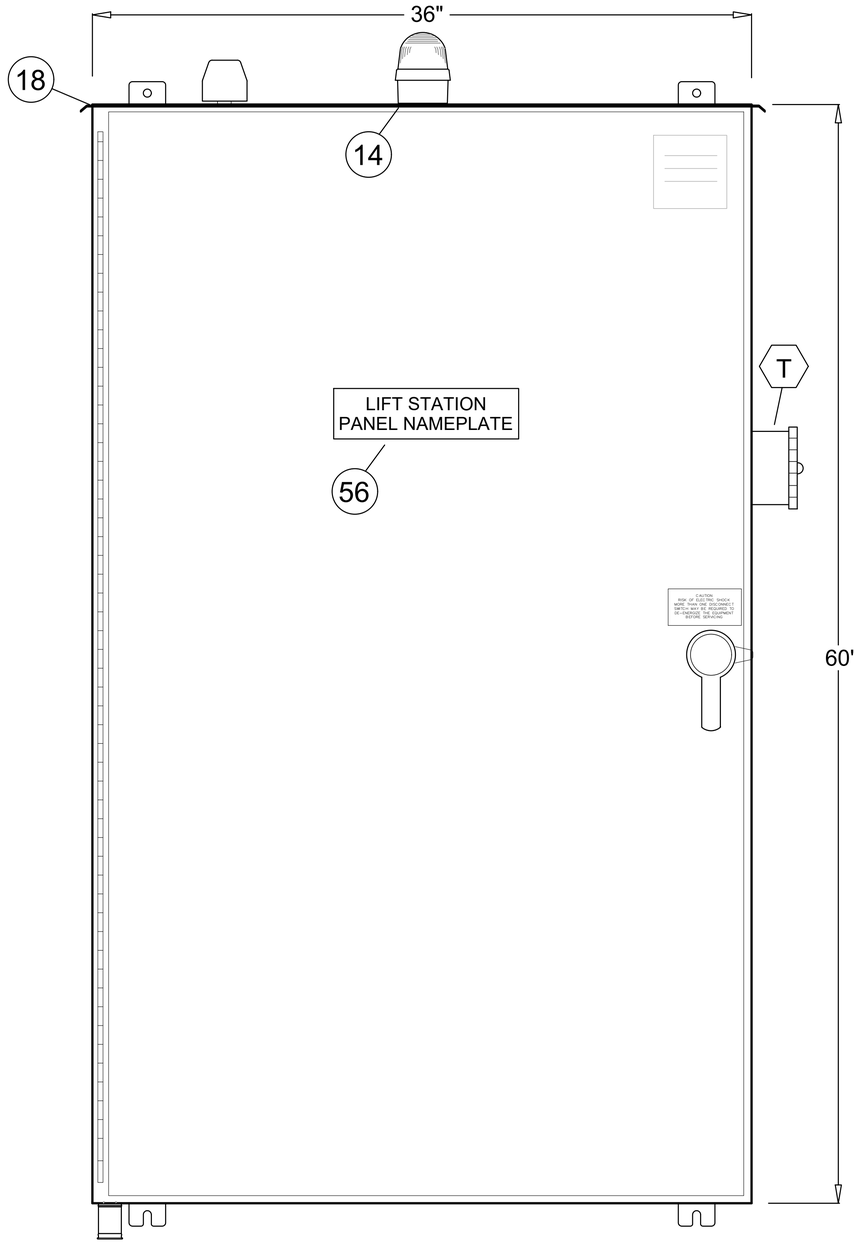
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

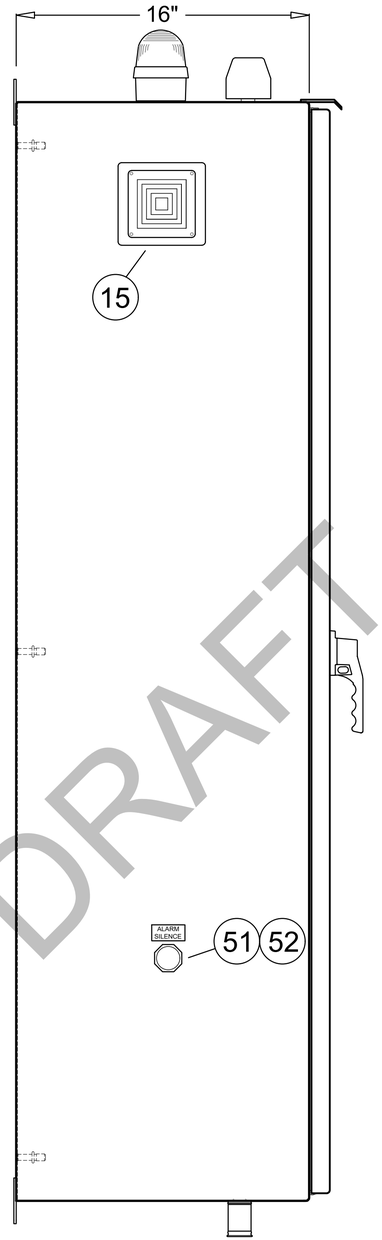
DRAWING NO. E1.1

REVISION 0

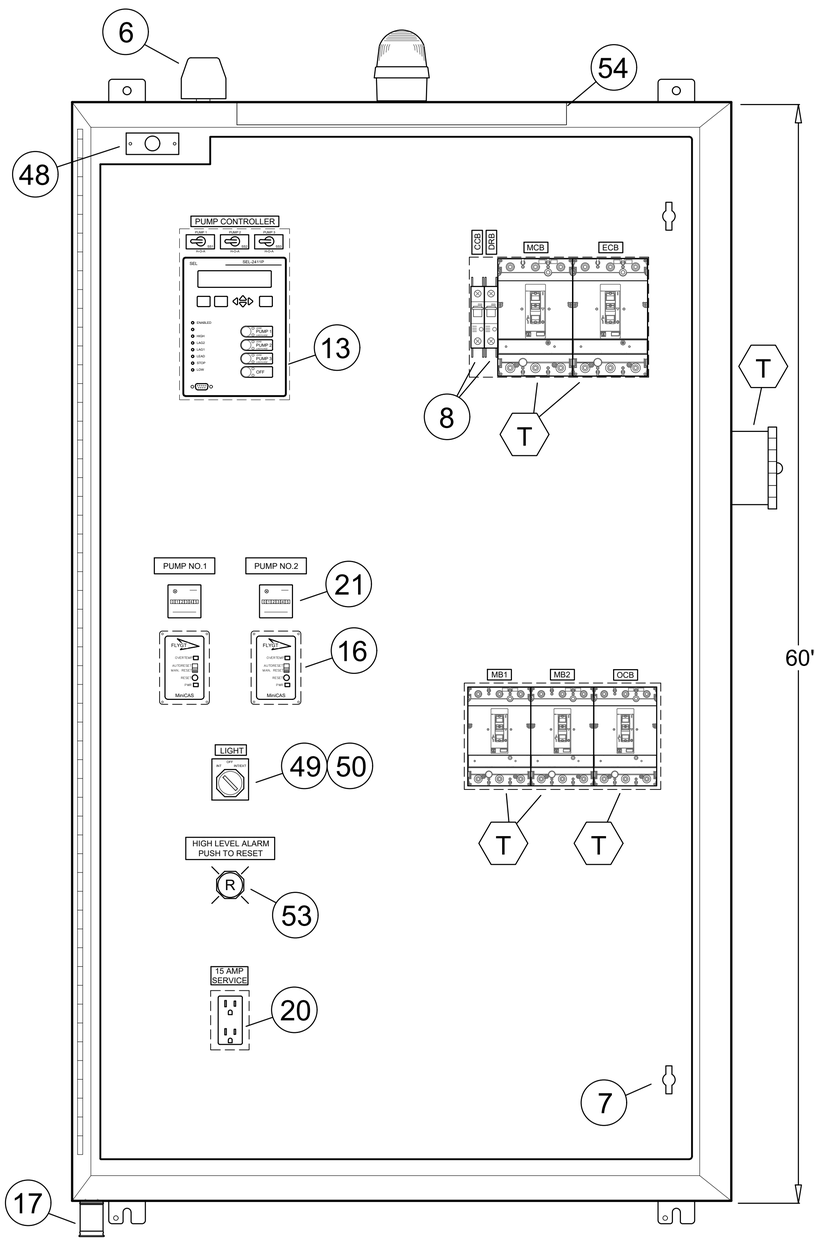
STATUS:



FRONT ENCLOSURE VIEW



LEFT SIDE VIEW



INNER DOOR VIEW

NOTES: ITEM NUMBERS REFER TO BILL OF MATERIALS SHOWN ON SHEET E1.3.
ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E1.4

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

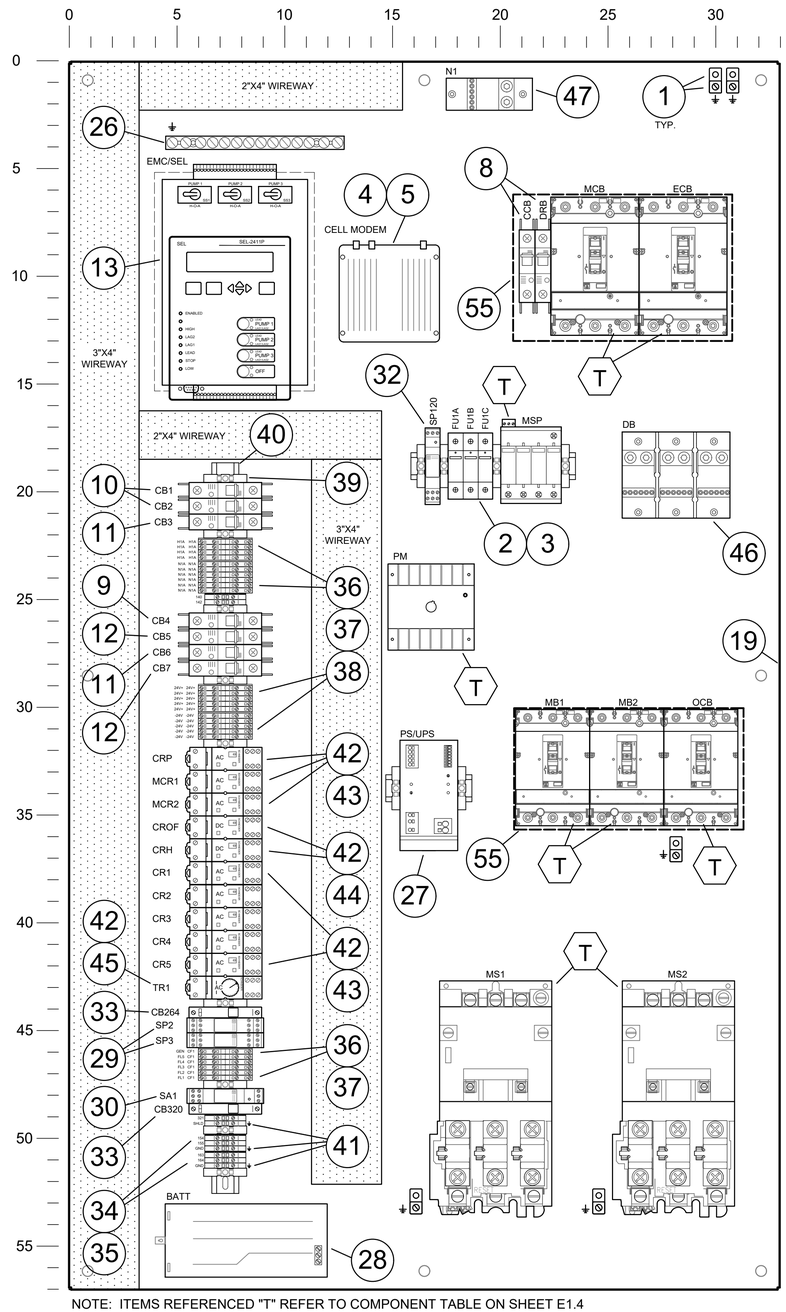
ENCLOSURE DETAILS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E1.2
DRAWING NO.
0
REVISION

STATUS:



NOTE: ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E1.4

BACKPANEL VIEW

ID	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	5	BURNDY	KA2U	GROUND LUG, #2-14
2	3	BUSSMANN	FNQ-R-1	CLASS CC FUSE, 1 AMP, TIME DELAY
3	1	BUSSMANN	CHCC3DIU	CLASS CC FINGERSAFE FUSE HOLDER WITH INDICATOR
4	1	CRADLEPOINT	MA3-0900120B-NNA (TBD)	IBR900 CELLULAR MODEM, RUGGEDIZED WITH IOT ESSENTIALS
5	1	CRADLEPOINT	170656-002	RADIO DIN RAIL BRACKET
6	1	CRADLEPOINT	M530B15-2C1G-CP-IBR900	3-LEAD MIMO M2M IOT ANTENNA
7	1	CUSTOM	PANEL SHOP	12GA. STEEL INNER DOOR DEADFRONT, BLACK POLYESTER POWDERCOATED
8	2	EATON	FAZ-C15/1-NA	CIRCUIT BREAKER, 15 AMP
9	1	EATON	FAZ-C10/1-NA	CIRCUIT BREAKER, 10 AMP
10	2	EATON	FAZ-C1/1-NA	CIRCUIT BREAKER, 1 AMP
11	2	EATON	FAZ-C5/1-NA	CIRCUIT BREAKER, 5 AMP
12	2	EATON	FAZ-C3/1-NA	CIRCUIT BREAKER, 3 AMP
13	1	EMC	SEL-70C1	SEL-2411P CONTROLLER WITH HOUSING KIT AND WIRING HARNESS
14	1	FEDERAL SIGNAL	LP3T-120R	120VAC RED ALARM STROBE
15	1	FEDERAL SIGNAL	350TR-120VAC	NEMA 4X ALARM HORN WITH GASKET
16	2	FLYGT	14-407129	MINICAS FLANGE DOOR MOUNTABLE PUMP MONITOR RELAY, 120V
17	1	HOFFMAN	AVDR4SS4	H20MIT VENT DRAIN, 4X, 304 STAINLESS STEEL
18	1	HOFFMAN	A60H3616SS6LP3PT-CUSTOM	60"H X 36"W X 16"D TYPE 4X SS 316 ENCLOSURE WITH DRIPSHIELD
19	1	HOFFMAN	A60P36	BACKPANEL FOR 60"X36" ENCLOSURE
20	1	HUBBELL	GFRST15SNAPW	GFCI RECEPTACLE, 15A, 120V
21	2	INTERMATIC	UWZ48E-120U	120VAC ELAPSED TIME METER
22	1	PANDUIT	F2X4LG6	SLOTTED WIREWAY, GRAY, 2"X4", 6' STICK
23	1	PANDUIT	C2LG6	2" WIREWAY COVER, GRAY, 6' STICK
24	1	PANDUIT	F3X4LG6	SLOTTED WIREWAY, GRAY, 3"X4", 6' STICK
25	1	PANDUIT	C3LG6	3" WIREWAY COVER, GRAY, 6' STICK
26	1	PANDUIT	UGB2-0-414-12	GROUND BAR, #14-4AWG
27	1	PHOENIX CONTACT	2907161	24VDC UPS AND POWER SUPPLY MODULE, 10 AMP
28	1	PHOENIX CONTACT	1274117	24VDC BACKUP BATTERY, 4 Ah
29	2	PHOENIX CONTACT	2800982	PLUG TRAB SURGE PROTECTOR WITH BASE, 24VDC, 4-POINT
30	1	PHOENIX CONTACT	2800976	ANALOG SIGNAL SURGE PROTECTOR WITH BASE
32	1	PHOENIX CONTACT	2907918	120VAC SURGE PROTECTOR WITH STATUS, PLUG AND BASE
33	1	PHOENIX CONTACT	0916603	THERMOMAGNETIC DEVICE CIRCUIT BREAKER, 1/2A
34	10	PHOENIX CONTACT	3044102	STANDARD TERMINAL BLOCK, 30A
35	4	PHOENIX CONTACT	3047028	STANDARD TERMINAL BLOCK END BARRIER
36	30	PHOENIX CONTACT	3044814	2-TIER ISOLATED TERMINAL BLOCK
37	6	PHOENIX CONTACT	3047293	2-TIER TERMINAL BLOCK END COVER
38	8	PHOENIX CONTACT	3030271	2-TIER TERMINAL BLOCK JUMPER BRIDGE
39	16	PHOENIX CONTACT	0800886	DIN RAIL END BRACKET
40	1	PHOENIX CONTACT	0801733	STANDARD DIN RAIL, 2M
41	5	PHOENIX CONTACT	30-44-12-8	GROUNDING TERMINAL BLOCK
42	11	SCHNEIDER	70-782EL8-1	RELAY BASE, 8-PIN
43	8	SCHNEIDER	792XBXM4L-120A	DPDT RELAY, 120VAC, WITH INDICATOR AND TEST LATCH
44	2	SCHNEIDER	792XBXM4L-24D	DPDT RELAY, 24VDC, WITH INDICATOR AND TEST LATCH
45	1	SCHNEIDER	TDR782XBXA-110A	DPDT ON-DELAY TIMER, 120VAC
46	1	SQUARE D	9080LBC363206	3-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
47	1	SQUARE D	9080LBC163206	1-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
48	1	SQUARE D	9007MS02S0200	INTRUSION SWITCH WITH CUSTOM MOUNTING BRACKET
49	1	SQUARE D	9001SKS43B	3-POSITION SELECTOR SWITCH WITH 3 CONTACTS
50	2	SQUARE D	9001KA1	CONTACT BLOCK, 1NO-1NC
51	1	SQUARE D	9001SKR1U	MOMENTARY PUSH-BUTTON
52	2	SQUARE D	9001KA2	CONTACT BLOCK, 1NO
53	1	SQUARE D	9001K1L1RH13	ILLUMINATED PUSHBUTTON, RED, 120V, 1NO-1NC
54	1	UTILTECH	0877623	UNDERCABINT LIGHT, 120VAC, WITH 18' LED BULB
55	2	CUSTOM	PANEL SHOP	CUSTOM ELEVATED CIRCUIT BREAKER SHELF
56	-	CUSTOM	PANEL SHOP	ENGRAVED PHENOLIC NAMEPLATES, WHITE TEXT WITH BLACK BACKGROUND

BILL OF MATERIALS

NOTES:

1. BILL OF MATERIALS IS PROVIDED FOR EXAMPLE ONLY. PANEL COMPONENTS WILL VARY WITH EACH SPECIFIC LIFT STATION. CONTROL PANEL MANUFACTURER TO PROVIDE A COMPLETE LIST OF CONTROL PANEL MATERIALS FOR COUNTY APPROVAL BEFORE FABRICATION.

2. CONTROL PANEL TO BE UL508A LISTED TYPE 4X.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
	REVISIONS	

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

BACKPANEL DETAIL AND BILL OF MATERIAL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E1.3
DRAWING NO.
0
REVISION

STATUS:

COMPONENT REFERENCE TABLE

SERVICE VOLTAGE	MCB/SERVICE	MAIN BREAKER PART#	GENERATOR RECEPTACLE	RECEPTACLE PART#	MAIN SURGE PROTECTOR	PHASE MONITOR	ODOR CONTROL BREAKER PART#	TOTAL PANEL FLA	PUMP HP	PHASE	PUMP FLA (PER NEC)	MOTOR BREAKER AMPS	MOTOR BREAKER PART#	WIRE SIZE	STARTER SIZE	STARTER PART#	OVERLOAD PART#
208/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	48.375	3	3	10.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	65.625	5	3	17.5	35	SQD-HDL36035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	82.375	7.5	3	24.2	50	SQD-HDL36050	10	1	SQD-8536-SOC3V02	SQD-B36.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	98.875	10	3	30.8	60	SQD-HDL36060	8	2	SQD-8536-SOD3V02	SQD-B45.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	137.375	15	3	46.2	90	SQD-HDL36090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 1PH, 3W	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	55.00	1	1	8	15	SQD-HDL26015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	65.00	2	1	12	25	SQD-HDL26025	12	1	SQD-8536-SOC3V02	SQD-B17.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	77.50	3	1	17	35	SQD-HDL26035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	105.00	5	1	28	60	SQD-HDL26060	10	1	SQD-8536-SOC3V02	SQD-B40.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	135.00	7.5	1	40	80	SQD-HDL26080	8	1	SQD-8536-SOC3V02	SQD-C51.0
	200	SQD-JDL26200	200	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	160.00	10	1	50	90	SQD-HDL26090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	36.00	2	3	6.8	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B10.2
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	43.00	3	3	9.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	57.00	5	3	15.2	30	SQD-HDL36030	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	74.00	7.5	3	22	45	SQD-HDL36045	10	1	SQD-8536-SOC3V02	SQD-B32.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	89.00	10	3	28	60	SQD-HDL36060	10	2	SQD-8536-SOD3V02	SQD-B40.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	124.00	15	3	42	80	SQD-HDL36080	6	2	SQD-8536-SOD3V02	SQD-B15.5
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	154.00	20	3	54	90	SQD-HDL36090	4	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	189.00	25	3	68	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	219.00	30	3	80	110	SQD-HDL36110	2	-	AB-150-C85NBD	-
480/277VAC, 3PH, 4W (NEUTRAL NOT USED)	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	28.50	5	3	7.6	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	44.50	10	3	14	25	SQD-HDL36025	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	62.00	15	3	21	40	SQD-HDL36040	10	2	SQD-8536-SOD3V02	SQD-B32.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	77.00	20	3	27	60	SQD-HDL36060	10	-	AB-150-C30NBD	-
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	94.50	25	3	34	70	SQD-HDL36070	8	-	AB-150-C37NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	109.50	30	3	40	80	SQD-HDL36080	8	-	AB-150-C43NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	139.50	40	3	52	90	SQD-HDL36090	6	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	172.00	50	3	65	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	202.00	60	3	77	110	SQD-HDL36110	2	-	AB-150-C85NBD	-

NOTES:
SQD - SQUARE D
ATC - ATC/DIVERSIFIED ELECTRONICS
RS - RUSSELLSTOLL
AB- ALLEN BRADLEY
PC - PHOENIX CONTACT

NOTES:

1. COMPONENT REFERENCE TABLE IS PROVIDED FOR REFERENCE ONLY. ALL PANEL POWER COMPONENTS AND MOTOR CONTROL COMPONENTS TO BE DETERMINED BY PANEL MANUFACTURER BASED ON SITE SPECIFIC REQUIREMENTS.

2. ALL MATERIAL SELECTED SHALL MEET UL508A AND NEC REQUIREMENTS. SITE SPECIFIC MATERIAL LIST TO BE PROVIDED TO COUNTY FOR APPROVAL.

3. GENERATOR RECEPTACLE AND ODOR CONTROL COMPONENTS PROVIDED BASED ON SITE SPECIFIC REQUIREMENTS.

4. 480VAC PANELS TO BE PROVIDED WITH 480V/120V CONTROL PANEL TRANSFORMER (NOT SHOWN).

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
	REVISIONS	

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

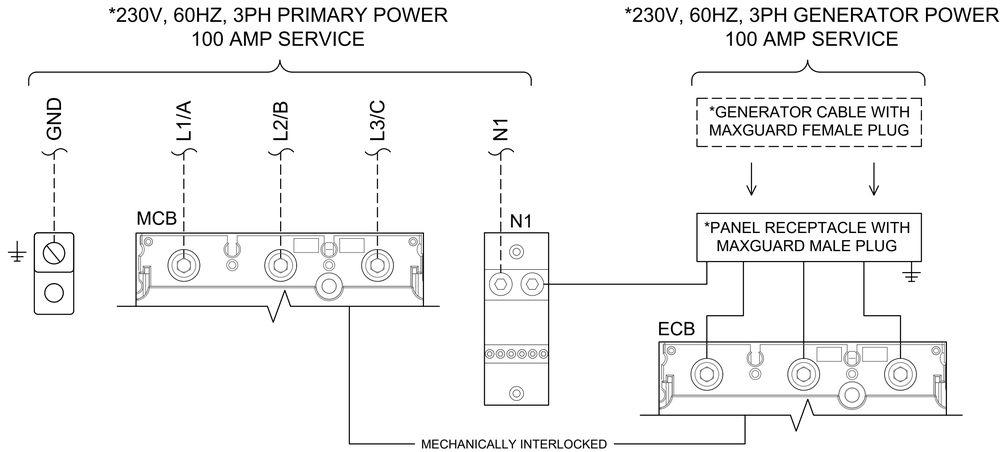
COMPONENT REFERENCE TABLE

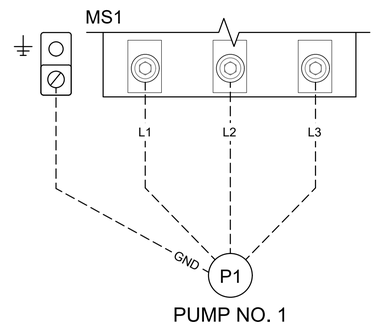
DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

SCALE
HORIZONTAL:
VERTICAL:

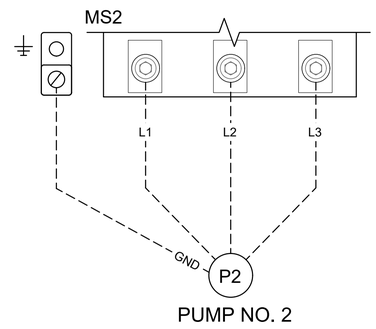
E1.4
DRAWING NO.
0
REVISION

STATUS:





PUMP NO. 1



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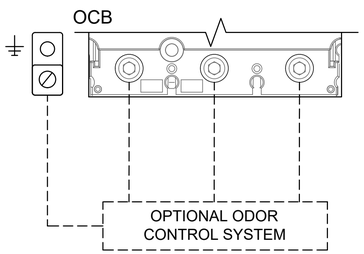
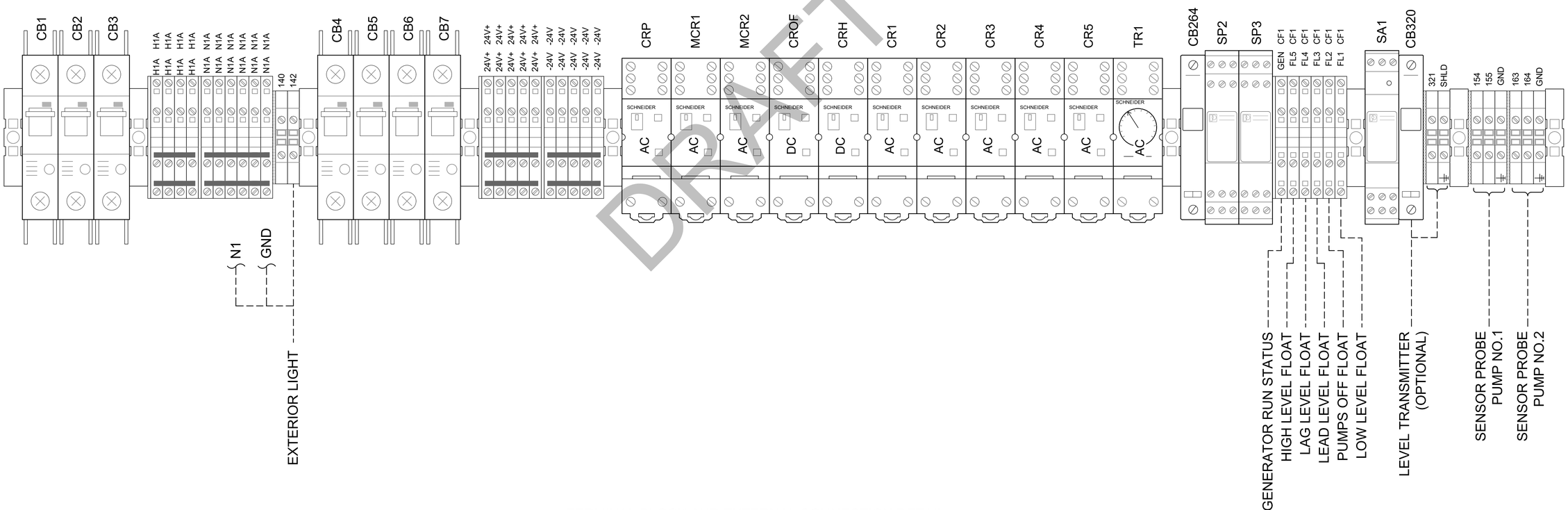




TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

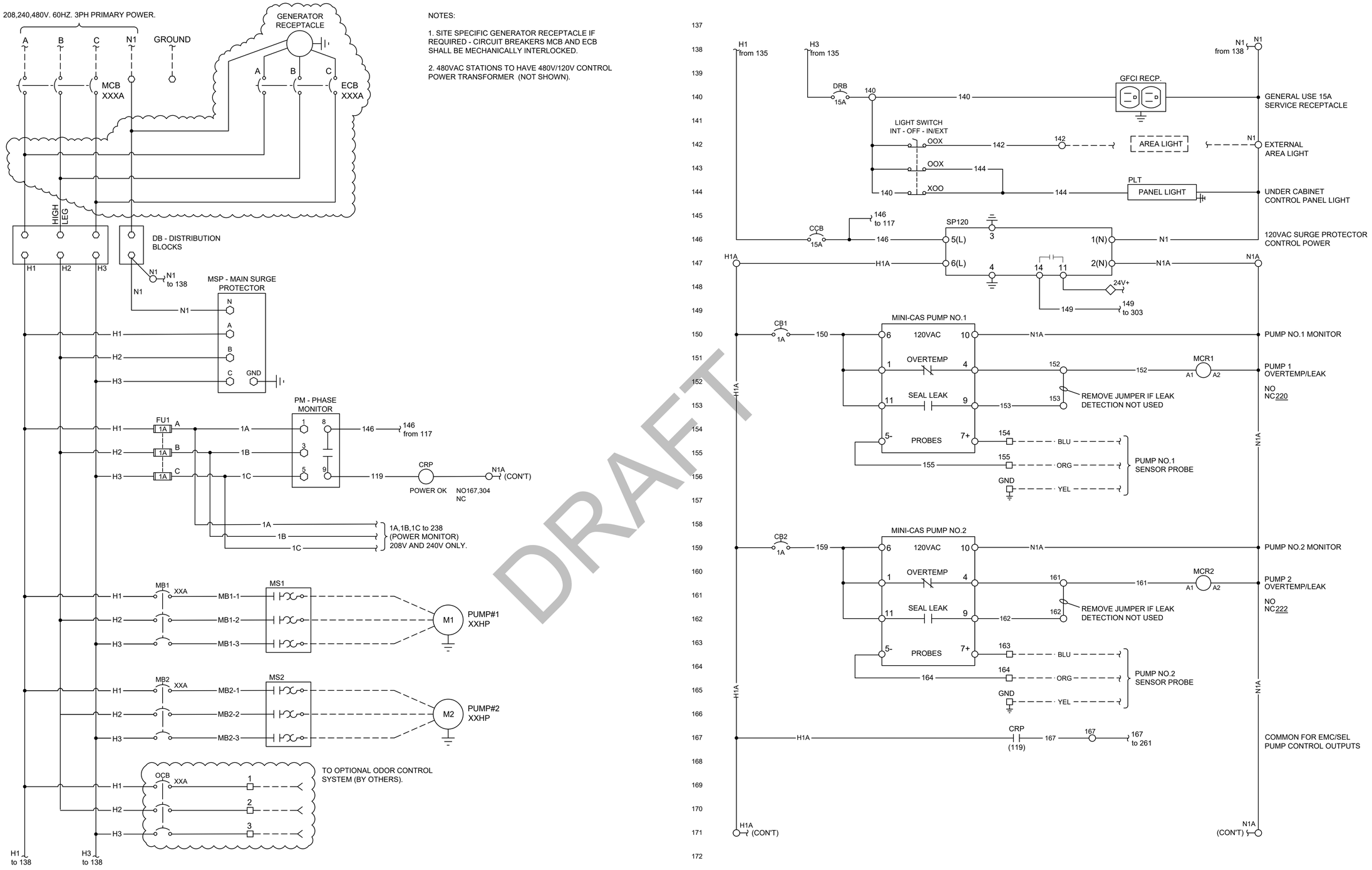
TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E1.5
DRAWING NO.
0
REVISION

STATUS:



NOTES:

1. SITE SPECIFIC GENERATOR RECEPTACLE IF REQUIRED - CIRCUIT BREAKERS MCB AND ECB SHALL BE MECHANICALLY INTERLOCKED.

2. 480VAC STATIONS TO HAVE 480V/120V CONTROL POWER TRANSFORMER (NOT SHOWN).

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

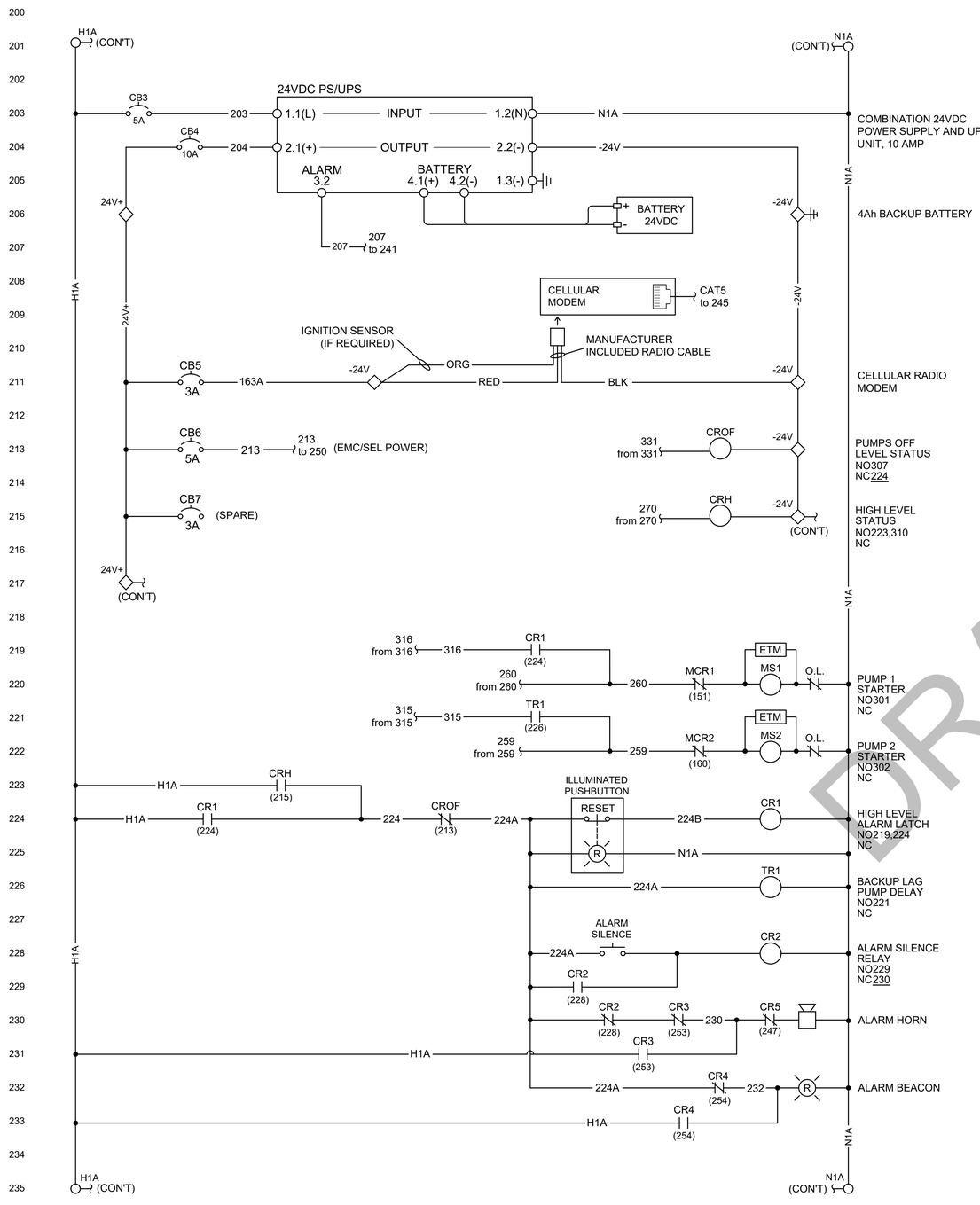
CONTROL POWER WIRING

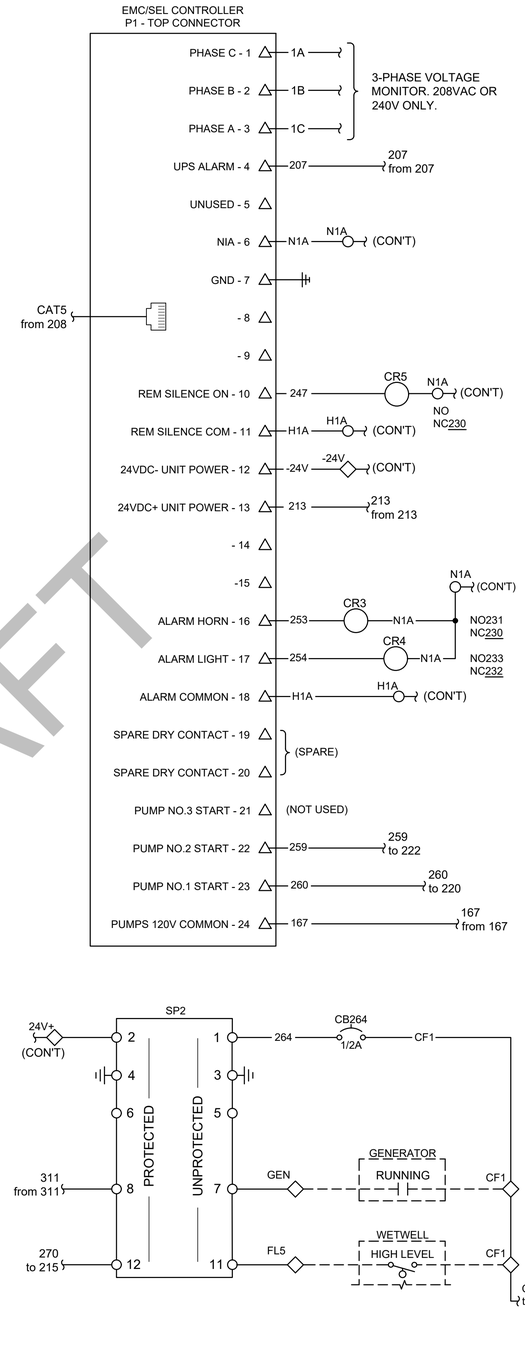
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

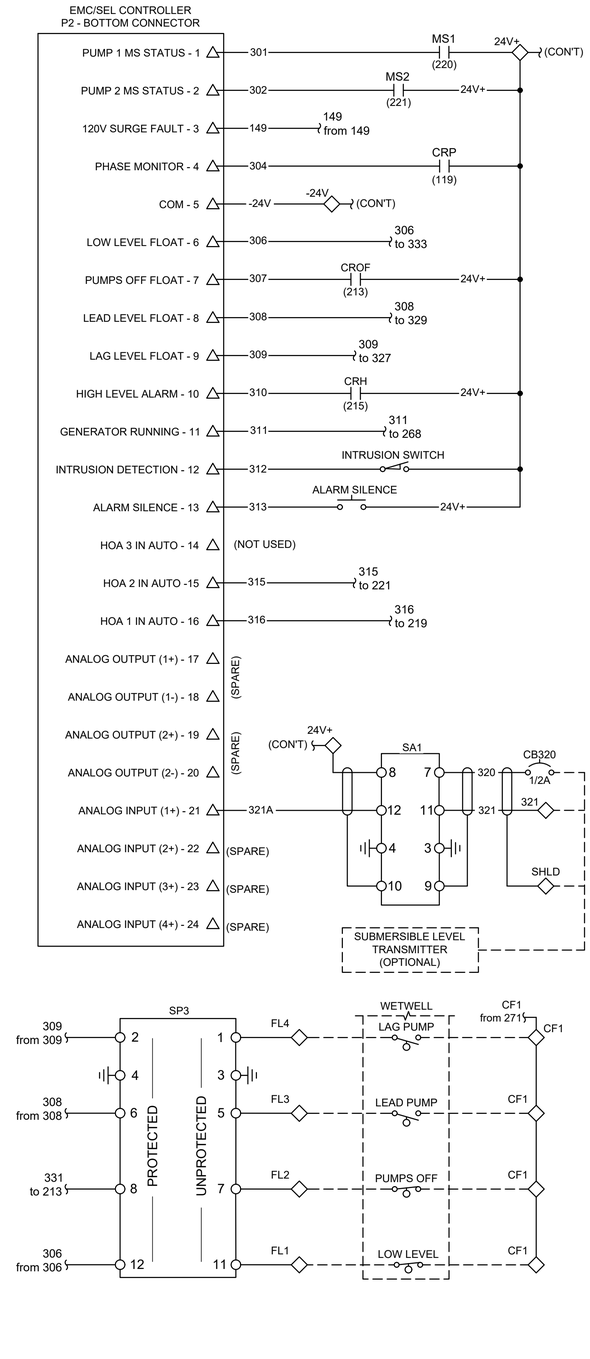
SCALE
HORIZONTAL:
VERTICAL:

E1.6
DRAWING NO.
0
REVISION

STATUS:







REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

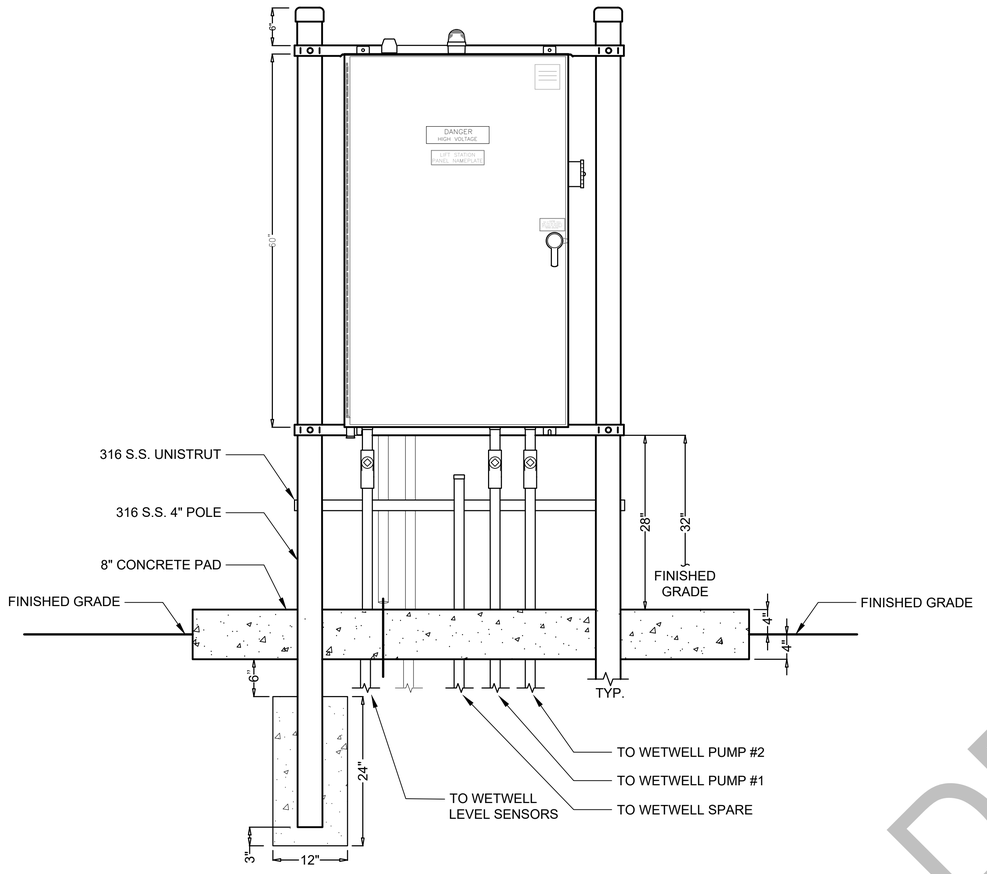
CONTROL AND EMC-SEL DIAGRAM

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

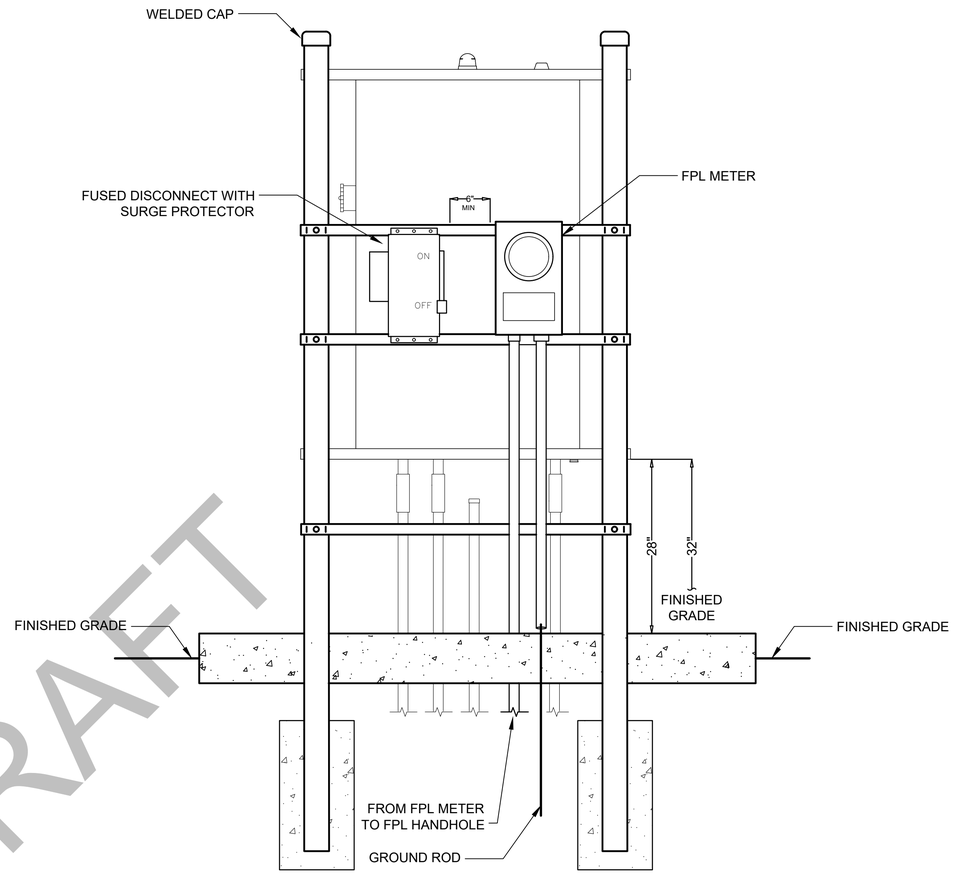
SCALE
HORIZONTAL:
VERTICAL:

E1.7
DRAWING NO.
0
REVISION

STATUS:



FRONT MOUNTING VIEW



REAR MOUNTING VIEW

DETAIL NOTES:

1. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES OR QUANTITIES. CONTRACTOR SHALL REFERENCE ALL PROJECT SPECIFIC ENGINEERING DRAWINGS FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS AND COORDINATE WITH CCU.
2. ALL EXPOSED CONDUIT SHALL BE RIGID TYPE 316 STAINLESS STEEL CONDUIT. UNDERGROUND CONDUIT TO THE WETWELL SHALL BE SCHEDULE 80 PVC.
3. GROUND CONDUIT SHALL BE 1/2" SCHEDULE 80 PVC. GROUND WIRE TO BE SIZE NUMBER 6.
4. THE PUMP CONTROL PANEL/RTU PANEL SHALL HAVE A PAD LOCKABLE HANDLE, 3-POINT LATCH.
5. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH DIE-CAST STAINLESS STEEL CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES AND SIDE ENTRIES ARE NOT ACCEPTABLE.
6. WETWELL CONDUITS SHALL HAVE "EYS" EXPLOSION PROOF CLASS 1 SEAL-OFF. ALL NON-WETWELL CONDUIT ENTRIES SHALL HAVE MOISTURE SEALANT APPLIED AFTER ACCEPTED START-UP AND COMMISSIONING WITH APPROVED DUCT SEAL.
7. ALL CONDUIT SUPPORTS, CLAMPS, HANGERS, FASTENERS, BOLTS, NUTS, SCREWS, WASHERS,AND STRUT-CHANNEL SHALL BE STAINLESS-STEEL.
8. STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
9. ENGRAVED WARNING LABEL STATING " DANDER HIGH VOLTAGE" SHALL BE AFFIXED TO THE OUTSIDE OF THE ENCLOSURE DOOR AND BE SECURED USING ADHESIVE OR CEMENT.
10. IF REQUIRED, ONE (1) INCH PVC AND/OR TYPE 316 STAINLESS STEEL CONDUIT BETWEEN THE PUMP CONTROL PANEL/RTU AND THE AREA LIGHT, THE STANDBY GENERATOR, AND/OR THE ODOR CONTROL SYSTEM IN ACCORDANCE WITH THE PROJECT SPECIFIC ENGINEERING DRAWINGS. (NOT SHOWN)

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP AND RTU COMBO

PANEL MOUNTING DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E1.8
DRAWING NO.
0
REVISION

STATUS:

CHARLOTTE COUNTY UTILITIES
DESIGN STANDARDS FOR REMOTE STATIONS

LIFT STATION PUMP CONTROL PANEL (WITHOUT RTU)

LIFT STATION PCP PANEL	
Sheet Number	Sheet Title
E3.0	COVER SHEET AND DRAWING INDEX
E3.1	ELECTRICAL SYMBOLS
E3.2	PCP ENCLOSURE DETAILS
E3.3	BACKPANEL DETAILS AND BILL OF MATERIAL
E3.4	COMPONENT REFERENCE TABLE
E3.5	TERMINAL BLOCK AND EXTERNAL CONNECTION PANEL
E3.6	CONTROL POWER WIRING 1
E3.7	CONTROL POWER WIRING 2
E3.8	PANEL MOUNTING DETAIL

SHEET INDEX

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

COVER SHEET AND DRAWING INDEX

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E3.0
DRAWING NO.
0
REVISION

STATUS:

ELECTRICAL SYMBOLS

ISA-5.3 LOOP SYMBOLS

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- AUXILLIARY OPERATOR'S INTERFACE DEVICE
- NOT NORMALLY ACCESSIBLE TO OPERATOR

COMPUTER SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- NOT NORMALLY ACCESSIBLE TO OPERATOR

LOGIC AND SEQUENTIAL CONTROL SYMBOLS

- GENERAL LOGIC
- DISTRIBUTED INTERCONNECTING CONTROLLER, NOT NORMALLY ACCESSIBLE TO OPERATOR
- DISTRIBUTED INTERCONNECTING CONTROLLER, NORMALLY ACCESSIBLE TO OPERATOR
- COMPUTATION/SIGNAL CONDITIONING
- SYSTEM/SOFTWARE/NETWORK LINK

DEVICE SYMBOLS

- RELAY COIL
- CONTACT, N.O.
- CONTACT, N.C.
- TIMER RELAY COIL
- TIME-ON DELAY, N.O. CONTACT
- TIME-ON DELAY, N.C. CONTACT
- TIME-OFF DELAY, N.O. CONTACT
- TIME-OFF DELAY, N.C. CONTACT
- PUSH BUTTON, N.O. CONTACT
- PUSH BUTTON, N.C. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.O. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.C. CONTACT
- SELECTOR SWITCH, N.O. CONTACT
- SELECTOR SWITCH, N.C. CONTACT
- LIMIT SWITCH, N.O. CONTACT
- LIMIT SWITCH, N.C. CONTACT
- PRESSURE SWITCH, N.O. CONTACT
- PRESSURE SWITCH, N.C. CONTACT

DEVICE SYMBOLS

- TEMPERATURE SWITCH, N.O. CONTACT
- TEMPERATURE SWITCH, N.C. CONTACT
- FLOW SWITCH, N.O. CONTACT
- FLOW SWITCH, N.C. CONTACT
- FLOAT SWITCH, N.O. CONTACT
- FLOAT SWITCH, N.C. CONTACT
- FOOT SWITCH, N.O. CONTACT
- FOOT SWITCH, N.C. CONTACT
- TOGGLE SWITCH, N.O. CONTACT
- TOGGLE SWITCH, N.C. CONTACT
- THERMAL OVERLOAD
- SOLENOID
- HORN
- PILOT LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE
- PILOT LIGHT, PUSH TO TEST
- FUSE
- CIRCUIT BREAKER
- GROUND

DEVICE SYMBOLS

- CONTROL POWER TRANSFORMER
- CURRENT TRANSFORMER
- POTENTIOMETER
- RESISTOR
- CAPACITOR, ELECTROLYTIC
- DIODE
- ZENER DIODE
- BATTERY
- TERMINAL BLOCK, "PTB 120VAC"
- TERMINAL BLOCK, "DIGITAL INPUT"
- TERMINAL BLOCK, "DRY CONTACT"
- TERMINAL BLOCK, "ANALOG SIGNAL"
- TERMINAL BLOCK, OTHER (SPECIFY)
- ELAPSED TIME METER

WIRE SYMBOLS

- CONDUCTORS, WITH JUNCTION
- CONDUCTORS, NOT CONNECTED
- SHIELDED CABLE
- TWISTED-PAIR CABLE
- FIELD WIRING

ABBREVIATIONS

AIT	ANALYSIS INDICATING TRANSMITTER
AFD	ADJUST FREQUENCY DRIVE
BC	BYPASS CONTACTOR
BFI	BLOWN FUSE INDICATOR
C	CONTACTOR
CB	CIRCUIT BREAKER
CPT	CONTROL POWER TRANSMFORMER
CR	CONTROL RELAY
CRI	CONTROL RELAY, INTRINSIC
CRL	CONTROL RELAY, LATCH
DFR	DRIVE FAIL RELAY
DI	DIGITAL INDICATOR
DUP	DUPLEXOR
DRR	DRIVE RUN RELAY
DSC	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOAT SWITCH
FSR	FLOAT SWITCH RELAY
FU	FUSE
GRD	GROUND
HS	HAND SWITCH
IC	ISOLATION CONTACTOR
ISO	SIGNAL ISOLATOR/BOOSTER
LT	PILOT LIGHT
LIT	LEVEL INDICATING TRANSMITTER
LS	LIMIT SWITCH
M	MOTOR STARTER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MSP	MAIN SURGE PROTECTOR
OL	OVERLOAD
PB	PUSH BUTTON
PDB	POWER DISTRIBUTION BLOCK
PIT	PRESSURE INDICATING TRANSMITTER
RIO	REMOTE I/O PANEL
POT	POTENTIOMETER
PM	PHASE MONITOR
PS	POWER SUPPLY
RCR	RUN COMMAND RELAY
RES	RESISTOR
S	SWITCH
SP	SURGE PROTECTOR
SS	SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TB	TERMINAL BOARD, TERMINAL BLOCK
TC	TIME CLOCK
TR	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
ZS	LIMIT SWITCH

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

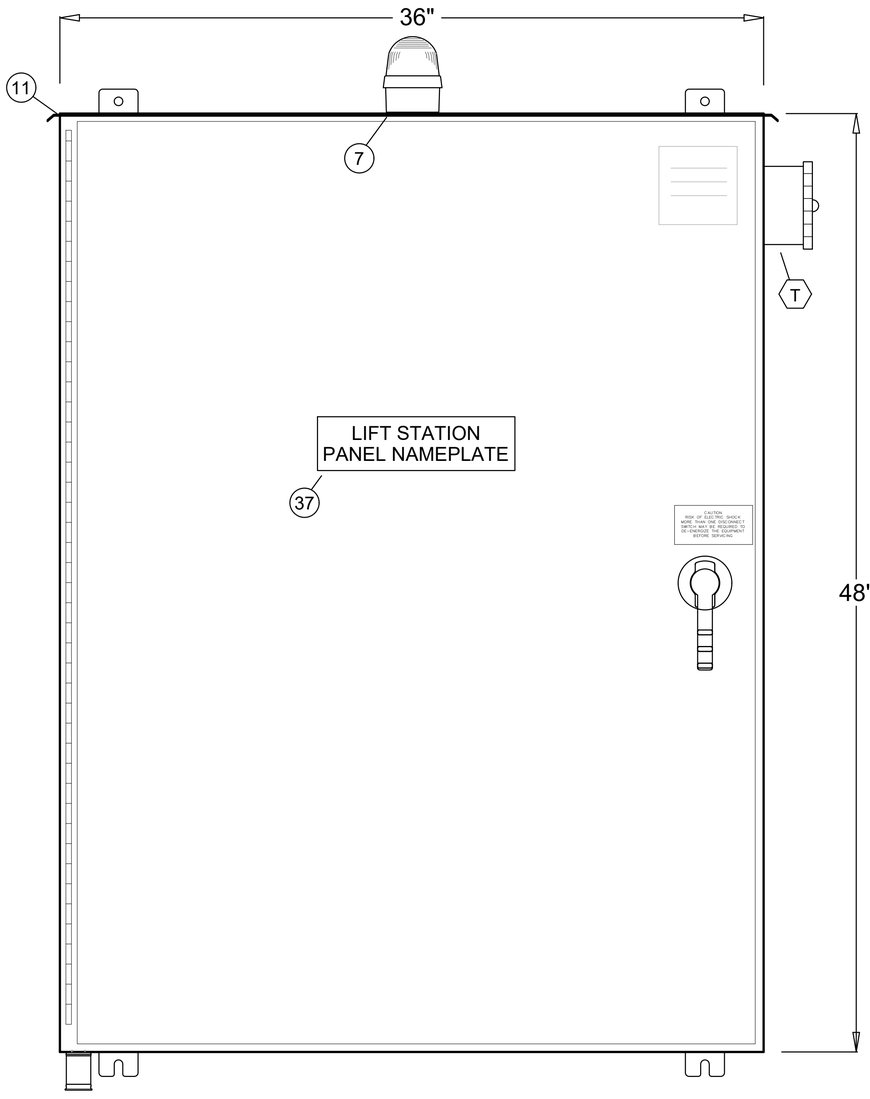
ELECTRICAL SYMBOLS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

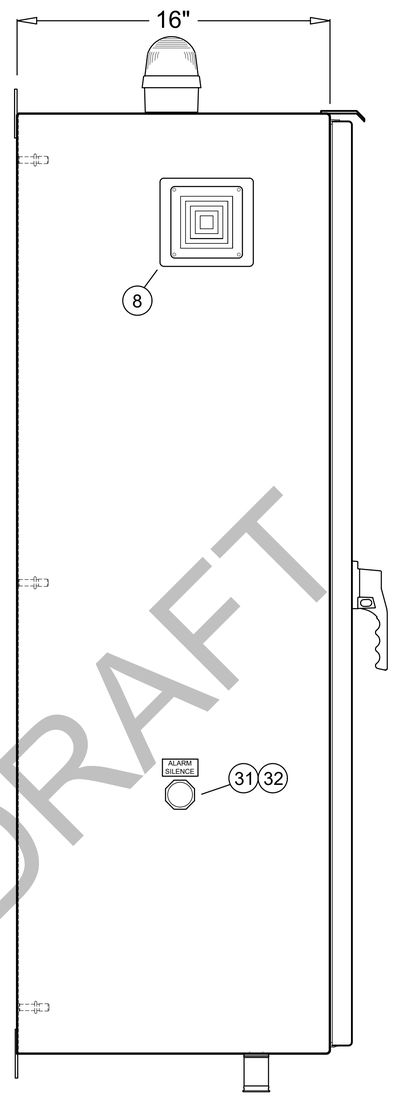
SCALE
HORIZONTAL:
VERTICAL:

E3.1
DRAWING NO.
0
REVISION

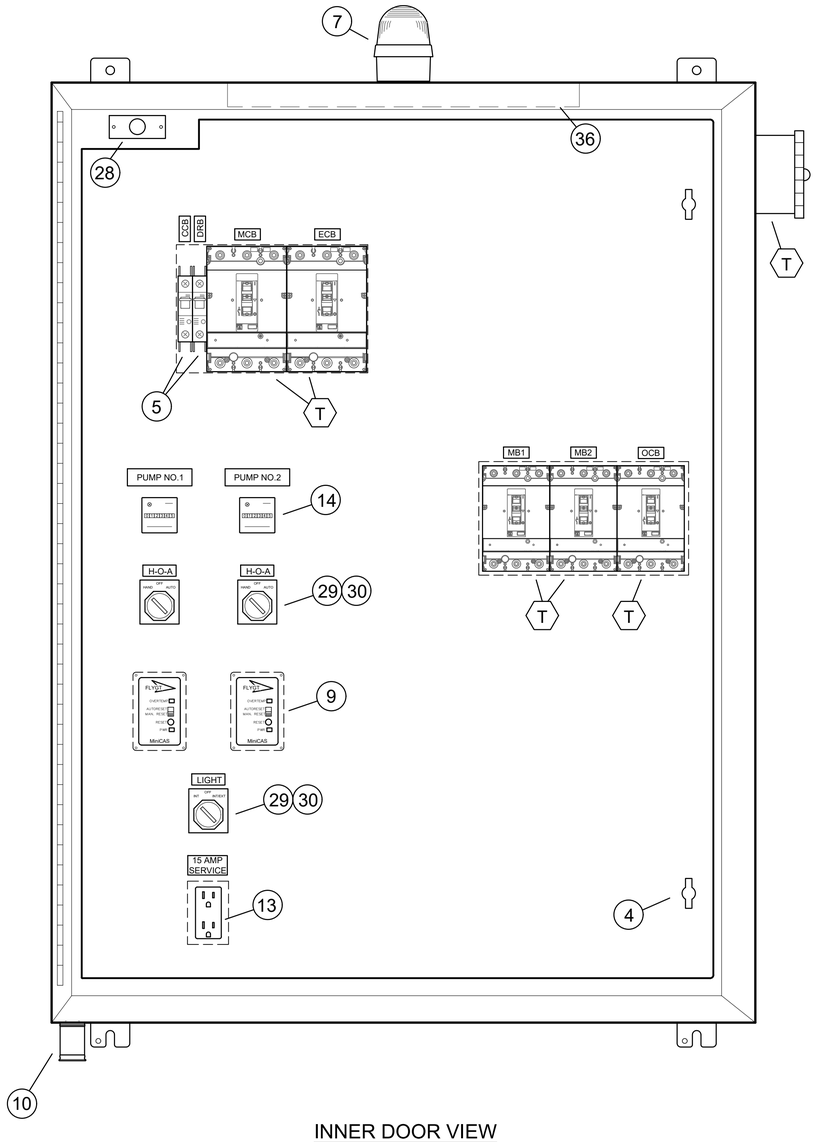
STATUS:



FRONT ENCLOSURE VIEW



LEFT SIDE VIEW



INNER DOOR VIEW

NOTES: ITEM NUMBERS REFER TO BILL OF MATERIALS SHOWN ON SHEET E3.3.
ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E3.4

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

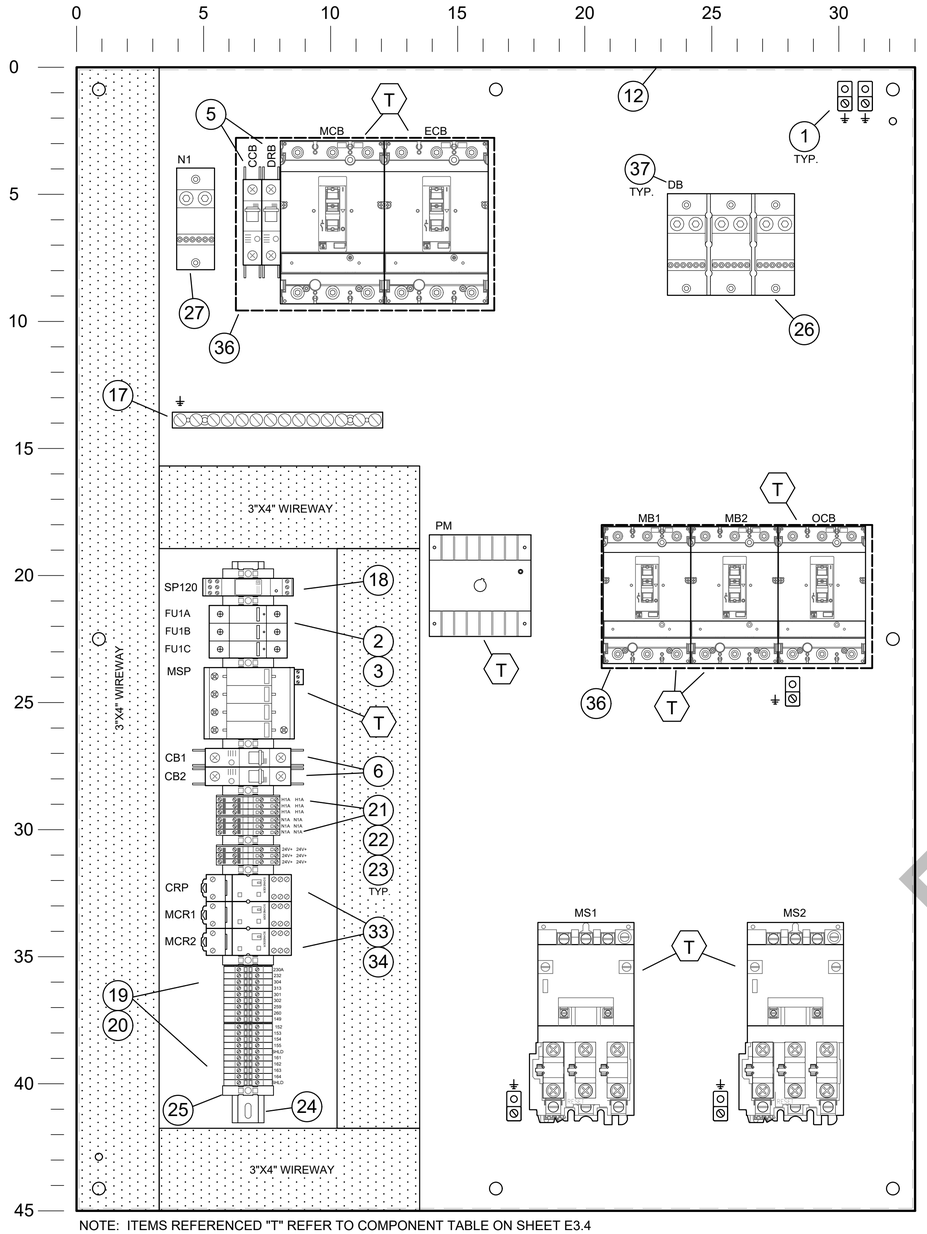
PCP ENCLOSURE DETAILS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

STATUS:

SCALE
HORIZONTAL:
VERTICAL:

E3.2
DRAWING NO.
0
REVISION



NOTE: ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E3.4

BACKPANEL VIEW

ID	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	5	BURNDY	KA2U	GROUND LUG, #2-14
2	3	BUSSMANN	FNQ-R-1	CLASS CC FUSE, 1 AMP, TIME DELAY
3	1	BUSSMANN	CHCC3DIU	CLASS CC FINGERSAFE FUSE HOLDER WITH INDICATOR
4	1	CUSTOM	PANEL SHOP	12GA. STEEL INNER DOOR DEADFRONT, BLACK POLYESTER POWDERCOATED
5	2	EATON	FAZ-C15/1-NA	CIRCUIT BREAKER, 15 AMP
6	2	EATON	FAZ-C1/1-NA	CIRCUIT BREAKER, 1 AMP
7	1	FEDERAL SIGNAL	LP3T-120R	120VAC RED ALARM STROBE
8	1	FEDERAL SIGNAL	350TR-120VAC	NEMA 4X ALARM HORN WITH GASKET
9	2	FLYGT	14-407129	MINICAS FLANGE DOOR MOUNTABLE PUMP MONITOR RELAY, 120V
10	1	HOFFMAN	AVDR4SS4	H20MIT VENT DRAIN, 4X, 304 STAINLESS STEEL
11	1	HOFFMAN	A48H3616SS6LP3PT-CUSTOM	48"H X 36"W X 16"D TYPE 4X SS 316 ENCLOSURE WITH DRIPSHIELD
12	1	HOFFMAN	A48P36	BACKPANEL FOR 48"X36" ENCLOSURE
13	1	HUBBELL	GFRST15SNAPW	GFCI RECEPTACLE, 15A, 120V
14	2	INTERMATIC	UWZ48E-120U	120VAC ELAPSED TIME METER
15	1	PANDUIT	F3X4LG6	SLOTTED WIREWAY, GRAY, 3"X4", 6' STICK
16	1	PANDUIT	C3LG6	3" WIREWAY COVER, GRAY, 6' STICK
17	1	PANDUIT	UGB2-0-414-12	GROUND BAR, #14-4AWG
18	1	PHOENIX CONTACT	2907918	120VAC SURGE PROTECTOR WITH STATUS, PLUG AND BASE
19	25	PHOENIX CONTACT	3044102	STANDARD TERMINAL BLOCK, 30A
20	4	PHOENIX CONTACT	3047028	STANDARD TERMINAL BLOCK END BARRIER
21	12	PHOENIX CONTACT	3044814	2-TIER ISOLATED TERMINAL BLOCK
22	4	PHOENIX CONTACT	3047293	2-TIER TERMINAL BLOCK END COVER
23	4	PHOENIX CONTACT	3030271	2-TIER TERMINAL BLOCK JUMPER BRIDGE
24	15	PHOENIX CONTACT	0800886	DIN RAIL END BRACKET
25	1	PHOENIX CONTACT	0801733	STANDARD DIN RAIL, 2M
26	1	SQUARE D	9080LBC363206	3-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
27	1	SQUARE D	9080LBC163206	1-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
28	1	SQUARE D	9007MS02S0200	INTRUSION SWITCH WITH CUSTOM MOUNTING BRACKET
29	3	SQUARE D	9001SKS43B	3-POSITION SELECTOR SWITCH
30	6	SQUARE D	9001KA1	CONTACT BLOCK, 1NO-1NC
31	1	SQUARE D	9001SKR1U	MOMENTARY PUSH-BUTTON
32	2	SQUARE D	9001KA2	CONTACT BLOCK, 1NO
33	3	SCHNEIDER	70-782EL8-1	RELAY BASE, 8-PIN
34	3	SCHNEIDER	792XBXM4L-120A	DPDT RELAY, 120VAC, WITH INDICATOR AND TEST LATCH
35	1	UTILTECH	0877623	UNDERCABINT LIGHT, 120VAC, WITH 18' LED BULB
36	2	CUSTOM	PANEL SHOP	CUSTOM ELEVATED CIRCUIT BREAKER SHELF
37	-	CUSTOM	PANEL SHOP	ENGRAVED PHENOLIC NAMEPLATES, WHITE TEXT WITH BLACK BACKGROUND

BILL OF MATERIALS

NOTES:

1. BILL OF MATERIALS IS PROVIDED FOR REFERENCE ONLY. PANEL COMPONENTS WILL VARY WITH EACH SPECIFIC LIFT STATION. CONTROL PANEL MANUFACTURER TO PROVIDE A COMPLETE LIST OF CONTROL PANEL MATERIALS FOR COUNTY APPROVAL BEFORE FABRICATION.

2. CONTROL PANEL TO BE UL508A LISTED TYPE 4X.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

BACKPANEL DETAILS AND BILL OF MATERIAL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E3.3
DRAWING NO.
0
REVISION

STATUS:

COMPONENT REFERENCE TABLE

SERVICE VOLTAGE	MCB/SERVICE	MAIN BREAKER PART#	GENERATOR RECEPTACLE	RECEPTACLE PART#	MAIN SURGE PROTECTOR	PHASE MONITOR	ODOR CONTROL BREAKER PART#	TOTAL PANEL FLA	PUMP HP	PHASE	PUMP FLA (PER NEC)	MOTOR BREAKER AMPS	MOTOR BREAKER PART#	WIRE SIZE	STARTER SIZE	STARTER PART#	OVERLOAD PART#
208/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	48.375	3	3	10.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	65.625	5	3	17.5	35	SQD-HDL36035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	82.375	7.5	3	24.2	50	SQD-HDL36050	10	1	SQD-8536-SOC3V02	SQD-B36.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	98.875	10	3	30.8	60	SQD-HDL36060	8	2	SQD-8536-SOD3V02	SQD-B45.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	137.375	15	3	46.2	90	SQD-HDL36090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 1PH, 3W	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	55.00	1	1	8	15	SQD-HDL26015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	65.00	2	1	12	25	SQD-HDL26025	12	1	SQD-8536-SOC3V02	SQD-B17.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	77.50	3	1	17	35	SQD-HDL26035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	105.00	5	1	28	60	SQD-HDL26060	10	1	SQD-8536-SOC3V02	SQD-B40.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	135.00	7.5	1	40	80	SQD-HDL26080	8	1	SQD-8536-SOC3V02	SQD-C51.0
	200	SQD-JDL26200	200	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	160.00	10	1	50	90	SQD-HDL26090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	36.00	2	3	6.8	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B10.2
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	43.00	3	3	9.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	57.00	5	3	15.2	30	SQD-HDL36030	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	74.00	7.5	3	22	45	SQD-HDL36045	10	1	SQD-8536-SOC3V02	SQD-B32.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	89.00	10	3	28	60	SQD-HDL36060	10	2	SQD-8536-SOD3V02	SQD-B40.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	124.00	15	3	42	80	SQD-HDL36080	6	2	SQD-8536-SOD3V02	SQD-B15.5
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	154.00	20	3	54	90	SQD-HDL36090	4	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	189.00	25	3	68	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	219.00	30	3	80	110	SQD-HDL36110	2	-	AB-150-C85NBD	-
480/277VAC, 3PH, 4W (NEUTRAL NOT USED)	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	28.50	5	3	7.6	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	44.50	10	3	14	25	SQD-HDL36025	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	62.00	15	3	21	40	SQD-HDL36040	10	2	SQD-8536-SOD3V02	SQD-B32.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	77.00	20	3	27	60	SQD-HDL36060	10	-	AB-150-C30NBD	-
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	94.50	25	3	34	70	SQD-HDL36070	8	-	AB-150-C37NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	109.50	30	3	40	80	SQD-HDL36080	8	-	AB-150-C43NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	139.50	40	3	52	90	SQD-HDL36090	6	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	172.00	50	3	65	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	202.00	60	3	77	110	SQD-HDL36110	2	-	AB-150-C85NBD	-

NOTES:
SQD - SQUARE D
ATC - ATC/DIVERSIFIED ELECTRONICS
RS - RUSSELLSTOLL
AB- ALLEN BRADLEY
PC - PHOENIX CONTACT

NOTES:

1. COMPONENT REFERENCE TABLE IS PROVIDED FOR EXAMPLE ONLY. ALL PANEL POWER COMPONENTS AND MOTOR CONTROL COMPONENTS TO BE DETERMINED BASED ON SITE SPECIFIC REQUIREMENTS.

2. ALL MATERIAL SELECTED SHALL MEET UL508A AND NEC REQUIREMENTS. SITE SPECIFIC CONTROL PANEL MATERIAL LIST TO BE PROVIDED FOR COUNTY APPROVAL.

3. BASED ON SITE REQUIREMENTS GENERATOR RECEPTACLE AND ODOR CONTROL COMPONENTS WILL BE PROVIDED.

4. 480VAC PANELS TO BE PROVIDED WITH 480V/120V CONTROL PANEL TRANSFORMER (NOT SHOWN).

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

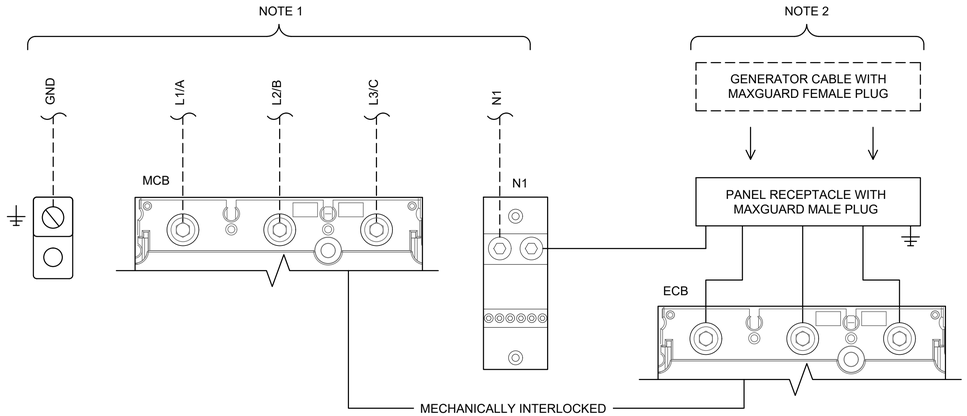
COMPONENT REFERENCE TABLE

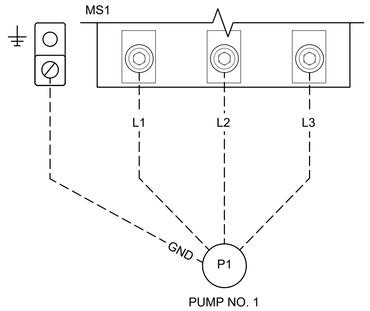
DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

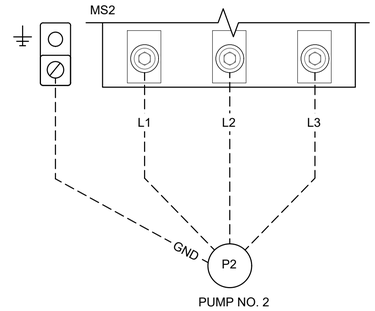
SCALE
HORIZONTAL:
VERTICAL:

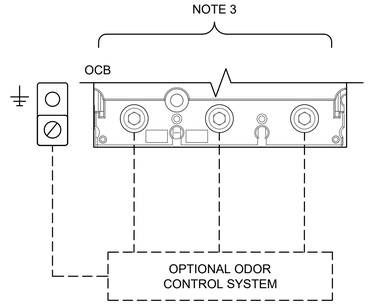
E3.4
DRAWING NO.
0
REVISION

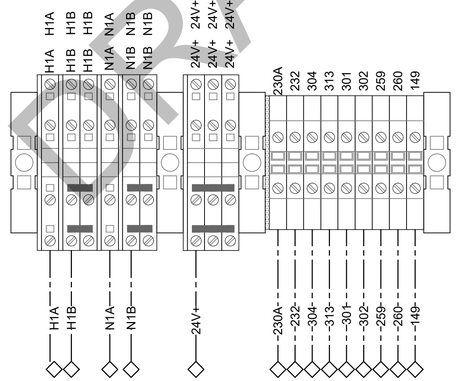
STATUS:











LEGEND:

- FIELD WIRE
- PCP AND RTU INTERCONNECTION

◇ -TERMINAL BLOCK IN RTU PANEL

NOTES:

1. INCOMING CONTROL PANEL POWER FEED.
2. GENERATOR RECEPTACLE (IF REQUIRED). COORDINATE WITH COUNTY FOR SITE SPECIFIC PLUG CONFIGURATION.
3. ODOR CONTROL CIRCUIT BREAKER (IF REQUIRED).

TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

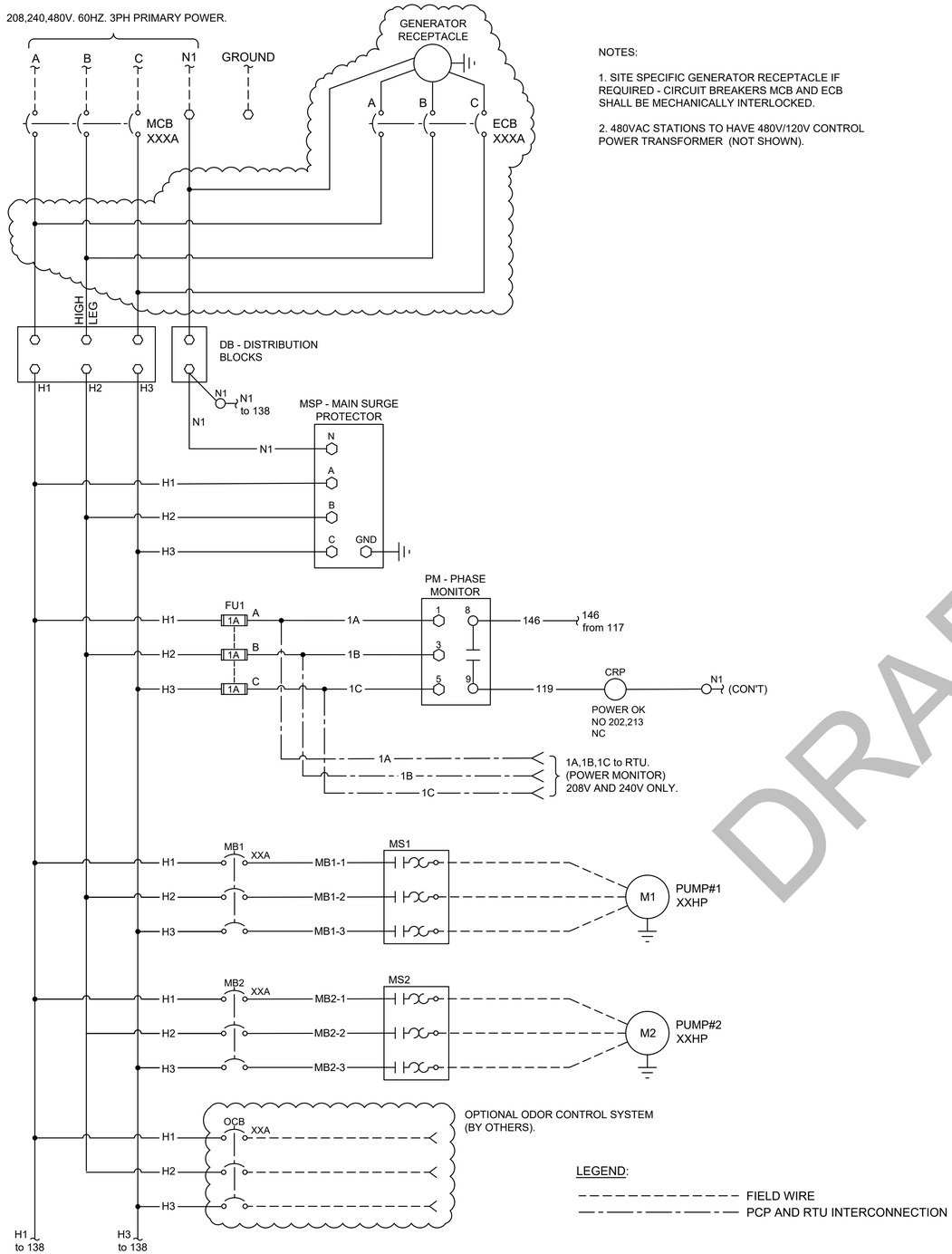
TERMINAL BLOCK AND EXTERNAL CONNECTION PANEL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E3.5
DRAWING NO.
0
REVISION

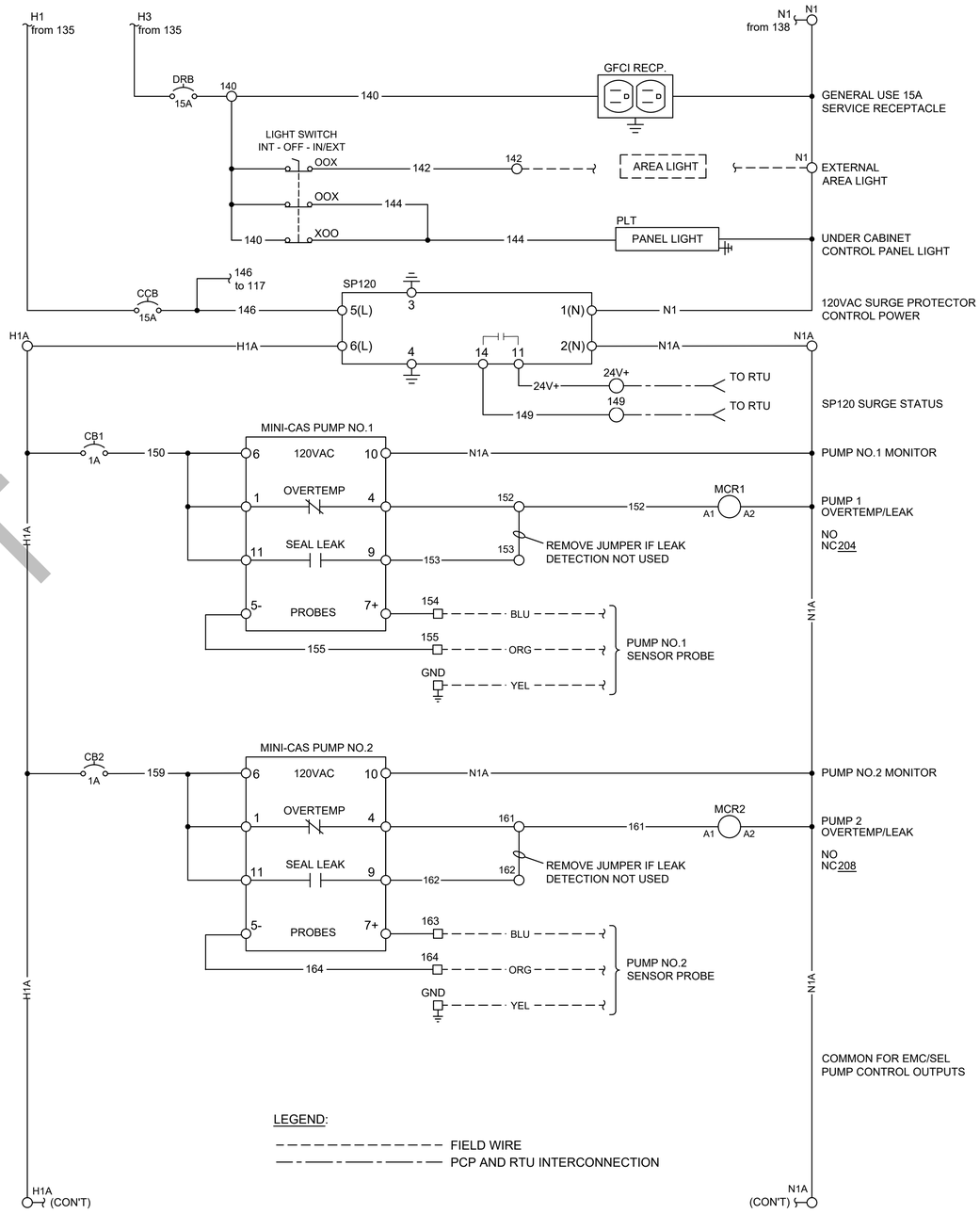
STATUS:



NOTES:

1. SITE SPECIFIC GENERATOR RECEPTACLE IF REQUIRED - CIRCUIT BREAKERS MCB AND ECB SHALL BE MECHANICALLY INTERLOCKED.

2. 480VAC STATIONS TO HAVE 480V/120V CONTROL POWER TRANSFORMER (NOT SHOWN).



REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

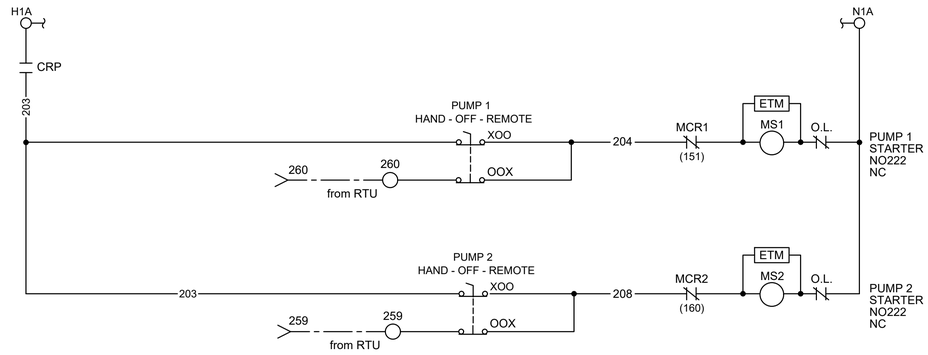
CONTROL POWER WIRING 1

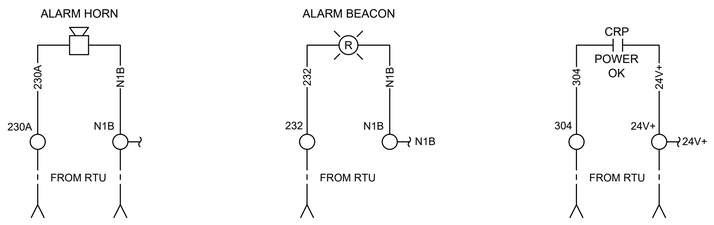
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

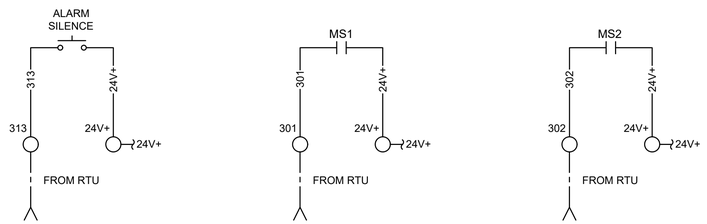
SCALE
HORIZONTAL:
VERTICAL:

E3.6
DRAWING NO.
0
REVISION

STATUS:







LEGEND:

- - - - - - - - - - - - - FIELD WIRE

—·——·——·—— PCP AND RTU INTERCONNECTION

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

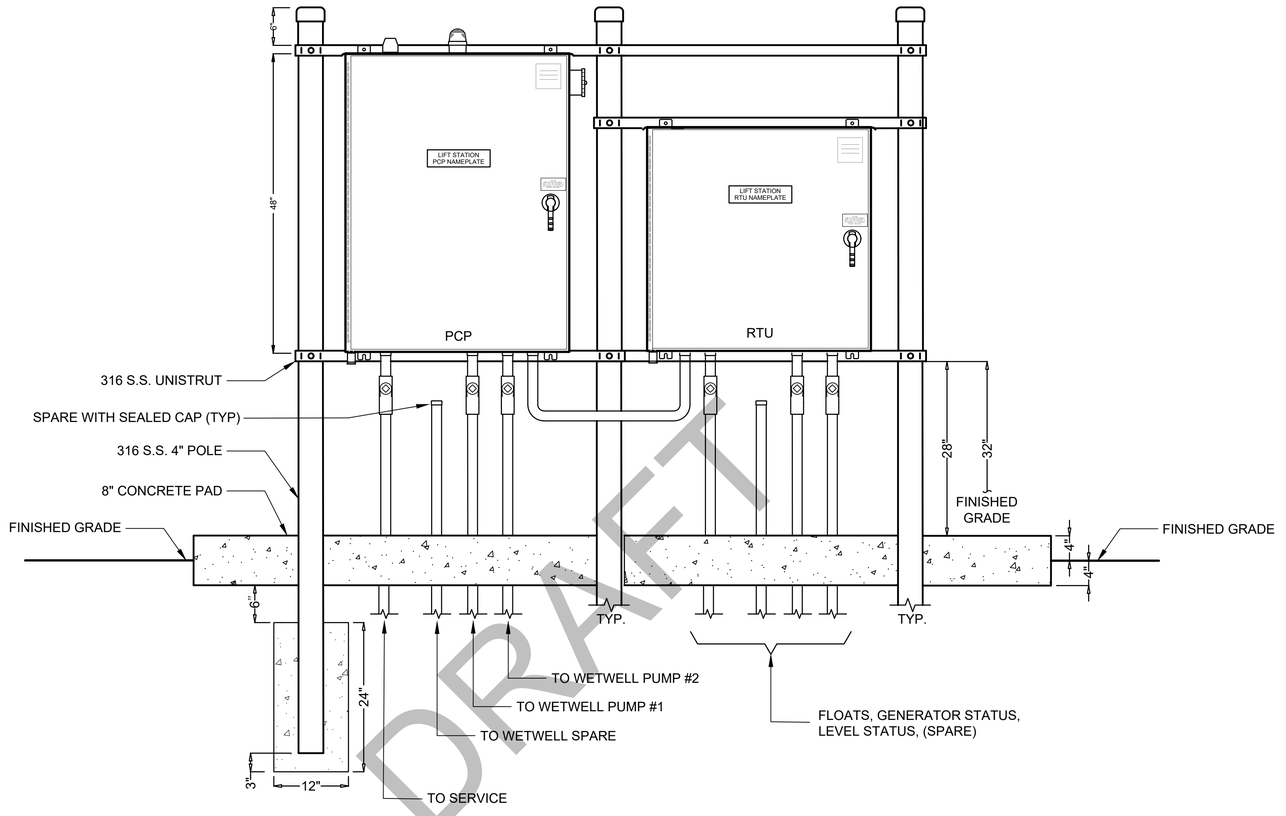
CONTROL POWER WIRING 2

DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

SCALE
HORIZONTAL:
VERTICAL:

E3.7
DRAWING NO.
0
REVISION

STATUS:



FRONT MOUNTING VIEW EXAMPLE

DETAIL NOTES:

1. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES OR QUANTITIES. CONTRACTOR SHALL REFERENCE ALL PROJECT SPECIFIC ENGINEERING DRAWINGS FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS AND COORDINATE WITH CCU.
2. ALL EXPOSED CONDUIT SHALL BE RIGID TYPE 316 STAINLESS STEEL CONDUIT. UNDERGROUND CONDUIT TO THE WETWELL SHALL BE SCHEDULE 80 PVC.
3. GROUND CONDUIT SHALL BE 1/2" SCHEDULE 80 PVC. GROUND WIRE TO BE SIZE NUMBER 6.
4. THE PUMP CONTROL PANEL/RTU PANEL SHALL HAVE A PAD LOCKABLE HANDLE, 3-POINT LATCH.
5. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH DIE-CAST STAINLESS STEEL CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES AND SIDE ENTRIES ARE NOT ACCEPTABLE.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP PANEL

PANEL MOUNTING DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E3.8
DRAWING NO.
0
REVISION

STATUS:

CHARLOTTE COUNTY UTILITIES

DESIGN STANDARDS FOR REMOTE STATIONS

LIFT STATION CONTROL PANEL
RTU ONLY

LIFT STATION RTU PANEL	
Sheet Number	Sheet Title
E4.0	COVER SHEET AND DRAWING INDEX
E4.1	ELECTRICAL SYMBOLS
E4.2	RTU ENCLOSURE DETAILS
E4.3	BACKPANEL DETAILS AND BILL OF MATERIAL
E4.4	TERMINAL BLOCK AND EXTERNAL CONNECTION PANEL
E4.5	CONTROL AND EMC-SEL DIAGRAM
E4.6	PANEL MOUNTING DETAIL

SHEET INDEX

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

COVER SHEET AND DRAWING INDEX

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E4.0
DRAWING NO.
0
REVISION

STATUS:

ELECTRICAL SYMBOLS

ISA-5.3 LOOP SYMBOLS

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- AUXILLIARY OPERATOR'S INTERFACE DEVICE
- NOT NORMALLY ACCESSIBLE TO OPERATOR

COMPUTER SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- NOT NORMALLY ACCESSIBLE TO OPERATOR

LOGIC AND SEQUENTIAL CONTROL SYMBOLS

- GENERAL LOGIC
- DISTRIBUTED INTERCONNECTING CONTROLLER, NOT NORMALLY ACCESSIBLE TO OPERATOR
- DISTRIBUTED INTERCONNECTING CONTROLLER, NORMALLY ACCESSIBLE TO OPERATOR
- COMPUTATION/SIGNAL CONDITIONING
- SYSTEM/SOFTWARE/NETWORK LINK

DEVICE SYMBOLS

- RELAY COIL
- CONTACT, N.O.
- CONTACT, N.C.
- TIMER RELAY COIL
- TIME-ON DELAY, N.O. CONTACT
- TIME-ON DELAY, N.C. CONTACT
- TIME-OFF DELAY, N.O. CONTACT
- TIME-OFF DELAY, N.C. CONTACT
- PUSH BUTTON, N.O. CONTACT
- PUSH BUTTON, N.C. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.O. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.C. CONTACT
- SELECTOR SWITCH, N.O. CONTACT
- SELECTOR SWITCH, N.C. CONTACT
- LIMIT SWITCH, N.O. CONTACT
- LIMIT SWITCH, N.C. CONTACT
- PRESSURE SWITCH, N.O. CONTACT
- PRESSURE SWITCH, N.C. CONTACT

DEVICE SYMBOLS

- TEMPERATURE SWITCH, N.O. CONTACT
- TEMPERATURE SWITCH, N.C. CONTACT
- FLOW SWITCH, N.O. CONTACT
- FLOW SWITCH, N.C. CONTACT
- FLOAT SWITCH, N.O. CONTACT
- FLOAT SWITCH, N.C. CONTACT
- FOOT SWITCH, N.O. CONTACT
- FOOT SWITCH, N.C. CONTACT
- TOGGLE SWITCH, N.O. CONTACT
- TOGGLE SWITCH, N.C. CONTACT
- THERMAL OVERLOAD
- SOLENOID
- HORN
- PILOT LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE
- PILOT LIGHT, PUSH TO TEST
- FUSE
- CIRCUIT BREAKER
- GROUND

DEVICE SYMBOLS

- CONTROL POWER TRANSFORMER
- CURRENT TRANSFORMER
- POTENTIOMETER
- RESISTOR
- CAPACITOR, ELECTROLYTIC
- DIODE
- ZENER DIODE
- BATTERY
- TERMINAL BLOCK, "PTB 120VAC"
- TERMINAL BLOCK, "DIGITAL INPUT"
- TERMINAL BLOCK, "DRY CONTACT"
- TERMINAL BLOCK, "ANALOG SIGNAL"
- TERMINAL BLOCK, OTHER (SPECIFY)
- ELAPSED TIME METER

WIRE SYMBOLS

- CONDUCTORS, WITH JUNCTION
- CONDUCTORS, NOT CONNECTED
- SHIELDED CABLE
- TWISTED-PAIR CABLE
- FIELD WIRING

ABBREVIATIONS

AIT	ANALYSIS INDICATING TRANSMITTER
AFD	ADJUST FREQUENCY DRIVE
BC	BYPASS CONTACTOR
BFI	BLOWN FUSE INDICATOR
C	CONTACTOR
CB	CIRCUIT BREAKER
CPT	CONTROL POWER TRANSMFORMER
CR	CONTROL RELAY
CRI	CONTROL RELAY, INTRINSIC
CRL	CONTROL RELAY, LATCH
DFR	DRIVE FAIL RELAY
DI	DIGITAL INDICATOR
DUP	DUPLEXOR
DRR	DRIVE RUN RELAY
DSC	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOAT SWITCH
FSR	FLOAT SWITCH RELAY
FU	FUSE
GRD	GROUND
HS	HAND SWITCH
IC	ISOLATION CONTACTOR
ISO	SIGNAL ISOLATOR/BOOSTER
LT	PILOT LIGHT
LIT	LEVEL INDICATING TRANSMITTER
LS	LIMIT SWITCH
M	MOTOR STARTER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MSP	MAIN SURGE PROTECTOR
OL	OVERLOAD
PB	PUSH BUTTON
PDB	POWER DISTRIBUTION BLOCK
PIT	PRESSURE INDICATING TRANSMITTER
RIO	REMOTE I/O PANEL
POT	POTENTIOMETER
PM	PHASE MONITOR
PS	POWER SUPPLY
RCR	RUN COMMAND RELAY
RES	RESISTOR
S	SWITCH
SP	SURGE PROTECTOR
SS	SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TB	TERMINAL BOARD, TERMINAL BLOCK
TC	TIME CLOCK
TR	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
ZS	LIMIT SWITCH

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

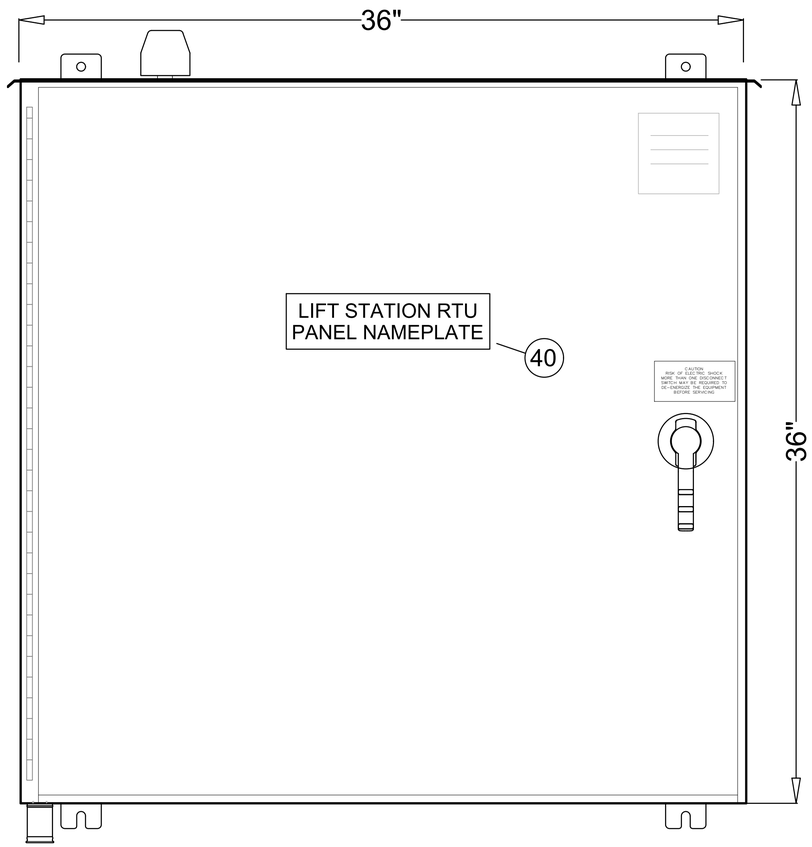
ELECTRICAL SYMBOLS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

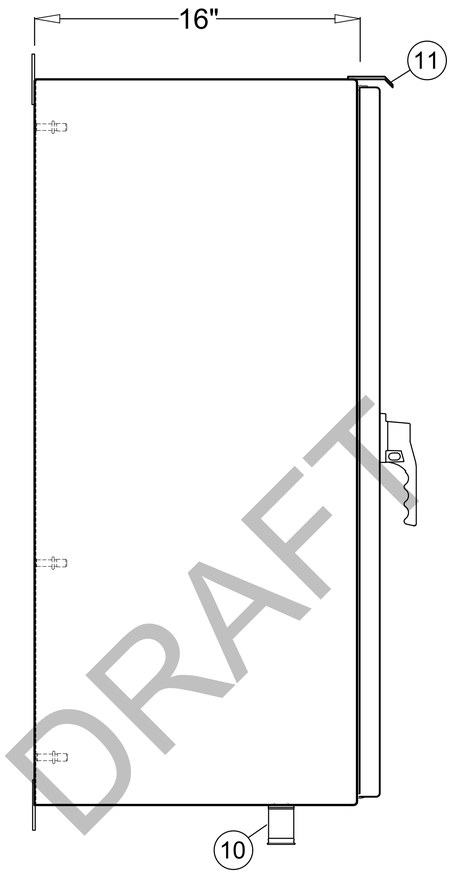
SCALE
HORIZONTAL:
VERTICAL:

E4.1
DRAWING NO.
0
REVISION

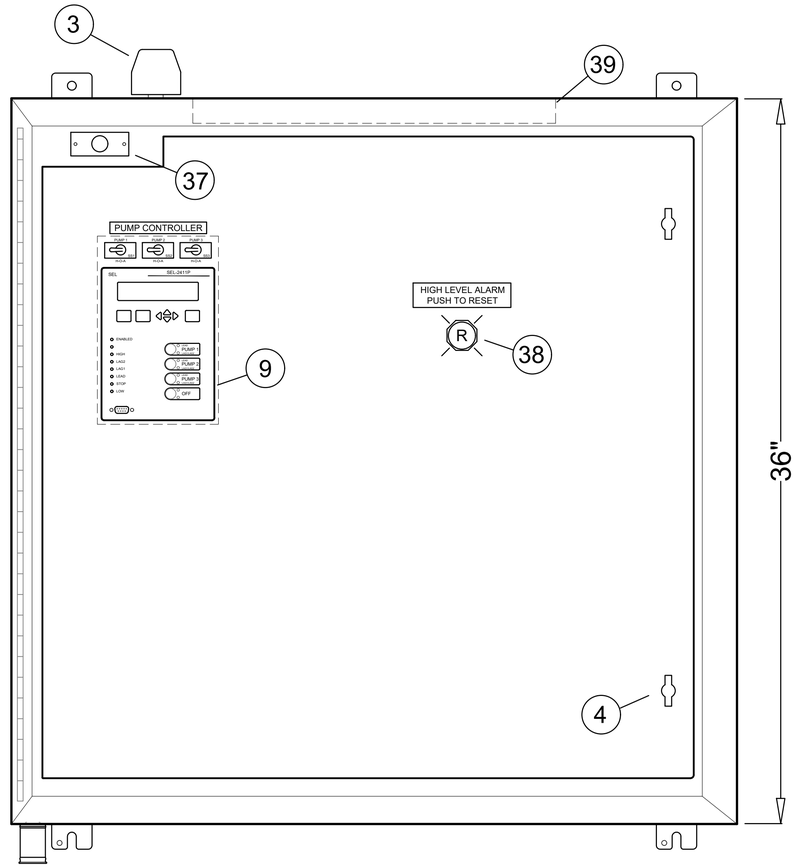
STATUS:



FRONT ENCLOSURE VIEW



LEFT SIDE VIEW



INNER DOOR VIEW

NOTE: ITEM NUMBERS REFER TO BILL OF MATERIALS SHOWN ON SHEET E4.3

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY
FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

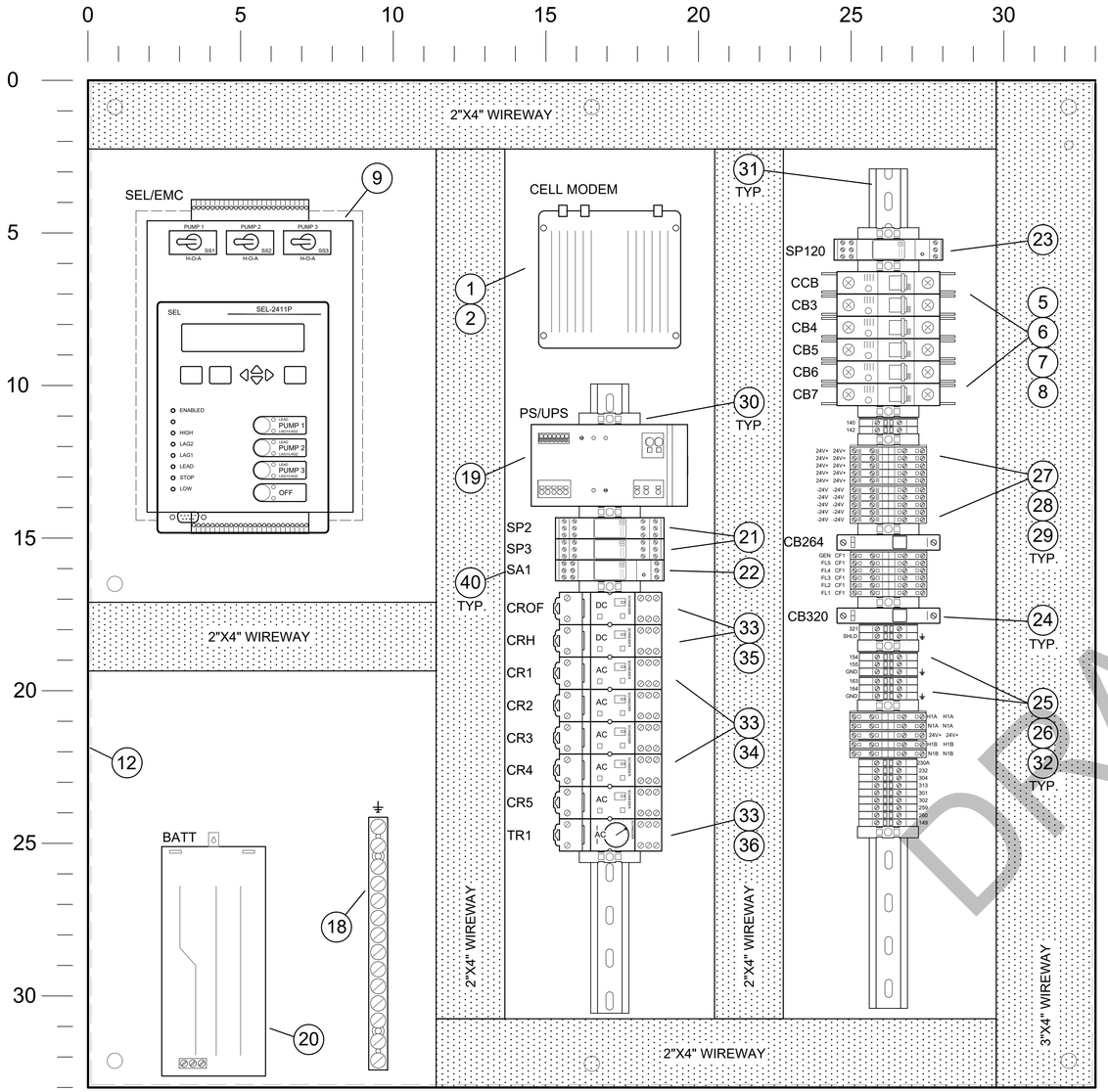
RTU ENCLOSURE DETAILS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E4.2
DRAWING NO.
0
REVISION

STATUS:



BACKPANEL VIEW

ID	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	1	CRADLEPOINT	MA3-0900120B-NNA (TBD)	IBR900 CELLULAR MODEM, RUGGEDIZED WITH IOT ESSENTIALS
2	1	CRADLEPOINT	170656-002	RADIO DIN RAIL BRACKET
3	1	CRADLEPOINT	M530B15-2C1G-CP-IBR900	3-LEAD MIMO M2M IOT ANTENNA
4	1	CUSTOM	PANEL SHOP	12GA. STEEL INNER DOOR DEADFRONT, BLACK POLYESTER POWDERCOATED
5	1	EATON	FAZ-C15/1-NA	CIRCUIT BREAKER, 15 AMP
6	1	EATON	FAZ-C10/1-NA	CIRCUIT BREAKER, 10 AMP
7	2	EATON	FAZ-C5/1-NA	CIRCUIT BREAKER, 5 AMP
8	2	EATON	FAZ-C3/1-NA	CIRCUIT BREAKER, 3 AMP
9	1	EMC/SEL	CUSTOM	SEL-2411P CONTROLLER EMC WITH HOUSING KIT AND WIRING HARNESS
10	1	HOFFMAN	AVDR4SS4	H20MIT VENT DRAIN, 4X, 304 STAINLESS STEEL
11	1	HOFFMAN	A36H3616SS6LP3PT-CUSTOM	36"H X 36"W X 16"D TYPE 4X SS 316 ENCLOSURE WITH DRIPSHIELD
12	1	HOFFMAN	A36P36	BACKPANEL FOR 36"X36" ENCLOSURE
14	1	PANDUIT	F2X4LG6	SLOTTED WIREWAY, GRAY, 2"X4", 6' STICK
15	1	PANDUIT	C2LG6	2" WIREWAY COVER, GRAY, 6' STICK
16	1	PANDUIT	F3X4LG6	SLOTTED WIREWAY, GRAY, 3"X4", 6' STICK
17	1	PANDUIT	C3LG6	3" WIREWAY COVER, GRAY, 6' STICK
18	1	PANDUIT	UGB2-0-414-12	GROUND BAR, #14-4AWG
19	1	PHOENIX CONTACT	2907161	24VDC UPS AND POWER SUPPLY MODULE, 10 AMP
20	1	PHOENIX CONTACT	1274117	24VDC BACKUP BATTERY, 4 Ah
21	2	PHOENIX CONTACT	2800982	PLUG TRAB SURGE PROTECTOR WITH BASE, 24VDC, 4-POINT
22	1	PHOENIX CONTACT	2800976	ANALOG SIGNAL SURGE PROTECTOR WITH BASE
23	1	PHOENIX CONTACT	2907918	120VAC SURGE PROTECTOR WITH STATUS, PLUG AND BASE
24	1	PHOENIX CONTACT	0916603	THERMOMAGNETIC DEVICE CIRCUIT BREAKER, 1/2A
25	15	PHOENIX CONTACT	3044102	STANDARD TERMINAL BLOCK, 30A
26	5	PHOENIX CONTACT	3047028	STANDARD TERMINAL BLOCK END BARRIER
27	30	PHOENIX CONTACT	3044814	2-TIER ISOLATED TERMINAL BLOCK
28	6	PHOENIX CONTACT	3047293	2-TIER TERMINAL BLOCK END COVER
29	8	PHOENIX CONTACT	3030271	2-TIER TERMINAL BLOCK JUMPER BRIDGE
30	15	PHOENIX CONTACT	0800886	DIN RAIL END BRACKET
31	1	PHOENIX CONTACT	0801733	STANDARD DIN RAIL, 2M
32	5	PHOENIX CONTACT	30-44-12-8	GROUNDING TERMINAL BLOCK
33	8	SCHNEIDER	70-782EL8-1	RELAY BASE, 8-PIN
34	5	SCHNEIDER	792XBXM4L-120A	DPDT RELAY, 120VAC, WITH INDICATOR AND TEST LATCH
35	2	SCHNEIDER	792XBXM4L-24D	DPDT RELAY, 24VDC, WITH INDICATOR AND TEST LATCH
36	1	SCHNEIDER	TDR782XBXA-110A	DPDT ON-DELAY TIMER, 120VAC
37	1	SQUARE D	9007MS02S0200	INTRUSION SWITCH WITH MOUNTING BRACKET
38	1	SQUARE D	9001K1L1RH13	ILLUMINATED PUSHBUTTON, RED, 120V, 1NO-1NC
39	1	UTILTECH	0877623	UNDERCABINT LIGHT, 120VAC, WITH 18' LED BULB
40	-	CUSTOM	PANEL SHOP	ENGRAVED PHENOLIC NAMEPLATES, WHITE TEXT WITH BLACK BACKGROUND

BILL OF MATERIALS

NOTES:

1. BILL OF MATERIALS IS PROVIDED FOR EXAMPLE ONLY. PANEL COMPONENTS WILL VARY WITH EACH SPECIFIC LIFT STATION. CONTROL PANEL MANUFACTURER TO PROVIDE A COMPLETE LIST OF CONTROL PANEL MATERIALS FOR COUNTY APPROVAL BEFORE FABRICATION.

2. CONTROL PANEL TO BE UL508A LISTED TYPE 4X.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

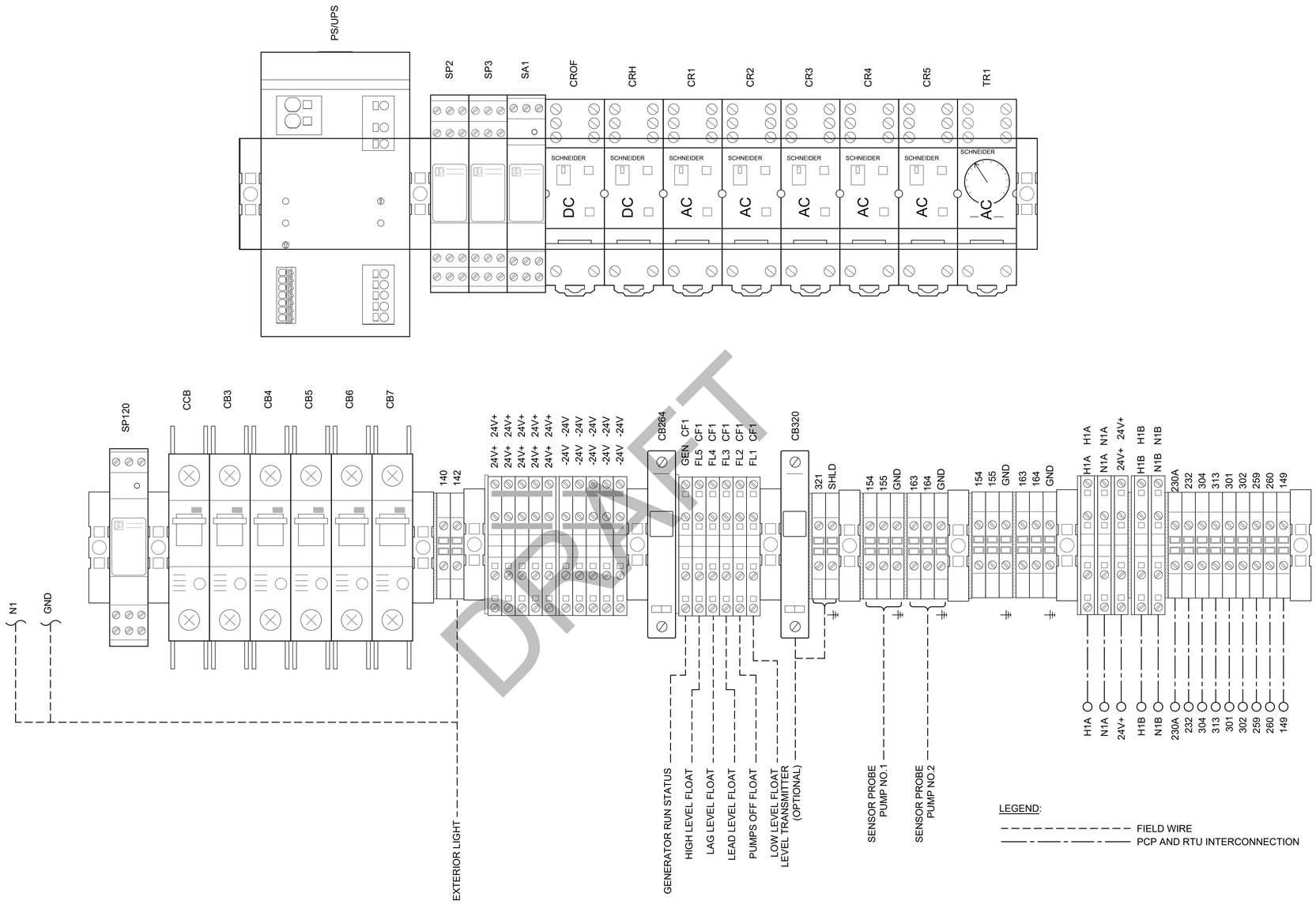
BACKPANEL DETAILS AND BILL OF MATERIAL

DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

SCALE
HORIZONTAL:
VERTICAL:

E4.3
DRAWING NO.
0
REVISION

STATUS:



REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

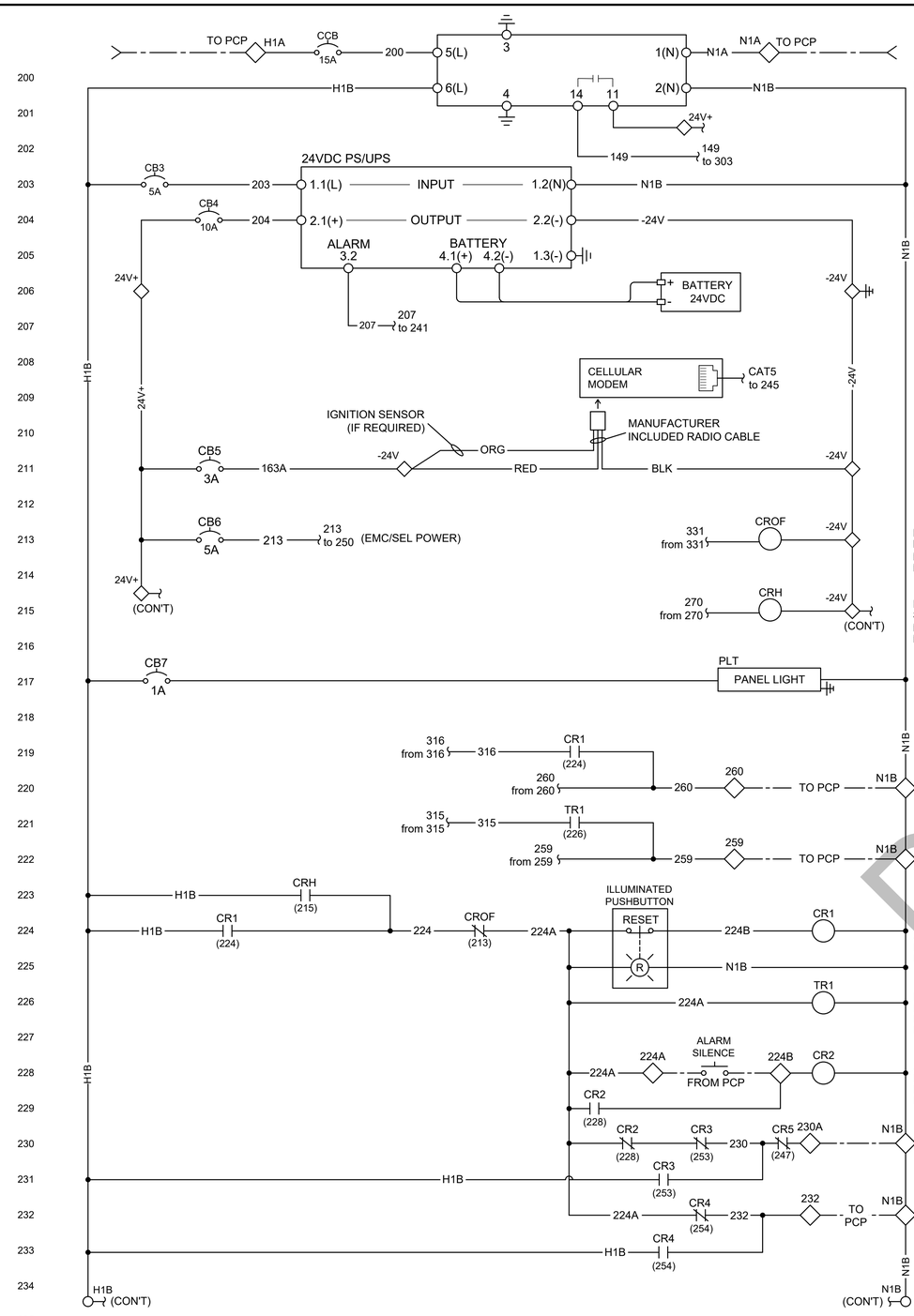
TERMINAL BLOCK AND EXTERNAL CONNECTION PANEL

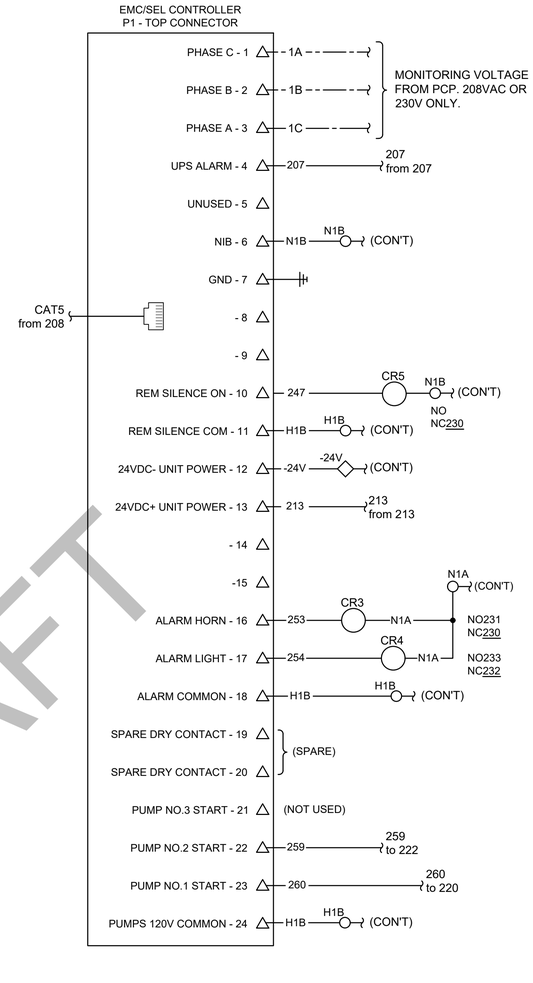
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

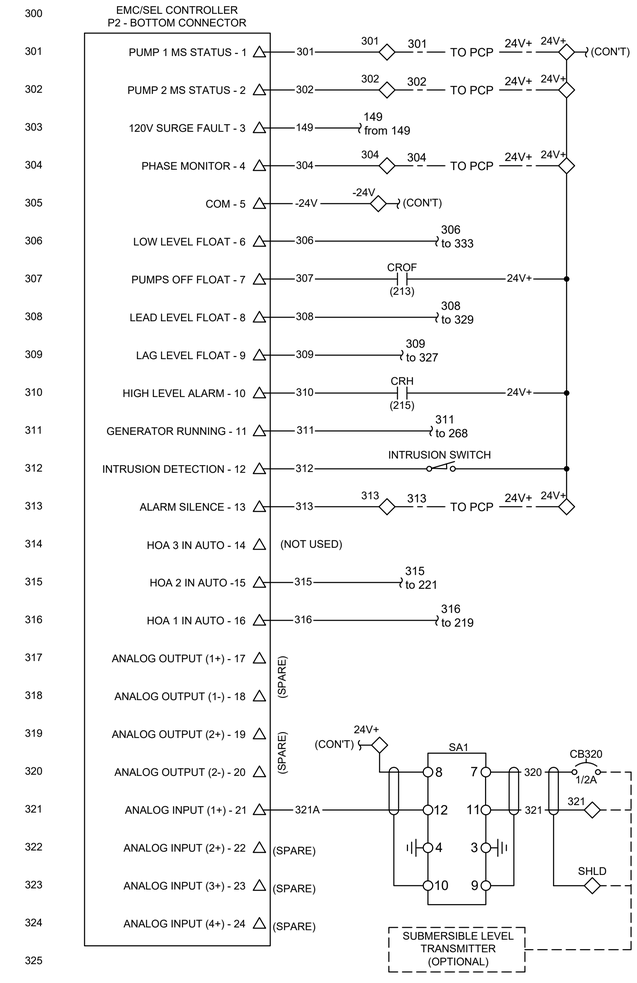
SCALE
HORIZONTAL:
VERTICAL:

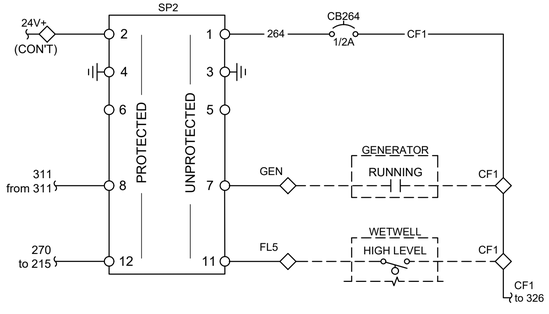
E4.4
DRAWING NO.
0
REVISION

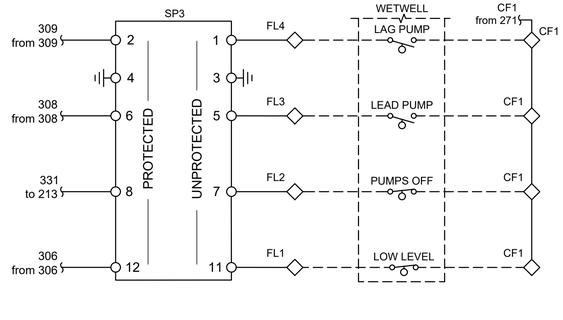
STATUS:











REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

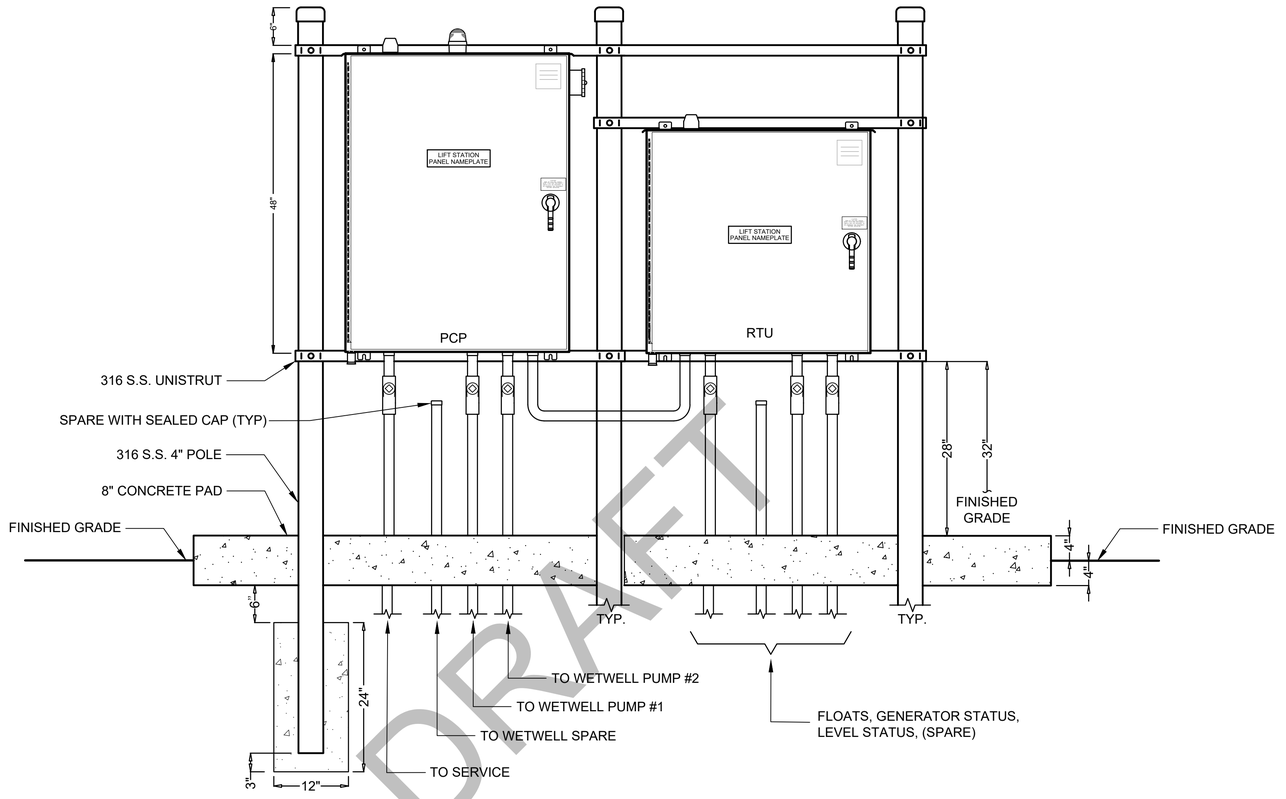
CONTROL AND EMC-SEL DIAGRAM

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E4.5
DRAWING NO.
0
REVISION

STATUS:



FRONT MOUNTING VIEW EXAMPLE

DETAIL NOTES:

1. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES OR QUANTITIES. CONTRACTOR SHALL REFERENCE ALL PROJECT SPECIFIC ENGINEERING DRAWINGS FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS AND COORDINATE WITH CCU.
2. ALL EXPOSED CONDUIT SHALL BE RIGID TYPE 316 STAINLESS STEEL CONDUIT. UNDERGROUND CONDUIT TO THE WETWELL SHALL BE SCHEDULE 80 PVC.
3. GROUND CONDUIT SHALL BE 1/2" SCHEDULE 80 PVC. GROUND WIRE TO BE SIZE NUMBER 6.
4. THE PUMP CONTROL PANEL/RTU PANEL SHALL HAVE A PAD LOCKABLE HANDLE, 3-POINT LATCH.
5. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH DIE-CAST STAINLESS STEEL CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES AND SIDE ENTRIES ARE NOT ACCEPTABLE.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION RTU PANEL

PANEL MOUNTING DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E4.6
DRAWING NO.
0
REVISION

STATUS:

CHARLOTTE COUNTY UTILITIES

DESIGN STANDARDS FOR REMOTE STATIONS

LIFT STATION CONTROL PANEL
PUMP CONTROLS AND RTU COMBINATION - 1PH

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)	
Sheet Number	Sheet Title
E7.0	COVER SHEET AND DRAWING INDEX
E7.1	ELECTRICAL SYMBOLS
E7.2	ENCLOSURE DETAILS
E7.3	BACKPANEL DETAIL AND BILL OF MATERIAL
E7.4	COMPONENT REFERENCE TABLE
E7.5	TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL
E7.6	CONTROL POWER WIRING
E7.7	CONTROL AND EMC-SEL DIAGRAM
E7.8	PANEL MOUNTING DETAIL

SHEET INDEX

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

COVER SHEET AND DRAWING INDEX

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE

HORIZONTAL:

VERTICAL:

E7.0

DRAWING NO.

0

REVISION

STATUS:

ELECTRICAL SYMBOLS

ISA-5.3 LOOP SYMBOLS

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- AUXILLIARY OPERATOR'S INTERFACE DEVICE
- NOT NORMALLY ACCESSIBLE TO OPERATOR

COMPUTER SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- NOT NORMALLY ACCESSIBLE TO OPERATOR

LOGIC AND SEQUENTIAL CONTROL SYMBOLS

- GENERAL LOGIC
- DISTRIBUTED INTERCONNECTING CONTROLLER, NOT NORMALLY ACCESSIBLE TO OPERATOR
- DISTRIBUTED INTERCONNECTING CONTROLLER, NORMALLY ACCESSIBLE TO OPERATOR
- COMPUTATION/SIGNAL CONDITIONING
- SYSTEM/SOFTWARE/NETWORK LINK

DEVICE SYMBOLS

- RELAY COIL
- CONTACT, N.O.
- CONTACT, N.C.
- TIMER RELAY COIL
- TIME-ON DELAY, N.O. CONTACT
- TIME-ON DELAY, N.C. CONTACT
- TIME-OFF DELAY, N.O. CONTACT
- TIME-OFF DELAY, N.C. CONTACT
- PUSH BUTTON, N.O. CONTACT
- PUSH BUTTON, N.C. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.O. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.C. CONTACT
- SELECTOR SWITCH, N.O. CONTACT
- SELECTOR SWITCH, N.C. CONTACT
- LIMIT SWITCH, N.O. CONTACT
- LIMIT SWITCH, N.C. CONTACT
- PRESSURE SWITCH, N.O. CONTACT
- PRESSURE SWITCH, N.C. CONTACT

DEVICE SYMBOLS

- TEMPERATURE SWITCH, N.O. CONTACT
- TEMPERATURE SWITCH, N.C. CONTACT
- FLOW SWITCH, N.O. CONTACT
- FLOW SWITCH, N.C. CONTACT
- FLOAT SWITCH, N.O. CONTACT
- FLOAT SWITCH, N.C. CONTACT
- FOOT SWITCH, N.O. CONTACT
- FOOT SWITCH, N.C. CONTACT
- TOGGLE SWITCH, N.O. CONTACT
- TOGGLE SWITCH, N.C. CONTACT
- THERMAL OVERLOAD
- SOLENOID
- HORN
- PILOT LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE
- PILOT LIGHT, PUSH TO TEST
- FUSE
- CIRCUIT BREAKER
- GROUND

DEVICE SYMBOLS

- CONTROL POWER TRANSFORMER
- CURRENT TRANSFORMER
- POTENTIOMETER
- RESISTOR
- CAPACITOR, ELECTROLYTIC
- DIODE
- ZENER DIODE
- BATTERY
- TERMINAL BLOCK, "PTB 120VAC"
- TERMINAL BLOCK, "DIGITAL INPUT"
- TERMINAL BLOCK, "DRY CONTACT"
- TERMINAL BLOCK, "ANALOG SIGNAL"
- TERMINAL BLOCK, OTHER (SPECIFY)
- ELAPSED TIME METER

WIRE SYMBOLS

- CONDUCTORS, WITH JUNCTION
- CONDUCTORS, NOT CONNECTED
- SHIELDED CABLE
- TWISTED-PAIR CABLE
- FIELD WIRING

ABBREVIATIONS

AIT	ANALYSIS INDICATING TRANSMITTER
AFD	ADJUST FREQUENCY DRIVE
BC	BYPASS CONTACTOR
BFI	BLOWN FUSE INDICATOR
C	CONTACTOR
CB	CIRCUIT BREAKER
CPT	CONTROL POWER TRANSMFORMER
CR	CONTROL RELAY
CRI	CONTROL RELAY, INTRINSIC
CRL	CONTROL RELAY, LATCH
DFR	DRIVE FAIL RELAY
DI	DIGITAL INDICATOR
DUP	DUPLEXOR
DRR	DRIVE RUN RELAY
DSC	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOAT SWITCH
FSR	FLOAT SWITCH RELAY
FU	FUSE
GRD	GROUND
HS	HAND SWITCH
IC	ISOLATION CONTACTOR
ISO	SIGNAL ISOLATOR/BOOSTER
LT	PILOT LIGHT
LIT	LEVEL INDICATING TRANSMITTER
LS	LIMIT SWITCH
M	MOTOR STARTER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MSP	MAIN SURGE PROTECTOR
OL	OVERLOAD
PB	PUSH BUTTON
PDB	POWER DISTRIBUTION BLOCK
PIT	PRESSURE INDICATING TRANSMITTER
RIO	REMOTE I/O PANEL
POT	POTENTIOMETER
PM	PHASE MONITOR
PS	POWER SUPPLY
RCR	RUN COMMAND RELAY
RES	RESISTOR
S	SWITCH
SP	SURGE PROTECTOR
SS	SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TB	TERMINAL BOARD, TERMINAL BLOCK
TC	TIME CLOCK
TR	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
ZS	LIMIT SWITCH

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

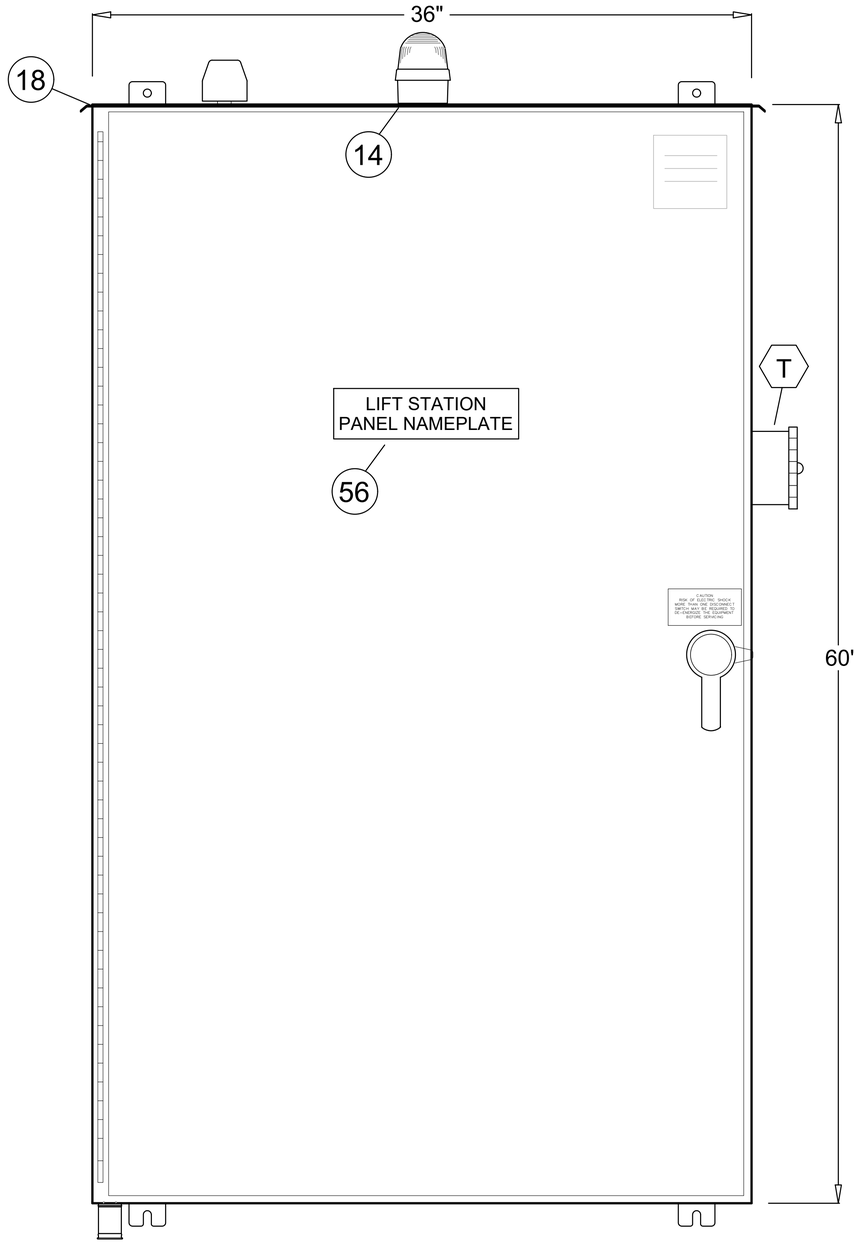
ELECTRICAL SYMBOLS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

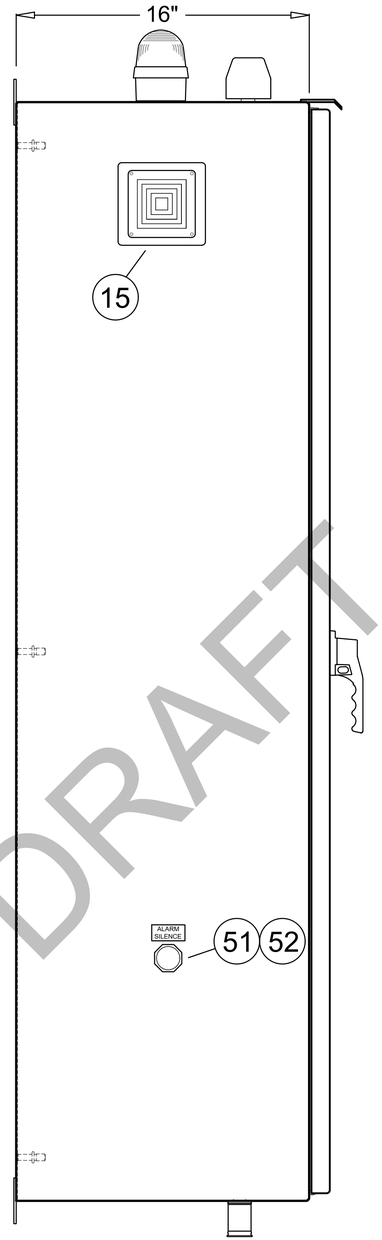
SCALE
HORIZONTAL:
VERTICAL:

DRAWING NO. E7.1
REVISION 0

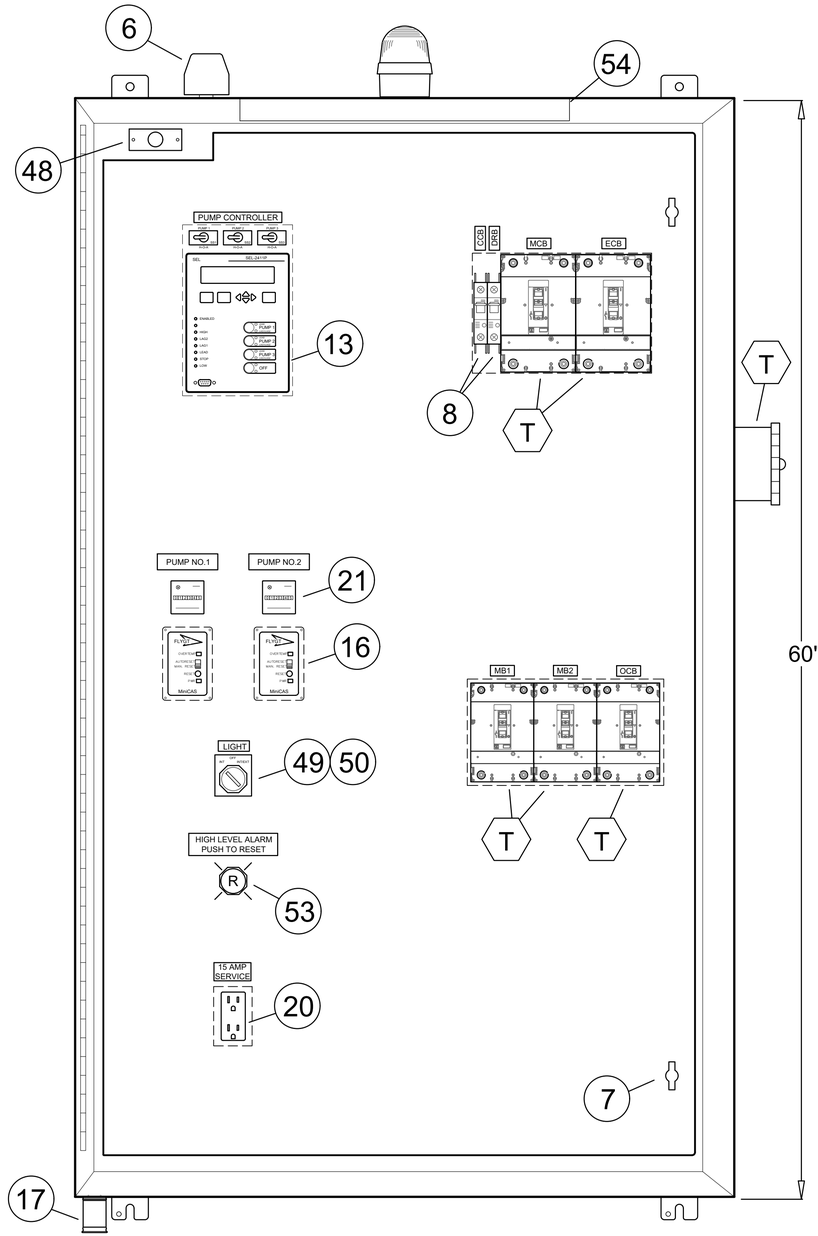
STATUS:



FRONT ENCLOSURE VIEW



LEFT SIDE VIEW



INNER DOOR VIEW

NOTES: ITEM NUMBERS REFER TO BILL OF MATERIALS SHOWN ON SHEET E7.3.
ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E7.4

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

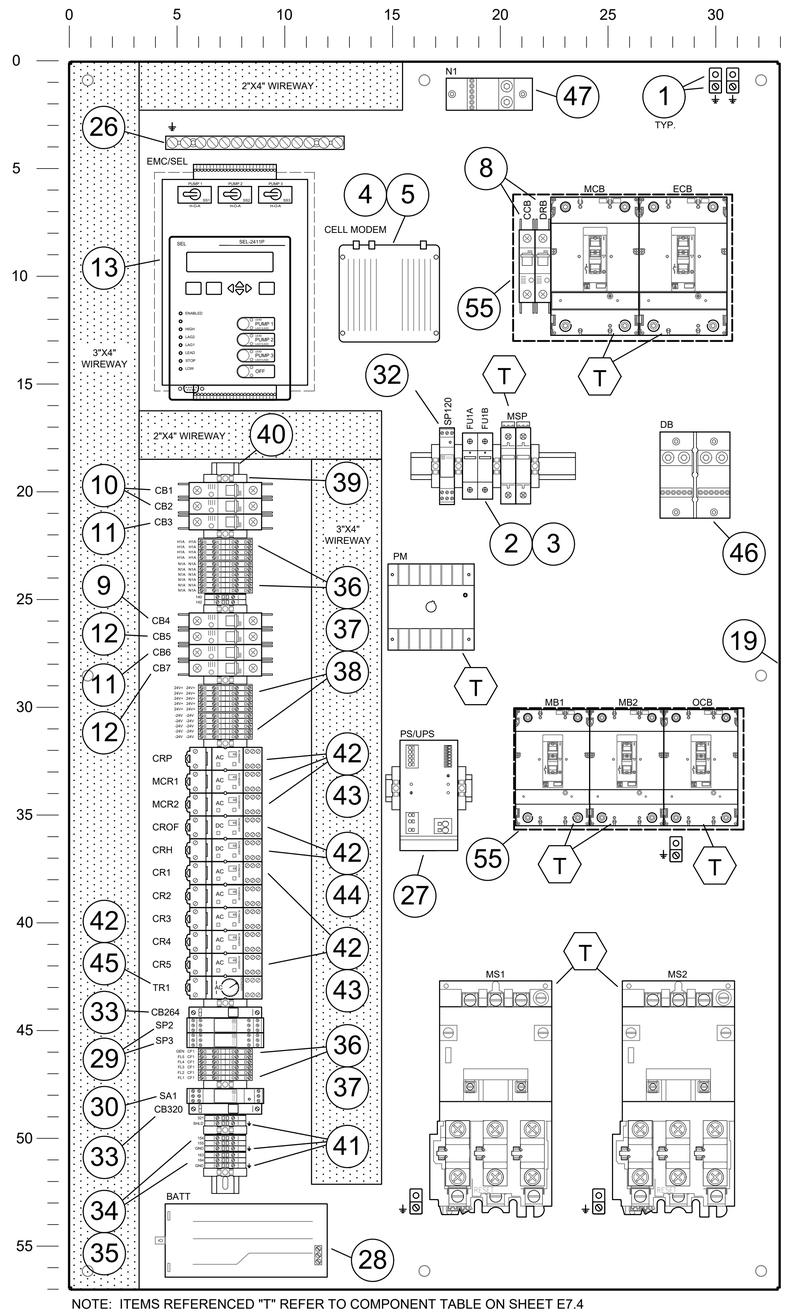
ENCLOSURE DETAILS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E7.2
DRAWING NO.
0
REVISION

STATUS:



NOTE: ITEMS REFERENCED "T" REFER TO COMPONENT TABLE ON SHEET E7.4

BACKPANEL VIEW

ID	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	5	BURNDY	KA2U	GROUND LUG, #2-14
2	3	BUSSMANN	FNQ-R-1	CLASS CC FUSE, 1 AMP, TIME DELAY
3	1	BUSSMANN	CHCC3DIU	CLASS CC FINGERSAFE FUSE HOLDER WITH INDICATOR
4	1	CRADLEPOINT	MA3-0900120B-NNA (TBD)	IBR900 CELLULAR MODEM, RUGGEDIZED WITH IOT ESSENTIALS
5	1	CRADLEPOINT	170656-002	RADIO DIN RAIL BRACKET
6	1	CRADLEPOINT	M530B15-2C1G-CP-IBR900	3-LEAD MIMO M2M IOT ANTENNA
7	1	CUSTOM	PANEL SHOP	12GA. STEEL INNER DOOR DEADFRONT, BLACK POLYESTER POWDERCOATED
8	2	EATON	FAZ-C15/1-NA	CIRCUIT BREAKER, 15 AMP
9	1	EATON	FAZ-C10/1-NA	CIRCUIT BREAKER, 10 AMP
10	2	EATON	FAZ-C1/1-NA	CIRCUIT BREAKER, 1 AMP
11	2	EATON	FAZ-C5/1-NA	CIRCUIT BREAKER, 5 AMP
12	2	EATON	FAZ-C3/1-NA	CIRCUIT BREAKER, 3 AMP
13	1	EMC	SEL-70C1	SEL-2411P CONTROLLER WITH HOUSING KIT AND WIRING HARNESS
14	1	FEDERAL SIGNAL	LP3T-120R	120VAC RED ALARM STROBE
15	1	FEDERAL SIGNAL	350TR-120VAC	NEMA 4X ALARM HORN WITH GASKET
16	2	FLYGT	14-407129	MINICAS FLANGE DOOR MOUNTABLE PUMP MONITOR RELAY, 120V
17	1	HOFFMAN	AVDR4SS4	H20MIT VENT DRAIN, 4X, 304 STAINLESS STEEL
18	1	HOFFMAN	A60H3616SS6LP3PT-CUSTOM	60"H X 36"W X 16"D TYPE 4X SS 316 ENCLOSURE WITH DRIPSHIELD
19	1	HOFFMAN	A60P36	BACKPANEL FOR 60"X36" ENCLOSURE
20	1	HUBBELL	GFRST15SNAPW	GFCI RECEPTACLE, 15A, 120V
21	2	INTERMATIC	UWZ48E-120U	120VAC ELAPSED TIME METER
22	1	PANDUIT	F2X4LG6	SLOTTED WIREWAY, GRAY, 2"X4", 6' STICK
23	1	PANDUIT	C2LG6	2" WIREWAY COVER, GRAY, 6' STICK
24	1	PANDUIT	F3X4LG6	SLOTTED WIREWAY, GRAY, 3"X4", 6' STICK
25	1	PANDUIT	C3LG6	3" WIREWAY COVER, GRAY, 6' STICK
26	1	PANDUIT	UGB2-0-414-12	GROUND BAR, #14-4AWG
27	1	PHOENIX CONTACT	2907161	24VDC UPS AND POWER SUPPLY MODULE, 10 AMP
28	1	PHOENIX CONTACT	1274117	24VDC BACKUP BATTERY, 4 Ah
29	2	PHOENIX CONTACT	2800982	PLUG TRAB SURGE PROTECTOR WITH BASE, 24VDC, 4-POINT
30	1	PHOENIX CONTACT	2800976	ANALOG SIGNAL SURGE PROTECTOR WITH BASE
32	1	PHOENIX CONTACT	2907918	120VAC SURGE PROTECTOR WITH STATUS, PLUG AND BASE
33	1	PHOENIX CONTACT	0916603	THERMOMAGNETIC DEVICE CIRCUIT BREAKER, 1/2A
34	10	PHOENIX CONTACT	3044102	STANDARD TERMINAL BLOCK, 30A
35	4	PHOENIX CONTACT	3047028	STANDARD TERMINAL BLOCK END BARRIER
36	30	PHOENIX CONTACT	3044814	2-TIER ISOLATED TERMINAL BLOCK
37	6	PHOENIX CONTACT	3047293	2-TIER TERMINAL BLOCK END COVER
38	8	PHOENIX CONTACT	3030271	2-TIER TERMINAL BLOCK JUMPER BRIDGE
39	16	PHOENIX CONTACT	0800886	DIN RAIL END BRACKET
40	1	PHOENIX CONTACT	0801733	STANDARD DIN RAIL, 2M
41	5	PHOENIX CONTACT	30-44-12-8	GROUNDING TERMINAL BLOCK
42	11	SCHNEIDER	70-782EL8-1	RELAY BASE, 8-PIN
43	8	SCHNEIDER	792XBXM4L-120A	DPDT RELAY, 120VAC, WITH INDICATOR AND TEST LATCH
44	2	SCHNEIDER	792XBXM4L-24D	DPDT RELAY, 24VDC, WITH INDICATOR AND TEST LATCH
45	1	SCHNEIDER	TDR782XBXA-110A	DPDT ON-DELAY TIMER, 120VAC
46	1	SQUARE D	9080LBC363206	3-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
47	1	SQUARE D	9080LBC163206	1-POLE DISTRIBUTION BLOCK, (2) LINE #14-2/0, (6) LOAD #14-#4
48	1	SQUARE D	9007MS02S0200	INTRUSION SWITCH WITH CUSTOM MOUNTING BRACKET
49	1	SQUARE D	9001SKS43B	3-POSITION SELECTOR SWITCH WITH 3 CONTACTS
50	2	SQUARE D	9001KA1	CONTACT BLOCK, 1NO-1NC
51	1	SQUARE D	9001SKR1U	MOMENTARY PUSH-BUTTON
52	2	SQUARE D	9001KA2	CONTACT BLOCK, 1NO
53	1	SQUARE D	9001K1L1RH13	ILLUMINATED PUSHBUTTON, RED, 120V, 1NO-1NC
54	1	UTILTECH	0877623	UNDERCABINT LIGHT, 120VAC, WITH 18' LED BULB
55	2	CUSTOM	PANEL SHOP	CUSTOM ELEVATED CIRCUIT BREAKER SHELF
56	-	CUSTOM	PANEL SHOP	ENGRAVED PHENOLIC NAMEPLATES, WHITE TEXT WITH BLACK BACKGROUND

BILL OF MATERIALS

NOTES:

1. BILL OF MATERIALS IS PROVIDED FOR EXAMPLE ONLY. PANEL COMPONENTS WILL VARY WITH EACH SPECIFIC LIFT STATION. CONTROL PANEL MANUFACTURER TO PROVIDE A COMPLETE LIST OF CONTROL PANEL MATERIALS FOR COUNTY APPROVAL BEFORE FABRICATION.

2. CONTROL PANEL TO BE UL508A LISTED TYPE 4X.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
	REVISIONS	

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

BACKPANEL DETAIL AND BILL OF MATERIAL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E7.3
DRAWING NO.
0
REVISION

STATUS:

COMPONENT REFERENCE TABLE

SERVICE VOLTAGE	MCB/SERVICE	MAIN BREAKER PART#	GENERATOR RECEPTACLE	RECEPTACLE PART#	MAIN SURGE PROTECTOR	PHASE MONITOR	ODOR CONTROL BREAKER PART#	TOTAL PANEL FLA	PUMP HP	PHASE	PUMP FLA (PER NEC)	MOTOR BREAKER AMPS	MOTOR BREAKER PART#	WIRE SIZE	STARTER SIZE	STARTER PART#	OVERLOAD PART#
208/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	48.375	3	3	10.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	65.625	5	3	17.5	35	SQD-HDL36035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	82.375	7.5	3	24.2	50	SQD-HDL36050	10	1	SQD-8536-SOC3V02	SQD-B36.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	98.875	10	3	30.8	60	SQD-HDL36060	8	2	SQD-8536-SOD3V02	SQD-B45.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910360	ATC-SLA-208-AFE	SQD-HDL36030	137.375	15	3	46.2	90	SQD-HDL36090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 1PH, 3W	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	55.00	1	1	8	15	SQD-HDL26015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	65.00	2	1	12	25	SQD-HDL26025	12	1	SQD-8536-SOC3V02	SQD-B17.5
	100	SQD-HDL26100	100	RS-DS1314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	77.50	3	1	17	35	SQD-HDL26035	12	1	SQD-8536-SOC3V02	SQD-B25.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	105.00	5	1	28	60	SQD-HDL26060	10	1	SQD-8536-SOC3V02	SQD-B40.0
	150	SQD-HDL26150	150	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	135.00	7.5	1	40	80	SQD-HDL26080	8	1	SQD-8536-SOC3V02	SQD-C51.0
	200	SQD-JDL26200	200	RS-DS2314MP000	(2) PC-2910368	ATC-58072	SQD-HDL26030	160.00	10	1	50	90	SQD-HDL26090	6	2	SQD-8536-SOD3V02	SQD-C58.0
240/120VAC, 3PH, 4W	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	36.00	2	3	6.8	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B10.2
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	43.00	3	3	9.6	20	SQD-HDL36020	12	1	SQD-8536-SOC3V02	SQD-B15.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	57.00	5	3	15.2	30	SQD-HDL36030	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	74.00	7.5	3	22	45	SQD-HDL36045	10	1	SQD-8536-SOC3V02	SQD-B32.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	89.00	10	3	28	60	SQD-HDL36060	10	2	SQD-8536-SOD3V02	SQD-B40.0
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	124.00	15	3	42	80	SQD-HDL36080	6	2	SQD-8536-SOD3V02	SQD-B15.5
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	154.00	20	3	54	90	SQD-HDL36090	4	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	189.00	25	3	68	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910371	ATC-SLA-230-ALE	SQD-HDL36030	219.00	30	3	80	110	SQD-HDL36110	2	-	AB-150-C85NBD	-
480/277VAC, 3PH, 4W (NEUTRAL NOT USED)	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	28.50	5	3	7.6	15	SQD-HDL36015	12	1	SQD-8536-SOC3V02	SQD-B11.5
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	44.50	10	3	14	25	SQD-HDL36025	12	1	SQD-8536-SOC3V02	SQD-B22.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	62.00	15	3	21	40	SQD-HDL36040	10	2	SQD-8536-SOD3V02	SQD-B32.0
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	77.00	20	3	27	60	SQD-HDL36060	10	-	AB-150-C30NBD	-
	100	SQD-HDL36100	100	RS-DS1414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	94.50	25	3	34	70	SQD-HDL36070	8	-	AB-150-C37NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	109.50	30	3	40	80	SQD-HDL36080	8	-	AB-150-C43NBD	-
	150	SQD-HDL36150	150	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	139.50	40	3	52	90	SQD-HDL36090	6	-	AB-150-C60NBD	-
	200	SQD-JDL36200	200	RS-DS2414MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	172.00	50	3	65	100	SQD-HDL36100	4	-	AB-150-C85NBD	-
	250	SQD-JDL36250	250	RS-DS4141MP000	PC-2910386	ATC-SLA-440-ALE	SQD-HDL36030	202.00	60	3	77	110	SQD-HDL36110	2	-	AB-150-C85NBD	-

NOTES:
SQD - SQUARE D
ATC - ATC/DIVERSIFIED ELECTRONICS
RS - RUSSELLSTOLL
AB- ALLEN BRADLEY
PC - PHOENIX CONTACT

NOTES:

1. COMPONENT REFERENCE TABLE IS PROVIDED FOR REFERENCE ONLY. ALL PANEL POWER COMPONENTS AND MOTOR CONTROL COMPONENTS TO BE DETERMINED BY PANEL MANUFACTURER BASED ON SITE SPECIFIC REQUIREMENTS.

2. ALL MATERIAL SELECTED SHALL MEET UL508A AND NEC REQUIREMENTS. SITE SPECIFIC MATERIAL LIST TO BE PROVIDED TO COUNTY FOR APPROVAL.

3. GENERATOR RECEPTACLE AND ODOR CONTROL COMPONENTS PROVIDED BASED ON SITE SPECIFIC REQUIREMENTS.

4. 480VAC PANELS TO BE PROVIDED WITH 480V/120V CONTROL PANEL TRANSFORMER (NOT SHOWN).

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
	REVISIONS	

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

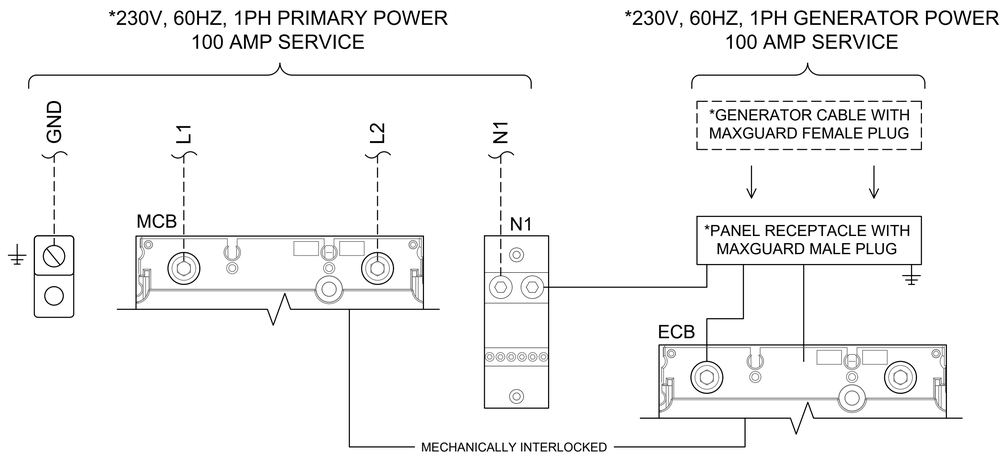
COMPONENT REFERENCE TABLE

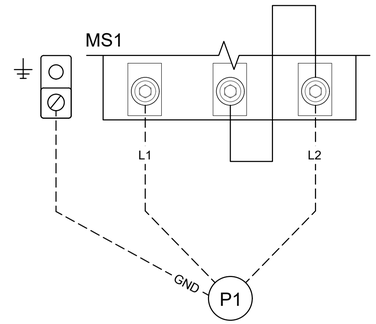
DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

SCALE
HORIZONTAL:
VERTICAL:

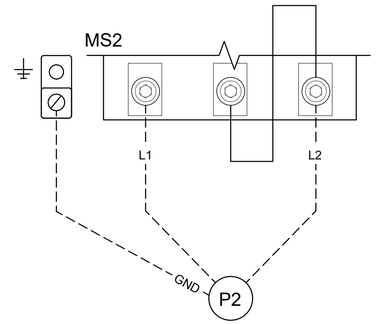
E7.4
DRAWING NO.
0
REVISION

STATUS:





PUMP NO. 1



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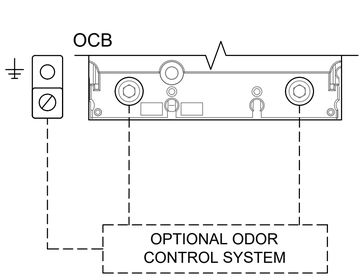

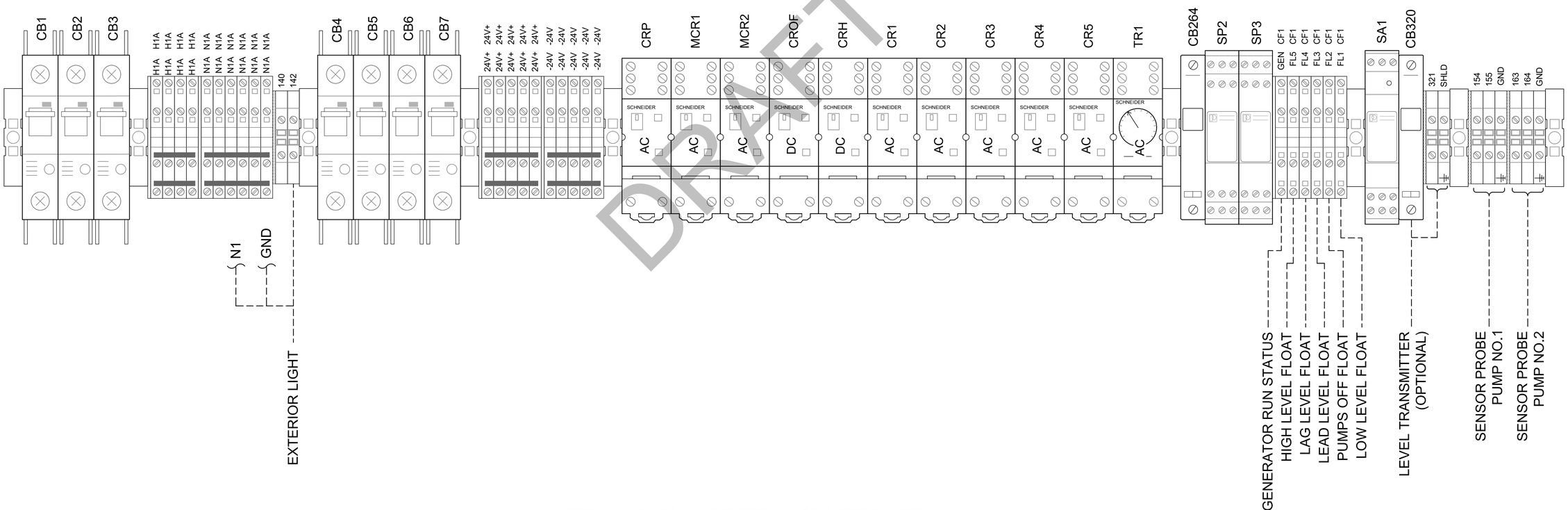

TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

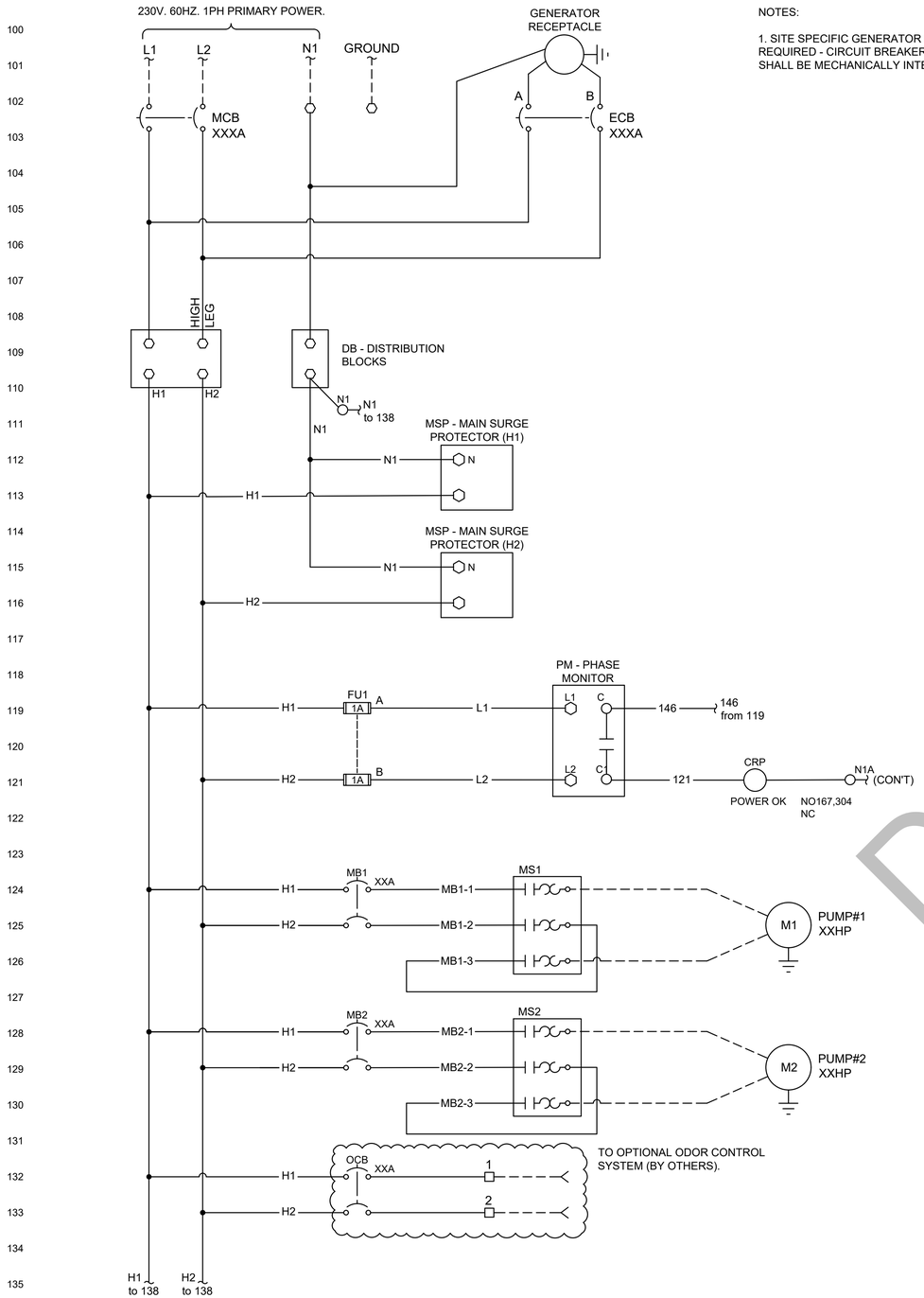
TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

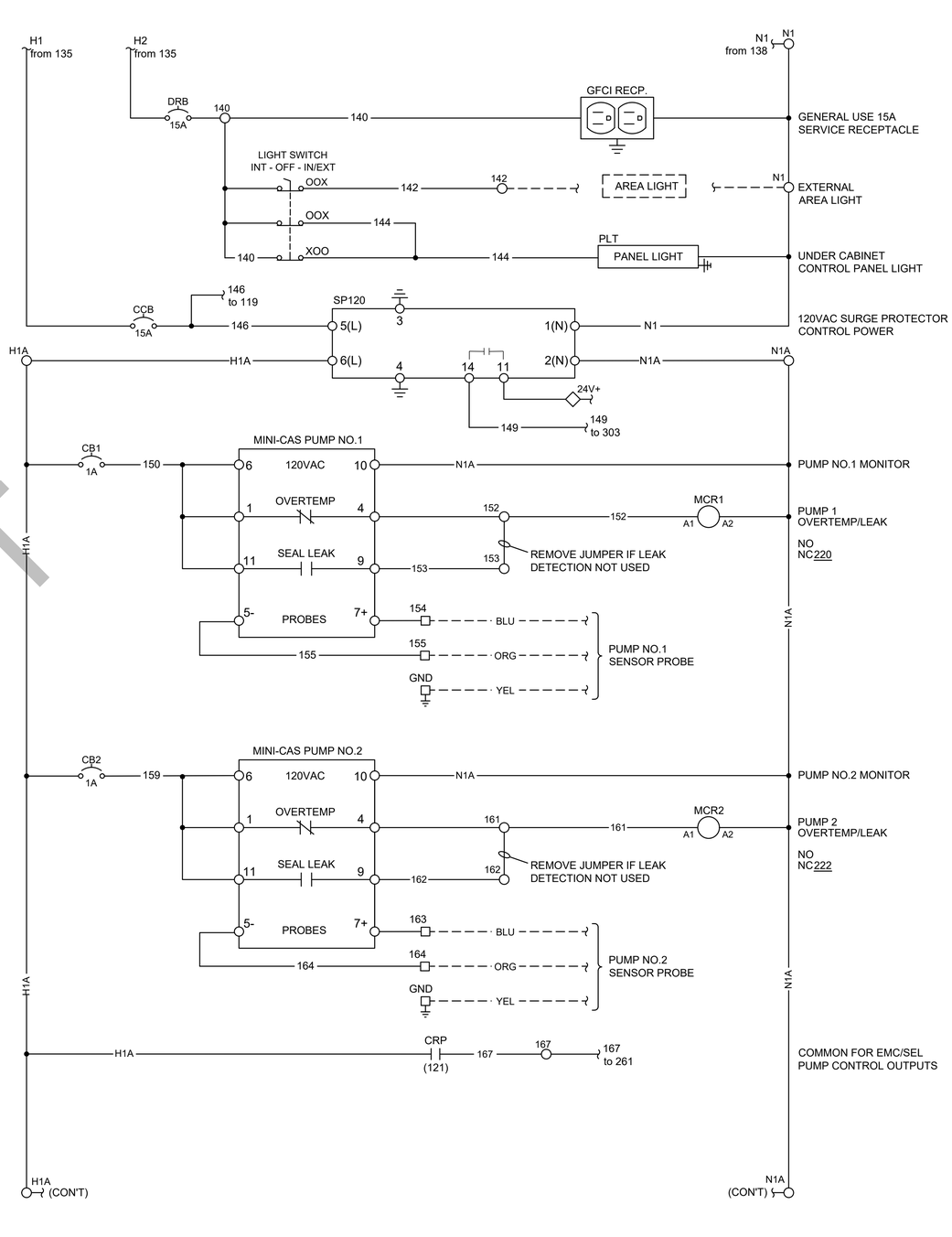
E7.5
DRAWING NO.
0
REVISION

STATUS:



NOTES:

1. SITE SPECIFIC GENERATOR RECEPTACLE IF REQUIRED - CIRCUIT BREAKERS MCB AND ECB SHALL BE MECHANICALLY INTERLOCKED.



REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

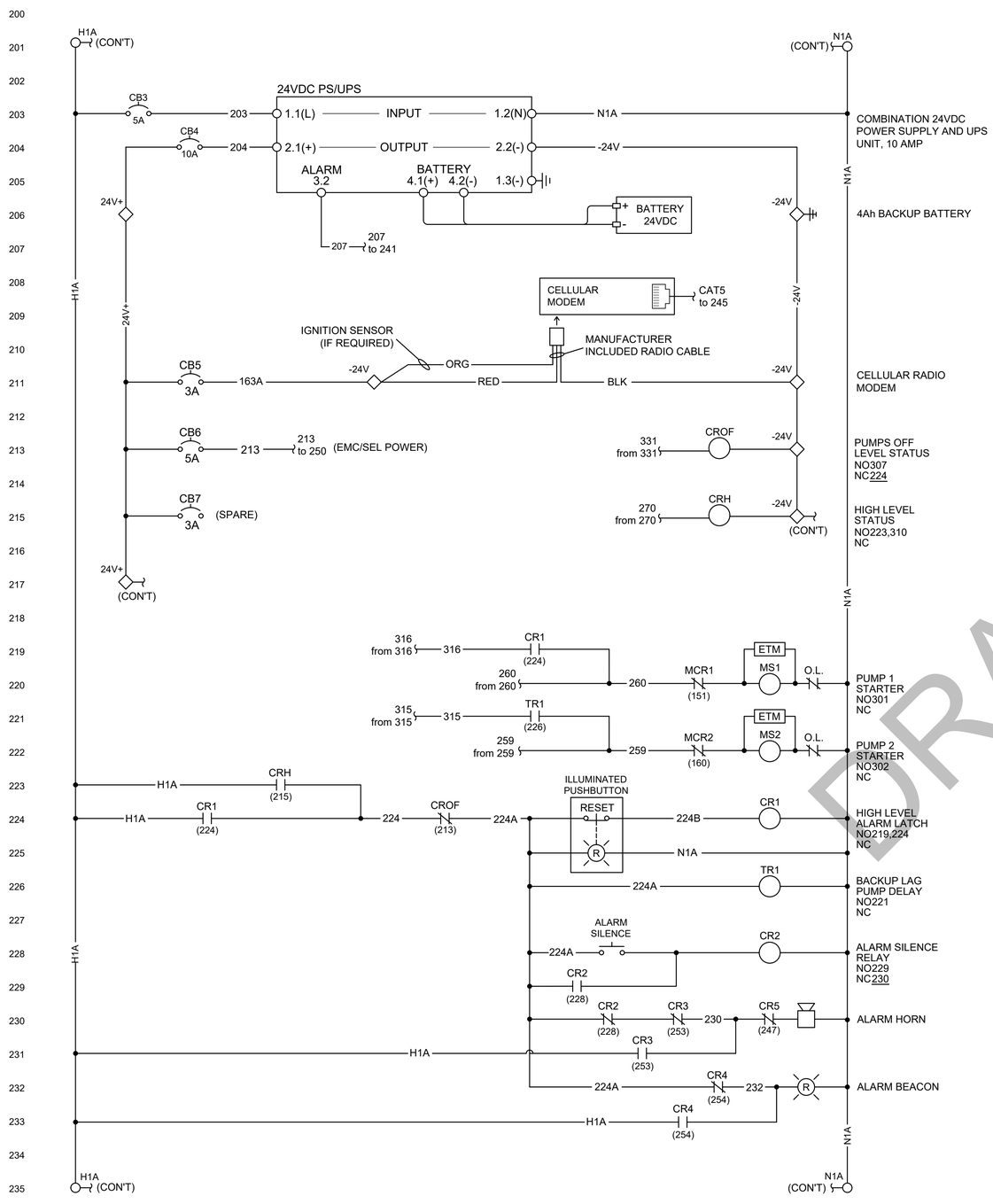
CONTROL POWER WIRING

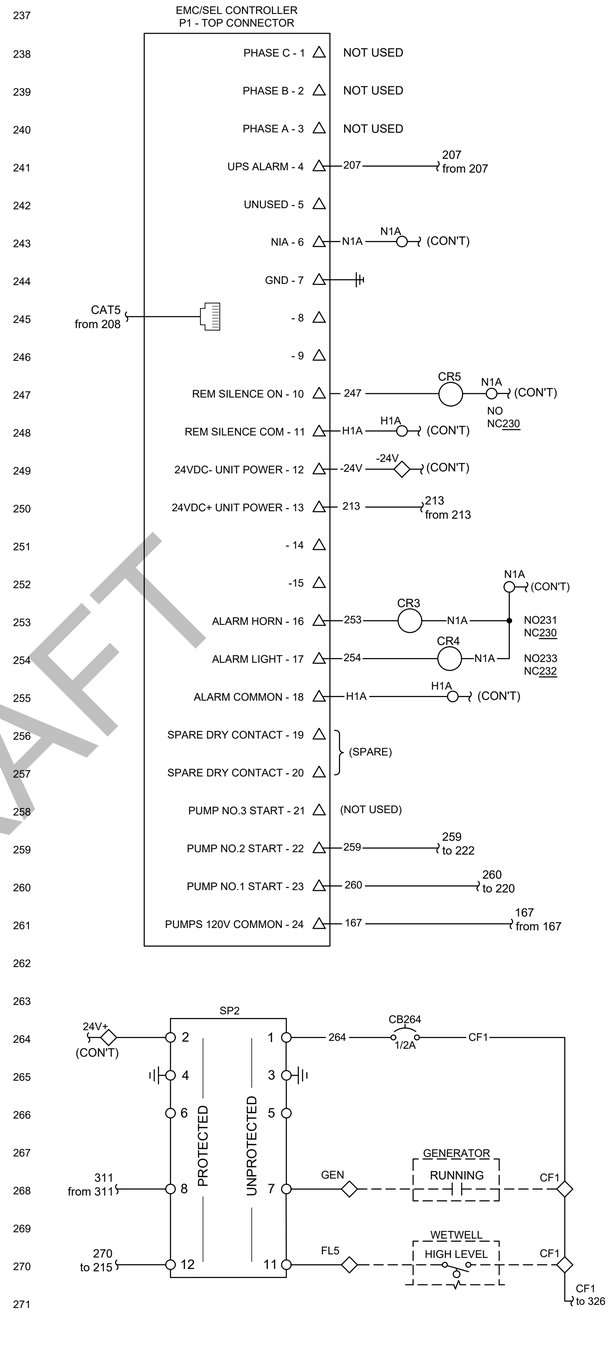
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

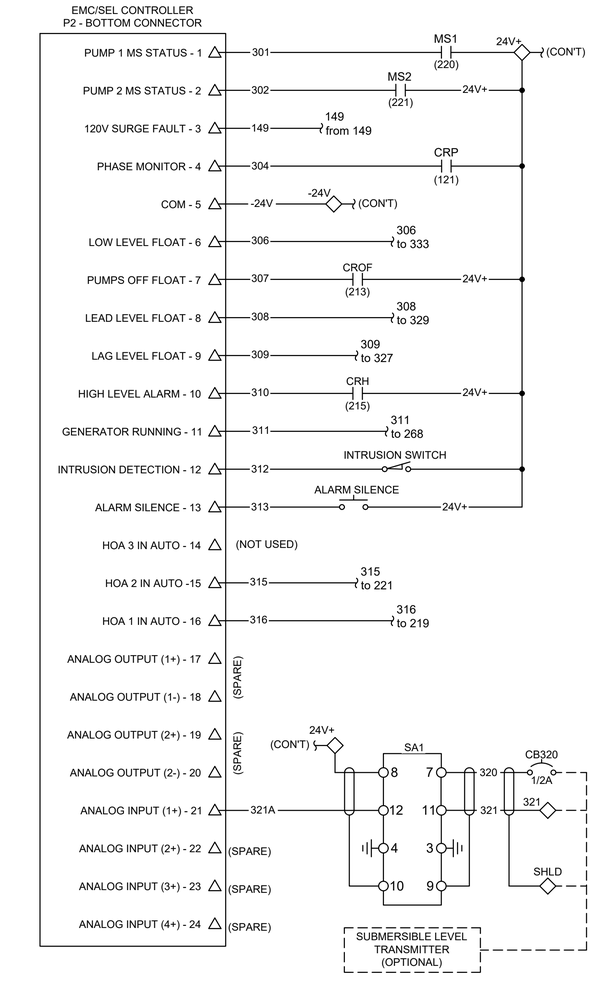
SCALE
HORIZONTAL:
VERTICAL:

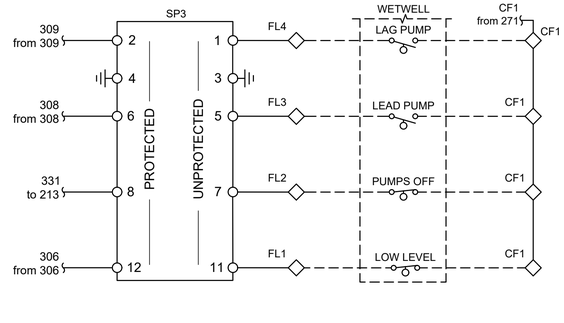
E7.6
DRAWING NO.
0
REVISION

STATUS:









REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

CONTROL AND EMC-SEL DIAGRAM

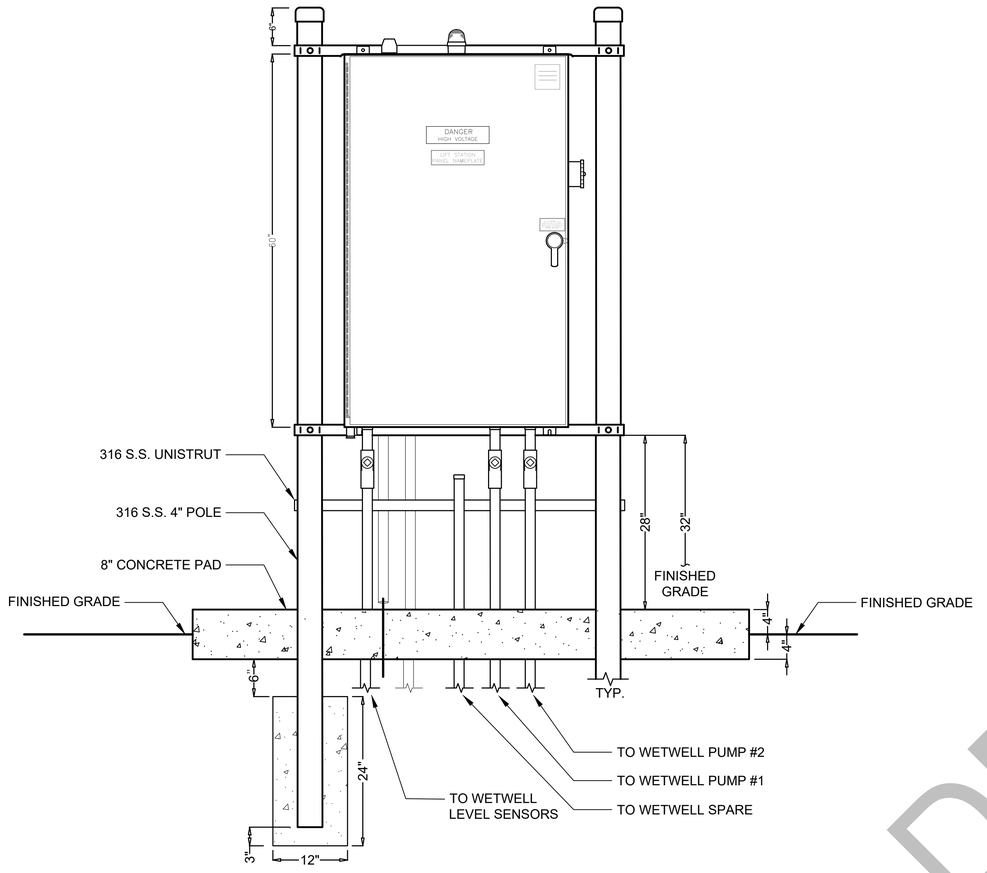
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

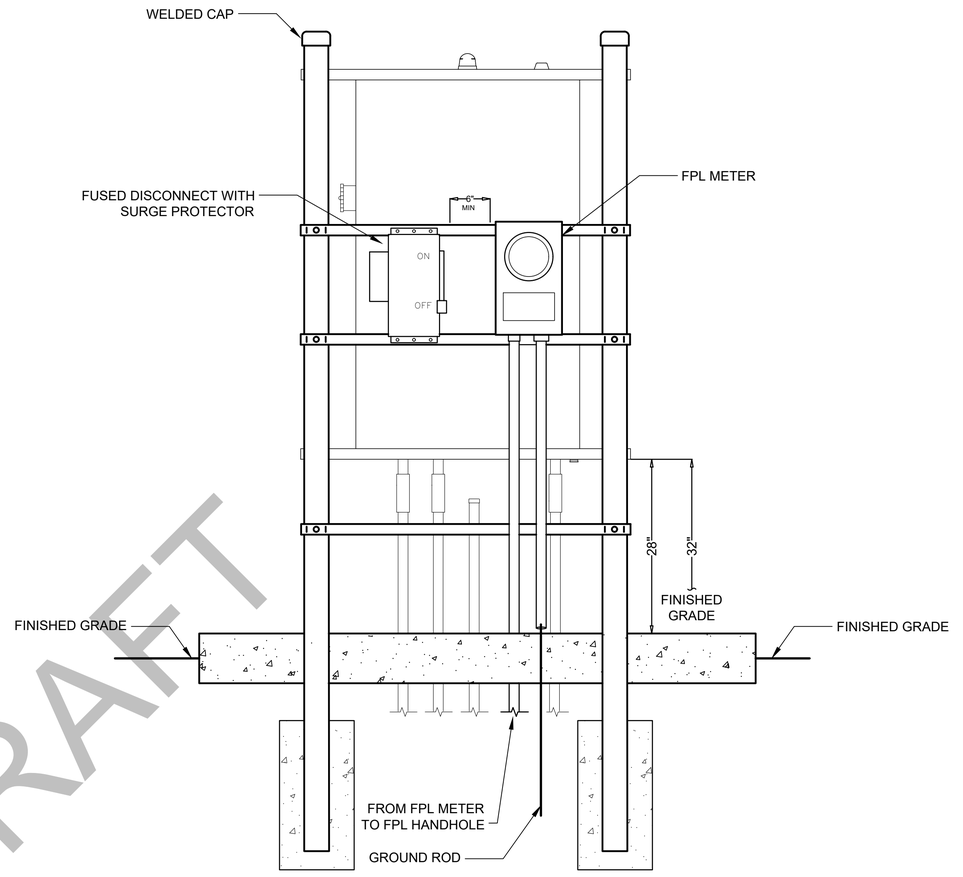
E7.7
DRAWING NO.

0
REVISION

STATUS:



FRONT MOUNTING VIEW



REAR MOUNTING VIEW

DETAIL NOTES:

1. CONDUIT(S) DEPICTED ON FRONT ELEVATIONS ARE SHOWN TO CONVEY DESIGN INTENT AND DO NOT DEPICT ACTUAL SIZES OR QUANTITIES. CONTRACTOR SHALL REFERENCE ALL PROJECT SPECIFIC ENGINEERING DRAWINGS FOR MINIMUM CONDUIT AND CONDUCTOR REQUIREMENTS AND COORDINATE WITH CCU.
2. ALL EXPOSED CONDUIT SHALL BE RIGID TYPE 316 STAINLESS STEEL CONDUIT. UNDERGROUND CONDUIT TO THE WETWELL SHALL BE SCHEDULE 80 PVC.
3. GROUND CONDUIT SHALL BE 1/2" SCHEDULE 80 PVC. GROUND WIRE TO BE SIZE NUMBER 6.
4. THE PUMP CONTROL PANEL/RTU PANEL SHALL HAVE A PAD LOCKABLE HANDLE, 3-POINT LATCH.
5. ALL CONDUIT(S) SHALL ENTER THE BOTTOM OF ALL ENCLOSURES WITH DIE-CAST STAINLESS STEEL CONDUIT HUBS - CHASE/CLOSE CONDUIT NIPPLES AND SIDE ENTRIES ARE NOT ACCEPTABLE.
6. WETWELL CONDUITS SHALL HAVE "EYS" EXPLOSION PROOF CLASS 1 SEAL-OFF. ALL NON-WETWELL CONDUIT ENTRIES SHALL HAVE MOISTURE SEALANT APPLIED AFTER ACCEPTED START-UP AND COMMISSIONING WITH APPROVED DUCT SEAL.
7. ALL CONDUIT SUPPORTS, CLAMPS, HANGERS, FASTENERS, BOLTS, NUTS, SCREWS, WASHERS,AND STRUT-CHANNEL SHALL BE STAINLESS-STEEL.
8. STRUT-CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO PRODUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
9. ENGRAVED WARNING LABEL STATING " DANDER HIGH VOLTAGE" SHALL BE AFFIXED TO THE OUTSIDE OF THE ENCLOSURE DOOR AND BE SECURED USING ADHESIVE OR CEMENT.
10. IF REQUIRED, ONE (1) INCH PVC AND/OR TYPE 316 STAINLESS STEEL CONDUIT BETWEEN THE PUMP CONTROL PANEL/RTU AND THE AREA LIGHT, THE STANDBY GENERATOR, AND/OR THE ODOR CONTROL SYSTEM IN ACCORDANCE WITH THE PROJECT SPECIFIC ENGINEERING DRAWINGS. (NOT SHOWN)

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

LIFT STATION PCP & RTU COMBO (SINGLE PHASE)

PANEL MOUNTING DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E7.8
DRAWING NO.
0
REVISION

STATUS:

ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

LOW PRESSURE

Sheet List Table	
Sheet Number	Sheet Title
COVER	LOW PRESSURE SEWER
LP-01	TYPICAL LPS TANK WITH MODIFICATIONS
LP-02	LPS SERVICE CONNECTION
LP-03	SUMP PUMP WIRING SCHEMATIC
LP-04	PUMP CHAMBER
LP-05	TYPICAL INSTALLATION
LP-06	FIBERGLASS-FLOAT LOCATIONS
LP-07	LPS CLEAN-OUT
LP-08	LPS AUTOMATIC AIR RELEASE-ODOR CONTROL
LP-09	CONCRETE LPS TANK
LP-10	FRALO BILL OF MATERIALS
LP-11	FRALO TANK INSTALATION PAGE 1
LP-12	FRALO TANK INSTALATION PAGE 2
LP-13	FRALO TANK INSTALATION PAGE 3
LP-14	FRALO-FLOAT LOCATIONS

DATE: 8/01/2023

DRAWN BY: DEC

APPROVED BY: BRB

TYPICAL LPS TANK W/ MODIFICATIONS

CHARLOTTE COUNTY UTILITIES

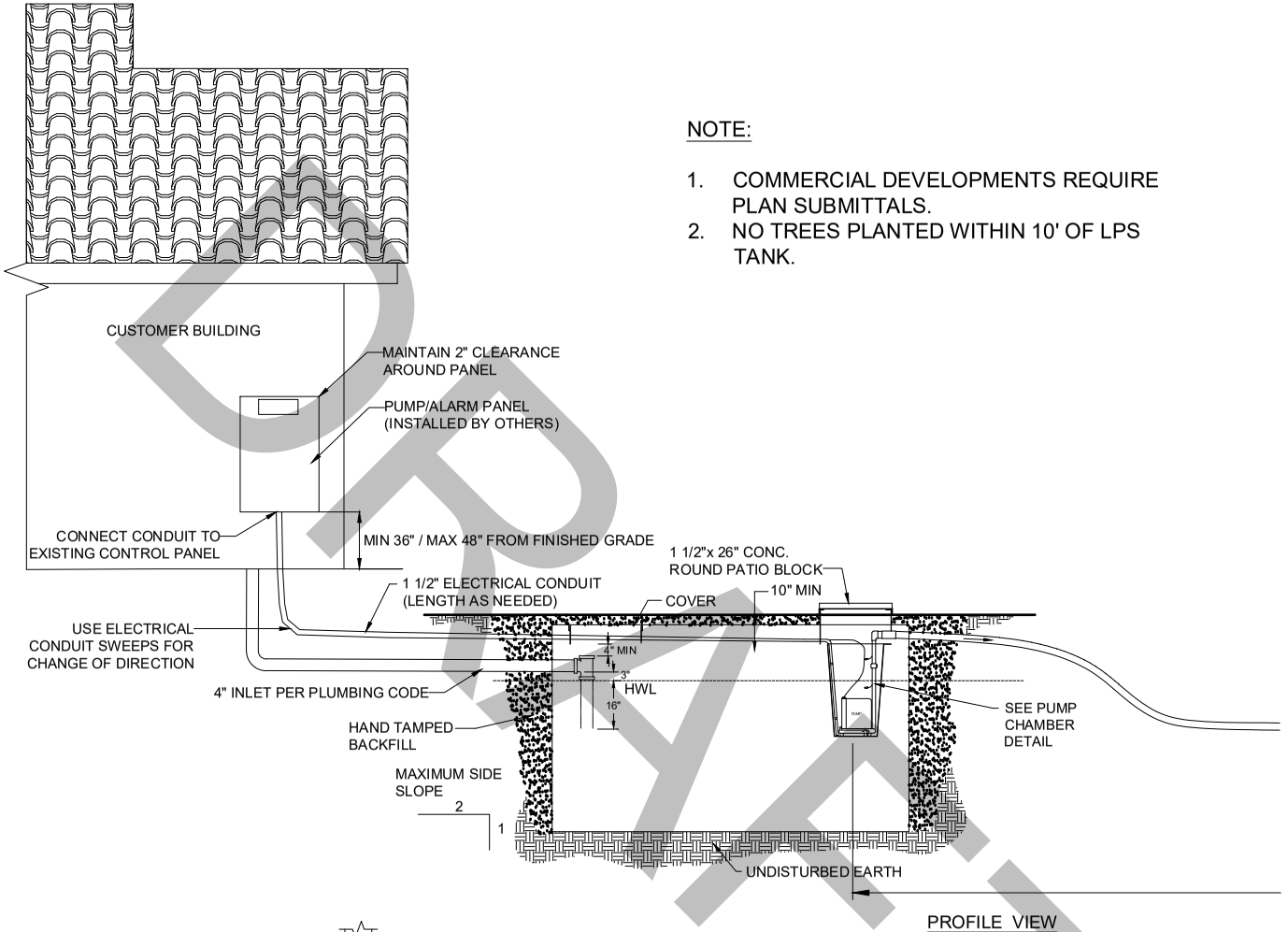
PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

PAGE No. LP-01

NUMBER: LPS-1-1

NOTE:

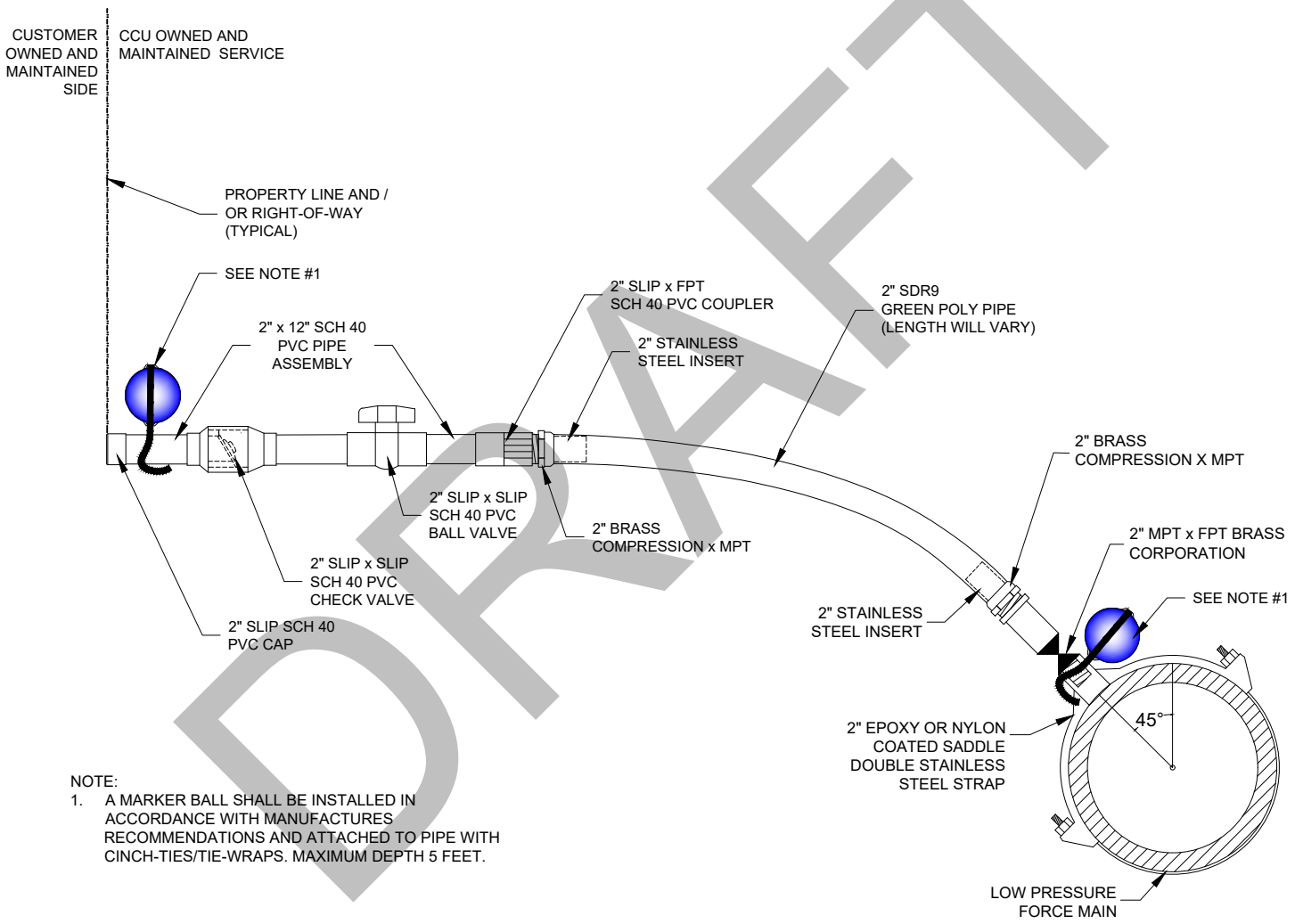
1. COMMERCIAL DEVELOPMENTS REQUIRE PLAN SUBMITTALS.
2. NO TREES PLANTED WITHIN 10' OF LPS TANK.



L.P. MAIN (TYP. 5' OFF EDGE OF PAVEMENT)

SINGLE SERVICE CONNECTION

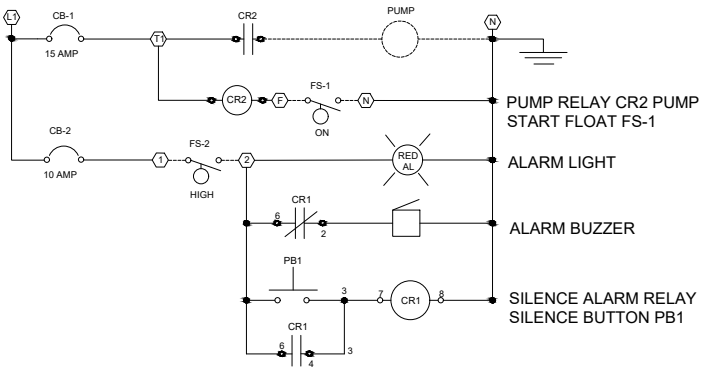
N.T.S.



NOTE:

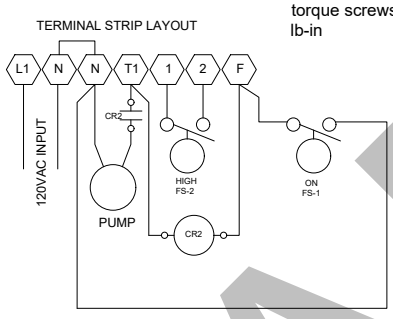
1. A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS AND ATTACHED TO PIPE WITH CINCH-TIES/TIE-WRAPS. MAXIMUM DEPTH 5 FEET.

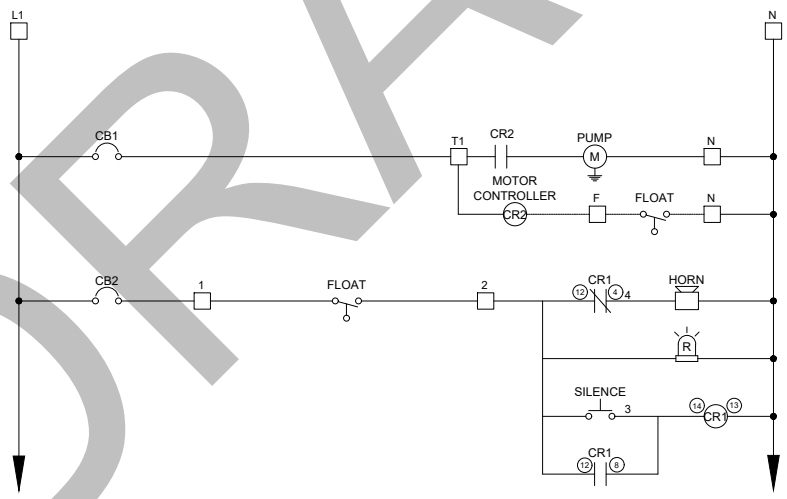
DATE: 8/01/2023	LOW PRESSURE SERVICE CONNECTIONS DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LPS TYP-SERV-CON



THE RELAY SHALL BE THE CROUZET # 84134011 25 AMP SOLID STATE W/ HEAT SINK

Use copper wires rated 60° C insulation, min. torque screws:10.5-14.1 lb-in

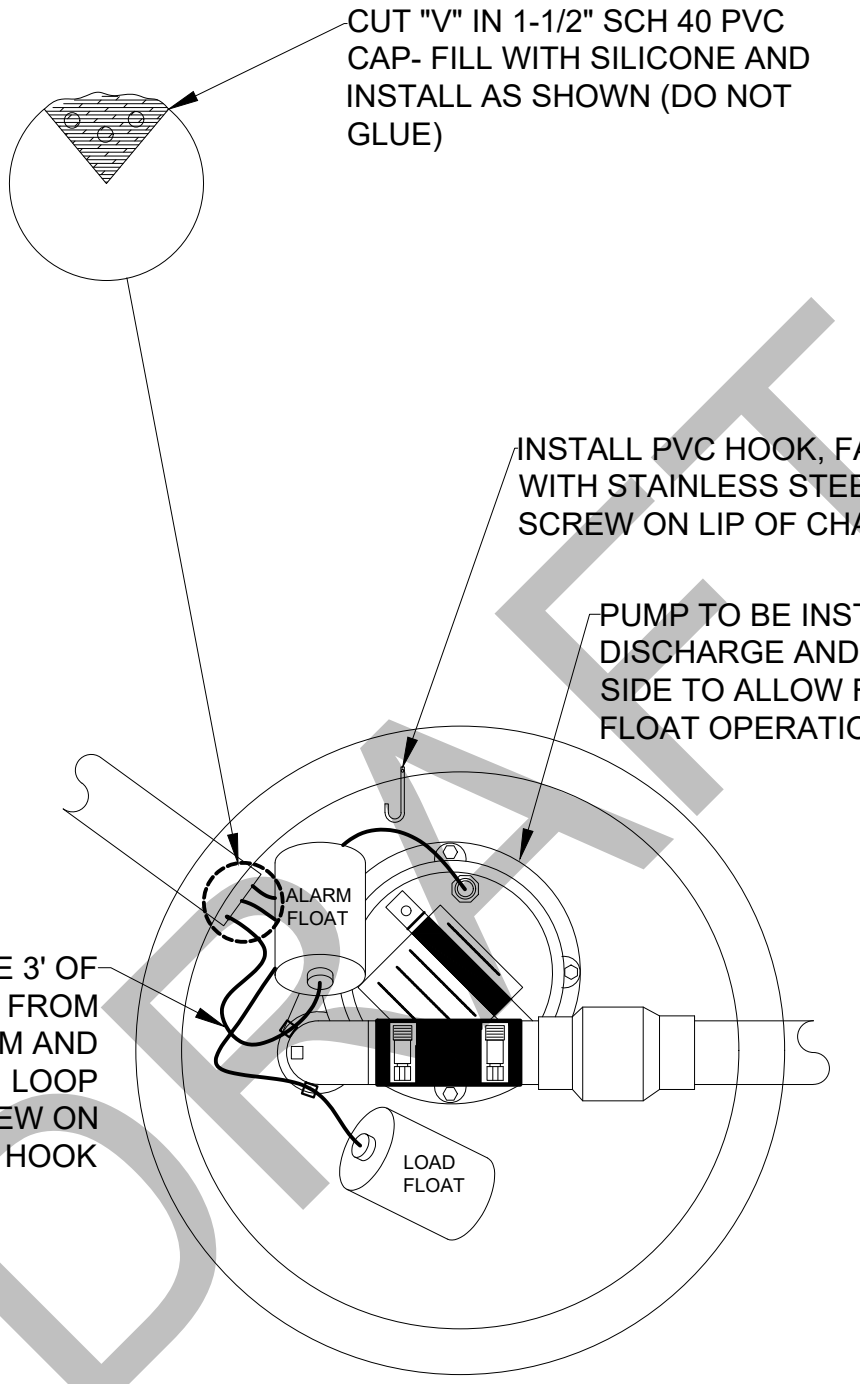




ELECTRICAL NOTES:

1. 1 - DESIGNATED 120 VOLT 20 AMP CIRCUIT IS REQUIRED:
2. WIRING CONNECTIONS SHALL BE FURNISHED BY ELECTRICAL CONTRACTOR.
3. ELECTRICAL INSTALLATION SHALL COMPLY WITH THE NEC, NECS, AND LOCAL CODES.
4. CONTROL PANEL SHALL BE MOUNTED WITHIN SIGHT OF THE TANK INSTALLATION AND WITH ACCESS AVAILABLE FOR MAINTENANCE AS APPROVED BY CCU.

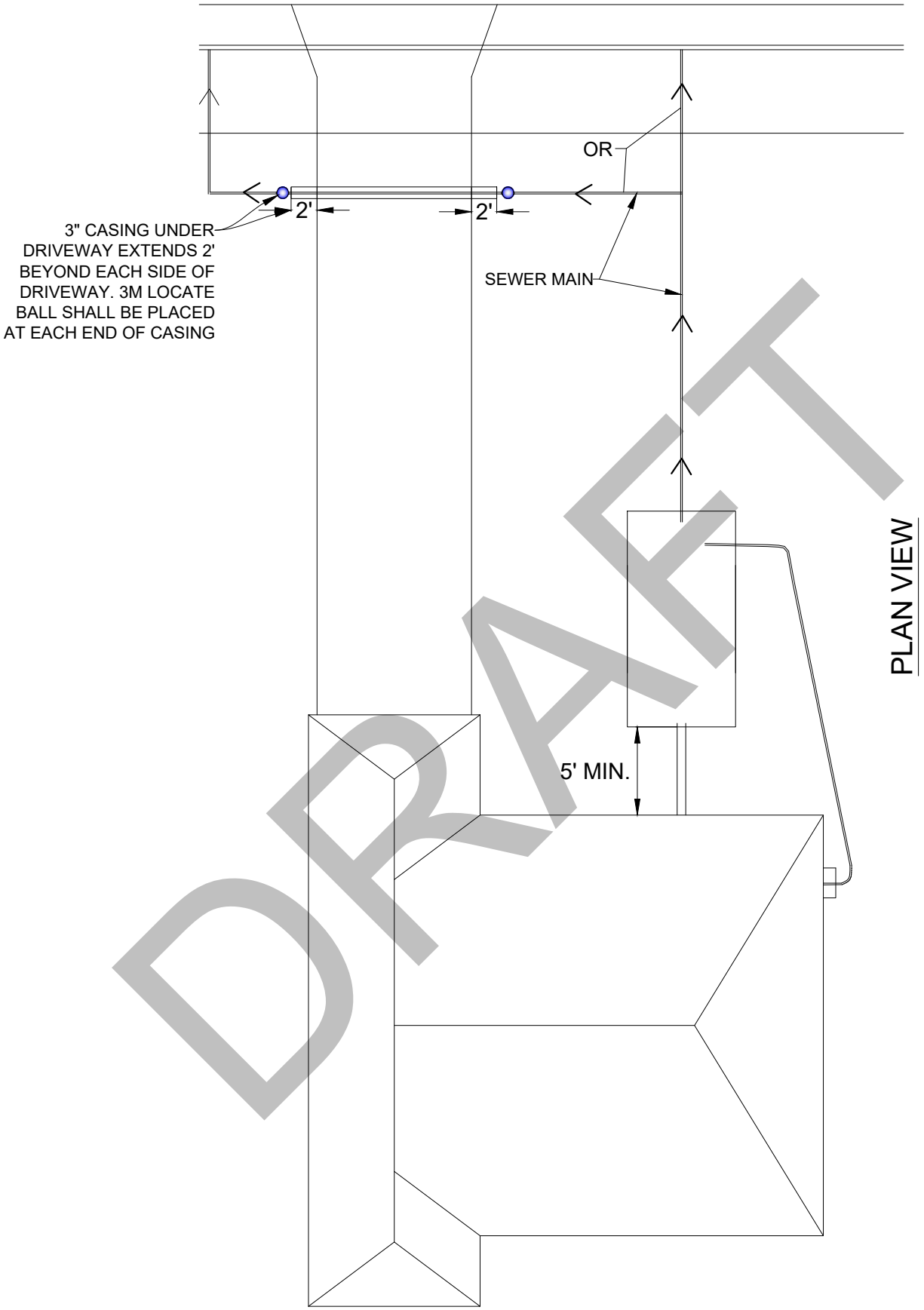
DATE: 8/01/2023	# SUMP PUMP WIRING SCHEMATIC	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-03
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LPS 1-3



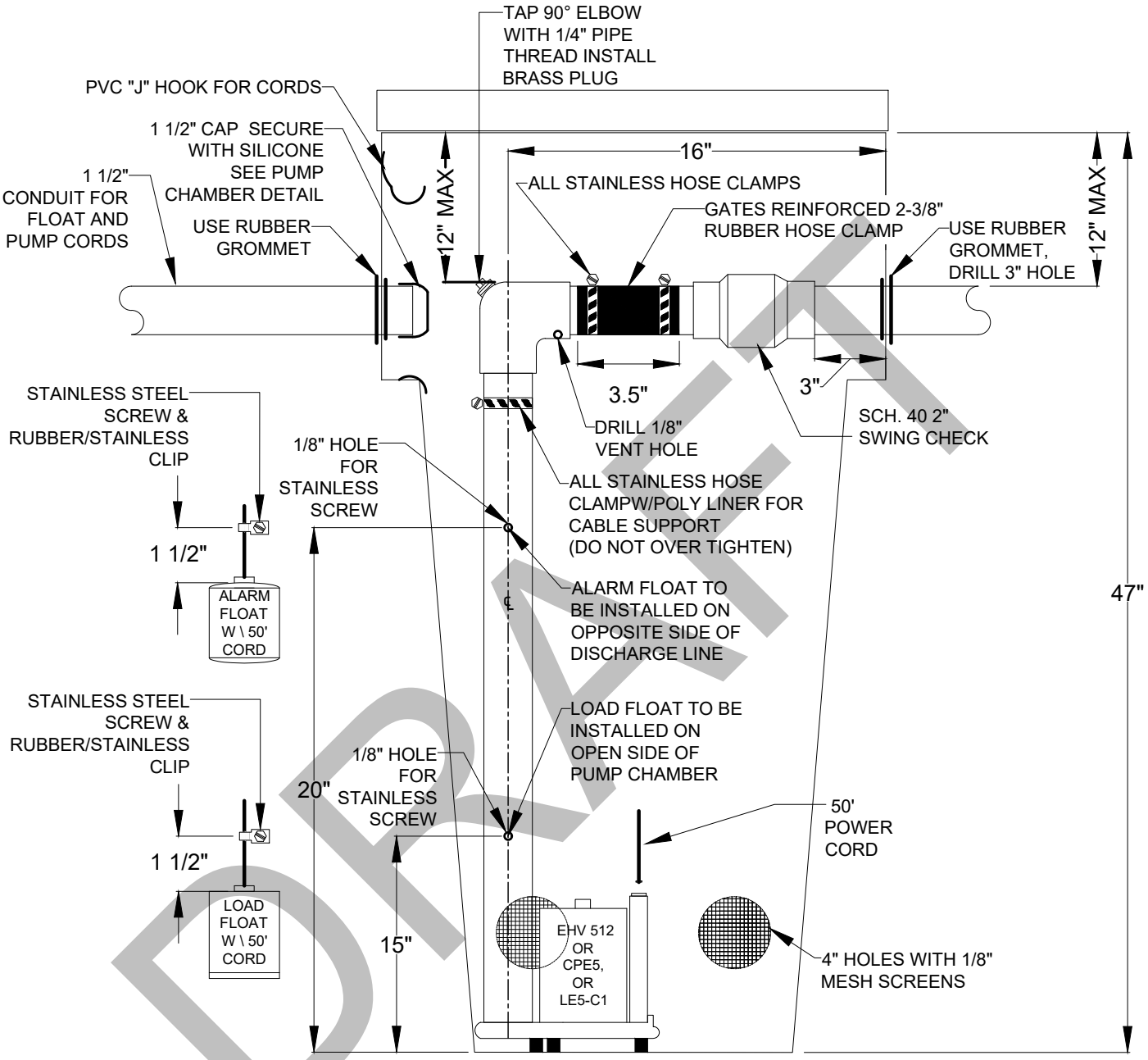
NOTE: ALL HARDWATE SHALL BE STAINLESS STEEL

TOP VIEW
PUMP CHAMBER

DATE: 8/01/2023	TYPICAL PUMP CHAMBER TOP VIEW DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LPS 1-6



DATE: 8/01/2023	TYPICAL TANK INSTALLATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-05
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LPS 1-7



NOTES:

1. FIBERGLASS AND CONCRETE LPS TANK APPLICATIONS, IF RISER IS INSTALLED ALL PLUMBING SHALL BE MOVED TO WITHIN 12" OF BOTTOM OF LID.
2. ALL HARDWARE SHALL BE STAINLESS STEEL

SIDE VIEW
PUMP CHAMBER

DATE: 8/01/2023	FIBERGLASS LOW PRESSURE SEWER PUMP CHAMBER FLOAT LOCATIONS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: S-06-FLOATS

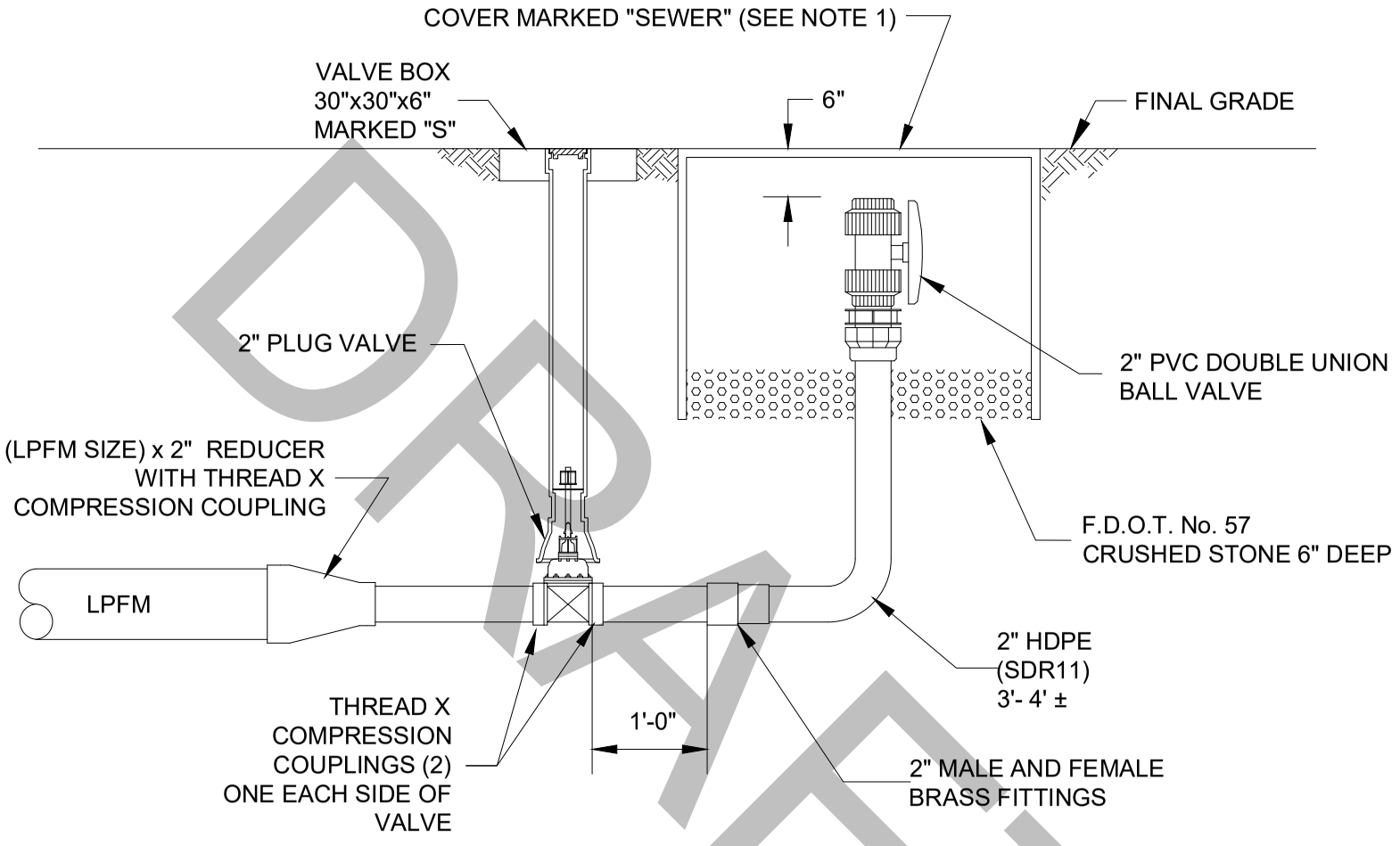
DATE: 8/01/2023

DRAWN BY: DEC

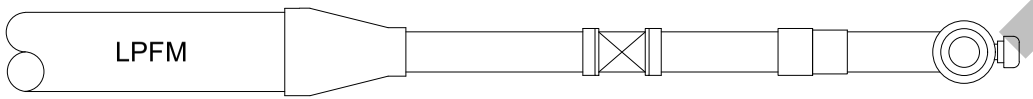
APPROVED BY: BRB

LOW PRESSURE CLEAN-OUT ASSEMBLY

CHARLOTTE COUNTY UTILITIES



SIDE VIEW



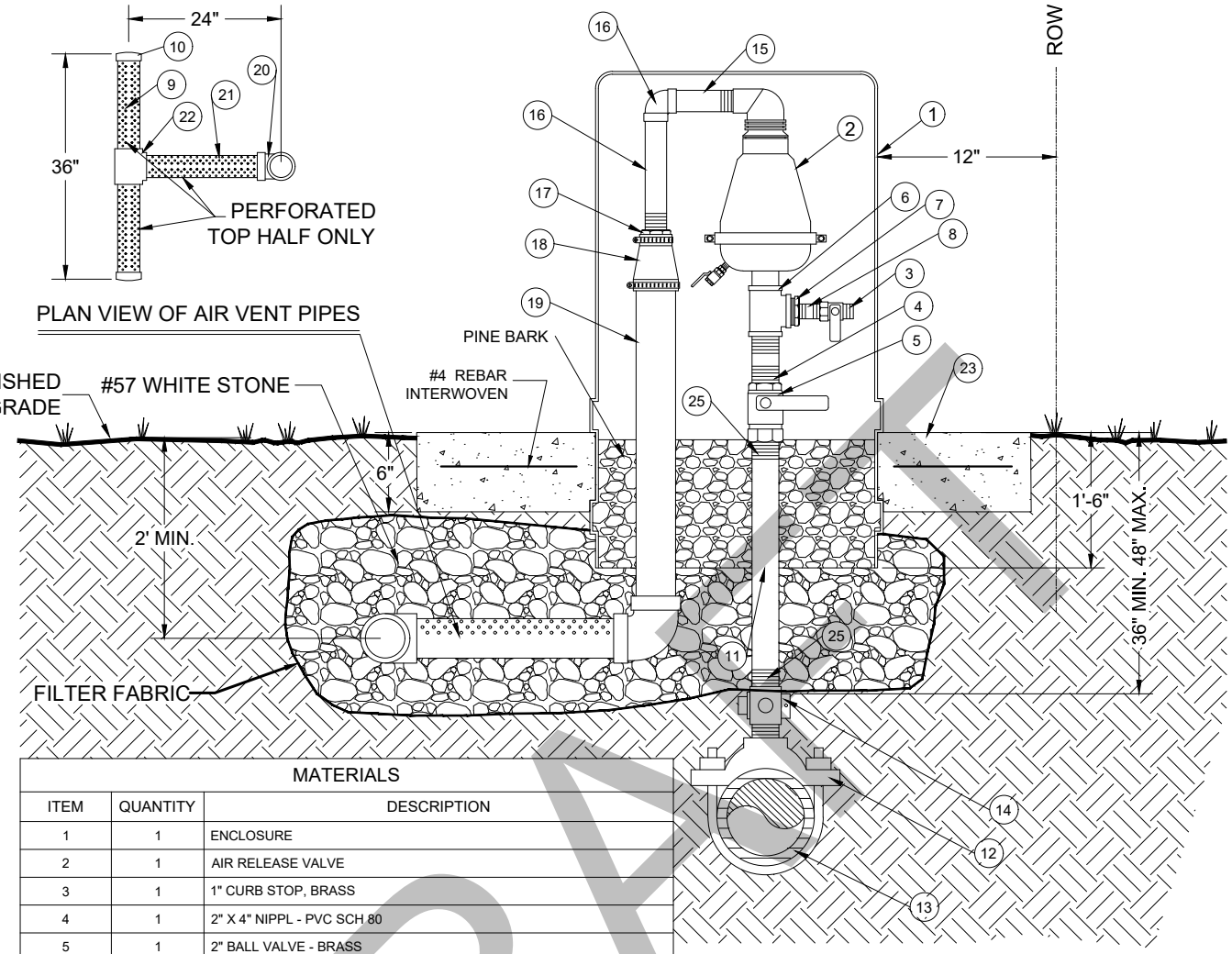
TOP VIEW

NOTE:

1. METER BOXES AND COVERS FOR SIDEWALK AND PROPERTY LINE/EASEMENT INSTALLATION SHALL BE ANSI/SCTE TIER 8 RATED WATER METER BOXES AND COVERS. FOR HIGH VEHICLE TRAFFIC LOCATIONS SUCH AS DRIVEWAYS, ROADWAYS, AND PARKING LOTS AASHTO CODE H-20 RATED METER BOXES AND COVERS.

PAGE No. LP-07

NUMBER: S-24-LPSCO



MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	1	ENCLOSURE
2	1	AIR RELEASE VALVE
3	1	1" CURB STOP, BRASS
4	1	2" X 4" NIPPL - PVC SCH 80
5	1	2" BALL VALVE - BRASS
6	1	2" TEE - PVC SCH 80
7	1	2" X 1" REDUCER - PVC SCH 80
8	1	1" SHORT NIPPLE - PVC SCH 80
9	2	3" PIPE, PVC, LENGTH AS SHOWN, PERFORATED TOP HALF ONLY
10	2	3" CAP, PVC
11	1	2" SCH. 80 PIPE - LENGTH AS REQUIRED
12	1	DOUBLE STRAP TAPPING SADDLE, EPOXY OR NYLON COATED WITH S.S. STRAPS
13	1	4" & LARGER PIPE, D.I. OR PVC (DR-18)
14	1	2" CORPORATION, BRASS
15	2	1-1/2" PIPE - PVC SCH 80, LENGTH AS REQUIRED
16	1	1-1/2" X 90° ELBOW - PVC SCH 80 (SOLVENT WELD)
17	1	2" X 1-1/2" REDUCER - PVC SCH 80 (SOLVENT WELD)
18	1	3" X 2" FLEX COUPLING
19	1	3" PIPE - PVC SCH 80, LENGTH AS REQUIRED
20	1	3" X 90° ELBOW - PVC SCH 80
21	1	3" PIPE, PVC, LENGTH AS SHOWN, PERFORATED TOP HALF ONLY
22	1	3" TEE - PVC SCH 80
23	1	REINFORCED CONCRETE MONOLITHIC COLLAR AROUND ENCLOSURE
24	1	1-1/2" MALE ADAPTER SCH 80 (SOLVENT WELD)
25	2	2" MALE ADAPTER (SOLVENT WELD)

NOTES:

1. ENCLOSURE SHALL BE COLOR CODED GREEN FOR WASTE WATER.

2. VERTICAL PIPE LAYOUT ONLY PERMITTED IF ENCLOSURE IS WITHIN 12 INCHES OF RIGHT OF WAY LINE. OTHERWISE USE OFFSET PIPE LAYOUT WITH ODOR CONTROL SYSTEM.

DATE: 8/01/2023

DRAWN BY: DEC

APPROVED BY: BRB

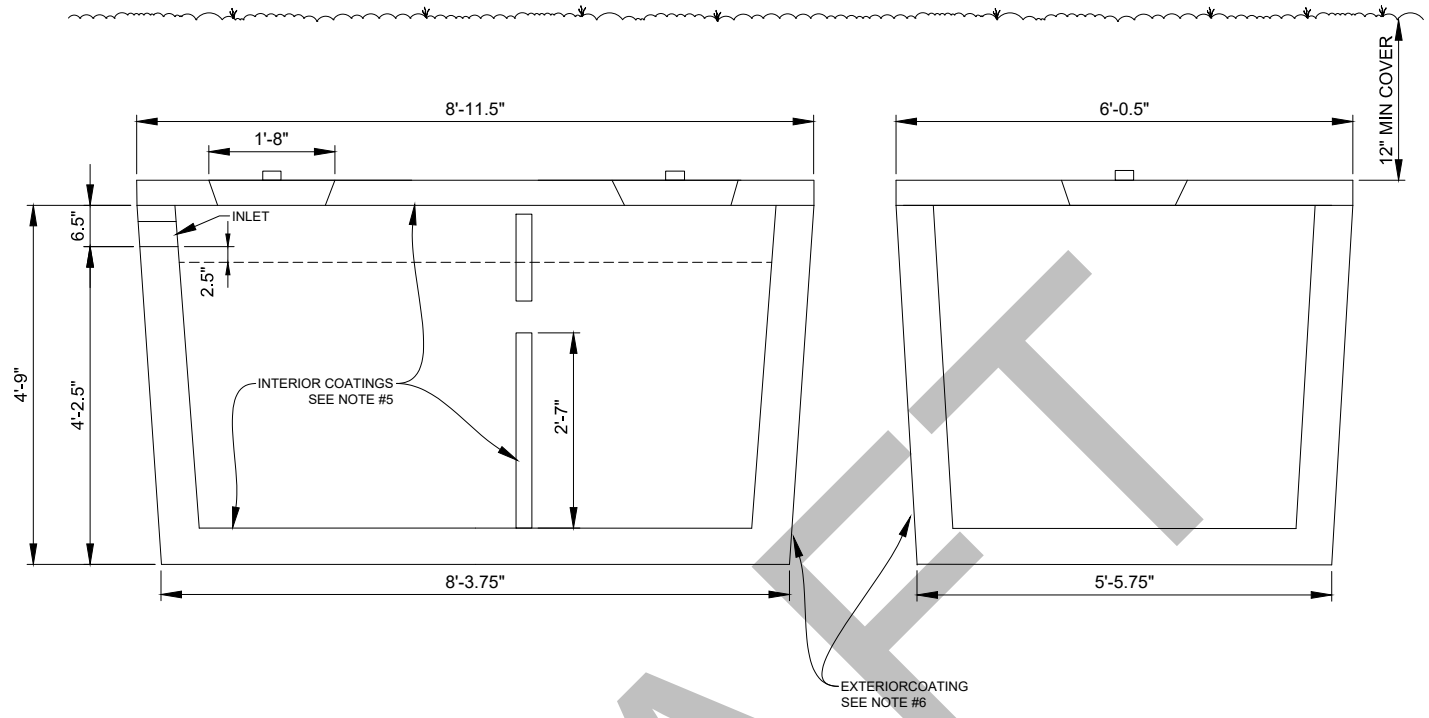
LOW PRESSURE AND FORCE MAIN SEWER AIR RELEASE VALVE ASSEMBLY WITH ODOR CONTROL SYSTEM (VERTICAL PIPE LAYOUT)

CHARLOTTE COUNTY UTILITIES

PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

PAGE No. LP-08

NUMBER: LPS-1



SIDE VIEW **END VIEW**

1. **TANK:** CATEGORY 4.4" 1050 GALLON 2 COMPARTMENT TANK REINFORCED WITH GRADE 60 #4 REBAR 12" O/C. BOTH WAYS. 4" WALLS AND 4" BOTTOM. INLET RESILIENT CONNECTORS PER ASTM-923-98. CONNECTORS MUST BE USED WITH APPROVED CLAMP. CONNECTOR WILL ACCEPT 4" PVC PIPE.

2. **LIDS:** 4" LID WITH 1-20" ROUND MANHOLE COVER AT EACH END OF TANK. REINFORCED WITH GRADE 60 REBAR.

3. **TANKS AND LID:** 400 PSI CONCRETE AT 28 DAYS.

4. **WEIGHTS:** TANK ONLY 8,740
   TANK & LID 11,220

5. **INTERIOR COATINGS:** SHALL BE ONE OF THE FALLOWING:
   A. POLYMORPHIC RESIN
   B. PULE FUSED CALCIUM ALUMINATE
   C. EPOXY
   D. POLYURETHANE

6. **EXTERIOR COATINGS:** SHALL BE:
   COALTAR EPOXY APPLIED IN 3 COATS OF ALTERNATING COLORS ON ALL SIDES.

DATE: 8/01/2023	CONCRETE LPS TANK	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-09
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LOWPRESSURESEWER2023.DWG

Charlotte County Utilities - Low Pressure System
System Bill of Materials

CCU System ID Number-CCU-RMT-900HPV24P2 900 Gallon Tank
CCU System ID Number-CCU-RMT-1060HPV24P2 1060 Gallon Tank

Item	Qty	
A	(1)	RMT-900-2P HMW HDPE 2 Compartment Septic Tank, 900 Gallon Capacity End Inlet fitting drilled to 5" diameter on "A" Dimple, 43.00" from Tank bottom to inlet invert. Outlet end of tank un-drilled.
A Alt	(1)	RMT-1060-2P HMW HDPE 2 Compartment Septic Tank, 1060 Gallon Capacity. End Inlet fitting drilled to 5" diameter on "A" Dimple, 43.00" from Tank bottom to inlet invert. Outlet end of tank un-drilled. Tank to include: (1) Compartment divider installed in 2/3-1/3 location with: (6) 300 SS ¼-20 x 2 Hex bolts and flat washers with SS elastic stop nuts. (2) 24" Lockable HDPE Plugs Plumbing Kit- CCU LPS (1) Inlet fitting- 4" Sch 40 PVC Long Radius Sweep Wye for installation on 4" Sch 40 PVC Sewer line. (1) Plumbing Seal for 4" Sch 40 PVC Sewer line. (1) Plumbing Seal for 2" Sch 40 PVC Pump Discharge line.
B	(1)	STAR 24 HPV Hanging Pump Vault to include the following: (4) 4.00" inlet ports drilled around the circumference of the base of the vault @ 90 Degree orientation. Ports screened with SS mesh with 1/8" openings, secured with SS self-tapping screws.
C	(1)	STAR 24R12 12" Riser for pump inlet compartment
D	(2)	RG24 Gasket for HPV and 12" Riser
E	(1)	Pump and Level Controls from Charlotte County Utilities Approved Materials list: Barnes EHV512 Champion CPE5 Milwaukee LE5-C2

Step 1: Site Preparation & Notes

- Read "Key Roth Installation Facts" first (applies to Roth ®MultiTank OR the FRALO Septec Tank)
- Max burial depth is 36" below grade, unless deep burial instructions (steps 11 & 12) on *"Key Installation Facts"* are followed.
- Absolutely no clay should be used for backfill.
- Inspect tank for any damage during handling or transportation.
- Tank must be uniformly supported.
- Failure to properly bed tank and compact fill will void the warranty.
- Absolutely no water is required for backfill. The tank is designed to be backfilled without water. Filling the tank with water prior to backfilling is not necessary and may cause installation problems. A nominal amount of water (6-8") may be used to ballast the tank during backfilling.

Step 2: Excavation Size

- Width and length of excavation shall be 12-18" greater than the tank on all sides and ends (FIG.1).
- Depth of the excavation shall be 6" greater than the tank (FIG.1).
- Do no over excavate or "belly-out" the excavation.

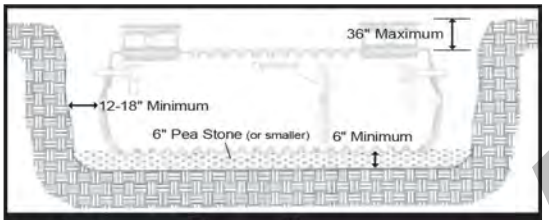


FIG.1 Excavation

Step 3: Bedding the Tank

- Add pea stone, sand, gravel or other similar granular material to bed the tank and ensure uniform compaction and that bed is level (FIG.1)
- Native material may be used to bed the tank providing it is properly placed and compacted.

Step 4: Tank Installation

- Prepare the tank for installation. Identify the inlet and outlet ends of the tank. Inlet and outlet may be located on the end or either side ports (per code requirements).
- For standard installation, identify drill location A (40" Liquid Level). Drill the inlet and outlet holes using a 5-inch diameter hole saw. (FL & IN tanks are pre-drilled)

* **IMPORTANT NOTE: For AZ, IL, NE drill dimple B (42" Liquid Level). Florida & Indiana tanks are pre-drilled at the factory.**

- Install provided rubber gasket in inlet and outlet ports. (Fig. 2)

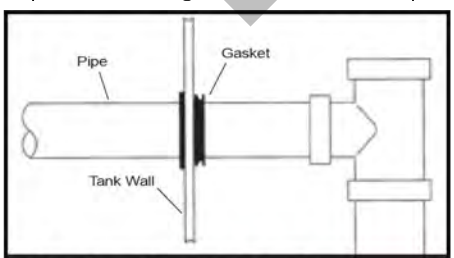


FIG.2 Gasket Detail

Step 4: Tank Installation (cont'd)

- Install the inlet and outlet tees, as required. (Fig. 3) Plumbing tees shall be located as close to the entrance point of the tank as possible (just inside the manway opening). Plumbing tees and gas-baffles are factory provided for Indiana tanks.
- Install the required Roth threaded Septic Access Riser System (STAR™), provided separately. (Fig. 3) See reverse for directions for sealing the riser system.
- Using the corner lifting holes, lower the tank into the excavation. Level the tank, and verify the outlet is lower than the inlet. Install remaining inlet and outlet plumbing. (Fig. 3)

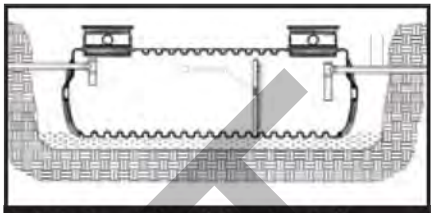


FIG.3 Plumbing Install

- Perform required water tightness, plumbing and/or tank inspection if applicable.

Step 5: Backfill

- Backfill in an alternating method around the tank using native material free of debris, sharp stones, and stones greater than 2" in diameter. Soil MUST flow freely into corrugations between tank ribs, including midpoint to belly of tank.
- Compact backfill in 6 inch lifts always working on the sides first and then the bulkheads (ends of tank).
- Use a hand tamper to achieve sidewall compression through compacted backfill. Mechanical compactors may be used if available on the site. Sidewall compression is essential to provide sidewall restraint after covering the tank. (Fig. 4)

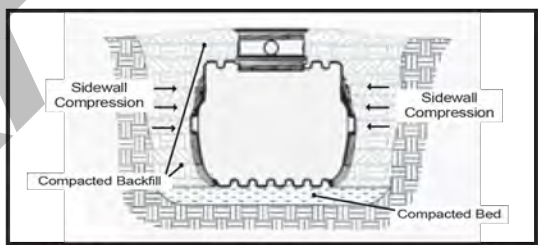


FIG.4 Backfilling

- When backfilling the top of the tank, backfill between risers first.
- Complete backfilling and grade the area.
- Failure to compact fill voids the tank warranty.

- ***Tanks are designed for underground use only.***
- ***Installer shall comply with all federal, state, and local regulations.***
- ***Tanks are not rated for vehicular traffic. Avoid operation of vehicles heavier than 2500 pounds over the tank.***
- ***Internal water temperatures should not exceed 140° F.***
- ***Verify no underground utilities or pipes are located in the excavation vicinity.***
- ***Where saturated soil or seasonal high water tables are indicated between the bottom of the tank and the ground surface, see separate supplemental installation instructions for these site conditions.***
- ***Secure tank access by installing provided stainless steel fastener to the riser and cover.***

Roth MULTITANK FRALO by Roth

DATE: 8/01/2023	FRALO INSTALLATION INSTRUCTIONS & NOTES	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-11
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LOWPRESSURESEWER2023.DWG

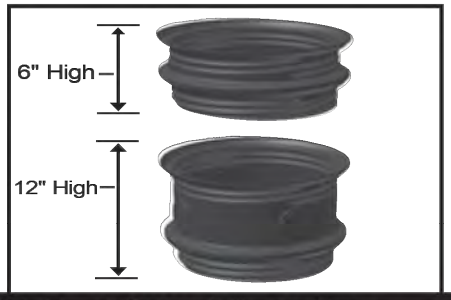


FIG.1 Riser Elevation

STEP 1 Determine riser elevation and required riser combination as per tank installation (see reverse). STAR™ risers are available in 6" (STAR-24R6) and 12" (STAR-24R12) height increments. (Fig.1)

FIG.2 Apply Gasket

STEP 2 Apply gasket (not included*) on the innermost flat ring on the tank surface. Be careful not to allow the gasket to overhang the threads where it would interfere with the thread engagement. (Fig.2)
*Indiana tanks and risers include gaskets.

FIG.3 Trim Gasket

STEP 3 Trim gasket 1/4" too long. A properly trimmed gasket is then compressed end to end. Ensure that the gasket is uniformly positioned and makes good contact with the tank surface. (Fig.3)

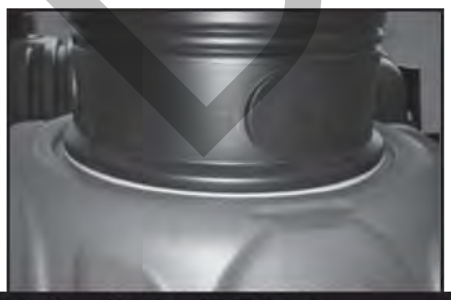


FIG.4 Install Riser

STEP 4 Screw the riser into the tank joint, being careful that the gasket remains in position. Properly installed, the gasket should show uniform compression around the entire joint. (Fig.4)

FIG.5 Additional Gaskets

STEP 5 Apply the gasket on the first riser on the thread portion which is facing up. (Fig.5). Trim the gasket to connect the pieces end to end. Screw the additional riser(s) into position.

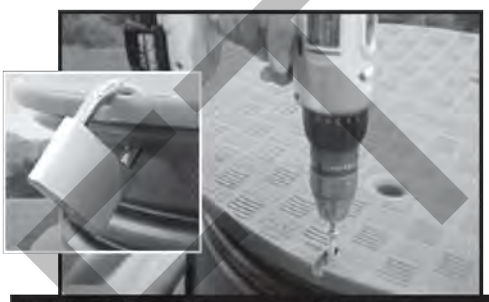


FIG.6 Secure Cover

STEP 6 Locate the "Secure Here" hole on the cover and install a tamper-resistant screw (STAR-SSCREW provided) through the lid and into the riser below. (Fig.6) To secure with padlock, drill a larger hole to accommodate the lock.

FIG.7 Remove Cover

STEP 7 If unable to remove cover by hand, insert 1" OD steel pipe into cover indentations and twist using a shovel handle, pipe or piece of wood. (Fig.7)

- ***To prevent unauthorized access, never install STAR™ Riser System without the factory provided tamper resistant screw.***
- ***Not rated for vehicular traffic loading.***

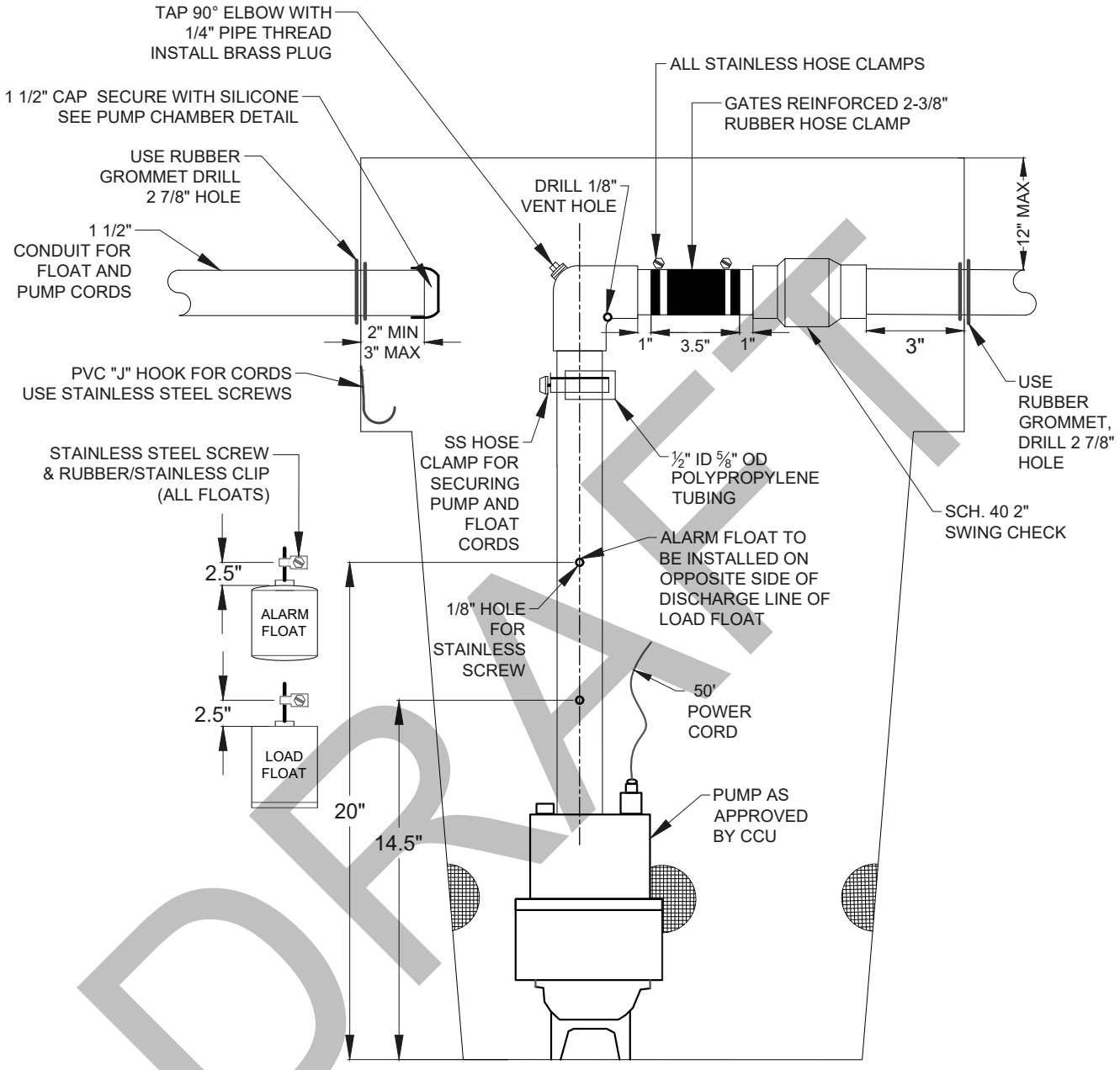
STAR™ RISER SYSTEM

For ROTH MultiTank® & FRALO SEPTECH™ Tanks

DATE: 8/01/2023	FRALO INSTALLATION INSTRUCTIONS & NOTES	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-12
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LOWPRESSURESEWER2023.DWG

KEY INSTALLATION FACTS

1. ABSOLUTELY NO WATER REQUIRED FOR BACKFILL. THE TANK IS SPECIFICALLY DESIGNED TO BE BACKFILLED WITHOUT WATER. THE USE OF WATER PRIOR TO BACKFILLING IS NOT NECESSARY AND MAY CAUSE INSTALLATION PROBLEMS. A NOMINAL AMOUNT OF WATER (6"-8") MAY BE USED TO BALLAST TANK DURING BACKFILLING.
2. THE TANK MUST BE BEDDED IN SCREENED MATERIAL (SAND, PEA GRAVEL, STONE DUST, OR OTHER FLOWABLE FINES). NATIVE MATERIAL IS ACCEPTABLE IF IT EXHIBITS THE SAME CHARACTERISTICS AS SELECT FILL.
3. IT IS IMPERATIVE THAT THE TANK HAUNCH BE SUPPORTED WITH FILL. THIS IS THE AREA OF THE TANK UNDER THE MOLD PART-LINE ALONG THE SIDEWALLS CURVING DOWN TO THE BELLY OF THE TANK.
4. THE TANK BELLY MUST BE SUPPORTED WITH FILL. DUE TO THE UNIQUE PROCESS, THE TANK HAS A SLIGHT CONCAVE SHAPE TO THE BELLY. MAKE SURE THAT THE TANK FEET ARE SEATED IN THE BACKFILL AND THE TANK BELLY IS WELL SUPPORTED.
5. THE TANK ACHIEVES FULL STRUCTURAL INTEGRITY ONCE INSTALLED PROPERLY. SIDEWALL COMPRESSION THROUGH COMPACTED BACKFILL IS KEY TO THIS INTEGRITY. USE BACKHOE TO COMPACT SIDEWALL BACKFILL IF POSSIBLE.
6. CORRUGATIONS MUST BE PACKED SOLIDLY WITH BACKFILL TO ACHIEVE THIS. COMPACT BACKFILL IN 6" LIFTS AS YOU BACKFILL EXCAVATION.
7. BACKFILL TANK TO TOP OF ROOF ALL THE WAY AROUND, THEN BACKFILL BETWEEN RISERS FIRST, THEN AROUND THE ENDWALLS OF TANK. THIS TECHNIQUE WILL PREVENT BACKFILL FROM PUSHING RISERS "IN" OR TOWARD ONE ANOTHER.
8. IN AREAS OF HIGH GROUNDWATER, THE TANK MUST BE FILLED IMMEDIATLEY FOLLOWING BACKFILL.
9. TANKS ARE NOT DESIGNED OR RATED FOR VEHICULAR TRAFFIC. AVOID OPERATION OF VEHICLES HEAVIER THAN 2500 POUNDS. MAXIMUM BURIAL DEPTH IS 36" BELOW GRADE.
10. HANGING PUMP VAULT INSTALLATION: FOLLOW INSTRUCTIONS FOR GASKET AND RISER INSTALLATION INCLUDED WITH THE INSTALLATION INSTRUCTIONS, INSTALL THE HPV IN THE OUTLET END OF THE TANK.
11. TANK HOLE DRILLING: CCU LPS TANK WILL BE FURNISHED WITH THE INLET END CONNECTION DRILLED AT THE "A" DIMPLE TO PROVIDE A 43" INLET INVERT ELEVATION. THIS OPENING IS 5" DIAMETER TO ACCEPT THE 4" SCH 40 PLUMBING SEAL INCLUDED IN THE PLUMBING KIT. NO PENETRATIONS TO THE OUTLET AND OF THE TANK ARE INCLUDED. AFTER HANGING PUMP VAULT IS INSTALLED IN THE OUTLET END OF THE TANK, A 2 7/8" OPENING MUST BE DRILLED IN THE HPV RISER SECTION TO ACCOMMODATE THE 2" PLUMBING SEAL FOR THE 2" DISCHARGE LINE. THIS PENETRATION MUST BE MADE WITH A 2 7/8" HOLE SAW ONLY.



SIDE VIEW
PUMP CHAMBER

NOTES:

1. PUMP CHAMBER AND FILTERED INLET ASSEMBLY FURNISHED AS A SUB-ASSEMBLY PUMP, CONTROLS & ASSOCIATED PIPING BY OTHERS.
2. FLOATS ATTACHED TO OPPOSITE SIDES OF DISCHARGE LINE.
3. STAINLESS STEEL HARDWARE ONLY.

DATE: 8/01/2023	FRALO LOW PRESSURE SEWER PUMP CHAMBER FLOAT LOCATIONS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. LP-14
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: LOWPRESSURESEWER2023.DWG

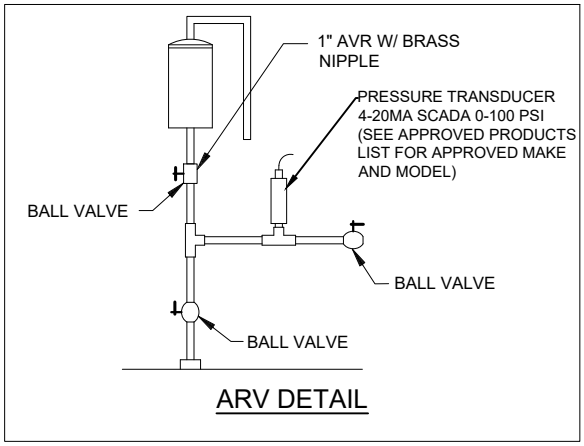
ISSUE DATE AUGUST 1st, 2023

CHARLOTTE COUNTY
Utilities

RECLAIMED WATER

Sheet List Table	
Sheet Number	Sheet Title
COVER	COVER
RW-01A	RECLAIMED WATER DIRECT FEED METER PAD 3 IN AND ABOVE
RW-01B	RECLAIMED WATER POND FEED METER PAD 3 IN AND ABOVE
RW-02	RECLAIMED POND DELIVERY FACILITY
RW-05A	IRRIGATED RECLAIMED WATER SIGN
RW-05B	POND RECLAIMED WATER SIGN
RW-06	RECLAIMED WATER AUTOMATIC AIR RELEASE VALVE
RW-14	DELIVERY STATION NOTES
PW-13	PERMANENT END OF MAIN BLOW OFF ASSEMBLY
RCW-10-AGM LS	COMMERCIAL PROPERTY ABOVE GROUND RECLAIMED WATER METER

MECHANICAL / ELECTRICAL EQUIPMENT SCHEDULE



ARV DETAIL

NOTES:

1. ALL AUXILLARY EQUIPMENT AND POWER SUPPLIES SHALL BE SUPPLIED BY THE CONTRACTOR TO MAKE ALL OF THE FOLLOWING FULLY FUNCTIONAL AS INTENDED.

2. ALL BOLTS AND NUTS TO BE STAINLESS STEEL.

3. START-UP SHALL INCLUDE EQUIPMENT FACTORY REPRESENTATIVES TO REVIEW INSTALLATION, MAKE ADJUSTMENTS IN OPERATING PARAMETERS, AND INSTRUCT OWNER'S PERSONNEL IN THE OPERATIONS AND MAINTENANCE OF THE EQUIPMENT.

4. ALL EQUIPMENT THAT IS EXPOSED TO THE WEATHER SHALL BE IN NEMA 4X HOUSING.

5. ALL EXPOSED PIPE, FITTINGS, VALVES AND NON-GALVANIZED FERROUS METALS TO BE PAINTED IN ACCORDANCE WITH SECTION 00990, SURFACE PREPARATION, PAINTING AND COATINGS.

6. ALL PIPING INCLUDING 45'Y BENDS (RJ) SHALL BE DUCTILE IRON.

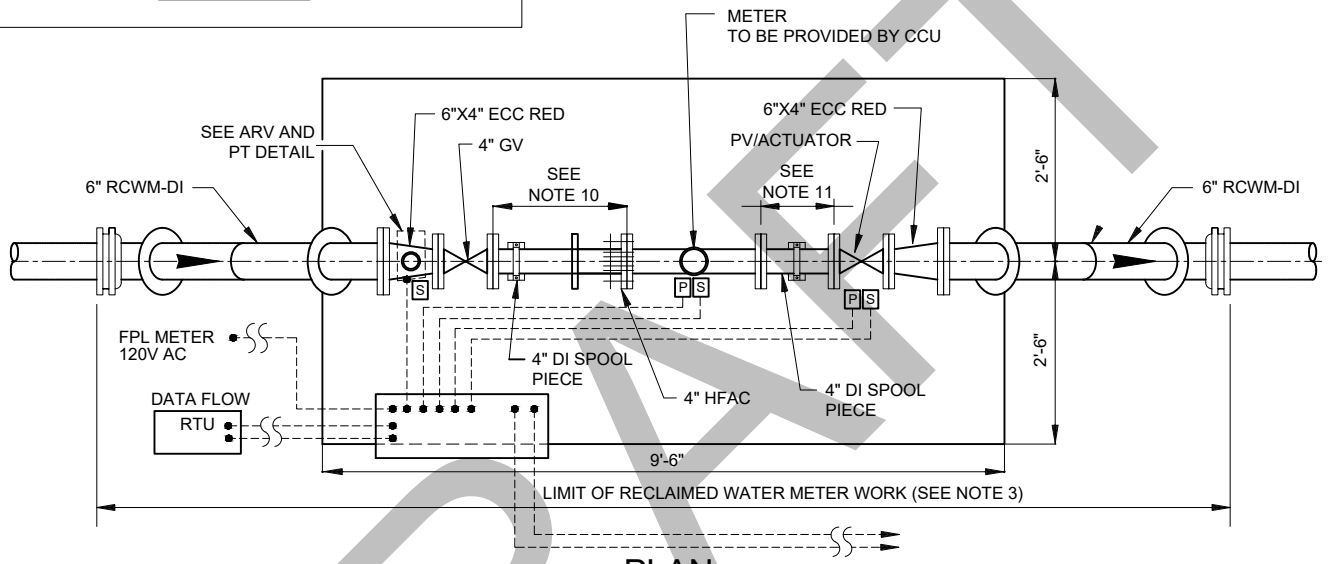
7. THE LOCATION OF THE RCWM METER PAD TO BE DETERMINED BY OWNER.

8. RECLAIMED WATER METER PAD IS PART OF THE DELIVERY FACILITIES.
(SEE POND DELIVERY FACILITY DETAIL.)

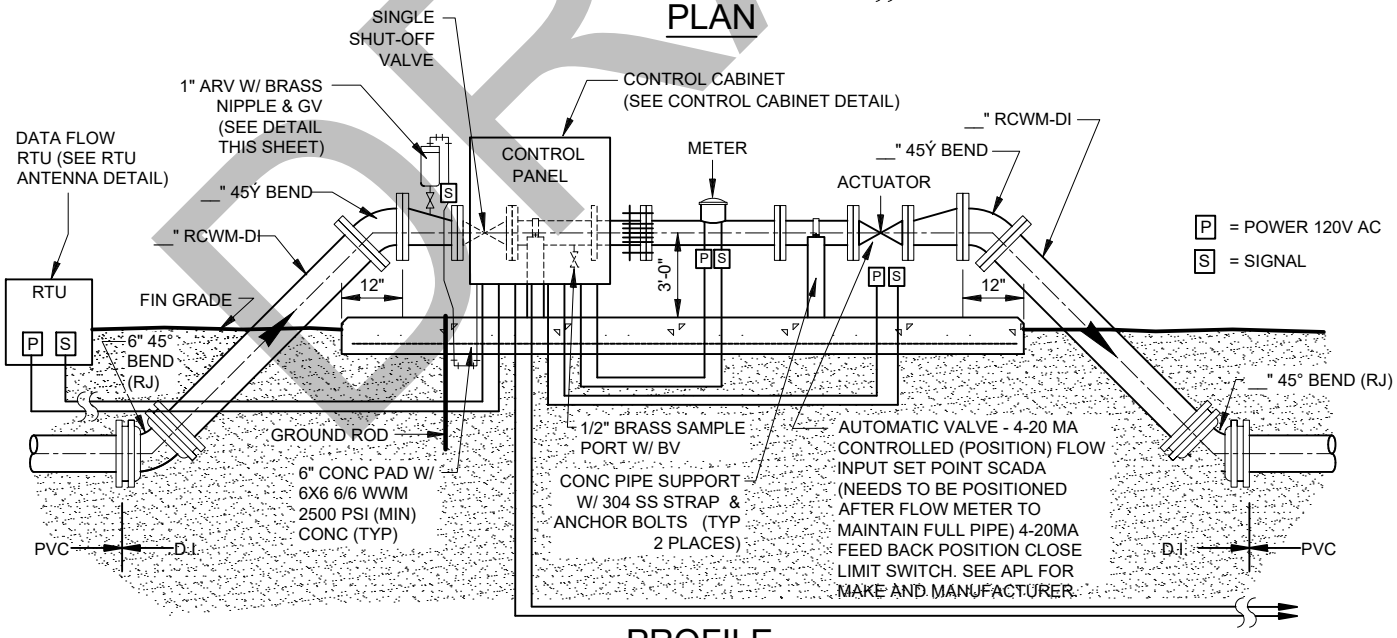
10. MINIMUM LENGTH OF THE PIPE PER MANUFACTURER'S RECOMMENDATIONS.

11. MINIMUM LENGTH OF THE PIPE PER MANUFACTURER'S RECOMMENDATIONS.

12. CCU WILL SUPPLY THE METER. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, TESTING, CALIBRATING, AND OTHERWISE MAKING OPERATIONAL ALL DEVICES AND EQUIPMENT SHOWN ON THESE DRAWINGS. ALL FINAL DRAWINGS AND SOFTWARE, PROGRAMMING SOFTWARE, AND SPECIAL CABLES SHALL BE FURNISHED TO CHARLOTTE COUNTY UTILITIES.



PLAN



PROFILE

DATE: 8/01/2023	RECLAIMED WATER DIRECT FEED METER PAD - 3" AND ABOVE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LD		RW-01A
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-01-RWMP.dwg

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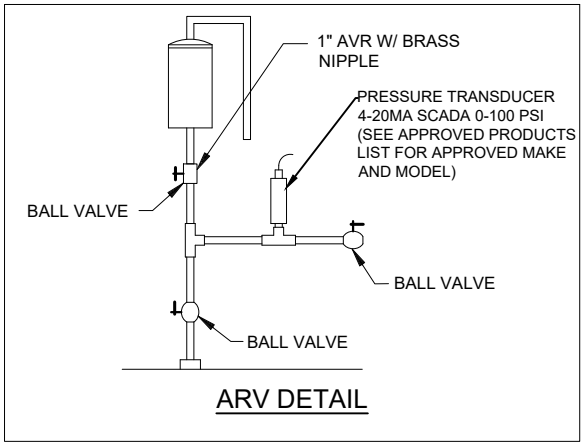
MECHANICAL / ELECTRICAL EQUIPMENT SCHEDULE



ARV DETAIL

NOTES:

1. ALL AUXILLARY EQUIPMENT AND POWER SUPPLIES SHALL BE SUPPLIED BY THE CONTRACTOR TO MAKE ALL OF THE FOLLOWING FULLY FUNCTIONAL AS INTENDED.

2. ALL BOLTS AND NUTS TO BE STAINLESS STEEL.

3. START-UP SHALL INCLUDE EQUIPMENT FACTORY REPRESENTATIVES TO REVIEW INSTALLATION, MAKE ADJUSTMENTS IN OPERATING PARAMETERS, AND INSTRUCT OWNER'S PERSONNEL IN THE OPERATIONS AND MAINTENANCE OF THE EQUIPMENT.

4. ALL EQUIPMENT THAT IS EXPOSED TO THE WEATHER SHALL BE IN NEMA 4X HOUSING.

5. ALL EXPOSED PIPE, FITTINGS, VALVES AND NON-GALVANIZED FERROUS METALS TO BE PAINTED IN ACCORDANCE WITH SECTION 00990, SURFACE PREPARATION, PAINTING AND COATINGS.

6. ALL PIPING INCLUDING 45'Y BENDS (RJ) SHALL BE DUCTILE IRON.

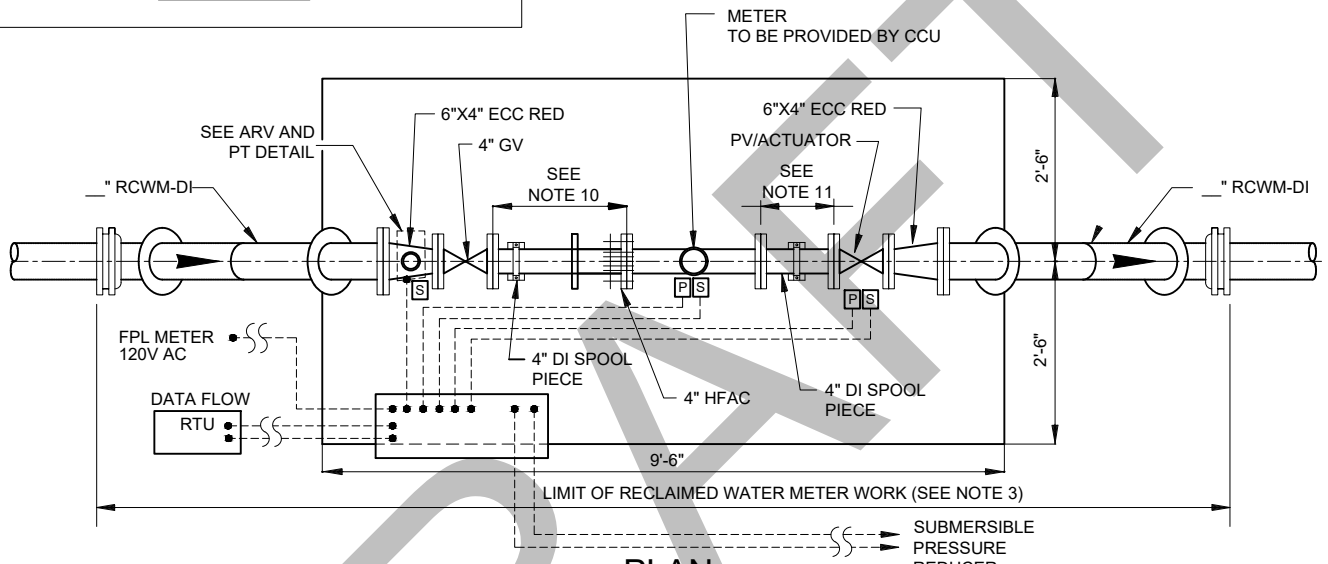
7. THE LOCATION OF THE RCWM METER PAD TO BE DETERMINED BY OWNER.

8. RECLAIMED WATER METER PAD IS PART OF THE DELIVERY FACILITIES.
(SEE POND DELIVERY FACILITY DETAIL.)

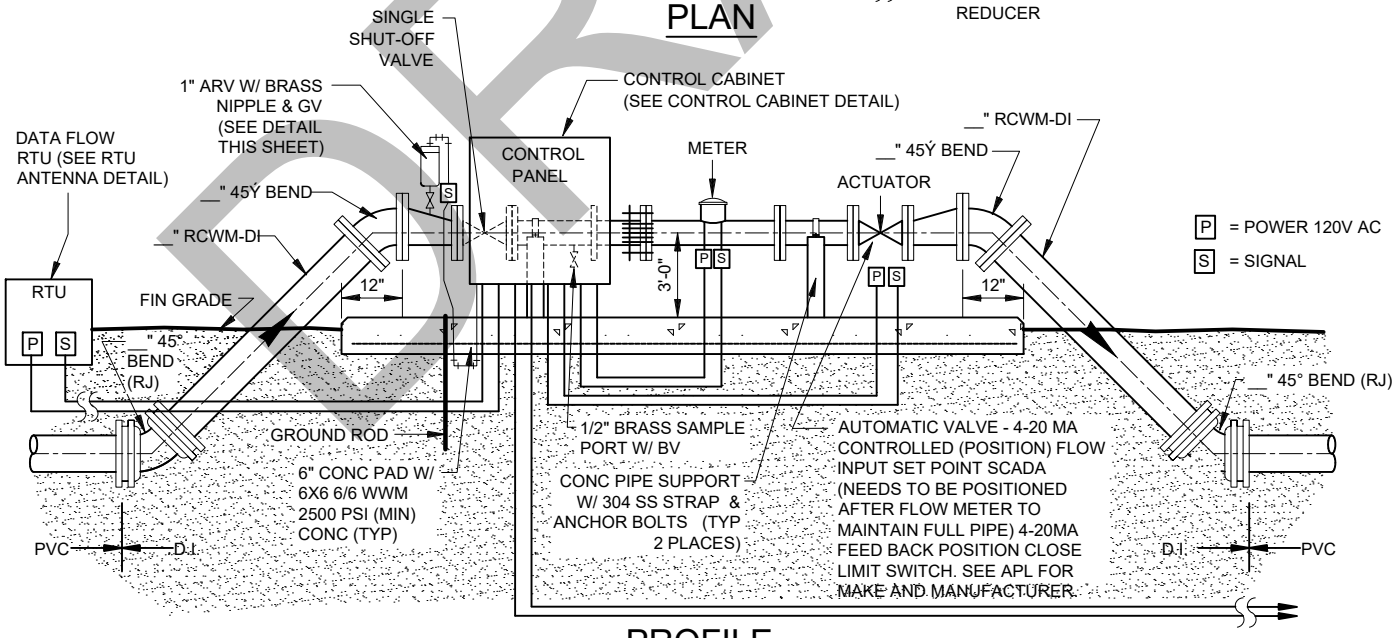
10. MINIMUM LENGTH OF THE PIPE PER MANUFACTURER'S RECOMMENDATIONS.

11. MINIMUM LENGTH OF THE PIPE PER MANUFACTURER'S RECOMMENDATIONS.

12. CCU WILL SUPPLY THE METER. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION, TESTING, CALIBRATING, AND OTHERWISE MAKING OPERATIONAL ALL DEVICES AND EQUIPMENT SHOWN ON THESE DRAWINGS. ALL FINAL DRAWINGS AND SOFTWARE, PROGRAMMING SOFTWARE, AND SPECIAL CABLES SHALL BE FURNISHED TO CHARLOTTE COUNTY UTILITIES.



PLAN



PROFILE

DATE: 08/01/2023	RECLAIMED WATER POND FEED METER PAD - 3" AND ABOVE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LD		RW-01B
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-01-RWMP.dwg

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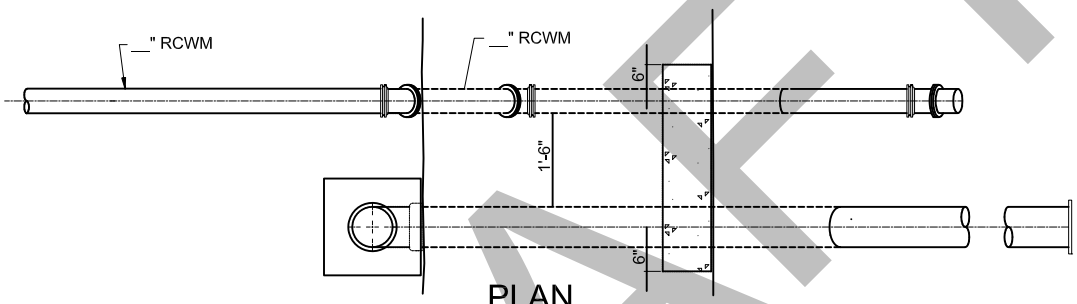
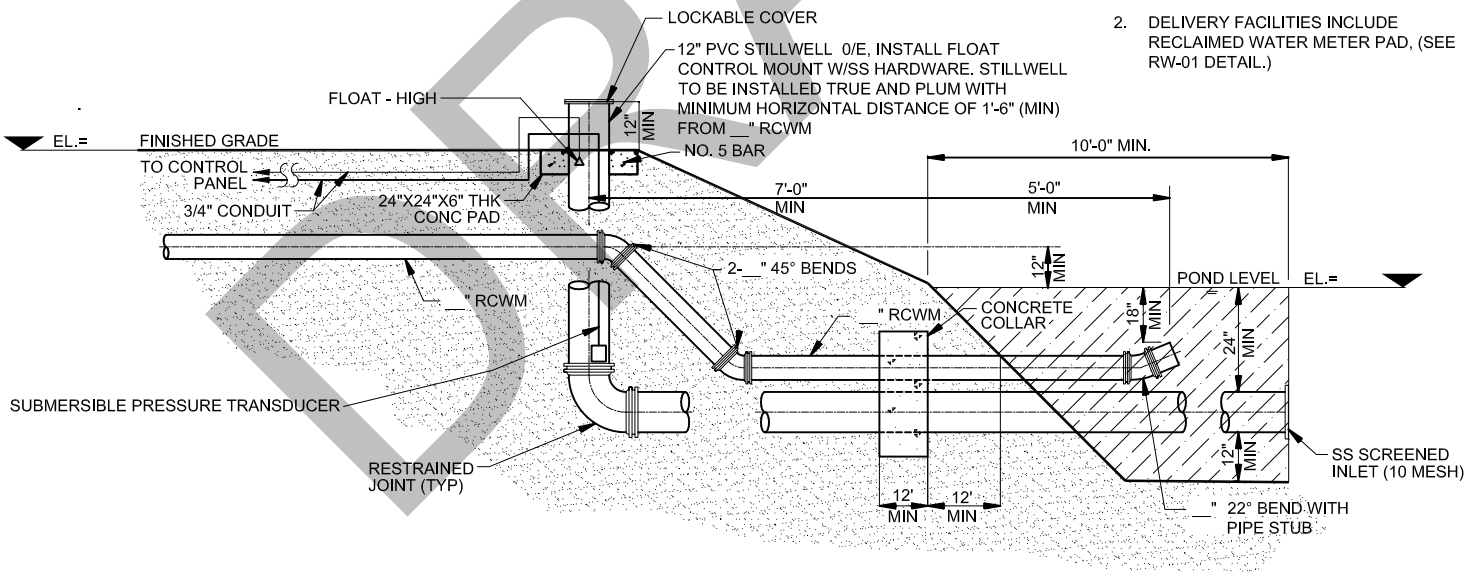
EQUIPMENT:

1. ELECTROMAGNETIC FLOW METER - FLANGED, UNIDIRECTIONAL, LOCAL GPM AND TOTALIZER DISPLAY IN CONTROL CABINET, 4-20Ma ANALOG OUTPUT FOR FLOW. SEE APPROVED PRODUCTS LIST FOR APPROVED MANUFACTURERS.
2. PLUG VALVE 4-INCH NON-LUBRICATED, ECCENTRIC TYPE, FLANGED, CAST IRON BODY, BUNA-N RESILIENT SEATING SURFACE. PRATT, DEZURIK, M&H, OR EQUAL. EQUAL TO BALLCENTRIC PLUG VALVE. SEE APL FOR APPROVED MANUFACTURERS.
3. VALVE ACTUATOR - ELECTRIC GEAR DRIVEN OPERATOR SUITABLE FOR OPERATION OF A 1/4 TURN PLUG VALVE, 110V, SINGLE PHASE POWER SUPPLY, POSITION MODULATED 4-20mA INPUT CONTROL, CLOSED POSITION LIMIT SWITCH, LOCAL FLOW SETPOINT TO BE HOUSED IN CONTROL CABINET, 4-20mA OUTPUT TO SCADA OF VALVE POSITION.
4. AUTOMATIC AIR RELEASE-VALVE-FLOAT BALL STYLE, 1-INCH, CAST IRON BODY, BUNA-N SEAT RING, STAINLESS STEEL FITTED. GA, VAL-MATIC, OR EQUAL
5. HIGH-HIGH LEVEL FLOAT - EQUAL TO ROTO FLOAT TYPE S LIQUID LEVEL SENSOR WITH FORM C CONTACTS (1 NC AND 1 NO). OVERIDE CONTROL CLOSES VALVE.
6. SUBMERSIBLE PRESSURE TRANSDUCER AUTO CLOSE LEVEL CLOSES VALVE AUTO OPEN LEVEL OPENS VALVE (LOCAL CONTROL).
7. PID OR PLC CONTROL FOR VALVE POSITION UPS (BATTERY) LARGE ENOUGH TO CLOSE VALVE IN POWER FAILURE.
8. INSTALL FLOW METER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.



PLAN

MISC. NOTES:
1. POND DELIVERY FACILITY RECLAIMED WATER MAIN SHALL BE D.I.P.
2. DELIVERY FACILITIES INCLUDE RECLAIMED WATER METER PAD, (SEE RW-01 DETAIL.)



PROFILE

DATE: 08/01/23	RECLAIMED POND DELIVERY FACILITY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LTD		RW-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-02-PDF.dwg

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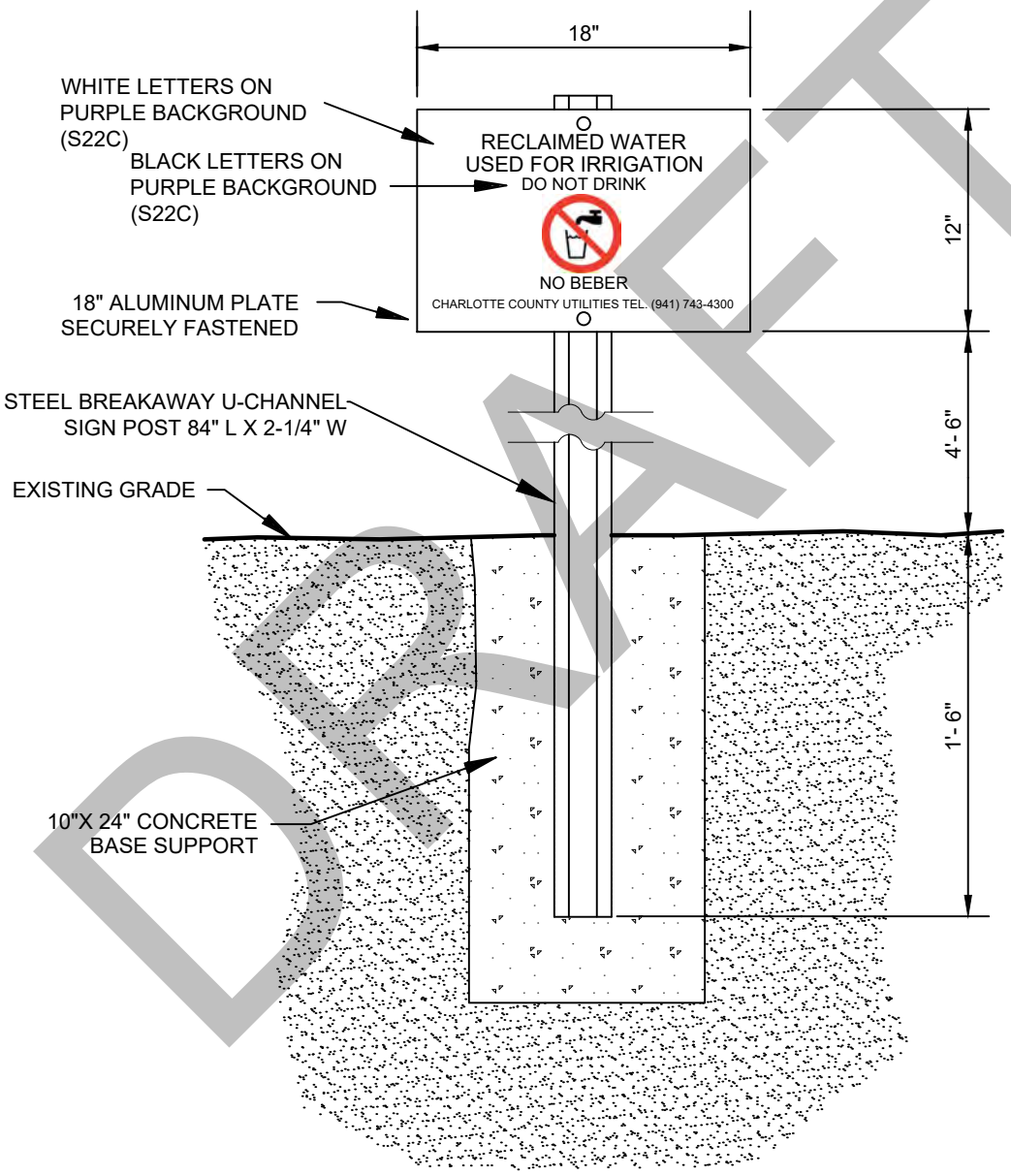
EXAMPLE:

NOTE: THE SIGN(S) WILL BE PROVIDED AND INSTALLED BY CHARLOTTE COUNTY UTILITIES



DATE: 08/01/2023	IRRIGATED RECLAIMED WATER SIGN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LTD		RW-05A
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-05-RWS.dwg

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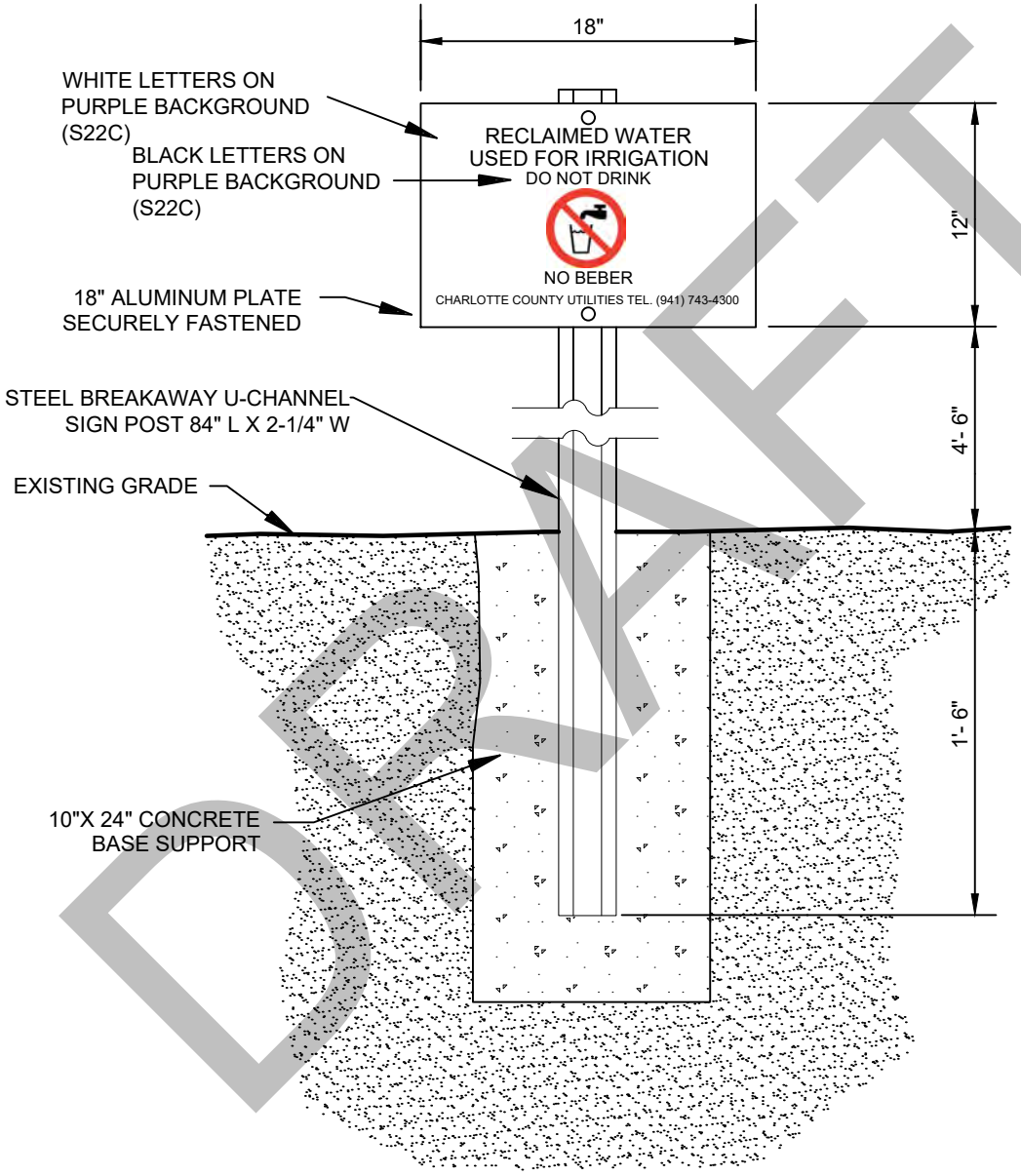
EXAMPLE:

NOTE: THE SIGN(S) WILL BE PROVIDED AND INSTALLED BY CHARLOTTE COUNTY UTILITIES



DATE: 08/01/2023	POND RECLAIMED WATER SIGN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: LTD		RW-05B
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-05-RWS.dwg

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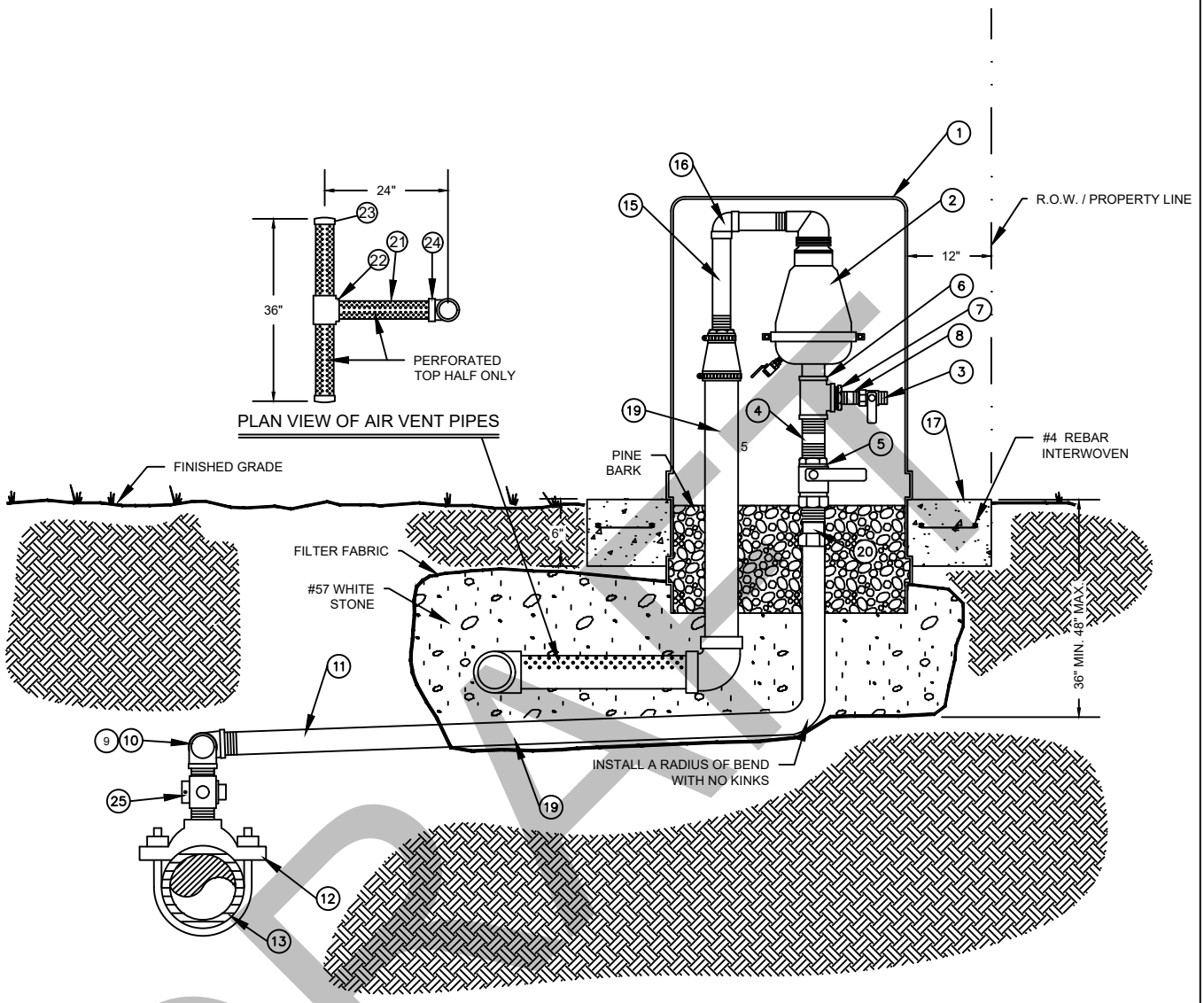

MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	1	ENCLOSURE (PURPLE IN COLOR)
2	1	AUTOMATIC AIR RELEASE/VACUUM RELEASE VALVE - SEE APL FOR APPROVED MANUFACTURERS
3	1	1" CURB STOP - BRASS
4	1	2" x 4" NIPPLE - BRASS
5	1	2" BALL VALVE - BRASS
6	1	2" TEE - BRASS
7	1	2" X 1" REDUCER - BRASS
8	1	1" SHORT NIPPLE - BRASS
9	4	2" x 90° ELBOW - BRASS
10	2	2" SHORT NIPPLE - BRASS
11	2	2" PIPE - PVC SCH 80, LENGTH AS REQUIRED
12	1	DOUBLE STRAP TAPPING SADDLE EPOXY OR NYLON COATED WITH S.S. STRAPS
13	1	4" & LARGER PIPE, D.I., PVC (DR-18), HDPE
15	2	1-1/2" PIPE - PVC SCH 80, LENGTH AS REQUIRED
16	1	1-1/2" x 90° ELBOW - PVC SCH 80
17	1	REINFORCED CONCRETE MONOLITHIC COLLAR AROUND ENCLOSURE
19	1	2" POLY TUBING
20	2	2" COMPRESSION FITTING
21	1	3" PIPE, PVC, LENGTH AS SHOWN, PERFORATED TOP HALF ONLY
22	1	3" TEE, PVC
23	1	3" CAP PVC
24	1	3" X 90° ELBOW, PVC
25	1	2" CORP STOP - BRASS

DATE: 08/01/2023

DRAWN BY: LTD/DC

APPROVED BY: BRB

RECLAIMED WATER AUTOMATIC AIR RELEASE VALVE

CHARLOTTE COUNTY UTILITIES

PROVIDED FOR INFORMATIONAL PURPOSES ONLY.
NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.

RW–06

ID: RW–06–ARV–OS.dwg

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RE-USE WATER DELIVERY STATION CONTROLS NOTES:

THE RE-USE WATER DELIVERY STATION IS DESIGNED TO AUTOMATICALLY SUPPLY RE-USE WATER. THE SYSTEM OPERATES AS FOLLOWS:

1. THE RE-USE WATER SYSTEM IS ALWAYS MAINTAINED BY ONE OR MORE OF THE WATER RECLAMATION FACILITY (WRF) SUPPLY OR JOCKEY PUMPS. (CHARLOTTE COUNTY UTILITIES DOES NOT GUARANTEE PRESSURE OR FLOW RATE.)

2. RE-USE WATER FLOWS AT A RATE GOVERNED BY AN AUTOMATIC ACTUATOR THE FLOW RATE DEPENDS ON THE SET POINT LOCAL DISPLAY OR THROUGH THE SCADA REMOTELY IN ACCORDANCE WITH CCU DESIGN STANDARDS FOR REMOTE STATIONS SECTION FOR RECLAIMED VALVE CONTROL PANEL.

THE PROCESS IS MONITORED IN REAL TIME REMOTELY IN ACCORDANCE WITH CCU DESIGN STANDARDS FOR REMOTE STATIONS SECTION FOR RECLAIMED VALVE CONTROL PANEL
THE DELIVERY STATION OPERATIONS. THE REAL TIME COMMUNICATIONS SYSTEM CONNECTS TO A SCADA SYSTEM AT THE EASTPORT OR WESTPORT WRF.

THE SCADA SYSTEM ALLOWS THE SYSTEM OPERATORS TO VIEW IN REAL TIME THE FOLLOWING PARAMETERS:

SYSTEM DELIVERY PRESSURE,
THE RE-USE WATER FLOW RATE,
THE FEED VALVE POSITION,
AND ANY ALARM CONDITIONS.

THE OPERATORS CAN SET THE DESIRED FLOW USING THE SCADA SYSTEM OR THE LOCAL DISPLAY. THE FEED VALVE WILL MODULATE TO MAINTAIN CORRECT FLOW (+/- 10GPM). THE VALVE WILL NOT HUNT.

AN UNINTERRUPTIBLE POWER SUPPLY (UPS) IS SUPPLIED TO PROVIDE TRANSIENT VOLTAGE SUPPRESSION, AND WILL ALLOW THE SYSTEM TO OPERATE FOR A BRIEF PERIOD OF TIME IF NORMAL AC POWER IS LOST. THE PLC WILL AUTOMATICALLY CLOSE THE ISOLATION VALVE UPON LOSS OF LOCAL
AC POWER AND AN ALARM WILL BE SENT TO THE SCADA REMOTELY IN ACCORDANCE WITH CCU DESIGN STANDARDS FOR REMOTE STATIONS SECTION FOR RECLAIMED VALVE CONTROL PANEL.

THE CONTROLS ARE HOUSED IN A LOCKED STAINLESS STEEL ENCLOSURE (NEMA 4X).

NOTES ON 120 V AC FEED TO RE-USE WATER DELIVERY STATION:

1. OBTAIN 120 V AC, 20 AMP CIRCUIT FROM NEARBY 120 V AC SOURCE. DO NOT PROVIDE NEW SERVICE UNLESS NO OTHER SOURCE OF POWER IS AVAILABLE. SEE PROJECT CIVIL PLANS FOR LOCATION OF POWER SOURCE. PROVIDE DIRECT BURIAL, TYPE UF FEEDER TO RE-USE WATER DELIVERY STATION PER DIRECTIONS ON THIS SHEET. IN MOST CASES, POWER WILL BE OBTAINED FROM LOCAL PUMP HOUSE.

2. IF NECESSARY, PROVIDE A NEW SERVICE WITH METER AND SMALL 240 120 V AC DISTRIBUTION PANEL. USE ALL-IN ONE PANEL: SQUARE D TYPE SC1624U100S OR EQUIVALENT WITH 100 AMP MAIN BREAKER AND 20 AMP FEEDER BREAKER IN ACCORDANCE WITH CCU DESIGN STANDARDS FOR REMOTE STATIONS SECTION FOR RECLAIMED VALVE CONTROL PANEL

3. COORDINATE WITH CHARLOTTE COUNTY UTILITIES AND LOCAL ELECTRIC UTILITY AS NECESSARY. THE LOCATION AND PHYSICAL ARRANGEMENT OF NEW SERVICE IF ANY, WILL DEPEND ON BEST PHYSICAL ARRANGEMENT AND IS TO BE DETERMINED IN THE FIELD ON A CASE BY CASE BASIS.

4. CUSTOMER IS RESPONSIBLE FOR SUPPLYING POWER, NOT CCU.

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE NATIONAL ELECTRIC CODE (N.E.C.) LATEST EDITION. CONTRACTOR TO OBTAIN ALL PERMITS AND ARRANGE FOR ALL INSPECTIONS WITH AUTHORITIES HAVING JURISDICTION.

2. CONDUITS, RACEWAYS AND CABLES SHALL BE PROPERLY AND SECURELY ATTACHED TO STRUCTURAL COMPONENTS AS REQUIRED BY THE N.E.C. ALL FASTENERS AND HARDWARE SHALL BE APPROVED FOR THE INSTALLATION AND ALL CONDITIONS ENCOUNTERED. CONDUIT ENDS MUST BE SEALED WITH FOAM OR EQUAL, IN A MANNER THAT IS EASILY REMOVED FOR FUTURE NEEDS.

3. EACH OUTLET OR JUNCTION IN ANY OF THE WIRING SYSTEMS SHALL BE MADE IN AN APPROVED JUNCTION BOX. SUCH BOX SHALL BE SUITABLE FOR THE SIZE AND NUMBER OF CONDUCTORS AND DEVICES TO BE INSTALLED, AS WELL AS ANY ADVERSE CONDITIONS ENCOUNTERED. ALL SPLICES SHALL BE MADE WITH APPROVED, MECHANICAL CONNECTORS.

4. THE CONTRACTOR SHALL PROVIDE ALL INFORMATION ABOUT EQUIPMENT WHICH IS BEING FURNISHED FOR COORDINATION PURPOSES. THE CONTRACTOR SHALL PROVIDE ALL INSTALLATION DETAILS AND SUPPORT COMPONENTS, SO THAT THESE MAY BE BUILT INTO THE CONSTRUCTION IN A TIMELY MANNER.

5. ALL RACEWAYS SHALL BE PROVIDED WITH CONTINUOUS EQUIPMENT GROUNDING CONDUCTOR. EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED IN ALL ELECTRICAL RACEWAYS AND SHALL BE IN ACCORDANCE WITH NEC ARTICLE 250.

6. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING, INSTALLATION TESTING, CALIBRATING, AND OTHERWISE MAKING OPERATIONAL ALL DEVICES AND EQUIPMENT SHOWN ON THESE DRAWINGS. ALL FINAL DRAWINGS AND SOFTWARE, PROGRAMMING SOFTWARE, AND SPECIAL CABLES SHALL BE FURNISHED TO CHARLOTTE COUNTY UTILITIES.

7. IT IS THE INTENT OF DRAWINGS AND SPECIFICATION TO OBTAIN A COMPLETE AND SATISFACTORY INSTALLATION. AN ATTEMPT HAS BEEN MADE TO SEPARATE AND DEFINE THE WORK OF THE CONTRACTOR. DRAWINGS ARE DIAGRAMMATIC, BUT SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION OF THE PROJECT AND THE WORK OF OTHER TRADES WILL PERMIT. THE DRAWINGS UTILIZE SYMBOLS AND SCHEMATIC DIAGRAMS TO INDICATE VARIOUS ITEMS OF WORK. THEREFORE; NO INTERPRETATION WILL BE MADE FROM THE LIMITATION OF SYMBOLS AND DIAGRAMS THAT ANY ELEMENTS NECESSARY TO THE COMPLETE INSTALLATION ARE EXCLUDED. THE ENGINEER SHOULD BE NOTIFIED OF DISCREPANCIES, OMISSIONS, CONFLICTS, OR INTERFERENCES WHICH MAY OCCUR BETWEEN VARIOUS DRAWINGS AND SPECIFICATIONS. IF SUCH NOTIFICATION IS NOT RECEIVED, THE INSTALLING CONTRACTOR(S) SHALL BE RESPONSIBLE FOR THEIR INTERPRETATIONS.

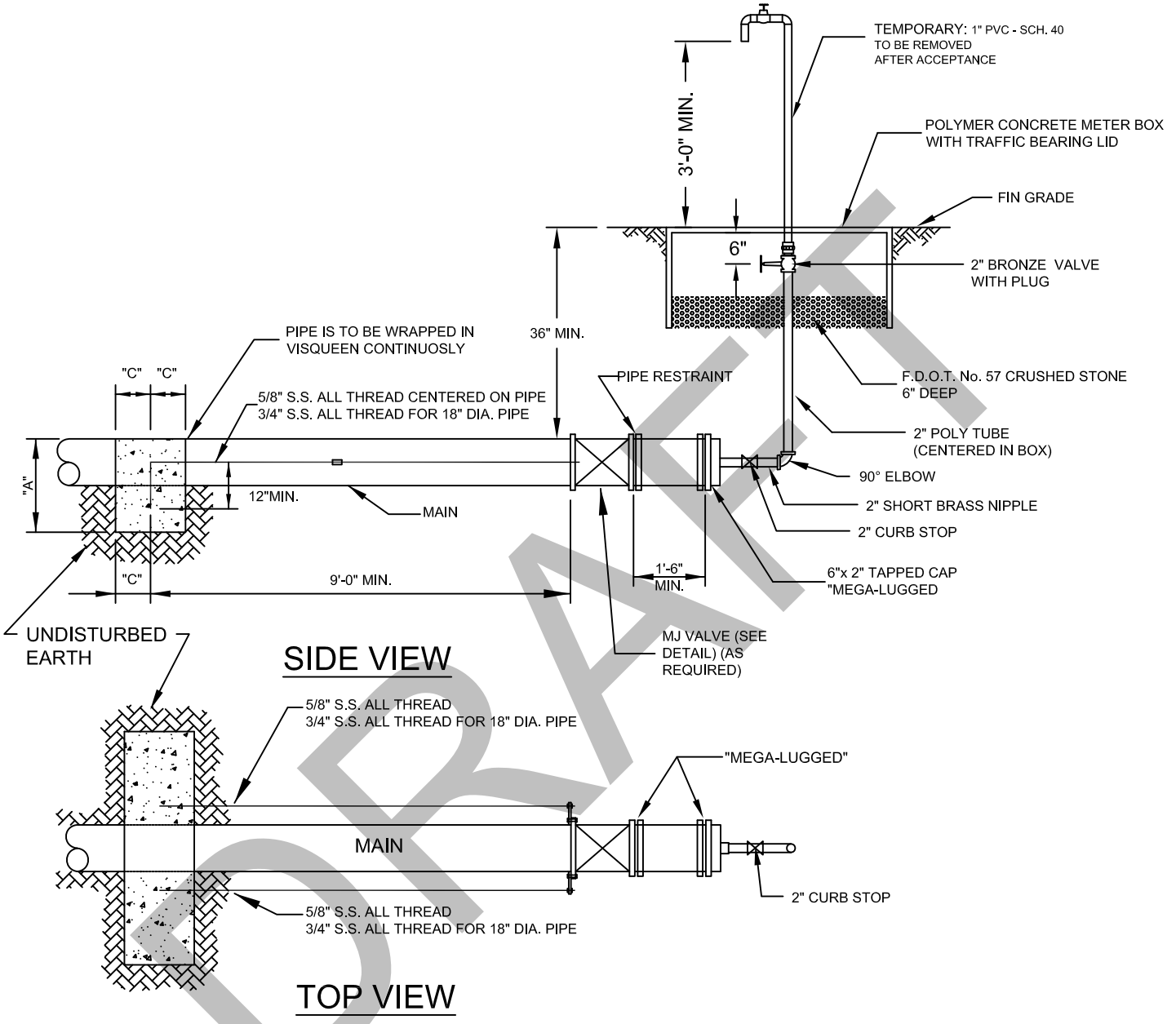
8. ALL CONDUITS TO BE SCHEDULE 80 PVC, EXCEPT WHERE EXPOSED TO HAZARDOUS CONDITIONS IN WHICH CASE IT SHALL BE RIGID GALVANIZED STEEL.

9. FUSE 4-20 MA LOOP POWERED CIRCUIT WITH 0.032 AMP FUSES.

10. GROUND INSTRUMENT CABLE SHIELDS AT ONE END ONLY.

11. BURY DIRECT BURIAL FEEDER TYPE UF 24" BELOW GRADE. PROVIDE PLASTIC WARNING TAPE 12" ABOVE FEEDER IN TRENCH.

DATE: 08/01/2023	DELIVERY STATION NOTES	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DJS/LD		RW-14
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RW-14-DSN-PF.dwg



PIPE SIZE	"A"	"B"	"C"
4"	12"	16"	6"
6"	18"	22"	6"
8"	24"	29"	9"
10"	30"	35"	9"
12"	36"	41"	9"
16"	48"	53"	12"
18"	48"	67"	12"

DATE: 6/29/2023	PERMANENT END OF MAIN BLOW–OFF ASSEMBLY (RECLAIMED WATER)	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PW-13
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-13-PBO.dwg

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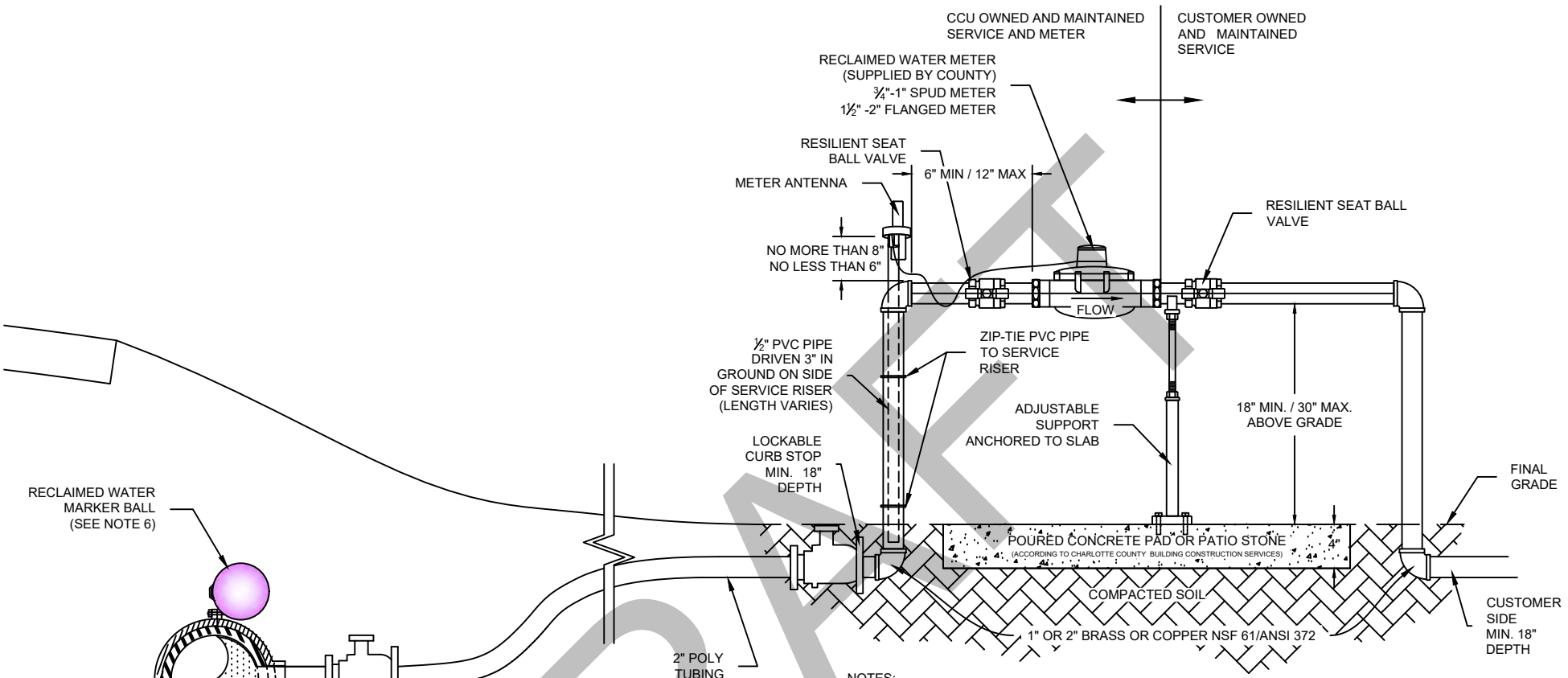


NOTES:

1. SERVICE SADDLES SHALL BE EPOXY OR NYLON COATED WITH IRON PIPE THREAD INLET WITH DOUBLE STAINLESS STEEL STRAPS.
2. RECLAIMED METER SHALL BE ASSEMBLED WITH PROPER METER COUPLINGS.
3. RECLAIMED METER (READING U.S. GALLONS) TO BE SUPPLIED BY CHARLOTTE COUNTY UTILITIES DEPARTMENT.
4. ALL ABOVE GROUND PIPING AND FITTINGS SHALL BE COPPER OR BRASS MEETING NSF 61/ANSI 372 STANDARDS.
5. IF ASSEMBLY IS LOCATED WITHIN 4' PROXIMITY TO A DRIVEWAY OR ROAD. TWO BOLLARDS SHALL BE PLACED PARALLEL TO THE DRIVEWAY OR ROAD FOR PROTECTION.
6. FOR EACH SERVICE TAP A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS AND ATTACHED TO PIPE WITH TIE-WRAPS. MAXIMUM DEPTH 5 FEET.
7. IF AN ALTERNATIVE WATER SOURCE IS UTILIZED FOR IRRIGATION, A BACKFLOW SHALL BE ADDED TO PROTECT CCU RECLAIMED WATER SUPPLY.
8. SIZE OF SERVICE MAIN DEPENDS ON LENGTH FOR NON STANDARD COMMERCIAL LOCATION.

DATE: 6/8/2023	COMMERCIAL PROPERTY 3/4" THROUGH 2" ABOVE GROUND RECLAIMED WATER METER	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		RCW-20
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: RCW-AG-CON.dwg

Z:\Auto Cad R14\DETAILS\2023 DETAILS\09.RECLAIMED WATER\RCW-AG-CON.dwg

CHARLOTTE COUNTY UTILITIES

DESIGN STANDARDS FOR REMOTE STATIONS

RECLAIMED VALVE CONTROL PANEL

RECLAIMED WATER VALVE RTU PANEL	
Sheet Number	Sheet Title
E6.0	COVER SHEET AND DRAWING INDEX
E6.1	ELECTRICAL SYMBOLS
E6.2	ENCLOSURE DETAILS
E6.3	BACKPANEL DETAIL AND BILL OF MATERIAL
E6.4	TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL
E6.5	CONTROL POWER WIRING
E6.6	CONTROL AND EMC-SEL DIAGRAM

SHEET INDEX

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

COVER SHEET AND DRAWING INDEX

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE

HORIZONTAL:

VERTICAL:

E6.0

DRAWING NO.

0

REVISION

STATUS:

ELECTRICAL SYMBOLS

ISA-5.3 LOOP SYMBOLS

DISTRIBUTED CONTROL/SHARED DISPLAY SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- AUXILLIARY OPERATOR'S INTERFACE DEVICE
- NOT NORMALLY ACCESSIBLE TO OPERATOR

COMPUTER SYMBOLS

- NORMALLY ACCESSIBLE TO OPERATOR
- NOT NORMALLY ACCESSIBLE TO OPERATOR

LOGIC AND SEQUENTIAL CONTROL SYMBOLS

- GENERAL LOGIC
- DISTRIBUTED INTERCONNECTING CONTROLLER, NOT NORMALLY ACCESSIBLE TO OPERATOR
- DISTRIBUTED INTERCONNECTING CONTROLLER, NORMALLY ACCESSIBLE TO OPERATOR
- COMPUTATION/SIGNAL CONDITIONING
- SYSTEM/SOFTWARE/NETWORK LINK

DEVICE SYMBOLS

- RELAY COIL
- CONTACT, N.O.
- CONTACT, N.C.
- TIMER RELAY COIL
- TIME-ON DELAY, N.O. CONTACT
- TIME-ON DELAY, N.C. CONTACT
- TIME-OFF DELAY, N.O. CONTACT
- TIME-OFF DELAY, N.C. CONTACT
- PUSH BUTTON, N.O. CONTACT
- PUSH BUTTON, N.C. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.O. CONTACT
- MUSHROOM HEAD PUSH BUTTON, N.C. CONTACT
- SELECTOR SWITCH, N.O. CONTACT
- SELECTOR SWITCH, N.C. CONTACT
- LIMIT SWITCH, N.O. CONTACT
- LIMIT SWITCH, N.C. CONTACT
- PRESSURE SWITCH, N.O. CONTACT
- PRESSURE SWITCH, N.C. CONTACT

DEVICE SYMBOLS

- TEMPERATURE SWITCH, N.O. CONTACT
- TEMPERATURE SWITCH, N.C. CONTACT
- FLOW SWITCH, N.O. CONTACT
- FLOW SWITCH, N.C. CONTACT
- FLOAT SWITCH, N.O. CONTACT
- FLOAT SWITCH, N.C. CONTACT
- FOOT SWITCH, N.O. CONTACT
- FOOT SWITCH, N.C. CONTACT
- TOGGLE SWITCH, N.O. CONTACT
- TOGGLE SWITCH, N.C. CONTACT
- THERMAL OVERLOAD
- SOLENOID
- HORN
- PILOT LIGHT W - WHITE G - GREEN A - AMBER R - RED B - BLUE
- PILOT LIGHT, PUSH TO TEST
- FUSE
- CIRCUIT BREAKER
- GROUND

DEVICE SYMBOLS

- CONTROL POWER TRANSFORMER
- CURRENT TRANSFORMER
- POTENTIOMETER
- RESISTOR
- CAPACITOR, ELECTROLYTIC
- DIODE
- ZENER DIODE
- BATTERY
- TERMINAL BLOCK, "PTB 120VAC"
- TERMINAL BLOCK, "DIGITAL INPUT"
- TERMINAL BLOCK, "DRY CONTACT"
- TERMINAL BLOCK, "ANALOG SIGNAL"
- TERMINAL BLOCK, OTHER (SPECIFY)
- ETM — ELAPSED TIME METER

WIRE SYMBOLS

- CONDUCTORS, WITH JUNCTION
- CONDUCTORS, NOT CONNECTED
- SHIELDED CABLE
- TWISTED-PAIR CABLE
- FIELD WIRING

ABBREVIATIONS

AIT	ANALYSIS INDICATING TRANSMITTER
AFD	ADJUST FREQUENCY DRIVE
BC	BYPASS CONTACTOR
BFI	BLOWN FUSE INDICATOR
C	CONTACTOR
CB	CIRCUIT BREAKER
CPT	CONTROL POWER TRANSMFORMER
CR	CONTROL RELAY
CRI	CONTROL RELAY, INTRINSIC
CRL	CONTROL RELAY, LATCH
DFR	DRIVE FAIL RELAY
DI	DIGITAL INDICATOR
DUP	DUPLEXOR
DRR	DRIVE RUN RELAY
DSC	DISCONNECT SWITCH
ETM	ELAPSED TIME METER
FIT	FLOW INDICATING TRANSMITTER
FS	FLOAT SWITCH
FSR	FLOAT SWITCH RELAY
FU	FUSE
GRD	GROUND
HS	HAND SWITCH
IC	ISOLATION CONTACTOR
ISO	SIGNAL ISOLATOR/BOOSTER
LT	PILOT LIGHT
LIT	LEVEL INDICATING TRANSMITTER
LS	LIMIT SWITCH
M	MOTOR STARTER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MSP	MAIN SURGE PROTECTOR
OL	OVERLOAD
PB	PUSH BUTTON
PDB	POWER DISTRIBUTION BLOCK
PIT	PRESSURE INDICATING TRANSMITTER
RIO	REMOTE I/O PANEL
POT	POTENTIOMETER
PM	PHASE MONITOR
PS	POWER SUPPLY
RCR	RUN COMMAND RELAY
RES	RESISTOR
S	SWITCH
SP	SURGE PROTECTOR
SS	SELECTOR SWITCH
SSRV	SOLID STATE REDUCED VOLTAGE STARTER
TB	TERMINAL BOARD, TERMINAL BLOCK
TC	TIME CLOCK
TR	TIME DELAY RELAY
TS	TEMPERATURE SWITCH
VFD	VARIABLE FREQUENCY DRIVE
XFMR	TRANSFORMER
ZS	LIMIT SWITCH

NOTES:
ALL SYMBOLS MAY NOT BE UTILIZED FOR THIS PROJECT.
ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

NOTE: PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL. FOR EACH INSTALLATION A SPECIFIC SET OF CONSTRUCTION DRAWINGS AND SPECIFICATIONS (IF DEEMED NECESSARY BY THE DESIGN ENGINEER) MUST BE PREPARED.

CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

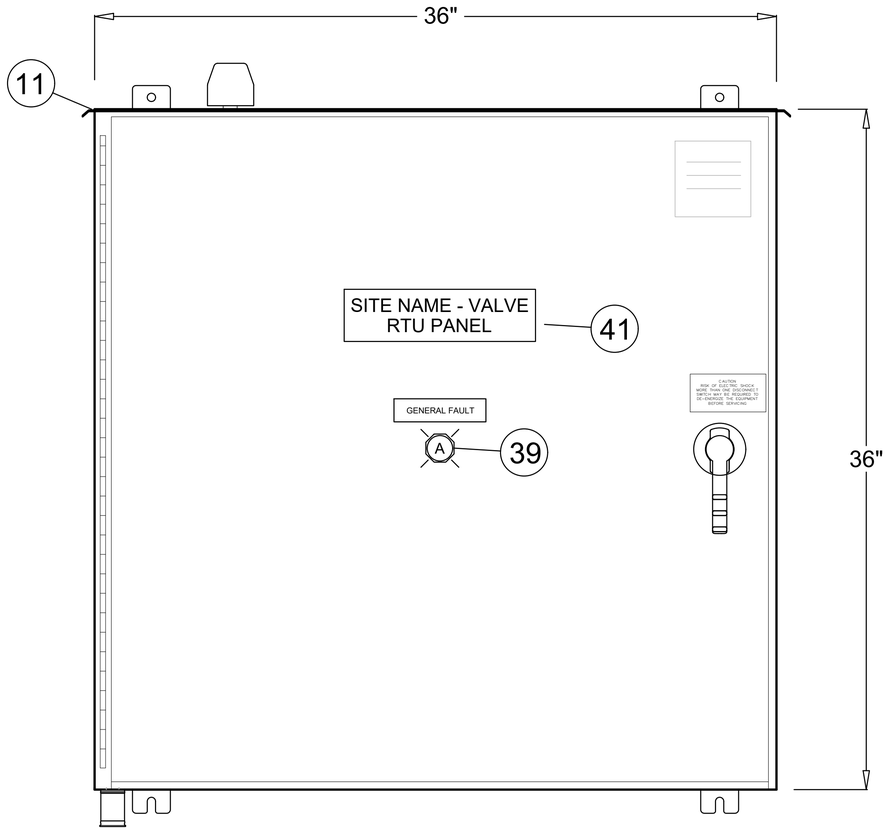
ELECTRICAL SYMBOLS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

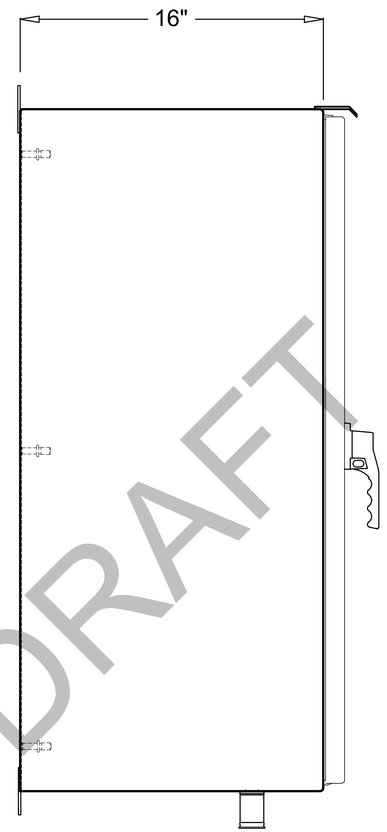
SCALE
HORIZONTAL:
VERTICAL:

DRAWING NO. **E6.1**
REVISION 0

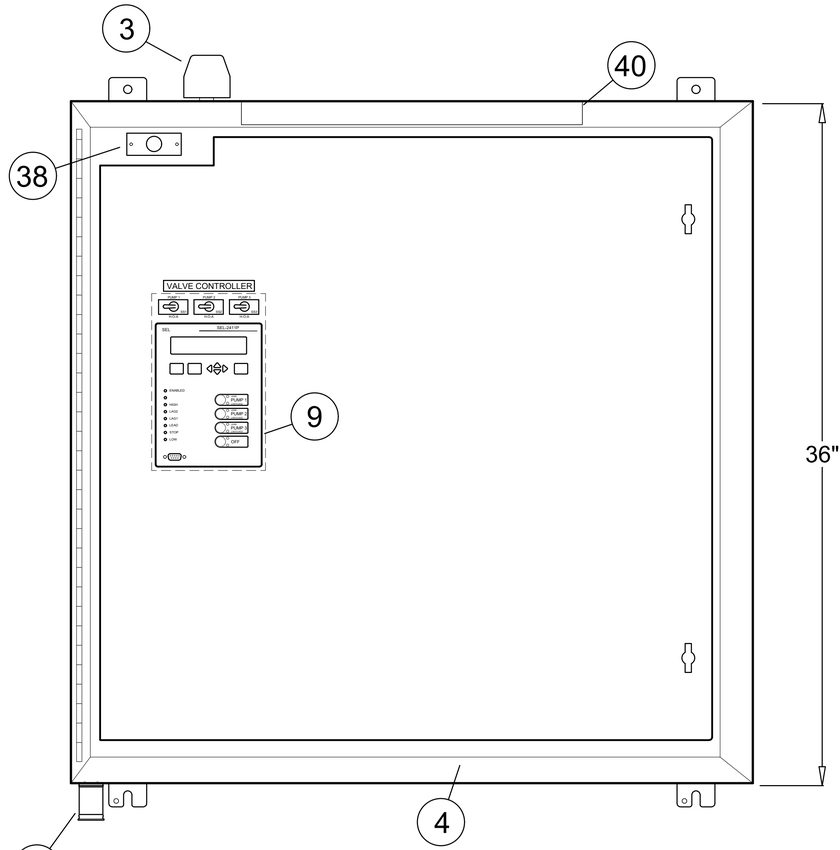
STATUS:



FRONT ENCLOSURE VIEW



RIGHT SIDE VIEW



INNER DOOR VIEW

NOTES:

1. ITEM NUMBERS REFER TO BILL OF MATERIALS SHOWN ON SHEET E6.3.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

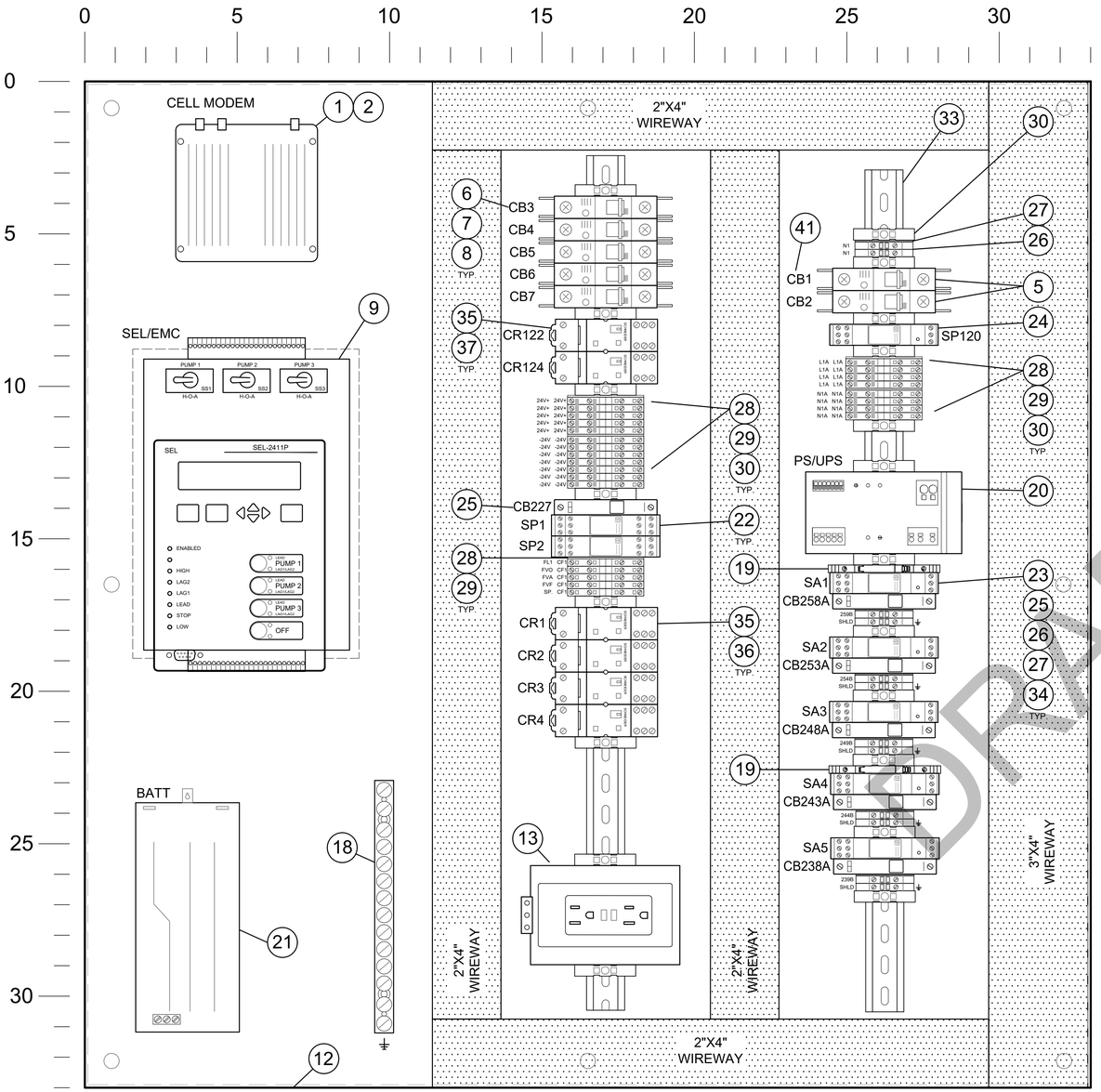
ENCLOSURE DETAILS

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E6.2
DRAWING NO.
0
REVISION

STATUS:



BACKPANEL VIEW

ID	QTY	MANUFACTURER	CATALOG NUMBER	DESCRIPTION
1	1	CRADLEPOINT	MA3-0900120B-NNA (TBD)	IBR900 CELLULAR MODEM, RUGGEDIZED WITH IOT ESSENTIALS
2	1	CRADLEPOINT	170656-002	RADIO DIN RAIL BRACKET
3	1	CRADLEPOINT	M530B15-2C1G-CP-IBR900	3-LEAD MIMO M2M IOT ANTENNA
4	1	CUSTOM	PANEL SHOP	12GA. STEEL INNER DOOR DEADFRONT, BLACK POLYESTER POWDERCOATED
5	2	EATON	FAZ-C15/1-NA	CIRCUIT BREAKER, 15 AMP
6	1	EATON	FAZ-C10/1-NA	CIRCUIT BREAKER, 10 AMP
7	2	EATON	FAZ-C5/1-NA	CIRCUIT BREAKER, 5 AMP
8	2	EATON	FAZ-C3/1-NA	CIRCUIT BREAKER, 3 AMP
9	1	EMC/SEL	SEL-70C1-V	SEL-2411P CONTROLLER EMC WITH HOUSING KIT AND WIRING HARNESS
10	1	HOFFMAN	AVDR4SS4	H20MIT VENT DRAIN, 4X, 304 STAINLESS STEEL
11	1	HOFFMAN	A36H3616SS6LP3PT-CUSTOM	36"H X 36"W X 16"D TYPE 4X SS 316 ENCLOSURE WITH DRIPSHIELD
12	1	HOFFMAN	A36P36	BACKPANEL FOR 36"X36" ENCLOSURE
13	1	HUBBELL	GFRST15SNAPW	GFCI RECEPTACLE, 15A, 120V
14	1	PANDUIT	F2X4LG6	SLOTTED WIREWAY, GRAY, 2"X4", 6' STICK
15	1	PANDUIT	C2LG6	2" WIREWAY COVER, GRAY, 6' STICK
16	1	PANDUIT	F3X4LG6	SLOTTED WIREWAY, GRAY, 3"X4", 6' STICK
17	1	PANDUIT	C3LG6	3" WIREWAY COVER, GRAY, 6' STICK
18	1	PANDUIT	UGB2-0-414-12	GROUND BAR, #14-4AWG
19	2	PHOENIX CONTACT	2864419	MCR LOOP-POWEED ISOLATOR, 1-CHANNEL
20	1	PHOENIX CONTACT	2907161	24VDC UPS AND POWER SUPPLY MODULE, 10 AMP
21	1	PHOENIX CONTACT	1274117	24VDC BACKUP BATTERY, 4 Ah
22	2	PHOENIX CONTACT	2800982	PLUG TRAB SURGE PROTECTOR WITH BASE, 24VDC, 4-POINT (DI / DO)
23	5	PHOENIX CONTACT	2800976	ANALOG SIGNAL SURGE PROTECTOR WITH BASE
24	1	PHOENIX CONTACT	2907918	120VAC SURGE PROTECTOR WITH STATUS, PLUG AND BASE
25	6	PHOENIX CONTACT	0916603	THERMOMAGNETIC DEVICE CIRCUIT BREAKER, 1/2A
26	7	PHOENIX CONTACT	3044102	STANDARD TERMINAL BLOCK, 30A
27	6	PHOENIX CONTACT	3047028	STANDARD TERMINAL BLOCK END BARRIER
28	27	PHOENIX CONTACT	3044814	2-TIER ISOLATED TERMINAL BLOCK
29	6	PHOENIX CONTACT	3047293	2-TIER TERMINAL BLOCK END COVER
30	8	PHOENIX CONTACT	3030271	2-TIER TERMINAL BLOCK JUMPER BRIDGE
32	21	PHOENIX CONTACT	0800886	DIN RAIL END BRACKET
33	1	PHOENIX CONTACT	0801733	STANDARD DIN RAIL, 2M
34	5	PHOENIX CONTACT	30-44-12-8	GROUNDING TERMINAL BLOCK
35	6	SCHNEIDER	70-782EL8-1	RELAY BASE, 8-PIN
36	4	SCHNEIDER	792XBXM4L-120A	DPDT RELAY, 120VAC, WITH INDICATOR AND TEST LATCH
37	2	SCHNEIDER	792XBXM4L-24D	DPDT RELAY, 24VDC, WITH INDICATOR AND TEST LATCH
38	1	SQUARE D	9007MS02S0200	INTRUSION SWITCH WITH MOUNTING BRACKET
39	1	SQUARE D	9001SKP35LYA9	30mm IND LAMP, LED, AMBER, 24VDC
40	1	UTILTECH	0877623	UNDERCABINET LIGHT, 120VAC, WITH 18' LED BULB
41	-	CUSTOM	PANEL SHOP	ENGRAVED PHENOLIC NAMEPLATES, WHITE TEXT WITH BLACK BACKGROUND

BILL OF MATERIALS

NOTES:

1. BILL OF MATERIALS IS PROVIDED FOR EXAMPLE ONLY. PANEL COMPONENTS WILL VARY WITH EACH SPECIFIC VALVE SYSTEM. CONTROL PANEL MANUFACTURER TO PROVIDE A COMPLETE LIST OF CONTROL PANEL MATERIALS FOR COUNTY APPROVAL BEFORE FABRICATION.

2. CONTROL PANEL TO BE UL508A LISTED TYPE 4X.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023
	REVISIONS	

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

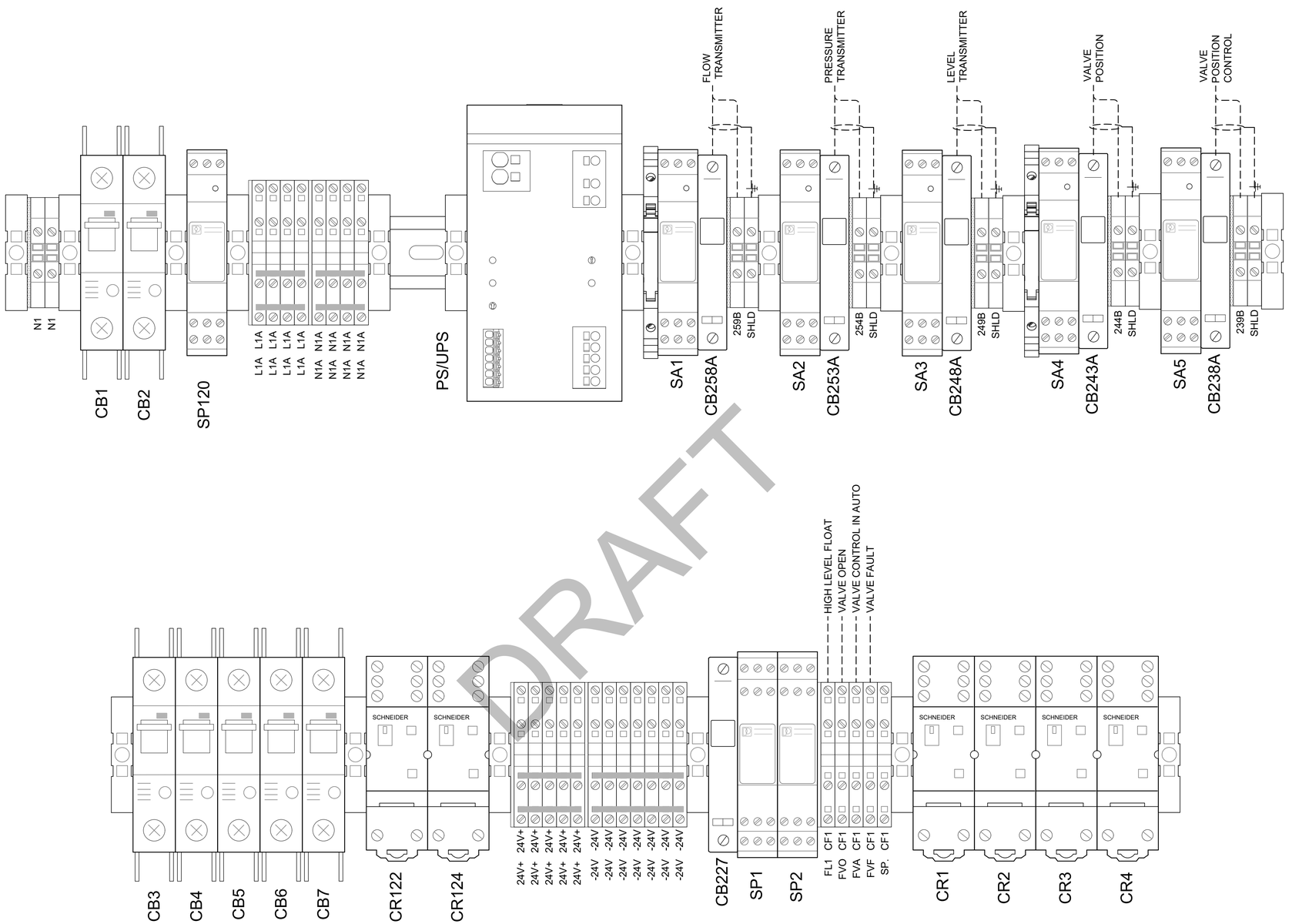
BACKPANEL DETAIL AND BILL OF MATERIAL

DATE: MARCH 2023
MCE PROJ. # 07169-0012
DRAWN CJA
DESIGNED CJA
CHECKED EEB
PROJ. MGR. EEB

SCALE
HORIZONTAL:
VERTICAL:

E6.3
DRAWING NO.
0
REVISION

STATUS:



TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

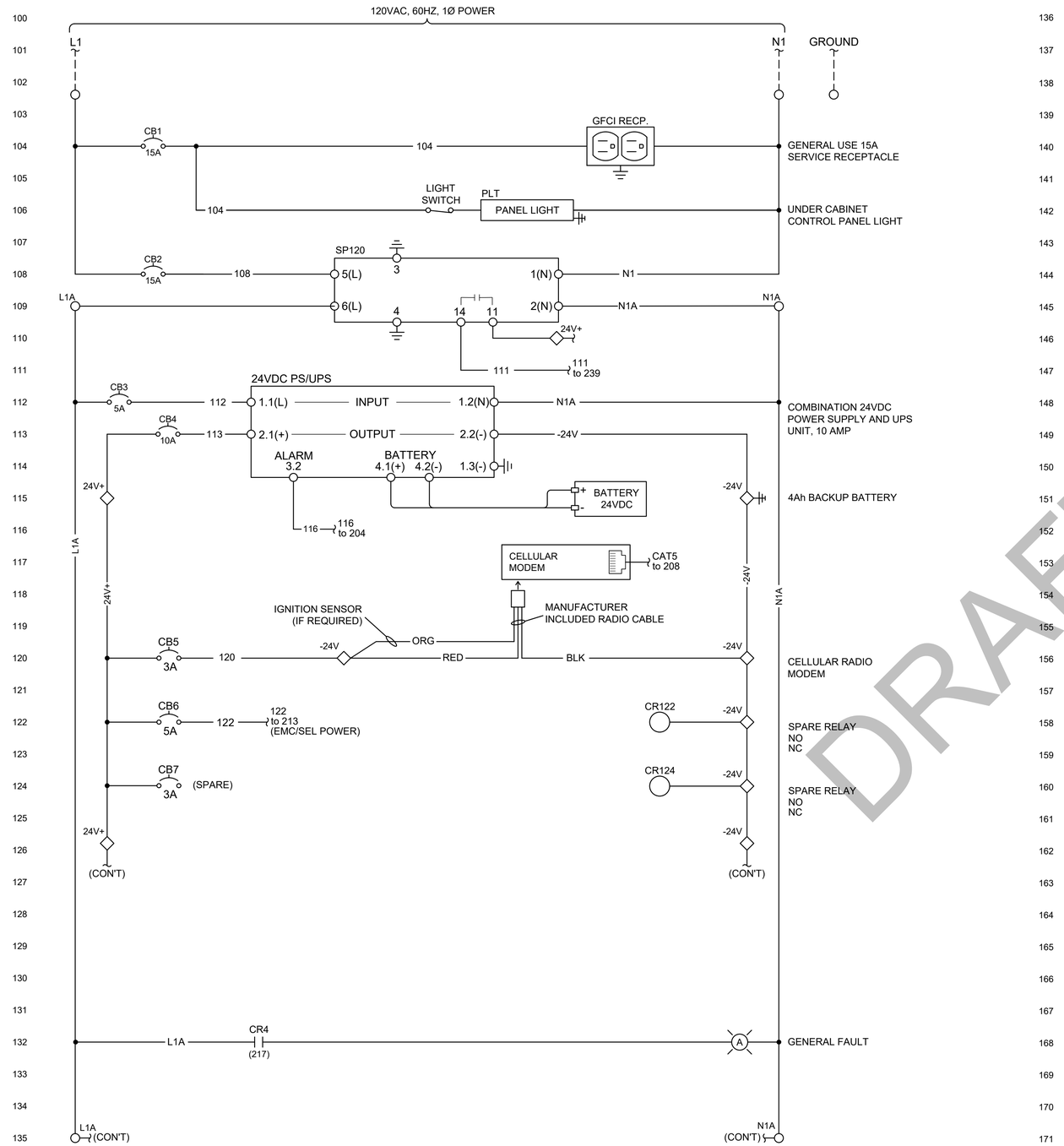
TERMINAL BLOCK AND EXTERNAL CONNECTION DETAIL

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E6.4
DRAWING NO.
0
REVISION

STATUS:



REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

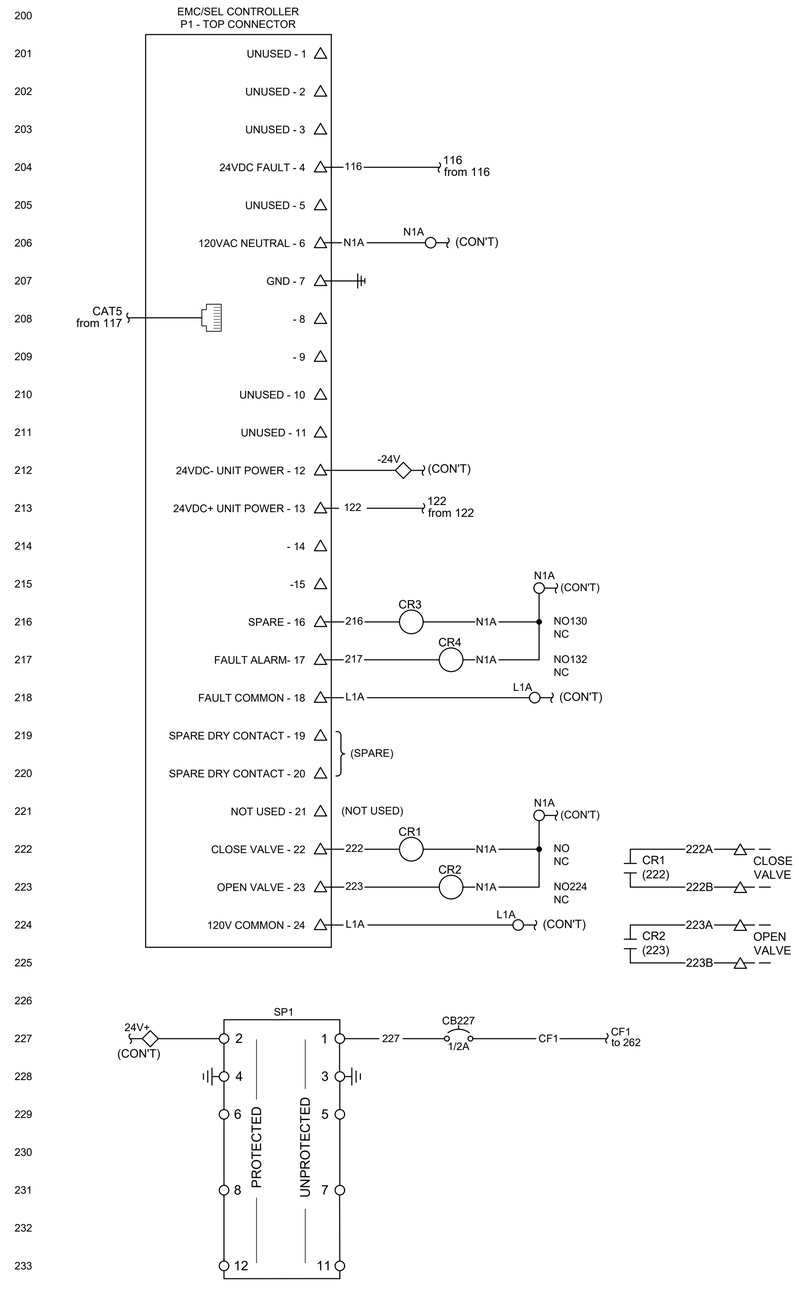
CONTROL POWER WIRING

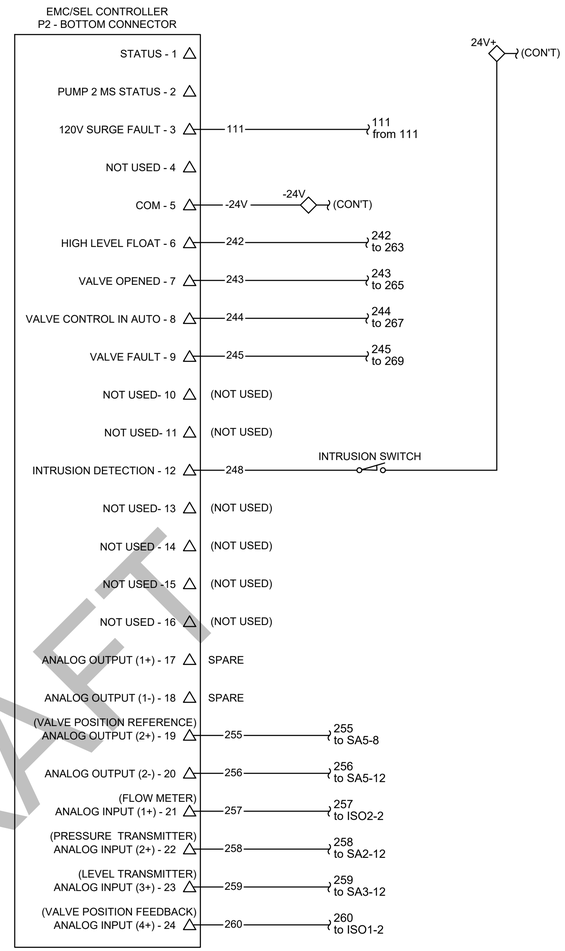
DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

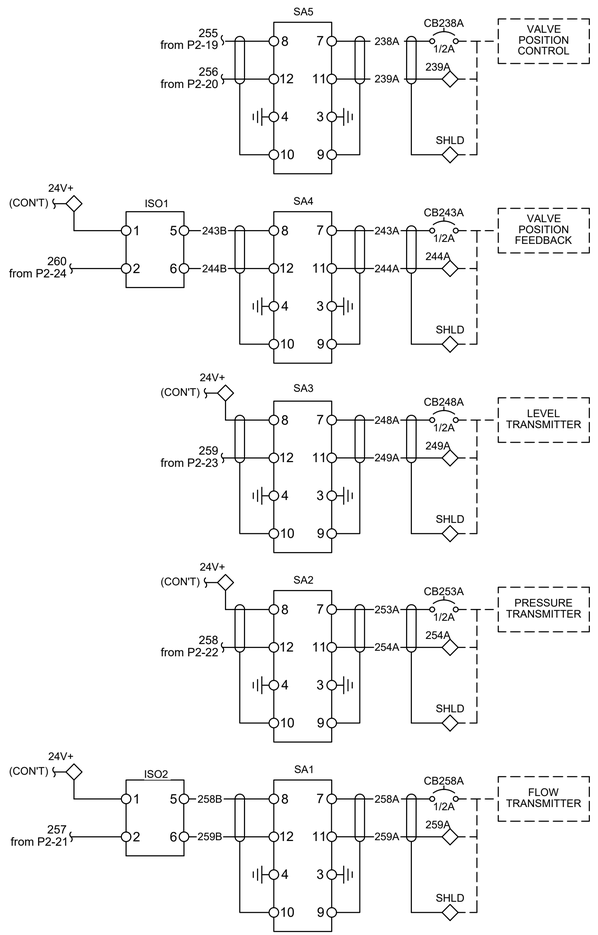
SCALE
HORIZONTAL:
VERTICAL:

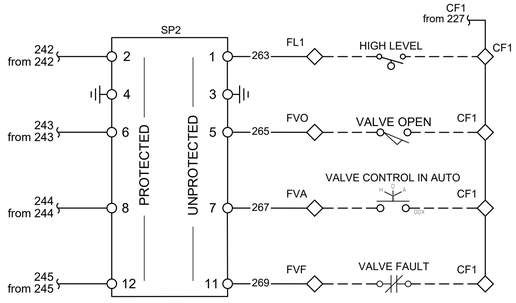
E6.5
DRAWING NO.
0
REVISION

STATUS:









NOTE: ALL INPUTS AND OUTPUTS ARE SHOWN FOR EXAMPLE ONLY. INPUTS AND OUTPUTS WILL VARY WITH EACH SITE.

REV	DESCRIPTION	DATE
0	STANDARDS	MAR-2023

REVISIONS

CHARLOTTE COUNTY UTILITIES DEPARTMENT

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CHARLOTTE COUNTY FLORIDA

CHARLOTTE COUNTY UTILITIES - REMOTE SITES CONTROL PANEL STANDARDS

RECLAIMED WATER VALVE RTU PANEL

CONTROL AND EMC-SEL DIAGRAM

DATE:	MARCH 2023
MCE PROJ. #	07169-0012
DRAWN	CJA
DESIGNED	CJA
CHECKED	EEB
PROJ. MGR.	EEB

SCALE
HORIZONTAL:
VERTICAL:

E6.6
DRAWING NO.
0
REVISION

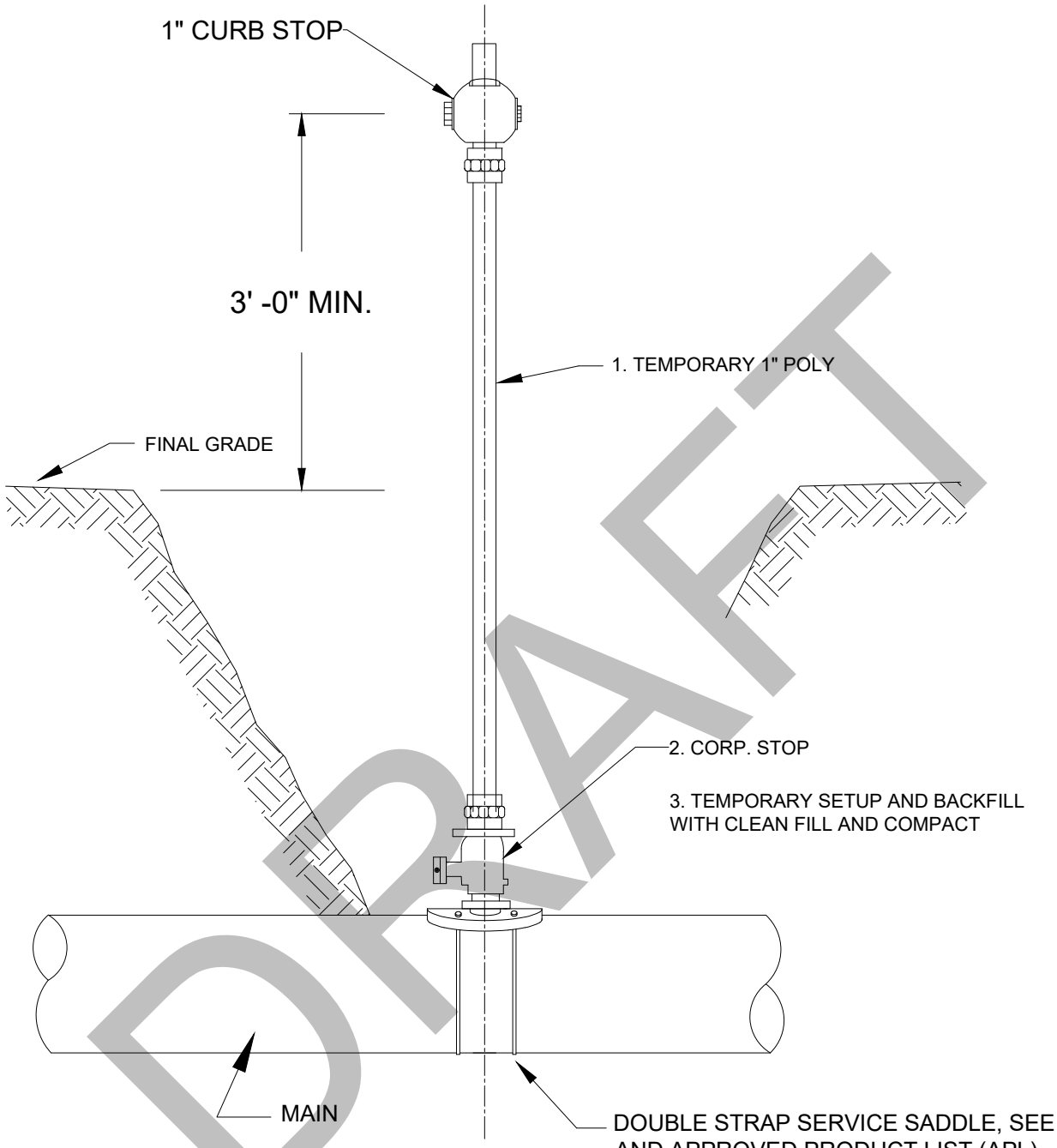
STATUS:

ISSUE DATE AUGUST 1ST, 2023

CHARLOTTE COUNTY
Utilities

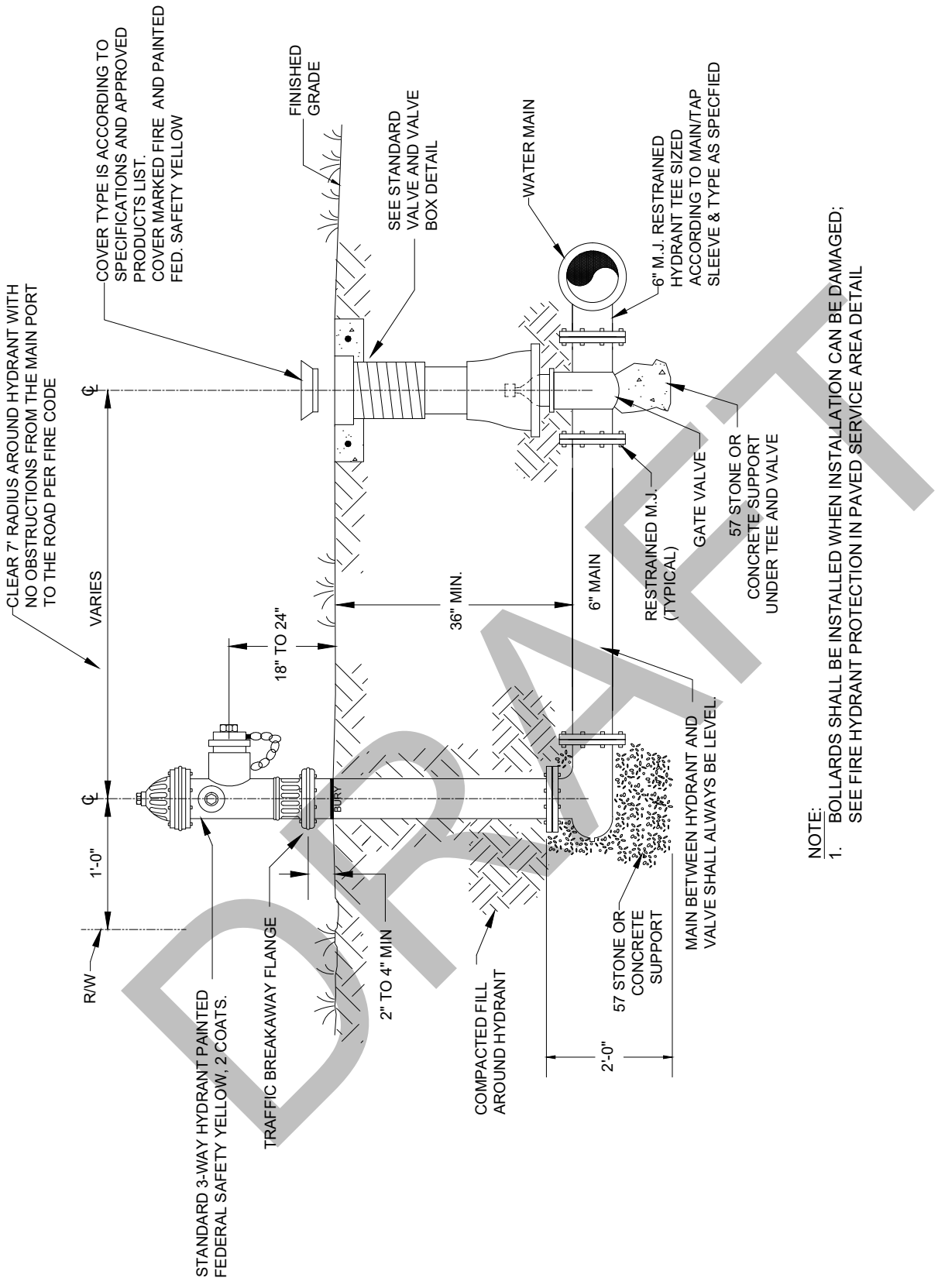
POTABLE WATER

Sheet List Table	
Sheet Number	Sheet Title
COVER	COVER
PW-01	TRMPORARY SAMPLE POINT
PW-02	FIRE HYDRANT WITH TYPICAL GATE VALVE
PW-03	FIRE HYDRANT PROTECTION IN PAVED AREAS
PW-04	4 -10 INCH BACKFLOW PREVENTION ASSEMBLY FOR FIRE LINE SYSTEMS
PW-05	3 INCH AND ABOVE WATER METERS WITH PROVISION FOR BYPASS ASSEMBLY
PW-06	3-4 INCH - 1 INCH WATER METER WITH BACKFLOW PREVENTER
PW-07	1 1-2 INCH - 2 INCH WATER METER WITH BACKFLOW PREVENTER
PW-08	TYP 3-4 INCH - 1 INCH SINGLE FAMILY RESIDENTIALWATER SERVICE
PW-10	METER BANK DETAIL 3-4 AND 1 IN COMMERCIAL AND FAMILY RESIDENTAIL
PW-11	AUTOMATIC FLUSHING ASSEMBLY
PW-13	PERMANENT END OF MAIN BLOW OFF ASSEMBLY (WATER)
PW-14	POTABLE WATER AUTOMATIC AIR RELEASE VALVE



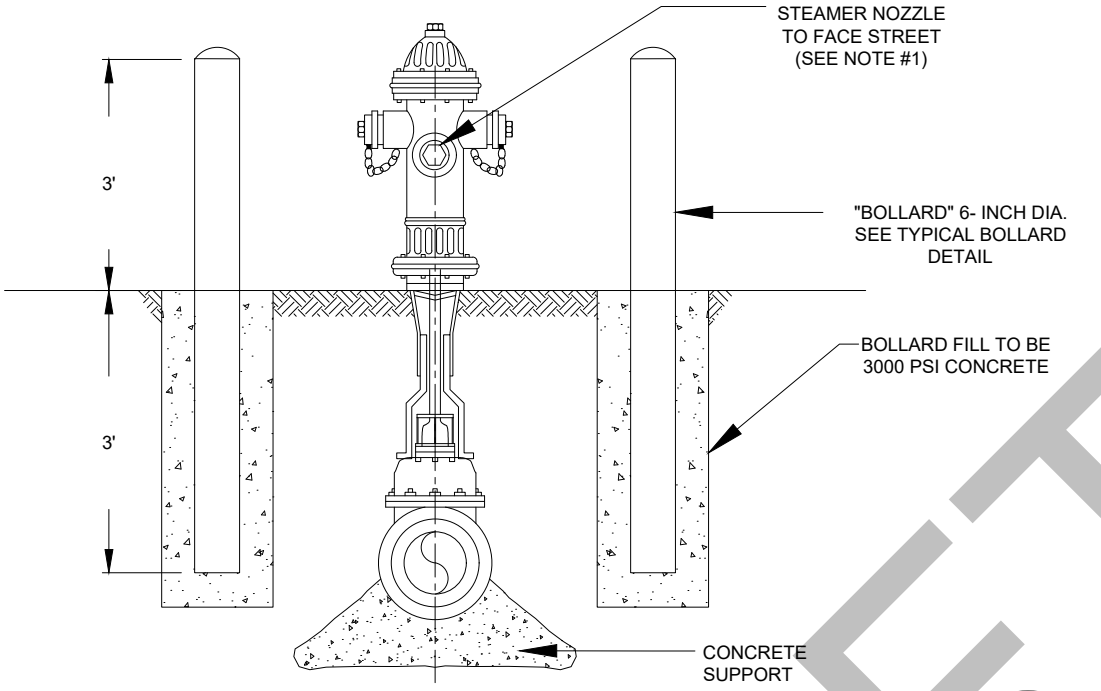
NOTE:
1: REMOVE RISER PIPE AND SHUT OFF CORP STOP AFTER FDEP CERTIFICATIONS.
2: USE TEFLON TAPE IN LIEU OF PIPE DOPE ON THREADED FITTINGS.

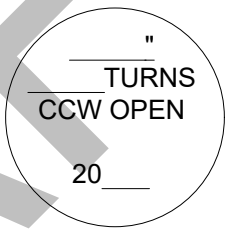
DATE: 8/1/2023	TYPICAL BACTERIOLOGICAL SAMPLE POINT	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-01
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-01-BACT.dwg

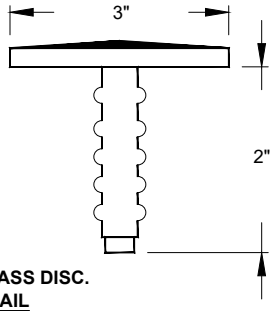


NOTE:
1. BOLLARDS SHALL BE INSTALLED WHEN INSTALLATION CAN BE DAMAGED; SEE FIRE HYDRANT PROTECTION IN PAVED SERVICE AREA DETAIL

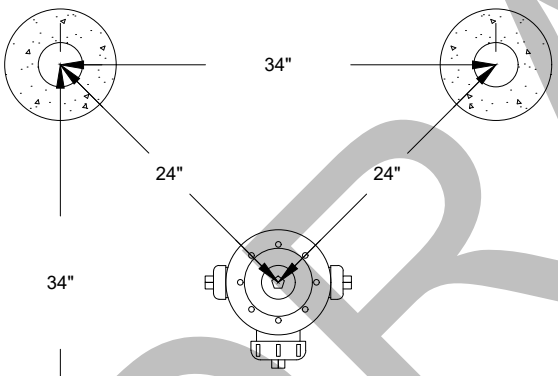
DATE: 8/1/2023	# FIRE HYDRANT WITH TYPICAL GATE VALVE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-02-FH.dwg

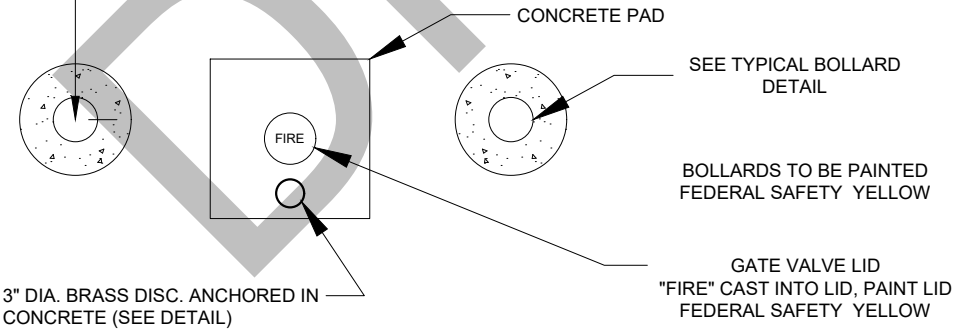






3" DIA. BRASS DISC.
DETAIL

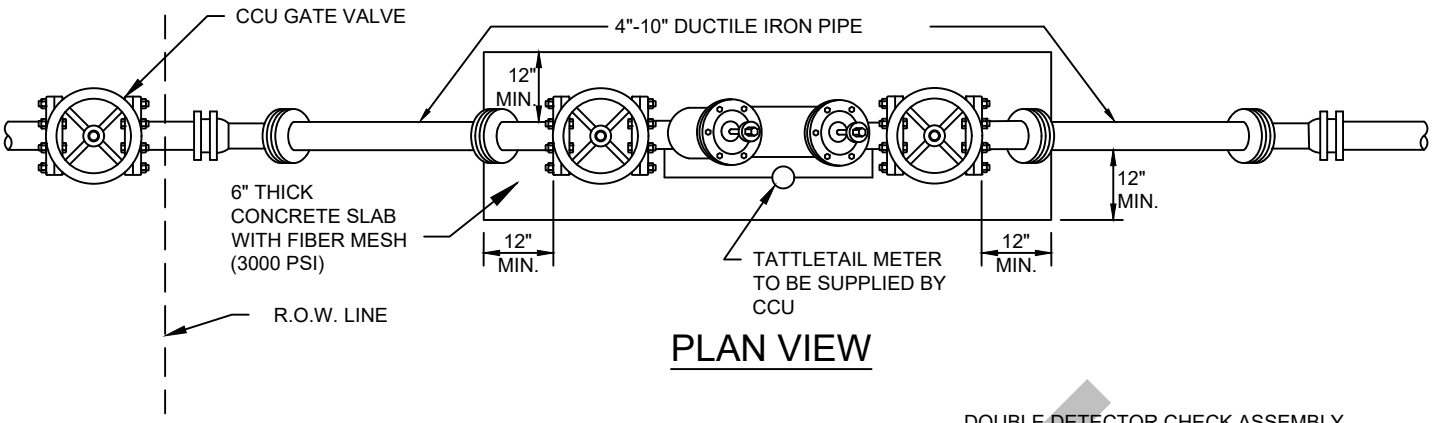




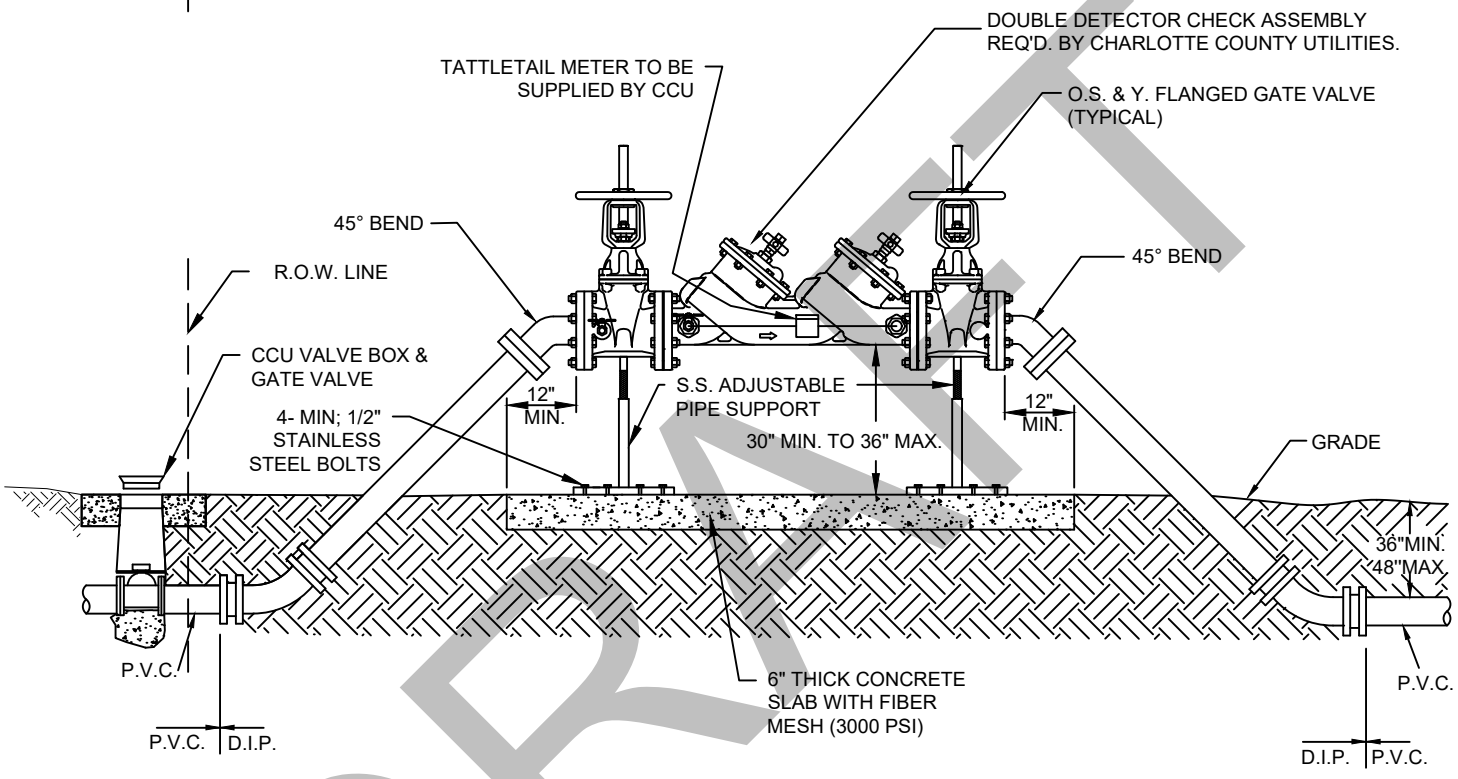
NOTE #1: BOLLARDS SHALL BE INSTALLED FOR FHA PROTECTION IN PAVED AREAS

TYPICAL TRAFFIC FLOW

DATE: 8/1/2023	# FIRE HYDRANT PROTECTION IN PAVED SERVICE AREAS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-03
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-03-FHP.dwg



PLAN VIEW

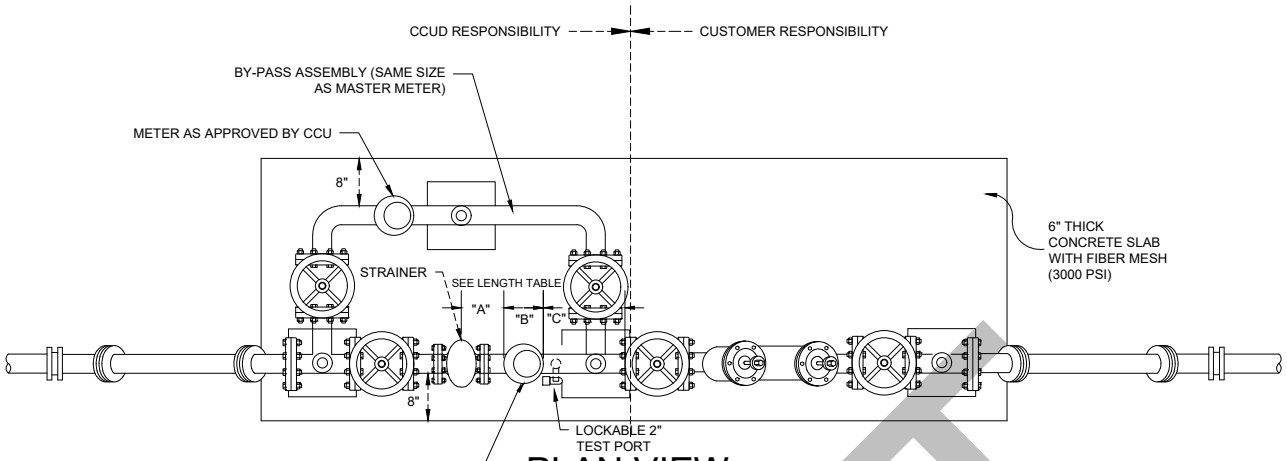


ELEVATION "A-A"

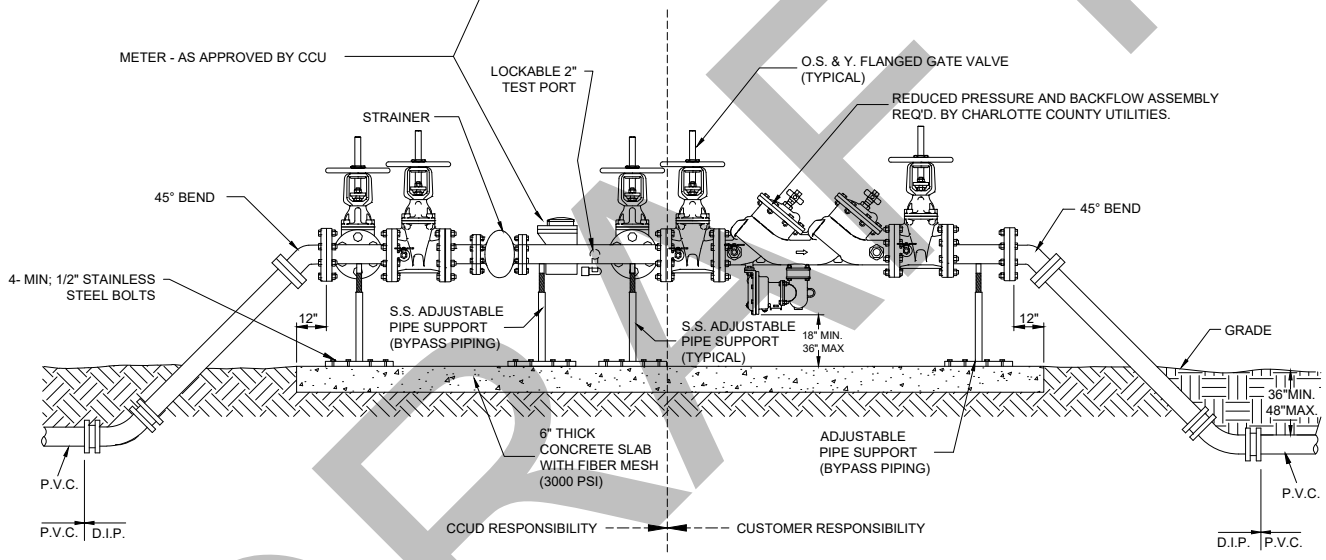
NOTE:

1. DOUBLE DETECTOR CHECK ASSEMBLY SHALL BE APPROVED BY CCU.
2. BACKFLOW CAN HAVE BUILT IN FIRE DEPARTMENT CONNECTION IF SHOWN ON THE ENGINEERING DRAWINGS. FIRE DEPT. CONNECTION MUST BE 30" FROM GRADE.
3. STAINLESS STEEL ADJUSTABLE PIPE SUPPORTS TO BE ANCHORED TO CONCRETE SLAB.
4. 90° BENDS MAY BE PERMITTED DUE TO SPACE LIMITATIONS WITH PRIOR APPROVAL.

DATE: 3/1/2023	DEDICATED FIRE FLOW ASSEMBLY DETAIL	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PW-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: pw-04-flbf.dwg



PLAN VIEW



PROFILE VIEW

NOTE:

1. REDUCED PRESSURE AND BACKFLOW ASSEMBLY SHALL MEET CCU SPECIFICATIONS AND BE APPROVED BY CCU.

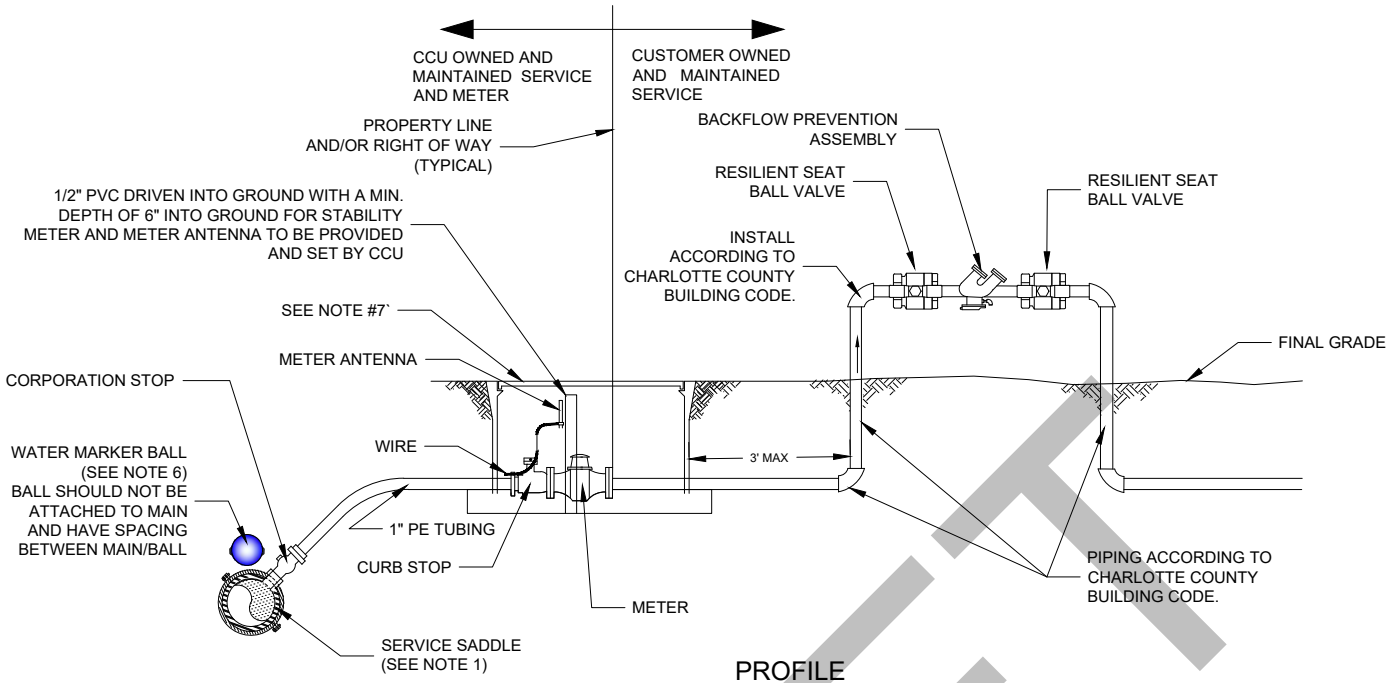
2. BYPASS METER SHALL BE INSTALLED BY THE CONTRACTOR.

3. ADJUSTABLE PIPE SUPPORTS TO BE ANCHORED TO CONCRETE SLAB.

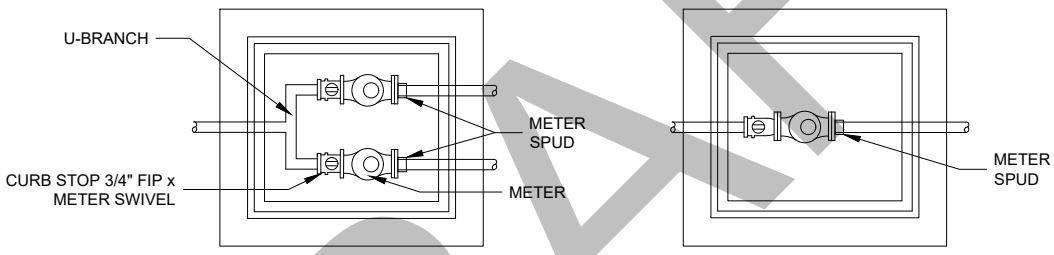
4. COMPOUND METER UPSTREAM 8X DIA. DOWNSTREAM 2X DIA.

LENGTH TABLE	
LABEL	LENGTH
A	MINIMUM 8 PIPE DIAMETERS
B	LENGTH PER MANUFACTURER
C	MINIMUM 2 PIPE DIAMETERS

DATE: 8/1/2023	3" & ABOVE WATER METERS WITH BY-PASS ASSEMBLIES	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-05
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-05-3WMBP.dwg



PROFILE



DOUBLE SERVICE

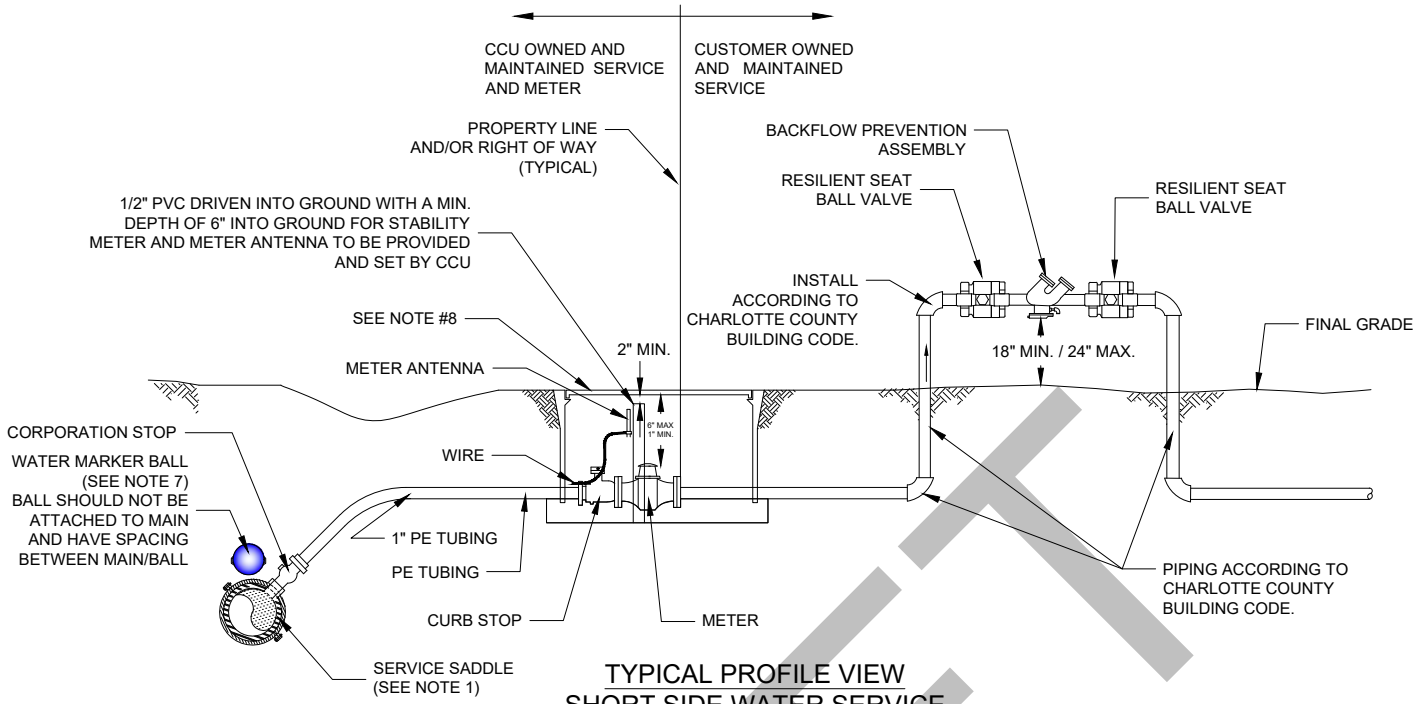
SINGLE SERVICE

PLAN

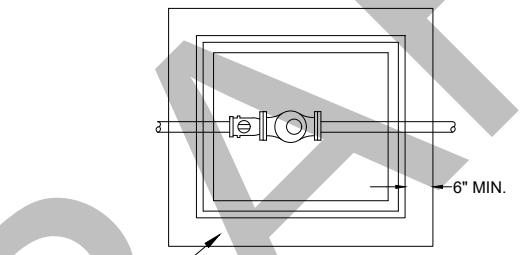
NOTES:

1. SERVICE SADDLES SHALL BE EPOXY OR NYLON COATED WITH IRON PIPE THREAD INLET WITH DOUBLE STAINLESS STEEL STRAPS.
2. SERVICE AND METER SHALL BE PLACED/LOCATED IN RIGHT-OF-WAY AT PROPERTY LINE AND/OR EASEMENT PROVIDED TO UTILITY BY CUSTOMER OR AS APPROVED BY CCU.
3. BACKFLOW SHALL BE A CCU APPROVED ASSEMBLY IN ACCORDANCE WITH CURRENT CCU CROSS CONNECTION POLICY AND PLACE IMMEDIATELY DOWNSTREAM OF METER.
4. DISTANCE FROM TOP OF METER TO BOTTOM OF LID SHALL BE 6" TO 8". DISTANCE SHALL BE DETERMINED WHEN NEW METER IS SET BY CCU.
5. LOCATION OF METER BOX SHALL BE IN ACCORDANCE WITH CCU.
6. LONG SERVICE UNDER PAVEMENT SHALL BE PE PIPING ENCASED IN SCHEDULE 40 PVC.
7. FOR EACH SERVICE TAP A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS. MAXIMUM DEPTH 3 FEET.
8. METER BOX NOR METER BOX LID SHALL NOT BE CUT OR MODIFIED WITHOUT CCU APPROVAL.
9. FINAL GRADE OF METER AND BOX IS RESPONSIBILITY OF CONTRACTOR.

DATE: 8/1/2023	3/4" - 1" RESIDENTIAL WATER METER WITH BACKFLOW PREVENTER	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-06-WM.dwg



TYPICAL PROFILE VIEW
SHORT SIDE WATER SERVICE
N.T.S.



SINGLE SERVICE

METER PLAN VIEW
N.T.S.

NOTES:

1. SERVICE SADDLES SHALL BE EPOXY OR NYLON COATED WITH IRON PIPE THREAD INLET WITH DOUBLE STAINLESS STEEL STRAPS.
2. SERVICE AND METER TO BE PLACED/LOCATED IN RIGHT-OF-WAY AT PROPERTY LINE AND/OR EASEMENT PROVIDED TO UTILITY BY CUSTOMER.
3. BACKFLOW SHALL BE A CCU APPROVED ASSEMBLY IN ACCORDANCE WITH CURRENT CCU CROSS CONNECTION POLICY AND PLACE IMMEDIATELY DOWNSTREAM OF METER.
4. LONG SERVICE UNDER PAVEMENT SHALL BE PE PIPING INCASED IN SCHEDULE 40 PVC. (4") ENDS OF CASING SEALED.
5. DISTANCE FROM TOP OF METER TO BOTTOM OF LID SHALL BE 6" TO 8". DISTANCE SHALL BE DETERMINED WHEN NEW METER IS SET BY CCU.
6. LOCATION OF METER BOX SHALL BE IN ACCORDANCE WITH CCU.
7. FOR EACH SERVICE TAP A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS. MAXIMUM DEPTH 5 FEET.
8. METER BOX NOR METER BOX LID SHALL NOT BE CUT OR MODIFIED WITHOUT CCU APPROVAL.
9. FINAL GRADE OF METER AND BOX IS RESPONSIBILITY OF CONTRACTOR.

DATE: 8/1/2023	1 1/2" - 2" RESIDENTIAL WATER METER WITH BACKFLOW PREVENTER	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-07-WM.dwg

Z:\Auto Cad R14\DETAILS\2023 DETAILS\08.POTABLE WATER\PW-08-TWS.dwg

APPROVED BY: BRB

DRAWN BY: DEC/LD

DATE: 8/1/2023

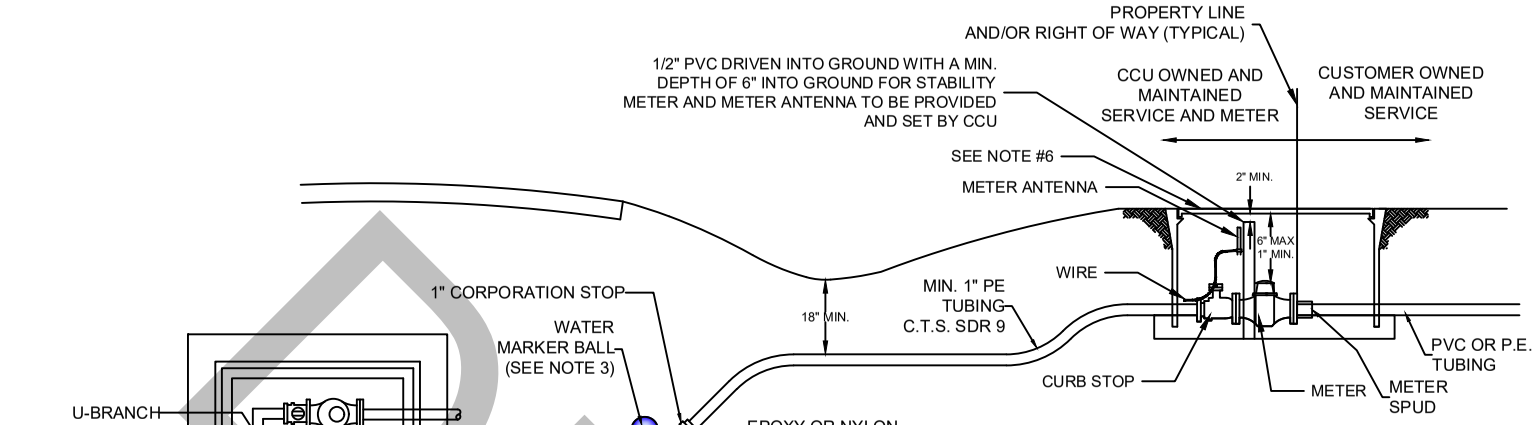
TYPICAL 3/4" - 1" SINGLE FAMILY RESIDENTIAL WATER SERVICE

CHARLOTTE COUNTY UTILITIES

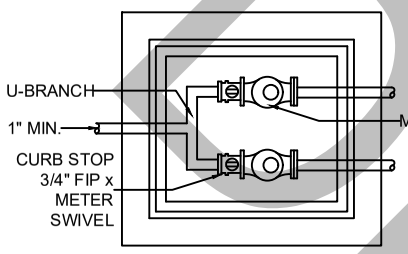
ID: PW-08-TWS.dwg

PW-08

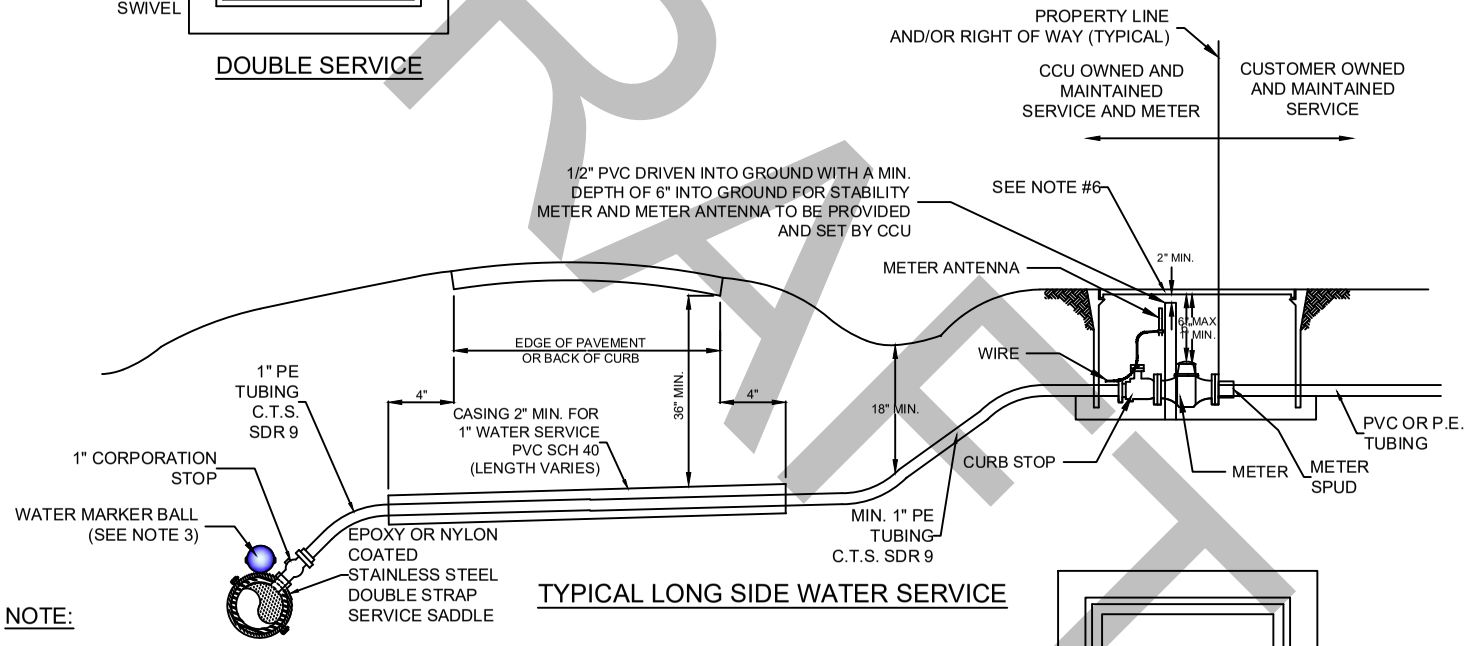
PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.



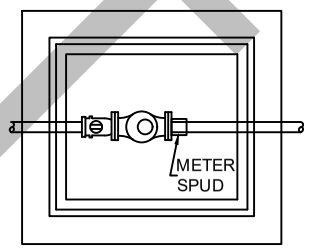
TYPICAL SHORT SIDE WATER SERVICE



DOUBLE SERVICE



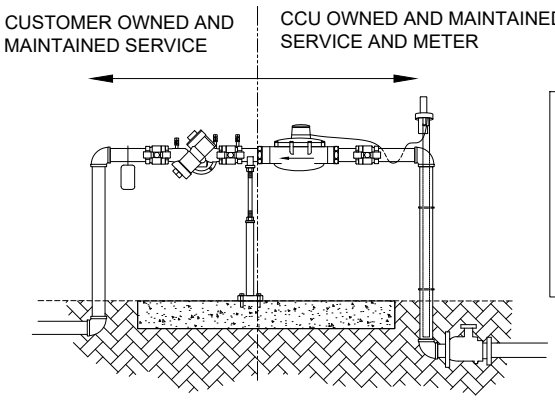
TYPICAL LONG SIDE WATER SERVICE



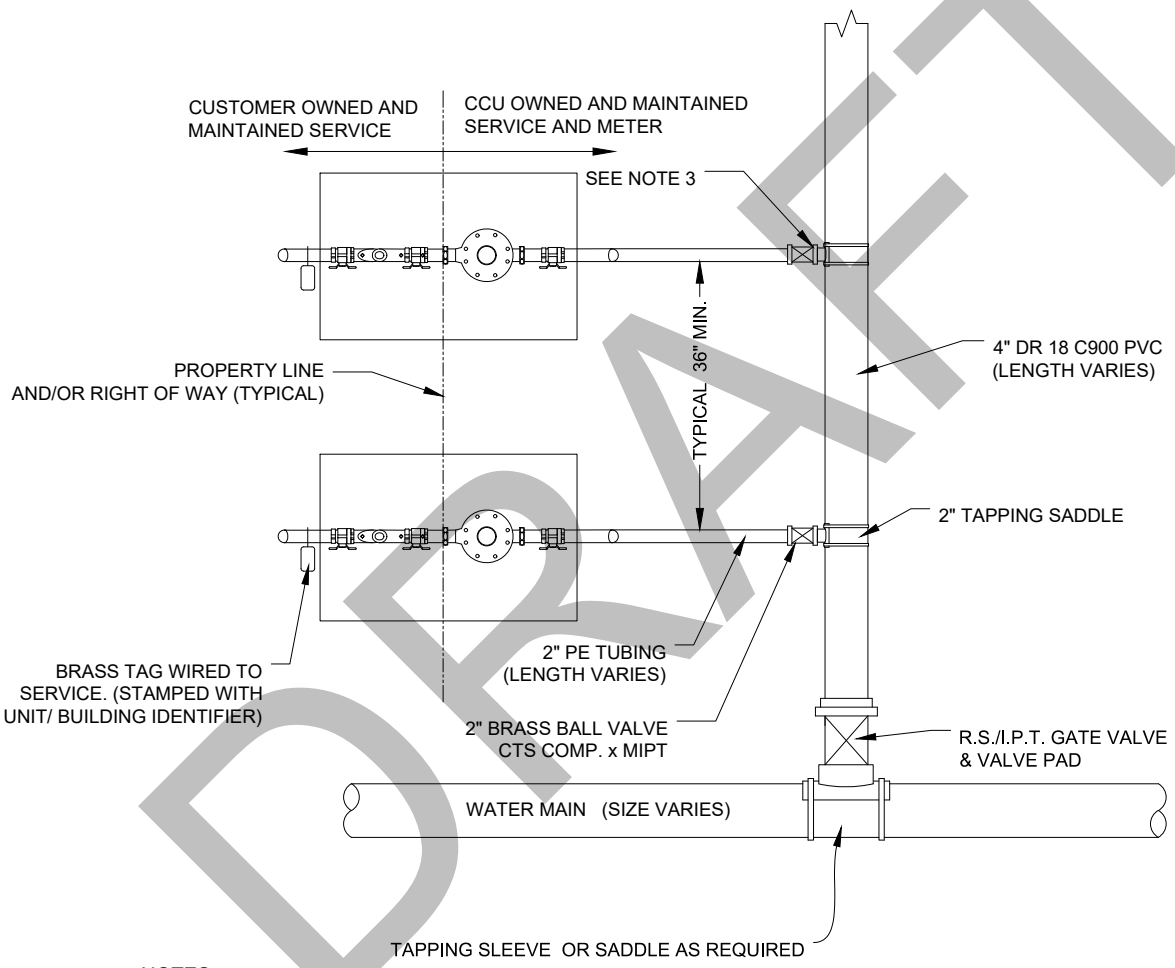
SINGLE SERVICE

NOTE:

1. BACKFLOW SHALL BE REDUCED PRESSURE BACKFLOW PREVENTOR AND PLACED IMMEDIATELY DOWNSTREAM OF METER.
2. SIZE OF SERVICE MAIN DEPENDS ON LENGTH FOR NON - STANDARD HOUSE LOCATIONS
3. FOR EACH SERVICE TAP A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS MAXIMUM DEPTH 3 FEET. BALL SHOULD NOT BE ATTACHED TO MAIN AND HAVE SPACING BETWEEN MAIN/BALL.
4. ALL TAPS MADE SHOULD NOT BE WITHIN 3' OF BELL OR SPIGOT.
5. FINAL GRADE OF METER AND BOX IS RESPONSIBILITY OF CONTRACTOR.
6. METER BOX (PROVIDED BY CCU) SHALL BE POLYCONCRETE METER BOX (BLUE IN COLOR) SEE CCU APPROVED PRODUCTS LIST FOR APPROVED MANUFACTURERS.



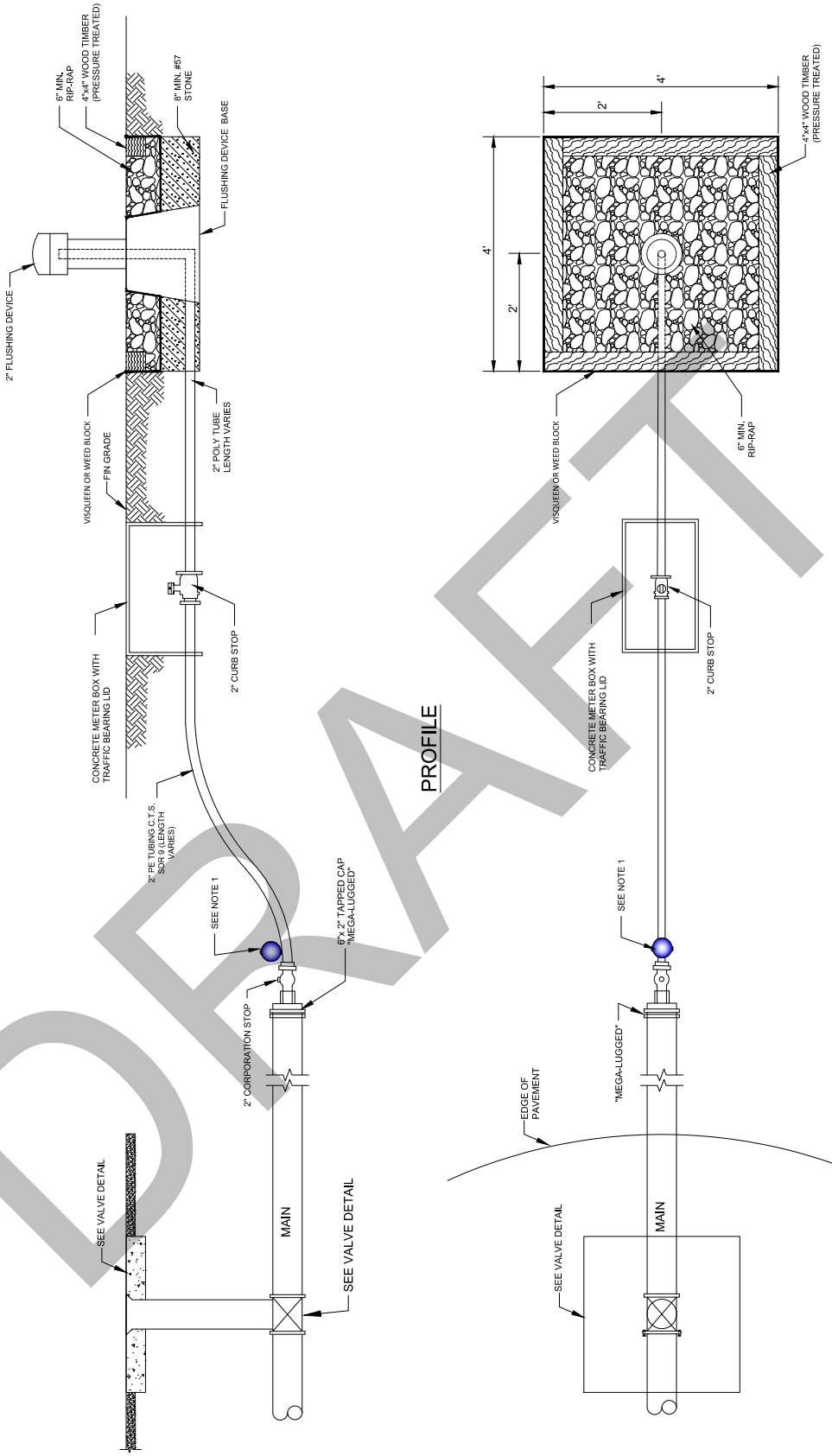
REFERENCE ENGINEERING SPECIFICATIONS; CROSS CONNECTION MANUAL, STANDARD SPECIFICATIONS, SECTION 002335 POTABLE WATER AND RECLAIMED WATER MAINS AND STANDARD DETAILS, SECTION 8 POTABLE WATER, SHEET PW-20.



NOTES:

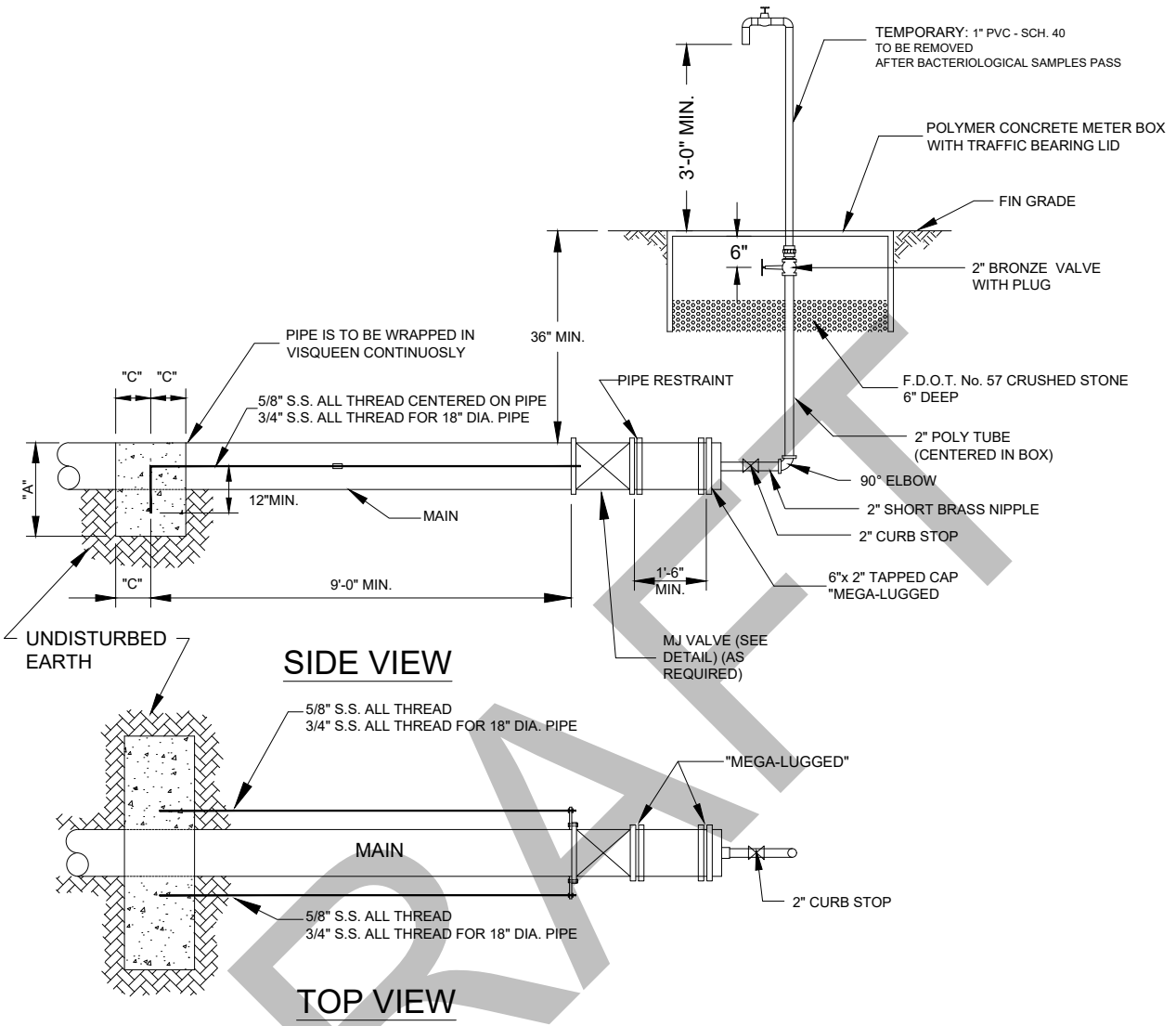
1. SIZE OF MAIN SHALL BE 2" OR 4", AS APPROVED BY CCUD
2. A SINGLE ROW METER BANK IS TO BE INSTALLED WITH A METER AT THE PROPERTY LINE AND/OR RIGHT OF WAY. IF A DOUBLE ROW OF METERS IS USED, AN EASEMENT FOR THE SECOND ROW IS REQUIRED.
3. FOR EACH SERVICE TAP A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS. MAXIMUM DEPTH 3 FEET.

DATE: 8/1/2023	METER BANK DETAIL FOR 5/8" - 1" COMMERCIAL WATER METERS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-10
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-10-WMB.dwg



NOTES:
1. A MARKER BALL SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURES RECOMMENDATIONS AND ATTACHED TO PIPE AT VALVE CORPORATION STOP LOCATION.

DATE: 8/1/2023	AUTOMATIC FLUSHING ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC/LD		PAGE No. PW-11
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-11-AFA.dwg



PIPE SIZE	"A"	"B"	"C"
4"	12"	16"	6"
6"	18"	22"	6"
8"	24"	29"	9"
10"	30"	35"	9"
12"	36"	41"	9"
16"	48"	53"	12"
18"	48"	67"	12"

DATE: 8/1/2023

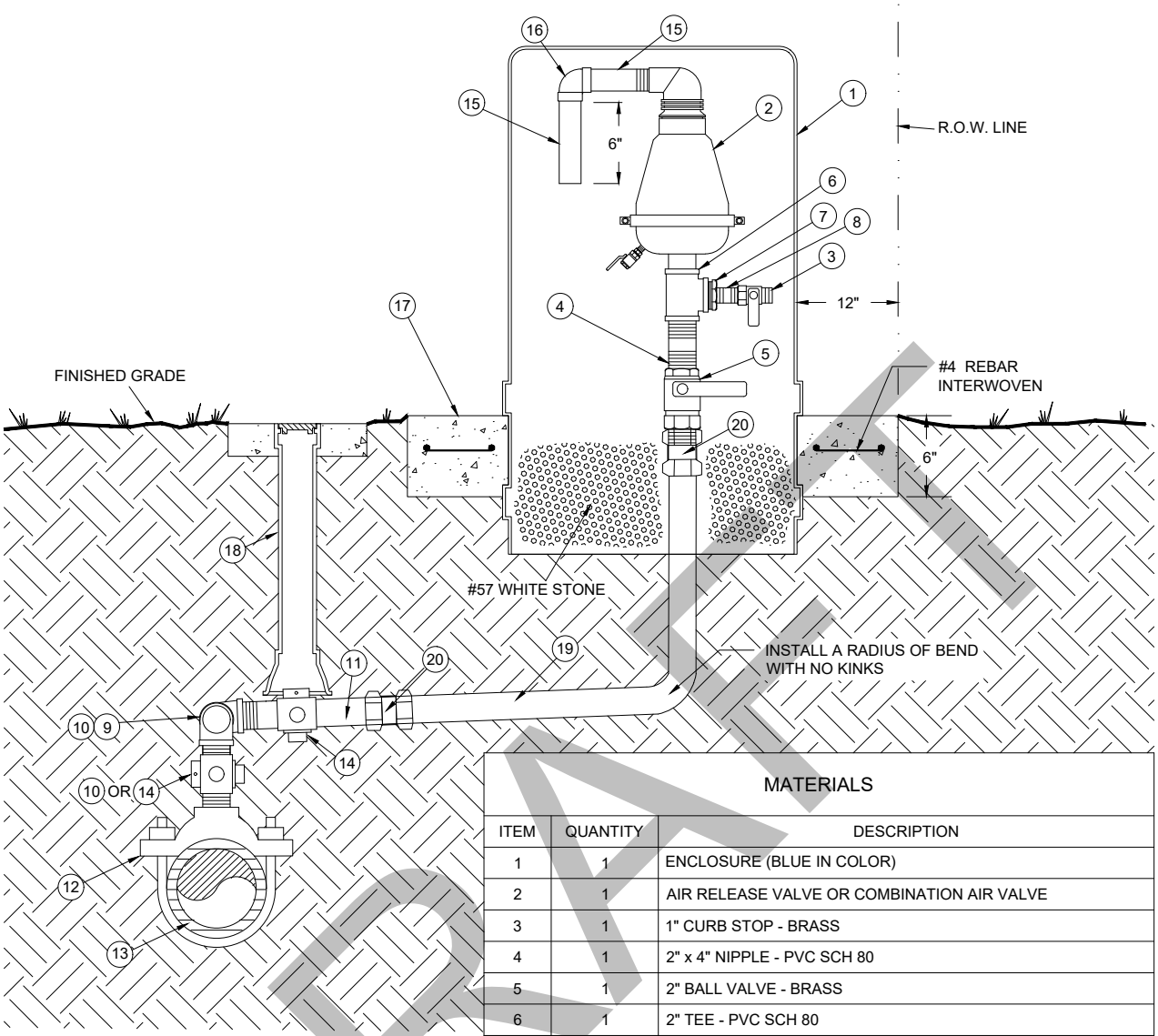
DRAWN BY: DEC

APPROVED BY: BRB

PERMANENT END OF MAIN BLOW-OFF ASSEMBLY (WATER)

CHARLOTTE COUNTY UTILITIES

ID: PW-13-PBO



MATERIALS		
ITEM	QUANTITY	DESCRIPTION
1	1	ENCLOSURE (BLUE IN COLOR)
2	1	AIR RELEASE VALVE OR COMBINATION AIR VALVE
3	1	1" CURB STOP - BRASS
4	1	2" x 4" NIPPLE - PVC SCH 80
5	1	2" BALL VALVE - BRASS
6	1	2" TEE - PVC SCH 80
7	1	2" X 1" REDUCER - PVC SCH 80
8	1	1" SHORT NIPPLE - PVC SCH 80
9	4	2" x 90° ELBOW - PVC SCH 80
10	2	2" SHORT NIPPLE - PVC SCH 80
11	2	2" PIPE - PVC SCH 80, LENGTH AS REQUIRED
12	1	DOUBLE STRAP TAPPING SADDLE EPOXY OR NYLON COATED WITH S.S. STRAPS
13	1	4" & LARGER PIPE, D.I., PVC (DR-18), HDPE
14	1	2" CORPORATION - BRASS (SEE NOTE)
15	2	1-1/2" PIPE - PVC SCH 80, LENGTH AS REQUIRED
16	1	1-1/2" x 90° ELBOW - PVC SCH 80
17	1	REINFORCED CONCRETE MONOLITHIC COLLAR AROUND ENCLOSURE
18	1	VALVE BOIX
19	1	2" POLY TUBING
20	2	2" COMPRESSION FITTING

NOTE:
ITEM # 14 CORPORATION STOP AT MAIN ONLY REQUIRED IF THE MAIN IS HOT TAPPED

DATE: 8/1/2023

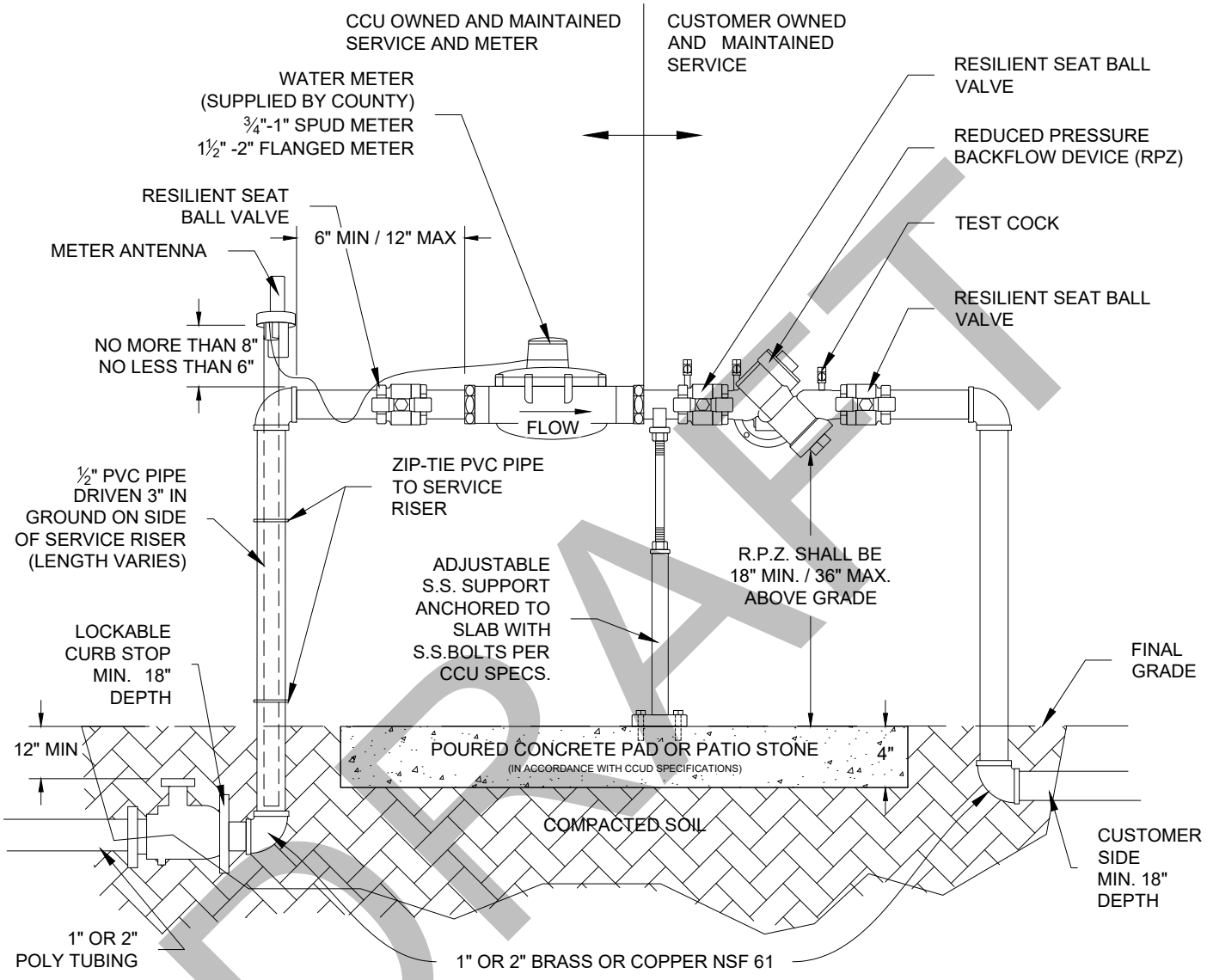
DRAWN BY: DEC

APPROVED BY: BRB

POTABLE WATER
AUTO AIR RELEASE VALVE
CHARLOTTE COUNTY UTILITIES

ID: PW-14-AAROS

COMMERCIAL PROPERTY
3/4" - 2" ABOVE GRADE METER AND BACKFLOW ASSEMBLY



NOTES:

1. WATER METER SHALL BE ASSEMBLED WITH PROPER METER COUPLINGS.
2. WATER METER (READING U.S. GALLONS) TO BE SUPPLIED BY CHARLOTTE COUNTY UTILITIES DEPARTMENT.
3. REDUCED PRESSURE BACKFLOW DEVICE IN ACCORDANCE WITH CCU SPEC. AND APPROVED BY CCU.
4. ALL ABOVE GROUND PIPING AND FITTINGS SHALL BE COPPER OR BRASS MEETING NSF 61 STANDARDS.
5. BACKFLOW ASSEMBLY MUST BE CERTIFIED BEFORE BEING PLACED INTO SERVICE.
6. IF ASSEMBLY IS LOCATED WITHIN 4' PROXIMITY TO A DRIVEWAY OR ROAD. TWO BOLLARDS SHALL BE PLACED PARALLEL TO THE DRIVEWAY OR ROAD FOR PROTECTION.

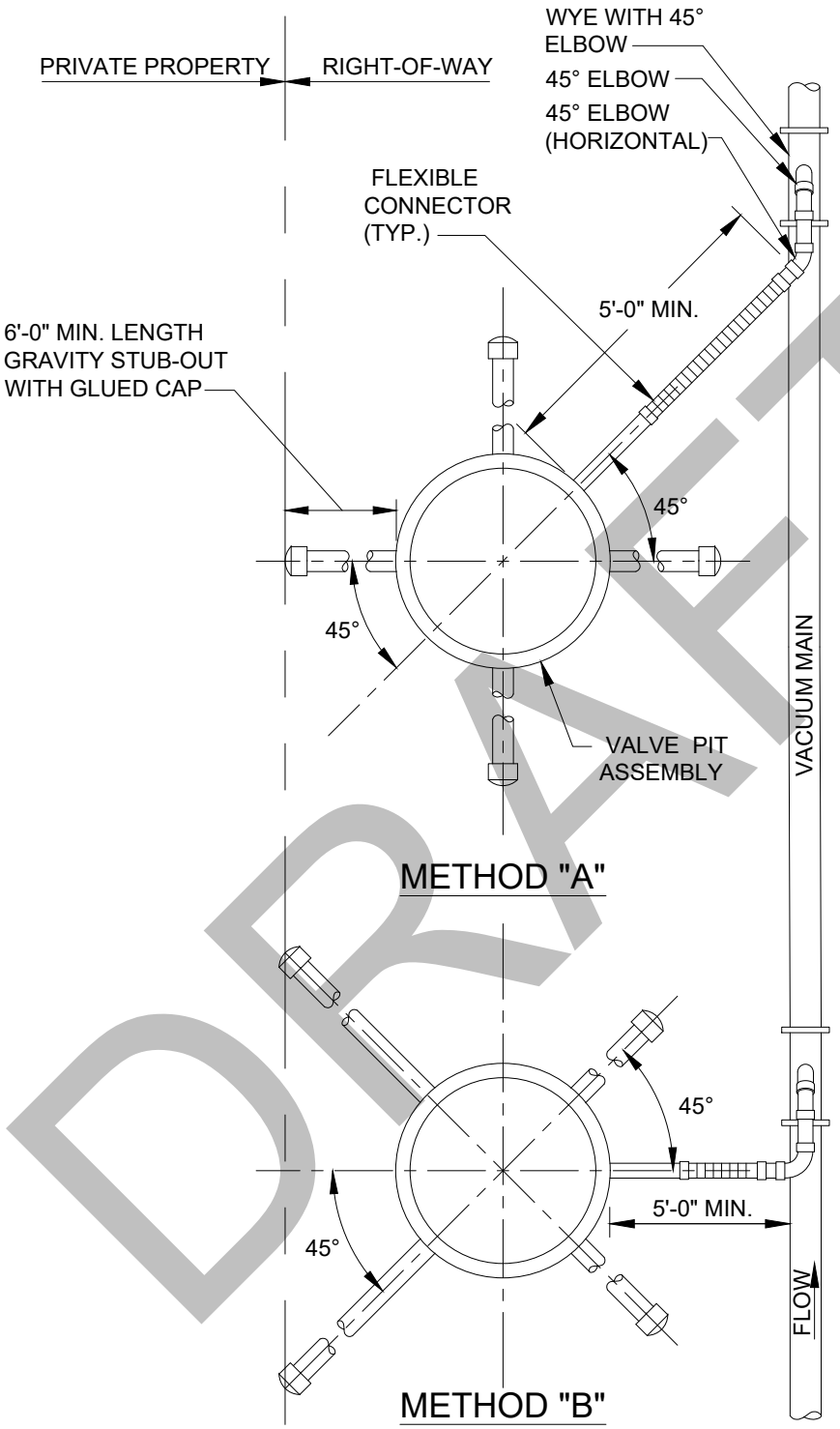
DATE: 8/1/2023	RESIDENTIAL 1-1/2" OR 2" CONNECTION AND COMMERCIAL PROPERTY 3/4" - 2" WATER METER WITH BACKFLOW ASSEMBLY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. PW-20
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	ID: PW-20-WM-AG-COM

ISSUE DATE AUGUST 1ST, 2023

CHARLOTTE COUNTY
Utilities

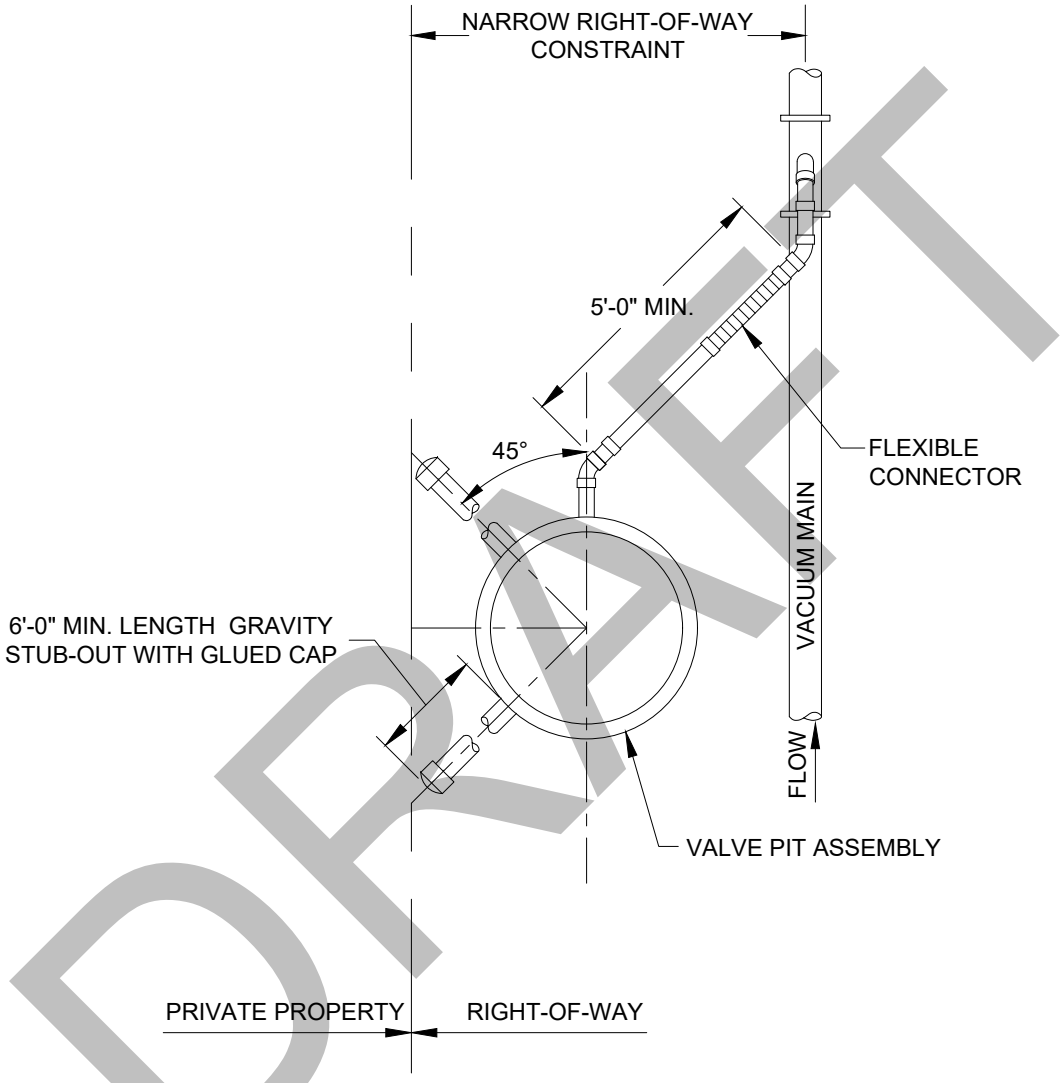
VACUUM SEWER

Sheet List Table	
Sheet Number	Sheet Title
COVER	COVER VACUUM
V-01	STANDARD VALVE PIT ORIENTATION
V-02	VALVE PIT IN NARROW RIGHT-OF-WAY
V-03	SERVICE LATERAL - UPHILL TO VACUUM MAIN
V-04	FLEXIBLE CONNECTOR
V-05	SERVICE LATERAL- CROSS SWALE WITH NO LIFTS
V-06	SERVICE LATERAL - CROSSING A SWALE WITH LIFTS
V-07	6 inch DEDICATED AIR TERMINAL - ELEVATION (PREFERRED)
V-08	6 inch DEDICATED AIR TERMINAL - PLAN (PREFERRED)
V-09	MINIMUM SPACING BETWEEN CONNECTIONS
V-10	PROHIBITED CONNECTIONS
V-11	LIFT DETAIL AND SLOPE SCHEDULE
V-12	CHANGE IN DIRECTION
V-13	VALVE PIT - PRIOR TO HOUSE CONNECTION
V-14	TYPICAL TRENCH SECTION - 1 MAIN
V-15	TYPICAL TRENCH SECTION - 2 MAINS
V-16	TYPICAL TRENCH SECTION - 3 MAINS
V-17	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 1
V-18	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 2
V-19	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 3
V-20	PREFERRED VALVE PIT TO MAIN CONNECTIONS



NOTE:
REFER TO PLAN AND PROFILE FOR SERVICE LINE ORIENTATION AND DEVIATIONS FROM STANDARD DETAIL.

DATE: 8/1/2023	STANDARD VALVE PIT ORIENTATION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-01
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VP-7H



DATE: 8/1/2023	VALVE PIT IN NARROW RIGHT-OF-WAY	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-02
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VP-8H

NOTES:

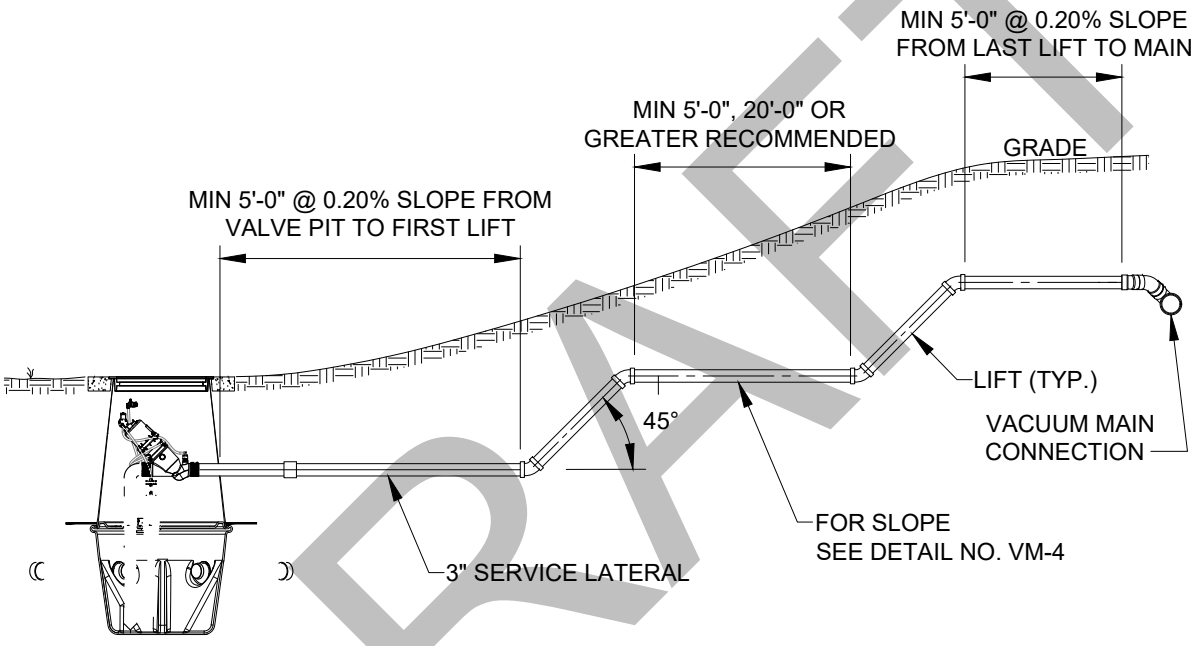
1. ALL GROMMETS FOR VALVE PIT AND SUMP SUPPLIED BY .

2. ALL HOLES IN VALVE PIT AND PIT BOTTOM ARE FACTORY CUT. ALL GRAVITY LINE CONNECTION OPENINGS IN THE SUMP ARE FIELD CUT.

3. ONLY HOMES OR APARTMENTS WHOSE LOWER FLOOR ELEVATIONS ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. SOME LOCAL CODES MAY REQUIRE THE INSTALLATION OF A BACKFLOW PREVENTER IN THE HOME OWNERS' GRAVITY LINES. WITH MULTIPLE FLOOR APARTMENTS, EACH FLOOR LEVEL SHOULD BE SERVICE BY ITS OWN VACUUM VALVE PIT PACKAGE.

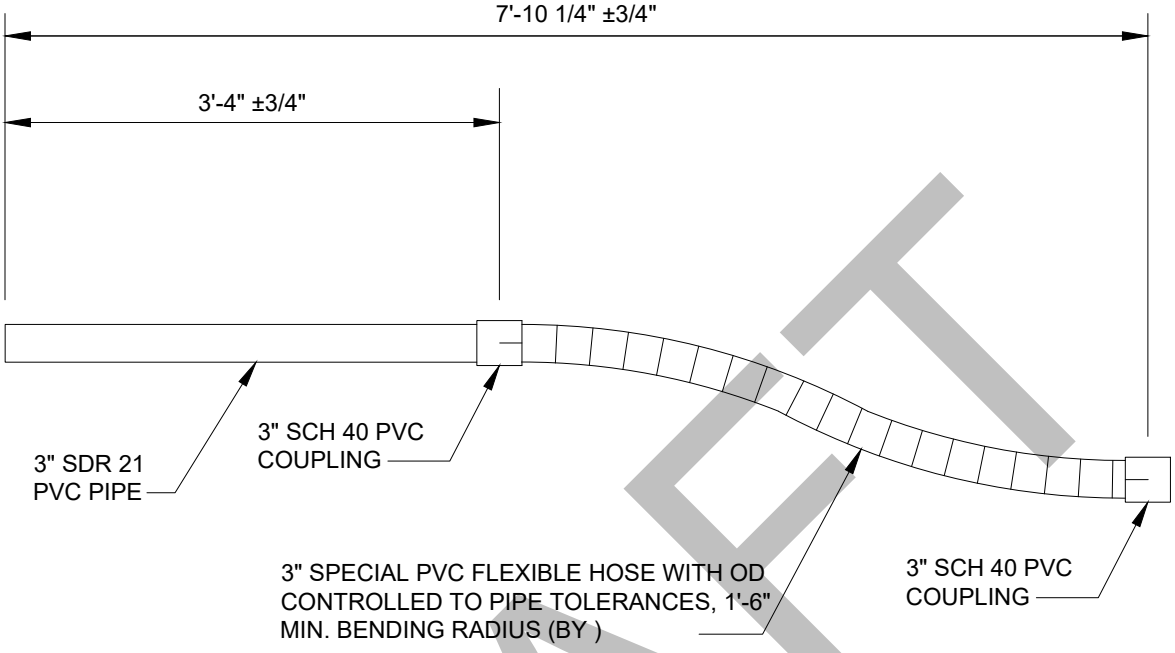
4. WHEN INSTALLING ANY PIPE THROUGH A GROMMET, USE ONLY WATER, MILD DETERGENT, OR SILICONE LUBRICANT. NEVER USE PIPE JOINT GREASE.

5. DO NOT INSTALL VACUUM VALVE UNTIL HOME GRAVITY LINE IS CONNECTED TO PIT PACKAGE AND AIR INTAKE IS IN PLACE.



SERVICE LATERAL NOTES	
MINIMUM SLOPE ON 3" SERVICE LATERAL	0.20%
MINIMUM SLOPE BETWEEN LIFTS	SEE DETAIL NO. VM-4
MAXIMUM NUMBER OF LIFTS	5
MINIMUM DISTANCE, VALVE PIT TO FIRST LIFT	5'-0"
MINIMUM DISTANCE, LAST LIFT TO VACUUM MAIN	5'-0"
MAXIMUM LIFT HEIGHT	3'-0"
RECOMMENDED LIFT HEIGHT	1'-0"

DATE: 8/1/2023	SERVICE LATERAL - UPHILL TO VACUUM MAIN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-03
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VSL-1H



INITAL INSTALLATION - TO INSURE PROPER ALIGNMENT

1. FLEXIBLE CONNECTOR LENGTH MAY NOT BE ALTERED. DO NOT CUT PVC PIPE OR THE FLEXIBLE HOSE.

2. INSERT BEVELED END INTO THE ALIGNMENT PORT ON THE VALVE PIT. PUSH FLEXIBLE CONNECTOR ALL THE WAY TO THE 3" SUCTION ELBOW IN THE VALVE PIT.

3. TO INSURE PROPER ALIGNMENT, CONNECT THE BEVELED END TO THE 3" SUCTION ELBOW USING A TEMPORARY SLIP COUPLING. DO NOT GLUE THIS COUPLING.

AFTER VALVE PIT INSTALLATION IS COMPLETED - TO ALLOW FOR VACUUM TESTING

1. AFTER THE VALVE PIT INSTALLATION IS COMPLETE, INCLUDING BACKFILL, REMOVE TEMPORARY PVC COUPLING AND CUT THE PVC PIPE TO THE CENTER OF THE VALVE PIT ±1". GLUE 3" PVC CAP ONTO END OF PVC PIPE.

2. DO NOT CONDUCT MAIN LINE VACUUM TESTING UNTIL THE TEMPORARY COUPLING HAS BEEN REMOVED AND THE PVC CAP GLUED ON.

SEE INSTALLATION INSTRUCTIONS FOR ADDITIONAL DETAILS

DATE: 8/1/2023	FLEXIBLE CONNECTOR	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-04
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VP-10H

NOTES:

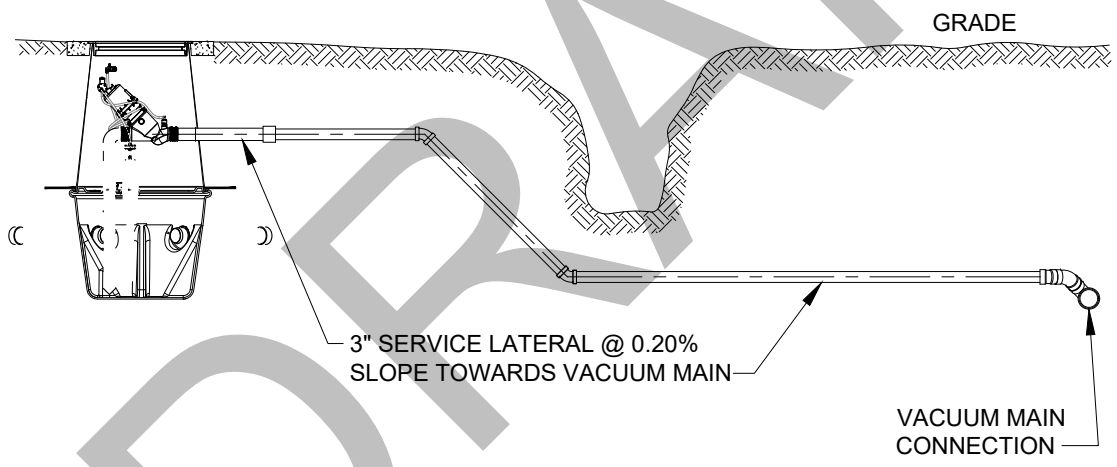
1. ALL GROMMETS FOR VALVE PIT AND SUMP SUPPLIED BY .

2. ALL HOLES IN VALVE PIT AND PIT BOTTOM ARE FACTORY CUT. ALL GRAVITY LINE CONNECTION OPENINGS IN THE SUMP ARE FIELD CUT.

3. ONLY HOMES OR APARTMENTS WHOSE LOWER FLOOR ELEVATIONS ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. SOME LOCAL CODES MAY REQUIRE THE INSTALLATION OF A BACKFLOW PREVENTER IN THE HOME OWNERS' GRAVITY LINES. WITH MULTIPLE FLOOR APARTMENTS, EACH FLOOR LEVEL SHOULD BE SERVICE BY ITS OWN VACUUM VALVE PIT PACKAGE.

4. WHEN INSTALLING ANY PIPE THROUGH A GROMMET, USE ONLY WATER, MILD DETERGENT, OR SILICONE LUBRICANT. NEVER USE PIPE JOINT GREASE.

5. DO NOT INSTALL VACUUM VALVE UNTIL HOME GRAVITY LINE IS CONNECTED TO PIT PACKAGE AND AIR INTAKE IS IN PLACE.



DATE: 8/1/2023	SERVICE LATERAL CROSSING A SWALE WITH NO LIFTS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-05
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VSL-2H

NOTES:

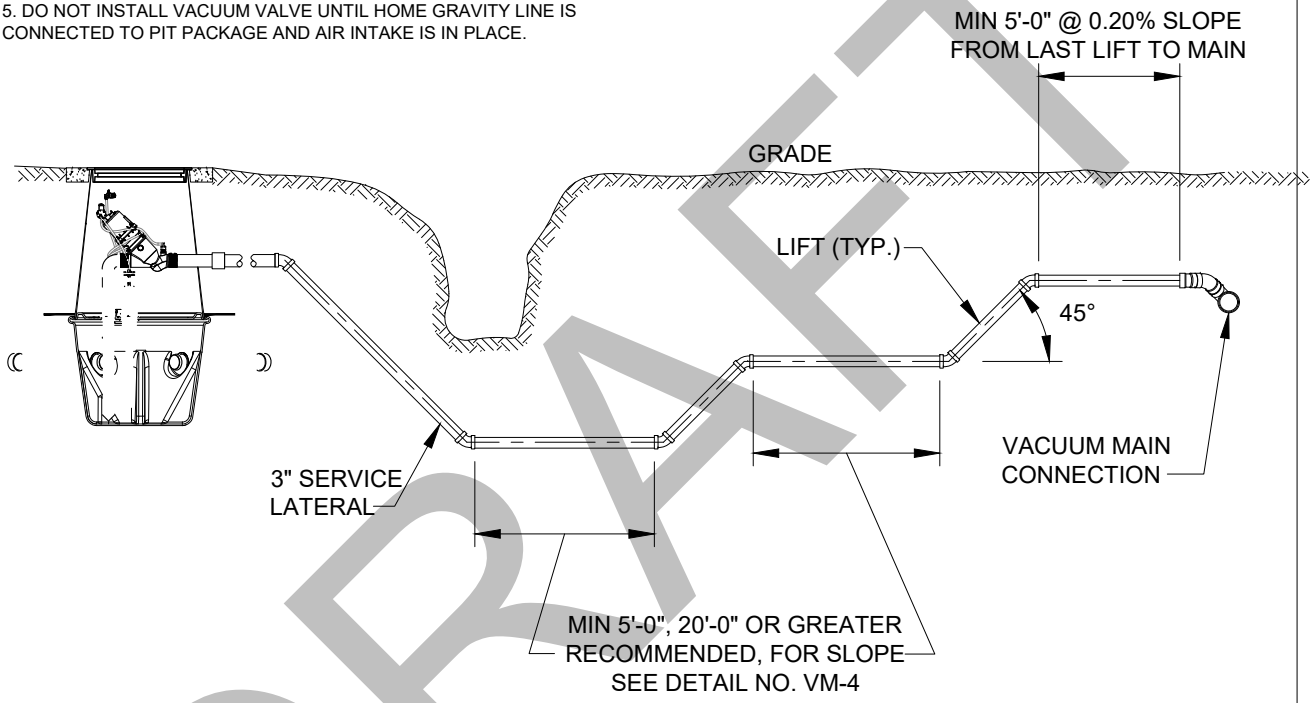
1. ALL GROMMETS FOR VALVE PIT AND SUMP SUPPLIED BY .

2. ALL HOLES IN VALVE PIT AND PIT BOTTOM ARE FACTORY CUT. ALL GRAVITY LINE CONNECTION OPENINGS IN THE SUMP ARE FIELD CUT.

3. ONLY HOMES OR APARTMENTS WHOSE LOWER FLOOR ELEVATIONS ARE THE SAME SHOULD BE CONNECTED TO A COMMON VACUUM VALVE PIT INSTALLATION. SOME LOCAL CODES MAY REQUIRE THE INSTALLATION OF A BACKFLOW PREVENTER IN THE HOME OWNERS' GRAVITY LINES. WITH MULTIPLE FLOOR APARTMENTS, EACH FLOOR LEVEL SHOULD BE SERVICE BY ITS OWN VACUUM VALVE PIT PACKAGE.

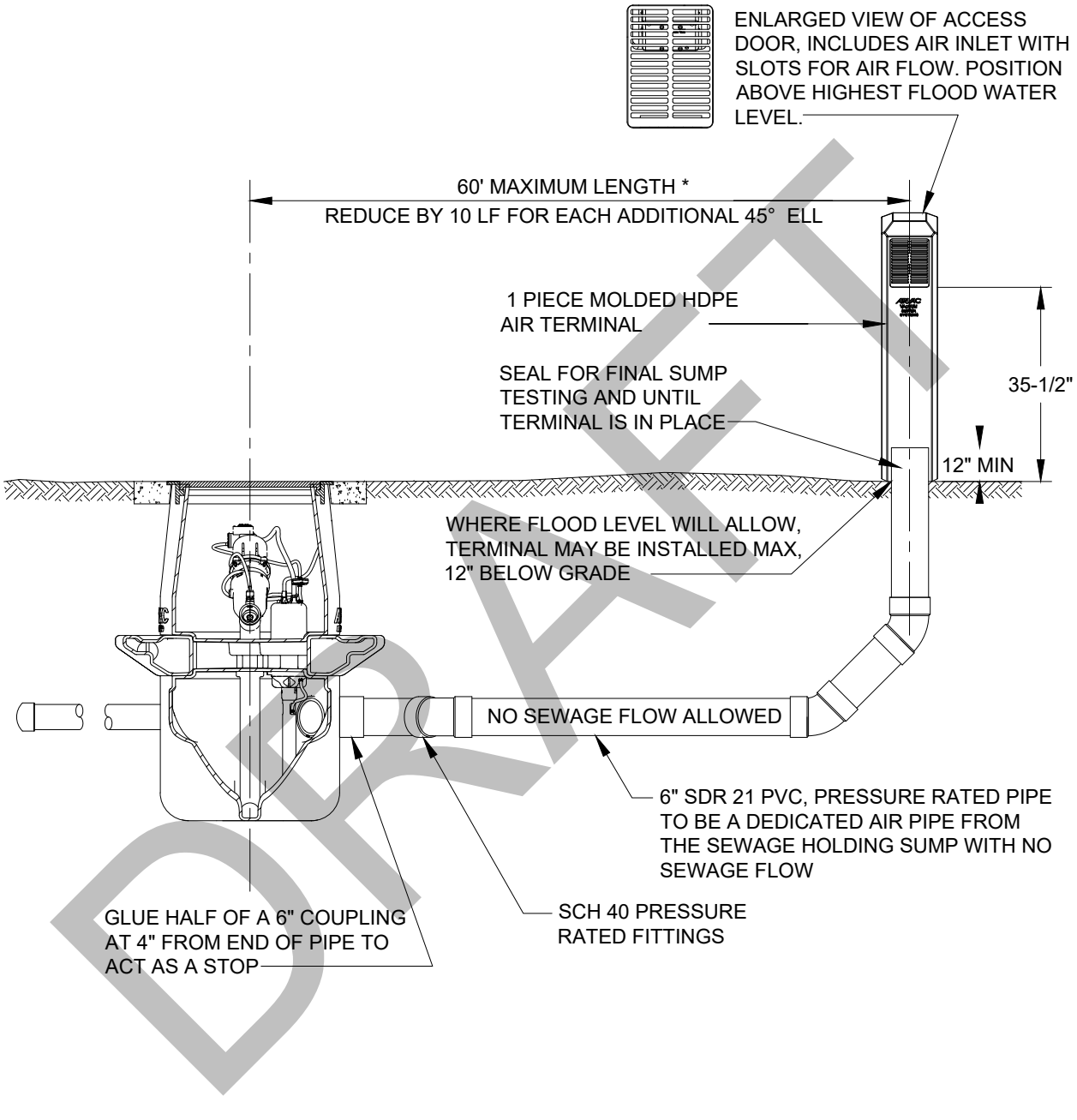
4. WHEN INSTALLING ANY PIPE THROUGH A GROMMET, USE ONLY WATER, MILD DETERGENT, OR SILICONE LUBRICANT. NEVER USE PIPE JOINT GREASE.

5. DO NOT INSTALL VACUUM VALVE UNTIL HOME GRAVITY LINE IS CONNECTED TO PIT PACKAGE AND AIR INTAKE IS IN PLACE.



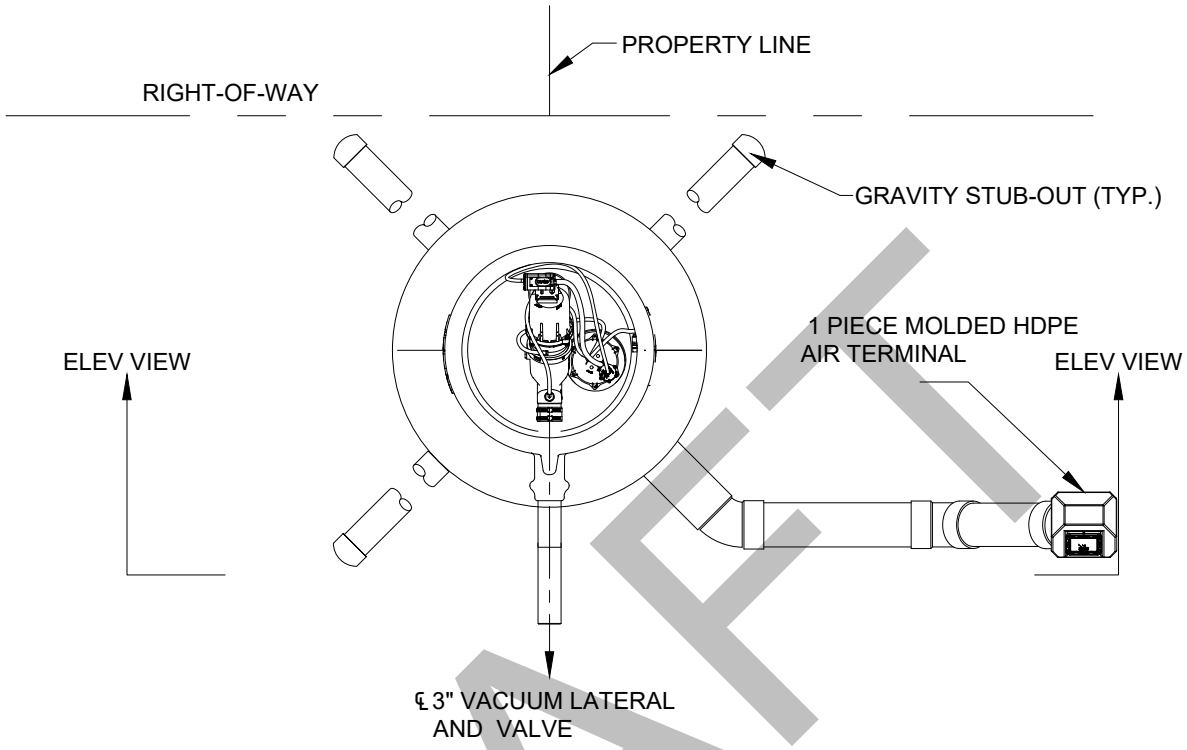
SERVICE LATERAL NOTES	
MINIMUM SLOPE ON 3" SERVICE LATERAL	0.20%
MINIMUM SLOPE BETWEEN LIFTS	SEE DETAIL NO. VM-4
MAXIMUM NUMBER OF LIFTS	5
MINIMUM DISTANCE, VALVE PIT TO FIRST LIFT	5'-0"
MINIMUM DISTANCE, LAST LIFT TO VACUUM MAIN	5'-0"
MAXIMUM LIFT HEIGHT	3'-0"
RECOMMENDED LIFT HEIGHT	1'-0"

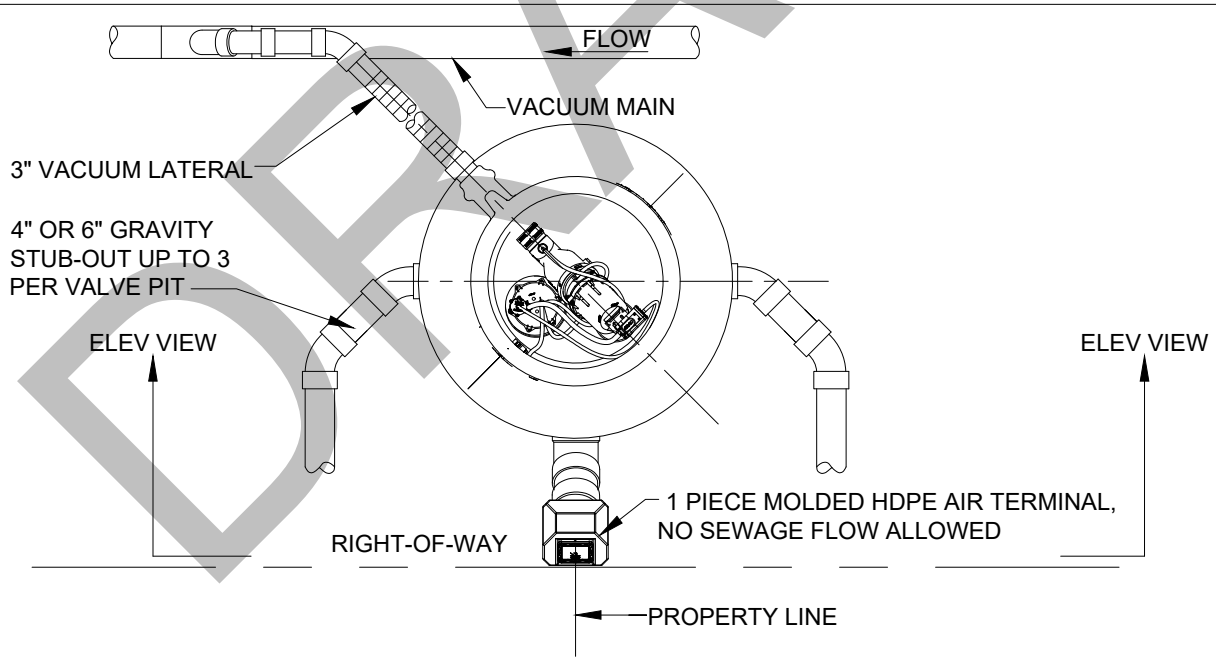
DATE: 8/1/2023	SERVICE LATERAL CROSSING A SWALE WITH LIFTS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-06
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VSL-3H



* 20' MIN IN AREAS WITH A WINTER DESIGN
(DRY BULB TEMPERATURE 32° F OR LOWER)

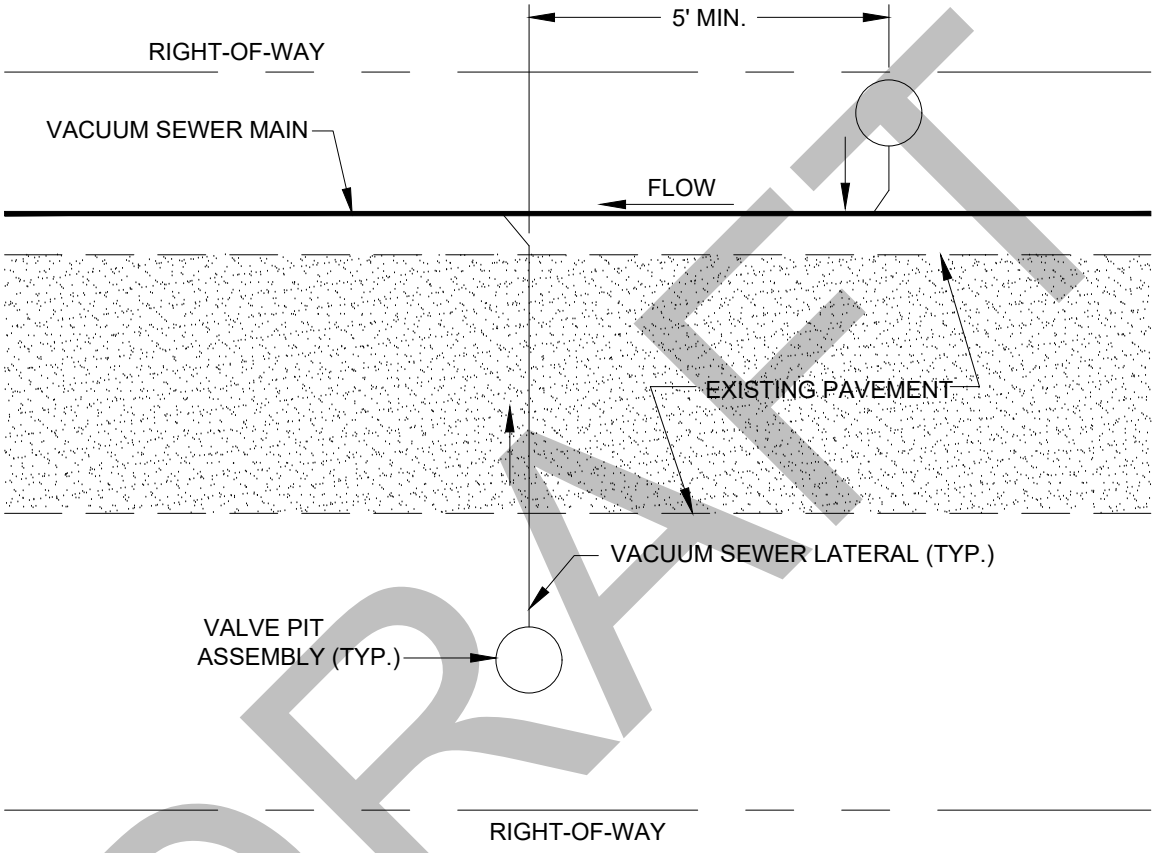
DATE: 8/1/2023	6 inch DEDICATED AIR TERMINAL - ELEVATION (PREFERRED)	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-07
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: AT-1



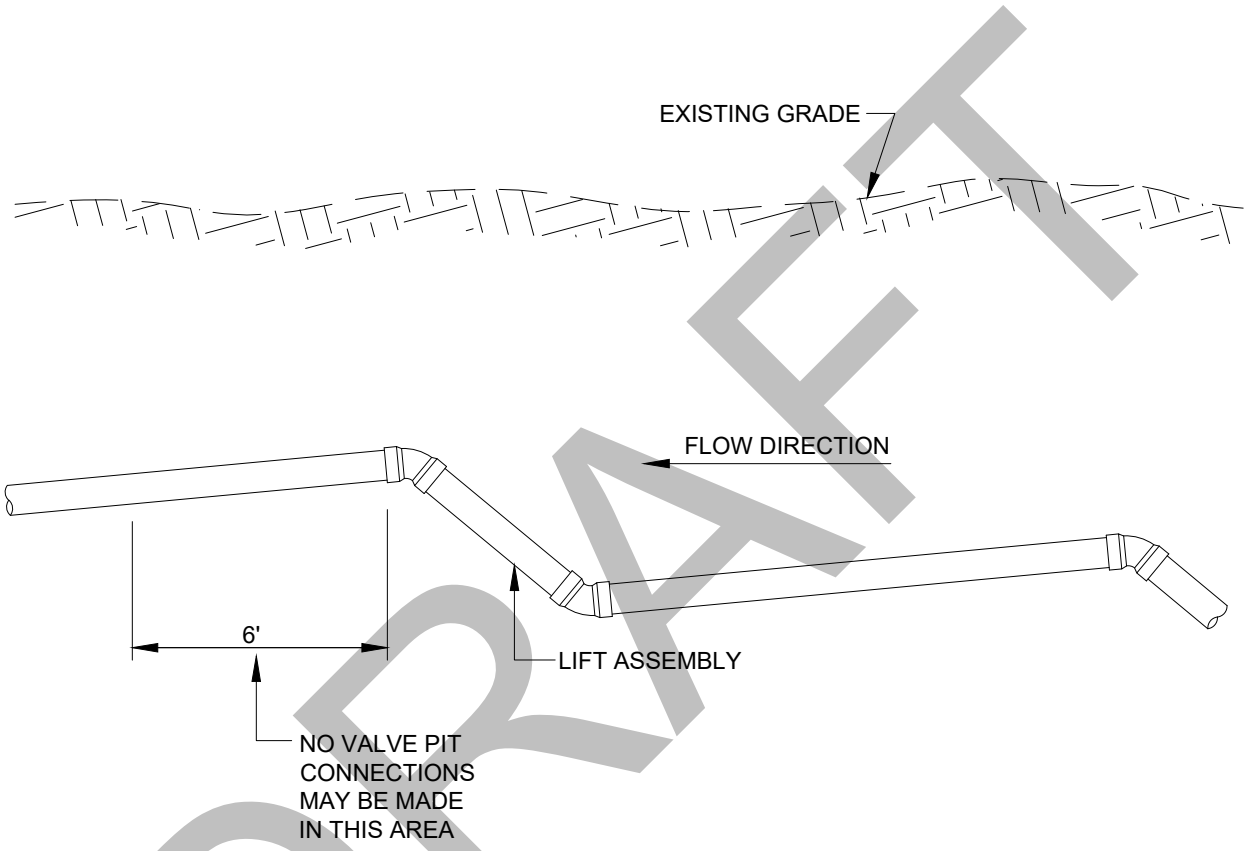


ALTERNATE ARRANGEMENT

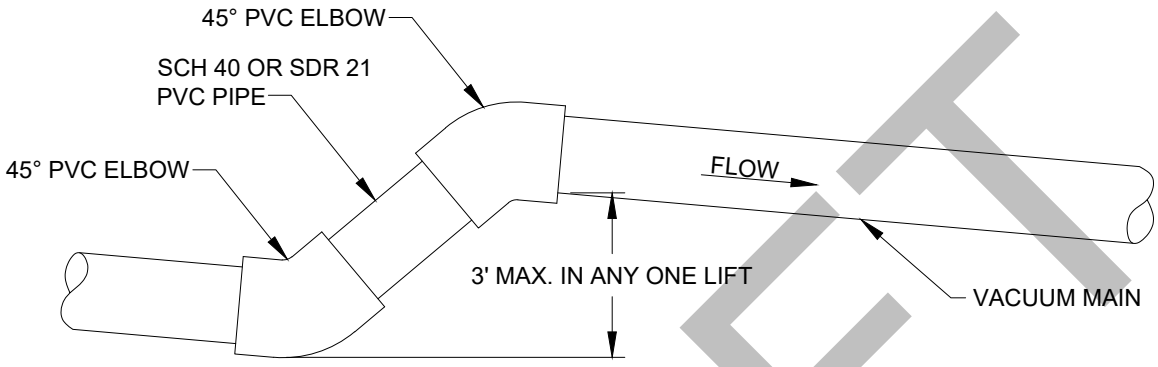
DATE: 8/1/2023	6" DEDICATED AIR TERMINAL - PLAN (PREFERRED)	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-08
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: AT-4



DATE: 8/1/2023	MINIMUM SPACING BETWEEN CONNECTIONS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-09
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-1



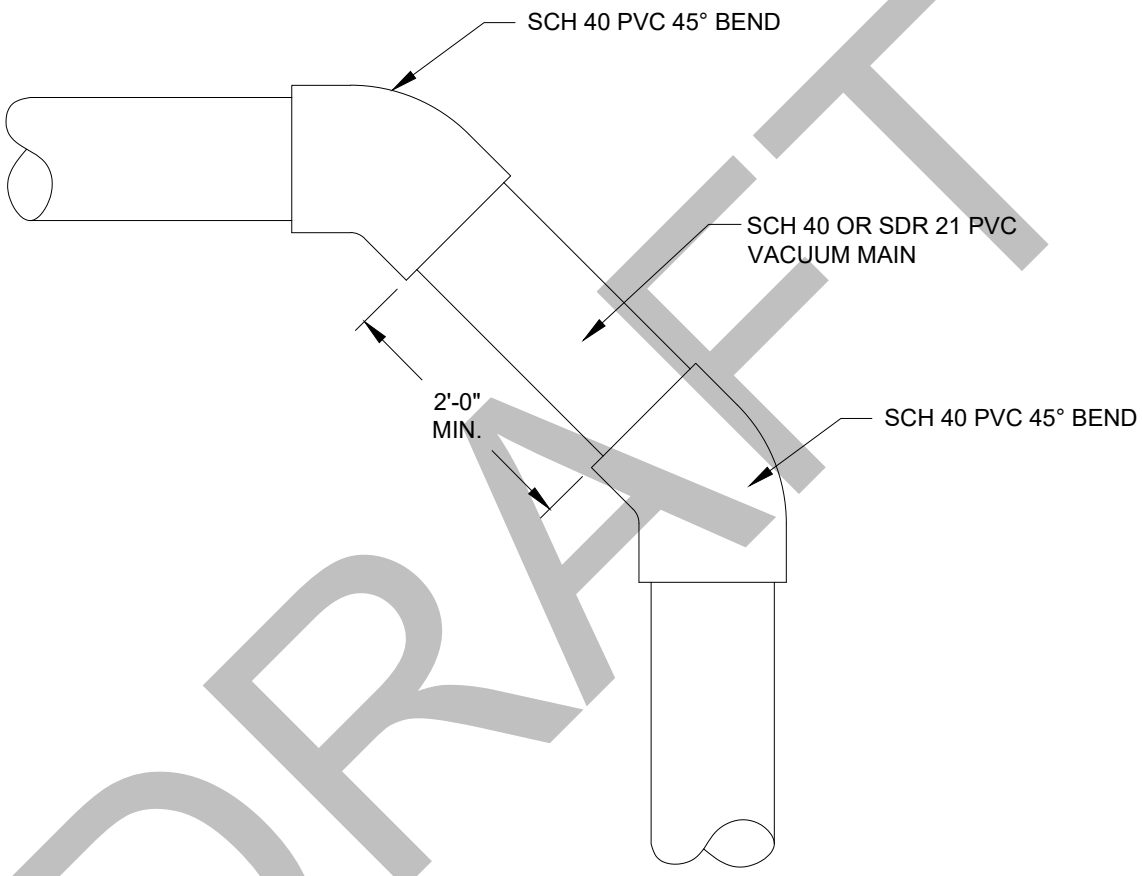
DATE: 8/1/2023	PROHIBITED CONNECTIONS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-10
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-2



SLOPE SCHEDULE			
PIPE DIA.	MINIMUM FALL BETWEEN LIFTS * USE GREATER VALUE OF (A) OR (B)		DISTANCE AT WHICH (B) GOVERNS
	(A)	(B)	
3"	0.20 FT	0.2% x DISTANCE	> 100 FT
4"	0.25 FT	0.2% x DISTANCE	> 125 FT
6"	0.25 FT	0.2% x DISTANCE	> 125 FT
8"	0.25 FT	0.2% x DISTANCE	> 125 FT
10"	0.25 FT	0.20% x DISTANCE	> 125 FT

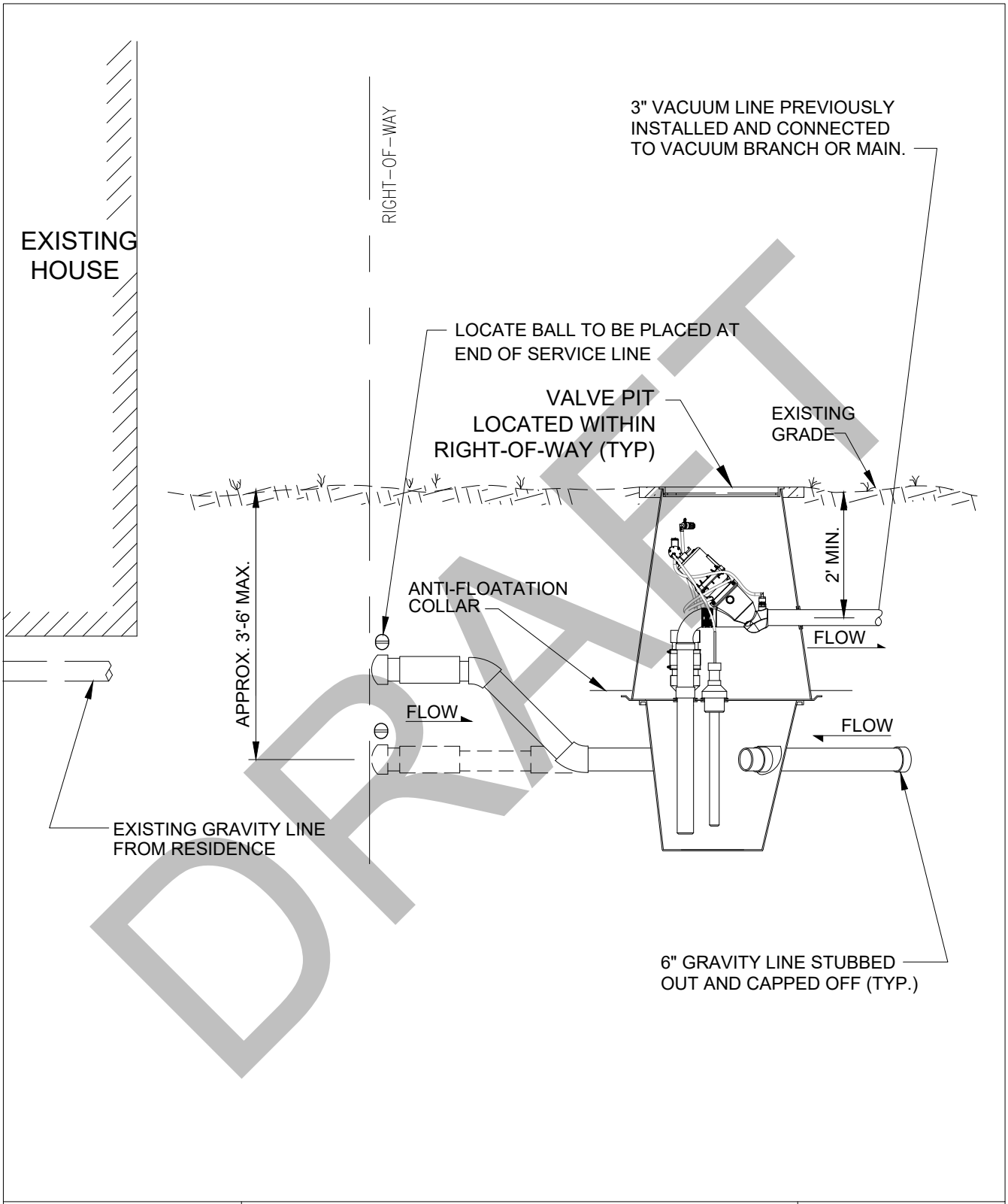
* WHEN NOT BETWEEN LIFTS, USE 0.2% SLOPE

DATE: 8/1/2023	LIFT DETAIL AND SLOPE SCHEDULE	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-11
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-4

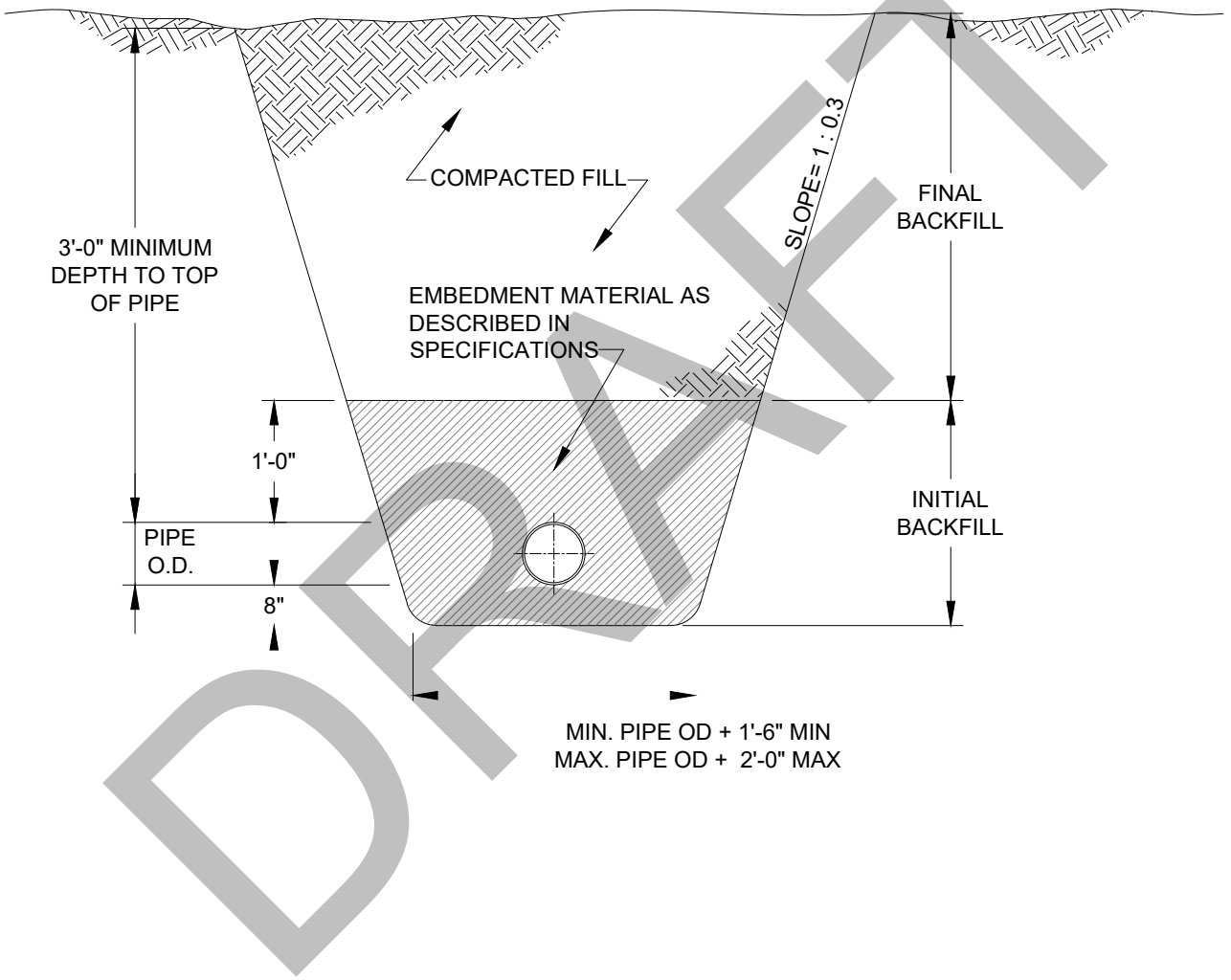


NOTE:
1) SCH 40 PVC RIEBER GASKET FITTINGS ARE ALSO ACCEPTABLE
2) 90° FITTINGS ARE NOT TO BE USED FOR CHANGES IN DIRECTION

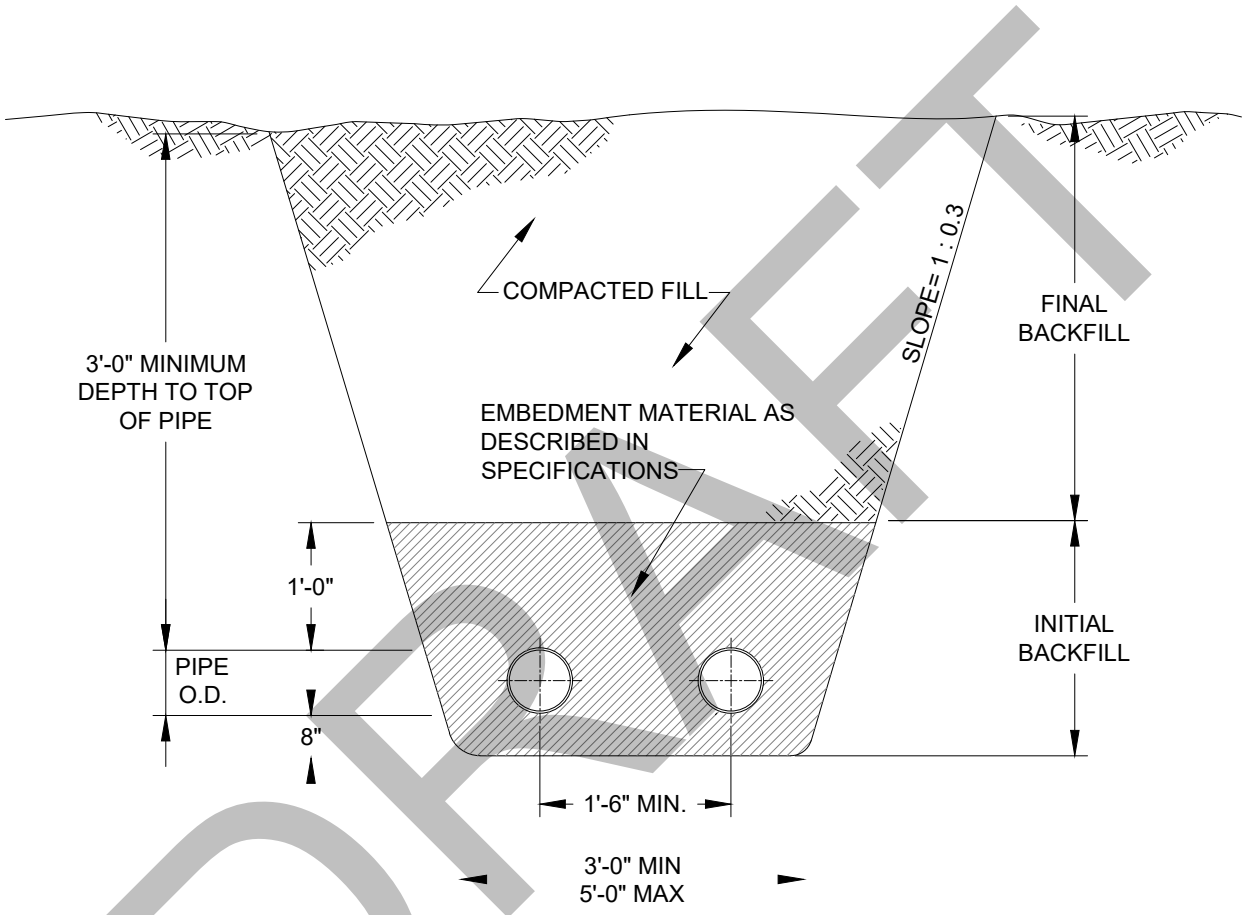
DATE: 8/1/2023	CHANGE IN DIRECTION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-12
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-3



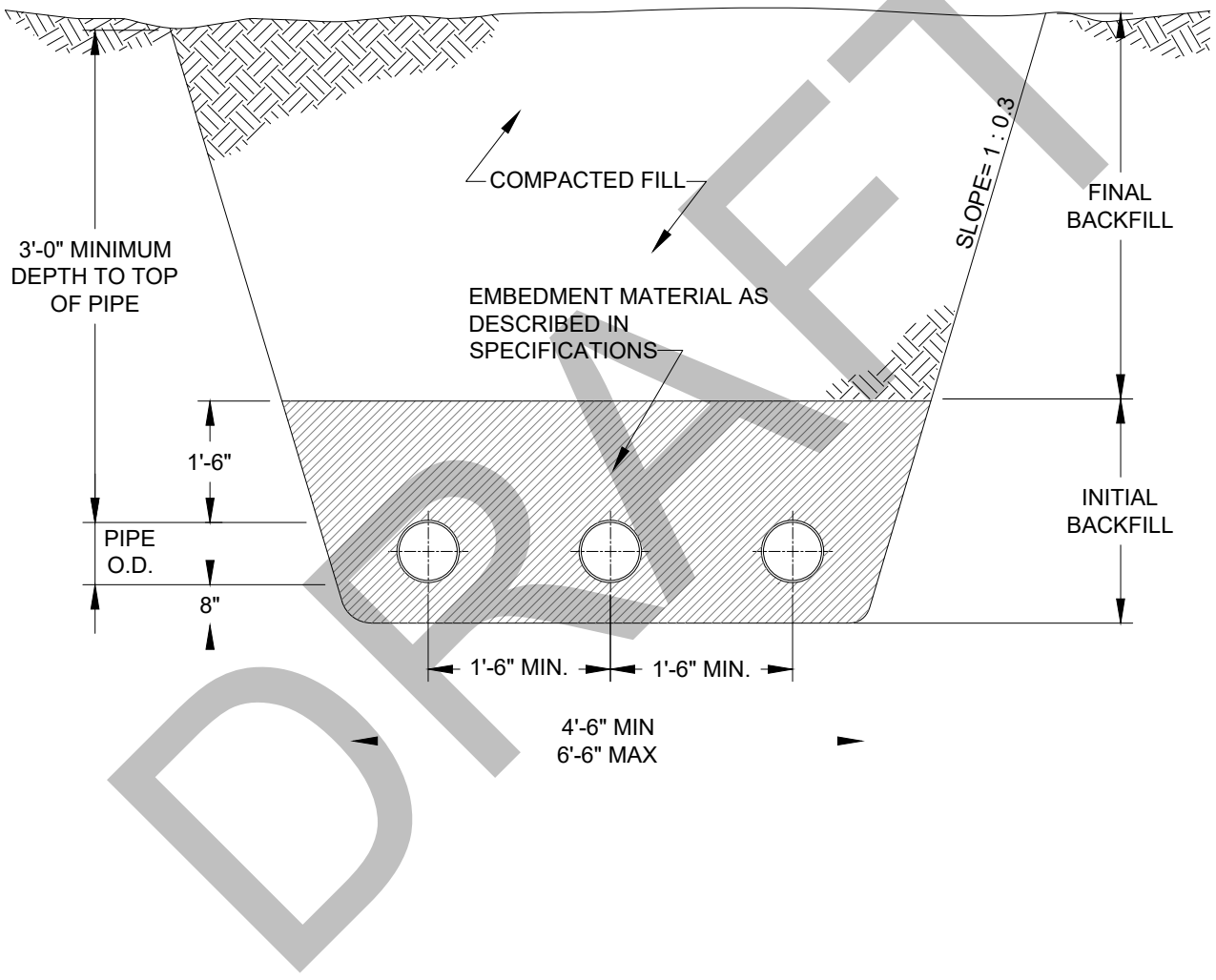
DATE: 8/1/2023	VALVE PIT - PRIOR TO HOUSE CONNECTION	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-13
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VP-9



DATE: 8/1/2023	TYPICAL TRENCH SECTION - 1 MAIN	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-14
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-7



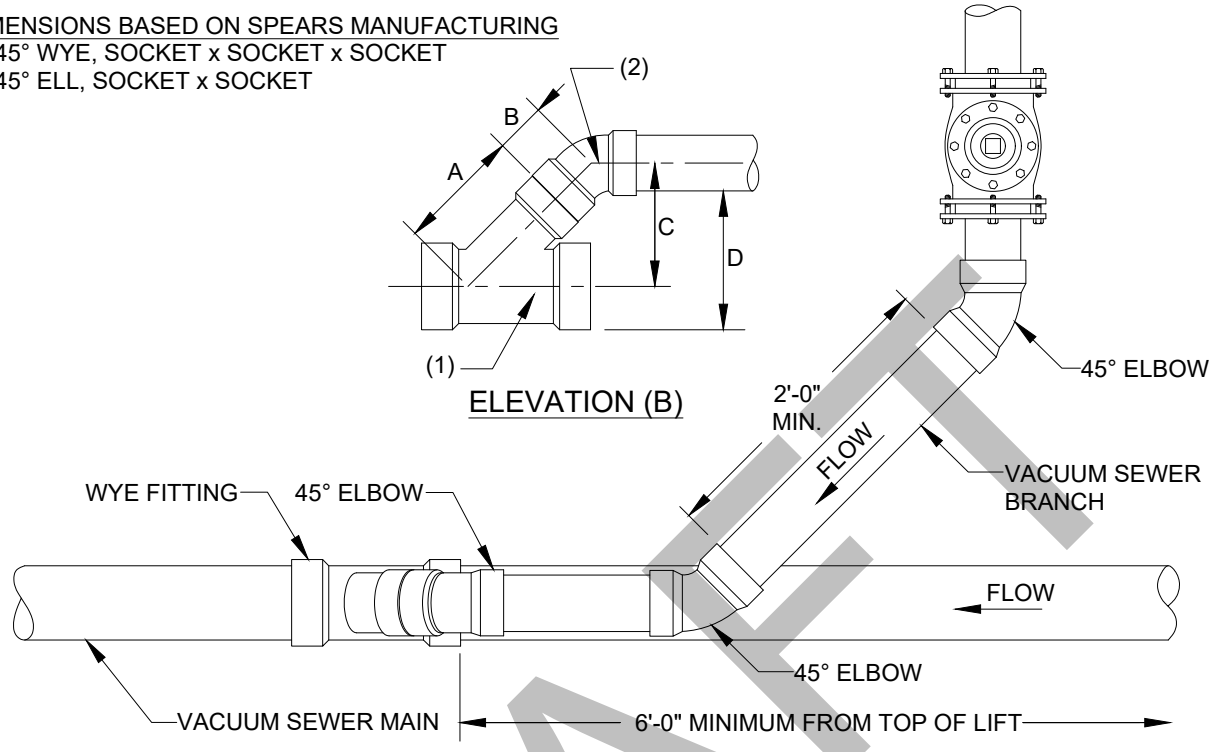
DATE: 8/1/2023	TYPICAL TRENCH SECTION - 2 MAINS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-15
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-8



DATE: 8/1/2023	TYPICAL TRENCH SECTION - 3 MAINS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-16
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VM-9

DIMENSIONS BASED ON SPEARS MANUFACTURING
1. 45° WYE, SOCKET x SOCKET x SOCKET
2. 45° ELL, SOCKET x SOCKET

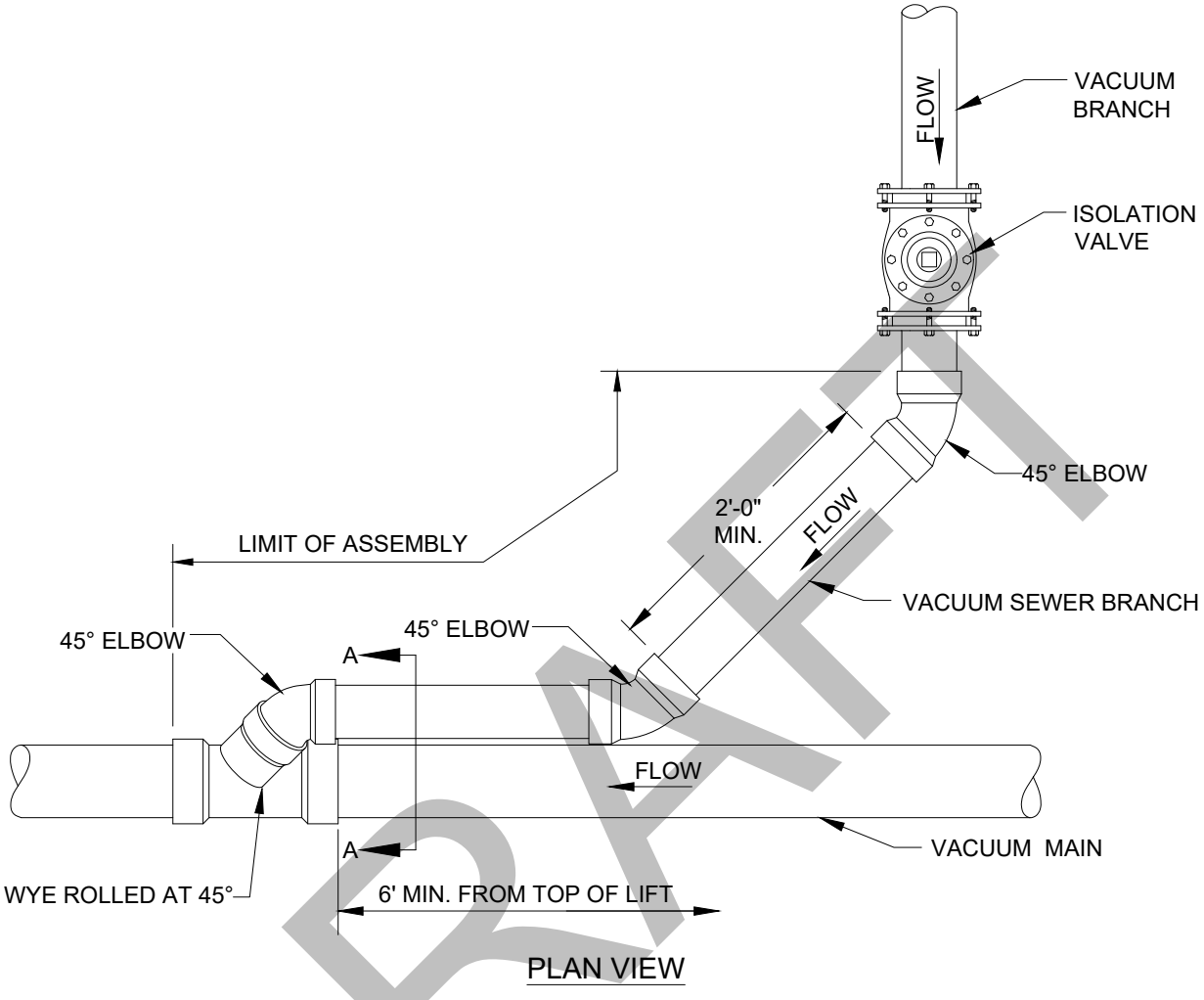
ELEVATION (B)



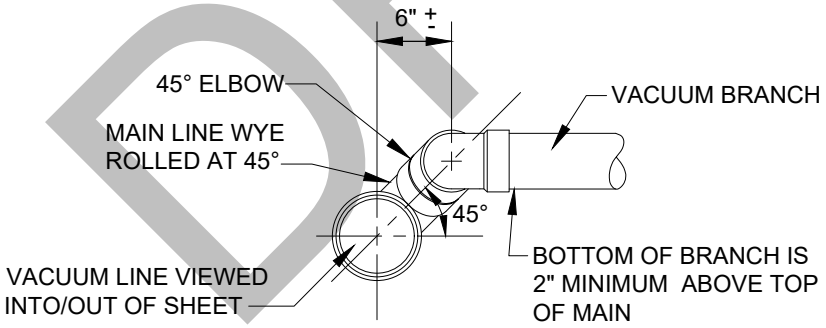
PLAN VIEW (B)

WYE SIZE	A	B	C	D- INVERT
4 x 4 x 4	8 1/4"	3 3/32"	8.02"	0.67'
4 x 4 x 3	8 7/8"	2 7/8"	8.30"	0.63'
6 x 6 x 6	11 21/32"	5 7/32"	11.93"	0.99'
6 x 6 x 4	10 1/4"	3 3/32"	9.44"	0.78'
6 x 6 x 3	10 1/4"	2 7/8"	9.28"	0.77'
8 x 8 x 8	15 1/4"	6 7/16"	15.34"	1.28'
8 x 8 x 6	16 1/8"	5 7/32"	15.09"	1.26'
8 x 8 x 4	14 1/4"	3 3/32"	12.26"	1.02'
8 x 8 x 3	13"	3 7/8"	11.22"	0.94'
10 x 10 x 10	22 1/8"	8 1/8"	21.34"	1.78'
10 x 10 x 8	16 25/32"	6 7/16"	16.42"	1.37'
10 x 10 x 6	15 7/8"	5 7/32"	14.92"	1.24'
10 x 10 x 4	15 1/2"	3 3/32"	13.15"	1.10'
10 x 10 x 3	14 5/8"	2 7/8"	12.37"	1.03'

DATE: 8/1/2023	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 1	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-17
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VMC-1

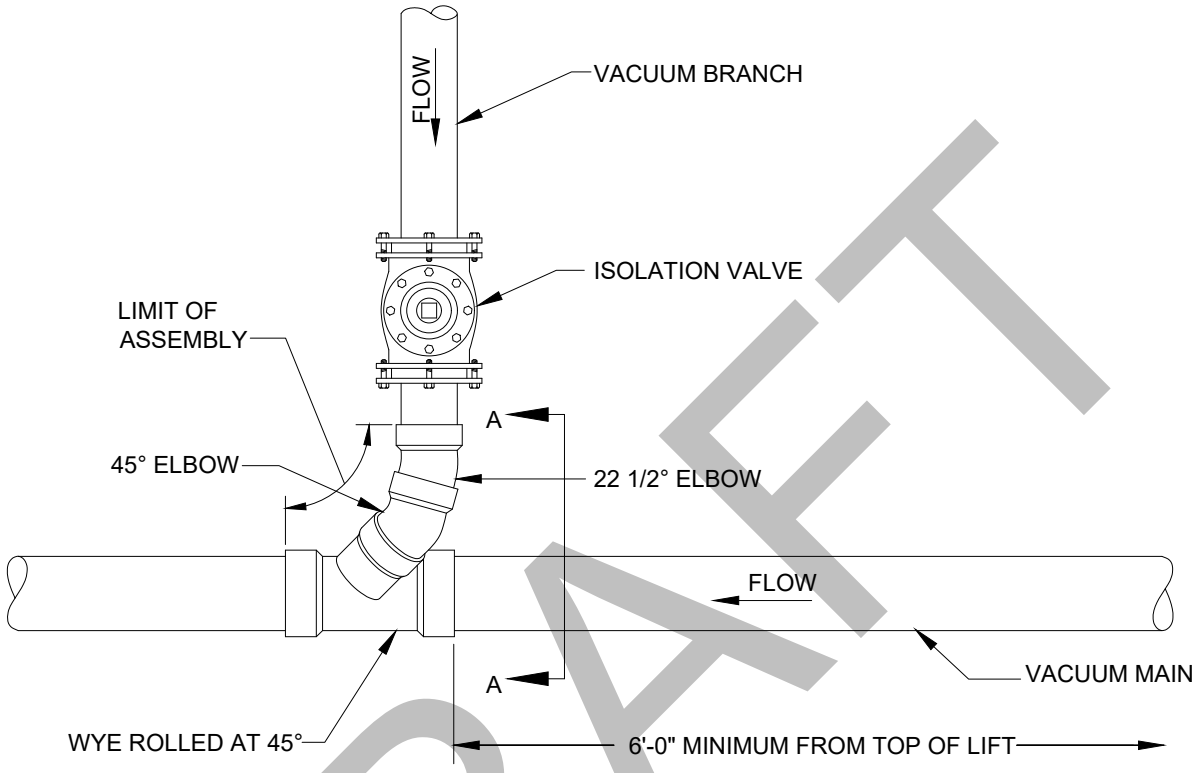


PLAN VIEW

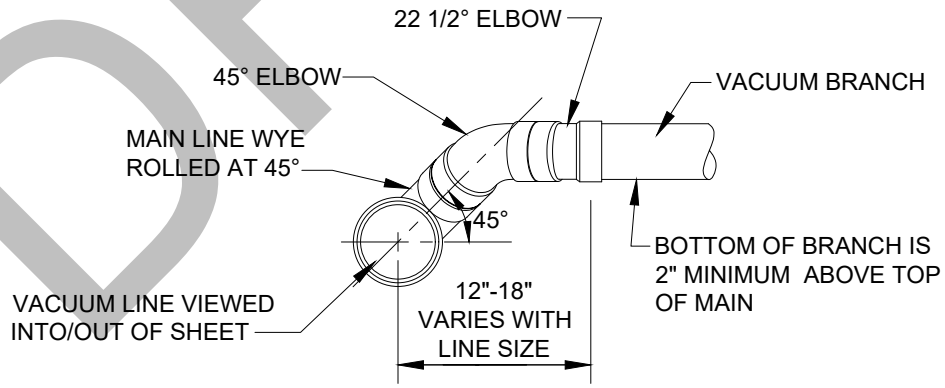


SECTION A-A

DATE: 8/1/2023	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 2	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-18
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VMC-2

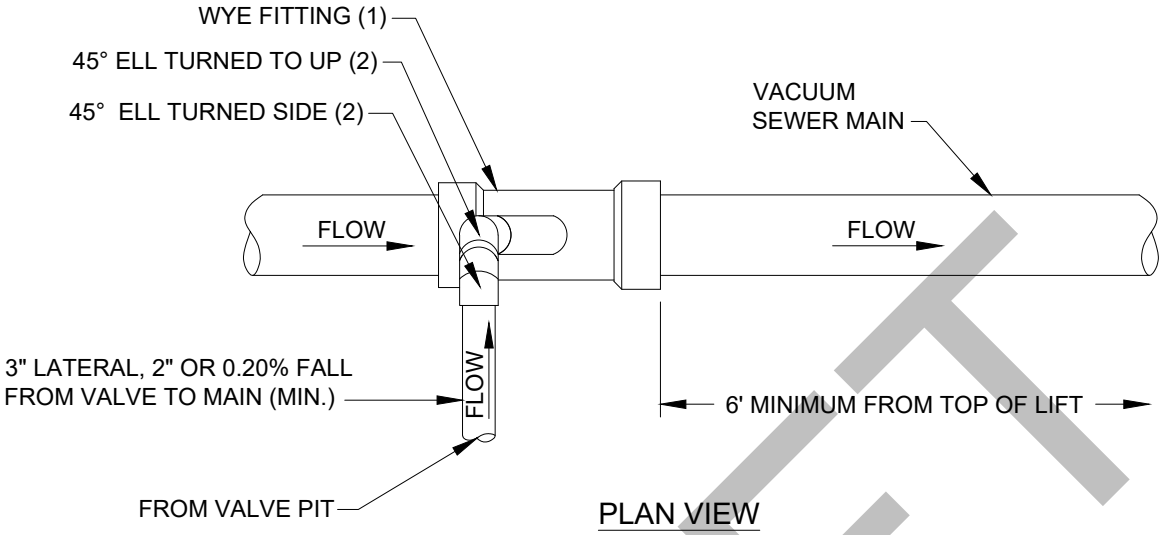


PLAN VIEW (A)

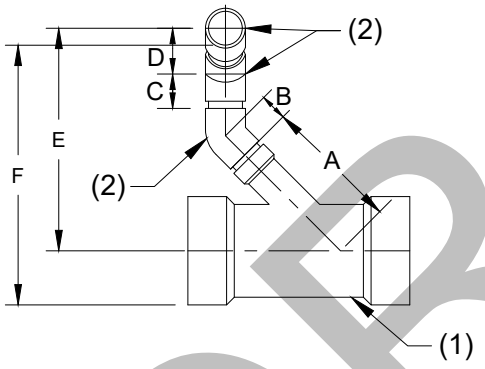


SECTION A-A

DATE: 8/1/2023	BRANCH TO MAIN CONNECTION ASSEMBLY - OPTION 3	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-19
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VMC-3



PLAN VIEW



ELEVATION

DIMENSIONS BASED ON SPEARS MANUFACTURING
1. 45 DEG WYE, SOCKET x SOCKET x SOCKET
2. 45 DEG ELL, SOCKET x SOCKET

WYE SIZE	A	B	C	D	E	F- INVERT
4 x 4 x 3	8 7/8"	2 7/8"	2 7/8"	3 23/32"	14.93"	1.24'
6 x 6 x 3	10 1/4"	2 7/8"	2 7/8"	3 23/32"	15.35"	1.32'
8 x 8 x 3	13"	2 7/8"	2 7/8"	3 23/32"	17.82"	1.48'
10 x 10 x 3	14 5/8"	2 7/8"	2 7/8"	3 23/32"	18.97"	1.58'

DATE: 8/1/2023	PREFERRED VALVE PIT TO MAIN CONNECTIONS	PROVIDED FOR INFORMATIONAL PURPOSES ONLY. NO MODIFICATIONS WITHOUT WRITTEN CCU APPROVAL.
DRAWN BY: DEC		PAGE No. V-20
APPROVED BY: BRB	CHARLOTTE COUNTY UTILITIES	NUMBER: VMC-4