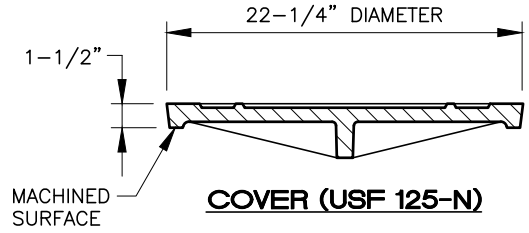
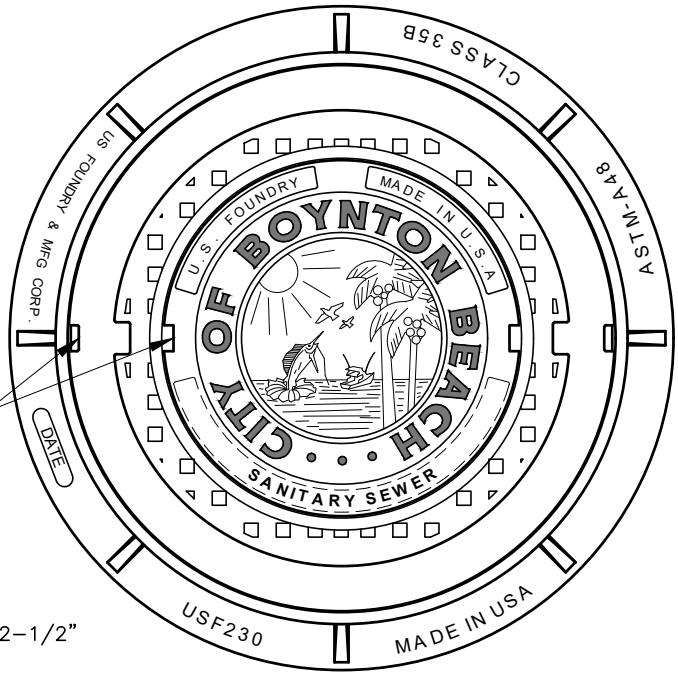
VII. **STANDARD DETAILS**

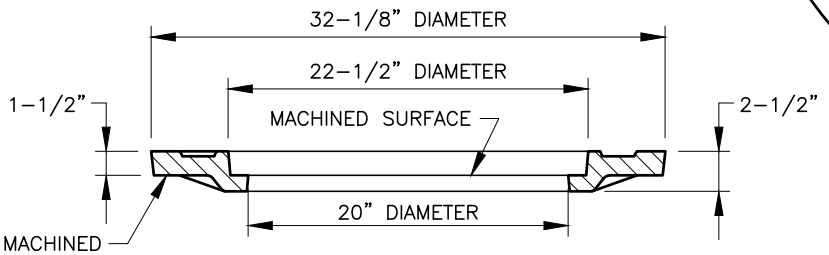
WASTEWATER DETAILS

DRAWING INDEX

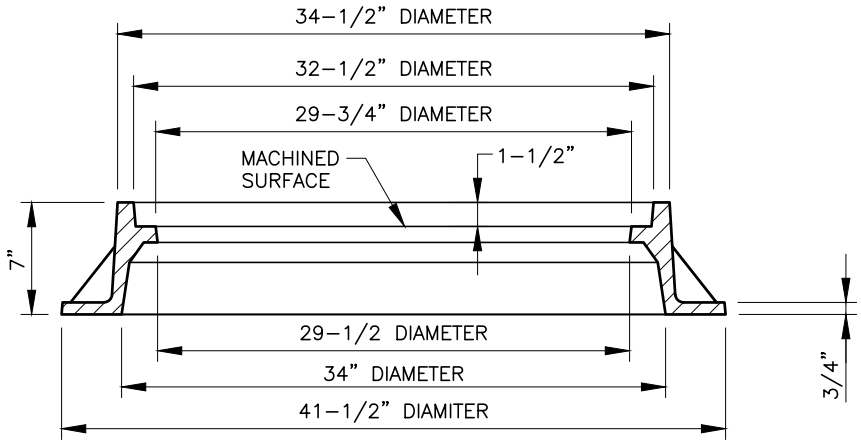


COVER (USF 125-N)





DOUBLE COVER (USF 230 AB-MC)



RING (USF 230 AB-MC)

NOTES:

1. IN GREEN AREAS OR ANY AREA DEEMED TO HAVE QUESTIONABLE DRAINAGE, A WATER–TIGHT MANHOLE INSERT SUCH AS "SEWER GUARD" OR APPROVED EQUAL WILL BE REQUIRED.
2. APPROVED MANHOLES (DOUBLE COVER TYPE): U.S. FOUNDRY MODEL No. 230–AB–MC DRAWING #A4218 INNER COVER.
3. GREASE TRAP COVER: U.S. FOUNDRY MODEL NUMBER 125–N.
4. MANHOLE ADJUSTING SHALL BE BY ADDITIONAL BRICKS USED TO ELEVATE MANHOLE COVERS TO RESURFACED GRADE (MAX. 4" HEIGHT).
5. CONCRETE COLLAR 6'x6'x8" WITH 4"x4" WIRE MESH REINFORCING MAY BE REQUIRED FOR MANHOLES IN LANDSCAPE AREA.

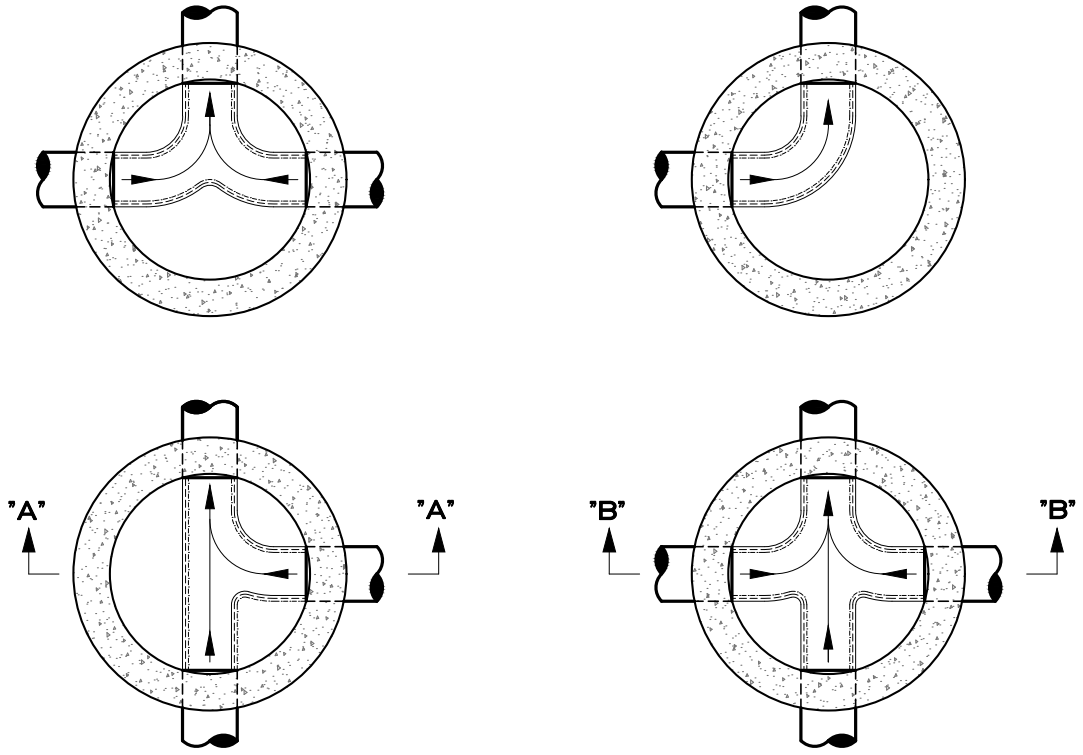
UTILITIES ENGINEERING DIVISION

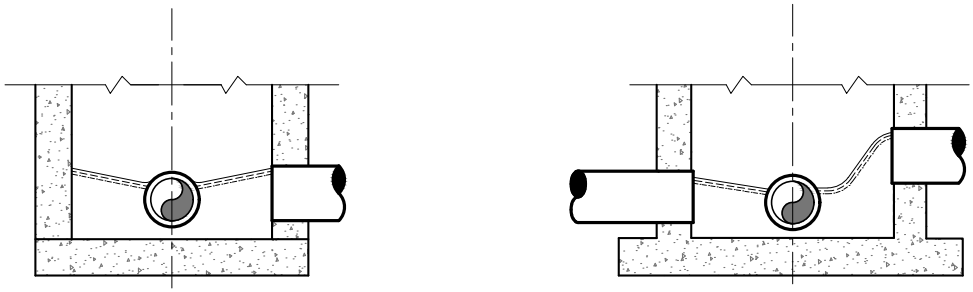
BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

MANHOLE FRAME AND COVER

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S–1



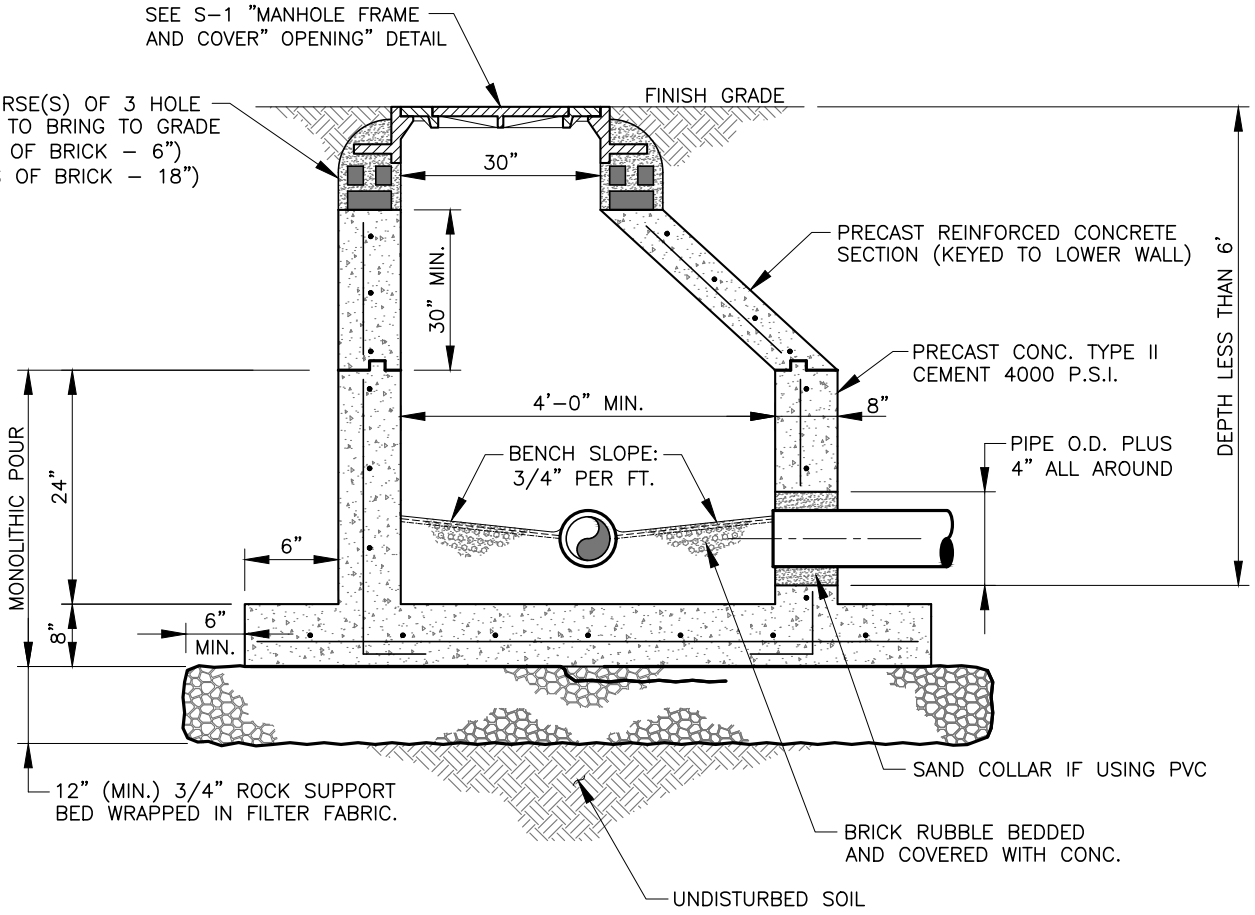


SECTION "A-A"

SECTION "B-B"

NOTES:

1. INVERT CHANNELS TO BE CONSTRUCTED FOR SMOOTH FLOW WITH NO OBSTRUCTIONS.
2. SPILLWAYS SHALL BE CONSTRUCTED BETWEEN PIPES WITH DIFFERENT INVERT ELEVATIONS PROVIDING FOR SMOOTH FLOWS.
3. CHANNELS FOR FUTURE CONSTRUCTIONS (STUBS) SHALL BE CONSTRUCTED, FILLED WITH SAND, AND COVERED WITH 1" OF MORTAR.
4. SLOPE MANHOLE ITSELF WITH A 1:2 SLOPE FROM MANHOLE WALL TO CHANNEL.
5. INVERT SHALL BE A MINIMUM OF 1/2 THE DIAMETER OF THE LARGEST PIPE OR 4" DEEP.
6. NO INSIDE DROP LARGER THAN 6" SHALL BE ALLOWED WITH 3 OR 4 INVERTS AND MANHOLES WITH A CHANGE OF DIRECTION OF FLOW OF MORE THAN 45 DEGREES.
7. SERVICE LATERALS SHALL NOT ENTER MANHOLES UNLESS APPROVED BY UTILITIES.
8. ANY MODIFICATION TO THE ABOVE MUST BE APPROVED BY THE DEPARTMENT.



NOTES:

1. BRICK MASONRY CONSTRUCTION TO BE STUCCOED WITH 3/4" CEMENT PLASTER INSIDE & OUTSIDE, TYPE II CEMENT SHALL BE USED.
2. LIFT HOLES THROUGH PRECAST STRUCTURE ARE NOT PERMITTED.
3. SEE TECHNICAL SPECIFICATIONS FOR BEDDING REQUIREMENTS.
4. "RAM-NEK" OR APPROVED EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
5. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF, NON-SHRINKING GROUT.
6. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
7. IF TWO CAGES OF WIRE MESH ARE USED, ONE SHALL BE POSITIONED 3" FROM THE INSIDE SURFACE AND ONE 3" FROM THE OUTSIDE SURFACE. IF A SINGLE CAGE OR REBAR IS USED, IT SHALL BE CENTERED WITHIN WALL THICKNESS. NO EXPOSED STEEL SHALL BE PERMITTED.
8. WALL REINFORCEMENTS A.S.T.M. DESIGNATION A185-64.(LATEST REVISION) (MIN.)
9. MANHOLES SHALL CONFORM TO FDOT SPECIFICATION (MIN.)
10. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
11. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.
12. A MINIMUM OF SEVEN DAYS CURE TIME IS REQUIRED PRIOR TO DELIVERY.
13. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED. OVERSIZED HOLES WILL BE REJECTED.
14. ANY VISIBLE REINFORCING WIRE, STEEL OR HONEYCOMBS SHALL BE CAUSE FOR REJECTION.
15. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

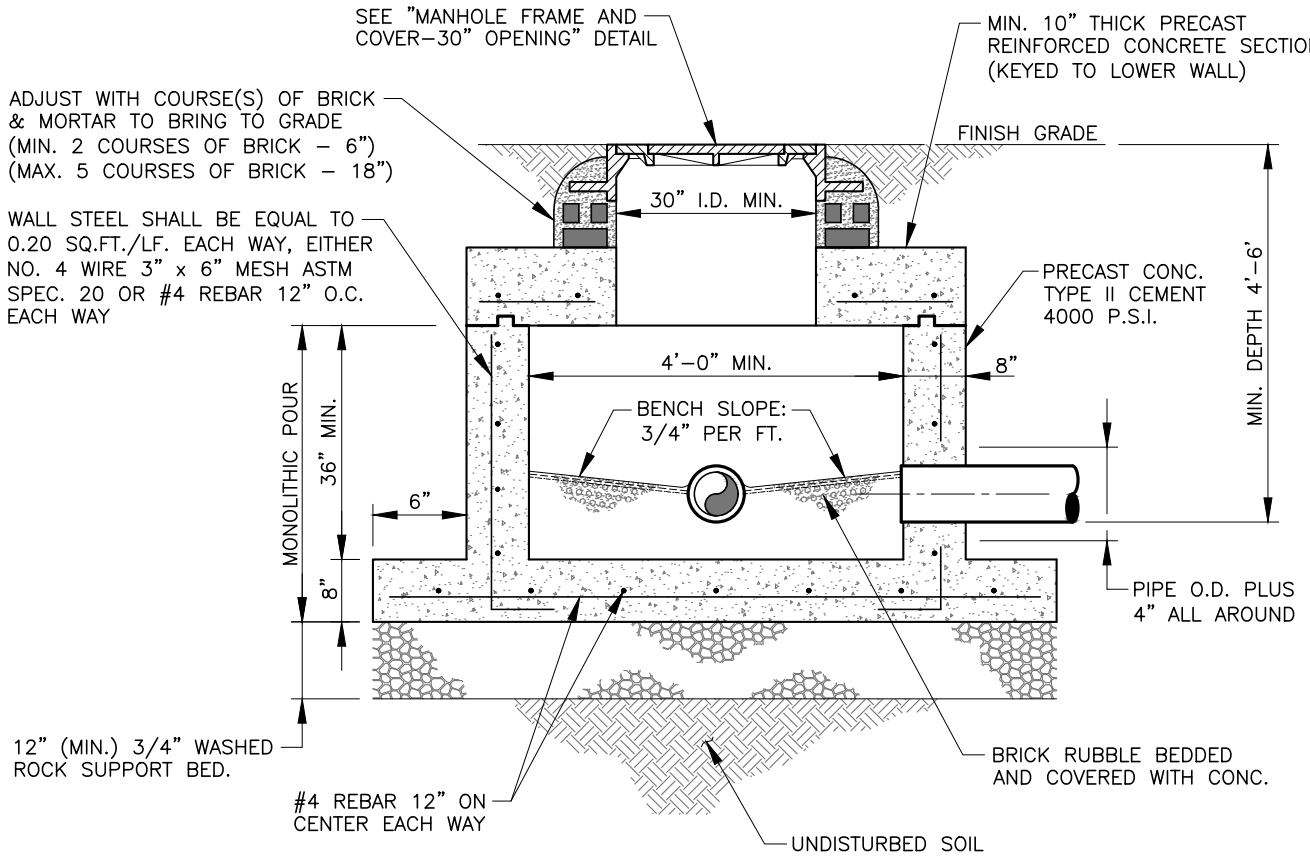
UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

STANDARD PRECAST MANHOLE TYPE I (SHALLOW)

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S-3



NOTES:

1. BRICK MASONRY CONSTRUCTION TO BE STUCCOED WITH 3/4" CEMENT PLASTER INSIDE AND OUTSIDE, TYPE II CEMENT SHALL BE USED.
2. LIFT HOLES THROUGH PRECAST STRUCTURE ARE NOT PERMITTED.
3. SEE TECHNICAL SPECIFICATIONS FOR BEDDING REQUIREMENTS.
4. "RAM–NEK" OR APPROVED EQUAL AT ALL RISER JOINTS (1/2" THICK WITH WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE AND OUTSIDE.
5. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF, NON–SHRINKING GROUT.
6. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
7. IF TWO CAGES OF WIRE MESH ARE USED, ONE SHALL BE POSITIONED 3" FROM THE INSIDE SURFACE AND ONE 3" FROM THE OUTSIDE SURFACE. IF A SINGLE CAGE OR REBAR IS USED, IT SHALL BE CENTERED WITHIN WALL THICKNESS. NO EXPOSED STEEL SHALL BE PERMITTED.
8. WALL REINFORCEMENTS A.S.T.M. DESIGNATION A185–64.(LATEST REVISION)(MIN.)
9. MANHOLES SHALL CONFORM TO A.S.T.M. C478.(MIN.)
10. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; STRUCTURES CASTED AT THE FOUNDRY WITH AGRU–SUREGRIP OR THOROC COATING APPLIED IN THE FIELD.
11. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY & THE SECOND COAT BEING THE COLOR BLACK.
12. A MINIMUM OF SEVEN DAYS CURE TIME IS REQUIRED PRIOR TO DELIVERY.
13. ALL PIPE HOLES SHALL BE PRECAST OR CORE–DRILLED. OVERSIZED HOLES WILL BE REJECTED.
14. ANY VISIBLE REINFORCING WIRE, STEEL OR HONEYCOMBS SHALL BE CAUSE FOR REJECTION.
15. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

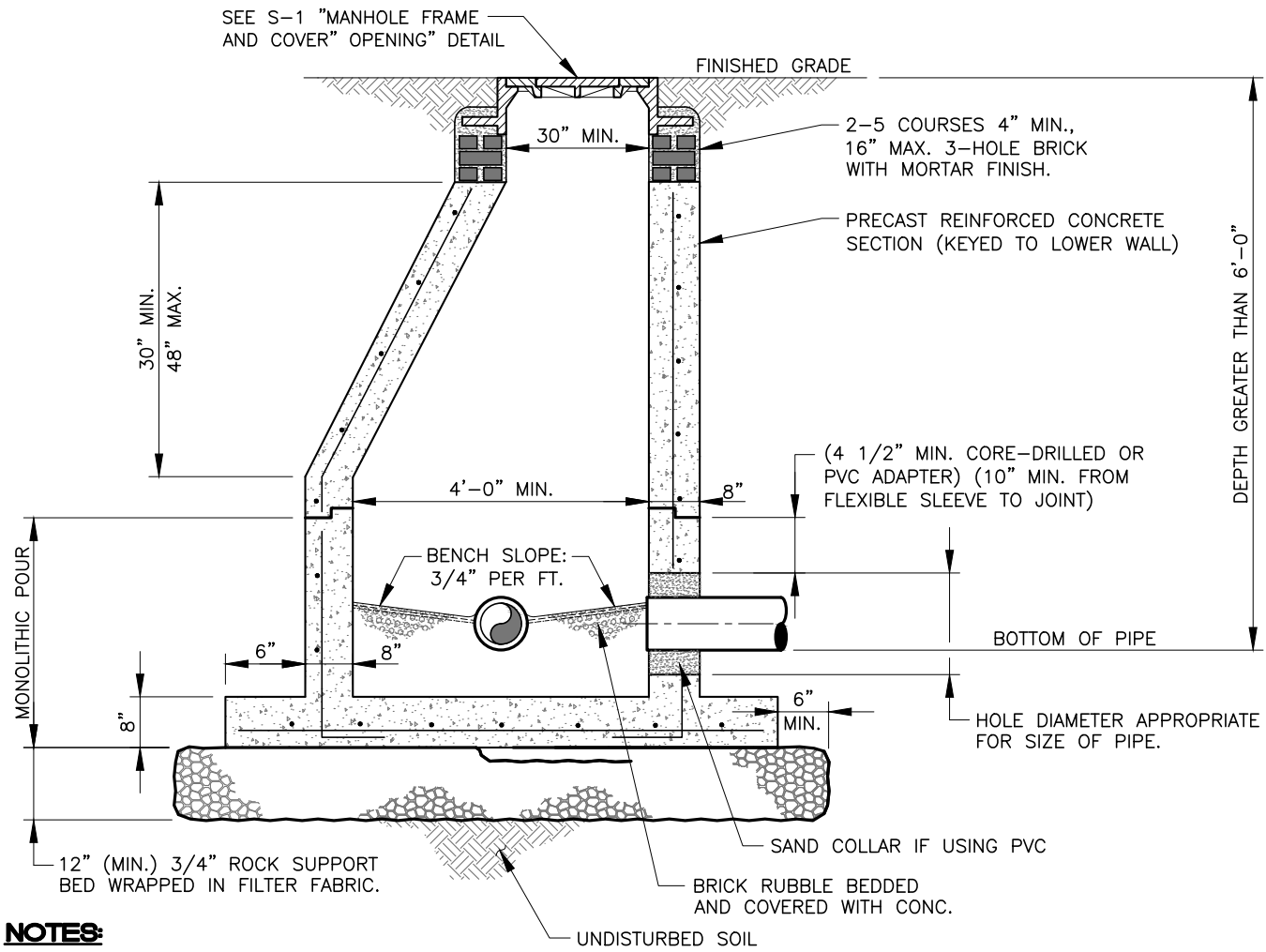
UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

STANDARD PRECAST MANHOLE TYPE II (SHALLOW)

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S–3A



NOTES:

1. PRECAST CONCRETE TYPE II 4000 P.S.I.
2. "RAMNEK" OR EQUAL AT ALL RISER JOINTS (1/2" THICK WITH THE WIDTH AT LEAST 1/2 THE WALL THICKNESS) WITH GROUT ON INSIDE & OUTSIDE.
3. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
4. FLOW CHANNELS SHALL BE CONSTRUCTED TO DIRECT INFLUENT INTO FLOW STREAM. (SEE DETAIL).
5. LIFT HOLES ARE NOT PERMITTED.
6. ALL PIPE HOLES SHALL BE PRECAST OR CORE - DRILLED.
   a) FOR PVC PIPE ENTERING MANHOLE WITH PRECAST HOLES USE THE APPROVED NON-ASBESTOS PVC-MANHOLE ADAPTER. THE ADAPTER SHALL NOT EXTEND MORE THAN 1" INTO THE MANHOLE.
   b) CONNECTION TO A MANHOLE WITH A CORE DRILLED HOLE SHALL BE MADE USING A 5' MIN. DUCTILE IRON PIPE SECTION (EPOXY LINED) OR THE APPROVED PVC-MANHOLE ADAPTER.
7. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO (2) FEET OR MORE ABOVE THE MAIN INVERT CHANNEL. DROP CONNECTIONS SHOULD NOT BE DESIGNED FOR LESS THAN A 2.0 FOOT DROP.
8. 8" DIAMETER PIPE: 12" HOLE FOR DIP, 16" HOLE FOR PVC ; 10" DIAMETER PIPE: 14" HOLE FOR DIP, 18" HOLE FOR PVC.
9. MANHOLE FABRICATION SHALL BE IN ACCORDANCE WITH ASTM C-478, LATEST STANDARD.
10. MINIMUM 5 FEET IS REQUIRED BETWEEN OUTSIDE OF MANHOLE AND SERVICE WYE.
10. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
11. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.
12. APPROVED INFLOW PROTECTORS ARE REQUIRED.
13. ALL PVC SHALL BE AWWA C-900 DR-18.
14. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

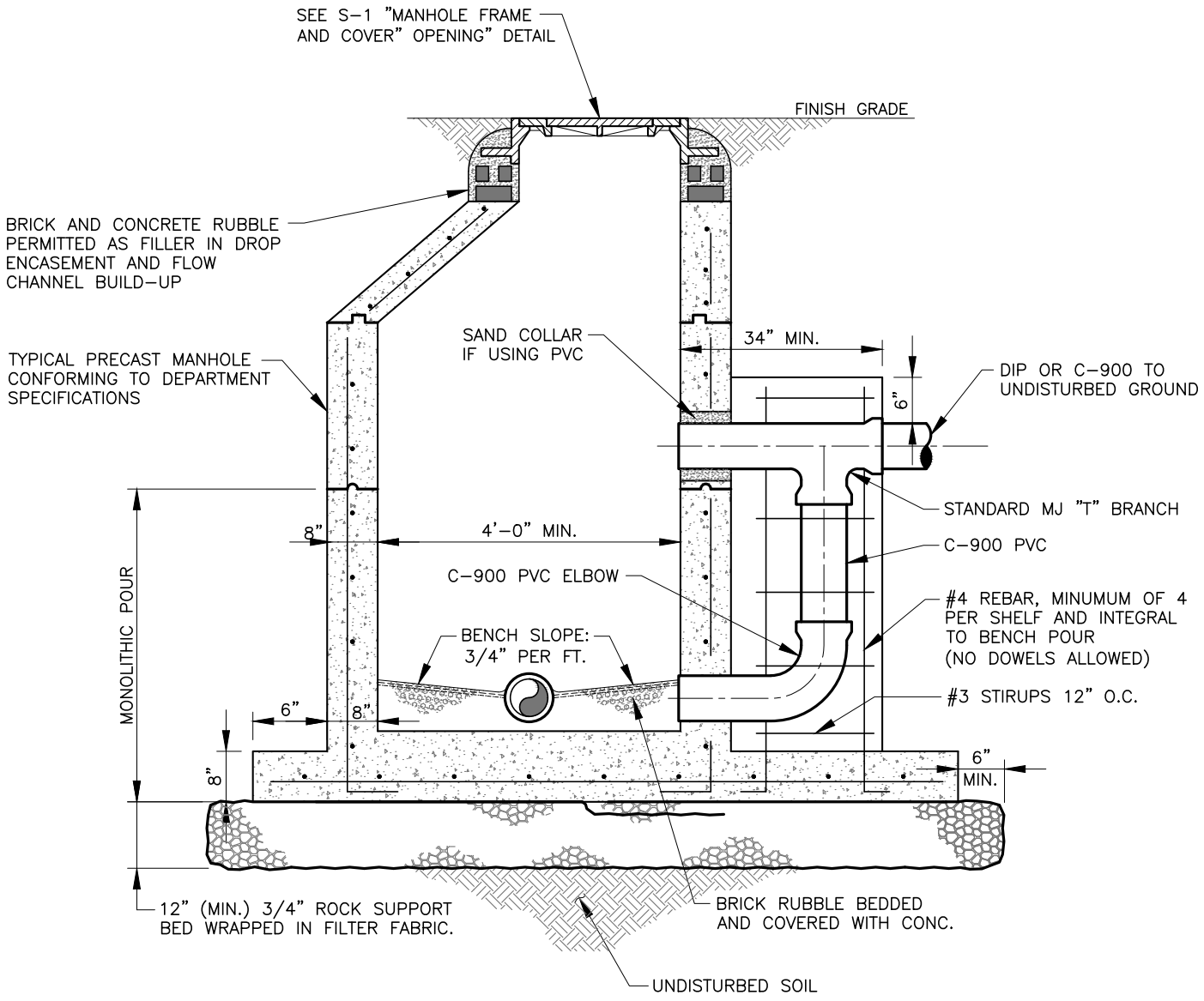
UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

STANDARD PRECAST MANHOLE (WITH ECCENTRIC CONE)

NOT TO SCALE	EFF. DATE 05/24

PAGE NUMBER **S-4**



NOTES:

1. CONCRETE ENCASEMENT FOR DROP CONNECTION TO BE FIELD POURED.
2. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO (2) FEET OR MORE ABOVE THE MAIN INVERT CHANNEL. DROP CONNECTIONS SHOULD NOT BE DESIGNED FOR LESS THAN A 2.0 FOOT DROP.
3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
4. MINIMUM PIPE SIZE FOR DROP IS 8".
5. SEE S-4 "STANDARD PRECAST MANHOLE" DETAIL FOR ADDITIONAL REQUIREMENTS.
10. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
11. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.
12. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

PRECAST MANHOLE DROP CONNECTION TYPE A

NOT TO SCALE | EFF. DATE 05/24

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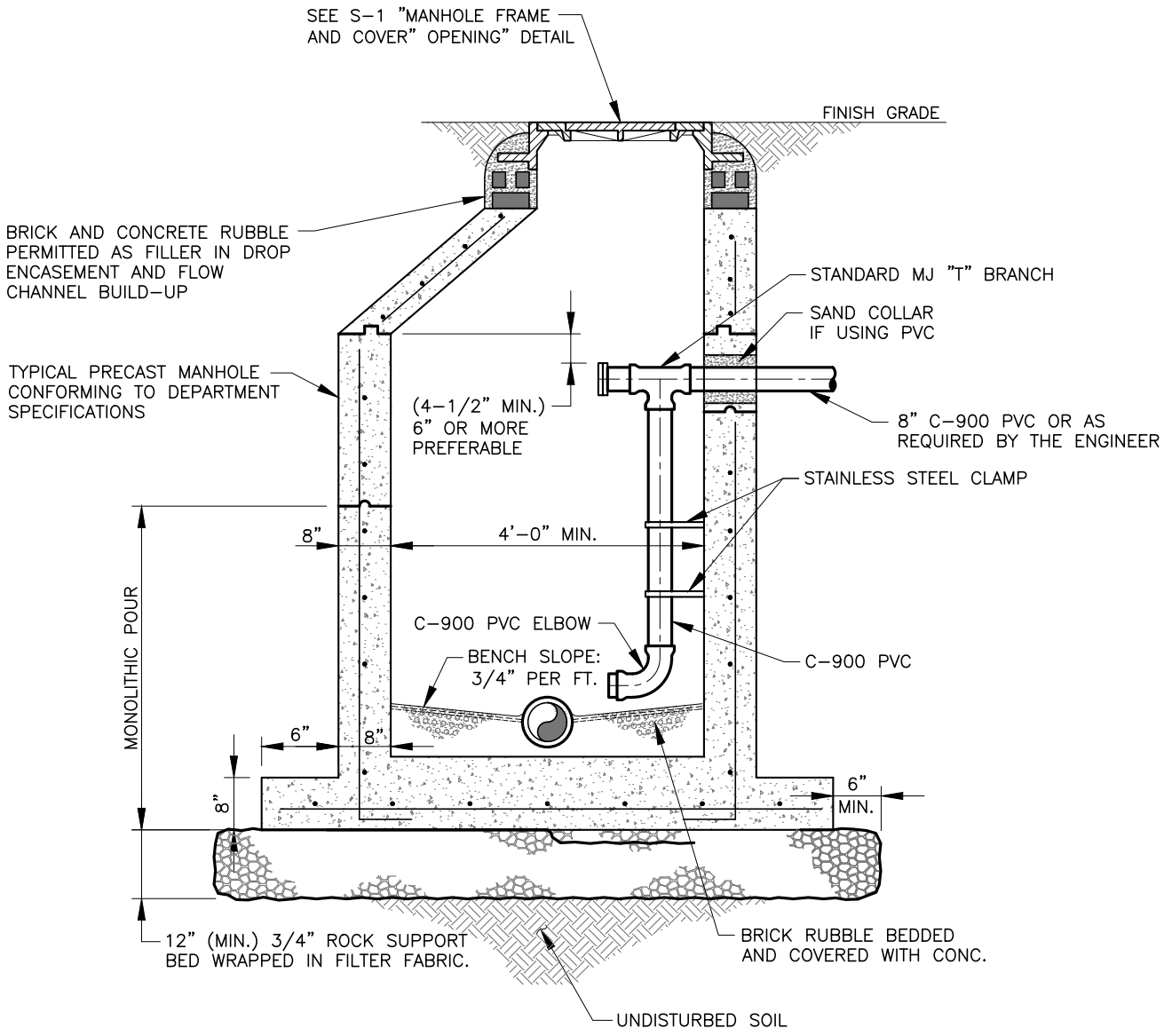


NOTES:

1. CONCRETE ENCASEMENT FOR DROP CONNECTION TO BE FIELD POURED.
2. DROP CONNECTIONS SHALL BE REQUIRED WHENEVER AN INFLUENT SEWER IS LOCATED TWO (2) FEET OR MORE ABOVE THE MAIN INVERT CHANNEL. DROP CONNECTIONS SHOULD NOT BE DESIGNED FOR LESS THAN A 2.0 FOOT DROP.
3. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
4. MINIMUM PIPE SIZE FOR DROP IS 8".
5. SEE S-4 "STANDARD PRECAST MANHOLE" DETAIL FOR ADDITIONAL REQUIREMENTS.
10. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
11. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.
12. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

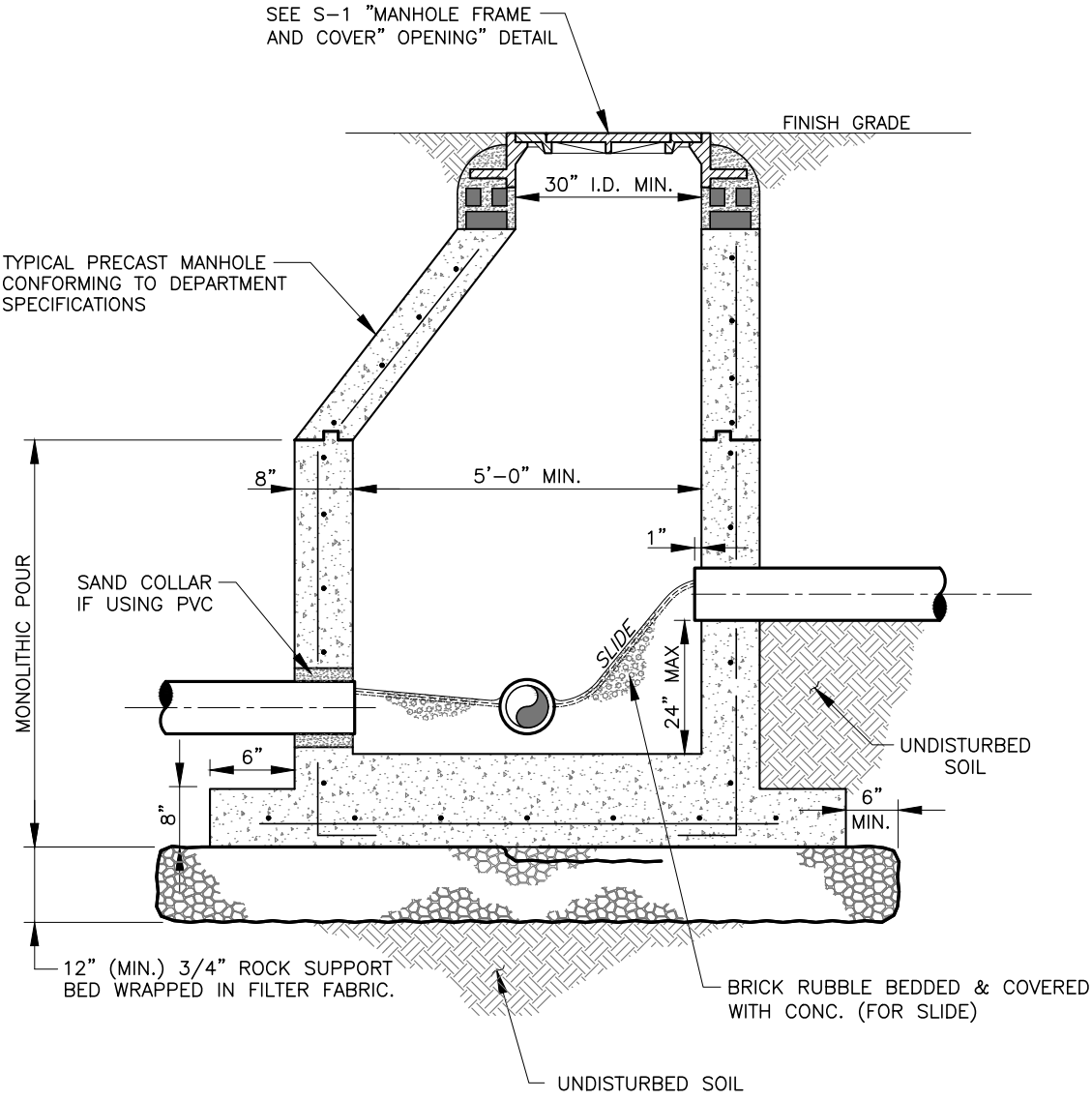
UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

PRECAST MANHOLE DROP CONNECTION TYPE B

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S-5A



NOTES:

1. INSIDE DROP TO BE USED WHEN DROP IS GREATER THAN 6 INCHES AND LESS THAN 24 INCHES.
2. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM.
3. CONSTRUCTION OF DROP SHALL PROVIDE AN OVERSIZED SLAB TO EXTEND UNDER THE DROP CONNECTION.
4. MINIMUM PIPE SIZE FOR DROP IS 8". SEE S-4 "STANDARD PRECAST MANHOLE" DETAIL FOR ADDITIONAL REQUIREMENTS.
5. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
6. MANHOLE EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.
7. LIFTING HOOKS SHALL BE INSIDE STRUCTURE.

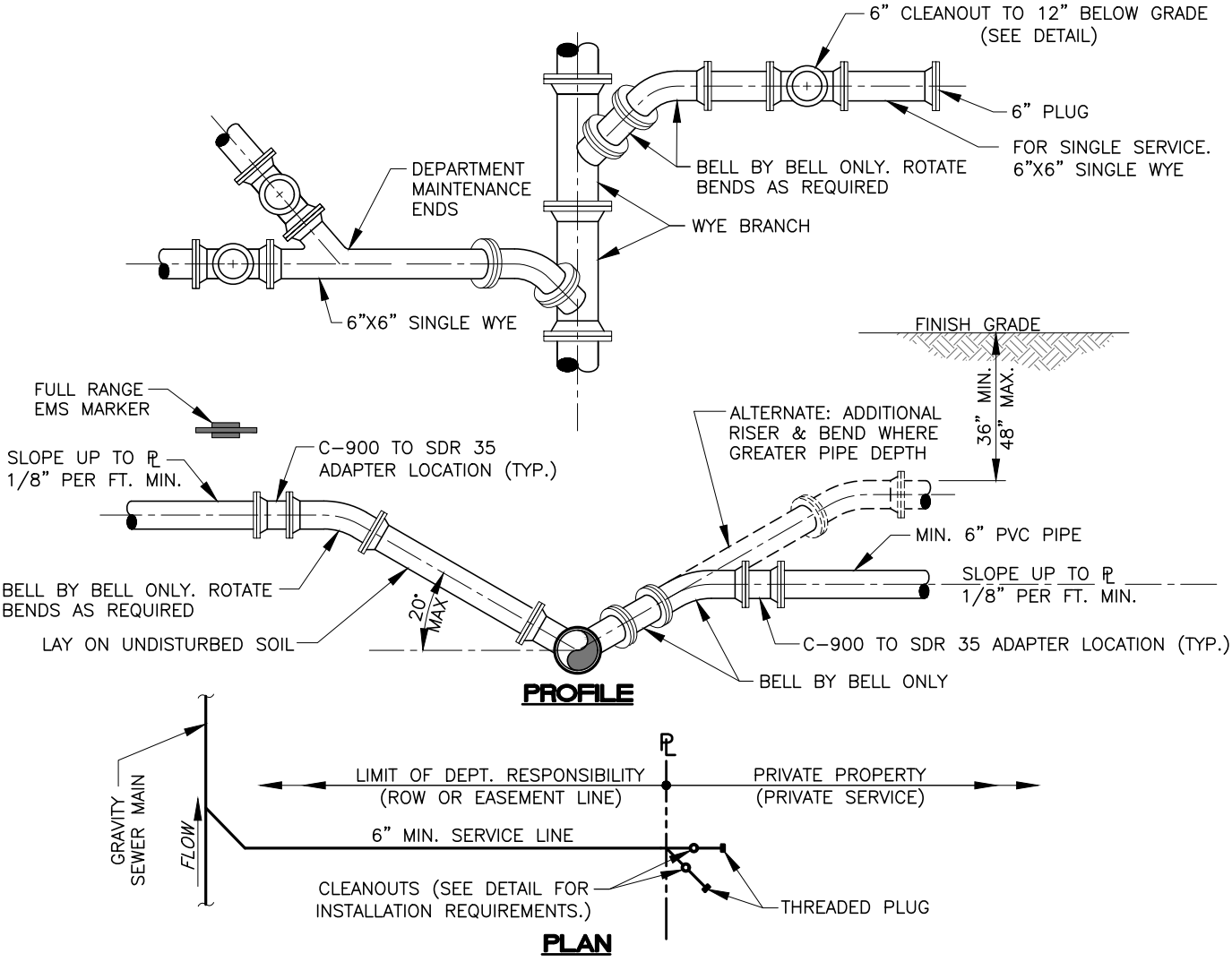
UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

PRECAST MANHOLE DROP CONNECTION TYPE C

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S-6



NOTES:

1. SERVICE LATERALS SHALL TERMINATE AT PROPERTY LINE AT A DEPTH OF 3 FEET (MIN.) TO 4' (MAX.) TO TOP OF PIPE.
2. ALL C-900 BENDS ARE TO BE BELL BY BELL. SPIGOT BY BELL ALLOWED ONLY AT CLEANOUT.
3. EACH SERVICE CONNECTION SHALL BE PLUGGED WATERTIGHT WITH AN APPROVED THREADED PLUG.
4. CUT OFF BELL END WHEN USING FERNCO COUPLING FOR V.C.P. (FOR EXISTING SERVICES ONLY).
5. CLEANOUT IS TO BE INSTALLED PER DEPARTMENT STANDARDS PRIOR TO WATER METER INSTALLATION. AN INSPECTION OF CONNECTION INTO THE DEPARTMENTS LATERAL IS REQUIRED PRIOR TO WATER METER RELEASE. A HIGH RANGE EMS MARKER REQUIRED AT ALL CLEANOUTS.
6. WASTEWATER MAIN WYE BRANCH TO MATCH MAIN PIPE MATERIAL. ALTERNATE MATERIALS TO BE APPROVED BY THE DEPT.
7. NO 90° BENDS SHALL BE USED FOR WASTEWATER SERVICE AND CLEANOUT INSTALLATION.
8. SOLIDLY TAMP BACKFILL AT LEAST ONE FOOT ABOVE TOP OF PIPE. SERVICES UNDER PAVED AREAS SHALL BE BACKFILLED TO THE SAME SPECIFICATIONS AS SHOWN ON "PAVEMENT REPLACEMENT" DETAIL.
9. CONTRACTOR SHALL MARK ON A CLEAN SET OF PLANS THE FINAL STATIONING OR DISTANCE AND DIRECTION FROM MANHOLE TO EACH SERVICE LATERAL AND GIVE TO ENGINEER FOR RECORD DRAWING PURPOSES.
10. ANY DEVIATION FROM THESE METHODS SHALL BE APPROVED BY THE DEPARTMENT.
11. THE USE OF UNNECESSARY FITTINGS ON THE CUSTOMERS LINE TO REDUCE EXCAVATION EFFORTS WILL BE CAUSE FOR REJECTION.
12. CLEANOUTS DESIGNATING THE END OF THE DEPARTMENTS MAINTENENCE RESPONSIBILITY SHALL BE LOCATED WITHIN A UTILITY EASEMENT OR RIGHT-OF-WAY DEDICATED FOR UTILITIES.
13. ALL FITTINGS FROM MAIN LINE TO CITY CLEANOUT MUST BE C-900 AND HARCO FITTINGS

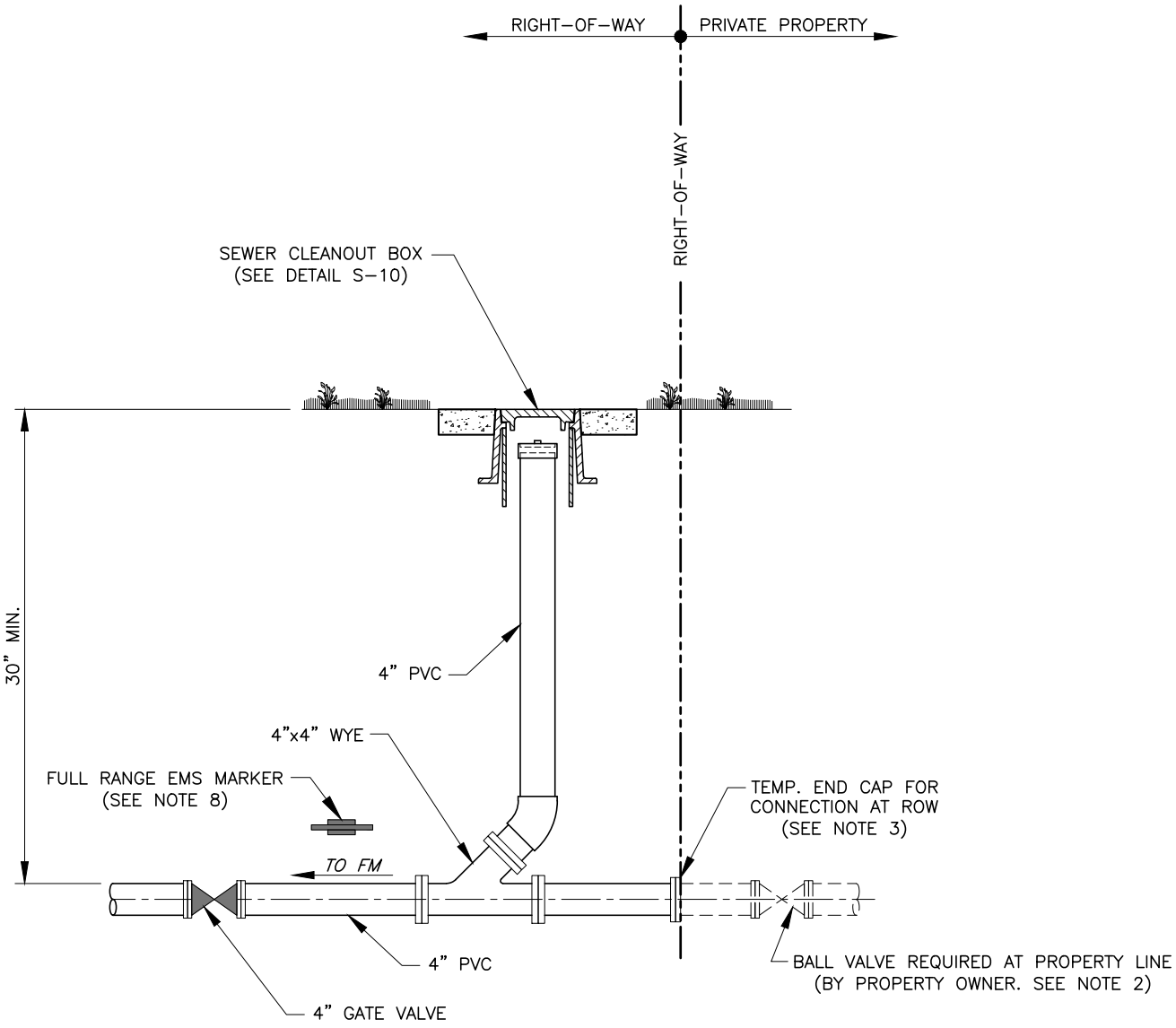
UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

WASTEWATER SERVICE
TYPICAL CONNECTIONS

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S-7

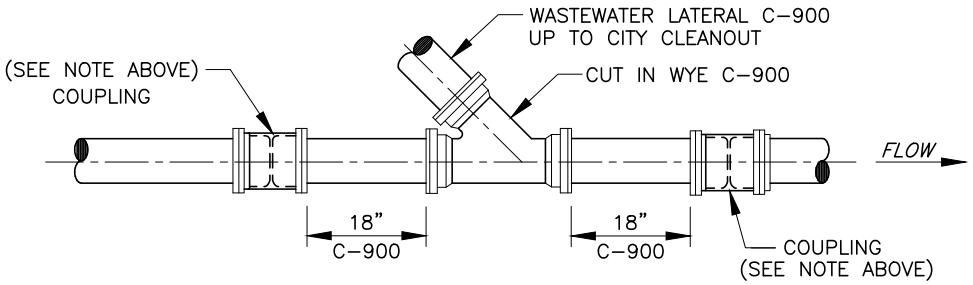


NOTES:

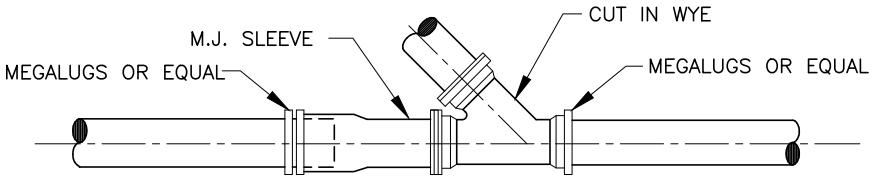
1. GRINDER PUMP CONNECTION SHALL CONSIST OF A CLEANOUT AND CAP.
2. PROPERTY OWNER SHALL BE REPONSIBLE FOR PRIVATE GRINDER STATION WITH CHECK VALVE & BALL VALVE AT CONNECTION POINT.
3. MINIMUM COVER IN UNPAVED AREAS SHALL BE 30" IN PAVED AREAS OR PLANNED ROADWAYS. SWALES MINIMUM COVER SHALL BE 36".
4. CLEANOUTS TO BE LOCATED IN GRASS AREA WHENEVER POSSIBLE.
5. CLEANOUTS SHALL NOT BE INSTALLED IN TRAFFIC LANES OR AREAS UNDER HEAVY TRAFFIC LOADS.
6. MINI MANHOLES ARE TO BE MADE IN USA, U.S. FOUNDRY NO. 7610. THE COVER SHALL BE MARKED "S".
7. STANDARD WYE SHALL BE USED AT CLEANOUT. NO 90° BENDS SHALL BE USED FOR CLEANOUT INSTALLATION.
8. FULL RANGE MARKER SHALL BE USED. FULL RANGE MARKER CANNOT TOUCH PIPE.
9. ALL FITTINGS SHALL BE SCHEDULE 40 PVC

NOTES:

1. COUPLINGS USED ON V.C.P. SHALL BE FERNCO WITH SHEAR BAND FOR BOTH VCP AND PVC AND SCREWS ALL STAINLESS STEEL.
2. COUPLINGS USED ON P.V.C. SHALL BE FERNCO WITH STAINLESS STEEL BANDS AND SCREWS.
3. FITTINGS USED ON D.I.P. SHALL BE M.J. EPOXY LINED.
4. ALL FITTINGS SHALL BE HARCO.

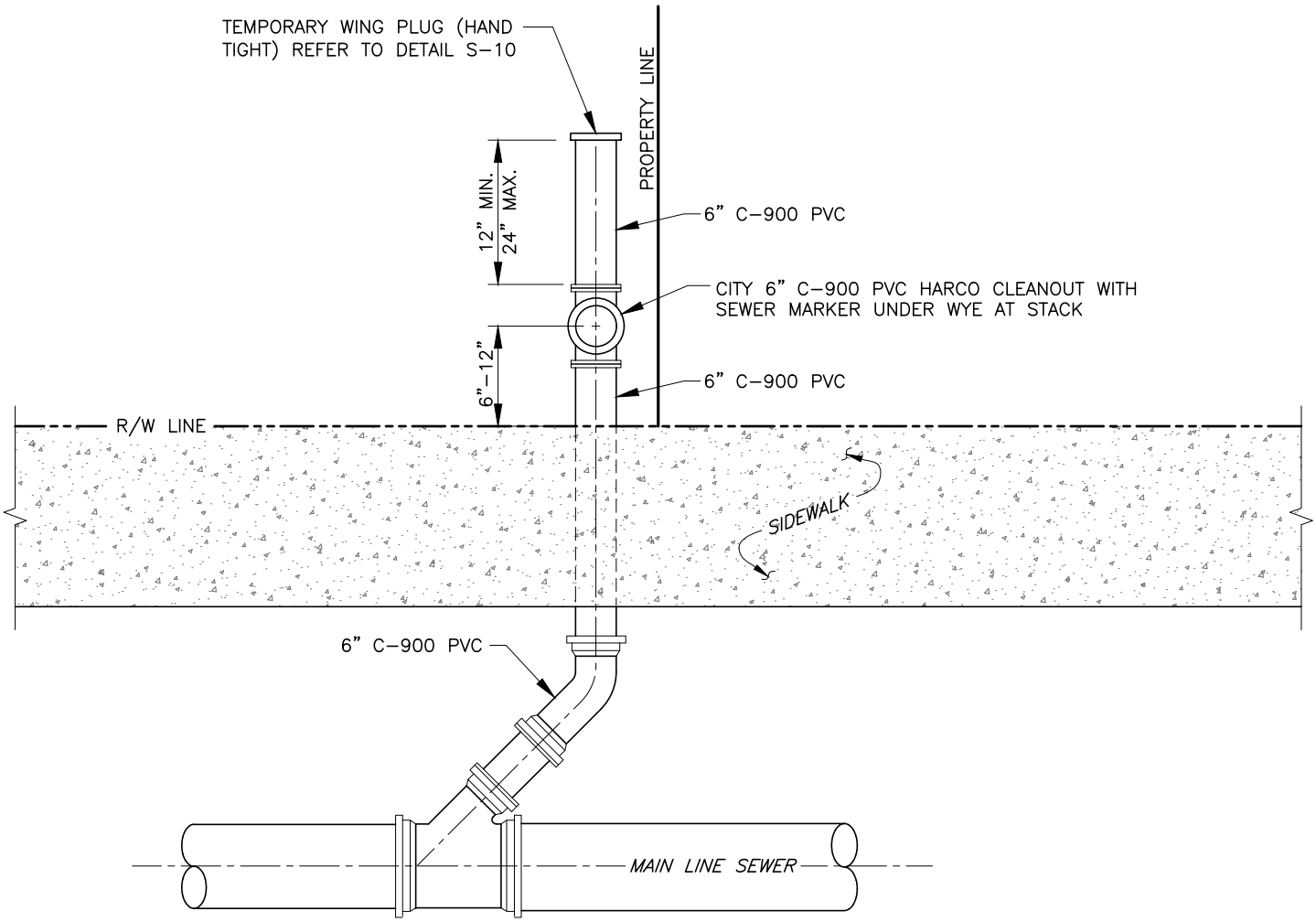


GRAVITY WASTEWATER MAIN



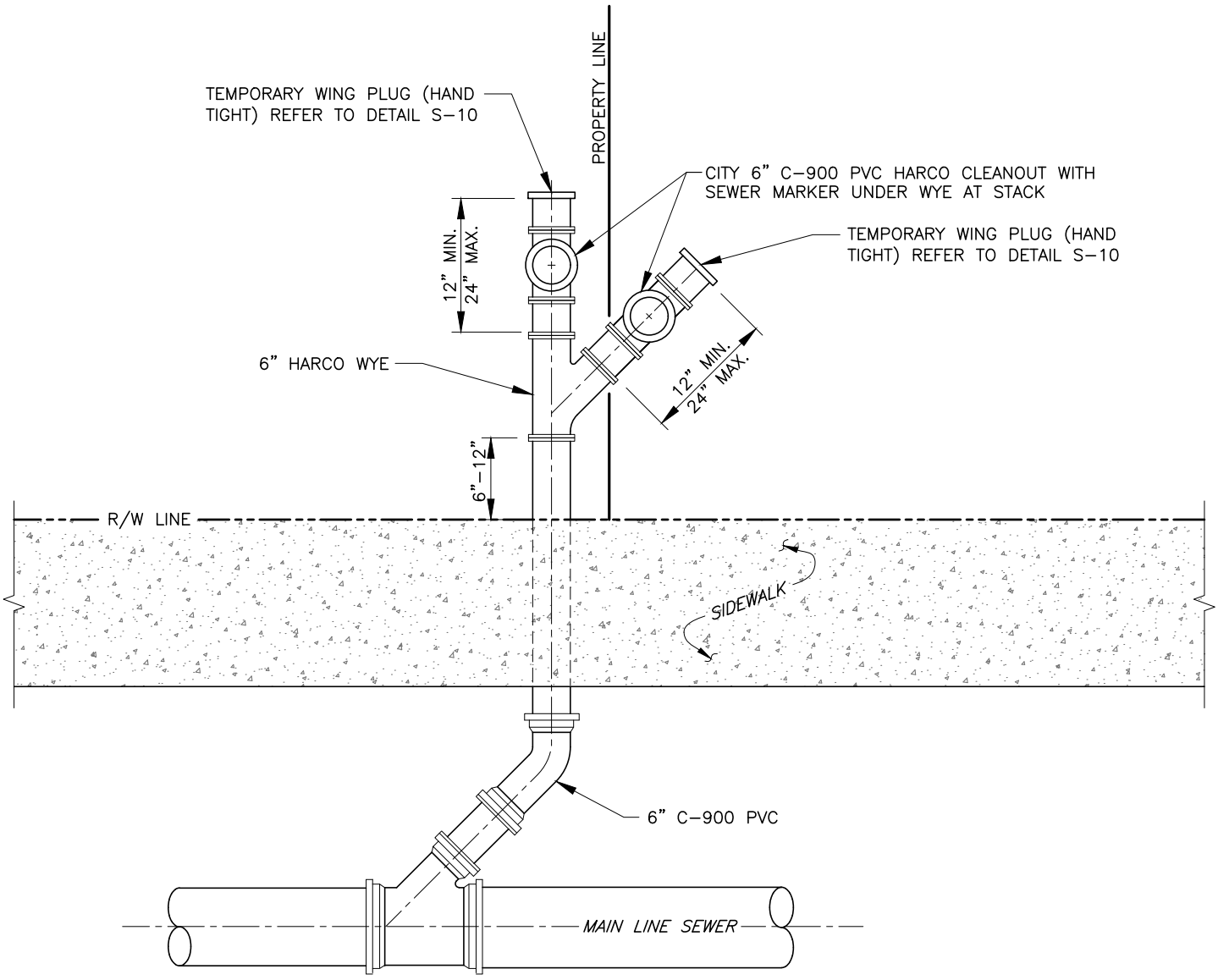
DUCTILE IRON-MECHANICAL JOINT (FORCE MAIN)

(MEGALUGS OR EQUAL ARE REQUIRED THROUGHOUT ASSEMBLY)



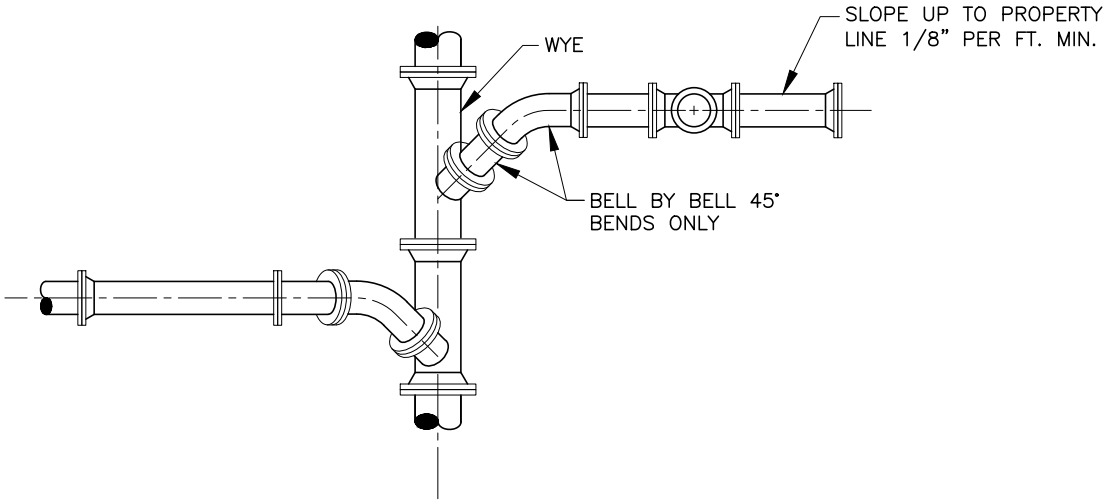
NOTES:

1. ALL PIPE FROM GRAVITY MAIN LINE WYE TO CLEANOUT MUST BE C-900 PVC/HARCO FITTINGS.
2. CLEANOUTS ARE TO BE SAME SIZE AS LATERAL PIPE.

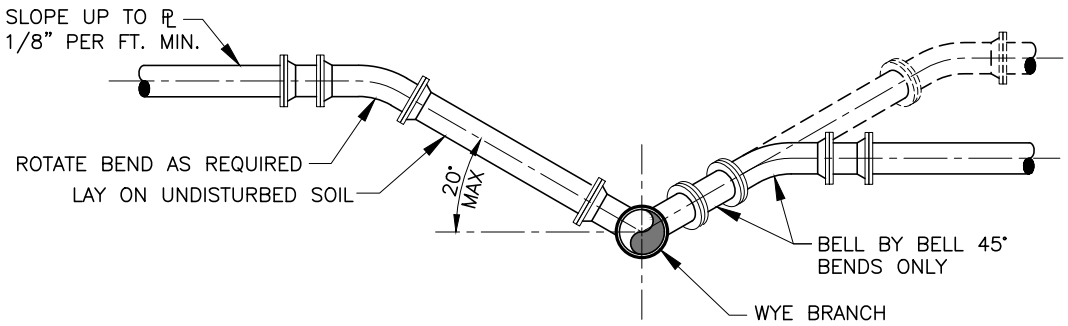


NOTES:

1. ALL PIPE FROM GRAVITY MAIN LINE WYE TO CLEANOUT MUST BE C-900 PVC/HARCO FITTINGS.
2. CLEANOUTS ARE TO BE SAME SIZE AS LATERAL PIPE.
3. FLIP WYE FROM LEFT TO RIGHT AT THE PROPERTY LINE AS REQUIRED FOR DOUBLE SERVICE.
4. SEE DETAIL S-10 FOR FINISH GRADE CLEANOUT CAP.



PLAN

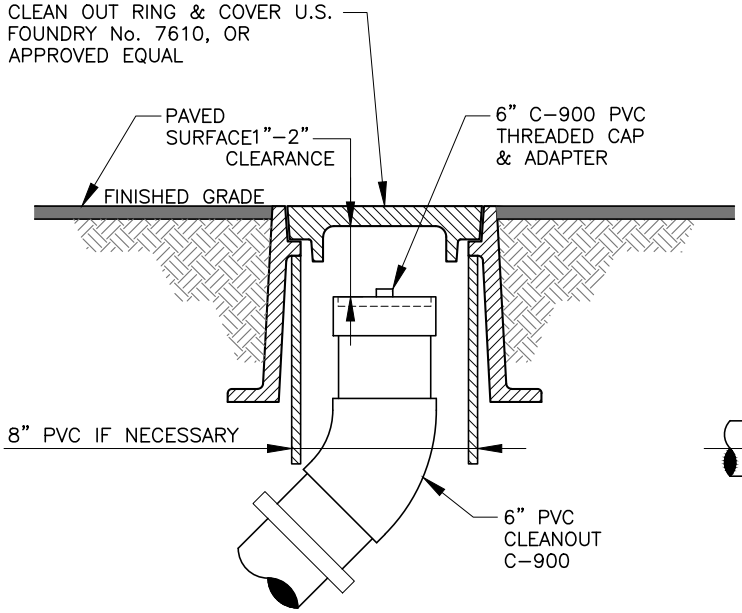


SECTION

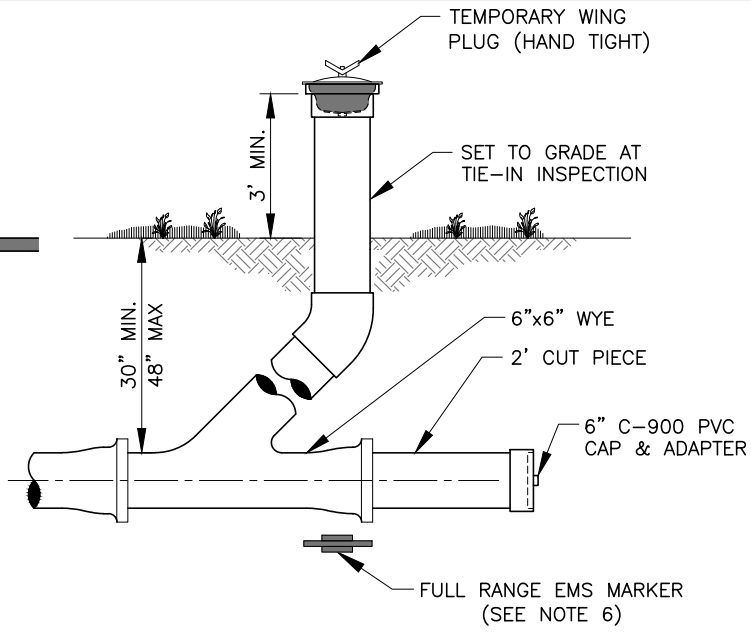
TYPICAL RISER CONNECTION

NOTES:

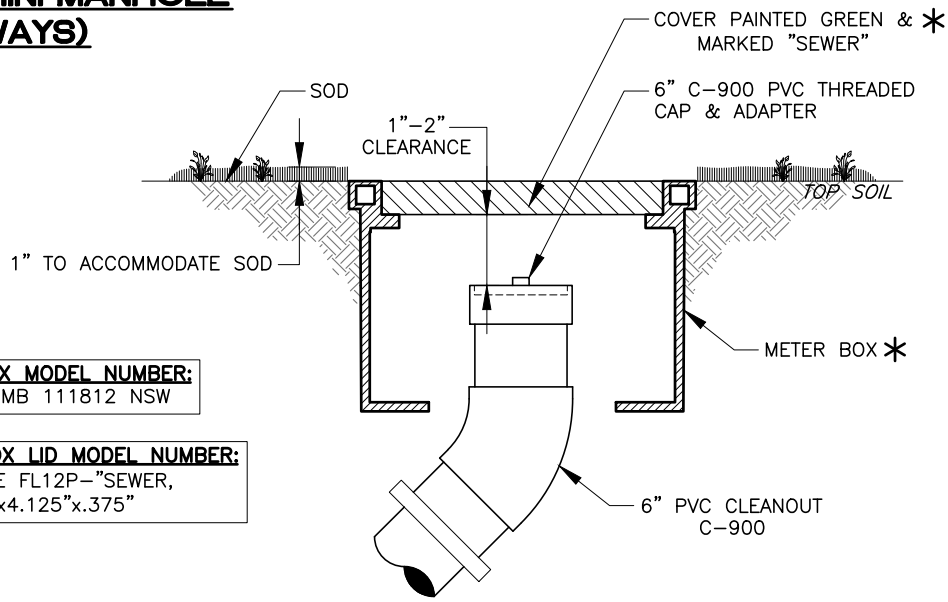
1. MODIFIED RISER CONNECTION TO BE USED ONLY WHEN DIRECTED BY THE CITY.
2. UNLESS OTHERWISE REQUIRED, SERVICE LATERALS SHALL TERMINATE AT A DEPTH OF 3 FEET TO THE INVERT.
3. ALL 45° BENDS BELL BY BELL.
4. EACH SERVICE CONNECTION SHALL BE PLUGGED WATERTIGHT WITH APPROVED PLUG.
5. ALL FITTINGS C-900 PVC HARCO.



CLEANOUT WITH MINI MANHOLE (IN DRIVEWAYS)



TEMPORARY CLEANOUT



* **METER BOX MODEL NUMBER:** SIGMA RMB 111812 NSW

* **METER BOX LID MODEL NUMBER:** OLDCASTLE FL12P–"SEWER, AMR–2.0"x4.125"x.375"

CLEANOUT IN GREEN AREAS

NOTES:

1. CLEANOUTS TO BE LOCATED IN GRASS AREA WHENEVER POSSIBLE.
2. CLEANOUTS SHALL NOT BE INSTALLED IN TRAFFIC LANES OR AREAS UNDER HEAVY TRAFFIC LOADS.
3. MINI MANHOLES SHALL BE INSTALLED IN DRIVEWAYS & ARE TO BE MADE IN USA, U.S. FOUNDRY No. 7610. THE COVER SHALL BE MARKED "S".
4. STANDARD WYE SHALL BE USED AT CLEANOUT. NO 90° BENDS SHALL BE USED FOR CLEANOUT INSTALLATION.
5. THE DEVELOPER/PROPERTY OWNER OR ASSIGNEE SHALL BE RESPONSIBLE FOR CLEANOUT INSTALLATION & TIE–IN INSPECTION PRIOR TO WATER METER INSTALLATION AS SPECIFIED BY THE DEPARTMENT.
6. FULL RANGE MARKER SHALL BE USED. FULL RANGE MARKER CANNOT TOUCH PIPE.
7. ALL FITTINGS SHALL BE C–900 PVC HARCO.

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

TYPICAL CLEANOUT INSTALLATION

NOT TO SCALE | EFF. DATE 05/24

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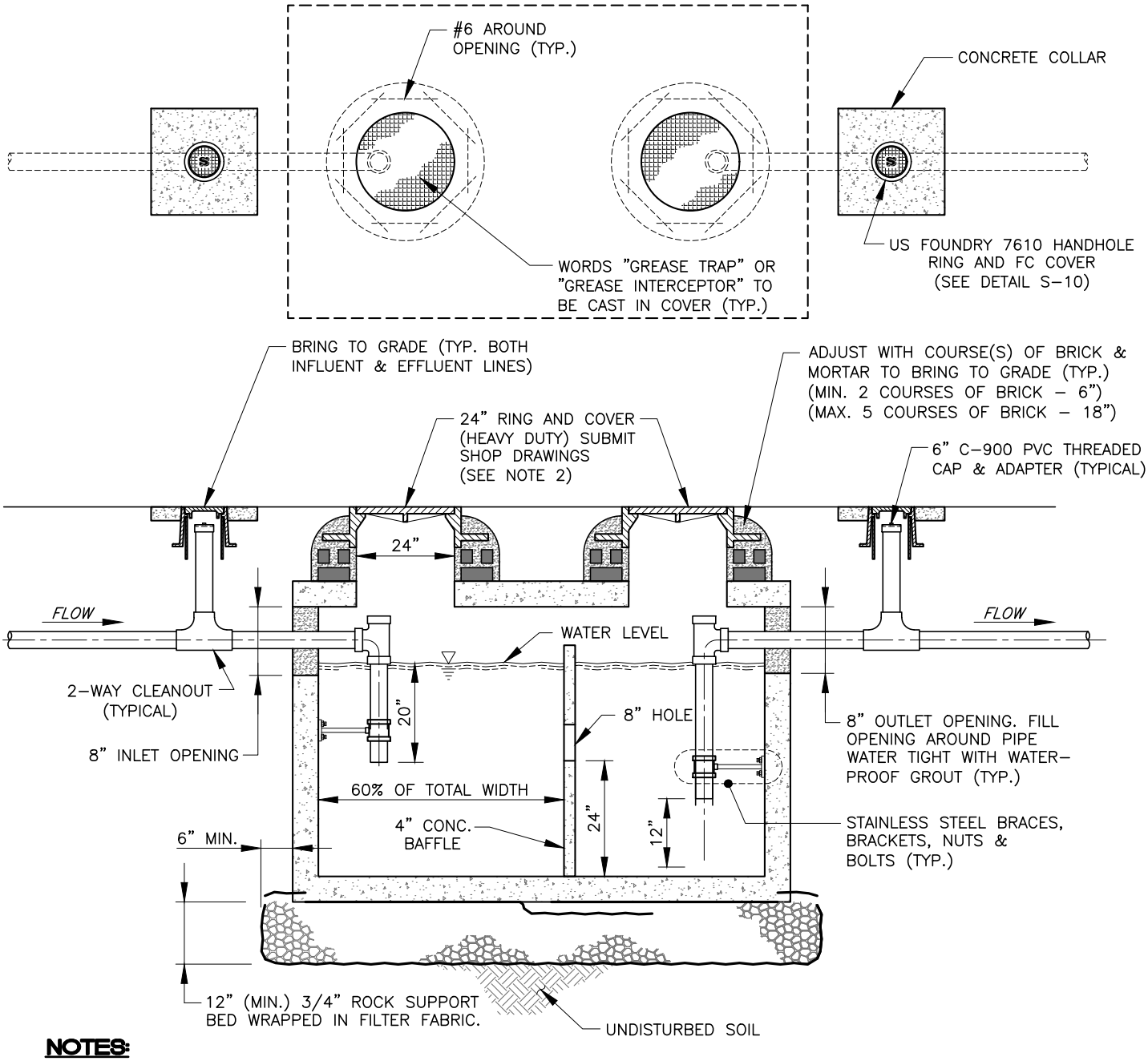
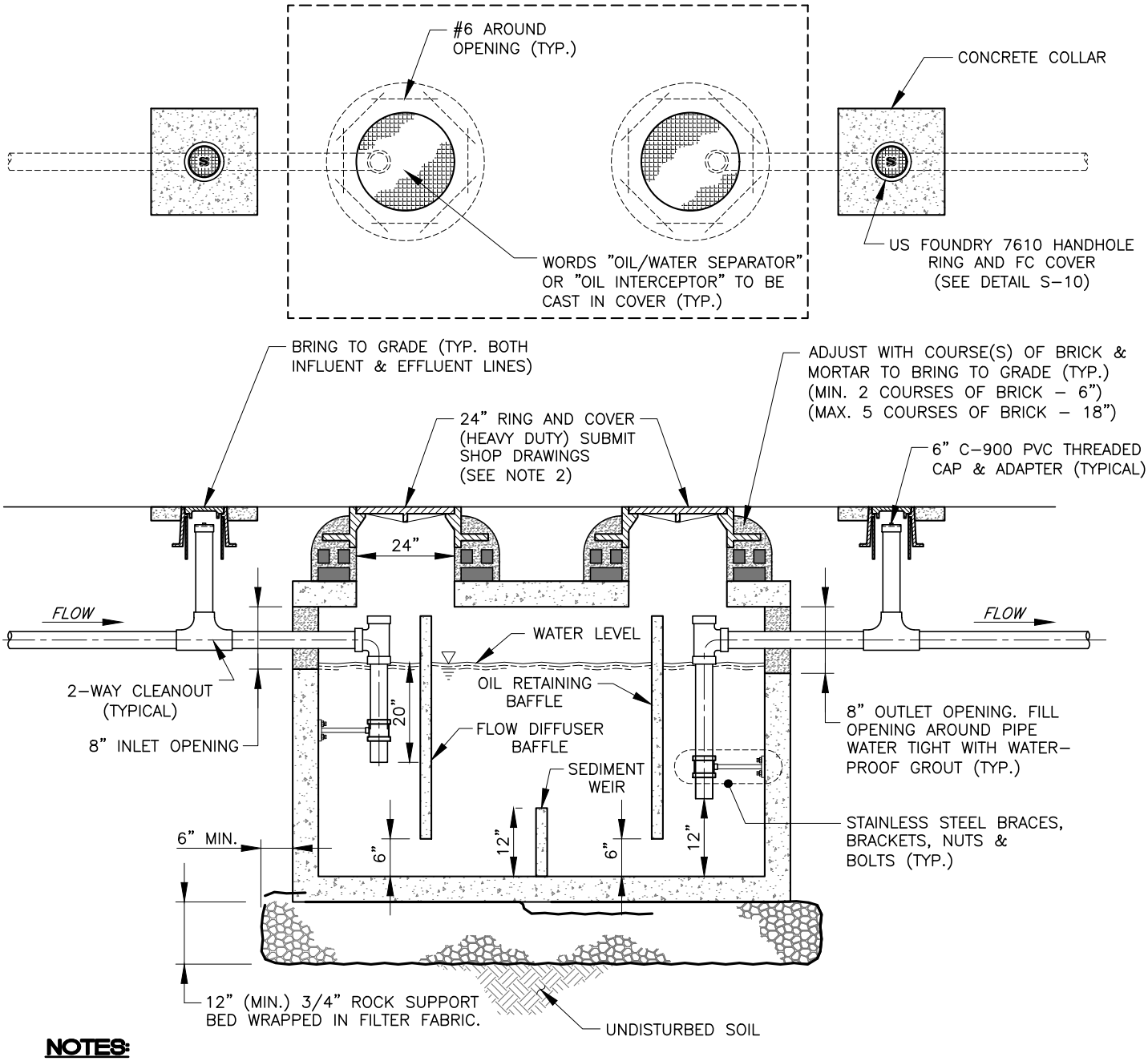


NOTES:

1. SHOP DRAWINGS FOR PRECAST TANKS SHALL BEAR THE FOLLOWING STATEMENT: THIS CONCRETE STRUCTURE MEETS OR EXCEEDS ALL THE REQUIREMENTS FOR GREASE INTERCEPTORS/SEPTIC TANKS PER THE FLORIDA ADMINISTRATIVE CODE CHAPTERS 10D-6 AND 10D-9, AND CITY SPECIFICATIONS AND STANDARDS. THE SHOP DRAWINGS (3 COPIES MINIMUM) SHALL THEN BE SIGNED & SEALED BY THE ENGINEER-OF-RECORD & FORWARDED TO THE DEPARTMENT FOR APPROVAL.
2. TRAFFIC BEARING LIDS ARE REQUIRED IN PAVED AREAS (US FOUNDRY 170 RING & E COVER HEAVY DUTY COVER OR APPROVED EQUAL).
3. THE OIL AND GREASE INTERCEPTOR SHALL BE A 1,250 GALLON CONCRETE STRUCTURE.
4. OTHER DESIGNS MAY BE USED UPON SUBMITTAL, REVIEW AND APPROVAL OF SHOP DRAWINGS BY THE DEPARTMENT.
5. OIL AND GREASE INTERCEPTOR SHALL BE PROVIDED WITH INSPECTION PORTS WHICH ARE EASILY ACCESSIBLE FOR CLEANING, INSPECTION & SAMPLING.
6. THE INTERCEPTOR SHALL BE LOCATED IN GRASS/NON-TRAFFIC AREA WHENEVER POSSIBLE.
7. SIZE AND CAPACITY OF INTERCEPTOR TO BE APPROVED BY PALM BEACH COUNTY HEALTH DEPARTMENT IF DISCHARGE IS TO A DRAINFIELD.
8. GREASE TRAP EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.

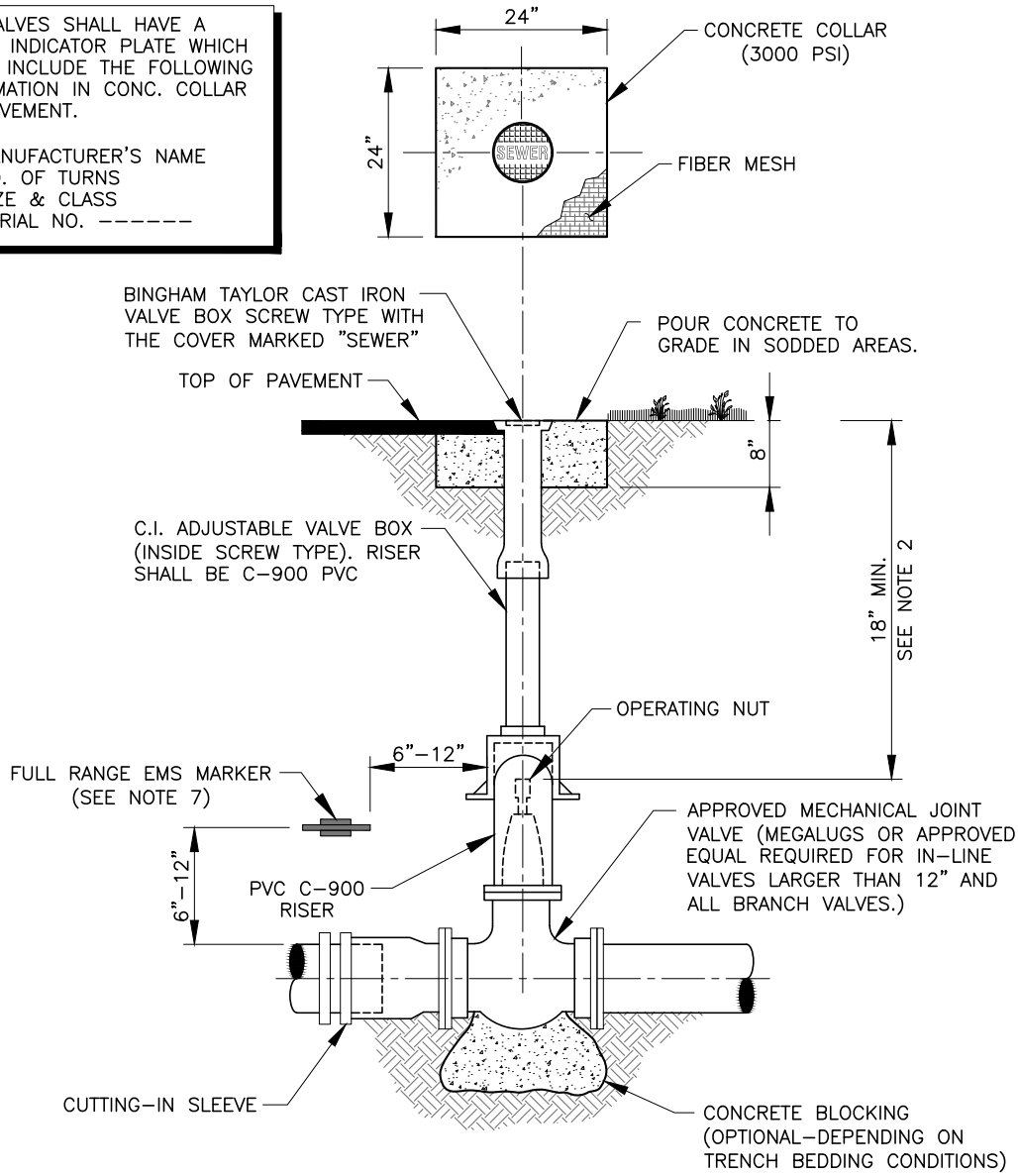


NOTES:

1. SHOP DRAWINGS FOR PRECAST TANKS SHALL BEAR THE FOLLOWING STATEMENT: THIS CONCRETE STRUCTURE MEETS OR EXCEEDS ALL THE REQUIREMENTS FOR OIL/WATER SEPARATOR PER THE FLORIDA ADMINISTRATIVE CODE CHAPTERS 10D-6 AND 10D-9, AND CITY SPECIFICATIONS AND STANDARDS. THE SHOP DRAWINGS (3 COPIES MINIMUM) SHALL THEN BE SIGNED & SEALED BY THE ENGINEER-OF-RECORD & FORWARDED TO THE DEPARTMENT FOR APPROVAL.
2. TRAFFIC BEARING LIDS ARE REQUIRED IN PAVED AREAS (US FOUNDRY 170 RING & E COVER HEAVY DUTY COVER OR APPROVED EQUAL).
3. THE OIL/WATER SEPARATOR SHALL BE SIZED PER THE EMP DESIGN CALCULATIONS.
4. OTHER DESIGNS MAY BE USED UPON SUBMITTAL, REVIEW AND APPROVAL OF SHOP DRAWINGS BY THE DEPARTMENT.
5. OIL/WATER SEPARATOR SHALL BE PROVIDED WITH INSPECTION PORTS WHICH ARE EASILY ACCESSIBLE FOR CLEANING, INSPECTION & SAMPLING.
6. THE SEPARATOR SHALL BE LOCATED IN GRASS/NON-TRAFFIC AREA WHENEVER POSSIBLE.
7. OIL/WATER SEPARATOR EXTERIOR PROTECTION SHALL CONSIST OF THE USE OF CARBOLINE (KOPPERS) BITUMASTIC 300M (OR APPROVED EQUAL). THE FIRST COAT IN THE COLOR GRAY OR RED & THE SECOND COAT BEING THE COLOR BLACK.

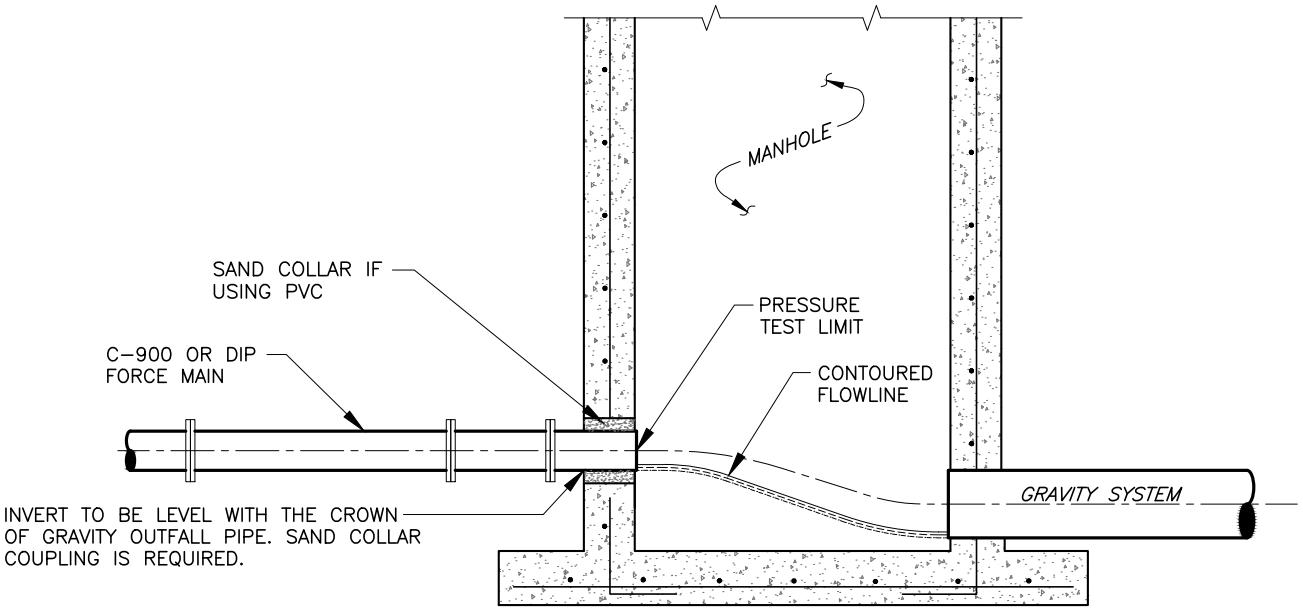
ALL VALVES SHALL HAVE A BRASS INDICATOR PLATE WHICH SHALL INCLUDE THE FOLLOWING INFORMATION IN CONC. COLLAR OR PAVEMENT.

1. MANUFACTURER'S NAME
2. NO. OF TURNS
3. SIZE & CLASS
4. SERIAL NO. ------



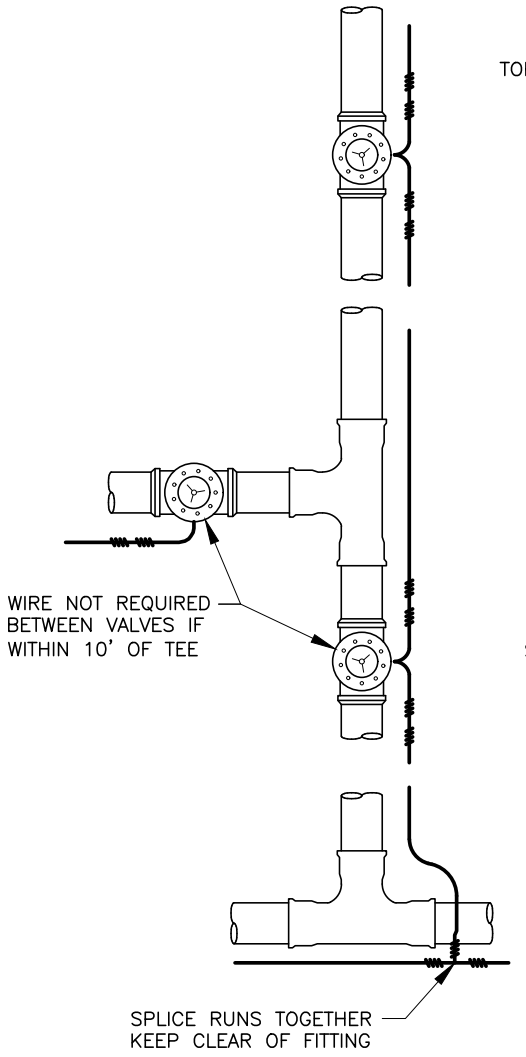
NOTES:

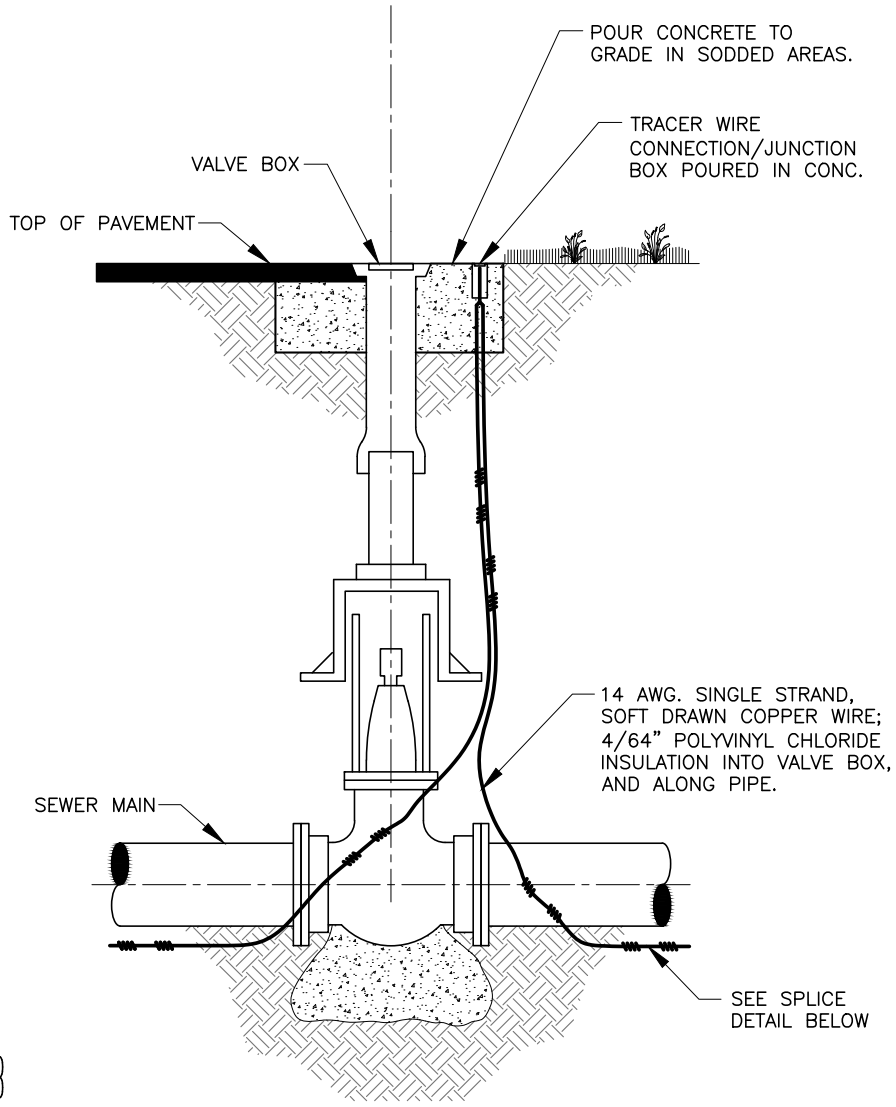
1. CONCRETE COLLAR IS NOT REQUIRED IN PAVED AREAS IF PAVEMENT SURFACE IS FINISHED PRIOR TO CONDITIONAL FINAL INSPECTION.
2. WHEN OPERATING NUT IS DEEPER THAN 36" AN EXTENSION WILL BE REQUIRED TO BRING OPERATING NUT 24"-30" BELOW FINISHED GRADE. EXTENSION BOLTS & NUTS ARE TO BE 316 STAINLESS STEEL. A HIGH STRENGTH STEEL CENTERING PLATE, WELDED TO THE EXTENSION, IS ALSO REQUIRED.
3. VALVE BOXES SHALL HAVE COVERS MARKED "SEWER".
4. EXTENSION VALVE BOX TO BE DIP. RISER SHALL BE C-900 PVC.
5. A CUT-IN INSTALLATION SHALL REQUIRE MEGALUGS OR EQUAL THROUGHOUT ASSEMBLY.
6. AT DEAD END OR WHERE MAIN LINES CHANGE DIRECTION, VALVES SHALL BE RESTRAINED USING "MEGALUGS", TIE RODS, OR OTHER APPROVED RESTRAINT BY DEPARTMENT.
7. FULL RANGE MARKER SHALL BE USED. FULL RANGE MARKER CANNOT TOUCH PIPE.
8. COVER WILL BE DETERMINED BY 18" COVER TO TOP OF VALVE OPERATING NUT.



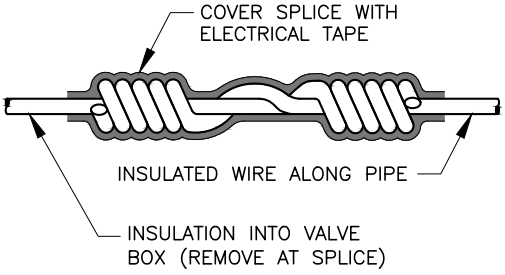
NOTES:

1. FORCE MAIN TO ENTER MANHOLE AS CLOSE AS POSSIBLE TO 180° TO GRAVITY OUTLET WHENEVER POSSIBLE.
2. THE INVERT LEVEL OF FORCE MAIN AT POINT OF ENTRY SHALL BE A MINIMUM 6" ABOVE INVERT OF MANHOLE.
3. CORE ENTRY ONLY INTO EXISTING MANHOLES.
4. FLOW CHANNEL REQUIRED. WITH BRICK RUBBLE & MORTAR TO BUILD UP FLOW CHANNEL.
5. MANHOLE AND FLOW CHANNEL TO BE COATED WITH THOROC, SEWPERCOAT, STRONG SEAL OR APPROVED EQUAL.
6. ALL CUT DIP PIPE MUST BE COATED WITH PROTECTO 401 AT CUT ENDS.





TYPICAL LAYOUT



SPLICE DETAIL

NOTES:

1. WIRE TO BE CONTINUOUS BETWEEN VALVE BOXES, EXCEPT AS NOTED.
2. LOCATING WIRE TO BE LAID AT BOTTOM OF TRENCH, NEXT TO PIPE.
3. LOCATING WIRE SHALL BE 14 AWG. SINGLE STRAND, SOFT DRAWN COPPER WIRE; 4/64" POLYVINYL CHLORIDE INSULATION INTO VALVE BOX AND ALONG PIPE.

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

SEWER MAIN LOCATING WIRE DETAIL FOR NON-METALLIC PIPE

NOT TO SCALE | EFF. DATE 05/24

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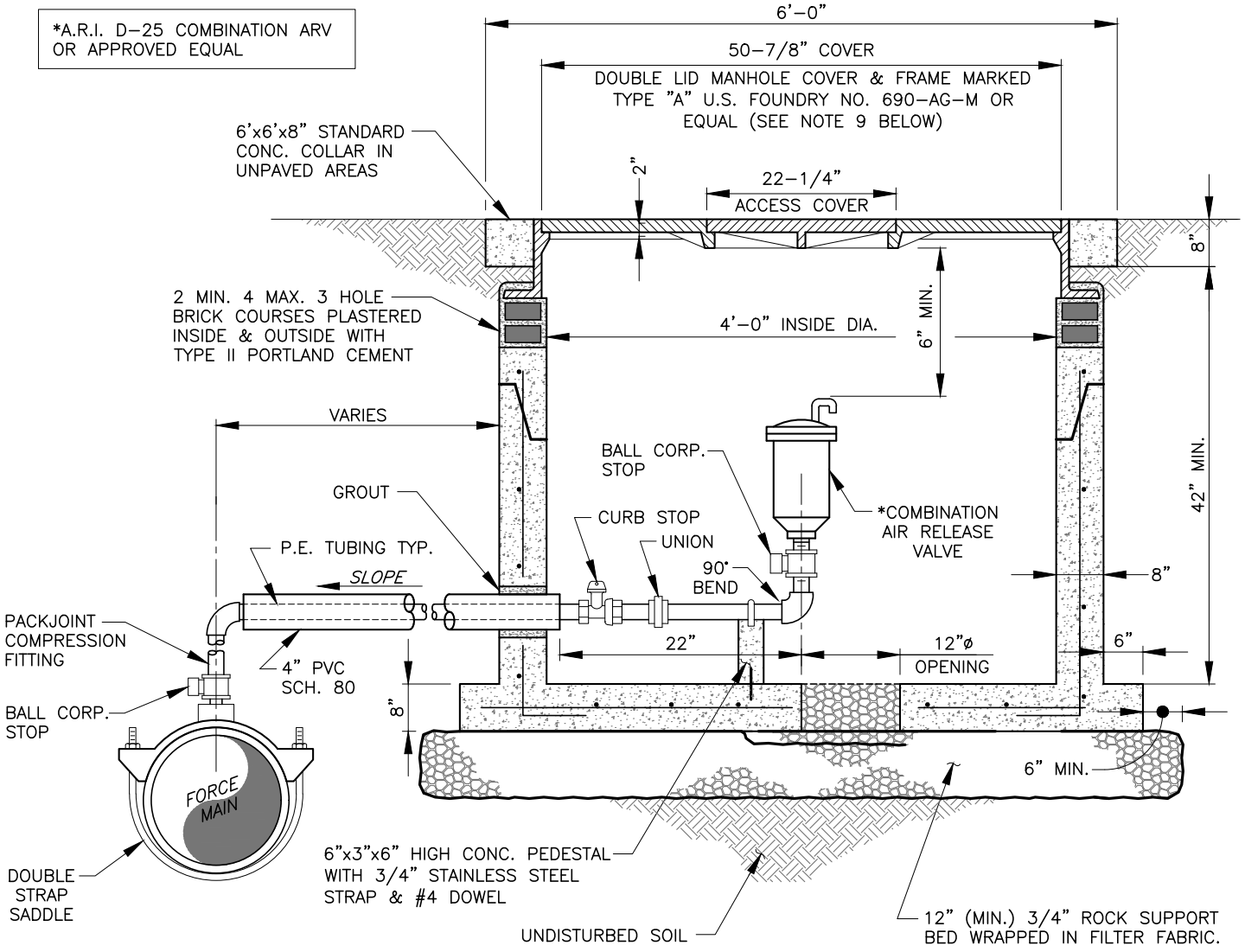
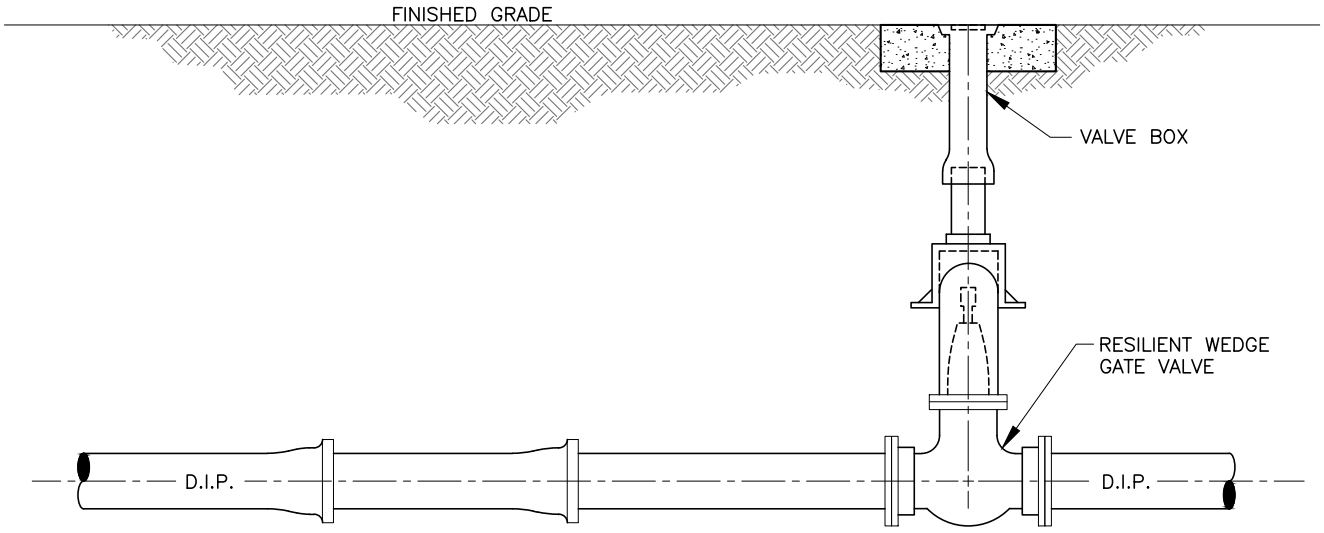


NOTES:

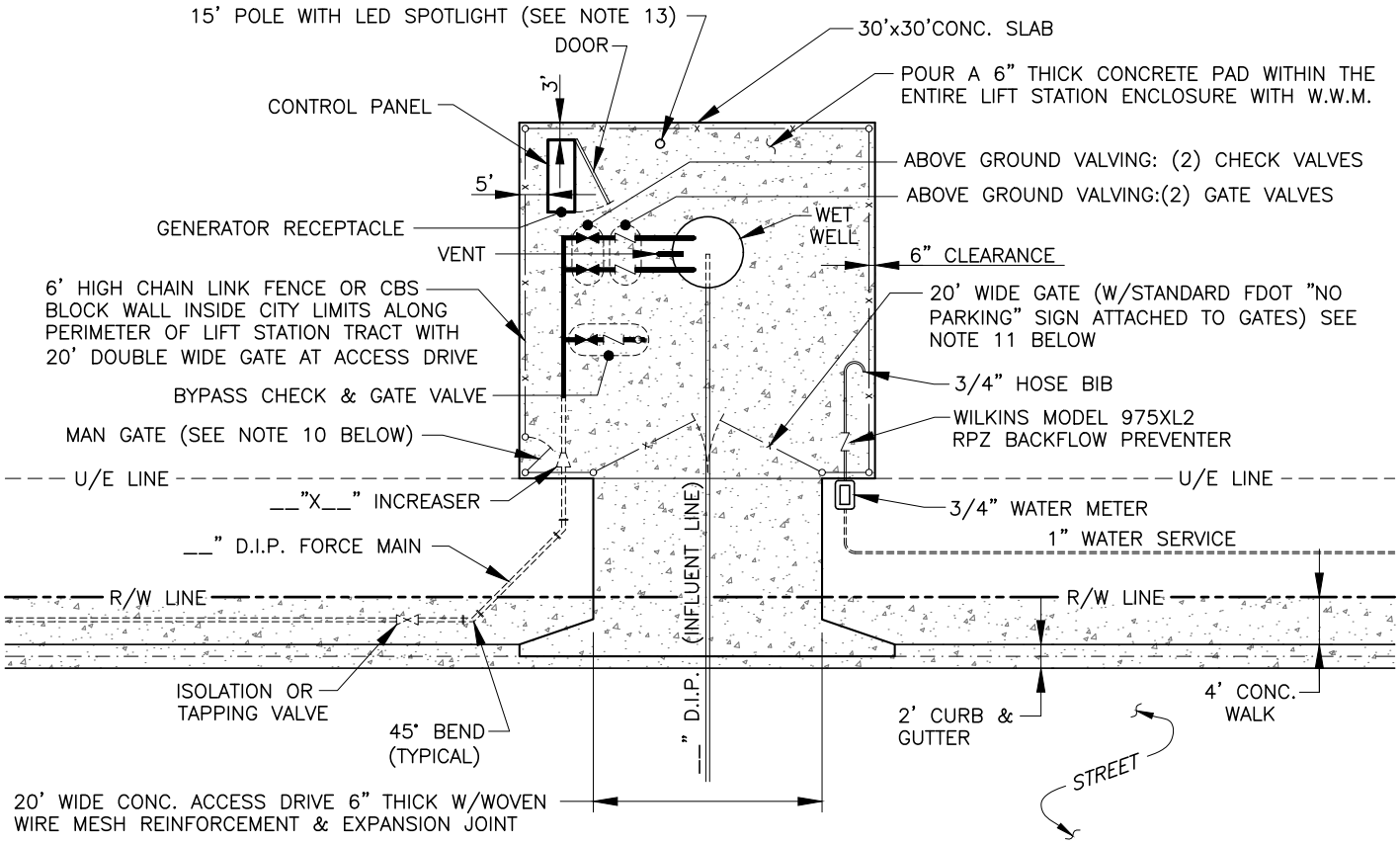
1. PRECAST CONCRETE TYPE # 4000 P.S.I.
2. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
3. LIFT HOLES ARE PERMITTED.
4. MANHOLE FABRICATION SHALL BE IN ACCORDANCE WITH A.S.T.M. C-478 LATEST STANDARD.
5. PAINT OUTSIDE OF MANHOLE WITH 2 COATS OF AN APPROVED PROTECTIVE COATING. (MIN. 10 MIL D.F.T. PER COAT).
6. MANHOLE INTERIOR PROTECTION SHALL CONSIST OF THE FOLLOWING APPROVED PROCESSES; THOROC, MAINSTAY, SEWPERCOAT, STRONG SEAL OR REFRATTA HAC 100 COATING APPLIED IN THE FIELD.
7. CONCRETE COLLAR REQUIRED WHEN MANHOLE IS OUTSIDE PAVEMENT, SEE NOTATION ABOVE.
8. ALL PIPE HOLES SHALL BE PRECAST OR CORE-DRILLED.
9. ALL OPENINGS SHALL BE SEALED WITH A WATERPROOF NON-SHRINKING GROUT.
10. BOXES SHALL NOT BE INSTALLED IN ROADWAYS OR DRIVEWAYS AND SHALL BE INSTALLED FLUSH WITH THE FINISH GRADE SURFACE.
11. AIR RELEASE VALVE SHALL BE TYPE AND SIZE APPROPRIATE.
12. AIR RELEASE VALVE & PIPING TO BE IDENTIFIED AS "FORCE MAIN ARV" STAMPED ON THE LID.
13. ALL PIPE AND FITTINGS INSIDE VAULT TO BE STAINLESS STEEL.
14. THREADED AREAS OF BALL CORP. STOP AND OTHER FITTINGS SHALL BE SPIRAL WRAPPED WITH TWO WRAPS OF TEFLON TAPE
15. STANDARD DESIGN FOR ALL EASEMENT AREAS & RIGHT-OF-WAY.



NOTES:

1. UPON COMPLETION OF THE PIPE INSTALLATION FOR ANY SECTION, THE MAINS SHALL BE SWABBED TO REMOVE DIRT AND ANY OTHER FOREIGN MATTER BY ACHIEVING A MINIMUM VELOCITY OF 2.5 FEET PER SECOND IN THE PIPE. TEMPORARY FITTINGS, PIPE, ETC. MAY BE NEEDED TO FACILITATE FLUSHING.
2. INSTALL A WYE AND ASSOCIATED PIPING AS SHOWN TO DIRECT THE FLUSHING WATER AWAY FROM THE IMMEDIATE WORK AREA AND EXERCISE DUE CARE SO AS TO ENSURE THAT THE WATER USED IN FLUSHING DOES NOT CAUSE A NUISANCE OR INFLICT PROPERTY DAMAGE.
3. BENDS AND PIPING SHALL BE THE SAME SIZE AS THE LINE TO BE FLUSHED.
4. PRIOR TO THE ACTUAL LINE FLUSHING OPERATION, THE CONTRACTOR SHALL PROPERLY NOTIFY THE DEPARTMENT INSPECTOR OF SUCH INTENDED WATER USE.
5. NO EXISTING VALVES SHALL BE TURNED ON OR OFF, EXCEPT BY AUTHORIZED DEPARTMENT PERSONNEL.
6. FLUSHING SHALL NOT BE ACCOMPLISHED WITHOUT THE ACTUAL PRESENCE OF THE DEPARTMENT INSPECTOR.
7. AFTER THE LINE UNDER CONSTRUCTION HAS BEEN SUCCESSFULLY FLUSHED THE CONTRACTOR SHALL CAP THE WYE AND PROCEED WITH THE REMAININ CONSTRUCTION AS SPECIFIED.
8. THERE MAY BE SPECIAL REQUIREMENTS FOR FLUSHING PIPE LARGER THAN 12" DIAMETER.
9. ALL FITTINGS TO BE MECHANICAL JOINT WITH MEGALUG JOINT RESTRAINT.

THIS DRAWING DEPICTS A GENERAL SITE PLAN ONLY. THE ENGINEER OF RECORD SHALL COORDINATE THE SPECIFIC SITE PLAN REQUIREMENTS WITH THE DEPARTMENT.



LIFT STATION SITE DETAIL

NOTES:

1. ENTRANCE ROAD TO BE MINIMUM 20' WIDE CONCRETE AND CONFORM TO FDOT SPECIFICATIONS.
2. PROVIDE TWO (2) 10' FOOT WIDE SWING OPEN GATES AT THE ENTRANCE DRIVE AND A 36" WALK-IN GATE.
3. PROVIDE A 1" COPPER (TYPE K) WATER SERVICE LINE WITH A REDUCED PRESSURE BACKFLOW PREVENTION DEVICE LOCATED INSIDE FENCE.
4. CONCRETE PAD TO BE 6" THICK WITH 6"X 6" X W1.4 X W1.4 W.W.F.
5. THE CHAIN LINK FABRIC SHALL BE HOT-DIPPED STAINLESS STEEL AFTER GREEN OR BLACK WEAVING. THE SIZE OF MESH SHALL BE 2 INCHES PRIOR TO COATING AND THE WIRE SHALL BE 9 GAUGE; FABRIC HEIGHT SHALL BE 72 INCHES. INSIDE CITY LIMITS, CHAINLINK FENCE IS NOT ALLOWED. USE CBS BLOCK WALL.
6. ALL POSTS, RAILS, & APPURTENANCES SHALL BE HOT-DIPPED GREEN OR BLACK VINYL COATING ZINC-COATED STEEL. PIPE POSTS SHALL HAVE TOPS WHICH EXCLUDE MOISTURE. END, CORNER, PULL AND GATE POSTS SHALL BE BRACED WITH THE SAME MATERIAL AS TOP RAIL & TRUSSED TO LINE POSTS WITH 3/8" RODS AND TIGHTENERS.
7. TOP AND BOTTOM RAIL SHALL BE 1-5/8" OD STANDARD WEIGHT PIPE, 2.27 lbs. PER FT., INTERMEDIATE POSTS SHALL BE 2" OD STANDARD WEIGHT PIPE, 2.27 lbs. PER FT. AND POSTS FOR SWING GATES SHALL BE 4" OD STANDARD WEIGHT PIPE, 9.11 lbs. PER FT.
8. POSTS WHICH COME IN CONTACT WITH CONCRETE TO BE COATED WITH KOPPERS 300-M OR APPROVED EQUAL.
9. DISCHARGE PIPING SUBJECT TO CHANGE TO BEST SUIT SPECIFIC SITE PLAN. EMERGENCY BYPASS TO FACE FRONT OF STATION.
10. WALK-IN MAN GATE PLACEMENT OPTIONAL & TO BE DETERMINED DURING DESIGN.
11. SWING GATES OR ROLLING GATES TO BE DETERMINED DURING DESIGN.
12. THE ENGINEER OF RECORD SHALL COORDINATE WITH THE UTILITIES DEPT. TO DETERMINE WHETHER A BYPASS PUMP OR EMERGENCY GENERATOR LAYOUT SHOULD BE DESIGNED PER SHEET S-18A.
13. INSTALL LED 78W AREA LIGHT. PRODUCT ALED3T78W, COLOR BRONZE TYPE III BY RAB LIGHTING OR APPROVED EQUAL, MOUNTED TO 4" SQUARE STEEL POLE, COLOR BRONZE, AT 15'.

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

TYPICAL LIFT STATION SITE PLAN

NOT TO SCALE | EFF. DATE 05/24

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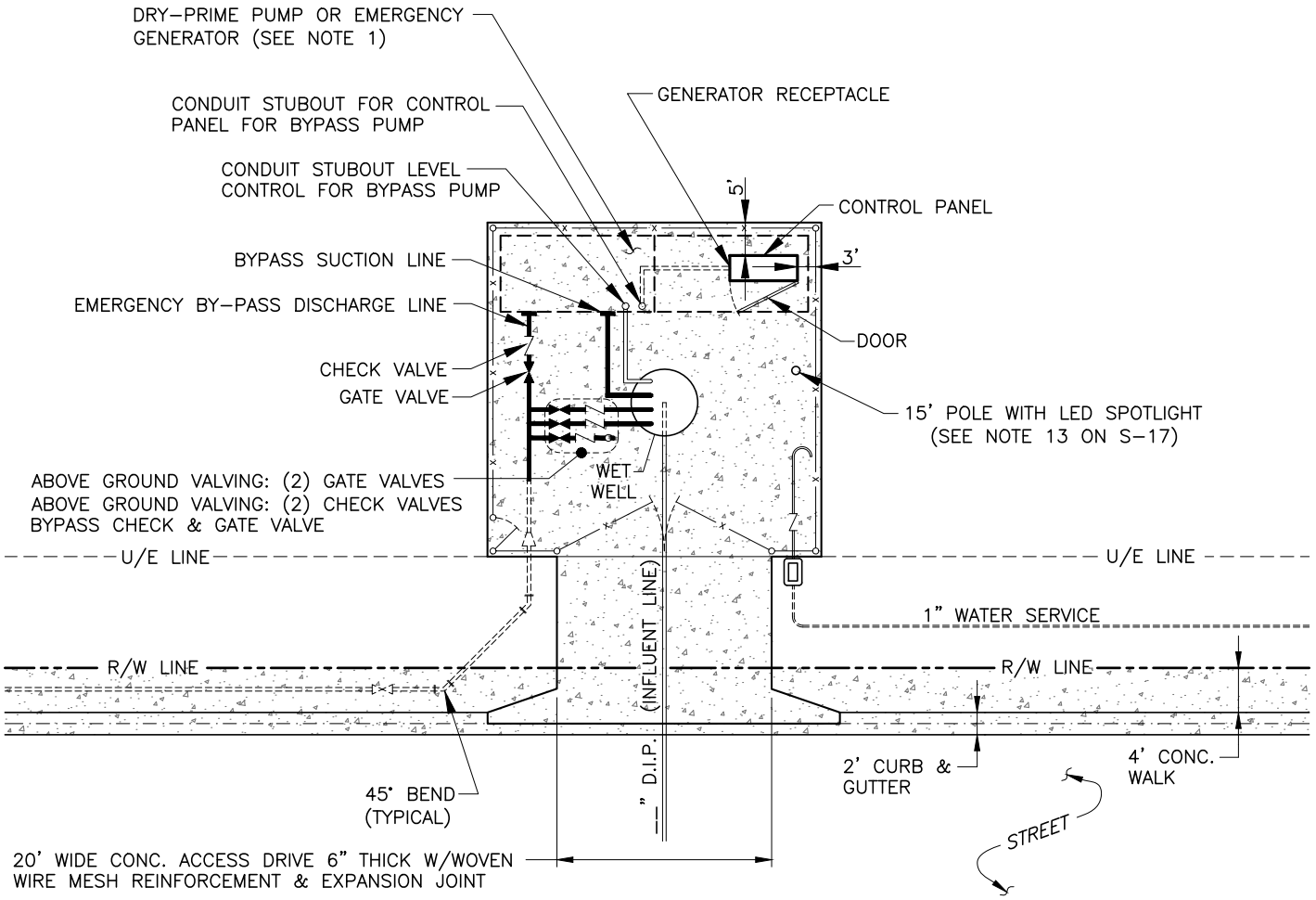
THIS DRAWING DEPICTS A GENERAL SITE PLAN ONLY. THE ENGINEER OF RECORD SHALL COORDINATE THE SPECIFIC SITE PLAN REQUIREMENTS WITH THE DEPARTMENT.



LIFT STATION SITE DETAIL

NOTES:

1. THE ENGINEER OF RECORD SHALL COORDINATE WITH THE UTILITIES DEPT. TO DETERMINE WHETHER A DRY–PRIME PUMP OR EMERGENCY GENERATOR LAYOUT SHOULD BE DESIGNED.
2. COST OF THE DRY–PRIME PUMP OR EMERGENCY GENERATOR SHALL BE THE DEVELOPER'S RESPONSIBILITY
3. SEE SHEET S–18 FOR ALL OTHER LIFT STATION SITE DETAILS AND NOTES.

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION SITE PLAN
WITH BYPASS PUMP OR STAND BY GENERATOR

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S–17A

NOTES:

A. ENGINEER SHALL DESIGN SITE PLAN USING THE "TYPICAL LIFT STATION SITE PLAN DETAIL". "SITE PLAN LOCATION" DETAIL SHALL BE DRAWN TO SCALE NOT SMALLER THAN 1"= 10' WITH:

1. NORTH ARROW, STREET NAME.
2. FENCE WITH 2–10' WIDE GATES.
3. INFLUENT LINE ENTRY LOCATION WITH MANHOLE AND GRAVITY MAIN DATA.
4. HINGE LOCATION (HINGES FOR WETWELL COVER MUST BE LOCATED ON THE FORCE MAIN EXIT SIDE.
5. POWER SERVICE FEED (WITH "AS–BUILTS").
6. EMERGENCY PUMP OUT LOCATION (SHALL BE SAME SIZE AS PUMP DISCHARGE).

B. 38"–42" FROM PANEL CABINET TO WETWELL OPENING.

C. DESIGN TO BE COORDINATED WITH "TYPICAL LIFT STATION PLAN DETAIL".

D. FENCED AREA TO BE COVERED WITH 2 PLY 40 MIL VISQUEEN AND A 4" CONCRETE PAD WITH 6X6XW1.4XW1.4 W.W.M. – BROOM FINISH REQUIRED. CONCRETE PAD TO EXTEND 6" BEYOND FENCED AREA.

E. INFLUENT MAIN SHALL BE CLEAR OF ALL OTHER SYSTEM APPURTENANCES.

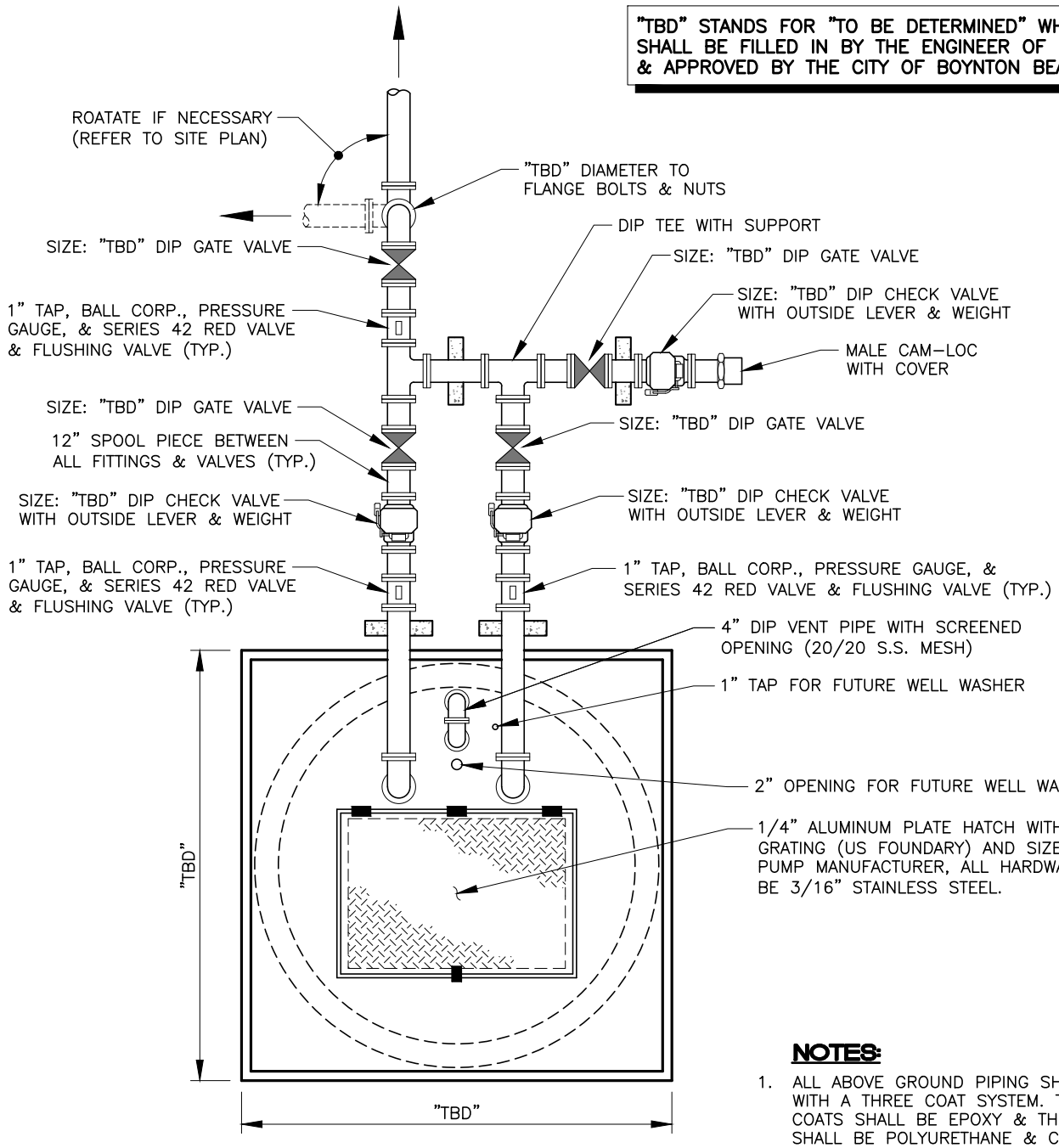
F. IF DEVELOPER/SUCCESSOR DESIRES TO LANDSCAPE AREA ADJACENT TO LIFT STATION SITE, A PLAN MUST BE APPROVED BY THE DEPARTMENT PRIOR TO PLANT INSTALLATION. ONLY HEDGES WITH NON–AGGRESSIVE ROOT SYSTEMS WILL BE APPROVED. MIN. 3 FEET FROM FENCE TO BUSHES IS REQUIRED. THE DEVELOPER/SUCCESSOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF THE LANDSCAPING.

G. A PLATTED LIFT STATION EASEMENT OR EXCLUSIVE CITY OF BOYNTON BEACH UTILITY EASEMENT TO COVER AREA WHICH SHALL NOT BE LESS THAN 30' X 30'.

H. ALL EXPOSED (NOT BURIED) JOINTS SHALL BE FLANGED. BURIED JOINTS SHALL BE MECHANICAL JOINT TYPE WITH MEGALUGS OR EQUAL.

I. DEVELOPER/CONTRACTOR TO FURNISH A SPARE PARTS LIST AS REQUIRED IN HANDBOOK SEC. VI. E. 7. V. (PAGE 3–23)

"TBD" STANDS FOR "TO BE DETERMINED" WHICH SHALL BE FILLED IN BY THE ENGINEER OF RECORD & APPROVED BY THE CITY OF BOYNTON BEACH.



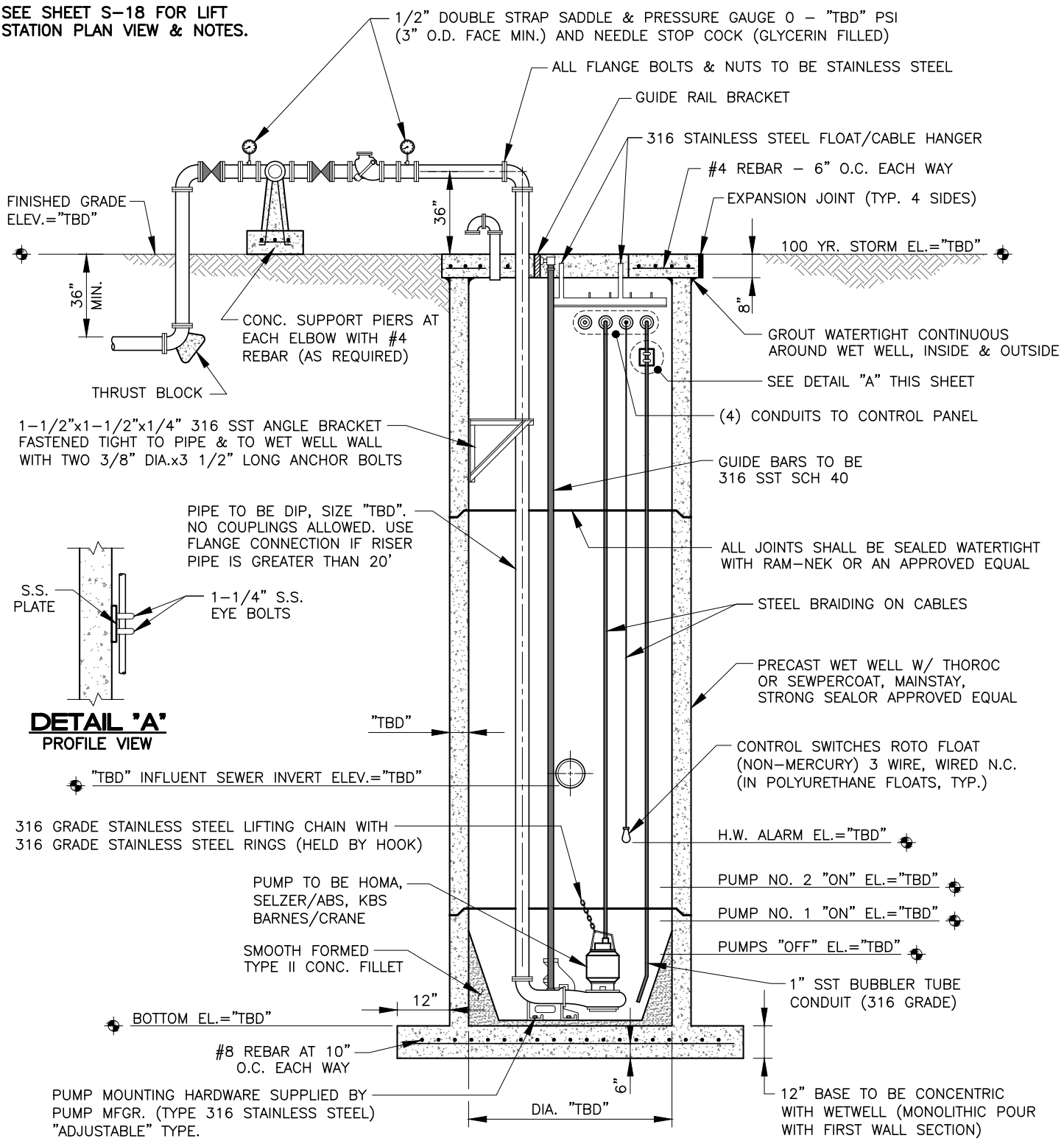
PLAN VIEW

NOTES:

1. ALL ABOVE GROUND PIPING SHALL BE PAINTED WITH A THREE COAT SYSTEM. THE 1ST & 2ND COATS SHALL BE EPOXY & THE 3RD COAT SHALL BE POLYURETHANE & COLORED BEIGE. THE COATING SYSTEM SHALL BE MANUFACTURED BY M.A.B. PAINTS, TNEMEC OR AN APPROVED EQUAL.
2. 1' NIPPLE BETWEEN ALL FITTINGS AND VALVES.
3. THE ELECTRICAL CONTROL PANEL SHALL BE LOCATED SO AS NOT TO CONFLICT WITH THE EMERGENCY PUMP OUT PORT.
4. REFER TO SITE PLAN FOR FORCE MAIN ORIENTATION.
5. SEE SHEET S-26 FOR FLOOD LIGHT DETAILS.

SEE SHEET S-20A FOR SECTION THRU LIFT STATION.

SEE SHEET S-18 FOR LIFT STATION PLAN VIEW & NOTES.



SECTION THRU LIFT STATION

NOTE:
SEE PLOT PLAN FOR PROPER ORIENTATION OF INFLUENT PIPES, FORCE MAINS, ETC.

"TBD" STANDS FOR "TO BE DETERMINED" WHICH SHALL BE FILLED IN BY THE ENGINEER OF RECORD & APPROVED BY THE CITY OF BOYNTON BEACH.

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UTILITIES ENGINEERING DIVISION

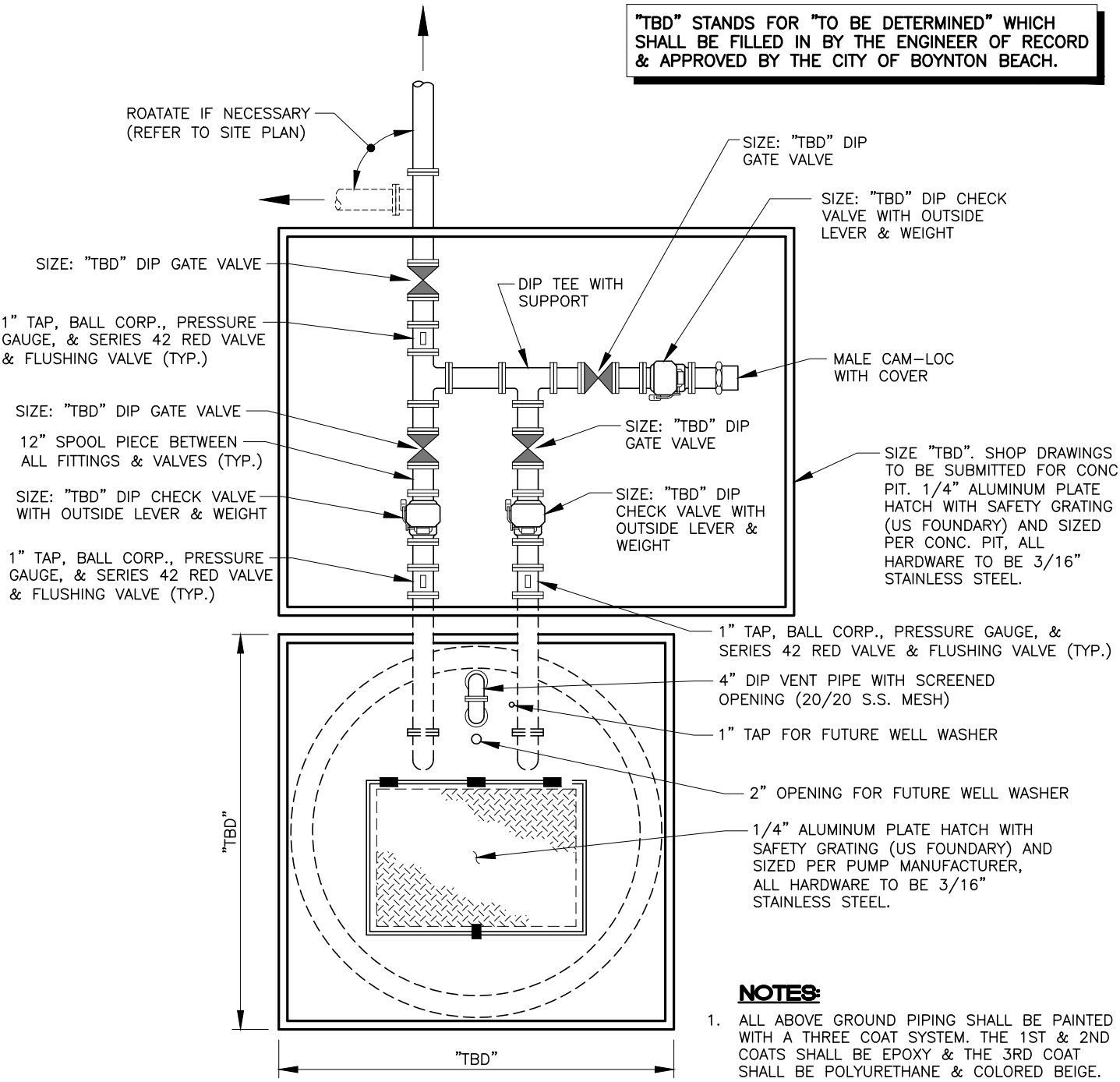
BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION DETAIL

NOT TO SCALE | EFF. DATE 05/24

PAGE NUMBER S-19A

"TBD" STANDS FOR "TO BE DETERMINED" WHICH SHALL BE FILLED IN BY THE ENGINEER OF RECORD & APPROVED BY THE CITY OF BOYNTON BEACH.



PLAN VIEW

NOTES:

1. ALL ABOVE GROUND PIPING SHALL BE PAINTED WITH A THREE COAT SYSTEM. THE 1ST & 2ND COATS SHALL BE EPOXY & THE 3RD COAT SHALL BE POLYURETHANE & COLORED BEIGE. THE COATING SYSTEM SHALL BE MANUFACTURED BY M.A.B. PAINTS, TNEMEC OR AN APPROVED EQUAL.
2. 1' NIPPLE BETWEEN ALL FITTINGS AND VALVES.
3. THE ELECTRICAL CONTROL PANEL SHALL BE LOCATED SO AS NOT TO CONFLICT WITH THE EMERGENCY PUMP OUT PORT.
4. REFER TO DETAILS SITE S-18 & S-18A PLAN & FORCE MAIN ORIENTATION.
5. SEE SHEET S-26 FOR FLOOD LIGHT DETAILS.
6. ALL PIPES SHALL BE FLANGED.

SEE SHEET S-20A FOR SECTION THRU LIFT STATION.

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION DETAIL - UNDERGROUND VALVE PIT OPTION

NOT TO SCALE	EFF. DATE 05/24

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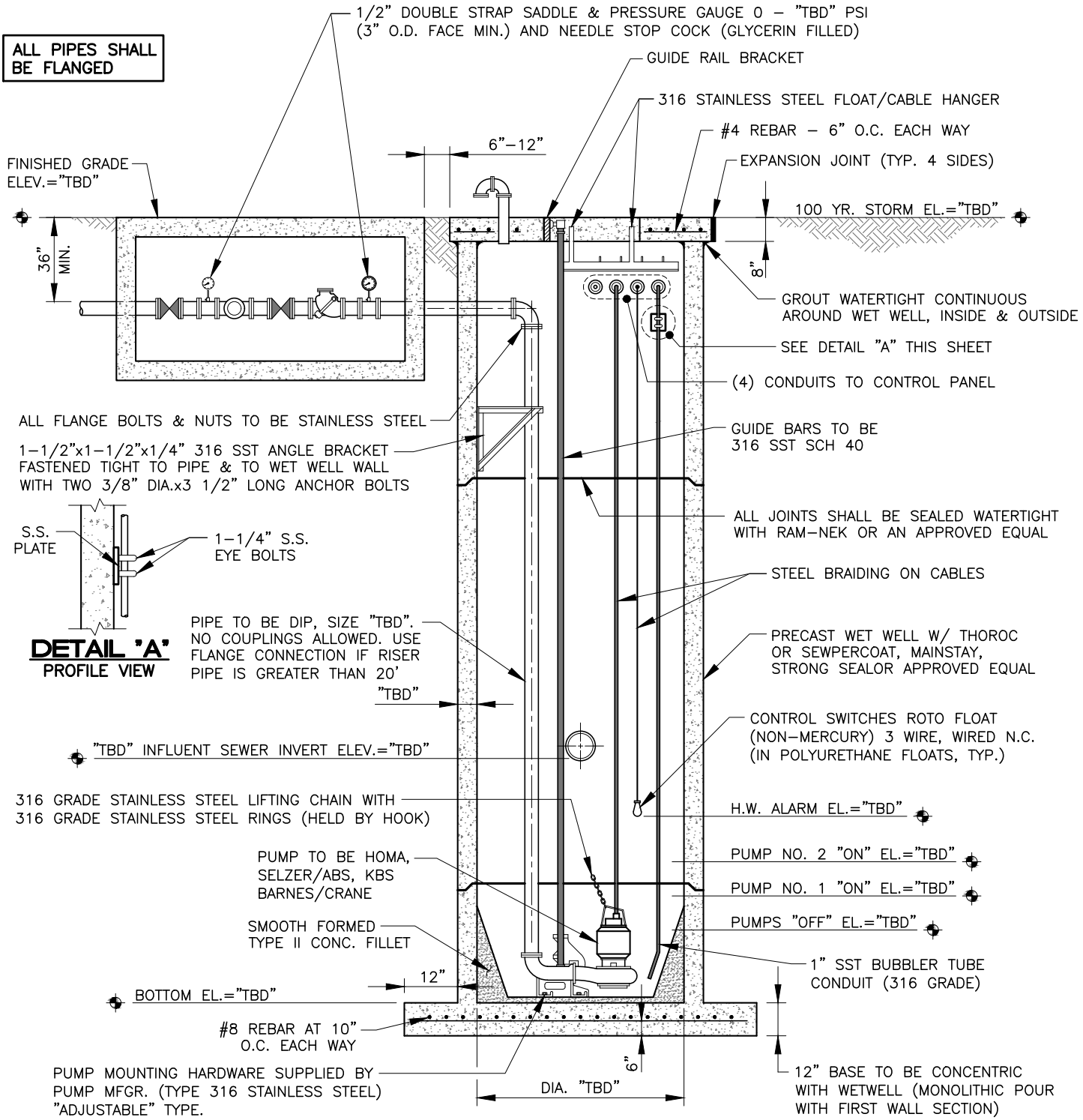
SEE SHEET S-18 FOR LIFT STATION PLAN VIEW & NOTES.

ALL PIPES SHALL BE FLANGED



SECTION THRU LIFT STATION

NOTE:
SEE PLOT PLAN FOR PROPER ORIENTATION OF INFLUENT PIPES, FORCE MAINS, ETC.

"TBD" STANDS FOR "TO BE DETERMINED" WHICH SHALL BE FILLED IN BY THE ENGINEER OF RECORD & APPROVED BY THE CITY OF BOYNTON BEACH.

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION DETAIL - UNDERGROUND VALVE PIT OPTION

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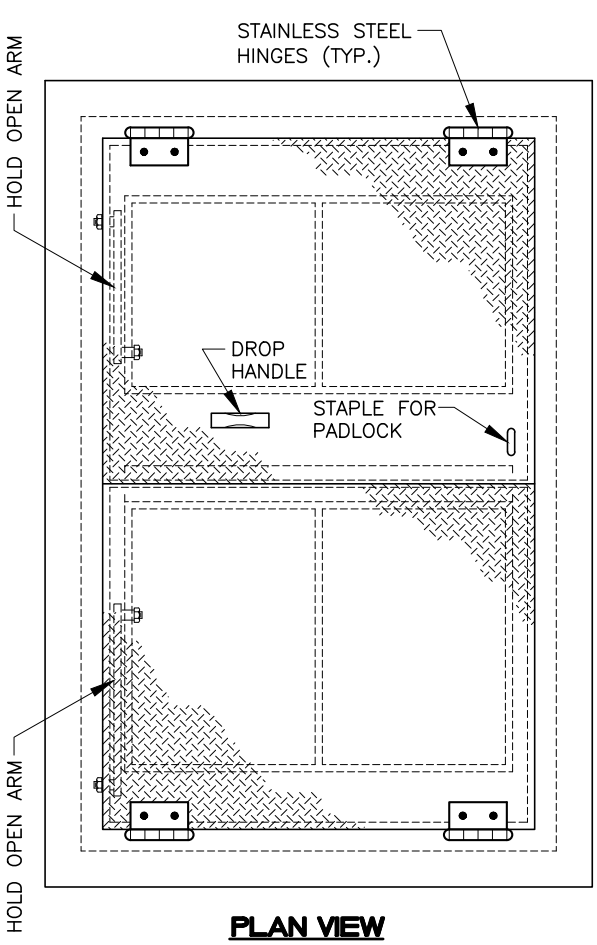
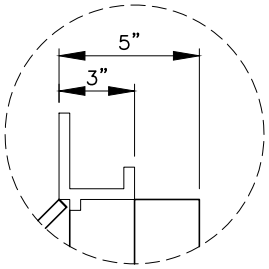
PAGE NUMBER S-20A



PLAN VIEW



DETAIL "A"
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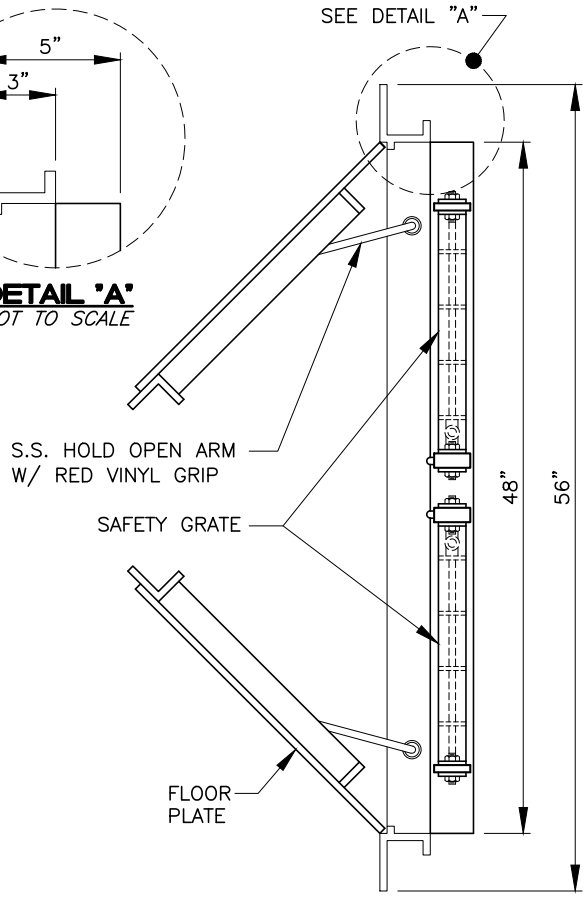
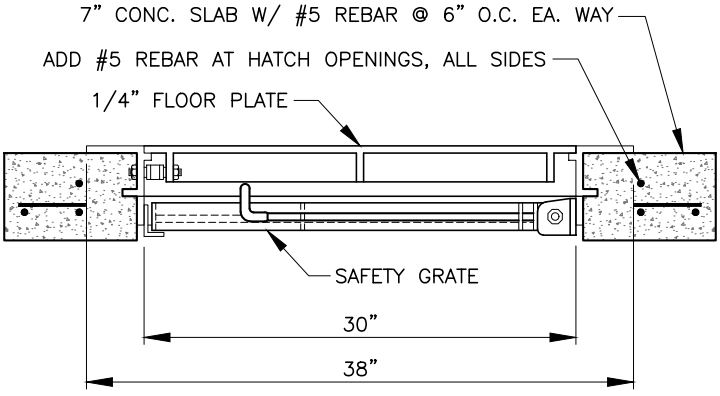
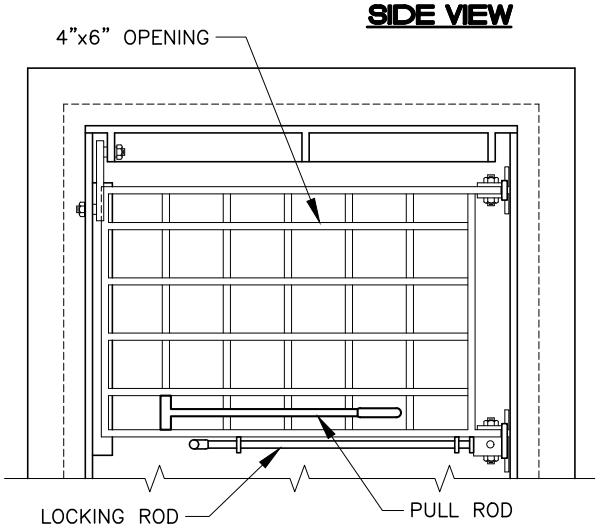


SIDE VIEW



SECTION



SAFETY GRATE

NOTES:

1. HATCH TO BE ALUMINUM MATERIAL 6063–T5, WITH A MINIMUM LOAD CAPABILITY OF 300 LBS. PER SQ/FT. & STAINLESS STEEL HARDWARE.
2. HINGED SAFETY HATCH TO BE U.S.F. FABRICATION, INC. MANUFACTURED; GRATE TO BE RETROFIT, MADE OF ALUMINUM, S.S. HARWARE, PERMITTED TO ROTATE 90° & AUTOMATICALLY LOCK IN PLACE WITH A 316 S.S. ROD. GRATE SHALL BE POWDER COATED WITH O.S.H.A. SAFETY ORANGE OR YELLOW COLOR. (REFER TO U.S.F. DRAWING #24019 FOR OTHER DETAILS).

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

WET WELL
DIAMOND PLATE ACCESS HATCH

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LIFT STATION ELEVATIONS	
TOP OF SLAB	
INFLUENT INVERT ELEV.	
HIGH LEVEL ALARM	
LAG PUMP – ON	
LEAD PUMP – ON	
BOTH PUMP – OFF	
PUMP SUCTION	
PRESSURE TUBE BOTTOM	
INSIDE BOTTOM	

PUMP DATA: MANUFACTURER, _____

MODEL NO. _____ IMP. NO. _____ MOTOR, _____ HP, _____

RPM, _____ VOLTS, _____ PHASE 60 HERTZ, _____

OPERATING CONDITIONS: _____ GPM AT: _____ TDH. _____ % EFFICIENCY

PUMP DATA INFORMATION

STATION SIGN ON GATE SHALL READ:

CITY OF BOYNTON BEACH
LIFT STATION # ...?...
IN CASE OF EMERGENCY
CALL 561–742–6444

A. PANEL BUILDER

1. THE PANEL BUILDER SHALL BE EXPERIENCED IN THE CONSTRUCTION OF LIFT STATION CONTROL PANELS, SHALL HAVE A UL APPROVED SHOP. PANEL SHALL BE UL LISTED AND UL LABELED AS SERVICE ENTRANCE EQUIPMENT.
2. THE PANEL BUILDER SHALL WARRANT THE PANEL FOR ONE (1) FULL YEAR MINIMUM FROM THE DATE OF FINAL PROJECT CERTIFICATION.
3. THE PANEL BUILDER, SCADA SUPLIER AND QUALIFIED TECHNICAL REPRESETATIVE SHALL CHECK–OUT AND TEST THE PANEL AS PART OF THE LIFT STATION START–UP.
4. THE PANEL BUILDER SPARE PARTS INCLUDING THREE (3) FUSES OF EACH TYPE/SIZE, ONE (1) ACE MIXED I/O MODULE, ONE (1) ELAPSED TIME METER, ONE (1) BACK–UP PUMP CONTROLLER, ONE (1) VOLTAGE/PHASE MONITOR, AND ONE (1) LIGHT/HORN ASSEMBLY

B. PANEL COMPONENTS

1. THE PANEL COMPONENTS ARE SPECIFIED ON THE DRAWINGS WITH THE EXCEPTION OF ITEMS DESCRIBED IN THESE SPECIFICATIONS. ITEMS ARE LISTED BY MANUFACTURER AND CATALOG NUMBER, OTHER EQUAL QUALITY COMPONENTS MAY BE SUBSTITUTED BUT THEY MUST BE FULLY INTERCHANGEABLE WITH THOSE SPECIFIED IN SIZE, FUNCTION, MOUNTING DIMENSIONS, PLUG–IN CONNECTIONS, AND AMPACITY. ANY OTHER SUBSTITUTIONS OR CHANGES MUST BE APPROVED IN ADVANCE AND IN WRITING BY THE UTILITY DEPARTMENT. ALL COMPONENTS SHALL BE NEW WITH NO SIGNS OR EVIDENCE OF CORROSION.

C. ENCLOSURE

1. THE PANEL ITSELF SHALL BE 36 INCH WIDE X 60 INCH HIGH X 16 INCH DEEP (36"W X 60"H X 16"D). IT SHALL BE A NEMA 4X ENCLOSURE WITH THE FOLLOWING FEATURES:
   a. IT SHALL BE TYPE 304, 14 GAUGE STAINLESS STEEL ENCLOSURE WITH A 10 GAUGE ALUMINUM PAINTED DEAD FRONT INNER DOOR FOR MOUNTING LOCAL OPERATOR CONTROLS. ALL EXTERIOR HARDWARE AND HINGES SHALL BE STAINLESS STEEL. A DRIP SHIELD SHALL RUN THE ENTIRE WIDTH OF THE PANEL. A PERMANENT CONTINUOUS POURED SEAL SHALL BE PROVIDED BETWEEN THE DRIP SHIELD AND THE ENCLOSURE WHERE THE DRIP SHIELD CONNECTS TO THE OUTER DOOR.
   b. A 14 GAUGE PAINTED STEEL SUB–PANEL SHALL BE PROVIDED TO MOUNT ALL ELECTRICAL CONTROL DEVICES. ALL INTERIOR ELECTRICAL CONTROL COMPONENTS MOUNTED ON THE SUB–PANEL WILL BE SECURED USING STAINLESS STEEL MACHINE SCREWS 8–32 MIN. SIZE. HEAVIER ITEMS INCLUDING THE RTU, CONTROL POWER TRANSFORMER AND ITEMS IN EXCESS OF 10 POUNDS WILL BE SECURED WITH 1/4" – 20 STAINLESS STEEL MACHINE SCREWS. SCREW ANCHOR NUTS WILL BE PERMANENTLY INSTALLED IN THE SUB–PANEL USING CADMIUM PLATED STEEL KNURLED THREADED INSERTS AKV MODEL AKS7 OR EQUAL. NO SELF–TAPPING OR SUB–PANEL TAPPED SCREWS WILL BE USED.
   c. A 14 GAUGE PAINTED DEAD FRONT CONTINUOUSLY HINGED OPERATOR PANEL WILL BE PROVIDED TO ISOLATE THE OPERATOR FROM ALL LIVE CIRCUITS AND BE SECUIRED BY TURN HANDLES SO THAT NO TOOLS ARE REQUIRED.
   d. THE ENCLOSURE SHALL ALSO INCLUDE A VENTED 24"H X 36"W X 16"D BASE USED AS A VAPOR BARRIER. THE BASE SHALL BE MANUFACTURED FROM 10 GUAGE STAINLESS STEEL AND HAVE TWO FOUR–LOUVERED STAINLESS STELL SCREENED VENTS FOR EXHAUSTING SEWER GASSES AND A GASKETED FRONT ACCESS DOOR WITH HANDLES. THE FRONT ACCESS DOOR SHALL BE MOUNTED WITH 1/4"X20 STAINLESS STEEL HARDWARE.
   e. THE OUTER DOOR IS TO HAVE 9 INCH BY 11 INCH (9" X 11") OR ALUMINUM POCKET FOR LOG BOOK, TACK WELD TO DOOR.
   f. A HYDRAULIC SHOCK SHALL HOLD BOTH THE INNER DOOR IN AN OPEN AND CLOSED POSITION, THESE MUST BE SUFFICIENTLY RIGID AND SECURE TO HOLD DOORS OPEN UNDER WINDY WEATHER CONDITIONS.
   g. SLIDING LOCKING BAR TO ALLOW ONLY MAIN OR EMERGENCY BREAKER TO BE CLOSED. BAR SHALL BE ALUMINUM WITH STAINLESS STEEL HARDWARE.
   h. NO PENETRATION THROUGH THE PANEL WILL BE ALLOWED EXCEPT FOR CONDUITS ON BOTTOM, AND FOR GENERATOR RECEPTACLE ON THE SIDE, I.E. NO SCREWS THROUGH THE PANEL, OUTER DOOR OR FRAME.
2. THE COMPLETE CONTROL PANEL ENCLOSURE ASSEMBLY SHALL BE UNDERWRITERS LABORATORIES (UL508A) LISTED AND APPROVED. IT SHALL BE A NEMA 4X ENCLOSURE MANUFACTURED BY EUROBEX, HOFFMAN OR APPROVED EQUAL. THE ENTIRE ENCLOSURE AND BASE, INSIDE AND OUT, SHALL BE FINISHED WITH HEAT FUSED POLYESTER POWDER, ELECTROSTATICALLY APPLIED PAINT ON A PHOSPHATIZED BASE, ORANGE PEELED WHITE.

D. WIRING

1. ALL WIRING SHALL BE COPPER 41 STRAND MTW OR APPROVED EQUAL. AC POWER AND CONTROLS SHALL BE #14 AWG MINIMUM. COLOR CODE WIRES AS FOLLOWS:

GROUND	--	GREEN
GROUNDED NEUTRAL	--	WHITE
120 VOLT POWER	--	BLACK
CONTROL	--	RED
DC+	--	BLUE
GROUNDED DC	--	BLUE WITH WHITE TRACER

DIFFERENT CONTROL WIRING COLORS ARE ACCEPTABLE IF CLEARLY IDENTIFIED. POWER WIRING SHALL BE KEPT SEPARATE FROM CONTROL WIRING, AND SHALL BE IDENTIFIED BY PHASE. THE HIGH LEG SHALL BE THE CENTER TERMINAL ON THE MAIN BREAKER.

2. ALL WIRES SHALL BE TAGGED WITH HEAT COMPUTER PRINTED WIRE LABELS. HAND WRITTEN LABELS ARE NOT ACCEPTABLE.

3. ALL EXTERNAL CONNECTION AND INTERNAL CONNECTIONS, WHERE SHOWN ON THE DRAWINGS, SHALL BE BROUGHT TO THE NUMBERED TERMINALS. INCOMING AC POWER WILL BE DIRECTLY TERMINATED ON THE INCOMING MAIN CIRCUIT BREAKER, AND OUTGOING MOTOR POWER CONDUCTORS WILL DIRECTLY TERMINATE ON THE MOTOR STARTER. DEDICATED TERMINALS FOR THE MOTOR GROUNDS SHALL BE PROVIDED NEXT TO THE STARTERS.

4. WIRING SHALL BE ENCLOSED IN UL LISTED PVC WIRE WAY SIZED FOR A MAXIMUM FILL OF 40%. ALL WIRE WAY WILL BE BRONZE, BROWN OR GRAY IN COLOR TO MATCH THE BRONZE SUB-PANEL. WIRING BETWEEN THE DOORS AND THE PANEL SHALL BE ENCLOSED IN A SPIRAL WRAP OR APPROVED EQUAL WITH SUFFICIENT SLACK TO ALLOW FULL OPENING OF THE DOOR.

5. WIRING SHALL BE SECURED WITH SCREW-ON TABS, TABS WITH ADHESIVES SHALL NOT BE USED.

6. ALL WIRING SHALL BE FRONT ACCESSIBLE.

7. ALL ELECTRICAL WIRING MUST MEET OR EXCEED NATIONAL ELECTRIC CODE AND UL508A LOCAL CODE STANDARDS. WHERE STANDARDS CONFLICT, THE HIGHER STANDARD SHALL BE USED.

8. A METAL BARRIER SHALL SEPARATE POWER AND CONTROL SIDES OF THE PUMP CONTROL PANEL.

9. ANY PLACE THAT ELECTRICAL WIRE PASSES THROUGH A METAL COVER OR SHIELD, INSULATING GROMMET IS REQUIRED TO PROTECT THE WIRE.

E. COMPONENT MOUNTING

1. ALL COMPONENTS SHALL BE SECURELY MOUNTED WITH STAINLESS STEEL HARDWARE. SELF TAPPING SCREWS ARE NOT ACCEPTABLE.

2. ALL RELAY BASES SHALL BE FRONT MOUNTED WITH SCREW TERMINALS, NO SOLDERED CONNECTIONS SHALL BE USED. ALL BASE TERMINALS SHALL BE NUMBERED TO CORRESPOND TO RELAY NUMBERS. WHERE PLUG-IN COMPONENTS ARE NOT FIRMLY SECURED IN BASES, HOLD DOWN CLAMPS SHALL BE PROVIDED.

F. IDENTIFICATION

1. PERMANENTLY AFFIXED PHENOLIC 1-1/2" X 3/4" LABELS WHITE WITH BLACK LETTERING WILL FULLY DESCRIBE EACH DEVICES APPLICATION, ie. "PUMP NO. 1", "PUMP NO. 2", "RUN HOURS". ALSO, EACH DEVICE WILL COME WITH A MANUFACTURERS STANDARD PUSHBUTTON NAMEPLATE INDICATING THE DEVICE FUNCTION, ie. "HAND OFF AUTO", AND "RUN". ADDITIONALLY, ALL COMPONENTS SHALL BE LABELED ON THE BACK OF THE DEAD FRONT DOOR WITH PERMANENT WHITE PHENOLIC LABELS WITH BLACK LETTERING.

2. PROVIDE A LAMINATED SCHEMATIC DRAWING MINIMUM SIZE 11 INCHES BY 17 INCHES (11" X 17") AND A UL REQUIRED DATA PLATE. THE NAMEPLATE SHALL CONTAIN THE FOLLOWING INFORMATION, UL LABEL, VOLTAGE, PHASE, RATED HORSEPOWER, SPEED, DATE MANUFACTURED AND PUMP AND CONTROL PANEL MANUFACTURER'S NAME, ADDRESS AND TELEPHONE NUMBER, PUMP DATA, INCLUDING IMPELLER DATA, DESIGN OPERATING CONDITIONS, AMPS AND SHORT CIRCUIT RATING. THESE SHALL BE PERMANENTLY AFFIXED TO THE INTERIOR SIDE OF THE EXTERIOR ENCLOSURE DOOR USING GE SILICONE RTV ADHESIVE OR APPROVED EQUAL.

G. PRESSURE TUBE CONTROL

1. THE CONTROL TUBE SHALL BE 1/4" SS BRAIDED, TEFLON COATED, TUBING FROM PRESSURE SWITCH TO WET WELL.
2. ALL CHANGE OF DIRECTION SHALL BE THRU 12" RADIUS SWEEPS, NO ANGLES IN TUBING ALLOWED.
3. LENGTH OF TUBING INSIDE THE WET WELL SHALL BE MEASURED SO THAT THE BOTTOM OF THE TUBING WILL BE APPROXIMATELY 8" TO 12" ABOVE THE BOTTOM OF THE WET WELL,
4. ORIENTATION AND CONNECTION BETWEEN THE WET WELL EXIT AND THE BOTTOM OF THE CONTROL PANEL SHALL BE FIELD DETERMINED.
5. SEALS REQUIRED AT THE CONTROL PANEL BASE AND WALL OF WET WELL SHALL BE WITH COMPOUND APPROVED BY THE SEAL MANUFACTURER. FINAL SEALS INTO THE CONTROL PANEL SHALL BE BY CGB AS MANUFACTURERS BY T&B.
6. WET WELL TUBING SHALL BE 3/4" I.D. 316 SS, W/ MIN WALL THICKNESS OF .083" TENSILE STRENGTH 75,000 PSI, WORK PRESSURE 20,000 PSI.

H. DRAWINGS

1. PANEL BUILDER SHALL PROVIDE THE FOLLOWING DRAWINGS:

   a. SCHEMATIC DRAWING SHOWING ALL COMPONENTS. COMPONENTS SHALL BE PROPERLY IDENTIFIED BY NUMBER AND FUNCTION. ALL CONNECTIONS SHALL BE NUMBERED TO CORRESPOND TO THE COMPONENT NUMBERS. ALL WIRES AND TERMINALS SHALL BE CLEARLY NUMBERED AND IDENTIFIED.

   b. BILL OF MATERIAL LISTING ALL PARTS AS FOLLOWS, IN TABULAR FORM:

   1) DRAWING REFERENCE
   2) DESCRIPTION
   3) MANUFACTURER
   4) CATALOG NUMBER / TYPE

   c. LAYOUT DRAWING SHALL BE TO SCALE SHOWING THE DEAD FRONT WITH THE OPERATORS PANEL AND WITH THE PANEL OPEN SHOWING COMPONENT LAYOUT. LAYOUT DRAWINGS SHALL ALSO SHOW THE OUTSIDE DIMENSIONS OF THE PANELS AND DIMENSIONED MOUNTING SUPPORTS.

   d. PLASTIC ENCASED DRAWING INSIDE THE PANEL AS PREVIOUSLY NOTED HEREIN.

2. DRAWINGS SHALL BE CLEAR AND READABLE AND A MINIMUM OF 11 INCHES BY 17 INCHES (11" X 17"). "FUZZY" REDUCTIONS WILL BE REJECTED.

I. LOOSE COMPONENTS

1. THE FOLLOWING SHALL BE SUPPLIED AND INSTALLED BY THE SITE ELECTRICIAN:

   a. OUTSIDE FLOODLIGHT (2x100W PAR FLOODLIGHT)

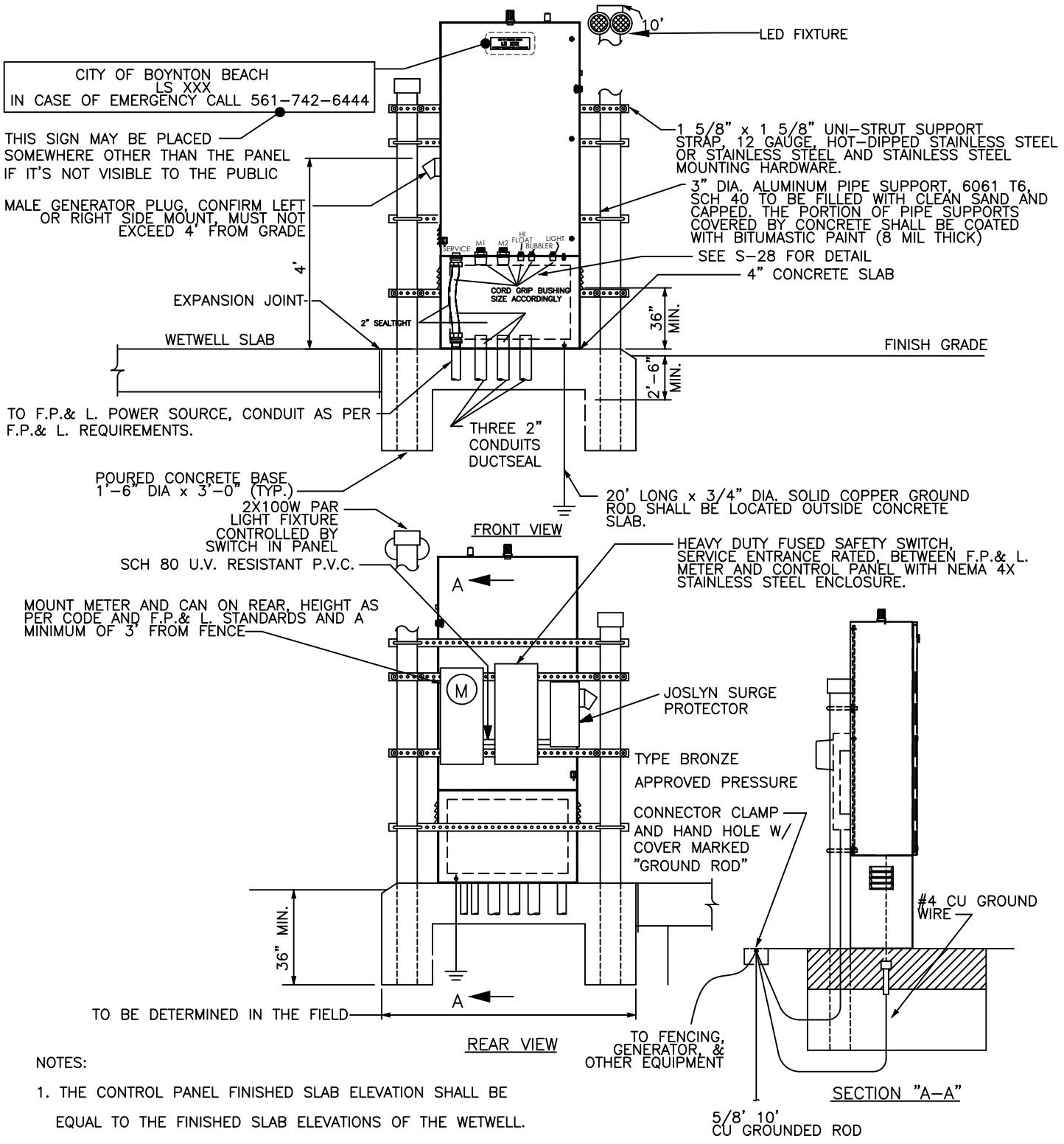
J. LIFT STATION ELEVATIONS:

TOP OF SLAB _____
INFLUENT INVERT ELEV. _____
HIGH LEVEL ALARM _____
LAG PUMP – ON _____
LEAD PUMP – ON _____
BOTH PUMP – OFF _____
PUMP SUCTION _____
PRESSURE TUBE BOTTOM _____
INSIDE BOTTOM _____

PUMP DATA:

MANUFACTURER _____
MOD. NO. _____ IMP. NO. _____
MOTOR _____ HP _____
RPM _____ VOLTS _____
PHASE, 60 HERTZ _____
LRA, FLA _____, LETTER CODE _____

OPERATING CONDITIONS: _____ GPM AT _____ TDH.
_____ % EFFICIENCY
_____ % POWER FACTOR



NOTES:

1. THE CONTROL PANEL FINISHED SLAB ELEVATION SHALL BE EQUAL TO THE FINISHED SLAB ELEVATIONS OF THE WETWELL.
2. ALL CONDUIT SIZES INCLUDING TO F.P.& L. SHALL BE SIZED FOR TWICE THE INSTALLED H.P. AMPACITY.
3. ALL WIRES SHALL BE COPPER RATED THHW.

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL (SINGLE DOOR)

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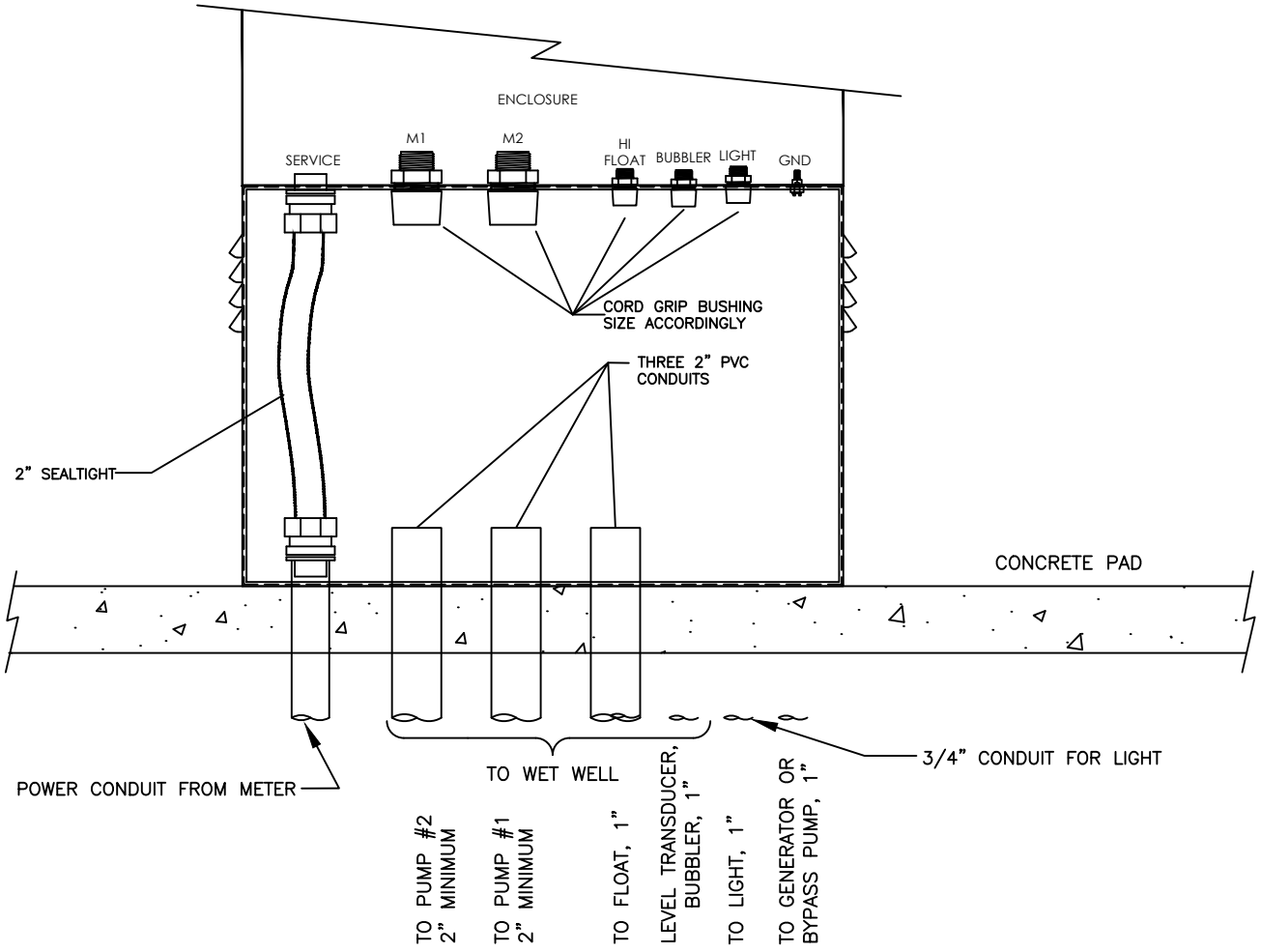

* PLUG & CAP IF NOT USED.

NOTES:

1. CGB SHALL BE THOMAS AND BETTS
2. SEALOFFS WHERE REQUIRED
3. ALL CONDUITS TO BE SCH. 80 PVC. AND SIZED ACCORDINGLY
4. ALL CABLES SHALL BE STEEL BRAIDED

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

CONTROL PANEL BOX DETAIL

NOT TO SCALE

EFF. DATE 05/24

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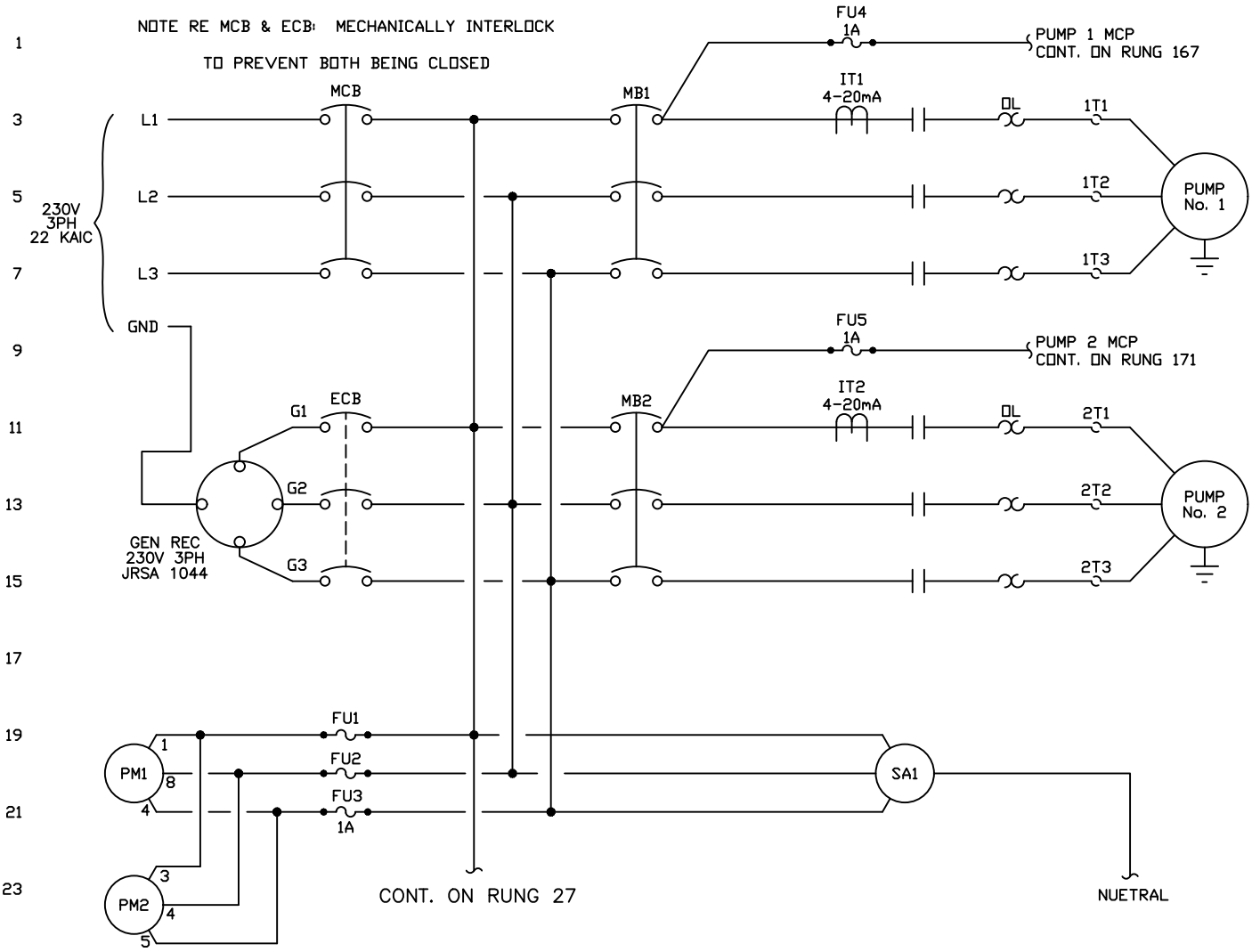
230V STATIONS



NOTE:

THIS DRAWING IS FOR CONTROL REFERENCE ONLY.
ALL HARDWARE WILL BE CONNECTED IF EXISTING,
USING THE SPECIFIED TERMINAL DISIGNATIONS.

⬡ TERMINALS ON ACE I/O MODULE (GENERAL)
☐ TERMINALS IN PUMP CONTROL PANEL

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UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL
ELEMENTARY DIAGRAM CONT.

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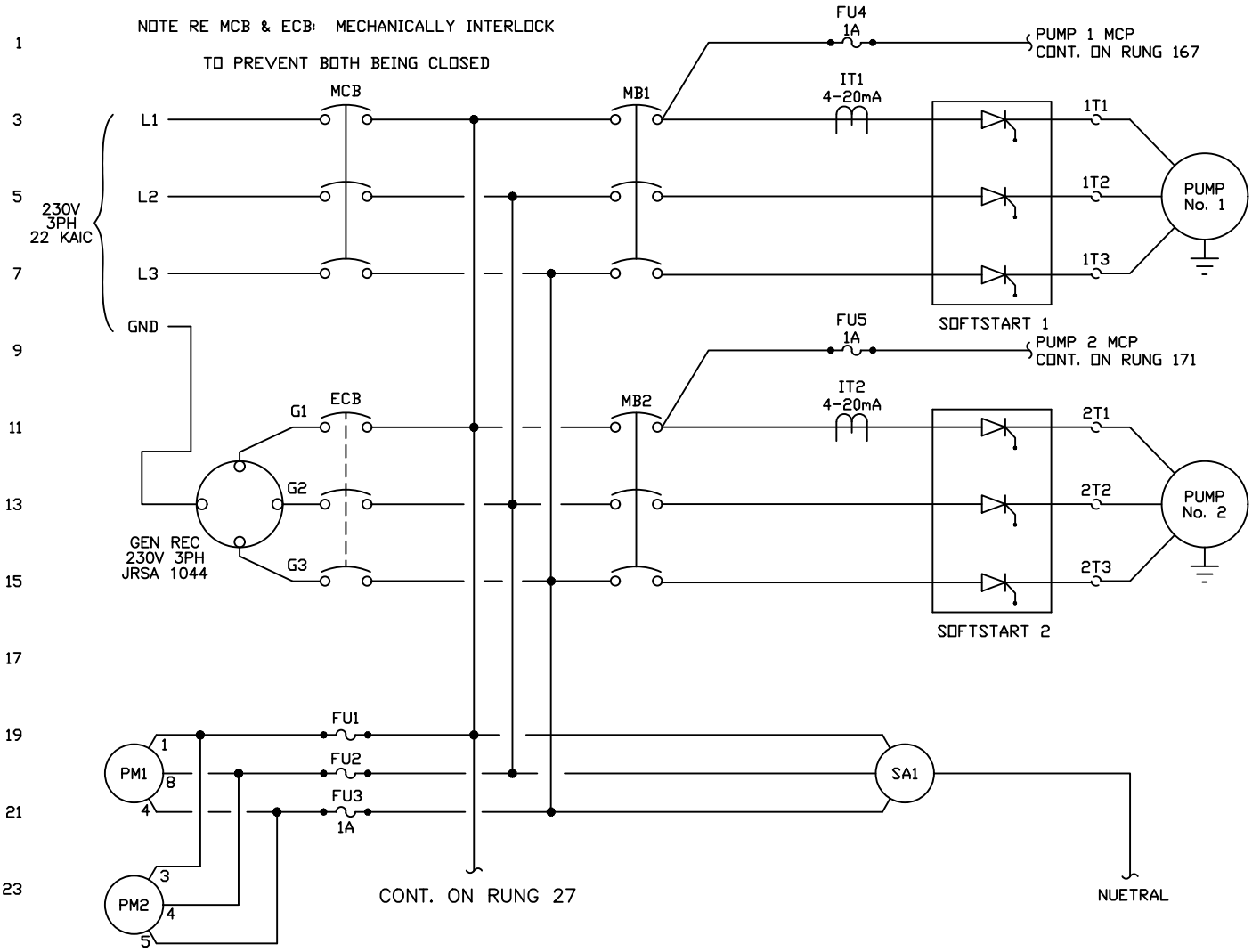
230V STATIONS



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⬡ TERMINALS ON ACE I/O MODULE (GENERAL)
□ TERMINALS IN PUMP CONTROL PANEL

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UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL
ELEMENTARY DIAGRAM CONT.

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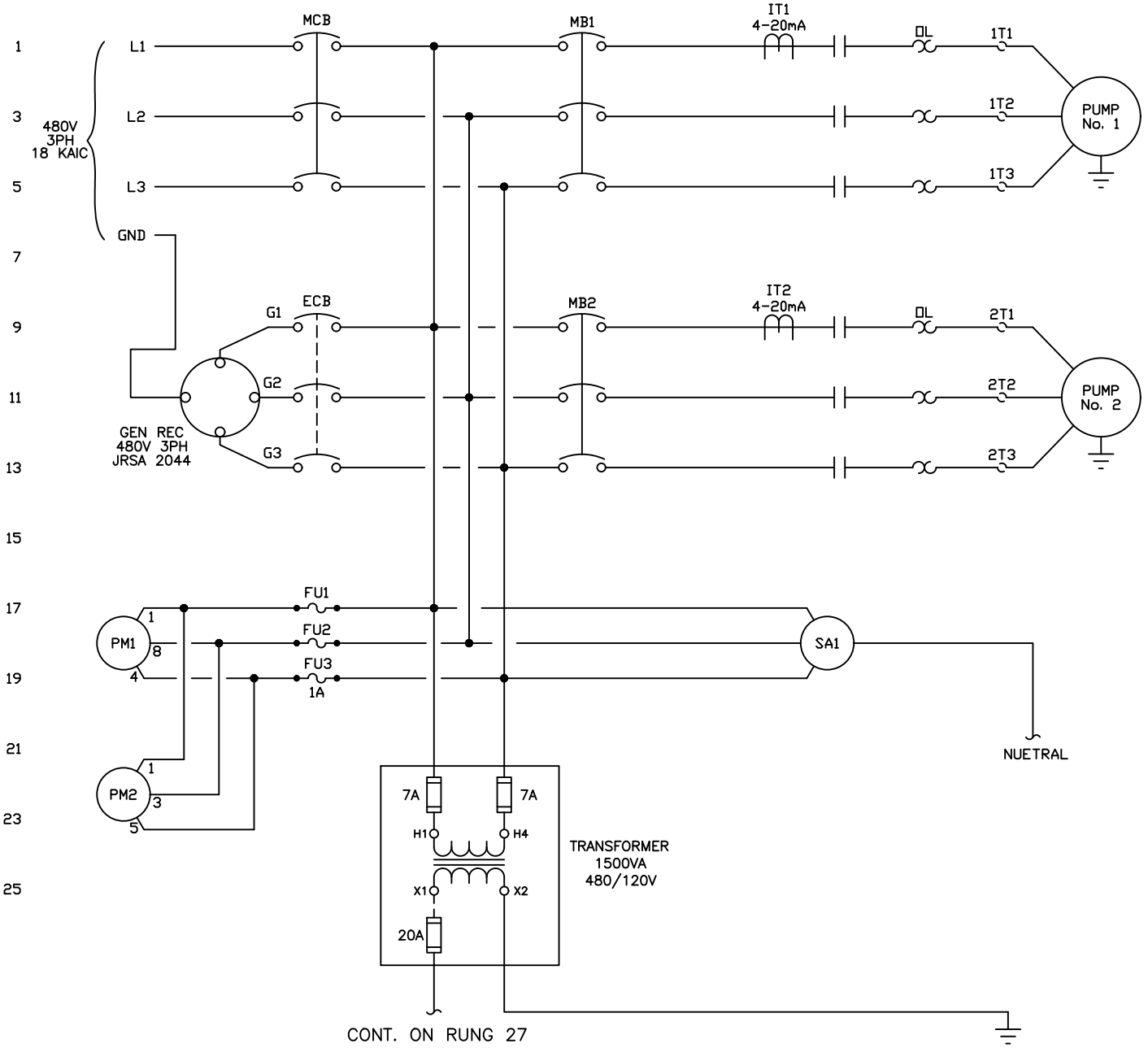
480V STATIONS



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ALL HARDWARE WILL BE CONNECTED IF EXISTING,
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⬡ TERMINALS ON ACE I/O MODULE (GENERAL)
☐ TERMINALS IN PUMP CONTROL PANEL

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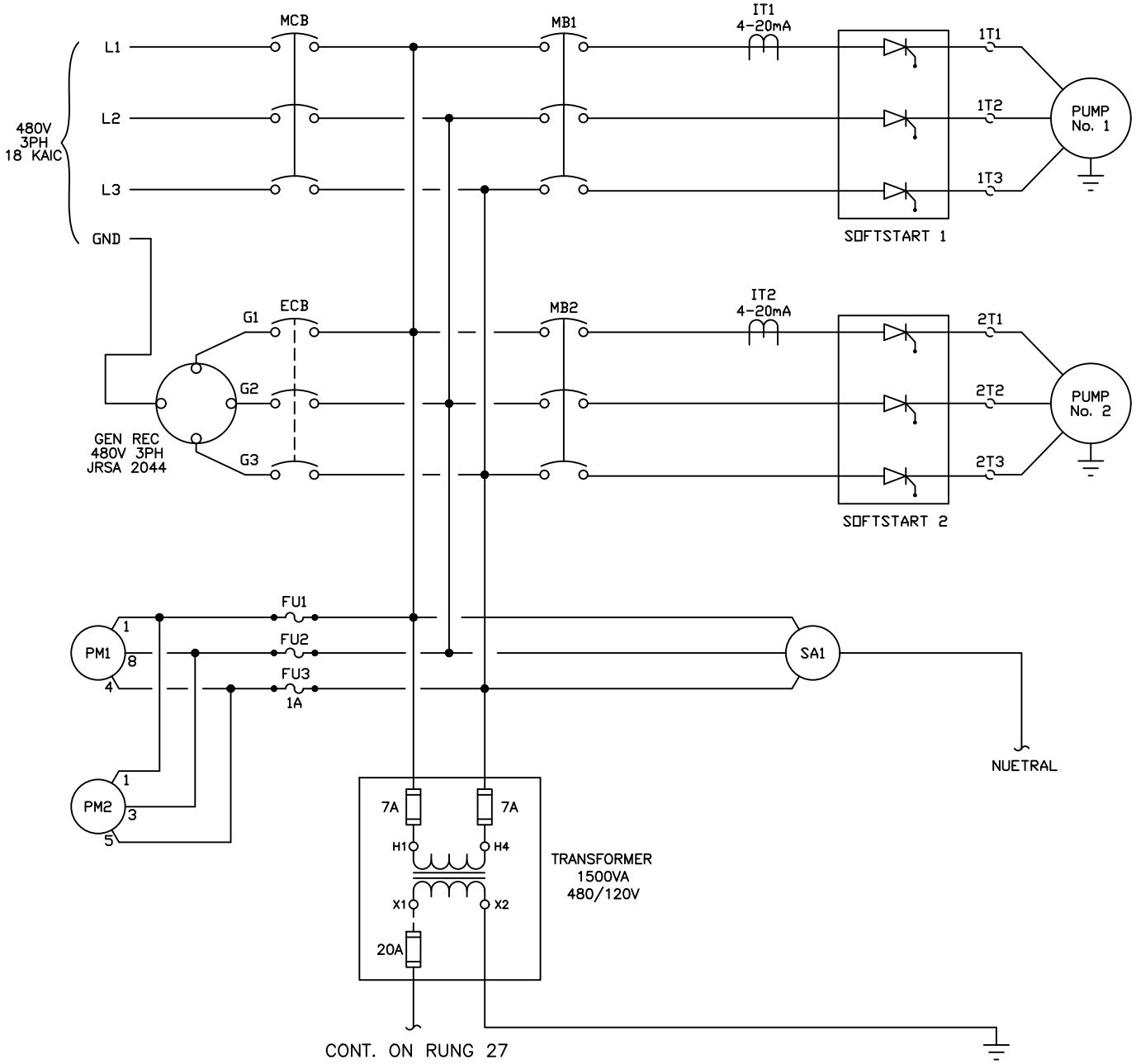
480V STATIONS



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⬡ TERMINALS ON ACE I/O MODULE (GENERAL)
☐ TERMINALS IN PUMP CONTROL PANEL

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UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL
ELEMENTARY DIAGRAM CONT.

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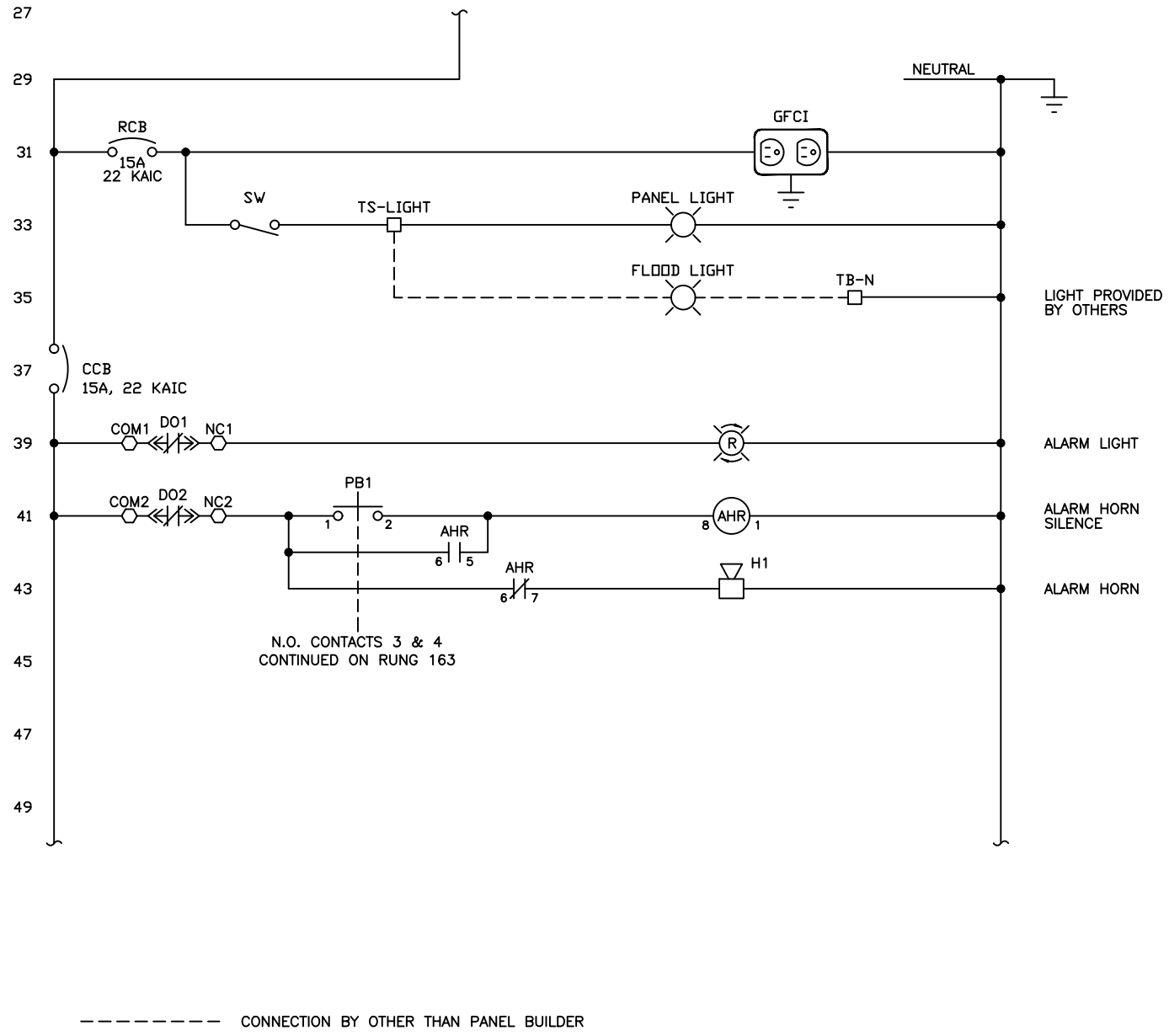
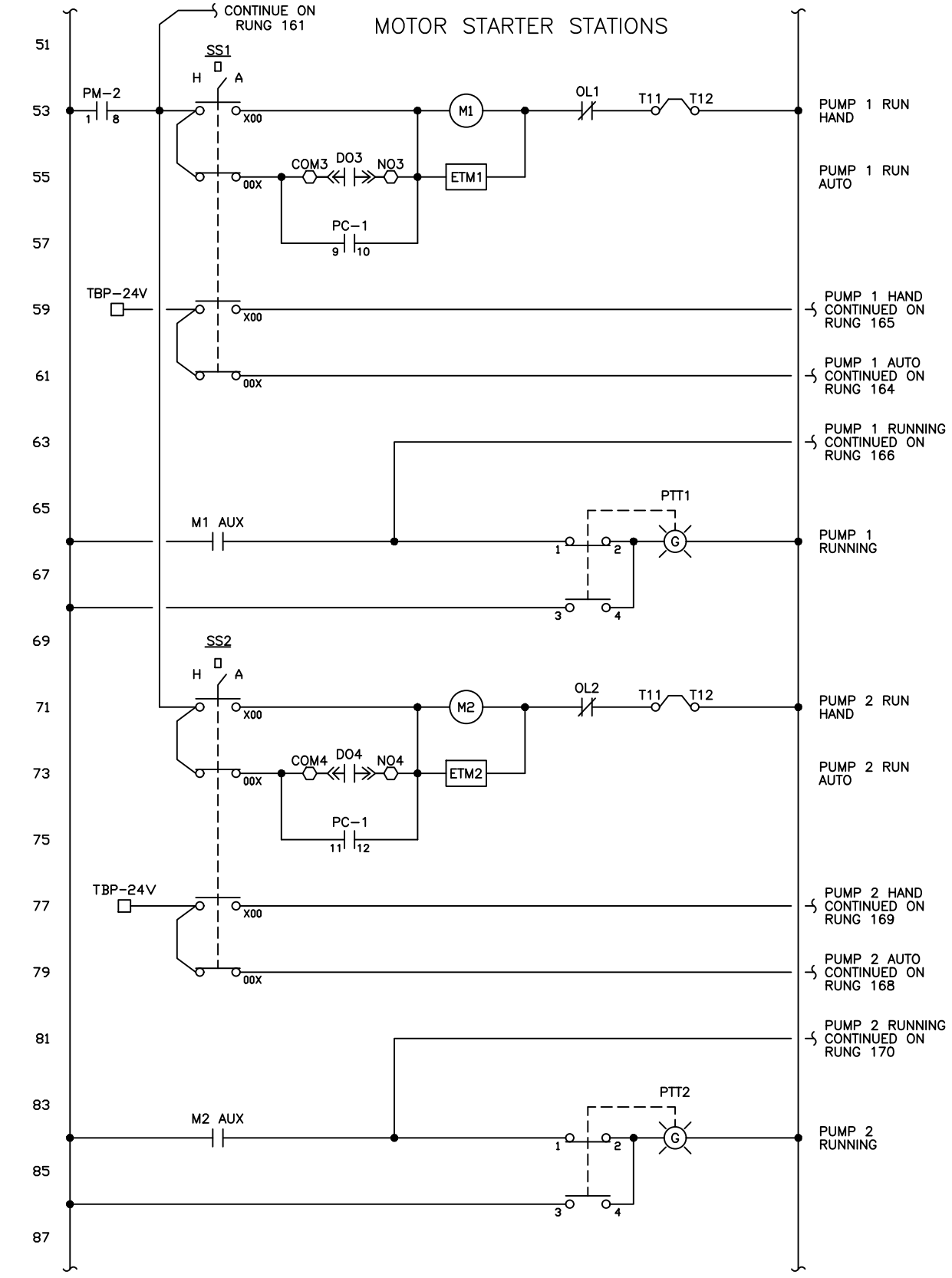


– – – – – – – – CONNECTION BY OTHER THAN PANEL BUILDER



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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL ELEMENTARY DIAGRAM CONT.

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EFF. DATE 05/24

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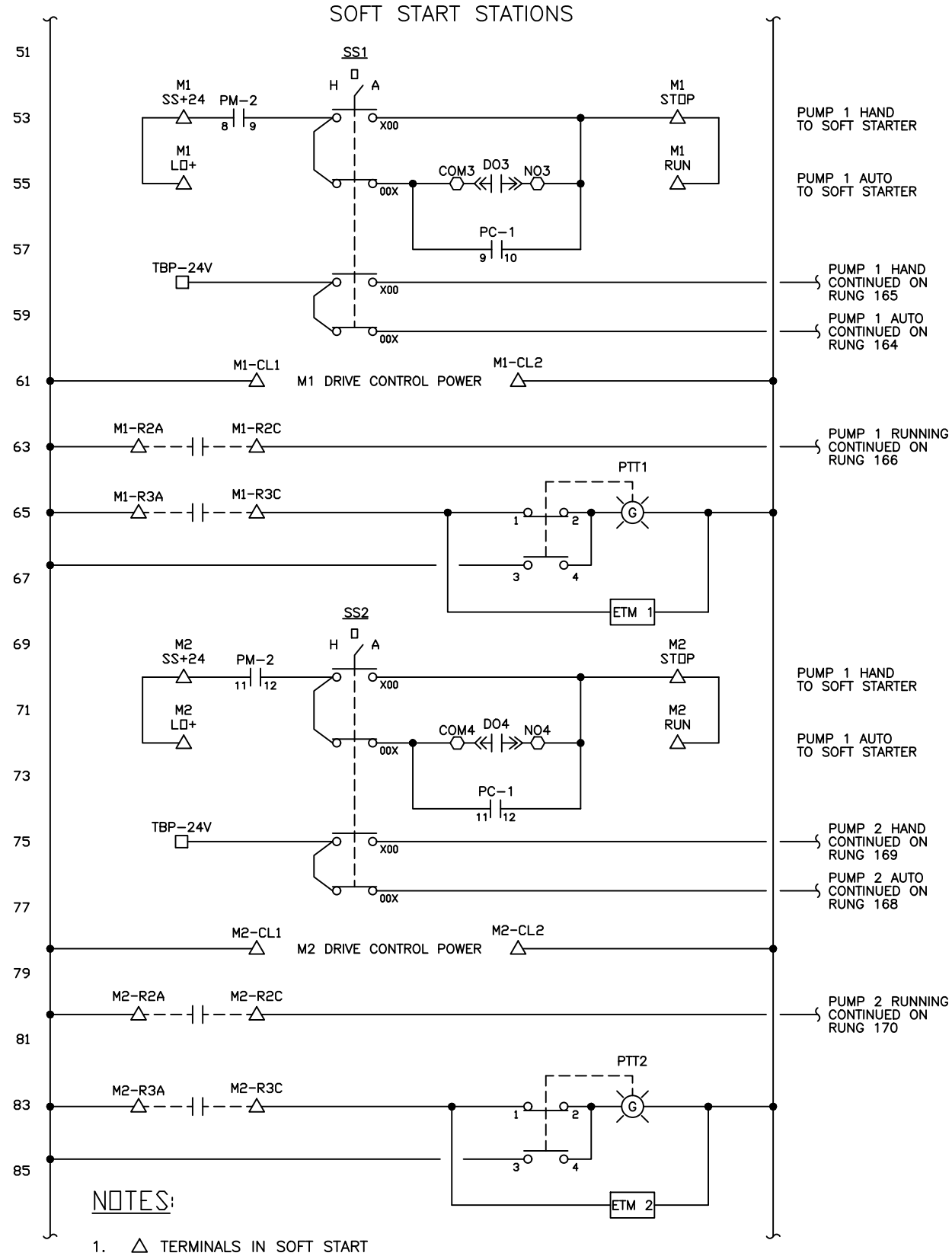
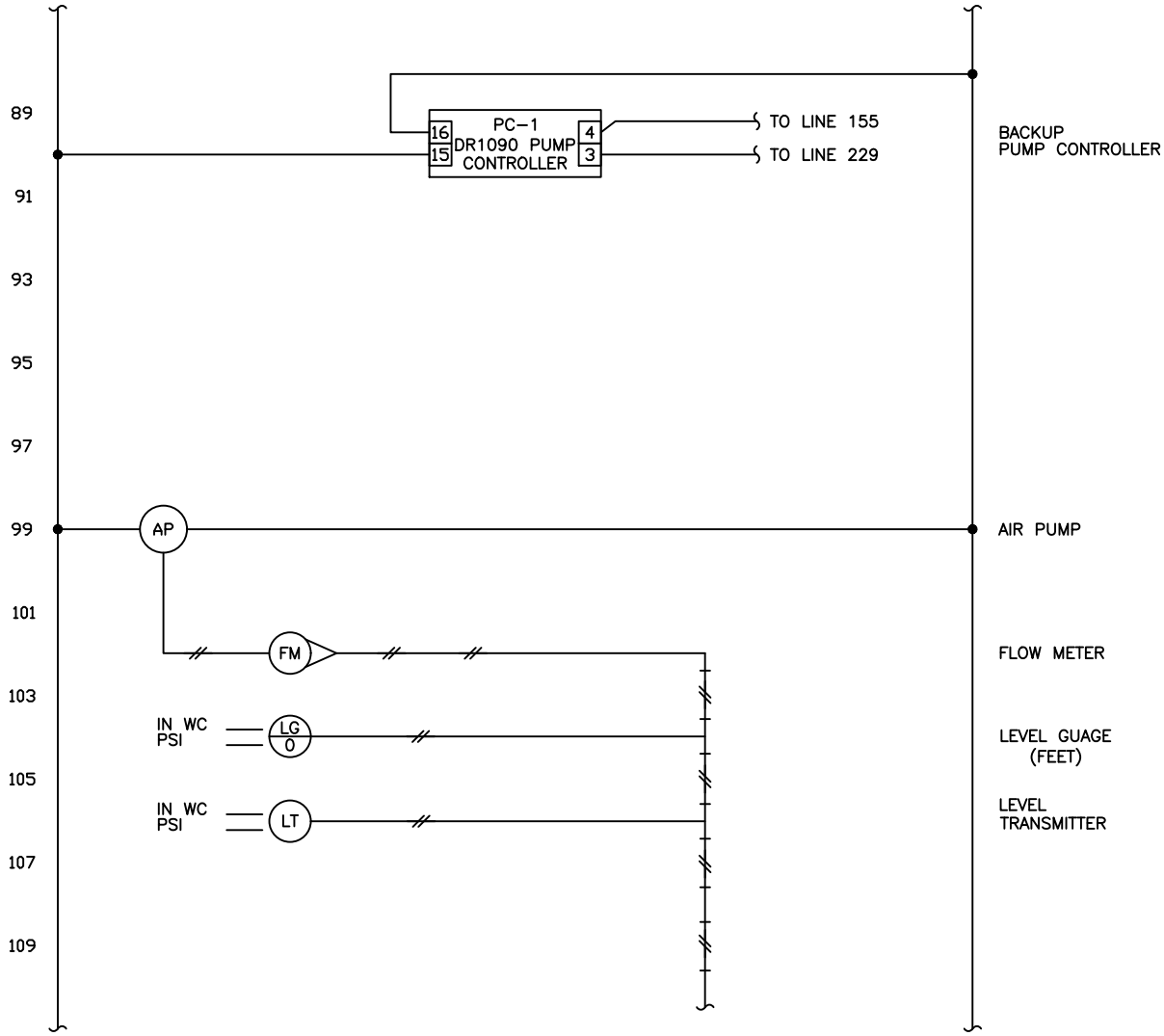
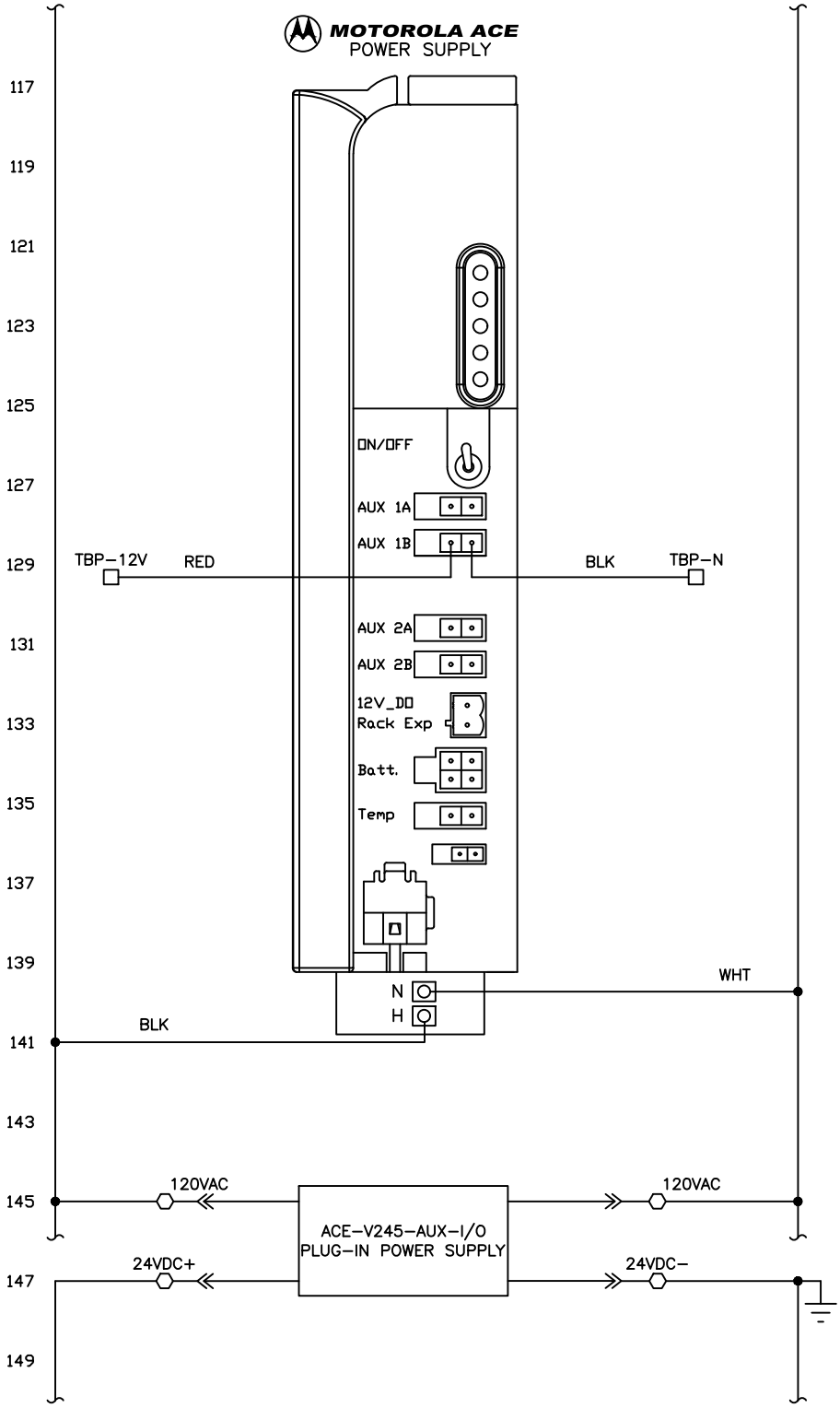




NOTES:

1. PNUEMATIC TUBING



UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL
ELEMENTARY DIAGRAM CONT.

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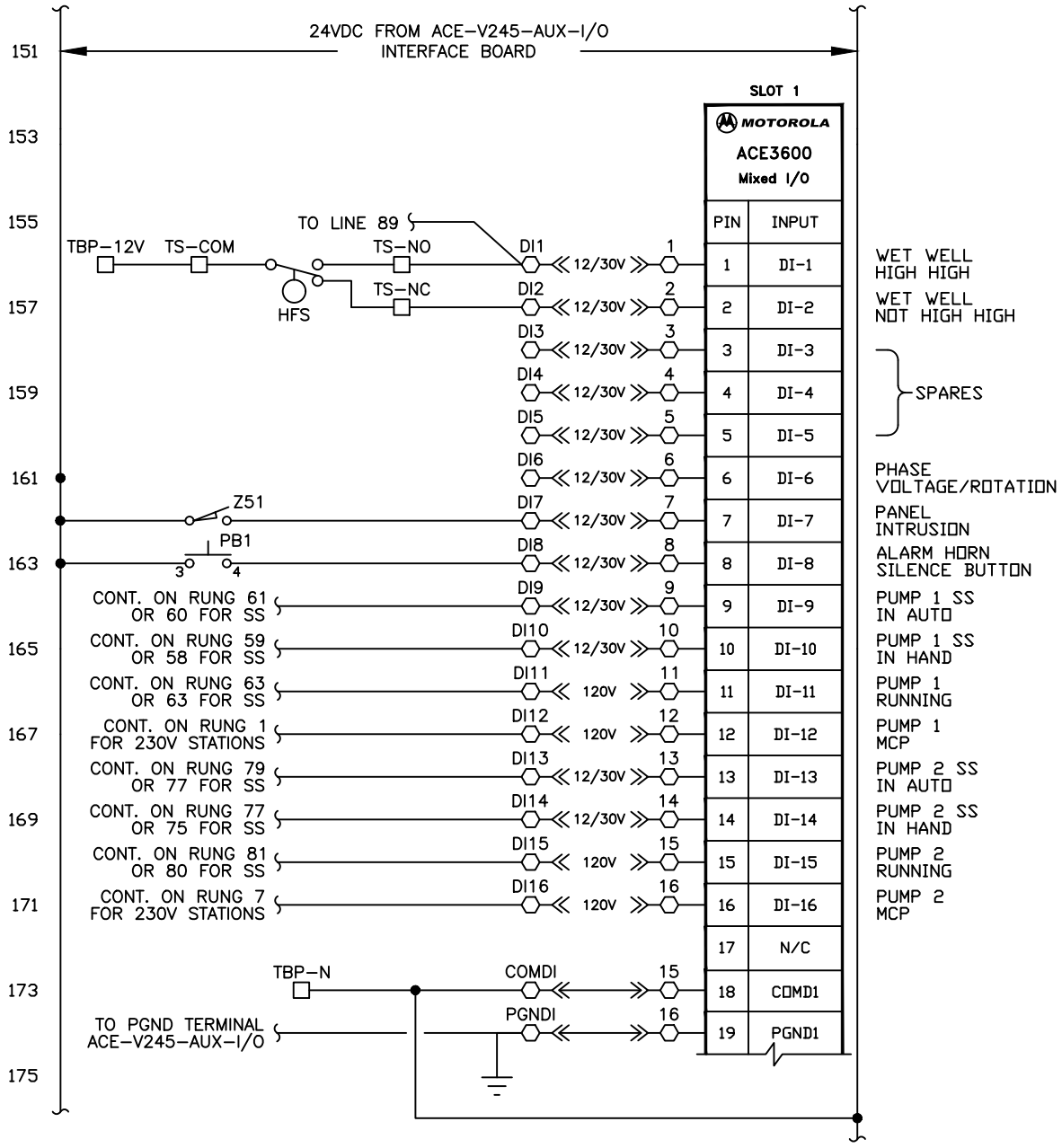

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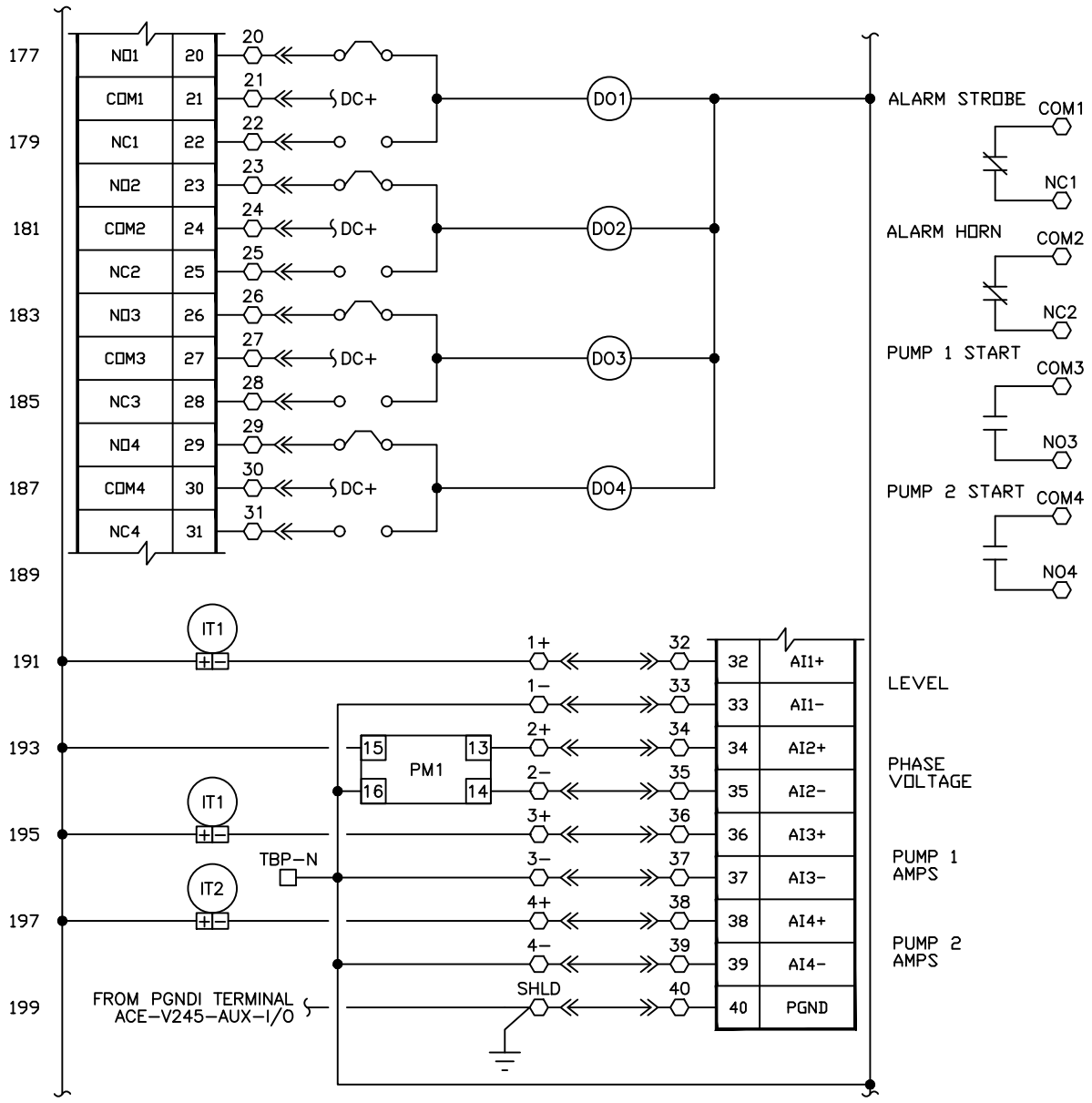

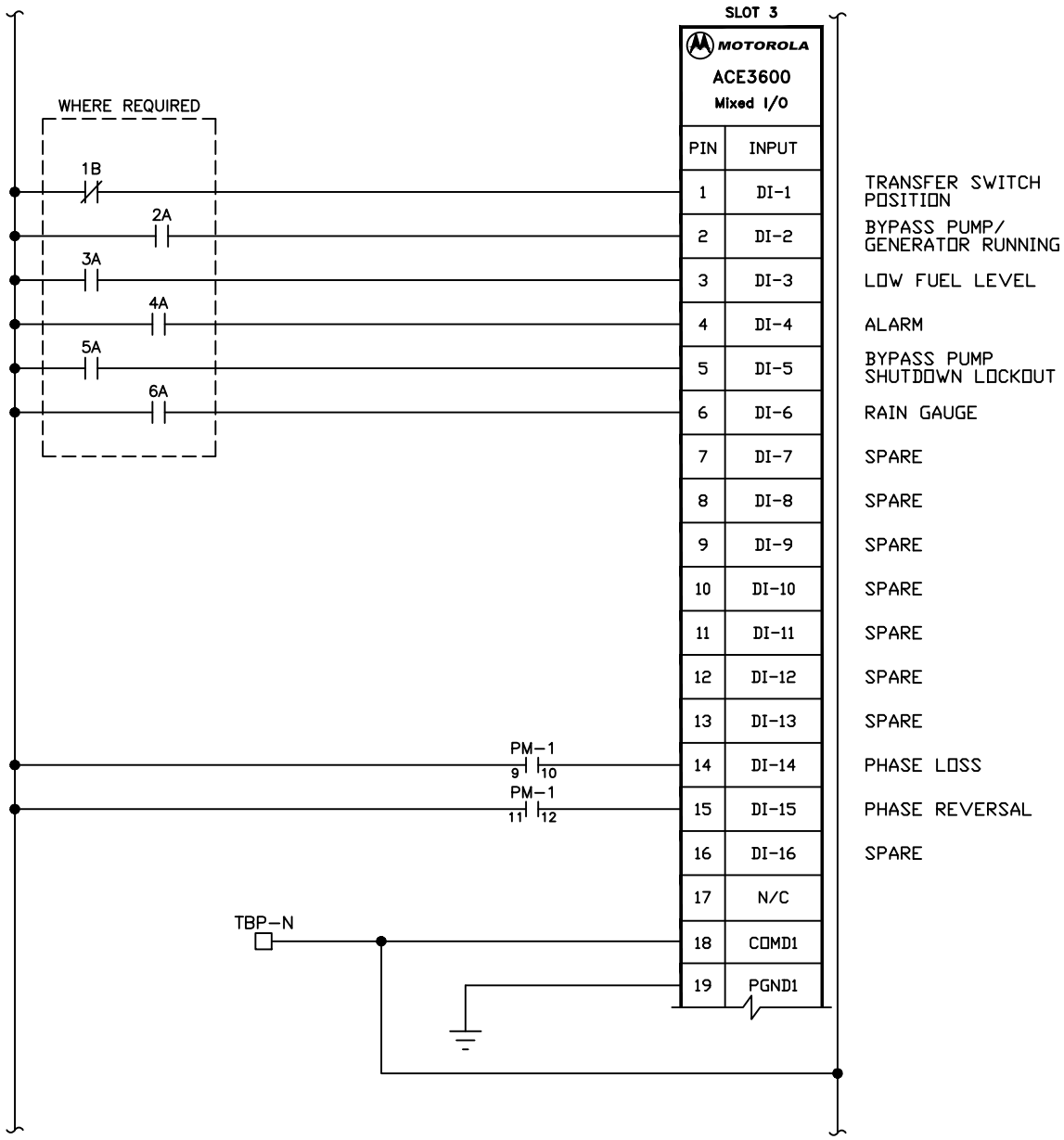

WHERE REQUIRED

	GENERATOR	BYPASS PUMP
1B	TRANSFER SWITCH	N/A
2A	GENERATOR RUNNING	PUMP RUNNING
3A	LOW FUEL	N/A
4A	COMMON ALARM	COMMON ALARM
5A	N/A	SHUTDOWN LOCKOUT
6A	RAIN GAUGE	RAIN GAUGE

*NOTE ADD TERMINAL BLOCKS FOR THESE I/O POINTS WHEN REQUIRED

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UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL ELEMENTARY DIAGRAM CONT.

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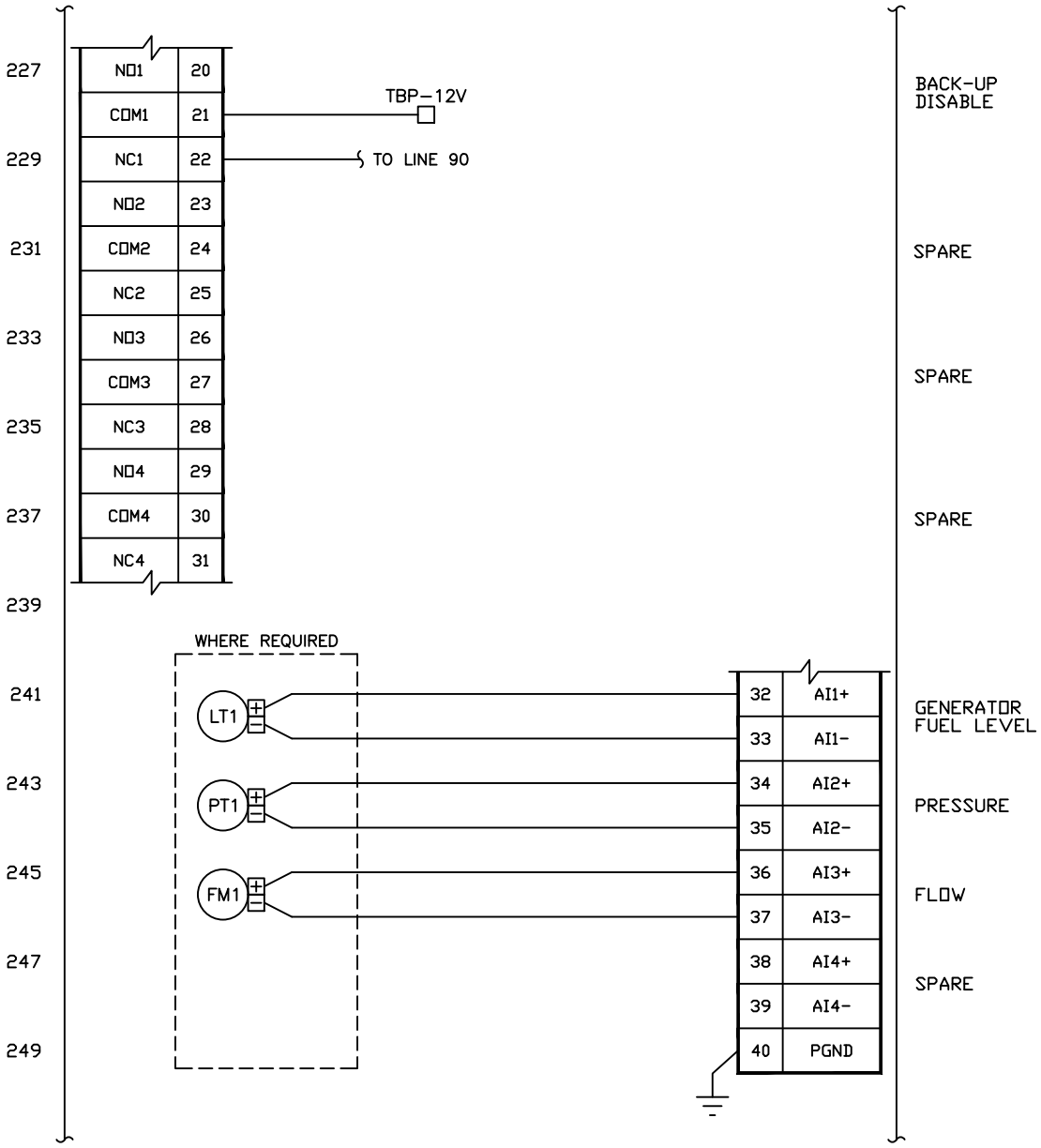

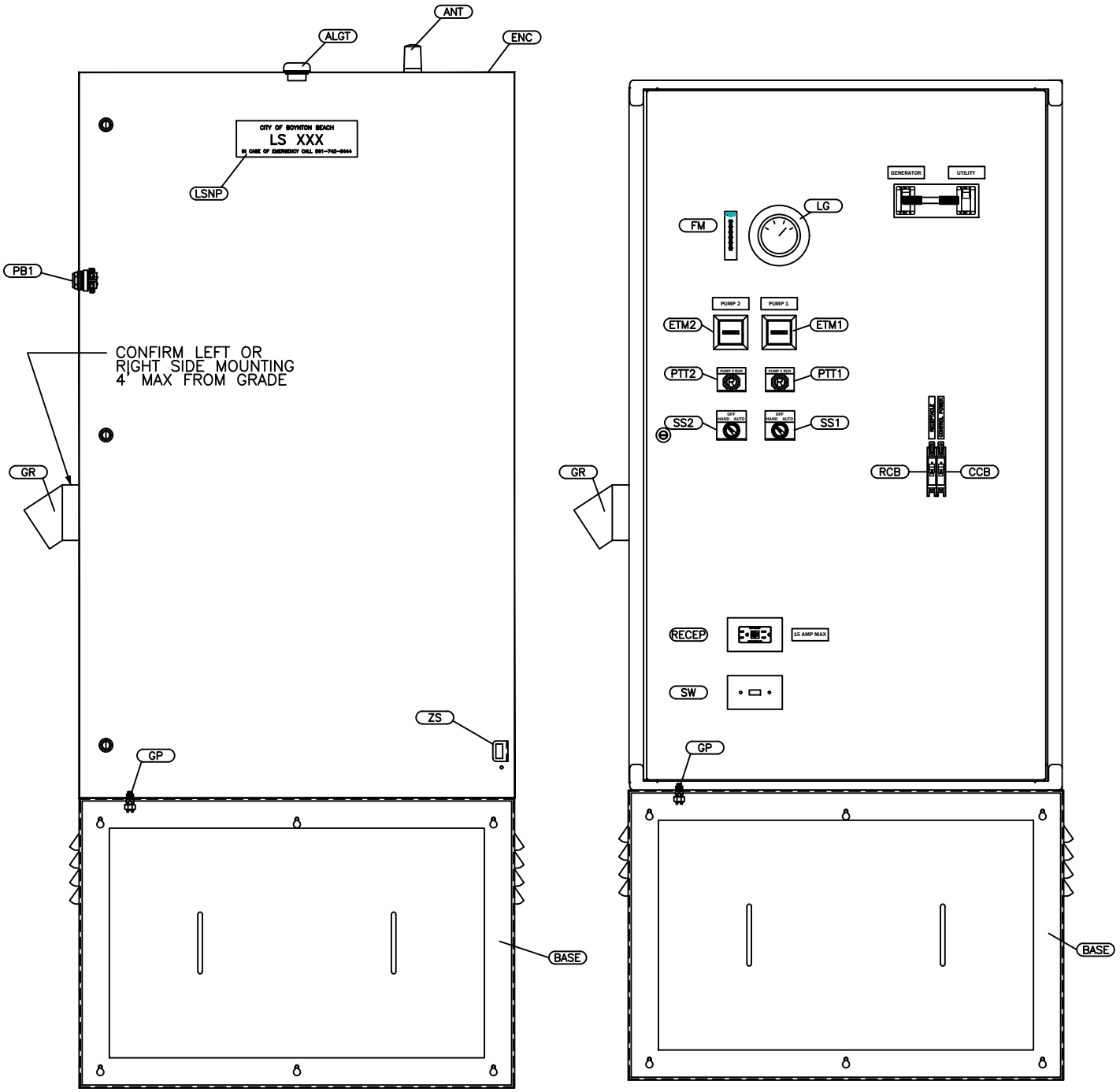

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BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

LIFT STATION CONTROL PANEL DOOR/DEADFRONT GENERAL ARRANGEMENT

UTILITIES ENGINEERING DIVISION

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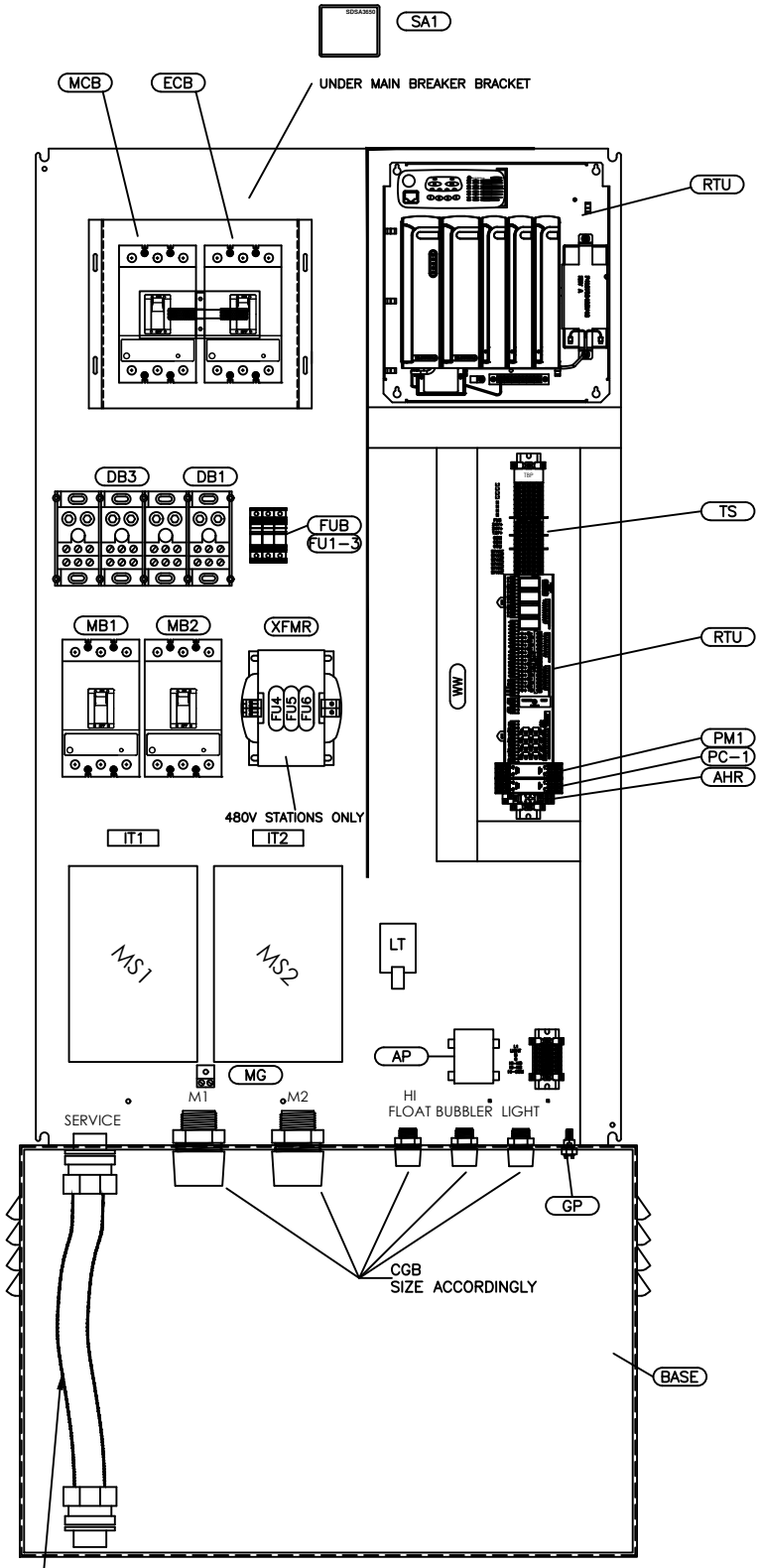

NOTES:

1. ANTENNA SHALL BE MOUNTED ON THE PUMP CONTROL PANEL.

UTILITIES
ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

CONTROL PANEL
BACKPLATE GENERAL ARRANGEMENT

NOT TO SCALE

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Ref.	Manufacturer	Part No.	Description
AHR	Allen Bradley	700-HK32-A1	120vac Isolation Relay 8 Blade
AHR	Allen Bradley	700-HN122	Relay Base 8 Blade
FUB	Allen Bradley	1492-FB3C30-L	Fuse Block 3 Pole Max. 30a Type CC
LT	Endress + Hauser	Cerabar T PMC131	Level Transducer
ANT	Antenex	TRAB4503	Phantom Antenna 450-470 MHz 3dB
GP	Burndy	KC22B1	Type SP Service Ground Post Connector
FM	Dwyer Instruments	VFA-3-BV	Flow Meter
IT1-IT2	Enercorp Inst. Ltd	200-1	AC Current Sensor 4-20mA Output
BASE	Eurobex or Hoffman	Custom	36x25x16 Wireway
ENC	Eurobex	5412 ESSP603616 w/Factory Modifications	60x36x16 Nema 4X Enclosure with Inner Door
SW	Hubbell	S1	Wall Plate Switch S.S.
SW	Hubbell	CS1221BK	Toggle Switch
GB	Ilsco	NB20	Ground Bar Kit
ALGT	Werma	150.X00.67	Alarm Horn/Light 120VAC
AP	Ingram Products, Inc.	HR 10 WB	5W 120VAC Air Compressor
ETM1-ETM2	KEP	H57 & H57.72	Elapsed Time Meter w/Panel Mount Bezel
RECEP	Leviton	8899-E	Smart Lock GFCI
FU4	LittleFuse	FLM020	Fuse 20a Class FLM 250V Slo-Blo for 480V Stations
FU5-FU6	LittleFuse	CCMR007	Fuse 7a Class CC Slo-Blo for 480V Stations
FU1-FU3	LittleFuse	CCMR001	Fuse 1a Class CC Slo-Blo for 480V Stations
LSMP	Manu.	Custom	Engraved Black on White Background Per Specifications
ZS	Manu.	Custom	Tamper Switch Bracket Per Specifications
LI	MarshallTown	83KD-G26121	Level Gauge
ZS	Micro Switch	1DM401	Tamper Switch
RTU	MOTOROLA	Moscad Ace	RTU/PC
RTU	MOTOROLA	Mixed I/O Modules	2 Required With Interface
WW	Panduit	G2X2DG6 (6' pcs)	2" x 2" Wireway
WW	Panduit	C2DG6 (6' pcs)	2" Wireway Cover
TS	Phoenix Contact	08 01 73 3 (NS 35/7,5 PERF)	DinRail (2m pcs.)
TS	Phoenix Contact	30 03 02 0 (D-UK 4/10)	Terminal Block End Cover
TS	Phoenix Contact	30 04 36 2 (UK 5 N)	Terminal Blocks 600v 30a
TS	Phoenix Contact	30 03 22 4 (ATP-UK)	Partition Plate
TS	Phoenix Contact	08 00 30 7 (UBE/D)	Terminal Strip Marker
TS	Phoenix Contact	08 00 88 6 (E/NS 35 N)	End Clamp
GR	Russellstoll / T & B	JRS1044FR	Male Generator Receptacle 240vac For 230V Stations
GR	Russellstoll / T & B	JRS2044FR	Male Generator Receptacle 480vac For 480V Stations
CCB-RCB	Square D	QOU-115VH	Circuit Breaker 15a 1P 22 KAIC
DB1	Square D	9080 Series	Distribution Block 1 Pole Size Accordingly
DB1	Square D	9080 Series	Distribution Block 1 Pole Plastic Cover
DB3	Square D	9080 Series	Distribution Block 3 Pole Size Accordingly
DB3	Square D	9080 Series	Distribution Block 3 Pole Plastic Cover
DS	Square D	Heavy Duty Nema 4X Service Entrance Rated	Disconnect Switch Size Accordingly
MB1-MB2	Square D	TMMC with Aux. Contacts Q,F,or K Frame	Circuit Breaker 3P Size According To Pump HP
MCB-ECB	Square D	TMMC Q,F,or K Frame	Circuit Breaker 3P Size Accordingly
MS1-MS2	Square D	8536 Series MS or AltiStart Softstart	Motor Starter or Soft Start Per Specifications
OL1-OL2	Square D	Melting Alloy	Overloads Sized Accordingly
PB1	Square D	KN Series Black On White Background	Custom Name Plate "Alarm Silence"
PB1	Square D	SKR Series	Push Button Black Non-Illuminated Ext. Head 1NO
PTT1-PTT2	Square D	KN Series Black On White Background	Custom Name Plate "Pump 1 Run" "Pump 2 Run"
PTT1-PTT2	Square D	SKT Series	Indicating Light Green PTT LED 120v Corrosion Resistant
SA1	Square D	QOSAMK	Surge Arrester Bracket
SA1	Square D	SDSA3650	Secondary Surge Arrester
SS1-SS2	Square D	9001-SKS Series	Selector Switch 3 Position - 2NO & 2NC Corrosion Resistant
SS1-SS2	Square D	KN760WP Black On White Background	Name Plate "Hand Off Auto"
XFMR	Square D	9070TF1500D1	Transformer 1500VA for 480V Stations
CGB	Thomas And Betts	Cord Grip Bushing	Size Accordingly
PM1	Wilkerson Instrument Co.	BR549	DCR Phase Monitor
PM2	Diversified	SLA-230-ASA/SLA 440 ALE	DCR Phase Monitor
PC-1	Wilkerson Instrument Co.	DR1920	DCR Back-up Pump Controller
MG	Thomas and Betts	ADR2	Ground Lug
PLGT	Crescent Lighting	CU115121YLS	Ligh Fixture 18" Under Cabinet 120V 15W (not shown)
HFS	Anchor Scientific Inc.	Roto Float Type S	60 Feet Length

NOTES:

ALL CONDUITS (FROM PANEL TO WET WELL) TO BE SCH. 80 PVC.

NOTES ON 240V PANELS:

A. THIS IS THE MINIMUM SIZE PUMP STATION PANEL FOR UNDER 15 HP AT 240 VOLTS, 3P. FOR LARGER THAN 15 HP ITEMS 1, 2, 6, AND 8 CHANGE. MINIMUM SERVICE SIZE 100 AMP.

B. SHORT CIRCUIT AMPS RATING OF CIRCUIT BREAKER AND PANEL SHALL EQUAL OR EXCEED SYSTEM S.C. AMPS. CONTRACTOR SHALL CONFIRM THIS VALUE WITH THE POWER COMPANY AND ORDER THE PANEL ACCORDINGLY. IN ADDITION, THE MINIMUM S.C. AMP RATING OF THE PANEL SHALL BE 22,000 AMPS.

C. FOR TWO (2) MOTORS 15 HP AND UP, SIZE COMPONENTS PER THE FOLLOWING TABLE FOR 240 VOLT 3 PHASE SERVICES.

MOTOR H.P.	MOTOR AMPS	SERVICE MINIMUM MOTOR AMPS X2.25 + 12.5	MAIN SERVICE BREAKER ITEM 1	MOTOR CIRCUIT BREAKER ITEM 6	MOTOR STARTER ITEM 8	SERVICE WIRES	CONDUIT
15	42	101.8	200	100	NEMA–2	3–#1, 1–#4	2"
20	54	127	200	100	NEMA–3	3–#1/0, 1–#4	2"

NOTES ON 480V PANELS:

A. THE FOLLOWING COMPONENTS SHALL CHANGE:

ITEM NAME	DESCRIPTION	MANUFACTURER	TYPE
GENERATOR RECEPTACLE	4 WIRE 200 AMP	RUSSELSTOHL	JRSA2044
SURGE ARRESTER	650 VOLT, 3–P	SQUARE D	SDSA 3650
TRANSFORMER	1500VA	SQUARE D	9070TF1500D1
FUSES	ALL 600 VOLT FOR 480 VOLT SERVICE BUS – 8 AMP ON 3 kVA TRANSFORMER PRIMARY		

B. THE 480 VOLT SHORT CIRCUIT RATING OF PANEL SHALL EQUAL OR EXCEED SYSTEM S.C. AMPS CONTRACTOR SHALL CONFIRM THIS VALUE WITH THE POWER COMPANY AND ORDER THE PANEL ACCORDINGLY. IN ADDITION, THE MINIMUM S.C. AMP RATING OF THE PANEL SHALL BE AS FOLLOWS:

FOR 100 AMP SERVICE 18,000 AMPS
FOR 200 TO 250 AMP SERVICE 42,000 AMPS

MOTOR H.P.	MOTOR AMPS	SERVICE MINIMUM MOTOR AMPS X2.25 + 12.5	MAIN SERVICE BREAKER ITEM 1	MOTOR CIRCUIT BREAKER ITEM 6	MOTOR STARTER ITEM 8	SERVICE WIRES	CONDUIT
25	34	84.5	100	50	NEMA–2	3–#3, 1–#4	1–1/4"
25	40	98	200	100	NEMA–3	3–#1, 1–#4	2"
30	52	125	200	100	NEMA–3	3–#1/0, 1–#4	2"
40	65	154	200	100	SOFT STARTERS	3–#3/0, 1–#3	2"
50	77	181	200	250	SOFT STARTERS	3–#3/0, 1–#3	2"
60	96	224	250	250	SOFT STARTERS	3–250 KCM, 1–#3	2–1/2"

INSTALLATION NOTES

1. PANEL AND METER ARE TO BE MOUNTED ON STAINLESS STEEL STRUTS, WITH STAINLESS STEEL FASTENING DEVICES, AND SHALL BE SUPPORTED BY TWO POSTS, MIN. FOUR (4) INCH DIAMETER PIPE OR MIN. FOUR (4) INCH SQUARE TUBE (ALUMINUM OR STAINLESS STEEL) CAPPED AT THE TOP. PAINT BELOW GRADE SUPPORTS WITH ASPHALTUM PAINT TO FOUR (4) INCHES ABOVE GRADE.

2. PANEL MUST BE NOT CLOSER THAN 36 INCHES OR FARTHER THAN 48 INCHES FROM WET WELL OPENING MEASURED FROM THE FRONT OF THE PANEL.

3. RADIO TO MATCH THE DEPARTMENT'S SYSTEM INCLUDING RUN TIME TRANSMITTAL. LIVE TEST OF THE TELEMETRY SYSTEM MUST BE DONE AND APPROVED AT THE LIFT STATION START–UP. ANTENNA AND CABLE SHALL BE PART OF THE RADIO SYSTEM. ANTENNA SHALL BE MOUNTED ON THE PUMP CONTROL PANEL.

4. EXTEND PANEL'S POST 10 FEET FOR MOUNTING THE FLOOD LIGHT.

5. RUN 3/4" PVC CONDUIT UP THE POLE FOR THE FLOOD LIGHTS.

6. MOUNT FLOOD LIGHT ON THE POLE AT TEN (10) FEET ABOVE GRADE. LIGHT SWITCH SUPPLIED IN PUMP CONTROL PANEL.

7. CONDUIT TO THE POWER COMPANY SERVICE POINT SHALL BE RIGID PVC WITH ASPHALTUM PAINT ON ALL FITTINGS AND ON ALL RISERS TO 12 INCHES ABOVE GRADE. WIRING FROM THE METER CAN TO THE PANEL SHALL BE RIGID PVC CONDUIT ENTERING THE BOTTOM OF THE PANEL. ALL WIRE SHALL BE COPPER. HIGH LEG ON 240 VOLT SHALL BE TAPED ORANGE AND PUT ON CENTRAL TERMINAL IN PANEL AND RIGHT TERMINAL IN METER.

8. PROVIDE TWO (2) – TWO (2) INCH MINIMUM SIZE CONDUITS PVC SCHEDULE 80 WITH SWEEP BENDS, FROM THE PANEL TO THE WET WELL.

9. SUPPORT PUMP CABLES WITH STAINLESS SPLIT BASKET KELLUM (OR EQUAL) GRIPS IN WET WELL. SUPPORT FLOAT CABLES ON S.S. THIMBLE FROM THE RACK. ALL HARDWARE IN THE WET WELL AND ALL FASTENERS SHALL BE STAINLESS STEEL. CABLES SHALL BE CONTINUOUS FROM THE JUNCTION BOX TO THE MOTORS OR FLOATS. SUPPORT CABLES ENTERING THE JUNCTION BOX WITH SPLIT PVC STRAIN RELIEF BUSHINGS.

10. PROVIDE RIGID PVC CONDUITS FROM THE PANEL AND TO THE LIGHTS. ALL CONDUITS ENTER BOTTOM OF THE PANEL. SEAL ALL CONDUITS WITH DUCT SEAL TO KEEP OUT MOISTURE.

11. PAINT ALL PIPES, CONDUITS AND ANY PARTS NOT STAINLESS OR ALUMINUM WITH TWO (2) COATS OF ALUMINUM PAINT.

12. TEST AS FOLLOWS, PUMP SUPPLIERS FIELD TEST MAN MUST BE PRESENT TO CONDUCT TESTS.

    A. MEGGER MOTORS, MOTORS SHALL BE 20 MEGOHMS OR MORE TO GROUND, DO NOT MEGGER LOW VOLTAGE CONTROLS.

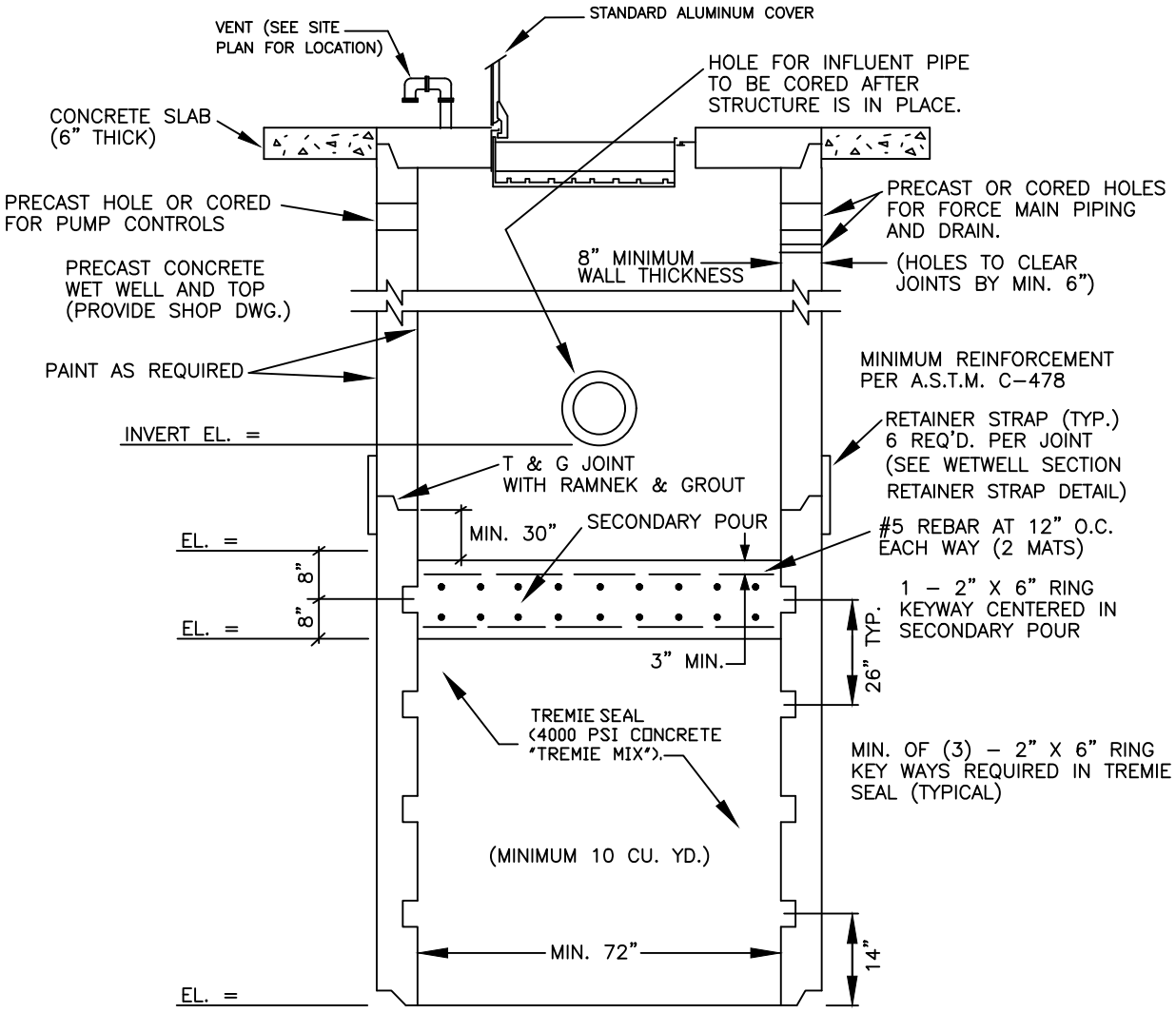
    B. CHECK VOLTAGE, CHECK PUMP ROTATION, RECORD VOLTAGE AND AMPS UNDER LOAD.

    C. DEMONSTRATE PROPER OPERATION OF ALL CONTROLS.

    D. CONDUCT DRAWDOWN TESTS AS REQUIRED.

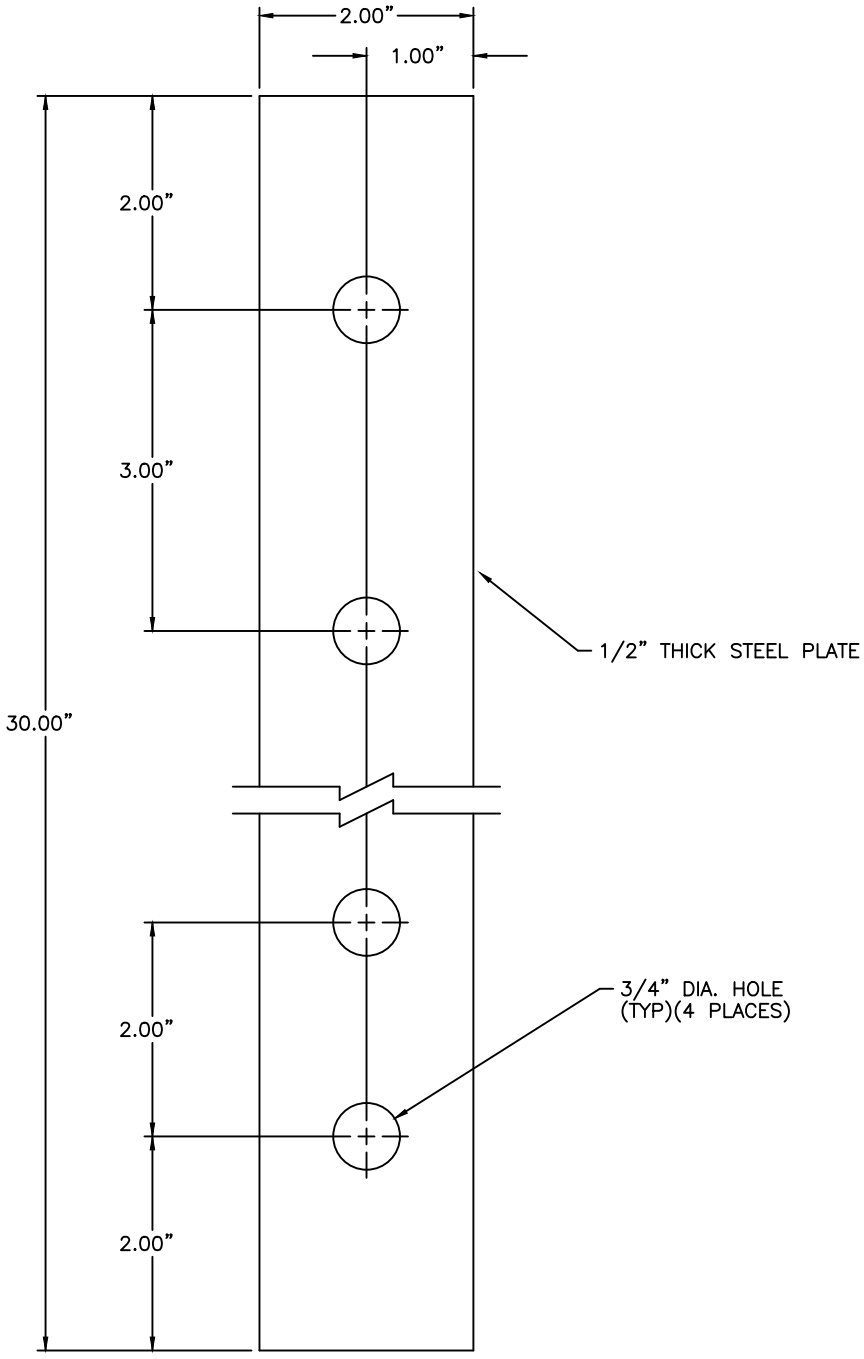
    E. CHECK OPERATION WITH OWNER'S PORTABLE GENERATOR CHANGE WIRE CONNECTIONS IN THE PANEL TO GIVE CORRECT ROTATION.

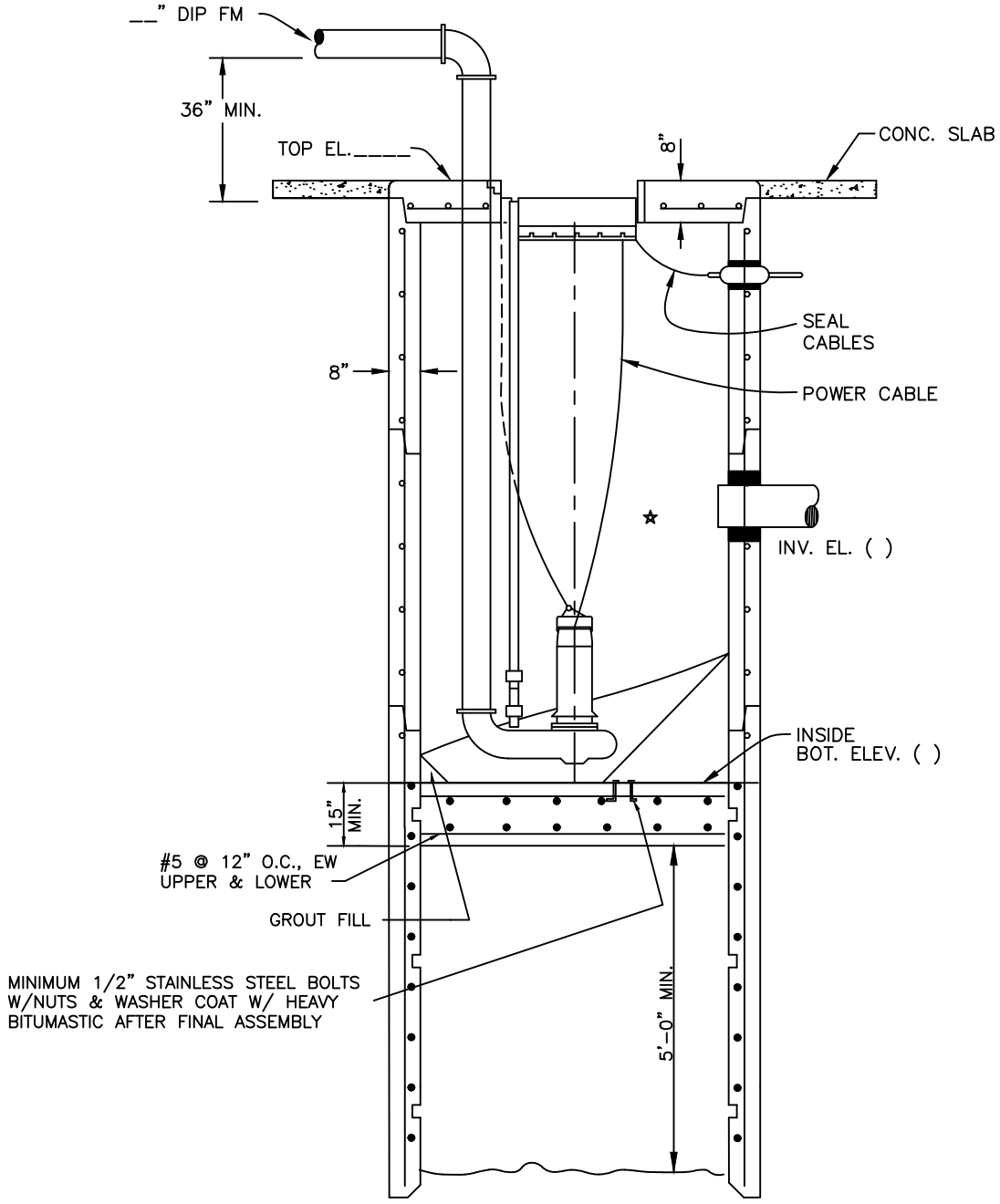
13. TEST AND DEMONSTRATE PROPER OPERATION OF THE RADIO TELEMETRY SYSTEM. SUPPLIER'S FIELD REPRESENT–ATIVE SHALL MOUNT AND CONNECT THE ANTENNA AND MAKE THE FINAL CONNECTIONS TO THE SYSTEM.



NOTES:

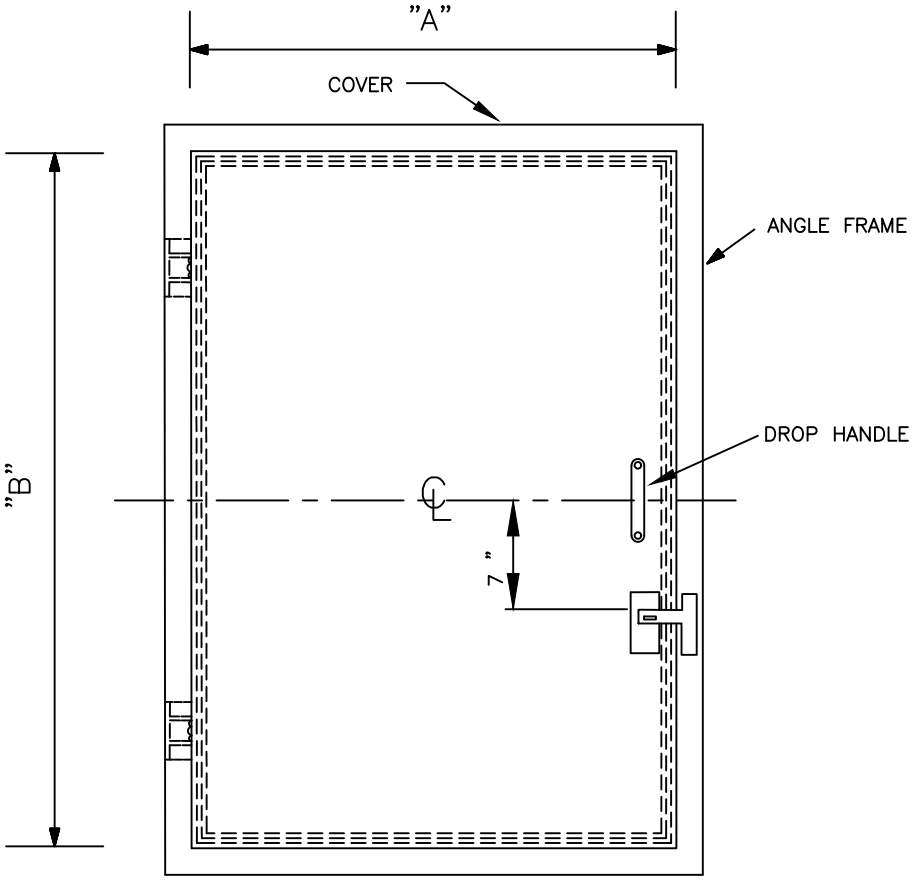
1. CONCRETE USED FOR TREMIE SEAL AND SECONDARY POUR MUST BE 4000 P.S.I. AT 28 DAYS WITH TYPE II PORTLAND CEMENT.
2. MIN. OF FOUR 2" X 6" RING KEY WAYS REQUIRED WITH TOP KEY WAY CENTERED IN THE SECONDARY CONCRETE POUR.
3. TREMIE SEAL REQUIRED TO BE A MINIMUM OF 60" THICK AND SECONDARY CONCRETE POUR 16" THICK.
4. TREMIE SEAL TO CURE MINIMUM 72 HOURS PRIOR TO PUMPING OFF WATER TO PREPARE FOR SECONDARY CONCRETE POUR.
5. ENGINEER OF RECORD SHALL SUBMIT SIGNED AND SEALED BUOYANCY CALCULATIONS TO THE DEPARTMENT FOR REVIEW AND APPROVAL. FLOATATION CALCULATION SHALL BE BASED ON 25 YR. FLOOD STAGE DURING CONSTRUCTION AND ON 100 YR. FLOOD STAGE WITH SECONDARY POUR INCLUDED.
6. WEIGHT OF TOP SLAB, SECONDARY CONCRETE POUR, PUMPS AND EXTERIOR SKIN FRICTION SHALL NOT BE INCLUDED IN BUOYANCY CALCULATIONS. GROUNDWATER SHALL BE CONSIDERED AT GROUND LEVEL FOR BUOYANCY CALCULATIONS UNLESS SPECIAL CONSIDERATIONS APPLY (ON COASTAL RIDGE, ETC.).
7. SEE TYPICAL LIFT STATION DETAILS FOR ADDITIONAL DESIGN AND CONSTRUCTION STANDARDS.
8. WET WELL RISERS SHALL BE MIN. 24", MAX. 72" TALL.
9. CONCRETE BARREL SECTIONS SHALL BE INSTALLED BY CLAMSHELL/CRANE METHOD. DAMAGED SECTIONS WILL NOT BE ACCEPTED.
10. NO CONCRETE SHALL BE PLACED UNLESS WATER LEVEL IN WET WELL IS EQUAL TO OUTSIDE WATER TABLE ELEVATION. INSIDE WATER LEVEL SHALL BE MAINTAINED AT WATER TABLE ELEVATION AT ALL TIMES DURING CONCRETE PLACEMENT.
11. THE CONCRETE TREMIE SEAL RAISE RATE SHOULD BE MAINTAINED BY CONTRACTOR TO ASSURE NO COLD JOINT OCCURS IN SEAL.
12. MIN. PUMP SIZE TO BE 2", MAXIMUM CHUTE SIZE TO BE 12".
13. THE ENGINEER OF RECORD OR HIS REPRESENTATIVE SHALL BE PRESENT DURING THE WET WELL SETTING AND TREMIE POUR PROCEDURE. ANY CORRECTIVE ACTION FOR LOST SEAL OCCURRENCE SHALL BE DOCUMENTED AND APPROVED BY THE ENGINEER OF RECORD.





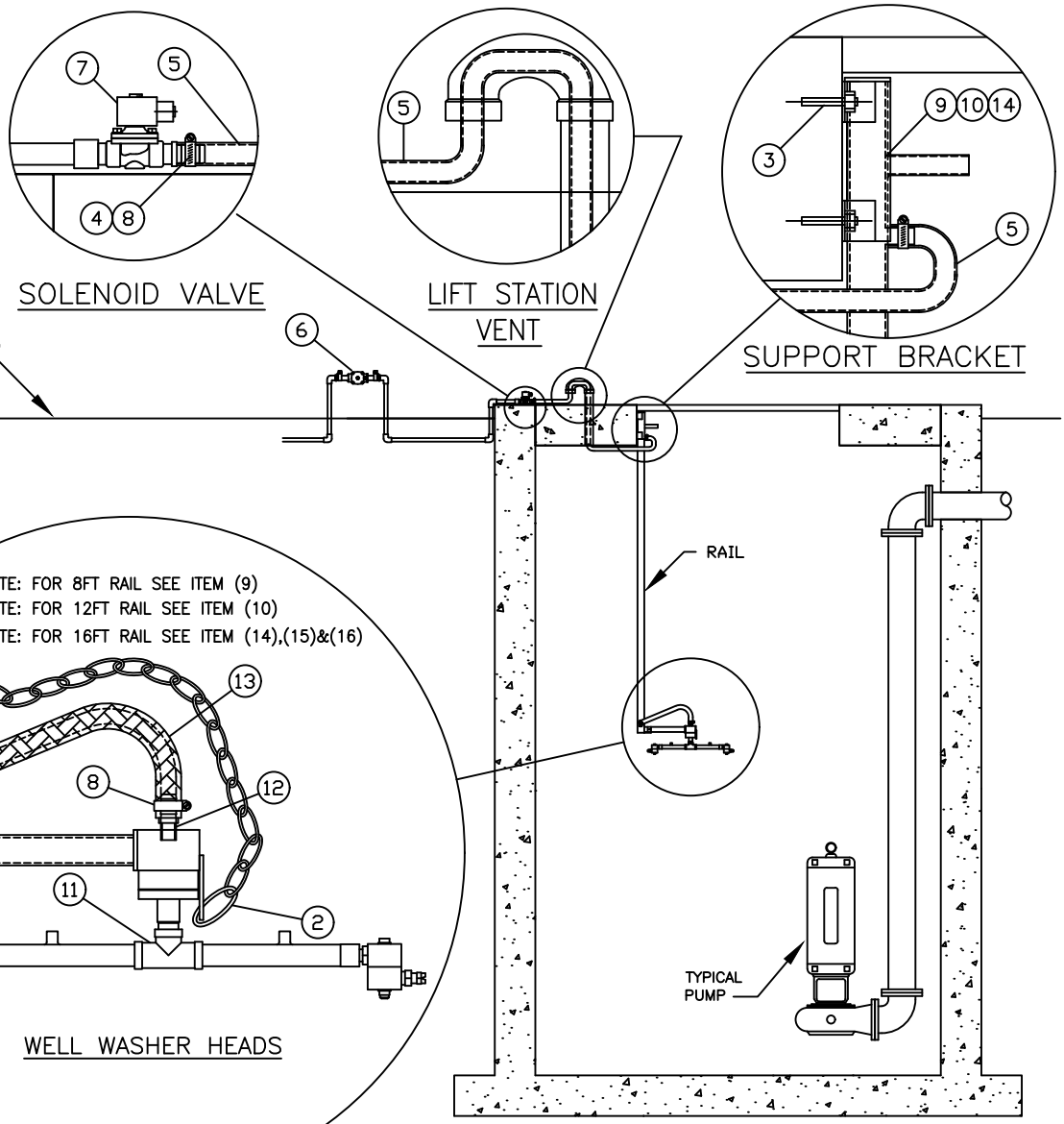
SECTION

ACCESS COVER SIZE		
MOTOR HP	"A"	"B"
≤ 15	30"	48"
> 15	48"	72"



NOTES:

1. COVER TO BE 1/4" ALUMINUM DIAMOND PLATE, HINGED, MIN. LOAD RATING 300 PSF WITH POSITIVE LOCKING ARM AND LOCKING HASP.
2. MINIMUM COVER DIMENSIONS --- SEE TABLE
3. COVER SHALL BE CAST IN PLACE (SEE SPEC SHEET)
4. SPLIT COVER IS ACCEPTABLE FOR LARGER SIZES.
5. RECESSED HASP IS REQUIRED IN WALKWAYS AND TRAFFIC AREAS.
6. TOP AROUND COVER SHALL BE CAST TO THE SAME SIZE AS CONCRETE BOX AND CENTERED ON PUMP ASSEMBLY.
7. ALUMINUM MINIMUM GRADE SHALL BE 6061-T6, ASTM B209 TYPE AA 5052 ALLOY.



NOTE:
SEE INSTALLATION PROCEDURE FOR
LIFT STATION WELL WASHER

LEGEND:

1. 1/8" LONG LINK S.S. CHAIN 15'LG
2. "D" SHACKLE
3. WEDGE ANCHORS S.S. 3/8"x 2-3/4"
4. 3/4MNPT S.S. TO 3/4" BARB FITTING
5. 3/4" HOSE REINFORCED
6. BACKFLOW PREVENTER
7. SOLENOID VALVE ASCO #8210G9HW
8. S.S. HOSE CLAMP
9. RAIL 8FT TOP/BOTTOM MOUNT
10. RAIL 12FT TOP/BOTTOM MOUNT
11. WELL WASHER NOZZLE 1/2FNPT.
12. ADAPTER HOSE 1/2MNPT X 3/4 S.S.
13. HOSE BRAIDED S.S. 3/4 INCH
14. RAIL 8FT TOP MOUNT
15. RAIL 8FT BOTTOM MOUNT
16. BOLT KIT FOR 16FT RAIL

UTILITIES ENGINEERING DIVISION

BOYNTON BEACH UTILITIES DEPARTMENT CONSTRUCTION STANDARDS & DETAILS

ASSEMBLY WELL WASHER INSTALLATION FOR 8', 12' & 16' RAILS

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