

**GENERAL NOTES**

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND ALL APPLICABLE PERMITS.
- LOCATION SHOWN FOR UNDERGROUND UTILITIES AND STRUCTURES ARE BASED ON FIELD SURVEYS AND RECORD DRAWINGS AND ARE SHOWN FOR GENERAL INFORMATION ONLY. THESE LOCATIONS SHOULD BE CONSIDERED APPROXIMATE AND SHALL BE FIELD VERIFIED BY THE CONTRACTOR IN ADVANCE OF THE WORK, BOTH HORIZONTALLY AND VERTICALLY, TO DETERMINE EXACT SIZE, MATERIAL, DEPTH, LOCATION, AND OTHER UTILITIES NOT SHOWN. EXISTING UTILITY CROSSING AND CONFLICTS SHALL BE COORDINATED WITH UTILITY OWNER AT NO ADDITIONAL COST TO THE CLIENT. CALL THE LOCAL PUBLIC UTILITIES LOCATING SERVICE AT LEAST 72 HOURS PRIOR TO DIGGING FOR LOCATION ASSISTANCE. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITIES PRIOR TO DIGGING.
- WHEN NEW LINE IS WITHIN FIVE FEET OF EXISTING UTILITIES, CONTRACTOR SHALL DIG TEST PITS TO LOCATE EXISTING LINES IN ADVANCE OF PIPE LAYING OPERATIONS TO ALLOW ADEQUATE TIME FOR ANY NECESSARY RE-ALIGNMENTS OR ADJUSTMENTS.
- PROVIDE POWER POLE SUPPORT WHEN OPEN DITCH IS WITHIN 5'-0" OF POLE AND WHEN OWNER AND/OR CONDITIONS WARRANT. COORDINATE WITH POWER UTILITY. ADDITIONAL POLES NOT SPECIFICALLY SHOWN MAY ALSO REQUIRE TEMPORARY SUPPORT IF EXCAVATION IS WITHIN 5' OF POLES.
- ALL ITEMS SUCH AS: FENCES, STORM DRAINS, MAIL BOXES, SIGNS, UNDERGROUND CABLE, PROPERTY PINS, LANDSCAPED SHRUBBERY, ETC., THAT NEED TO BE REMOVED FOR CONSTRUCTION AND REPLACED SHALL BE PROTECTED AND RE-INSTALLED TO THE SATISFACTION OF THE OWNER. CONTRACTOR SHALL RE-ESTABLISH A TEMPORARY RELOCATION IMMEDIATELY AND IN NO CASE LONGER THAN BY THE END OF EACH WORK DAY. CONTRACTOR SHALL COORDINATE WITH PROPERTY OWNERS AS NECESSARY FOR ITEMS SUCH AS FENCES THAT MUST BE MAINTAINED FOR CONTROL OF LIVESTOCK OR SECURITY. TEMPORARY FENCE LINES, ETC., SHALL BE INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
- PIPELINE SHALL HAVE A MINIMUM COVER OF 3'-6" (UNLESS NOTED OTHERWISE) AND LAID TO AVOID AIR POCKETS ALONG THE TOP OF PIPE. CONTRACTOR SHALL PERFORM HIS OWN GROUND SURVEY PRIOR TO PIPE INSTALLATION TO VERIFY GRADES AND ELEVATIONS.
- ALL AIR RELEASE VALVES TO BE PLACED AT HIGH SPOT OF PIPELINE AT STATIONS INDICATED PLUS OR MINUS ONE PIPE JOINT.
- PIPE DEFLECTIONS NOT EXCEED MAXIMUM ONE-HALF OF MANUFACTURER'S RECOMMENDED DEFLECTION ANGLE.
- ALL AREAS DISTURBED BEYOND THE LIMITS OF CONSTRUCTION SHALL BE RESTORED REGARDLESS OF AREA AFFECTED AT NO ADDITIONAL COST TO THE OWNER.
- ALL AIR RELEASE VALVES ARE TO BE INSTALLED AT LOCATIONS SHOWN +/- ONE PIPE JOINT IN ORDER TO ENSURE INSTALLATION AT HIGH/LOW POINTS RESPECTIVELY. ALL OTHER VALVES AND BENDS SHALL BE INSTALLED AT LOCATIONS INDICATED +/- 3'-0".
- ALL RESTRAINED JOINT LENGTHS ARE MINIMUM DISTANCES REQUIRED FROM AN APPLICABLE BEND/APPURTENANCE. ALL FITTINGS INSTALLED WITHIN RESTRAINED LENGTHS INDICATED SHALL BE RESTRAINED.
- CONTRACTOR SHALL INSTALL PIPELINES AND APPURTENANCES IN LOCATIONS AND AT GRADES INDICATED. CONTRACTOR TO MAKE MINOR ALIGNMENT CHANGES AND DEFLECT PIPE WITHIN ACCEPTABLE DEFLECTIONS TO GENERALLY FOLLOW LAYOUT INDICATED.
- CONTRACTOR SHALL CLEAR AND GRUB RIGHT OF WAY AND TEMPORARY CONSTRUCTION EASEMENT AS NECESSARY TO COMPLETE INSTALLATION OF PIPELINE.
- INSIDE/ALONG ROADWAY RIGHTS-OF-WAY, CONTRACTOR SHALL DISTURB AND RESTORE AREAS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH APPROVED SCDOT ENCROACHMENT PERMIT. LIMITS OF CONSTRUCTION EXTEND TO ROADWAY PAVEMENT AS NECESSARY. ALL CONSTRUCTION ACTIVITIES SHALL BE CONTAINED WITHIN ESTABLISHED EASEMENTS AND RIGHT OF WAYS SHOWN ON THE CONSTRUCTION DRAWINGS.
- WHEN FIELD CUTS OF PIPE ARE NECESSARY THE CONTRACTOR SHALL CUT PIPE WITH A PIPE SAW IN ACCORDANCE WITH APPLICABLE AWWA REQUIREMENTS. FIELD WELDING OR TORCH-CUTTING ARE PROHIBITED ON THIS CONTRACT.

- CONTRACTOR SHALL SAW-CUT EXISTING PAVEMENT FOR ALL ASPHALT DRIVES/ROADS AND RESTORE PAVEMENT IN ACCORDANCE WITH SPECIFICATIONS AND DETAIL 1/C900.

**WETLANDS REQUIREMENTS**

- THERE SHALL BE NO DISTURBANCE TO THE WETLANDS AREAS EXCEPT AS INDICATED ON PLANS AND IN THE UNITED STATES ARMY CORPS OF ENGINEERS NATIONWIDE 12 PERMIT.
- CONTRACTOR SHALL INSTALL SEDIMENT CONTROL FENCES TO BORDER LIMITS OF DISTURBANCE, AS SHOWN. INSTALL DOUBLE ROW OF SILT FENCE WHERE INDICATED.
- ANY DEWATERING WILL BE DISCHARGED EITHER INTO A SEDIMENTATION DEVICE OR A SEDIMENT FILTER BAG PRIOR TO DISCHARGE.
- THE CONTRACTOR SHALL STABILIZE THE DISTURBED AREAS ADJACENT TO WETLANDS AND WATERS OF THE STATE IMMEDIATELY FOLLOWING INSTALLATION.

**ADDITIONAL REQUIREMENTS FOR WORK INSIDE OF SCDOT RIGHT-OF-WAY**

- CONTRACTOR SHALL PROVIDE SCDOT WITH A DETAILED TRAFFIC CONTROL PLAN FOR ALL WORK WITHIN SCDOT RIGHT-OF-WAY THAT COMPLIES WITH THE SCDOT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, LATEST EDITION, AND EXECUTE TRAFFIC CONTROLS IN ACCORDANCE WITH SCDOT APPROVED TRAFFIC CONTROL PLAN. THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED TO SCDOT A MINIMUM OF SEVEN DAYS PRIOR TO THE WORK REQUIRING TRAFFIC CONTROL. ALL WORK WITHIN THE PUBLIC HIGHWAY RIGHT-OF-WAY SHALL BE IN STRICT ACCORDANCE WITH THE SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION (SCDOT) ENCROACHMENT PERMIT AND IN ACCORDANCE WITH THE APPROVED TRAFFIC CONTROL PLAN.
- INSTALL TRAFFIC CONTROL AND SAFETY MEASURES AS NEEDED IN ACCORDANCE WITH SCDOT REQUIREMENTS. TRAFFIC CONTROL DEVICES TO BE MAINTAINED THROUGHOUT THE PROJECT DURATION AS REQUIRED. LANE CLOSURES SHALL BE IN ACCORDANCE WITH SCDOT PERMIT. TRAFFIC CONTROL STANDARDS MUST BE ADHERED TO ON ALL LOCATIONS WITHIN SCDOT'S RIGHT-OF-WAY.
- ALL EROSION CONTROL, CLEARING, GRUBBING, INSTALLATION AND RESTORATION TO BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
- TEMPORARILY STORE AND REMOVE SOILS IN SUCH A WAY TO PROTECT EXISTING ROAD PAVEMENT.
- ALL FILL MATERIAL PLACED SHALL BE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
- FINISH GRADE SWALES. FERTILIZE AND SEED DISTURBED AREAS. RELOCATE AND REPLACE ALL SEDIMENT AND EROSION CONTROL MEASURES AT END OF EACH DAY. ALL SLOPES 2:1 OR GREATER SHALL RECEIVE PERMANENT EROSION CONTROL MATTING OR HYDROSEEDING.
- ALL BACKFILL IN SCDOT RIGHT-OF-WAY SHALL MEET MINIMUM LIFT REQUIREMENTS OF 6 INCHES WHEN COMPACTED.
- ALL PIPE MARKERS IN SCDOT ROW SHALL BE FIBERGLASS AS APPROVED BY SCDOT.
- FOR ALL DITCHES WITHIN THE SCDOT RIGHT-OF-WAY THAT HAVE SIDELINE GRADES DISTURBED, THE DITCH SHOULD BE REPAIRED IN ACCORDANCE WITH DETAIL 0227011 AND AS SHOWN ON PLANS.
- ALL STORM DRAIN INSTALLATIONS AND REPAIRS, IF APPLICABLE, SHALL COMPLY WITH SCDOT STANDARD SPECIFICATIONS AND DRAWINGS.
- ROAD CONSTRUCTION SIGNS SHALL BE UTILIZED AND MAINTAINED PROPERLY IN ACCORDANCE WITH SCDOT STANDARD SPECIFICATIONS AND DRAWINGS.
- THE PROJECT LIMITS ALONG CLEMENTS FERRY ROAD MAY CONTAIN HEADWALLS, STORM DRAIN PIPES, LANDSCAPING AND ETC. THE CONTRACTOR SHALL ADDRESS ANY DISTURBANCE TO THESE ITEMS WITH SCDOT AND/OR PROPERTY OWNERS PRIOR TO CONSTRUCTION.

**SEQUENCE OF CONSTRUCTION OPERATIONS**

- NO WORK TO BE PERFORMED PRIOR TO RECEIPT OF NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) COVERAGE FROM SCDHEC.
- CONTRACTOR TO SCHEDULE A PRE-CONSTRUCTION MEETING PRIOR TO ANY COMMENCEMENT OF WORK.
- CONTRACTOR SHALL SIGN AND IMPLEMENT THE REQUIREMENTS OF THE APPROVED STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND CONTACT THE SCDHEC REGIONAL EA OFFICE LISTED BELOW PRIOR TO STARTING ANY LAND-DISTURBING ACTIVITIES. THE CONTRACTOR SHALL ABIDE BY ALL REQUIREMENTS OF THE SOUTH CAROLINA NPDES GENERAL PERMIT FOR STORMWATER DISCHARGES FROM CONSTRUCTION ACTIVITIES SCR100000. THE SWPPP AND ALL REQUIRED DOCUMENTATION SHALL BE KEPT UP TO DATE AND MAINTAINED IN A SAFE LOCATION ON-SITE AT ALL TIMES DURING CONSTRUCTION.  
  
LOWCOUNTRY EA CHARLESTON  
1362 McMillan Avenue, Suite 300  
Charleston, SC 29405  
(843) 953-0150
- INSTALL PHASE ONE EROSION AND SEDIMENTATION CONTROL MEASURES AS SHOWN ON THE CONTRACT DRAWINGS. NO CONSTRUCTION OR LAND DISTURBANCE ACTIVITIES MAY BEGIN UNTIL ALL EROSION AND SEDIMENTATION CONTROL MEASURES HAVE BEEN INSTALLED AROUND CONSTRUCTION AREAS. IF CLEARING IS REQUIRED FOR INSTALLATION OF A GIVEN MEASURE, ALL OTHER MEASURES SHOWN SHALL BE INSTALLED FIRST. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS BETWEEN THE DISTURBED AREA AND ALL WATERS OF THE STATE (WoS). A 10-FOOT BUFFER SHALL BE MAINTAINED WHERE POSSIBLE BETWEEN THE SILT FENCE AND THE WoS.
- ONCE ALL PHASE ONE MEASURES HAVE BEEN INSTALLED, THE SITE SHALL BE CLEARED AND GRUBBED AS SHOWN ON THE CONTRACT DRAWINGS. CONTRACTOR LAYDOWN/STOCKPILE/CONCRETE WASHOUT AREAS SHALL BE LOCATED AS SHOWN ON THE CONTRACT DRAWINGS.
- UPON COMPLETION OF CLEARING AND GRUBBING, PHASE TWO EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED.
- ONCE ALL PHASE TWO MEASURES HAVE BEEN INSTALLED, CONSTRUCTION ACTIVITIES MAY BEGIN. ONLY THE LENGTH OF TRENCH IN WHICH PIPE CAN BE INSTALLED IN ONE DAY'S TIME SHALL BE OPEN AT ANY TIME, WITH SPOIL MATERIAL PLACED ON THE UPHILL SIDE OF THE TRENCH. PIPING SHALL BE CAPPED AT END OF EACH WORK DAY TO PREVENT SEDIMENT FROM ENTERING. TRENCHES SHALL BE BACKFILLED AT END OF EACH WORK DAY AND DISTURBED AREA SEEDED WITH TEMPORARY SEEDING MEASURES AS NECESSARY.
- EARTHWORK EXCAVATION AND FILL OPERATIONS, AS WELL AS PUMP STATION CONSTRUCTION, SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD CONSTRUCTION TECHNIQUES. ALL EXCAVATION DEWATERING FLOWS SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE PRIOR TO DISCHARGE. TOPSOIL SHALL BE STRIPPED AND STOCKPILED ON SITE. TOPSOIL STOCKPILE SHALL HAVE PERIMETER EROSION CONTROL MEASURES INSTALLED AND SEEDED WITH TEMPORARY SEEDING MEASURES DURING CONSTRUCTION ACTIVITIES.
- STORM DRAINAGE DITCHES SHALL BE PROTECTED WITH APPROPRIATE EROSION CONTROL MEASURES AT ALL TIMES. POSITIVE STORMWATER DRAINAGE AWAY FROM CONSTRUCTION ACTIVITIES SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
- TEMPORARY SEEDING MEASURES SHALL BE EMPLOYED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT WHERE STABILIZATION MEASURES WOULD BE PRECLUDED BY SNOW OR FROZEN GROUND CONDITIONS, OR WHERE CONSTRUCTION ACTIVITY WILL BE RESUMED WITHIN 14 DAYS.
- ONCE ALL EARTHWORK AND CONSTRUCTION ACTIVITIES ARE COMPLETE, FINAL GRADING MAY BEGIN. CONTRACTOR SHALL FILE A NOTICE OF TERMINATION TO SCDHEC.
- UPON COMPLETION OF FINAL GRADING, PERMANENT SEEDING, MULCHING, AND FERTILIZING MEASURES

SHALL BE EMPLOYED ON ALL DISTURBED AREAS AS SPECIFIED IN THE CONTRACT DOCUMENTS. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL ENTIRE SITE HAS BEEN STABILIZED.

**SEDIMENT AND EROSION CONTROL**

- IF NECESSARY, SLOPES WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
  - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
  - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF INDICATED INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY OR INCORRECTLY INSTALLED, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
- PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING PER SPECS IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
- ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
- THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
- RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.
- TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
- ALL WATERS OF THE STATE (WoS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE

CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WoS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WoS.

- LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

- A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

- INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

- MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE.

- MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).

- THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
  - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
  - WASTEWATER FROM WASHOUT AND CLEAN OUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
  - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
  - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

- AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

- IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

- A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

**SEEDING SCHEDULE**

SCHEDULE NO.	COMMON SEED NAME	APPLICATION RATE (lb/acre)	PLANTING DATES
<b>TEMPORARY</b>			
1	Rye (grain)	56	September 1 - March 15
	Rye (oats)	75	
2	Ryegrass	50	September 1 - April 15
3	Browntop or Japanese Millet	40	March 15 - August 31

**NOTES**

- All seeded areas shall receive 500#/AC 10-10-10 fertilizer and 1500 - 2000#/AC straw mulch.

**PERMANENT**

1	Rye (grain)	10	September 1 - November 10
	Bahiagrass	40	
	Crimson Clover (annual)	5	
2	Browntop Millet	10	March 15 - August 31
	Bahiagrass	30	
	Sericea Lespedeza	40	

**NOTES**

- Other acceptable coastal grass blends can be found in Appendix C "Temporary and Permanent Seeding Rate Tables" of the SCDHEC Stormwater Management BMP Field Manual.
- All seeded areas shall receive 3000#/AC ground cover textured agricultural limestone, 1000#/AC 10-10-10 fertilizer, and 4000#/AC straw mulch.
- Application Method:

Application Method	Ground Slope
Broadcast Seeding (Unmulched)	0 - 2%
Broadcast Seeding (Mulched)	2 - 10%
Hydroseeding	Greater than 10%

File: D:\0323-CHARLESTON\DRAWINGS\CD\CD01.dwg, Saved by: LFANNING, Date: 2/11/2020, 3:49 PM, PLOT DATE: 02/20/2020, 8:30 AM, BY: LFANNING

NO.	DESCRIPTION	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L FANNING
DRAWN BY:	L FANNING
CHECKED BY:	
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



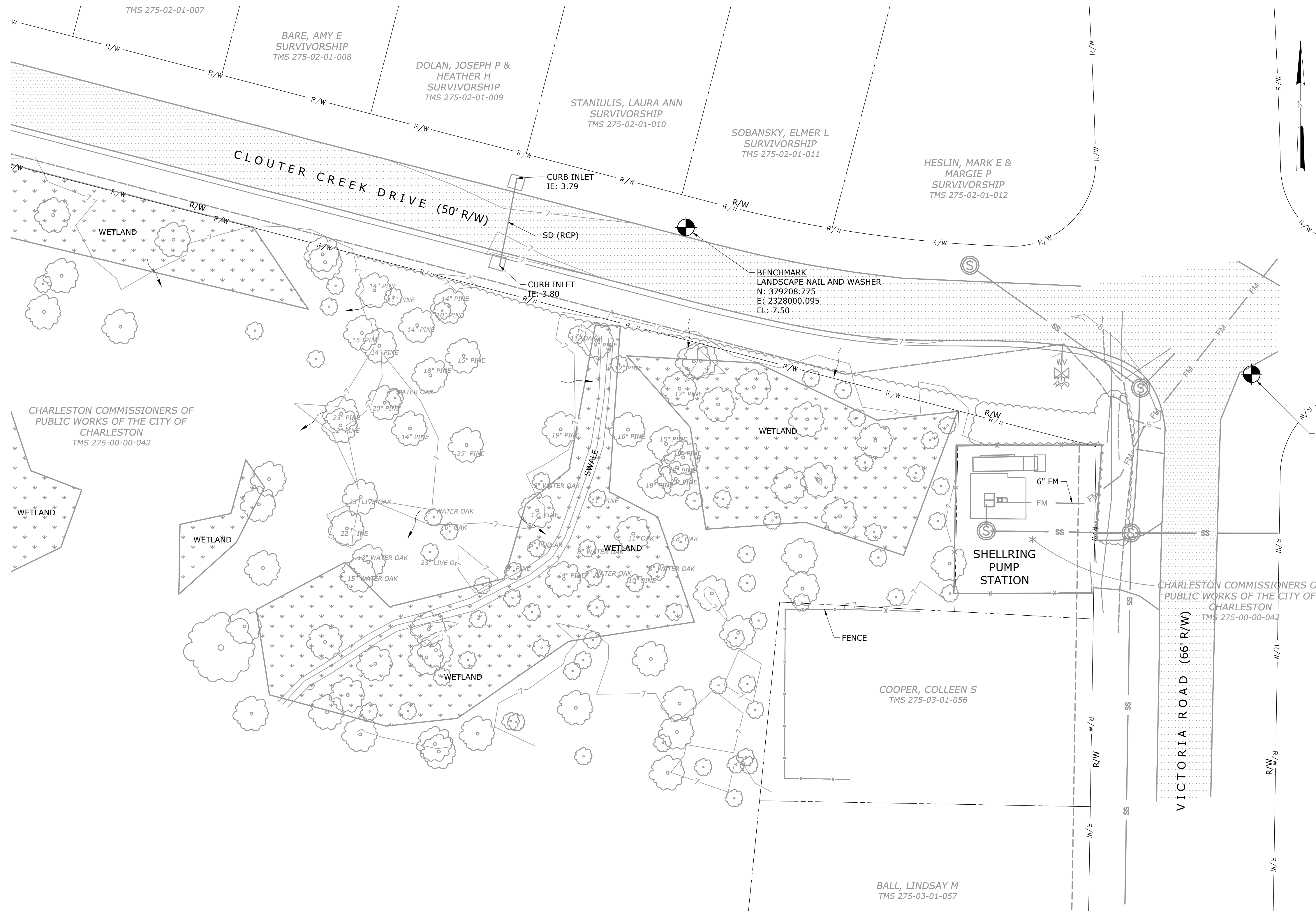
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC  
**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II**

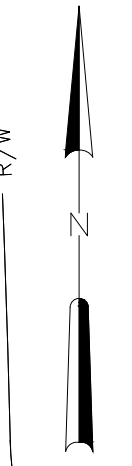
**GENERAL  
CIVIL NOTES**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C001





- NOTES:**
1. TOPOGRAPHIC INFORMATION TAKEN FROM LAND SURVEYS BY: CORNERSTONE SURVEYING AND ENGINEERING, DATED JULY 13, 2017 AND AUGUST 2, 2017
  2. ALL VERTICAL DATUM (ELEVATIONS) ARE NAVD88
  3. ALL HORIZONTAL DATUM ARE SOUTH CAROLINA STATE PLANE COORDINATES, NAD 83 (2011 ADJUSTMENT).
  4. FEMA 100-YEAR FLOOD ELEVATION: 11.00 (NAVD88) ALONG CLEMENTS FERRY ROAD AND 10.00 (NAVD88) AT PUMP STATION SITE, OBTAINED FROM FEMA FLOOD MAP NUMBERS 45015C0760E AND 45015C0720E, DATED DECEMBER 7, 2018.



**EXISTING SITE PLAN**  
1" = 20'

→ DIRECTION OF SURFACE WATER FLOW

File: D:\9353\CHARWATER\DESIGN\DRAWINGS\CIVIL\101\_Saved by LFANNING Save Date: 4/22/2020 1:48 PM  
 PLOT DATE: 4/22/2020 8:37 AM BY: LFANNING

PROJECT ENGINEER:	J. HARTWIG		
DESIGNED BY:	L. FANNING		
DRAWN BY:	L. FANNING		
CHECKED BY:	C. RAGOS		
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE			
1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

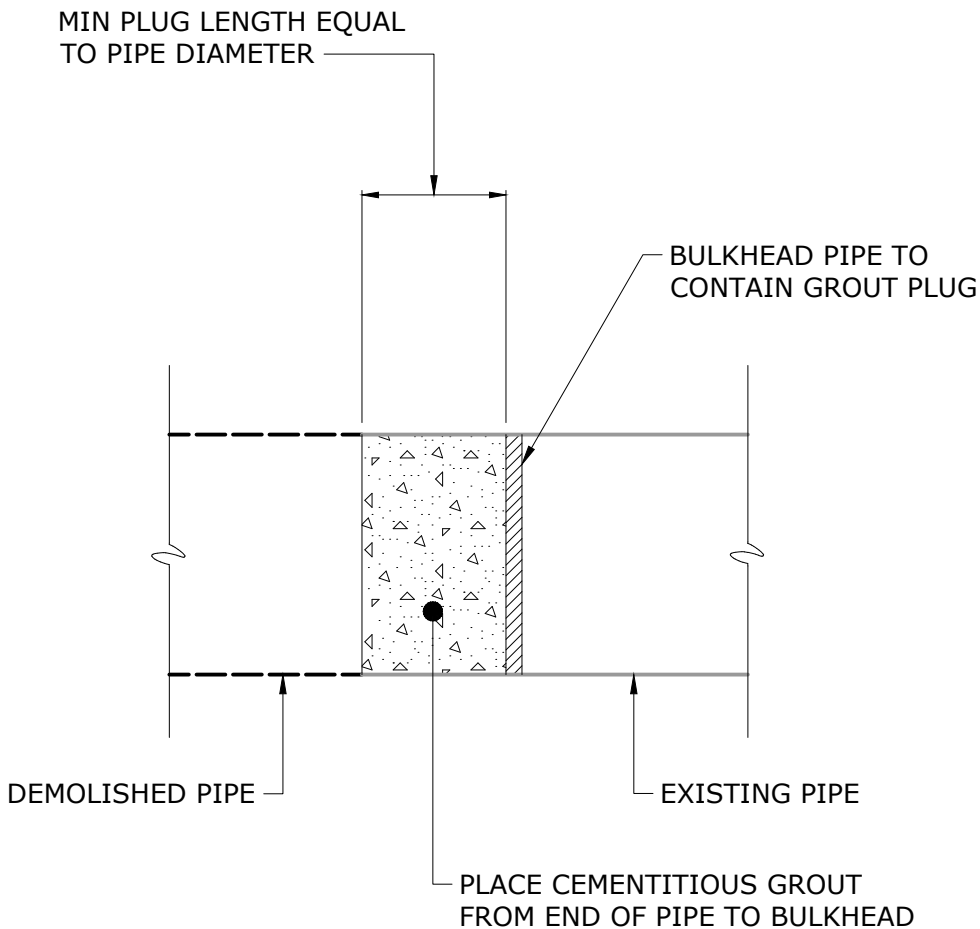
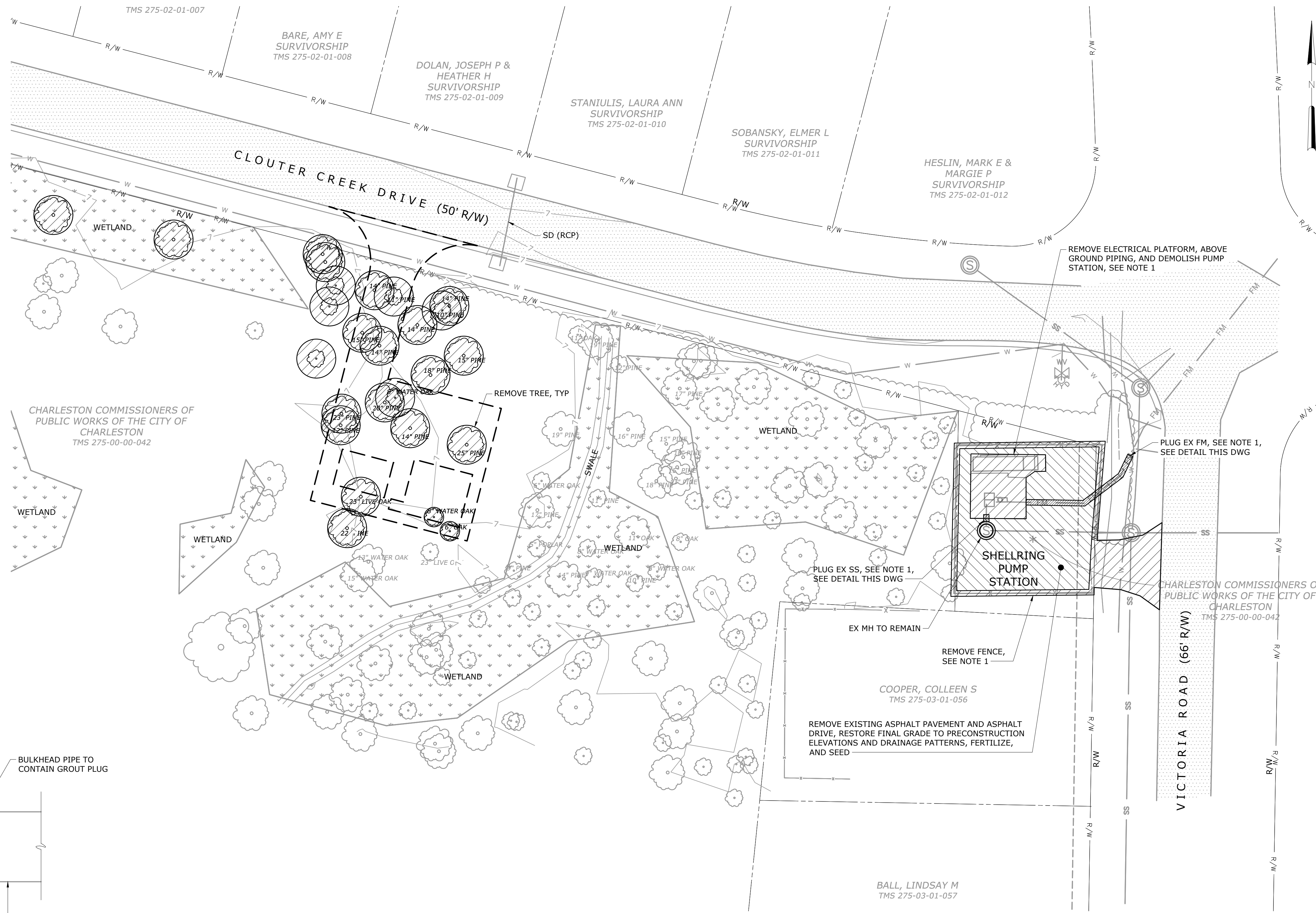
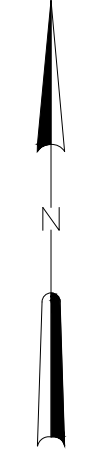
**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C100

**NOTES:**

1. EXISTING PUMP STATION TO REMAIN IN SERVICE DURING ENTIRE CONSTRUCTION PROCESS. DEMOLITION/ABANDONMENT OF EXISTING PUMP STATION, EXISTING ELECTRICAL PLATFORM, EXISTING SANITARY SEWER, AND EXISTING FORCEMAIN TO BE PERFORMED AFTER RECEIVING SCDHEC PERMIT TO OPERATE THE NEW PUMP STATION AND COMPLETING APPROPRIATE OPERATIONAL PERIOD. CONTRACTOR SHALL CLEAN PUMP STATION WETWELL, PUNCH HOLES IN BOTTOM OF STRUCTURES TO ALLOW FOR NORMAL GROUNDWATER FLUCTUATION, AND DEMOLISH STRUCTURES TO 36-INCHES BELOW GRADE AND FILL WITH SAND OR GRAVEL. RESTORE FINAL GRADE TO PRECONSTRUCTION ELEVATIONS AND DRAINAGE PATTERNS, FERTILIZE, AND SEED.
2. SEE SPECIFICATION SECTIONS 01520, 01540, AND 02050 FOR DEMOLITION REQUIREMENTS AND SEQUENCE OF CONSTRUCTION.
3. SEE REFERENCE DRAWINGS FOR DETAILS ON EXISTING PUMP STATION.
4. REFER TO SPECIFICATION 01540 FOR EQUIPMENT AND MATERIALS TO BE RETAINED BY OWNER.

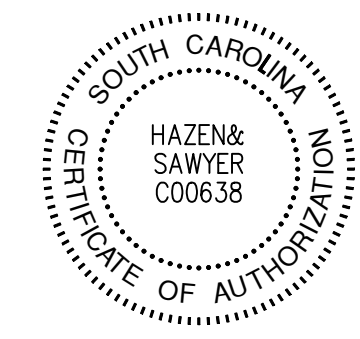


**PIPE PLUGGING DETAIL**  
NOT TO SCALE

**DEMOLITION PLAN**  
1" = 20'

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

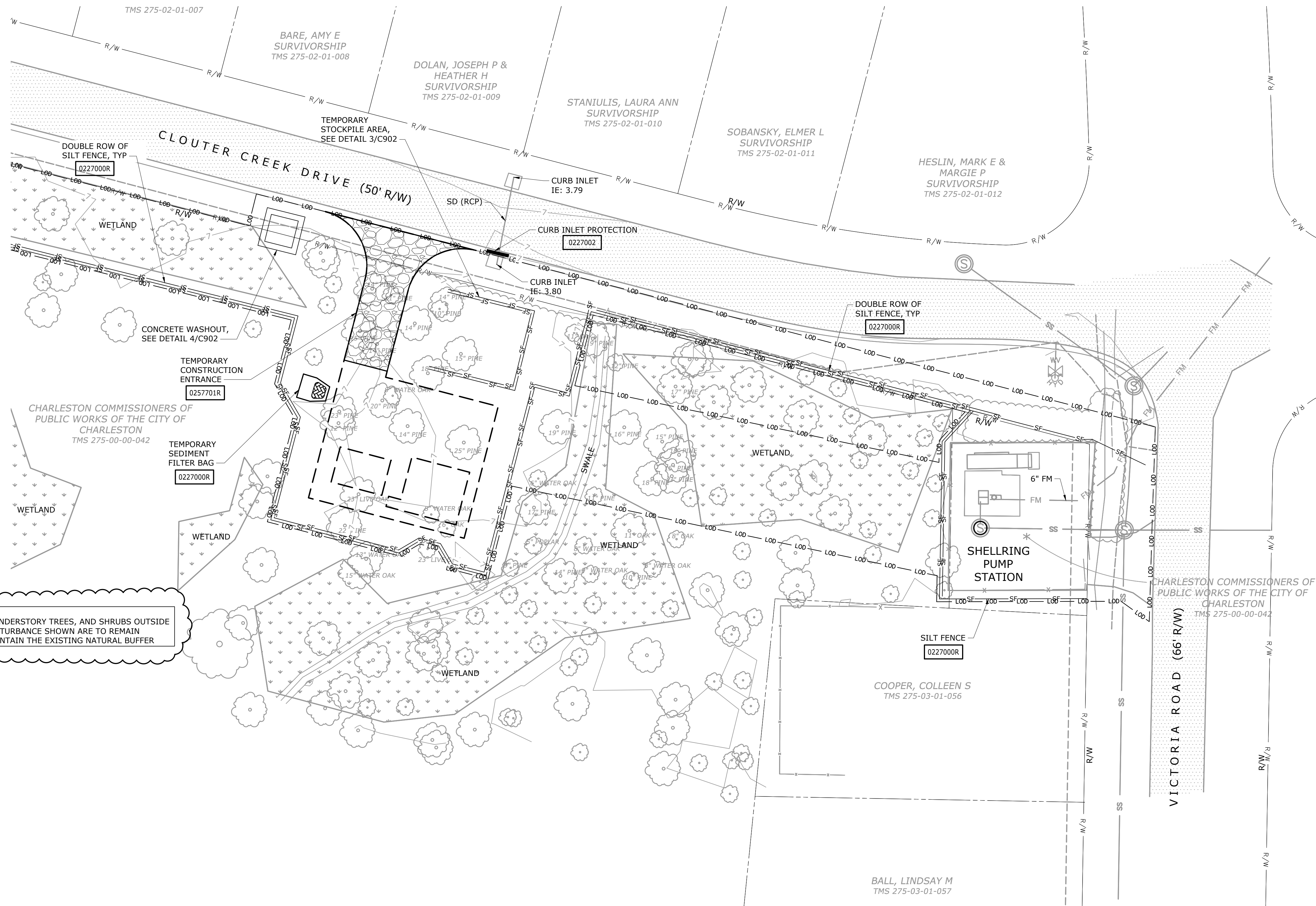
**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC  
**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I**

**PUMP STATION  
CIVIL  
DEMOLITION PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C101

File: D:\30533-008\30533-008\DRAWING\CONTRACT\111\_Saved by LFANNING Save Date: 4/22/2020 1:17 PM  
 PLOT DATE: 4/22/2020 8:37 AM BY: LFANNING

- NOTES:**
- SEE DRAWING C001 FOR ADDITIONAL SEDIMENT AND EROSION CONTROL REQUIREMENTS



**EROSION CONTROL PLAN**

1" = 20'

File: D:\03533-CHARLESTON REGIONAL PUMP STATION\DRAWING\C101.dwg Saved by: LFANNING Date: 4/22/2020 2:19 PM  
 PLOT DATE: 4/23/2020 8:32 AM BY: LFANNING

REV	ISSUED FOR	DATE	BY
3	ADDENDUM No. 3	APR 2020	HAZEN
2	ADDENDUM No. 1	JAN 2020	HAZEN
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS



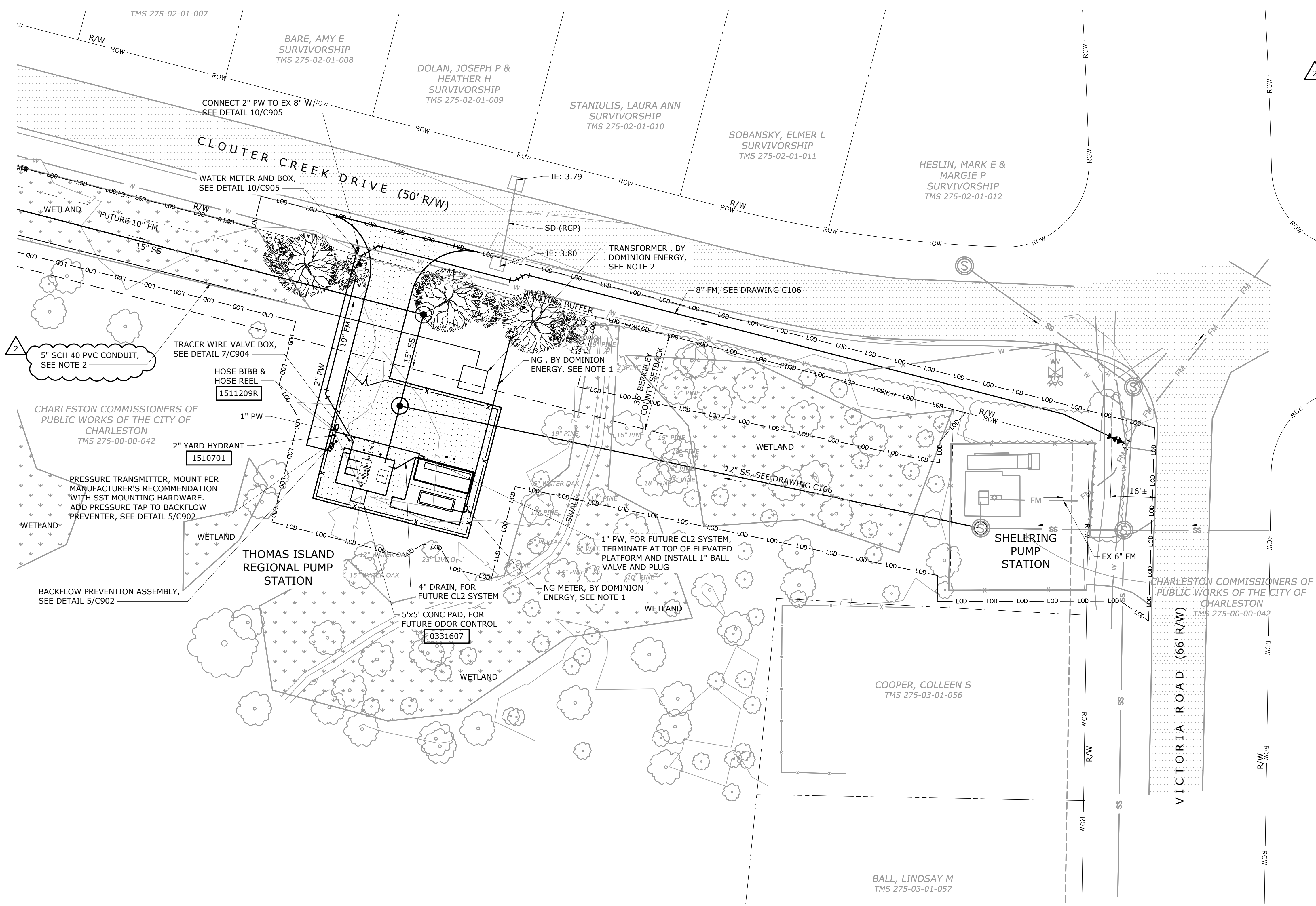
**Hazen**  
 HAZEN AND SAWYER  
 735 JOHNNIE DODDS BLVD, SUITE 102  
 MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
 COMMISSIONERS OF PUBLIC WORKS  
 OF THE CITY OF CHARLESTON, SC

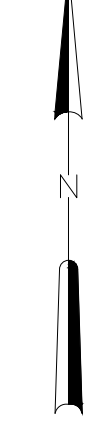
**THOMAS ISLAND REGIONAL PUMP STATION  
 AND INTERCEPTOR  
 DIVISION I**

**PUMP STATION  
 CIVIL  
 EROSION CONTROL PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C102



- NOTES:**
1. DOMINION ENERGY TO FURNISH AND INSTALL NATURAL GAS PIPING UP TO NATURAL GAS METER, INCLUDING METER.
  2. CONTRACTOR TO COORDINATE A PRE-CONSTRUCTION MEETING WITH DOMINION ENERGY PRIOR TO INSTALLATION OF 5-INCH SCHEDULE 40 PVC CONDUIT. CONDUIT TO BE INSTALLED 4-FEET BELOW GRADE AND ALL FITTINGS TO BE GALVANIZED STEEL.



**SITE PIPING PLAN**  
1" = 20'

File: C:\03533-CHAR\03533-001\DRAWINGS\CIVIL\103\_SitePiping\_Saved by LFANNING.dwg Date: 4/22/2020 2:22 PM  
 PLOT DATE: 4/23/2020 8:30 AM BY: LFANNING

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
ADDENDUM No. 1	JAN 2020 HAZEN
CONSTRUCTION	JAN 2020 HAZEN
REV	ISSUED FOR DATE BY



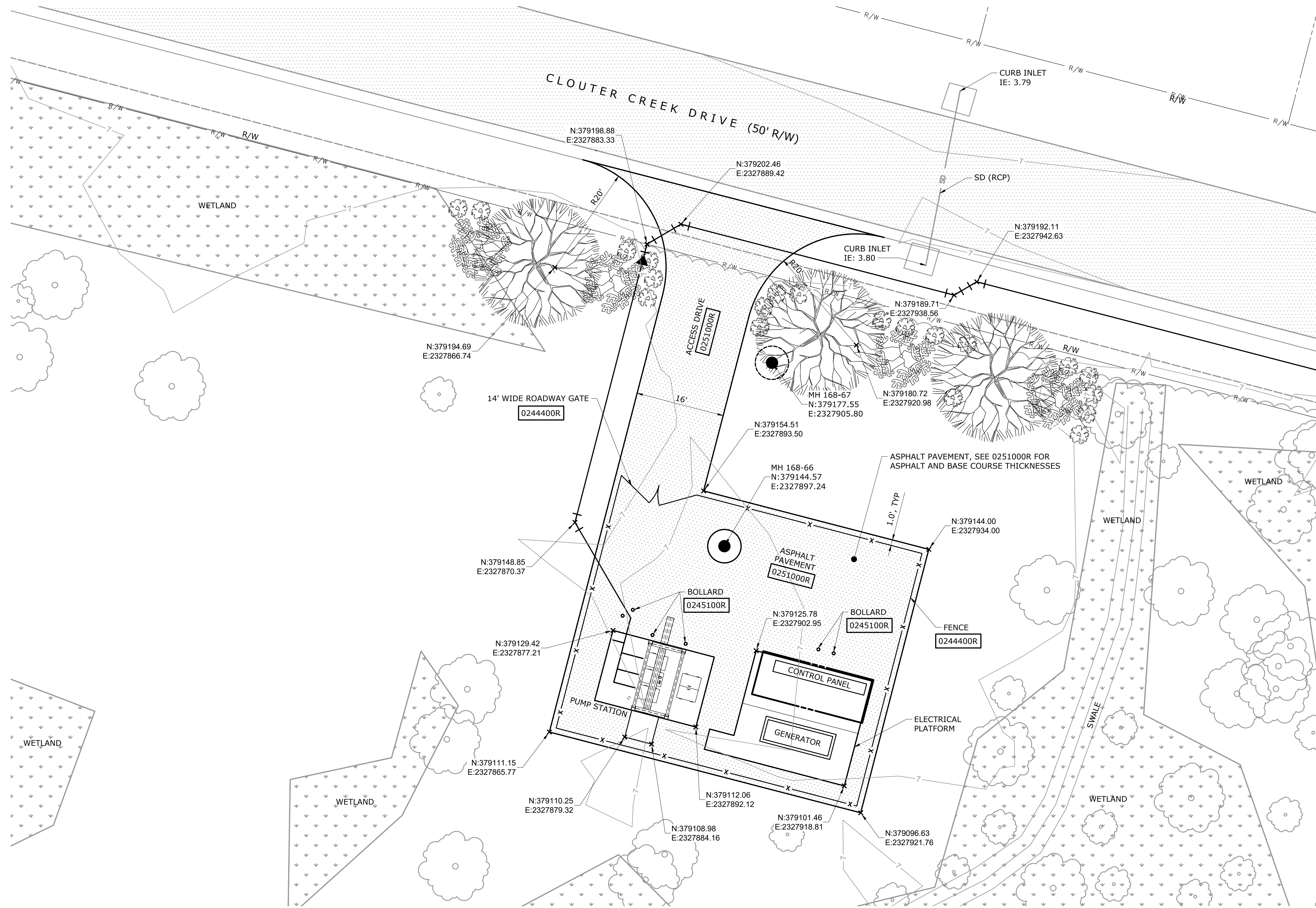
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464



**THOMAS ISLAND REGIONAL PUMP STATION AND INTERCEPTOR DIVISION I**

**PUMP STATION CIVIL SITE PIPING PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C103



**STAKING AND PAVING PLAN**  
1" = 10'

File: D:\9833-CHARLESTON REGIONAL PUMP STATION\DRAWING\CONSTRUCT\14 Saved by: LFANNING Save Date: 4/22/2020 2:28 PM  
 Plot Date: 4/22/2020 8:38 AM By: LFANNING

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

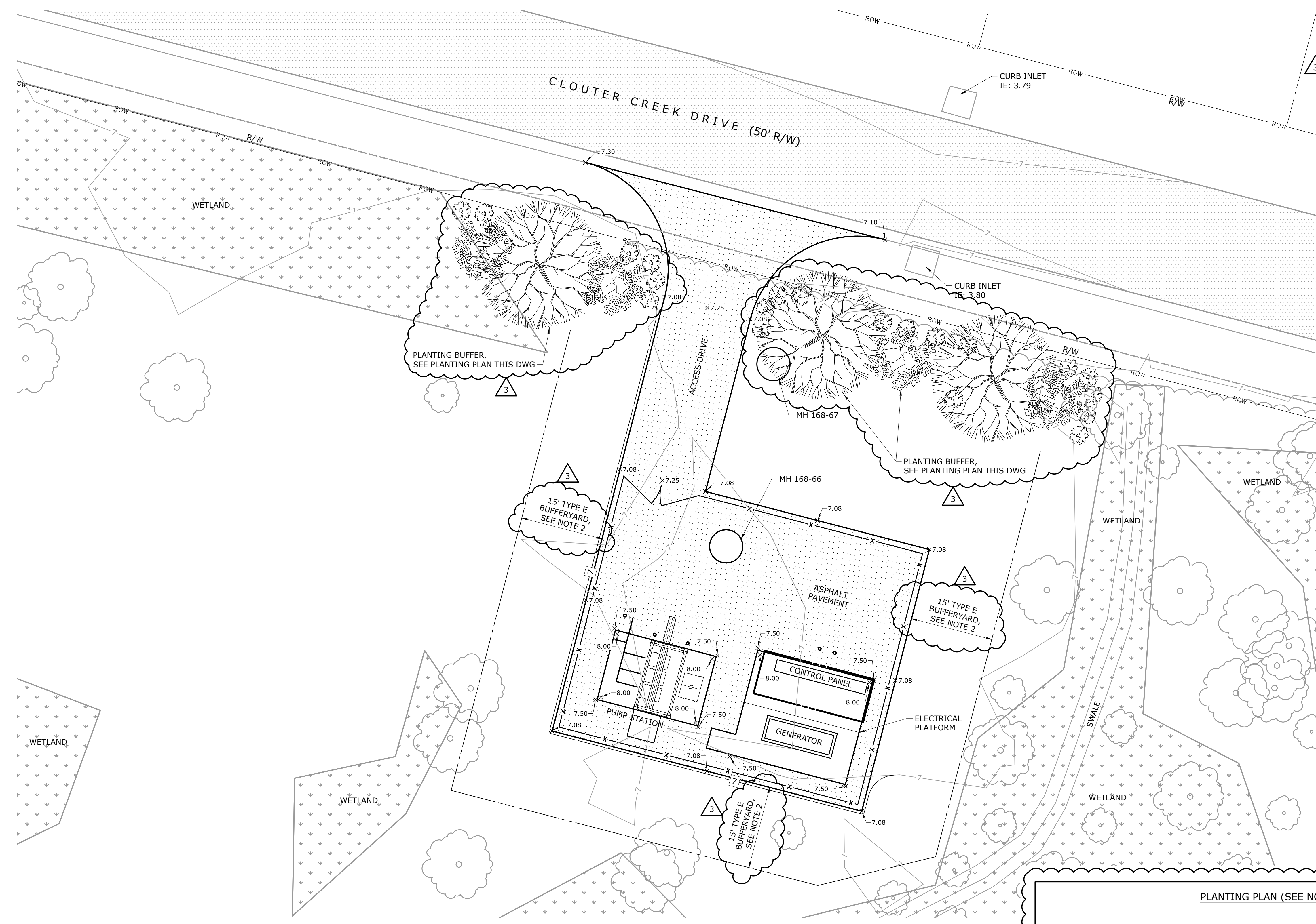
**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I**

**PUMP STATION  
CIVIL  
STAKING AND PAVING PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C104

- NOTES:**
1. CONTRACTOR MAY ONLY SUBSTITUTE TREE AND SHRUB SPECIES LISTED WITH SPECIES THAT ARE APPROVED BY BERKELEY COUNTY PLANNING AND ZONING ADMINISTRATOR. BUFFERYARD PLANTINGS TO BE IN ACCORDANCE WITH BERKELEY COUNTY CODE OF ORDINANCE, APPENDIX A - ZONING, ARTICLE 17 - BUFFERYARDS.
  2. EXISTING VEGETATION TO REMAIN UNDISTURBED WITHIN THE 15 FOOT TYPE E BUFFERYARD. IF VEGETATION IS DAMAGED OR REMOVED, CONTRACTOR SHALL PROVIDE NEW PLANTINGS TO MEET TYPE E BUFFERYARD PLANTING REQUIREMENTS AND SCHEDULE AN INSPECTION WITH BERKELEY COUNTY PLANNING AND ZONING AND RECEIVE APPROVAL THAT PLANTINGS SATISFY TYPE E BUFFERYARD REQUIREMENTS.



**GRADING AND DRAINAGE PLAN**  
1" = 10'

**PLANTING PLAN (SEE NOTE 1)**

COVER TYPE	QUANTITY	COMMON NAME	SCIENTIFIC NAME	MINIMUM PLANTING HEIGHT	MINIMUM CONTAINER SIZE
CANOPY	3	RED MAPLE	ACER RUBRUM	8 FEET	N/A
UNDERSTORY	4	SOUTHERN BAYBERRY	MYRICA CERIFERA	6 FEET	N/A
SHRUB	20	FOSTER HOLLY	ILEX X ATTENUATA "FOSTERI"	18-24 INCHES	3 GALLON

File: C:\PROJECTS\CHARLESTON\DRAWING\CONDUCT\105\_Saved by LFANNING.dwg Date: 4/22/2020 2:52 PM  
 PLOT DATE: 4/23/2020 8:58 AM BY: LFANNING

REV	ISSUED FOR	DATE	BY
3	ADDENDUM No. 3	APR 2020	HAZEN
2	ADDENDUM No. 1	JAN 2020	HAZEN
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER: J. HARTWIG  
 DESIGNED BY: J. HARTWIG  
 DRAWN BY: L. FANNING  
 CHECKED BY: C. RAGOS  
 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE



**Hazen**  
 HAZEN AND SAWYER  
 735 JOHNNIE DODDS BLVD, SUITE 102  
 MOUNT PLEASANT, SOUTH CAROLINA 29464

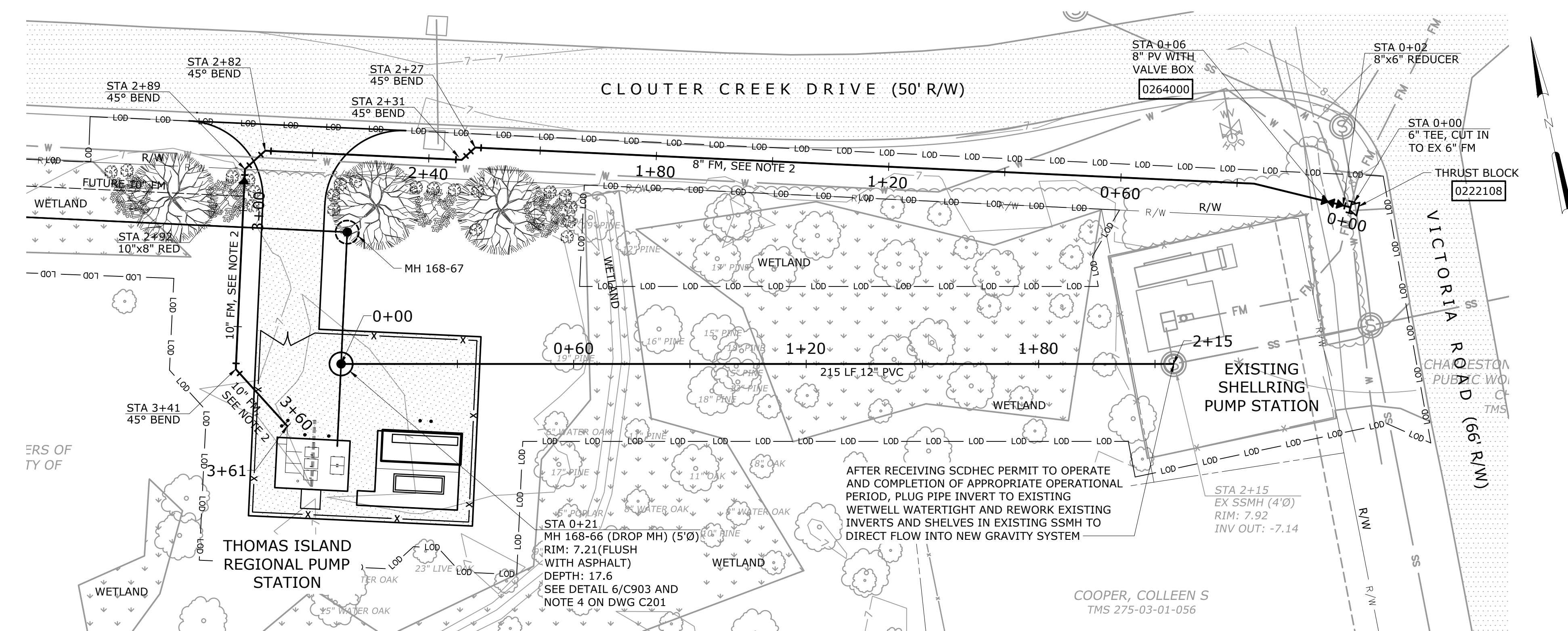


**Charleston Water System**  
 COMMISSIONERS OF PUBLIC WORKS  
 OF THE CITY OF CHARLESTON, SC  
**THOMAS ISLAND REGIONAL PUMP STATION  
 AND INTERCEPTOR  
 DIVISION I**

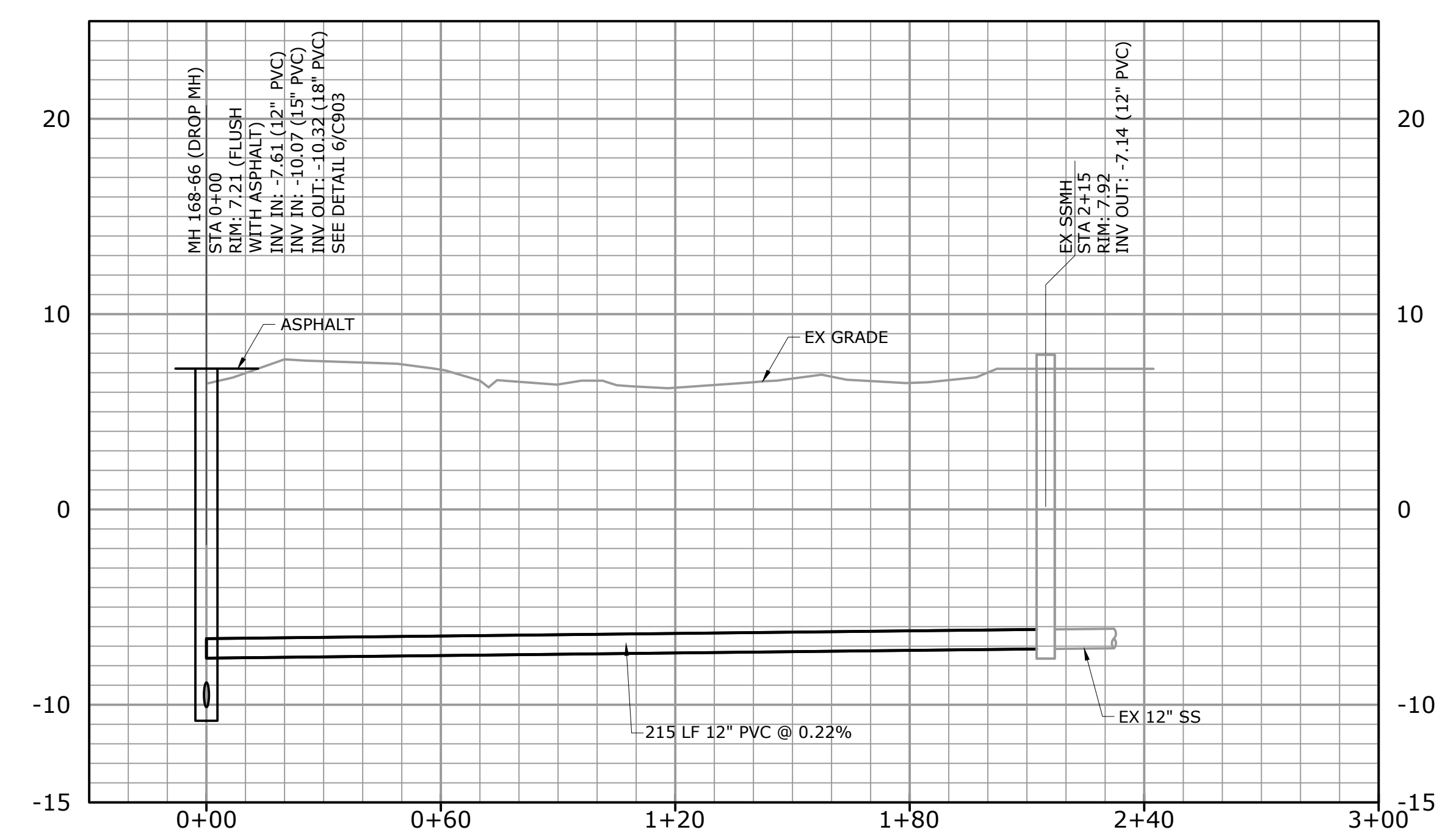
**PUMP STATION  
 CIVIL  
 GRADING AND DRAINAGE PLAN**

DATE: JANUARY 2020  
 HAZEN NO.: 30533-008  
 CONTRACT NO.: 01  
 DRAWING NUMBER:  
**C105**

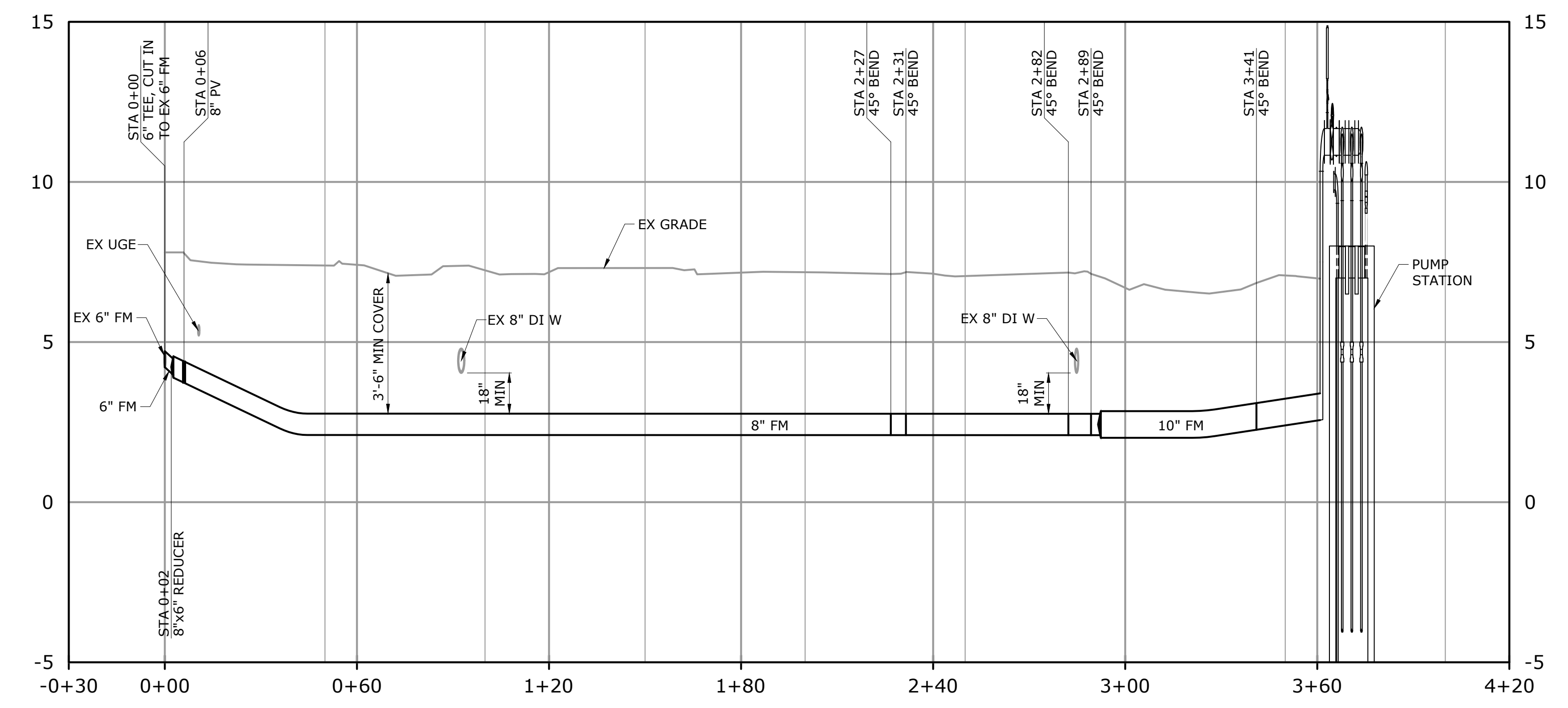
- NOTES:**
- SEE DRAWING C001 FOR ADDITIONAL SCDOT AND WETLAND REQUIREMENTS.
  - ALL FORCEMAIN PIPING TO BE RESTRAINED.



**PLAN - PUMP STATION**  
1" = 20'



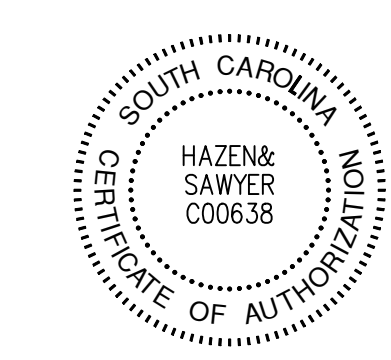
**PROFILE - GRAVITY SEWER**  
H: 1" = 30' V: 1" = 6'



**PROFILE - FORCEMAIN**  
H: 1" = 30' V: 1" = 3'

File: C:\03533-CHARLESTON\DRAWING\CONDUCT\18\_Saved by L.FANNING.dwg Date: 4/22/2020 3:49 PM  
 PLOT DATE: 4/22/2020 3:55 AM BY: L.FANNING

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	J. HARTWIG
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	
1	CONSTRUCTION
REV	ISSUED FOR
	DATE
	BY



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

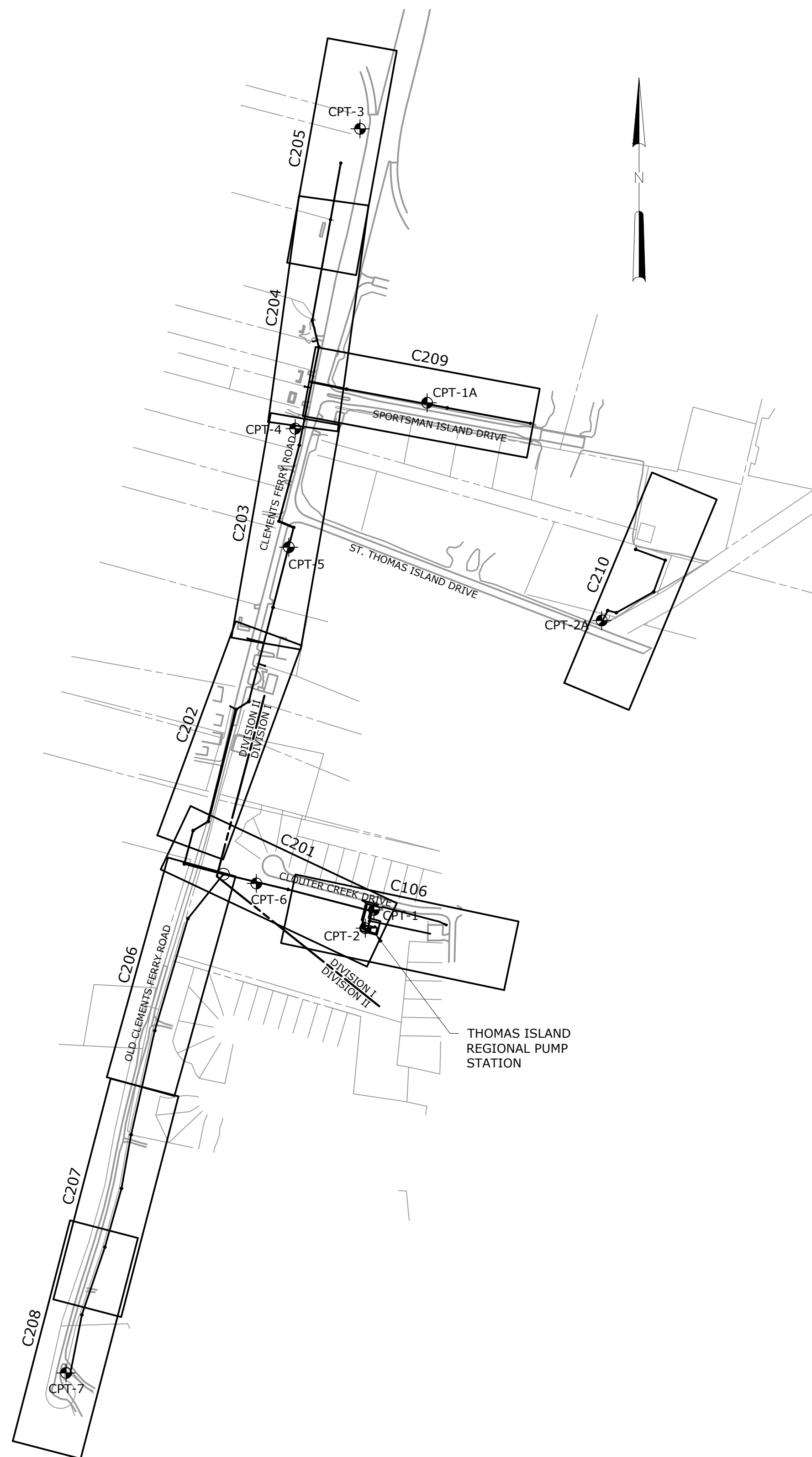


THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I

PUMP STATION  
CIVIL  
GRAVITY SEWER AND FORCEMAIN

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C106





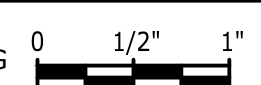
⊕ APPROXIMATE SOIL BORING LOCATION

**OVERALL KEY PLAN**  
1" = 300'

File: D:\30533-CHARLESTON\DRAWINGS\CONSTRUCT\2019 Saved by: LFANNING Save date: 1/7/2020 8:24 AM  
 PLOT DATE: 02/20/2020 8:38 AM BY: LFANNING

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



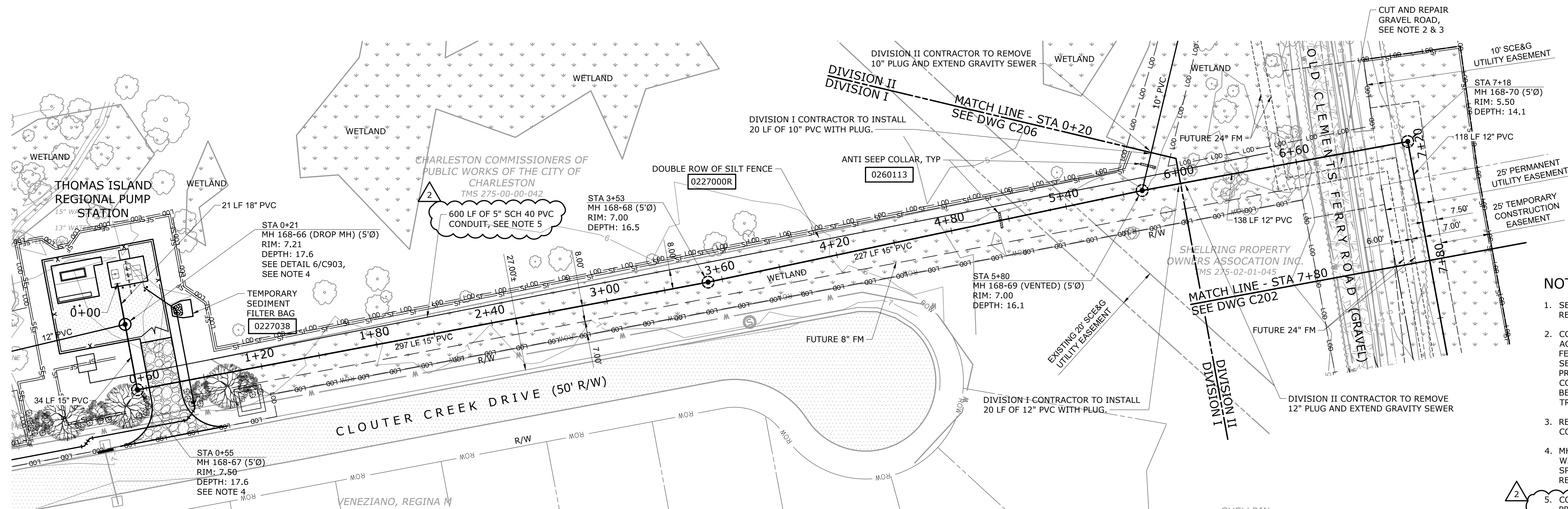
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II**

**CLEMENTS FERRY RD  
GRAVITY SEWER  
CIVIL  
OVERALL KEY PLAN**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C200

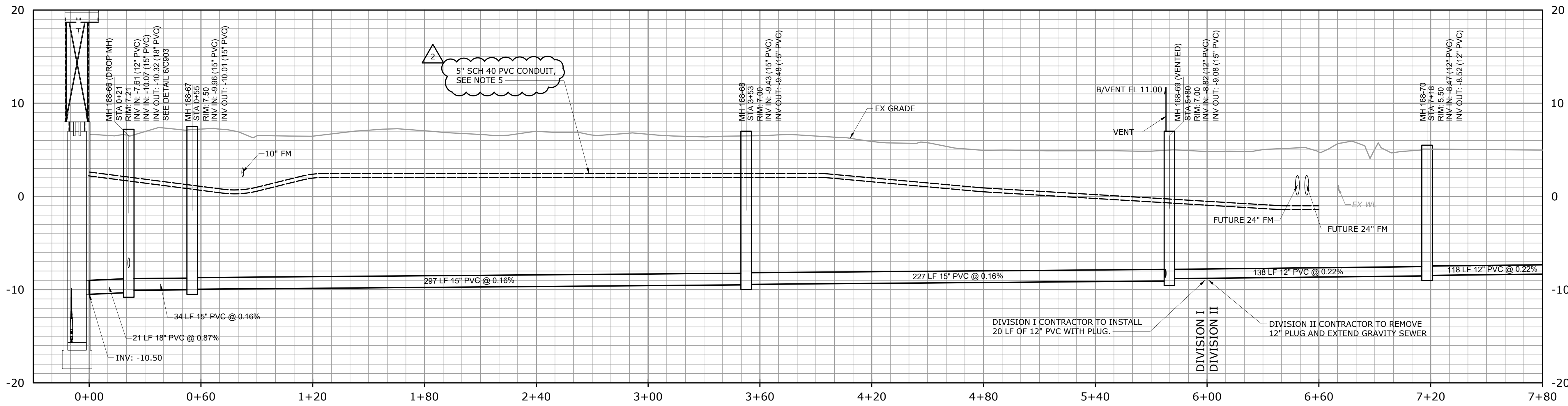


PLAN - CLEMENTS FERRY RD GRAVITY SEWER

1" = 30'

NOTES:

- SEE DRAWING C001 FOR WETLAND REQUIREMENTS.
- CONTRACTOR TO CONSTRUCT TEMPORARY ROAD ACCESS DURING TRENCHING OLD CLEMENTS FERRY ROAD FOR INSTALLATION OF SANITARY SEWER TO ALLOW FOR INGRESS/EGRESS OF PROPERTY OWNERS AND EMERGENCY VEHICLES. CONCRETE JERSEY BARRIERS SHALL BE INSTALLED BETWEEN OPEN TRENCH AND ROADS TO PREVENT TRAFFIC FROM ACCESSING OPEN TRENCH AREA.
- RESTORE GRAVEL ROAD TO PRE-CONSTRUCTION CONDITIONS.
- MH 168-66 AND MH 168-67 SHALL BE COATED WITH RAVEN 405 EPOXY SYSTEM. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- CONTRACTOR TO COORDINATE A PRE-CONSTRUCTION MEETING WITH DOMINION ENERGY PRIOR TO INSTALLATION OF 5-INCH SCHEDULE 40 PVC CONDUIT. CONDUIT TO BE INSTALLED A MINIMUM OF 4-FEET BELOW GRADE AND ALL FITTINGS TO BE GALVANIZED STEEL.



PROFILE - CLEMENTS FERRY RD GRAVITY SEWER

H: 1" = 30' V: 1" = 6'

File: C:\PROJECTS\CHARLESTON\DRAWINGS\C201.ctb Saved by: LFANNING Date: 4/22/2020 2:39 PM  
 PLOT DATE: 4/23/2020 8:37 AM BY: LFANNING

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
ADDENDUM No. 1	JAN 2020 HAZEN
CONSTRUCTION	JAN 2020 HAZEN
ISSUED FOR	DATE BY

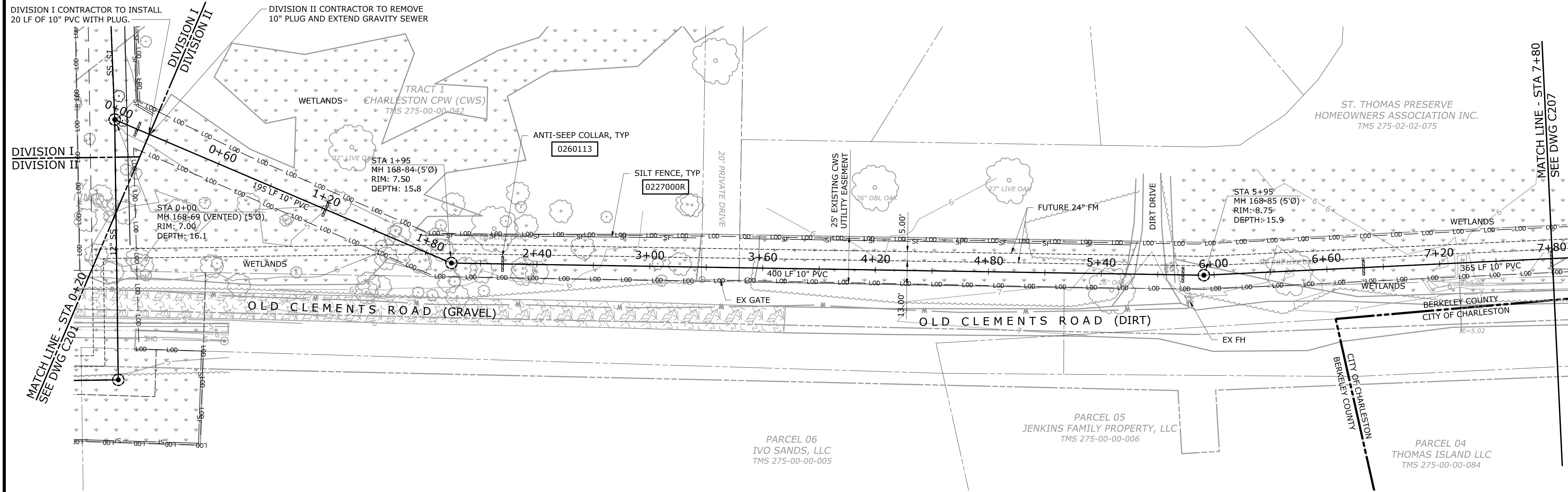


**Hazen**  
 HAZEN AND SAWYER  
 735 JOHNNIE DODDS BLVD, SUITE 102  
 MOUNT PLEASANT, SOUTH CAROLINA 29464

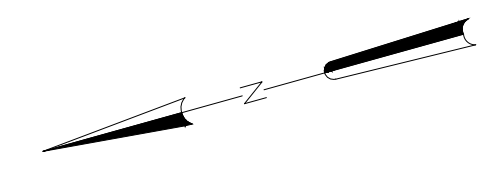
**Charleston Water System**  
 COMMISSIONERS OF PUBLIC WORKS  
 OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION  
 AND INTERCEPTOR  
 DIVISION I & II

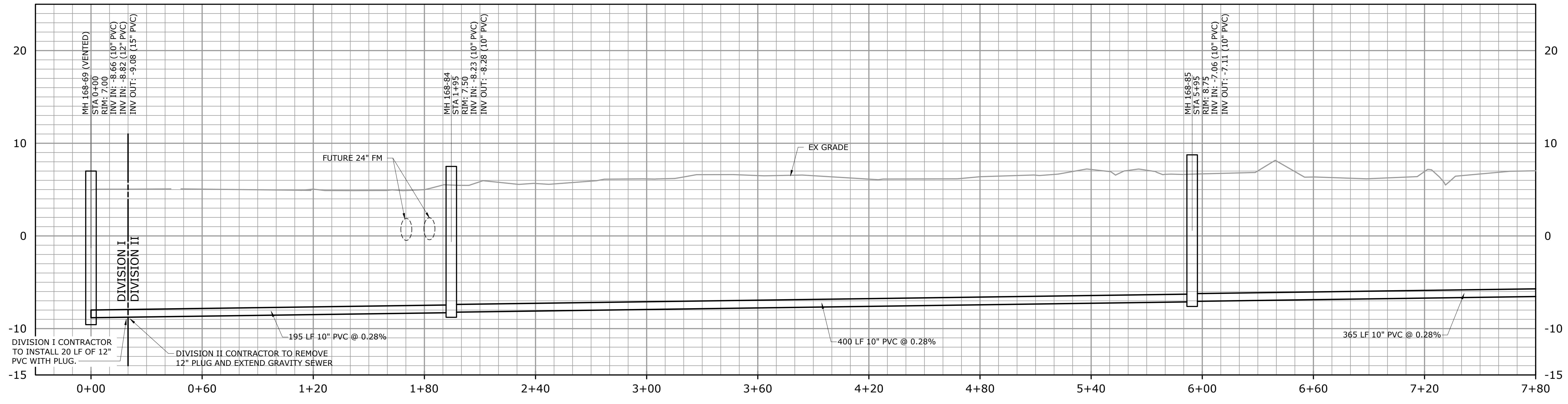
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C201



- NOTES:
- CONTRACTOR TO COORDINATE WITH POWER UTILITY TO PROVIDE POWER POLE SUPPORT WHEN ANY PART OF OPEN TRENCH IS WITHIN 5 FEET OF POWER POLE, GUY WIRES, OR AS CONDITIONS WARRANT.
  - SEE DRAWING C001 FOR WETLAND REQUIREMENTS.



PLAN - CLEMENTS FERRY RD GRAVITY SEWER  
1" = 30'



PROFILE - CLEMENTS FERRY RD GRAVITY SEWER  
H: 1" = 30' V: 1" = 6'

File: D:\30333-CHARLESTON REGIONAL PUMP STATION\DRAWING\CONSTRUCT\206.dwg, Saved by: LFANNING, Save Date: 1/7/2020 9:45 AM  
 PLOT DATE: 01/23/2020 8:38 AM BY: LFANNING

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

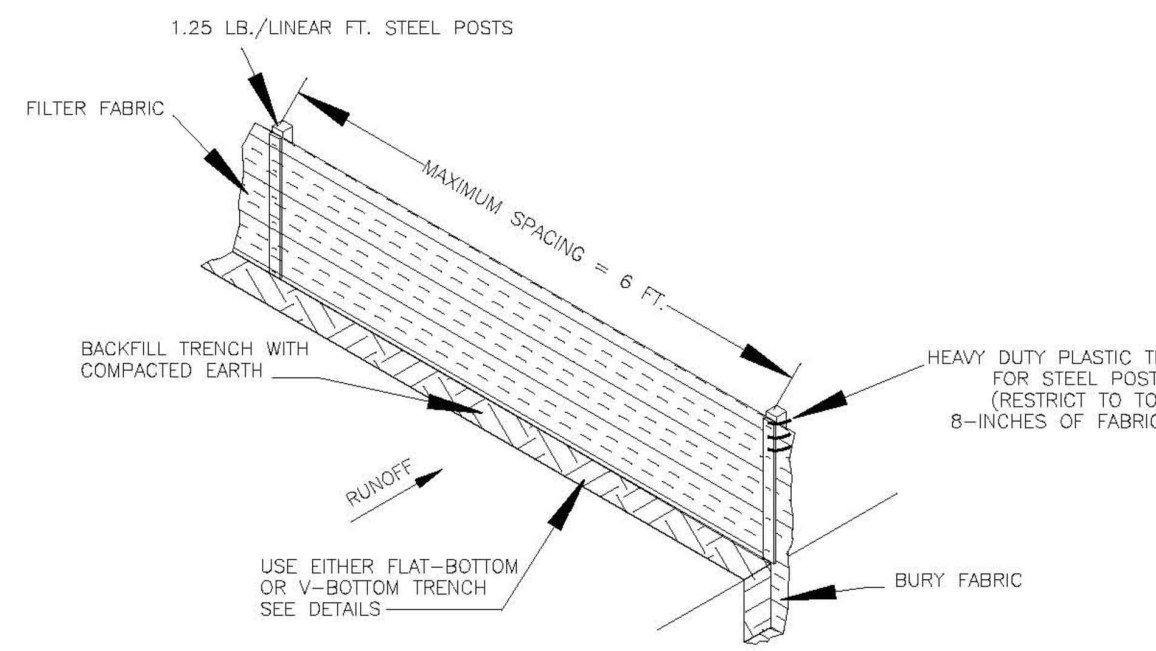


THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II

CLEMENTS FERRY RD  
GRAVITY SEWER  
CIVIL  
STA 0+00 TO STA 7+80

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C206

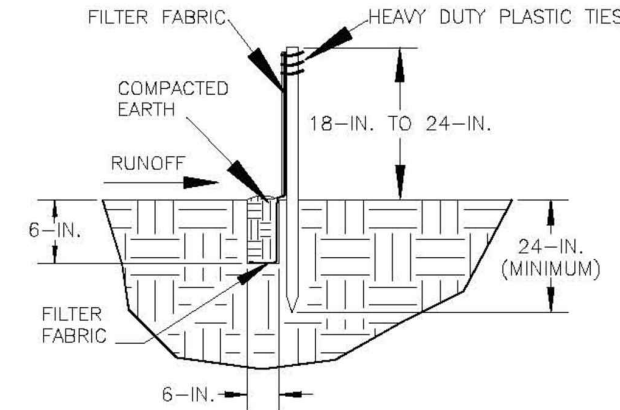
**SILT FENCE INSTALLATION**



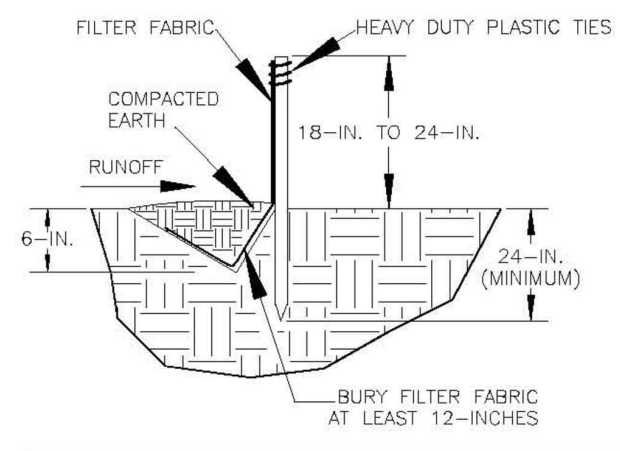
**INSPECTION AND MAINTENANCE:**

- INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2 INCHES OR MORE OF PRECIPITATION. CHECK FOR SEDIMENT BUILDUP AND FENCE INTEGRITY. CHECK WHERE RUNOFF HAS ERODED A CHANNEL BENEATH THE FENCE, OR WHERE THE FENCE HAS SAGGED OR COLLAPSED BY FENCE OVERTOPPING.
- IF THE FENCE FABRIC TEARS, BEGINS TO DECOMPOSE, OR IN ANY WAY BECOMES INEFFECTIVE, REPLACE THE SECTION OF FENCE IMMEDIATELY.
- REMOVE SEDIMENT ACCUMULATED ALONG THE FENCE WHEN IT REACHES 1/3 THE HEIGHT OF THE FENCE, ESPECIALLY IF HEAVY RAINS ARE EXPECTED.
- REMOVE TRAPPED SEDIMENT FROM THE SITE OR STABILIZE IT ON SITE.
- REMOVE SILT FENCE WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED OR AFTER TEMPORARY BEST MANAGEMENT PRACTICES ARE NO LONGER NEEDED.
- PERMANENTLY STABILIZE DISTURBED AREAS RESULTING FROM FENCE REMOVAL.

**FLAT-BOTTOM TRENCH DETAIL**



**V-SHAPED TRENCH DETAIL**

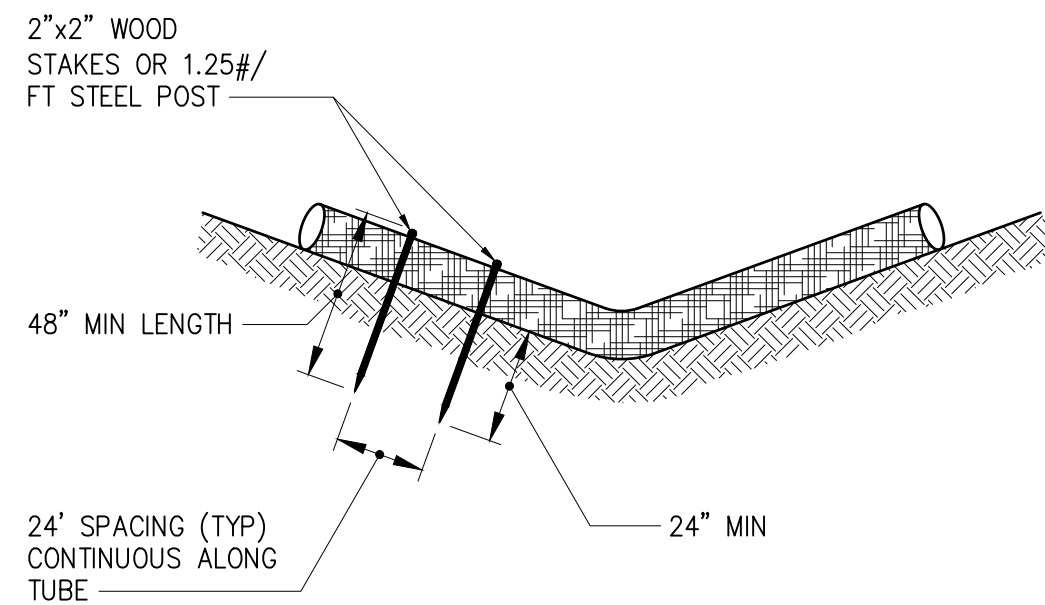


**NOTES:**

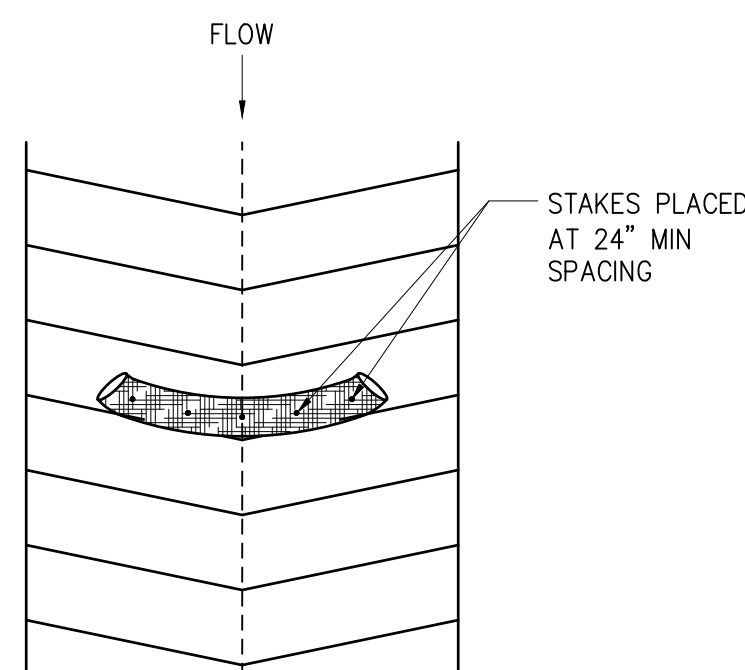
- DO NOT PLACE SILT FENCE ACROSS CHANNELS OR IN OTHER AREAS SUBJECT TO CONCENTRATED FLOWS. SILT FENCE SHOULD NOT BE USED AS A VELOCITY CONTROL BMP. CONCENTRATED FLOWS ARE GREATER THAN 0.5cfs.
- MAXIMUM SHEET OR OVERLAND FLOW PATH LENGTH TO THE SILT FENCE SHALL BE 100 FEET.
- MAXIMUM SLOPE STEEPNESS (NORMAL [PERPENDICULAR] TO THE FENCE LINE) SHALL BE 2:1.
- SILT FENCE JOINTS, WHEN NECESSARY, SHALL BE COMPLETED BY ONE OF THE FOLLOWING OPTIONS:
  - WRAP EACH FABRIC TOGETHER AT A SUPPORT POST WITH BOTH ENDS FASTENED TO THE POST, WITH A 1 FOOT MINIMUM OVERLAP;
  - OVERLAP SILT FENCE BY INSTALLING 3 FEET PASSED THE SUPPORT POST TO WHICH THE NEW SILT FENCE ROLL IS ATTACHED. ATTACH OLD ROLL TO NEW ROLL WITH HEAVY-DUTY PLASTIC TIES; OR,
  - OVERLAP ENTIRE WIDTH OF EACH SILT FENCE ROLL FROM ONE SUPPORT POST TO THE NEXT SUPPORT POST.
- ATTACH FILTER FABRIC TO THE STEEL POSTS USING HEAVY-DUTY PLASTIC TIES THAT ARE EVENLY SPACED WITHIN THE TOP 8 INCHES OF THE FABRIC.
- INSTALL THE SILT FENCE PERPENDICULAR TO THE DIRECTION OF THE STORMWATER FLOW AND PLACE THE SILT FENCE THE PROPER DISTANCE FROM THE TOE OF STEEP SLOPES TO PROVIDE SEDIMENT STORAGE AND ACCESS FOR MAINTENANCE AND CLEANOUT.
- INSTALL SILT FENCE CHECKS (TIE-BACKS) EVERY 50-100 FEET, DEPENDENT ON SLOPE, ALONG SILT FENCE THAT IS INSTALLED WITH SLOPE AND WHERE CONCENTRATED FLOWS ARE EXPECTED OR ARE DOCUMENTED ALONG THE PROPOSED/INSTALLED SILT FENCE.

SILT FENCE  
022700R

SEDIMENT TUBE SPACING	
SLOPE	MAXIMUM SEDIMENT TUBE SPACING
LESS THAN 2%	150- FEET
2%	100- FEET
3%	75- FEET
4%	50- FEET
5%	40- FEET
6%	30- FEET
GREATER THAN 6%	25- FEET



**END VIEW OF DITCH**



**TOP VIEW OF DITCH**

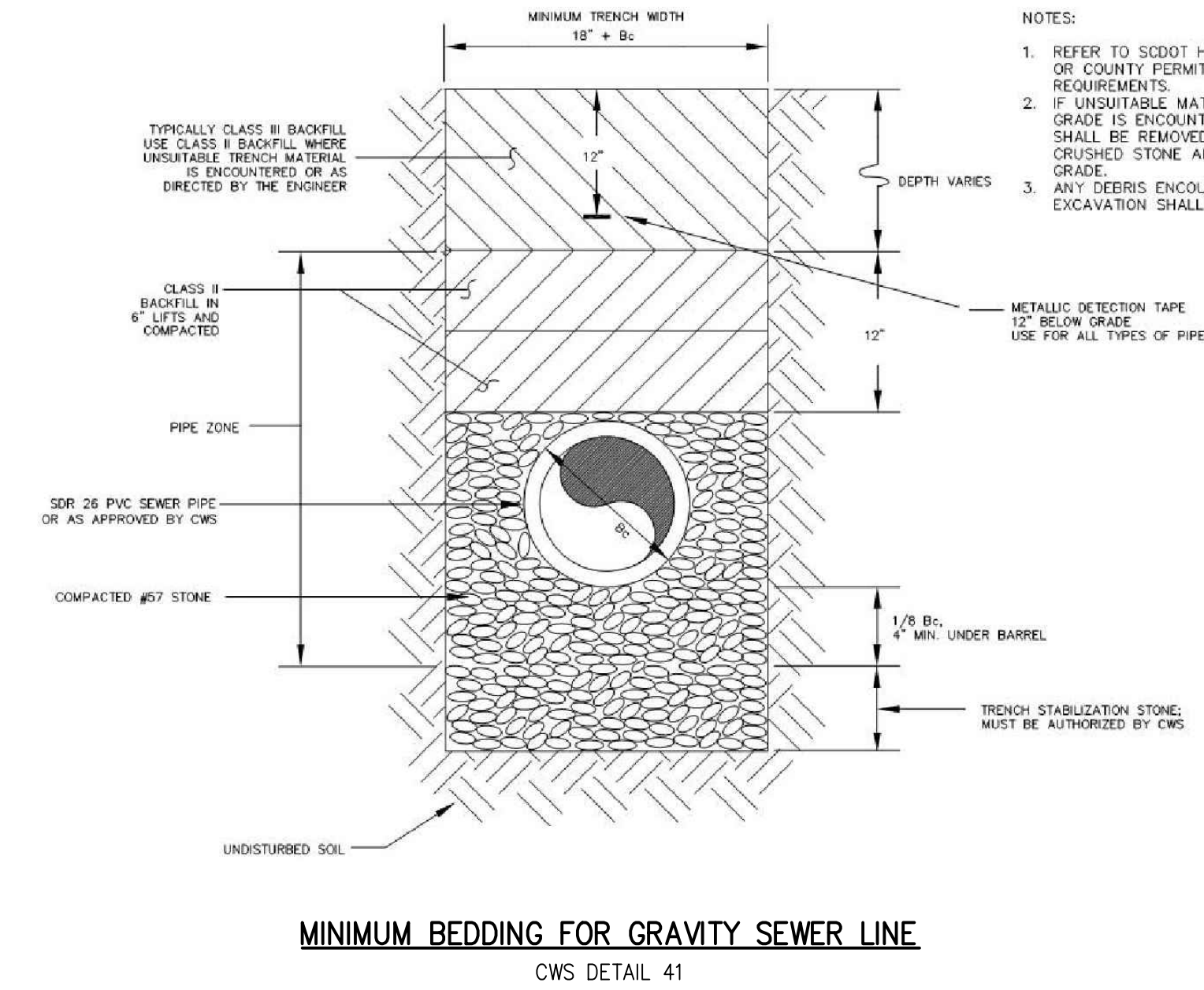
**INSPECTION AND MAINTENANCE:**

- INSPECT SEDIMENT TUBES AFTER INSTALLATION FOR GAPS UNDER THE SEDIMENT TUBES AND FOR GAPS BETWEEN THE JOINTS OF ADJACENT ENDS OF SEDIMENT TUBES.
- INSPECT EVERY 7 DAYS AND WITH 24-HOURS OF A RAINFALL EVENT OF 1/2 INCHES OR GREATER.
- REPAIR ALL RILLS, GULLIES, AND UNDERCUTTING NEAR SEDIMENT TUBES.
- REMOVE ALL SEDIMENT DEPOSITS THAT IMPAIR THE FILTRATION CAPABILITY OF SEDIMENT TUBES WHEN THE SEDIMENT REACHES 1/3 THE HEIGHT OF THE EXPOSED SEDIMENT TUBE.
- REMOVE AND/OR REPLACE INSTALLED SEDIMENT TUBES AS REQUIRED TO ADAPT TO CHANGING CONSTRUCTION SITE CONDITIONS.
- REMOVE SEDIMENT TUBES FROM THE SITE WHEN THE FUNCTIONAL LONGEVITY IS EXCEEDED AS DETERMINED BY THE ENGINEER, INSPECTOR, OR MANUFACTURER'S REPRESENTATIVE. GATHER SEDIMENT TUBES AND DISPOSE OF THEM IN A REGULAR MEANS AS NON-HAZARDOUS, INERT MATERIAL.
- PRIOR TO FINAL STABILIZATION, BACKFILL ALL TRENCHES, DEPRESSIONS, AND OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF SEDIMENT TUBES.

<b>SEDIMENT TUBE DETAILS</b>	1
NOT TO SCALE	--

**SEDIMENT TUBE NOTES:**

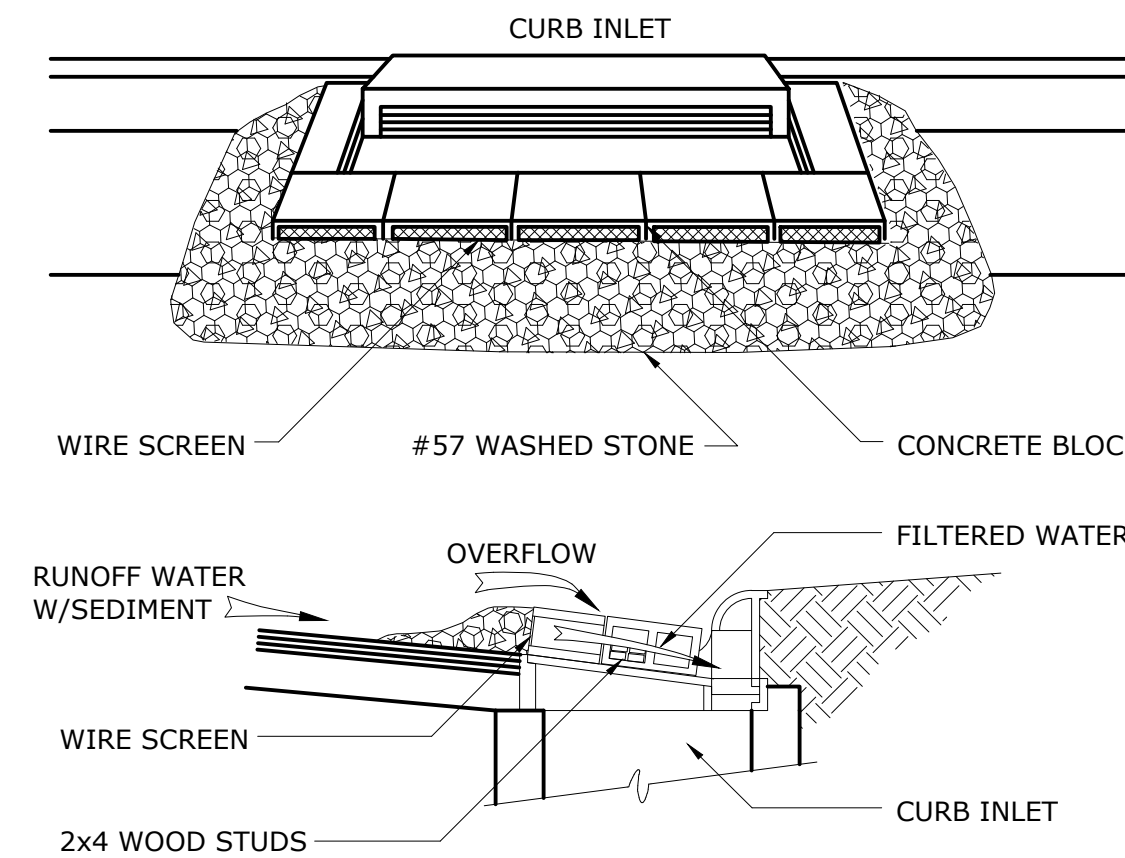
- SEDIMENT TUBES ARE ELONGATED TUBES OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH. STRAW, PINE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED.
- INSTALL SEDIMENT TUBES ALONG CONTOURS, IN DRAINAGE CONVEYANCE SWALES, AND AROUND INLETS TO HELP REDUCE THE EFFECTS OF SOIL EROSION BY ENERGY DISSIPATION AND RETAIN SEDIMENT.
- SEDIMENT TUBES FOR DITCH CHECKS AND TYPE A INLET STRUCTURE FILTERS EXHIBIT THE FOLLOWING PROPERTIES:
  - PRODUCED BY A MANUFACTURER EXPERIENCED IN SEDIMENT TUBE MANUFACTURING.
  - COMPOSED OF COMPACTED GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBERS, HARDWOOD MULCH OR A MIX OF THESE MATERIALS ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
  - STRAW, PINE AND LEAF MULCH-FILLED SEDIMENT TUBES ARE NOT PERMITTED.
  - UTILIZES OUTER NETTING THAT CONSISTS OF SEAMLESS, HIGH-DENSITY POLYETHYLENE PHOTODEGRADABLE MATERIALS TREATED WITH ULTRAVIOLETT STABILIZERS OR A SEAMLESS, HIGH-DENSITY POLYETHYLENE NON-DEGRADABLE MATERIALS. DIAMETER RANGING FROM 18-INCH TO 24-INCHES.
  - CURLED EXCELSIOR WOOD, OR NATURAL COCONUT ROLLED EROSION CONTROL PRODUCTS (RECPs) THAT ARE ROLLED UP TO CREATE A SEDIMENT TUBE ARE NOT ALLOWED.
- INSTALL OVER BARE SOIL, MULCH AREAS OR EROSION CONTROL BLANKETS. TO BE COMPOSED OF GEOTEXTILES, CURLED EXCELSIOR WOOD, NATURAL COCONUT FIBER OR HARDWOOD MULCH ENCLOSED BY A FLEXIBLE NETTING MATERIAL.
- THE MINIMUM DIAMETER SHOULD BE 18-INCHES. SEDIMENT TUBES SHOULD BE STAKED USING WOODEN STAKES (2-INCHX2-INCH) OR STEEL POSTS (STANDARD "U" OR "I" SECTIONS WITH A MINIMUM WEIGHT OF 1.25 POUNDS PER FOOT) A MINIMUM OF 48-INCHES IN LENGTH PLACED ON 2-FOOT CENTERS.
- STAKES SHOULD BE INTERTWINED WITH THE OUTER MESH ON THE DOWN STREAM SIDE AND DRIVEN IN THE GROUND TO A MINIMUM DEPTH OF 1.5 FEET LEAVING LESS THAN 1 FOOT OF STAKE EXPOSED ABOVE THE SEDIMENT TUBE. ALWAYS REFER TO THE MANUFACTURER'S RECOMMENDATIONS FOR THE STAKING DETAIL. INSTALL ALL SEDIMENT TUBES INSURING THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE SEDIMENT TUBE. THE ENDS OF ADJACENT SEDIMENT TUBES SHOULD BE LAPPED 6-INCH TO PREVENT FLOW AND SEDIMENT FROM PASSING THROUGH THE FIELD JOINT. IN NO SITUATION SHOULD SEDIMENT TUBES BE STACKED ON TOP OF ONE ANOTHER.
- CONSTRUCT A TRENCH THAT IS 20% OF THE TUBE DIAMETER TO INSTALL THE TUBE IN. AVOID DAMAGE TO SEDIMENT TUBES WHILE INSTALLING THEM. IF THE SEDIMENT TUBES BECOMES DAMAGED DURING INSTALLATION, A STAKE SHOULD BE PLACED ON BOTH SIDES OF THE DAMAGED AREA TERMINATING THE TUBE SEGMENT AND A NEW TUBE SEGMENT SHOULD BE INSTALLED IN SWALES OR DRAINAGE DITCHES PERPENDICULAR TO THE DEPTH. SEDIMENT TUBES SHOULD CONTINUE UP THE SIDE SLOPES A MINIMUM OF 1 FOOT ABOVE THE DESIGN FLOW DEPTH. SEDIMENT TUBES SHOULD BE SPACED ACCORDING TO THE SEDIMENT TUBE SPACING TABLE.
- SEDIMENT TUBE LENGTH SELECTED SHOULD MINIMIZE THE NUMBER OF SEDIMENT TUBES NEEDED TO SPAN THE WIDTH OF THE DRAINAGE CONVEYANCE. IF THE DITCH CHECK LENGTH (PERPENDICULAR TO THE FLOW) IS 15 FEET, THEN ONE 15 FOOT SEDIMENT TUBE IS PREFERRED COMPARED TO TWO OVERLAPPING 10 FOOT SEDIMENT TUBES.



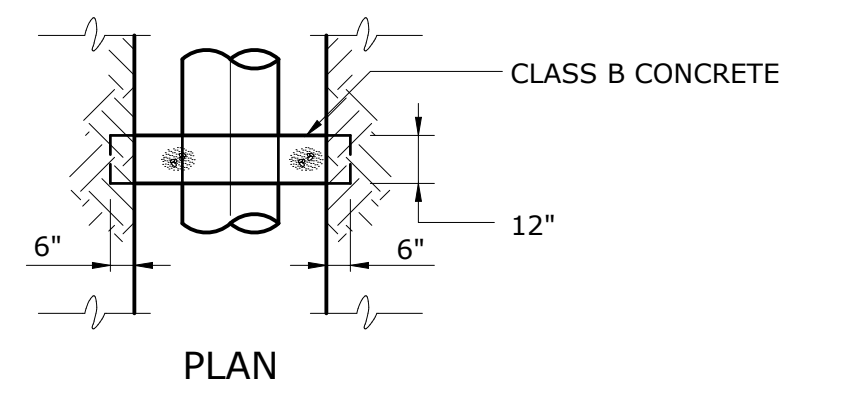
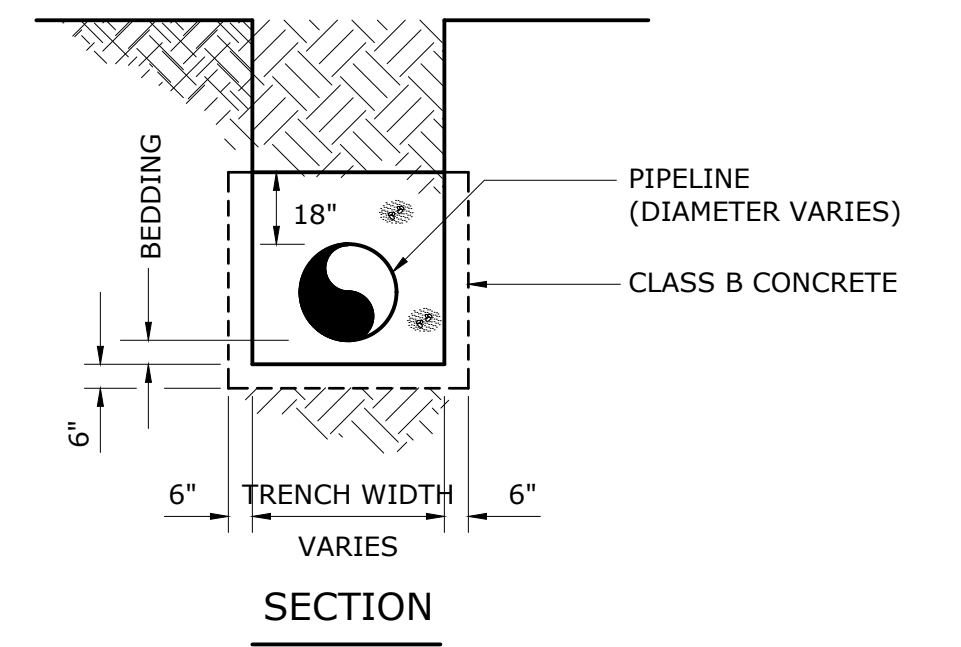
**NOTES:**

- REFER TO SCDOT HIGHWAY DEPARTMENT, CITY, OR COUNTY PERMITS FOR ADDITIONAL REQUIREMENTS.
- IF UNSUITABLE MATERIAL BENEATH FINAL PIPE GRADE IS ENCOUNTERED, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE AND COMPACTED TO PROPER GRADE.
- ANY DEBRIS ENCOUNTERED IN TRENCH EXCAVATION SHALL BE REMOVED.

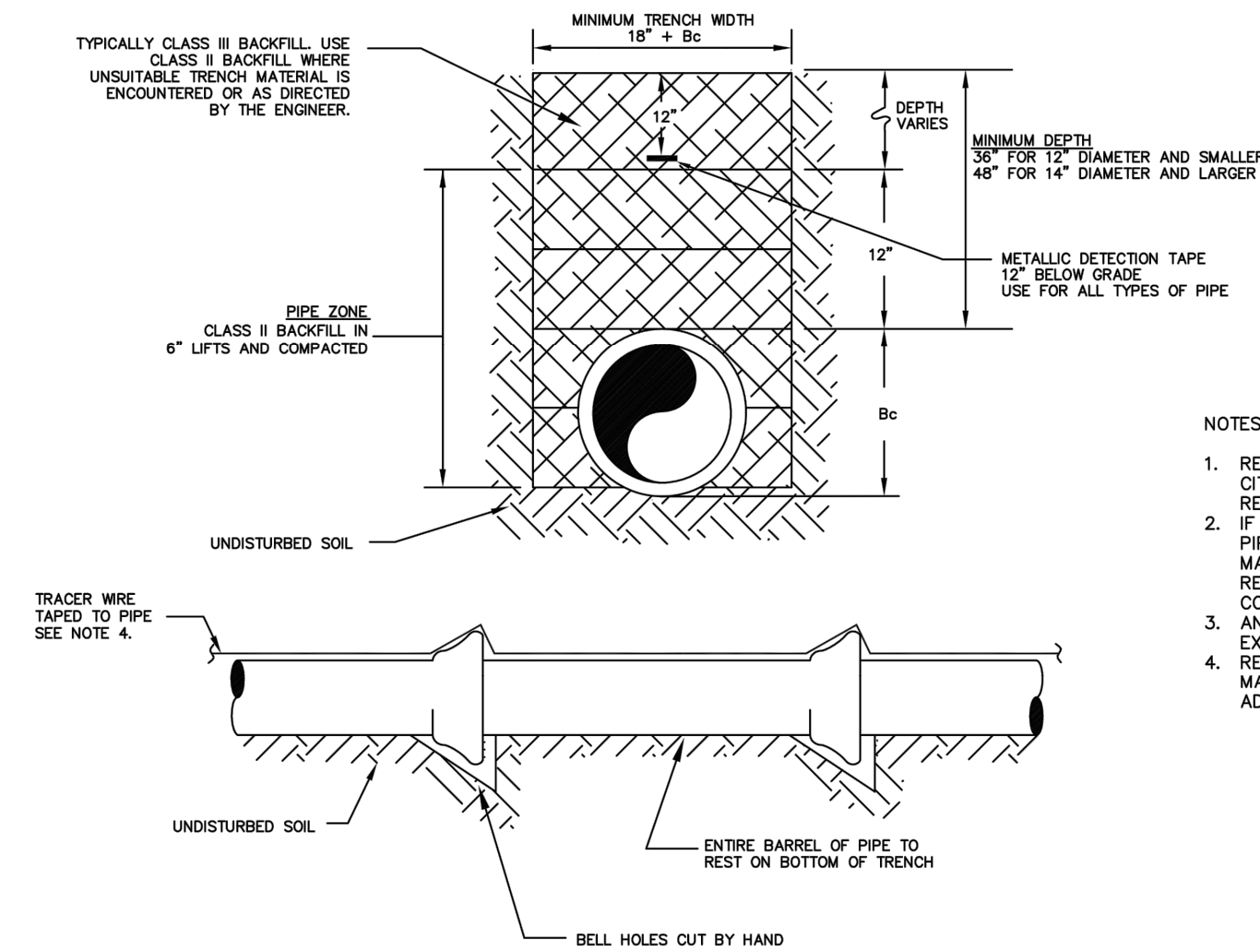
**MINIMUM BEDDING FOR GRAVITY SEWER LINE**  
CWS DETAIL 41



**CURB INLET SEDIMENT CONTROL**  
022700Z



**ANTI-SEEPAGE COLLAR**  
0260113



**NOTES:**

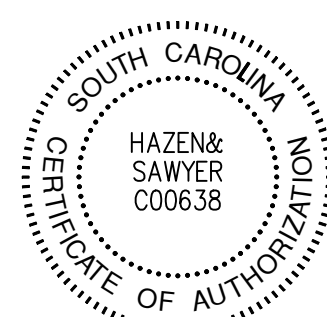
- REFER TO SCDOT HIGHWAY DEPARTMENT, CITY OR COUNTY PERMITS FOR ADDITIONAL REQUIREMENTS.
- IF UNSUITABLE MATERIAL BENEATH FINAL PIPE GRADE IS ENCOUNTERED, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE AND COMPACTED TO PROPER GRADE.
- ANY DEBRIS ENCOUNTERED IN THE TRENCH EXCAVATION SHALL BE REMOVED.
- REFER TO THE TRACER WIRE AND MAGNETIC TAPE DETAIL #88 FOR ADDITIONAL INFORMATION.

**FORCEMAIN BEDDING**  
CWS DETAIL 51

File: D:\03533-CHARLESTON\DRAWINGS\CONSTRUCTION\DETAILS\Sheet by L FANNING.dwg Date: 4/22/2020 10:49 AM PLOT DATE: 4/22/2020 8:38 AM BY: L FANNING

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



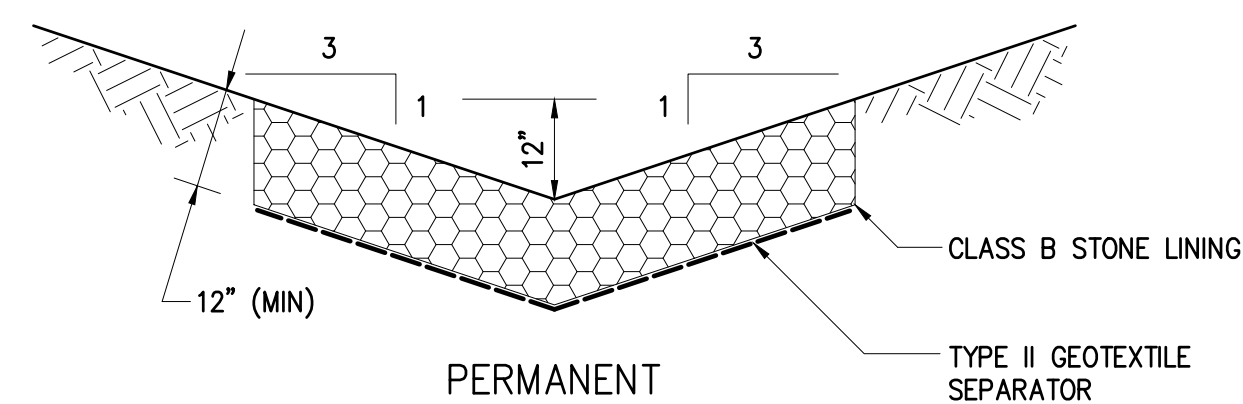
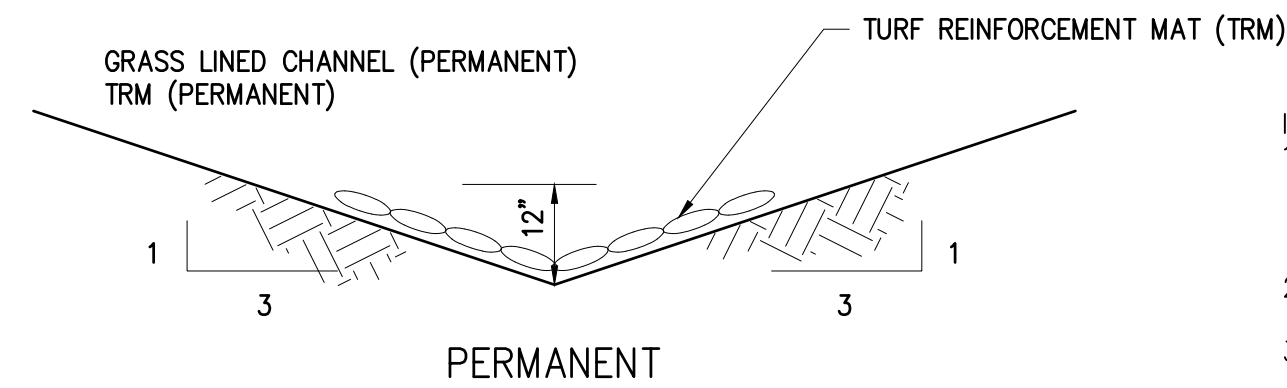
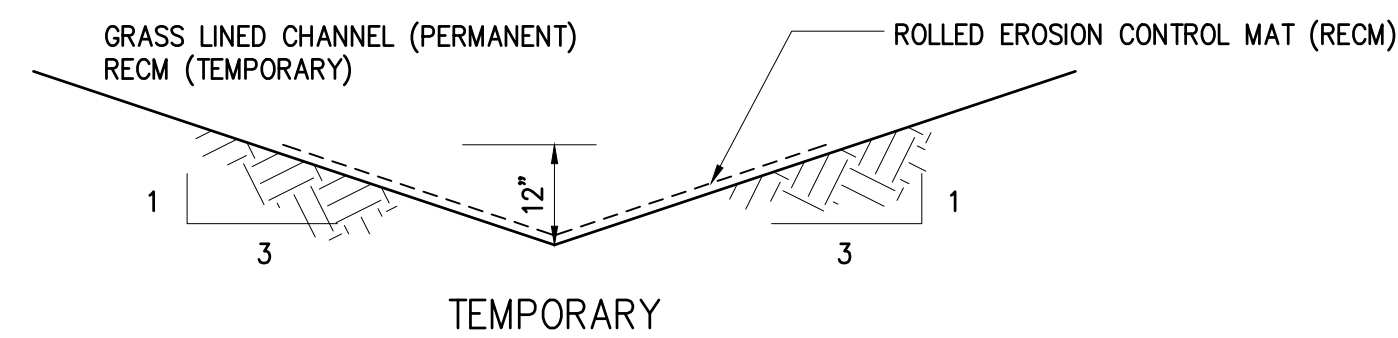
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II

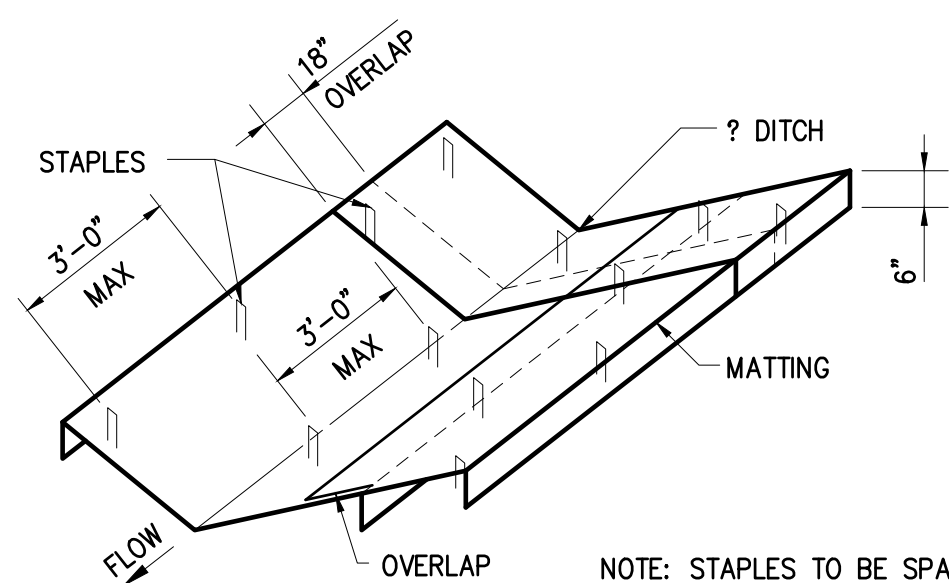
CIVIL  
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C900



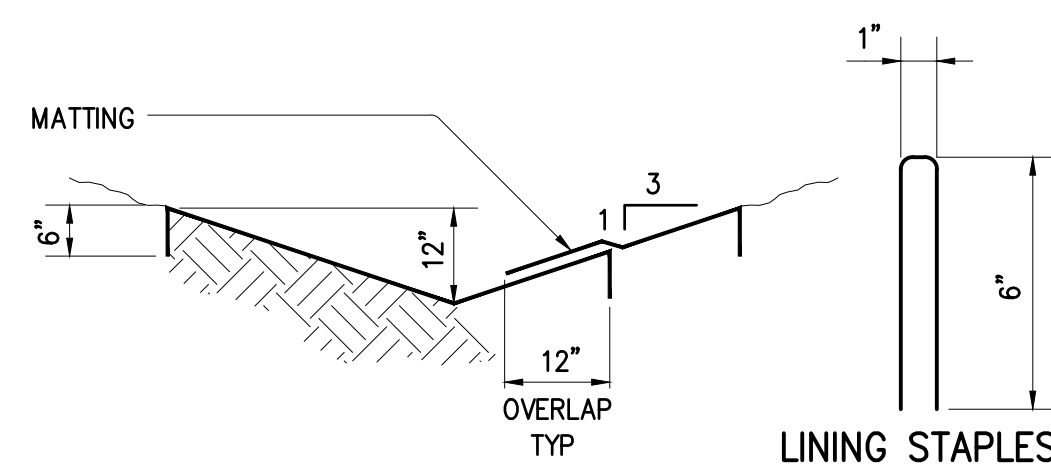
TYPICAL DITCH DETAIL  
SEE DETAIL 0227014 FOR  
INSTALLATION DETAIL  
**0227011**

- INSPECTION AND MAINTENANCE:
- CHECK AREAS PROTECTED BY TRMs FOR DISLOCATION OR FAILURE EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH STORM THAT PRODUCES 1/2 INCHES OR MORE OF PRECIPITATION.
  - CONDUCT REGULAR INSPECTIONS UNTIL GRASSES ARE FIRMLY ESTABLISHED.
  - ADHERE TO THE PINNING OR STAPLING PATTERN AS SHOWN ON THE MANUFACTURER'S INSTALLATION SHEET. IF THERE IS EVIDENCE THAT THE TRM IS NOT SECURELY FASTENED TO THE SOIL, INSTALL EXTRA PINS OR STAPLES TO INHIBIT THE TRM FROM BECOMING DISLOADED.
  - IF WASHOUT OR BREAKAGE OCCURS, REPAIR ALL DAMAGED AREAS IMMEDIATELY BY RESTORING THE SOIL ON SLOPE OR CHANNELS TO ITS FINISHED GRADE, REAPPLY FERTILIZER AND SEED, AND REPLACING THE APPROPRIATE TRM MATERIAL AS NEEDED.



PERSPECTIVE VIEW

NOTE: STAPLES TO BE SPACED AT 3'-0" MAX IN ALL DIRECTIONS.



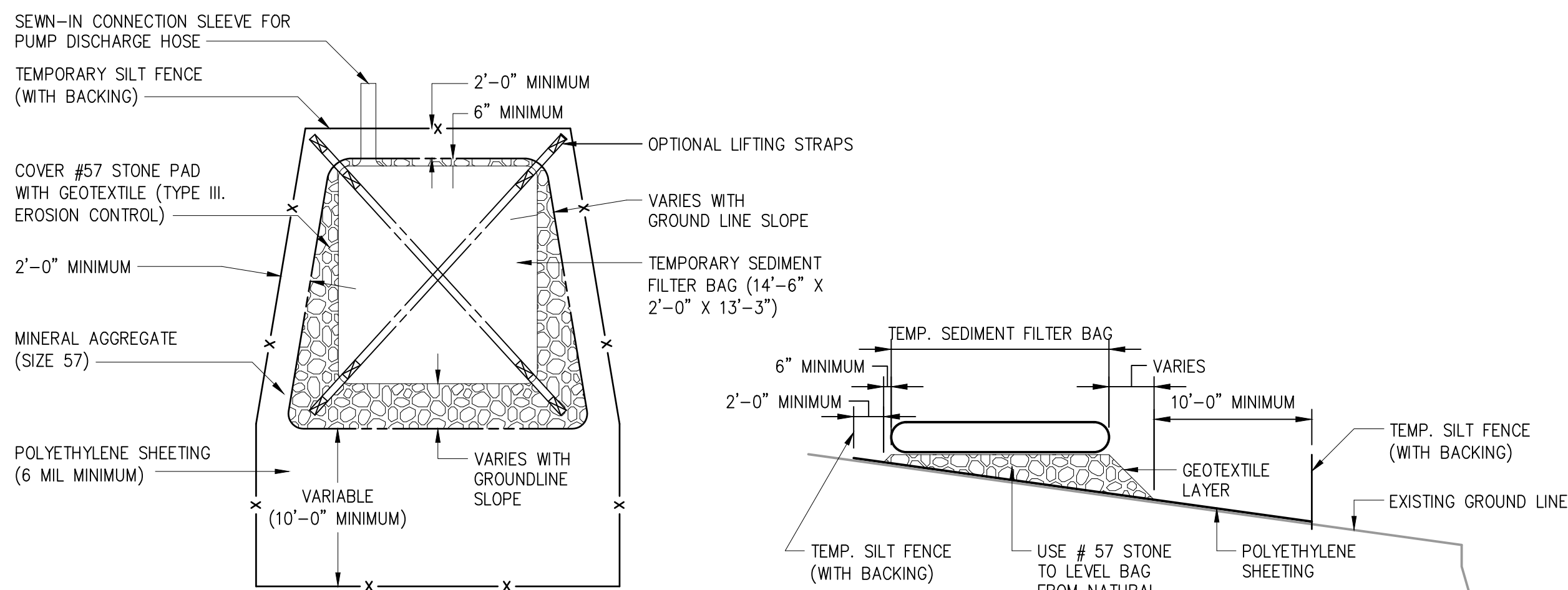
LINING STAPLES

- INSPECTION AND MAINTENANCE:
- CHECK AREAS PROTECTED BY MATTING FOR DISLOCATION OR FAILURE EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH STORM THAT PRODUCES 1/2 INCHES OR MORE OF PRECIPITATION.
  - CONDUCT REGULAR INSPECTIONS UNTIL GRASSES ARE FIRMLY ESTABLISHED.
  - ADHERE TO THE PINNING OR STAPLING PATTERN AS SHOWN ON THE MANUFACTURER'S INSTALLATION SHEET. IF THERE IS EVIDENCE THAT THE MATTING IS NOT SECURELY FASTENED TO THE SOIL, INSTALL EXTRA PINS OR STAPLES TO INHIBIT THE MATTING FROM BECOMING DISLOADED.
  - IF WASHOUT OR BREAKAGE OCCURS, REPAIR ALL DAMAGED AREAS IMMEDIATELY BY RESTORING THE SOIL ON SLOPE OR CHANNELS TO ITS FINISHED GRADE, REAPPLY FERTILIZER AND SEED, AND REPLACING THE APPROPRIATE MATTING MATERIAL AS NEEDED.

SLOPE PROTECTION MATTING  
**0227014**

NOTES:

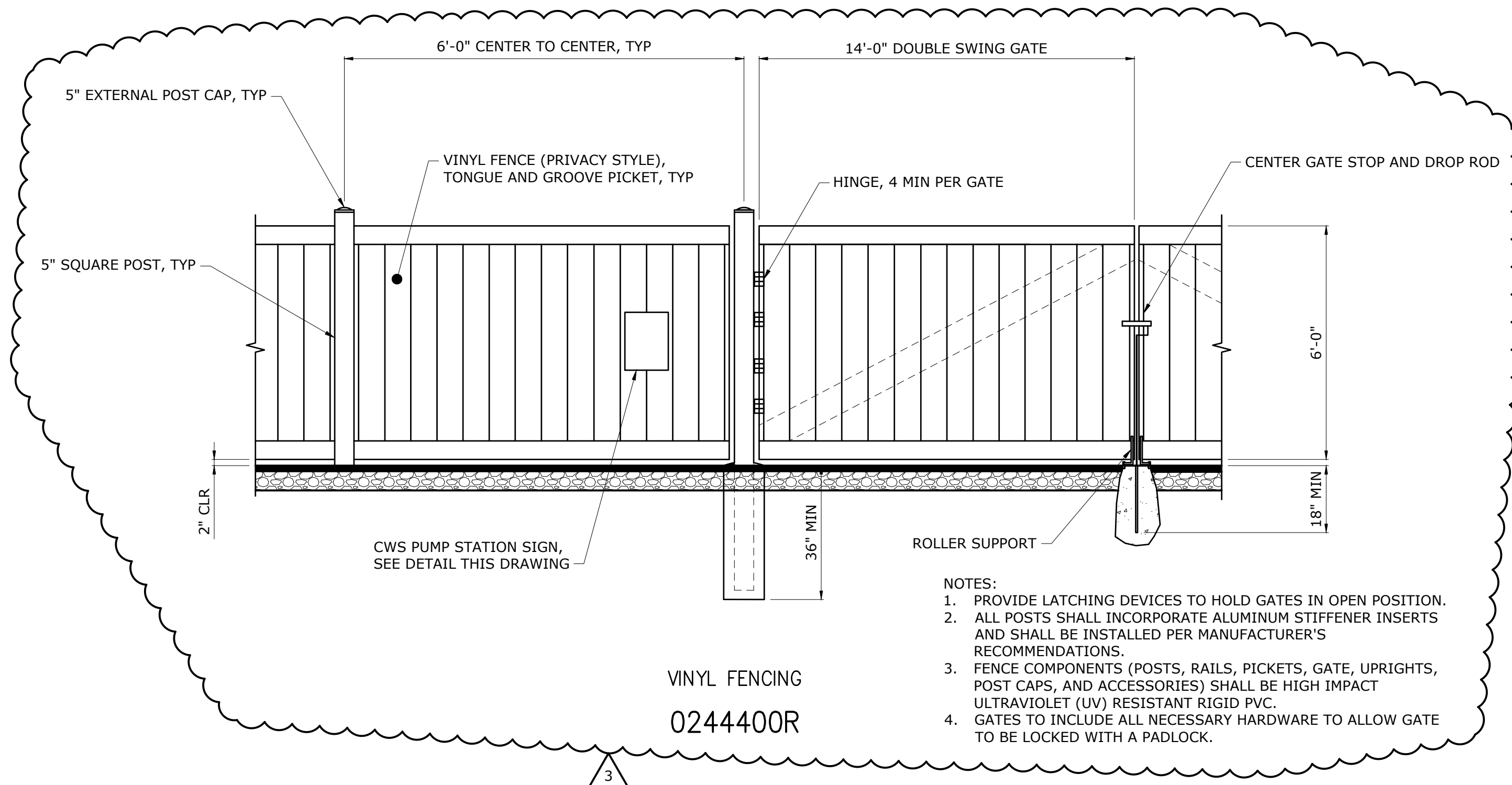
- CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE TEMPORARY SEDIMENT FILTER BAG WHEN PUMPING.
- THE LENGTH AND WIDTH OF THE TEMPORARY SEDIMENT BAG SHOWN ON THIS DRAWING MAY VARY PER VENDOR SPECIFICATIONS.
- TEMPORARY SEDIMENT FILTER BAGS SHALL BE EQUIPPED WITH A SEWN-IN SLEEVE OF SUFFICIENT SIZE TO ACCEPT A MINIMUM FOUR-INCH DIAMETER PUMP DISCHARGE HOSE. THE DISCHARGE HOSE SHOULD BE EXTENDED INTO THIS SLEEVE A MINIMUM OF SIX INCHES AND BE TIGHTLY SECURED WITH A HOSE CLAMP OR OTHER SUITABLE MEANS TO PREVENT LEAKAGE. HOSE CONNECTION THROUGH A SLIT IN THE BAG WILL NOT BE ACCEPTABLE.
- THE PUMP DISCHARGE HOSE CONNECTION SLEEVE SHALL BE SECURELY TIED OFF DURING DISPOSAL OF THE TEMPORARY SEDIMENT FILTER BAG IN ORDER TO PREVENT LEAKAGE OF COLLECTED SEDIMENTS.
- TEMPORARY SEDIMENT FILTER BAG SHALL BE REPLACED WHEN 6 INCHES OF SEDIMENT HAS ACCUMULATED OR IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.



TOP VIEW

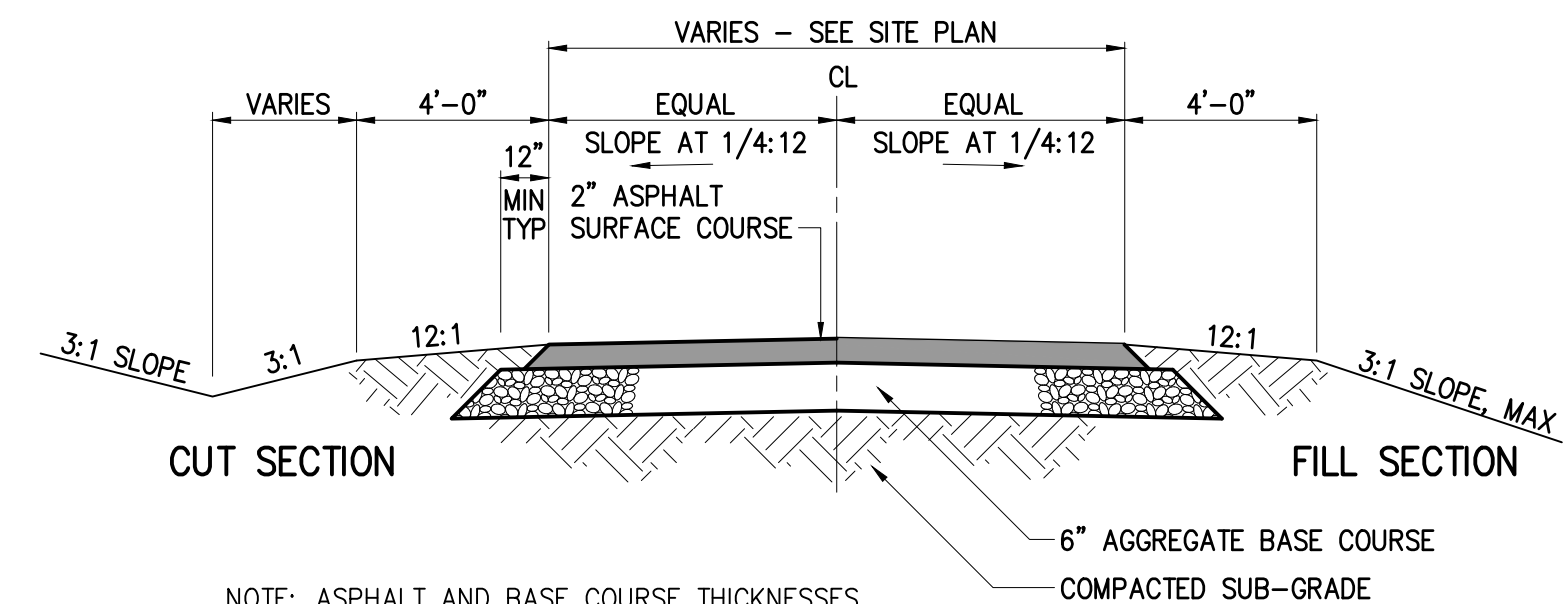
SIDE VIEW

TEMPORARY SEDIMENT FILTER BAG  
**0227038**



VINYL FENCING  
**0244400R**

- NOTES:
- PROVIDE LATCHING DEVICES TO HOLD GATES IN OPEN POSITION.
  - ALL POSTS SHALL INCORPORATE ALUMINUM STIFFENER INSERTS AND SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
  - FENCE COMPONENTS (POSTS, RAILS, PICKETS, GATE, UPRIGHTS, POST CAPS, AND ACCESSORIES) SHALL BE HIGH IMPACT ULTRAVIOLET (UV) RESISTANT RIGID PVC.
  - GATES TO INCLUDE ALL NECESSARY HARDWARE TO ALLOW GATE TO BE LOCKED WITH A PADLOCK.



CUT SECTION

FILL SECTION

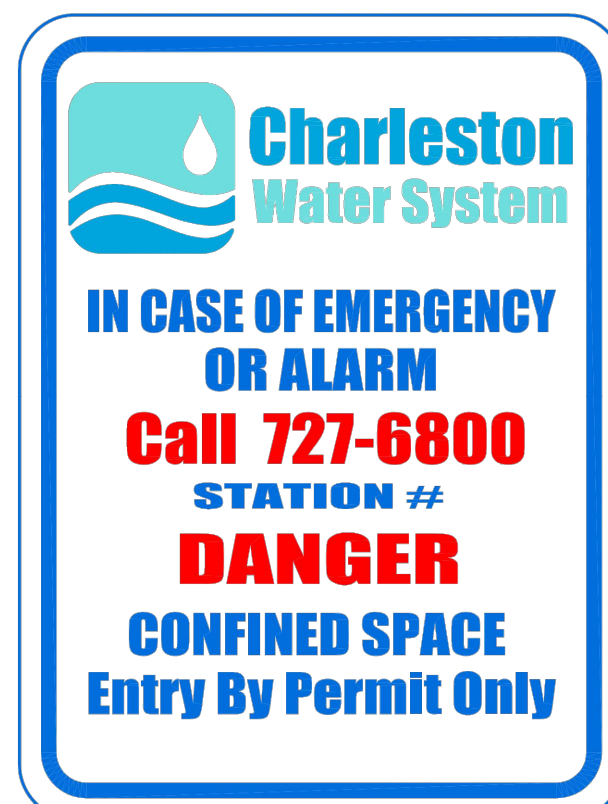
NOTE: ASPHALT AND BASE COURSE THICKNESSES BASED ON "GEOTECHNICAL ENGINEERING REPORT" BY TERRACON DATED JULY 28, 2017

TYPICAL ASPHALT PAVEMENT  
**0251000R**

CWS PUMP STATION SIGN SPECIFICATIONS:

MATERIAL: Anodized Aluminum, #5052 .080 thick  
SIZE: 18" wide x 24" high with 1.5" radius on all corners  
BACKGROUND: 3-M engineer grade Scotchlite reflective film  
All copy and border is 3-M Scotchlite vinyl film, Sapphire blue with the exception of the phone number and "DANGER" which are 3-M Scotchlite Cardinal red. The entire sign is overlaid with Flexcon EVL 400 vinyl #V-29, laminated at 40 psi. All lettering is standard bold condensed except the line STATION #, which is Helvetica medium.

NOTE: ATTACH SIGN TO CHAIN LINK FENCE USING SS BOLTS AND 2" WASHERS

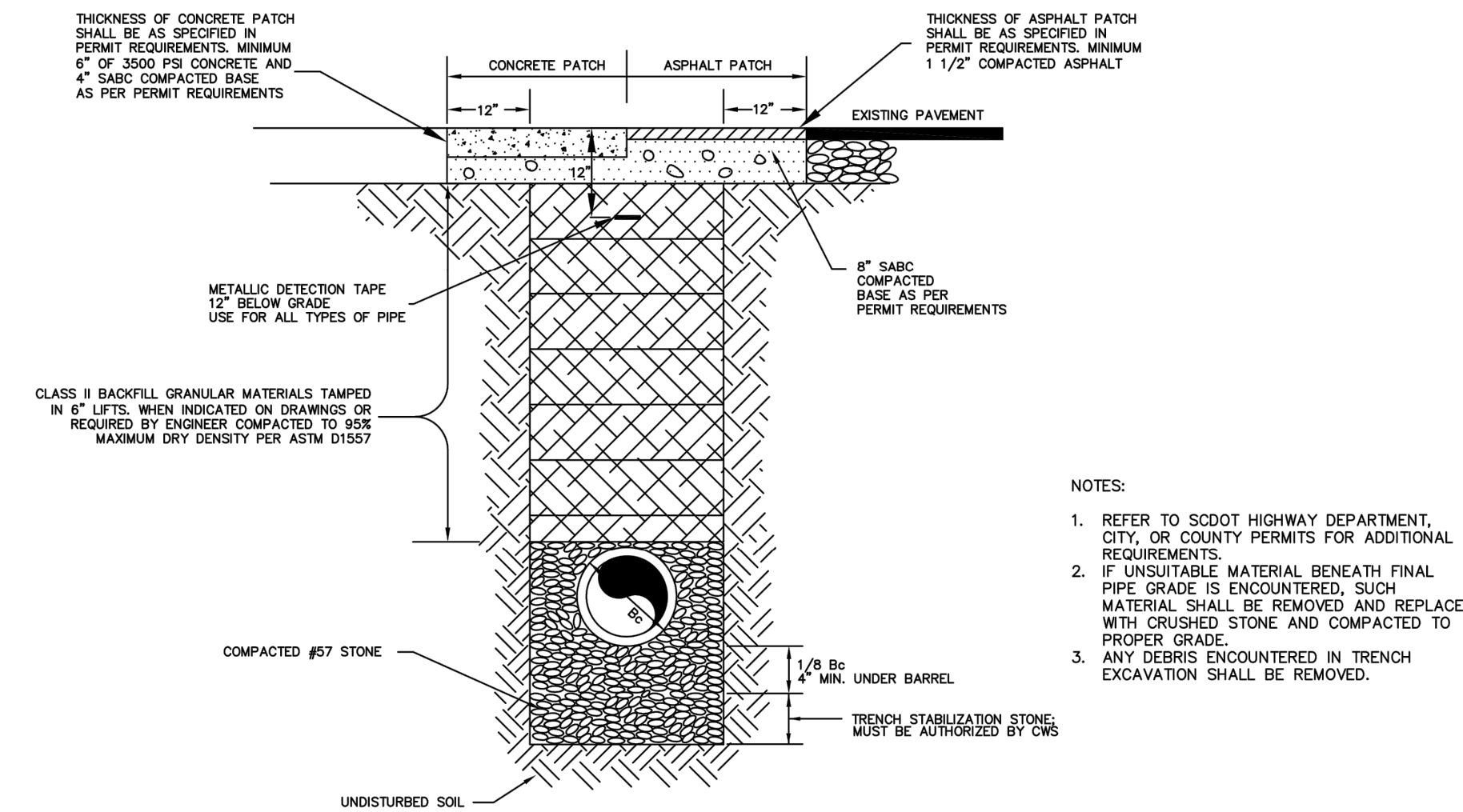


- LOGO = 5" sq.  
1.2" x 8.3"  
1.3" x 8.3"  
1.25" x 14"  
1.25" x 7"  
1.5" x 12"  
.75" x 7.5" inc. #  
1.5" x 8.5"  
1.25" x 11.3"  
1.25" x 14"  
.35" w/1" rad.

The recommended source for these signs is Print Charleston, Inc. in North Charleston, SC Phone number 843-554-9321

PUMP STATION SIGN

CWS DETAIL 64



DRIVEWAY CUT AND REPAIR

DETAIL 2  
CWS DETAIL 43

File: D:\0833\CH0833\CONSTRUCTION\DRAWINGS\CONSTRUCTION\DETAILS\Drawings\JFANNING\Drawings\0227014.dwg PLOT DATE: 02/20/2020 8:39 AM BY: JFANNING

REV	ISSUED FOR	DATE	BY
3	ADDENDUM No. 3	APR 2020	HAZEN
2	ADDENDUM No. 1	JAN 2020	HAZEN
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



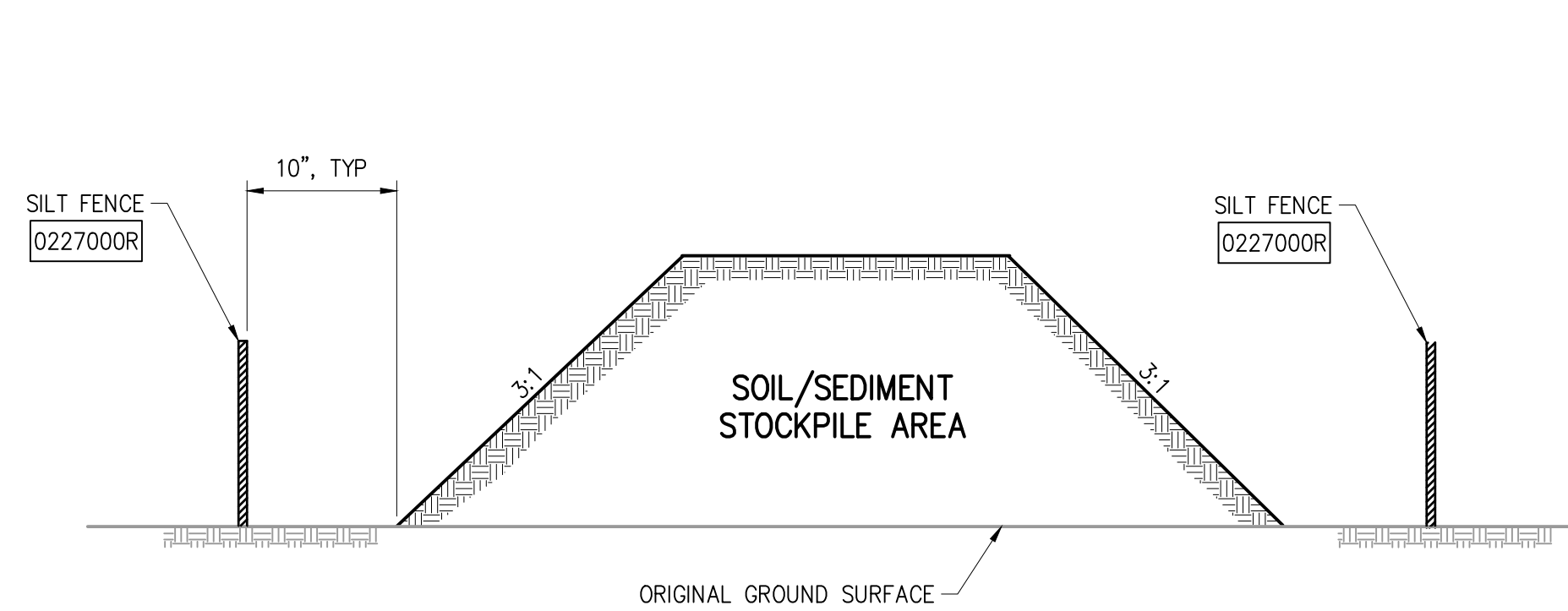
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II

CIVIL  
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C901

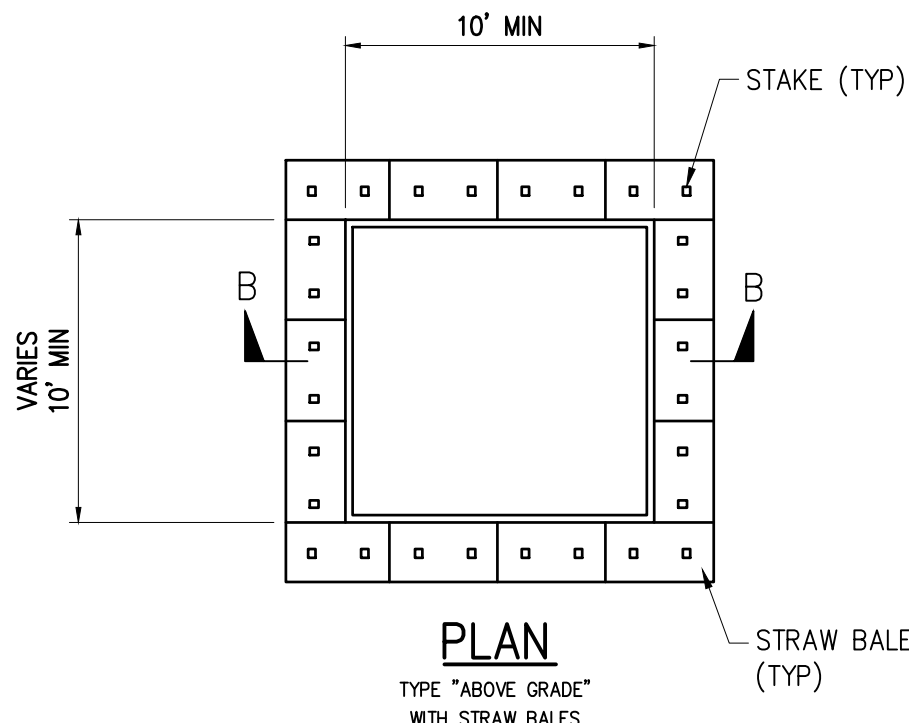


NOTES:

1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOP THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN-GRADIENT AREA.
2. IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
3. SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
4. THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

TEMPORARY STOCKPILE AREA

DETAIL	3
NO SCALE	--

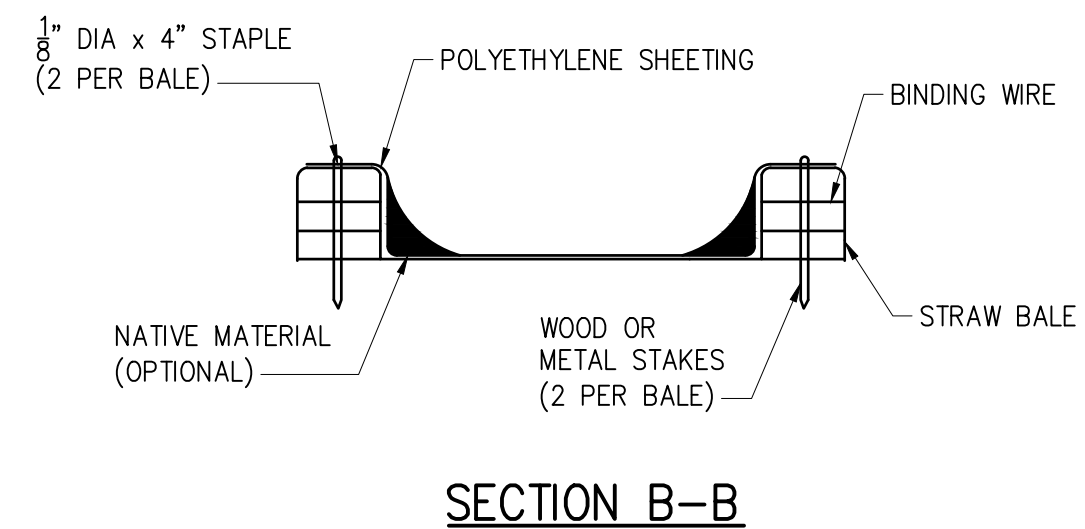


NOTES:

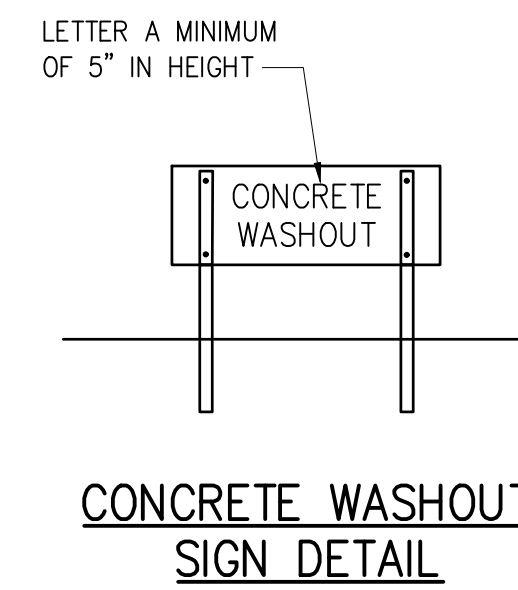
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"x24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.
5. THE KEY TO FUNCTIONAL CONCRETE WASHOUTS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR CLEAN OUT.
6. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF CONCRETE WASHOUT AREA EXCEPT FOR THE SIDE UTILIZED FOR ACCESSING THE WASHOUT.
7. A ROCK CONSTRUCTION ENTRANCE MAY BE NECESSARY ALONG ONE SIDE OF THE WASHOUT TO PROVIDE VEHICLE ACCESS.

STRAW BALE BARRIER CONCRETE WASHOUT

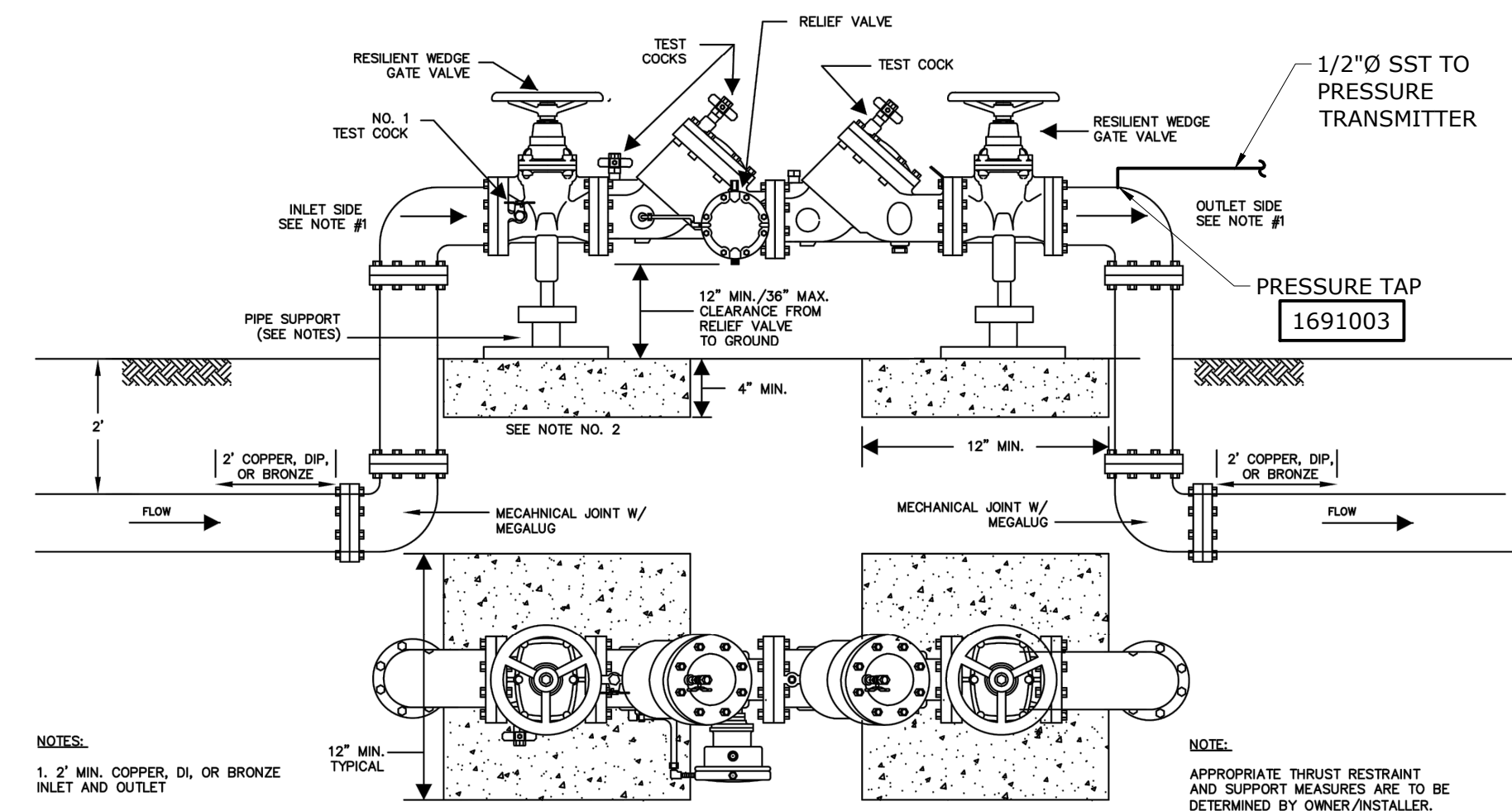
DETAIL	4
NO SCALE	--



SECTION B-B



CONCRETE WASHOUT SIGN DETAIL



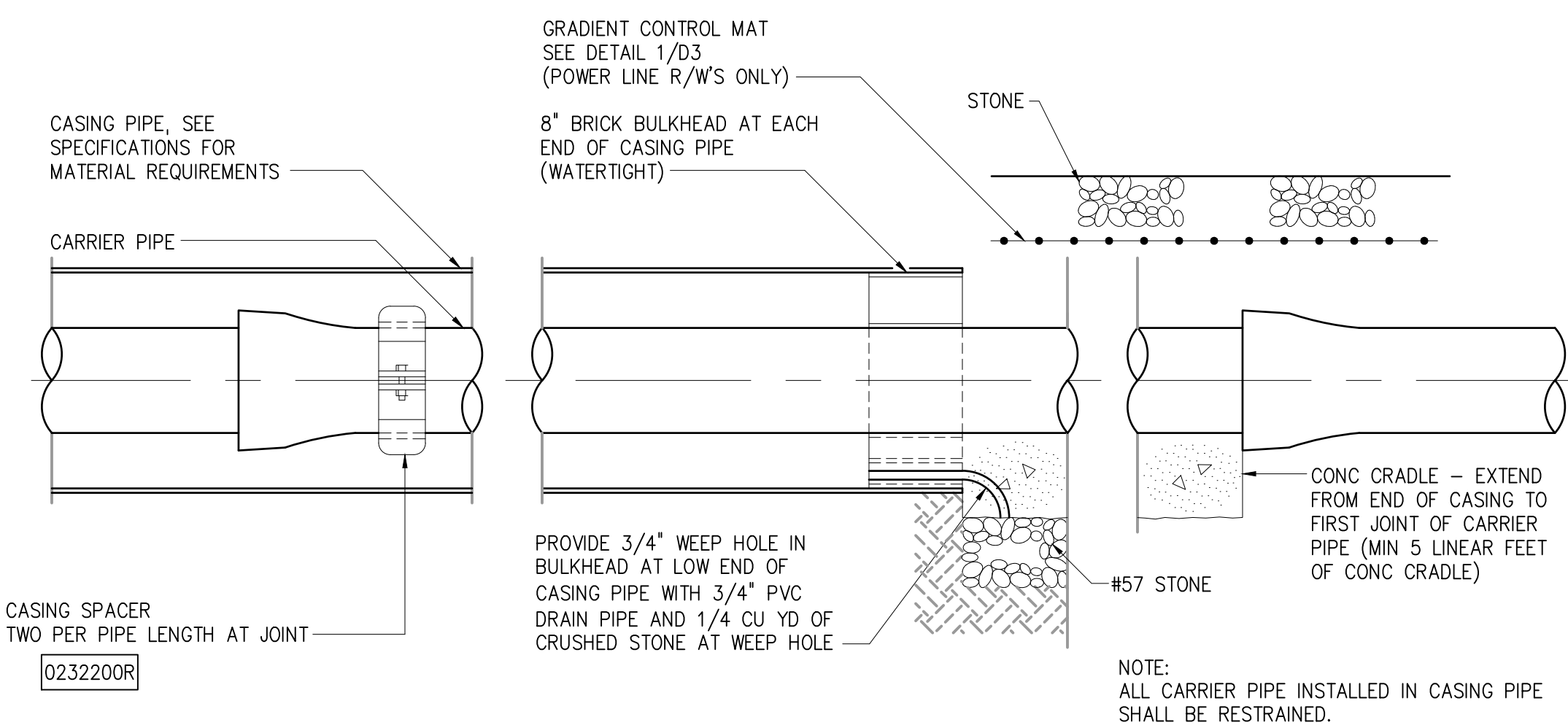
NOTES:

1. 2" MIN. COPPER, DL OR BRONZE INLET AND OUTLET
2. CONCRETE SLAB STABILIZES SUPPORTS BETWEEN BACKFLOW AND GROUND SIZE ACCORDINGLY OR BY MANUFACTURERS' RECOMMENDATIONS.
3. 4" OR GREATER BACKFLOW ASSEMBLIES SHALL REQUIRE PIPE SUPPORT.

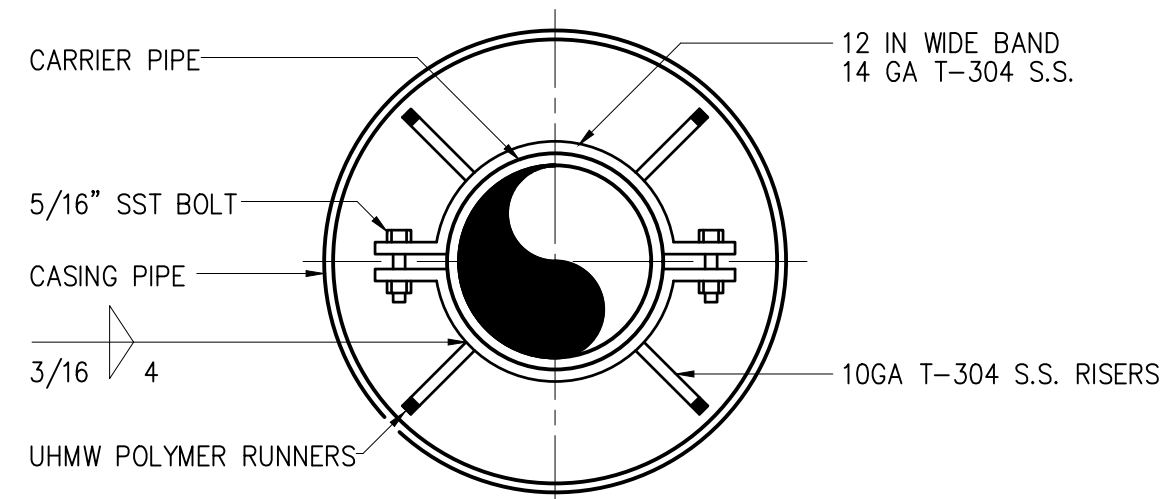
NOTE:  
APPROPRIATE THRUST RESTRAINT AND SUPPORT MEASURES ARE TO BE DETERMINED BY OWNER/INSTALLER.

BACKFLOW PREVENTION ASSEMBLY

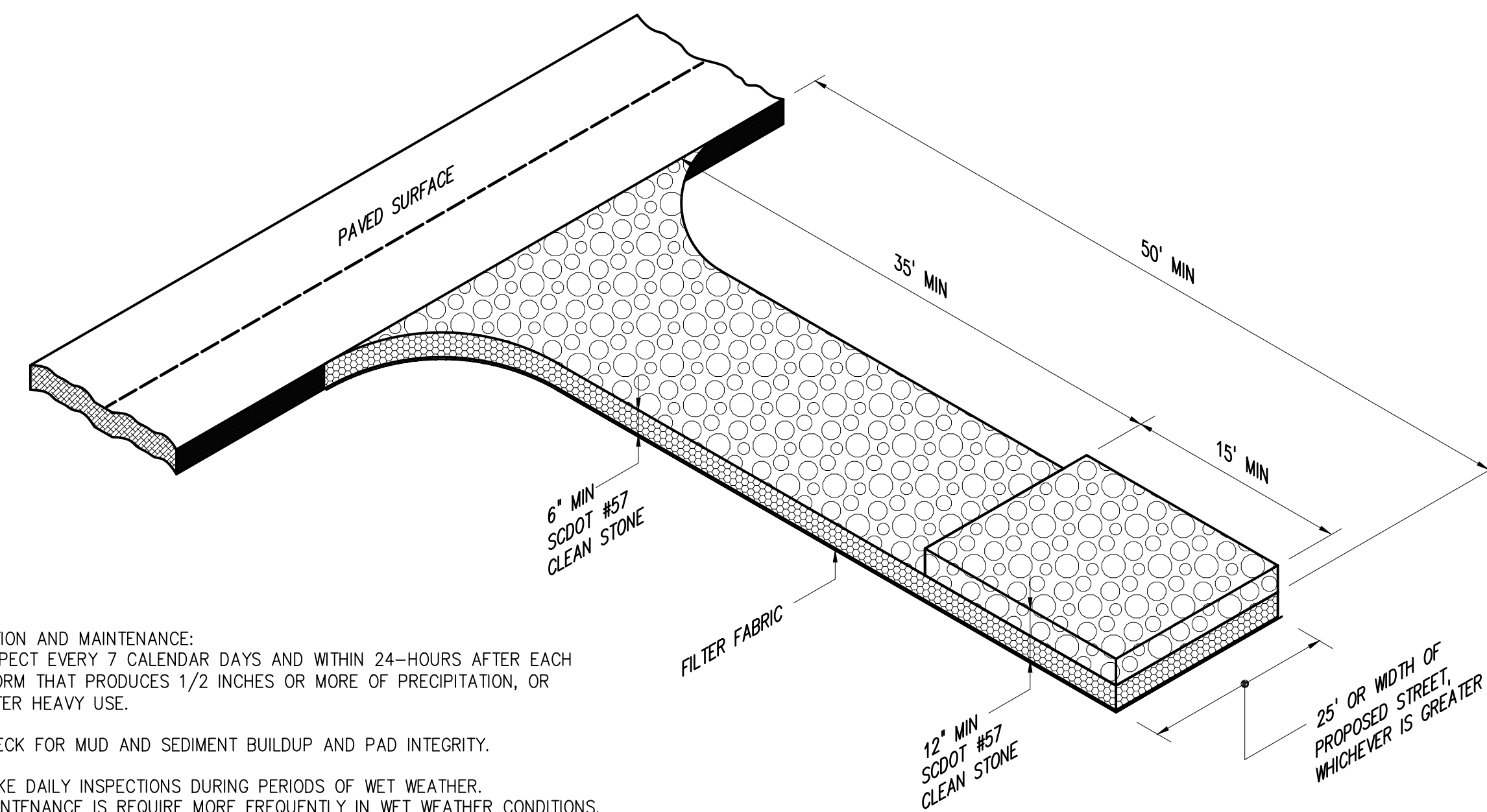
DETAIL	5
CWS DETAIL 33	C103



TYPICAL CASING FOR JACK AND BORE  
0232201R



CASING SPACER  
0232200R



TEMPORARY GRAVEL CONSTRUCTION  
ENTRANCE / EXIT  
0257701R

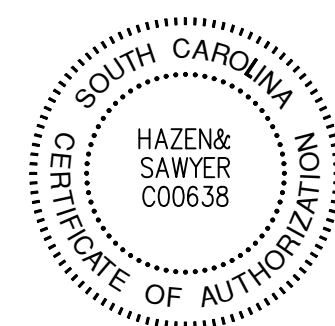
INSPECTION AND MAINTENANCE:

1. INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH STORM THAT PRODUCES 1/2 INCHES OR MORE OF PRECIPITATION, OR AFTER HEAVY USE.
2. CHECK FOR MUD AND SEDIMENT BUILDUP AND PAD INTEGRITY.
3. MAKE DAILY INSPECTIONS DURING PERIODS OF WET WEATHER. MAINTENANCE IS REQUIRE MORE FREQUENTLY IN WET WEATHER CONDITIONS. RESHAPE THE STONE PAD AS NEEDED FOR DRAINAGE AND RUNOFF CONTROL.
4. WASH OR REPLACE STONES AS NEEDED.

File: D:\0033\CHARLESTON\DESIGN\DRAWINGS\CONSTRUCTION\DETAILS Standard by L FANNING Date: 4/22/2020 10:49 AM  
PLOT DATE: 4/23/2020 8:39 AM BY: L FANNING

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

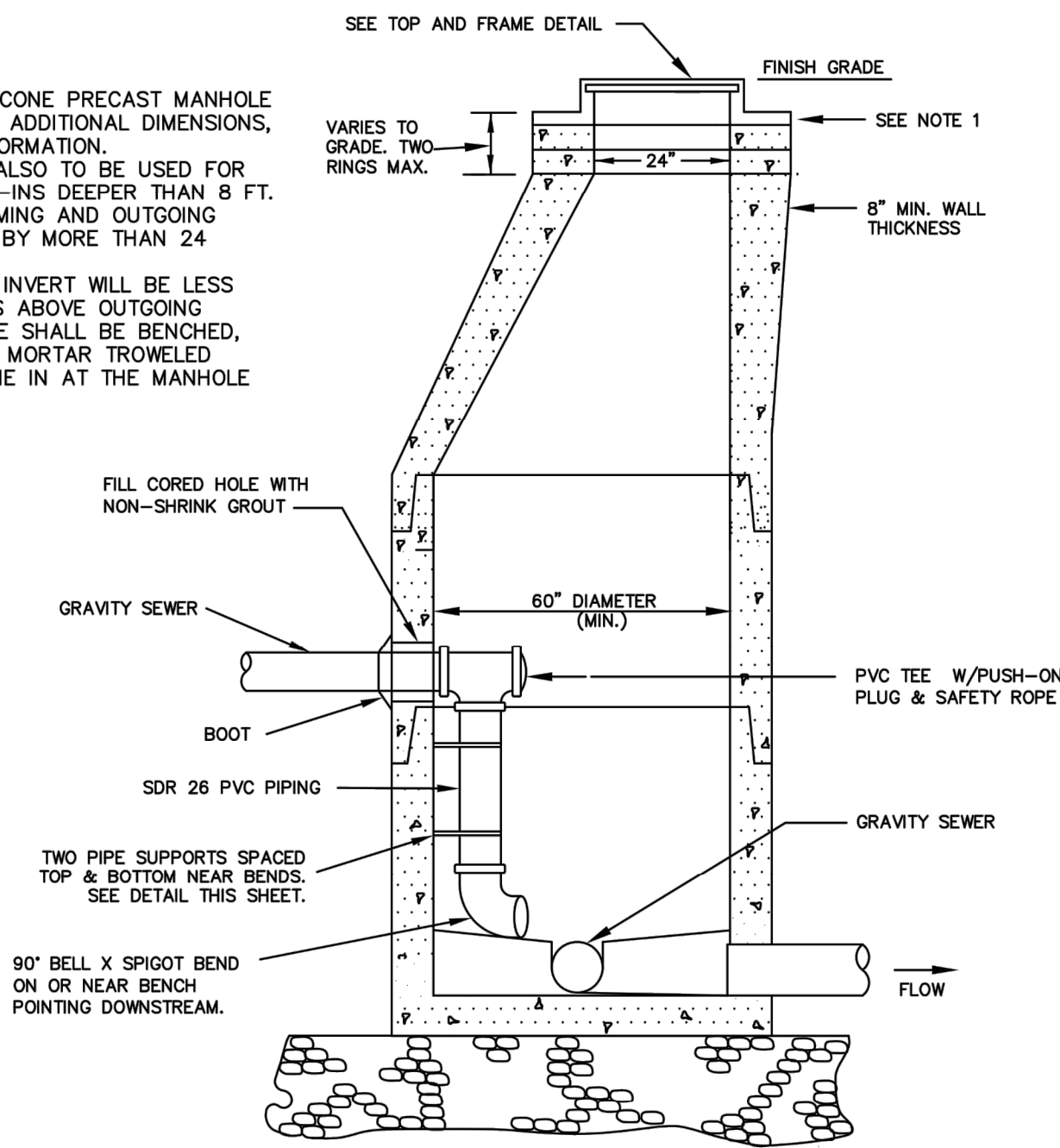
THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II

CIVIL  
STANDARD DETAILS

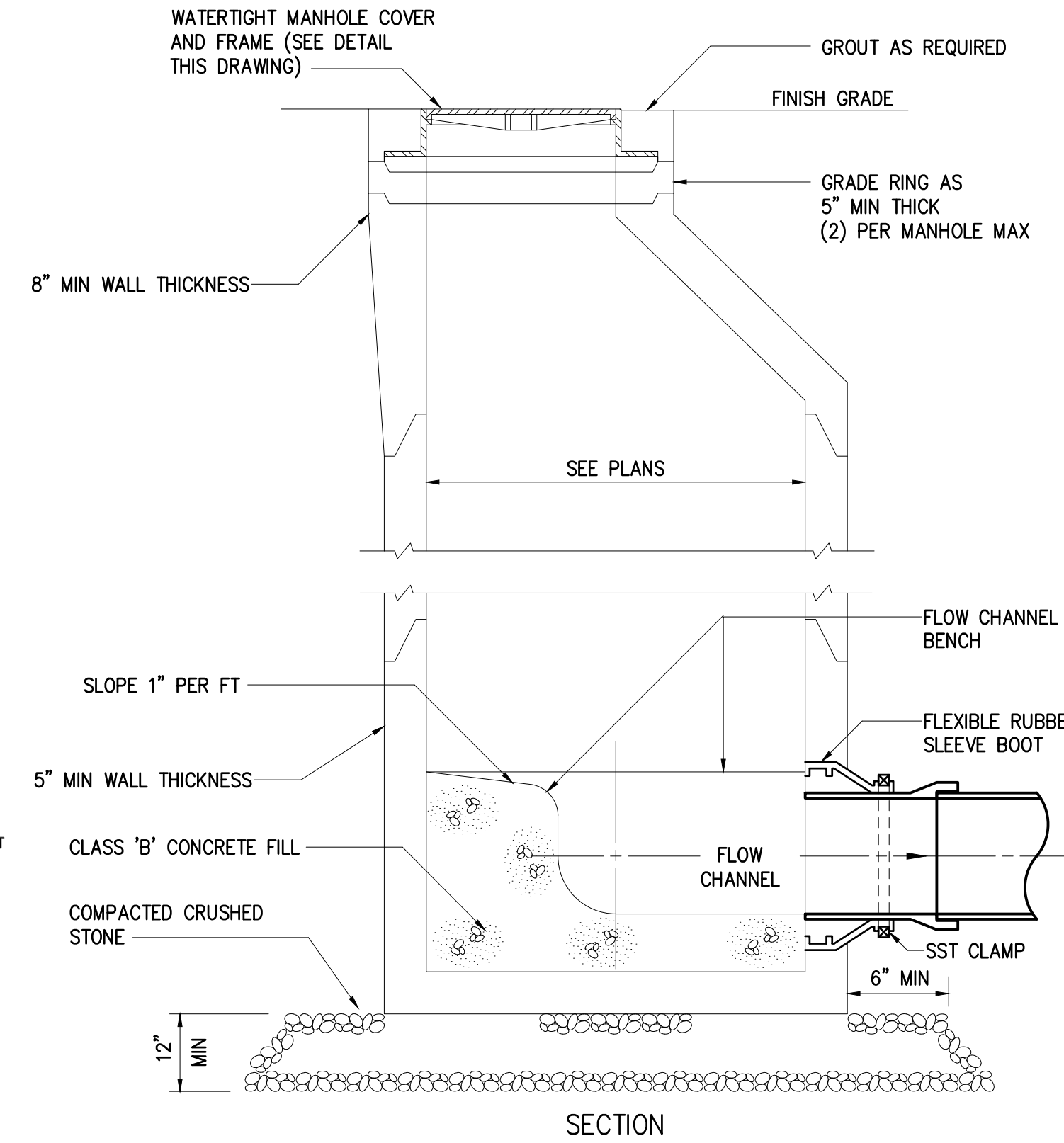
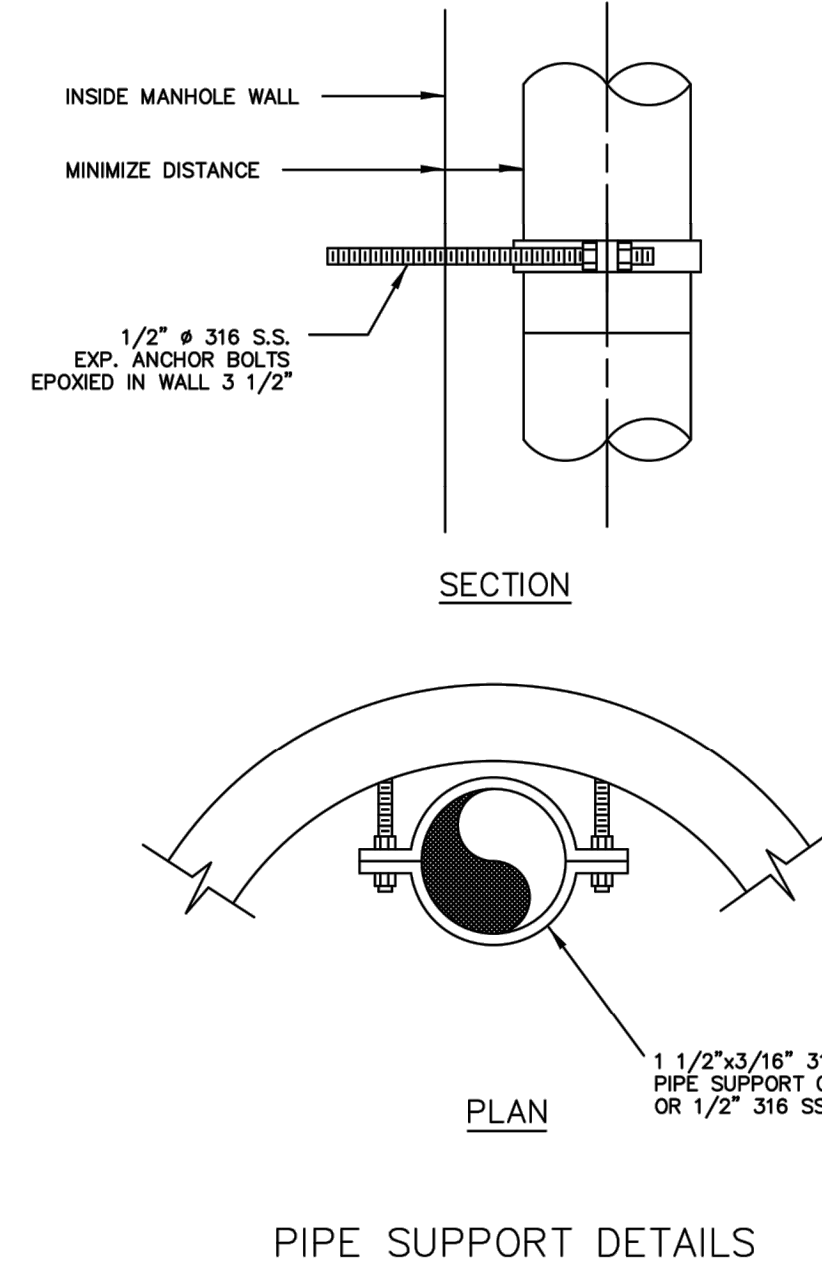
DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C902

NOTES:

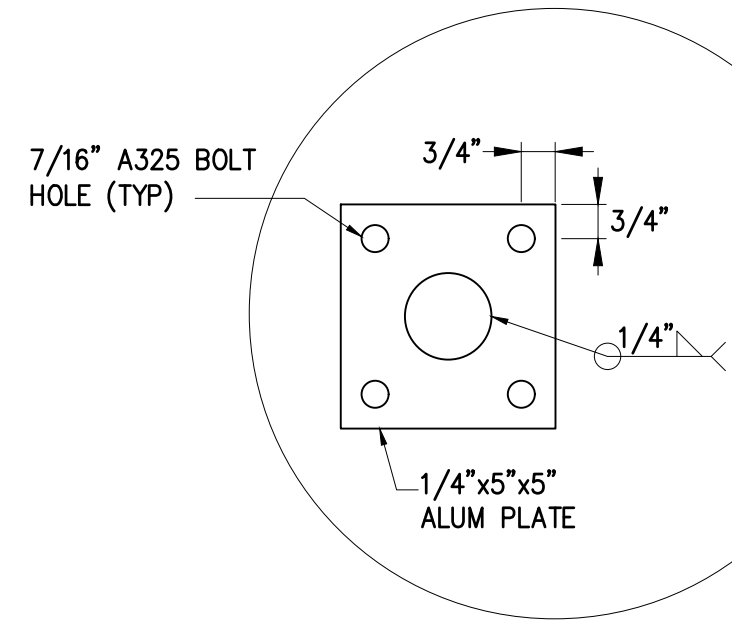
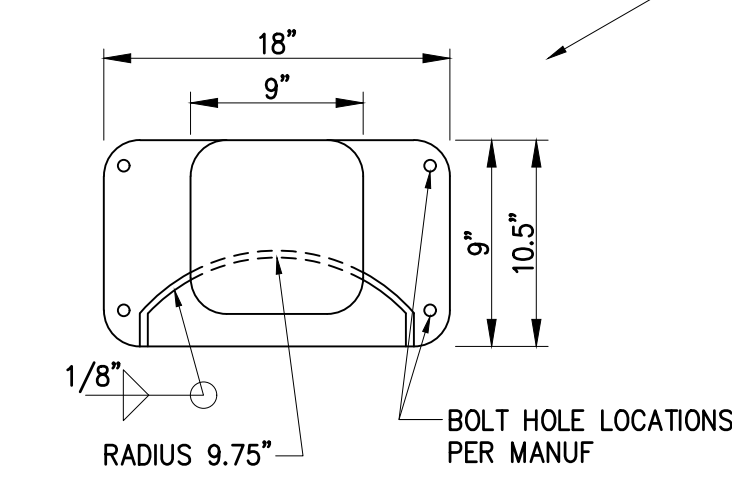
- SEE ECCENTRIC CONE PRECAST MANHOLE DETAIL #47 FOR ADDITIONAL DIMENSIONS, NOTES, AND INFORMATION.
- THIS DETAIL IS ALSO TO BE USED FOR FORCE MAIN TIE-INS DEEPER THAN 8 FT.
- USE WHEN INCOMING AND OUTGOING INVERTS DIFFER BY MORE THAN 24 INCHES.
- WHEN INCOMING INVERT WILL BE LESS THAN 24 INCHES ABOVE OUTGOING INVERT, THE LINE SHALL BE BENCHED, TROUGHED, AND MORTAR TROWELED SMOOTH TO COME IN AT THE MANHOLE INVERT.



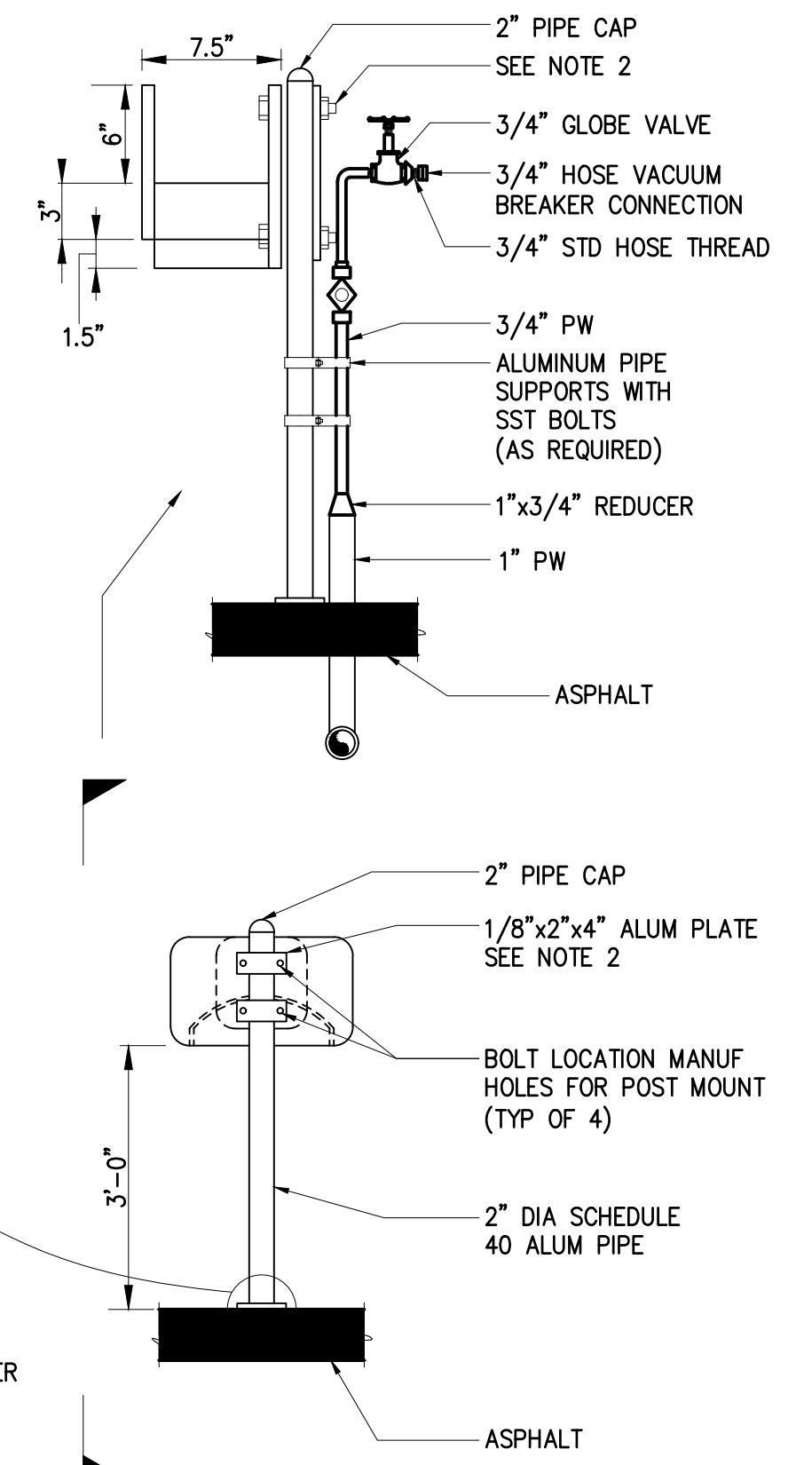
INSIDE DROP MANHOLE  
DETAIL 6  
CWS DETAIL 49



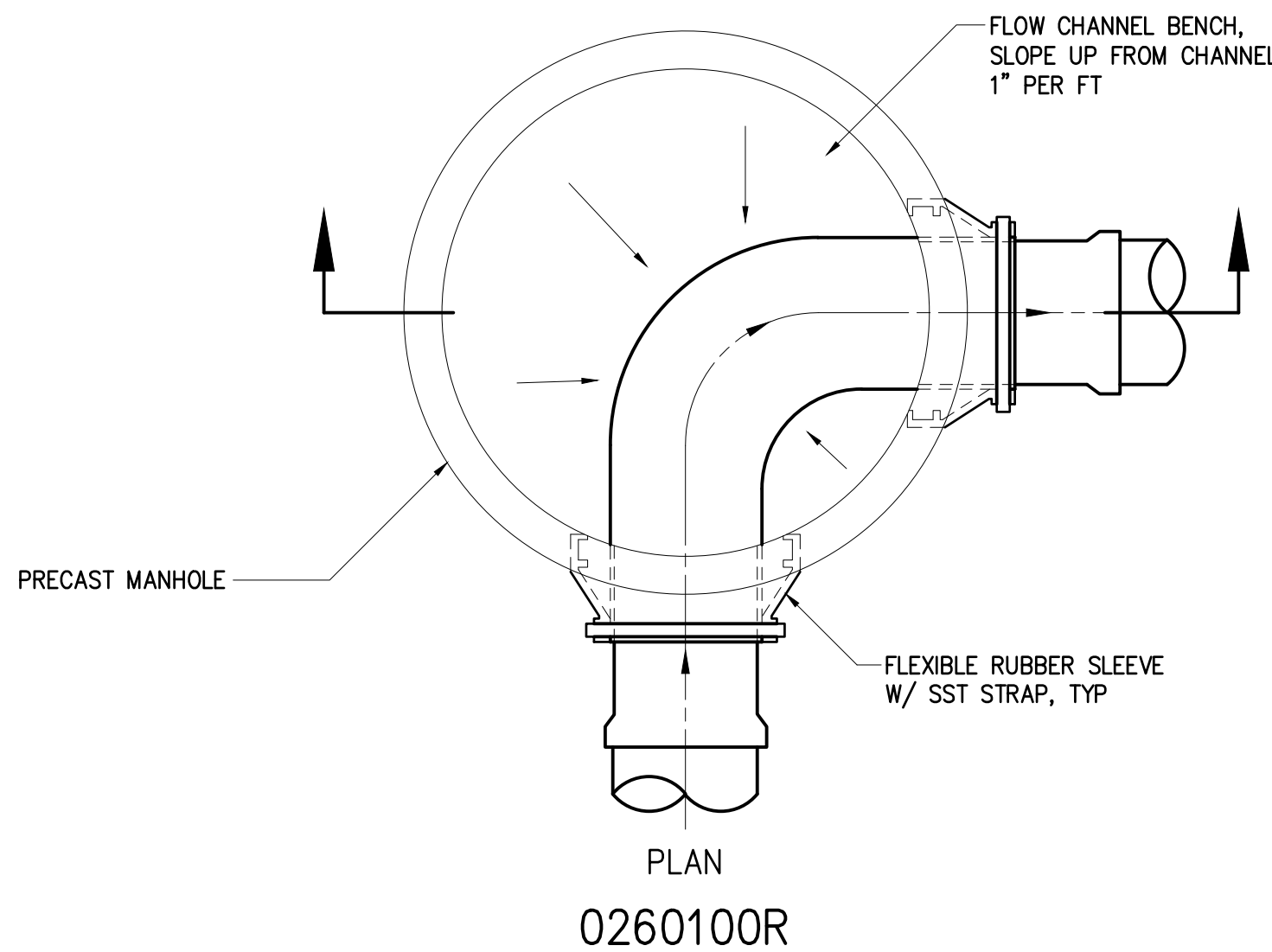
SECTION  
0260101R



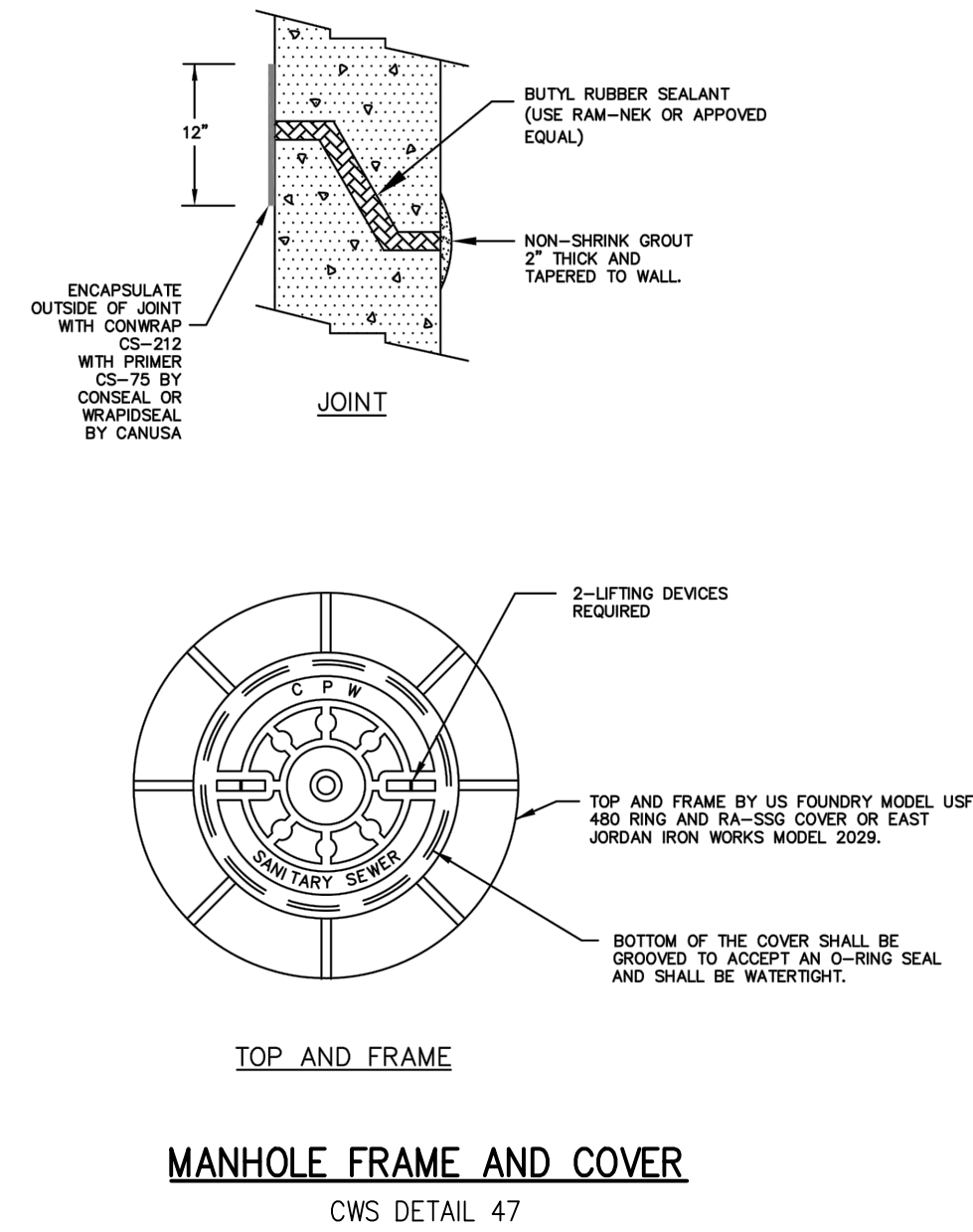
- NOTES:
- ALL UNITS SHALL BE FABRICATED FROM 1/8" 6061-T6 ALUMINUM ALLOY PLATE.
  - ATTACH HOSE RACK TO POST W/ PLATES AND (4)-1/4" SS BOLTS.
  - VERIFY DIMENSIONS WITH THE HOSE FURNISHED FOR SIZING. INSERT DOUBLE SPACER NUTS BETWEEN POST AND HOSE RACK.
  - PROVIDE 50' 3/4" HOSE PER SPECIFICATIONS FOR EACH RACK SHOWN.



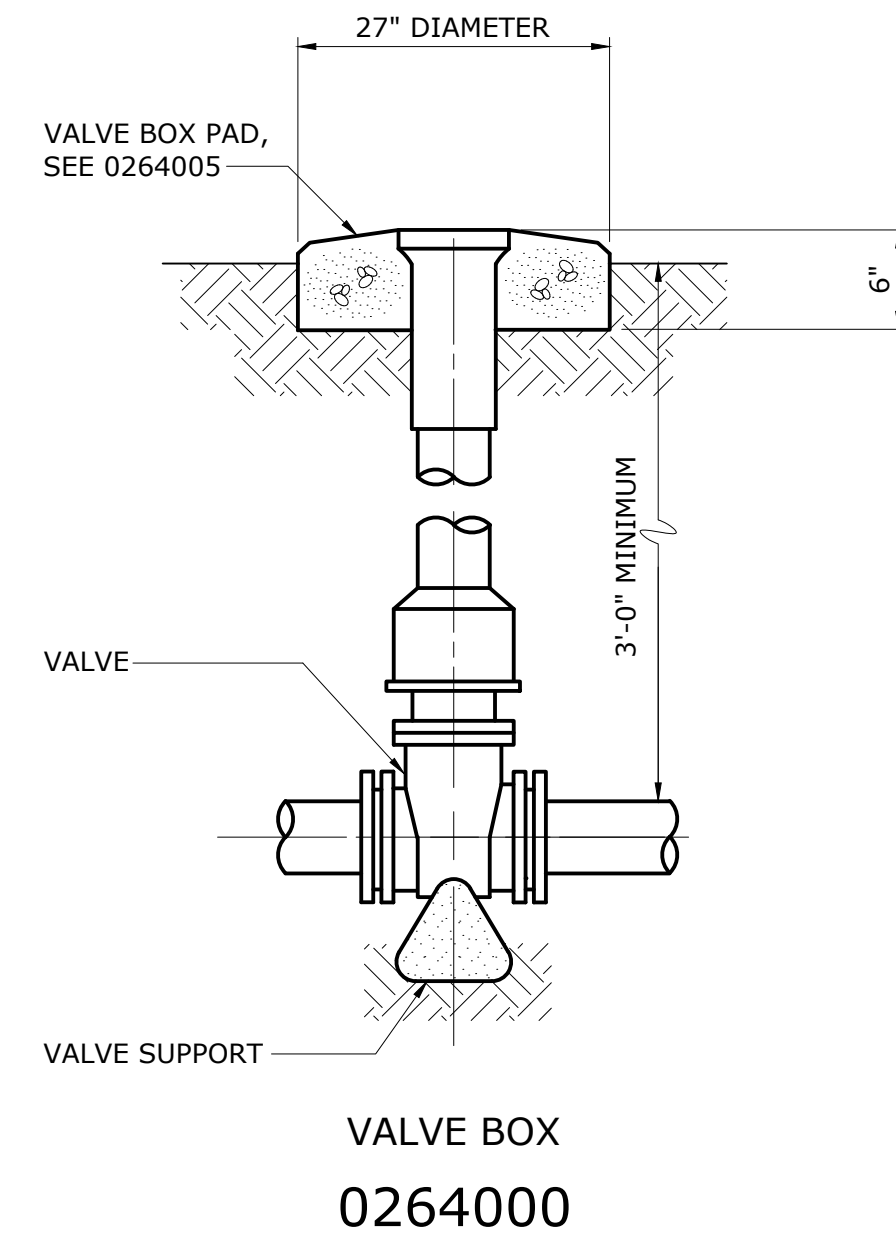
ELEVATION - POST MOUNTED  
HOSE BIBB WITH  
HOSE RACK  
1511209R



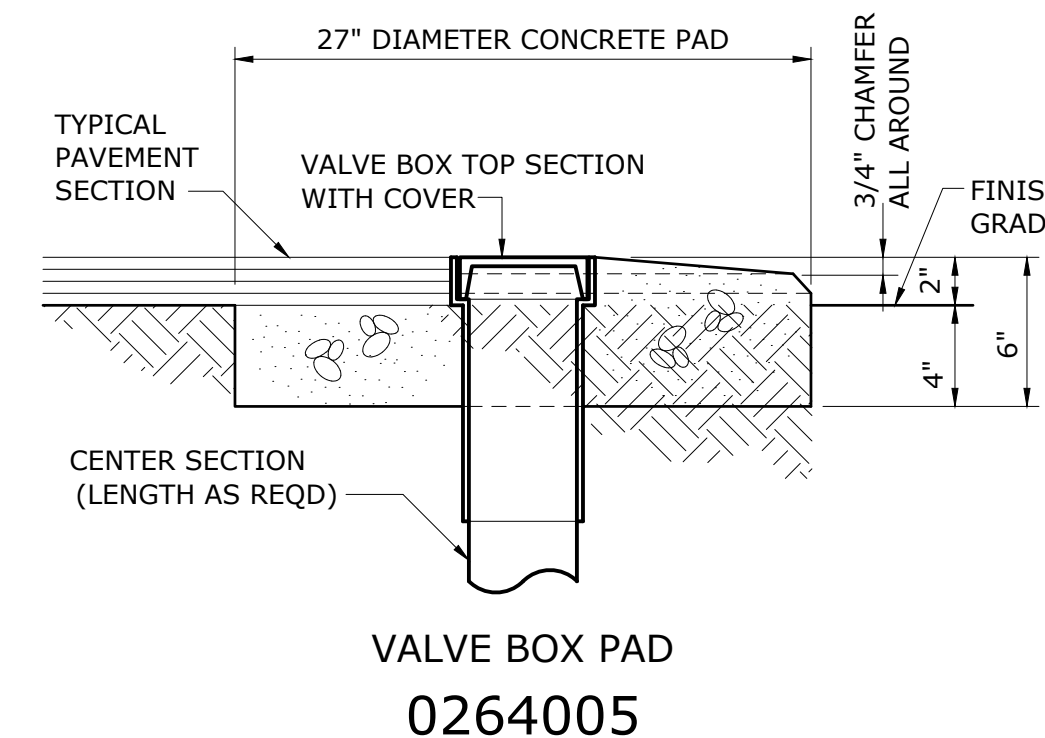
PLAN  
0260100R



TOP AND FRAME  
MANHOLE FRAME AND COVER  
CWS DETAIL 47



VALVE BOX  
0264000



VALVE BOX PAD  
0264005

File: D:\03533-CHARLESTON\DRAWINGS\CONTRACT\DETAILS Drawn by: LFANNING Date: 4/22/2020 10:40 AM  
Plot Date: 4/23/2020 8:39 AM By: LFANNING

1	CONSTRUCTION	JAN 2020	HAZEN
REV	ISSUED FOR	DATE	BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	

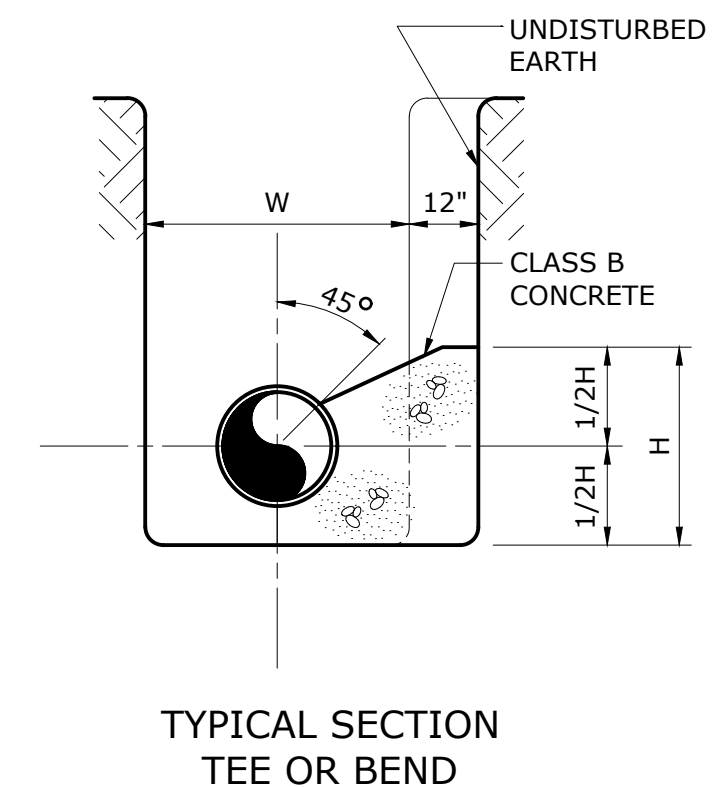
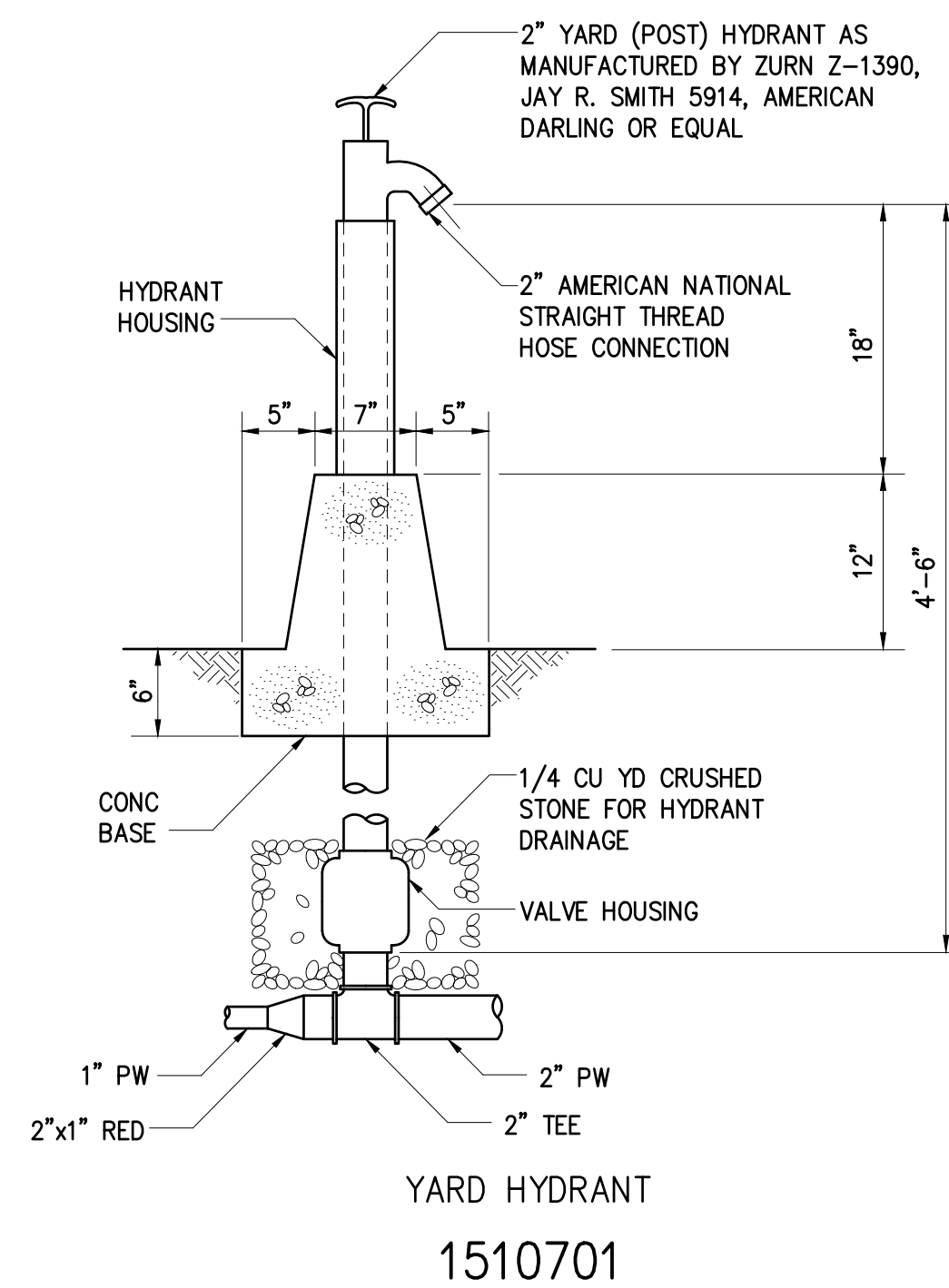


**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC  
**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II**

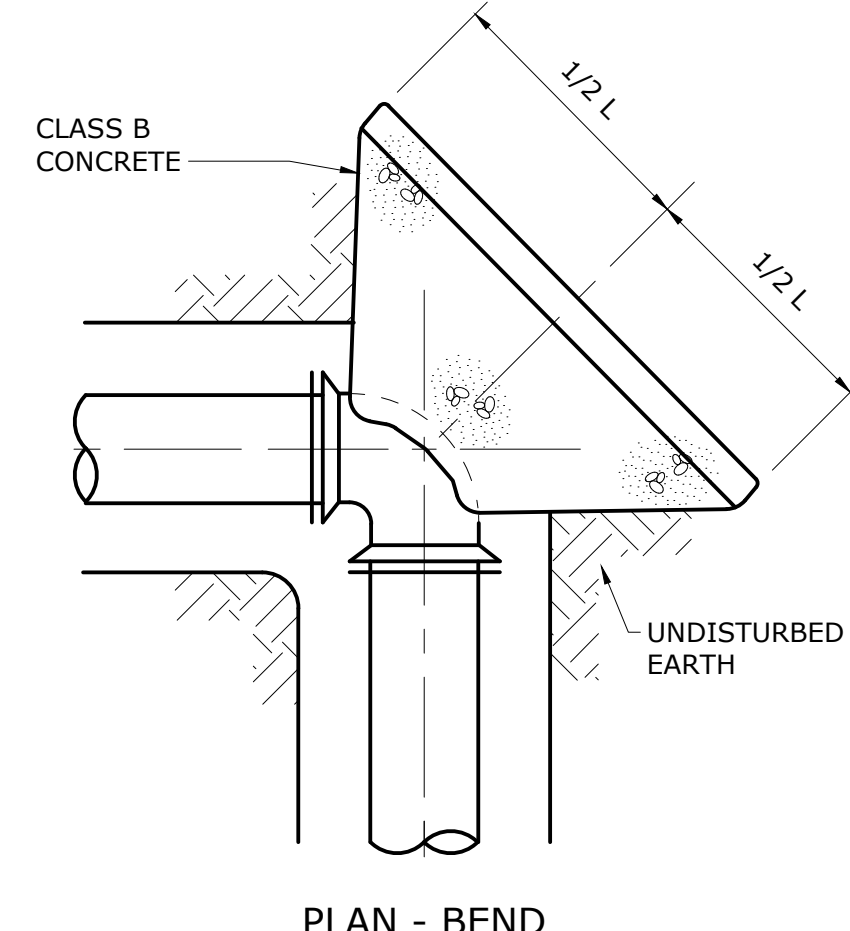
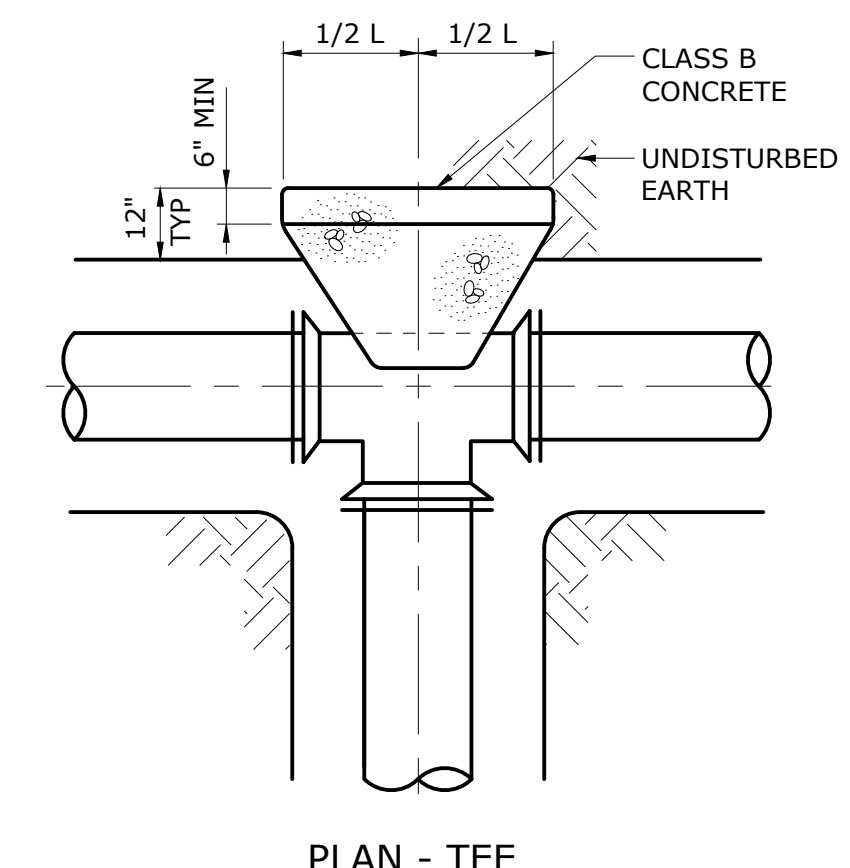
**CIVIL  
STANDARD DETAILS**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C903

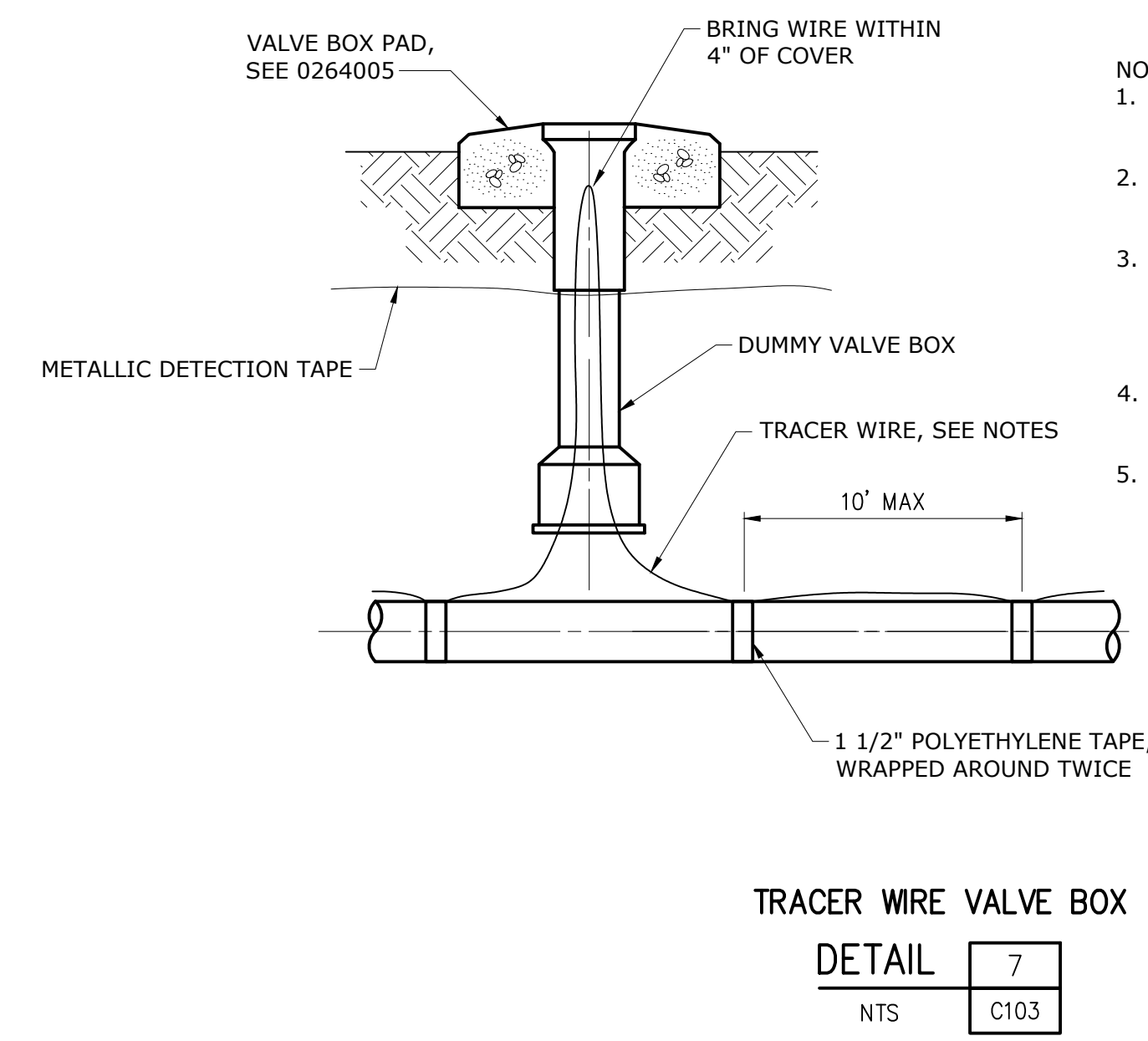


PIPE SIZE (IN)	BEND								DESIGN PRESSURE (PSI)
	90°/TEE		45°		22 1/2°		11 1/4°		
	H	L	H	L	H	L	H	L	
6	1.7	3.4	1.3	2.5	0.9	1.8	0.6	1.3	150
8	2.3	4.5	1.7	3.3	1.2	2.4	0.8	1.7	150
12	3.3	6.6	2.4	4.9	1.7	3.5	1.2	2.5	150
16	4.3	8.7	3.2	6.4	2.3	4.6	1.6	3.2	150
24	6.4	12.9	4.7	9.5	3.4	6.8	2.4	4.8	150
30	8.0	16.0	5.9	11.8	4.2	8.4	3.0	6.0	150
36	9.6	19.1	7.0	14.1	5.0	10.1	3.6	7.1	150
42	11.1	22.2	8.2	16.4	5.8	11.7	4.1	8.3	150
48	12.7	25.4	9.3	18.7	6.7	13.3	4.7	9.5	150
54	14.3	28.5	10.5	21.0	7.5	15.0	5.3	10.6	150

\* BASED ON AVERAGE SOIL PASSIVE BEARING STRENGTH OF 2000 PSF USING SF OF 1.5. DIMENSIONS FOR BLOCKS IN FEET

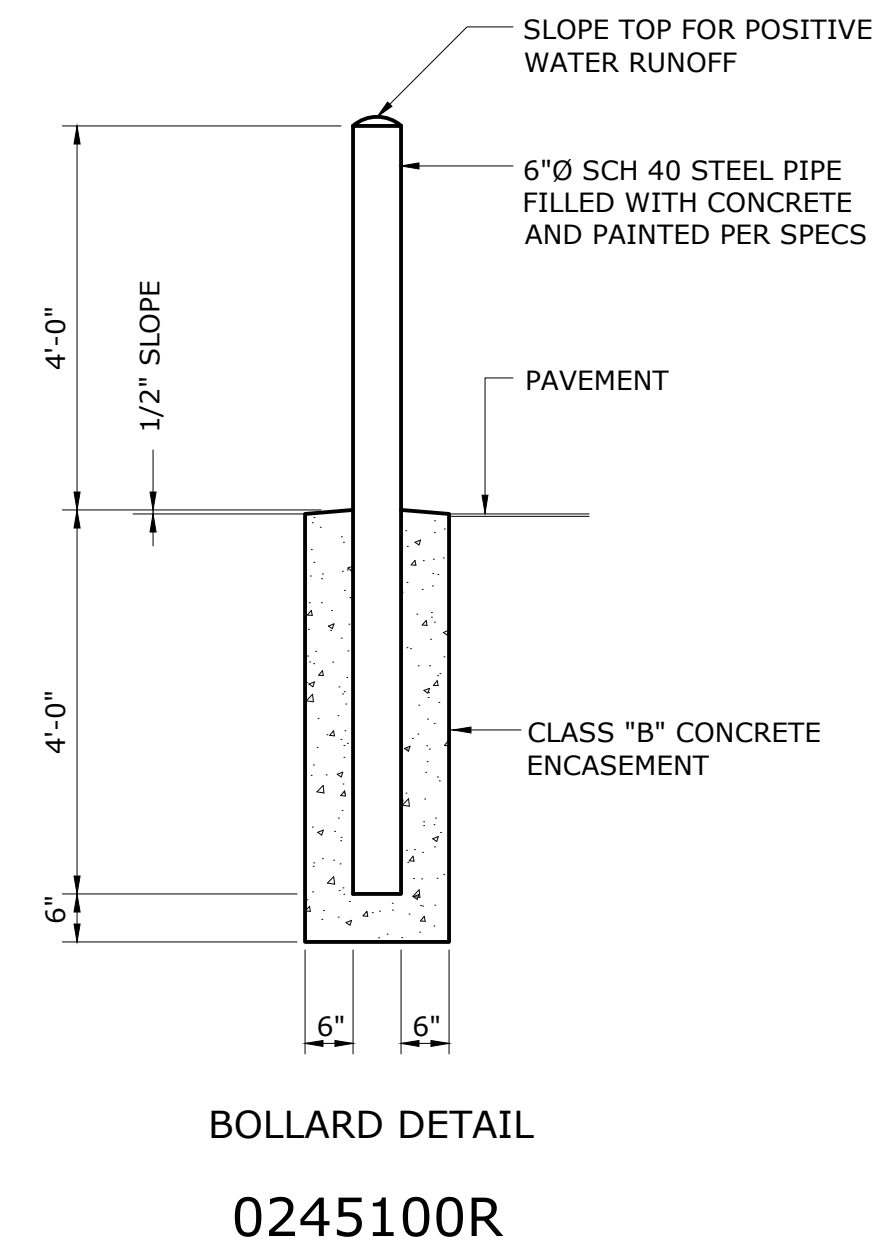


THRUST BLOCKS  
0222108

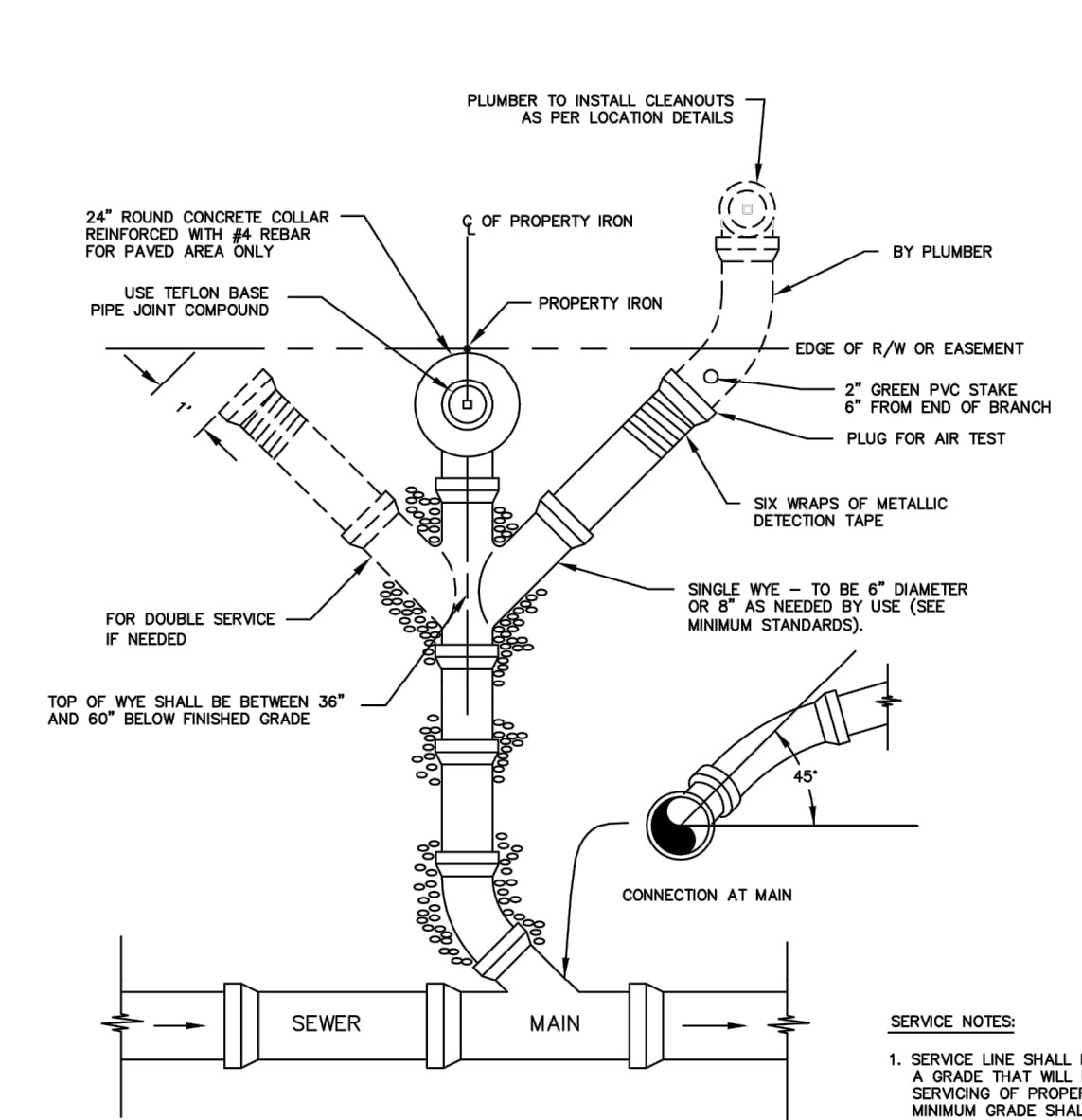


- NOTES:
- OPEN CUT INSTALLATIONS WILL REQUIRE INSULATED 12 GAUGE COPPER WIRE.
  - TRENCHLESS INSTALLATION WILL REQUIRE INSULATED 10 GAUGE STAINLESS STEEL WIRE.
  - CONTRACTOR SHALL INSTALL DUMMY VALVE BOXES AT INTERVALS NO GREATER THAN 1000 FEET, INCLUDING ONE AT THE PUMP STATION AND ONE AT THE DISCHARGE POINT.
  - THE WIRE AND TAPE SHALL MEET THE REQUIREMENTS OF THE CWS MINIMUM STANDARDS.
  - REFER TO FORCE MAIN BEDDING DETAIL FOR ADDITIONAL INFORMATION.

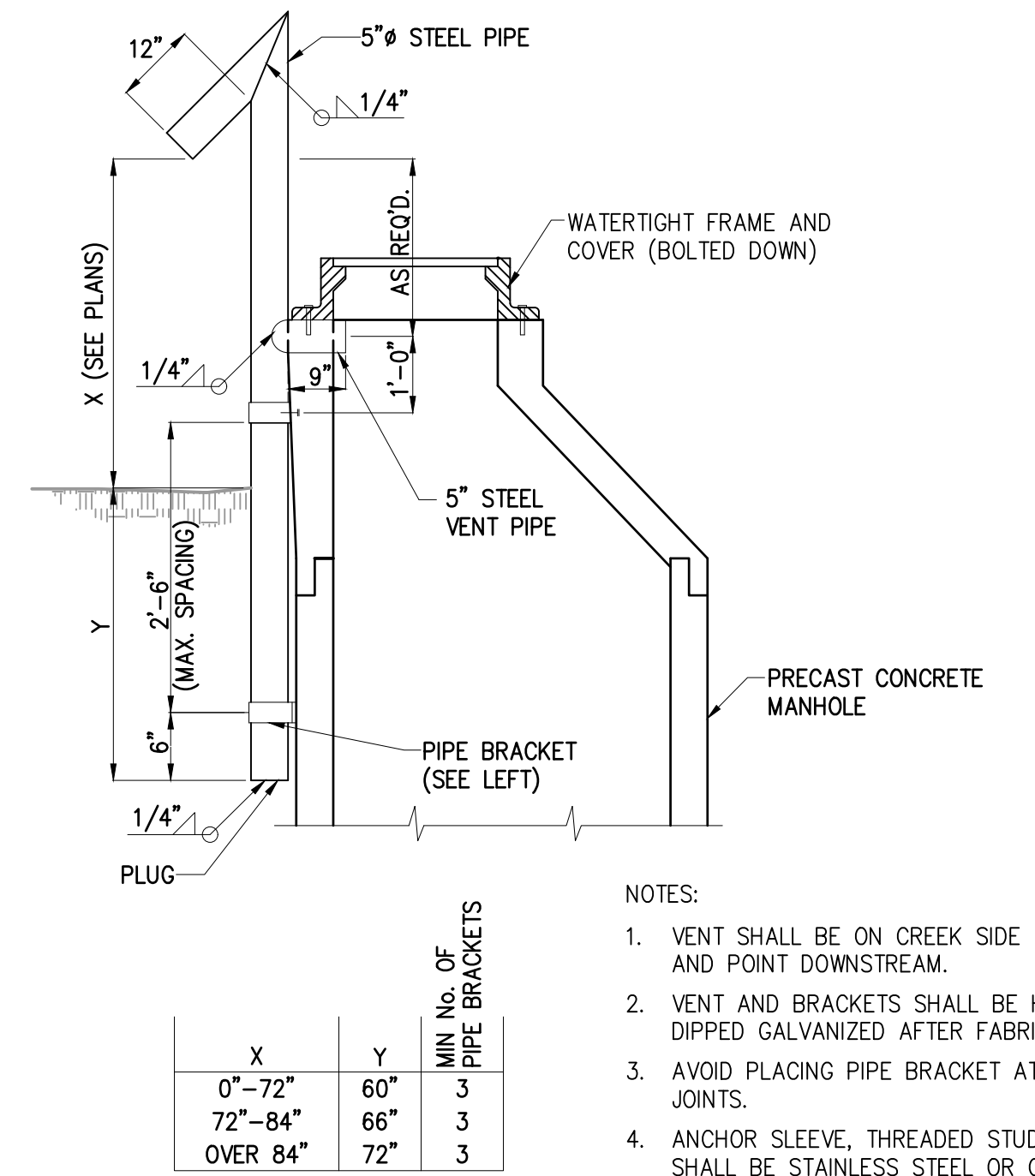
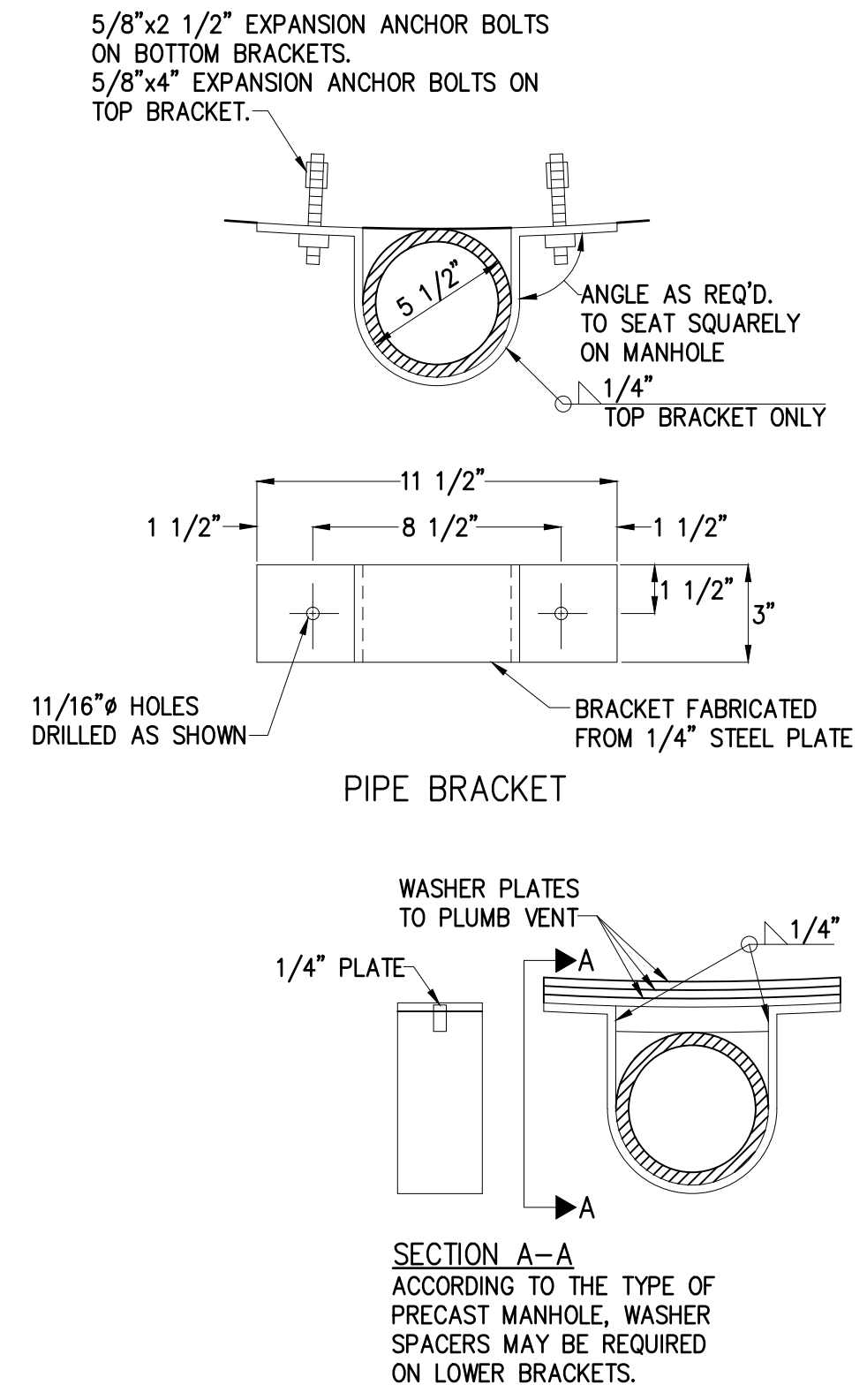
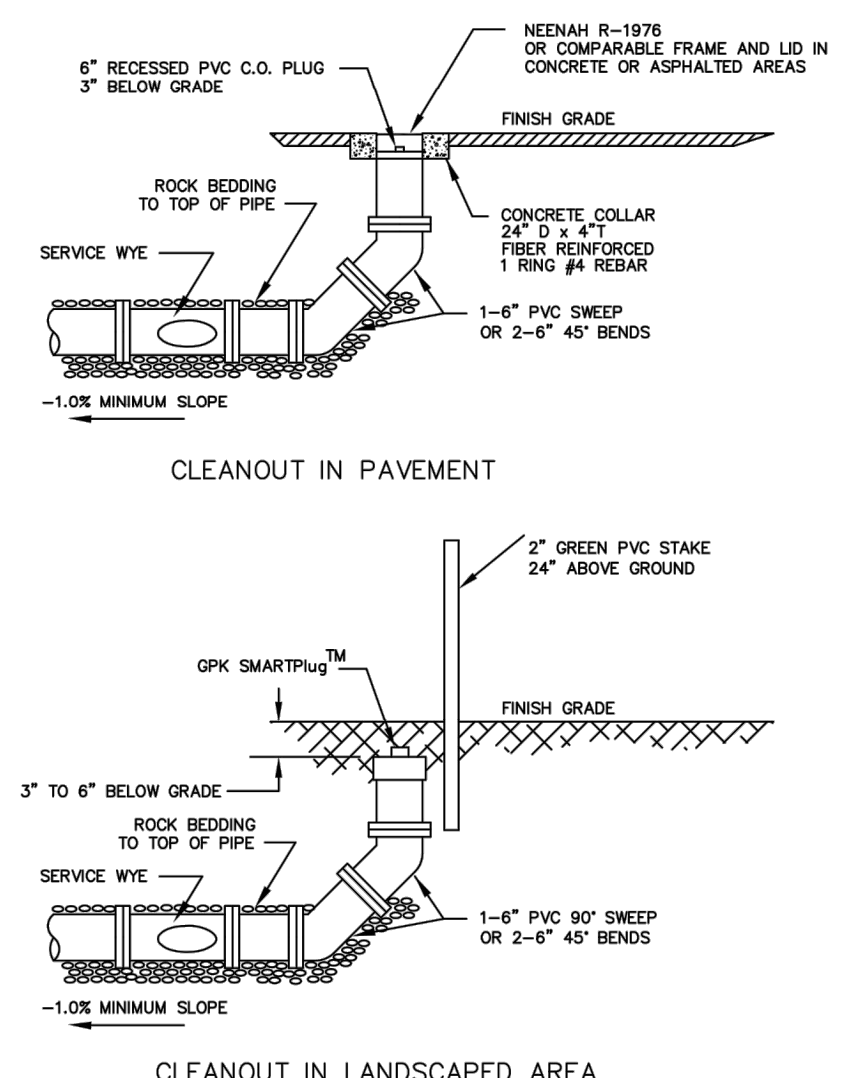
TRACER WIRE VALVE BOX  
DETAIL 7  
NTS C103



BOLLARD DETAIL  
0245100R



SEWER SERVICE CONNECTION TO MAIN  
DETAIL 8  
CWS DETAIL 54



- NOTES:
- VENT SHALL BE ON CREEK SIDE AND POINT DOWNSTREAM.
  - VENT AND BRACKETS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION.
  - AVOID PLACING PIPE BRACKET AT MANHOLE JOINTS.
  - ANCHOR SLEEVE, THREADED STUD AND NUT SHALL BE STAINLESS STEEL OR GALVANIZED STEEL.
  - ROTATE STRAIGHT WALL OF MANHOLE TO CREEK SIDE.

X	Y	MIN. NO. OF PIPE BRACKETS
0'-72"	60"	3
72'-84"	66"	3
OVER 84"	72"	3

MANHOLE VENT PIPE  
0264004R

File: D:\03533-CHARLESTON\DRAWINGS\CONSTRUCT\DETAILS\Drawings by L.FANNING.dwg Date: 4/22/2020 10:40 AM PLOT DATE: 02/23/2020 8:39 AM BY: L.FANNING

REV	ISSUED FOR	DATE	BY
1	CONSTRUCTION	JAN 2020	HAZEN

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	



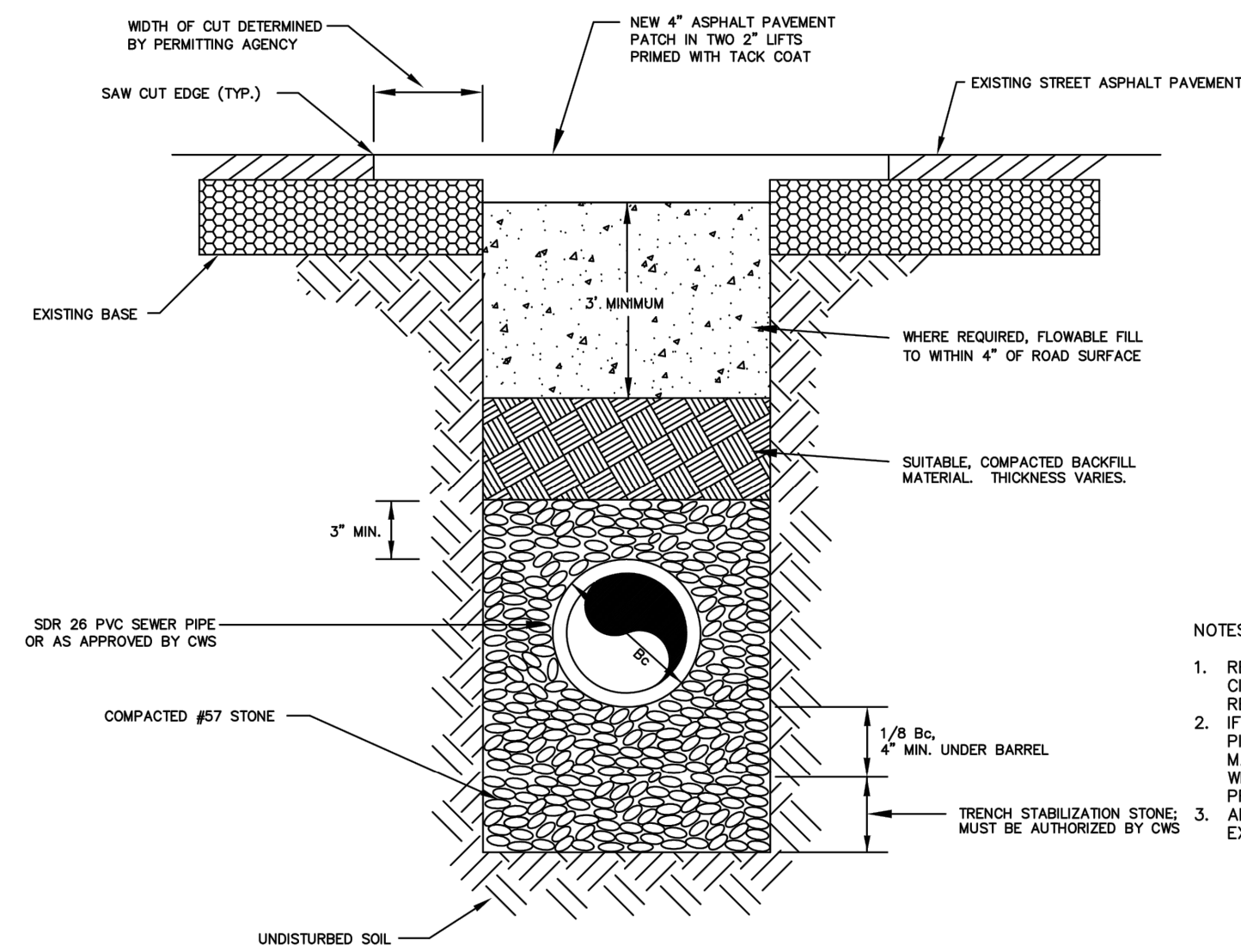
**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC  
**THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II**

**CIVIL  
STANDARD DETAILS**

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C904



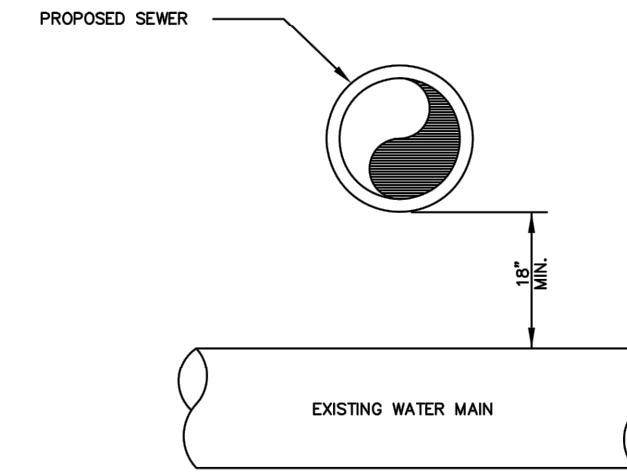


- NOTES:
1. REFER TO SCDOT HIGHWAY DEPARTMENT, CITY, OR COUNTY PERMITS FOR ADDITIONAL REQUIREMENTS.
  2. IF UNSUITABLE MATERIAL BENEATH FINAL PIPE GRADE IS ENCOUNTERED, SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH CRUSHED STONE AND COMPACTED TO PROPER GRADE.
  3. ANY DEBRIS ENCOUNTERED IN TRENCH EXCAVATION SHALL BE REMOVED.

TYPICAL SEWER MAIN ROAD CUT

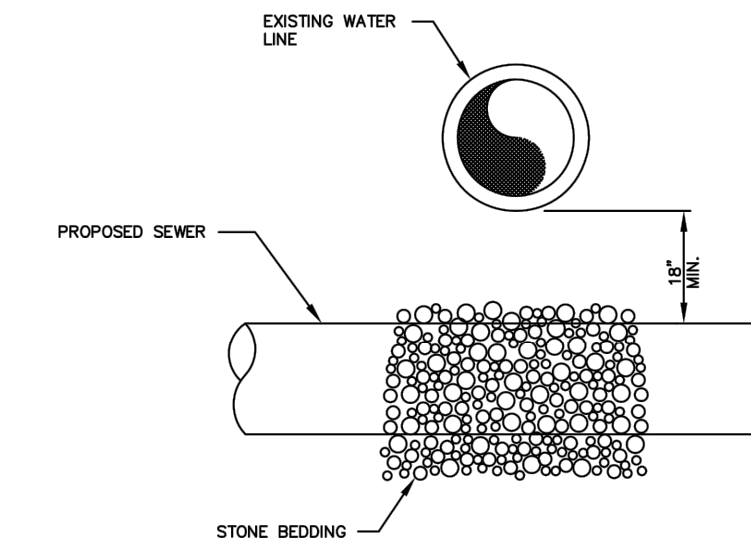
DETAIL	9
CWS DETAIL 42	--

- NOTES FOR SEWER OVER WATER MAIN:
1. INSTALL A FULL JOINT OF PIPE FOR WHICHEVER MAIN IS LAID SECOND. IT IS TO BE CENTERED AT CROSSING.
  2. IF THE WATER IS EXISTING AND THE MINIMUM CLEARANCE IS NOT MET, THE SEWER SHALL BE PVC C900, C905, OR DUCTILE IRON PIPE. PROVIDE RESTRAINED JOINT FITTINGS WHEN TRANSITIONING FROM DIP TO PVC. PLACE FLOWABLE FILL BETWEEN TOP OF WATER MAIN AND BOTTOM OF SEWER.
  3. IF THE SEWER IS EXISTING, THE WATER MAIN SHALL MEET THE MINIMUM CLEARANCE.



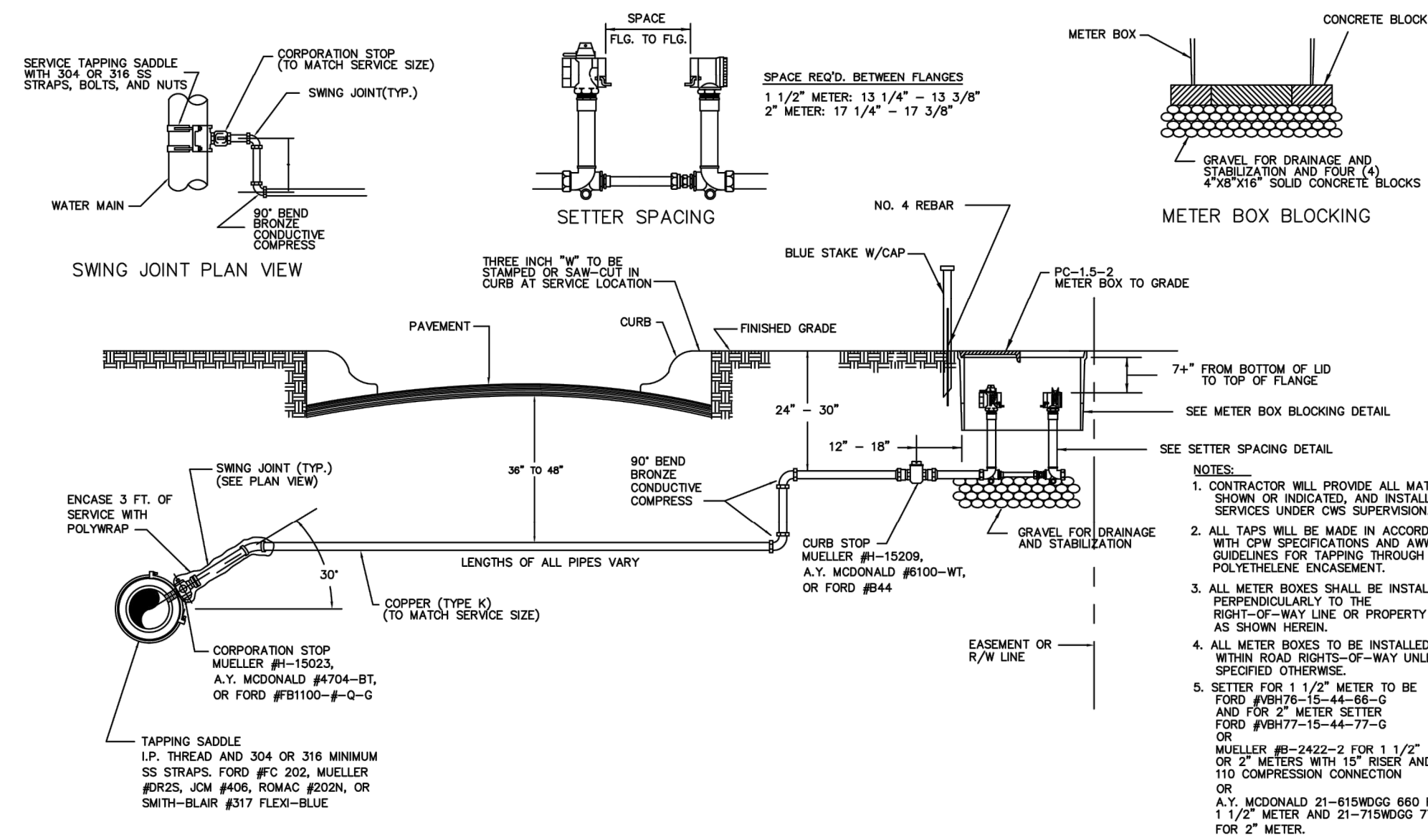
SEWER CROSSING ABOVE WATER MAIN

- NOTES FOR SEWER UNDER WATER MAIN:
1. SOIL REPLACED UNDER THE WATER MAIN SHALL BE COMPACTED AS PER CWS MINIMUM STANDARDS FOR WATER MAIN INSTALLATION.
  2. IF CLEARANCE IS LESS THAN 18", PVC C900, C905 OR DUCTILE IRON PIPE SHALL BE USED. PROVIDE RESTRAINED JOINT FITTINGS WHEN TRANSITIONING FROM DIP TO PVC. PLACE FLOWABLE FILL BETWEEN TOP OF SEWER AND BOTTOM OF WATER MAIN. PLACE A LAYER OF POLYWRAP ABOVE SEWER STONE BEDDING PRIOR TO PLACING FLOWABLE FILL.
  3. INSTALL A FULL JOINT OF PIPE FOR WHICHEVER MAIN IS LAID SECOND. IT IS TO BE CENTERED AT CROSSING.



SEWER CROSSING UNDER WATER MAIN

SEWER MAIN CROSSING WATER MAIN NOT TO SCALE



1 1/2" AND 2" WATER SERVICE NOT TO SCALE

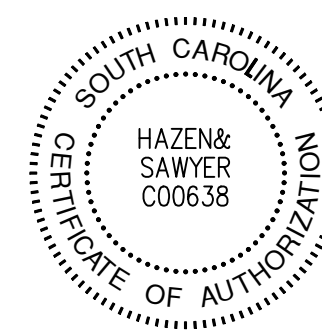
2" WATER SERVICE

DETAIL	10
CWS DETAIL 21	--

File: D:\0353-CHARLESTON\DRAWINGS\CONTRACT\DETAILS\Drawn by: LFANNING Date: 4/22/2020 10:49 AM PLOT DATE: 4/23/2020 8:39 AM BY: LFANNING

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
1 CONSTRUCTION	JAN 2020 HAZEN
REV	ISSUED FOR DATE BY

PROJECT ENGINEER:	J. HARTWIG
DESIGNED BY:	L. FANNING
DRAWN BY:	L. FANNING
CHECKED BY:	C. RAGOS
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE	0 1/2" 1"
1 CONSTRUCTION	JAN 2020 HAZEN
REV	ISSUED FOR DATE BY



**Hazen**  
HAZEN AND SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

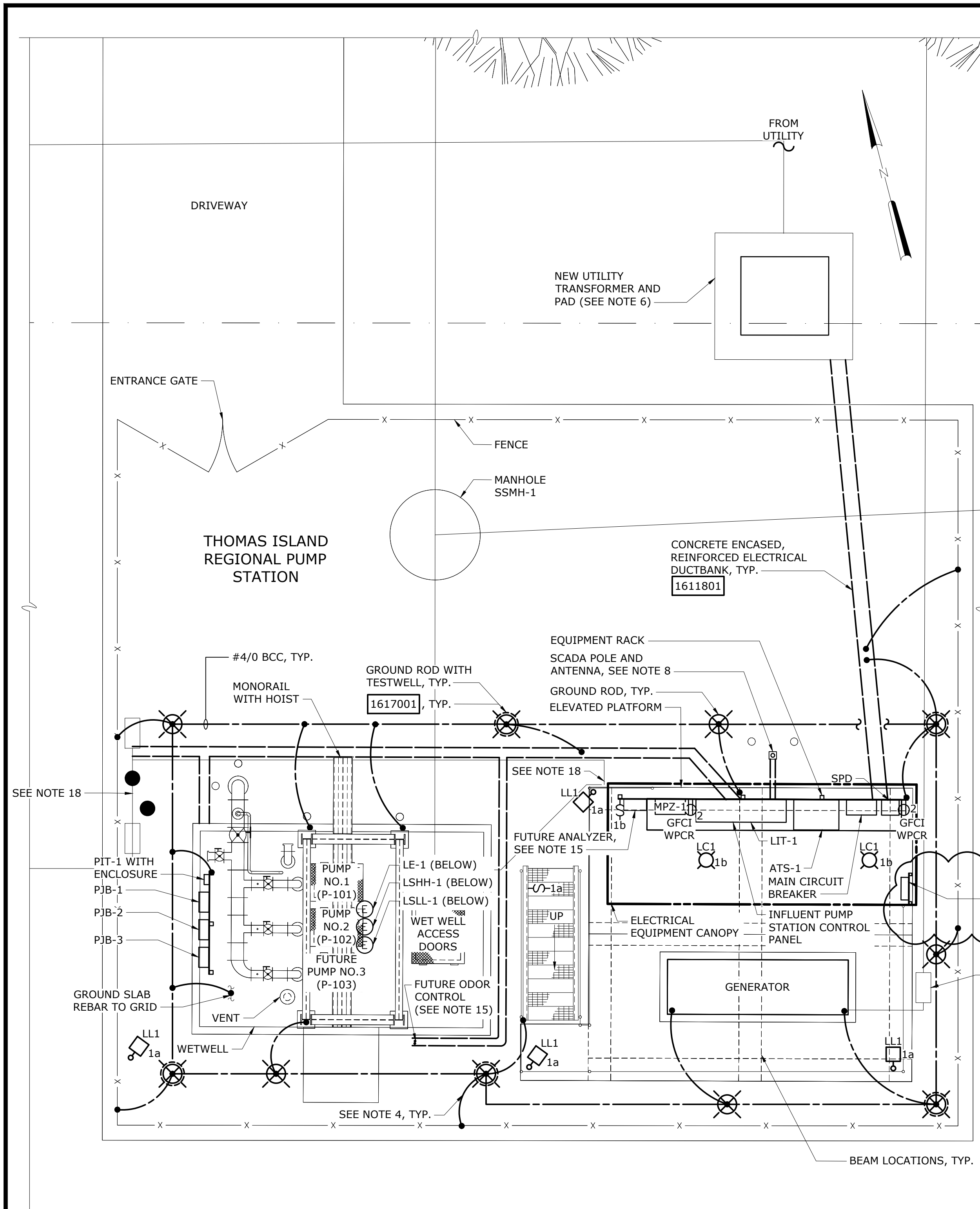
**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

THOMAS ISLAND REGIONAL PUMP STATION  
AND INTERCEPTOR  
DIVISION I & II

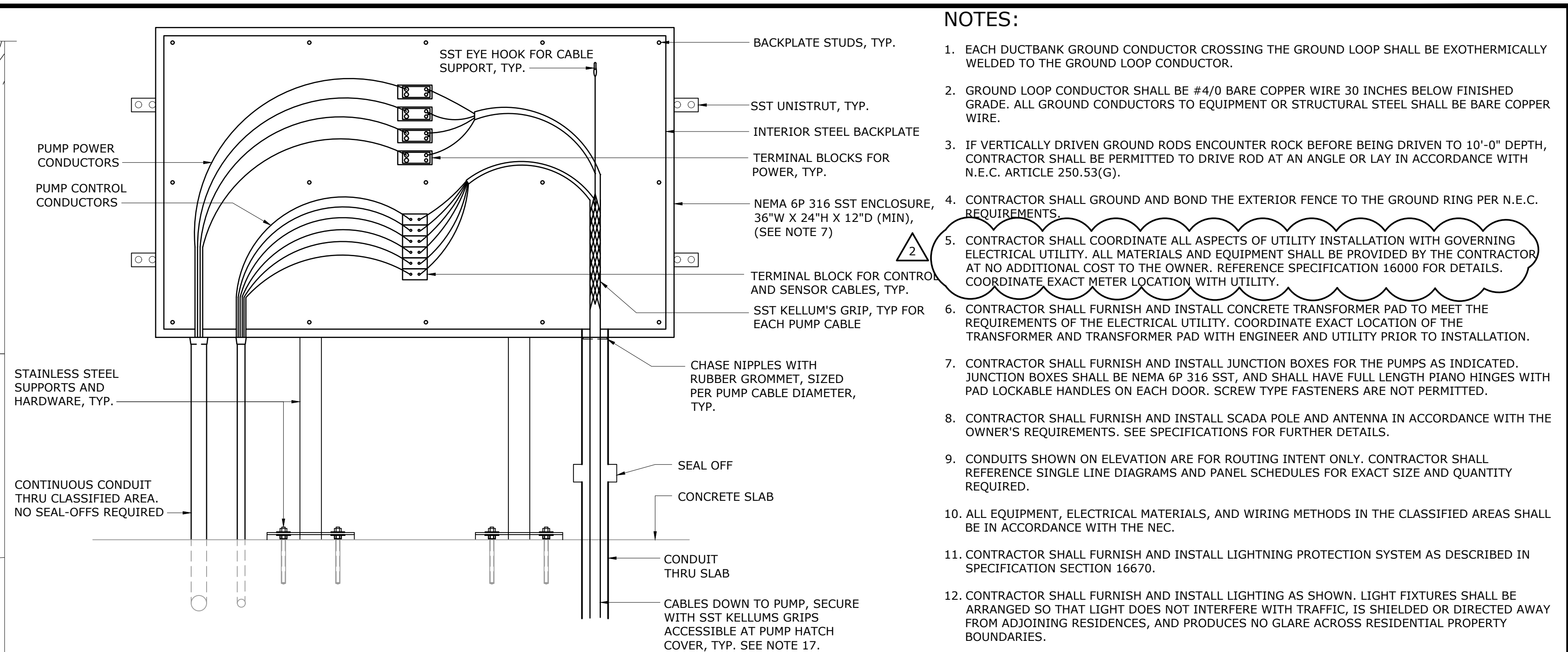
CIVIL  
STANDARD DETAILS

DATE:	JANUARY 2020
HAZEN NO.:	30533-008
CONTRACT NO.:	01
DRAWING NUMBER:	C905

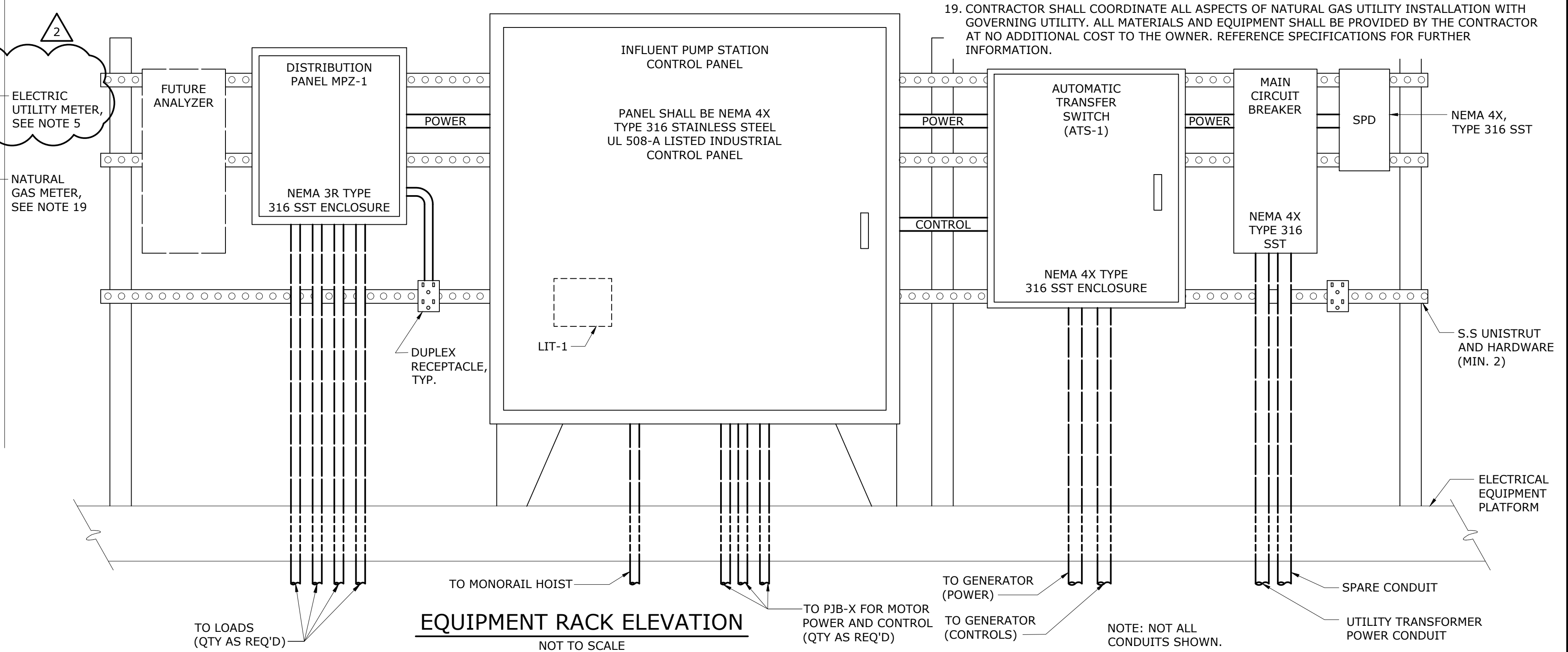




**POWER AND LIGHTING PLAN**  
1" = 5'-0"



**JUNCTION BOX INTERIOR DETAIL (PJB-1 THRU PJB-3)**  
NOT TO SCALE



**EQUIPMENT RACK ELEVATION**  
NOT TO SCALE

- NOTES:**
- EACH DUCTBANK GROUND CONDUCTOR CROSSING THE GROUND LOOP SHALL BE EXOTHERMICALLY WELDED TO THE GROUND LOOP CONDUCTOR.
  - GROUND LOOP CONDUCTOR SHALL BE #4/0 BARE COPPER WIRE 30 INCHES BELOW FINISHED GRADE. ALL GROUND CONDUCTORS TO EQUIPMENT OR STRUCTURAL STEEL SHALL BE BARE COPPER WIRE.
  - IF VERTICALLY DRIVEN GROUND RODS ENCOUNTER ROCK BEFORE BEING DRIVEN TO 10'-0" DEPTH, CONTRACTOR SHALL BE PERMITTED TO DRIVE ROD AT AN ANGLE OR LAY IN ACCORDANCE WITH N.E.C. ARTICLE 250.53(G).
  - CONTRACTOR SHALL GROUND AND BOND THE EXTERIOR FENCE TO THE GROUND RING PER N.E.C. REQUIREMENTS.
  - CONTRACTOR SHALL COORDINATE ALL ASPECTS OF UTILITY INSTALLATION WITH GOVERNING ELECTRICAL UTILITY. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. REFERENCE SPECIFICATION 16000 FOR DETAILS. COORDINATE EXACT METER LOCATION WITH UTILITY.
  - CONTRACTOR SHALL FURNISH AND INSTALL CONCRETE TRANSFORMER PAD TO MEET THE REQUIREMENTS OF THE ELECTRICAL UTILITY. COORDINATE EXACT LOCATION OF THE TRANSFORMER AND TRANSFORMER PAD WITH ENGINEER AND UTILITY PRIOR TO INSTALLATION.
  - CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOXES FOR THE PUMPS AS INDICATED. JUNCTION BOXES SHALL BE NEMA 6P 316 SST, AND SHALL HAVE FULL LENGTH PLANO HINGES WITH PAD LOCKABLE HANDLES ON EACH DOOR. SCREW TYPE FASTENERS ARE NOT PERMITTED.
  - CONTRACTOR SHALL FURNISH AND INSTALL SCADA POLE AND ANTENNA IN ACCORDANCE WITH THE OWNER'S REQUIREMENTS. SEE SPECIFICATIONS FOR FURTHER DETAILS.
  - CONDUITS SHOWN ON ELEVATION ARE FOR ROUTING INTENT ONLY. CONTRACTOR SHALL REFERENCE SINGLE LINE DIAGRAMS AND PANEL SCHEDULES FOR EXACT SIZE AND QUANTITY REQUIRED.
  - ALL EQUIPMENT, ELECTRICAL MATERIALS, AND WIRING METHODS IN THE CLASSIFIED AREAS SHALL BE IN ACCORDANCE WITH THE NEC.
  - CONTRACTOR SHALL FURNISH AND INSTALL LIGHTNING PROTECTION SYSTEM AS DESCRIBED IN SPECIFICATION SECTION 16670.
  - CONTRACTOR SHALL FURNISH AND INSTALL LIGHTING AS SHOWN. LIGHT FIXTURES SHALL BE ARRANGED SO THAT LIGHT DOES NOT INTERFERE WITH TRAFFIC, IS SHIELDED OR DIRECTED AWAY FROM ADJOINING RESIDENCES, AND PRODUCES NO GLARE ACROSS RESIDENTIAL PROPERTY BOUNDARIES.
  - MOUNT ALL TYPE LL1 FIXTURES AT 10'-0" ABOVE PLATFORM, OR GRADE.
  - MOUNT ALL TYPE LC1 FIXTURES AT CANOPY HEIGHT.
  - CONTRACTOR SHALL INSTALL CONDUITS FOR FUTURE EQUIPMENT AND STUB-UP AT LOCATIONS OF FUTURE EQUIPMENT.
  - CONTRACTOR SHALL PROVIDE SHOP DRAWINGS INDICATING ELECTRICAL EQUIPMENT RACK LAYOUT BASED ON SELECTED MFR'S FOR THIS PROJECT. SHOP DRAWING TO INCLUDE DIMENSIONED LAYOUT OF PANELS AND INTENT OF CONDUIT ROUTING FOR APPROVAL BY ENGINEER.
  - CONTRACTOR SHALL USE LONG SLOPE 90 DEGREE CONDUIT TO EASILY REMOVE PUMPS IN THE FUTURE.
  - CONTRACTOR SHALL FURNISH AND INSTALL HEAT TRACING FOR ABOVE GROUND PIPING 2" IN DIAMETER AND BELOW. SEE MECHANICAL DRAWINGS FOR FURTHER DETAILS.
  - CONTRACTOR SHALL COORDINATE ALL ASPECTS OF NATURAL GAS UTILITY INSTALLATION WITH GOVERNING UTILITY. ALL MATERIALS AND EQUIPMENT SHALL BE PROVIDED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER. REFERENCE SPECIFICATIONS FOR FURTHER INFORMATION.

File: C:\03033-CHAR\03033-008\DESIGN\DRAWINGS\SELECTED\101\_Saved by LFANNING.dwg, 4/22/2020 9:32 AM  
 PLOT DATE: 4/22/2020 9:33 AM BY: LFANNING

PROJECT ENGINEER:	J. HARTWIG			
DESIGNED BY:	B. PICKETT			
DRAWN BY:	P. BOWLES			
CHECKED BY:	B. PICKETT			
2	ADDENDUM No. 3	APR 2020	HAZEN	IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE
1	CONSTRUCTION	JAN 2020	HAZEN	
REV	ISSUED FOR	DATE	BY	



**Hazen**  
HAZEN & SAWYER  
735 JOHNNIE DODDS BLVD, SUITE 102  
MOUNT PLEASANT, SOUTH CAROLINA 29464

**Charleston Water System**  
COMMISSIONERS OF PUBLIC WORKS  
OF THE CITY OF CHARLESTON, SC

**THOMAS ISLAND REGIONAL PUMP STATION AND INTERCEPTOR DIVISION I**

**PUMP STATION ELECTRICAL POWER AND LIGHTING PLAN**

DATE: JANUARY 2020  
HAZEN NO.: 30533-008  
CONTRACT NO.: 01  
DRAWING NUMBER: E101

