



**COORDINATION NOTES:**

- 1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL WORK IS TO BE IN ACCORDANCE WITH CAPE FEAR PUBLIC UTILITY AUTHORITY, NEW HANOVER COUNTY, CITY OF WILMINGTON AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION, THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE IMPROVEMENT STAKEOUT(S).
4. ANY TIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.
5. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE NEW HANOVER COUNTY INSPECTOR AND NOTIFY THE ENGINEER AT LEAST 48 HOURS PRIOR TO THE MEETING. AT A MINIMUM, THE CONTRACTOR, COUNTY INSPECTOR, AND ENGINEER SHALL ATTEND THIS MEETING.
6. CONTRACTOR TO COORDINATE WITH NCDOT FOR THE REMOVAL AND STORAGE OF ANY TRAFFIC EQUIPMENT OR SIGNS DURING DEMOLITION, CONSTRUCTION, AND OPENING OF THIS DEVELOPMENT.
7. CONTRACTOR TO COORDINATE WITH NEW HANOVER COUNTY ABOUT ANY COUNTY EQUIPMENT REMOVED, RELOCATED, OR DEMOLISHED DURING THE DEMOLITION, CONSTRUCTION AND OPENING OF THIS DEVELOPMENT.
8. CONTRACTOR TO COORDINATE DIRECTLY WITH NCDOT TO DETERMINE IF ANY DRIVEWAY PERMITS/REVISIONS/REVIEW PROCESSES ARE REQUIRED.
9. CONTRACTOR TO COORDINATE WITH NCDOT AT TRAFFIC PLAN FOR THE CLOSURE OF STREETS, SIDEWALKS, OR DRIVEWAYS AND IMPLEMENTATIONS OF THE VEHICLE AND PEDESTRIAN TRAFFIC PLAN TO BE USED FOR THE DURATION OF THIS PROJECT. THE PLAN MUST INCLUDE LOCATIONS OF SIDEWALKS AND CROSSWALKS THAT WILL BE CLOSED, AS WELL AS, LOCATION OF CONSTRUCTION FENCING, AND PROTECTION AREAS.
10. A TEMPORARY DETOUR AND CLOSURE PLAN WILL NEED TO BE FILED WITH NHC 911 FOR THE CLOSURE OF ANY PUBLIC STREETS.

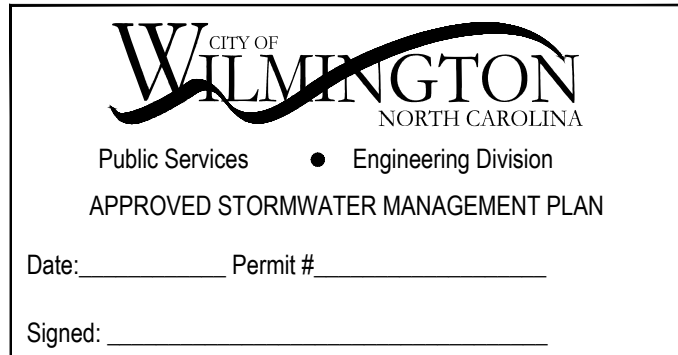
**GENERAL NOTES:**

- 1. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH CITY OF WILMINGTON ZONING ORDINANCE AND SUBDIVISION REGULATIONS
2. THE BOUNDARY, TOPOGRAPHY AND UTILITIES SURVEY HAVE BEEN PROVIDED BY WITHERSRAVENEL. THE VERTICAL DATUM FOR THE GROUND SURVEY FOR THIS PROJECT IS NAVD 88. CONTRACTOR TO VERIFY ALL ELEVATIONS IN THE FIELD.
3. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC.
4. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC.
5. CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE DOT.
6. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
7. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
8. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AND ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
9. IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT. PLEASE NOTE THIS ON THE SITE PLAN AND ADVISE THE PROPERTY OWNER OF THIS REQUIREMENT.
10. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
11. THERE IS NO EVIDENCE OF JURISDICTIONAL WETLANDS ON SITE.
12. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
13. THERE ARE CONSERVATION RESOURCE AREAS AFFECTING THIS PROPERTY.
14. NO GATES, TRAFFIC CALMING DEVICES OR ON-STREET PARKING (PRIVATE ROADS) PERMITTED UNLESS REVIEWED BY TRC.

**DEMOLITION NOTES:**

- 1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED. ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW SITE IMPROVEMENTS WILL BE PERFORMED BY THE CONTRACTOR AND WILL BE UNCLASSIFIED EXCAVATION.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES, ABANDONED UTILITIES, BUILDINGS, PAVEMENTS AND ALL MATERIALS CLEARED AND STRIPPED TO THE EXTENT NECESSARY AS DIRECTED BY THE SOILS ENGINEER FOR THE INSTALLATION OF THE NEW IMPROVEMENTS AND WITHIN THE LIMITS OF CLEARING AND GRADING AND AS SHOWN ON THESE PLANS.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED. DAMAGE TO PROPERTIES OF OTHERS DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO COST TO OWNER.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.
6. EXISTING UTILITIES NOT INTENDED FOR DEMOLITION SHALL BE MAINTAINED, PROTECTED AND UNDISTURBED DURING DEMOLITION.
7. ALL EXISTING IMPROVEMENTS INDICATED OR REQUIRED TO BE DEMOLISHED SHALL INCLUDE REMOVAL FROM THE PROPERTY AND PROPER DISPOSAL.
8. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING OVER HEAD AND UNDERGROUND UTILITIES INCLUDING CABLE, GAS, TELEPHONE AND ELECTRIC AND ANY OTHER UTILITIES THROUGH THE SITE WITH THE RESPECTIVE COMPANIES.
9. PROVIDE SMOOTH SAW CUT OF EXISTING PAVEMENTS, CURBS AND GUTTERS AND SIDEWALKS TO BE DEMOLISHED.
10. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS OSHA REGULATIONS.
11. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE MAINS BY DIGGING TEST PITS BY HAND.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



Approved Construction Plan form with fields for Name, Date, Planning, Public Utilities, Traffic, and Fire.

**EROSION AND SEDIMENT CONTROL NOTES**

**EROSION CONTROL CONSTRUCTION NOTES:**

- 1. CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN DESIGNATED CLEARING LIMITS.
2. PLANT GRASS OVER ALL GRADED AREAS AS NOTED IN STABILIZATION NOTES.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION MEASURES
4. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETED, CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL INSPECTION AND APPROVAL BY THE NEW HANOVER COUNTY ENGINEERING DEPARTMENT.
5. WATER, FERTILIZE, MOW AND MAINTAIN SPRIGGED, SOODED AND PLANTED AREAS UNTIL FINAL APPROVAL BY NEW HANOVER COUNTY.
6. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.

**MAINTENANCE PLAN**

- 1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
3. SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES WILL BE SPACED 6 FEET APART UNLESS A WIRE BACKING IS USED WITH 8 FOOT STAKE SPACING.
4. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLOGGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE.
5. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.
6. SEDIMENT WILL BE REMOVED FROM AROUND TEMPORARY ROCK CHECK DAMS ONCE A WEEK AND AFTER EVERY RAIN EVENT.

**STABILIZATION NOTES**

- 1. SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH GROUND COVER, DEVICES, OR STRUCTURES TO RESTRAIN EROSION.
2. ALL OTHER DISTURBED AREAS SHALL BE PLANTED OR OTHERWISE PROVIDED PERMANENT GROUND COVER WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT WHICHEVER PERIOD IS SHORTER.

**BUILDING WASTES HANDLING**

- 1. NO PART OR LIQUID WASTES IN STREAM OR STORM DRAINS.
2. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
3. EARTHEN-MATERIALS STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
4. CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS, OR BUFFERS.

**INSPECTIONS**

- 1. SAME WEEKLY INSPECTION REQUIREMENTS.
2. SAME RAIN GAUGE & INSPECTIONS AFTER 0.5" RAIN EVENT.
3. INSPECTIONS ARE ONLY REQUIRED DURING "NORMAL BUSINESS HOURS".
4. INSPECTION REPORTS MUST BE AVAILABLE ON-SITE DURING BUSINESS HOURS UNLESS A SITE-SPECIFIC EXEMPTION IS APPROVED.
5. RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST.
6. ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS.

**SEDIMENT BASINS**

- 1. OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.
2. USE ONLY DWQ-APPROVED FLOCCULENTS.

**NPDES-SPECIFIC PLAN SHEETS NOTES**

- 1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
2. THIS PAGE CAN BE APPROVED BY THE COUNTY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
3. THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE ELUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
4. THE COUNTY IS NOT AUTHORIZED TO ENFORCE THIS PAGE OF THE PLANS AND IT NOT PART OF THE APPROVED PLANS FOR THE PURPOSED OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.

**PERMANENT SEEDING SCHEDULE - MIXTURE 5CP**

Table with columns: Seeding Mixture, Species, Rate (LB/ACRE), and Maintenance instructions for various soil types and slopes.

**TEMPORARY SEEDING-LATE WINTER/EARLY SPRING**

Table with columns: Seeding Mixture, Species, Rate (LB/ACRE), and Maintenance instructions for winter/early spring seeding.

OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

Table with columns: Seeding Mixture, Species, Rate (LB/ACRE), and Maintenance instructions for summer seeding.

Table with columns: Seeding Mixture, Species, Rate (LB/ACRE), and Maintenance instructions for fall seeding.

Seeding dates: COASTAL PLAIN - DEC.1-APR. 15 - LATE WINTER AND EARLY SPRING; APRIL 15 - AUG. 15 - SUMMER; AUG. 15 - DEC. 30 - FALL

Soil amendments: FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER. Mulch: APPLY 4,000 LB/ACRE STRAW ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. Maintenance: REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

**GRADING NOTES:**

- 1. TREE PRESERVATION / REMOVAL PERMIT IS REQUIRED PRIOR TO CLEARING AND LAND DISTURBANCE.
2. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.
3. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS.

**SITE NOTES**

- 1. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
2. THE GENERAL CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND R.O.W.'S PUBLIC OR PRIVATE, PRIOR TO WORKING IN THESE AREAS.
3. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
4. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
5. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
6. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
7. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
8. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE ENGINEER.
9. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW, NO DEPARTURES FROM THE CONTRACT DOCUMENT SHALL BE MADE WITHOUT THE PERMISSION OF THE OWNER.
10. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. THE LOCATION OF ALL EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COST LOCATE ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY, NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE OTHER OBSTRUCTIONS OR FROM DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES. CONTACT NORTH CAROLINA ONE CALL TOLL FREE 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL NONSUBSCRIBING UTILITIES.
11. ALL PERMITS RELATIVE TO PROJECT MUST BE OBTAINED, PRIOR TO CONSTRUCTION
12. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND APPLICABLE STATE, COUNTY, AND LOCAL CODES.
13. FOR BUILDING DIMENSIONS, SEE ARCHITECTURAL DRAWINGS.
14. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.
15. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
16. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.

**TRAFFIC NOTES:**

- 1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHT-OF-WAYS AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS. (DETAIL SD-13 CoW TECH STD)
2. ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS. (DETAIL SD 15-13 CoW TECH STD)
3. STREET NAME SIGNS FOR PUBLIC AND PRIVATE STREETS MUST BE ERECTED BEFORE A CERTIFICATE OF OCCUPANCY IS ISSUED. CONTACT TRAFFIC ENGINEERING AT 910-341-7888 FOR INFORMATION ABOUT STREET SIGNS FOR THIS PROJECT.
4. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
5. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
6. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
7. CONTACT TRAFFIC ENGINEERING AT A MINIMUM OF 48 HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
8. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS. THE LANDSCAPING PLAN WILL BE NEED TO DETERMINE STREET LIGHT LOCATIONS.
9. TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS.
10. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT IN A CITY STREET. NOTE THIS ON THE PLAN AND CONTACT 341-8888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
11. IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR MAY CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS AND THE SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTRACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
12. ONCE STREETS ARE READY TO BE OPEN TO PUBLIC TRAFFIC, CONTACT THE TRAFFIC ENGINEERING DIVISION TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
13. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WITH BE REPLACED.
14. A LANDSCAPING PLAN, INDICATING THE LOCATION OR REQUIRED STREET TREES SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAN. PLAN SHALL ADHERE TO SD 15-17.
15. PERMITTING OF BUSINESS IDENTIFICATION SIGNAGE IS A SEPARATE PROCESS. CITY OF WILMINGTON WILL NOT ALLOW OBSTRUCTIONS WITHIN THE RIGHT OF WAY.

**SEQUENCE OF CONSTRUCTION:**

- 1. FLAG THE CLEARING LIMITS AND INSTALL ALL SILT AND TREE PROTECTION FENCE.
2. HOLD PRE-CONSTRUCTION CONFERENCE AT LEAST ONE WEEK PRIOR TO STARTING CONSTRUCTION.
3. INSTALL SILT FENCE.
4. CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING LIMITS.
5. ROUGH GRADE THE REMAINING AREA WITHIN THE DESIGNATED CLEARING LIMITS.
6. INSTALL STORM DRAINAGE, INCLUDING INLET PROTECTION, SANITARY SEWER AND WATER AS SHOWN ON THE PLANS. ALL TRENCHES SHALL BE BACKFILLED AND STABILIZED DAILY.
7. DIRECT RUNOFF FROM PARKING LOT INTO STORM DRAINAGE SYSTEM. CONTRACTOR SHALL VERIFY STORM WATER IS ROUTED THROUGH A BASIN OR SILT FENCE PRIOR TO LEAVING SITE.
8. COMPLETE FINE GRADING SITE.
9. MAINTAIN SEDIMENTATION AND EROSION CONTROL MEASURES UNTIL PERMANENT GROUND COVER IS ESTABLISHED.
10. REQUEST FINAL APPROVAL OF GROUND COVER BY THE EROSION CONTROL INSPECTOR.
11. ONCE SITE IS FULLY STABILIZED, REMOVE ALL REMAINING TEMPORARY MEASURES AND IMMEDIATELY REPAIR, DRESS-OUT, AND SEED & MULCH THESE AREAS.

**EXISTING UTILITY NOTES:**

- 1. IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO VERIFY THE ACTUAL LOCATION AND AVAILABILITY OF ALL EXISTING AND PROPOSED UTILITIES IN THE FIELD PRIOR TO GROUND BREAKING.
2. EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND ARE BASED ON A FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL FIELD VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

**NOTICE REQUIRED:**

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED BY CONTRACT PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO ANY EXCAVATION OR DEMOLITION.

**UTILITY NOTES:**

- 1. EXISTING WATER AND SANITARY SEWER SERVICES ARE CURRENTLY AVAILABLE TO THE SITE FROM PUBLIC SYSTEMS. WATER SERVICE AND SANITARY SEWER SERVICE WILL BE PROVIDED BY CAPE FEAR PUBLIC UTILITY AUTHORITY.
2. ALL UTILITY SERVICES, SUCH AS ELECTRIC POWER, CATV, GAS, AND TELEPHONE SHALL BE INSTALLED UNDERGROUND.
3. ALL WATER & SEWER UTILITIES TO BE INSTALLED PER CFPUA TECHNICAL SPECIFICATIONS & STANDARDS.
4. PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND N.C.D.E.N.R. HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6560 FOR INFORMATION.
5. ALL COMMERCIAL WATER SERVICES AND ANY IRRIGATION SYSTEMS SUPPLIED BY C.F.P.U.A. WATER SHALL HAVE A BACKFLOW PREVENTION DEVICE ACCEPTABLE TO THE COUNTY AND APPROVED BY USFCOCHR OR ASSE. CALL 332-6560 FOR INFORMATION.
6. WATER AND SEWER SERVICES CAN NOT BE ACTIVATED ON NEW MAINS UNTIL THE ENGINEER'S CERTIFICATION AND AS-BUILTS ARE RECEIVED AND "FINAL APPROVAL" ISSUED BY THE PUBLIC WATER SUPPLY SECTION OF NCDENR, AND "FINAL ENGINEERING CERTIFICATION" ISSUED BY DIVISION OF WATER QUALITY SECTION OF N.C.D.E.N.R.
7. IF CONTRACTOR DESIRES WATER FOR CONSTRUCTION, HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
8. WHEN PVC WATER MAINS AND SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 INSULATED COPPER WIRE INSTALLED AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE IN ALL VALVE AND METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OR EXISTING UTILITIES DURING CONSTRUCTION. DAMAGED ITEMS SHALL BE REPAIRED TO AT LEAST THE QUALITY OR WORKMANSHIP FOUND IN THE ORIGINAL ITEM.
10. THE BELLSOUTH CONTACT IS STEVE DAYVAULT, BUILDING INDUSTRY CONSULTANT, AT 910-392-8712. CONTACT HIM PRIOR TO STARTING THE PROJECT IN ORDER TO FACILITATE GOOD COMMUNICATION AND MAXIMUM FLEXIBILITY.
11. THE PROCESS FOR TELEPHONE CABLE PLACEMENT:
11.1. FINAL GRADE WILL NEED TO BE ESTABLISHED.
11.2. POWER WILL PLACE THEIR CABLE FIRST - APPROXIMATELY 3' DEEP.
11.3. BELLSOUTH & CABLE TV WILL THEN PLACE THEIR CABLE AT APPROXIMATELY 2' DEEP.
12. SOLID WASTE DISPOSAL TO BE SERVED BY PRIVATELY CONTRACTED DUMPSTER PICKUP.

**LANE & SHOULDER CLOSURE REQUIREMENTS:**

- 1. REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.
2. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.
3. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
4. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN DIVIDED FACILITY AND WITHIN 10 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.
5. WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITH THE CLOSED TRAVEL LANE.
6. DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY, RAMP OR LOOP WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

**FIRE & LIFE SAFETY NOTES:**

- 1. LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
3. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
4. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
5. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
6. TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.



NEEDHAM ANIMAL HOSPITAL EXPANSION

PROJECT NOTES

Job No. 03-170548, Date 03/29/18, Drawn By TMG, Designer JSB

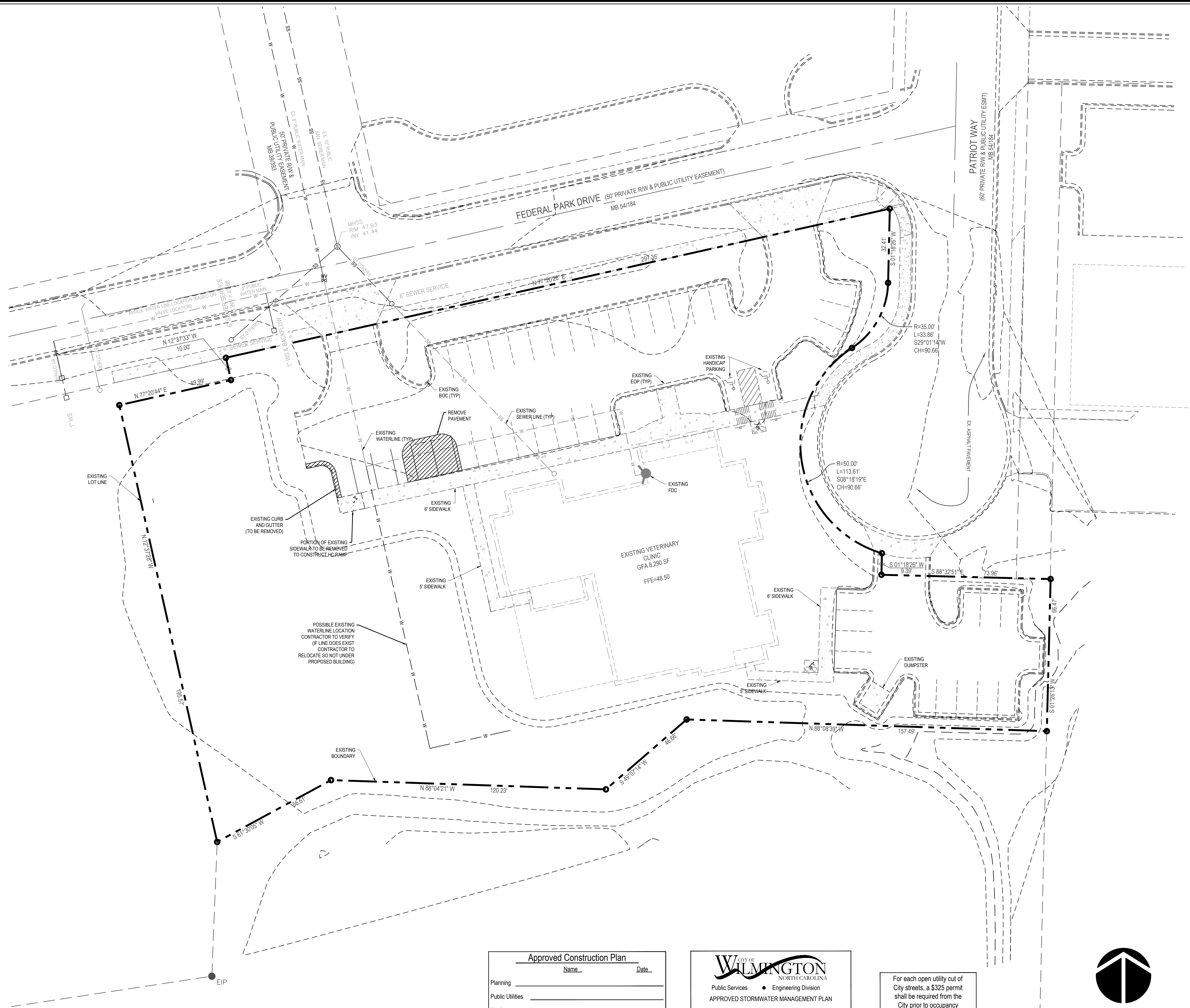


Revisions table with columns for Description and Date.

Sheet No. C0.1



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**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
NORTH CAROLINA

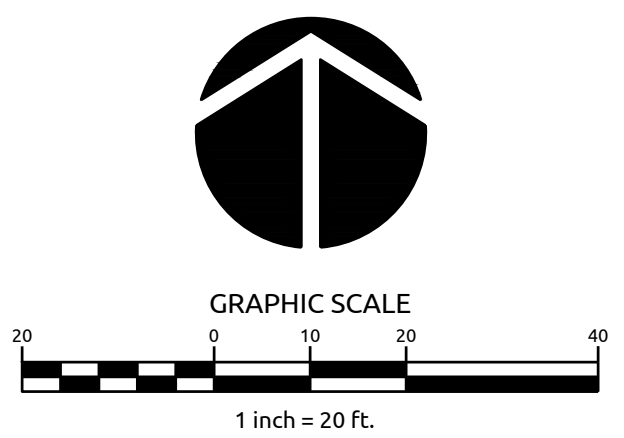
Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

Signed: \_\_\_\_\_

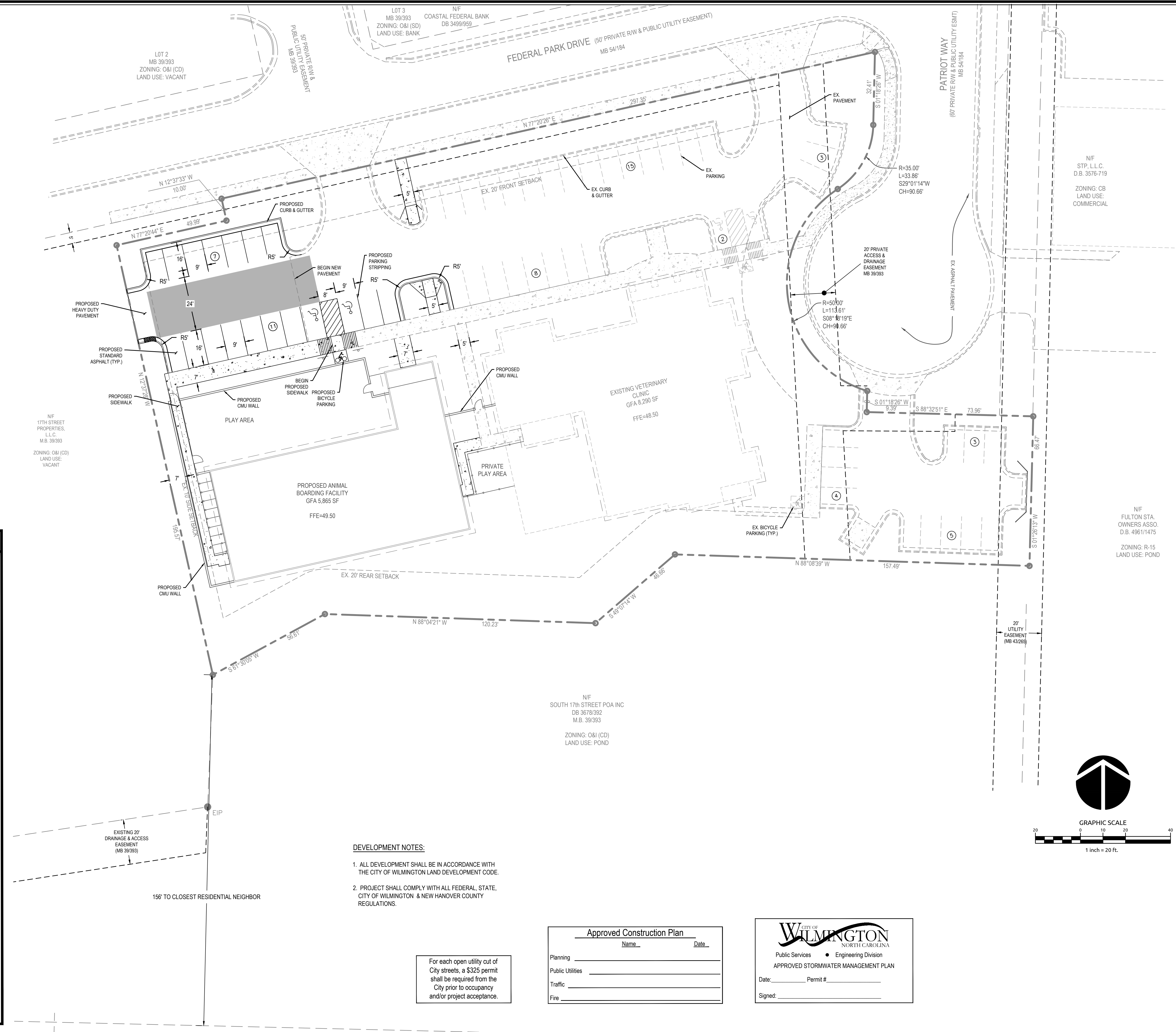
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



Job No.	03-170548	Drawn By	TMG
Date	03/29/18	Designer	JSB



Revisions



**SITE DEVELOPMENT DATA**

**GENERAL NOTES:**

OWNER: SLA PROPERTY, LLC  
ADDRESS: 3720 FEDERAL PARK DRIVE WILMINGTON, NC 28412  
PHONE: (910) 799-2970  
ATTN: DR. CHRISTOPHER BATTS

NEW HANOVER COUNTY PARCEL NO.: R006600-001-031-000

ALT ID NO.: 313510.46.2257.000

TOTAL TRACT AREA: 1.56 AC.±  
ZONING DISTRICT: O & I  
LAND CLASSIFICATION: 804-OTHER MEDICAL & HEALTH

**DEVELOPMENT DATA:**

EXISTING BUILDING AREA (WITH OVERHANG) = 10,170 SF  
EXISTING REMAINING IMPERVIOUS PLAY AREA = 500 SF  
PROPOSED BUILDING AREA (WITH OVERHANG) = 6,786 SF  
EXISTING PARKING AREA = 16,455 SF  
PROPOSED PARKING AREA = 4,130 SF  
EXISTING SIDEWALK AREA = 2,397 SF  
PROPOSED SIDEWALK AREA = 1,289 SF  
PROPOSED WALL AREA = 158 SF  
TOTAL SITE IMPERVIOUS AREA = 41,885 SF  
PERMITTED ALLOWABLE IMPERVIOUS AREA = 42,000 SF

**PARKING:**

PARKING SPACES REQUIRED = (14,155 SF/250) = 57 SPACES  
PARKING SPACES PROVIDED = 58 SPACES  
HANDICAP SPACES REQUIRED = 3 (1 VAN ACCESSIBLE)  
HANDICAP SPACES PROVIDED = 4 (ALL VAN ACCESSIBLE)

**BUILDING SETBACKS:**

FRONT - 20 FT  
SIDES - 10 FT  
REAR - 20 FT

- DEVELOPMENT NOTES:**
- ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE.
  - PROJECT SHALL COMPLY WITH ALL FEDERAL, STATE, CITY OF WILMINGTON & NEW HANOVER COUNTY REGULATIONS.

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

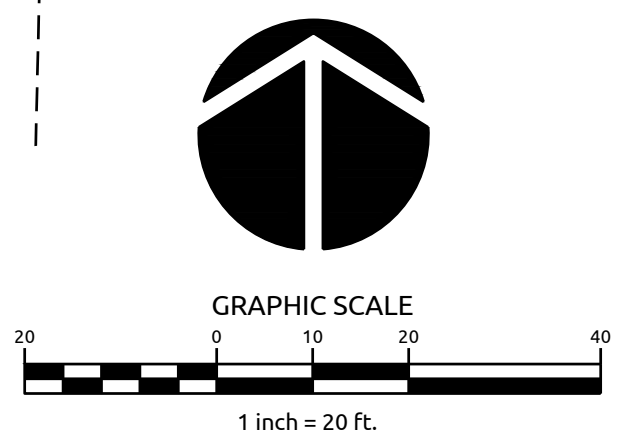
**Approved Construction Plan**

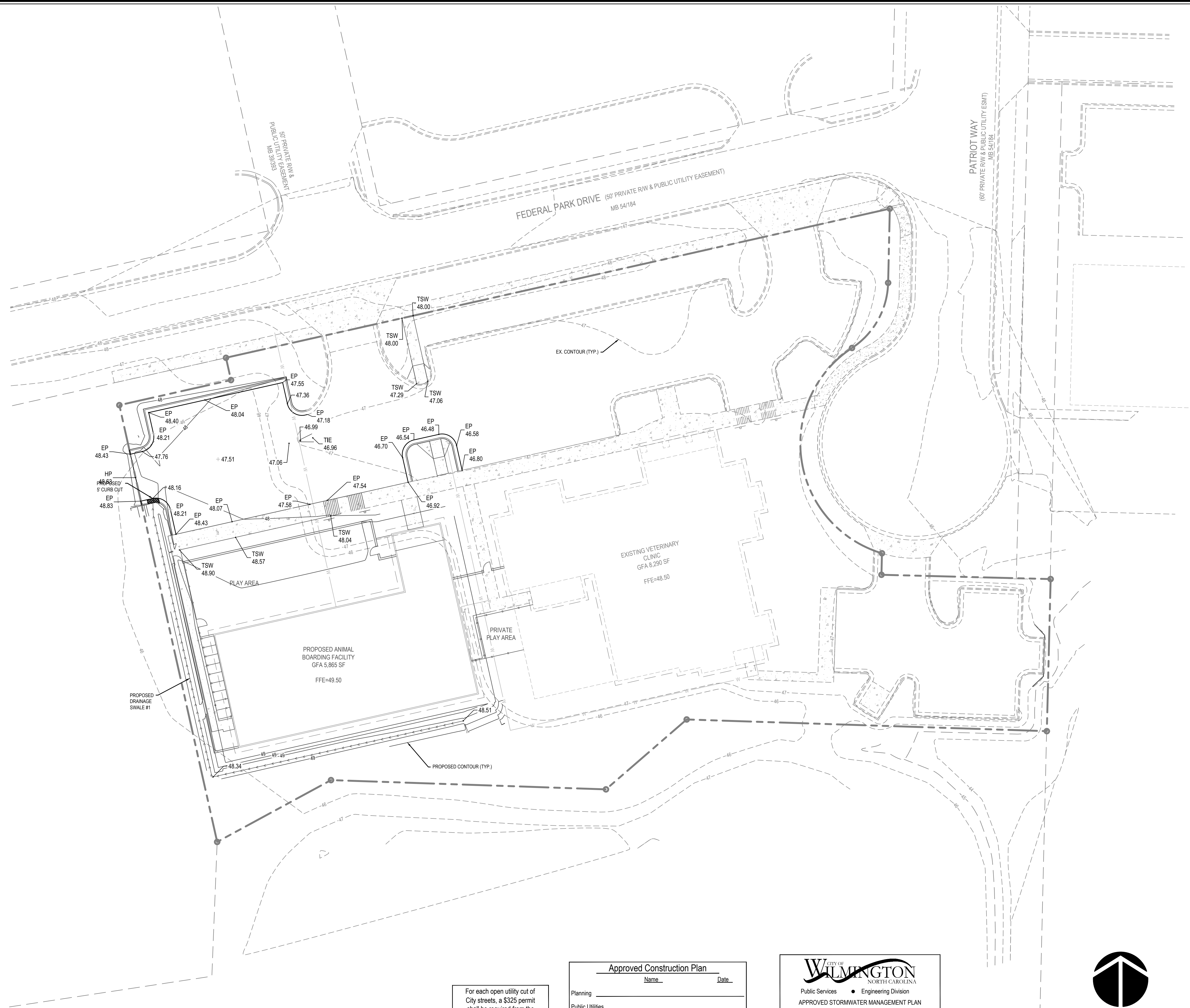
Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_




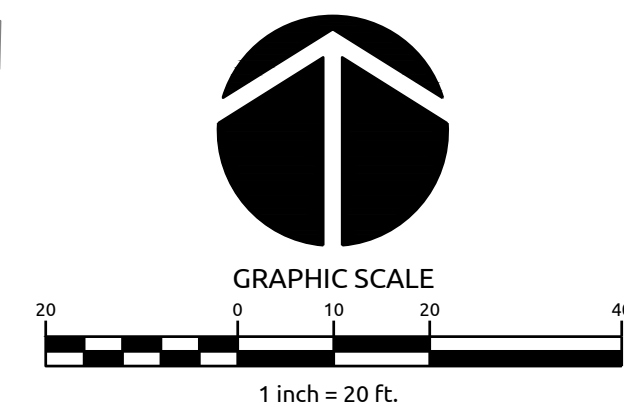


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For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

Approved Construction Plan	
Name	Date
Planning	_____
Public Utilities	_____
Traffic	_____
Fire	_____

  
 NORTH CAROLINA  
 Public Services • Engineering Division  
 APPROVED STORMWATER MANAGEMENT PLAN  
 Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
 Signed: \_\_\_\_\_



**NEEDHAM ANIMAL HOSPITAL EXPANSION**  
 WILMINGTON, NC

**GRADING PLAN**

Job No.	03-170548	Drawn By	TMG
Date	03/29/18	Designer	JSB



Revisions

**NEEDHAM ANIMAL  
HOSPITAL EXPANSION**

WILMINGTON, NC

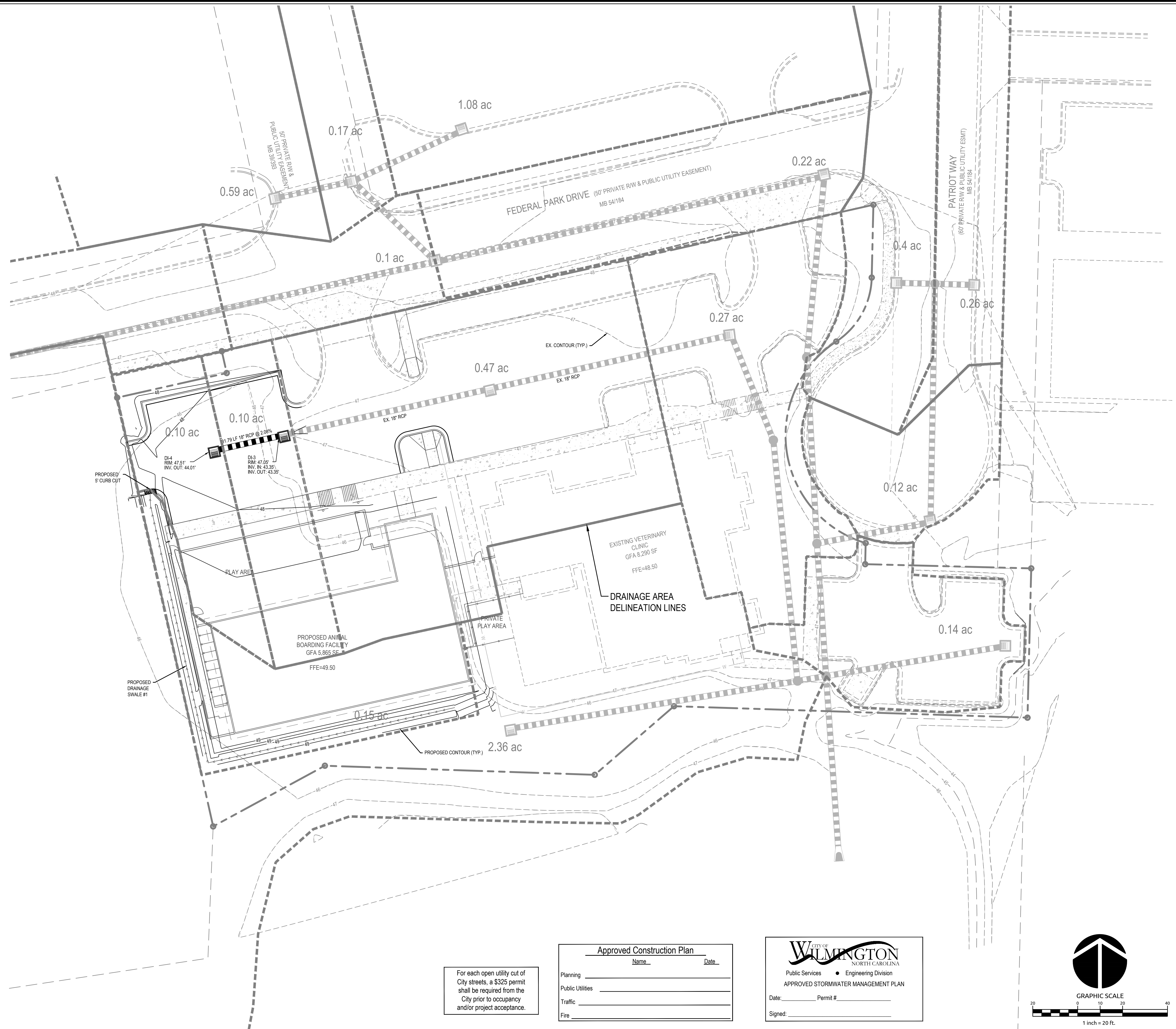
**DRAINAGE PLAN**

Job No. 03-170548 Drawn By TMG  
Date 03/29/18 Designer JSB



Revisions

Sheet No.  
**C3.1**



IMPERVIOUS SURFACES	
ON-SITE BUILDINGS:	16,956 SF
ON-SITE STREETS:	0 SF
ON-SITE PARKING:	20,585 SF
ON-SITE SIDEWALK:	3,686 SF
OTHER ON-SITE:	658 SF
FUTURE:	115 SF
OFF-SITE:	0 SF
<b>TOTAL:</b>	<b>42,000 SF</b>

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

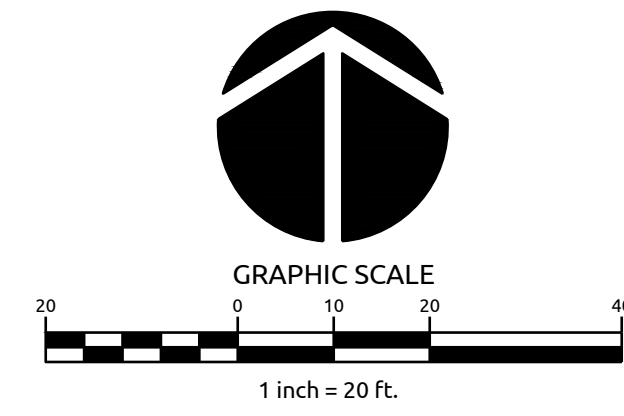
**CITY OF WILMINGTON**  
NORTH CAROLINA

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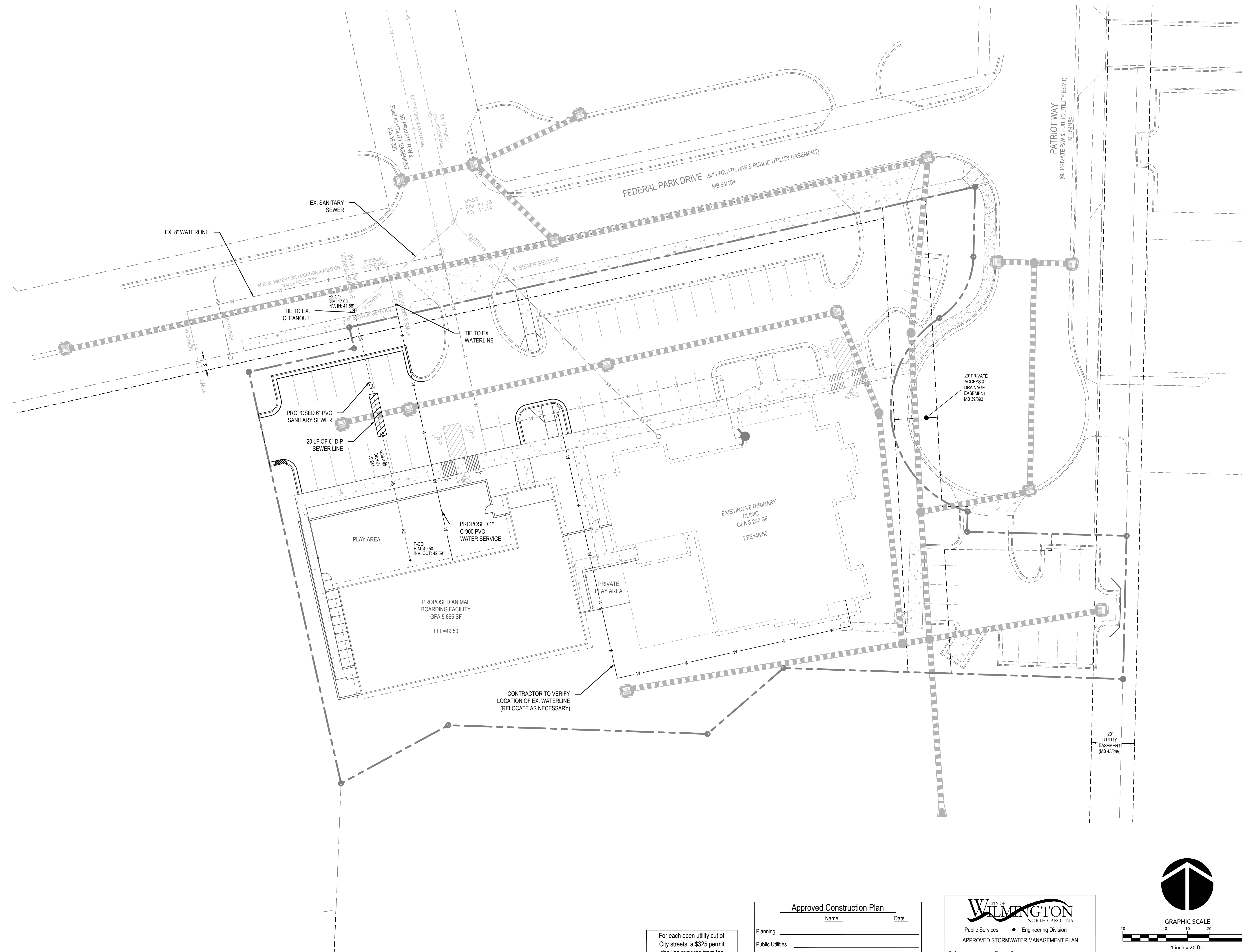
**APPROVED STORMWATER MANAGEMENT PLAN**

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

Signed: \_\_\_\_\_



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For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

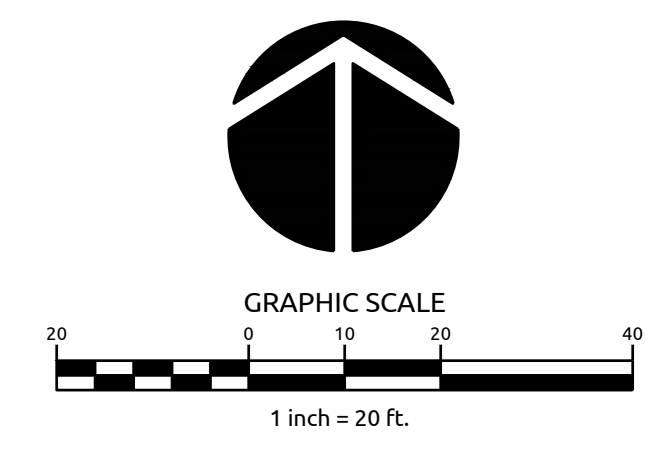
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

Signed: \_\_\_\_\_



**NEEDHAM ANIMAL HOSPITAL EXPANSION**

WILMINGTON, NC

**UTILITY PLAN**

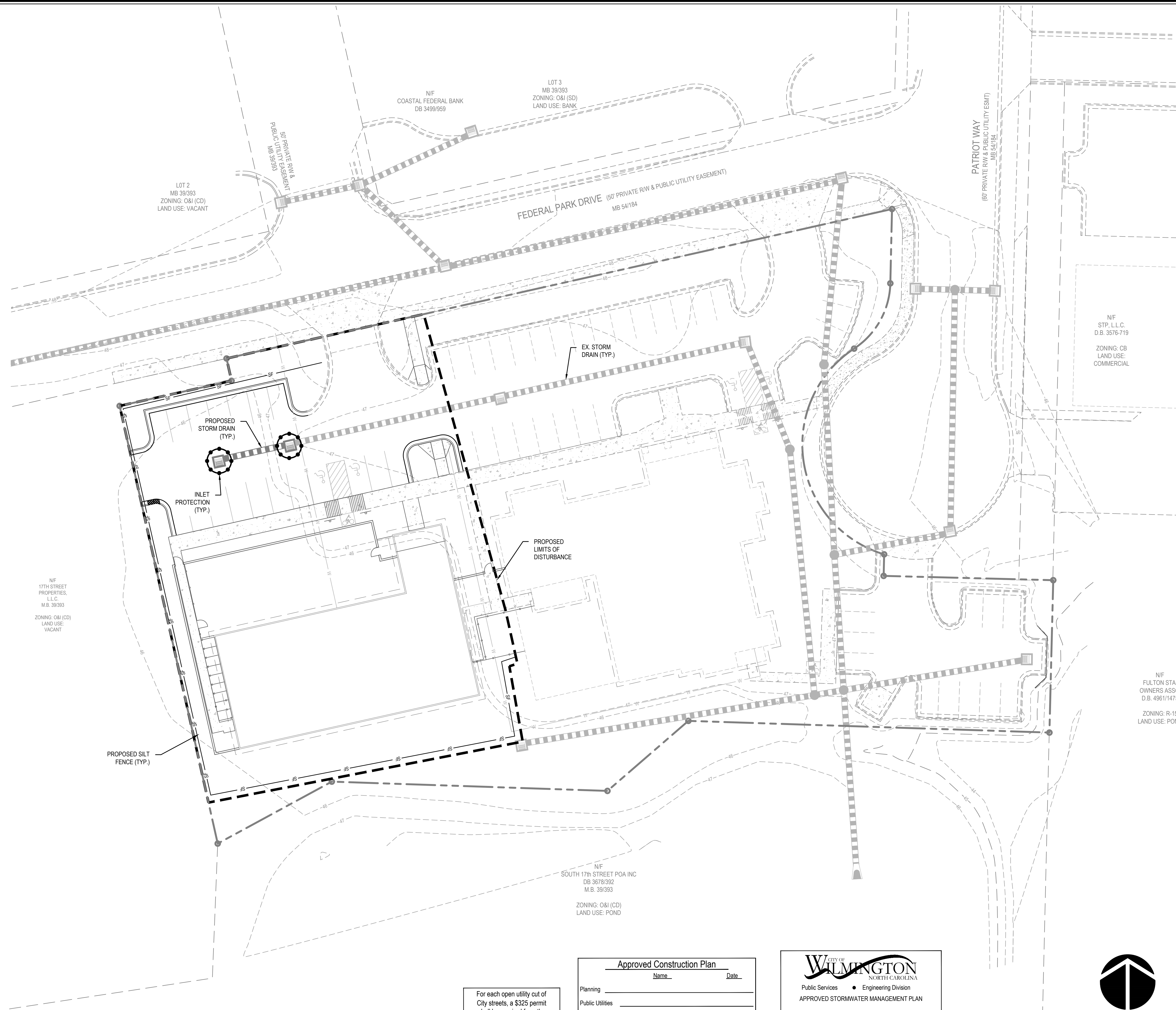
Job No.	03-170548	Drawn By	TMG
Date	03/29/18	Designer	JSB



Revisions




TOTAL AREA DISTURBED = 0.60 AC



**LEGEND**

	TEMPORARY INLET PROTECTION
	TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
	CONSTRUCTION DISTURBANCE LIMIT
	TEMPORARY TREE PROTECTION FENCE
	TEMPORARY SILT/TREE PROTECTION FENCE
	TEMPORARY DIVERSION DITCH

For each open utility out of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

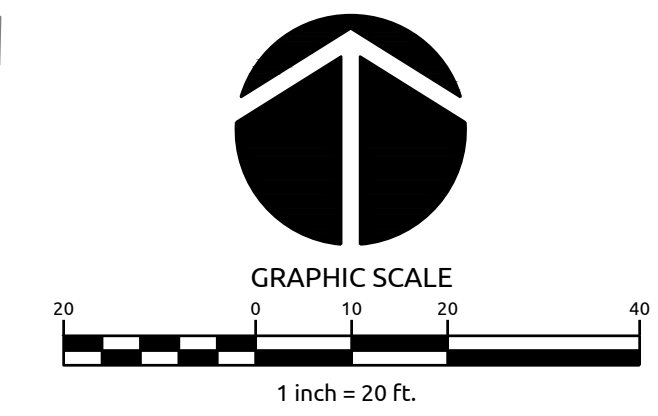
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

Signed: \_\_\_\_\_



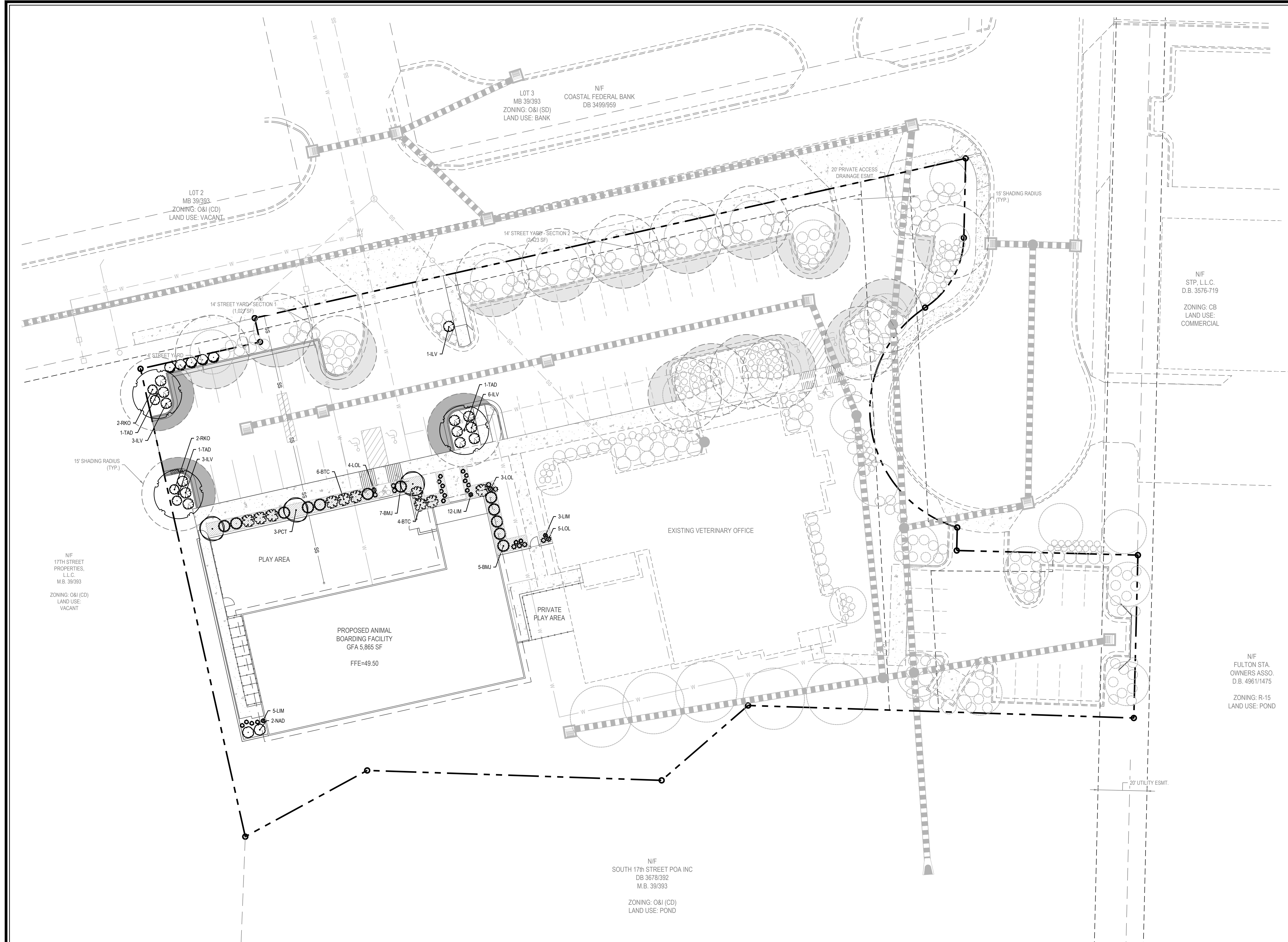
Job No.	03-170548	Drawn By	TMG
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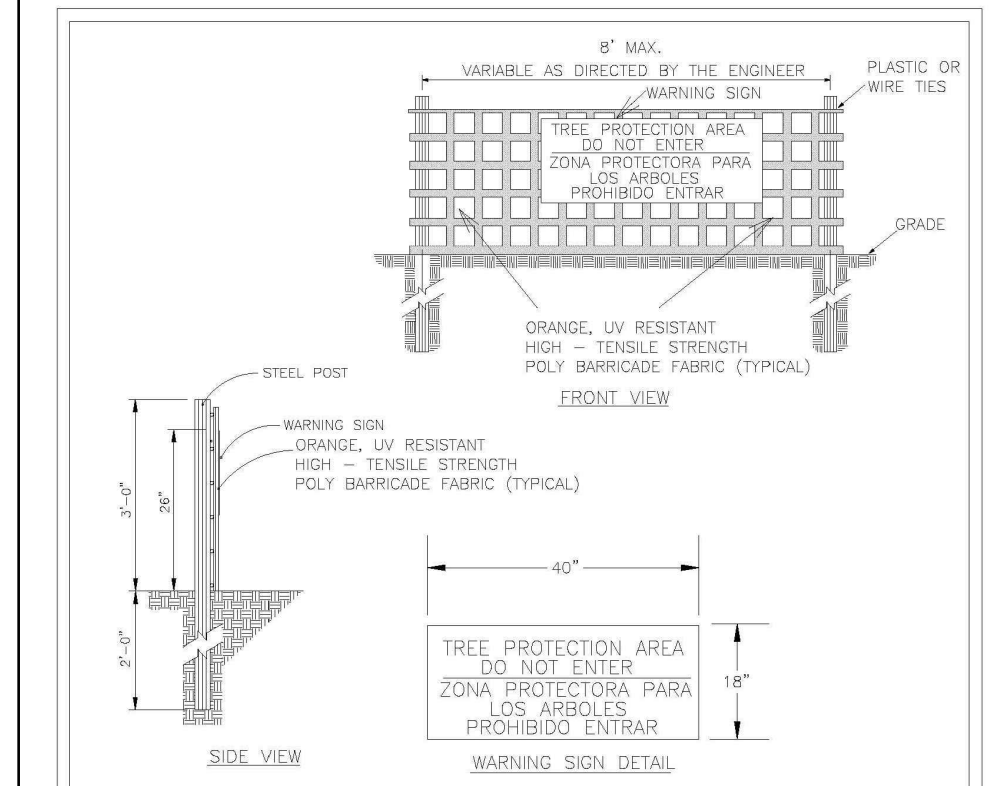
Revisions


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- LANDSCAPE NOTES:**
1. ALL PLANTS SHALL MEET OR EXCEED THE MINIMUM STANDARDS SET FORTH IN "THE AMERICAN STANDARD FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
  2. ALL AREAS DISTURBED AND NOT SPECIFIED AS MULCHED PLANTING BEDS WILL BE GRASSSED. LAWN AREAS MAY BE ESTABLISHED WITH EITHER SOO OR SEED AT THE CONTRACTOR'S DISCRETION. HOWEVER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING A FULL STAND OF GRASS AT THE TIME OF COMPLETION.
  3. CONTRACTOR SHALL USE WHATEVER METHOD OF TREE STAKING HE DEEMS FIT. HOWEVER, HE WILL BE HELD LIABLE FOR ANY DAMAGES CAUSED TO TREES BY IMPROPER STAKING METHODS (OR ABSENCE OF STAKING) AND IS RESPONSIBLE FOR UPRIGHTING AND REPLANTING TREES WHICH ARE BLOWN OVER.
  4. CONTRACTOR SHALL WARRANT ALL TREES AND SHRUBS FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK OF THE LANDSCAPE PLAN.
  5. IF DISCREPANCIES OR AVAILABILITIES ARE FOUND IN THE PLANT SPECIES AND/OR MIN. SIZES REQ'D., CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT. SUBSTITUTIONS MAY BE MADE WITH AUTHORIZATION AS LONG AS THE PLANTS FOLLOW THE INTENDED FORM AND FUNCTION.
  6. THE DEVELOPER SHALL NOTIFY LANDSCAPE DESIGNER PRIOR TO INSTALLATION TO ENSURE PROPER TREE SELECTION & SPACING.
  7. EACH TREE SHALL BE A MINIMUM OF 2" CALIPER AS MEASURED FROM THE DIAMETER AT BREAST HEIGHT (DBH).
  8. TREES WITHIN THE SAME BLOCKS SHALL BE THE SAME SPECIES.
  9. ALL PLANTINGS SHALL BE CURBED OR OTHERWISE PHYSICALLY PROTECTED FROM VEHICULAR TRAFFIC.
  10. THE OWNER IS RESPONSIBLE FOR MAINTAINING ALL REQUIRED PLANT MATERIAL AND PLANTING AREAS IN GOOD HEALTH AND APPEARANCE. ANY DEAD, UNHEALTHY OR MISSING PLANTS MUST BE REPLACED WITHIN 60 DAYS WITH VEGETATION WHICH CONFORMS TO THE INITIAL PLANTING RATES AND STANDARDS.
  11. NO PLANTINGS OVER 30' IN HEIGHT SHALL BE ALLOWED IN VISION CLEARANCE. EXISTING TREES IN THE SIGHT DISTANCE TRIANGLE SHOULD BE LIMBED UP TO ACCOMMODATE THE CODE REGARDING SIGHT DISTANCE TRIANGLES. ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30' TO 10'.
  12. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
  13. A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT. (SD 15-14 C07W TECH STD)
  14. THERE IS NO CONSERVATION RESOURCES ASSOCIATED WITH THE PARCELS INCLUDING ANY RARE OR ENDANGERED SPECIES IN ACCORDANCE WITH THE NC WILDLIFE RESOURCES COMMISSION.
  15. THE CRITICAL ROOT ZONE (CRZ) SHALL BE PROTECTED DURING CONSTRUCTION BY APPROVED TREE PROTECTION FENCING AND PRACTICES. TREE PROTECTIVE FENCING SHALL BE SHOWN ON SITE PLANS AND GRADING PLANS AROUND EACH TREE, CLUSTER OF TREES, AT PERIMETER OF TREE-SAVE AREAS, AND AT LIMITS OF DISTURBANCE. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED. TREE PROTECTIVE FENCING SHALL REMAIN IN PLACE THROUGH COMPLETION OF CONSTRUCTION ACTIVITIES.
  16. IF THE ENTIRE CRZ CANNOT BE PRESERVED, THE DISTURBED AREA SHALL EXTEND NO CLOSER TO THE PROTECTED TREE TRUNK THAN ONE HALF (1/2) THE RADIUS OF THE CRZ. IN NO CASE CAN MORE THAN 40% OF THE CRZ BE DISTURBED.



**NOTES:**

1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
2. WARNING SIGNS TO BE MADE OF DURABLE WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCING AND SIGNS THROUGHOUT DURATION OF PROJECT.
5. TREE PROTECTION FENCING AND SIGNS SHALL BE REMOVED AFTER CONSTRUCTION.
6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

**STANDARD DETAIL**  
**TREE PROTECTION DURING CONSTRUCTION**  
 SHEET 2 of 2

DATE: JAN 2015  
 DRAWN BY: JMB  
 CHECKED BY: ROK/PE  
 SCALE: NOT TO SCALE

**WILMINGTON**  
 CITY OF WILMINGTON ENGINEERING  
 PO BOX 3410  
 WILMINGTON, NC 28402  
 910.341.7807

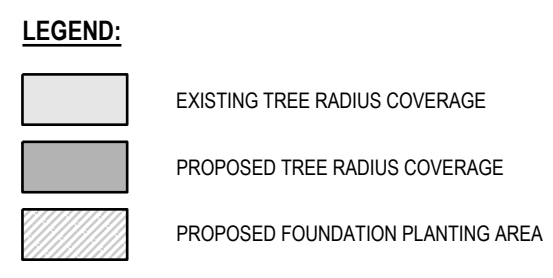
SD 15-09

**LANDSCAPE CALCULATIONS:**

<b>STREET YARD - SECTION 1:</b>	1,021 SF
1 TREE / 600 SF	2 TREES REQUIRED
	2 TREES PROVIDED
6 SHRUBS / 600 SF	11 SHRUBS REQUIRED
	5 SHRUBS PROVIDED + 6 EXISTING
<b>STREET YARD - SECTION 2:</b>	2,423 SF
1 TREE / 600 SF	5 TREES REQUIRED
	5 TREES PROVIDED
6 SHRUBS / 600 SF	25 SHRUBS REQUIRED
	46 SHRUBS PROVIDED
<b>VIA (INTERIOR):</b>	16,191 SF
20% SHADING:	3,238 SF REQUIRED
	8,719 SF PROVIDED
75% SHADE / CANOPY TREE:	2 + 13 (APPROVED PLAN)
25% SMALL TREES:	4 (APPROVED PLAN)
<b>FOUNDATION:</b>	181 LF
181 x 12 x 12 =	261 SF REQUIRED
	830 SF PROVIDED

**PLANT SCHEDULE**

PLANT TYPE	QTY	KEY	BOTANICAL NAME	COMMON NAME	ROOT	SIZE	HEIGHT	NOTES
CANOPY TREES	1	TAD	<i>Taxodium distichum</i>	Bald Cypress	B&B	3" CAL		MATCHED
UNDERSTORY	3	PCT	<i>Prunus cerasifera</i> 'Thunderclout'	Purple Leaf Plum	B&B	3" CAL		MATCHED
	12	BMJ	<i>Buxus microphylla japonica</i> 'Wintergreen'	Wintergreen Japanese Boxwood	CONT.	3 GAL		MATCHED
	10	BTC	<i>Berberis thunbergii</i> 'Crimson Pygmy'	Crimson Pygmy Barberry	CONT.	3 GAL		MATCHED
SHRUBS	5	CLJ	<i>Cleyera japonica</i>	Japanese Cleyera	CONT.	7 GAL		MATCHED
	13	ILV	<i>Ilex vomitoria</i> 'Nana'	Dwarf Yaupon Holly	CONT.	3 GAL		MATCHED
	2	NAD	<i>Nandina domestica</i> 'Gulf Stream'	'Gulf Stream' Nandina	CONT.	3 GAL		MATCHED
	4	RKO	<i>Rosa 'Knock Out'</i>	Knockout Rose	CONT.	3 GAL		MATCHED
GRASSES	20	LIM	<i>Liriope muscari</i>	Liriope	CONT.	1 GAL. MIN.		MATCHED
	12	LOL	<i>Lomandra longifolia</i> 'Breeze'	Breeze Grass	CONT.	1 GAL. MIN.		MATCHED



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**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

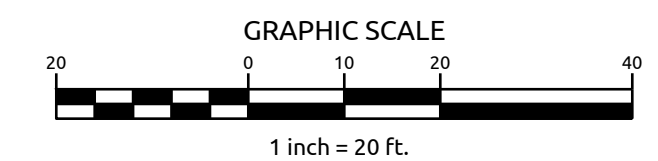
**CITY OF WILMINGTON**  
 NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

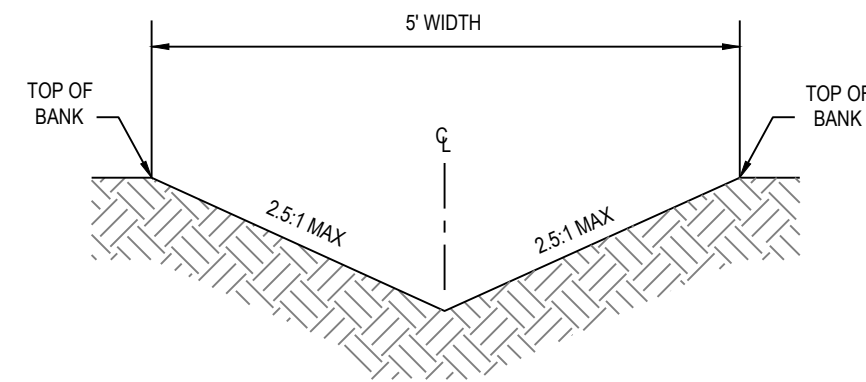
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219 Station Road | Ste. 101 | Wilmington, NC 28405 | T: 910.256.9271 | License # C-9852 | www.withersravenel.com

WILMINGTON, NC

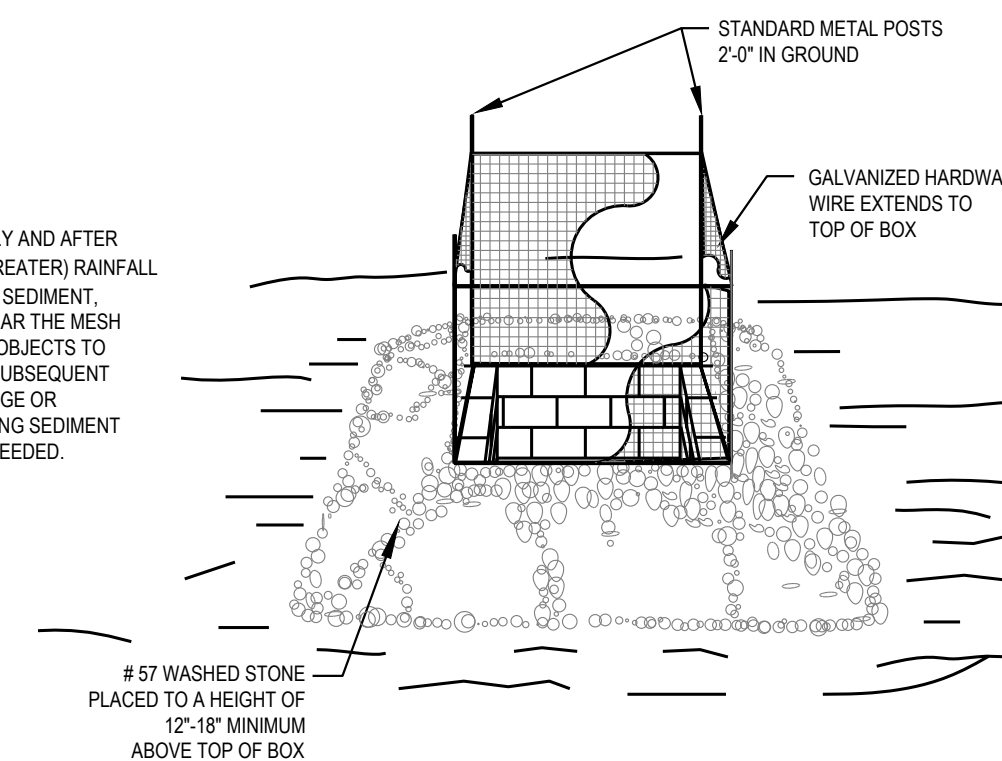


5' TRIANGULAR SWALE CROSS SECTION DETAIL

NOT TO SCALE

SWALE CALCULATIONS

SWALE NO.	DRAINAGE AREA (AC.)	STARTING ELEV.	ENDING ELEV.	LENGTH	AVERAGE SLOPE	CROSS SLOPE	SWALE TYPE	TEMPORARY LINER	SWALE LINER
1	0.15	48.16'	48.51'	240'	0.15%	2.5:1	TRIANGULAR	EXCELSIOR MATTING	GRASS

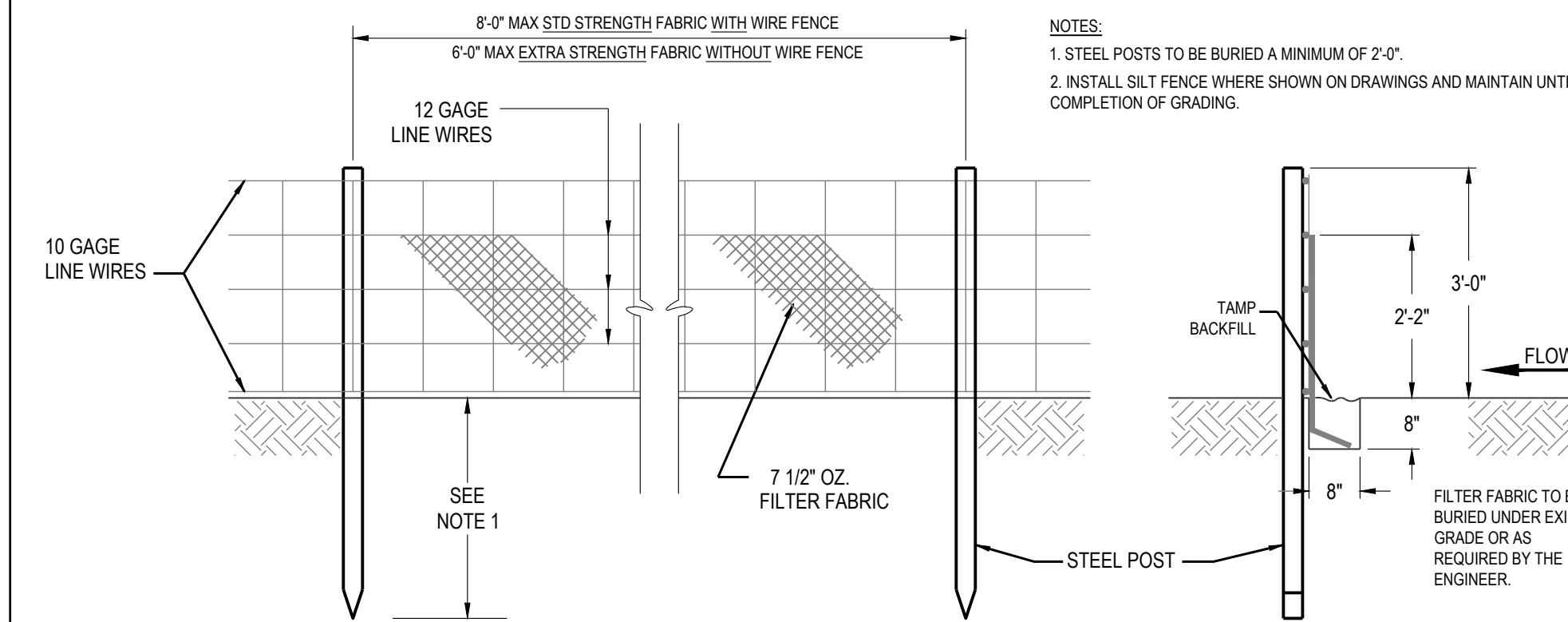


STANDARD CATCH BASIN/  
YARD INLET PROTECTION

NTS

**MAINTENANCE:**  
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. WHEN MESH IS FULL OF SEDIMENT, MAINTENANCE IS REQUIRED. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

- MAINTENANCE:**
- INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
  - SHOULD THE FABRIC OF THE SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
  - REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
  - REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



SILT FENCE

NTS

SEEDBED PREPARATION:

- CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
- RIP THE ENTIRE AREA TO 6 INCHES DEPTH.
- REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
- APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL.
- CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
- SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
- MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
- INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE-SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, RE-ESTABLISH FOLLOWING ORIGINAL LIME FERTILIZER AND SEEDING RATES.
- CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS; OTHER SEEDING RATES COMBINATIONS ARE POSSIBLE.

\* TEMPORARY RESEED ACCORDING TO OPTIMUM SEASON FOR DESIRED PERMANENT VEGETATION. DO NOT ALLOW TEMPORARY COVER TO GROW OVER 12" IN HEIGHT BEFORE MOWING.

Approved Construction Plan

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**WILMINGTON**  
NORTH CAROLINA

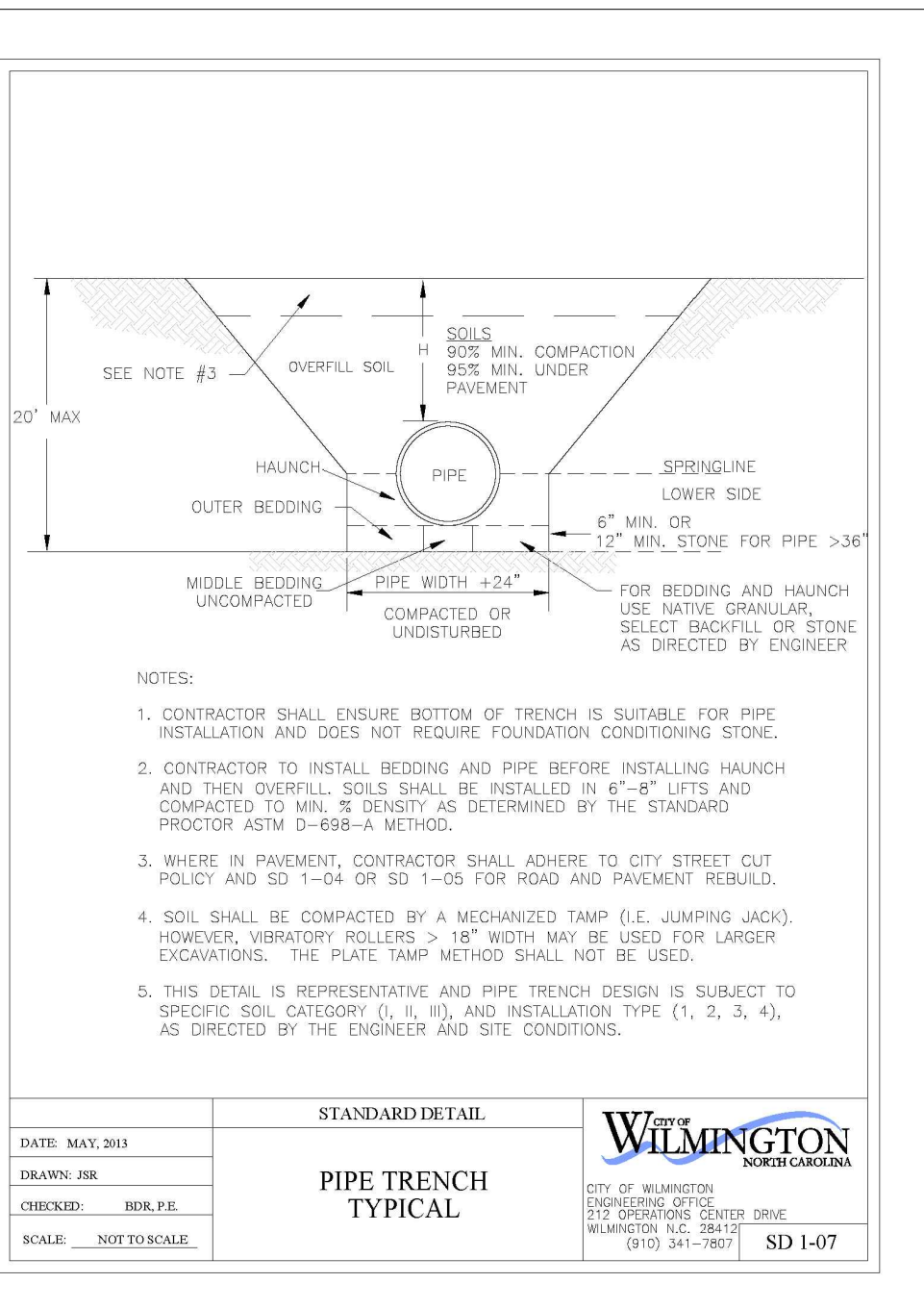
Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_

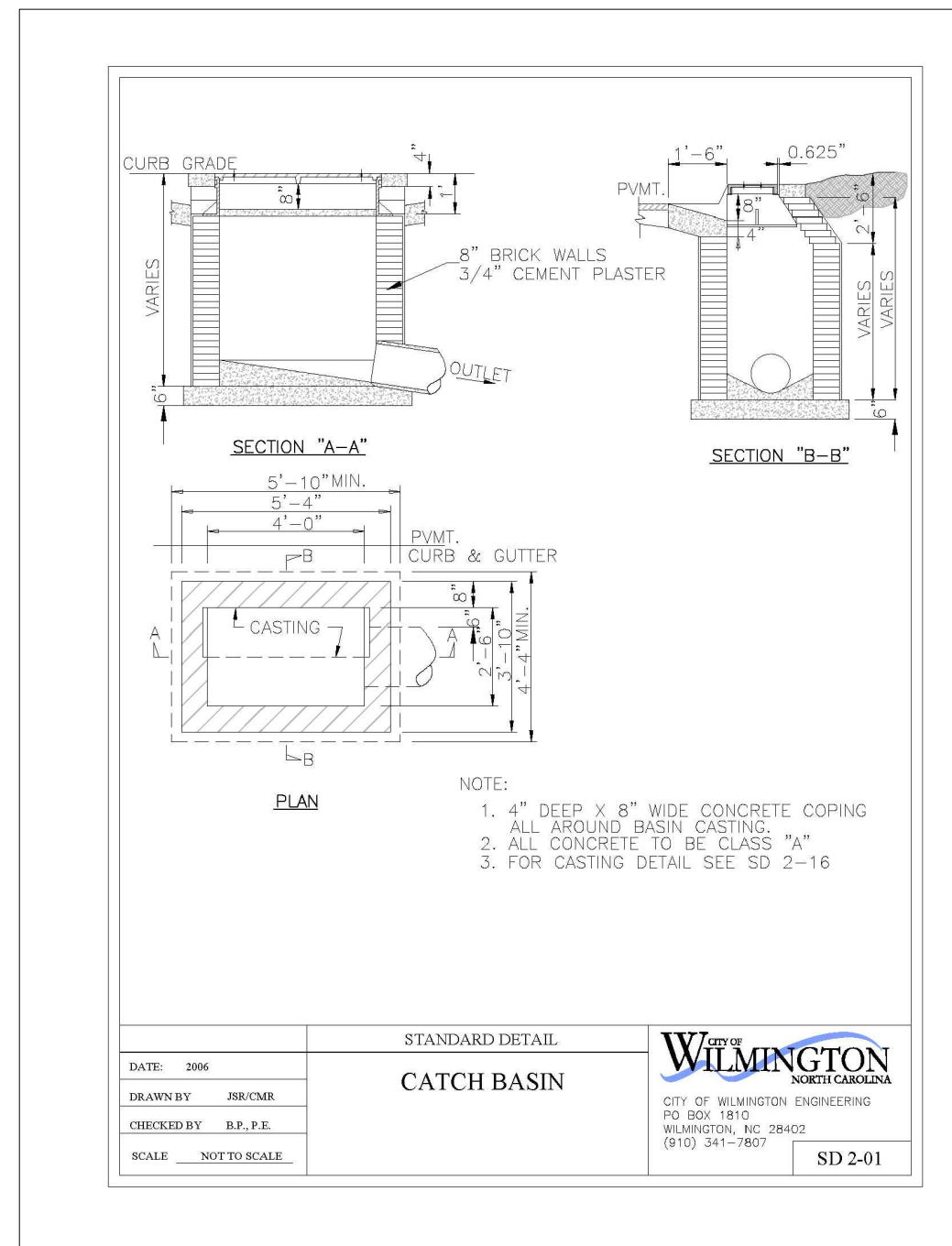
Signed: \_\_\_\_\_

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



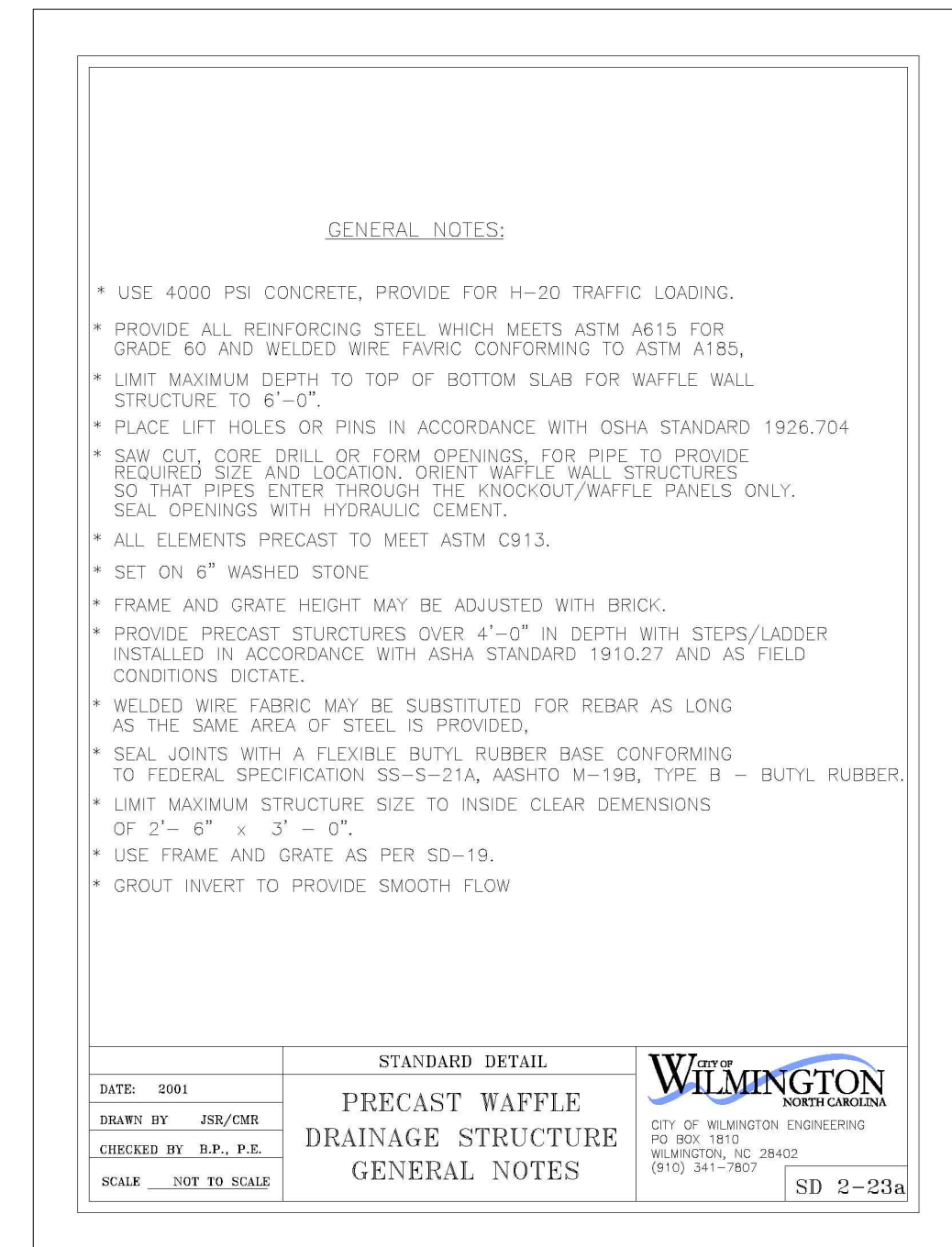
PIPE TRENCH TYPICAL

STANDARD DETAIL  
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CHECKED BY: B.P., P.E.  
SCALE: NOT TO SCALE



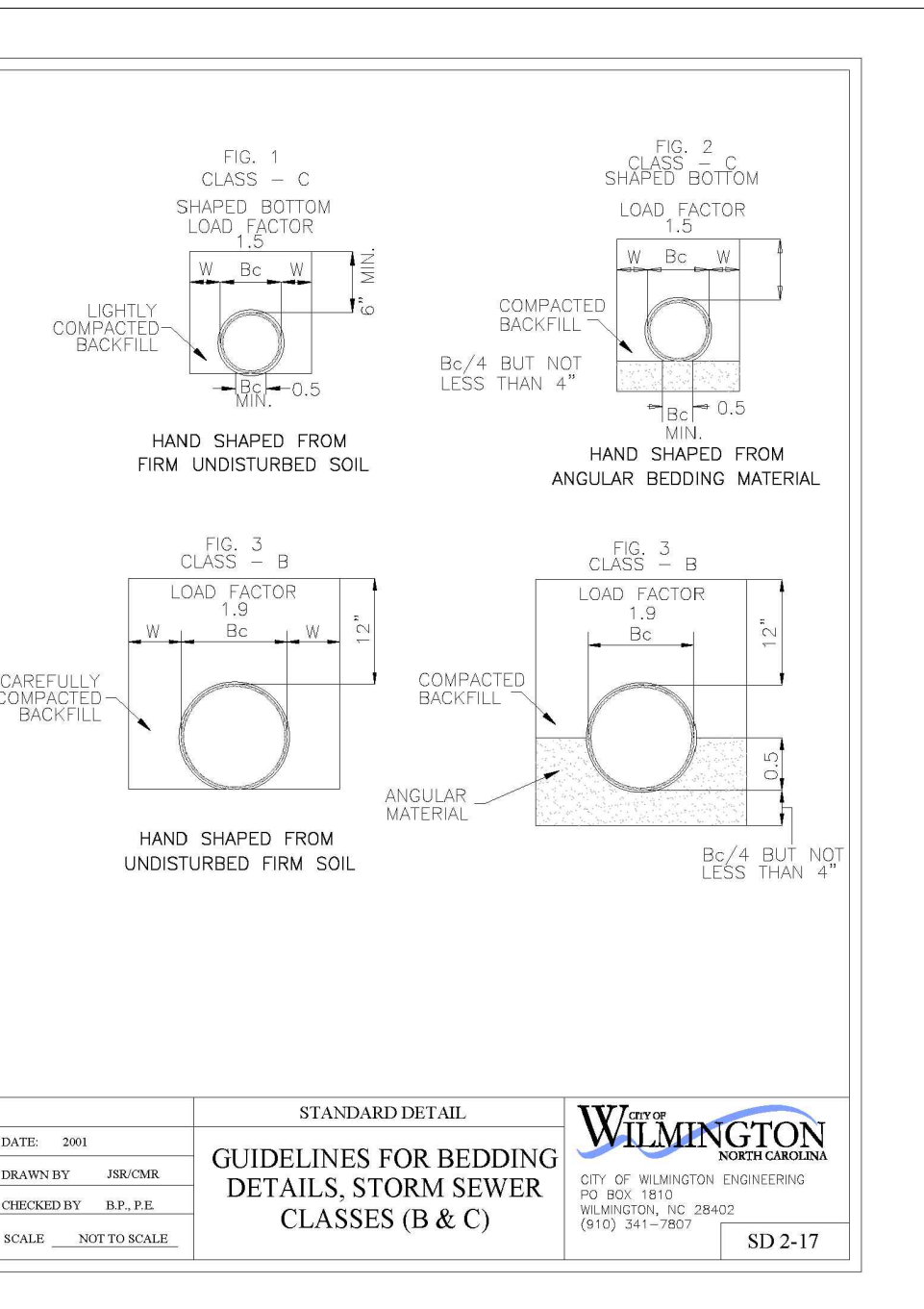
CATCH BASIN

STANDARD DETAIL  
DATE: 2006  
DRAWN BY: JRM/CLB  
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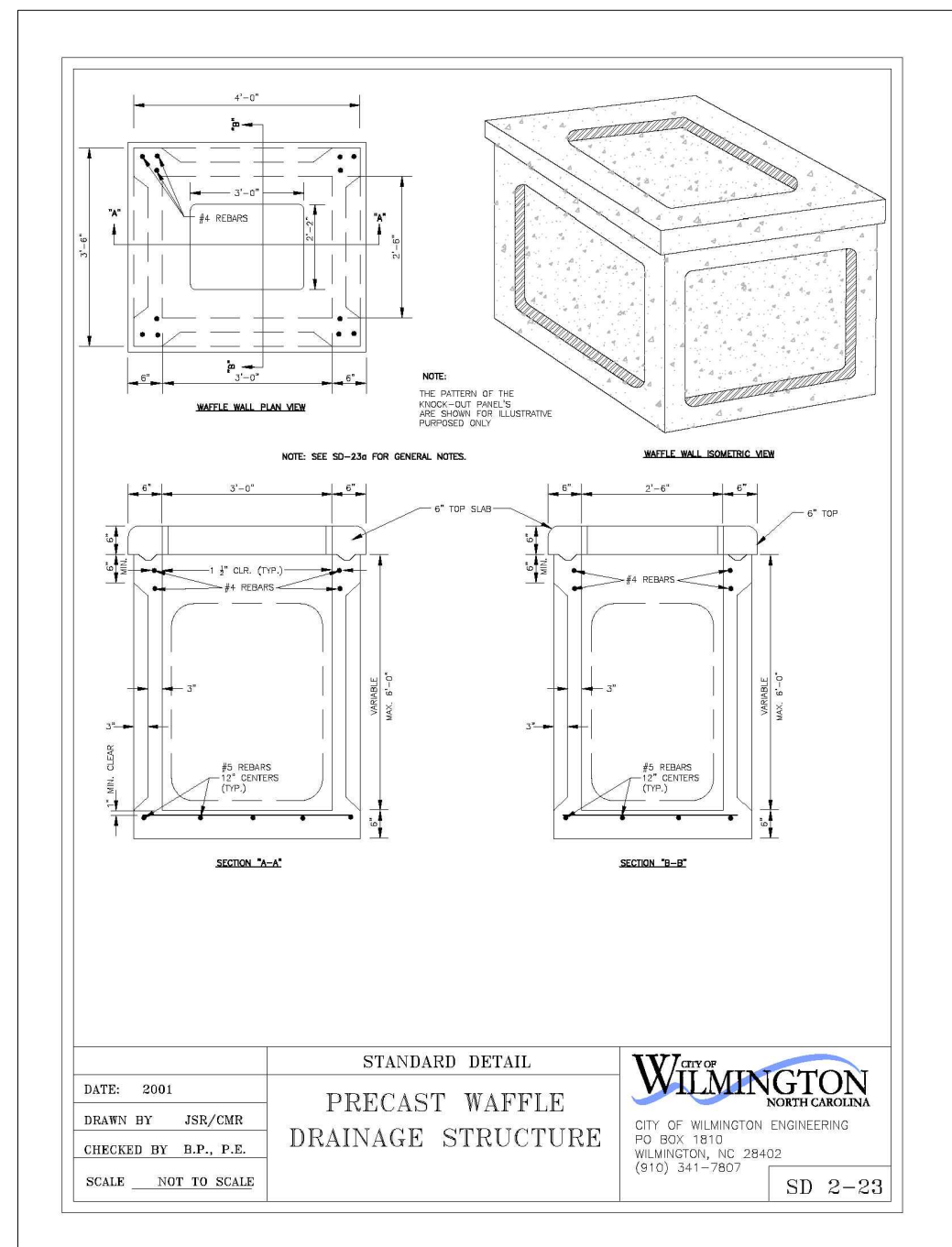
PRECAST WAFFLE DRAINAGE STRUCTURE

STANDARD DETAIL  
DATE: 2003  
DRAWN BY: JRM/CLB  
CHECKED BY: B.P., P.E.  
SCALE: NOT TO SCALE



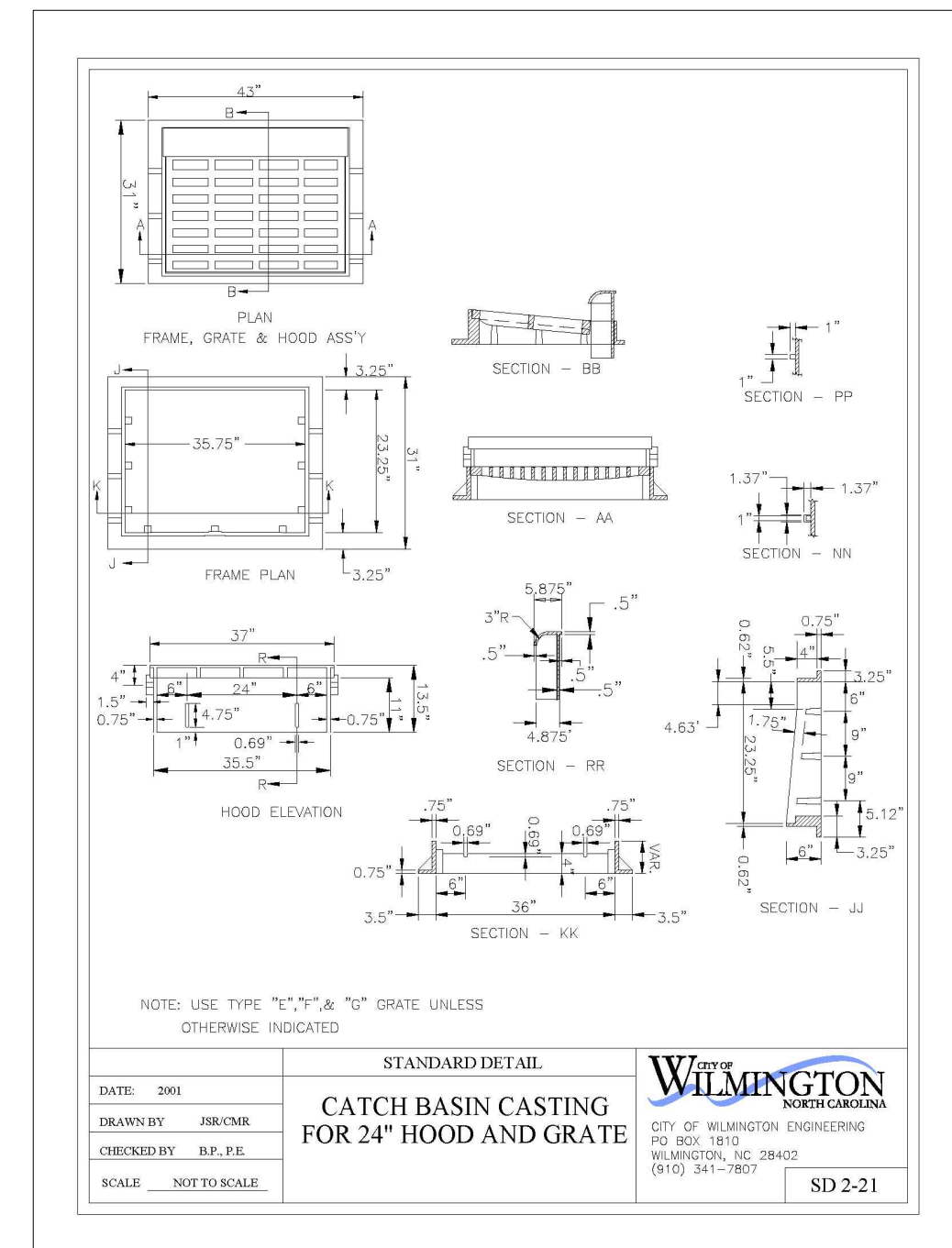
GUIDELINES FOR BEDDING DETAILS, STORM SEWER CLASSES (B & C)

STANDARD DETAIL  
DATE: 2006  
DRAWN BY: JRM/CLB  
CHECKED BY: B.P., P.E.  
SCALE: NOT TO SCALE



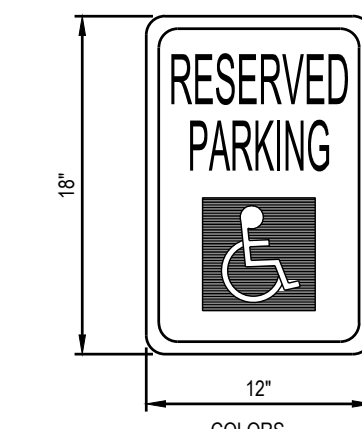
PRECAST WAFFLE DRAINAGE STRUCTURE

STANDARD DETAIL  
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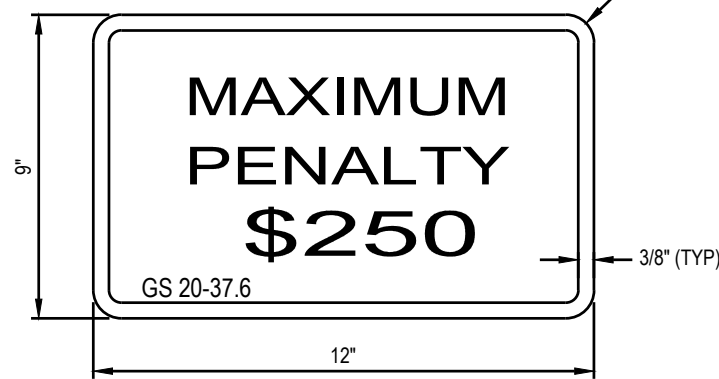


CATCH BASIN CASTING FOR 24" HOOD AND GRATE

STANDARD DETAIL  
DATE: 2003  
DRAWN BY: JRM/CLB  
CHECKED BY: B.P., P.E.  
SCALE: NOT TO SCALE

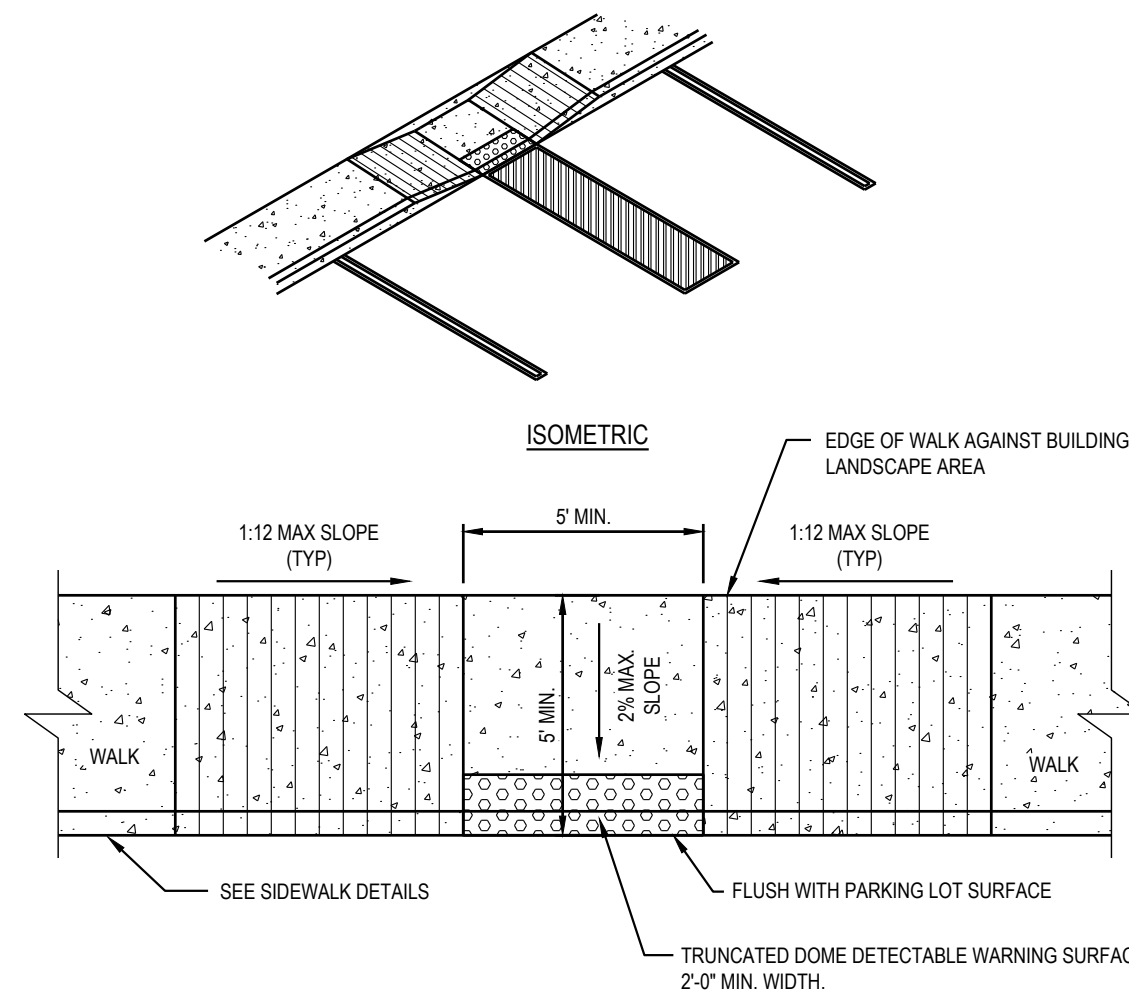
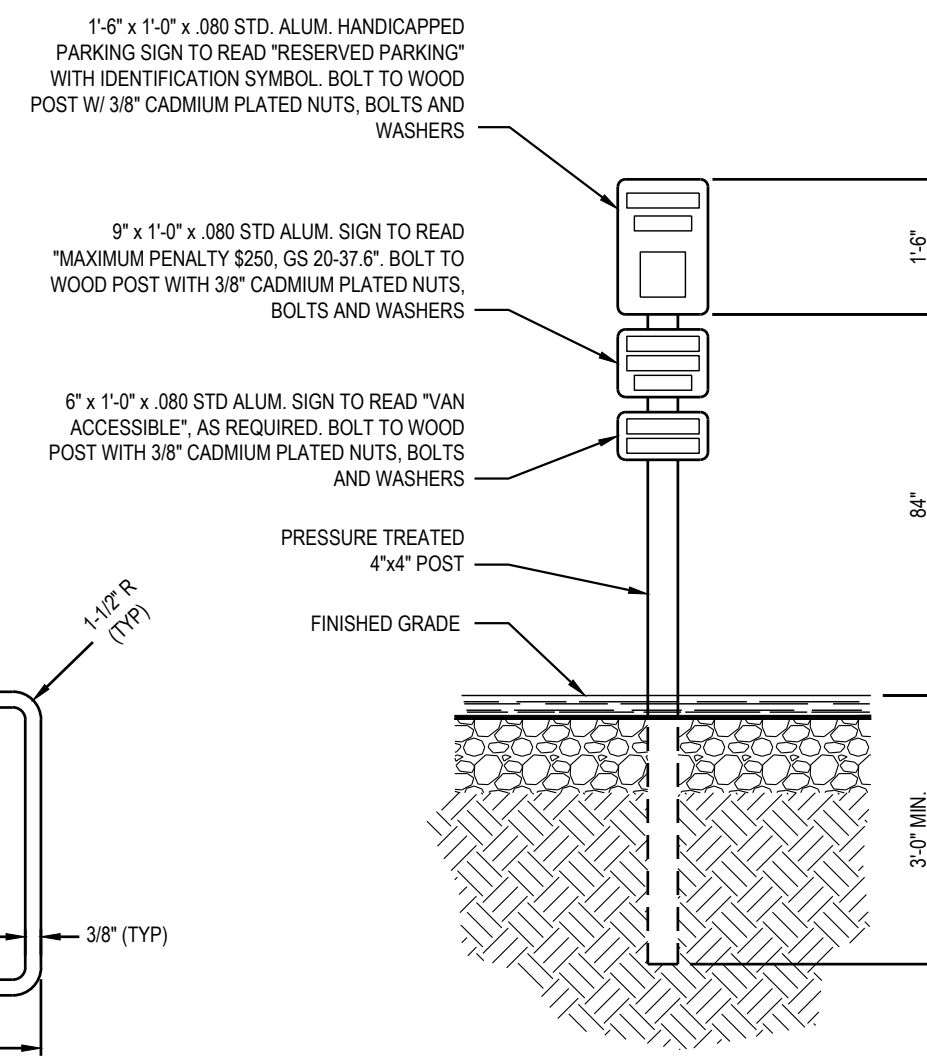


LEGEND AND BORDER: GREEN  
WHITE SYMBOL ON BLUE BACKGROUND  
BACKGROUND: WHITE

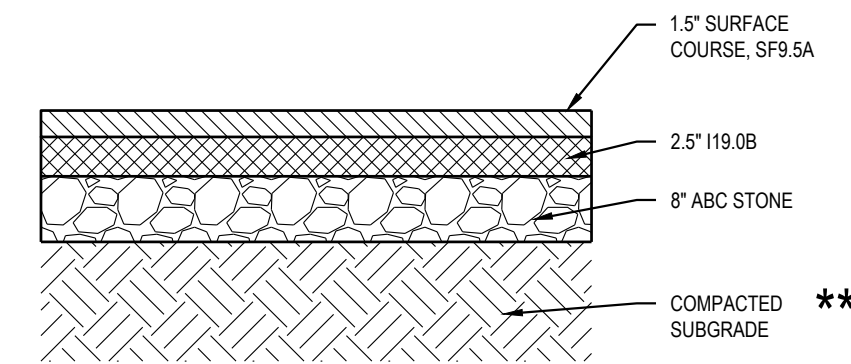


LEGEND AND BORDER: GREEN  
BACKGROUND: WHITE

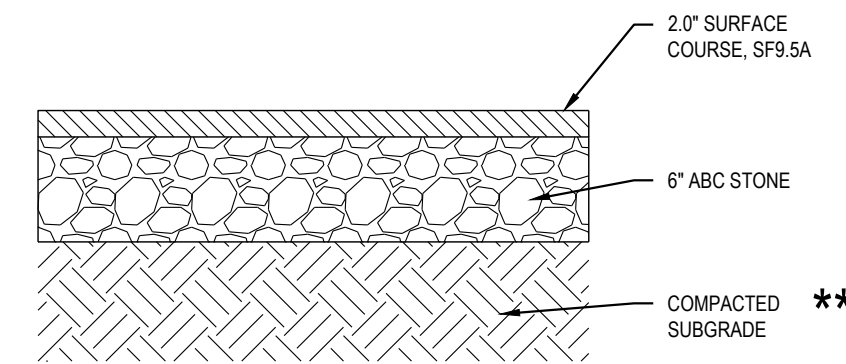
TYPICAL HANDICAPPED SIGN DETAIL  
NOT TO SCALE



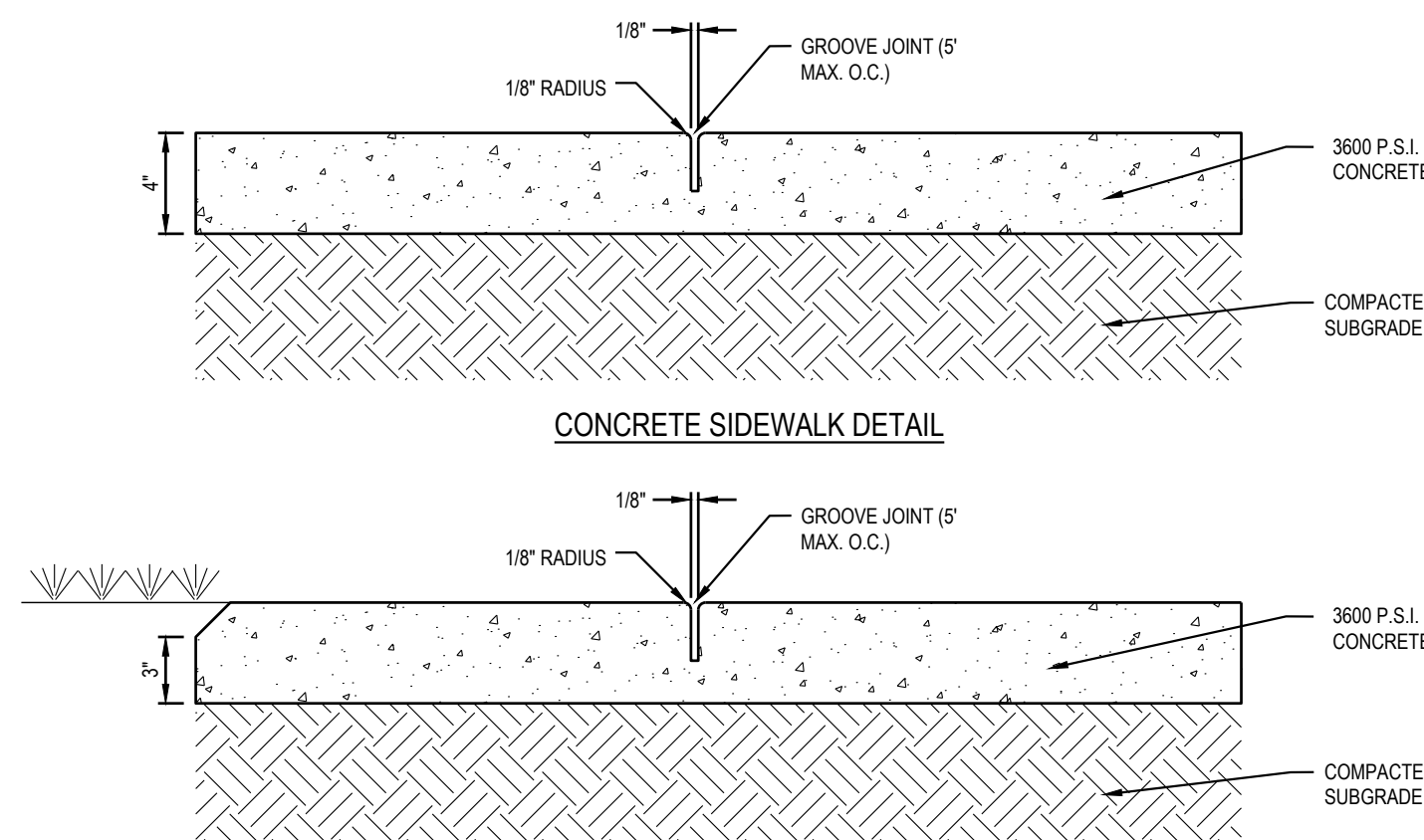
ACCESSIBLE HANDICAP RAMP  
NOT TO SCALE



HEAVY DUTY PAVEMENT DETAIL  
NOT TO SCALE

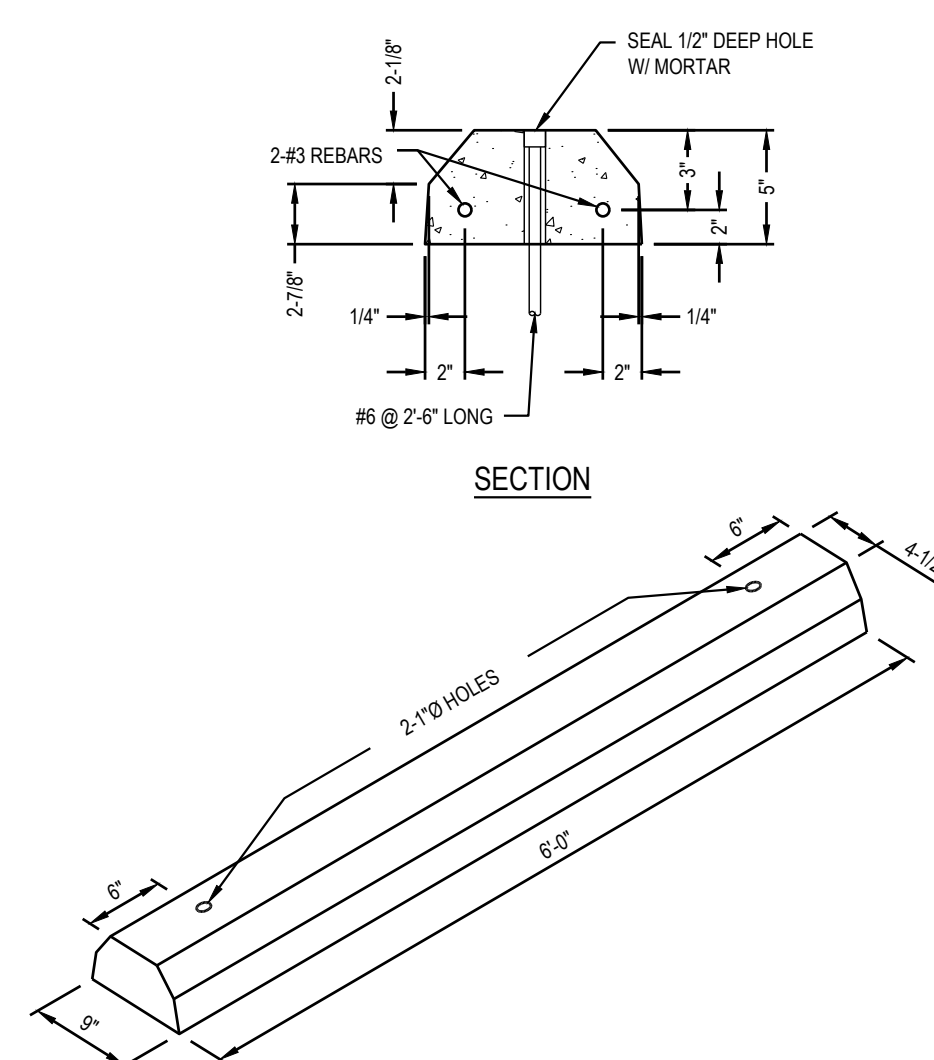


ASPHALT PAVEMENT DETAIL  
NOT TO SCALE

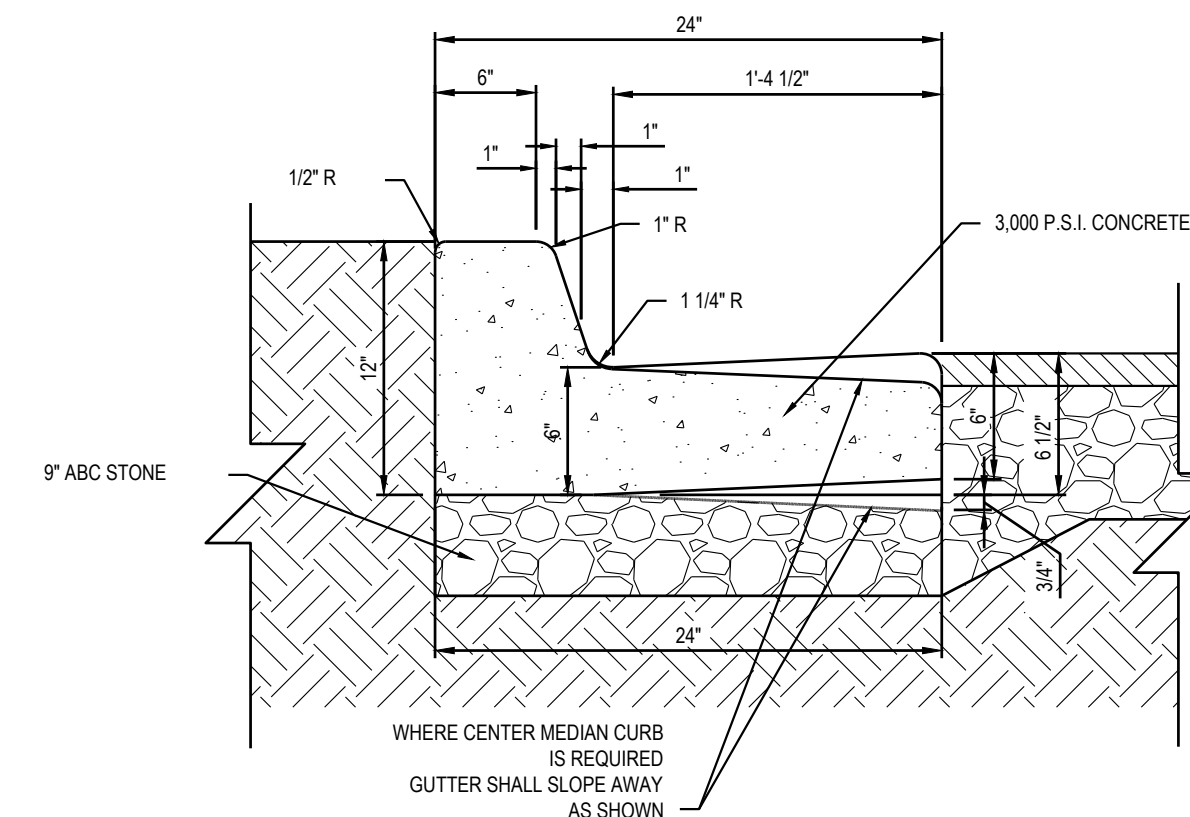


- GENERAL NOTES:
- A GROOVE JOINT 1" DEEP WITH 1/8" RADI SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS.
  - ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS.
  - A 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK ABUTS ANY CURB AND GUTTER AND ANY RIGID STRUCTURES.
  - IN SIDEWALKS AND PLAZA AREAS EXPANSION JOINTS ARE REQUIRED AT NO GREATER THAN 30' INTERVALS.
  - CONCRETE SHALL BE 3600 PSI. IN 28 DAYS.

CONCRETE SIDEWALK DETAIL  
NOT TO SCALE



PRECAST CONCRETE WHEEL STOP DETAIL  
NOT TO SCALE



CURB AND GUTTER DETAIL  
NOT TO SCALE

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**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

Approved Construction Plan

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ENGLISH STANDARD DRAWING FOR  
TYPE "U", "E", AND "F" SIGNS  
ON CHANNEL POSTS

NOTES:

- ERECT TYPE "U", "E", AND "F" SIGNS ON PREPARED WITH THE REAR EDGE OF THE SIGN 80 FT. FROM THE TRAVEL LANE. SEE ALL OTHER TYPE "U", "E", AND "F" SIGNS WITH THE REAR EDGE OF THE SIGN AT THE EDGE OF THE SHOULDER OR 5 FT. MINIMUM CLEARANCE, 10 FT. DISTANCE FROM THE EDGE OF TRAVEL LANE, OR AS INDICATED ON PLAN SHEETS.
- ERECT TYPE "U", "E", AND "F" SIGNS WITH THE BOTTOM OF SIGN ASSEMBLY AT LEAST 7 FT. ABOVE THE EDGE OF THE TRAVEL LANE OR 8 FT. ABOVE THE EDGE OF THE SHOULDER. THE VERTICAL CLEARANCE IS 7 FT. WHERE REQUIRED FOR PEDESTRIAN TRAFFIC AND/OR PARKED VEHICLES.
- THE VERTICAL DIMENSION BETWEEN MOUNTING HOLE CENTERS ON ALL TYPES "U", "E", AND "F" SIGNS IS 20" MINIMUM. THE HORIZONTAL AND VERTICAL DIMENSIONS BETWEEN MOUNTING HOLES TO THE WHOLE SIGN, EACH SIGN PANEL HAS A MINIMUM OF 2 HOLES FOR SUPPORT.
- ATTACH SIGN BY 1/4" HEX HEAD BOLT, FLUSH MOUNTING, FLAT WASHER, LOCK WASHER, HEX NUT NO BACKLASH OF THE SIGN WILL BE PERMITTED. SEE ASSEMBLY DETAIL SHEET P OF 804.50.
- FINISH AND INSTALL CROSS-BRACING AS SHOWN IN DETAIL. FRONT EDGE OF CROSS BRACING BY APPROVED SIGN PAINT FINISH FOR COMBINATION TYPE "U" SIGNS.
- INSTALL POST AND CROSS-BRACING WITH THE REAR SIDE OF THE FLANGE TOWARD THE BACK OF THE SIGN.
- THE SIGNS HEIGHTS IN THESE ASSEMBLIES CAN NOT BE LONGER THAN 24".

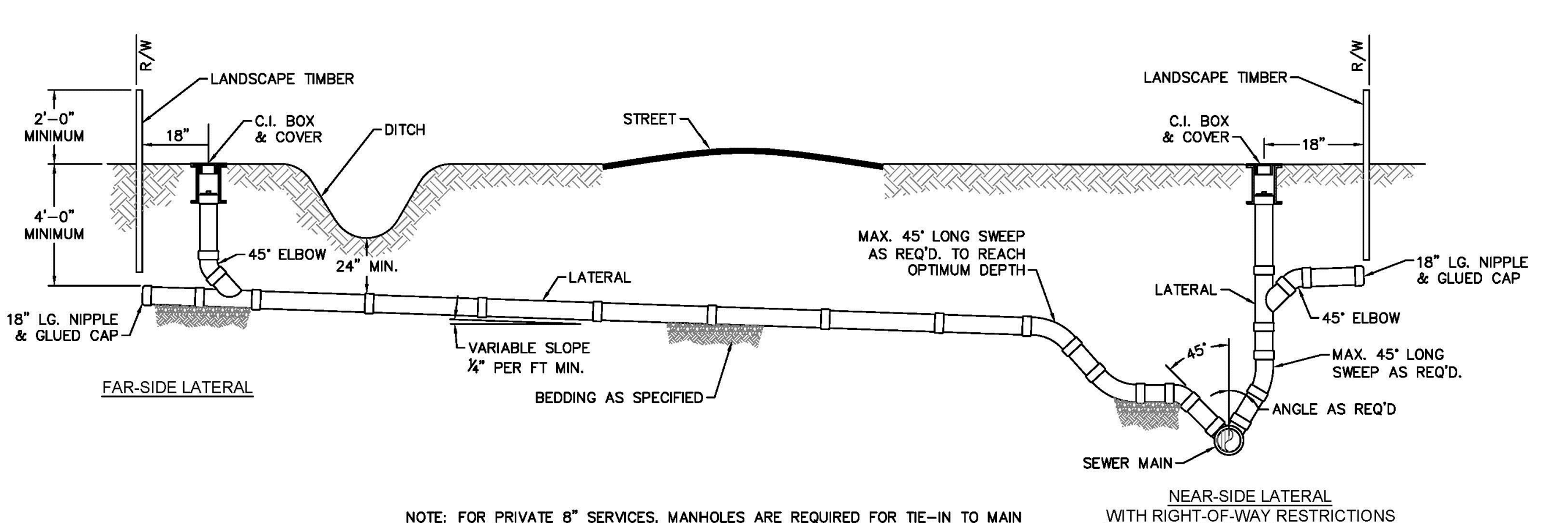
SHEET 1 OF 2  
904.50

STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

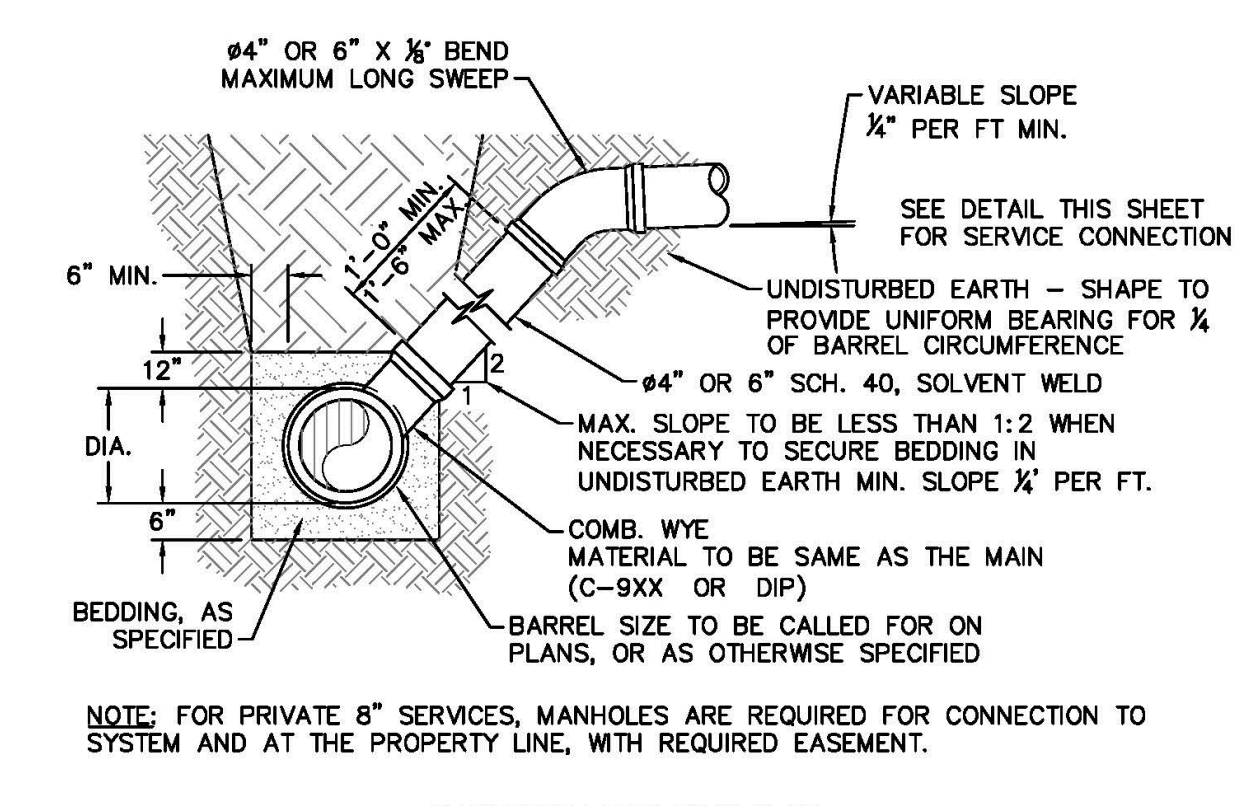
ENGLISH STANDARD DRAWING FOR  
PAVEMENT REPAIRS  
FOR SUPERPAVE MIX TYPES

D	X	W
12"	1'-4"	7'-4"
15"	1'-7"	7'-7"
18"	1'-10"	7'-10"
24"	2'-8"	8'-6"
30"	3'-1"	9'-1"
36"	3'-8"	9'-8"
42"	4'-5"	10'-5"
48"	5'-0"	11'-0"

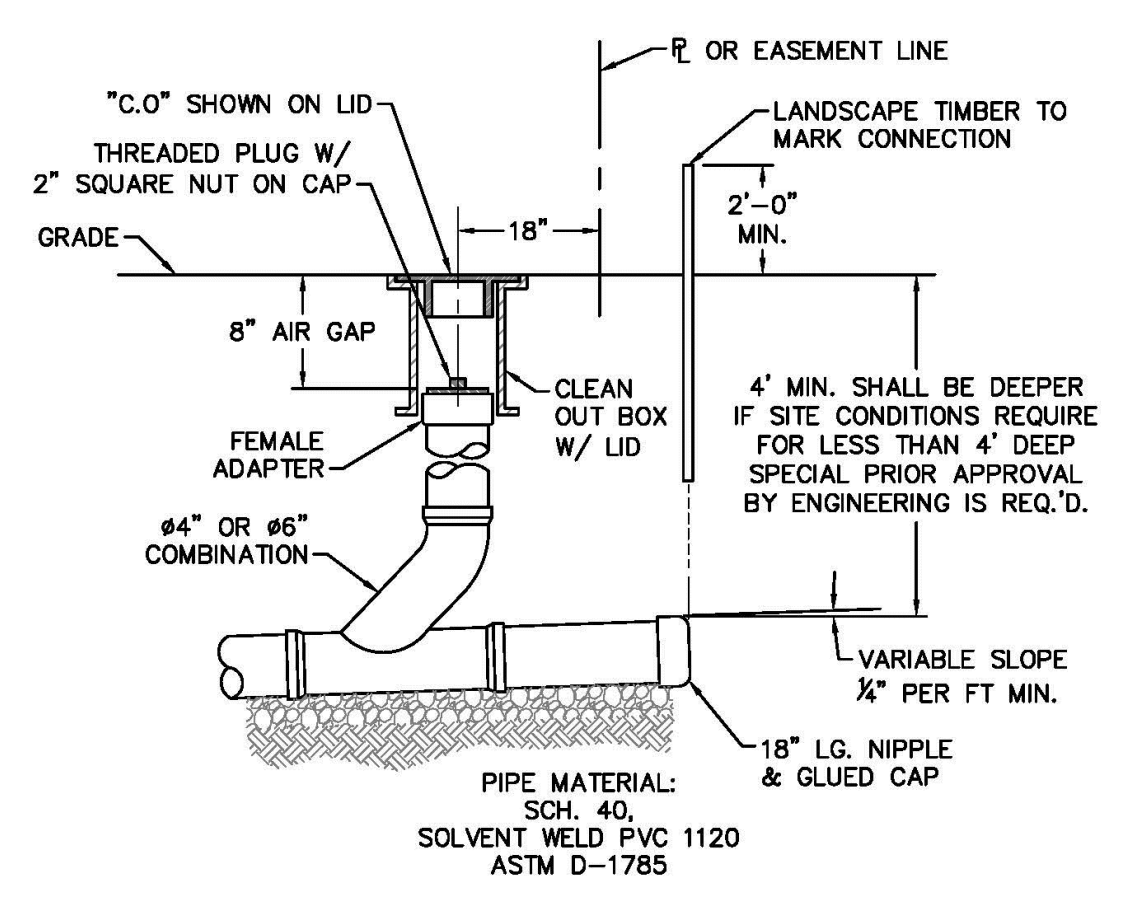
SHEET 1 OF 1  
654.01



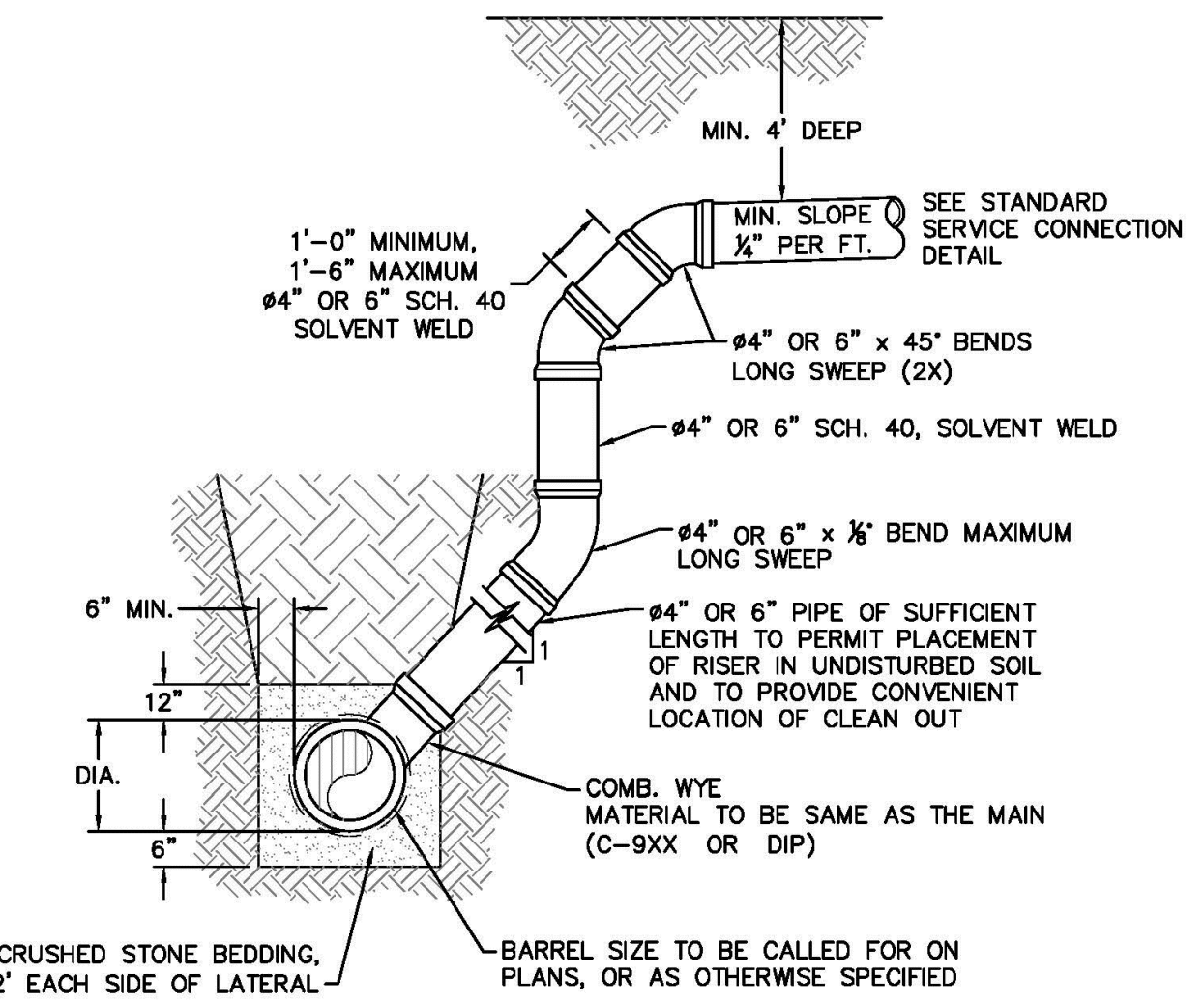
**SD-19**  
NOT TO SCALE  
**STANDARD SERVICE CONNECTION TO SANITARY SEWER**



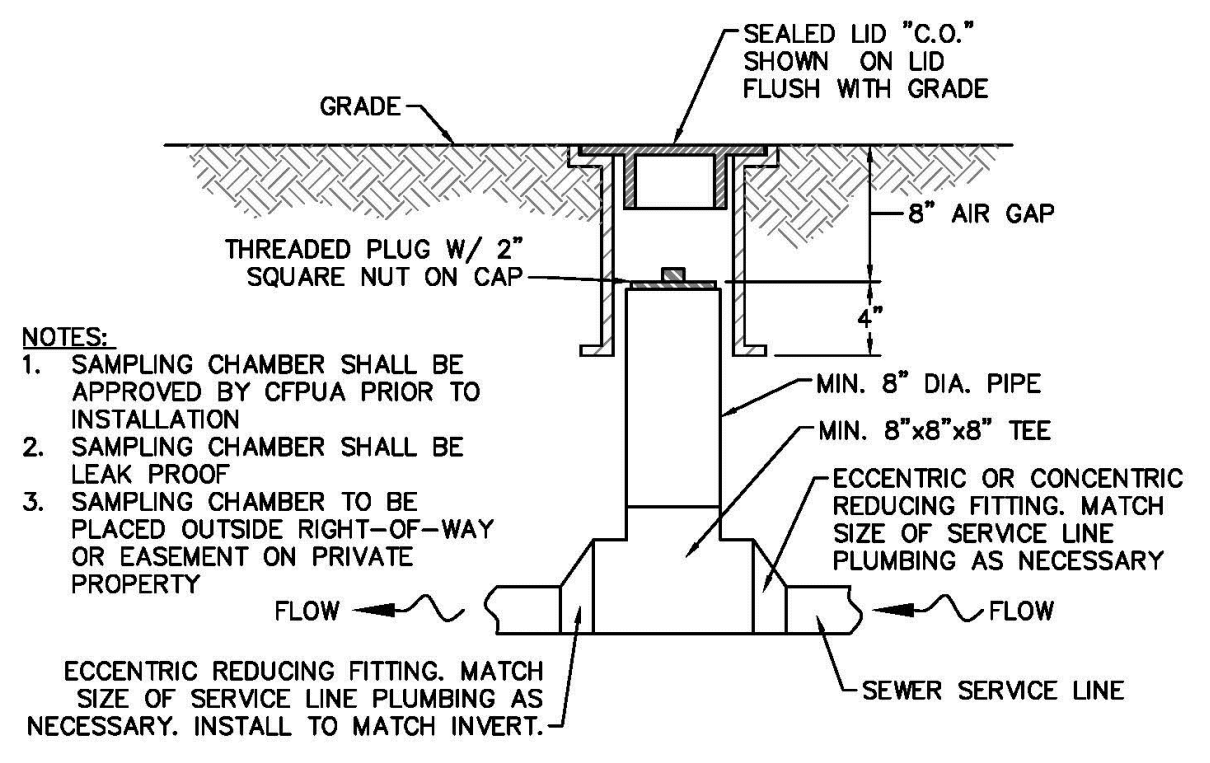
**SD-10**  
NOT TO SCALE  
**STANDARD SERVICE LATERAL**



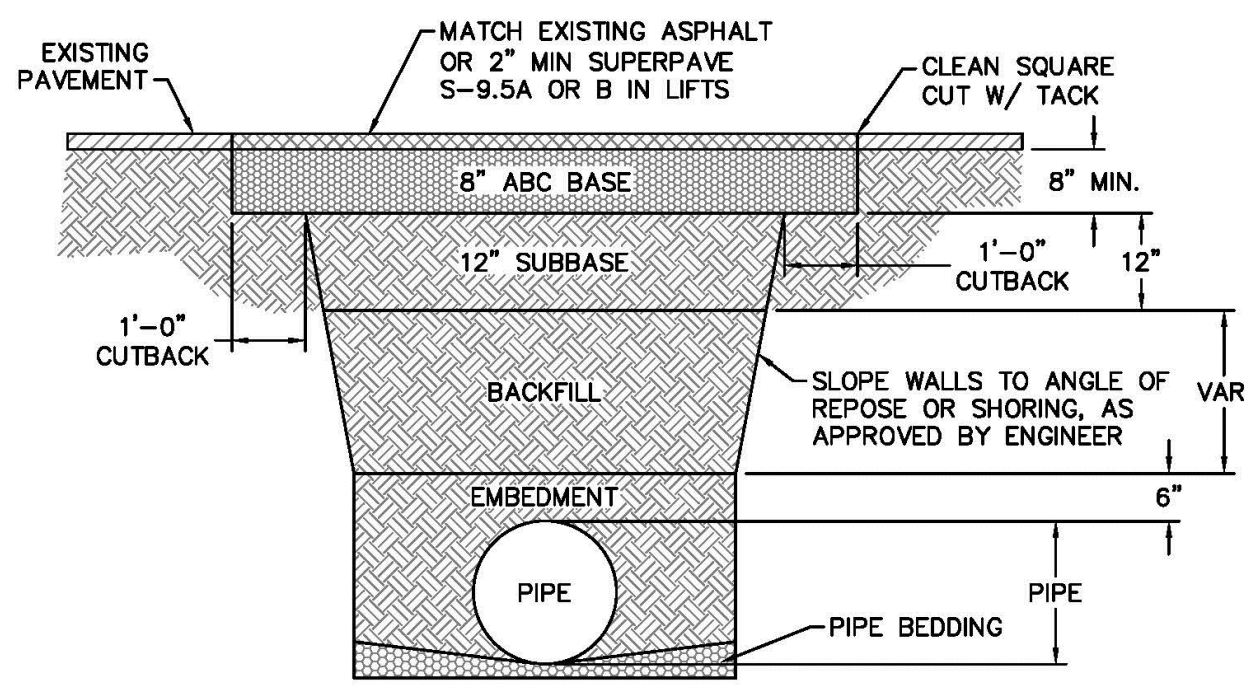
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**SERVICE CONNECTION AND CLEAN-OUT**



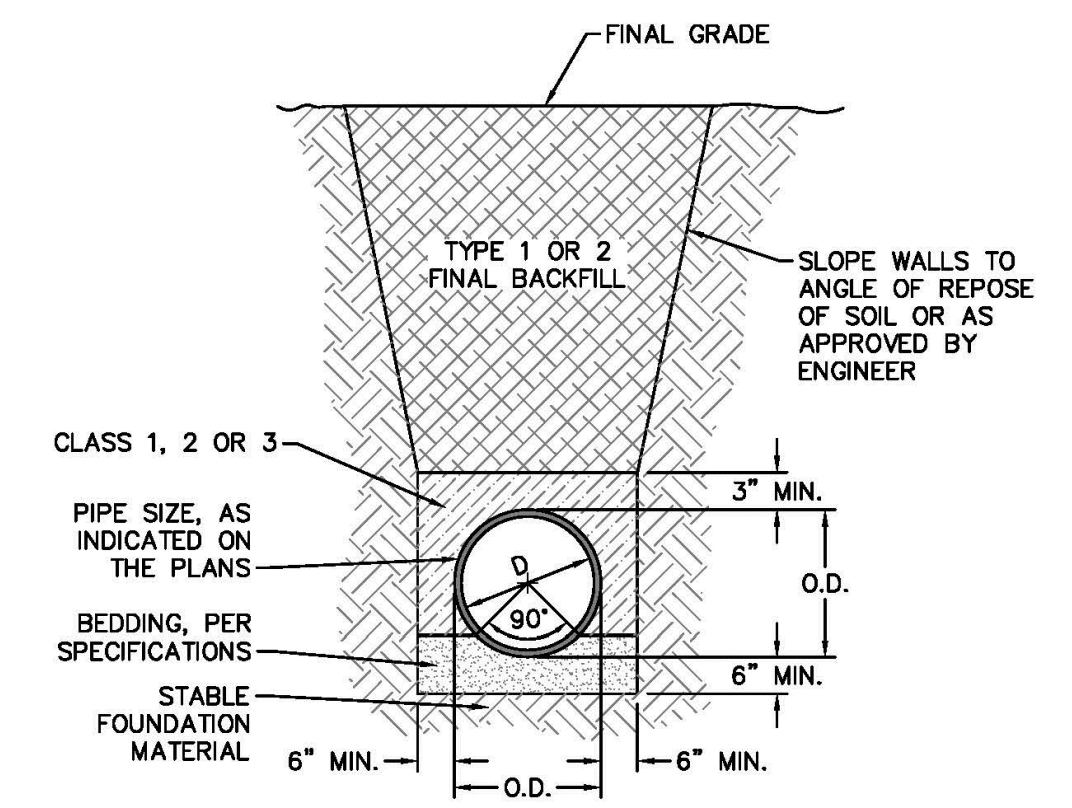
**SD-12**  
NOT TO SCALE  
**DEEP SERVICE LATERAL**



**SD-13**  
NOT TO SCALE  
**SAMPLING CHAMBER**



**SD-14**  
NOT TO SCALE  
**PAVEMENT REPAIR WHERE PIPE INSTALLED**

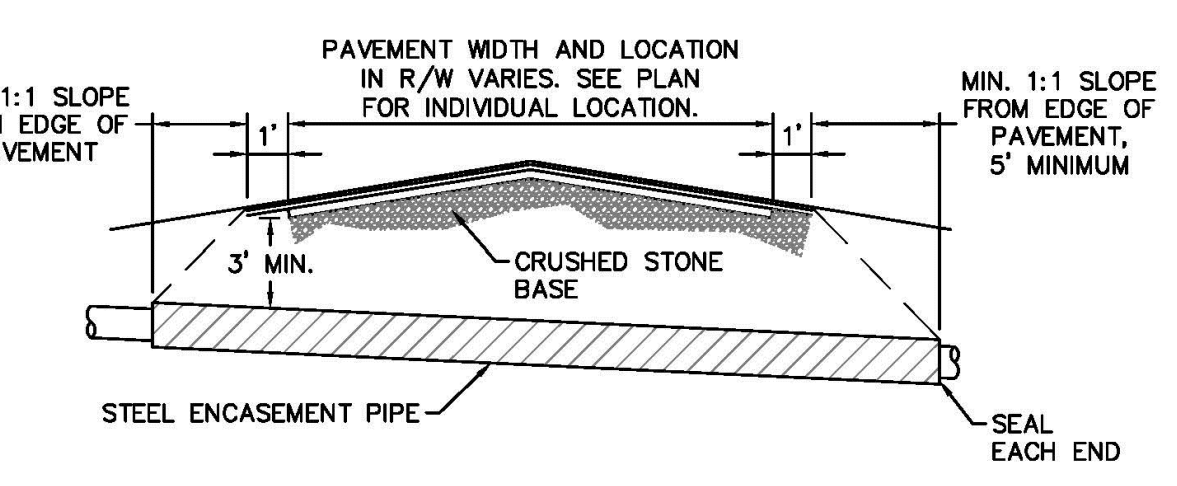


**SD-15**  
NOT TO SCALE  
**TYPICAL TRENCH DETAIL**

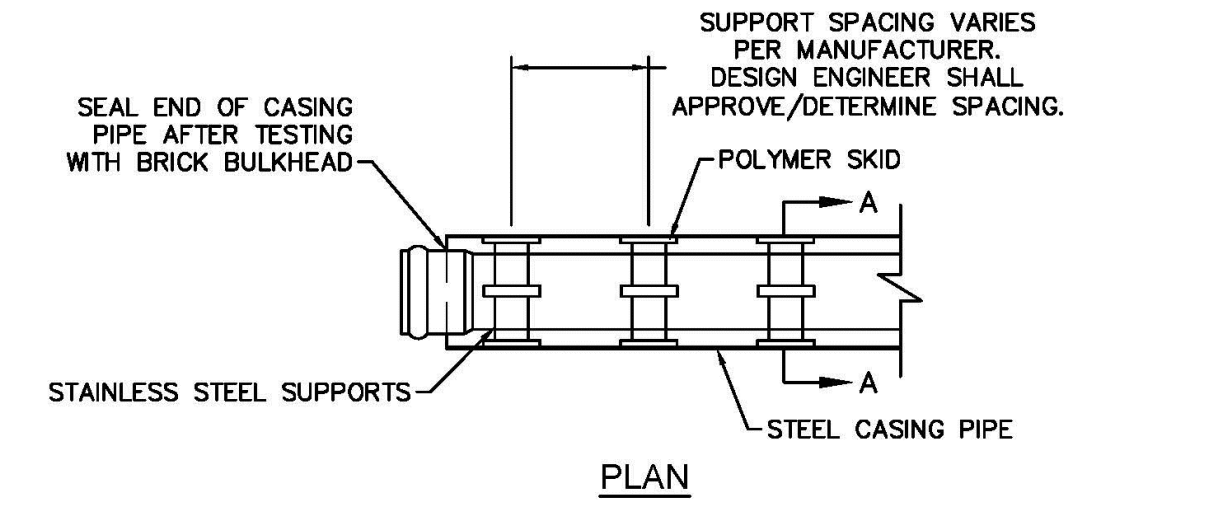
**NOTES:**  
1. SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.  
2. FOR PRIVATE 8\"/>

**NOTES:**  
1. SAMPLING CHAMBER SHALL BE APPROVED BY CFPUA PRIOR TO INSTALLATION.  
2. SAMPLING CHAMBER SHALL BE LEAK PROOF.  
3. SAMPLING CHAMBER TO BE PLACED OUTSIDE RIGHT-OF-WAY OR EASEMENT ON PRIVATE PROPERTY.  
ECCENTRIC REDUCING FITTING, MATCH SIZE OF SERVICE LINE PLUMBING AS NECESSARY. INSTALL TO MATCH INVERT.

**NOTES:**  
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.  
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).  
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.  
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12\"/>



**SD-16**  
NOT TO SCALE  
**TYPICAL BORING/ JACKING DETAIL**



**SD-17**  
NOT TO SCALE  
**PIPE CASING SUPPORT DETAIL**

**NOTE:** PIPE SUPPORT TO BE PLACED TO PROVIDE PROPER SUPPORT, ALIGNMENT, AND GRADE AS SPECIFIED. CONTINUOUS SUPPORTS MAY BE USED AS ALTERNATIVE. OIL, GREASE, OR PETROLEUM PRODUCT MAY NOT BE USED AS LUBRICANT.

**NOTE:** SKID SPACING AND LEG SIZE VARIES BY PIPE SIZE AND PER MANUFACTURER. DESIGN ENGINEER SHALL APPROVE/DETERMINE SPACING.

**SD-14**  
NOT TO SCALE  
**PAVEMENT REPAIR WHERE PIPE INSTALLED**

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**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

**Approved Construction Plan**  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

REV.	DESCRIPTION:	DATE:
1	SAMPLING CHAMBER REVISED	10/26/12
2	Revised Multiple Details	02/15/16

**GENERAL NOTES:**  
1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.  
2. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.  
3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.  
4. THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.  
5. THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**

**CFPUA SANITARY SEWER**

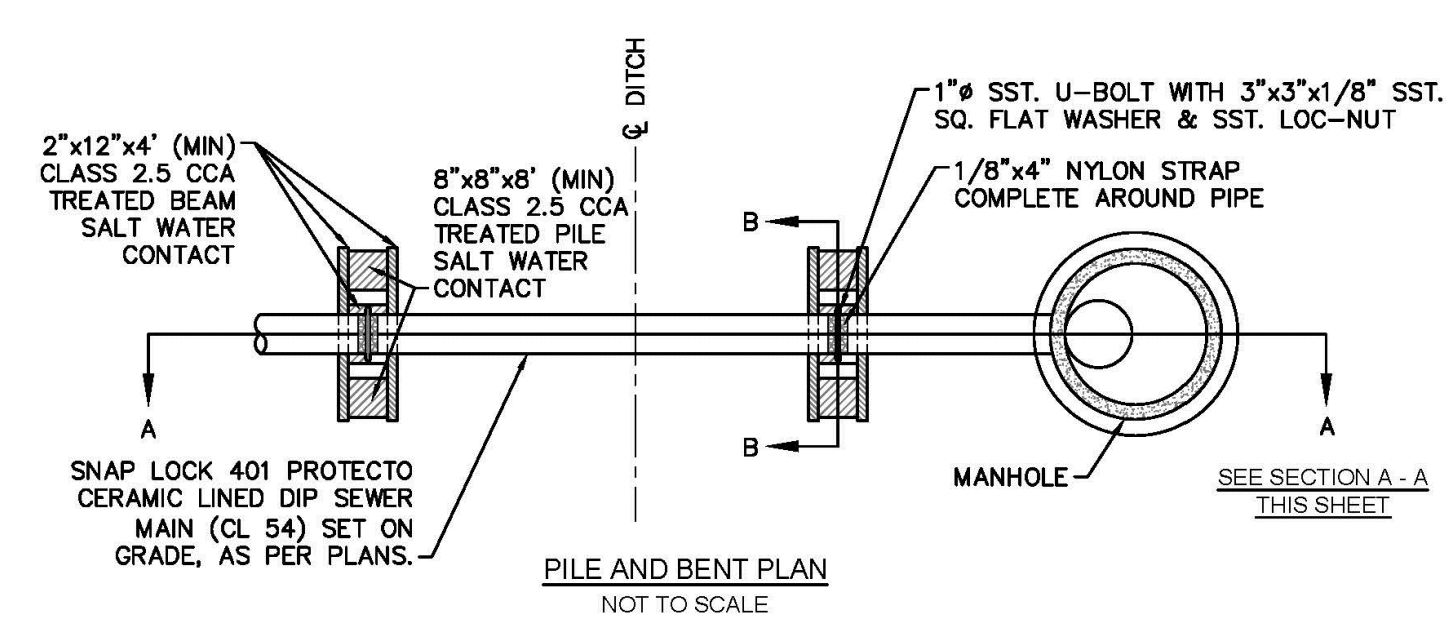
**STANDARD DETAILS**

**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
235 GOVERNMENT CENTER DRIVE  
WILMINGTON, NC 28403  
OFFICE: (910)332-6560  
Stewardship. Sustainability. Service.

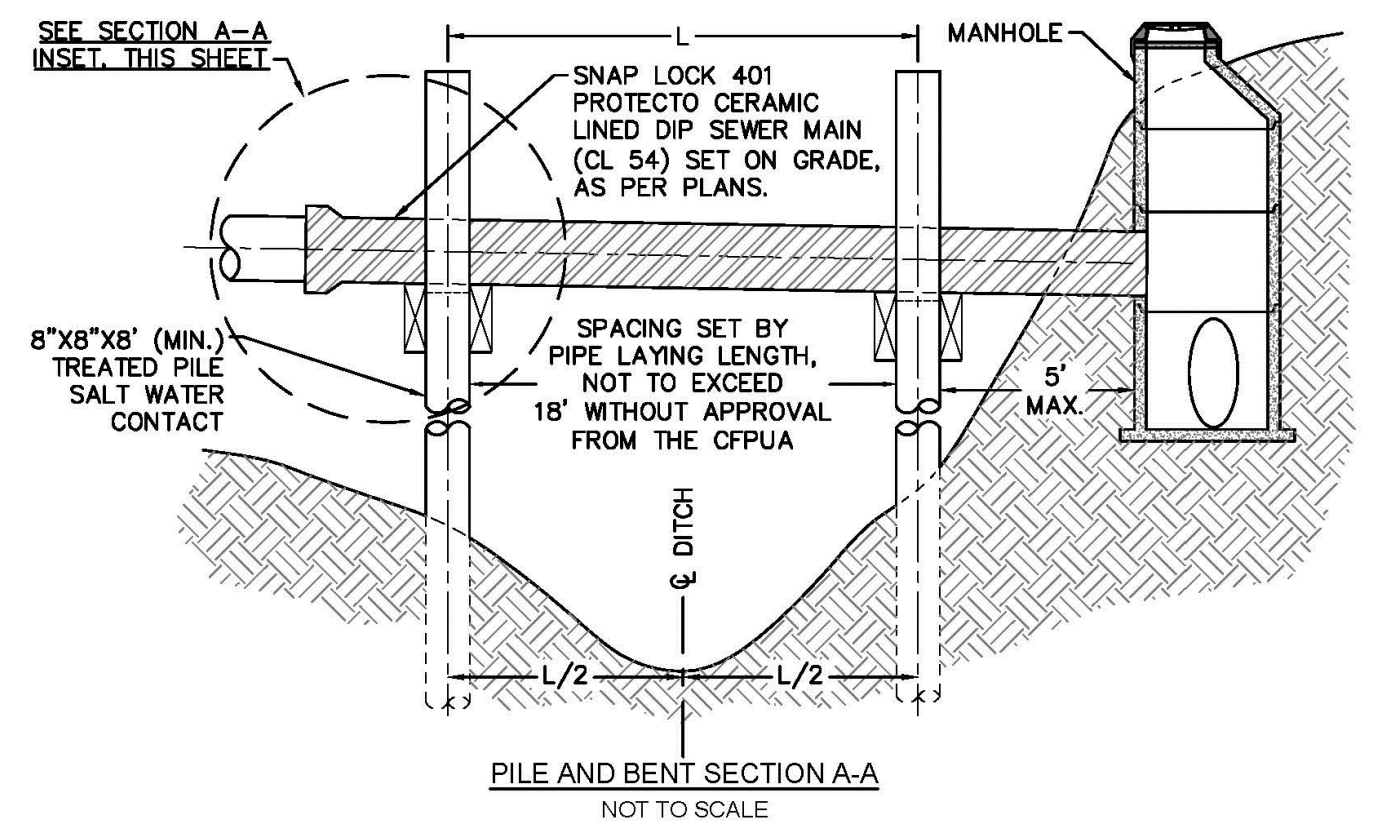
DATE: 1/9/12  
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DRAWN BY: CFPUA  
CHECKED BY: CFPUA  
PROJECT NO.:  
SHEET NO.: **SSD-2**

TYPICAL DETAILS NOTE:  
THE TYPICAL DETAILS ON THIS SHEET WERE DESIGNED AND PREPARED BY OTHERS.

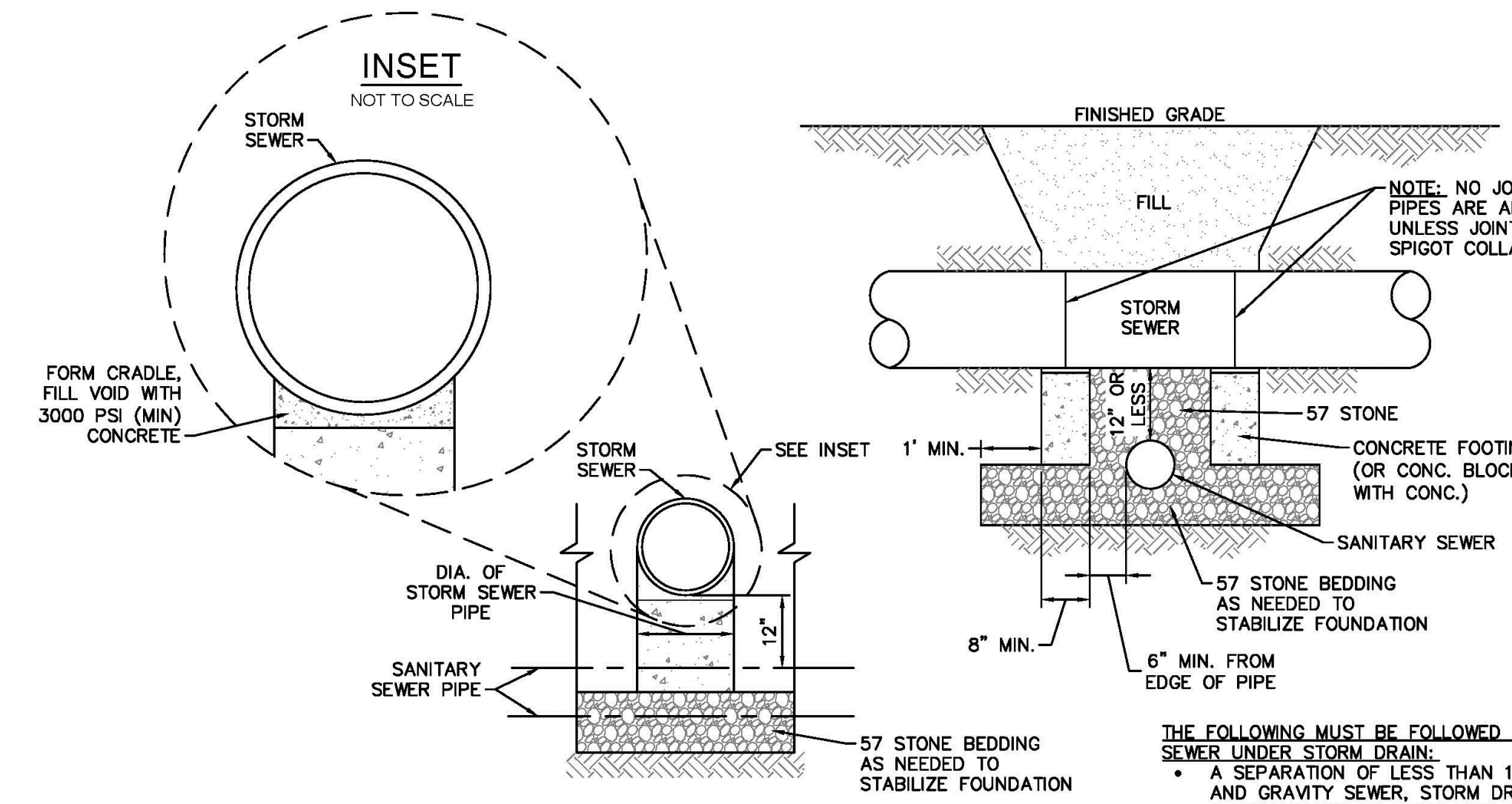
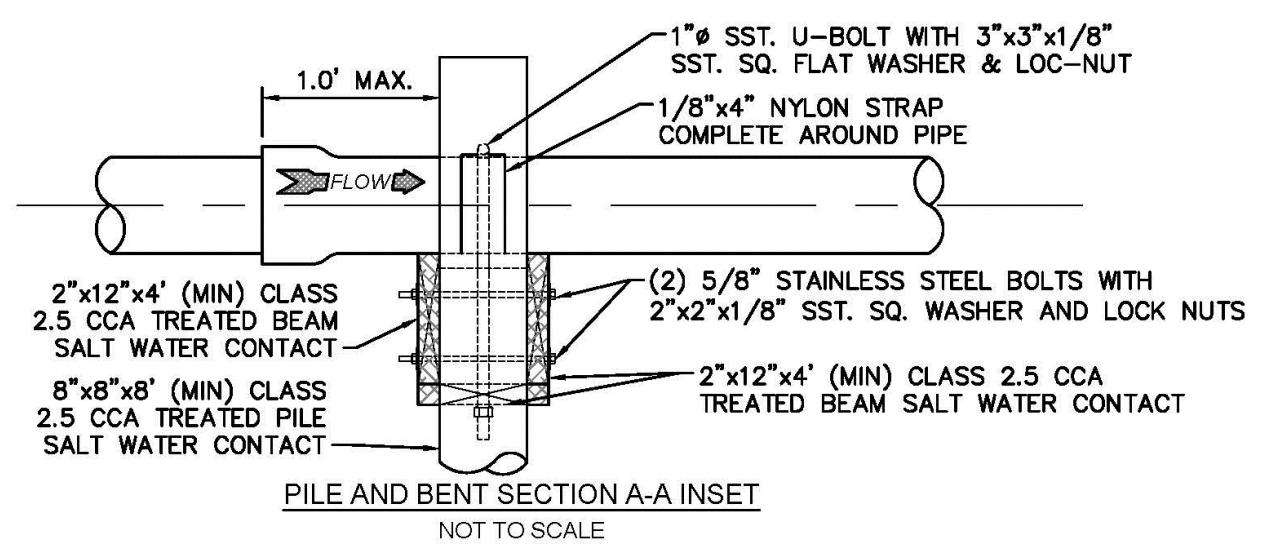
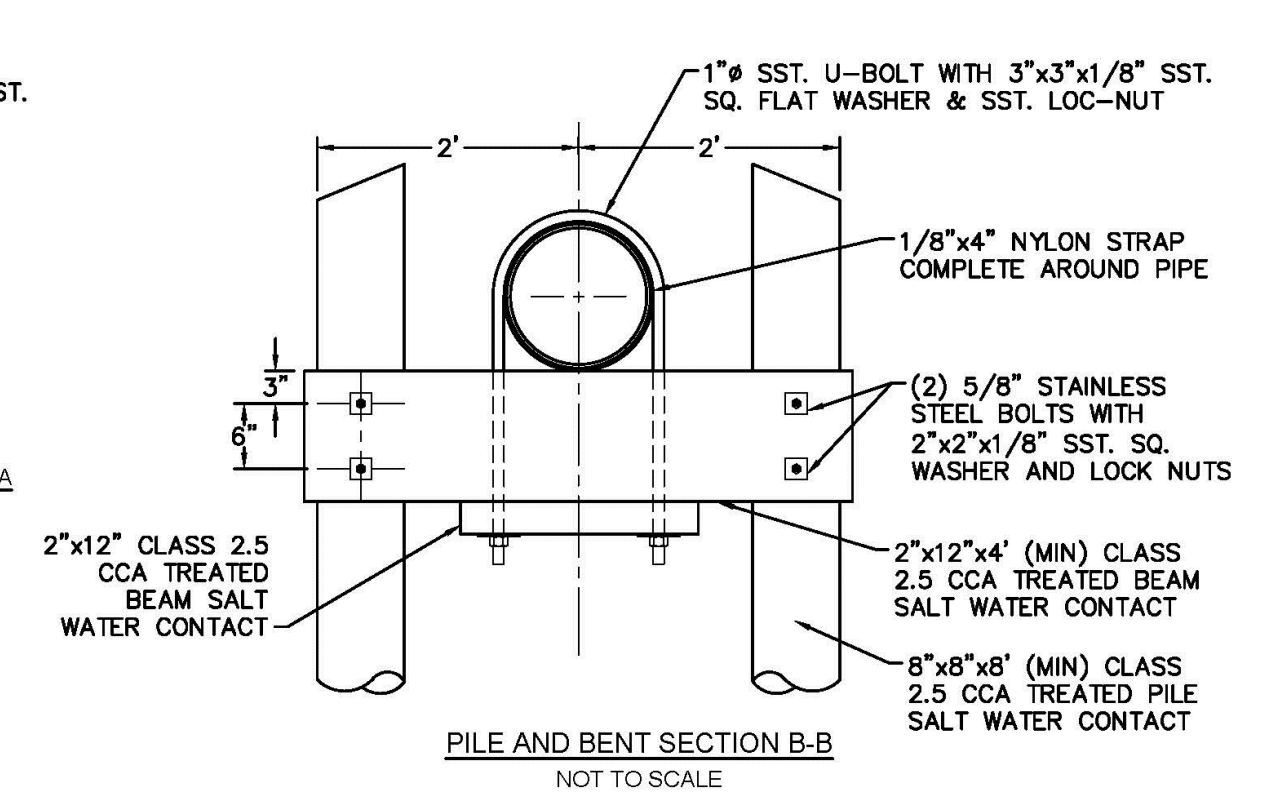
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- NOTES:**
- PILES AND PILE DRIVING SHALL CONFORM TO NCDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, JANUARY 2002, SECTIONS 445, 450, 1082-2 & 1084-2.
  - CENTERLINE OF BOLTS TO BE A MINIMUM OF 3" FROM OUTSIDE EDGE OF TIMBER. BOLTS TO BE A MINIMUM OF 3" CENTERLINE TO CENTERLINE.
  - ALL STAINLESS STEEL SHALL BE 316. STAINLESS STRAP TO BE COLD FORMED.
  - PILE SHALL NOT OBSTRUCT FLOW OR CAUSE EROSION OF DITCH/STREAM BANK.
  - MIN. CLASS 54 DIP-ENGINEER MUST DESIGN LOADING.
  - DESIGN SHALL BE APPROVED BY CFPUA.

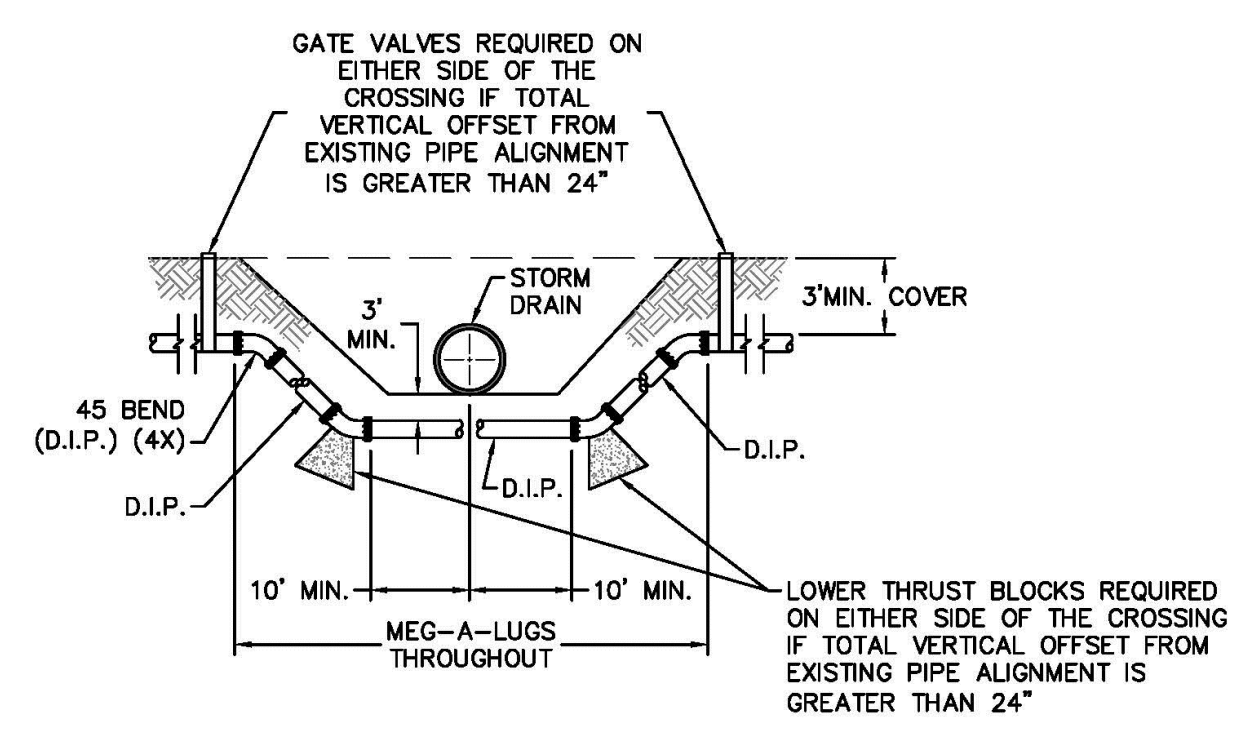


**SD-20 PILE AND BENT DETAIL**  
NOT TO SCALE



**SD-24 STRUCTURAL BRIDGING DETAIL FOR STORMWATER OVER GRAVITY SEWER INSTALLATIONS WITH LESS THAN 12" SEPARATION**  
NOT TO SCALE

- THE FOLLOWING MUST BE FOLLOWED IN THE CASES OF GRAVITY SEWER UNDER STORM DRAIN:**
- A SEPARATION OF LESS THAN 12" BETWEEN STORM DRAIN AND GRAVITY SEWER, STORM DRAIN MUST BE BRIDGED.
  - A SEPARATION OF 12" TO LESS THAN 24" BETWEEN STORM DRAIN AND GRAVITY SEWER, GRAVITY SEWER CAN BE DIP OR STORM DRAIN CAN BE BRIDGED. (PER DWR REGULATIONS)
  - A SEPARATION OF 24" OR GREATER BETWEEN STORM DRAIN AND GRAVITY SEWER REQUIRES NO BRIDGING OR DIP.



**SD-18 FORCE MAIN DITCH AND STORM DRAIN CROSSING**  
NOT TO SCALE

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**CITY OF WILMINGTON NORTH CAROLINA**  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

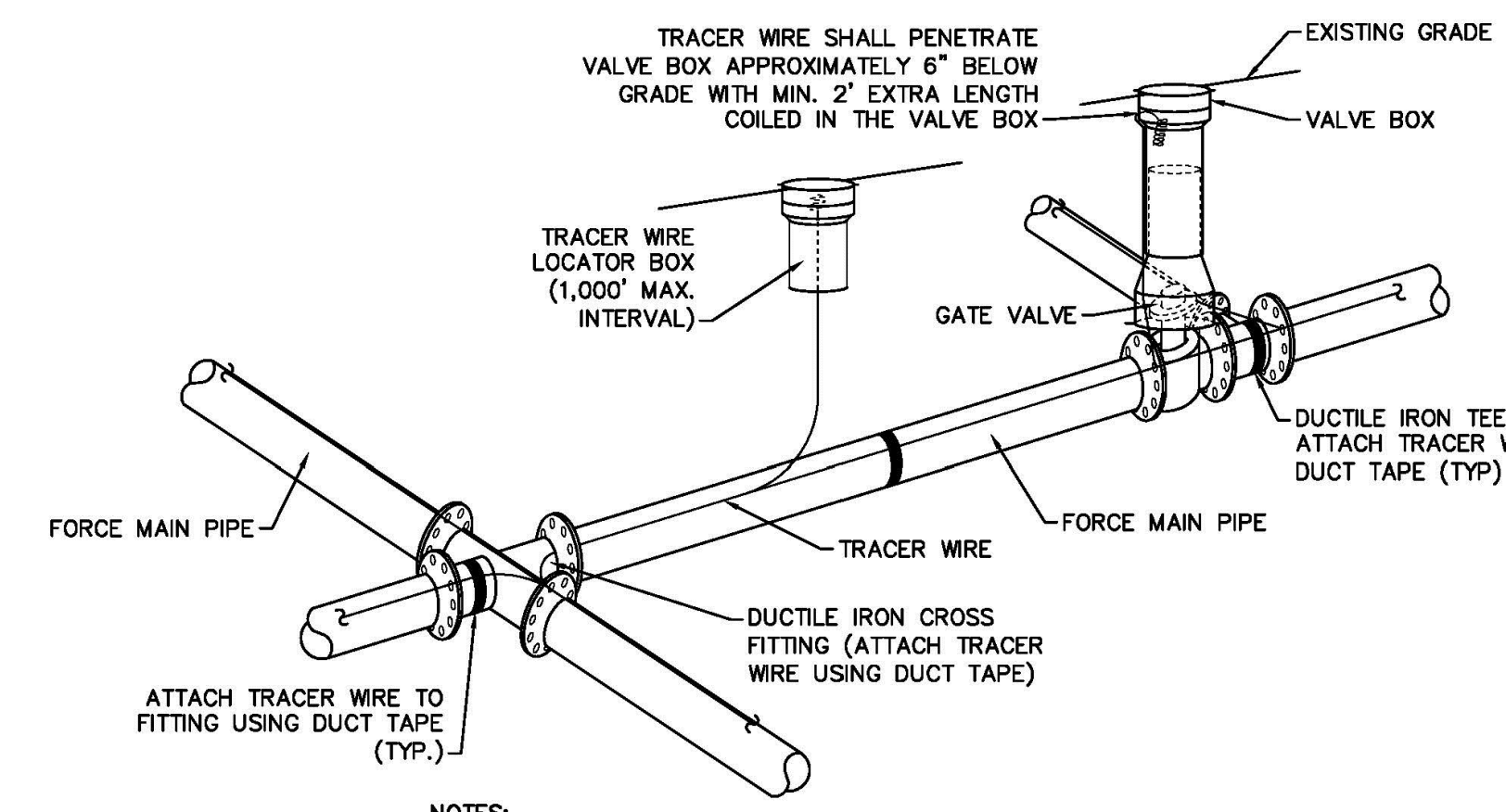
**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

- GENERAL NOTES:**
- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
  - THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
  - THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
  - THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
  - THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**



- NOTES:**
- TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION.
  - WIRE SHALL BE STRAPPED TO ALL PVC FORCE MAIN PIPING WITH DUCT TAPE AT 12 FOOT INTERVALS ALONG THE PIPE.
  - SECURE WIRE TO ALL TEE AND CROSS FITTINGS WITH DUCT TAPE.
  - ALL SPLICES IN THE WIRE SHALL BE MADE WITH 3M DBR DIRECT BURY SPLICE KIT AN UNDERGROUND RATED, WATERTIGHT, AND APPROVED SPLICE CONNECTOR OR APPROVED EQUAL.

**SD-21 TRACER WIRE DETAIL**  
NOT TO SCALE

REV:	DESCRIPTION:	DATE:
1	ADDED NOTES TO THE STRUCTURAL BRIDGING DETAIL	03/11/15
2	Revised Tracer Wire Detail	10/20/15
3	Revised Force Main Ditch and Storm Drain Crossing Detail	02/15/16

**CFPUA SANITARY SEWER**

**STANDARD DETAILS**

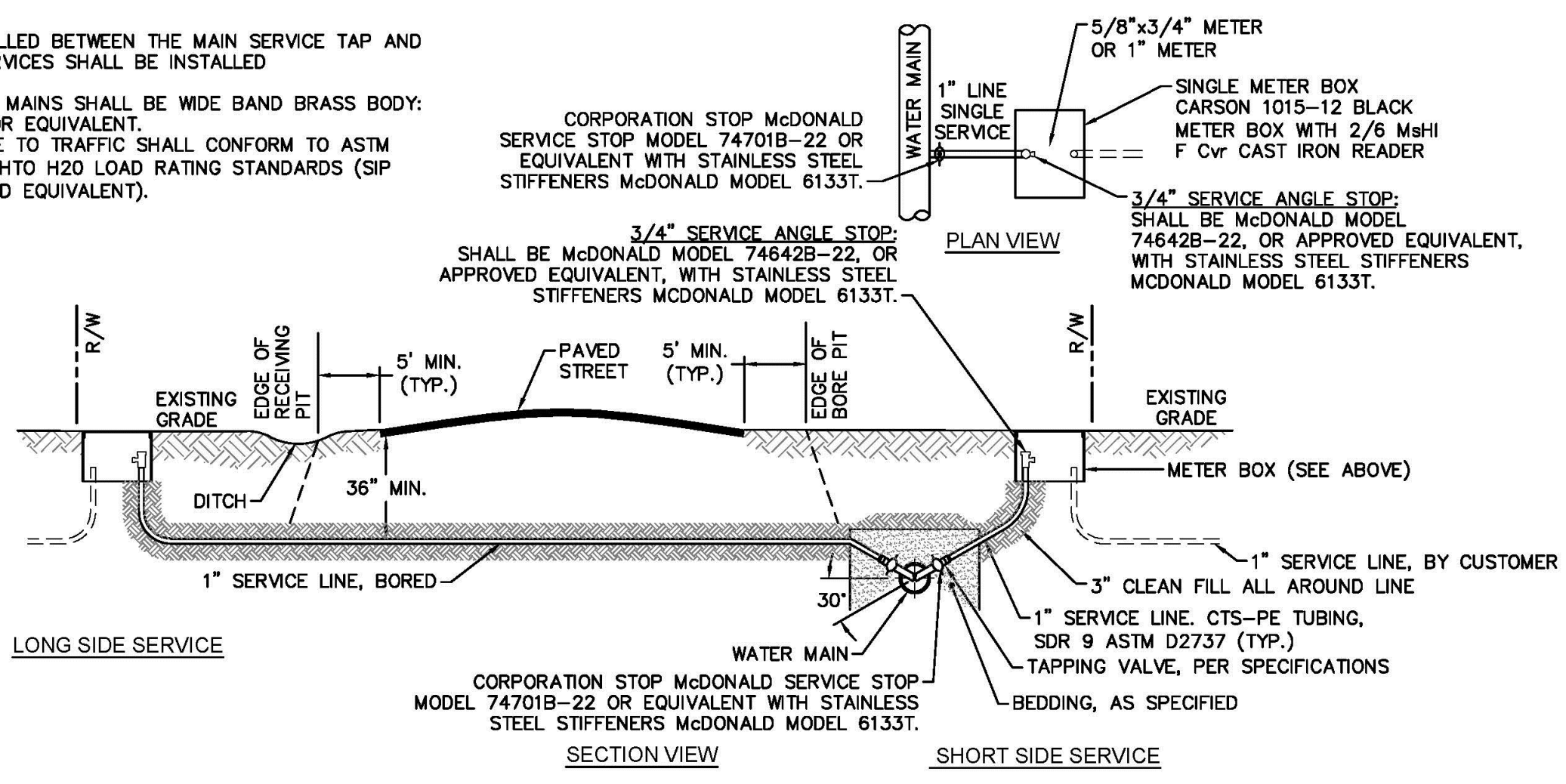
**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
235 GOVERNMENT CENTER DRIVE  
WILMINGTON, NC 28403  
OFFICE: (910)332-6560

DATE: 1/9/12  
SCALE: N/A  
DRAWN BY: CFPUA  
CHECKED BY: CFPUA  
PROJECT NO.:  
SHEET NO.: **SSD-3**

TYPICAL DETAILS NOTE:  
THE TYPICAL DETAILS ON THIS SHEET WERE DESIGNED AND PREPARED BY OTHERS.

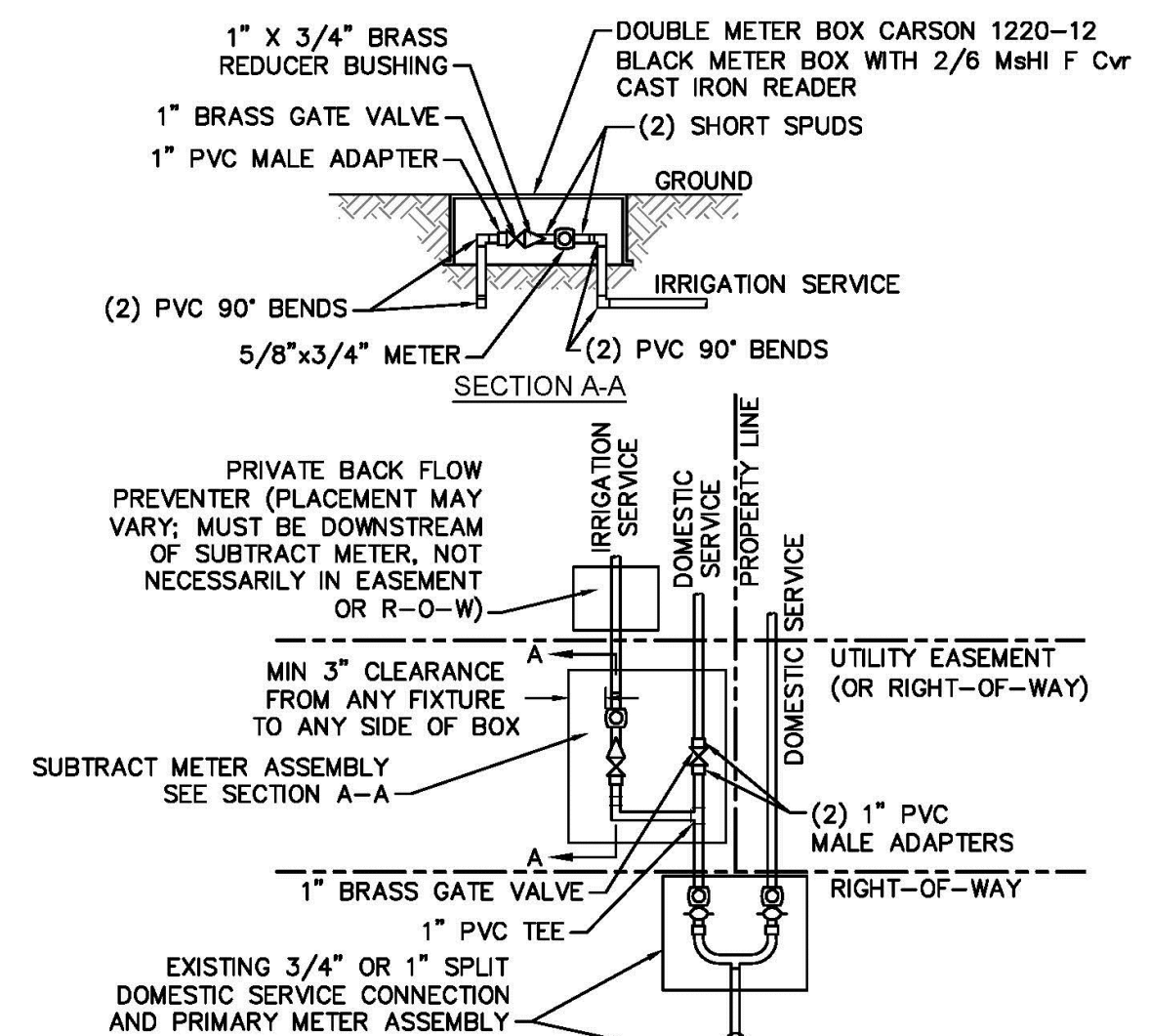
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- NOTES:**
- NO JOINT SHALL BE INSTALLED BETWEEN THE MAIN SERVICE TAP AND THE METER STOP. ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
  - SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: SADDLE McDONALD 3801 OR EQUIVALENT.
  - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (SIP MODEL 4242, OR APPROVED EQUIVALENT).



**NOTE:**  
TYPICAL WATER SERVICE CONNECTION FOR RESIDENTIAL SINGLE FAMILY HOME ON CFPUA WATER SYSTEM

**WD-18 SINGLE SERVICE CONNECTION**  
NOT TO SCALE



- NOTES:**
- BEYOND THE PRIMARY DOMESTIC METER ASSEMBLY, CFPUA IS ONLY RESPONSIBLE FOR METER AND WASHERS OF SUBTRACT METER ASSEMBLY.
  - ALL PIPE AND FITTINGS UP TO FINAL SERVICE LINE TO BE 1" EXCLUDING METERS.

**WD-8 DOUBLE SERVICE CONNECTION USING SUBTRACT METER**  
NOT TO SCALE

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

**Approved Construction Plan**

Name \_\_\_\_\_ Date \_\_\_\_\_

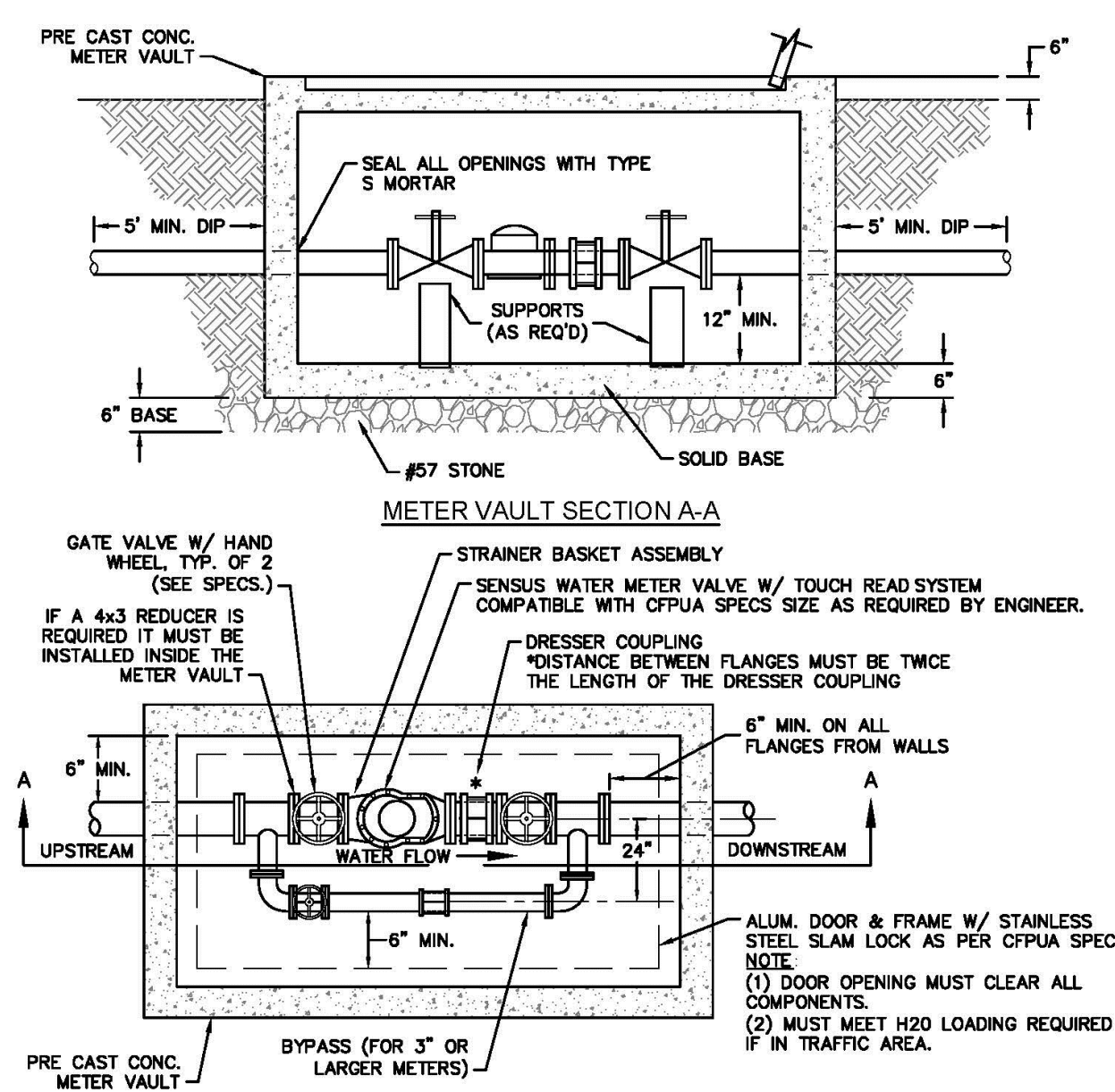
Planning \_\_\_\_\_  
Public Utilities \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

- NOTES:**
- JOINT RESTRAINT SYSTEMS SHALL BE WEDGE ACTION STYLE FOR DI PIPE AS MANUFACTURED BY EBAA IRON, SIGMA STAR PIPE PRODUCTS OR APPROVED EQUAL.
  - WHEN HYDRANT LEGS REQUIRE FULL LENGTH PIPE SECTIONS, OVER BELL RESTRAINT SYSTEM SHALL HAVE 316 STAINLESS STEEL HARNESS AND FASTENERS.
  - CONTINUOUS 316 STAINLESS STEEL RODS (TEE TO VALVE AND VALVE TO HYDRANT) MAY BE USED WITH COR-BLUE MJ 1-BOLT AND GASKET KITS, AS AN ALTERNATIVE.
  - HYDRANT AND VALVE SHALL BE PLACED OUTSIDE DITCH LIMITS.
  - WEEP HOLES OPEN AND UNBLOCKED TO DRAIN.

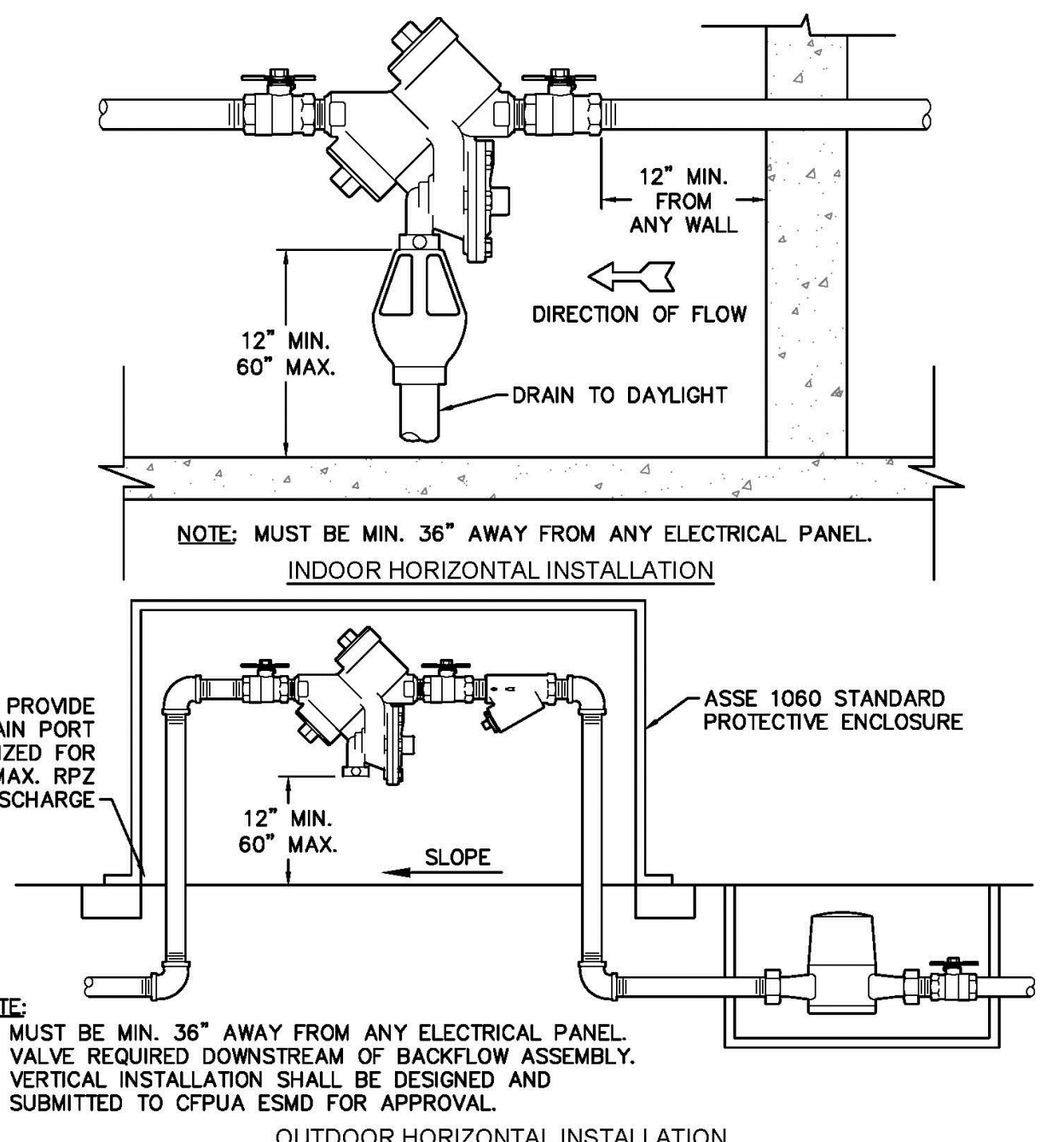
**WD-10 FIRE HYDRANT ASSEMBLY**  
NOT TO SCALE

- CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:**
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
  - WATER AND SEWER SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SEWER SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN END OF LINE MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
  - ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
  - MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
  - NO FLEXIBLE COUPLINGS SHALL BE USED.
  - ALL STAINLESS STEEL FASTENERS SHALL BE 316.
  - CLEANOUTS SHALL BE LOCATED A MINIMUM OF 12 FEET FROM ALL PROPERTY CORNERS. WATER METER BOXES ARE TO BE A MINIMUM OF 5 FEET FROM THE PROPERTY CORNER.

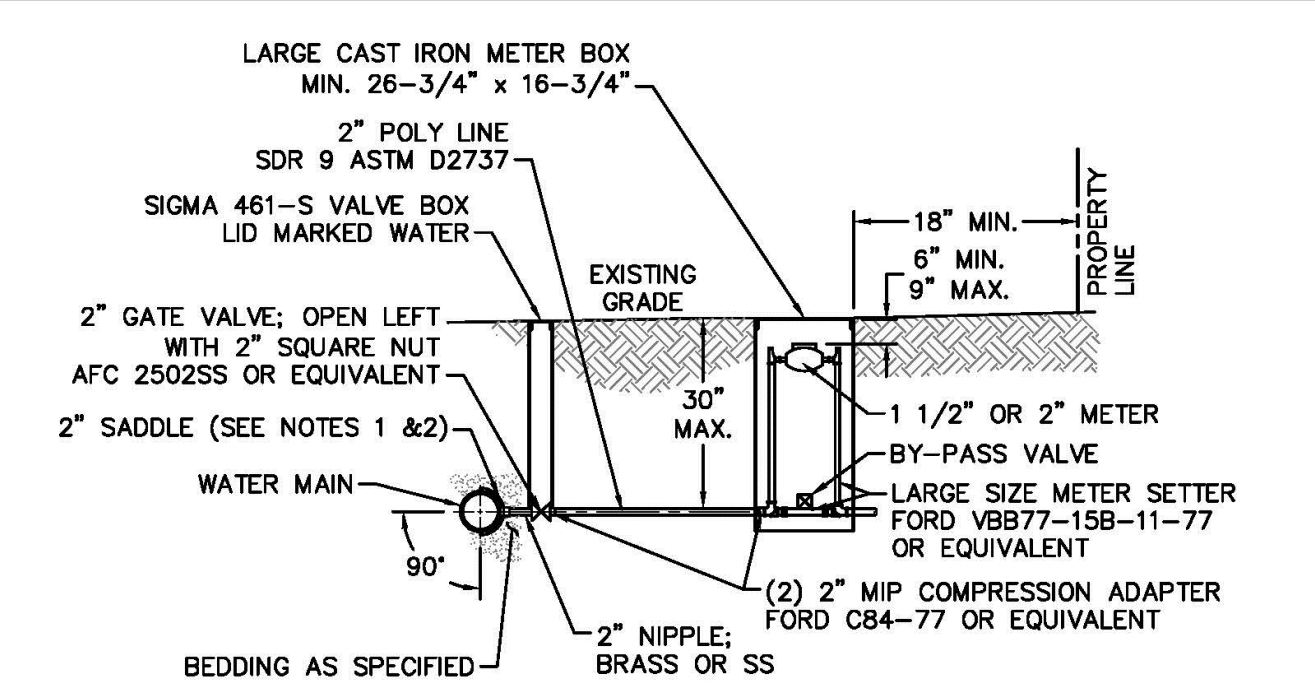
**WD-19 STANDARD NOTES**  
(REQUIRED ON ALL PLAN AND PROFILE SHEETS)



**WD-1 WATER METER VAULT**  
NOT TO SCALE

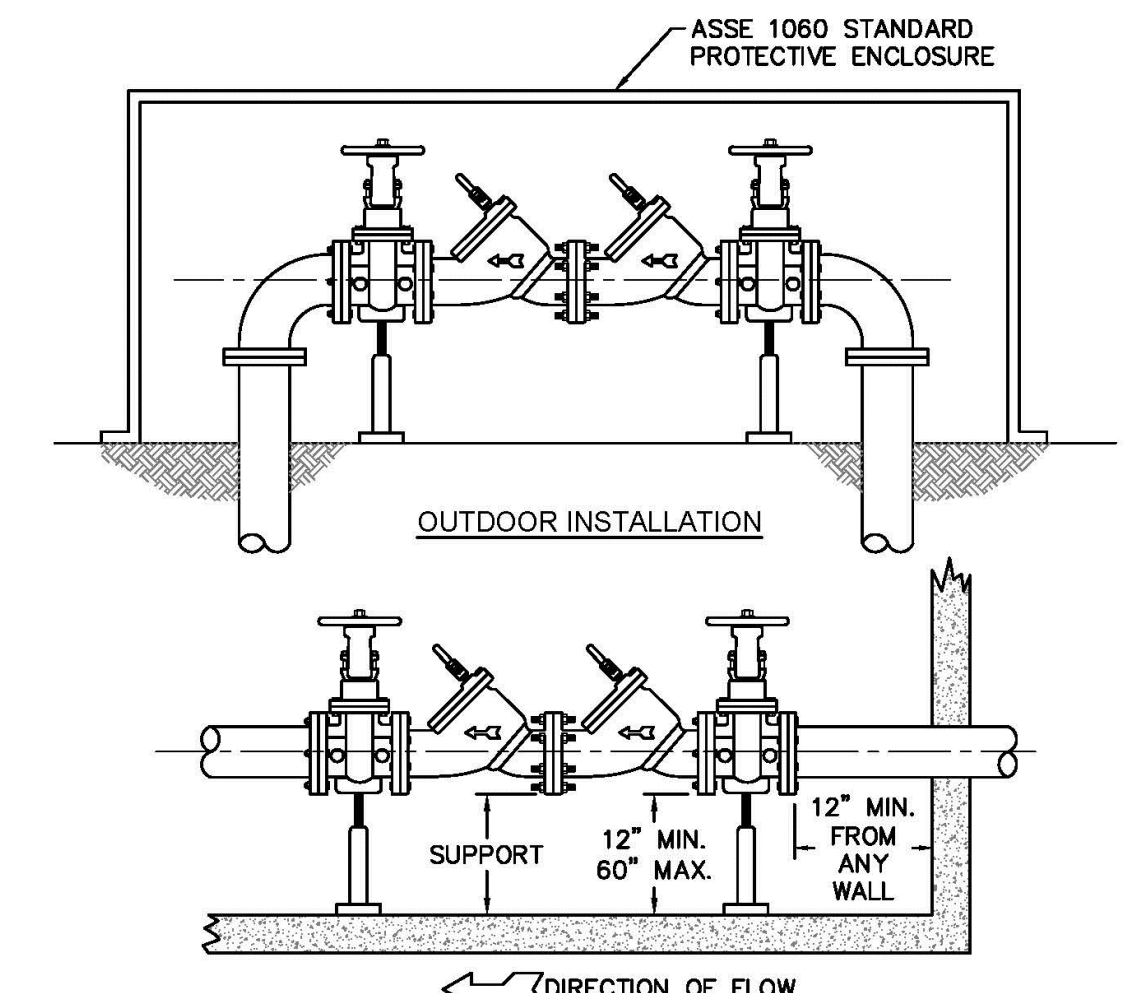


**WD-12 REDUCED PRESSURE PRINCIPLE ASSEMBLY**  
NOT TO SCALE



- NOTES:**
- ALL SERVICES SHALL BE INSTALLED PERPENDICULAR TO MAIN.
  - SERVICE SADDLES ON PVC MAINS SHALL BE WIDE BAND BRASS BODY: McDONALD 3800, FORD S90 (DOUBLE STRAP) OR EQUIVALENT.
  - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ASTM A48, CLASS 30B AND AASHTO H20 LOAD RATING STANDARDS (OLDCASTLE PRECAST MODEL B1730 OR APPROVED EQUIVALENT).
  - METER BOXES SUSCEPTIBLE TO TRAFFIC SHALL CONFORM TO ANSI/SCTE 77 TIER 15 LOAD RATING STANDARDS (SYNERTECH MODEL DUO 17x30 OR APPROVED EQUIVALENT).
  - NON-TRAFFIC METER BOXES SHALL BE SIGMA MB2203 OR APPROVED EQUIVALENT.
  - 3" CLEAN FILL REQUIRED ALL AROUND 2" POLY SERVICE LINE.

**WD-11 LARGE METER**  
NOT TO SCALE



- NOTE:**
- MUST BE MIN. 36" AWAY FROM ANY ELECTRICAL PANEL.
  - VALVE REQUIRED DOWNSTREAM OF BACKFLOW ASSEMBLY.
  - VERTICAL INSTALLATION SHALL BE DESIGNED AND SUBMITTED TO CFPUA ESDM FOR APPROVAL.

**WD-7 DOUBLE CHECK VALVE ASSEMBLY**  
NOT TO SCALE

**GENERAL NOTES:**

- NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
- THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UNDERGROUND UTILITIES BEFORE ANY CONSTRUCTION BEGINS.
- THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
- THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS.
- THE CONTRACTOR IS RESPONSIBLE FOR LAY DOWN AND STOCKPILE AREAS (TO ARRANGE AND ENSURE COMPLIANCE WITH ALL LOCAL AND STATE REGULATIONS).

**THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04**

REV.	DESCRIPTION:	DATE:
1	Single Service Connection, Double Service Connection and Large Meter Revised	10/28/12
2	Single Service Connection and Fire Hydrant Details Revised	7/23/13
3	Fire Hydrant Detail Revised	01/03/14
4	Revised Fire Hydrant Assembly To Show 5" STORZ Connection	04/10/15
5	Revised Fire Hydrant Assembly To Show Full DIP Hydrant Leg	01/19/16
6	Revised Water Meter Vault and Large Meter Details, Added Standard Notes	02/15/16

**CFPUA WATER DISTRIBUTION SYSTEM**

**STANDARD DETAILS**

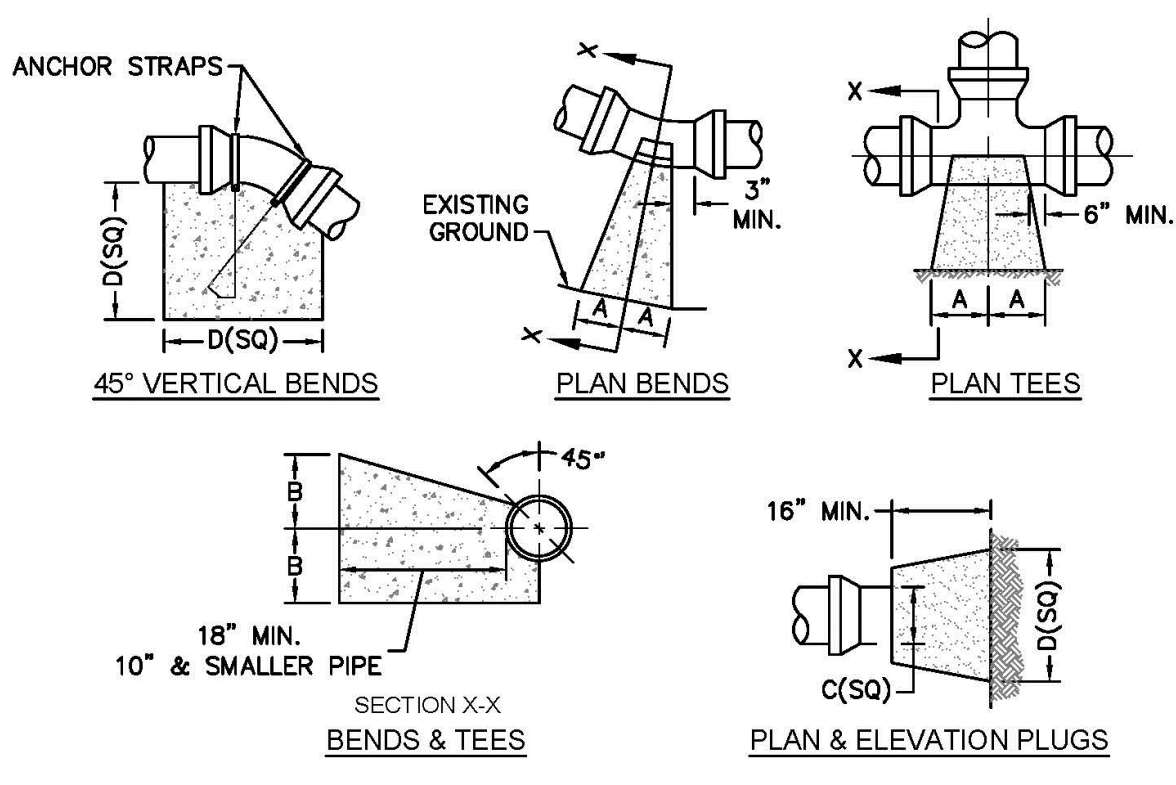
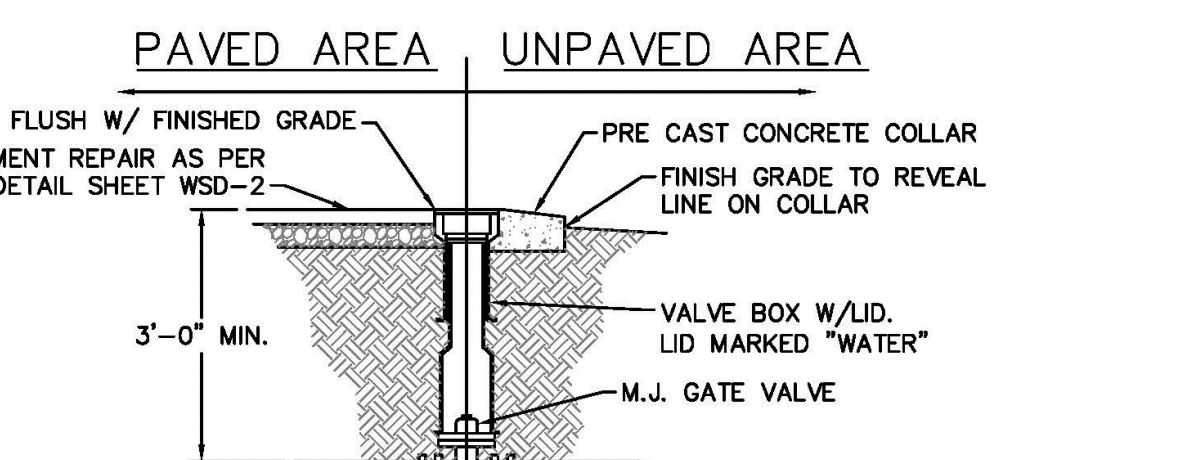
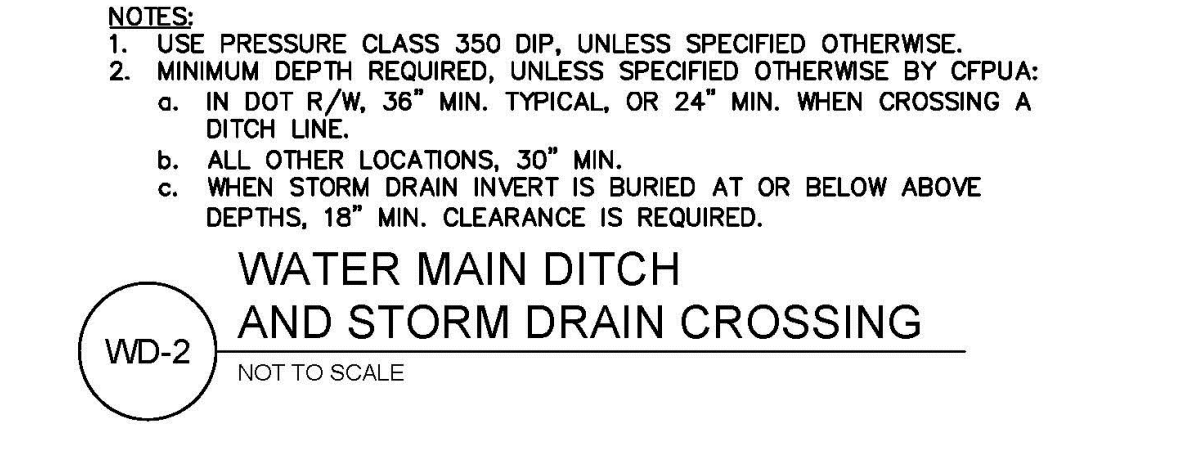
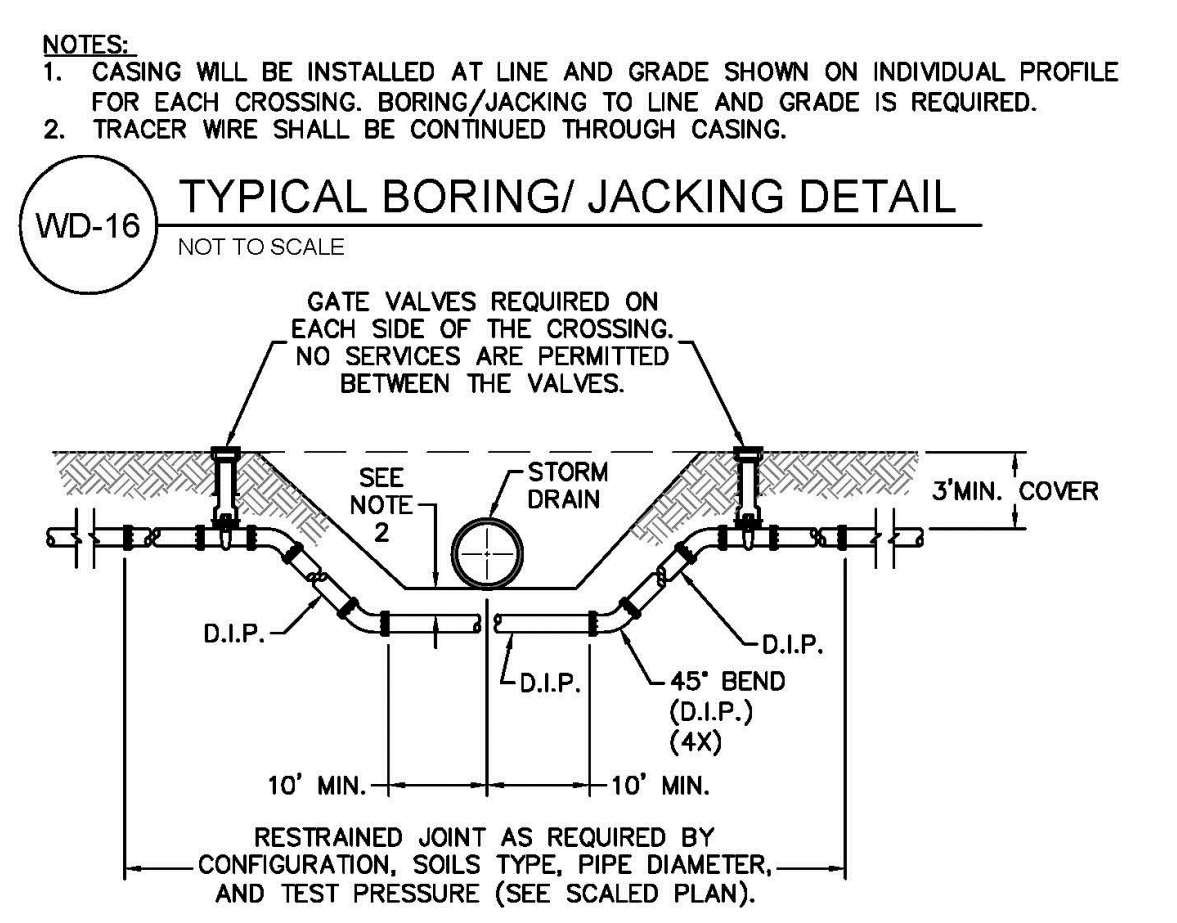
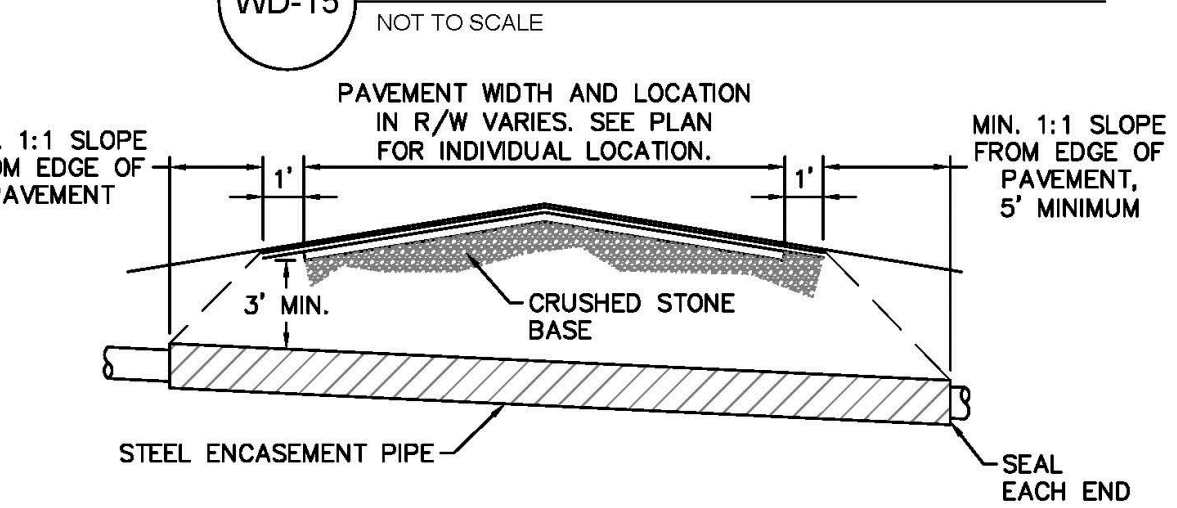
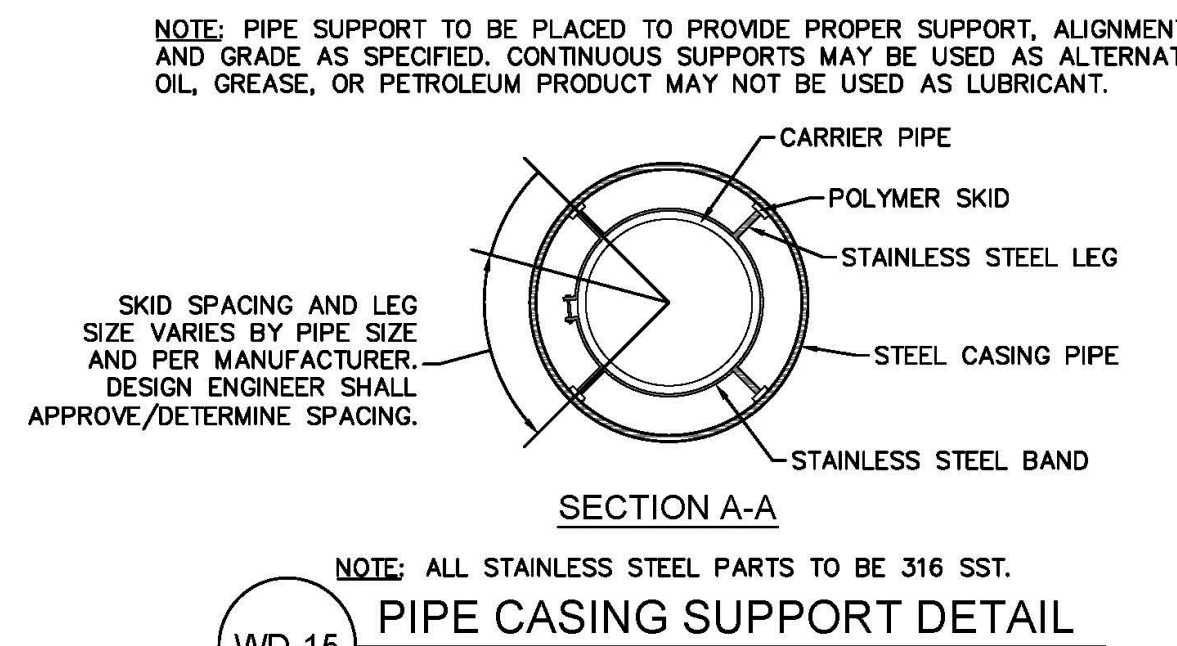
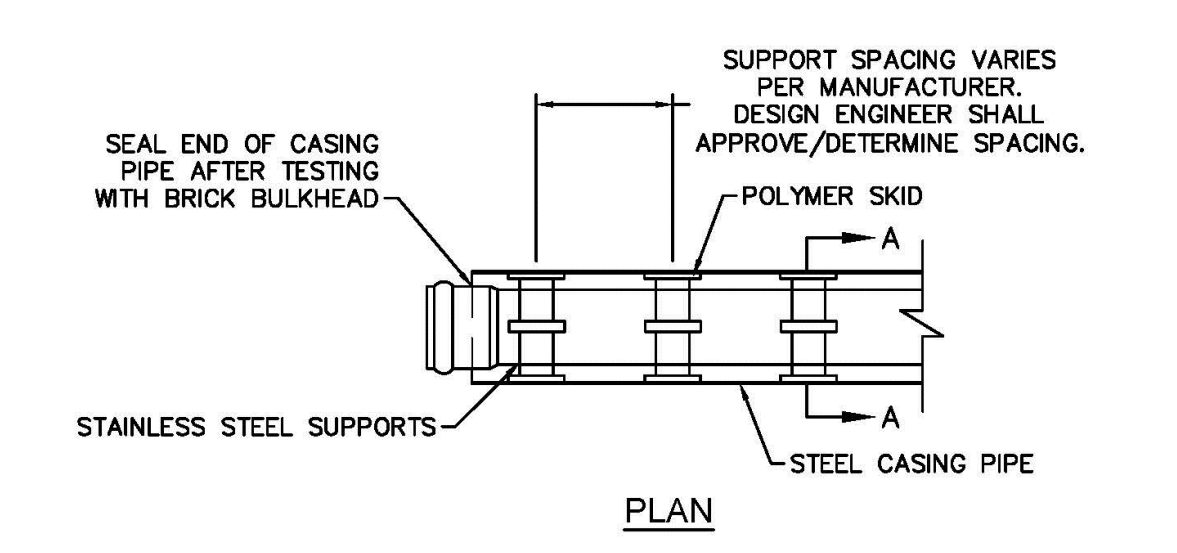
**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
235 GOVERNMENT CENTER DRIVE  
WILMINGTON, NC 28403  
OFFICE: (910)332-6560

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PROJECT NO.:

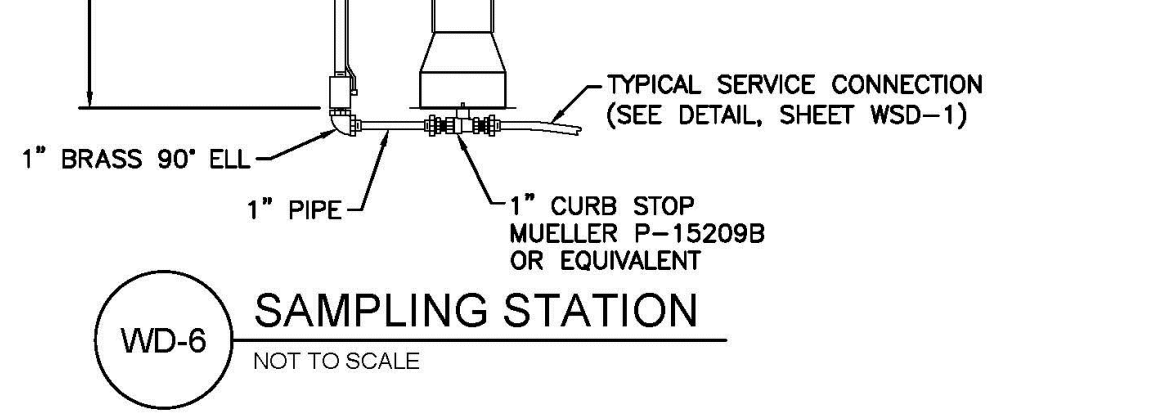
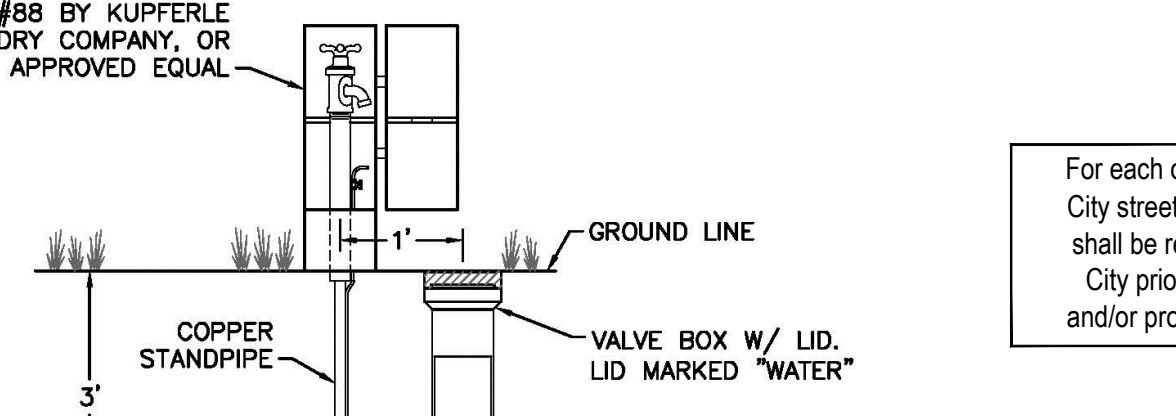
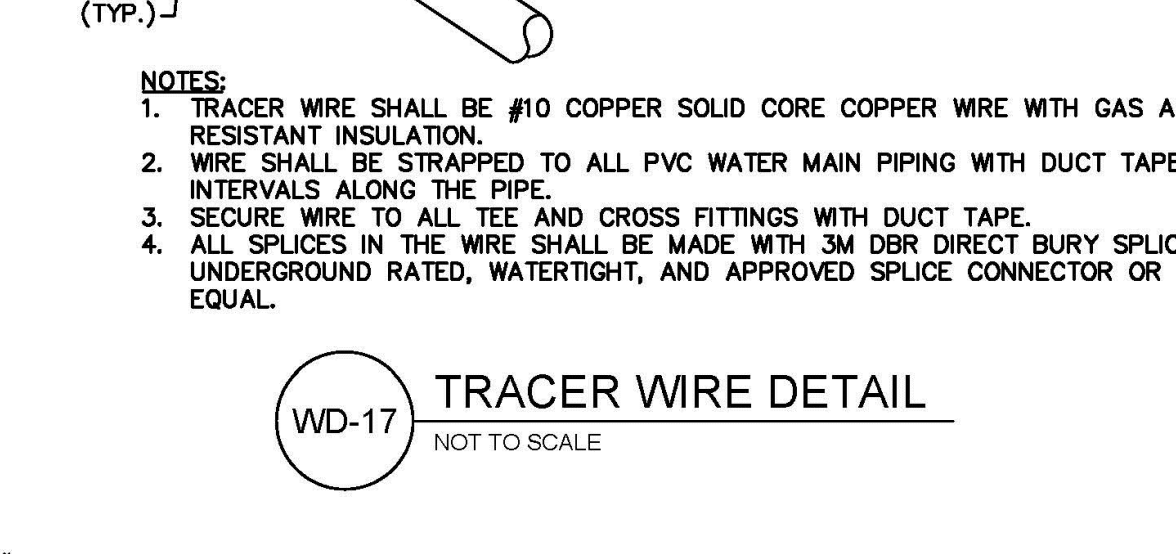
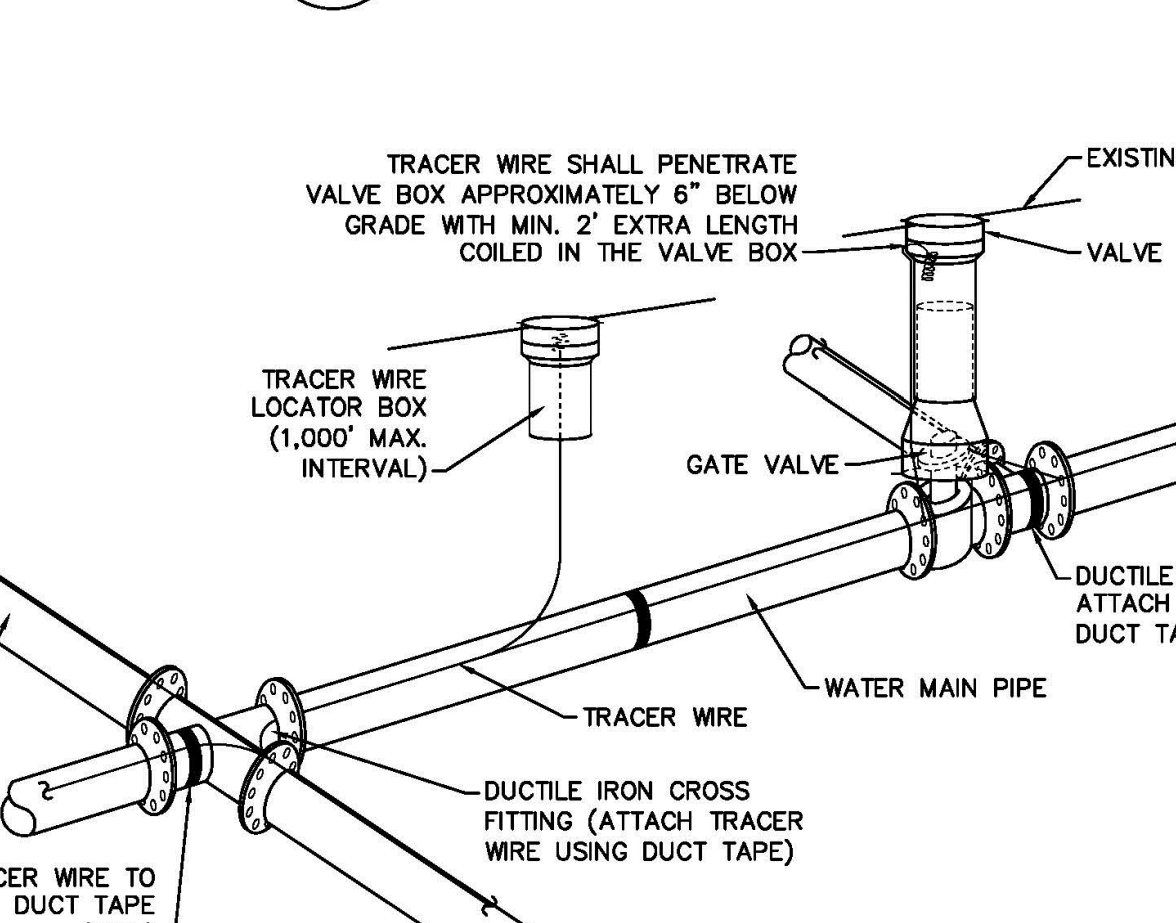
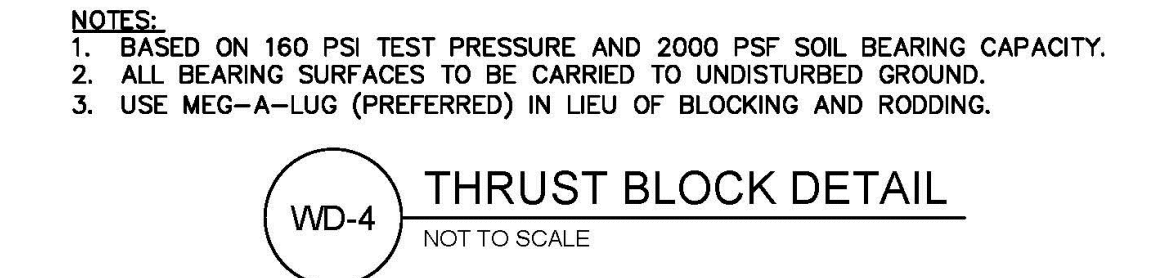
**SHEET NO. WSD-1**

**TYPICAL DETAILS NOTE:**  
THE TYPICAL DETAILS ON THIS SHEET WERE DESIGNED AND PREPARED BY OTHERS.



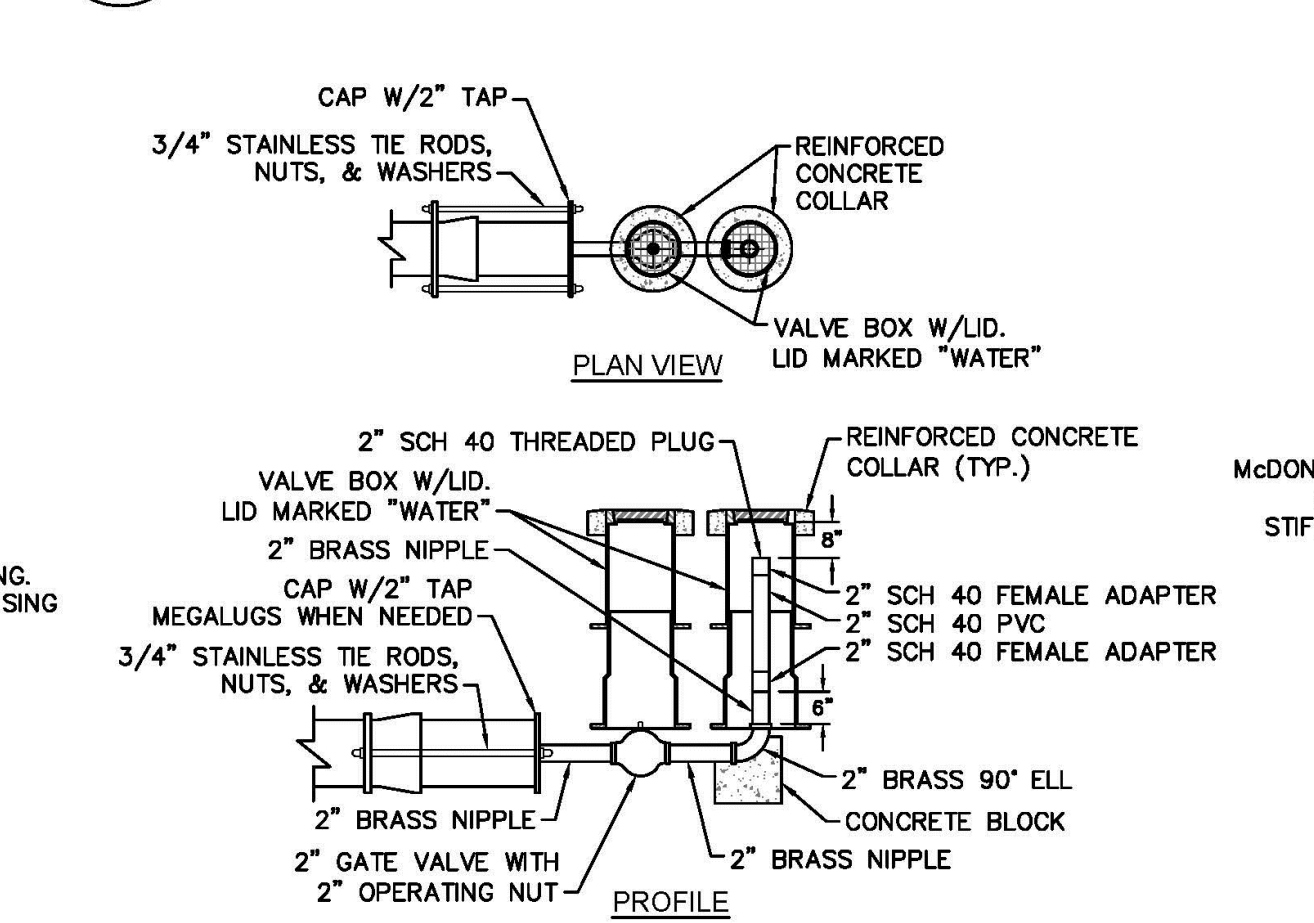


SIZE	90 BENDS		45 BENDS		22-1/2 BENDS		TEES/PLUGS		45 VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"
14"	26"	29"	21"	19"	18"	18"	26"	20"	72"
16"	33"	29"	25"	21"	20"	21"	32"	21"	83"
18"	40"	30"	28"	24"	22"	23"	36"	24"	88"



- NOTES:**
- BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
  - SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
  - 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
  - BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS.
  - SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
  - ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
  - ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
  - 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

(FOR PRIVATE ROADS AND PAVED AREAS, CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)



**APPROVED CONSTRUCTION PLAN**

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Planning \_\_\_\_\_

Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

REV:	DESCRIPTION:	DATE:
1	Revised Water Main Ditch and Storm Crossing Detail	11/12/13
2	Revised Water Main Ditch and Storm Crossing Detail	05/05/14
3	Revised Tracer Wire Detail	10/20/15
4	Added Backflow Preventer to Double Service Connection Detail	02/01/16
5	Revised Sampling Station Detail	02/15/16

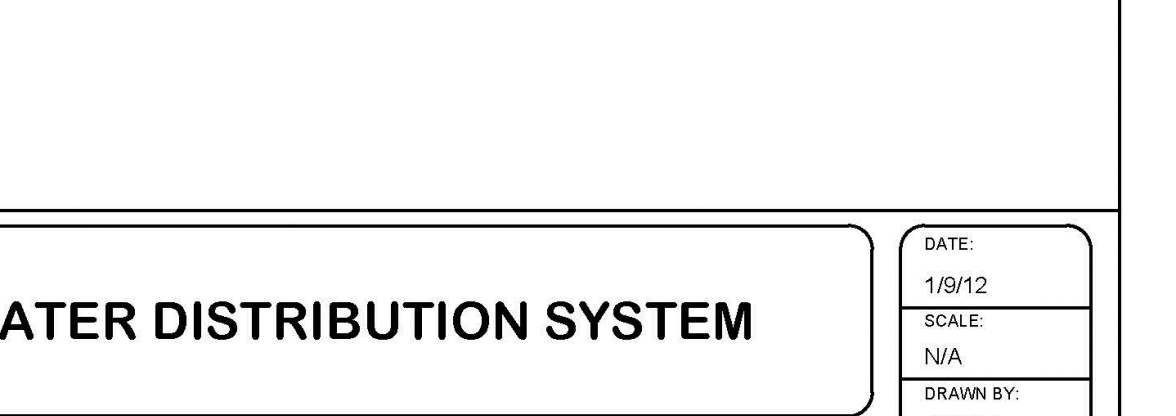
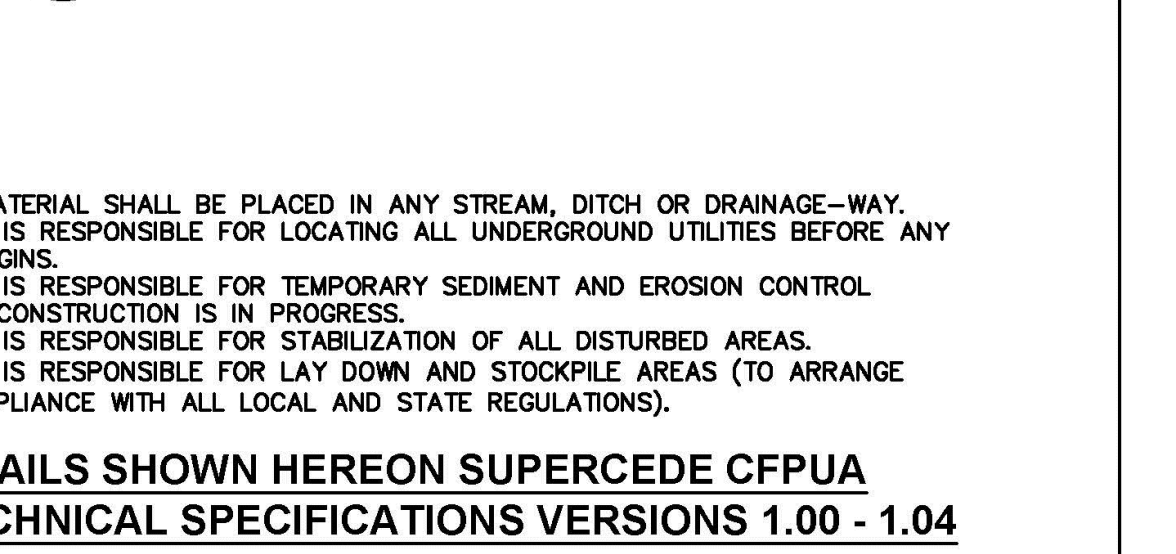
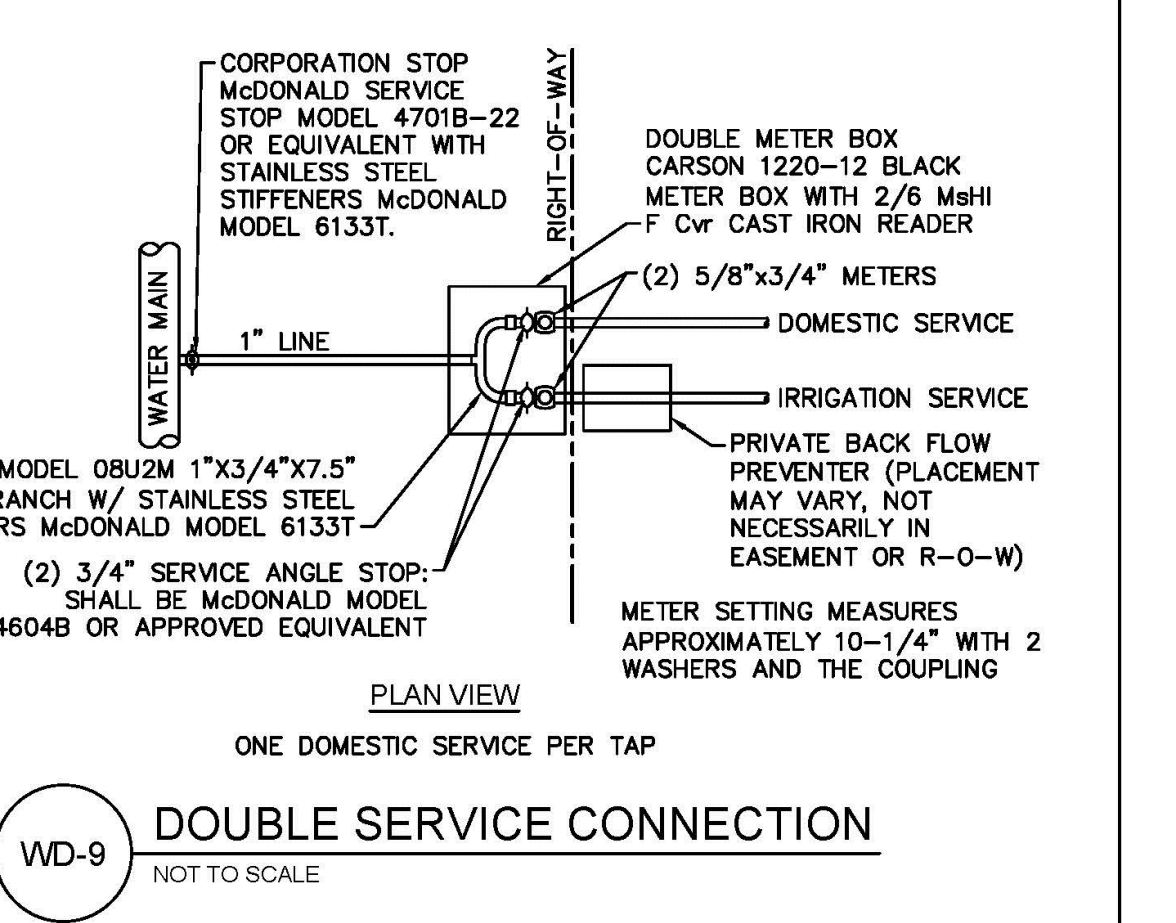
**CFPUA WATER DISTRIBUTION SYSTEM**

**STANDARD DETAILS**

**CAPE FEAR PUBLIC UTILITY AUTHORITY**  
235 GOVERNMENT CENTER DRIVE  
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OFFICE: (910)332-6560

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