

# MIDDLEBURG APARTMENT COMMUNITY

CITY OF WILMINGTON, NC

OCTOBER 4, 2019

## TECHNICAL REVIEW COMMITTEE SUBMITTAL

**COUNTY AND AGENCY CONTACTS**

- A. City of Wilmington**  
 Planning Department  
 102 North Third Street  
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 Wilmington, NC 28402-1810  
 (910)341-7800
- B. City of Wilmington**  
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 Wilmington, NC 28402-1810  
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- C. New Hanover County**  
 Sediment and Erosion Control  
 230 Government Center Drive, Suite 160  
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 Contact: Beth Wetherill  
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- D. Cape Fear Public Utility Authority**  
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 Wilmington, NC 28403  
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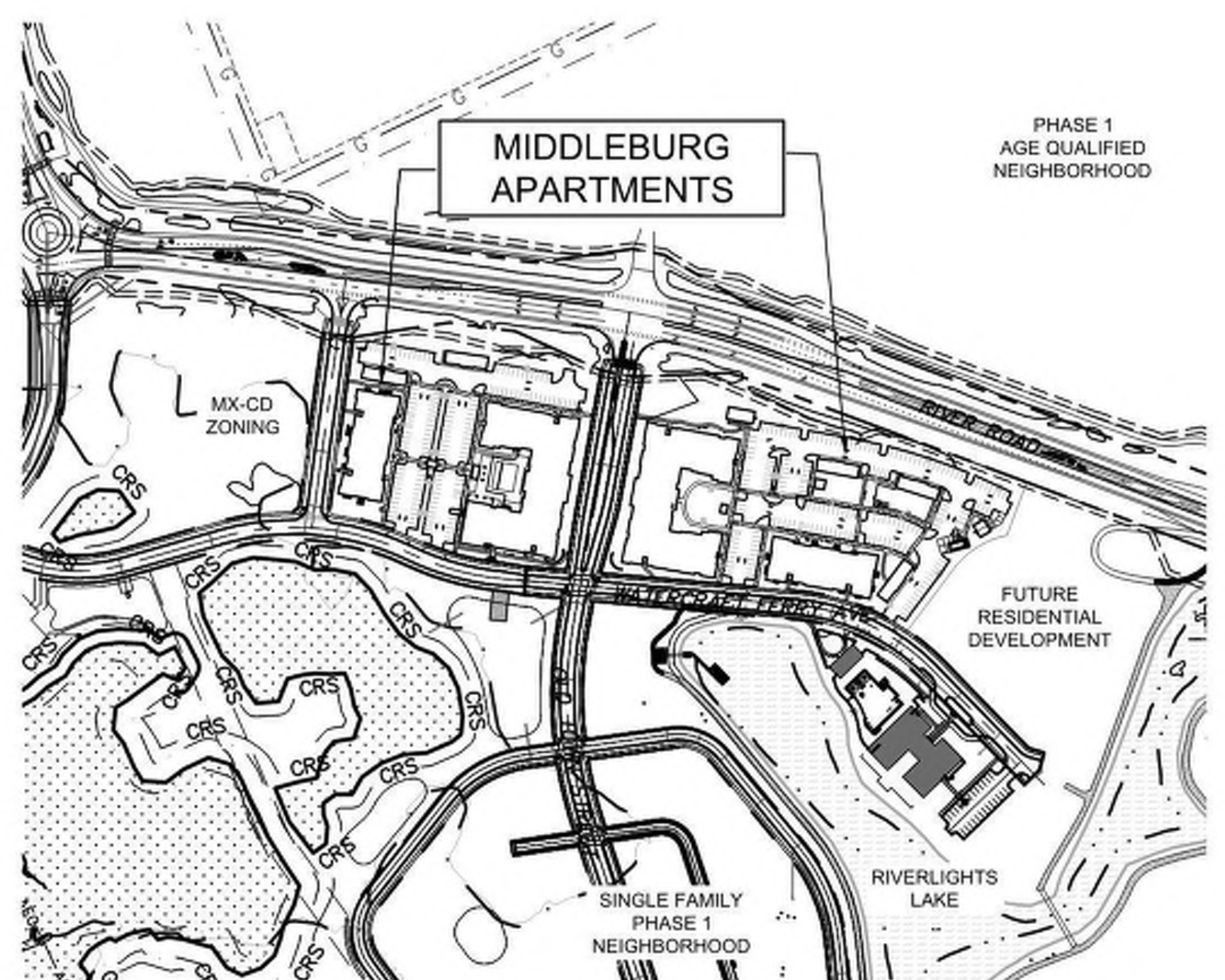
**PROJECT DATA**

**NAME OF PROJECT:**  
 MIDDLEBURG APARTMENT COMMUNITY  
 WILMINGTON, NORTH CAROLINA

**OWNER:**  
 NNP IV-CAPE FEAR RIVER, LLC  
 109 PIER MORGAN POINT, SUITE 100  
 WILMINGTON, NC 28412  
 PHONE: (910) 405-1234

**DEVELOPER:**  
 MIDDLEBURG REAL ESTATE PARTNERS  
 103 EAST PARK AVENUE  
 GREENVILLE, SC 29601  
 CONTACT: ALEXI PAPAPIERIS  
 PHONE: (864) 444-5590  
 EMAIL: ALEXIP@LIVEMIDDLEBURG.COM

**PREPARED BY:**  
 MCKIM & CREED, INC  
 243 NORTH FRONT ST  
 WILMINGTON, NC 28401  
 PHONE: (910)343-1048  
 FAX: (910)251-8282  
 CONTACT: RICHARD COLLIER, PE  
 EMAIL: RCOLLIER@MCKIMCREED.COM



VICINITY MAP  
1-500'

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Approved Construction Plan

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

Planning: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_

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**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.

1 inch



**MCKIM & CREED**  
 243 North Front Street  
 Wilmington, North Carolina 28401  
 Phone: (910)343-1048 , Fax: (910)251-8282  
 License: F-1222  
 www.mckimcreed.com

ISSUED FOR PERMITTING  
 NOT FOR CONSTRUCTION



10-04-2019

**CONSTRUCTION NOTES**

- CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CITY OF WILMINGTON STANDARDS AND SPECIFICATIONS.
- CONTRACTOR IS FULLY RESPONSIBLE FOR ACQUIRING THE LOCATION OF EXISTING UTILITIES FROM THE APPROPRIATE PARTIES PRIOR TO CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR PLACING BARRICADES, USING FLAGMEN, ETC. AS NECESSARY TO ENSURE SAFETY TO THE PUBLIC.
- THESE DRAWINGS SHOW INFORMATION OBTAINED FROM THE AVAILABLE RECORDS REGARDING PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES AND CONDITIONS WHICH EXIST ALONG THE LINES OF WORK AND BELOW THE SURFACE OF THE GROUND. THE OWNER AND ENGINEER DISCLAIM ANY RESPONSIBILITIES FOR THE ACCURACY OR COMPLETENESS OF SAID INFORMATION, AND SUCH INFORMATION IS BEING SHOWN ONLY FOR THE CONVENIENCE OF THE CONTRACTOR WHO MUST VERIFY THE INFORMATION TO HIS OWN SATISFACTION DURING THE BIDDING AND CONSTRUCTION PHASES. IF THE CONTRACTOR RELIES ON SAID INFORMATION, HE DOES SO AT HIS OWN RISK. THE GIVING OF THE INFORMATION ON THE CONTRACT DRAWINGS WILL NOT RELIEVE THE CONTRACTOR OF HIS OBLIGATIONS TO SUPPORT AND PROTECT ALL PIPES, CONDUITS, TELEPHONE LINES, AND OTHER STRUCTURES, WHETHER ABOVE OR BELOW GRADE.
- SHOULD ANY DAMAGE OCCUR TO EXISTING UTILITIES, IT SHALL BE REPAIRED SOLELY AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL VERIFY EXISTING INVERTS PRIOR TO CONSTRUCTION OF UNDERGROUND UTILITIES. TESTING LINES PRIOR TO CONSTRUCTION, IF NECESSARY, SHALL BE COORDINATED WITH THE OWNER.
- ALL MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM TO THE DRAWINGS, PROJECT SPECIFICATIONS, AND LOCAL BUILDING CODES.
- ALL DISTURBED AREAS SHALL BE SMOOTHLY GRADED TO PROMOTE POSITIVE DRAINAGE AND STABILIZED WITH TOPSOIL, SEED, AND MULCH. IF SETTLEMENT OCCURS, TOPSOIL, SEEDING, AND MULCH SHALL BE REPEATED UNTIL SETTLEMENT SUBSIDES. (SEE EROSION AND SEDIMENT CONTROL DETAILS AND SPECIFICATIONS.)
- WATER MAINS WILL BE INSTALLED AT A DEPTH THAT WILL PROVIDE 36" COVER OVER THE PIPES BELOW PROPOSED GRADE UNLESS SHOWN OTHERWISE ON THESE PLANS OR DIRECTED OTHERWISE BY THE ENGINEER.
- ALL WATER VALVES, BOXES, AND FIRE HYDRANT ASSEMBLIES SHALL BE SET AND ADJUSTED TO FINISHED GRADE.
- THE OWNER IS RESPONSIBLE FOR THE ACQUISITION OF ALL EASEMENTS, BOTH TEMPORARY AND PERMANENT.
- THE CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL SURVEY CONTROL PRIOR TO STAKING OUT CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
- ANY PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE REPLACED SOLELY AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR ANY DEVIATION FROM THESE PLANS.
- FIRE HYDRANTS SHALL BE PLACED A MINIMUM DISTANCE OF 6 FEET FROM BACK OF CURB AND SHALL HAVE A CLEAR SPACE OF 3 FEET FROM ANY PERMANENT STRUCTURE PER CFPWA STANDARDS.
- ALL SELECT AND BORROW MATERIAL SHALL MEET CRITERIA SET FORTH BY SECTIONS 1016 AND 1018 OF THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION'S STANDARDS AND SPECIFICATIONS FOR ROADS AND STRUCTURES. SEE SECTION FOR PLACEMENT AND COMPACTION INFORMATION.
- THE ENGINEER AND THE CONTRACTOR SHALL INSPECT ALL EXISTING PIPES USED IN THE FINAL DRAINAGE SYSTEM AND AGREE ON THE CONDITION OF THE PIPES PRIOR TO CONSTRUCTION. IF DAMAGE OCCURS TO THESE PIPES DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF THE PIPE(S).
- EXISTING PAVING, CONCRETE, AND OTHER UNSUITABLE MATERIALS INCLUDING UNDERCUT EXCAVATION SHALL NOT BE USED AS FILL MATERIAL AND SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITTING AND FEES FOR DISPOSAL.
- ALL TREES, STUMPS, ROOT MAT, ETC. SHALL BE ENTIRELY REMOVED REGARDLESS OF DEPTH. BURIAL OF ORGANIC MATERIAL WITHIN THE PROJECT LIMITS IS NOT PERMITTED. OPEN BURNING OF DOWNED TREES AND STUMPS IS NOT PERMITTED. CHIPPED MATERIALS MUST BE REMOVED PRIOR TO THE PLACEMENT OF EMBANKMENT OR TOPSOIL.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO OBTAIN OFF-SITE SPOIL AREAS FOR DISPOSAL OF EXCESS AND/OR UNSUITABLE MATERIALS AS NECESSARY. OFF-SITE SPOIL AREAS MUST BE SUBMITTED TO THE ENGINEER AND APPLICABLE REGULATORY AGENCIES PRIOR TO UTILIZATION BY THE CONTRACTOR. NO AREAS DESIGNATED AS WETLANDS WILL BE PERMITTED FOR USE AS A DISPOSAL SITE. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION TO THE ENGINEER THAT NO WETLANDS WILL BE IMPACTED. THE ENGINEER WILL NOT CONSIDER ANY DELAYS OR MONETARY CLAIMS OF ANY NATURE RESULTING FROM THE CONTRACTOR'S FAILURE OR DELAY IN FINDING NECESSARY OFF-SITE SITES TO MEET THE TIME FRAMES AND CAPACITIES REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLANS, PERMITS, EROSION AND SEDIMENT CONTROL MEASURES, ETC. REQUIRED BY THE APPLICABLE REGULATORY AGENCIES FOR UTILIZING OFF-SITE SPOIL AREAS. THE CONTRACTOR SHALL CERTIFY TO THE ENGINEER THAT ALL REQUIRED PERMITS HAVE BEEN OBTAINED PRIOR TO UTILIZING THE OFF-SITE SPOIL AREAS. ALL COSTS FOR PROCURING AND UTILIZING THE OFF-SITE SPOIL AREAS ARE TO BE INCIDENTAL TO THE BASE BID.

**DEMOLITION NOTES**

- THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIARIZED WITH FIELD DEMOLITION CONDITIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL DEMOLISHED DEBRIS ASSOCIATED WITH THE PROJECT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING DUST GENERATED BY THE WORK, INCLUDING BUT NOT LIMITED TO DEMOLITION AND CONSTRUCTION ACTIVITIES, SITE VEHICULAR TRAFFIC AND RELATED OPERATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR HAVING ALL EXISTING UTILITIES LOCATED PRIOR TO BEGINNING ANY DEMOLITION. CONTRACTOR SHALL CONTACT NC ONE CALL AT LEAST 72 HOURS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED.
- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON FIELD SURVEY AND THE BEST AVAILABLE RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE AND ENGINEER IMMEDIATELY.
- THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF DISCONNECTING AND ABANDONING ALL EXISTING UTILITIES WITH THE OWNER UNLESS OTHERWISE NOTED. ALL EXISTING UTILITIES AND ASSOCIATED PIPING, ETC. NOT IN USE ON THE SITE SHALL BE PROPERLY ABANDONED AND REMOVED AS REQUIRED. COORDINATE WITH THE OWNER.
- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES THAT REMAIN IN SERVICE DURING DEMOLITION.
- THE CONTRACTOR IS RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS AND SLOPES ON AND OFF SITE IN ACCORDANCE WITH THE EROSION CONTROL MEASURES SPECIFIED ON THE PLANS AND IN THE SPECIFICATIONS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DETERMINE WHO IS RESPONSIBLE FOR PROVIDING THE PERMANENT STABILIZATION MEASURES AND THE TYPE OF PERMANENT MEASURES PRIOR TO BEGINNING DEMOLITION AND CONSTRUCTION. THE PERMANENT STABILIZATION MEASURES SHALL BE IN PLACE AND ACCEPTABLE TO THE OWNER'S REPRESENTATIVE AND ENGINEER PRIOR TO PROJECT CLOSEOUT. COORDINATE INSPECTION WITH THE OWNER AND ENGINEER PRIOR TO PROJECT CLOSEOUT.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND CONTACTING THE ENGINEER FOR THE REQUIRED INSPECTIONS ON THE PROJECT.
- WETLANDS DO NOT EXIST ON SITE. WETLANDS WILL NOT BE DISTURBED DURING CONSTRUCTION OF THIS PROJECT.

**TRANSPORTATION PLANNING**

**GENERAL NOTES**

- INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAYMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING
- 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. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATIONS OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.

**EXCAVATION, GRADING, AND BACKFILLING NOTES**

- ANY UNDERCUTTING IN GOOD SOIL SHALL BE REPLACED AND THE REPLACEMENT MATERIAL SHALL BE COMPACTED TO NINETY-FIVE (95) PERCENT OF MAXIMUM DENSITY OBTAINED AT OPTIMUM MOISTURE CONTENT, AS DETERMINED BY THE ASTM D 698 STANDARD PROCTOR TEST METHOD. IN THE EVENT THAT MATERIAL ENCOUNTERED AT PIPE GRADE, SUBGRADE OF PARKING OR ROADWAYS AND SUBGRADE OF BUILDING FOUNDATIONS IS FOUND TO BE SOFT, SPONGY, OR IN ANY OTHER WAY UNSUITABLE, THE CONTRACTOR SHALL NOTIFY THE GEOTECHNICAL ENGINEER IMMEDIATELY. SUCH UNSUITABLE MATERIAL SHALL BE REMOVED TO A DEPTH AS SPECIFIED BY THE GEOTECHNICAL ENGINEER AND REPLACED WITH A MINIMUM OF SIX (6) INCHES OF STONE, OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- BEFORE BACKFILLING IS COMMENCED OVER PIPES AND OTHER INSTALLATIONS, EARTH FILL SHALL BE SOLIDLY TAMPED AROUND AND ABOVE THE PIPE TO A DEPTH OF ONE (1) FOOT ABOVE THE TOP OF THE PIPE. CARE SHALL BE TAKEN TO PREVENT ANY DISTURBANCE TO THE PIPE OR DAMAGE TO NEWLY MADE JOINTS. THE FILLING OF THE TRENCH SHALL BE CARRIED OUT SIMULTANEOUSLY ON BOTH SIDES OF THE PIPES IN SUCH A MANNER THAT INJURIOUS SIDE PRESSURES DO NOT OCCUR.
- THE MATERIAL FOR BACKFILLING SHALL BE FREE FROM ALL PERISHABLE AND OBJECTIONABLE MATERIALS. BEFORE PLACING ANY BACKFILL, ALL RUBBISH, FORM, BLOCKS, WIRES OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM EXCAVATION. THE BACK-FILLING OVER PIPES SHALL BE PLACED IN LAYERS NOT OVER SIX (6) INCHES THICK AND COMPACTED TO A MINIMUM DENSITY OF NINETY-FIVE (95) PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST TO A DEPTH OF 12 INCHES BELOW FINISHED GRADE. THE LAST 12 INCHES OF BACKFILL SHALL BE PLACED IN LAYERS NOT OVER SIX (6) INCHES THICK AND COMPACTED TO A MINIMUM DENSITY OF NINETY-EIGHT (98) PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR COMPACTION TEST.

**STORM DRAINAGE AND GRADING NOTES**

- IN ACCORDANCE WITH NC GENERAL STATUTES, NPDES REGULATIONS, AND NCDENR REQUIREMENTS, STORMWATER DISCHARGE OUTFALLS SHALL BE INSPECTED BY THE CONTRACTOR. INSPECTIONS SHALL BE PERFORMED BY THE CONTRACTOR AFTER EACH STORM EVENT OF 1/2 INCH OR GREATER, WITH ONE WEEKLY INSPECTION MINIMUM. NCDENR STANDARD INSPECTION REPORTS SHALL BE PREPARED AND SIGNED WITH COPIES PROVIDED TO THE OWNER, ARCHITECT, AND ENGINEER, BY THE CONTRACTOR.
- INLET PROTECTION SHALL BE INSTALLED AROUND OUTFALL. DEVICES SHALL BE CONSTRUCTED TO FINAL PROPOSED CONDITION UPON STABILIZATION OF CONTRIBUTING GROUND SURFACES AND REMOVAL OF SEDIMENT FROM STORM PIPES.
- ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY CONSTRUCTION MANAGER IF ANY DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH CONSTRUCTION FOR NECESSARY PLAN OR GRADE CHANGES. NO EXTRA COMPENSATION SHALL BE PAID TO CONTRACTOR FOR ANY WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION HAS NOT BEEN GIVEN.
- UNLESS OTHERWISE NOTED, GRADES AND SPOT ELEVATIONS NOTED ON PLANS INDICATE FINISHED GRADE OR PAVEMENT SURFACE. ALL DIMENSIONS ARE MEASURED TO THE BACK OF CURB UNLESS OTHERWISE INDICATED.
- COORDINATION WITH CITY SURVEYOR TO DETERMINE MONUMENTATION IS REQUIRED. NOTE ON PLANS.
- CONTRACTOR TO COORDINATE WITH CITY OF WILMINGTON CONSTRUCTION INSPECTOR TO ENSURE EDGE OF CATCH BASIN GRATES ALIGN WITH TRAVEL LANE AS REQUIRED.

**MATERIALS AND EASEMENT NOTES:**

- ALL CATCH BASINS ARE NCDOT STD 840.02, 840.03
- ALL DROP INLETS ARE NCDOT STD 840.14, 840.16
- ALL STORM DRAINAGE PIPING TO BE CLASS III RCP OR HDPE, UNLESS OTHERWISE NOTED
- ALL STORM DRAINAGE PIPING CONVEYING DISCHARGE FROM THE PUBLIC RIGHT-OF-WAY SHALL BE CONTAINED WITHIN A PUBLIC DRAINAGE EASEMENT WHOSE WIDTH IS DETERMINED BY THE DEPTH OF BURY
- ALL SANITARY SEWER LINES AND WATERLINES SHALL BE C-900 PVC, UNLESS OTHERWISE NOTED AND MEET CAPE FEAR PUBLIC UTILITY SPECIFICATIONS
- A PUBLIC UTILITY EASEMENT SHALL BE RESERVED WITHIN THE STREET RIGHT-OF-WAY. A 10' NON-MUNICIPAL EASEMENT SHALL BE RESERVED ALONG BOTH SIDES OF ALL STREETS
- WATER AND SANITARY SEWER UTILITIES ARE PUBLIC - CAPE FEAR PUBLIC UTILITY AUTHORITY

**UTILITY COMPANY CONTACTS**

DUKE/PROGRESS ENERGY: SID LIVINGSTON/MARK HATHFIELD (910) 452-2777  
 DUKE ENERGY (TRANSMISSION): BILL WILDER (910) 772-4903  
 AT&T: JAMES BATSON (910) 452-5300  
 SPECTRUM: ROBERT JOHN (910) 216-4494  
 PIEDMONT NATURAL GAS: PAUL GONKA (910) 512-2841  
 DJ MEDEIROS (910) 431-3233  
 CAPE FEAR PUBLIC UTILITY AUTHORITY: (910) 332-6550

Approved Construction Plan

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_



Public Service • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

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

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

**UTILITY NOTES**

- SCHEDULE A PRECONSTRUCTION MEETING WITH CAPE FEAR PUBLIC UTILITY AUTHORITY 48 HOURS PRIOR TO CONSTRUCTION OF WATER AND SEWER LINES.
- WATER AND SANITARY SEWER UTILITY MAINS ARE PRIVATE BEYOND THE PUBLIC STREET RIGHT-OF-WAY.
- THIS PROJECT SHALL COMPLY WITH THE CFPWA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND NCDENR HAS ISSUED THE "FINAL APPROVAL".
- ALL COMMERCIAL WATER SERVICES AND ANY IRRIGATION SYSTEMS SUPPLIED BY CFPWA WATER SHALL HAVE A BACKFLOW PREVENTION DEVICE ACCEPTABLE TO CFPWA AND APPROVED BY USFCCOCHR OR ASSE.
- BACKFLOW PREVENTION AND METERS WILL BE PROVIDED FOR BOTH FIRE LINES (RPDA) AND DOMESTIC SERVICE (RPZ). FIRE LINE BACKFLOW PREVENTER AND DOMESTIC SERVICE BACKFLOW PREVENTER WILL BE LOCATED AS SHOWN ON THE UTILITY PLANS. INSTALLER OF BACKFLOW PREVENTERS MUST CONTACT CFPWA PRIOR TO INSTALLING UNITS TO GIVE CFPWA THE OPTION TO VERIFY INSTALLATION PROCEDURES.
  - REDUCED PRESSURE PRINCIPLE ASSEMBLY FOR DOMESTIC WATER SERVICE
  - REDUCED PRESSURE DETECTOR ASSEMBLY WILL BE UTILIZED FOR THE BACKFLOW PREVENTER ON THE FIRE SERVICE.
- IF THE CONTRACTOR DESIRES CFPWA 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.
- WATER: 1.5" AND 2" PVC SERVICES SHALL BE CONSTRUCTED USING ASTM D2241, IPS, GASKETED PIPE, SDR 21. 4"-12" PVC MAINS AND SERVICES SHALL BE CONSTRUCTED USING AWWA C-900 PVC, CL235 (DR-18). REQUIREMENTS OF AWWA C900 ELASTOMERIC PUSH-ON JOINTS.
- SANITARY SEWER: FOR PIPE SIZES 4" AND 6" PIPE SHALL BE SCH 40 CONFORMING TO THE REQUIREMENTS OF ASTM D1785 WITH SOLVENT WELD JOINTS CONFORMING TO ASTM D2672. FOR PIPE SIZES 8" THROUGH 12", PIPE SHALL BE CLASS 150, DR18 CONFORMING TO THE REQUIREMENTS OF AWWA C900 WITH ELASTOMERIC PUSH-ON JOINTS CONFORMING TO ASTM D3212 OR ASTM D3139.
- WATER AND SEWER SERVICES CANNOT BE ACTIVATED ON NEW MAINS UNTIL ENGINEER'S CERTIFICATION AND AS-BUILTS ARE RECEIVED AND "FINAL APPROVAL" ISSUED BY PUBLIC WATER SUPPLY SECTION OF NCDENR AND "FINAL ENGINEERING CERTIFICATION" ISSUED BY DIVISION OF WATER QUALITY OF NCDENR.
- WATERLINE TRACER WIRE: SEE CFPWA DETAIL WD-17.
- SITE UTILITY CONTRACTOR TO PROVIDE WATER AND SANITARY SEWER SERVICE TO WITHIN 5 FEET OF THE BUILDING. CONTRACTOR SHALL COORDINATE SITE PLAN CONNECTIONS WITH THE ARCHITECTURAL BUILDING PLANS.
- MAXIMUM BENDING RADIUS FOR 8" C-900 PVC WATER MAIN BENDS IS 380' (ONE-HALF MANUFACTURER'S RECOMMENDED ALLOWABLE LONGITUDINAL BENDING).
- UNDERGROUND UTILITIES: ALL NEW UTILITIES SHALL BE INSTALLED UNDERGROUND, EXCEPT WHERE SUCH PLACEMENT IS PROHIBITED OR DEEMED IMPRACTICAL BY THE UTILITY PROVIDER. UNDERGROUND TERMINAL FACILITIES FOR STREET LIGHTING ALONG THE PUBLIC STREETS ADJUTING THE SUBJECT SITE SHALL BE INSTALLED BY THE DEVELOPER.
- MINIMUM OF 36" COVERAGE ABOVE ALL WATERMANS.
- MINIMUM OF 36" VERTICAL SEPARATION BETWEEN WATERLINES AND STORMDRAIN CURB INLETS
- A VARIANCE IS NOT ANTICIPATED FROM ANY NORTH CAROLINA DIVISION OF WATER QUALITY (DWQ) REQUIREMENT.
- PLANS ARE IN COMPLIANCE WITH CAPE FEAR PUBLIC UTILITY AUTHORITY TECHNICAL STANDARDS AND SPECIFICATIONS.

**RELATION OF WATER MAINS TO SANITARY SEWERS:**

- LATERAL SEPARATION OF SANITARY SEWERS AND WATER MAINS: WATER MAINS SHALL BE LAID AT LEAST 10 FEET LATERALLY FROM EXISTING OR PROPOSED SEWERS UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT A 10 FOOT LATERAL SEPARATION, IN WHICH CASE:
  - THE WATER MAIN IS LAID IN A SEPARATE TRENCH, WITH THE ELEVATION OF THE BOTTOM OF THE WATER MAIN AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, OR
  - THE WATER MAIN IS LAID IN THE SAME TRENCH AS THE SEWER WITH THE WATER MAIN LOCATED AT ONE SIDE ON A BENCH OF UNDISTURBED EARTH, AND ABOVE THE TOP OF THE SEWER.
- CROSSING A WATER MAIN OVER A SEWER MAIN: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER MAIN THE WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE BOTTOM OF THE WATER MAIN IS AT LEAST 24 INCHES ABOVE THE TOP OF THE SEWER MAIN. UNLESS LOCAL CONDITIONS OR BARRIERS PREVENT AN 18 INCH VERTICAL SEPARATION - IN WHICH CASE BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS THAT ARE EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
- CROSSING A WATER MAIN UNDER A SEWER MAIN: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER MAIN BOTH THE WATER MAIN AND THE SEWER MAIN SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING.
- CROSSING A SEWER MAIN/WATER MAIN OVER OR UNDER A STORM DRAIN: WHENEVER IT IS NECESSARY FOR A SEWER MAIN/WATER MAIN TO CROSS A STORM DRAIN PIPE, THE SEWER MAIN/WATER MAIN SHALL BE LAID AT SUCH AN ELEVATION THAT THE OUTSIDE OF THE SEWER MAIN/WATER MAIN NEAREST TO THE OUTSIDE OF THE STORM DRAIN PIPE SHALL MAINTAIN A 24 INCH CLEAR SEPARATION DISTANCE HORIZONTAL, OR THE SEWER MAIN/WATER MAIN SHALL EITHER BE CONSTRUCTED OF DUCTILE IRON PIPE OR ENCASED IN EITHER CONCRETE OR DUCTILE IRON PIPE FOR AT LEAST 5 FEET ON EITHER SIDE OF THE CROSSING.

GROUND STABILIZATION CRITERIA		
SITE AREA DESCRIPTION	STABILIZATION TIMEFRAME	STABILIZATION TIMEFRAME EXCEPTIONS
PERIMETER DRES, SHALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10 FT OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2.5:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FT IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

1 inch

**EROSION CONTROL NOTES**

- ANY GRADING BEYOND THE DENUDED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.
- GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF STATE LAW AND IS SUBJECT TO A FINE. ANY BUILDER THAT ANTICIPATED THE DISTURBANCE OF MORE THAN ONE ACRE WILL BE REQUIRED TO GET AN EROSION CONTROL PERMIT FROM NEW HANOVER COUNTY.
- GROUND COVER MUST BE PROVIDED ON EXPOSED SLOPES WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING, AND A PERMANENT GROUND COVER FOR ALL DISTURBED AREAS WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
- ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF NEW HANOVER COUNTY.
- SLOPES SHALL BE GRADED NO STEEPER THAN 3:1.
- ADDITIONAL DEVICES MAY BE REQUIRED AS AGREED UPON BY THE FIELD INSPECTOR, ENGINEER, AND OWNER.
- IF ACTIVE CONSTRUCTION CEASES IN ANY AREA FOR MORE THAN 15 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER), ALL DISTURBED AREAS MUST BE SEEDED, MULCHED, AND TACKED.
- WITHIN 24 HOURS FOLLOWING ANY RAIN EVENT, THE CONTRACTOR SHALL INSPECT AND REPAIR, AS NECESSARY, ALL DAMAGED EROSION CONTROL MEASURES.
- ALL ACTIVITY AND INSTALLATION OF EROSION CONTROL MATTING WILL BE COMPLETE PRIOR TO ANY RAIN EVENT.

**EROSION CONTROL MAINTENANCE PLAN:**

- ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AND REPAIRED, AS NECESSARY, EVERY SEVEN (7) DAYS AND WITHIN 24 HOURS OF EVERY ONE (1.0) INCH OR GREATER RAINFALL.
- 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.
- SEDIMENT SHALL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT BECOMES ABOUT 0.5 FEET DEEP. THE SEDIMENT FENCE WILL BE REPAIRED OR REPLACED AS NECESSARY TO MAINTAIN A BARRIER.
- ALL AREAS WILL BE FERTILIZED, RESEEDDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
- STONE CONSTRUCTION ENTRANCE TO BE CLEANED WHEN SEDIMENT ACCUMULATIONS ARE VISIBLE OR SEDIMENT IS TRACKED ON TO THE PAVEMENT. STONE WILL BE PERIODICALLY TOP DRESSED WITH 2 INCHES OF #4 STONE TO MAINTAIN 6 INCH DEPTH. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS REQUIRED.
- INSPECT TEMPORARY DIVERSIONS AND CHECK DAMS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION RIDGE AND CHECK DAM. CAREFULLY CHECK OUTLETS AND MAKE TIMELY REPAIRS AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.
- INSPECT TEMPORARY SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS.
- CHECK THE SEDIMENT BASIN EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.
- INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (0.5" OR GREATER) RAINFALL EVENT. 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. INLET PROTECTION SHOULD BE CLEANED OUT WHEN IT IS HALF FULL.
- INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEAN OUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH. AFTER THE CONTRIBUTING DRAINAGE AREAS HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.
- INSPECT THE SKIMMER FOR CLOGGING. PULL THE SKIMMER TO THE SIDE OF THE BASIN AND REMOVE ANY DEBRIS. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER AND THE ARM OR BARREL PIPE FOR CLOGGING; IF CLOGGED, REMOVE THE DEBRIS.

**NOTE (G.S. 113A-57 (2))**

THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

**CITY OF WILMINGTON STANDARD NOTES**

- CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1-800-632-4949.
- PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
- ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS. CONTACT CITY OF WILMINGTON TRAFFIC ENGINEERING AT (910)341-7888 AND CONSTRUCTION MANAGEMENT (910)341-7807 TO DISCUSS PAVEMENT MARKINGS PRIOR TO INSTALLATION.
- ONCE STREETS ARE OPEN TO TRAFFIC, THE DEVELOPER SHALL CONTACT TRAFFIC ENGINEERING (910-341-7888) TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
- TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
- ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
- ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE REPLACED.
- CONTACT CITY OF WILMINGTON TRAFFIC ENGINEERING AT (910)341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
- IF THE CONTRACTOR DESIRES WATER FOR CONSTRUCTION HE SHALL APPLY WITH THE CAPE FEAR PUBLIC UTILITY AUTHORITY 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.
- THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.
- CONTACT TRAFFIC ENGINEERING TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
- TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.
- NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS.
- IF UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.
- ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
- CONTACT TRAFFIC ENGINEERING AT (910)341-7888 TO COORDINATE PARKING SIGNAGE AND/OR MARKINGS PRIOR TO INSTALLATION.
- CONTACT TRAFFIC ENGINEERING AT (910)341-7888 FORTY -EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
- A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
- SOLID WASTE TO BE HANDLED BY ROLL-OUT TRASH CONTAINERS/CARTS.

**FIRE PROTECTION NOTES**

- HYDRANT MUST BE WITHIN 150' OF THE FDC.
- THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS LANDING.
- LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB PER CITY OF WILMINGTON STANDARDS. HYDRANTS WILL BE LOCATED WITHIN 6' OF THE CURB PER CFPWA STANDARDS.
- COMBUSTIBLE MATERIALS MAY NOT BE STORED OR ERECTED ON-SITE WITHOUT CITY FIRE INSPECTOR APPROVAL.
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION.
- UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.
- A MINIMUM OF 5" SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM UNDERGROUND UTILITIES.
- CONTRACTOR SHALL MAINTAIN AN ALL-WEATHER ACCESS TO ALL PORTIONS OF THE JOBSITE WHERE COMBUSTIBLES ARE PRESENT AT ALL TIMES DURING CONSTRUCTION.
- TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.
- FIRE DEPARTMENT ACCESS WIDTHS SHALL BE A MINIMUM OF 20-FEET UNLESS LESSER WIDTHS ARE APPROVED BY THE FIRE CODE OFFICIAL.
- BAG HYDRANTS THAT ARE NOT IN SERVICE.
- DO NOT INCLUDE PINE STRAW IN THE LANDSCAPING NEAR THE BUILDINGS OR COMBUSTIBLE CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT A RADIO SIGNAL STRENGTH STUDY THAT DEMONSTRATES THAT EXISTING EMERGENCY RESPONDER RADIO SIGNAL LEVELS MEET THE REQUIREMENTS OF SECTION 510 OF THE 2018 NC FIRE CODE FOR EACH COMMERCIAL BUILDING.
- ADDITIONAL FIRE PROTECTION AND/OR ACCESSIBILITY REQUIREMENTS MAY BE REQUIRED DUE TO ANY SPECIAL CIRCUMSTANCES CONCERNING THE PROJECT.
- ALL ISOLATION VALVES WITHIN THE "HOT BOX" MUST BE ELECTRICALLY SUPERVISED.

**CLINE DESIGN**

125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com


**MCKIM & CREED**

243 North Front Street  
 Wilmington, NC 28401  
 910/343-1048  
 910/251-8282 FAX  
 www.mckimcreed.com

**MIDDLEBURG**

**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

TRC SUBMITTAL



10-04-2019

PROJECT: 07694-0002  
 DATE: 10.04.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
 CHECKED BY: RMC  
 GENERAL NOTES

**CAPE FEAR PUBLIC UTILITY AUTHORITY CONSTRUCTION PROCEDURE:**

- THE DESIGN ENGINEERING SHALL SUBMIT 3 SETS OF FINAL DESIGN PLANS AND APPROVED SPECIFICATIONS PRIOR TO SCHEDULING THE PRE-CONSTRUCTION MEETING.
- SUBMITTALS FOR MATERIALS SHOULD BE MADE IN ACCORDANCE WITH CFPUA SPECIFICATION SECTION 01340. MATERIAL SHOP DRAWING SUBMITTALS ARE REQUIRED FOR ALL PHYSICAL ASSETS TO ENSURE THEY COMPLY WITH CFPUA TECHNICAL SPECIFICATIONS AND DETAILS. THESE SUBMITTALS ARE PROJECT-SPECIFIC, AND MUST INCLUDE OR HIGHLIGHT ONLY THE SPECIFIC MATERIALS TO BE USED IN THE PROJECT. THE SUBMITTAL APPROVAL PROCESS IS GENERALLY AS FOLLOWS:

MATERIAL VENDOR FURNISHES SUBMITTALS TO THE CONTRACTOR BASED ON THE PROJECT REQUIREMENTS.

CONTRACTOR REVIEWS THE SUBMITTALS FOR COMPLIANCE WITH THE APPROVED CONSTRUCTION DRAWINGS, CFPUA TECHNICAL SPECIFICATIONS AND DETAILS, AND FORWARDS TO THE DEVELOPER'S ENGINEER-OF-RECORD WHEN COMPLETE.

THE DEVELOPER'S ENGINEER-OF-RECORD VERIFIES COMPLIANCE, STAMPS AND SIGNS THE SUBMITTAL, AND FORWARDS THE PACKAGE TO THE CFPUA CONSTRUCTION MANAGER. IF IT IS DETERMINED THAT THE MATERIAL SHOP DRAWING SUBMITTAL IS NOT IN COMPLIANCE, THE ENGINEER SHALL RETURN IT TO THE CONTRACTOR FOR CORRECTION AND RESUBMISSION AS NOTED ABOVE.

CFPUA'S CONSTRUCTION MANAGER REVIEWS THE SUBMITTAL FROM THE DEVELOPER'S ENGINEER-OF-RECORD, VERIFIES COMPLIANCE, AND NOTIFIES THE ENGINEER THAT THE MATERIALS ARE APPROVED FOR CONSTRUCTION. IF IT IS DETERMINED THAT THE MATERIAL SHOP DRAWING SUBMITTAL IS NOT IN COMPLIANCE, THE SUBMITTAL WILL BE RETURNED TO THE ENGINEER FOR CORRECTION AND RESUBMISSION AS NOTED ABOVE.

- ANY REQUEST FOR DEVIATIONS FROM THE STAMPED DRAWINGS AND MATERIAL SUBMITTALS MUST BE SUBMITTED TO THE CFPUA CONSTRUCTION MANAGER. THE DEVIATION WILL BE REVIEWED BY CFPUA STAFF. THE ENGINEER, CONTRACTOR AND CFPUA INSPECTOR WILL BE NOTIFIED IF IT IS APPROVED, NEEDS TO BE REVISED AND RESUBMITTED OR REJECTED. ANY CHANGES TO THE STAMPED CONSTRUCTION DOCUMENTS MADE IN THE FIELD BY THE CONTRACTOR MUST BE APPROVED BY THE ENGINEER OF RECORD AND CFPUA CONSTRUCTION MANAGER. THE CFPUA INSPECTOR CANNOT APPROVE MAJOR CHANGES FROM THE STAMPED CONSTRUCTION DOCUMENTS.

- THE CFPUA INSPECTOR SHALL BE NOTIFIED WHEN ANY MATERIAL IS DELIVERED TO THE JOB SITE. THE CFPUA INSPECTOR WILL VERIFY THAT ALL MATERIALS MEET CFPUA SPECIFICATIONS, DETAILS, AND/OR APPROVED SUBMITTAL. THE CFPUA INSPECTOR WILL NOTIFY THE CONTRACTOR AND THE CFPUA CONSTRUCTION MANAGER OF ANY UNAPPROVED MATERIAL, AND THAT THE UNAPPROVED MATERIAL MUST BE REMOVED FROM THE PROJECT SITE.

- CONTRACTOR SHALL GIVE TWO (2) BUSINESS DAYS NOTIFICATION FOR SCHEDULING TO THE ASSIGNED CFPUA INSPECTOR FOR EACH OF THE FOLLOWING:

OPERATING A CFPUA VALVE (INCLUDES TAPPING VALVES)

WHEN BEGINNING CONSTRUCTION AND IF THE CONTRACTOR PULLS OFF THE SITE

LAYING OUT OF ANY CONNECTION IN EXISTING MANHOLE

CUTTING IN ANY NEW MANHOLES ON EXISTING LINES

CORING ANY MANHOLES

CONNECTING TO AN EXISTING SEWER FORCE MAINS

CONNECTING ONTO EXISTING WATER LINES

ANY BORES AND THREADING CARRIER PIPES

ALL CAMERA WORK, TESTING, CHLORINATION AND WATER SAMPLING

ALL TESTING

**CITY OF WILMINGTON MATERIALS DOCUMENTATION AND TESTING (PROVIDED FOR INFORMATION ONLY/SUBJECT TO CHANGE):**

TEST TYPE:	LOCATION FOR:	TEST TARGET:	SPEC:	FREQUENCY AND TEST SECTIONS:	DOCUMENTATION:
SOIL PROCTORS	FOR USE WITH SOIL DENSITY TESTS	OPTIMUM MOISTURE AND MAXIMUM DRY DENSITY RESULTS	STANDARD PROCTOR - ASTM D698-A	EACH PROJECT; WHERE SOILS CHANGE	SOIL PROFILE TESTS (LAB)
DENSITY - NUCLEAR GAUGE	EMBANKMENTS	≥ 95% COMPACTION	NUCLEAR GAUGE	1 / BLOCK OR EVERY 500'	ON DELIVERY - COLLECT TICKETS
	PIPE TRENCH AND OVERFILL	≥ 95% COMPACTION	ASTM D6938	PER LIFT (12" MAX) EVERY 100'	
	SUBBASE (FINAL 12" FILL)	≥ 98% COMPACTION		"4 / BLOCK OR EVERY 500' WHERE PVMT < 32' WIDTH OR 8 / BLOCK OR EVERY 500' WHERE PVMT > 32' WIDTH"	DENSITY REPORTS.
DENSITY - ALTERNATES	FOR ALL, SEE ABOVE	SEE ABOVE	SAND CONE METHOD - ASTM D1556 OR;	SEE ABOVE	DENSITY REPORTS.
PROOFROLL	SUBBASE AT GRADE	VISUAL CHECK OF STABILITY / MOISTURE	LOADED TANDEM TRUCK	ALL AREAS UNDER ROAD	PROOFROLL REPORT.
DYNAMIC CONE PENETROMETER	EXCAVATION BACKFILLS	# BLOWS PER 1.75" (TYP. 25-30)	ASTM D6951	ANY AREA TO CHECK FOR RELATIVE COMPACTION	REPORT.
DENSITY - NUCLEAR GAUGE	ROAD BASE (ABC)	EACH ≥ 95% WITH AVG. ≥ 98%	NUCLEAR GAUGE - ASTM D6938	"4 / BLOCK OR EVERY 500' WHERE PVMT < 32' WIDTH OR 8 / BLOCK OR EVERY 500' WHERE PVMT > 32' WIDTH"	DENSITY REPORTS.
	CURBLINES (ABC)	EACH ≥ 95% WITH AVG. ≥ 98%		4 / BLOCK OR EVERY 500'	
PROOFROLL	STONE BASE AT GRADE	VISUAL CHECK OF STABILITY / MOISTURE	LOADED TANDEM TRUCK	ALL AREAS UNDER ROAD	PROOFROLL REPORT.
SAMPLING, MAKING & CURING TEST SPECIMENS	CURBING, SIDEWALKS, DRIVEWAYS	PROPER COLLECTION AND CURING IN FIELD AND LABORATORY	SAMPLING CONCRETE - ASTM C172; ASTM C31; ASTM C39	4 CYLINDERS PER DAY/BATCH FOR EVERY 50 CUBIC YARDS	"FORM 312U MIX DESIGN. VERIFY JMF ON-SITE."
AIR TEST	SEE ABOVE	UP TO 8%, PER MIX DESIGN	PRESSURE AIR METER - ASTM C231	TRUCK #1; AIR, SLUMP, TEMP, CYLINDERS	NCDOT M&T 903 (BATCH TIX)
SLUMP TEST	SEE ABOVE	UP TO 5", PER MIX DESIGN	SLUMP TEST - ASTM C143	TRUCKS #2-4; AIR	250 DAILY PLANT REPORT WHEN NEEDED
COMPRESSIVE STRENGTH	CURBING, SIDEWALKS, DRIVEWAYS	BREAKS RESULTS @ REQUIRED STRENGTH (I.E 3000PSI)	ASTM C39	"7 DAY BREAK (TYP @ 75% OF STRENGTH), 28 DAY BREAK @ DESIGN STRENGTH"	CONCRETE BREAK REPORTS.
ASPHALT MIX (JOB MIX FORMULAE)	ROADWAY/PATH	SURFACE UP TO 3" DEPTH	PVMT DESIGN OR		VERIFY JMF ON-SITE.
		INTERMEDIATE UP TO 4" DEPTH	CITY POLICY	FOR CONTROL STRIP WHEN NEEDED, REF. NCDOT 2012 STANDARD SPECIFICATIONS SECTION 609-7	ON DELIVERY - COLLECT TICKETS
ASPHALT TEMPERATURE	AIR TEMPARTURE	40' IN THE SHADE AND RISING	NCDOT	TEST BEFORE PLACEMENT	ASPHALT ROADWAY DAILY REPORT - (NCDOT M&T 605 FORM)
		SURFACE TEMPARTURE	50'	SECTION 610-4	ALSO, NO WET PAVEMENT AFFECTING BONDING
DENSITY - NUCLEAR GAUGE CONTROL WITH CORE CHECKS	ROADWAY/PATH	90% COMPACTION - 9.5A	NUCLEAR DENSITY TESTS - ASTM D2950	"QC = 5 NUCLEAR GAUGE SHOTS PER 500'/EACH PAVER LAYDOWN WIDTH / LOT QA = VERIFICATION, TEST REQUESTS AND LOCATION"	FORMS - CITY OR NCDOT QC-5, 516QC, QA-515, ETC
(CORE CONTROL AND CONTROL STRIPS WHEN NEEDED)		92% COMPACTION-SURFACE OTHER, INTERMEDIATE, BASE	BULK DENSITY (CORES) - ASTM D2726	QC = 1 CORE CHECK PER 500'/EACH PAVER LAYDOWN WIDTH, PRIMARILY IN BASE LAYERS.	"CERTIFICATIONS: GAUGE CALIBRATION QMS ROADWAYTECHNICIAN, NUCLEAR GAUGE OPERATOR, ETC"

**CAPE FEAR PUBLIC UTILITY AUTHORITY TESTING PROCEDURE:**

- ALL STRUCTURES, PRESSURE PIPING AND GRAVITY SEWER PIPING SHALL BE TESTED BY THE CONTRACTOR AS SPECIFIED IN THE CFPUA SPECIFICATIONS IN ACCORDANCE WITH APPLICABLE REGULATIONS AND AS DIRECTED BY THE CFPUA INSPECTOR. ALL TESTING MUST BE CONDUCTED IN THE PRESENCE OF THE CFPUA INSPECTOR. THE CONTRACTOR IS TO GIVE TWO (2) BUSINESS DAYS NOTIFICATION FOR SCHEDULING, TO THE ASSIGNED CFPUA INSPECTOR FOR ALL TESTING.

- ALL PRESSURE PIPE LINES MUST BE SUBJECTED TO HYDROSTATIC TESTING IN ACCORDANCE WITH THE APPROPRIATE CFPUA SPECIFICATION. THESE PIPE LINES SHALL BE TESTED TO 150 PSI FOR A PERIOD OF TWO (2) HOURS. IF THE PRESSURE DROPS MORE THAN THREE (3) PSI, THE TEST FAILS. REFER TO THE APPROPRIATE CFPUA SPECIFICATION FOR MORE INFORMATION ON THE PROCEDURE.

- ALL WATER MAINS AND SERVICES MUST BE FLUSHED, CHLORINATED AND SAMPLED IN ACCORDANCE WITH THE CFPUA SPECIFICATION 02660 AND AS DIRECTED BY THE CFPUA INSPECTOR.

- SEWER LINE SEGMENT TESTING: EACH SEWER LINE SEGMENT (THE SEWER MAIN BETWEEN MANHOLES) SHALL BE TESTED:

THIRTY (30) DAYS AFTER INSTALLATION AND PRIOR TO FINAL ACCEPTANCE OF THE PROJECT, ALL SEWER LINE SEGMENTS AND ALL SERVICES SHALL BE CAMERA INSPECTED AND VIDEO RECORDED. THE CFPUA INSPECTOR WILL REVIEW THE VIDEO RECORDING FOR ACCEPTANCE.

AS AN ALTERNATIVE TO WAITING THIRTY (30) DAYS TO PERMIT STABILIZATION OF THE SOIL-PIPE SYSTEM, THE CFPUA MAY ACCEPT CERTIFICATION FROM A SOIL TESTING FIR VERIFYING THAT THE BACKFILL OF THE TRENCH HAS BEEN COMPACTED TO AT LEAST 95% MAXIMUM DENSITY.

AFTER TWO (2) PAPER COPIES OF THE AS-BUILTS HAVE BEEN SUBMITTED TO THE CFPUA INSPECTOR.

AFTER GRAVEL HAS BEEN INSTALLED ON ALL ROADWAYS.

- VIDEO INSPECTION TESTING: THE CONTRACTOR SHALL PROVIDE A DVD(S) OF EACH SEWER LINE SEGMENT AND SERVICE LINE TO ENSURE THAT THE LINES MEET MINIMUM STANDARDS. THE DVD(S) WILL BE REVIEWED IN THE ORDER THEY ARE RECEIVED. THE TYPICAL REVIEW TIME IS GENERALLY TEN (10) TO FIFTEEN (15) BUSINESS DAYS BUT WILL DEPEND ON THE COMPLEXITY OF THE PROJECT, SIZE, QUALITY OF THE DVD(S), ETC.

THE MAIN LINE CAMERA INSPECTION MUST HAVE PROJECT NAME, FOOTAGES, MANHOLE NUMBERS, AND DATES OF INSPECTION.

THE SERVICE LINE CAMERA INSPECTION MUST INCLUDE PROJECT NAME, FOOTAGES, ADDRESS AND/OR LOT NUMBER, AND DATE OF INSPECTION.

THE CAMERA INSPECTION MUST SHOW THE FULL DIAMETER OF THE PIPE.

THE CAMERA INSPECTION MUST BE PERFORMED UPON COMPLETION OF CLEANING AND POTABLE WATER INTRODUCED INTO THE SYSTEM TO BE TESTED. ALL DEFECTS IN THE PIPELINE AND APPURTENANCES SHALL BE REMEDIATED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE CFPUA AND WILL BE RE-INSPECTED AS OUTLINED ABOVE.

- TWO (2) SETS OF AS-BUILT RECORD DRAWINGS SHALL BE PROVIDED IN ACCORDANCE WITH CFPUA SPECIFICATION SECTION 01720 FOR REVIEW.

**CITY OF WILMINGTON RECORD DRAWING REQUIREMENTS:**

RECORD DRAWINGS (AS-BUILTS) SHALL BE FILED IN THE ENGINEERING OFFICE FOR ASSET MANAGEMENT AND FUTURE USE. RECORD DRAWINGS SHOULD INDICATE WHAT HAS BEEN LOCATED BY THE SURVEYOR AND REFLECT WHAT IS ON AND IN THE GROUND AT A PARTICULAR SITE. ALL INFORMATION PERTAINS TO PUBLIC AND/OR PRIVATE INFRASTRUCTURE, SUCH AS STREETS, WATER, SEWER, AND DRAINAGE. ALL INFRASTRUCTURE SHOWN ON PLANS SHALL BE INDICATED PUBLIC OR PRIVATE. RECORD DRAWINGS SHALL BE SUBMITTED IN BOTH DIGITAL AND HARD COPY FORM. DIGITAL FILES SHALL BE AUTOCAD VERSION 2000 OR LATER. HARD COPIES SHALL HAVE AN ENGINEER'S SEAL AFFIXED AND THE SURVEYOR'S "STANDARDS OF PRACTICE" STATEMENT SIGNED AND SEALED.

**PLANS SHALL INCLUDE**

LOCATIONS, TOP ELEVATIONS, INVERT ELEVATIONS FOR ALL MANHOLES

FIRE HYDRANTS, WATER METERS AND SANITARY SEWER CLEANOUTS

NOTE OR SHOW UTILITY CROSSINGS

STREETS AND CURBLINES (LABELED "PUBLIC" OR "PRIVATE") WITH SPOT ELEVATIONS PROVIDED AT THE TOP OF CURB, EDGE OF PAVEMENT AND AT THE CENTERLINE EVERY 200 FT AND AT ALL STREETS SHOULD ALSO BE LABELED WITH THE COMPACTED STONE BASED THICKNESS AND ASPHALT THICKNESS

PAVEMENT MARKINGS AND ALL TRAFFIC SIGNS

SIDEWALKS WITH SPOT ELEVATIONS PROVIDED AT THE INSIDE EDGE, OUTSIDE EDGE AND AT THE CENTERLINE EVERY 100 FT AND AT ALL GRADE BREAKS

SIZE, SLOPE AND MATERIAL FOR ALL STORM DRAINAGE PIPES

FOR STORM DRAINAGE: TYPE/MATERIAL OF STRUCTURE, TOP ELEVATION, INVERTS IN AND OUT.

LOCATIONS OF STREET LIGHTING AND TYPE

VICINITY MAP

NORTH ARROW

DATE

SCALE FOR DRAWINGS SHALL BE 1"=20' OR 1"=30'; THE EXCEPTION BEING UTILITY PLANS, WHICH MAY BE SUBMITTED AT 1"=40' OR LESS. NO PLANS ACCEPTED AT 1"=50' OR MORE.

LEGEND

DETAILS IF NEEDED

VERTICAL DATUM

LOT NUMBERS AND LOT LINES

RIGHT-OF-WAY AND EASEMENT LINES

ANY STATE OF NC PERMIT NUMBERS (IF APPLICABLE)

HARD COPIES OF PLANS SHALL BE SIGNED/SEALED/DATED BY A LICENSED SURVEYOR

**REQUIREMENTS FOR VIDEO INSPECTION OF STORM SEWER SYSTEMS:**

**GENERAL**

- ALL EQUIPMENT USED FOR CLEANING AND VIDEO INSPECTION SHALL BE SPECIFICALLY DESIGNED FOR THE WORK DESCRIBED HEREIN. ALL CAMERAS SHALL BE SELF-POWERED UNITS WITH COLOR, PAN-AND-TILT, MINIMUM RESOLUTION OF 640X480, AND THE ABILITY TO OPERATE IN 100% HUMIDITY CONDITIONS. THE LENS SHALL HAVE NOT LESS THAN A 65-DEGREE VIEWING ANGLE WITH EITHER AUTOMATIC OR REMOTE FOCUS AND IRIS CONTROLS.
- ALL WORK DESCRIBED HEREIN SHALL BE COMPLETED IN ACCORDANCE WITH NASSCO PIPELINE ASSESSMENT AND CERTIFICATION PROGRAM/ MANHOLE ASSESSMENT AND CERTIFICATION PROGRAM (PACP/MACP) GUIDELINES.
- THE CITY OF WILMINGTON (COW) RESERVES THE RIGHT TO REFUSE ANY RECORDING OR REPORT ON THE BASIS OF SUBSTANDARD QUALITY.

**EXECUTION**

- ALL STORM PIPE INSTALLATIONS SHALL BE COMPLETELY INSTALLED A MINIMUM OF 30 DAYS PRIOR TO VIDEO INSPECTION. GENERALLY, INSPECTIONS SHALL OCCUR 30 DAYS PRIOR TO ASPHALT PAVING.
- THE CONTRACTOR'S CLEANING OPERATIONS SHALL BE PERFORMED PRIOR TO THE VIDEO INSPECTION, AND SHALL FULLY CLEAN THE PIPES AND STRUCTURES AS WELL AS REMOVE ALL SEDIMENT, ROOTS, DEBRIS, ETC.
- INSPECTIONS OF EACH PIPE SEGMENT SHALL BEGIN IN THE CENTER OF THE START DRAINAGE STRUCTURE AND END IN THE CENTER OF THE END DRAINAGE STRUCTURE. THE CAMERA SHALL BE MOVED THROUGH THE LINE IN EITHER DIRECTION AT A UNIFORM RATE BUT NOT GREATER THAN 30 FEET PER MINUTE (0.5 FT/SEC).
- THE CAMERA SHALL BE STOPPED AT EACH PIPE JOINT, DEFECT, IMPERFECTION, ETC. AT THESE LOCATIONS, THE CAMERA SHALL BE PANNED, TILTED AND ROTATED TO FULLY VIEW AND DOCUMENT THE CONDITION OF THE JOINTS, DEFECTS, IMPERFECTIONS, ETC.
- THE DIGITAL RECORDING SHALL BE FREE OF ELECTRICAL INTERFERENCE AND SHALL PRODUCE A CLEAR AND STABLE IMAGE.
- VIDEO OVERLAY SHALL INCLUDE, AT A MINIMUM, THE OWNER NAME, PROJECT NAME, STREET NAME, DIAMETER OF PIPE, PIPE MATERIAL, DATE AND TIME OF INSPECTION, DIRECTION OF VIDEO (UPSTREAM OR DOWNSTREAM), DRAINAGE STRUCTURE NUMBER DESIGNATION FOR EACH DRAINAGE STRUCTURE ON THE PIPE SEGMENT INSPECTED THAT CORRESPONDS TO THE CONSTRUCTION PLANS. A CONSTANT OVERLAY DISPLAY OF THE STREET NAME, DRAINAGE STRUCTURE DESIGNATIONS (I.E. MH START#/MH END#), DATE AND DISTANCE SHALL APPEAR ON THE SCREEN. THE INSPECTOR SHALL MOVE THE CONSTANT OVERLAY DISPLAY SO IT DOES NOT INTERFERE WITH THE INSPECTION REVIEW.
- INSPECTION OF EACH PIPE SEGMENT SHALL BE PROVIDED IN A SEPARATE VIDEO FILE. IN SITUATIONS WHERE REVERSE INSPECTION IS NECESSARY, THE REVERSE INSPECTION SHALL BE PROVIDED IN A SEPARATE VIDEO FILE.
- ALL OBSERVATIONS/DEFECTS SHALL BE NOTED BY THE INSPECTOR, WHERE A TEXT DISPLAY SHALL APPEAR DESCRIBING THE OBSERVATION/DEFECT. TEXT SHALL DISPLAY FOR A MINIMUM OF 4 SECONDS. THE VIDEO FILE RECORDING SHALL PAUSE AS THE OPERATOR SELECTS THE OBSERVATION/DEFECT NOTATION, ELIMINATING "ON HOLD" VIDEO.
- AN INSPECTION FORM SHALL BE COMPLETED AND SUBMITTED FOR EACH PIPE SEGMENT AND DRAINAGE STRUCTURE INSPECTED AND VIDEOED. AT A MINIMUM, OBSERVATION/DEFECT NOTES SHALL INCLUDE GENERAL INFO, DISTANCE WITHIN THE PIPE SEGMENT, DESCRIPTION, A SEVERITY RATING, AND A STILL PHOTOGRAPH.

**DELIVERABLES**

- CORRESPONDENCE FROM THE ENGINEER OF RECORD CONFIRMING THAT HE/SHE HAS REVIEWED THE VIDEO INSPECTION PACKAGE FOR COMPLIANCE TO CONTENT AND HAS MADE AN EVALUATION WITH RECOMMENDATIONS FOR REPAIR AS NEEDED PER THE CITY GUIDELINES.
- VIDEO INSPECTIONS CAPTURED LIVE OFF OF THE INSPECTION CAMERA TO BE SUBMITTED TO ON A DVD COMPATIBLE WITH WINDOWS MEDIA PLAYER. THE INSPECTIONS MUST BE IN ORDER AND COMPLETE.
- ALL INSPECTION REPORTS COMPLETED FOR EACH PIPE SEGMENT AND DRAINAGE STRUCTURE WHETHER VIDEOED OR NOT SHALL BE SUBMITTED.

Approved Construction Plan

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

Planning: \_\_\_\_\_

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.

1 inch

**GENERAL NOTES**

1



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ClineDesignAssoc.com



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910/251-8282 FAX  
www.mckimcreed.com



Middleburg Apartments  
4410 River Road  
Wilmington, North Carolina



TRC SUBMITTAL

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC

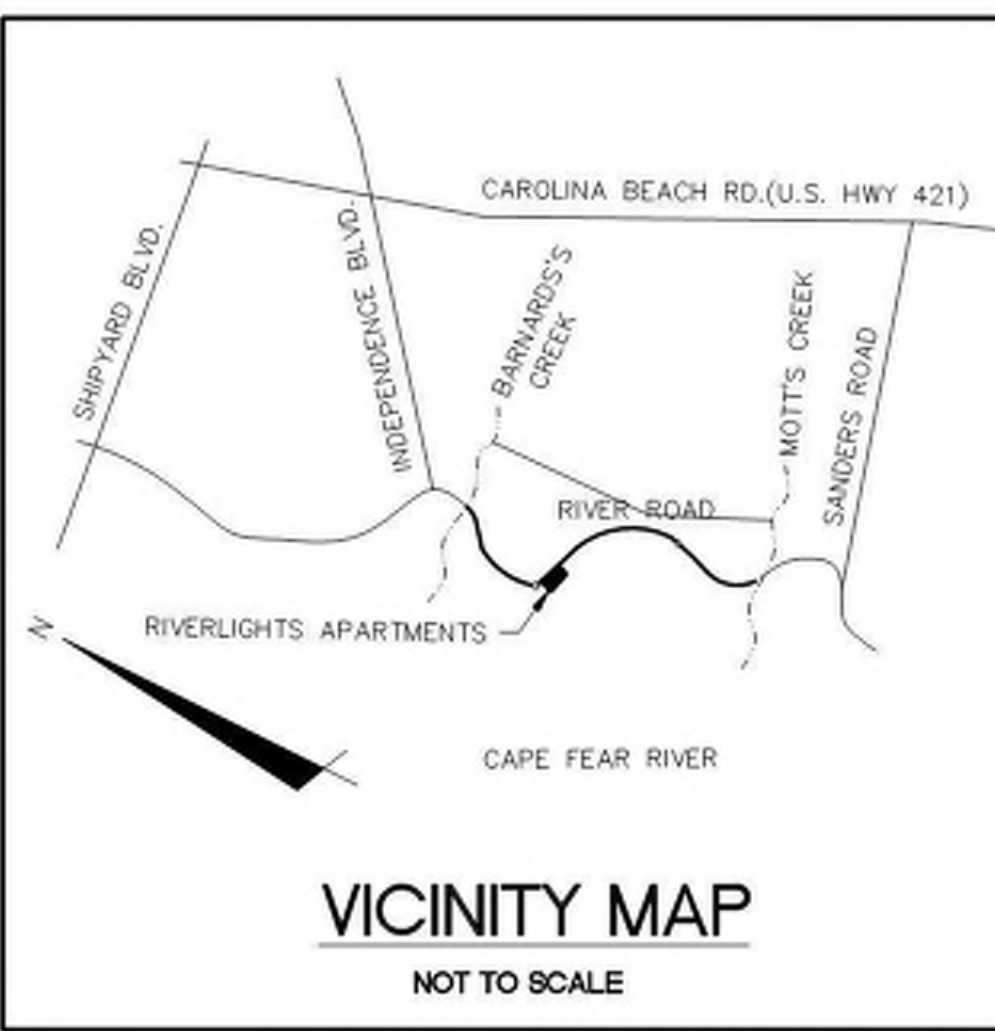
GENERAL NOTES

DRAWN BY: RAS/BPD  
CHECKED BY: RMC

GENERAL NOTES

G-003

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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 \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

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**NOTE:**  
EXISTING TREE CALIPER INCH SIZE IS SHOWN WITHIN THE TREE SYMBOL

**TREE LEGEND**

	CEDAR
	GUM
	HOLLY
	OAK
	MAPLE
	PINE

**SITE DATA TABLE** MIDDLEBURG APARTMENT COMMUNITY

GENERAL INFORMATION	
APPLICANT NAME	MIDDLEBURG REAL ESTATE PARTNERS
SITE ADDRESS	4410 RIVER ROAD
PROPERTY OWNER	NNP IV- CAPE FEAR RIVER, LLC
DEVELOPER	MIDDLEBURG REAL ESTATE PARTNERS
MAP SCALE	1"=60'
PROPERTY BOUNDARY	
TAX PARCEL IDENTIFICATION NUMBER	R07000-006-009-000
ZONING DISTRICT	MX/CD CLUSTER
TOTAL ACREAGE WITHIN THE PROJECT BOUNDARY	9.34 ACRES (406,766 SF)
ADJACENT PROPERTY	
ADJACENT PROPERTY	NNP IV- CAPE FEAR RIVER, LLC
PROPERTY OWNER	NNP IV- CAPE FEAR RIVER, LLC
ZONING	MX

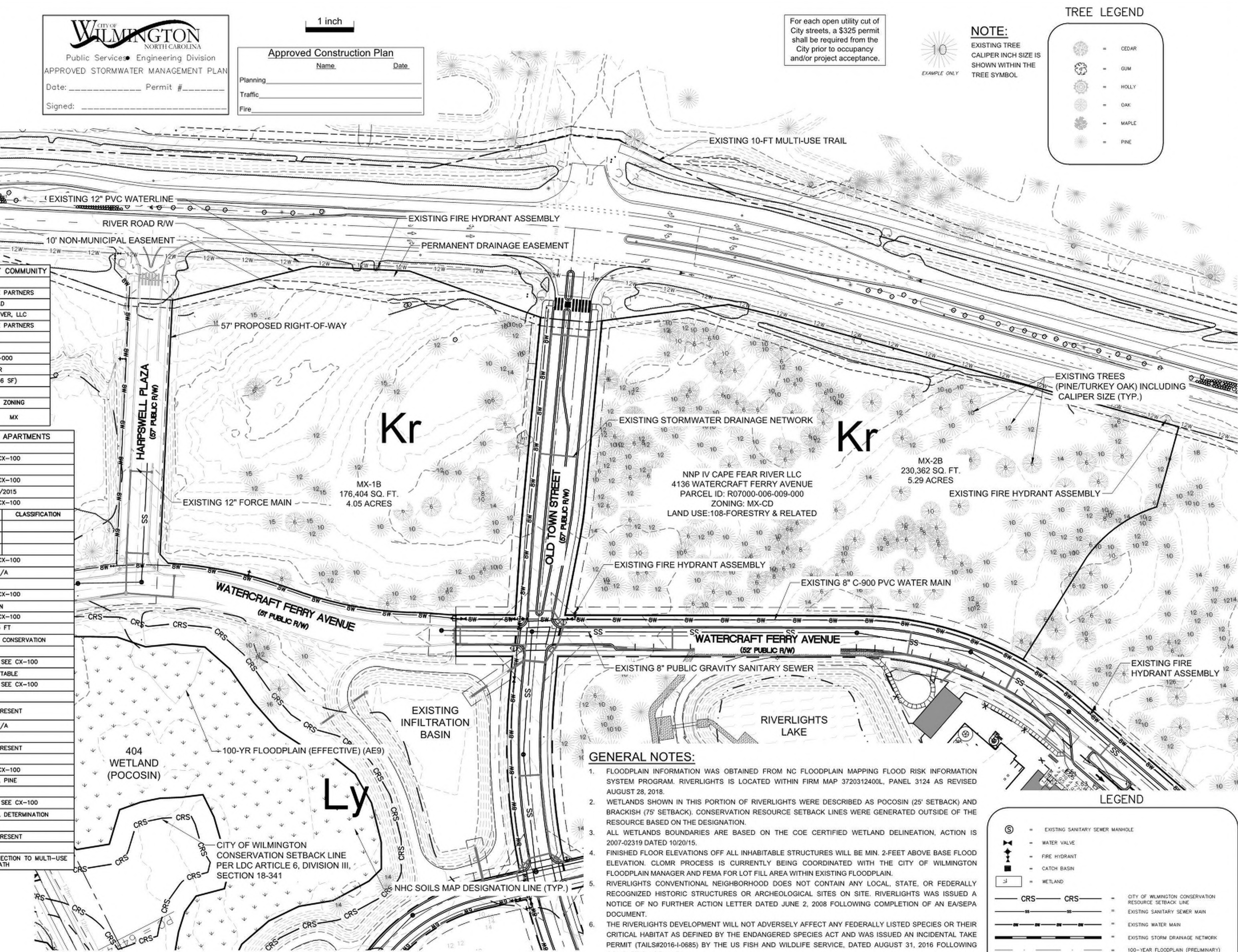
**SITE DATA TABLE** RIVERLIGHTS APARTMENTS

VICINITY		SEE CX-100
VICINITY MAP		SEE CX-100
TOPOGRAPHY AND DRAINAGE		
2-FT TOPOGRAPHY MINIMUM INTERVAL		SEE CX-100
DATE OF TOPOGRAPHY DATA		5/5/2015
100-YR FLOODPLAIN LINE		SEE CX-100
LOCATION OF NATURAL WATER FEATURES		
LOCATIONS		CLASSIFICATION
DITCHES	N/A	
STREAMS	N/A	
CREEKS	N/A	
FLOOD PRONE AREAS		SEE CX-100
AREAS OF NATURALLY CONCENTRATED SURFACE DRAINAGE		N/A
SOIL		
SOIL TYPE(S) AND BOUNDARIES		SEE CX-100
NORTH CAROLINA COASTAL AREA MANAGEMENT AD INFORMATION		
CAMA AREA OF ENVIRONMENTAL CONCERN		SEE CX-100
SETBACKS		75 FT
CAMA LAND USE CLASSIFICATION(S)		TRANSITION / CONSERVATION
CONSERVATION RESOURCE REGULATIONS		
PRESENCE OF CONSERVATION RESOURCE		PRESENCE, SEE CX-100
SETBACKS		SEE TABLE
VEGETATED BUFFER		PRESENCE, SEE CX-100
HISTORIC AND ARCHEOLOGICAL SITES		
LOCAL, STATE, OR FEDERALLY RECOGNIZED HISTORIC STRUCTURE(S) OR ARCHEOLOGICAL RESOURCES		NOT PRESENT
LOCATION		N/A
CEMETERIES		
CEMETERIES, BURIAL SITES, OR BURIAL GROUNDS?		NOT PRESENT
FORESTED AREAS		
BOUNDARIES OF FORESTED AREAS		SEE CX-100
DOMINANT SPECIES		OAK, PINE
WETLANDS		
404/SECTION 10 WETLAND LOCATION		PRESENCE, SEE CX-100
METHOD OF DETERMINATION		JURISDICTIONAL DETERMINATION
ENDANGERED SPECIES OR HABITAT		
ENDANGERED SPECIES OR HABITAT		NOT PRESENT
AUTOMOBILE, BICYCLE, PEDESTRIAN, OR TRANSIT FACILITIES		
EXISTING OR PROPOSED THOROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS, AND TRANSIT FACILITIES		SIDEWALK WITH CONNECTION TO MULTI-USE PATH

**CONSERVATION RESOURCE SETBACK TABLE**

CONSERVATION RESOURCE	RES	COMM
POCOSIN	25'	50'
SAVANNAH	25'	50'
BRACKISH/SALT MARSH	75'	100'

REFERENCE: LDC 18-341 (d) 5h



- GENERAL NOTES:**
- FLOODPLAIN INFORMATION WAS OBTAINED FROM NC FLOODPLAIN MAPPING FLOOD RISK INFORMATION SYSTEM PROGRAM. RIVERLIGHTS IS LOCATED WITHIN FIRM MAP 3720312400L, PANEL 3124 AS REVISED AUGUST 28, 2018.
  - WETLANDS SHOWN IN THIS PORTION OF RIVERLIGHTS WERE DESCRIBED AS POCOSIN (25' SETBACK) AND BRACKISH (75' SETBACK). CONSERVATION RESOURCE SETBACK LINES WERE GENERATED OUTSIDE OF THE RESOURCE BASED ON THE DESIGNATION.
  - ALL WETLANDS BOUNDARIES ARE BASED ON THE COE CERTIFIED WETLAND DELINEATION, ACTION IS 2007-02319 DATED 10/20/15.
  - FINISHED FLOOR ELEVATIONS OFF ALL INHABITABLE STRUCTURES WILL BE MIN. 2-FEET ABOVE BASE FLOOD ELEVATION. CLOMR PROCESS IS CURRENTLY BEING COORDINATED WITH THE CITY OF WILMINGTON FLOODPLAIN MANAGER AND FEMA FOR LOT FILL AREA WITHIN EXISTING FLOODPLAIN.
  - RIVERLIGHTS CONVENTIONAL NEIGHBORHOOD DOES NOT CONTAIN ANY LOCAL, STATE, OR FEDERALLY RECOGNIZED HISTORIC STRUCTURES OR ARCHEOLOGICAL SITES ON SITE. RIVERLIGHTS WAS ISSUED A NOTICE OF NO FURTHER ACTION LETTER DATED JUNE 2, 2008 FOLLOWING COMPLETION OF AN EASE/PA DOCUMENT.
  - THE RIVERLIGHTS DEVELOPMENT WILL NOT ADVERSELY AFFECT ANY FEDERALLY LISTED SPECIES OR THEIR CRITICAL HABITAT AS DEFINED BY THE ENDANGERED SPECIES ACT AND WAS ISSUED AN INCIDENTAL TAKE PERMIT (TAILS#2016-I-0685) BY THE US FISH AND WILDLIFE SERVICE, DATED AUGUST 31, 2016 FOLLOWING COMPLETION OF AN EA.
  - PLATS AND DOCUMENTS SHALL BE RECORDED TO PROVIDE PERPETUAL PROTECTIONS FOR CONSERVATION RESOURCES AND BUFFERS AND PROHIBIT IMPERVIOUS SURFACES WITHIN THE BUFFER, UNLESS EXCEPTIONS ARE PROVIDED BY THE LAND DEVELOPMENT CODE (LDC).
  - ANY IMPROVEMENTS ENCRDACHING INTO THE CONSERVATION RESOURCE SETBACK AND/OR PRIMARY CONSERVATION AREA BUFFERS SHALL BE IN ACCORDANCE WITH 18-341 AND 18-433, RESPECTIVELY.

**LEGEND**

	EXISTING SANITARY SEWER MANHOLE
	WATER VALVE
	FIRE HYDRANT
	CATCH BASIN
	WETLAND
	CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
	EXISTING SANITARY SEWER MAIN
	EXISTING WATER MAIN
	EXISTING STORM DRAINAGE NETWORK
	100-YEAR FLOODPLAIN (PRELIMINARY)
	100-YEAR FLOODPLAIN (EFFECTIVE)

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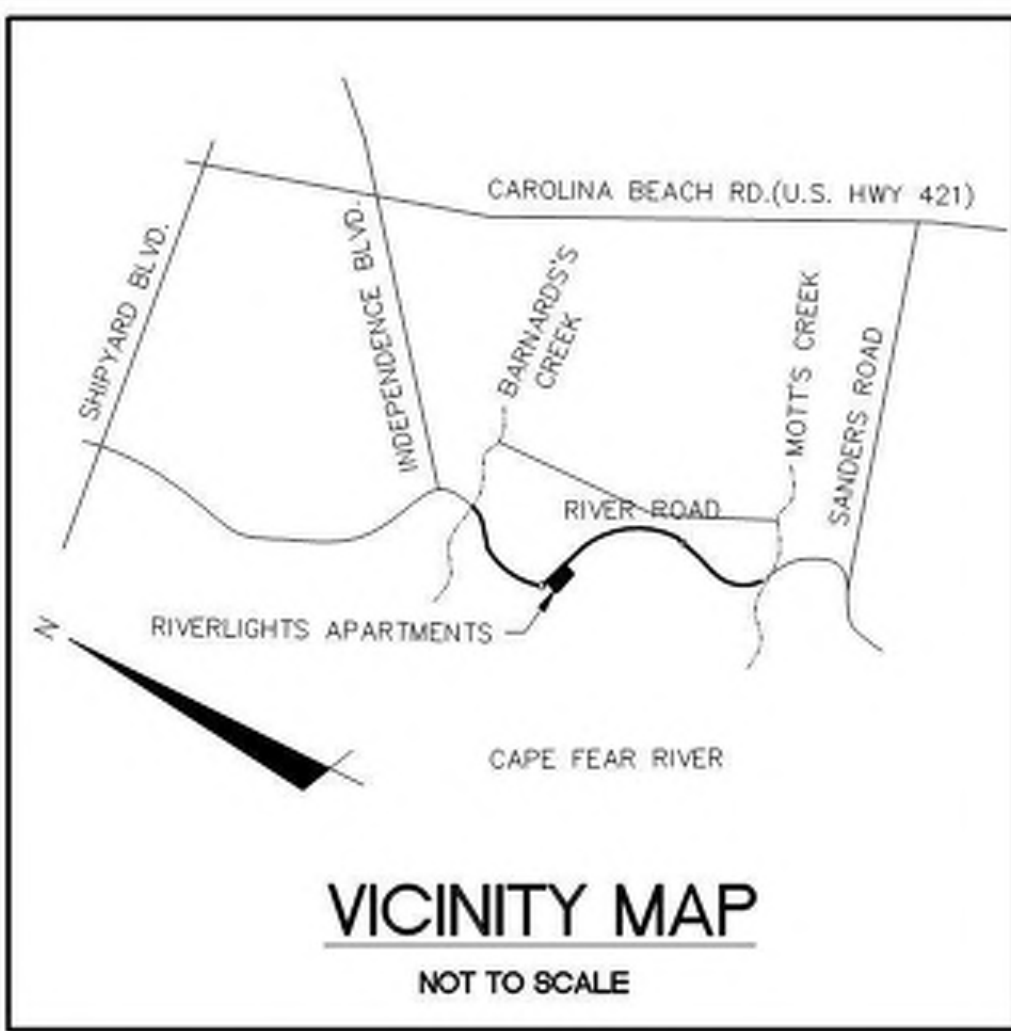
**MIDDLEBURG**  
Middleburg Apartments  
4410 River Road  
Wilmington, North Carolina

TRC SUBMITTAL

**PROFESSIONAL ENGINEER**  
SEAL 22574  
EDWARD M. COLLIER  
10-04-2019

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
SITE INVENTORY / EXISTING CONDITIONS



**TREE REMOVAL PLAN:**

1. TREE REMOVAL WILL INVOLVE CLEARING OF THE VEGETATION UNDER THE ESSENTIAL SITE IMPROVEMENTS.

**DEMOLITION NOTES:**

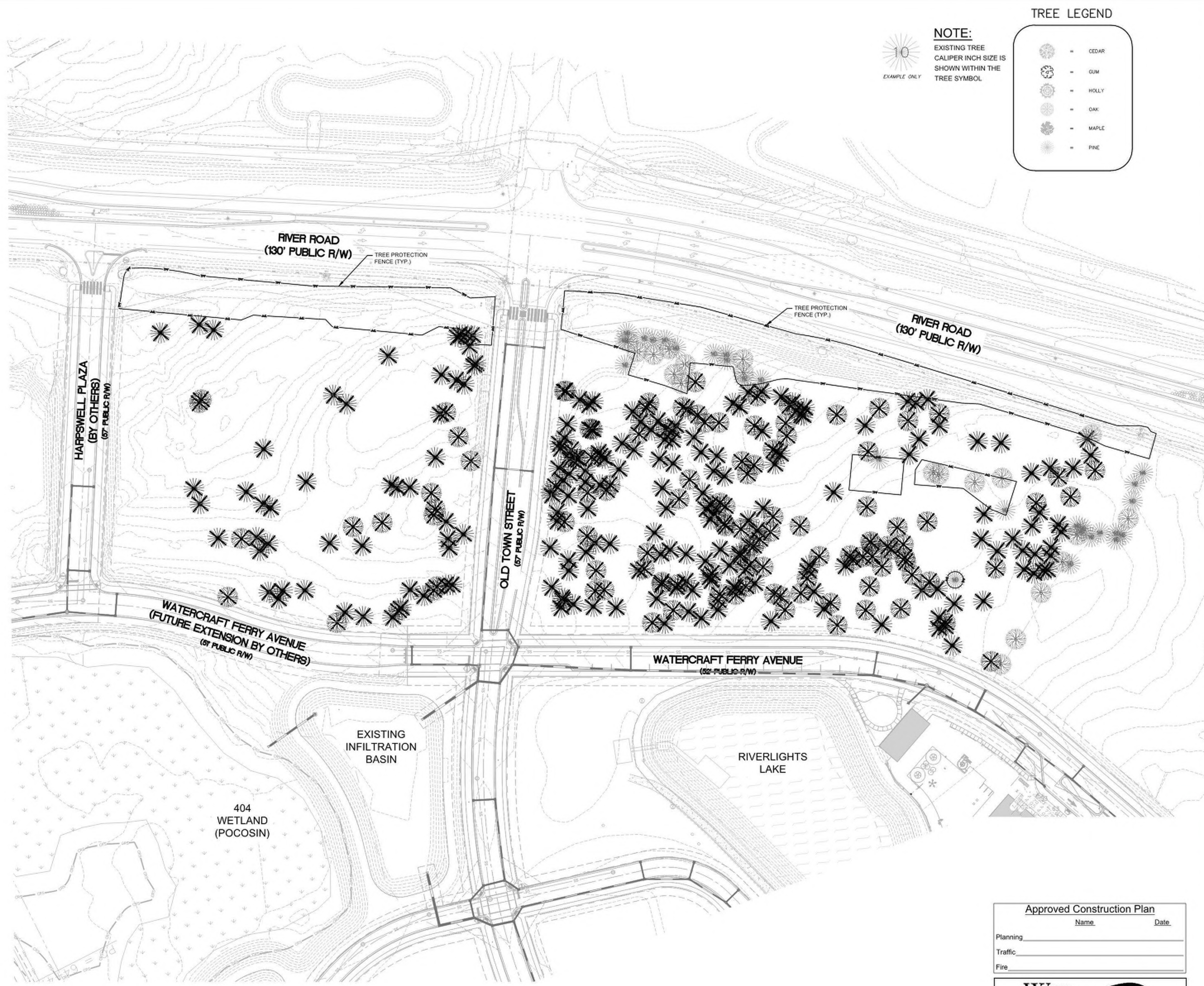
1. NO EARTH DISTURBING ACTIVITIES SHALL COMMENCE UNTIL ALL PERIMETER EROSION CONTROL MEASURES ARE IN PLACE IN ACCORDANCE WITH THE EROSION CONTROL SEQUENCE SHOWN IN THESE PLANS.
2. NO EARTH-DISTURBING ACTIVITY OR OTHER WORK SHALL TAKE PLACE WITHIN WETLANDS AREAS NOTED ON SURVEY. CONTRACTOR SHALL FIELD VERIFY WETLAND LIMITS FLAGGING IS IN PLACE AND SHALL NOT ENTER WETLAND AREAS. IF WETLAND FLAGGING IS MISSING OR OTHERWISE DAMAGED, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTE WETLAND LIMITS AND PREVENT DISTURBANCE OR OTHER ACTIVITY WITHIN WETLANDS.
3. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE PROTECTION OF ALL PROPERTY CORNER MONUMENTS, AND SHALL HAVE, AT HIS EXPENSE, ALL CORNER MONUMENTS REPLACED WHICH ARE DISTURBED BY CONSTRUCTION ACTIVITIES.
4. CONTRACTOR IS RESPONSIBLE FOR REPAIRS OF DAMAGE TO ANY EXISTING IMPROVEMENTS, AT HIS EXPENSE, DURING CONSTRUCTION, SUCH AS, BUT NOT LIMITED TO, DRAINAGE, UTILITIES, PAVEMENT, STRIPING, CURB, ETC. REPAIRS SHALL BE EQUAL TO OR BETTER THAN EXISTING CONDITIONS.
5. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH ALL REGULATIONS GOVERNING THE DEMOLITION, REMOVAL, TRANSPORTATION AND DISPOSAL DO ALL DEMOLITION DEBRIS.
6. CONTRACTOR SHALL COMPLY TO THE FULLEST EXTENT WITH THE LATEST OSHA STANDARDS FOR EXCAVATION AND TRENCHING PROCEDURES. CONTRACTOR SHALL USE SUPPORT SYSTEMS, SLOPING, BENCHING, ETC. AS NECESSARY FOR THESE OPERATIONS, AND SHALL COMPLY WITH ALL OSHA PERFORMANCE CRITERIA.
7. CONTRACTOR SHALL TAKE SPECIAL CARE TO PROTECT ALL UTILITIES AND APPURTENANCES TO REMAIN.

**TREE LEGEND**

- ⊙ = CEDAR
- ⊙ = GUM
- ⊙ = HOLLY
- ⊙ = OAK
- ⊙ = MAPLE
- ⊙ = PINE

**NOTE:**  
EXISTING TREE CALIPER INCH SIZE IS SHOWN WITHIN THE TREE SYMBOL

10  
EXAMPLE ONLY



**LEGEND**

- ⊙ = EXISTING SANITARY SEWER MANHOLE
- ⊙ = WATER VALVE
- ⊙ = FIRE HYDRANT
- ⊙ = CATCH BASIN
- ⊙ = WETLAND
- = CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
- = EXISTING SANITARY SEWER MAIN
- = EXISTING WATER MAIN
- = EXISTING STORM DRAINAGE NETWORK
- = 100-YEAR FLOODPLAIN (PRELIMINARY)
- = 100-YEAR FLOODPLAIN (EFFECTIVE)
- = TREE PROTECTION FENCE

**Approved Construction Plan**

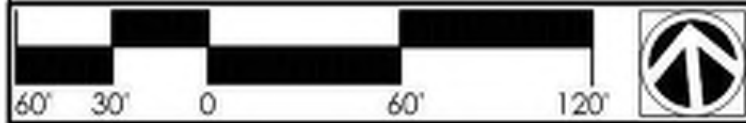
Name	Date
Planning	
Traffic	
Fire	

**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.

1 inch



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**MIDDLEBURG**



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TRC SUBMITTAL



10-04-2019

PROJECT: 07694-0002  
DATE: 10.04.2019

REVISIONS:	DATE

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
TREE REMOVAL / DEMOLITION PLAN

**PHASE 1 CONSTRUCTION SEQUENCE**

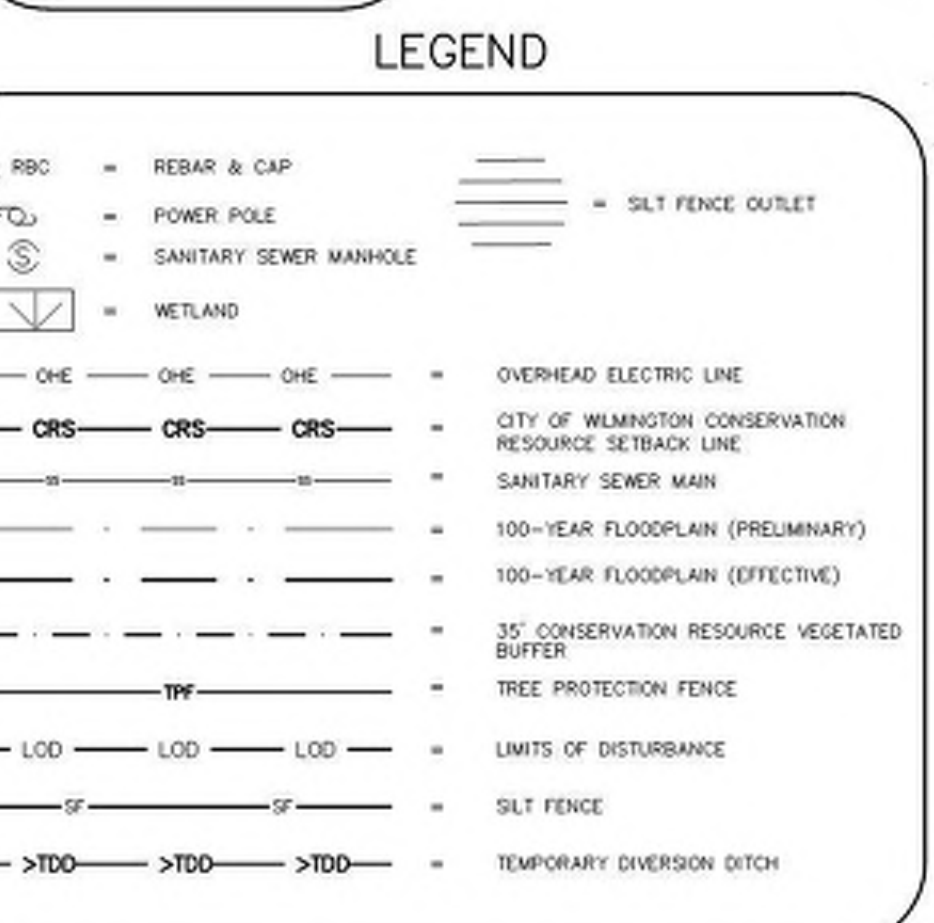
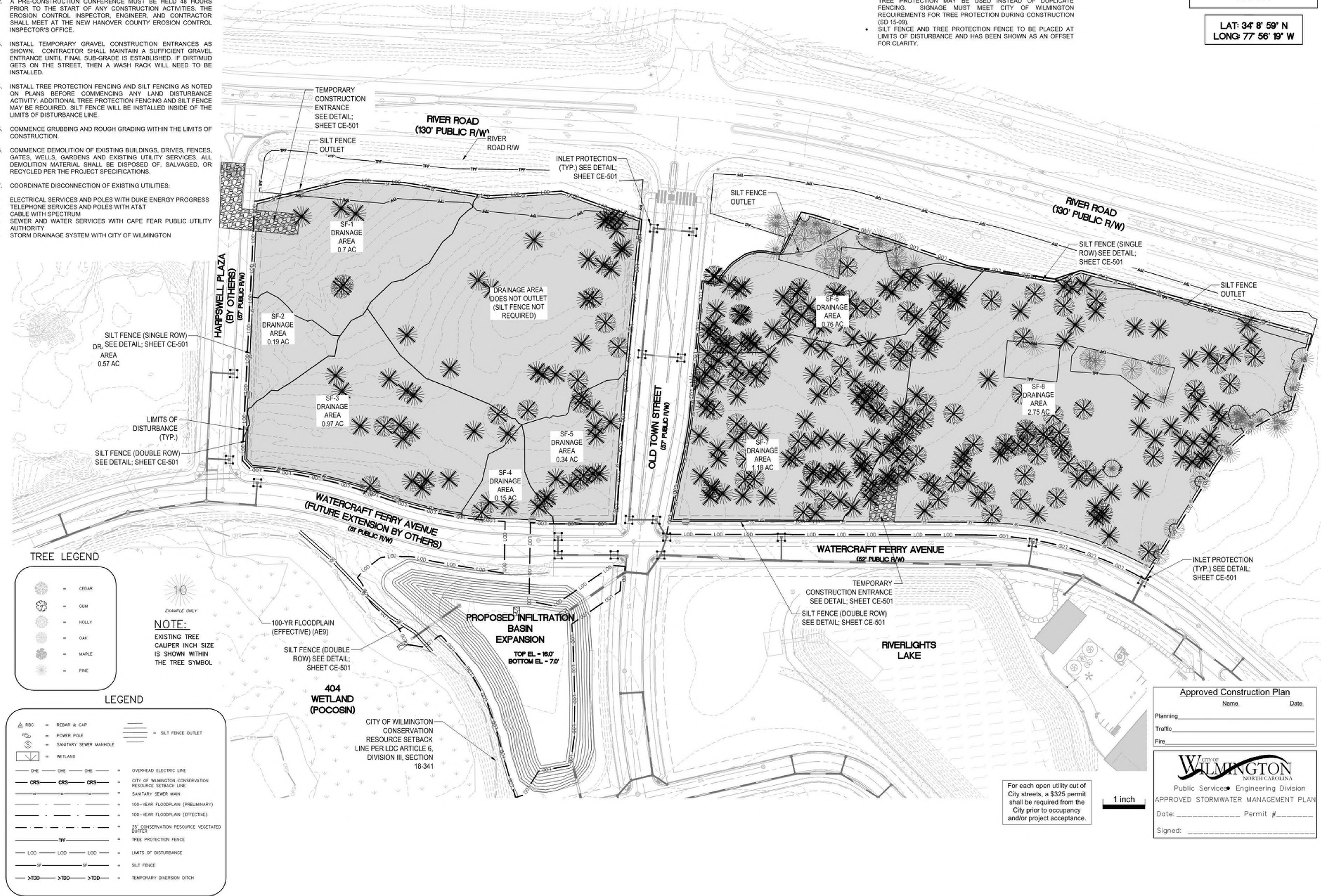
1. ESTABLISH LIMITS OF DISTURBANCE AS SHOWN.
2. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES. THE EROSION CONTROL INSPECTOR, ENGINEER, AND CONTRACTOR SHALL MEET AT THE NEW HANOVER COUNTY EROSION CONTROL INSPECTOR'S OFFICE.
3. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCES AS SHOWN. CONTRACTOR SHALL MAINTAIN A SUFFICIENT GRAVEL ENTRANCE UNTIL FINAL SUB-GRADE IS ESTABLISHED. IF DIRT/MUD GETS ON THE STREET, THEN A WASH RACK WILL NEED TO BE INSTALLED.
4. INSTALL TREE PROTECTION FENCING AND SILT FENCING AS NOTED ON PLANS BEFORE COMMENCING ANY LAND DISTURBANCE ACTIVITY. ADDITIONAL TREE PROTECTION FENCING AND SILT FENCE MAY BE REQUIRED. SILT FENCE WILL BE INSTALLED INSIDE OF THE LIMITS OF DISTURBANCE LINE.
5. COMMENCE GRUBBING AND ROUGH GRADING WITHIN THE LIMITS OF CONSTRUCTION.
6. COMMENCE DEMOLITION OF EXISTING BUILDINGS, DRIVES, FENCES, GATES, WELLS, GARDENS AND EXISTING UTILITY SERVICES. ALL DEMOLITION MATERIAL SHALL BE DISPOSED OF, SALVAGED, OR RECYCLED PER THE PROJECT SPECIFICATIONS.
7. COORDINATE DISCONNECTION OF EXISTING UTILITIES:
  - ELECTRICAL SERVICES AND POLES WITH DUKE ENERGY PROGRESS
  - TELEPHONE SERVICES AND POLES WITH AT&T
  - CABLE WITH SPECTRUM
  - SEWER AND WATER SERVICES WITH CAPE FEAR PUBLIC UTILITY AUTHORITY
  - STORM DRAINAGE SYSTEM WITH CITY OF WILMINGTON

**NOTE:**

- WHERE SILT FENCE IS REQUIRED IN THE SAME PLACE AS TREE PROTECTION FENCING, ORANGE SILT FENCE AND SIGNAGE FOR TREE PROTECTION MAY BE USED INSTEAD OF DUPLICATE FENCING. SIGNAGE MUST MEET CITY OF WILMINGTON REQUIREMENTS FOR TREE PROTECTION DURING CONSTRUCTION (SD 15-09).
- SILT FENCE AND TREE PROTECTION FENCE TO BE PLACED AT LIMITS OF DISTURBANCE AND HAS BEEN SHOWN AS AN OFFSET FOR CLARITY.

**LIMITS OF DISTURBANCE = 9.84 AC**

**LAT: 34° 8' 59" N  
LONG: 77° 56' 19" W**



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**TRC SUBMITTAL**

**Approved Construction Plan**  
Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Planning: \_\_\_\_\_  
Traffic: \_\_\_\_\_  
Fire: \_\_\_\_\_

**PROFESSIONAL SEAL**  
SEAL 22574  
ENGINEER  
B. CLAYTON M. COLLIER

10-04-2019

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE: \_\_\_\_\_

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

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
SEDIMENT / EROSION CONTROL  
PHASE 1

**SEDIMENT EROSION CONTROL STAGE 1 PLAN** 1 **CE-101**

**PHASE 2 CONSTRUCTION SEQUENCE**

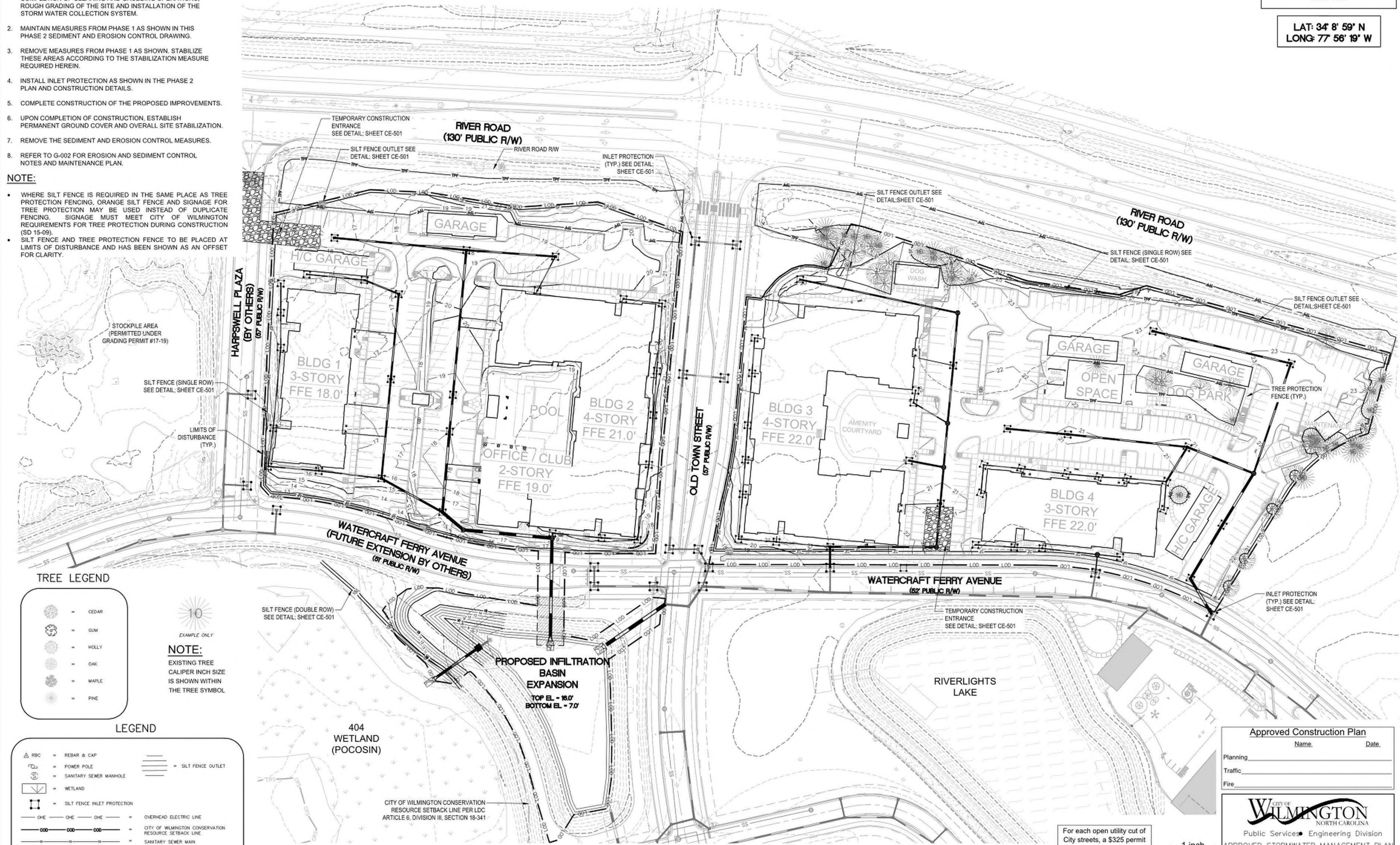
- BEGIN PHASE 2 SEDIMENT AND EROSION CONTROL UPON COMPLETION OF CLEARING AND GRUBBING OPERATIONS, ROUGH GRADING OF THE SITE AND INSTALLATION OF THE STORM WATER COLLECTION SYSTEM.
- MAINTAIN MEASURES FROM PHASE 1 AS SHOWN IN THIS PHASE 2 SEDIMENT AND EROSION CONTROL DRAWING.
- REMOVE MEASURES FROM PHASE 1 AS SHOWN. STABILIZE THESE AREAS ACCORDING TO THE STABILIZATION MEASURE REQUIRED HEREIN.
- INSTALL INLET PROTECTION AS SHOWN IN THE PHASE 2 PLAN AND CONSTRUCTION DETAILS.
- COMPLETE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
- UPON COMPLETION OF CONSTRUCTION, ESTABLISH PERMANENT GROUND COVER AND OVERALL SITE STABILIZATION.
- REMOVE THE SEDIMENT AND EROSION CONTROL MEASURES.
- REFER TO G-002 FOR EROSION AND SEDIMENT CONTROL NOTES AND MAINTENANCE PLAN.

**NOTE:**

- WHERE SILT FENCE IS REQUIRED IN THE SAME PLACE AS TREE PROTECTION FENCING, ORANGE SILT FENCE AND SIGNAGE FOR TREE PROTECTION MAY BE USED INSTEAD OF DUPLICATE FENCING. SIGNAGE MUST MEET CITY OF WILMINGTON REQUIREMENTS FOR TREE PROTECTION DURING CONSTRUCTION (SD 15-09).
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**LAT: 34° 8' 59" N  
LONG: 77° 56' 19" W**



**TREE LEGEND**

- CEDAR
- GUM
- HOLLY
- OAK
- MAPLE
- PINE

**NOTE:**  
EXISTING TREE CALIPER INCH SIZE IS SHOWN WITHIN THE TREE SYMBOL

**LEGEND**

- REBAR & CAP
- POWER POLE
- SANITARY SEWER MANHOLE
- WETLAND
- SILT FENCE INLET PROTECTION
- OVERHEAD ELECTRIC LINE
- CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
- SANITARY SEWER MAIN
- 100-YEAR FLOODPLAIN (PRELIMINARY)
- 100-YEAR FLOODPLAIN (EFFECTIVE)
- 35' CONSERVATION RESOURCE VEGETATED BUFFER
- TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- SILT FENCE
- TEMPORARY DIVERSION DITCH
- SILT FENCE OUTLET



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PROJECT: 07694-0002  
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**WILMINGTON NORTH CAROLINA**  
Public Services • Engineering Division  
**APPROVED STORMWATER MANAGEMENT PLAN**  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

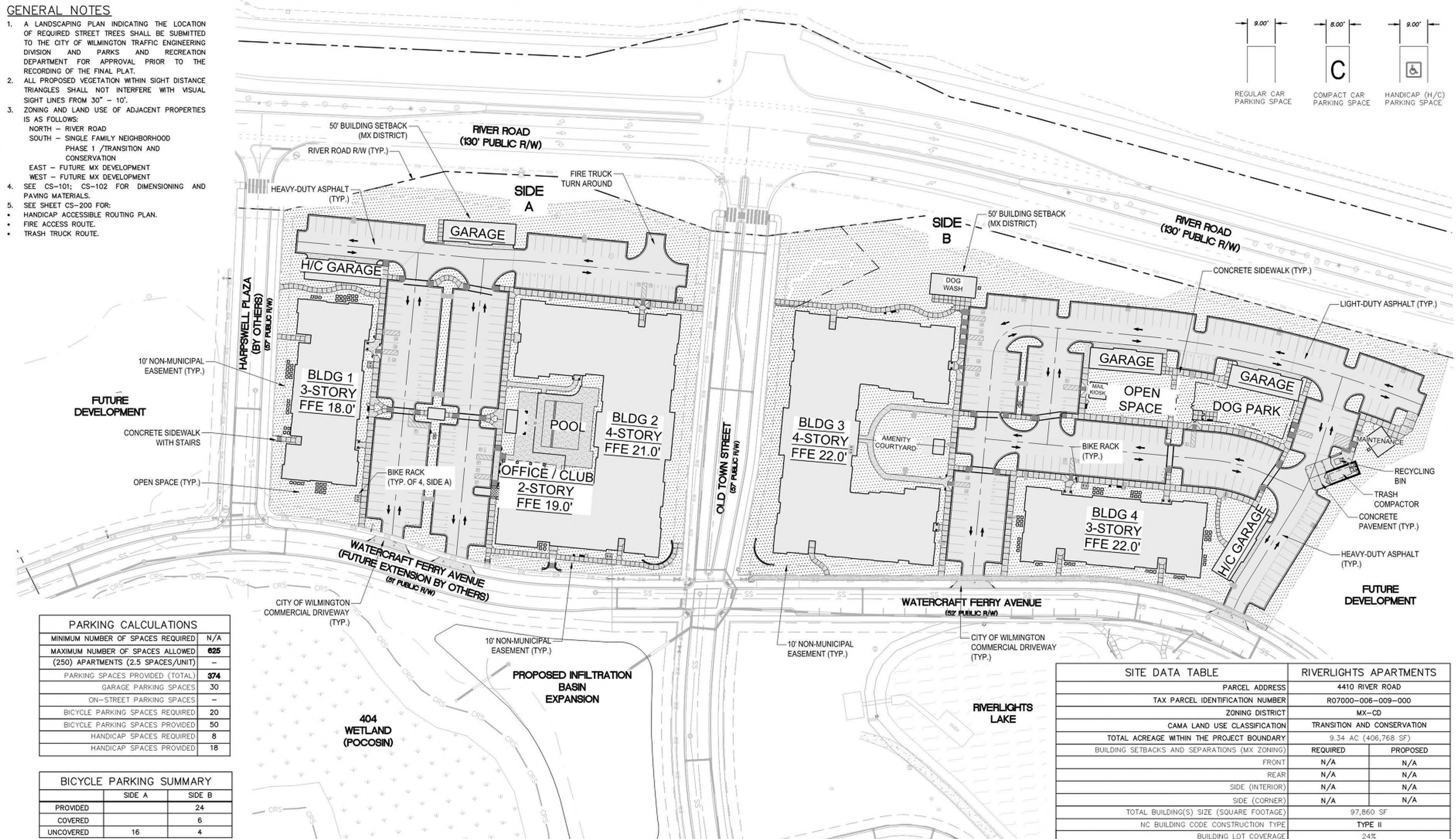
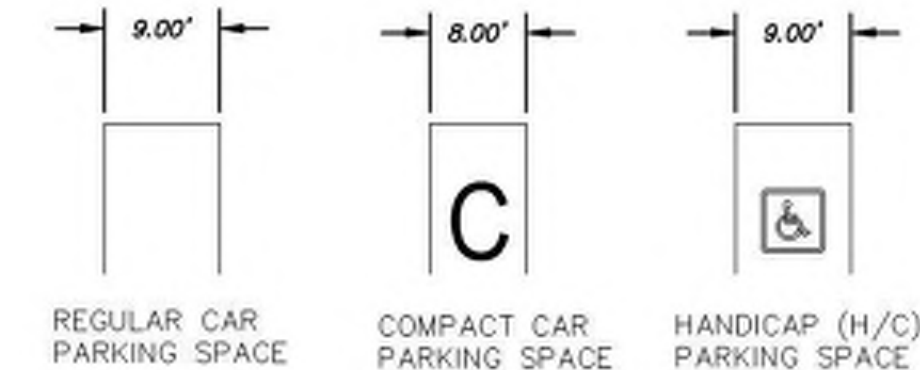
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch

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**GENERAL NOTES**

- 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 APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT.
- ALL PROPOSED VEGETATION WITHIN SIGHT DISTANCE TRIANGLES SHALL NOT INTERFERE WITH VISUAL SIGHT LINES FROM 30" - 10'.
- ZONING AND LAND USE OF ADJACENT PROPERTIES IS AS FOLLOWS:  
 NORTH - RIVER ROAD  
 SOUTH - SINGLE FAMILY NEIGHBORHOOD  
 PHASE 1 /TRANSITION AND CONSERVATION  
 EAST - FUTURE MX DEVELOPMENT  
 WEST - FUTURE MX DEVELOPMENT
- SEE CS-101; CS-102 FOR DIMENSIONING AND PAVING MATERIALS.
- SEE SHEET CS-200 FOR:  
 • HANDICAP ACCESSIBLE ROUTING PLAN.  
 • FIRE ACCESS ROUTE.  
 • TRASH TRUCK ROUTE.



PARKING CALCULATIONS	
MINIMUM NUMBER OF SPACES REQUIRED	N/A
MAXIMUM NUMBER OF SPACES ALLOWED (250) APARTMENTS (2.5 SPACES/UNIT)	625
PARKING SPACES PROVIDED (TOTAL)	374
GARAGE PARKING SPACES	30
ON-STREET PARKING SPACES	-
BICYCLE PARKING SPACES REQUIRED	20
BICYCLE PARKING SPACES PROVIDED	50
HANDICAP SPACES REQUIRED	8
HANDICAP SPACES PROVIDED	18

BICYCLE PARKING SUMMARY		
	SIDE A	SIDE B
PROVIDED		24
COVERED		6
UNCOVERED	16	4

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

**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	

**SURFACE MATERIAL LEGEND**

- HEAVY DUTY ASPHALT  
SEE DETAIL CS-501
- CONCRETE PAVEMENT  
SEE DETAIL CG-502
- CONCRETE SIDEWALK
- OPEN SPACE

MX RESIDENTIAL DENSITY CALCULATION	
TOTAL MX RESIDENTIAL ACREAGE	73.71
RIVERLIGHTS MX PHASES	DWELLING UNITS
MARINA VILLAGE 1	76
MARINA VILLAGE 2	-
SINGLE FAMILY PHASE 1	62
SINGLE FAMILY PHASE 9	19
MX-1B	125
MX-2B	125
<b>TOTAL</b>	<b>407</b>
<b>RESIDENTIAL DENSITY</b>	<b>5.52</b>

SITE DATA TABLE		RIVERLIGHTS APARTMENTS	
PARCEL ADDRESS	4410 RIVER ROAD		
TAX PARCEL IDENTIFICATION NUMBER	R07000-006-009-000		
ZONING DISTRICT	MX-CD		
CAMA LAND USE CLASSIFICATION	TRANSITION AND CONSERVATION		
TOTAL ACREAGE WITHIN THE PROJECT BOUNDARY	9.34 AC (406,768 SF)		
BUILDING SETBACKS AND SEPARATIONS (MX ZONING)	REQUIRED	PROPOSED	
FRONT	N/A	N/A	
REAR	N/A	N/A	
SIDE (INTERIOR)	N/A	N/A	
SIDE (CORNER)	N/A	N/A	
TOTAL BUILDING(S) SIZE (SQUARE FOOTAGE)	97,860 SF		
NC BUILDING CODE CONSTRUCTION TYPE	TYPE II		
BUILDING LOT COVERAGE	24%		
NUMBER OF BUILDINGS	4		
NUMBER OF UNITS	250		
BUILDING HEIGHT (BUILDING 1 AND 4)	31'-5 1/2"		
BUILDING HEIGHT (BUILDING 2 AND 3)	42'-1 1/2"		
TOTAL AMOUNT OF DISTURBED AREA	9.84 AC (428,630 SF)		
TOTAL ACRES WITHIN 100-YR FLOODPLAIN/BELOW MHW MARK	0 ACRES (0 SF)		
TOTAL ACRES WITHIN WETLANDS	N/A		
MX (CD): TOTAL OPEN SPACE REQUIRED	46.18 ACRES (2,011,600.8 SF)*		
MIDDLEBURG APARTMENTS: TOTAL OPEN SPACE PROPOSED	2.95 ACRES (129,325 SF)		
MX (CD): TOTAL COMMON SPACE REQUIRED	18.47 ACRES (804,553.2 SF)**		
MIDDLEBURG APARTMENTS: TOTAL COMMON SPACE PROPOSED	0.83 ACRES (36,053 SF)		

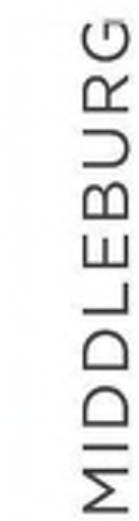
\*PROPOSED MX (CD) FOR ENTIRE RIVER LIGHTS DEVELOPMENT = 184.7 ACRES  
 (@ 25% OPEN SPACE) = 46.18 ACRES REQUIRED FOR ENTIRE RIVER LIGHTS DEVELOPMENT  
 \*\*PROPOSED MX (CD) FOR ENTIRE RIVER LIGHTS DEVELOPMENT = 184.7 ACRES  
 (@ 10% COMMON SPACE) = 18.47 ACRES REQUIRED FOR ENTIRE RIVER LIGHTS DEVELOPMENT



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 Raleigh, NC 27603  
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 910/343-1048  
 910/251-8282 FAX  
 www.mckimcreed.com



**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina



TRC  
 SUBMITTAL

PROFESSIONAL ENGINEER  
 EDWARD M. COLLIER  
 SEAL 22574  
 10-04-2019

PROJECT: 07694-0002  
 DATE: 10.04.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
 CHECKED BY: RMC  
 OVERALL SITE PLAN





Professional Engineer Seal for Edward M. Collier, License No. 22574, dated 10-04-2019.

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
AERIAL - SITE PLAN

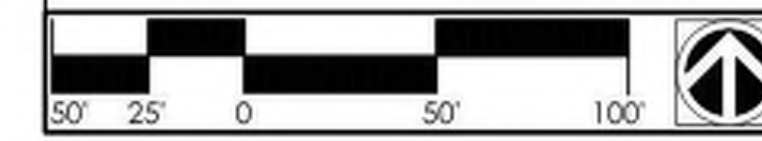
**City of WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
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1 inch

**Approved Construction Plan**

Name	Date
Planning	_____
Traffic	_____
Fire	_____



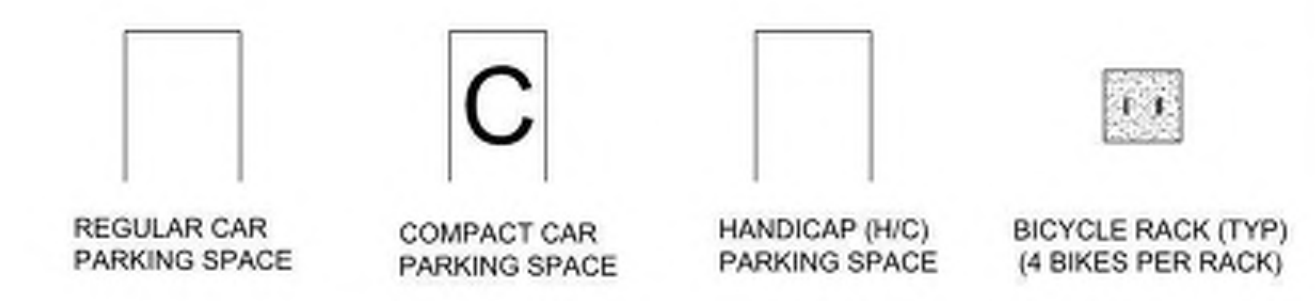
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### SURFACE MATERIAL LEGEND

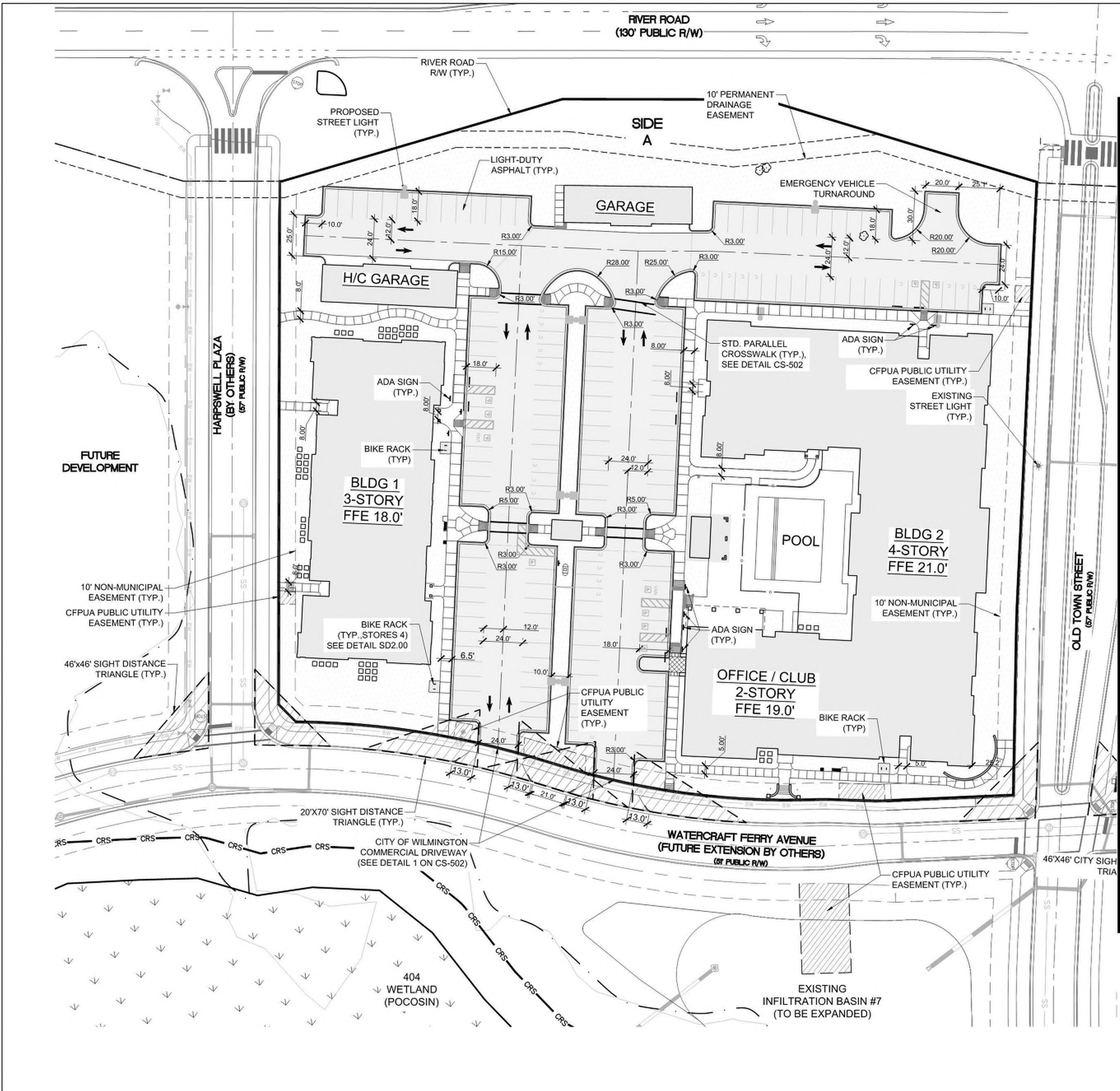
	HEAVY DUTY ASPHALT SEE DETAIL CS-501
	CONCRETE PAVEMENT SEE DETAIL CG-502
	CONCRETE SIDEWALK
	OPEN SPACE

### GENERAL NOTES

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6. SEE POOL PLANS FOR MORE INFORMATION.



MATCHLINE SEE SHEET CS-102



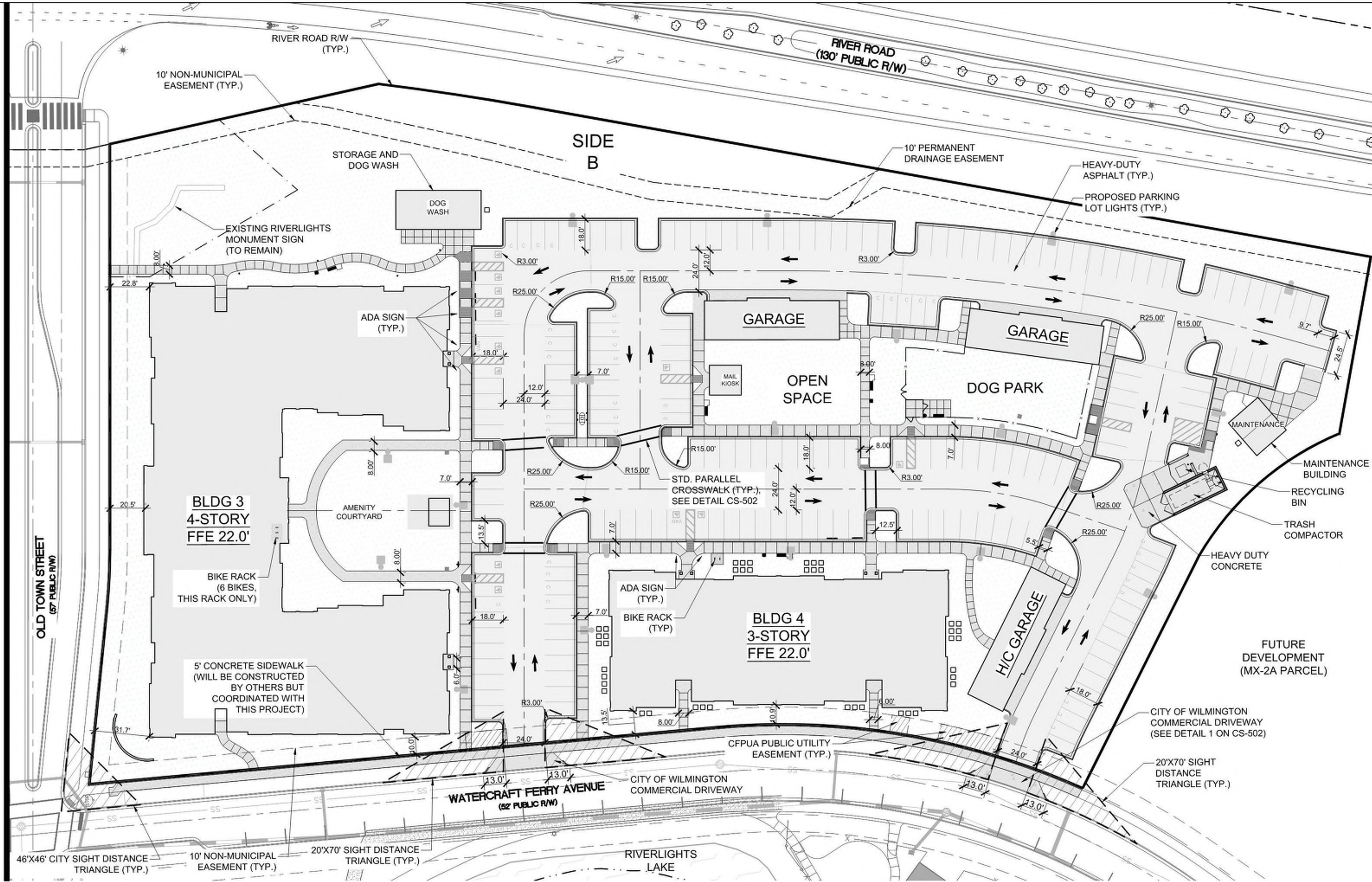
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MATCHLINE SEE SHEET CS-101



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### SURFACE MATERIAL LEGEND

	HEAVY DUTY ASPHALT SEE DETAIL CS-501		REGULAR CAR PARKING SPACE
	CONCRETE PAVEMENT SEE DETAIL CG-502		COMPACT CAR PARKING SPACE
	CONCRETE SIDEWALK		HANDICAP (H/C) PARKING SPACE
	OPEN SPACE		BICYCLE RACK (TYP) (4 BIKES PER RACK)

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

1 inch

### Approved Construction Plan

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

Planning: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_



APPROVED STORMWATER MANAGEMENT PLAN

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

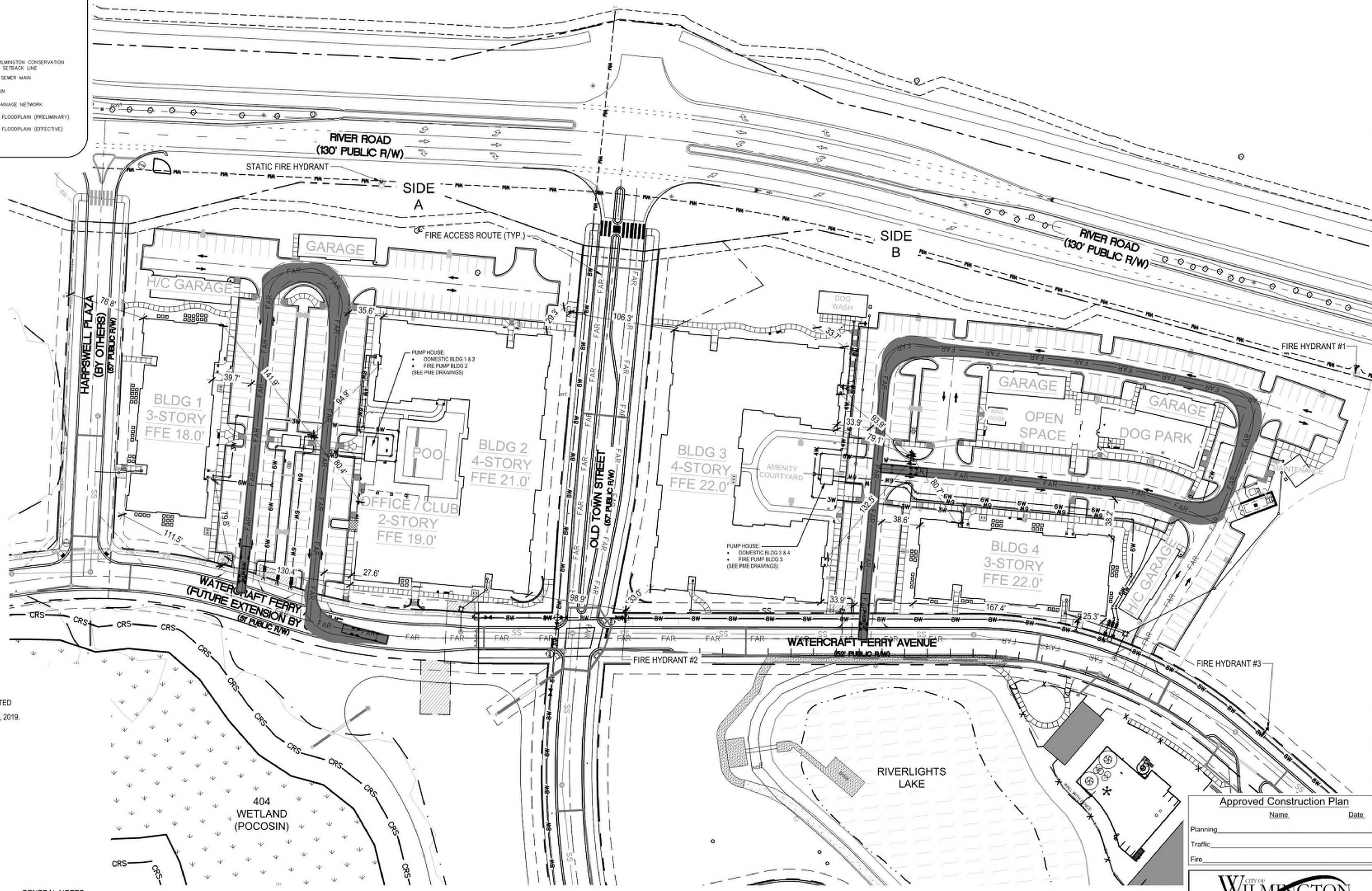
Signed: \_\_\_\_\_

LEGEND

- ⊙ = SANITARY SEWER MANHOLE
- ⊕ = WATER VALVE
- ⊕ = FIRE HYDRANT
- ⊕ = FIRE HYDRANT
- ⊕ = FIRE HYDRANT
- ⊕ = WETLAND
- CRS = CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
- SS = SANITARY SEWER MAIN
- GW = WATER MAIN
- 4W = STORM DRAINAGE NETWORK
- = 100-YEAR FLOODPLAIN (PRELIMINARY)
- - - = 100-YEAR FLOODPLAIN (EFFECTIVE)

FIRE PROTECTION

FAR — FAR — FIRE ACCESS ROUTE



**FIRE FLOW TEST**

FIRE HYDRANT FLOW TESTS WERE CONDUCTED ON EXISTING FIRE HYDRANTS ON MARCH 23, 2019.

FH #1:

- LOCATED AT RIVER ROAD
- FLOW = 1180 GPM @ 50 PSI
- STATIC FH LOCATED AT RIVER ROAD
- STATIC PRESSURE = 63 PSI
- RESIDUAL PRESSURE = 54 PSI

FH #2:

- LOCATED AT OLDE TOWN STREET CORNER WITH WATERCRAFT FERRY AVE.
- FLOW = 1180 GPM @ 50 PSI
- STATIC FH LOCATED AT RIVER ROAD
- STATIC PRESSURE = 66 PSI
- RESIDUAL PRESSURE = 51 PSI

FH #3:

- LOCATED AT WATERCRAFT FERRY AVE.
- FLOW = 1155 GPM @ 48 PSI
- STATIC FH LOCATED AT RIVER ROAD
- STATIC PRESSURE = 63 PSI
- RESIDUAL PRESSURE = 54 PSI

**GENERAL NOTES**

- DO NOT INCLUDE PINE STRAW IN THE LANDSCAPING NEAR THE BUILDINGS OR COMBUSTIBLE CONSTRUCTION.
- CONTRACTOR SHALL SUBMIT A RADIO SIGNAL STRENGTH STUDY THAT DEMONSTRATES THAT EXISTING EMERGENCY RESPONDER RADIO SIGNAL LEVELS MEET THE REQUIREMENTS OF SECTION 510 OF THE 2018 NC FIRE CODE FOR EACH COMMERCIAL BUILDING.
- ADDITIONAL FIRE PROTECTION AND/OR ACCESSIBILITY REQUIREMENTS MAY BE REQUIRED DUE TO ANY SPECIAL CIRCUMSTANCES CONCERNING THE PROJECT.
- ALL ISOLATION VALVES WITHIN THE "HOT BOX" MUST BE ELECTRICALLY SUPERVISED.

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1 inch

Approved Construction Plan

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

Planning \_\_\_\_\_

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Fire \_\_\_\_\_

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



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MIDDLEBURG  
Middleburg Apartments  
4410 River Road  
Wilmington, North Carolina

TRC SUBMITTAL

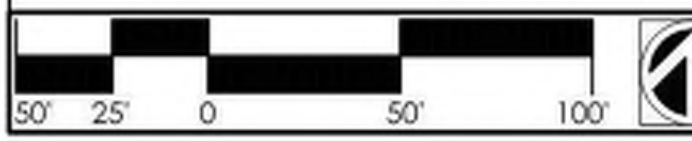
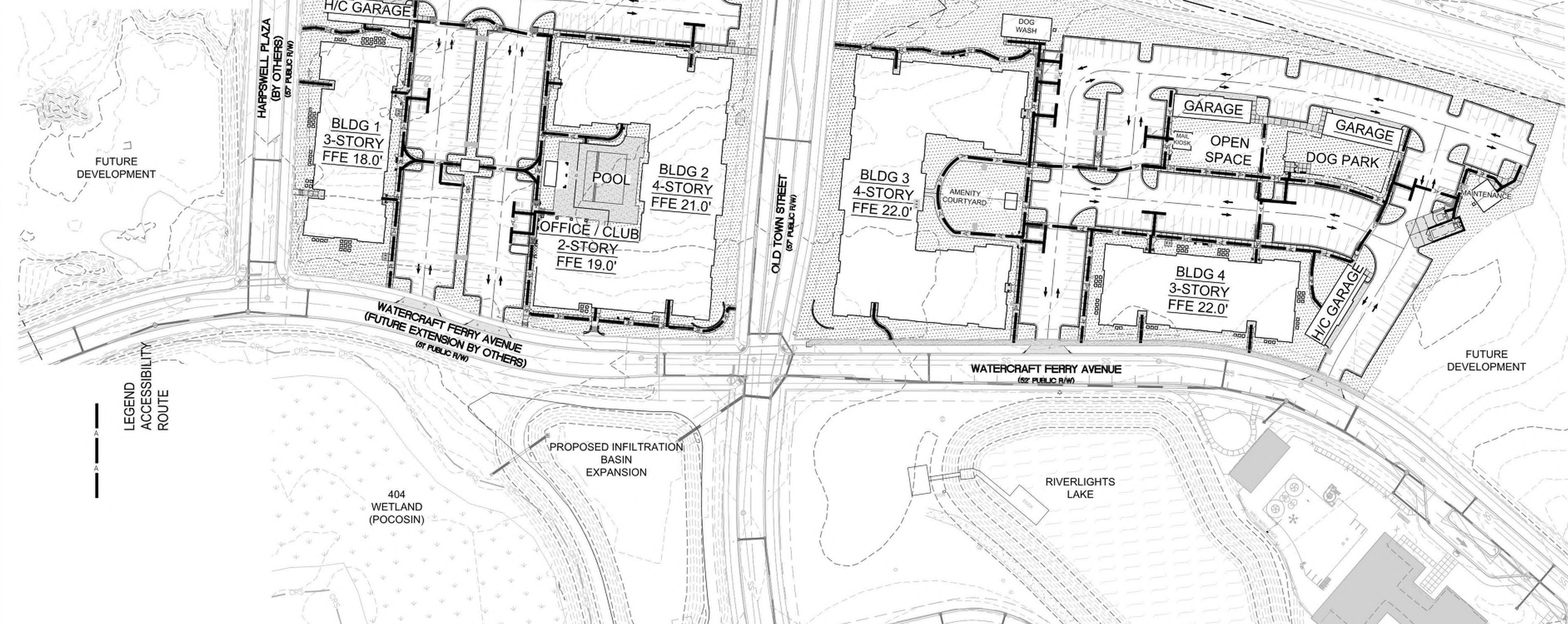


PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
FIRE PROTECTION SITE PLAN

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**CITY OF WILMINGTON**  
 NORTH CAROLINA  
 Public Service • Engineering Division  
 APPROVED STORMWATER MANAGEMENT PLAN  
 Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
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**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	

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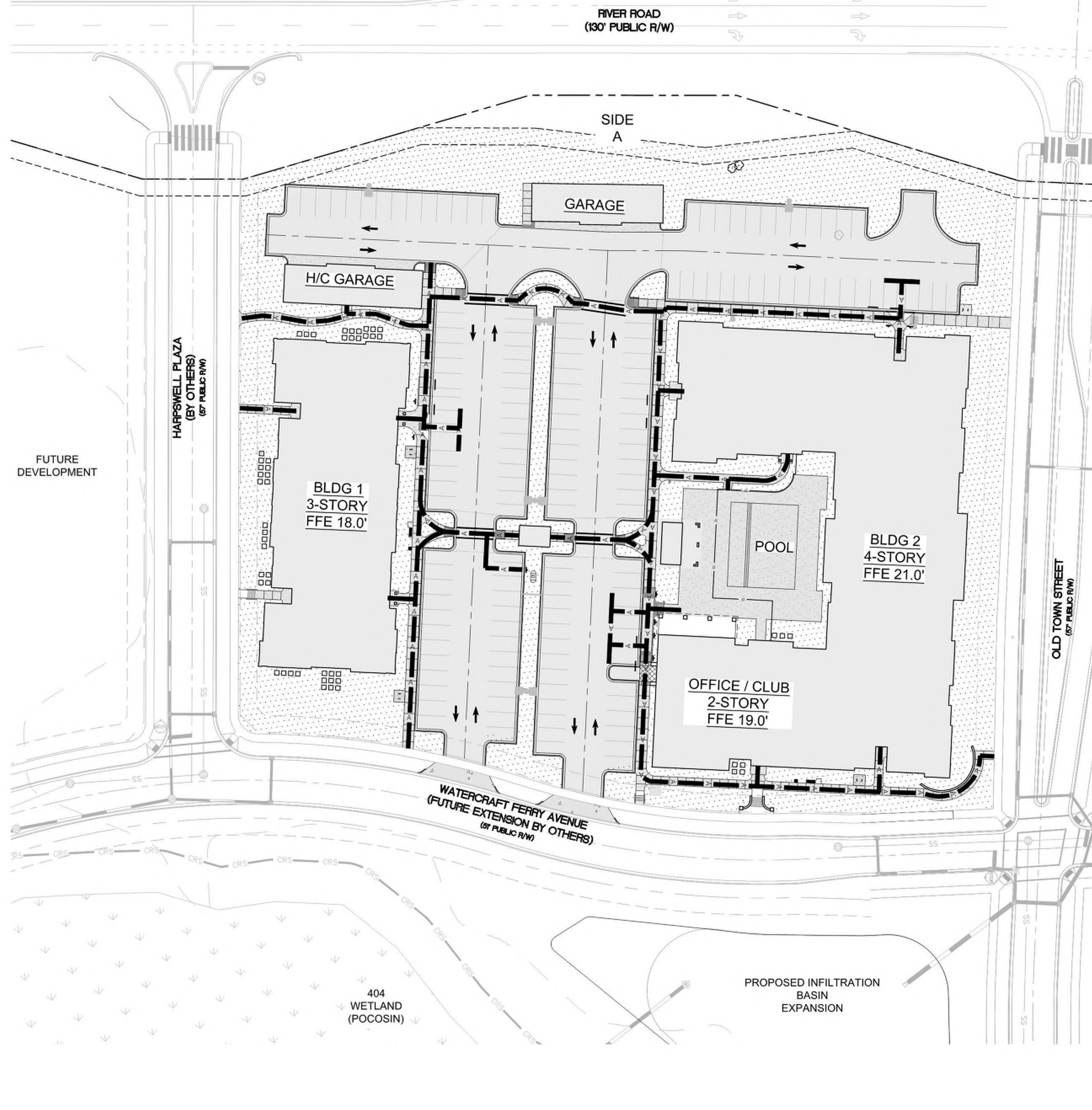
**MIDDLEBURG**  
**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

TRC  
 SUBMITTAL

*Edward M. Collier*  
 PROFESSIONAL  
 SEAL  
 22574  
 ENGINEER  
 EDWARD M. COLLIER  
 10-04-2019

PROJECT: 07694-0002  
 DATE: 10.04.2019  
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DRAWN BY: RAS/BPD  
 CHECKED BY: RMC  
 OVERALL ADA  
 ACCESSIBILITY PLAN



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LEGEND  
ACCESSIBILITY  
ROUTE

MATCHLINE SEE SHEET CS-102

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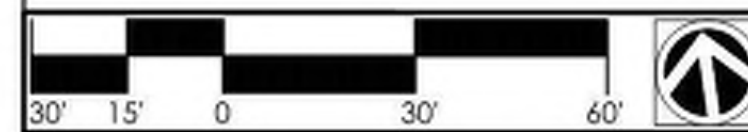
1 inch

**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	

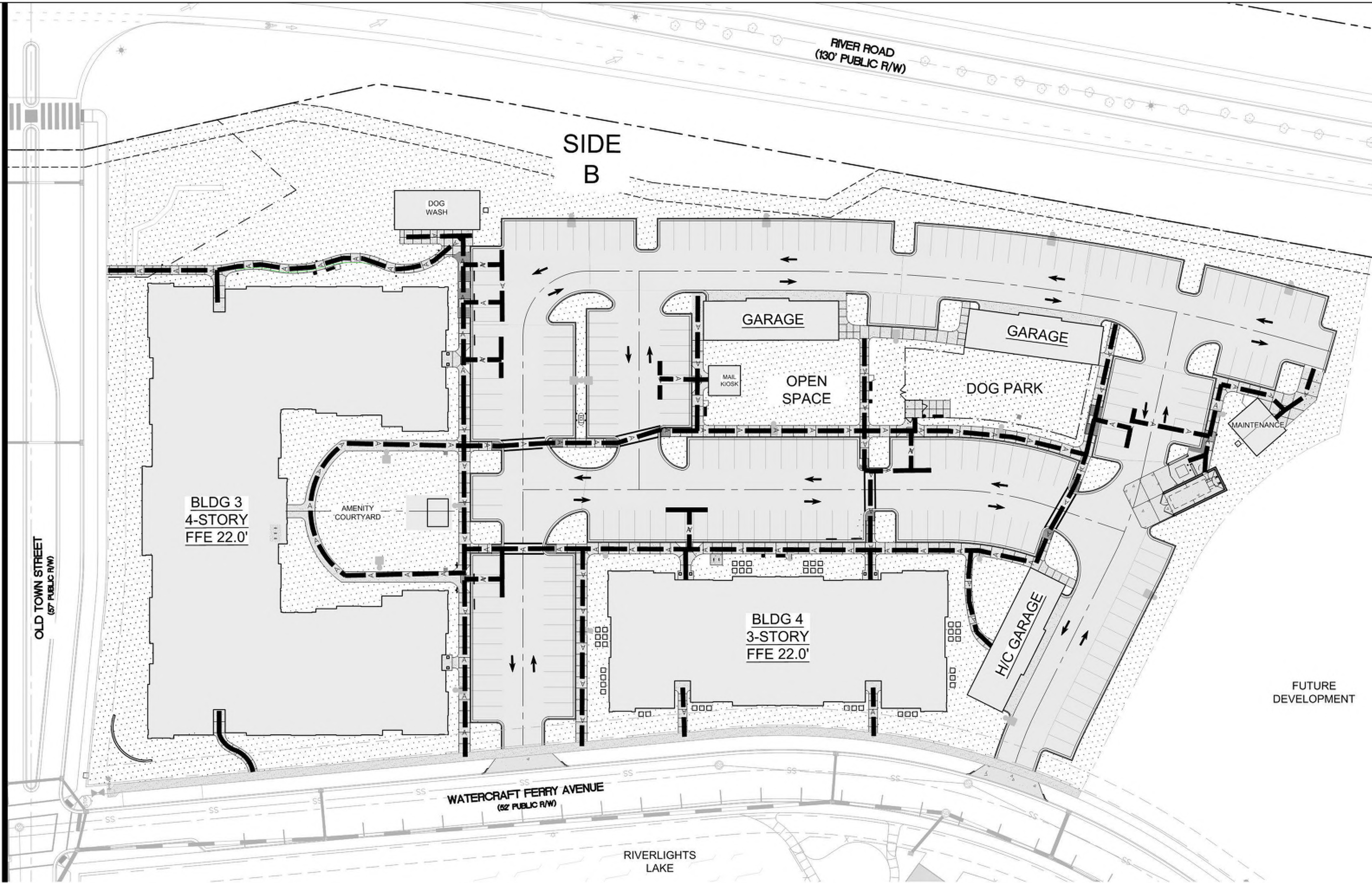
**CITY OF WILMINGTON NORTH CAROLINA**  
Public Service • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

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MATCHLINE SEE SHEET CS-101



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**Approved Construction Plan**

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

Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_



Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

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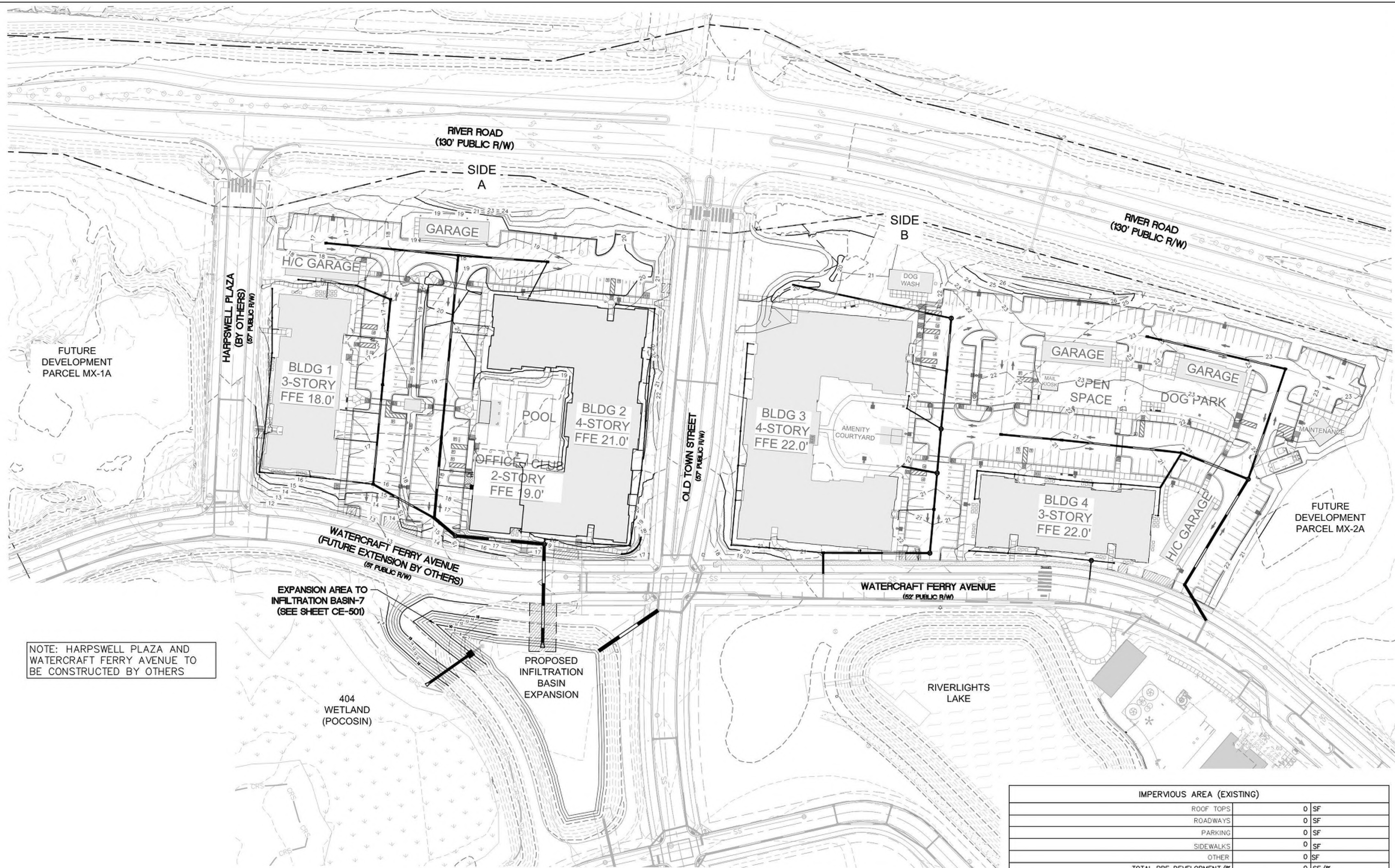
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SUBMITTAL



PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE

DRAWN BY: RAS/BPD  
CHECKED BY: RMC

OVERALL GRADING  
AND STORMWATER  
PLAN



NOTE: HARPSWELL PLAZA AND WATERCRAFT FERRY AVENUE TO BE CONSTRUCTED BY OTHERS

EXPANSION AREA TO INFILTRATION BASIN-7 (SEE SHEET CE-501)

PROPOSED INFILTRATION BASIN EXPANSION

404 WETLAND (POCOSIN)

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1 inch

**CITY OF WILMINGTON**  
NORTH CAROLINA  
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APPROVED STORMWATER MANAGEMENT PLAN

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

**Approved Construction Plan**

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

Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

IMPERVIOUS AREA (EXISTING)	
ROOF TOPS	0 SF
ROADWAYS	0 SF
PARKING	0 SF
SIDEWALKS	0 SF
OTHER	0 SF
<b>TOTAL PRE DEVELOPMENT/%</b>	<b>0 SF/%</b>
IMPERVIOUS AREA (PROPOSED)	
ROOF TOPS	110,469 SF
ROADWAYS	0 SF
PARKING	110,728 SF
SIDEWALKS	48,656 SF
<b>TOTAL S.F. (ONSITE IMPERVIOUS AREA)</b>	<b>269,853 SF</b>
<b>PERCENTAGE (ONSITE IMPERVIOUS AREA/ONSITE AREA)</b>	<b>66.34 %</b>



RIVER ROAD  
(130' PUBLIC R/W)

SIDE  
A

GARAGE

H/C GARAGE

BLDG 1  
3-STORY  
FFE 18.0'

POOL

BLDG 2  
4-STORY  
FFE 21.0'

OFFICE / CLUB  
2-STORY  
FFE 19.0'

WATERCRAFT FERRY AVENUE  
(FUTURE EXTENSION BY OTHERS)  
(67' PUBLIC R/W)

OLD TOWN STREET  
(67' PUBLIC R/W)

FUTURE  
DEVELOPMENT  
PARCEL MX-1A

HARPSWELL PLAZA  
(BY OTHERS)  
(67' PUBLIC R/W)

404  
WETLAND  
(POCOSIN)

EXISTING  
INFILTRATION  
BASIN

**EXISTING LEGEND**

WATER LINE	6W / 6W
WATER SERVICE	6W / 6W
FIRE HYDRANT	6W / 6W
WATER VALVE	6W / 6W
SEWER LINE	SS / SS
SEWER SERVICE	SS / SS
SEWER MANHOLE	SS / SS
DRAINAGE BASIN	SS / SS
DRAINAGE PIPE	SS / SS
UTILITY EASEMENT	SS / SS
POWER PEDESTAL	SS / SS
POWER TRANSFORMER	SS / SS
STREET LIGHT	SS / SS
EX. CONTOUR MAJOR	15
EX. CONTOUR MNDR	15

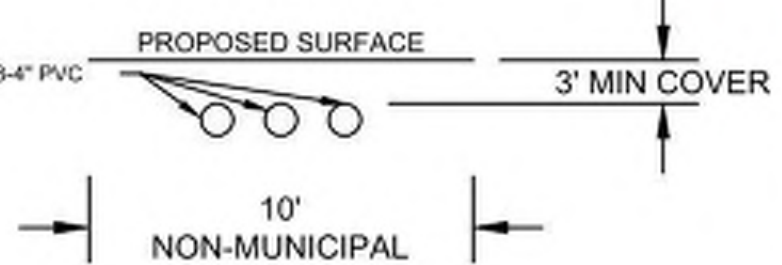
EP = EDGE OF PAVEMENT  
TC = TOP OF CURB  
BC = BOTTOM OF CURB  
FS = FINISHED SURFACE  
FG = FINISHED GRADE

**PROPOSED LEGEND**

WATER LINE	6W / 6W
WATER SERVICE	6W / 6W
FIRE HYDRANT	6W / 6W
WATER VALVE	6W / 6W
WATER METER	6W / 6W
BACKFLOW PREVENTER	6W / 6W
SEWER LINE	SS / SS
SEWER SERVICE	SS / SS
SEWER MANHOLE	SS / SS
DRAINAGE BASIN	SS / SS
DRAINAGE PIPE	SS / SS
UTILITY EASEMENT	SS / SS
POWER PEDESTAL	SS / SS
POWER TRANSFORMER	SS / SS
GAS MAIN	GAS / GAS
PROP. CONTOUR MAJOR	15
PROP. CONTOUR MNDR	15

**NOTES**

- CURB & GUTTER TO BE SPILL GUTTER UNLESS OTHERWISE NOTED.
- STORM DRAINAGE PIPES AND STRUCTURES TABLE ON SHEET CG-503.
- SEE LAND PLANNING SHEETS FOR LANDSCAPE & HARDSCAPE DESIGN.
- HARPSWELL PLAZA AND WATERCRAFT FERRY AVENUE TO BE CONSTRUCTED BY OTHERS.
- CONTRACTOR TO INSTALL 3-4" PVC CONDUIT WITHIN 10' NON-MUNICIPAL EASEMENT WHERE A SIDEWALK, STAIR, OR OTHER CROSSING OCCURS.
  - DUKE ENERGY
  - SPECTRUM CABLE
  - OTHER/SPARE



MATCHLINE SEE SHEET CG-102

1 inch

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: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_

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

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

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



125 N. Harrington St.  
Raleigh, NC 27603  
919/833-6413  
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**Middleburg Apartments**  
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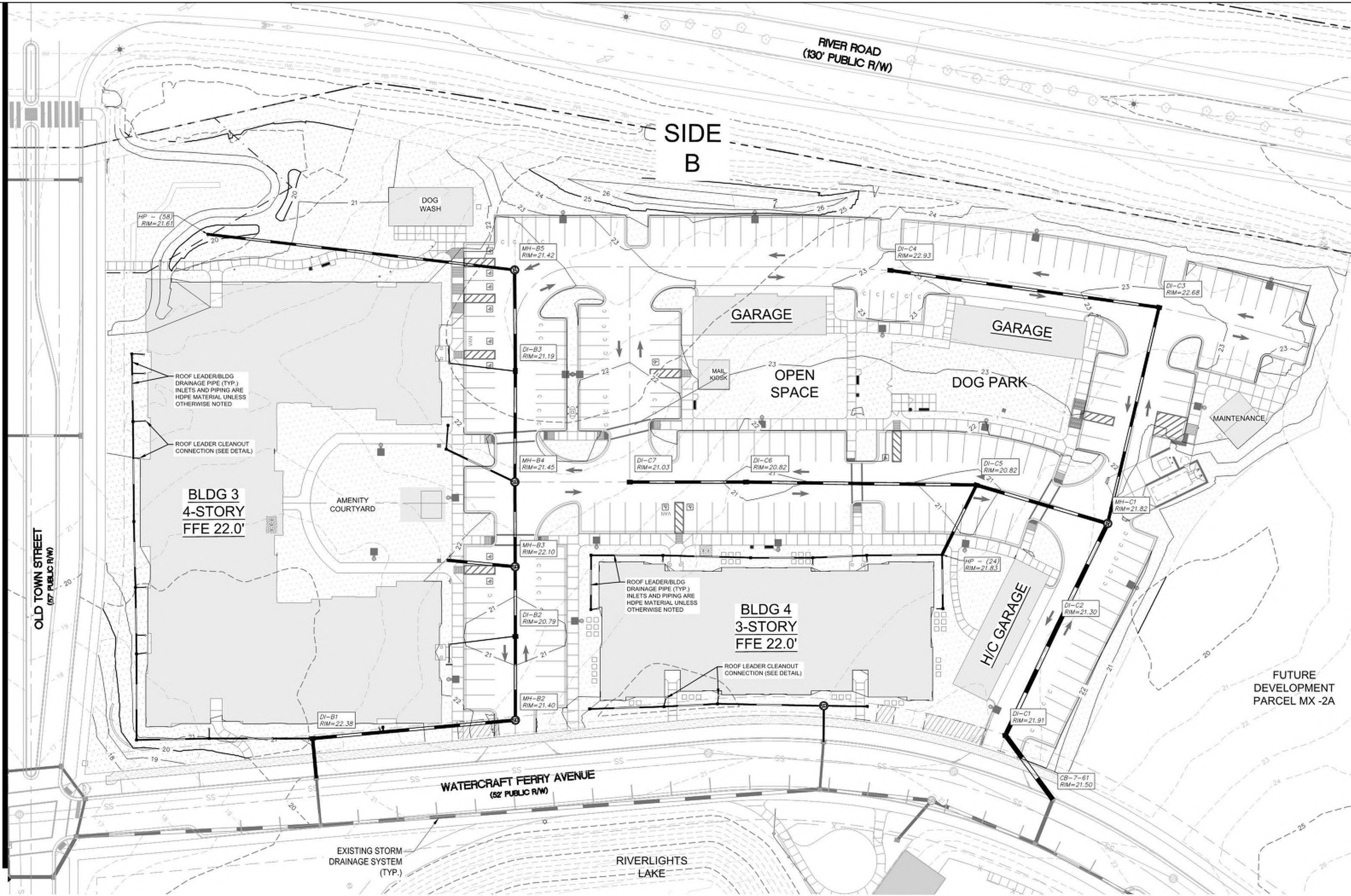
TRC  
SUBMITTAL

Professional Engineer Seal for Edward M. Collier, No. 22574, State of North Carolina, dated 10-04-2019.

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
ENLARGED GRADING & STORMWATER PLAN  
SIDE A

MATCHLINE SEE SHEET CG-101



**EXISTING LEGEND**

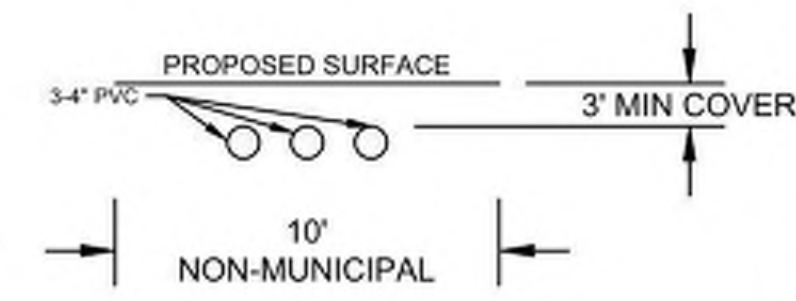
WATER LINE	— GW — SW
WATER SERVICE	—
FIRE HYDRANT	—
WATER VALVE	—
SEWER LINE	— SS —
SEWER SERVICE	—
SEWER MANHOLE	—
DRAINAGE BASIN	—
DRAINAGE PIPE	—
UTILITY EASEMENT	—
POWER PEDESTAL	—
POWER TRANSFORMER	—
STREET LIGHT	—
EX. CONTOUR MAJOR	— 15 —
EX. CONTOUR MINOR	—

EP = EDGE OF PAVEMENT  
 TC = TOP OF CURB  
 BC = BOTTOM OF CURB  
 FS = FINISHED SURFACE  
 FG = FINISHED GRADE

**PROPOSED LEGEND**

WATER LINE	— GW — GW
WATER SERVICE	—
FIRE HYDRANT	—
WATER VALVE	—
WATER METER	—
BACKFLOW PREVENTER	—
SEWER LINE	— SS — +CO
SEWER SERVICE	—
SEWER MANHOLE	—
DRAINAGE BASIN	—
DRAINAGE PIPE	—
UTILITY EASEMENT	—
POWER PEDESTAL	—
POWER TRANSFORMER	—
GAS MAIN	— GAS — GAS —
PROP. CONTOUR MAJOR	— 15 —
PROP. CONTOUR MINOR	—

- NOTES**
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**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	

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 Public Services • Engineering Division  
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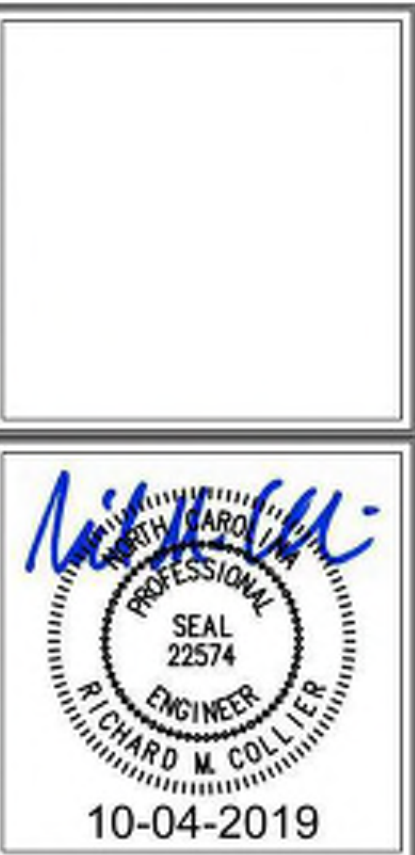


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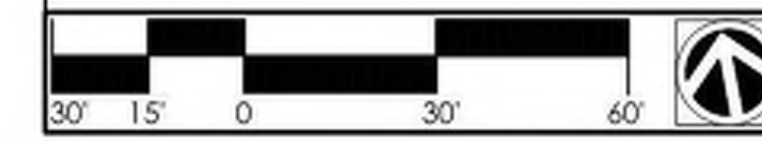
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TRC SUBMITTAL



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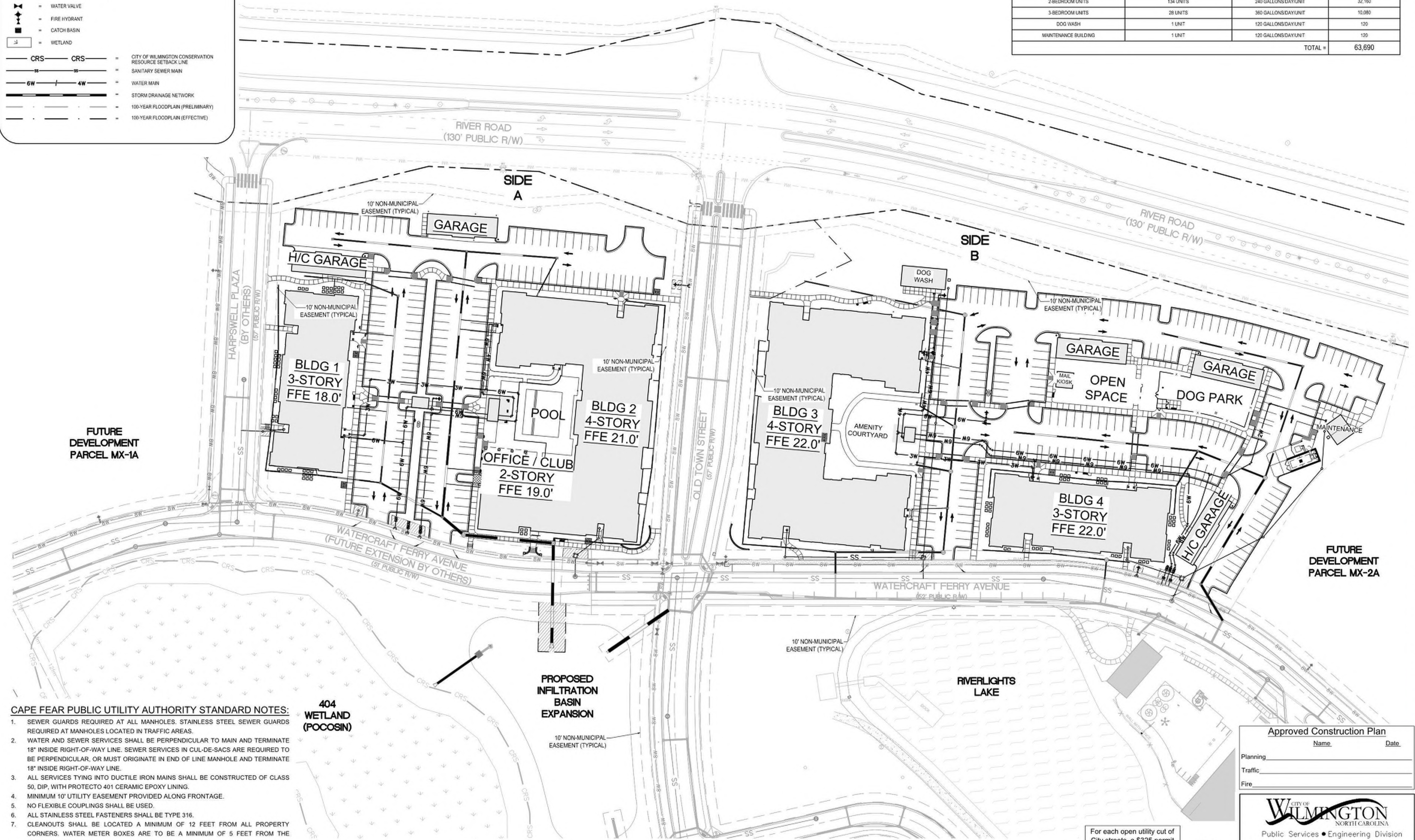
DRAWN BY: RAS/BPD  
 CHECKED BY: RMC  
 ENLARGED GRADING & STORMWATER PLAN  
 SIDE A



**LEGEND**

- ⊙ = SANITARY SEWER MANHOLE
- ⊕ = WATER VALVE
- ⊕ = FIRE HYDRANT
- ⊕ = CATCH BASIN
- ⊕ = WETLAND
- CRS = CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
- SS = SANITARY SEWER MAIN
- GW / 4W = WATER MAIN
- = STORM DRAINAGE NETWORK
- - - = 100-YEAR FLOODPLAIN (PRELIMINARY)
- - - = 100-YEAR FLOODPLAIN (EFFECTIVE)

ESTIMATED WATER & SANITARY DEMAND			
PROPOSED USE	UNIT COUNT	REQUIREMENT	PROPOSED FLOW (GPD)
1-BEDROOM UNITS	88 UNITS	240 GALLONS/DAY/UNIT	21,120
2-BEDROOM UNITS	134 UNITS	240 GALLONS/DAY/UNIT	32,160
3-BEDROOM UNITS	28 UNITS	360 GALLONS/DAY/UNIT	10,080
DOG WASH	1 UNIT	120 GALLONS/DAY/UNIT	120
MAINTENANCE BUILDING	1 UNIT	120 GALLONS/DAY/UNIT	120
<b>TOTAL =</b>			<b>63,600</b>



**CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD NOTES:**

- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
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- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- MINIMUM 10' UTILITY EASEMENT PROVIDED ALONG FRONTAGE.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL STAINLESS STEEL FASTENERS SHALL BE TYPE 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.

**UTILITY NOTES:**

- ALL VALVES AND FITTINGS TO BE RESTRAINED JOINT OR BLOCKED PER CFPWA STANDARD DETAILS AND SPECIFICATIONS. SEE CFPWA STANDARD DETAIL SHEETS AND UTILITY NOTES G-002.
- VALVE LOCATIONS TO BE FIELD ADJUSTED TO AVOID PLACEMENT WITHIN HANDICAP RAMPS.
- WATER METERS AND CLEAN OUTS TO BE INSTALLED ON STRUCTURE SIDE OF MAIN (NO REVERSE TAPS).

**404 WETLAND (POCOSIN)**

**PROPOSED INFILTRATION BASIN EXPANSION**

10' NON-MUNICIPAL EASEMENT (TYPICAL)

**NOTES:**

- SEE CS-200 FOR FIRE ACCESS ROUTING.
- SEE CU-501 THROUGH CU-505 FOR DETAILS.
- SEE CU-505 FOR WATER METER SIZING SPREADSHEET.

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1 inch

**Approved Construction Plan**

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

Planning: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_

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

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

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

**CLINE DESIGN**  
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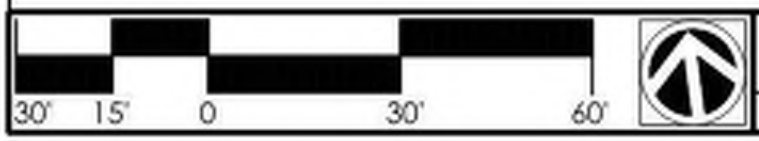
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**Middleburg Apartments**  
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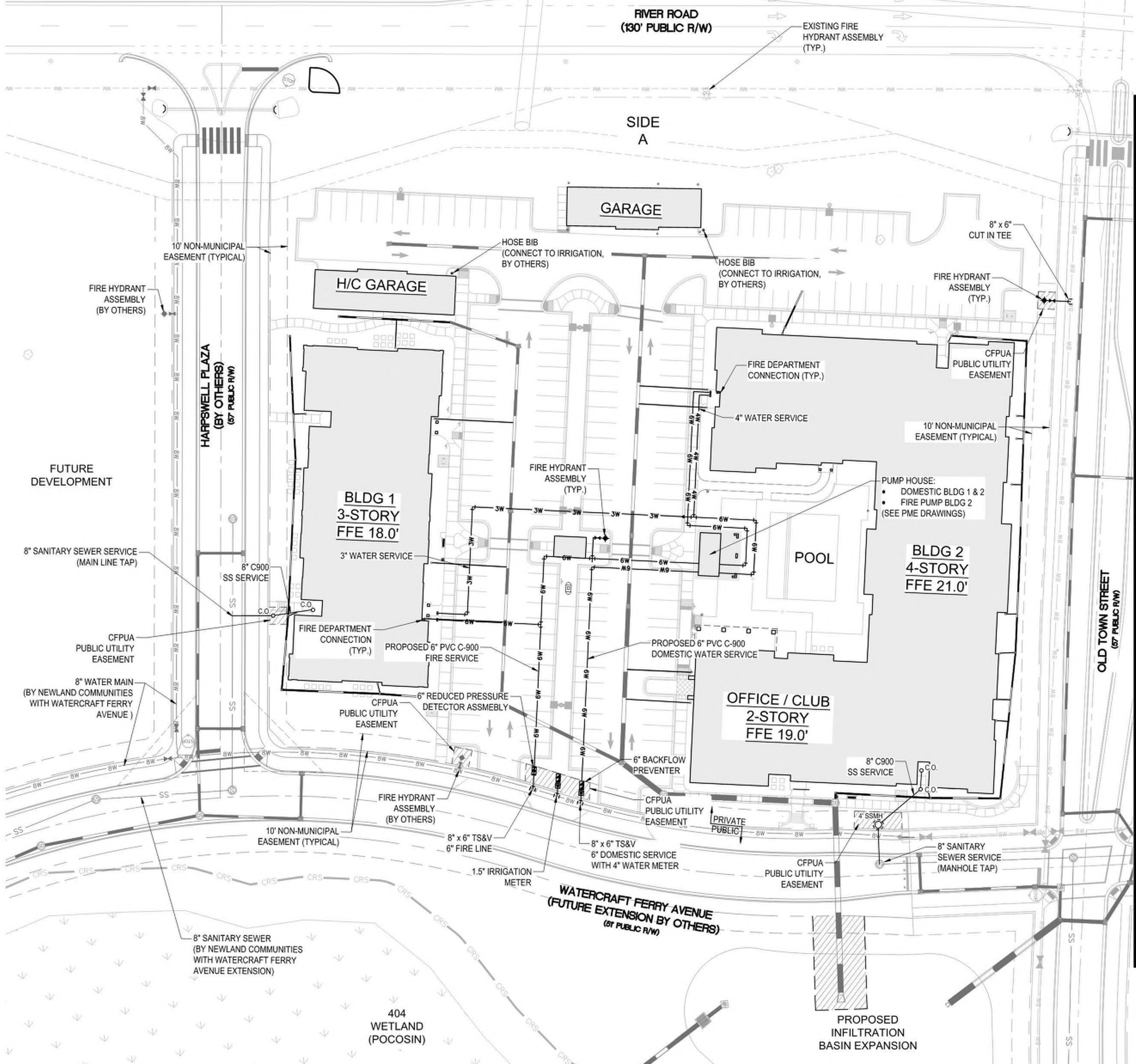
**TRC SUBMITTAL**

**PROFESSIONAL ENGINEER**  
SEAL 22574  
B. CLAYTON COLLIER  
10-04-2019

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE: \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
OVERALL UTILITY PLAN





### LEGEND

- = SANITARY SEWER MANHOLE
- = WATER VALVE
- = FIRE HYDRANT
- = DROP-INLET
- = WETLAND
- = CRS
- = CITY OF WILMINGTON CONSERVATION RESOURCE SETBACK LINE
- = SANITARY SEWER MAIN
- = WATER MAIN
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MATCHLINE SEE SHEET CU-102



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MIDDLEBURG  
**Middleburg Apartments**  
4410 River Road  
Wilmington, North Carolina

TRC  
SUBMITTAL

Approved Construction Plan

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

Planning: \_\_\_\_\_

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_

10-04-2019

PROFESSIONAL ENGINEER  
SEAL 22574  
B. EDWARD M. COLLIER

PROJECT: 07694-0002  
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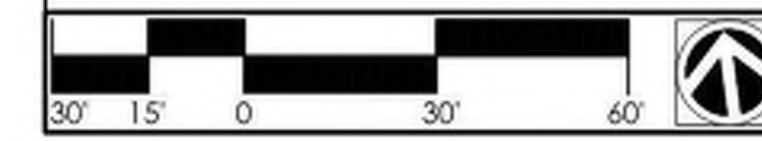
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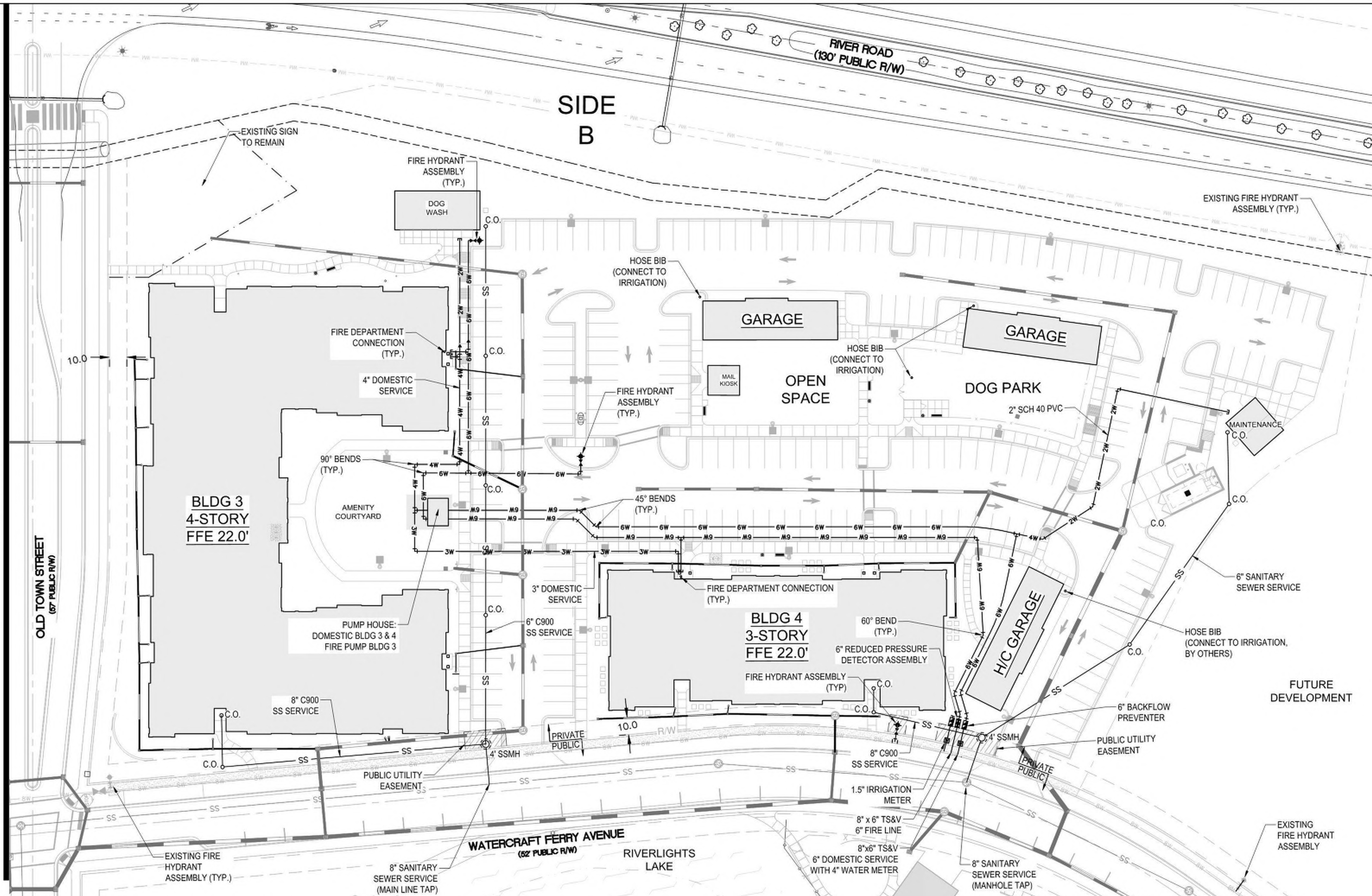
1 inch



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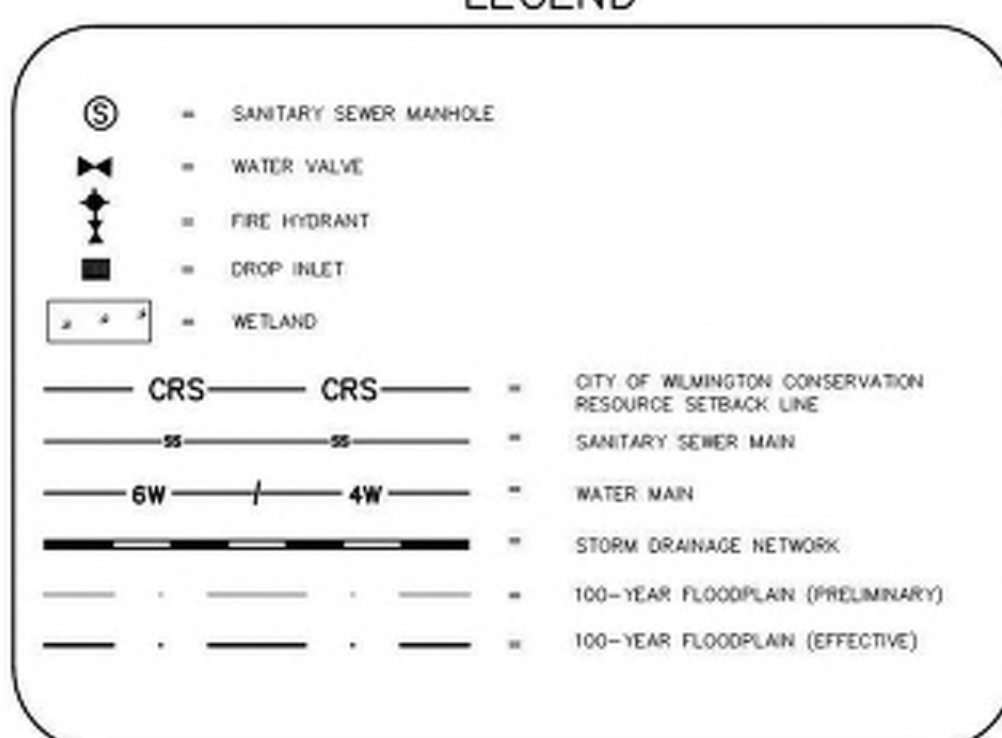


MATCHLINE SEE SHEET CU-101



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1 inch



**SEEDBED PREPARATION:**

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.
2. RIP THE ENTRANCE AREA TO 6 INCHES DEPTH.
3. REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPERPHOSPHATE UNIFORMLY AND MIX WITH SOIL. (SEE BELOW\*).
5. CONTINUE TILLAGE UNTIL A WELL - PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
8. INSPECT ALL SEEDING AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
9. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
10. APPLY:  
 AGRICULTURAL LIMESTONE - 2 TONS/ACRE  
 FERTILIZER - 1000 LBS/ACRE (10-10-10)  
 SUPERPHOSPHATE - 500 LBS/ACRE (20%)  
 MULCH - 2 TONS/ACRE (SMALL GRAIN STRAW)  
 ANCHOR - ASPHALT EMULSION AT 450 GAL/ACRE

**TREE PROTECTION NOTES:**

1. NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS. [18-457(b)]
2. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [18-458]
3. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS. [18-457(d)]
4. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING AND GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS. [18-458]
5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED. [18-458]
6. REGULATED AND SIGNIFICANT TREES IN THE STREET YARD [18-456(c)] AND ANY TREES IN ANY REQUIRED BUFFERS [18-456(b)] ARE REQUIRED TO BE RETAINED.

**GROUND STABILIZATION CRITERIA**

SITE AREA DESCRIPTION	STABILIZATION TIMEFRAME	STABILIZATION TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10 FT OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FT IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HWY ZONES)

**PERMANENT SEEDING**

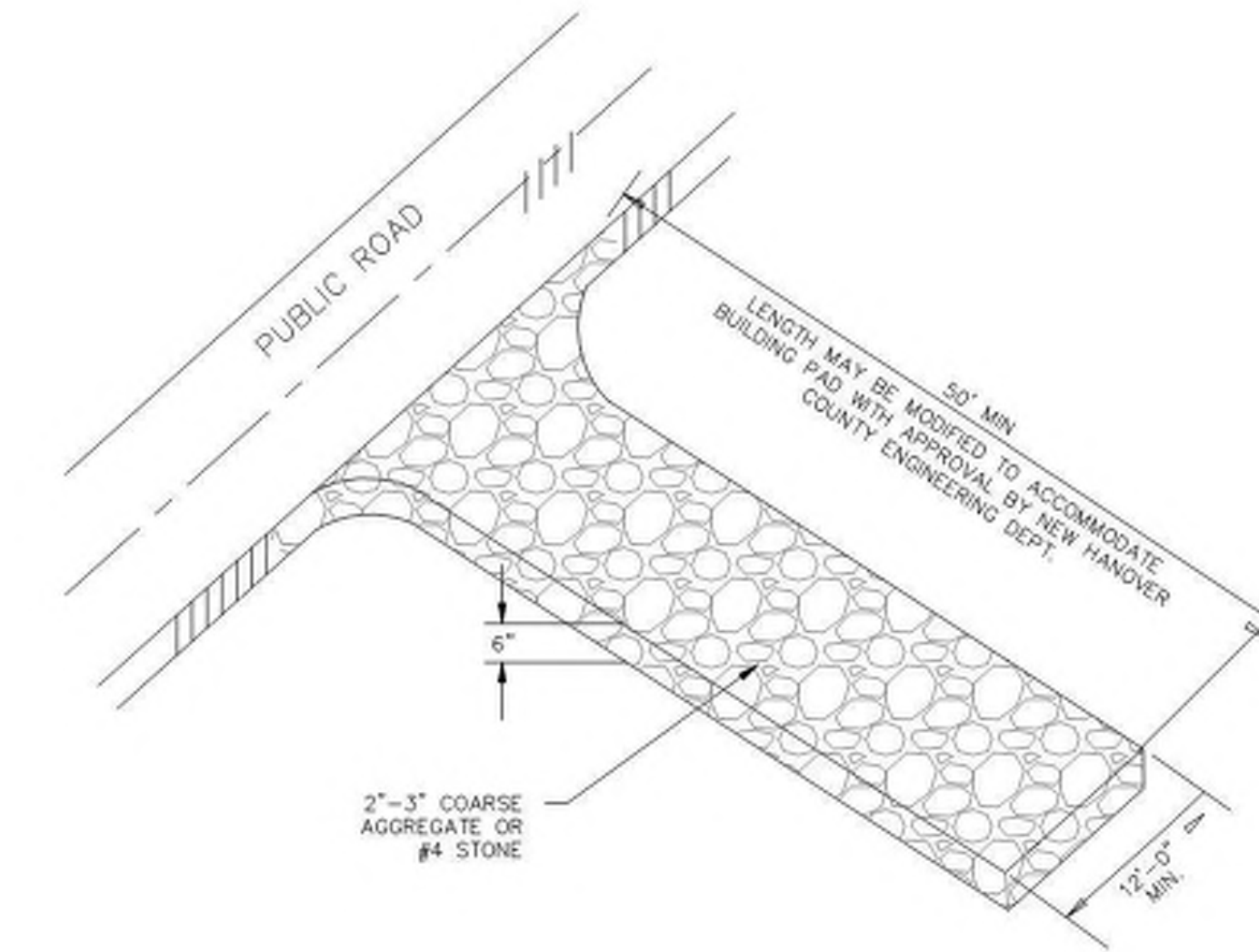
GRASS TYPE	AMOUNT/1000 S.F.	TIME OF SEEDING	INITIAL
BERMUDA, COMMON	1-2 LBS.	APRIL - JUNE	25 LBS. 10-10-10
FESCUE, TALL (KENTUCKY 31)	5-7 LBS	JUNE - AUGUST FEB. - OCT.	25 LBS 10-10-10
SERICEA LESPEDEZA (SLOPES)	1-2 LBS	MARCH - APRIL	25 LBS 10-10-10

**TEMPORARY SEEDING**

GRASS TYPE	AMOUNT/1000 S.F.	TIME OF SEEDING	INITIAL
RYE GRAIN	1-2 LBS.	APRIL - JUNE	25 LBS. 10-10-10
BROWNTOP MILLET	1-2 LBS	JUNE - AUGUST	25 LBS 10-10-10

**NOTE (G.S. 113A-57 (2))**

THE ANGLE FOR GRADED SLOPES AND FILLS SHALL BE NO GREATER THAN THE ANGLE THAT CAN BE RETAINED BY VEGETATIVE COVER OR OTHER ADEQUATE EROSION CONTROL DEVICES OR STRUCTURES. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF COMPLETION OF ANY GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.



**GENERAL NOTES**

8

Not to Scale

**SEEDING AND STABILIZATION**

6

Not to Scale

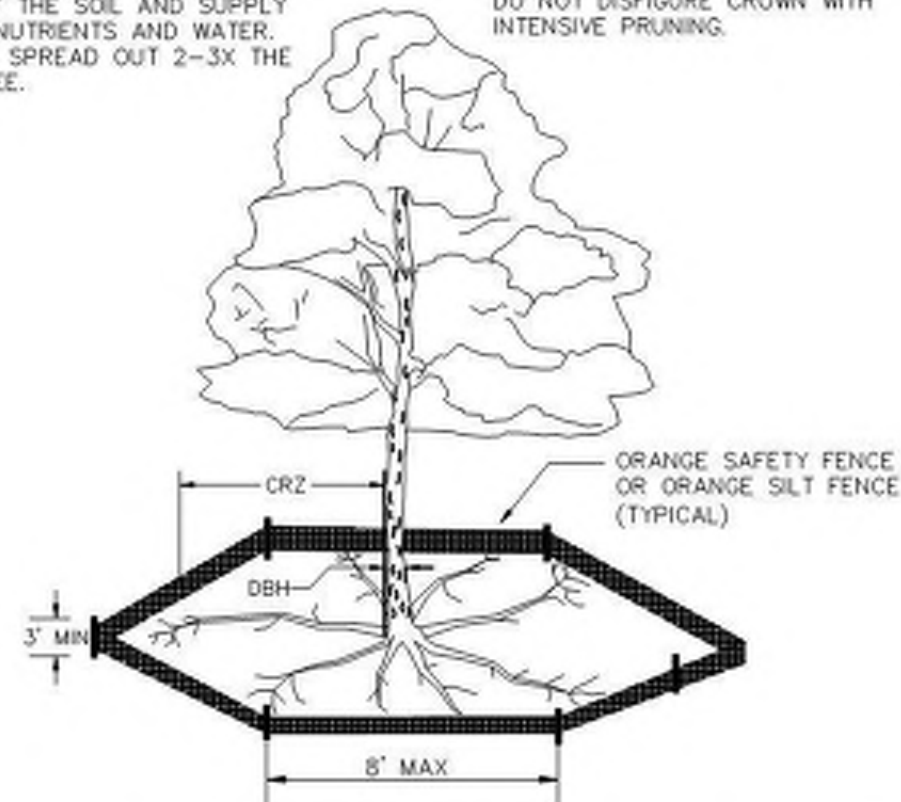
**TEMPORARY CONSTRUCTION ENTRANCE**

3

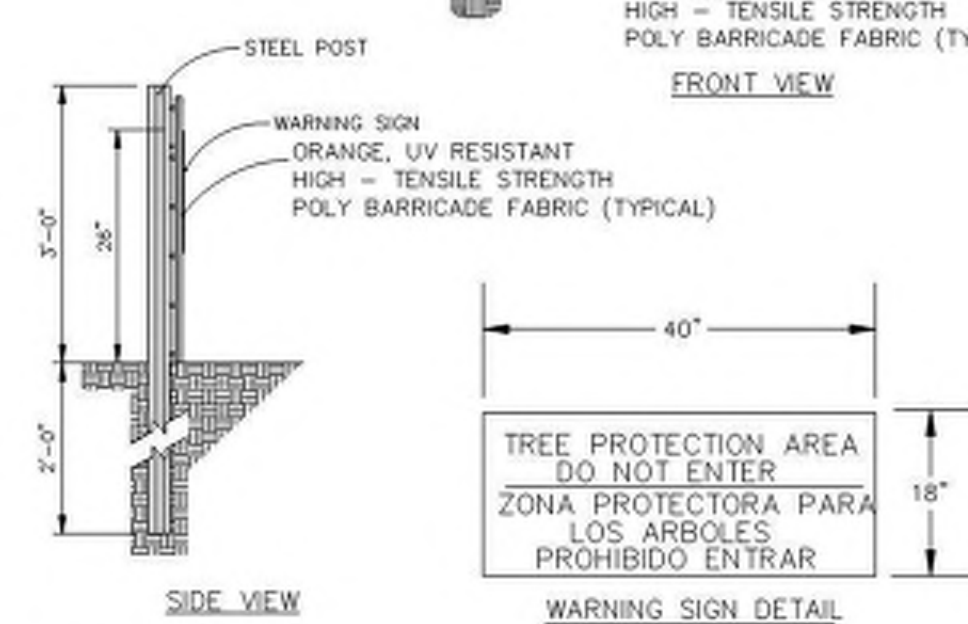
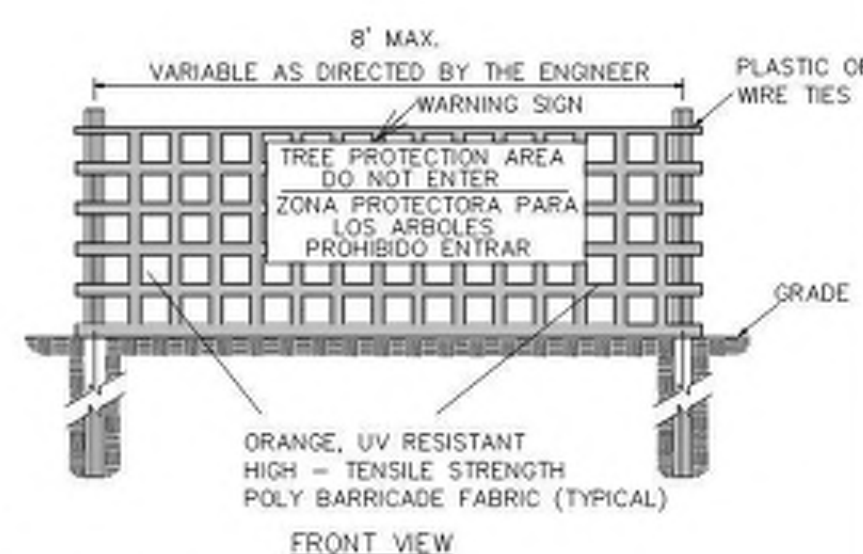
Not to Scale

NOTE: THE CRITICAL ROOT ZONE (CRZ) OF A TREE IS WHERE THE MAJORITY OF A TREE'S ROOTS LAY. 85% OF MOST TREE ROOTS ARE FOUND IN THE TOP 24" OF THE SOIL AND SUPPLY THE MAJORITY OF NUTRIENTS AND WATER. GENERALLY, ROOTS SPREAD OUT 2-3X THE HEIGHT OF THE TREE.

NOTE: CROWN OF THE TREE IS NEEDED FOR LEAF GROWTH TO PRODUCE OXYGEN, FILTER THE AIR, REDUCE WIND AND SOFTEN NOISE. DO NOT DISFIGURE CROWN WITH INTENSIVE PRUNING.



- NOTES:**
1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
  2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
  3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATTS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
  4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
  5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
  6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF \$500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

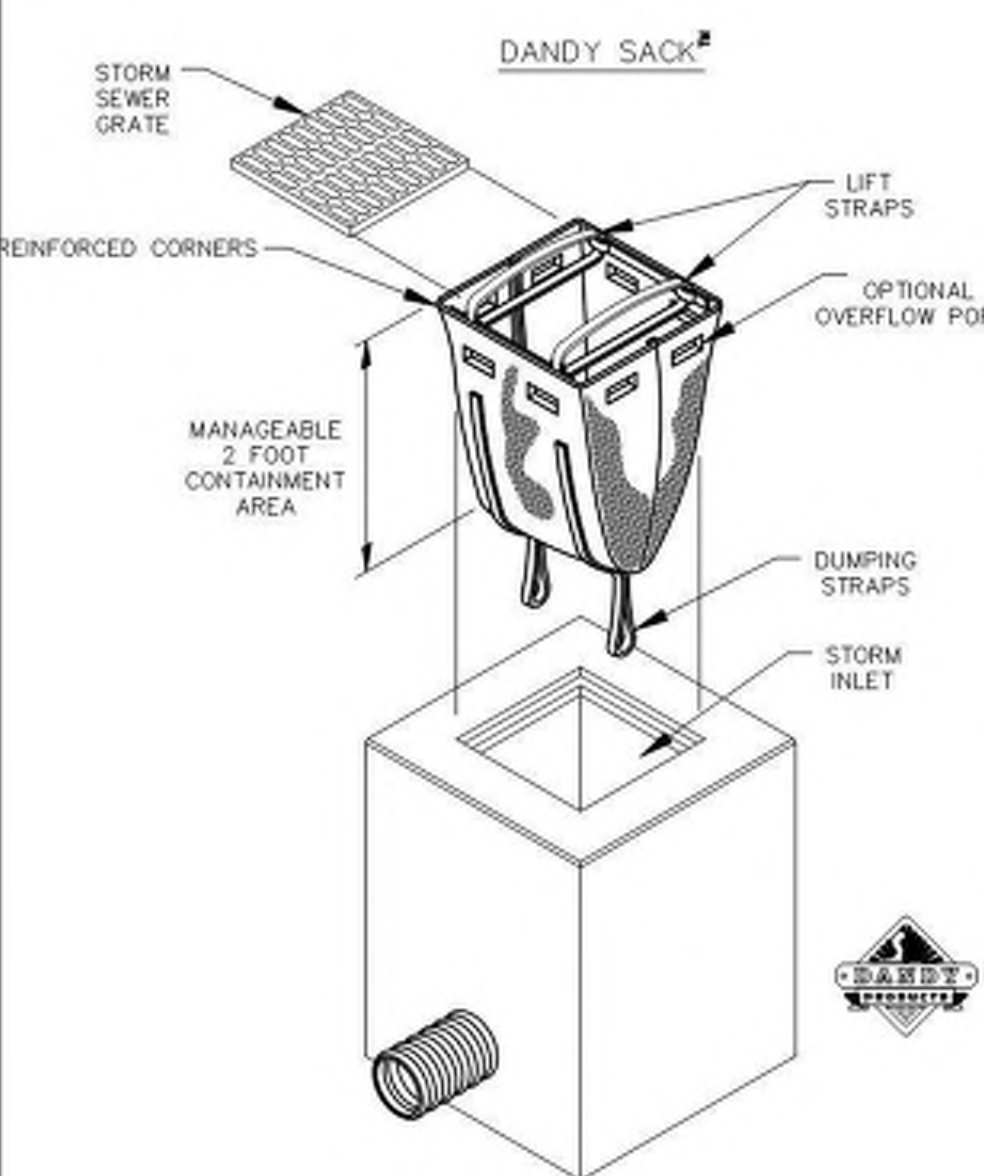


- NOTES:**
1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
  2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
  3. SIGNS SHALL 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 FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
  5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
  6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

**TREE PROTECTION**

7

Not to Scale



**DANDY SACK™ SPECIFICATIONS**

NOTE: THE DANDY SACK™ WILL BE MANUFACTURED IN THE U.S.A. FROM A WOVEN MONOLAMENET FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	ksi (ksi)	1.78 (100) x 1.40 (316)
Grab Tensile Elongation	ASTM D 4632	%	19 x 19
Puncture Strength	ASTM D 4633	ksi (ksi)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	lbf (psi)	5500 (1600)
Trapezoidal Tear Strength	ASTM D 4533	in (ksi)	0.67 (150) x 0.73 (165)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4191	mm (US 316 Sieve)	0.425 (100)
Fine Rate	ASTM D 4491	1/min./mm (gpm/mm/ft.3)	2852 (750)
Permeability	ASTM D 4491	sec	0.90

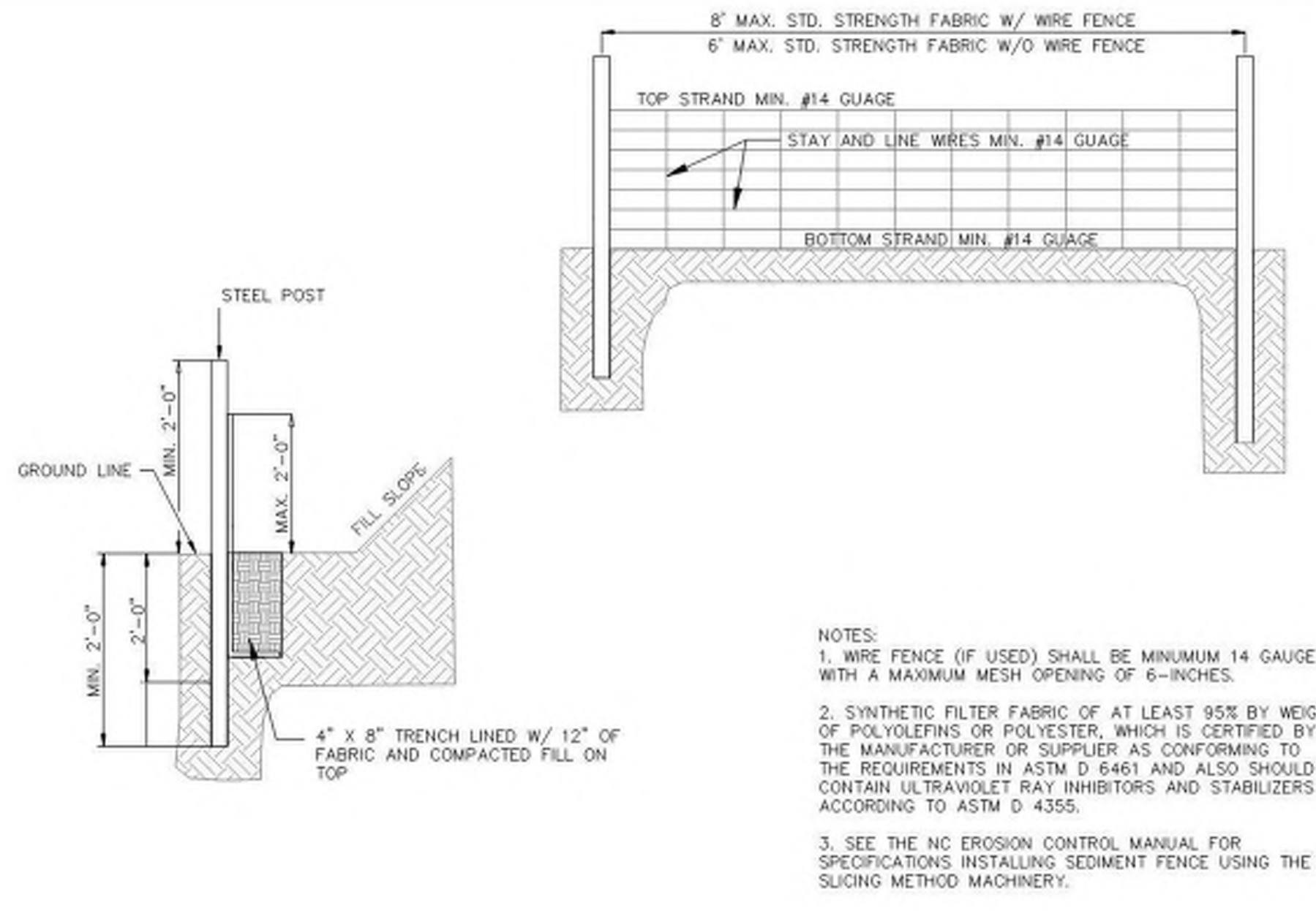
Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	ksi (ksi)	1.62 (205) x 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 x 10
Puncture Strength	ASTM D 4633	ksi (ksi)	0.60 (140)
Mullen Burst Strength	ASTM D 3786	lbf (psi)	3000 (850)
Trapezoidal Tear Strength	ASTM D 4533	in (ksi)	0.51 (115) x 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4191	mm (US 316 Sieve)	0.425 (100)
Fine Rate	ASTM D 4491	1/min./mm (gpm/mm/ft.3)	2852 (750)
Permeability	ASTM D 4491	sec	2.1

\*Note: All Dandy Sacks™ can be ordered with our optional oil absorbent pillows

**INLET PROTECTION**

5

Not to Scale

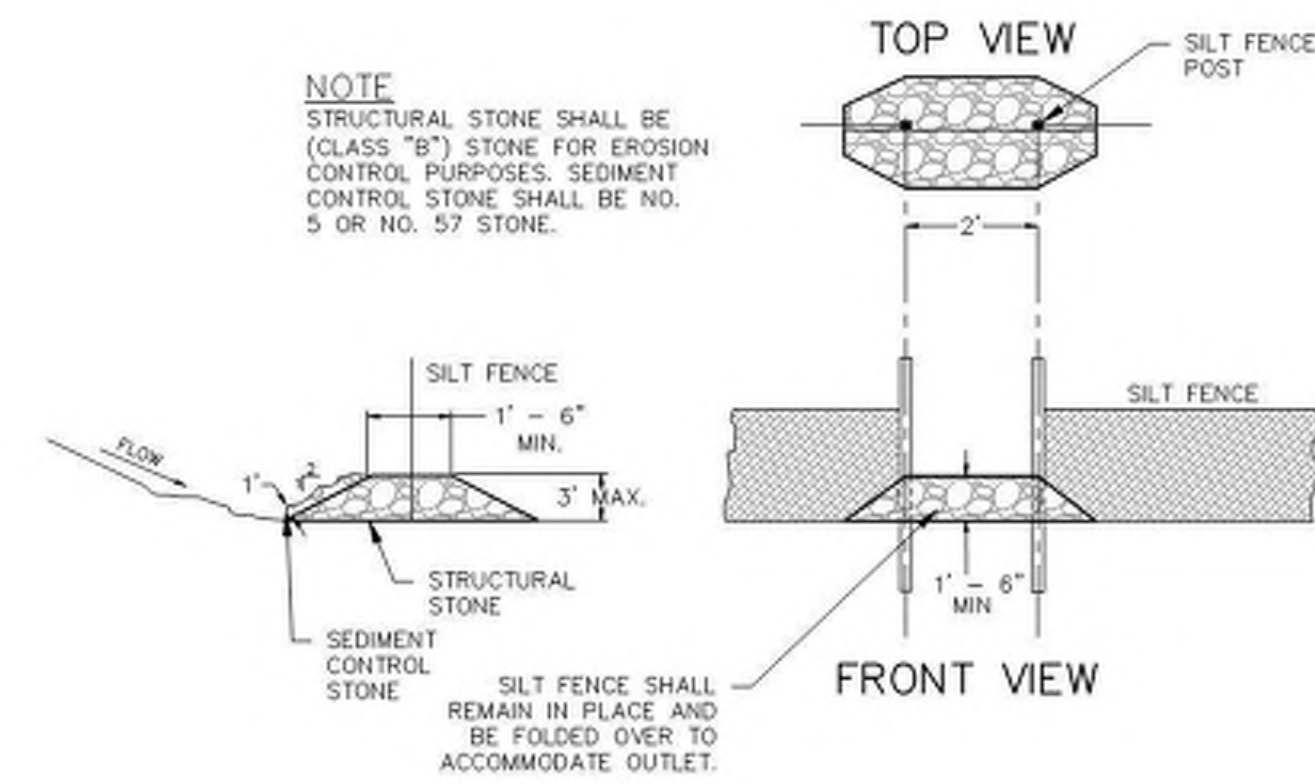


- NOTES:**
1. WIRE FENCE (IF USED) SHALL BE MINIMUM 14 GAUGE WITH A MAXIMUM MESH OPENING OF 6-INCHES.
  2. SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYPROPYLENE OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER AS CONFORMING TO THE REQUIREMENTS IN ASTM D 6461 AND ALSO SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS ACCORDING TO ASTM D 4355.
  3. SEE THE NO EROSION CONTROL MANUAL FOR SPECIFICATIONS INSTALLING SEDIMENT FENCE USING THE SLICING METHOD MACHINERY.

**SILT FENCE OUTLET**

2

Not to Scale



**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.

**Approved Construction Plan**

Name	Date
Planning	
Traffic	
Fire	



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919/836-1280 FAX  
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www.mckimcreed.com

**MIDDLEBURG**  
Middleburg Apartments  
4410 River Road  
Wilmington, North Carolina

TRC SUBMITTAL



PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
EROSION CONTROL DETAILS

CE-501

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**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION A: SELF-INSPECTION**

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gage maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gage observations are made during weekend or holiday periods, and no instantaneous rainfall information is available, record the cumulative rain measurement for those unattended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-measuring device approved by the Director.
(2) EESC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected. 2. Date and time of the inspection. 3. Name of the person performing the inspection. 4. Indication of whether the measures were operating properly. 5. Description of maintenance needs for the measures. 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge (SDC)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge points inspected. 2. Date and time of the inspection. 3. Name of the person performing the inspection. 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration. 5. Indication of visible sediment leaving the site. 6. Description, evidence, and date of corrective actions taken.
(4) Power of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Visible sedimentation is found outside site limits, then a record of the following shall be made: a. Actions taken to clean up or stabilize the sediment that has left the site limits. 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams of wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: a. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item 2(b) of the permit of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter EESC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe as an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION B: RECORDKEEPING**

**1. EESC Plan Documentation**

The approved EESC plan as well as any approved deviation shall be kept on the site. The approved EESC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the EESC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each EESC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved EESC Plan.	Initial and date a copy of the approved EESC Plan or complete, date and sign an inspection report that lists each EESC Measure shown on the approved EESC Plan. This documentation is required upon the initial installation of the EESC Measures or if the EESC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved EESC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved EESC Plan.	Initial and date a copy of the approved EESC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all EESC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to EESC Measures.	Initial and date a copy of the approved EESC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

**2. Additional Documentation**

In addition to the EESC Plan documents above, the following items shall be kept on the site and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

- This general permit as well as the certificate of coverage, after it is received.
- Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.
- All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.43]

**PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING**

**SECTION C: REPORTING**

**1. Occurrences that must be reported**

Permittees shall report the following occurrences:

- Visible sediment deposition in a stream or wetland.
- Oil spills if:
  - They are 25 gallons or more,
  - They are less than 25 gallons but cannot be cleaned up within 24 hours,
  - They cause sheen on surface waters (regardless of volume), or
  - They are within 100 feet of surface waters (regardless of volume).
- Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref. 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref. 40 CFR 302.4) or G.S. 143-215.85.
- Anticipated bypasses and unanticipated bypasses.
- Noncompliance with the conditions of this permit that may endanger health or the environment.

**2. Reporting Timeframes and Other Requirements**

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis.</li> <li>If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired waters conditions.</li> </ul>
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.</li> <li>A report of least ten days before the date of the bypass, if possible. The report shall include an evaluation of the anticipated quality and effect of the bypass.</li> </ul>
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that includes an evaluation of the quality and effect of the bypass.</li> </ul>
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and a cause, the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(m)(6)].</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>
(e) Noncompliance with the conditions of the permit that may endanger health or the environment [40 CFR 122.41(m)(7)]	<ul style="list-style-type: none"> <li>Within 24 hours, an oral or electronic notification.</li> <li>Within 7 calendar days, a report that contains a description of the noncompliance, and a cause, the period of noncompliance including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. [40 CFR 122.41(m)(6)].</li> <li>Division staff may waive the requirement for a written report on a case-by-case basis.</li> </ul>



**NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING**

EFFECTIVE: 04/01/19

**NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING INFORMATION**

3

**GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT**

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on the site conditions and the delegated authority having jurisdiction.

**SECTION E: GROUND STABILIZATION**

Site Area Description	Required Ground Stabilization Timeframes	
	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed. -7 days for slopes greater than 50' in length and with slopes steeper than 4:1
(d) Slopes 3:1 to 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

**GROUND STABILIZATION SPECIFICATION**

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
<ul style="list-style-type: none"> <li>Temporary grass seed covered with straw or other mulches and tackifiers</li> <li>Hydroseeding</li> <li>Roll-on erosion control products with or without temporary grass seed</li> <li>Appropriately applied straw or other mulch</li> <li>Plastic sheeting</li> </ul>	<ul style="list-style-type: none"> <li>Permanent grass seed covered with straw or other mulches and tackifiers</li> <li>Geotextile fabrics such as permanent soil reinforcement matting</li> <li>Hydroseeding</li> <li>Stems or other permanent plantings covered with mulch</li> <li>Uniform and evenly distributed ground cover sufficient to restrain erosion</li> <li>Structural methods such as concrete, asphalt or retaining walls</li> <li>Roll-on erosion control products with grass seed</li> </ul>

- POLYACRYLAMIDES (PAMS) AND FLOCCULANTS**
- Select flocculants that are appropriate for the soils being exposed during construction, selecting from the NC DWR List of Approved PAMS/Flocculants.
  - Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
  - Apply flocculants at the concentrations specified in the NC DWR List of Approved PAMS/Flocculants and in accordance with the manufacturer's instructions.
  - Provide ponding area for containment of treated Stormwater before discharging offsite.
  - Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

- EQUIPMENT AND VEHICLE MAINTENANCE**
- Maintain vehicles and equipment to prevent discharge of fluids.
  - Provide drip pans under any stored equipment.
  - Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
  - Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
  - Remove leaking vehicles and construction equipment from service until the problem has been corrected.
  - Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

- LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE**
- Never bury or burn waste. Place litter and debris in approved waste containers.
  - Provide a sufficient number and size of waste containers (e.g. dumpster, trash receptacle) on site to contain construction and domestic wastes.
  - Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
  - Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
  - Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
  - Anchor all lightweight items in waste containers during times of high winds.
  - Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
  - Dispose waste off-site at an approved disposal facility.
  - On business days, clean up and dispose of waste in designated waste containers.

- PAINT AND OTHER LIQUID WASTE**
- Do not dump paint and other liquid waste into storm drains, streams or wetlands.
  - Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
  - Contain liquid wastes in a controlled area.
  - Containment must be labeled, sized and placed appropriately for the needs of site.
  - Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

- PORTABLE TOILETS**
- Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
  - Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
  - Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

- EARTHEN STOCKPILE MANAGEMENT**
- Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
  - Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
  - Provide stable stone access point when feasible.
  - Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.

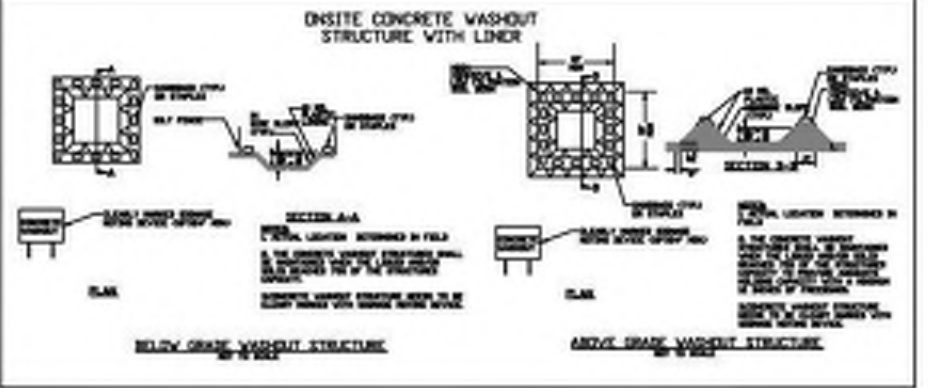


**NCG01 GROUND STABILIZATION AND MATERIALS HANDLING**

EFFECTIVE: 04/01/19

**NCG01 GROUND STABILIZATION AND MATERIALS HANDLING INFORMATION**

2



- CONCRETE WASHOUTS**
- Do not discharge concrete or cement slurry from the site.
  - Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
  - Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
  - Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
  - Do not use concrete washouts for de-watering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
  - Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
  - Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
  - Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
  - Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
  - At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

- HERBICIDES, PESTICIDES AND RODENTICIDES**
- Store and apply herbicides, pesticides and rodenticides in accordance with label directions.
  - Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
  - Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
  - Do not stockpile these materials onsite.

- HAZARDOUS AND TOXIC WASTE**
- Create designated hazardous waste collection areas on-site.
  - Place hazardous waste containers under cover or in secondary containment.
  - Do not store hazardous chemicals, drums or bagged materials directly on the ground.

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

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

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

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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TRC SUBMITTAL

Professional Engineer Seal  
SEAL 22574  
BY: EDWARD M. COLLIER  
10-04-2019

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

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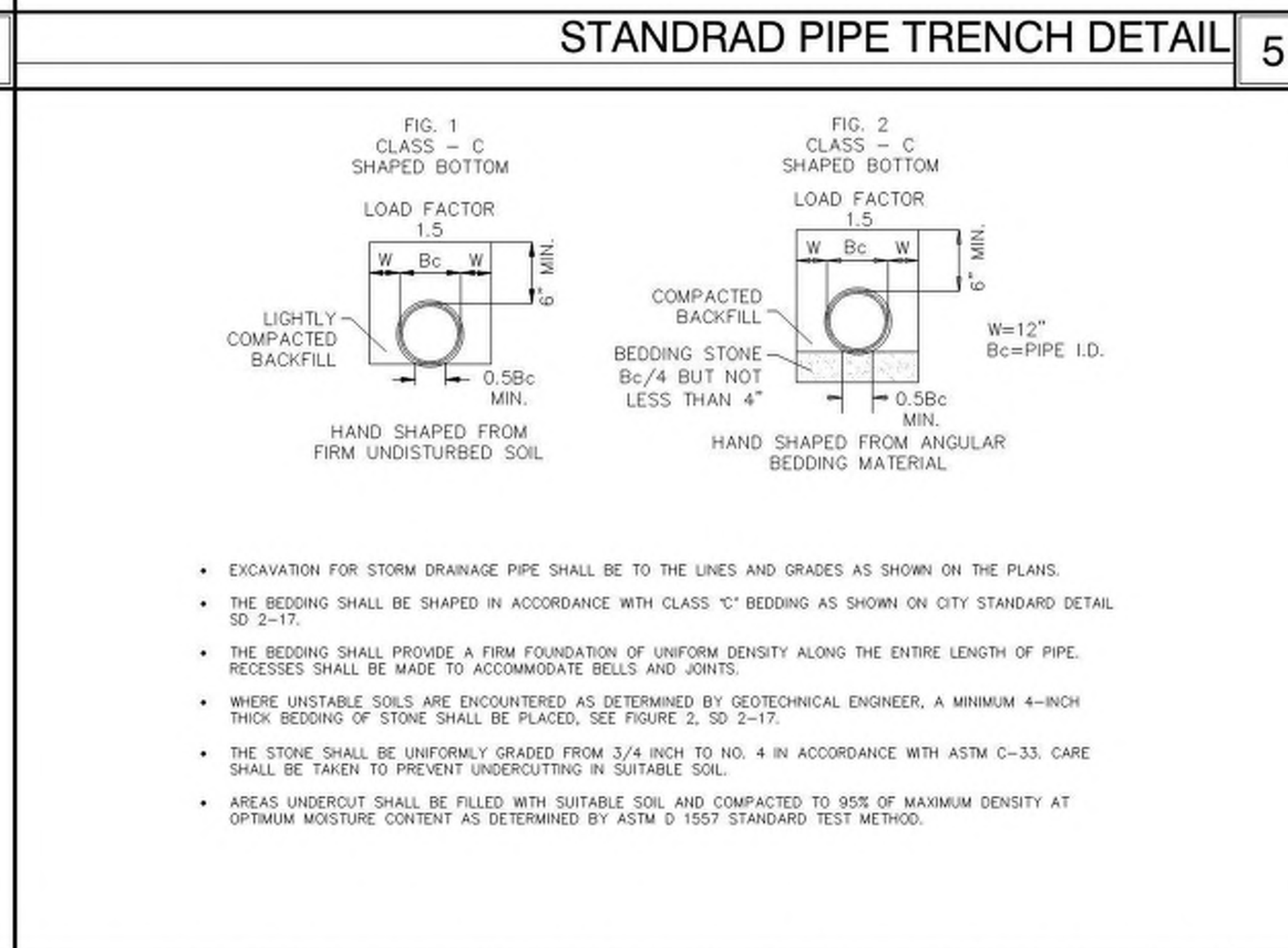
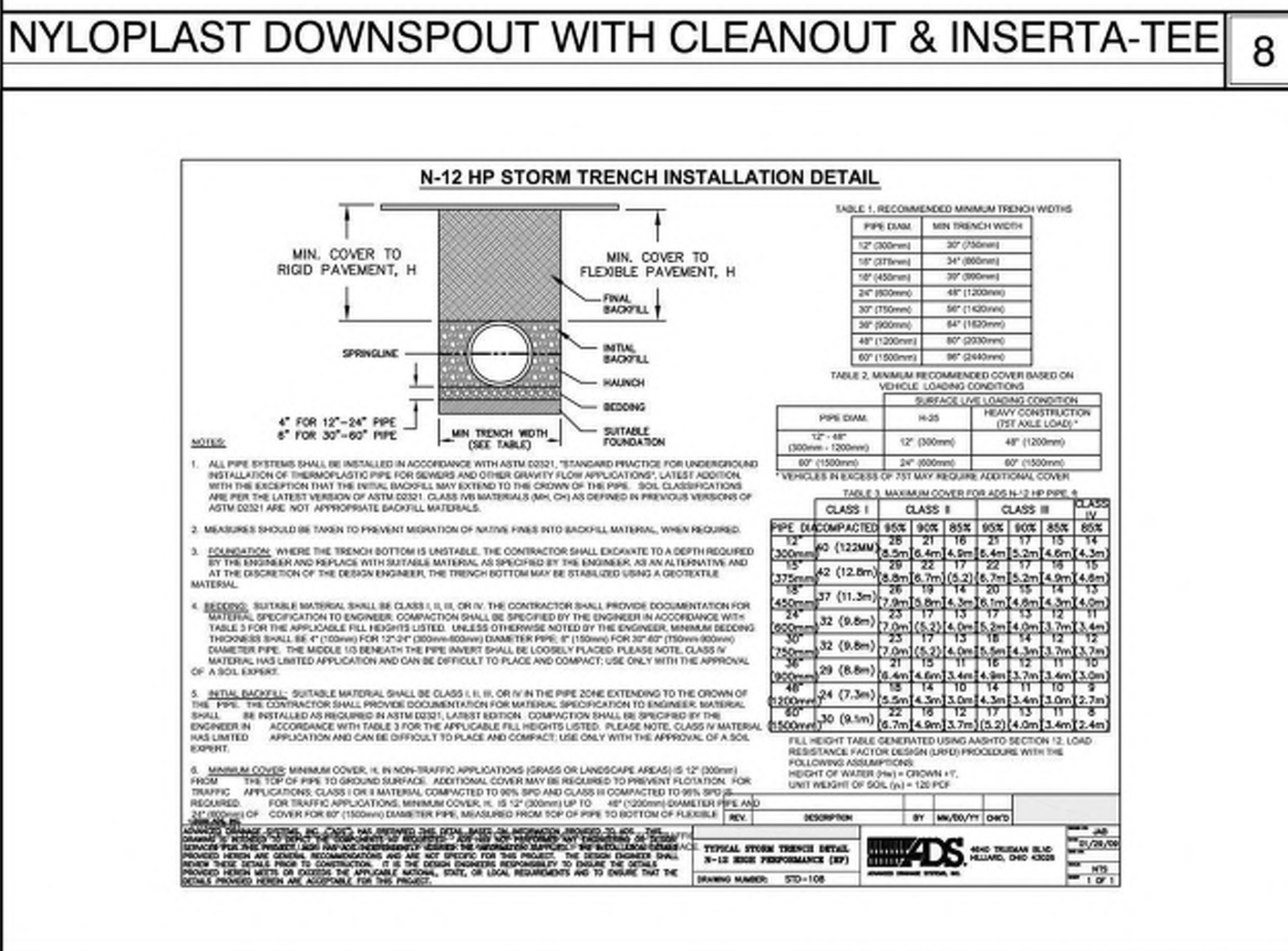
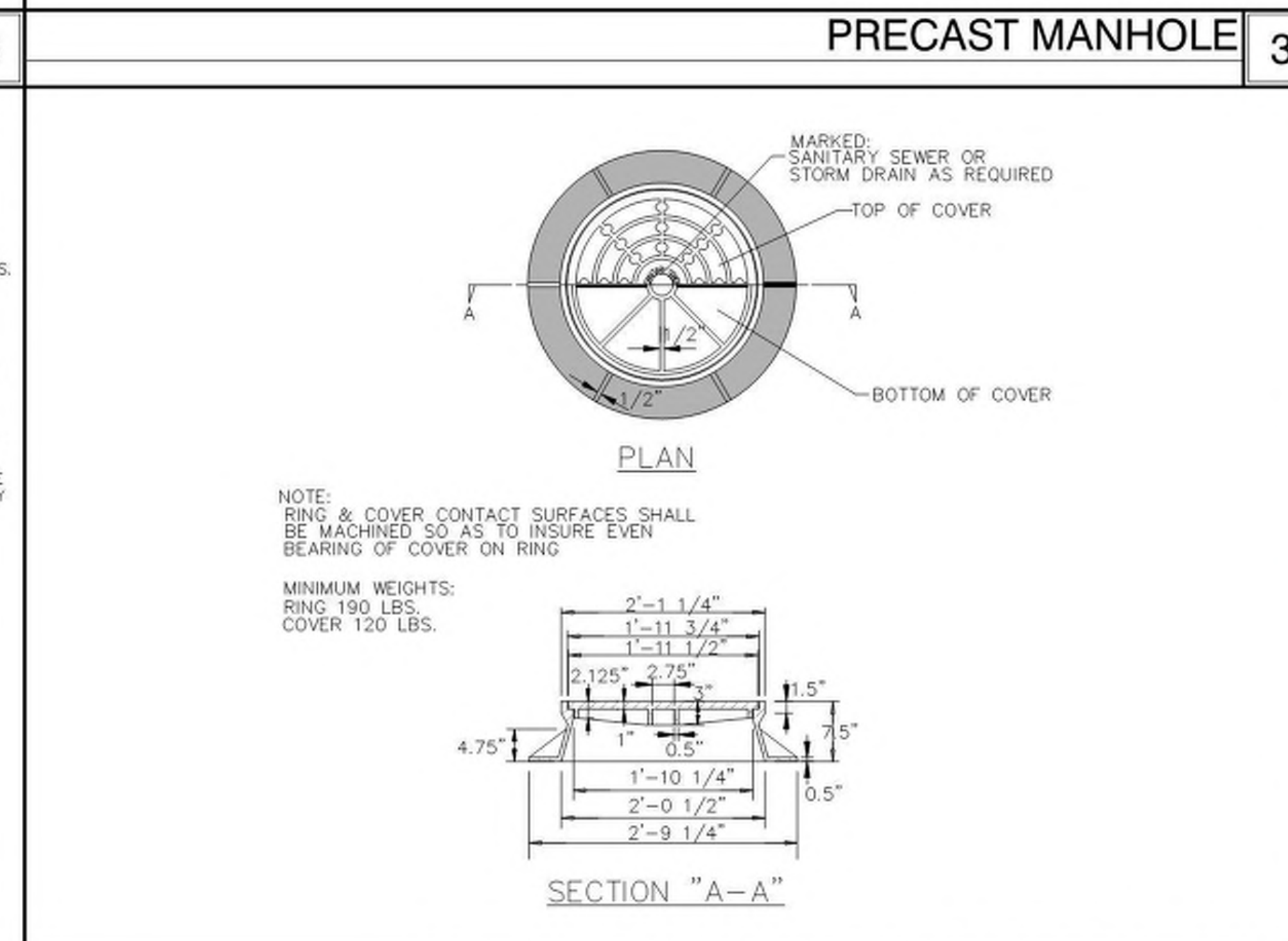
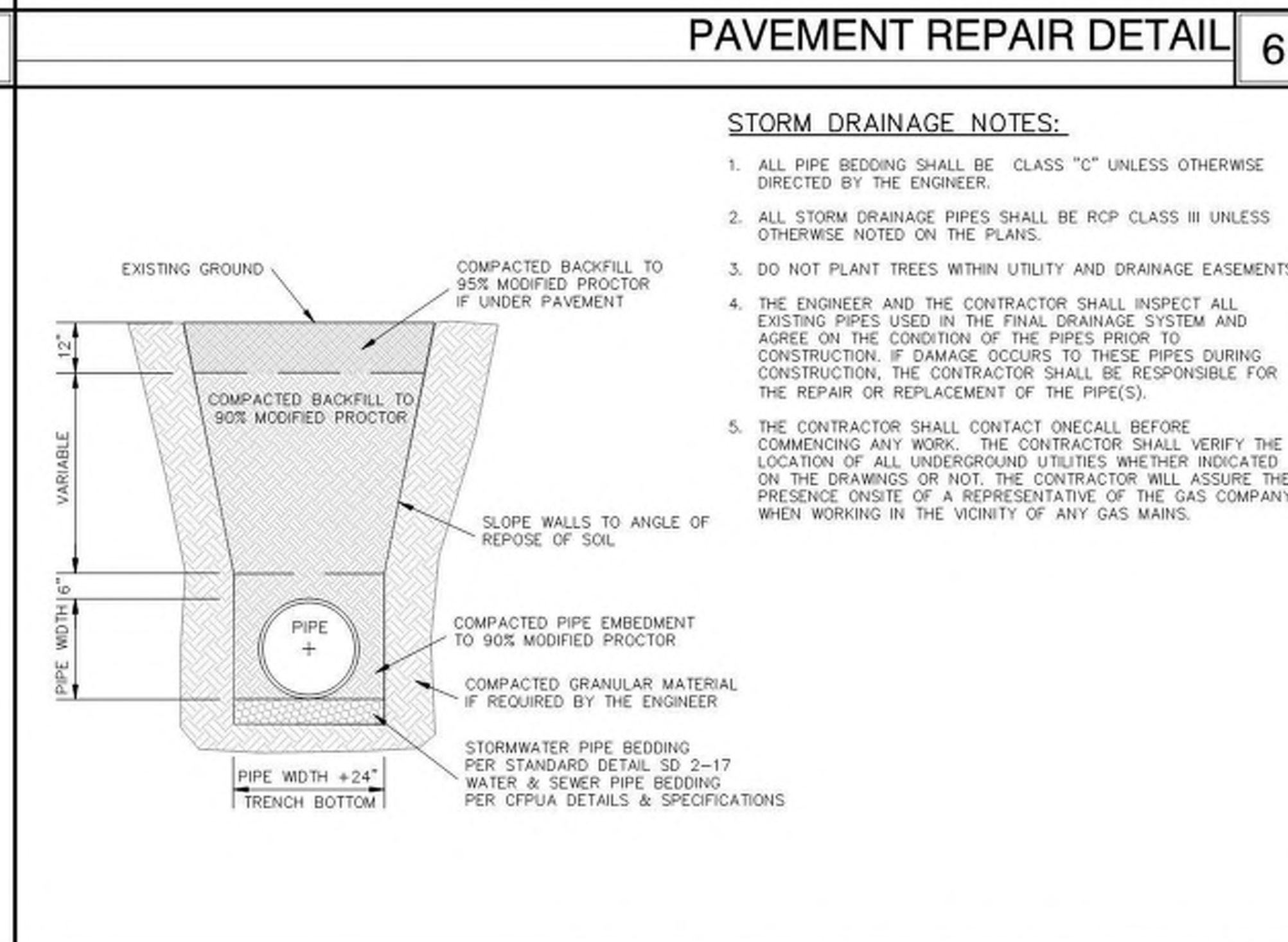
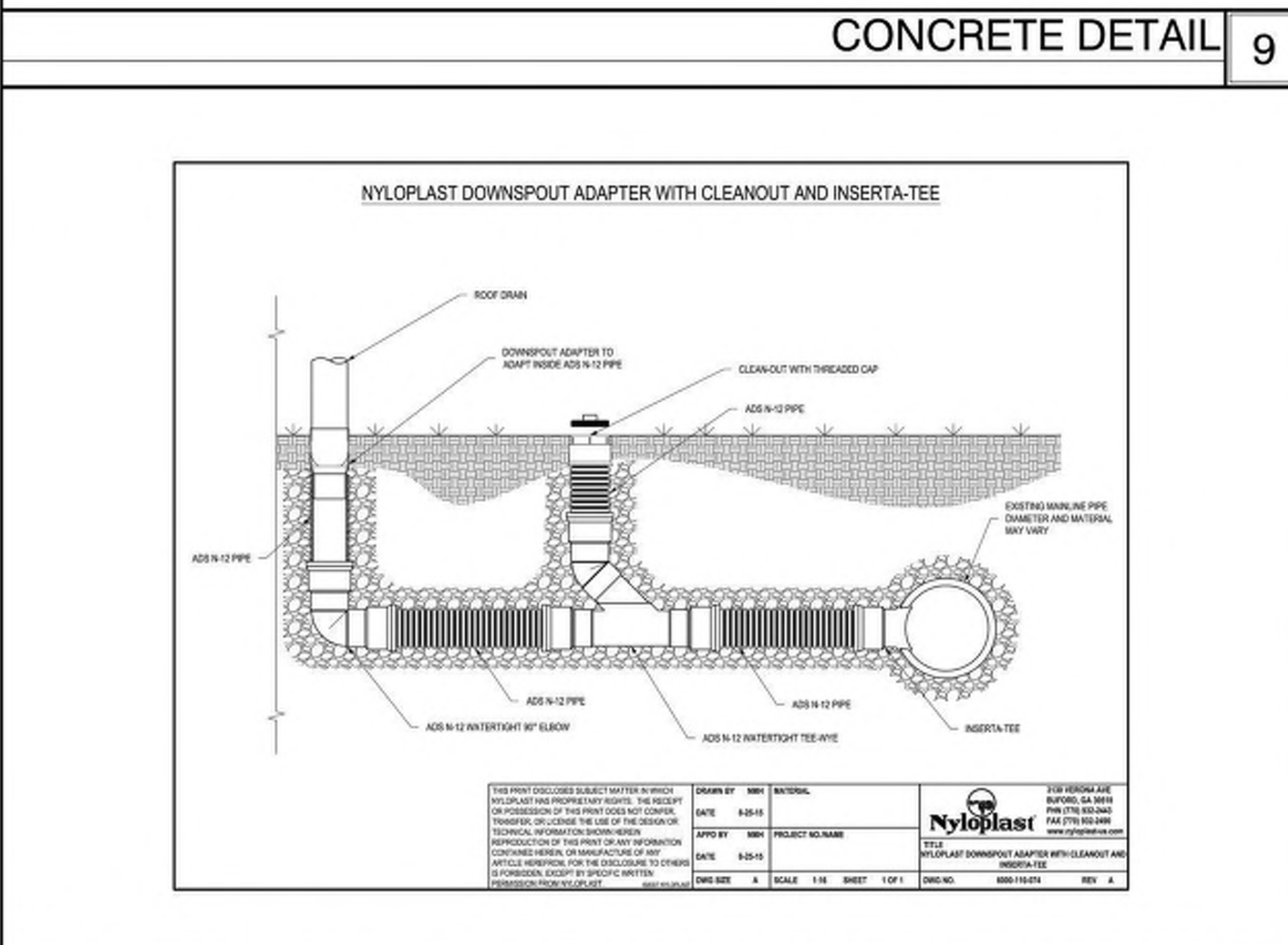
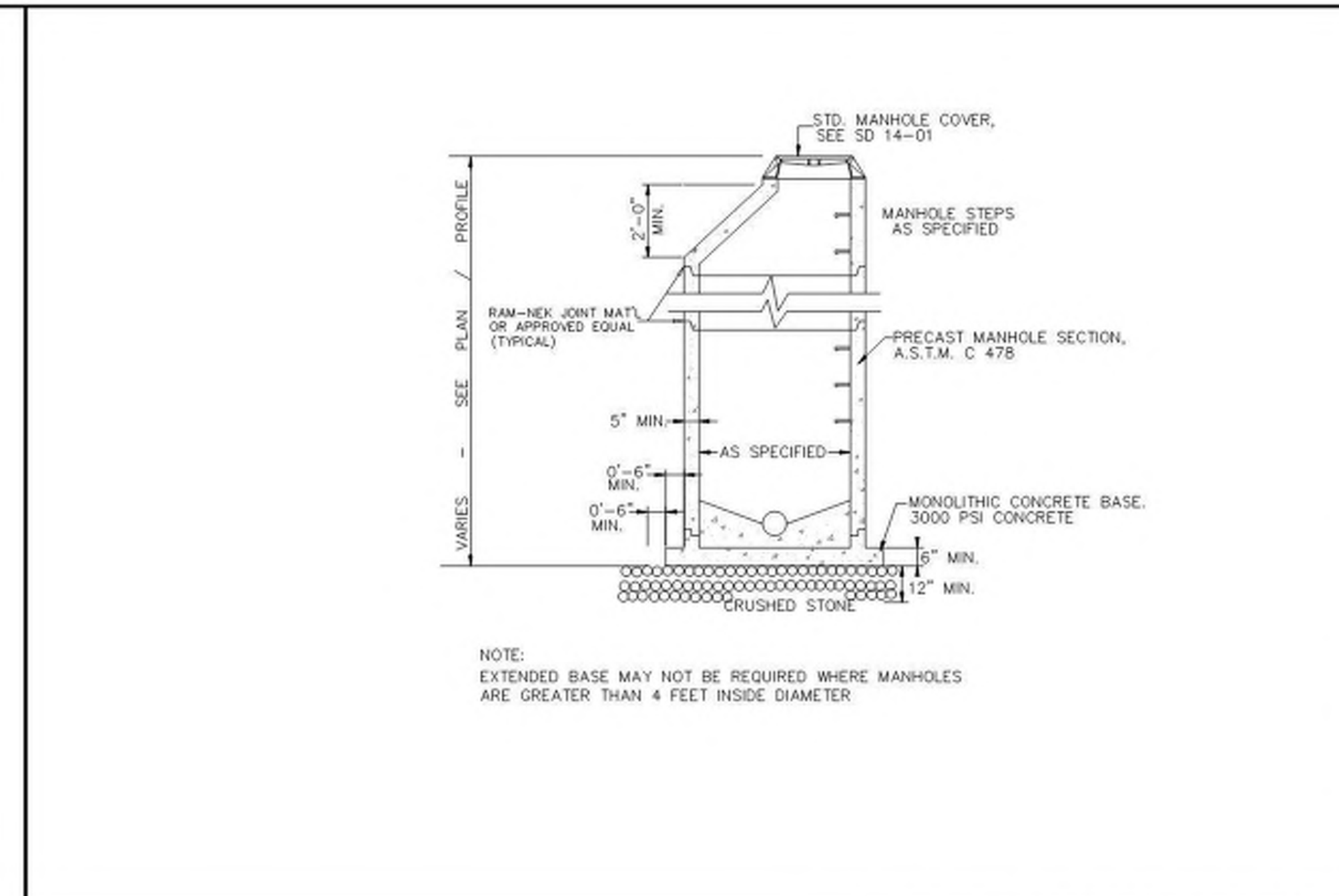
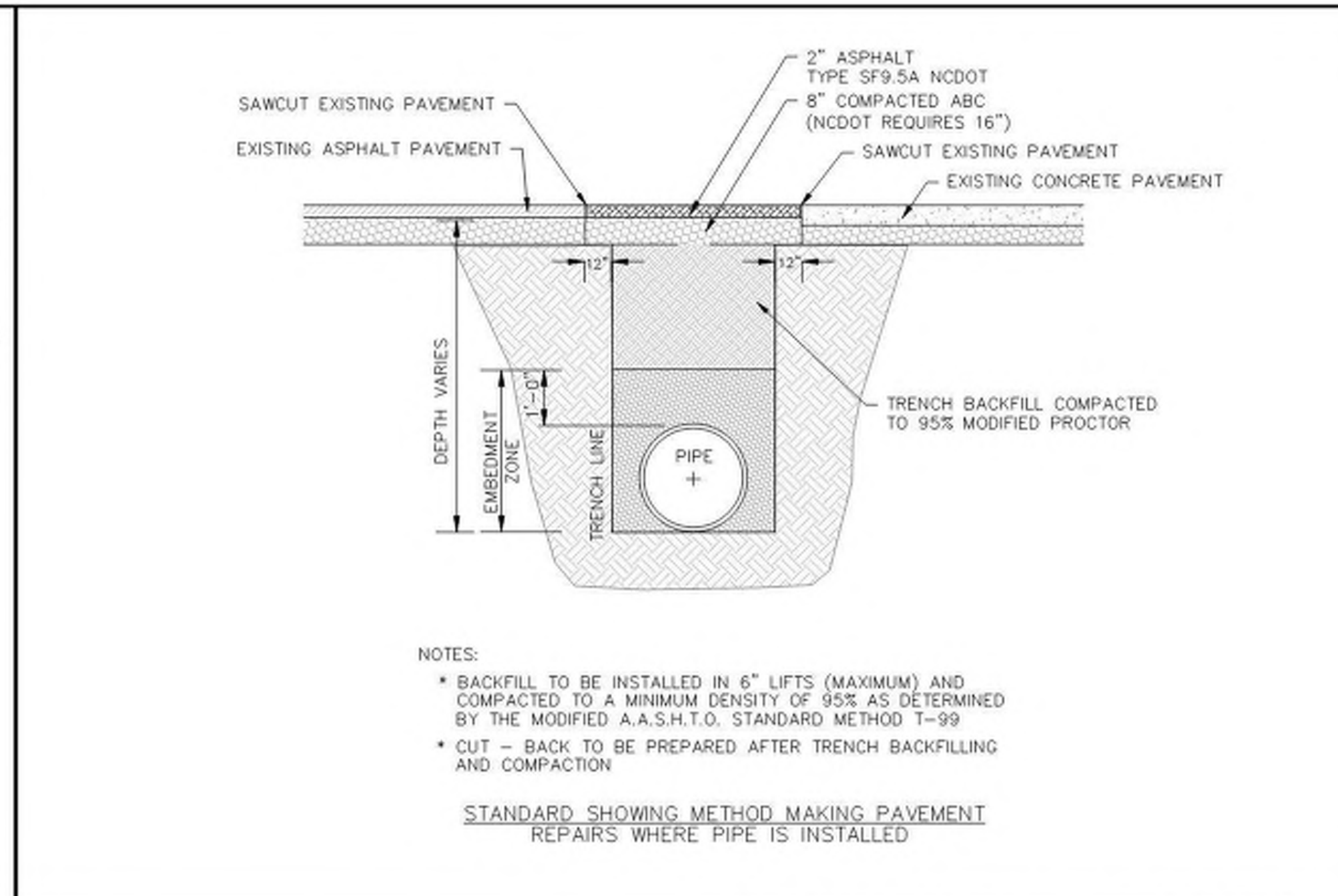
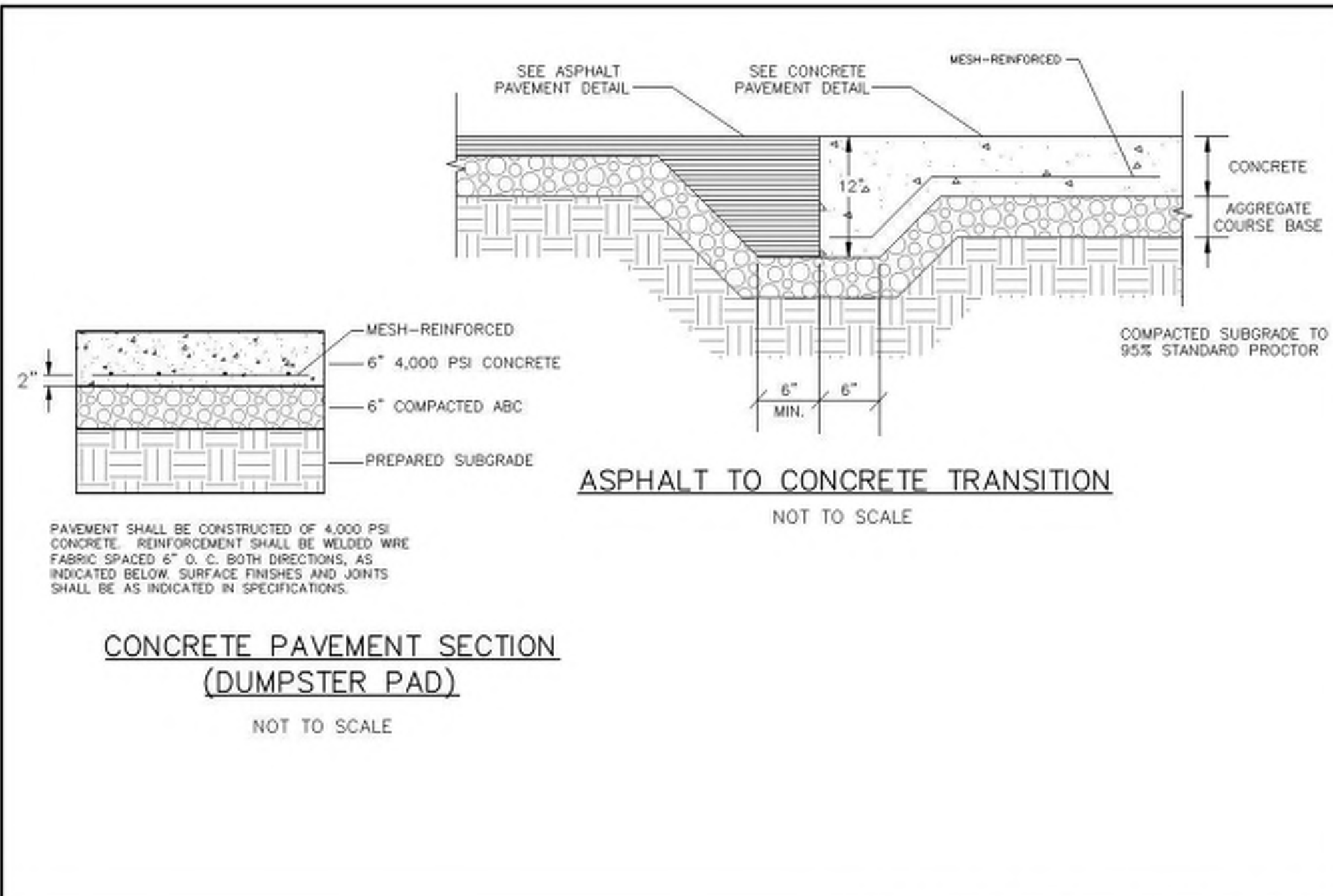
CE-502

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Not to Scale







**APPROVED STORMWATER MANAGEMENT PLAN**

Public Service • Engineering Division

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.

**Approved Construction Plan**

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

Planning: \_\_\_\_\_  
Traffic: \_\_\_\_\_  
Fire: \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC

**STORM DRAINAGE DETAILS**

PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE: \_\_\_\_\_

**CLINE DESIGN**  
125 N. Harrington St.  
Raleigh, NC 27603  
919/833-6413  
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ClineDesignAssoc.com

**MCKIM & CREED**  
243 North Front Street  
Wilmington, NC 28401  
910/343-1048  
910/251-8282 FAX  
www.mckimcreed.com

**MIDDLEBURG**  
Middleburg Apartments  
4410 River Road  
Wilmington, North Carolina

**TRC SUBMITTAL**

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

Professional Engineer Seal: 22574  
10-04-2019

**CG-502**

SIDE A

STORM DRAINAGE PIPE DATA TABLE							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
MH-A2	MH-A1	99.84'	30"	RCP	0.51%	9.64'	9.13'
MH-A1		110.32'	30"	RCP	0.50%	9.13'	8.58'
DI-A14	DI-A4	100.12'	15"	HDPE	0.50%	12.72'	12.22'
DI-A9	DI-A8	96.01'	15"	HDPE	0.50%	11.35'	10.87'
DI-A8	DI-A7	111.83'	15"	HDPE	0.69%	10.87'	10.10'
DI-A7	DI-A1	78.21'	18"	HDPE	0.46%	10.10'	9.74'
DI-A6	DI-A4	148.70'	15"	HDPE	0.50%	12.96'	12.22'
DI-A4	DI-A3	162.92'	18"	HDPE	0.50%	12.22'	11.41'
DI-A3	DI-A2	41.23'	18"	HDPE	0.50%	11.41'	11.20'
DI-A2	DI-A1	91.11'	24"	HDPE	0.50%	11.20'	10.74'
DI-A1	MH-A2	30.78'	30"	HDPE	0.31%	9.74'	9.64'

SIDE A ROOF DRAIN

STORM DRAINAGE PIPE DATA TABLE							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
HP - (50)	HP - (48)	49.74'	8"	HDPE	1.00%	16.80'	16.30'
HP - (49)	HP - (50)	75.89'	8"	HDPE	1.00%	17.56'	16.80'
HP - (48)	HP - (10)	55.78'	8"	HDPE	1.00%	16.30'	15.74'
HP - (22)	DI-A9	41.69'	12"	HDPE	0.58%	14.80'	14.56'
HP - (21)	HP - (22)	64.95'	10"	HDPE	0.46%	15.10'	14.80'
HP - (13)	MH-A1	5.69'	10"	HDPE	6.29%	13.92'	13.56'
HP - (12)	HP - (13)	55.45'	10"	HDPE	1.03%	14.49'	13.92'
HP - (11)	HP - (12)	40.41'	10"	HDPE	1.00%	14.89'	14.49'
HP - (10)	HP - (11)	85.28'	8"	HDPE	1.00%	15.74'	14.89'
HP - (9)	HP - (49)	43.77'	8"	HDPE	1.01%	18.00'	17.56'
HP - (8)	DI-A14	43.15'	8"	HDPE	0.50%	16.55'	16.33'
HP - (6)	DI-A7	70.81'	10"	HDPE	1.98%	11.50'	10.10'
HP - (5)	HP - (6)	57.17'	10"	HDPE	1.91%	12.59'	11.50'
HP - (4)	HP - (5)	43.32'	8"	HDPE	0.95%	13.00'	12.59'
HP - (3)	HP - (2)	32.64'	8"	HDPE	0.63%	14.55'	14.34'
HP - (2)	HP - (1)	39.23'	8"	HDPE	0.38%	14.34'	14.19'
HP - (1)	HP - (4)	90.89'	8"	HDPE	1.31%	14.19'	13.00'

SIDE A

Structure Table	
Structure Name	Details
DI-A1	RIM = 15.90 INV IN = 10.74 INV OUT = 9.74
DI-A2	RIM = 18.00 INV IN = 11.20 INV OUT = 11.20
DI-A3	RIM = 18.63 INV IN = 11.41 INV OUT = 11.41
DI-A4	RIM = 17.70 INV IN = 12.22 INV OUT = 12.22
DI-A6	RIM = 16.50 INV OUT = 12.96
DI-A7	RIM = 15.73 INV IN = 10.10 INV OUT = 10.10
DI-A8	RIM = 16.70 INV IN = 10.87 INV OUT = 10.87
DI-A9	RIM = 17.24 INV IN = 14.56 INV OUT = 11.35
DI-A14	RIM = 18.72 INV IN = 16.33 INV OUT = 12.72
FES-A2	RIM = 0.00
MH-A1	RIM = 18.98 INV IN = 9.13 INV OUT = 9.13

SIDE A ROOF DRAIN

Structure Table	
Structure Name	Details
HP - (1)	RIM = 17.19 INV IN = 14.19 INV OUT = 14.19
HP - (2)	RIM = 17.41 INV IN = 14.34 INV OUT = 14.34
HP - (3)	RIM = 17.85 INV OUT = 14.55
HP - (4)	RIM = 16.48 INV IN = 13.00 INV OUT = 13.00
HP - (5)	RIM = 15.71 INV IN = 12.59 INV OUT = 12.59
HP - (6)	RIM = 16.81 INV IN = 11.50 INV OUT = 11.50
HP - (8)	RIM = 20.72 INV OUT = 16.55
HP - (9)	RIM = 20.75 INV OUT = 18.00
HP - (10)	RIM = 20.62 INV IN = 15.74 INV OUT = 15.74
HP - (11)	RIM = 19.40 INV IN = 14.89 INV OUT = 14.89
HP - (12)	RIM = 20.57 INV IN = 14.49 INV OUT = 14.49
HP - (13)	RIM = 16.48 INV IN = 13.92 INV OUT = 13.92
HP - (21)	RIM = 18.07 INV IN = 15.10
HP - (22)	RIM = 17.15 INV IN = 14.80 INV OUT = 14.80
HP - (48)	RIM = 19.84 INV IN = 16.30 INV OUT = 16.30
HP - (49)	RIM = 21.51 INV IN = 17.56 INV OUT = 17.56
HP - (50)	RIM = 22.79 INV IN = 16.80 INV OUT = 16.80

SIDE B

Structure Table	
Structure Name	Details
DI-B1	RIM = 22.38 INV IN = 16.84 INV OUT = 16.84
DI-B2	RIM = 20.79 INV IN = 17.71 INV OUT = 17.71
DI-B3	RIM = 21.19 INV IN = 18.33 INV OUT = 18.33
DI-C1	RIM = 21.91 INV IN = 16.67 INV OUT = 16.67
DI-C2	RIM = 21.30 INV IN = 16.88 INV OUT = 16.88
DI-C3	RIM = 22.68 INV IN = 17.47 INV OUT = 17.47
DI-C4	RIM = 22.93 INV OUT = 17.95
DI-C5	RIM = 20.82 INV IN = 17.32 INV OUT = 17.32
DI-C6	RIM = 20.82 INV IN = 17.73 INV OUT = 17.73
DI-C7	RIM = 21.03 INV IN = 17.93 INV OUT = 17.93
MH-B2	RIM = 21.40 INV IN = 17.44 INV OUT = 17.44
MH-B3	RIM = 22.10 INV IN = 17.91 INV OUT = 17.91
MH-B4	RIM = 21.45 INV IN = 18.13 INV OUT = 18.13
MH-B5	RIM = 21.42 INV IN = 18.51 INV OUT = 18.51
MH-C1	RIM = 21.82 INV IN = 17.08 INV OUT = 17.08

SIDE B ROOF DRAIN

Structure Table	
Structure Name	Details
HP - (23)	RIM = 21.96 INV OUT = 17.71
HP - (24)	RIM = 21.83 INV IN = 17.55 INV OUT = 17.55
HP - (25)	RIM = 21.95 INV IN = 17.77 INV OUT = 17.77
HP - (26)	RIM = 21.96 INV IN = 17.93 INV OUT = 17.93
HP - (27)	RIM = 21.96 INV IN = 18.11 INV OUT = 18.11
HP - (28)	RIM = 21.86 INV OUT = 18.74
HP - (29)	RIM = 21.85 INV IN = 18.58 INV OUT = 18.58
HP - (30)	RIM = 21.92 INV IN = 18.37 INV OUT = 18.37
HP - (31)	RIM = 21.60 INV OUT = 18.88
HP - (32)	RIM = 21.58 INV IN = 17.25 INV OUT = 17.25
HP - (33)	RIM = 21.61 INV IN = 17.56 INV OUT = 17.56
HP - (34)	RIM = 22.00 INV OUT = 18.00
HP - (35)	RIM = 22.03 INV OUT = 19.28
HP - (37)	RIM = 22.01 INV IN = 19.08 INV OUT = 19.08
HP - (38)	RIM = 21.97 INV IN = 18.79 INV OUT = 18.79
HP - (39)	RIM = 21.57 INV IN = 18.60 INV OUT = 18.60
HP - (40)	RIM = 21.32 INV IN = 18.41 INV OUT = 18.41
HP - (41)	RIM = 20.66 INV IN = 18.16 INV OUT = 18.16
HP - (42)	RIM = 20.96 INV IN = 17.95 INV OUT = 17.95
HP - (44)	RIM = 21.96 INV OUT = 17.86
HP - (45)	RIM = 21.99 INV OUT = 18.66
HP - (46)	RIM = 22.02 INV OUT = 18.30
HP - (47)	RIM = 22.09 INV IN = 18.26 INV OUT = 18.26
HP - (58)	RIM = 21.61 INV OUT = 19.05
MH-C2	RIM = 21.40 INV IN = 16.63 INV OUT = 16.63

SIDE B

STORM DRAINAGE PIPE DATA TABLE							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
MH-C2	EX-CB-7-59	21.18'	10"	HDPE	6.70%	16.63'	15.21'
MH-C1	DI-C2	67.41'	24"	HDPE	0.30%	17.08'	16.88'
MH-B5	DI-B3	59.20'	15"	HDPE	0.30%	18.51'	18.33'
MH-B4	MH-B3	49.66'	15"	HDPE	0.44%	18.13'	17.91'
MH-B3	DI-B2	40.84'	15"	HDPE	0.50%	17.91'	17.71'
MH-B2	HP - (66)	77.71'	15"	RCP	0.50%	17.44'	17.05'
EX-CB-7-51	EX-I-7B	80.12'	36"	RCP	2.22%	10.44'	8.66'
DI-C7	DI-C6	68.19'	15"	HDPE	0.29%	17.93'	17.73'
DI-C6	DI-C5	135.03'	15"	HDPE	0.30%	17.73'	17.32'
DI-C5	MH-C1	80.08'	18"	HDPE	0.30%	17.32'	17.08'
DI-C4	DI-C3	158.91'	15"	HDPE	0.30%	17.95'	17.47'
DI-C3	MH-C1	130.23'	15"	HDPE	0.30%	17.47'	17.08'
DI-C2	DI-C1	70.40'	24"	HDPE	0.30%	16.88'	16.67'
DI-C1	EX-CB-7-61	46.80'	24"	RCP	0.30%	16.67'	16.53'
DI-B3	MH-B4	65.10'	15"	HDPE	0.30%	18.33'	18.13'
DI-B2	MH-B2	49.08'	15"	RCP	0.55%	17.71'	17.44'
DI-B1	EX-CB-7-56	23.36'	15"	RCP	0.38%	16.84'	16.75'

SIDE B ROOF DRAIN

STORM DRAINAGE PIPE DATA TABLE							
FROM	TO	LENGTH	SIZE	PIPE TYPE	SLOPE	UPSTREAM INVERT	DOWNSTREAM INVERT
MH-C2	EX-CB-7-59	21.18'	10"	HDPE	6.70%	16.63'	15.21'
HP - (58)	MH-B5	180.98'	12"	HDPE	0.30%	19.05'	18.51'
HP - (47)	MH-B4	44.57'	10"	HDPE	0.30%	18.26'	18.13'
HP - (46)	HP - (47)	14.03'	6"	HDPE	0.30%	18.30'	18.26'
HP - (45)	MH-B3	39.51'	15"	HDPE	1.90%	18.66'	17.91'
HP - (44)	HP - (66)	2.91'	8"	HDPE	625.79%	17.86'	-0.33'
HP - (41)	HP - (42)	42.58'	8"	HDPE	0.50%	18.16'	17.95'
HP - (40)	HP - (41)	50.46'	8"	HDPE	0.50%	18.41'	18.16'
HP - (39)	HP - (40)	38.90'	8"	HDPE	0.50%	18.60'	18.41'
HP - (38)	HP - (39)	38.69'	8"	HDPE	0.50%	18.79'	18.60'
HP - (37)	HP - (38)	58.59'	8"	HDPE	0.50%	19.08'	18.79'
HP - (35)	HP - (37)	39.65'	8"	HDPE	0.50%	19.28'	19.08'
HP - (34)	HP - (33)	43.61'	8"	HDPE	1.01%	18.00'	17.56'
HP - (33)	HP - (32)	31.36'	8"	HDPE	0.99%	17.56'	17.25'
HP - (32)	MH-C2	62.28'	8"	HDPE	1.00%	17.25'	16.63'
HP - (31)	MH-C2	25.54'	8"	HDPE	0.98%	16.88'	16.63'
HP - (30)	HP - (27)	51.39'	8"	HDPE	0.50%	18.37'	18.11'
HP - (29)	HP - (30)	42.13'	8"	HDPE	0.50%	18.58'	18.37'
HP - (28)	HP - (29)	31.87'	8"	HDPE	0.50%	18.74'	18.58'
HP - (27)	HP - (26)	36.43'	8"	HDPE	0.50%	18.11'	17.93'
HP - (26)	HP - (25)	31.60'	8"	HDPE	0.50%	17.93'	17.77'
HP - (25)	HP - (24)	44.24'	8"	HDPE	0.50%	17.77'	17.55'
HP - (24)	DI-C5	45.54'	15"	HDPE	0.50%	17.55'	17.32'
HP - (23)	HP - (24)	31.57'	8"	HDPE	0.50%	17.71'	17.55'

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

1 inch

Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

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



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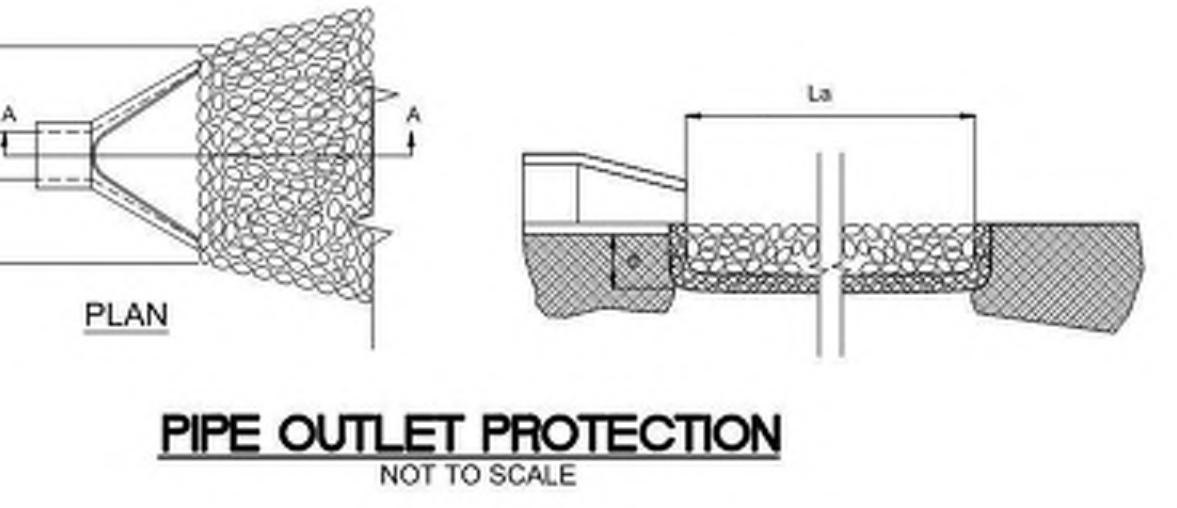
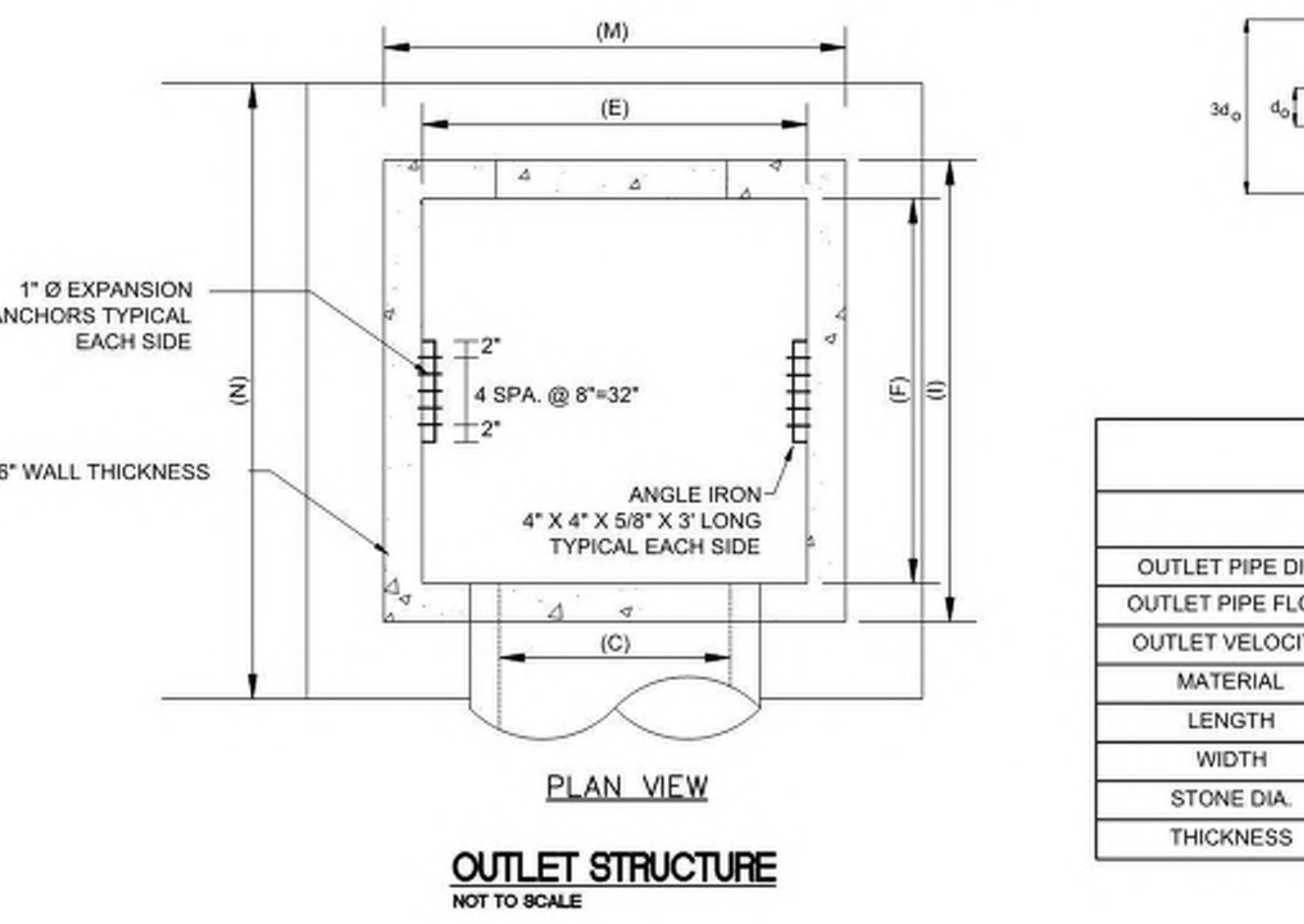
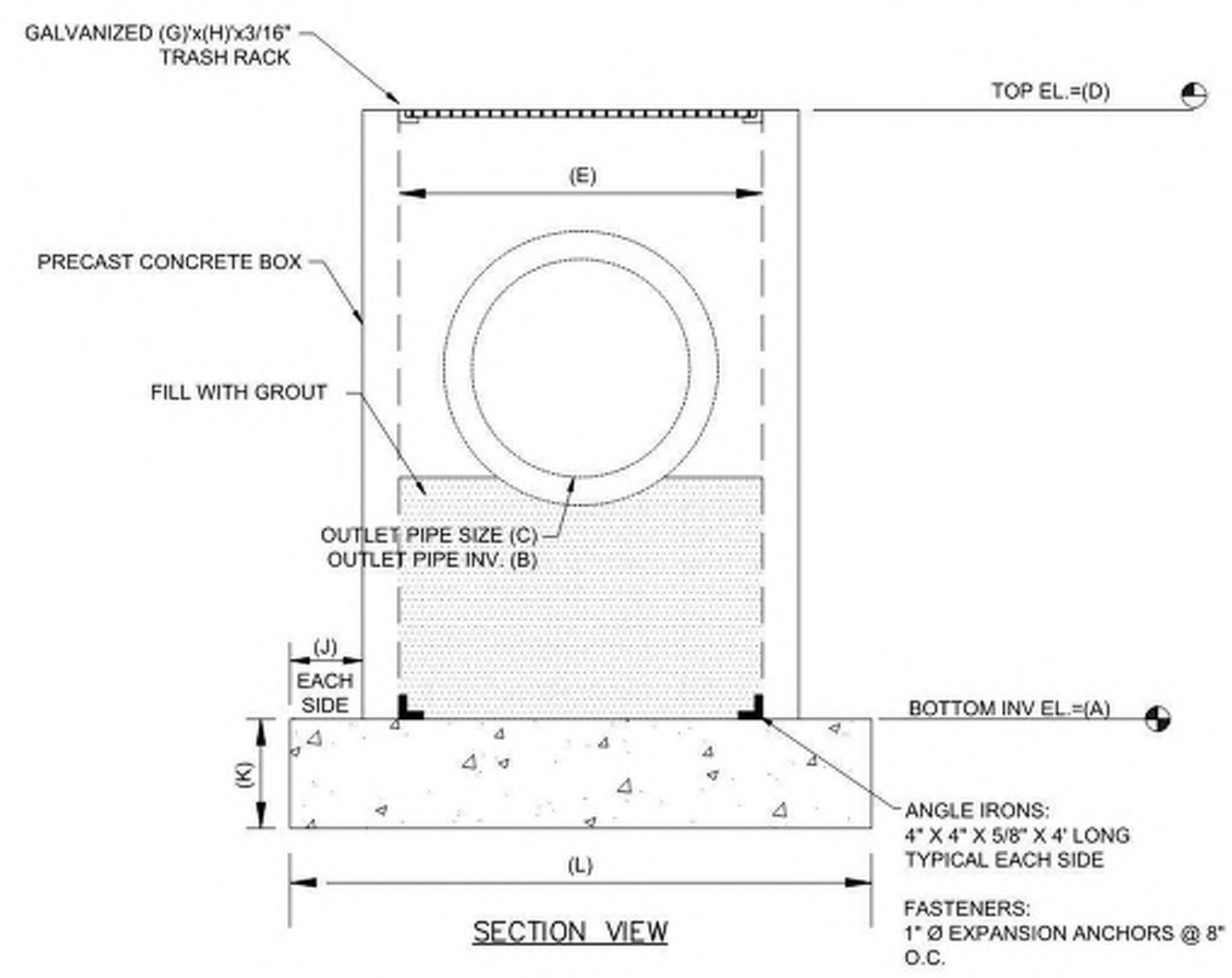
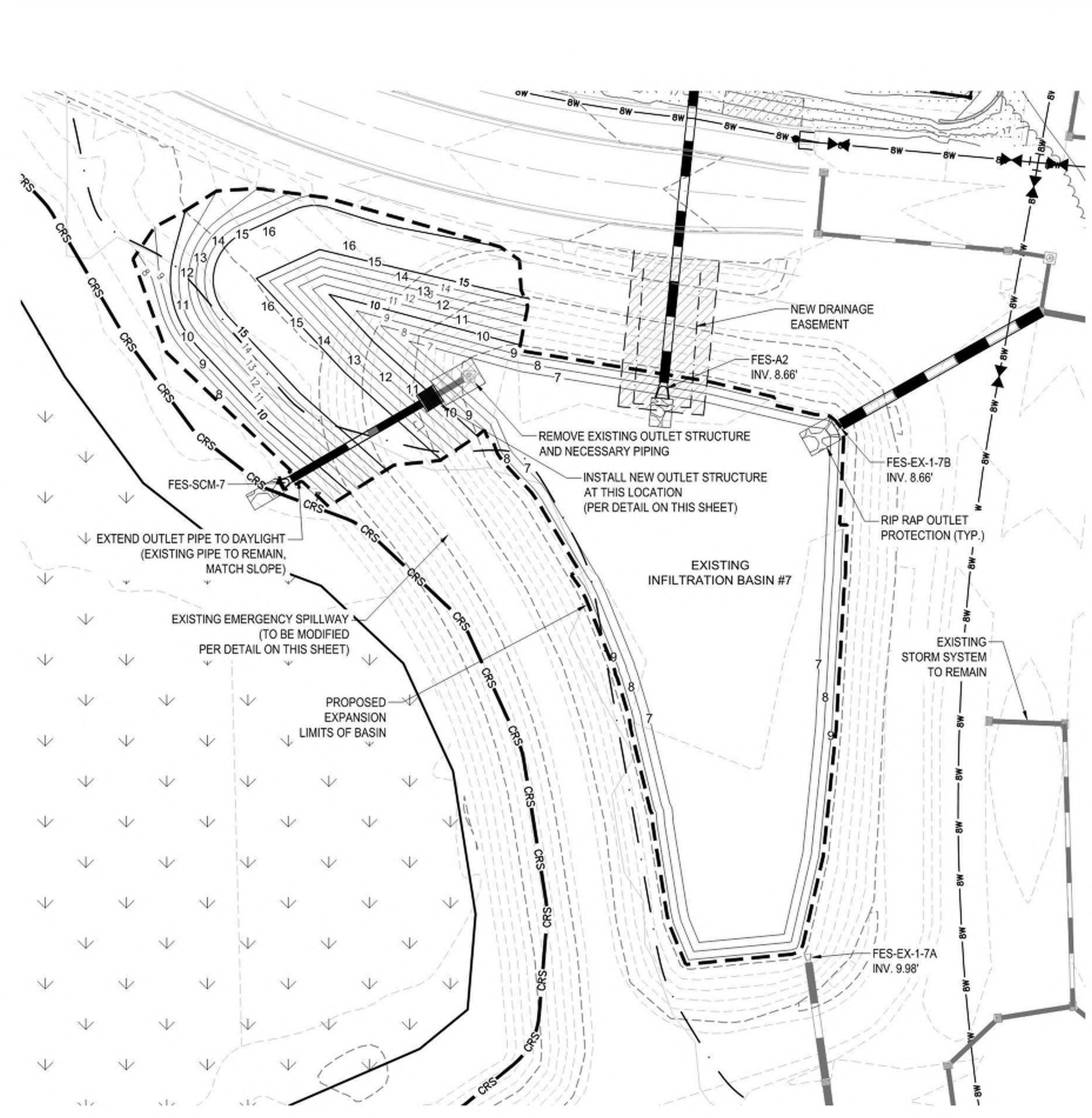


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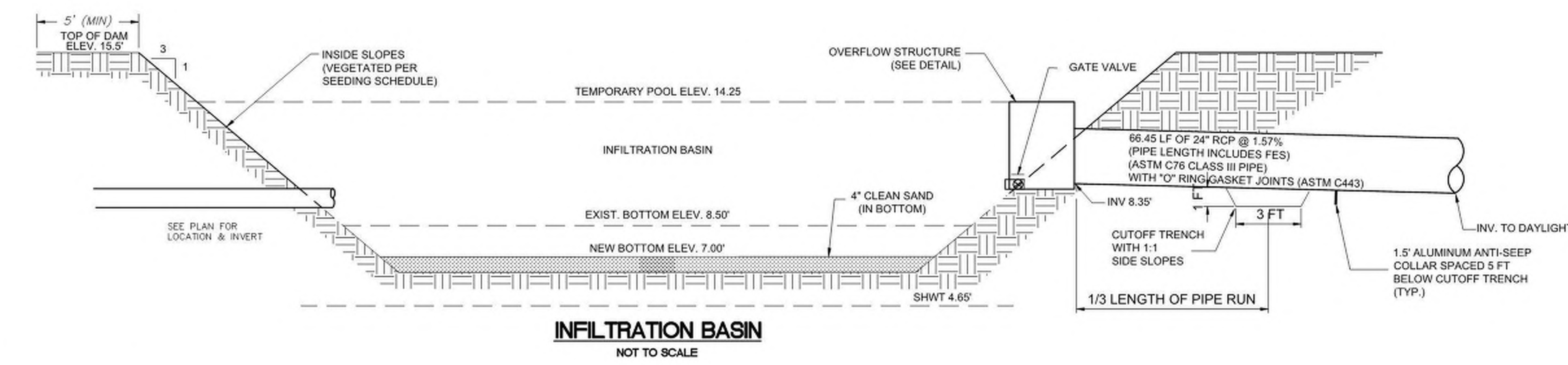
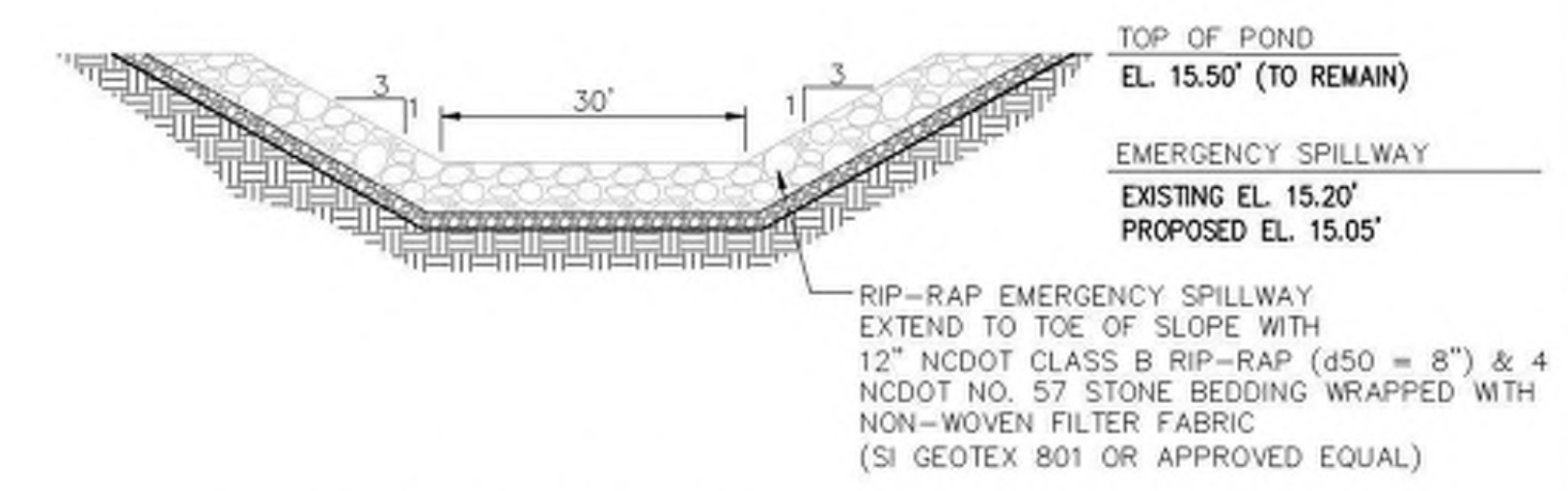


PROJECT: 07694-0002  
DATE: 10.04.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: RAS/BPD  
CHECKED BY: RMC  
ENLARGED GRADING & STORMWATER PLAN  
SIDE A



OUTLET PROTECTION				
	FES-A2-IN	FES-EX-1-7B-IN	FES-EX-1-7A-IN	FES-SCM-7-OUT
OUTLET PIPE DIA.	30"	24"	30"	24"
OUTLET PIPE FLOW	11.50 CFS	22.97 CFS	9.31 CFS	7.48 CFS
OUTLET VELOCITY	2.34 FPS	3.25 FPS	1.90 FPS	7.61 FPS
MATERIAL	CLASS A	CLASS A	CLASS A	CLASS B
LENGTH	10.0'	12.0'	10.0'	12.0'
WIDTH	7.5'	9.0'	7.5'	6.0'
STONE DIA.	3"	3"	3"	6"
THICKNESS	9"	9"	9"	22"



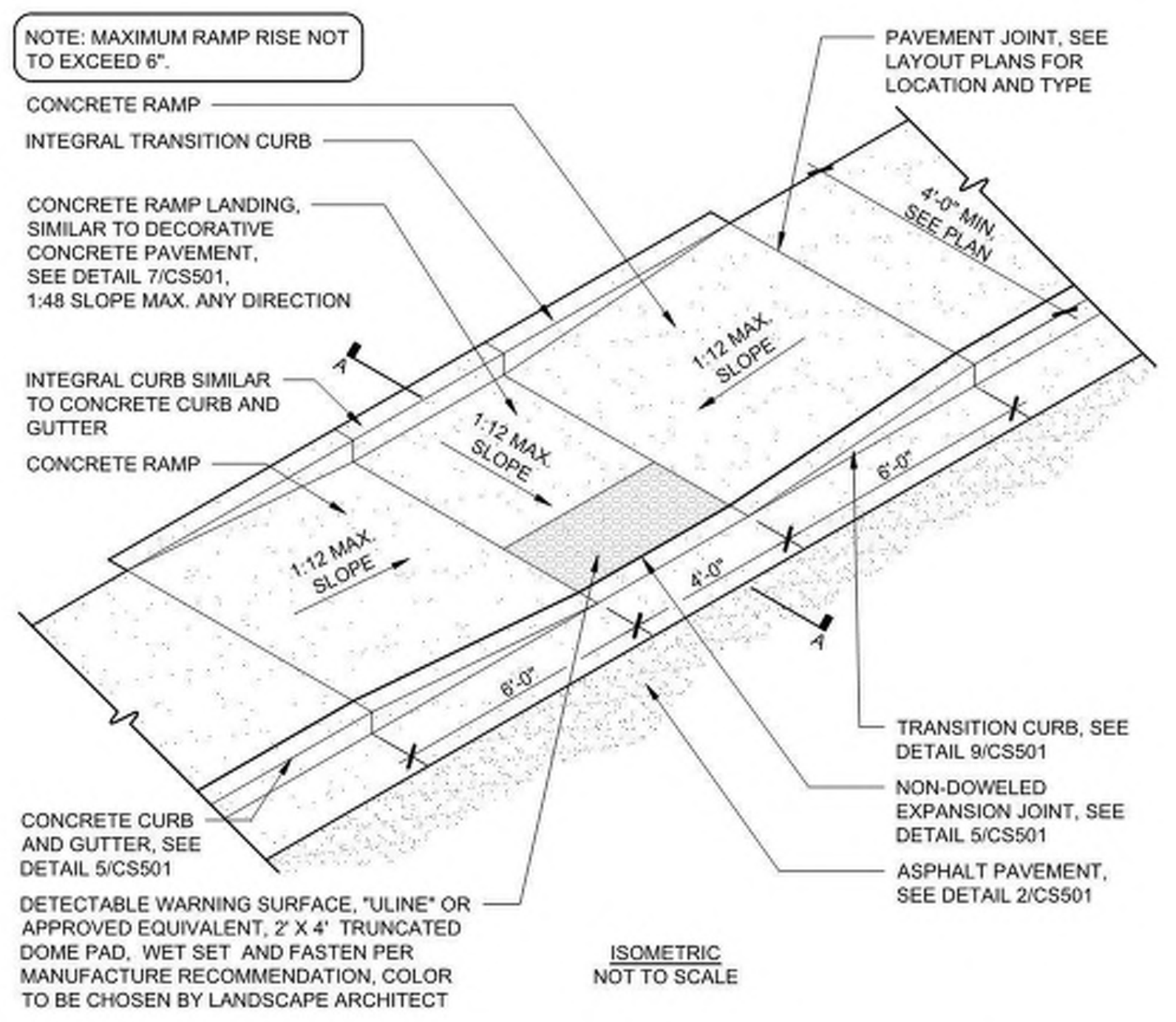
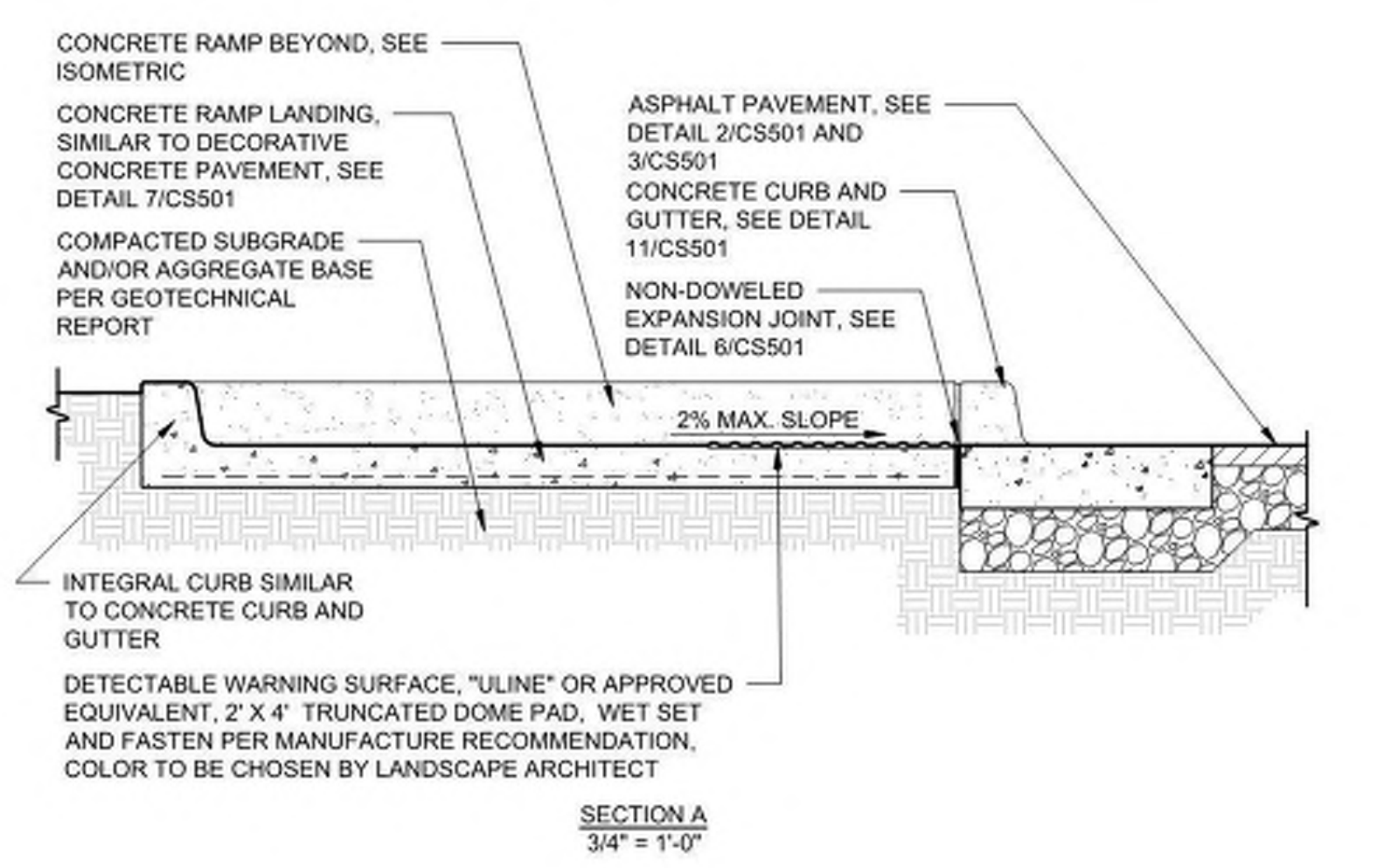
**IB-7 MODIFICATION NOTES:**

- 1,412 SF EXPANSION TO TEMP. POOL.
- EXTEND 24" OUTLET PIPE BY 5' AND ADD A RIPRAP OUTLET PAD.
- LOWER EMERGENCY SPILLWAY FROM EL. 15.20' TO 15.05'.
- EXCAVATE BOTTOM OF POND DOWN TO ELEV. 7.00' (APPROX. 1.50' (+/-) DEEPER THAN EXISTING)
- THE BOTTOM OF POND SHALL BE OVEREXCAVATED 4" AND BACKFILLED WITH CLEAN SAND TO THE BOTTOM ELEVATION SPECIFIED.
- ADD NEW 4" LAYER OF CLEAN SAND TO BOTTOM OF BASIN.
- INSTALL NEW OUTLET STRUCTURE PER DETAIL SHOWN ON THIS SHEET.
- SOD BANKS WHERE NEEDED AND IN NEW EXPANSION AREA.

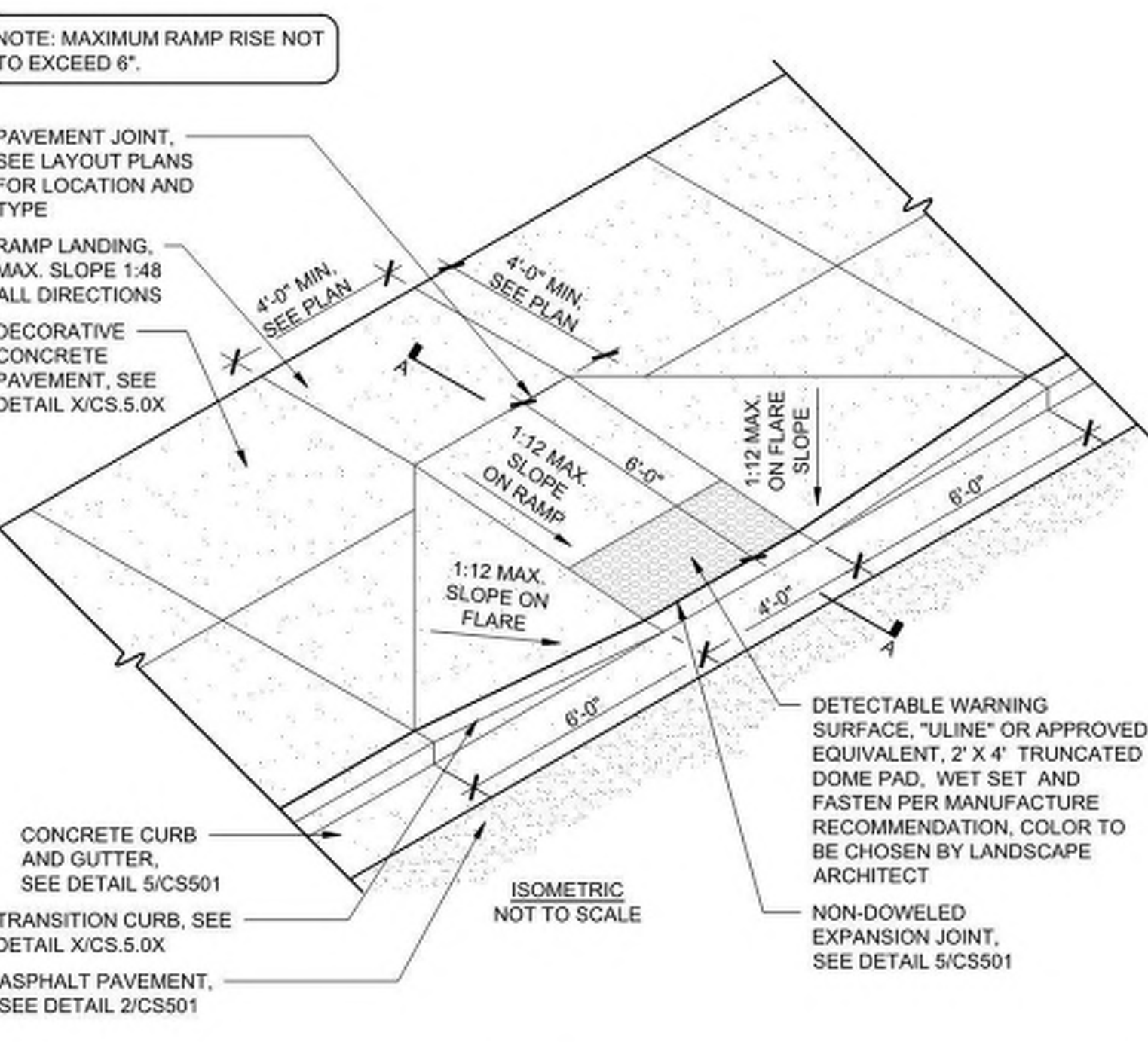
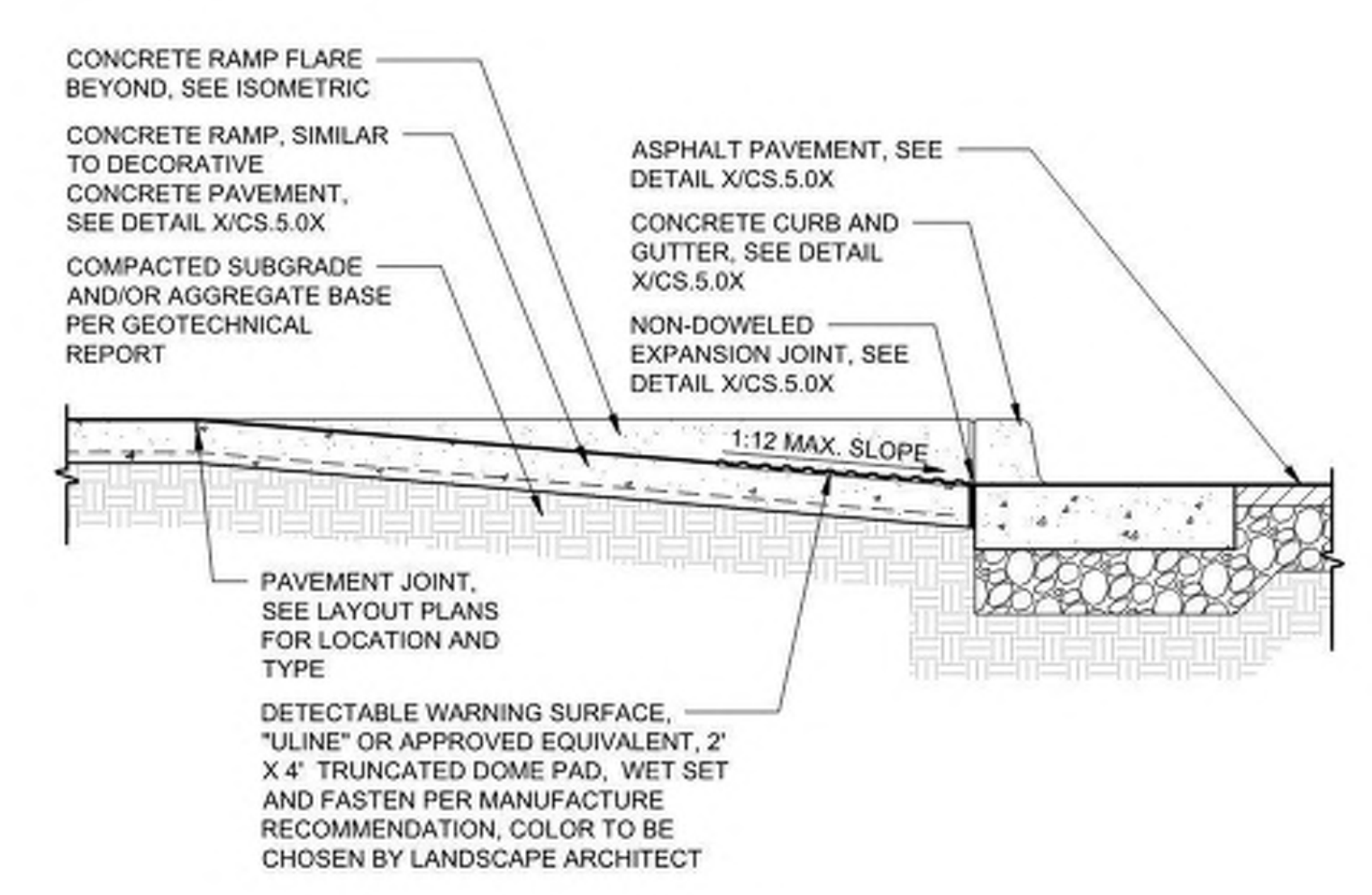
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch





**CURBED HC ACCESS RAMP (PARALLEL)** 8  
Not to Scale



**CURBED HC ACCESS RAMP (PERPENDICULAR)** 7  
Not to Scale

**GENERAL NOTES**

- IN ACCORDANCE WITH N.C.G.S. 136-44.14, ALL STREET CURBS BEING CONSTRUCTED OR RECONSTRUCTED SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED ON EACH SIDE OF ANY STREET OR ROAD, WHERE CURBS AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
- WHEELCHAIR RAMPS SHALL BE LOCATED AS INDICATED IN DETAIL DRAWINGS; HOWEVER, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
- CURB RAMPS SHALL HAVE DETECTABLE WARNINGS EXTENDING THE FULL WIDTH OF THE RAMP AND A MINIMUM OF 2-FT. IN LENGTH.

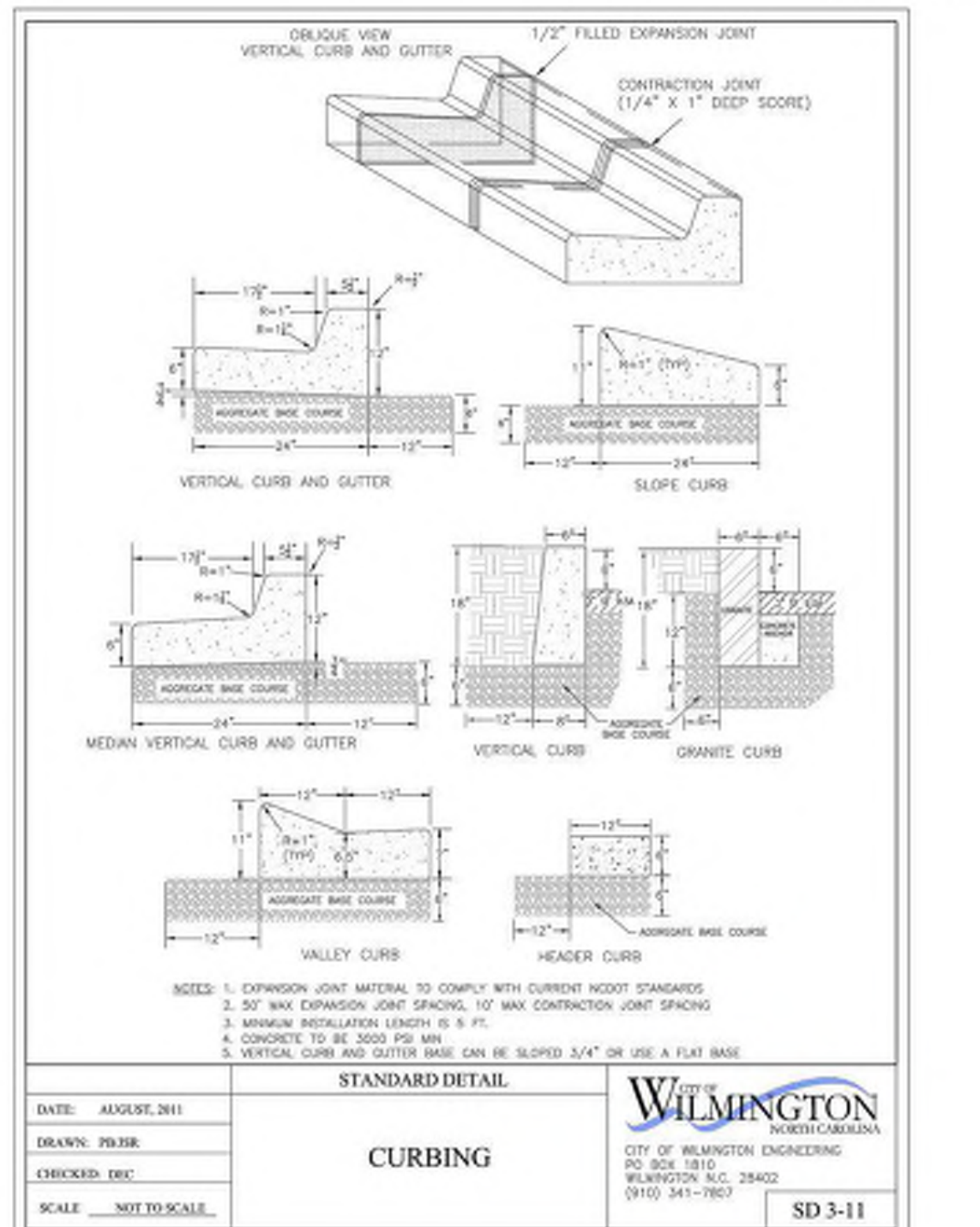
**CONSTRUCTION NOTES**

- CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION STANDARDS OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
- WHEELCHAIR RAMPS SHALL BE CONSTRUCTED OF CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
- A 1/2-IN. EXPANSION JOINT SHALL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
- IN NO CASE SHALL THE WIDTH OF A CURB RAMP OR CURB CUT BE LESS THAN 40-IN. (3-FT. 4-IN.), NOT INCLUDING THE FLARED SIDES.
- TRANSITIONS FROM RAMPS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
- THE MAXIMUM SLOPE ON THE CURB RAMP RUN IS 1:12.
- THE MAXIMUM CROSS SLOPE OF THE CURB RAMP IS 1:50.
- MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
- ANY RAISED ISLANDS IN CROSSINGS SHALL BE CUT THROUGH LEVEL WITH THE STREET OR HAVE CURB RAMPS AT BOTH SIDES AND A LEVEL AREA AT LEAST 48-IN. LONG BETWEEN THE CURB RAMPS.

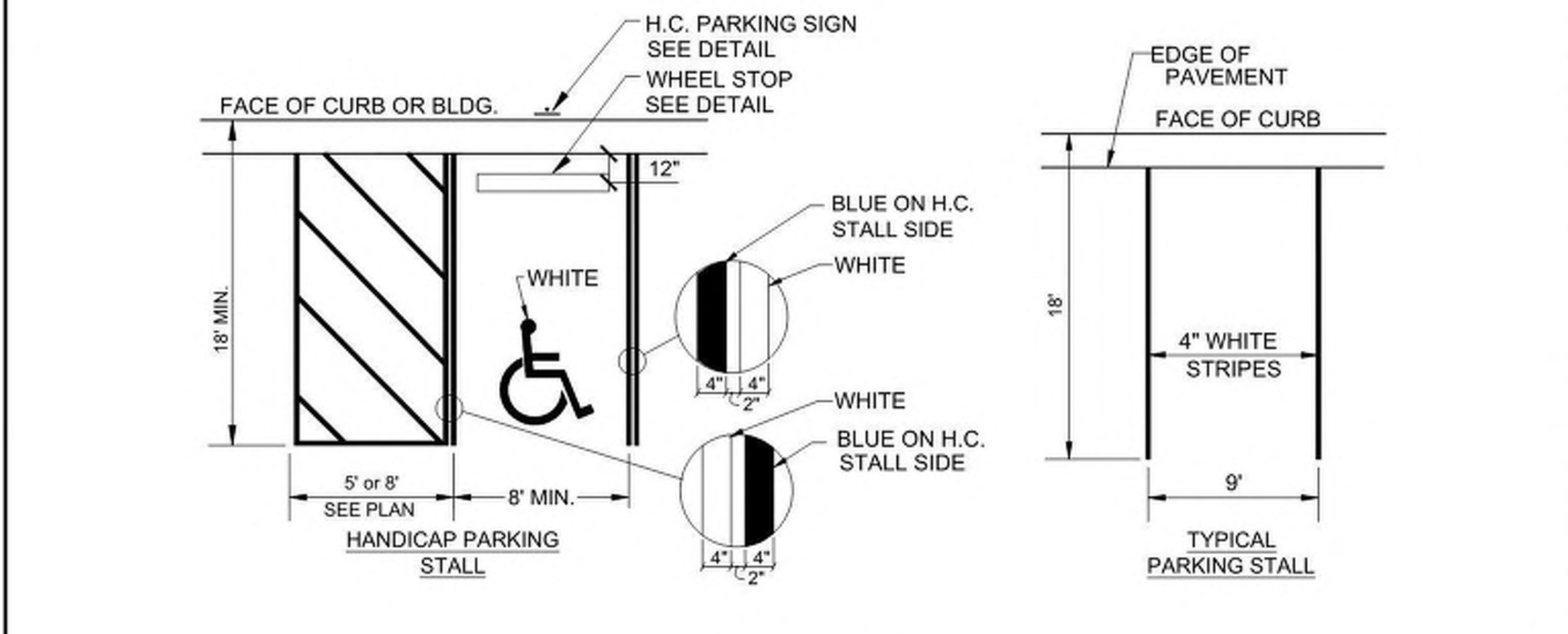
**ADDITIONAL NOTES**

- STOP BARS SHALL BE USED WHERE IT IS IMPORTANT TO INDICATE THE POINT BEHIND WHICH VEHICLES ARE REQUIRED TO STOP IN COMPLIANCE WITH A TRAFFIC SIGNAL, STOP SIGN OR OTHER LEGAL REQUIREMENT.
- PARKING SHALL BE A MINIMUM OF 20 FEET BACK OF THE PEDESTRIAN CROSSWALK.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS DOCUMENT IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402.
- INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
- CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
- THE BOTTOM OF DIAGONAL (CORNER TYPE) CURB RAMPS AT MARKED CROSSINGS SHALL HAVE 48-IN. MINIMUM CLEAR SPACE WITHIN THE MARKINGS.
- IF DIAGONAL CURB RAMPS HAVE FLARED SIDES, THEY SHALL HAVE AT LEAST A 24-IN. LONG SEGMENT OF STRAIGHT CURB LOCATED ON EACH SIDE OF THE CURB RAMP AND WITHIN THE MARKED CROSSING.

**NOTES** 6  
Not to Scale



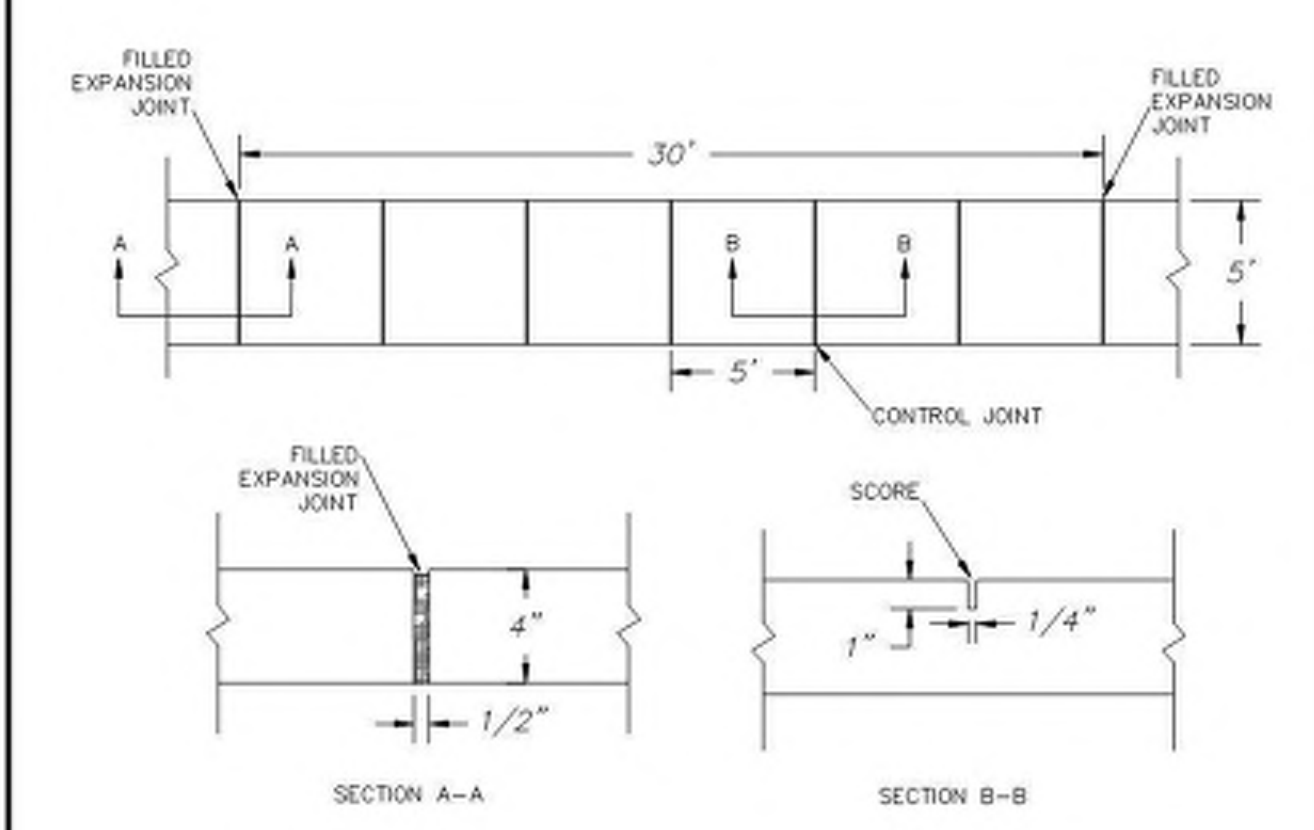
**CURBING** 5  
Not to Scale



**NOTES:**

- PARKING SPACES AND ACCESS AISLES SHALL BE LEVEL WITH SURFACE SLOPES NOT EXCEEDING 1:50 (2%) IN ALL DIRECTIONS.

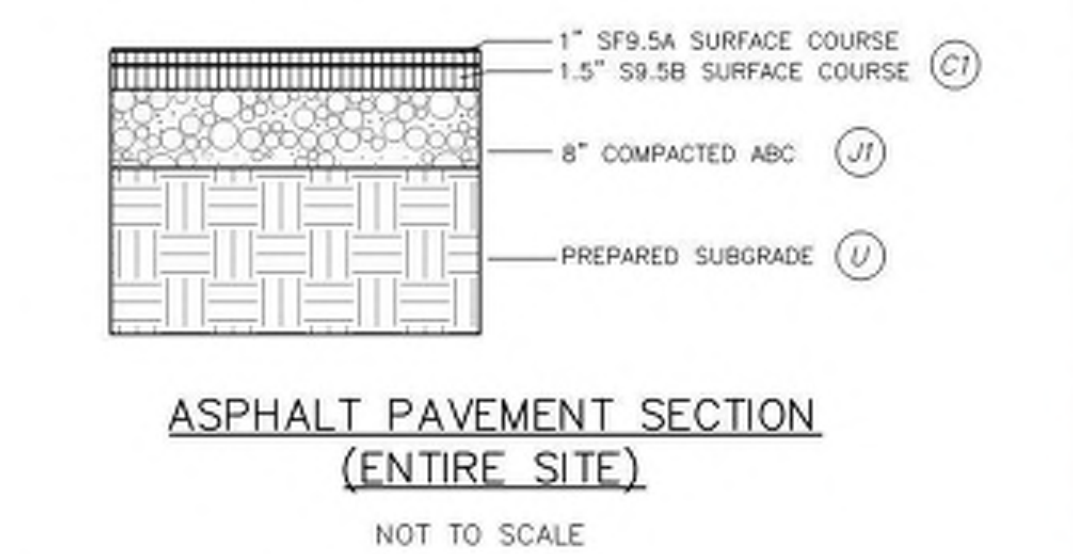
**PARKING SPACE LAYOUT** 4  
Not to Scale



**NOTES:**

- JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
- SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
- MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
- CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" - 3,000 PSI.
- MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL.
- 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS
- MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
- MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
- MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION, MAX CROSS SLOPE IS 2% MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

**SIDEWALK DETAIL** 3  
Not to Scale



**ASPHALT PAVEMENT SECTION (ENTIRE SITE)** 2  
NOT TO SCALE

**\*\* COMPACTED ABC NOTE-1:**  
COMPACTED ABC MUST MEET THE NCDOT STANDARD SPECIFICATION GRADATION. REFER TO NCDOT STD SPECS (JAN 2012 EDITION) SECTION 520, AND SECTIONS 1005, 1006, AND 1010 FOR ALL OF THE MATERIAL GRADATION AND SPECIFICATIONS.

**\*\* COMPACTED ABC NOTE-2:**  
GRANITE BASED ABC IS NOT REQUIRED FOR THIS PROJECT. THE FOLLOWING TYPE OF MATERIALS MAY BE USED FOR ABC:

- MARL - 6" IN DEPTH;
- CRUSHED CONCRETE - CAN REDUCE TO 4" IN DEPTH;
- ASPHALT MILLING CRUSHED TO 3/4" DIAMETER - 6" IN DEPTH.

**ASPHALT PAVEMENT SECTION** 2  
Not to Scale

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

**Approved Construction Plan**

Name	Date
Planning	
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.

1 inch

**NOTES** 6  
Not to Scale

**CURBING** 5  
Not to Scale

**PARKING SPACE LAYOUT** 4  
Not to Scale

**SIDEWALK DETAIL** 3  
Not to Scale

**ASPHALT PAVEMENT SECTION** 2  
Not to Scale

**CURBED HC ACCESS RAMP (PARALLEL)** 8  
Not to Scale

**CURBED HC ACCESS RAMP (PERPENDICULAR)** 7  
Not to Scale

**PARKING SPACE LAYOUT** 4  
Not to Scale

**SIDEWALK DETAIL** 3  
Not to Scale

**ASPHALT PAVEMENT SECTION** 2  
Not to Scale

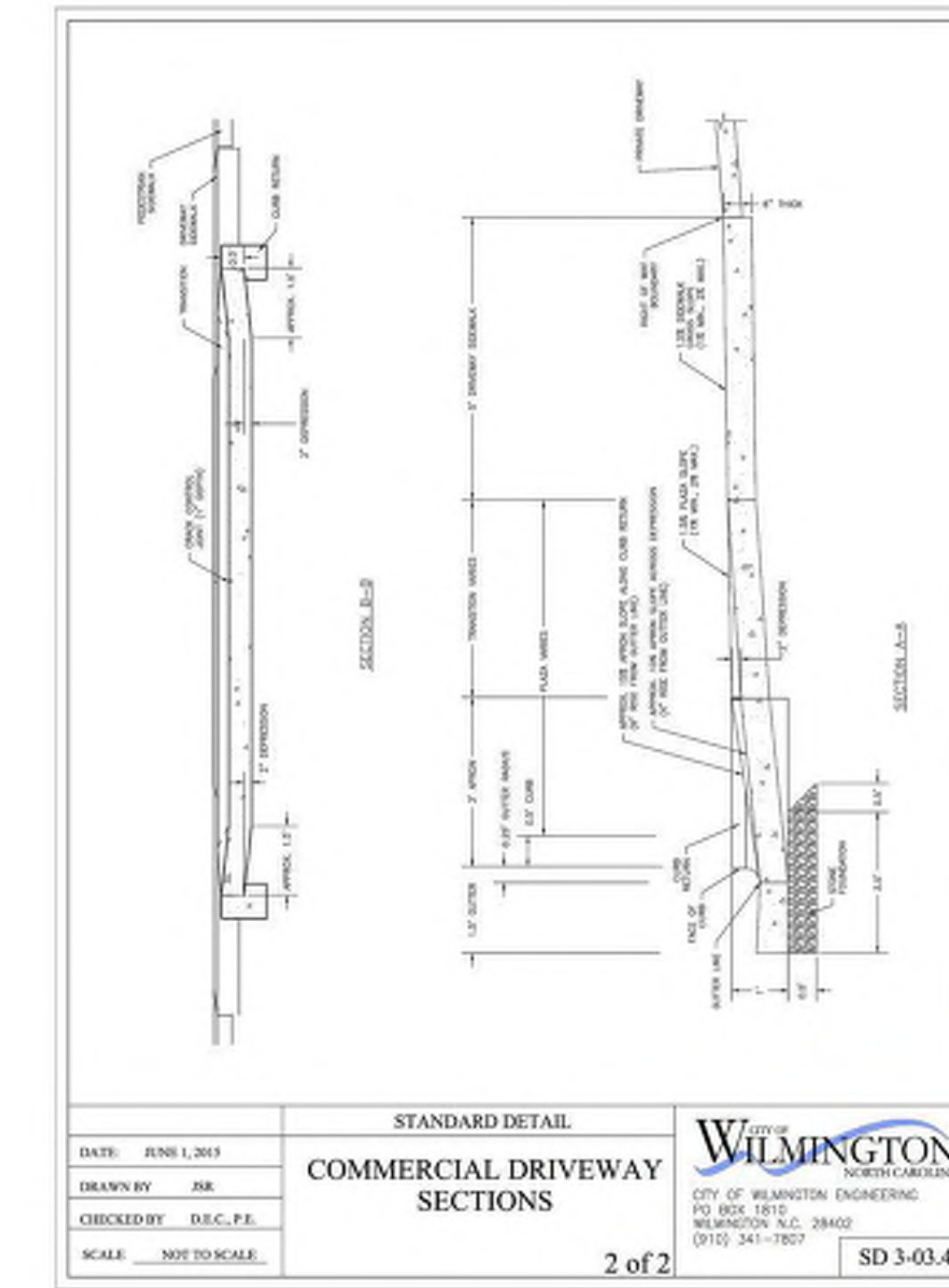
**CURBED HC ACCESS RAMP (PARALLEL)** 8  
Not to Scale

**CURBED HC ACCESS RAMP (PERPENDICULAR)** 7  
Not to Scale

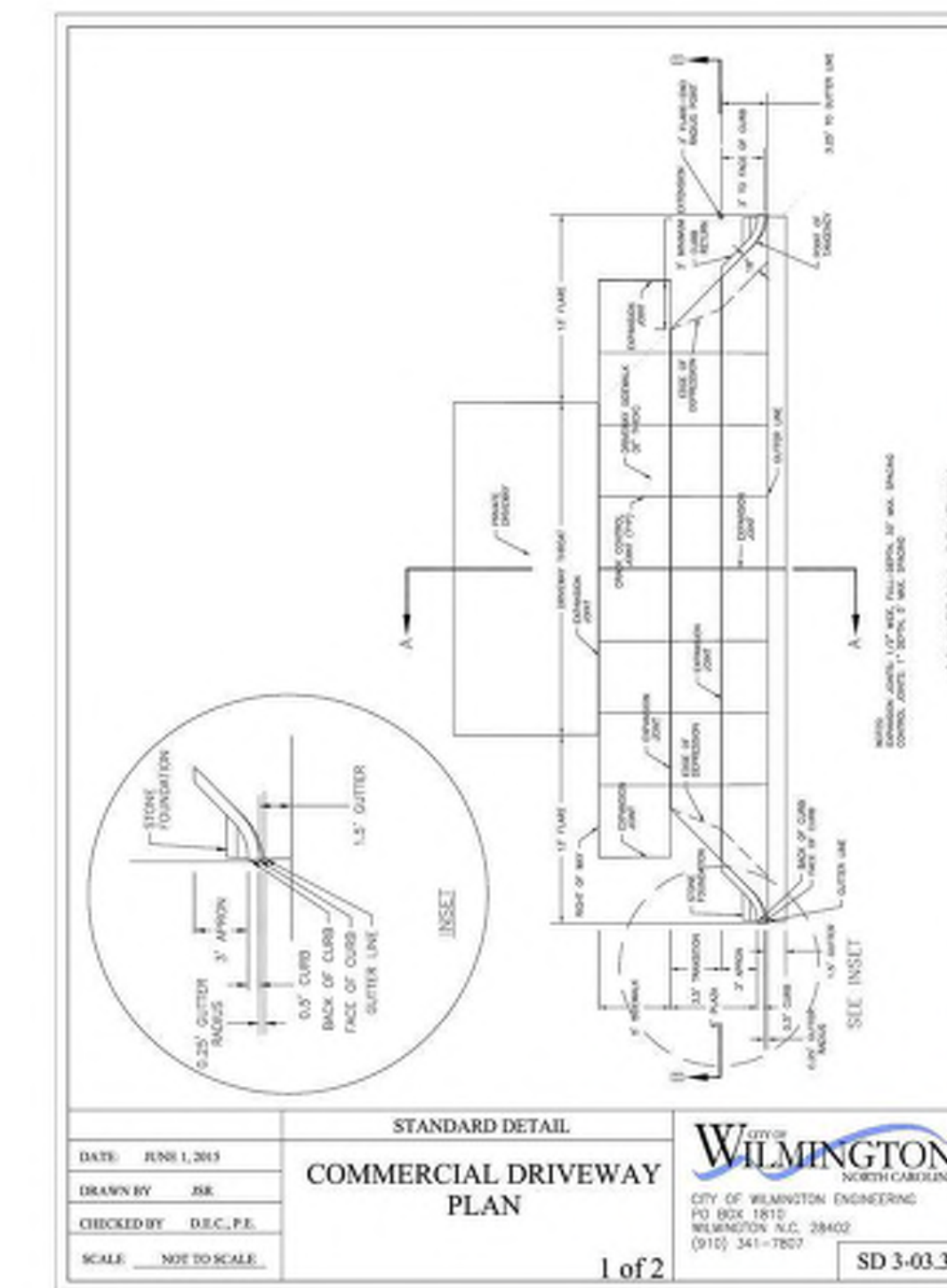
**PARKING SPACE LAYOUT** 4  
Not to Scale

**SIDEWALK DETAIL** 3  
Not to Scale

**ASPHALT PAVEMENT SECTION** 2  
Not to Scale



COMMERCIAL DRIVEWAY SECTION 3  
Not to Scale



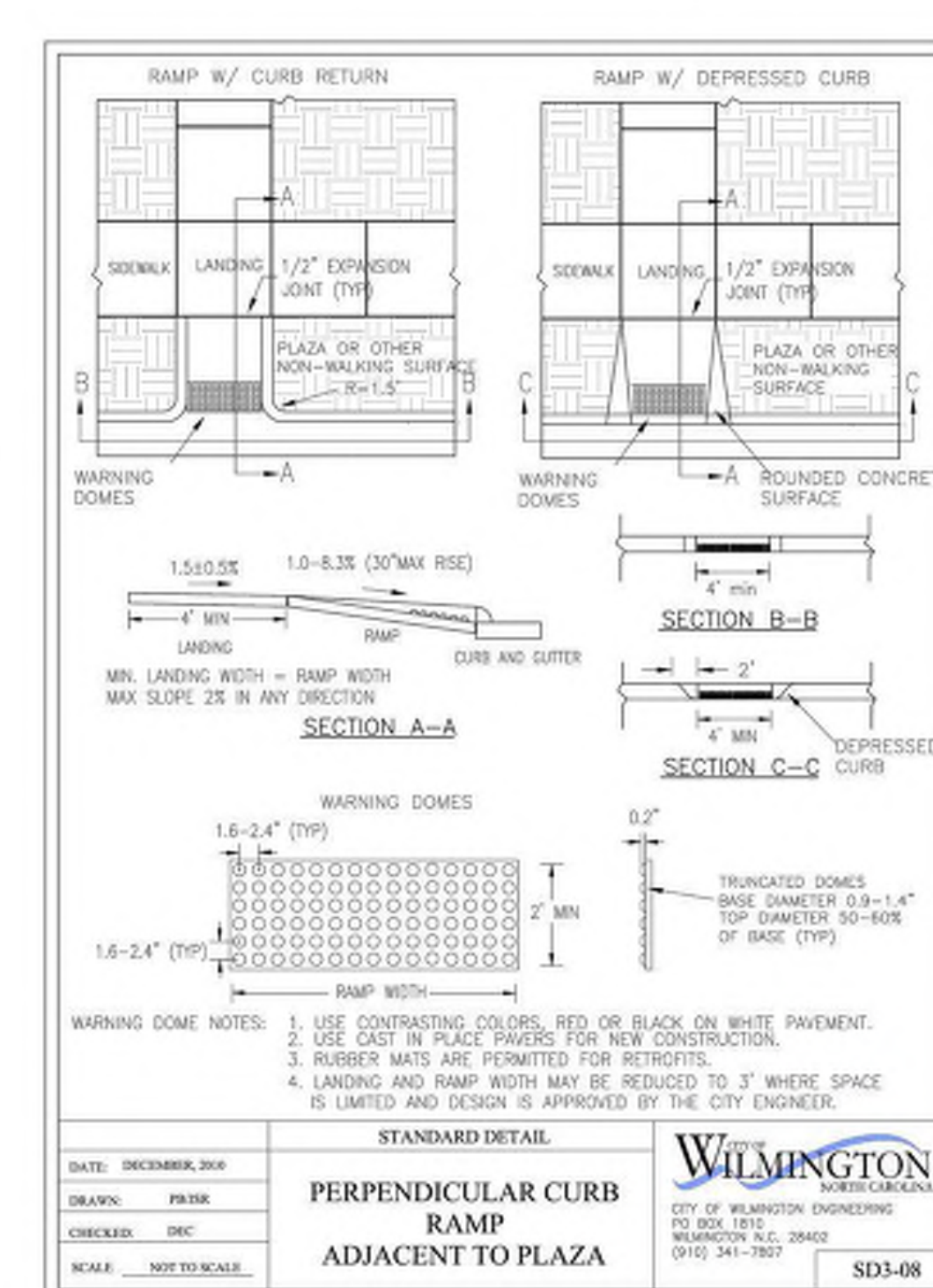
COMMERCIAL DRIVEWAY PLAN 2  
Not to Scale

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

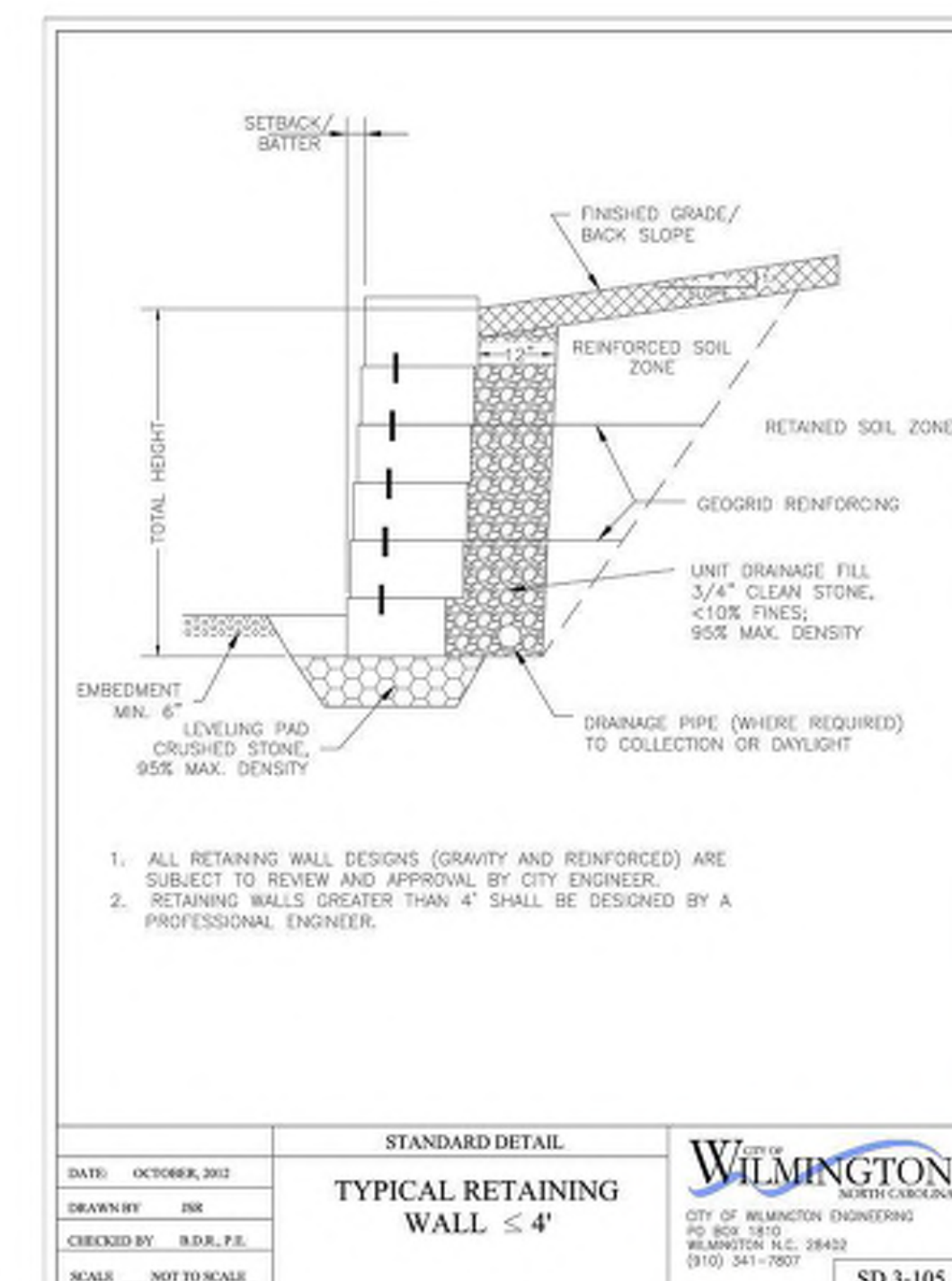
Approved Construction Plan  
Name \_\_\_\_\_ Date \_\_\_\_\_  
Planning \_\_\_\_\_  
Traffic \_\_\_\_\_  
Fire \_\_\_\_\_

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

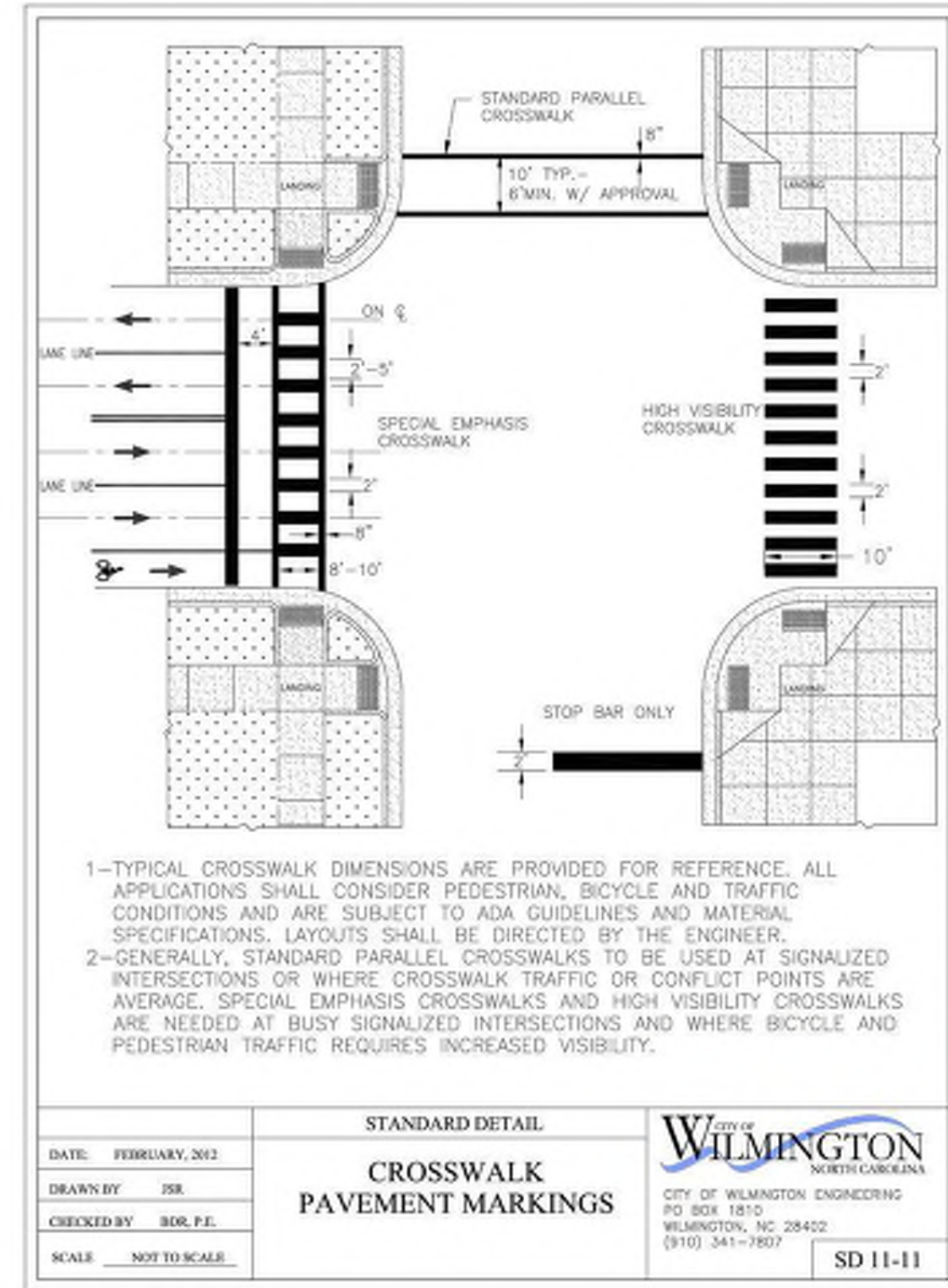
COMMERCIAL DRIVEWAY SECTION 3  
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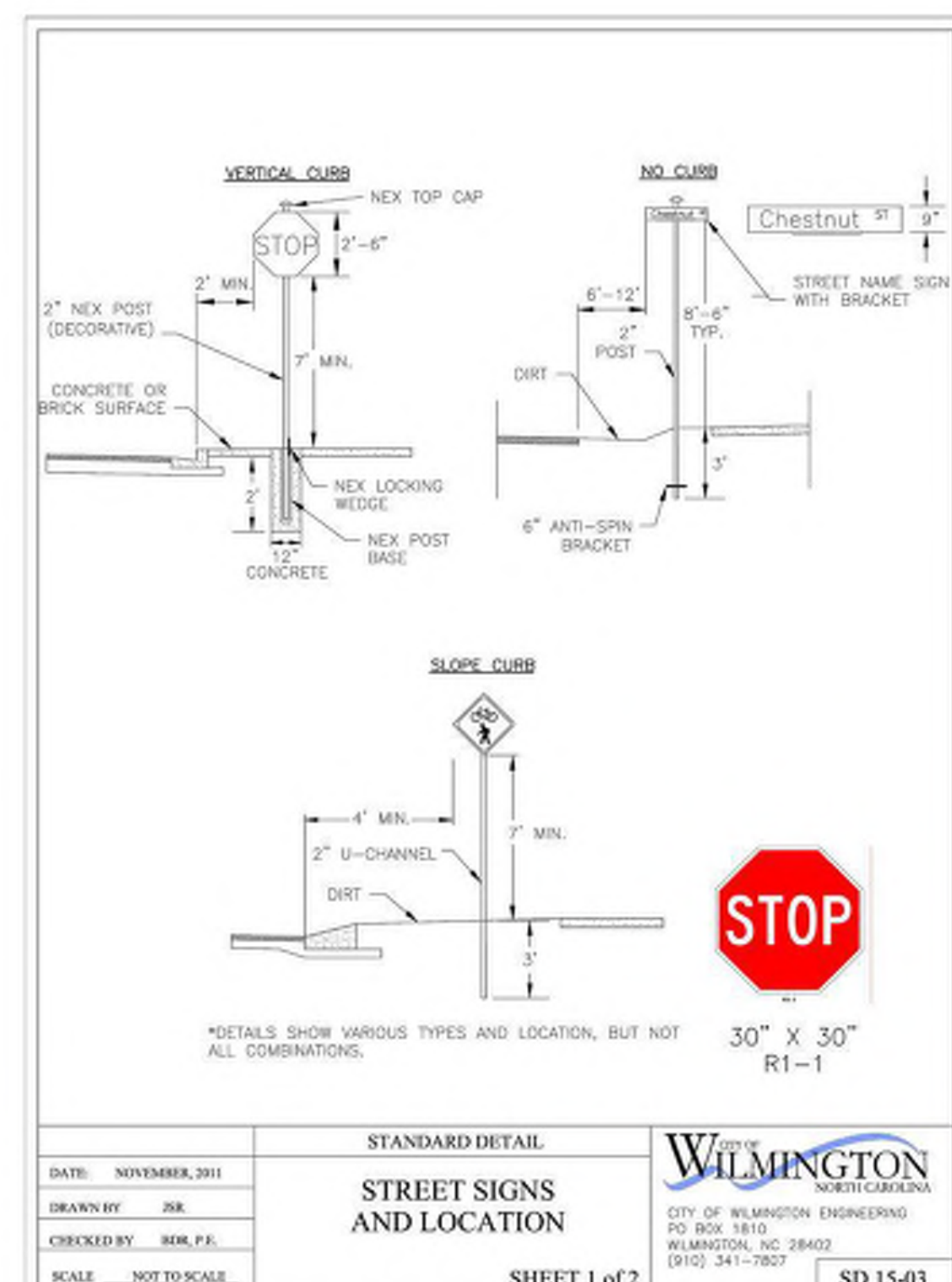
PERPENDICULAR CURB RAMP TO PLAZA 5  
Not to Scale



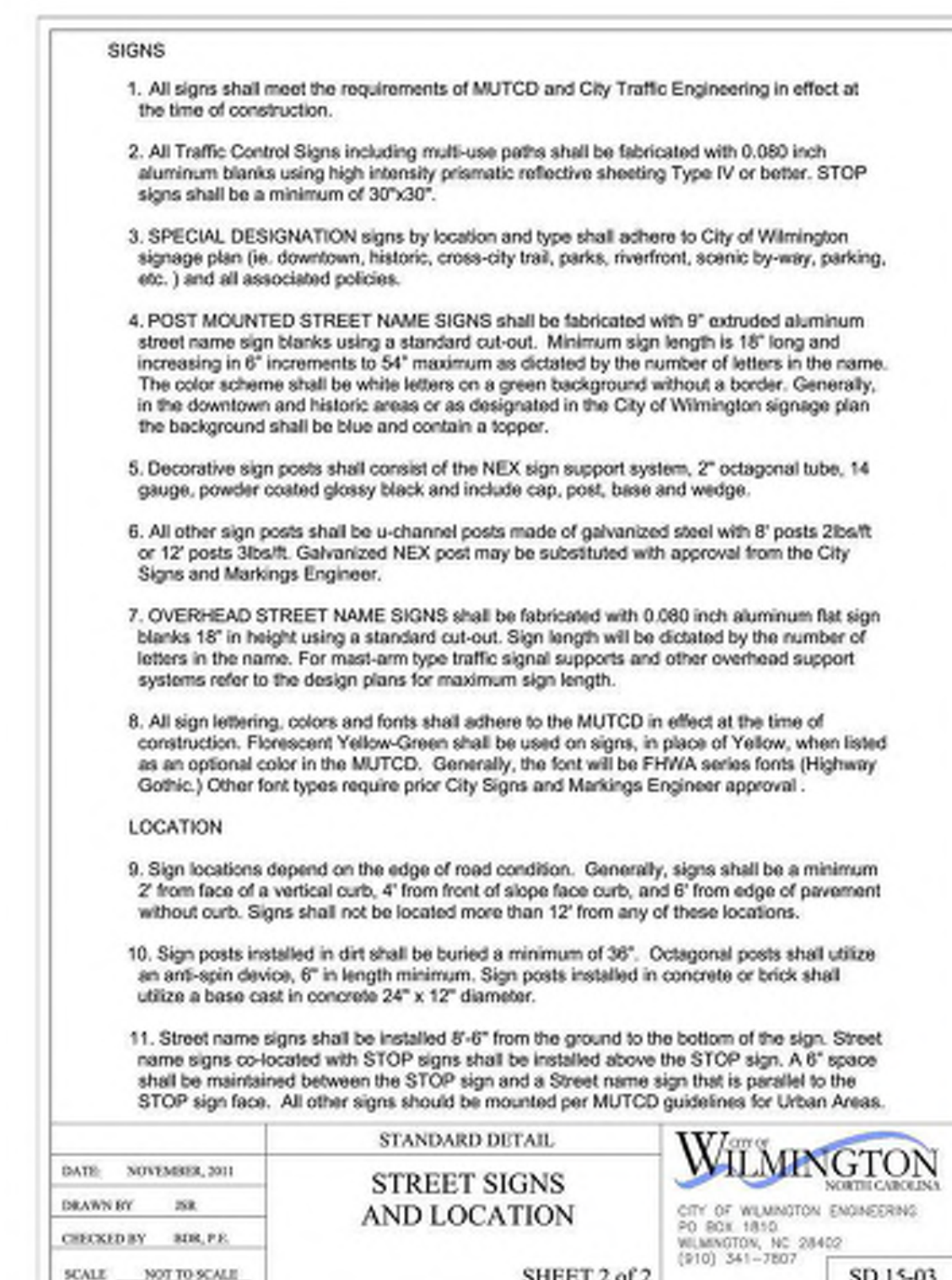
TYPICAL RETAINING WALL ≤ 4' 4  
Not to Scale



CROSSWALK PAVEMENT MARKINGS 7  
Not to Scale



STREET SIGN LOCATIONS 6  
Not to Scale



STREET SIGN LOCATIONS 8  
Not to Scale

**SIGNS**

- All signs shall meet the requirements of MUTCD and City Traffic Engineering in effect at the time of construction.
- All Traffic Control Signs including multi-use paths shall be fabricated with 0.080 inch aluminum blanks using high intensity prismatic reflective sheeting Type IV or better. STOP signs shall be a minimum of 30"x30".
- SPECIAL DESIGNATION signs by location and type shall adhere to City of Wilmington signage plan (ie. downtown, historic, cross-city trail, parks, riverfront, scenic by-way, parking, etc.) and all associated policies.
- POST MOUNTED STREET NAME SIGNS shall be fabricated with 9" extruded aluminum street name sign blanks using a standard cut-out. Minimum sign length is 18" long and increasing in 6" increments to 54" maximum as dictated by the number of letters in the name. The color scheme shall be white letters on a green background without a border. Generally, in the downtown and historic areas or as designated in the City of Wilmington signage plan the background shall be blue and contain a topper.
- Decorative sign posts shall consist of the NEX sign support system, 2" octagonal tube, 14 gauge, powder coated glossy black and include cap, post, base and wedge.
- All other sign posts shall be u-channel posts made of galvanized steel with 8" posts 2lbs/ft or 12" posts 3lbs/ft. Galvanized NEX post may be substituted with approval from the City Signs and Markings Engineer.
- OVERHEAD STREET NAME SIGNS shall be fabricated with 0.080 inch aluminum flat sign blanks 18" in height using a standard cut-out. Sign length will be dictated by the number of letters in the name. For mast-arm type traffic signal supports and other overhead support systems refer to the design plans for maximum sign length.
- All sign lettering, colors and fonts shall adhere to the MUTCD in effect at the time of construction. Fluorescent Yellow-Green shall be used on signs, in place of Yellow, when listed as an optional color in the MUTCD. Generally, the font will be FHWA series fonts (Highway Gothic.) Other font types require prior City Signs and Markings Engineer approval.

**LOCATION**

- Sign locations depend on the edge of road condition. Generally, signs shall be a minimum 2' from face of a vertical curb, 4' from front of slope face curb, and 6' from edge of pavement without curb. Signs shall not be located more than 12' from any of these locations.
- Sign posts installed in dirt shall be buried a minimum of 36". Octagonal posts shall utilize an anti-spin device, 6" in length minimum. Sign posts installed in concrete or brick shall utilize a base cast in concrete 24" x 12" diameter.
- Street name signs shall be installed 8'-6" from the ground to the bottom of the sign. Street name signs co-located with STOP signs shall be installed above the STOP sign. A 6" space shall be maintained between the STOP sign and a Street name sign that is parallel to the STOP sign face. All other signs should be mounted per MUTCD guidelines for Urban Areas.

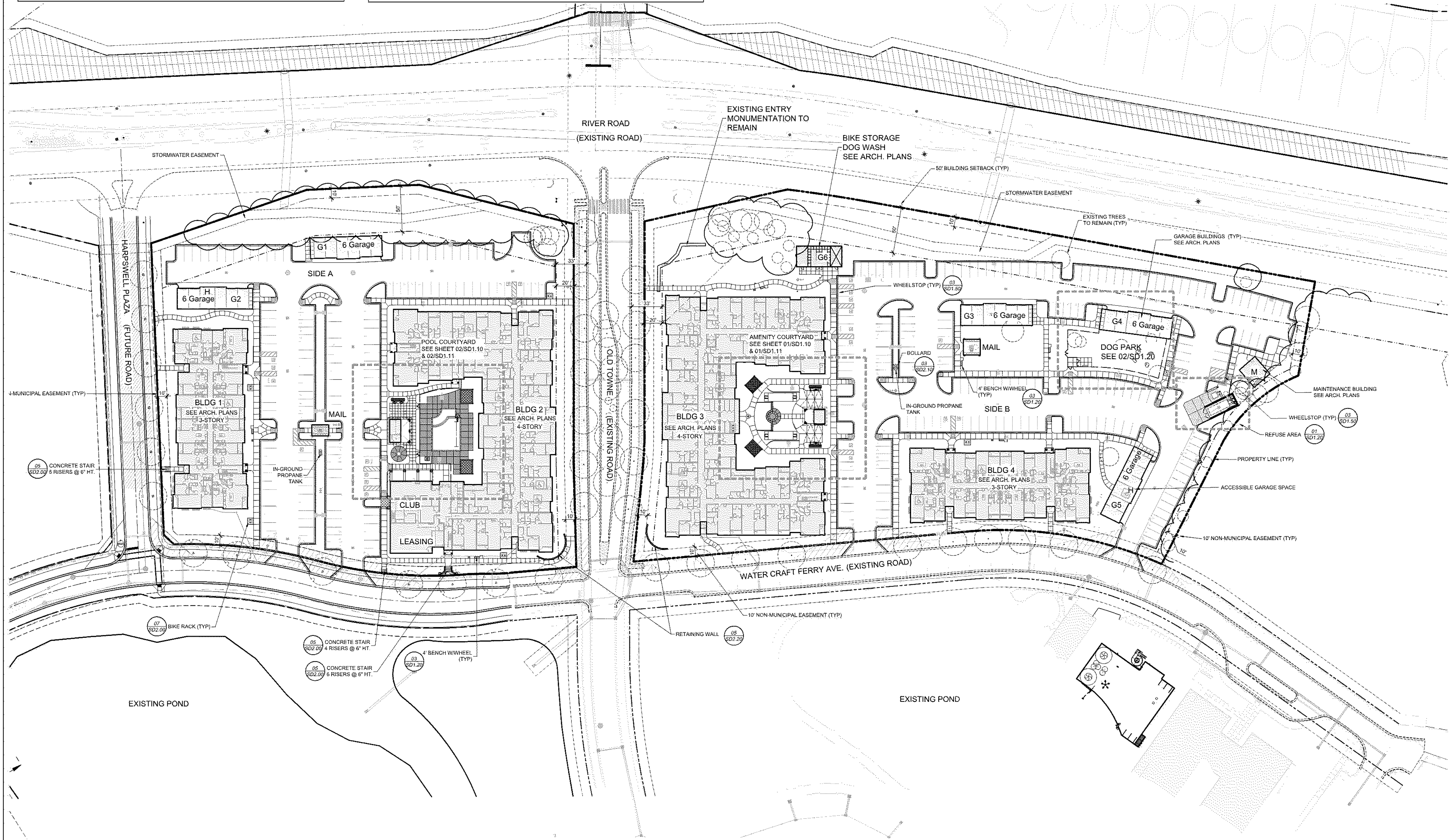
STREET SIGN LOCATIONS 8  
Not to Scale

TOTAL RESIDENTIAL UNITS	250	
TOTAL RESIDENTIAL BEDROOMS	440	
TOTAL PARKING SPACES (ON-STREET NOT INCLUDED)	373	
<b>PARKING DATA</b>	<b>SIDE A</b>	<b>SIDE B</b>
SURFACE SPACES	132	158
GARAGE SPACES	12	18
COMPACT SPACES	25	38
<b>TOTAL</b>	<b>164</b>	<b>209</b>

ACCESSIBLE PARKING DATA		SUMMARY
BUILDING 1	ACCESSIBLE	
TYPE A UNITS	2	SIDE A 10 SPACES
TOTAL UNITS	36	REQUIRED 1
BUILDING 2		SIDE B 10 SPACES
TYPE A UNITS	4	REQUIRED 1
TOTAL UNITS	83	
OFFICE USE	1	
BUILDING 3		ACCESSIBLE PARKING SPACES PROVIDED
TYPE A UNITS	5	SIDE A 11
TOTAL UNITS	95	REGULAR 8
		GARAGE 1
		VAN 2
BUILDING 4		SIDE B 13
TYPE A UNITS	2	REGULAR 10
TOTAL UNITS	36	GARAGE 1
		VAN 2

<b>BIKE PARKING</b>	
BIKE PARKING SPACES REQUIRED (DRC)	25
BIKE PARKING SPACES REQUIRED (CITY)	20 MAX.
BIKE PARKING SPACE PROVIDED	50
SHORT TERM	20
LONG TERM	32 (COVERED)

<b>IMPERVIOUS AREA</b>	
EXISTING	0
PROPOSED	269,853 SF OR 66.34%
ROOF TOP	110,469 SF
ROADWAYS	0
PARKING	110,728 SF
SIDEWALKS	48,656 SF



**CLINE DESIGN**  
 125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com

Middleburg, LLC  
**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

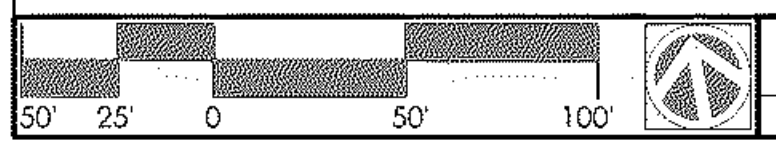
Construction Documents

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

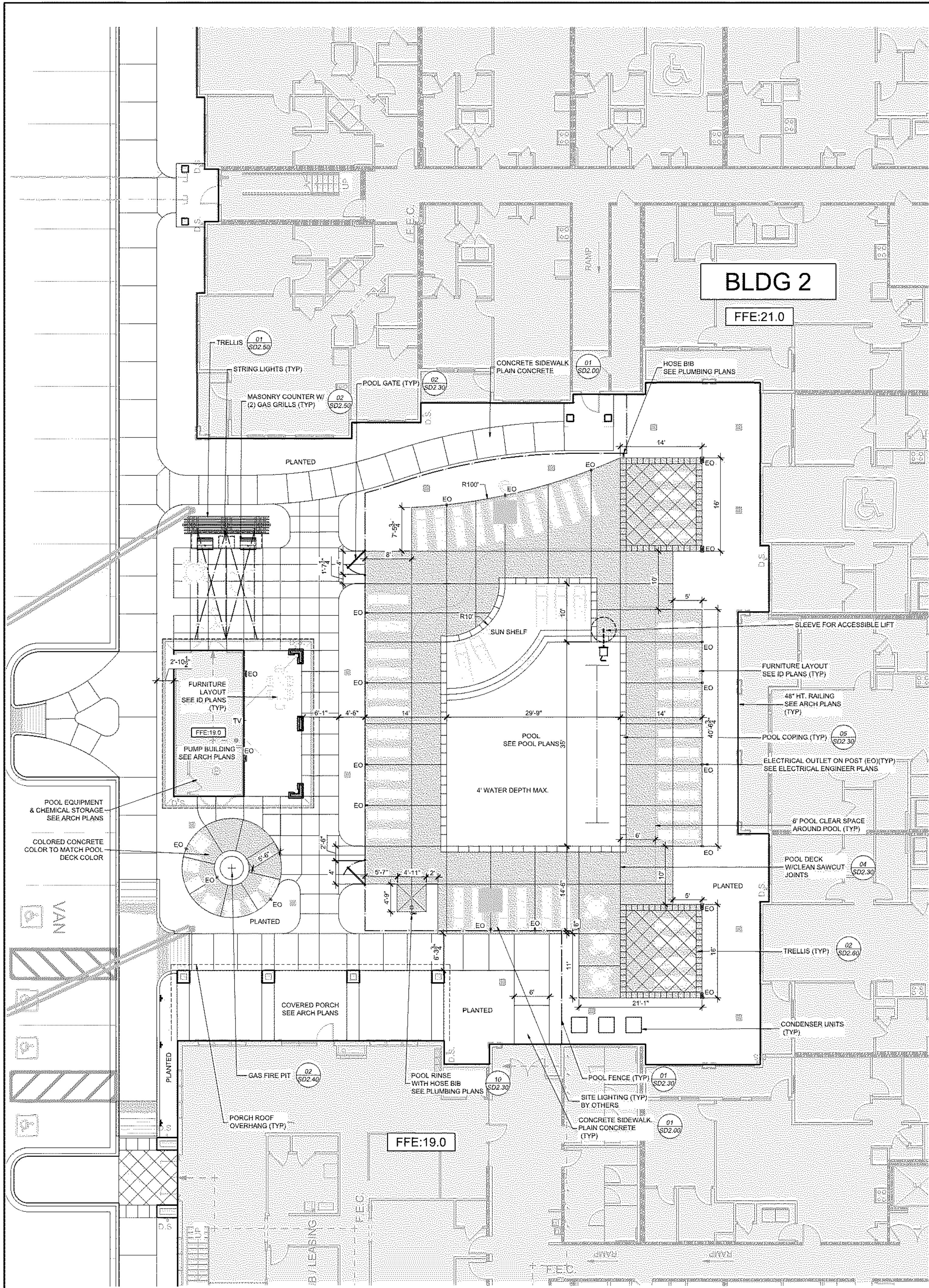
DRAWN BY: CT  
 CHECKED BY: MWL  
 Site Plan



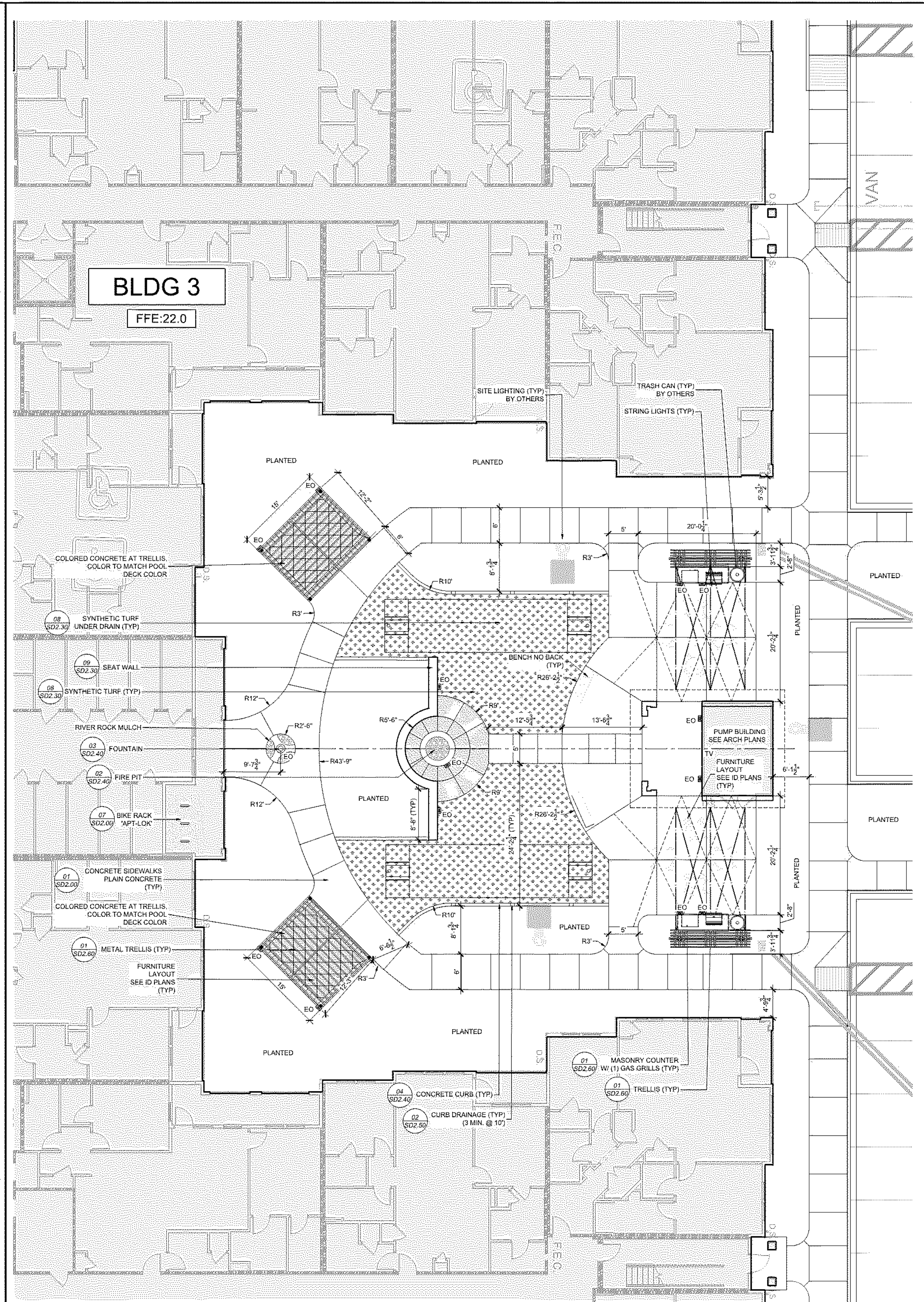
Site Plan 01  
 Scale: 1" = 50'

SD1.00

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Enlarged Sidewalk Pool Courtyard Layout Plan 02



Enlarged Amenity Courtyard Layout Plan 01

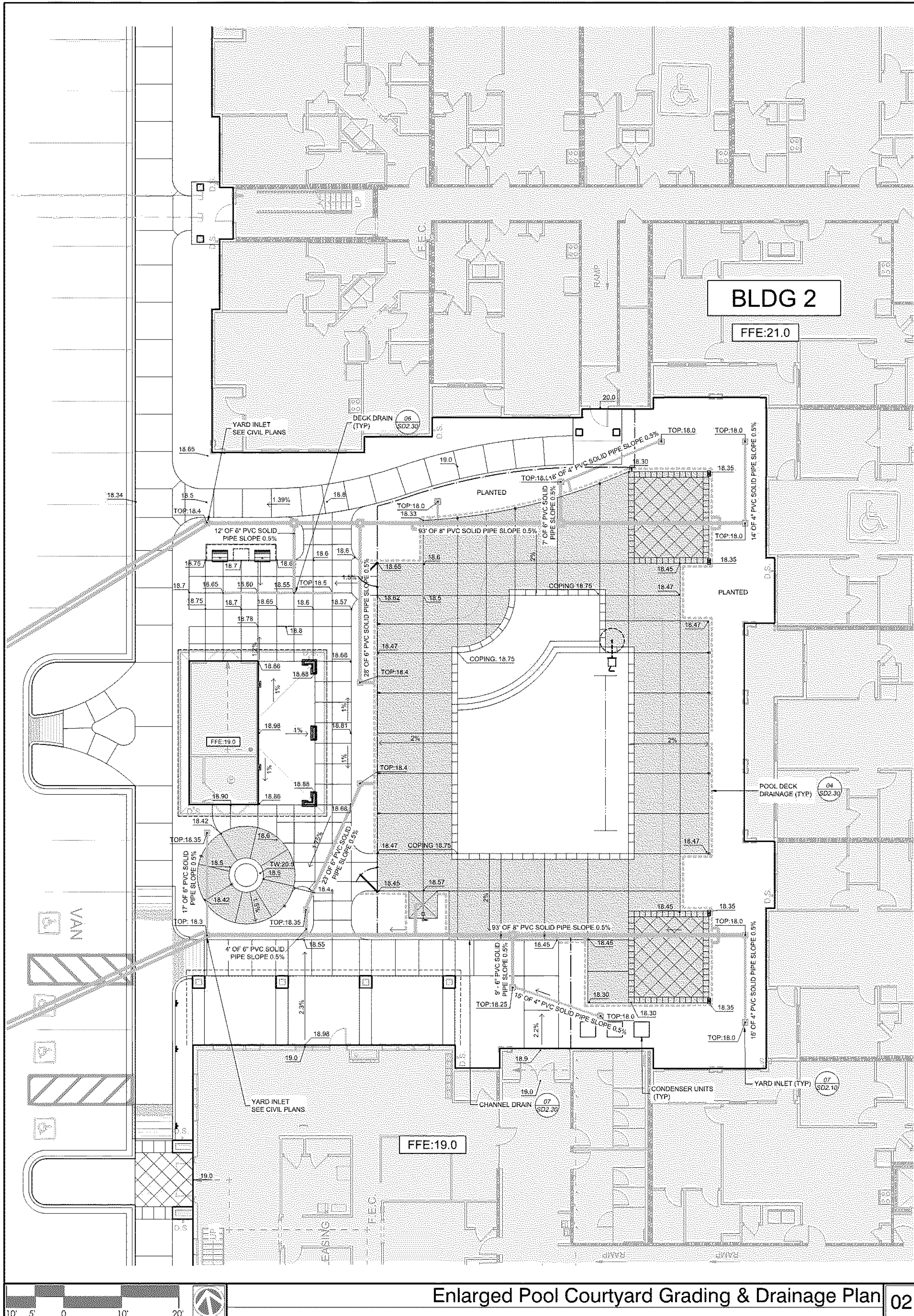
Construction Documents

NOT FOR CONSTRUCTION

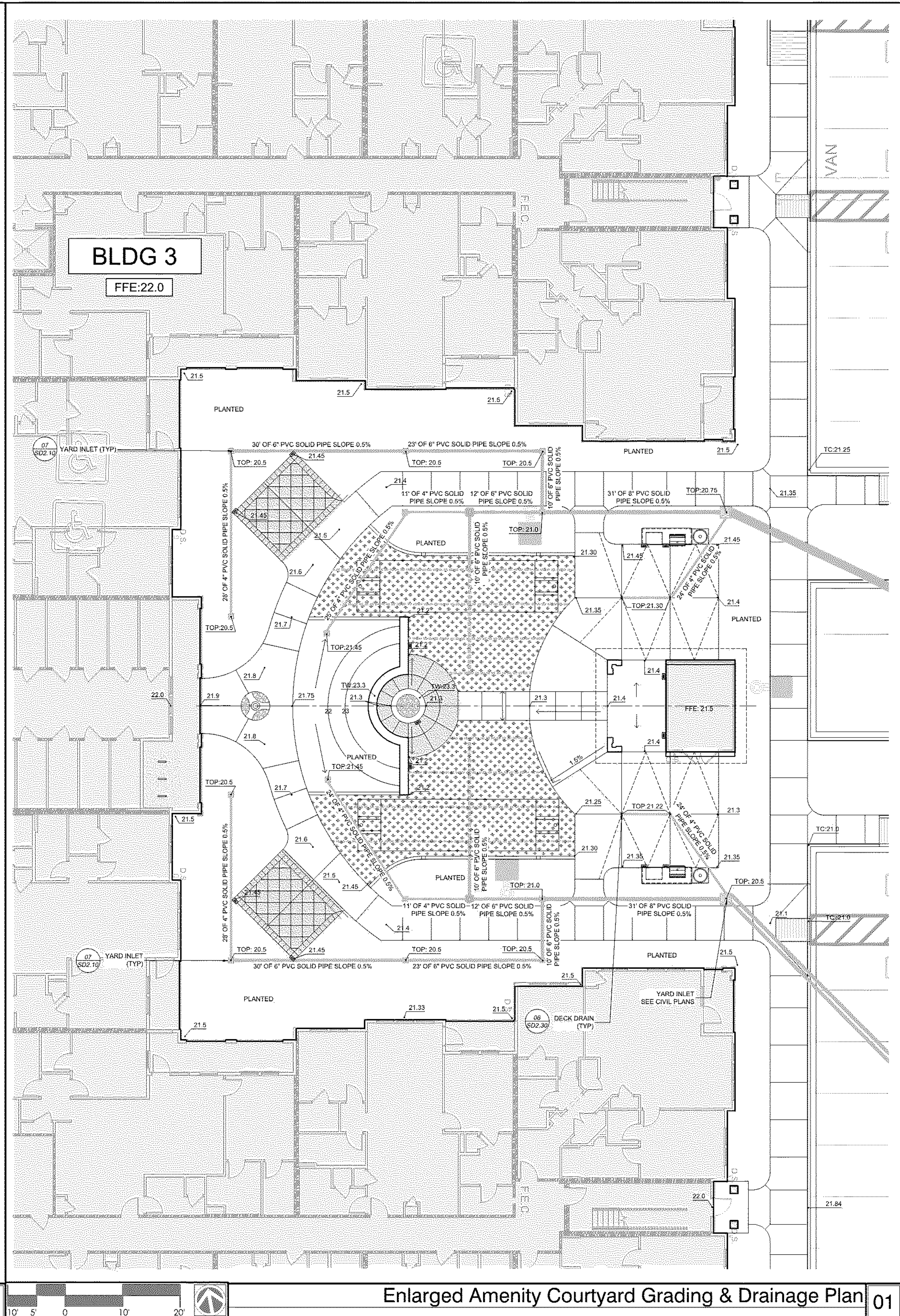
NOT FOR CONSTRUCTION

PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: CT  
 CHECKED BY: MWL  
 Courtyard Layout Plan



Enlarged Pool Courtyard Grading & Drainage Plan 02



Enlarged Amenity Courtyard Grading & Drainage Plan 01

Construction Documents

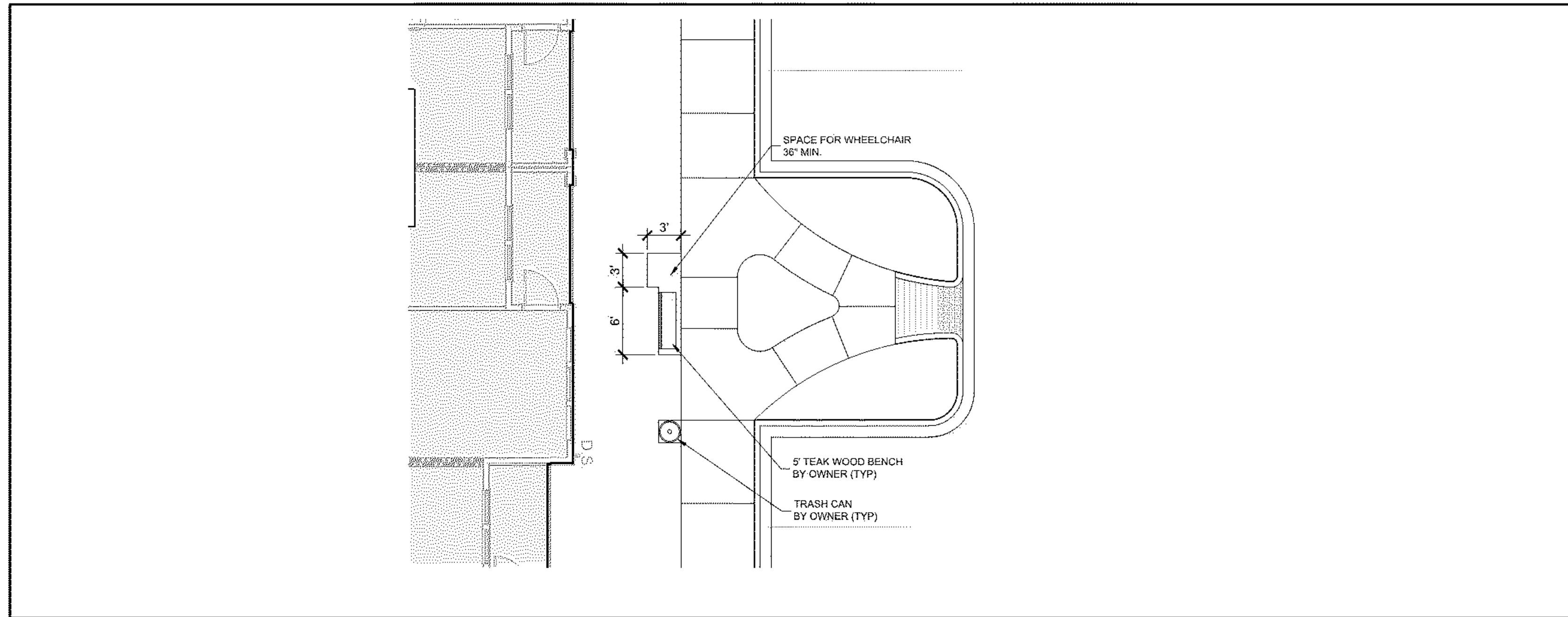
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NOT FOR CONSTRUCTION

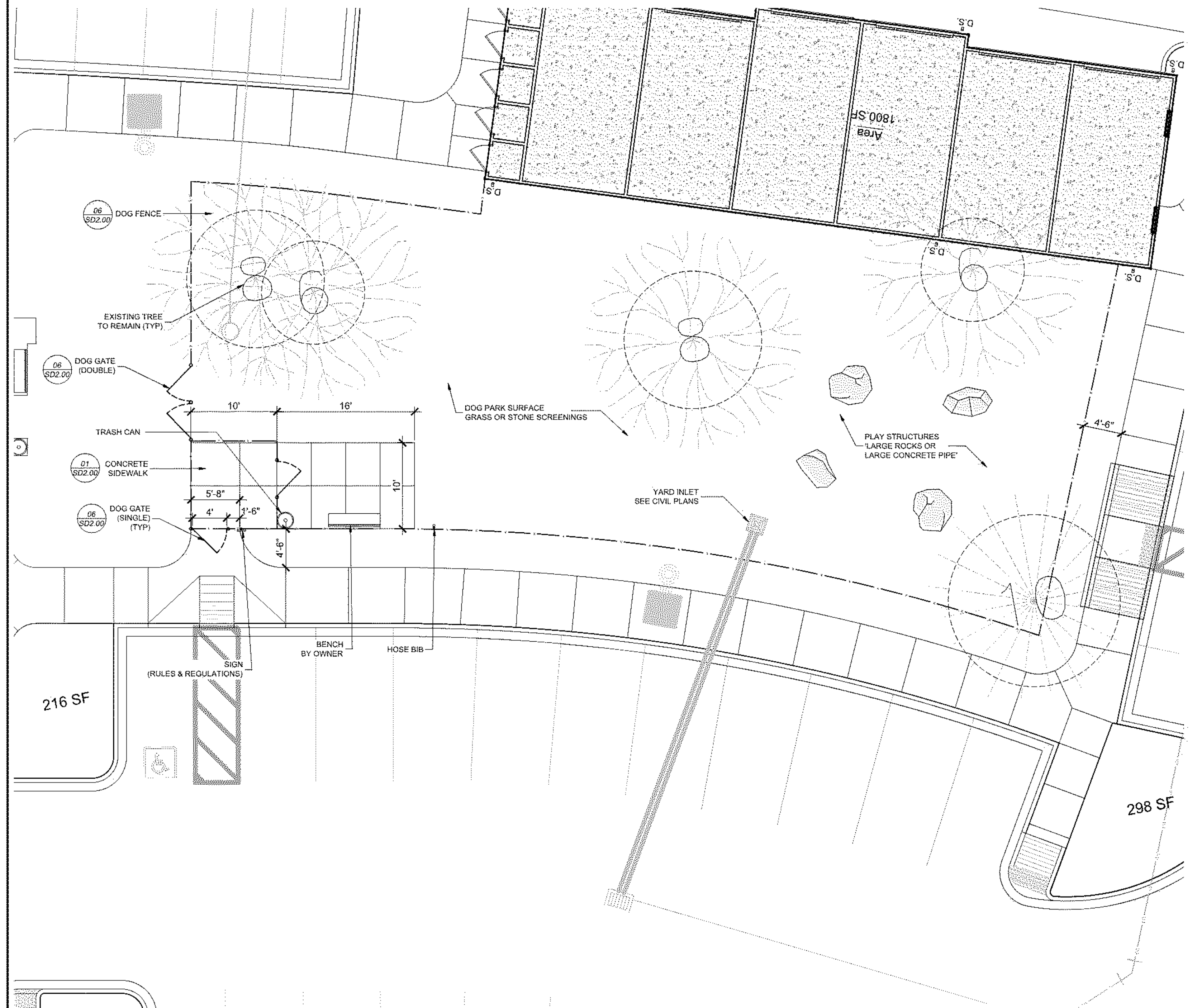
PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: CT  
 CHECKED BY: MWL  
 Courtyard Grading & Drainage Plan





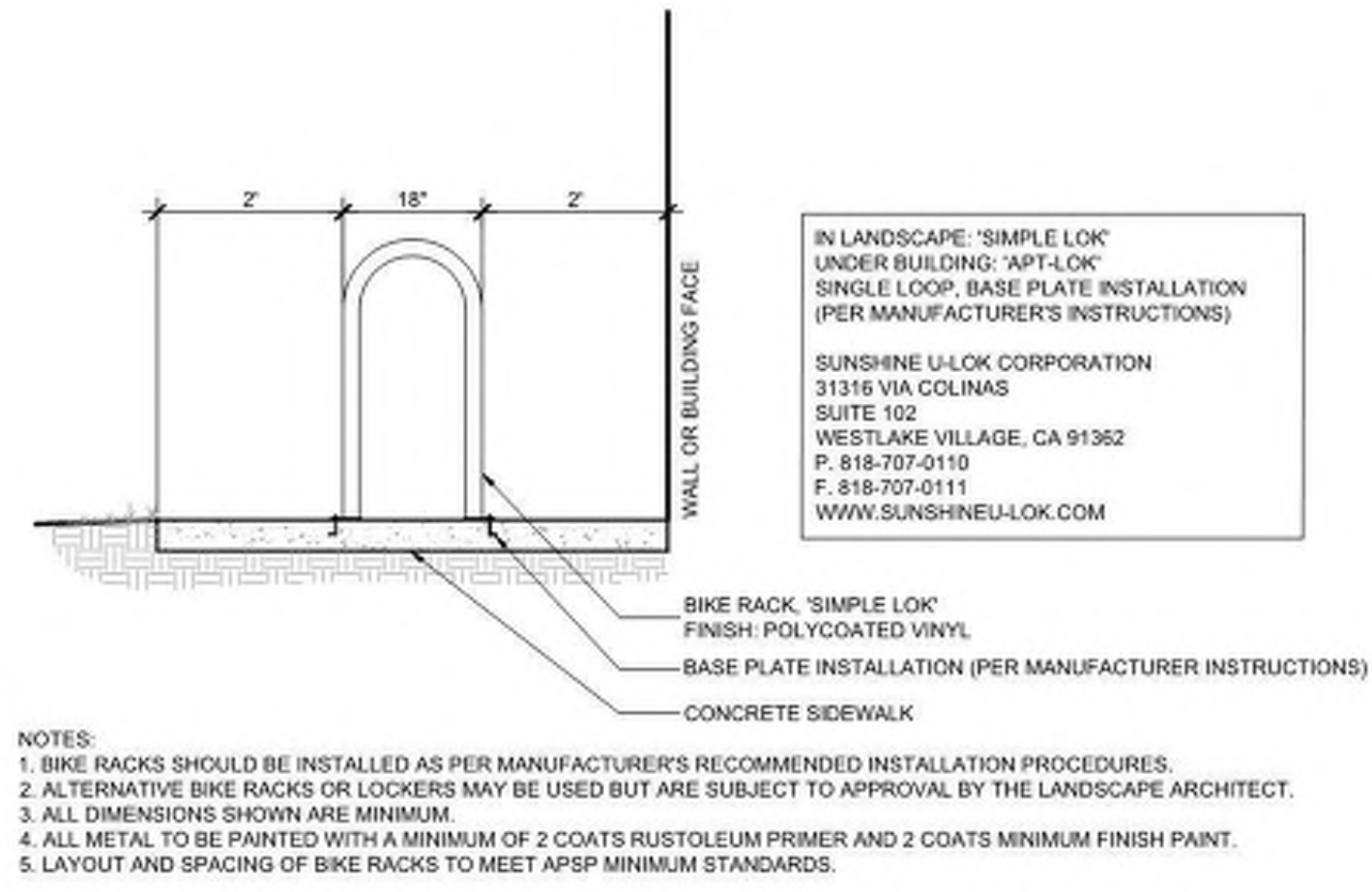
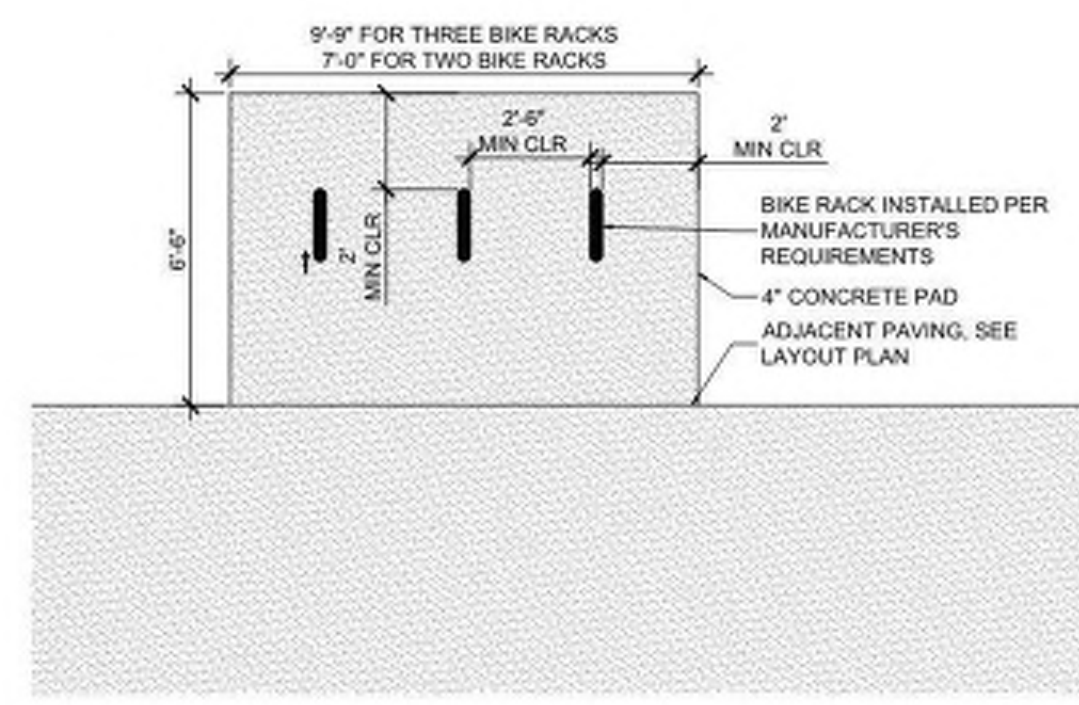
Bench 03



Dog Park 02



Refuse Area 01

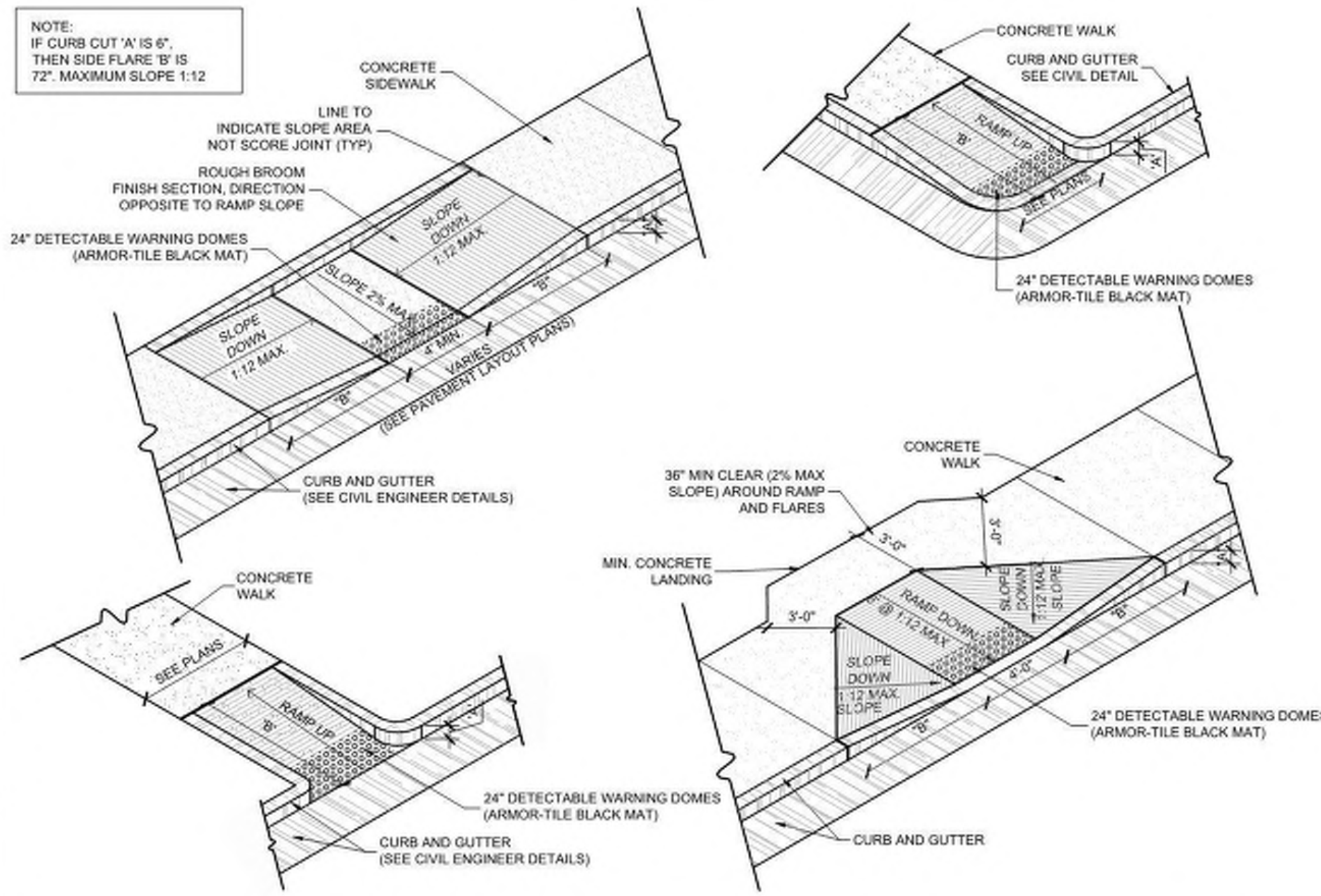


IN LANDSCAPE: 'SIMPLE LOK' UNDER BUILDING: 'APT-LOK' SINGLE LOOP, BASE PLATE INSTALLATION (PER MANUFACTURER'S INSTRUCTIONS)

SUNSHINE U-LOK CORPORATION  
31316 VIA COLINAS  
SUITE 102  
WESTLAKE VILLAGE, CA 91362  
P. 818-707-0110  
F. 818-707-0111  
WWW.SUNSHINEU-LOK.COM

- NOTES:
- BIKE RACKS SHOULD BE INSTALLED AS PER MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
  - ALTERNATIVE BIKE RACKS OR LOCKERS MAY BE USED BUT ARE SUBJECT TO APPROVAL BY THE LANDSCAPE ARCHITECT.
  - ALL DIMENSIONS SHOWN ARE MINIMUM.
  - ALL METAL TO BE PAINTED WITH A MINIMUM OF 2 COATS RUST OLEUM PRIMER AND 2 COATS MINIMUM FINISH PAINT.
  - LAYOUT AND SPACING OF BIKE RACKS TO MEET APSP MINIMUM STANDARDS.

**Bike Rack** 07  
Scale: 1/2" = 1'-0"



NOTE: 1" CURB CUT 'A' IS 6", THEN SIDE FLARE 'B' IS 72". MAXIMUM SLOPE 1:12

STORMWATER MANAGEMENT PLAN  
**APPROVED**  
CITY OF WILMINGTON  
ENGINEERING DEPARTMENT  
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.

**Approved Construction Plan**

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

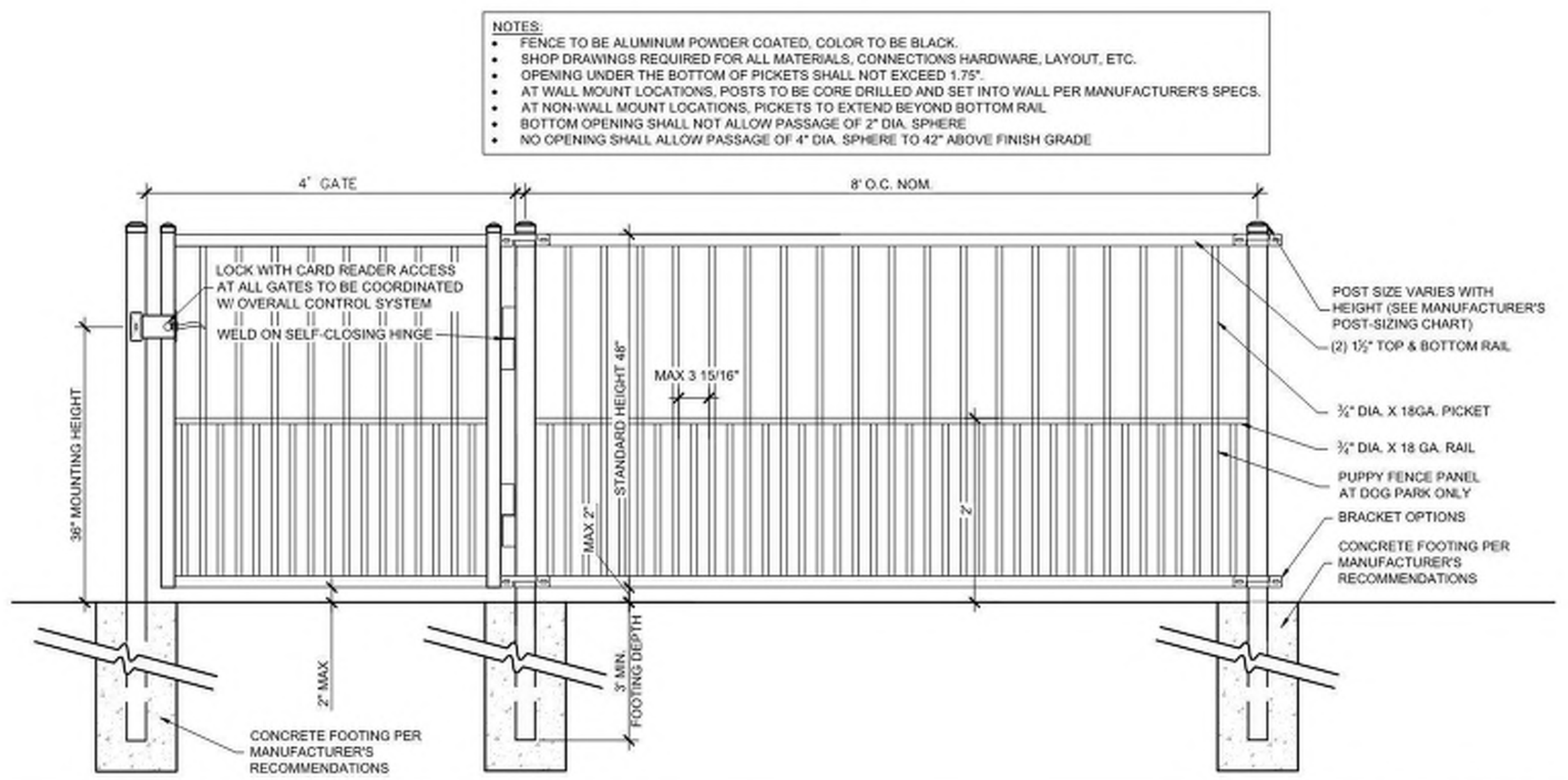
Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

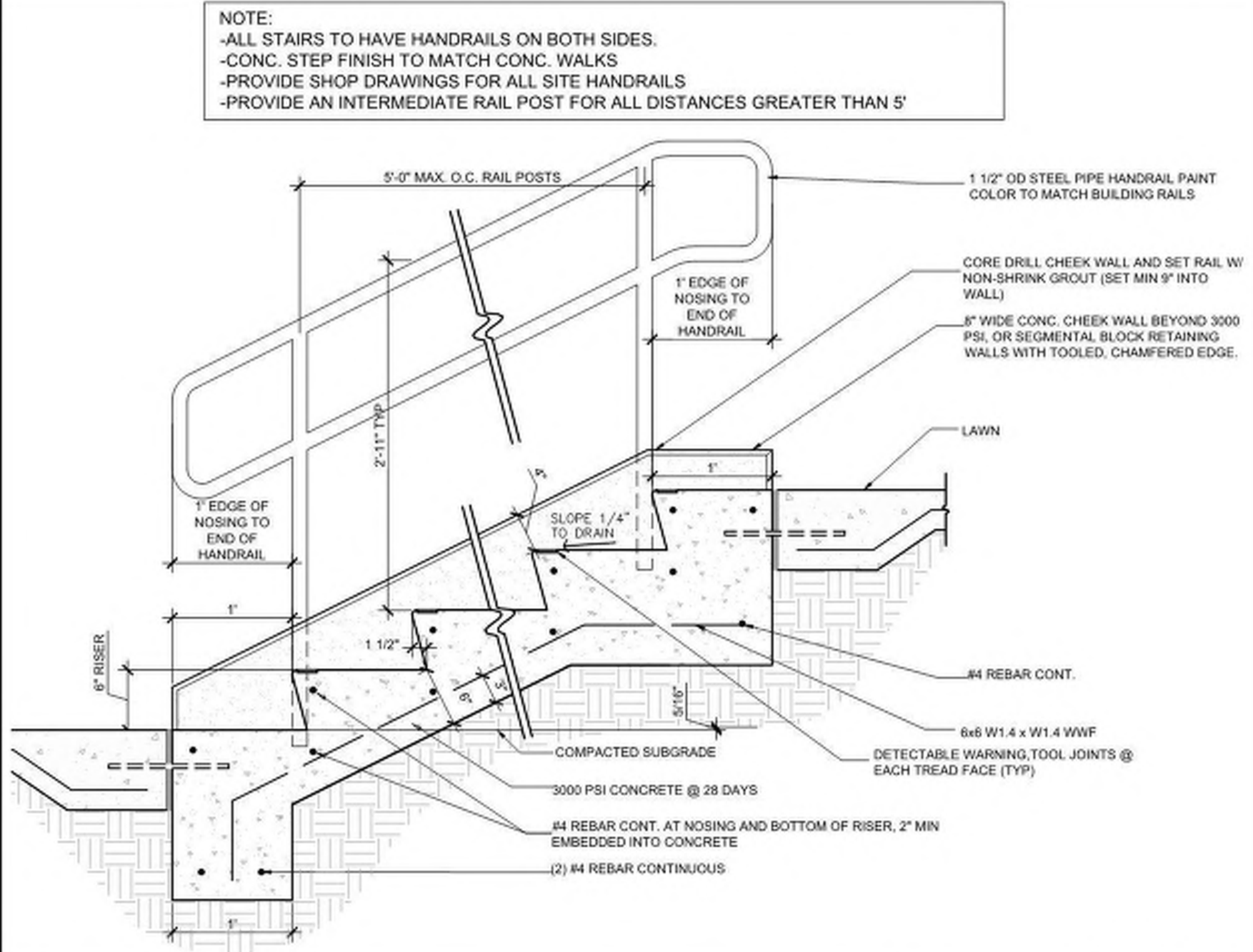
Fire \_\_\_\_\_

**Handicap Accessible Curb Ramps** 03 **City of Wilmington Approvals** 02  
Scale: 3/16" = 1'-0"



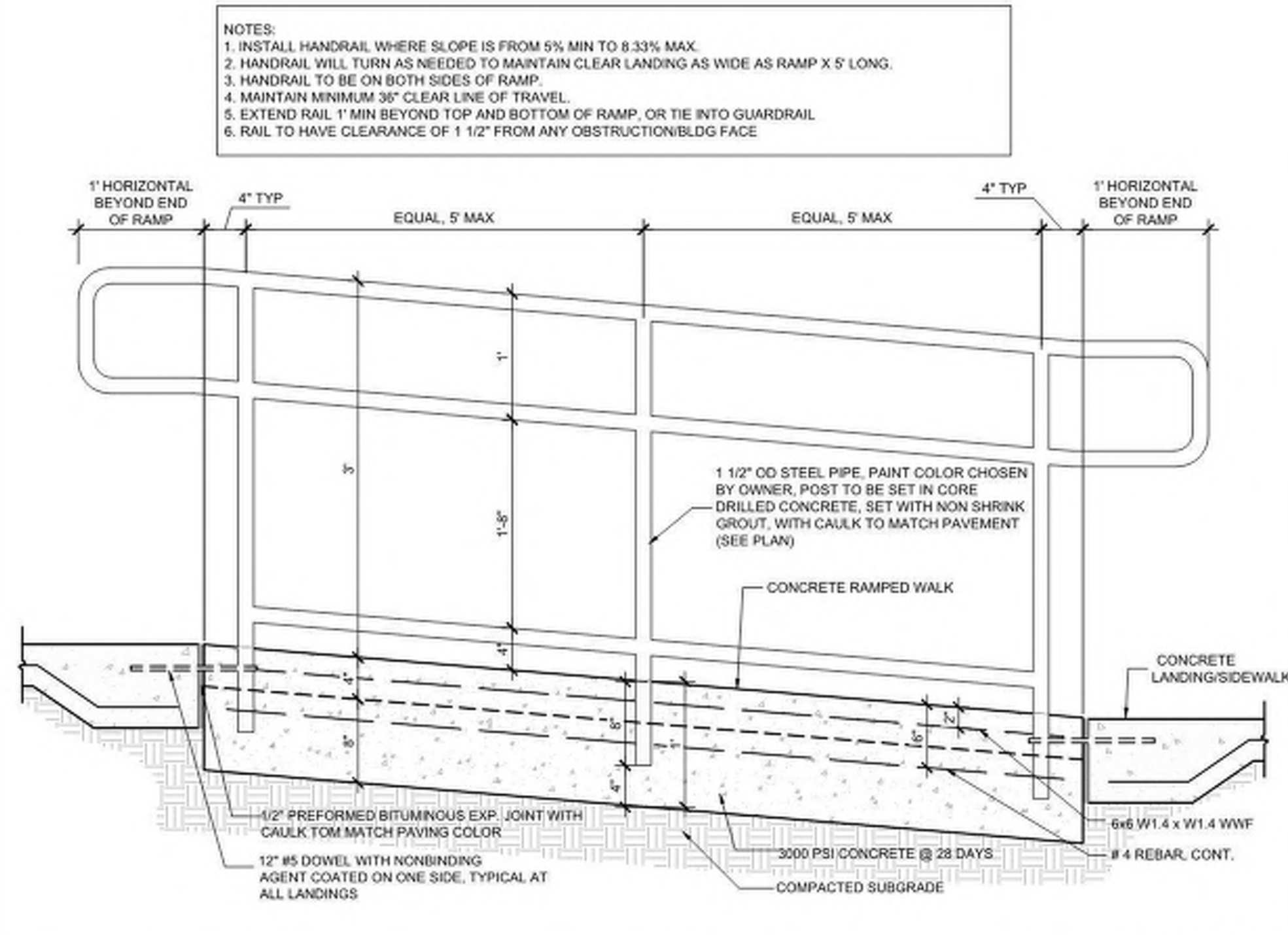
- NOTES:
- FENCE TO BE ALUMINUM POWDER COATED, COLOR TO BE BLACK.
  - SHOP DRAWINGS REQUIRED FOR ALL MATERIALS, CONNECTIONS HARDWARE, LAYOUT, ETC.
  - OPENING UNDER THE BOTTOM OF PICKETS SHALL NOT EXCEED 1.75"
  - AT WALL MOUNT LOCATIONS, POSTS TO BE CORE DRILLED AND SET INTO WALL PER MANUFACTURER'S SPECS.
  - AT NON-WALL MOUNT LOCATIONS, PICKETS TO EXTEND BEYOND BOTTOM RAIL
  - BOTTOM OPENING SHALL NOT ALLOW PASSAGE OF 4" DIA. SPHERE
  - NO OPENING SHALL ALLOW PASSAGE OF 4" DIA. SPHERE TO 42" ABOVE FINISH GRADE

**Dog Fence & Gate** 06  
Scale: 3/4" = 1'-0"



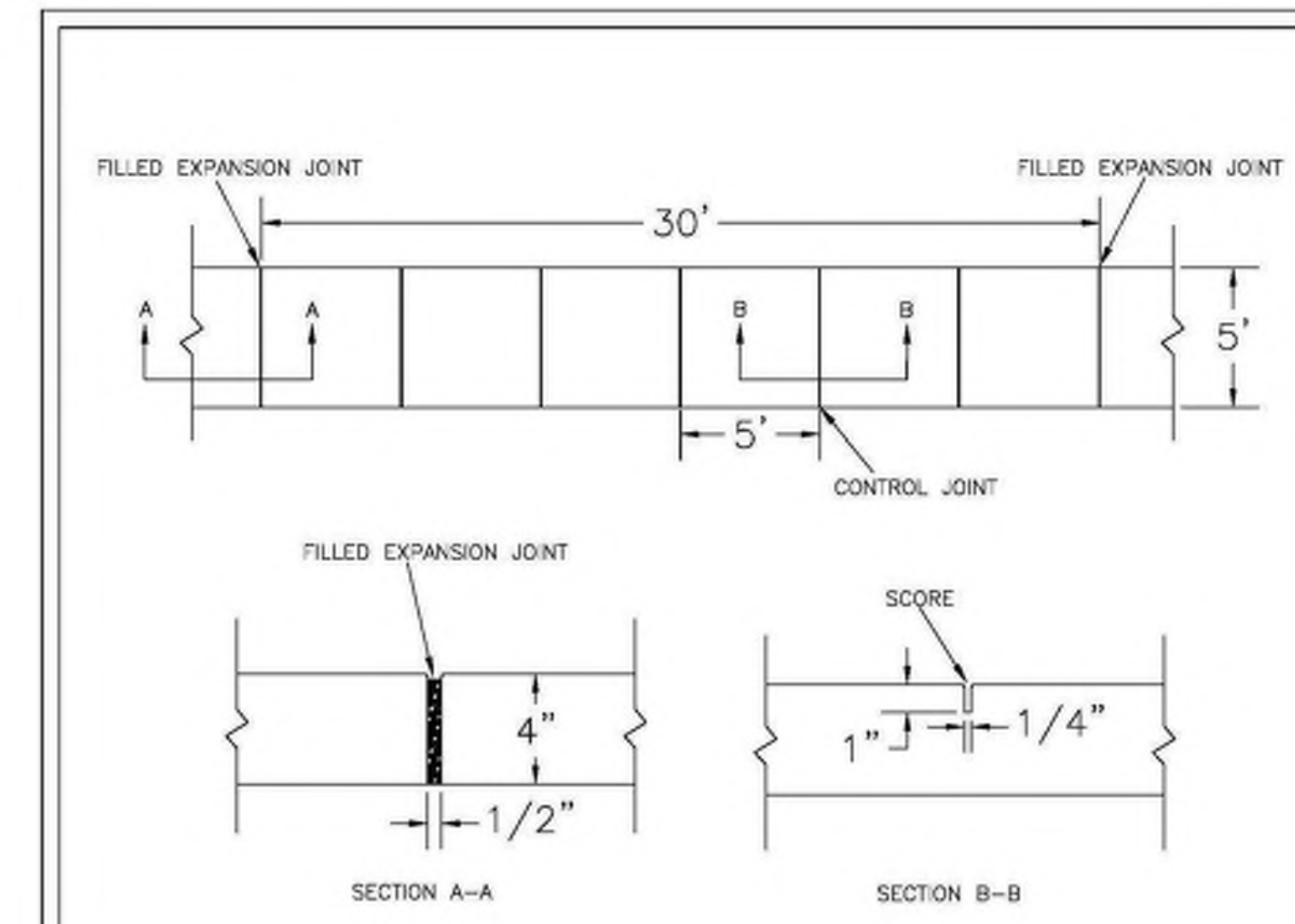
- NOTE:
- ALL STAIRS TO HAVE HANDRAILS ON BOTH SIDES.
  - CONC. STEP FINISH TO MATCH CONC. WALKS
  - PROVIDE SHOP DRAWINGS FOR ALL SITE HANDRAILS
  - PROVIDE AN INTERMEDIATE RAIL POST FOR ALL DISTANCES GREATER THAN 5'

**Concrete Stairs** 05  
Scale: 1" = 1'-0"



- NOTES:
- INSTALL HANDRAIL WHERE SLOPE IS FROM 5% MIN TO 8.33% MAX.
  - HANDRAIL WILL TURN AS NEEDED TO MAINTAIN CLEAR LANDING AS WIDE AS RAMP X 5' LONG.
  - HANDRAIL TO BE ON BOTH SIDES OF RAMP.
  - MAINTAIN MINIMUM 36" CLEAR LINE OF TRAVEL.
  - EXTEND RAIL 1' MIN BEYOND TOP AND BOTTOM OF RAMP, OR TIE INTO GUARDRAIL
  - RAIL TO HAVE CLEARANCE OF 1 1/2" FROM ANY OBSTRUCTION/BLDG FACE

**Handicap Accessible Ramp** 04  
Scale: 1" = 1'-0"



- NOTES:
- JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
  - SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
  - MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
  - CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" - 3,000 PSI.
  - MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL
  - 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS
  - MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
  - MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
  - MIN GRADE FOR PROPER DRAINAGE IS 1/4" IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

DATE: OCTOBER, 2010

DRAWN: PBJ/SR

CHECKED: DEC

SCALE: NOT TO SCALE

**STANDARD DETAIL**

**SIDEWALK**

**SD 3-10**

CITY OF WILMINGTON  
ENGINEERING  
PD BOX 1810  
WILMINGTON, N.C. 28402  
(910) 341-7807

**CoW Concrete Sidewalk** 01  
Not to Scale

**CLINE DESIGN**

125 N. Harrington St.  
Raleigh, NC 27603  
919/833-6413  
919/836-1280 FAX  
ClineDesignAssoc.com

Middleburg, LLC  
**Middleburg Apartments**  
4410 River Road  
Wilmington, North Carolina

Construction Documents

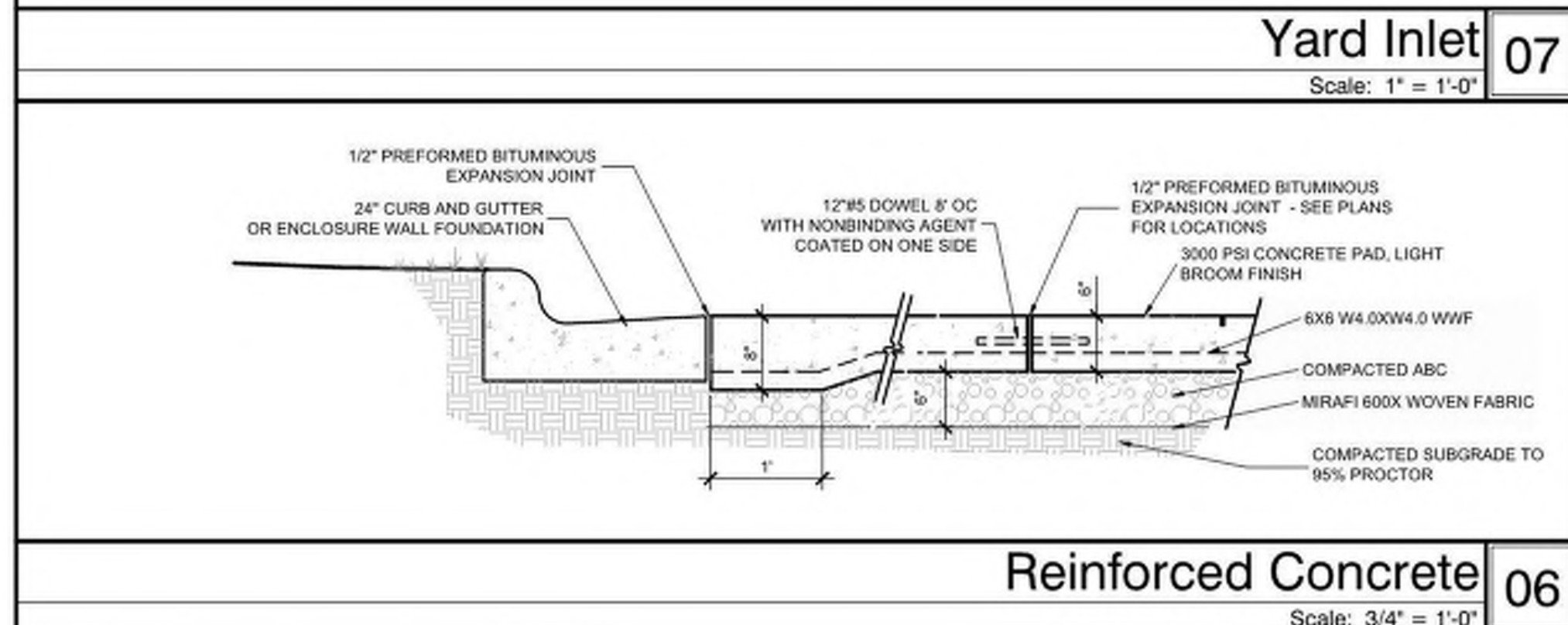
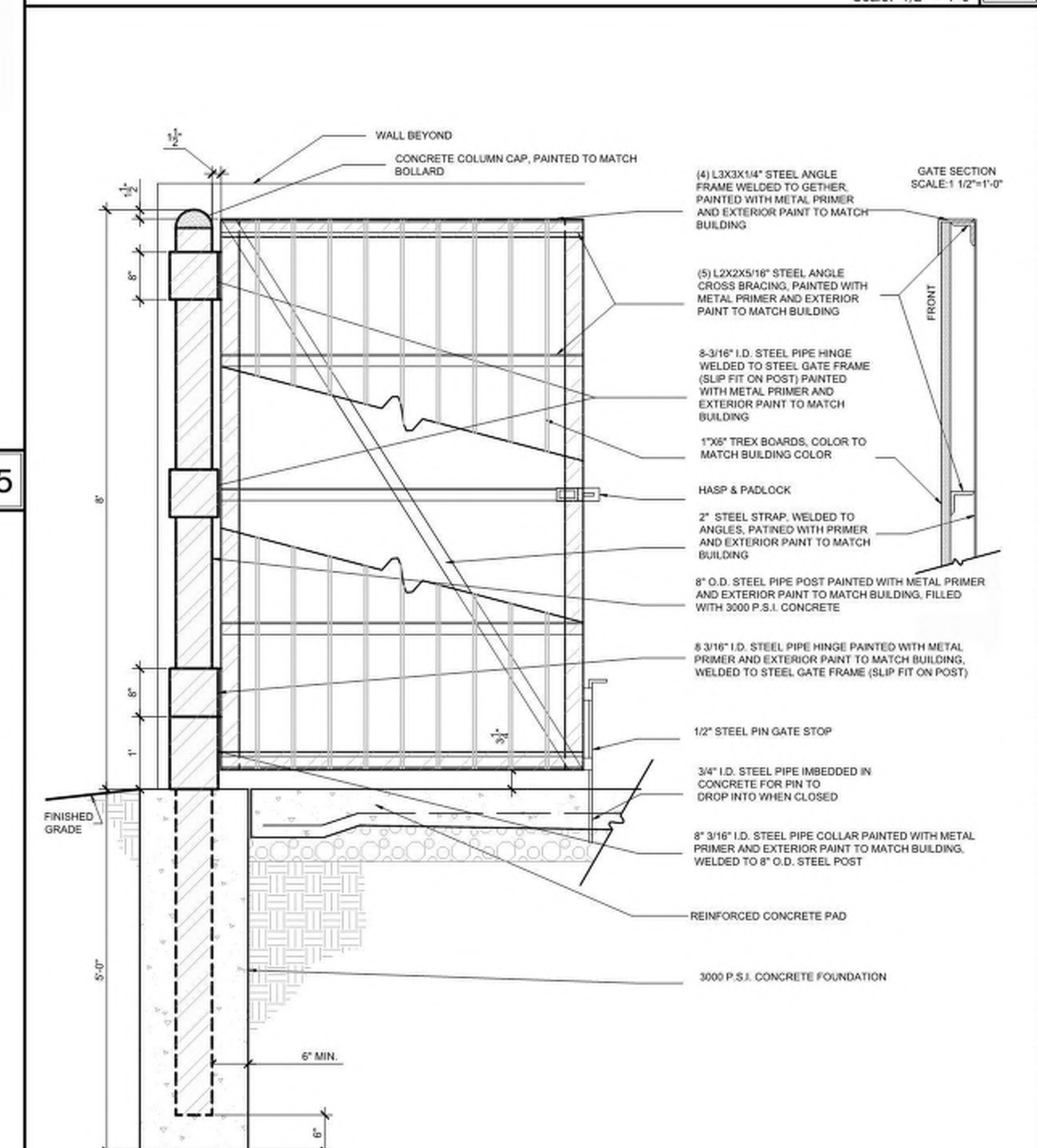
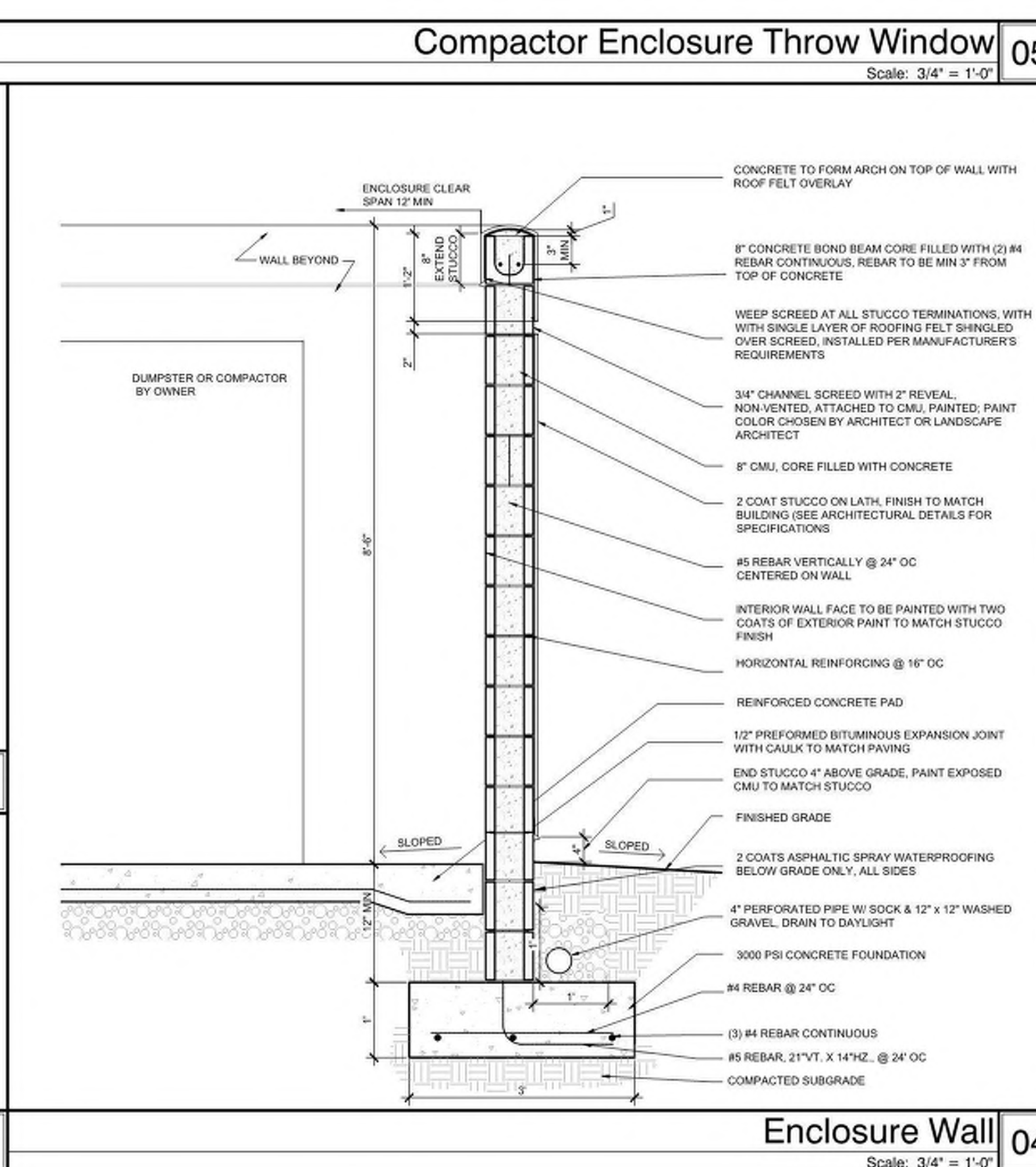
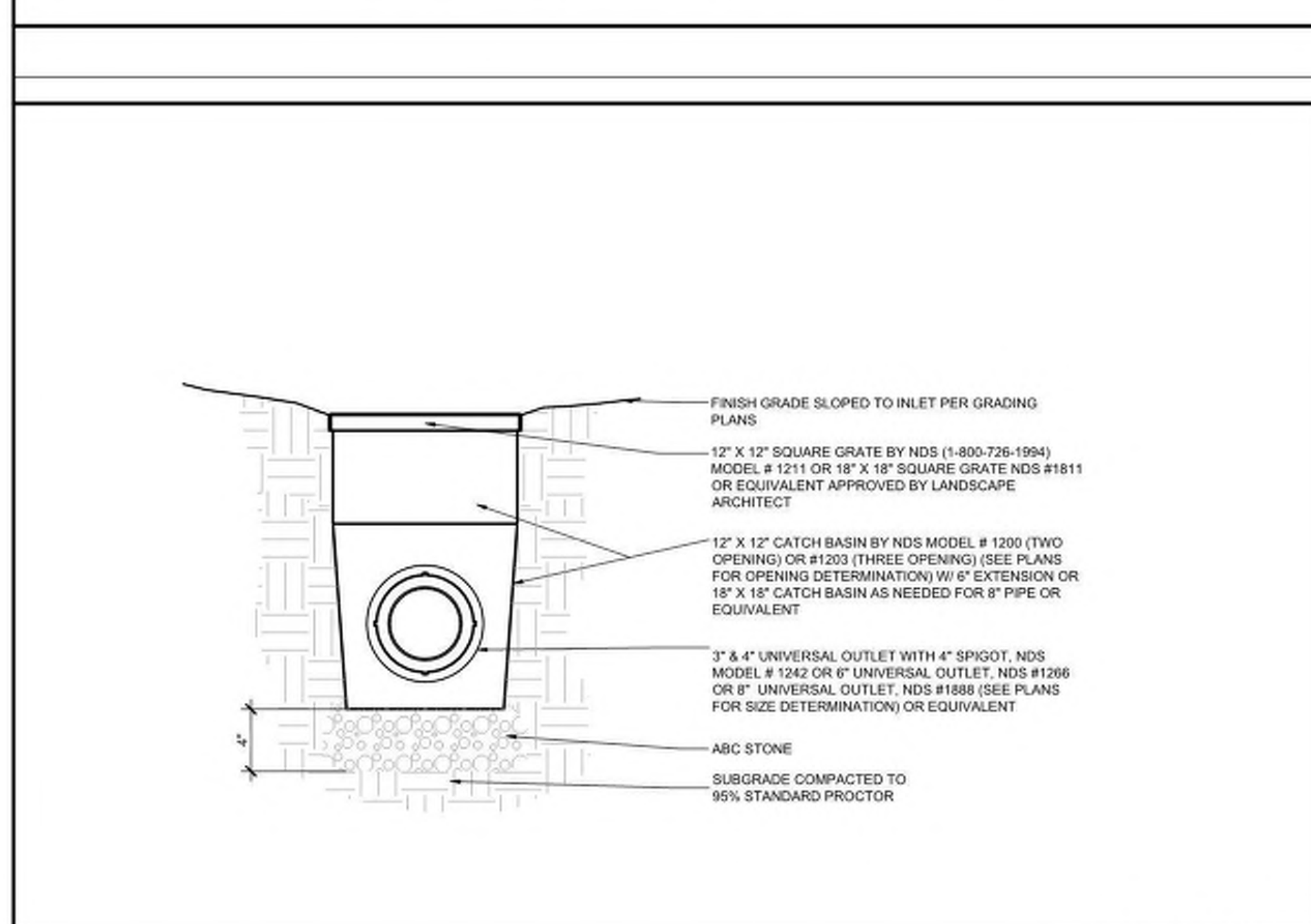
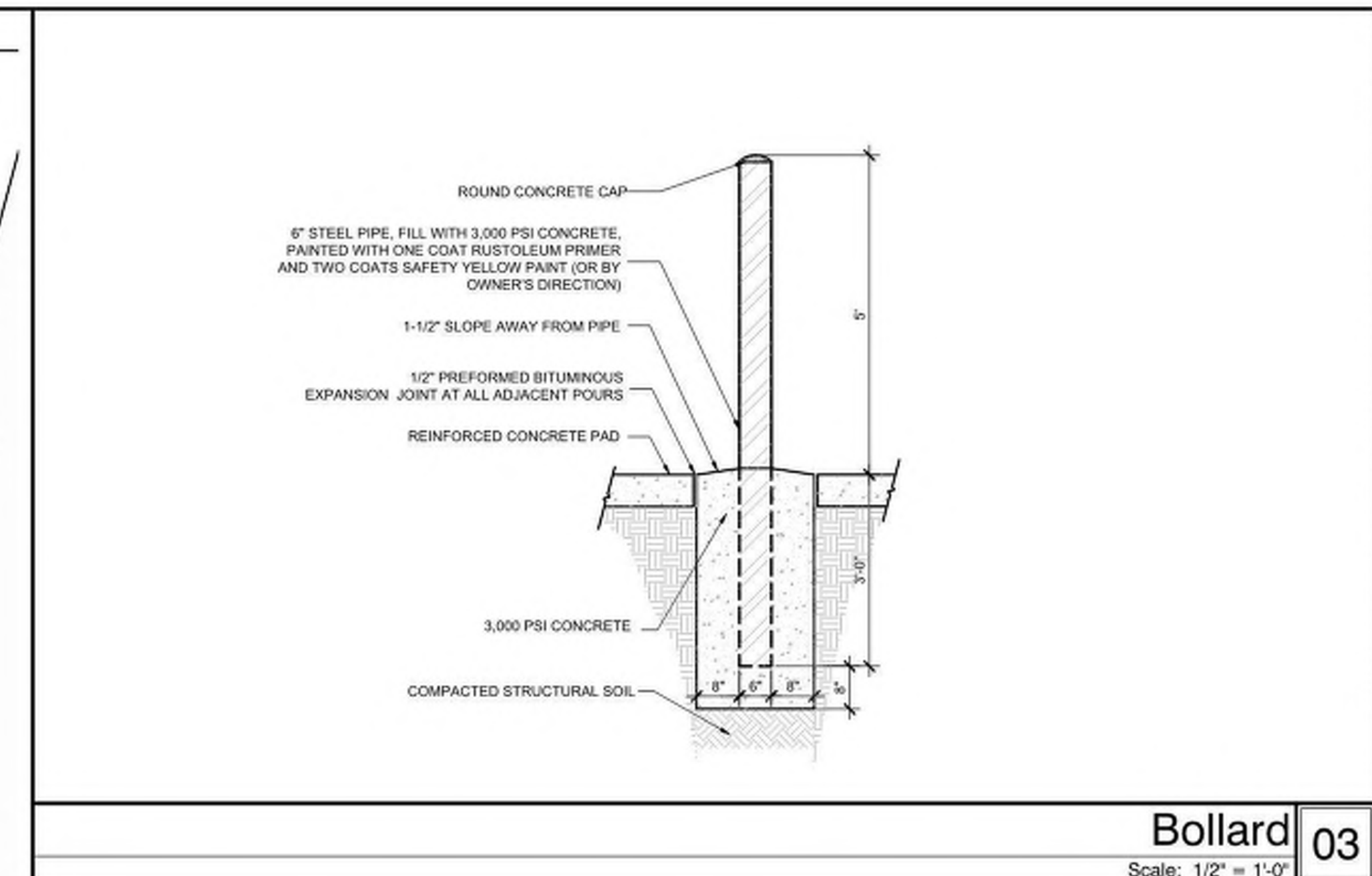
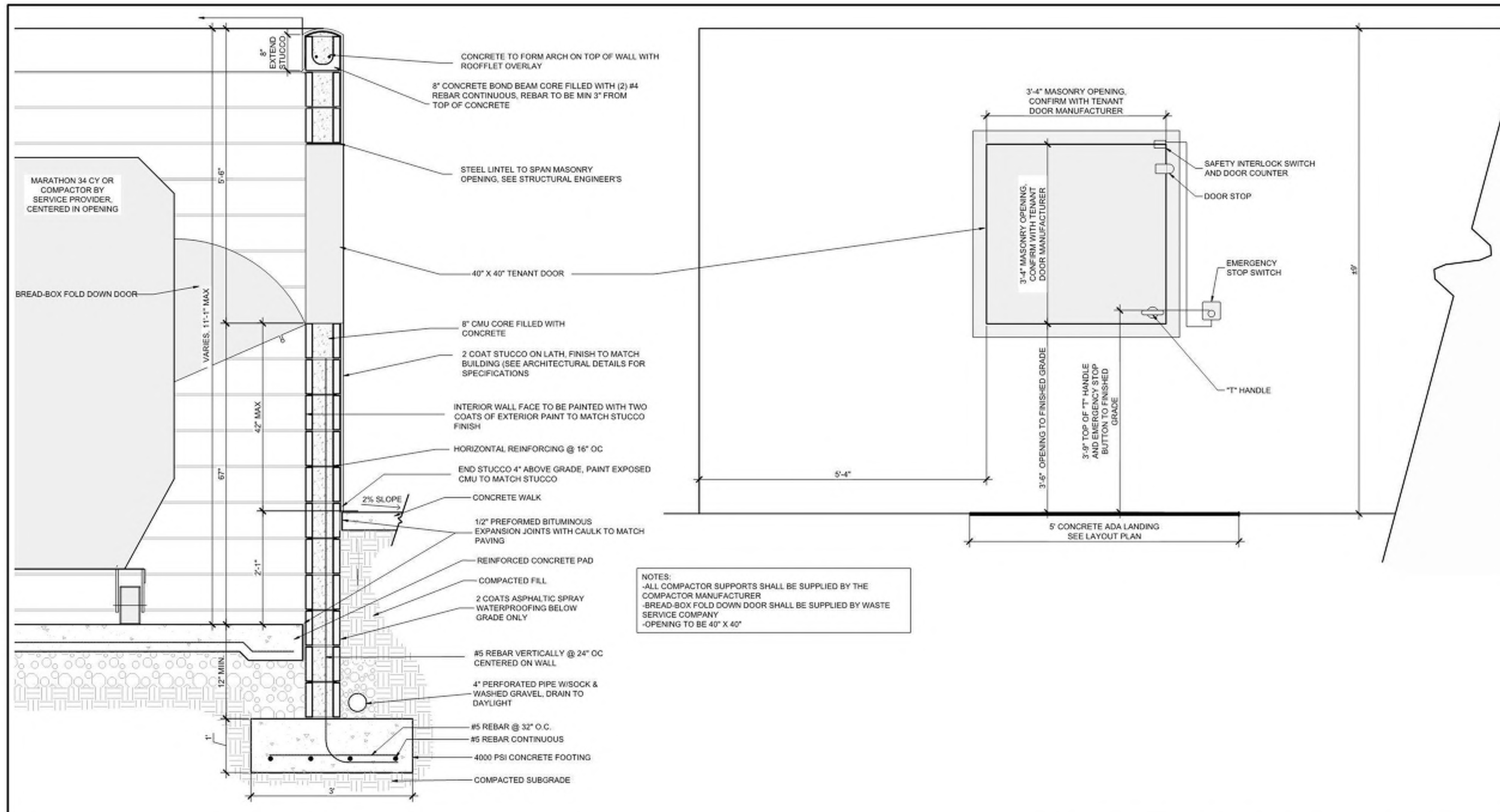
NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

PROJECT: 219002  
DATE: 08.16.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: CT  
CHECKED BY: MWL  
Site Details

**SD2.00**



**STORMWATER MANAGEMENT PLAN APPROVED**

CITY OF WILMINGTON ENGINEERING DEPARTMENT

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.

**Approved Construction Plan**

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

Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

DRAWN BY: \_\_\_\_\_ CT

CHECKED BY: \_\_\_\_\_ MWL

Refuse Enclosure Details

**City of Wilmington Approvals** 01

**CLINE DESIGN**

125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com

**Middleburg, LLC**

**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

Construction Documents

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

SD2.10

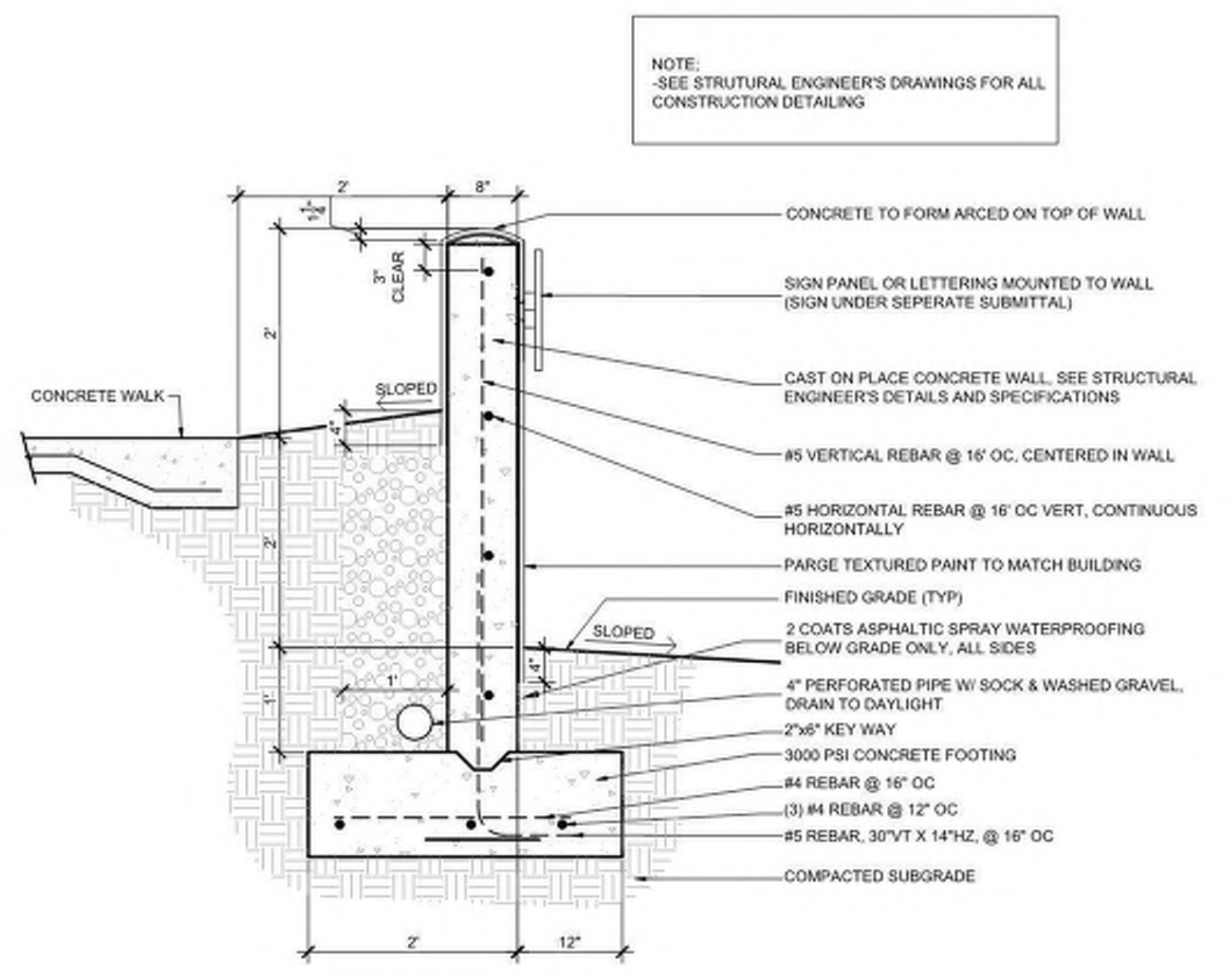
STORMWATER MANAGEMENT PLAN  
**APPROVED**  
 CITY OF WILMINGTON  
 ENGINEERING DEPARTMENT  
 DATE PERMIT #  
 SIGNED \_\_\_\_\_

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

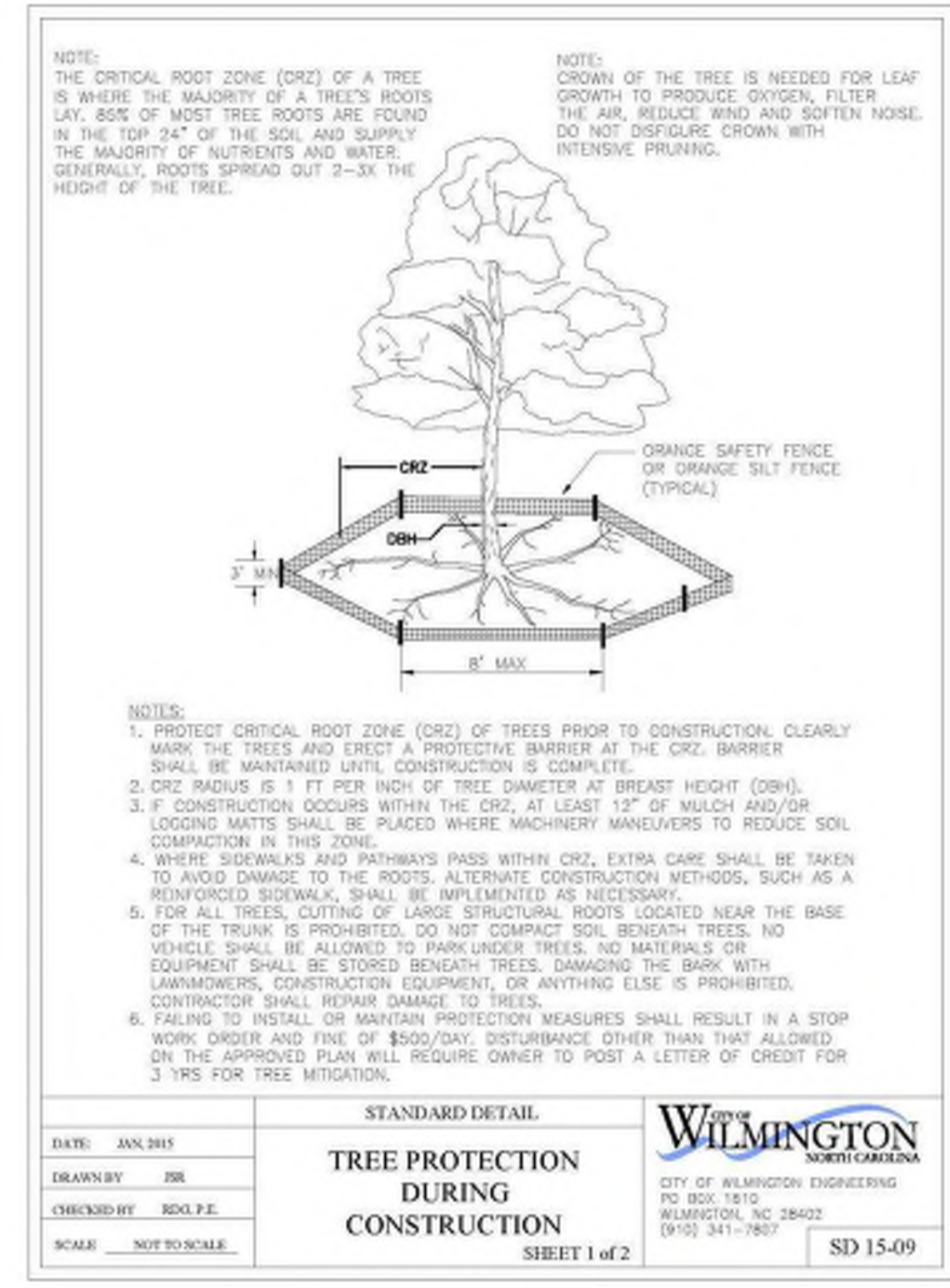
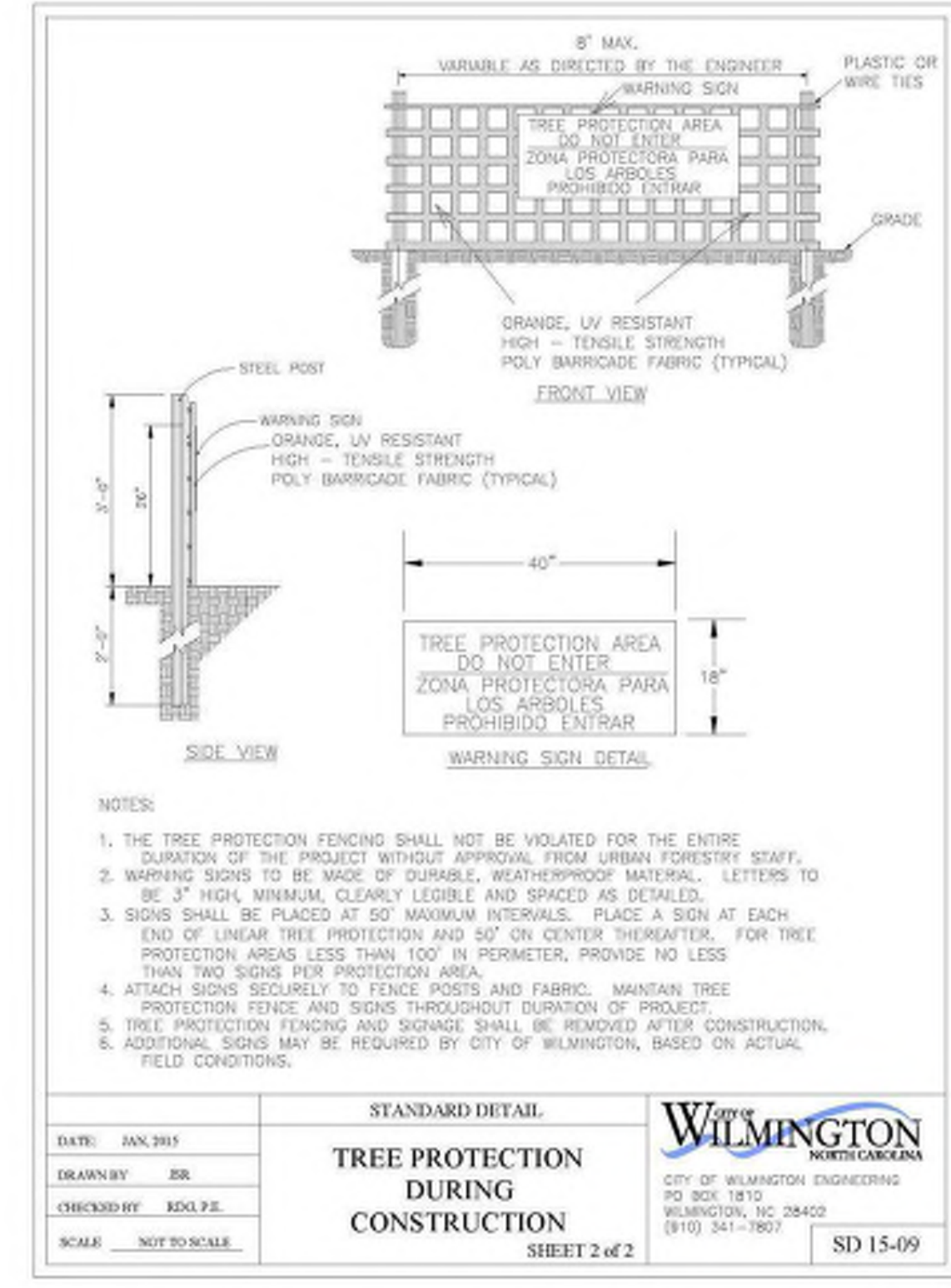
**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

City of Wilmington Approvals **03**

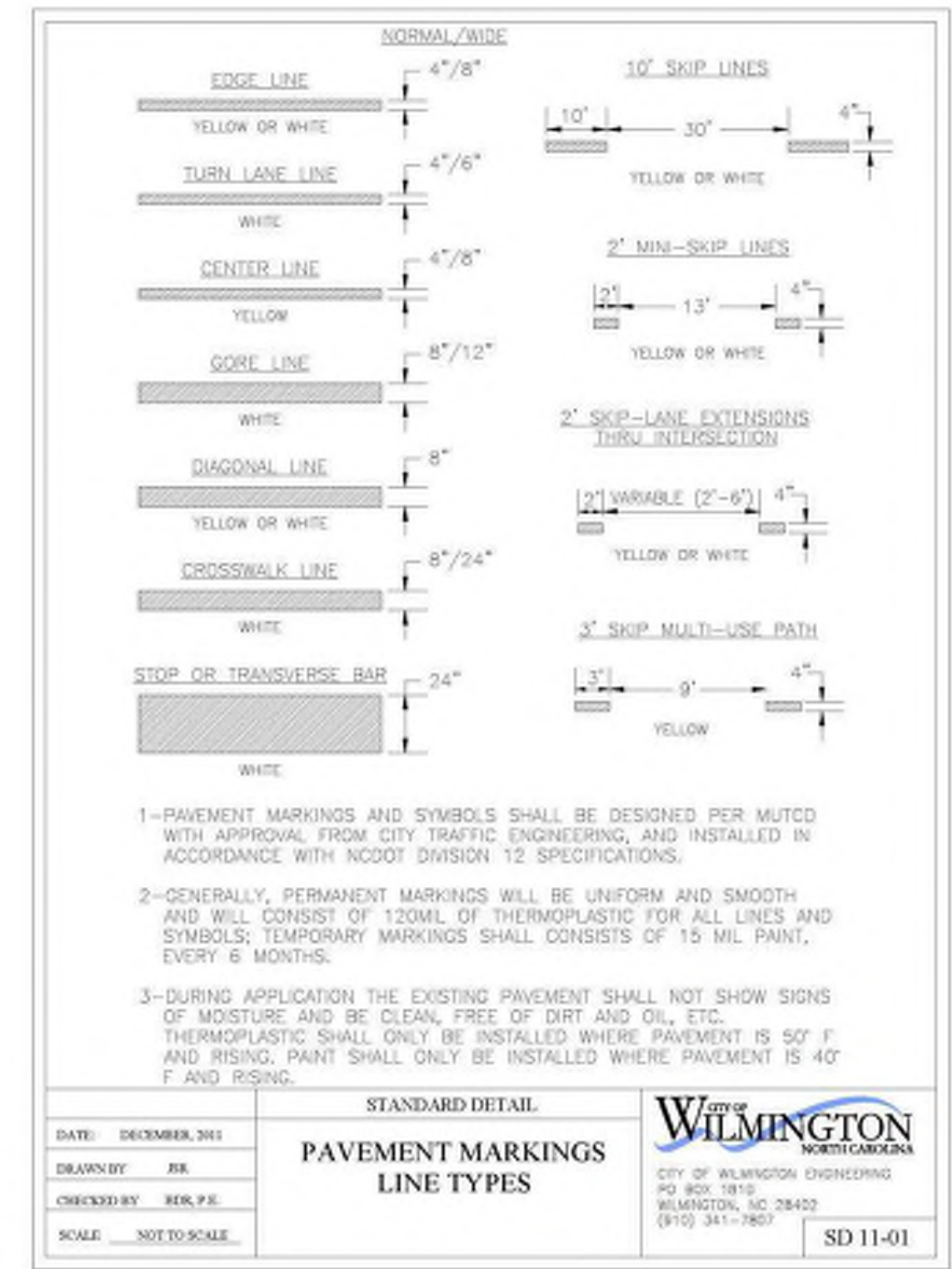
**CLINE DESIGN**  
 125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com



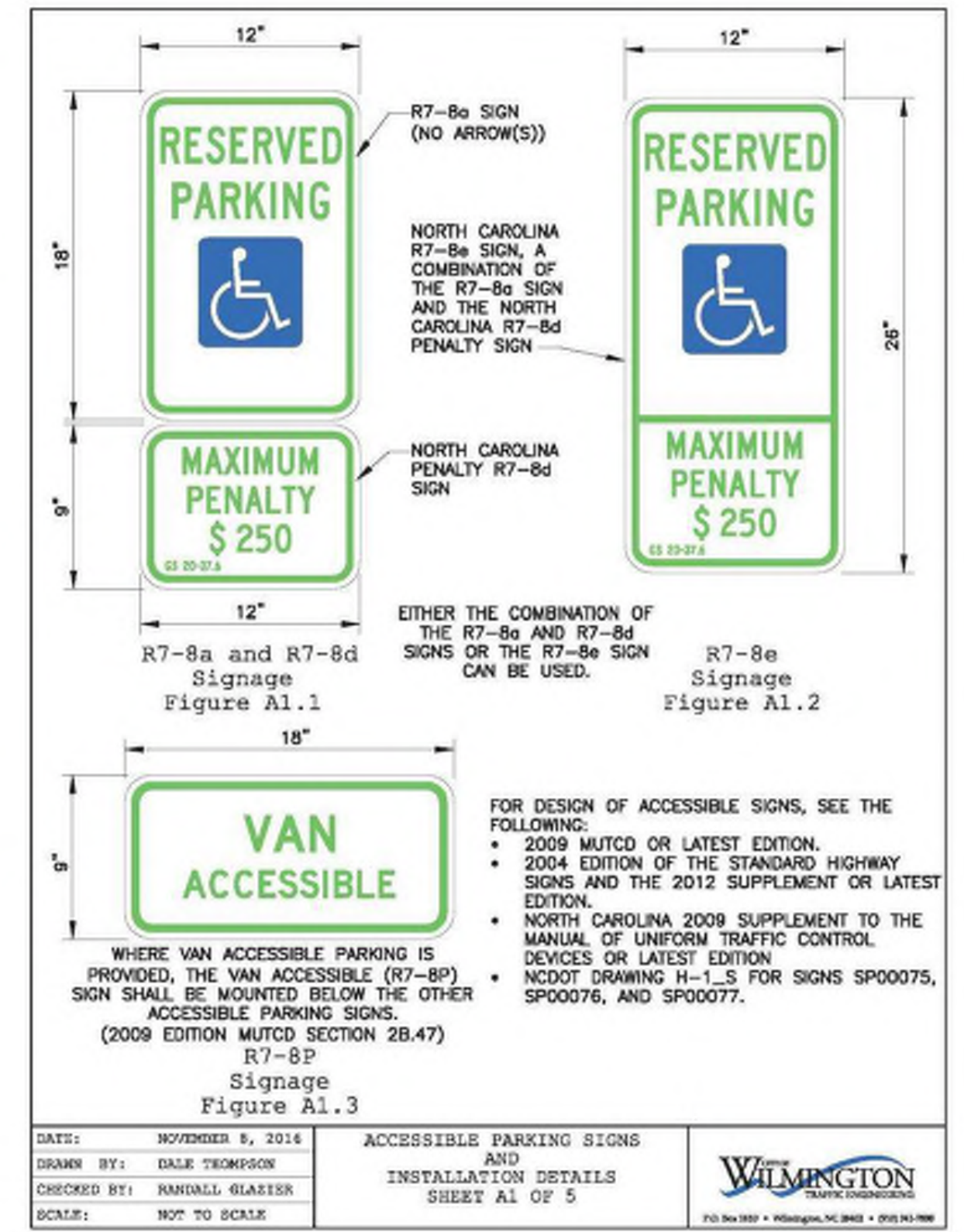
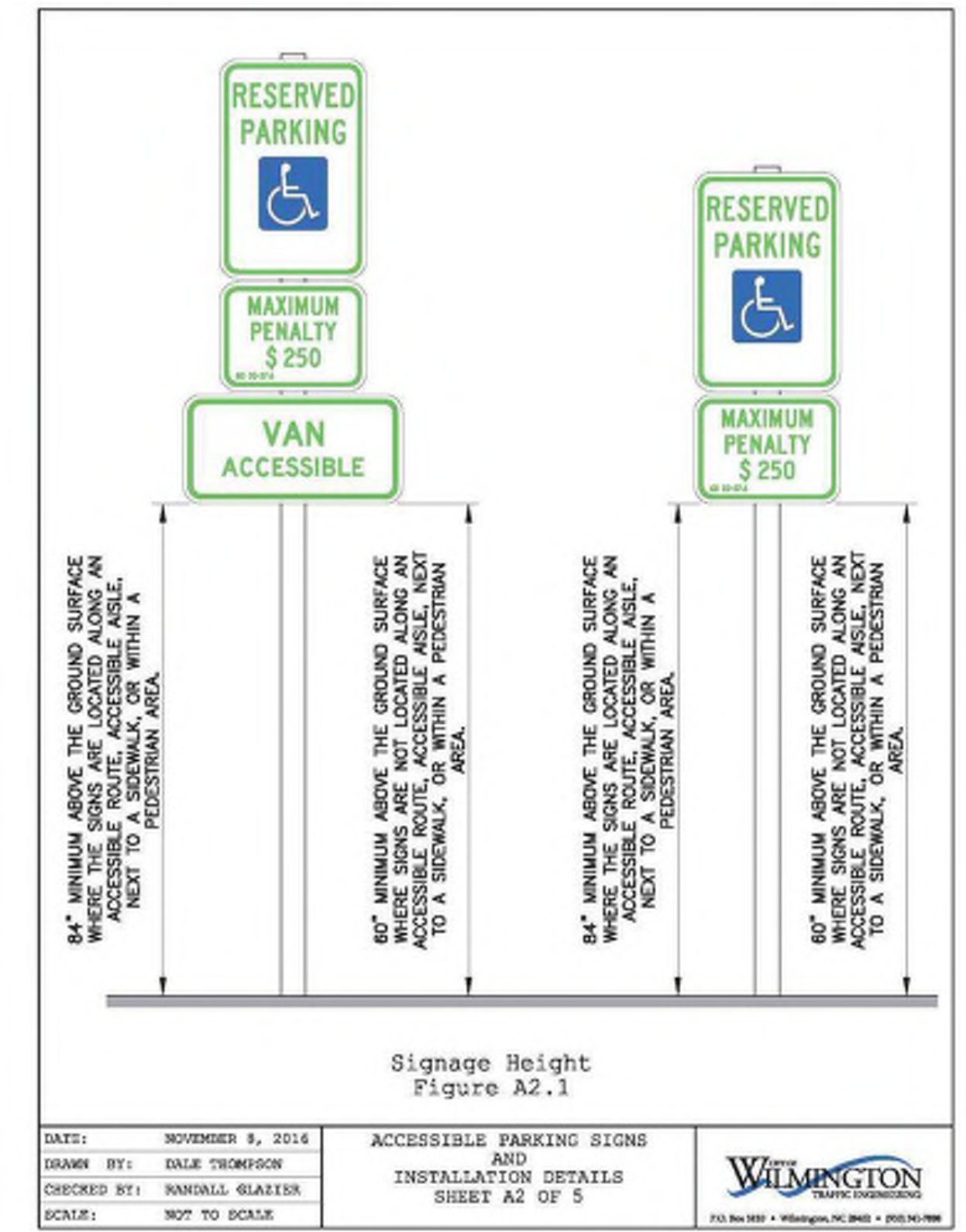
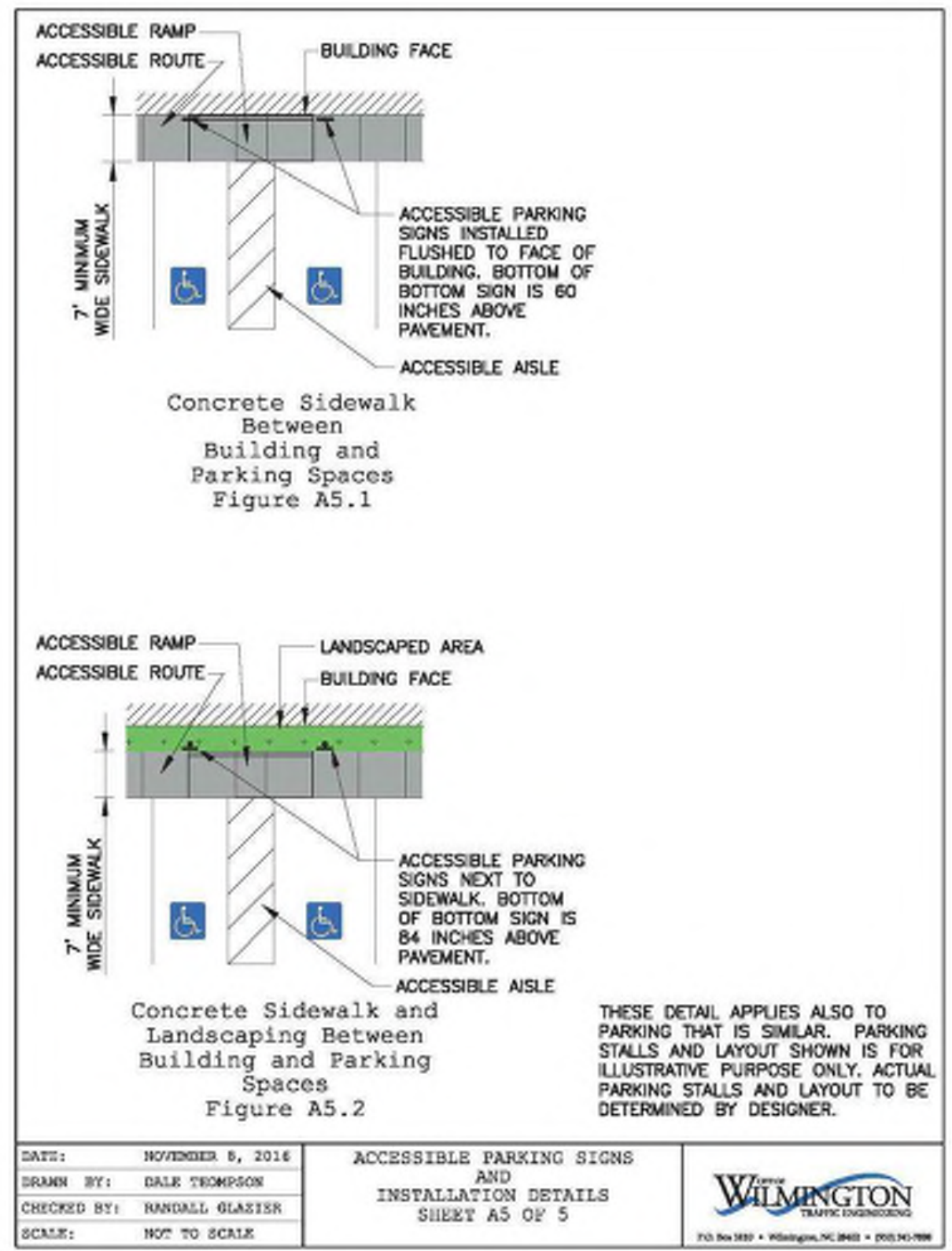
Retaining Wall **05**  
 Scale: 3/4" = 1'-0"



COW Tree Protection Fencing **04**



COW Pavement Markings **02**

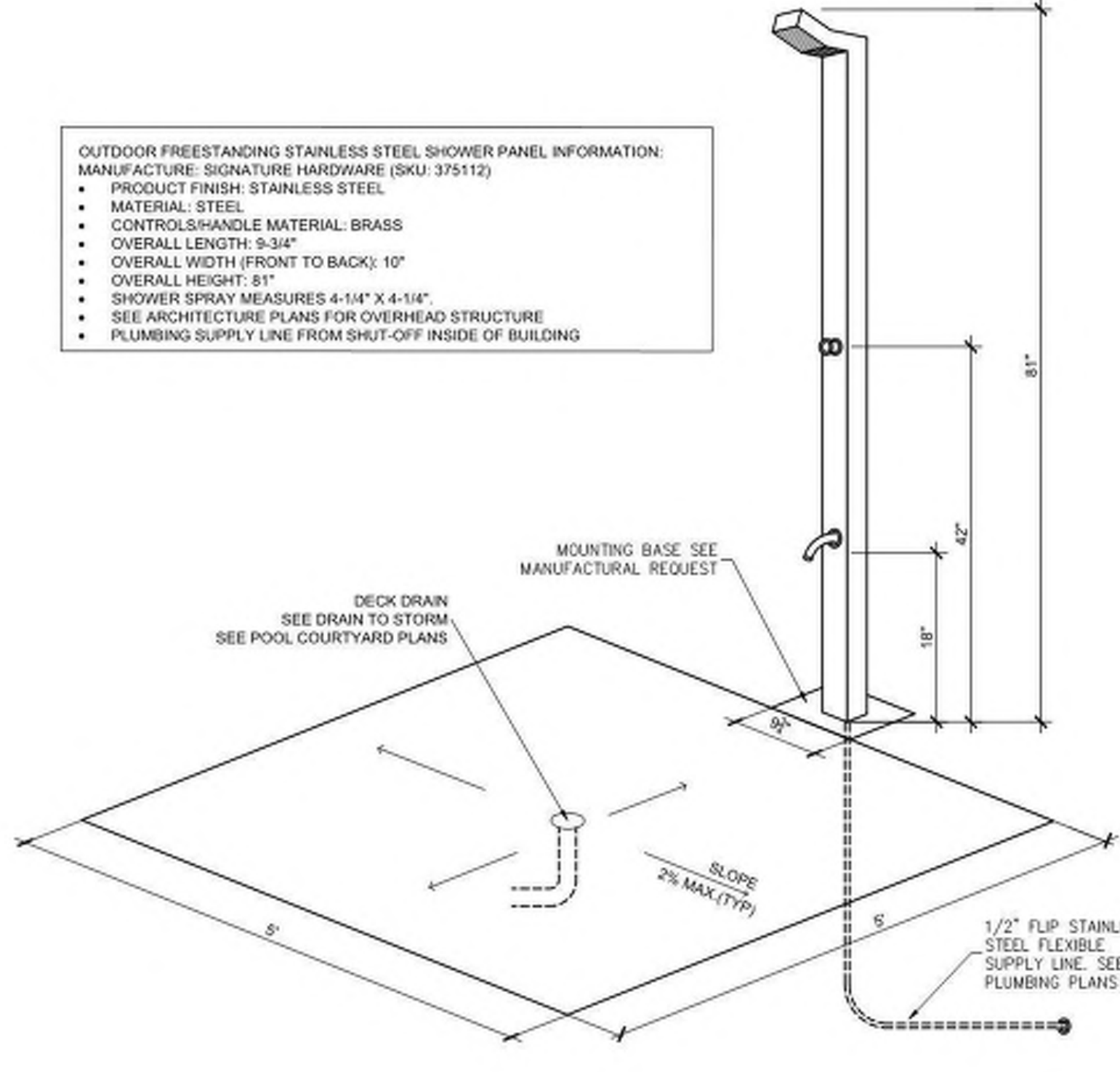


COW Handicap Parking Space Signage **01**

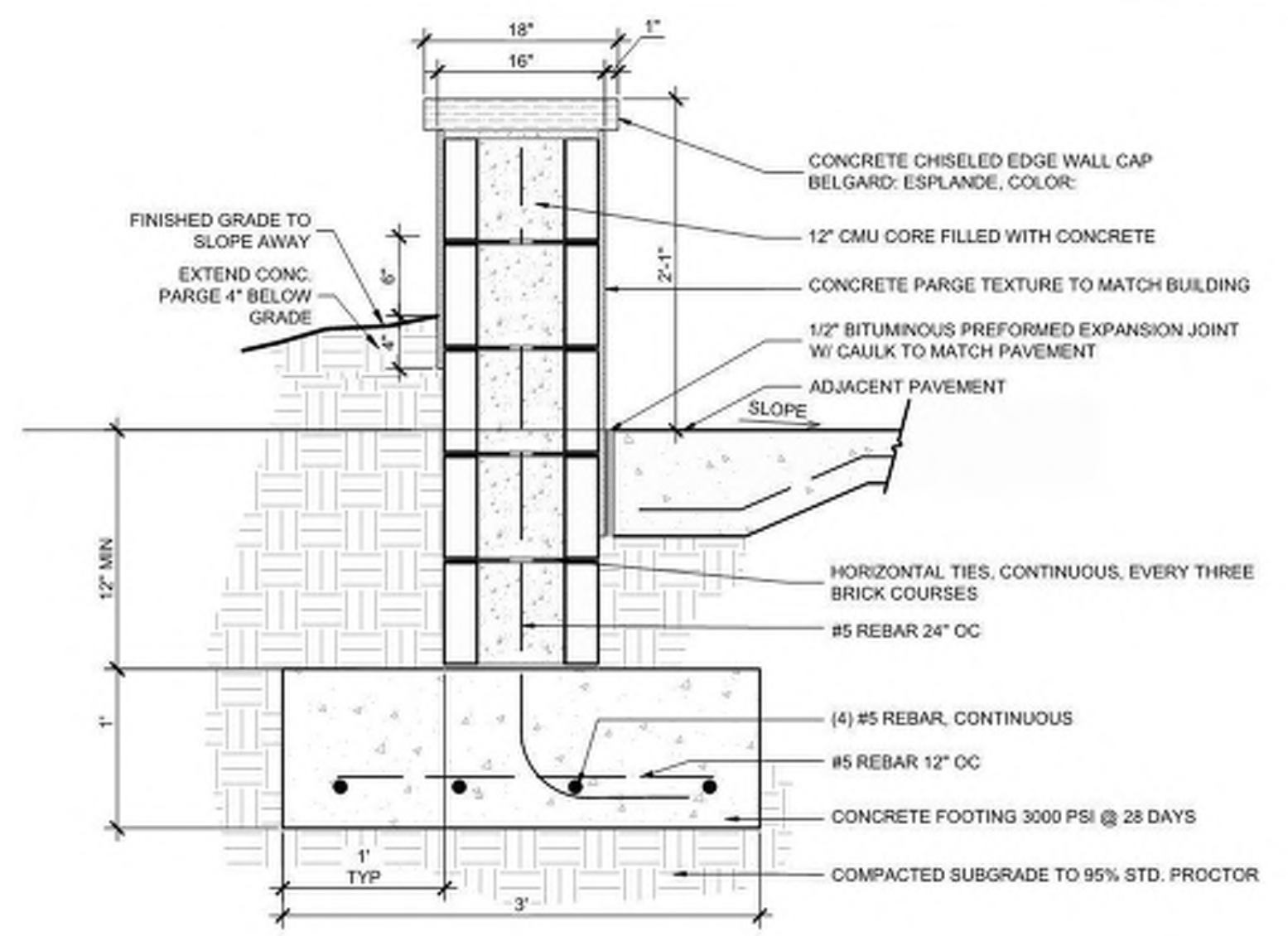
Middleburg, LLC  
**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

Construction Documents  
 NOT FOR CONSTRUCTION  
 PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_  
 DRAWN BY: CT  
 CHECKED BY: MWL  
 Site Details  
**SD2.20**

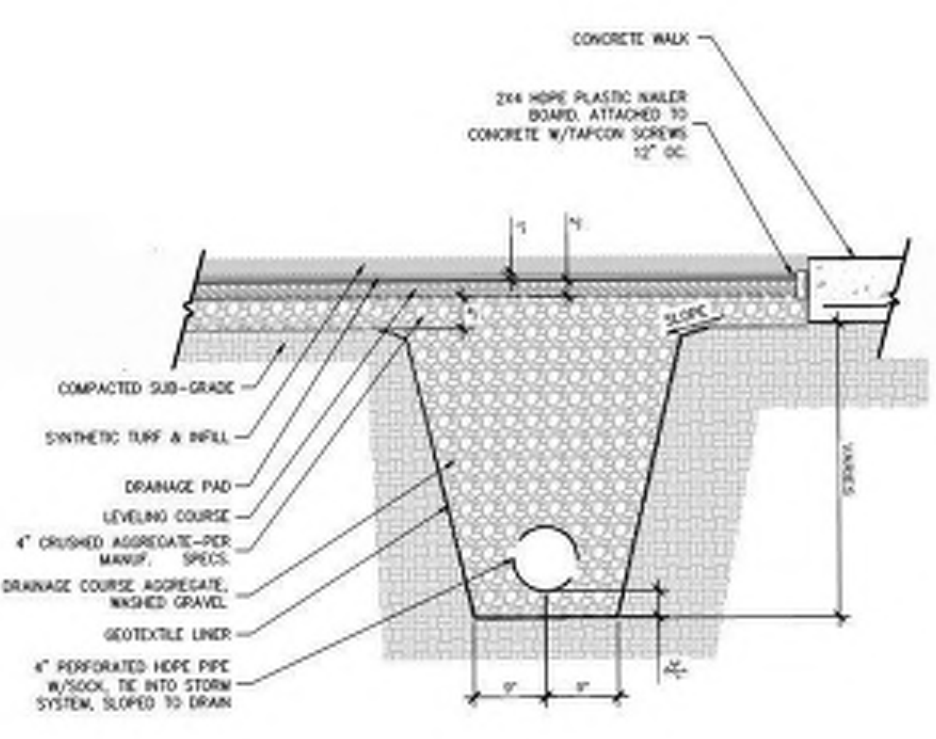
**OUTDOOR FREESTANDING STAINLESS STEEL SHOWER PANEL INFORMATION:**  
 MANUFACTURE: SIGNATURE HARDWARE (SKU: 375112)  
 • PRODUCT FINISH: STAINLESS STEEL  
 • MATERIAL: STEEL  
 • CONTROL HANDLE MATERIAL: BRASS  
 • OVERALL LENGTH: 9'-3/4"  
 • OVERALL WIDTH (FRONT TO BACK): 10"  
 • OVERALL HEIGHT: 81"  
 • SHOWER SPRAY MEASURES 4-1/4" X 4-1/4"  
 • SEE ARCHITECTURE PLANS FOR OVERHEAD STRUCTURE  
 • PLUMBING SUPPLY LINE FROM SHUT-OFF INSIDE OF BUILDING



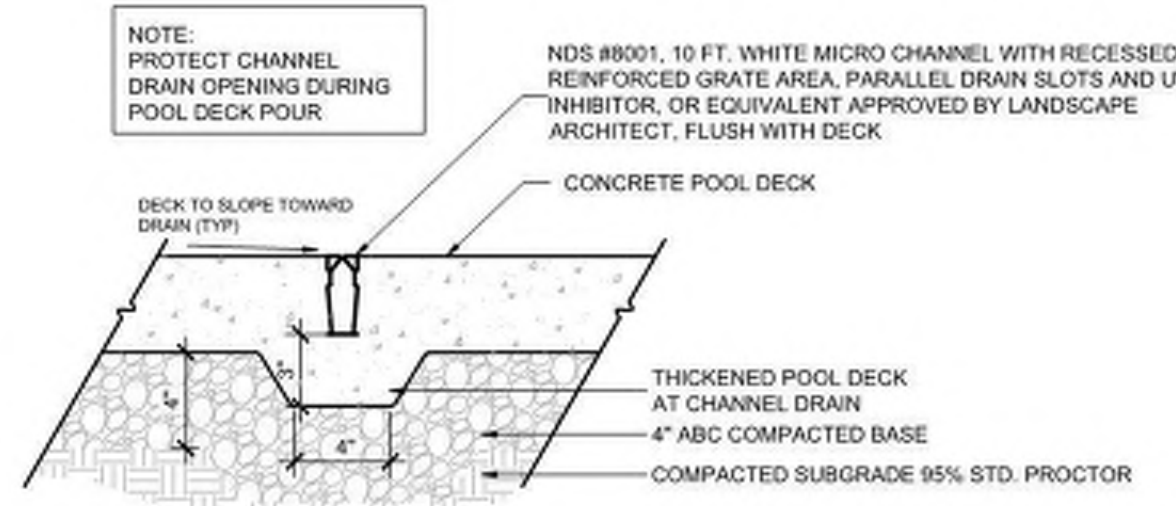
**Pool Rinse 10**  
 Scale: 3/4" = 1'-0"



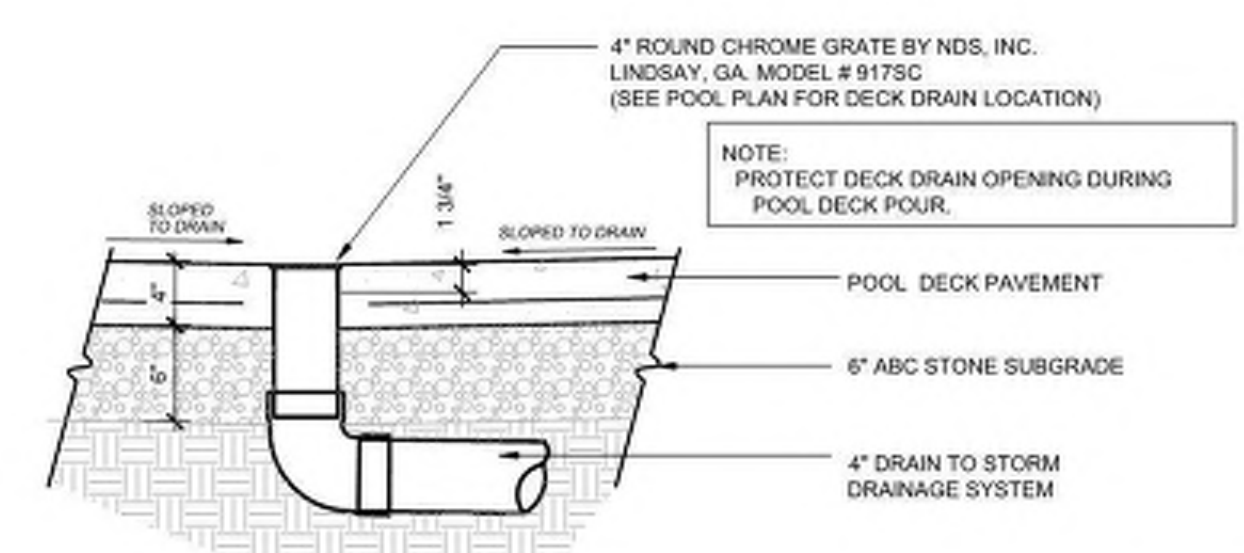
**Concrete Seat Wall 09**  
 Scale: 1" = 1'-0"



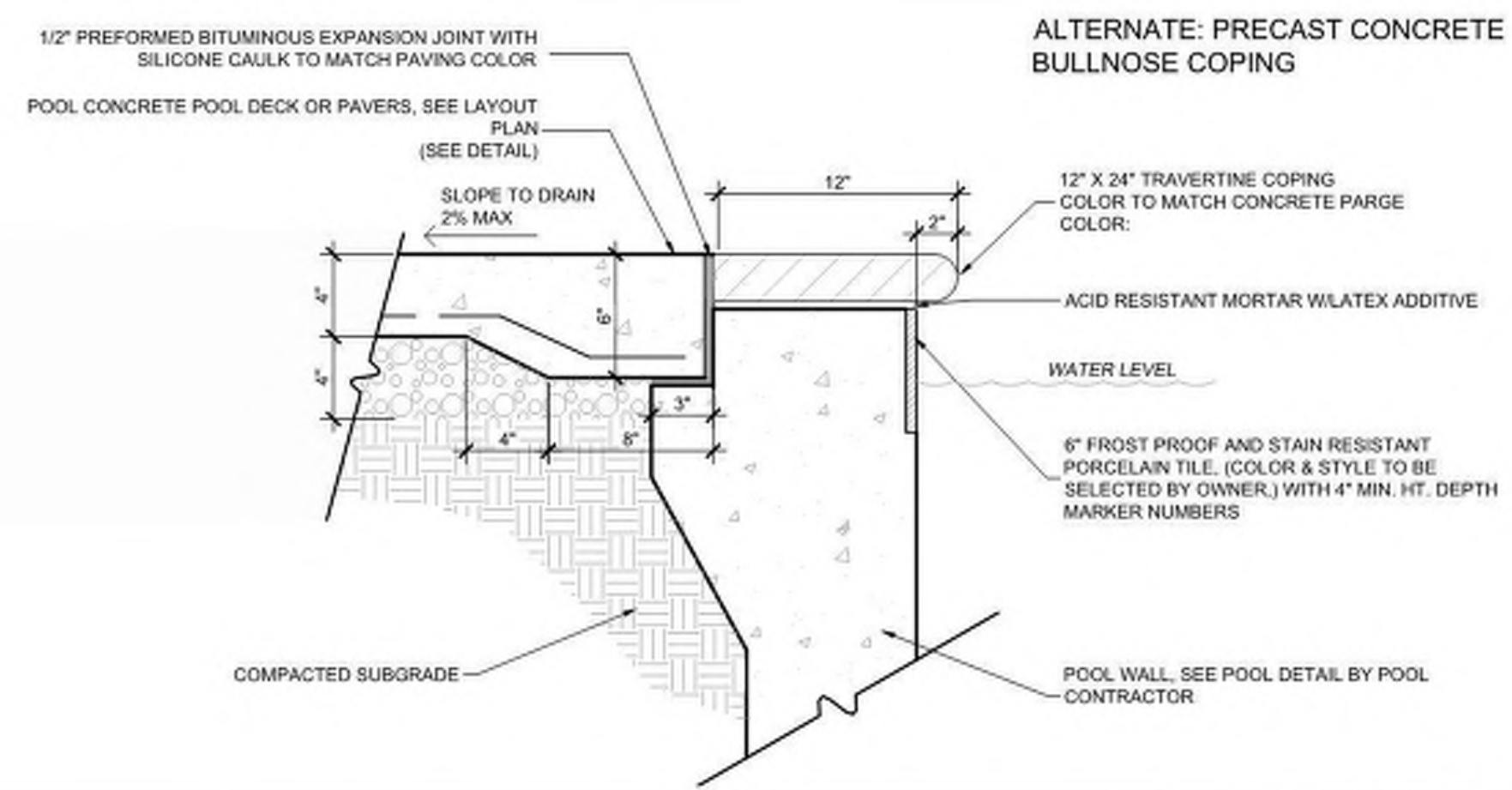
**Synthetic Turf 08**  
 Scale: 1/2" = 1'-0"



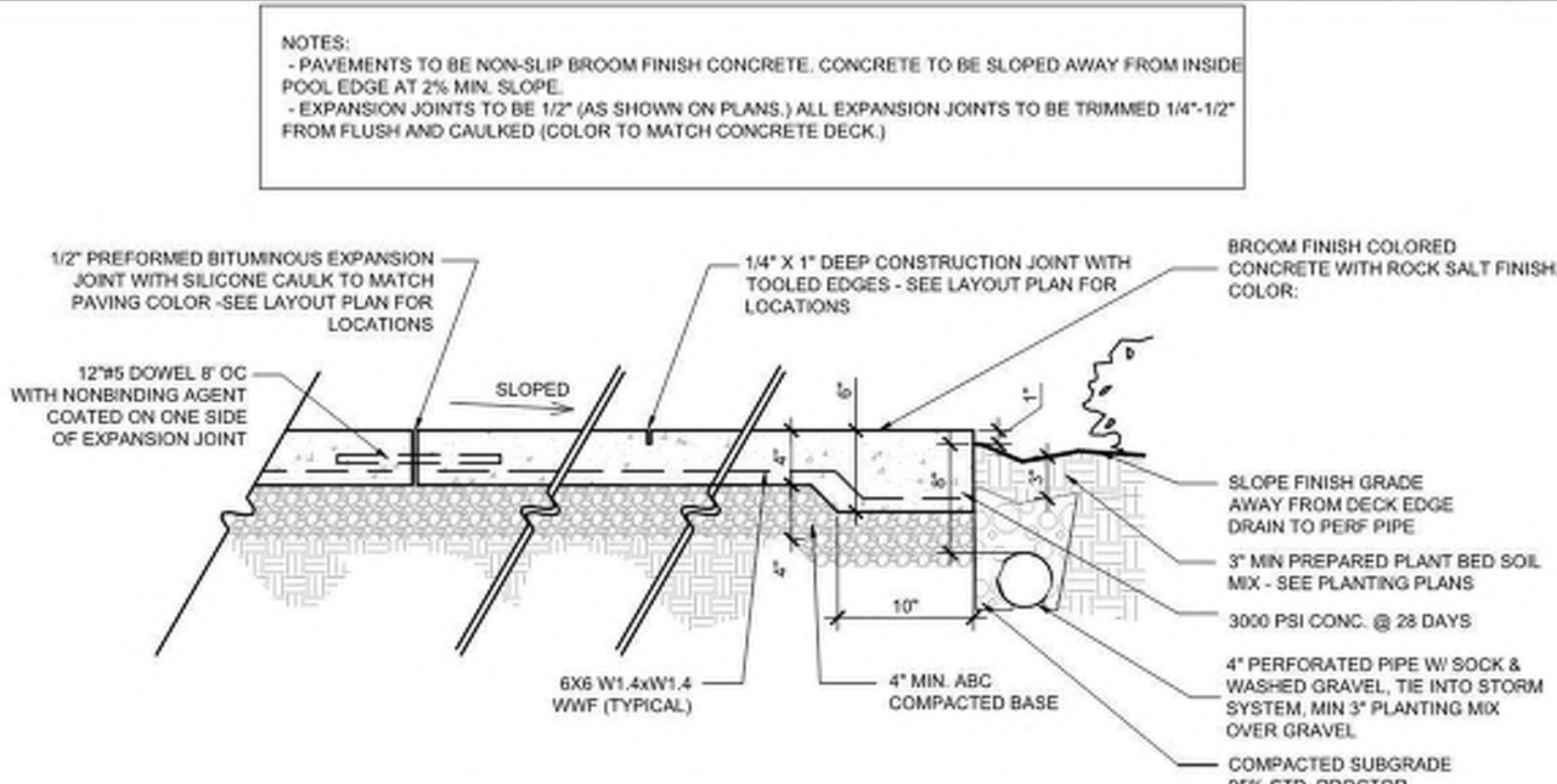
**Channel Drain 07**  
 Scale: 1 1/2" = 1'-0"



**Deck Drain 06**  
 Scale: 1" = 1'-0"



**Pool Coping 05**  
 Scale: 3/4" = 1'-0"



**Pool Deck 04**  
 Scale: 3/4" = 1'-0"

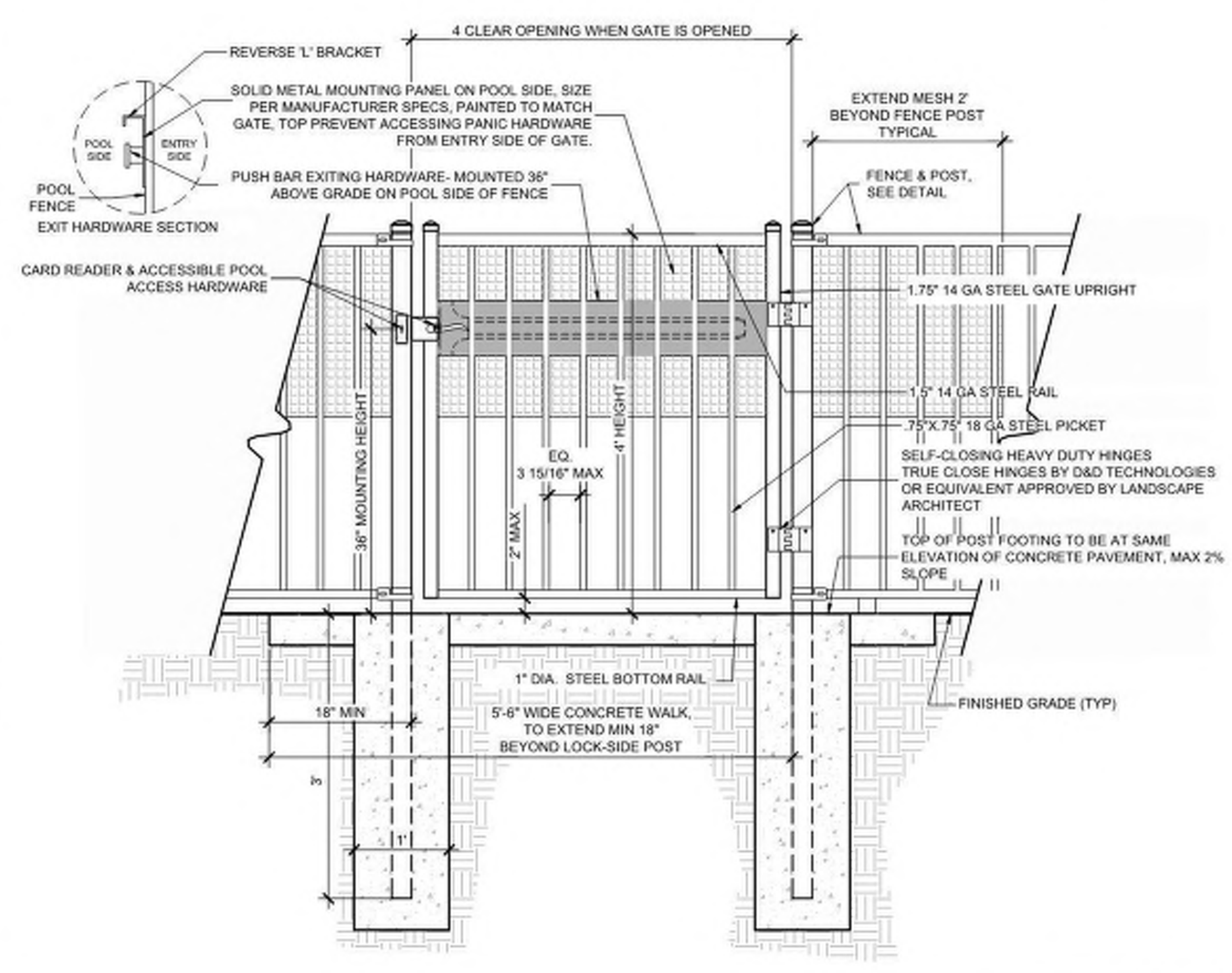
**STORMWATER MANAGEMENT PLAN**  
**APPROVED**  
 CITY OF WILMINGTON  
 ENGINEERING DEPARTMENT  
 DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_  
 SIGNED \_\_\_\_\_

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

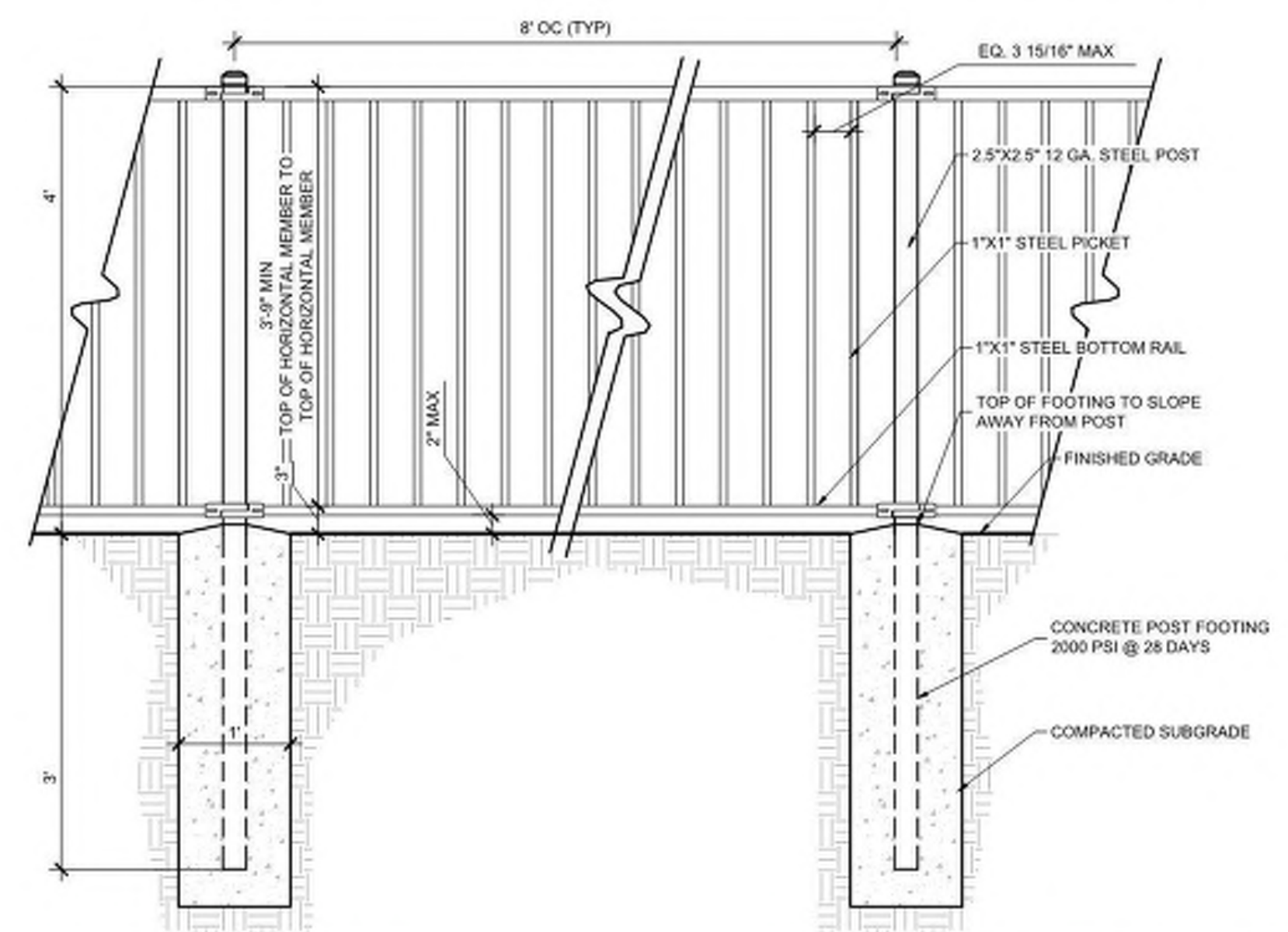
City of Wilmington Approvals 03

**NOTES:**  
 1. GATE TO BE MONTAGE MAJESTIC BY AMERISTAR FENCING PRODUCTS 1-888-333-3422, OR EQUIVALENT APPROVED BY LANDSCAPE ARCHITECT.  
 2. 2-RAIL BLACK POLY-COATED STEEL  
 3. ALL FENCE COMPONENTS & HARDWARE TO MEET MUNICIPALITY REQUIREMENTS  
 4. SEE POOL FENCE NOTES.  
 5. REFER TO SITE PLANS FOR GATE SWING DIRECTION.  
 6. CARD READER FOR POOL ENTRY TO BE P-300 CASCADE PROXIMITY READER BY FARPOINT DATA (WWW.FARPOINTDATA.COM) OR EQUAL AS APPROVED BY OWNER.  
 7. PUSH BUTTON FOR POOL EXIT TO BE ITEM #6171-88X-CSF-ATS-US26, 6170 SERIES WEATHER PROOF PUSH BUTTONS BY DYNALOCK (WWW.DYNALOCK.COM) WITH SILKSCREENED FACEPLATE 'POOL EXIT' IN RED, OR EQUAL AS APPROVED BY OWNER.  
 8. EMERGENCY EXIT PUSH BAR TO BE MOUNTED ON POOL EXIT SIDE OF GATE, TO MEET EGRESS REQUIREMENTS. PROVIDE 2X2 MESH AND REVERSE 'L' BRACKET TO PREVENT REACH-THROUGHS AND REACH-OVERS FROM POOL ENTRY SIDE OF GATE.



**Pool Gate 02**  
 Scale: 3/4" = 1'-0"

**NOTES:**  
 1. FENCE TO BE MONTAGE MAJESTIC 2-RAIL BY AMERISTAR FENCING PRODUCTS 1-888-333-3422, OR EQUIVALENT APPROVED BY LANDSCAPE ARCHITECT  
 2. SHOP DRAWINGS REQUIRED FOR ALL MATERIALS, CONNECTIONS HARDWARE, LAYOUT, ETC.  
 3. FENCE FINISH TO BE SMOOTH & PAINTED FLAT BLACK  
 4. OPENING UNDER THE BOTTOM OF PICKETS SHALL NOT EXCEED 2"  
 5. ALL POOL FENCING TO BE 4' IN HEIGHT UNLESS OTHERWISE SPECIFIED ON PLAN



**Pool Fence 01**  
 Scale: 3/4" = 1'-0"



125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com

Middleburg, LLC  
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 4410 River Road  
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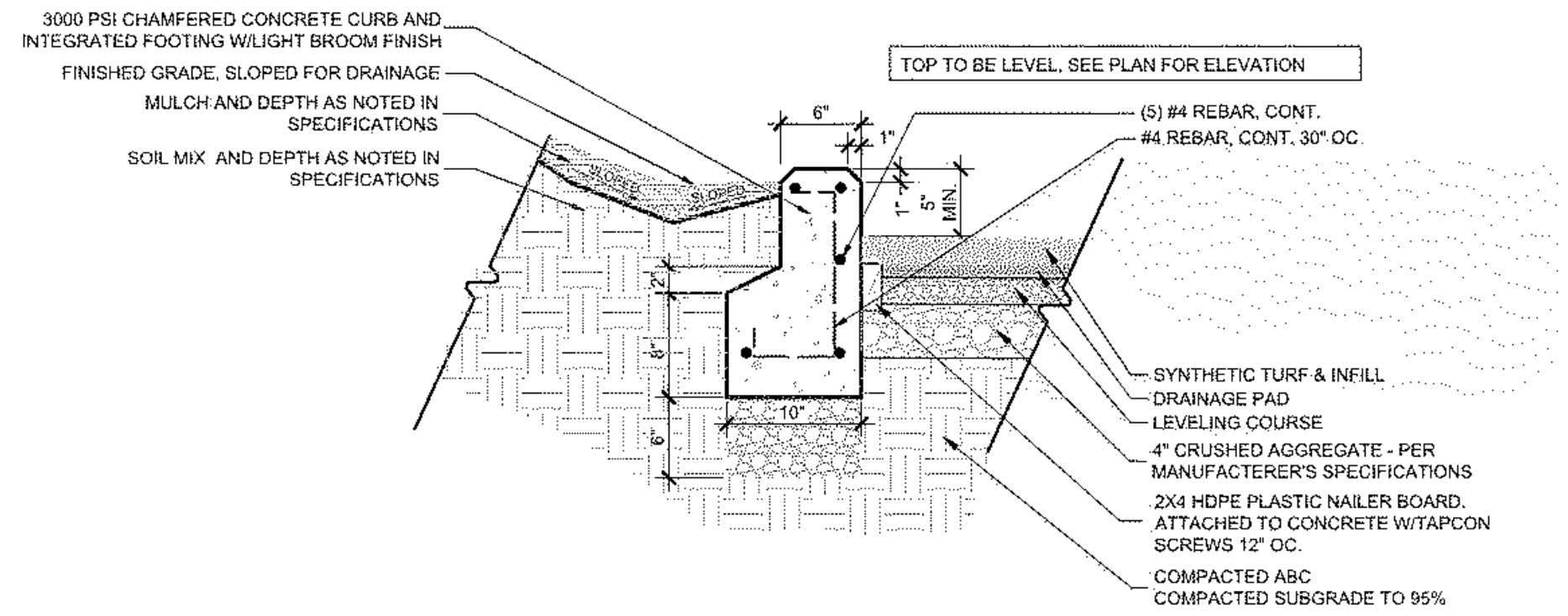
Construction Documents

NOT FOR CONSTRUCTION

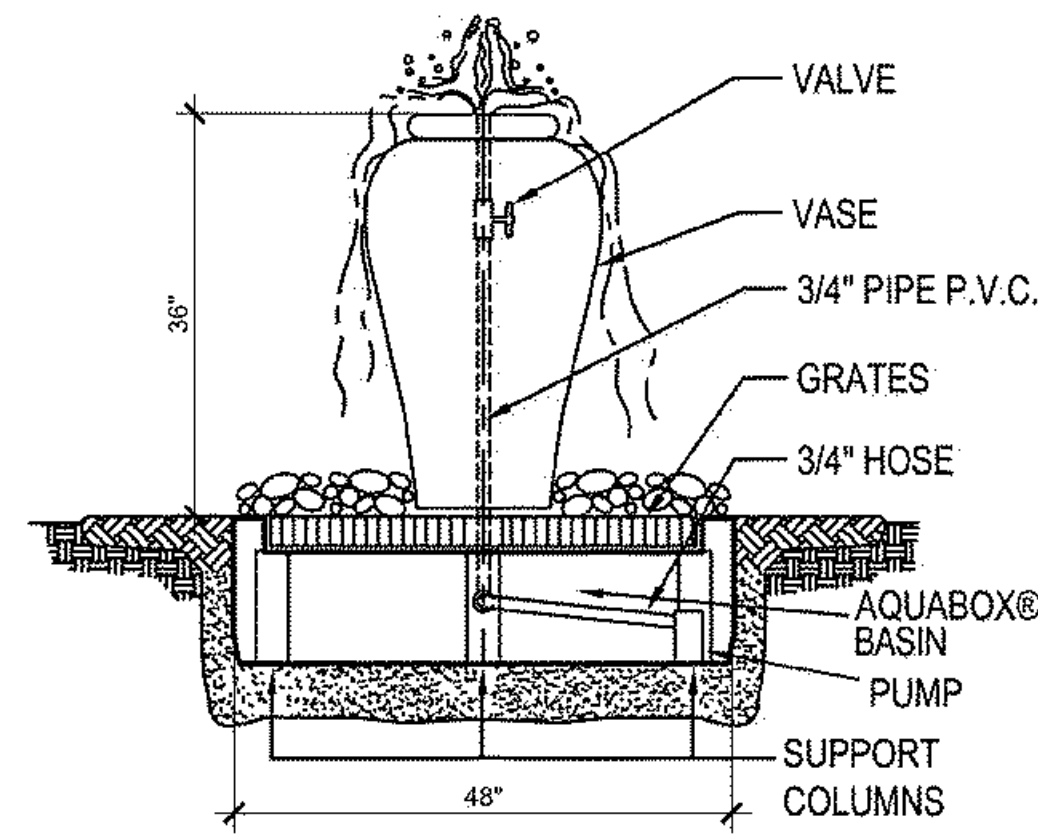
PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: CT  
 CHECKED BY: MWL  
 Pool Details

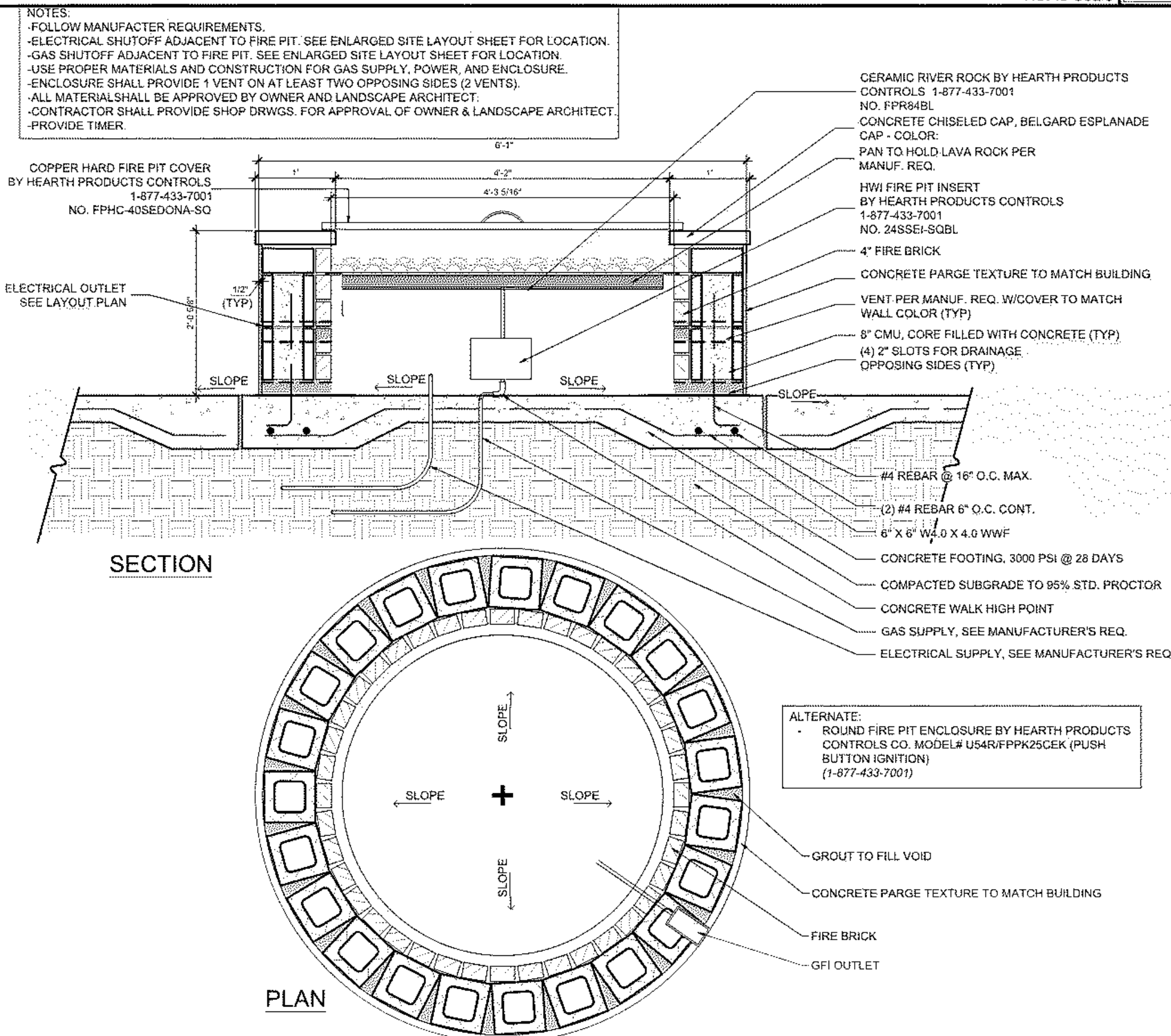
**SD2.30**



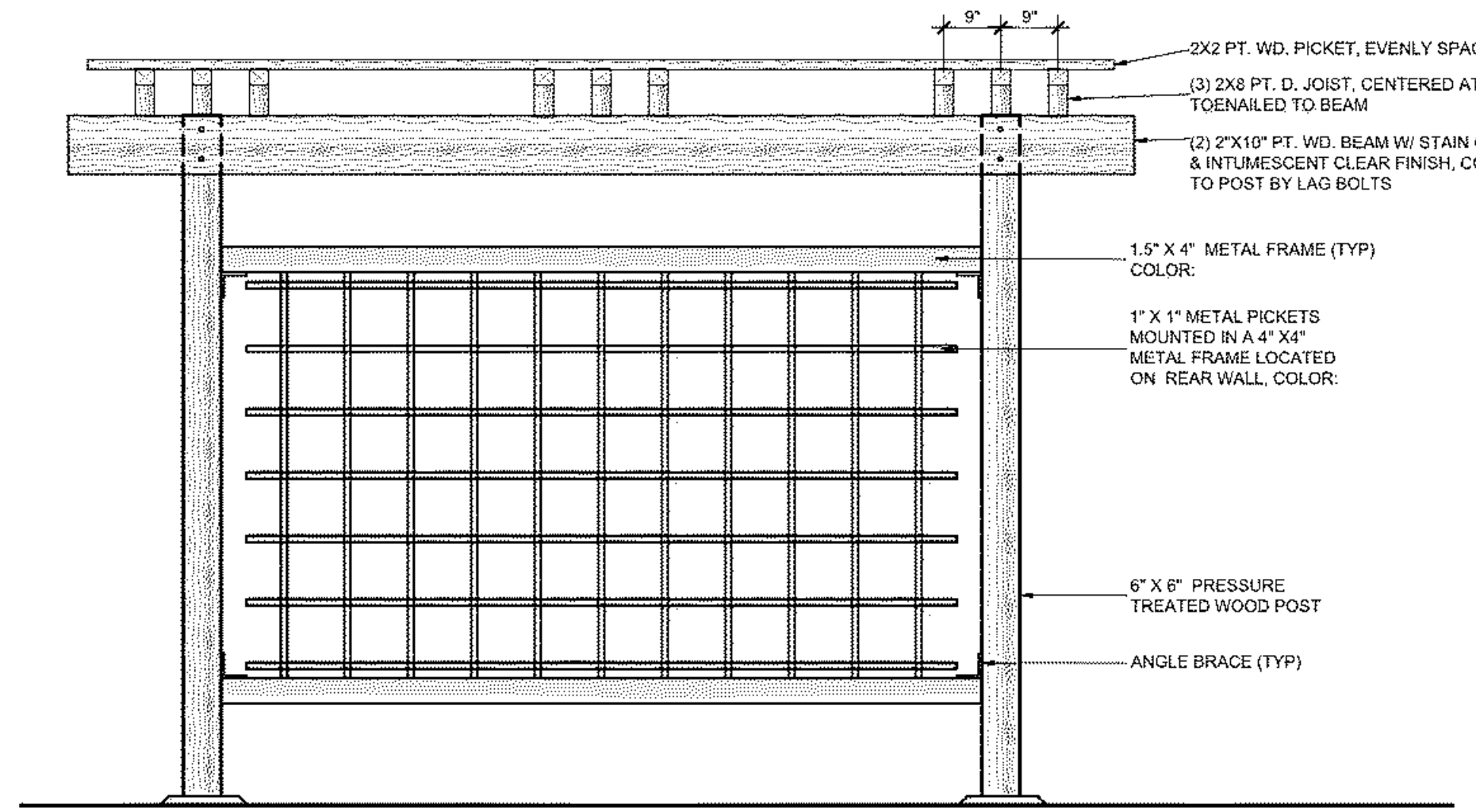
**Concrete Curb** 04  
Scale: 1" = 1'-0"



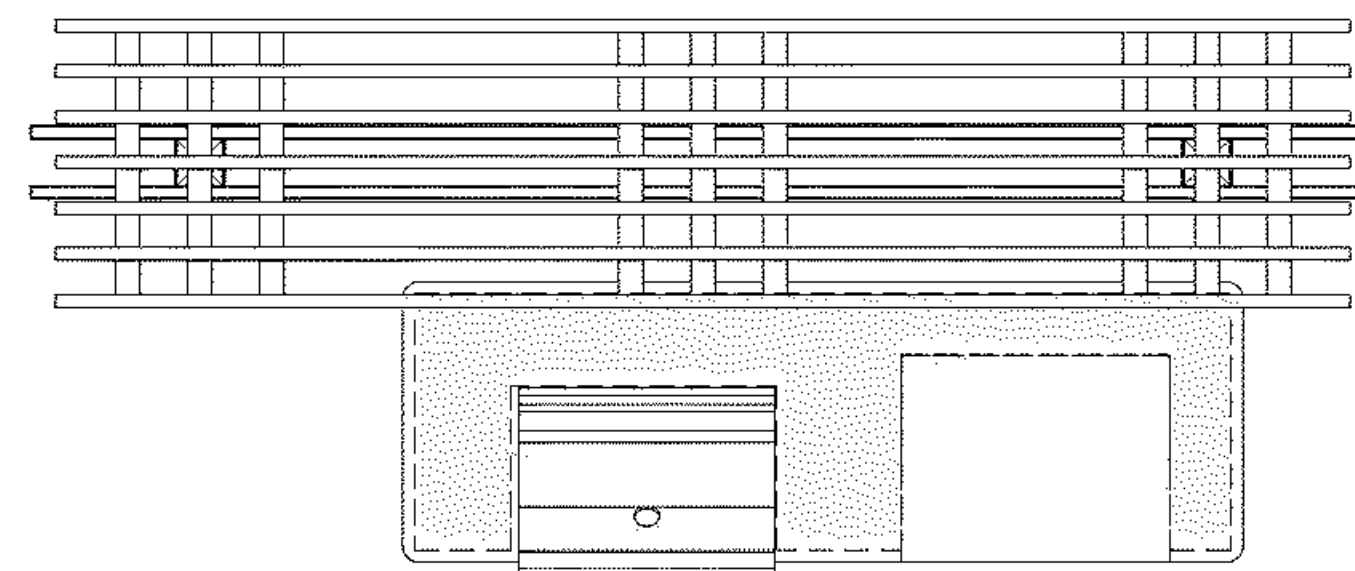
**Fountain Detail** 03  
Not to Scale



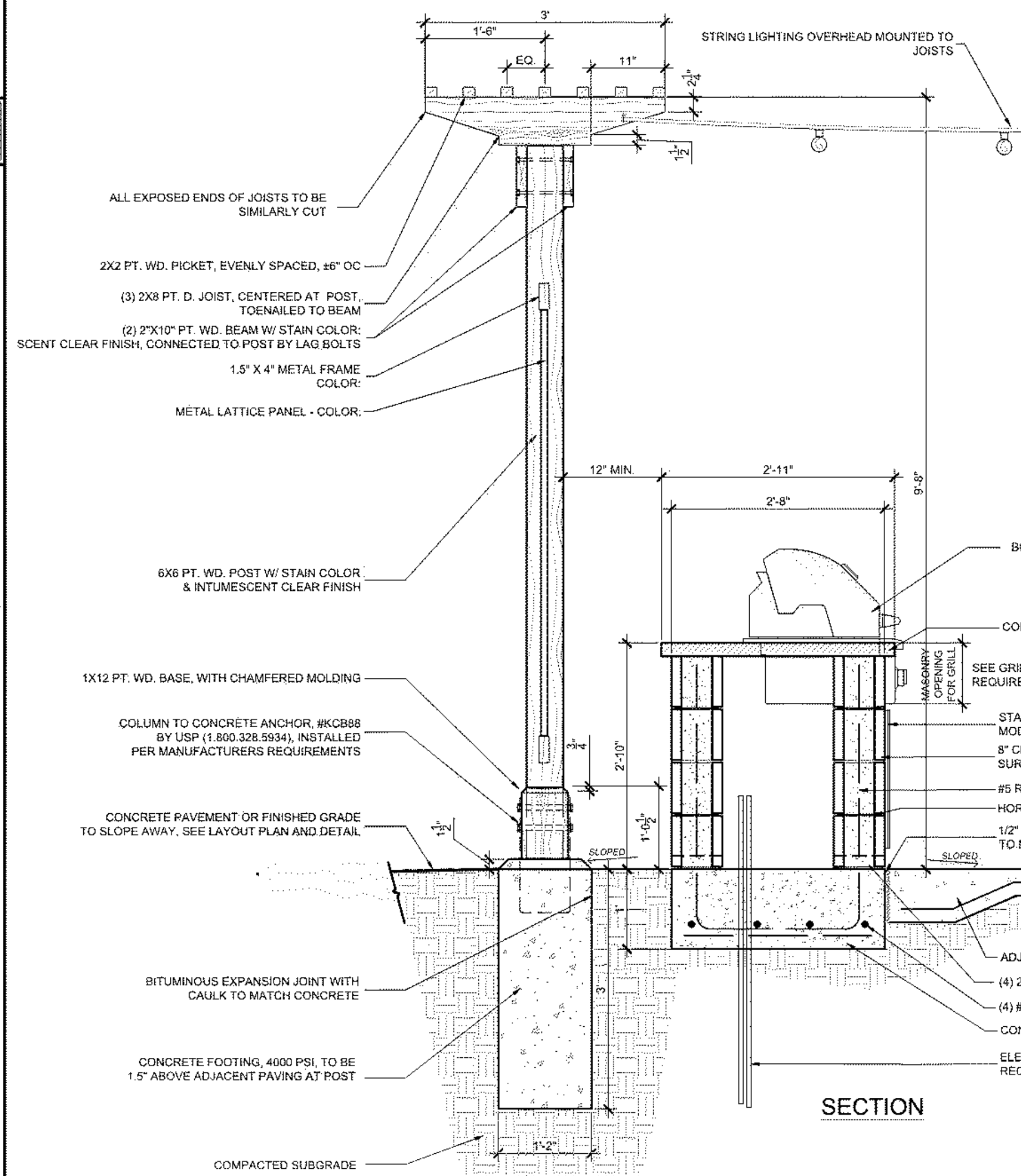
**Fire Pit** 02  
Scale: 3/4" = 1'-0"



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

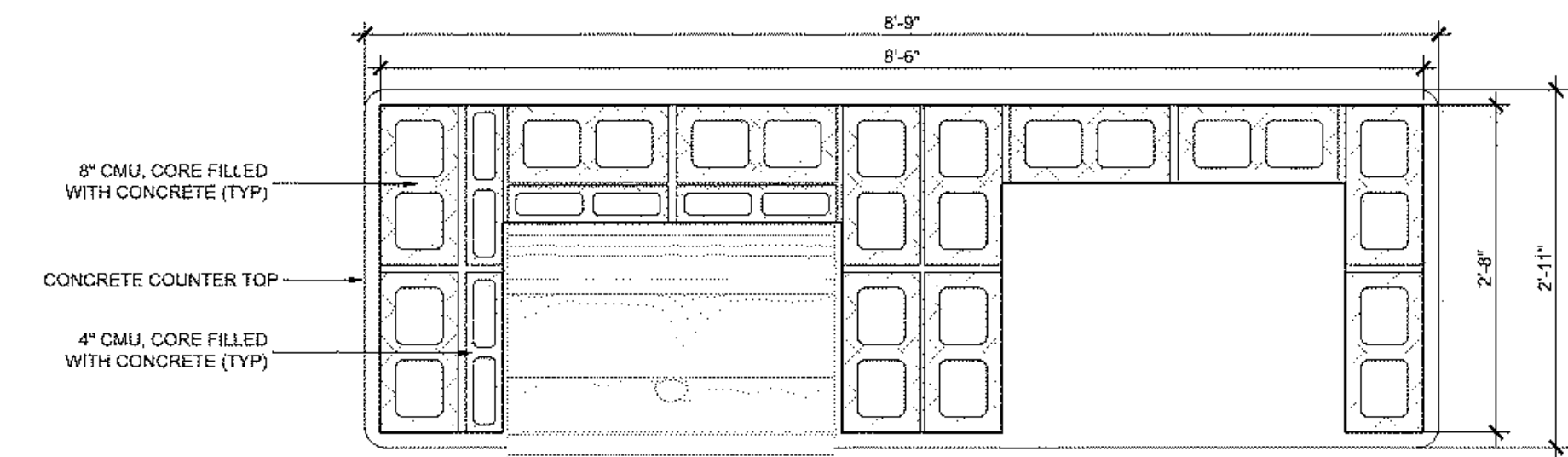
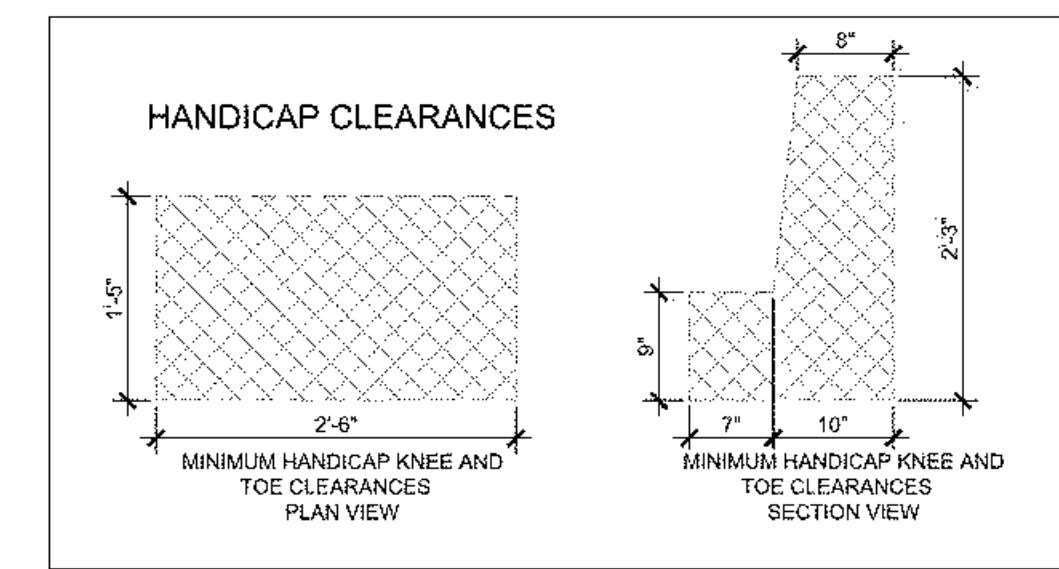


**PLAN**  
(SEE AMENITY COURTYARD PLAN)  
SCALE: 1/2" = 1'-0"

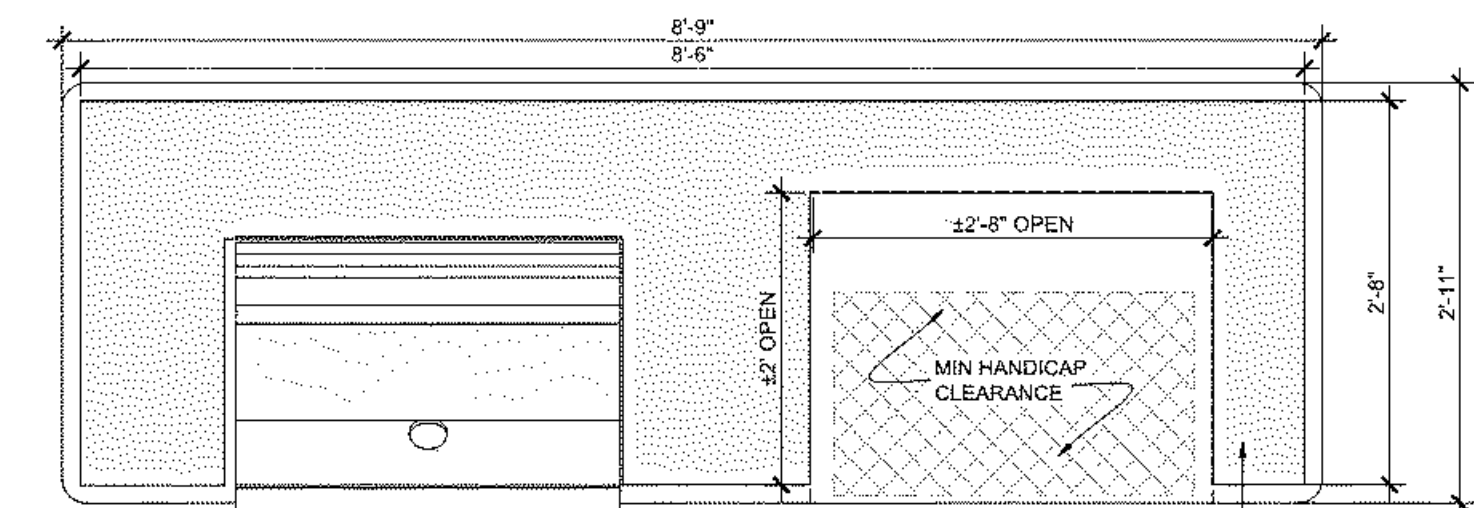


**SECTION**

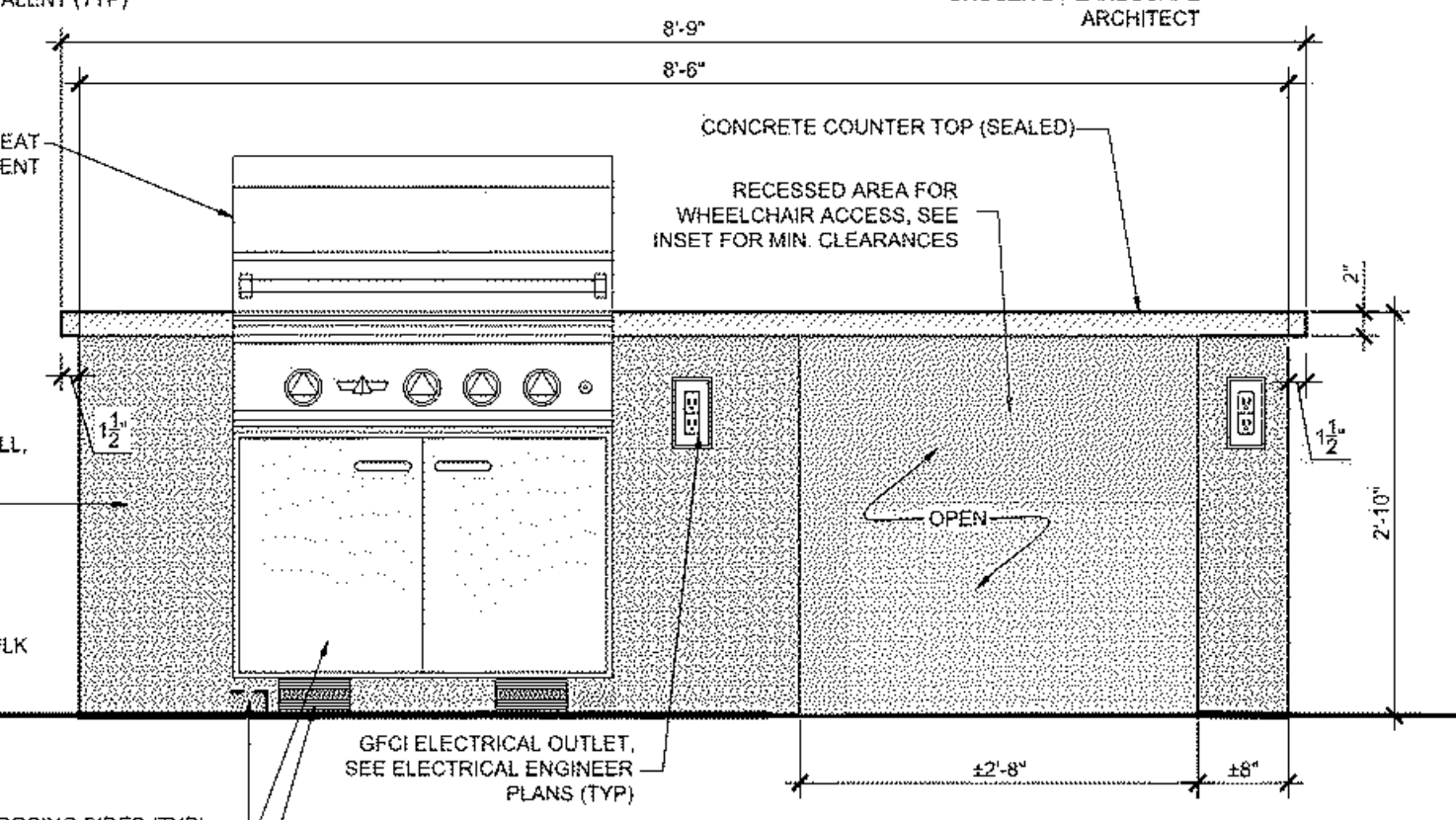
\*SEE PLAN FOR GRILL LAYOUTS\*



**CMU PLAN**



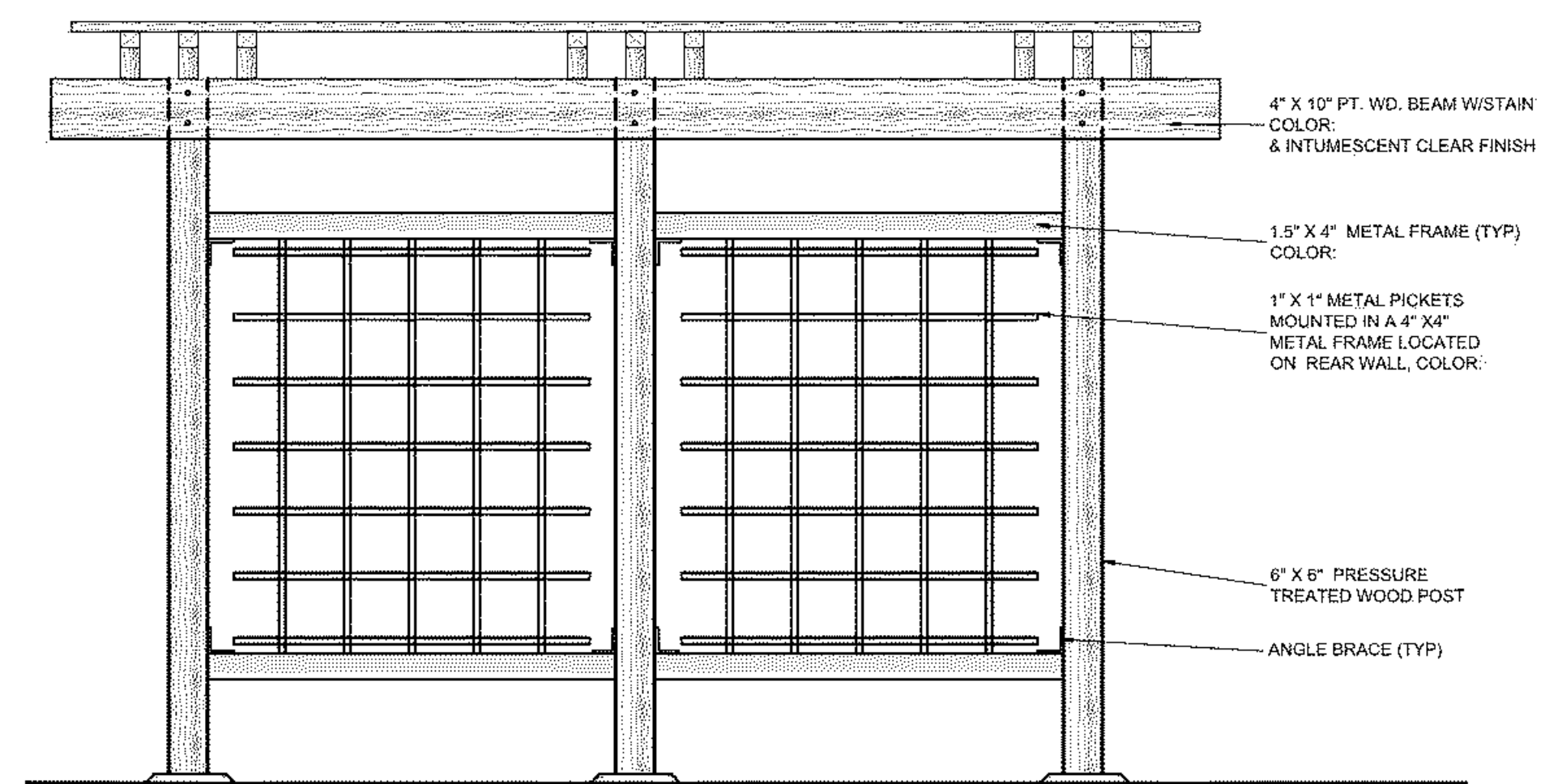
**PLAN**



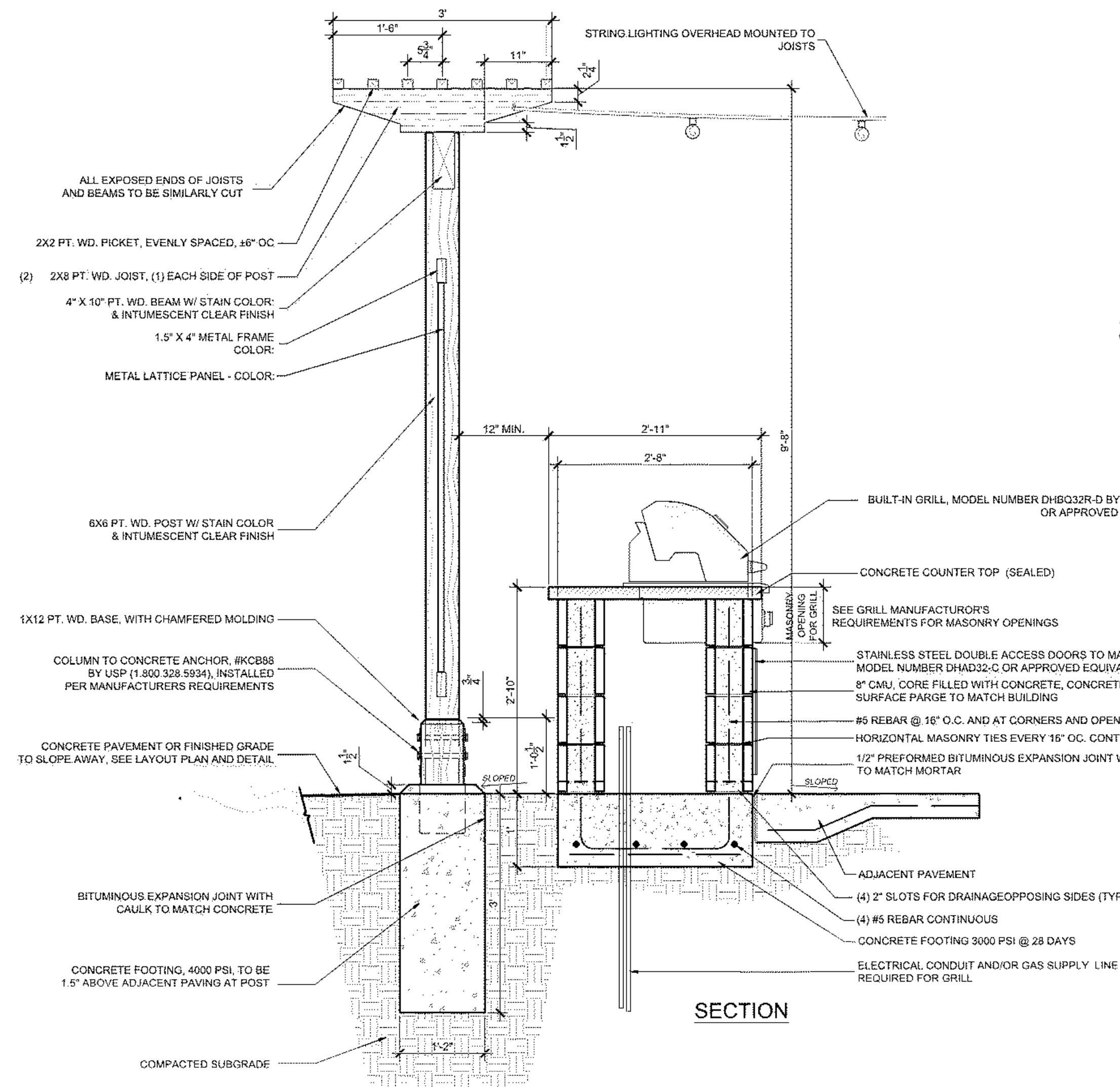
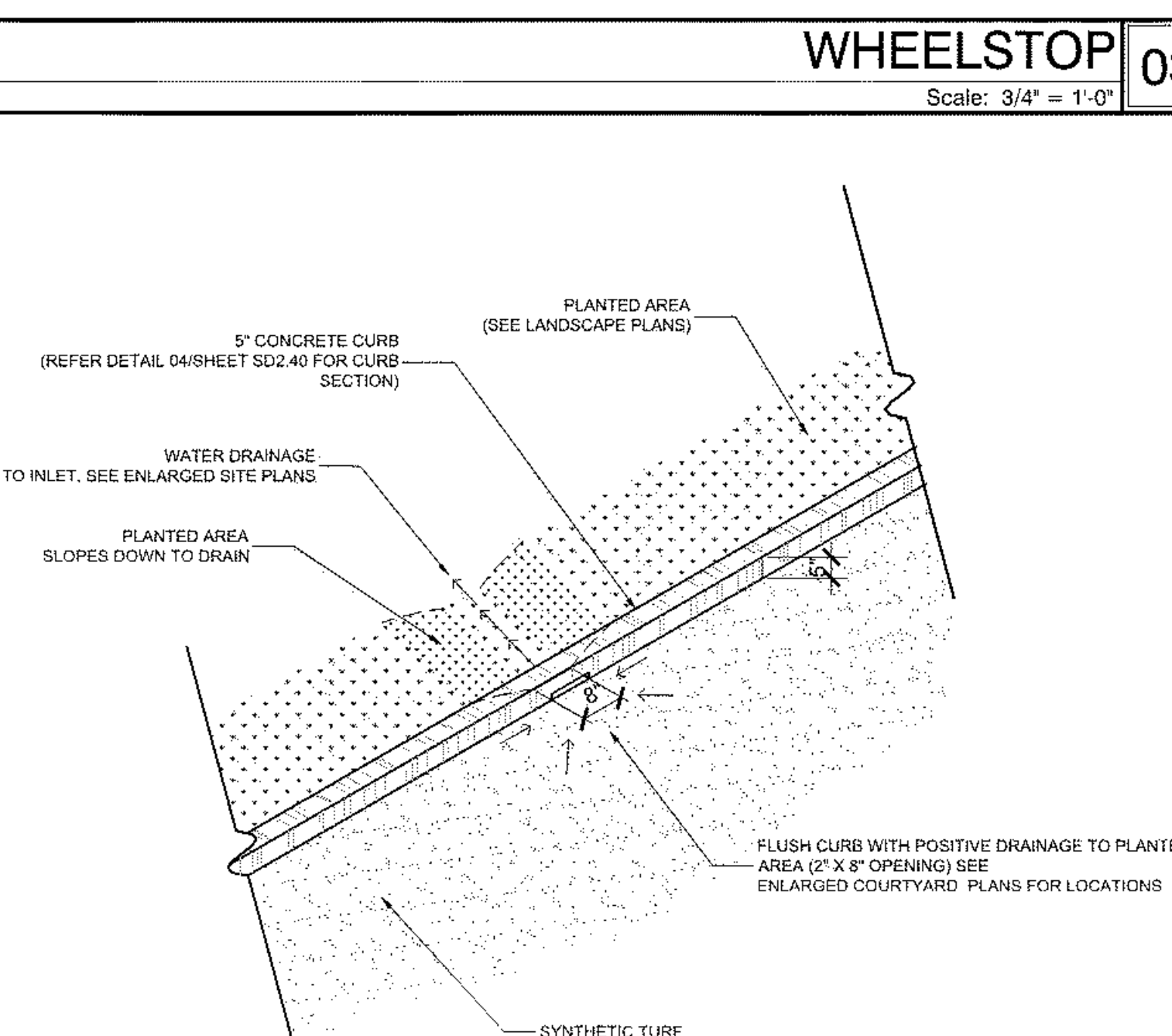
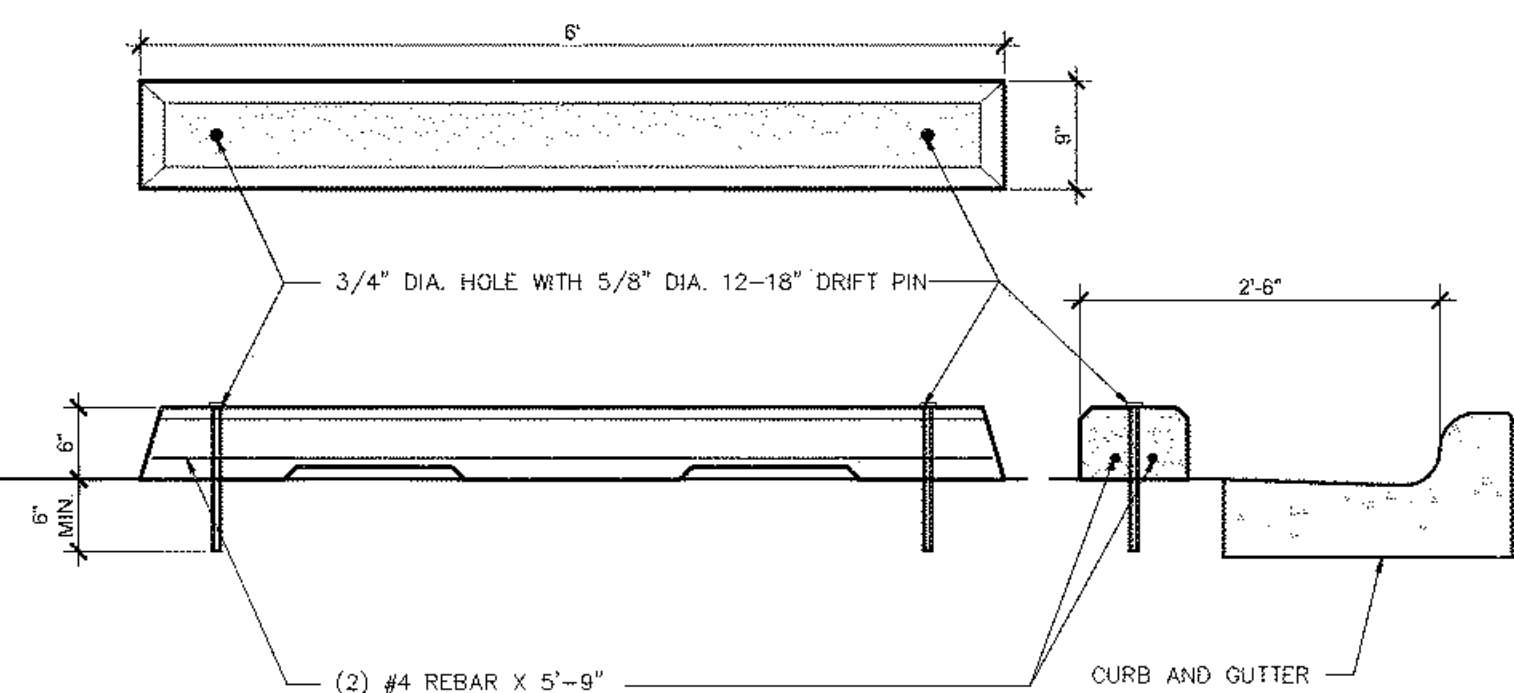
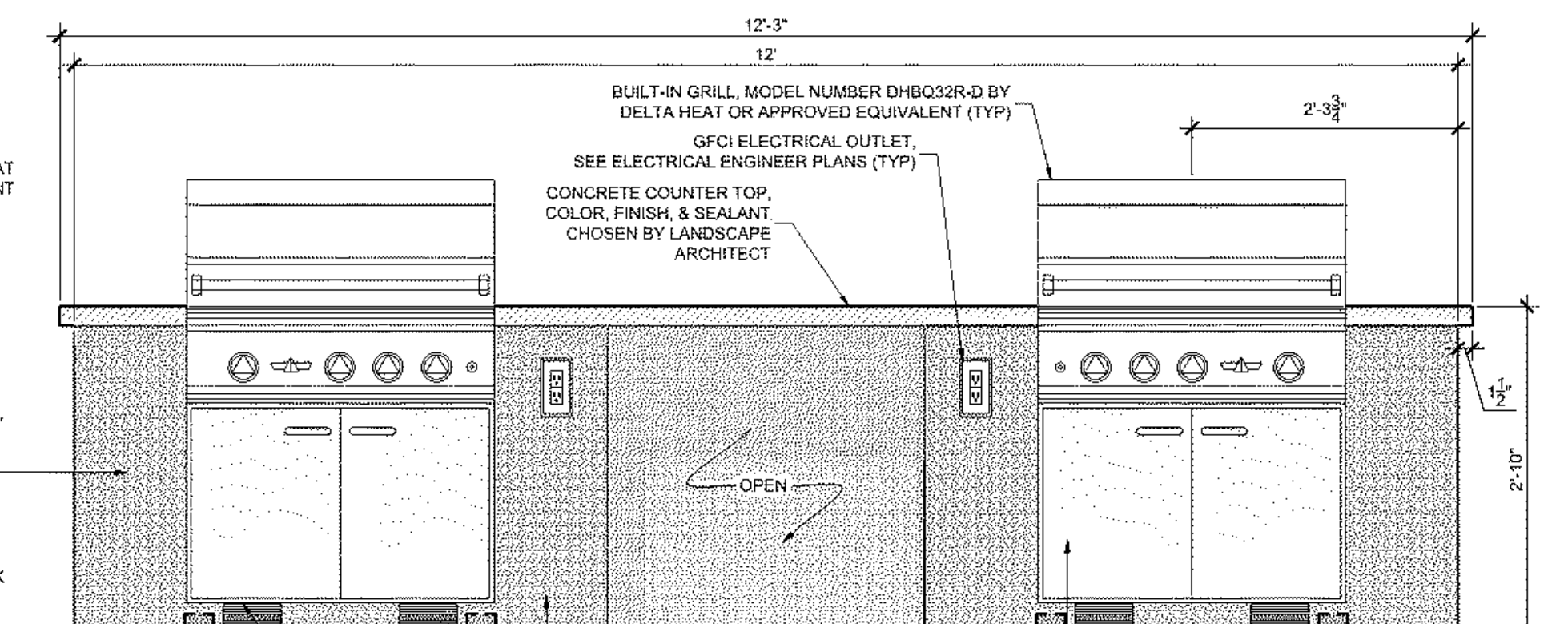
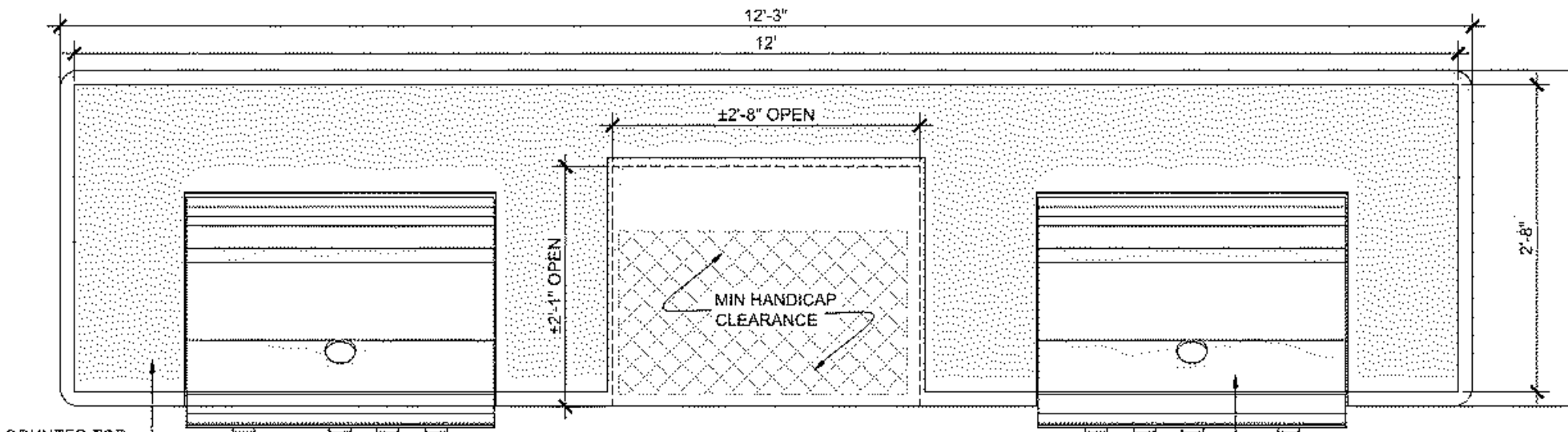
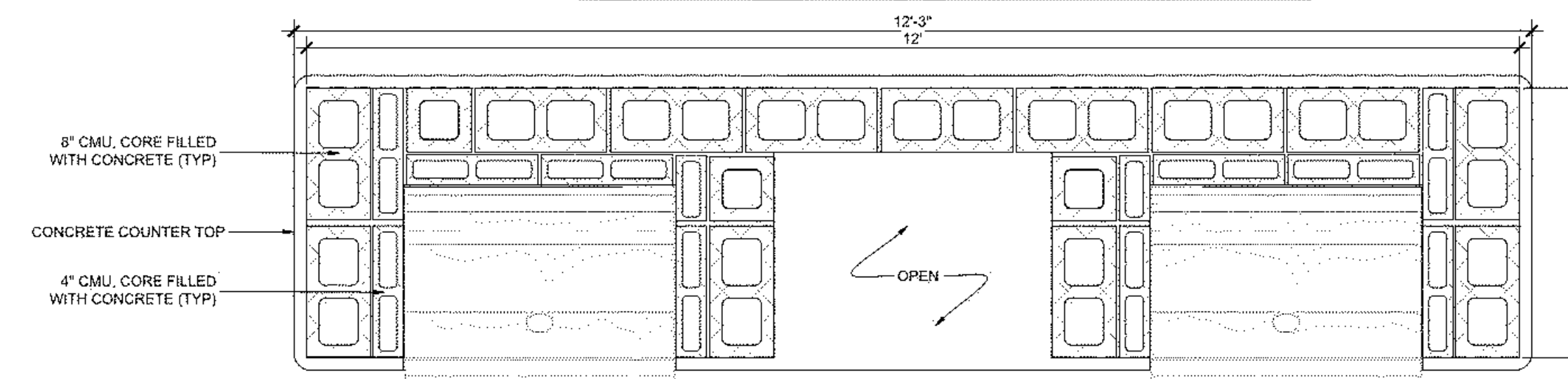
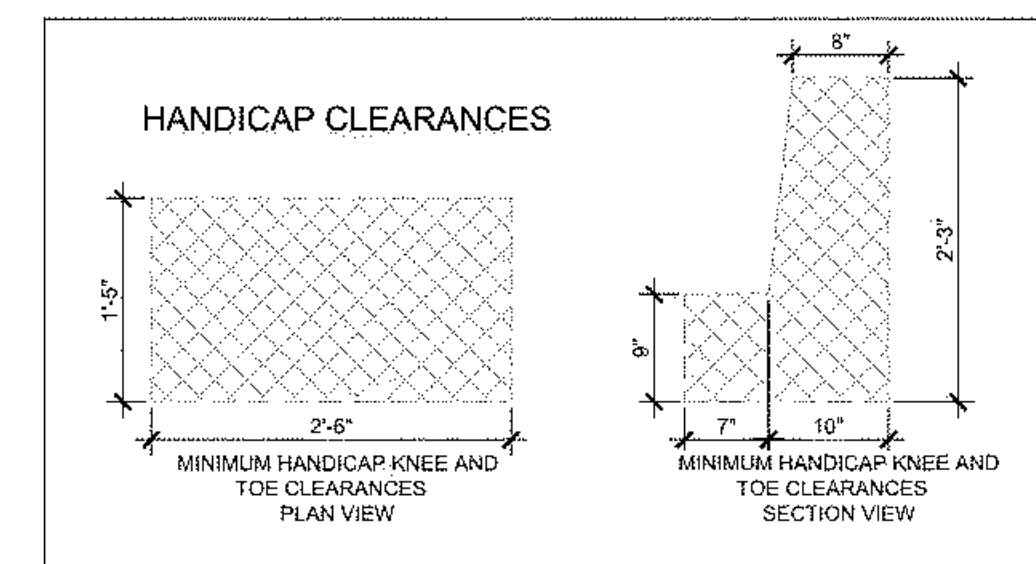
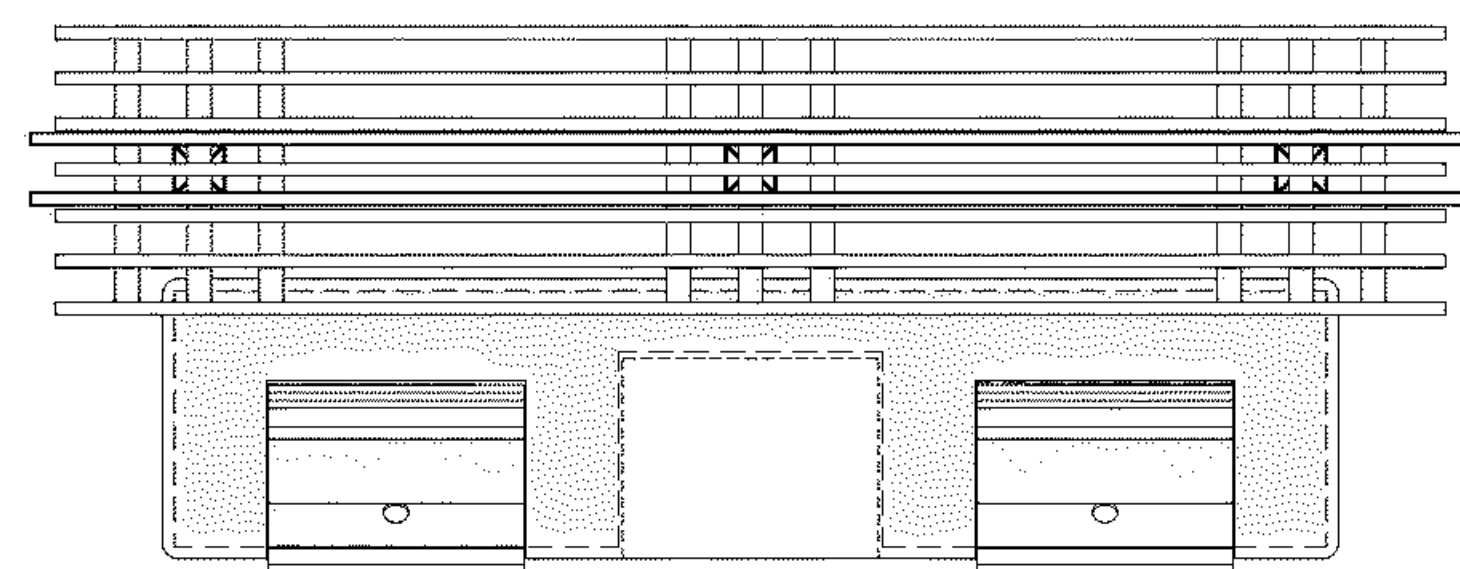
**ELEVATION**

- NOTE:**
1. GRILL TO BE 32" GAS GRILL BY DELTA HEAT, MODEL # DHB032R-C (DELTAHEAT.COM)
  2. ALL COUNTER TOPS TO BE 2" COLORED AND SEALED CONCRETE WITH 3" TURNED DOWN EDGE; COLOR TO BE SELECTED BY LANDSCAPE ARCHITECT.
  3. DOUBLE ACCESS DOORS TO BE STAINLESS STEEL DOUBLE ACCESS DOORS BY DELTA HEAT, MODEL #DHAD-C
  4. CONTRACTOR TO ALLOW FOR CLEARANCES AND VENTING OF ALL GRILLS
  5. SEE GRILL AND DOOR MANUFACTURER'S REQUIREMENTS FOR MASONRY OPENINGS FINISH
  6. ALL WOODEN COMPONENTS TO BE STAINED AND SEALED WITH INTUMESCENT CLEAR FINISH
  7. CLEARANCES OF FINISHED WALLS TO COMPLY WITH MINIMUM HANDICAP CLEARANCES

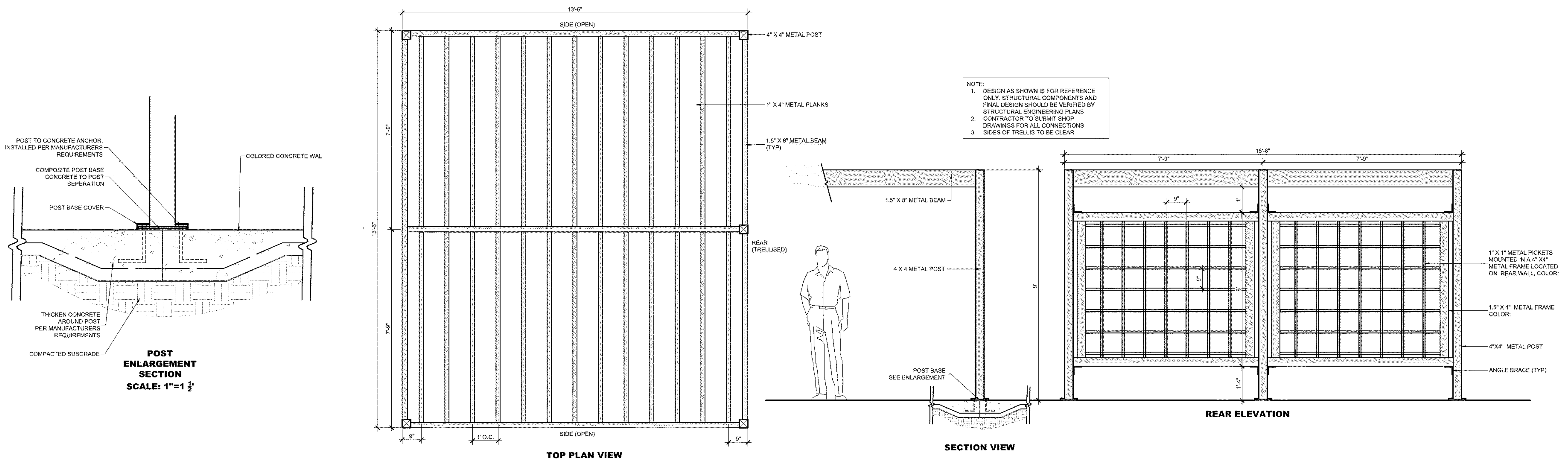
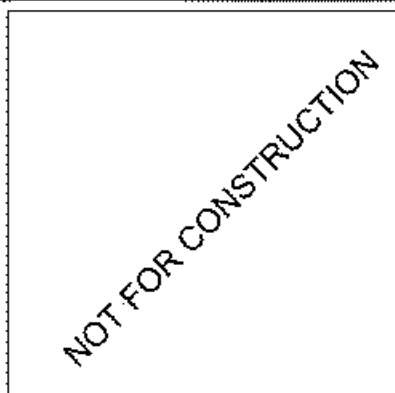
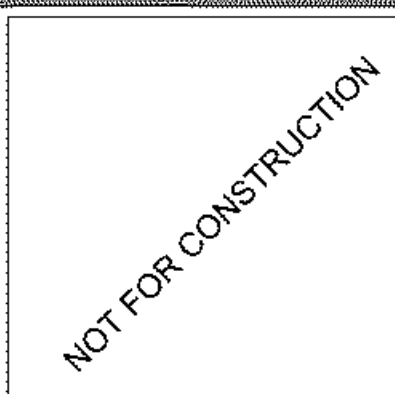
**Amenity Courtyard Grill Details** 01  
Scale: 3/4" = 1'-0"



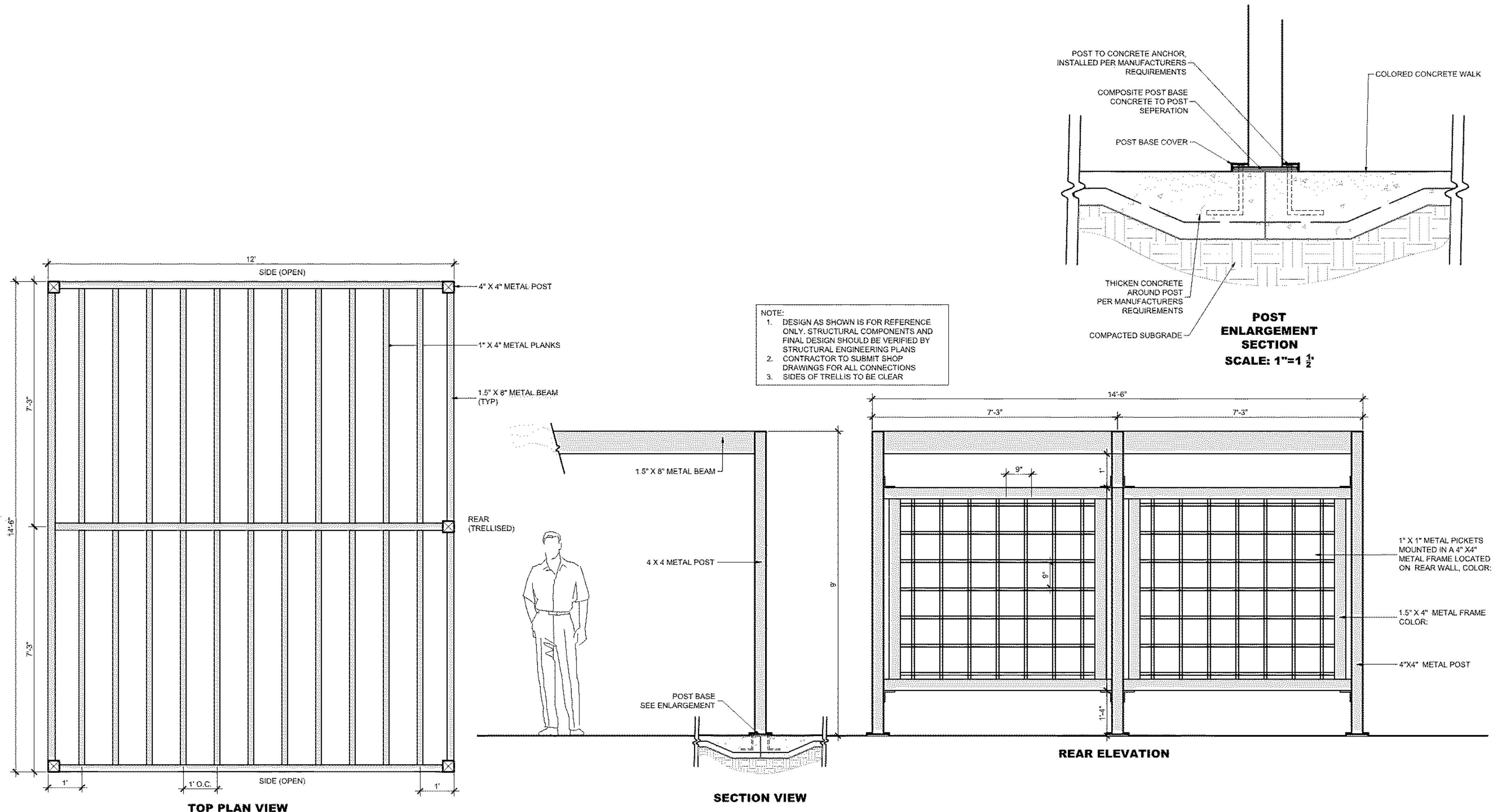
ELEVATION  
SCALE: 1/2" = 1'-0"



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Pool Courtyard Trellis (2) 02  
Scale: 1/2" = 1'-0"



Amenity Courtyard Trellis (2) 01  
Scale: 1/2" = 1'-0"

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- GENERAL:**
- EXISTING ZONING: MX (CD) CLUSTER
  - TOTAL EXISTING PROTECTED TREES ON SITE (REGULATED): 14
  - TOTAL EXISTING UNPROTECTED TREES ON SITE: 28
  - TOTAL MITIGATED TREES PROVIDED: 23
  - (SEE SHEET LP1.01 FOR CALCULATIONS)
  - TOTAL TREES REQUIRED ON SITE: 133
  - DISTURBED AREA ACREAGE = 8.64
  - 881 X 15 = 132.15
  - TOTAL TREES PROVIDED ON SITE: 186
  - EXISTING TREES TO REMAIN = 0
  - PROPOSED TREES = 141 (NO OFF-SITE STREET TREES INCLUDED)

- PARKING LOT SHADING:**
- SIDE A (BLDG 1 & BLDG 2)
    - PARKING LOT AREA: 57,793 SF
    - REQUIRED 20% SHADING (57,793 X 20% = 11,559 SF)
    - PROVIDED SHADING: 15,554 SF
    - 22 TREES X (707 SF/TREE)
  - SIDE B (BLDG 3 & BLDG 4)
    - PARKING LOT AREA: 78,955 SF
    - REQUIRED 20% SHADING (78,955 X 20% = 15,791 SF)
    - PROVIDED SHADING: 17,675 SF
    - 25 TREES X (707 SF/TREE)

- HARPSWELL PLAZA (SECONDARY) (SY1)**
- TOTAL STREET YARD AREA REQUIRED: 2,952 SF
  - STREET YARD FACTOR X (FRONTAGE LF - DRIVEWAY LF) / 2 = MINIMUM STREET YARD AREA REQUIRED
  - STREET YARD FACTOR = 18 (MXCD)
  - TOTAL LOT FRONTAGE = 328 LF
  - TOTAL DRIVEWAY FRONTAGE = 0 LF
  - 18 X 328 / 2 = 2,952 SF
  - 15% CAN BE IMPERVIOUS PAVEMENT = 542 SF
  - TOTAL STREET YARD AREA PROVIDED: 3,201 SF
  - 160 SF OF STREET YARD IS SIDEWALK
  - 160 / 2,952 = 0.05 (5%)
  - 15% OF STREET YARD PERMITTED TO BE PEDESTRIAN WALKWAYS
  - REFER TO 01LP1.00 FOR DELINEATION OF STREET YARD AREA
  - TOTAL CANOPY TREES REQUIRED: 5
  - 1 CANOPY TREE PER 600 SF OF STREET YARD
  - 2,952 / 600 = 4.92
  - TOTAL CANOPY TREES PROPOSED: 5
  - TOTAL CANOPY TREES EXISTING: 0
  - TOTAL CANOPY TREES PROVIDED: 5

- TOTAL SHRUBS REQUIRED: 30
- 6 SHRUBS PER 600 SF OF STREET YARD
- 2,952 / 600 X 6 = 29.52
- TOTAL SHRUBS PROVIDED: 36

- WATERCRAFT FERRY (SECONDARY) (SY2)**
- TOTAL STREET YARD AREA REQUIRED: 3,618 SF
  - STREET YARD FACTOR X (FRONTAGE LF - DRIVEWAY LF) / 2 = MINIMUM STREET YARD AREA REQUIRED
  - STREET YARD FACTOR = 18 (MXCD)
  - TOTAL LOT FRONTAGE = 452 LF
  - TOTAL DRIVEWAY FRONTAGE = 50 LF
  - 18 X (452 - 50) / 2 = 3,618 SF
  - 15% CAN BE IMPERVIOUS PAVEMENT = 307 SF
  - TOTAL STREET YARD AREA PROVIDED: 3,764 SF
  - 292 SF OF STREET YARD IS SIDEWALK
  - 292 / 3,618 = 0.08 (8%)
  - 15% OF STREET YARD PERMITTED TO BE PEDESTRIAN WALKWAYS
  - REFER TO 01LP1.00 FOR DELINEATION OF STREET YARD AREA
  - TOTAL CANOPY TREES REQUIRED: 6
  - 1 CANOPY TREE PER 600 SF OF STREET YARD
  - 3,618 / 600 = 6.03
  - TOTAL CANOPY TREES PROPOSED: 6
  - TOTAL CANOPY TREES EXISTING: 0
  - TOTAL CANOPY TREES PROVIDED: 6

- TOTAL SHRUBS REQUIRED: 37
- 6 SHRUBS PER 600 SF OF STREET YARD
- 3,618 / 600 X 6 = 36.18
- TOTAL SHRUBS PROVIDED: 40

- OLD TOWNE (PRIMARY) (SY3)**
- TOTAL STREET YARD AREA REQUIRED: 6,714 SF
  - STREET YARD FACTOR X (FRONTAGE LF - DRIVEWAY LF) = MINIMUM STREET YARD AREA REQUIRED
  - STREET YARD FACTOR = 18 (MXCD)
  - TOTAL LOT FRONTAGE = 373 LF
  - TOTAL DRIVEWAY FRONTAGE = 0 LF
  - 18 X 373 = 6,714 SF
  - 15% CAN BE IMPERVIOUS PAVEMENT = 1,007 SF
  - TOTAL STREET YARD AREA PROVIDED: 6,762 SF
  - 302 SF OF STREET YARD IS SIDEWALK
  - 278 / 6,762 = 0.041 (4.1%)
  - 15% OF STREET YARD PERMITTED TO BE PEDESTRIAN WALKWAYS = 278 SF
  - REFER TO 01LP1.00 FOR DELINEATION OF STREET YARD AREA
  - TOTAL CANOPY TREES REQUIRED: 12
  - 1 CANOPY TREE PER 600 SF OF STREET YARD
  - 6,714 / 600 = 11.19
  - TOTAL CANOPY TREES PROPOSED: 12
  - TOTAL CANOPY TREES EXISTING: 0
  - TOTAL CANOPY TREES PROVIDED: 12

- TOTAL SHRUBS REQUIRED: 68
- 6 SHRUBS PER 600 SF OF STREET YARD
- 6,714 / 600 X 6 = 67.14
- TOTAL SHRUBS PROVIDED: 69

- OLD TOWNE (PRIMARY) (SY4)**
- TOTAL STREET YARD AREA REQUIRED: 6,660 SF
  - STREET YARD FACTOR X (FRONTAGE LF - DRIVEWAY LF) = MINIMUM STREET YARD AREA REQUIRED
  - STREET YARD FACTOR = 18 (MXCD)
  - TOTAL LOT FRONTAGE = 370 LF
  - TOTAL DRIVEWAY FRONTAGE = 0 LF
  - 18 X 370 = 6,660 SF
  - 15% CAN BE IMPERVIOUS PAVEMENT = 999 SF
  - TOTAL STREET YARD AREA PROVIDED: 6,680 SF
  - 99 SF OF STREET YARD IS SIDEWALK
  - 99 / 6,680 = 0.014 (1.4%)
  - 15% OF STREET YARD PERMITTED TO BE PEDESTRIAN WALKWAYS
  - REFER TO 01LP1.00 FOR DELINEATION OF STREET YARD AREA
  - TOTAL CANOPY TREES REQUIRED: 12
  - 1 CANOPY TREE PER 600 SF OF STREET YARD
  - 6,660 / 600 = 11.1
  - TOTAL CANOPY TREES PROPOSED: 12
  - TOTAL CANOPY TREES EXISTING: 0
  - TOTAL CANOPY TREES PROVIDED: 12

- TOTAL SHRUBS REQUIRED: 67
- 6 SHRUBS PER 600 SF OF STREET YARD
- 6,660 / 600 X 6 = 66.6
- TOTAL SHRUBS PROVIDED: 67

- WATERCRAFT FERRY (SECONDARY) (SY5)**
- TOTAL STREET YARD AREA REQUIRED: 4,779 SF
  - STREET YARD FACTOR X (FRONTAGE LF - DRIVEWAY LF) / 2 = MINIMUM STREET YARD AREA REQUIRED
  - STREET YARD FACTOR = 18 (MXCD)
  - TOTAL LOT FRONTAGE = 580.58 LF
  - TOTAL DRIVEWAY FRONTAGE = 50 LF
  - 18 X (581 - 50) / 2 = 4,779 SF
  - 15% CAN BE IMPERVIOUS PAVEMENT = 716.85 SF
  - TOTAL STREET YARD AREA PROVIDED: 4,856 SF
  - 110 SF OF STREET YARD IS SIDEWALK
  - 110 / 4,779 = 0.02 (2%)
  - 15% OF STREET YARD PERMITTED TO BE PEDESTRIAN WALKWAYS
  - REFER TO 01LP1.00 FOR DELINEATION OF STREET YARD AREA
  - TOTAL CANOPY TREES REQUIRED: 8
  - 1 CANOPY TREE PER 600 SF OF STREET YARD
  - 4,779 / 600 = 7.9
  - TOTAL CANOPY TREES PROPOSED: 8
  - TOTAL CANOPY TREES EXISTING: 0
  - TOTAL CANOPY TREES PROVIDED: 8

- TOTAL SHRUBS REQUIRED: 48
- 6 SHRUBS PER 600 SF OF STREET YARD
- 4,779 / 600 X 6 = 47.79
- TOTAL SHRUBS PROVIDED: 50

- NOTE:**
- MITIGATION TREES REQUIRED AS A RESULT OF THE REMOVAL OF PROTECTED TREE(S) SHALL NOT BE COUNTED TO MEET THE REQUIREMENTS OF THE STREET YARD, BUFFERS OR INTERIOR PARKING REQUIREMENTS. MITIGATION TREES PROVIDED ARE IN ADDITION TO ANY TREE REQUIREMENTS REQUIRED BY COW ORDINANCE.

STORMWATER MANAGEMENT PLAN  
**APPROVED**  
 CITY OF WILMINGTON  
 ENGINEERING DEPARTMENT  
 DATE: \_\_\_\_\_ PERMIT # \_\_\_\_\_  
 SIGNED: \_\_\_\_\_

**Approved Construction Plan**

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

Planning: \_\_\_\_\_

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

Traffic: \_\_\_\_\_

Fire: \_\_\_\_\_

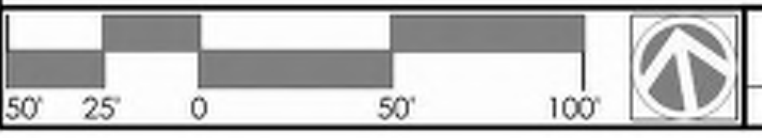
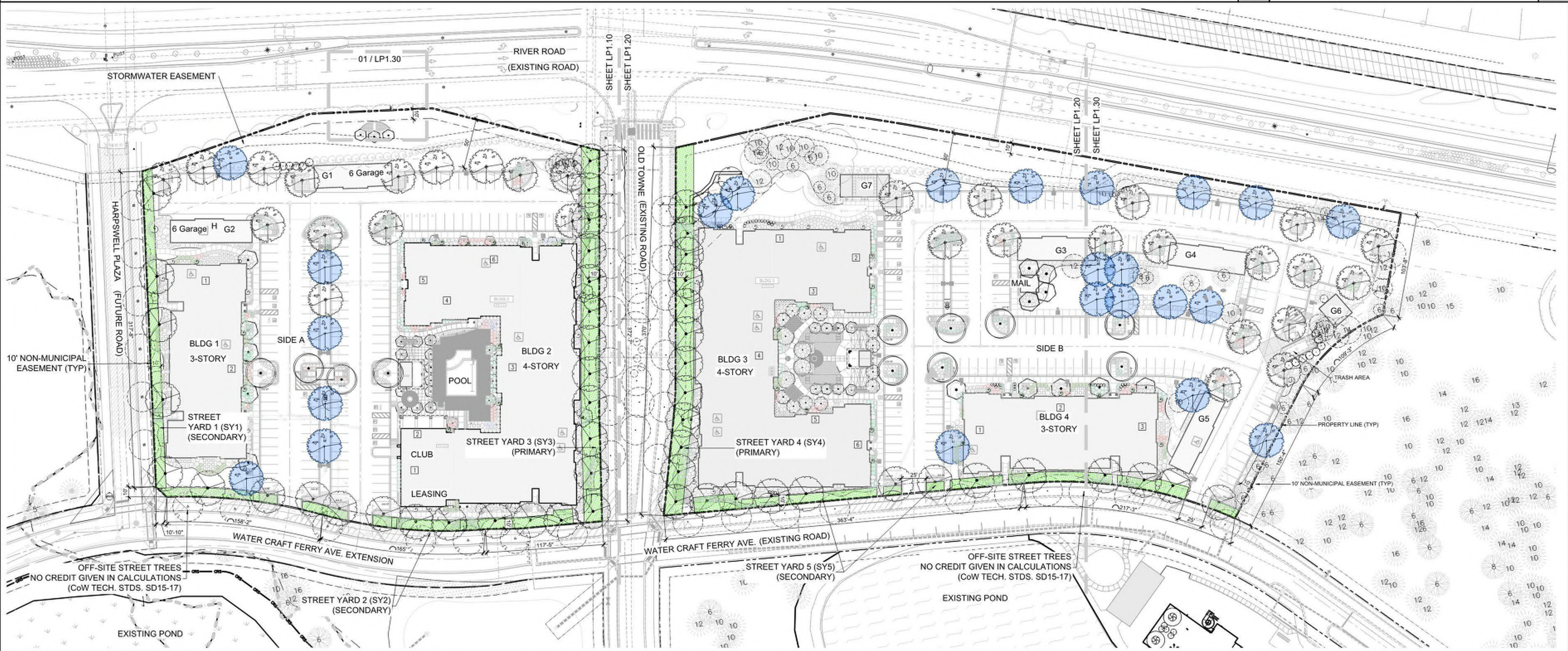
City of Wilmington Approvals **03**

**Legend 02**

- PROPOSED STREET YARD LOCATION
- EXISTING TREES TO REMAIN
- EXISTING TREES TO REMAIN (10' MIN. (TYP.) / 12' / 10')
- MITIGATED TREES

Landscape Calculations **04**

Legend **02**



Landscape Plan **01**  
 Scale: 1" = 50'

**CLINE DESIGN**

125 N. Harrington St.  
 Raleigh, NC 27603  
 919/833-6413  
 919/836-1280 FAX  
 ClineDesignAssoc.com

Middleburg, LLC  
**Middleburg Apartments**  
 4410 River Road  
 Wilmington, North Carolina

Construction Documents

NOT FOR CONSTRUCTION

NOT FOR CONSTRUCTION

PROJECT: 219002  
 DATE: 08.16.2019  
 REVISIONS: \_\_\_\_\_ DATE: \_\_\_\_\_

DRAWN BY: CT  
 CHECKED BY: MWL  
 Landscape Plan

**LP1.00**

FOUNDATION PLANTINGS:  
 TOTAL REQUIRED AREA 8,522 SF  
 TOTAL PROVIDED AREA 10,181 SF

BUILDING 1 FOUNDATION LANDSCAPE DATA				
SIDE	BLDG ELEV AREA	MULTIPLYING FACTOR	REQUIRED	PROVIDED
2	6099	0.12	732	934

BUILDING 2 FOUNDATION LANDSCAPE DATA				
SIDE	BLDG ELEV AREA	MULTIPLYING FACTOR	REQUIRED	PROVIDED
1	1740	0.12	209	232
2	3368	0.12	405	670
3	4402	0.12	529	670
4	4162	0.12	500	500
5	3533	0.12	424	425
6	7290	0.12	875	875

BUILDING 3 FOUNDATION LANDSCAPE DATA				
SIDE	BLDG ELEV AREA	MULTIPLYING FACTOR	REQUIRED	PROVIDED
1	NA	0.12	NA	NA
2	3536	0.12	425	618
3	4208	0.12	505	587
4	3836	0.12	461	601
5	4208	0.12	505	604
6	3536	0.12	425	435

BUILDING 4 FOUNDATION LANDSCAPE DATA				
SIDE	BLDG ELEV AREA	MULTIPLYING FACTOR	REQUIRED	PROVIDED
1	2563	0.12	308	472
2	6099	0.12	732	1061
3	2563	0.12	308	472

STORMWATER MANAGEMENT PLAN  
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 CITY OF WILMINGTON  
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Approved Construction Plan  
 Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

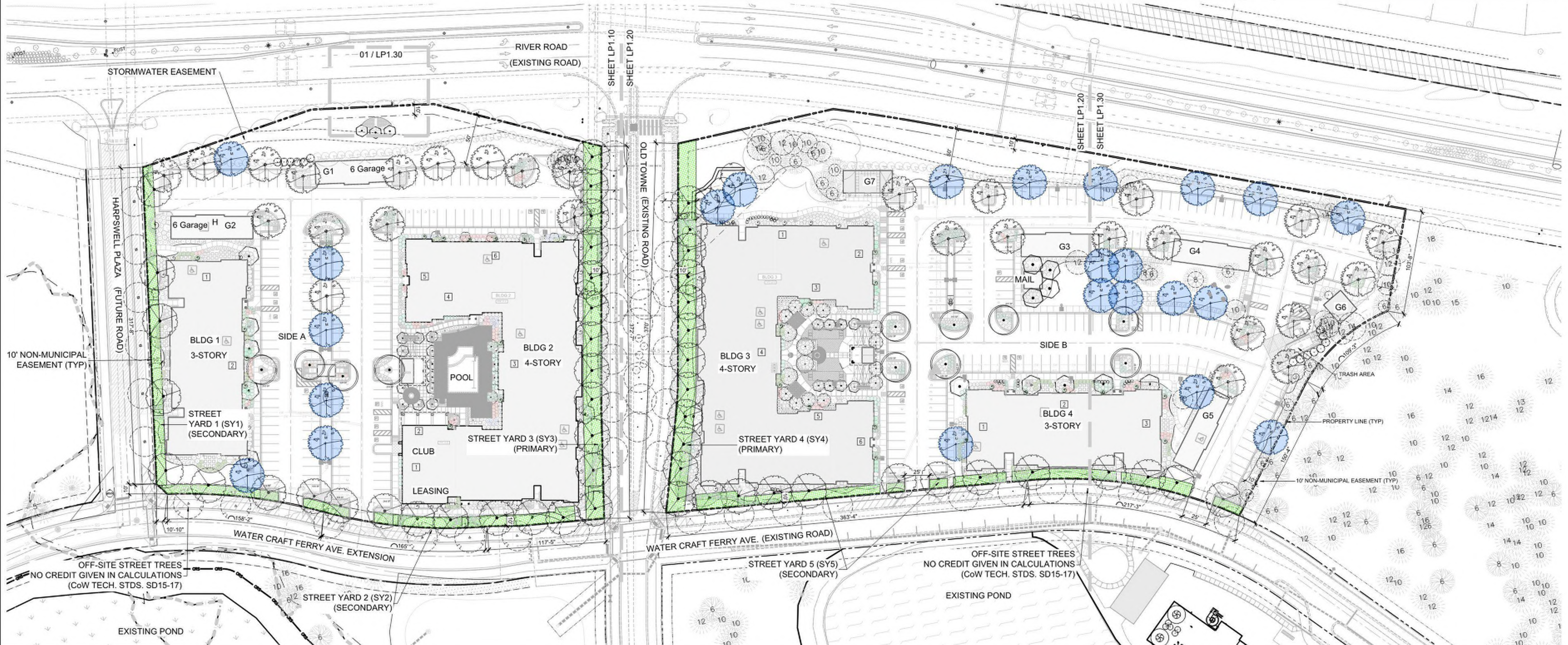
City of Wilmington Approvals 03

**Legend 02**

- PROPOSED STREET YARD LOCATION
- EXISTING TREES TO REMAIN
- EXISTING TREES TO REMAIN (10' MENT (TYP), 12', 14')
- MITIGATED TREES

Foundation Landscape Data 04

Legend 02



Landscape Foundation Plan 01  
 Scale: 1" = 50'

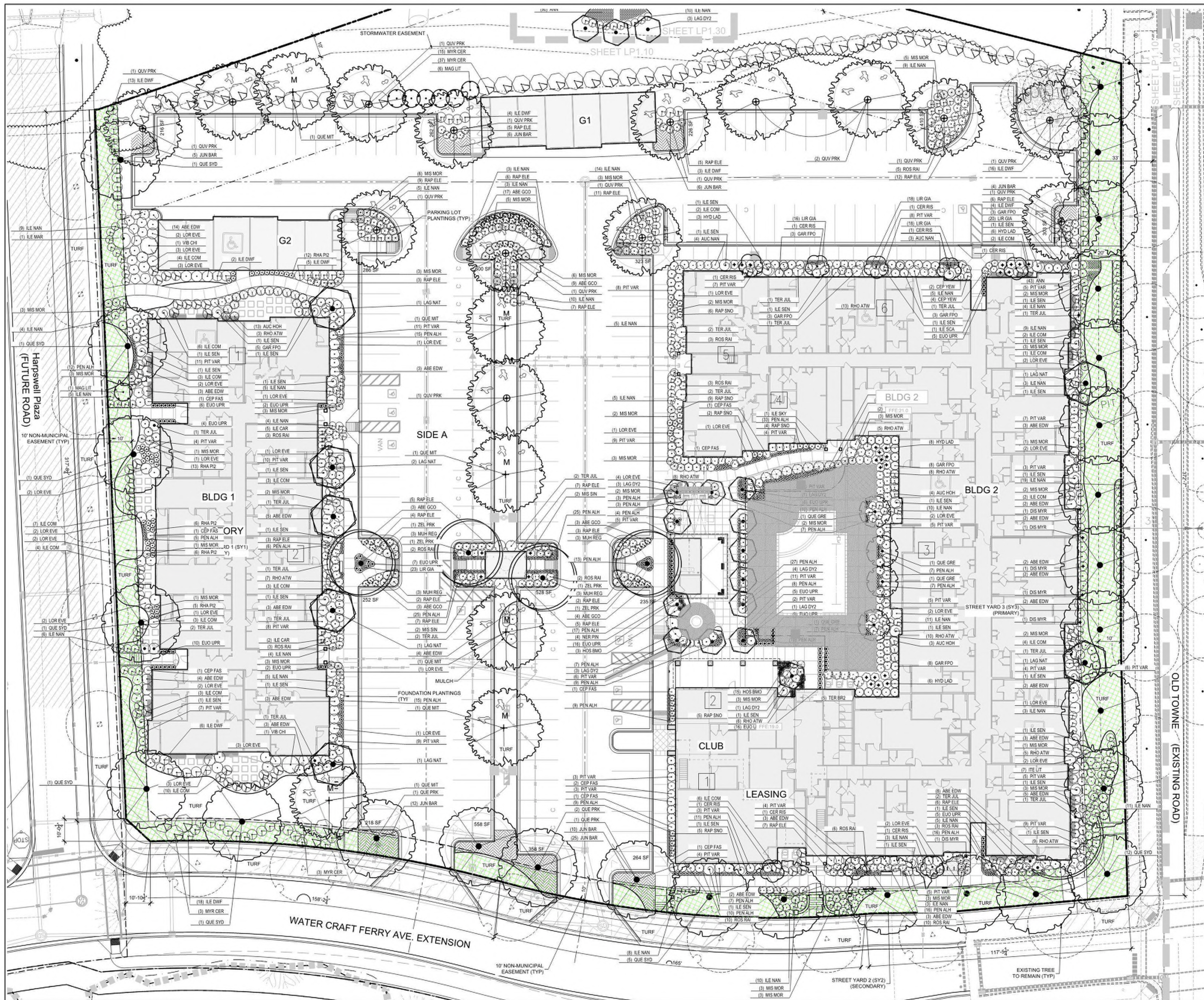
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PROJECT: 219002  
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 DRAWN BY: CT  
 CHECKED BY: MWL  
 Landscape Foundation  
 Plan and Data

LP1.01



**Approved Construction Plan**

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

Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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**STORMWATER MANAGEMENT PLAN**

**APPROVED**

CITY OF WILMINGTON

ENGINEERING DEPARTMENT

DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_

SIGNED \_\_\_\_\_

---

CoW Approvals **02**

For each open utility cut of City streets, a \$375 permit shall be required from the City prior to occupancy and/or project acceptance.

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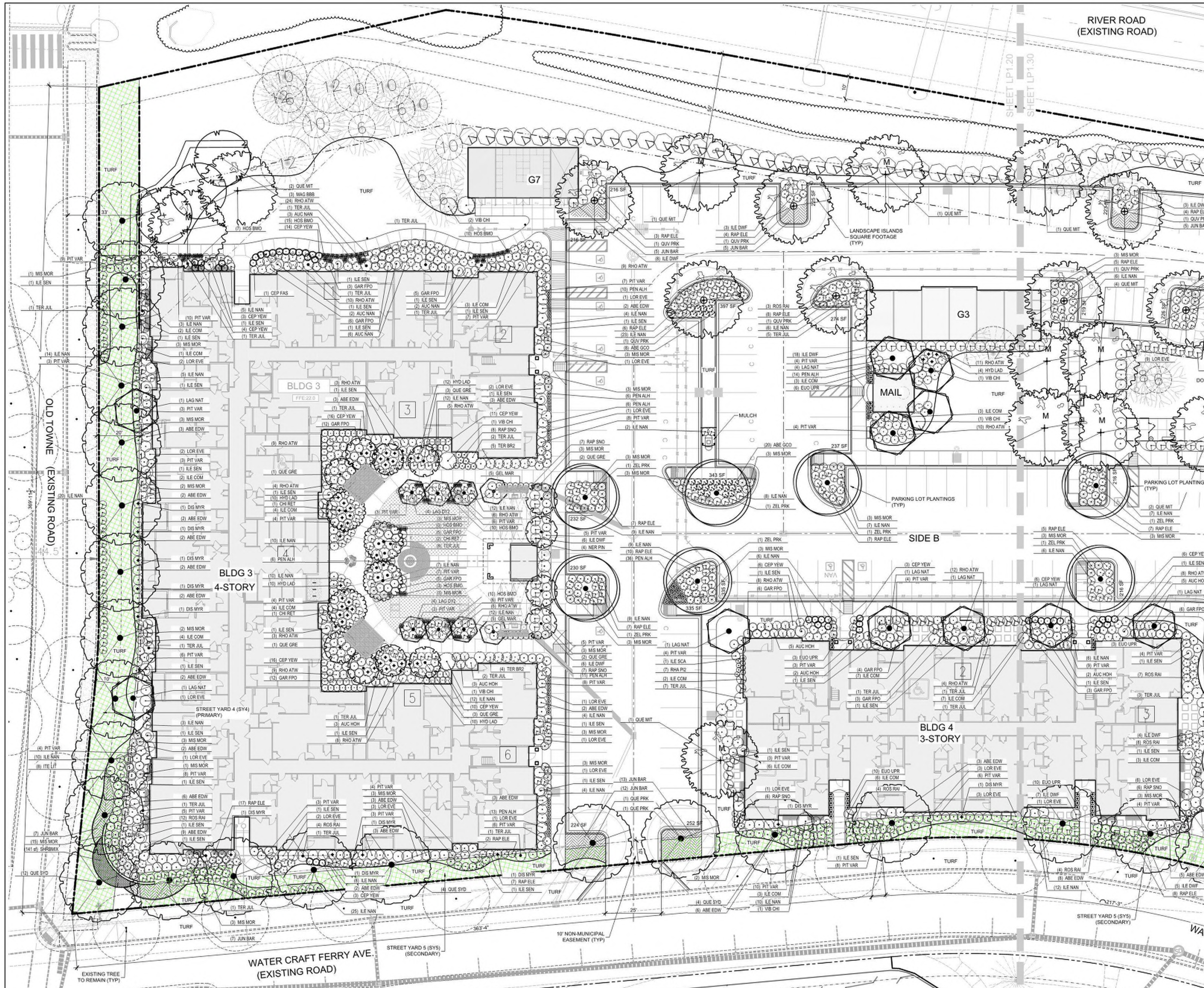
Construction Documents

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DRAWN BY: \_\_\_\_\_ CT  
CHECKED BY: \_\_\_\_\_ MWL  
Enlarged Landscape Plan



**Approved Construction Plan**

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

Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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**STORMWATER MANAGEMENT PLAN  
APPROVED**

CITY OF WILMINGTON  
ENGINEERING DEPARTMENT

DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_

SIGNED \_\_\_\_\_

---

For each open utility cut of City streets, a \$375 permit shall be required from the City prior to occupancy and/or project acceptance.

**CoW Approvals 02**

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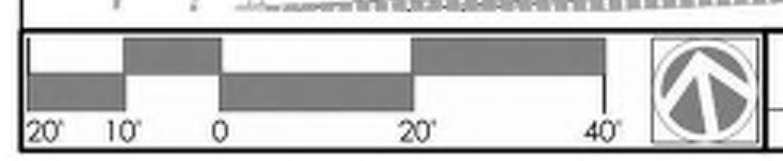
Construction Documents

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NOT FOR CONSTRUCTION

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DATE: 08.16.2019  
REVISIONS: \_\_\_\_\_ DATE \_\_\_\_\_

DRAWN BY: \_\_\_\_\_ CT  
CHECKED BY: \_\_\_\_\_ MWL  
Enlarged Landscape Plan



Enlarged Landscape Plan 01  
Scale: 1" = 20'

LP1.20



PLANT SCHEDULE HARPSWELL PLAZA

STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	1	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ILE DWF	13	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"	EVERGREEN, FULL TO GROUND, 5' O.C.,	
ILE COM	6	ILEX CRENATA 'COMPACTA'	DWARF JAPANESE HOLLY	24" MIN.	18"-24"	4' SPACING O.C.	
ILE NAN	16	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"	FULL, 3.5 O.C.,	
MIS MOR	3	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT MAIDEN GRASS	18"	18"	FULL	

PLANT SCHEDULE WATERCRAFT FERRY (SY2)

STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	6	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ILE DWF	18	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"	EVERGREEN, FULL TO GROUND, 5' O.C.,	
ILE NAN	13	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"	FULL, 3.5 O.C.,	
MIS MOR	3	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT MAIDEN GRASS	18"	18"	FULL	
MYR CER	6	MYRICA CERIFERA	WAX MYRTLE	36" MIN.	18"-24"	FULL	

PLANT SCHEDULE OLD TOWNE (SY3)

STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	11	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ILE DWF	16	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"	EVERGREEN, FULL TO GROUND, 5' O.C.	
ILE NAN	39	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"	FULL, 3.5 O.C.,	
ITE LIT	7	ITEA VIRGINICA 'LITTLE HENRY' TM	VIRGINIA SWEETSPIRE	12"-18"	12"-18"		
MYR CER	1	MYRICA CERIFERA	WAX MYRTLE	36" MIN.	18"-24"	FULL	
PIT VAR	6	PITTOSPORUM TOBIRA 'TURNERS'S VARIEGATED DWARF'	DWARF PITTOSPORUM	12"-18"	12"-18"		

PLANT SCHEDULE OLD TOWNE (SY4)

STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	12	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ILE NAN	44	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"	FULL, 3.5 O.C.,	
ITE LIT	8	ITEA VIRGINICA 'LITTLE HENRY' TM	VIRGINIA SWEETSPIRE	12"-18"	12"-18"		
PIT VAR	16	PITTOSPORUM TOBIRA 'TURNERS'S VARIEGATED DWARF'	DWARF PITTOSPORUM	12"-18"	12"-18"		

PLANT SCHEDULE WATERCRAFT FERRY (SY5)

PARKING SHADE TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE PRK	1	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	6	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	FULL HEAD. MATCHED
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ILE DWF	10	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"	EVERGREEN, FULL TO GROUND,	
ILE COM	7	ILEX CRENATA 'COMPACTA'	DWARF JAPANESE HOLLY	24" MIN.	18"-24"	4' SPACING O.C.	
ILE NAN	47	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"	FULL, 3.5 O.C.,	
PIT VAR	3	PITTOSPORUM TOBIRA 'TURNERS'S VARIEGATED DWARF'	DWARF PITTOSPORUM	12"-18"	12"-18"		
MULCH		DOUBLE SHREADED HARDWOOD					
TURF GRASS							
SOD		BERMUDA					
SEED		BERMUDA					

\*ALL DISTURBED AREAS NOT LABELED AS SOD ARE TO BE SEEDED.

NOTE:  
SEE ADDITIONAL PLANTS AT PLANT SCHEDULE ADDITIONAL PLANTS SHEET LP2.20.

PLANT SCHEDULE CODE COMPLIANT

TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
LAG NAT	4	LAGERSTROEMIA FAURIEI 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	2"	8'-10'	6'-7'	
MAG LIT	14	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA	2"	8'-10'	6'-8'	
QUE GRE	2	QUERCUS PALUSTRIS 'GREEN PILLAR'	GREEN PILLAR OAK	2"	12'-14'	6'-8'	
QUE VIR	1	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	2-2.5"	12'-14'	8'-10'	
MITIGATED TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE MIT	23	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	2.5" MIN	12'-14'	6-8"	
PARKING SHADE TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE PRK	8	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	
QUV PRK	29	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	2-2.5"	12'-14'	8'-10'	
ZEL PRK	11	ZELKOVA SERRATA 'GREEN VASE'	GREEN VASE ZELKOVA	2-2.5"	12'-14'	6-7"	
STREET/YARD	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS
QUE SYD	43	QUERCUS NUTTALLII 'QNFTA'	HIGHPOINT NUTTALL OAK	2-2.5"	12'-14'	8'-10'	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS	
ABE GCO	67	ABELIA GRANDIFLORA 'CONFETTI'	CONFETTI ABELIA	18"-24"	15"-18"		
ABE EDW	21	ABELIA GRANDIFLORA 'EDWARD GOUCHER'	GLOSSY ABELIA	18"-24"	18"-24"		
AUC HOH	40	AUCUBA JAPONICA 'HOSOBIA HOSHIFU'	HOSOBIA HOSHIFU AUCUBA	24" MIN.	18"-24"		
AUC NAN	7	AUCUBA JAPONICA 'NANA'	JAPANESE LAUREL	18"-24"	18"-24"		
CEP FAS	7	CEPHALOTAXUS HARRINGTONIA 'FASTIGIATA'	PLUM YEW	30"-36"			
CEP YEW	59	CEPHALOTAXUS HARRINGTONIA 'YEWTOPIA' TM	YEWTOPIA PLUM YEW	18"	18"		
EUO UPR	33	EUONYMUS JAPONICUS 'GREENSPIRE'	GREENSPIRE UPRIGHT EUONYMUS	18"-24"	18"-24"		
GAR FPO	55	GARDENIA JASMINOIDES 'FROSTPROOF'	FROSTPROOF GARDENIA	12-18"	12-18"		
HOS BMO	15	HOSTA X 'SUMMER BREEZE'	SUMMER BREEZE HOSTA	12-15"	12"-18"		
HYD LAD	23	HYDRANGEA MACROPHYLLA 'L.A. DREAMIN'	L.A. DREAMIN HYDRANGEA	18-24"	18"-24"		
ILE DWF	117	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"		
ILE CAR	15	ILEX CORNUTA 'CARISSA'	CARISSA HOLLY	18-24"	12-18"		
ILE COM	85	ILEX CRENATA 'COMPACTA'	DWARF JAPANESE HOLLY	24" MIN.	18"-24"		
ILE SKY	1	ILEX CRENATA 'SKY PENCIL'	SKY PENCIL JAPANESE HOLLY	30"-36"	8-12"		
ILE SCA	2	ILEX VOMITORIA 'SCARLET'S PEAK'	SCARLET'S PEAK YAUPON HOLLY	36" MIN.	12"		
ILE NAN	400	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12-18"	12"-18"		
ILE SEN	29	ILEX X 'CAROLINA SENTINEL'	CAROLINA SENTINEL HOLLY	24-36"	12-18"		
ILE MAR	1	ILEX X 'MARY NELL'	MARY NELL HOLLY	3'-4'	1-2"		
ITE LIT	15	ITEA VIRGINICA 'LITTLE HENRY' TM	VIRGINIA SWEETSPIRE	12"-18"	12"-18"		
LOR EVE	38	LOROPETALUM CHINENSE 'EVER RED'	EVER RED LOROPETALUM	24" MIN.	18"-24"		
MIS SIN	4	MISCANTHUS SINENSIS 'ADAGIO'	ADAGIO EULALIA GRASS	18"	18"		
MIS MOR	109	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT MAIDEN GRASS	18"	18"		
MUH REG	12	MUHLENBERGIA CAPILLARIS 'REGAL MIST' TM	MUHLY	24"-30"			
MYR CER	150	MYRICA CERIFERA	WAX MYRTLE	36" MIN.	18"-24"		
PEN ALH	190	PENNISETUM ALOPECUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	12"-18"	12"-18"		
PIT VAR	142	PITTOSPORUM TOBIRA 'TURNERS'S VARIEGATED DWARF'	DWARF PITTOSPORUM	12"-18"	12"-18"		
RHA P12	7	RHAPHIOLEPIS INDICA 'PINKIE'	PINKIE INDIAN HAWTHORNE	12"	12"		
RAP ELE	242	RHAPHIOLEPIS UMBELLATA 'ELEANOR TABOR'	ELEANOR TABOR INDIAN HAWTHORN	18-24"	18-24"		
RAP SNO	51	RHAPHIOLEPIS UMBELLATA 'SNOW WHITE'	SNOW WHITE INDIAN HAWTHORN	18" MIN.	18"		
RHO ATW	98	RHODODENDRON X 'AUTUMN TWIST' PP12133	AUTUMN TWIST ENCORE AZALEA	12-18"	12-18"		
ROS RAI	49	ROSA X 'RADCOR' PP#17346 CPBR#3444	RAINBOW KNOCK OUT ROSE	18-24"	12-15"		
TER BR2	14	TERNSTROEMIA GYMANTHERA 'BRONZE BEAUTY'	BRONZE BEAUTY CLEYERA	36-48"			
TER JUL	40	TERNSTROEMIA GYMANTHERA 'JULIET'	JULIET CLEYERA	24"-30"	18"-24"		
VIB CHI	2	VIBURNUM AWABUKI 'CHINDO'	CHINDO VIBURNUM	24-36"	18-24"		
SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	CONT	HT.	SPR.	SPACING
JUN BAR	134	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	1 GAL	6-8"	10-15"	54" o.c.
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	HT.	SPR.	SPACING
LIR GIA	20	LIRIOPE MUSCARI 'EVERGREEN GIANT'	EVERGREEN GIANT BORDER GRASS	1 GAL	6-8"	4-6"	12" o.c.

STORMWATER MANAGEMENT PLAN  
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ENGINEERING DEPARTMENT  
DATE: \_\_\_\_\_ PERMIT # \_\_\_\_\_  
SIGNED: \_\_\_\_\_

**Approved Construction Plan**

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

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

Planning: \_\_\_\_\_  
Public Utilities: \_\_\_\_\_  
Traffic: \_\_\_\_\_  
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**City of Wilmington Approvals 03**

CLINE  
DESIGN

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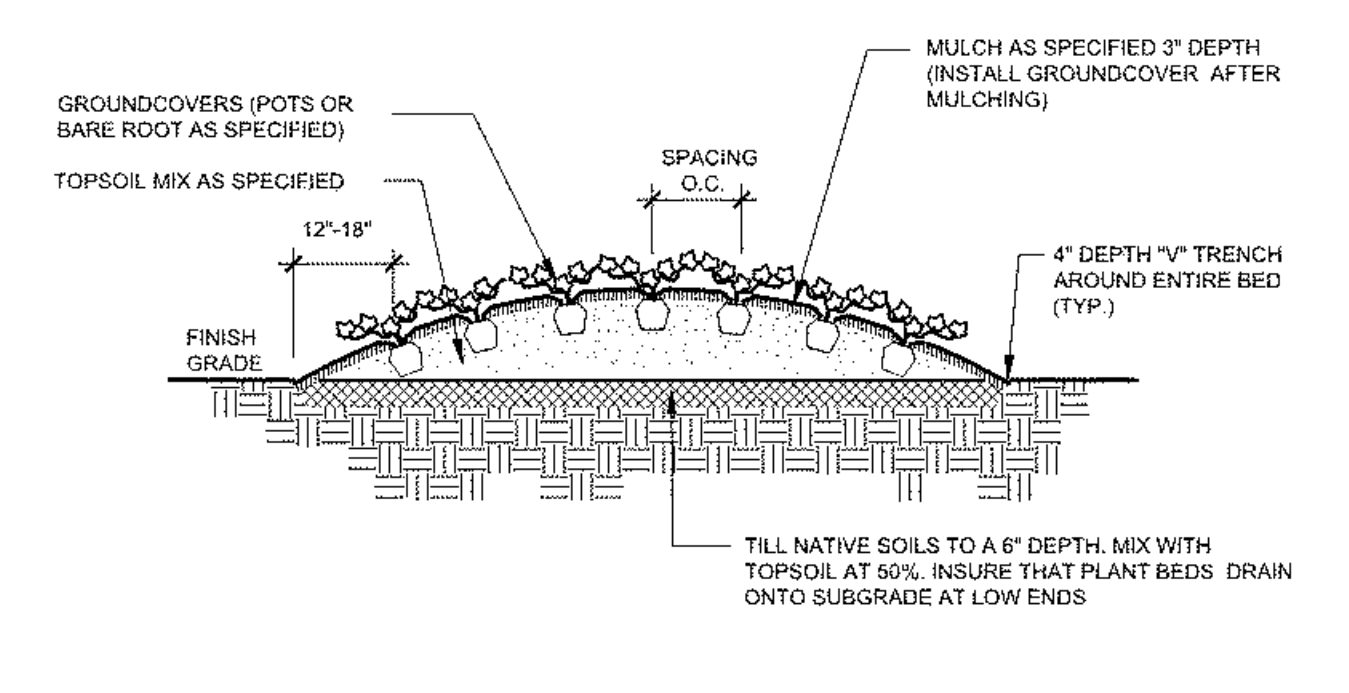
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Landscape Plant Schedules

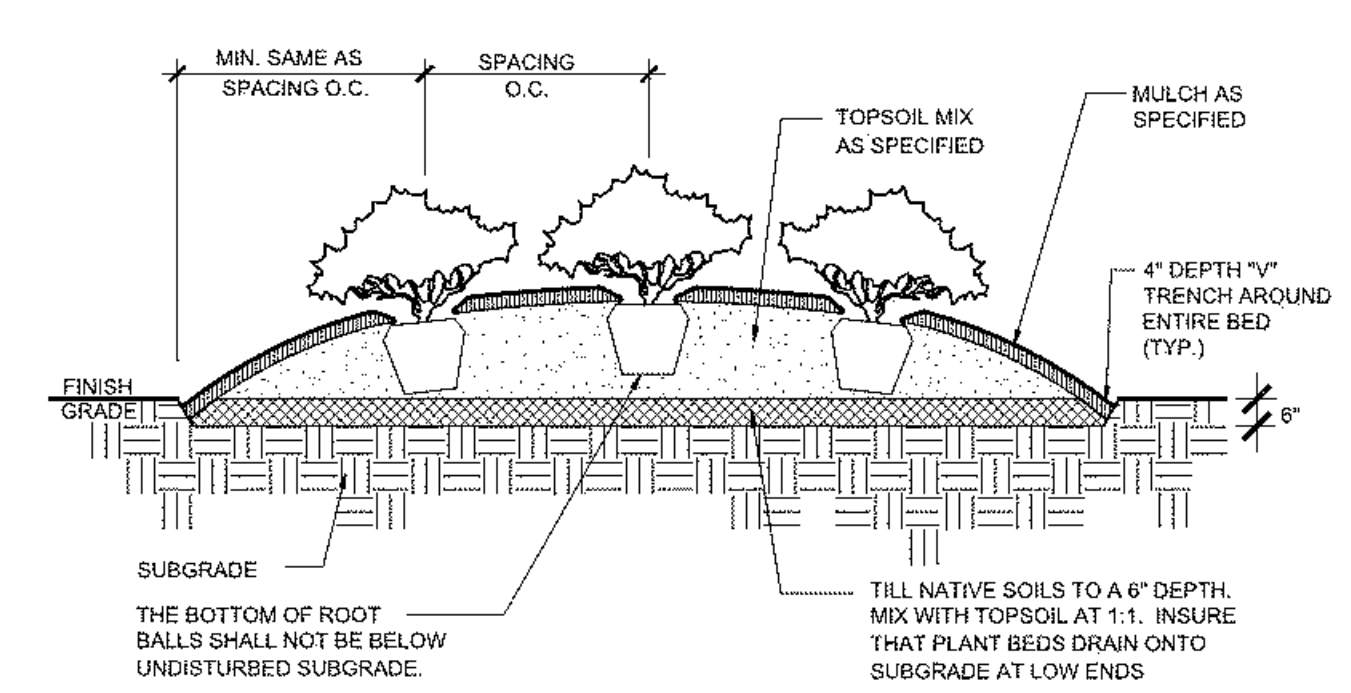
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GENERAL NOTES:  
1. THOROUGHLY TILL IN PLANTING MIXTURE AMENDMENTS TO A DEPTH OF 6" IN ENTIRE BED AREA.  
2. WORK SOIL TO A LOOSE, UNIFORM TEXTURE.  
3. HAND-TAMP BACKFILL TO REMOVE VOIDSAIR POCKETS.  
4. WATER IMMEDIATELY AFTER INSTALLATION UNTIL NO MORE WATER IS ABSORBED.



**Typical Groundcover Planting 02**  
NOT TO SCALE

GENERAL NOTES:  
1. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.  
2. BACKFILL PLANTING PIT WITH SPECIFIED PLANTING SOIL MIXTURE (OR AMENDED SOIL) IN 6" LAYERS, HAND-TAMPED, TO REMOVE VOIDS.  
3. WHEN PLANTING PIT IS 2/3 BACKFILLED, WATER MATERIAL.  
4. AFTER PLACING AND HAND-TAMPING FINAL LAYERS, WATER AGAIN UNTIL NO MORE IS ABSORBED.

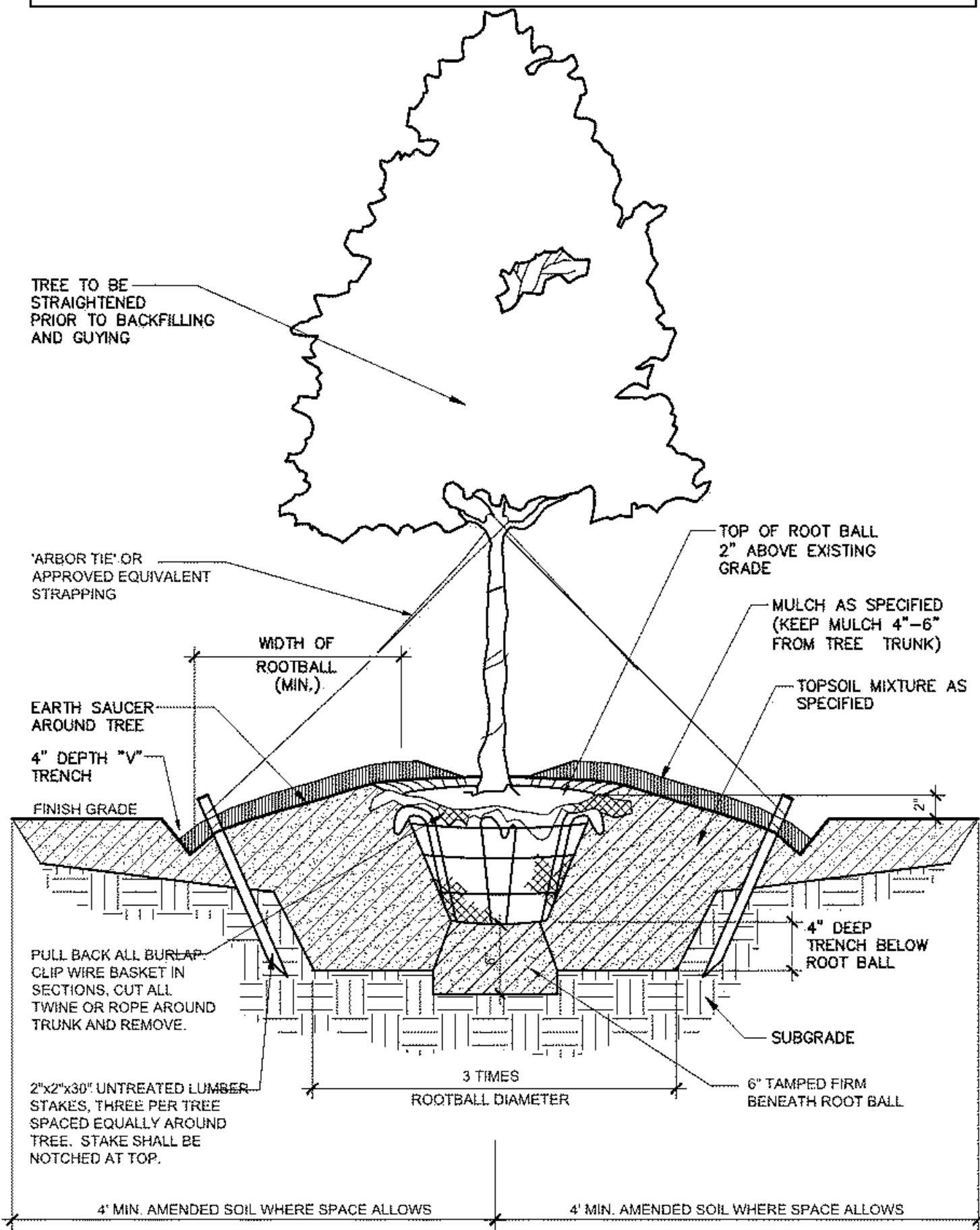


**Typical Shrub Planting 05**  
NOT TO SCALE

1. VERIFICATION OF TOTAL LANDSCAPE MATERIAL QUANTITIES AS SHOWN ON THE LANDSCAPE PLANS AND IN THE PLANT LIST SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR. THE LANDSCAPE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES PRIOR TO FINAL BIDDING OR INSTALLATION.
2. ALL LANDSCAPE MATERIALS SHALL CONFORM TO THE ACCEPTED STANDARDS ESTABLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
3. LANDSCAPE MATERIAL PLACED IN PREPARED HOLES SHALL BE PROPERLY BACKFILLED PRIOR TO THE END OF THE WORKING DAY.
4. ALL SAUCERS SHALL BE SOAKED WITH WATER AND MULCHED IMMEDIATELY FOLLOWING INSTALLATION.
5. ALL PREPARED GROUND COVER AND ANNUAL BED INSTALLATIONS SHALL BE PROPERLY SOAKED AND MULCHED PRIOR TO THE END OF THE DAY.
6. LANDSCAPE ARCHITECT SHALL APPROVE ANY ON-SITE PLANT STORAGE AREA FOR ACCESSIBILITY, SHADE CONDITIONS, HEALING-IN MULCH MATERIAL AND TEMPORARY WATERING METHODS.
7. ALL ROOT BALLS REMOVED FROM CONTAINERS SHALL BE SCARIFIED BY HAND PRIOR TO PLACEMENT AND BACK FILLING WITH PREPARED SOILS. HAND TOOLS ARE NOT TO BE USED TO SCARIFY ROOT BALLS.
8. ALL ROPE AND WRAPPING TWINE SHALL BE CUT AND REMOVED FROM AROUND THE UPPER PARTS OF THE ROOT BALL. METAL BASKET WIRES AND BURLAP SHALL BE PULLED BACK AND TUCKED UNDER THE EDGES OF THE SAUCER RINGS ON ALL TREES AND LARGE SHRUBS. ALL SYNTHETIC BURLAP SHALL BE REMOVED FROM PLANT BALLS PRIOR TO BACK FILLING.
9. ALL PLANT BEDS OR RAISED SAUCER RINGS SHALL BE EDGED WITH SMOOTH, CONTINUOUS CURVES. PINE STRAW MULCH, IF SPECIFIED, SHALL BE ROLLED AND TUCKED ALONG PLANT BED EDGE.
10. ALL PLANT MATERIAL SHALL BE PLANTED AT HEIGHTS AS ILLUSTRATED IN PLANT DETAILS.
11. TREE GUYING SHALL BE PERFORMED WITHIN A WEEK OF PLANTING. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL TREE GUYING STRAPPING AND STAKES AFTER THE FIRST FULL GROWING SEASON OR ONE YEAR, WHICH EVER COMES FIRST.
12. CONTRACTOR SHALL VERIFY LOCATIONS OF UNDERGROUND UTILITIES PRIOR TO PLANTING. ANY EXPOSED OR UNCOVERED LINES SHALL BE SHOWN TO GENERAL CONTRACTOR PRIOR TO BACKFILLING.
13. ALL PLANT BEDS AND RAISED SAUCER RINGS SHALL BE GRADED TO PROVIDE ADEQUATE DRAINAGE AND SHALL BE MULCHED AS SPECIFIED.
14. ALL MATERIALS, PLANTING AND LANDSCAPE WORK SHALL CONFORM TO THE CURRENT MUNICIPAL AUTHORITY'S STANDARD SPECIFICATIONS AND DETAILS.
15. ALL LANDSCAPE AREAS THAT ARE NOT PLANTED AND MULCHED OR PAVED SHALL BE SEEDED OR SODDED.
16. TREE PROTECTION FENCE SHALL BE INSTALLED, INSPECTED AND APPROVED PRIOR TO THE ISSUANCE OF ANY GRADING OR OTHER PERMITS.
17. FIRST YEAR PRUNING OF TREE CROWN SHALL BE LIMITED TO REMOVAL OF DEAD & DAMAGED WOOD.
18. TREE PROTECTION FENCE SHALL BE INSTALLED, INSPECTED AND APPROVED PRIOR TO CLEARING, GRADING, AND CONSTRUCTION ACTIVITY OR THE ISSUANCE OF ANY RELATED PERMITS. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
19. MULCH LINE SMOOTH CONTINUOUS CURVES. CLEAR OUT FIRST 5' FROM DEBRIS AND UNDERBRUSH (TYP) AT AREAS OF EXISTING VEGETATION TO REMAIN.
20. ALL TREES NOT WITHIN A PLANT BED TO BE TREATED WITH A 6" DIAMETER MULCH RING (TYP).

**General Landscape Notes 01**  
NOT TO SCALE

GENERAL NOTES:  
1. PLANT SO THAT TOP OF ROOT BALL IS 2" ABOVE FINISH GRADE.  
2. SCARIFY SIDES AND BOTTOM OF PLANTING PIT.  
3. BACKFILL TREE PIT WITH SPECIFIED PLANTING SOIL MIXTURE (OR AMENDED SOIL) IN 6" LAYERS, HAND-TAMPED, TO REMOVE VOIDS.  
4. WHEN PLANTING PIT IS 2/3 BACKFILLED, WATER MATERIAL.  
5. AFTER PLACING AND HAND-TAMPING FINAL LAYERS, WATER AGAIN UNTIL NO MORE IS ABSORBED.  
6. STAKE AND GUY TREES IF APPLICABLE. (TREES 3" CALIBER AND LARGER OR IN WINDY CONDITIONS AS DIRECTED BY LANDSCAPE ARCHITECT.)  
7. DO NOT WRAP TREE TRUNKS.



**Typical Tree Planting 04**  
NOT TO SCALE

- THE OWNERS SHALL BE RESPONSIBLE FOR ANNUAL MAINTENANCE OF THE VEGETATION TO INCLUDE BUT NOT LIMITED TO:
- A. FERTILIZATION - ALL FESCUE TURFGRASS IS FERTILIZED AT THE TIME OF RENOVATION, TYPICALLY DURING THE LAST WEEK OF SEPTEMBER OR THE FIRST WEEK OF OCTOBER WITH 34 LB. NITROGEN, 1 LB PHOSPHOROUS, 1/2 LB POTASH PER 1000 SQ. FT. ONE MONTH LATER WE FERTILIZE AGAIN WITH 1 LB. NITROGEN, A TRACE OF PHOSPHOROUS AND 1 LB. POTASH PER 1000 SQ. FT. THE SAME FERTILIZER AND RATES ARE APPLIED AGAIN IN FEBRUARY. TREES AND SHRUBBERY ARE FERTILIZED WITH AN ORGANIC FERTILIZER AT THE TIME OF PLANTING. ALL SHRUBS AND RECENTLY PLANTED TREES ARE FERTILIZED IN JANUARY WITH A COATED SLOW RELEASE FERTILIZER (12-14-14) AT THE APPROXIMATE RATE OF 1 LB. OF ACTUAL NUTRIENT PER 1000 SQ. FT.
- B. PRUNING - TYPICALLY TREES ARE PRUNED ONLY TO REPAIR DAMAGE OR TO CORRECT FAULTS. HEDGIES AND SHAPED SHRUBS ARE TYPICALLY PRUNED TWICE DURING THE GROWING SEASON. OVERGROWN SHRUBS ARE PRUNED IN THE SPRING AND JUST PRIOR TO THE FIRST GROWTH FLUSH.
- C. PEST CONTROL - INSECTS ARE TREATED AS NECESSARY. LANDSCAPE CONTRACTOR FOR MAINTENANCE SHALL RECOMMEND PRODUCTS.
- D. MULCHING - THE IMMEDIATE ROOT ZONES OF ALL TREES AND SHRUBS ARE MULCHED WITH SHREDDED HARDWOOD MULCH 3" THICK. SEASONAL COLOR BEDS ARE MULCHED WITH PINE BARK MULCH TO A DEPTH OF 1 1/4" TO 1 1/2".
- E. MOWING - FESCUE LAWNS ARE MOWED ONCE WEEKLY, OCTOBER THRU FEBRUARY. MARCH THRU JUNE THEY ARE MOWED TWICE WEEKLY. JULY THRU SEPTEMBER MOWING IS DONE ONE EVERY FIVE TO SEVEN DAYS.
- F. OTHER CONTINUING MAINTENANCE OPERATIONS WOULD INCLUDE SEASONAL COLOR PLANTINGS (FLOWERS). THESE PLANTINGS ARE DONE TWICE ANNUALLY, IN MAY AND AGAIN IN OCTOBER. THE PREVIOUS SEASONS FLOWERS ARE PULLED, THE BEDS ARE LIMED ACCORDING TO SOIL TEST RECOMMENDATIONS, FERTILIZED WITH ORGANIC FERTILIZER, PLANTED, MULCHED, WATERED, AND TREATED WITH A PRE-EMERGENT HERBICIDE.

**Landscape Maintenance Notes 03**  
NOT TO SCALE

- No plantings over thirty (30) inches in height allowed in vision clearance.
- Protection from vehicular traffic provided around all landscaping with a minimum height of six (6) inches.
- Owner is responsible for maintenance to ensure plant material lives and prospers.
- Planting plans shall be approved by Landscape Designer prior to installation.
- Landscaping shall be required at the ends of all parking rows.
- A low buffer shall be required where parking is within fifty (50) feet of the Right-of-Way.
- Landscaped islands shall be a minimum width of twelve (12) feet (back of curb to back of curb) and a minimum of two hundred and sixteen (216) square feet.
- A minimum of fifteen (15) trees 2 inches or greater in diameter as measured 6 inches above ground per disturbed acre.
- For recommended Plant List see "Landscape" T-10.4.

LANDSCAPE NOTES  
SD 15-14

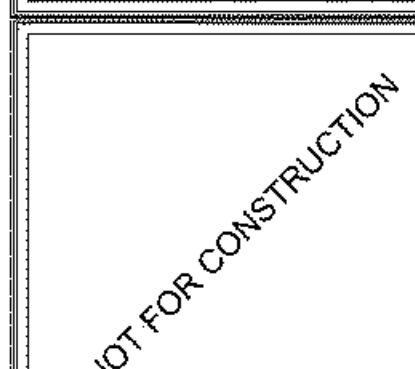
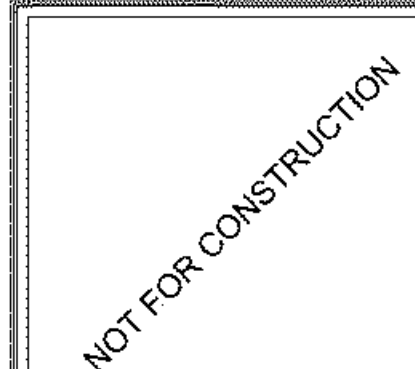
**City of Wilmington Landscape Notes 06**

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

STORMWATER MANAGEMENT PLAN  
**APPROVED**  
CITY OF WILMINGTON  
ENGINEERING DEPARTMENT  
DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_  
SIGNED \_\_\_\_\_

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

**City of Wilmington Approvals 00**



NOTE:  
PLANT SCHEDULE ADDITIONAL ARE PLANTS IN ADDITION TO CODE COMPLIANT PLANTS

PLANT SCHEDULE ADDITIONAL

TREES	QTY	BOTANICAL NAME	COMMON NAME	CAL.	HT.	SPR.	REMARKS	
CER RIS	8	CERCIS CANADENSIS 'THE RISING SUN'	THE RISING SUN REDBUD	1.5"-2"	10'-12'	4'-6"	FULL	
CHI RET	4	CHIONANTHUS RETUSUS	CHINESE FRINGE TREE	1.5"-2"	10'-12'	4'-6"	FULL HEAD,	
LAG NAT	14	LAGERSTROEMIA FAURIEI 'NATCHEZ'	NATCHEZ CRAPE MYRTLE	2"	8'-10'	6'-7"	FULL, SINGLE TRUNK	
LAG DY2	24	LAGERSTROEMIA INDICA 'DYNAMITE' (R) PP#10296	DYNAMITE CRAPE MYRTLE	-	8'-10'	4'-5"	FULL HEAD, MATCHED, SINGLE STEM, LIMBED UP	
MAG BBB	3	MAGNOLIA GRANDIFLORA 'BRACKEN'S BROWN BEAUTY'	BRACKEN'S BROWN BEAUTY MAGNOLIA	2-2.5"	10'-12'	4'-6"	FULL, MATCHED	
MAG LIT	2	MAGNOLIA GRANDIFLORA 'LITTLE GEM'	LITTLE GEM MAGNOLIA	2"	8'-10'	6'-8"	FULL	
QUE GRE	14	QUERCUS PALUSTRIS 'GREEN PILLAR'	GREEN PILLAR OAK	2"	12'-14'	6'-8"	FULL TO GROUND	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	HT.	SPR.	REMARKS		
ABE EDW	142	ABELIA GRANDIFLORA 'EDWARD GOUCHER'	GLOSSY ABELIA	18"-24"	18"-24"	FULL, 5' O.C., CONT., FOUNDATION		
AUC NAN	13	AUCUBA JAPONICA 'NANA'	JAPANESE LAUREL	18"-24"	18"-24"	FULL		
CEP FAS	4	CEPHALOTAXUS HARRINGTONIA 'FASTIGIATA'	PLUM YEW	30"-36"				
CEP YEW	45	CEPHALOTAXUS HARRINGTONIA 'YEWTOPIA' TM	YEWTOPIA PLUM YEW	18"	18"	FULL		
DIS MYR	17	DISTYLIIUM MYRICOIDES 'ATHEN'S TOWER'	ATHEN'S TOWER DISTYLIIUM	30"-36"	18"-24"	FULL		
EUO UPR	98	EUONYMUS JAPONICUS 'GREENSPIRE'	GREENSPIRE UPRIGHT EUONYMUS	18"-24"	18"-24"	FULL, MATCHED, 2' OC.		
GAR FPO	48	GARDENIA JASMINOIDES 'FROSTPROOF'	FROSTPROOF GARDENIA	12'-18"	12'-18"	FULL, MATCHED		
GEL MAR	10	GELSEMIUM SEMPERVIRENS 'MARGARITA'	CAROLINA JESSAMINE	15"-18"				
HOS BMO	61	HOSTA X 'SUMMER BREEZE'	SUMMER BREEZE HOSTA	12'-15"	12"-18"	FULL		
HYD LAD	46	HYDRANGEA MACROPHYLLA 'L.A. DREAMIN'	L.A. DREAMIN HYDRANGEA	18"-24"	18"-24"	FULL		
ILE DWF	84	ILEX CORNUTA 'BURFORDII NANA'	DWARF BURFORD HOLLY	24" MIN.	18"-24"	EVERGREEN, FULL TO GROUND, 5' O.C.,		
ILE COM	40	ILEX CRENATA 'COMPACTA'	DWARF JAPANESE HOLLY	24" MIN.	18"-24"	4' SPACING O.C.		
ILE NAN	147	ILEX VOMITORIA 'NANA'	DWARF YAUPON	12'-18"	12"-18"	FULL, 3.5' O.C.,		
ILE SEN	36	ILEX X 'CAROLINA SENTINEL'	CAROLINA SENTINEL HOLLY	24"-36"	12'-18"	FULL		
JUN ROB	7	JUNIPERUS CHINENSIS 'ROBUSTA GREEN'	ROBUST GREEN JUNIPER	4'-6"	18"-24"			
LOR EVE	58	LOROPETALUM CHINENSE 'EVER RED'	EVER RED LOROPETALUM	24" MIN.	18"-24"	FULL		
MIS MOR	89	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT MAIDEN GRASS	18"	18"	FULL		
NER PIN	8	NERIUM OLEANDER 'LITTLE RED' PP#4836	RED OLEANDER	18"-24"	18"-24"	FULL, 4' O.C.		
PEN ALH	318	PENNISSETUM ALOPECUROIDES 'HAMELN'	HAMELN DWARF FOUNTAIN GRASS	12"-18"	12"-18"	FULL, 1.5' O.C., CONT., FOUNDATION		
PIT VAR	262	PITTOSPORUM TOBIRA 'TURNERS'S VARIEGATED DWARF'	DWARF PITTOSPORUM	12"-18"	12"-18"			
RHA PI2	42	RHAPHIOLEPIS INDICA 'PINKIE'	PINKIE INDIAN HAWTHORNE	12"	12"	FULL		
RAP ELE	50	RHAPHIOLEPIS UMBELLATA 'ELEANOR TABOR'	ELEANOR TABOR INDIAN HAWTHORN	18"-24"	18"-24"	FULL		
RAP SNO	14	RHAPHIOLEPIS UMBELLATA 'SNOW WHITE'	SNOW WHITE INDIAN HAWTHORN	18" MIN.	18"	FULL		
RHO ATW	131	RHODODENDRON X 'AUTUMN TWIST' PP12133	AUTUMN TWIST ENCORE AZALEA	12'-18"	12'-18"	FULL		
ROS RAI	53	ROSA X 'RADCOR' PP#17346 CPBR#3444	RAINBOW KNOCK OUT ROSE	18"-24"	12'-15"	FULL		
TER JUL	28	TERNSTROEMIA GYMNANTHERA 'JULIET'	JULIET CLEYERA	24"-30"	18"-24"	FULL		
VIB CHI	7	VIBURNUM AWABUKI 'CHINDO'	CHINDO VIBURNUM	24"-36"	18"-24"	FULL		
SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	CONT	HT.	SPR.	SPACING	REMARKS
JUN BAR	14	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR CREEPING JUNIPER	1 GAL	6-8"	10-15"	54" o.c.	FULL
SHRBMIX	141 SF	TYPICAL PLANT BEDS	MIXED SHRUBS/GROUNDCOVERS	CONT	8-36"	6-24"		
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	CONT	HT.	SPR.	SPACING	REMARKS
ANN	218	ANNUALS	ANNUALS	ANN			12" o.c.	SEASONAL COLOR
LIR GIA	75	LIRIOPE MUSCARI 'EVERGREEN GIANT'	EVERGREEN GIANT BORDER GRASS	1 GAL	6-8"	4-6"	12" o.c.	FULL

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