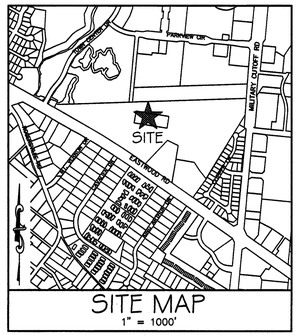
HARNETT TOWNSHIP - CITY OF WILMINGTON
NEW HANOVER COUNTY, NORTH CAROLINA

CAMBRIDGE VILLAGE OF WILMINGTON
A SENIOR LIVING DEVELOPMENT

CITY CONSTRUCTION RELEASE - JULY 1, 2013



SITE MAP
1" = 1000'

VICINITY MAP
SCALE: 1" = 2000'

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OWNER / DEVELOPER:

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD, SUITE 220
RALEIGH, NORTH CAROLINA 27615

OWNER'S DESIGNATED REPRESENTATIVE:

KENDALL OLIVER, PRESIDENT
OLIVER DEVELOPMENT COMPANY, LLC
ksoliver@oliverdevelopmentllc.com
(919) 792-3750

PROJECT ENGINEER / REPRESENTATIVE:

RICHARD COLLIER, PE
McKIM & CREED, INC.
243 NORTH FRONT STREET
WILMINGTON, NORTH CAOLINA 28401
rcollier@mckimcreed.com
(910) 343-1048

PROJECT ADDRESS:

75 CAVALIER DRIVE

TAX PARCEL IDENTIFICATION NUMBERS:

R05600-001-001-000
R05600-001-003-000

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER R. CHARLES COLLIER, III
04/01/2013

ISSUED FOR CONSTRUCTION

CALL NC ONE CALL BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

PHONE# 1-800-632-4949

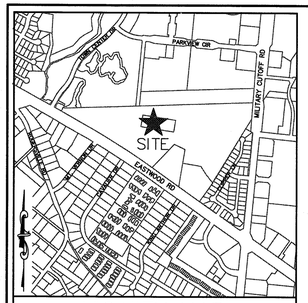
McKIM & CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC LICENSE NO. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE
SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON

ISSUED FOR CONSTRUCTION - CITY CONSTRUCTION RELEASE

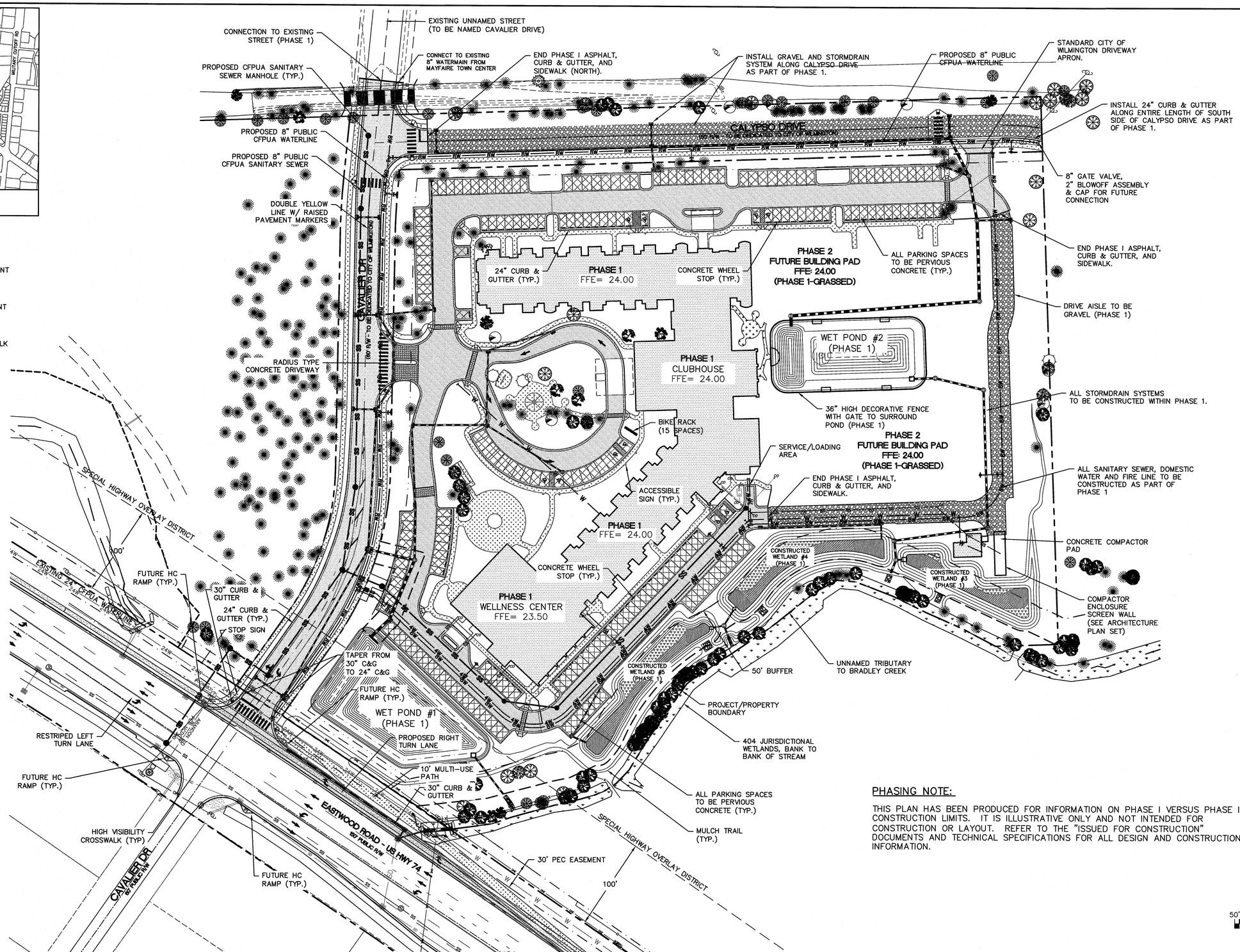
05584-0006



VICINITY MAP
1" = 1000'

HATCHING LEGEND

- PERVIOUS PAVEMENT
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- GRAVEL ROAD



PHASING NOTE:

THIS PLAN HAS BEEN PRODUCED FOR INFORMATION ON PHASE I VERSUS PHASE II CONSTRUCTION LIMITS. IT IS ILLUSTRATIVE ONLY AND NOT INTENDED FOR CONSTRUCTION OR LAYOUT. REFER TO THE "ISSUED FOR CONSTRUCTION" DOCUMENTS AND TECHNICAL SPECIFICATIONS FOR ALL DESIGN AND CONSTRUCTION INFORMATION.

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL SEAL 22574 NORTH CAROLINA ENGINEER
07/01/2013

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243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

PHASE 1 CONSTRUCTION ILLUSTRATIVE PHASING PLAN

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER: CS101d
DRAWING NUMBER: 1

STATUS: NOT FOR CONSTRUCTION
REVISION 2

S:\5584\0006\90-Drawings\CS-101a-Phase 1_5584\0006.dwg, 8/8/2013 1:10:58 PM, rcoller

STANDARD NOTE

NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS.

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 SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RE–SEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, RE–ESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
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

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

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

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 HQW ZONES)

TREE LEGEND

- = CEDAR
- = CHERRY
- = CRAPE
- = DOGWOOD
- = GUM
- = HICKORY
- = HOLLY
- = OAK
- = MAGNOLIA
- = MAPLE
- = MIMOSA
- = PECAN
- = PINE
- = POPLAR
- = SYCAMORE
- = MISC HARDWOOD
- = TREE TO BE REMOVED

△ RBC	=	REBAR & CAP
● IPF	=	IRON PIPE FOUND
INV.	=	INVERT
EL.	=	ELEVATION
Ⓦ	=	WELL
	=	FIRE HYDRANT
	=	WATER VALVE
	=	GRATED INLET
	=	YARD INLET
Ⓓ	=	STORM DRAIN MANHOLE
Ⓢ	=	SANITARY SEWER MANHOLE
	=	POWER POLE
GW	=	GUY WIRE
C	=	CABLE PEDESTAL
T	=	TELEPHONE PEDESTAL
Ⓣ	=	TELEPHONE MANHOLE
	=	GAS VALVE
	=	CONCRETE
	=	ASPHALT PAVEMENT
	=	WOOD LINE
—— OHE —— OHE ——	=	OHVERHEAD ELECTRIC LINE
—— SD —— SD ——	=	UNDERGROUND STORM LINE
—— SS —— SS ——	=	UNDERGROUND SANITARY LINE

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

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _______ PERMIT #______
SIGNED ________________

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

DEMOLITION NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIARIZED WITH FIELD DEMOLITION CONDITIONS.
2. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL DEMOLISHED DEBRIS ASSOCIATED WITH THE PROJECT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
3. 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.
4. 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.
5. 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.
6. 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.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES THAT REMAIN IN SERVICE DURING DEMOLITION.
8. 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.
9. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND CONTACTING THE ENGINEER FOR THE REQUIRED INSPECTIONS ON THE PROJECT.
10. WETLANDS DO EXIST ON SITE AND ARE NOTED ON THE PLANS. UNLESS OTHERWISE INDICATED, THE WETLANDS SHALL NOT BE DISTURBED DURING CONSTRUCTION OF THIS PROJECT.

EXCAVATION, GRADING, AND BACKFILLING NOTES

1. 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.
2. 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.
3. 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.

UTILITY NOTES

1. SCHEDULE A PRECONSTRUCTION MEETING WITH CAPE FEAR PUBLIC UTILITY AUTHORITY 48 HOURS PRIOR TO CONSTRUCTION OF WATER AND SEWER LINES.
2. WATER AND SANITARY SEWER UTILITY MAINS ARE PRIVATE BEYOND THE PUBLIC STREET RIGHT–OF–WAY.
3. THIS PROJECT SHALL COMPLY WITH THE CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND NCDENR HAS ISSUED THE "FINAL APPROVAL".
4. ALL COMMERCIAL WATER SERVICES AND ANY IRRIGATION SYSTEMS SUPPLIED BY CFPUA WATER SHALL HAVE A BACKFLOW PREVENTION DEVICE ACCEPTABLE TO CFPUA AND APPROVED BY USCFCCCHR OR ASSE.
5. 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 CFPUA PRIOR TO INSTALLING UNITS TO GIVE CFPUA THE OPTION TO VERIFY INSTALLATION PROCEDURES.
   - 5.1. REDUCED PRESSURE PRINCIPLE ASSEMBLY FOR DOMESTIC WATER SERVICE
   - 5.2. REDUCE PRESSURE DETECTOR ASSEMBLY WILL BE UTILIZED FOR THE BACKFLOW PREVENTER ON THE FIRE SERVICE.
6. IF THE CONTRACTOR DESIRES CFPUA 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.
7. WATER: 1.5" & 2" PVC MAINS 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).
8. 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.
9. 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.
10. PVC WATER MAINS AND POLYETHYLENE SERVICES ARE TO BE MARKED WITH NO. 10 SINGLE STRAND INSULATED COPPER WIRE INSTALLED THE ENTIRE LENGTH AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES. THIS WIRE IS TO BE ACCESSIBLE AT ALL FIRE HYDRANTS AND WATER METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.
11. 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.
12. MAXIMUM BENDING RADIUS FOR 8" C–900 PVC WATER MAIN BENDS IS 380' (ONE–HALF MANUFACTURER'S RECOMMENDED ALLOWABLE LONGITUDINAL BENDING).
13. FIRE SPRINKLERS WILL BE PROVIDED FOR BUILDING.
14. 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 ABUTTING THE SUBJECT SITE SHALL BE INSTALLED BY THE DEVELOPER.
15. MINIMUM OF 36" COVERAGE ABOVE ALL WATERMAINS.
16. MINIMUM OF 36" VERTICAL SEPARATION BETWEEN WATERLINES AND STORMDRAIN CURB INLETS.

RELATION OF WATER MAINS TO SEWERS:

1. LATERAL SEPARATION OF 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:
   - 1.1. 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
   - 1.2. 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.
2. CROSSING A WATER MAIN OVER A SEWER MAIN: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER 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.
3. 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.
4. 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.

STORM DRAINAGE AND GRADING NOTES

1. 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.
2. 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.
3. SEDIMENT / EROSION DEVICES SHALL BE CHECKED BY THE CONTRACTOR DAILY. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE.
4. 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.
5. 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.

EROSION CONTROL NOTES

1. 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.
2. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF STATE LAW AND IS SUBJECT TO A FINE.
3. A GROUND COVER MUST BE PROVIDED ON EXPOSED SLOPES WITHIN 15 WORKING DAYS OR 21 CALENDAR DAYS (WHICHEVER IS SHORTER), FOLLOWING COMPLETION OF ANY PHASE OF GRADING; AND, A PERMANENT GROUND COVER FOR ALL DISTURBED AREAS WITHIN 10 WORKING DAYS OR 90 CALENDAR DAYS (WHICHEVER IS SHORTER) FOLLOWING COMPLETION OF CONSTRUCTION OR DEVELOPMENT.
4. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF NEW HANOVER COUNTY.
5. SLOPES SHALL BE GRADED NO STEEPER THAN 3:1.
6. ADDITIONAL DEVICES MAY BE REQUIRED AS AGREED UPON BY THE FIELD INSPECTOR, ENGINEER, AND OWNER.
7. 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 UNLESS WRITTEN APPROVAL IS GRANTED BY THE EROSION CONTROL OFFICER.

EROSION CONTROL MAINTENANCE PLAN:

1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AND REPAIRED, AS NECESSARY, EVERY SEVEN (7) DAYS OR AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE–HALF (0.5) INCH.
2. 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.
3. 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.
4. ALL AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. INSPECT TEMPORARY SEDIMENT TRAPS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE–HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS.
11. REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE–ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
12. 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

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1–800–632–4949.
2. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
3. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS–OF–WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
4. ONCE STREETS ARE OPEN TO TRAFFIC, THE DEVELOPER SHALL CONTACT TRAFFIC ENGINEERING TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
5. 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.
6. ANY BROKEN OR MISSING SIDEWALK PANELS AND CURBING SHALL BE REPLACED BY THE CONTRACTOR.
7. CONTACT KAREN DIXON AT 341–7888 TO DISCUSS STREET LIGHTING OPTIONS.
8. IF THE CONTRACTOR DESIRES WATER FOR CONSTRUCTION HE SHALL APPLY WITH THE CFPUA 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.
9. THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.
10. CONTACT TRAFFIC ENGINEERING TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN. CALL TRAFFIC ENGINEERING FORTY–EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT–OF–WAY.
11. TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.

TREE PROTECTION NOTES

1. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
2. NO LAND DISTURBANCE, INCLUDING TREE REMOVAL, IS TO OCCUR OUTSIDE THE PROJECT BOUNDARY SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. TREE PROTECTION FENCING IS SHOWN OUTSIDE OF PROJECT BOUNDARY FOR PROTECTION OF EXISTING TREES IN CLOSE PROXIMITY TO PROPOSED CONSTRUCTION. [18–457(B)]
3. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [18–458]
4. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS. [18–457(D)]
5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED BY THE LANDSCAPE ARCHITECT. [18–458]
6. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE 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]
7. 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. TREE PROTECTION FENCING SHOWN ON PLANS DELINEATES TREES TO BE RETAINED.

NOTE COW(18–458)

NO EQUIPMENT IS ALLOWED ONSITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED BY LANDSCAPE ARCHITECT.

FIRE PROTECTION NOTES

1. HYDRANT MUST BE WITHIN 150' OF THE FDC.
2. THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
3. 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.
4. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
5. COMBUSTIBLE MATERIALS MAY NOT BE STORED OR ERECTED ONSITE WITHOUT CITY FIRE INSPECTOR APPROVAL.
6. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
7. 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.
8. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM UNDERGROUND UTILITIES
9. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
10. TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.

REV.NO.	DESCRIPTIONS	DATE
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

PROFESSIONAL SEAL 22574 ENGINEER RICHARD M. COLLIER
07/01/2013

MCKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343–1048 , Fax: (910)251–8282
NC ENGINEERING LIC. No. F–1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

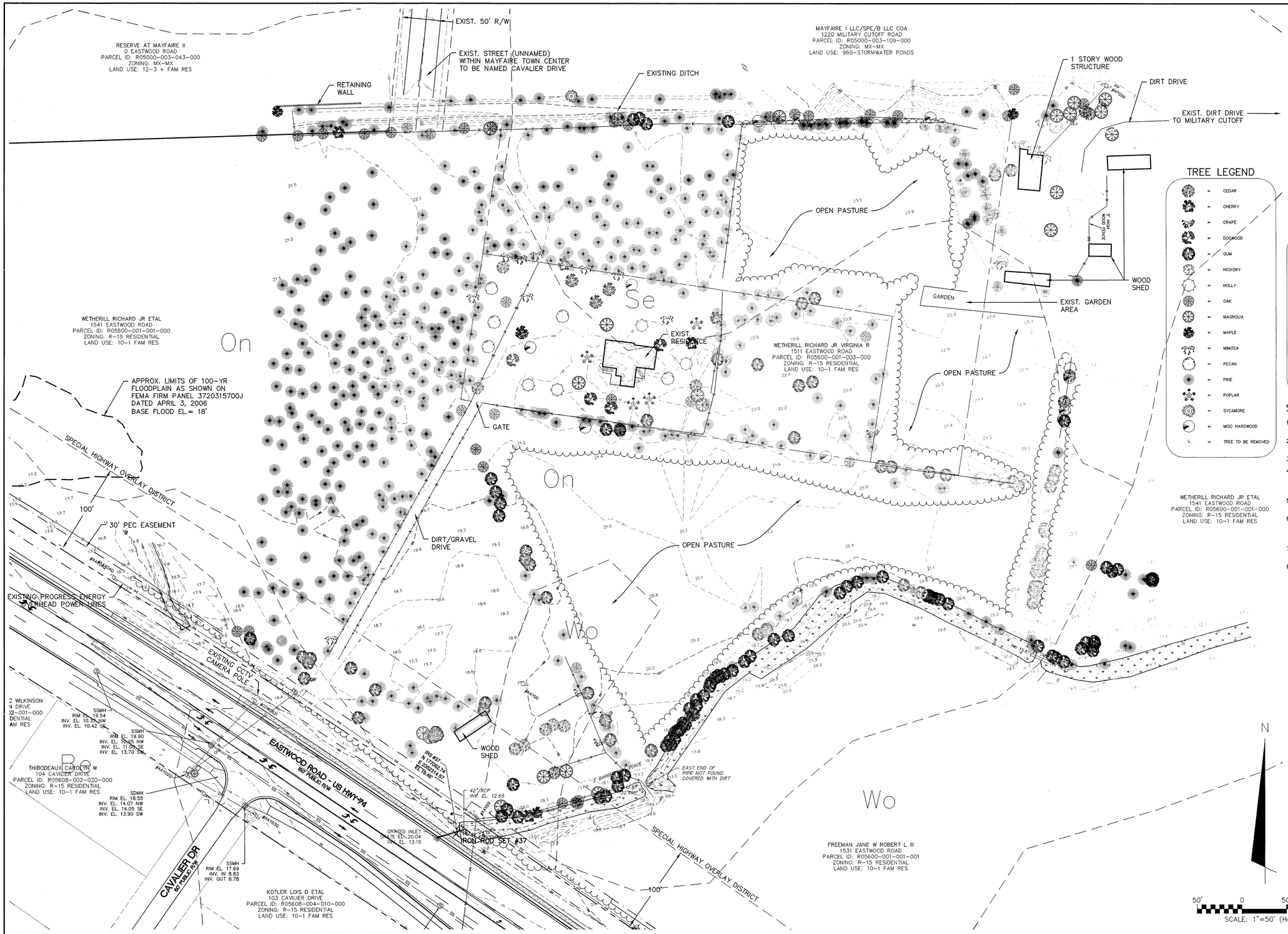
GENERAL NOTES AND LEGEND

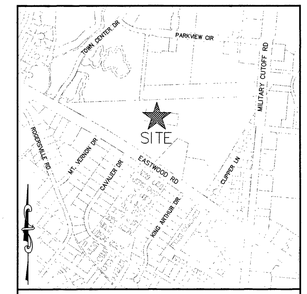
DATE:	02 JUN 11
MCE PROJ. #	5584–0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NA
VERTICAL:

M&C FILE NUMBER G–002
DRAWING NUMBER 2

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





VICINITY MAP
1" = 1000'

TREE LEGEND

- CEDAR
- CHERRY
- CRAPE
- DOGWOOD
- GUM
- HICKORY
- HOLLY
- OAK
- MAGNOLIA
- MAPLE
- MIMOSA
- PECAN
- PINE
- POPLAR
- SYCAMORE
- MISC HARDWOOD
- TREE TO BE REMOVED

LEGEND

RBC	= REBAR & CAP		= SANITARY SEWER MANHOLE
IPF	= IRON PIPE FOUND		= POWER POLE
INV.	= INVERT	GW	= GUY WIRE
EL.	= ELEVATION		= CABLE PEDESTAL
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			= WOOD LINE
OHE		OHE	= OHVERHEAD ELECTRIC LINE
SD		SD	= UNDERGROUND STORM LINE
SS		SS	= UNDERGROUND SANITARY LINE

SURVEYOR'S NOTES:

1. ALL DISTANCES ARE HORIZONTAL GROUND IN U.S. SURVEY FEET UNLESS OTHERWISE SHOWN.
2. BEARINGS BASED ON NC GRID NAD 83/2007. ELEVATIONS BASED ON NAVD 88.
3. REFERENCES: MB 29 PG 104, MB 32 PG 295, MB 44, PG 59
4. SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
5. UNDERGROUND UTILITIES ARE SHOWN ONLY WHERE ABOVEGROUND SERVICES WERE VISIBLE.
6. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
7. THE EXISTENCE OR NONEXISTENCE OF WETLANDS ON SUBJECT PROPERTY HAS NOT BEEN DETERMINED BY THIS SURVEY.
8. SUBJECT TO ALL EASEMENTS, RIGHT OF WAYS, AND OR ENCUMBRANCES THAT MAY EFFECT THIS PROPERTY.

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

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REVISIONS

SEAL

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PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

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CAMBRIDGE VILLAGE SENIOR LIVING

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CAMBRIDGE VILLAGE OF WILMINGTON

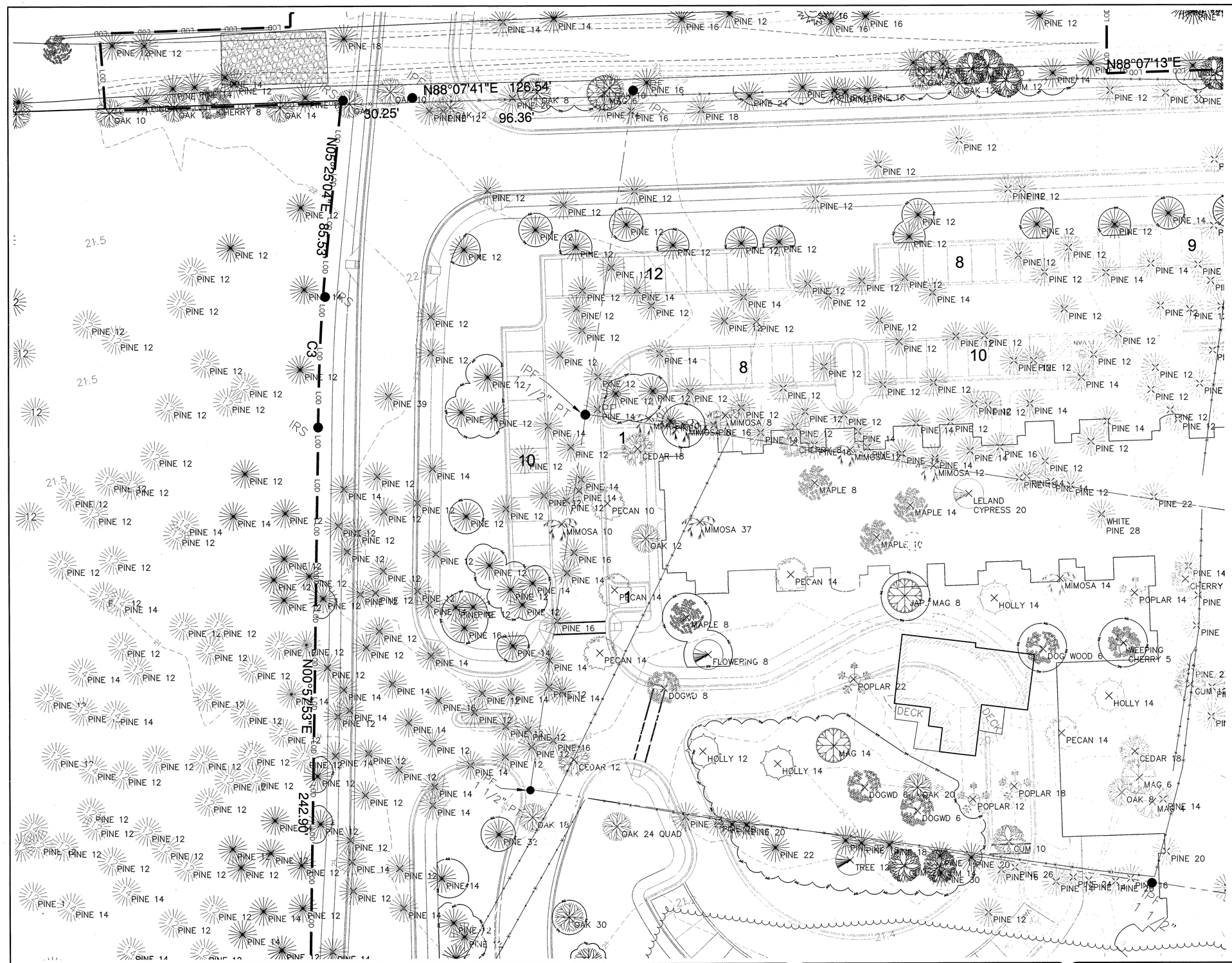
EXISTING CONDITIONS SITE INVENTORY MAP

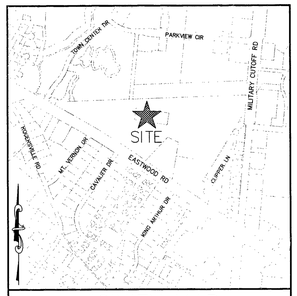
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER: CX101
DRAWING NUMBER: 3

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





VICINITY MAP
1" = 1000'

LEGEND

RBC	= REBAR & CAP		= SANITARY SEWER MANHOLE
IPF	= IRON PIPE FOUND		= POWER POLE
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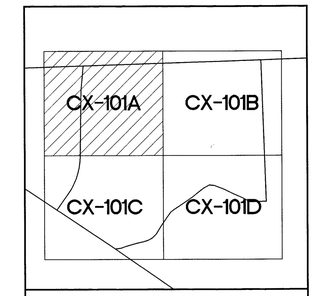

SITE INDEX

TREE LEGEND

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1 inch

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
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REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER RICHARD M. COLLIER
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CHECKED	RMC
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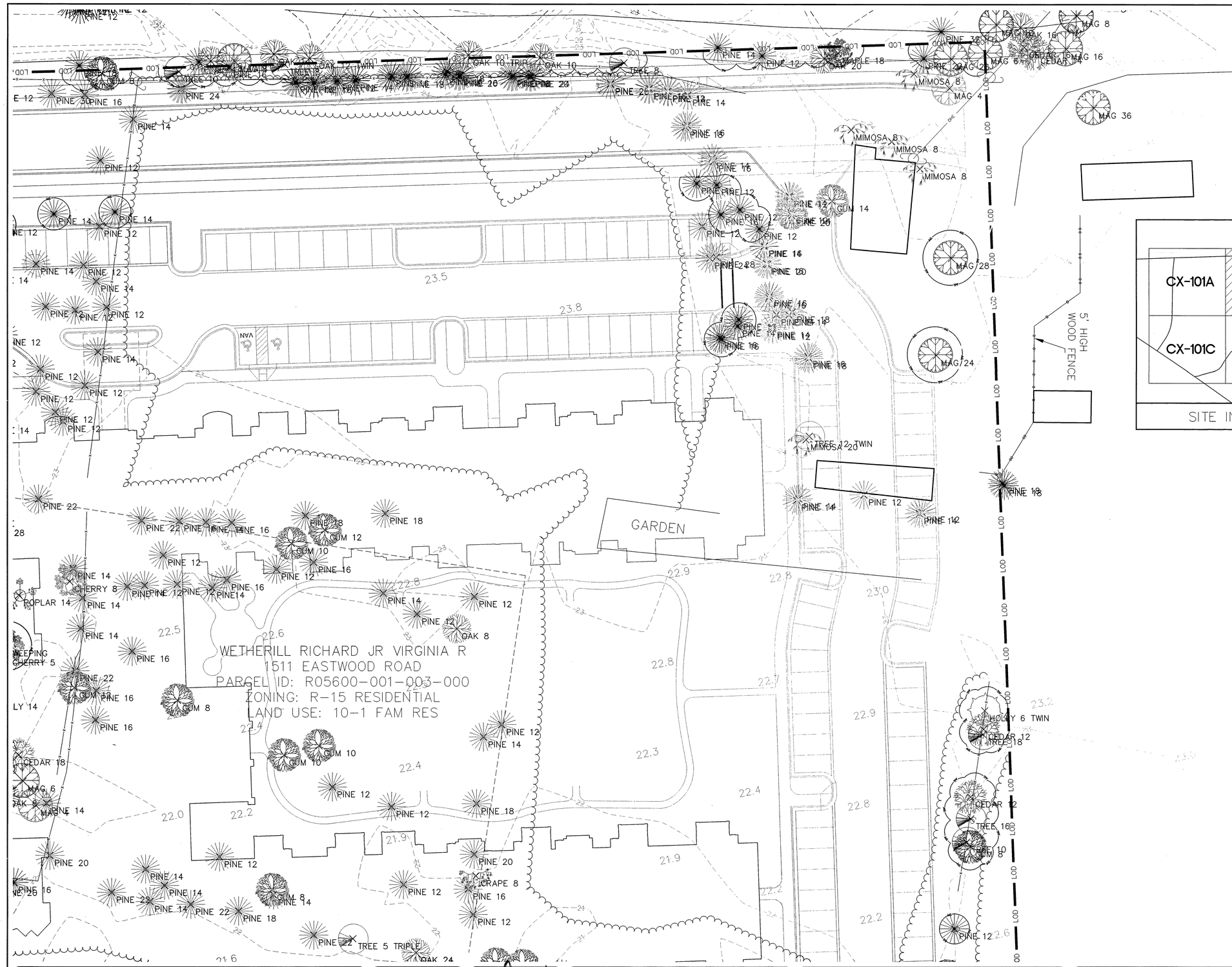
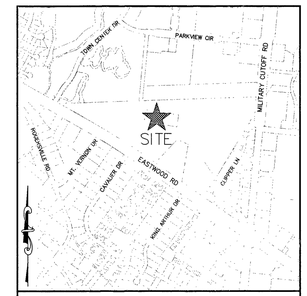
SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER: CX101A
DRAWING NUMBER: 3A

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2





VICINITY MAP
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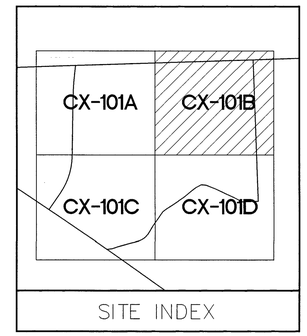

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REV.NO.	DESCRIPTIONS	DATE
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1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
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D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

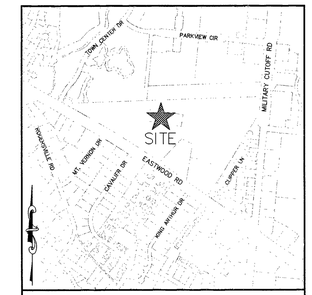
EXISTING CONDITIONS TREE INVENTORY MAP

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER CX101B
DRAWING NUMBER 3B

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



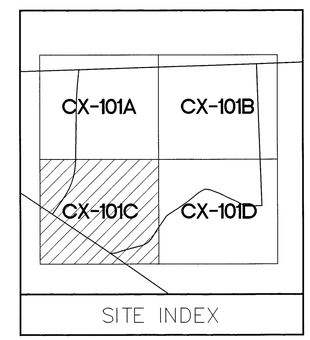
VICINITY MAP
1" = 1000'

LEGEND

RBC	= REBAR & CAP		= SANITARY SEWER MANHOLE
IPF	= IRON PIPE FOUND		= POWER POLE
INV.	= INVERT	GW	= GUY WIRE
EL	= ELEVATION		= CABLE PEDESTAL
	= WELL		= TELEPHONE PEDESTAL
	= FIRE HYDRANT		= TELEPHONE MANHOLE
	= WATER VALVE		= GAS VALVE
	= GRATED INLET		= CONCRETE
	= YARD INLET		= ASPHALT PAVEMENT
	= STORM DRAIN MANHOLE		= WOOD LINE
OHE		OHE	= OHVERHEAD ELECTRIC LINE
SD		SD	= UNDERGROUND STORM LINE
SS		SS	= UNDERGROUND SANITARY LINE

TREE LEGEND

- = CEDAR
- = CHERRY
- = CRAPE
- = DOGWOOD
- = GUM
- = HICKORY
- = HOLLY
- = OAK
- = MAGNOLIA
- = MAPLE
- = MIMOSA
- = PECAN
- = PINE
- = POPLAR
- = SYCAMORE
- = MISC HARDWOOD
- = TREE TO BE REMOVED



SITE INDEX

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

REV.NO.	DESCRIPTIONS	DATE
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER RICHARD M. CLEMMER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

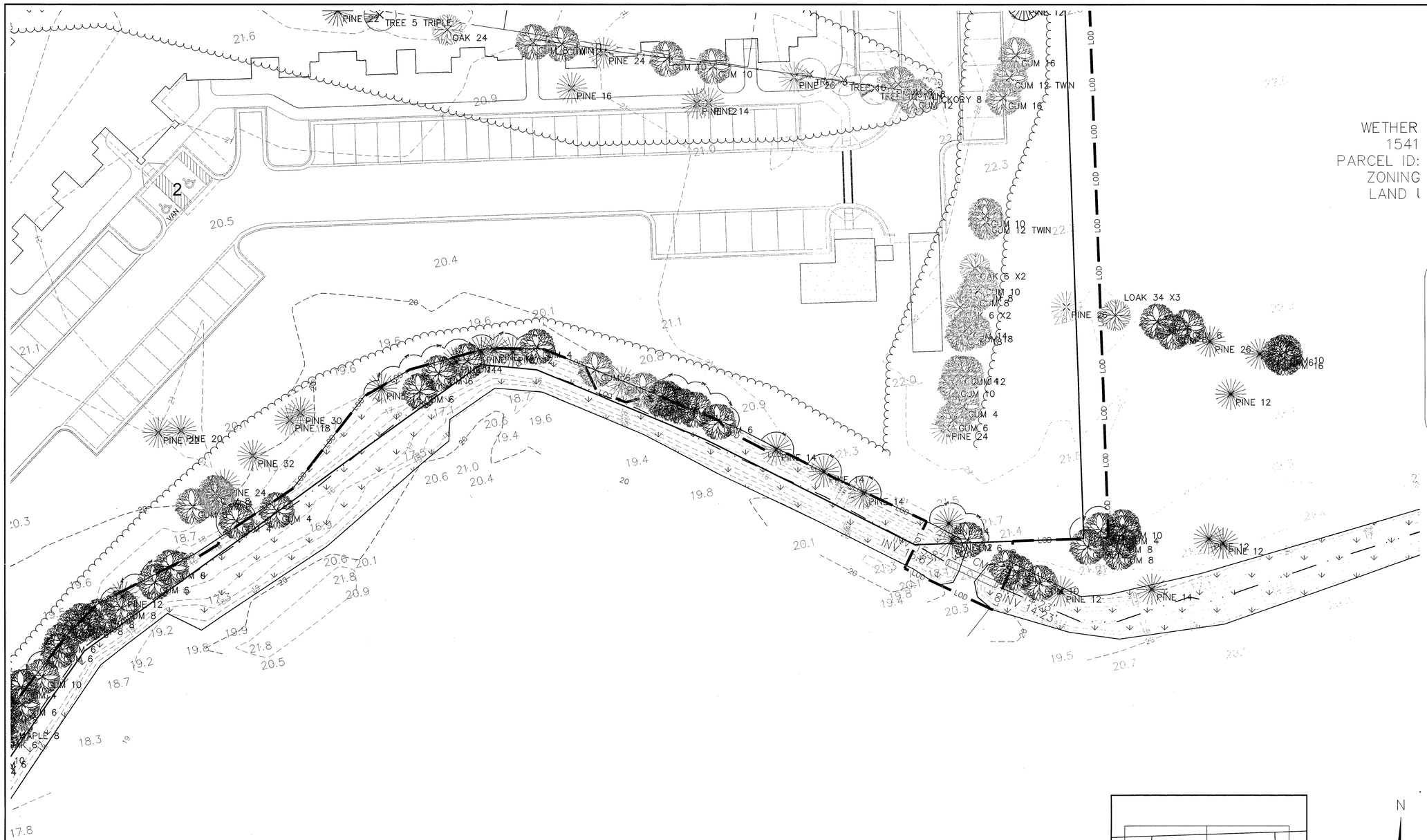
EXISTING CONDITIONS TREE INVENTORY MAP

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER: CX101C
DRAWING NUMBER: 3C

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



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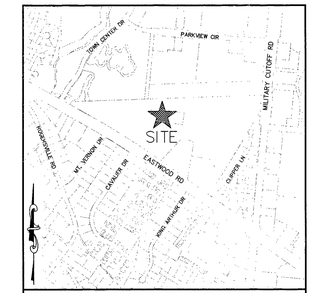
WETHER
1541
PARCEL ID:
ZONING
LAND U



VICINITY MAP
1" = 1000'

LEGEND

RBC	= REBAR & CAP		= SANITARY SEWER MANHOLE
IPF	= IRON PIPE FOUND		= POWER POLE
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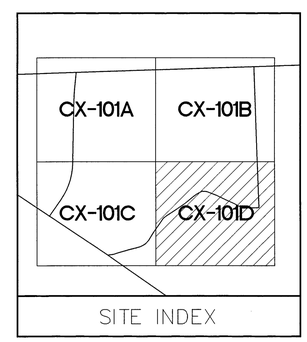

SITE INDEX

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

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REVISIONS

SEAL

SEAL
22574
PROFESSIONAL ENGINEER
07/01/2013

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STATE: NORTH CAROLINA

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RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

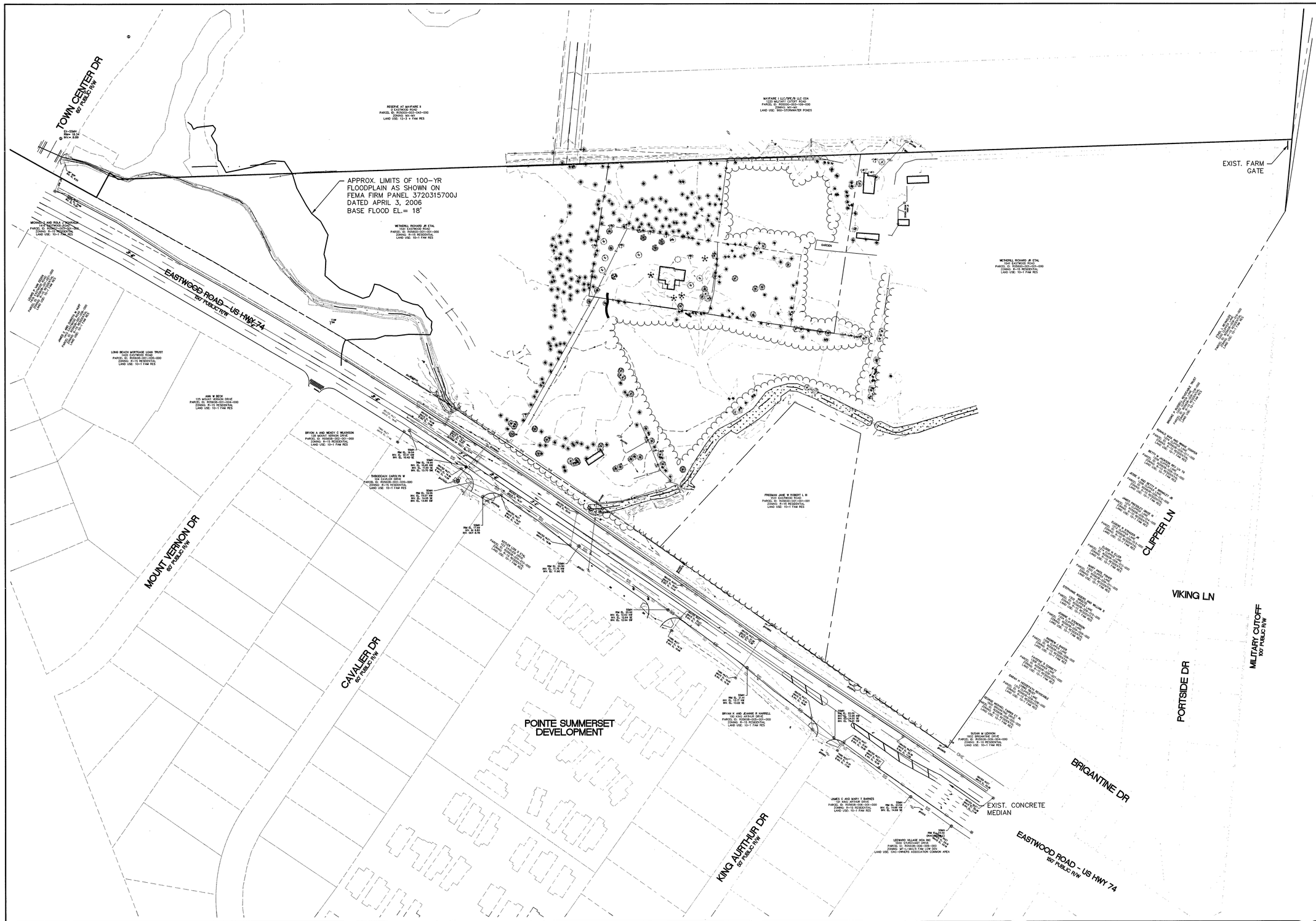
EXISTING CONDITIONS TREE INVENTORY MAP

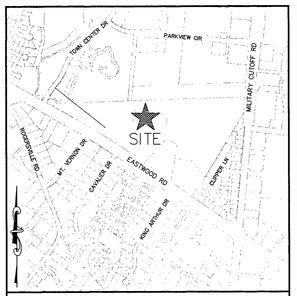
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER: CX101D
DRAWING NUMBER: 3D

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





VICINITY MAP
1" = 1000'

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
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REVISIONS

SEAL

SEAL
PROFESSIONAL ENGINEER
SEAL 22574
RICHARD M. LEE
07/01/2013

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6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

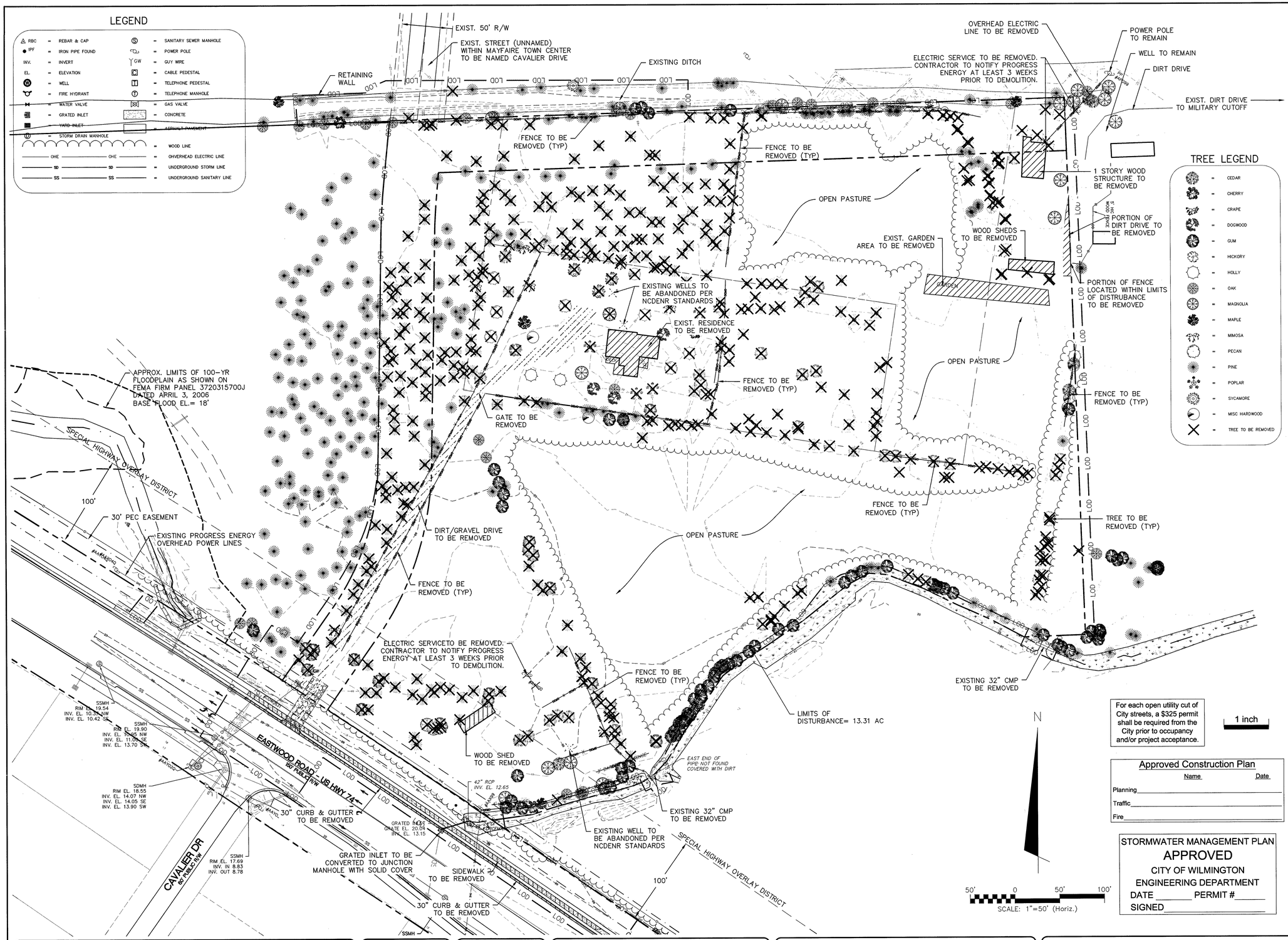
ADJACENT PROPERTY MAP

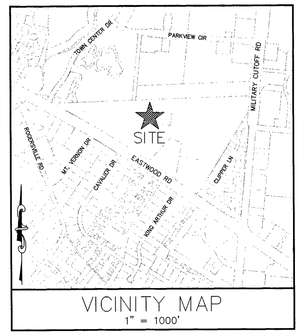
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=100'
VERTICAL:

M&C FILE NUMBER: CX102
DRAWING NUMBER: 4

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2





VICINITY MAP
1" = 1000'

TREE LEGEND

- CEDAR
- CHERRY
- CRAPE
- DOGWOOD
- GUM
- HICKORY
- HOLLY
- OAK
- MAGNOLIA
- MAPLE
- MIMOSA
- PECAN
- PINE
- POPLAR
- SYCAMORE
- MISC HARDWOOD
- TREE TO BE REMOVED

TREE PROTECTION NOTES:

1. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
2. NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS. [18-457(B)]
3. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [18-458]
4. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS. [18-457(D)]
5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED. [18-458]
6. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE 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]
7. 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.

DEMOLITION NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING AND FIELD DETERMINING THE EXACT DEMOLITION LIMITS. QUESTIONS DURING BIDDING SHALL BE DIRECTED TO THE ENGINEER.
2. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIARIZED WITH FIELD DEMOLITION CONDITIONS.
3. THE CONTRACTOR IS RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL DEMOLISHED DEBRIS ASSOCIATED WITH THE PROJECT.
4. 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.
5. THE CONTRACTOR IS RESPONSIBLE FOR HAVING ALL EXISTING UTILITIES LOCATED PRIOR TO BEGINNING ANY DEMOLITION. CONTRACTOR SHALL NOTIFY NC ONE CALL PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED.
6. EXISTING UTILITIES AND STRUCTURES SHOWN ARE BASED ON FIELD SURVEY. THE CONTRACTOR SHALL VERIFY FIELD CONDITIONS PRIOR TO BEGINNING RELATED CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT AND ENGINEER IMMEDIATELY.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF DISCONNECTING AND ABANDONING ALL EXISTING UTILITIES UNLESS OTHERWISE NOTED. ALL EXISTING UTILITIES AND ASSOCIATED PIPING, ETC. NOT IN USE ON THE SITE SHALL BE PROPERLY ABANDONED AND REMOVED.
8. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ANY EXISTING UTILITIES THAT REMAIN IN SERVICE DURING DEMOLITION.
9. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REMOVAL OR RELOCATION OF ANY EXISTING UTILITY POLES/GUY LINES, LIGHT POLES, TELEPHONE PEDESTALS. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE APPLICABLE UTILITY COMPANY AS REQUIRED.
10. 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 OWNERS REPRESENTATIVE AND ENGINEER PRIOR TO PROJECT CLOSEOUT. COORDINATE INSPECTION WITH THE OWNER AND ENGINEER PRIOR TO PROJECT CLOSEOUT.
11. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING AND CONTACTING THE ENGINEER FOR THE REQUIRED INSPECTIONS ON THE PROJECT.
12. WETLANDS EXIST ON SITE AND ARE NOT TO BE DISTURBED.
13. THE CONTRACTOR IS REQUIRED TO CAPTURE ALL REFRIGERANT ON ALL EQUIPMENT PLANNED FOR DEMOLITION CONTAINING REFRIGERANT.
14. CITY OF WILMINGTON TRAFFIC CONTROL SIGNS LOCATED IN THE RIGHT-OF-WAY SHALL BE MAINTAINED TO THE MAXIMUM EXTENT PRACTIBLE OR REPLACED AT THE END OF CONSTRUCTION AT LOCATION IDENTIFIED BY CITY OF WILMINGTON TRAFFIC ENGINEERING OR SHOWN ON THE SITE PLAN.

PROGRESS ENERGY NOTE:

SITE CONTRACTOR SHALL NOTIFY PROGRESS ENERGY AT LEAST 3 WEEKS IN ADVANCE FOR REMOVAL OF EXISTING POWER POLES AND LINES ADJACENT TO THE PROPERTY.

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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REVISIONS

SEAL

SEAL
PROFESSIONAL
SEAL
22574
ENGINEER
07/01/2013

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CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

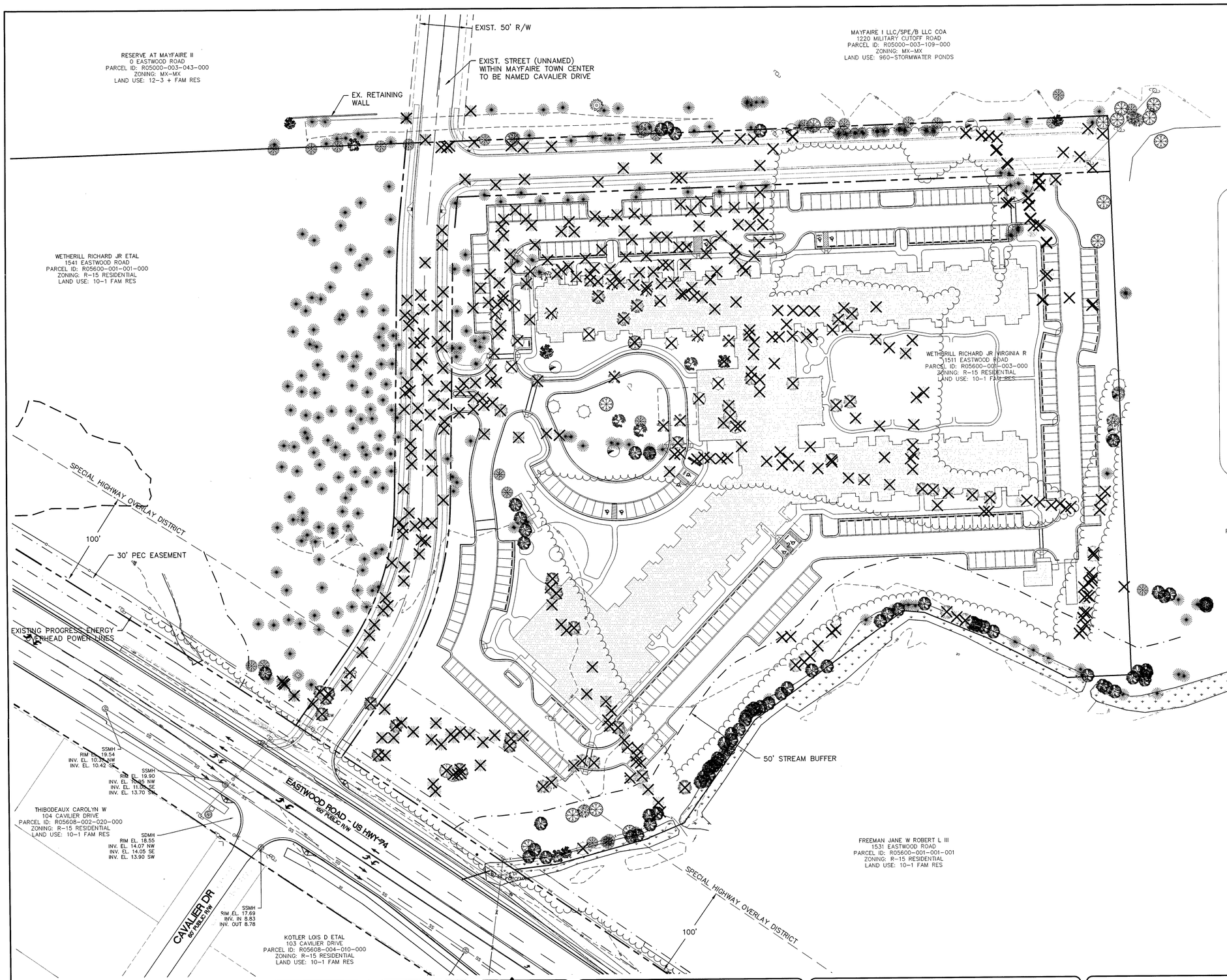
DEMOLITION PLAN

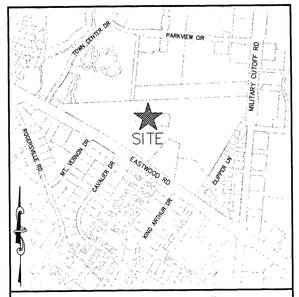
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CD101
DRAWING NUMBER 8

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





VICINITY MAP
1" = 1000'

TREE LEGEND

- = CEDAR
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OHE	OHE		= OHVERHEAD ELECTRIC LINE
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SS	SS		= UNDERGROUND SANITARY LINE

SURVEYOR'S NOTES:

1. ALL DISTANCES ARE HORIZONTAL GROUND IN U.S. SURVEY FEET UNLESS OTHERWISE SHOWN.
2. BEARINGS BASED ON NC GRID NAD 83/2007. ELEVATIONS BASED ON NAVD 88.
3. REFERENCES: MB 29 PG 104, MB 32 PG 295, MB 44, PG 59
4. SURVEYOR HAS MADE NO INVESTIGATION OR INDEPENDENT SEARCH FOR EASEMENTS OF RECORD, ENCUMBRANCES, RESTRICTIVE COVENANTS, OWNERSHIP, TITLE EVIDENCE, OR ANY OTHER FACTS THAT AN ACCURATE AND CURRENT TITLE SEARCH MAY DISCLOSE.
5. UNDERGROUND UTILITIES ARE SHOWN ONLY WHERE ABOVEGROUND SERVICES WERE VISIBLE.
6. SUBSURFACE AND ENVIRONMENTAL CONDITIONS WERE NOT EXAMINED OR CONSIDERED AS A PART OF THIS SURVEY. NO STATEMENT IS MADE CONCERNING THE EXISTENCE OF UNDERGROUND OR OVERHEAD CONTAINERS OR FACILITIES THAT MAY AFFECT THE USE OR DEVELOPMENT OF THIS TRACT.
7. THE EXISTENCE OR NONEXISTENCE OF WETLANDS ON SUBJECT PROPERTY HAS NOT BEEN DETERMINED BY THIS SURVEY.
8. SUBJECT TO ALL EASEMENTS, RIGHT OF WAYS, AND OR ENCUMBRANCES THAT MAY EFFECT THIS PROPERTY.

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/7/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL SEAL 22574 ENGINEER RICHARD MICHAEL CALLER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

TREE INVENTORY WITH SITE PLAN

DATE:	02 JUN 11
MCE PROJ. #	5584-0008
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CX103
DRAWING NUMBER 5

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

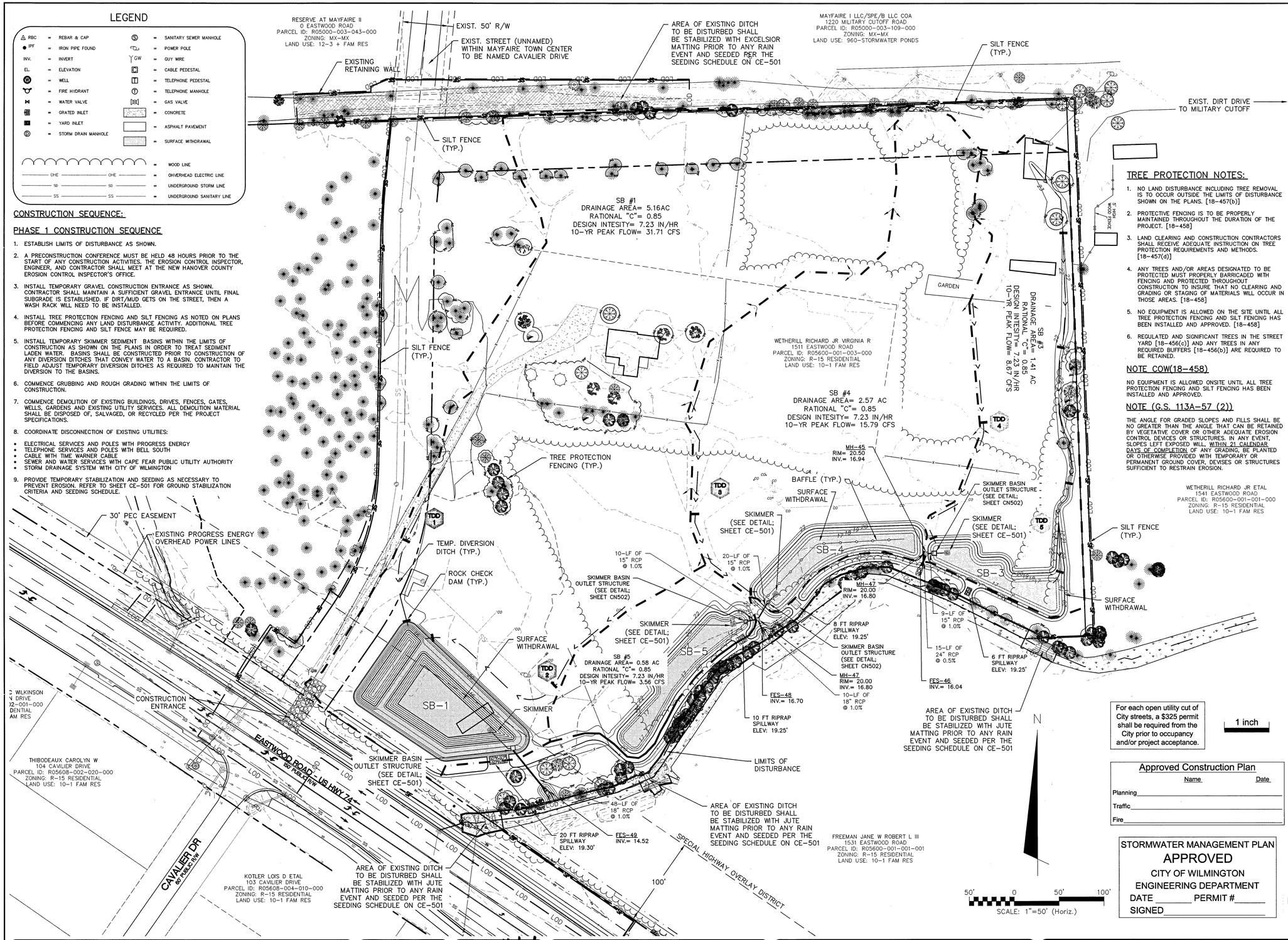
LEGEND

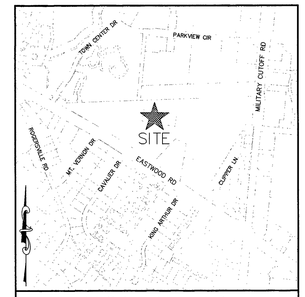
RBC	= REBAR & CAP		= SANITARY SEWER MANHOLE
IPF	= IRON PIPE FOUND		= POWER POLE
INV.	= INVERT	GW	= GUY WIRE
EL.	= ELEVATION		= CABLE PEDESTAL
	= WELL		= TELEPHONE PEDESTAL
	= FIRE HYDRANT		= TELEPHONE MANHOLE
	= WATER VALVE		= GAS VALVE
	= GRATED INLET		= CONCRETE
	= YARD INLET		= ASPHALT PAVEMENT
	= STORM DRAIN MANHOLE		= SURFACE WITHDRAWAL
			= WOOD LINE
OHE		OHE	= OHVERHEAD ELECTRIC LINE
SD		SD	= UNDERGROUND STORM LINE
SS		SS	= UNDERGROUND SANITARY LINE

CONSTRUCTION SEQUENCE:

PHASE 1 CONSTRUCTION SEQUENCE

1. ESTABLISH LIMITS OF DISTURBANCE AS SHOWN.
2. A PRECONSTRUCTION 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 ENTRANCE AS SHOWN. CONTRACTOR SHALL MAINTAIN A SUFFICIENT GRAVEL ENTRANCE UNTIL FINAL SUBGRADE 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.
5. INSTALL TEMPORARY SKIMMER SEDIMENT BASINS WITHIN THE LIMITS OF CONSTRUCTION AS SHOWN ON THE PLANS IN ORDER TO TREAT SEDIMENT LADEN WATER. BASINS SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF ANY DIVERSION DITCHES THAT CONVEY WATER TO A BASIN. CONTRACTOR TO FIELD ADJUST TEMPORARY DIVERSION DITCHES AS REQUIRED TO MAINTAIN THE DIVERSION TO THE BASINS.
6. COMMENCE GRUBBING AND ROUGH GRADING WITHIN THE LIMITS OF CONSTRUCTION.
7. 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.
8. COORDINATE DISCONNECTION OF EXISTING UTILITIES:
   - ELECTRICAL SERVICES AND POLES WITH PROGRESS ENERGY
   - TELEPHONE SERVICES AND POLES WITH BELL SOUTH
   - CABLE WITH TIME WARNER CABLE
   - SEWER AND WATER SERVICES WITH CAPE FEAR PUBLIC UTILITY AUTHORITY
   - STORM DRAINAGE SYSTEM WITH CITY OF WILMINGTON
9. PROVIDE TEMPORARY STABILIZATION AND SEEDING AS NECESSARY TO PREVENT EROSION. REFER TO SHEET CE-501 FOR GROUND STABILIZATION CRITERIA AND SEEDING SCHEDULE.





VICINITY MAP
1" = 1000'

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.

NOTE COW(18-458)

NO EQUIPMENT IS ALLOWED ONSITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.

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, DEVISES OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

EROSION CONTROL NOTES:

1. 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. **LIMITS OF DISTURBANCE 13.31 ACRES.**
2. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE. ANY BUILDER THAT ANTICIPATES THE DISTURBANCE OF MORE THAN 1 CUMULATIVE ACRE WILL BE REQUIRED TO GET AN EROSION CONTROL PERMIT FROM NEW HANOVER COUNTY.
3. GROUND COVER MUST BE PROVIDED ON EXPOSED SLOPES WITHIN 21 CALENDAR DAYS FOLLOWING COMPLETION OF ANY PHASE OF GRADING. ALL OTHER AREAS SHOULD BE STABILIZED WITHIN 15 WORKING DAYS OR 90 CALENDAR DAYS, WHICHEVER IS SHORTER, AFTER ANY PHASE OF ACTIVITY.
4. ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF THE NEW HANOVER COUNTY ENGINEERING DEPARTMENT.
5. SLOPES SHALL BE GRADED NO STEEPER THAN 3:1.
6. ADDITIONAL DEVICES MAY BE REQUIRED AS AGREED UP ON BY FIELD INSPECTOR, ENGINEER, AND OWNER.
7. IF ACTIVE CONSTRUCTION CEASES IN ANY AREA FOR MORE THAN 15 WORKING DAYS, ALL DISTURBED AREAS MUST BE SEEDED, MULCHED, AND TACKED UNLESS WRITTEN APPROVAL IS GRANTED BY THE EROSION CONTROL OFFICER.
8. WITHIN 24 HOURS FOLLOWING ANY RAIN EVENT, THE CONTRACTOR SHALL INSPECT AND REPAIR, AS NECESSARY, ALL DAMAGED EROSION CONTROL MEASURES.
9. ALL ACTIVITY AND INSTALLATION OF EROSION CONTROL MATTING WILL BE COMPLETE PRIOR TO ANY RAIN EVENT.

EROSION CONTROL MAINTENANCE PLAN:

1. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED AND REPAIRED, AS NECESSARY, EVERY SEVEN (7) DAYS OR AFTER EACH RAINFALL OCCURRENCE THAT EXCEEDS ONE-HALF (0.5) INCH.
2. 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.
3. 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.
4. ALL AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
5. 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.
6. 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.
7. 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.
8. 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.
9. 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.
10. INSPECT TEMPORARY SEDIMENT TRAPS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2" OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. PLACE REMOVED SEDIMENT IN AN AREA WITH SEDIMENT CONTROLS.
11. REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.
12. 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.

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED _____

LIMITS OF DISTURBANCE = 13.31 AC

LAT: 34° 13' 56.18" N
LONG: 77° 50' 2.74" W

REV.NO.	DESCRIPTIONS	DATE
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REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER NORTH CAROLINA
07/01/2013

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Wilmington, North Carolina 28401
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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

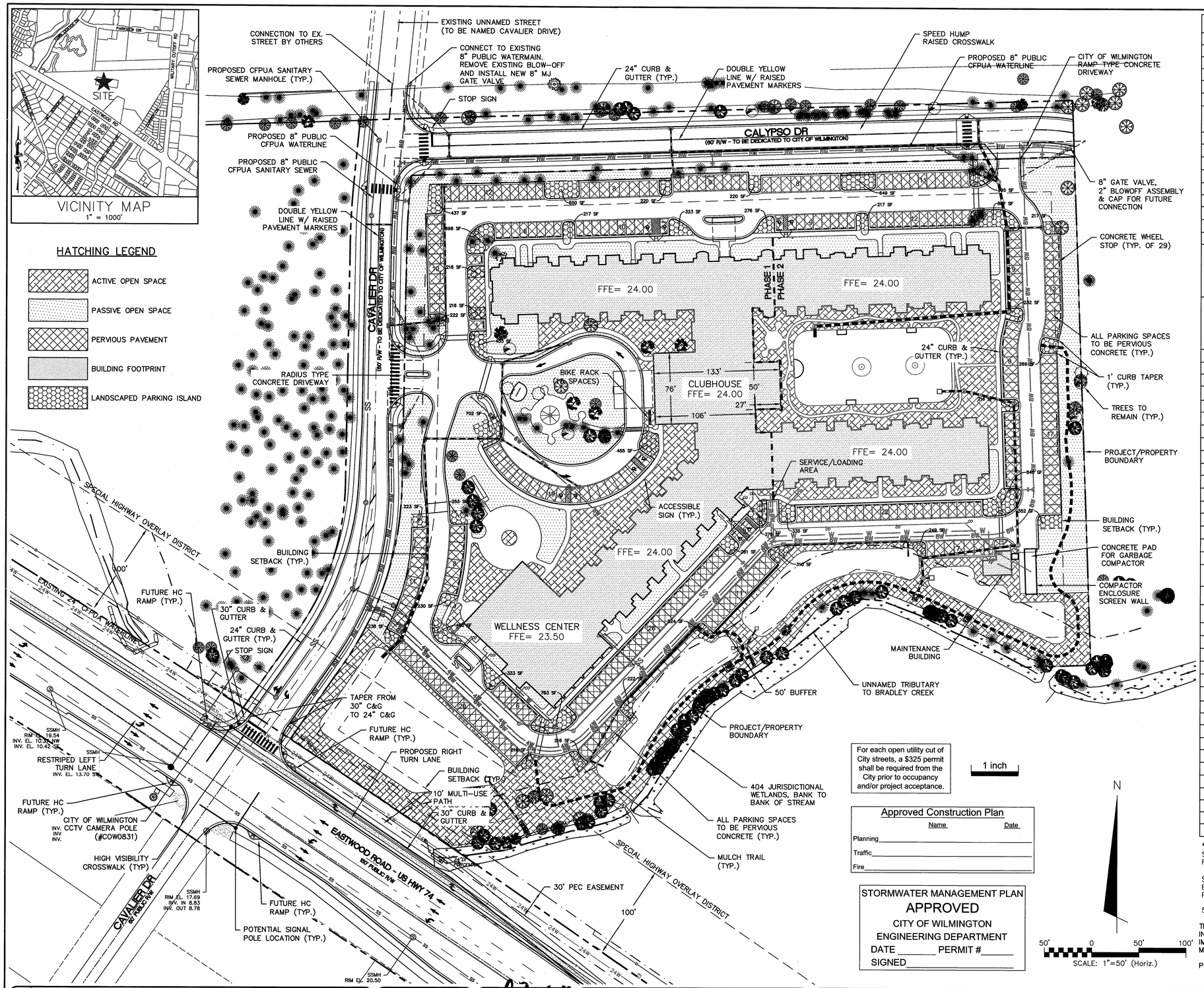
SEDIMENT & EROSION CONTROL PLAN PHASE 1

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER: CE101
DRAWING NUMBER: 6

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2



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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

SITE DATA TABLE	CAMBRIDGE VILLAGE	
PARCEL ADDRESS	75 CAVALIER DRIVE	
BUILDING SETBACKS	REQUIRED	PROPOSED
FRONT	36	125
REAR	31	65
SIDE (INTERIOR)	26	95
SIDE (CORNER)	36	95
TAX PARCEL IDENTIFICATION NUMBER(S):	R05600-001-005-000 (10.08 AC)	
	R09999-999-999-999 (1.89 AC R/W)	
CURRENT ZONING:	MF-MH MULTIFAMILY	
TOTAL ACREAGE WITHIN THE PROJECT BOUNDARIES	11.96 ACRES (521,051 SF)	
TOTAL ACREAGE WITHIN THE PROJECT BOUNDARIES (ONSITE)	10.08 ACRES (439,006 SF)	
BUILDING SIZE WITH SQUARE FOOTAGE	313,420 GROSS SF	
NC BUILDING CODE CONSTRUCTION TYPE	VA	
BUILDING LOT COVERAGE	20.95%	
NUMBER OF UNITS	250	
NUMBER OF BUILDINGS	2	
BUILDING HEIGHT	50' MAX	
NUMBER OF STORIES & SQUARE FEET PER FLOOR (PHASE 1)	FIRST FLOOR – 61,267 SF	
	SECOND FLOOR – 61,267 SF	
	THIRD FLOOR – 40,383 SF	
	FOURTH FLOOR – 40,383 SF	
NUMBER OF STORIES & SQUARE FEET PER FLOOR (PHASE 2)	FIRST FLOOR – 29,780 SF	
	SECOND FLOOR – 29,780 SF	
	THIRD FLOOR – 29,780 SF	
	FOURTH FLOOR – 29,780 SF	
TOTAL AMOUNT OF DISTURBED AREA	13.31 ACRES (579,611 SF)	
CAMA LAND USE CLASSIFICATION	WATERSHED RESOURCE PROTECTION AREA	
EXISTING IMPERVIOUS AREA	10,993	SF
IMPERVIOUS AREA (PROPOSED)		
ROOF TOPS	91,736	SF
ROADWAYS	78,317	SF
PARKING	42,909	SF
PERVIOUS PARKING (60% REDUCTION)	42,909 (17,164)	SF
IMPERVIOUS PARKING	0	SF
SIDEWALKS	24,390	SF
PERVIOUS (60% REDUCTION)	0	SF
IMPERVIOUS SIDEWALK	24,390	SF
FUTURE ALLOTMENT	0	SF
OFF-SITE IMPERVIOUS (WITHIN PROPOSED PUBLIC R/W)	70,046	SF
TOTAL S.F. (ONSITE IMPERVIOUS AREA)	211,426	SF
PERCENTAGE (ONSITE IMPERVIOUS AREA/ONSITE AREA)	48.2	%
PERCENTAGE (EXIST. ONSITE IMPERVIOUS AREA/ONSITE AREA)	2.5	%
EXCEPTIONAL DESIGN BASE IMPERVIOUS AREA INCREASE (SEC. 18-544)	59 POINTS	54.5% IMPERVIOUS
TOTAL SQUARE FOOTAGE OF IMPERVIOUS SURFACES SHOWN IN THE STREET YARD	1,464	SF
OPEN SPACE CALCULATIONS		
TRACT AREA (MINUS STORMWATER PONDS AND STREAMS)	385,414	SF
REQUIRED OPEN SPACE (35% OF TRACT AREA)	134,895	SF
ACTIVE OPEN SPACE	74,200	SF
PASSIVE OPEN SPACE	74,703	SF
TOTAL OPEN SPACE PROVIDED	148,903	SF (38.6%)
PARKING CALCULATIONS		
PROPOSED USE:	MF-MH MULTIFAMILY	
MINIMUM NUMBER OF SPACES REQUIRED	125	
	1 SPACE PER 2 UNITS	
MAXIMUM NUMBER OF SPACES REQUIRED	625	
	2.5 SPACES PER UNIT	
SPACES PROVIDED	293 (1.17 SPACES PER UNIT*)	
EXISTING USE:	RESIDENTIAL	
SPACES EXISTING	0	
ACCESSIBLE SPACES REQUIRED	7	
TOTAL PARKING IN LOT	201 TO 300	
ACCESSIBLE SPACES PROVIDED	10 (4 VAN)	

* PARKING STADARD DETERMINED DURING REZONING PROCESS TO PROVIDE 1 SPACE PER UNIT (250 SPACES) AND 1 SPACE PER 400 SF FOR THE WELLNESS CENTER (50 SPACES). THIS METHODOLOGY RESULTED IN A MODIFIED PARKING STANDARD OF 1.2 SPACES PER UNIT FOR THE MF-MH ZONING.

SEC. 18-529, EACH PARKING SPACE LOCATED AT THE PERIMETER OF A PARKING FACILITY SHALL BE EQUIPPED WITH A CURB, WHEEL STOP, OR SIMILAR DEVICE TO PREVENT VEHICLE ENCROACHMENT BEYOND PROPERTY LINES OF PARKING LOTS AND INTO PEDESTRIAN WAYS OR TRAFFIC AISLES.

5 BICYCLE SPACES PER 100 SPACES SHALL BE PROVIDED (15 PROVIDED)

THIS PROPERTY AND PROJECT IS LOCATED WITHIN THE WATERSHED RESOUCE PROTECTION AREA AS DEFINED IN THE 2006 CAMA LANDUSE PLAN. WATERSHED RESOURCE PROTECTION REQUIRES A MAXIMUM OF 25% IMPERVIOUS SURFACE UNLESS PROVISIONS ARE MADE FOR EXCEPTIONAL DESIGN OF STORMWATER MANAGEMENT AND PROTECTION OF ENVIRONMENTAL FEATURES TO THE MAXIMUM EXTENT PRACTICAL.

PROJECT WILL PROVIDE FIRE SPRINKLER SYSTEM FOR ALL BUILDINGS.

REV.NO.	DESCRIPTIONS	DATE
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F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
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C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER

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243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

SITE PLAN

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CS101
DRAWING NUMBER 9

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

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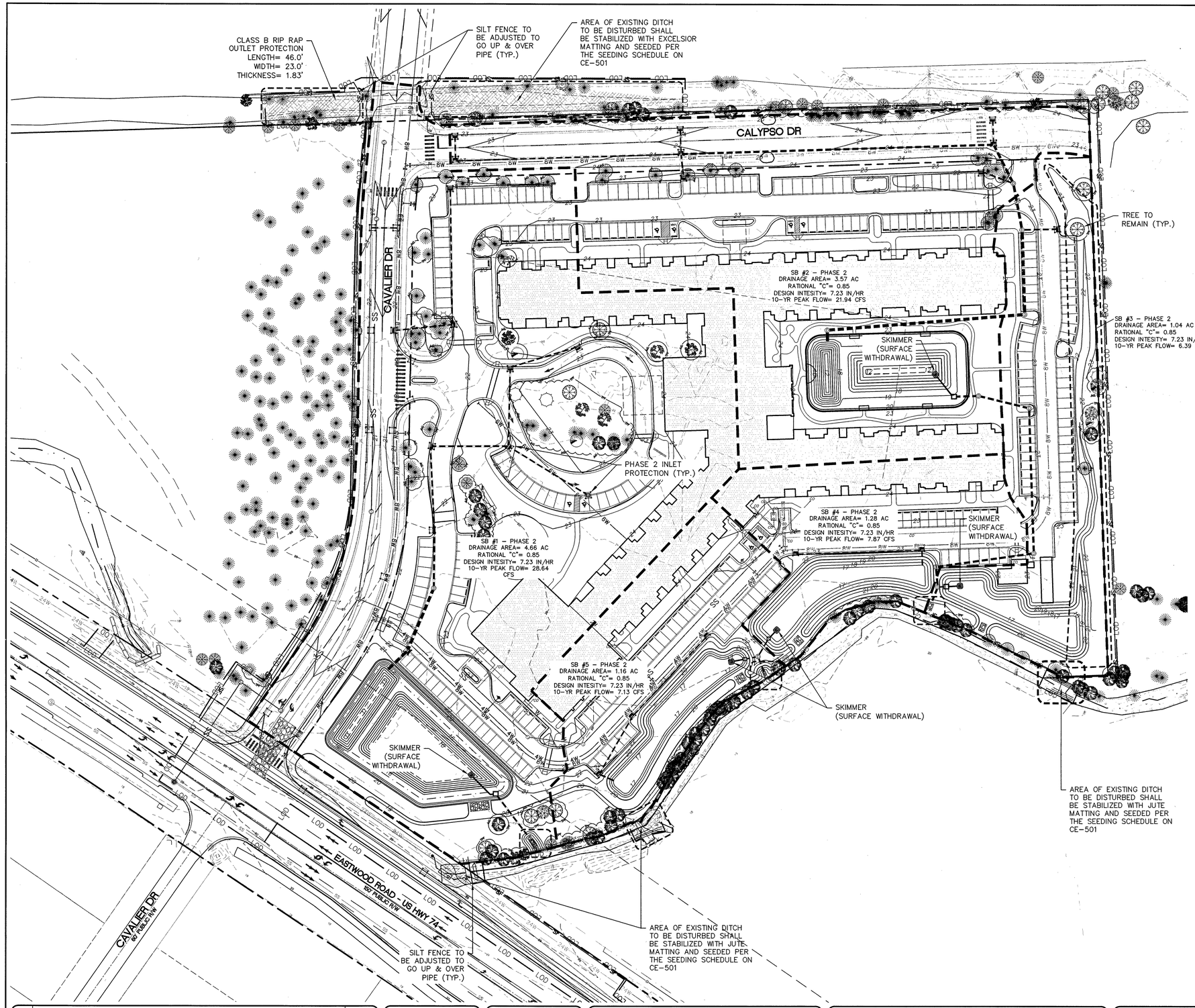
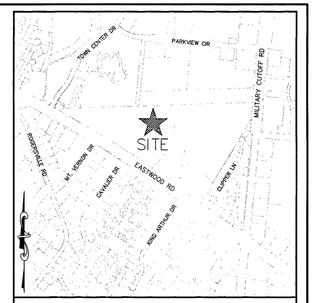


LIMITS OF DISTURBANCE = 13.31 AC

LAT: 34° 13' 56.18" N
LONG: 77° 50' 2.74" W



VICINITY MAP
1" = 1000'

EROSION CONTROL LEGEND

- TREE PROTECTION FENCING
- SILT FENCE
- LIMITS OF DISTURBANCE
- STORM INLET PROTECTION
- EROSION CONTROL COIR MATTING
- 7-DAY STABILIZATION AREA

PHASE 2 CONSTRUCTION SEQUENCE

1. INSTALL PUBLIC SEWER AND WATER AND STORMWATER MANAGEMENT FACILITIES TO INCLUDE PIPING, CATCH BASINS AND DROP INLETS, INCLUDING INSTALLATION OF STAGE TWO INLET PROTECTION AND OUTLET CONTROL AS SHOWN ON PLANS. ALL STORM DRAINAGE PIPING TO BE CLASS III RCP, UNLESS OTHERWISE NOTED.
2. REMOVE ACCUMULATED SEDIMENT FROM DITCHES AND SEDIMENT CONTROL MEASURES AS REQUIRED ON THE PLANS AND PERMIT.
3. COMPLETE ROADWAYS AND ENTRANCE CONSTRUCTION TO SUBGRADE. COMPACT ALL FILL AREAS TO 95% STD. PROCTOR MAXIMUM DRY DENSITY.
4. INSTALL GRAVEL BASE IN ROADWAYS AND PARKING AREAS.
5. INSTALL CONCRETE CURB AND GUTTER.
6. INSTALL FIRST LIFT OF ASPHALT BASE COURSE, AND THEN HOLD OFF ON THE FINAL ASPHALT COURSE UNTIL END OF CONSTRUCTION SEQUENCE. INSTALL PERVIOUS PAVEMENT IN ALL PARKING AREAS.
7. CONTRACTOR SHALL CONTINUOUSLY MAINTAIN EROSION CONTROL MEASURES AND CLEAN TEMPORARY SEDIMENT TRAPS AND BASINS TO MEET NEW HANOVER COUNTY APPROVAL.
8. UPON COMPLETION OF CONSTRUCTION, PRIOR TO FINAL ASPHALT LIFT INSTALLATION, CONTRACTOR TO REQUEST FINAL INSPECTION FROM NEW HANOVER COUNTY EROSION CONTROL INSPECTOR TO ALLOW REMOVAL OF ALL TEMPORARY EROSION CONTROL DEVICES.
9. INSTALL LANDSCAPING AND ESTABLISH FINAL GRADES AS SHOWN ON CG-101.
10. INSTALL PERMANENT SEEDING. REFER TO GROUND STABILIZATION CRITERIA TABLE FOR AREAS THAT REQUIRE 7-DAY STABILIZATION. ALL OTHER AREAS NOT REQUIRING 7-DAY STABILIZATION SHALL BE STABILIZED WITHIN 14-DAYS.
11. REMOVE ALL SEDIMENT FROM ALL STORM DRAIN PIPES.
12. SILT FENCE MUST REMAIN INSTALLED AND FUNCTIONING PROPERLY UNTIL THE LIMITS OF CONSTRUCTION HAVE BEEN PERMANENTLY STABILIZED.

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 HQW ZONES)

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/01/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM&CREED
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Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

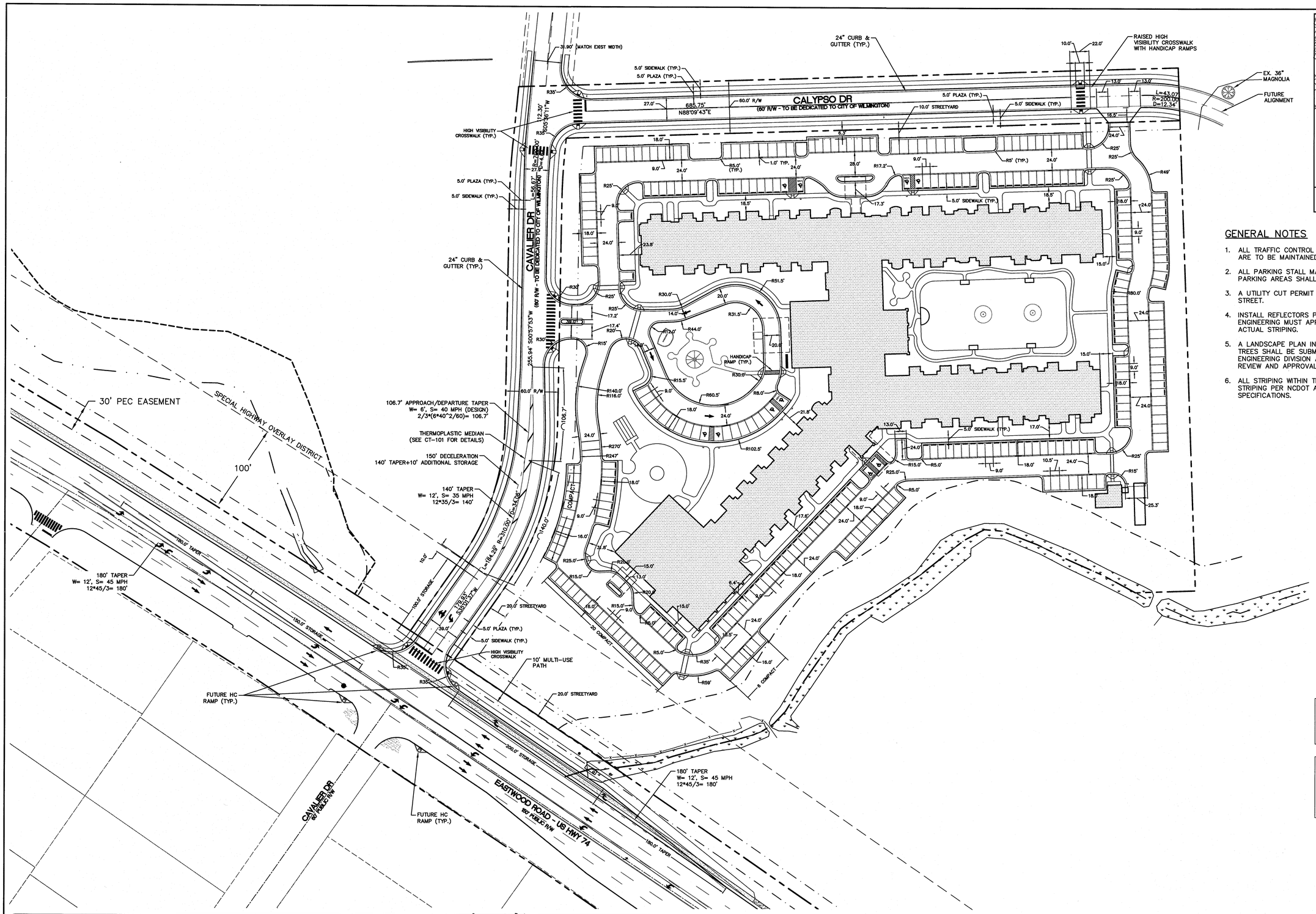
SEDIMENT & EROSION CONTROL PLAN PHASE 2

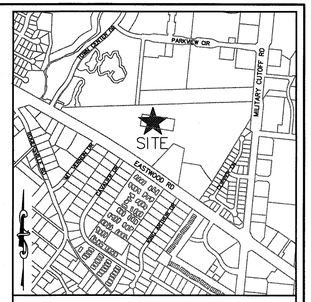
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER: CE102
DRAWING NUMBER: 7

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2





VICINITY MAP
1" = 1000'

GENERAL NOTES

1. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
2. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
3. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
4. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
5. A LANDSCAPE PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT.
6. ALL STRIPING WITHIN THE PUBLIC STREETS MUST BE THERMOPLASTIC STRIPING PER NCDOT AND CITY OF WILMINGTON STANDARDS AND SPECIFICATIONS.

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

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1 inch

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
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REV.NO.	DESCRIPTIONS	DATE
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

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PROFESSIONAL SEAL 22574 ENGINEER
6/28/2013

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CAMBRIDGE VILLAGE SENIOR LIVING

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CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

SITE PLAN - DIMENSIONS

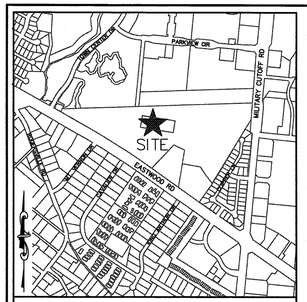
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CS102
DRAWING NUMBER 10

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

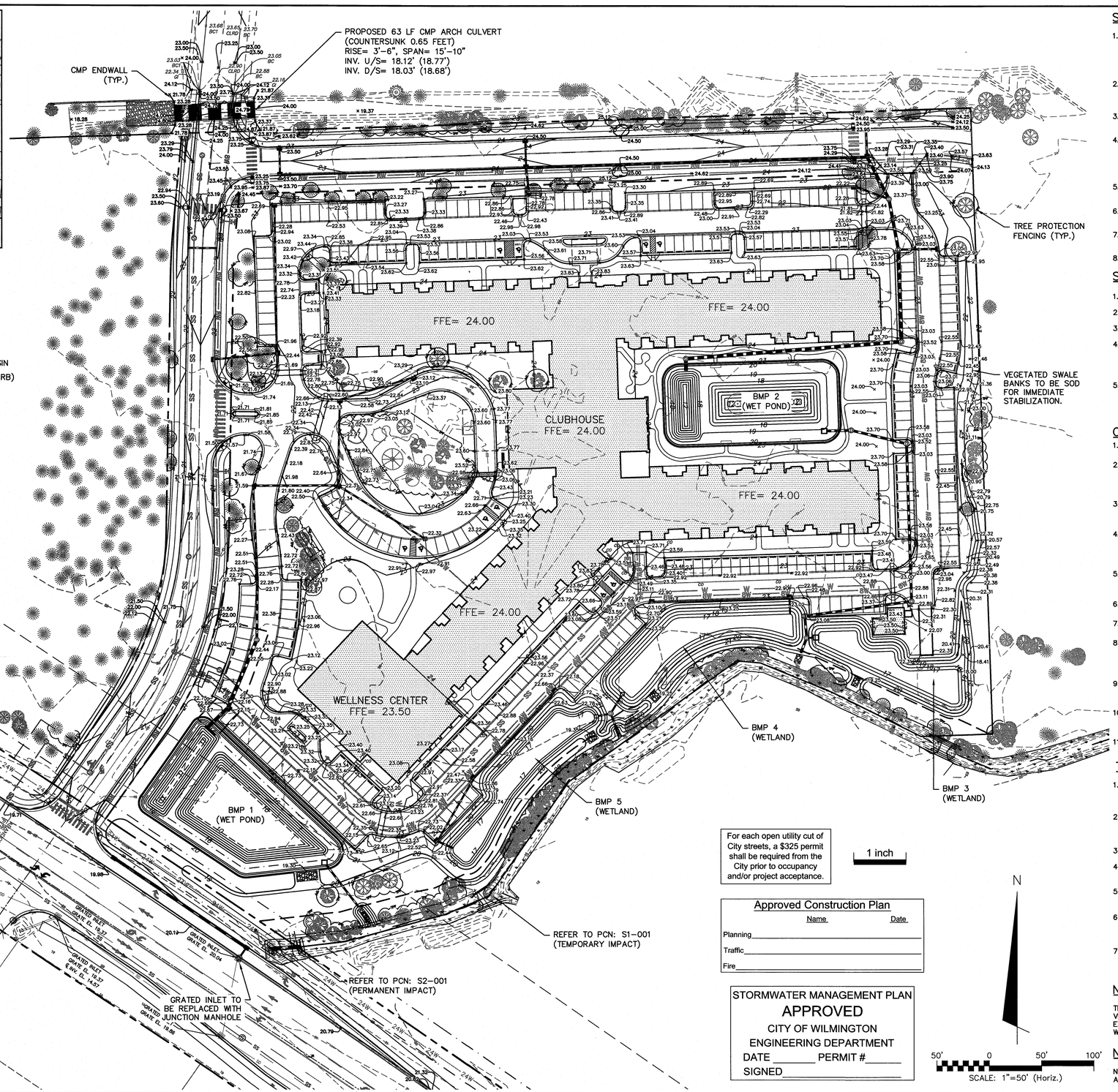
S:\5584\0006\90-Drawings\CS-102_5584\0006.dwg, 8/6/2013 1:13:07 PM, rcoller



VICINITY MAP
1" = 1000'

LEGEND

- EXISTING CONTOUR
- PROPOSED CONTOUR
- STORM DRAINAGE PIPE
- TREE PROTECTION FENCING
- BUILDING ROOF OUTLINE
- STORM DRAINAGE MANHOLE
- STORM DRAINAGE CATCH BASIN
- ×22.65 SPOT ELEVATION (TOP OF CURB)



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1 inch

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	Name	Date
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Fire		

STORMWATER MANAGEMENT PLAN
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DATE _____ PERMIT #_____
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N

50' 0 50' 100'
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STORM DRAINAGE AND GRADING NOTES:

1. IN ACCORDANCE WITH NC GENERAL STATUES, NPDES REGULATIONS, AND NHC 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.
2. INLET PROTECTION SHALL BE INSTALLED AROUND ALL STORM INLETS WITHIN THE LIMITS OF DISTURBANCE. STRUCTURES SHALL BE CONSTRUCTED TO FINAL PROPOSED CONDITION UPON STABILIZATION OF CONTRIBUTING GROUND SURFACES AND REMOVAL OF SEDIMENT FROM STORM PIPES.
3. SEDIMENT / EROSION DEVICES SHALL BE CHECKED BY THE CONTRACTOR DAILY. EACH DEVICE IS TO BE MAINTAINED OR REPLACED IF SEDIMENT ACCUMULATION HAS REACHED ONE HALF THE CAPACITY OF THE DEVICE.
4. ALL DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR SHALL NOTIFY ARCHITECT 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.
5. 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.
6. WHEN HAND SEEDING, MULCH (HAY OR STRAW) SHOULD BE UNIFORMLY SPREAD AND TACKED OVER SEEDED AREA WITHIN 24 HOURS OF SEEDING.
7. DURING UNSUITABLE GROWING SEASONS, MULCH WILL BE USED AS A TEMPORARY COVER ON SLOPES THAT ARE 4:1 OR STEEPER, MULCH WILL BE ANCHORED.
8. NO LAND DISTURBANCE, INCLUDING TREE REMOVAL, IS TO OCCUR OUTSIDE THE LIMITS SHOWN.

STORM DRAINAGE NOTES:

1. ALL PIPE BEDDING SHALL BE CLASS "C" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. ALL STORM DRAINAGE PIPES SHALL BE RCP CLASS III UNLESS OTHERWISE NOTED ON THE PLANS.
3. DO NOT PLANT TREES WITHIN UTILITY AND DRAINAGE EASEMENTS.
4. 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).
5. THE CONTRACTOR SHALL CONTACT ONECALL BEFORE COMMENCING ANY WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WHETHER INDICATED ON THE DRAWINGS OR NOT. THE CONTRACTOR WILL ASSURE THE PRESENCE ONSITE OF A REPRESENTATIVE OF THE GAS COMPANY WHEN WORKING IN THE VICINITY OF ANY GAS MAINS.

CITY OF WILMINGTON STANDARD NOTES:

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING ANY DIGGING AT 1-800-632-4949.
2. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES AND NO CONSTRUCTION WORKERS, TOOLS, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
3. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
4. ONCE STREETS ARE OPEN TO TRAFFIC, THE DEVELOPER SHALL CONTACT TRAFFIC ENGINEERING TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
5. 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.
6. ANY BROKEN OR MISSING SIDEWALK PANELS AND CURBING SHALL BE REPLACED BY THE CONTRACTOR.
7. CONTACT KAREN DIXON AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
8. IF THE CONTRACTOR DESIRES WATER FOR CONSTRUCTION HE SHALL APPLY WITH THE CFPUA 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.
9. THE NUMBER AND SPACING OF DRIVEWAYS FOR ALL INTERCONNECTED SITES WILL BE DETERMINED BY THE COMBINED FRONTAGE OF THE INTERCONNECTED PROPERTIES.
10. CONTACT TRAFFIC ENGINEERING TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN. CALL TRAFFIC ENGINEERING FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT-OF-WAY.
11. TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.

TREE PROTECTION NOTES:

1. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
2. NO LAND DISTURBANCE, INCLUDING TREE REMOVAL, IS TO OCCUR OUTSIDE THE PROJECT BOUNDARY SHOWN ON THE PLANS, UNLESS OTHERWISE NOTED. TREE PROTECTION FENCING IS SHOWN OUTSIDE OF PROJECT BOUNDARY FOR PROTECTION OF EXISTING TREES IS CLOSE PROXIMITY TO PROPOSED CONSTRUCTION. [18-457(B)]
3. PROTECTIVE FENCING IS TO BE PROPERLY MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. [18-458]
4. LAND CLEARING AND CONSTRUCTION CONTRACTORS SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION REQUIREMENTS AND METHODS. [18-457(D)]
5. NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED BY THE LANDSCAPE ARCHITECT. [18-458]
6. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE 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]
7. 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. TREE PROTECTION FENCING SHOWN ON PLANS DELINEATES TREES TO BE RETAINED.

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, DEVISES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.

NOTE COW(18-458)

NO EQUIPMENT IS ALLOWED ONSITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED BY LANDSCAPE ARCHITECT.

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE NC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

MCKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

GRADING PLAN

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CG101
DRAWING NUMBER 11

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

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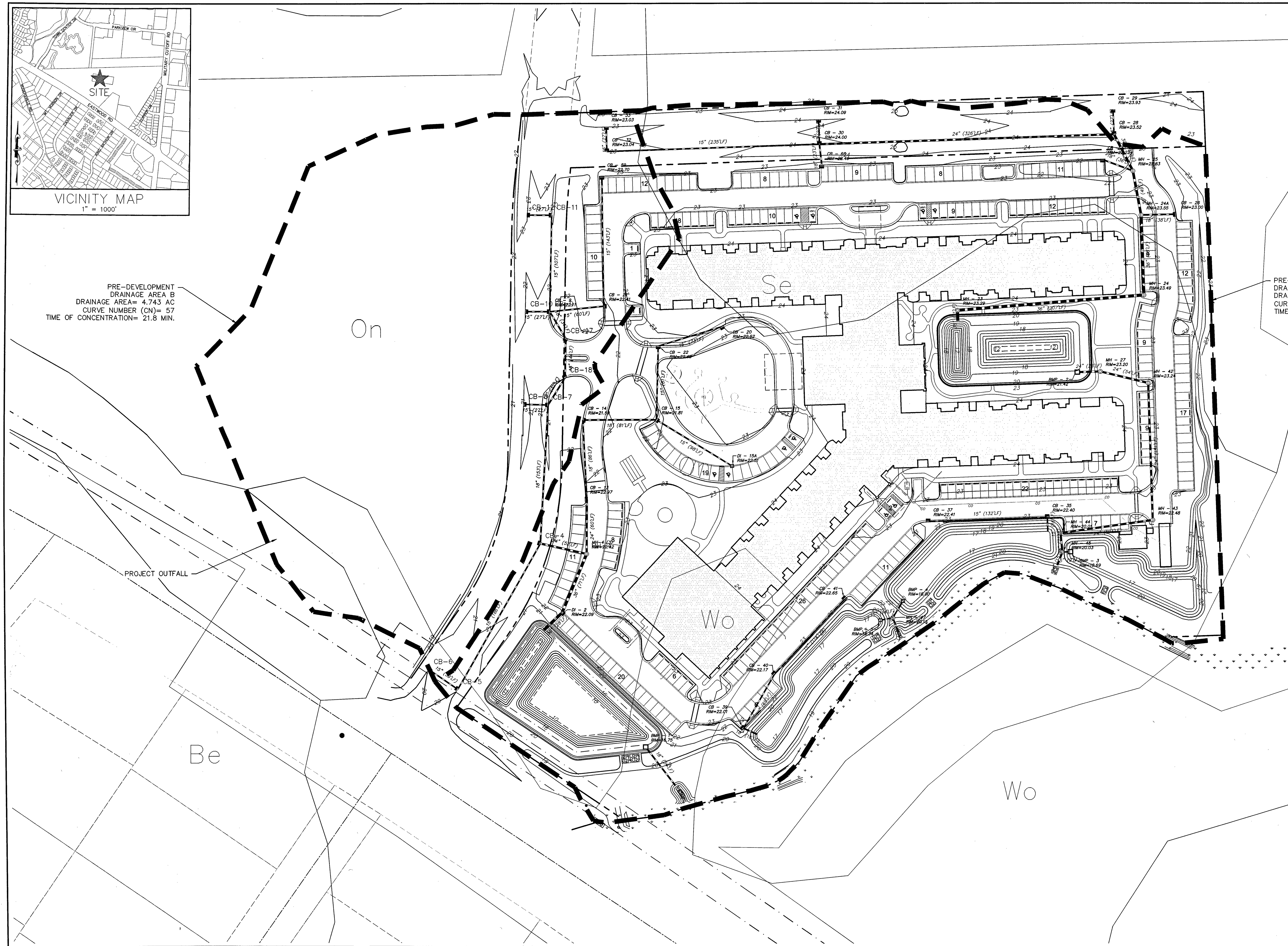

LEGEND

RBC	=	REBAR & CAP	Ⓢ	=	SANITARY SEWER MANHOLE
IPF	=	IRON PIPE FOUND		=	POWER POLE
INV.	=	INVERT	GW	=	GUY WIRE
EL.	=	ELEVATION		=	CABLE PEDESTAL
	=	WELL		=	TELEPHONE PEDESTAL
	=	FIRE HYDRANT		=	TELEPHONE MANHOLE
	=	WATER VALVE		=	GAS VALVE
	=	GRATED INLET		=	CONCRETE
	=	YARD INLET		=	ASPHALT PAVEMENT
Ⓓ	=	STORM DRAIN MANHOLE			
				=	WOOD LINE
— OHE — OHE —				=	OHVERHEAD ELECTRIC LINE
— SD — SD —				=	UNDERGROUND STORM LINE
— SS — SS —				=	UNDERGROUND SANITARY LINE

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

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1 inch

Approved Construction Plan

Name Date

Planning__________

Traffic__________

Fire__________

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE ______ PERMIT #______
SIGNED__________

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A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER RICHARD M. COLLIER

07/01/2013

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Wilmington, North Carolina 28401
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STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

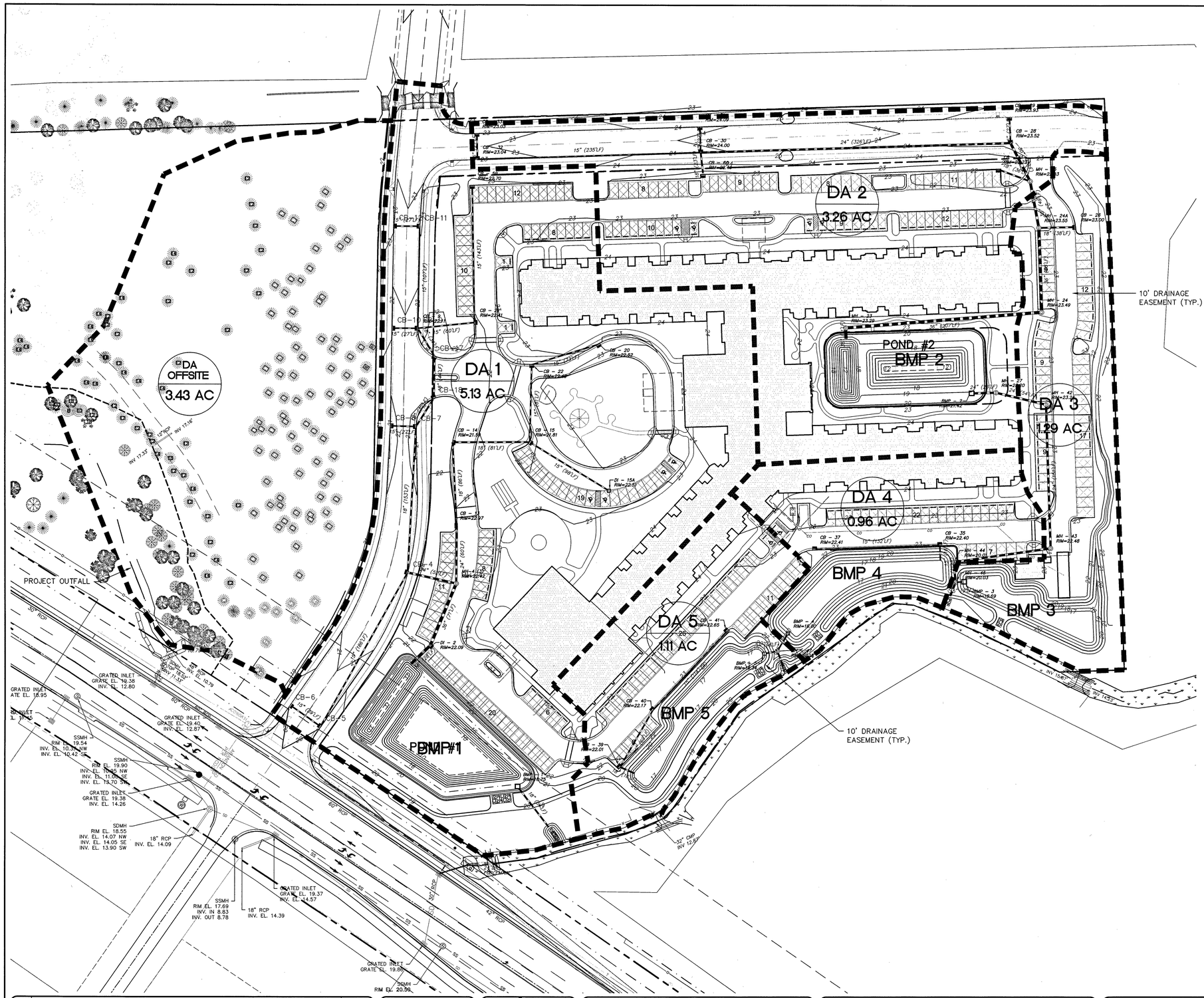
PRE-DEVELOPMENT DRAINAGE AREAS

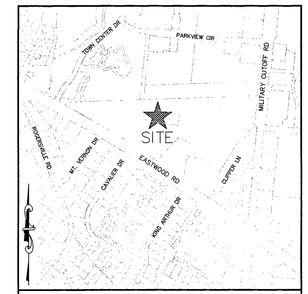
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CG103
DRAWING NUMBER 11A

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





VICINITY MAP
1" = 1000'

DRAINAGE AREA SUMMARY

LABEL	AREA	IMP. AREA	CN	Tc
	(AC)	(AC)		(MIN.)
1	5.13	3.04	81	6.10
2	3.26	1.99	87	7.00
3	1.29	0.39	75	5.00
4	0.96	0.46	77	5.00
5	1.11	0.58	81	5.30
OFFSITE	3.43	0.00	57	10.00
TOTAL	15.18	6.46		

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1 inch

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Approved Construction Plan

Name Date

Planning

Traffic

Fire

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
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SEAL 22574 NORTH CAROLINA PROFESSIONAL ENGINEER

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CAMBRIDGE VILLAGE OF WILMINGTON

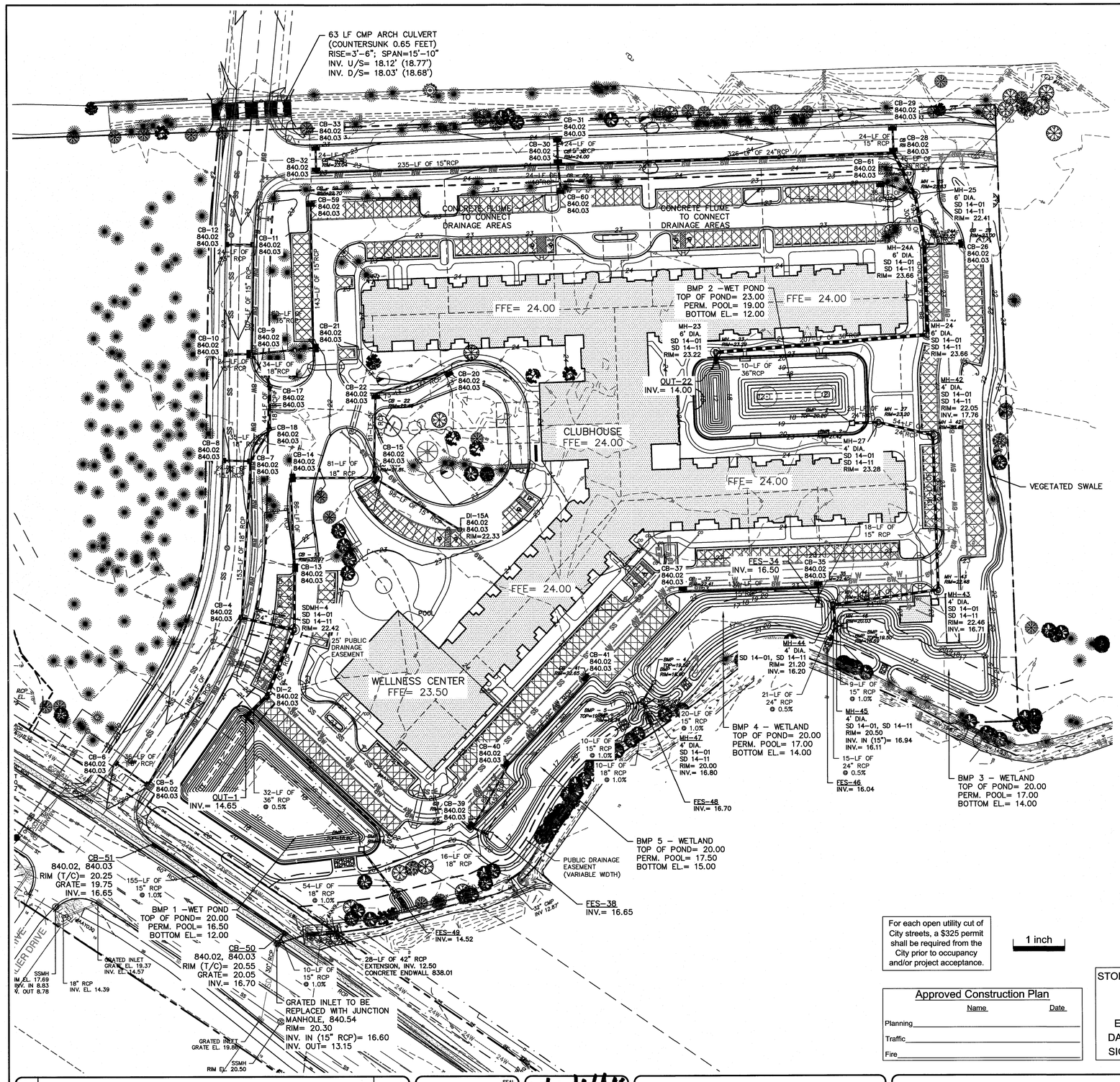
POST DEVELOPMENT DRAINAGE AREAS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CG104
DRAWING NUMBER 11B

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



LEGEND

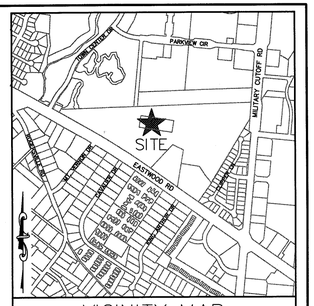
- EXISTING CONTOUR
- PROPOSED CONTOUR
- STORM DRAINAGE PIPE
- TREE PROTECTION FENCING
- BUILDING ROOF OUTLINE
- STORM DRAINAGE MANHOLE
- STORM DRAINAGE CATCH BASIN

CB-17	STRUCTURE LABEL
840.02, 840.03	DETAIL REFERENCE
RIM	RIM (FLOWLINE)
INV. OUT	INVERT

N

50' 0 50' 100'

SCALE: 1"=50' (Horiz.)



VICINITY MAP
1" = 1000'

STORM DRAINAGE PIPE TABLE

From Structure	To Structure	Rim Elevation (Upstream)	Rim Elevation (Downstream)	Invert (Upstream)	Invert (Downstream)	Length (LF)	Slope (ft/ft)	Dia (in)	Pipe Material
CB-59	CB-21	22.19	21.85	19.00	18.84	143.0	0.0010	15	RCP
CB-21	CB-9	21.85	21.60	18.84	18.00	60.0	0.0140	15	RCP
CB-12	CB-11	22.71	22.77	18.65	18.53	24.0	0.0050	15	RCP
CB-11	CB-9	22.77	21.60	18.53	18.00	107.0	0.0050	15	RCP
CB-10	CB-9	21.95	21.60	18.12	18.00	24.0	0.0050	15	RCP
CB-9	CB-17	21.60	20.95	18.00	17.85	34.0	0.0040	18	RCP
CB-17	CB-18	20.95	21.00	17.85	17.66	44.0	0.0050	18	RCP
CB-18	CB-7	21.00	20.90	17.66	17.50	35.0	0.0040	18	RCP
CB-8	CB-7	21.00	20.90	17.62	17.50	24.0	0.0050	15	RCP
CB-7	CB-4	20.90	21.00	17.50	16.45	153.0	0.0070	18	RCP
CB-6	CB-5	20.10	20.10	16.95	16.75	36.0	0.0060	15	RCP
CB-5	CB-4	20.10	21.00	16.75	15.85	186.0	0.0050	15	RCP
CB-20	CB-22	22.52	22.01	17.00	16.64	73.0	0.0050	15	RCP
CB-22	CB-15	22.01	21.98	16.64	16.23	81.0	0.0050	15	RCP
CB-15A	CB-15	22.43	21.98	16.72	16.23	98.0	0.0050	15	RCP
CB-15	CB-14	21.98	21.59	16.23	15.83	81.0	0.0060	18	RCP
CB-14	CB-13	21.59	22.53	15.83	15.40	86.0	0.0060	18	RCP
CB-13	MH-4	22.53	22.42	15.40	15.15	60.0	0.0040	24	RCP
CB-4	MH-4	21.00	22.42	15.85	15.15	52.0	0.0130	24	RCP
MH-4	DI-2	22.42	22.10	15.15	14.80	61.0	0.0050	36	RCP
DI-2	Out BMP-1	22.10	20.00	14.80	14.65	32.0	0.0050	36	RCP
CB-33	CB-32	23.00	23.00	19.00	18.75	24.0	0.0100	15	RCP
CB-32	CB-30	23.00	24.00	18.75	17.60	235.0	0.0050	15	RCP
CB-31	CB-30	24.00	24.00	17.84	17.60	24.0	0.0100	15	RCP
CB-60	CB-30	22.50	24.00	18.50	17.60	24.0	0.0350	18	RCP
CB-30	CB-28	24.00	23.72	17.60	16.00	326.0	0.0050	24	RCP
CB-29	CB-28	23.90	23.72	16.24	16.00	24.0	0.0100	15	RCP
CB-28	MH-25	23.72	22.92	16.00	15.68	45.0	0.0090	30	RCP
CB-61	MH-25	21.75	22.92	17.25	16.75	36.0	0.0090	18	RCP
MH-25	MH-24A	22.92	23.66	15.68	15.53	49.0	0.0030	30	RCP
CB-26	MH-24A	22.55	23.66	18.35	18.00	38.0	0.0110	18	RCP
MH-24A	MH-24	23.66	23.66	15.53	15.13	88.0	0.0050	36	RCP
MH-24	MH-23	23.66	23.22	15.13	14.05	207.0	0.0050	36	RCP
MH-23	In BMP-2	23.22	23.00	14.05	14.00	10.0	0.0050	36	RCP
CB-37	CB-35	22.35	22.61	19.10	17.66	132.0	0.0100	15	RCP
CB-35	In BMP-4	22.61	21.00	17.66	16.50	18.0	0.0640	15	RCP
CB-41	CB-40	22.11	22.32	18.86	17.78	114.0	0.0100	15	RCP
CB-40	CB-39	22.32	21.90	17.78	17.22	69.0	0.0100	15	RCP
CB-39	In BMP-5	21.90	20.00	17.22	16.65	16.0	0.0480	18	RCP
BMP-2 RISER	MH-27	21.80	23.28	18.00	18.00	26.0	0.0000	24	RCP
MH-27	MH-42	23.28	23.59	18.00	17.76	54.0	0.0040	24	RCP
MH-42	MH-43	23.59	22.46	17.76	16.71	151.0	0.0070	24	RCP
MH-43	MH-44	22.46	21.74	16.71	16.20	103.0	0.0050	24	RCP
MH-44	MH-45	21.74	20.51	16.20	16.11	21.0	0.0040	24	RCP
MH-45	FES-46	20.51	20.00	16.11	16.04	15.0	0.0030	24	RCP
BMP-3	SDMH-45					9.0		15"	RCP
BMP-4	SDMH-47					20.0		15"	RCP
BMP-5	SDMH-47					10.0		15"	RCP
SDMH-47	FES-48					10.0		18"	RCP
BMP-1	FES-49					54.0		18"	RCP
42"	NCDOT					28.0		42"	RCP
15"	NCDOT					165.0		15"	RCP

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER

01 JUL 2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

STORM DRAINAGE PLAN

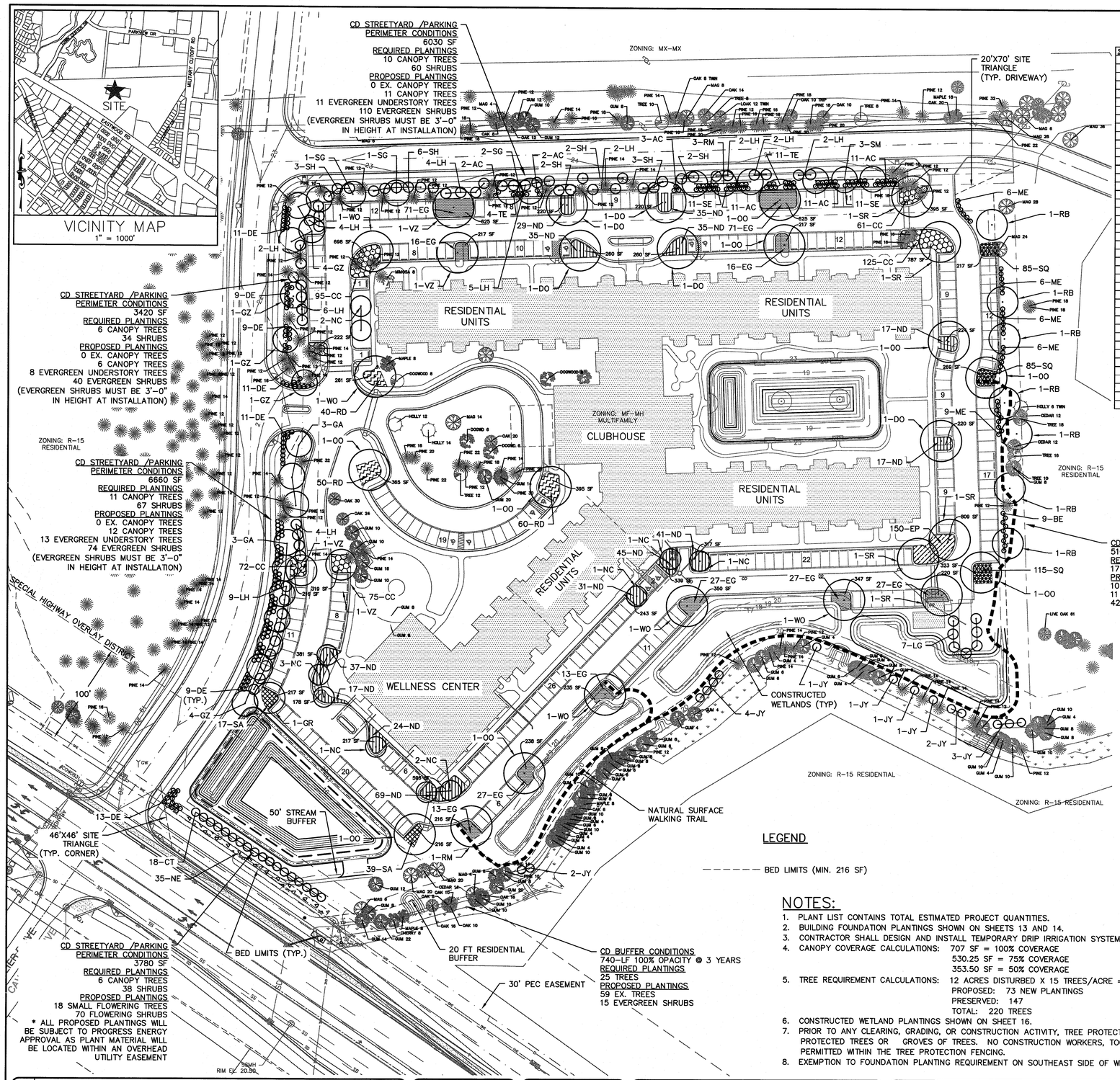
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CG102
DRAWING NUMBER 12

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

S:\5584\0006\80-Drawings\CG-102_5584\0006.dwg, 8/8/2013 1:17:25 PM, rcoller



PLANT LIST

SYMBOL	COMMON NAME	BOTANICAL NAME	QUANT.	SIZE	NOTES	XERIC	CANOPY COVERAGE
AC	Aucuba	Aucuba japonica	40	1'- 3' ** height	6' on center	Yes	NA
BC	Biloxi Crapemyrtle	Lagerstroemia indica 'Biloxi'	25	25 gallon		Yes	NA
BE	Belle Encore Azalea	Rhododendron Autumn Belle	42	3' height	Stagger 4' on center	Yes	NA
CC	Chicksaw Crapemyrtle	Lagerstroemia indica "Chicksaw"	428	1 gallon	Stagger 3' on center	Yes	NA
CT	Chaste Tree	Vitex agnus-castus	27	6 - 8' height	Tree form	Yes	NA
DC	Dynamite Crapemyrtle	Lagerstroemia indica 'Dynamite'	27	25 gallon		Yes	NA
DE	Debutante Encore Azalea	Rhododendron Autumn Debutante	148	1'- 3' ** height	Stagger 4' on center	Yes	NA
DO	Darlington Oak	Quercus hemispaerica	4	2 - 2 1/2" cal.		No	4 @ 530.25 = 2121.00
EG	Edward Goucher Abelia	Abelia grandiflora "Edward Goucher"	340	1' height	Stagger 6' on center	Yes	NA
EP	Expoflora Periwinkle	Vinca major "Expoflora"	150	1 gallon	Stagger 6' on center	Yes	NA
GA	Patmore Green Ash	Fraxinus pennsylvanica "Patmore"	7	2 - 2 1/2" cal.		Yes	2 @ 353.50 = 707.00
GR	Goldenrain Tree	Koelreuteria paniculata	1	8 - 10' height		Yes	1 @ 530.25 = 530.25
GZ	Green Vase Japanese Zelkova	Zelkova serrata "Green Vase"	10	2 - 2 1/2" cal.		Yes	2 @ 530.25 + 4.00 @ 353.50 = 2474.50
JC	Dr. J. C. Raulston Camellia	Camellia japonica 'Dr. J. C. Raulston'	8	7 gallon		No	NA
JY	Japanese Yew	Cephalotaxus harringtonia drupacea	15	3' height	10' on center	Yes	NA
LC	Lady Vansittart Camelia	Camellia japonica 'Lady Vansittart'	7	7 gallon		No	NA
LG	Wax Leaf Privet	Ligustrum japonicum	7	8' height	Shrub form	Yes	NA
LH	Lusterleaf Holly	Ilex latifolia	41	3' height	10' on center	Yes	NA
ME	Monarch Encore Azalea	Rhododendron Autumn Monarch	21	3' height	Stagger 4' on center	Yes	NA
NA	Dwarf Japanese Aucuba	Aucuba japonica 'Nana Variegata'	27	5 gallon		Yes	NA
NC	Natchez Crapemyrtle	Lagerstroemia indica 'Natchez'	13	25 gallon		Yes	NA
ND	Nikko Deutzia	Deutzia gracilis "Nikko"	470	1' height	Stagger 5' on center	Yes	NA
NE	Sunset Encore Azalea	Rhododendron Autumn Sunset	70	1' height	Stagger 4' on center	Yes	NA
OO	Highbeam Overcup Oak	Quercus lyrata "Highbeam"	9	2 - 2 1/2" cal.		No	8 @ 530.25 + 1.00 @ 353.50 = 4595.50
PW	Periwinkle	Vinca minor	182	1 gallon	Stagger 4' on center	Yes	NA
RB	Duraheat River Birch	Betula nigra "Duraheat"	13	2 - 2 1/2" cal.		Yes	4 @ 353.50 = 5656.00
RD	Russian Rhapsody Daylily	Hemerocallis "Russian Rhapsody"	124	1 gallon	Stagger 3' on center	Yes	NA
RM	Red Sunset Maple	Acer rubrum "Red Sunset"	3	2 - 2 1/2" cal.		Yes	3 @ 353.50 = 1060.50
SA	Sunrise Abelia	Abelia grandiflora "Sunrise"	56	1' height	Stagger 6' on center	Yes	NA
SD	Stella d'Oro Daylily	Hemerocallis 'Stella d'Oro'	418	1 gallon	Stagger 1' on center	Yes	NA
SE	Sangria Encore Azalea	Rhododendron Autumn Sangria	22	1'- 3' ** height	Stagger 4' on center	Yes	NA
SG	Fruitless Sweetgum	Liquidambar styraciflua "Rotundiloba"	4	2 - 2 1/2" cal.		Yes	4 @ 353.50 = 5656.00
SH	Nellie Stevens Holly	Ilex x "Nellie R. Stevens"	18	1' height	10' on center	Yes	NA
SM	Green Mountain Sugar Maple	Acer saccharum "Green Mountain"	3	2 - 2 1/2" cal.		Yes	3 @ 353.50 = 1060.50
SQ	Silver Queen Euonymous	Euonymous fortunei "Silver Queen"	285	1 gallon	Stagger 2' on center	Yes	NA
SR	Summer Red Maple	Acer rubrum "Summer Red"	5	2 - 2 1/2" cal.		Yes	5 @ 530.25 = 2651.25
TE	Twist Encore Azalea	Rhododendron Autumn Twist	15	1' height	Stagger 4' on center	Yes	NA
VZ	Village Green Zelkova	Zelkova serrata "Village Green"	5	2 - 2 1/2" cal.		Yes	6 @ 530.25 = 2651.25
WC	Wintercreeper	Euonymus fortunei var. coloratus	282	1 gallon	Stagger 6' on center	Yes	NA
WO	Willow Oak	Quercus phellos	5	2-2 1/2" cal		Yes	5 @ 530.25 = 2651.25
WW	Weeping Willow	Salix babylonica	4	2-2 1/2" cal		No	NA
	Existing Canopy Trees	N/A	22	>2"	N/A	N/A	22 @ 353.50 = 7777.00

** 3' height min. in streetyard areas

Provided 39,591
Required 121,917 x 20% = 24,383

SIGNIFICANT TREE REMOVAL TABLE										
5	–	8	"	Mimosa	x	2	@	25%	=	20 inches
3	–	10	"	Mimosa	x	2	@	25%	=	15 inches
2	–	12	"	Mimosa	x	2	@	25%	=	12 inches
2	–	20	"	Mimosa	x	2	@	25%	=	20 inches
1	–	37	"	Mimosa	x	2	@	25%	=	19 inches
3	–	32	"	Pines	x	2	@	50%	=	96 inches
1	–	39	"	Pines	x	2	@	50%	=	39 inches
2	–	8	"	Cherry	x	2	@	75%	=	24 inches
1	–	24	"	Gum	x	2	@	75%	=	36 inches
2	–	26	"	Gum	x	2	@	75%	=	78 inches
2	–	26	"	Cedar	x	2	@	75%	=	78 inches
1	–	12	"	Holly	x	2	@	100%	=	24 inches
2	–	14	"	Holly	x	2	@	100%	=	56 inches
4	–	8	"	Crapes	x	2	@	100%	=	64 inches
2	–	24	"	Oaks	x	2	@	100%	=	96 inches
2	–	8	"	Magnolia	x	2	@	100%	=	32 inches
1	–	8	"	Dogwood	x	2	@	100%	=	16 inches
								TOTAL	=	725 INCHES
								3	=	242 TREES
								MITIGATION TREE REQUIREMENT		
					242	TREES	x	$350	=	$84,700.00

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

LEGEND

- - - - - - BED LIMITS (MIN. 216 SF)

NOTES:

1. PLANT LIST CONTAINS TOTAL ESTIMATED PROJECT QUANTITIES.
2. BUILDING FOUNDATION PLANTINGS SHOWN ON SHEETS 13 AND 14.
3. CONTRACTOR SHALL DESIGN AND INSTALL TEMPORARY DRIP IRRIGATION SYSTEM FOR GROW-IN PERIOD.
4. CANOPY COVERAGE CALCULATIONS: 707 SF = 100% COVERAGE
   530.25 SF = 75% COVERAGE
   353.50 SF = 50% COVERAGE
5. TREE REQUIREMENT CALCULATIONS: 12 ACRES DISTURBED X 15 TREES/ACRE = 180 REQUIRED TREES
   PROPOSED: 73 NEW PLANTINGS
   PRESERVED: 147
   TOTAL: 220 TREES
6. CONSTRUCTED WETLAND PLANTINGS SHOWN ON SHEET 16.
7. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING WILL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN THE TREE PROTECTION FENCING.
8. EXEMPTION TO FOUNDATION PLANTING REQUIREMENT ON SOUTHEAST SIDE OF WELLNESS CENTER.

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE NC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

PARTIAL LANDSCAPE PLAN – BUFFER, STREETYARD, PARKING & CANOPY

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CL101
DRAWING NUMBER 13

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

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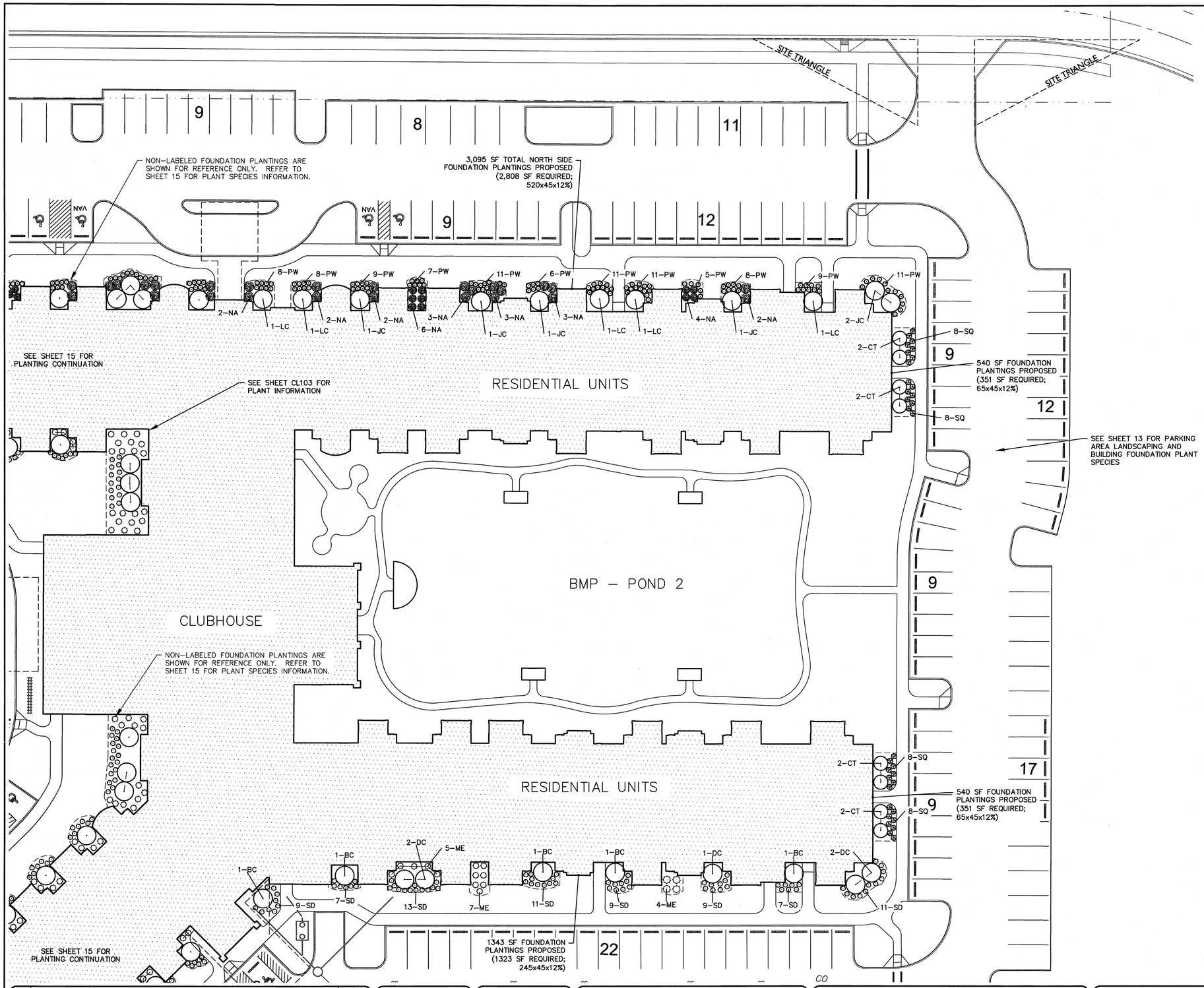

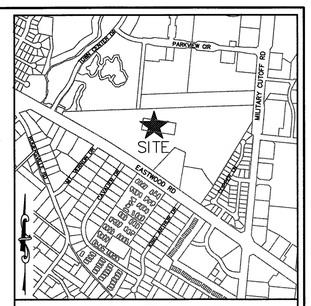

LEGEND

- - - - - - BED LIMITS

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT NO. 1050 MARGARET W. LIGHT

McKIM & CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
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MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

PARTIAL LANDSCAPE PLAN - BUILDING FOUNDATION

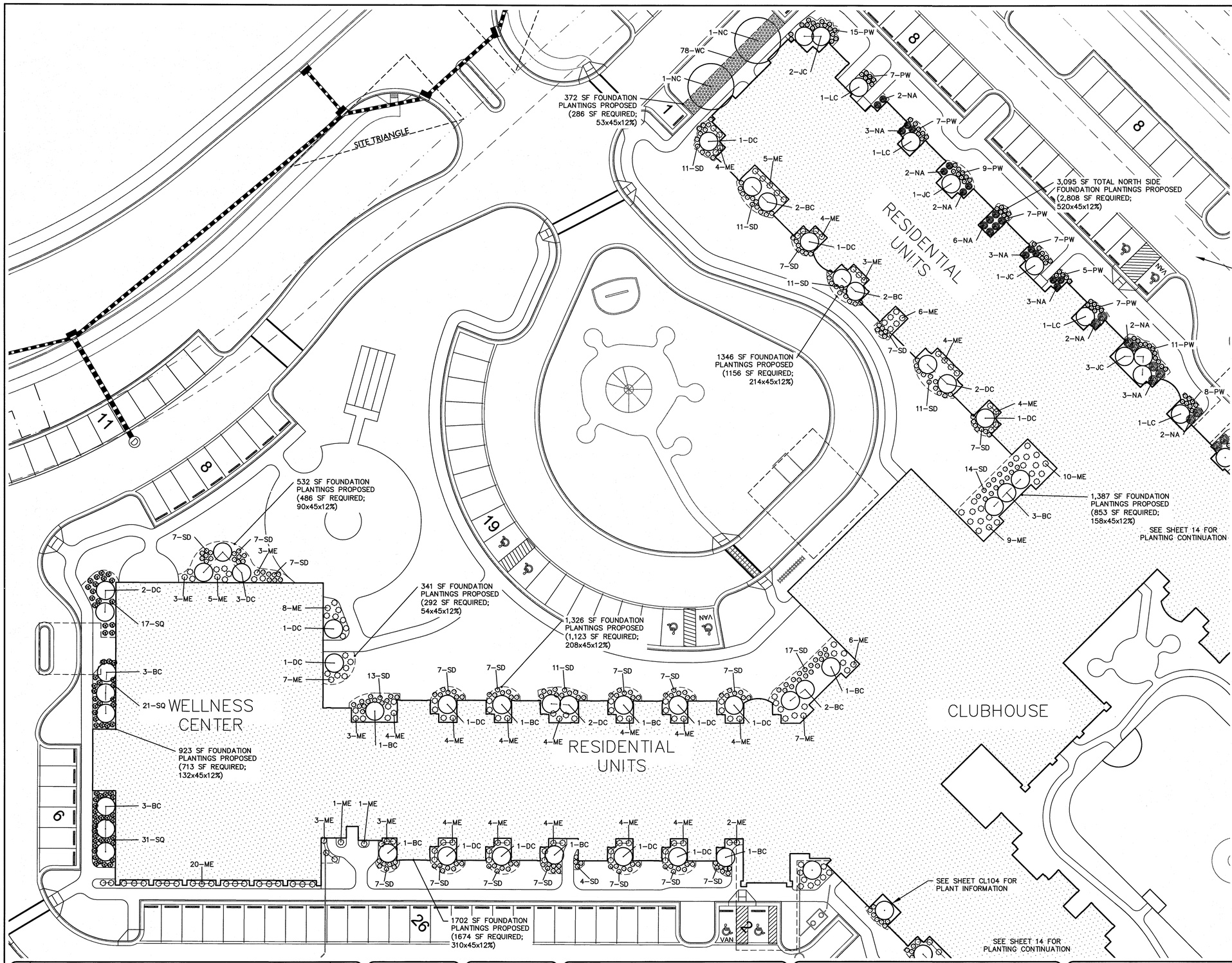
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

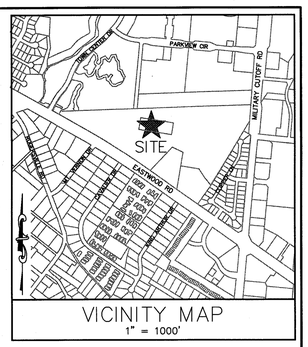
SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER CL102
DRAWING NUMBER 14

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

S:\5584\0006\80-Drawings\CL-102_5584\0006.dwg, 8/8/2013 1:26:36 PM, rcollier





LEGEND

- - - - - - BED LIMITS

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE NC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT No. 500 MARGARET A. GRAY

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

PARTIAL LANDSCAPE PLAN (BUILDING FOUNDATION)

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER CL103
DRAWING NUMBER 15

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

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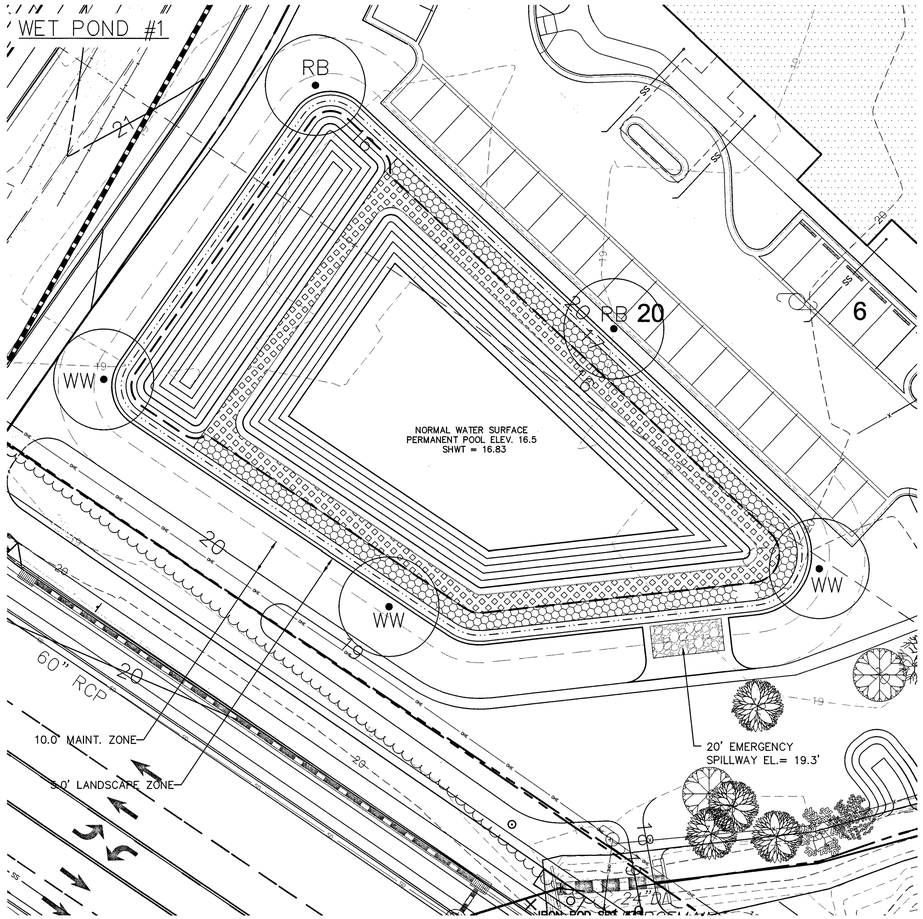

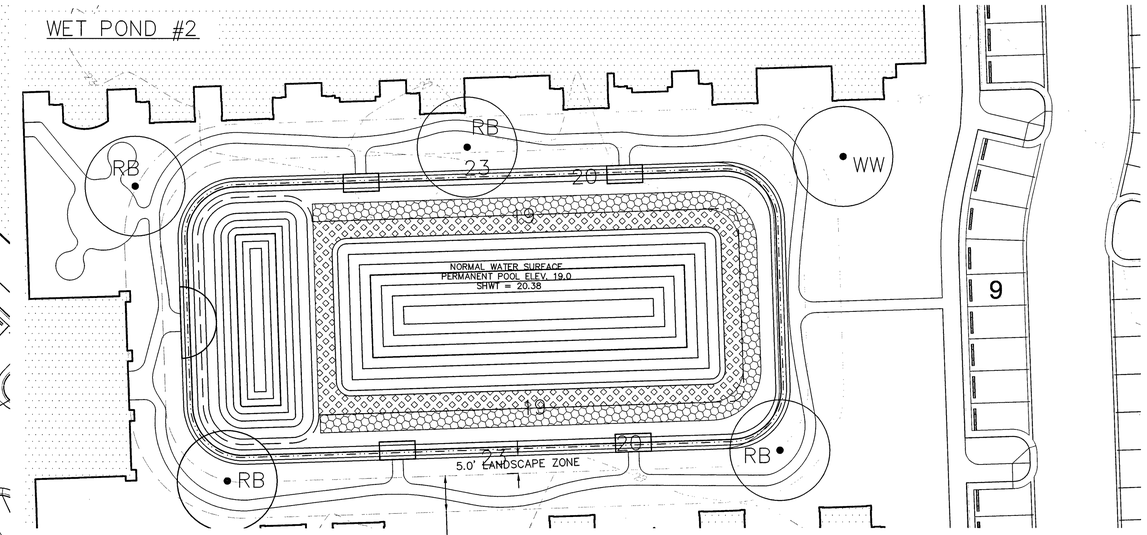

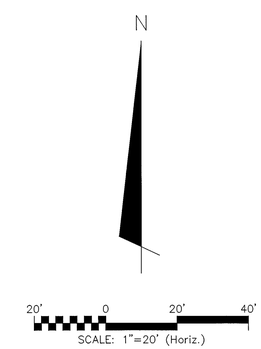

PLANTING LEGEND

LOWER POND SHELF

UPPER POND SHELF

NOTE

WETLAND PLANTS SHALL NOT BE PLANTED WITHIN 10 FEET OF OUTLET STRUCTURE.

WET POND #2

VEGETATIVE SHELF PLANT SCHEDULE						
PLANT LOCATION	NO. OF GROUPINGS	PLANT VARIETIES	SPACING	SIZE	SPECIES QUANTITY (25% MIX)	Total Quantity
LOWER POND SHELF – 50% SHALLOW WATER	54	ALTERNATE GROUPINGS OF SWEET FLAG, SOFTRUSH, ARROW ARUM, AND LIZARD TAIL	4' O.C STAGGERED	5–6" PLUG	108 EA. VARIETY (8 PLANTS PER GROUPING)	432
UPPER POND SHELF – 50% SHALLOW LAND	48	ALTERNATE GROUPINGS OF QUILL SEDGE, SWAMP MILKWEED, STARRUSH WHITETOP, AND NARROW PLUMEGRASS	4' O.C STAGGERED	5–6" PLUG	120 EA. VARIETY (10 PLANTS PER GROUPING)	480
					TOTAL PROVIDED	912
			3,625 SF TOTAL	=	TOTAL REQUIRED	906

WET POND #1

VEGETATIVE SHELF PLANT SCHEDULE						
PLANT LOCATION	NO. OF GROUPINGS	PLANT VARIETIES	SPACING	SIZE	SPECIES QUANTITY (25% MIX)	Total Quantity
LOWER POND SHELF – 50% SHALLOW WATER	45	ALTERNATE GROUPINGS OF SWEET FLAG, SOFTRUSH, ARROW ARUM, AND LIZARD TAIL	4' O.C STAGGERED	5–6" PLUG	90 EA. VARIETY (8 PLANTS PER GROUPING)	360
UPPER POND SHELF – 50% SHALLOW LAND	60	ALTERNATE GROUPINGS OF QUILL SEDGE, SWAMP MILKWEED, STARRUSH WHITETOP, AND NARROW PLUMEGRASS	4' O.C STAGGERED	5–6" PLUG	120 EA. VARIETY (8 PLANTS PER GROUPING)	480
					TOTAL PROVIDED	840
			3,325 SF TOTAL	=	TOTAL REQUIRED	831

Approved Construction Plan

Name Date

Planning

Traffic

Fire

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

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1 inch

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A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA REGISTERED LANDSCAPE ARCHITECT
NO. 369
MARGARET A. GRAY
7/1/13

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE
SERVICE LEVEL

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

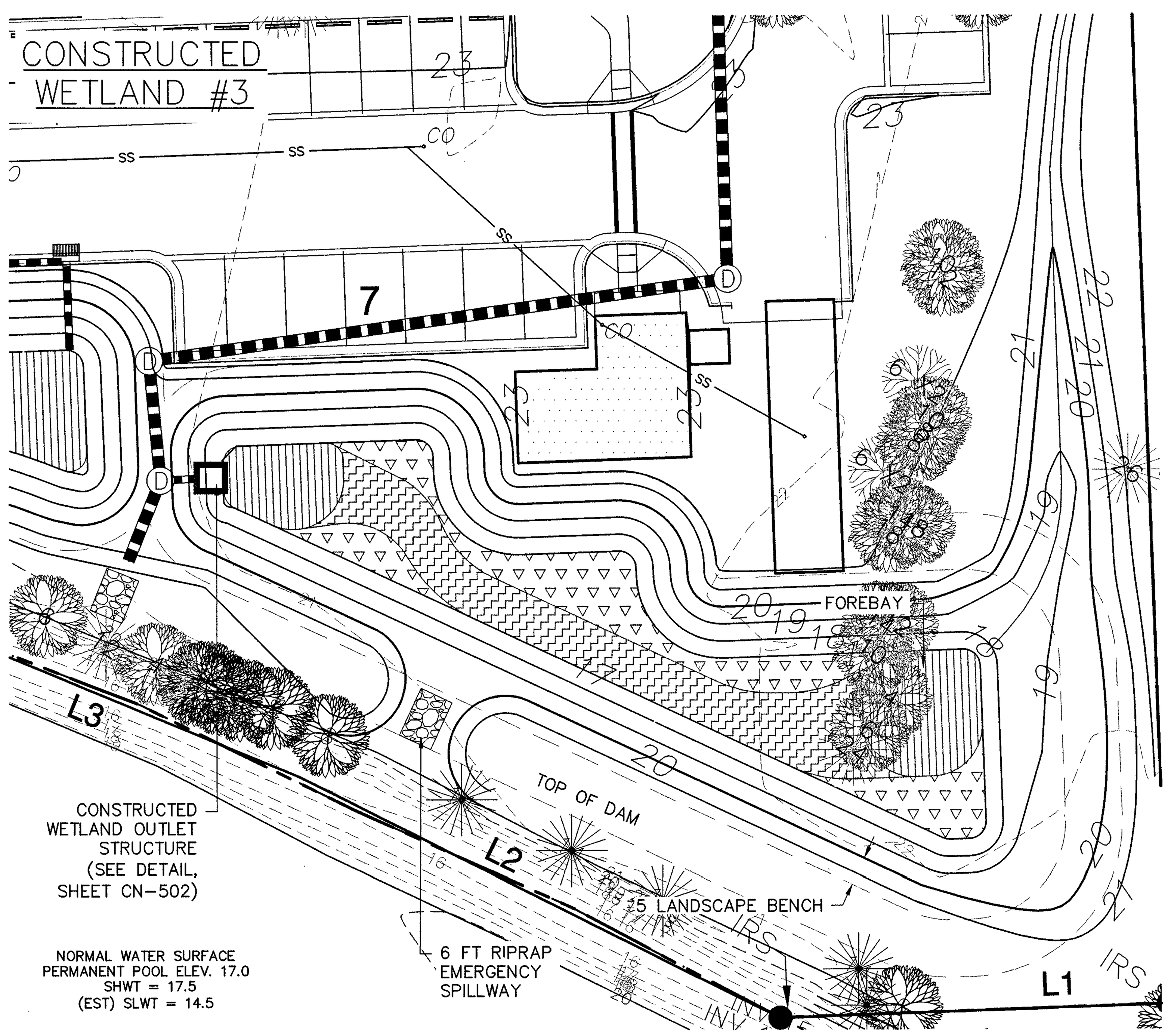
PLANTING PLAN – WET DETENTION PONDS

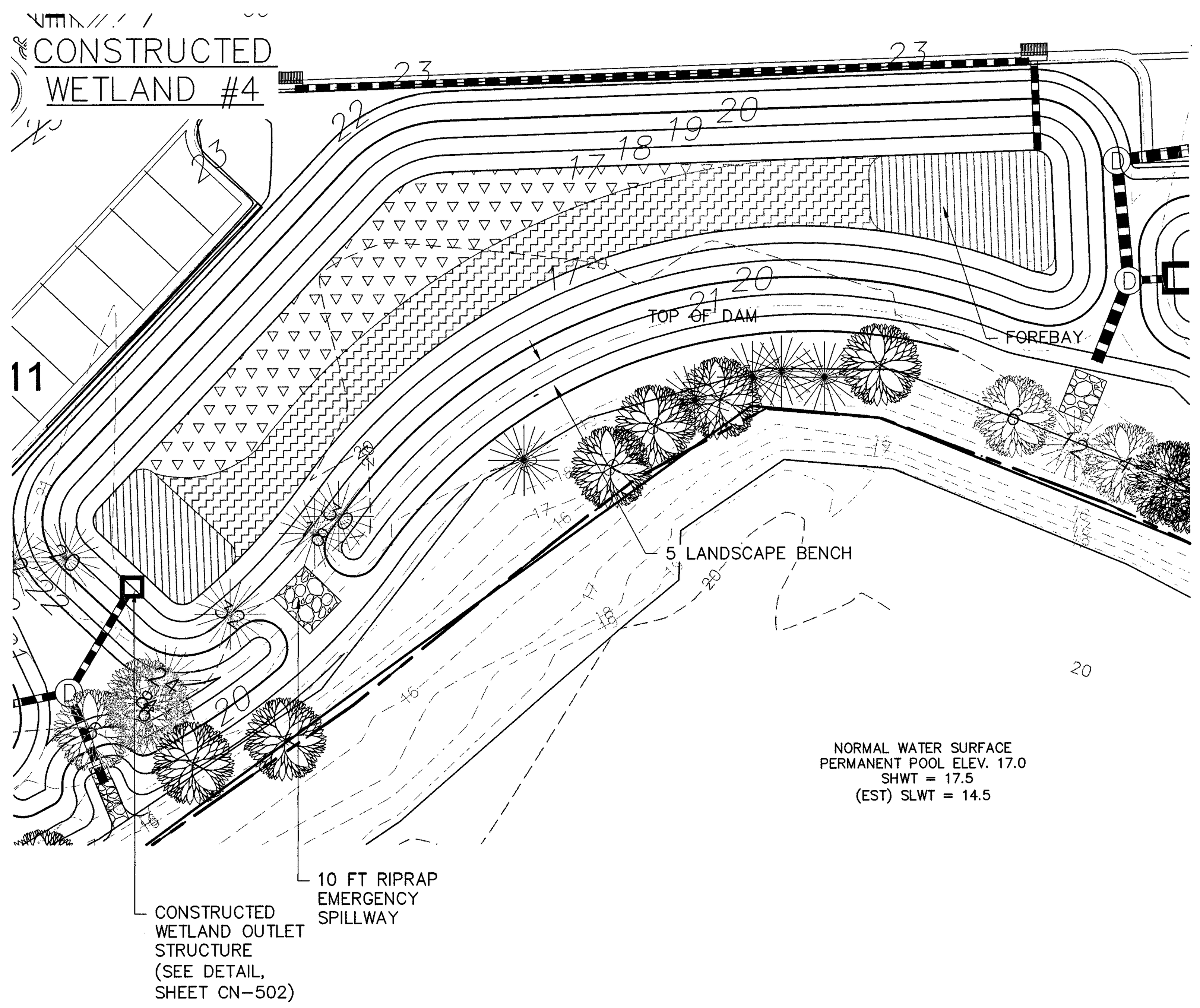
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

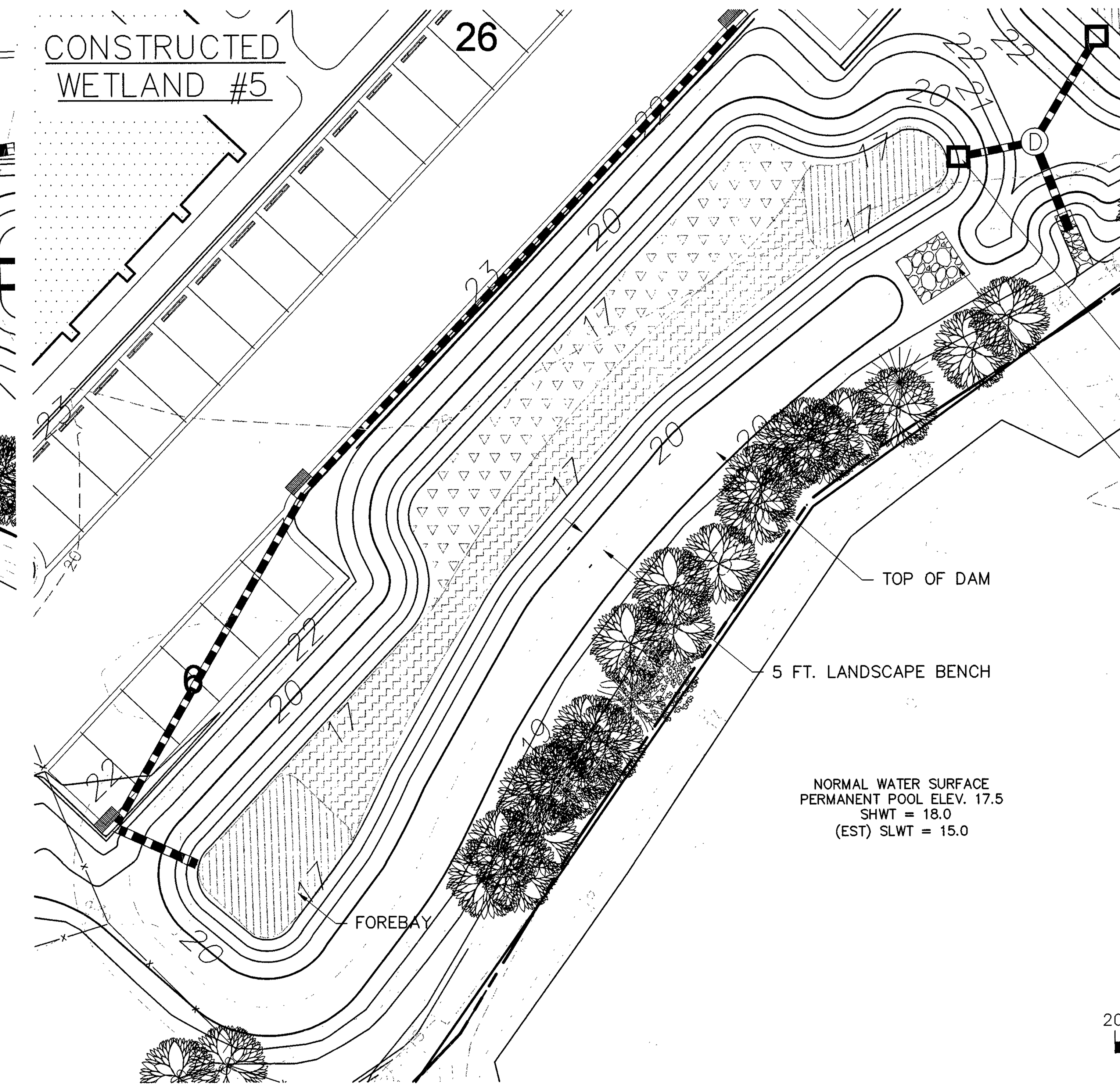
SCALE
HORIZONTAL: AS NOTED
VERTICAL:

M&C FILE NUMBER CL104
DRAWING NUMBER 16

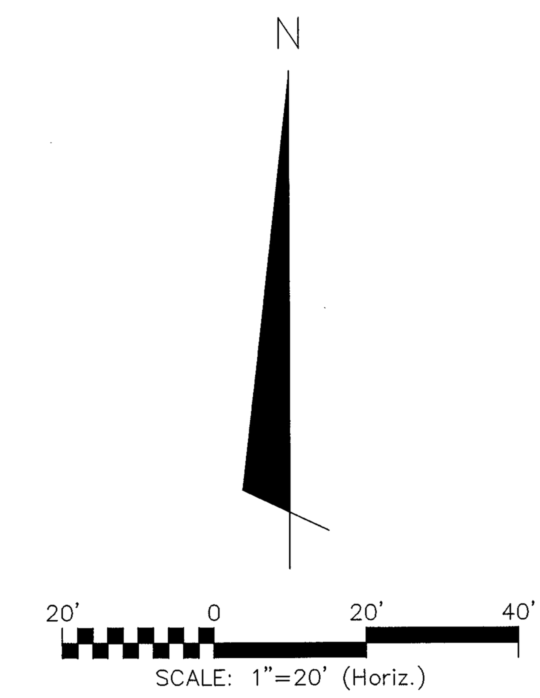
STATUS: ISSUED FOR CONSTRUCTION
REVISION 2







LEGEND	
▽ ▽ ▽	SHALLOW LAND ZONE
(hatch)	SHALLOW WATER ZONE
(hatch)	DEEP POOL AND FOREBAY ZONE



TOPSOIL SPECIFICATIONS

TOPSOIL TO BE ADDED TO TOP OF CONSTRUCTED WETLAND SHELF IF NATIVE SOILS ARE NOT SUITABLE FOR GROWTH OF SELECTED PLANT SPECIES.

TOPSOIL SHALL BE WELL MIXED, FREE OF TRASH AND DEBRIS, UNCOMPACTED, AND VOID OF LARGE (>2 INCHES) AND WOODY MATERIAL (>3 INCHES).

TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
- SOIL TYPE: CLAY < 60%, SAND < 80%, SILT < 80%
- ORGANIC CONTENT: 5-8%
- P-I: 20<50
- pH: 6.0-7.0

IN THE EVENT THAT SELECTED TOPSOIL DOES NOT MEET SPECIFICATION LISTED ABOVE, SOIL CAN BE AMENDED BY ADDITION OF APPROPRIATE MATERIALS.

UPON PLACEMENT OF TOPSOIL, AREA SHOULD BE LIGHTLY COMPACTED TO ENSURE STABILIZATION OF MATERIAL.

EXCESSIVE TRAFFICKING OF EQUIPMENT OVER CONSTRUCTED WETLAND PLANTING AREAS SHOULD BE AVOIDED.

MINIMUM DEPTH OF TOPSOIL SHOULD BE 12 INCHES.

GENERAL PLANTING NOTES:

ALL PLANTS INSTALLED IN AREAS NORMALLY COVERED BY WATER SHALL BE INSTALLED BETWEEN APRIL 1 AND AUGUST 31. INSTALLATION AFTER THIS DATE ENTAILS AN INCREASED RISK OF FAILURE AND MAY ONLY BE PERFORMED UPON MUTUAL AND OWNER OR OWNER'S AGREEMENT BETWEEN THE INSTALLATION CONTRACTOR REPRESENTATIVE.

THE PROVENANCE (GENETIC ORIGIN) OF THE PLANTS SHALL BE WITHIN 200 MILES OF THE WETLAND SITE. INSTALLATION OF PLANTS WITH MORE DISTANT GENETIC ORIGIN MAY ONLY BE PERFORMED UPON MUTUAL AGREEMENT BETWEEN THE INSTALLATION CONTRACTOR AND OWNER OR OWNER'S REPRESENTATIVE. EXCEPT FOR PROVENANCE, GENETIC DIVERSITY IS ENCOURAGED AND CULTIVARS SHOULD NOT BE UTILIZED.

THE UPPER AND LOWER MARGINS OF EACH PLANTING ZONE SHALL BE CLEARLY IDENTIFIED AND MARKED PRIOR TO INSTALLING PLANTS. VERTICAL DISTANCE FROM NORMAL WATER LEVEL SHALL BE THE PRIMARY MEANS OF LOCATING THE ZONES.

ALL PLANTS SHALL BE INSTALLED AS LARGE DRIFTS OF A SINGLE PLANT SPECIES, UNLESS OTHERWISE SPECIFIED.

THE INSTALLER MUST TAKE GREAT CARE TO ENSURE THAT PLANTS AWAITING INSTALLATION ARE KEPT MOIST AND SHADED AT ALL TIMES. UNDER NO CIRCUMSTANCES SHALL PLANT ROOTS BE ALLOWED TO DRY OUT DURING TRANSPORT, STORAGE OR INSTALLATION.

ALL HERBACEOUS PLANTS, UNLESS OTHERWISE INDICATED, SHALL BE GROWN IN CONTAINERS OF 4.9 CUBIC INCHES OR GREATER CAPACITY (LARGE PLUGS).

PLANTING HOLES OR SLITS OF HERBACEOUS SPECIES INSTALLED ABOVE NORMAL WATER LEVEL SHALL BE DEEP ENOUGH TO ALLOW THE CROWN OF THE PLANT TO BE AT GRADE LEVEL, WHILE ROOTS EXTEND VERTICALLY INTO THE SUBSTRATE WITHOUT KINKING. SOIL SHOULD NOT BE LOOSENED MORE THAN NECESSARY. APPROXIMATELY 5 GRAMS OF A BALANCED SLOW RELEASE FERTILIZER SHALL BE INSTALLED NEXT TO EACH PLANT. THIS FERTILIZER MAY BE OMITTED IF 6 INCHES OF GOOD TOPSOIL HAS BEEN APPLIED EACH PLANT SHOULD BE IRRIGATED ON THE SAME DAY THROUGHOUT THE WETLAND. AS INSTALLATION TO CREATE A STRONG CAPILLARY BOND BETWEEN THE PLANT ROOTS AND SURROUNDING SOIL.

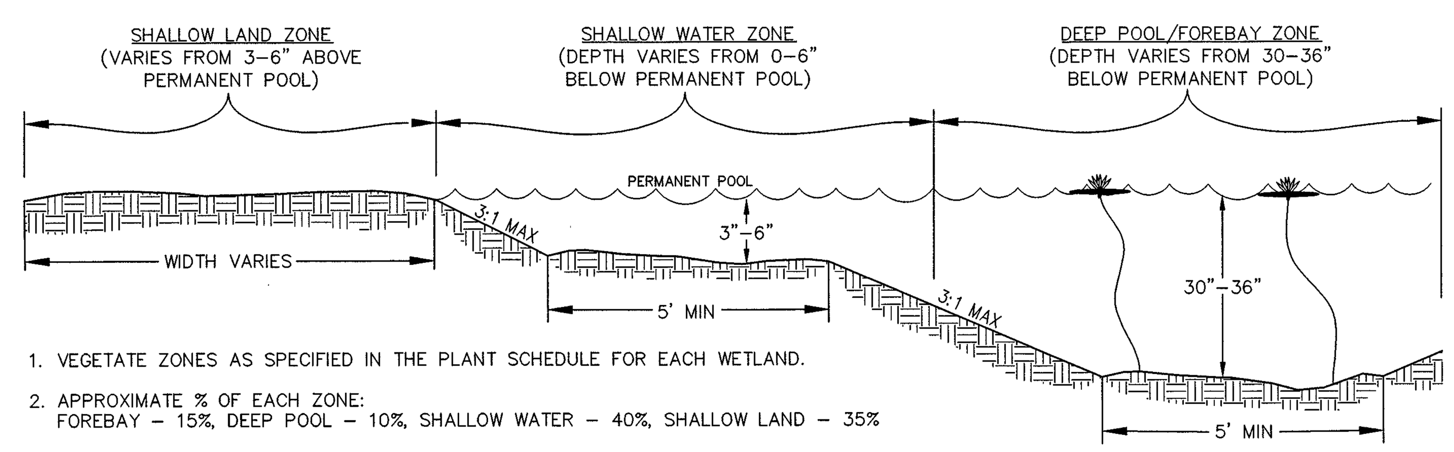
PLANTING HOLES OR SLITS OF HERBACEOUS SPECIES INSTALLED BELOW NORMAL WATER LEVEL SHALL BE DEEP ENOUGH TO ALLOW TH INCHES BELOW GRADE LEVEL, WHILE ROOTS EXTEND VERTICALLY INTO THE SUBSTRATE WITHOUT KINKING. SOIL SHOULD NOT BE LOOSENED MORE THAN NECESSARY. APPROXIMATELY 5 GRAMS OF A BALANCED SLOW RELEASE FERTILIZER SHALL BE INSTALLED NEXT TO EACH PLANT. THIS FERTILIZER MAY BE OMITTED IF 6 INCHES OF GOOD TOPSOIL HAS BEEN APPLIED THROUGHOUT THE WETLAND.

SHALLOW WATER (A.K.A. LOW MARSH) PLANTS SHALL NOT BE INSTALLED IN WATER MORE THAN 6 INCHES DEEP UNDER NORMAL CONDITIONS.

CAMBRIDGE VILLAGE OF WILMINGTON				
CONSTRUCTED WETLAND #3 PLANT SCHEDULE				
AREAS:				
1. 1032 SF SW / 200 x 50 = 258 (260, 26 ea)				
2. 954 SF SL / 200 x 50 = 239 (240, 24 ea)				
SHALLOW WATER ZONE (0"– 6" VERTICAL INCHES BELOW NORMAL WATER LEVEL)				
Common Name	Botanical Name	Size	Quantity	Comments
Sawgrass	Cladium jamaicense	Large plugs	26	2' o.c. in groups of 5–6
Southern Blue Flag Iris	Iris virginica	Large plugs	26	2' o.c. in groups of 5–6
Arrow arum	Peltandra virginica	Large plugs	26	2' o.c. in groups of 5–6
Pickerel weed	Pontederia cordata	Large plugs	26	2' o.c. in groups of 5–6
Lizard Tail	Saururus cernuus	Large plugs	26	2' o.c. in groups of 5–6
Bulltongue	Sagittaria lancifolia	Large plugs	26	2' o.c. in groups of 5–6
Duck Potato	Sagittaria latifolia	Large plugs	26	2' o.c. in groups of 5–6
Threesquare	Schoenoplectus americanus	Large plugs	26	2' o.c. in groups of 5–6
Softstem Bulrush	Schoenoplectus tabernaemontani	Large plugs	26	2' o.c. in groups of 5–6
Burreed	Sparganium americanum	Large plugs	26	2' o.c. in groups of 5–6
SHALLOW LAND ZONE (3"– 6" ABOVE PERMANENT POOL)				
Common Name	Botanical Name	Size	Quantity	Comments
Fringed Sedge	*Carex crinita*	Large plugs	24	2' o.c. in groups of 6
Shallow Sedge	*Carex lurida*	Large plugs	24	2' o.c. in groups of 6
River Oats	*Chasmanthium latifolium*	Large plugs	24	2' o.c. in groups of 6
Beaked Panicgrass	*Panicum anceps*	Large plugs	24	2' o.c. in groups of 6
Swamp Milkweed	*Asclepias incarnata*	Large plugs	24	2' o.c. in groups of 6
Swamp Sunflower	*Helianthus angustifolius*	Large plugs	24	2' o.c. in groups of 6
Scarlet Rose Mallow	*Hibiscus coccineus*	Large plugs	24	2' o.c. in groups of 6
Rose Mallow	*Hibiscus moscheutus*	Large plugs	24	2' o.c. in groups of 6
Seashore Mallow	*Kosteletzkya virginica*	Large plugs	24	2' o.c. in groups of 6
New York Ironweed	*Vernonia noveboracensis*	Large plugs	24	2' o.c. in groups of 6

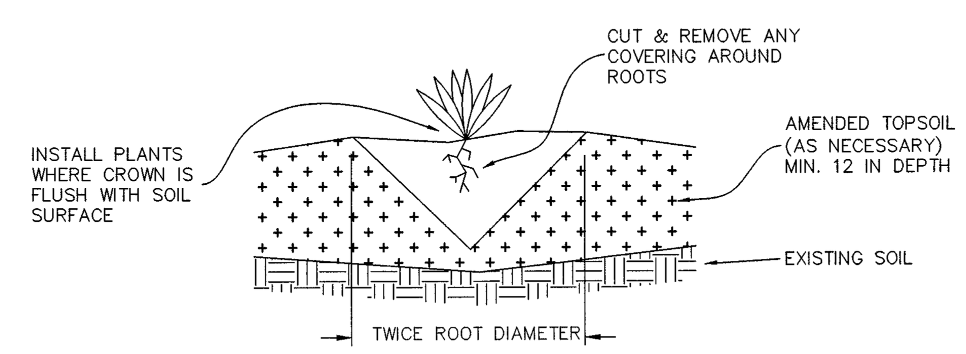
CAMBRIDGE VILLAGE OF WILMINGTON				
CONSTRUCTED WETLAND #4 PLANT SCHEDULE				
AREAS:				
1. 1476 SF SW / 200 x 50 = 369 (370, 37 ea)				
2. 1260 SF SL / 200 x 50 = 315 (320, 32 ea)				
SHALLOW WATER ZONE (0"– 6" VERTICAL INCHES BELOW NORMAL WATER LEVEL)				
Common Name	Botanical Name	Size	Quantity	Comments
Sawgrass	Cladium jamaicense	Large plugs	37	2' o.c. in groups of 5–7
Southern Blue Flag Iris	Iris virginica	Large plugs	37	2' o.c. in groups of 5–7
Arrow arum	Peltandra virginica	Large plugs	37	2' o.c. in groups of 5–7
Pickerel weed	Pontederia cordata	Large plugs	37	2' o.c. in groups of 5–7
Lizard Tail	Saururus cernuus	Large plugs	37	2' o.c. in groups of 5–7
Bulltongue	Sagittaria lancifolia	Large plugs	37	2' o.c. in groups of 5–7
Duck Potato	Sagittaria latifolia	Large plugs	37	2' o.c. in groups of 5–7
Threesquare	Schoenoplectus americanus	Large plugs	37	2' o.c. in groups of 5–7
Softstem Bulrush	Schoenoplectus tabernaemontani	Large plugs	37	2' o.c. in groups of 5–7
Burreed	Sparganium americanum	Large plugs	37	2' o.c. in groups of 5–7
SHALLOW LAND ZONE (3"– 6" ABOVE PERMANENT POOL)				
Common Name	Botanical Name	Size	Quantity	Comments
Fringed Sedge	*Carex crinita*	Large plugs	32	2' o.c. in groups of 5
Shallow Sedge	*Carex lurida*	Large plugs	32	2' o.c. in groups of 5
River Oats	*Chasmanthium latifolium*	Large plugs	32	2' o.c. in groups of 5
Beaked Panicgrass	*Panicum anceps*	Large plugs	32	2' o.c. in groups of 5
Swamp Milkweed	*Asclepias incarnata*	Large plugs	32	2' o.c. in groups of 5
Swamp Sunflower	*Helianthus angustifolius*	Large plugs	32	2' o.c. in groups of 5
Scarlet Rose Mallow	*Hibiscus coccineus*	Large plugs	32	2' o.c. in groups of 5
Rose Mallow	*Hibiscus moscheutus*	Large plugs	32	2' o.c. in groups of 5
Seashore Mallow	*Kosteletzkya virginica*	Large plugs	32	2' o.c. in groups of 5
New York Ironweed	*Vernonia noveboracensis*	Large plugs	32	2' o.c. in groups of 5

CAMBRIDGE VILLAGE OF WILMINGTON				
CONSTRUCTED WETLAND #5 PLANT SCHEDULE				
AREAS:				
1. 1198 SF SW / 200 x 50 = 300 (300, 30 ea)				
2. 1140 SF SL / 200 x 50 = 285 (290, 29 ea)				
SHALLOW WATER ZONE (0"– 6" VERTICAL INCHES BELOW NORMAL WATER LEVEL)				
Common Name	Botanical Name	Size	Quantity	Comments
Sawgrass	Cladium jamaicense	Large plugs	30	2' o.c. in groups of 6
Southern Blue Flag Iris	Iris virginica	Large plugs	30	2' o.c. in groups of 6
Arrow arum	Peltandra virginica	Large plugs	30	2' o.c. in groups of 6
Pickerel weed	Pontederia cordata	Large plugs	30	2' o.c. in groups of 6
Lizard Tail	Saururus cernuus	Large plugs	30	2' o.c. in groups of 6
Bulltongue	Sagittaria lancifolia	Large plugs	30	2' o.c. in groups of 6
Duck Potato	Sagittaria latifolia	Large plugs	30	2' o.c. in groups of 6
Threesquare	Schoenoplectus americanus	Large plugs	30	2' o.c. in groups of 6
Softstem Bulrush	Schoenoplectus tabernaemontani	Large plugs	30	2' o.c. in groups of 6
Burreed	Sparganium americanum	Large plugs	30	2' o.c. in groups of 6
SHALLOW LAND ZONE (3"– 6" ABOVE PERMANENT POOL)				
Common Name	Botanical Name	Size	Quantity	Comments
Fringed Sedge	*Carex crinita*	Large plugs	29	2' o.c. in groups of 4–5
Shallow Sedge	*Carex lurida*	Large plugs	29	2' o.c. in groups of 4–5
River Oats	*Chasmanthium latifolium*	Large plugs	29	2' o.c. in groups of 4–5
Beaked Panicgrass	*Panicum anceps*	Large plugs	29	2' o.c. in groups of 4–5
Swamp Milkweed	*Asclepias incarnata*	Large plugs	29	2' o.c. in groups of 4–5
Swamp Sunflower	*Helianthus angustifolius*	Large plugs	29	2' o.c. in groups of 4–5
Scarlet Rose Mallow	*Hibiscus coccineus*	Large plugs	29	2' o.c. in groups of 4–5
Rose Mallow	*Hibiscus moscheutus*	Large plugs	29	2' o.c. in groups of 4–5
Seashore Mallow	*Kosteletzkya virginica*	Large plugs	29	2' o.c. in groups of 4–5
New York Ironweed	*Vernonia noveboracensis*	Large plugs	29	2' o.c. in groups of 4–5



1. VEGETATE ZONES AS SPECIFIED IN THE PLANT SCHEDULE FOR EACH WETLAND.
2. APPROXIMATE % OF EACH ZONE:
   FOREBAY – 15%, DEEP POOL – 10%, SHALLOW WATER – 40%, SHALLOW LAND – 35%

CONSTRUCTED WETLAND ZONES
NOT TO SCALE



PLANTING DETAIL
NOT TO SCALE

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _______ PERMIT #_______
SIGNED_______________

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1 inch

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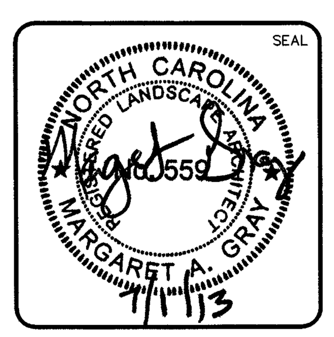
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL



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Phone: (910)343-1048 , Fax: (910)251-8282

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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

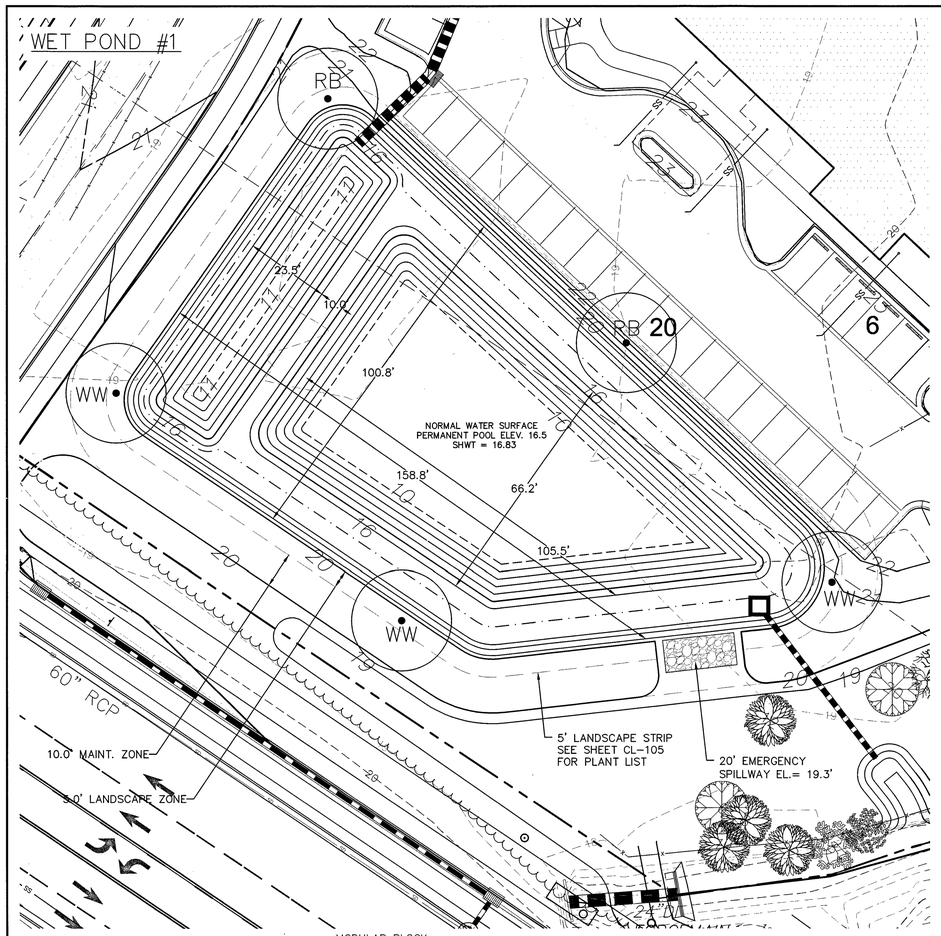
PLANTING PLAN – CONSTRUCTED WETLANDS

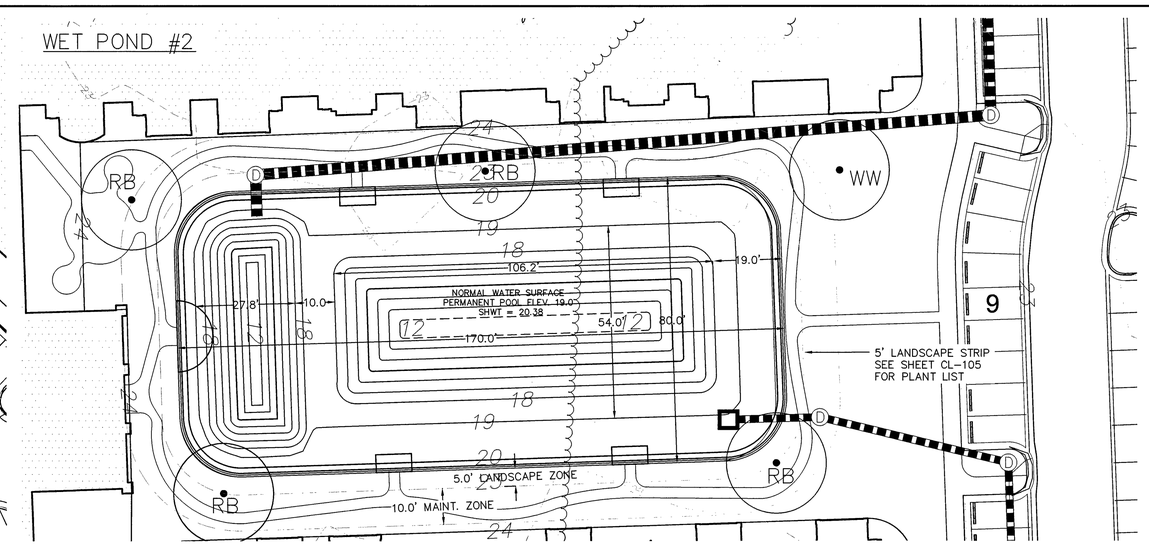
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

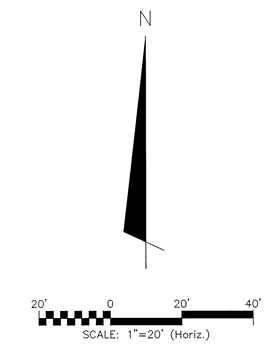
SCALE
HORIZONTAL: AS NOTED
VERTICAL:

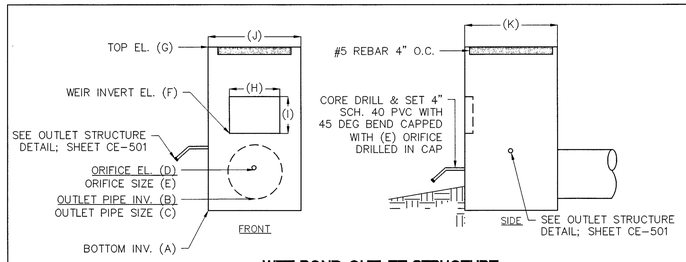
M&C FILE NUMBER: CL105
DRAWING NUMBER: 17

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2





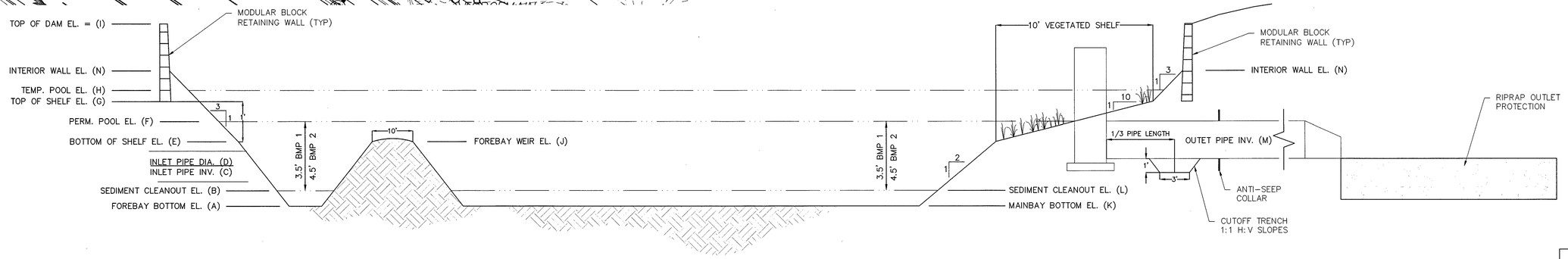




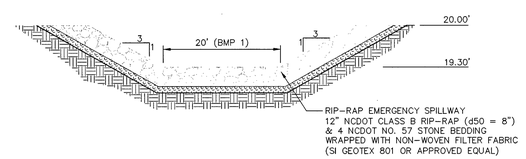
WET POND OUTLET STRUCTURE
NOT TO SCALE

WET POND OUTLET STRUCTURE		
	WET POND 1	WET POND 2
A	14.0'	16.5'
B	15.0'	18.0'
C	18" RCP	24" RCP
D	16.5'	19.0'
E	2.00"	2.00"
F	17.50'	20.20'
G	18.80'	21.80'
H	42"	42"
I	8"	6"
J	60"	60"
K	60"	60"

STORM ELEVATIONS	STORM ELEVATIONS
WET POND #1	WET POND #2
1.5" PROPOSED DEPTH = 17.50'	1.5" PROPOSED DEPTH = 20.20'
1-YEAR = 17.74'	1-YEAR = 20.46'
10-YEAR = 18.62'	10-YEAR = 21.25'
25-YEAR = 19.02'	25-YEAR = 21.61'
100-YEAR = 19.50'	100-YEAR = 21.99'



WET POND DIMENSIONS		
	WET POND 1	WET POND 2
A	10.0'	12.0'
B	12.0'	14.0'
C	14.65'	14.0'
D	36"	30"
E	16.0'	18.5'
F	16.5'	19.0'
G	17.0'	19.5'
H	17.50'	20.2'
I	20.0'	23.0'
J	16.0'	18.5'
K	12.10'	12.00'
L	13.0'	14.5'
M	15.0'	18.0'
N	18.0'	20.5'



EMERGENCY SPILLWAY SECTION
NOT TO SCALE

WET POND OUTFALL PROTECTION		
	WET POND 1	WET POND 2*
OUTLET PIPE DIA.	18"	24"
OUTLET FLOW RATE	9.86 CFS	8.42 CFS
OUTLET VELOCITY	6.8 FT/S	5.2 FT/S
MATERIAL	CLASS A	CLASS A
LENGTH	9.0'	8.0'
WIDTH	4.5'	6.0'
STONE DIA.	6"	3"
THICKNESS	22"	9"

* POND 2 OUTFALL AT CONFLUENCE WITH WETLAND 3 (FES 46)

Approved Construction Plan

Name	Date
Planning	
Traffic	
Fire	

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.

1 inch

REV.NO.	DESCRIPTIONS	DATE
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

PROFESSIONAL SEAL 22574 ENGINEER R. CHRISTOPHER MILLER
07/01/2013

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Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

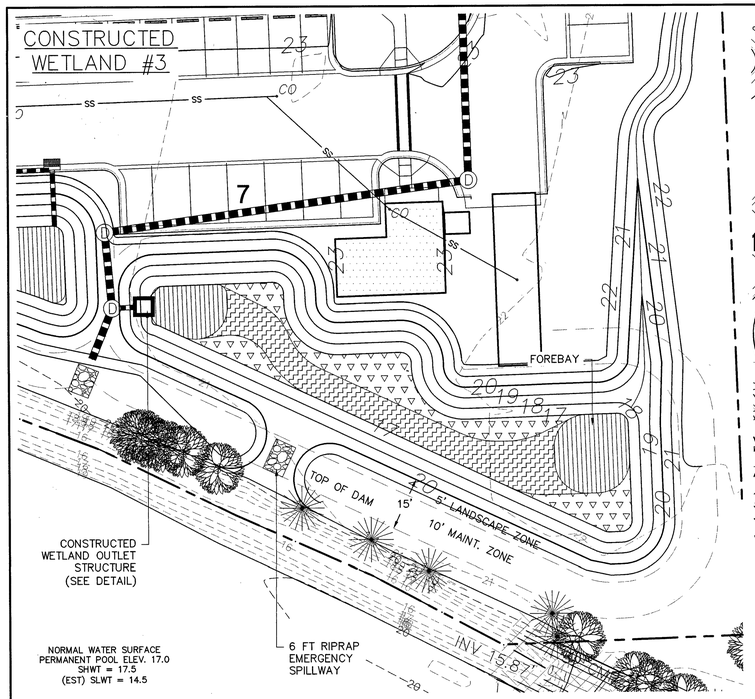
STORMWATER DETAILS
WET DETENTION PONDS

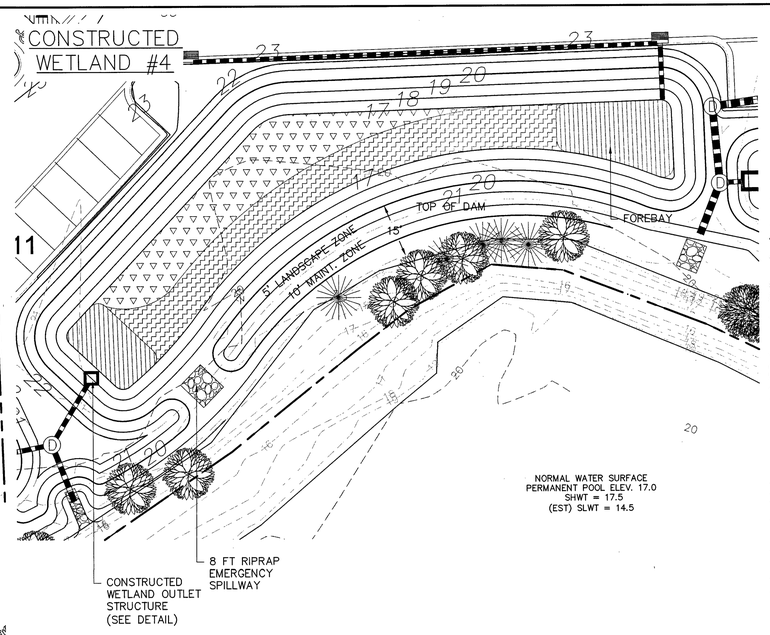
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

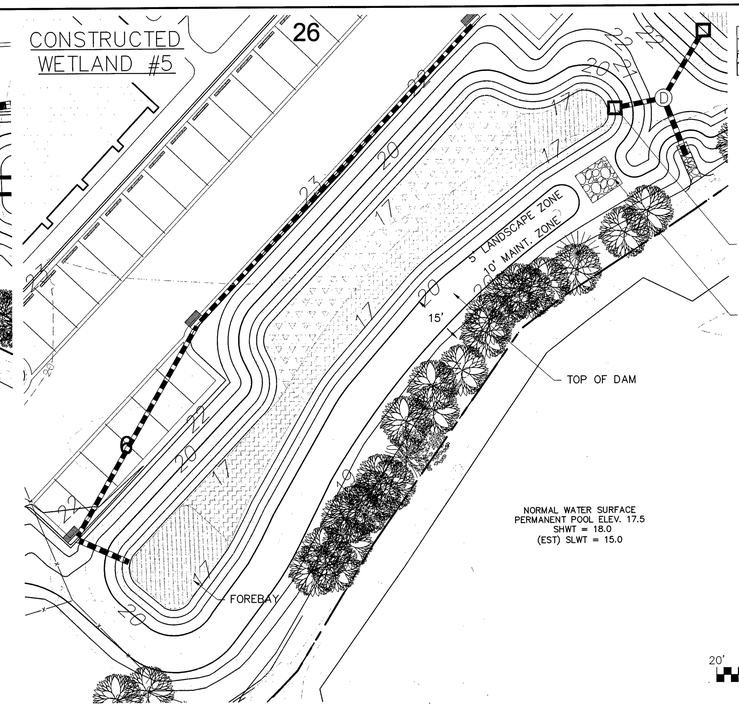
SCALE
HORIZONTAL: AS NOTED
VERTICAL:

M&C FILE NUMBER CN501
DRAWING NUMBER 18

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2







LEGEND
- SHALLOW LAND ZONE
- SHALLOW WATER ZONE
- DEEP POOL AND FOREBAY ZONE

N

20' 0 20' 40'
SCALE: 1"=20' (Horiz.)

TOPSOIL SPECIFICATIONS

TOPSOIL TO BE ADDED TO TOP OF CONSTRUCTED WETLAND SHELF IF NATIVE SOILS ARE NOT SUITABLE FOR GROWTH OF SELECTED PLANT SPECIES.

TOPSOIL SHALL BE WELL MIXED, FREE OF TRASH AND DEBRIS, UNCOMPACTED, AND VOID OF LARGE (>2 INCHES) AND WOODY MATERIAL (>3 INCHES).

TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:
SOIL TYPE: CLAY < 60%, SAND < 80%, SILT < 80%
ORGANIC CONTENT: 5–8%
P–I: 20<50
pH: 6.0–7.0

IN THE EVENT THAT SELECTED TOPSOIL DOES NOT MEET SPECIFICATION LISTED ABOVE, SOIL CAN BE AMENDED BY ADDITION OF APPROPRIATE MATERIALS.

UPON PLACEMENT OF TOPSOIL, AREA SHOULD BE LIGHTLY COMPACTED TO ENSURE STABILIZATION OF MATERIAL.

EXCESSIVE TRAFFICKING OF EQUIPMENT OVER CONSTRUCTED WETLAND PLANTING AREAS SHOULD BE AVOIDED.

MINIMUM DEPTH OF TOPSOIL SHOULD BE 12 INCHES.

GENERAL PLANTING NOTES:

PREVENT FROM COMPACTING TOPSOIL, TO PROMOTE HEALTHY ENVIRONMENTAL CONDITIONS FOR THE PLANTS.

PLANTS OF THE SAME SPECIES SHOULD BE PLANTED IN CLUSTERS, THESE CLUSTERS SHOULD CONTAIN 4–6 PLANTS OF THAT SPECIES.

ALL PLANTS SHOULD BE PLANTED IN THE SPECIFIED ZONE TO ENSURE SURVIVAL.

AVOID PLANTING INDIVIDUAL SPECIES IN LARGE GROUPS BY SPACING CLUSTERS A MIN. OF 5' APART.

ALL ZONES TO BE PLANTED WITH BARE ROOT, PLUGS, OR CONTAINER LIVE PLANTINGS AS SPECIFIED

SEE PLANTING DETAIL FOR PLACEMENT OF PLANTS.

BEGIN PLANTING DURING LOCAL GROWING SEASON IN ORDER TO ENSURE THAT PLANTS HAVE ADAQUET TIME TO ESTABLISH BEFORE WINTER MONTHS.

FRESH PLANTS WILL BE OBTAINED FROM A NURSERY AND WILL BE STORED WITH ROOTS IN MOIST SOILS.

PLANTINGS WILL BE INSPECTED AND MAINTAINED. PLANTS WILL BE INSPECTED FOR WASHOUT. WASHED OUT PLANTS WILL BE REPLACED.

A SUITABLE STAND OF WETLAND PLANTS WILL BE ESTABLISHED WITHIN 8 MONTHS OF PLANTING. A 90% SURVIVAL RATE MEETS THIS OBJECTIVE. SUPPLEMENTAL PLANTINGS WILL BE PROVIDED AS NEEDED TO MEET THIS CRITERIA.

THE SPECIFIED PLANT MATERIALS MAY BE OBTAINED FROM ANY NURSERY, INCLUDING: COASTAL PLAIN CONSERVATION NURSERY, 3067 CONNERS DR. EDENTON, NC 27932. (252) 482–5707.

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

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

SEEDBED PREPARATION

CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS, IF AVAILABLE.

RIP THE ENTRANCE AREA TO 6 INCHES DEPTH.

REMOVE ALL LOOSE ROCK, ROOTS, AND OTHER OBSTRUCTIONS LEAVING SURFACE REASONABLY SMOOTH AND UNIFORM.

APPLY AGRICULTURAL LIME, FERTILIZER, AND SUPER PHOSPHATE UNIFORMLY AND MIX WITH SOIL (SEE BELLOW).

CONTINUE TILLAGE UNTIL A WELL – PULVERIZED, FIRM, REASONABLY UNIFORM SEEDBED IS PREPARED 4 TO 6 INCHES DEEP.

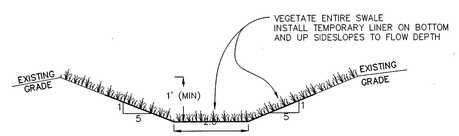
SEED ON A FRESHLY PREPARED SEEDBED AND COVER SEED LIGHTLY WITH SEEDING EQUIPMENT OR CULTIPACK AFTER SEEDING.

MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.

INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEEDINGS WITHIN THE PLANTING SEASON, IF POSSIBLE. IF STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.

CONSULT CONSERVATION INSPECTOR ON MAINTENANCE TREATMENT AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.

* APPLY: AGRICULTURAL LIMESTONE – 2 TONS/ACRE
FERTILIZER – 1000 LBS/ACRE (10–10–10)
SUPER PHOSPHATE – 500 LBS/ACRE (20%)
MULCH – 2 TONS/ACRE (SMALL GRAIN STRAW)
ANCHOR – ASPHALT EMULSION AT 450 GAL



VEGETATED SWALE
NOT TO SCALE

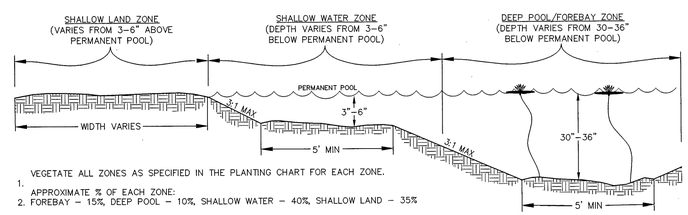
NOTES

1. OVER–EXCAVTE CHANNEL DEPTH 0.5' TO ALLOW FOR SOIL BULKING (DURING SEEDBED PREP) AND SOD/VEGETATIVE ACCUMULATION.
2. VEGETATE SWALES ACCORDING TO SEEDING SCHEDULE IMMEDIATELY UPON COMPLETION.
3. THE TEMPORARY LINER SHALL BE PLACED ON THE BOTTOM AND UP THE SIDESLOPES TO THE SPECIFIED FLOW DEPTH; MULCH ACCORDING TO SEEDING SCHEDULE ABOVE THAT HEIGHT.
4. THE TEMPORARY LINER SHALL BE JUTE NET OR STRAW MATTING.
5. FOLLOW MANUFACTURERS INSTRUCTIONS WHEN INSTALLING TEMPORARY LINER.

CONSTRUCTED WETLAND OUTFALL PROTECTION

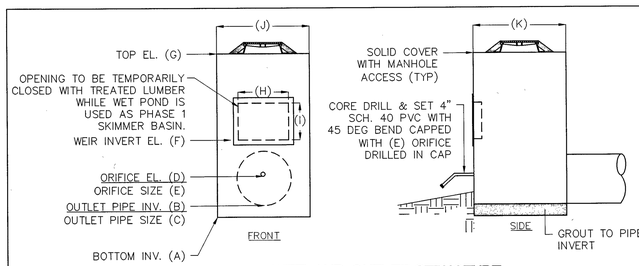
	WETLAND 3	WETLAND 4	WETLAND 5
OUTLET PIPE DIA.*	24"	15"	
OUTLET FLOW RATE	8.42 CFS	5.45 CFS	
OUTLET VELOCITY	5.2 FT/S	5.9 FT/S	
MATERIAL	CLASS A	CLASS A	
LENGTH	8.0'	5.0'	
WIDTH	6.0'	3.8'	
STONE DIA.	3"	3"	
THICKNESS	9"	9"	

* OUTFALL PIPE DIAMETER REFERS TO PIPE SIZE DOWNSTREAM OF CONFLUENCE IN MANHOLE.



1. VEGETATE ALL ZONES AS SPECIFIED IN THE PLANTING CHART FOR EACH ZONE.
2. APPROXIMATE % OF EACH ZONE:
FOREBAY – 15%, DEEP POOL – 10%, SHALLOW WATER – 40%, SHALLOW LAND – 35%

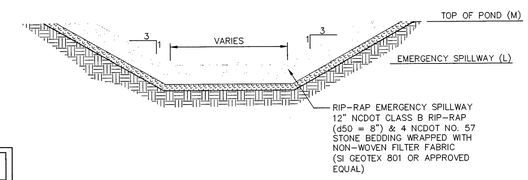
CONSTRUCTED WETLAND ZONES
NOT TO SCALE



WETLAND OUTLET STRUCTURE
NOT TO SCALE

CONSTRUCTED WETLAND OUTLET STRUCTURE

	WETLAND 3	WETLAND 4	WETLAND 5
A	15.0'	15.0'	15.0'
B	17.0'	17.0'	17.0'
C	12" RCP	12" RCP	12" RCP
D	17.0'	17.0'	17.5'
E	1.00"	1.00"	1.00"
F	17.75'	17.75'	18.40'
G	19.50'	19.50'	19.50'
H	12"	12"	24"
I	4"	4"	6"
J	36"	36"	36"
K	36"	36"	36"
L	19.25'	19.25'	19.35'
M	20'	20'	20'



EMERGENCY SPILLWAY SECTION
NOT TO SCALE

Approved Construction Plan
Name Date
Planning
Traffic
Fire

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED

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1 inch

REV.NO.	DESCRIPTIONS	DATE
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C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/09/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343–1048 , Fax: (910)251–8282
NC ENGINEERING LIC. No. F–1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

STORMWATER DETAILS CONSTRUCTED WETLANDS

DATE:	02 JUN 11
MCE PROJ. #	5584–0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

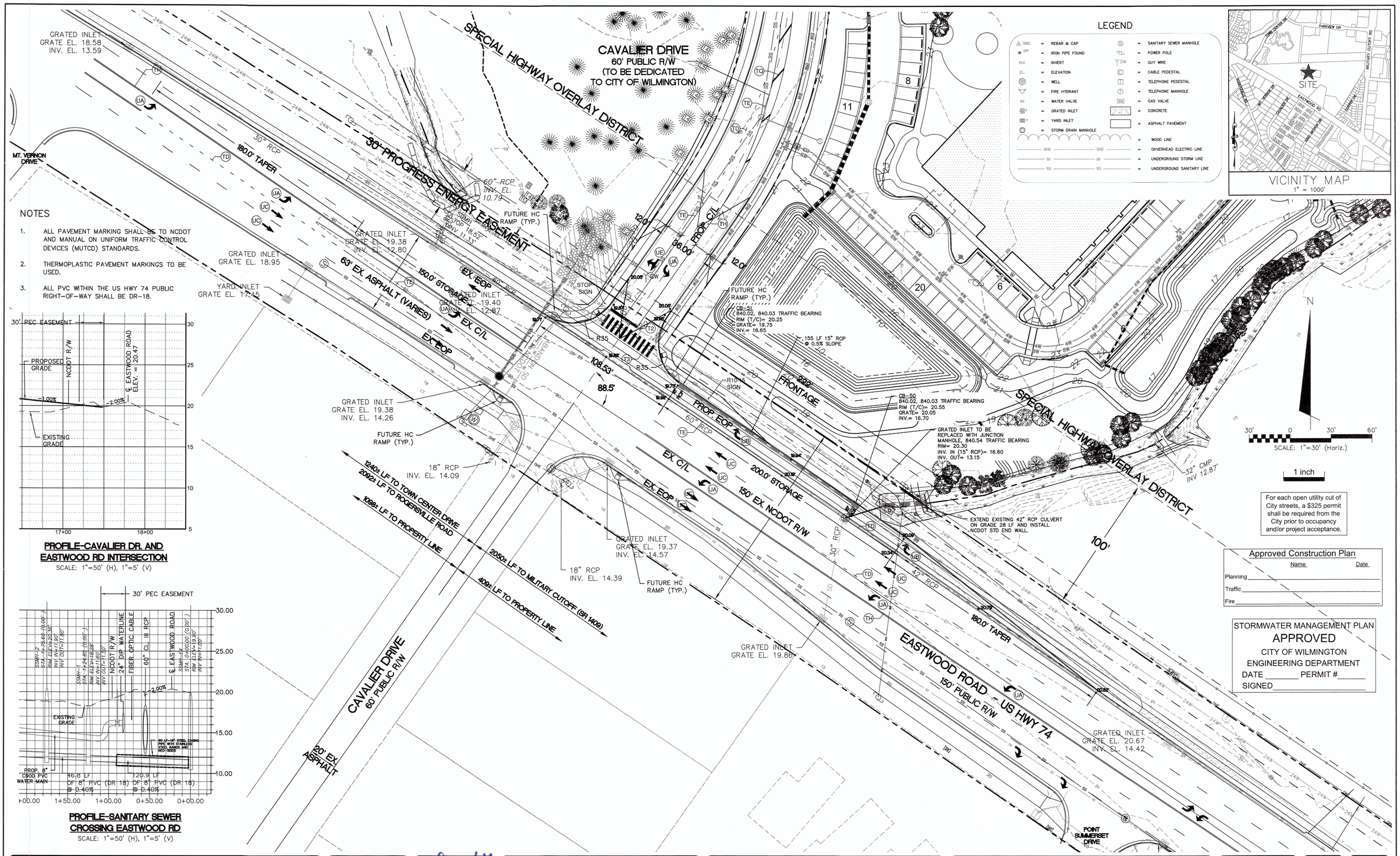
SCALE
HORIZONTAL: AS NOTED
VERTICAL:

M&C FILE NUMBER CN502
DRAWING NUMBER 19

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

NOTES

1. ALL PAVEMENT MARKING SHALL BE TO NCDOT AND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.
2. THERMOPLASTIC PAVEMENT MARKINGS TO BE USED.
3. ALL PVC WITHIN THE US HWY 74 PUBLIC RIGHT-OF-WAY SHALL BE DR-18.



LEGEND

RBC = REBAR & CAP		= SANITARY SEWER MANHOLE	
IPF = IRON PIPE FOUND		= POWER POLE	
INV. = INVERT		GW = GUY WIRE	
EL. = ELEVATION		= CABLE PEDESTAL	
= WELL		= TELEPHONE PEDESTAL	
= FIRE HYDRANT		= TELEPHONE MANHOLE	
= WATER VALVE		= GAS VALVE	
= GRATED INLET		= CONCRETE	
= YARD INLET		= ASPHALT PAVEMENT	
= STORM DRAIN MANHOLE			
OHE — OHE		= WOOD LINE	
SD — SD		= OHVERHEAD ELECTRIC LINE	
SS — SS		= UNDERGROUND STORM LINE	
		= UNDERGROUND SANITARY LINE	

VICINITY MAP
1" = 1000'

PROFILE-CAVALIER DR. AND EASTWOOD RD INTERSECTION

SCALE: 1"=50' (H), 1"=5' (V)

PROFILE-SANITARY SEWER CROSSING EASTWOOD RD

SCALE: 1"=50' (H), 1"=5' (V)

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Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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REVISIONS

SEAL

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NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

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6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

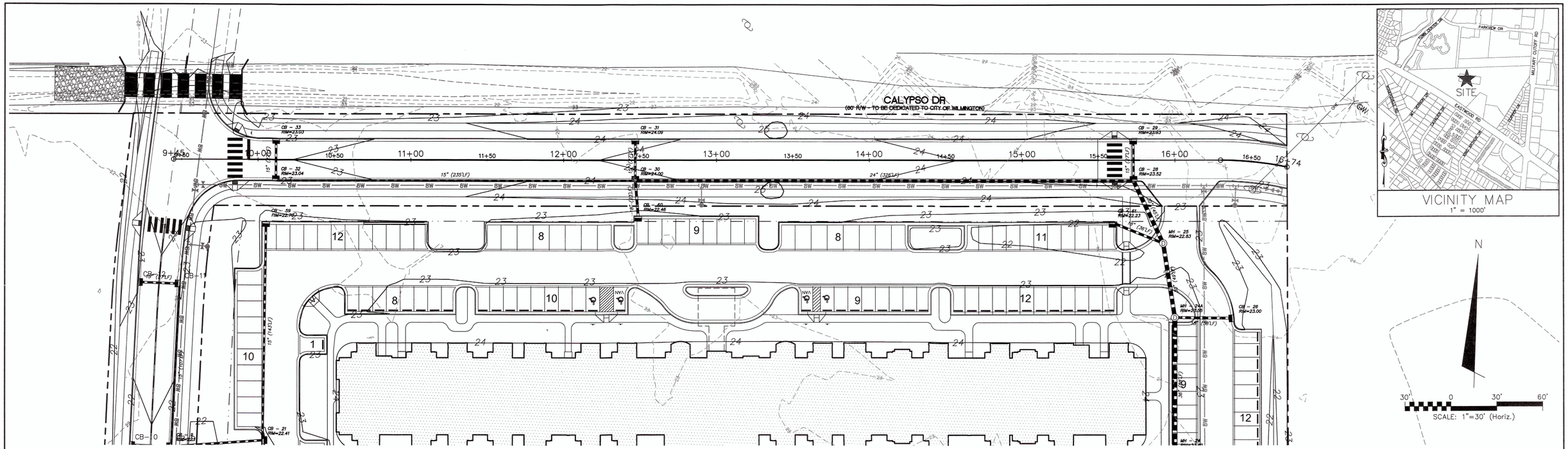
DRIVEWAY PLAN

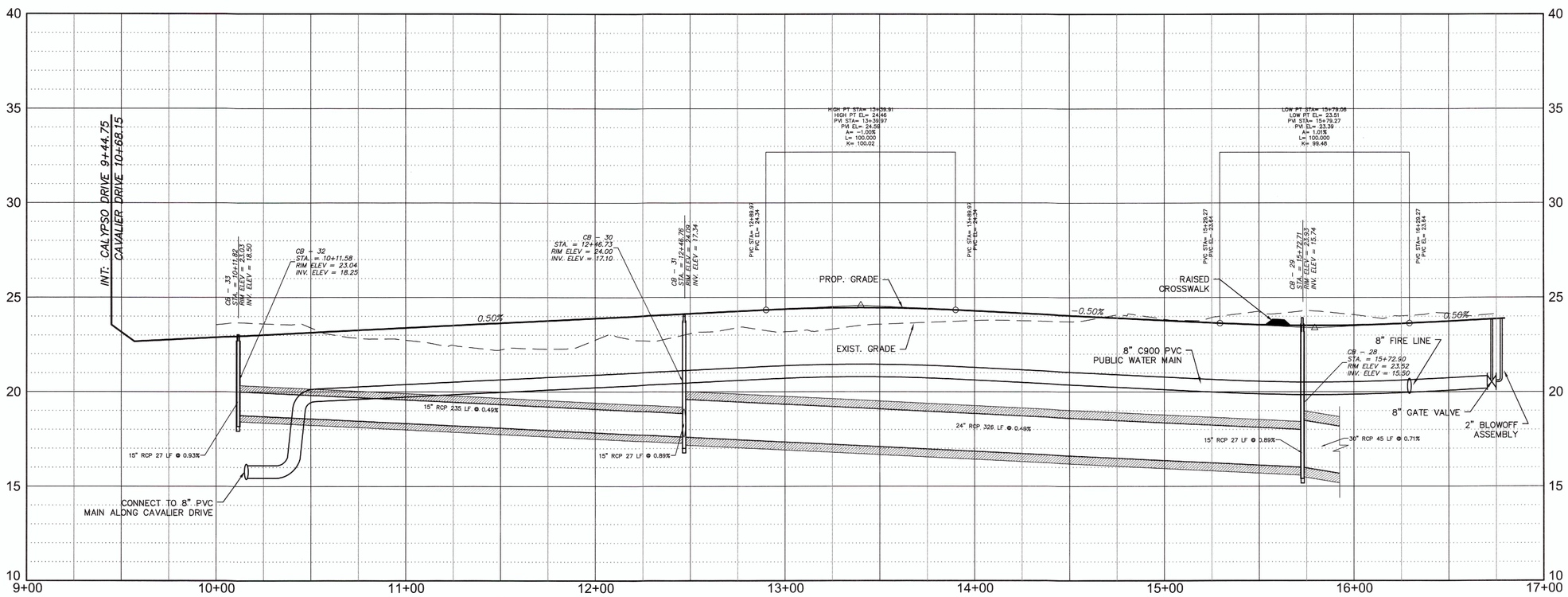
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=30'
VERTICAL:

M&C FILE NUMBER CT101
DRAWING NUMBER 20

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2





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1 inch

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

REV.NO.	DESCRIPTIONS	DATE
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A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

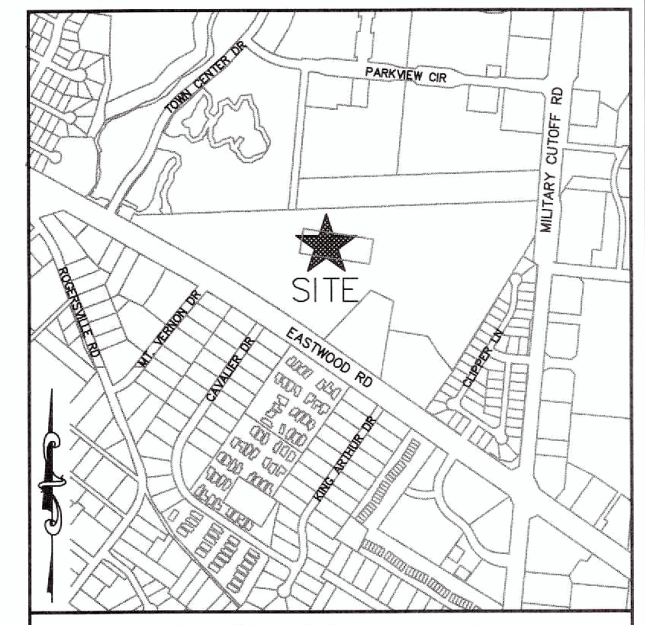
CALYPSO DRIVE ROADWAY PROFILE

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=30'
VERTICAL: 1"=3'

M&C FILE NUMBER CT702
DRAWING NUMBER 22

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



VICINITY MAP
1" = 1000'

LIST OF APPLICABLE NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION (NCDOT) STANDARD DRAWINGS

1101.02	TEMPORARY LANE CLOSURES
1101.05	WORK ZONE VEHICLE ACCESS
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUM
1135.01	CONE
1250.01 1251.01	PAVEMENT MARKINGS, MARKERS, AND DELINEATION

PROJECT TRAFFIC CONTROL NOTES

GENERAL

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN PLAN, OR AS DIRECTED BY THE ENGINEER. THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND NCDOT STANDARD DRAWINGS SHALL BE USED FOR TRAFFIC CONTROL STANDARDS.

THE CREATION OF EXCESSIVE NOISE ASSOCIATED WITH EARTHMOVING ACTIVITIES, LAND CLEARING ACTIVITIES, STREET PAVING, OR UTILITY CONSTRUCTION IN A RESIDENTIAL OR BUSINESS DISTRICT, OTHER THAN BETWEEN THE HOURS OF 6:00 AM AND 7:00 PM, MONDAY THROUGH FRIDAY, AND BETWEEN THE HOURS OF 8:00 AM AND 6:00 PM ON SATURDAYS, SUNDAYS, OR HOLIDAYS, SHALL REQUIRE A PERMIT.

A. ADAPT THE TRAFFIC CONTROL PLANS, WHEN DIRECTED BY THE ENGINEER, TO MEET FIELD CONDITIONS TO PROVIDE SAFE AND EFFICIENT TRAFFIC MOVEMENT. CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE STANDARD DRAWINGS, AND ROADWAY DETAILS ARE NOT ATTAINABLE, OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES.

TIME RESTRICTIONS

DO NOT CLOSE OR NARROW TRAVEL LANES, MONDAY THROUGH FRIDAY, 6–9:00 AM AND 4–7:00 PM.

DO NOT CLOSE OR NARROW TRAVEL LANES DURING HOLIDAYS AND SPECIAL EVENTS AS FOLLOWS:

A. FOR ANY EVENT THAT CREATES UNUSUALLY HIGH TRAFFIC VOLUMES, AS DIRECTED BY THE ENGINEER.

B. FOR THE FOLLOWING HOLIDAYS: NEW YEAR'S EVE AND DAY, EASTER, MEMORIAL DAY, INDEPENDENCE DAY, AND LABOR DAY, BETWEEN THE HOURS OF 4:00 PM THE DAY BEFORE THE HOLIDAY UNTIL 9:00 AM THE DAY AFTER THE HOLIDAY. IF THE HOLIDAY IS ON A SATURDAY, SUNDAY, OR MONDAY, BETWEEN THE HOURS OF 4:00 PM THE THURSDAY BEFORE THE HOLIDAY UNTIL 9:00 AM THE TUESDAY AFTER THE HOLIDAY.

C. FOR THANKSGIVING BETWEEN THE HOURS OF 4:00 PM THE TUESDAY BEFORE THE HOLIDAY UNTIL 9:00 AM THE MONDAY AFTER THE HOLIDAY.

D. FOR CHRISTMAS BETWEEN THE HOURS OF 4:00 PM THE FRIDAY BEFORE THE WEEK OF CHRISTMAS UNTIL 9:00 AM THE FOLLOWING MONDAY AFTER THE WEEK OF CHRISTMAS.

E. DO NOT STOP TRAFFIC FOR MORE THAN 15 MINUTES FOR TEMPORARY LANE CLOSURES AND DETOURS.

LANE AND SHOULDER CLOSURE REQUIREMENTS

REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED, OR AS DIRECTED BY THE ENGINEER.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FEET OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN THE TRAVEL LANE OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, NCDOT STANDARD DRAWINGS OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

LANE AND SHOULDER CLOSURE REQUIREMENTS

BACKFILL AT A 6:1 SLOPE UP TO THE EDGE AND ELEVATION OF EXISTING PAVEMENT IN AREAS ADJACENT TO AN OPENED TRAVEL LANE THAT HAS A DROP–OFF AS FOLLOWS:

A. BACKFILL DROP–OFFS THAT EXCEED 2 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS OF 45 MPH OR GREATER.

B. BACKFILL DROP–OFFS THAT EXCEED 3 INCHES ON ROADWAYS WITH POSTED SPEED LIMITS LESS THAN 45 MPH.

C. BACKFILL WITH AGGREGATE BASE COURSE (ABC) OR SUITABLE COMPACTED MATERIAL, AS APPROVED BY THE ENGINEER AT NO EXPENSE TO THE PROJECT.

PAVEMENT MARKINGS

1. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL FIELD SURVEY ALL EXISTING PAVEMENT MARKINGS WITHIN THE PROJECT AREA. THE CONTRACTOR SHALL INSTALL PAVEMENT MARKINGS ON THE FINAL SURFACE TO MATCH EXISTING PAVEMENT MARKINGS OR AS DIRECTED BY THE ENGINEER.

2. TIE–IN THE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

PERMANENT STREET SIGNAGE

PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL DOCUMENT AND COORDINATE WITH THE ENGINEER ALL EXISTING STREET SIGNAGE WITHIN THE PROJECT AREA. SHOULD THE CONTRACTOR REMOVE, DAMAGE, OR DEMOLISH ANY STREET SIGNAGE WITHIN THE PROJECT AREA OR ALONG THE ROUTE TO THE PROJECT AREA, THE CONTRACTOR SHALL REPLACE SAID REMOVED, DAMAGED, OR DEMOLISHED STREET SIGNAGE IN KIND.

TRAFFIC SIGNAL AND VEHICLE DETECTION EQUIPMENT

1. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL DOCUMENT AND COORDINATE WITH THE ENGINEER ALL EXISTING TRAFFIC SIGNAL EQUIPMENT, POLES, MAST–ARMS, ETC. WITHIN THE PROJECT AREA. SHOULD THE CONTRACTOR REMOVE, DAMAGE, OR DEMOLISH ANY SUCH EQUIPMENT, THE CONTRACTOR SHALL COORDINATE WITH ENGINEER THE REPLACEMENT OF SUCH EQUIPMENT AND SHALL INCUR ALL EXPENSES FOR THE ENGINEERING, MATERIALS, DELIVERY, AND INSTALLATION OF SUCH EQUIPMENT.

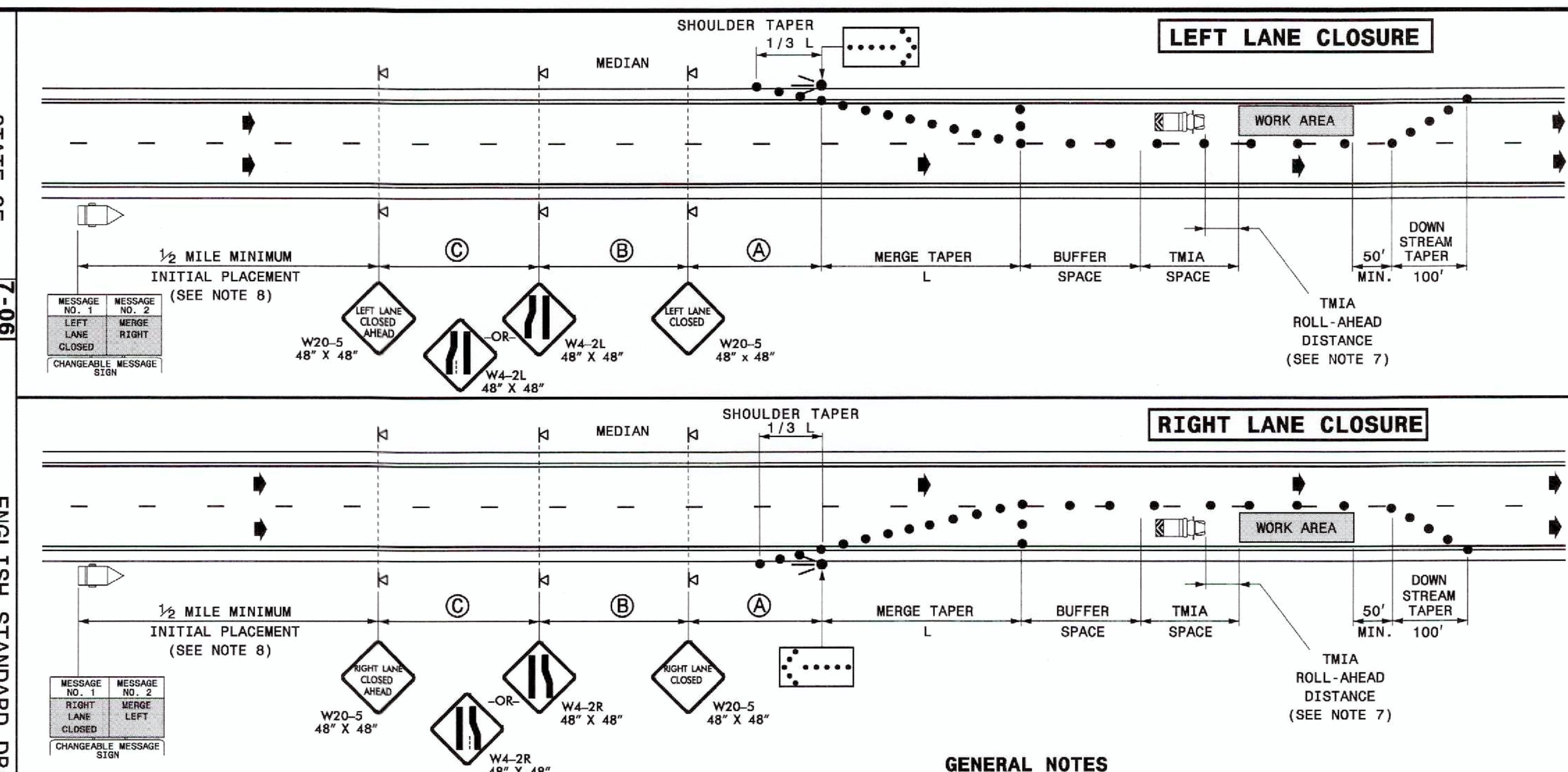
2. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL COORDINATE, VERIFY AND DOCUMENT WITH THE ENGINEER ALL EXISTING VEHICLE DETECTION EQUIPMENT WITHIN THE PROJECT AREA. SHOULD THE CONTRACTOR REMOVE, DAMAGE, OR DEMOLISH ANY SUCH EQUIPMENT, THE CONTRACTOR SHALL COORDINATE WITH ENGINEER THE REPLACEMENT OF SUCH EQUIPMENT AND SHALL INCUR ALL EXPENSES FOR THE ENGINEERING, MATERIALS, DELIVERY, AND INSTALLATION OF SUCH EQUIPMENT.

STAGING AREA

THE CONTRACTOR SHALL PROVIDE A STAGING AREA CONVENIENT TO THE PROJECT TO PARK EQUIPMENT WHEN NOT IN USE.

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
DIVIDED MULTI-LANE ROADWAY-1 LANE CLOSED



GENERAL NOTES

1- IF NECESSARY USE THIS STD. FOR ONE-WAY CITY TYPE STREETS WHERE SIGNS MAY BE MOUNTED ON BOTH SIDES OF THE ROADWAY.
2- PLACE ARROW PANELS ON THE SHOULDER (PAVED OR UNPAVED). PLACE ARROW PANELS WITHIN THE TAPER IF SHOULDERS DO NOT EXIST. MEET THE REQUIREMENTS FOR STOPPING SIGHT DISTANCE AT THE ARROW PANEL LOCATION. IF NEEDED, EXTEND LANE CLOSURES AT THE BUFFER SPACE, SUCH THAT STOPPING SIGHT DISTANCE TO THE ARROW PANEL IS MET. (SEE STD. 1101.11 SHEET 2)
3- PLACE DRUMS IN TAPERS AT THE MAXIMUM SPACING EQUAL IN FEET TO THE POSTED SPEED LIMIT. PLACE DRUMS ALONG THE BUFFER SPACE AND WORK AREA AT THE MAXIMUM SPACING EQUAL IN FEET TO 2 TIMES THE POSTED SPEED LIMIT.
4- REFER TO STD. 1101.11 SHEETS 1 & 4, FOR "L" DISTANCE AND SIGN SPACING.
5- REFER TO STD. 1101.02 SHEETS 6 AND 7 FOR TREATMENT OF LANE CLOSURES THRU INTERCHANGES.
6- INSTALL LANE CLOSURES WITH THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE UPSTREAM SIDE OF TRAFFIC. REMOVE LANE CLOSURES AGAINST THE TRAFFIC FLOW, BEGINNING WITH DEVICES ON THE DOWNSTREAM SIDE OF TRAFFIC.
7- TMIA'S ARE REQUIRED ONLY WHEN A BUFFER SPACE CANNOT BE ATTAINED, OR WHEN DIRECTED BY THE ENGINEER OR THE PLANS. WHEN USED, POSITION THE TMIA TO MAINTAIN A ROLL-AHEAD DISTANCE AS RECOMMENDED BY THE MANUFACTURER.
8- PLACE CHANGEABLE MESSAGE SIGN (CMS) ON THE OUTSIDE OF THE TRAVELWAY AS DIRECTED BY THE ENGINEER. PLACE CMS APPROXIMATELY ½ MILE IN ADVANCE OF THE W20-5 SIGNS. IF TRAFFIC BACKS UP TO WHERE THE CMS IS INITIALLY PLACED, RELOCATE CMS ½ MILE FROM ANTICIPATED BACKUP. CONTINUE TO MONITOR TRAFFIC, MOVE CMS APPROXIMATELY ½ MILE IN CONJUCTION WITH ANTICIPATED BACKUP.
9- MESSAGES MAY READ "LEFT LANE CLOSED" OR "RIGHT LANE CLOSED", "MERGE RIGHT" OR "MERGE LEFT" DEPENDING ON LANE BEING CLOSED.

LEGEND

- FLASHING ARROW PANEL (TYPE C)
- TRUCK MOUNTED IMPACT ATTENUATOR(TMIA)
- CHANGEABLE MESSAGE SIGN (CMS)
- DRUM
- PORTABLE SIGN
- DIRECTION OF TRAFFIC FLOW

SHEET 3 OF 9
1101.02

STATE OF NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.
7-06

ENGLISH STANDARD DRAWING FOR
TEMPORARY LANE CLOSURES
DIVIDED MULTI-LANE ROADWAY-1 LANE CLOSED

SHEET 3 OF 9
1101.02

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

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6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

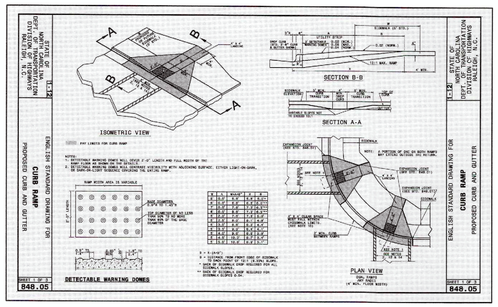
DRIVEWAY PLAN
TRAFFIC CONTROL PLAN

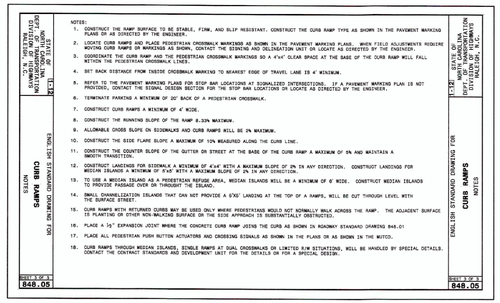
DATE:	02 JUN 11
MCE PROJ. #	5584–0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

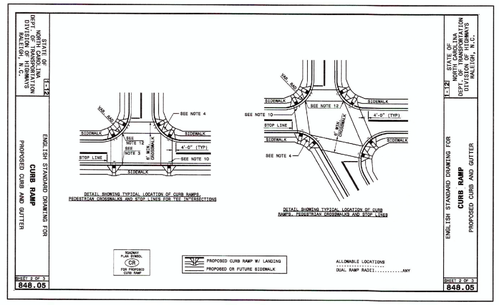
SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER
CT102
DRAWING NUMBER
20A

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2







CAVALIER DRIVE CATCH BASIN TABLE

Label	Gutter Spread (ft)	Longitudinal Slope (Inlet) (ft/ft)	Flow (Total Surface) (ft^3/s)	Flow (Total Intercepted) (ft^3/s)	Flow (Total Bypassed) (ft^3/s)	Inlet C	System Intensity (in/h)	Inlet Drainage Area (acres)	Total Inlet Tc (min)	Intercepted Intensity (in/h)
CB-12	4.80	0.02	0.58	0.48	0.10	0.95	7.23	0.084	5.00	7.23
CB-11	6.50	0.02	1.09	0.92	0.41	0.85	7.039	0.176	5.00	7.23
CB-9	5.70	0.02	0.5	0.69	0.23	0.95	6.752	0.073	5.00	7.23
CB-10	4.50	0.02	0.4	0.43	0.08	0.95	7.23	0.058	5.00	7.23
CB-17	6.50	0.02	0.85	0.9	0.40	0.95	6.713	0.122	5.00	7.23
CB-18	4.30	0.02	0.43	0.37	0.06	0.95	6.674	0.062	5.00	7.23
CB-8	6.80	0.02	1.09	1.17	0.00	0.95	7.23	0.158	5.00	7.23
CB-7	7.90	0.02	1.09	1.78	0.00	0.95	6.642	0.158	5.00	7.23
CB-6	6.00	0.02	0.97	0.97	0.00	0.95	7.23	0.141	5.00	7.23
CB-5	6.00	0.02	0.97	0.97	0.00	0.95	7.089	0.14	5.00	7.23
CB-4	2.70	0.02	0.13	0.13	0.00	0.95	6.551	0.019	5.00	7.23

CAVALIER DRIVE PIPE OUTFALL TABLE

Start Node	Stop Node	System Drainage Area (acres)	Upstream Flow Time (min)	Upstream Intensity (in/h)	Upstream Inlet C	Flow (ft^3/s)	Slope (ft/ft)	Diameter (in)	Velocity (ft/s)	Length (Unified) (ft)	System Flow Time (min)	Invert (Upstream) (ft)	Invert (Downstream) (ft)	Elevation Ground (Start) (ft)
CB-12	CB-11	0.08	5.00	7.23	0.95	0.48	0.005	15	0.39	24	5.00	18.65	18.53	22.60
CB-11	CB-9	0.26	6.03	7.04	0.85	1.36	0.005	15	1.10	102	6.03	18.53	18.00	22.60
CB-9	CB-17	0.94	7.57	6.75	0.95	5.07	0.004	18	2.87	36	7.57	18.00	17.85	21.60
CB-10	CB-9	0.06	5.00	7.23	0.95	0.43	0.005	15	0.35	24	5.00	18.12	18.00	21.95
CB-17	CB-18	1.06	7.78	6.71	0.95	5.87	0.005	18	3.32	42	7.78	17.85	17.66	20.95
CB-18	CB-7	1.12	7.99	6.67	0.95	6.18	0.004	18	3.50	36	7.99	17.66	17.50	21.00
CB-8	CB-7	0.16	5.00	7.23	0.95	1.17	0.005	15	0.96	24	5.00	17.62	17.50	21.00
CB-7	CB-4	1.44	8.16	6.64	0.95	8.86	0.007	18	5.02	148	8.16	17.50	16.45	20.90
CB-6	CB-5	0.14	5.00	7.23	0.95	0.97	0.006	15	0.79	36	5.00	16.95	16.75	20.10
CB-5	CB-4	0.28	5.76	7.09	0.95	1.90	0.005	15	1.55	180	5.76	16.75	15.85	20.10
CB-4	MH-4	1.74	8.65	6.55	0.95	10.62	0.013	24	3.38	54	8.65	15.85	15.15	21.00
MH-4	DI-2	3.92	8.92	6.50	(N/A)	23.38	0.005	36	3.31	68	8.92	15.15	14.80	22.42
DI-2	O-1	4.40	9.26	6.44	0.95	26.08	0.005	36	3.69	32	9.26	14.80	14.65	22.10

THERMOPLASTIC PAVEMENT MARKING MATERIALS

PAVEMENT MARKING LINES

---------- THERMOPLASTIC (4", 90 mils)

TA - WHITE EDGE LINE
TB - YELLOW EDGE LINE

---------- THERMOPLASTIC (4", 120 mils)

TC - 10 ft. WHITE SKIP
TD - 2 ft. WHITE MINI SKIP
TE - WHITE SOLID LANE LINE
TF - 10ft. YELLOW SKIP
TG - 2 ft. YELLOW MINI SKIP
TH - YELLOW SINGLE CENTER LINE
TI - YELLOW DOUBLE CENTER LINE

---------- THERMOPLASTIC (6", 120 mils)

T6 - WHITE EDGE LINE
T7 - YELLOW EDGE LINE
TJ - 10 ft. WHITE SKIP
TK - 2 ft. WHITE MINI SKIP
TL - WHITE SOLID LANE LINE
TM - 10 ft. YELLOW SKIP
TN - 2 ft. YELLOW MINI SKIP

---------- THERMOPLASTIC (8", 90 mils)

TO - WHITE EDGE LINE
TP - WHITE GORE LINE
TQ - WHITE DIAGONAL
TR - WHITE RAMP ARROW LINE
TS - YELLOW EDGE LINE
TT - YELLOW DIAGONAL

---------- THERMOPLASTIC (8", 120 mils)

TU - 3 ft. WHITE MINI SKIP
TV - WHITE CROSSWALK
TW - YELLOW SINGLE CENTER LINE
TX - YELLOW DOUBLE YELLOW CENTER LINE

---------- THERMOPLASTIC (12", 90 mils)

TY - WHITE GORE LINE

---------- THERMOPLASTIC (12", 120 mils)

TZ - 3 ft. WHITE MINI SKIP

---------- THERMOPLASTIC (16", 120 mils)

T1 - WHITE LINE FOR RR CROSS BUCK

---------- THERMOPLASTIC (24", 120 mils)

T2 - WHITE STOP BAR
T3 - WHITE CROSSWALK LINE

---------- THERMOPLASTIC (4", 240 mils)

T4 - WHITE RUMBLE STRIP
T5 - YELLOW RUMBLE STRIP

PAVEMENT MARKING SYMBOLS

---------- THERMOPLASTIC (90 mils)

UA - LEFT TURN ARROW
UB - RIGHT TURN ARROW
UC - STRAIGHT ARROW
UD - COMBINATION STRAIGHT & LEFT TURN ARROW
UE - COMBINATION STRAIGHT & RIGHT TURN ARROW
UF - COMBINATION LEFT & RIGHT TURN ARROW
UG - COMBINATION LEFT, RIGHT, & STRAIGHT ARROW

NOTES

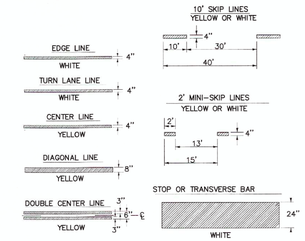
1. CONSTRUCTION ENTRANCE WILL BE AT SAME LOCATION PRIOR TO CONCRETE DRIVEWAY CONSTRUCTION.

2. CONSTRUCTION WILL BE PERFORMED DURING HOURS AS INDICATED BY NCDOT. ATTENTION SHOULD BE GIVEN TO THE APPROVAL CONDITIONS ISSUED WITH THE PERMIT FROM NCDOT.

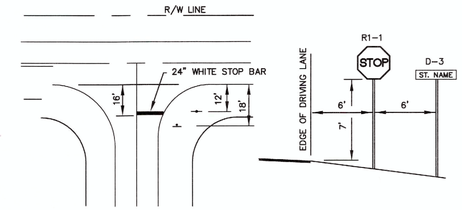
3. USE NCDOT DIVISION OF HIGHWAYS STANDARDS; ALL PAVEMENT MARKING LINES TO BE THERMOPLASTIC. LINES TYPES SHALL BE PAINTED PER STD.1205.01. ARROW SYMBOLS SHALL BE PAINTED PER STD.1205.08. PAVEMENT MARKER SPACING SHALL BE PER STD.1250.01. RAISED PAVEMENT MARKERS SHALL BE PER STD.1251.01.

4. ALL CONSTRUCTION IN RIGHT-OF-WAY SHALL BE ACCORDING TO NCDOT STANDARD SPECIFICATIONS.

5. ALL DIMENSIONS TO EOP UNLESS OTHERWISE NOTED.

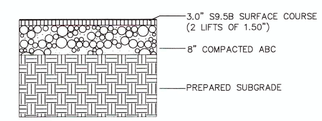


PAVEMENT MARKING DETAIL
NOT TO SCALE
NOTE: ALL PAVEMENT MARKING SHALL BE THERMOPLASTIC MARKINGS PER NCDOT & MUTCD SPECIFICATIONS.

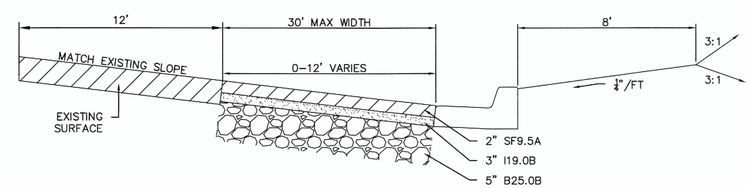


SIGN DETAIL
NOT TO SCALE

30" X 30"
NCDOT R1-1
ONE 2"ø POST PER SIGN



ASPHALT PAVEMENT SECTION
(CITY PUBLIC STREETS)
NOT TO SCALE



TYPICAL NCDOT TURN-LANE WIDENING SECTION
NOT TO SCALE

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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.

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
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F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
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C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER
RICHARD M. CREED, JR.
6/07/2013

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Wilmington, North Carolina 28401
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TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

DRIVEWAY PLAN DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=20'
VERTICAL:

M&C FILE NUMBER CT103
DRAWING NUMBER 20B

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

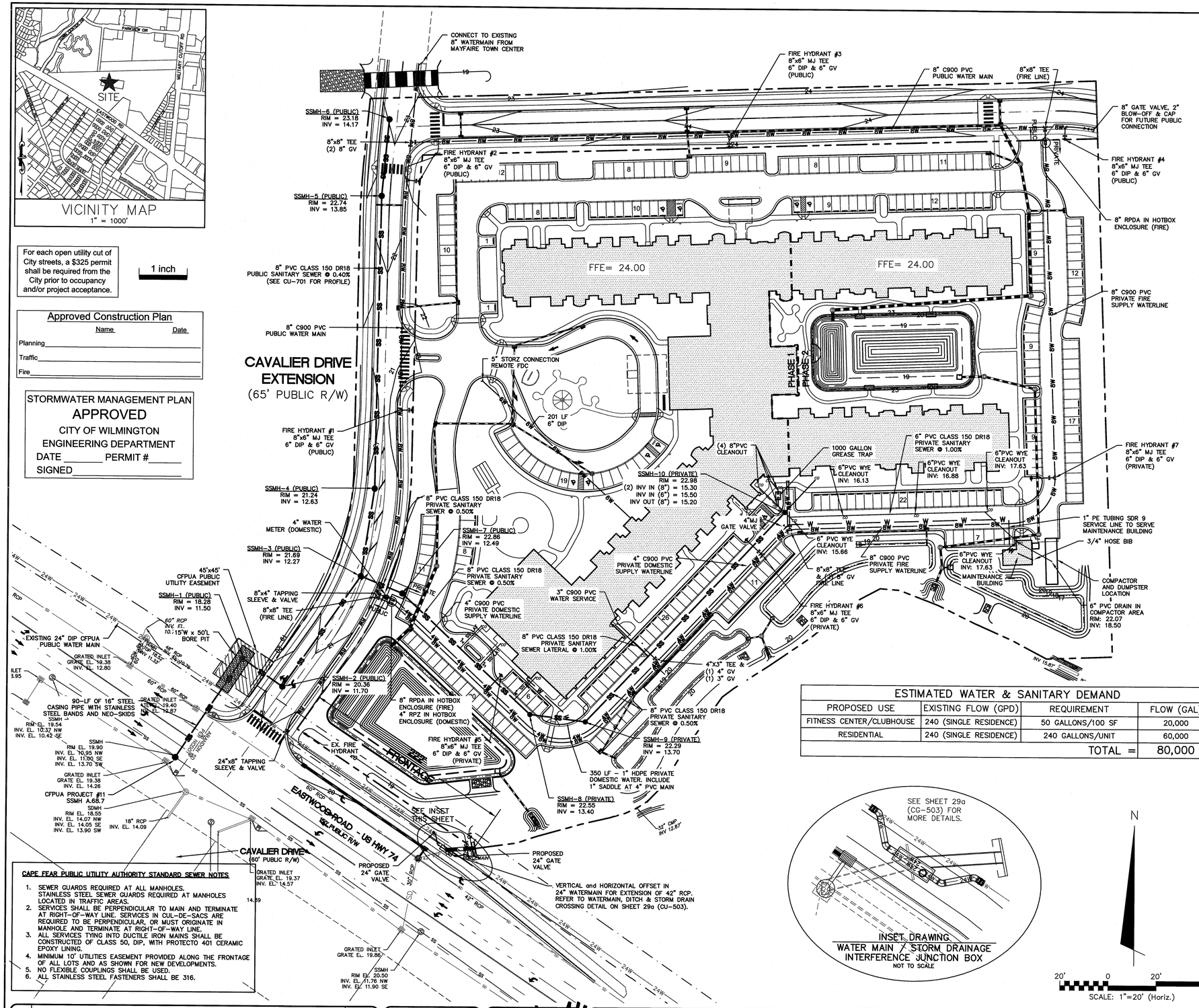
VICINITY MAP
1" = 1000'

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED _____



ESTIMATED WATER & SANITARY DEMAND			
PROPOSED USE	EXISTING FLOW (GPD)	REQUIREMENT	FLOW (GAL)
FITNESS CENTER/CLUBHOUSE	240 (SINGLE RESIDENCE)	50 GALLONS/100 SF	20,000
RESIDENTIAL	240 (SINGLE RESIDENCE)	240 GALLONS/UNIT	60,000
		TOTAL =	80,000

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES

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2. SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316.

FIRE PROTECTION NOTES:

1. HYDRANT MUST BE WITHIN 150' OF THE FDC.
2. THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
3. 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.
4. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
5. COMBUSTIBLE MATERIALS MAY NOT BE STORED OR ERECTED ONSITE WITHOUT CITY FIRE INSPECTOR APPROVAL.
6. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
7. 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.
8. A MINIMUM OF 5' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM UNDERGROUND UTILITIES
9. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
10. TEMPORARY STREET SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES.

UTILITY NOTES:

1. SCHEDULE A PRECONSTRUCTION MEETING WITH CAPE FEAR PUBLIC UTILITY AUTHORITY 48 HOURS PRIOR TO CONSTRUCTION OF WATER AND SEWER LINES.
2. WATER AND SANITARY SEWER UTILITY MAINS ARE PRIVATE BEYOND THE PUBLIC STREET RIGHT-OF-WAY.
3. THIS PROJECT SHALL COMPLY WITH THE CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND NCDENR HAS ISSUED THE "FINAL APPROVAL".
4. ALL COMMERCIAL WATER SERVICES AND ANY IRRIGATION SYSTEMS SUPPLIED BY CFPUA WATER SHALL HAVE A BACKFLOW PREVENTION DEVICE ACCEPTABLE TO CFPUA AND APPROVED BY USCFCCCHR OR ASSE.
5. 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 CFPUA PRIOR TO INSTALLING UNITS TO GIVE CFPUA THE OPTION TO VERIFY INSTALLATION PROCEDURES.
   - 5.1. REDUCED PRESSURE PRINCIPLE ASSEMBLY FOR DOMESTIC WATER SERVICE
   - 5.2. REDUCE PRESSURE DETECTOR ASSEMBLY WILL BE UTILIZED FOR THE BACKFLOW PREVENTER ON THE FIRE SERVICE.
6. IF THE CONTRACTOR DESIRES CFPUA 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.
7. WATER: 1.5" & 2" PVC MAINS 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).
8. 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.
9. 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.
10. PVC WATER MAINS AND POLYETHYLENE SERVICES ARE TO BE MARKED WITH NO. 10 SINGLE STRAND INSULATED COPPER WIRE INSTALLED THE ENTIRE LENGTH AND STRAPPED TO THE PIPES WITH DUCT TAPE. THE INSULATED WIRE IS TO BE STRIPPED TO BARE WIRE AND SECURED TO ALL VALVES. THIS WIRE IS TO BE ACCESSIBLE AT ALL FIRE HYDRANTS AND WATER METER BOXES TO AID IN FUTURE LOCATION OF FACILITIES.
11. 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.
12. MAXIMUM BENDING RADIUS FOR 8" C-900 PVC WATER MAIN BENDS IS 380' (ONE-HALF MANUFACTURER'S RECOMMENDED ALLOWABLE LONGITUDINAL BENDING).
13. FIRE SPRINKLERS WILL BE PROVIDED FOR BUILDING.
14. 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 ABUTTING THE SUBJECT SITE SHALL BE INSTALLED BY THE DEVELOPER.
15. MINIMUM OF 36" COVERAGE ABOVE ALL WATERMAINS.
16. MINIMUM OF 36" VERTICAL SEPARATION BETWEEN WATERLINES AND STORMDRAIN CURB INLETS.

RELATION OF WATER MAINS TO SEWERS:

1. LATERAL SEPARATION OF 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:
   - 1.1. 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
   - 1.2. 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.
2. CROSSING A WATER MAIN OVER A SEWER MAIN: WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS OVER A SEWER 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.
3. 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.
4. 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.

ADDITIONAL TREATMENTS:

HVAC EQUIPMENT, AIR CONDITIONING WINDOW UNITS, AND OTHER ELECTRICAL EQUIPMENT SHALL NOT BE LOCATED ON STREET FRONTAGES. ALL SUCH EQUIPMENT SHALL BE PLACED IN THE INTERIOR YARDS OR ON THE ROOF OF THE BUILDING AND SCREENED FROM THE RIGHT OF WAY. THROUGH-WALL MECHANICAL UNITS ARE PERMITTED ON ANY FACADE IF THEY ARE INCORPORATED INTO THE DESIGN OF THE BUILDING, FLUSH WITH THE FACADE ON WHICH THEY ARE LOCATED, CONCEALED BY A VENT COVER AND HAVE AN INTERNAL DRIP SYSTEM FOR CONDENSATION. UTILITY METERS, TRANSFORMERS AND FIXED TRASH DISPOSAL RECEPTACLES THAT CANNOT BE CONCEALED FROM THE PUBLIC RIGHT OF WAY SHALL BE SCREENED WITH AN OPAQUE FENCE OR WALL.

SOLID WASTE:

1. SOLID WASTE DISPOSAL WILL BE LOCATED AT THE SOUTHEAST CORNER OF THE SITE.

CALL NC ONE CALL BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

PHONE# 1-800-632-4949

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	06/22/11

REVISIONS

SEAL

SEAL 22574 ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

UTILITY PLAN

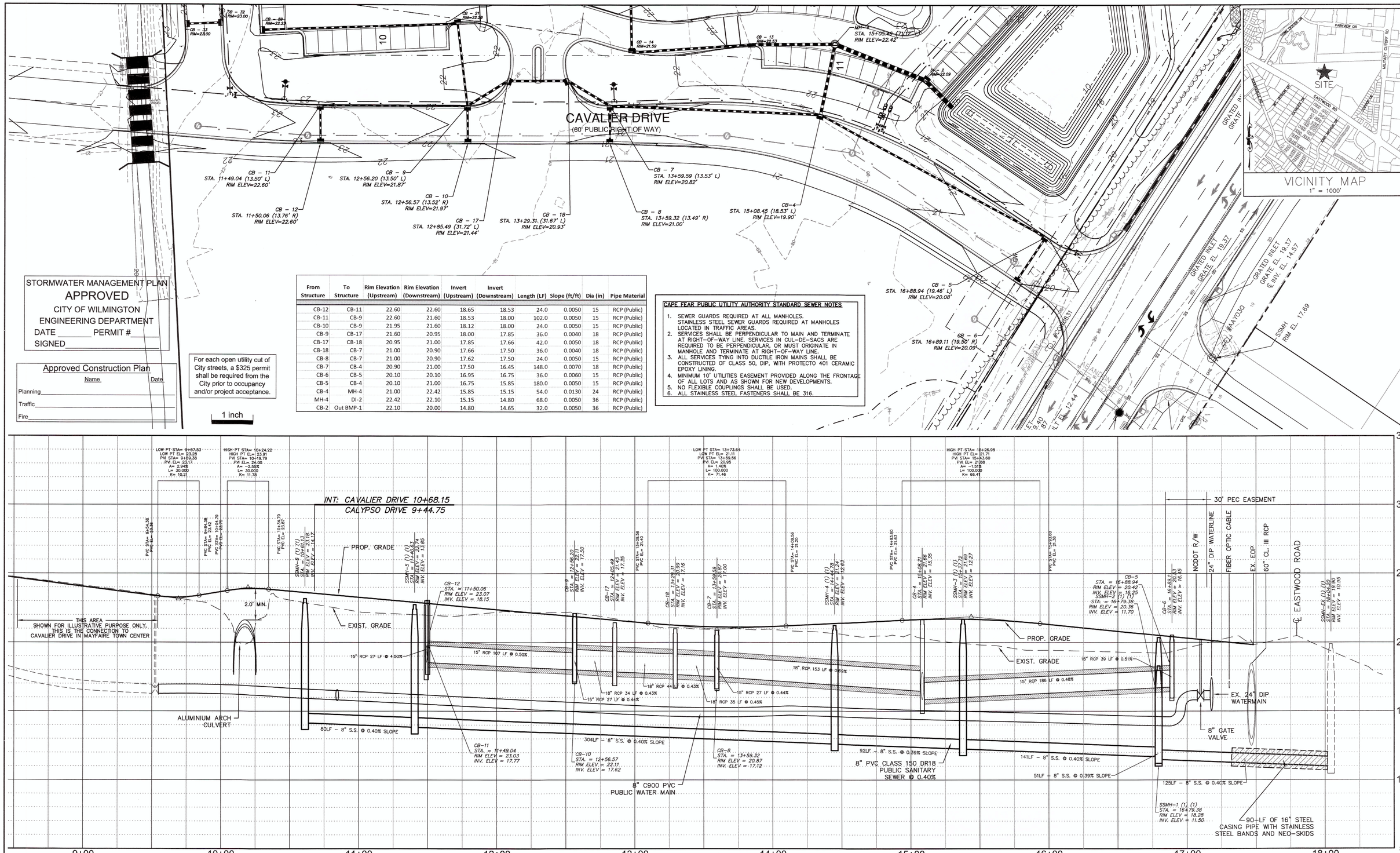
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL:

M&C FILE NUMBER CU101
DRAWING NUMBER 23

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

S:\5584\0006\80-Drawings\CU-101_55840006.dwg, 8/6/2013 1:29:55 PM, rcotter



STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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.

From Structure	To Structure	Rim Elevation (Upstream)	Rim Elevation (Downstream)	Invert (Upstream)	Invert (Downstream)	Length (LF)	Slope (ft/ft)	Dia (in)	Pipe Material
CB-12	CB-11	22.60	22.60	18.65	18.53	24.0	0.0050	15	RCP (Public)
CB-11	CB-9	22.60	21.60	18.53	18.00	102.0	0.0050	15	RCP (Public)
CB-10	CB-9	21.95	21.60	18.12	18.00	24.0	0.0050	15	RCP (Public)
CB-9	CB-17	21.60	20.95	18.00	17.85	36.0	0.0040	18	RCP (Public)
CB-17	CB-18	20.95	21.00	17.85	17.66	42.0	0.0050	18	RCP (Public)
CB-18	CB-7	21.00	20.90	17.66	17.50	36.0	0.0040	18	RCP (Public)
CB-8	CB-7	21.00	20.90	17.62	17.50	24.0	0.0050	15	RCP (Public)
CB-7	CB-4	20.90	21.00	17.50	16.45	148.0	0.0070	18	RCP (Public)
CB-6	CB-5	20.10	20.10	16.95	16.75	36.0	0.0060	15	RCP (Public)
CB-5	CB-4	20.10	21.00	16.75	15.85	180.0	0.0050	15	RCP (Public)
CB-4	MH-4	21.00	22.42	15.85	15.15	54.0	0.0130	24	RCP (Public)
MH-4	DI-2	22.42	22.10	15.15	14.80	68.0	0.0050	36	RCP (Public)
CB-2	Out BMP-1	22.10	20.00	14.80	14.65	32.0	0.0050	36	RCP (Public)

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES

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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER RICHARD MCCRE
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

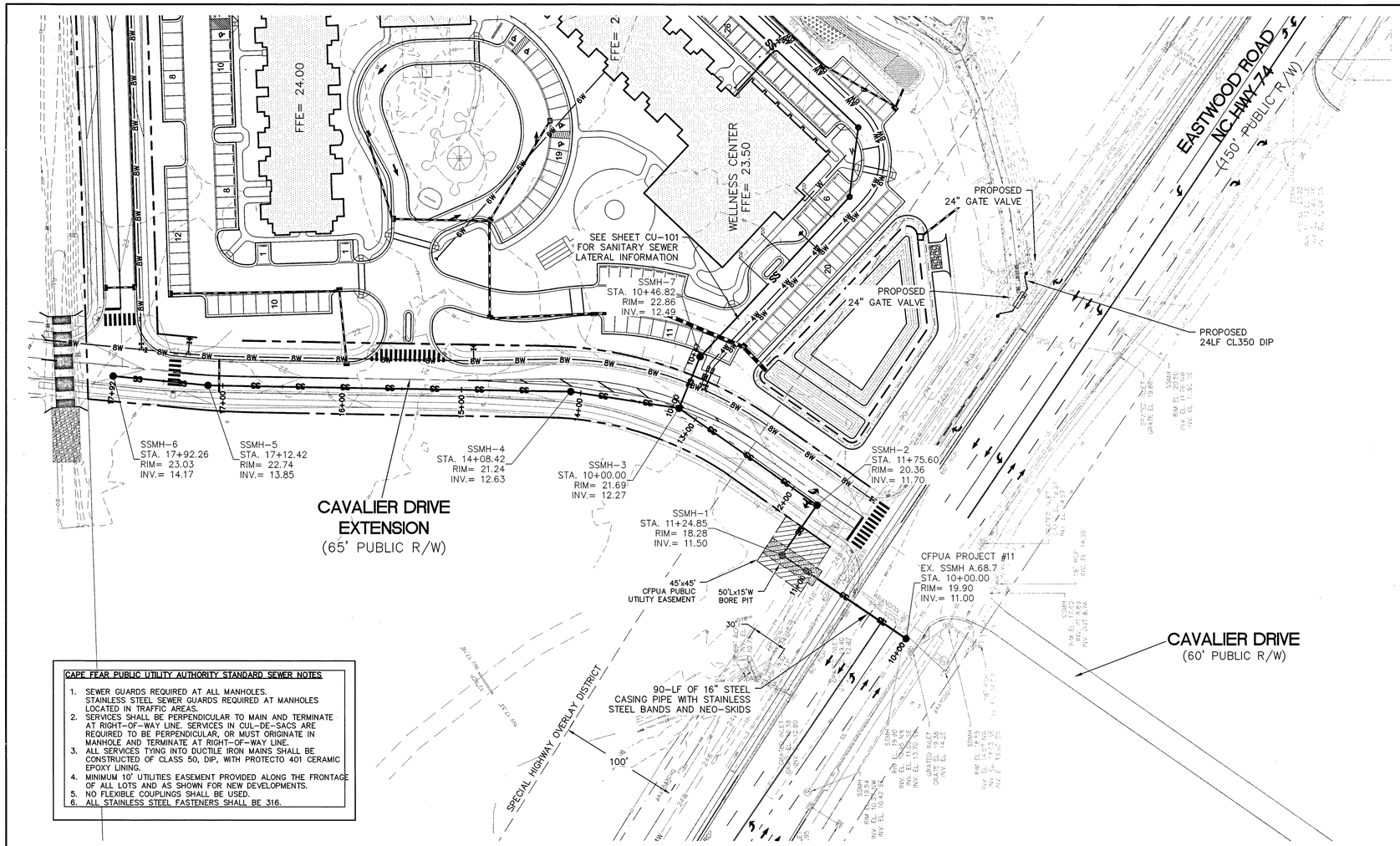
CAVALIER DRIVE ROADWAY PROFILE

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=30'
VERTICAL: 1"=3'

M&C FILE NUMBER CT701
DRAWING NUMBER 21

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES

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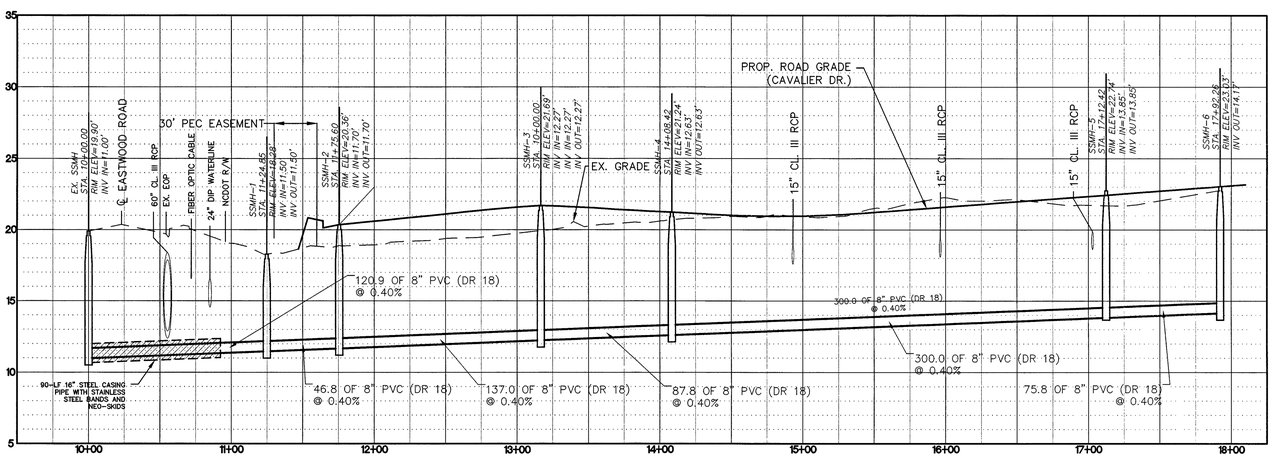

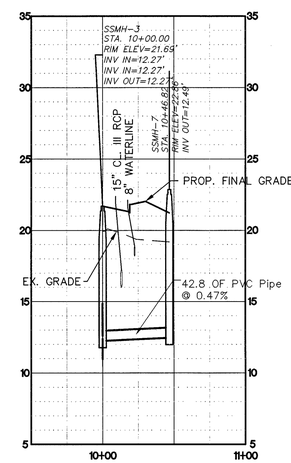

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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

PROFESSIONAL SEAL 22574 ENGINEER RICHARD M. CREED, JR. 07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

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CAMBRIDGE VILLAGE SENIOR LIVING

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6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

UTILITY PROFILE

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

M&C FILE NUMBER CU701
DRAWING NUMBER 24

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)

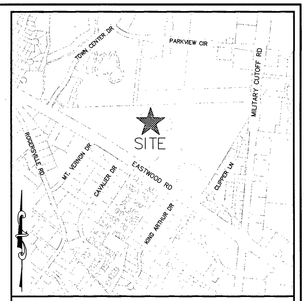
For each open utility cut of City streets, a $325 permit shall be required from the City prior to occupancy and/or project acceptance.

1 inch

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____



VICINITY MAP
1" = 1000'

CALL NC ONE CALL BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

PHONE# 1-800-632-4949

COPIED FROM NCDOT EXECUTED UTILITY ENCROACHMENT AGREEMENT E-065-11-127

E-065-11-127

CAMBRIDGE VILLAGE WILMINGTON

DISTRICT 3
AUG 10 2012
RECEIVED

July 12, 2012

Allen Hancock
NCDOT
300 Division Drive
Wilmington, NC 28401

Re: Cambridge Village
NCDOT Utility Encroachment
New Hanover County

Dear Mr. Hancock:

In conjunction with our sewer utility encroachment within Highway 74 (Eastwood Road) we make the following commitment to address NCDOT's concerns regarding the proximity of our proposed gravity sewer jack and bore with the existing 60" RCP storm drain pipe:

Wilmington Independent Living, LLC will video the existing 60" RCP storm drain at the location of the sewer crossing 20' in both directions. A video will be provided taken prior to the installation of the gravity sanitary sewer jack and bore as well as within 15-days after the gravity sanitary sewer jack and bore installation is complete. These videos will be provided to NCDOT as requested.

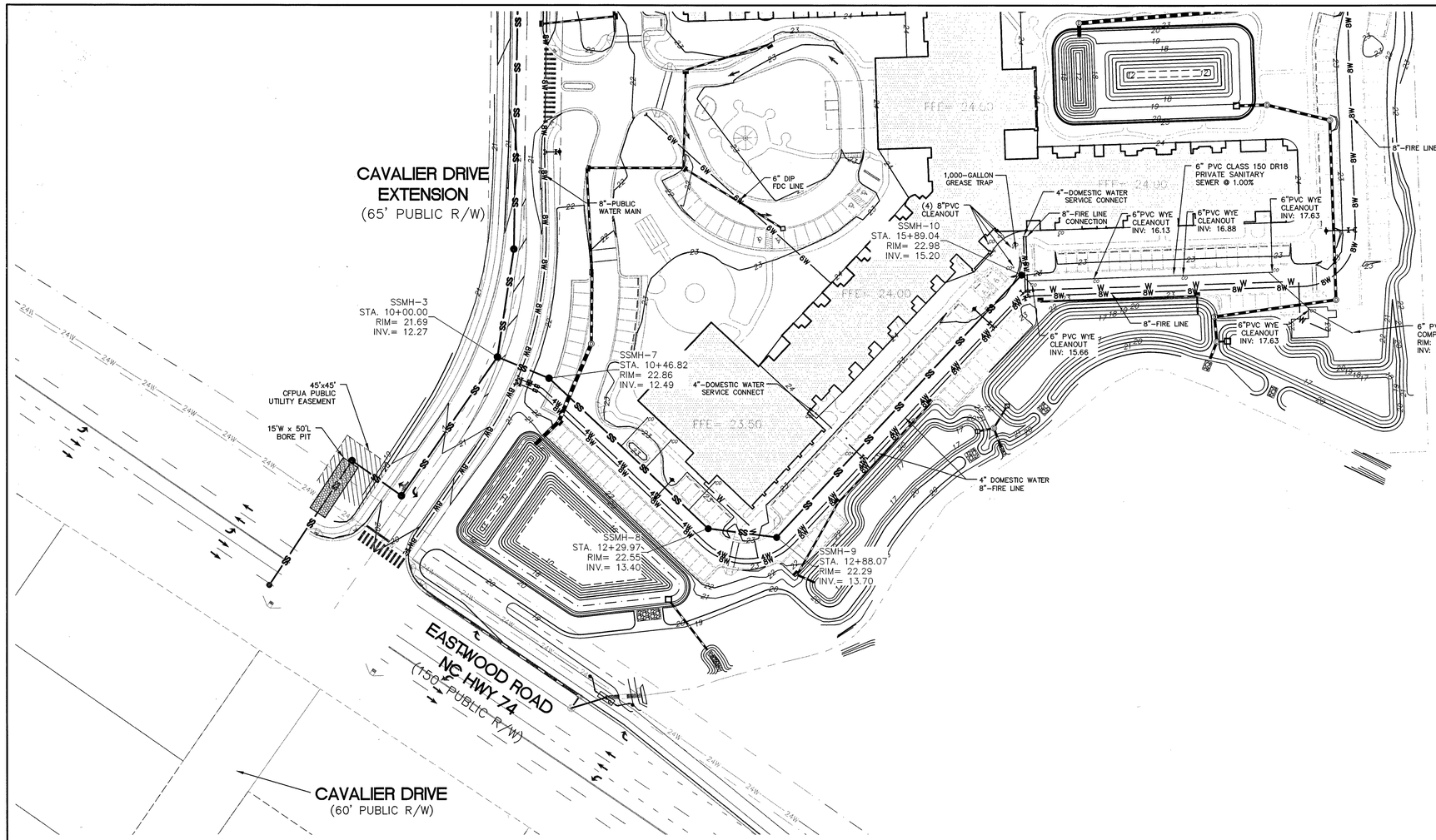
Should any damage occur to the existing 60" RCP storm drain as a result of the gravity sanitary sewer jack and bore, Wilmington Independent Living, LLC will restore the 60" RCP storm drain pipe to its pre-existing conditions. Further, Wilmington Independent Living, LLC will contact the NCDOT county inspector two business days in advance of the bore activity such that the NCDOT inspector can schedule to witness the installation either partially or in its entirety.

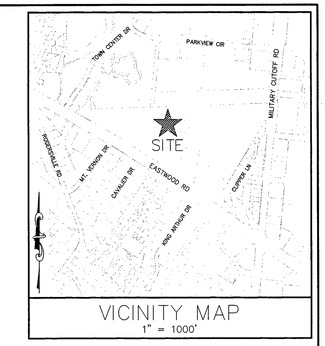
Sincerely,
WILMINGTON INDEPENDENT LIVING, LLC

Kendall Oliver, Member/Manager

C:\Users\markbowman\Dropbox\0712TONCDOT.doc

75 Cavalier Drive, Wilmington, NC 28405
877.272.7979 www.CambridgeVillageSeniorLiving.com





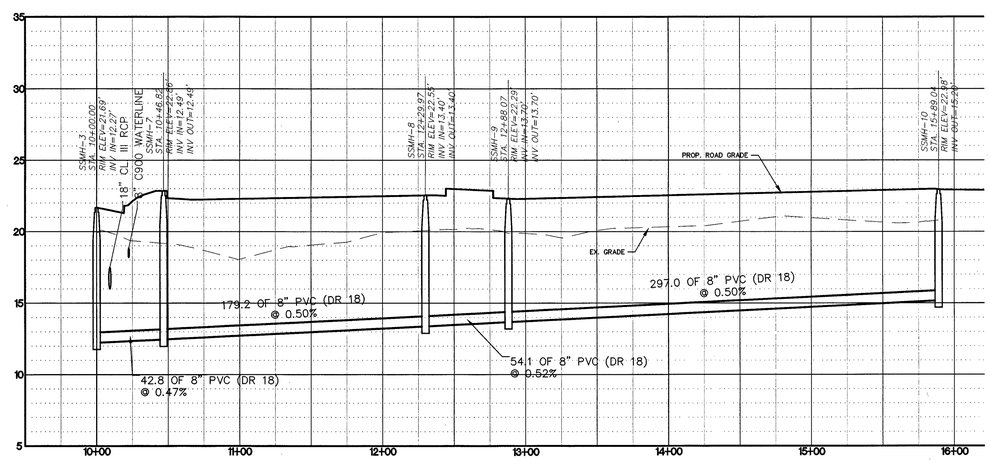
VICINITY MAP
1" = 1000'

CALL NC ONE CALL BEFORE YOU DIG
STOP
1-800-632-4949
AVOID UTILITY DAMAGE

PHONE# 1-800-632-4949

N

50' 0 50' 100'
SCALE: 1"=50' (Horiz.)



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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED _____

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL
SEAL
22574
ENGINEER
NORTH CAROLINA
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

UTILITY PROFILE

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: 1"=50'
VERTICAL: 1"=5'

M&C FILE NUMBER CU702
DRAWING NUMBER 24A

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

GENERAL CONSTRUCTION NOTES:

1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY OF WILMINGTON, NORTH CAROLINA UNLESS OTHERWISE NOTED.
2. 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 PERMITTED. HOWEVER, CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS. CHIPPED MATERIALS MUST BE REMOVED PRIOR TO THE PLACEMENT OF EMBANKMENT OR TOPSOIL.
3. 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 FOR REVIEW AND APPROVAL BY APPLICABLE REGULATORY AGENCIES AND 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 DIFFICULTY IN FINDING NECESSARY DISPOSAL SITES TO MEET THE TIME FRAMES REQUIRED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PLANS, PERMITS, EROSSIBLE AND SEDIMENT CONTROL MEASURES, ETC. REQUIRED BY THE APPROPRIATE 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.
4. APPROVED COVERS TO PREVENT MATERIAL FROM LEAVING THE TRUCKS MUST BE INSTALLED OVER ALL LOADED TRUCKS HAULING BORROW EXCAVATED MATERIAL AND/OR FINE AGGREGATES TO OR FROM THE PROJECT SITES OVER STATE MAINTAINED ROADS. THE TRUCKS SHALL BE FULLY COVERED TO PREVENT MATERIAL FROM LEAVING THE TRUCK DURING HAULING. ANY MATERIALS DELIVERED, TRANSPORTED, OR REMOVED IN UNCOVERED TRUCKS WILL BE INCORPORATED INTO THE PROJECT OR REMOVED FROM THE SITE WITH NO ADDITIONAL PAYMENT TO THE CONTRACTOR FOR FURNISHING, REMOVING, OR PLACING THE MATERIALS INVOLVED.
5. DRIVEWAYS ARE NOT TO BE LOCATED OVER WATER METERS OR SEWER CLEANOUTS, METERS WILL NOT BE SET IF WATER METER BOXES, SEWER CLEAN-OUTS, VALVE BOXES OR OTHER APPURTENANCES ARE DAMAGED OR IMPROPERLY POSITIONED.
6. EXISTING PAVING, CONCRETE, AND OTHER UNSUITABLE MATERIALS SHALL NOT BE USED AS FILL AND SHALL BE DISPOSED OF OUTSIDE THE PROJECT LIMITS AT THE CONTRACTOR'S EXPENSE. CONTRACTOR IS RESPONSIBLE FOR PERMITTING AND FEES FOR DISPOSAL.

GENERAL NOTES

1. 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.
2. WHEELCHAIR RAMPS SHALL BE LOCATED AS INDICATED IN DETAIL DRAWINGS; HOWEVER, EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.
3. CURB RAMPS SHALL HAVE DETECTABLE WARNINGS EXTENDING THE FULL WIDTH OF THE RAMP AND A MINIMUM OF 2-FT. IN LENGTH.

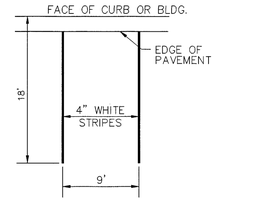
CONSTRUCTION NOTES

1. CONSTRUCTION SHALL CONFORM WITH CONSTRUCTION STANDARDS OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.
2. WHEELCHAIR RAMPS SHALL BE CONSTRUCTED OF CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
3. A ½-IN. EXPANSION JOINT SHALL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
4. 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.
5. TRANSITIONS FROM RAMPS TO WALKS, GUTTERS OR STREETS SHALL BE FLUSH AND FREE OF ABRUPT CHANGES.
6. THE MAXIMUM SLOPE ON THE CURB RAMP RUN IS 1:12.
7. THE MAXIMUM CROSS SLOPE OF THE CURB RAMP IS 1:50.
8. MAXIMUM SLOPES OF ADJOINING GUTTERS, ROAD SURFACE IMMEDIATELY ADJACENT TO THE CURB RAMP, OR ACCESSIBLE ROUTE SHALL NOT EXCEED 1:20.
9. 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.
10. DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9-IN., A HEIGHT OF NOMINAL 0.2-IN. AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35-IN. AND SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT.

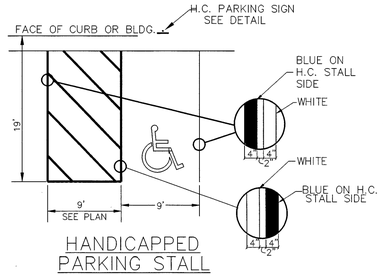
ADDITIONAL NOTES

1. 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.
2. PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF THE PEDESTRIAN CROSSWALK.
3. 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.
4. CURB RAMPS AT MARKED CROSSINGS SHALL BE WHOLLY CONTAINED WITHIN THE MARKINGS, EXCLUDING ANY FLARED SIDES.
5. THE BOTTOM OF DIAGONAL (CORNER TYPE) CURB RAMPS AT MARKED CROSSINGS SHALL HAVE 48-IN. MINIMUM CLEAR SPACE WITHIN THE MARKINGS.
6. 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.

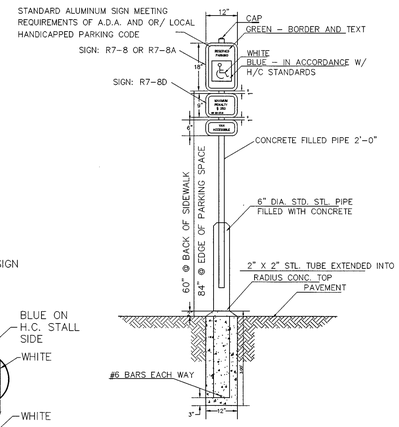
SD 8-09



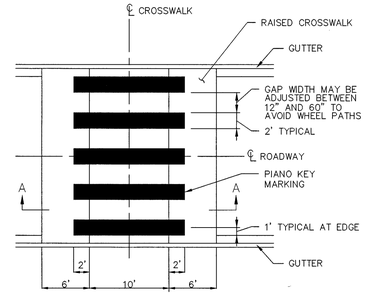
TYPICAL PARKING STALL
NOT TO SCALE



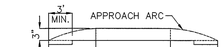
HANDICAPPED PARKING STALL
NOT TO SCALE



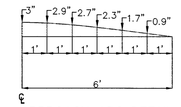
HANDICAP PARKING SIGN
NOT TO SCALE



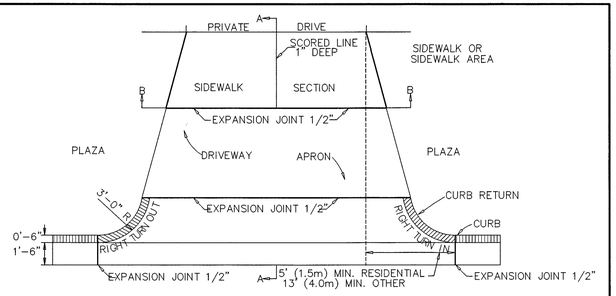
MARKING DETAIL



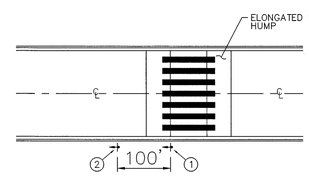
SECTION A-A



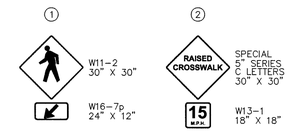
APPROACH ARC DETAIL



PAVEMENT PLAN



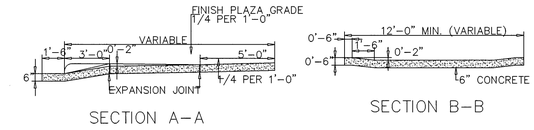
SIGNING PLACEMENT



NOTES:

1. SIGNS HAVE YELLOW BACKGROUND WITH BLACK LEGEND AND BORDER.

SIGNING DETAIL

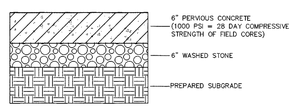


SECTION A-A

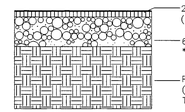
SECTION B-B

STANDARD DRIVEWAY DETAIL
SD 8-02
NOT TO SCALE

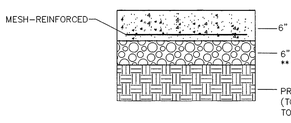
3



PERVIOUS PAVEMENT
(PARKING STALLS)
NOT TO SCALE

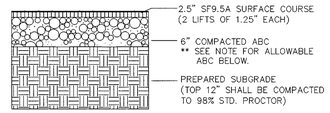


ASPHALT PAVEMENT SECTION
(PRIVATE DRIVE AISLE)
NOT TO SCALE



CONCRETE PAVEMENT SHALL BE CONSTRUCTED OF 4,000 PSI CONCRETE. REINFORCEMENT SHALL BE WELDED WIRE FABRIC SPACED 6" O. C. BOTH DIRECTIONS, AS INDICATED BELOW. SURFACE FINISHES AND JOINTS SHALL BE AS INDICATED IN SPECIFICATIONS.

CONCRETE PAVEMENT SECTION
(DUMPSTER PAD)
NOT TO SCALE

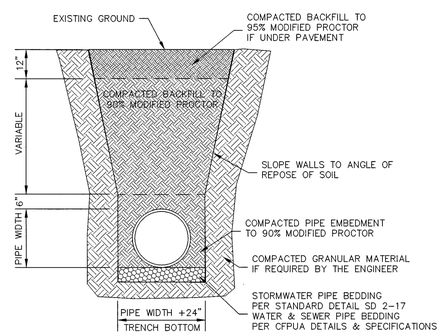


ASPHALT PAVEMENT SECTION
(PUBLIC STREETS)
NOT TO SCALE

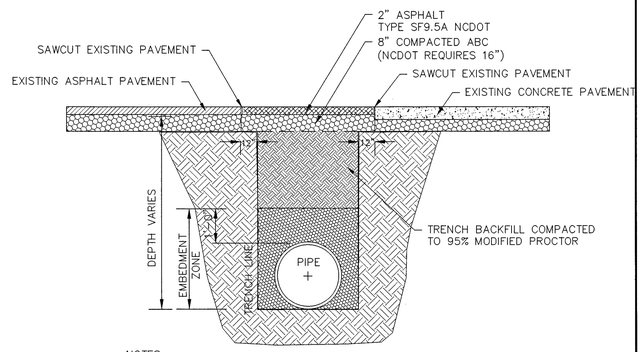
**** COMPACTED ABC NOTE-1:**
COMPACTED ABC MUST MEET THE NCDOT STANDARD SPECIFICATION GRADATION. REFER TO NCDOT STD SPECS (JAN 2012 EDITION) SECTION 520, AND SECTIONS 1005, 1006, AND 1010 FOR ALL OF THE MATERIAL GRADATION AND SPECIFICATIONS.

**** COMPACTED ABC NOTE-2:**
GRANITE BASED ABC IS NOT REQUIRED FOR THIS PROJECT. THE FOLLOWING TYPE OF MATERIALS MAY BE USED FOR ABC;
1. MARL - 6" IN DEPTH;
2. CRUSHED CONCRETE - CAN REDUCE TO 4" IN DEPTH;
3. ASPHALT MILLING CRUSHED TO ½" DIAMETER - 6" IN DEPTH.

SPEED HUMP/RAISED CROSSWALK
NOT TO SCALE



STANDARD PIPE TRENCH DETAIL
SD 1-07
NOT TO SCALE

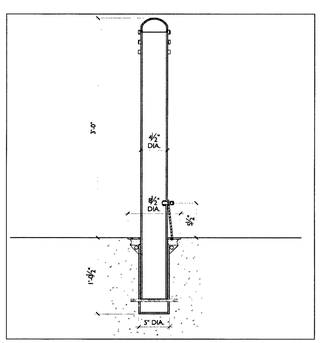


NOTES:

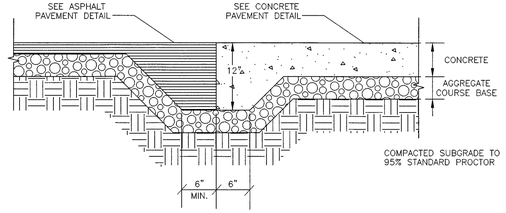
- * BACKFILL TO BE INSTALLED IN 6" LIFTS (MAXIMUM) AND COMPACTED TO A MINIMUM DENSITY OF 95% AS DETERMINED BY THE MODIFIED A.A.S.H.T.O. STANDARD METHOD T-99
- * CUT - BACK TO BE PREPARED AFTER TRENCH BACKFILLING AND COMPACTION

STANDARD SHOWING METHOD MAKING PAVEMENT REPAIRS WHERE PIPE IS INSTALLED

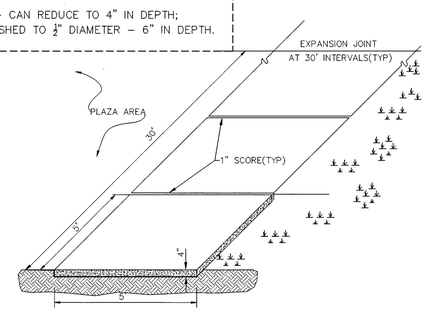
PAVEMENT REPAIR DETAIL
SD 1-16
NOT TO SCALE



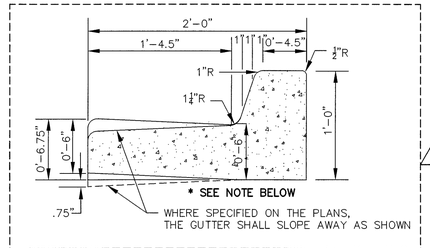
REMOVABLE BOLLARD
NOT TO SCALE



ASPHALT TO CONCRETE TRANSITION
NOT TO SCALE



STANDARD SIDEWALK DETAIL
SD 8-15
NOT TO SCALE



***NOTE:** 6" OF COMPACTED ABC (SEE NOTE) SHALL BE PLACED BELOW CURB AND GUTTER ON THE "PUBLIC STREETS" ONLY. FURTHER, THE 6" ABC DEPTH SHALL BE EXTENDED 12" BEHIND THE BACK OF CURB PER CITY STD SD 1-02.

STANDARD CURB SECTION TYPE "A"
SD 7-01
NOT TO SCALE

3

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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.

1 inch

REV.NO.	DESCRIPTIONS	DATE
3	UPDATED PAVEMENT SECTIONS AND ADDED CLARIFICATION TO ABC MATERIAL TYPES.	04/04/2013
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL ENGINEER
22574
07/01/2013

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243 North Front Street
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Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

SITE DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NA
VERTICAL:

M&C FILE NUMBER CS501
DRAWING NUMBER 25

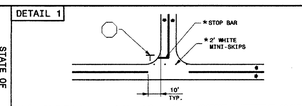
STATUS: ISSUED FOR CONSTRUCTION
REVISION 3

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

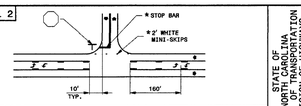
Z-06

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** NON-SIGNALIZED INTERSECTIONS

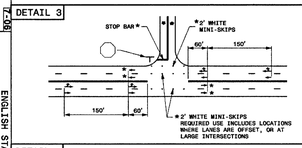
DETAIL 1



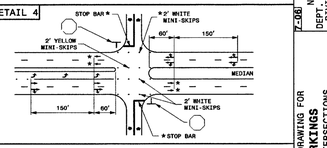
DETAIL 2



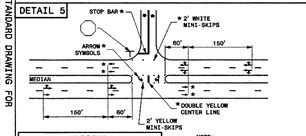
DETAIL 3



DETAIL 4



DETAIL 5



NOTE:
USE DOUBLE YELLOW CENTER LINE, AND ARROW SYMBOLS IN MEDIAN CROSSOVER WHEN WIDTH OF MEDIAN EXCEEDS 30 FT., OTHERWISE THEY ARE NOT REQUIRED.

LEGEND

- STOP SIGN
- STATIONARY SIGN
- DIRECTION OF TRAFFIC FLOW
- PAVEMENT MARKING SYMBOLS
- OPTIONAL

GENERAL NOTES

1- PLACEMENT OF STOP BARS AT NON-SIGNALIZED INTERSECTIONS IS OPTIONAL. USE STOP BARS AT SIGNALIZED INTERSECTIONS (SEE STD. DWG. 1205.04 SHEET 2 OF 2).

2- USE STOP BARS WHERE IT IS IMPORTANT TO INDICATE THE POINT, BEHIND WHICH VEHICLES ARE REQUIRED TO STOP, IN COMPLIANCE WITH A STOP SIGN OR TRAFFIC SIGNAL.

3- PLACE STOP BARS AT THE DESIRED STOPPING POINT, NO LESS THAN 4 FEET AND NO MORE THAN 30 FEET FROM THE NEAREST EDGE OF THE INTERSECTING ROADWAY. TEN FEET IS AN OFTEN USED SETBACK DISTANCE.

4- CONTINUE YELLOW EDGE LINES AROUND MEDIAN CROSSOVER RADII.

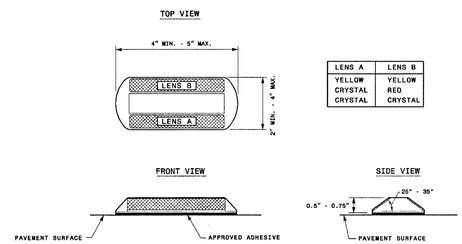
SHEET 1 OF 2
1205.04

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

Z-06

ENGLISH STANDARD DRAWING FOR **RAISED PAVEMENT MARKERS** PERMANENT AND TEMPORARY

TYPICAL PAVEMENT MARKER



LENS A	LENS B
YELLOW	YELLOW
CRYSTAL	RED
CRYSTAL	CRYSTAL

GENERAL NOTES

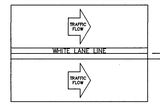
1- USE A MINIMUM OF 2 SQUARE INCHES FOR THE AREA OF EACH REFLECTIVE LENS.

2- FOR A COMPLETE LISTING OF PAVEMENT MARKERS AND ADHESIVES ACCEPTABLE FOR USE IN NORTH CAROLINA, REFER TO THE NCDOT WORK ZONE TRAFFIC CONTROL UNIT APPROVED PRODUCTS LIST AT:

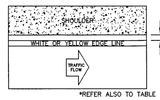
http://www.doh.dot.state.nc.us/construction/wztc/Apv_Prod/apv_prod.htm

SHEET 1 OF 1
1251.01

LANE LINE OFFSET DETAIL

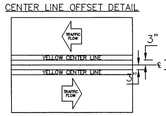


EDGE LINE OFFSET DETAIL



*REFER ALSO TO TABLE

CENTER LINE OFFSET DETAIL



PAVEMENT MARKINGS OFFSETS
SD 11-02

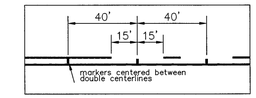
TABLE 1 EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS		
WIDTH OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E. O. P.	MINIMUM LANE WIDTH
16' – 20'	2"	8' – 10'
22'	2"	11'
24'	1'	11'
26'	2'	11'
28'	2'	12'
30'	3'	12'
32'	4'	12'

PAVEMENT MARKER SPACING CHART	
TYPE OF PAVEMENT MARKING	TYPICAL SPACING in FT (speed limit <= 45mph)
Centerlines--along through lanes	40
Centerlines--along horizontal curves	per Traffic Engineering
Skip Lines--along through lanes	40
Turn Lanes--Skip Lines	40
Turn Lanes--Solid Lane Lines	20
Turn Lanes--Centerlines	40
Painted Islands--White	20
Painted Islands--Yellow	40
Raised Median Islands	40
Other Markings	per Traffic Engineering

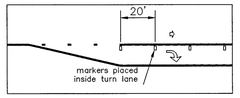
GENERAL NOTES

-CRYSTAL/RED MARKERS SHALL BE USED ALONG WHITE PAVEMENT MARKINGS UNLESS OTHERWISE DIRECTED BY TRAFFIC ENGINEERING. RED SIDE OF MARKER TO FACE "WRONG-WAY" TRAFFIC.
-PAVEMENT MARKERS SHOULD NOT BE PLACED CLOSER THAN 2 INCHES TO A PAVEMENT CONSTRUCTION JOINT, EXCEPT WHEN PLACED BETWEEN DOUBLE YELLOW CENTERLINES.
-PAVEMENT MARKERS SHALL NOT BE PLACED DIRECTLY ON PAVEMENT MARKINGS.
-PAVEMENT MARKERS USED IN CONJUNCTION WITH DOUBLE YELLOW CENTERLINES SHALL BE PLACED MID-WAY BETWEEN THE LINES, WITH A GAP BETWEEN MARKER AND MARKINGS.

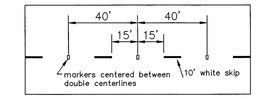
PLACEMENT ALONG YELLOW CENTERLINES



PLACEMENT ALONG TURN LANE LINES



PLACEMENT ALONG WHITE SKIP LINES



LEGEND

- DIRECTION OF TRAFFIC FLOW
- AMBER / AMBER MARKER
- CRYSTAL / RED MARKER

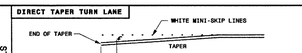
PAVEMENT MARKINGS
RAISED PAVEMENT MARKERS
SD 11-10

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

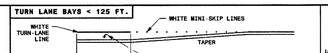
Z-06

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** TURN LANES

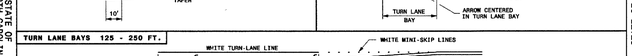
DIRECT TAPER TURN LANE



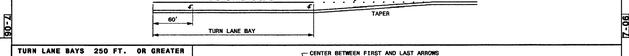
TURN LANE BAYS < 125 FT.



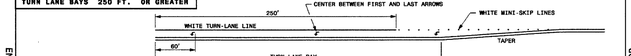
TURN LANE BAYS 125 - 250 FT.



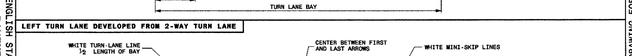
TURN LANE BAYS 250 FT. OR GREATER



LEFT TURN LANE DEVELOPED FROM 2-WAY TURN LANE



DOUBLE TURN LANES



LEGEND

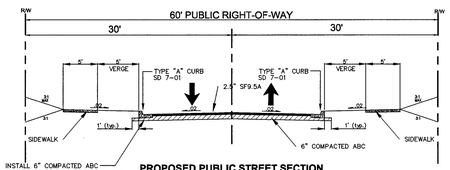
- PAVEMENT MARKING SYMBOL

GENERAL NOTES

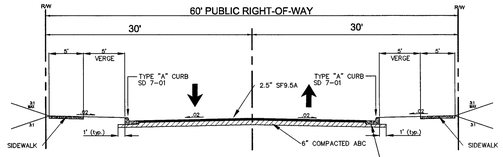
1- APPLY ALL TURN LANE MARKINGS AS SHOWN FOR RIGHT & LEFT TURN LANES.

2- THE NUMBER OF ARROWS SHOWN IS THE MINIMUM REQUIRED. USE ADDITIONAL ARROWS AS DETERMINED BY THE ENGINEER.

SHEET 1 OF 1
1205.05



PROPOSED PUBLIC STREET SECTION
60-FOOT RIGHT-OF-WAY
CALYPSO DRIVE
SCALE: 1"=10'

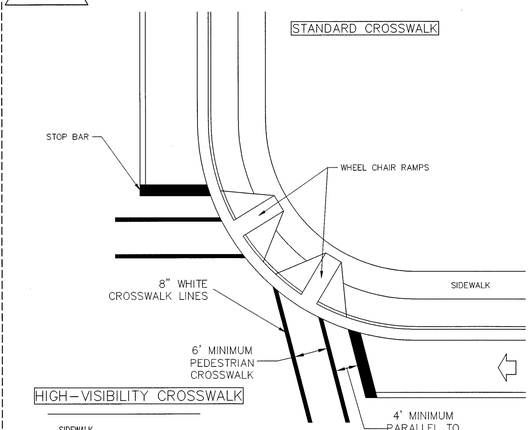


PROPOSED PUBLIC STREET SECTION
60-FOOT RIGHT-OF-WAY
CAVALIER DRIVE
SCALE: 1"=10'

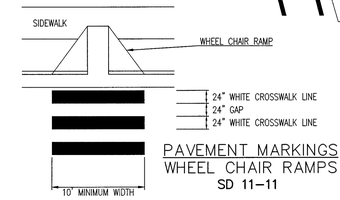
STREET NOTES:

1. Residential collectors may be a minimum of 24' wide from curb face to curb face when a separate bicycle facility is provided.
2. If on-street parking is approved, then add 7' of pavement width per parking lane.
3. Additional width may be required at intersections or major driveways for turn lanes or bays.
4. Pavement markings are required and shall include centerline, bike lanes, and parking lanes, where applicable.
5. Vertical curb (type "A") shall be used on collector streets.
6. Subgrade to be compacted to a depth of 12" and meet 95% Standard Proctor (or geotechnical recommendations).

STANDARD CROSSWALK



HIGH-VISIBILITY CROSSWALK

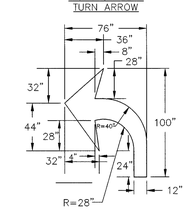


PAVEMENT MARKINGS
WHEEL CHAIR RAMPS
SD 11-11

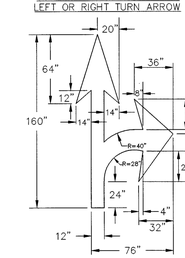
LEGEND

- DIRECTION OF TRAFFIC FLOW
- PAVEMENT MARKING SYMBOLS

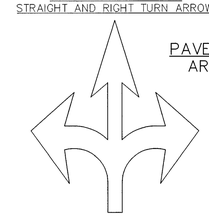
RIGHT OR LEFT TURN ARROW



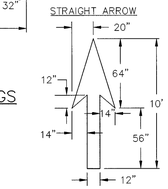
COMBINATION STRAIGHT AND LEFT OR RIGHT TURN ARROW



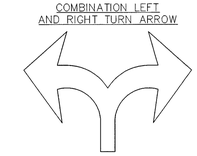
COMBINATION LEFT AND STRAIGHT AND RIGHT TURN ARROW



STRAIGHT ARROW



COMBINATION LEFT AND RIGHT TURN ARROW



PAVEMENT MARKINGS
ARROW SYMBOLS
SD 11-03

GENERAL NOTES

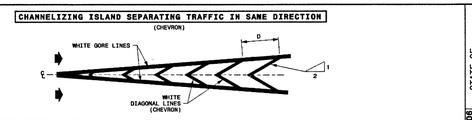
-ALL PAVEMENT MARKING SYMBOLS SHALL BE WHITE IN COLOR
-PAVEMENT MARKING SYMBOLS SHALL NOT BE LOCATED AS TO ENCROACH INTO INTERSECTION AREAS.
-ON PORTLAND CEMENT CONCRETE PAVEMENTS, PAVEMENT MARKING SYMBOLS SHALL NOT BE PLACED ACROSS TRANSVERSE EXPANSION JOINTS UNLESS APPROVED BY THE ENGINEER.

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

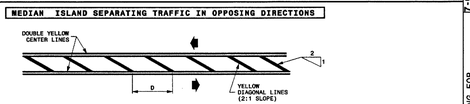
Z-06

ENGLISH STANDARD DRAWING FOR **PAVEMENT MARKINGS** PAINTED ISLANDS

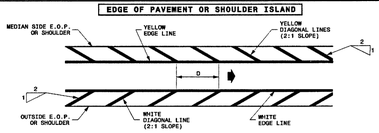
CHANNELIZING ISLAND SEPARATING TRAFFIC IN SAME DIRECTION



MEDIAN ISLAND SEPARATING TRAFFIC IN OPPOSING DIRECTIONS



EDGE OF PAVEMENT OR SHOULDER ISLAND



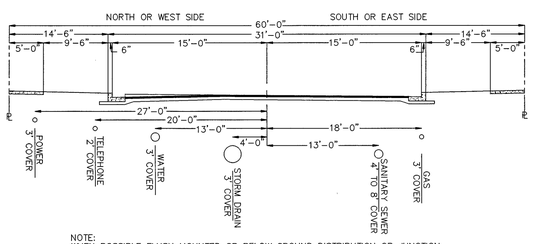
GENERAL NOTES:

1- D=SPACING OF DIAGONAL LINES (TYPICALLY EQUAL IN FEET TO THE POSTED SPEED LIMIT).

2- INCREASE SPACING OF DIAGONALS TO 200' OR MORE ON INTERSTATE ROADWAYS.

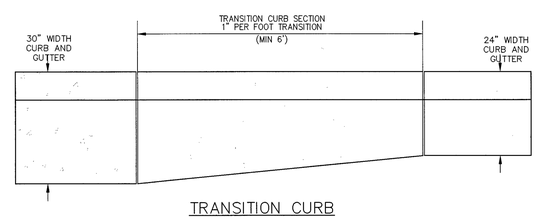
3- ADJUST SPACING OF DIAGONALS DEPENDING ON THE LENGTH OF THE ISLAND. SPACING MAY BE ADJUSTED AS DETERMINED BY THE ENGINEER.

SHEET 1 OF 1
1205.09



NOTE:
WHEN POSSIBLE FLUSH MOUNTED OR BELOW GROUND DISTRIBUTION OR JUNCTION BOXES TO BE USED BY UTILITIES.

STANDARD UTILITY LOCATION
SD 15-05
NOT TO SCALE



TRANSITION CURB

Approved Construction Plan

Name Date

Planning

Traffic

Fire

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.

1 inch

REV.NO.	DESCRIPTIONS	DATE
3	UPDATED PAVEMENT SECTIONS AND ADDED CLARIFICATION TO ABC MATERIAL TYPES.	04/04/2013
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

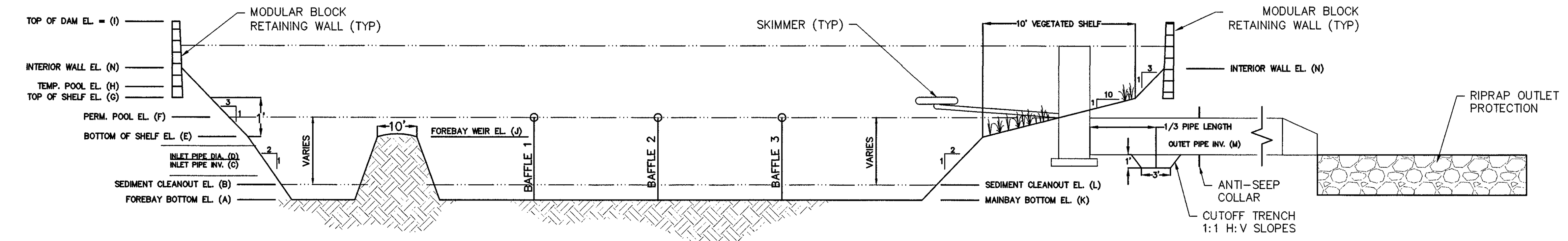
SITE DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: N/A
VERTICAL:

M&C FILE NUMBER CS502
DRAWING NUMBER 26

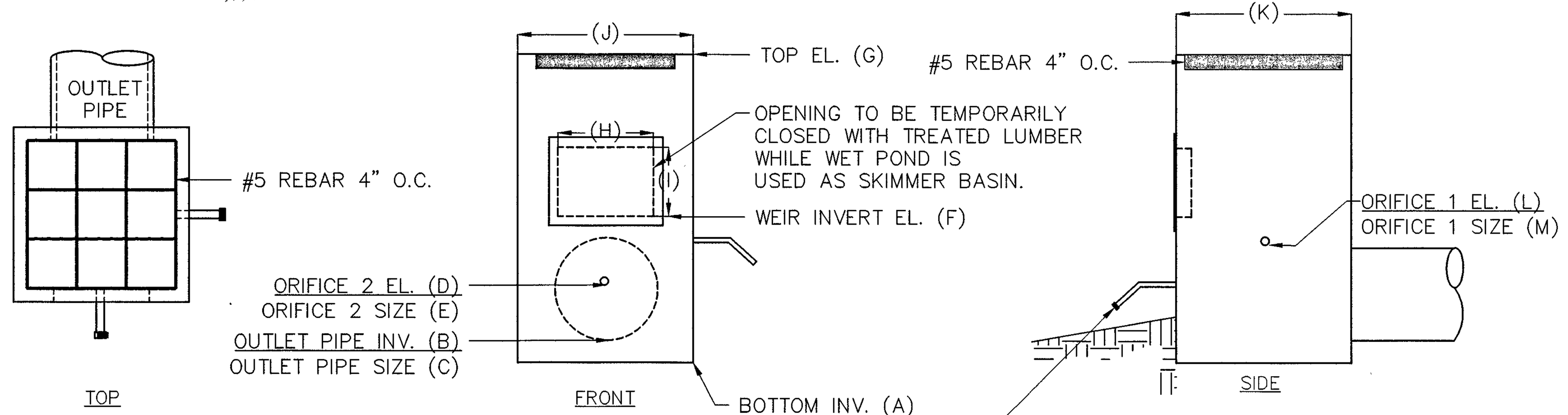
STATUS: ISSUED FOR CONSTRUCTION
REVISION 3



	SB #1 DIMENSIONS	SB #3 DIMENSIONS	SB #4 DIMENSIONS	SB #5 DIMENSIONS
	WET POND 1	SW WETLANDS	SW WETLANDS	SW WETLANDS
A	10.0'	NA	NA	NA
B	12.0'	NA	NA	NA
C	14.65'	NA	NA	NA
D	36"	NA	NA	NA
E	16.0'	NA	NA	NA
F	16.5'	17.0'	17.0'	17.5'
G	17.0'	NA	NA	NA
H	17.50'	NA	NA	NA
I	20.0'	20.0'	20.0'	20.0'
J	16.0'	NA	NA	NA
K	12.10'	14.0'	14.0'	14.0'
L	13.0'	15.0'	15.0'	15.0'
M	15.0'	17.0'	17.0'	17.0'
N	18.0'	NA	NA	NA

NOTE:

PHASE 1 SKIMMER BASINS #3, #4 AND #5 SHALL BE THE FINAL PROPOSED STORMWATER MANAGEMENT BMP, AS SHOWN ON CN-502, WITH THE ADDITION OF A SKIMMER CONFORMING TO THE SIZES SHOWN IN THE PHASE 1 TABLE.

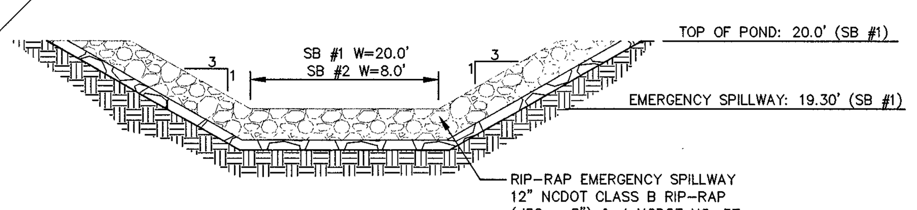


CORE & SET 4" SCH. 40 PVC WITH 45 DEG BEND AND ADD SKIMMER. DRILL (E) ORIFICE IN A PIPE CAP WHEN BASIN CONVERTED TO WET POND.

	SB #1 OUTLET STRUCTURE
A	14.0'
B	15.0'
C	18" RCP
D	16.5'
E	2.00"
F	17.50'
G	18.80'
H	42"
I	8"
J	60"
K	60"
L	17.50'
M	2.50"

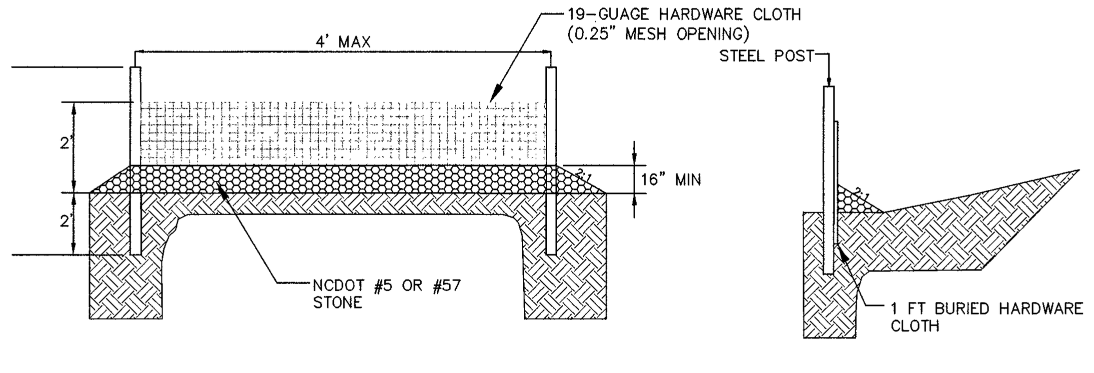
NOTES
1. LOCATE THE EMERGENCY SPILLWAY ON NATURAL SOILS. AVOID PLACING IT THROUGH FILL MATERIAL WHEREVER POSSIBLE.
2. ALL RUNOFF MUST DISCHARGE TO THE INLET SIDE OF THE BASIN. DISCHARGE RUNOFF INTO THE BASIN IN A MANNER THAT MINIMIZES EROSION.
3. POROUS BAFFLES SHALL BE 700g/m² COIR FABRIC. INSTALL AS:
BAFFLE 1=25% X BASIN LENGTH
BAFFLE 2=50% X BASIN LENGTH
BAFFLE 3=75% X BASIN LENGTH

SKIMMER SEDIMENT BASIN #1 & OUTLET STRUCTURE
NOT TO SCALE



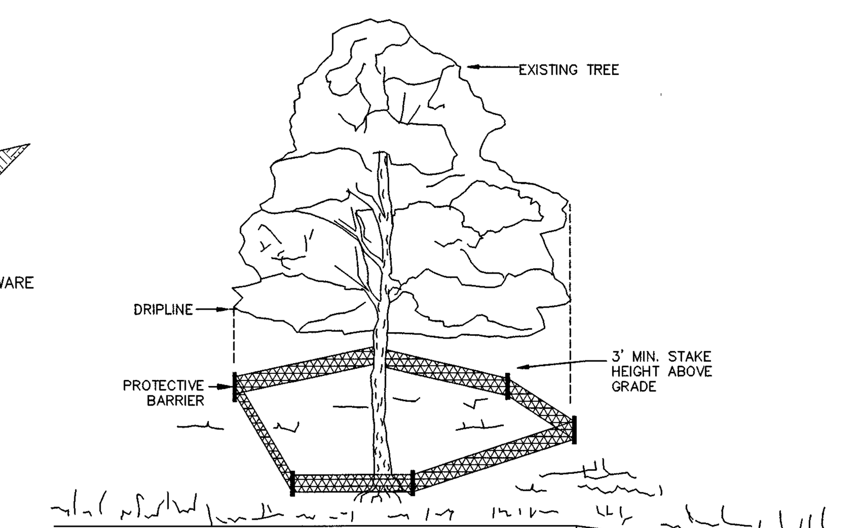
EMERGENCY SPILLWAY SECTION (SB #1)
NOT TO SCALE

DITCH OUTFALL PROTECTION	
	NORTH DITCH
OUTLET PIPE DIA.	ARCH
OUTLET FLOW RATE	66 CFS
OUTLET VELOCITY	2.6 FT/S
MATERIAL	CLASS B
LENGTH	46.0'
WIDTH	23.0'
STONE DIA.	6"
THICKNESS	22"



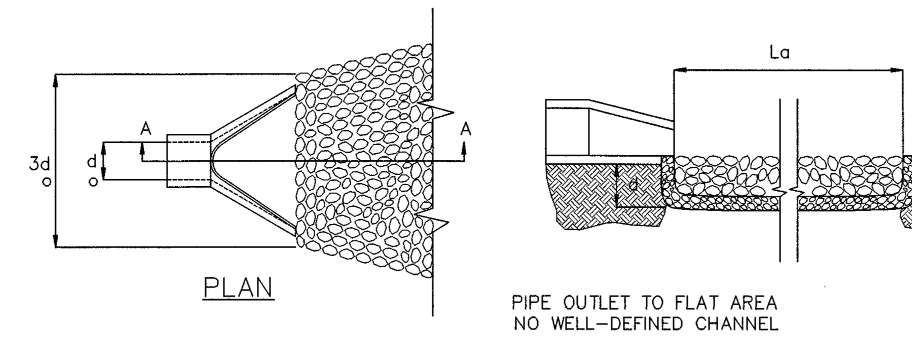
NOTES:
1. DRIVE 5-FOOT STEEL POSTS 2 FEET INTO THE GROUND SURROUNDING THE INLET. SPACE POSTS EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4 FEET APART.
2. SURROUND THE POSTS WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POSTS AT THE TOP, MIDDLE, AND BOTTOM. PLACING A 1-FOOT FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
3. PLACE CLEAN GRAVEL (NC DOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.

GUIDELINES FOR HARDWARE CLOTH & GRAVEL INLET PROTECTION
SD 13-01
NOT TO SCALE



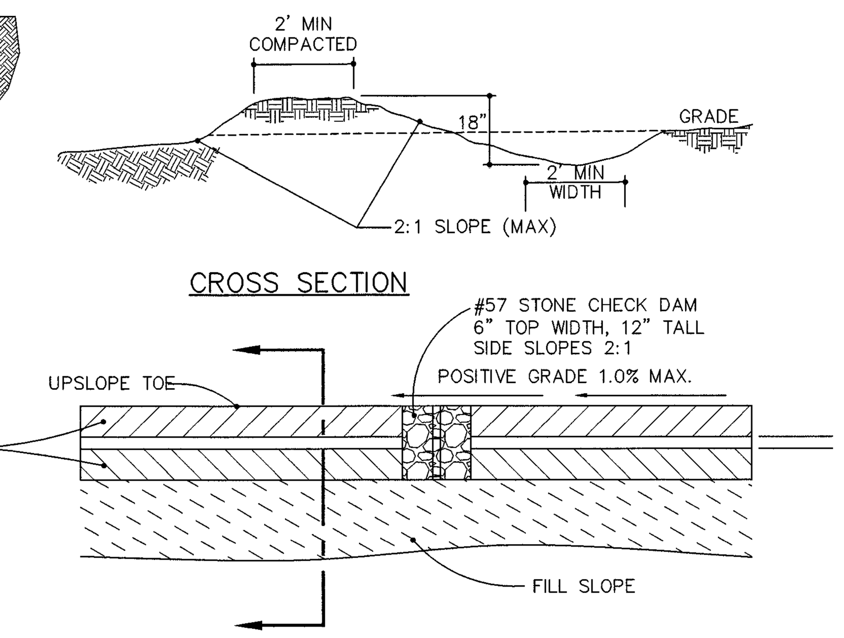
NOTE
TREES TO BE SAVED WILL BE CLEARLY MARKED PRIOR TO CONSTRUCTION AND A PROTECTIVE BARRIER IS TO BE INSTALLED AT THE DRIPLINE. DRIP LINE – THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.

METHOD OF TREE PROTECTION DURING CONSTRUCTION
SD 15-08
NOT TO SCALE



NOTES:
1. La IS THE LENGTH OF THE RIPRAP APRON.
2. d = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6'.
3. IN A WELL – DEFINED CHANNEL EXTEND THE APRON UP THE CHANNEL BANKS TO AN ELEVATION OF 6" ABOVE THE MAXIMUM TAILWATER DEPTH OR TO THE TOP OF THE BANK, WHICHEVER IS LESS.
4. A FILTER BLANKET OR FILTER FABRIC SHOULD BE INSTALLED BETWEEN THE RIPRAP AND SOIL FOUNDATION.

PIPE OUTLET PROTECTION
SD 2-15
NOT TO SCALE



TEMPORARY DIVERSION DITCH
NOT TO SCALE

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 SEEDED 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

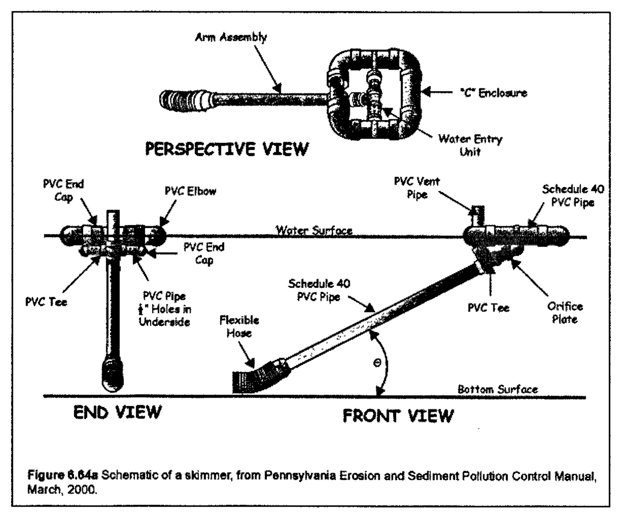


Figure 6.64a Schematic of a skimmer, from Pennsylvania Erosion and Sediment Pollution Control Manual, March, 2000.

NOTES:
1. SB #1 SKIMMER SIZE = 4.0" DIA.
2. SB #3 SKIMMER SIZE = 2.0" DIA.
3. SB #4 SKIMMER SIZE = 2.5" DIA.
4. SB #5 SKIMMER SIZE = 2.0" DIA.
5. ORIFICE SIZES ARE FOR THE FAIRCLOTH SKIMMER. IF ANOTHER TYPE OF SKIMMER IS USED THE DEVICE MUST BE ABLE TO DRAIN THE BASIN WITHIN 72 HOURS.

FAIRCLOTH SKIMMER SIZE CALCULATION - PHASE 1

Skimmer No.	Dewatering Time (days)	Skimmer Outflow cf/day	Skimmer Size in	Orifice Diameter in	Orifice Radius in	Barrel Outflow gpm	Barrel Pipe in
SB-1	3	11,550	4.0	2.9	1.5	60.0	4.0
SB-3	3	2,905	2.0	1.8	0.9	15.1	4.0
SB-4	3	3,805	2.5	1.9	1.0	19.8	4.0
SB-5	3	2,662	2.0	1.7	0.8	13.8	4.0

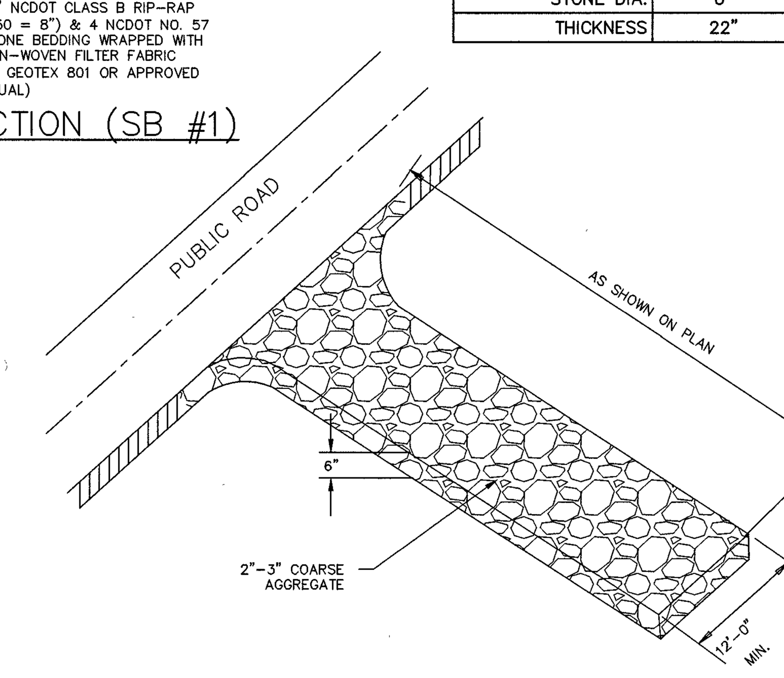
FAIRCLOTH SKIMMER SIZE CALCULATION - PHASE 2

Skimmer No.	Dewatering Time (days)	Skimmer Outflow cf/day	Skimmer Size in	Orifice Diameter in	Orifice Radius in	Barrel Outflow gpm	Barrel Pipe in
SB-1	3	11,550	4.0	2.9	1.5	60.0	4.0
SB-2	3	10,213	4.0	2.8	1.4	53.1	4.0
SB-3	3	2,905	2.0	1.8	0.9	15.1	4.0
SB-4	3	3,805	2.5	1.9	1.0	19.8	4.0
SB-5	3	2,662	2.0	1.7	0.8	13.8	4.0

NOTE:

PHASE 2 SKIMMER BASINS SHALL BE THE FINAL PROPOSED STORMWATER MANAGEMENT BMP, AS SHOWN ON CN-501 AND CN-502, WITH THE ADDITION OF A SKIMMER CONFORMING TO THE SIZES SHOWN IN THE PHASE 2 TABLE.

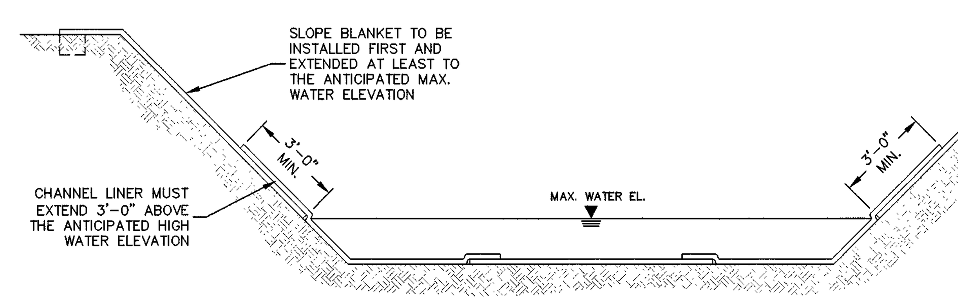
SKIMMER DETAIL
NOT TO SCALE

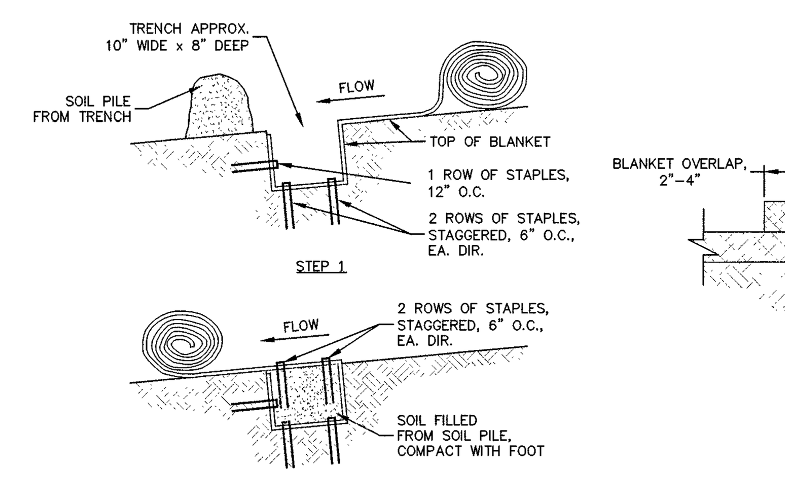


CONSTRUCTION ENTRANCE/EXIT
SD 13-03
NOT TO SCALE

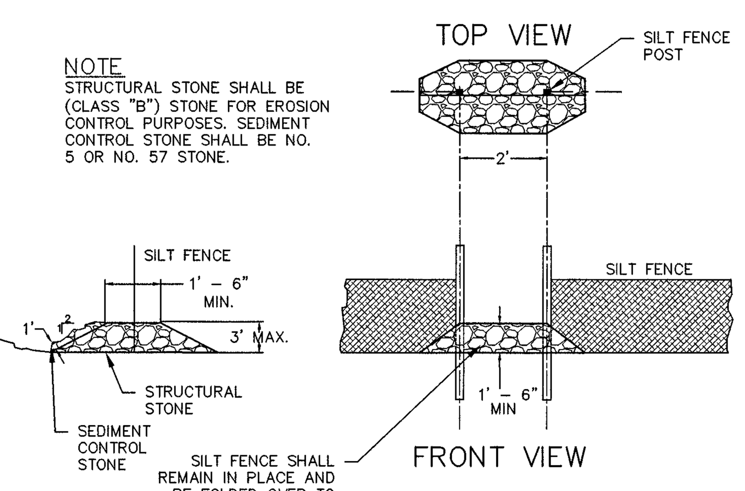
SKIMMER BASIN OUTFALL PROTECTION			
	SB #1	SB #3	SB #4 & #5
OUTLET PIPE DIA.	18"	24"	15"
OUTLET FLOW RATE	9.86 CFS	8.42 CFS	5.45 CFS
OUTLET VELOCITY	6.8 FT/S	5.2 FT/S	5.9 FT/S
MATERIAL	CLASS A	CLASS A	CLASS A
LENGTH	9.0'	8.0'	5.0'
WIDTH	4.5'	6.0'	3.8'
STONE DIA.	6"	3"	3"
THICKNESS	22"	9"	9"

* OUTFALL PIPE DIAMETER REFERS TO PIPE SIZE DOWNSTREAM OF CONFLUENCE IN MANHOLE.



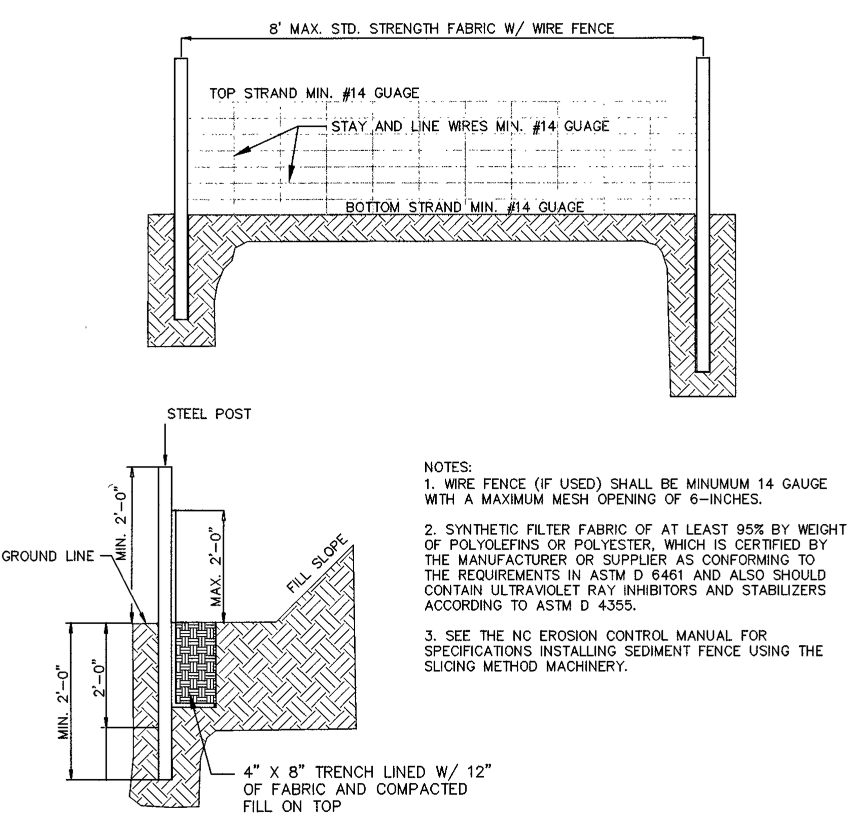


JUTE/EXCELSIOR MATTING TYPICAL INSTALLATION
NOT TO SCALE



NOTE
STRUCTURAL STONE SHALL BE (CLASS "B") STONE FOR EROSION CONTROL PURPOSES. SEDIMENT CONTROL STONE SHALL BE NO. 5 OR NO. 57 STONE.

SILT FENCE STONE OUTLET
NOT TO SCALE



NOTES:
1. WIRE FENCE (IF USED) SHALL BE MINUMUM 14 GAUGE WITH A MAXIMUM MESH OPENING OF 6-INCHES.
2. SYNTHETIC FILTER FABRIC OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS 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 NC EROSION CONTROL MANUAL FOR SPECIFICATIONS INSTALLING SEDIMENT FENCE USING THE SLICING METHOD MACHINERY.

TEMPORARY SILT FENCE
NOT TO SCALE

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

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

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 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 HQW ZONES)

LENGTH (FT)	HIGH (FT)	LOW (FT)	ELEVATION DIFF. (FT)	SLOPE (%)	MANNING n	VELOCITY (FPS)	LINING
190	21.00	17.00	4.00	2.11	0.020	1.30	BARE EARTH
293	20.50	17.00	3.50	1.19	0.020	1.75	BARE EARTH
262	22.00	19.00	3.00	1.15	0.020	0.47	BARE EARTH
292	23.00	19.00	4.00	1.37	0.020	0.47	BARE EARTH
404	24.00	19.00	5.00	1.24	0.020	0.57	BARE EARTH

DA (AC)	DEPTH (IN)	FLOW DEPTH (IN)	SIDE SLOPES H:V	SLOPE (%)	MANNING n	VELOCITY (FPS)	LINING	CHECK DAM SPACING (FT)	NUMBER REQUIRED	NUMBER PROVIDED
2.20	18	12	3	2.11	0.035	1.30	GRASS	95	2	2
2.96	18	12	3	1.19	0.035	1.75	GRASS	167	2	2
0.79	18	12	3	1.15	0.035	0.47	GRASS	175	2	2
0.80	18	12	3	1.37	0.035	0.47	GRASS	146	2	2
0.96	18	12	3	1.24	0.035	0.57	GRASS	162	3	3

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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.

REVISIONS

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UITLITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

SEAL

SEAL 22574 — PROFESSIONAL ENGINEER — RICHARD M. COLLIER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

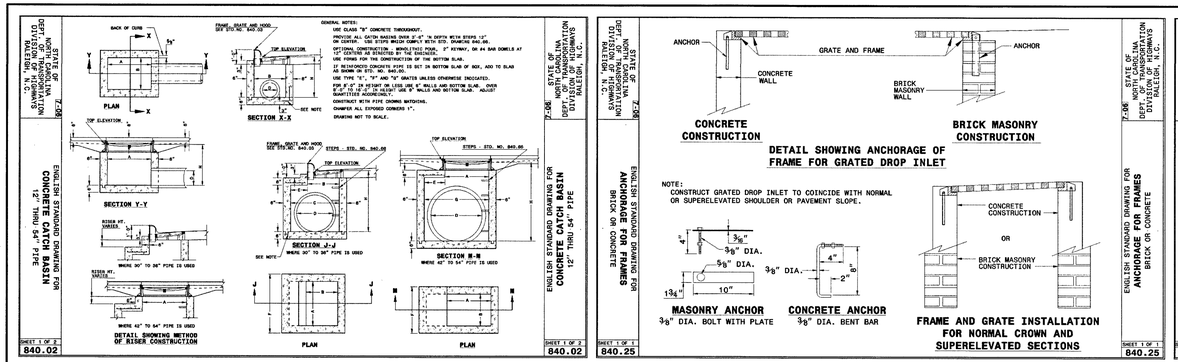
CAMBRIDGE VILLAGE OF WILMINGTON
SEDIMENT & EROSION CONTROL DETAILS

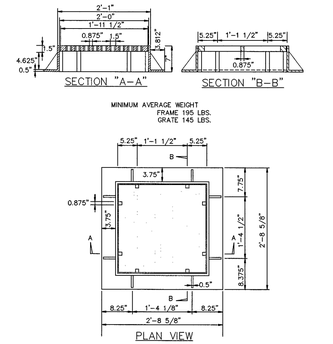
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

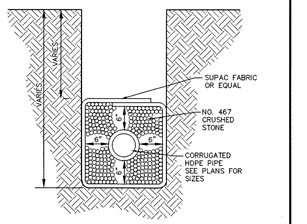
SCALE
HORIZONTAL: N/A
VERTICAL:

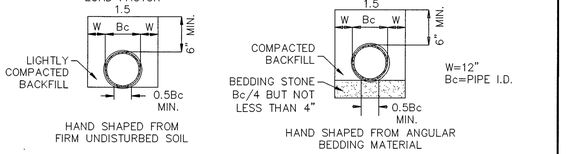
M&C FILE NUMBER CE501
DRAWING NUMBER 27

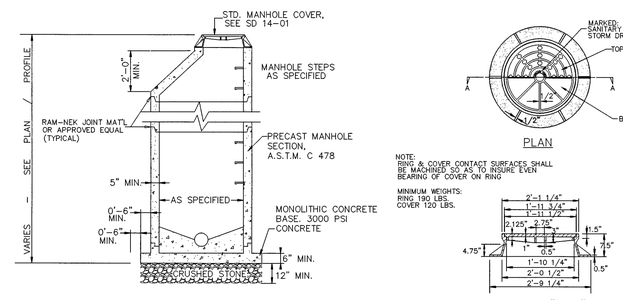
STATUS: ISSUED FOR CONSTRUCTION
REVISION 2







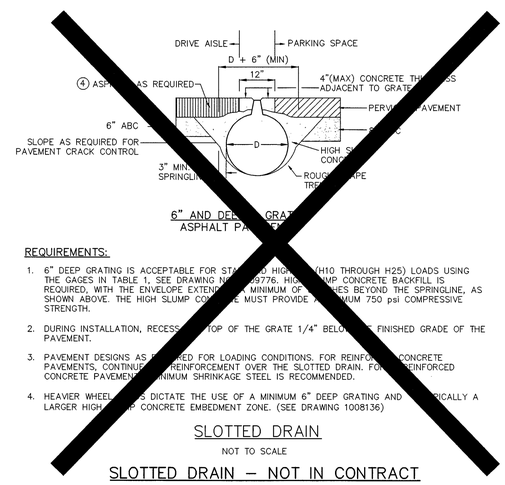




NOTE:
EXTENDED BASE MAY NOT BE REQUIRED WHERE MANHOLES ARE GREATER THAN 4 FEET INSIDE DIAMETER

PRECAST MANHOLE
SD 14-11
NOT TO SCALE

- EXCAVATION FOR STORM DRAINAGE PIPE SHALL BE TO THE LINES AND GRADES AS SHOWN ON THE PLANS.
- THE BEDDING SHALL BE SHAPED IN ACCORDANCE WITH CLASS "C" BEDDING AS SHOWN ON CITY STANDARD DETAIL SD 2-17.
- THE BEDDING SHALL PROVIDE A FIRM FOUNDATION OF UNIFORM DENSITY ALONG THE ENTIRE LENGTH OF PIPE. RECESSES SHALL BE MADE TO ACCOMMODATE BELLS AND JOINTS.
- WHERE UNSTABLE SOILS ARE ENCOUNTERED AS DETERMINED BY GEOTECHNICAL ENGINEER, A MINIMUM 4-INCH THICK BEDDING OF STONE SHALL BE PLACED, SEE FIGURE 2, SD 2-17.
- THE STONE SHALL BE UNIFORMLY GRADED FROM 3/4 INCH TO NO. 4 IN ACCORDANCE WITH ASTM C-33. CARE SHALL BE TAKEN TO PREVENT UNDERCUTTING IN SUITABLE SOIL.
- AREAS UNDERCUT SHALL BE FILLED WITH SUITABLE SOIL AND COMPACTED TO 95% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D 1557 STANDARD TEST METHOD.



REQUIREMENTS:

1. 6" DEEP GRATING IS ACCEPTABLE FOR STA D HIGH (H10 THROUGH H25) LOADS USING THE GAGES IN TABLE 1, SEE DRAWING NO 9776. HIGH MP CONCRETE BACKFILL IS REQUIRED, WITH THE ENVELOPE EXTENDING MINIMUM OF HES BEYOND THE SPRINGLINE, AS SHOWN ABOVE. THE HIGH SLUMP CO E MUST PROVIDE MUM 750 psi COMPRESSIVE STRENGTH.
2. DURING INSTALLATION, RECESS TOP OF THE GRATE 1/4" BELO FINISHED GRADE OF THE PAVEMENT.
3. PAVEMENT DESIGNS AS RED FOR LOADING CONDITIONS. FOR REINFO CONCRETE PAVEMENTS, CONTINUE REINFORCEMENT OVER THE SLOTTED DRAIN. FO REINFORCED CONCRETE PAVEMENT INIMUM SHRINKAGE STEEL IS RECOMMENDED.
4. HEAVIER WHEEL S DICTATE THE USE OF A MINIMUM 6" DEEP GRATING AND ICALLY A LARGER HIGH P CONCRETE EMBEDMENT ZONE. (SEE DRAWING 1008136)

SLOTTED DRAIN
NOT TO SCALE
SLOTTED DRAIN - NOT IN CONTRACT

STORM DRAINAGE NOTES:

1. ALL PIPE BEDDING SHALL BE CLASS "C" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
2. ALL STORM DRAINAGE PIPES SHALL BE RCP CLASS III UNLESS OTHERWISE NOTED ON THE PLANS.
3. DO NOT PLANT TREES WITHIN UTILITY AND DRAINAGE EASEMENTS.
4. 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).
5. THE CONTRACTOR SHALL CONTACT ONECALL BEFORE COMMENCING ANY WORK. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES WHETHER INDICATED ON THE DRAWINGS OR NOT. THE CONTRACTOR WILL ASSURE THE PRESENCE ONSITE OF A REPRESENTATIVE OF THE GAS COMPANY WHEN WORKING IN THE VICINITY OF ANY GAS MAINS.

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT # _____
SIGNED _____

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1 inch

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A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL ENGINEER
SEAL 22574
07/01/2013

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Wilmington, North Carolina 28401
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CAMBRIDGE VILLAGE OF WILMINGTON

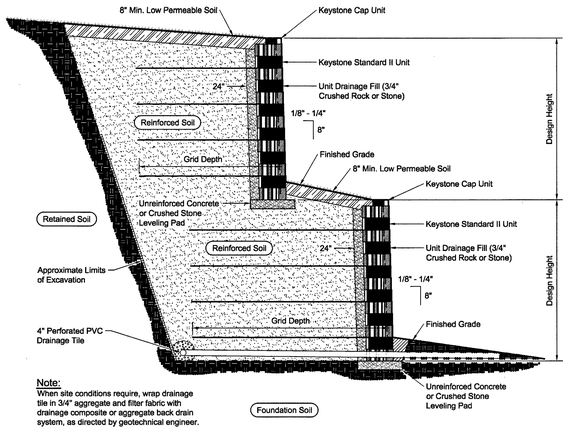
STORM DRAINAGE & GRADING DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: N/A
VERTICAL:

M&C FILE NUMBER CG501
DRAWING NUMBER 28

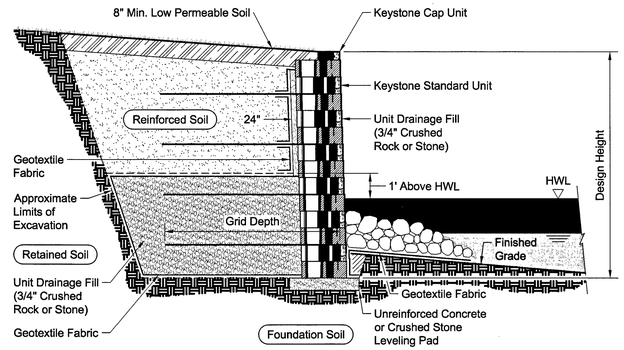
STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



Note:
When site conditions require, wrap drainage tile in 3/4" aggregate and filter fabric with drainage composite or aggregate back drain system, as directed by geotechnical engineer.

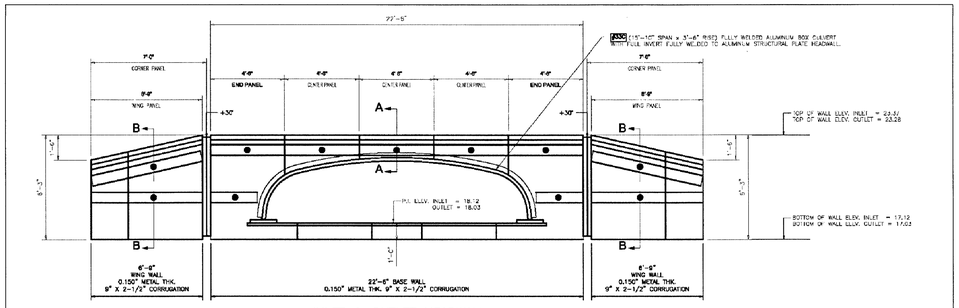
Typical Reinforced Tiered Wall Section

Standard II Unit - Near Vertical Setback

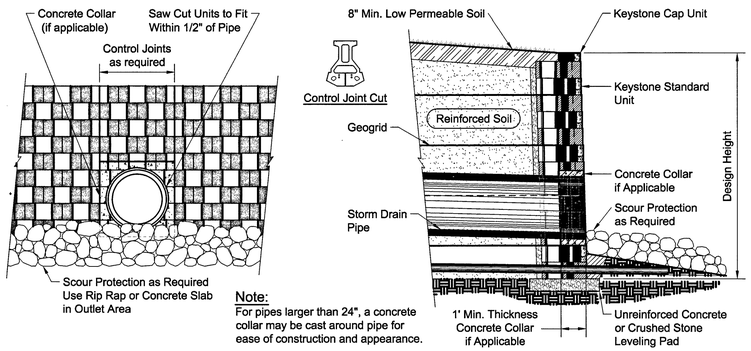


Typical Reinforced Water Wall Section

Standard Unit - Near Vertical Setback



INLET & OUTLET HEADWALL



Note:
For pipes larger than 24", a concrete collar may be cast around pipe for ease of construction and appearance.

Typical Pipe Outlet Detail

Typical Pipe Outlet Section

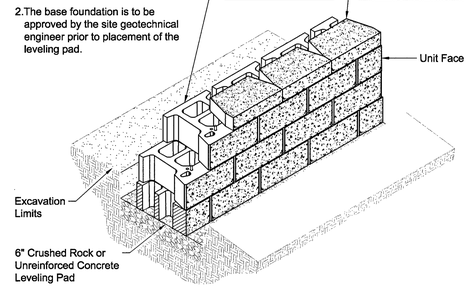
Standard Unit - Near Vertical Setback

Base Leveling Pad Notes:

1. The leveling pad is to be constructed of crushed stone or 2,000 psi± unreinforced concrete
2. The base foundation is to be approved by the site geotechnical engineer prior to placement of the leveling pad.

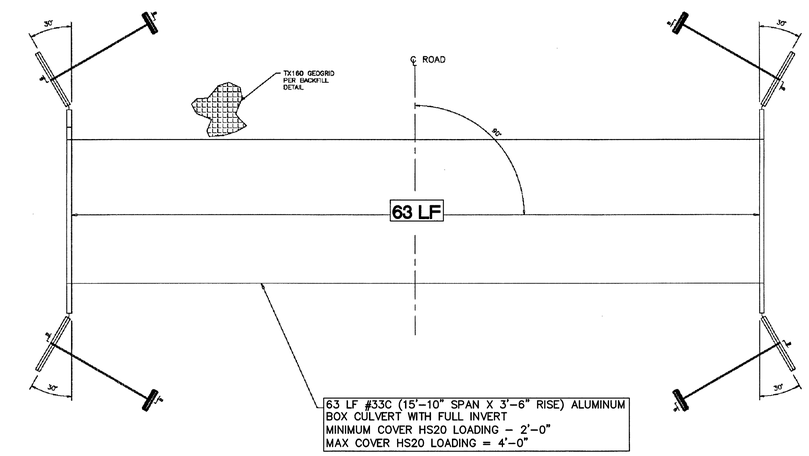
Standard II Unit	
Width:	18"
*Depth:	18"
Height:	8"
*Weight:	112 lbs

Cap Unit	
Width:	18"
*Depth:	10 1/2"
Height:	4"
*Weight:	50 lbs

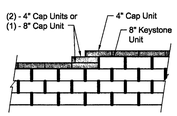


Standard II Unit/Base Pad Isometric Section View

* Dimensions & Weight May Vary by Region

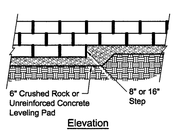


PLAN VIEW



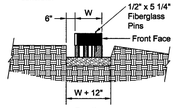
Note:
1. Secure all cap units with Keystone Kapseal or equal.

Top of Wall Steps



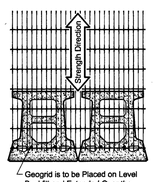
Elevation

Note:
1. The leveling pad is to be constructed of crushed stone or 2000 psi ± unreinforced concrete.



Section

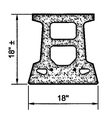
Leveling Pad Detail



Geogrid is to be Placed on Level Backfill and Extended Over the Fiberglass Pins. Place Next Unit. Pull Grid Taught and Backfill. Stake as required.

Grid & Pin Connection

Standard II Elevation



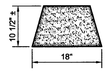
Standard II Plan

Standard II Unit

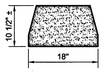
* Dimensions May Vary by Region

Cap Unit Elevation

Cap Unit Elevation



Cap Unit Plan



Cap Unit Plan

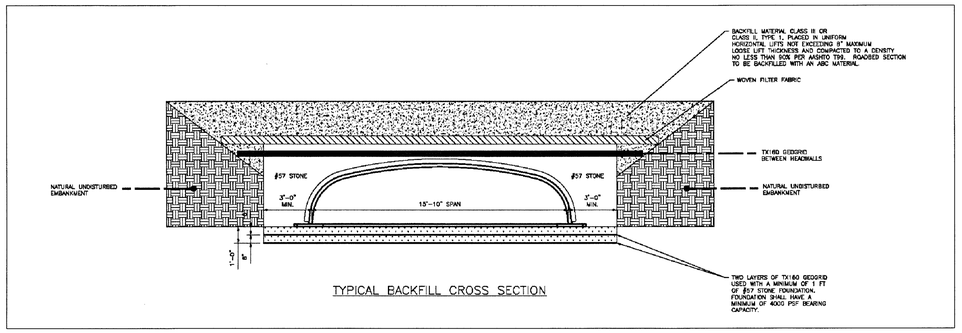
Universal Cap Unit Option

* Dimensions & Availability Will Vary by Region

Straight Split Cap Unit Option

* Dimensions & Availability Will Vary by Region

RETAINING WALL DETAILS ARE FOR INFORMATION AND GENERAL ARRANGEMENT ONLY. CONTRACTOR TO SUBMIT RETAINING WALL DESIGN FOR STORMWATER MANAGEMENT PONDS SEALED AND SIGNED BY A REGISTERED NORTH CAROLINA PROFESSIONAL ENGINEER



TYPICAL BACKFILL CROSS SECTION

BOX CULVERT DETAILS ARE FOR INFORMATION AND GENERAL ARRANGEMENT ONLY. CONTRACTOR TO SUBMIT BOX CULVERT DESIGN SEALED AND SIGNED BY A REGISTERED NORTH CAROLINA PROFESSIONAL ENGINEER

Approved Construction Plan		
	Name	Date
Planning		
Traffic		
Fire		

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.

1 inch

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
PROFESSIONAL SEAL 22574 ENGINEER
RICHARD MICHAEL LEE
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

STORM DRAINAGE DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

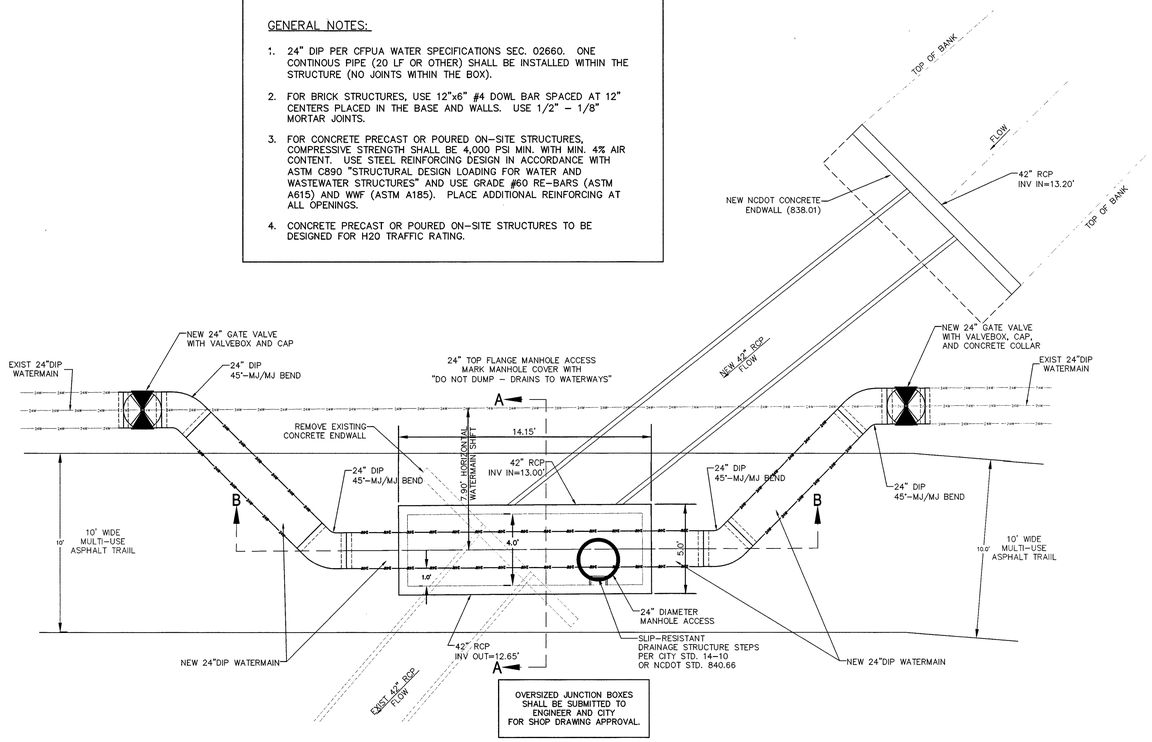
SCALE
HORIZONTAL: N/A
VERTICAL:

M&C FILE NUMBER CG502
DRAWING NUMBER 29

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

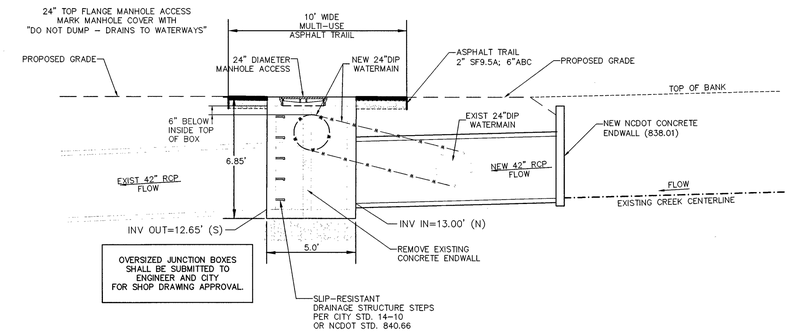
GENERAL NOTES:

1. 24" DIP PER CFPUA WATER SPECIFICATIONS SEC. 02660. ONE CONTINOUS PIPE (20 LF OR OTHER) SHALL BE INSTALLED WITHIN THE STRUCTURE (NO JOINTS WITHIN THE BOX).
2. FOR BRICK STRUCTURES, USE 12"x6" #4 DOWL BAR SPACED AT 12" CENTERS PLACED IN THE BASE AND WALLS. USE 1/2" – 1/8" MORTAR JOINTS.
3. FOR CONCRETE PRECAST OR POURED ON-SITE STRUCTURES, COMPRESSIVE STRENGTH SHALL BE 4,000 PSI MIN. WITH MIN. 4% AIR CONTENT. USE STEEL REINFORCING DESIGN IN ACCORDANCE WITH ASTM C890 "STRUCTURAL DESIGN LOADING FOR WATER AND WASTEWATER STRUCTURES" AND USE GRADE #60 RE-BARS (ASTM A615) AND WWF (ASTM A185). PLACE ADDITIONAL REINFORCING AT ALL OPENINGS.
4. CONCRETE PRECAST OR POURED ON-SITE STRUCTURES TO BE DESIGNED FOR H20 TRAFFIC RATING.



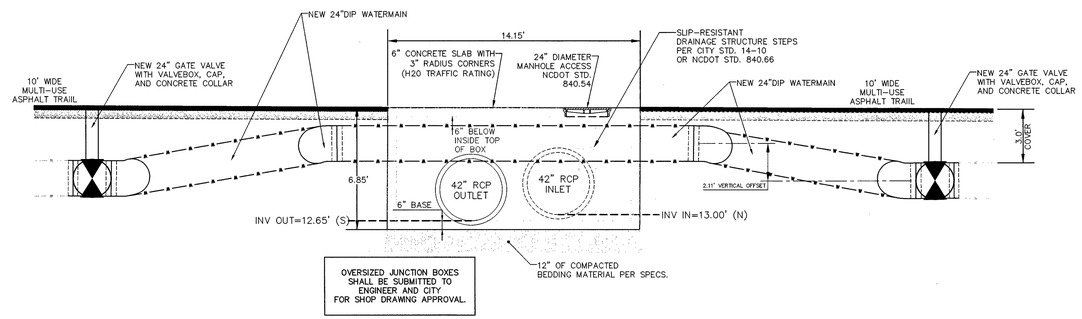
OVERSIZED JUNCTION BOXES SHALL BE SUBMITTED TO ENGINEER AND CITY FOR SHOP DRAWING APPROVAL.

TOP VIEW



OVERSIZED JUNCTION BOXES SHALL BE SUBMITTED TO ENGINEER AND CITY FOR SHOP DRAWING APPROVAL.

A–A SECTION VIEW



OVERSIZED JUNCTION BOXES SHALL BE SUBMITTED TO ENGINEER AND CITY FOR SHOP DRAWING APPROVAL.

B–B SECTION VIEW

INTERFERENCE JUNCTION BOX FOR
42" RCP STORM PIPE AND 24" DIP WATER MAIN

SCALE: 1"=4'

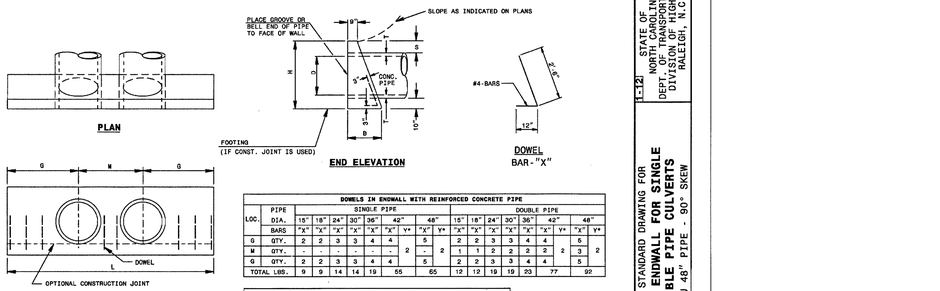
STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3

838.01



PLAN

END ELEVATION

ELEVATION

DOWELS IN ENDWALL WITH REINFORCED CONCRETE PIPE																		
LOC.	PIPE DIA.	SINGLE PIPE								DOUBLE PIPE								
		15"	18"	24"	30"	36"	42"		48"	15"	18"	24"	30"	36"	42"		48"	
	BARS	"X"	"X"	"X"	"X"	"X"	"X"	V*	"X" V*	"X"	"X"	"X"	"X"	"X"	"X"	V*	"X"	V*
G	QTY.	2	2	3	3	4	4	2	5	2	2	3	3	4	4	2	5	2
M	QTY.	-	-	-	-	-	-		-		1	1	2	2	2		3	
G	QTY.	2	2	3	3	4	4		5		2	2	3	3	4	4	5	
TOTAL LBS.		9	9	14	14	19	55		65	12	12	19	19	23	77		92	

DIMENSIONS AND CONCRETE QUANTITIES											
USING CONCRETE PIPE											
	COMMON DIMENSIONS							SINGLE PIPE	DOUBLE PIPE		
D	H	B	G	T	S	L	YD³	M	L	YD³	
15"	3'-3"	1'-8"	2'-9"	2¼"	9½"	5'-6"	0.7	2'-2"	7'-8"	1.0	
18"	3'-7"	1'-10"	3'-2"	2½"	10"	6'-4"	1.0	2'-7"	8'-11"	1.3	
24"	4'-2"	2'-1"	4'-0"	3"	10"	8'-0"	1.5	3'-5"	11'-5"	2.0	
30"	5'-0"	2'-6"	4'-7"	4¼"	11½"	9'-2"	2.3	4'-3"	13'-5"	3.1	
36"	5'-8"	2'-8"	5'-6"	4¾"	11½"	11'-0"	3.4	5'-0"	16'-0"	4.5	
42"	6'-2"	3'-1"	6'-4"	5¼"	11½"	12'-8"	4.5	5'-10"	18'-6"	6.0	
48"	6'-8"	3'-5"	7'-2"	5¾"	11½"	14'-4"	6.0	6'-8"	21'-0"	8.0	

*SEE SHEET 3

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

1-12

ENGLISH STANDARD DRAWING FOR
CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 3

838.01

REV.NO.	DESCRIPTIONS	DATE
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REVISIONS

SEAL

SEAL
PROFESSIONAL SEAL 22574 ENGINEER
RICHARD MICHAEL CLAYTON
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

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COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

Approved Construction Plan
Name Date
Planning
Traffic
Fire

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED

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1 inch

CAMBRIDGE VILLAGE OF WILMINGTON

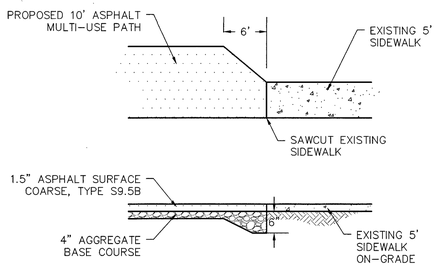
STORM DRAINAGE DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL:
N/A
VERTICAL:

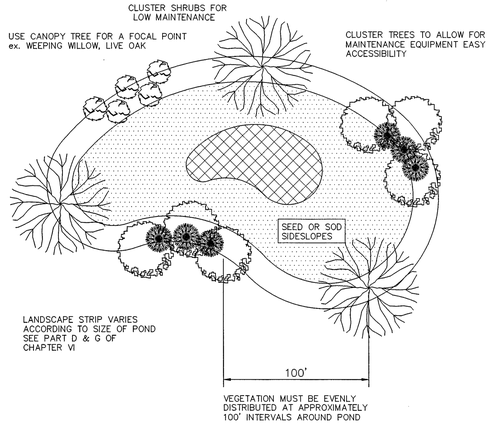
M&C FILE NUMBER CG503
DRAWING NUMBER 29a

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



TRANSITION FROM SIDEWALK TO MULTI-USE PATH

NOT TO SCALE

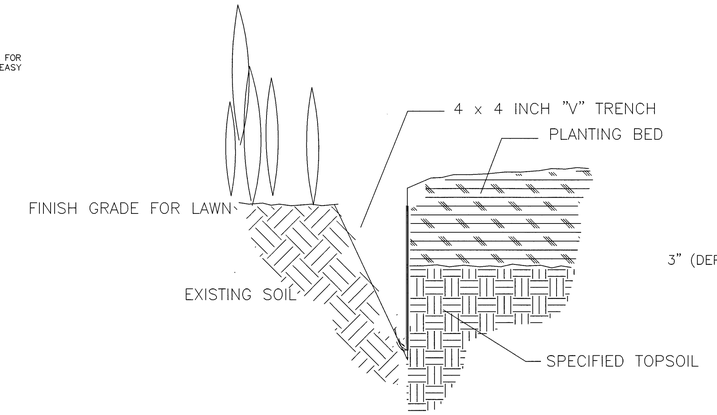


Notes:

1. IF POSSIBLE, LOCATE POND WHERE VEGETATION EXISTS.
2. SUGGEST MINIMAL CLEARING TO CONSERVE VISUAL QUALITY OF SITE AND MINIMIZE THE ADDITIONAL OF TREE PLANTING. AN IRREGULAR SHAPE PROVIDES A MORE NATURAL APPEARANCE.
3. LANDSCAPE STRIP SHALL BE A MAXIMUM SLOPE OF 7:1 IN ORDER TO PLANT VEGETATION.
4. PROVIDE A MINIMUM OF 3 INCHES OF MULCH AROUND ALL VEGETATION.

TYPICAL STORM WATER FACILITY LANDSCAPING PLAN

SD 15-16



BED EDGING DETAIL

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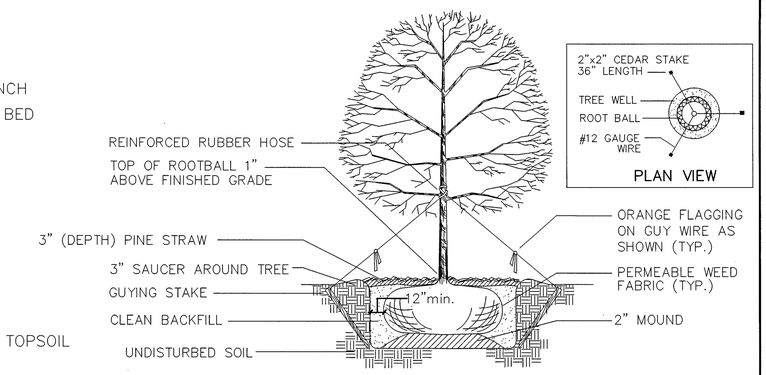
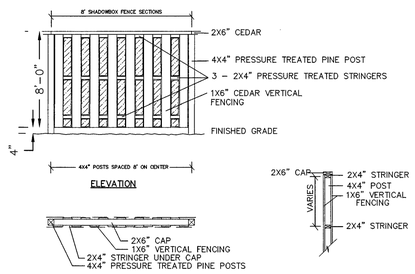


TREE PLANTING DETAIL

NO SCALE



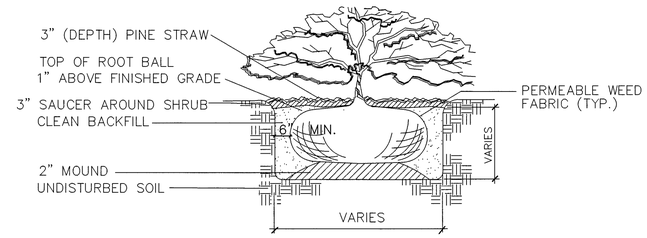
SHADOWBOX FENCE DETAIL

NOT TO SCALE

NOTE: FOUNDATIONS FOR THE FENCE POSTS SHALL BE DESIGNED BY THE FENCE CONTRACTOR

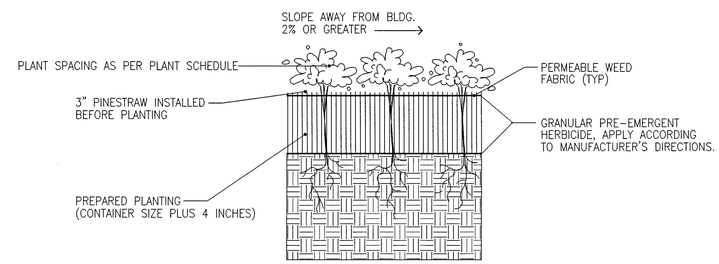
PLANTING NOTES:

1. ALL TOPSOIL SHALL BE RETAINED AND REUSED IN PLANTING HOLES AFTER DIGGING HAS BEEN COMPLETED. USE ANY EXCESS SOIL FROM THE PLANTING PIT AS WELL TO FORM A SAUCER 2" TO 4" HIGH AROUND THE PLANT. SAUCERS SHALL BE THE SAME DIAMETER OR SLIGHTLY LARGER THAN THE ROOT BALL.
2. MULCHING SHALL BE COMPLETED WITHIN 48 HOURS AFTER PLANTING OF NEW PLANT MATERIAL. MULCH SHALL BE SPREAD TO A DEPTH OF 3" FOR INDIVIDUALLY PLANTED TREES AND SHRUBS AND SHOULD COVER THE ENTIRE SAUCER AREA OF EACH PLANT.
3. ALL PLANTS SHALL BE "WATERED IN" BY FLOODING THE BACKFILLED HOLE WITHIN THE SAME WORKING DAY UPON WHICH THEY WERE PLANTED. DURING AND IMMEDIATELY AFTER WATERING, ALL PLANTS SHALL BE ADJUSTED AS NECESSARY TO INSURE CORRECT DEPTH OF PLANTING, VERTICAL ALIGNMENT AND/OR TO COMPENSATE FOR SETTLING. SOIL SHALL BE FIRMED AROUND EACH PLANT AS FINAL ADJUSTMENTS ARE MADE.
4. PLANTS SHALL BE SET PLUMB AND HELD IN POSITION UNTIL SUFFICIENT SOIL HAS BEEN FIRMLY PLACED AROUND THE ROOTS OR BALL. PLANTS SHALL BE SET AT GROUND LEVEL OR NO MORE THAN 2" ABOVE THE EXISTING GRADE. THIS IS TO ENSURE ADEQUATE RECEPTION OF OXYGEN AND MOISTURE TO THE ROOTS OF THE PLANT.
5. CLEAR, REMOVE AND DISPOSE OF BRUSH, SNAGS, AND RUBBISH WITHIN 80' OF THE PLANTING HOLE. GRADE THE AREA TO MEET THE EXISTING LANDSCAPE UNLESS PLANTING ON A SLOPE.
6. PLANT ALL NEW PLANT MATERIAL AT ORIGINAL FIELD GROWN LEVEL. TAMP SOIL MIX BELOW ROOT BALL.
7. PLANTING HOLES ASSOCIATED WITH PROPOSED TREES SHOULD BE SLOPED (NOT COMPACTED) AND A MINIMUM OF 18-24 INCHES WIDER THAN THE DIAMETER OF THE ROOT BALL. TREES WILL BE INSTALLED SUCH THAT THE TOP OF THE ROOT MASS IS LEVEL WITH THE SURFACE OF THE PLANTING HOLE. TREES SHALL ALSO BE INSTALLED 3-5 INCHES ABOVE GRADE ON SITES CONTAINING CLAY.



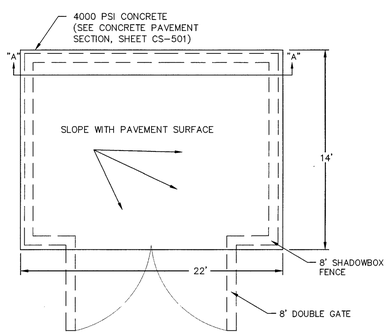
SHRUB PLANTING DETAIL

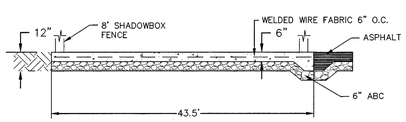
NO SCALE



GROUNDCOVER/PERENNIAL PLANTING DETAIL

NO SCALE

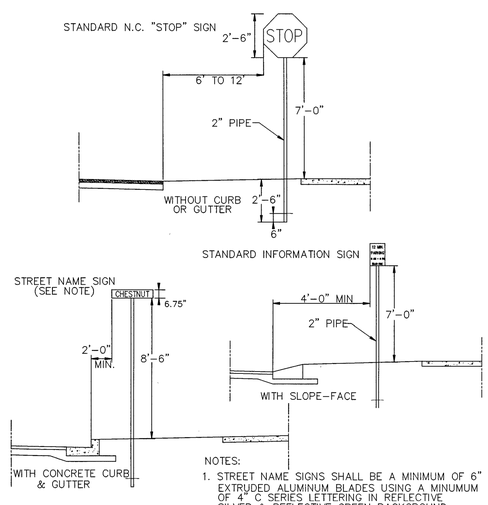




SECTION A-A

DUMPSTER PAD

NOT TO SCALE



NOTES:

1. STREET NAME SIGNS SHALL BE A MINIMUM OF 6" EXTRUDED ALUMINUM BLADES USING A MINUMUM OF 4" C SERIES LETTERING IN REFLECTIVE SILVER & REFLECTIVE GREEN BACKGROUND.
2. ALL REFLECTIVE SIGNS SHALL BE MADE OF ENGINEERING GRADE OR HIGH INTENSITY GRADE REFLECTIVE SHEETING OR APPROVED EQUIVALENT.
3. ALL SIGNS PLACED IN RIGHT-OF-WAY WILL BE APPROVED BY TRAFFIC ENGINEERING DIVISION.
4. ALL FOOTINGS TYPICAL FOR ALL SIGNS, WHICH NEED TO BE ANCHORED IN CONCRETE.

STANDARD SIGN INSTALLATION LOCATION

SD 15-04

NOT TO SCALE

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1 inch

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

REV.NO.	DESCRIPTIONS	DATE
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REVISIONS

SEAL

SEAL
SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

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Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

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6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

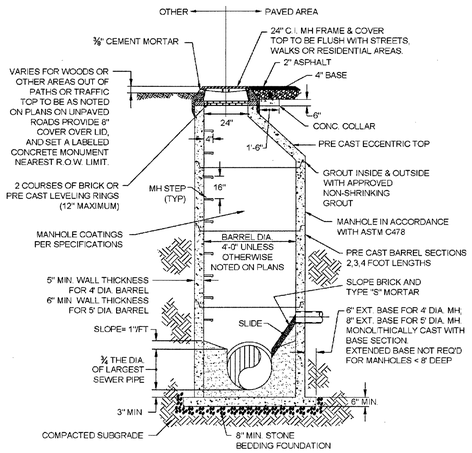
LANDSCAPE DETAILS

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: N/A
VERTICAL:

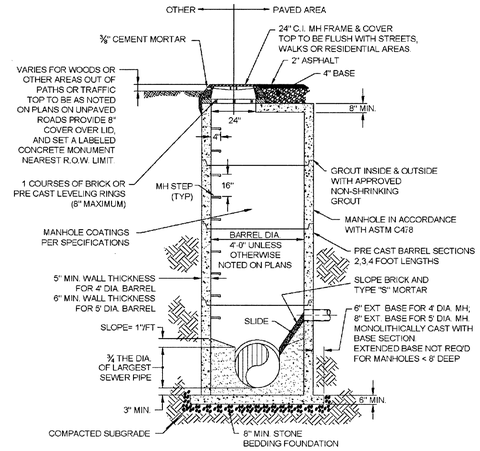
M&C FILE NUMBER: CL501
DRAWING NUMBER: 30

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2



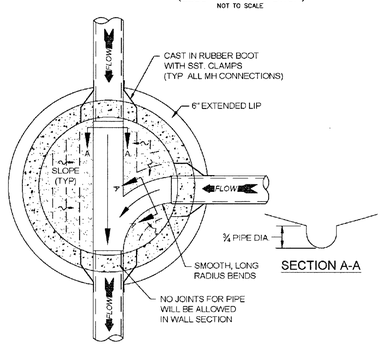
PRECAST CONCRETE OFFSET MANHOLE TYPICAL

(LESS THAN 30" DROP)
NOT TO SCALE



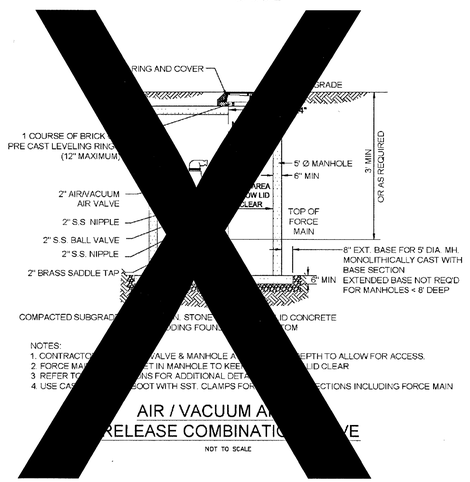
PRECAST CONCRETE FLAT TOP MANHOLE TYPICAL

(LESS THAN 30" DROP)
NOT TO SCALE



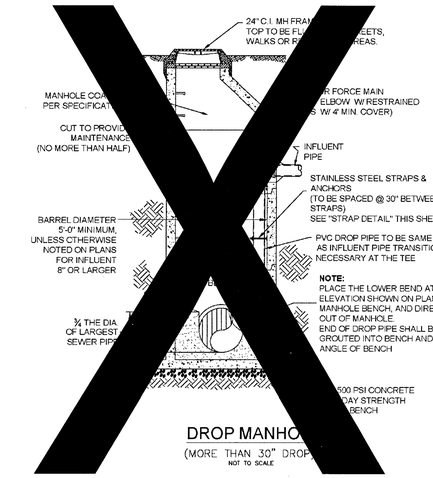
MANHOLE FLOOR PLAN

NOT TO SCALE



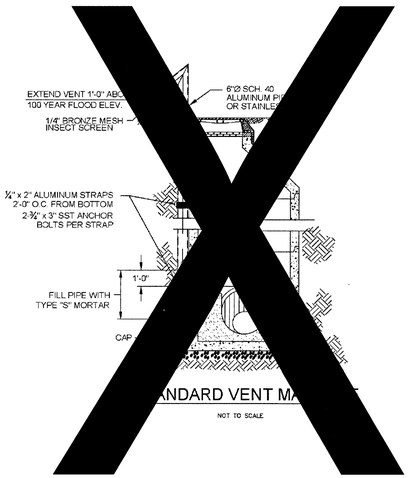
AIR / VACUUM A RELEASE COMBINATIO VE

NOT TO SCALE



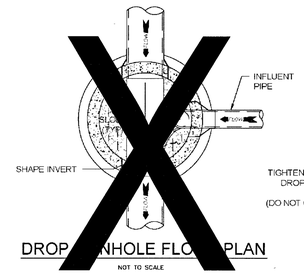
DROP MANHO

(MORE THAN 30" DROP
NOT TO SCALE



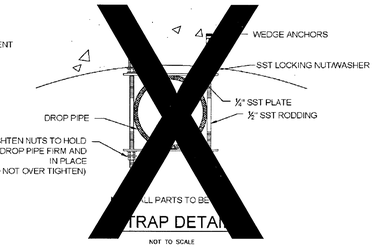
NDARD VENT MA

NOT TO SCALE



DROP NHOLE FLO PLAN

NOT TO SCALE



TRAP DETA

NOT TO SCALE

CAPE FEAR PUBLIC UTILITY AUTHORITY STANDARD SEWER NOTES

1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE
3. ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING
4. MINIMUM 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN FOR NEW DEVELOPMENTS
5. NO FLEXIBLE COUPLINGS SHALL BE USED
6. ALL STAINLESS STEEL FASTENERS SHALL BE 316

STANDARD SEWER NOTES

(REQUIRED ON ALL SEWER PLAN AND PROFILE SHEETS)

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		

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

GENERAL NOTES:

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

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

REV:	DESCRIPTION:	DATE:
1	AIR / VACUUM AND AIR RELEASE COMBINATION VALVE REVISED	10/26/12
2	STANDARD SEWER NOTE #6 REVISED	12/10/12

CFPUA SANITARY SEWER

STANDARD DETAILS

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

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:

SHEET NO: SSD-1

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET – CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/09/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 ENGINEER

7/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

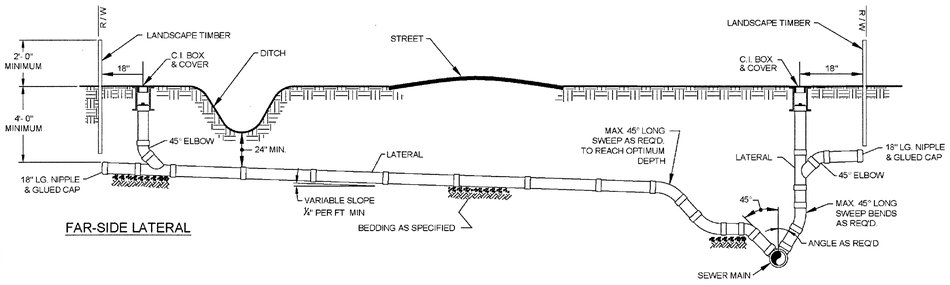
CAPE FEAR PUBLIC UTILITY AUTHORITY
SANITARY SEWER DETAILS (SSD-1)

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER CU501
DRAWING NUMBER 31

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



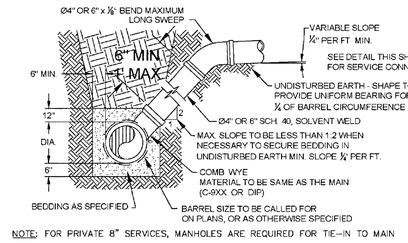
FAR-SIDE LATERAL

NEAR-SIDE LATERAL WITH RIGHT-OF-WAY RESTRICTIONS

NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE CONNECTION TO SANITARY SEWER

NOT TO SCALE

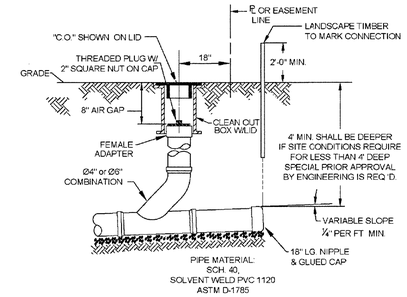


NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

STANDARD SERVICE LATERAL

(MAIN DEPTH LESS THAN 8ft)

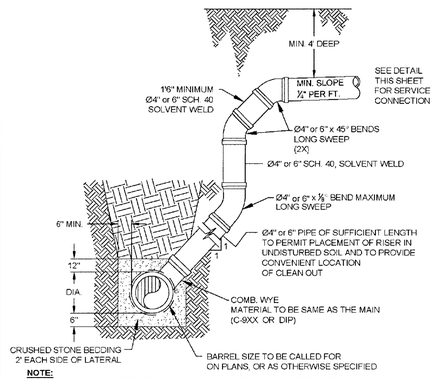
NOT TO SCALE



NOTE: FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

SERVICE CONNECTION & CLEAN-OUT

NOT TO SCALE

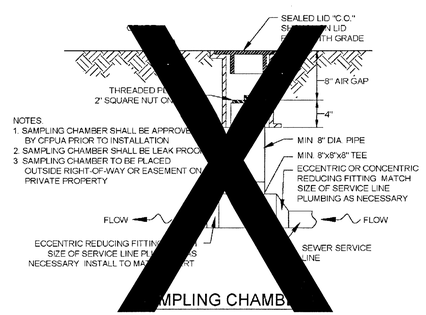


NOTE:
SPECIAL CARE SHALL BE TAKEN DURING BACKFILL OPERATIONS. THE RISER SHALL BE PLUMB AND TRUE AT ALL TIMES, AND REST ON FIRM, STABLE FOUNDATION.
FOR PRIVATE 8" SERVICES, MANHOLES ARE REQUIRED FOR TIE-IN TO MAIN

DEEP SERVICE LATERAL

(MAIN DEPTH GREATER THAN 8ft)

NOT TO SCALE

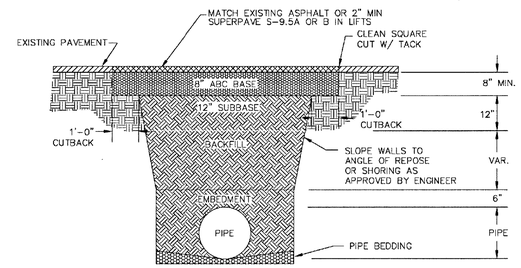


NOTES:
1. SAMPLING CHAMBER SHALL BE APPROV
BY CFPUA PRIOR TO INSTALLATION.
2. SAMPLING CHAMBER SHALL BE LEAK PROO
3. SAMPLING CHAMBER TO BE PLACED
OUTSIDE RIGHT-OF-WAY OR EASEMENT ON
PRIVATE PROPERTY.

ECCENTRIC REDUCING FITTING
SIZE OF SERVICE LINE PL
NECESSARY. INSTALL TO MA

SAMPLING CHAMB

NOT TO SCALE

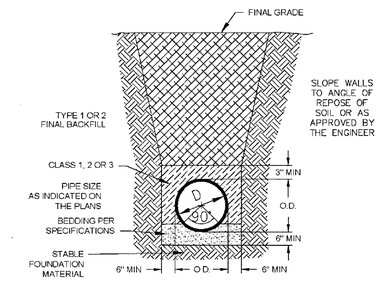


NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION, (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

PAVEMENT REPAIR WHERE PIPE INSTALLED

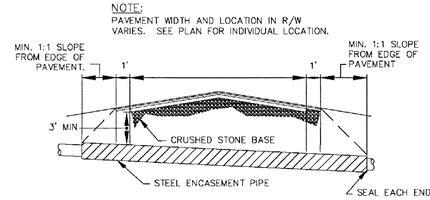
(FOR PRIVATE ROADS AND PAVED AREAS;
CONTRACTOR TO MEET MIN. REQUIREMENTS AS DEFINED BY
RIGHT-OF-WAY OWNER FOR PUBLIC ROAD REPAIRS)

NOT TO SCALE



CL 50 DUCTILE IRON DR 18 PVC PIPE TRENCH DETAIL

NOT TO SCALE

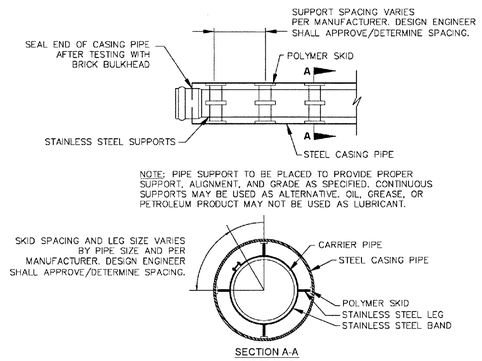


NOTE:
PAVEMENT WIDTH AND LOCATION IN R/W VARIES. SEE PLAN FOR INDIVIDUAL LOCATION.

NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING

TYPICAL BORING/JACKING DETAIL

NOT TO SCALE



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

NOT TO SCALE

PIPE CASING SUPPORT DETAIL

NOT TO SCALE

GENERAL NOTES:

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

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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

REV:	DESCRIPTION:	DATE:
1	SAMPLING CHAMBER REVISED	10/26/12

CFPUA SANITARY SEWER

STANDARD DETAILS

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:

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

SHEET NO: SSD-2

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 22574 ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

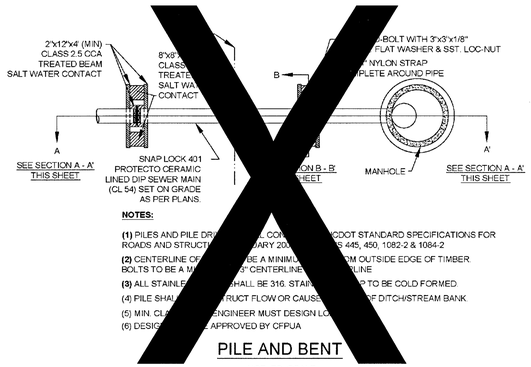
CAPE FEAR PUBLIC UTILITY AUTHORITY
SANITARY SEWER DETAILS (SSD-2)

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER: CU502
DRAWING NUMBER: 32

STATUS: ISSUED FOR CONSTRUCTION
REVISION: 2



NOTES:

(1) PILES AND PILE DR... CDOT STANDARD SPECIFICATIONS FOR ROADS AND STRUCT... ARY 20... 445, 450, 1082-2 & 1084-2

(2) CENTERLINE OF ... BE A MINIM... M OUTSIDE EDGE OF TIMBER BOLTS TO BE A M... 3" CENTERLINE ... LINE

(3) ALL STAINLE... HALL BE 316. STAI... TO BE COLD FORMED.

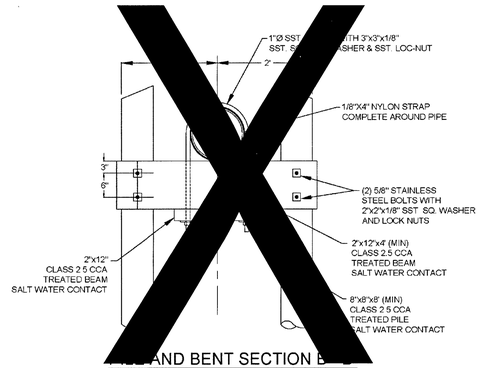
(4) PILE SHAL... RUCT FLOW OR CAUSE... OF DITCH/STREAM BANK.

(5) MIN. CL... ENGINEER MUST DESIGN LO...

(6) DESIG... APPROVED BY CFPUA

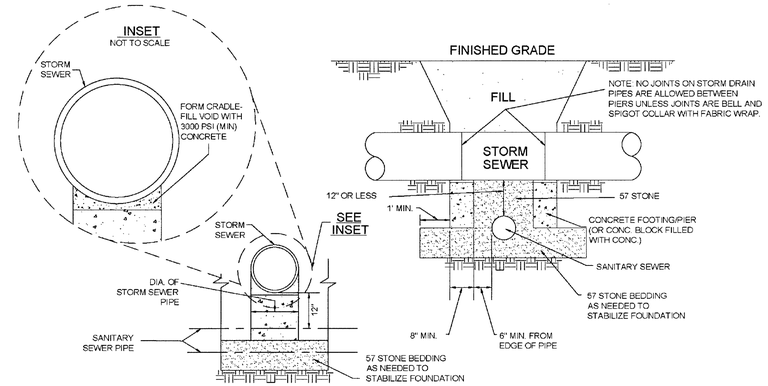
PILE AND BENT

NOT TO SCALE



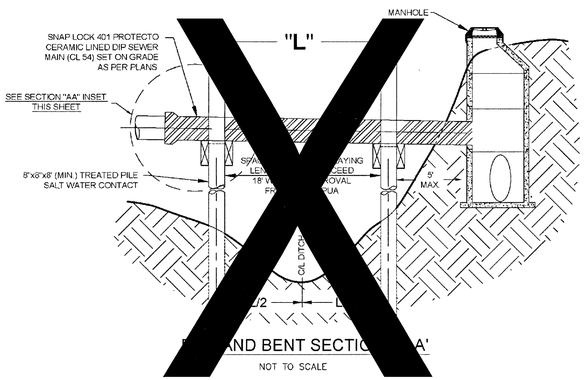
...AND BENT SECTION B...

NOT TO SCALE



STRUCTURAL BRIDGING DETAIL FOR STORMWATER OVER GRAVITY SEWER INSTALLATIONS WITH LESS THAN 12" SEPARATION

NOT TO SCALE



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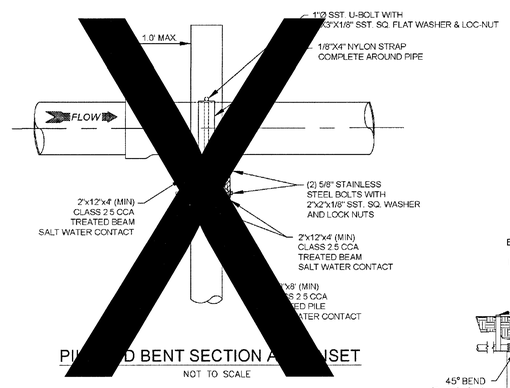
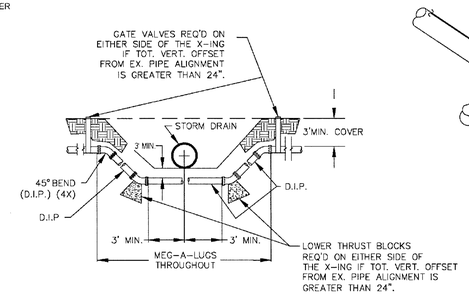


PI... D BENT SECTION A... INSET

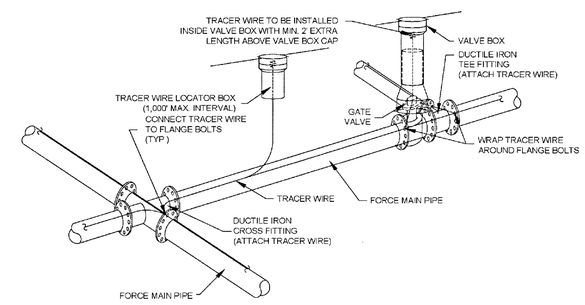
NOT TO SCALE



NOTE: USE D.I.P. (CL50 OR BETTER)

FORCE MAIN DITCH & STORM DRAIN CROSSING

NOT TO SCALE



NOTES:
1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION
2. WIRE SHALL BE STRAPPED TO ALL PVC FORCE MAIN PIPING WITH DUCT TAPE AT 12-FT. INTERVALS.
3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
4. ALL WIRE SPLICES SHALL HAVE WATER PROOF WIRE CONNECTIONS.

TRACER WIRE DETAIL

NOT TO SCALE

GENERAL NOTES:

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STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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

REV:	DESCRIPTION:	DATE:

CFPUA SANITARY SEWER

STANDARD DETAILS

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

DATE	1/9/12
SCALE:	N/A
DRAWN BY:	CFPUA
CHECKED BY:	CFPUA
PROJECT NO.	

SHEET NO: SSD-3

REVISIONS		
REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
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C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM & CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

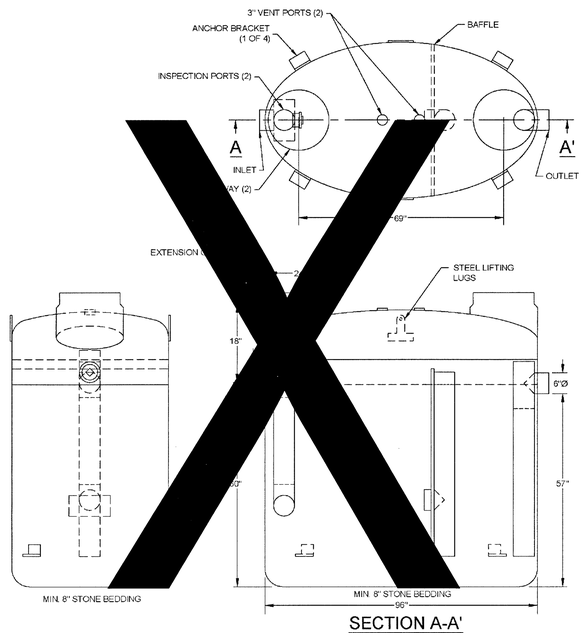
CAPE FEAR PUBLIC UTILITY AUTHORITY
SANITARY SEWER DETAILS (SSD-3)

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER: CU503
DRAWING NUMBER: 33

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

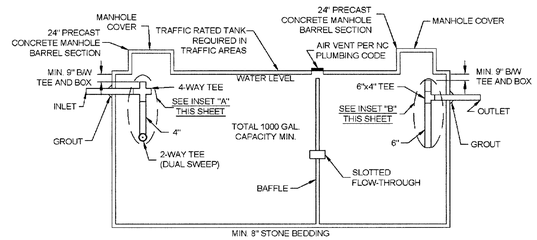


SECTION A-A'

NOTES:
1. FOR GRAVITY APPLICATIONS ONLY
2. MIN. THICKNESS: 1/4" WALL AND 3/8" TOP AND BOTTOM BOWLS
3. STANDARD PIPE STUBS ARE SOCKET SDR 35 PVC
4. EXTENSION COLLARS SHALL BE CAULKED WITH SIKAFLEX OR EQUIVALENT FOR WATERTIGHT SEAL
5. FOLLOW MANUFACTURE'S SPECS FOR TRAFFIC OR PEDESTRIAN LOADING

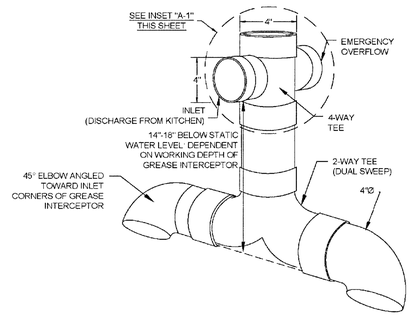
FIBERGLASS GREASE INTERCEPTOR

NOT TO SCALE



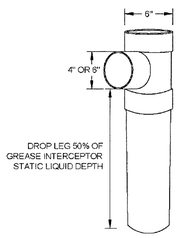
CONCRETE GREASE INTERCEPTOR

NOT TO SCALE



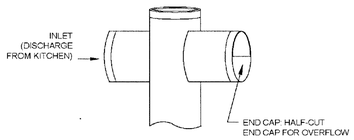
GREASE INTERCEPTOR
INSET "A"
4" SANITARY TEE

NOT TO SCALE



GREASE
INTERCEPTOR
INSET "B"
6" X 6" X 4" OUTLET
SANITARY TEE

NOT TO SCALE



GREASE INTERCEPTOR INSET "A-1"
EMERGENCY OVERFLOW CLOSE-UP

NOT TO SCALE

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
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THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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

REV:	DESCRIPTION:	DATE:

CFPUA SANITARY SEWER

STANDARD DETAILS

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

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:

SHEET NO: SSD-4

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282

NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

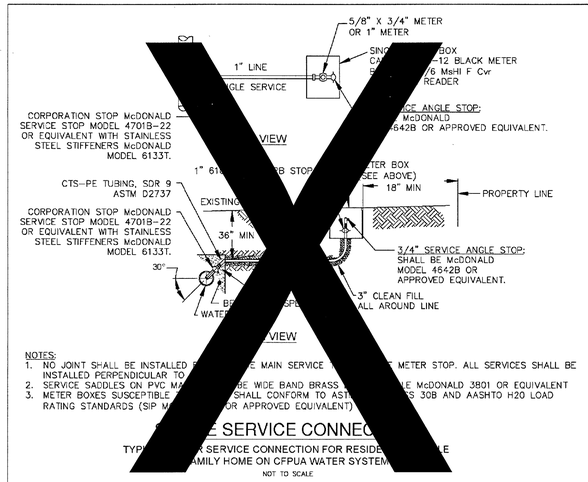
CAPE FEAR PUBLIC UTILITY AUTHORITY
SANITARY SEWER DETAILS (SSD-4)

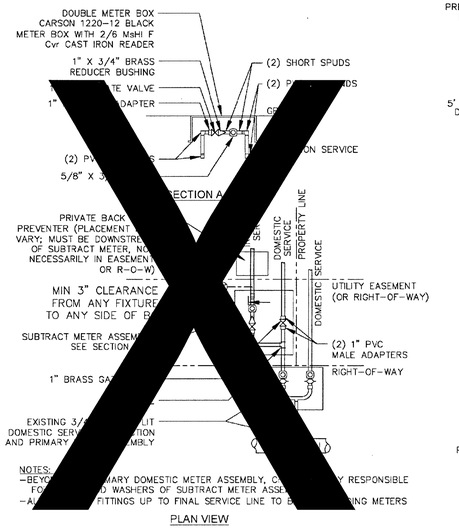
DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER CU504
DRAWING NUMBER 34

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2

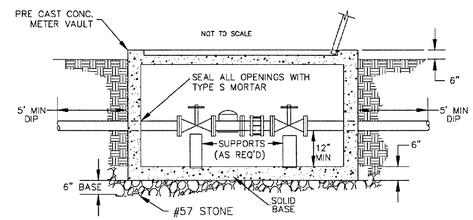




DOUBLE SERVICE CONNECTION USING SUBTRACT METER

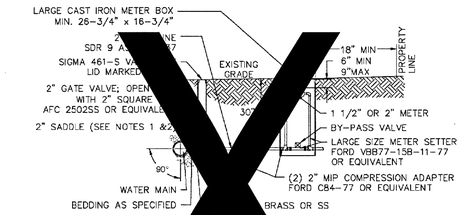
(MULTIPLE DOMESTIC SERVICES PER TAP)

NOT TO SCALE



METER VAULT SECTION A-A

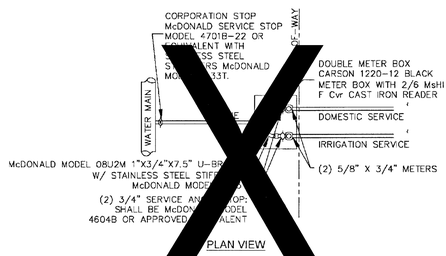
NOT TO SCALE



LARGE METER

FOR 1 1/2" OR 2" WATER SERVICES

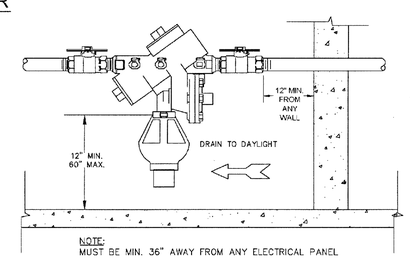
NOT TO SCALE



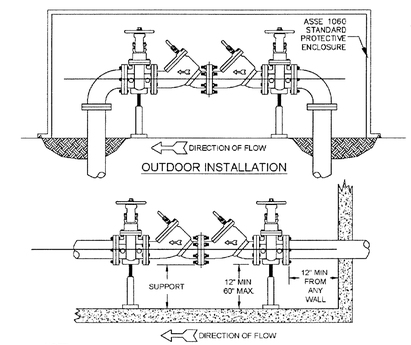
DOUBLE SERVICE CONNECTION

(ONE DOMESTIC SERVICE PER TAP)

NOT TO SCALE

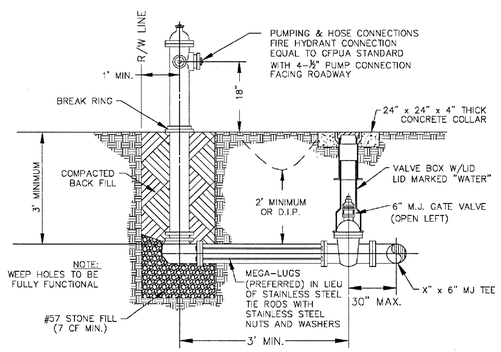


INDOOR HORIZONTAL INSTALLATION



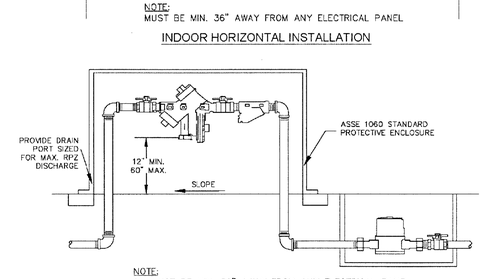
DOUBLE CHECK VALVE ASSEMBLY

NOT TO SCALE



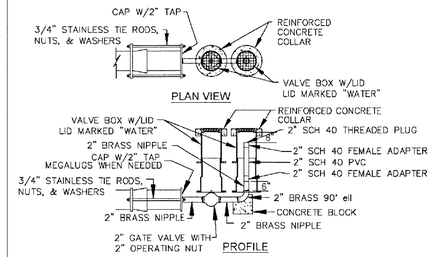
FIRE HYDRANT ASSEMBLY

NOT TO SCALE



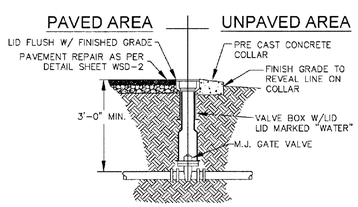
REDUCED PRESSURE PRINCIPLE ASSEMBLY

NOT TO SCALE



2" BLOW-OFF

NOT TO SCALE



VALVE DETAIL

NOT TO SCALE

GENERAL NOTES:

1. NO EXCAVATED MATERIAL SHALL BE PLACED IN ANY STREAM, DITCH OR DRAINAGE-WAY.
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1 inch

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
DATE _____ PERMIT #_____
SIGNED_____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

REV:	DESCRIPTION:	DATE:
1	Single Service Connection, Double Service Connection, and Large Meter Revised	10/26/12

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

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

DATE: 1/6/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO.:

SHEET NO: WSD-1

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
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B	CITY OF WILMINGTON TRC COMMENTS	11/01/11
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REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
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CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

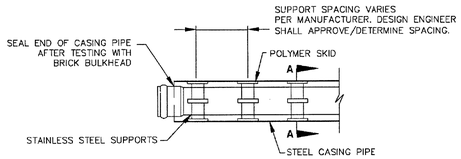
CAPE FEAR PUBLIC UTILITY AUTHORITY
WATER SYSTEM DETAILS (WSD-1)

DATE: 02 JUN 11
MCE PROJ. # 5584-0006
DRAWN NJL
DESIGNED NJL/RMC
CHECKED RMC
PROJ. MGR. RMC

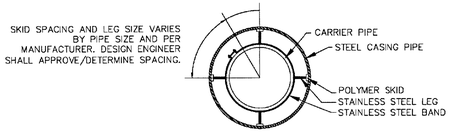
SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER CU505
DRAWING NUMBER 35

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2



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

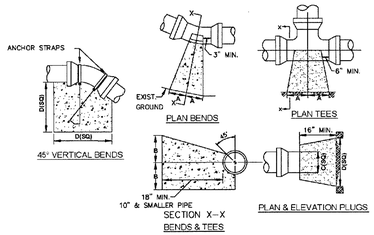


SECTION A-A

NOT TO SCALE

PIPE CASING SUPPORT DETAIL

NOT TO SCALE

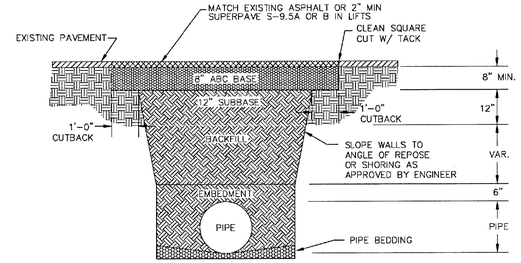


SIZE	90° BENDS		45° BENDS		22 1/2° BENDS		TEES/PLUGS		45° VERT. BENDS
	A	B	A	B	A	B	A	B	
3"	8"	6"	5"	6"	3"	7"	6"	8"	27"
4"	8"	9"	5"	8"	3"	11"	6"	9"	28"
6"	14"	11"	9"	9"	8"	8"	12"	9"	36"
8"	16"	16"	12"	12"	10"	13"	14"	13"	42"
10"	18"	22"	15"	14"	14"	16"	18"	15"	50"
12"	20"	28"	18"	17"	16"	16"	22"	18"	62"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

NOTES: 1. BASED ON 160 PSI TEST PRESSURE AND 2000 PSF SOIL BEARING CAPACITY.
2. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED GROUND.
3. USE MEG-A-LUG (PREFERRED) IN LIEU OF BLOCKING AND RODDING.

THRUST BLOCK DETAIL

NOT TO SCALE



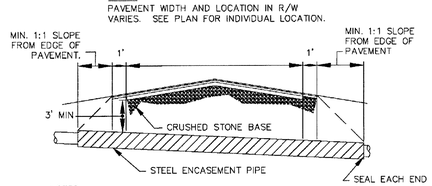
NOTES:
1. BACKFILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
2. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
3. 8-INCH OF ABC BASE MATERIAL SHALL BE USED ON CITY STREETS.
4. BACKFILL AND BASE MATERIALS SHALL BE COMPACTED 12" MINIMUM LIFTS
5. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
6. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
7. ABC BASE AND SUBBASE COMPACTED TO 98% AND BACKFILL AND EMBEDMENT COMPACTED TO 90% AS DETERMINED BY THE MODIFIED PROCTOR AASHTO METHOD T-99.
8. 1-FOOT CUTBACKS OF ASPHALT SHALL BE PREPARED ON UNDISTURBED SOIL. MINIMUM ASPHALT DENSITY IS 90%.

PAVEMENT REPAIR WHERE PIPE INSTALLED

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

NOT TO SCALE

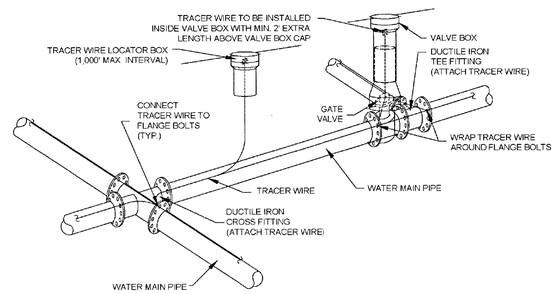
NOTE:
PAVEMENT WIDTH AND LOCATION IN R/W VARIES. SEE PLAN FOR INDIVIDUAL LOCATION.



NOTES:
1. CASING WILL BE INSTALLED AT LINE AND GRADE SHOWN ON INDIVIDUAL PROFILE FOR EACH CROSSING. BORING/JACKING TO LINE AND GRADE IS REQUIRED.
2. TRACER WIRE SHALL BE CONTINUED THROUGH CASING

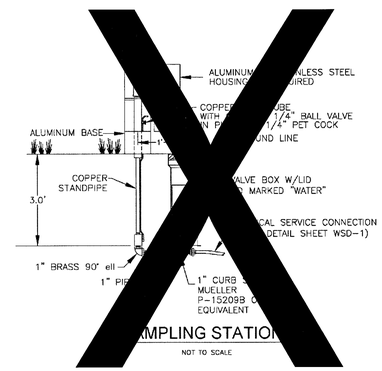
TYPICAL BORING/JACKING DETAIL

NOT TO SCALE



NOTES
1. TRACER WIRE SHALL BE #10 COPPER SOLID CORE COPPER WIRE WITH GAS AND OIL RESISTANT INSULATION
2. WIRE SHALL BE STRAPPED TO ALL PVC WATER MAIN PIPING WITH DUCT TAPE AT 12-FT. INTERVALS.
3. SECURE WIRE TO ALL TEE AND CROSS FITTINGS.
4. ALL WIRE SPLICES SHALL HAVE WATER PROOF WIRE CONNECTIONS

TRACER WIRE DETAIL



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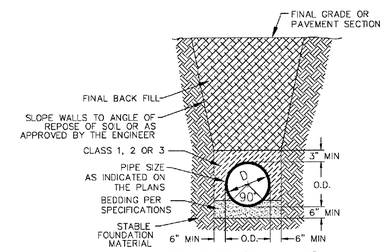
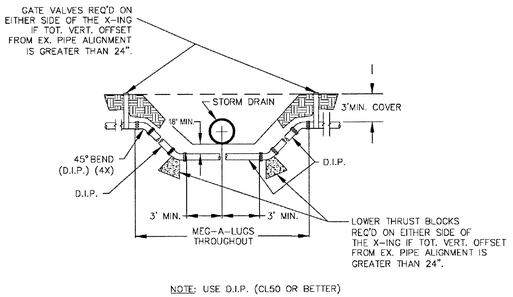


CL 50 DUCTILE IRON
DR 18 PVC PIPE TRENCH DETAIL

NOT TO SCALE



NOTE: USE D.I.P. (CL50 OR BETTER)

WATER MAIN DITCH
& STORM DRAIN CROSSING

NOT TO SCALE

GENERAL NOTES:

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3. THE CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES WHILE CONSTRUCTION IS IN PROGRESS.
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THE DETAILS SHOWN HEREON SUPERCEDE CFPUA WRITTEN TECHNICAL SPECIFICATIONS VERSIONS 1.00 - 1.04

STORMWATER MANAGEMENT PLAN
APPROVED
CITY OF WILMINGTON
ENGINEERING DEPARTMENT
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

REV:	DESCRIPTION:	DATE:

CFPUA WATER DISTRIBUTION SYSTEM

STANDARD DETAILS

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

DATE: 1/9/12
SCALE: N/A
DRAWN BY: CFPUA
CHECKED BY: CFPUA
PROJECT NO. :

SHEET NO: WSD-2

REV.NO.	DESCRIPTIONS	DATE
2	RE-ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	07/01/2013
1	RESUBMITTAL OF PUBLIC UTILITIES TO CFPUA FOR RE-APPROVAL	03/07/2013
0	ISSUED FOR CONSTRUCTION PLAN SET - CITY OF WILMINGTON CONSTRUCTION RELEASE	03/07/2012
F	FUTURE HC RAMPS ADDED TO EASTWOOD ROAD PER NCDOT COMMENTS	2/17/12
E	CITY OF WILMINGTON TRC/CFPUA/NCDOT ENCROACHMENT COMMENTS	01/09/12
D	NCDOT DRIVEWAY COMMENTS	12/29/11
C	CITY OF WILMINGTON TRC/CFPUA/NEW HANOVER COUNTY SEDIMENT & EROSION CONTROL COMMENTS	12/12/11
B	CITY OF WILMINGTON TRC COMMENTS	11/08/11
A	CITY OF WILMINGTON TRC COMMENTS	08/22/11

REVISIONS

SEAL

SEAL 22574 PROFESSIONAL ENGINEER RICHARD M. CLIFT
07/01/2013

McKIM&CREED
243 North Front Street
Wilmington, North Carolina 28401
Phone: (910)343-1048 , Fax: (910)251-8282
NC ENGINEERING LIC. No. F-1222
www.mckimcreed.com

CAMBRIDGE VILLAGE SENIOR LIVING

CAMBRIDGE VILLAGE OF WILMINGTON
MUNICIPALITY: WILMINGTON
TOWNSHIP: HARNETT
COUNTY: NEW HANOVER
STATE: NORTH CAROLINA

CAMBRIDGE VILLAGE DEVELOPMENT, LLC
6736 FALLS OF THE NEUSE ROAD
RALEIGH, NORTH CAROLINA 27615

CAMBRIDGE VILLAGE OF WILMINGTON

CAPE FEAR PUBLIC UTILITY AUTHORITY
WATER SYSTEM DETAILS (WSD-2)

DATE:	02 JUN 11
MCE PROJ. #	5584-0006
DRAWN	NJL
DESIGNED	NJL/RMC
CHECKED	RMC
PROJ. MGR.	RMC

SCALE
HORIZONTAL: NTS
VERTICAL:

M&C FILE NUMBER CU506
DRAWING NUMBER 36

STATUS: ISSUED FOR CONSTRUCTION
REVISION 2