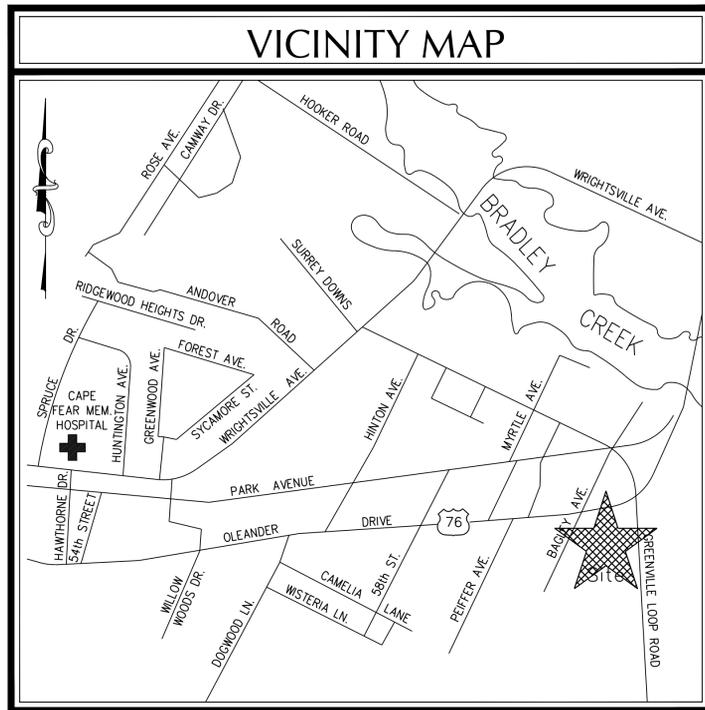
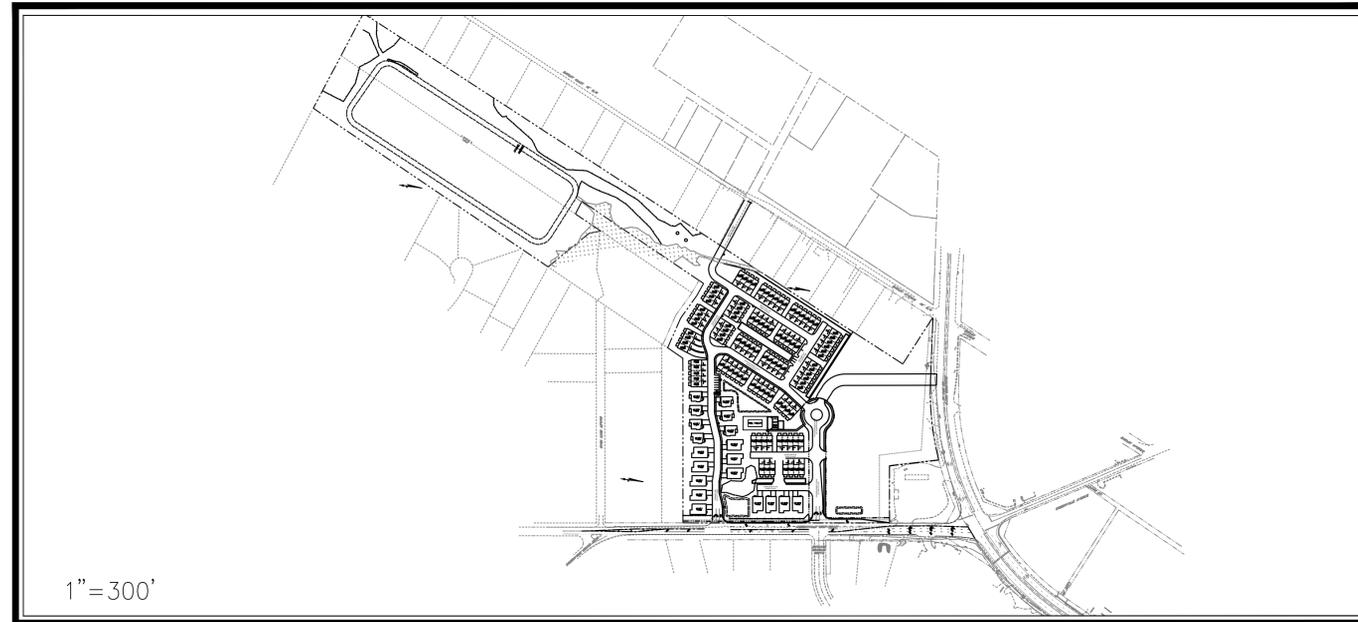


# SITE DEVELOPMENT PLAN FOR SUMMERWALK - PHASE 1 WILMINGTON, NORTH CAROLINA OCTOBER 2015



VICINITY MAP  
(NTS)



DESCRIPTION	EXISTING	PROPOSED
1' CONTOUR INTERVAL	———	———
5' CONTOUR INTERVAL	- - - - -	- - - - -
PROPERTY LINE	- - - - -	- - - - -
ROADWAY CENTERLINE	- - - - -	- - - - -
RIGHT OF WAY LIMITS	- - - - -	- - - - -
EASEMENT LINE	- - - - -	- - - - -
CURB & GUTTER	- - - - -	- - - - -
SANITARY SEWER FACILITIES	- - - - -	- - - - -
STORM SEWER FACILITIES	- - - - -	- - - - -
WATERLINE	- - - - -	- - - - -
FIRE HYDRANT ASSEMBLY	(Symbol)	(Symbol)
WATERWAYS	(Symbol)	N/A
PROPOSED LOT AND S.F.	(Symbol)	(Symbol)
OPEN SPACE LABEL	(Symbol)	(Symbol)
OPEN SPACE	(Symbol)	(Symbol)
BUILDING SET BACKS	(Symbol)	(Symbol)
PRIVATE SANITARY SET BACKS	(Symbol)	(Symbol)
SKIMMER	(Symbol)	(Symbol)
	(Symbol)	(Symbol)
	(Symbol)	(Symbol)
	(Symbol)	(Symbol)

**DEVELOPER/OWNER**

**Summerwalk Development, LLC.**  
6105 Oleander Drive, Suite 201  
WILMINGTON, NC 28403  
PHONE: (910) 452-1410

**PREPARED BY:**

**GSP CONSULTING, PLLC**  
**ENGINEERING**  
6626 Gordon Road, Unit C, Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659 License # P-0718

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SITE DATA TABLE
<b>GENERAL NOTES:</b>
1. NEW HANOVER COUNTY PARCEL NOS.: PIN# R06208-013-012-000, R06208-013-010-001, R06208-013-009-000, R06208-013-008-000, R06208-013-007-000, R06208-013-006-000, R06208-013-010-002, R06211-003-004-000, R06207-008-008-002 SITE ADDRESS: 6120 OLEANDER DRIVE
2. TOTAL AREA: 1,123,751 SF ± = 25.80 AC ±
3. EXISTING ZONING: MF-L (CD) PHASE 1 & O&I (CD) PHASE 2 SETBACKS - 15' FRONT 15' REAR 5' SIDE
4. CAMA LAND CLASSIFICATION: WATER RESOURCE PROTECTION
5. THIS PROPERTY IS NOT WITHIN A SPECIAL FLOOD HAZARD ZONE.
6. TRASH DISPOSAL BY CURBSIDE PICKUP.
<b>DEVELOPMENT DATA:</b>
TOTAL TRACT AREA (PHASE 1) = 879,625 SF ± = 20.19 AC ±
PERMITTED DENSITY (@ 10 UNITS/AC) = 202 UNITS
PROPOSED DENSITY 104 UNITS (2 BEDROOM TOWNHOMES) 19 SINGLE FAMILY HOMES
PROPOSED - 123 UNITS TOTAL = 6.1 UNITS/AC.
PARKING - MIN. REQUIRED - 2 P.S. / 2 BDRMS = 246 MAX REQUIRED - 2.5 P.S. / 2 BDRMS = 308
PARKING PROVIDED : TOWNHOMES = 208 SPACES (1 GARAGE, 1 DRIVEWAY) + 14 SURFACE SPACES = 222 TOTAL SINGLE FAMILY = 38 SPACES (19 IN D/W, 19 IN GARAGE) ***260 TOTAL SPACES PROVIDED (1 H/C)***
# OF REQ'D SPACES FOR POOL FACILITY < 25 SPACES. 1 HC SPACE REQUIRED
BIKE PARKING REQ'D = 5 MIN/100 SPACES BIKE PARKING PROVD = 13
BLDG. HEIGHT - 35' MEAN ROOF
OPEN SPACE - 35% TRACT AREA REQUIRED 35% X 20.19 AC. (TOTAL RESIDENTIAL AC.) = 7.07 AC. PROPOSED - 7.07 AC.
BUILDING COVERAGE - 107,680 SF (12.2%)
BUILDINGS - 22 TOWNHOME BUILDINGS, 19 SINGLE FAMILY HOMES & CLUBHOUSE = 42 TOTAL BUILDINGS
TOTAL BEDROOMS - 104-2 BEDROOM TOWNHOMES 19-3 BEDROOM SINGLE FAMILY HOMES = 265 BEDROOMS
IMPERVIOUS SURFACES - PROPOSED BUA - BUILDINGS - 105,960 S.F. DRIVEWAYS - 7,396 S.F. PAVEMENT - 73,223 S.F. SIDEWALKS - 9,576 S.F. PERVIOUS PAVEMENT - 10,149 S.F. (40,597 SF A-SOILS USE 25% IMP.) POOL FACILITY - 4,648 S.F. TOTAL - 210,952 S.F. (24.0%)
UTILITY CAPACITY REQUESTS: PROPOSED SEWER CAPACITY - 104-2 BR @ 240 GPD/BR + 19-3 BR @ 360 GPD/UNIT + 30 PERSON CLUBHOUSE/POOL @ 10 GPD/PERSON = 32,100 GPD PROPOSED WATER CAPACITY - 123 UNITS @ 400 GPD/UNIT = 49,200 GPD
<b>Approved Construction Plan</b>
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.
<b>CITY OF WILMINGTON</b> NORTH CAROLINA Public Services • Engineering Division APPROVED STORMWATER MANAGEMENT PLAN
Date: _____ Permit # _____
Signed: _____
<b>NOTE:</b> ALL DESIGN AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE, TECHNICAL STANDARDS MANUAL & THE STATE OF NORTH CAROLINA.

**COORDINATION NOTES**

1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL WORK IS TO BE IN ACCORDANCE WITH CITY OF WILMINGTON, NEW HANOVER COUNTY, THE CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) AND THE STATE OF NORTH CAROLINA.
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION, THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE IMPROVEMENT STAKEOUT(S).
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.

**GENERAL NOTES:**

1. EXISTING TOPOGRAPHY, BOUNDARY AND UTILITIES, HAVE BEEN PREPARED BY FIELD SURVEYS BY JOHNNY J. WILLIAMS LAND SURVEYING, P.C., PENTON DEVELOPMENT, INC. AND OTHER AVAILABLE INFORMATION.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC...
3. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE DOT.
5. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
7. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 1 (800) 632-4949 AND ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
8. CONTRACTOR SHALL REMOVE ASPHALT, AGGREGATE BASE COURSE, AND CONCRETE CURB & GUTTER WITHIN LIMITS OF DEMOLITION AS SHOWN ON PLAN.

**DEMOLITION NOTES**

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

**EROSION AND SEDIMENT CONTROL NOTES**

**GENERAL NOTES:**

1. CLEAR AND REMOVE FROM SITE ALL TREES, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN DESIGNATED CLEARING LIMITS.
2. PLANT GRASS OVER ALL GRADED AREAS AS SHOWN IN THE TABLE ON THIS SHEET OF CEASE OF ANY GRADING ACTIVITY.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION MEASURES.
4. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETED, CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL INSPECTION AND APPROVAL BY NEW HANOVER COUNTY.
5. WATER, FERTILIZE, MOW AND MAINTAIN SPRIGGED, SOODED AND PLANTED AREAS UNTIL FINAL APPROVAL BY NEW HANOVER COUNTY.
6. ANY BORROW MATERIAL BROUGHT ONTO SITE MUST BE FROM A LEGALLY OPERATED MINE OR OTHER APPROVED SOURCE.
7. ANY EXCESS MATERIAL REMOVED FROM SITE MUST BE HAULED TO A LEGALLY OPERATED MINE OR OTHER APPROVED SOURCE.

**MAINTENANCE PLAN**

ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL, BUT IN NO CASE, LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL.

ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.

SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS AND SOCKS ONCE A WEEK AND AFTER EVERY RAIN EVENT.

DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE TEMPORARILY STABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.

SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET MAX. WITH THE USE OF EXTRA STRENGTH FABRIC, WITHOUT WIRE BACKING, STAKE SPACING WILL BE 8 FEET MAX. WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE DESIGNED AT LOW POINTS IN THE SEDIMENT FENCE THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED OR IS DAMAGED.

SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE.

SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGN STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR IF THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED FROM BAFFLES WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.

ALL SEEDED AREAS WILL BE FERTILIZED, RESEDED AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.

FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

COMPOST FILTER SOCKS SHOULD BE INSPECTED REGULARLY, AS WELL AS AFTER EACH RAINFALL EVENT, TO ENSURE THAT THEY ARE INTACT AND THE AREA BEHIND THE SOCK IS NOT FILLED WITH SEDIMENT. IF THERE IS EXCESSIVE PONDING BEHIND THE FILTER SOCK OR ACCUMULATED SEDIMENTS REACH THE TOP OF THE SOCK, AN ADDITIONAL SOCK SHOULD BE ADDED ON TOP OR IN FRONT OF THE EXISTING FILTER SOCK IN THESE AREAS, WITHOUT DISTURBING THE SOIL OR ACCUMULATED SEDIMENT. IF THE FILTER SOCK WAS OVERTOPPED DURING A STORM EVENT, THE OPERATOR SHOULD CONSIDER INSTALLING AN ADDITIONAL FILTER SOCK ON TOP OF THE ORIGINAL, PLACING AN ADDITIONAL FILTER SOCK FURTHER UP THE SLOPE, OR USING AN ADDITIONAL BMP, SUCH AS A COMPOST BLANKET IN CONJUNCTION WITH THE SOCK(S).

**STABILIZATION NOTES**

1. ALL DISTURBED AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS OF CEASE OF ANY PHASE OF ACTIVITY AND SLOPES WITHIN 21 CALENDAR DAYS.

**PERMANENT SEEDING SCHEDULE – MIXTURE 5CP**

SPECIES	RATE (LB/ACRE)
CENTPEDE GRASS	10-20

Seeding Dates  
MARCH – JUNE

Soil Amendments  
APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY 300 LB/ACRE 10-10-10 FERTILIZER.

Mulch  
DO NOT MULCH.

Maintenance  
FERTILIZE VERY SPARINGLY LB/ACRE NITROGEN IN SPRING WITH NO PHOSPHORUS. CENTPEDE GRASS CANNOT TOLERATE HIGH PH OR EXCESS FERTILIZER.

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

**WINTER AND EARLY SPRING**

SPECIES	RATE (LB/ACRE)
Rye (GRAIN)	120
*ANNUAL LESPEDEZA (KORE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)	50
*OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.	

**SUMMER**

SPECIES	RATE (LB/ACRE)
GERMAN MILLET	40

**FALL**

SPECIES	RATE (LB/ACRE)
RYE (GRAIN)	120

**Seeding dates**

COASTAL PLAIN – DEC.1–APR. 15 – LATE WINTER AND EARLY SPRING  
APRIL 15 – AUG. 15 – SUMMER  
AUG. 15 – DEC. 30 – FALL

Soil amendments  
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 LB/ACRE GROUND AGRICULTURAL LIMESTONE AND 750 LB/ACRE 10-10-10 FERTILIZER.

Mulch  
APPLY 4,000 LB/ACRE STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

Maintenance  
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.

**GENERAL GRADING NOTES**

1. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF SUCH UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF THE DITCHING OPERATION BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF THE TRENCHING OPERATIONS SO AS TO AVOID AND PREVENT DAMAGE TO THE EXISTING UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING BUT NOT LIMITED TO REPAIRS AND LOSS SERVICE REVENUE. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC...
2. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
3. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING THE PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAG MEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE NCDOT.
4. ALL MATERIAL CLEARED AND GRUBBED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK, SUCH AS TREES, VEGETATION, FENCING, ETC... SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE OR BURNED IF PROPER PERMITS ARE RECEIVED.

**SITE NOTES**

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

**GENERAL STORM SEWER NOTES**

1. ALL STORM SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF WILMINGTON AND THE STATE OF NORTH CAROLINA REQUIREMENTS AS SPECIFIED ON THE DRAWINGS AND IN THE PROJECT SPECIFICATIONS.
2. BEDDING FOR ALL STORM SEWER PIPE SHALL BE AS SPECIFIED ON THE DRAWINGS, PROJECT SPECIFICATIONS, AND MANUFACTURER SPECIFICATIONS.
3. ALL STORM SEWER PIPES TO BE HDPE ADS N-12 OR EQUIVALENT, UNLESS OTHERWISE SPECIFIED.
4. ALL STORM SEWER PIPES SHOWN AS RCP ON THE PLANS SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM C-76, UNLESS INDICATED OTHERWISE ON PLANS.

**EXISTING UTILITY NOTES**

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

**UTILITY CONTACTS:**

1. CONTACT THE NORTH CAROLINA ONE CALL CENTER PRIOR TO DOING AND DIGGING. 1-800-632-4949

**NOTICE REQUIRED**

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

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

CONTACT "CAROLINA ONE CALL" AT  
1-800-632-4949

EMERGENCY DIAL 911 POLICE - FIRE - RESCUE

No.	Revision	Date	By

Designer	GSP	Scale	
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**Wilmington**      **New Hanover County**      **North Carolina**

# GENERAL NOTES

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-1**

**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.

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

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

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





Approved Construction Plan		
Name	Date	
Planning		
Traffic		
Fire		

**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

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

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

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No.	Revision	Date	By

Designer	GSP	Scale	1" = 100'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**

Wilmington New Hanover County North Carolina

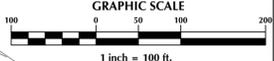
**EXISTING CONDITIONS**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-2**



- TRAFFIC NOTES:**
- ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY & FOR DRIVEWAY ARE TO BE THERMOPLASTIC & MEET CITY AND/OR NCDOT STANDARDS.
  - 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.
  - CONTACT TRAFFIC ENGINEERING AT (910) 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
  - ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND CURBING WILL BE REPLACED.
  - CONTACT TRAFFIC ENGINEERING AT (910) 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
  - TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS.
  - ONCE STREETS ARE READY TO BE OPEN TO PUBLIC TRAFFIC CONTACT THE TRAFFIC ENGINEERING DIVISION TO REQUEST INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
  - A LANDSCAPING PLAN, INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION AND PARKS & RECREATION DEPARTMENT FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT PLAN SHALL ADHERE TO SD 15-17.
  - ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
  - ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
  - A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. NOTE THIS ON THE PLAN AND CONTACT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
  - CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.

**NOTES:**

ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.

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IF THESE UNITS ARE SOLD AT ANY POINT, THE BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT. PLEASE NOTE THIS ON THE SITE PLAN AND ADVISE THE PROPERTY OWNER OF THIS REQUIREMENT. [SEC.18-378 (E) COFW LDC]

IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL. THE SUBDIVIDER MAY ACQUIRE AND ERECT OFFICIAL STREET NAME SIGNS OR MAY CHOOSE TO CONTRACT WITH THE CITY TO INSTALL THE STREET SIGNS AND THE SUBDIVIDER SHALL PAY THE COST OF SUCH INSTALLATION. CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.

John & Elise Sikes (eta)  
17 Greenville Loop Road  
AND USE: RESIDENCE

ZONED R-15

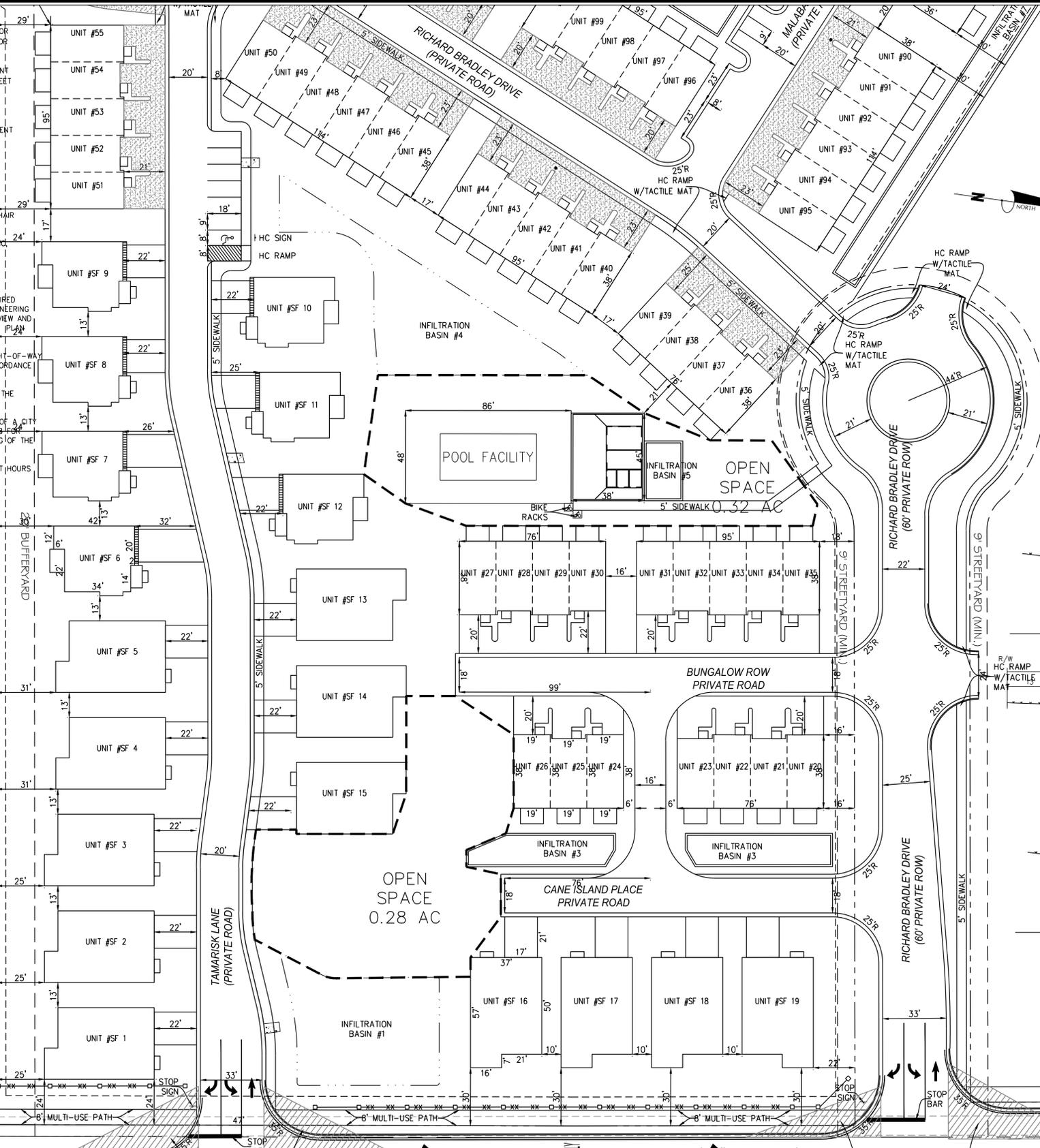
**PERMEABLE PAVEMENT**

**ACTIVITIES PROHIBITED:**

- SANDING
- RE-SEALING
- RE-SURFACING
- POWER WASHING
- STORAGE OF MULCH OR SOIL
- STORAGE OF SNOW PILES
- STORAGE OF HEAVY LOADS
- APPLICATION OF SALT OR DE-ICERS

**PERMEABLE PAVEMENT SIGN DETAIL**

TO BE PLACED ON 4"x4" POST.  
TOP OF SIGN TO BE 48" ABOVE GROUND.



REFER TO CITY STD  
DETAIL SD 11-14 FOR  
PAVEMENT MARKINGS  
AND SIGNAGE FOR  
ROUNDBOUT

For each open utility cut of  
City streets, a \$325 permit  
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City prior to occupancy  
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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

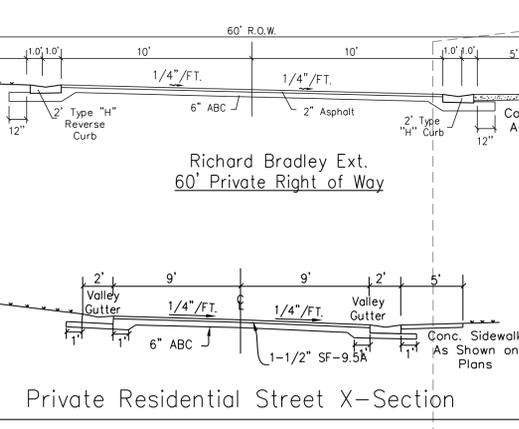
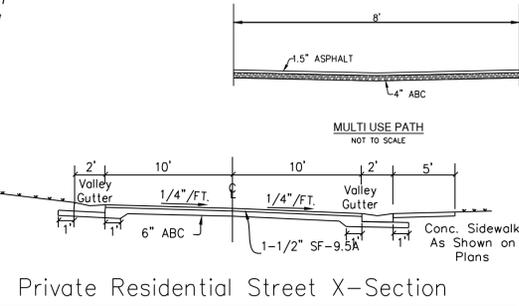
**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

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

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



**PERMEABLE PAVEMENT/CONCRETE NOTES & DETAILS**

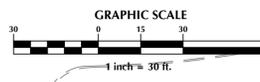
**NOTES:**

PERMEABLE PAVEMENT/CONCRETE SIGN LOCATIONS TO BE COORDINATED WITH CITY OF WILMINGTON STORMWATER/INSPECTIONS DEPARTMENTS

**EXXON Gas Station**

Springer-Eubank  
Company, Inc.  
D.B. 1350, Pg. 752

ZONED O & I  
LAND USE: GAS STATION



No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**

Wilmington New Hanover County North Carolina

**SITE PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-3.1**

Seagate Pentacostal  
Mission  
237 Bagley Avenue

ZONED R-15

Jane Hegg Kiger  
235 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lot A / Pt. B  
Calvin Wood  
229 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lots 142 & 143  
Parks & Ann Downing  
225 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lot 140  
Craig Woolter  
223 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lot 139 pt. 138  
Gizella Costin  
221 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lots 136,137 pt. 138  
Floyd W. Costin  
217 Bagley Avenue

ZONED R-15

LAND USE : RESIDENCE

Lots 134 & 135  
Daniel Ray & Lois D. Tamm  
215 Bagley Avenue

ZONED R-15

LAND USE : VACANT

PERMEABLE PAVEMENT/CONCRETE NOTES & DETAILS

PERMEABLE PAVEMENT/CONCRETE

NOTES:

PERMEABLE PAVEMENT/CONCRETE SIGN LOCATIONS TO BE COORDINATED WITH CITY OF WILMINGTON STORMWATER/INSPECTIONS DEPARTMENTS

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 \_\_\_\_\_



APPROVED STORMWATER MANAGEMENT PLAN  
Date: \_\_\_\_\_ Permit # \_\_\_\_\_  
Signed: \_\_\_\_\_

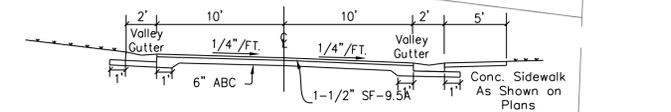
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**PERMEABLE PAVEMENT**

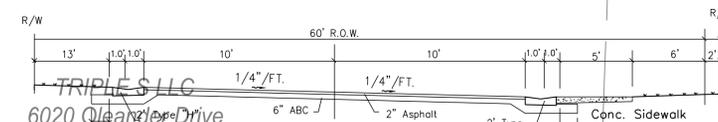
ACTIVITIES PROHIBITED:  
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RE-SURFACING  
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STORAGE OF MULCH OR SOIL  
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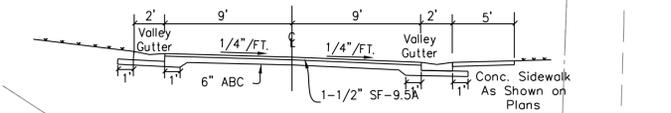
TO BE PLACED ON 4"x4" POST.  
TOP OF SIGN TO BE 48" ABOVE GROUND.



Private Residential Street X-Section



6020 Olander Drive X-Section



Private Residential Street X-Section

TO SERVICE UNITS SF16-SF19 & 20-35

TRAFFIC NOTES:

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No.	Revision	Date	By

Designer: GSP  
Scale: 1" = 30'  
Date: October 2015  
Drawn By: GSP  
Job No.: 2015-0006  
License #: P-0718  
2015-0006

**SUMMERWALK - PHASE 1**  
Wilmington New Hanover County North Carolina

**SITE PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Olander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
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6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

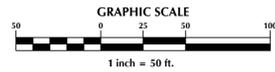
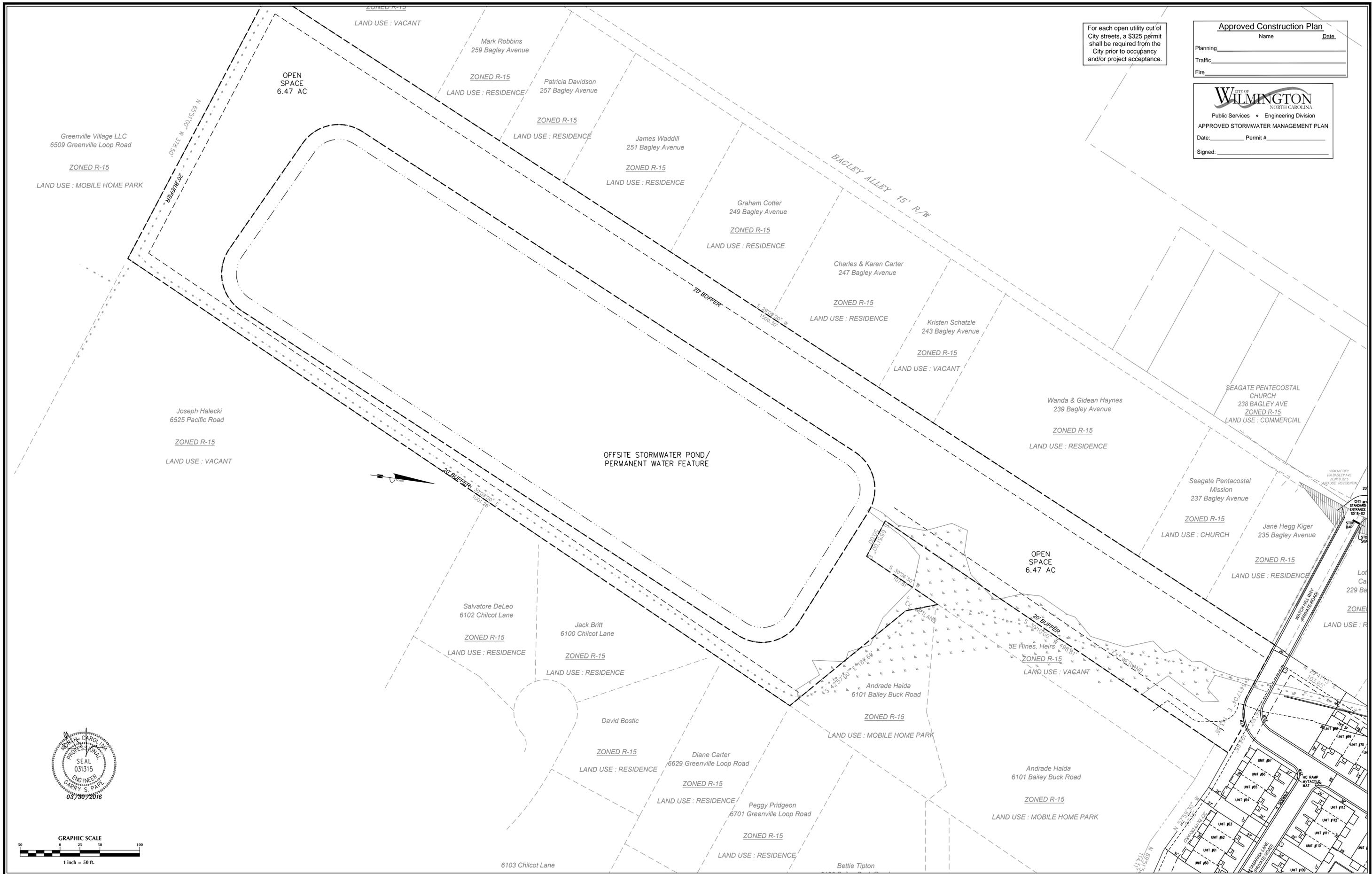
Sheet No.  
**C-3.2**

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	

<b>CITY OF WILMINGTON</b> NORTH CAROLINA	
Public Services • Engineering Division	
APPROVED STORMWATER MANAGEMENT PLAN	
Date: _____	Permit # _____
Signed: _____	



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**  
New Hanover County North Carolina

**SITE PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING  
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-3.3**

**GENERAL UTILITY NOTES:**

- PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) CROSS CONNECTION REQUIREMENTS. WATER METERS(S) CANNOT BE SET AND ACTIVATED ON NEW MAINS UNTIL ALL REQUIREMENTS ARE MET AND NCCENR HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6558 FOR INFORMATION.
- 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.
- TO USE CFPUA WATER FOR IRRIGATION IT MUST BE METERED SEPARATELY.
- WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 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 AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE AT ALL VALVES, FIRE HYDRANTS, AND WATER METER BOXES TO AID IN FUTURE LOCATIONS OF FACILITIES.
- TREES ARE NOT TO BE PLANTED OVER WATER MAINS OR WITHIN UTILITY EASEMENTS.
- STATE WATER AND SEWER PERMITS SHALL BE OBTAINED PRIOR TO RELEASE OF THE PROJECT FOR CONSTRUCTION.
- ALL WATERMANS WITHIN PUBLIC RIGHT OF WAY TO BE PUBLIC AND ALL WATERMANS LOCATED ON PRIVATE PROPERTY TO BE PRIVATE.
- POOL IS NOT TO DISCHARGE INTO THE CFPUA SEWER SYSTEM. CFPUA WILL CONSIDER THIS DISCHARGE ONLY IF FLOW IS DENIED INTO THE STORM DRAIN SYSTEM.
- GATE VALVES TO BE LOCATED AT EACH DOMESTIC SERVICE LINE INTO BUILDINGS.
- ALL WATERLINES TO HAVE MINIMUM 10' SEPARATION FROM ALL SEWER LINES, MANHOLES AND CLEANOUTS & TO HAVE 3" OF COVER AND 18" CLEARANCE WHERE WATER CROSSES OTHER UTILITY LINES.
- ANY SANITARY SEWER SYSTEM OR ANY PORTION THEREOF, INCLUDING THE PUMP CHAMBER AND SERVICE CONNECTION PIPE TO THE COLLECTION MAIN, SHALL BE LOCATED AT LEAST A MINIMUM OF 10'-FEET FROM ANY WATER LINE. SEWER LINES MAY CROSS A WATER LINE IF 18-INCH CLEAR SEPARATION DISTANCE IS MAINTAINED. WITH THE SEWER LINE CROSSING UNDER THE WATER LINE. WHEN CONDITIONS PREVENT AN 18-INCH CLEAR SEPARATION FROM BEING MAINTAINED OR WHENEVER IT IS NECESSARY FOR THE WATER LINE TO CROSS UNDER THE SEWER, THE SEWER LINE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE OR ITS EQUIVALENT AND THE WATER LINE SHALL BE CONSTRUCTED OF FERROUS MATERIALS EQUIVALENT TO WATER MAIN STANDARDS WITH FOR A DISTANCE OF AT LEAST TEN FEET ON EACH SIDE OF THE POINT OF CROSSING, WITH FULL SECTIONS OF PIPE CENTERED AT THE POINT OF CROSSING.

**SITE DATA:**

123 TOTAL UNITS - 104 TOWNHOME UNITS (2 BEDROOM) & 19 SINGLE FAMILY UNITS (3 BEDROOM)

PROPOSED - 104-2 BEDROOM \* 240 GPD + 19-3 BEDROOM + 30 PERSON CLUBHOUSE/POOL @ 10 GPD = 32,100 GPD

PUBLIC  
 2" SDR-21 WATER = 1,092 LF  
 8" C900 WATER = 1,983 LF  
 8" DIP WATER = 60 LF  
 9 - FIRE HYDRANTS  
 8" C900 SEWER = 2,625 LF  
 8" DIP SEWER = 60 LF

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**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
 NORTH CAROLINA  
 Public Services • Engineering Division

**APPROVED STORMWATER MANAGEMENT PLAN**

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

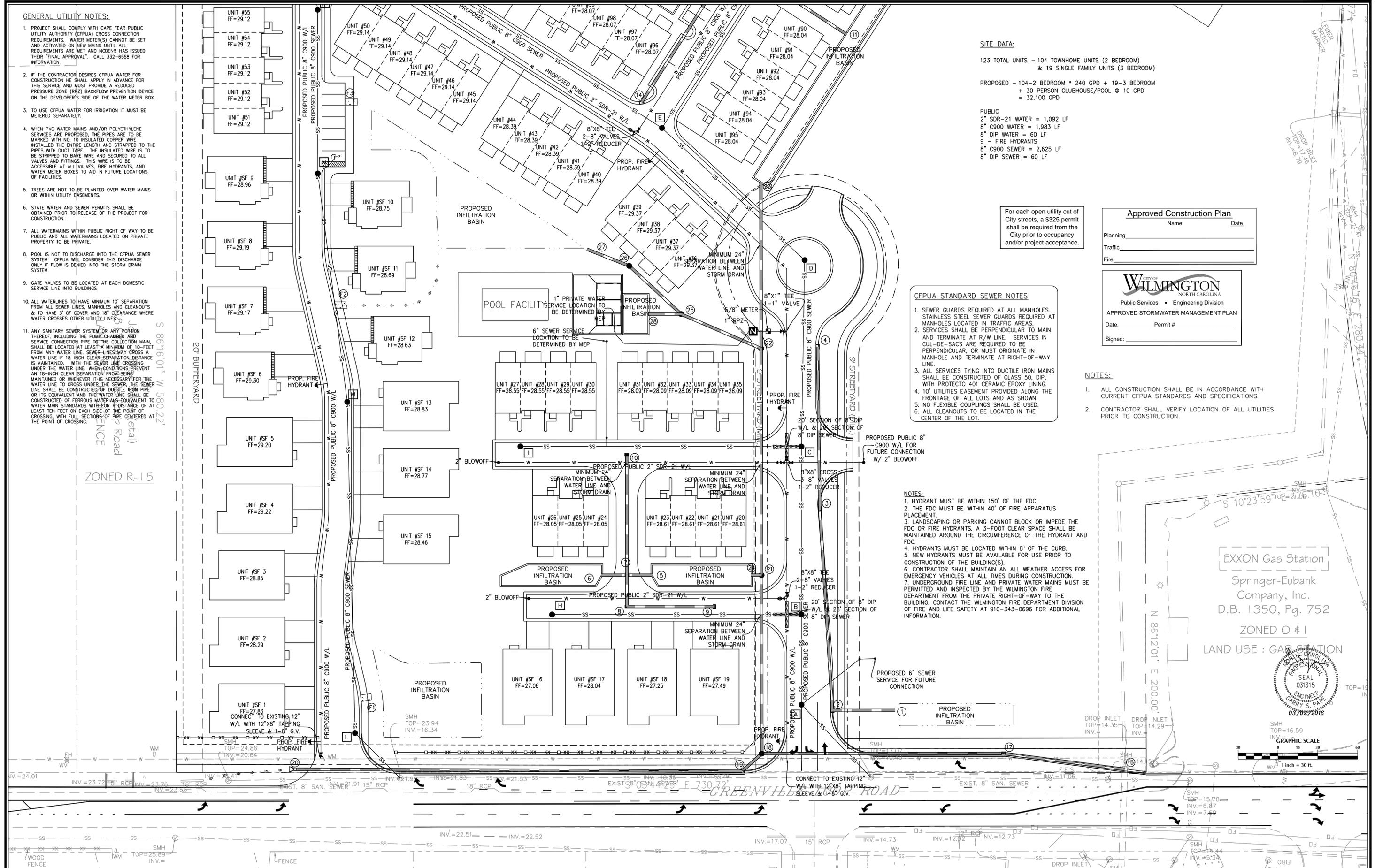
Signed: \_\_\_\_\_

**CFPUA STANDARD SEWER NOTES**

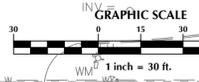
- SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
- SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT R/W LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT RIGHT-OF-WAY LINE.
- ALL SERVICES TYING INTO DUCTILE IRON MAINS SHALL BE CONSTRUCTED OF CLASS 50, DIP, WITH PROTECTO 401 CERAMIC EPOXY LINING.
- 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN.
- NO FLEXIBLE COUPLINGS SHALL BE USED.
- ALL CLEANOUTS TO BE LOCATED IN THE CENTER OF THE LOT.

**NOTES:**

- HYDRANT MUST BE WITHIN 150' OF THE FDC.
- THE FDC MUST BE WITHIN 40' OF FIRE APPARATUS PLACEMENT.
- LANDSCAPING OR PARKING CANNOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
- HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
- NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
- CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
- UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PRIVATE RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT FOR FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.



EXXON Gas Station  
 Springer-Eubank Company, Inc.  
 D.B. 1350, Pg. 752  
 ZONED O # 1  
 LAND USE : GAS STATION



No.	Revision	Date	By

Designer: GSP  
 Drawn By: GSP  
 License #: P-0718

Scale: 1" = 30'  
 Date: October 2015  
 Job No.: 2015-0006

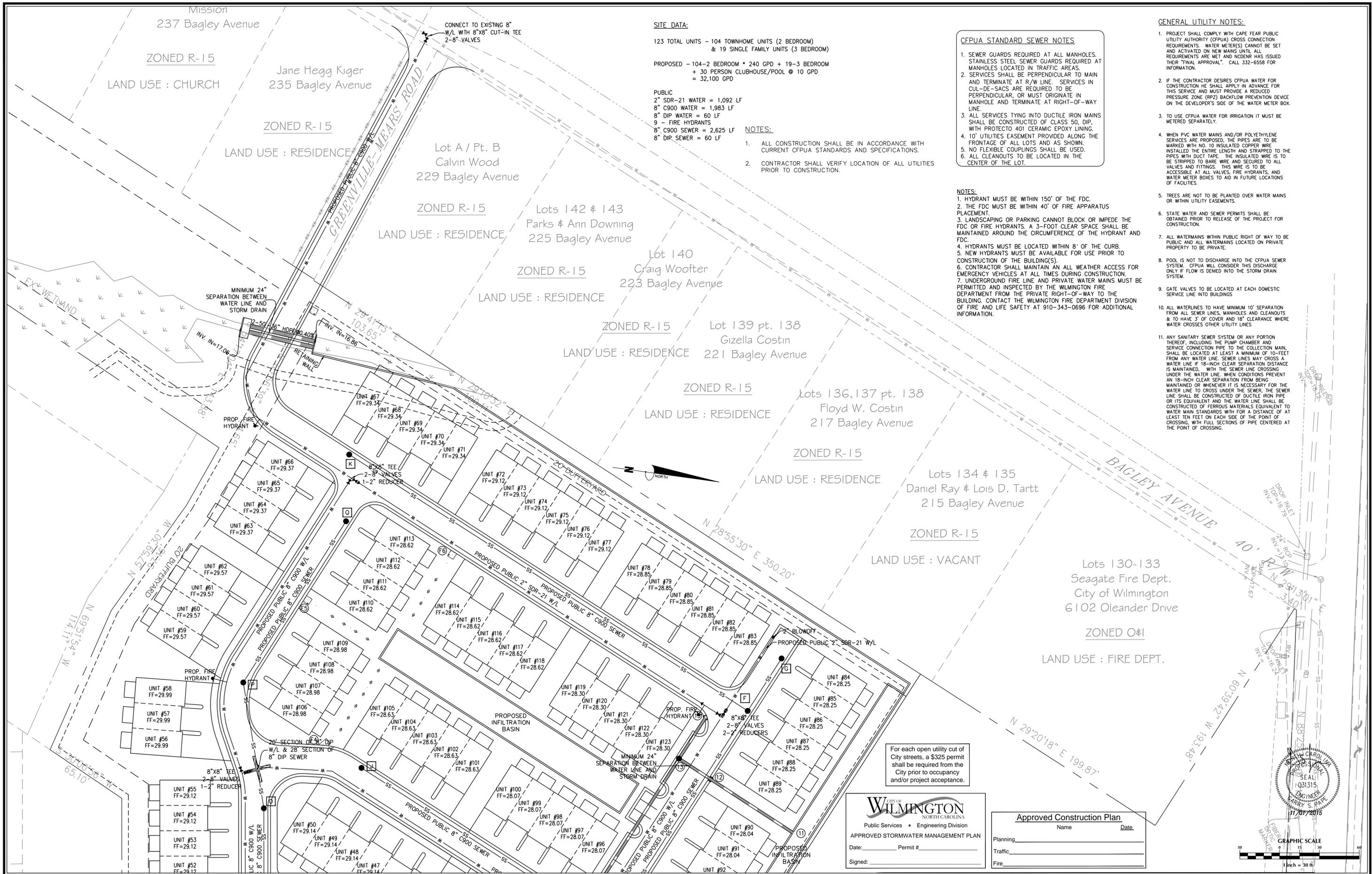
**SUMMERWALK - PHASE 1**  
 Wilmington, New Hanover County, North Carolina

**UTILITY PLAN**

PREPARED FOR:  
 Summerwalk Development, LLC  
 6105 Oleander Drive  
 Suite 201  
 Wilmington, NC 28403

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 ENGINEERING  
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-4.1**



**SITE DATA:**

123 TOTAL UNITS - 104 TOWNHOME UNITS (2 BEDROOM) & 19 SINGLE FAMILY UNITS (3 BEDROOM)  
 PROPOSED - 104-2 BEDROOM \* 240 GPD + 19-3 BEDROOM + 30 PERSON CLUBHOUSE/POOL @ 10 GPD = 32,100 GPD

PUBLIC  
 2" SDR-21 WATER = 1,092 LF  
 8" C900 WATER = 1,983 LF  
 8" DIP WATER = 60 LF  
 9 - FIRE HYDRANTS  
 8" C900 SEWER = 2,625 LF  
 8" DIP SEWER = 60 LF

**NOTES:**

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT CFPWA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

**CFPWA 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 R/W 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. 10' UTILITIES EASEMENT PROVIDED ALONG THE FRONTAGE OF ALL LOTS AND AS SHOWN.
5. NO FLEXIBLE COUPLINGS SHALL BE USED.
6. ALL CLEANOUTS TO BE LOCATED IN THE CENTER OF THE LOT.

**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. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDING(S).
6. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
7. UNDERGROUND FIRE LINE AND PRIVATE WATER MAINS MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PRIVATE RIGHT-OF-WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910-343-0696 FOR ADDITIONAL INFORMATION.

**GENERAL UTILITY NOTES:**

1. PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPWA) CROSS CONNECTION REQUIREMENTS. WATER METER(S) CANNOT BE SET AND ACTIVATED ON NEW MAINS UNTIL ALL REQUIREMENTS ARE MET AND NODENR HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6558 FOR INFORMATION.
2. IF THE CONTRACTOR DESIRES CFPWA WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
3. TO USE CFPWA WATER FOR IRRIGATION IT MUST BE METERED SEPARATELY.
4. WHEN PVC WATER MAINS AND/OR POLYETHYLENE SERVICES ARE PROPOSED, THE PIPES ARE TO BE MARKED WITH NO. 10 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 PIPE VALVES AND FITTINGS. THIS WIRE IS TO BE ACCESSIBLE AT ALL VALVES, FIRE HYDRANTS, AND WATER METER BOXES TO AID IN FUTURE LOCATIONS OF FACILITIES.
5. TREES ARE NOT TO BE PLANTED OVER WATER MAINS OR WITHIN UTILITY EASEMENTS.
6. STATE WATER AND SEWER PERMITS SHALL BE OBTAINED PRIOR TO RELEASE OF THE PROJECT FOR CONSTRUCTION.
7. ALL WATERMANS WITHIN PUBLIC RIGHT OF WAY TO BE PUBLIC AND ALL WATERMANS LOCATED ON PRIVATE PROPERTY TO BE PRIVATE.
8. POOL IS NOT TO DISCHARGE INTO THE CFPWA SEWER SYSTEM. CFPWA WILL CONSIDER THIS DISCHARGE ONLY IF FLOW IS DENIED INTO THE STORM DRAIN SYSTEM.
9. GATE VALVES TO BE LOCATED AT EACH DOMESTIC SERVICE LINE INTO BUILDINGS
10. ALL WATERLINES TO HAVE MINIMUM 10' SEPARATION FROM ALL SEWER LINES, MANHOLES AND CLEANOUTS & TO HAVE 3' OF COVER AND 18" CLEARANCE WHERE WATER CROSSES OTHER UTILITY LINES
11. ANY SANITARY SEWER SYSTEM OR ANY PORTION THEREOF, INCLUDING THE PUMP CHAMBER AND SERVICE CONNECTION PIPE TO THE COLLECTION MAIN, SHALL BE LOCATED AT LEAST A MINIMUM OF 10- FEET FROM ANY WATER LINE. SEWER LINES MAY CROSS A WATER LINE IF 18-INCH CLEAR SEPARATION DISTANCE IS MAINTAINED. WITH THE SEWER LINE CROSSING UNDER THE WATER LINE, WHEN CONDITIONS PREVENT AN 18-INCH CLEAR SEPARATION FROM BEING MAINTAINED OR WHENEVER IT IS NECESSARY FOR THE WATER LINE TO CROSS UNDER THE SEWER, THE SEWER LINE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE OR ITS EQUIVALENT AND THE WATER LINE SHALL BE CONSTRUCTED OF FERROUS MATERIALS EQUIVALENT TO WATER MAIN STANDARDS WITH FOR A DISTANCE OF AT LEAST TEN FEET ON EACH SIDE OF THE POINT OF CROSSING, WITH FULL SECTIONS OF PIPE CENTERED AT THE POINT OF CROSSING.

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

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

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_



No.	Revision	Date	By

Designer: **GSP** Scale: 1" = 30'  
 Drawn By: **GSP** Date: October 2015  
 License #: **P-0718** Job No.: 2015-0006

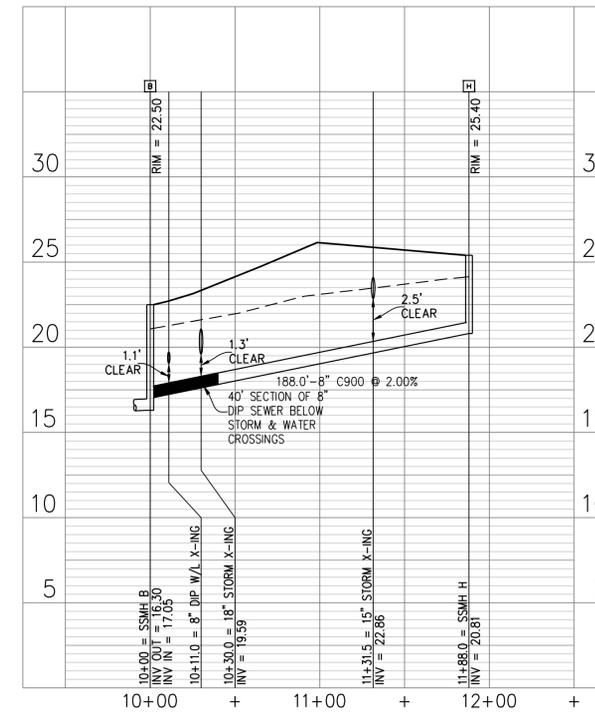
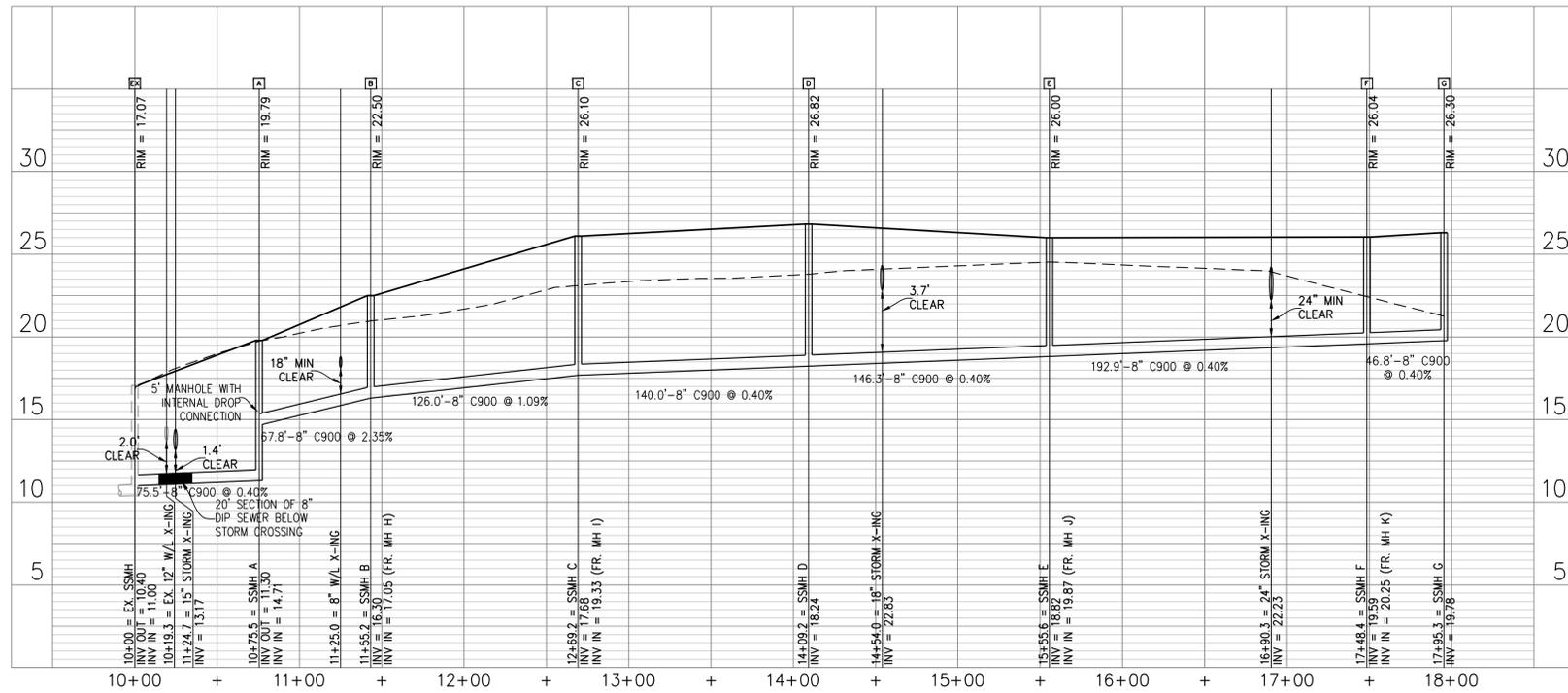
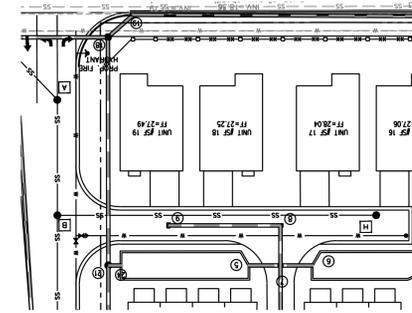
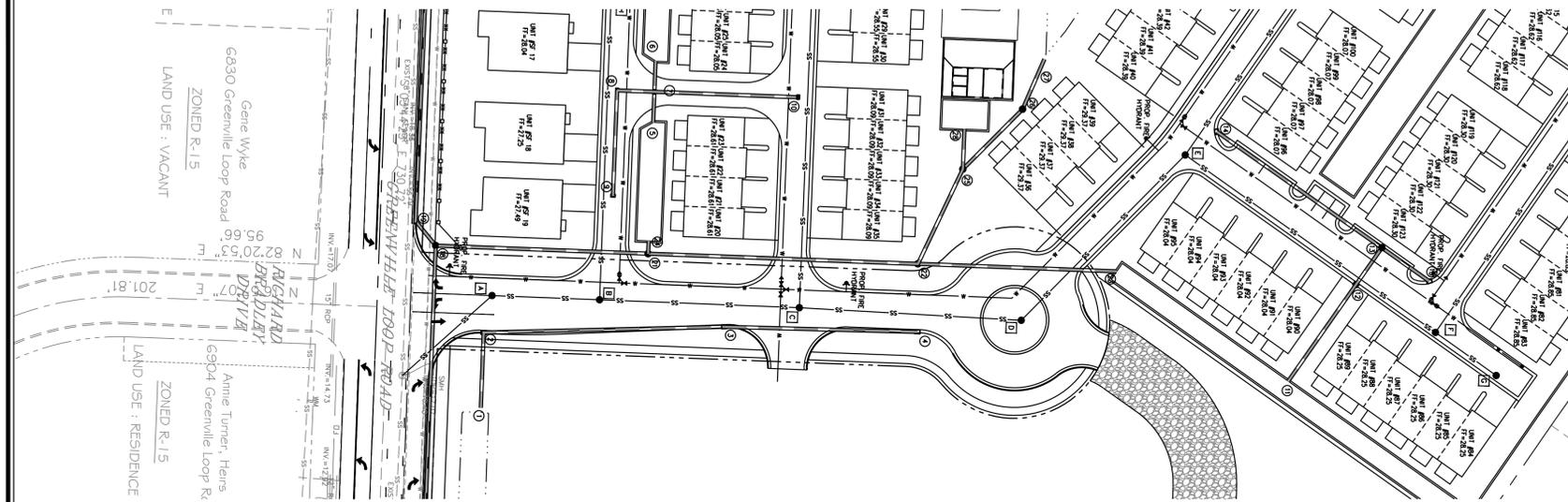
**SUMMERWALK - PHASE 1**  
 Wilmington New Hanover County North Carolina

**UTILITY PLAN**

PREPARED FOR:  
 Summerwalk Development, LLC  
 6105 Oleander Drive  
 Suite 201  
 Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
 ENGINEERING  
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-4.2**



**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

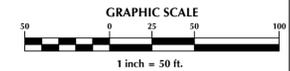
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Signed: \_\_\_\_\_

**PROFESSIONAL SEAL**  
031315  
ENGINEER  
GARRY S. PATE  
11/01/2015

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Designer: GSP  
Scale: 1" = 50'  
Drawn By: GSP  
Date: October 2015  
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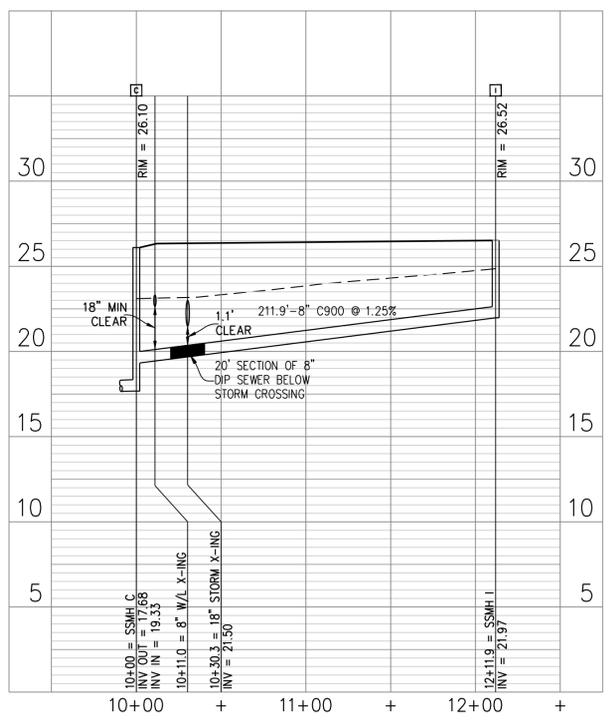
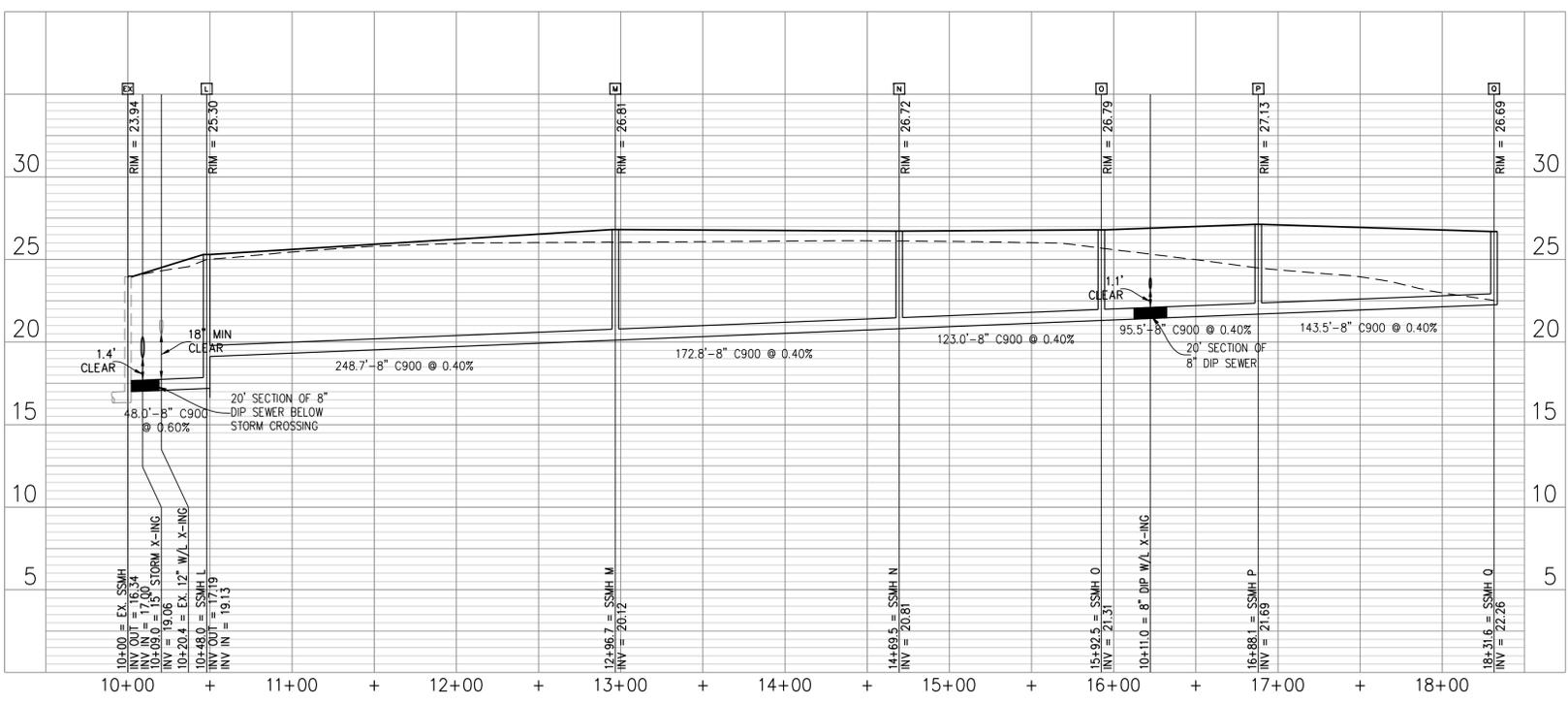
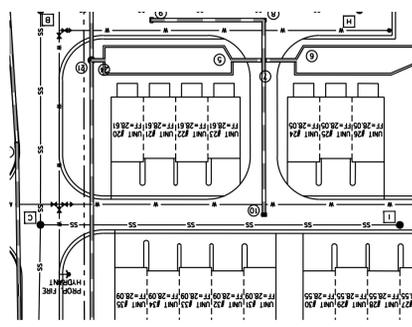
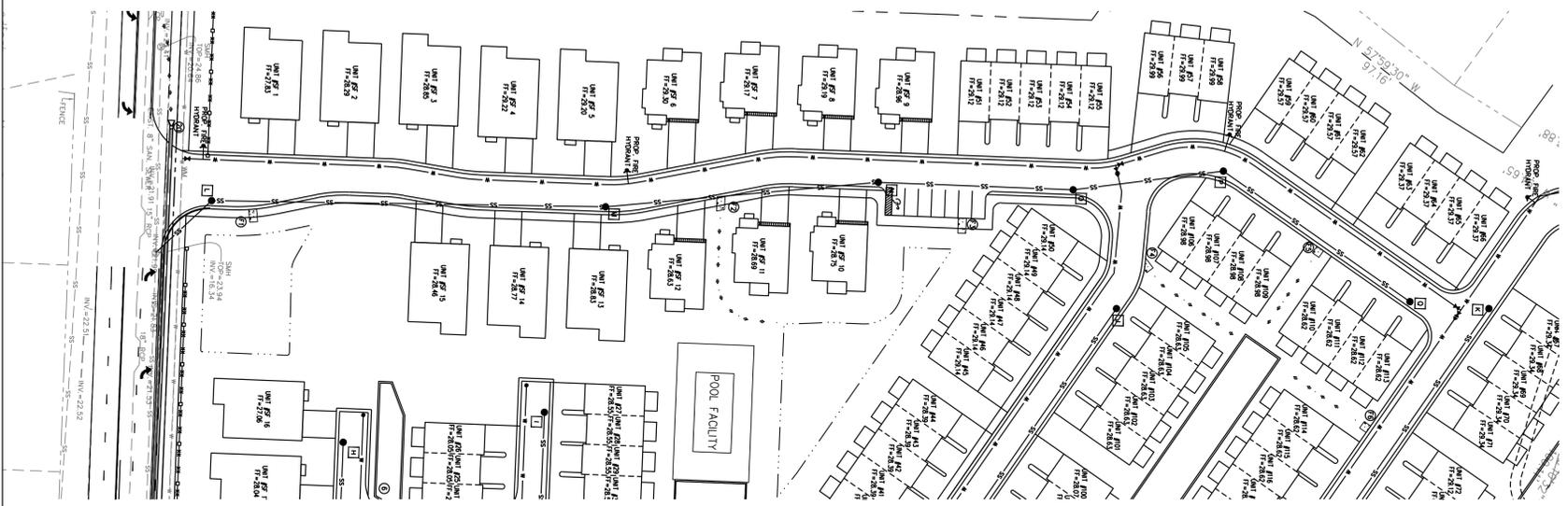
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**UTILITY PROFILES**

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6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-4.3**



**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

**CITY OF WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

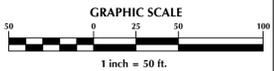
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**PROFESSIONAL SEAL**  
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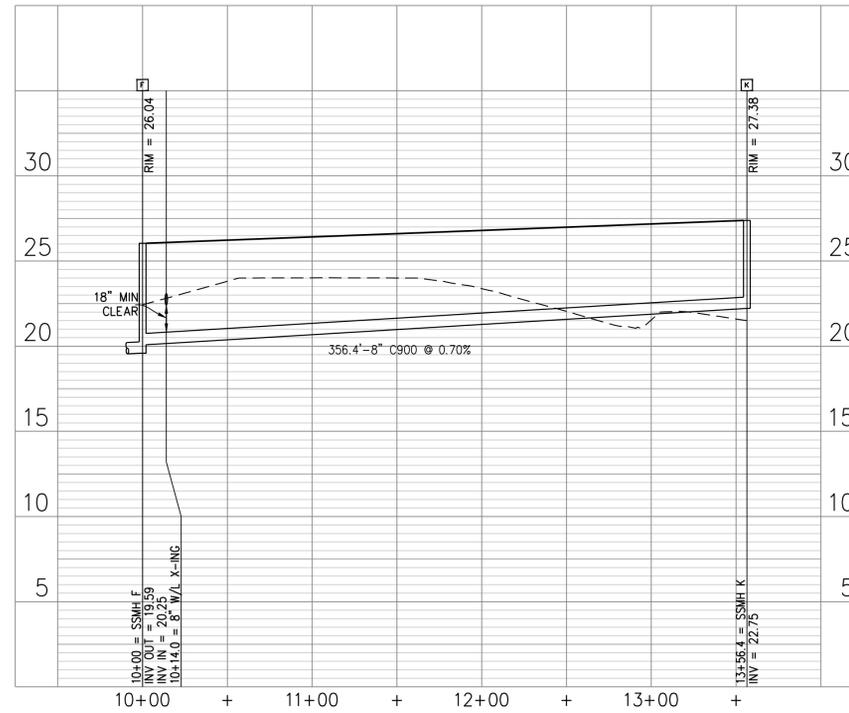
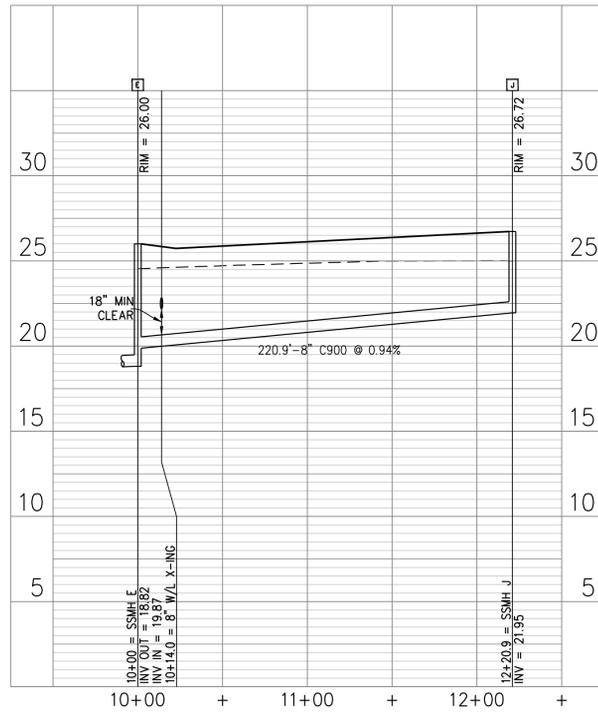
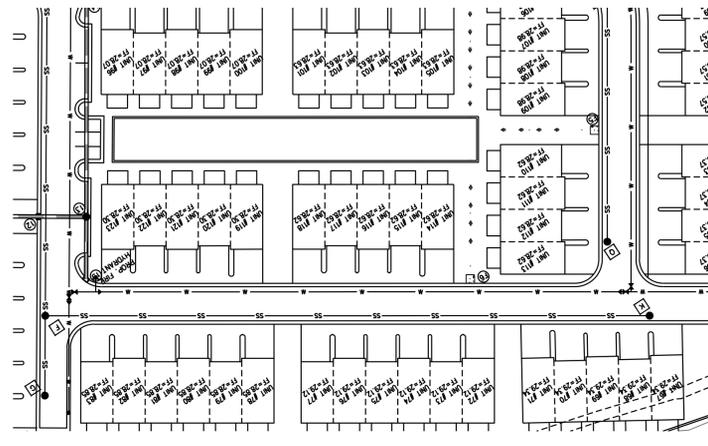
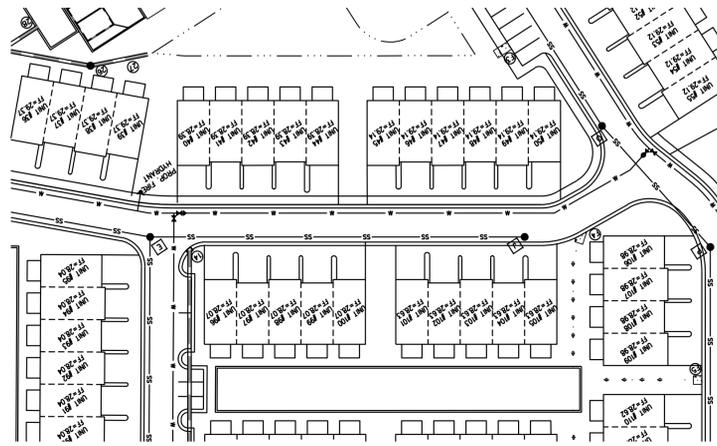
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Sheet No.  
**C-4.4**



**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

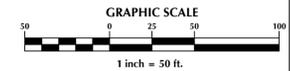
Fire \_\_\_\_\_

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

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ENGINEERING

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Sheet No.  
**C-4.5**

**PUMPING NOTES:**

1. SEDIMENT LADEN PUMP DISCHARGE IS ONLY ALLOWED IF ITS DISCHARGED AT OR BELOW 25 NTU'S WITHOUT EROSION VELOCITY AT THE POINT OF DISCHARGE, INFILTRATED ON-SITE OUTSIDE ANY WETLANDS WITH NO RUNOFF, OR BY USING PAMS WITH A LIQUID INJECTION SYSTEM DISCHARGING INTO A DIRT BAG PLACED ON A STABLE SURFACE.

**GRADING NOTES:**

1. ALL SWALES TO BE SODED WITH CENTIPEDE GRASS OR EQUIVALENT.
2. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES

**NOTES:**

1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
2. INFILTRATION BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
4. THE SWALES DIRECTING THE RUNOFF TO THE INFILTRATION BASIN MUST BE REGULARLY MAINTAINED TO ENSURE THAT THE STORMWATER SYSTEM FUNCTIONS AS DESIGNED.
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6. PRIOR TO THE CREATION OF ANY IMPERVIOUS SURFACES THE FINAL DESIGN SHOULD BE BUILT. SEE SHEET C-6 FOR BASIN DETAILS.
7. ALL EXISTING/PROPOSED STORM INLETS WITHIN THE DISTURBANCE AREA TO HAVE EITHER INLET PROTECTION OR A SILT SACK INSTALLED, SEE DETAILS ON SHEET C-8.
8. SEDIMENT BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS WHEN SEDIMENT REACHES 50% STORAGE ELEVATION AND MUCKED OUT.
9. ALL REAR PATIOS TO BE OPEN SLATTED DECKING.

**SEDIMENT BASIN CALCULATIONS**

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (1,800CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)
SEDIMENT BASIN #1	1.20	2,153	10,946	2.26	983	6,201
SEDIMENT BASIN #3	0.74	1,341	5,940	1.41	612	2,160
SEDIMENT BASIN #4	2.10	3,787	19,014	3.98	1,730	8,878
SEDIMENT BASIN #5	0.21	380	1,490	0.40	173	618
SEDIMENT BASIN #6	1.45	2,616	13,290	2.75	1,195	5,316
SEDIMENT BASIN #7	1.97	3,542	14,917	3.72	1,618	3,194
SEDIMENT BASIN #ROAD	0.91	1,639	7,358	1.72	749	3,548

PER THE REQUIREMENTS OF THE STORMWATER PERMIT, THE FOLLOWING SHALL OCCUR PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR OPERATION OF THE PERMITTED FACILITY:

- AS-BUILT DRAWINGS FOR ALL STORMWATER MANAGEMENT FACILITIES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON ENGINEERING DIVISION.
- AN ENGINEER'S CERTIFICATION SHALL ALSO BE SUBMITTED, ALONG WITH ALL SUPPORTING DOCUMENTATION THAT SPECIFIES, UNDER SEAL THAT THE AS-BUILT STORMWATER MEASURES, CONTROLS AND DEVICES ARE IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLANS.
- A FINAL INSPECTION BY CITY OF WILMINGTON ENGINEERING PERSONNEL.

**Approved Construction Plan**

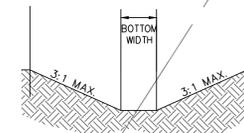
Name	Date
Planning	
Traffic	
Fire	



**APPROVED STORMWATER MANAGEMENT PLAN**

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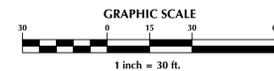
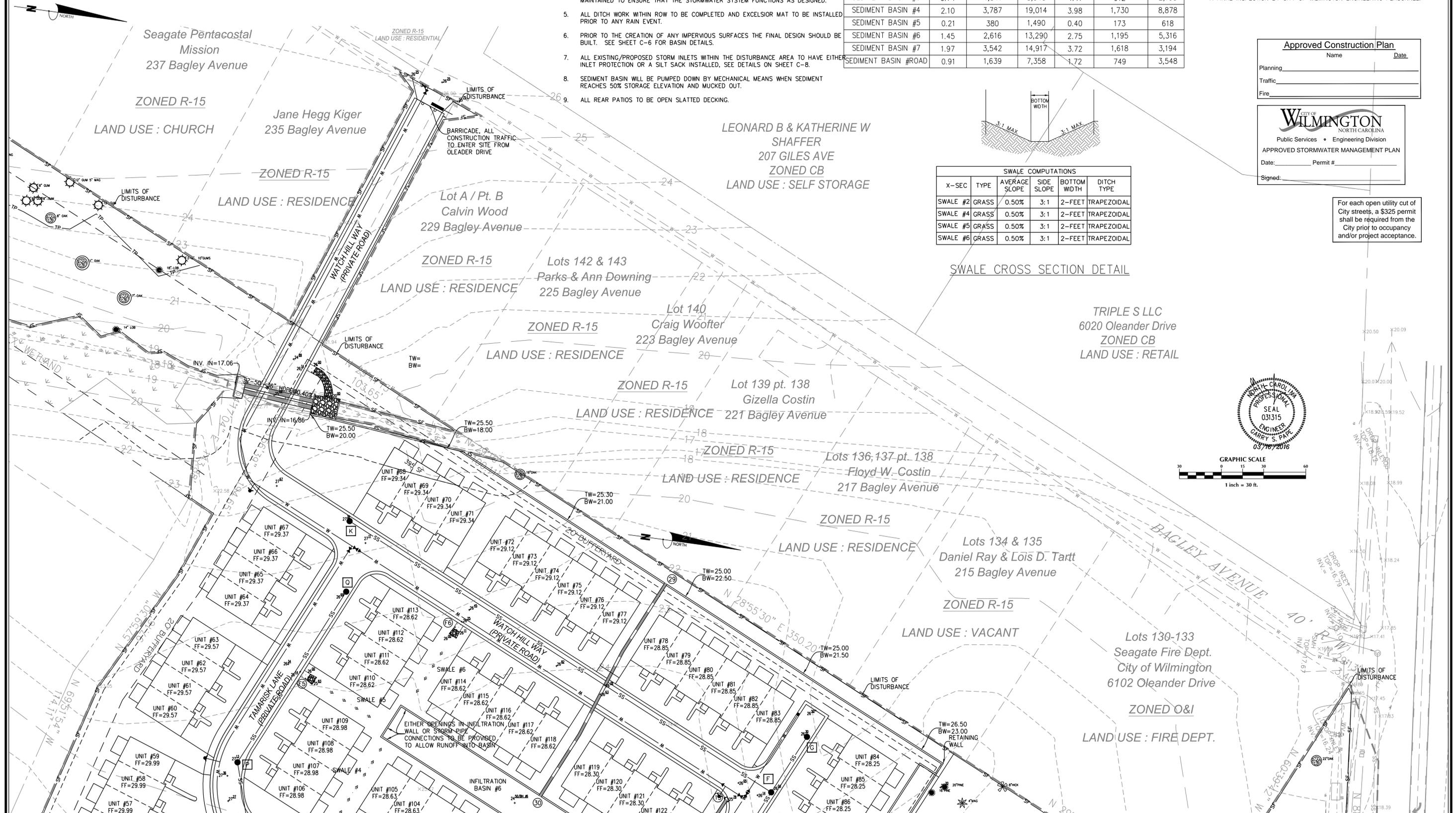
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.



**SWALE COMPUTATIONS**

X-SEC	TYPE	AVERAGE SLOPE	SIDE SLOPE	BOTTOM WIDTH	DITCH TYPE
SWALE #2	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
SWALE #4	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
SWALE #5	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
SWALE #6	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL

SWALE CROSS SECTION DETAIL



No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**  
Wilmington, New Hanover County, North Carolina

**GRADING & EROSION & SEDIMENT CONTROL PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
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6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-5.1**

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**GRADING NOTES:**

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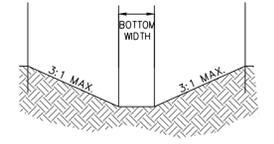
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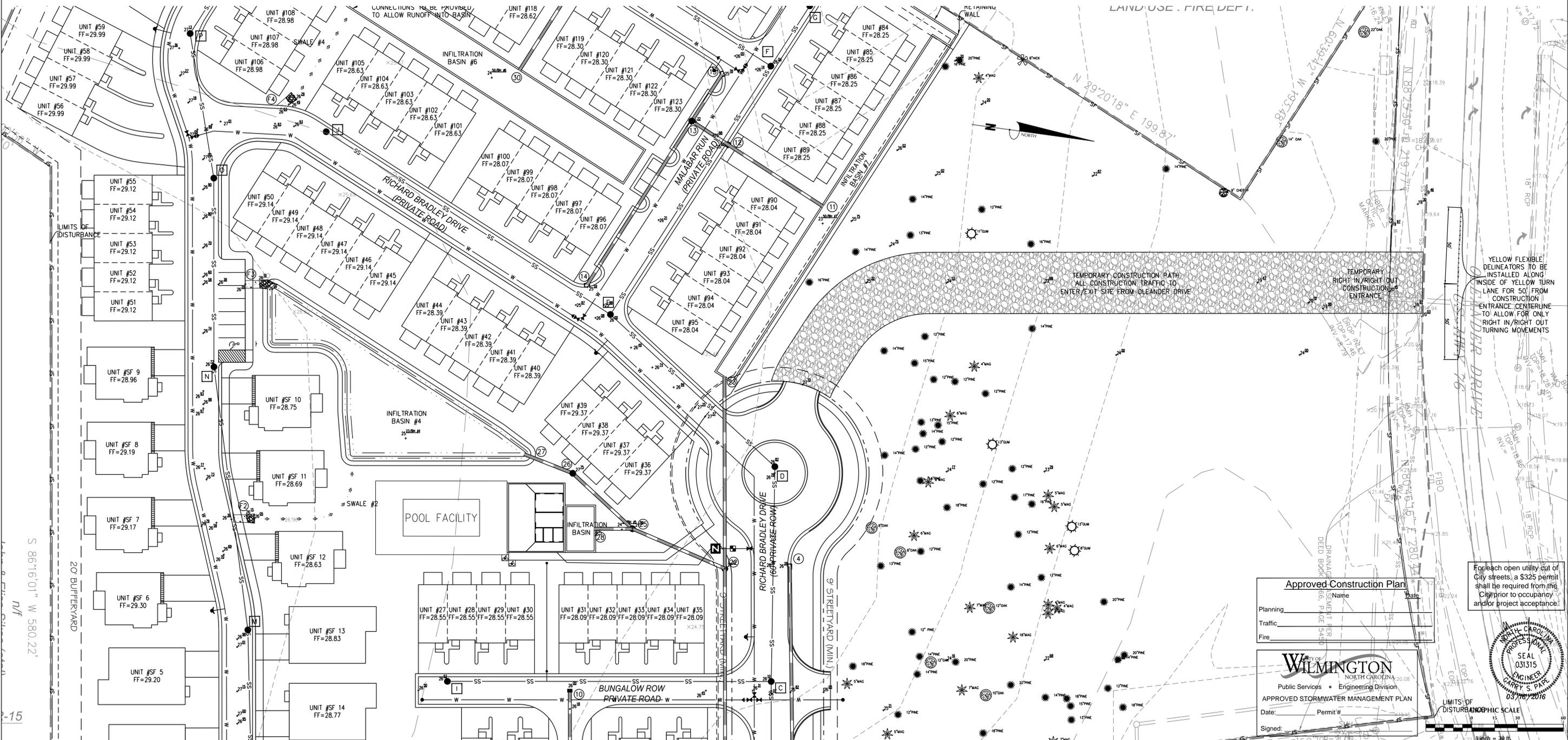
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SWALE CROSS SECTION DETAIL



**Approved Construction Plan**

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

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

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

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

**CITY OF WILMINGTON**  
 NORTH CAROLINA 2008  
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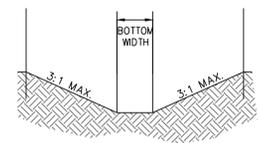
Sheet No. **C-5.2**

**PUMPING NOTES:**

1. SEDIMENT LADEN PUMP DISCHARGE IS ONLY ALLOWED IF ITS DISCHARGED AT OR BELOW 25 NTU'S WITHOUT EROSION VELOCITY AT THE POINT OF DISCHARGE, INFILTRATED ON-SITE OUTSIDE ANY WETLANDS WITH NO RUNOFF, OR BY USING PAMS WITH A LIQUID INJECTION SYSTEM DISCHARGING INTO A DIRT BAG PLACED ON A STABLE SURFACE.

**GRADING NOTES:**

1. ALL SWALES TO BE SODDED WITH CENTIPEDE GRASS OR EQUIVALENT.
2. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES



SWALE COMPUTATIONS					
X-SEC	TYPE	AVERAGE SLOPE	SIDE SLOPE	BOTTOM WIDTH	DITCH TYPE
F2	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F4	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F5	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL
F6	GRASS	0.50%	3:1	2-FEET	TRAPEZOIDAL

SWALE CROSS SECTION DETAIL

**NOTES:**

1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
2. INFILTRATION BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
3. PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
4. THE SWALES DIRECTING THE RUNOFF TO THE INFILTRATION BASIN MUST BE REGULARLY MAINTAINED TO ENSURE THAT THE STORMWATER SYSTEM FUNCTIONS AS DESIGNED.
5. ALL DITCH WORK WITHIN ROW TO BE COMPLETED AND EXCELSIOR MAT TO BE INSTALLED PRIOR TO ANY RAIN EVENT.
6. PRIOR TO THE CREATION OF ANY IMPERVIOUS SURFACES THE FINAL DESIGN SHOULD BE BUILT. SEE SHEET C-6 FOR BASIN DETAILS.
7. ALL EXISTING/PROPOSED STORM INLETS WITHIN THE DISTURBANCE AREA TO HAVE EITHER INLET PROTECTION OR A SILT SACK INSTALLED. SEE DETAILS ON SHEET C-8.
8. SEDIMENT BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS WHEN SEDIMENT REACHES 50% STORAGE ELEVATION AND MUCKED OUT.
9. ALL REAR PATIOS TO BE OPEN SLATTED DECKING.

**SEDIMENT BASIN CALCULATIONS**

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (1,800CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)
SEDIMENT BASIN #1	1.20	2,153	10,946	2.26	983	6,201
SEDIMENT BASIN #3	0.74	1,341	5,940	1.41	612	2,160
SEDIMENT BASIN #4	2.10	3,787	19,014	3.98	1,730	8,878
SEDIMENT BASIN #5	0.21	380	1,490	0.40	173	618
SEDIMENT BASIN #6	1.45	2,616	13,290	2.75	1,195	5,316
SEDIMENT BASIN #7	1.97	3,542	14,917	3.72	1,618	3,194
SEDIMENT BASIN #ROAD	0.91	1,639	7,358	1.72	749	3,548

PER THE REQUIREMENTS OF THE STORMWATER PERMIT, THE FOLLOWING SHALL OCCUR PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY OR OPERATION OF THE PERMITTED FACILITY:

- AS-BUILT DRAWINGS FOR ALL STORMWATER MANAGEMENT FACILITIES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON ENGINEERING DIVISION.
- AN ENGINEER'S CERTIFICATION SHALL ALSO BE SUBMITTED, ALONG WITH ALL SUPPORTING DOCUMENTATION THAT SPECIFIES, UNDER SEAL THAT THE AS-BUILT STORMWATER MEASURES, CONTROLS AND DEVICES ARE IN COMPLIANCE WITH THE APPROVED STORMWATER MANAGEMENT PLANS.
- A FINAL INSPECTION BY CITY OF WILMINGTON ENGINEERING PERSONNEL.

**Approved Construction Plan**

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

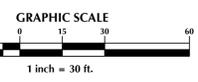
Planning \_\_\_\_\_

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.



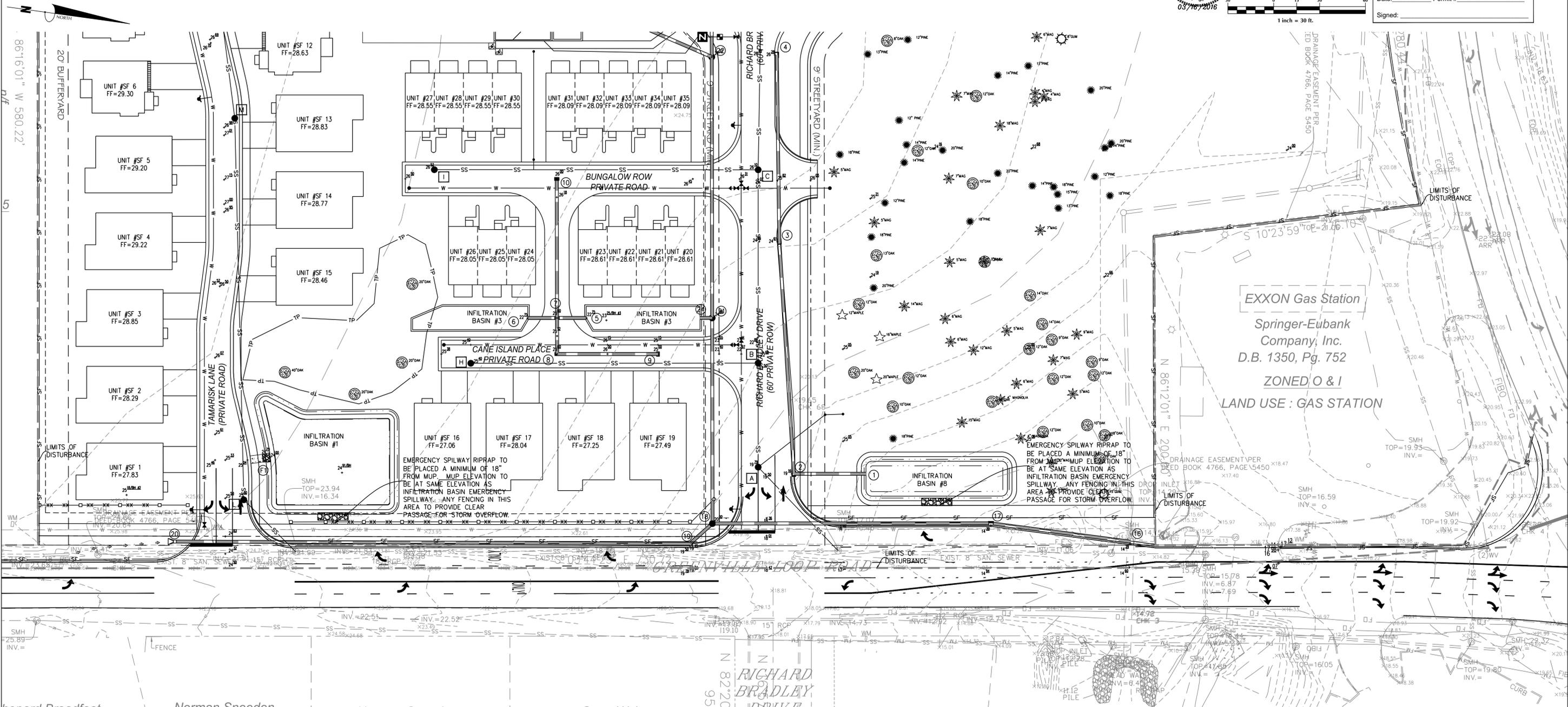
**WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

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

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



SEDIMENT BASIN CALCULATIONS

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (1,800CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (325 SF/CFS)	PROVIDED AREA (SF)	SKIMMER SIZE (in)
OFFSITE SW SEDIMENT BASIN	5.23	9,414	18,949	9.88	3,213	189,791	3.75

Approved Construction Plan

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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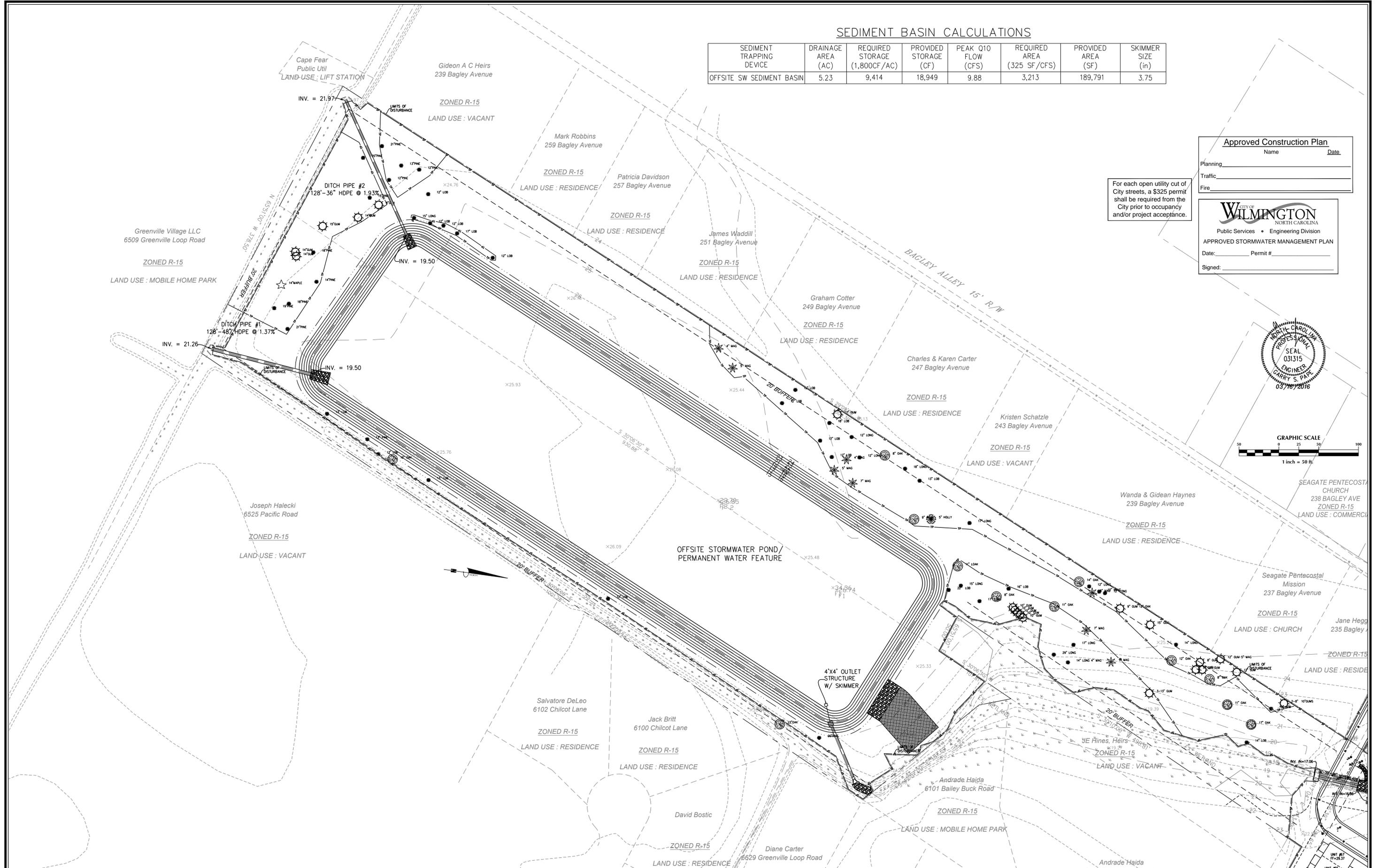
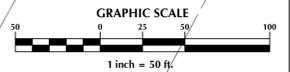
**WILMINGTON**  
NORTH CAROLINA

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

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

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



No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**

Wilmington New Hanover County North Carolina

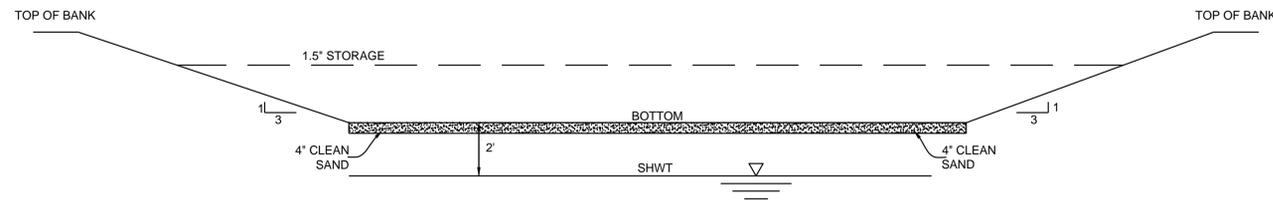
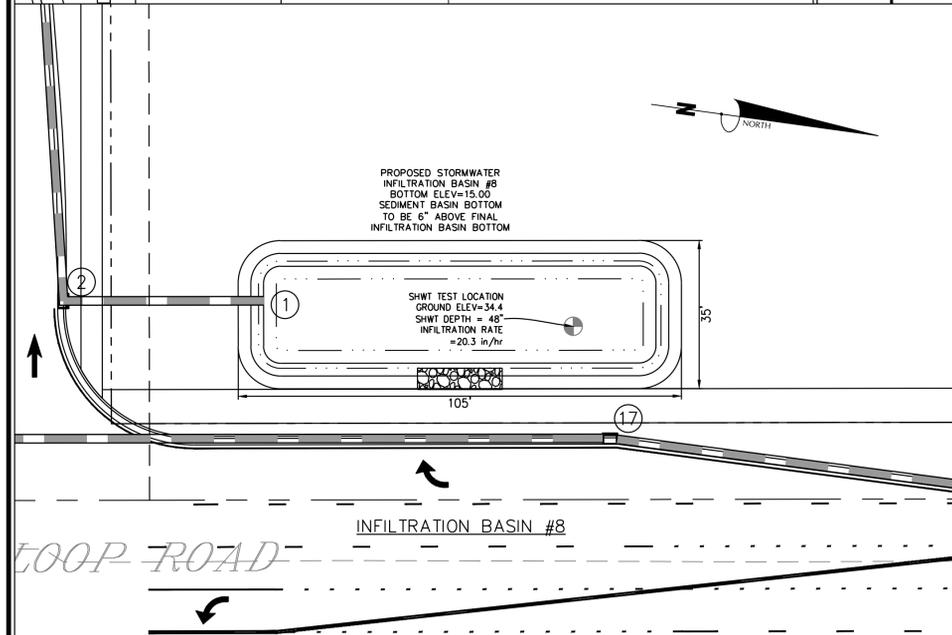
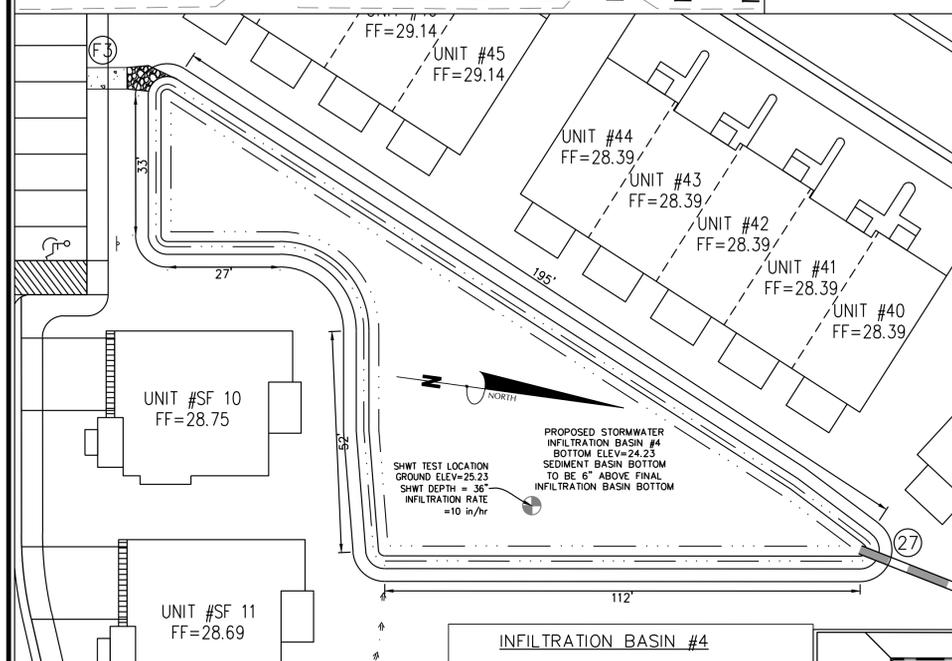
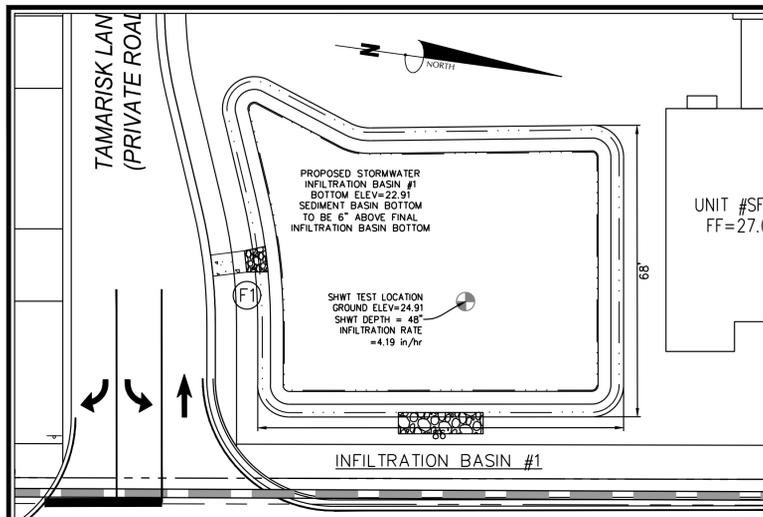
**GRADING & EROSION & SEDIMENT CONTROL PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING

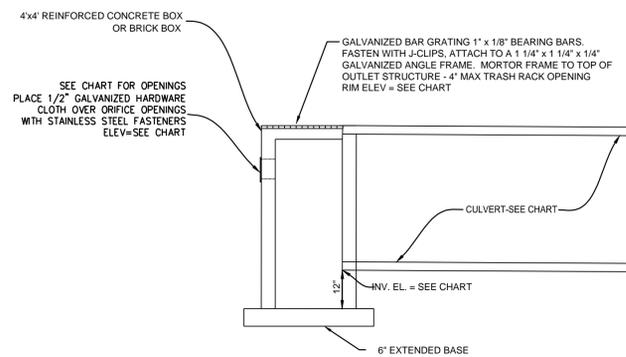
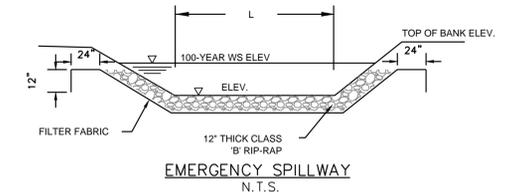
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-5.4**



INFILTRATION BASIN	GROUND ELEVATION	SHWT DEPTH	SHWT ELEVATION	BASIN BOTTOM ELEVATION	BASIN DEPTH (FT)	1.5" STORAGE ELEVATION	1.5" STORAGE VOLUME REQ. (CF)	1.5" STORAGE VOLUME PROV. (CF)	EMERGENCY SPILLWAY ELEVATION	100-YEAR ELEVATION	TOP OF BANK ELEVATION
BASIN #1	24.91	48"	20.91	22.91	2.09	23.65	3,551	3,728	24.45	24.57	25.00
BASIN #4	25.23	36"	24.23	24.23	2.77	25.40	6,172	6,715	PIPE	26.39	27.00
BASIN #8	15.00	50"	12.83	15.00	3.00	16.40	2,439	2,663	17.26	17.38	18.00

INFILTRATION BASIN CROSS-SECTION  
N.T.S.



OUTLET STRUCTURE DETAIL  
N.T.S.

BASIN	10-YEAR INFILTRATION ELEV @ 1/2 RATE	OUTLET BOX RIM ELEV	CONTROL ORIFICE ELEV	CONTROL ORIFICE LENGTH	CULVERT INVERT	CULVERT SIZE	CULVERT LENGTH	CULVERT SLOPE
BASIN #3	25.38	25.50	N/A	N/A	22.50	15"	7'	3.02%
BASIN #4	26.12	26.20	N/A	N/A	24.76	15"	34'	0.50%
BASIN #5	26.43	26.53	N/A	N/A	24.45	15"	25'	0.50%
BASIN #6	25.90	25.90	N/A	N/A	24.17	15"	175'	0.30%
BASIN #7	24.38	25.00	24.38	3'	22.92	24"	125'	0.30%

OUTLET STRUCTURE INFORMATION  
N.T.S.

NOTES:

- ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
- BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS IN CASE OF EMERGENCY.
- PRIOR TO USE AS AN INFILTRATION BASIN, ALL ACCUMULATED SEDIMENT SHALL BE REMOVED AND PROPERLY DISPOSED OF, THEN THE APPROPRIATE MODIFICATIONS TO THE BASIN CAN BE INCORPORATED.
- ESTABLISHED GRASS REQUIRED IN THE SWALES, DITCHES & BANKS OF THE INFILTRATION BASIN PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.

Approved Construction Plan

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

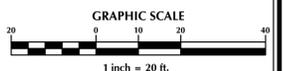
Fire \_\_\_\_\_

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

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

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

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



No.	Revision	Date	By

Designer	GSP	Scale	1" = 20'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

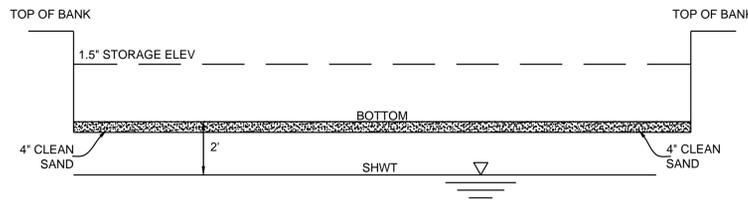
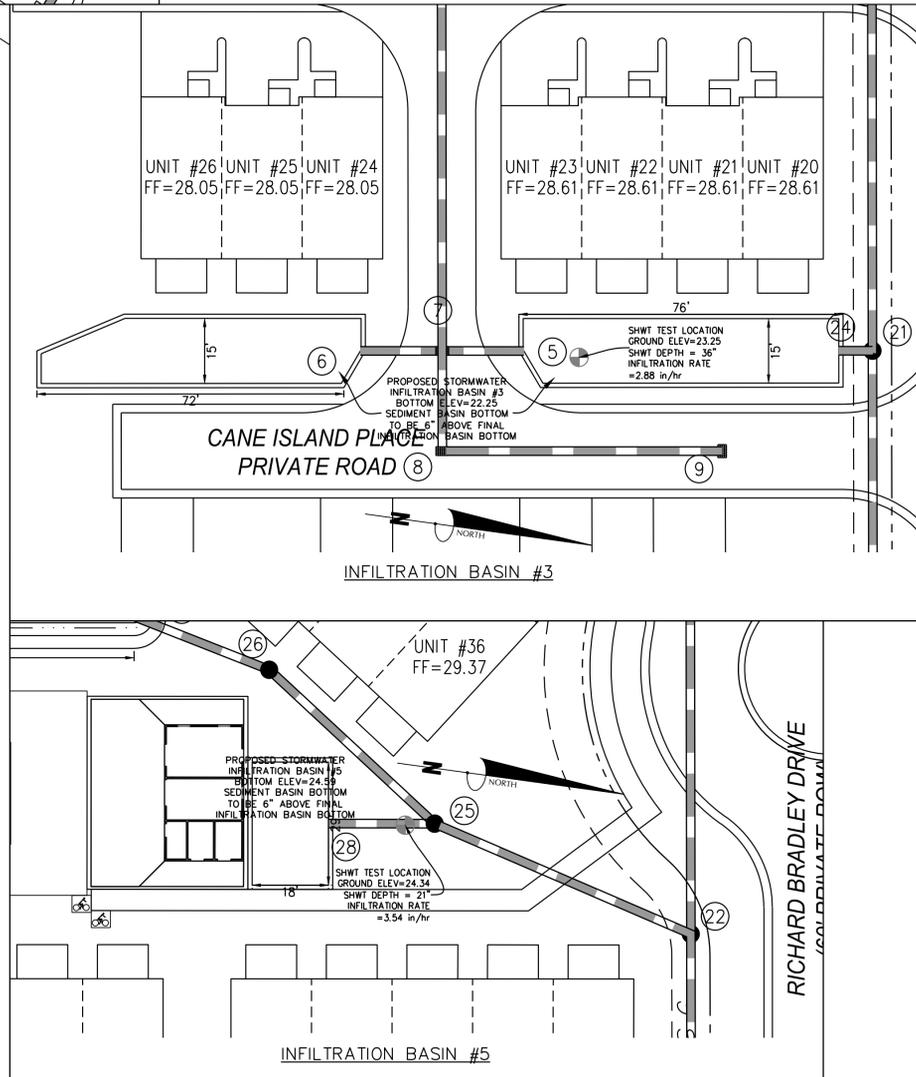
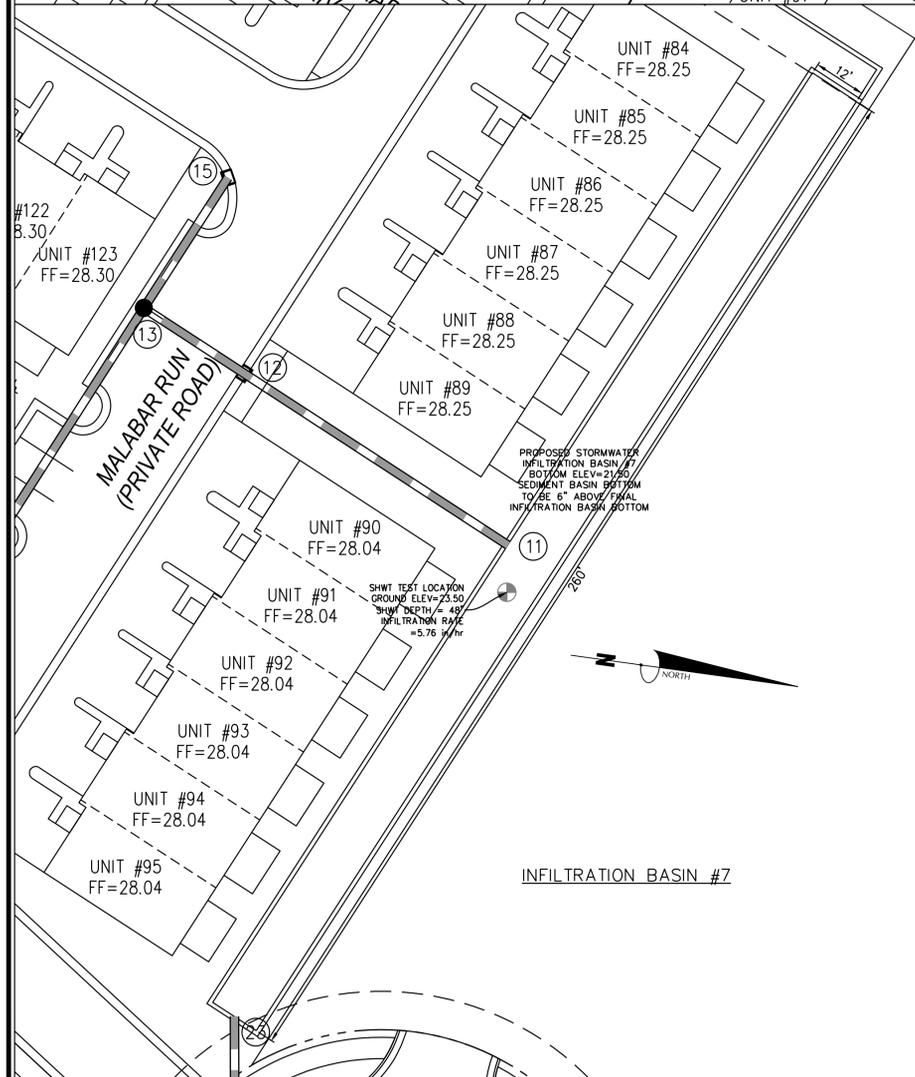
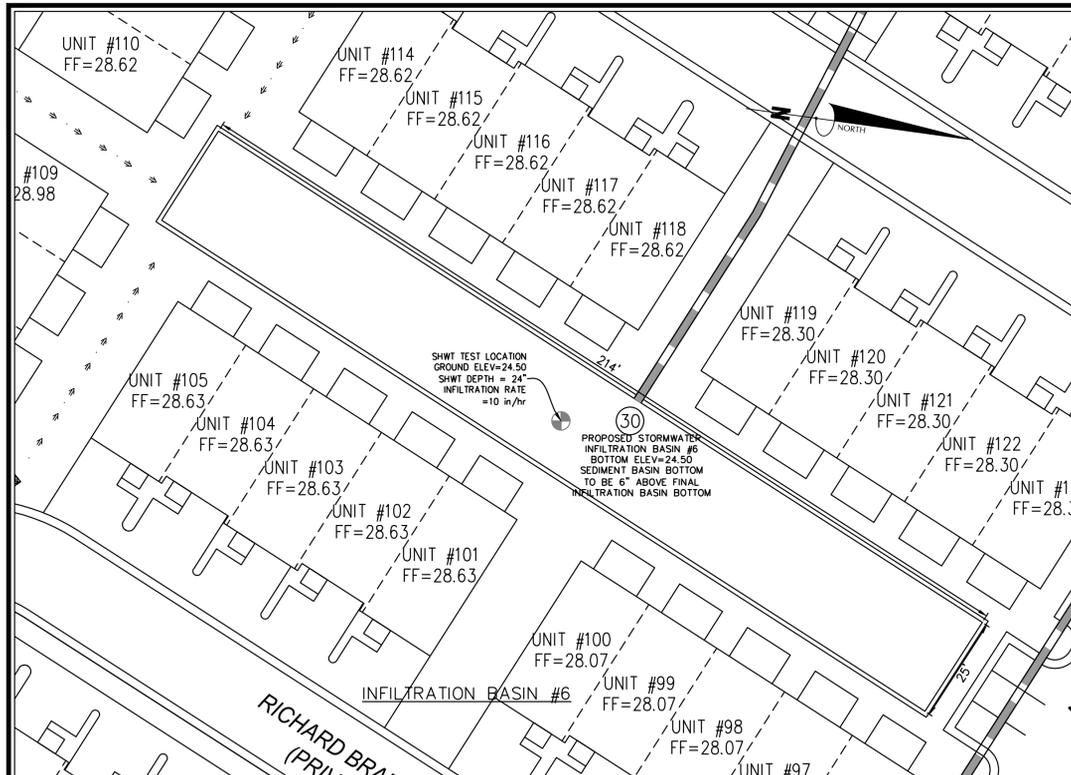
**SUMMERWALK - PHASE 1**  
Wilmington New Hanover County North Carolina

**INFILTRATION BASIN DETAILS**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING  
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

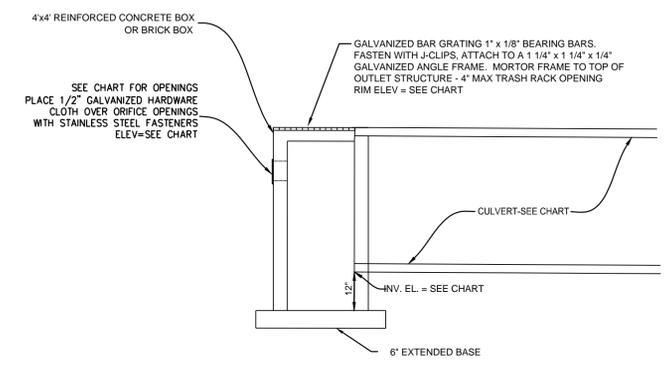
Sheet No.  
**C-6.1**



BASIN	GROUND ELEVATION	SHWT DEPTH	SHWT ELEVATION	BASIN BOTTOM ELEVATION	BASIN DEPTH (FT)	1.5" STORAGE ELEVATION	1.5" STORAGE VOLUME REQ. (CF)	1.5" STORAGE VOLUME PROV. (CF)	EMERGENCY SPILLWAY ELEVATION	100-YEAR ELEVATION	TOP OF BANK ELEVATION
BASIN #3	23.25	26"	20.25	22.25	4.75	23.40	2,353	2,484	PIPE	25.95	27.00
BASIN #5	24.34	21"	22.59	24.59	2.41	25.40	480	501	PIPE	26.58	27.00
BASIN #6	24.50	24"	22.50	24.50	2.50	25.40	4,415	4,784	INF	23.74	27.00
BASIN #7	23.50	48"	19.50	21.50	5.50	23.60	6,623	6,707	PIPE	25.20	28.00

INFILTRATION BASIN CROSS-SECTION  
N.T.S.

- NOTES:**
1. ALL IMPERVIOUS SITE AREA TO BE DRAINED TO PROPOSED STORM SEWER SYSTEM AND DISCHARGED TO INFILTRATION BASIN.
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  4. ESTABLISHED GRASS REQUIRED IN THE SWALES, DITCHES & BANKS OF THE INFILTRATION BASIN PRIOR TO ISSUANCE OF CERTIFICATE OF OCCUPANCY.



OUTLET STRUCTURE DETAIL  
N.T.S.

BASIN	10-YEAR INFILTRATION ELEV @ 1/2 RATE	OUTLET BOX RIM ELEV	CONTROL ORIFICE ELEV	CONTROL ORIFICE LENGTH	CULVERT INVERT	CULVERT SIZE	CULVERT LENGTH	CULVERT SLOPE
BASIN #3	25.38	25.50	N/A	N/A	22.50	15"	7'	3.02%
BASIN #4	26.12	26.20	N/A	N/A	24.76	15"	34'	0.50%
BASIN #5	26.43	26.53	N/A	N/A	24.45	15"	25'	0.50%
BASIN #6	25.90	25.90	N/A	N/A	24.17	15"	175'	0.30%
BASIN #7	24.38	25.00	24.38	3'	22.92	24"	125'	0.30%

OUTLET STRUCTURE INFORMATION  
N.T.S.

**Approved Construction Plan**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

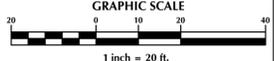
Fire \_\_\_\_\_

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

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

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

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



No.	Revision	Date	By

Designer: GSP  
Scale: 1" = 20'  
Drawn By: GSP  
Date: October 2015  
License #: P-0718  
Job No.: 2015-0006

**SUMMERWALK - PHASE 1**  
Wilmington New Hanover County North Carolina

**INFILTRATION BASIN DETAILS**

PREPARED FOR:  
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Sheet No.  
**C-6.2**

**GENERAL NOTES**

**I. LOCATION OF WHEELCHAIR RAMPS:**

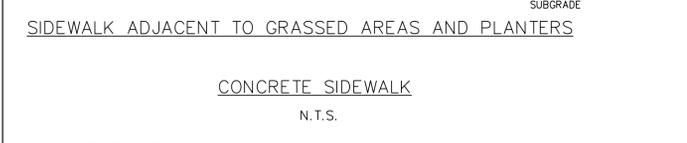
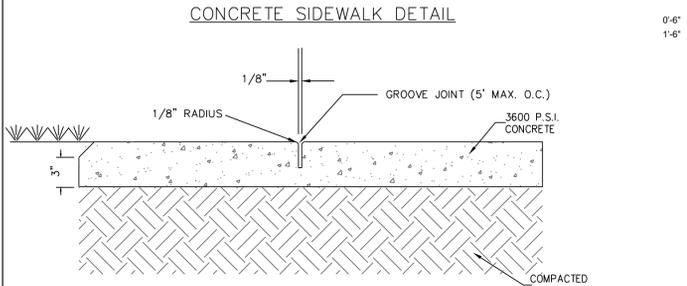
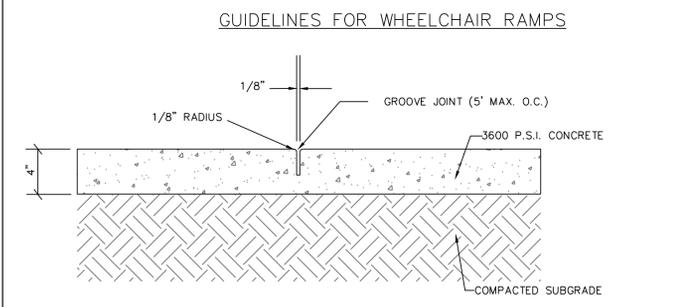
- IN ACCORDANCE WITH THE RATIFIED HOUSE BILL 1296, ALL STREET CURBS IN NORTH CAROLINA BEING CONSTRUCTED OR RECONSTRUCTED FOR MAINTENANCE PROCEDURES, TRAFFIC OPERATIONS, REPAIRS, CORRECTION OF UTILITIES OR ALTERED FOR ANY REASON AFTER SEPTEMBER 1, 1973 SHALL PROVIDE WHEELCHAIR RAMPS FOR THE PHYSICALLY HANDICAPPED AT ALL INTERSECTIONS WHERE BOTH CURB AND GUTTERS AND SIDEWALKS ARE PROVIDED AND AT OTHER MAJOR POINTS OF PEDESTRIAN FLOW.
- WHEELCHAIR RAMPS SHOULD BE LOCATED AS INDICATED IN DETAIL DRAWINGS, HOWEVER EXISTING LIGHT POLES, FIRE HYDRANTS, DROP INLETS, ETC. MAY AFFECT PLACEMENT.

**II. CONSTRUCTION NOTES:**

- NO SLOPE SHALL EXCEED 1"-1" (12:1) ON THE RAMP OR SIDEWALK.
- IN NO CASE SHALL THE WIDTH OF WHEELCHAIR RAMPS BE LESS THAN 40" (3'-4"), WIDTHS MAY EXCEED 40" IF NECESSARY.
- USE CLASS "A" CONCRETE WITH THE SURFACE HAVING A ROUGH, NON-SKID TYPE FINISH.
- 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE CONCRETE WHEELCHAIR RAMP JOINS ANY RIGID PAVEMENT OR STRUCTURE.
- CONSTRUCTION METHODS SHALL CONFORM WITH THOSE OF THE GOVERNING BODY WHICH HAS JURISDICTION OF THE PARTICULAR STREET.

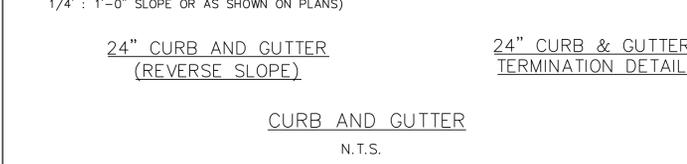
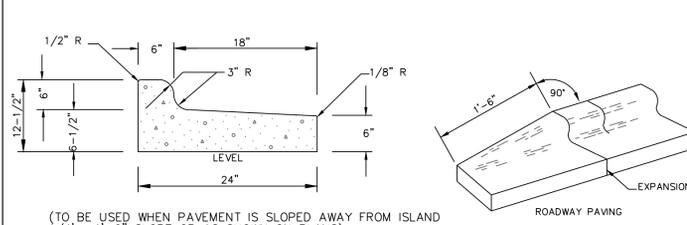
**III. ADDITIONAL NOTES:**

- THE INSIDE PEDESTRIAN CROSSWALK LINES SHALL BE ESTABLISHED BY BISECTING THE INTERSECTION RADII WHERE MARKED (SEE NOTE 6).
- THE WHEELCHAIR RAMP SHALL BE LOCATED SO THAT THE BEGINNING OF THE WHEEL CHAIR RAMP WILL BE TWO FEET FROM THE INSIDE PEDESTRIAN CROSSWALK LINE.
- THE WIDTH OF THE PEDESTRIAN CROSSWALK SHALL BE 10 FEET UNLESS A GREATER WIDTH IS REQUIRED TO ACCOMMODATE THE PEDESTRIAN TRAFFIC.
- 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 REQUIREMENTS.
- PARKING SHALL BE ELIMINATED A MINIMUM OF 20 FEET BACK OF PEDESTRIAN CROSSWALK.
- ALL PAVEMENT MARKINGS SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PUBLISHED BY THE FEDERAL HIGHWAY ADMINISTRATION. THIS IS AVAILABLE FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402.



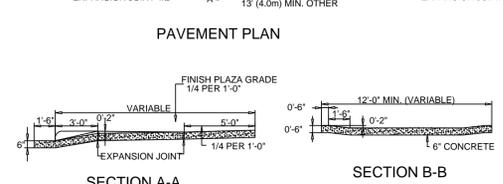
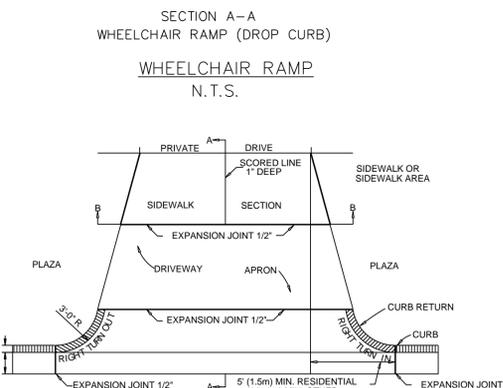
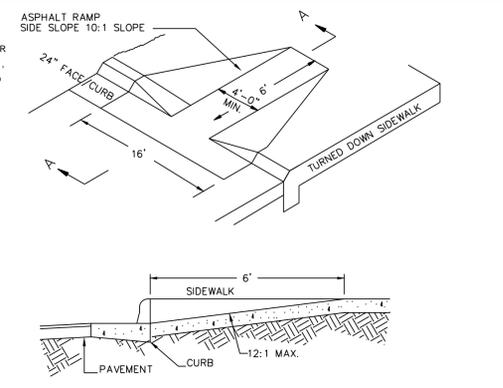
**GENERAL NOTES:**

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

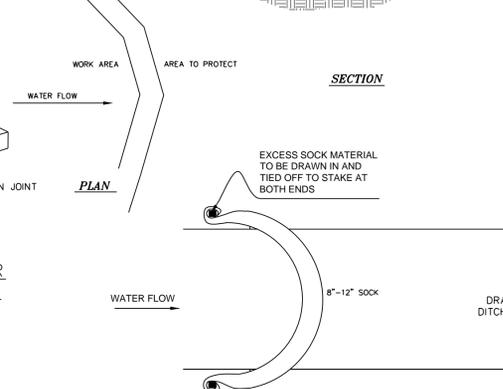
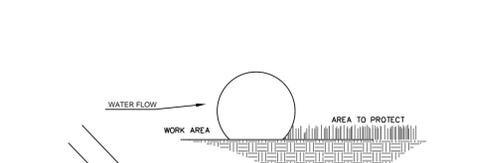


**GENERAL NOTES:**

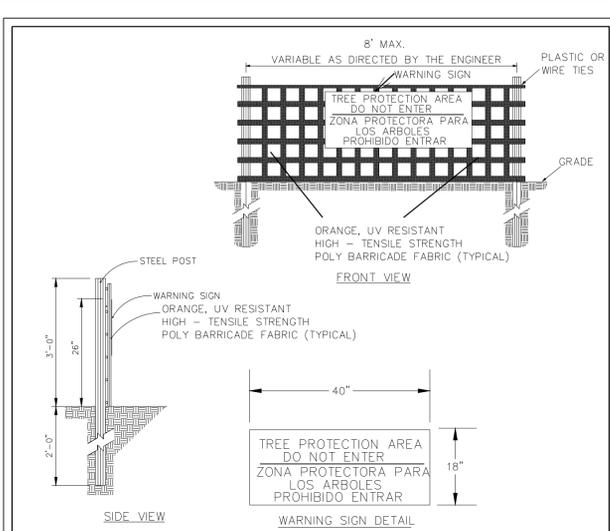
CONTRACTION JOINTS SHALL BE SPACED AT MAX. 10' INTERVALS, EXCEPT THAT A 15 FOOT SPACING MAY BE USED WHEN A MACHINE IS USED OR WHEN SATISFACTORY SUPPORT FOR THE FACE FORM CAN BE OBTAINED WITHOUT THE USE OF TEMPLATES AT 10 FOOT INTERVALS. JOINT SPACING MAY BE ALTERED BY THE ENGINEER TO PREVENT UNCONTROLLED CRACKING. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS, WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1-1/2" SHALL BE OBTAINED. ALL CONTRACTION JOINTS EXCEPT IN 8" X 6" MEDIAN CURB SHALL BE FILLED WITH JOINT SEALER. EXPANSION JOINTS SHALL BE SPACED AT 90' INTERVALS AND ADJACENT TO ALL RIGID OBJECTS.



**STANDARD DRIVEWAY DETAIL**  
SD 8-02  
N.T.S.



**COMPOST FILTER SOCK (OR OTHER COMPARABLE FLUME PROTECTION)**  
N.T.S.



**NOTES:**

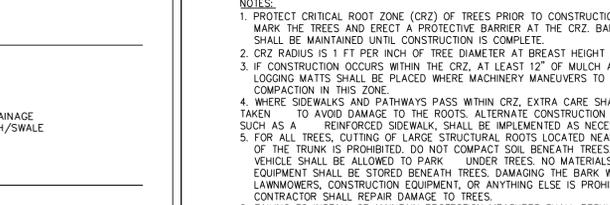
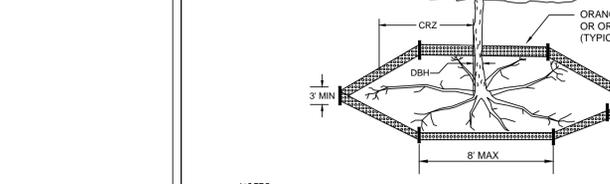
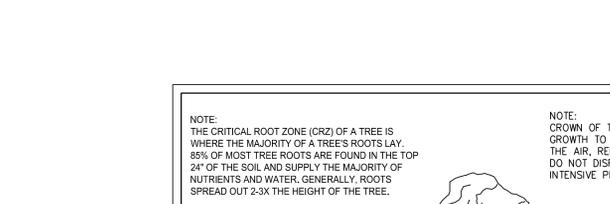
- THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
- WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
- SIGNS SHALL BE PLACED AT 50' MAXIMUM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

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

DATE: JAN, 2015  
DRAWN BY: JSR  
CHECKED BY: RDG, P.E.  
SCALE: NOT TO SCALE

**CITY OF WILMINGTON**  
NORTH CAROLINA  
CITY OF WILMINGTON ENGINEERING  
PO BOX 1810  
WILMINGTON, NC 28402  
(910) 341-7807

SD 15-09



**APPROVED CONSTRUCTION PLAN**

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

Planning \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

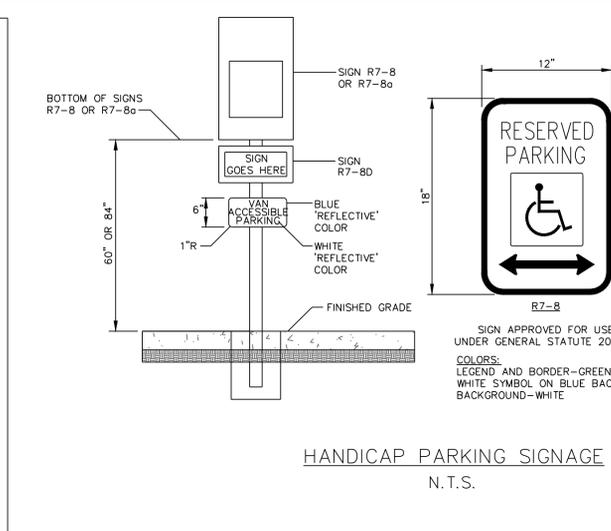
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

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

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

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

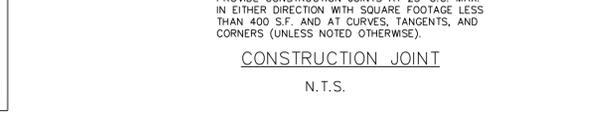
**SEAL**  
031315  
ENGINEER  
CAREY S. PARR  
03/30/2016



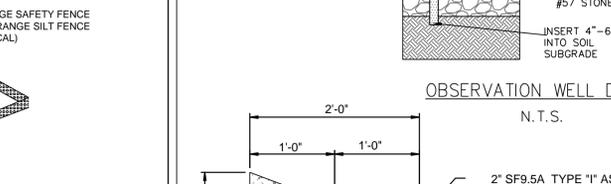
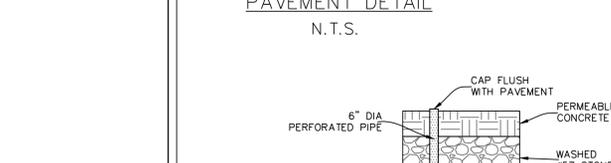
**HANDICAP PARKING SIGNAGE**  
N.T.S.

SIGN APPROVED FOR USE UNDER GENERAL STATUTE 20.37.5

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



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



**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.

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

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

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

**SEAL**  
031315  
ENGINEER  
CAREY S. PARR  
03/30/2016

No.	Revision	Date	By	Designer	Scale
				GSP	1" = 30'
				GSP	October 2015
				P-0718	2015-0006

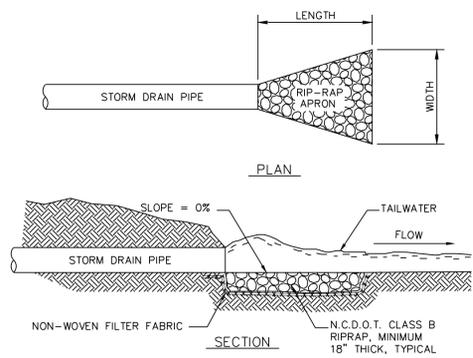
**SUMMERWALK - PHASE 1**  
Wilmington New Hanover County North Carolina

**STANDARD DETAILS**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

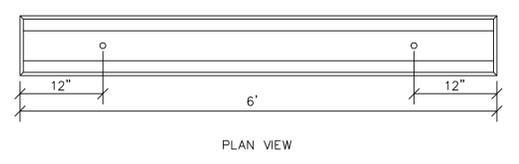
**GSP CONSULTING, PLLC**  
ENGINEERING  
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-7**

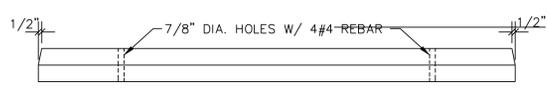


RIPRAP LOCATIONS	LENGTH (FT.)	UPSTREAM WIDTH (FT.)	DOWNSTREAM WIDTH (FT.)
CONC FLUMES	5	5	6
SWALES	8	5	6
36" STORM	18	9	12
48" STORM	24	12	16

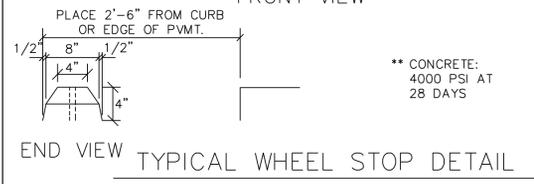
**RIP-RAP OUTLET PROTECTION**  
N.T.S.



PLAN VIEW



FRONT VIEW



END VIEW TYPICAL WHEEL STOP DETAIL

**PERVIOUS CONCRETE CONSTRUCTION SEQUENCE:**

CONTRACTORS NOT FAMILIAR WITH PERMEABLE PAVEMENT ARE ACCUSTOMED TO COMPACTING PAVEMENT SOIL SUBGRADES TO INCREASE STRUCTURAL STRENGTH. HOWEVER, THIS IS IN DIRECT OPPOSITION TO THE CORRECT TREATMENT OF SOIL BENEATH PERMEABLE PAVEMENT FOR AN INFILTRATING DESIGN. A PRECONSTRUCTION MEETING IS HIGHLY RECOMMENDED TO ENSURE CONTRACTORS UNDERSTAND THE NEED TO PREVENT SUBGRADE COMPACTION AND CLOGGING OF THE PERMEABLE PAVEMENT ARE COMPLETED.

**CONSTRUCTION STEP 1: ENSURE ACCEPTABLE CONDITIONS FOR CONSTRUCTION**

DO NOT BEGIN CONSTRUCTION ON PERMEABLE PAVEMENT UNTIL ACCEPTABLE CONDITIONS ARE PRESENT. THIS INCLUDES THE FOLLOWING ITEMS:  
 PERVIOUS SURFACES ARE GRADED SO THAT THEY DO NOT DISCHARGE TO THE PERMEABLE PAVEMENT, EXCEPT FOR INSTANCES WHEN THIS IS UNAVOIDABLE, SUCH AS REDEVELOPMENT PROJECTS.  
 IMPERVIOUS AREAS THAT WILL DRAIN TO THE PERMEABLE PAVEMENT ARE COMPLETED.  
 AREAS OF THE SITE ADJACENT TO THE PERMEABLE PAVEMENT ARE STABILIZED WITH VEGETATION, MULCH, STRAW, SEED, SOIL, FIBER BLANKETS OR OTHER APPROPRIATE COVER IN ORDER TO PREVENT EROSION AND POSSIBLE CONTAMINATION WITH SEDIMENTS.  
 CONSTRUCTION ACCESS TO OTHER PORTIONS OF THE SITE IS ESTABLISHED SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE DURING INSTALLATION. INSTALL BARRIERS OR FENCES AS NEEDED.  
 THE FORECAST CALLS FOR A WINDOW OF DRY WEATHER TO PREVENT EXCESS COMPACTION OR SMEARING OF THE SOIL SUBGRADE WHILE IT IS EXPOSED.  
 ALL PERMEABLE PAVEMENT AREAS ARE CLEARLY MARKED ON THE SITE.

**CONSTRUCTION STEP 2: EXCAVATE THE PAVEMENT AREA AND PREPARE SUBGRADE SURFACE**

CLEAR AND EXCAVATE THE AREA FOR PAVEMENT AND BASE COURSES WHILE PROTECTING AND MAINTAINING SUBGRADE INFILTRATION RATES USING FOLLOWING THESE STEPS:  
 EXCAVATE IN DRY SUBGRADE CONDITIONS AND AVOID EXCAVATING IMMEDIATELY AFTER STORMS WITHOUT A SUFFICIENT DRYING PERIOD.  
 DO NOT ALLOW EQUIPMENT TO CROSS THE PAVEMENT AREA AFTER EXCAVATION HAS BEGUN.  
 OPERATE EXCAVATION EQUIPMENT FROM OUTSIDE THE PAVEMENT AREA OR FROM UNEXCAVATED PORTIONS OF THE AREA USING AN EXCAVATION STAGING PLAN.  
 USE EQUIPMENT WITH TRACKS RATHER THAN TIRES TO MINIMIZE SOIL COMPACTION WHEN EQUIPMENT ON THE SUBGRADE SURFACE IS UNAVOIDABLE.  
 DIG THE FINAL 9 TO 12 IN. BY USING THE TEETH OF THE EXCAVATOR BUCKET TO LOOSEN SOIL AND DO NOT SMEAR THE SUBGRADE SOIL SURFACE. FINAL GRADING OR SMOOTHING OF THE SUBGRADE SHOULD BE DONE BY HAND IF POSSIBLE.  
 MINIMIZE THE TIME BETWEEN EXCAVATION AND PLACEMENT OF THE AGGREGATE.  
 THE FINAL SUBGRADE SLOPE SHALL NOT EXCEED 0.5% THE SLOPE OF THE SUBGRADE SHALL BE CHECKED BEFORE PROCEEDING.

AFTER VERIFYING THE SUBGRADE SLOPE, SCARIFY, RIP OR TRENCH THE SOIL SUBGRADE SURFACE OF INFILTRATING PAVEMENT SYSTEMS TO MAINTAIN THE SOIL'S PRE-DISTURBANCE INFILTRATION RATE. THESE TREATMENTS MUST OCCUR WHILE THE SOIL IS DRY. TO SCARIFY THE PAVEMENT, USE BACKHOE BUCKET'S TEETH TO RAKE THE SURFACE OF THE SUBGRADE. TO RIP THE SUBGRADE, USE A SUBSOIL RIPPER TO MAKE PARALLEL RIPS 6 TO 9 IN. DEEP SPACED 3 FT APART ALONG THE LENGTH OF THE PERMEABLE PAVEMENT EXCAVATION AS SHOWN IN FIGURE 18-16. IN SILTY OR CLAYEY SOILS, CLEAN COARSE SAND MUST BE PLACED OVER THE RIPPED SURFACE TO KEEP IT FREE-FLOWING (BROWN AND HUNT 2009). THE SAND LAYER SHOULD BE ADEQUATE TO FILL THE RIPS.

AN ALTERNATIVE TO SCARIFICATION AND RIPPING IS TRENCHING. SEE FIGURE 18-17. IF TRENCHING, THEN PARALLEL TRENCHES 12 IN. WIDE BY 12 IN. DEEP SHALL BE MADE ALONG THE LENGTH OF THE PERMEABLE PAVEMENT EXCAVATION. EXCAVATE TRENCHES EVERY 6 FT (MEASURED FROM CENTER TO CENTER OF EACH TRENCH) AND FILL WITH 1/2 IN. OF CLEAN COARSE SAND AND 1 1/2 IN. OF ASTM NO. 67 AGGREGATE (BROWN AND HUNT 2009).

**CONSTRUCTION STEP 3: PLACE GEOTEXTILES AND GEOMEMBRANE (IF APPLICABLE)**

IF THE SOILS ENGINEER REQUIRES USING GEOTEXTILES OR GEOMEMBRANES, THEN FOLLOW THE MANUFACTURER'S RECOMMENDATIONS SO FOR THE APPROPRIATE OVERLAP BETWEEN ROLLS OF MATERIAL. SECURE GEOTEXTILE OR GEOMEMBRANE SO THAT IT WILL NOT MOVE OR WRINKLE WHEN PLACING AGGREGATE.

**CONSTRUCTION STEP 4: PLACE OBSERVATION WELLS**

PLACE THE OBSERVATION WELLS ACCORDING TO THE DESIGN PLANS AND VERIFY THAT THE ELEVATIONS ARE CORRECT.

**CONSTRUCTION STEP 5: PLACE AGGREGATE BASE**

INSPECT ALL STONE TO INSURE THAT IT IS CLEAN, FREE OF FINES AND CONFORMS TO THE PLANS AND SPECIFICATIONS. ALL AGGREGATES SHOULD BE STOCKPILED ON AN IMPERVIOUS SURFACE, GEOTEXTILE, OR OTHER IMPERVIOUS MATERIAL, TO KEEP THE AGGREGATE FREE OF FINE SEDIMENT. IF AGGREGATE BECOMES CONTAMINATED WITH SEDIMENT, THEN IT SHALL BE REPLACED WITH CLEAN MATERIALS. REMOVE ANY ACCUMULATION OF SEDIMENTS ON THE FINISHED SOIL SUBGRADE WITH LIGHT, TRACKED EQUIPMENT. IF THE EXCAVATED SUBGRADE SURFACE IS SUBJECTED TO RAINFALL BEFORE PLACEMENT OF THE AGGREGATE BASE, THE RESULTING SURFACE CRUST MUST BE EXCAVATED TO AT LEAST AN ADDITIONAL 2 IN. DEPTH, RAKED OR SCARIFIED TO BREAK UP THE CRUST. FOR SITES WITH AN IMPERMEABLE LINER OR GEOTEXTILES, REMOVE ANY ACCUMULATED SEDIMENTS AND CHECK PLACEMENT. SLOPES AND ELEVATIONS SHALL BE CHECKED ON THE SOIL SUBGRADE AND THE FINAL BEDDING MATERIAL TO ASSURE THEY CONFORM TO THE PLANS AND SPECIFICATIONS.

ALL AGGREGATE SHALL BE SPREAD (NOT DUMPED) BY A FRONT-END LOADER OR FROM DUMP TRUCKS DEPOSITING FROM NEAR THE EDGE OF THE EXCAVATED AREA OR RESTING DIRECTLY ON DEPOSITED AGGREGATE PILES. MOISTEN AND SPREAD THE WASHED STONE WITHOUT DRIVING ON THE SOIL SUBGRADE AND BEING CAREFUL NOT TO DAMAGE THE OBSERVATION WELLS.

**CONSTRUCTION STEP 6: INSTALL CURB RESTRAINTS AND PAVEMENT BARRIERS**

EDGE RESTRAINTS AND BARRIERS BETWEEN PERMEABLE AND IMPERVIOUS PAVEMENT SHALL BE INSTALLED. BEFORE MOVING ON TO CONSTRUCTION STEP 9, BE CERTAIN THAT THE DESIGN AND INSTALLATION ARE CONSISTENT.

**CONSTRUCTION STEP 7: INSTALL BEDDING AND PAVEMENT COURSES**

PC PAVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF ACI 522.1 SPECIFICATION FOR PERVIOUS CONCRETE. IT IS REQUIRED THAT THE CONTRACTOR INSTALLING THE PERVIOUS CONCRETE MEET THE REQUIREMENTS OUTLINED IN THE LATEST VERSION OF ACI 522.1. INSTALLATION OF PC MAY BE ACCOMPLISHED USING EITHER THE ONE-STEP OR THE TWO-STEP METHOD. THE TWO-STEP METHOD IS MORE COMMONLY USED AND CONSISTS OF THE STEPS OF STROKE-OFF FROM PERVIOUS CONCRETE COMPACTION. IN THIS METHOD, THE PERVIOUS CONCRETE USUALLY REQUIRES A MORE TRADITIONAL, STIFFER MIX. THE ONE-STEP METHOD USES A COUNTER-ROTATING ROLLER SCREENED TO SIMULTANEOUSLY STRIKE-OFF AND COMPACT THE PERVIOUS CONCRETE. THIS METHOD REQUIRES PERVIOUS CONCRETE WITH A MORE FLOWABLE MIX SO THAT THE SCREEN CAN MORE ADEQUATELY COMPACT THE MIXTURE. BOTH METHODS REQUIRE DENSE- PASTE PERVIOUS CONCRETE MIXTURES. THESE MIXES ARE DEFINED BY CHEMICAL ADJUTURES THAT REDUCE THE VISCOSITY OF THE CEMENT PASTE SO THAT IT WILL STICK TO AND NOT RUN OFF THE AGGREGATES. THE MIXES PROVIDE GREATER COHESION THAT INCREASES STRENGTH AND DURABILITY.

**CONSTRUCTION STEP 8: PROTECT THE PAVEMENT THROUGH PROJECT COMPLETION**

THE PERMEABLE PAVEMENT SHALL BE INSTALLED AT THE END OF THE SITE CONSTRUCTION TIMELINE. THE SITE CONTRACTOR MUST PROTECT THE PERMEABLE PAVEMENT UNTIL PROJECT COMPLETION. THIS SHALL BE DONE BY:  
 ROUTE CONSTRUCTION ACCESS THROUGH OTHER PORTIONS OF THE SITE SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE. INSTALL BARRIERS OR FENCES AS NEEDED. PROTECT THE PAVEMENT PER THE CONSTRUCTION DOCUMENTS. TECHNIQUES THAT MAY BE SPECIFIED INCLUDE MATS, PLASTIC SHEETING, BARRIERS TO LIMIT ACCESS, OR MOVING THE STABILIZED CONSTRUCTION ENTRANCE.  
 SCHEDULE STREET SWEEPING DURING AND AFTER CONSTRUCTION TO PREVENT SEDIMENT FROM ACCUMULATING ON THE PAVEMENT.

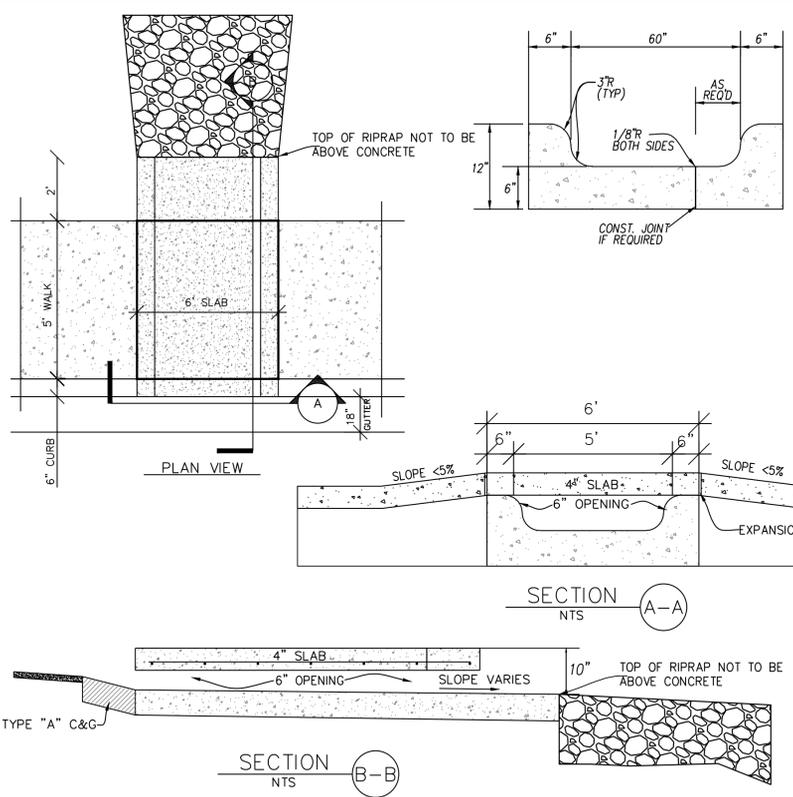
**CONSTRUCTION STEP 9: AS-BUILT INSPECTION**

AFTER INSTALLATION, AN APPROPRIATELY LICENSED NC DESIGN PROFESSIONAL SHALL PERFORM A FINAL AS-BUILT INSPECTION AND CERTIFICATION THAT INCLUDES:  
 ENSURING THAT THE PAVEMENT IS INSTALLED PER THE PLANS AND SPECIFICATIONS.  
 ENSURING THAT THE SURFACE IS NOT DAMAGED, FREE FROM FINES AND SEDIMENT.  
 CHECKING THAT ALL PERVIOUS SURFACES DRAIN AWAY FROM THE PAVEMENT AND THAT SOIL AROUND THE PAVEMENT IS STABILIZED WITH VEGETATION.  
 PREPARING THE AS-BUILT PLANS THAT INCLUDE ANY CHANGES TO THE OBSERVATION WELL LOCATIONS, TERRACE LAYOUTS, AGGREGATE DEPTH OR STORAGE STRUCTURES, ANY REVISED CALCULATIONS, ETC.  
 TESTING THE PAVEMENT SURFACE PERMEABILITY USING THE NCSD SMPLE INFILTRATION TEST (SEE MAINTENANCE SECTION 18.6.4) OR OTHER APPROPRIATE TEST SUCH AS ASTM C1701 STANDARD TEST METHOD FOR INFILTRATION RATE OF IN-PLACE PERVIOUS CONCRETE. ANY DEFICIENCIES FOUND DURING THE AS-BUILT INSPECTION SHALL BE PROMPTLY ADDRESSED AND CORRECTED.

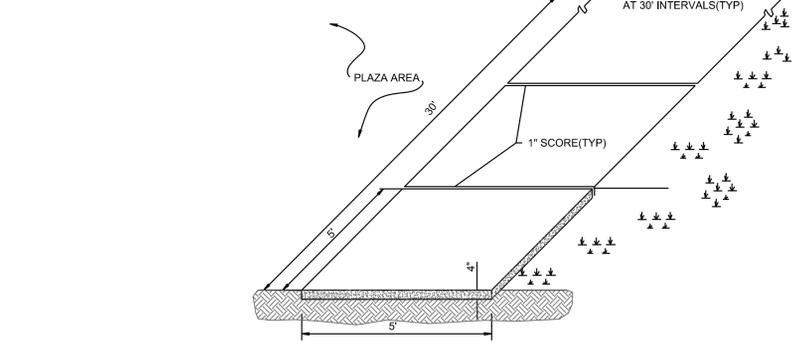
**SEQUENCE OF CONSTRUCTION**

LIMITS OF CONSTRUCTION = 1.85 ACRES

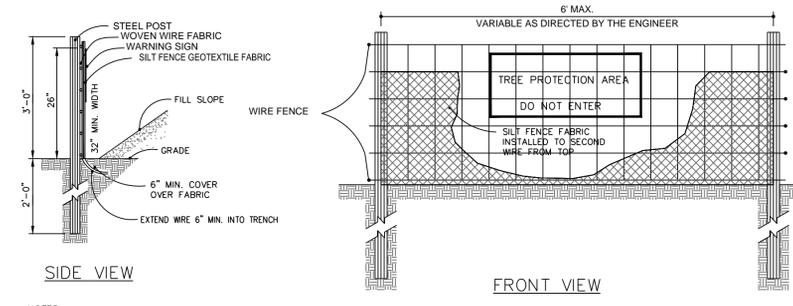
1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON EROSION & SEDIMENT CONTROL PLAN.
2. INSTALL PERIMETER CONTROLS (TEMPORARY SILT FENCE, TREE PROTECTION FENCING, SEDIMENT BASIN) AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN. THIS STEP NEEDS TO BE COMPLETED PRIOR TO UPSLOPE LAND DISTURBING ACTIVITIES.
3. THE PROPOSED INFILTRATION BASIN WILL ACT AS A SEDIMENT BASIN DURING CONSTRUCTION ACTIVITIES.
4. ONCE PERIMETER CONTROLS AND SEDIMENT TRAPPING MEASURES ARE INSTALLED CLEAR AND GRUB SITE WITHIN LIMITS OF DISTURBANCE. THE SEDIMENT BASIN WILL BE PUMPED DOWN BY MECHANICAL MEANS AS NEEDED TO MUCK OUT SEDIMENT WHEN THE SEDIMENT REACHES 50% CAPACITY.
5. UPON BRINGING THE SITE TO ROUGH GRADE, STABILIZE ALL AREAS WITH TEMPORARY VEGETATION IF LEFT UNDISTURBED FOR 15 WORKING DAYS AND ALL SLOPES WITHIN 21 CALENDAR DAYS.
6. ONCE THE PARKING AREAS, SANITARY SEWERS, WATERLINES AND STORM SEWERS ARE IN PLACE, INSTALL INLET PROTECTION AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN.
7. UPON BRINGING THE PARKING AREA TO SUBGRADE ELEVATIONS, STABILIZE THE AREAS BY PLACING STONE BASE AS EARLY AS POSSIBLE. PERMEABLE PAVEMENT TO BE INSTALLED AS CLOSE TO THE END OF CONSTRUCTION AS POSSIBLE IN ORDER TO AVOID CLOGGING OF THE SYSTEM.
8. FOR TEMPORARY VEGETATIVE STABILIZATION OF ALL DENUDED AREAS SEE NOTE REFERENCING THE EROSION CONTROL PROGRAM AND SPECIFICATIONS ON SHEET C-1.
9. AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED, MECHANICAL SEDIMENT CONTROLS SHALL BE REMOVED. SEDIMENT FROM TEMPORARY SEDIMENT TRAPPING DEVICES SHALL BE DISPOSED OF BY SPREADING ON THE SITE OR HAULING AWAY IF NOT SUITABLE FOR FILL. ALL DENUDED AREAS ARE TO BE PERMANENTLY STABILIZED WITH PERMANENT VEGETATION.



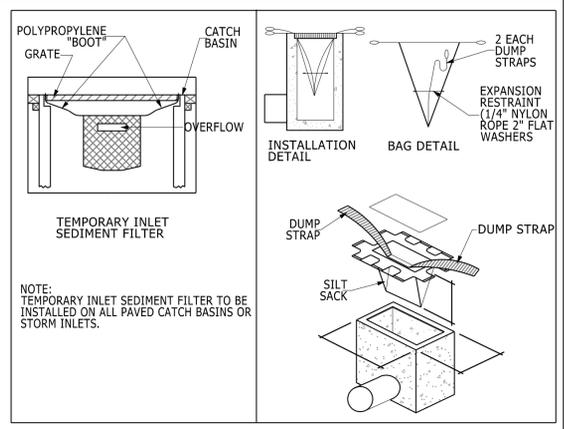
**STORM DRAINAGE FLUME**  
N.T.S.



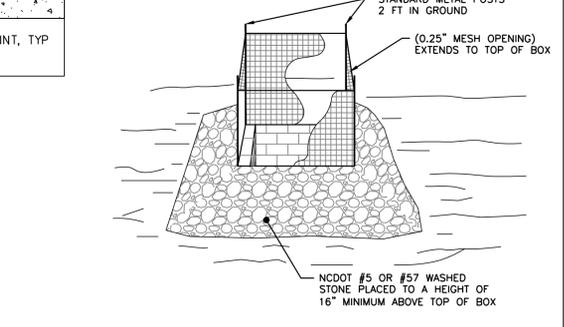
**STANDARD SIDEWALK DETAIL**  
SD 8-15  
NOT TO SCALE



**STANDARD TEMPORARY SILT / TREE PROTECTION FENCE**  
N.T.S.



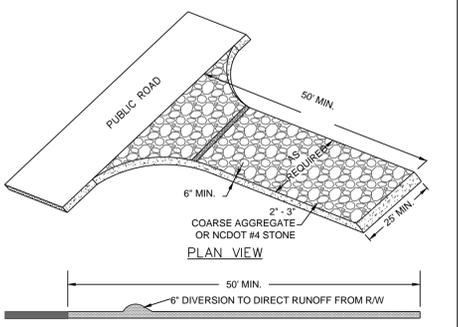
**TEMPORARY INLET SEDIMENT FILTER**  
NOTE: TEMPORARY INLET SEDIMENT FILTER TO BE INSTALLED ON ALL PAVED CATCH BASINS OR STORM INLETS.



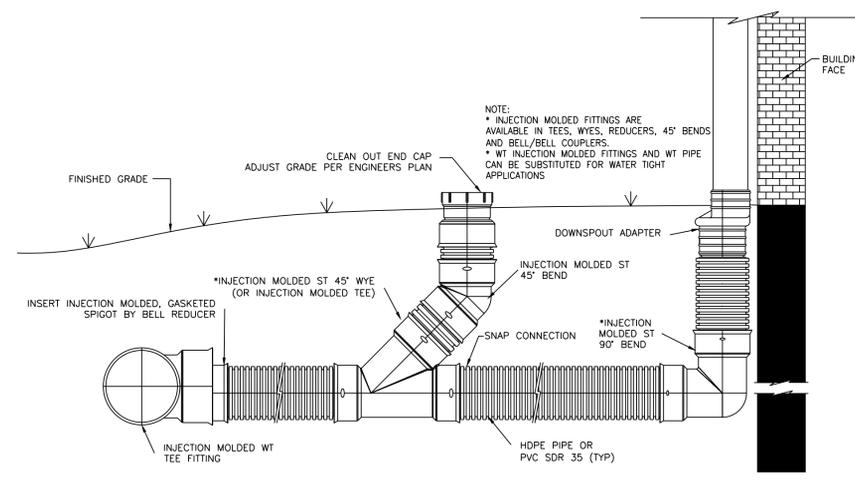
**SILT SACK DETAIL**  
NOT TO SCALE

- 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 MIN HEIGHT OF 16 INCHES AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.

**STANDARD INLET PROTECTION**  
NOT TO SCALE



**TEMPORARY CONSTRUCTION ENTRANCE**  
N.T.S.



**ROOF DRAIN DETAIL WITH CLEANOUT**  
N.T.S.

**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.

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

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

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

**PROFESSIONAL SEAL**  
031315  
ENGINEER  
CARY S. PIER  
03/16/2016

No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**

Wilmington North Carolina  
New Hanover County

**STANDARD DETAILS**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**C-8**



- LANDSCAPE AREAS**
- STREET YARD LANDSCAPING
  - FOUNDATION LANDSCAPING

- TREE LEGEND / INVENTORY**
- DOGWOOD
  - GUM
  - OAK
  - CREPE MYRTLE
  - SYCAMORE
  - PINE
  - BIRCH
  - ELM
  - MAGNOLIA
  - MAPLE
  - POPLAR
  - HICKORY

**Plant Key**

**Trees**

- EJ (LOQUAT TREE)
- QV (LIVE OAK)
- SP (PALM TREE)

**Shrubs**

- IC (CARISSA HOLLY)
- JH (DWARF YOUPON HOLLY)
- LJ (SKY PENCIL)
- PM (JAPANESE YEW)

BUFFER TO BE COMPRISED OF RELOCATED TREES SPACED AT 30' & ELAEAGNUS PUNGENS SHRUBS SPACED AT 6'

John & Elise Sikes (eta)  
6817 Greenville Loop Road  
LAND USE : RESIDENCE

ZONED R-15

S 86°16'01" W 580.22'  
n/f

2-QV  
13-LJ  
(1,247 Sqft)

5-QV  
30-LJ  
(3,722 Sqft)

2-QV  
12-LJ  
(1,819 Sqft)

20'x70' SIGHT TRIANGLE (NO VISUAL OBSTRUCTION BETWEEN 30' & 10')

20'x70' SIGHT TRIANGLE (NO VISUAL OBSTRUCTION BETWEEN 30' & 10')

**Approved Construction Plan**

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

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

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

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

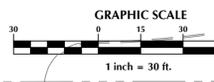
**CITY OF WILMINGTON**  
NORTH CAROLINA  
Public Services • Engineering Division  
APPROVED STORMWATER MANAGEMENT PLAN

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

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

**EXXON Gas Station**  
Springer-Eubank Company, Inc.  
D.B. 1350, Pg. 752  
ZONED O & I  
LAND USE : GAS STATION

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



No.	Revision	Date	By

Designer	GSP	Scale	1" = 30'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**  
New Hanover County North Carolina

**LANDSCAPE PLAN**

PREPARED FOR:  
Summerwalk Development, LLC  
6105 Oleander Drive  
Suite 201  
Wilmington, NC 28403

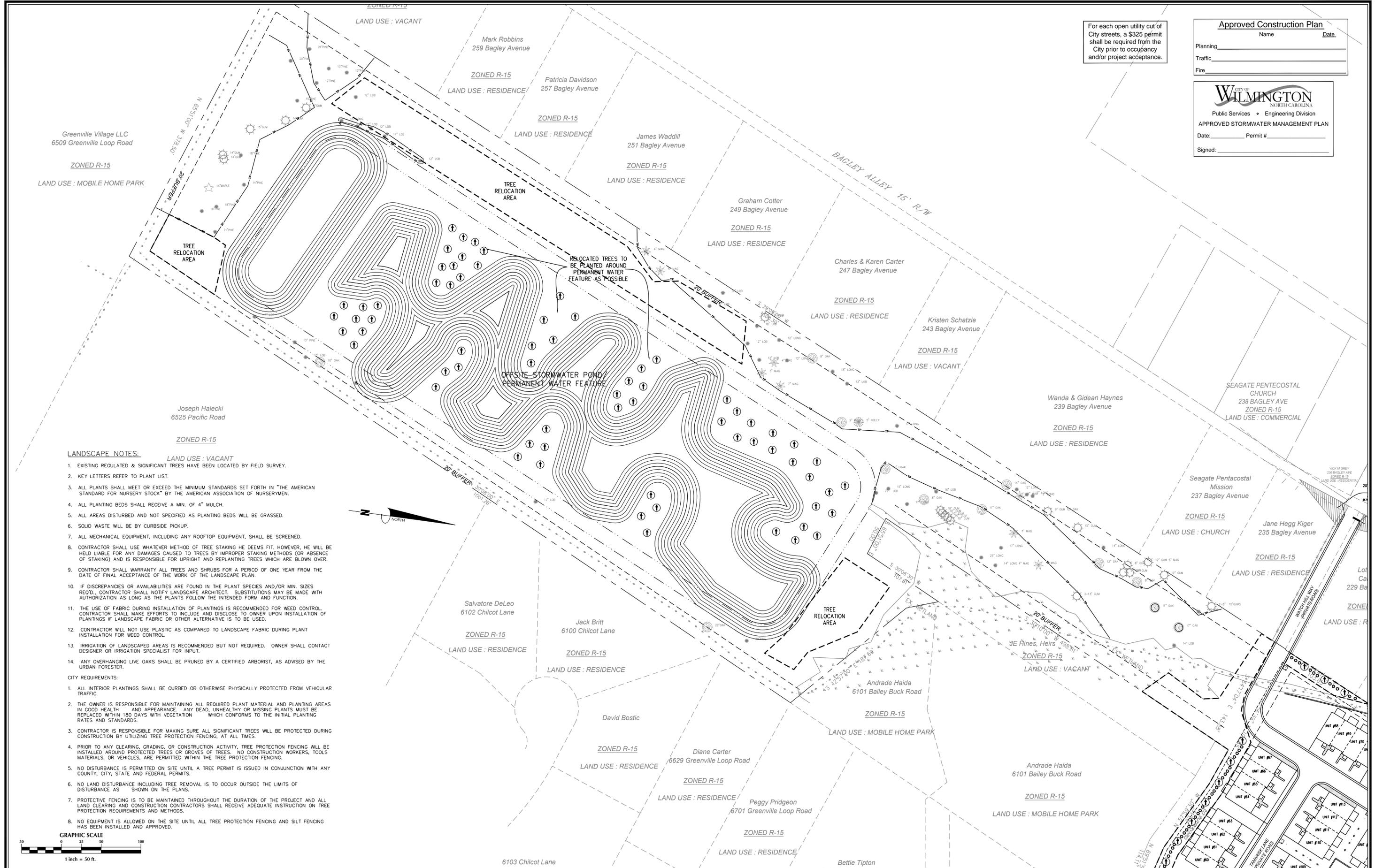
**GSP CONSULTING, PLLC**  
ENGINEERING  
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**L-1**



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	
 Public Services • Engineering Division <b>APPROVED STORMWATER MANAGEMENT PLAN</b> Date: _____ Permit # _____ Signed: _____	



**LANDSCAPE NOTES:**

- EXISTING REGULATED & SIGNIFICANT TREES HAVE BEEN LOCATED BY FIELD SURVEY.
- KEY LETTERS REFER TO PLANT LIST.
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**CITY REQUIREMENTS:**

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- THE OWNER IS RESPONSIBLE FOR MAINTAINING ALL REQUIRED PLANT MATERIAL AND PLANTING AREAS IN GOOD HEALTH AND APPEARANCE. ANY DEAD, UNHEALTHY OR MISSING PLANTS MUST BE REPLACED WITHIN 180 DAYS WITH VEGETATION WHICH CONFORMS TO THE INITIAL PLANTING RATES AND STANDARDS.
- CONTRACTOR IS RESPONSIBLE FOR MAKING SURE ALL SIGNIFICANT TREES WILL BE PROTECTED DURING CONSTRUCTION BY UTILIZING TREE PROTECTION FENCING, AT ALL TIMES.
- 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.
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- NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.

No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**  
 LANDSCAPE PLAN  
 Wilmington New Hanover County North Carolina

**LANDSCAPE PLAN**

PREPARED FOR:  
 Summerwalk Development, LLC  
 6105 Oleander Drive  
 Suite 201  
 Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
 ENGINEERING  
 6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**L-3**

TYPICAL FOUNDATION PLANTINGS

KEY	NO.	BOTANICAL NAME	COMMON NAME	MIN. SIZE	PLANTING REMARKS
SP	120	SABAL PALMETTO	PALM TREE	8'-10" HL.	SPACING AS SHOWN
QV	9	QUERCUS VIRGINIANA	LIVE OAK	8'-10" HL. 2.5" CAL.	SPACING AS SHOWN
EJ	120	ERIBOTRYA JAPONICA	LOQUAT TREE	3.4 GAL.	SPACING AS SHOWN
PM	379	PODOCARPUS MACROPHYLLUS	JAPANESE YEW	2 GAL.	SPACING AS SHOWN
IC	426	ILEX CORNUTA 'CARISSA'	CARISSA HOLLY	3 GAL.	4' O.C.
JH	104	ILEX CRENATA 'JAPANESE HOLLY'	SKY PENCIL	3 GAL.	4' O.C.
LJ	55	LIGUSTRUM JAPONICUM	JAPANESE PRIVET	2 GAL.	4' O.C.
EP	180	ELAEAGNUS PUNGENS	THORNY ELAEAGNUS	8'-12" HGT.	6'-8" O.C.

O.C. - "ON CENTER" CAL. - "CALIPER AT 6" ABOVE GRADE" GAL. - "GALLON CONTAINER"  
MIN. PLANTING SIZE: SHADE TREES=2-2.5" CAL. MULTI-STEM= 8-10" SHRUBS= 12"

Plant Key

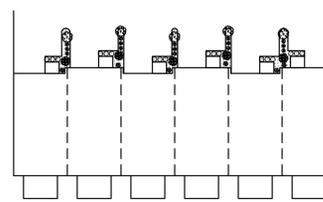
Trees

- EJ (LOQUAT TREE)
- QV (LIVE OAK)
- SP (PALM TREE)

Shrubs

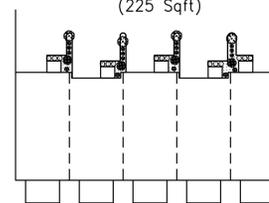
- IC (CARISSA HOLLY)
- JH (DWARF YOUNPON HOLLY)
- LJ (SKY PENCIL)
- PM (JAPANESE YEW)
- EP (THORNY ELAEAGNUS)

5-EJ  
15-PM  
5-SP  
18-IC  
6-JH  
(284 Sqft)



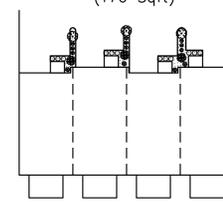
6-UNIT

4-EJ  
12-PM  
4-SP  
15-IC  
5-JH  
(225 Sqft)



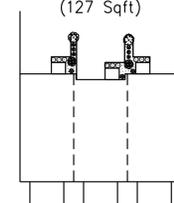
5-UNIT

3-EJ  
9-PM  
3-SP  
12-IC  
4-JH  
(176 Sqft)



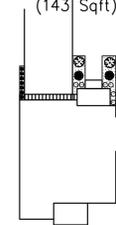
4-UNIT

2-EJ  
6-PM  
2-SP  
9-IC  
3-JH  
(127 Sqft)

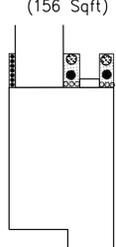


3-UNIT

2-EJ  
7-PM  
2-SP  
6-IC  
(143 Sqft)



2-EJ  
7-PM  
2-SP  
6-IC  
(156 Sqft)



	Req'd.	Prov'd.
Oleander Drive Streetyard 503 l.f. frontage = 58' driveways =4451 l.f. X 18 (CB District factor)	8,010 s.f.	TO BE COMPLETED WITH PHASE 2
● 1 tree / 600 s.f. ● 6 shrubs / 600 s.f.	13 80	
Greenville Loop Road Secondary Streetyard 732 l.f. frontage = 120' driveways =612 l.f. X 9 (MF District factor)	5,508 s.f.	6,793 s.f.
● 1 tree / 600 s.f. ● 6 shrubs / 600 s.f.	9 55	9 55
Bufferyards - 1,460 l.f. buffer length ● 1 tree / 30 l.f.	49	49
Foundation Plantings - TOWNHOME BUILDINGS - 2,198 l.f. X 30' facade X 12% SINGLE FAMILY HOMES - 682 l.f. X 35' facade X 12%	7,913 s.f. 2,864 s.f. 10,777 s.f. (TOTAL)	9,100 s.f. 2,873 s.f. 11,973 s.f. (TOTAL)
Overall Development Area - 20.19 ac.± Phase 1 development area x 15 trees/ac.	303	173 PROPOSED 216 EXISTING 168 RELOCATED 557 TOTAL

(Note: All regulated & significant trees have been field located and are labeled.)

TREE TO BE REMOVED	DIAMETER (in)	# OF TREES REQUIRED
MAGNOLIA	12	8
MAGNOLIA	18	12
SYCAMORE	27	18
<b>TOTAL</b>		<b>38*</b>

\*EXISTING TREES 2"-5" DBH TO BE RETAINED ON SITE AND SUPPLEMENTED WITH 168 RELOCATED TREES

TREE TO BE REMOVED	# OF TREES	# OF TREES REQUIRED
12" MAGNOLIA	1	8
18" MAGNOLIA	1	12
11" OAK	1	4
12" OAK	1	4
13" OAK	1	4
16" OAK	1	5
12" PINE	35	70
13" PINE	7	15
14" PINE	4	9
15" PINE	2	5
16" PINE	5	13
17" PINE	1	3
18" PINE	3	9
19" PINE	1	3
21" PINE	1	4
22" PINE	1	4
25" PINE	1	4
<b>TOTAL</b>		<b>177*</b>

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Approved Construction Plan

Name \_\_\_\_\_ Date \_\_\_\_\_  
 Planning \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_



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

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

No.	Revision	Date	By

Designer	GSP	Scale	1" = 50'
Drawn By	GSP	Date	October 2015
License #	P-0718	Job No.	2015-0006

**SUMMERWALK - PHASE 1**  
 Wilmington New Hanover County North Carolina

LANDSCAPING DETAILS

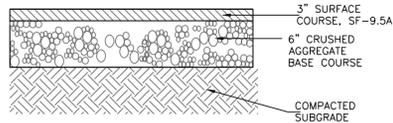
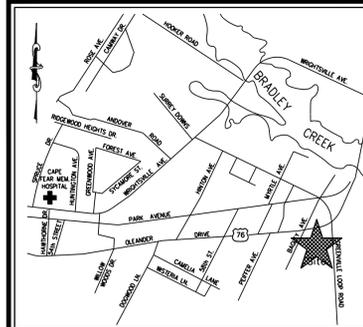
PREPARED FOR:  
 Summerwalk Development, LLC  
 6105 Oleander Drive  
 Suite 201  
 Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
 ENGINEERING

6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.

**L-4**



PAVEMENT DETAIL  
N.T.S.

NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT NCDOT STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. SPEED LIMIT ON OLEANDER DRIVE IS 45 MPH.
4. SPEED LIMIT ON GREENVILLE LOOP ROAD IS 45 MPH.

NOTES:

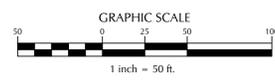
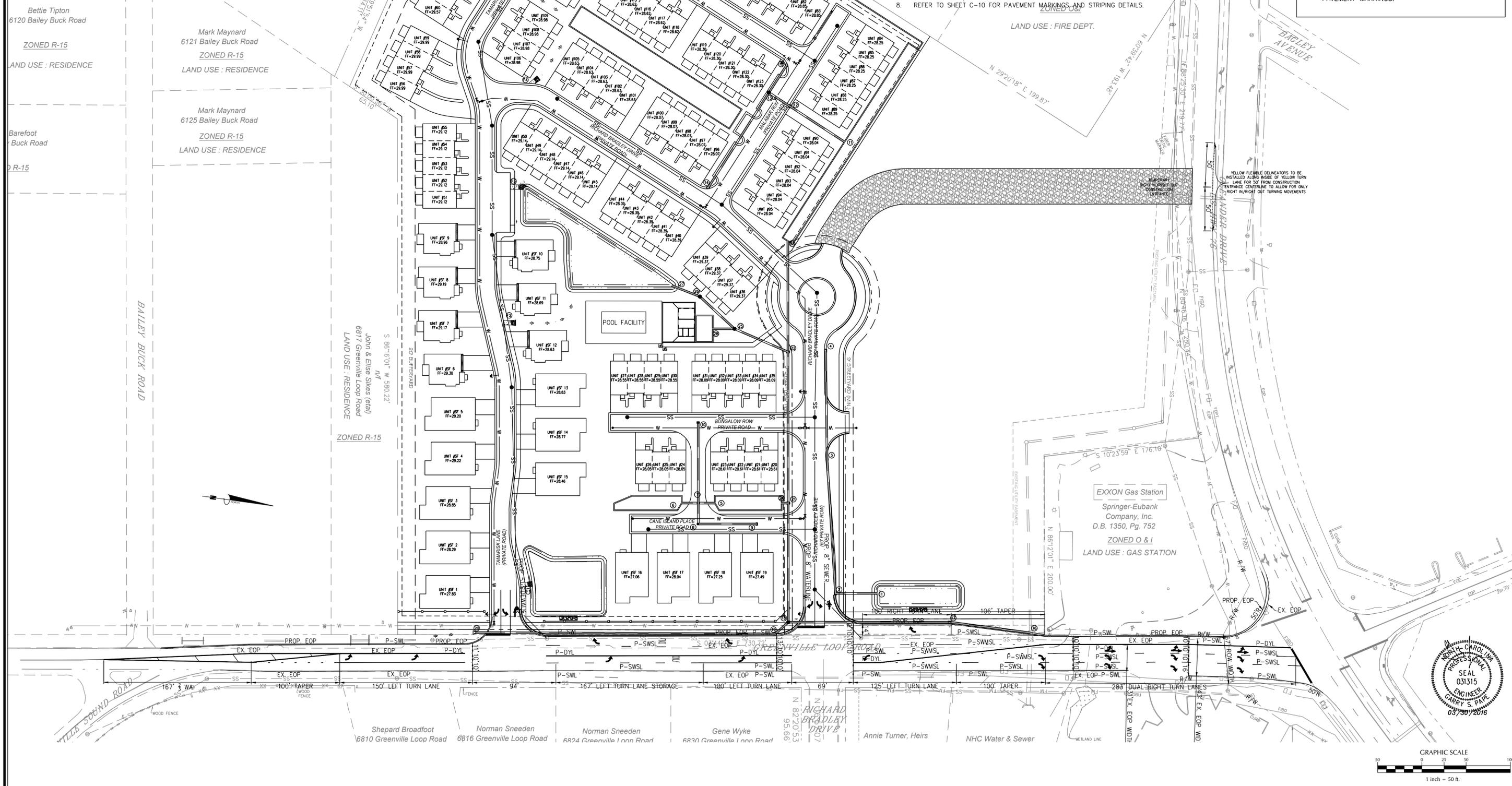
1. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING. CONTACT TRAFFIC ENGINEERING FOR PAVEMENT MARKING AND SIGN PLACEMENT DETAILS.
2. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS.
3. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
4. ALL PAVEMENT MARKINGS REGULATING TRAFFIC FLOW MUST BE THERMOPLASTIC.
5. ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
6. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CONTACT SKEET CARR AT 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
7. CALL TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
8. REFER TO SHEET C-10 FOR PAVEMENT MARKINGS AND STRIPING DETAILS.

PAVEMENT MARKING LEGEND

- P-DYL = PROPOSED NEW DOUBLE YELLOW LINE
- P-SWL = PROPOSED SINGLE WHITE LINE
- P-SWSL = PROPOSED NEW WHITE SKIP LINE
- P-SWMSL = PROPOSED SINGLE WHITE MINI SKIP LINE
- P-SYL = PROPOSED SINGLE YELLOW LINE
- P-SYSL = PROPOSED NEW YELLOW SKIP LINE
- P-SYMSL = PROPOSED SINGLE YELLOW MINI SKIP LINE

NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE THERMOPLASTIC.
2. ALL PAVEMENT MARKINGS SHALL BE TIED TO EXISTING MARKINGS.
3. ALL STRIPING TO BE PREMARKED AND INSPECTED BY TRAFFIC SERVICES.
4. REFER TO DETAILS ON SHEETS C-17 & C-18 FOR PAVEMENT MARKINGS.



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Drawn By	GSP	Date	October 2015
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**SUMMERWALK - PHASE 1**  
Wilmington New Hanover County North Carolina

**GREENVILLE LOOP ROADWAY IMPROVEMENTS PLAN**

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6105 Olander Drive  
Suite 201  
Wilmington, NC 28403

**GSP CONSULTING, PLLC**  
ENGINEERING  
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.  
**R-1**