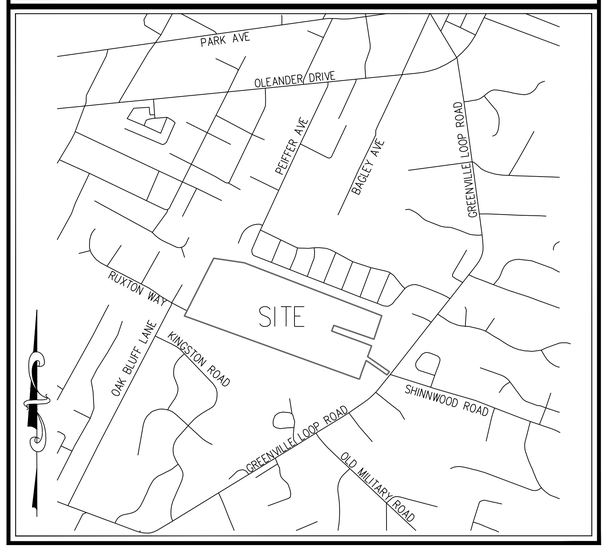
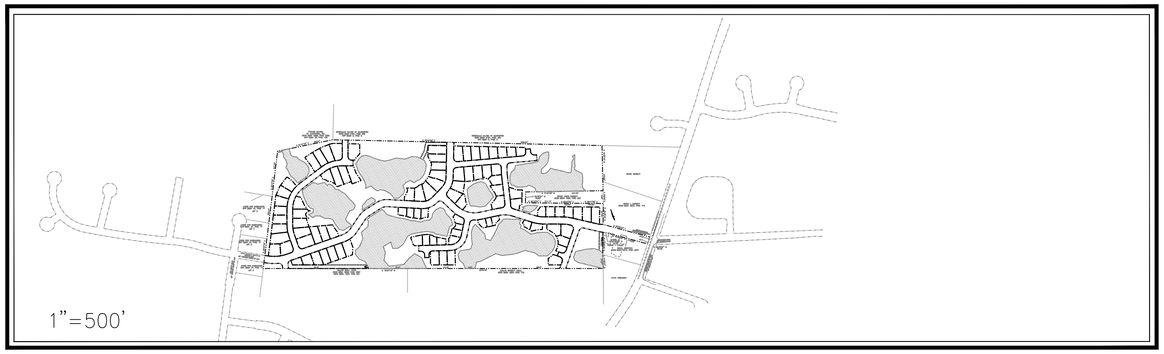
SITE DEVELOPMENT PLAN
FOR
SHINNWOOD WEST
WILMINGTON, NORTH CAROLINA
JANUARY 2013

VICINITY MAP



VICINITY MAP
(NTS)



LEGEND

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		
WATERWAYS		N/A

	PROPOSED		
PROPOSED LOT AND S.F.	X 5,000 s.f.		
OPEN SPACE LABEL	Ⓐ	STREET SIGN	
OPEN SPACE		404 WETLANDS	
BUILDING SET BACKS		FLOW DIRECTION	
PRIVATE SANITARY SET BACKS			

DEVELOPER/OWNER

Shinnwood West, 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

General Notes:

1. New Hanover County Parcel Nos.:
   PIN# 314612.96.3390
   SITE ADDRESS: 6361 GREENVILLE LOOP ROAD
2. Total Area: 45.99 ac.±
3. Existing Zoning: R-15
   Proposed R-15 Cluster Subdivision
   Setbacks – Front 10' from ROW
   Rear 25' Perimeter Buffer
   Side Zero Lot Line,
   10' between Structures
4. CAMA Land Classification: Water Resource Protection
5. ALL ROADS TO BE PUBLIC

Development Data:

Total Tract Area = 2,003,307 SF = 45.99 ac

Permitted Density (R-15 Cluster @ 2.5 units/ac) = 115 units

Proposed Density 94 units = 2.0 units/ac

Building Coverage – 200,000 sf (9.98%)

Total Gross Floor Area – 400,000 sf GFA

Max. Bldg. Hgts. – 35' Mean Roof

Parking – 21 – 2 BR units x 2.0 min sp/unit = 42
73 – 3 BR units x 2.25 min sp/unit = 164
1,500 sf Clubhouse @ 1 min sp/400 sf = 4
Minimum Total Spaces req'd. = 210

2 car garages + 1 driveway space provided for each lot + 11 parking spaces for pool 293 spaces including 1 h/c space

IMPERVIOUS SURFACES –
PROPOSED BUA –
ROAD/SIDEWALKS – 195,563 S.F.
LOTS – 274,031 S.F.
OTHER/COMMON AREA – 11,200 S.F.
TOTAL – 480,794 S.F. (24%)

Open Space – (min. 40% req'd.)
45.99 ac. X 40%
= 18.40 ac. req'd.
** 23.51 ac. (51.1%) Open Space prov'd. **
[Estimated area prov'd. is total tract area minus ROW (6.50 ac.), 25' Perimeter Setback (4.03 ac.) & Lots (11.95 ac.)]
Recreation Area – (max. 25% Open Space)
4.60 ac. Rec. Space req'd.
Active Rec req'd. = 2.30 ac.
Active Rec prov'd. = 2.30 ac.
Passive Rec Area req'd. = 2.30 ac.
Passive Area prov'd. = 2.30 ac.±
** Total Rec Area prov'd. = 4.60 ac. **

UTILITY DATA:

TOTAL – 94 units @ 360 GPD/Unit + 20 PERSON CLUBHOUSE/POOL @ 10 GPD/PERSON = 34,040 GPD

DEVELOPMENT NOTES:

1. ALL DEVELOPMENT SHALL BE IN ACCORDANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE & TECHNICAL STANDARDS MANUAL.
2. PROJECT SHALL COMPLY WITH ALL CITY, STATE & FEDERAL REGULATIONS.

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.

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER CARRY S. PATE
01/16/2013

NOTE:
ALL DESIGN AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE, TECHNICAL STANDARDS MANUAL & THE STATE OF NORTH CAROLINA

PROJECT NAME: SHINNWOOD WEST
GSP CONSULTING PROJECT #: 2012-0008

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., PREVIOUSLY APPROVED PLANS 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 THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS OF THE MAINS BY DIGGING TEST PITS BY HAND.

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 THE NCDENR DIVISION OF LAND QUALITY.
5. WATER, FERTILIZE, MOW AND MAINTAIN SPRIGGED, SODDED AND PLANTED AREAS UNTIL FINAL APPROVAL BY THE NCDENR DIVISION OF LAND QUALITY.
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

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. ANY SEDIMENT THAT IS TRACKED INTO THE STREET WILL BE IMMEDIATELY REMOVED.
3. SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES 0.5 FEET DEEP AT THE FENCE. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. SILT FENCE STAKES WILL BE SPACED 6 FEET APART UNLESS A WIRE BACKING IS USED WITH 8 FOOT STAKE SPACING.
4. INSPECT INLET PROTECTION AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.
5. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
6. INSPECT TEMPORARY SEDIMENT TRAPS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER. PLACE THE SEDIMENT THAT IS REMOVED IN THE DISPOSAL AREA, AND REPLACE THE PART OF THE GRAVEL FACING THAT IS IMPAIRED BY SEDIMENT.

   IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JERKING ON THE ROPE WILL MAKE THE SKIMMER BOB UP AND DOWN AND DISLODGE THE DEBRIS AND RESTORE FLOW. IF THIS DOES NOT WORK, PULL THE SKIMMER OVER TO THE SIDE OF THE BASIN AND REMOVE THE DEBRIS.

   IF THE SKIMMER ARM OR BARREL PIPE IS CLOGGED, THE ORIFICE CAN BE REMOVED AND THE OBSTRUCTION CLEARED WITH A PLUMBER'S SNAKE OR BY FLUSHING WITH WATER. BE SURE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER.

   CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FEET BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIPRAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.

   AFTER ALL DEIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS, AND STABILIZE PROPERLY.
7. INSPECT EXCELSIOR MATTING AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT REPAIR IMMEDIATELY. GOOD CONTACT WITH THE GROUND MUST BE MAINTAINED, AND EROSION MUST NOT OCCUR BENEATH THE MATTING. ANY AREAS OF THE MATTING THAT ARE DAMAGED OR NOT IN CLOSE CONTACT WITH THE GROUND SHALL BE REPAIRED AND STAPLED. IF EROSION OCCURS DUE TO POORLY CONTROLLED DRAINAGE, THE PROBLEM SHALL BE FIXED AND THE ERODED AREA PROTECTED. MONITOR AND REPAIR THE MATTING AS NECESSARY UNTIL GROUND COVER IS ESTABLISHED.
7. INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. EVENT REPAIR IMMEDIATELY. GOOD CONTACT WITH THE GROUND MUST

   BE SURE TO MAINTAIN ACCESS TO THE BAFFLES. SHOULD THE FABRIC OF A BAFFLE COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.

   REMOVE SEDIMENT DEPOSITS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BAFFLES. TAKE CARE TO AVOID DAMAGING THE BAFFLES DURING CLEANOUT. SEDIMENT DEPTH SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH.

   AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BAFFLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.
8. 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.

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 ON PRIVATE PROPERTY TO BE HDPE ADS N-12 OR EQUIVALENT, UNLESS OTHERWISE SPECIFIED. ALL STORM SEWER PIPES LOCATED WITHIN THE PUBLIC ROW TO BE RCP CLASS IV.
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.

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

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

PERMANENT SEEDING SCHEDULE – MIXTURE 5CP

SPECIES	RATE (LB/ACRE)
CENTIPEDE 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. CENTIPEDE 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 (KOBE 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.

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: _____

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

No.	Revision	Date	By

Designer GSP	Scale
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

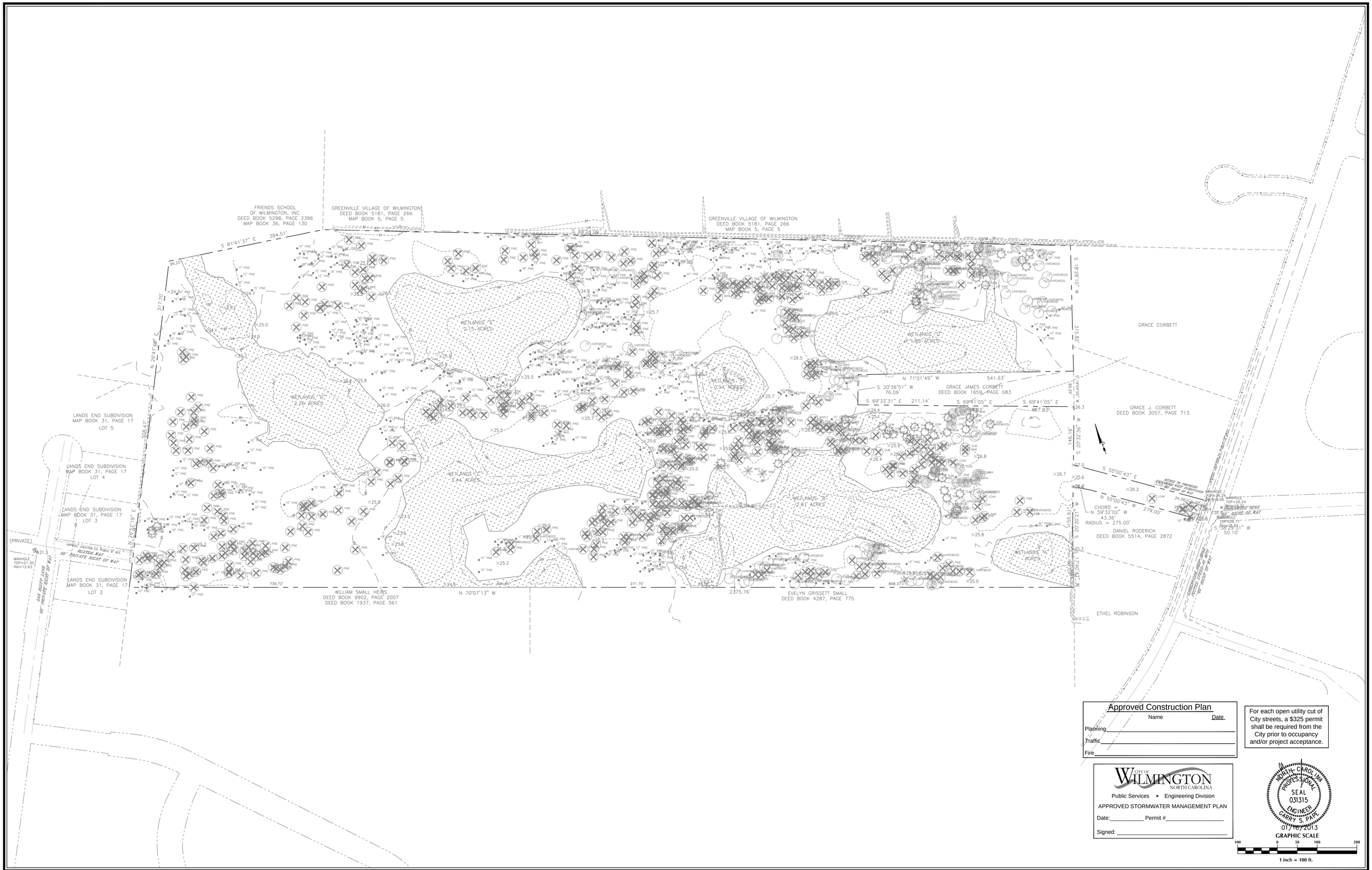
SHINNWOOD WEST
Wilmington New Hanover County North Carolina

GENERAL NOTES

PREPARED FOR:
SHINNWOOD WEST, 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**



No.	Revision	Date	By

Designer GSP	Scale 1" = 100'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

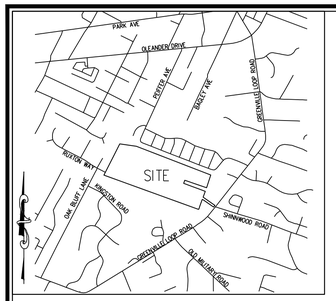
Wilmington New Hanover County North Carolina

EXISTING CONDITIONS

PREPARED FOR:
SHINNWOOD WEST, 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

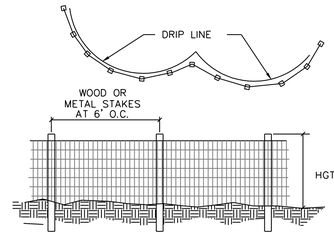
Sheet No.
C-2.1



VICINITY MAP
(NTS)

Site Inventory Notes:

1. Soils Type: JO (Johnston loam) & Le (Leon fine sand)
2. This property is not impacted by any AEC.
3. There are no Conservation Overlay boundaries affecting this property.
4. This site is not impacted by any recognized historic or archeological significance.
5. No cemeteries were evidenced on the site.
6. Existing vegetation has been located and is labeled.
7. There is evidence of jurisdictional wetlands on the site.
8. There is no evidence of endangered species or habitat issues on the site.
9. This property is not within any Special Flood Hazard area as evidenced on FEMA FIRM 3720315600J, Effective Date April 3, 2006.
10. The site drainage flows into and unnamed tributary of Hewletts Creek SA; HQW classified waters.



NOTES:
1. PRIOR TO ANY LAND DISTURBING ACTIVITIES, TREE PROTECTION FENCES SHALL BE INSTALLED ALONG THE DRIP LINES OF ALL EXISTING TREES LABELED AS TO BE RETAINED; NO STORAGE OF MATERIALS, FILL ETC. AND NO PEDESTRIAN OR VEHICULAR TRAFFIC SHALL BE ALLOWED INSIDE OF THE FENCES DURING CONSTRUCTION.
2. TREE PROTECTION FENCING SHOULD BE LOCATED ONE FOOT OUT FROM THE TRUNK FOR EACH ONE INCH OF TRUCK DIAMETER.

Tree Protection Fence Detail

Tree Legend / Inventory

- GUM = 100
- HARDWOOD = 131
- MAGNOLIA = 27
- MAPLE = 3
- OAK = 54
- PINE = 909
- BAY = 4
- TREE TO BE REMOVED

TREE LIST

10" GUM	7	9" PINE	2
12" GUM	31	10" PINE	64
15" GUM	10	11" PINE	7
18" GUM	7	12" PINE	143
24" GUM	9	13" PINE	14
5" HARDWOOD	2	14" PINE	7
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12" LOAK	15	7" BAY	1
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12" OAK	2		
15" OAK	2		
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TREES TO BE REMOVED

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12" GUM	15	12" PINE	135
15" GUM	10	13" PINE	6
18" GUM	4	14" PINE	3
6" HARDWOOD	4	15" PINE	92
7" HARDWOOD	5	16" PINE	7
8" HARDWOOD	6	18" PINE	89
9" HARDWOOD	2	20" PINE	2
10" HARDWOOD	13	24" PINE	40
11" HARDWOOD	4	30" PINE	3
12" HARDWOOD	2	31" PINE	1
15" HARDWOOD	4	34" PINE	1*
18" HARDWOOD	1	10" OAK	1
22" HARDWOOD	1	15" OAK	1
25" HARDWOOD	1*	8" MAPLE	1
8" LOAK	1	12" MAPLE	2
10" LOAK	3	8" MAG	5**
12" LOAK	4	10" MAG	2*
15" LOAK	2	12" MAG	5*
18" LOAK	4	15" MAG	1*
24" LOAK	1*	25" MAG	1*
12" BAY	1		

* – SIGNIFICANT

* – SIGIFICANT TREE TO BE RELOCATED

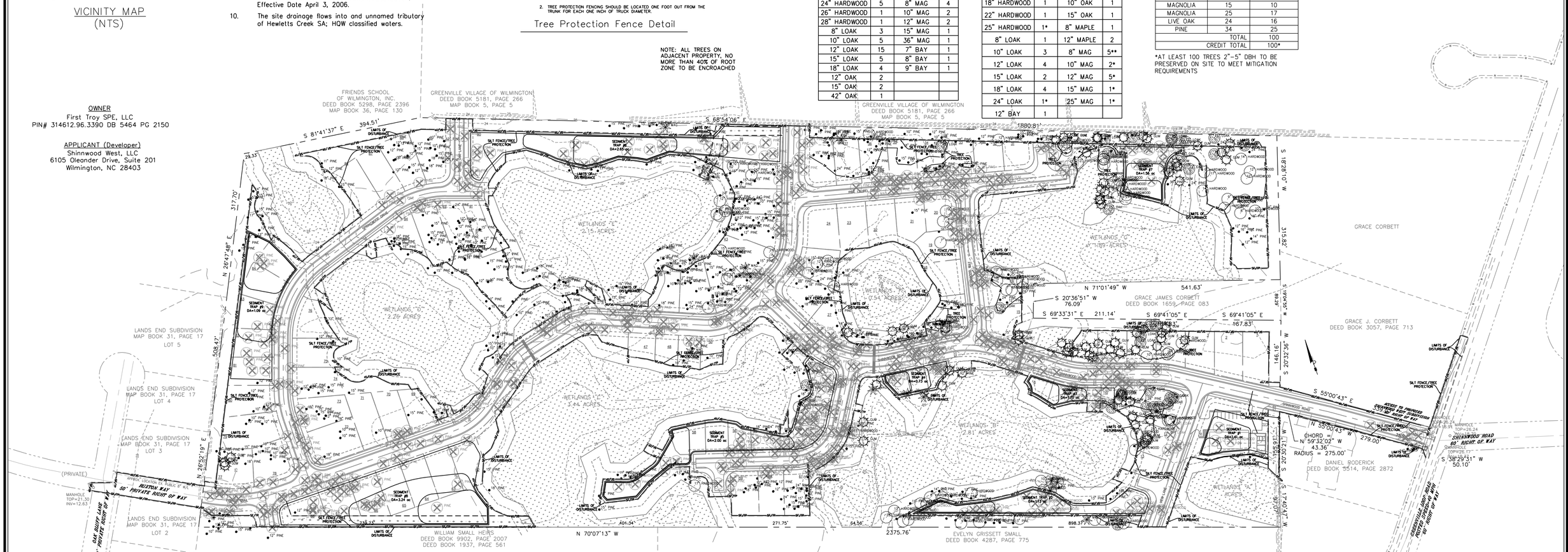
MITIGATION CALCULATIONS		
TREE TO BE REMOVED	DIAMETER (in)	# OF TREES REQUIRED
HARDWOOD	25	17
MAGNOLIA	10	7
MAGNOLIA	12	8
MAGNOLIA	15	10
MAGNOLIA	25	17
LIVE OAK	24	16
PINE	34	25
	TOTAL	100
	CREDIT TOTAL	100*

*AT LEAST 100 TREES 2"-5" DBH TO BE PRESERVED ON SITE TO MEET MITIGATION REQUIREMENTS

NOTE: ALL TREES ON ADJACENT PROPERTY, NO MORE THAN 40% OF ROOT ZONE TO BE ENCROACHED

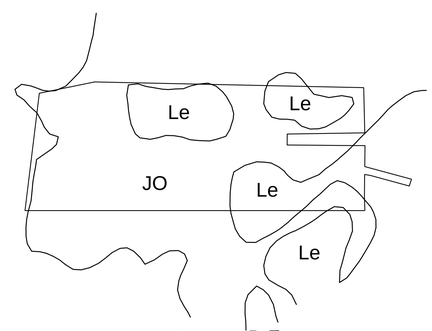
OWNER
First Troy SPE, LLC
PIN# 314612.96.3390 DB 5464 PG 2150

APPLICANT (Developer)
Shinnwood West, LLC
6105 Oleander Drive, Suite 201
Wilmington, NC 28403



Tree Preservation Notes:

1. Tree Preservation / Removal Permit is required prior to clearing & land disturbance.
2. Any regulated or significant trees within streetyards, and all trees within bufferyards or beyond limits of essential site improvements are required to be protected & preserved. Existing trees within construction limits should be spaded & replanted elsewhere on site when feasible.
3. No equipment is allowed on the site until all tree protection fencing and silt fencing has been installed and approved. Protection fencing shall be installed around all individual trees or groves of trees that have been designated for preservation & protection.
4. No construction workers, tools, materials or vehicles are permitted within the tree protection fencing.
5. Protective fencing is to be maintained throughout the duration of the project. Land clearing and construction contractors shall receive adequate instruction on tree protection requirements and methods.



SOILS EXHIBIT

Contour Interval – 1'
Boundary & Topographic data & tree locations compiled from an actual field survey by Johnny J. Williams Land Surveying, P.C. and by existing plans and available information.

General Notes:

1. New Hanover County Parcel Nos.:
   PIN# 314612.96.3390
2. Total Area: 45.99 ac.±
3. Existing Zoning: R-15
   Proposed R-15 Cluster Subdivision
   Setbacks – Front 10' from ROW
   Rear 25' Perimeter Buffer
   Side Zero Lot Line,
   10' between Structures
4. CAMA Land Classification: Water Resource Protection

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		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/16/2013

GRAPHIC SCALE
100 0 50 100 200
1 inch = 100 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 100'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

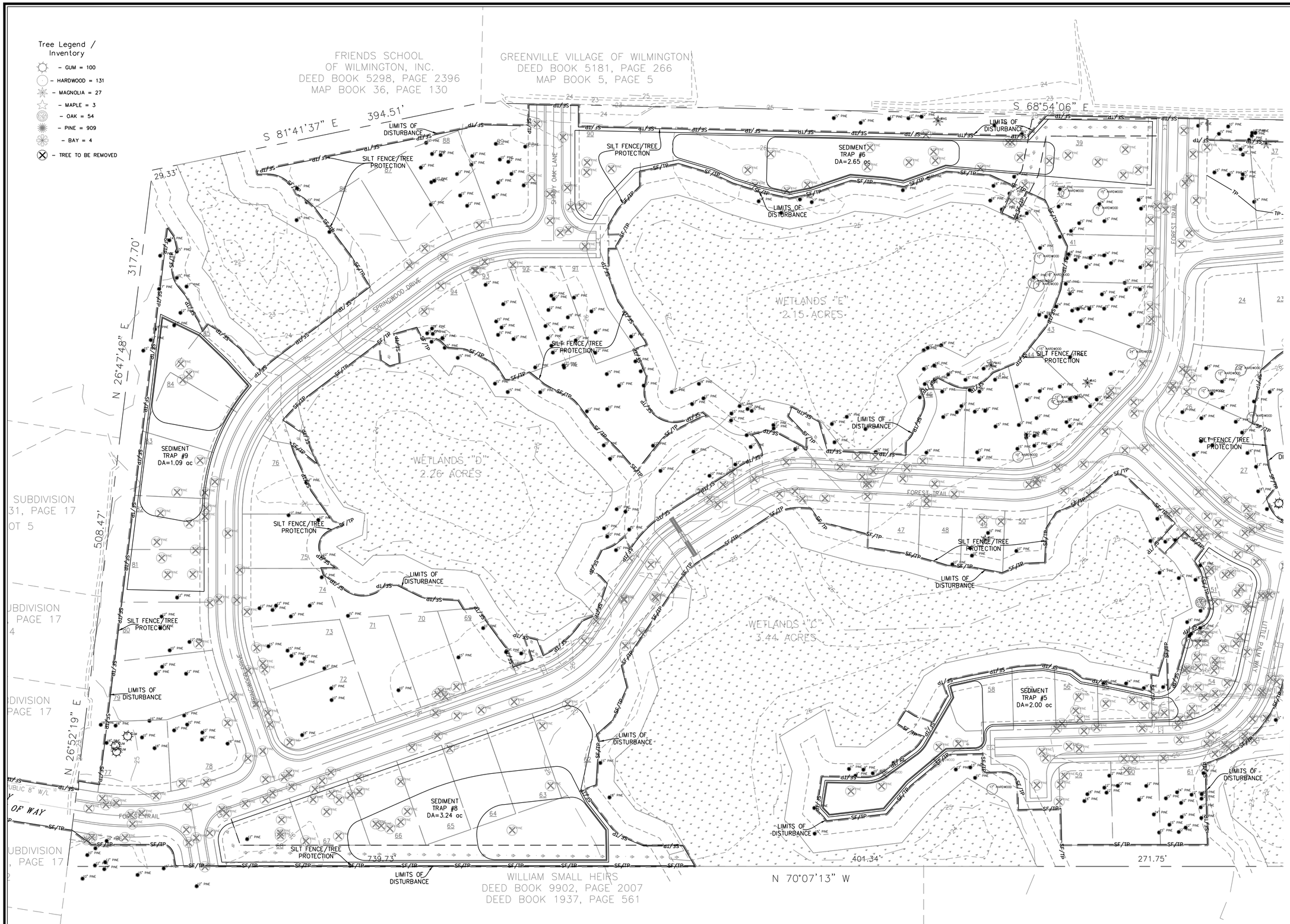
SHINNWOOD WEST
Wilmington New Hanover County North Carolina

SITE INVENTORY PLAN

PREPARED FOR:
SHINNWOOD WEST, 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-2.2



TREE LIST

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TREES TO BE REMOVED

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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.

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

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/10/2013

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

Wilmington New Hanover County North Carolina

SITE INVENTORY PLAN

PREPARED FOR:
SHINNWOOD WEST, 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-2.3

Tree Legend / Inventory

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- HARDWOOD = 131
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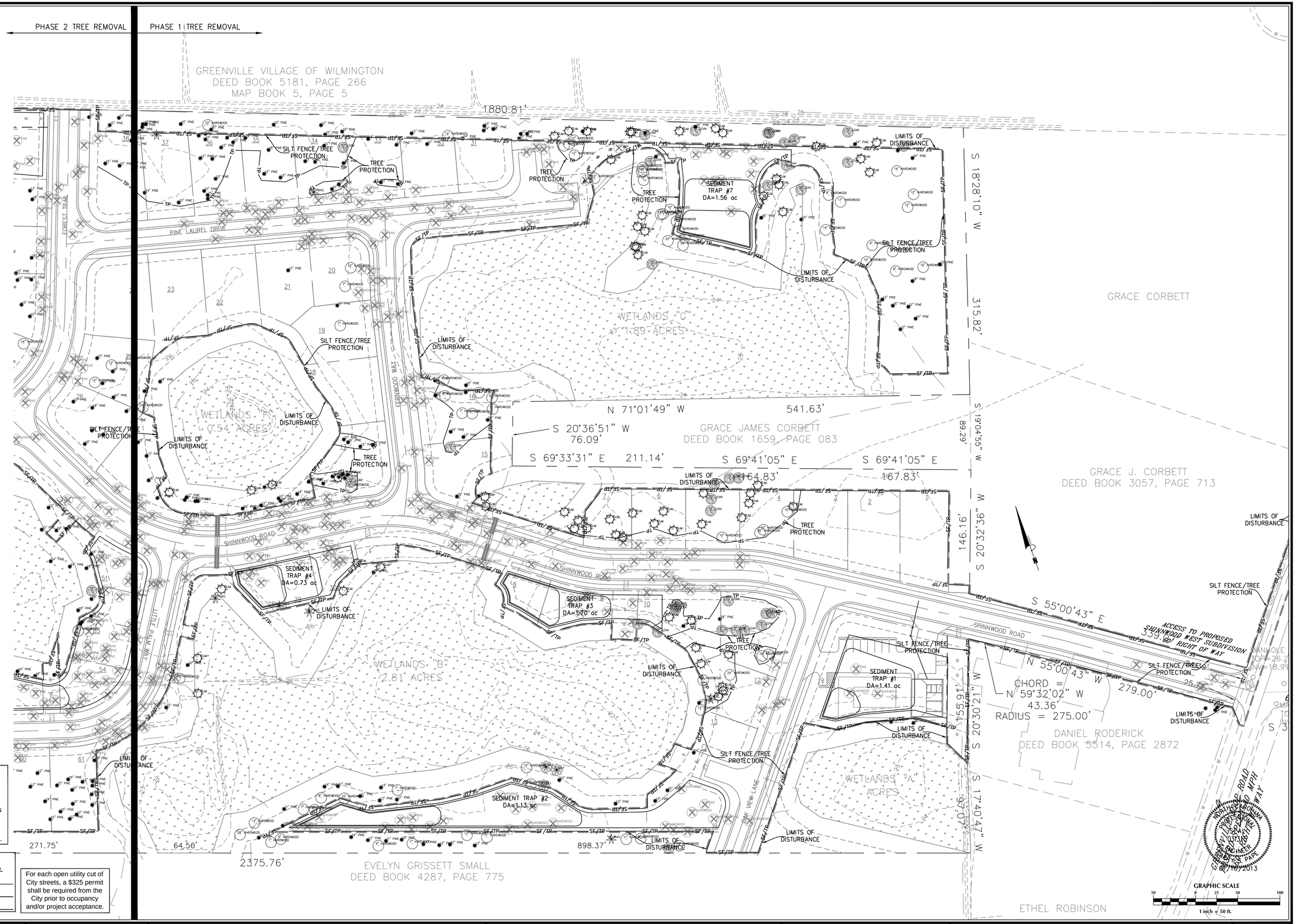


CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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 January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST
Wilmington New Hanover County North Carolina

SITE INVENTORY PLAN

PREPARED FOR:
SHINNWOOD WEST, 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-2.4

General Notes:

1. New Hanover County Parcel Nos.:
   PIN# 314612.96.3390
   SITE ADDRESS: 6361 GREENVILLE LOOP ROAD
2. Total Area: 45.99 ac.±
3. Existing Zoning: R-15
   Proposed R-15 Cluster Subdivision
   Setbacks – Front 10' from ROW
   Rear 25' Perimeter Buffer
   Side Zero Lot Line,
   10' between Structures
4. CAMA Land Classification: Water Resource Protection
5. ALL ROADS TO BE PUBLIC

Development Data:

Total Tract Area = 2,003,307 SF = 45.99 ac

Permitted Density (R-15 Cluster @ 2.5 units/ac) = 115 units
Proposed Density 94 units = 2.0 units/ac

Building Coverage – 200,000 sf (9.98%)

Total Gross Floor Area – 400,000 sf GFA

Max. Bldg. Hgts. – 35' Mean Roof

Parking –
21 – 2 BR units x 2.0 min sp/unit = 42
73 – 3 BR units x 2.25 min sp/unit = 164
1,500 sf Clubhouse @ 1 min sp/400 sf = 4
Minimum Total Spaces req'd. = 210
2 CAR GARAGES + 1 DRIVEWAY
SPACE PROVIDED FOR EACH LOT + 11
PARKING SPACES FOR POOL
293 SPACES INCLUDING 1 H/C SPACE

IMPERVIOUS SURFACES –
PROPOSED BUA –

ROAD/SIDEWALKS –	195,563 S.F.
LOTS –	274,031 S.F.
OTHER/COMMON AREA –	11,200 S.F.
TOTAL –	480,794 S.F. (24%)

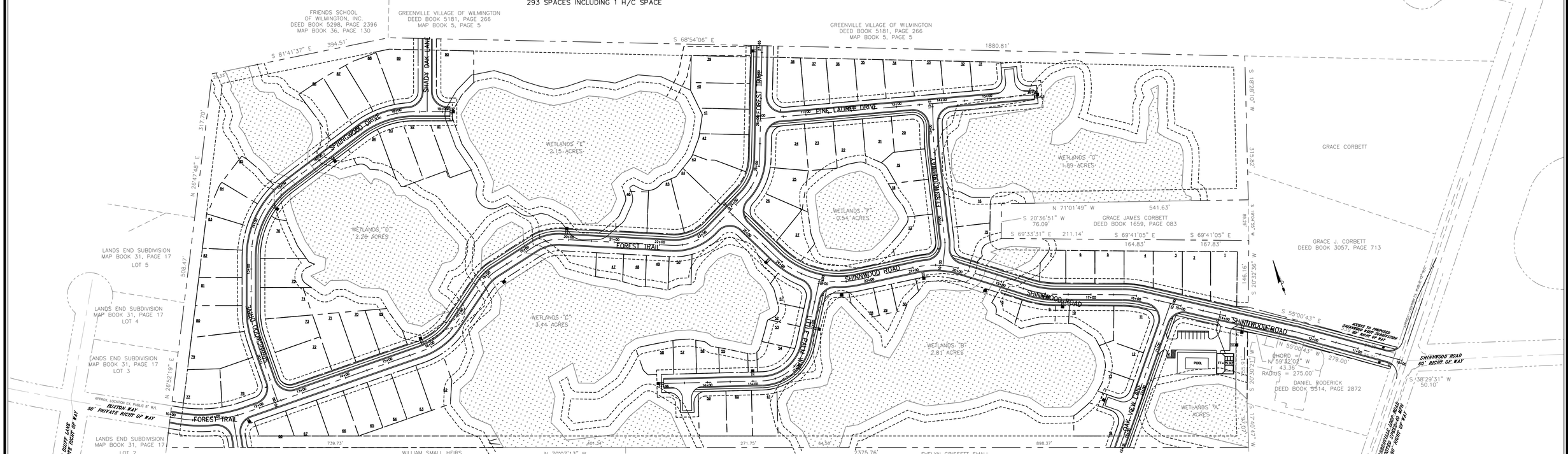
Open Space – (min. 40% req'd.)
45.99 ac. X 40%
= 18.40 ac. req'd.
** 22.40 ac. (50.2%) Open Space prov'd. **
[Estimated area prov'd. is total tract area minus ROW (6.89 ac.), 25' Perimeter Setback (4.56 ac.) & Lots (12.14 ac.)]
Recreation Area – (max. 25% Open Space)
4.60 ac. Rec. Space req'd.
Active Rec req'd. = 2.30 ac.
Active Rec prov'd. = 2.30 ac.
Passive Rec Area req'd. = 2.30 ac.
Passive Area prov'd. = 2.30 ac.±
** Total Rec Area prov'd. = 4.60 ac. **

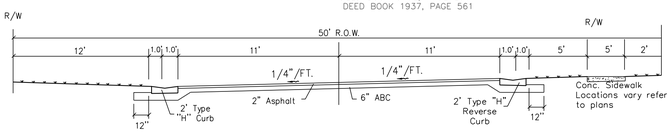
CITY OF WILMINGTON WETLAND SETBACK ENCROACHMENTS:

WETLAND SETBACK AREA – 372,123 SF

PERMITTED WETLAND SETBACK ENCROACHMENT – 55,818 SF – 15%

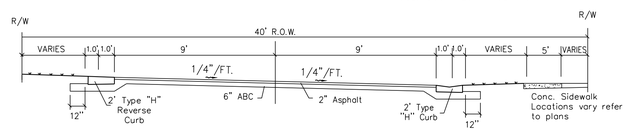
PROPOSED WETLAND SETBACK ENCROACHMENT – 54,397 SF – 14.6%





City of Wilmington
Type "H" Residential Street Section (SD 1-01)
NTS

Shinnwood Road
Forest Trail Station 14+35 to 27+65.25
Forest Trail Station 10+00 to 14+35 Cross Slope is reversed



City of Wilmington
Type "H" Residential Street Section (SD 1-01)
NTS

Oak View Lane, Fernwood Way,
Springwood Drive & Shady Oak Lane
Pine Laurel Drive Cross Slope is Reversed
Little Palm Way Station 10+00 to 11+06.62
Little Palm Way Station 13+00 to 14+95.85 Cross Slope is Reversed

ROAD	SUPERELEVATION TRANSITION		RUNOFF LENGTH	ELEVATION CHANGE	RATE OF CHANGE	MIN RUNOFF LENGTH*
	STARTING STATION	ENDING STATION				
FOREST TRAIL	11+60	14+35	275'	4.00%	0.01455%	66.66'
LITTLE PALM WAY	11+06.62	13+00	193.38'	4.00%	0.02068%	54.54'

* MINIMUM LENGTH OF SUPERELEVATION RUNOFF:
Design Speed=30MPH
Lr=((w*n1)ed/Δ)*bw [Equation 3-25] All equations taken from "A Policy on Geometric Design of Highways and Streets 2004"

Lr=minimum length of superelevation runoff, ft;
w=width of traffic lanes, ft;
n1=number of lanes rotated;
ed=design superelevation rate, percent;
Δ=maximum relative gradient, percent;
bw=adjustment factor for number of lanes rotated

FOREST TRAIL:
Lr=((w*n1)ed/Δ)*bw
Lr=((22*1)/0.66)*2)=66.67'
w=22' (entire roadway rotated on plane)
n1=1
ed=2.0%
Δ=0.66 (from Exhibit 3-30)
bw=1.0 (from Exhibit 3-31)

LITTLE PALM WAY:
Lr=((w*n1)ed/Δ)*bw
Lr=((18*1)/0.66)*2)=54.54'
w=18' (entire roadway rotated on plane)
n1=1
ed=2.0%
Δ=0.66 (from Exhibit 3-30)
bw=1.0 (from Exhibit 3-31)

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

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/10/2013

GRAPHIC SCALE
100 0 50 100 200
1 inch = 100 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 100'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

Wilmington New Hanover County North Carolina

OVERALL SITE PLAN

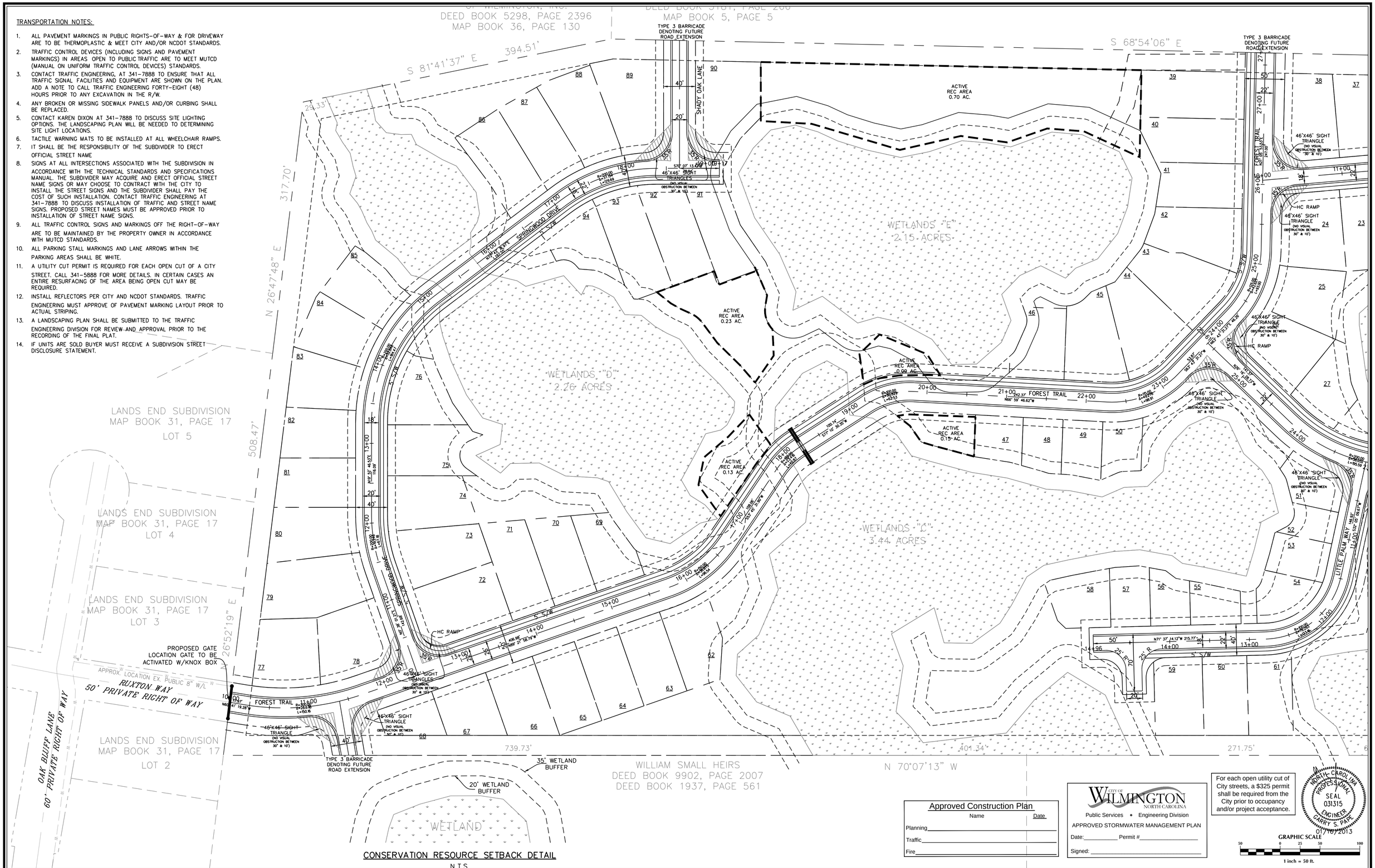
PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

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

TRANSPORTATION NOTES:

1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY & FOR DRIVEWAY ARE TO BE THERMOPLASTIC & MEET CITY AND/OR NCDOT STANDARDS.
2. 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.
3. CONTACT TRAFFIC ENGINEERING, AT 341-7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN. ADD A NOTE TO CALL TRAFFIC ENGINEERING FORTY-EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE R/W.
4. ANY BROKEN OR MISSING SIDEWALK PANELS AND/OR CURBING SHALL BE REPLACED.
5. CONTACT KAREN DIXON AT 341-7888 TO DISCUSS SITE LIGHTING OPTIONS. THE LANDSCAPING PLAN WILL BE NEEDED TO DETERMINING SITE LIGHT LOCATIONS.
6. TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS.
7. IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME
8. 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.
9. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
10. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
11. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET. CALL 341-5888 FOR MORE DETAILS. IN CERTAIN CASES AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED.
12. INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING LAYOUT PRIOR TO ACTUAL STRIPING.
13. A LANDSCAPING PLAN SHALL BE SUBMITTED TO THE TRAFFIC ENGINEERING DIVISION FOR REVIEW AND APPROVAL PRIOR TO THE RECORDING OF THE FINAL PLAT.
14. IF UNITS ARE SOLD BUYER MUST RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.



CONSERVATION RESOURCE SETBACK DETAIL
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.

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 07/10/2013

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST
Wilmington New Hanover County North Carolina

SITE PLAN (SHEET 1 OF 2)

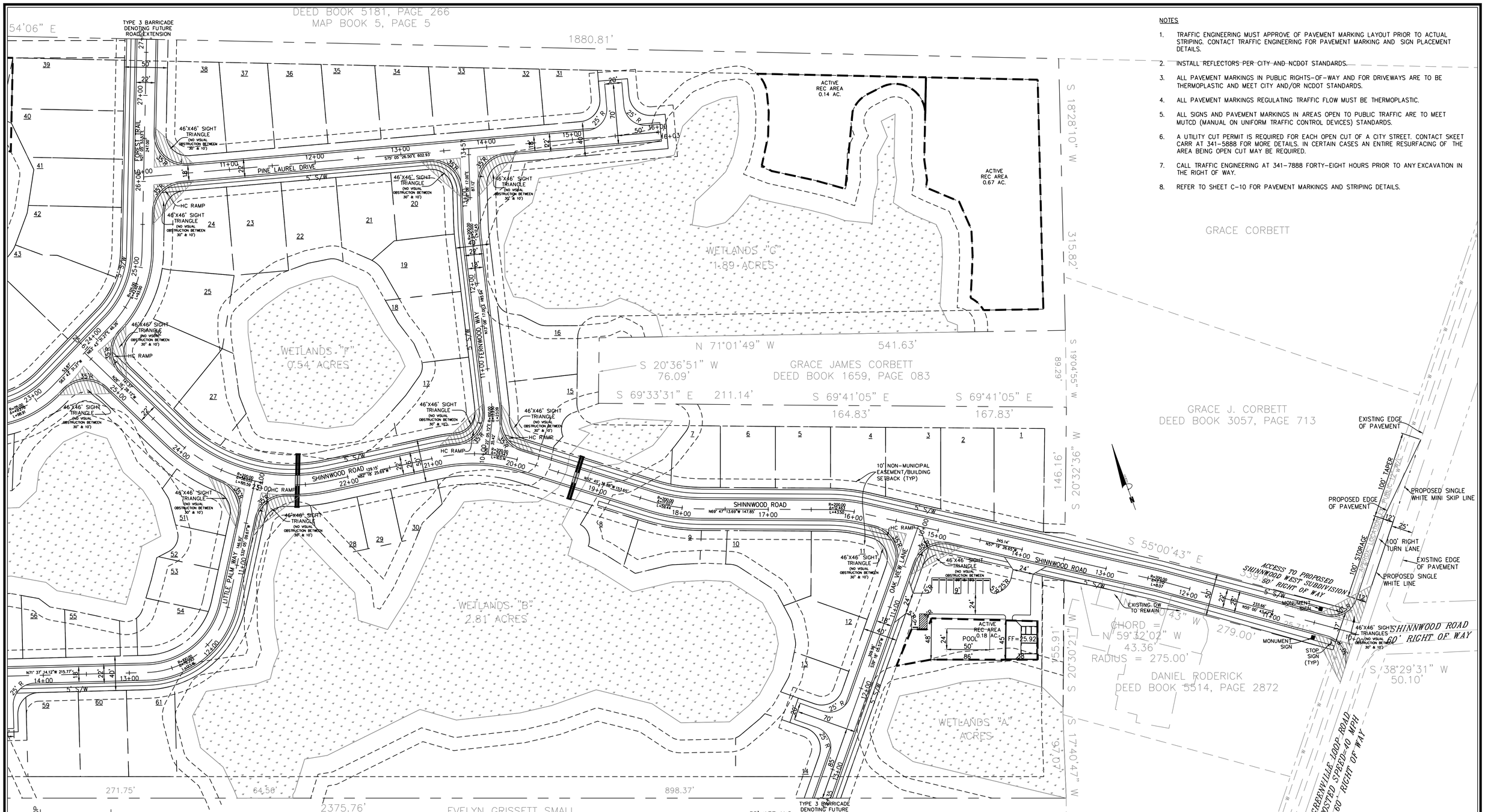
PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

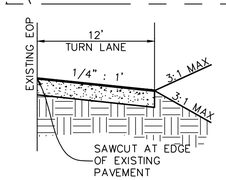
GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-3.2

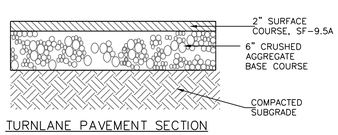
NOTES

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.



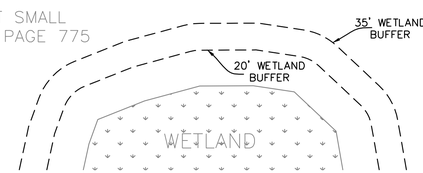


ROAD WIDENING SECTION
N.T.S.



TURNLANE PAVEMENT SECTION

PAVEMENT DETAIL
N.T.S.



CONSERVATION RESOURCE SETBACK DETAIL
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.

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER CARRY S. PAPE 01/16/2013

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

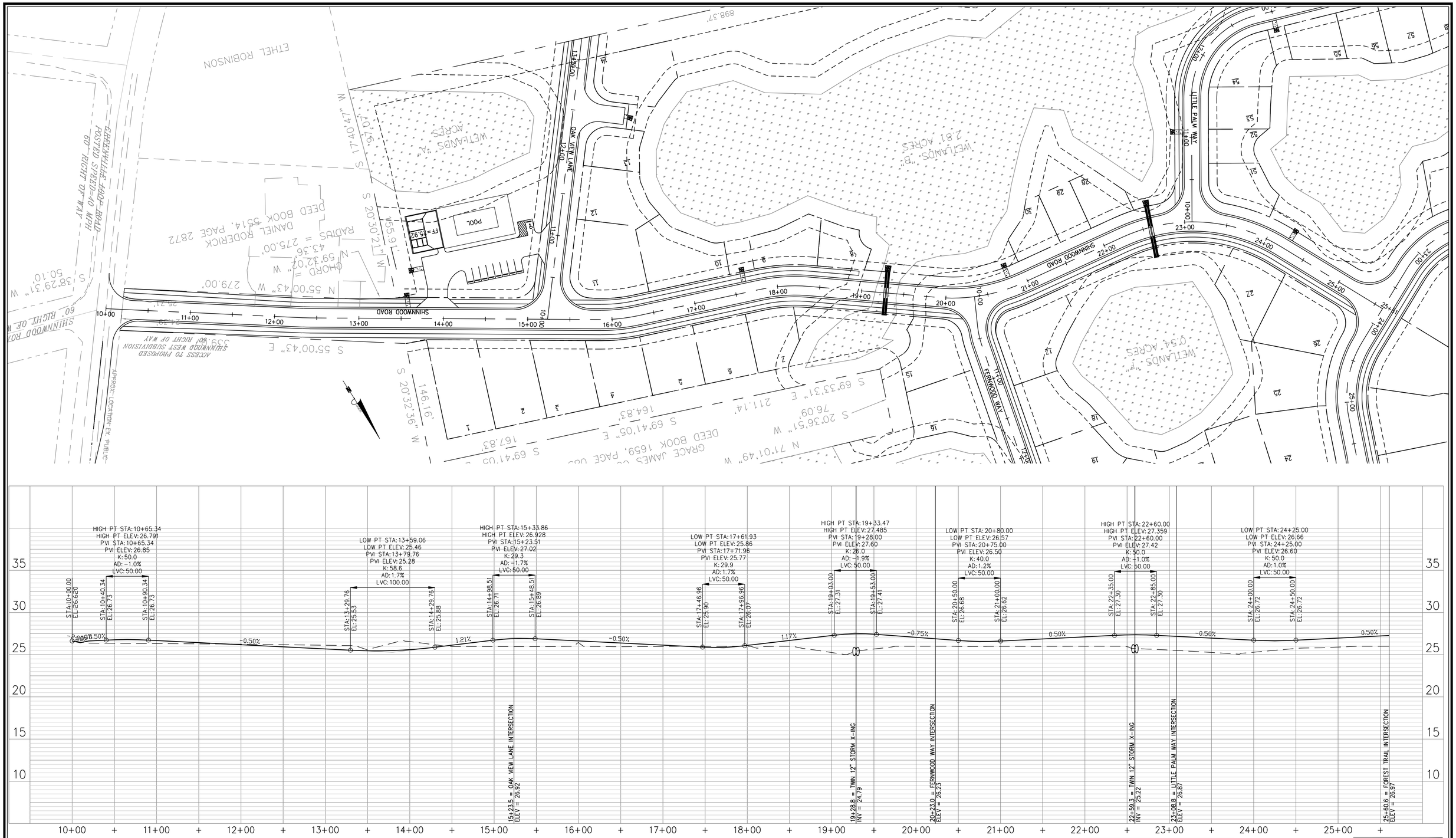
Wilmington New Hanover County North Carolina

SITE PLAN (SHEET 2 OF 2)

PREPARED FOR:
SHINNWOOD WEST, 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



Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPPE
01/16/2013

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

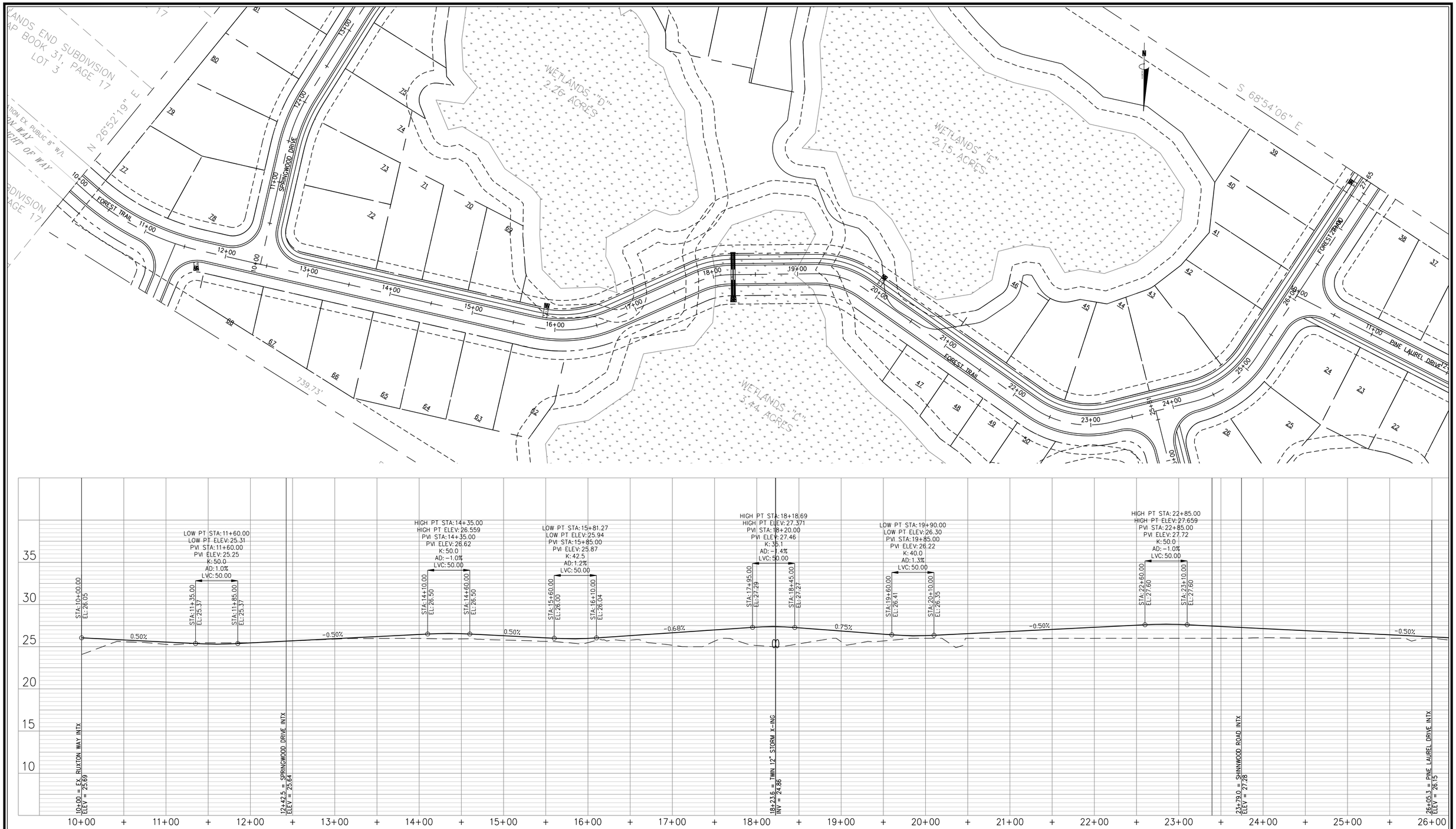
Wilmington New Hanover County North Carolina

SHINNWOOD ROAD PLAN & PROFILE

PREPARED FOR:
SHINNWOOD WEST, 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-4.1



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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Signed: _____

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/16/2013

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

GRAPHIC SCALE
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1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

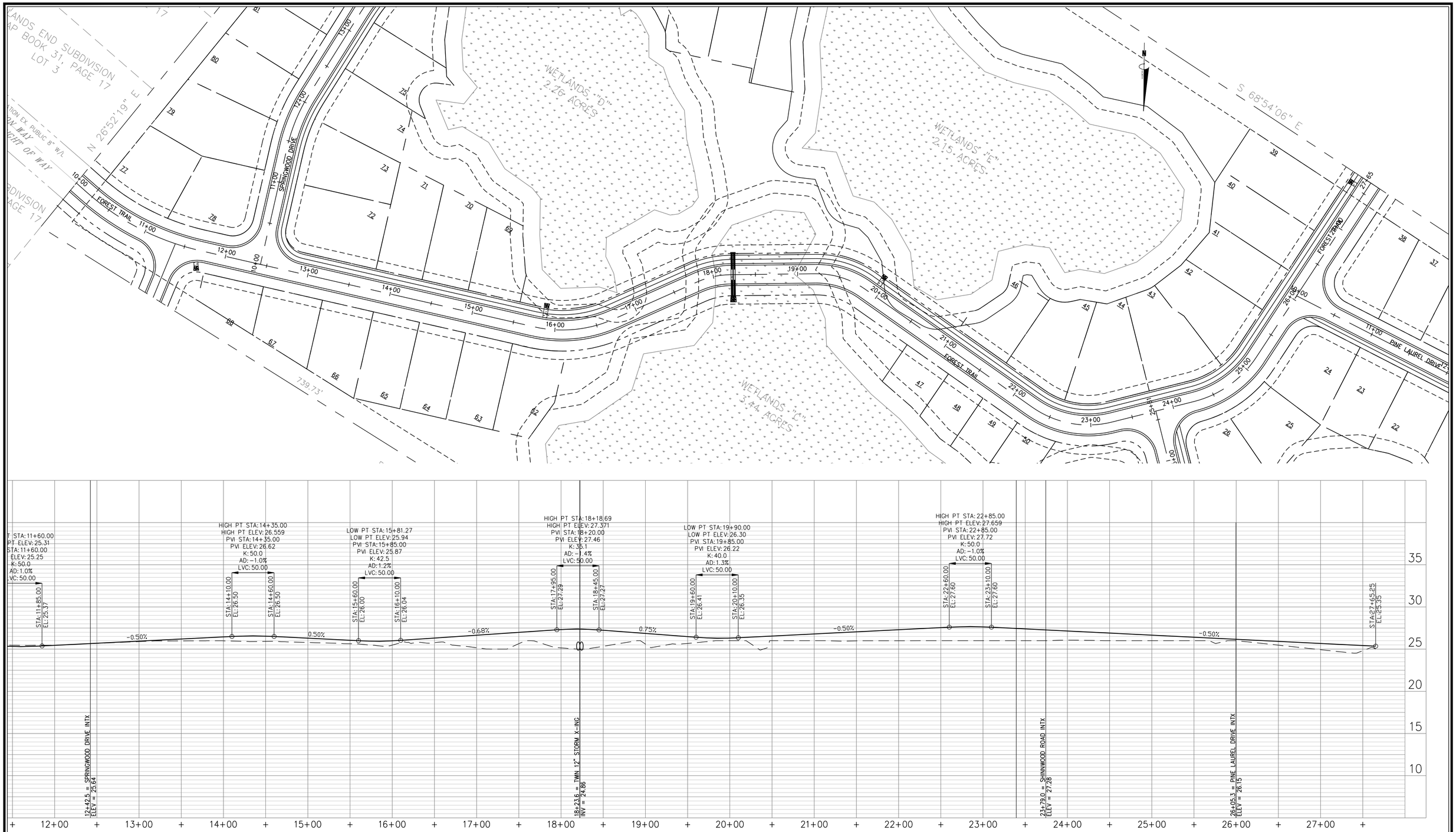
Wilmington New Hanover County North Carolina

FOREST TRAIL PLAN & PROFILE (SHEET 1 OF 2)

PREPARED FOR:
SHINNWOOD WEST, 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		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer: GSP	Scale: 1" = 50'
Drawn By: GSP	Date: January 2013
License #: P-0718	Job No.: 2012-0008

SHINNWOOD WEST

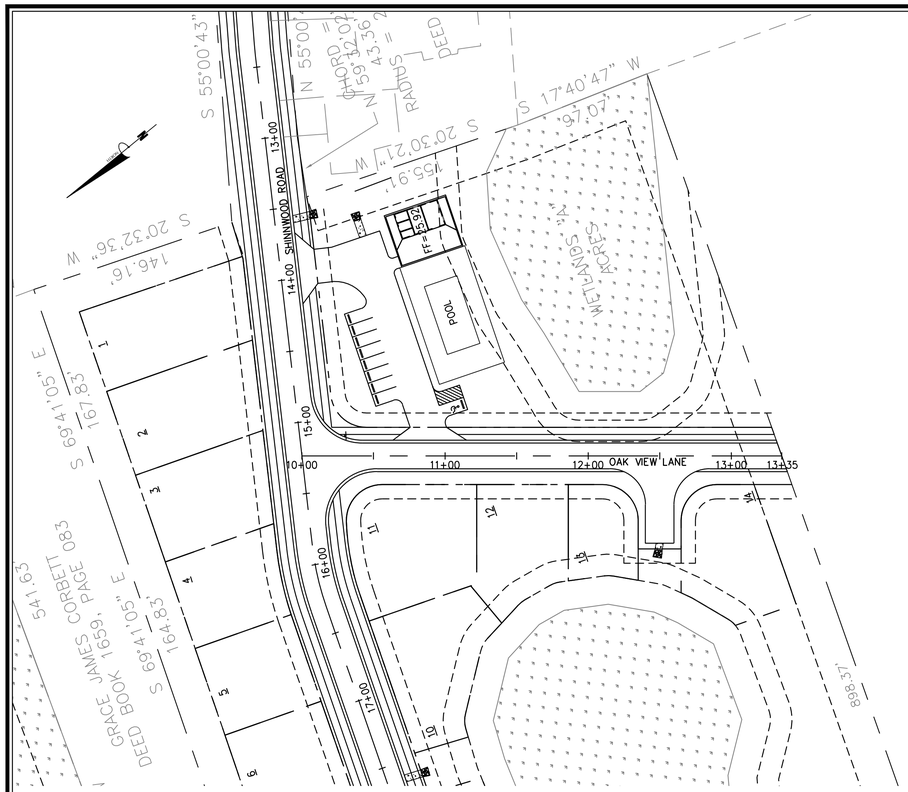
Wilmington New Hanover County North Carolina

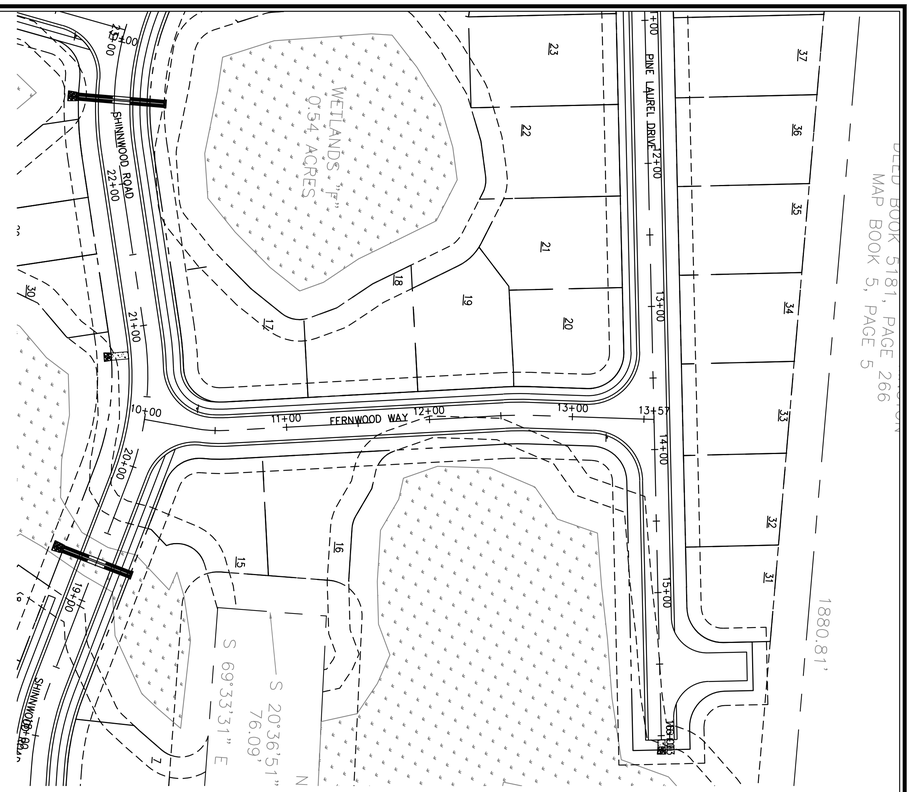
FOREST TRAIL PLAN & PROFILE (SHEET 2 OF 2)

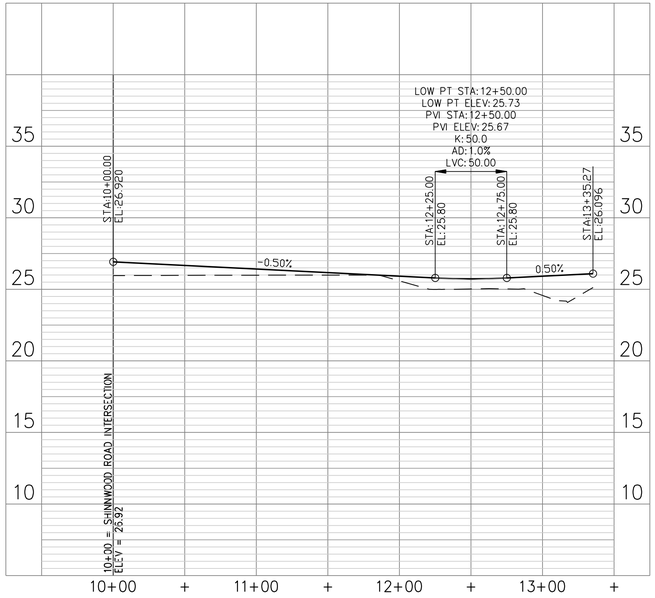
PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

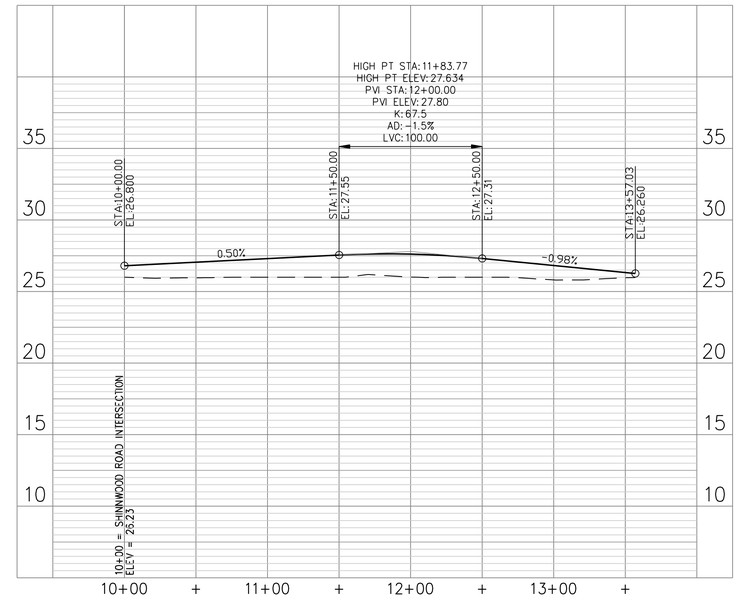
GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-4.3









Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST
Wilmington New Hanover County North Carolina

OAK VIEW LANE & FERNWOOD WAY
PLAN & PROFILE

PREPARED FOR:
SHINNWOOD WEST, 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-4.4

Approved Construction Plan		
	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

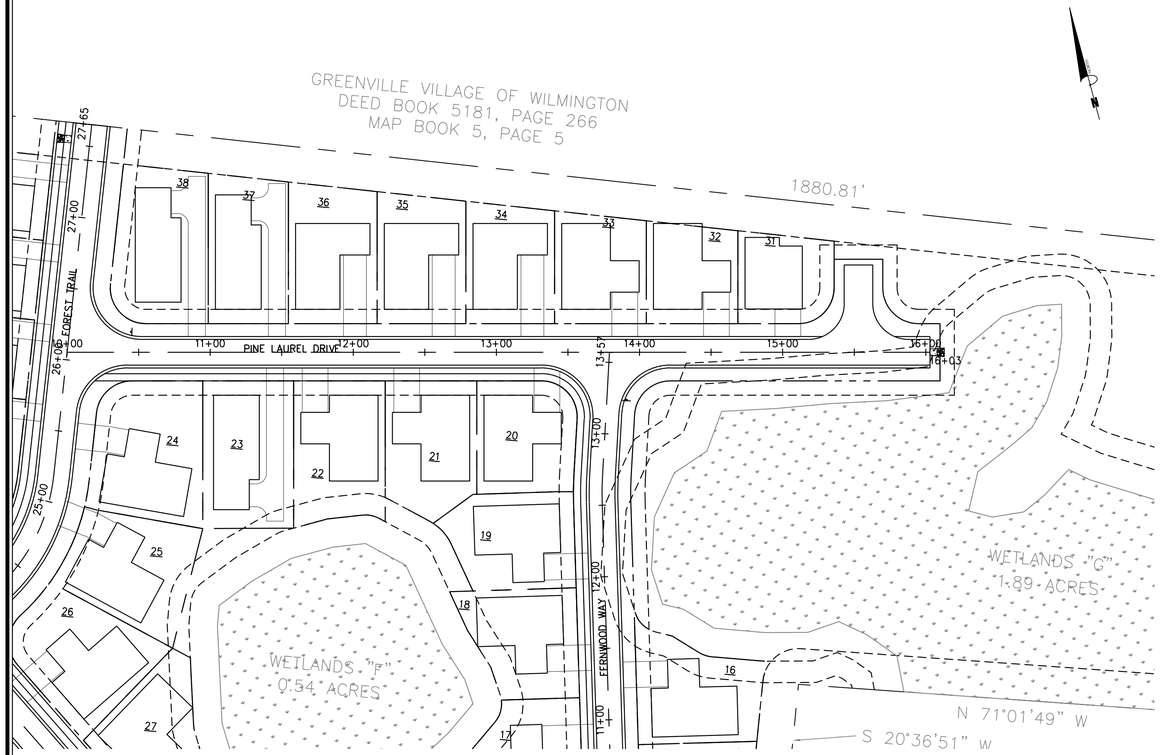
SHINNWOOD WEST
Wilmington New Hanover County North Carolina

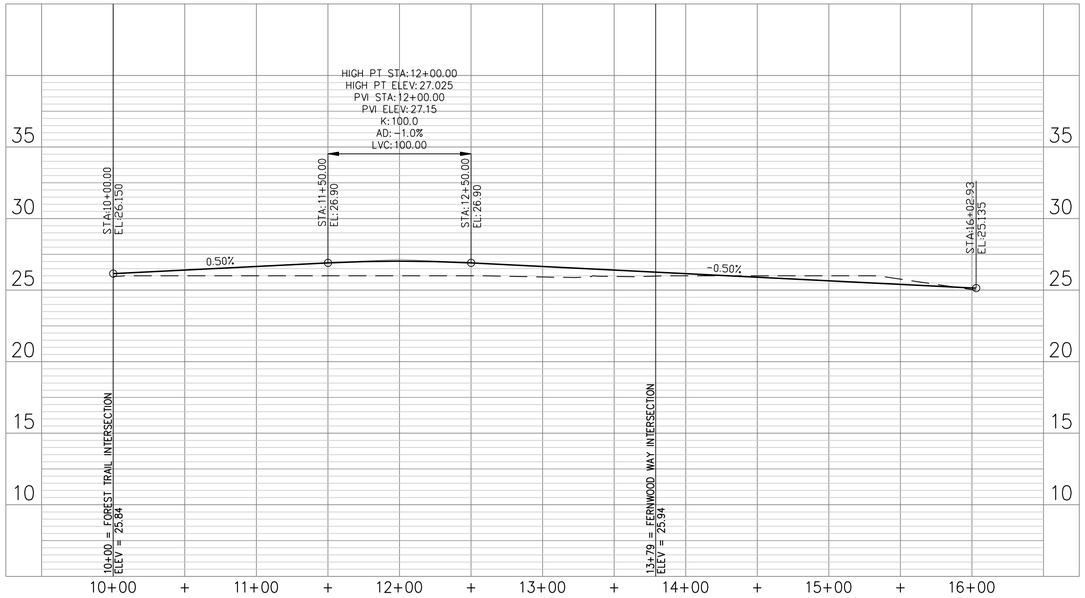
LITTLE PALM WAY & SPRINGWOOD DRIVE PLAN & PROFILE

PREPARED FOR:
SHINNWOOD WEST, 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-4.5





Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/16/2013

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

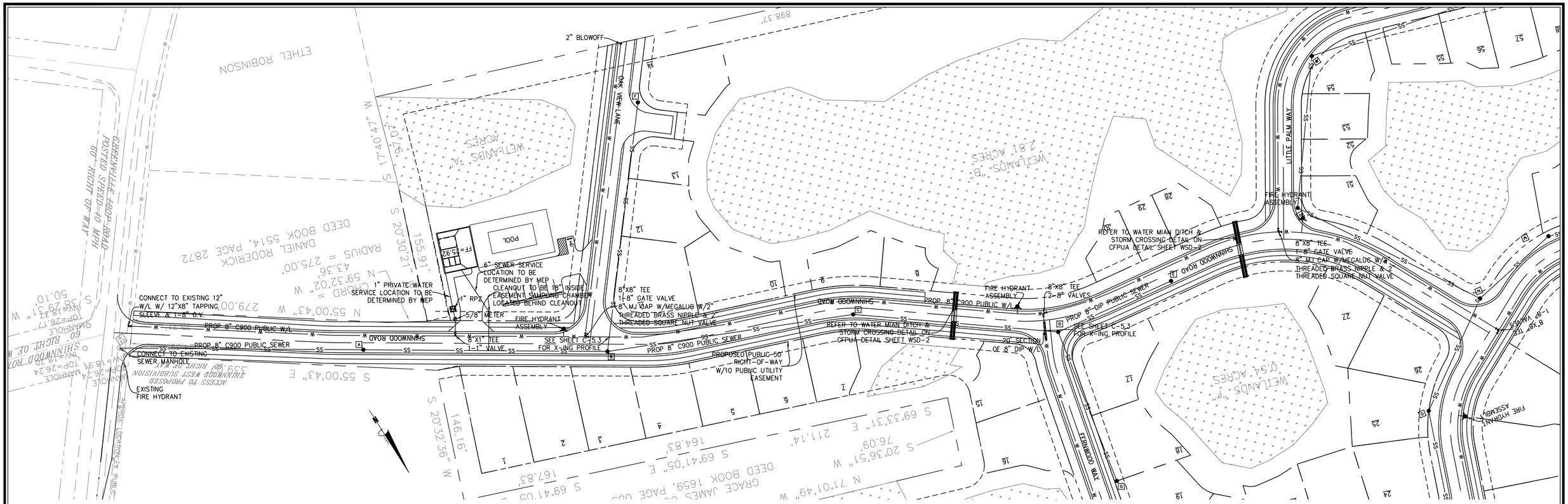
Wilmington New Hanover County North Carolina

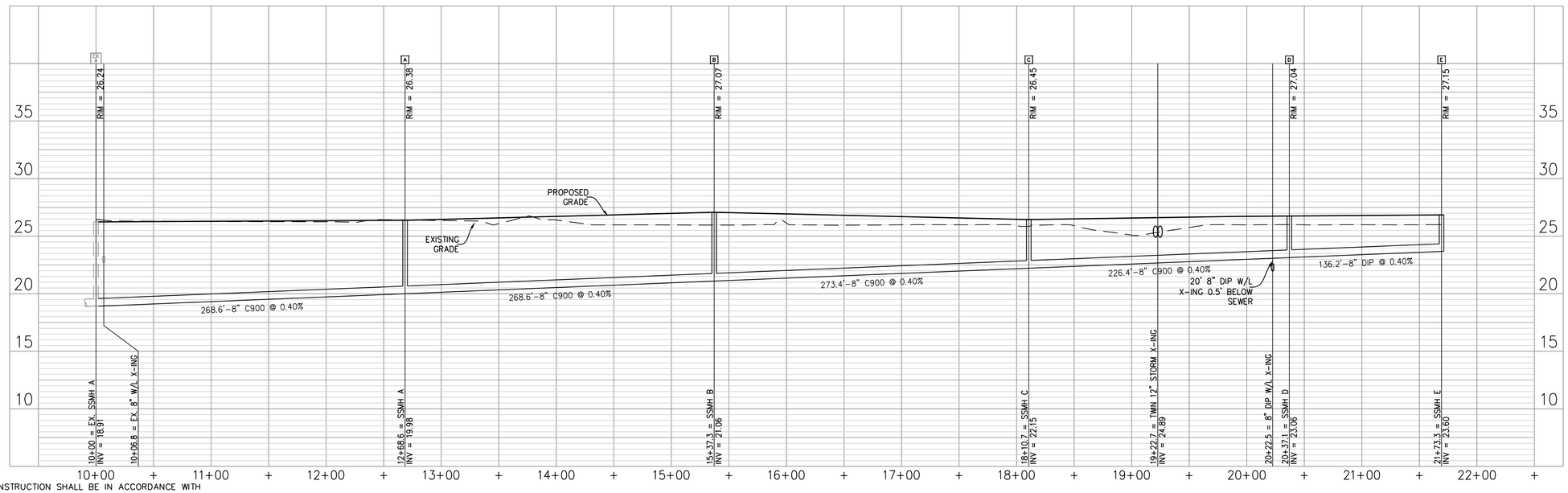
PINE LAUREL DRIVE PLAN & PROFILE

PREPARED FOR:
SHINNWOOD WEST, 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-4.6





NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CURRENT CFPUA STANDARDS AND SPECIFICATIONS.
2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ALL LOTS TO HAVE A SEWER CLEANOUT. SEWER CLEANOUTS SHALL BE INSTALLED WITHIN 20 FEET OF THE CENTER OF THE LOT/PROPERTY UNLESS OTHERWISE APPROVED BY THE AUTHORITY.
4. ALL ROADS TO BE PUBLIC WITH 10' PUBLIC UTILITY EASEMENT.

GENERAL UTILITY NOTES:

1. PROJECT SHALL COMPLY WITH CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) CROSS CONNECTION REQUIREMENTS. WATER METER(S) CANNOT BE SET AND ACTIVATED ON NEW MAINS UNTIL ALL REQUIREMENTS ARE MET AND NCDENR HAS ISSUED THEIR "FINAL APPROVAL". CALL 332-6558 FOR INFORMATION.
2. 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.
3. TO USE CFPUA 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 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.
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 WATERMAIN WITHIN PUBLIC RIGHT OF WAY TO BE PUBLIC. WATERMAINS LOCATED ON PRIVATE PROPERTY TO BE PRIVATE.

CFPUA 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.

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPP 01/10/2013

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		

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

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

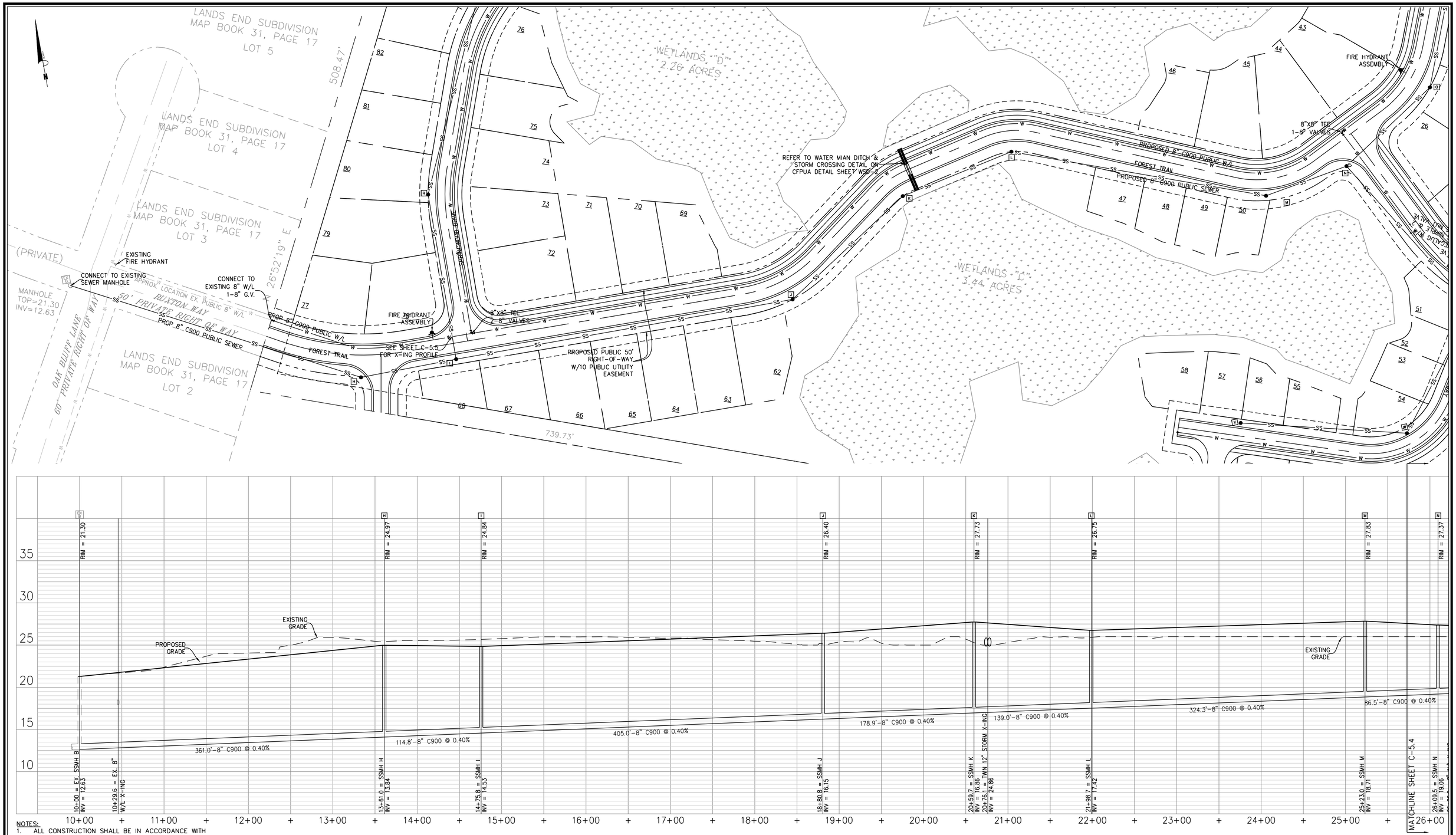
Wilmington New Hanover County North Carolina

UTILITY PLAN (SHEET 1 OF 5)

PREPARED FOR:
SHINNWOOD WEST, 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-5.1



NOTES:

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2. CONTRACTOR SHALL VERIFY LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.
3. ALL LOTS TO HAVE A SEWER CLEANOUT. SEWER CLEANOUTS SHALL BE INSTALLED WITHIN 20 FEET OF THE CENTER OF THE LOT/PROPERTY UNLESS OTHERWISE APPROVED BY THE AUTHORITY.
4. ALL ROADS TO BE PUBLIC WITH 10' PUBLIC UTILITY EASEMENT.

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/16/2013

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

GRAPHIC SCALE
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SHINNWOOD WEST

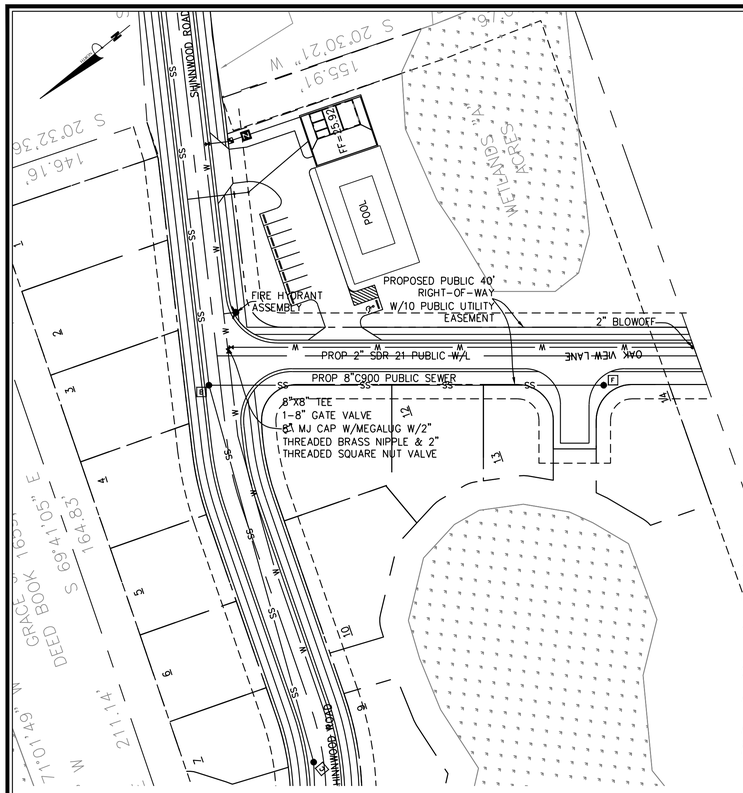
Wilmington New Hanover County North Carolina

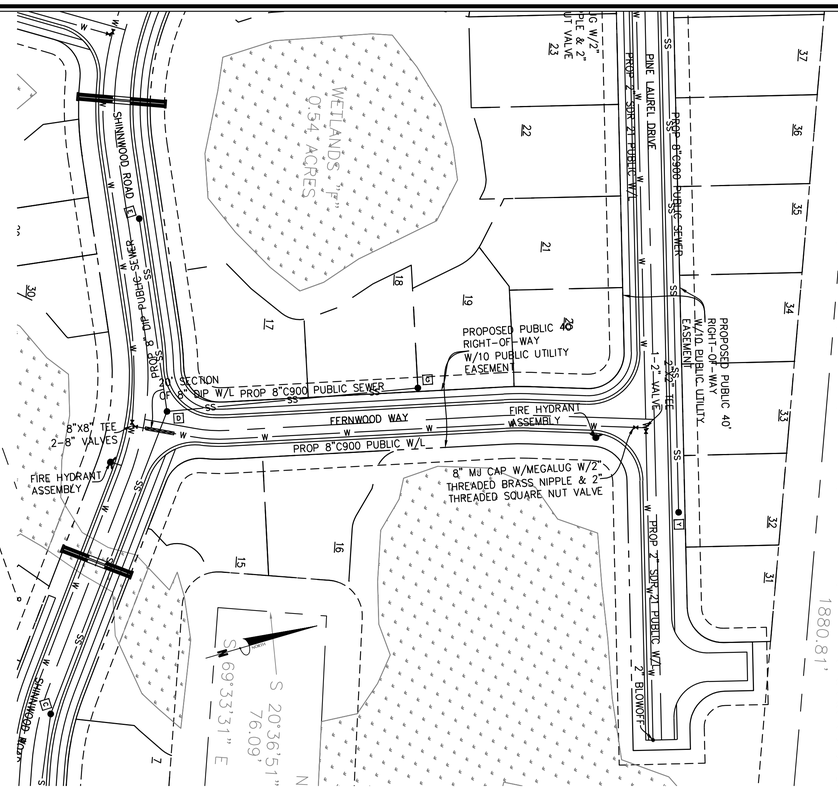
UTILITY PLAN (SHEET 2 OF 5)

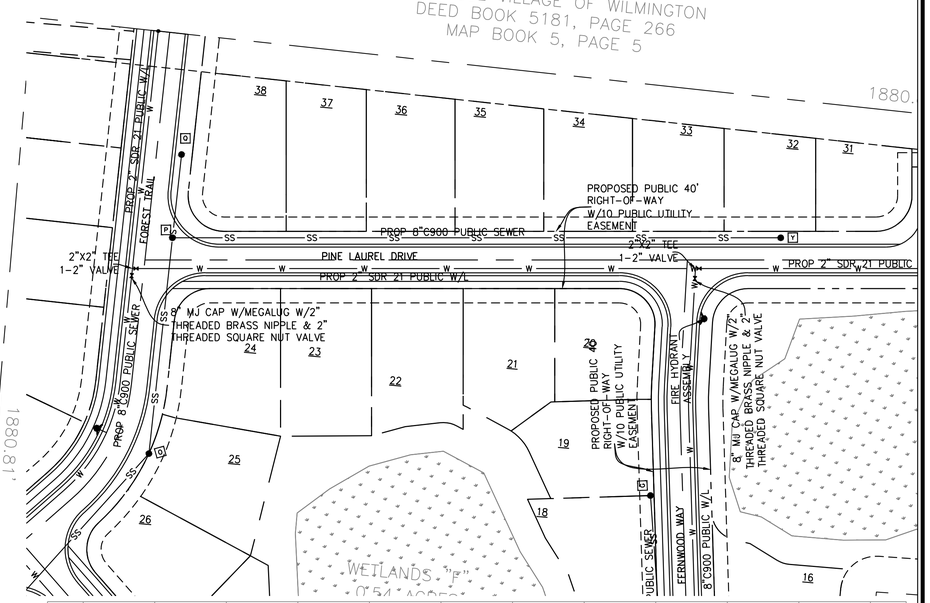
PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

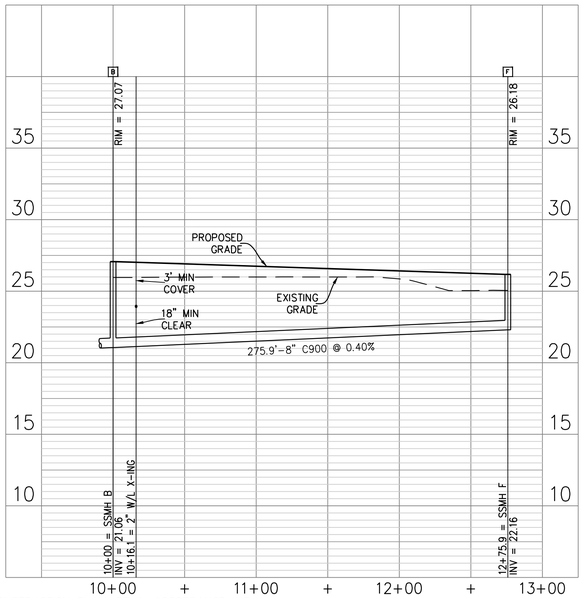
GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

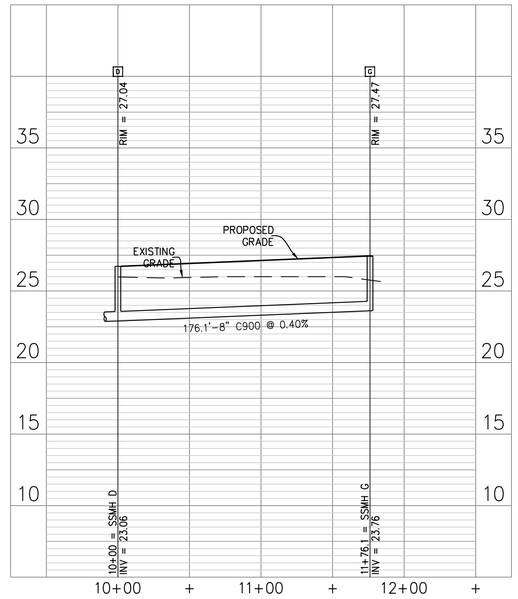
Sheet No. C-5.2

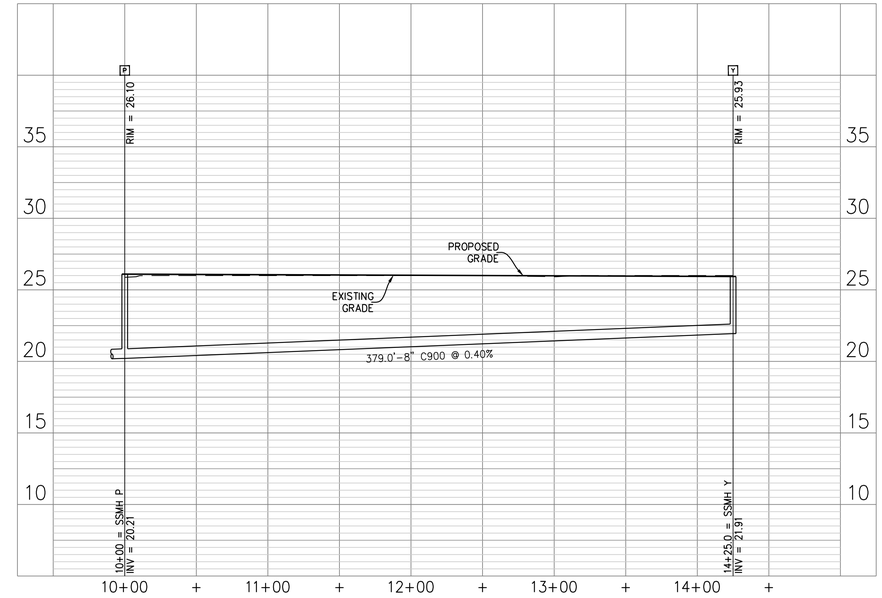












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Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

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Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

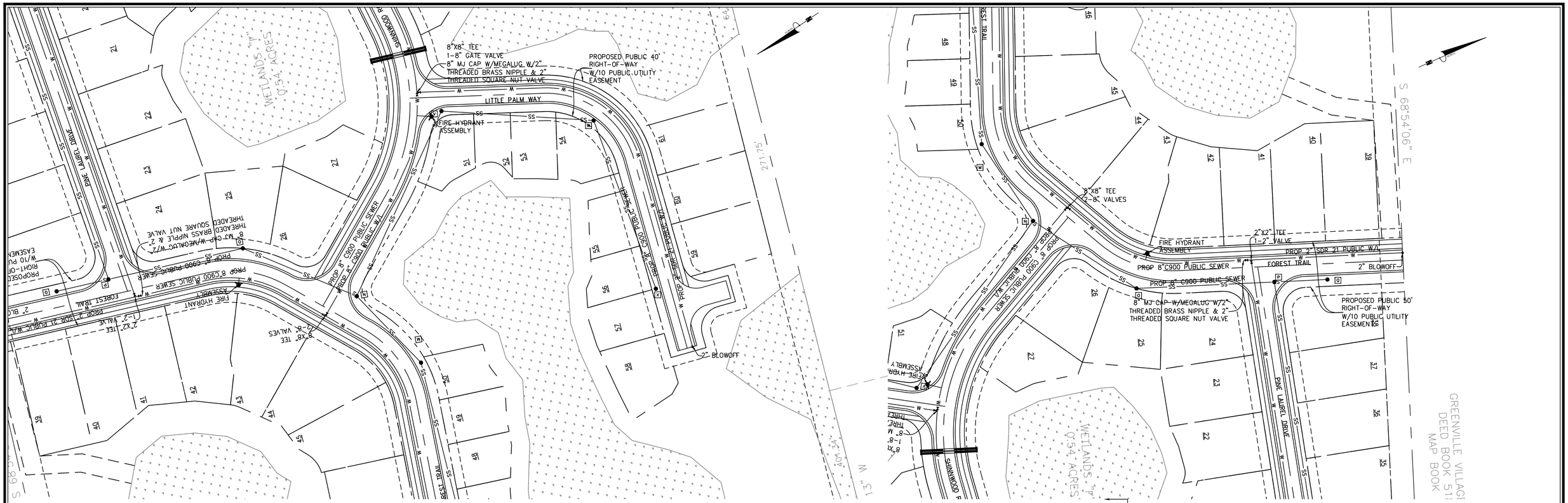
Wilmington New Hanover County North Carolina

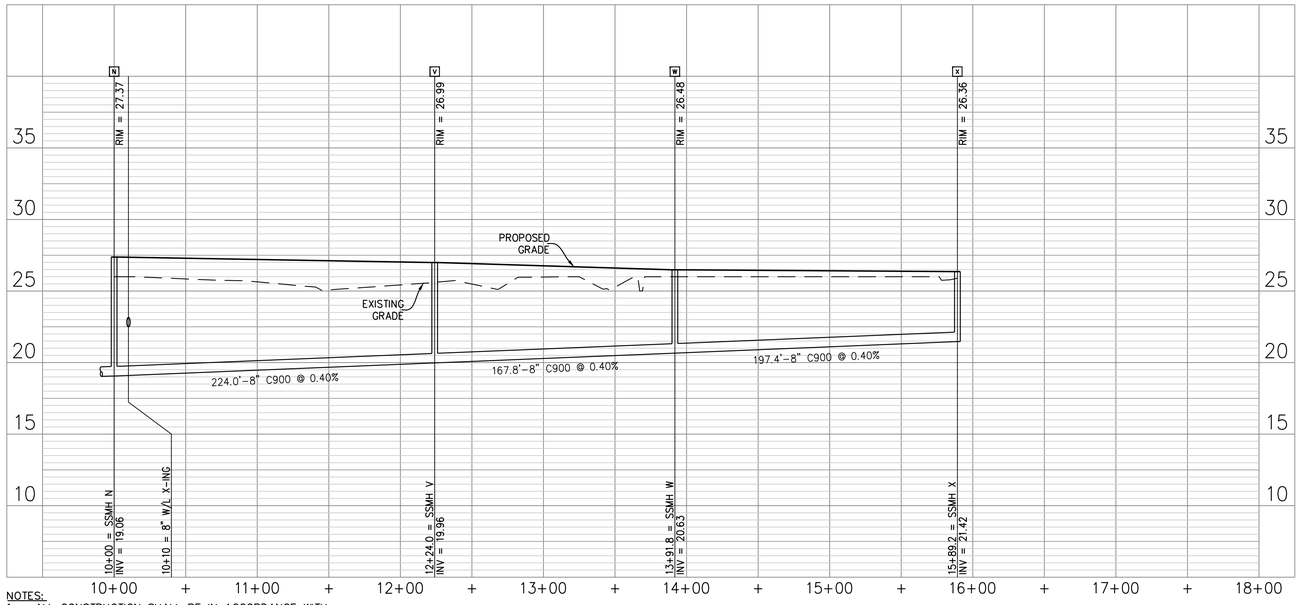
UTILITY PLAN (SHEET 3 OF 5)

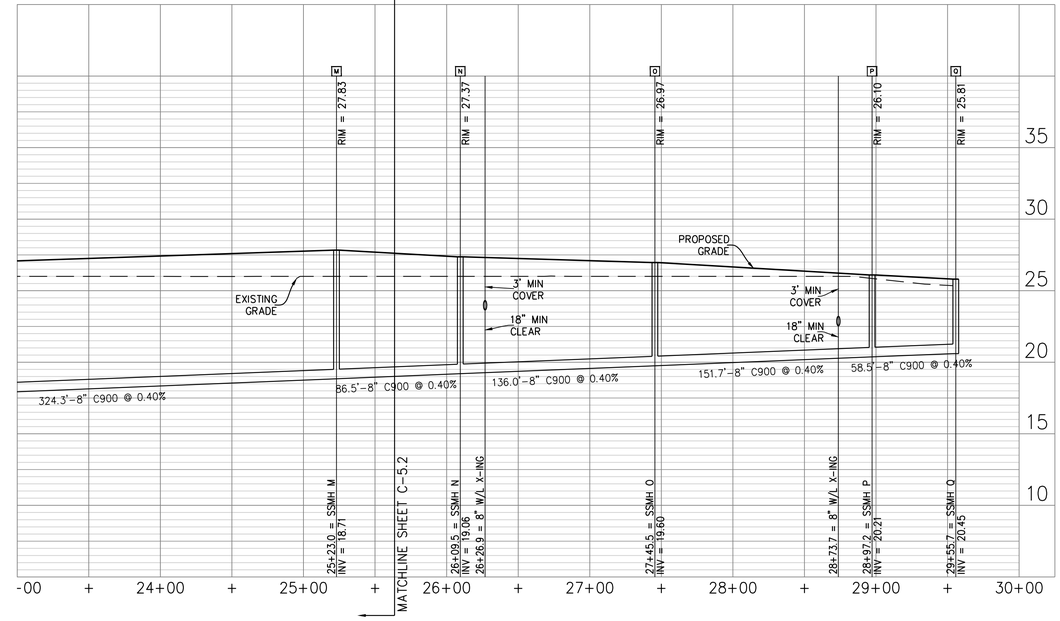
PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

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

Sheet No.
C-5.3







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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: _____

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE
01/16/2013

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GRAPHIC SCALE
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1 inch = 50 ft.

No.	Revision	Date	By

Designer: GSP	Scale: 1" = 50'
Drawn By: GSP	Date: January 2013
License #: P-0718	Job No.: 2012-0008

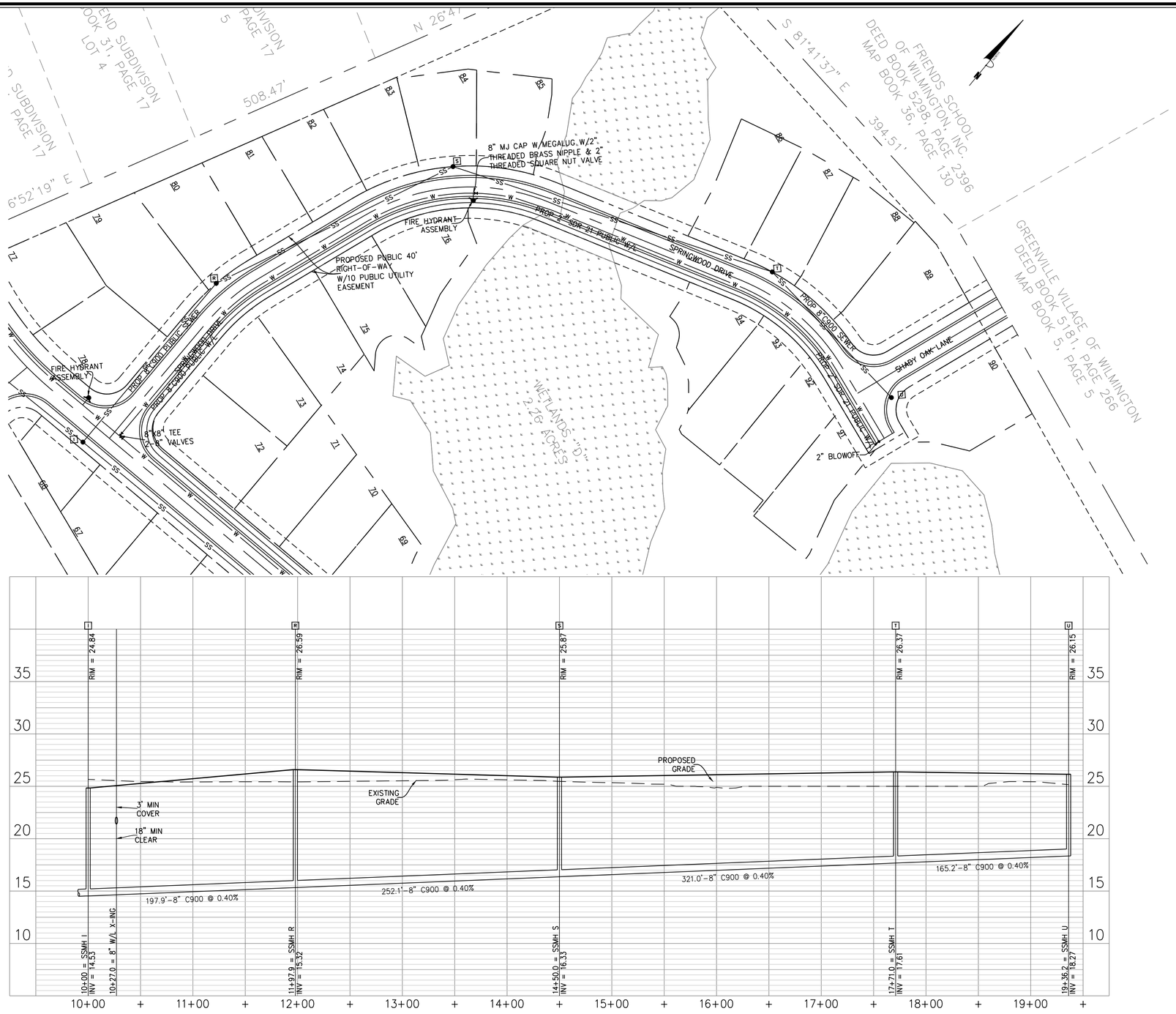
SHINNWOOD WEST
Wilmington New Hanover County North Carolina

UTILITY PLAN (SHEET 4 OF 5)

PREPARED FOR:
SHINNWOOD WEST, 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



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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: _____

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER CARRY S. PAPE
01/08/2013

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No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
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SHINNWOOD WEST

Wilmington New Hanover County North Carolina

UTILITY PLAN (SHEET 5 OF 5)

PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

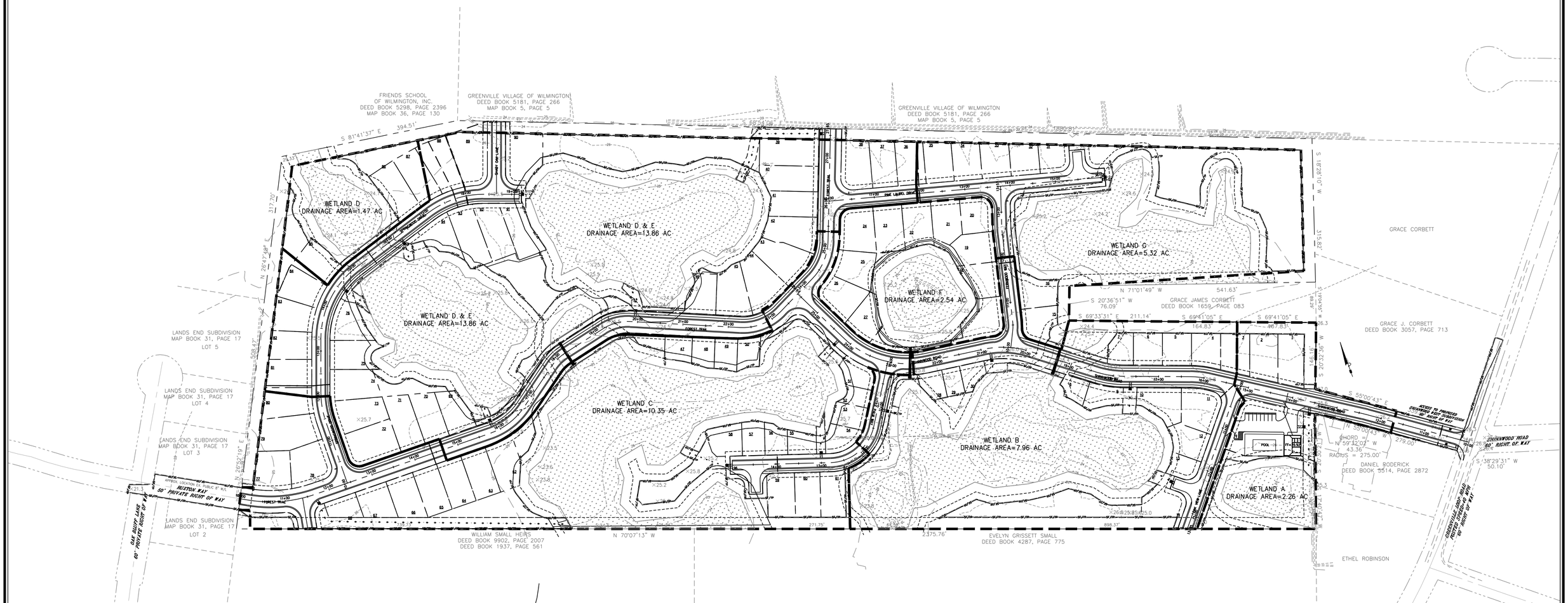
GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

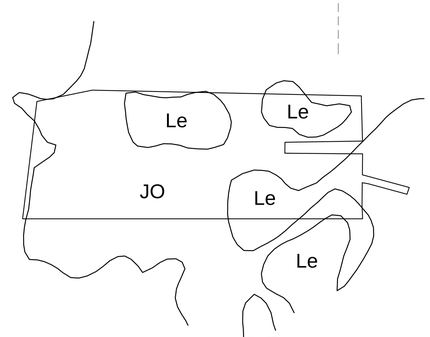
Sheet No.
C-5.5

WETLAND	DRAINAGE	PROPOSED BUA				OUTLET			OUTFLOW			WATER SURFACE ELEVATION			
	AREA	RIGHT OF WAY (sf)	LOTS (sf)	COMMON/OTHER (sf)	TOTAL (ac)	TYPE	SIZE/LENGTH	ELEV	2-YEAR	10-YEAR	25-YEAR	2-YEAR	10-YEAR	25-YEAR	25-YEAR
WETLAND A	2.26	12,790	6,699	11,200	0.71	WEIR	222	24.50	0.37	8.13	14.04	24.50	24.54	24.57	24.59
WETLAND B	7.96	41,151	37,819	0	1.81	WEIR	150	24.20	2.72	38.46	61.76	24.22	24.39	24.46	24.54
WETLAND C	10.35	44,660	61,407	0	2.43	WEIR	400	24.60	10.37	56.77	69.05	24.63	24.73	24.74	24.77
WETLAND D	1.47	0	11,432	0	0.26	WEIR	133	23.50	0.18	4.33	8.29	23.50	23.53	23.57	23.60
WETLAND D & E	13.86	56,210	104,557	0	3.69	PIPE	TWIN 12"	24.93	0.35	1.68	2.31	25.14	25.50	25.66	25.99
WETLAND F	2.54	0	33,349	0	0.77	PIPE	TWIN 12"	25.31	0.00	0.52	0.93	25.21	25.57	25.68	25.94
WETLAND G	5.32	15,115	19,401	0	0.79	PIPE	TWIN 12"	24.96	0.00	0.00	0.01	24.24	24.74	24.96	25.17
TOTALS	43.76	169,926	274,664	11,200	10.47				13.99	109.89	156.39				

STORM TABLE

LOCATION	LENGTH (ft)	DIAMETER (in)	SLOPE (%)	INV. DN (ft)	INV. UP (ft)	MATERIAL
SHINNWOOD ROAD STATION 19+28.8	50.00	12 (TWIN)	0.30%	24.96	24.81	RCP CL IV
SHINNWOOD ROAD STATION 22+59.3	60.00	12 (TWIN)	0.30%	25.31	25.13	RCP CL IV
FOREST TRAIL STATION 19+76.4	50.00	12 (TWIN)	0.30%	24.93	24.78	RCP CL IV





SOILS EXHIBIT

SOIL TYPE	HYDROLOGIC	CURVE NUMBER		AREA
	SOIL GROUP	PRE	POST	(sf)
LEON	B/D*	77	80	638,121
JOHNSTON	D	77	80	1,268,266

*USE UNDRAINED CONDITION

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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: _____

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE

01/18/2013

GRAPHIC SCALE

100 0 50 100 200

1 inch = 100 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 100'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

Wilmington New Hanover County North Carolina

OVERALL STORMWATER PLAN

PREPARED FOR:

SHINNWOOD WEST, 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

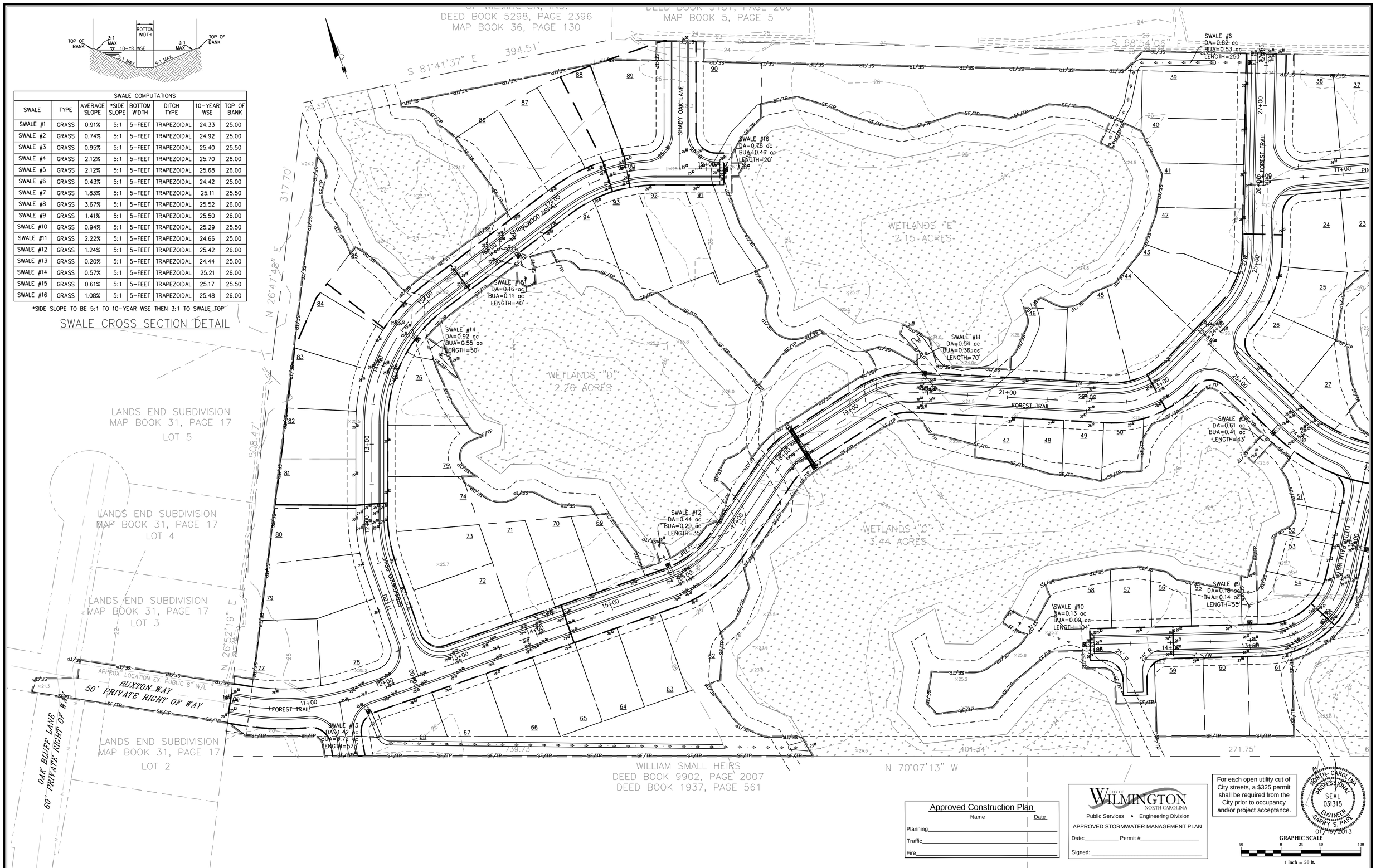
Sheet No.

C-6.1

SWALE COMPUTATIONS							
SWALE	TYPE	AVERAGE SLOPE	*SIDE SLOPE	BOTTOM WIDTH	DITCH TYPE	10-YEAR WSE	TOP OF BANK
SWALE #1	GRASS	0.91%	5:1	5-FEET	TRAPEZOIDAL	24.33	25.00
SWALE #2	GRASS	0.74%	5:1	5-FEET	TRAPEZOIDAL	24.92	25.00
SWALE #3	GRASS	0.95%	5:1	5-FEET	TRAPEZOIDAL	25.40	25.50
SWALE #4	GRASS	2.12%	5:1	5-FEET	TRAPEZOIDAL	25.70	26.00
SWALE #5	GRASS	2.12%	5:1	5-FEET	TRAPEZOIDAL	25.68	26.00
SWALE #6	GRASS	0.43%	5:1	5-FEET	TRAPEZOIDAL	24.42	25.00
SWALE #7	GRASS	1.83%	5:1	5-FEET	TRAPEZOIDAL	25.11	25.50
SWALE #8	GRASS	3.67%	5:1	5-FEET	TRAPEZOIDAL	25.52	26.00
SWALE #9	GRASS	1.41%	5:1	5-FEET	TRAPEZOIDAL	25.50	26.00
SWALE #10	GRASS	0.94%	5:1	5-FEET	TRAPEZOIDAL	25.29	25.50
SWALE #11	GRASS	2.22%	5:1	5-FEET	TRAPEZOIDAL	24.66	25.00
SWALE #12	GRASS	1.24%	5:1	5-FEET	TRAPEZOIDAL	25.42	26.00
SWALE #13	GRASS	0.20%	5:1	5-FEET	TRAPEZOIDAL	24.44	25.00
SWALE #14	GRASS	0.57%	5:1	5-FEET	TRAPEZOIDAL	25.21	26.00
SWALE #15	GRASS	0.61%	5:1	5-FEET	TRAPEZOIDAL	25.17	25.50
SWALE #16	GRASS	1.08%	5:1	5-FEET	TRAPEZOIDAL	25.48	26.00

*SIDE SLOPE TO BE 5:1 TO 10-YEAR WSE THEN 3:1 TO SWALE TOP

SWALE CROSS SECTION DETAIL



Approved Construction Plan		
	Name	Date
Planning		
Traffic		
Fire		

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date:_____ Permit #_____
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NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/08/2013

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Drawn By GSP	Date January 2013
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SHINNWOOD WEST

Wilmington New Hanover County North Carolina

SWALE DRAINAGE PLAN & DETAILS (SHEET 1 OF 2)

PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

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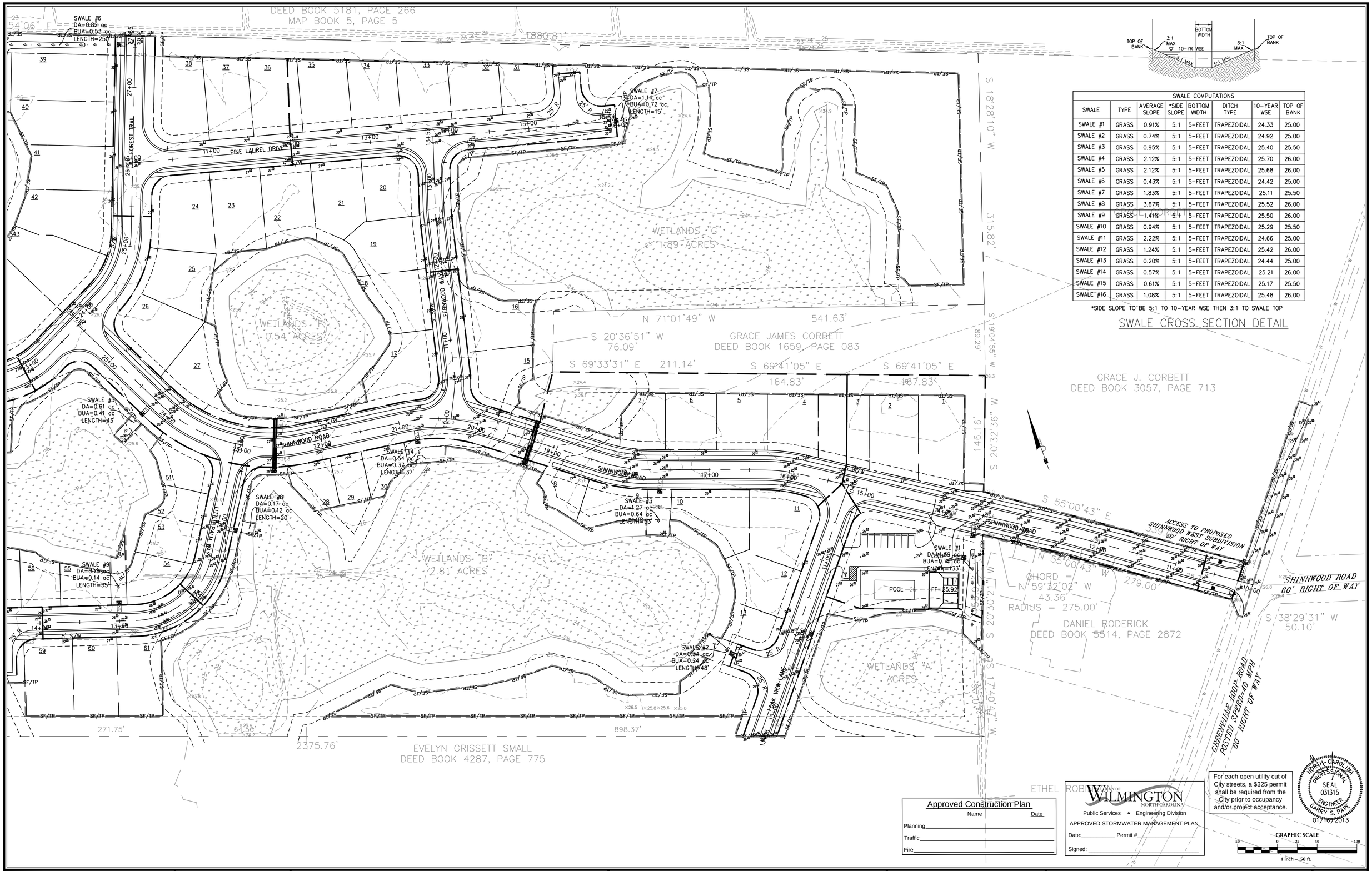

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SWALE #2	GRASS	0.74%	5:1	5-FEET	TRAPEZOIDAL	24.92	25.00
SWALE #3	GRASS	0.95%	5:1	5-FEET	TRAPEZOIDAL	25.40	25.50
SWALE #4	GRASS	2.12%	5:1	5-FEET	TRAPEZOIDAL	25.70	26.00
SWALE #5	GRASS	2.12%	5:1	5-FEET	TRAPEZOIDAL	25.68	26.00
SWALE #6	GRASS	0.43%	5:1	5-FEET	TRAPEZOIDAL	24.42	25.00
SWALE #7	GRASS	1.83%	5:1	5-FEET	TRAPEZOIDAL	25.11	25.50
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SWALE #11	GRASS	2.22%	5:1	5-FEET	TRAPEZOIDAL	24.66	25.00
SWALE #12	GRASS	1.24%	5:1	5-FEET	TRAPEZOIDAL	25.42	26.00
SWALE #13	GRASS	0.20%	5:1	5-FEET	TRAPEZOIDAL	24.44	25.00
SWALE #14	GRASS	0.57%	5:1	5-FEET	TRAPEZOIDAL	25.21	26.00
SWALE #15	GRASS	0.61%	5:1	5-FEET	TRAPEZOIDAL	25.17	25.50
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SWALE CROSS SECTION DETAIL

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

City of WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date:_____ Permit #_____
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NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER CARRY S. PAPE 01/16/2013

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

Wilmington New Hanover County North Carolina

SWALE DRAINAGE PLAN & DETAILS (SHEET 2 OF 2)

PREPARED FOR:
SHINNWOOD WEST, 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

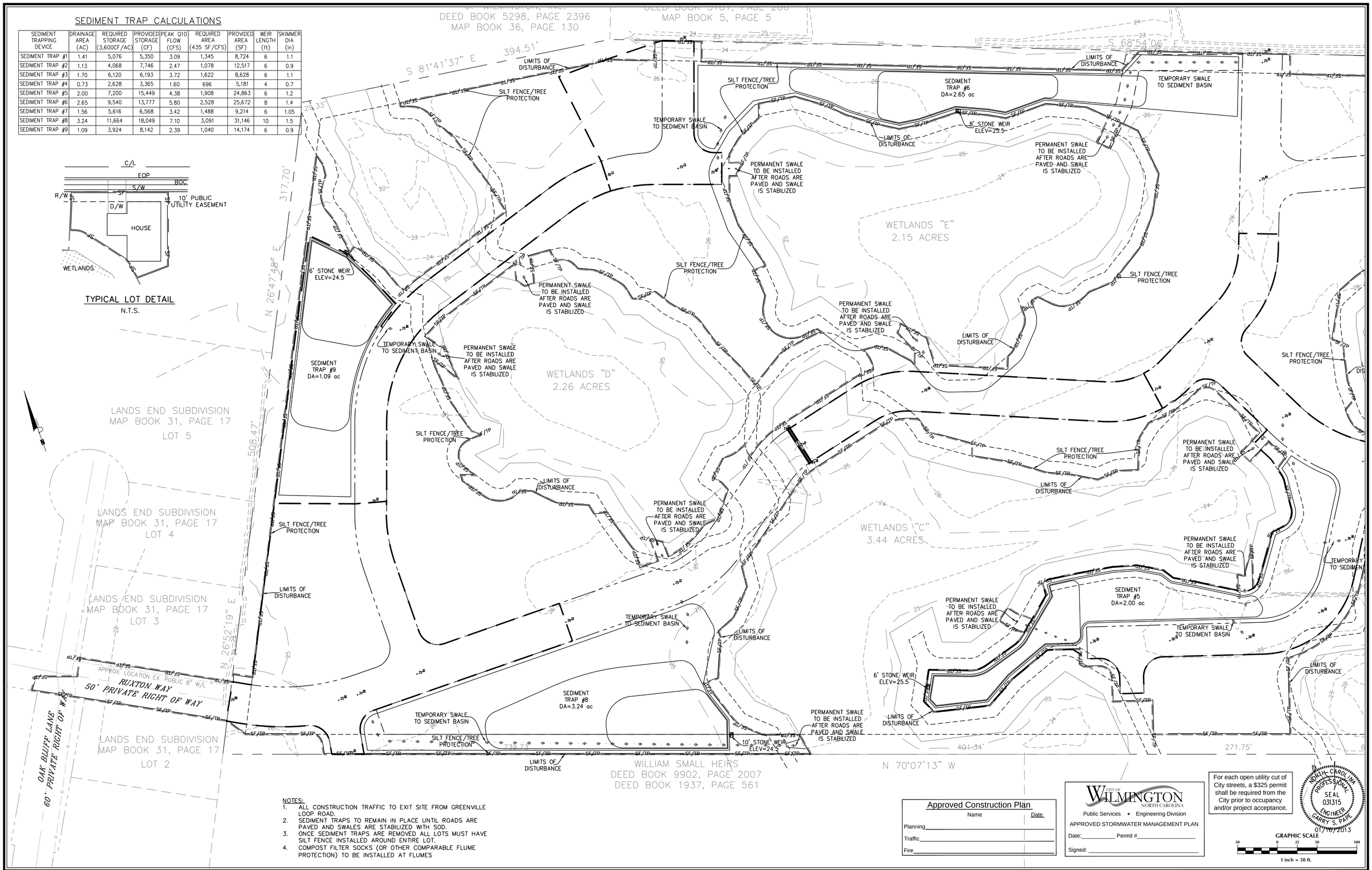
Sheet No. C-6.3

SEDIMENT TRAP CALCULATIONS

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (3,600CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)	WEIR LENGTH (ft)	SKIMMER DIA (in)
SEDIMENT TRAP #1	1.41	5,076	5,350	3.09	1,345	8,724	6	1.1
SEDIMENT TRAP #2	1.13	4,068	7,746	2.47	1,078	12,517	6	0.9
SEDIMENT TRAP #3	1.70	6,120	6,193	3.72	1,622	8,628	6	1.1
SEDIMENT TRAP #4	0.73	2,628	3,365	1.60	696	5,181	4	0.7
SEDIMENT TRAP #5	2.00	7,200	15,449	4.38	1,908	24,863	6	1.2
SEDIMENT TRAP #6	2.65	9,540	13,777	5.80	2,528	25,672	8	1.4
SEDIMENT TRAP #7	1.56	5,616	6,568	3.42	1,488	9,214	6	1.05
SEDIMENT TRAP #8	3.24	11,664	18,049	7.10	3,091	14,146	10	1.5
SEDIMENT TRAP #9	1.09	3,924	8,142	2.39	1,040	14,174	6	0.9

TYPICAL LOT DETAIL

N.T.S.



NOTES:
1. ALL CONSTRUCTION TRAFFIC TO EXIT SITE FROM GREENVILLE LOOP ROAD.
2. SEDIMENT TRAPS TO REMAIN IN PLACE UNTIL ROADS ARE PAVED AND SWALES ARE STABILIZED WITH SOD.
3. ONCE SEDIMENT TRAPS ARE REMOVED ALL LOTS MUST HAVE SILT FENCE INSTALLED AROUND ENTIRE LOT.
4. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES

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.

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PARK 01/10/2013

GRAPHIC SCALE
50 0 25 50 100
1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

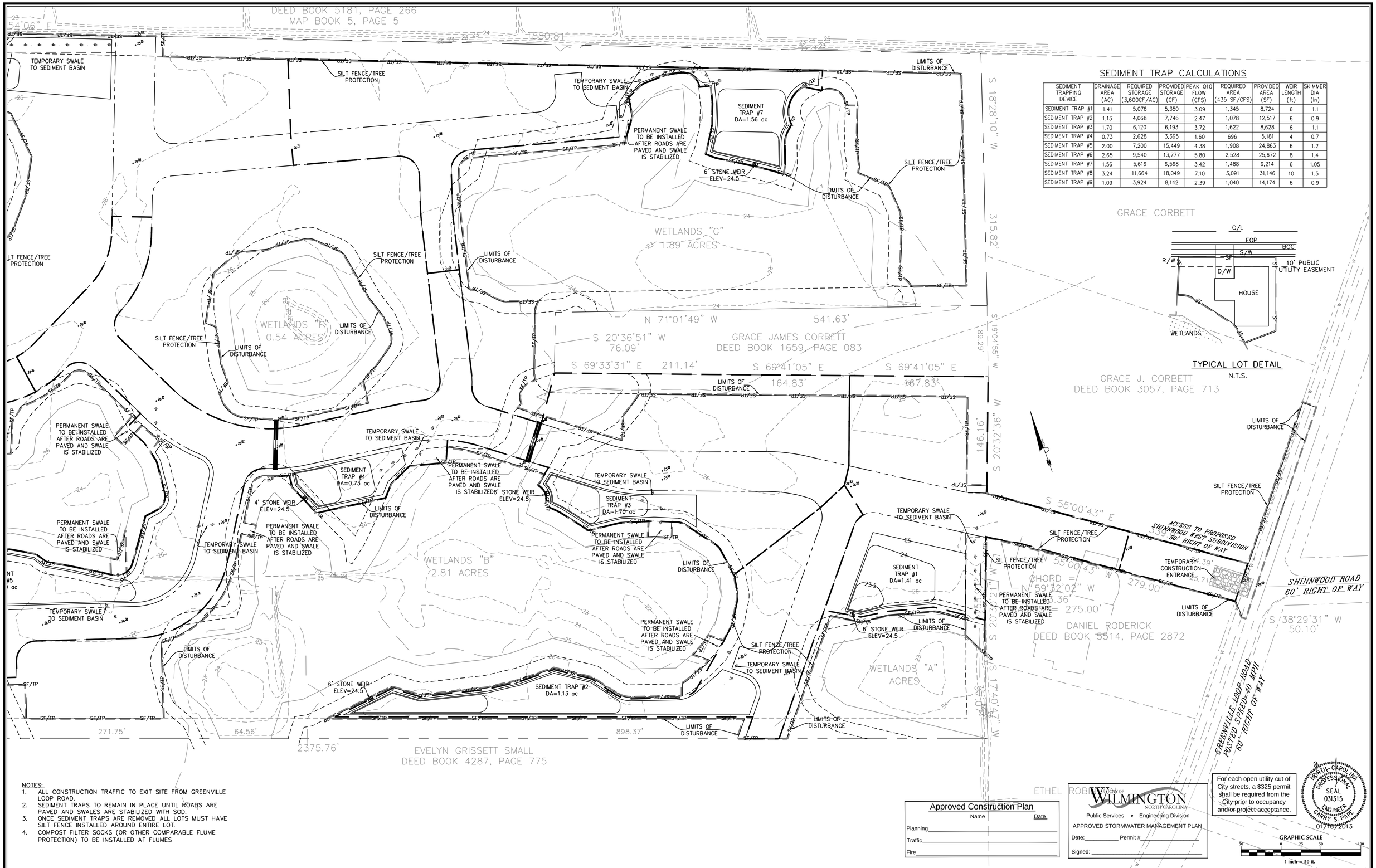
Wilmington New Hanover County North Carolina

EROSION & SEDIMENT CONTROL PLAN (SHEET 1 OF 2)

PREPARED FOR:
SHINNWOOD WEST, 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-7.1



SEDIMENT TRAP CALCULATIONS

SEDIMENT TRAPPING DEVICE	DRAINAGE AREA (AC)	REQUIRED STORAGE (3,600CF/AC)	PROVIDED STORAGE (CF)	PEAK Q10 FLOW (CFS)	REQUIRED AREA (435 SF/CFS)	PROVIDED AREA (SF)	WEIR LENGTH (ft)	SKIMMER DIA (in)
SEDIMENT TRAP #1	1.41	5,076	5,350	3.09	1,345	8,724	6	1.1
SEDIMENT TRAP #2	1.13	4,068	7,746	2.47	1,078	12,517	6	0.9
SEDIMENT TRAP #3	1.70	6,120	6,193	3.72	1,622	8,628	6	1.1
SEDIMENT TRAP #4	0.73	2,628	3,365	1.60	696	5,181	4	0.7
SEDIMENT TRAP #5	2.00	7,200	15,449	4.38	1,908	24,863	6	1.2
SEDIMENT TRAP #6	2.65	9,540	13,777	5.80	2,528	25,672	8	1.4
SEDIMENT TRAP #7	1.56	5,616	6,568	3.42	1,488	9,214	6	1.05
SEDIMENT TRAP #8	3.24	11,664	18,049	7.10	3,091	31,146	10	1.5
SEDIMENT TRAP #9	1.09	3,924	8,142	2.39	1,040	14,174	6	0.9

TYPICAL LOT DETAIL
N.T.S.

NOTES:
1. ALL CONSTRUCTION TRAFFIC TO EXIT SITE FROM GREENVILLE LOOP ROAD.
2. SEDIMENT TRAPS TO REMAIN IN PLACE UNTIL ROADS ARE PAVED AND SWALES ARE STABILIZED WITH SOD.
3. ONCE SEDIMENT TRAPS ARE REMOVED ALL LOTS MUST HAVE SILT FENCE INSTALLED AROUND ENTIRE LOT.
4. COMPOST FILTER SOCKS (OR OTHER COMPARABLE FLUME PROTECTION) TO BE INSTALLED AT FLUMES

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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NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/08/2013

GRAPHIC SCALE
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1 inch = 50 ft.

No.	Revision	Date	By

Designer GSP	Scale 1" = 50'
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SHINNWOOD WEST

Wilmington New Hanover County North Carolina

EROSION & SEDIMENT CONTROL PLAN (SHEET 2 OF 2)

PREPARED FOR:
SHINNWOOD WEST, LLC
6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

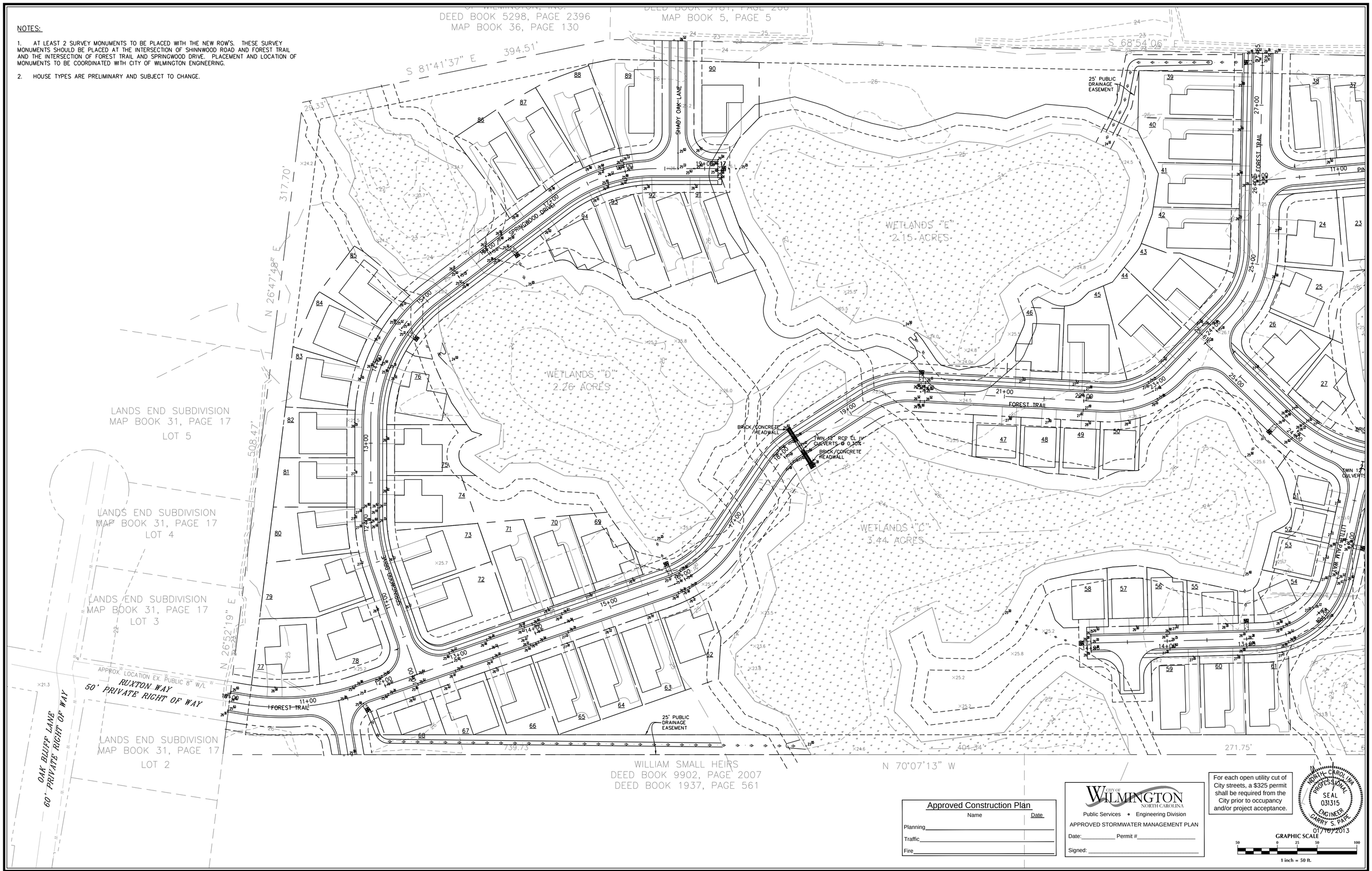
GSP CONSULTING, PLLC
ENGINEERING
6626 Gordon Road Unit C Wilmington, North Carolina 28411 tel: 910-442-7870 fax: 910-799-6659

Sheet No.
C-7.2

NOTES:

1. AT LEAST 2 SURVEY MONUMENTS TO BE PLACED WITH THE NEW ROW'S. THESE SURVEY MONUMENTS SHOULD BE PLACED AT THE INTERSECTION OF SHINNWOOD ROAD AND FOREST TRAIL AND THE INTERSECTION OF FOREST TRAIL AND SPRINGWOOD DRIVE. PLACEMENT AND LOCATION OF MONUMENTS TO BE COORDINATED WITH CITY OF WILMINGTON ENGINEERING.

2. HOUSE TYPES ARE PRELIMINARY AND SUBJECT TO CHANGE.



Approved Construction Plan		
	Name	Date
Planning		
Traffic		
Fire		

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date:_____ Permit #_____
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NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/07/2013

GRAPHIC SCALE
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Designer GSP	Scale 1" = 50'
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST

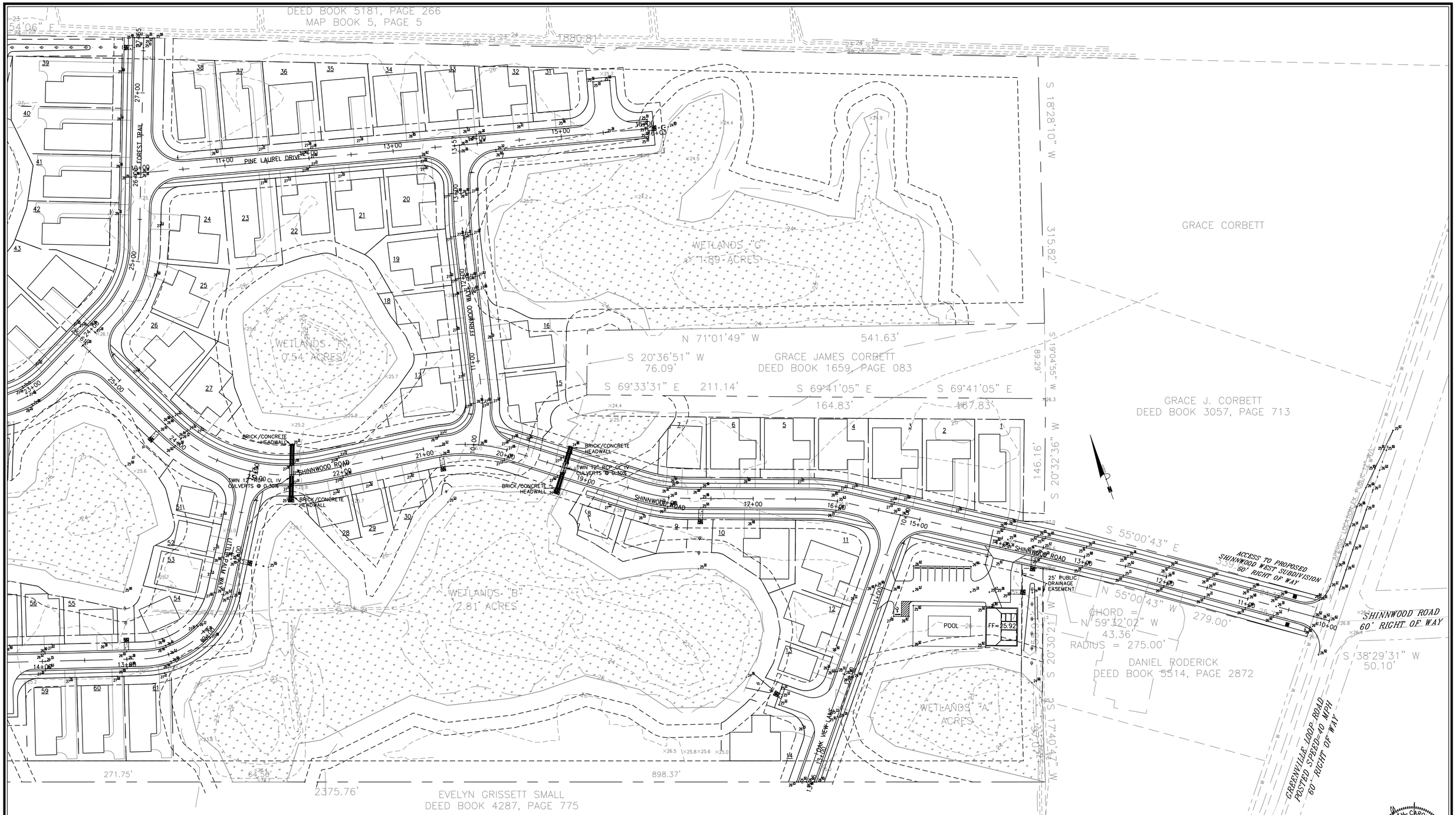
Wilmington New Hanover County North Carolina

GRADING PLAN (SHEET 1 OF 2)

PREPARED FOR:
SHINNWOOD WEST, 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-7.3



NOTES:

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2. HOUSE TYPES ARE PRELIMINARY AND SUBJECT TO CHANGE.

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

CITY OF WILMINGTON NORTH CAROLINA
Public Services • Engineering Division
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Sheet No.
C-7.4

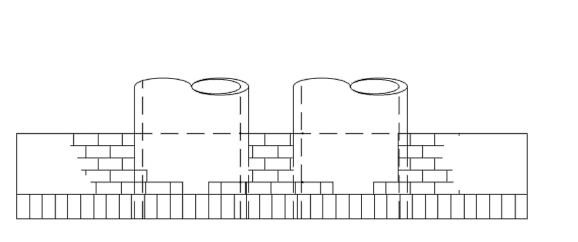
STANDARD DETAILS

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

7-06

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

SHEET 1 OF 1
838.11



GENERAL NOTES:

-ALL MORTAR JOINTS ARE ½" ± ⅛".

-BOND BRICKWORK WITH FULL HEADERS EVERY THREE COURSES.

-CONCAVE TOOL ALL EXPOSED JOINTS.

-DO NOT INTERPRET WALL THICKNESS (T) SHOWN AS THE THICKNESS ACCEPTABLE, BUT IS USED ONLY IN COMPUTING ENDWALL DIMENSIONS AND QUANTITIES.

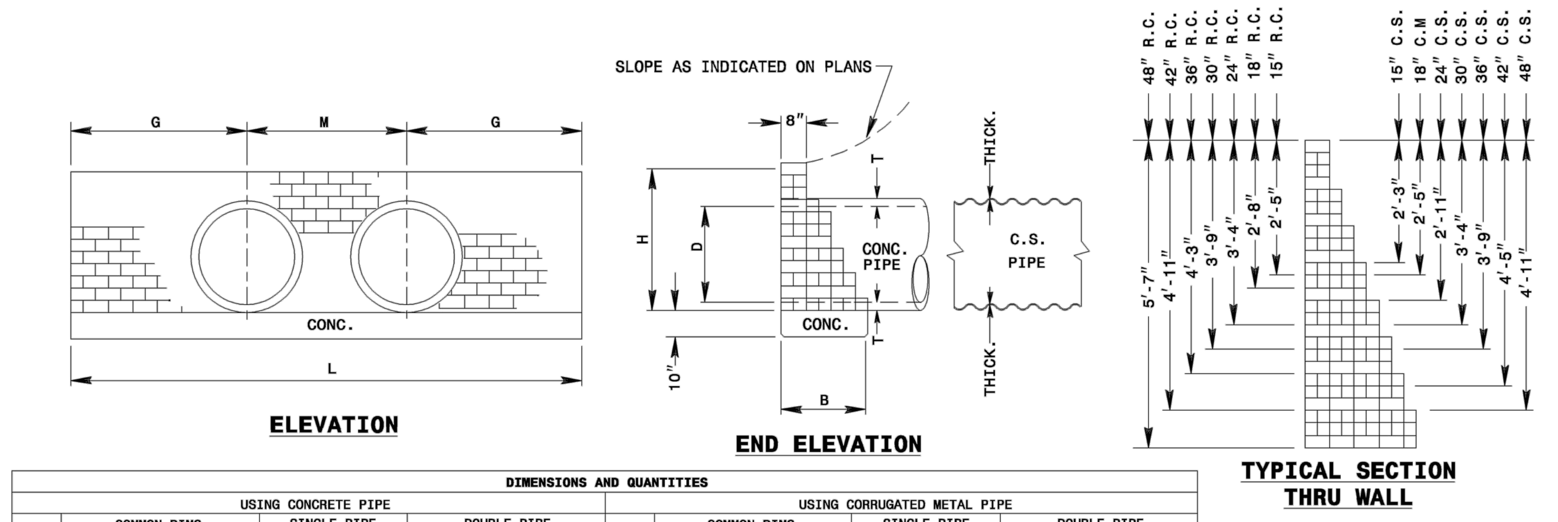
-CONSTRUCT THE BASE WITH FORMS.

-USE CLASS 'B' CONCRETE.

-PAY FOR CONCRETE AS BRICK MASONRY.

-CONCRETE BRICK MAY BE USED IN LIEU OF CLAY BRICK.

-JUMBO BRICK WILL BE PERMITTED.



DIMENSIONS AND QUANTITIES

USING CONCRETE PIPE												USING CORRUGATED METAL PIPE											
	COMMON DIMS.				SINGLE PIPE			DOUBLE PIPE					COMMON DIMS.				SINGLE PIPE			DOUBLE PIPE			
D	H	B	G	T	L	BRICK YD^3	CONC. YD^3	M	L	BRICK YD^3	CONC. YD^3	D	H	B	G	L	L	BRICK YD^3	CONC. YD^3	M	L	BRICK YD^3	CONC. YD^3
15"	2'-5"	1'-8"	2'-10"	1⅞"	5'-8"	0.441	0.291	2'-2"	7'-10"	0.555	0.403	15"	2'-3"	1'-4"	2'-9"	5'-6"	5'-6"	0.384	0.226	1'-11"	7'-5"	0.482	0.305
18"	2'-8"	1'-8"	3'-2"	2"	6'-4"	0.562	0.326	2'-7"	8'-11"	0.722	0.459	18"	2'-5"	1'-8"	3'-0"	6'-0"	6'-0"	0.478	0.309	2'-3"	8'-3"	0.605	0.424
24"	3'-4"	2'-0"	4'-1"	3"	8'-2"	1.008	0.504	3'-5"	11'-7"	1.285	0.715	24"	2'-11"	1'-8"	3'-9"	7'-6"	7'-6"	0.749	0.386	3'-0"	10'-6"	0.954	0.540
30"	3'-9"	2'-4"	4'-8"	3½"	9'-4"	1.391	0.672	4'-3"	13'-7"	1.820	0.978	30"	3'-4"	2'-0"	4'-5"	8'-10"	8'-10"	1.090	0.545	3'-9"	12'-7"	1.399	0.777
36"	4'-3"	2'-4"	5'-5"	4"	10'-10"	1.895	0.780	5'-0"	15'-10"	2.462	1.140	36"	3'-9"	2'-4"	5'-0"	10'-0"	10'-0"	1.503	0.720	4'-6"	14'-6"	1.965	1.044
42"	4'-11"	2'-8"	6'-4"	5¼"	12'-8"	2.867	1.043	5'-10"	18'-6"	3.729	1.523	42"	4'-5"	2'-8"	6'-0"	12'-0"	12'-0"	2.373	0.988	5'-3"	17'-3"	3.062	1.420
48"	5'-7"	3'-0"	7'-3"	5¾"	14'-6"	4.032	1.343	6'-8"	21'-2"	5.184	1.960	48"	4'-11"	2'-8"	6'-9"	13'-6"	13'-6"	3.102	1.111	6'-0"	19'-6"	4.002	1.606

STATE OF NORTH CAROLINA
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DIVISION OF HIGHWAYS
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7-06

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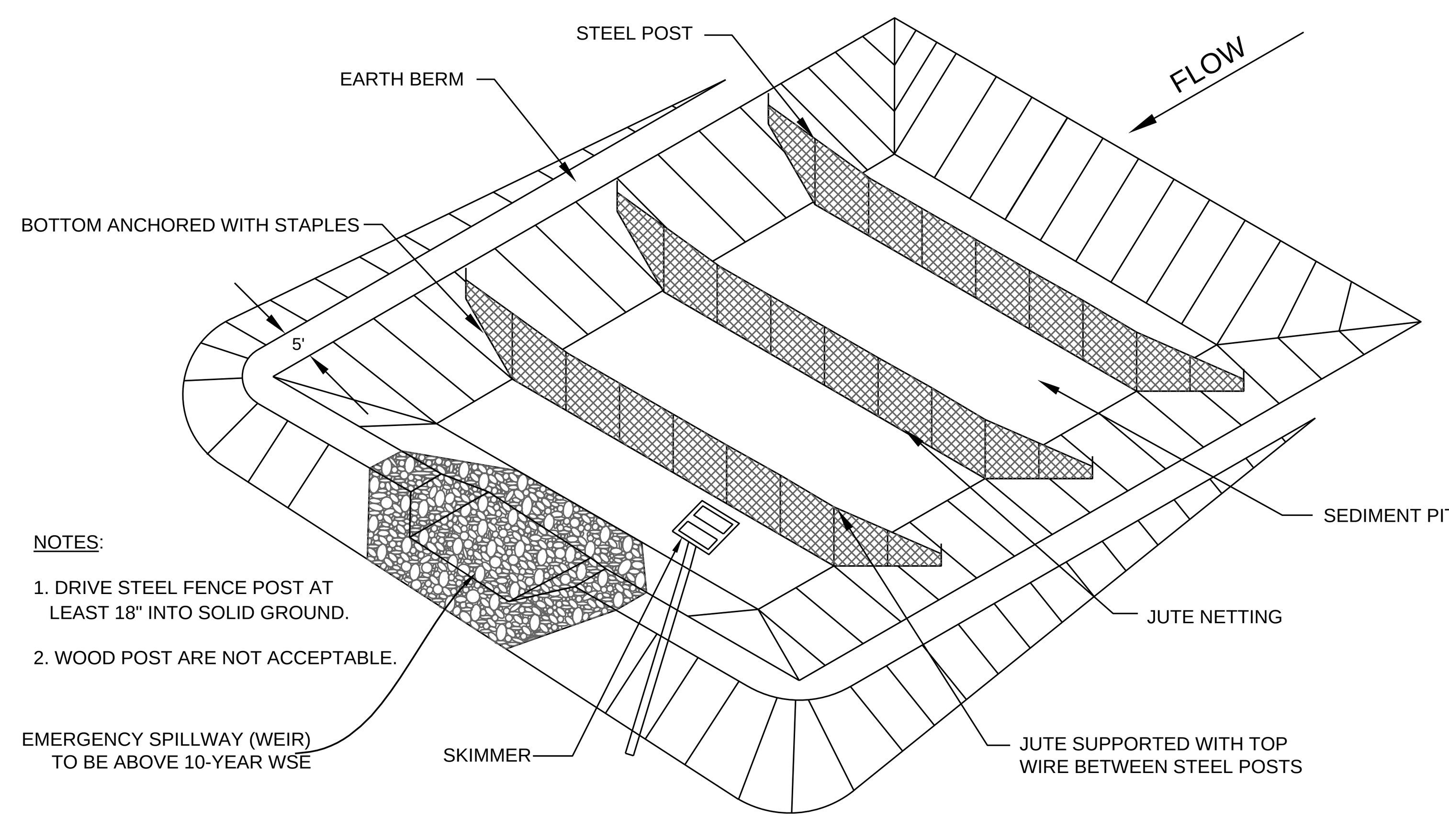
15" THRU 48" PIPE - 90° SKEW

SHEET 1 OF 1
838.11

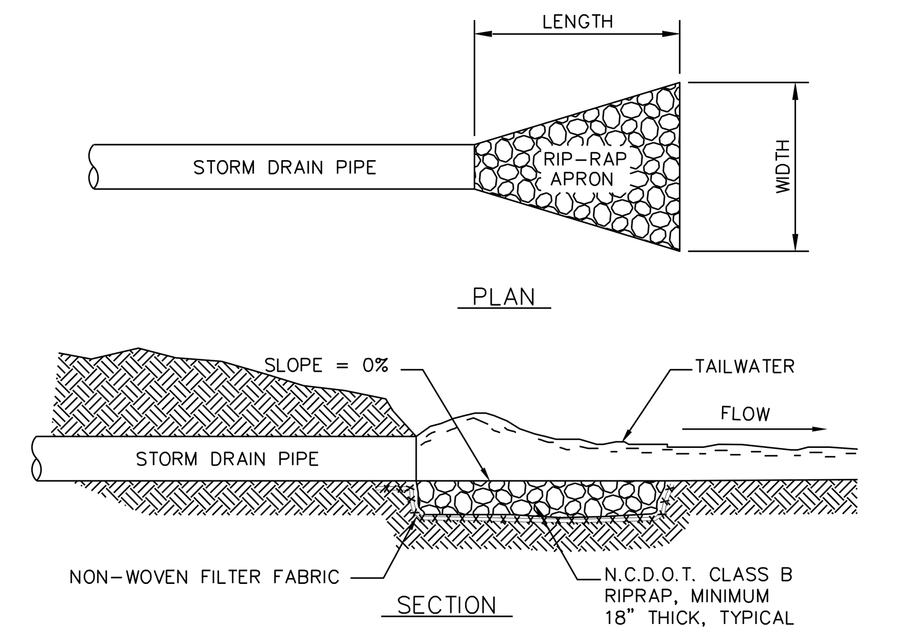


TEMPORARY SEDIMENT TRAP

N.T.S.

NOTES:
1. USE FOR DRAINAGE AREAS NOT EXCEEDING 5 (FIVE) ACRES.
2. EARTH BERM SHALL BE STABILIZED W/ SEEDING ACCORDING TO COUNTY SPECIFICATIONS.

MAINTENANCE:
1. INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH PERIOD OF SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE TRAP TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN A DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING.
2. CHECK THE STRUCTURE FOR DAMAGE FROM EROSION OR PIPING. PERIODICALLY CHECK THE DEPTH OF THE SPILLWAY TO ENSURE IT IS A MINIMUM OF 1.5 FT. BELOW THE LOW POINT OF THE EMBANKMENT. IMMEDIATELY FILL ANY SETTLEMENT OF THE EMBANKMENT TO SLIGHTLY ABOVE DESIGN GRADE. ANY RIP RAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY.
3. STABILIZE THE EMBANKMENT AND ALL DISTURBED AREAS ABOVE THE SEDIMENT POOL AND DOWNSTREAM FROM THE TRAP IMMEDIATELY AFTER CONSTRUCTION WITH SEEDING.



RIPRAP LOCATIONS	LENGTH (FT.)	UPSTREAM WIDTH (FT.)	DOWNSTREAM WIDTH (FT.)
CONC FLUMES (16)	5	5	6
ROAD CULVERTS (3)	6	6	7

RIP-RAP OUTLET PROTECTION

N.T.S.

SEQUENCE OF CONSTRUCTION

1. INSTALL TEMPORARY CONSTRUCTION ENTRANCE AS SHOWN ON EROSION & SEDIMENT CONTROL PLAN.

2. INSTALL PERIMETER CONTROLS (TEMPORARY SEDIMENT TRAPS, SILT FENCE, TREE PROTECTION FENCING, ETC.) AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLAN. THIS STEP NEEDS TO BE COMPLETED PRIOR TO UPSLOPE LAND DISTURBING ACTIVITIES.

3. ONCE PERIMETER CONTROLS AND SEDIMENT TRAPPING MEASURES ARE INSTALLED CLEAR AND GRUB SITE WITHIN LIMITS OF DISTURBANCE. TRAPS WILL BE PUMPED DOWN BY MECHANICAL MEANS AS NEEDED TO MUCK OUT SEDIMENT WHEN THE SEDIMENT REACHES 50% CAPACITY.

4. 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.

5. ONCE THE ROADS, SANITARY SEWERS, WATERLINES AND STORM SEWERS ARE IN PLACE, INSTALL INLET PROTECTION AND OUTLET PROTECTIONS AS SHOWN ON THE EROSION & SEDIMENT CONTROL PLANS.

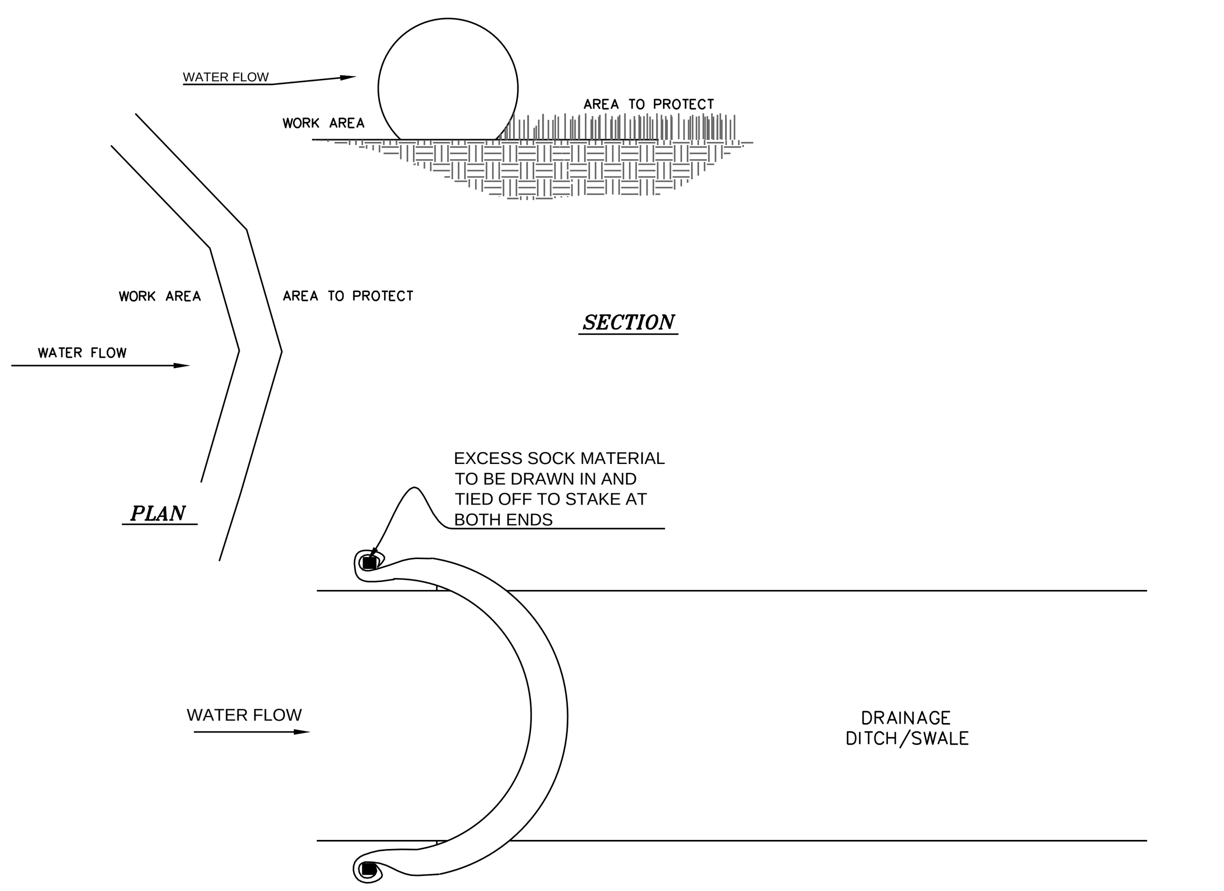
6. UPON BRINGING THE ROAD BEDS TO SUBGRADE ELEVATIONS, STABILIZE THE AREAS BY PLACING STONE BASE AS EARLY AS POSSIBLE.

7. SEDIMENT TRAPS TO REMAIN IN PLACE UNTIL THE FIRST INCH OF ASPHALT IS INSTALLED ON THE ROADS AND THE SWALES ARE SODDED.

8. AFTER SEDIMENT TRAPS ARE REMOVED SILT FENCE IS TO BE INSTALLED AROUND THE ENTIRE LOT

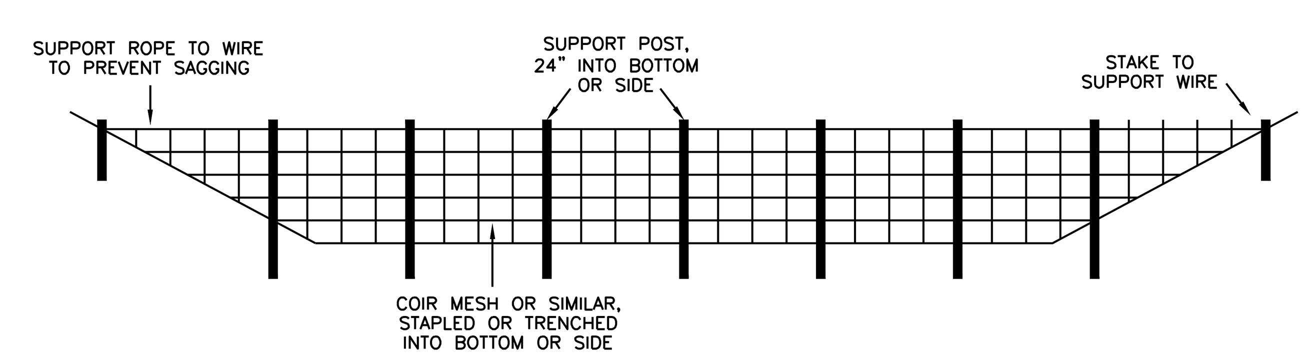
9. FOR TEMPORARY VEGETATIVE STABILIZATION OF ALL DENUDED AREAS SEE NOTE REFERENCING THE EROSION CONTROL PROGRAM AND SPECIFICATIONS.

10. AFTER CONSTRUCTION OPERATIONS HAVE ENDED AND ALL DISTURBED AREAS HAVE 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.



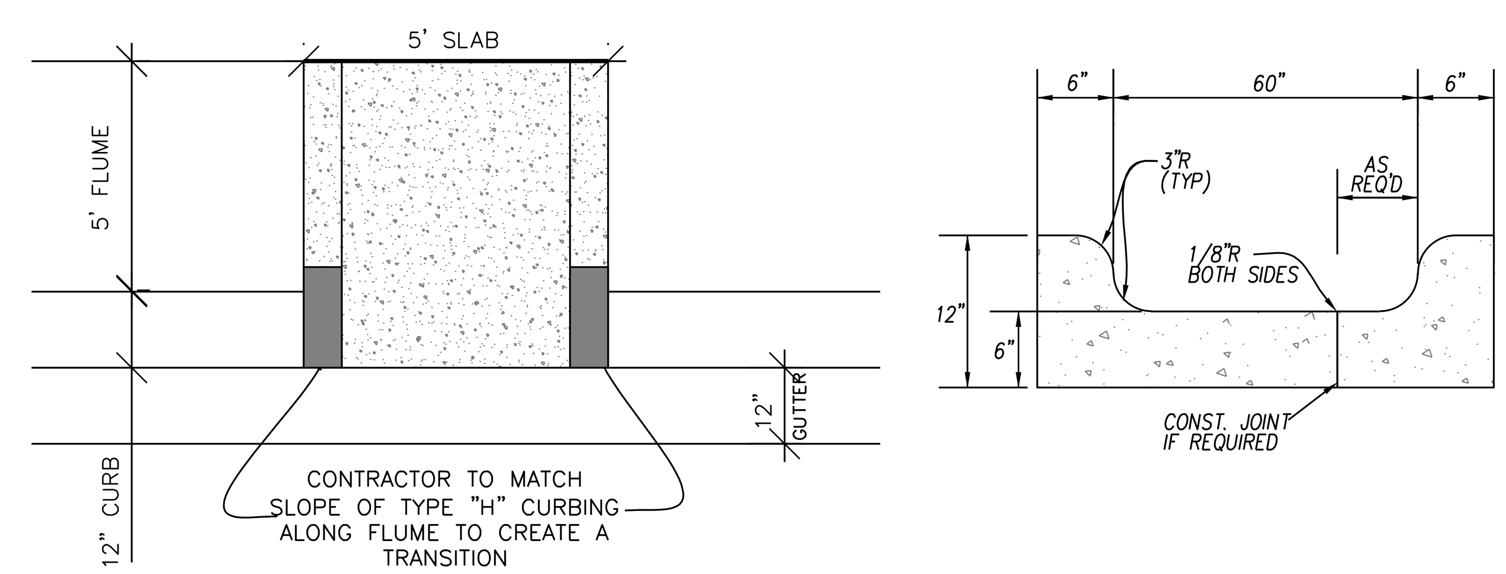
COMPOST FILTER SOCK (OR OTHER COMPARABLE FLUME PROTECTION)

N.T.S.



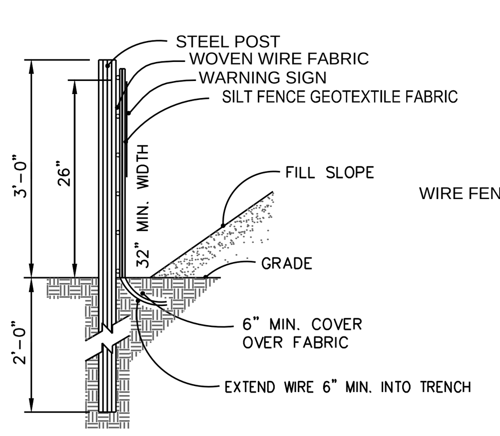
CROSS-SECTION OF POROUS BAFFLES

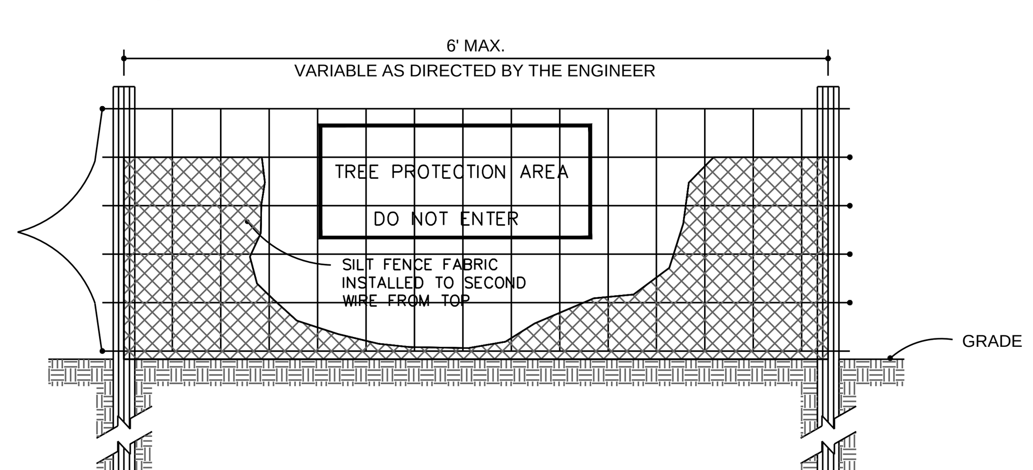
N.T.S.



STORM DRAINAGE FLUME

N.T.S.



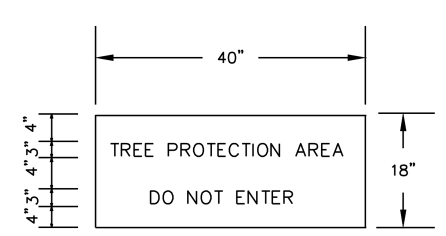


NOTES:

1. SYNTHETIC FILTER FABRIC SHOULD BE OF AT LEAST 95% BY WEIGHT OF POLYOLEFINS OR POLYESTER, WHICH IS CERTIFIED BY THE MANUFACTURER OR SUPPLIER PER ASTM D 6461 AND SHOULD CONTAIN ULTRAVIOLET RAY INHIBITORS AND STABILIZERS PER ASTM D 4355.

2. WIRE FENCE SHALL BE MINIMUM 14 GAUGE WITH A MAXIMUM MESH OPENING OF 6-INCHES.

3. SEE THE NC EROSION AND SEDIMENTATION CONTROL MANUAL FOR OTHER SPECIFICATIONS.



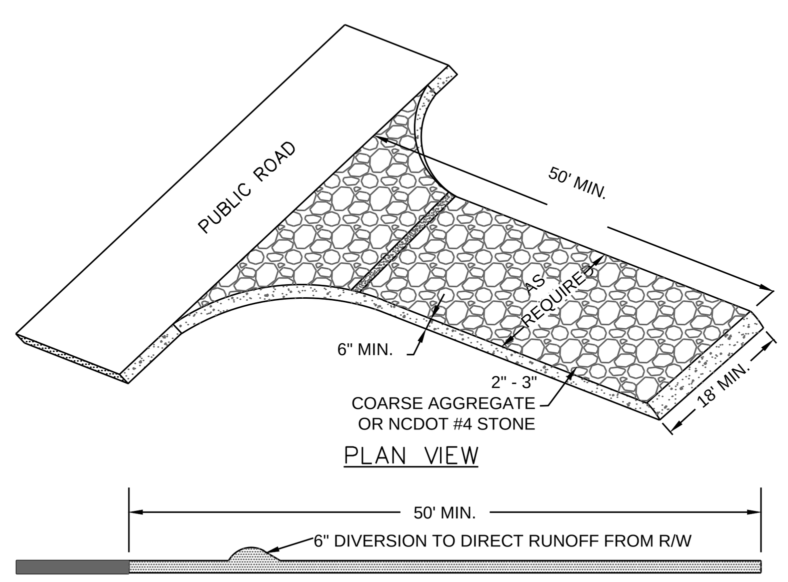
WARNING SIGN DETAIL

NOTE:

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 200' IN PERIMETER, PROVIDE NO LESS THAN ONE SIGN PER PROTECTION AREA. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC.
MAINTAIN TREE PROTECTION FENCE THROUGHOUT DURATION OF PROJECT.

STANDARD TEMPORARY SILT / TREE PROTECTION FENCE

N.T.S.



TEMPORARY CONSTRUCTION ENTRANCE

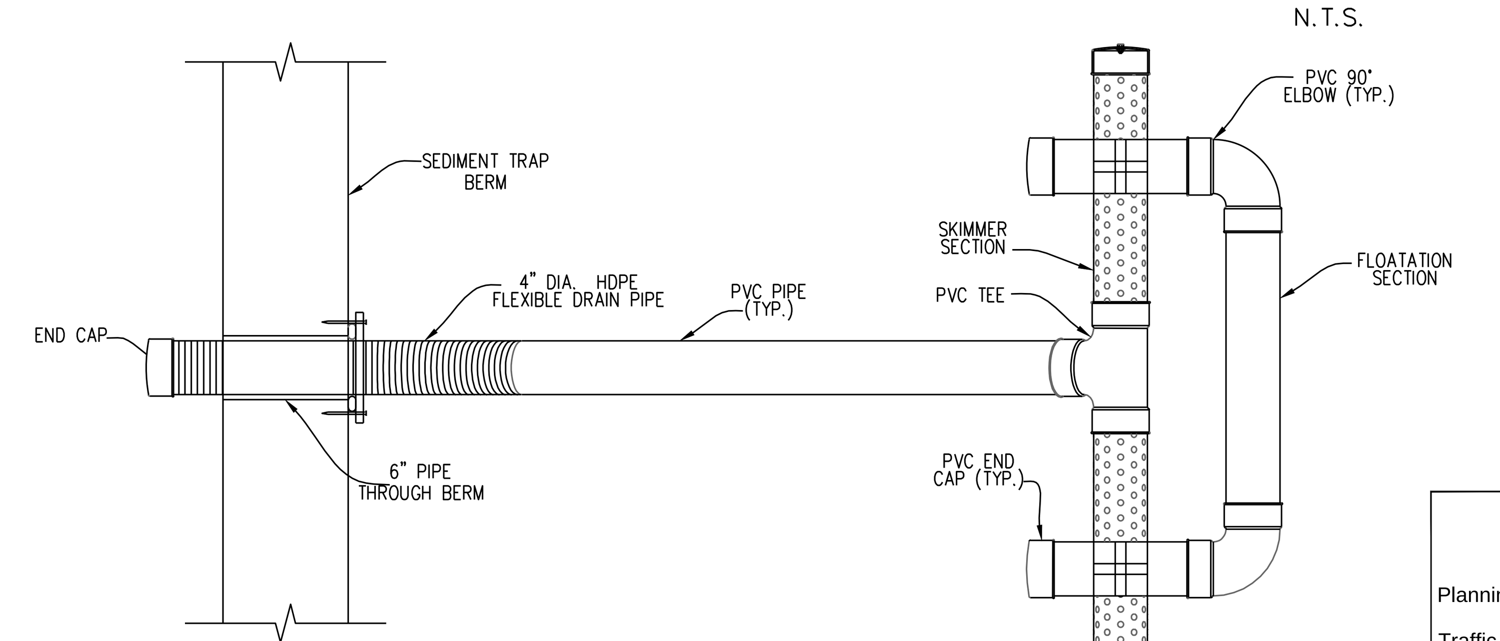
N.T.S.

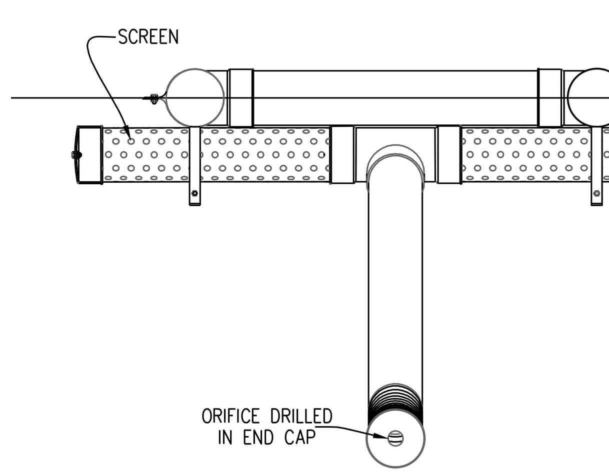
NOTES: 1). ALL P.V.C. PIPES ARE TO BE 4" I.D., SCHEDULE 40

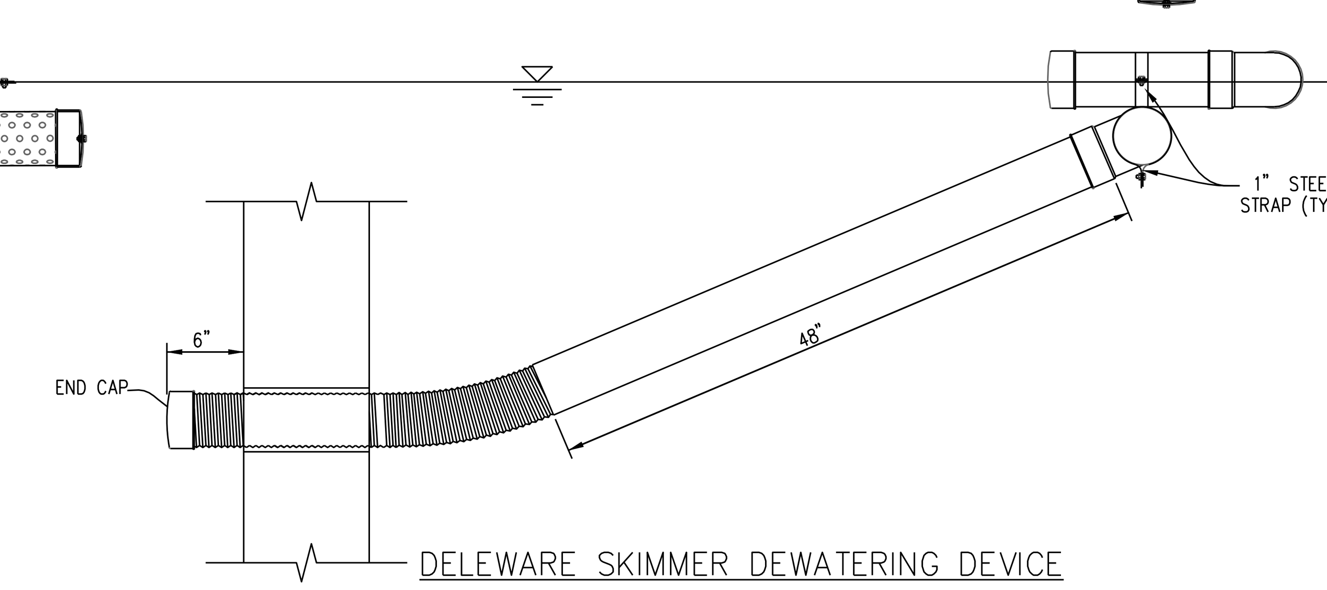
2). ALL JOINTS OF THE FLOATATION SECTION SHALL BE SOLVENT WELDED. JOINTS OF SKIMMER SECTION NEED NOT BE WATER-TIGHT.

3). 4" HDPE FLEXIBLE DRAIN PIPE IS TO BE ATTACHED TO THE POND OUTLET STRUCTURE WITH WATER-TIGHT CONNECTIONS.

4). ORIFICE IS TO BE SIZED ACCORDING TO STORAGE VOLUME AND TO SLOWLY RELEASE 1" RUNOFF FOR AT LEAST 24-HOURS.







DELEWARE SKIMMER DEWATERING DEVICE

N.T.S.

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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: __________

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/10/2013

No.	Revision	Date	By

Designer GSP	Scale NO SCALE
Drawn By GSP	Date January 2013
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SHINNWOOD WEST
Wilmington New Hanover County North Carolina

STANDARD DETAILS

PREPARED FOR:
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6105 OLEANDER DRIVE
SUITE 201
WILMINGTON, NC 28403

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Sheet No.
C-8

GENERAL NOTES

1. In accordance with N.C.G.S. 136-44.14, all street curbs being constructed or reconstructed shall provide wheelchair ramps for the physically handicapped on each side of any street or road, where curbs and sidewalks are provided and at other major points of pedestrian flow.
2. Wheelchair ramps shall be located as indicated in detail drawings; however, existing light poles, fire hydrants, drop inlets, etc. may affect placement.
3. Curb ramps shall have detectable warnings extending the full width of the ramp and a minimum of 2-ft. in length.

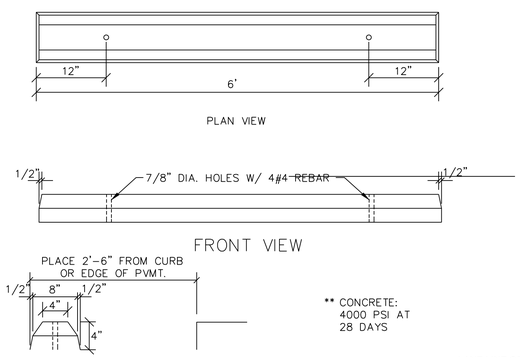
CONSTRUCTION NOTES

1. Construction shall conform with construction standards of the governing body which has jurisdiction of the particular street.
2. Wheelchair ramps shall be constructed of Class ''A'' concrete with the surface having a rough, non-skid type finish.
3. A ½-in. expansion joint shall be required where the concrete wheelchair ramp joins any rigid pavement or structure.
4. In no case shall the width of a curb ramp or curb cut be less than 40-in. (3-ft, 4-in.), not including the flared sides.
5. Transitions from ramps to walks, gutters or streets shall be flush and free of abrupt changes.
6. The maximum slope on the curb ramp run is 1:12.
7. The maximum cross slope of the curb ramp is 1:50.
8. Maximum slopes of adjoining gutters, road surface immediately adjacent to the curb ramp, or accessible route shall not exceed 1:20.
9. Any raised islands in crossings shall be cut through level with the street or have curb ramps at both sides and a level area at least 48-in. long between the curb ramps.
10. Detectable warnings shall consist of raised truncated domes with a diameter of nominal 0.9-in., a height of nominal 0.2-in. and a center-to-center spacing of nominal 2.35-in. and shall contrast visually with adjoining surfaces, either light-on-dark, or dark-on-light.

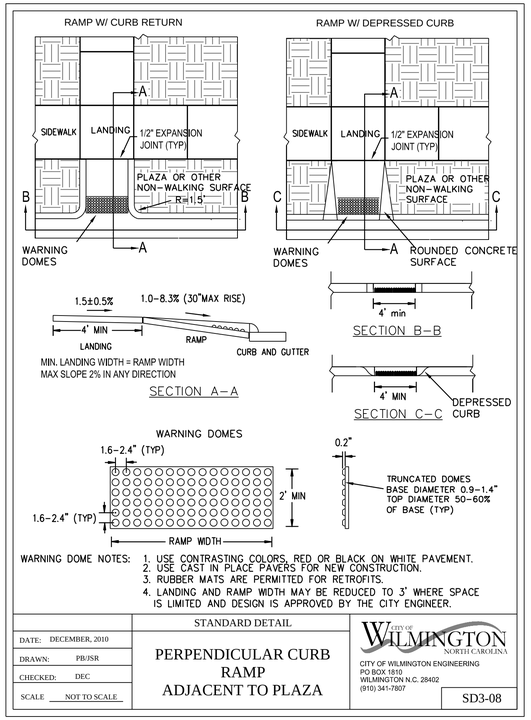
ADDITIONAL NOTES

1. Stop bars shall be used where it is important to indicate the point behind which vehicles are required to stop in compliance with a traffic signal, stop sign or other legal requirement.
2. Parking shall be eliminated a minimum of 20 feet back of the pedestrian crosswalk.
3. All pavement markings shall be in accordance with the latest edition of the Manual of Uniform Traffic Control Devices, published by the Federal Highway Administration. This document is available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.
4. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides.
5. The bottom of diagonal (corner type) curb ramps at marked crossings shall have 48-in. minimum clear space within the markings.
6. If diagonal curb ramps have flared sides, they shall have at least a 24-in. long segment of straight curb located on each side of the curb ramp and within the marked crossing.

SD 8-09

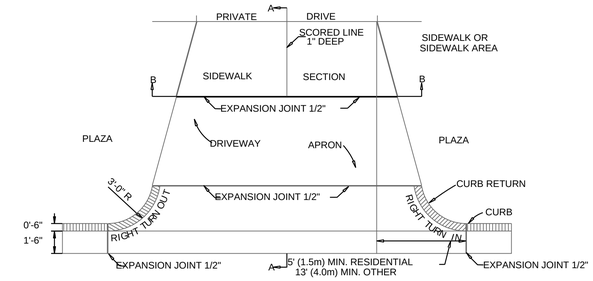


TYPICAL WHEEL STOP DETAIL

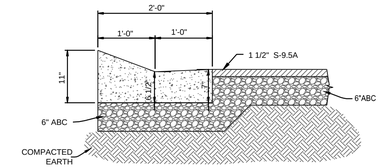


WARNING DOME NOTES:
1. USE CONTRASTING COLORS, RED OR BLACK ON WHITE PAVEMENT.
2. USE CAST IN PLACE PAVERS FOR NEW CONSTRUCTION.
3. RUBBER MATS ARE PERMITTED FOR RETROFITS.
4. LANDING AND RAMP WIDTH MAY BE REDUCED TO 3' WHERE SPACE IS LIMITED AND DESIGN IS APPROVED BY THE CITY ENGINEER.

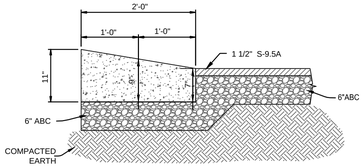
DATE: DECEMBER, 2010	STANDARD DETAIL	CITY OF WILMINGTON NORTH CAROLINA
DRAWN: PB/JSR	PERPENDICULAR CURB RAMP ADJACENT TO PLAZA	CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON N.C. 28402 (910) 341-7807
CHECKED: DEC		
SCALE NOT TO SCALE		SD3-08



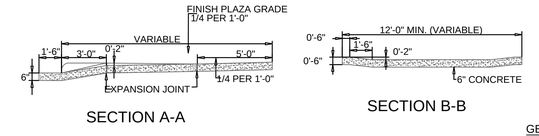
PAVEMENT PLAN



TYPE "H" CURB AND GUTTER
SD 7-04
N.T.S.



REVERSE TYPE "H" CURB AND GUTTER
SD 7-04
N.T.S.



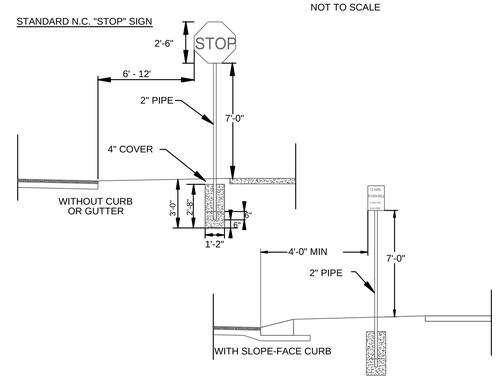
SECTION A-A

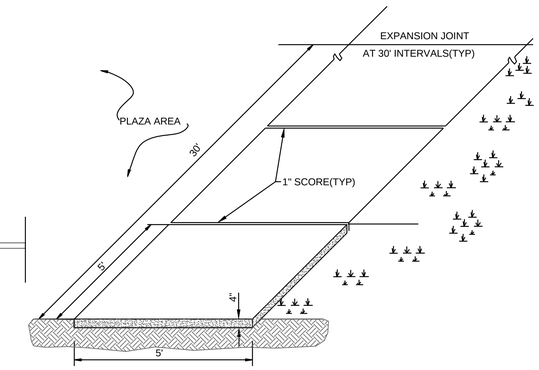
SECTION B-B

STANDARD DRIVEWAY DETAIL
SD 8-02
NOT TO SCALE

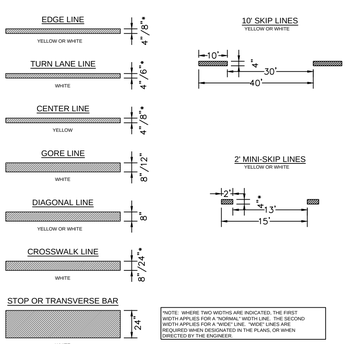
GENERAL NOTES:

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.

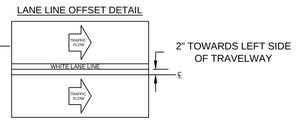


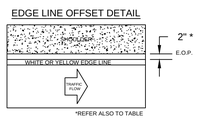


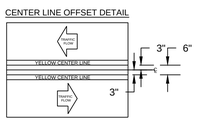
STANDARD SIDEWALK DETAIL
SD 8-15
NOT TO SCALE



PAVEMENT MARKINGS
LINE TYPES
SD 11-01
N.T.S.





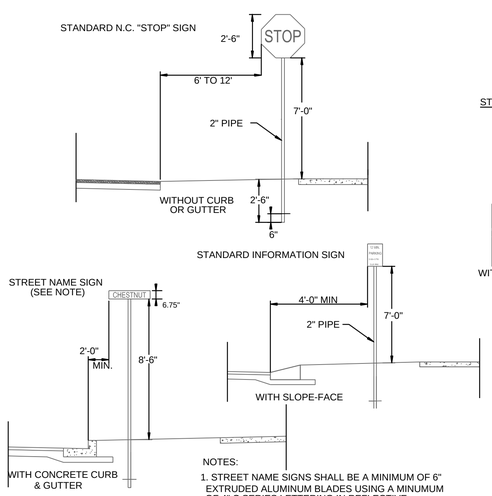


PAVEMENT MARKINGS
OFFSETS
SD 11-02

TABLE 1

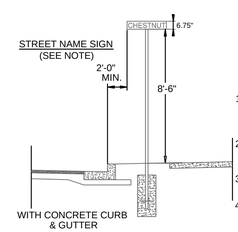
EDGE LINE OFFSETS FOR 2-LANE, 2-WAY ROADWAYS WITH UN-PAVED SHOULDERS

WIDTH OF TRAVEL PAVEMENT	MAX. EDGE LINE OFFSET FROM E. O. P.	MINIMUM LANE WIDTH
16' - 20'	2"	8' - 10'
22'	2"	11'
24'	1'	11'
26'	2'	11'
28'	2'	12'
30'	3'	12'
32'	4'	12'



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

STANDARD SIGN INSTALLATION LOCATION
SD 15-04
NOT TO SCALE



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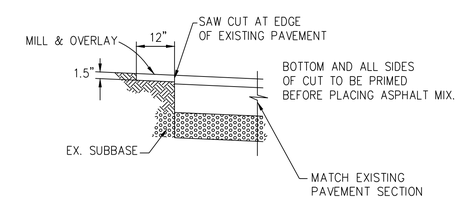
3. ALL SIGNS PLACED IN RIGHT-OF-WAY WILL BE APPROVED BY TRAFFIC ENGINEERING DIVISION.
4. ALL FOOTINGS TYPICAL FOR ALL SIGNS, WHICH NEED TO BE ANCHORED IN CONCRETE.

STANDARD SIGN INSTALLATION LOCATION
SD 15-03
NOT TO SCALE



TYPICAL PAVEMENT WEDGING
& PATCHING DETAIL
N.T.S.

CITY OF WILMINGTON NORTH CAROLINA
Public Services ● Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date:_____ Permit #_____
Signed: _____

Approved Construction Plan

	Name	Date
Planning		
Traffic		
Fire		

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

NORTH CAROLINA PROFESSIONAL SEAL 031315 ENGINEER GARRY S. PAPE 01/16/2013

No.	Revision	Date	By

Designer GSP	Scale NO SCALE
Drawn By GSP	Date January 2013
License # P-0718	Job No. 2012-0008

SHINNWOOD WEST
Wilmington New Hanover County North Carolina

STANDARD DETAILS

PREPARED FOR:
SHINNWOOD WEST, 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-9