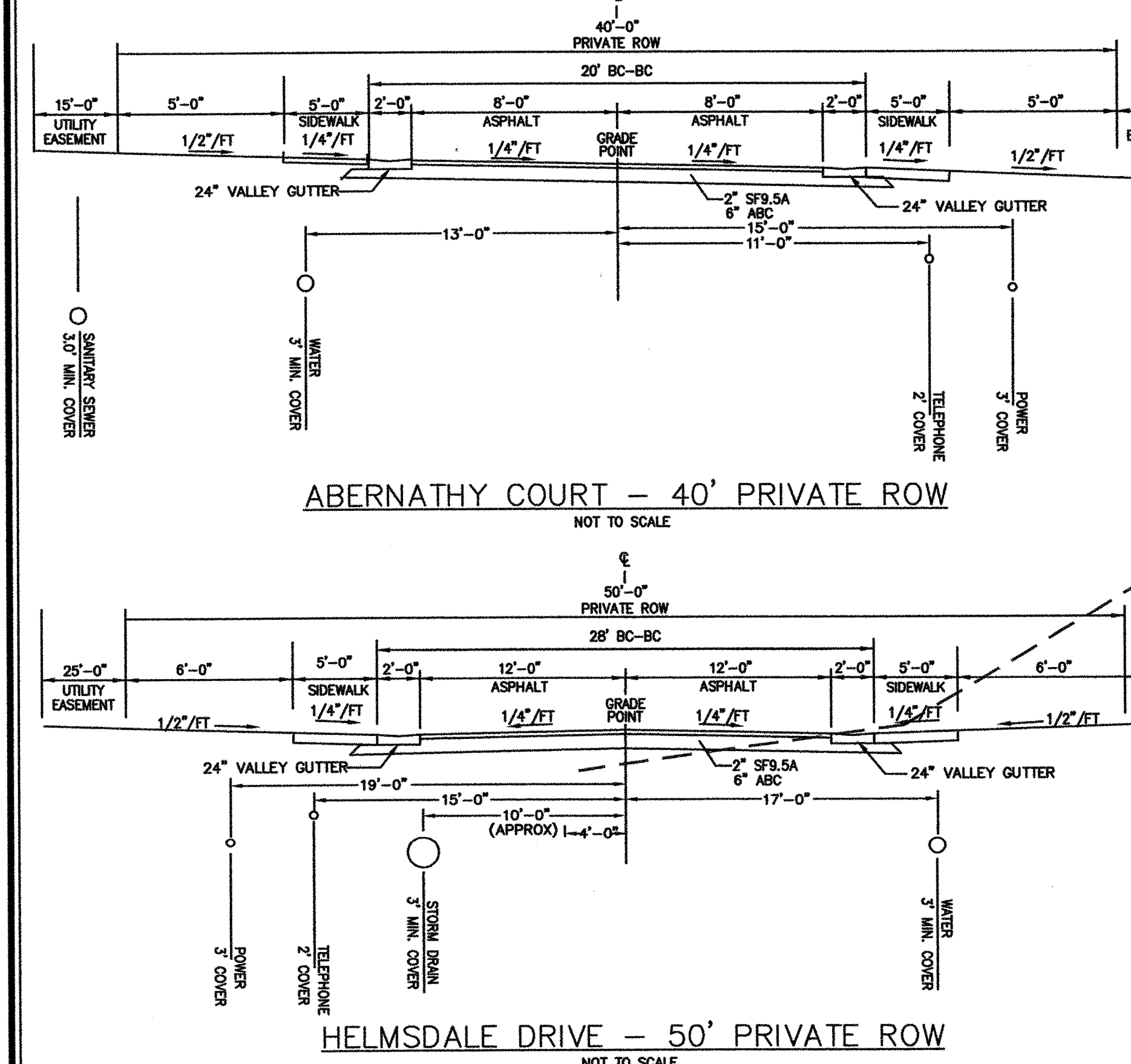


- LOCAL STREET/CUL-DE-SAC**  
NOT TO SCALE
- GENERAL NOTES:**
1. NEW HANOVER COUNTY PARCEL NO.: 3158(15) - 64 - 5396
  2. TOTAL TRACT AREA: 31.94 AC.±
  3. ZONING DISTRICT: R-20(PR)
  4. LAND CLASSIFICATION: RESOURCE PROTECTION & CONSERVATION
  5. SETBACKS (CITY OF WILMINGTON):  
FRONT-30  
SIDE-15  
BACK-25
  6. THIS PHASE IS LOCATED IN ZONE "AE" ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S INSURANCE RATE MAP COMMUNITY-PANEL NUMBER 3720315800J DATED APRIL 3, 2006, 100-YEAR FLOOD ELEV=10.00
  7. REQUIRED REGULATORY SIGNS MUST BE INSTALLED PER MUTCD STANDARDS



- DEVELOPMENT DATA:**
- TOTAL LOTS PROPOSED - 33  
TOTAL IMPERVIOUS - 291,292 S.F.  
COMMON AREA - 132,033 S.F.
- REQUIRED:**  
0.03 AC/UNIT 0.03 AC/48 UNITS = 1.44 AC  
1/2 ACTIVE = 0.72 AC  
1/2 PASSIVE = 0.72 AC
- PROVIDED:**  
ACTIVE = 0.41 AC (REMAINING ACTIVE REQUIREMENT (0.31 AC.) TO BE PAYMENT IN LIEU)  
PASSIVE = 2.25 AC
- BRIDGE NOTE:**
1. PROPOSED BRIDGES ON HELMSDALE DRIVE SHALL BE DESIGNED TO ADEQUATELY SUPPORT FIRE EQUIPMENT HAVING WEIGHTS EXCEEDING 36 TONS.

**Approved Construction Plan**

Name	Date
Planning	6-13-14
Public Utilities	N/A
Traffic	Will Shuman 6-19-14
Fire	S. Shuman 6-20-14

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

NOTE: ALL DESIGN AND CONSTRUCTION SHALL BE IN CONFORMANCE WITH THE CITY OF WILMINGTON LAND DEVELOPMENT CODE

CURVE	RADIUS	LENGTH	CHORD	BEARING
C1	325.00'	328.13'	314.37'	S34°50'46" W
C2	1275.00'	869.69'	852.93'	S13°37'08" E
C3	225.00'	77.56'	77.18'	S43°02'08" E
C4	125.00'	46.18'	45.91'	S63°29'38" E
C5	300.00'	135.30'	134.16'	N81°53'01" E

**STORMWATER MANAGEMENT PLAN APPROVED**

CITY OF WILMINGTON  
ENGINEERING DEPARTMENT  
DATE 6/13/14 PERMIT # 2014015  
SIGNED [Signature]

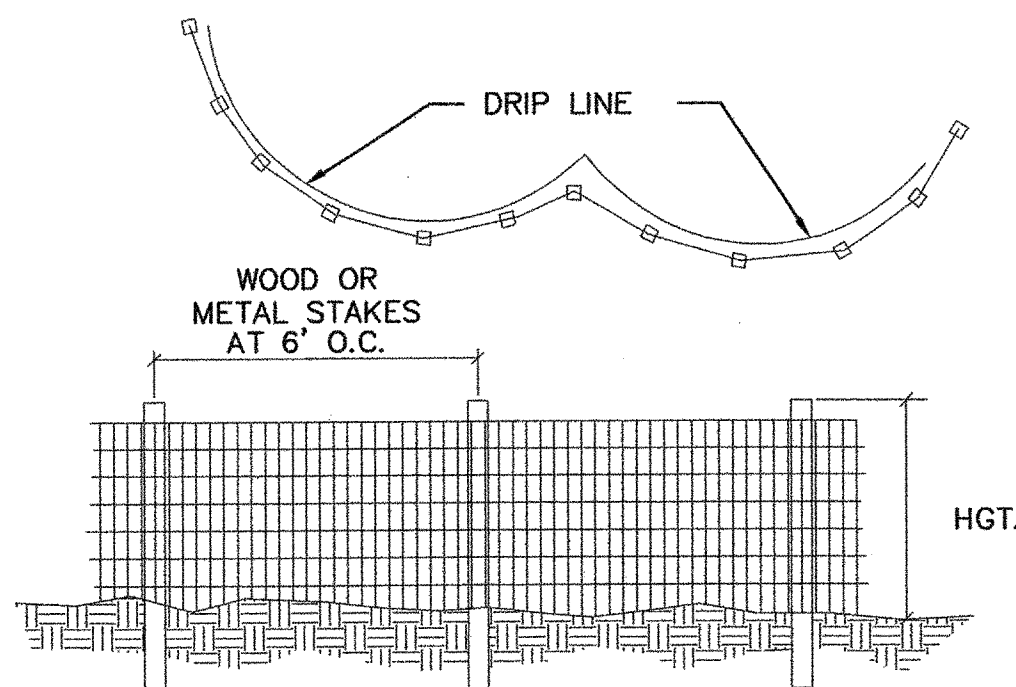
**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
1410 Commonwealth Drive, Suite 101, Wilmington, North Carolina 28403 | tel: 910-256-9277 | fax: 910-256-2594 | www.wITHERSANDRAVENEL.com

**THIS PLAN SET WAS DESIGNED AND LAST SIGNED BY GARRY S. PAPE (PE LICENSE # 031315) ON 7/9/08. THIS REVISED SET IS ONLY PER REVISIONS BY THE GOVERNING AGENCIES AND VARIOUS SITE EDITS.**

SITE ADDRESS: 558 ARBORETUM DRIVE

**TREE PROTECTION NOTES:**

- No land disturbance including tree removal is to occur outside the limits of disturbance shown on the plans. [18-457(b)]
- Protective fencing is to be properly maintained throughout the duration of the project. [18-458]
- Land clearing and construction contractors shall receive adequate instruction on tree protection requirements and methods. [18-457(d)]
- Any trees and/or areas designated to be protected must be properly barricaded with fencing and protected throughout construction to insure that no clearing and grading or staging of materials will occur in these areas. [18-458]
- No equipment is allowed on the site until all tree protection fencing and silt fencing has been installed and approved. [18-458]
- Regulated and significant trees in the street yard [18-456(c)] and any trees in any required buffers [18-456(d)] area required to be retained.



NOTE:  
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.

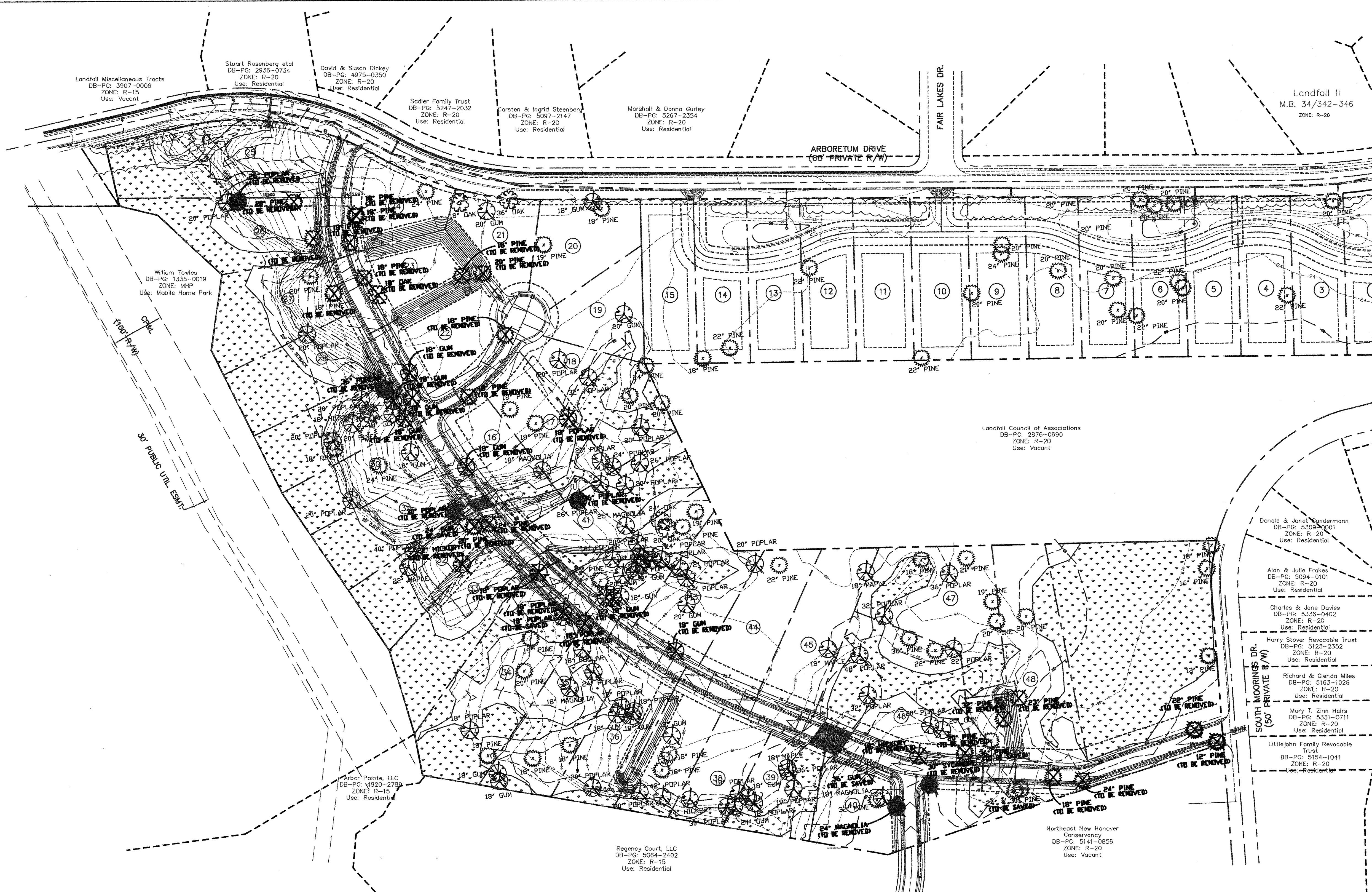
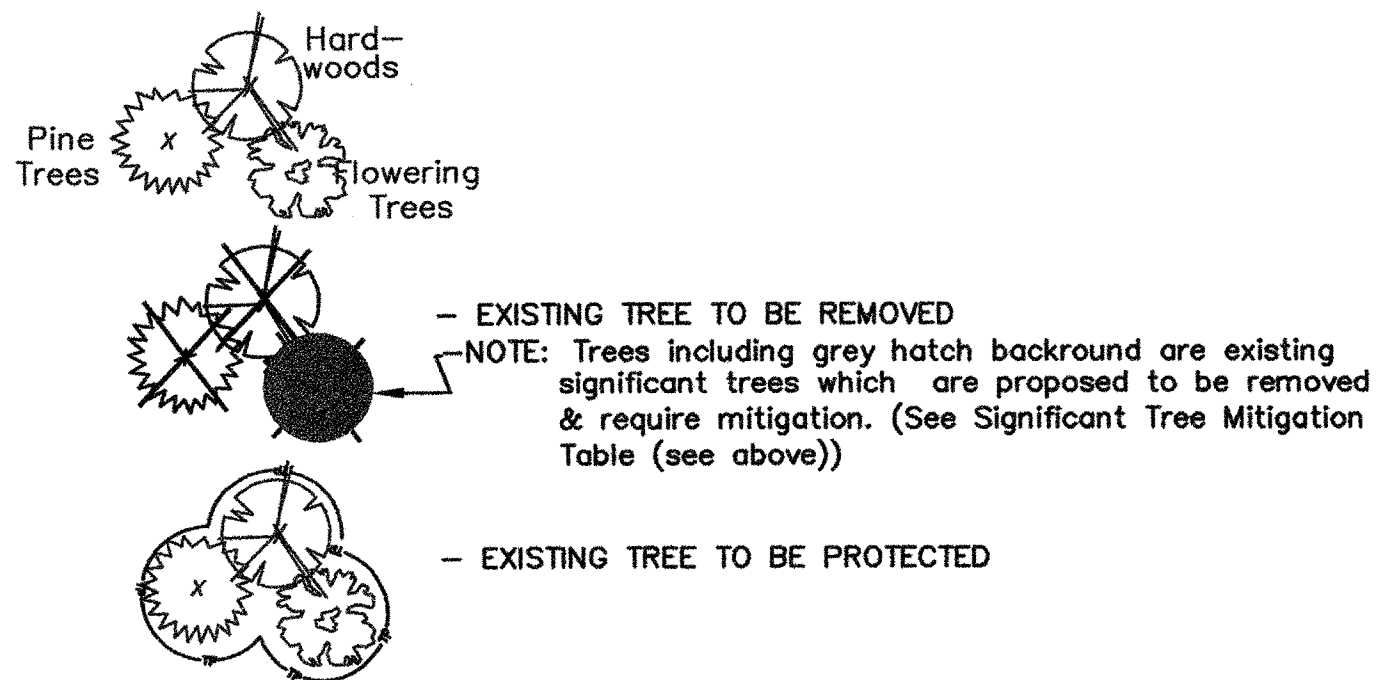
**TREE PROTECTION FENCE DETAIL**

**SIGNIFICANT TREE MITIGATION**

TREES TO BE MITIGATED	MITIGATION VALUE (X2)	REQUIRED	PROVIDED
1 - 26" POPLAR	● (200%)	25" (17-3" CAL)	EX. TREE CREDIT
1 - 36" POPLAR	● (200%)	72" (24-3" CAL)	EX. TREE CREDIT
1 - 30" POPLAR	● (200%)	60" (20-3" CAL)	EX. TREE CREDIT
1 - 26" POPLAR	● (200%)	25" (17-3" CAL)	EX. TREE CREDIT
1 - 24" MAGNOLIA	● (200%)	48" (16-3" CAL)	EX. TREE CREDIT
1 - 30" SYCAMORE	● (150%)	60" (20-3" CAL)	EX. TREE CREDIT

ALL SIGNIFICANT TREES FOUND WITHIN THE CLEARING LIMITS WILL BE MITIGATED PER CITY OF WILMINGTON ZONING ORDINANCE BY PRESERVATION OF OPEN SPACE AND/OR TREE CREDITS.

**TREE PRESERVATION/REMOVAL KEY**

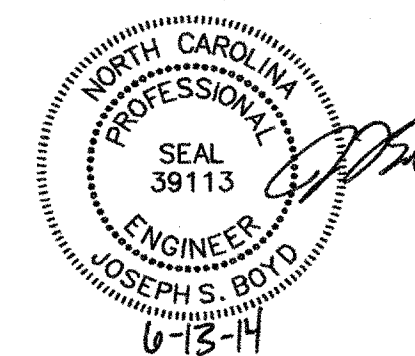


**Approved Construction Plan**

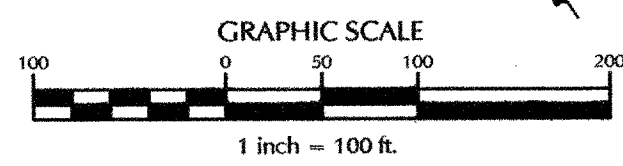
Name	Date
Planning	<i>MD</i> 6-17-14
Public Utilities	<i>N/A</i>
Traffic	<i>W. J. ...</i> 6-19-14
Fire	<i>S. ...</i> 6-20-14

**STORMWATER MANAGEMENT PLAN APPROVED**  
CITY OF WILMINGTON  
ENGINEERING DEPARTMENT  
DATE *6/19/14* PERMIT # *2014005*  
SIGNED *[Signature]*

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



THIS PLAN SET WAS DESIGNED AND LAST SIGNED BY GARRY S. PAPE (PE LICENSE # 031315) ON 7/9/08. THIS REVISED SET IS ONLY PER REVISIONS BY THE GOVERNING AGENCIES AND VARIOUS SITE EDITS.



SITE ADDRESS: 558 ARBORETUM DRIVE

No.	Revision	Date	By
1	UPDATED ROAD LABELS	6/4/14	JSB

**HELMSDALE @ LANDFALL - PHASE II**  
CITY OF WILMINGTON NEW HANOVER NORTH CAROLINA

**TREE PRESERVATION PLAN**

PREPARED FOR:  
HELMSDALE INVESTORS, LLC  
100 WESTON ESTATES WAY  
CARY, NC 27513  
919-481-3000

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
1410 Commonwealth Drive, Suite 101, Wilmington, North Carolina 28403 tel: 910-256-9277 fax: 910-256-2584 www.wITHERSRV.com

Sheet No. **C-3.3**

**GENERAL UTILITY NOTES:**

- 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 799-6064 FOR INFORMATION.
- IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
- CFPUA REGULATIONS DO NOT ALLOW SEPARATE WATER CONNECTIONS TO THE PUBLIC MAINS FOR IRRIGATION SYSTEMS. TO USE CFPUA WATER FOR IRRIGATION IT WILL NEED TO GO THROUGH THE DOMESTIC WATER METER AND SUBJECT TO THE NORMAL BILLING RATES. CALL 799-6064 FOR INFORMATION.
- 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.
- STREET TREES ARE NOT TO BE PLANTED OVER WATER MAINS OR WITHIN UTILITY EASEMENTS.
- STATE WATER AND SEWER PERMITS AS WELL AS A WATER EXTENSION AGREEMENT SHALL BE OBTAINED PRIOR TO RELEASE OF THE PROJECT FOR CONSTRUCTION.

**Approved Construction Plan**

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

Planning \_\_\_\_\_

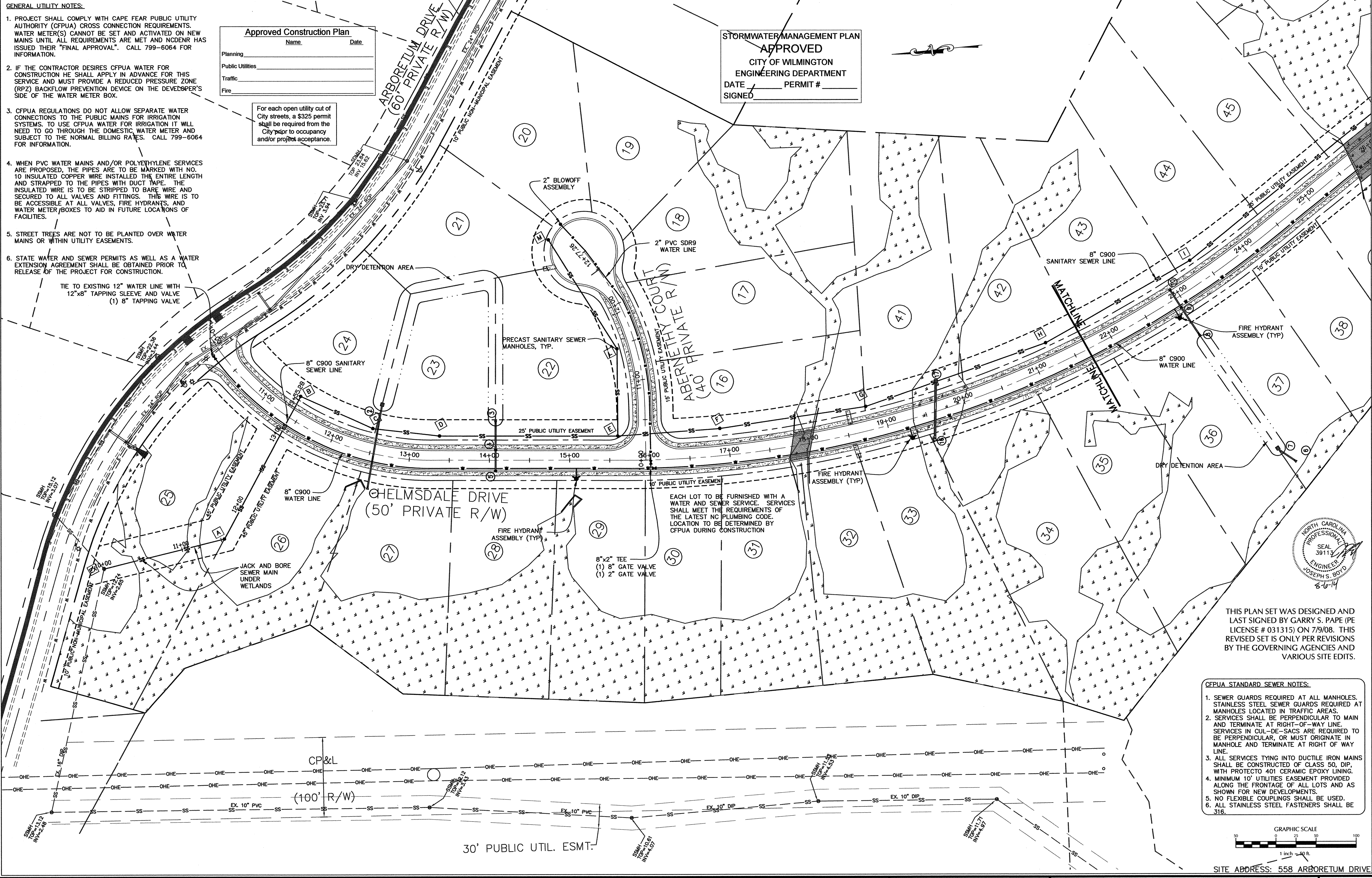
Public Utilities \_\_\_\_\_

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

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

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

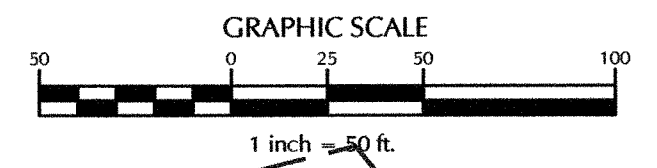


NORTH CAROLINA PROFESSIONAL SEAL 39113  
 ENGINEER  
 JOSEPH S. BOYD  
 8-10-14

THIS PLAN SET WAS DESIGNED AND LAST SIGNED BY GARRY S. PAPE (PE LICENSE # 031315) ON 7/9/08. THIS REVISED SET IS ONLY PER REVISIONS BY THE GOVERNING AGENCIES AND VARIOUS SITE EDITS.

**CFPUA STANDARD SEWER NOTES:**

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



SITE ADDRESS: 558 ARBORETUM DRIVE

No.	Revision	Date	By
1	CITY OF WILMINGTON WATER COMMENTS	07/03/07	W&R
2	CITY OF WILMINGTON WATER COMMENTS	07/09/07	W&R
3	CFPUA COMMENTS	12/20/13	JSB
4	CFPUA COMMENTS, SIDEWALK & ROAD LABEL UPDATE	08/05/14	JSB

**HELMSDALE @ LANDFALL - PHASE II**  
 CITY OF WILMINGTON    NEW HANOVER    NORTH CAROLINA

**UTILITY PLAN**

PREPARED FOR:  
 HELMSDALE INVESTORS, LLC  
 100 WESTON ESTATES WAY  
 CARY, NC 27513  
 919-481-3000

**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS  
 1410 Commonwealth Drive, Suite 101, Wilmington, North Carolina 28403 tel: 910-256-9277 fax: 910-256-2584 www.wITHERSRAVENEL.com

Sheet No.  
**C-4.1**

W:\13-13-0485\130485-Helmsdale\CFPUA\130485-Utility\PLM.dwg - August 5, 2014 - BOTO, JOSEPH

**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 799-6064 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. CFPUA REGULATIONS DO NOT ALLOW SEPARATE WATER CONNECTIONS TO THE PUBLIC MAINS FOR IRRIGATION WATER SYSTEMS. TO USE CFPUA WATER FOR IRRIGATION IT WILL NEED TO GO THROUGH THE DOMESTIC WATER METER AND SUBJECT TO THE NORMAL BILLING RATES. CALL 799-6064 FOR INFORMATION.
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. STREET TREES ARE NOT TO BE PLANTED OVER WATER MAINS OR WITHIN UTILITY EASEMENTS.
6. STATE WATER AND SEWER PERMITS AS WELL AS A WATER EXTENSION AGREEMENT SHALL BE OBTAINED PRIOR TO RELEASE OF THE PROJECT FOR CONSTRUCTION.

EACH LOT TO BE FURNISHED WITH A WATER AND SEWER SERVICE. SERVICES SHALL MEET REQUIREMENTS OF THE LATEST NC PLUMBING CODE. LOCATION TO BE DETERMINED BY CFPUA DURING CONSTRUCTION

**CFPUA STANDARD SEWER NOTES:**

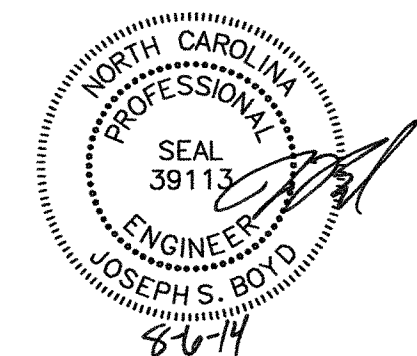
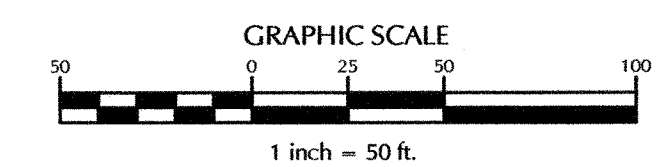
1. SEWER GUARDS REQUIRED AT ALL MANHOLES. STAINLESS STEEL SEWER GUARDS REQUIRED AT MANHOLES LOCATED IN TRAFFIC AREAS.
2. SERVICES SHALL BE PERPENDICULAR TO MAIN AND TERMINATE AT RIGHT-OF-WAY LINE. SERVICES IN CUL-DE-SACS ARE REQUIRED TO BE PERPENDICULAR, OR MUST ORIGINATE IN MANHOLE AND TERMINATE AT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

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

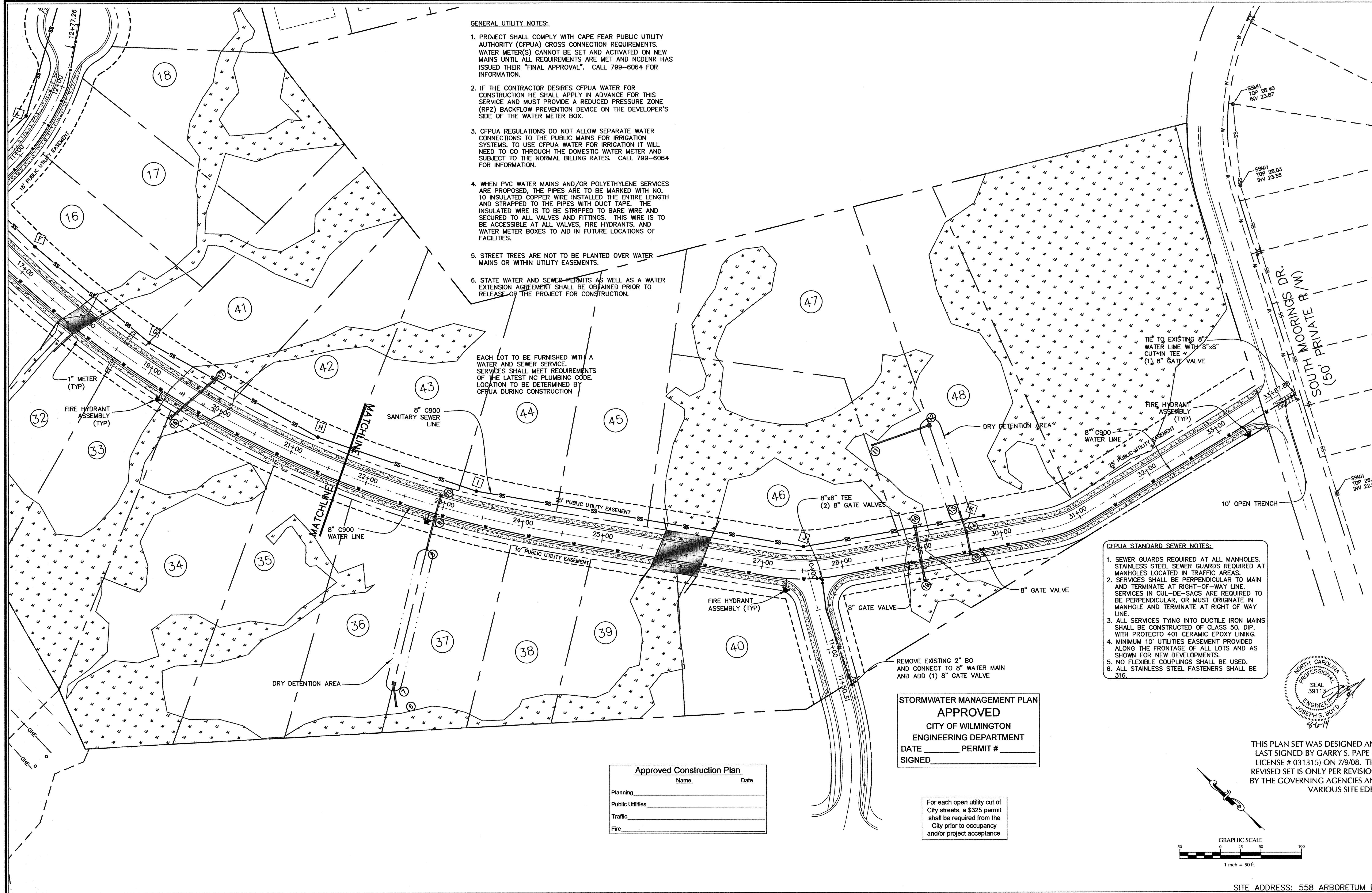
For each open utility cut of City streets, a \$325 permit shall be required from the City prior to occupancy and/or project acceptance.

**Approved Construction Plan**

Name	Date
Planning	
Public Utilities	
Traffic	
Fire	



THIS PLAN SET WAS DESIGNED AND LAST SIGNED BY GARRY S. PAPE (PE LICENSE # 031315) ON 7/9/08. THIS REVISED SET IS ONLY PER REVISIONS BY THE GOVERNING AGENCIES AND VARIOUS SITE EDITS.



W:\1313-0460\130461-Helmsdale-Phase II-Utility Plan.dwg - August 5, 2014 - 8:00 AM - JDB

No.	Revision	Date	By
1	CITY OF WILMINGTON WATER COMMENTS	07/03/07	W&R
2	CITY OF WILMINGTON WATER COMMENTS	07/09/07	W&R
3	CFPUA COMMENTS	12/20/13	JSB
4	CFPUA COMMENTS, SIDEWALK & ROAD LABEL UPDATE	08/05/14	JSB

Designer	W&R	Scale	1"=50'
Drawn By	W&R	Date	12/19/13
Checked By	JSB	Job No.	03050283.01

**HELMSDALE @ LANDFALL - PHASE II**  
 CITY OF WILMINGTON    NEW HANOVER    NORTH CAROLINA

**UTILITY PLAN**

PREPARED FOR:  
 HELMSDALE INVESTORS, LLC  
 100 WESTON ESTATES WAY  
 CARY, NC 27513  
 919-481-3000

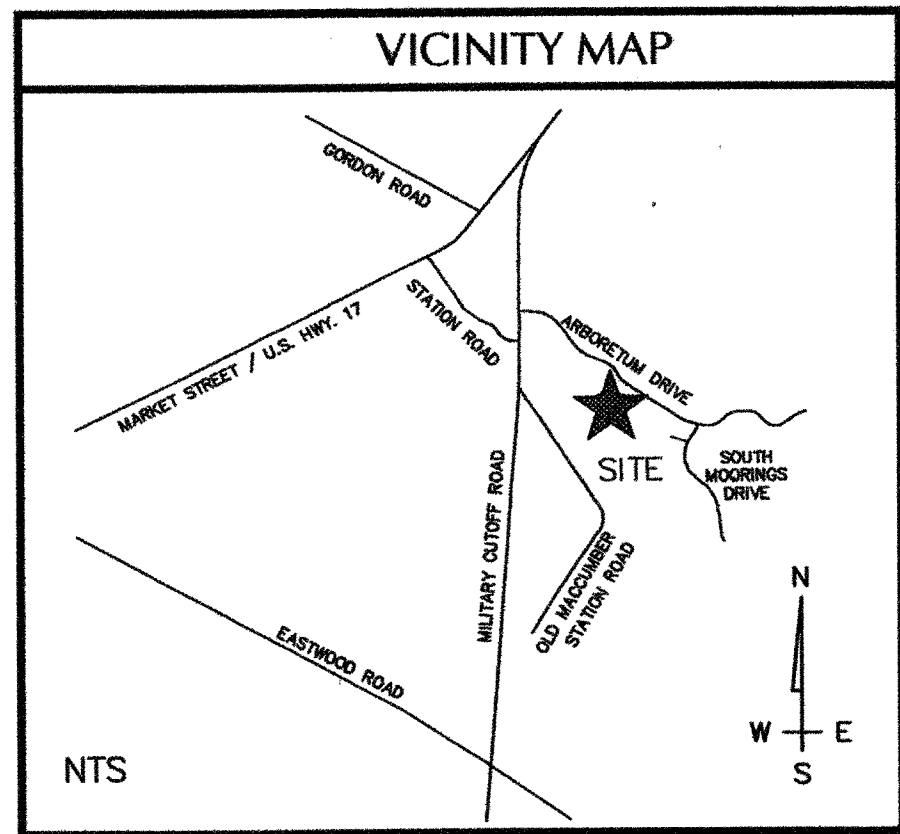
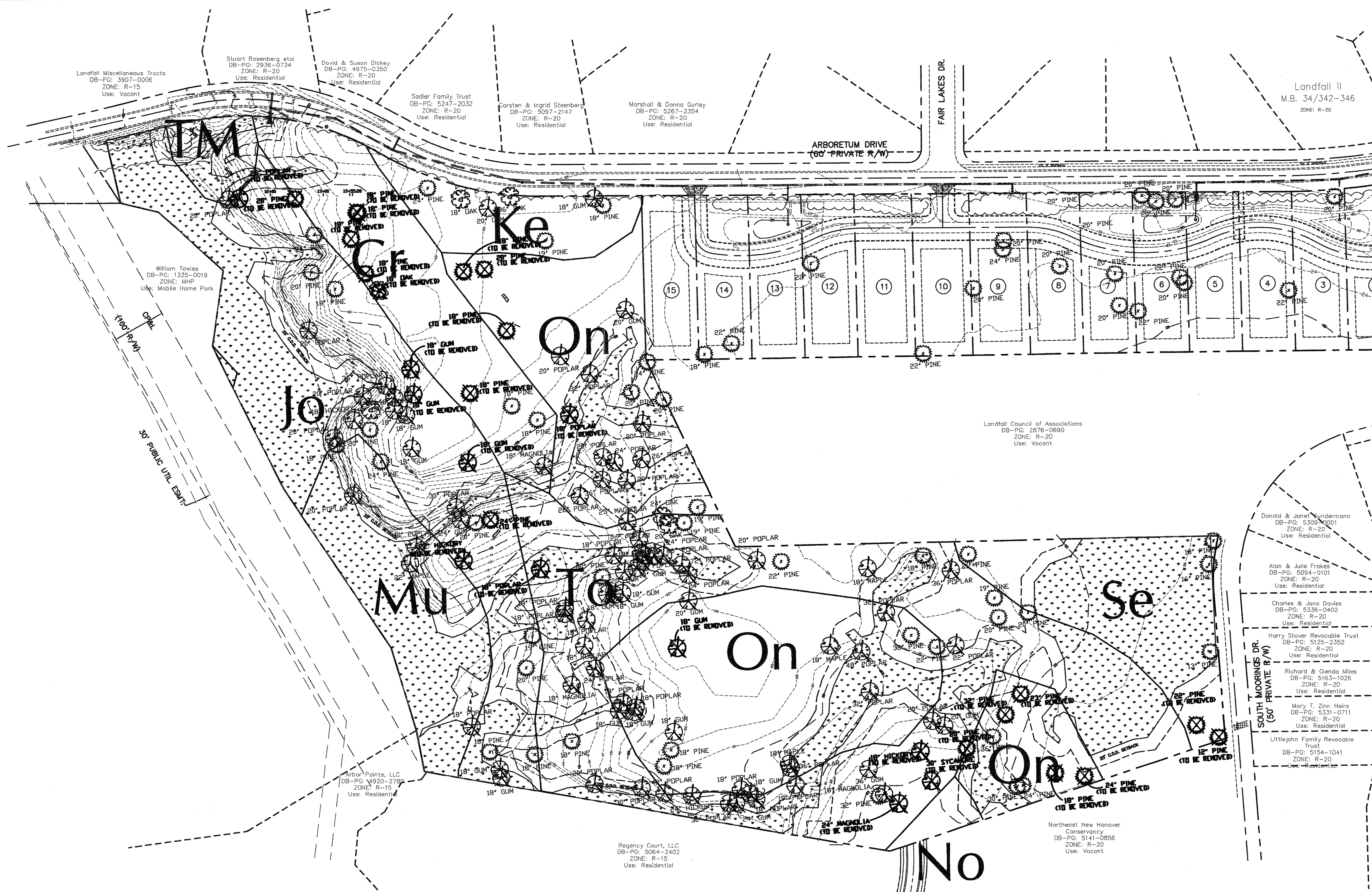
**WITHERS & RAVENEL**  
 ENGINEERS | PLANNERS | SURVEYORS  
 1410 Commonwealth Drive, Suite 101, Wilmington, North Carolina 28403    Tel: 910-256-9277    Fax: 910-256-2584    www.wITHERSRAVENEL.com

Sheet No.  
**C-4.2**

SITE ADDRESS: 558 ARBORETUM DRIVE

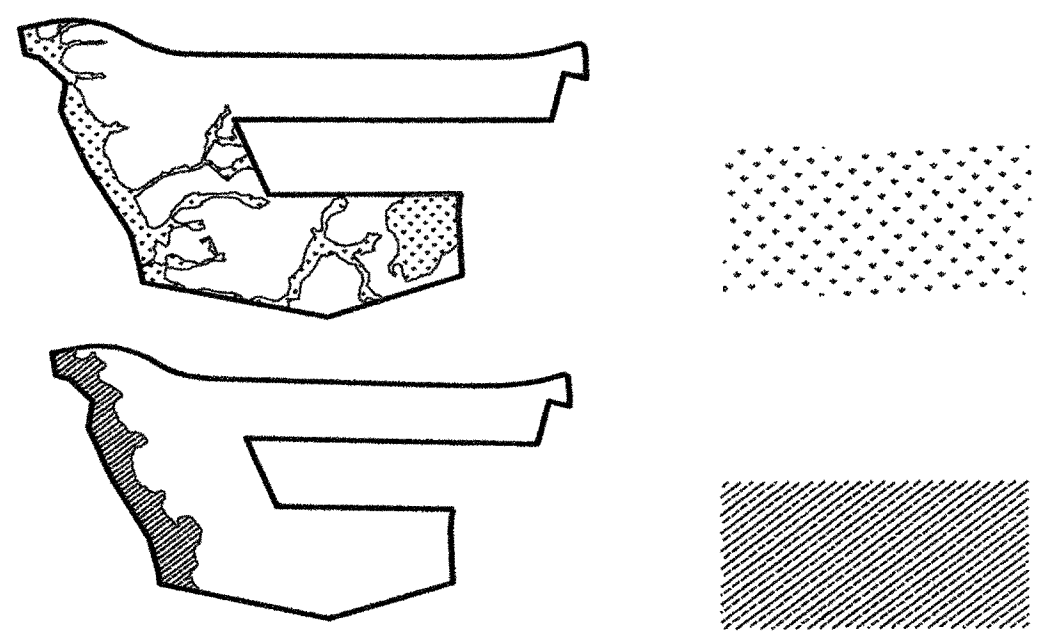
**SITE INVENTORY NOTES:**

1. Soils Types: (Ka) Kananaville, (Jo) Johnston, (Se) Seagate, (Cr) Craven, (On) Onslow, (To) Tarhunte, (Mu) Murville, (No) Norfolk, (TM) Tidal Marsh.
2. This property is not impacted by any AEC.
3. There are 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. The boundaries have been certified by the Corps of Engineers. All wetlands areas or areas contained within wetlands areas may not be filled, disturbed, or altered in any way unless properly permitted by the north carolina department of environment and natural resources and/or the u.s. army corp of engineers. No wetlands fill permits will be required. Wetland crossings will be bridged and left undisturbed.
8. There is no evidence of endangered species or habitat issues on the site.
9. A large area of this proposed development is located in within a Special Flood Hazard boundary, Zone AE (E1 10).
10. Research resulted in no findings of proposed thoroughfares, bike routes, pedestrian sidewalks or trails, or transit facilities affecting this project.
11. The NCDWQ Drainage Basin Classification is classified as SA waters. These waters drain to the tributary of Howe Creek.



WETLANDS / UPLANDS  
9.13± AC. / 22.83± AC.

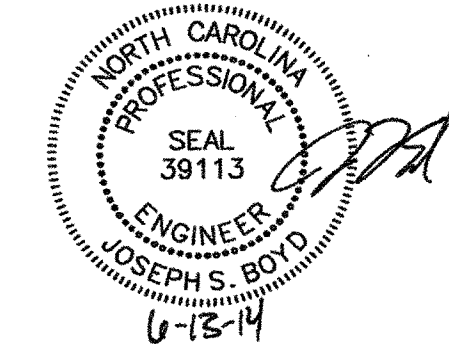
100YR FLOOD BOUNDARY  
5.51± AC. IN BOUNDARY  
26.45± AC. OUT OF BOUNDARY



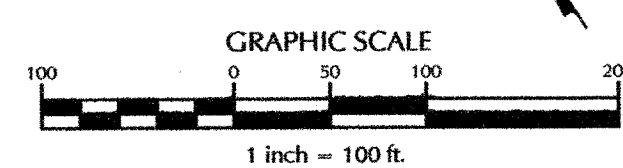
Approved Construction Plan	
Name	Date
Planning	gab 6-13-14
Public Utilities	N/A
Traffic	W.D. Smith 6-19-14
Fire	S. H. White 6-20-14

**STORMWATER MANAGEMENT PLAN APPROVED**  
CITY OF WILMINGTON  
ENGINEERING DEPARTMENT  
DATE 6/18/14 PERMIT # 2014015  
SIGNED [Signature]

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



THIS PLAN SET WAS DESIGNED AND LAST SIGNED BY GARRY S. PAPE (PE LICENSE # 031315) ON 7/9/08. THIS REVISED SET IS ONLY PER REVISIONS BY THE GOVERNING AGENCIES AND VARIOUS SITE EDITS.



SITE ADDRESS: 558 ARBORETUM DRIVE

No.	Revision	Date	By	Designer	W&R	Scale
1	UPDATED ROAD LABELS	6/4/14	JSB			1"=100'
				Drawn By	W&R	Date 12/19/13
				Checked By	JSB	Job No. 03050283.01

**HELMSDALE @ LANDFALL - PHASE II**  
CITY OF WILMINGTON NEW HANOVER NORTH CAROLINA

**SITE INVENTORY MAP**

PREPARED FOR:  
HELMSDALE INVESTORS, LLC  
100 WESTON ESTATES WAY  
CARY, NC 27513  
919-481-3000

**WITHERS & RAVENEL**  
ENGINEERS | PLANNERS | SURVEYORS  
1410 Commonwealth Drive, Suite 101, Wilmington, North Carolina 28403 tel: 910-256-9227 fax: 910-256-2584 www.wITHERSRAVENEL.com

Sheet No.  
**C-3.1**