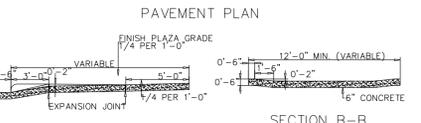
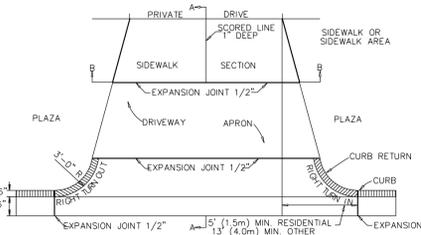
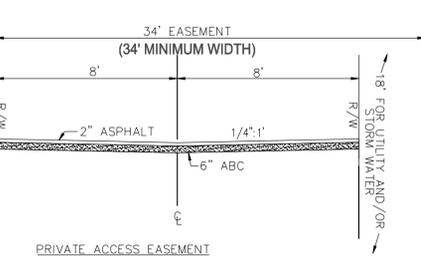


RESIDENTIAL DRIVEWAY STREETS WITH NO CURB  
SD 8-05  
NOT TO SCALE



STANDARD DRIVEWAY DETAIL  
SD 8-02  
NOT TO SCALE



ALLEY NOTES:  
1. NOT TO CONTAIN WATER AND SEWER UTILITY LINES  
PRIVATE ACCESS EASEMENT NOTES:  
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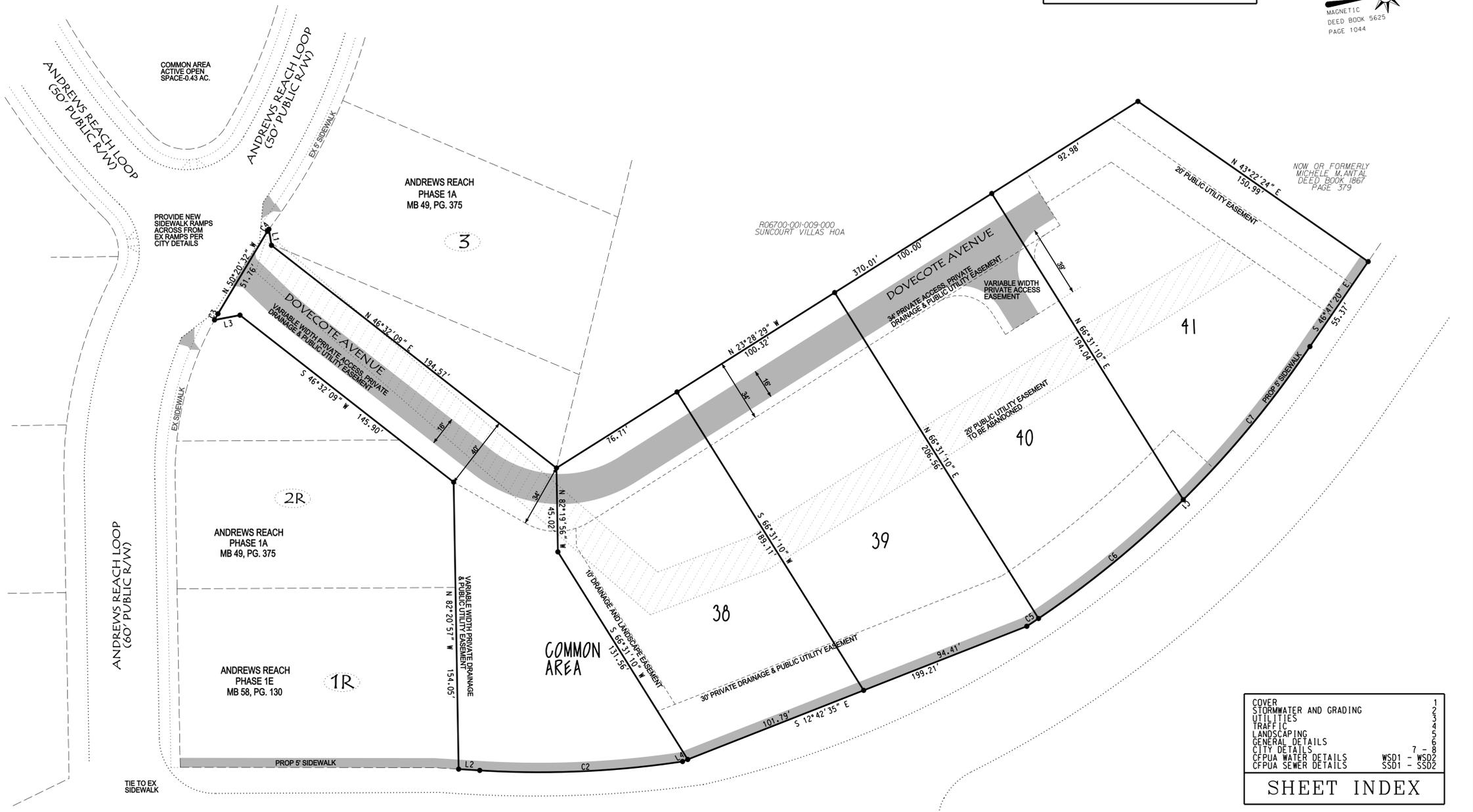
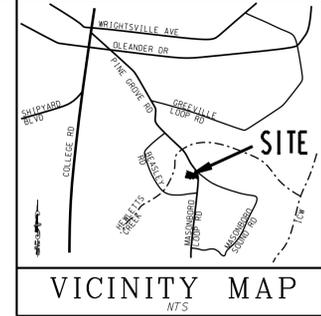
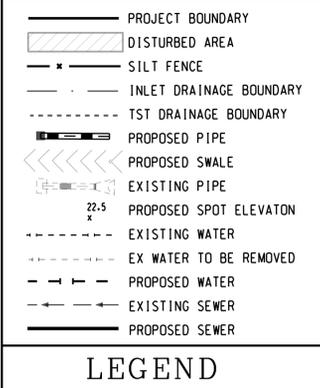
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Name	Delta	Radius	Arc Length	Chord Length	Tangent Length	Chord Direction
C1	22°51'48"	540.00	215.48	214.05	109.19	S 35°53'06" E
C2	12°02'38"	521.42	109.60	109.40	55.01	S 6°08'52" W
C3	1°17'41"	170.00	3.84	3.84	1.92	N 51°47'24" W
C4	0°13'22"	325.00	1.26	1.26	0.63	N 44°16'30" W
C5	0°48'15"	540.00	7.58	7.58	3.79	S 24°51'20" E
C6	10°42'31"	540.00	100.93	100.78	50.61	S 30°36'43" E
C7	11°21'02"	540.00	106.98	106.80	53.66	S 41°38'29" E

PROJECT AREA 2.28 AC  
99,442 SF  
TAX PIN R06700-001-012-000  
ZONING R-15  
CAMA LAND CLASS CONSERVATION  
RECEIVING STREAM HEWLETTS CREEK  
CLASSIFICATION SA  
IMPERVIOUS AREA SA  
STREETS 9,175 SF  
SIDEWALKS 3,818 SF  
LOTS (4 @ 5,000 SF) 20,000 SF  
RESERVE (SEE NOTE) 1,001 SF  
TOTAL 34,000 SF  
PERCENT BUA 34.2 %  
DISTURBED AREA 2.0 AC

**SITE DATA**

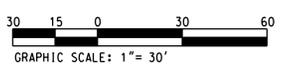
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COVER  
STORMWATER AND GRADING  
UTILITIES  
TRAFFIC  
LANDSCAPING  
GENERAL DETAILS  
CITY DETAILS  
CEPUA WATER DETAILS WSD1 - WSD2  
CEPUA SEWER DETAILS SSD1 - SSD2

**SHEET INDEX**

MASONBORO LOOP ROAD (SR #1492)  
(VARIABLE WIDTH - R/W)



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**Approved Construction Plan**

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

Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

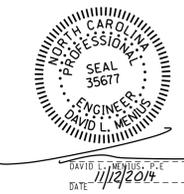
Fire \_\_\_\_\_

**STORMWATER MANAGEMENT PLAN APPROVED**

CITY OF WILMINGTON  
ENGINEERING DEPARTMENT

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

SIGNED \_\_\_\_\_



COVER

**ANDREW'S REACH**  
- PHASE 2 -

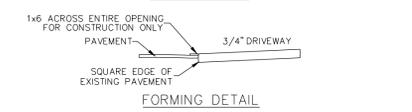
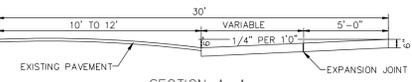
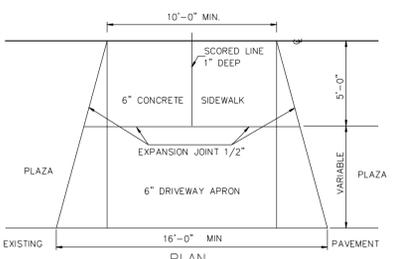
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

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ADDRESS: 8204 FAZIO DRIVE WILMINGTON, NC 28411  
PHONE: (910) 686-8100

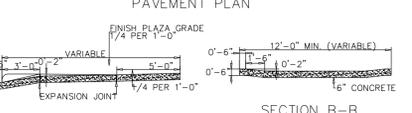
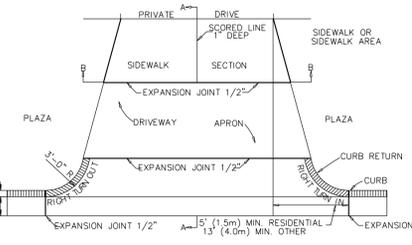
DESIGNED: DLM  
DRAWN: DLM  
APPROVED: JHF

DATE: 9/10/2014  
SCALE: 1" = 30'  
SHEET 1 OF 8

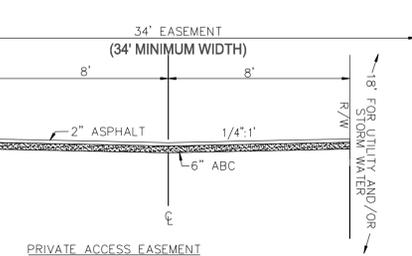
**STROUD ENGINEERING, P.A.**  
102-D CINEMA DRIVE WILMINGTON, NC 28403  
(910) 855-0075 (910) 855-0593 FAX



RESIDENTIAL DRIVEWAY STREETS WITH NO CURB  
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- STORMWATER NOTES:
- ALL PROPOSED EASEMENTS AND REQUIRED EASEMENT CHANGES MUST BE RECORDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
  - POND 2 IS DESIGNED TO STAGE UP TO AN ELEVATION OF 13.0' DURING EXTREME RAINFALL EVENTS. TEMPORARY SHALLOW PONDING AT LOW POINTS IN THE ROADWAY SHOULD BE EXPECTED. LOTS SHALL BE GRADED TO PREVENT NUISANCE FLOODING TO THE GREATEST EXTENT PRACTICABLE.
  - BUILDING FINISHED FLOOR ELEVATIONS OF LOTS 38-41 SHALL BE A MINIMUM OF 14.5' ELEVATION.

PROJECT AREA: 2.28 AC  
99,442 SF

TAX PIN: R06700-001-012-000  
ZONING: R-15  
CAMA LAND CLASS: CONSERVATION  
LIVING STREAM: HEWLETTS CREEK  
CLASSIFICATION: SA

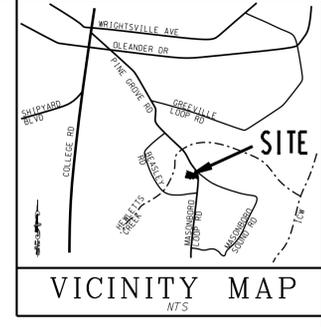
IMPERVIOUS AREA: 9,175 SF  
STREETS: 3,818 SF  
SIDEWALKS: 20,000 SF  
LOTS (4 @ 5,000 SF): 1,001 SF  
RESERVE (SEE NOTE): 34,000 SF  
TOTAL: 34,274 SF  
PERCENT BUA: 34.2 %  
DISTURBED AREA: 2.0 AC

SITE DATA

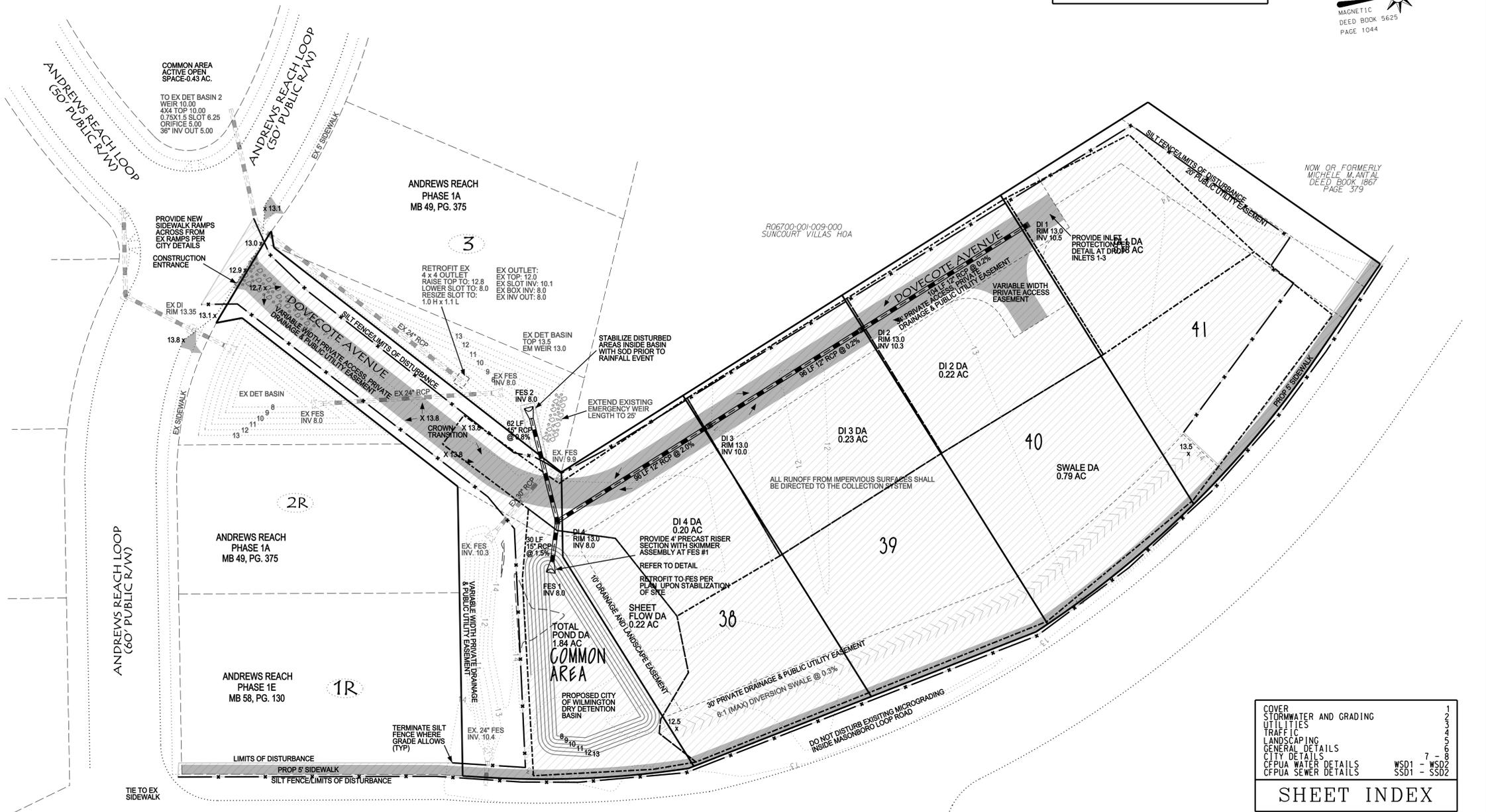
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LEGEND

- PROJECT BOUNDARY
- DISTURBED AREA
- SILT FENCE
- INLET DRAINAGE BOUNDARY
- TST DRAINAGE BOUNDARY
- PROPOSED PIPE
- PROPOSED SWALE
- EXISTING PIPE
- PROPOSED SPOT ELEVATION
- EXISTING WATER
- EX WATER TO BE REMOVED
- PROPOSED WATER
- EXISTING SEWER
- PROPOSED SEWER



VICINITY MAP

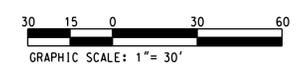


COVER

STORMWATER AND GRADING	7
UTILITIES	7
TRAFFIC	7
LANDSCAPING	7
CITY DETAILS	7
CEPUA WATER DETAILS	WSD1 - WSD2
CEPUA SEWER DETAILS	SSD1 - SSD2

SHEET INDEX

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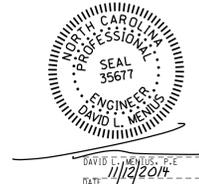
Approved Construction Plan

Name	Date
Planning	
Public Utilities	
Traffic	
Fire	

STORMWATER MANAGEMENT PLAN  
APPROVED

CITY OF WILMINGTON  
ENGINEERING DEPARTMENT

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



STORMWATER

## ANDREWS REACH

- PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC  
ADDRESS: 8204 FAZIO DRIVE  
WILMINGTON, NC 28411  
PHONE: (910) 686-8100

DESIGNED: DLM  
DRAWN: DLM  
APPROVED: JHF

DATE: 9/10/2014  
SCALE: 1" = 30'  
SHEET 2 OF 8

STROUD ENGINEERING, P.A.  
102-D CINEMA DRIVE  
WILMINGTON, NC 28403  
(910) 855-0075 (910) 855-0593 FAX

**GENERAL NOTES:**

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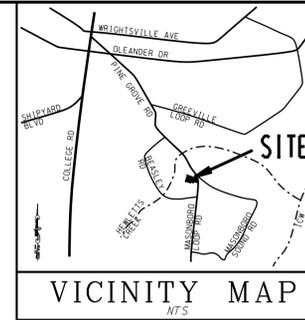
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ZONING	R06700-001-012-000
CAMA LAND CLASS	R-15
RECEIVING STREAM	HEWLETTS CREEK
CLASSIFICATION	SA
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STREETS	9,175 SF
SIDEWALKS	3,818 SF
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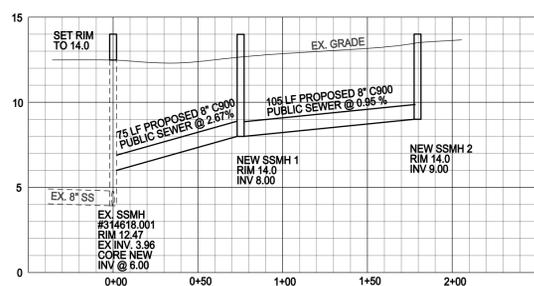
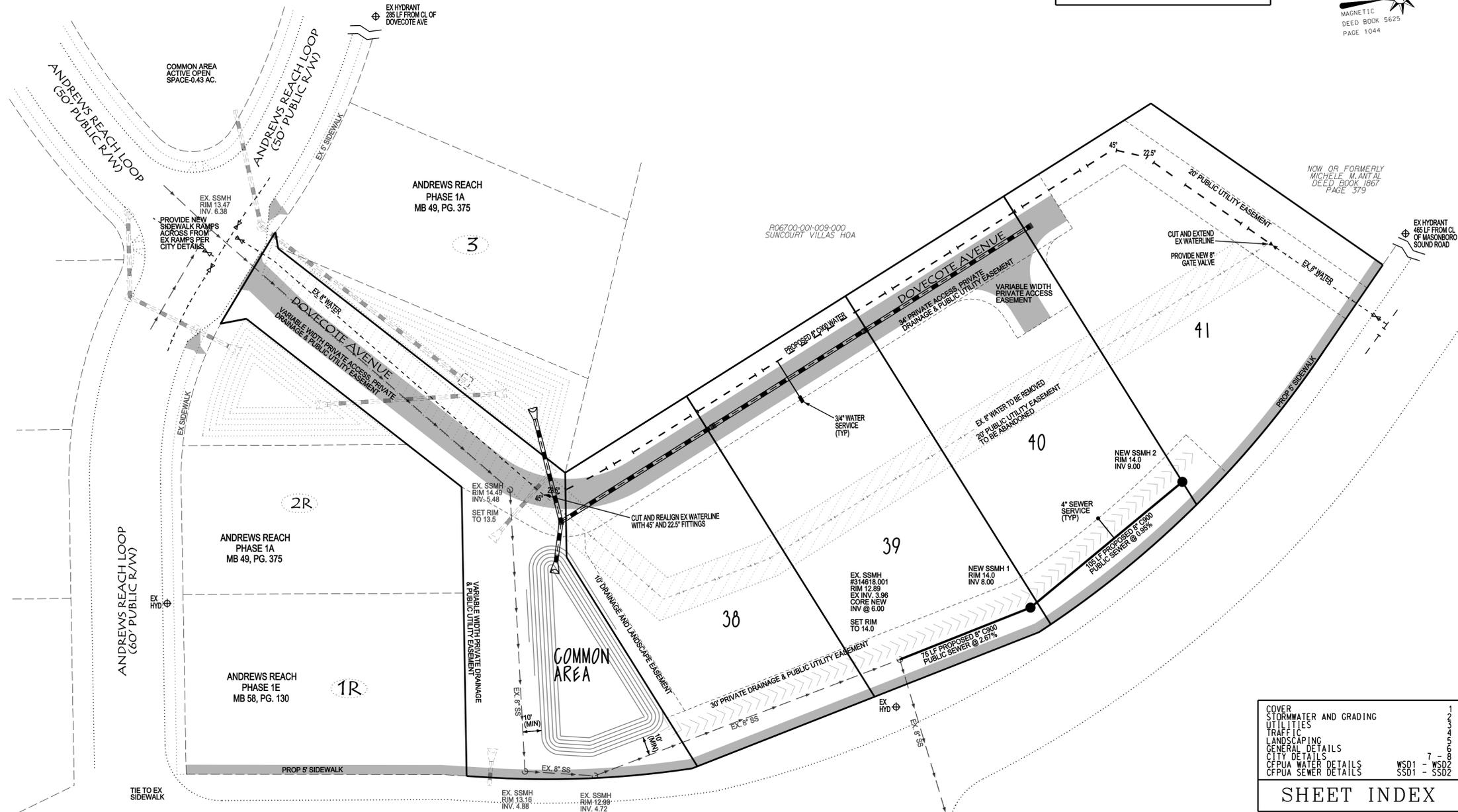
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**LEGEND**

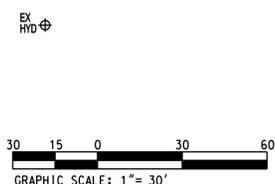


**VICINITY MAP**  
NTS



**PROPOSED SEWER PROFILE**  
 HORIZONTAL SCALE: 1" = 50'  
 VERTICAL SCALE: 1" = 5'

**PIPE MATERIAL NOTES:**  
 8" WATER MAINS SHALL BE AWWA C900 DR 18 CLASS 150 PVC. WHERE REQUIRED, DUCTILE IRON WATER SHALL CONFORM TO AWWA C104, C111, C150, C151, AND C153.  
 GRAVITY SEWER MAINS SHALL BE AWWA C900 DR 18 CLASS 150 PVC. WHERE REQUIRED, DUCTILE IRON SEWER SHALL CONFORM TO AWWA C151. ALL PROPOSED GRAVITY SEWER IS 8 INCHES IN DIAMETER.  
 PVC WATER MAINS SHALL BE BLUE. DIP WATER MAINS SHALL BE MARKED WITH A CONTINUOUS BLUE STRIPE.  
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**Approved Construction Plan**

Name	Date
Planning	
Public Utilities	
Traffic	
Fire	

**STORMWATER MANAGEMENT PLAN APPROVED**

CITY OF WILMINGTON  
 ENGINEERING DEPARTMENT

DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_  
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COVER	
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CITY DETAILS	7 -
CEPUA WATER DETAILS	WSD1 - WSD2
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**UTILITIES**

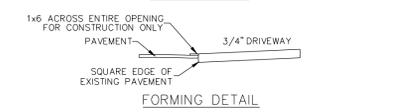
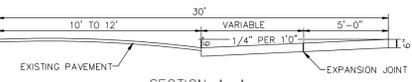
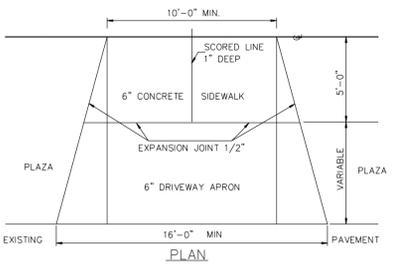
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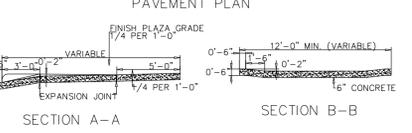
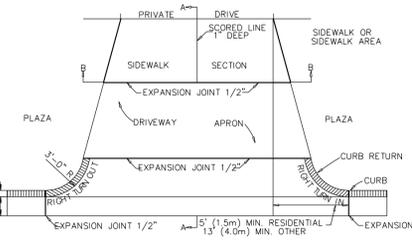
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 SHEET 3 OF 8

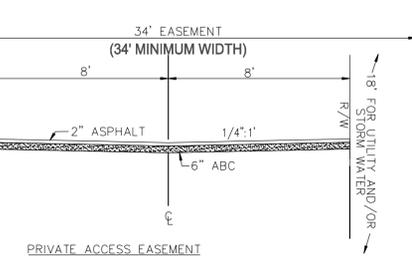
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SD 8-05  
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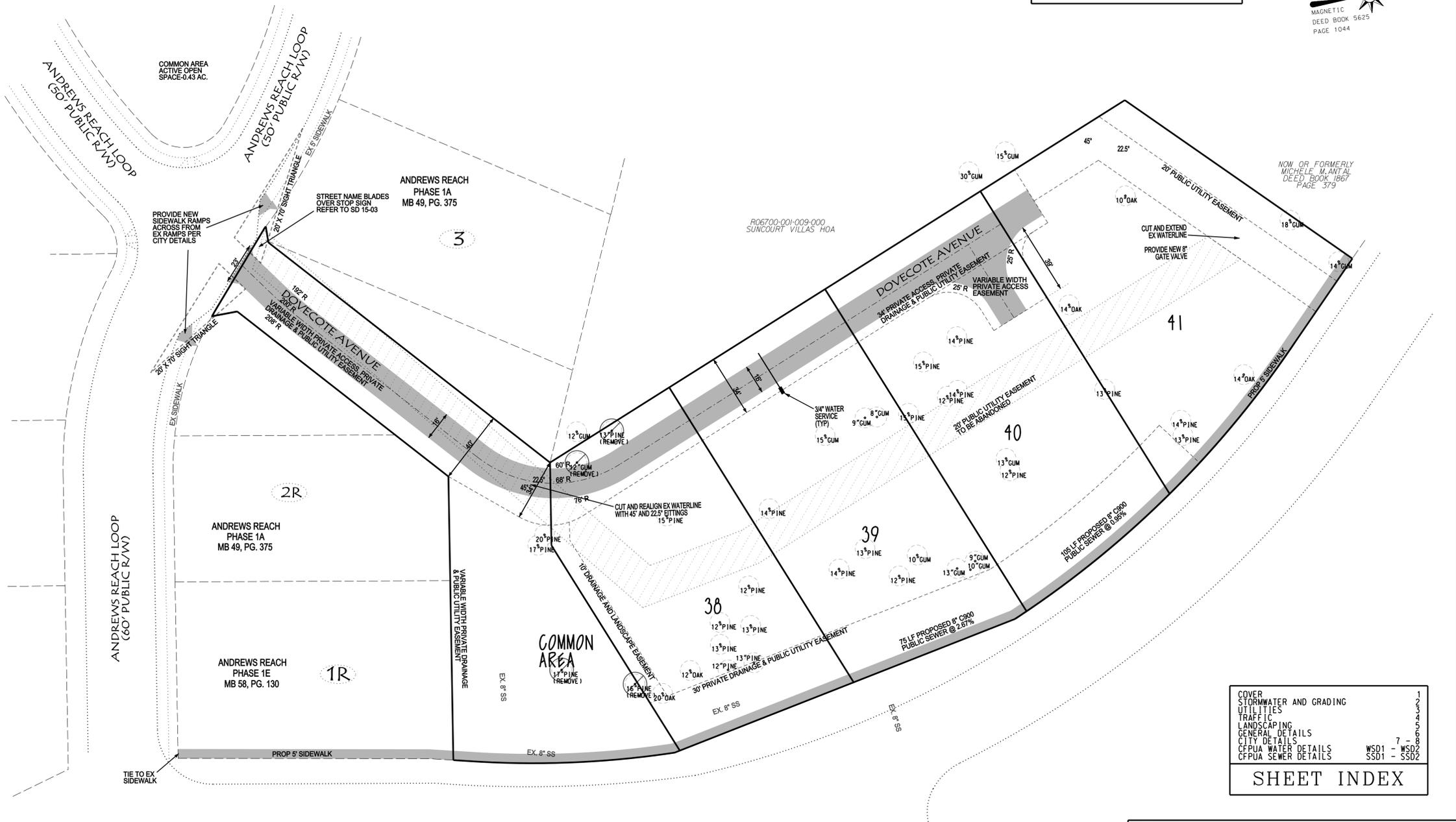
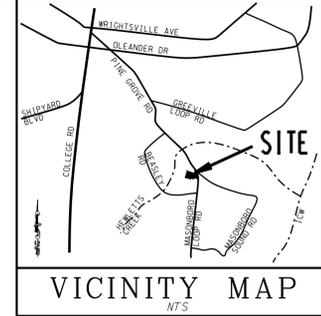
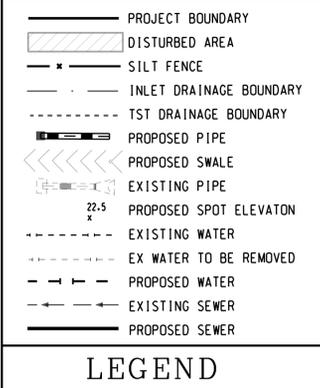
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- TRAFFIC NOTES:
- ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 2'6" TO 10'0" ABOVE GRADE.
  - A LANDSCAPING PLAN INDICATING THE LOCATION OF REQUIRED STREET TREES SHALL BE SUBMITTED TO THE CITY OF WILMINGTON TRAFFIC ENGINEERING DIVISION AND PARKS AND RECREATION DEPARTMENT PRIOR TO THE RECORDING OF THE FINAL PLAT.
  - CONTACT TRAFFIC ENGINEERING AT 341-7888 FORTY-EIGHT HOURS PRIOR TO ANY EXCAVATION IN THE R/W.
  - CONTACT TRAFFIC ENGINEERING AT 341-7888 TO DISCUSS STREET LIGHTING OPTIONS.
  - ALL PAVEMENT MARKINGS IN PUBLIC R/W AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT GUIDELINES.
  - ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD STANDARDS.
  - A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
  - INSTALL REFLECTORS PER CITY AND NCDOT STANDARDS.
  - IT SHALL BE THE RESPONSIBILITY OF THE SUBDIVIDER TO ERECT OFFICIAL STREET NAME SIGNS AT ALL INTERSECTIONS ASSOCIATED WITH THE SUBDIVISION IN ACCORDANCE WITH THE TECHNICAL STANDARDS AND SPECIFICATIONS MANUAL.
  - ANY BROKEN OR MISSING SIDEWALK PANELS OR CURBING SHALL BE REPLACED.
  - TACTILE WARNING MATS ARE TO BE INSTALLED ON ALL WHEELCHAIR RAMPS.
  - LOTS 38-41 SHALL NOT DIRECTLY ACCESS MASONBORO LOOP ROAD.
  - DRIVEWAYS SHALL BE CITY STANDARD RAMP-TYPE WITH CURB RETURNS 6.5' (MIN) FROM PROPERTY LINES.
  - LOT BUYERS SHALL RECEIVE A SUBDIVISION STREET DISCLOSURE STATEMENT.

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ZONING R-15  
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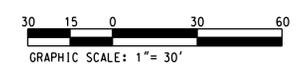
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SHEET INDEX

MASONBORO LOOP ROAD (SR #1492)  
(VARIABLE WIDTH - R/W)



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	

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



TRAFFIC

## ANDREW'S REACH

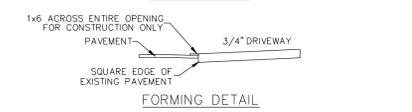
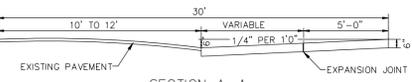
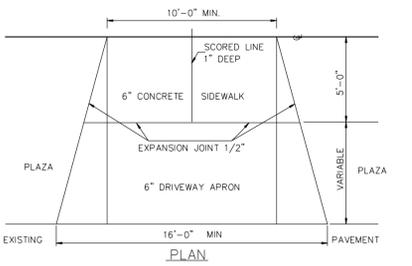
- PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

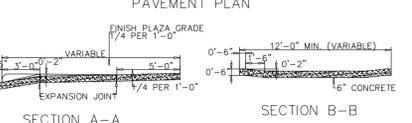
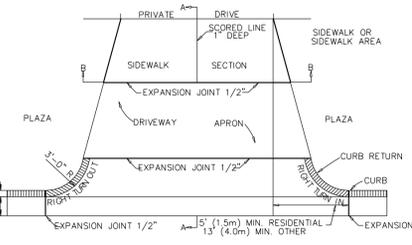
OWNER: ANDREWS REACH DEVELOPERS, LLC  
ADDRESS: 8204 FAZIO DRIVE  
WILMINGTON, NC 28411  
PHONE: (910) 686-8100

DESIGNED: DLM  
DRAWN: DLM  
APPROVED: JHF  
DATE: 9/10/2014  
SCALE: 1" = 30'  
SHEET 4 OF 8

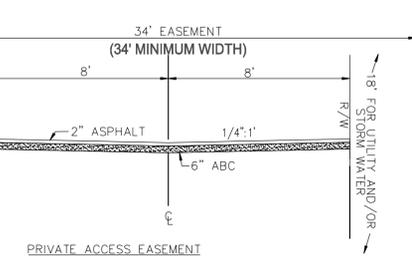
STROUD ENGINEERING, P.A.  
102-D CINEMA DRIVE  
WILMINGTON, NC 28403  
(910) 855-0075 (910) 855-0593 FAX



RESIDENTIAL DRIVEWAY STREETS WITH NO CURB  
SD 8-05  
NOT TO SCALE

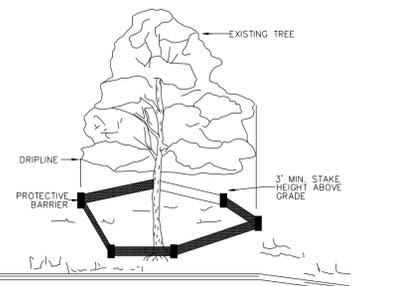


STANDARD DRIVEWAY DETAIL  
SD 8-02  
NOT TO SCALE



ALLEY NOTES:  
1. NOT TO CONTAIN WATER AND SEWER UTILITY LINES  
PRIVATE ACCESS EASEMENT NOTES:  
1. 400' MAXIMUM LENGTH TO FURTHEST UNIT FROM PUBLIC STREET.  
2. SERVES A MAXIMUM OF 4 SINGLE FAMILY OR DUPLEX UNITS.  
3. 23' WIDTH REQUIRED AT STREET INTERSECTION.

SECTION BETWEEN ANDREWS REACH LOOP AND LOT 2R SHALL BE CROWNED TO DRAIN TOWARD EXISTING DETENTION BASINS  
PROPOSED PRIVATE ACCESS DRIVE LENGTH IS 493' MEASURED ALONG THE CENTERLINE FROM ANDREWS REACH LOOP R/W TO LOT 41.



TREE PROTECTION  
NTS

- GENERAL NOTES:
- CITY OF WILMINGTON WILL NOT PROVIDE SOLID WASTE COLLECTION SERVICES ON A PRIVATE EASEMENT. EITHER TRASH CARTS SHALL BE PLACED AT ANDREWS REACH LOOP OR PRIVATE SOLIDS WASTE COLLECTION SERVICES SHALL BE OBTAINED.
  - THE SITE IS NOT LOCATED WITHIN THE 100 YEAR FLOOD ZONE ACCORDING TO THE CURRENT FEMA FLOOD INSURANCE RATE MAP.
  - NO ADDITIONAL HYDRANTS ARE PROPOSED AS PART OF THIS PROJECT.

- LANDSCAPING NOTES:
- POND FACILITIES ARE IN ACCORDANCE WITH REQUIREMENTS OUTLINED IN CHAPTER V, SECTION D, PARAGRAPH 4(b), 4(g) AND 4(h) AND STANDARD DETAIL OF SD 15-16 OF THE CITY OF WILMINGTON TECHNICAL STANDARDS.
  - LANDSCAPE STRIP SHALL BE A MAXIMUM SLOPE OF 7:1 IN ORDER TO PLANT VEGETATION.
  - PROVIDE A MINIMUM OF 3 INCHES OF MULCH AROUND ALL VEGETATION.
  - ALL PROPOSED VEGETATION WITHIN SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 2'6" TO 10'0" ABOVE GRADE.

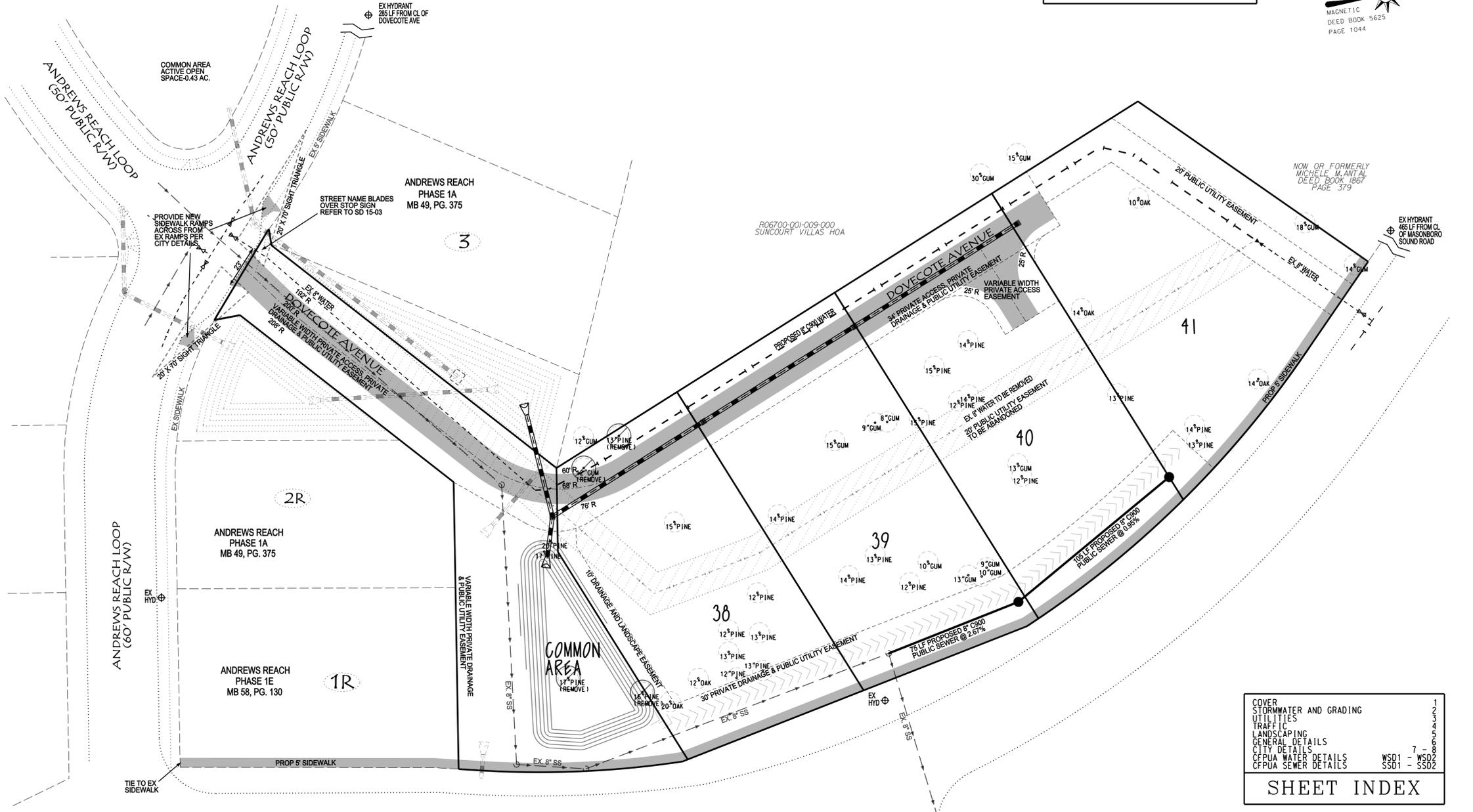
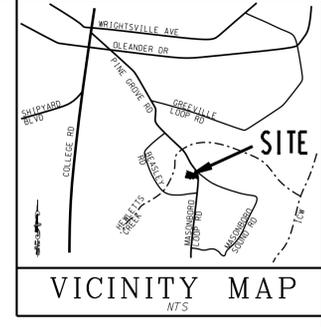
PROJECT AREA 2.28 AC  
99,442 SF  
TAX PIN R06700-001-012-000  
ZONING R-15  
CAMA LAND CLASS CONSERVATION  
RECEIVING STREAM HEWLETTS CREEK  
CLASSIFICATION SA  
IMPERVIOUS AREA  
STREETS 9,175 SF  
SIDEWALKS 3,818 SF  
LOTS (4 @ 5,000 SF) 20,000 SF  
RESERVE (SEE NOTE) 1,007 SF  
TOTAL 34,000 SF  
PERCENT BUA 34.2 %  
DISTURBED AREA 2.0 AC

**SITE DATA**

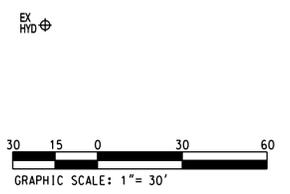
BUA RESERVE NOTE:  
REPORTED BUA RESERVE IS LIMITED BY CITY OF WILMINGTON DETENTION BASIN CAPACITY. ADDITIONAL RESERVE IS PERMITTED BY THE NCDENR STORMWATER PERMIT AND MAY BE UTILIZED BY EXPANDING THE CITY DETENTION BASIN CAPACITY AND MODIFYING THE CITY AND NCDENR STORMWATER PERMITS ACCORDINGLY.

**LEGEND**

- PROJECT BOUNDARY
- DISTURBED AREA
- SILT FENCE
- INLET DRAINAGE BOUNDARY
- TST DRAINAGE BOUNDARY
- PROPOSED PIPE
- PROPOSED SWALE
- EXISTING PIPE
- PROPOSED SPOT ELEVATION
- EXISTING WATER
- EX WATER TO BE REMOVED
- PROPOSED WATER
- EXISTING SEWER
- PROPOSED SEWER



MASONBORO LOOP ROAD (SR #1492)  
(VARIABLE WIDTH - R/W)



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STORMWATER MANAGEMENT PLAN  
**APPROVED**  
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ENGINEERING DEPARTMENT  
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COVER STORMWATER AND GRADING  
UTILITIES  
TRAFFIC  
LANDSCAPING  
GENERAL DETAILS  
CITY DETAILS  
CFPUA WATER DETAILS  
CFPUA SEWER DETAILS

7 -
8 -
WSD1 - WSD2
SSD1 - SSD2

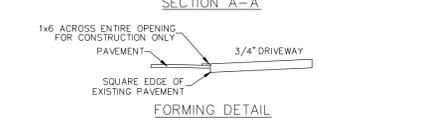
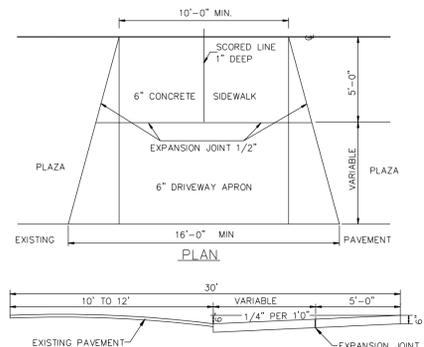
**SHEET INDEX**

LANDSCAPING  
**ANDREW'S REACH**  
- PHASE 2 -  
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

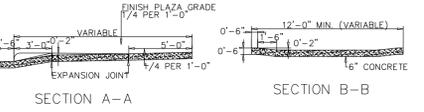
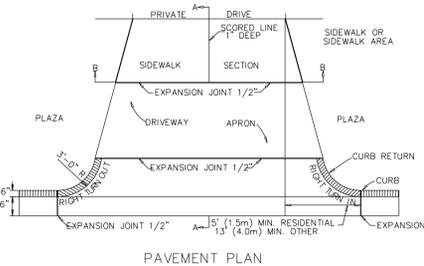
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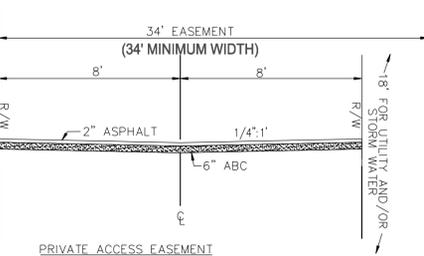
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STANDARD DRIVEWAY DETAIL  
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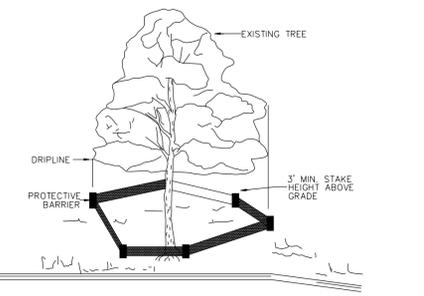
PRIVATE ACCESS EASEMENT  
SEE NOTES

ALLEY NOTES:  
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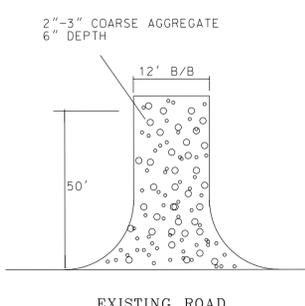
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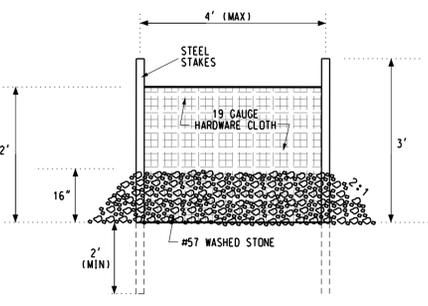
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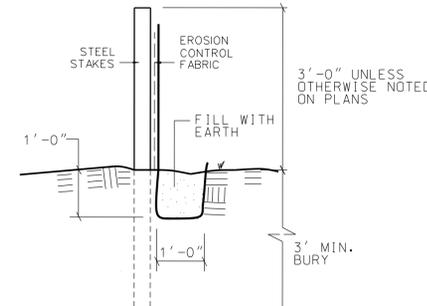
TREE PROTECTION  
NTS



CONSTRUCTION ENTRANCE  
NTS

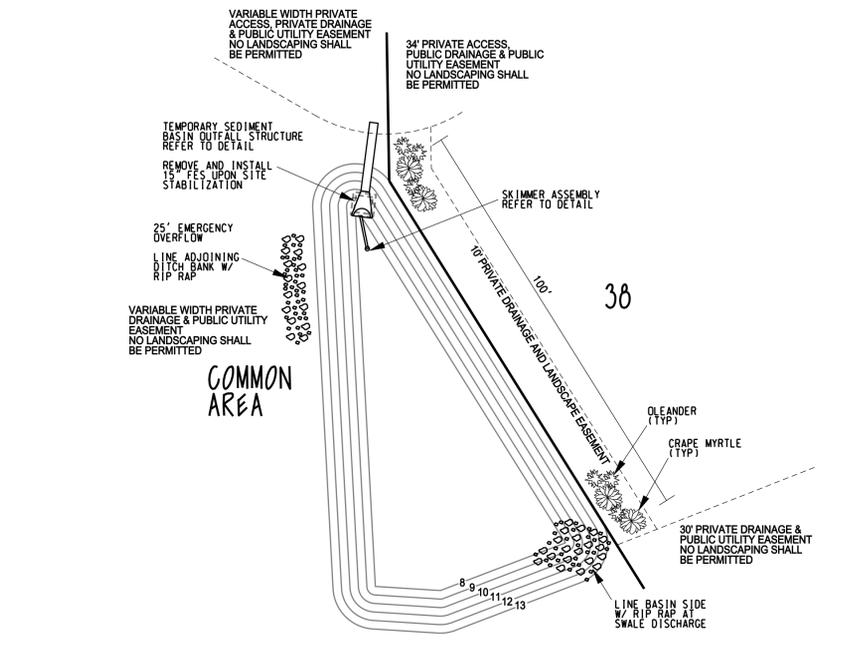


TYPICAL INLET PROTECTION  
NTS



TYPICAL SILT FENCE  
NTS

NOTE: POSTS TO BE SPACED 6 FT O.C. OR 8 FT O.C. W/ 1/4 GAUGE 6 X 6 WIRE MESH REINFORCEMENT. WOODEN POSTS ARE NOT ACCEPTABLE



DRY DETENTION BASIN DETAIL  
1" = 20'

NOTE: TEMPORARY OUTLET STRUCTURE SHALL BE REMOVED AND SEDIMENT SHALL BE CLEANED FROM BASIN UPON SITE STABILIZATION

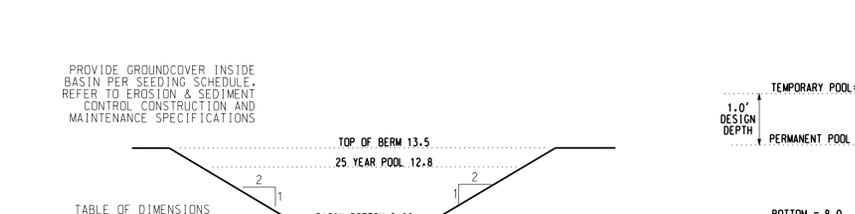
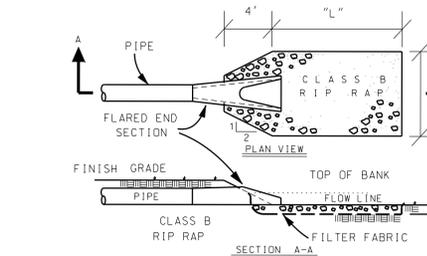


TABLE OF DIMENSIONS  
TOP OF BANK = 13.5  
EMERGENCY OUTLET = 13.0  
25 YEAR TEMP POOL = 12.8  
BOTTOM = 8.0

BASIN PROFILE  
N.T.S.

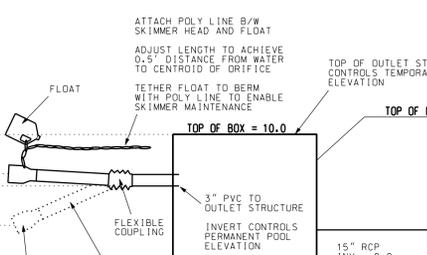


RIP RAP APRON DETAIL  
NTS

NOTE: FILTER FABRIC TO BE TREVIRA SPUNBOUND TYPE 11/120

RIP RAP APRONS SHALL BE PROVIDED ON DOWNSTREAM ENDS OF CULVERT FLARED END SECTIONS

RIP RAP	LENGTH	WIDTH
12"	6.0'	3.0'
15"	7.5'	3.8'
24"	12.0'	6.0'
30"	15.0'	7.5'
36"	18.0'	9.0'



SKIMMER ARM/TEMPORARY OUTLET STRUCTURE DETAIL  
NTS

NOTE: TEMPORARY OUTLET STRUCTURE SHALL BE REMOVED AND SEDIMENT SHALL BE CLEANED FROM BASIN UPON SITE STABILIZATION

- EROSION & SEDIMENT CONTROL MAINTENANCE PLAN
- ALL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF INCH RAINFALL.
  - ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2" OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED, WASHED, OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
  - SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, ROCK PIPE INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS/SOCKS, AND GUTTERBUDDIES ONCE A WEEK AND AFTER EVERY RAIN EVENT. NOTE THAT THE GUTTERBUDDY IS REUSABLE SHOULD BE STORED OUT OF DIRECT SUNLIGHT BETWEEN JOBS.
  - DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE RESTABILIZED WITHIN 21 CALENDAR DAYS OF CEASE OF ANY PHASE OF PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
  - SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET (MAX) WITH THE USE OF EXTRA STRENGTH FABRIC WITHOUT WIRE BACKING. STAKE SPACING WILL BE 8 FEET (MAX) WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE USED AT LOW POINTS IN THE SEDIMENT FENCE, THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED, OR IS DAMAGED.
  - SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE FIRST BAFFLE. IF APPLICABLE, FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
  - SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE FIRST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN.
  - ALL SEEDED AREAS WILL BE FERTILIZED, RESEED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 21 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 15 WORKING DAYS.
  - FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECTION SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.

COASTAL PLAIN SITE STABILIZATION SCHEDULE

- Fertilize and lime per recommendations of soil tests or apply 2,000 lb/acre ground agricultural limestone and 750 lb/acre 10-10-10 fertilizer.
- Incorporate lime/fertilizer 4-6 inches.
- Regrade steep slopes by tracked machinery.
- Select species based on season. Refer to tables.
- Broadcast seeds evenly and cover by raking or dragging a chain. Firm soil by rolling.
- Apply straw mulch at a rate 1-2 tons per acre. Anchor straw by tacking with asphalt, netting, or a mulch anchoring tool.
- Refer to table if growth is not fully adequate. Reseed, refer to table and mulch immediately following erosion or other damage.

Seeding Dates	Recommended Planting	Rate (lb/ac)
Feb. 15 - Apr. 1	Tall Fescue Mixture	see table 2
Sep. 1 - Nov. 1	Hybrid Bermudagrass	see table 2
Apr. 1 - Jul. 15	Common Bermudagrass	see table 2
Mar. 1 - Jul. 1	Centipedeagrass	see table 2

Site Description	Recommended Planting	Rate (lb/ac)
Well to poorly drained soils	Tall Fescue Mixture	80
	Pensacola Bahiagrass	50
	Kobe Lespedeza	40
Dry to well drained soils	Pensacola Bahiagrass	50
	Common Bermudagrass	30
	Kobe Lespedeza	10
	German Millet	10
Swales	Common Bermudagrass	40-80

Site Description	Recommended Planting	Rate (lb/ac)
Well to poorly drained soils	Tall Fescue Mixture	200
	Rye Grain	25
Dry to well drained soils	Hybrid Bermudagrass	50
Well drained sandy loam to sand-loams.	Centipedeagrass	10-20

Notes:  
For seeding outside of recommended dates and/or for temporary stabilization, refer to temporary seeding table.  
For highly erosive areas or as directed by an engineer, sod shall be provided.

PERMANENT SEEDING TABLE 2a-LOW MAINTENANCE MIXTURES

PERMANENT SEEDING TABLE 2b-HIGH MAINTENANCE MIXTURES

TEMPORARY SEEDING TABLE

Seeding Dates	Recommended Planting	Rate (lb/ac)
Dec. 1 - Apr. 15	Kobe Lespedeza with Rye Grain	50
Apr. 15 - Aug. 15	German Millet	120
Aug. 15 - Dec. 1	Rye Grain	120

SOD INSTALLATION

- Fertilize and lime per recommendations of soil tests or apply 100 lb/1,000 sq ground agricultural limestone and 25 lb/1,000 sq fertilizer. In the fall, use 10-10-10. In the spring, use 5-10-10.
- Incorporate lime/fertilizer 4-6 inches.
- Rake or harrow to achieve a smooth final grade.
- Roll to achieve a smooth, firm surface on which to lay the sod.
- Lightly rake and irrigate top layer of soil just prior to installation.
- Lay sod in a staggered, brick-like pattern with the longest dimension perpendicular to the slope. Avoid gaps. Use a knife to fit irregular shapes.
- Roll sod lightly after installation to ensure good sod to soil contact.
- Irrigate initially to wet soil to a depth of 4". Keep soil moist for 2-3 weeks thereafter or until sod has taken root.

NPDES STABILIZATION TIMEFRAMES

SITE AREA DESCRIPTION	STABILIZATION	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, AND DITCHES	7 DAYS	NONE
HIGH QUALITY WATER THOW ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND FLATTER THAN 2:1 THEN 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE

- CONSTRUCTION SEQUENCE
- INSTALL INLET PROTECTION, SILT FENCE, SEDIMENT BASIN, AND STONE CONSTRUCTION ENTRANCES.
  - CLEAR & GRADE
  - INSTALL UNDERGROUND UTILITIES
  - INSTALL PAVEMENT
  - PROVIDE 100% VEGETATIVE COVER OF ALL DISTURBED SOILS.
  - CLEAN SEDIMENT FROM PIPES AFTER STABILIZATION.

NOTE:  
NO WETLANDS EXIST IN DISTURBED PORTIONS OF SITE.

Approved Construction Plan

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

Planning \_\_\_\_\_

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

Traffic \_\_\_\_\_

Fire \_\_\_\_\_

STORMWATER MANAGEMENT PLAN  
APPROVED

CITY OF WILMINGTON  
ENGINEERING DEPARTMENT

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

SIGNED \_\_\_\_\_



DETAILS

## ANDREW'S REACH

- PHASE 2 -

WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREWS REACH DEVELOPERS, LLC  
ADDRESS: 8204 FAZIO DRIVE  
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PHONE: (910) 686-8100

DESIGNED: DLM  
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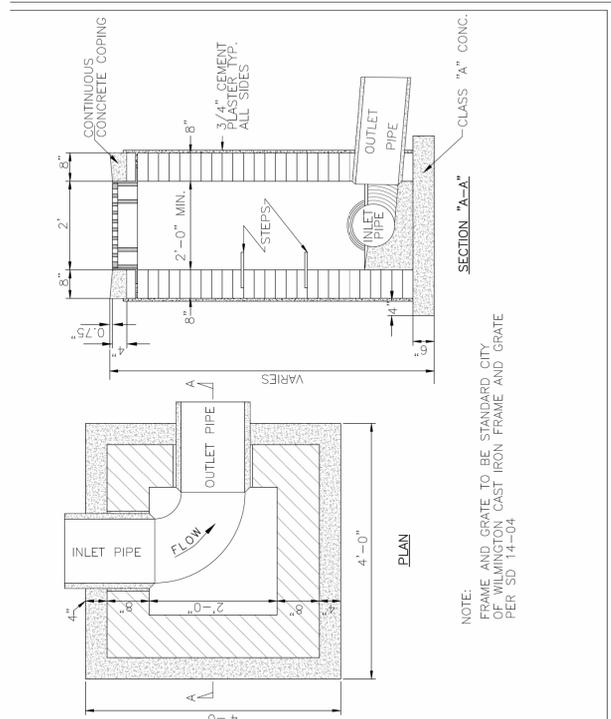
SHEET 6 OF 8

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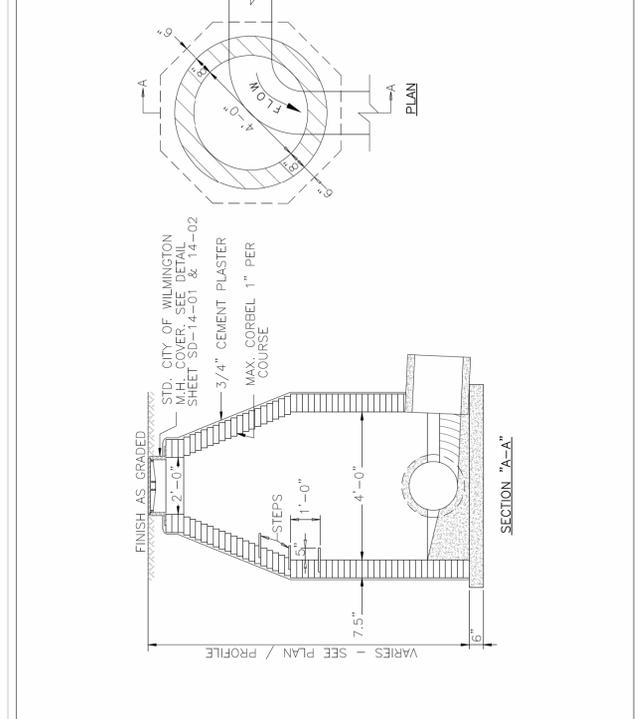
**GENERAL NOTES:**

- \* USE 4000 PSI CONCRETE, PROVIDE FOR H-20 TRAFFIC LOADING.
- \* PROVIDE ALL REINFORCING STEEL WHICH MEETS ASTM A615 FOR GRADE 60 AND WELDED WIRE FABRIC CONFORMING TO ASTM A185.
- \* LIMIT MAXIMUM DEPTH TO TOP OF BOTTOM SLAB FOR WAFFLE WALL STRUCTURE TO 6'-0".
- \* PLACE LIFT HOLES OR PINS IN ACCORDANCE WITH OSHA STANDARD 1926.704
- \* SAW CUT, CORE DRILL OR FORM OPENINGS, FOR PIPE TO PROVIDE REQUIRED SIZE AND LOCATION. ORIENT WAFFLE WALL STRUCTURES SO THAT PIPES ENTER THROUGH THE KNOCKOUT/WAFFLE PANELS ONLY. SEAL OPENINGS WITH HYDRAULIC CEMENT.
- \* ALL ELEMENTS PRECAST TO MEET ASTM C913.
- \* SET ON 6" WASHED STONE
- \* FRAME AND GRATE HEIGHT MAY BE ADJUSTED WITH BRICK.
- \* PROVIDE PRECAST STRUCTURES OVER 4'-0" IN DEPTH WITH STEPS/LADDER INSTALLED IN ACCORDANCE WITH ASHA STANDARD 1910.27 AND AS FIELD CONDITIONS DICTATE.
- \* WELDED WIRE FABRIC MAY BE SUBSTITUTED FOR REBAR AS LONG AS THE SAME AREA OF STEEL IS PROVIDED.
- \* SEAL JOINTS WITH A FLEXIBLE BUTYL RUBBER BASE CONFORMING TO FEDERAL SPECIFICATION SS-S-21A, AASHTO M-19B, TYPE B - BUTYL RUBBER.
- \* LIMIT MAXIMUM STRUCTURE SIZE TO INSIDE CLEAR DIMENSIONS OF 2'-6" x 3' - 0".
- \* USE FRAME AND GRATE AS PER SD-19.
- \* GROUT INVERT TO PROVIDE SMOOTH FLOW

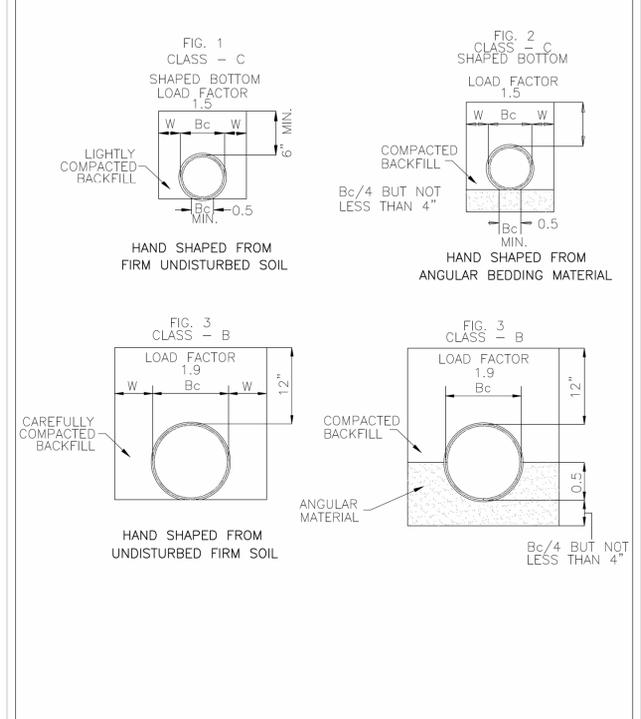
DATE: 2001	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SD 2-23a
DRAWN BY JSR/CMR	PRECAST WAFFLE DRAINAGE STRUCTURE		
CHECKED BY B.P., P.E.	GENERAL NOTES		
SCALE NOT TO SCALE			



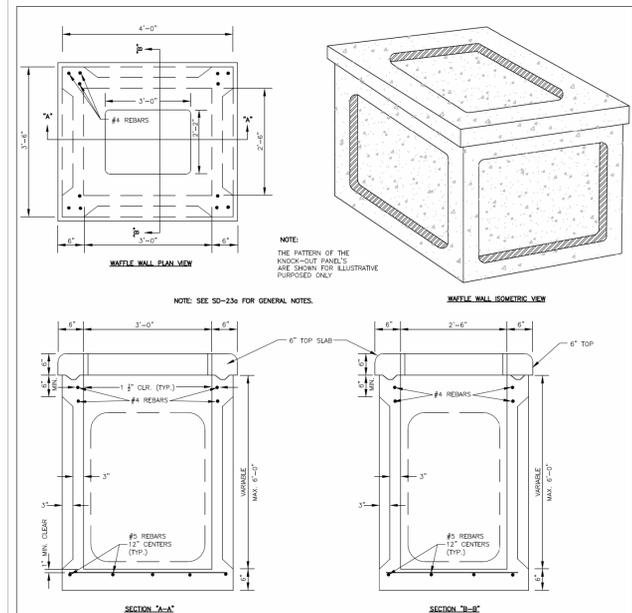
DATE: 2001	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SD 2-02
DRAWN BY JSR	GRILL BASIN		
CHECKED BY B.P., P.E.			
SCALE NOT TO SCALE			



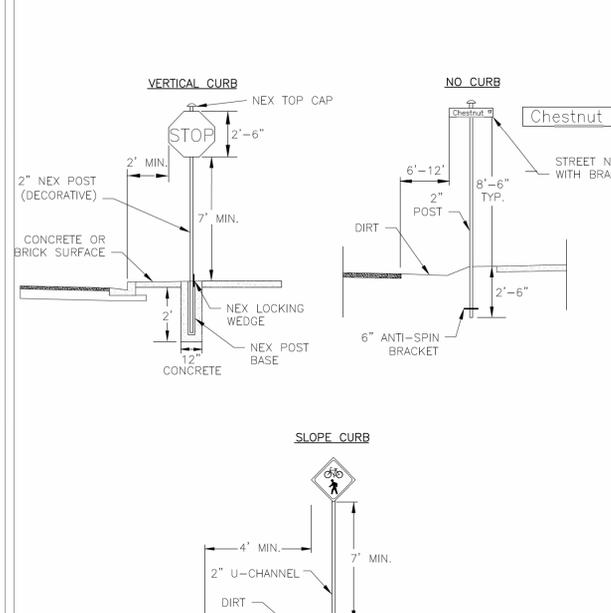
DATE: 2001	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SD 2-03
DRAWN BY JSR/CMR	GUIDELINES FOR STORM DRAIN MANHOLE		
CHECKED BY B.P., P.E.			
SCALE NOT TO SCALE			



DATE: 2001	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SD 2-17
DRAWN BY JSR/CMR	GUIDELINES FOR BEDDING DETAILS, STORM SEWER CLASSES (B & C)		
CHECKED BY B.P., P.E.			
SCALE NOT TO SCALE			

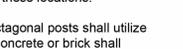


DATE: 2001	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SD 2-23
DRAWN BY JSR/CMR	PRECAST WAFFLE DRAINAGE STRUCTURE		
CHECKED BY B.P., P.E.			
SCALE NOT TO SCALE			



DATE: NOVEMBER, 2011	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SHEET 1 of 2
DRAWN BY JSR	STREET SIGNS AND LOCATION		
CHECKED BY BDR, P.E.			
SCALE NOT TO SCALE			

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

DATE: NOVEMBER, 2011	STANDARD DETAIL	 CITY OF WILMINGTON ENGINEERING PO BOX 1810 WILMINGTON, NC 28402 (910) 341-7807	SHEET 2 of 2
DRAWN BY JSR	STREET SIGNS AND LOCATION		
CHECKED BY BDR, P.E.			
SCALE NOT TO SCALE			

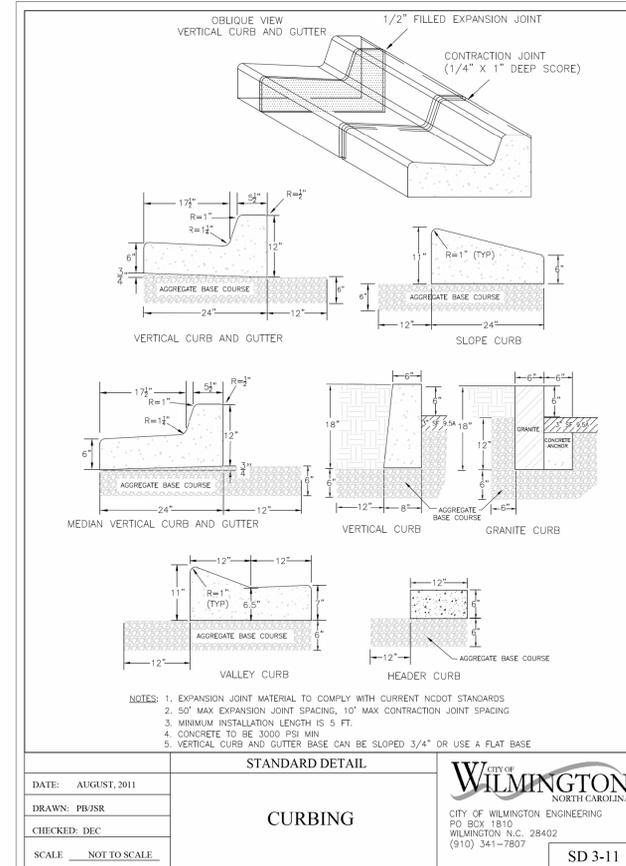
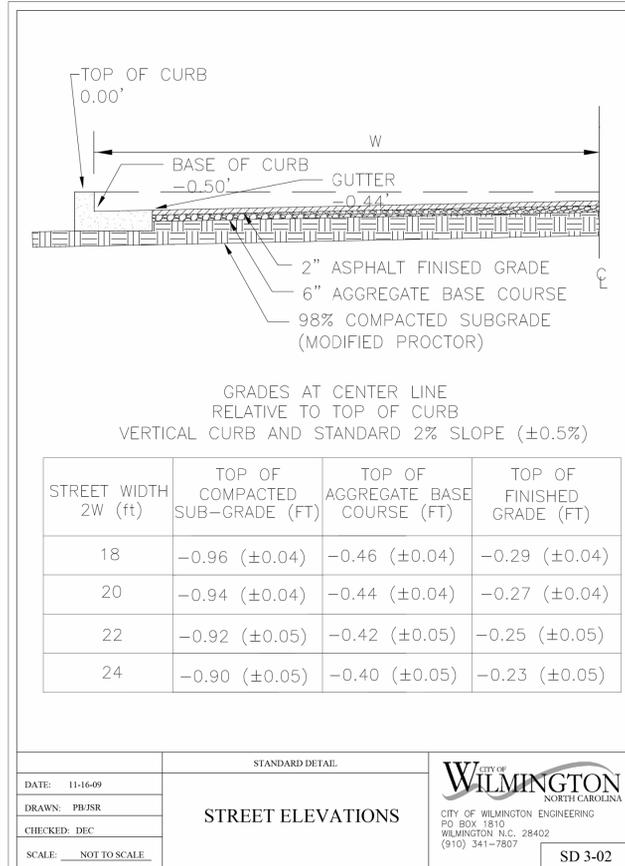
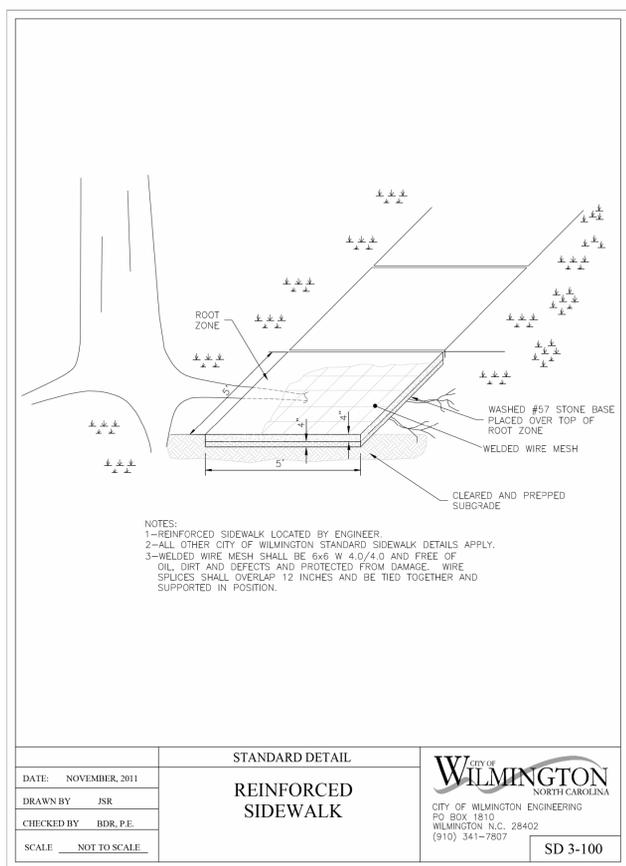
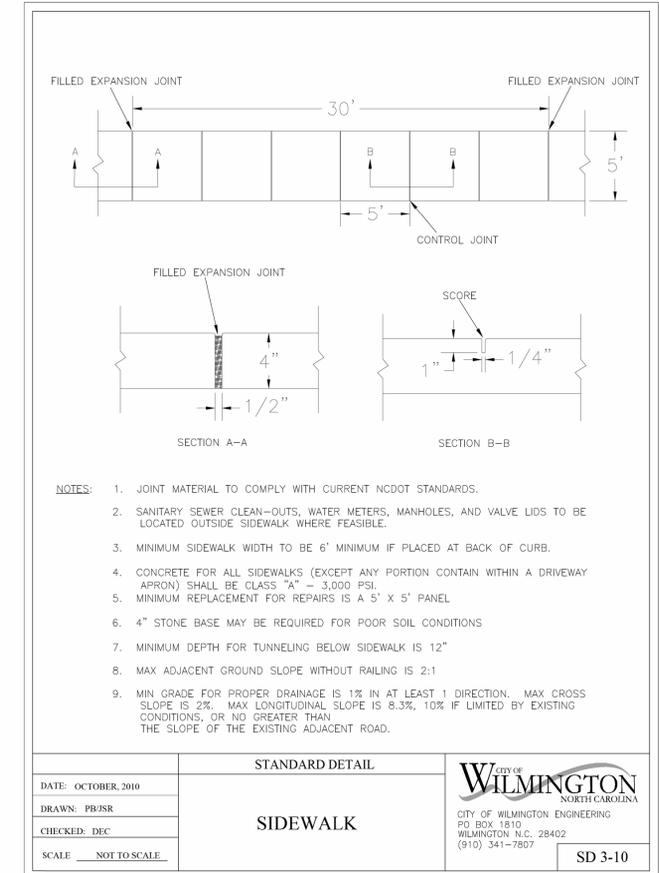
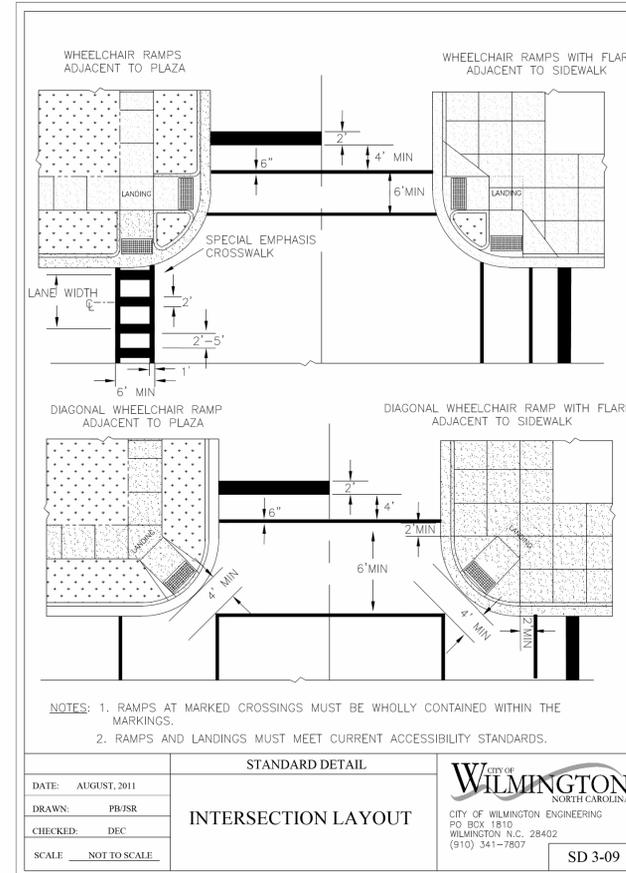
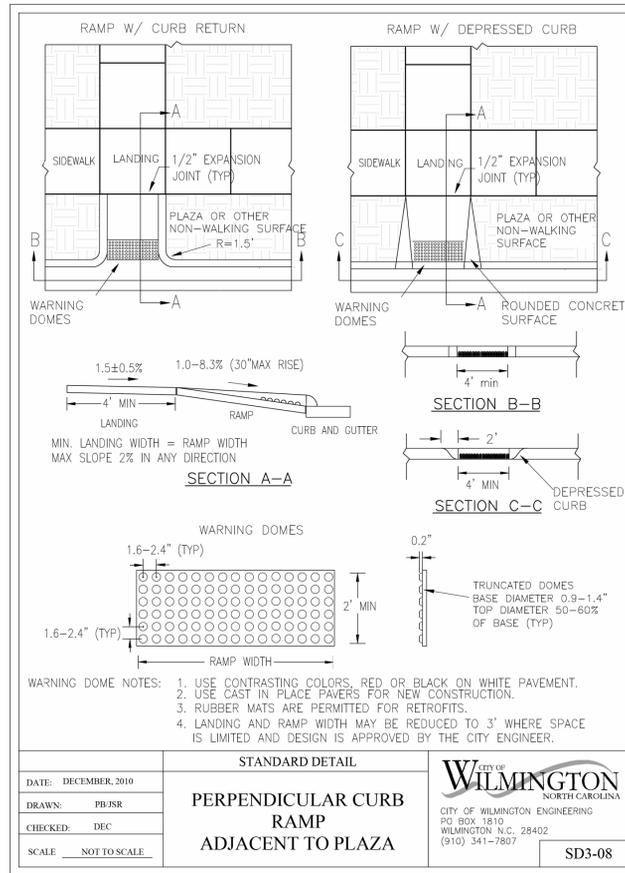
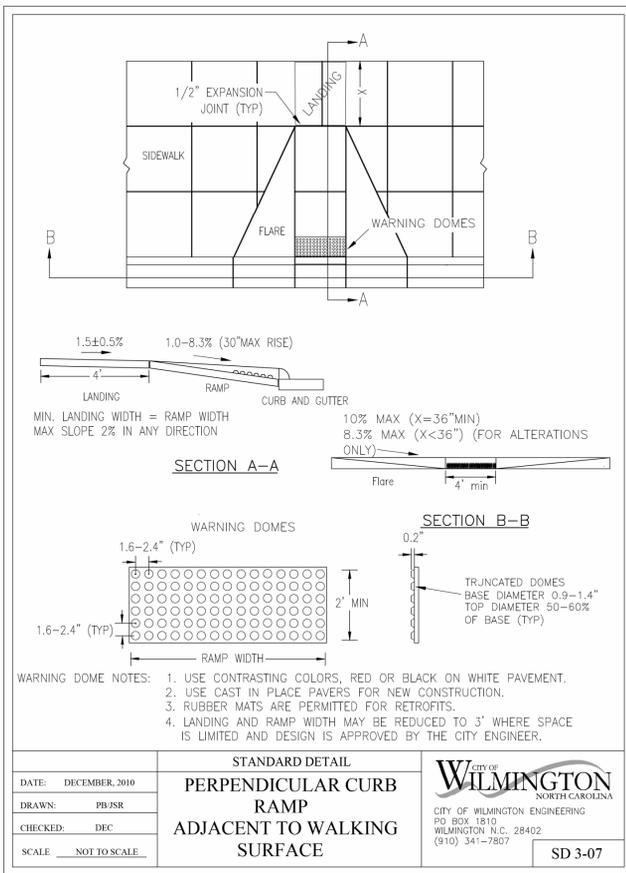
**STORMWATER MANAGEMENT PLAN**  
**APPROVED**  
 CITY OF WILMINGTON  
 ENGINEERING DEPARTMENT  
 DATE \_\_\_\_\_ PERMIT # \_\_\_\_\_  
 SIGNED \_\_\_\_\_

**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.

CITY OF WILMINGTON DETAILS	
<b>ANDREW'S REACH</b>	
- PHASE 2 -	
WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA	DESIGNED: DLM
OWNER: ANDREW'S REACH DEVELOPERS, LLC	DRAWN: DLM
ADDRESS: 8204 FAZIO DRIVE WILMINGTON, NC 28411	APPROVED: JHF
PHONE: (910) 686-8100	DATE: 9/10/2014
 <b>STROUD ENGINEERING, P.A.</b> 102-D CINEMA DRIVE WILMINGTON, NC 28403 (910) 85-0725 (910) 85-0593 FAX C-0647	SCALE: AS NOTED
	SHEET 7 OF 8





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

**Approved Construction Plan**  
 Name \_\_\_\_\_ Date \_\_\_\_\_

Planning \_\_\_\_\_  
 Public Utilities \_\_\_\_\_  
 Traffic \_\_\_\_\_  
 Fire \_\_\_\_\_

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**CITY OF WILMINGTON DETAILS**  
**ANDREW'S REACH**  
 - PHASE 2 -  
 WILMINGTON TOWNSHIP CITY OF WILMINGTON NEW HANOVER COUNTY NORTH CAROLINA

OWNER: ANDREW'S REACH DEVELOPERS, LLC  
 ADDRESS: 8204 FAZIO DRIVE WILMINGTON, NC 28411  
 PHONE: (910) 686-8100

DESIGNED: DLM  
 DRAWN: DLM  
 APPROVED: JHF  
 DATE: 9/10/2014  
 SCALE: AS NOTED  
**STROUD ENGINEERING, P.A.**  
 102-D CINEMA DRIVE WILMINGTON, NC 28403 (910) 85-0725 (910) 85-0593 FAX  
 C-0647

