

- NOTES**
- AS-BUILT SURVEY PROVIDED BY ARNOLD W. CARSON PLS., P.C.
 - CONTRACTOR SHALL OVERLAY EXISTING DRIVE ISLES AND PARKING AREAS THAT ARE TO REMAIN WITH 1" OF SP55A ASPHALT. PROPOSED GRADES ARE BASED ON A 1" ASPHALT OVERLAY ON TOP OF EXISTING GRADES.
 - CONTRACTOR & DEVELOPER SHALL CONTACT PERVIOUS CONCRETE MANUFACTURER FOR PROPER INSTALLATION OF PERVIOUS CONCRETE.
 - CONTRACTOR SHALL ENSURE THE PATH FROM EACH HANDICAP PARKING SPACE TO THE UNIT ASSOCIATED WITH THE RESPECTIVE SPACE MEETS ADA SPECIFICATIONS.
 - MASS ENGINEERING & SURVEYING, P.C. IS NOT RESPONSIBLE FOR ANY WATER OR SEWER LINE LOCATIONS OR SEPARATIONS.
 - MALPASS ENGINEERING & SURVEYING, P.C. IS NOT RESPONSIBLE FOR WALL, FENCE, OR GATE DESIGNS.
 - OLD BOILER ROOM IN COMMUNITY BUILDING SHALL BE UPFITTED TO HOUSE BICYCLE & SCOTTER STORAGE (MINIMUM OF 35 SPACES).
 - PARKING SPACES SHALL BE NO CLOSER THAN 15' TO BUILDING ENTRY (EXCLUDING VEHICLE OVERHANG).
 - SANITARY SEWER MANHOLE LOCATIONS WERE TAKEN FROM AN AUGUST 10, 1939 PLAN TITLED "USHA PROJECT NO. NC. 1-10" & ARE APPROXIMATE, UNLESS NOTED AS "AS-BUILT". ALL SANITARY SEWER INVERTS, EXCEPT RUN THRU SITE ALONG MARTIN ST. & STREETS TAKEN FROM ABOVE REFERENCED PLAN ARE APPROXIMATE. SEWER SEWER LOCATIONS & SIZES WERE TAKEN FROM ABOVE REFERENCED PLAN & ARE APPROXIMATE. SANITARY SEWER LOCATIONS, INVERTS, & SIZES SHALL BE FIELD VERIFIED AS NECESSARY.
 - NO EQUIPMENT IS ALLOWED ON THE SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING HAS BEEN INSTALLED AND APPROVED.
 - NO LAND DISTURBANCE INCLUDING TREE REMOVAL IS TO OCCUR OUTSIDE THE LIMITS OF DISTURBANCE SHOWN ON THE PLANS.
 - 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.
 - IF AN IRRIGATION SYSTEM IS INSTALLED, IT SHALL BE EQUIPPED WITH A RAIN SENSOR.
 - INTERIOR LANDSCAPING ISLANDS ADJACENT TO CURB CUTS SHALL BE DEPRESSED TO RECEIVE FLOW FROM PARKING LOT.
 - REPLACE SANITARY SEWER & WATER MAIN WITH D.I.P. 10" ON EITHER SIDE OF STORM DRAIN CROSSING.
 - DOWNSPUT PIPING SHOWN ON PLAN IS FOR INFORMATIONAL PURPOSES ONLY. DOWNSPOUT PIPING (SIZE, LOCATION, ETC) SHALL BE DESIGNED BY OTHERS. HOWEVER, DOWNSPOUTS SHALL DISCHARGE INTO INFILTRATION BASINS, INFILTRATION TRENCHES, AND PERVIOUS CONCRETE SECTIONS AS SHOWN ON PLAN. THE INVERT OF DOWNSPOUT PIPING THAT DISCHARGES TO PERVIOUS CONCRETE SHALL MATCH THE TOP OF PERVIOUS CONCRETE ELEVATION AT THE DISCHARGE POINT.
 - THE PROPOSED LIMITS OF DISTURBANCE AREA SHALL INCLUDE ALL THE AREA WITHIN THE LIMITS OF DISTURBANCE LINE EXCEPT FOR THE BUILDING FOOTPRINTS AND STOODPS FOR BUILDINGS #1-22 & 25.
 - EXISTING STORM DRAIN PIPES SHOWN ON PLAN THAT WERE NOT SURVEYED (SEE LEGEND FOR LINE TYPE) WERE TAKEN FROM AN AUGUST 10, 1939 PLAN TITLED "USHA PROJECT NO. NC. 1-10" WITH A REVISION DATE OF MAY 11, 1967. THE INVERT OF THESE STORM DRAIN PIPES & INVERTS ARE APPROXIMATE, AND PIPE SIZES ARE BASED ON THE ABOVE REFERENCED PLAN.
 - LOCATION OF TREE PROTECTION FENCING SHOWN ON PLAN IS APPROXIMATE. TREE PROTECTION FENCING SHALL BE INSTALLED IN ACCORDANCE WITH DETAIL SD 15-09 ON SHEET 21, EXCEPT WHERE SITE IMPROVEMENTS ARE TO OCCUR AS SHOWN ON PLAN.
 - SILT FENCE SHALL BE INSTALLED AS SHOWN ON THE PLAN & ANYWHERE ELSE SEDIMENT HAS THE ABILITY TO LEAVE THE SITE.
 - HANDICAP RAMPS SHALL BE PROVIDED AT ALL PARKING AREAS TO SIDEWALK CONNECTIONS INTERNAL TO THE SITE.
 - ANY PARKING SPACE LESS THAN 8'5" IN WIDTH BY 18' IN LENGTH SHALL BE SIGNED ALERTING DRIVERS TO THE LIMITED SIZE.
 - CONSTRUCTION ENTRANCE AT GREENFIELD STREET DRIVEWAY SHALL BE INSTALLED ONLY IF ASPHALT IS REMOVED AND DRIVEWAY IS USED AS AN ENTRANCE. CONSTRUCTION ENTRANCE SHALL BE INSTALLED AT THE PROPOSED DRIVEWAY AT GREENFIELD STREET (WESTERN DRIVEWAY).
 - ROOF LEADER PIPING SHALL HAVE A CLEARDRIP AT EACH END.
 - PROPOSED SIDEWALK ADJACENT TO PARKING SPACES EXCEPT SPACES #1-9, 211-213, 295-296, & 309-304) SHALL BE TURNOFF SIDEWALK.
 - LANDSCAPE ISLANDS WITH CURB CUTS SHALL BE GRASS & DEPRESSED.
 - DISTURBED AREAS WITHIN RIGHT-OF-WAY OF GREENFIELD STREET & SOUTH FRONT ST. SHALL BE IMMEDIATELY SEEDED & STABILIZED WITH MULCH PRIOR TO ANY RAINFALL EVENT.
 - FENCING & GATES MUST BE APPROVED BY ZONING PRIOR TO INSTALLATION.
 - LANDSCAPING SHALL NOT BLOCK OR IMPERE THE FDC OR FIRE HYDRANTS. A 3-FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF THE HYDRANT AND FDC.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WITH & OBTAINING NECESSARY RIGHT-OF-WAY PERMITS (STREET CUT, STREET/LANE CLOSURE, SIDEWALK CLOSURE, ETC.) FROM THE CITY OF WILMINGTON FOR WORK WITHIN THEIR RIGHTS-OF-WAY.
 - CONTRACTOR TO REPAIR ANY DISTURBED AREAS (CASUAL STOPS, SIDEWALK, GRASS PLAZA, ETC) WITHIN SOUTH FRONT ST, GREENFIELD ST, OR SOUTH THIRD ST TO PRE-CONSTRUCTION CONDITIONS OR BETTER.
 - THE PROPOSED MAINTENANCE ACCESS EASEMENT SHOWN ON SHEET 2H FOR PERMEABLE PAVEMENT SYSTEM #1 SHALL BE GRANTED IN FAVOR OF THE CITY OF WILMINGTON FOR STORMWATER ENFORCEMENT.
 - THE DEVELOPER SHALL HAVE THE PERMEABLE PAVEMENT OPERATION AND MAINTENANCE AGREEMENT IT ENTERED INTO WITH THE CITY OF WILMINGTON RECORDED WITH THE COUNTY REGISTER OF DEEDS SO AS TO APPEAR IN THE CHAIN OF TITLE OF ALL SUBSEQUENT PURCHASERS.
 - PROPOSED CURB ADJACENT TO PARKING SPACES #339 & 340 SHALL BE MEDIAN VERTICAL CURB & GUTTER (SD 3-11). PROPOSED CURB ADJACENT TO PARKING SPACE #301 SHALL BE 4" MEDIAN VERTICAL CURB & GUTTER. 4" MEDIAN VERTICAL CURB & GUTTER SHALL BE MEDIAN VERTICAL CURB & GUTTER WITH THE TOP OF THE CURB ONLY 4" ABOVE THE PAVEMENT. PROPOSED CURB FROM PERMEABLE PAVEMENT SYSTEM #1 TO RIVER ROAD WAY SHALL BE VERTICAL CURB (SD 3-11).
 - ANY WATER OR SANITARY SEWER TAPS TO THE SITE THAT ARE NOT USED SHALL BE ABANDONED.
 - EXISTING 12" RCP FROM EX. CB#7A TO EX. DB#17A SHALL BE REMOVED. OPENING ON SE SIDE OF EX. DB#17A SHALL BE SEALED USING BRICK/BLOCK & MORTAR. REMOVAL OF PIPE & SEALING OF STRUCTURE WALL SHALL BE THE RESPONSIBILITY OF THE PROPOSED DRAINAGE IMPROVEMENTS WITHIN SOUTH FRONT STREET & GREENFIELD STREET ASSOCIATED WITH GREENFIELD COMMERCIAL ARE INSTALLED.
 - EX. CB#7A SHALL BE REPLACED WITH CB# 7A AS PART OF THE PROPOSED DRAINAGE IMPROVEMENTS WITHIN SOUTH FRONT STREET & GREENFIELD STREET ASSOCIATED WITH GREENFIELD COMMERCIAL.
 - INSTALLATION OF THE PROPOSED 24" RCP FROM SD#H-5 TO CB #7A SHALL NOT OCCUR UNTIL THE PROPOSED DRAINAGE IMPROVEMENTS WITHIN SOUTH FRONT STREET & GREENFIELD STREET ASSOCIATED WITH GREENFIELD COMMERCIAL ARE INSTALLED.
 - CONTRACTOR SHALL CLEAR THE VEHICULAR SIGHT DISTANCE FROM 30' TO 10' ON THE EXISTING TREES & ALL PROPOSED VEGETATION WITH THE SIGHT TRIANGLES SHALL NOT INTERFERE WITH CLEAR VISUAL SIGHT LINES FROM 30' TO 10'.

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LEGEND

- EXISTING SIDEWALK (TO REMAIN)
- EXISTING SIDEWALK (TO BE REMOVED)
- EXISTING CONCRETE (TO BE REMOVED)
- EXISTING TREE
- EXISTING TREE (TO BE REMOVED)
- EXISTING SANITARY SEWER
- EXISTING WATER LINE
- EXISTING WATER VALVE
- EXISTING CURB INLET
- EXISTING FIRE HYDRANT
- EXISTING POWER/TRAFFIC POLE
- EXISTING NO PARKING SIGN
- EXISTING RAILROAD ARM
- EXISTING STORM DRAIN PIPE (NOT SURVEYED APPROX. LOCATION BASED ON 1939 PLAN)

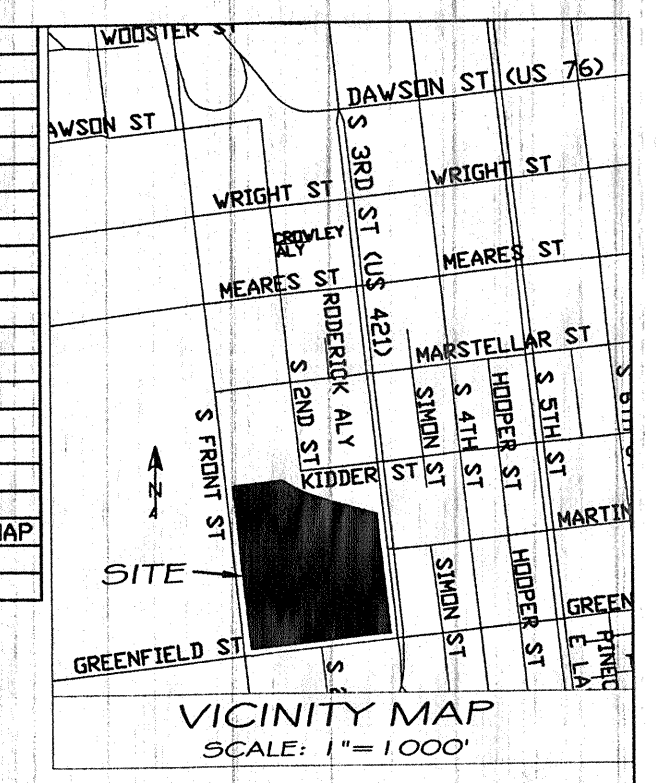


TABLE DISCLOSING LOCATION OF FOUND PROPERTY CORNERS FROM SAME AS INDICATED BY BOOK 5510, PAGE 816

QBASE CONTROL POINT	LINE CONTROL POINT
520'41.44" W	0.20'
524'35.04" W	0.07'
501'43.37" E	0.18'
536'20.37" W	0.06'
552'29.42" W	0.18'
577'31.07" W	0.08'
585'56.56" E	0.36'
509'29.24" W	0.17'

NOTE: THE BOOK VALUES WERE DERIVED FROM AN ORIGINAL SURVEY USING CONTROL POINTS. THE CONTROL POINTS ARE SUBDIVISION AS THE CONTROL BASE. BEARINGS AND DISTANCES OTHERWISE SHOWN HEREIN ARE FROM BOOK 501, PAGE 816.

SITE INVENTORY NOTES

- SOILS ON SITE PER THE NEW HANOVER COUNTY SOIL SURVEY ARE Bn (BAYMEADE) AND U^c (URBAN LAND).
- THIS PROPERTY IS NOT IMPACTED BY ANY ACP PER LAND MANAGEMENT GROUP, INC.
- THERE ARE NO CONSERVATION OVERLAY RESOURCES AFFECTING THIS PROPERTY PER LAND MANAGEMENT GROUP, INC.
- THIS SITE IS LOCATED WITHIN THE WILMINGTON NATIONAL REGISTER DISTRICT PER LAND MANAGEMENT GROUP, INC.
- NO INDIVIDUAL CEMETERIES, BURIAL SITES, OR BURIAL GROUNDS WERE IDENTIFIED ON THIS SITE PER LAND MANAGEMENT GROUP, INC.
- THERE ARE NO SIGNIFICANT FOREST RESOURCES OR ASSOCIATED FOREST HABITAT REMAINING ON THIS SITE PER LAND MANAGEMENT GROUP, INC.
- THERE IS NO ACCE REGULATED 404 WETLANDS OR SECTION 10 WATERS ON THIS SITE PER LAND MANAGEMENT GROUP, INC.
- THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THIS SITE PER LAND MANAGEMENT GROUP, INC.
- THIS TRACT IS WITHIN A FLOOD AREA ZONE "X" & AE 1.0 ACCORDING TO FEMA FLOOD INSURANCE RATE MAP. COMMUNITY-PANEL NUMBER 3720311700 K DATE 6/2/06 (INFORMATION PROVIDED BY ARNOLD W. CARSON PLS., P.C.)
- RESEARCH ON THE CITY OF WILMINGTON'S TRANSPORTATION PLANNING WEBSITE RESULTED IN NO FINDINGS OF PROPOSED THROUGHFARES, BIKE ROUTES, PEDESTRIAN SIDEWALKS OR TRAILS, OR TRANSIT FACILITIES AFFECTING THIS PROJECT.
- THE TRACT IS WITHIN THE CAPE FEAR RIVER BASIN & DRAINS TO GREENFIELD CREEK (CSGS).
- CAMA LAND USE CLASSIFICATION PER THE 2006 CAMA PLAN UPDATE LAND CLASSIFICATION MAP IS URBAN (495,553.24 SF = 1.1376 ACRES) & CONSERVATION AREA (74,677.67 SF = 1.714 ACRES)

SITE DATA (EXISTING CONDITIONS PRIOR TO REDEVELOPMENT)

PROPERTY OWNER: SOUTH FRONT LLC
 PROJECT ADDRESS: 1400 S. 2ND ST.
 PIN NUMBER: ROS415-005-002-000
 ZONING DISTRICT: M-F
 FLOOD AREA ZONE "X" & AE 1.0 ACCORDING TO THE FEMA FLOOD INSURANCE RATE MAP. COMMUNITY-PANEL NUMBER 3720311700 K DATE 6/2/06 (INFORMATION PROVIDED BY ARNOLD W. CARSON PLS., P.C.)
 BUILDING SETBACKS: REQUIRED FRONT-30', REAR-25', INTERIOR SIDE-20', CORNER LOT SIDE-30'
 BUILDING SETBACKS, EXISTING (MIN) FRONT-19.97', REAR-18.71', INTERIOR SIDE-18.74', CORNER LOT SIDE-19.95'
 TOTAL SITE AREA: 570,230.91 SF = 13.009 ACRES
 EXISTING BUILDING FOOTPRINT: 103,444.75 SF = 2.37 ACRES
 EXISTING BUILDING LOT COVERAGE: 103,444.75 / 570,230.91 * 100% = 18.14%
 EXISTING NUMBER OF UNITS: 261 (1 BEDROOM-133 UNITS, 2 BEDROOM-96 UNITS, 3 BEDROOM-32 UNITS)
 NUMBER OF EXISTING BUILDINGS: RESIDENTIAL-24 (94,437.06 SF), NON-RESIDENTIAL-1 (9,007.69 SF)
 NUMBER EXISTING BUILDINGS TO REMAIN: RESIDENTIAL-22 (80,477.50 SF), NON-RESIDENTIAL-1 (9,007.69 SF)
 BUILDING SIZE, EXISTING:

BUILDING	SQUARE FOOTAGE	NUMBER OF EXISTING UNITS	NUMBER OF BEDROOMS (1/2/3)	RESIDENTIAL / NON-RESIDENTIAL	KEEP / REMOVE	BUILDING ADDRESS
1	3,883.30	10	4/3/3	RESIDENTIAL	KEEP	1402-1 S. 2ND ST.
2	3,591.65	10	4/6/3	RESIDENTIAL	KEEP	1402-2 S. 2ND ST.
3	3,577.22	10	4/6/0	RESIDENTIAL	KEEP	1402-3 S. 2ND ST.
4	3,907.51	10	4/3/3	RESIDENTIAL	KEEP	1402-4 S. 2ND ST.
5	2,792.76	8	4/4/0	RESIDENTIAL	KEEP	1402-5 S. 2ND ST.
6	3,907.93	10	4/2/3	RESIDENTIAL	KEEP	1402-6 S. 2ND ST.
7	3,787.27	10	4/6/0	RESIDENTIAL	KEEP	1402-7 S. 2ND ST.
8	3,581.33	10	4/6/0	RESIDENTIAL	KEEP	1402-8 S. 2ND ST.
9	3,898.79	10	4/3/3	RESIDENTIAL	KEEP	1402-9 S. 2ND ST.
10	2,790.11	8	4/4/0	RESIDENTIAL	KEEP	1402-10 S. 2ND ST.
11	2,799.50	8	4/4/0	RESIDENTIAL	KEEP	1402-11 S. 2ND ST.
12	2,787.83	8	4/4/0	RESIDENTIAL	KEEP	1402-12 S. 2ND ST.
13	3,891.30	10	4/3/3	RESIDENTIAL	KEEP	1402-13 S. 2ND ST.
14	3,661.98	10	4/5/1	RESIDENTIAL	KEEP	1402-14 S. 2ND ST.
15	3,673.34	10	4/7/1	RESIDENTIAL	KEEP	1402-15 S. 2ND ST.
16	3,886.97	10	4/3/3	RESIDENTIAL	KEEP	1402-16 S. 2ND ST.
17	4,550.24	12	4/6/2	RESIDENTIAL	KEEP	1402-17 S. 2ND ST.
18	4,573.19	12	4/6/2	RESIDENTIAL	KEEP	1402-18 S. 2ND ST.
19	3,895.71	10	4/3/3	RESIDENTIAL	KEEP	1402-19 S. 2ND ST.
20	3,620.00	10	4/5/1	RESIDENTIAL	KEEP	1402-20 S. 2ND ST.
21	3,652.35	10	4/5/1	RESIDENTIAL	KEEP	1402-21 S. 2ND ST.
22	3,914.72	10	4/3/3	RESIDENTIAL	KEEP	1402-22 S. 2ND ST.
23	6,314.94	25	23/0/0	RESIDENTIAL	REMOVE	1402-24 S. 2ND ST.
24	7,544.62	20	20/0/0	RESIDENTIAL	REMOVE	1400 S. 2ND ST.
25	9,007.69	-	-	NON-RESIDENTIAL	KEEP	1400 S. 2ND ST.
TOTAL	103,444.75	261	133/96/32			

NUMBER OF STORES & SQUARE FEET PER FLOOR: 2 STORES (SEE ABOVE CHART) SAME FOR BOTH STORES
 TOTAL AMOUNT & PERCENT OF IMPERVIOUS SURFACE AREAS:

BEFORE DEVELOPMENT	AREA (SQ) % OF SITE
BUILDINGS	103,444.75 18.14
BUILDING STOODPS	13,769.99 2.41
PARKING & DRIVEWAYS	84,212.36 14.77
SIDEWALKS	62,388.64 10.94
OTHER	6,148.10 1.08
TOTAL	269,963.84 47.34

OFF STREET PARKING CALCULATIONS:
 EXISTING PARKING SPACES: APPROXIMATELY 192 SPACES BASED ON INFORMATION PROVIDED BY WHA
 EXISTING OPEN SPACE: 297,251.90 SF = 6.824 ACRES (SEE EXISTING OPEN & RECREATION SPACE MAP)
 THIS SITE IS NOT WITHIN A SPECIAL HIGHWAY OVERLAY DISTRICT OR ANY OTHER ZONING OVERLAY DISTRICT PER THE CITY OF WILMINGTON ZONING MAP (08 3117-4)
 WITHIN CITY OF WILMINGTON 1945 CORPORATE LIMITS

Approved Construction Plan

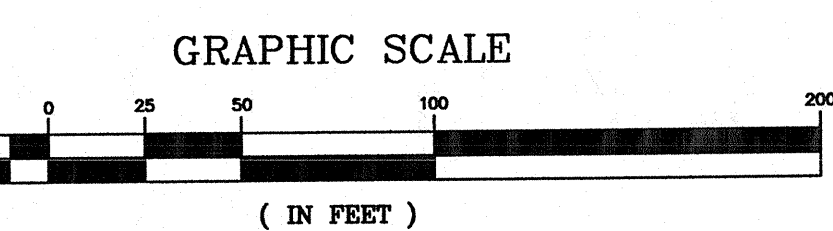
Name: W. Smith Date: 9-7-17

Planning: W. Smith 9-7-17

Traffic: C. Walker 9-7-17

Fire: C. Walker 9/2/17

City of Wilmington
 Public Services Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 9/11/17 Permit #: 20102223
 Signed: [Signature]



REVISIONS

REV. NO.	DESCRIPTION	DATE
1	REVISED PER CITY OF WILMINGTON TRC.	3-10-11
2	REVISED TO ADJUST SAW CUT LINES AT GREENFIELD STREET DRIVEWAY.	4-21-11
3	REVISED PER CITY OF WILMINGTON.	5-13-11
4	REVISED PER CLIENT.	6-7-11
5	REVISED PER CITY OF WILMINGTON.	7-29-11
6	REVISED TO NOT SHOW PROPOSED GATES.	8-4-11
7	REVISED TO SHOW ADDITIONAL SEWER LINE BEING REMOVED.	8-11-11
8	REVISED PER CITY OF WILMINGTON TRC.	8-12-11
9	REVISED TO ADJUST EXISTING SIDEWALK TO REMAIN & TO BE REMOVED.	9-22-11
10	REVISED TO ADJUST EXISTING SIDEWALK TO REMAIN & TO BE REMOVED.	8-13-12
11	REVISED PER CITY OF WILMINGTON ENGINEERING.	9-19-12
12	REVISED PER CLIENT.	6-7-17
13	REVISED PER TRC COMMENTS.	6-30-17
14	REVISED TO ADD NOTES & ADJUST STORM DRAIN STRUCTURE/PIPE LABELS.	8-3-17
15	REVISED PER TRC COMMENTS.	9-7-17
16	REVISED PER TRC COMMENTS.	9-7-17

EXISTING CONDITIONS MAP
 1400 S. 2ND STREET
 WILMINGTON TOWNSHIP
 NEW HANOVER COUNTY
 NORTH CAROLINA

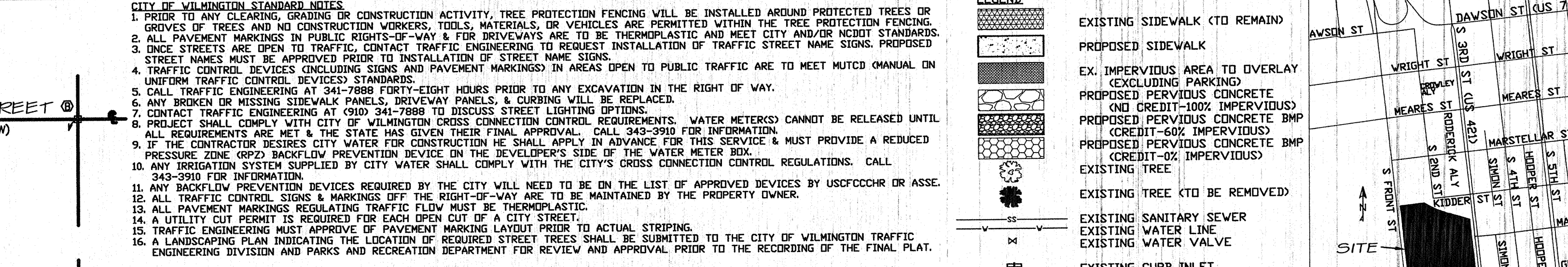
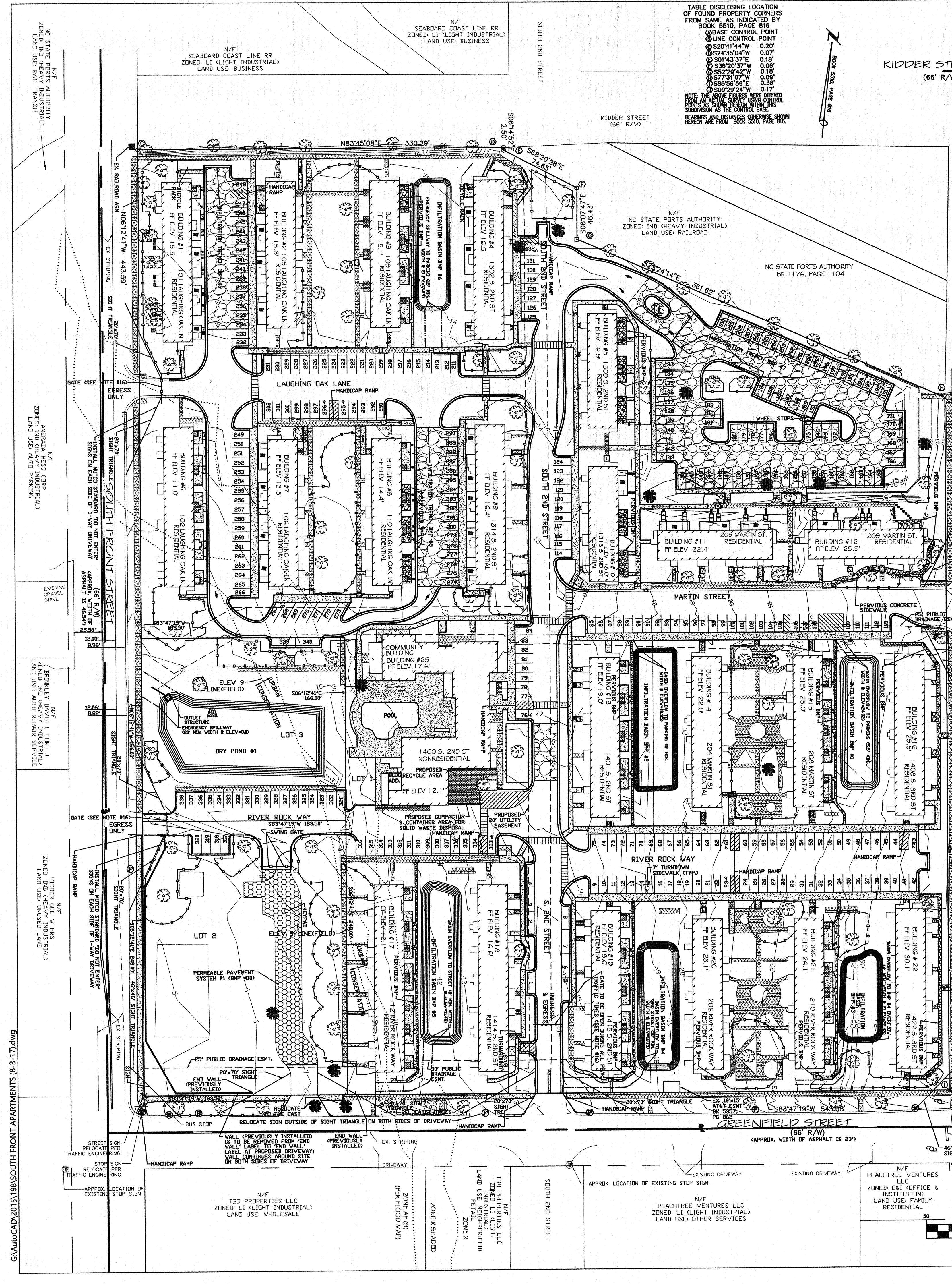
SOUTH FRONT APARTMENTS

MALPASS ENGINEERING & SURVEYING, P.C.
 1134 SHEPPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone: 910-392-0248
 Fax: 910-392-0203 License No. C-2320

Owner: SOUTH FRONT LLC
 10 S. CAROLINA DR.
 WILMINGTON, NC 28403
 PHONE: 910-251-5030

DATE: 1-19-11
 SCALE: 1"=50'
 DRAWN: JCB
 CHECKED: JEM
 PROJECT NO: 198
 SHEET NO: 1
 OF: 5

G:\AutoCAD\2015\198 SOUTH FRONT APARTMENTS (8-3-17).dwg



- LEGEND**
- EXISTING SIDEWALK (TO REMAIN)
 - PROPOSED SIDEWALK
 - EX. IMPERVIOUS AREA TO OVERLAY (EXCLUDING PARKING)
 - PROPOSED PERVIOUS CONCRETE (AND CREDIT-10% IMPERVIOUS)
 - PROPOSED PERVIOUS CONCRETE BMP (CREDIT-60% IMPERVIOUS)
 - PROPOSED PERVIOUS CONCRETE BMP (CREDIT-10% IMPERVIOUS)
 - EXISTING TREE (TO BE REMOVED)
 - EXISTING SANITARY SEWER
 - EXISTING WATER LINE
 - EXISTING WATER VALVE
 - EXISTING CURB INLET
 - EXISTING FIRE HYDRANT
 - EXISTING POWER/TRAFFIC POLE
 - EXISTING NO PARKING SIGN
 - EXISTING RAILROAD ARM
 - PROPOSED GATE
 - EXISTING CONTOUR
 - PROPOSED UTILITY EASEMENT
 - PROPOSED STORM DRAIN PIPE
 - PROPOSED INLET PROTECTION
 - EXISTING STORM DRAIN PIPE (NOT SURVEYED, APPROX. LOCATION BASED ON 1939 PLAN)

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2G	2G	OF 5	DETAIL SHEET
2H	2H	OF 5	DETAIL SHEET
2I	2I	OF 5	DETAIL SHEET
2J	2J	OF 5	DETAIL SHEET
2K	2K	OF 5	DETAIL SHEET
2L	2L	OF 5	DETAIL SHEET
2M	2M	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2N	2N	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2O	2O	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2P	2P	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2Q	2Q	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2R	2R	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2S	2S	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2T	2T	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2U	2U	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2V	2V	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2W	2W	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2X	2X	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2Y	2Y	OF 5	VEHICLE CLEARANCE DETAIL SHEET
2Z	2Z	OF 5	VEHICLE CLEARANCE DETAIL SHEET

WATER & SEWER CAPACITY

WATER	261 UNITS x 400 GPD/UNIT = 104,400 GPD (CURRENT USE)
WATER	(216 UNITS x 400 GPD/UNIT) + (3 SHIFTS x 25 GAL/SHIFT) = 86,475 GPD (PROPOSED USE)
SEWER	(216 UNITS x 100 GPD/UNIT) + (3 SHIFTS x 25 GAL/SHIFT) = 21,600 GPD (PROPOSED USE)
SEWER	(216 UNITS x 100 GPD/UNIT) + (3 SHIFTS x 25 GAL/SHIFT) = 21,600 GPD (PROPOSED USE)

EXISTING BUILDING LOT DATA

BUILDING	SQUARE FOOTAGE	NUMBER OF PROPOSED UNITS	NUMBER OF BEDROOMS (1/2)	USE (RESIDENTIAL/ NON-RESIDENTIAL)	EXISTING/ FUTURE	BUILDING ADDRESS
1	3,883.30	10	7/3	RESIDENTIAL	EXISTING	101 LAUGHING OAK LN
2	3,907.31	10	7/3	RESIDENTIAL	EXISTING	102 LAUGHING OAK LN
3	3,907.31	10	7/3	RESIDENTIAL	EXISTING	103 LAUGHING OAK LN
4	3,907.31	10	7/3	RESIDENTIAL	EXISTING	104 LAUGHING OAK LN
5	3,907.31	10	7/3	RESIDENTIAL	EXISTING	105 LAUGHING OAK LN
6	3,907.31	10	7/3	RESIDENTIAL	EXISTING	106 LAUGHING OAK LN
7	3,907.31	10	7/3	RESIDENTIAL	EXISTING	107 LAUGHING OAK LN
8	3,907.31	10	7/3	RESIDENTIAL	EXISTING	108 LAUGHING OAK LN
9	3,907.31	10	7/3	RESIDENTIAL	EXISTING	109 LAUGHING OAK LN
10	3,907.31	10	7/3	RESIDENTIAL	EXISTING	110 LAUGHING OAK LN
11	3,907.31	10	7/3	RESIDENTIAL	EXISTING	111 LAUGHING OAK LN
12	3,907.31	10	7/3	RESIDENTIAL	EXISTING	112 LAUGHING OAK LN
13	3,907.31	10	7/3	RESIDENTIAL	EXISTING	113 LAUGHING OAK LN
14	3,907.31	10	7/3	RESIDENTIAL	EXISTING	114 LAUGHING OAK LN
15	3,907.31	10	7/3	RESIDENTIAL	EXISTING	115 LAUGHING OAK LN
16	3,907.31	10	7/3	RESIDENTIAL	EXISTING	116 LAUGHING OAK LN
17	3,907.31	10	7/3	RESIDENTIAL	EXISTING	117 LAUGHING OAK LN
18	3,907.31	10	7/3	RESIDENTIAL	EXISTING	118 LAUGHING OAK LN
19	3,907.31	10	7/3	RESIDENTIAL	EXISTING	119 LAUGHING OAK LN
20	3,907.31	10	7/3	RESIDENTIAL	EXISTING	120 LAUGHING OAK LN
21	3,907.31	10	7/3	RESIDENTIAL	EXISTING	121 LAUGHING OAK LN
22	3,907.31	10	7/3	RESIDENTIAL	EXISTING	122 LAUGHING OAK LN
23	3,907.31	10	7/3	RESIDENTIAL	EXISTING	123 LAUGHING OAK LN
24	3,907.31	10	7/3	RESIDENTIAL	EXISTING	124 LAUGHING OAK LN
25	3,907.31	10	7/3	RESIDENTIAL	EXISTING	125 LAUGHING OAK LN
26	3,907.31	10	7/3	RESIDENTIAL	EXISTING	126 LAUGHING OAK LN
27	3,907.31	10	7/3	RESIDENTIAL	EXISTING	127 LAUGHING OAK LN
28	3,907.31	10	7/3	RESIDENTIAL	EXISTING	128 LAUGHING OAK LN
29	3,907.31	10	7/3	RESIDENTIAL	EXISTING	129 LAUGHING OAK LN
30	3,907.31	10	7/3	RESIDENTIAL	EXISTING	130 LAUGHING OAK LN
31	3,907.31	10	7/3	RESIDENTIAL	EXISTING	131 LAUGHING OAK LN
32	3,907.31	10	7/3	RESIDENTIAL	EXISTING	132 LAUGHING OAK LN
33	3,907.31	10	7/3	RESIDENTIAL	EXISTING	133 LAUGHING OAK LN
34	3,907.31	10	7/3	RESIDENTIAL	EXISTING	134 LAUGHING OAK LN
35	3,907.31	10	7/3	RESIDENTIAL	EXISTING	135 LAUGHING OAK LN
36	3,907.31	10	7/3	RESIDENTIAL	EXISTING	136 LAUGHING OAK LN
37	3,907.31	10	7/3	RESIDENTIAL	EXISTING	137 LAUGHING OAK LN
38	3,907.31	10	7/3	RESIDENTIAL	EXISTING	138 LAUGHING OAK LN
39	3,907.31	10	7/3	RESIDENTIAL	EXISTING	139 LAUGHING OAK LN
40	3,907.31	10	7/3	RESIDENTIAL	EXISTING	140 LAUGHING OAK LN
41	3,907.31	10	7/3	RESIDENTIAL	EXISTING	141 LAUGHING OAK LN
42	3,907.31	10	7/3	RESIDENTIAL	EXISTING	142 LAUGHING OAK LN
43	3,907.31	10	7/3	RESIDENTIAL	EXISTING	143 LAUGHING OAK LN
44	3,907.31	10	7/3	RESIDENTIAL	EXISTING	144 LAUGHING OAK LN
45	3,907.31	10	7/3	RESIDENTIAL	EXISTING	145 LAUGHING OAK LN
46	3,907.31	10	7/3	RESIDENTIAL	EXISTING	146 LAUGHING OAK LN
47	3,907.31	10	7/3	RESIDENTIAL	EXISTING	147 LAUGHING OAK LN
48	3,907.31	10	7/3	RESIDENTIAL	EXISTING	148 LAUGHING OAK LN
49	3,907.31	10	7/3	RESIDENTIAL	EXISTING	149 LAUGHING OAK LN
50	3,907.31	10	7/3	RESIDENTIAL	EXISTING	150 LAUGHING OAK LN
51	3,907.31	10	7/3	RESIDENTIAL	EXISTING	151 LAUGHING OAK LN
52	3,907.31	10	7/3	RESIDENTIAL	EXISTING	152 LAUGHING OAK LN
53	3,907.31	10	7/3	RESIDENTIAL	EXISTING	153 LAUGHING OAK LN
54	3,907.31	10	7/3	RESIDENTIAL	EXISTING	154 LAUGHING OAK LN
55	3,907.31	10	7/3	RESIDENTIAL	EXISTING	155 LAUGHING OAK LN
56	3,907.31	10	7/3	RESIDENTIAL	EXISTING	156 LAUGHING OAK LN
57	3,907.31	10	7/3	RESIDENTIAL	EXISTING	157 LAUGHING OAK LN
58	3,907.31	10	7/3	RESIDENTIAL	EXISTING	158 LAUGHING OAK LN
59	3,907.31	10	7/3	RESIDENTIAL	EXISTING	159 LAUGHING OAK LN
60	3,907.31	10	7/3	RESIDENTIAL	EXISTING	160 LAUGHING OAK LN
61	3,907.31	10	7/3	RESIDENTIAL	EXISTING	161 LAUGHING OAK LN
62	3,907.31	10	7/3	RESIDENTIAL	EXISTING	162 LAUGHING OAK LN
63	3,907.31	10	7/3	RESIDENTIAL	EXISTING	163 LAUGHING OAK LN
64	3,907.31	10	7/3	RESIDENTIAL	EXISTING	164 LAUGHING OAK LN
65	3,907.31	10	7/3	RESIDENTIAL	EXISTING	165 LAUGHING OAK LN
66	3,907.31	10	7/3	RESIDENTIAL	EXISTING	166 LAUGHING OAK LN
67	3,907.31	10	7/3	RESIDENTIAL	EXISTING	167 LAUGHING OAK LN
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72	3,907.31	10	7/3	RESIDENTIAL	EXISTING	172 LAUGHING OAK LN
73	3,907.31	10	7/3	RESIDENTIAL	EXISTING	173 LAUGHING OAK LN
74	3,907.31	10	7/3	RESIDENTIAL	EXISTING	174 LAUGHING OAK LN
75	3,907.31	10	7/3	RESIDENTIAL	EXISTING	175 LAUGHING OAK LN
76	3,907.31	10	7/3	RESIDENTIAL	EXISTING	176 LAUGHING OAK LN
77	3,907.31	10	7/3	RESIDENTIAL	EXISTING	177 LAUGHING OAK LN
78	3,907.31	10	7/3	RESIDENTIAL	EXISTING	178 LAUGHING OAK LN
79	3,907.31	10	7/3	RESIDENTIAL	EXISTING	179 LAUGHING OAK LN
80	3,907.31	10	7/3	RESIDENTIAL	EXISTING	180 LAUGHING OAK LN
81	3,907.31	10	7/3	RESIDENTIAL	EXISTING	181 LAUGHING OAK LN
82	3,907.31	10	7/3	RESIDENTIAL	EXISTING	182 LAUGHING OAK LN
83	3,907.31	10	7/3	RESIDENTIAL	EXISTING	183 LAUGHING OAK LN
84	3,907.31	10	7/3	RESIDENTIAL	EXISTING	184 LAUGHING OAK LN
85	3,907.31	10	7/3	RESIDENTIAL	EXISTING	185 LAUGHING OAK LN
86	3,907.31	10	7/3	RESIDENTIAL	EXISTING	186 LAUGHING OAK LN
87	3,907.31	10	7/3	RESIDENTIAL	EXISTING	187 LAUGHING OAK LN
88	3,907.31	10	7/3	RESIDENTIAL	EXISTING	188 LAUGHING OAK LN
89	3,907.31	10	7/3	RESIDENTIAL	EXISTING	189 LAUGHING OAK LN
90	3,907.31	10	7/3	RESIDENTIAL	EXISTING	190 LAUGHING OAK LN
91	3,907.31	10	7/3	RESIDENTIAL	EXISTING	191 LAUGHING OAK LN
92	3,907.31	10	7/3	RESIDENTIAL	EXISTING	192 LAUGHING OAK LN
93	3,907.31	10	7/3	RESIDENTIAL	EXISTING	193 LAUGHING OAK LN
94	3,907.31	10	7/3	RESIDENTIAL	EXISTING	194 LAUGHING OAK LN
95	3,907.31	10	7/3	RESIDENTIAL	EXISTING	195 LAUGHING OAK LN
96	3,907.31	10	7/3	RESIDENTIAL	EXISTING	196 LAUGHING OAK LN
97	3,907.31	10	7/3	RESIDENTIAL	EXISTING	197 LAUGHING OAK LN
98	3,907.31	10	7/3	RESIDENTIAL	EXISTING	198 LAUGHING OAK LN
99	3,907.31	10	7/3	RESIDENTIAL	EXISTING	199 LAUGHING OAK LN
100	3,907.31	10	7/3	RESIDENTIAL	EXISTING	200 LAUGHING OAK LN

APPROVED CONSTRUCTION PLAN

Name: *Wendy Smith* Date: *9-7-17*

Traffic: *Wendy Smith* Date: *9-7-17*

Fire: *C. Wells* Date: *9/19/17*

City of Wilmington, North Carolina
Public Services Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN
Date: *9/17/17* by *[Signature]*

UTILITY SEPARATION NOTES

1. WATER MAINS SHALL HAVE A MINIMUM COVER OF 3'.
2. SANITARY SEWER MAINS SHALL HAVE A MINIMUM COVER OF 3' OR D.I.P. SHALL BE USED.
3. HORIZONTAL SEPARATION BETWEEN WATER AND SANITARY SEWER SHALL BE 10' BETWEEN EDGE OF PIPES.
4. VERTICAL SEPARATION BETWEEN WATER AND SANITARY SEWER SHALL BE 10' ON EITHER SIDE OF CROSSING. SANITARY SEWER OVER WATER USE D.I.P. ON BOTH SIDES OF CROSSING.
5. A 24" VERTICAL SEPARATION SHALL BE PROVIDED BETWEEN STORM SEWER AND SANITARY SEWER OR WATER OVER SANITARY SEWER ON EITHER SIDE OF CROSSING.
6. VERTICAL SEPARATION BETWEEN WATER AND STORM SEWER SHALL BE 10' ON EITHER SIDE OF CROSSING. WATER OVER STORM SEWER 18" OR USE D.I.P. ON WATER 10' ON EITHER SIDE OF CROSSING.
7. ALL SANITARY SEWER MAINS WITH A DROP OF 30" OR GREATER SHALL HAVE AN INSIDE DIAMETER OF 18" WITH AN INSIDE RADIUS OF 18" ON EITHER SIDE OF CROSSING.
8. GRAVITY SANITARY SEWER WITHIN 50' OF WETLANDS SHALL BE D.I.P. AND MEET WATER MAIN MATERIALS, TESTING METHODS AND ACCEPTABILITY STANDARDS (USA NCAC 18C).
9. SANITARY SEWER MAINS MUST BE GREATER THAN 50' FROM WETLANDS, AS MEASURED TO THE CLOSEST OUTSIDE EDGE.

REVISIONS

REV NO.	DESCRIPTION	DATE
1	REVISED PER CITY OF WILMINGTON TRC.	3-10-11
2	REVISED TO LABEL PERVIOUS CONCRETE BMP.	3-16-11
3	REVISED PER CITY OF WILMINGTON TO SHOW PROPOSED STORMWATER OVERLAY ON CITY ENGINEERING DIVISION TRAFFIC CONTROL SIGNAGE. EXISTING SIDEWALKS TO BE MAINTAINED TO THE SOUTH SIDE OF THE STREET.	4-21-11
4	REVISED PER CITY OF WILMINGTON.	5-13-11
5	REVISED PER CLIENT TO ADJUST LAYOUT TO ADD GRAND WALK.	6-7-11
6	REVISED PER CLIENT TO ADD SIGNAGE.	6-7-11
7	REVISED PER CITY OF WILMINGTON.	7-26-11
8	REVISED PER CITY OF WILMINGTON ENGINEERING DEPARTMENT.	8-11-11
9	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-12-11
10	REVISED TO ADD IMPERVIOUS AREA, REMOVE EXISTING IMPERVIOUS AREA, & SHOW EXISTING IMPERVIOUS AREA TO OVERLAY.	8-22-12
11	REVISED TO ADD IMPERVIOUS AREA, REMOVE EXISTING IMPERVIOUS AREA, & SHOW EXISTING IMPERVIOUS AREA TO OVERLAY.	8-13-12
12	REVISED PER CLIENT TO ADD DRIVEWAY.	8-13-12
13	REVISED PER CITY OF WILMINGTON ENGINEERING DEPARTMENT.	8-19-12
14	REVISED PER CLIENT TO ADD DRIVEWAY OFF GREENFIELD ST. & RELOCATE 3 PARKING SPACES.	8-20-12
15	REVISED TO ADD NOTES.	8-20-12
16	REVISED TO ADD NOTES.	8-20-12
17	REVISED PER THE COMMENTS.	8-20-12
18	REVISED TO ADD NOTES.	8-20-12
19	REVISED PER THE COMMENTS.	8-20-12

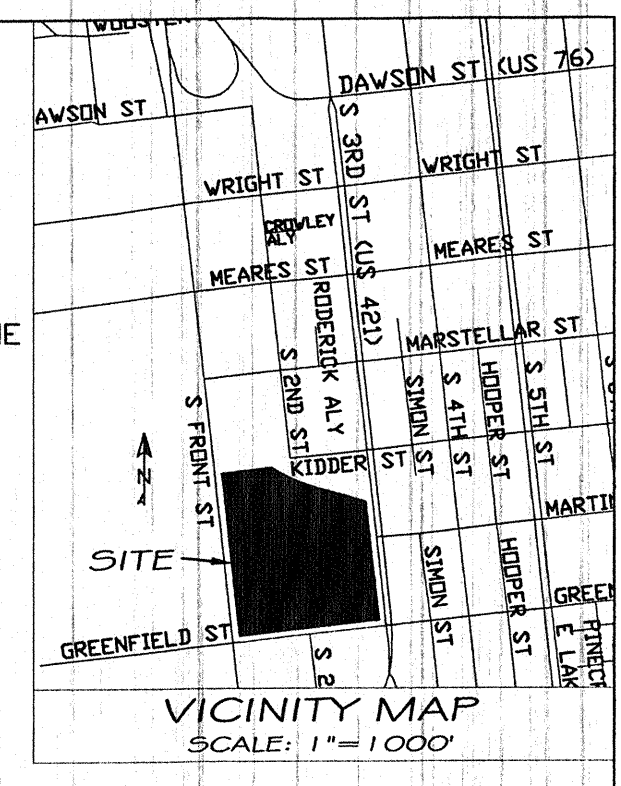
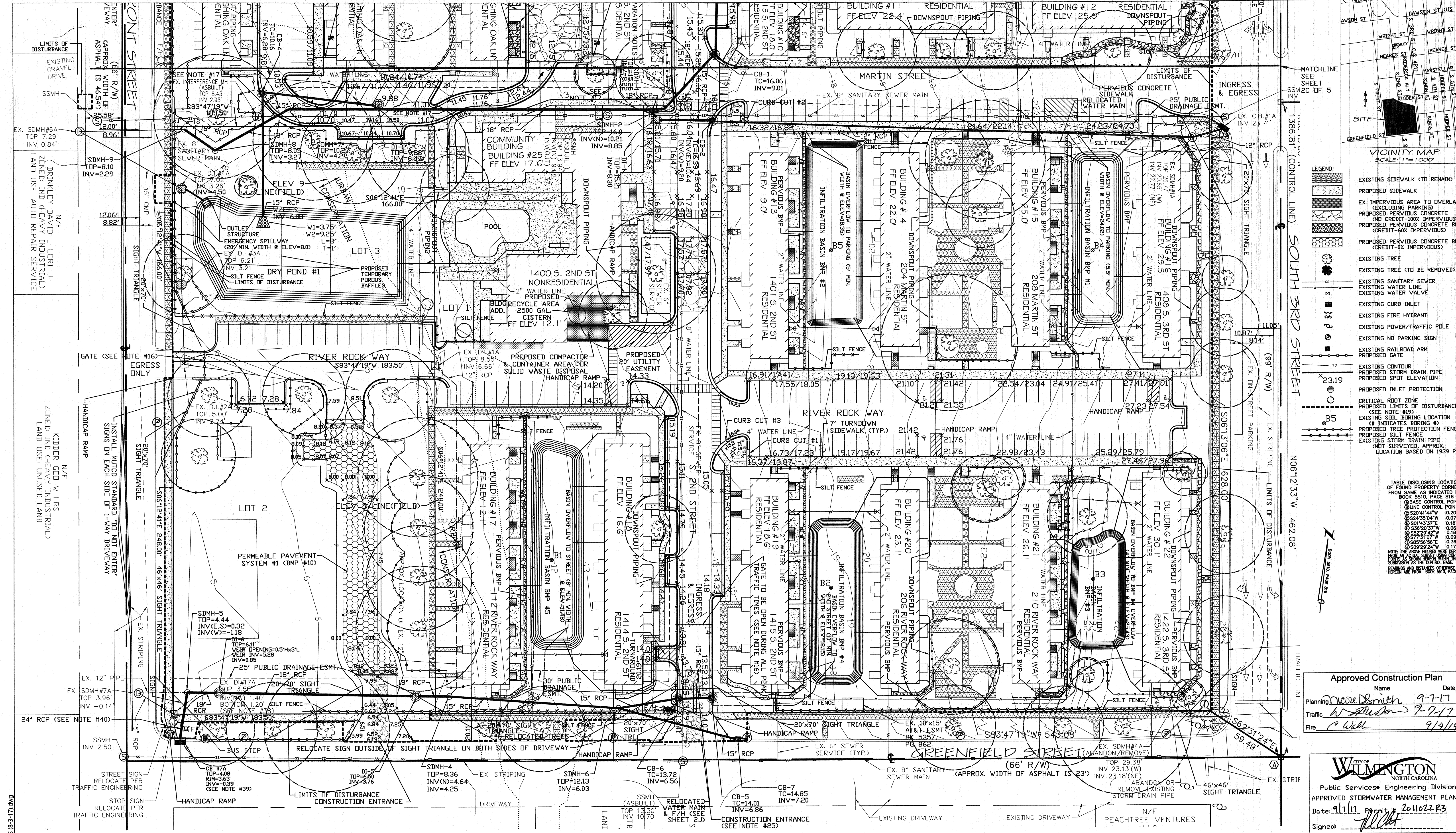
GRAPHIC SCALE
1 inch = 50 ft.

SITE PLAN
1400 S. 2ND STREET
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

OWNER: SOUTH FRONT LLC
10 S. CAROLINA DR.
WILMINGTON, NC 28403
PHONE: 910-251-5030

DATE: 1-19-11
SCALE: 1"=50'
DRAWN: JCB
CHECKED: JBM
PROJECT NO.: 198

SHEET NO. 2A
OF 5



- LEGEND**
- EXISTING SIDEWALK (TO REMAIN)
 - PROPOSED SIDEWALK
 - EX. IMPERVIOUS AREA TO OVERLAY (EXCLUDING PARKING)
 - PROPOSED PERVIOUS CONCRETE (AND CREDIT-100% IMPERVIOUS)
 - PROPOSED PERVIOUS CONCRETE BMP (CREDIT-60% IMPERVIOUS)
 - PROPOSED PERVIOUS CONCRETE BMP (CREDIT-0% IMPERVIOUS)
 - EXISTING TREE
 - EXISTING TREE (TO BE REMOVED)
 - EXISTING SANITARY SEWER
 - EXISTING WATER LINE
 - EXISTING WATER VALVE
 - EXISTING CURB INLET
 - EXISTING FIRE HYDRANT
 - EXISTING POWER/TRAFFIC POLE
 - EXISTING NO PARKING SIGN
 - EXISTING RAILROAD ARM
 - PROPOSED GATE
 - EXISTING CONTOUR
 - PROPOSED STORM DRAIN PIPE
 - PROPOSED SPOT ELEVATION
 - PROPOSED INLET PROTECTION
 - CRITICAL ROOT ZONE
 - PROPOSED LIMITS OF DISTURBANCE (SEE NOTE #19)
 - EXISTING SOIL BORING LOCATION (# INDICATES BORING #)
 - PROPOSED TREE PROTECTION FENCING
 - PROPOSED SILT FENCE
 - EXISTING STORM DRAIN PIPE
 - ONDT SURVEYED, APPROX. LOCATION BASED ON 1939 PLAN

TABLE DISCLOSING LOCATION OF FOUND PROPERTY CORNERS FROM SAME AS INDICATED BY BOOK 5010, PAGE 918

BASE CONTROL POINT	LINE CONTROL POINT	BEARING	DISTANCE
S20°41'44"W	0.20'		
S24°30'04"W	0.07'		
S89°53'37"E	0.18'		
S36°50'37"W	0.08'		
S89°29'42"W	0.18'		
S77°01'07"W	0.09'		
S88°56'56"E	0.34'		
S89°29'42"W	0.17'		

NOTE: THE ABOVE BEARINGS WERE DERIVED FROM THE 1939 PLAN. THE DISTANCES WERE DERIVED FROM THE 1939 PLAN. BEARINGS AND DISTANCES OTHERWISE SHOWN HEREON ARE FROM BOOK 5010, PAGE 918.

Approved Construction Plan

Name: Woods Smith Date: 9-7-17

Planning: W. Smith 9-7-17

Traffic: C. Wall 9-7-17

Fire: C. Wall 9-7-17

Date: 9/11/17 Permit: 201022-P3

Signed: [Signature]

WILMINGTON
NORTH CAROLINA

Public Services Engineering Division
APPROVED STORMWATER MANAGEMENT PLAN

Date: 9/11/17 Permit: 201022-P3

Signed: [Signature]

MALPASS ENGINEERING & SURVEYING, P.C.
134 SHOPTARD BOULEVARD
WILMINGTON, NORTH CAROLINA 28412
Phone 910-392-8248
Fax 910-392-8205
License No. C-2820

Owner: SOUTH FRONT LLC
10 S. CARDINAL DR.
WILMINGTON, NC 28403
PHONE: 910-251-5000

SHEET NO. 2B
OF: 5

GRAPHIC SCALE

(IN FEET)
1 inch = 30 ft.

REV. NO.	DESCRIPTION	REVISIONS	DATE
1	REVISED TO LABEL PERVIOUS CONCRETE BMP	3-18-11	
2	REVISED PER CITY OF WILMINGTON TO SHOW GREENFIELD ST DRIVEWAY AS CITY DRIVEWAY & ADJUST PARKING SPACES BAY-253. REVISED STORM PIPE ALONG SOUTHERN PORTION OF SITE.	4-21-11	
3	REVISED PER CITY OF WILMINGTON.	6-13-11	
4	REVISED PER CLIENT TO ADJUST LAYOUT TO ADD GUARD HOUSE.	6-7-11	
5	REVISED PER CITY OF WILMINGTON TO NOT SHOW PROPOSED FENCING & ADJUST PARKING.	7-5-11	
6	REVISED PER CITY OF WILMINGTON.	7-28-11	
7	REVISED PER HCCOT TO ADD SIGNS.	8-1-11	
8	REVISED PER CITY OF WILMINGTON ENGINEERING DEPARTMENT.	8-11-11	
9	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-12-11	
10	REVISED TO ADD IMPERVIOUS AREA, REMOVE EXISTING IMPERVIOUS AREA, & SHOW EXISTING IMPERVIOUS AREA TO OVERLAY.	9-22-12	
11	REVISED TO ADD IMPERVIOUS AREA, REMOVE EXISTING IMPERVIOUS AREA, & SHOW EXISTING IMPERVIOUS AREA TO OVERLAY.	8-13-12	
12	REVISED PER CITY OF WILMINGTON ENGINEERING.	8-18-12	
13	REVISED PER CLIENT TO ADD DRIVEWAY OFF GREENFIELD ST. & RELOCATE 3 PARKING SPACES.	6-7-17	
14	REVISED PER TRC COMMENTS.	6-30-17	
15	REVISED TO ADJUST STORM DRAIN PIPE SYSTEM.	8-3-17	
16	REVISED PER TRC COMMENTS.	8-6-17	

NOTE: HANDICAP RAMPS SHALL BE PROVIDED AT ALL PARKING AREAS TO SIDEWALK CONNECTIONS INTERNAL TO THE SITE. PARKING SPACES LESS THAN 8.5' IN WIDTH BY 18' IN LENGTH SHALL BE SIGNED ALERTING DRIVERS TO THE LIMITED SIZE.

TABLE DISCLOSING LOCATION OF FOUND PROPERTY CORNERS FROM SAME AS INDICATED BY BOOK 5616, PAGE 616

BASE CONTROL POINT
 (LINE CONTROL POINT)
 S20°41'44"W 0.20'
 S24°35'04"W 0.07'
 S20°41'37"E 0.18'
 S38°20'37"W 0.05'
 S27°51'07"W 0.09'
 S88°56'56"E 0.36'
 S89°29'47"W 0.17'

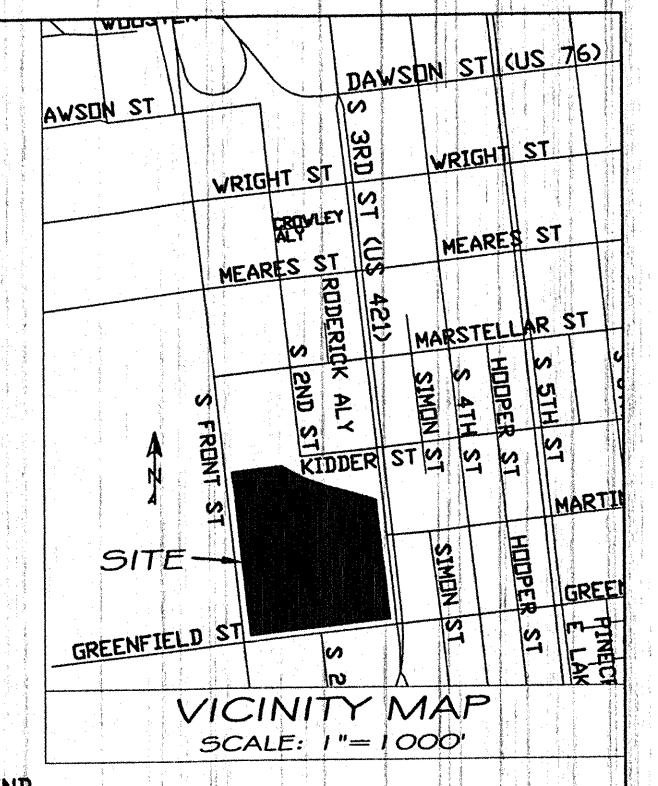
NOTE: THE ABOVE POINTS WERE DERIVED FROM A TRIPLE POINT SURVEY OF THE SITE. BEARING AND DISTANCE COORDINATES SHOWN HEREON ARE FROM BOOK 5014, PAGE 616.

INTERIOR LANDSCAPING ISLANDS

LANDSCAPING ISLAND	TOTAL AREA (SQ FT)	IMPERVIOUS AREA (SQ FT)	PERCENT IMPERVIOUS
LI-1	220.81	0	0
LI-2	408.44	59.64	14.60
LI-3	430.72	59.19	13.74
LI-4	589.56	0	0
LI-5	395.17	0	0
LI-6	327.08	0	0
LI-7	322.98	0	0
LI-8	326.54	44.83	13.73
LI-9	374.69	0	0
LI-10	541.93	37.34	6.89
LI-11	216.91	0	0
LI-12	216.21	0	0
LI-13	378.93	0	0
LI-14	345.10	0	0
LI-15	436.98	0	0
LI-16	302.57	0	0
LI-17	996.09	0	0
LI-18	475.55	0	0
LI-19	392.38	0	0
LI-20	250.18	0	0
LI-21	220.63	0	0
LI-22	293.82	0	0
LI-23	515.42	71.34	13.85
LI-24	330.54	47.30	14.31
LI-25	241.40	0	0
LI-26	218.44	0	0
LI-27	282.14	0	0
LI-28	218.06	0	0
LI-29	218.06	0	0
LI-30	343.08	36.43	10.62
LI-31	216.66	0	0
LI-32	349.39	0	0
LI-33	419.94	60.15	14.32
LI-34	396.56	48.82	12.31
LI-35	934.05	4.15	0.44
LI-36	376.81	0	0
LI-37	230.01	0	0
LI-38	255.45	0	0
LI-39	358.27	0	0
LI-40	224.71	0	0
LI-41	225.65	0	0
LI-42	218.59	0	0

PARKING SPACE SIZE CHART

SPACE #	DIMENSION
1-8	8.5' x 22'
9-22	8.5' x 18' (INCLUDES 2' OVERHAND)
23	9' x 18' (INCLUDES 2' OVERHAND)
24-42	8.5' x 18' (INCLUDES 2' OVERHAND)
43	9' x 18' (INCLUDES 2' OVERHAND)
44-60	8.5' x 18' (INCLUDES 2' OVERHAND)
61	9' x 18' (INCLUDES 2' OVERHAND)
62-75	8.5' x 18' (INCLUDES 2' OVERHAND)
76-77	9' x 18' (INCLUDES 2' OVERHAND)
78-108	8.5' x 18' (INCLUDES 2' OVERHAND)
109-131	8.5' x 18' (INCLUDES 2' OVERHAND)
132	9' x 18' (INCLUDES 2' OVERHAND)
133-143	8.5' x 18' (MIN)
144-210	8.5' x 18'
211-231	8.5' x 18'
232-247	8.5' x 18' (INCLUDES 2' OVERHAND)
248	9' x 18' (INCLUDES 2' OVERHAND)
249-290	8.5' x 18' (INCLUDES 2' OVERHAND)
291-294	8.5' x 18'
295-296	9' x 18'
297-302	8.5' x 18'
303	9' x 18'
304-316	8.5' x 18'
317-320	8.5' x 18'
321	8.5' x 18' (INCLUDES 2.5' OVERHAND)
322-338	8.5' x 18' (INCLUDES 3' OVERHAND)
339-340	8.5' x 23'



LEGEND

- EXISTING SIDEWALK (TO REMAIN)
- PROPOSED SIDEWALK
- EX. IMPERVIOUS AREA TO OVERLAY (EXCLUDING PARKING)
- PROPOSED PERVIOUS CONCRETE BMP (CREDIT=60% IMPERVIOUS)
- PROPOSED PERVIOUS CONCRETE BMP (CREDIT=0% IMPERVIOUS)
- EXISTING TREE
- EXISTING TREE (TO BE REMOVED)
- EXISTING POWER/TRAFFIC POLE
- EXISTING NO PARKING SIGN
- EXISTING RAILROAD ARM
- PROPOSED GATE
- PROPOSED LANDSCAPE ISLAND

NOTE: HANDICAP RAMPS SHALL BE PROVIDED AT ALL PARKING AREAS TO SIDEWALK CONNECTIONS INTERNAL TO THE SITE. PARKING SPACES LESS THAN 8.5' IN WIDTH BY 18' IN LENGTH SHALL BE SIGNED ALERTING DRIVERS TO THE LIMITED SIZE.

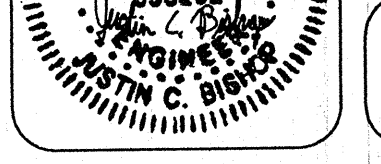
GRAPHIC SCALE

(IN FEET)
1 inch = 50 ft.

REV NO.	DESCRIPTION	DATE
1	REVISED PER CITY OF WILMINGTON TO SHOW GREENPAVED ST. DRIVEWAY AS CITY STANDARD & ADJUST PARKING SPACES AS 210' & 310'.	4-21-11
2	REVISED PER CITY OF WILMINGTON.	8-13-11
3	REVISED PER CLIENT TO ADJUST LAYOUT TO ADD GUARD HOUSE.	8-7-11
4	REVISED PER CITY OF WILMINGTON TO NOT SHOW PROPOSED FENCING & ADJUST PARKING.	7-5-11
5	REVISED PER CITY OF WILMINGTON.	7-25-11
6	REVISED PER NC DOT TO ADD SIGNS.	8-11-11
7	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-11-11
8	REVISED PER CLIENT TO ADD DRIVEWAY OFF GREENFIELD ST. & RELOCATE 3 PARKING SPACES.	8-7-11
9	REVISED PER THE COMMENTS.	8-30-11
10	REVISED PER THE COMMENTS.	8-8-11

PARKING DIMENSION PLAN
1400 S. 2ND STREET
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

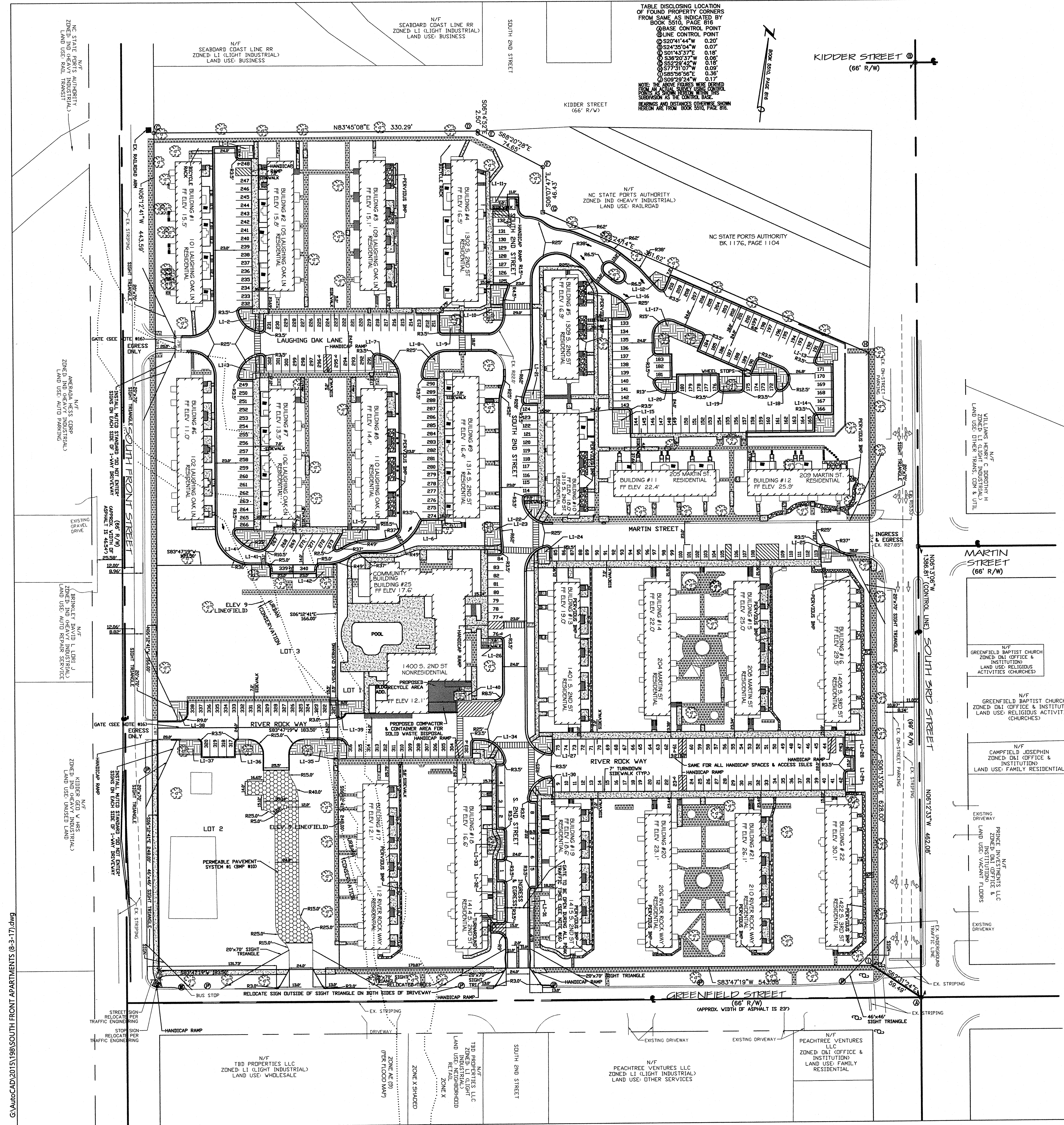
SOUTH FRONT APARTMENTS
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA



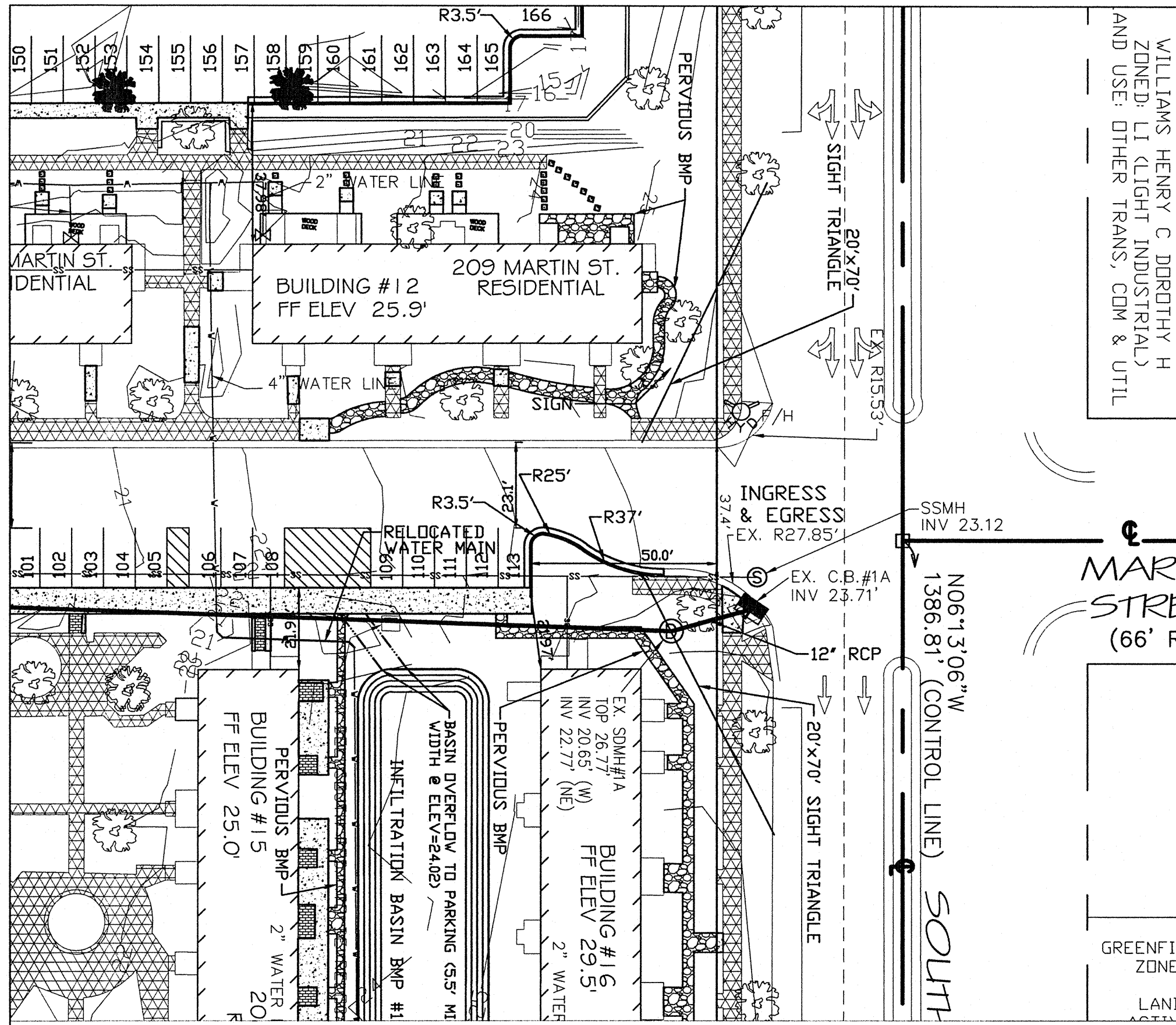
MALPASS ENGINEERING, P.C.
1154 SHIPYARD BOULEVARD
WILMINGTON, NORTH CAROLINA 28412
Phone 910-392-8243
Fax 910-392-8203
License No. C-2820

Owner: SOUTH FRONT LLC
10 S. CAROLINA DR.
WILMINGTON, NC 28403
PHONE: 910-251-5030

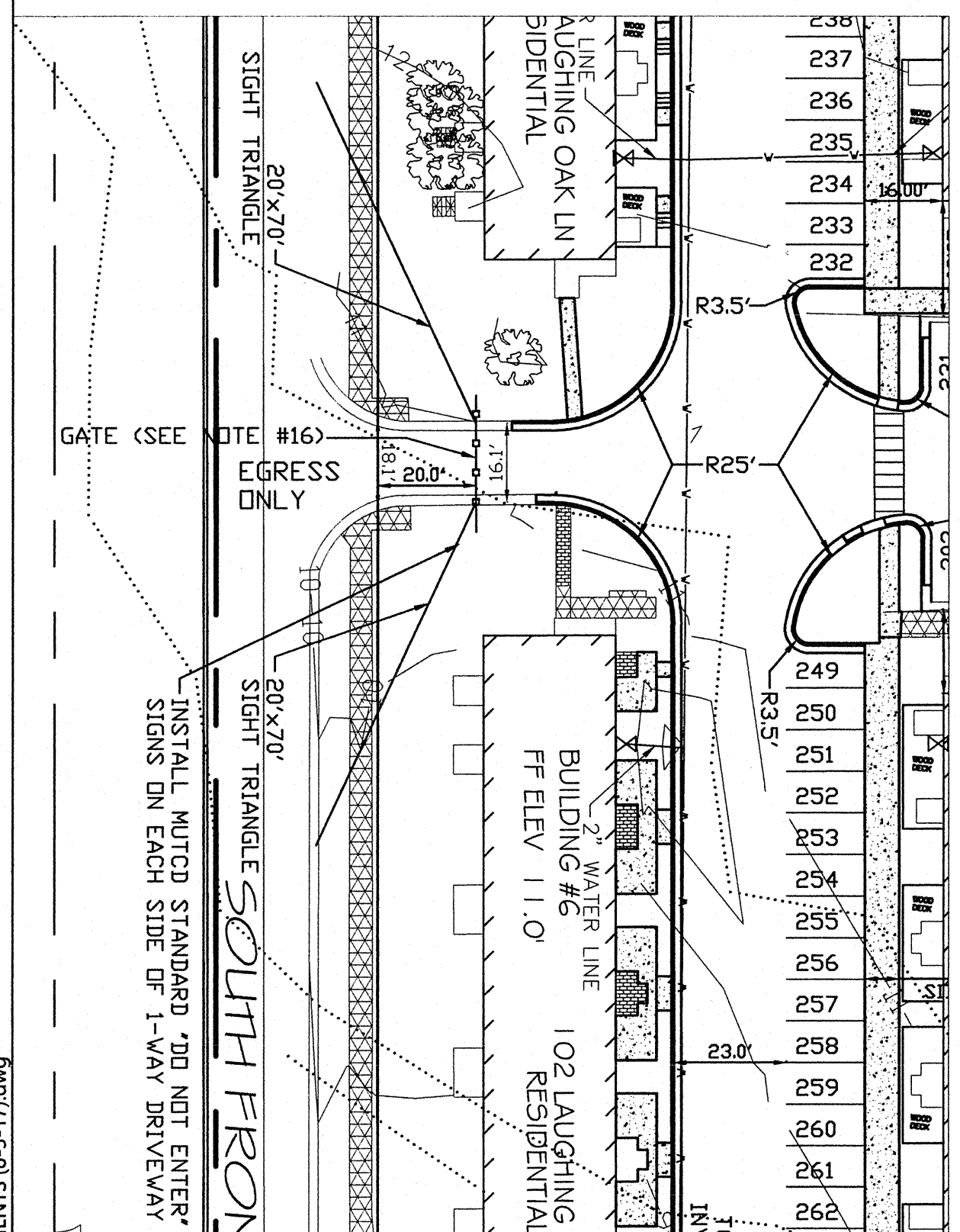
DATE: 3-10-11
SCALE: 1"=50'
DRAWN: JCB
CHECKED: JBM
PROJECT NO: 198
SHEET NO: 2E
OF: 5



G:\AIRCADD\2015\198\ SOUTH FRONT APARTMENTS (8-3-11).DWG

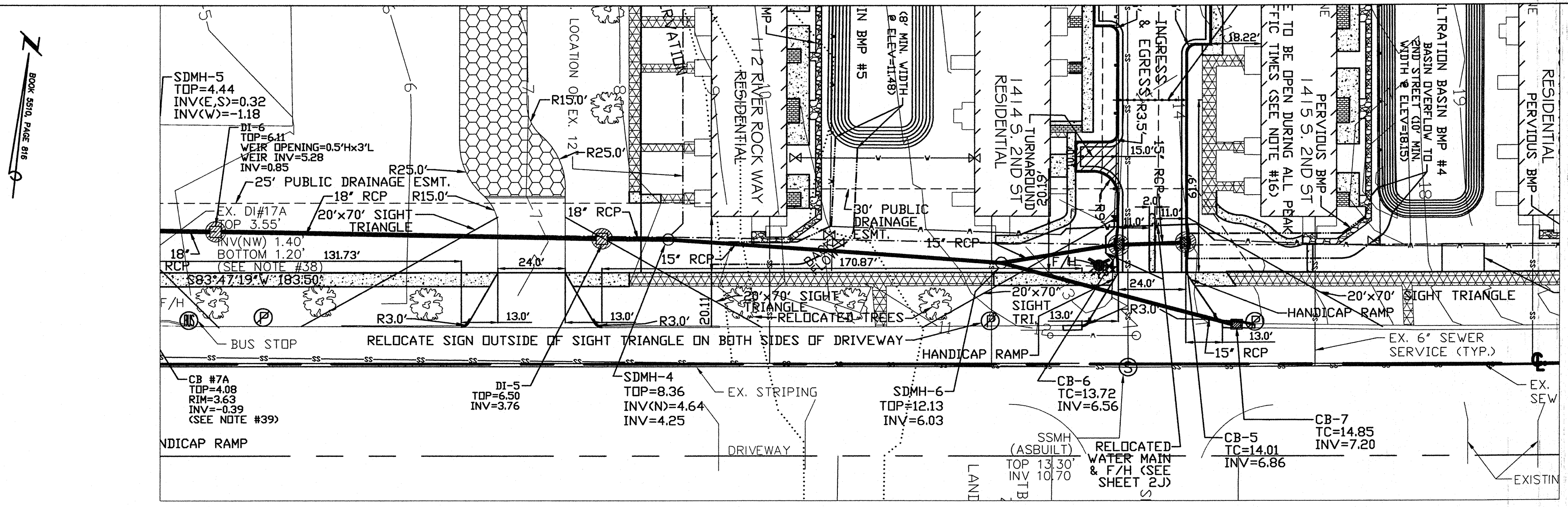


S. 3RD STREET # MARTIN STREET-INGRESS # EGRESS
SCALE: 1"=30'

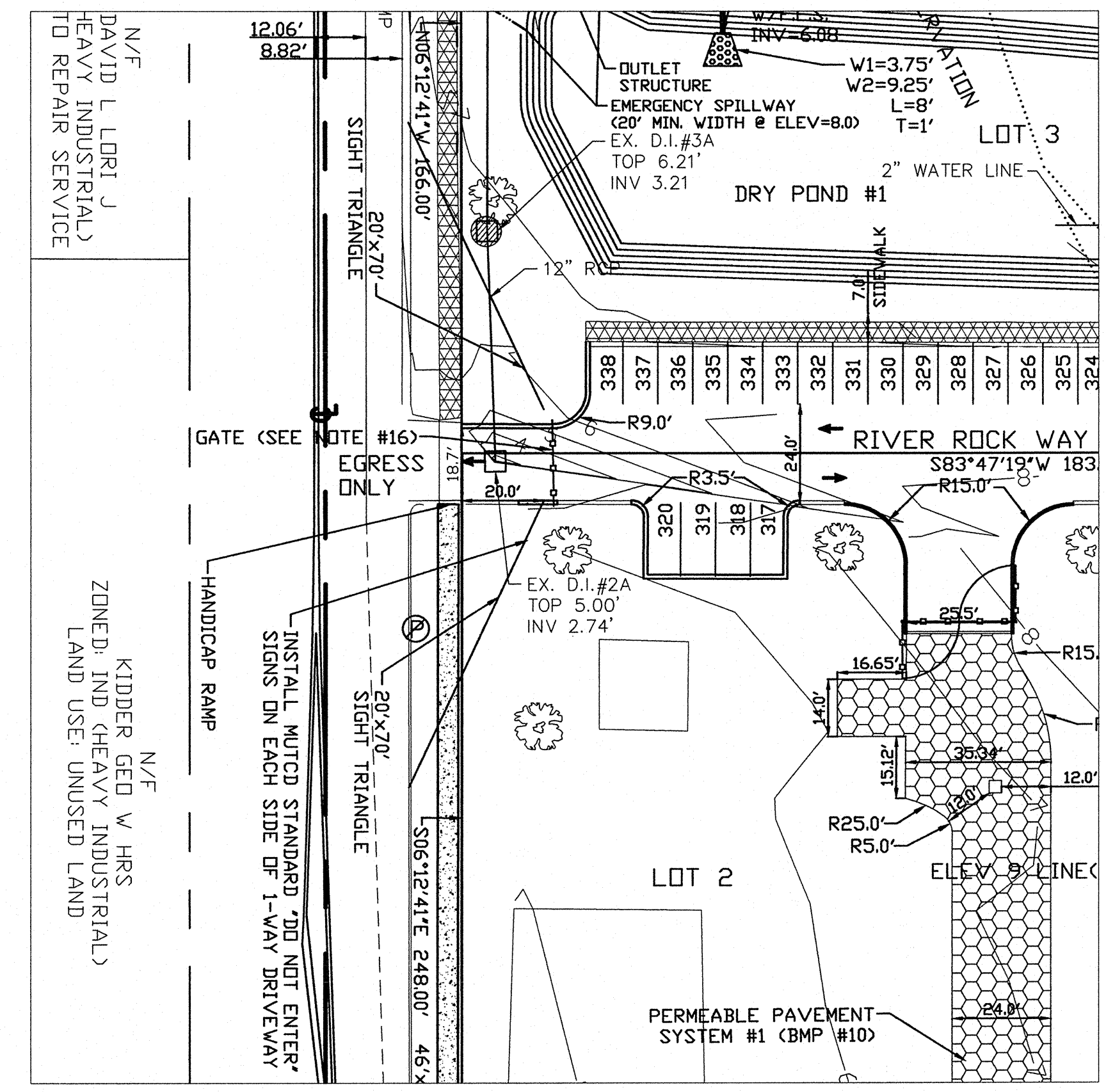


S. FRONT STREET # LAUGHING OAK
LANE-EGRESS ONLY
SCALE: 1"=30'

G:\AutoCAD\2015\198\South Front Apartments (8-3-17).dwg



GREENFIELD STREET # S. 2ND STREET-INGRESS # EGRESS
SCALE: 1"=30'



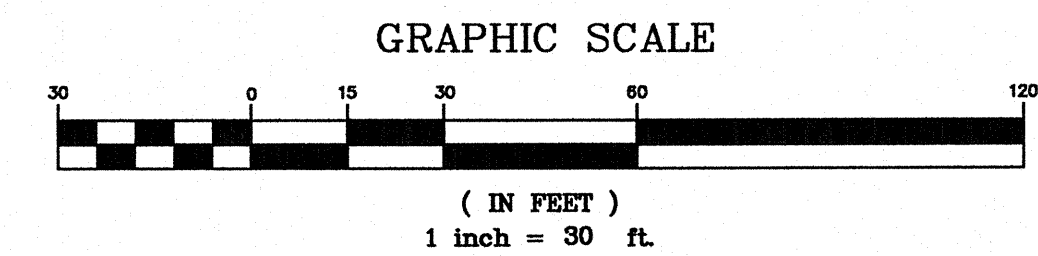
S. FRONT STREET # RIVER ROCK WAY-EGRESS ONLY
SCALE: 1"=30'

LEGEND

- EXISTING SIDEWALK (TO REMAIN)
- PROPOSED SIDEWALK
- EX. IMPERVIOUS AREA TO OVERLAY (EXCLUDING PARKING)
- PROPOSED PERVIOUS CONCRETE (NO CREDIT-100% IMPERVIOUS)
- PROPOSED PERVIOUS CONCRETE BMP (CREDIT-60% IMPERVIOUS)
- PROPOSED PERVIOUS CONCRETE BMP (CREDIT-0% IMPERVIOUS)
- EXISTING TREE
- EXISTING TREE (TO BE REMOVED)
- EXISTING SANITARY SEWER
- EXISTING WATER VALVE
- EXISTING CURB INLET
- EXISTING FIRE HYDRANT
- EXISTING POWER/TRAFFIC POLE
- EXISTING NO PARKING SIGN
- EXISTING RAILROAD ARM
- PROPOSED GATE
- EXISTING CONTOUR
- PROPOSED UTILITY EASEMENT
- PROPOSED STORM DRAIN PIPE
- PROPOSED INLET PROTECTION
- EXISTING STORM DRAIN PIPE (NOT APPROX. LOCATION BASED ON I)

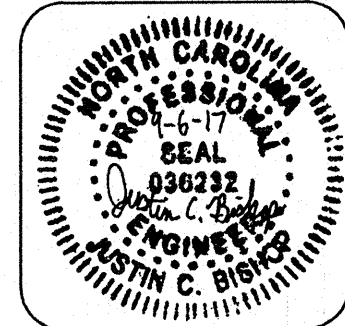
Approved Construction Plan
 Name: Nicole Smith Date: 9-7-17
 Planning: Nicole Smith
 Traffic: W. Walker
 Fire: C. Walker

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 9/7/17 Permit # 201622R3
 Signed: [Signature]



REV. NO.	DESCRIPTION	DATE
1	REVISED PER CITY OF WILMINGTON TO SHOW GREENFIELD ST. DRIVEWAY AS CITY STANDARD & ADJUST PARKING SPACES #133-210 & 317-323. REVISED STORM PIPE ALONG SOUTHERN PORTION OF SITE.	4-21-11
2	REVISED PER CITY OF WILMINGTON.	5-13-11
3	REVISED PER CLIENT TO ADJUST LAYOUT TO ADD GUARD HOUSE.	6-7-11
4	REVISED PER CITY OF WILMINGTON TO NOT SHOW PROPOSED FENCING & ADJUST PARKING.	7-5-11
5	REVISED PER CITY OF WILMINGTON.	7-25-11
6	REVISED PER HCDOT TO ADD SIGNS.	8-4-11
7	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-12-11
8	REVISED PER CLIENT TO ADD DRIVEWAY OFF GREENFIELD ST. & RELOCATE 3 PARKING SPACES.	8-7-17
9	REVISED PER TRC COMMENTS.	6-30-17
10	REVISED TO ADJUST STORM DRAIN PIPE SYSTEM.	8-3-17
11	REVISED PER TRC COMMENTS.	8-8-17

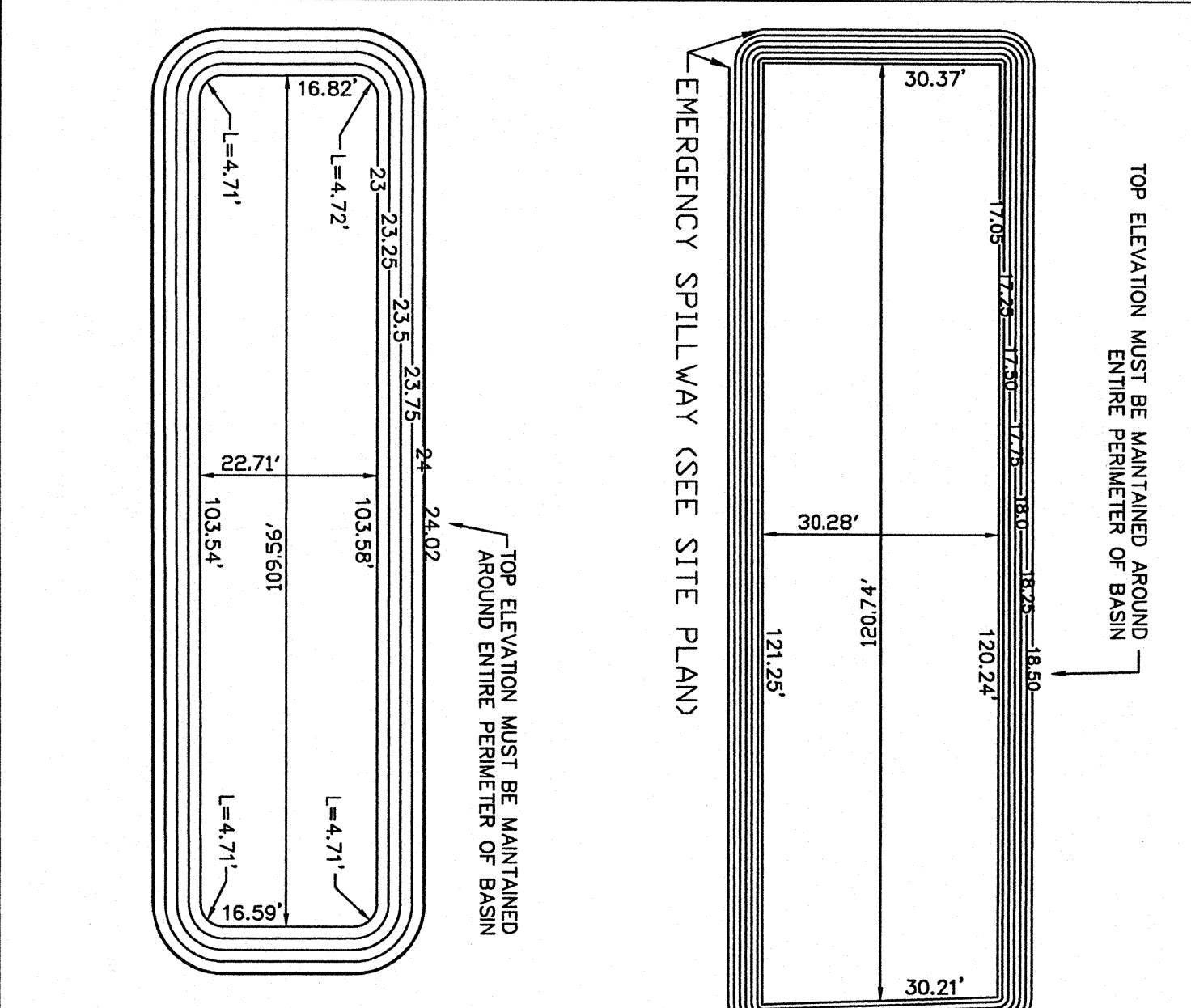
PARKING DIMENSION PLAN
 1400 S. 2ND STREET
SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NORTH CAROLINA



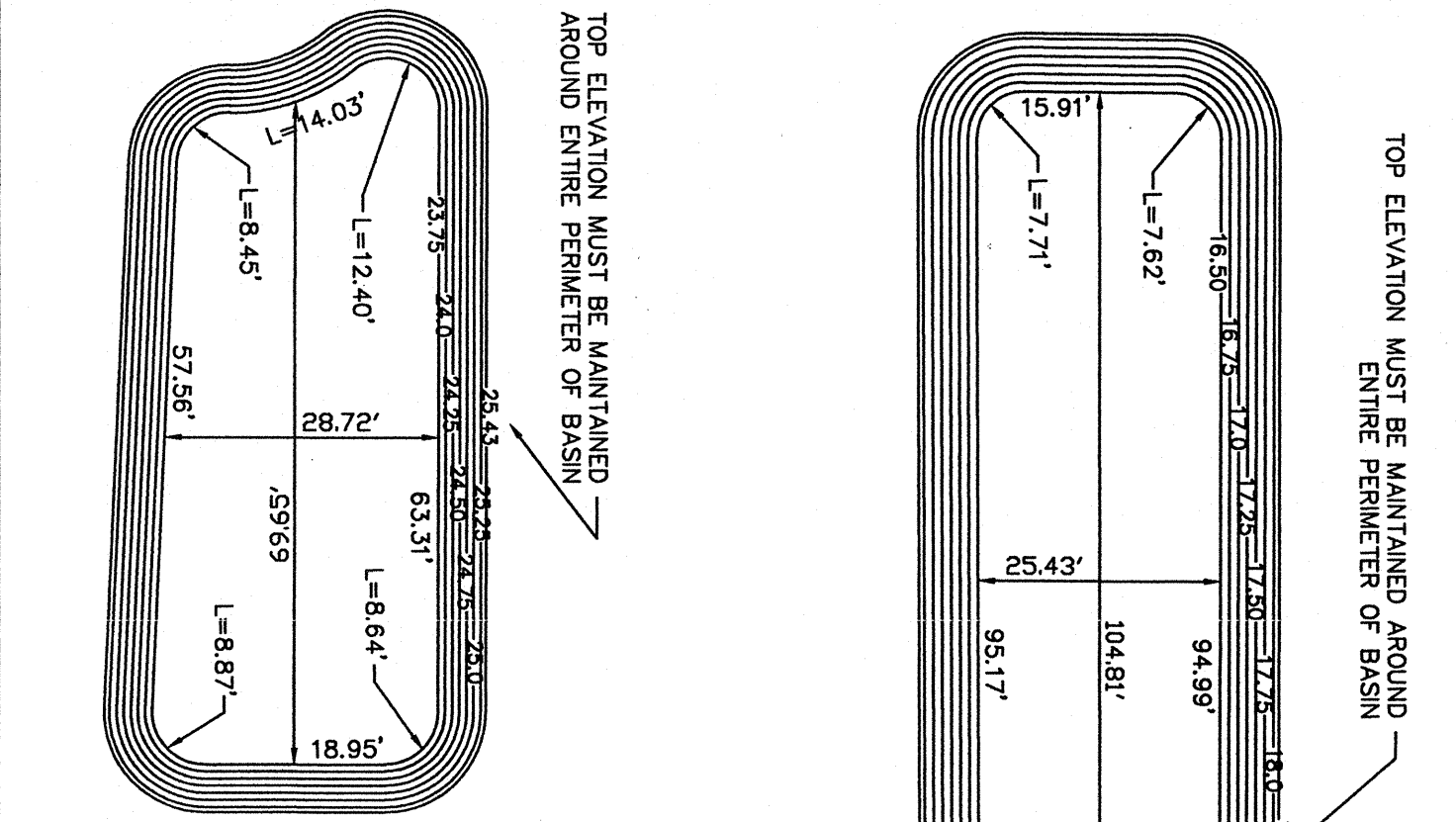
MALPASS ENGINEERING, P.C.
 1154 SHEPPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone: 910-392-5543
 Fax: 910-392-5503
 License No. C-2380

Owner: SOUTH FRONT LLC
 10 S. CARDINAL DR.
 WILMINGTON, NC 28403
 PHONE: 910-251-5030

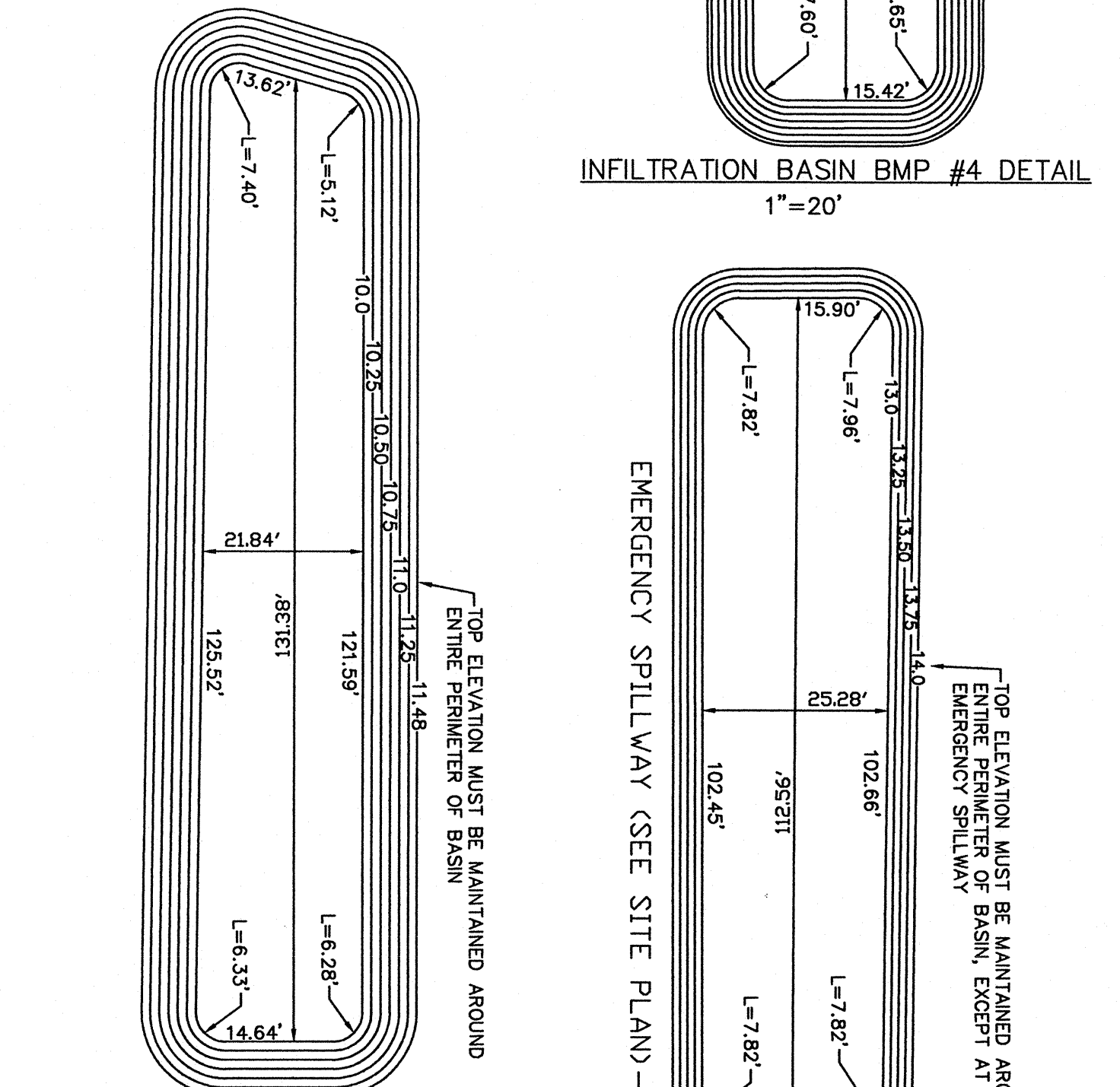
DATE: 3-10-11
 SCALE: 1"=30'
 DRAWN: JCB
 CHECKED: JEM
 PROJECT NO: 198
 SHEET NO. 2F
 OF: 5



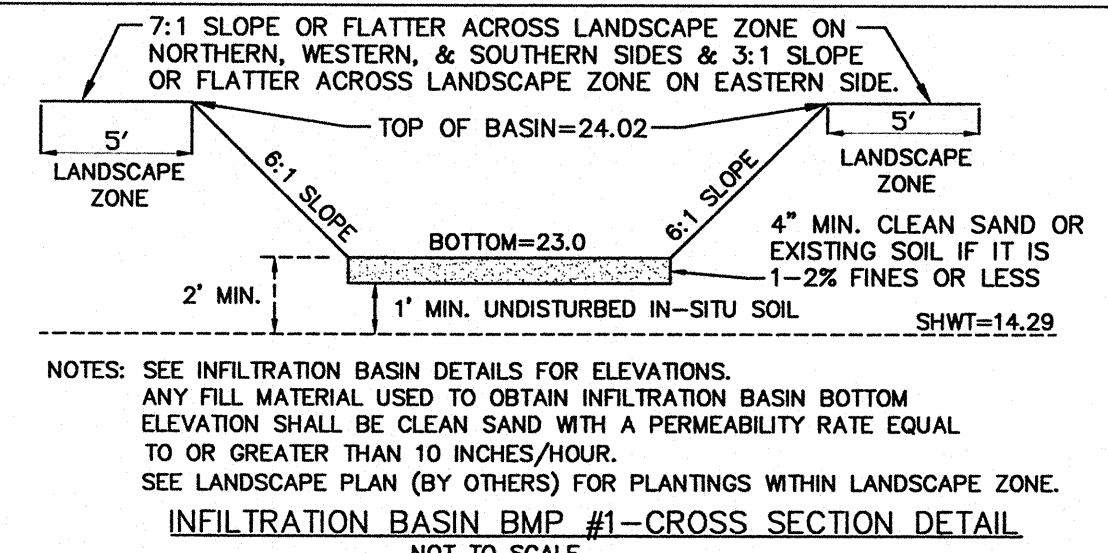
INFILTRATION BASIN BMP #1 DETAIL 1"=20'
INFILTRATION BASIN BMP #2 DETAIL 1"=20'



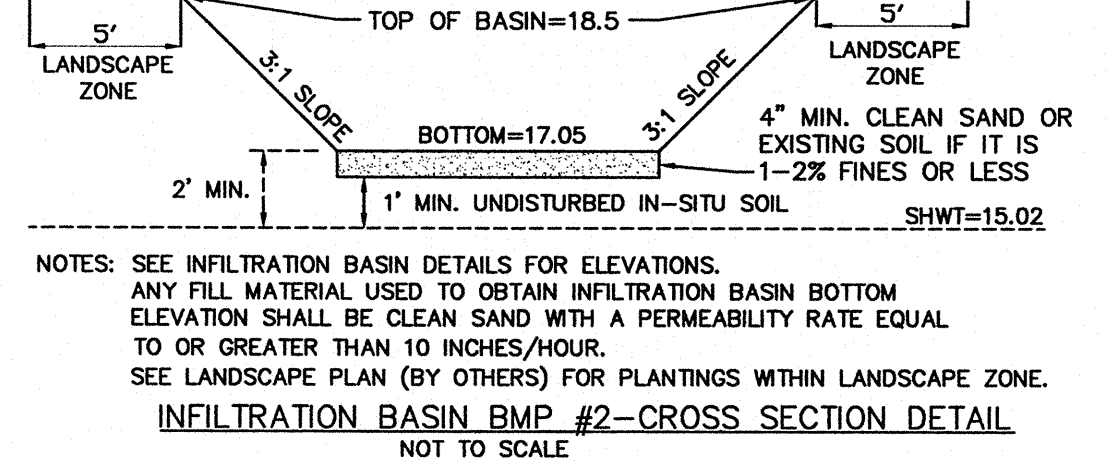
INFILTRATION BASIN BMP #3 DETAIL 1"=20'
INFILTRATION BASIN BMP #4 DETAIL 1"=20'



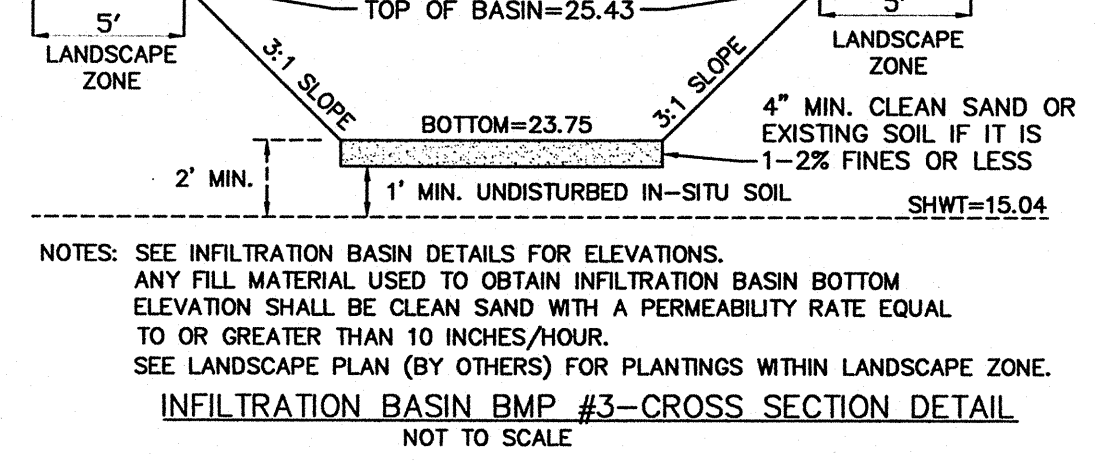
INFILTRATION BASIN BMP #5 DETAIL 1"=20'
INFILTRATION BASIN BMP #6 DETAIL 1"=20'



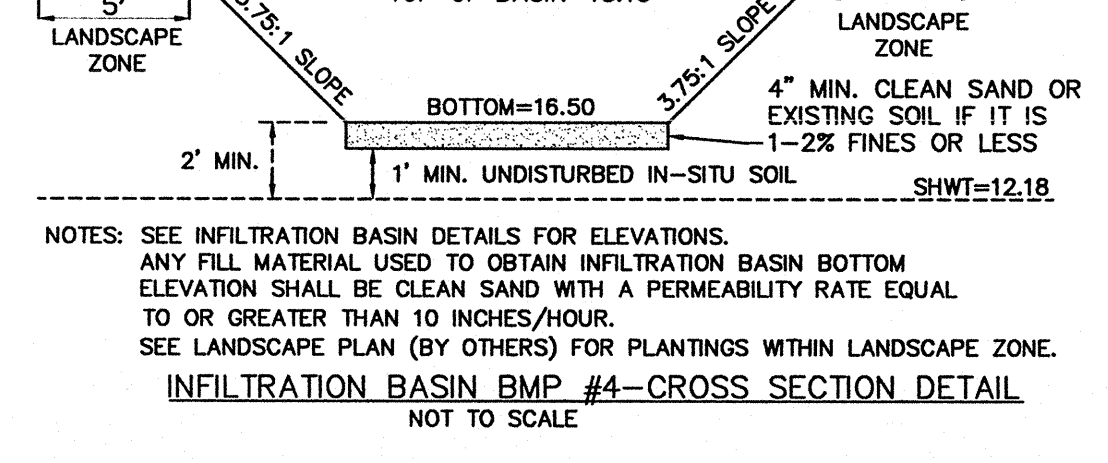
INFILTRATION BASIN BMP #1-CROSS SECTION DETAIL NOT TO SCALE



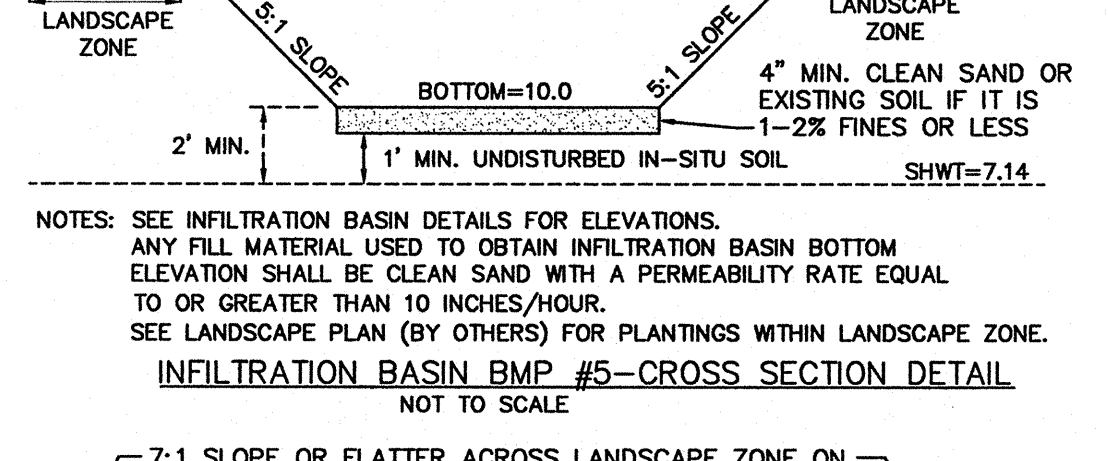
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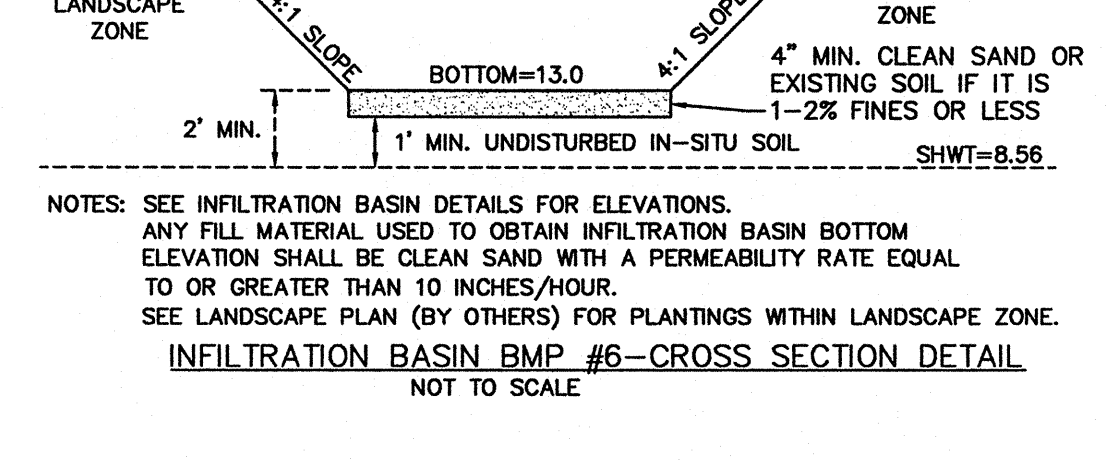
INFILTRATION BASIN BMP #3-CROSS SECTION DETAIL NOT TO SCALE



INFILTRATION BASIN BMP #4-CROSS SECTION DETAIL NOT TO SCALE



INFILTRATION BASIN BMP #5-CROSS SECTION DETAIL NOT TO SCALE



INFILTRATION BASIN BMP #6-CROSS SECTION DETAIL NOT TO SCALE

PERVIOUS CONCRETE BMP LOCATION	SHWT ELEVATION (FT)	BOTTOM OF CONCRETE ELEVATION (FT)
EAST OF BUILDING #16	19.44	>24.0
EAST OF BUILDING #15	14.29	>22.5
EAST OF BUILDING #13	15.02	>17.25
EAST OF BUILDING #22	19.07	>27.0
EAST OF BUILDING #21	15.04	>24.0
SOUTH OF BUILDING #20	15.71	>19.50
EAST OF BUILDING #19	12.18	>15.0
EAST OF BUILDING #17	7.44	>24.4
NORTH, EAST & SOUTH OF BUILDING #12	16.08	>22.0
EAST OF BUILDINGS #5 & 10	12.50	>14.50
EAST OF BUILDING #3	8.56	>14.0
EAST OF BUILDING #8	8.64	>12.0

NOTE: -USED SAME DEPTH FROM EXISTING GRADE AS SOIL BORING B4 TO GENERATE SHWT ELEVATION FOR EAST OF BUILDING #16. -USED SAME DEPTH FROM EXISTING GRADE AS SOIL BORING B3 TO GENERATE SHWT ELEVATION FOR EAST OF BUILDING #22. -USED SAME DEPTH FROM EXISTING GRADE AS SOIL BORING B2 TO GENERATE SHWT ELEVATION FOR SOUTH OF BUILDING #20. -USED SAME DEPTH FROM EXISTING GRADE AS SOIL BORING B4 TO GENERATE SHWT ELEVATION FOR NORTH, EAST, & SOUTH OF BUILDING #12. -USED SAME DEPTH FROM EXISTING GRADE AS SOIL BORING B6 TO GENERATE SHWT ELEVATION FOR EAST OF BUILDINGS #5 & 10.

ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
23.0	2,480.01	0	0
23.25	2,876.15	669.52	669.52
23.50	3,286.44	770.32	1,439.84
23.75	3,710.86	874.66	2,314.50
24.0	4,149.41	982.53	3,297.03
24.02	4,185.11	83.35	3,380.38

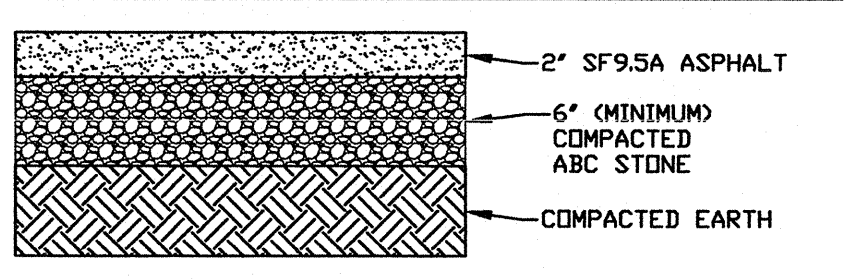
ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
17.05	3,858.11	0	0
17.25	3,838.48	749.46	749.46
17.50	4,069.62	988.51	1,737.97
17.75	4,304.30	1,046.74	2,784.71
18.0	4,542.51	1,105.85	3,890.56
18.25	4,784.26	1,165.85	5,056.41
18.50	5,029.54	1,226.72	6,283.13

ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
23.75	2,011.26	0	0
24.0	2,157.19	521.06	521.06
24.25	2,306.66	557.98	1,079.04
24.50	2,459.65	595.79	1,674.83
24.75	2,616.19	634.48	2,309.31
25.0	2,776.25	674.05	2,983.36
25.25	2,939.85	714.51	3,697.87
25.43	3,059.83	539.97	4,237.84

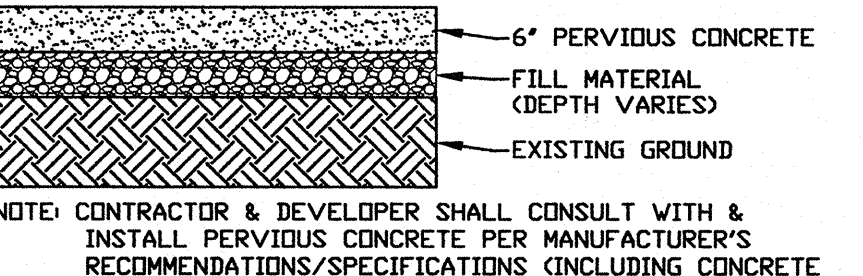
ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
16.50	2,644.62	0	0
16.75	2,883.71	691.04	691.04
17.0	3,128.32	751.50	1,442.54
17.25	3,378.45	813.35	2,255.89
17.50	3,634.11	876.57	3,132.46
17.75	3,895.29	941.17	4,073.63
18.0	4,161.99	1,007.16	5,080.79
18.15	4,324.66	636.50	5,717.29

ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
10.0	2,863.92	0	0
10.25	3,244.46	763.55	763.55
10.50	3,634.82	858.91	1,622.46
10.75	4,035.01	958.73	2,581.19
11.0	4,445.00	1,060.00	3,641.19
11.25	4,864.82	1,163.73	4,805.92
11.48	5,259.72	1,164.32	5,970.24

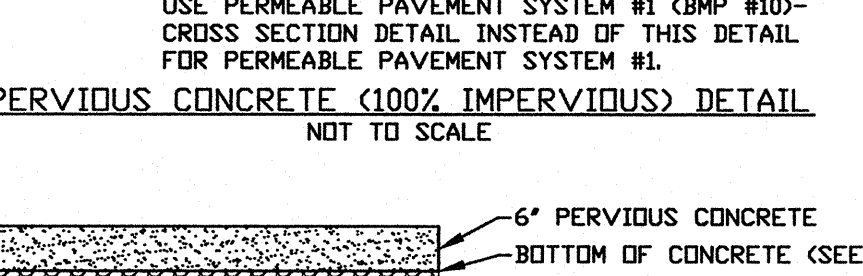
ELEV. (FT)	AREA (SQ. FT.)	INCREMENTAL VOLUME (CU. FT.)	CUMULATIVE VOLUME (CU. FT.)
13.0	2,824.92	0	0
13.25	3,095.17	740.01	740.01
13.50	3,371.71	808.36	1,548.37
13.75	3,654.53	878.28	2,426.65
14.0	3,943.64	949.77	3,376.42



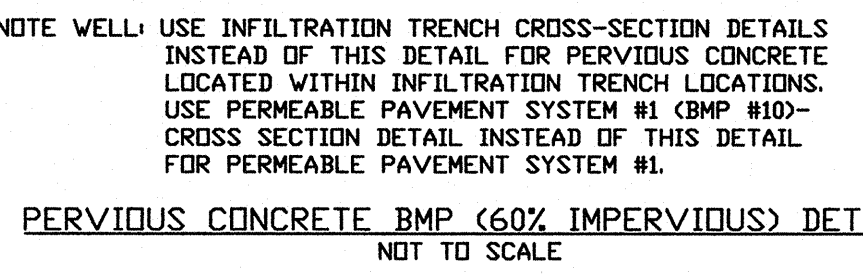
ASPHALT PAVEMENT DETAIL NOT TO SCALE



INFILTRATION TRENCH BMP #7-MONITORING WELL DETAIL NOT TO SCALE



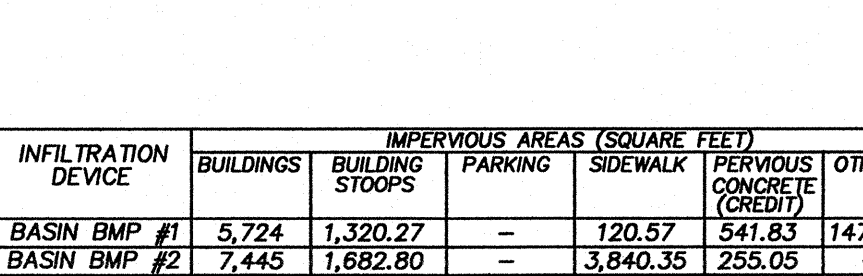
INFILTRATION TRENCH BMP #8-MONITORING WELL DETAIL NOT TO SCALE



INFILTRATION TRENCH BMP #9-MONITORING WELL DETAIL NOT TO SCALE

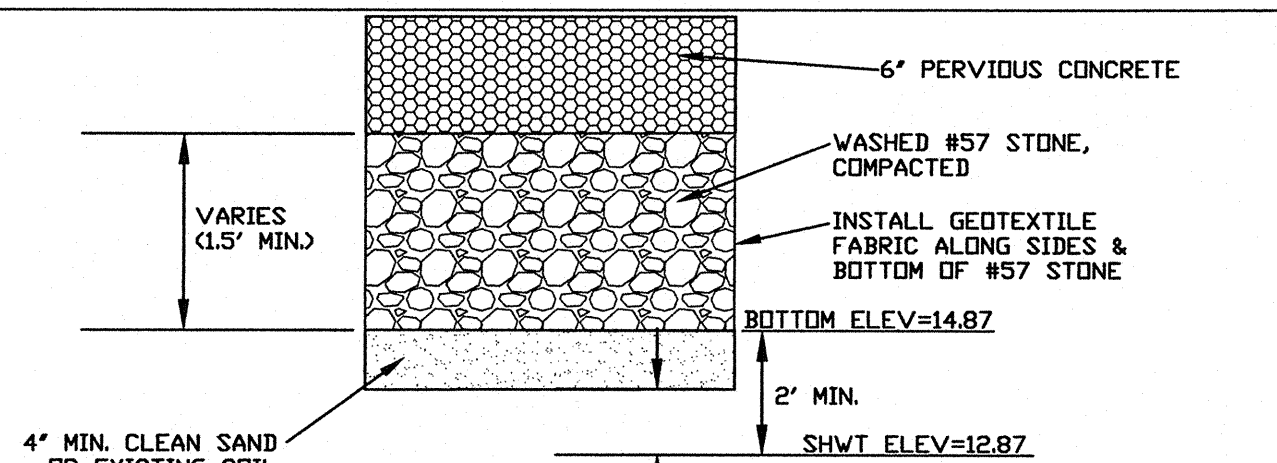


PERVIOUS CONCRETE (100% IMPERVIOUS) DETAIL NOT TO SCALE

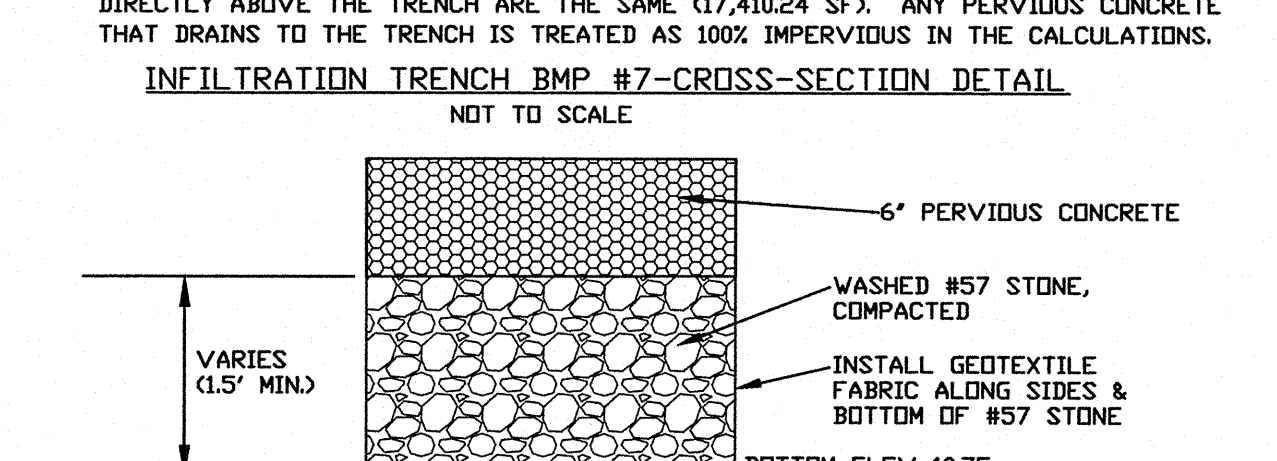


PERVIOUS CONCRETE (60% IMPERVIOUS) DETAIL NOT TO SCALE

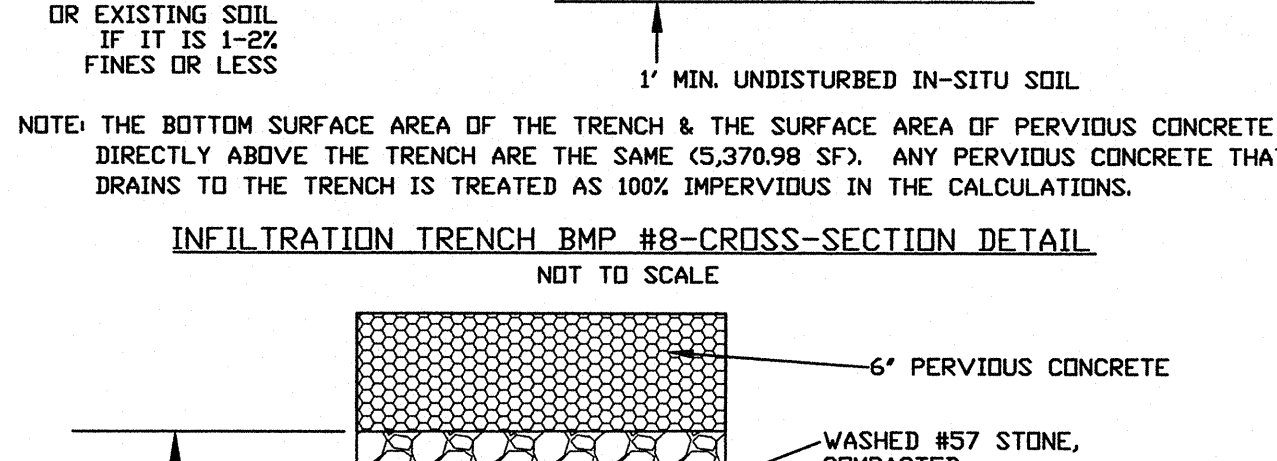
INFILTRATION DEVICE	BUILDINGS	BUILDING STOPS	PARKING	SIDEWALK	PERVIOUS CONCRETE (CREDIT)	OTHER	TOTAL
BASIN BMP #1	5,724	1,320.27	-	120.97	541.83	147.91	7,854.98
BASIN BMP #2	7,445	1,682.60	-	3,840.35	255.05	-	13,223.20
BASIN BMP #3	5,741	1,364.93	-	39.60	531.0	140.99	7,812.52
BASIN BMP #4	6,853	1,486.38	-	1,990.12	241.02	-	10,570.52
BASIN BMP #5	6,849	1,446.97	-	154.59	273.11	-	8,723.67
BASIN BMP #6	5,697	901.79	-	896.04	142.93	60	7,699.76
TRENCH BMP #7	6,369.94	615	24,562.62	2,297.46	446.35	634.16	34,582.63
TRENCH BMP #8	6,225.53	543.96	5,725	1,047.44	285.30	-	13,822.23
TRENCH BMP #9	5,534	645.76	5,707	1,821.45	-	114	13,822.21
BMP #10	-	-	23	-	0	-	23



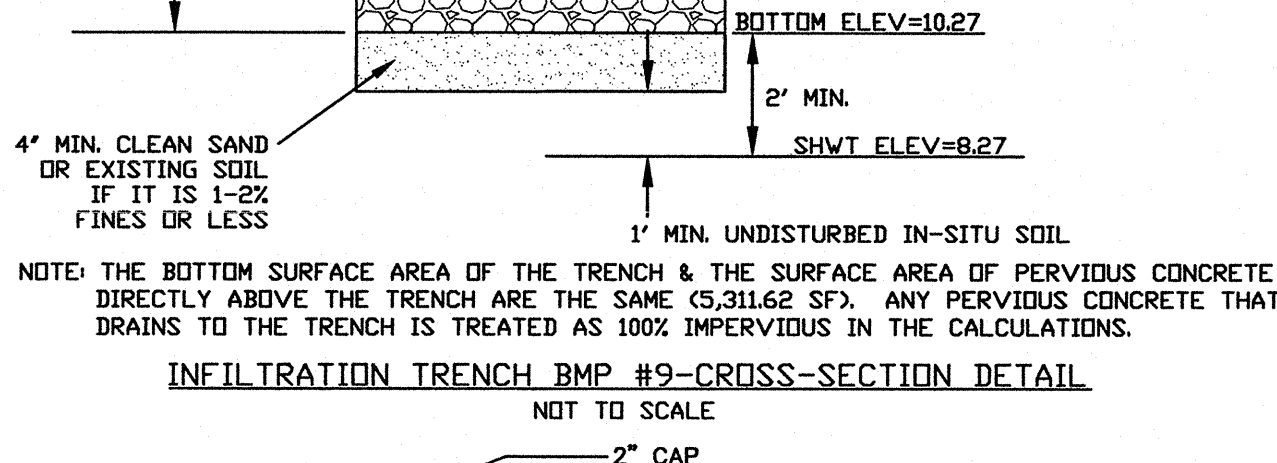
INFILTRATION TRENCH BMP #7-CROSS-SECTION DETAIL NOT TO SCALE



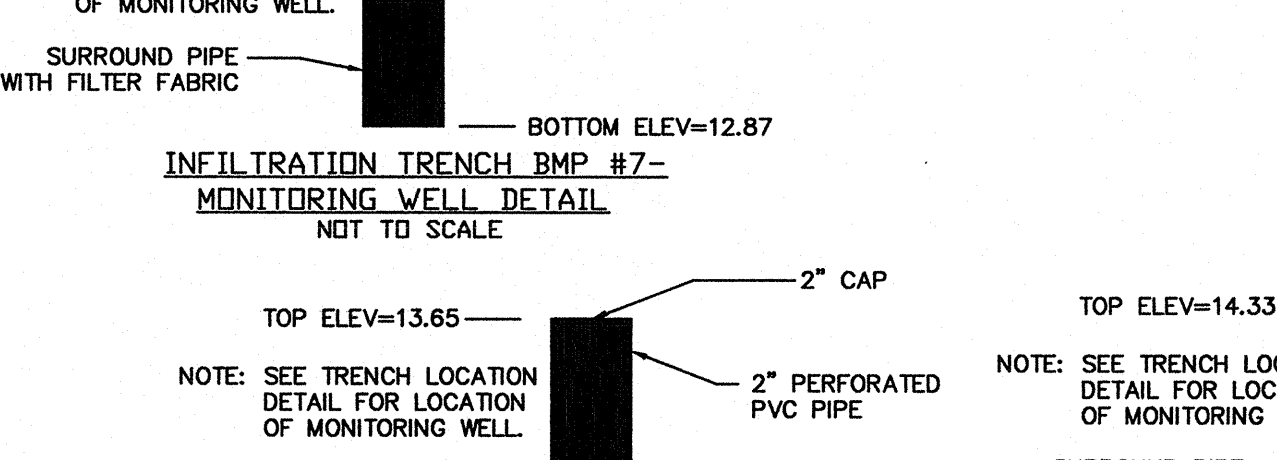
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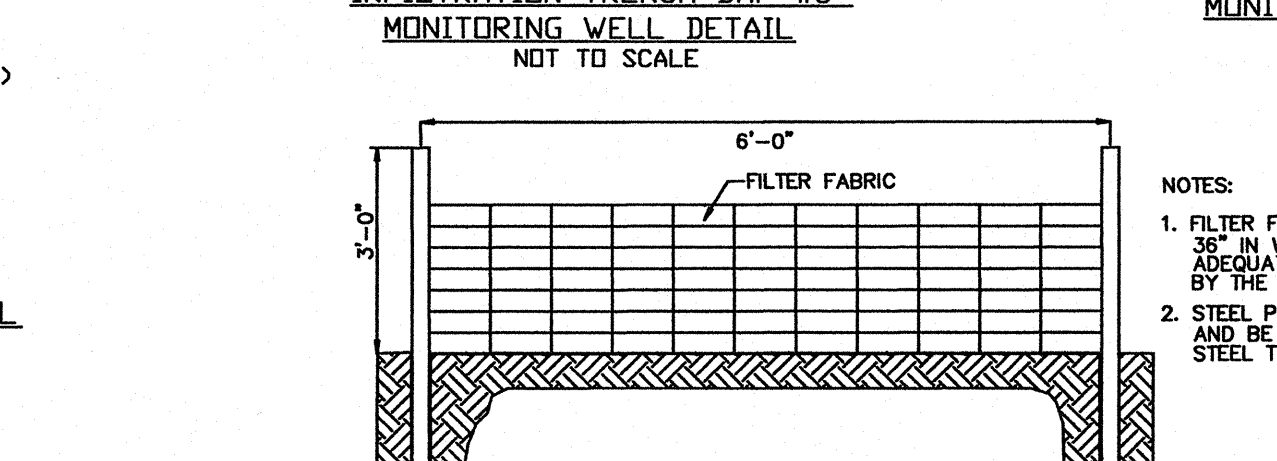
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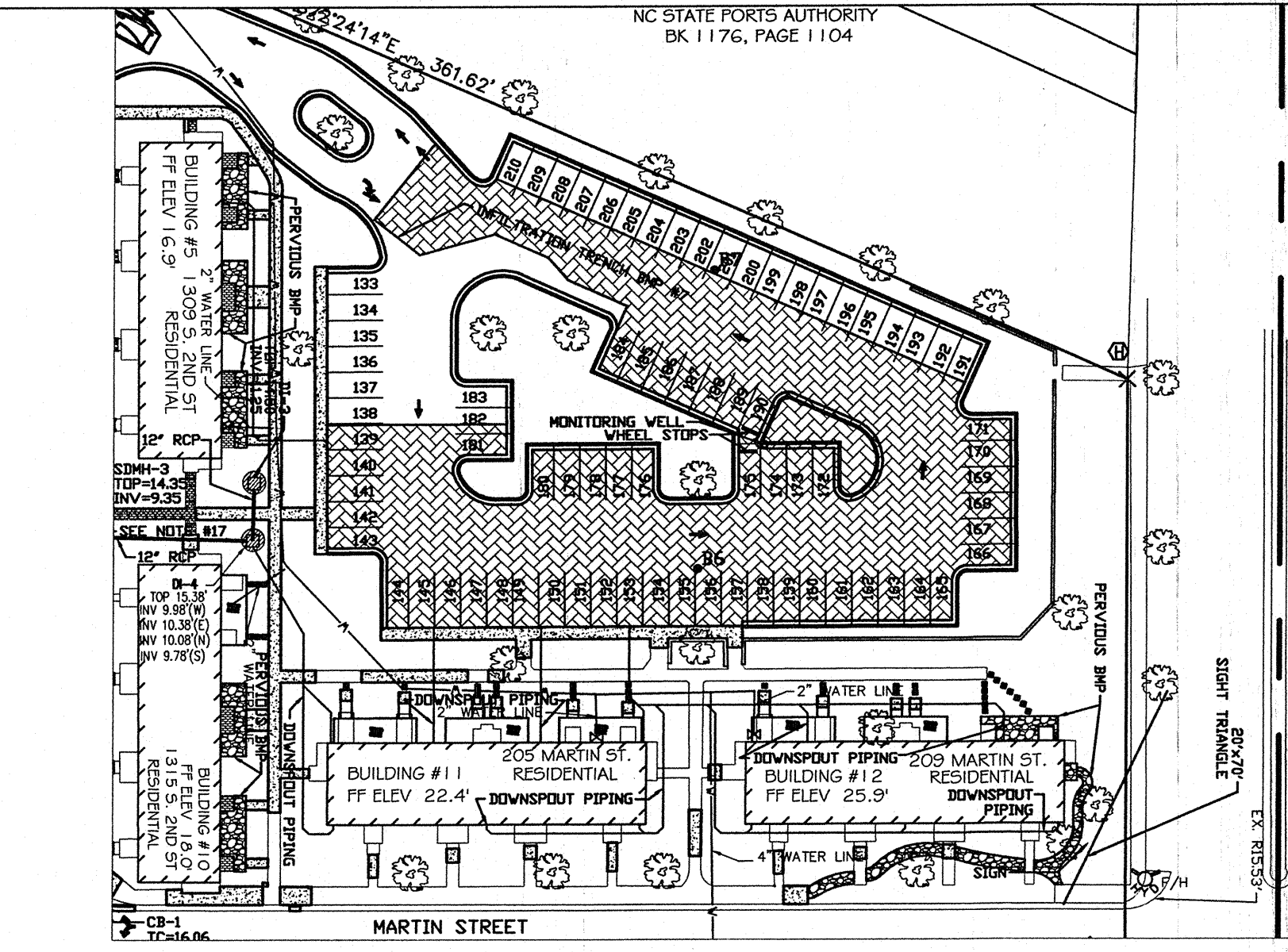
INFILTRATION TRENCH BMP #7-MONITORING WELL DETAIL NOT TO SCALE



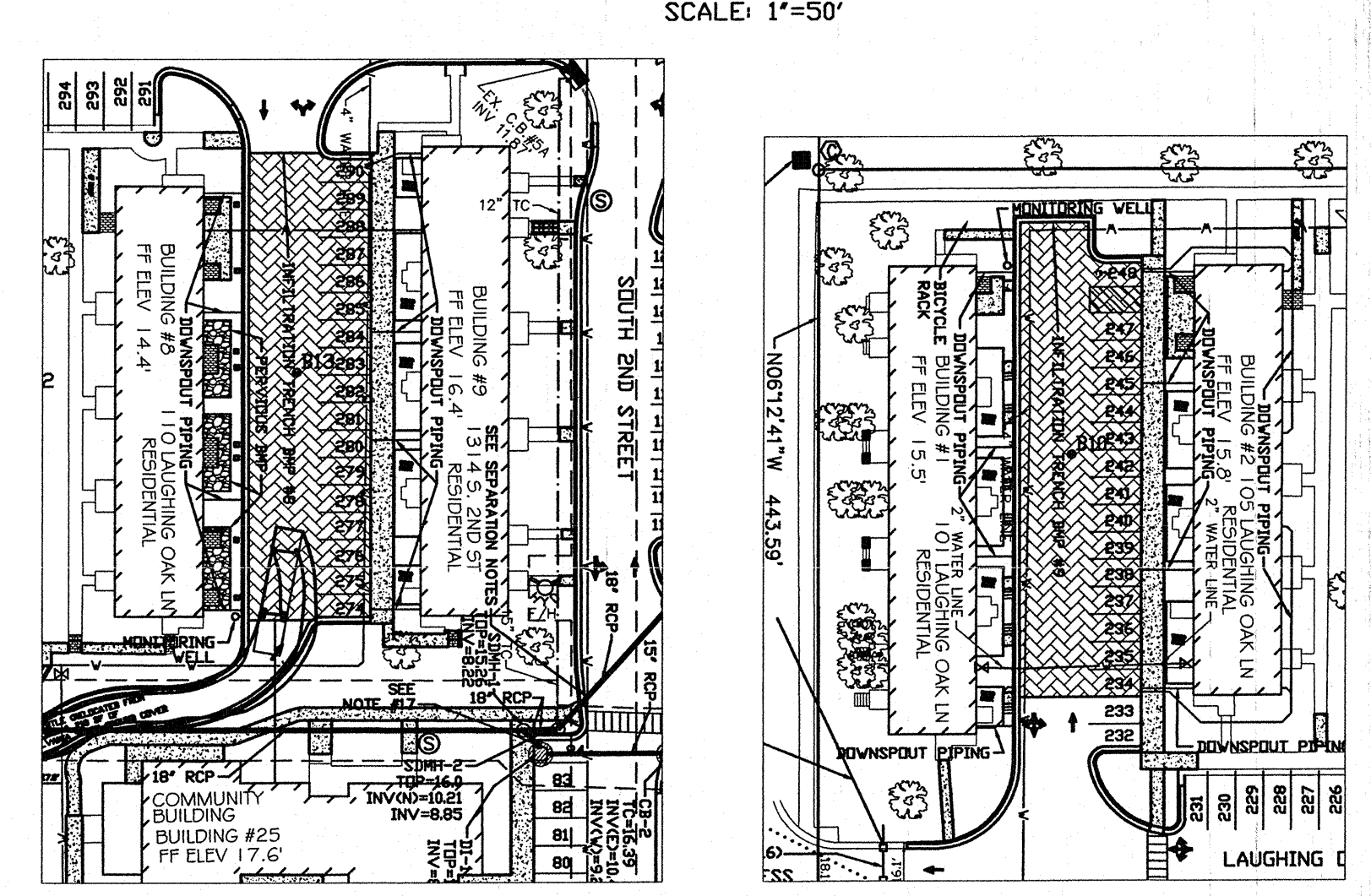
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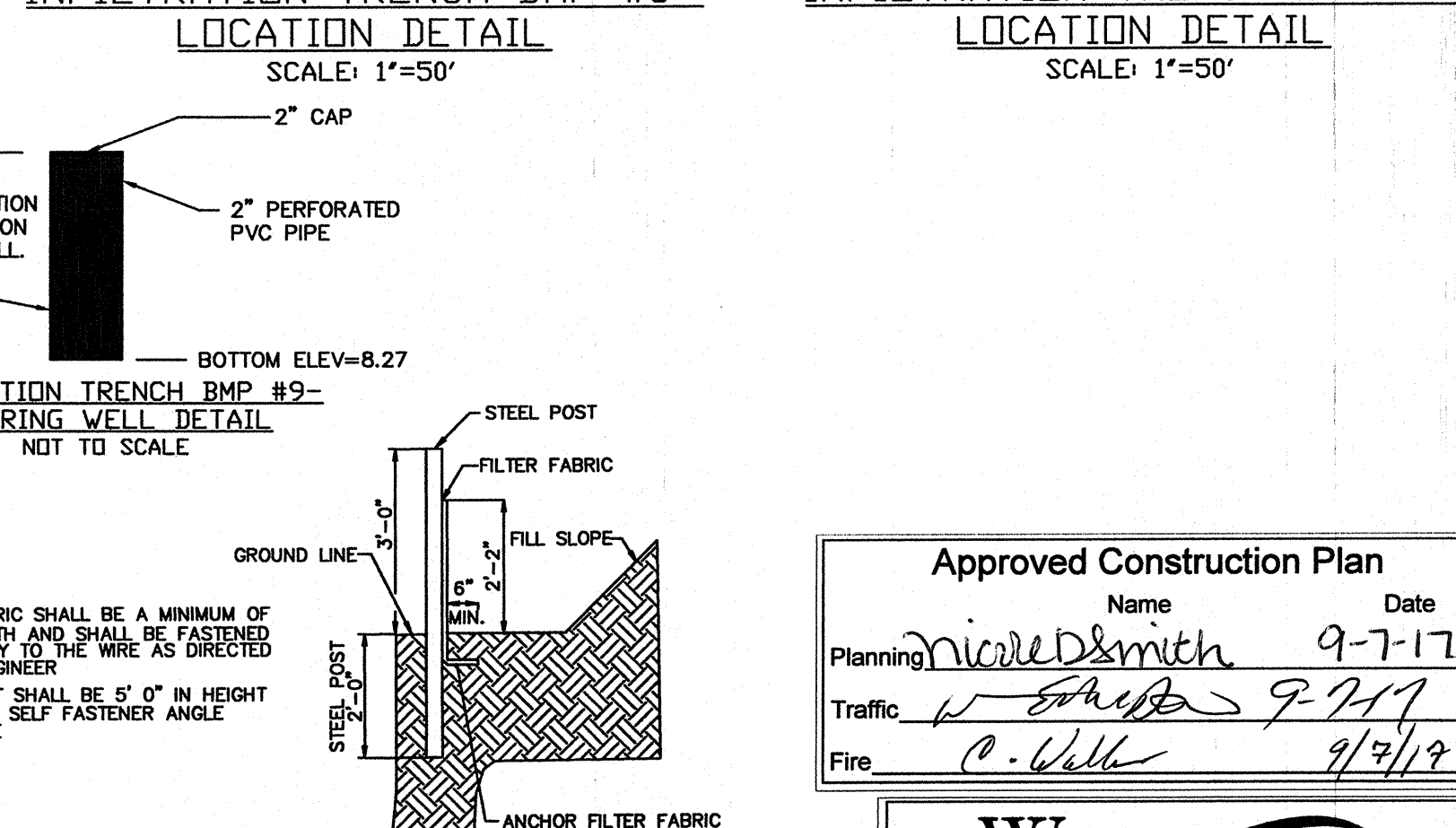
INFILTRATION TRENCH BMP #9-MONITORING WELL DETAIL NOT TO SCALE



INFILTRATION TRENCH BMP #7-LOCATION DETAIL SCALE: 1"=50'



INFILTRATION TRENCH BMP #8-LOCATION DETAIL SCALE: 1"=50'



INFILTRATION TRENCH BMP #9-LOCATION DETAIL SCALE: 1"=50'



GUIDELINES FOR TEMPORARY SILT FENCE DETAIL NOT TO SCALE

Approved Construction Plan

Name: Nicole Smith Date: 9-7-17

Planning: Nicole Smith 9-7-17

Traffic: W. Smith 9-7-17

Fire: C. Will 9/7/17

City of Wilmington, North Carolina

Public Services • Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: 9/7/17 Permit: 2011022R3

Signed: [Signature]

STORMWATER DETAIL SHEET

SOUTH FRONT APARTMENTS

WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

MALPASS ENGINEERING, P.C.

1134 SHIPPARD BOULEVARD
WILMINGTON, NORTH CAROLINA 28412
Phone 910-382-6548 Fax 910-382-8203 License No. C-2380

Owner: SOUTH FRONT LLC
1510-A SOUTH THIRD STREET
WILMINGTON, NC 28401
PHONE: 910-251-5030

DATE: 11-11
SCALE: N.T.S.
DRAWN: JCB
CHECKED: JEM
PROJECT NO: 198

SHEET NO. 2G
OF 5

REV. NO.	DESCRIPTION	DATE
1	REVISED PER CITY OF WILMINGTON TRC	3-10-11
2	REVISED PER CITY OF WILMINGTON TO ADJUST PARKING SPACES #133-210. REVISED TO ADJUST PERVIOUS CONCRETE DETAIL.	4-20-11
3	REVISED PER CITY OF WILMINGTON.	5-13-11
4	REVISED TO ADJUST TRENCH BMP #7 IMPERVIOUS AREA IN CHART.	6-7-11
5	REVISED TO ADJUST CONC DETAIL. REVISED PER CITY OF WILMINGTON TO NOT SHOW PROPOSED TRENCH #4 AND CONCRETE. REVISED TO ADJUST PERVIOUS CONCRETE DETAIL.	7-8-11
6	REVISED PER CITY OF WILMINGTON.	7-25-11
7	REVISED PER CITY OF WILMINGTON ENGINEERING DEPARTMENT.	8-11-11
8	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-19-11
9	REVISED TO ADJUST IMPERVIOUS AREAS IN CHART. # 400 PERVIOUS CONCRETE BMP DETAIL & CHART.	9-22-12
10	REVISED TO ADJUST IMPERVIOUS AREAS IN CHART. PERVIOUS CONCRETE BMP CHART & INFILTRATION.	8-13-12
11	REVISED PER CITY OF WILMINGTON ENGINEERING.	8-18-12
12	REVISED PER TRC COMMENTS.	8-30-17

Permanent Seeding
 Specifications #6.11 - Specifications (Specifications are as per the "Erosion and Sediment Control Planning and Design Manual" of the state of North Carolina)
 Table 6.11p - Seeding No. 1CP for: Well-to Poorly Drained soils with Good Moisture Retention; Low Maintenance
 Seeding mixture
 Species Rate (lb/acre)
 Tall fescue 80
 Pensacola Bahiagrass 10
 Sericea lespedeza 30
 Kobe lespedeza 10

Seeding Notes
 1. From Sept. 1 - Mar. 1, use unscarified sericea seed
 2. On poorly drained sites omit sericea and increase Kobe to 30 lb/acre.
 3. Where a neat appearance is desired, omit sericea and increase Kobe to 40 lb/acre.

Seeding dates
 Best Possible
 Early spring: Feb. 15 - Mar. 20 Feb. 15 - Apr. 30
 Fall: Sept. 1 - Sept. 30 Sept. 1 - Oct. 31

Soil amendments - Apply lime and fertilizer according to soil tests, or apply 3,000-5,000 lb/acre ground agricultural limestone (use the lower rate on sandy soils) and 1,000 lb/acre 10-10-10 fertilizer.
 Mulch - Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with asphalt, netting, or riving or crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
 Maintenance - If growth is less than fully adequate, referentize in the second year, according to soil tests or topdress with 500 lb/acre 10-10-10 fertilizer. Mow as needed when sericea is omitted from the mixture. Reseed, fertilize, and mulch damaged areas immediately.

Table 6.11q - Seeding No. 2CP for: Well-to Poorly Drained soils with Good Moisture Retention; High Maintenance
 Seeding mixture
 Species Rate (lb/acre)
 Tall fescue (blend of two or three improved varieties) 200
 Rye (grain) 25

Seeding dates
 Best: Sept. 15 - Oct. 15
 Possible: Sept. 1 - Oct. 31 or Feb. 15 - Apr. 30

Soil amendments - Apply lime and fertilizer according to soil tests, or apply 3,000-5,000 lb/acre ground agricultural limestone (use the lower rate on sandy soils) and 1,000 lb/acre 10-10-10 fertilizer.
 Mulch - Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor straw by tacking with asphalt, netting, or riving or by crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
 Maintenance - Fertilize according to soil tests or apply 40 lb/acre nitrogen in Jan. or Feb., 40 lb in Sept. and 40 lb in Nov., from a 12-4-8, 16-4-8, or similar turf fertilizer. Avoid fertilizer applications during wet weather, as this increases stand losses to disease. Reseed, fertilize, and mulch damaged areas immediately. Mow to a height of 2.5-3.5 inches as needed.

Table 6.11r - Seeding No. 3CP for: Fine Sands to Sandy Loams; High Maintenance, Fine Turf
 Seeding mixture
 Species Rate (lb/1,000 ft²)
 Tifway or Tifway II Minimum: 3
 Hybrid Bermudagrass Rapid cover: 10

Seeding Notes
 1. Sprig or sod (Practice 6.12, Sodding). Moisture is essential during initial establishment. Sod must be kept well watered for 2-3 weeks, but can be planted earlier or later than sprigs.
 2. Common Bermuda can be seeded or sprigged but does not produce a high-quality turf. It is also less cold tolerant than the hybrids, more weed prone, and a pest in flower beds and specimen plantings.

Planting dates
 Apr. - July

Soil amendments - Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer, or 50 lb/acre nitrogen from turf-type slow-release fertilizer. Add 25-50 lb/acre nitrogen at 2- to 3-week intervals through midsummer.
 Sprigging - Plant sprigs in furrows with a tractor-drawn transplanter, or broadcast by hand.
 Furrows should be 4-6 inches deep and 2 ft apart. Place sprigs about 2 ft apart in the row with one end at or above ground level (Figure 6.11a).
 Broadcast at rates shown above, and press sprigs into the top 1/2-2 inches of soil with a disk set straight so that sprigs are not brought back toward the surface.
 Mulch - Do not mulch.
 Maintenance - Water as needed and mow to 3/4- to 1-inch height. Topdress with 40 lb/acre nitrogen in Apr., 50 lb in May, 50 lb in June, 30 lb in July, and 25-50 lb in Aug.

Table 6.11s - Seeding No. 4CP for: Well-Drained Sandy Loams to Dry Sands, Coastal Plain and Eastern Edge of Piedmont; Low-to Medium-Care Lawns
 Seeding mixture
 Species Rate
 Centipedegrass 10-20 lb/acre (seed) or 33 bu/acre (sprigs)

Seeding dates
 Mar. - June
 (Sprigging can be done through July where water is available for irrigation.)

Soil amendments - Apply lime and fertilizer according to soil tests, or apply 300 lb/acre 10-10-10.
 Sprigging - Plant sprigs in furrows with a tractor-drawn transplanter, or broadcast by hand.
 Furrows should be 4-6 inches deep and 2 ft apart. Place sprigs about 2 ft apart in the row with one end at or above ground level (Figure 6.11a).
 Broadcast at rates shown above, and press sprigs into the top 1/2-2 inches of soil with a disk set straight so that sprigs are not brought back toward the surface.
 Mulch - Do not mulch.
 Maintenance - Fertilize very sparingly - 20 lb/acre nitrogen in spring with no phosphorus. Centipedegrass cannot tolerate high pH or excess fertilizer.

Table 6.11t - Seeding No. 5CP for: Well-Drained Sandy Loams to Dry Sands; Low Maintenance
 Seeding mixture
 Species Rate (lb/acre)
 Pensacola Bahiagrass 50
 Sericea lespedeza 30
 Common Bermudagrass 10
 German millet 10

Seeding Notes
 1. Where a neat appearance is desired, omit sericea.
 2. Use common Bermuda only on isolated sites where it cannot become a pest. Bermudagrass may be replaced with 5 lb/acre centipedegrass.

Seeding dates
 Apr. 1 - July 15

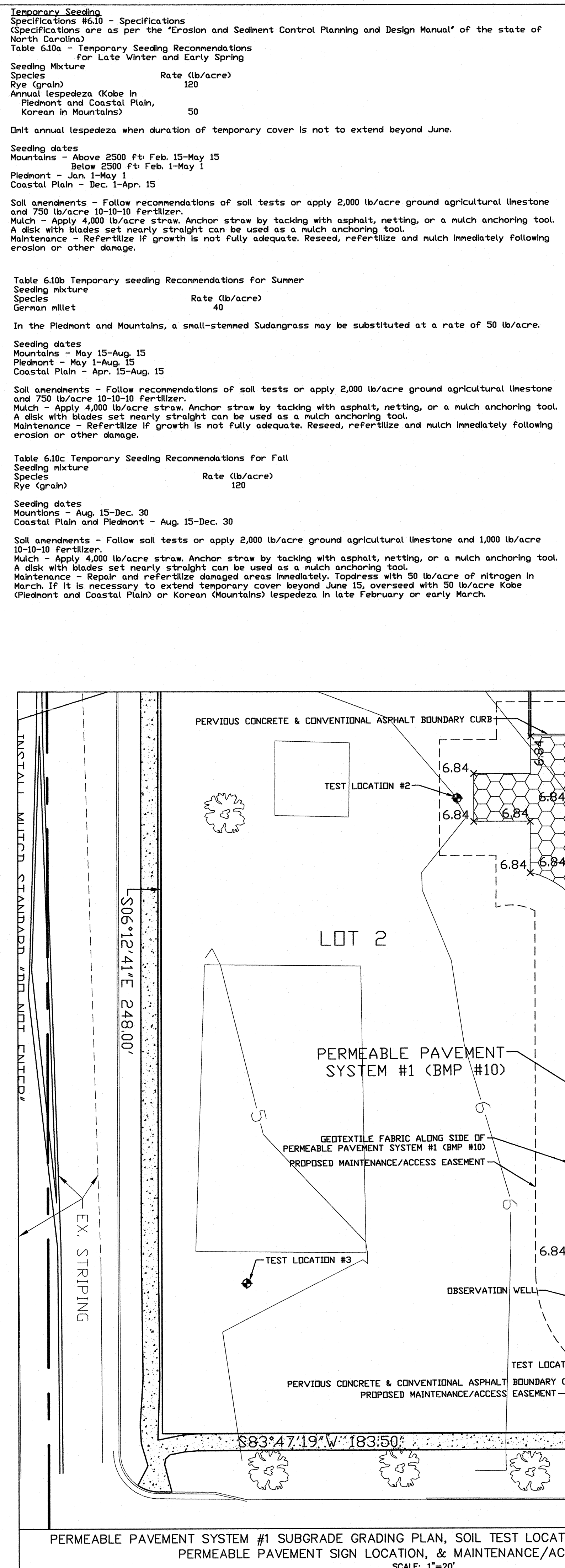
Soil amendments - Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.
 Mulch - Apply 4,000 lb/acre grain straw or equivalent cover of another suitable mulch. Anchor by tacking with asphalt, netting, or riving or by crimping with a mulch anchoring tool. A disk with blades set nearly straight can be used as a mulch anchoring tool.
 Maintenance - Referentize the following Apr. with 50 lb/acre nitrogen. Repeat as growth requires. May be mowed only once a year. Where a neat appearance is desired, omit sericea and mow as often as needed.

Table 6.11v - Seeding No. 7CP for: Grass-lined Channels; Coastal Plain, Lower Piedmont, and Dry Soils in the Central Piedmont
 Seeding mixture
 Species Rate (lb/acre)
 Common Bermudagrass 40-80 (1-2 lb/1,000 ft²)

Seeding dates
 Coastal Plain: Apr. - July
 Piedmont: Apr. 15 - June 30

Soil amendments - Apply lime and fertilizer according to soil tests, or apply 3,000 lb/acre ground agricultural limestone and 500 lb/acre 10-10-10 fertilizer.
 Mulch - Use jute, excelsior matting, or other effective channel lining material to cover the bottom of channels and ditches. The lining should extend above the highest calculated depth of flow. On channel side slopes above this height, and in drainages not requiring temporary linings, apply 4,000 lb/acre grain straw and anchor straw by stapling netting over the top.
 Mulch and anchoring materials must not be allowed to wash down slopes where they can clog drainage devices.
 Maintenance - A minimum of 3 weeks is required for establishment. Inspect and repair mulch frequently. Referentize the following Apr. with 50 lb/acre nitrogen.

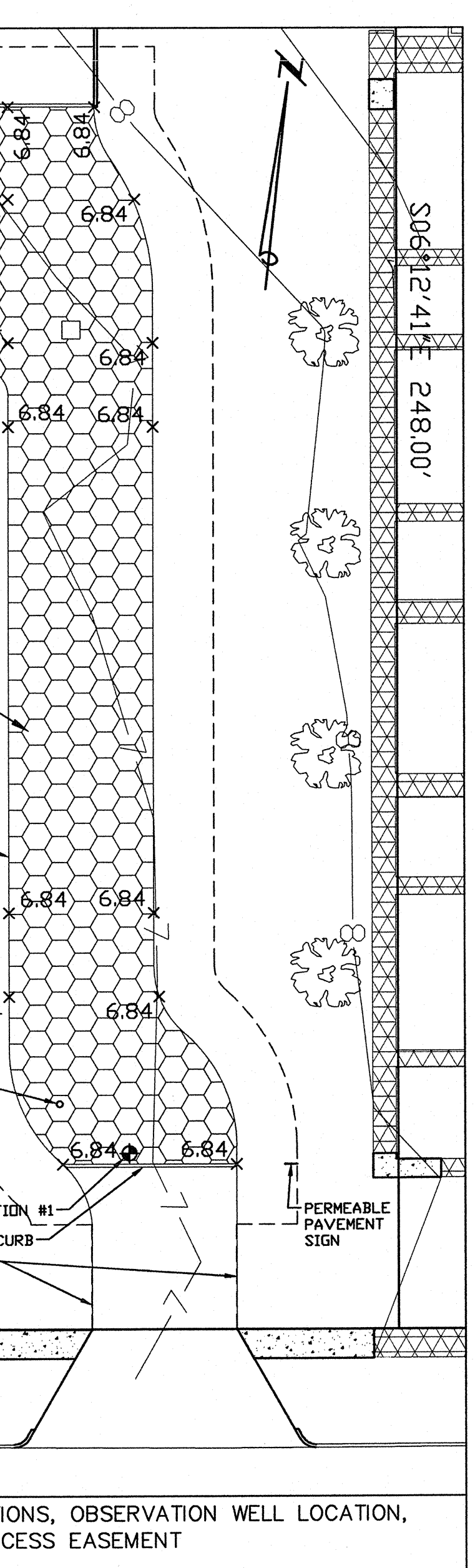
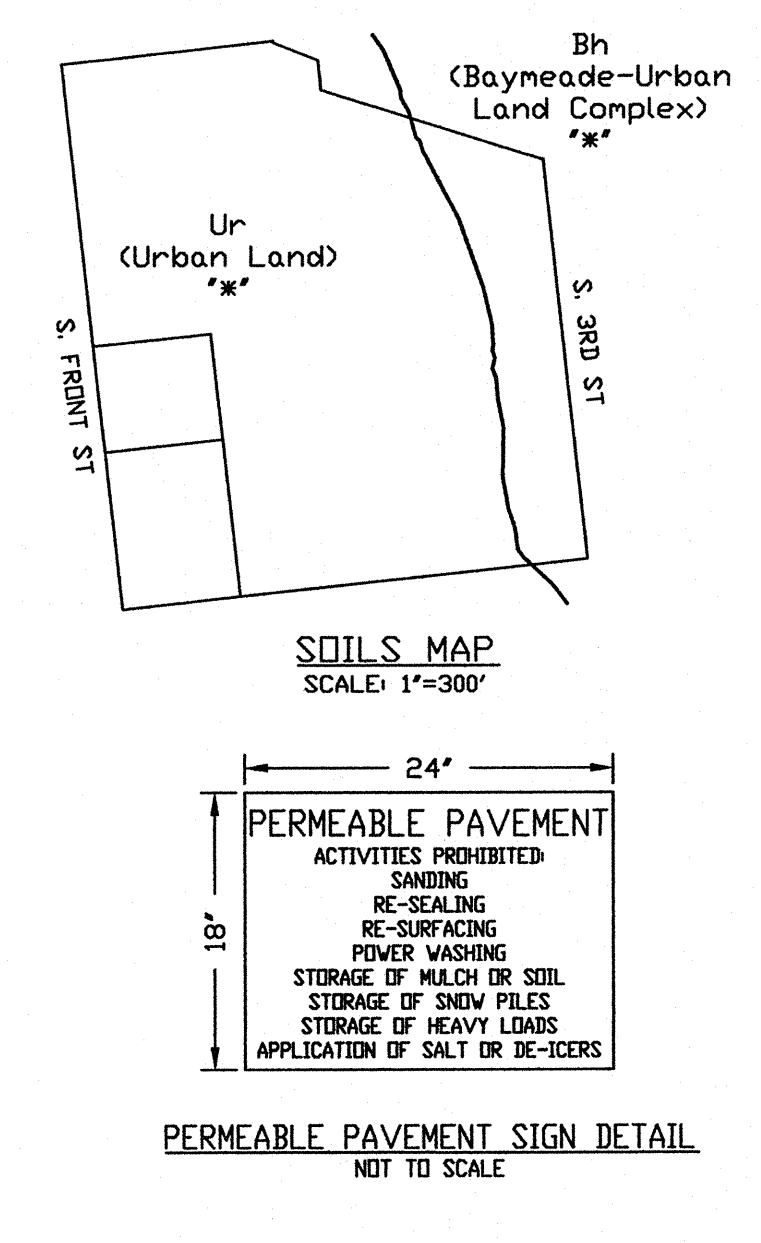
Refer to Appendix 8.02 for botanical names.



GROUND STABILIZATION

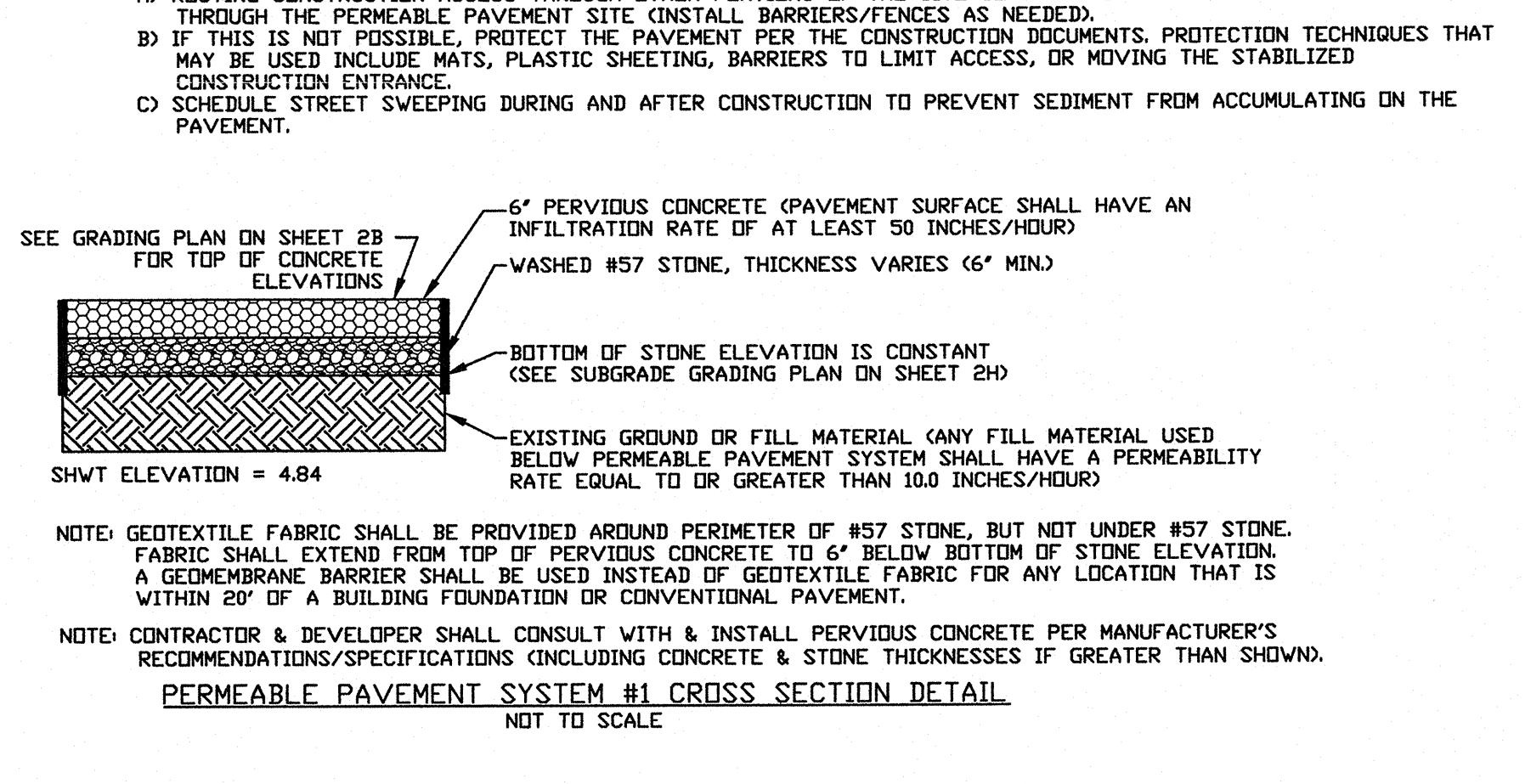
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DICES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HOW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10 FEET OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS IS ALLOWED
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 HOW ZONES)

*NEW HANOVER COUNTY LAND QUALITY SEEDING DEADLINES: 21 CALENDAR DAYS FOR ALL SLOPES & 15 WORKING DAYS FOR ALL OTHER AREAS.
 **THE SHORTER STABILIZATION TIME FRAME BETWEEN THE ABOVE CHART AND THE NEW HANOVER COUNTY LAND QUALITY SEEDING DEADLINES, FOR THE RESPECTIVE AREAS, SHALL BE FOLLOWED.



CONSTRUCTION SEQUENCE FOR INSTALLATION OF PERMEABLE PAVEMENT (MOSTLY FROM NCDOT STORMWATER DESIGN MANUAL C-5)

- ENSURE ACCEPTABLE CONDITIONS FOR CONSTRUCTION
 - PERVIOUS SURFACES MUST BE GRADED TO DRAIN AWAY FROM THE PERMEABLE PAVEMENT, EXCEPT WHERE THIS IS UNAVOIDABLE, SUCH AS PARKING LOT ISLANDS, AREA BETWEEN BUILDINGS & PARKING LOT, & REDEVELOPMENT PROJECTS.
 - IMPERVIOUS AREAS THAT WILL DRAIN TO THE PERMEABLE PAVEMENT ARE COMPLETED.
 - AREAS ADJACENT TO THE PERMEABLE PAVEMENT ARE STABILIZED (VEGETATION, MULCH, STRAW, SEED, SOD, FIBER BLANKETS, ETC.) IN ORDER TO PREVENT EROSION & POSSIBLE CONTAMINATION WITH SEDIMENTS.
 - CONSTRUCTION ACCESS TO OTHER PORTIONS OF THE SITE IS ESTABLISHED SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE DURING INSTALLATION. INSTALL BARRIERS/FENCES AS NEEDED.
 - WEATHER FORECAST CALLS FOR A WINDOW OF DRY WEATHER TO PREVENT EXCESS COMPACTION OR SMEARING OF THE SOIL SUBGRADE WHILE IT IS EXPOSED TO WET WEATHER.
 - ALL PERMEABLE PAVEMENT AREAS ARE CLEARLY MARKED ON THE SITE.
- EXCAVATE PERMEABLE PAVEMENT AREA & PREPARE SUBGRADE SURFACE
 - EXCAVATE IN DRY SUBGRADE CONDITIONS & AVOID EXCAVATING IMMEDIATELY AFTER STORMS WITHOUT A SUFFICIENT DRYING PERIOD.
 - DO NOT ALLOW EQUIPMENT TO CROSS THE PAVEMENT AREA AFTER EXCAVATION HAS BEGUN.
 - OPERATE EXCAVATION EQUIPMENT FROM OUTSIDE THE EXCAVATION AREA OR FROM UNEXCAVATED PORTIONS OF THE AREA USING AN EXCAVATION MAT.
 - USE EQUIPMENT WITH TRACKS RATHER THAN TIRES TO MINIMIZE SOIL COMPACTION WHEN EQUIPMENT ON THE SUBGRADE SURFACE IS UNAVOIDABLE.
 - DIG THE FINAL 9 TO 12 INCHES BY USING THE TEETH OF THE EXCAVATOR BUCKET TO LOOSEN SOIL & DO NOT SMEAR THE EXCAVATED SUBGRADE FINAL GRADING OR SMOOTHING OF THE SUBGRADE SHOULD BE DONE BY HAND IF POSSIBLE.
 - THE FINAL SUBGRADE SLOPE SHALL NOT EXCEED 2.0%. THE FINAL SUBGRADE SHALL BE SURVEYED BEFORE PROCEEDING WITH INSTALLATION.
 - MINIMIZE THE TIME BETWEEN EXCAVATION AND PLACEMENT OF THE AGGREGATE.
 - AFTER THE SUBGRADE SLOPE IS VERIFIED, SCARIFY THE SOIL SUBGRADE SURFACE TO MAINTAIN THE SOILS PRE-DISTURBANCE INFILTRATION RATE.
 - TO SCARIFY THE PAVEMENT, USE THE EXCAVATOR BUCKET'S TEETH TO RAKE THE SURFACE OF THE SUBGRADE.
- TEST THE SUBGRADE SOIL INFILTRATION RATE (INFILTRATION SYSTEMS ONLY)
 - IMMEDIATELY AFTER EXCAVATION IS PLACED, CONDUCT A DIRECT MEASUREMENT OF THE SOIL'S INFILTRATION RATE. INFILTRATION TESTING SHALL BE PERFORMED BY AN APPROPRIATELY-QUALIFIED PROFESSIONAL.
 - RESULTS OF THE INFILTRATION TESTING SHALL BE PROVIDED TO THE ENGINEER.
 - IF THE SOIL TEST SHOWS INFILTRATION RATES THAT ARE LOWER THAN THE RATES USED IN THE DESIGN, THEN ADDITIONAL SCARIFICATION, RIPPING, OR TRENCHING OF THE SOIL WILL BE NEEDED.
 - CONTRACTOR SHALL CONTACT & RECEIVE APPROVAL FROM ENGINEER OF RECORD TO CONTINUE INSTALLATION OF PERMEABLE PAVEMENT SYSTEM.
- PLACE GEOTEXTILES AND GEDMEMBRANE (IF APPLICABLE)
 - FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR THE APPROPRIATE OVERLAP BETWEEN ROLLS OF MATERIAL. SECURE THE MATERIAL TO ENSURE IT DOES NOT MOVE OR WRINKLE WHEN PLACING AGGREGATE.
- PLACE OBSERVATION WELLS(S)
 - PLACE OBSERVATION WELLS(S) ACCORDING TO THE PLAN AND VERIFY THAT THE ELEVATIONS ARE CORRECT.
 - INSPECT ALL AGGREGATES TO ENSURE THEY ARE CLEAN, FREE OF FINES, AND CONFORM TO THE PLANS.
 - IF AGGREGATE DELIVERED TO THE SITE CANNOT BE IMMEDIATELY PLACED INTO THE EXCAVATION, THEY SHOULD BE STOCKPILED ON AN IMPERVIOUS SURFACE OR GEOTEXTILE TO KEEP THE AGGREGATE FREE OF SEDIMENT.
 - IF AGGREGATE BECOMES CONTAMINATED WITH SEDIMENT, THEN IT SHALL BE REPLACED WITH CLEAN AGGREGATE.
 - BEFORE PLACING THE AGGREGATE BASE, REMOVE ANY ACCUMULATION OF SEDIMENTS ON THE FINISHED SOIL SUBGRADE USING LIGHT, TRACKED EQUIPMENT.
 - IF THE EXCAVATED SUBGRADE SURFACE HAS BEEN SUBJECTED TO RAINFALL BEFORE PLACEMENT OF THE AGGREGATE, THEN THE RESULTING SURFACE CRUST MUST BE EXCAVATED TO AT LEAST AN ADDITIONAL 2-INCH DEPTH, RAKED OR SCARIFIED TO BREAK UP THE CRUST.
 - REMOVE ANY ACCUMULATED SEDIMENTS FROM AND CHECK PLACEMENT OF ANY IMPERVIOUS LINERS OR GEOTEXTILES.
 - SLOPES & ELEVATIONS SHALL BE CHECKED ON THE SOIL SUBGRADE AND THE FINISHED ELEVATION OF BASE (AFTER COMPACTION) OR BEDDING MATERIALS TO ASSURE THEY CONFORM TO THE PLANS AND SPECIFICATIONS.
 - ALL AGGREGATE SHALL BE SPREAD (NOT DUMPED) BY A FRONT-END LOADER OR FROM DUMP TRUCKS DEPOSITING FROM NEAR THE EDGE OF THE EXCAVATED AREA OR RESTING DIRECTLY ON DEPOSITED PILES. MOISTEN AND SPREAD THE WASHED STONE WITHOUT DRIVING ON THE SOIL SUBGRADE. BE CAREFUL NOT TO DAMAGE THE OBSERVATION WELLS DURING COMPACTION.
 - DO NOT CRUSH AGGREGATES DURING COMPACTION.
 - BE SURE THAT CORNERS, AREAS AROUND UTILITY STRUCTURES AND OBSERVATION WELLS, & TRANSITION AREAS TO OTHER PAVEMENTS ARE ADEQUATELY COMPACTED.
 - EDGE RESTRAINTS AND BARRIERS BETWEEN PERMEABLE AND IMPERVIOUS PAVEMENT SHALL BE INSTALLED PER THE PLAN BEFORE MOVING ON TO CONSTRUCTION STEP 8, BE CERTAIN THE DESIGN AND INSTALLATION ARE CONSISTENT.
- INSTALL PAVEMENT CURSE
 - PERVIOUS CONCRETE SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST VERSION OF ACI 522.1 SPECIFICATION FOR PERVIOUS CONCRETE.
 - INSTALLATION OF THE PERVIOUS CONCRETE MAY BE ACCOMPLISHED USING EITHER THE ONE-STEP OR THE TWO-STEP METHOD.
- PROTECT THE PAVEMENT THROUGH PROJECT COMPLETION
 - IF IT IS NOT POSSIBLE TO INSTALL THE PERMEABLE PAVEMENT AT THE END OF THE SITE CONSTRUCTION TIMELINE, THEN PROTECT THE PAVEMENT UNTIL PROJECT COMPLETION. THIS SHOULD BE DONE BY:
 - ROUTING CONSTRUCTION ACCESS THROUGH OTHER PORTIONS OF THE SITE SO THAT NO CONSTRUCTION TRAFFIC PASSES THROUGH THE PERMEABLE PAVEMENT SITE (INSTALL BARRIERS/FENCES AS NEEDED).
 - IF THIS IS NOT POSSIBLE, PROTECT THE PAVEMENT PER THE CONSTRUCTION DOCUMENTS. PROTECTION TECHNIQUES THAT MAY BE USED INCLUDE MATS, PLASTIC SHEETING, BARRIERS TO LIMIT ACCESS, OR MOVING THE STABILIZED CONSTRUCTION ENTRANCE.
 - SCHEDULE STREET SWEEPING DURING AND AFTER CONSTRUCTION TO PREVENT SEDIMENT FROM ACCUMULATING ON THE PAVEMENT.



PERMEABLE PAVEMENT SYSTEM #1 CROSS SECTION DETAIL
 NOT TO SCALE

PERMEABLE PAVEMENT SYSTEM #1 OBSERVATION WELL DETAIL
 NOT TO SCALE

TEST LOCATION	EXISTING GROUND (FILL SURFACE) ELEVATION (FEET)**	SHWT (INCHES BELOW NATURAL SURFACE) INCHES BELOW EXISTING FILL SURFACE***	SHWT ELEVATION (FEET)***	HYDRAULIC CONDUCTIVITY RATE (INCHES PER HOUR)***
TEST LOCATION 1	5.94	<12" / 18"	4.44	1.83
TEST LOCATION 2	5.84	<12" / 12-14"	4.84	0.10
TEST LOCATION 3	4.58	<12" / 18-20"	3.08	1.70

*** INFORMATION PROVIDED BY BATEMAN CIVIL SURVEY COMPANY, P.C.
 ** INFORMATION PROVIDED BY APPLIED RESOURCE MANAGEMENT, PC.
 *** CALCULATED BASED ON INFORMATION PROVIDED BY OTHERS.

MAINTENANCE PLAN

- ALL EROSION CONTROL MEASURES WILL BE CHECKED EVERY 7 DAYS OR AFTER EACH RAIN PRODUCING 1/4 INCHES OR MORE WHICH EVER COMES FIRST.
- SEDIMENT WILL BE REMOVED FROM BEHIND SILT FENCES WHERE SEDIMENT IS 0.5 FEET DEEP AND REPAIR FABRIC IF TORN, LEAKING OR FAILING.
- PERIODICALLY TOP-DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBSTRUCTIONAL MATERIAL SPILLED, WASHED, OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
- CHECK SEDIMENT BASINS AFTER PERIODS OF SIGNIFICANT RUNOFF. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE DESIGN DEPTH. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA. GRAVELS WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER GRAVELS PROPERLY OR IF THE ROCK IS DISLOADED.
- INSPECT TEMPORARY SEDIMENT TRAPS AFTER EACH SIGNIFICANT RAINFALL. REMOVE SEDIMENT AND RESTORE THE TRAP TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATED TO ONE-HALF THE DESIGN DEPTH OF THE TRAP. PLACE THE SEDIMENT THAT IS REMOVED IN THE DESIGNATED DISPOSAL AREA AND REPLACE THE CONTAMINATED PART OF THE GRAVEL FACING. 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 GRADE. ANY RIPRAP DISPLACED FROM THE SPILLWAY MUST BE REPLACED IMMEDIATELY. AFTER ALL SEDIMENT-PRODUCING DEVICES AND OUTLET HAVE BEEN STABILIZED, REMOVE THE STRUCTURE AND ALL UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PERMANENTLY.
- INSPECT RIPRAP OUTLET STRUCTURES AFTER HEAVY RAINS TO SEE IF ANY EROSION AROUND OR BELOW THE RIPRAP HAS TAKEN PLACE OR IF STONES HAVE BEEN DISLOADED. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE.
- RIP RAP SHOULD BE INSPECTED PERIODICALLY FOR SCOUR OR DISLOADED STONES. CONTROL OF WEED AND BRUSH GROWTH MAY BE NEEDED IN SOME LOCATIONS.
- ROCK DAM CHECK SEDIMENT AFTER EACH RAINFALL. REMOVE SEDIMENT AND RESTORE ORIGINAL VOLUME WHEN SEDIMENT ACCUMULATES TO ABOUT ONE-HALF THE DESIGN VOLUME.
- CHECK THE STRUCTURE FOR EROSION, PIPING, AND ROCK DISPLACEMENT AFTER EACH SIGNIFICANT RAINFALL AND REPAIR IMMEDIATELY.
- INSPECT ALL MULCHES PERIODICALLY AND AFTER RAINFALLS TO CHECK FOR BILL EROSION, DISLOCATION, OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH. IF WASHOUT OCCURS, REPAIR THE SLOPE GRADE, RESEED, AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.
- CHECK DAMS AND CHANNELS FOR DAMAGE AFTER EACH RUNOFF EVENT. ANTICIPATE SUBMERSED DAMS AND DEPOSITION ABOVE THE CHECK DAM AND EROSION FROM HIGH FLOWS AROUND THE EDGES OF THE DAM. CORRECT ALL DAMAGE IMMEDIATELY. IF SIGNIFICANT EROSION OCCURS BETWEEN DAMS, INSTALL A PROTECTIVE RIPRAP LINER IN THAT PORTION OF THE CHANNEL. REMOVE SEDIMENT ACCUMULATED BEHIND THE DAMS AS NEARED TO PREVENT DAMAGE TO CHANNEL VEGETATION. ALLOW THE CHANNEL TO DRAIN THROUGH THE STONE CHECK DAM, AND PREVENT LARGE FLOWS FROM CARRYING SEDIMENT OVER THE DAM. ADD STONES TO DAMS AS NEEDED TO MAINTAIN DESIGN HEIGHT AND CROSS SECTION.
- INSPECT BARRIERS TO AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY. BE SURE TO MAINTAIN ACCESS TO THE BARRIERS. SHOULD THE FABRIC OF A BARRIER COLLAPSE, TEAR, DECOMPOSE, OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY. REMOVE SEDIMENT FROM BARRIERS WHEN IT REACHES HALF FULL TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE BARRIERS. TAKE CARE TO AVOID DAMAGING THE BARRIERS DURING MAINTENANCE. SEDIMENT SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BATTLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.
- INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. SEDIMENT WILL BE REMOVED FROM HANDS, CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. TAKE CARE NOT TO DAMAGE THE BARRIERS DURING MAINTENANCE. SEDIMENT SHOULD NEVER EXCEED HALF THE DESIGNED STORAGE DEPTH. AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED, REMOVE ALL BATTLE MATERIALS AND UNSTABLE SEDIMENT DEPOSITS, BRING THE AREA TO GRADE, AND STABILIZE IT.
- INSPECT TEMPORARY DIVERSIONS ONCE A WEEK AND AFTER EVERY RAINFALL. IMMEDIATELY REMOVE SEDIMENT FROM THE FLOW AREA AND REPAIR THE DIVERSION. REMOVE SEDIMENT FROM THE DIVERSION BASIN AS NEEDED. WHEN THE AREA PROTECTED IS PERMANENTLY STABILIZED, REMOVE THE RIDGE AND THE CHANNEL TO BLEND WITH THE NATURAL GROUND LEVEL AND APPROPRIATELY STABILIZE IT.
- INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT FROM THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE SO THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. CHECK THE SKIMMER FOR DAMAGE TO 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. REPAIR THE BARRIERS IF THEY ARE DAMAGED. RE-ANCHOR THE BARRIERS IF WATER IS FLOWING UNDERNEATH OR AROUND THEM. IF THE SKIMMER IS CLOGGED WITH TRASH AND THERE IS WATER IN THE BASIN, USUALLY JETTING ON THE ROPE WILL MAKE THE SKIMMER SOB 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. ALSO CHECK THE ORIFICE INSIDE THE SKIMMER TO SEE IF IT IS CLOGGED; IF SO 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 REPAIR THE SKIMMER WITH WATER. RE-SURFACE AND REPLACE THE ORIFICE BEFORE REPOSITIONING THE SKIMMER. CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC AND ANCHORS. REPAIR THE SKIMMER FOR DAMAGE TO THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS. FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.
- ALL SEEDED AREAS WILL BE FERTILIZED, RESEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATION PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. SEE GROUND STABILIZATION CHART FOR STABILIZATION TIME FRAME.

Approved Construction Plan
 Name: Meredith Smith Date: 9-7-17
 Planning: W. Smith Date: 9-7-17
 Traffic: C. White Date: 9/7/17
 Fire: C. White Date: 9/7/17

Public Services Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 9/17/17 Permit: 2016022P3
 Signed: [Signature]

DETAIL SHEET
 SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

MALPASS ENGINEERING, P.C.
 1134 SHEPPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone: 910-392-6243 Fax: 910-392-6203 License No. C-2320

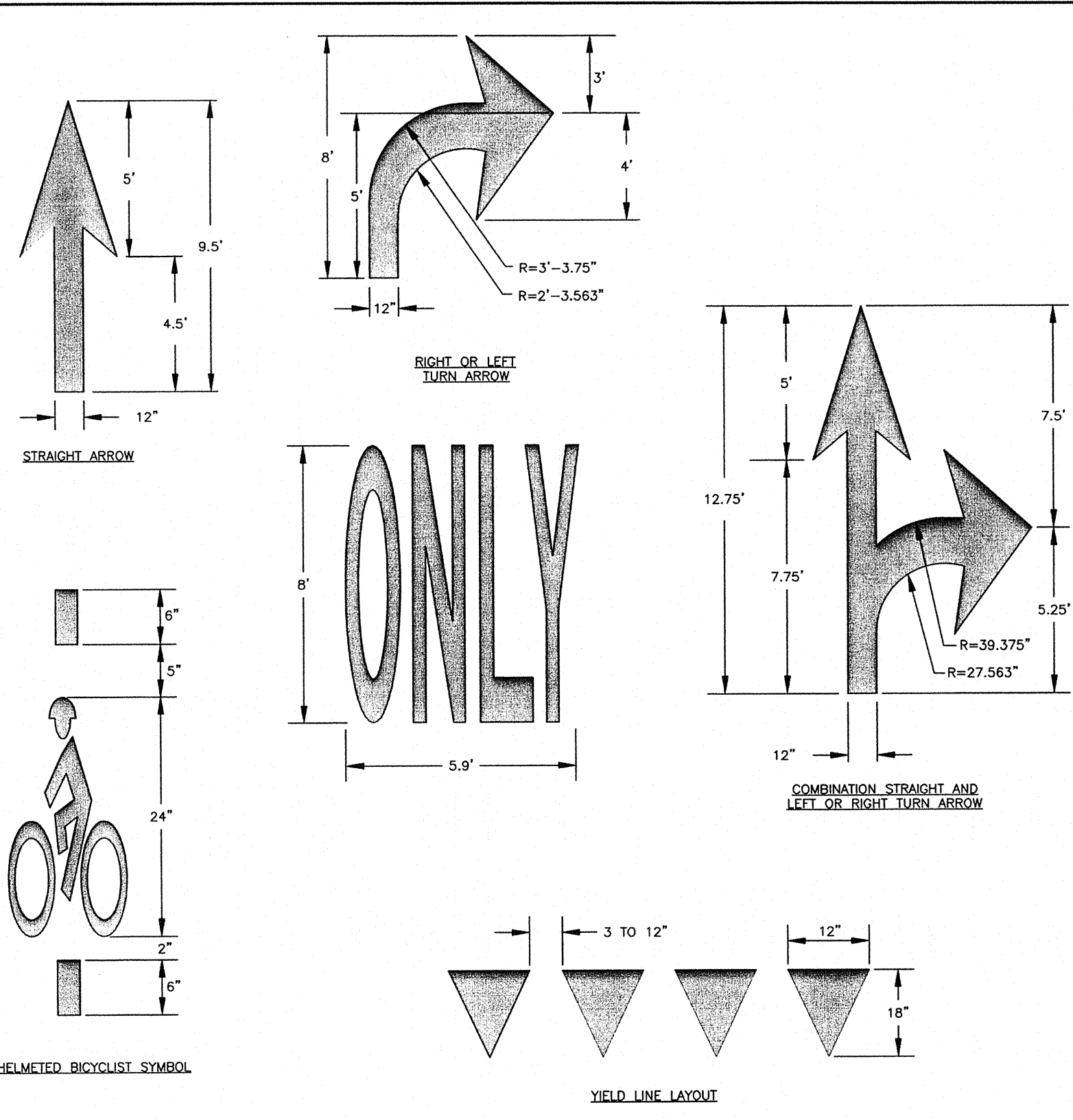
Owner: SOUTH FRONT LLC
 1210-A SOUTH THIRD STREET
 WILMINGTON, NC 28401
 PHONE: 910-251-5030

REVISIONS

REV. NO.	DESCRIPTION	DATE
1	REVISED PER IBC TO ADJUST MAINTENANCE PLAN	8-10-17
2	REVISED PER TRC COMMENTS	8-30-17
3	REVISED PER TRC COMMENTS	9-8-17

PROFESSIONAL ENGINEER
 NORTH CAROLINA
 License No. 056272
 W. Smith

SHEET NO. 2H
 OF 5

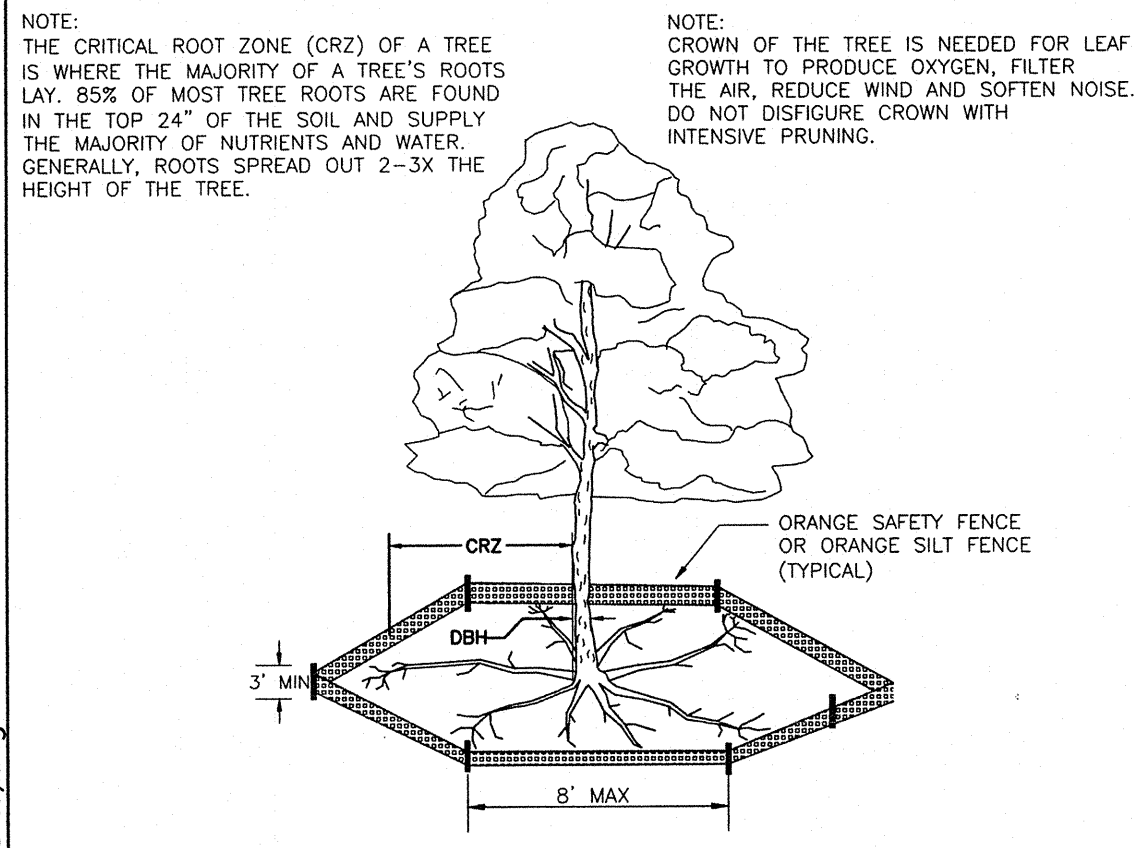
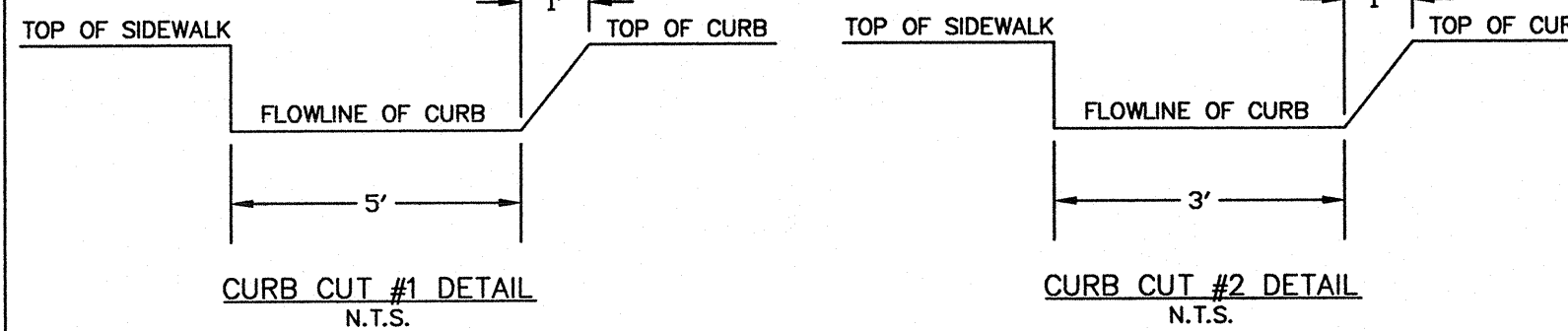


GENERAL NOTES

1-PAVEMENT MARKINGS, SYMBOLS AND DIMENSIONS SHALL BE DESIGNED PER MUTCD WITH APPROVAL FROM CITY TRAFFIC ENGINEERING, AND INSTALLED IN ACCORDANCE WITH NCDOT DIVISION 12 SPECIFICATIONS. SEE SD 11-01.

STANDARD DETAIL
GUIDELINES FOR PAVEMENT MARKINGS AND SYMBOLS
 DATE: OCTOBER, 2012
 DRAWN BY: JSR
 CHECKED BY: BDR, P.E.
 SCALE: NOT TO SCALE

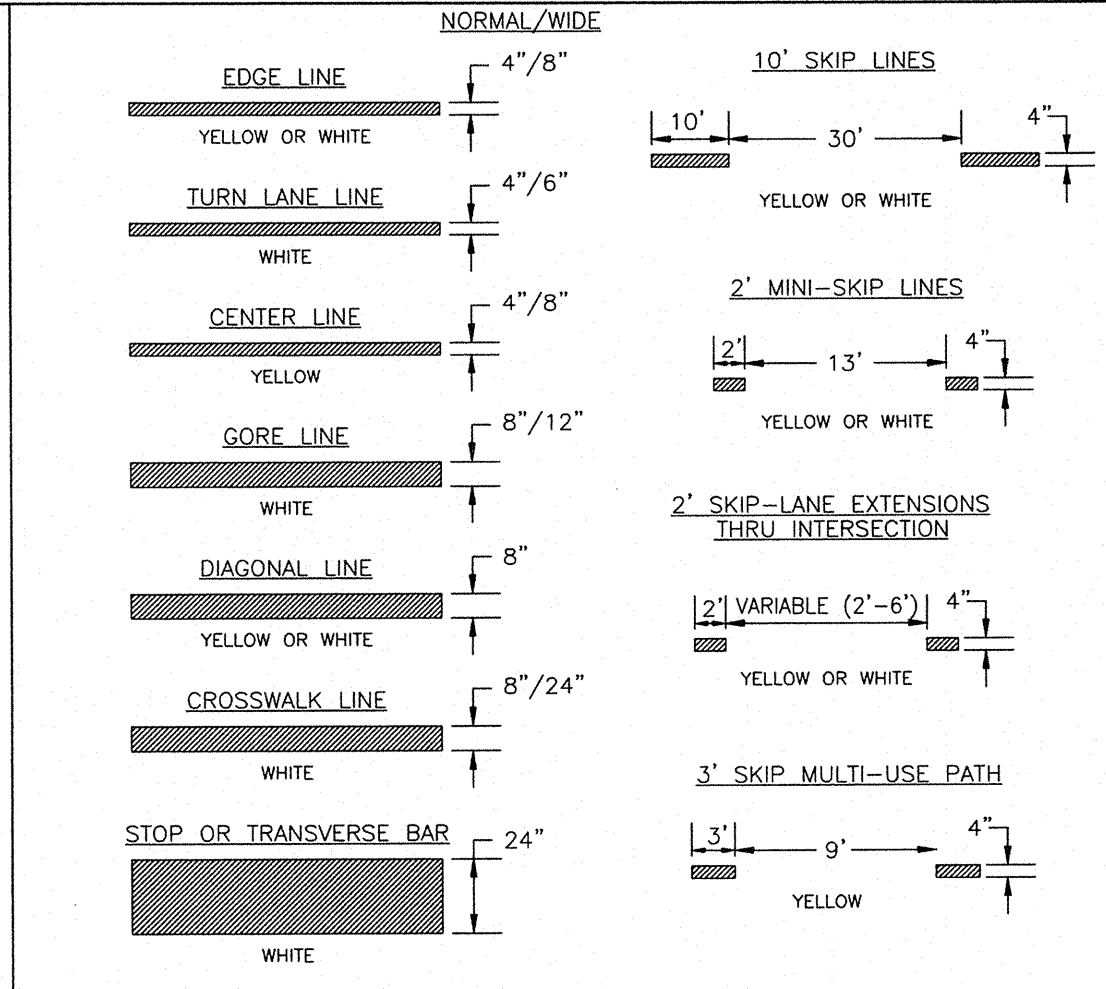
CITY OF WILMINGTON
 NORTH CAROLINA
 CITY OF WILMINGTON ENGINEERING
 PO BOX 1810
 WILMINGTON, NC 28402
 (910) 341-7807
 SD 11-03



- NOTES:**
- PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
 - CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
 - IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
 - WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
 - FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARK UNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
 - FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF \$500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
 DATE: JAN, 2015
 DRAWN BY: JSR
 CHECKED BY: RDG, P.E.
 SCALE: NOT TO SCALE

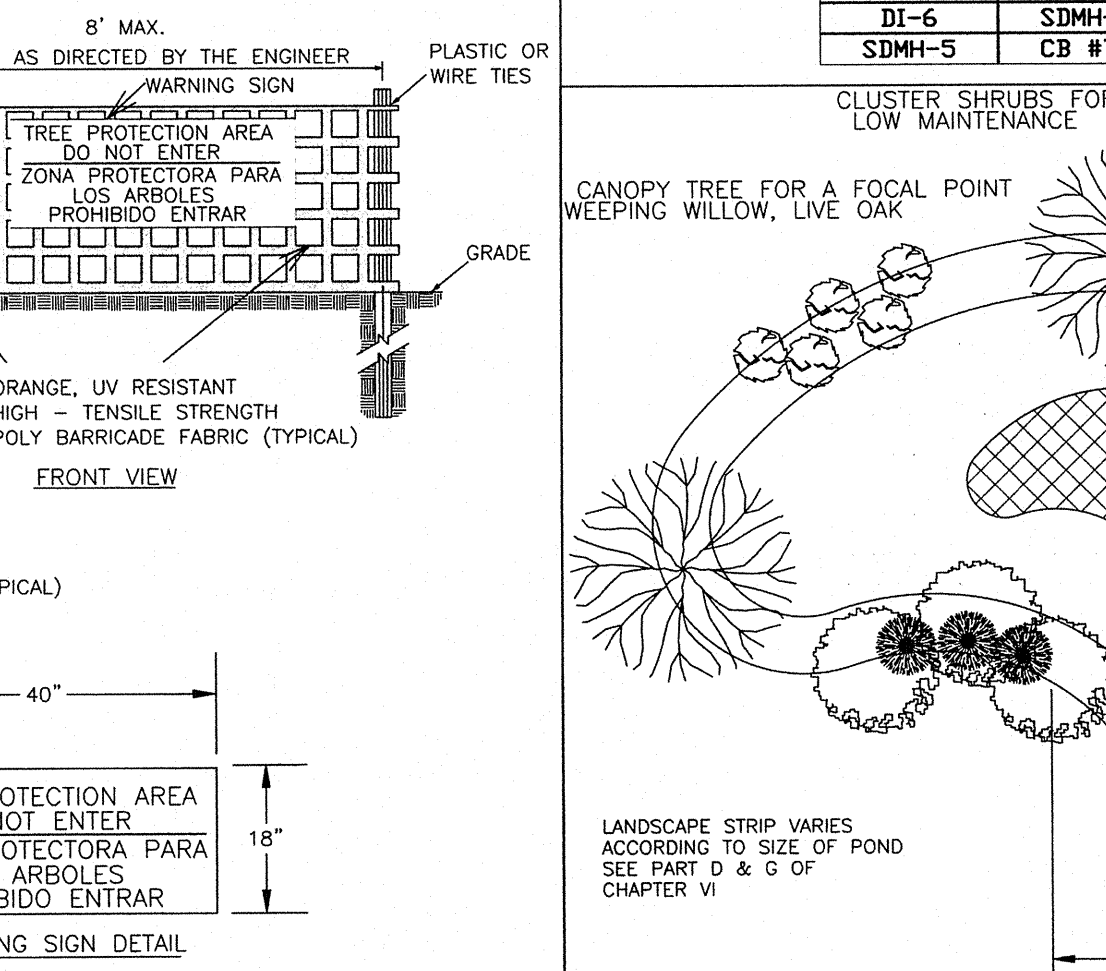
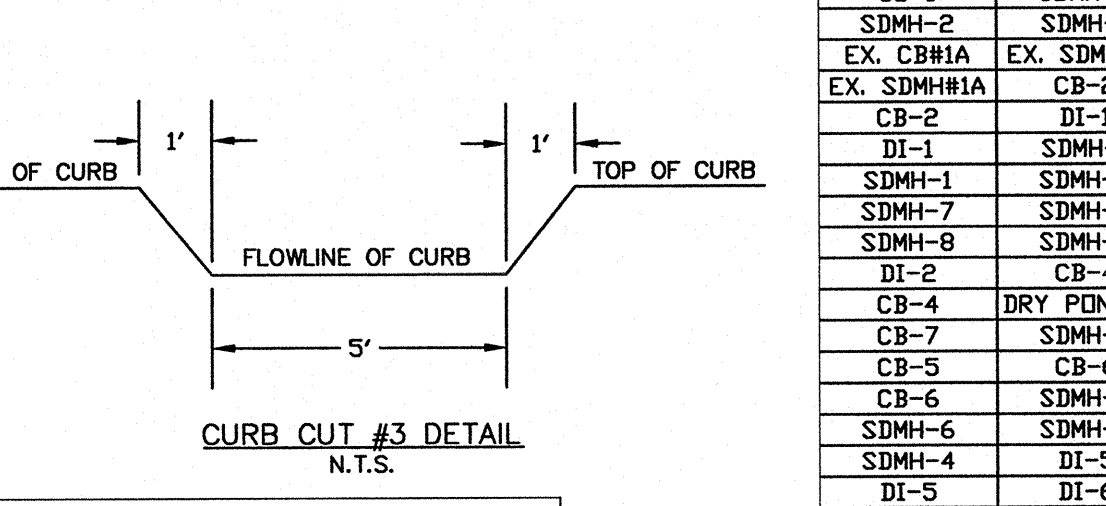
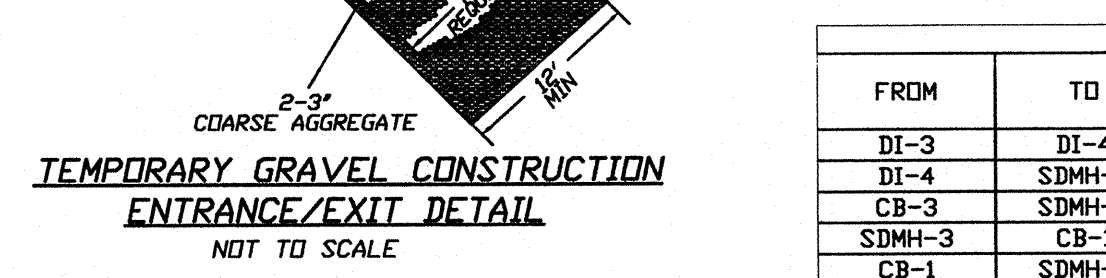
STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
 DATE: JAN, 2015
 DRAWN BY: JSR
 CHECKED BY: RDG, P.E.
 SCALE: NOT TO SCALE



- 1-PAVEMENT MARKINGS AND SYMBOLS SHALL BE DESIGNED PER MUTCD WITH APPROVAL FROM CITY TRAFFIC ENGINEERING, AND INSTALLED IN ACCORDANCE WITH NCDOT DIVISION 12 SPECIFICATIONS.
- 2-GENERALLY, PERMANENT MARKINGS WILL BE UNIFORM AND SMOOTH AND WILL CONSIST OF 120MIL OF THERMOPLASTIC FOR ALL LINES AND SYMBOLS; TEMPORARY MARKINGS SHALL CONSIST OF 15 MIL PAINT, EVERY 6 MONTHS.
- 3-DURING APPLICATION THE EXISTING PAVEMENT SHALL NOT SHOW SIGNS OF MOISTURE AND BE CLEAN, FREE OF DIRT AND OIL, ETC. THERMOPLASTIC SHALL ONLY BE INSTALLED WHERE PAVEMENT IS 50° F AND RISING. PAINT SHALL ONLY BE INSTALLED WHERE PAVEMENT IS 40° F AND RISING.

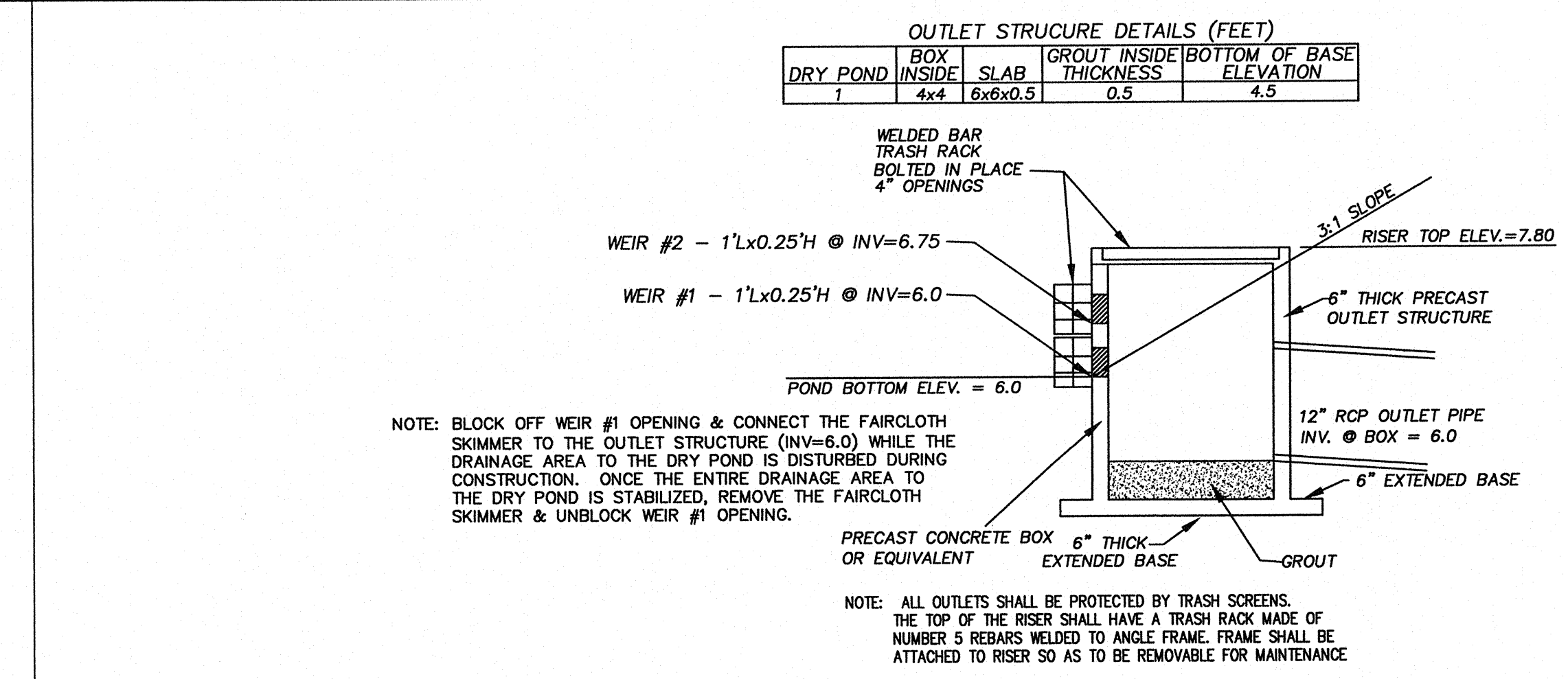
STANDARD DETAIL
PAVEMENT MARKINGS LINE TYPES
 DATE: DECEMBER, 2011
 DRAWN BY: JSR
 CHECKED BY: BDR, P.E.
 SCALE: NOT TO SCALE

CITY OF WILMINGTON
 NORTH CAROLINA
 CITY OF WILMINGTON ENGINEERING
 PO BOX 1810
 WILMINGTON, NC 28402
 (910) 341-7807
 SD 11-01

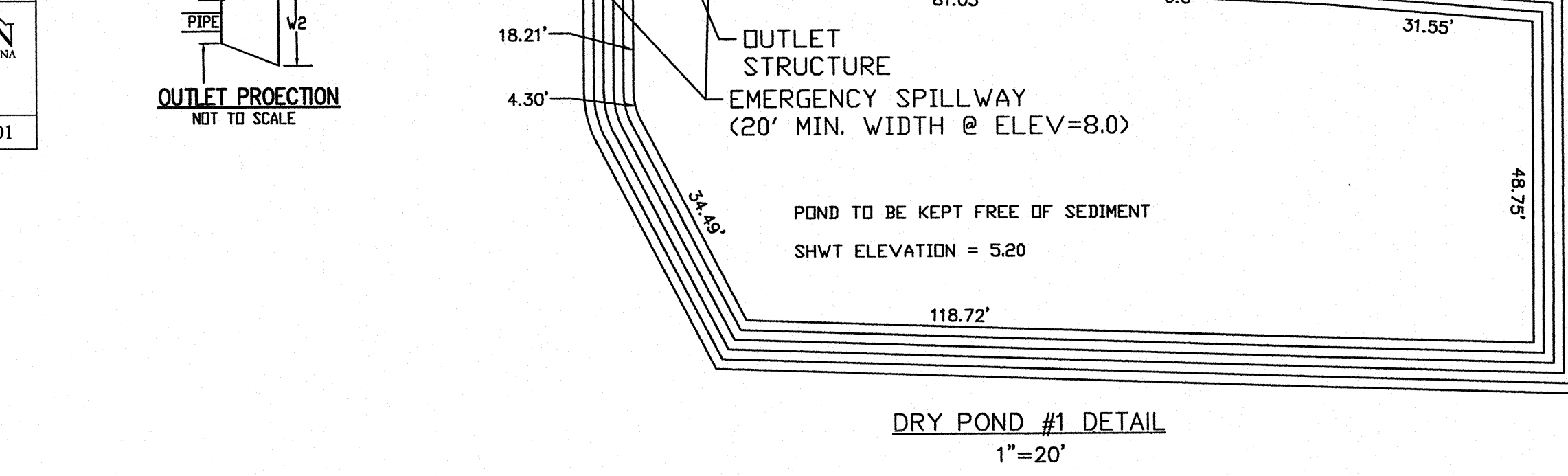


- NOTES:**
- THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
 - WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
 - SIGNS SHALL BE PLACED AT 90° MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
 - ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
 - IF PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
 - ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

STANDARD DETAIL
TREE PROTECTION DURING CONSTRUCTION
 DATE: JULY 2003
 DRAWN BY: JSR
 CHECKED BY: BP, P.E.
 SCALE: NOT TO SCALE

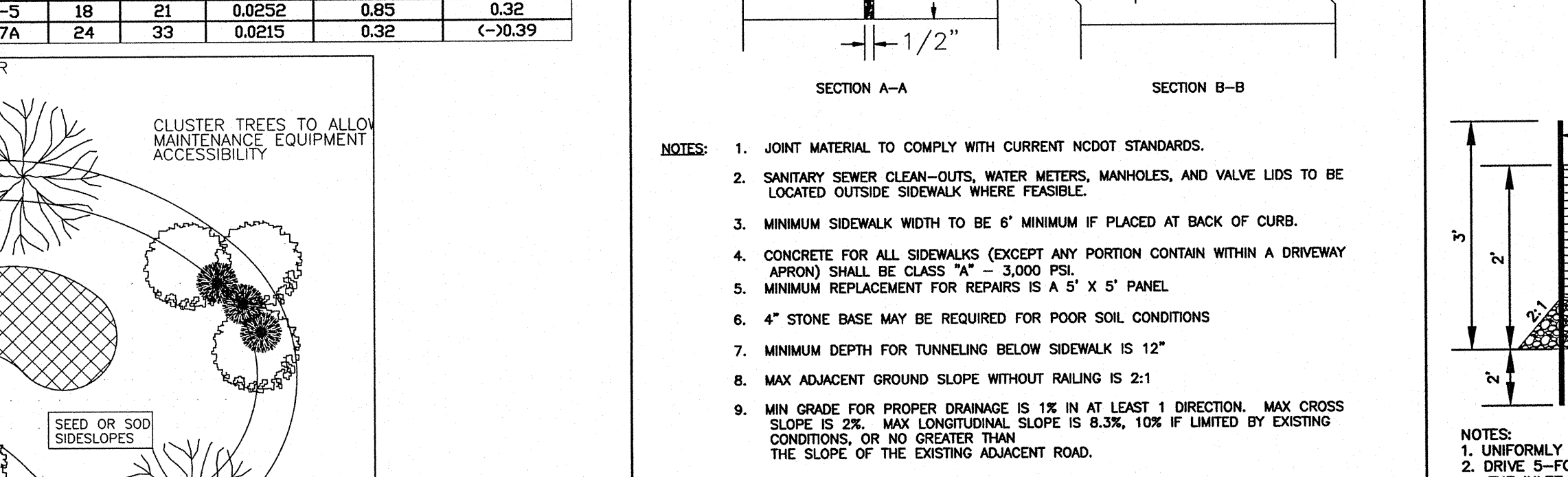


- NOTE: BLOCK OFF WEIR #1 OPENING & CONNECT THE FAIRCLOTH SKIMMER TO THE OUTLET STRUCTURE (INV=6.0) WHILE THE DRAINAGE AREA TO THE DRY POND IS DISTURBED DURING CONSTRUCTION. ONCE THE ENTIRE DRAINAGE AREA TO THE DRY POND IS STABILIZED, REMOVE THE FAIRCLOTH SKIMMER & UNBLOCK WEIR #1 OPENING.
- NOTE: ALL OUTLETS SHALL BE PROTECTED BY TRASH SCREENS. THE TOP OF THE RISER SHALL HAVE A TRASH RACK MADE OF NUMBER 5 REBARS WELDED TO ANGLE FRAME. FRAME SHALL BE ATTACHED TO RISER SO AS TO BE REMOVABLE FOR MAINTENANCE.



PIPE SYSTEM - PROPOSED PIPES

FROM	TO	SIZE (IN)	LENGTH (FT)	SLOPE (FT/FT)	U.S. INVERT (EL)	D.S. INVERT (EL)
DI-3	DI-4	12	17	0.06882	11.25	10.08
DI-4	SDMH-3	12	57	0.0111	9.98	9.35
CB-3	SDMH-3	15	59	.0107	9.95	9.35
SDMH-3	CB-1	18	112	0.0304	9.35	9.01
SDMH-2	SDMH-1	18	51	0.0314	9.01	8.85
SDMH-1	SDMH-1	18	11	0.0573	8.85	8.22
EX. CB#1A	EX. SDMH#1A	12	22	0.0427	23.71	22.77
EX. SDMH#1A	CB-2	12	371	0.0275	20.65	10.44
CB-2	DI-1	15	37	0.0243	9.20	8.30
DI-1	SDMH-1	15	8	0.01	8.30	8.22
SDMH-1	SDMH-7	18	253	0.0158	8.22	4.22
SDMH-7	SDMH-8	18	60	0.0158	4.22	3.27
SDMH-8	SDMH-9	18	27	0.0363	3.27	2.29
DI-2	CB-4	15	90	0.0024	6.47	6.28
CB-4	DRY POND #1	15	86	0.0023	6.28	6.08
CB-7	SDMH-6	15	86	0.0152	7.34	6.03
CB-5	CB-6	15	21	0.0148	6.86	6.55
CB-6	SDMH-6	15	42	0.0124	6.55	6.03
SDMH-6	SDMH-4	15	119	0.0150	6.03	4.25
SDMH-4	DI-5	18	22	0.0223	4.25	3.76
DI-5	DI-6	18	134	0.0217	3.76	0.85
DI-6	SDMH-5	18	21	0.0252	0.85	0.32
SDMH-5	CB #7A	24	33	0.0215	0.32	C-0.39



- NOTES:**
- JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
 - SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
 - MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
 - CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS 74" - 3,000 PSL.
 - MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL.
 - 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS.
 - MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
 - MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
 - MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

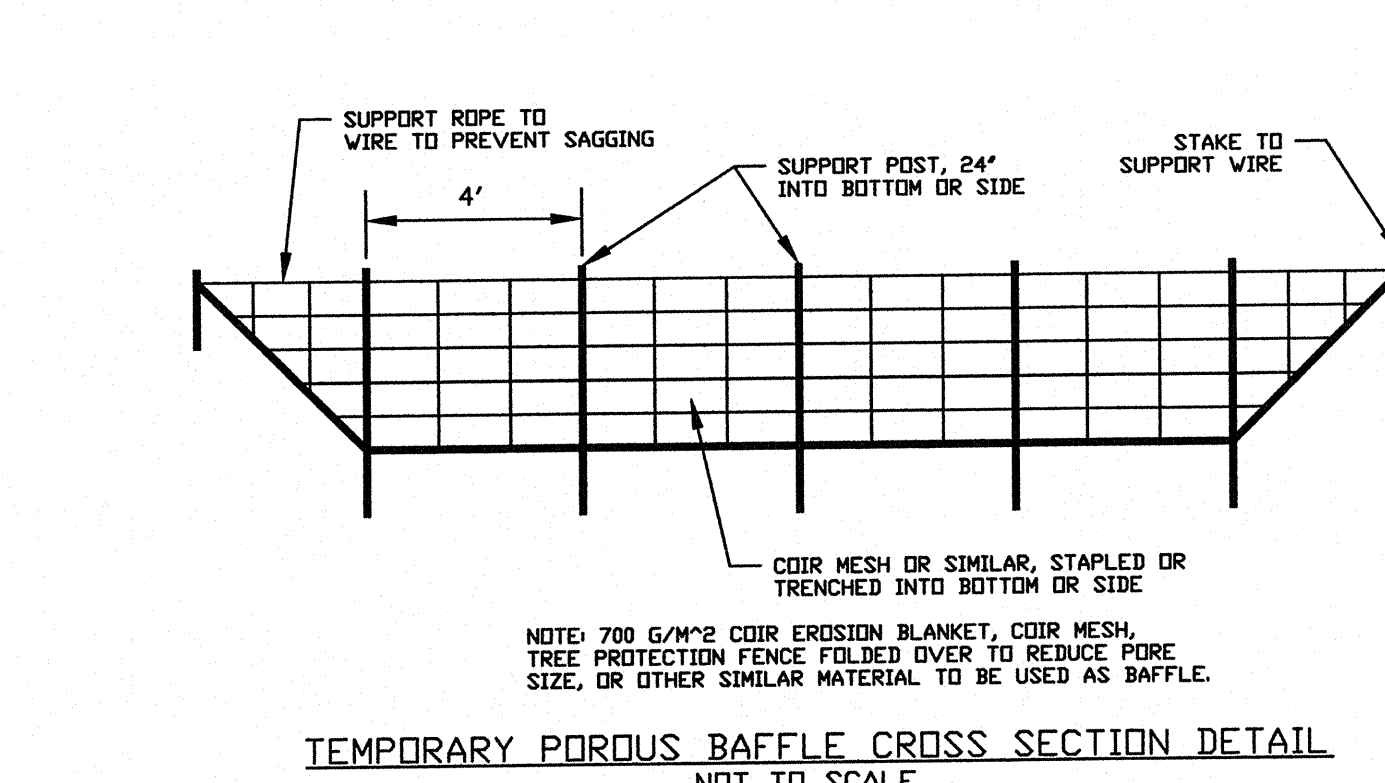
STANDARD DETAIL
SIDEWALK
 DATE: OCTOBER, 2010
 DRAWN BY: PFRSR
 CHECKED BY: PRC
 SCALE: NOT TO SCALE

2.5" Faircloth Skimmer® Surface Drain Cut Sheet
 J. W. Faircloth & Son, Inc.
 www.FairclothSkimmer.com

- Skimmer can be attached to a straight 4" sch 40 pipe through the dam but the pipe may need to be anchored to the bottom at the connection so it is secure. Coupling can be removed and hose attached to outlet using the threaded 2" fitting. Typical methods used: on a metal structure a steel stubout welded on the side at the bottom with a hole cut in it and coupling welded to it that will fit over the hole in the concrete and bolted to the structure with sealant; grout a 4" pvc pipe in a hole in the concrete to connect the skimmer.
- Dimensions are approximate, not intended as plans for construction.
- Barrel (solid, not foam core pipe) should be 1.4 times the depth of water with a minimum length of 6' so the inlet can be pulled to the side for maintenance. If more than 8' long weight may have to be added to inlet to counter the increased buoyancy.
- Inlet tapers down from 2 1/2" maximum inlet to a 1 1/2" barrel and hose. Barrel is smaller to reduce buoyancy and tendency to lift inlet but is sufficient for flow through inlet because of slope. The inlet orifice can be reduced using the plug and cutter provided to control the outflow rate.
- Inlet is 5" pipe between the straps with aluminum screen door for access to the 2 1/2" inlet and orifice inside inlet.
- Capacity 6,234 cubic feet per day maximum with 2 1/2" inlet and 2.5 head. Inlet can be reduced by installing a smaller orifice using the plug and cutter provided to adjust flow rate for the particular basin volume and drawdown time required.
- Shipped assembled. User glues inlet extension and barrel, installs vent, cuts orifice in plug and attaches to outlet pipe or structure. Includes flexible hose, rope, orifice cutter, etc.

NOTE: SEE DRY POND #1-OUTLET STRUCTURE DETAIL FOR SKIMMER DRIFICE INVERT AND TIMELINE FOR INSTALLATION OF SKIMMER.

DRY POND	SKIMMER (IN)	DRIFICE DIAMETER (IN)
1	2.5	0.90



APPROVED CONSTRUCTION PLAN
 Name: *Woods Smith*
 Date: *9-7-17*
 Planning: *Woods Smith*
 Traffic: *Woods Smith*
 Fire: *C. Wale*
 Date: *9/17/17*

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services Engineering Division
 APPROVED STURM WATER MANAGEMENT PLAN
 Date: *9/17/17*
 Signed: *[Signature]*

SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

MALPASS ENGINEERING, P.C.
 1134 SHEPPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone 910-392-8543
 Fax 910-392-8203 License No. C-2820

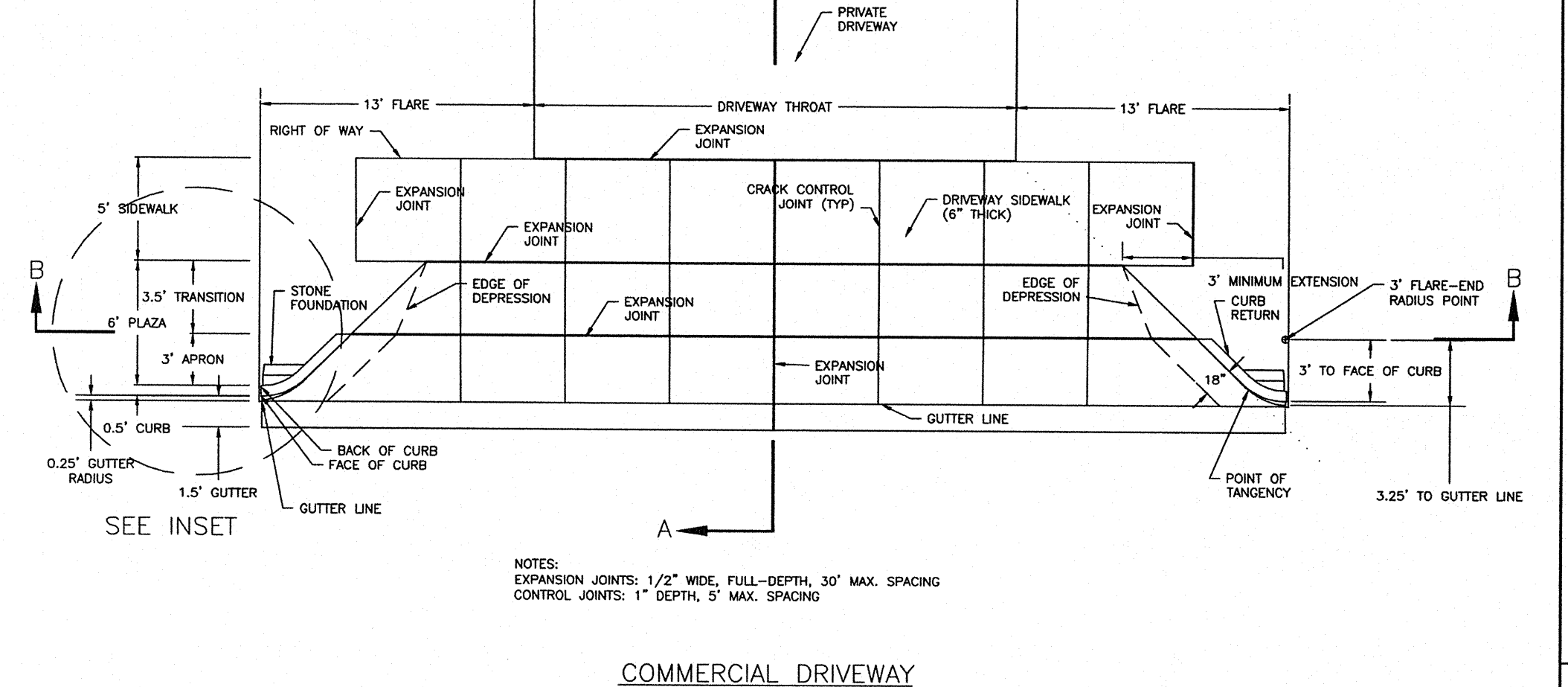
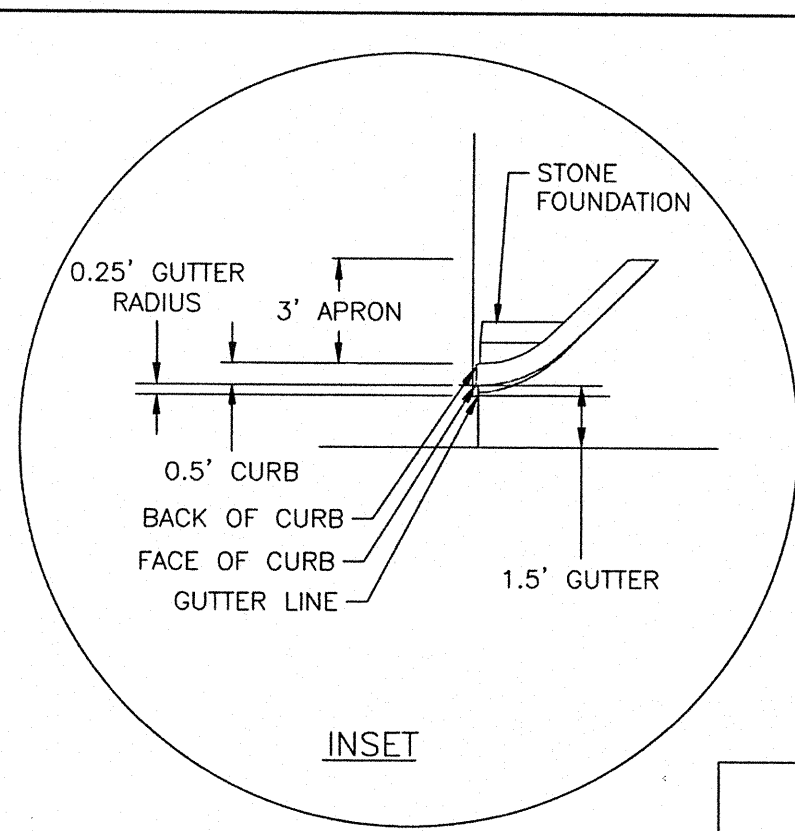
Owner: SOUTH FRONT LLC
 150-A SOUTH THIRD STREET
 WILMINGTON, NC 28401
 Phone: 910-251-5030

DATE: 3-10-11
 SCALE: N.T.S.
 DRAWN: JCB
 CHECKED: JBM
 PROJECT NO: 198
 SHEET NO: 21
 OF: 5

G:\MICROCAD\2015\198\ASOUTH FRONT APARTMENTS (8-3-17).dwg

DATE: FEB. 14, 2017
 DRAWN BY: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

STANDARD DETAIL
COMMERCIAL DRIVEWAY PLAN (VERTICAL CURB)
 1 of 2

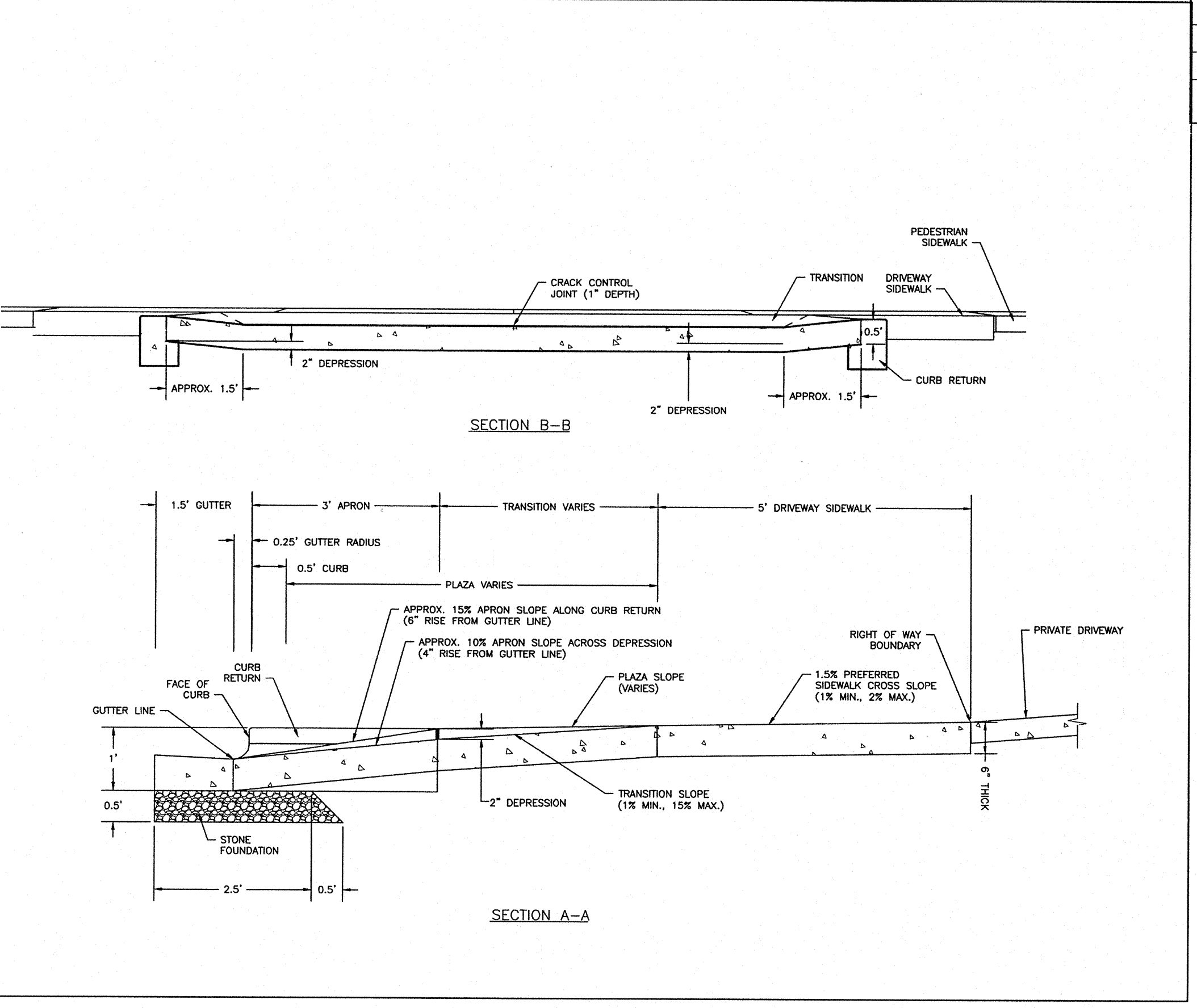


NOTES:
 1. EXPANSION JOINTS: 1/2" WIDE, FULL-DEPTH, 30' MAX. SPACING
 2. 50' MAX EXPANSION JOINT SPACING, 10' MAX CONTRACTION JOINT SPACING
 3. MINIMUM INSTALLATION LENGTH IS 5 FT.
 4. CONCRETE TO BE 3000 PSI MIN
 5. VERTICAL CURB AND GUTTER BASE CAN BE SLOPED 3/4" OR USE A FLAT BASE

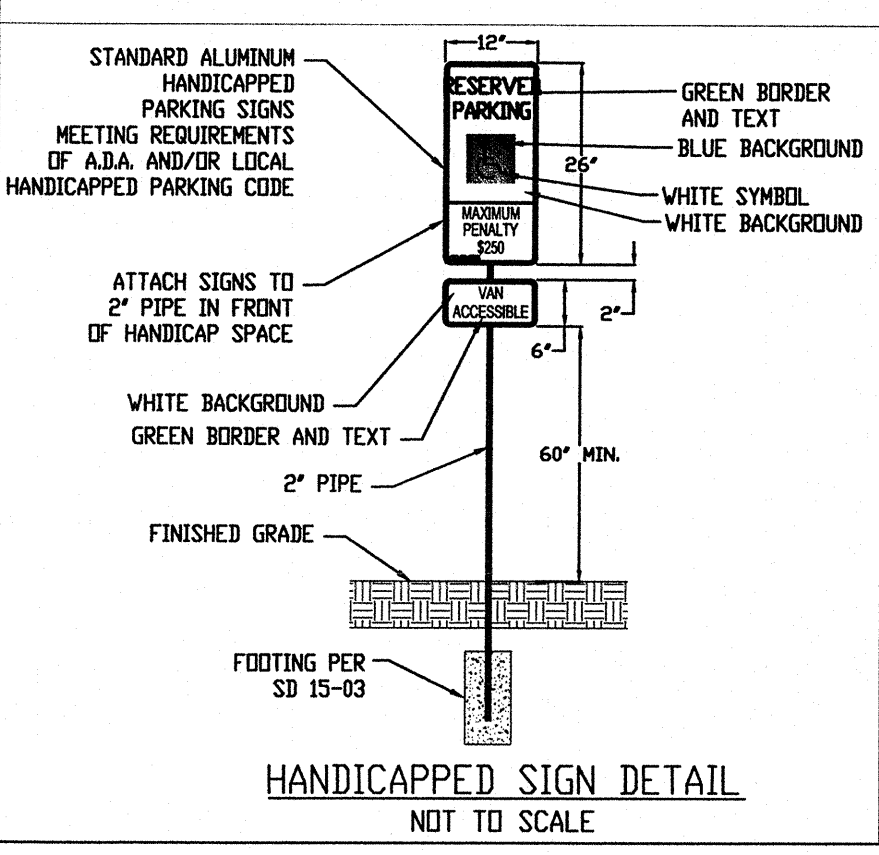
COMMERCIAL DRIVEWAY

DATE: FEB. 14, 2017
 DRAWN BY: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

STANDARD DETAIL
COMMERCIAL DRIVEWAY SECTIONS (VERTICAL CURB)
 2 of 2



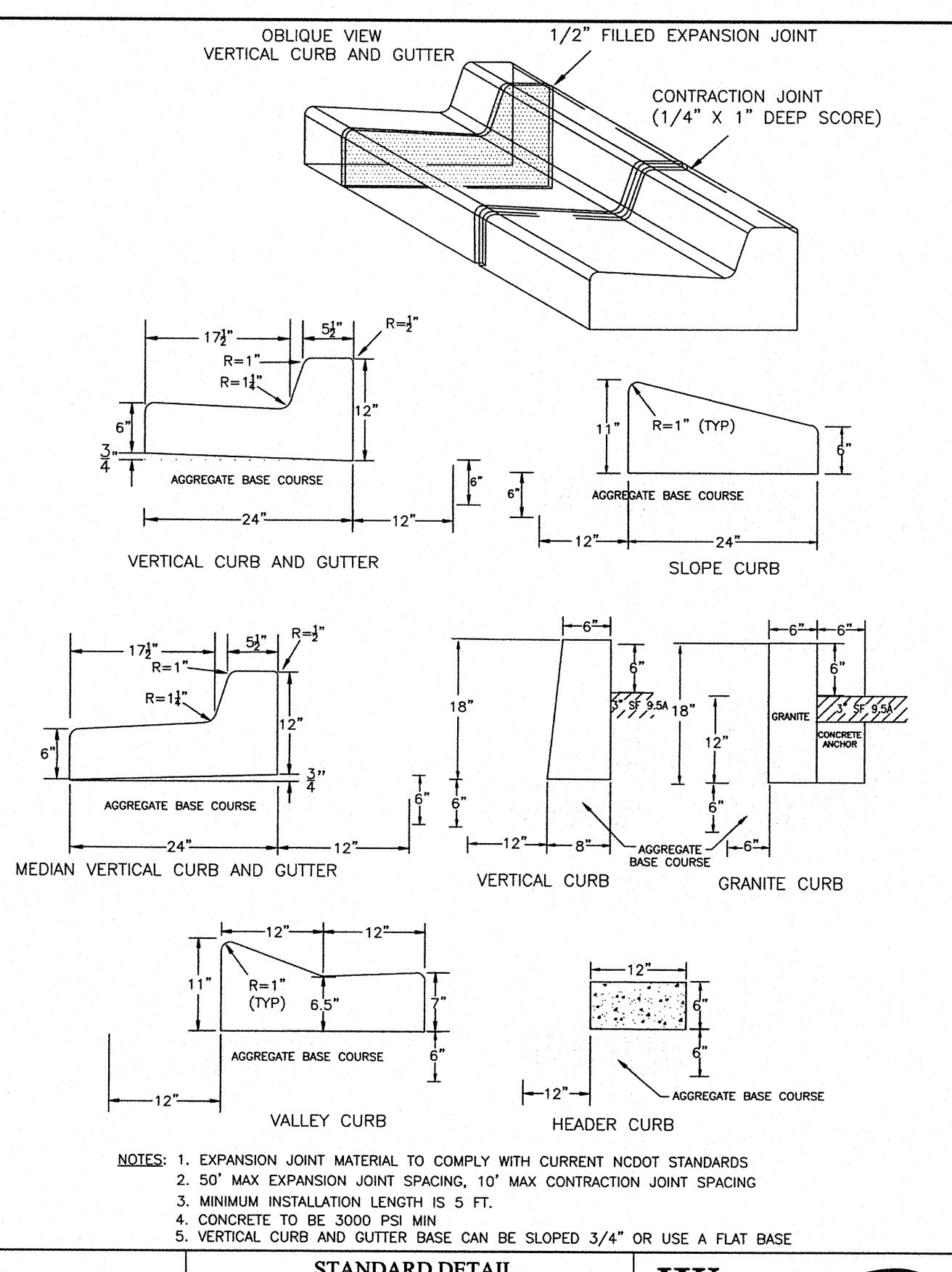
SECTION A-A



HANDICAPPED SIGN DETAIL
 NOT TO SCALE

SD 3-03.3

SD 3-03.4

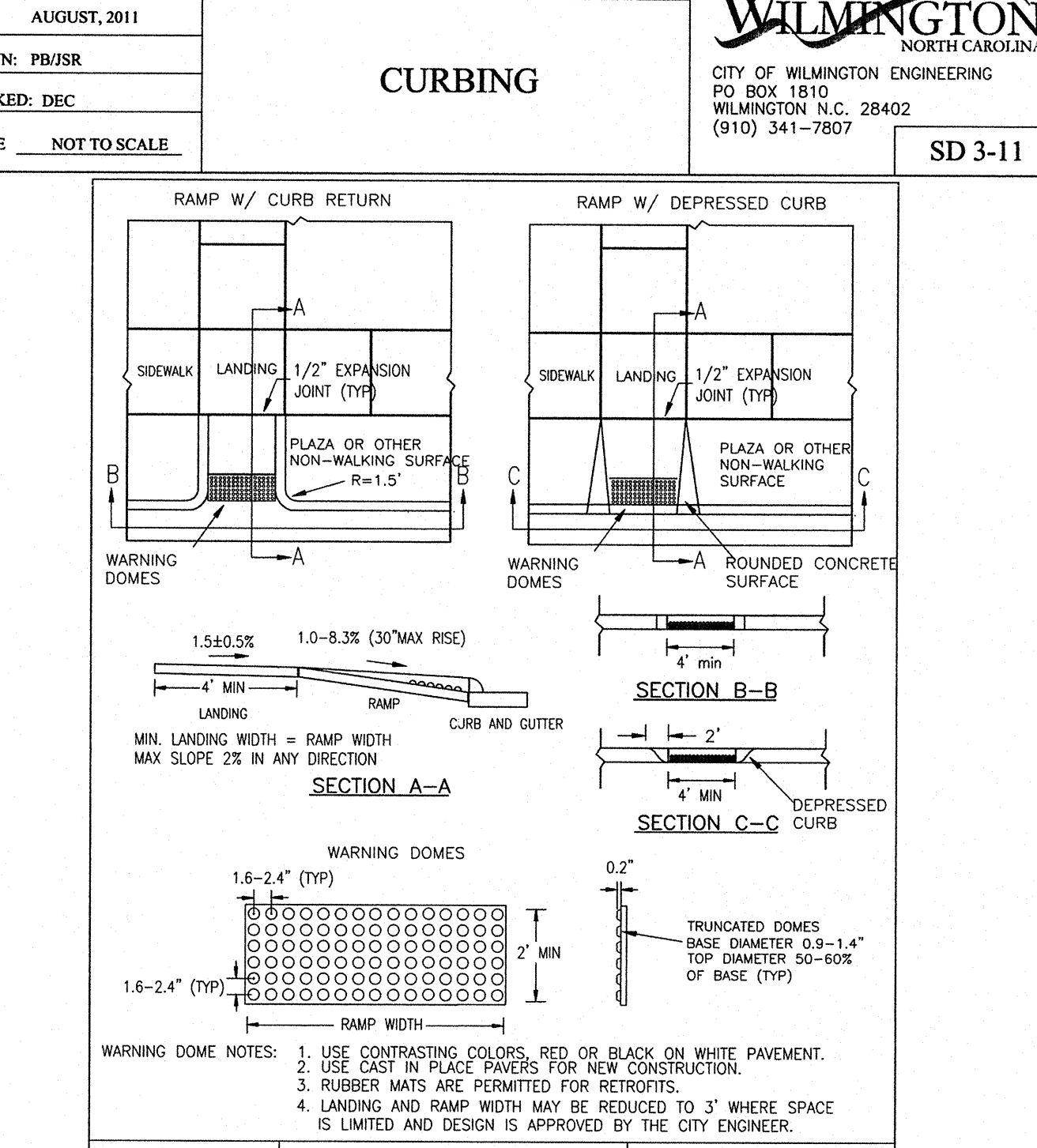


NOTES:
 1. EXPANSION JOINT MATERIAL TO COMPLY WITH CURRENT NC DOT STANDARDS
 2. 50' MAX EXPANSION JOINT SPACING, 10' MAX CONTRACTION JOINT SPACING
 3. MINIMUM INSTALLATION LENGTH IS 5 FT.
 4. CONCRETE TO BE 3000 PSI MIN
 5. VERTICAL CURB AND GUTTER BASE CAN BE SLOPED 3/4" OR USE A FLAT BASE

STANDARD DETAIL
CURBING

DATE: AUGUST, 2011
 DRAWN: PB/JSR
 CHECKED: DEC
 SCALE: NOT TO SCALE

SD 3-11

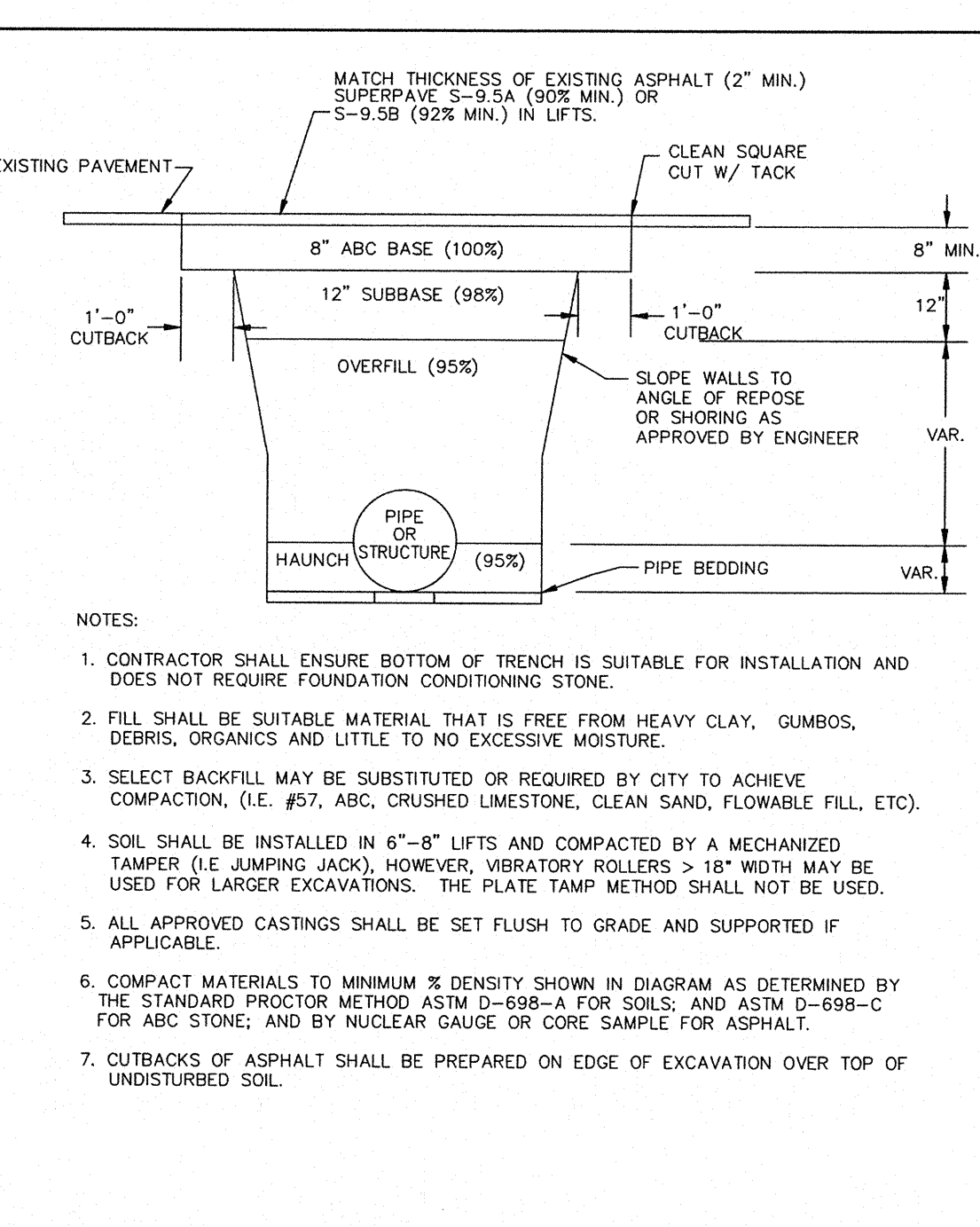


WARNING DOME NOTES:
 1. USE CONTRASTING COLORS, RED OR BLACK ON WHITE PAVEMENT.
 2. USE CAST IN PLACE PAVERS FOR NEW CONSTRUCTION.
 3. RUBBER MATS ARE PERMITTED FOR RETROFFITS.
 4. LANDING AND RAMP WIDTH MAY BE REDUCED TO 3' WHERE SPACE IS LIMITED AND DESIGN IS APPROVED BY THE CITY ENGINEER.

STANDARD DETAIL
PERPENDICULAR CURB RAMP ADJACENT TO PLAZA

DATE: DECEMBER, 2010
 DRAWN: PB/JSR
 CHECKED: DEC
 SCALE: NOT TO SCALE

SD3-08

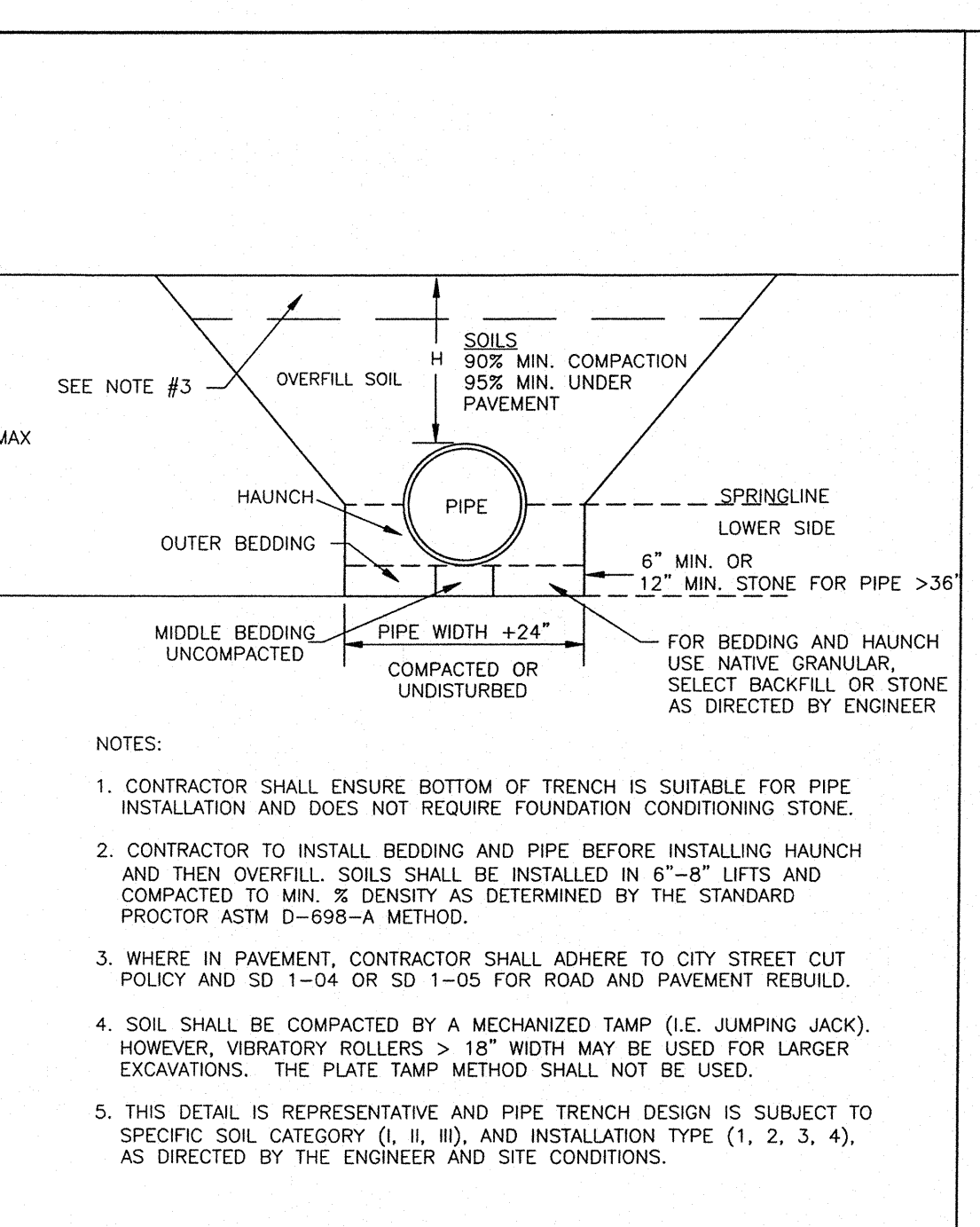


NOTES:
 1. CONTRACTOR SHALL ENSURE BOTTOM OF TRENCH IS SUITABLE FOR INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
 2. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBS, DEBRIS, ORGANICS AND LITTLE TO NO EXCESSIVE MOISTURE.
 3. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
 4. SOIL SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK), HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
 5. ALL APPROVED CASTINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED IF APPLICABLE.
 6. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D-698-A FOR SOILS, AND ASTM D-698-C FOR ABC STONE, AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
 7. CUTBACKS OF ASPHALT SHALL BE PREPARED ON EDGE OF EXCAVATION OVER TOP OF UNDISTURBED SOIL.

STANDARD DETAIL
PAVEMENT REPAIRS- UTILITY CUTS

DATE: MAY, 2013
 DRAWN: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

SD 1-05



NOTES:
 1. CONTRACTOR SHALL ENSURE BOTTOM OF TRENCH IS SUITABLE FOR PIPE INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
 2. CONTRACTOR TO INSTALL BEDDING AND PIPE BEFORE INSTALLING HAUNCH AND THEN OVERFILL SOILS SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED TO MIN. % DENSITY AS DETERMINED BY THE STANDARD PROCTOR ASTM D-698-A METHOD.
 3. WHERE IN PAVEMENT, CONTRACTOR SHALL ADHERE TO CITY STREET CUT POLICY AND SD 1-04 OR SD 1-05 FOR ROAD AND PAVEMENT REBUILD.
 4. SOIL SHALL BE COMPACTED BY A MECHANIZED TAMPER (I.E. JUMPING JACK). HOWEVER, VIBRATORY ROLLERS > 18" WIDTH MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
 5. THIS DETAIL IS REPRESENTATIVE AND PIPE TRENCH DESIGN IS SUBJECT TO SPECIFIC SOIL CATEGORY (I, II, III), AND INSTALLATION TYPE (1, 2, 3, 4), AS DIRECTED BY THE ENGINEER AND SITE CONDITIONS.

STANDARD DETAIL
PIPE TRENCH TYPICAL

DATE: MAY, 2013
 DRAWN: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

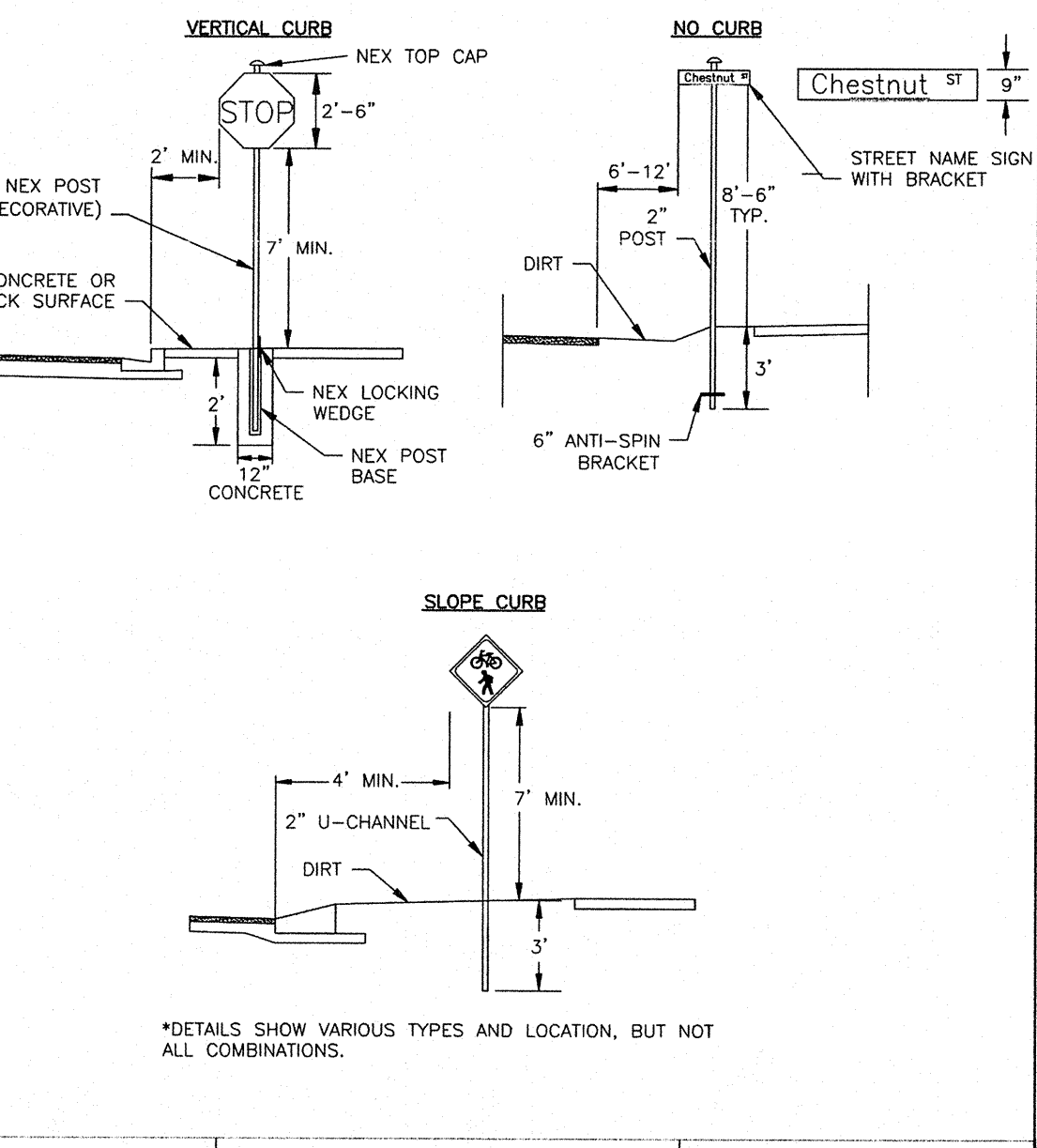
SD 1-07

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 (i.e. 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, 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 most-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.

LOCATION

- Sign locations depend on the edge of road condition. Generally, signs shall be a minimum 2' from face of a vertical curb, 4' from front of slope face curb, and 6' from edge of pavement without curb. Signs shall not be located more than 12' from any of these locations.
- Sign posts installed in dirt shall be buried a minimum of 36". Octagonal posts shall utilize an anti-spin device, 6" in length minimum. Sign posts installed in concrete or brick shall utilize a base cast in concrete 24" x 12" diameter.
- Street name signs shall be installed 8-6" from the ground to the bottom of the sign. Street name signs co-located with STOP signs shall be installed above the STOP sign. A 5' space shall be maintained between the STOP sign and a Street name sign that is parallel to the STOP sign face. All other signs should be mounted per MUTCD guidelines for Urban Areas.



STANDARD DETAIL
STREET SIGNS AND LOCATION

DATE: NOVEMBER, 2011
 DRAWN: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

SD 15-03

STANDARD DETAIL
STREET SIGNS AND LOCATION

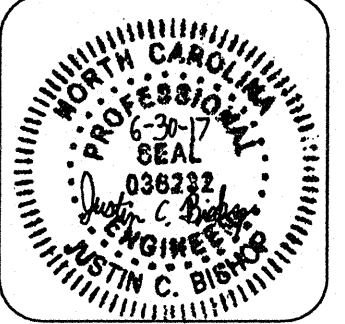
DATE: NOVEMBER, 2011
 DRAWN: JSR
 CHECKED BY: D.E.C., P.E.
 SCALE: NOT TO SCALE

SD 15-03

Approved Construction Plan
 Name: *Nicole Smith* Date: *9-7-17*
 Planning: *Nicole Smith* 9-7-17
 Traffic: *W. Smith* 9-7-17
 Fire: *C. Wain* 9/7/17

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: *9/11/17* *9/11/2017*
 Signed: *[Signature]*

DETAIL SHEET
SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA



MALPASS ENGINEERING, P.C.
 1134 SHIPYARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone 910-392-6843
 Fax 910-392-6203 License No. C-2320

Owner: SOUTH FRONT LLC
 1510-A SOUTH THIRD STREET
 WILMINGTON, NC 28401
 PHONE: 910-251-5030

DATE: 6-30-17
 SCALE: N.T.S.
 DRAWN: JCB
 CHECKED: JBM
 PROJECT NO: 198
 SHEET NO: 2 of 2
 OF: 5

REV. NO.	DESCRIPTION	DATE

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

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

GENERAL NOTES:
 USE CLASS "B" CONCRETE THROUGHOUT.
 PROVIDE ALL CATCH BASINS OVER 2'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.06.
 OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.
 USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.
 IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.
 USE TYPE "E", "F" AND "G" GRATES UNLESS OTHERWISE INDICATED.
 FOR 8"-9" IN HEIGHT OR LESS USE 6" WALLS AND BOTTOM SLAB. OVER 9"-10" IN HEIGHT USE 8" WALLS AND BOTTOM SLAB. ADJUST QUANTITIES ACCORDINGLY.
 CONSTRUCT WITH PIPE CHAINS MATCHING.
 CHAMFER ALL EXPOSED CORNERS 1".
 DRAWING NOT TO SCALE.

DETAIL SHOWING METHOD OF RISER CONSTRUCTION

SHEET 1 OF 2
840.02

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

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

DETAIL SHOWING TYPES OF GRATES USE ACCORDING TO WATER FLOW.

SECTION A-A, SECTION B-B, TYPE - E, TYPE - F, SECTION A-A

DIMENSIONS OF BOX AND PIPE		CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE SPAN	WIDTH	MIN. HEIGHT	CONC.	REINFC.	FORMS
3'-0"	2'-2"	3'-0"	0.225	0.772	0.515
18"	3'-0"	2'-2"	0.233	0.859	0.523
18"	3'-0"	2'-2"	0.235	0.887	0.533
30"	3'-0"	2'-2"	0.235	1.001	0.559
30"	3'-0"	2'-2"	0.235	1.053	0.582
30"	3'-0"	2'-2"	0.235	1.128	0.612
48"	3'-0"	2'-2"	0.235	1.238	0.643
48"	3'-0"	2'-2"	0.235	1.352	0.672
48"	3'-0"	2'-2"	0.235	1.480	0.703
64"	3'-0"	2'-2"	0.235	1.623	0.735
64"	3'-0"	2'-2"	0.235	1.780	0.768

SHEET 2 OF 2
840.03

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

ENGLISH STANDARD DRAWING FOR CONCRETE CATCH BASIN 12" THRU 54" PIPE

EXPANSION JOINTS

CURB AND GUTTER WITH CATCH BASIN ON STEEP GRADES

SECTION R-R, SECTION S-S, DOWEL

DIMENSIONS OF BOX AND PIPE		CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE SPAN	WIDTH	MIN. HEIGHT	CONC.	REINFC.	FORMS
3'-0"	2'-2"	3'-0"	0.225	0.772	0.515
18"	3'-0"	2'-2"	0.233	0.859	0.523
18"	3'-0"	2'-2"	0.235	0.887	0.533
30"	3'-0"	2'-2"	0.235	1.001	0.559
30"	3'-0"	2'-2"	0.235	1.053	0.582
30"	3'-0"	2'-2"	0.235	1.128	0.612
48"	3'-0"	2'-2"	0.235	1.238	0.643
48"	3'-0"	2'-2"	0.235	1.352	0.672
48"	3'-0"	2'-2"	0.235	1.480	0.703
64"	3'-0"	2'-2"	0.235	1.623	0.735
64"	3'-0"	2'-2"	0.235	1.780	0.768

SHEET 2 OF 2
840.02

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

ENGLISH STANDARD DRAWING FOR CONCRETE DROP INLET 12" THRU 30" PIPE

SECTION X-X, SECTION Y-Y, DOWEL

DIMENSIONS OF BOX & PIPE		CUBIC YARDS CONC. IN BOX		DEDUCTIONS FOR ONE PIPE	
PIPE SPAN	WIDTH	MIN. HEIGHT	CONC.	REINFC.	FORMS
12"	3'-0"	2'-0"	0.222	0.222	0.015
15"	3'-0"	2'-0"	0.222	0.222	0.015
18"	3'-0"	2'-0"	0.222	0.222	0.015
24"	3'-0"	2'-0"	0.222	0.222	0.015
30"	3'-0"	2'-0"	0.222	0.222	0.015

SHEET 1 OF 1
840.14

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

ENGLISH STANDARD DRAWING FOR FRAME, GRATES, AND HOOD FOR USE ON STANDARD CATCH BASIN

FRAME, GRATE, & HOOD ASS'Y

SECTION AA, SECTION BB, SECTION LL, SECTION MM, SECTION NN, SECTION PP, SECTION KK, SECTION RR

SHEET 1 OF 2
840.03

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

ENGLISH STANDARD DRAWING FOR DROP INLET FRAME AND GRATES FOR USE WITH STD. DWS 840.14 AND 840.15

SECTION G-G, SECTION H-H, SECTION E-E, SECTION F-F

SHEET 1 OF 1
840.16

Approved Construction Plan
 Name _____ Date 9-7-17
 Planning *W. Smith*
 Traffic *W. Smith*
 Fire *C. White* 9/2/17

WILMINGTON NORTH CAROLINA
 Public Services Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: 9/17/17
 Signed: *[Signature]*

REV. NO.	DESCRIPTION	DATE

DETAIL SHEET
 SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

MALPASS ENGINEERING, P.C.
 1134 SHEPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone: 910-362-6545 Fax: 910-362-6203 License No. C-2320

Owner: SOUTH FRONT LLC
 1510-A SOUTH THIRD STREET
 WILMINGTON, NC 28401
 PHONE: 910-251-5030

DATE: 6-30-17
 SCALE: N.T.S.
 DRAWN: JCB
 CHECKED: JBM
 PROJECT NO: 190
 SHEET NO: 2K
 OF: 5

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

ENGLISH STANDARD DRAWING FOR BRICK/CONCRETE/PRECAST CONCRETE ANCHORAGE FOR FRAMES

BRICK MASONRY CONSTRUCTION
CONCRETE CONSTRUCTION
PRECAST CONCRETE CONSTRUCTION

DETAIL SHOWING ANCHORAGE OF FRAME FOR GRATED DROP INLET

NOTE: CONSTRUCT GRATED DROP INLET TO COINCIDE WITH NORMAL OR SUPERELEVATED SHOULDER OR PAVEMENT SLOPE.

MASONRY ANCHOR
3/8" DIA. BOLT WITH PLATE

CONCRETE ANCHOR
3/8" DIA. BENT BAR

PRECAST CONCRETE ANCHOR
3/8" DIA. BENT BAR

FRAME AND GRATE INSTALLATION FOR NORMAL CROWN AND SUPERELEVATED SECTIONS

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

ENGLISH STANDARD DRAWING FOR BRICK/CONCRETE/PRECAST CONCRETE ANCHORAGE FOR FRAMES

SHEET 1 OF 1
840.25

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

ENGLISH STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

GENERAL NOTES:
 USE STANDARD OR JUNBO BRICK FOR WALL CONSTRUCTION. SOLID CONCRETE BRICK OR BLOCK ARE OPTIONAL WALL CONSTRUCTION MATERIAL.
 PRECAST UNITS MADE OF CLASS "AA" CONCRETE MAY BE USED IN LIEU OF BRICK MASONRY CONSTRUCTION. SUBMIT DESIGN OF PRECAST UNITS FOR APPROVAL PRIOR TO CONSTRUCTION.
 INCLUDE ALL ADJUSTMENTS TO WALLS, SLABS OR REINFORCING MATERIAL IN THE UNIT PRICE BID FOR EACH UNIT.
 INSTALL OPTIONAL MANHOLE IN POSITION AS DIRECTED BY THE ENGINEER. CUT OR BEND ALL REBAR CROSSING THIS OPENING TO ALLOW 2" MINIMUM CONCRETE COVERAGE. ENCLOSE THE OPENING WITH 6" A" BARS TIED TO THE REBAR MAT AND SET SO A MINIMUM OF 3" CONCRETE COVER IS ATTAINED. REFERENCE STD. NO. 840.54 FOR MANHOLE INFORMATION.
 PROVIDE JUNCTION BOXES WITH MANHOLES OVER 3'-6" IN DEPTH WITH STEPS PLACED ON 12" CENTERS. REFERENCE STD. NO. 840.66.
 SPACE DOWEL "C" BARS AT A MAXIMUM OF 12" CENTERS.
 MAXIMUM DEPTH OF THIS UNIT AS SHOWN IS 12".
 CONSTRUCT THE JUNCTION BOX IN ACCORDANCE WITH SECTIONS 830, 832, 834 AND 840 OF THE STANDARD SPECIFICATIONS.

BILL OF MATERIAL

BAR	QTY.	SIZE	LENGTH	WEIGHT
A	8	#6	1'-2"	9.7
B	14	#6	3'-4"	63.3
C	20	#4	1'-0"	26.1
Y	14	#6	1'-13/4"	101.5
STEEL TOTAL WEIGHT				217.6
CU. YDS. CLASS "AA" CONC.				2.6
CU. YDS. BRICK/FT. HT. (8")				0.53
CU. YDS. BRICK/FT. HT. (12")				0.94

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

ENGLISH STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

SHEET 2 OF 2
840.34

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

ENGLISH STANDARD DRAWING FOR BRICK JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

PLAN
SECTION X-X
SECTION Y-Y
OUTLET ELEVATION
SECTION C-C OR D-D
DOWEL

GENERAL NOTES:
 CHAMFER ALL EXPOSED CORNERS 1".
 USE CLASS "A" CONCRETE THROUGHOUT.
 USE #4 BAR DOWELS AT 12" CENTERS.
 MORTAR JOINTS 1/2" x 3/8" THICK.
 CONCAVE TOO ALL EXPOSED JOINTS.
 USE FORMS TO CONSTRUCT THE BOTTOM SLAB.
 JUNBO BRICK WILL BE PERMITTED. CONCRETE BRICK OR 4" SOLID CONCRETE BLOCKS MAY BE USED IN LIEU OF CLAY BRICK.
 FOR 6'-0" IN HEIGHT OR LESS, USE 8" WALL OVER 6'-0" IN HEIGHT, USE 12" WALL TO 6'-0" FROM TOP OF WALL, AND 8" WALL FOR THE REMAINING 6'-0". ADJUST DIMENSIONS AND QUANTITIES ACCORDINGLY.
 IF REINFORCED CONCRETE PIPE IS SET IN BASE SLAB OF BOX, ADD TO BASE AS SHOWN ON STANDARD NO. 840.00.
 PROVIDE ALL JUNCTION BOXES OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTERS IN ACCORDANCE WITH STD. NO. 840.66.
 ADJUST THE STEEL, CONCRETE AND BRICK MASONRY QUANTITIES TO INCLUDE THE ADDITION OF THE MANHOLE (I.E. DIAGONAL BARS SPACERS) AND OPENING IN TOP SLAB. ADDITIONAL VARIABLE HEIGHT BRICK MASONRY, OPENING IN TOP SLAB.
 MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

DIMENSIONS OF BOX AND PIPE				REINFORCEMENT BARS		TOP SLAB DIMENSIONS		CURIC YARDS		DEDUCTIONS FOR ONE PIPE CU. YDS.	
PIPE	SPAN	WIDTH	HEIGHT	NO.	LENGTH	E	F	CONC.	BRICK MASONRY	TOP & BOTTOM HEIGHT	C.B. R.C.
12"	2'-0"	2'-0"	2'-3"	12	3'-1"	3'-4"	3'-4"	0.412	0.591	0.283	0.020
15"	2'-0"	2'-0"	2'-6"	12	3'-1"	3'-4"	3'-4"	0.412	0.657	0.283	0.031
18"	2'-4"	2'-4"	2'-9"	14	3'-5"	3'-8"	3'-8"	0.486	0.814	0.290	0.044
24"	3'-0"	3'-0"	3'-3"	16	4'-1"	4'-4"	4'-4"	0.695	1.176	0.362	0.078
30"	3'-4"	3'-4"	3'-9"	16	4'-5"	4'-8"	4'-8"	0.907	1.491	0.396	0.122
36"	4'-0"	4'-0"	4'-3"	20	5'-1"	5'-4"	5'-4"	1.053	1.969	0.461	0.178
42"	4'-8"	4'-8"	4'-9"	22	5'-9"	6'-0"	6'-0"	1.333	2.508	0.527	0.240
48"	5'-4"	5'-4"	5'-3"	28	6'-5"	6'-8"	6'-8"	1.646	2.940	0.560	0.313
54"	5'-10"	5'-10"	5'-9"	28	6'-11"	7'-2"	7'-2"	1.902	3.502	0.609	0.386
60"	6'-6"	6'-6"	6'-3"	30	7'-7"	7'-10"	7'-10"	2.272	4.113	0.658	0.480
66"	7'-1"	7'-1"	6'-9"	32	8'-2"	8'-5"	8'-5"	2.624	4.776	0.708	0.590

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

ENGLISH STANDARD DRAWING FOR BRICK JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE

SHEET 1 OF 1
840.32

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

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

PLAN OF FRAME
PLAN OF COVER
SECTION A-A
SECTION B-B

SOLID COVER SHOWN PERFORATED. PERFORATED AVAILABLE IF SPECIFIED.
 STATE USE OF SYSTEM ON COVER (I.E.: SEWER, STORM DRAIN, ELECTRICAL)

MINIMUM WEIGHTS - LBS.
 FRAME - 180
 COVER - 120
 TOTAL - 300

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

ENGLISH STANDARD DRAWING FOR MANHOLE FRAME AND COVER

SHEET 1 OF 1
840.54

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

ENGLISH STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

PLAN OF TOP SLAB
PLAN OF BOTTOM SLAB
DOWEL "C"
INSET "A"
SECTION X-X

NOTE 1: CONSTRUCT SECTION "B" OF THE PROPOSED WALL 8" THICK, AND SECTION "A" 12" THICK.
 NOTE 2: IF PROPOSED STRUCTURE EXCEEDS 12'-0" VERTICAL HEIGHT A DESIGN WILL BE REQUIRED FOR APPROVAL.
 NOTE 3: USE SINGLE MAT REINFORCING STEEL, EXCEPT DOUBLE MAT STEEL MAY BE USED IN LIEU OF HOOK BARS IN BASE SLAB.

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

ENGLISH STANDARD DRAWING FOR TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER

SHEET 1 OF 2
840.34

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

ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS

PLAN
ELEVATION
CAST IRON
CAST IRON
PLAN
ELEVATION
REINFORCING STEEL

NOTE: DO NOT USE IN SANITARY SEWER MANHOLES.

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

ENGLISH STANDARD DRAWING FOR DRAINAGE STRUCTURE STEPS

SHEET 1 OF 1
840.66

Approved Construction Plan

Name: _____ Date: _____

Planning: *Michael Smith* 9-17

Traffic: *W. Schuler* 9-17

Fire: *C. Webb* 9/2/17

CITY OF WILMINGTON NORTH CAROLINA

Public Services Engineering Division

APPROVED STORMWATER MANAGEMENT PLAN

Date: 9/17/17 Permit # 201102283

Signed: *[Signature]*

REV. NO.	DESCRIPTION	DATE

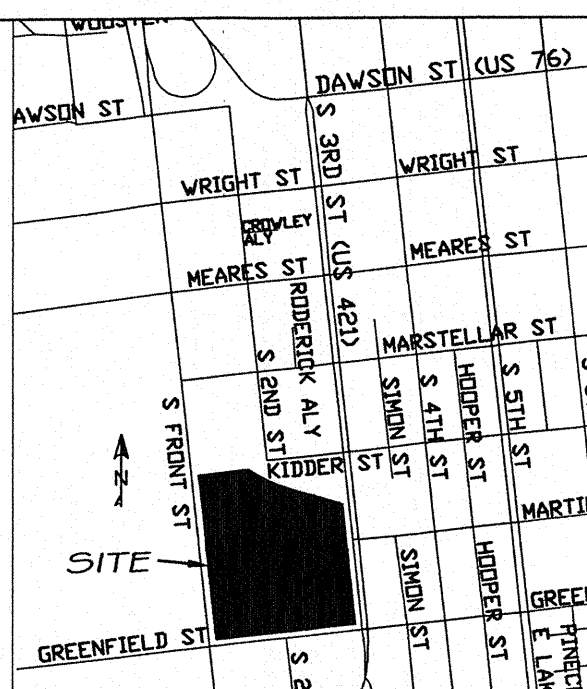
DETAIL SHEET

SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

MALPASS ENGINEERING, P.C.
 1134 SHEPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone 910-392-8243
 Fax 910-392-5203 License No. C-2320

Owner: SOUTH FRONT LLC
 1510-A SOUTH THIRD STREET
 WILMINGTON, NC 28401
 PHONE: 910-251-5030

DATE: 6-30-17
 SCALE: N.T.S.
 DRAWN: JCB
 CHECKED: JEM
 PROJECT NO: 198
 SHEET NO: 2L
 OF: 5



VICINITY MAP
SCALE: 1" = 1000'

- LEGEND**
- OPEN SPACE (ACTIVE RECREATION SPACE)
 - OPEN SPACE (RECREATION SPACE)
 - OPEN SPACE
 - INTERIOR SHADING
 - STREET YARD
 - EXISTING TREE
 - EXISTING TREE (TO BE REMOVED)

STREET YARD ALONG SOUTH 3RD STREET
STREET FRONTAGE = 668' - 38.67' = 389.33 FT
REQUIRED STREET YARD = 18' x 389.33' = 10,607.94 SF
PROVIDED STREET YARD = 6,983.35' + 3,727.86' = 10,651.21 SF
IMPERVIOUS AREA = 421.27' + 1,172.38' = 1,593.65 SF
PERCENT IMPERVIOUS = 1,593.65 / 10,651.21 SF * 100% = 14.97%

STREET YARD ALONG GREENFIELD STREET
STREET FRONTAGE = 726.58' - 25.0' - 20.53' = 681.05 FT
REQUIRED STREET YARD = 18' / 2 * 681.05' = 6,129.45 SF
PROVIDED STREET YARD = 1,193.28' + 1,765.36' + 3,115.12' = 6,073.96 SF
IMPERVIOUS AREA = 329.06' + 841.3' = 1,170.36 SF
PERCENT IMPERVIOUS = 1,170.36 / 6,073.96 SF * 100% = 19.27%

STREET YARD ALONG SOUTH FRONT STREET
STREET FRONTAGE = 877.99' - 21.15' - 19.45' - 9' = 807.99 FT
REQUIRED STREET YARD = 18' / 2 * 807.99' = 7,271.91 SF
PROVIDED STREET YARD = 1,871.06' + 3,371.96' + 2,039.23' = 7,282.25 SF
IMPERVIOUS AREA = 570.53' + 436.44' = 1,006.97 SF
PERCENT IMPERVIOUS = 1,006.97 / 7,282.25 SF * 100% = 13.83%

OPEN SPACE
REQUIRED OPEN SPACE = 0.35 * 570,230.91 = 199,580.82 SF = 4.581 ACRES

OPEN SPACE A = 19,663.76 SF = 0.451 ACRES (RECREATION SPACE)
OPEN SPACE B = 10,822.16 SF = 0.248 ACRES
OPEN SPACE C = 11,938.62 SF = 0.274 ACRES
OPEN SPACE D = 11,239.47 SF = 0.258 ACRES
OPEN SPACE E = 7,354.18 SF = 0.169 ACRES (ACTIVE RECREATION SPACE)
OPEN SPACE F = 16,669.99 SF = 0.369 ACRES
OPEN SPACE G = 11,463.36 SF = 0.263 ACRES
OPEN SPACE H = 7,698.59 SF = 0.175 ACRES
OPEN SPACE I = 8,958.71 SF = 0.206 ACRES (ACTIVE RECREATION SPACE)
OPEN SPACE J = 16,533.37 SF = 0.380 ACRES (ACTIVE RECREATION SPACE)
OPEN SPACE K = 9,834.09 SF = 0.226 ACRES (ACTIVE RECREATION SPACE)
OPEN SPACE L = 1,427.22 SF = 0.033 ACRES
OPEN SPACE M = 11,072.23 SF = 0.254 ACRES
OPEN SPACE N = 1,613.55 SF = 0.037 ACRES
OPEN SPACE O = 1,617.30 SF = 0.037 ACRES
OPEN SPACE P = 18,188.84 SF = 0.417 ACRES
OPEN SPACE Q = 8,569.62 SF = 0.197 ACRES (ACTIVE RECREATION SPACE)
OPEN SPACE R = 3,868.96 SF = 0.089 ACRES (RECREATION SPACE)
OPEN SPACE S = 23,011.99 SF = 0.528 ACRES (RECREATION SPACE)

INTERIOR SHADING
PARKING FACILITY AREA = 183,971.91 SF
REQUIRED INTERIOR SHADING (IS) = 0.2 * 183,971.91 SF = 36,794.38 SF

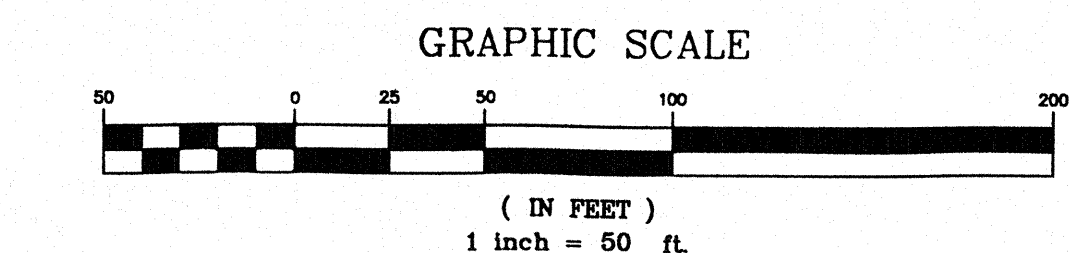
- IS-1 = 507.99 SF
 - IS-2 = 707.00 SF
 - IS-3 = 707.00 SF
 - IS-4 = 984.34 SF
 - IS-5 = 707.00 SF
 - IS-6 = 488.68 SF
 - IS-7 = 707.00 SF
 - IS-8 = 360.71 SF
 - IS-9 = 4,304.30 SF
 - IS-10 = 542.14 SF
 - IS-11 = 1,385.44 SF
 - IS-12 = 562.58 SF
 - IS-13 = 632.26 SF
 - IS-14 = 1,382.55 SF
 - IS-15 = 4,289.90 SF
 - IS-16 = 695.48 SF
 - IS-17 = 880.18 SF
 - IS-18 = 663.01 SF
 - IS-19 = 672.92 SF
 - IS-20 = 694.46 SF
 - IS-21 = 834.52 SF
 - IS-22 = 764.72 SF
 - IS-23 = 208.22 SF
 - IS-24 = 358.53 SF
 - IS-25 = 871.70 SF
 - IS-26 = 637.93 SF
 - IS-27 = 587.28 SF
 - IS-28 = 816.58 SF
 - IS-29 = 786.12 SF
 - IS-30 = 343.97 SF
 - IS-31 = 478.42 SF
 - IS-32 = 4,348.11 SF
 - IS-33 = 302.30 SF
 - IS-34 = 702.69 SF
 - IS-35 = 625.70 SF
 - IS-36 = 609.83 SF
 - IS-37 = 2,050.36 SF
 - IS-38 = 769.36 SF
 - IS-39 = 549.21 SF
 - IS-40 = 637.11 SF
 - IS-41 = 625.70 SF
 - IS-42 = 577.90 SF
 - IS-43 = 587.81 SF
 - IS-44 = 290.61 SF
 - IS-45 = 236.93 SF
 - IS-46 = 346.82 SF
 - IS-47 = 353.50 SF
 - IS-48 = 353.50 SF
- TOTAL PROVIDED INTERIOR SHADING = 40,554.09 SF

TOTAL PROVIDED OPEN SPACE = 200,854.21 SF = 4.611 ACRES
% OF SITE AS OPEN SPACE = 200,854.21 / 570,230.91 * 100% = 35.22%

TOTAL OPEN SPACE AS RECREATION SPACE = 97,793.78 SF = 2.245 ACRES
% OF OPEN SPACE AS RECREATION SPACE = 97,793.78 / 200,854.21 * 100% = 48.69%

ACTIVE RECREATION SPACE INSIDE = 9,007.69 SF = 0.207 ACRES
TOTAL ACTIVE RECREATION SPACE = 9,007.69 + 7,354.18 + 8,958.71 + 16,533.37 + 9,834.09 + 8,569.62 + 60,257.66 SF = 1,383 ACRES
% OF ACTIVE RECREATION SPACE INSIDE = 9,007.69 / 60,257.66 * 100% = 14.95%

TOTAL RECREATION SPACE = 97,793.78 + 9,007.69 = 106,801.47 SF = 2.452 ACRES
% OF RECREATION SPACE AS ACTIVE = 60,257.66 / 106,801.47 * 100% = 56.42%



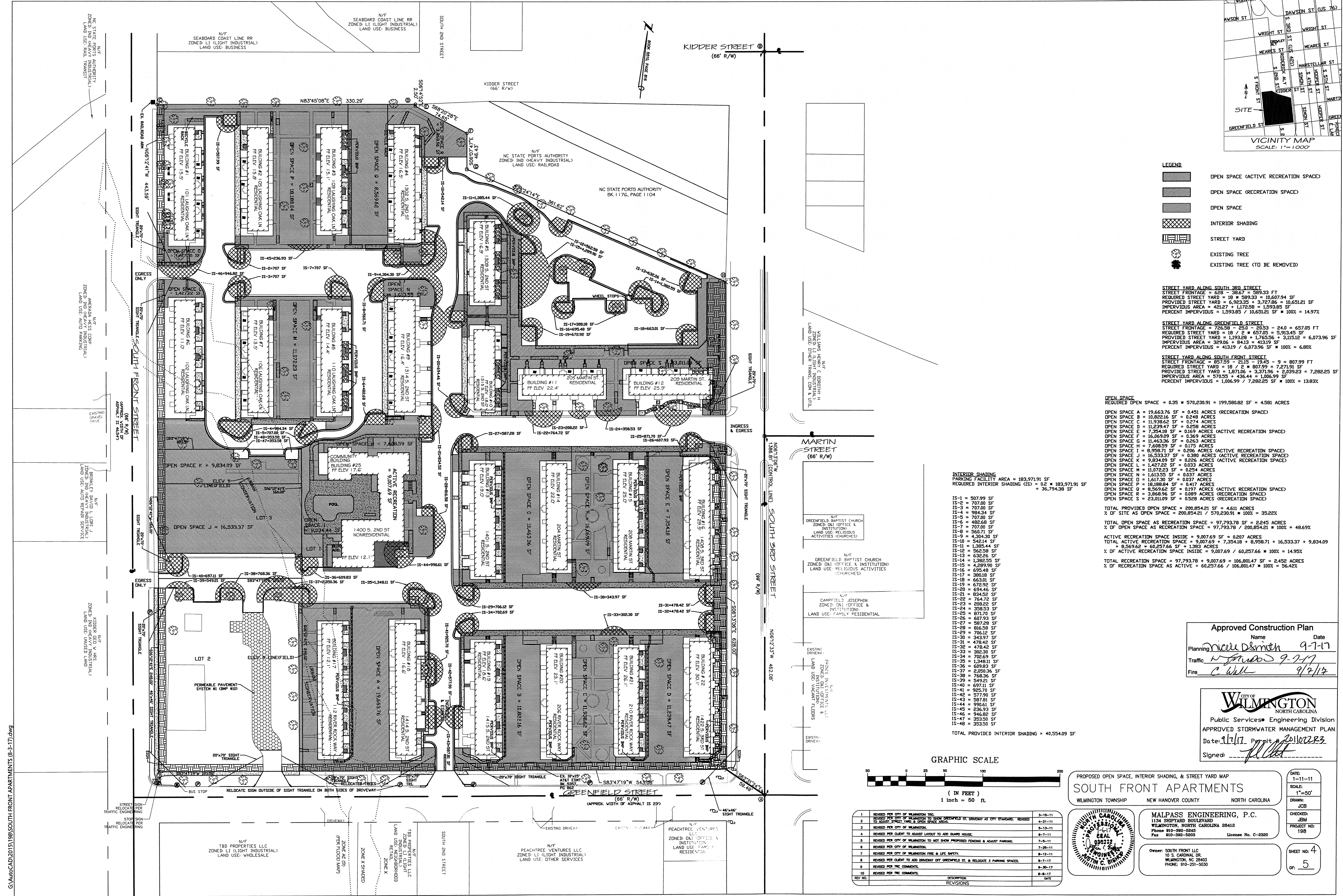
REV NO.	REVISIONS	DATE
1	REVISED PER CITY OF WILMINGTON TRC.	3-10-11
2	REVISED PER CITY OF WILMINGTON TO SHOW GREENFIELD ST. DRIVEWAY AS CITY STANDARD. REVISED TO ADJUST SPACE FOR A DRIVE SPACE ADJAC.	4-21-11
3	REVISED PER CITY OF WILMINGTON.	5-13-11
4	REVISED PER CLIENT TO ADJUST LAYOUT TO ADD DRIVE HOUSE.	6-7-11
5	REVISED PER CITY OF WILMINGTON TO NOT SHOW PROPOSED FENCING & ADJUST PARKING.	7-25-11
6	REVISED PER CITY OF WILMINGTON.	7-25-11
7	REVISED PER CITY OF WILMINGTON FIRE & LIFE SAFETY.	8-12-11
8	REVISED PER CLIENT TO ADD DRIVEWAY OFF GREENFIELD ST. & RELOCATE 3 PARKING SPACES.	8-7-17
9	REVISED PER TRC COMMENTS.	8-30-17
10	REVISED PER TRC COMMENTS.	8-8-17

PROPOSED OPEN SPACE, INTERIOR SHADING, & STREET YARD MAP
SOUTH FRONT APARTMENTS
WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

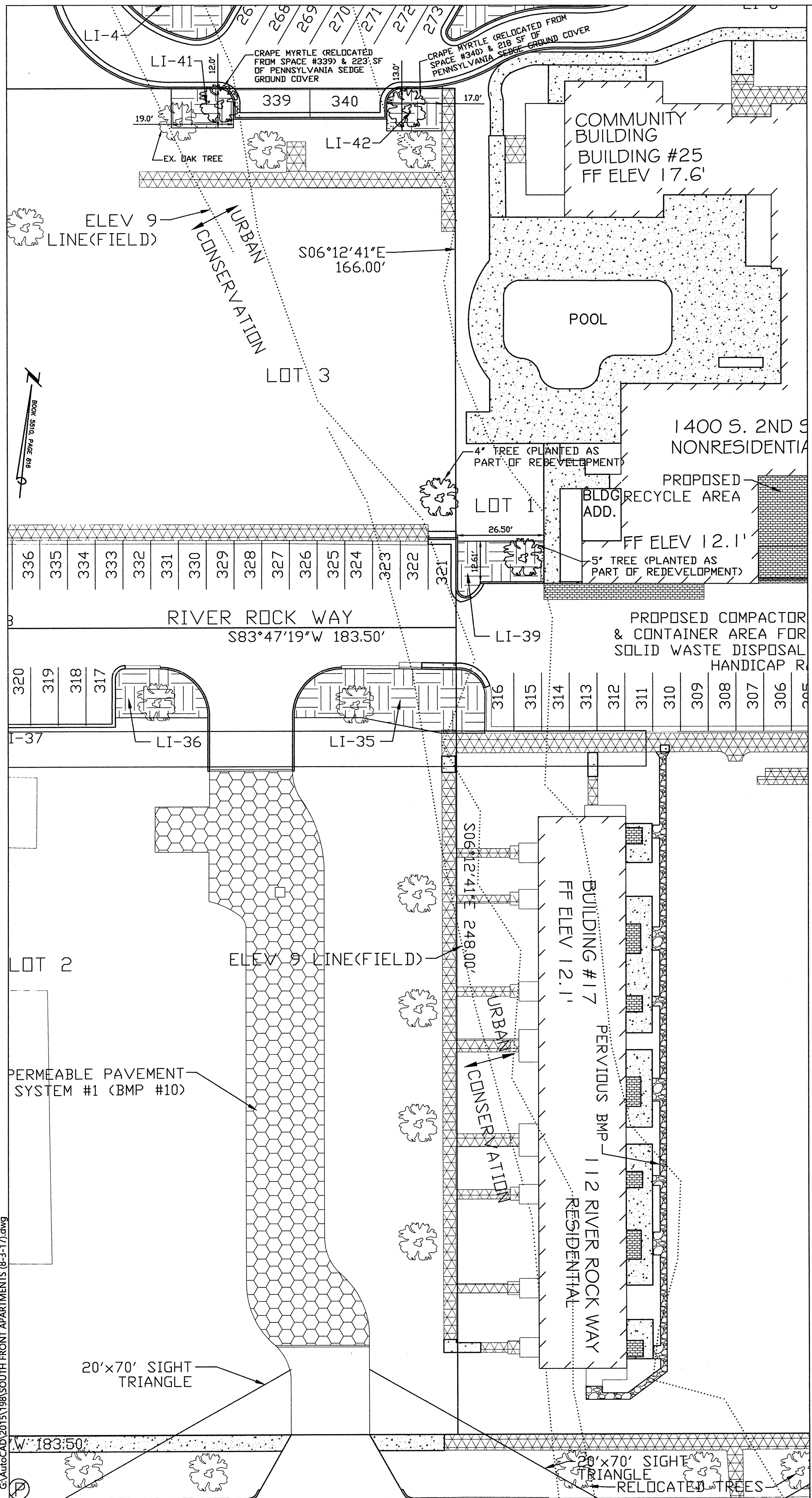
MALPASS ENGINEERING, P.C.
1134 SHIPYARD BOULEVARD
WILMINGTON, NORTH CAROLINA 28412
Phone 910-362-5848
Fax 910-362-5203 License No. C-2320

Owner: SOUTH FRONT LLC
10 S. CAROLINA DR.
WILMINGTON, NC 28403
PHONE: 910-251-3030

DATE: 1-11-11
SCALE: 1" = 50'
DRAWN: JCB
CHECKED: JBM
PROJECT NO: 198
SHEET NO: 4
OF: 5



G:\AutoCAD\2011\198\South Front Apartments (8-9-17).dwg



STREET YARD ALONG SOUTH 3RD STREET
 STREET FRONTAGE = 628 - 38.67 = 589.33 FT
 REQUIRED STREET YARD = 18 * 589.33 = 10,607.94 SF
 PROVIDED STREET YARD = 6,923.35 + 3,727.86 = 10,651.21 SF
 IMPERVIOUS AREA = 421.27 + 1,172.58 = 1,593.85 SF
 PERCENT IMPERVIOUS = 1,593.85 / 10,651.21 SF * 100% = 14.97%

STREET YARD ALONG GREENFIELD STREET
 STREET FRONTAGE = 726.58 - 25.0 - 20.53 - 24.0 = 657.05 FT
 REQUIRED STREET YARD = 18 / 2 * 657.05 = 5,913.45 SF
 PROVIDED STREET YARD = 1,193.28 + 1,765.56 + 3,115.12 = 6,073.96 SF
 IMPERVIOUS AREA = 329.06 + 84.13 = 413.19 SF
 PERCENT IMPERVIOUS = 413.19 / 6,073.96 SF * 100% = 6.80%

STREET YARD ALONG SOUTH FRONT STREET
 STREET FRONTAGE = 857.55 - 21.5 - 19.45 - 9 = 807.55 FT
 REQUIRED STREET YARD = 18 / 2 * 807.55 = 7,271.95 SF
 PROVIDED STREET YARD = 1,871.06 + 3,371.96 + 2,039.23 = 7,282.25 SF
 IMPERVIOUS AREA = 570.55 + 436.44 = 1,006.99 SF
 PERCENT IMPERVIOUS = 1,006.99 / 7,282.25 SF * 100% = 13.83%

LANDSCAPE ADDENDUM PLAN

QTY	BOTANICAL NAME / COMMON NAME	CONT
441 sf	Carex pensylvanica / Pennsylvania Sedge	seed

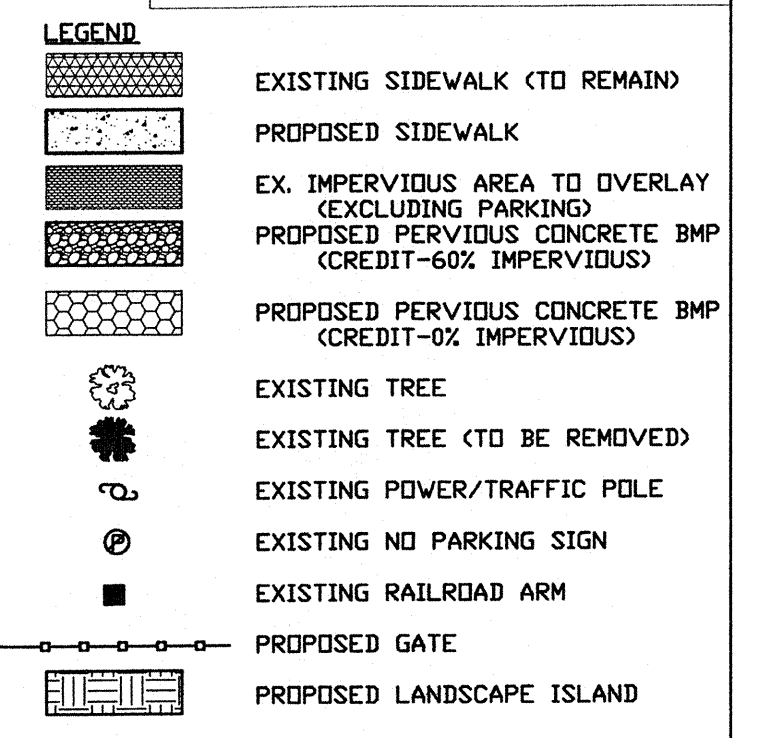
INTERIOR LANDSCAPING ISLANDS

LANDSCAPE ISLAND	TOTAL AREA (SF)	IMPERVIOUS AREA (SF)	PERCENT IMPERVIOUS
LI-1	220.81	0	0
LI-2	408.44	59.64	14.60
LI-3	430.72	59.19	13.74
LI-4	582.56	0	0
LI-5	395.17	0	0
LI-6	327.08	0	0
LI-7	322.98	0	0
LI-8	326.54	44.83	13.73
LI-9	374.69	0	0
LI-10	541.93	37.34	6.89
LI-11	216.81	0	0
LI-12	216.21	0	0
LI-13	378.93	0	0
LI-14	345.10	0	0
LI-15	436.98	0	0
LI-16	302.57	0	0
LI-17	996.09	0	0
LI-18	475.55	0	0
LI-19	352.38	0	0
LI-20	250.18	0	0
LI-21	220.63	0	0
LI-22	293.82	0	0
LI-23	515.42	71.34	13.85
LI-24	330.54	47.30	14.31
LI-25	241.40	0	0
LI-26	218.44	0	0
LI-27	282.14	0	0
LI-28	218.06	0	0
LI-29	218.06	0	0
LI-30	343.08	36.43	10.62
LI-31	216.66	0	0
LI-32	349.39	0	0
LI-33	419.94	60.15	14.32
LI-34	396.56	48.82	12.31
LI-35	934.05	4.15	0.44
LI-36	376.81	0	0
LI-37	330.01	0	0
LI-38	255.45	0	0
LI-39	358.27	0	0
LI-40	224.71	0	0
LI-41	226.65	0	0
LI-42	218.59	0	0

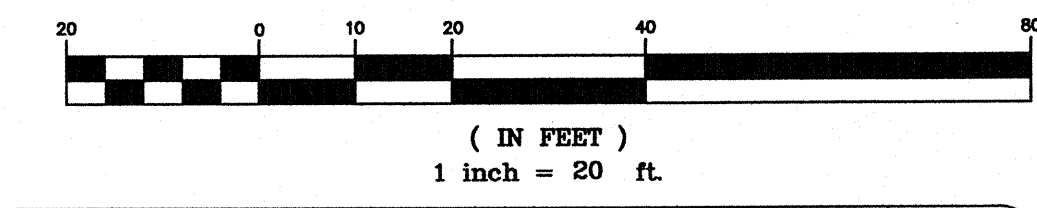
INTERIOR SHADING
 PARKING FACILITY AREA = 183,971.91 SF
 REQUIRED INTERIOR SHADING (IS) = 0.2 * 183,971.91 SF = 36,794.38 SF

IS-1	507.99 SF
IS-2	707.00 SF
IS-3	707.00 SF
IS-4	984.34 SF
IS-5	707.00 SF
IS-6	482.68 SF
IS-7	707.00 SF
IS-8	560.71 SF
IS-9	4,304.30 SF
IS-10	542.14 SF
IS-11	1,385.44 SF
IS-12	562.58 SF
IS-13	632.26 SF
IS-14	1,382.55 SF
IS-15	4,289.90 SF
IS-16	695.48 SF
IS-17	380.18 SF
IS-18	663.01 SF
IS-19	672.92 SF
IS-20	694.46 SF
IS-21	634.52 SF
IS-22	764.72 SF
IS-23	208.22 SF
IS-24	358.53 SF
IS-25	871.70 SF
IS-26	607.93 SF
IS-27	587.28 SF
IS-28	816.58 SF
IS-29	706.12 SF
IS-30	343.97 SF
IS-31	478.42 SF
IS-32	478.42 SF
IS-33	302.30 SF
IS-34	702.69 SF
IS-35	1,348.11 SF
IS-36	609.83 SF
IS-37	2,050.36 SF
IS-38	768.36 SF
IS-39	543.21 SF
IS-40	697.11 SF
IS-41	925.70 SF
IS-42	577.50 SF
IS-43	587.81 SF
IS-44	990.61 SF
IS-45	236.93 SF
IS-46	946.82 SF
IS-47	353.50 SF
IS-48	353.50 SF

TOTAL PROVIDED INTERIOR SHADING = 40,554.09 SF



GRAPHIC SCALE



REV. NO.	DESCRIPTION	DATE
1	REVISED PER TIC COMMENTS.	9-8-17

LANDSCAPE ADDENDUM PLAN
 1400 S. 2ND STREET
SOUTH FRONT APARTMENTS
 WILMINGTON TOWNSHIP NEW HANOVER COUNTY NORTH CAROLINA

WILMINGTON PROFESSIONAL SEAL
 JOHN C. BIRNEY
 LICENSE NO. 038232

MALPASS ENGINEERING, P.C.
 1134 SHEPARD BOULEVARD
 WILMINGTON, NORTH CAROLINA 28412
 Phone 910-382-8243
 Fax 910-382-8203 License No. C-2320

Owner: SOUTH FRONT LLC
 10 S. CAROLINA DR.
 WILMINGTON, NC 28403
 PHONE: 910-251-5030

DATE: 6-30-17
 SCALE: 1" = 20'
 DRAWN: JCB
 CHECKED: JEM
 PROJECT NO: 198
 SHEET NO: 4A
 OF: 5

Approved Construction Plan

Name: *Micaela D. Smith* Date: *9-7-17*
 Planning: *Micaela D. Smith*
 Traffic: *W. Shubert* 9-7-17
 Fire: *C. White* 9/7/17

CITY OF WILMINGTON
 NORTH CAROLINA
 Public Services • Engineering Division
 APPROVED STORMWATER MANAGEMENT PLAN
 Date: *9/7/17* Permit: *20110222R3*
 Signed: *[Signature]*

G:\AutoCAD\2015\198 SOUTH FRONT APARTMENTS (6-3-17).dwg

Approved Const. Plan
 Name: Nigel Smith Date: 9-7-17
 Public Use: W. Smith 9-7-17
 Traffic: C. Hill 9/7/17
 Fire: C. Hill 9/7/17

STORMWATER MANAGEMENT PLAN
APPROVED
 CITY OF WILMINGTON
 ENGINEERING DEPARTMENT
 DATE: 9/7/17
APPROVED

N/C STATE PORTS AUTHORITY
 ZONED: IHD (HEAVY INDUSTRIAL)
 LAND USE: RAILROAD

N/F WILLIAMS HENRY C. DORRITY H
 ZONED: LI (LIGHT INDUSTRIAL)
 LAND USE: OTHER TRANS. COM & UTIL

SOUTH 3RD STREET
 20'x70' SIGHT TRIANGLE

N/F GREENFIELD BAPTIST CHURCH
 ZONED: OAI (OFFICE & INSTITUTION)
 LAND USE: RELIGIOUS ACTIVITIES, CHURCHES

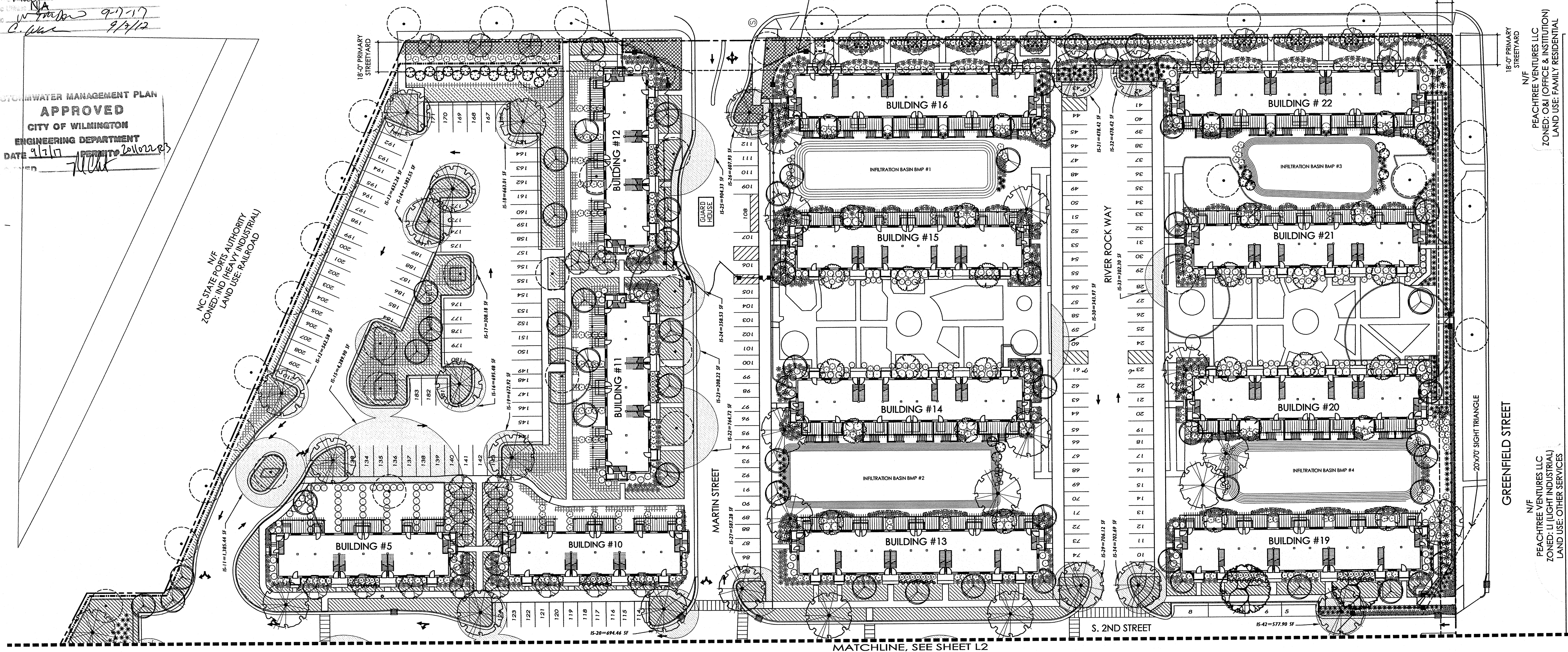
N/F CAMPFIELD JOSEPH
 ZONED: OAI (OFFICE & INSTITUTION)
 LAND USE: FAMILY RESIDENTIAL

N/F PRINCE INVESTMENTS LLC
 ZONED: OAI (OFFICE & INSTITUTION)
 LAND USE: VACANT FLOORS

9'-0" SECONDARY STREET YARD

N/F PEACHTREE VENTURES LLC
 ZONED: OAI (OFFICE & INSTITUTION)
 LAND USE: FAMILY RESIDENTIAL

N/F PEACHTREE VENTURES LLC
 ZONED: LI (LIGHT INDUSTRIAL)
 LAND USE: OTHER SERVICES



SITE DATA
 PROPERTY OWNER: SOUTH FRONT LLC
 PROJECT ADDRESS: 1400 S. 2ND ST.
 PIN NUMBER: R05413-035-002-000
 ZONING DISTRICT: MF-H
 FLOOD AREA: ZONE "X" & AE EL 9 ACCORDING TO FEMA FLOOD INSURANCE RATE MAP, COMMUNITY-PANEL NUMBER 3720311700 K DATE 6/2/06 (INFORMATION PROVIDED BY ARNOLD W. CARSON PLS, PC)
 BUILDING SETBACKS, REQUIRED: FRONT-30', REAR-25', INTERIOR SIDE-20', CORNER LOT SIDE-30'
 BUILDING SETBACKS, EXISTING TO REMAIN (PHASE 1): FRONT-19.97', REAR-21.48', INTERIOR SIDE-24.13', CORNER LOT SIDE-19.95'
 BUILDING SETBACKS, PROPOSED (PHASE 2): REAR-25', CORNER LOT SIDE-30'
 TOTAL SITE AREA: 570,230.91 SF = 13.09 ACRES
 TOTAL ON-SITE AREA TO BE DISTURBED: 461,346.49 SF = 10.59 ACRES
 TOTAL AREA TO BE DISTURBED: 469,040 SF = 10.77 ACRES
 EXISTING BUILDING AREA: 103,444.75 SF = 2.37 ACRES
 AFTER DEVELOPMENT BUILDING AREA: 89,485.19 SF = 2.05 ACRES
 EXISTING BUILDING LOT COVERAGE: 103,444.75 / 570,230.91 * 100% = 18.14%
 AFTER DEVELOPMENT BUILDING LOT COVERAGE: 89,485.19 / 570,230.91 * 100% = 15.69%
 NUMBER OF PROPOSED UNITS: 216 (1 BEDROOM-184 UNITS, 2 BEDROOM-32 UNITS)
 NUMBER OF EXISTING BUILDINGS: RESIDENTIAL-24 (94,437.06 SF), NONRESIDENTIAL-1 (9,007.69 SF)
 NUMBER OF EXISTING BUILDINGS TO REMAIN: RESIDENTIAL-22 (80,477.50 SF), NONRESIDENTIAL-1 (9,007.69 SF)

TREES PER DISTURBED ACRE
 10.77 AC * 15 = 161.55 TREES REQUIRED
 501 TREES PROVIDED

INTERIOR SHADING
 PARKING FACILITY AREA = 177,763.17 SF
 REQUIRED INTERIOR SHADING (IS) = 0.2 * 177,763.17 SF = 35,552.64 SF
 PROVIDED INTERIOR SHADING = 39,740.96 SF

STREET YARD ALONG SOUTH 3RD STREET
 STREET FRONTAGE: 628 - 38.67 = 589.33 FT
 REQUIRED STREET YARD: 18 * 589.33 = 10,607.94 SF
 PROVIDED STREET YARD: 7,059.29 + 3,727.86 = 10,787.15 SF
 IMPERVIOUS AREA: 915.37 + 640.43 = 1,555.80 SF
 PERCENT IMPERVIOUS: 1,555.80 / 10,787.15 SF * 100% = 14.42%
REQUIRED PLANTING: 10,787.15 SF / 600 = 17.9 18 TREES
 17.9 * 6 = 108 SHRUBS
PROVIDED PLANTING: 21 TREES, 286 SHRUBS (INCLUDING 4 EXISTING TREES)

STREET YARD ALONG GREENFIELD STREET
 STREET FRONTAGE = 726.58 - 25.0 - 20.53 = 681.05 FT
 REQUIRED STREET YARD = 18 / 2 * 681.05 = 6,129.45 SF
 PROVIDED STREET YARD = 3,174.83 + 3,115.12 = 6,289.95 SF
 IMPERVIOUS AREA = 443.75 SF
 PERCENT IMPERVIOUS = 443.75 / 6,289.95 SF * 100% = 7.06%
REQUIRED PLANTING: 6,289.95 SF / 600 = 10.5 11 TREES
 10.5 * 6 = 63 SHRUBS
PROVIDED PLANTING: 12 TREES, 275 SHRUBS

STREET YARD ALONG SOUTH FRONT STREET
 STREET FRONTAGE = 857.59 - 21.15 - 19.45 - 9 = 807.99 FT
 REQUIRED STREET YARD = 18 / 2 * 807.99 = 7,271.91 SF
 PROVIDED STREET YARD = 1,871.06 + 3,371.96 + 2,039.23 = 7,282.25 SF
 IMPERVIOUS AREA = 963.13 SF
 PERCENT IMPERVIOUS = 963.13 / 7,282.25 SF * 100% = 13.23%
REQUIRED PLANTING: 7,282.25 SF / 600 = 12.1 12 TREES
 12.1 * 6 = 73 SHRUBS
PROVIDED PLANTING: 9 TREES, 257 SHRUBS (INCLUDING 5 EXISTING TREES)

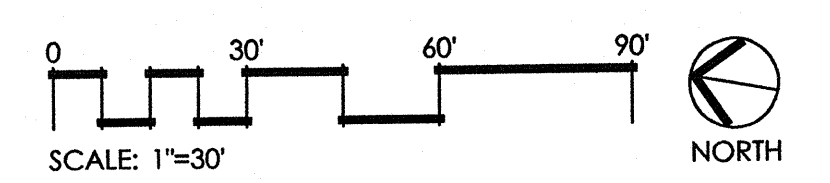
FOUNDATION PLANTING
 REQUIRED FOUNDATION PLANTING = 3,313 LF * 20' HT * 12% = 7,951 SF
 PROVIDED FOUNDATION PLANTING = 10,808 SF

PLANT SCHEDULE

TREES	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	22	Acer palmatum 'Green Seedling' / Green Seedling Japanese Maple	15 gal	
	30	Cornus florida / Eastern Dogwood	65 gal	
	98	Existing Tree To / Remain	Existing	
	174	Lagerstroemia x 'Natchez' / Crape Myrtle	8 & B	8-10' H
	36	Myrica cerifera / Wax Myrtle	25 gal	
	35	Myrica cerifera / Wax Myrtle	8 & B	8-10' H
	59	Quercus virginiana / Southern Live Oak	Field Dug	16-20' H
	47	x Cupressocyparis leylandii / Leylandi Cypress	25 gal	
SHRUBS	QTY	BOTANICAL NAME / COMMON NAME	CONT	
	382	Aspidistra elatior / Cast Iron Plant	1 gal	
	68	Ligustrum japonicum / Japanese Privet	3 gal	
	708	Loropetalum chinense rubrum 'Burgundy' / Burgundy Loropetalum	3 gal	
	228	Nandina domestica / Heavenly Bamboo	3 gal	
	336	Podocarpus macrophyllus maki / Shrubby Yew	7 gal	

PLANT SCHEDULE

GRASSES	QTY	BOTANICAL NAME / COMMON NAME	CONT
	44	Lomandra longifolia 'Breeze' / Dwarf Mat Rush	1 gal
	2,160	Lomandra longifolia 'Nyalla' / Nyalla Breeze Grass	3 gal
	155	Miscanthus sinensis 'Adagio' / Adagio Eulalia Grass	3 gal
	294	Miscanthus sinensis 'Cosmopolitan' / Cosmopolitan Silver Grass	3 gal
	9	Miscanthus sinensis 'Gracillimus' / Maiden Grass	3 gal
	440	Muhlenbergia capillaris / Pink Muhly	3 gal
GROUND COVERS	QTY	BOTANICAL NAME / COMMON NAME	CONT
	742	Carex pendula / Hanging Sedge	1 gal @ 36" oc
	49,025 sf	Carex pensylvanica / Pennsylvania Sedge	seed
	6,826	Dryopteris erythrosora / Autumn Fern	4" pot @ 12" oc
	15,249	Ophiopogon japonicus / Mondo Grass	4" pot @ 8" oc



LANDSCAPES
 UNIQUE
 6020 OLEANDER DRIVE
 WILMINGTON, NC 28403
 (910) 799-0107

REVISIONS	NO.	DATE	DESCRIPTION

PROJECT
SOUTH FRONT APARTMENTS
 1402 SOUTH SECOND STREET
 WILMINGTON, NC 28401

CLIENT
BILTMARK BUILDERS
 1510A SOUTH THIRD STREET
 WILMINGTON, NC 28401

SHEET DESCRIPTION:
 SITE LANDSCAPE PLAN
 DATE: 07-08-11
 DESIGNED BY: JC
 DRAWN BY: GD
 CHECKED BY: JC/TM

