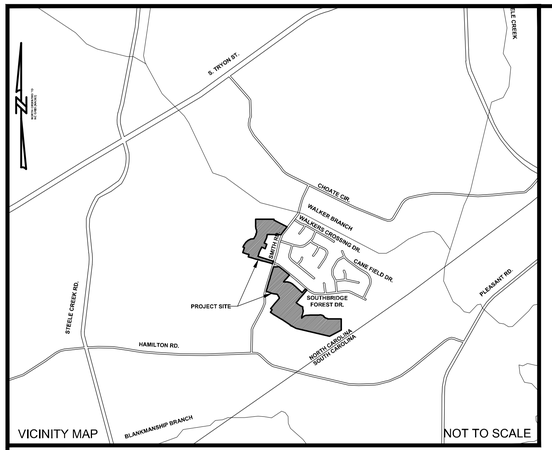
CHATEAU PHASE 2

CITY OF CHARLOTTE
MECKLENBURG COUNTY, NC



VICINITY MAP

CHARLOTTE

FINAL APPROVAL

ENGINEERING PCO / DETENTION / DRAINAGE PLAN	APPROVED By Emily Chien at 12:53 pm, Jun 06, 2017
EROSION CONTROL	APPROVED
URBAN FORESTRY TREE ORDINANCE	APPROVED Laura Brewer
CDOT	APPROVED Carlos Alzate

NOTE: SCHEDULE PRE-CONSTRUCTION MEETING AT LEAST 48 HRS. PRIOR TO ANY LAND DISTURBING ACTIVITY USING THE ONLINE FORM AT http://development.charmeck.org

REVISION

APPROVED FOR CONSTRUCTION
CHARLOTTE-MECKLENBURG PLANNING DEPARTMENT
By: Joshua Weaver 6-7-2017 1 of 3

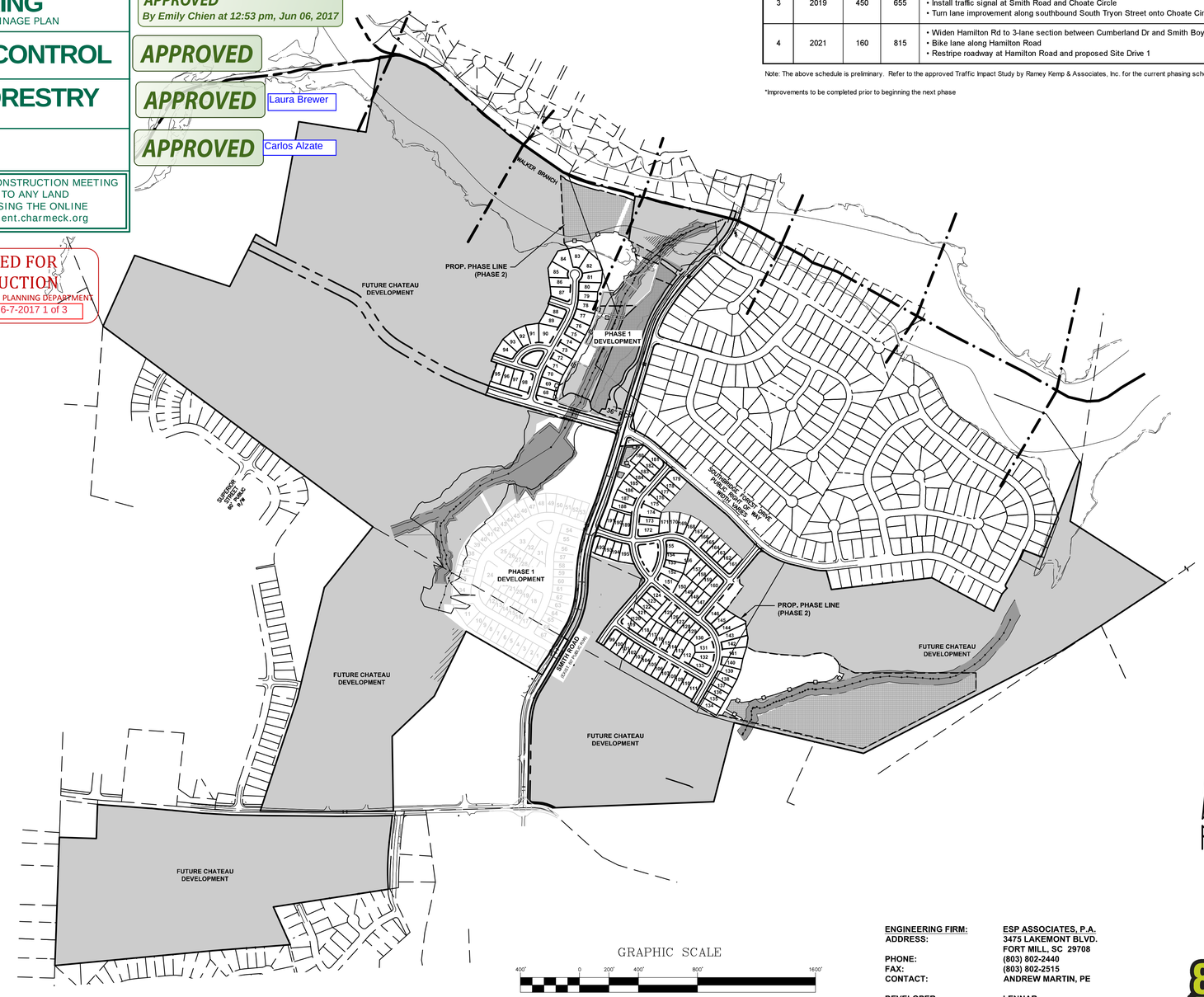
Chateau - Roadway Improvement Phasing Schedule

Phase	Phase Build Year	Lots in Phase	Total Lots	Description of Improvements*
1		100	100	• Widen the Smith Road cross-section between Hamilton Road and Choate Circle • Restripe the northbound portion of Smith Road at Choate Circle
2	2016	105	205	• Turn lane improvements at Smith Road and Choate Circle • Turn lane improvements at Steele Creek Road and Hamilton Road • Turn lane improvements at Carowinds Boulevard and Choate Circle
3	2019	450	655	• Construct roundabout at Smith Road and Hamilton Road • Install traffic signal at Smith Road and Choate Circle • Turn lane improvement along southbound South Tryon Street onto Choate Circle
4	2021	160	815	• Widen Hamilton Rd to 3-lane section between Cumberland Dr and Smith Boyd Rd • Bike lane along Hamilton Road • Restripe roadway at Hamilton Road and proposed Site Drive 1

Note: The above schedule is preliminary. Refer to the approved Traffic Impact Study by Ramey Kemp & Associates, Inc. for the current phasing schedule.

*Improvements to be completed prior to beginning the next phase

INDEX OF SHEETS



GRAPHIC SCALE

400' 0 200' 400' 800' 1600'

(IN FEET)
1 inch = 400 ft.

ENGINEERING FIRM: ESP ASSOCIATES, P.A.
ADDRESS: 3475 LAKEMONT BLVD. FORT MILL, SC 29708
PHONE: (803) 802-2440
FAX: (803) 802-2515
CONTACT: ANDREW MARTIN, PE

DEVELOPER: LENNAR
ADDRESS: 11230 CARMEL COMMONS BOULEVARD CHARLOTTE, NC 28226
PHONE: (704) 542-8300
CONTACT: THOMAS JOHNSON

811 Know what's below. Call before you dig.

THIS SET IS CURRENT THROUGH SHEET DATE 4/13/2017

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER ANDREW A. MARTIN 4/13/17

NO.	DATE	REVISION	BY
1	8/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	9/20/2016	REVISION PER CITY OF CHARLOTTE COMMENTS AND CULVERT DESIGN CHANGE	DMS
7	1/6/2017	REVISION PER GRADING ADJUSTMENT	DMS

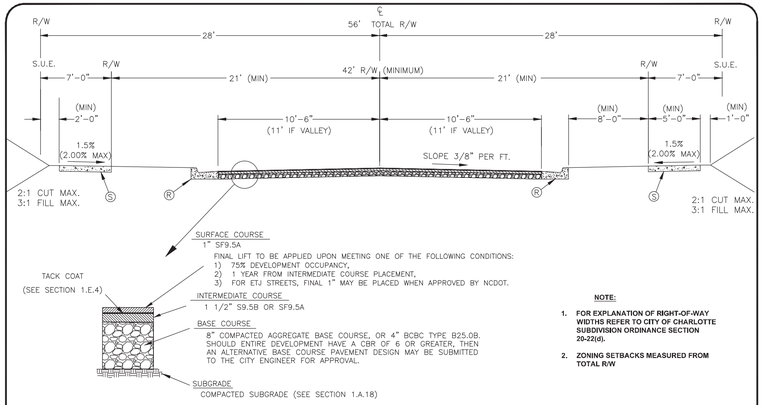
COVER SHEET

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C0.0



TYPICAL PAVEMENT SECTION

NOTE:

1. **FOR EXPLANATION OF RIGHT-OF-WAY WIDTHS REFER TO CITY OF CHARLOTTE SUBDIVISION ORDINANCE SECTION 20-22(d).**
2. **ZONING SETBACKS MEASURED FROM TOTAL R/W**

KEY

(R) 2'-6" STANDARD CURB AND GUTTER OR 2'-0" VALLEY GUTTER

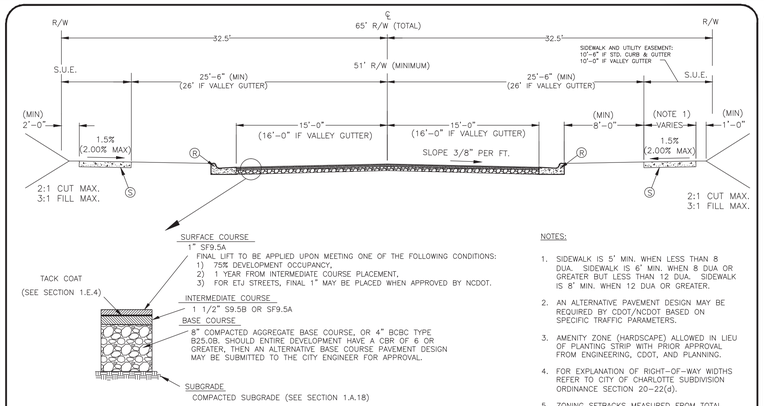
(S) 4" CONCRETE SIDEWALK

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

LOCAL RESIDENTIAL MEDIUM STREET TYPICAL SECTION

STD. NO. U-02 REV. 13



TYPICAL PAVEMENT SECTION

NOTES:

1. SIDEWALK IS 5' MIN. WHEN LESS THAN 8 DUA. SIDEWALK IS 6' MIN. WHEN 8 DUA OR GREATER BUT LESS THAN 12 DUA. SIDEWALK IS 8' MIN. WHEN 12 DUA OR GREATER.
2. AN ALTERNATIVE PAVEMENT DESIGN MAY BE REQUIRED BY CDOT/NCDOT BASED ON SPECIFIC TRAFFIC PARAMETERS.
3. AMENITY ZONE (HARDSCAPE) ALLOWED IN LIEU OF PLANTING STRIP WITH PRIOR APPROVAL FROM ENGINEERING, CDOT, AND PLANNING.
4. FOR EXPLANATION OF RIGHT-OF-WAY WIDTHS REFER TO CITY OF CHARLOTTE SUBDIVISION ORDINANCE SECTION 20-22(d).
5. ZONING SETBACKS MEASURED FROM TOTAL R/W.

KEY

(R) 2'-6" STANDARD CURB AND GUTTER (SHOWN) OR 2'-0" VALLEY GUTTER

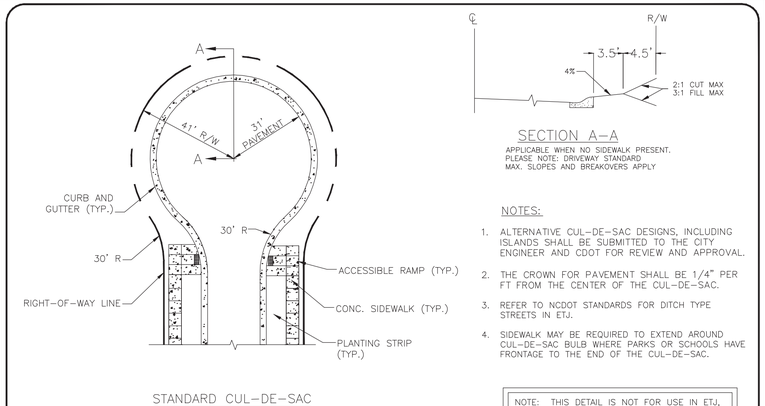
(S) 5" CONCRETE SIDEWALK

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

LOCAL COLLECTOR STREET TYPICAL SECTION

STD. NO. U-07 REV. 13



STANDARD CUL-DE-SAC

SECTION A-A

APPLICABLE WHEN NO SIDEWALK PRESENT.
PLEASE NOTE: DRIVEWAY STANDARD MAX. SLOPES AND BREAKOVERS APPLY

NOTES:

1. ALTERNATIVE CUL-DE-SAC DESIGNS, INCLUDING ISLANDS SHALL BE SUBMITTED TO THE CITY ENGINEER AND CDOT FOR REVIEW AND APPROVAL.
2. THE CROWN FOR PAVEMENT SHALL BE 1/4" PER FT FROM THE CENTER OF THE CUL-DE-SAC.
3. REFER TO NCDOT STANDARDS FOR DITCH TYPE STREETS IN ETJ.
4. SIDEWALK MAY BE REQUIRED TO EXTEND AROUND CUL-DE-SAC BULB WHERE PARKS OR SCHOOLS HAVE FRONTAGE TO THE END OF THE CUL-DE-SAC.

NOTE: THIS DETAIL IS NOT FOR USE IN ETJ, OR ON NCDOT-MAINTAINED STREETS. REFER TO NCDOT SUBDIVISION ROADS MINIMUM CONSTRUCTION STANDARDS MANUAL.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS

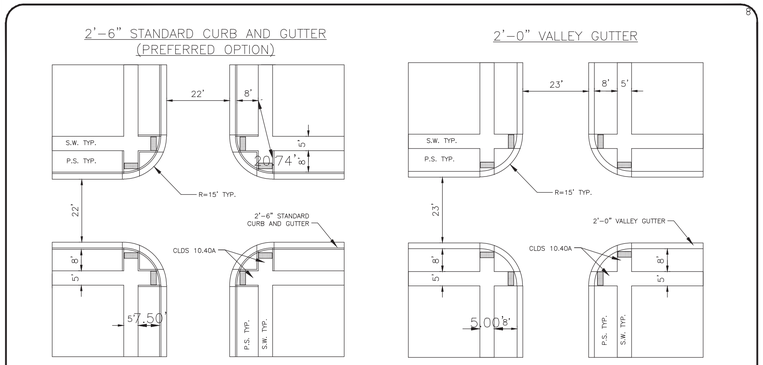
CITY OF CHARLOTTE RESIDENTIAL CUL-DE-SAC DETAIL

STD. NO. 11.16 REV. 13

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-0445 (NC)
803-802-2440 (SC)
www.espassociates.com

LICENSE NO.: C-0587

SEAL 027971 ENGINEER BREMANN A. MARTIN 9/2/15



NOTES:

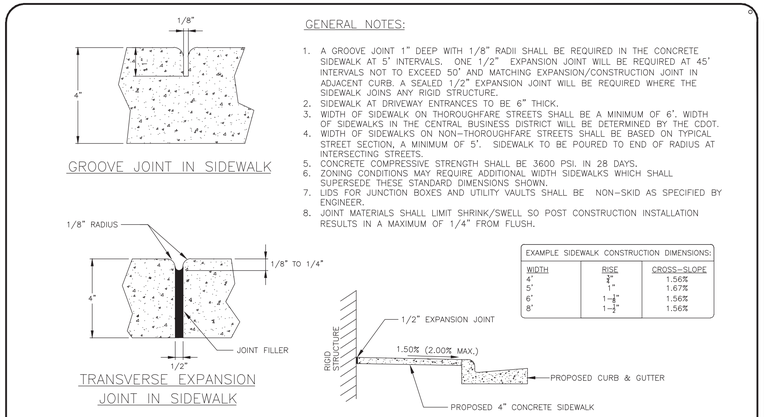
1. REFER TO U-02 FOR TYPICAL SECTION.
2. CURB RADII DETERMINED USING "USDG APPENDIX C."

NOT TO SCALE
NOT FOR CONSTRUCTION

CITY OF CHARLOTTE DEPARTMENT OF TRANSPORTATION INTERSECTION GUIDELINES

LOCAL RESIDENTIAL MEDIUM TO LOCAL RESIDENTIAL MEDIUM TYPICAL INTERSECTION LAYOUT

STD. NO. I-1 REV.



GENERAL NOTES:

1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
3. WIDTH OF SIDEWALK ON THOROUGHFARE STREETS SHALL BE A MINIMUM OF 6'. WIDTH OF SIDEWALKS IN THE CENTRAL BUSINESS DISTRICT WILL BE DETERMINED BY THE CDOT.
4. WIDTH OF SIDEWALKS ON NON-THOROUGHFARE STREETS SHALL BE BASED ON TYPICAL STREET SECTION, A MINIMUM OF 5'. SIDEWALK TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS.
5. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI. IN 28 DAYS.
6. ZONING CONDITIONS MAY REQUIRE ADDITIONAL WIDTH SIDEWALKS WHICH SHALL SUPERSEDE THESE STANDARD DIMENSIONS SHOWN.
7. LIDS FOR JUNCTION BOXES AND UTILITY VAULTS SHALL BE NON-SKID AS SPECIFIED BY ENGINEER.
8. JOINT MATERIALS SHALL LIMIT SHRINK/SWELL SO POST CONSTRUCTION INSTALLATION RESULTS IN A MAXIMUM OF 1/4" FROM FLUSH.

EXAMPLE SIDEWALK CONSTRUCTION DIMENSIONS:

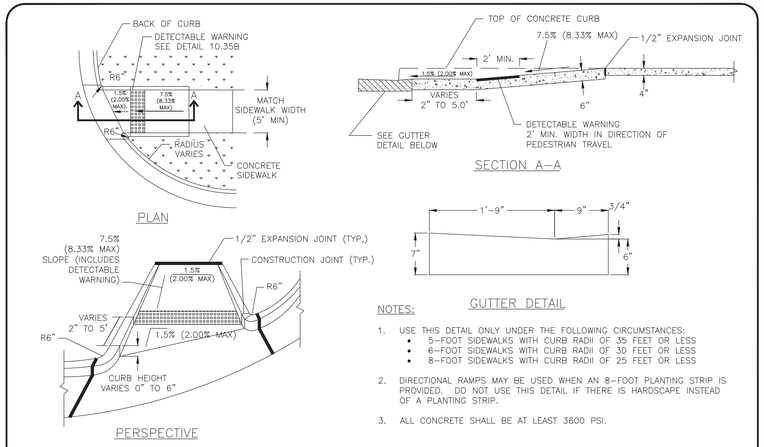
WIDTH	RISE	CROSS-SLOPE
4'	3"	1.56%
5'	1"	1.67%
6'	1-1/4"	1.56%
8'	1-3/4"	1.56%

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

CONCRETE SIDEWALKS

STD. NO. 10.22 REV. 13



NOTES:

1. USE THIS DETAIL ONLY UNDER THE FOLLOWING CIRCUMSTANCES:
   - 5-FOOT SIDEWALKS WITH CURB RADII OF 35 FEET OR LESS
   - 6-FOOT SIDEWALKS WITH CURB RADII OF 30 FEET OR LESS
   - 8-FOOT SIDEWALKS WITH CURB RADII OF 25 FEET OR LESS
2. DIRECTIONAL RAMPS MAY BE USED WHEN AN 8-FOOT PLANTING STRIP IS PROVIDED. DO NOT USE THIS DETAIL IF THERE IS HARDSCAPE INSTEAD OF A PLANTING STRIP.
3. ALL CONCRETE SHALL BE AT LEAST 3600 PSI.

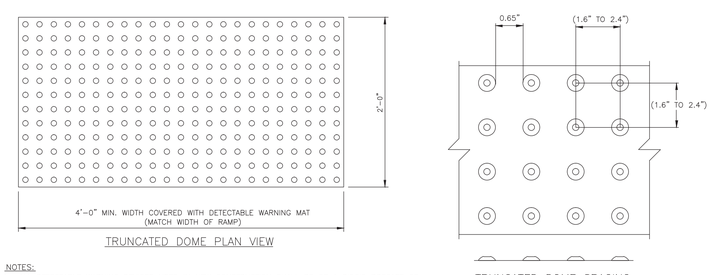
THIS DETAIL IS NOT FOR USE IN ETJ, OR ON NCDOT-MAINTAINED STREETS.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS

DIRECTIONAL ACCESSIBLE RAMP WITH SMALL/MEDIUM CURB RADII

STD. NO. 10.40A REV. 13



NOTES:

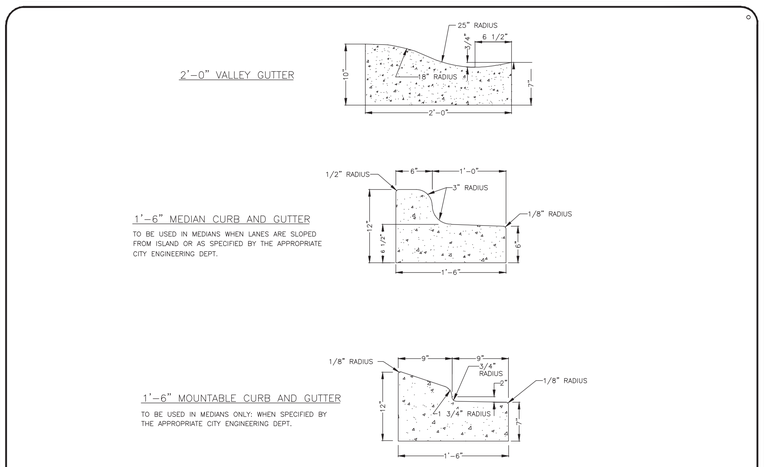
1. ALL DETECTABLE WARNING DEVICES USED IN NEW CONSTRUCTION SHALL BE OF A RIDGID PRECAST OR EMBEDDED PRODUCT APPROVED BY THE CITY ENGINEER. RETRO FIT MATS WILL ONLY BE ALLOWED ON EXISTING RAMPS WITH PRIOR APPROVAL OF THE CITY ENGINEER FOR MATERIAL TYPE AND INSTALLATION (IE. RESURFACING).
2. RAMP AND DETECTABLE WARNING AREA SHALL BE A MINIMUM OF 4 FEET IN WIDTH, BUT NOT BE LESS THAN THE WIDTH OF SIDEWALK LEADING TO BACK OF RAMP.
3. DETECTABLE WARNING SURFACES SHALL EXTEND 2.0 FT MINIMUM IN THE DIRECTION OF PEDESTRIAN TRAVEL.
4. DETECTABLE WARNING AREA CAN BE SQUARE WHERE USED IN A CURB RADIUS.
5. THE ROWS OF TRUNCATED DOMES IN DETECTABLE WARNING SURFACES SHOULD BE ALIGNED PERPENDICULAR TO THE GRADE BREAK BETWEEN THE RAMP RUN AND THE STREET. WHERE DETECTABLE WARNING SURFACES ARE PROVIDED ON A SURFACE WITH A SLOPE THAT IS LESS THAN 5 PERCENT, DOME ORIENTATION IS LESS CRITICAL.
6. DECTECTABLE WARNING AREA SHALL BE COLORED BLACK IN ALL LOCATIONS EXCEPT ON TRYON STREET MALL, WHERE FRENCH GRAY IS TO BE USED. (MUST BE A CONTRASTING COLOR TO SURROUNDING SURFACE).
7. IF PAVERS ARE TO BE USED, PAVERS SHALL BE 6" THICK AND CAST FROM 5000 psi CONCRETE.
8. MATS ARE TO BE RIGID WITH TURN DOWN EDGES EMBEDDED IN CONCRETE TO ELIMINATE TRIP HAZARD.
9. DIMENSIONS PER NCDOT 848.06

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

TRUNCATED DOMES PLAN AND CROSS-SECTION

STD. NO. 10.35B REV. 13

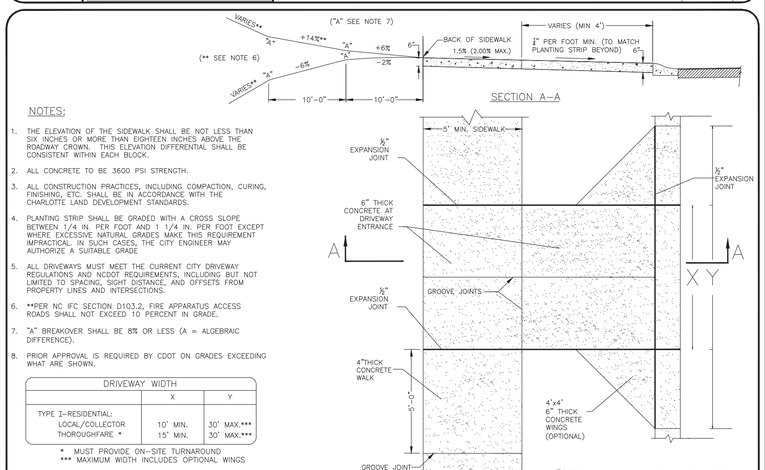


NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

CURB AND GUTTER

STD. NO. 10.17B REV.



NOTES:

1. THE ELEVATION OF THE SIDEWALK SHALL BE NOT LESS THAN SIX INCHES OR MORE THAN EIGHTEEN INCHES ABOVE THE ROADWAY CROWN. THIS ELEVATION DIFFERENTIAL SHALL BE CONSISTENT WITHIN EACH BLOCK.
2. ALL CONCRETE TO BE 3600 PSI STRENGTH.
3. ALL CONSTRUCTION PRACTICES, INCLUDING COMPACTION, CURING, FINISHING, ETC. SHALL BE IN ACCORDANCE WITH THE CHARLOTTE LAND DEVELOPMENT STANDARDS.
4. PLANTING STRIP SHALL BE GRADED WITH A CROSS SLOPE BETWEEN 1/4 IN. PER FOOT AND 1 1/4 IN. PER FOOT EXCEPT WHERE EXCESSIVE NATURAL GRADES MAKE THIS REQUIREMENT IMPRACTICAL. IN SUCH CASES, THE CITY ENGINEER MAY AUTHORIZE A SUITABLE GRADE
5. ALL DRIVEWAYS MUST MEET THE CURRENT CITY DRIVEWAY REGULATIONS AND NCDOT REQUIREMENTS, INCLUDING BUT NOT LIMITED TO SPACING, SIGHT DISTANCE, AND OFFSETS FROM PROPERTY LINES AND INTERSECTIONS.
6. **PER NC IFC SECTION D103.2, FIRE APPARATUS ACCESS ROADS SHALL NOT EXCEED 10 PERCENT IN GRADE.
7. "A" BREAKOVER SHALL BE 8% OR LESS (A = ALGEBRAIC DIFFERENCE).
8. PRIOR APPROVAL IS REQUIRED BY CDOT ON GRADES EXCEEDING WHAT ARE SHOWN.

DRIVEWAY WIDTH	X	Y
TYPE I-RESIDENTIAL:		
LOCAL/COLLECTOR	10' MIN.	30' MAX.***
THOROUGHFARE *	15' MIN.	30' MAX.***

* MUST PROVIDE ON-SITE TURNAROUND
*** MAXIMUM WIDTH INCLUDES OPTIONAL WINGS

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

RESIDENTIAL DRIVEWAY (TYPE I) FOR 2'-0" VALLEY GUTTER

STD. NO. 10.27A REV. 13

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

DEVELOPMENT DETAILS (SHEET 1 OF 4)

CHATEAU PHASE 2

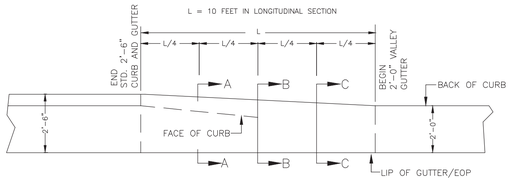
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

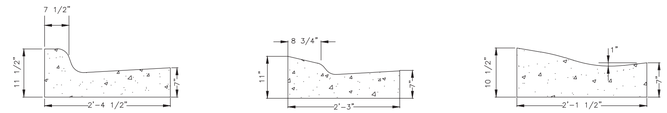
PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15

SHEET: **C1.0**

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_SITE DEVELOPMENT DETAILS.dwg, DEVELOPMENT DETAILS (SHEET 1 OF 4), dsiarris



PLAN VIEW



SECTION A–A SECTION B–B SECTION C–C

NOTES:

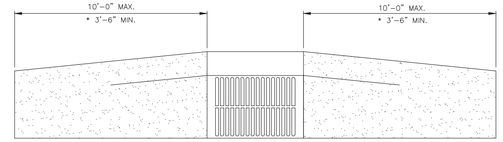
1. TRANSITION IS NOT TO BE LOCATED WITHIN THE CURB RADIUS.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

CURB TRANSITION 2'6" CURB AND GUTTER TO 2'-0" VALLEY GUTTER

STD. NO. 10.19 REV.



PLAN

NOTE:

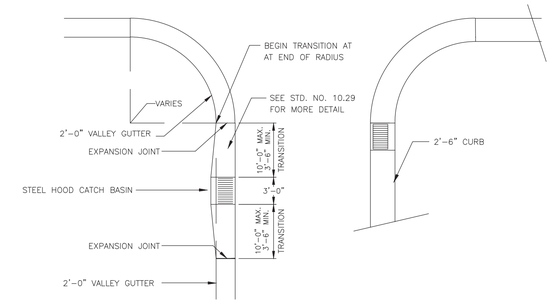
* TRANSITION FROM 2'-6" STANDARD CURB TO VALLEY CURB AT A DRAINAGE INLET ONLY. SEE STANDARD 10.19 FOR CROSS SECTION GEOMETRY.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

CATCH BASIN FRAME IN VALLEY GUTTER

STD. NO. 10.29 REV.



NOTE:

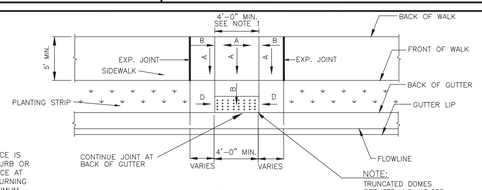
1. WHERE 2'-6" CURB AND GUTTER IS USED, CATCH BASINS MAY BE LOCATED AT END OF RADIUS.
2. RADIUS AT INTERSECTION MAY VARY.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

CATCH BASIN PLACEMENT AT INTERSECTIONS

STD. NO. 10.30 REV.



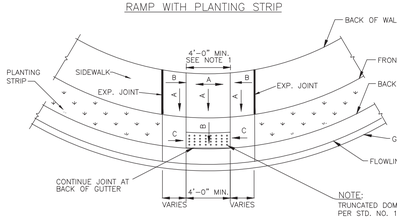
NOTES:

1. IF TURNING SPACE IS CONFINED BY CURB OR VERTICAL SURFACE AT BACK OF THE TURNING SPACE, THE MINIMUM WIDTH MUST INCREASE TO 5'–0" MIN.
2. ENSURE FLUSH CONDITIONS AT CURB RAMP TO GUTTER TRANSITION.

NOTE: TRUNCATED DOMES PER STD. NO. 10.35B

PLAN VIEW–PARALLEL RAMP WITH PLANTING STRIP

SLOPE "A" 1.5% (2.00% MAX)
SLOPE "B" 7.5% (8.33% MAX)
SLOPE "C" 10% MAX



NOTE: TRUNCATED DOMES PER STD. NO. 10.35B

PLAN VIEW–DIAGONAL RAMP WITH PLANTING STRIP

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

ACCESSIBLE RAMP STANDARD 2'–0" VALLEY GUTTER

STD. NO. 10.33A REV. 13

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
300.01	METHOD OF PIPE INSTALLATION	
310.02	PARALLEL PIPE END SECTION–PRECAST CONCRETE FOR 15" TO 24" PIPE	REQUIRED IN RIGHT OF WAY WITHIN THE ETJ
310.03	CROSS PIPE END SECTION–PRECAST CONCRETE FOR 18" TO 30" PIPE	REQUIRED IN RIGHT OF WAY WITHIN THE ETJ
310.10	DRIVEWAY PIPE CONSTRUCTION USING NO SPECIAL END SECTIONS	ONLY AT LOCATIONS APPROVED BY THE CITY ENGINEER
815.03	PIPE UNDERDRAIN AND BLIND DRAIN	
816.03	GEOCOMPOSITE SHOULDER DRAIN	
838.01	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	15" THRU 48" PIPE 90° SKEW	NOTE 1
838.02	CONCRETE ENDWALL AND SLUICE GATE 15" THRU 36" PIPE–90° SKEW	NOTE 1
838.04	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	17"X13"THRU 71"X47" PIPE ARCH 90° SKEW	NOTE 1
838.05	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 15" THRU 48" PIPE	NOTE 1
838.06	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 17"X13" THRU 71"X47"	NOTE 1
	71"X47" ARCH PIPE	NOTE 1
838.07	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	40"X31" THRU 66"X51" PIPE ARCH 90°SKEW	NOTE 1
838.08	CONCRETE "L" ENDWALL FOR SINGLE PIPE CULVERTS 40"X32"	NOTE 1
	THRU 66"X51" PIPE ARCH	NOTE 1
838.10	CONCRETE ENDWALL FOR OUTFALL 4'–6" OR 8" PIPE	NOTE 1
838.11	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS	NOTE 1
	15" THRU 48" 90° SKEW	NOTE 1
838.14	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS 17"X31"	NOTE 1
	THRU 71"X47" 90° SKEW	NOTE 1
838.15	BRICK "L" ENDWALL FOR SINGLE PIPE CULVERTS 15" THRU 48" PIPE	NOTE 1
838.16	BRICK "L" ENDWALL FOR SINGLE PIPE CULVERTS 17"X13" THRU	NOTE 1
	71"X47" PIPE ARCH	NOTE 1
838.17	BRICK ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS 40"X31"	NOTE 1
	THRU 66"X51" PIPE ARCH 90°SKEW	NOTE 1
838.18	BRICK ENDWALL FOR SINGLE PIPE CULVERTS 40"X31" THRU	NOTE 1
	66"X51" PIPE ARCH 90° SKEW	NOTE 1
838.20	BRICK ENDWALL FOR OUTFALL 4", 6" AND 8" PIPE	NOTE 1
838.21	REINFORCED CONCRETE ENDWALL FOR SINGLE 54" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.22	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 54" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.27	REINFORCED CONCRETE ENDWALL FOR SINGLE 60" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.28	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 60" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.33	REINFORCED CONCRETE ENDWALL FOR SINGLE 66" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.34	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 66" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.39	REINFORCED CONCRETE ENDWALL FOR SINGLE 72" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.40	REINFORCED CONCRETE ENDWALL FOR DOUBLE & TRIPLE 72" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE CITY REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL CITY AND ETJ PROJECTS.

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

NCDOT STANDARDS APPROVED FOR USE IN THE CITY OF CHARLOTTE AND CHARLOTTE ETJ

STD. NO. 20.00A REV. 11

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
838.45	NOTES FOR REINFORCED CONCRETE ENDWALL STANDARD DRAWINGS	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
	838.21 THRU 838.40	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.51	REINFORCED BRICK ENDWALL FOR SINGLE 54" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.52	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 54" PIPE 90°SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.57	REINFORCED BRICK ENDWALL FOR SINGLE 60" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.58	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 60" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.63	REINFORCED BRICK ENDWALL FOR SINGLE 66" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.64	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 66" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.69	REINFORCED BRICK ENDWALL FOR SINGLE 72" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.70	REINFORCED BRICK ENDWALL FOR DOUBLE & TRIPLE 72" PIPE 90° SKEW	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.75	NOTES FOR REINFORCED BRICK ENDWALL STANDARD DRAWINGS 838.51 THRU 838.70	NOTE 1 SEE CLDS 20.17 FOR SPLASH PAD
838.80	PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE 90° SKEW	
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES	
840.01	BRICK CATCH BASIN 15" THRU 54" PIPE	
840.02	CONCRETE CATCH BASIN 12" THRU 54" PIPE	
840.03	FRAME, GRATE BASIN 12" THRU 54" PIPE	TYPE F AND G GRATES ARE OPTIONAL WITHIN THE CITY LIMITS
840.04	CONCRETE OPEN THROAT CATCH BASIN 12" THRU 48" PIPE	NOTE 1; OPENINGS PERMITTED IN 4 SIDES OUTSIDE OF STREET R/W MANHOLE RING AND COVER REQUIRED IN TOP SLAB SEE CLDS 20.05 A&B
840.05	BRICK OPEN THROAT CATCH BASIN 15" THRU 48" PIPE	NOTE 1; OPENINGS PERMITTED IN 4 SIDES OUTSIDE OF STREET R/W MANHOLE RING AND COVER REQUIRED IN TOP SLAB SEE CLDS 20.05 A&B
840.14	CONCRETE DROP INLET 12" THRU 30" PIPE	NOTE 1
840.15	BRICK DROP INLET 12" THRU 30" PIPE	NOTE 1
840.16	DROP INLET FRAME AND GRATE FOR USE WITH DWGS. 840.14 & 840.15	NOTE 1
840.17	CONCRETE GRATED DROP INLET TYPE "A" 12" THRU 72" PIPE	NOTE 1
840.18	CONCRETE GRATED DROP INLET TYPE "B" 12" THRU 36" PIPE	NOTE 1
840.19	CONCRETE GRATED DROP INLET TYPE "D" 12" THRU 36" PIPE	NOTE 1
840.20	FRAMES AND WIDE SLOT FLAT GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.22	FRAMES AND WIDE SLOT SAG GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.24	FRAMES AND NARROW SLOT SAG GRATES	
840.25	ANCHORAGE FOR FRAMES BRICK OR CONCRETE	
840.26	BRICK GRATED DROP INLET TYPE "A" 12" THRU 72" PIPE	
840.27	BRICK GRATED DROP INLET TYPE "B" 12" THRU 36" PIPE	
840.28	BRICK GRATED DROP INLET TYPE "D" 12" THRU 36" PIPE	
840.29	FRAMES AND NARROW SLOT FLAT GRATES	
840.30	DRIVEWAY DROP INLET	

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE CITY REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL CITY AND ETJ PROJECTS.

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

NCDOT STANDARDS APPROVED FOR USE IN THE CITY OF CHARLOTTE AND CHARLOTTE ETJ

STD. NO. 20.00B REV. 5

DWG	SHEET TITLE	SPECIAL REQUIREMENTS AND NOTES
840.31	CONCRETE JUNCTION BOX (WITH OPTIONAL MANHOLE) 12" THRU 66" PIPE	NOTE 1; OPTIONAL MANHOLE IS REQUIRED
840.32	BRICK JUNCTION BOX 12" THRU 66" PIPE	NOTE 1; OPTIONAL MANHOLE IS REQUIRED
840.34	TRAFFIC BEARING JUNCTION BOX FOR USE WITH PIPES 42" AND UNDER	NOTE 1; OPTIONAL MANHOLE IS REQUIRED; AS MEASURED FROM BOTTOM OF TOP SLAB –– FOR JUNCTION BOX HEIGHT 0'–4'8" USE 8" THICK WALL, FROM 4'8" HEIGHT TO 10' HEIGHT, USE 12" THICK WALL. IF PROPOSED STRUCTURE EXCEEDS 12'–0" HEIGHT A SPECIAL DESIGN WILL BE REQUIRED
840.35	TRAFFIC BEARING DROP INLET FOR CAST IRON DOUBLE FRAME AND GRATES	
840.36	TRAFFIC BEARING DROP INLET FOR STEEL (840.37) DOUBLE FRAME AND GRATES	NOT FOR USE IN PEDESTRIAN AREAS
840.37	STEEL GRATE AND FRAME	NOT FOR USE IN PEDESTRIAN AREAS
840.41	SPRING BOX CONCRETE OR BRICK	
840.45	PRECAST DRAINAGE STRUCTURE (SOLID AND WAFFLE WALL)	WAFFLE WALL IS NOT PERMITTED IN ROADWAY, PLANTING STRIPS, OR MEDIANS. ALL OPENINGS SHALL BE PRE–CAST
840.46	TRAFFIC BEARING PRECAST DRAINAGE STRUCTURE	
840.51	BRICK MANHOLE 12" 36" PIPE	
840.52	PRECAST MANHOLE 4', 5' AND 6' DIAMETER 12" THRU 42" PIPE	
840.53	PRECAST MANHOLE WITH MASONRY BASE 12" THRU 42" PIPE	
840.54	MANHOLE FRAME AND COVER	
840.60	DRAINAGE STRUCTURE STEPS	
840.71	CONCRETE PAVED DITCHES	
840.72	PIPE COLLAR	
850.01	CONCRETE PAVED DITCHES	
852.04	METHODS FOR PLACEMENT OF DROP INLETS IN GRASSED MEDIAN (USING 1'–6" CURB AND GUTTER)	
852.05	MEDIAN CURB FOR CATCH BASIN (FOR USE WITH 1'–6" CURB AND GUTTER)	
852.06	METHOD OF PLACEMENT OF DROP INLETS IN CONCRETE ISLANDS	
876.01	RIP RAP IN CHANNELS	
876.03	DRAINAGE DITCHES WITH CLASS "A" RIP RAP	
876.04	DRAINAGE DITCHES WITH CLASS "B" RIP RAP	
310.01	199B DRAWINGS CONCRETE FLARED END SECTION	

NOTE 1: FOR ALL STRUCTURES – NCDOT REQUIRES CLASS B CONCRETE (2500PSI). THE CITY REQUIRES 3600 PSI CONCRETE STRENGTH @ 28 DAYS. 3600 PSI CONCRETE SHALL BE USED IN ALL CITY AND ETJ PROJECTS.

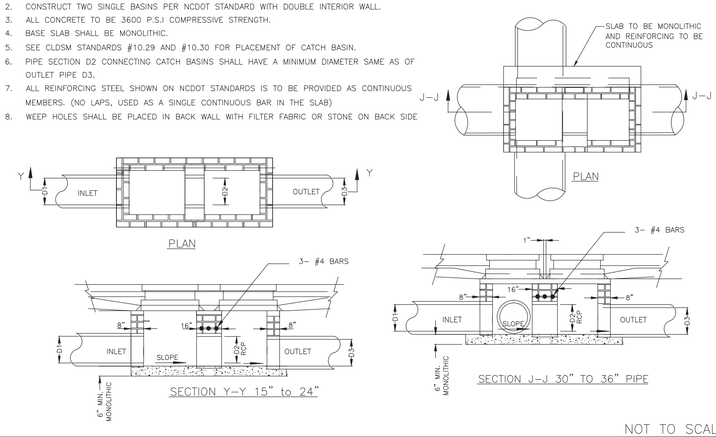
CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

NCDOT STANDARDS APPROVED FOR USE IN THE CITY OF CHARLOTTE AND CHARLOTTE ETJ

STD. NO. 20.00C REV. 10

GENERAL NOTES:

1. SEE NCDOT STANDARD 840.01 FOR DETAILS BASED ON PIPE SIZE PER CROSS SECTION.
2. CONSTRUCT TWO SINGLE BASINS PER NCDOT STANDARD WITH DOUBLE INTERIOR WALL.
3. ALL CONCRETE TO BE 3600 P.S.I COMPRESSIVE STRENGTH.
4. BASE SLAB SHALL BE MONOLITHIC.
5. SEE CLDSM STANDARDS #10.29 AND #10.30 FOR PLACEMENT OF CATCH BASIN.
6. PIPE SECTION D2 CONNECTING CATCH BASINS SHALL HAVE A MINIMUM DIAMETER SAME AS OF OUTLET PIPE D3.
7. ALL REINFORCING STEEL SHOWN ON NCDOT STANDARDS IS TO BE PROVIDED AS CONTINUOUS MEMBERS. (NO LAPS, USED AS A SINGLE CONTINUOUS BAR IN THE SLAB)
8. WEEP HOLES SHALL BE PLACED IN BACK WALL WITH FILTER FABRIC OR STONE ON BACK SIDE



NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

BRICK DOUBLE CATCH BASIN 15" THRU 36" PIPE

STD. NO. 20.03 REV. 8

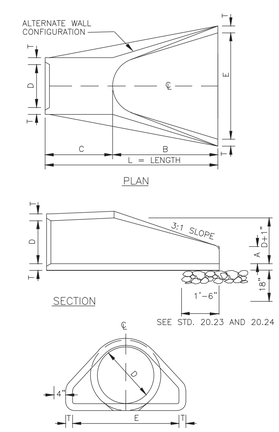


TABLE OF DIMENSIONS							
D	T	A	B	C	E	L	WT.
12"	2'–1/4"	4"	2'–0"	4'–1"	2'–0"	6'–1"	730
15"	2'–1/4"	6"	2'–3"	3'–10"	2'–0"	6'–1"	730
18"	2'–1/2"	9"	2'–3"	3'–10"	3'–0"	6'–1"	1190
24"	3"	10"	3'–8"	2'–6"	4'–0"	6'–2"	1770
30"	3'–1/2"	1'–0"	4'–6"	1'–8"	5'–0"	6'–2"	2380
36"	4"	1'–3"	5'–3"	2'–11"	6'–0"	8'–2"	5320
42"	4'–1/2"	1'–9"	5'–3"	2'–11"	6'–6"	8'–2"	5920
48"	5"	2'–0"	6'–0"	2'–2"	7'–0"	8'–2"	7470
54"	5'–1/2"	2'–3"	5'–6"	2'–10"	7'–6"	8'–4"	8810
60"	6"	2'–6"	5'–0"	3'–3"	8'–0"	8'–3"	11180
66"	6'–1/2"	3'–0"	6'–0"	2'–3"	8'–6"	8'–3"	12530
72"	7"	3'–0"	6'–6"	1'–9"	9'–0"	8'–3"	13980

GENERAL NOTES:

1. SEE FORMER NCDOT STANDARD 310.01 FOR DETAILS.
2. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF LIKE DIAMETER PER AASHTO M170, TABLE 2, WALL B.
3. ALL CONCRETE TO BE 3600 P.S.I COMPRESSIVE STRENGTH.
4. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
5. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
6. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
7. NOT TO BE USED IN NCDOT MAINTAINED RIGHT OF WAY.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

FLARED END SECTION 12" THRU 72" PIPE

STD. NO. 20.22 REV. 1

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-0445 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRENMANN A. MARTIN 11/5/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

DEVELOPMENT DETAILS (SHEET 2 OF 4)

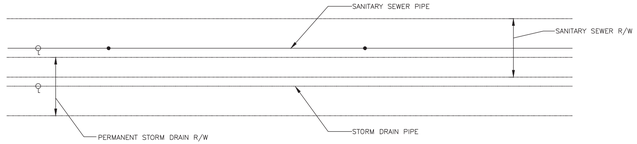
CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

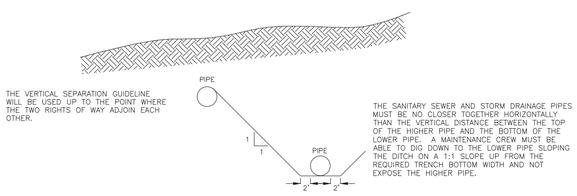
PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15
SHEET:	C1.1

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_SITE DEVELOPMENT DETAILS.dwg, DEVELOPMENT DETAILS (SHEET 2 OF 4), dsarris



THE SANITARY SEWER AND STORM DRAINAGE RIGHTS OF WAY MAY OVERLAP; HOWEVER THE PIPE AND ASSOCIATED STRUCTURES MUST NOT BE IN THE OTHER UTILITY'S RIGHT OF WAY. THE SANITARY SEWER RIGHT OF WAY WIDTHS SHALL BE AS OUTLINED IN C.M.U.D.'S DESIGN MANUAL. THIS DETAIL DOES NOT APPLY TO STORM DRAINAGE UTILIZING OPEN CHANNEL FLOW.

PLAN VIEW



THE VERTICAL SEPARATION GUIDELINE WILL BE USED UP TO THE POINT WHERE THE TWO RIGHTS OF WAY ADJOIN EACH OTHER.

THE SANITARY SEWER AND STORM DRAINAGE PIPES MUST BE NO CLOSER TOGETHER HORIZONTALLY THAN THE VERTICAL DISTANCE BETWEEN THE TOP OF THE HIGHER PIPE AND THE BOTTOM OF THE LOWER PIPE. A MAINTENANCE CREW MUST BE ABLE TO DIG DOWN TO THE LOWER PIPE SLOPING THE DITCH ON A 1:1 SLOPE UP FROM THE REQUIRED TRENCH BOTTOM WIDTH AND NOT EXPOSE THE HIGHER PIPE.

PROFILE VIEW

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

OVERLAPPING STORM DRAINAGE/SANITARY SEWER EASEMENTS

STD. NO. 20.29 REV. 9

GENERAL NOTES:

1. FOR STREAMS CARRYING 500 ACRES OR MORE OF SURFACE RUNOFF, THE EASEMENT REQUIREMENT IS TO BE THE WIDTH OF THE STREAM FROM TOP OF BANK TO TOP OF BANK, PLUS (+) 10' ON EACH SIDE OF STREAM. (40' MINIMUM WIDTH)
2. FOR OPEN CHANNELS THE MINIMUM EASEMENT MUST CONTAIN THE WIDTH OF THE STREAM FROM TOP OF BANK TO TOP BANK.
3. WIDER EASEMENT WIDTHS MAY BE REQUIRED FOR PIPE DEPTHS GREATER THAN TEN FEET.
4. PIPE SYSTEMS AND OPEN CHANNELS ON PRIVATE PROPERTY SHALL BE PLACED IN A STORM DRAINAGE EASEMENT.

Easement Requirements for Open Storm Drainage Channels

Area in Acreage	Easement Requirement
0–45 ac.	20'
45–120 ac.	30'
120–500 ac.	40'
500 ac.+	see note

Easement Requirements for Storm Drain Pipe

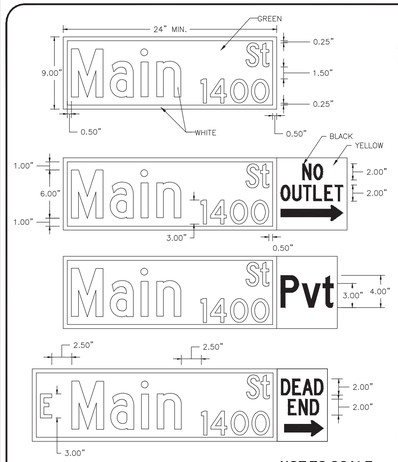
Pipe Size	Easement Requirement
15"	15'
18"	15'
24"	15'
30"	20'
36"	20'
42"	25'
48"	25'
54"+	30'MIN (VARIES)

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

MINIMUM DRAINAGE EASEMENT REQUIREMENTS FOR STORM DRAIN PIPES AND OPEN CHANNELS

STD. NO. 20.30 REV.



NOTES:

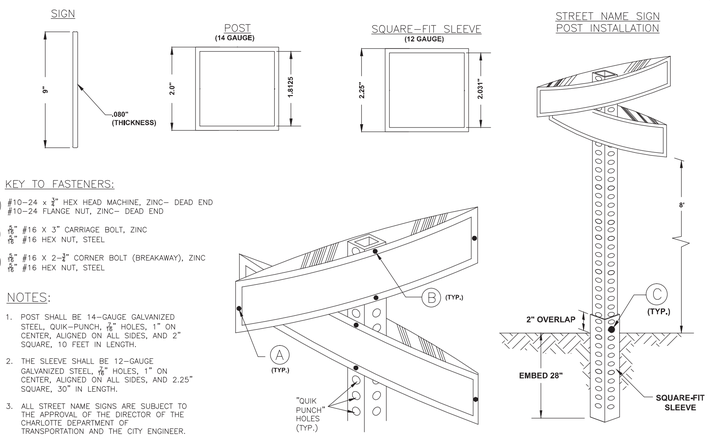
1. STREET NAME MARKERS (SNM) SHALL BE ALUMINUM, FLAT, AND HAVE DIMENSIONS AS SHOWN ON THIS DETAIL. MINIMUM LENGTH OF 24". MAXIMUM LENGTH OF 60". THE SNM'S SHALL BE COVERED WITH WHITE HIGH INTENSITY PRISMATIC (HIP) RETRO-REFLECTIVE SHEETING (3M SERIES 3930 OR EQUIVALENT) WITH PRESSURE SENSITIVE ADHESIVE (OR EQUIVALENT TYPE IV OR HIGHER).
2. THE LETTERS SHALL BE REVERSE CUT FROM TRANSPARENT GREEN OVERLAY FILM (3M #1177 EC FILM OR EQUIVALENT MEETING FEDERAL SPECIFICATION FP-96, SECTION 178.01(A) AND ASTM D4956). THE TRANSPARENT GREEN OVERLAY FILM MUST BE PLACED ON THE SNM TO PROVIDE AN EXPOSED 0.5" BORDER OF THE UNDERLAY WHITE HIP RETRO-REFLECTIVE SHEETING.
3. THE STREET NAME SHALL BE COMPOSED OF INITIAL UPPER CASE LETTERS 6" IN HEIGHT AND CORRESPONDING LOWER CASE LETTERS 4.5" IN HEIGHT, IN FHWA "HIGHWAY B" FONT. THE STREET NAME SHALL BE LEFT-JUSTIFIED AND PLACED 0.5" FROM THE SIGN BORDER. ANY STREET NAME WITH 3 OR FEWER LETTERS SHALL BE CENTERED IN THE SIGN TEXT AREA.
   - PREFIX/SUFFIX NAMES SHALL BE COMPOSED OF INITIAL UPPER CASE LETTERS 3" IN HEIGHT AND CORRESPONDING LOWER CASE LETTERS 2.25" IN HEIGHT, IN FHWA "HIGHWAY C" FONT.
   - BLOCK NUMBERS SHALL BE 3" IN HEIGHT, IN FHWA "HIGHWAY C" FONT.
   - SUFFIX NAMES AND BLOCK NUMBERS SHALL BE RIGHT-JUSTIFIED AND PLACED 0.5" FROM THE RIGHT-SIDE SIGN BORDER AND 0.25" FROM THE TOP AND BOTTOM SIGN BORDERS. PREFIX LETTERS (N, S, E, AND W) SHALL BE CENTERED AND PLACED 0.5" FROM THE LEFT-SIDE SIGN BORDER WITH 2.5" SPACING TO BEGINNING OF STREET NAME.
4. SUPPLEMENTAL SNM WORDING ON YELLOW HIP RETRO-REFLECTIVE SHEETING WITH BLACK VINYL LETTERS SHALL BE PLACED ADJACENT TO THE GREEN OVERLAY FILM/BORDER TO INDICATE STREETS THAT DEAD END, HAVE NO OUTLET, ETC. OR ARE PRIVATE STREETS (PVT). THE YELLOW HIP RETRO-REFLECTIVE SHEETING MUST BE PLACED ON THE SNM TO MAINTAIN AN EXPOSED 0.5" BORDER OF THE UNDERLAY WHITE HIP RETRO-REFLECTIVE SHEETING.
   - NO OUTLET WITH ARROW (RIGHT OR LEFT) - PLACED ON SNM AT ENTRANCE TO A STREET OR STREET NETWORK FROM WHICH THERE IS NO OTHER EXIT. USE UPPER CASE LETTERS 2" IN HEIGHT, IN FHWA "HIGHWAY C" FONT.
   - PVT - PLACED ON SNM AT ENTRANCE TO PRIVATE STREET, USE UPPER CASE LETTER 4" IN HEIGHT AND CORRESPONDING LOWER CASE LETTERS 3" IN HEIGHT, IN FHWA "HIGHWAY C" FONT.
   - DEAD END WITH ARROW (RIGHT OR LEFT) - PLACED ON SNM AT ENTRANCE TO A SINGLE STREET THAT TERMINATES IN A DEAD END OR CUL-DE-SAC. USE UPPER CASE LETTERS 2" IN HEIGHT, IN FHWA "HIGHWAY C" FONT. IF STUB STREET IS LESS THAN OR EQUAL TO 200 FEET, THEN DEAD END IS NOT NECESSARY.
5. ALL SNMs ARE SUBJECT TO THE APPROVAL OF THE DIRECTOR OF THE CHARLOTTE DEPARTMENT OF TRANSPORTATION AND THE CITY ENGINEER.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

STREET NAME SIGN

STD. NO. 50.05B REV. 9



KEY TO FASTENERS:

(A) #10–24 x $\frac{3}{4}$" HEX HEAD MACHINE, ZINC– DEAD END
#10–24 FLANGE NUT, ZINC– DEAD END

(B) $\frac{5}{16}$" x #16 X 3" CARRIAGE BOLT, ZINC
$\frac{5}{16}$" x #16 HEX NUT, STEEL

(C) $\frac{5}{16}$" x #16 X 2–$\frac{1}{2}$" CORNER BOLT (BREAKAWAY), ZINC
$\frac{5}{16}$" x #16 HEX NUT, STEEL

NOTES:

1. POST SHALL BE 14–GAUGE GALVANIZED STEEL, QUIK–PUNCH, $\frac{5}{16}$" HOLES, 1" ON CENTER, ALIGNED ON ALL SIDES, AND 2" SQUARE, 10 FEET IN LENGTH.
2. THE SLEEVE SHALL BE 12–GAUGE GALVANIZED STEEL, $\frac{5}{16}$" HOLES, 1" ON CENTER, ALIGNED ON ALL SIDES, AND 2.25" SQUARE, 30" IN LENGTH.
3. ALL STREET NAME SIGNS ARE SUBJECT TO THE APPROVAL OF THE DIRECTOR OF THE CHARLOTTE DEPARTMENT OF TRANSPORTATION AND THE CITY ENGINEER.

NOT TO SCALE

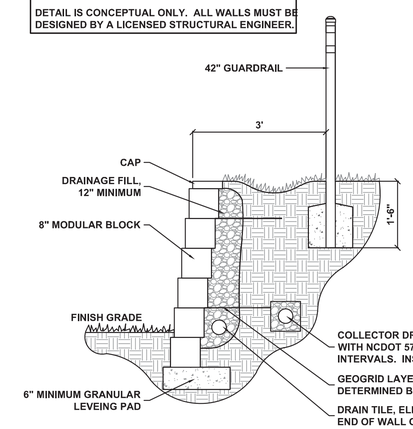
CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

STREET NAME SIGN

STD. NO. 50.05A REV. 9

ESP ASSOCIATES, P.A. IS NOT RESPONSIBLE FOR STRUCTURAL DESIGN OF RETAINING WALLS.

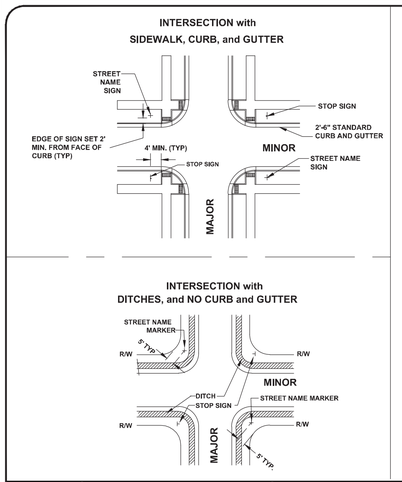
DETAIL IS CONCEPTUAL ONLY. ALL WALLS MUST BE DESIGNED BY A LICENSED STRUCTURAL ENGINEER.



NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING ALL RETAINING WALLS DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF NORTH CAROLINA, WHO IS EXPERIENCED AND QUALIFIED IN SUCH WORK.
2. CONTRACTOR IS RESPONSIBLE FOR OBTAINING A BUILDING PERMIT FOR RETAINING WALL CONSTRUCTION PER STATE AND LOCAL BUILDING CODES.
3. CONTRACTOR AND CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER ARE RESPONSIBLE FOR VERIFYING THE DESIGN SOIL PARAMETERS INDICATED IN THE GEOTECHNICAL REPORT. THESE VALUES INCLUDE, BUT NOT LIMITED TO: FRICTION ANGLE (PHI), COHESION COEFFICIENT (C), SOIL UNIT WEIGHT, SOIL CLASSIFICATION, AND RECOMMENDED LATERAL EARTH PRESSURE COEFFICIENTS FOR REINFORCED ZONE SOIL, RETAINED ZONE SOIL, AND FOUNDATION ZONE SOIL COMPONENTS AS DETERMINED FROM THE FOLLOWING LABORATORY TESTS:
   A. STANDARD PROCTOR
   B. ATTERBERG LIMITS
   C. GRAIN SIZE ANALYSIS
   D. TRIAXIAL SHEAR
4. CONTRACTOR AND CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER ARE RESPONSIBLE FOR PERFORMING OR CAUSING TO BE PERFORMED ANY REQUIRED TESTS, STUDIES, ANALYSES, ETC THAT MAY BE NEEDED TO SUPPORT THE DESIGN OF THE RETAINING WALLS - MINIMUM REQUIREMENTS INCLUDE THE FOLLOWING:
   A. GLOBAL STABILITY
   B. SLIDING
   C. OVERTURNING
   D. ECCENTRICITY
   E. BEARING FAILURE
   F. EXCESSIVE SETTLEMENT
   G. INTERNAL STABILITY
   H. OUTSIDE INFLUENCING FORCES INCLUDED IN DESIGN
5. CONTRACTOR AND CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER MAY NOT EXCLUDE OR ASSIGN TO OTHERS ANY OF THE OBLIGATIONS OR ITEMS NOTED ABOVE.
6. A STATEMENT OF SPECIAL INSPECTIONS SHALL BE SUBMITTED BY THE CONTRACTOR'S PROFESSIONAL ENGINEER RESPONSIBLE FOR THE RETAINING WALL DESIGN AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE NORTH CAROLINA STATE BUILDING CODE.
7. A FINAL REPORT OF SPECIAL INSPECTIONS, DOCUMENTING THE COMPLETION OF ALL SPECIAL INSPECTIONS AND CONFIRMING THE CORRECTION OF ANY DISCREPANCIES, SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY.
8. OWNER SHALL BE RESPONSIBLE FOR HAVING A PROFESSIONAL ENGINEER, REGISTERED IN THE STATE OF NORTH CAROLINA, CERTIFY THAT THE RETAINING WALL(S) WERE BUILT IN CONFORMANCE WITH THE RETAINING WALL DRAWINGS, THESE SPECIFIC NOTES, AND THE CONSTRUCTION DOCUMENTS.
9. CONTRACTOR SHALL INSTALL FENCING ALONG THE TOP OF RETAINING WALLS. FENCE TYPE, LENGTH AND HEIGHT SHALL BE PER SPECIFICATIONS AS ESTABLISHED BY OWNER.

RETAINING WALL DETAIL



NOTES

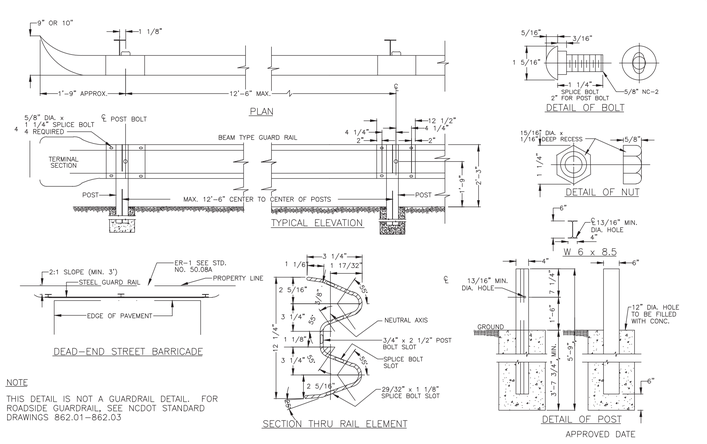
1. TWO STREET NAME MARKERS ARE REQUIRED IF THE MAJOR STREET HAS 3 OR MORE LANES.
2. ANY VARIANCE FROM THIS STANDARD MUST BE APPROVED BY THE CHARLOTTE DEPARTMENT OF TRANSPORTATION.
3. ENSURE STOP SIGN SIZE AND INSTALLATION PER MUTCD STANDARDS.

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

STREET SIGN INSTALLATION LOCATIONS

STD. NO. 50.06 REV. 13



APPROVED DATE

NOTE

THIS DETAIL IS NOT A GUARDRAIL DETAIL. FOR ROADSIDE GUARDRAIL, SEE NCDOT STANDARD DRAWINGS 862.01–862.03

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

DEAD END STREET BARRICADE

STD. NO. 50.07A REV.

GENERAL NOTES:

1. STEEL BEAM TYPE GUARD RAILS SHALL BE INSTALLED AT THE END OF ALL DEAD–END STREETS, EXCEPT CUL–DE–SAC STREETS WHICH HAVE BEEN IMPROVED WITH A PERMANENT TURN–AROUND.
2. FOR STREETS 26' IN WIDTH THE GUARD RAIL SHALL CONSIST OF TWO(2) 12'–6" SECTIONS OR ONE(1) 25' SECTION, THREE (3) STEEL POSTS, AND TWO (2) TERMINAL SECTIONS. FOR STREETS GREATER THAN 25' IN WIDTH THE GUARD RAIL SHALL SPAN THE ENTIRE WIDTH OF THE STREET.
3. GUARD RAIL SHALL CONSIST OF RAIL ELEMENTS FABRICATED TO DEVELOP CONTINUOUS BEAM STRENGTH AND INSTALLED AS SHOWN.
4. MINIMUM THICKNESS OF GUARD RAIL SHALL BE 12 GAGE U.S. STANDARD. THE RAIL ELEMENT INCLUDING SPLICES, SHALL HAVE A MINIMUM ULTIMATE TENSILE STRENGTH OF 80,000 LBS. GUARD RAIL PARTS FURNISHED SHALL BE INTERCHANGEABLE WITH SIMILAR PARTS REGARDLESS OF THE SOURCE OF MANUFACTURER. THE HOLES FOR CONNECTING BOLTS SHALL BE PUNCHED OF DRILLED, BURNING WILL NOT BE PERMITTED.
5. THE GUARD, BOLTS, NUTS, STEEL POSTS. AND ALL OTHER METAL PARTS SHALL BE GALVANIZED TO CONFORM TO THE REQUIREMENTS FOR THE COATING CLASS, (2.50 OUNCES PER SQUARE FOOT) OF THE CURRENT SPECIFICATIONS FOR ZINC–COATED (GALVANIZED) IRON, AND STEEL SHEETS, COILS, AND CUT LENGTHS, IN ACCORDANCE WITH ASTM 123A.
6. IF THE AVERAGE SPELTER COATING AS DETERMINED FROM THE REQUIRED SAMPLES IS LESS THAN TWO (2) OUNCES OF SPELTER PER SQUARE FOOT, OR IF ANY ONE SPECIMEN HAS LESS THAN 1.8 ONCES OF SPELTER PER SQUARE FOOT OF DOUBLE EXPOSED SURFACE, THE LOT SAMPLED SHALL BE REJECTED, THE FINISHED SHEETS SHALL BE OF FIRST CLASS COMMERCIAL QUALITY, FREE FROM INJURIOUS DEFECTS, SUCH AS BLISTERS, FLUX, AND UNCOATED SPOTS.
7. THE GUARD RAIL SHALL BE INSPECTED TO DETERMINE THAT THE MATERIAL, DIMENSIONS, AND WORKMANSHIP ARE IN ACCORDANCE WITH THIS PLAN.
8. WHERE A DEAD–END STREET REQUIRES GUARD RAIL, END OF ROADWAY MARKER SIGNS SHALL ALSO BE REQUIRED. (SEE STD. 50.08A & 50.08B) (ER–1).

NOT TO SCALE

CITY OF CHARLOTTE LAND DEVELOPMENT STANDARDS INCLUDES CHARLOTTE ETJ

DEAD END STREET BARRICADE GENERAL NOTES

STD. NO. 50.07B REV.

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-0040 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BREMANN A. MARTIN 11/5/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

DEVELOPMENT DETAILS (SHEET 3 OF 4)

CHATEAU PHASE 2

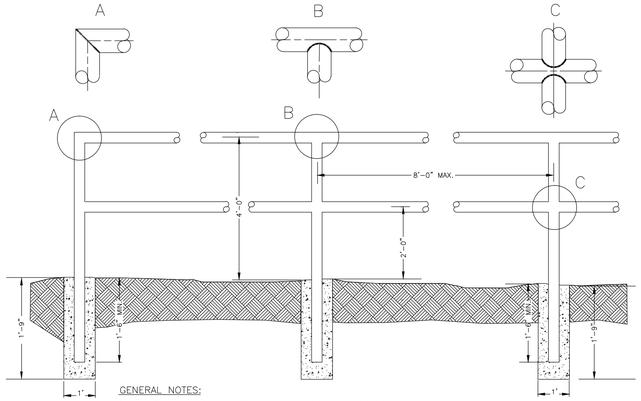
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15

SHEET: C1.2

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_SITE DEVELOPMENT DETAILS.dwg, DEVELOPMENT DETAILS (SHEET 3 OF 3), ddavis



GENERAL NOTES:

1. ALL CONCRETE TO BE 3600 P.S.I. COMPRESSIVE STRENGTH.
2. TYPE OF PIPE TO BE USED IS 1-5/8" MAX. O.D. BLACK IRON, LOW CARBON PIPE OR GALVANIZED.
3. ALL JOINTS TO HAVE A 1/2" FILLET WELD AT ALL JOINTS.
4. AFTER INSTALLATION PAINT ASSMBLY WITH BLACK ALL WEATHER ENAMEL.
5. SEE DETAIL 50.04-B FOR WARRANTS

NOT TO SCALE

CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

SAFETY RAIL

STD. NO. 50.04A REV. 7

WARRANTS

STANDARD SAFETY RAIL (STD. #50.04A) SHALL BE INSTALLED UNDER ANY OF THE FOLLOWING CIRCUMSTANCES IN BOTH NEW CONSTRUCTION AND IN RETROFITTING OR RECONSTRUCTION OF EXISTING ROADWAYS OR SITES:

1. WHEN THE CULVERT CROSSING DETAIL (STD. #10.36A-B) APPLIES.
2. IF THERE IS A TWO FOOT OR GREATER DROPOFF WITHIN 2 FEET OF TH EDGE OF THE SIDEWALK (SEE DIAGRAM A).
3. IF THERE IS A 1-FOOT OR LARGER DROPOFF DIRECTLY ADJACENT TO THE SIDEWALK EDGE (SEE DIAGRAM B).
4. AT THE TOP OF ANY DROPOFF WITHIN THE PEDESTRIAN CLEAR ZONE OR WHERE PEDESTRIANS CAN REASONABLY BE EXPECTED IN THE VICINITY.
5. AT THE DIRECTION OF CDOT OR ENGINEERING & PROPERTY MANAGEMENT STAFF BASED ON FIELD CONDITIONS.

DEFINITIONS

- DROPOFF -- A SLOPE OF 2:1 OR STEEPER. EXAMPLES INCLUDE HEADWALLS, RETAINING WALLS, AND CULVERTS.
- PEDESTRIAN CLEAR ZONE -- 10 FEET OF ANY COMBINATION OF SIDEWALK, SLOPE, AND SHOULDER SLOPED AT 6:1 OR FLATTER. SIDEWALK DOES NOT NEED TO BE PRESENT.
- SIDEWALK -- FOR PURPOSES OF THIS STANDARD, THE TERM "SIDEWALK" IS USED GENERICALLY AND SHALL MEAN ANY PATH OR SURFACE TO BE USED FOR BICYCLE AND/OR PEDESTRIAN TRANSPORTATION. EXAMPLES INCLUDE, BUT ARE NOT LIMITED TO, SIDEWALKS, BIKE PATHS, SHARED-USE PATHS, PEDESTRIAN PATHS, AND GREENWAYS.

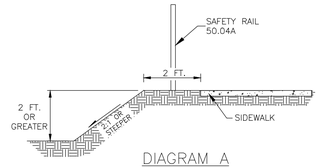
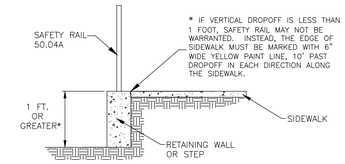


DIAGRAM A
SLOPED DROPOFF AT BACK OF SIDEWALK



* IF VERTICAL DROPOFF IS LESS THAN 1 FOOT, SAFETY RAIL MAY NOT BE WARRANTED. INSTEAD, THE EDGE OF SIDEWALK MUST BE MARKED WITH 6" WIDE YELLOW PAINT LINE, 10' PAST DROPOFF IN EACH DIRECTION ALONG THE SIDEWALK.

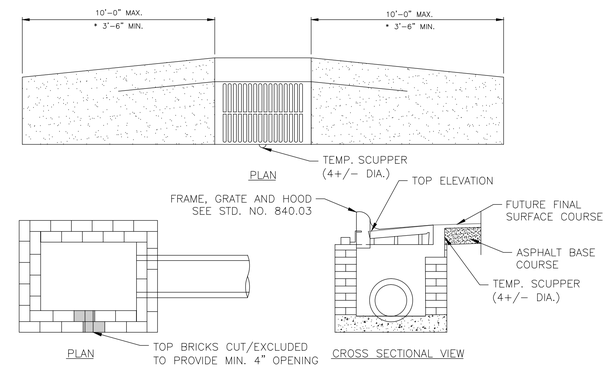
DIAGRAM B
VERTICAL DROPOFF AT BACK OF SIDEWALK

NOT TO SCALE

CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

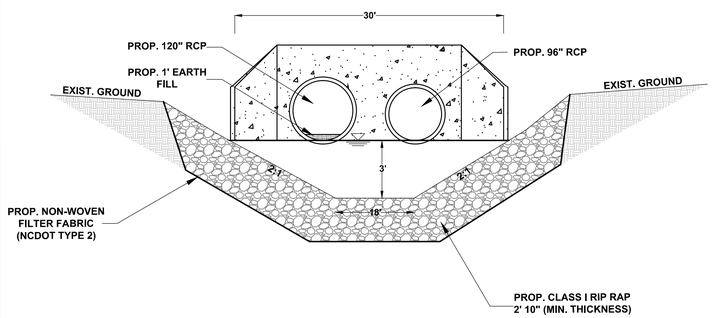
SAFETY RAIL WARRANTS

STD. NO. 50.04B REV. 7

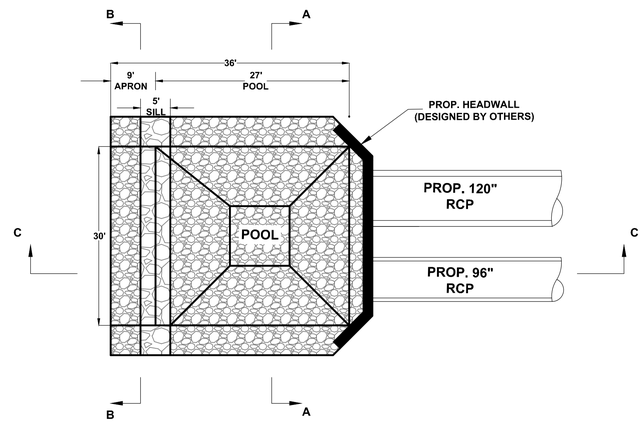


NOT TO SCALE

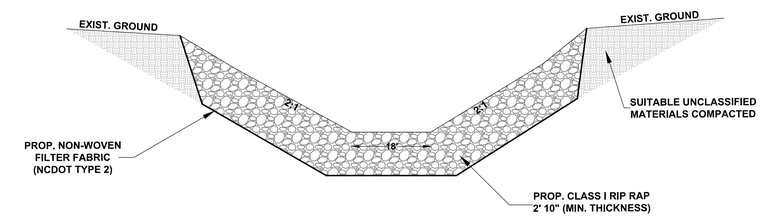
TEMPORARY SCUPPER



SECTION A - A (POOL)
NOT TO SCALE



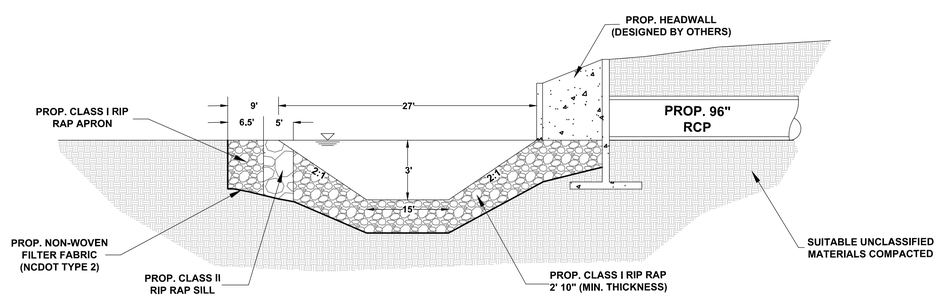
PLAN VIEW
NOT TO SCALE



SECTION B - B (APRON)
NOT TO SCALE

PLUNGE POOL DETAIL

PLUNGE POOL DETAIL



SECTION C - C (PROFILE)
NOT TO SCALE

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite Lowe-2001
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER WILLIAM A. MARTIN 9/28/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DM
6	9/20/2016	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

DEVELOPMENT DETAILS (SHEET 4 OF 4)

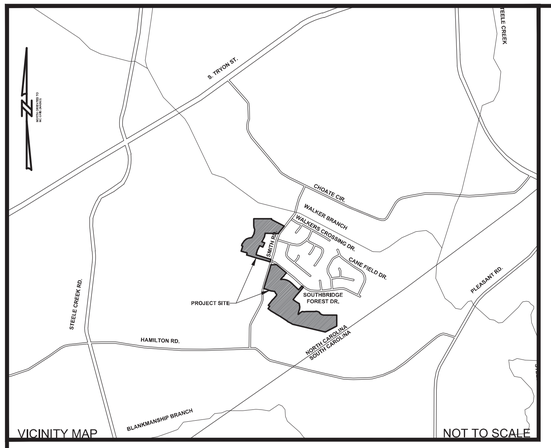
CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: C1.3



LEGEND

- PROP. LIMITS OF DISTURBANCE
- OVERHEAD UTILITY LINE
- EXIST. FENCE
- EXIST. SANITARY SEWER
- EXIST. TREELINE
- EXIST. STORM DRAINAGE
- EXIST. WATERLINE
- EXIST. PAVED ROAD
- EXIST. LIGHT POLE
- EXIST. SIDEWALK
- EXIST. TREE FARM
- EXIST. SWIM BUFFER

EXISTING CONDITION NOTES

1. THIS MAP IS NOT INTENDED TO BE A BOUNDARY SURVEY.
2. THIS PROPERTY IS ZONED R-3.
3. SUBJECT DEED REFERENCE: DB 27950 PG 127
   DB 27950 PG 142
4. SUBJECT TAX PARCELS: 219-32-392
5. PROPERTY IS SUBJECT TO ANY AND ALL APPLICABLE DEED RESTRICTIONS, EASEMENTS, RIGHTS-OF-WAY, UTILITIES AND COVENANTS WHICH MAY BE OF RECORD.
6. BOUNDARY INFORMATION TAKEN FROM "BOUNDARY SURVEY AND MINOR SUBDIVISION PLAT OF THE ELISHA PROPERTY", BY ESP ASSOCIATES, P.A., DATED 9-29-14.
7. TOPOGRAPHIC INFORMATION TAKEN FROM "TOPOGRAPHIC SURVEY OF TAX PARCELS 2193292, 21904113, 21904102, AND 21926112" BY ESP ASSOCIATES, P.A., DATED 7-9-14. EXISTING CONTOUR INTERVAL = 1 FOOT.
8. TOPOGRAPHIC INFORMATION PROVIDED BEYOND LIMITS OF TOPOGRAPHIC SURVEY BY ESP ASSOCIATES, P.A. TAKEN FROM AERIAL TOPOGRAPHY PROVIDED BY MECKLENBURG COUNTY. AERIAL TOPOGRAPHIC INFORMATION PREPARED UTILIZING PHOTOGRAMMETRIC METHODS USING AERIAL PHOTOGRAPHY DATED JANUARY 11, 2004 AND FEBRUARY 19, 1998.
9. WETLAND INFORMATION TAKEN FROM "WETLANDS SURVEY OF TAX PARCELS 2193292, 21904113, 21904102, AND 21926112 " BY ESP ASSOCIATES, P.A. DATED 6-23-14.
10. PROJECT LOCALIZED ON MONUMENT "M 090" WITH NAD 83/2011, NAVD 88 ELEVATION.

DEMOLITION NOTES

1. THE PURPOSE OF THIS PLAN IS FOR DEMOLITION ONLY
2. ALL NECESSARY PERMITS FOR DEMOLITION SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO BEGINNING WORK. CONTRACTOR SHALL PROTECT ALL ADJACENT LANDS FROM DAMAGE DURING DEMOLITION WORK. ANY OFF SITE AREAS DISTURBED SHALL BE RETURNED TO A CONDITION EQUAL TO OR BETTER THAN THE EXISTING CONDITION.
3. BUILDINGS AND APPURTENANCES DESIGNATED FOR DEMOLITION SHALL NOT BE DISTURBED BY THE CONTRACTOR UNTIL HE HAS BEEN FURNISHED WITH A NOTICE OF POSSESSION AND APPROVAL TO PROCEED BY THE DEVELOPER. FOUNDATIONS, FLOORS, FLOOR SLABS AND BASEMENTS SHALL BE REMOVED TO A MINIMUM OF ONE FOOT BELOW GRADE OF THE SURROUNDING AREA OR TO A DEPTH REQUIRED TO ACCOMMODATE PROPOSED STRUCTURES AND UTILITIES.
4. DEMOLITION MATERIALS NOT SUITABLE FOR FILL MATERIAL SHALL BE LEGALLY DISPOSED OF OFF SITE. ALL DEBRIS SHALL BE HAULED OFF SITE TO A DISPOSAL AREA APPROVED BY THE STATE OF NORTH CAROLINA FOR THE HANDLING OF DEMOLITION DEBRIS.
5. TANKS SHALL BE COMPLETELY REMOVED AND BASEMENTS SHALL BE CLEARED OF ALL DEBRIS APPLIANCES, WOOD OR METAL PARTITIONS, WOOD FLOORS, ETC., SO THAT ONLY MASONRY WALLS AND CONCRETE BASEMENT FLOORS REMAIN. ALL FLOOR SLABS AND MASONRY WALLS TO REMAIN SHALL BE BROKEN UP AND USED AS FILL AS DIRECTED BY THE GEOTECHNICAL ENGINEER. THE CONTRACTOR SHALL COMPLY WITH ALL REGULATIONS APPLICABLE TO THE REMOVAL AND DISPOSAL OF UNDERGROUND TANKS.
6. ALL MATERIAL EXCEPT THAT BELONGING TO A PUBLIC OR PRIVATE UTILITY COMPANY SHALL BECOME THE PROPERTY OF THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY PIEDMONT NATURAL GAS, CHARLOTTE-MECKLENBURG UTILITIES, AND DUKE POWER WHEN WATER, GAS, AND ELECTRIC METERS ARE READY FOR REMOVAL AND SHALL BE RESPONSIBLE FOR DISCONNECTING ALL UTILITIES IN COMPLIANCE WITH THE CITY OF CHARLOTTE REQUIREMENTS.
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9. NECESSARY BARRICADES, SUFFICIENT LIGHTS, SIGNS, AND OTHER TRAFFIC CONTROL METHODS AS MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC SHALL BE PROVIDED AND MAINTAINED THROUGHOUT THE LIFE OF THE PROJECT.
10. ALL ON-SITE WELLS SHALL BE PERMANENTLY ABANDONED IN ACCORDANCE WITH LOCAL AND NORTH CAROLINA REGULATIONS BY THE CONTRACTOR.

Know what's below. Call before you dig.

GRAPHIC SCALE

100' 0 50' 100' 200' 400'

(IN FEET)
1 inch = 100 ft.

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-4948 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER SUSANNA A. MARTIN 9/1/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

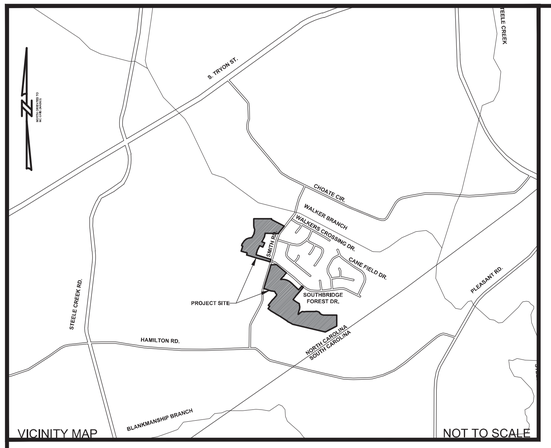
EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 1 OF 2)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15
SHEET:	C2.0



LEGEND

- PROP. LIMITS OF DISTURBANCE
- OVERHEAD UTILITY LINE
- EXIST. FENCE
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- EXIST. TREELINE
- EXIST. STORM DRAINAGE
- EXIST. WATERLINE
- EXIST. PAVED ROAD
- EXIST. LIGHT POLE
- EXIST. SIDEWALK
- EXIST. TREE FARM
- EXIST. SWIM BUFFER

EXISTING CONDITION NOTES

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3. SUBJECT DEED REFERENCE: DB 27950 PG 127
   DB 27950 PG 142
4. SUBJECT TAX PARCELS: 219-32-392
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10. PROJECT LOCALIZED ON MONUMENT "M 090" WITH NAD 83/2011, NAVD 88 ELEVATION.

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GRAPHIC SCALE

100' 0 50' 100' 200' 400'

(IN FEET)
1 inch = 100 ft.

811 Know what's below. Call before you dig.

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P.O. Box 7030
Charlotte, NC 28241
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Fort Mill, SC 29708
704-588-0249 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BREMANN A. MARTIN 11/5/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

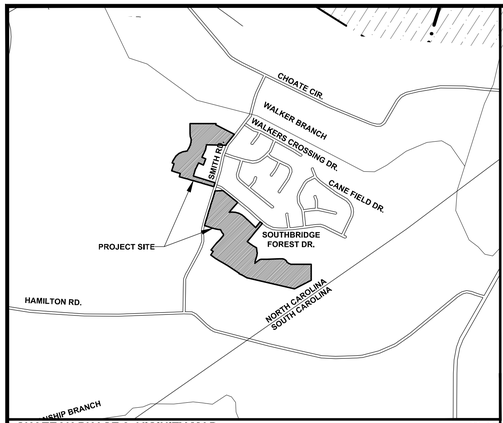
EXISTING CONDITIONS AND DEMOLITION PLAN (SHEET 2 OF 2)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15
SHEET:	C2.1



CHATEAU PHASE 2- VICINITY MAP NTS

TREE SAVE:

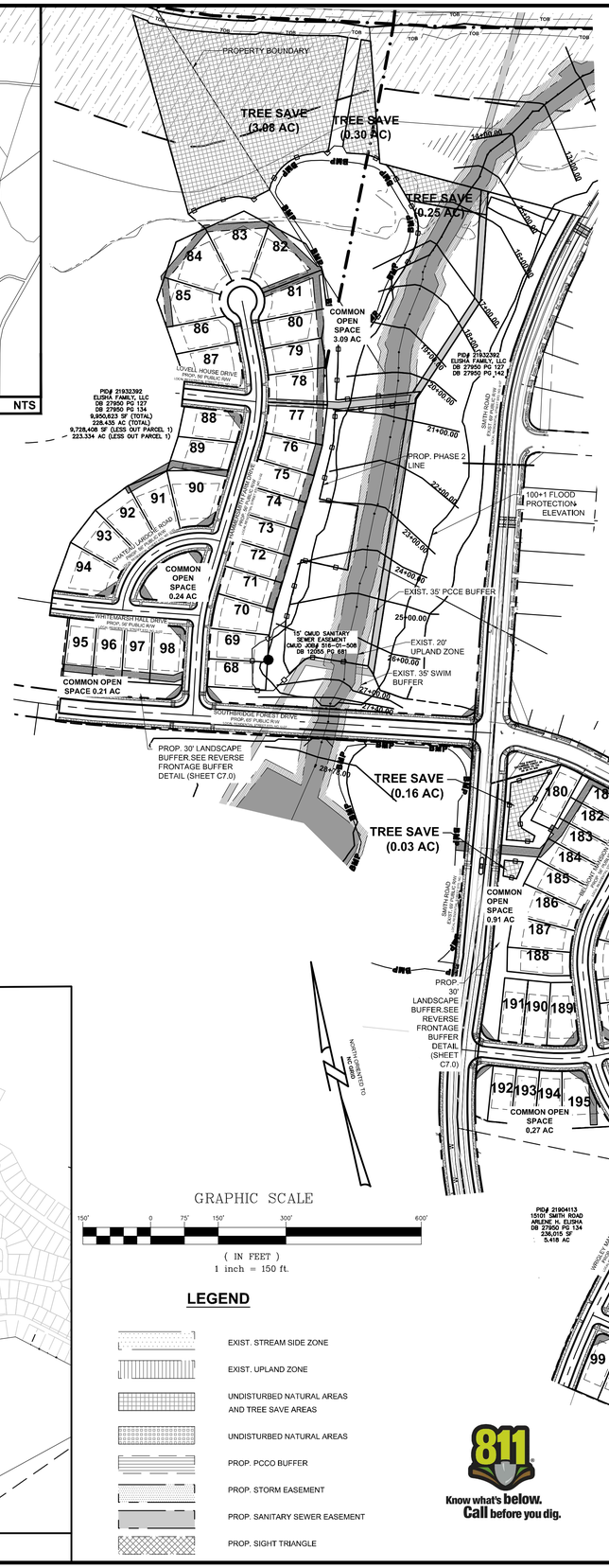
REQUIRED MINIMUM TREE SAVE AREA:
TOTAL AREA = 60.88 AC.
TOTAL BUA = 17.14 AC. (28.15%)
TREE SAVE AREA REQUIRED = 60.88 AC. X 25%
= 15.22 AC.
TREE SAVE AREA PROVIDED = 15.22 AC. (25%)
TREE SAVE AREAS WITHOUT ADEQUATE CANOPY GROWTH WILL HAVE TO BE REPLANTED PER THE TREE ORDINANCE

NATURAL AREA:

REQUIRED MINIMUM NATURAL AREA:
TOTAL AREA = 60.88 AC.
TOTAL BUA = 17.14 AC. (28.15%)
NATURAL AREA REQUIRED = 60.88 AC. X 17.5%
= 10.65 AC.
NATURAL AREA PROVIDED = 21.94 AC. (36.04%)

PHASE 2 ASSIGNED MAXIMUM LOT IMPERVIOUS AREA	
LOT NO.	MAX. IMPERVIOUS AREA PER LOTS (SF)
99-195	3,800
68-98	4,800

MAXIMUM BUILDING COVERAGE	
SINGLE FAMILY LOT SIZE (SF)	MAXIMUM BUILDING COVERAGE (%)
6,501 - 8,500	40
8,501 - 15,000	35
15,501 OR GREATER	30



Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
11+00	575.48	578.78	579.78
12+00	577.41	581.11	582.11
13+00	577.68	581.51	582.51
14+00	578.29	581.22	582.22
15+00	579.93	582.57	583.57
16+00	581.36	584.14	585.14
17+00	581.77	584.79	585.79
18+00	581.88	584.60	585.60
19+00	582.58	585.40	586.40
20+00	583.80	587.32	588.32
21+00	584.87	587.94	588.94
22+00	586.13	588.88	589.88
23+00	586.24	588.89	589.89
24+00	587.44	590.44	591.44
25+00	588.38	591.42	592.42
26+00	589.27	592.65	593.65
27+00	590.66	593.72	594.72
27+40	590.62	594.93	595.93
28+78	597.58	601.09	602.09

NOTES:

1. BOUNDARY INFORMATION TAKEN FROM "BOUNDARY SURVEY AND MINOR SUBDIVISION PLAT OF THE ELISHA PROPERTY", BY ESP ASSOCIATES, P.A., DATED 9-29-14.
2. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH INSPECTOR.
3. ALL ROAD IMPROVEMENTS AT SMITH ROAD ROAD ARE TO BE COORDINATED WITH THE CITY OF CHARLOTTE ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
4. DEVELOPER WILL PROVIDE STREET SIGNS PER CLDSM# 50.05 (9" SIGNS ONLY).
5. SIGHT TRIANGLES SHOWN ARE THE MINIMUM REQUIRED.
6. IN ROLLING AND HILLY TERRAINS, SWEEPING OF THE STONE BASE AND/OR APPLICATION OF A TACK COAT MAY BE REQUIRED NEAR INTERSECTIONS. THESE REQUIREMENTS WILL BE ESTABLISHED BY THE INSPECTOR AND BASED ON FIELD CONDITIONS.
7. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES. WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
8. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM OF 0.5% SLOPE ON THE CURB.
9. SUBSURFACE DRAINAGE FACILITIES MAY BE REQUIRED IN THE STREET RIGHT-OF-WAY IF DEEMED NECESSARY BY THE INSPECTOR.
10. THE PURPOSE OF THE STORM DRAINAGE EASEMENT (SDE) IS TO PROVIDE STORM WATER CONVEYANCE. BUILDINGS ARE NOT PERMITTED IN THE EASEMENT AREA. ANY OTHER OBJECTS WHICH IMPEDE STORM WATER FLOW OR SYSTEM MAINTENANCE ARE ALSO PROHIBITED.
11. THE DEVELOPER SHALL MAINTAIN EACH STREAM, CREEK, OR BACKWASH CHANNEL IN AN UNOBSTRUCTED STATE AND SHALL REMOVE FROM THE CHANNEL AND BANKS OF THE STREAM ALL DEBRIS, LOGS, TIMBER, JUNK AND OTHER ACCUMULATIONS.
12. ANY BUILDING WITH THE 100+1 STORMWATER ELEVATION LINE IS SUBJECT TO THE RESTRICTIONS OF THE CITY OF CHARLOTTE SUBDIVISION ORDINANCE, SECTION 7.200.8.
13. ANY CONSTRUCTION OR USE WITHIN THE FUTURE CONDITIONS FLOOD FRINGE LINE IS SUBJECT TO THE RESTRICTIONS IMPOSED BY THE FLOODWAY REGULATIONS OF THE CITY OF CHARLOTTE AND MECKLENBURG COUNTY.
14. ALL OPENINGS (e.g., DOORS, WINDOWS, VENTS) IN STRUCTURES BUILT ON LOT #'s 60-64 SHOULD BE LOCATED A MINIMUM OF ONE FOOT ABOVE THE ADJACENT FINISHED GROUND SURFACE.
15. PE SEALED SHOP DRAWINGS FOR RETAINING WALL MUST BE SUBMITTED TO CITY ENGINEER PRIOR TO CONSTRUCTION.
16. "AS-BUILT" DRAWINGS AND PLANS OF THE STORM DRAINAGE SYSTEM, INCLUDING DESIGNED DITCHES, MUST BE SUBMITTED PRIORTO SUBDIVISION FINAL INSPECTION TO THE CITY/COUNTY ENGINEERING DEPARTMENT IN ACCORDANCE WITH THE CITY/COUNTYSUBDIVISION ORDINANCE.
17. PRIOR TO CO, SURVEYOR SEALED AS-BUILT DRAWINGS OF ALL WATER QUALITY BMP'S AND DETENTION SYSTEMS MUST BE PROVIDED.
18. NON-STANDARD ITEMS (ie: PAVERS, IRRIGATION SYSTEMS, ETC.) IN THE RIGHT-OF-WAY REQUIRE A RIGHT-OF-WAY ENCROACHMENT AGREEMENT WITH THE CHARLOTTE DEPARTMENT OF TRANSPORTATION BEFORE INSTALLATION. FOR CITY OF CHARLOTTE MAINTAINED STREETS, CONTACT CDOT AT (704) 336-3888.
19. PER SECTION 18-175(e) OF CITY CODE AND SECTION 10.0 OF THE CITY'S POST CONSTRUCTION CONTROLS ADMINISTRATIVE MANUAL, ALL REQUIRED NATURAL AREAS AND/OR POST CONSTRUCTION CONTROL EASEMENTS (PCCEs) MUST BE RECORDED PRIOR TO ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.
20. CERTIFICATION AND STREET CUT PERMITS ARE REQUIRED FOR UTILITY CUTS ON CITY STREETS. ALLOW 7 DAYS PROCESSING FOR PERMIT. FOR INFORMATION CONTACT CHARLOTTE DEPARTMENT OF TRANSPORTATION (704-336-4025) OR VISIT HTTP://WWW.CHARMECK.ORG/DEPARTMENTS/TRANSPORTATION/STREET+MAINTENANCE/HOME.HTM
21. ANY WORK WITHIN THE CITY'S R/W THAT REQUIRES CLOSURE OF THE SIDEWALK OR TRAVEL LANE FOR LESS THAN 30 DAYS REQUIRES A R/W USE PERMIT. TRAFFIC CONTROL PLANS FOR ANY SIDEWALK OR TRAVEL LANE CLOSURES MUST BE SUBMITTED AS PART OF THE R/W USE PERMIT REQUEST. TRAFFIC CONTROL PLANS MUST BE IN ACCORDANCE WITH CDOT'S WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH) AND MUST BE REVIEWED AND APPROVED. CONTRACTOR SHALL CONTACT CDOT AT LEAST 5 BUSINESS DAYS IN ADVANCE OF BEGINNING OF WORK AT (704) 432-1562.
23. CONSTRUCTION STAGING WITHIN CITY R/W LASTING MORE THAN 30 DAYS REQUIRES A R/W LEASE AGREEMENT. CONTRACTOR SHALL CONTACT CDOT AT (704) 336-2562.
24. RIGHT-OF-WAY CLOSURES LONGER THAN 30 DAYS REQUIRE A R/W LEASE AGREEMENT WHICH WILL INCLUDE THE SUBMITTAL OF A TRAFFIC CONTROL PLAN. TRAFFIC CONTROL PLANS REQUIRED THROUGH A LEASE AGREEMENT MAY BE DIFFERENT FROM THE ONE REQUIRED DURING THE LAND DEVELOPMENT PLAN REVIEW AND ARE SUBJECT TO REVISIONS. THE REVISED TRAFFIC CONTROL PLANS MUST BE SUBMITTED AS PART OF THE LEASE AGREEMENT PROCESS FOR APPROVAL PRIOR TO START OF R/W CLOSURES. CONTRACTOR SHALL CONTACT CDOT AT (704) 336-2562
25. ANTICIPATED START DATE JANUARY 2016. ANTICIPATED END DATE JUNE 2016.

DEVELOPMENT INFORMATION:

NAME:	CHATEAU PHASE 2
USE:	SINGLE FAMILY RESIDENTIAL
DEVELOPER:	LENNAR CAROLINAS, LLC 11230 CARMEL COMMONS BOULEVARD CHARLOTTE, NC 28226
ENGINEER:	ESP ASSOCIATES, P.A. ANDREW MARTIN, PE P.O. BOX 7030 CHARLOTTE, NC 28241
ZONING:	R-3 (DEVELOPED AS R-4 CLUSTER WITH TREE SAVE INCENTIVES)
PROPERTY OWNER:	LENNAR CAROLINAS, LLC DB 27950, PG. 127 DB 27950, PG. 142 TAX PARCEL ID# 219-32-392

SITE DATA:

PHASE 2 AREA:	60.88 AC.
PHASE 2 MAX. DENSITY	3.00 D.U./AC.
PHASE 2 DENSITY	2.10 D.U./AC.
PHASE 2 MAX. ALLOWABLE LOTS:	182
PHASE 2 PROPOSED LOTS:	128

PHASE 2:

PROP. AREA IN LOTS:	24.75 AC.
PROP. AREA IN R/W:	9.92 AC.
PROP. COMMON OPEN SPACE:	22.20 AC.
LINEAR FEET OF STREET:	7,719 LF

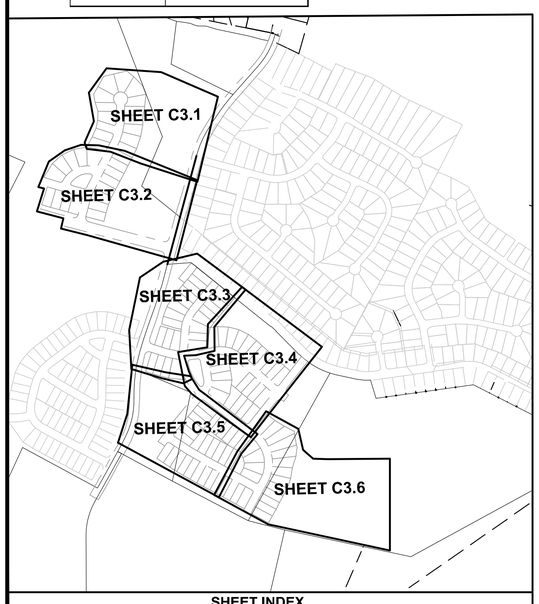
SETBACKS:

MIN. FRONT YARD:	17 FT (R/W) 20 FT (R/W) FOR GARAGE
MIN. SIDE YARD:	5 FT
MIN. SIDE YARD AT CORNER:	10 FT
MIN. REAR YARD:	30 FT

LOTS:

MIN. LOT WIDTH REQUIRED:	50.00 FT
MIN. LOT WIDTH PROVIDED:	50.80 FT
PROPOSED LOTS < 60':	67 (52.34%)
PROPOSED LOTS ≥ 60':	61 (47.66%)
MIN. LOT AREA REQUIRED:	6,000 SF
MIN. LOT AREA PROVIDED:	6,032 SF
AVG. LOT AREA PROVIDED:	8,433 SF

Flood Study Cross-section	100- Year W.S.E. (ft)	Flood Protection Elev. (ft)
0+00	576.82	577.82
1+00	578.01	579.01
2+00	579.37	580.37
3+00	580.33	581.33
4+00	581.06	582.06
5+00	584.91	585.91
6+00	582.90	583.90
7+00	583.70	584.70
8+00	584.71	585.71
9+00	586.20	587.20
10+00	587.41	588.41
11+00	588.21	589.21
12+00	589.19	590.19
13+00	590.37	591.37
14+00	591.60	592.60
15+00	592.95	593.95
16+00	594.50	595.50
17+00	595.78	596.78
18+00	597.36	598.36
19+00	598.94	599.94
20+00	601.91	602.91
21+00	605.35	606.35
21+72.00	607.41	608.41



SHEET INDEX
1"=500'

GRAPHIC SCALE
150' 0 75' 150' 300' 600'
(IN FEET)
1 inch = 150 ft.

LEGEND

- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
- PROP. PCCO BUFFER
- PROP. STORM EASEMENT
- PROP. SANITARY SEWER EASEMENT
- PROP. SIGHT TRIANGLE

811 Know what's below. Call before you dig.

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P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER ANDREW A. MARTIN 6/9/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	9/20/2016	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

SITE PLAN OVERALL

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C3.0

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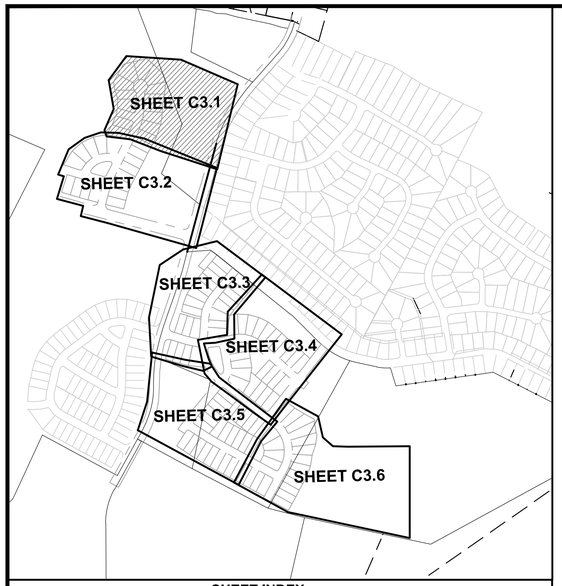


SHEET INDEX
1"=500'

LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
- EXIST. PCCO BUFFER
- PROP. SIDEWALK
- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
- PROPOSED DENUDED AREA
- PHASE LINE

Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
14+00	578.29	581.22	582.22
15+00	579.93	582.57	583.57
16+00	581.36	584.14	585.14
17+00	581.77	584.79	585.79
18+00	581.88	584.60	585.60
19+00	582.58	585.40	586.40
20+00	583.80	587.32	588.32
21+00	584.87	587.94	588.94
22+00	586.13	588.88	589.88

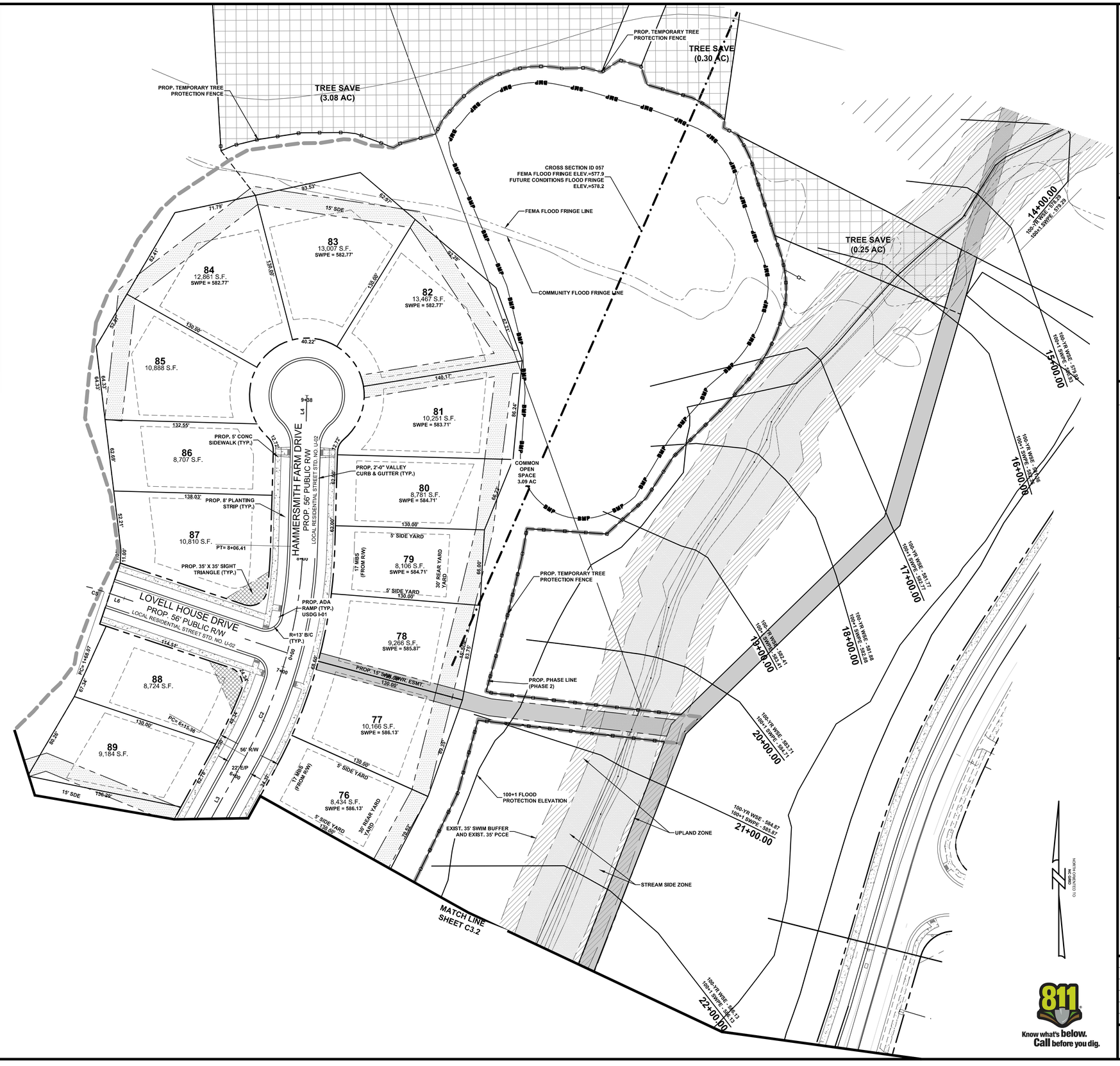
STREET CENTERLINE LINE TABLE

LINE	LENGTH	BEARING
L3	331.74'	N 29°11'27" E
L4	131.95'	N 1°49'40" E
L6	168.07'	N 71°12'43" W

STREET CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C2	400.00'	191.03'	97.37'	189.22'	N 15°30'33" E	27°21'46"
C5	200.00'	123.00'	63.52'	121.07'	N 88°49'52" W	35°14'17"

GRAPHIC SCALE
40' 0 20' 40' 80' 160'
(IN FEET)
1 inch = 40 ft.



ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 300
3475 Lakeside Drive
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIDGETTE ANN A. MARTIN 8/12/16

NO.	DATE	REVISION	BY
1	8/1/2015	REVISION PER CITY OF CHERLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

SITE PLAN (SHEET 1 OF 6)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION

PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C3.1

Know what's below. Call before you dig.

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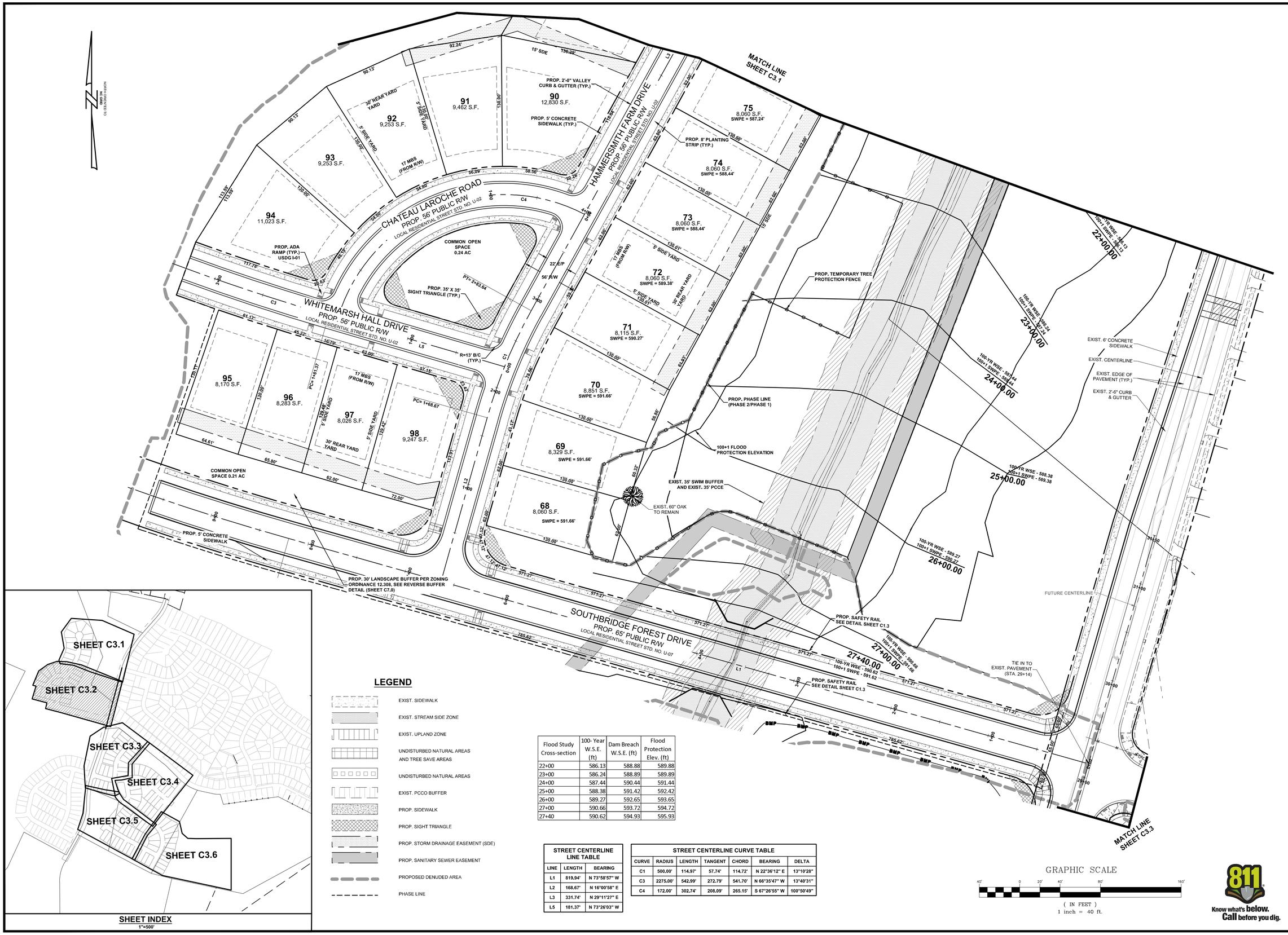

SHEET INDEX
1"=500'

LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
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- PROP. SIDEWALK
- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
- PROPOSED DENUDED AREA
- PHASE LINE

Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
22+00	586.13	588.88	589.88
23+00	586.24	588.89	589.89
24+00	587.44	590.44	591.44
25+00	588.38	591.42	592.42
26+00	589.27	592.65	593.65
27+00	590.66	593.72	594.72
27+40	590.62	594.93	595.93

STREET CENTERLINE LINE TABLE

LINE	LENGTH	BEARING
L1	819.94'	N 73°58'57" W
L2	168.67'	N 16°00'58" E
L3	331.74'	N 29°11'27" E
L5	181.37'	N 73°26'03" W

STREET CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C1	500.00'	114.97'	57.74'	114.72'	N 22°36'12" E	13°10'28"
C3	2275.00'	542.99'	272.79'	541.70'	N 66°35'47" W	13°40'31"
C4	172.00'	302.74'	208.09'	265.15'	S 67°26'55" W	100°50'49"

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803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA ESP ASSOCIATES, P.A. LICENSE NO.: C-0587

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 027971 BRIDGETTE ANN A. MARTIN 9/28/16

NO.	DATE	REVISION	BY
1	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	9/20/2016	REVISION PER CULVERT DESIGN CHANGE	

SITE PLAN (SHEET 2 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION

PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C3.2

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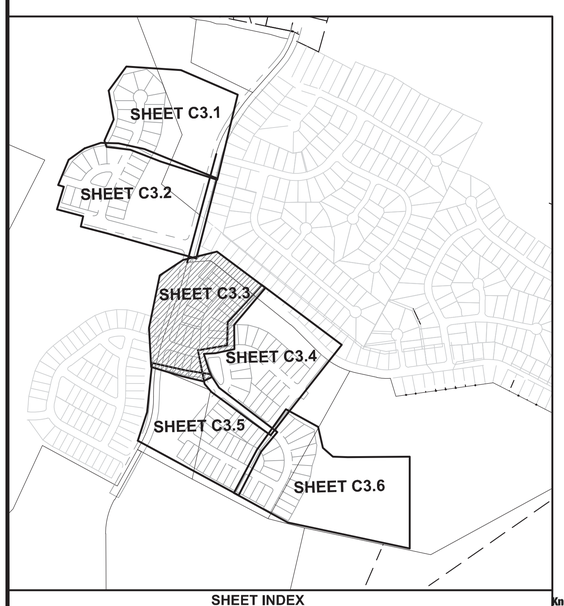

SHEET INDEX
1"=500'

LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
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- PROP. SIDEWALK
- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
- PROPOSED DENUDED AREA
- PHASE LINE

GRAPHIC SCALE
40' 0 20' 40' 80' 160'
(IN FEET)
1 inch = 40 ft.

STREET CENTERLINE LINE TABLE

LINE	LENGTH	BEARING
L7	170.17'	S 71°25'40" E
L8	77.74'	N 78°11'37" E
L10	279.43'	S 41°00'33" W
L11	146.27'	S 5°39'45" W

STREET CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C6	500.00'	265.10'	135.75'	262.01'	S 86°37'01" E	30°22'44"
C9	250.00'	154.23'	79.66'	151.79'	S 23°20'09" W	35°20'48"
C10	350.00'	342.71'	186.50'	329.18'	S 22°23'20" E	56°06'10"

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803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

SITE PLAN (SHEET 3 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION

PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: **C3.3**

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LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
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- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
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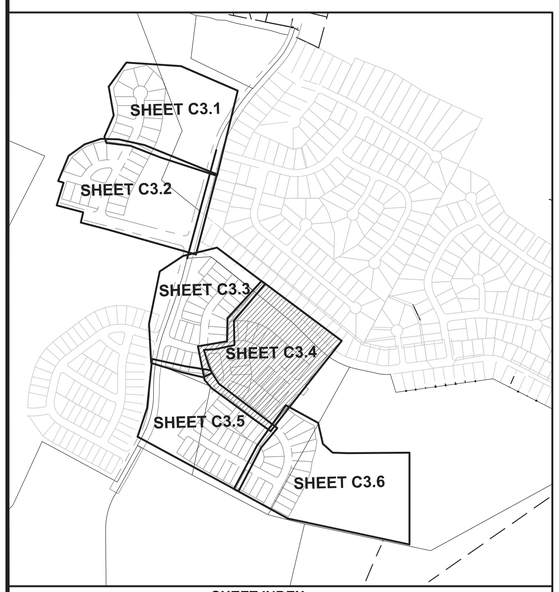
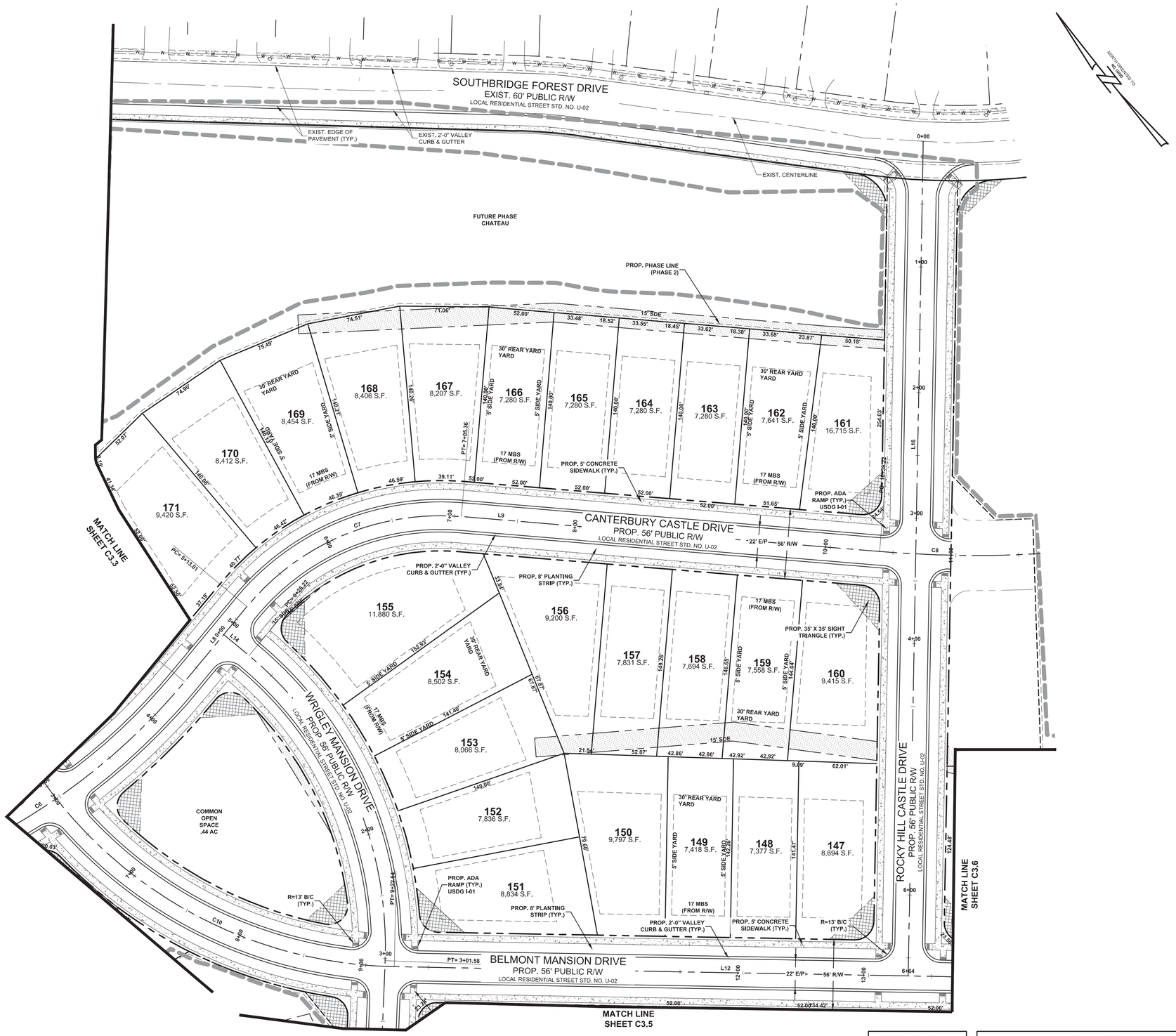
- PHASE LINE



SHEET INDEX
1"=500'



GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

STREET CENTERLINE LINE TABLE		
LINE	LENGTH	BEARING
L8	77.74'	N 78°11'37" E
L9	333.86'	S 46°42'07" E
L14	26.22'	S 11°48'23" E
L15	320.68'	S 40°46'58" W
L16	664.47'	S 39°33'40" W

STREET CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C6	500.00'	265.10'	135.75'	262.01'	S 86°37'01" E	30°22'44"
C7	200.00'	192.35'	104.35'	185.02'	S 74°15'15" E	55°06'16"
C8	920.00'	801.74'	428.32'	776.61'	S 71°40'02" E	49°55'50"
C12	300.00'	275.36'	148.23'	265.79'	S 14°29'18" W	52°35'21"

Know what's below. Call before you dig.

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 1 - Lower Level
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

SITE PLAN (SHEET 4 OF 6)

CHATEAU PHASE 2

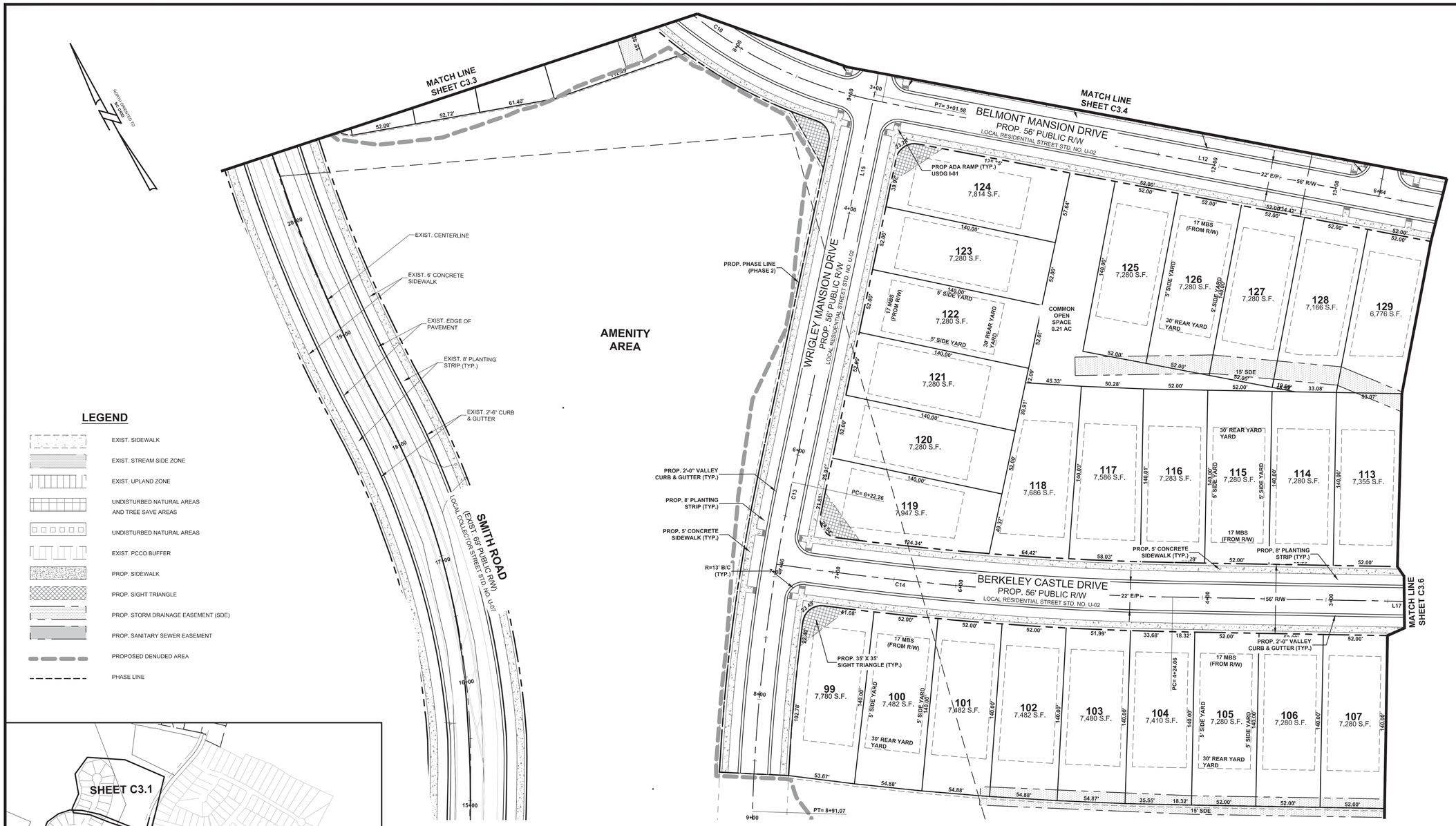
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

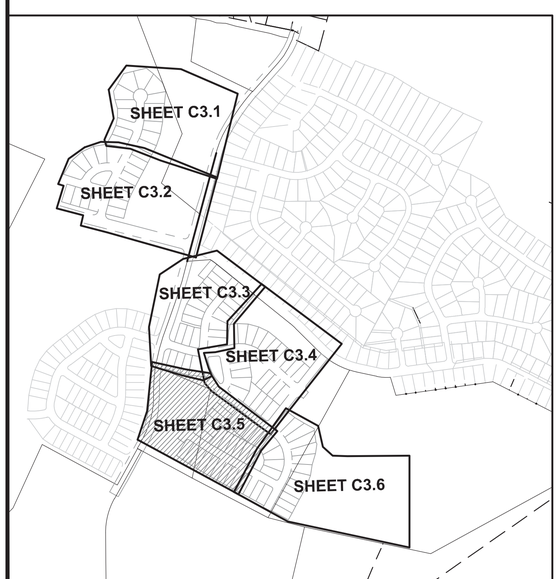
SHEET: **C3.4**

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2 Sheets\CN13.400-Ch Phase 2 - SITE PLAN.dwg, SITE PLAN (SHEET 4 OF 6), dsiarris



LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
- EXIST. PCCO BUFFER
- PROP. SIDEWALK
- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
- PROPOSED DENUDED AREA
- PHASE LINE



SHEET INDEX
1"=500'

Know what's below. Call before you dig.

GRAPHIC SCALE
(IN FEET)
1 inch = 40 ft.

STREET CENTERLINE LINE TABLE

LINE	LENGTH	BEARING
L12	465.16'	S 50°26'25" E
L15	320.68'	S 40°46'58" W
L17	424.06'	N 60°09'08" W

STREET CENTERLINE CURVE TABLE

CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C10	350.00'	342.71'	186.50'	329.18'	S 22°23'20" E	56°06'10"
C13	1500.00'	268.81'	134.77'	268.45'	S 35°38'56" W	10°16'04"
C14	2500.00'	321.79'	161.12'	321.56'	N 56°27'53" W	7°22'29"

ESP Associates, P.A.
P.O. Box 7030
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Suite 300
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

SITE PLAN (SHEET 5 OF 6)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION

PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: **C3.5**

V:\CN13.400 - Chateau Phase 2\CN13 Phase 2 Demo\CN13_PH2_C3.5_SITE_PLAN.dwg, SITE PLAN (SHEET 5 OF 6), cstarns
V:\CN13.400 - Chateau Phase 2\CN13 Phase 2 Demo\CN13_PH2_SITE_PLAN.dwg

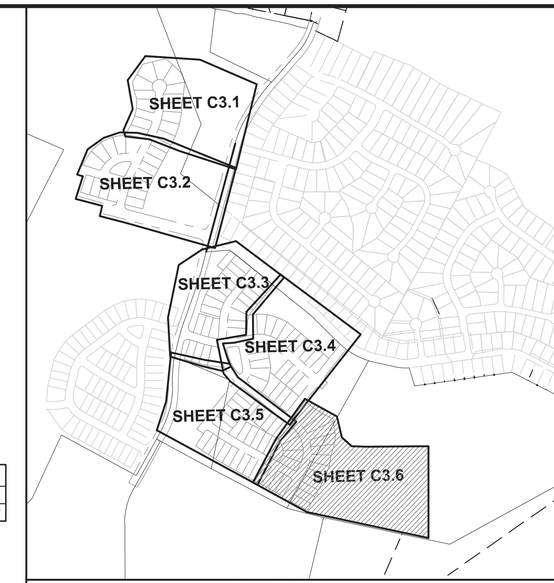
Flood Study Cross-section	100- Year W.S.E. (ft)	Flood Protection Elev. (ft)
13+00	590.37	591.37
14+00	591.60	592.60
15+00	592.95	593.95
16+00	594.50	595.50
17+00	595.78	596.78
18+00	597.36	598.36
19+00	598.94	599.94
20+00	601.91	602.91

LEGEND

- EXIST. SIDEWALK
- EXIST. STREAM SIDE ZONE
- EXIST. UPLAND ZONE
- UNDISTURBED NATURAL AREAS AND TREE SAVE AREAS
- UNDISTURBED NATURAL AREAS
- EXIST. PCCO BUFFER
- PROP. SIDEWALK
- PROP. SIGHT TRIANGLE
- PROP. STORM DRAINAGE EASEMENT (SDE)
- PROP. SANITARY SEWER EASEMENT
- PROPOSED DENUDED AREA
- PHASE LINE

STREET CENTERLINE LINE TABLE		
LINE	LENGTH	BEARING
L13	588.81'	S 29°50'52" W
L17	424.06'	N 60°09'08" W

STREET CENTERLINE CURVE TABLE						
CURVE	RADIUS	LENGTH	TANGENT	CHORD	BEARING	DELTA
C11	250.00'	350.32'	210.85'	322.36'	S 10°17'47" E	80°17'17"



SHEET INDEX
1"=500'

ESP Associates, P.A.
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Charlotte, NC 28241
Suite J-200
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
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NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/23/16

NO.	DATE	REVISION	BY
1	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

SITE PLAN (SHEET 6 OF 6)

CHATEAU PHASE 2

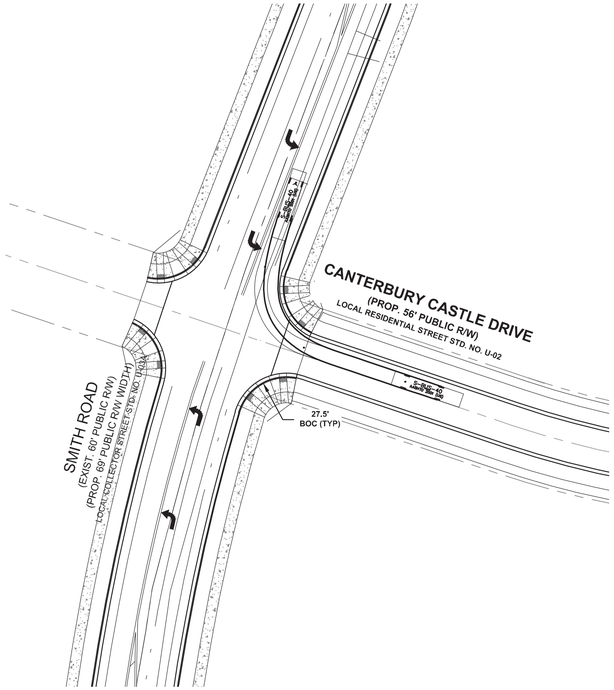
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C3.6

811 Know what's below. Call before you dig.

V:\CN13.400 - Cornelius Pass at JCNI\Phase 2\Drawings\1) PreLim\1) Grading\Civil\1) PRE_SITE_PLAN.dwg, SITE PLAN (SHEET 6 OF 6), Atlantis



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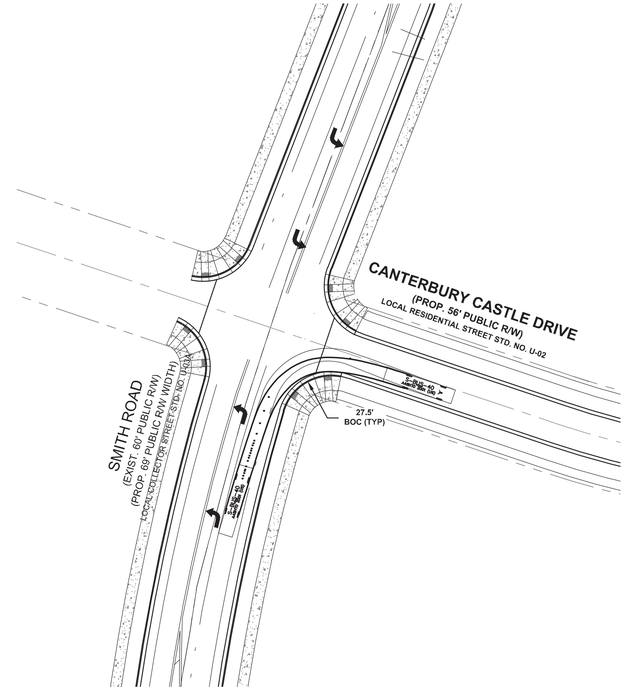

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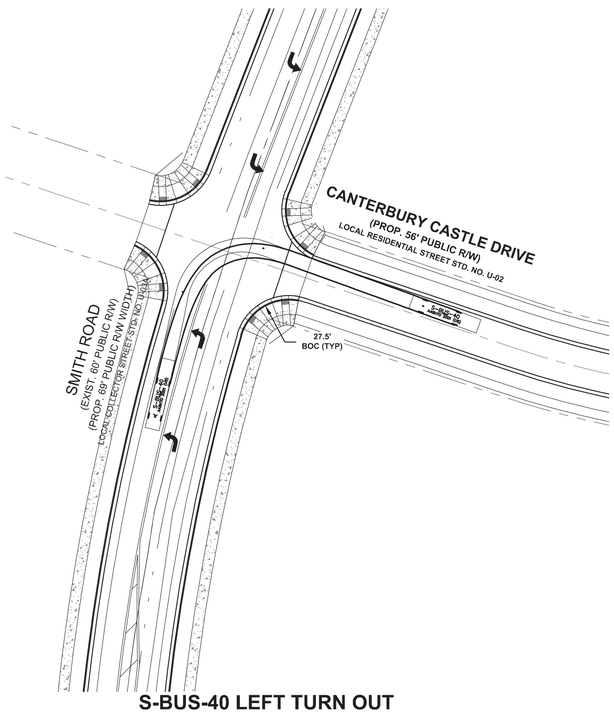

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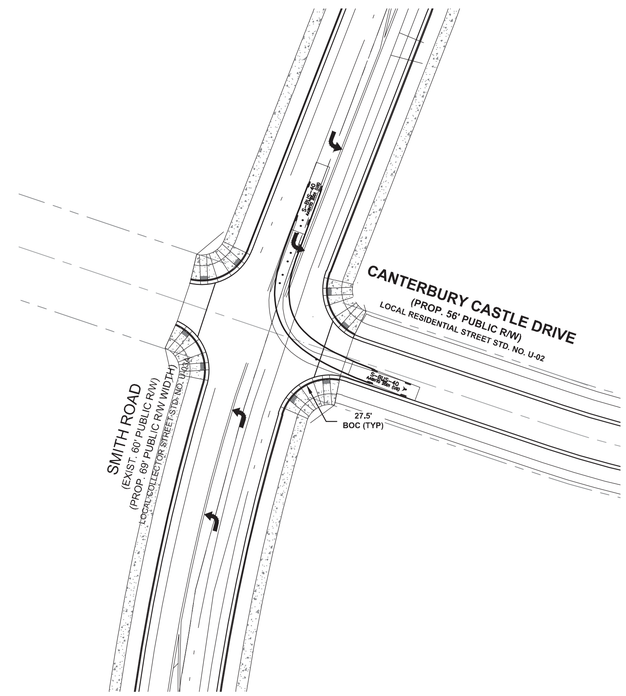

S-BUS-40 LEFT TURN IN

ESP Associates, P.A.
P.O. Box 7030
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3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-0445 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.:
C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA
PROFESSIONAL
SEAL
027971
ENGINEER
BREANNA A. MARTIN
11/5/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISIONS PER CITY OF CHERLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS

TURNING MOVEMENTS
(SHEET 1 OF 3)

CHATEAU PHASE 2

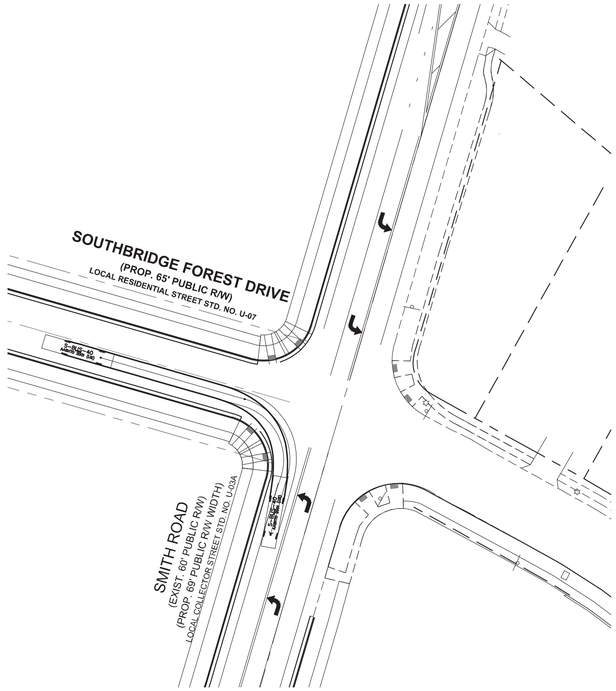
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15

SHEET:
C3.7

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_TURNING MOVEMENTS.dwg, TURNING MOVEMENTS (SHEET 1 OF 3), amartin



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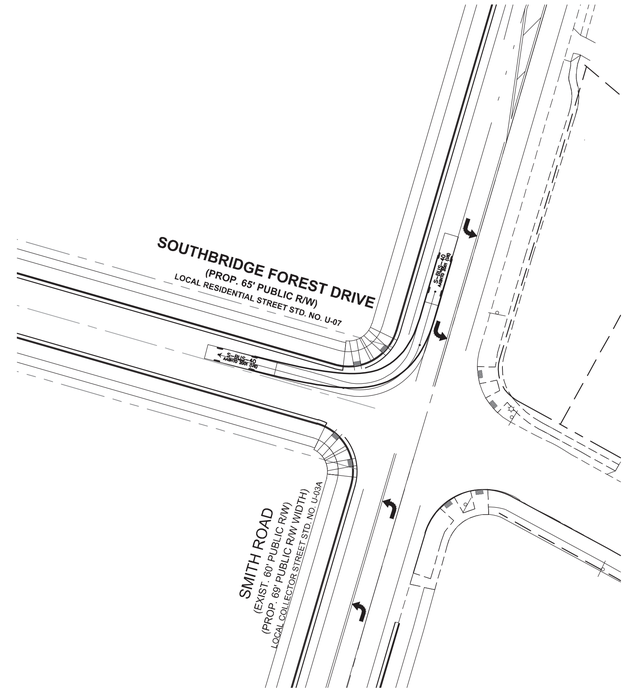

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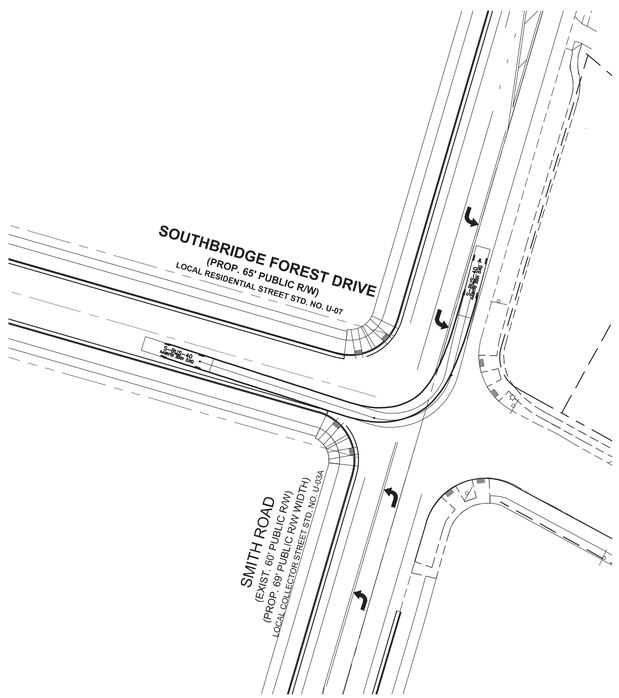

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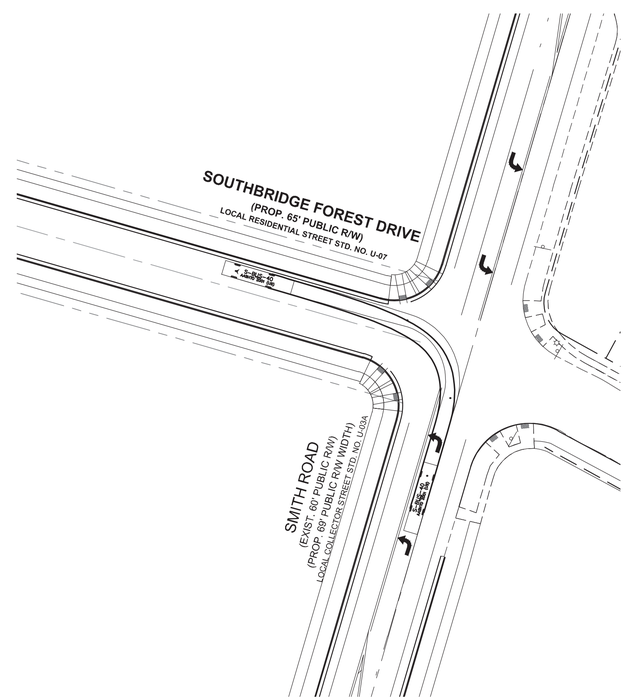

S-BUS-40 LEFT TURN IN

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-0249 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER
SUSANNA A. MARTIN
9/1/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISIONS PER CITY OF CHARLOTTE COMMENTS	DMS

TURNING MOVEMENTS
(SHEET 2 OF 3)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15

SHEET:
C3.8

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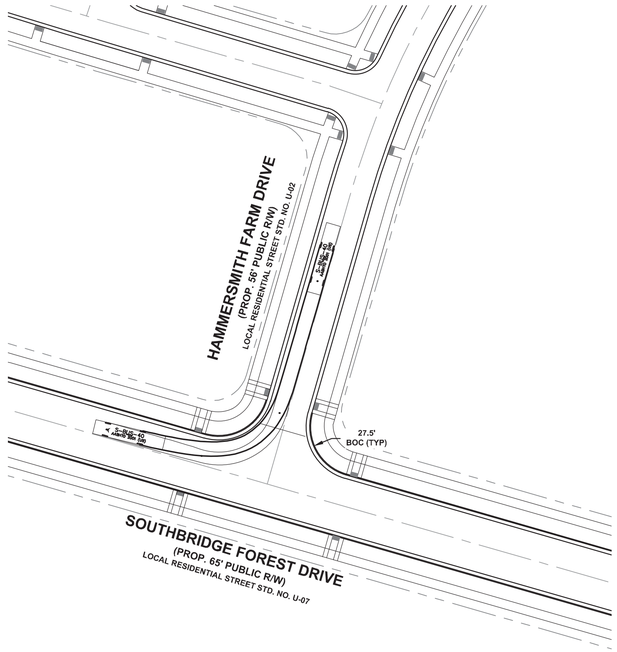
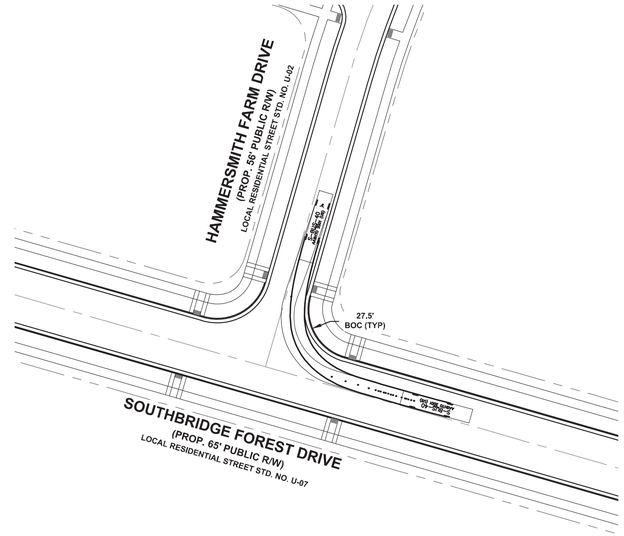


S-BUS-40 RIGHT TURN OUT



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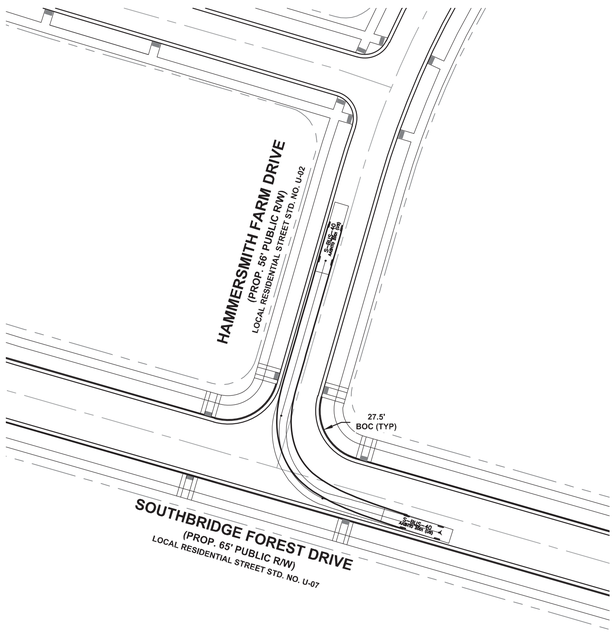

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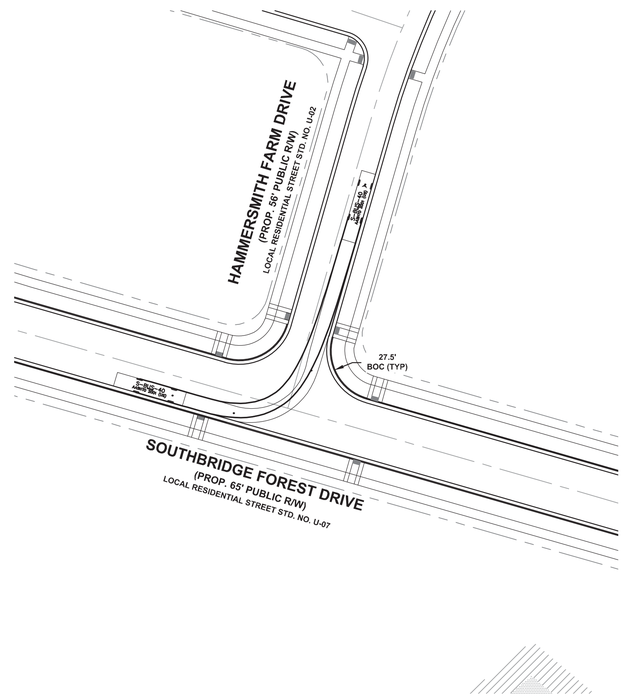


S-BUS-40 LEFT TURN IN

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 300
Charlotte, NC 28204
704-583-4949 (NC)
Suite 1 - Fort Mill, SC 29708
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.
C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA
PROFESSIONAL
SEAL
027971
ENGINEER
BRITTANNI A. MARTIN
5/25/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

TURNING MOVEMENTS
(SHEET 3 OF 3)

CHATEAU PHASE 2

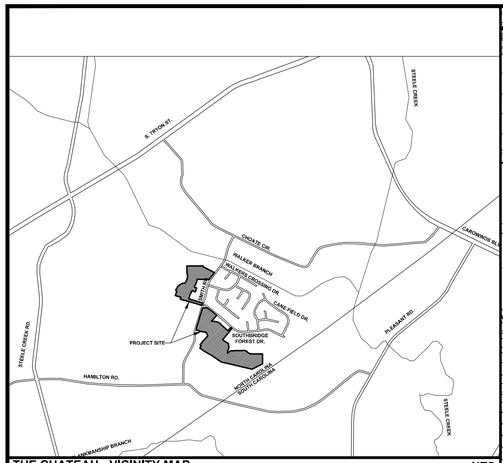
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET:
C3.9

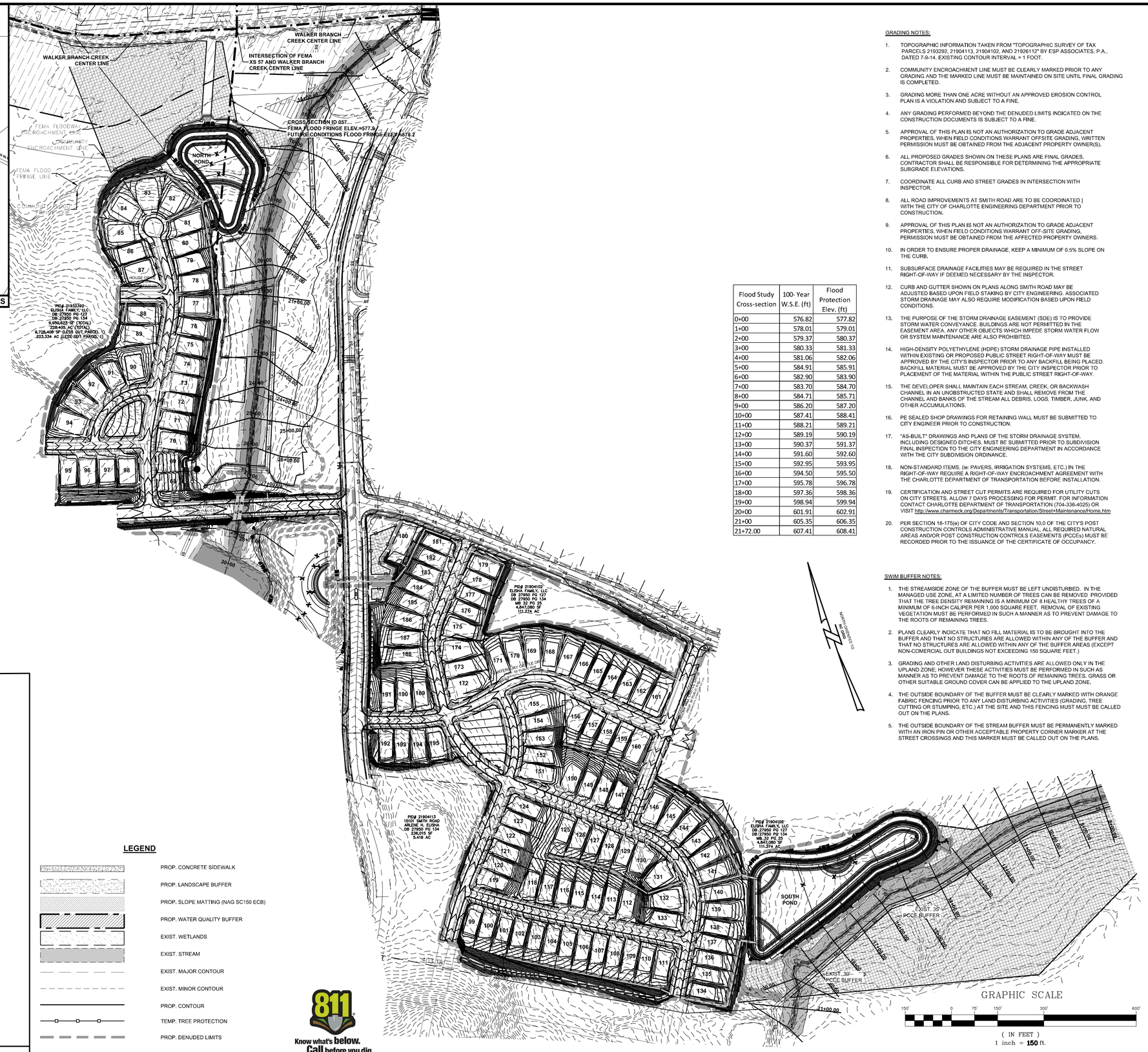
V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_TURNING MOVEMENTS.dwg, TURNING MOVEMENTS (SHEET 3 OF 3), jmoore



THE CHATEAU - VICINITY MAP

NTS

Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
11+00	575.48	578.78	579.78
12+00	577.41	581.11	582.11
13+00	577.68	581.51	582.51
14+00	578.29	581.22	582.22
15+00	579.93	582.57	583.57
16+00	581.36	584.14	585.14
17+00	581.77	584.79	585.79
18+00	581.88	584.60	585.60
19+00	582.58	585.40	586.40
20+00	583.80	587.32	588.32
21+00	584.87	587.94	588.94
22+00	586.13	588.88	589.88
23+00	586.24	588.89	589.89
24+00	587.44	590.44	591.44
25+00	588.38	591.42	592.42
26+00	589.27	592.65	593.65
27+00	590.66	593.72	594.72
27+40	590.62	594.93	595.93
28+78	597.58	601.76	602.76



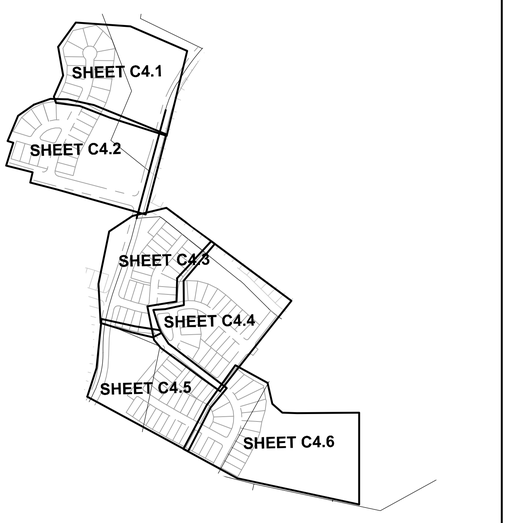
Flood Study Cross-section	100- Year W.S.E. (ft)	Flood Protection Elev. (ft)
0+00	576.82	577.82
1+00	578.01	579.01
2+00	579.37	580.37
3+00	580.33	581.33
4+00	581.06	582.06
5+00	584.91	585.91
6+00	582.90	583.90
7+00	583.70	584.70
8+00	584.71	585.71
9+00	586.20	587.20
10+00	587.41	588.41
11+00	588.21	589.21
12+00	589.19	590.19
13+00	590.37	591.37
14+00	591.60	592.60
15+00	592.95	593.95
16+00	594.50	595.50
17+00	595.78	596.78
18+00	597.36	598.36
19+00	598.94	599.94
20+00	601.91	602.91
21+00	605.35	606.35
21+72.00	607.41	608.41

GRADING NOTES:

1. TOPOGRAPHIC INFORMATION TAKEN FROM "TOPOGRAPHIC SURVEY OF TAX PARCELS 2193292, 21904113, 21904102, AND 21926112" BY ESP ASSOCIATES, P.A., DATED 7-9-14. EXISTING CONTOUR INTERVAL = 1 FOOT.
2. COMMUNITY ENCROACHMENT LINE MUST BE CLEARLY MARKED PRIOR TO ANY GRADING AND THE MARKED LINE MUST BE MAINTAINED ON SITE UNTIL FINAL GRADING IS COMPLETED.
3. GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION AND SUBJECT TO A FINE.
4. ANY GRADING PERFORMED BEYOND THE DENUDED LIMITS INDICATED ON THE CONSTRUCTION DOCUMENTS IS SUBJECT TO A FINE.
5. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES, WHEN FIELD CONDITIONS WARRANT OFFSITE GRADING, WRITTEN PERMISSION MUST BE OBTAINED FROM THE ADJACENT PROPERTY OWNER(S).
6. ALL PROPOSED GRADES SHOWN ON THESE PLANS ARE FINAL GRADES. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE APPROPRIATE SUBGRADE ELEVATIONS.
7. COORDINATE ALL CURB AND STREET GRADES IN INTERSECTION WITH INSPECTOR.
8. ALL ROAD IMPROVEMENTS AT SMITH ROAD ARE TO BE COORDINATED] WITH THE CITY OF CHARLOTTE ENGINEERING DEPARTMENT PRIOR TO CONSTRUCTION.
9. APPROVAL OF THIS PLAN IS NOT AN AUTHORIZATION TO GRADE ADJACENT PROPERTIES, WHEN FIELD CONDITIONS WARRANT OFF-SITE GRADING, PERMISSION MUST BE OBTAINED FROM THE AFFECTED PROPERTY OWNERS.
10. IN ORDER TO ENSURE PROPER DRAINAGE, KEEP A MINIMUM OF 0.5% SLOPE ON THE CURB.
11. SUBSURFACE DRAINAGE FACILITIES MAY BE REQUIRED IN THE STREET RIGHT-OF-WAY IF DEEMED NECESSARY BY THE INSPECTOR.
12. CURB AND GUTTER SHOWN ON PLANS ALONG SMITH ROAD MAY BE ADJUSTED BASED UPON FIELD STAKING BY CITY ENGINEERING. ASSOCIATED STORM DRAINAGE MAY ALSO REQUIRE MODIFICATION BASED UPON FIELD CONDITIONS.
13. THE PURPOSE OF THE STORM DRAINAGE EASEMENT (SDE) IS TO PROVIDE STORM WATER CONVEYANCE. BUILDINGS ARE NOT PERMITTED IN THE EASEMENT AREA. ANY OTHER OBJECTS WHICH IMPEDE STORM WATER FLOW OR SYSTEM MAINTENANCE ARE ALSO PROHIBITED.
14. HIGH-DENSITY POLYETHYLENE (HDPE) STORM DRAINAGE PIPE INSTALLED WITHIN EXISTING OR PROPOSED PUBLIC STREET RIGHT-OF-WAY MUST BE APPROVED BY THE CITY'S INSPECTOR PRIOR TO ANY BACKFILL BEING PLACED. BACKFILL MATERIAL MUST BE APPROVED BY THE CITY INSPECTOR PRIOR TO PLACEMENT OF THE MATERIAL WITHIN THE PUBLIC STREET RIGHT-OF-WAY.
15. THE DEVELOPER SHALL MAINTAIN EACH STREAM, CREEK, OR BACKWASH CHANNEL IN AN UNOBSTRUCTED STATE AND SHALL REMOVE FROM THE CHANNEL AND BANKS OF THE STREAM ALL DEBRIS, LOGS, TIMBER, JUNK, AND OTHER ACCUMULATIONS.
16. PE SEALED SHOP DRAWINGS FOR RETAINING WALL MUST BE SUBMITTED TO CITY ENGINEER PRIOR TO CONSTRUCTION.
17. "AS-BUILT" DRAWINGS AND PLANS OF THE STORM DRAINAGE SYSTEM, INCLUDING DESIGNED DITCHES, MUST BE SUBMITTED PRIOR TO SUBDIVISION FINAL INSPECTION TO THE CITY ENGINEERING DEPARTMENT IN ACCORDANCE WITH THE CITY SUBDIVISION ORDINANCE.
18. NON-STANDARD ITEMS, (ie: PAVERS, IRRIGATION SYSTEMS, ETC.) IN THE RIGHT-OF-WAY REQUIRE A RIGHT-OF-WAY ENCROACHMENT AGREEMENT WITH THE CHARLOTTE DEPARTMENT OF TRANSPORTATION BEFORE INSTALLATION.
19. CERTIFICATION AND STREET CUT PERMITS ARE REQUIRED FOR UTILITY CUTS ON CITY STREETS. ALLOW 7 DAYS PROCESSING FOR PERMIT. FOR INFORMATION CONTACT CHARLOTTE DEPARTMENT OF TRANSPORTATION (704-336-4025) OR VISIT http://www.charmeck.org/Departments/Transportation/Street+Maintenance/Home.htm
20. PER SECTION 18-175(e) OF CITY CODE AND SECTION 10.0 OF THE CITY'S POST CONSTRUCTION CONTROLS ADMINISTRATIVE MANUAL, ALL REQUIRED NATURAL AREAS AND/OR POST CONSTRUCTION CONTROLS EASEMENTS (PCCEs) MUST BE RECORDED PRIOR TO THE ISSUANCE OF THE CERTIFICATE OF OCCUPANCY.

SWIM BUFFER NOTES:

1. THE STREAMSIDE ZONE OF THE BUFFER MUST BE LEFT UNDISTURBED. IN THE MANAGED USE ZONE, AT A LIMITED NUMBER OF TREES CAN BE REMOVED. PROVIDED THAT THE TREE DENSITY REMAINING IS A MINIMUM OF 8 HEALTHY TREES OF A MINIMUM OF 6-INCH CALIPER PER 1,000 SQUARE FEET. REMOVAL OF EXISTING VEGETATION MUST BE PERFORMED IN SUCH A MANNER AS TO PREVENT DAMAGE TO THE ROOTS OF REMAINING TREES.
2. PLANS CLEARLY INDICATE THAT NO FILL MATERIAL IS TO BE BROUGHT INTO THE BUFFER AND THAT NO STRUCTURES ARE ALLOWED WITHIN ANY OF THE BUFFER AND THAT NO STRUCTURES ARE ALLOWED WITHIN ANY OF THE BUFFER AREAS (EXCEPT NON-COMERCIAL OUT BUILDINGS NOT EXCEEDING 150 SQUARE FEET.)
3. GRADING AND OTHER LAND DISTURBING ACTIVITIES ARE ALLOWED ONLY IN THE UPLAND ZONE; HOWEVER THESE ACTIVITIES MUST BE PERFORMED IN SUCH AS MANNER AS TO PREVENT DAMAGE TO THE ROOTS OF REMAINING TREES. GRASS OR OTHER SUITABLE GROUND COVER CAN BE APPLIED TO THE UPLAND ZONE.
4. THE OUTSIDE BOUNDARY OF THE BUFFER MUST BE CLEARLY MARKED WITH ORANGE FABRIC FENCING PRIOR TO ANY LAND DISTURBING ACTIVITIES (GRADING, TREE CUTTING OR STUMPING, ETC.) AT THE SITE AND THIS FENCING MUST MUST BE CALLED OUT ON THE PLANS.
5. THE OUTSIDE BOUNDARY OF THE STREAM BUFFER MUST BE PERMANENTLY MARKED WITH AN IRON PIN OR OTHER ACCEPTABLE PROPERTY CORNER MARKER AT THE STREET CROSSINGS AND THIS MARKER MUST BE CALLED OUT ON THE PLANS.



SHEET INDEX

1"=500'

LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
- PROP. WATER QUALITY BUFFER
- EXIST. WETLANDS
- EXIST. STREAM
- EXIST. MAJOR CONTOUR
- EXIST. MINOR CONTOUR
- PROP. CONTOUR
- TEMP. TREE PROTECTION
- PROP. DENUDED LIMITS

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803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIAN A. MARTIN 1/4/17

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	8/20/2016	REVISION PER CULVERT DESIGN CHANGE	DMS
7	1/6/2017	REVISION PER GRADING ADJUSTMENT	DMS

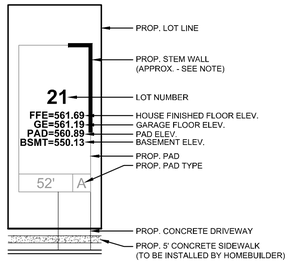
OVERALL GRADING PLAN

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C4.0



NOTE: STEM WALLS SHOWN SHALL BE APPROXIMATE. STEM WALLS SHOWN START/END AT A VERTICAL DISTANCE OF 1.5' BELOW HOUSE FFE. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING FINAL STEM WALL LENGTH AND HEIGHT TO MEET PROPOSED GRADING CONDITIONS SHOWN WITHIN THIS PLAN SET.

TYPICAL LOT LAYOUT

NTS

NOTES:

1. SPILL CURBS AT INTERSECTIONS ARE DENOTED WITH SHADING.

2. PROJECT LOCALIZED ON MONUMENT "M 090" WITH NAD 83/2011, NAVD 88 ELEVATION.

3. COMMUNITY ENCROACHMENT LINE MUST BE CLEARLY MARKED PRIOR TO ANY GRADING AND THE MARKED LINE MUST BE MAINTAINED ON SITE UNTIL FINAL GRADING IS COMPLETED.

Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
17+00	581.77	584.79	585.79
18+00	581.88	584.60	585.60
19+00	582.58	585.40	586.40
20+00	583.80	587.32	588.32
21+00	584.87	587.94	588.94
22+00	586.13	588.88	589.88

SPOT ELEVATION LEGEND

PAD	TOP OF STRUCTURAL PAD
STEM	BOTTOM OF STEM WALL
BSMT	TOP OF BASEMENT PAD
SWALE	SWALE FLOW LINE
HP	HIGH POINT
YI	YARD INLET
FG	FINISHED GROUND
EP	EDGE OF PAVEMENT
TW	TOP OF WALL
BW	BOTTOM OF WALL

LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
- PROP. WATER QUALITY BUFFER
- EXIST. WETLANDS
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- EXIST. MINOR CONTOUR
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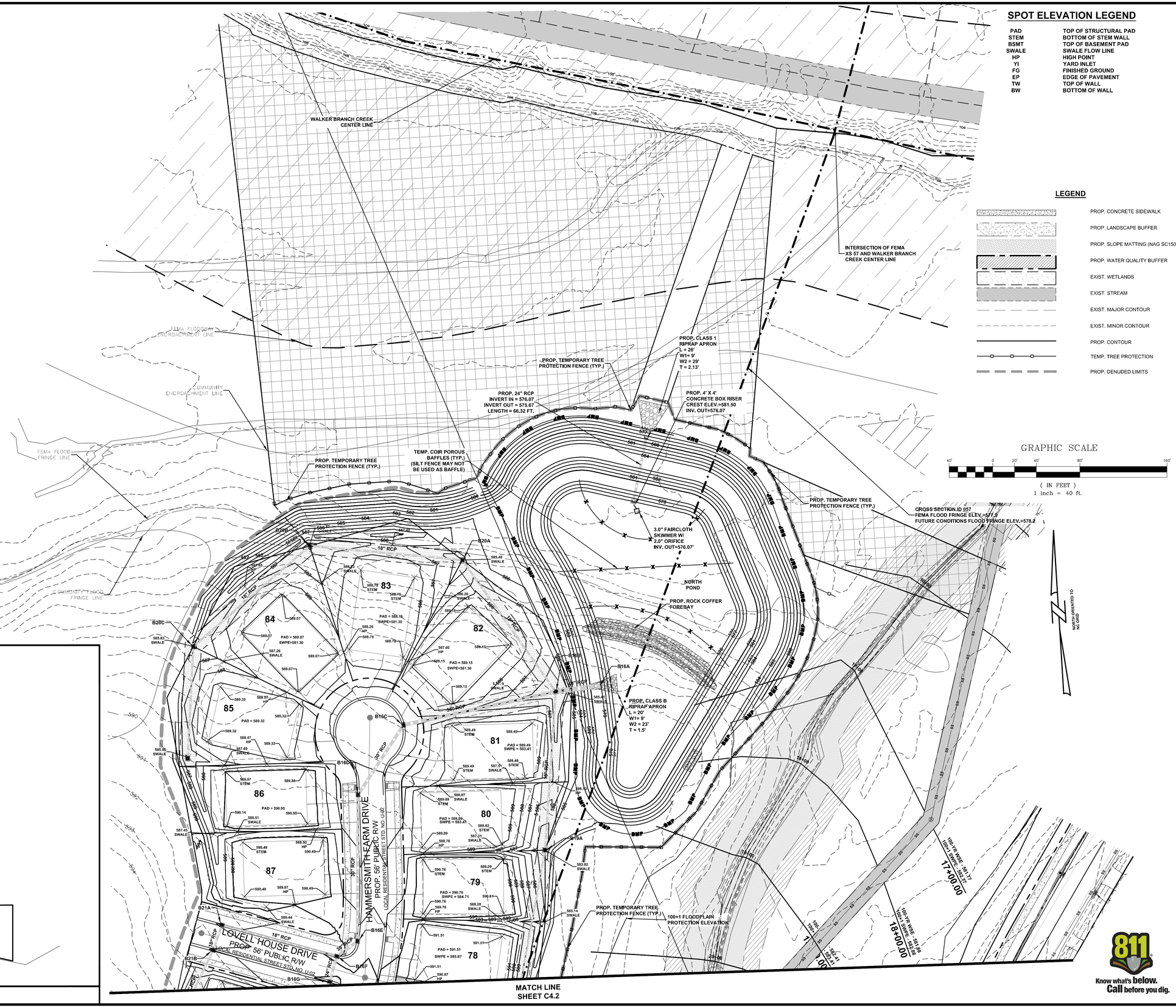
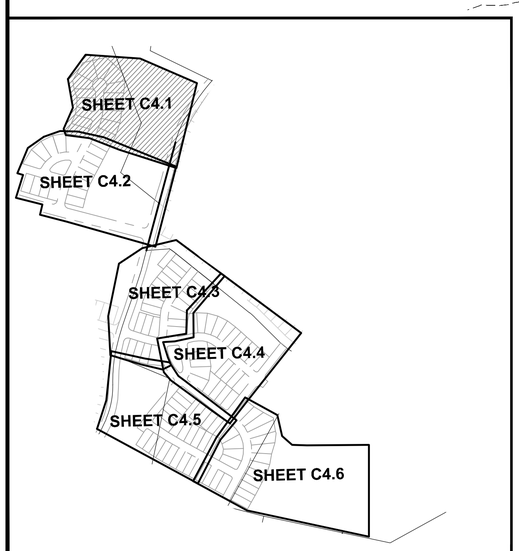
- TEMP. TREE PROTECTION
- PROP. DENUDED LIMITS

GRAPHIC SCALE

40' 0 20' 40' 80' 160'

(IN FEET)
1 inch = 40 ft.





SHEET INDEX
1"=500'

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NORTH CAROLINA LICENSE NO.: C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIEMANN A. MARTIN 1/6/17

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	9/23/2016	REVISION PER CULVERT DESIGN CHANGE	DMS
7	1/6/2017	REVISION PER GRADING ADJUSTMENT	DMS

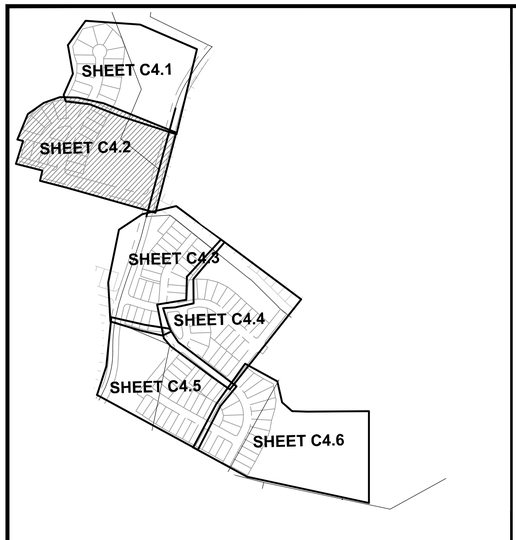
GRADING PLAN (SHEET 1 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C4.1



SHEET INDEX
1"=500'

LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
- PROP. WATER QUALITY BUFFER
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- TEMP. TREE PROTECTION
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GRAPHIC SCALE
40' 0 20' 40' 80' 160'
(IN FEET)
1 inch = 40 ft.

NOTES:

1. SPILL CURBS AT INTERSECTIONS ARE DENOTED WITH SHADING.
2. PROJECT LOCALIZED ON MONUMENT "M 090" WITH NAD 83/2011, NAVD 88 ELEVATION.

SPOT ELEVATION LEGEND

PAD	TOP OF STRUCTURAL PAD
STEM	BOTTOM OF STEM WALL
BSMT	TOP OF BASEMENT PAD
SWALE	SWALE FLOW LINE
HP	HIGH POINT
YI	YARD INLET
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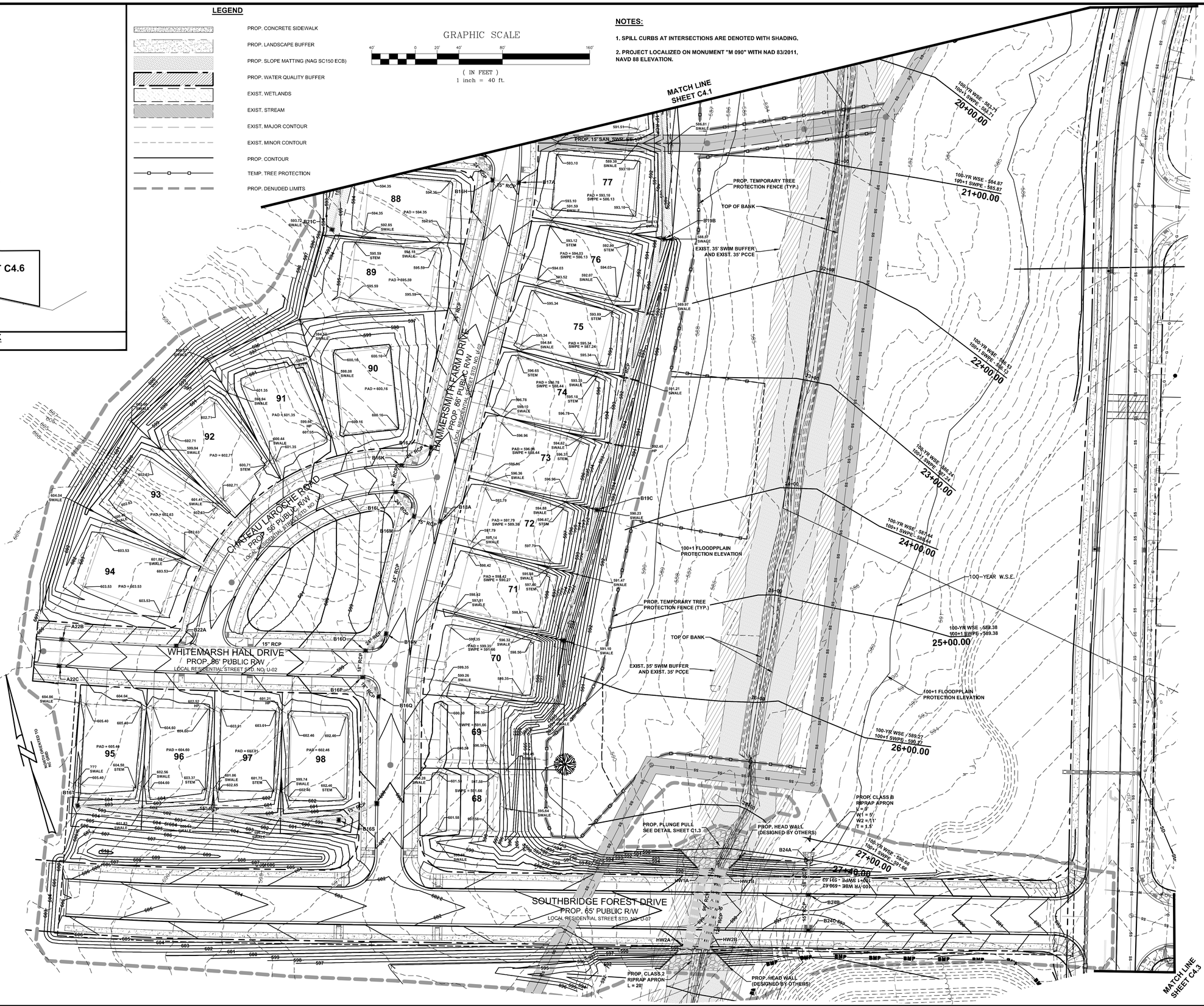
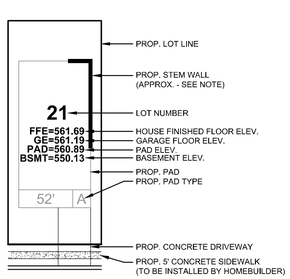
Flood Study Cross-section	100- Year W.S.E. (ft)	Dam Breach W.S.E. (ft)	Flood Protection Elev. (ft)
23+00	586.24	588.89	589.89
24+00	587.44	590.44	591.44
25+00	588.38	591.42	592.42
26+00	589.27	592.65	593.65
27+00	590.66	593.72	594.72
27+40	590.62	594.93	595.93
28+78	597.58	601.76	602.76





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TYPICAL LOT LAYOUT
NTS

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NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIEMANN A. MARTIN 1/6/17

NO.	DATE	REVISION	BY
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6	9/20/2016	REVISION PER CULVERT DESIGN CHANGE	DMS
7	1/6/2017	REVISION PER GRADING ADJUSTMENT	DMS

GRADING PLAN (SHEET 2 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

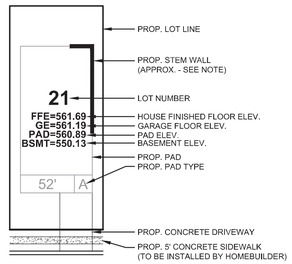
LENNAR CAROLINAS, LLC

PROJECT INFORMATION

PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: **C4.2**

V:\CN13.400 - Chateau Phase 2_CN13\Phase 2\Sheets\C13_PA_GR\GRADING SHEETS.dwg, DWG To PDF.pc3



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TYPICAL LOT LAYOUT

NTS

SPOT ELEVATION LEGEND

PAD	TOP OF STRUCTURAL PAD
STEM	BOTTOM OF STEM WALL
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HP	HIGH POINT
YI	YARD INLET
FG	FINISHED GROUND
EP	EDGE OF PAVEMENT
TW	TOP OF WALL
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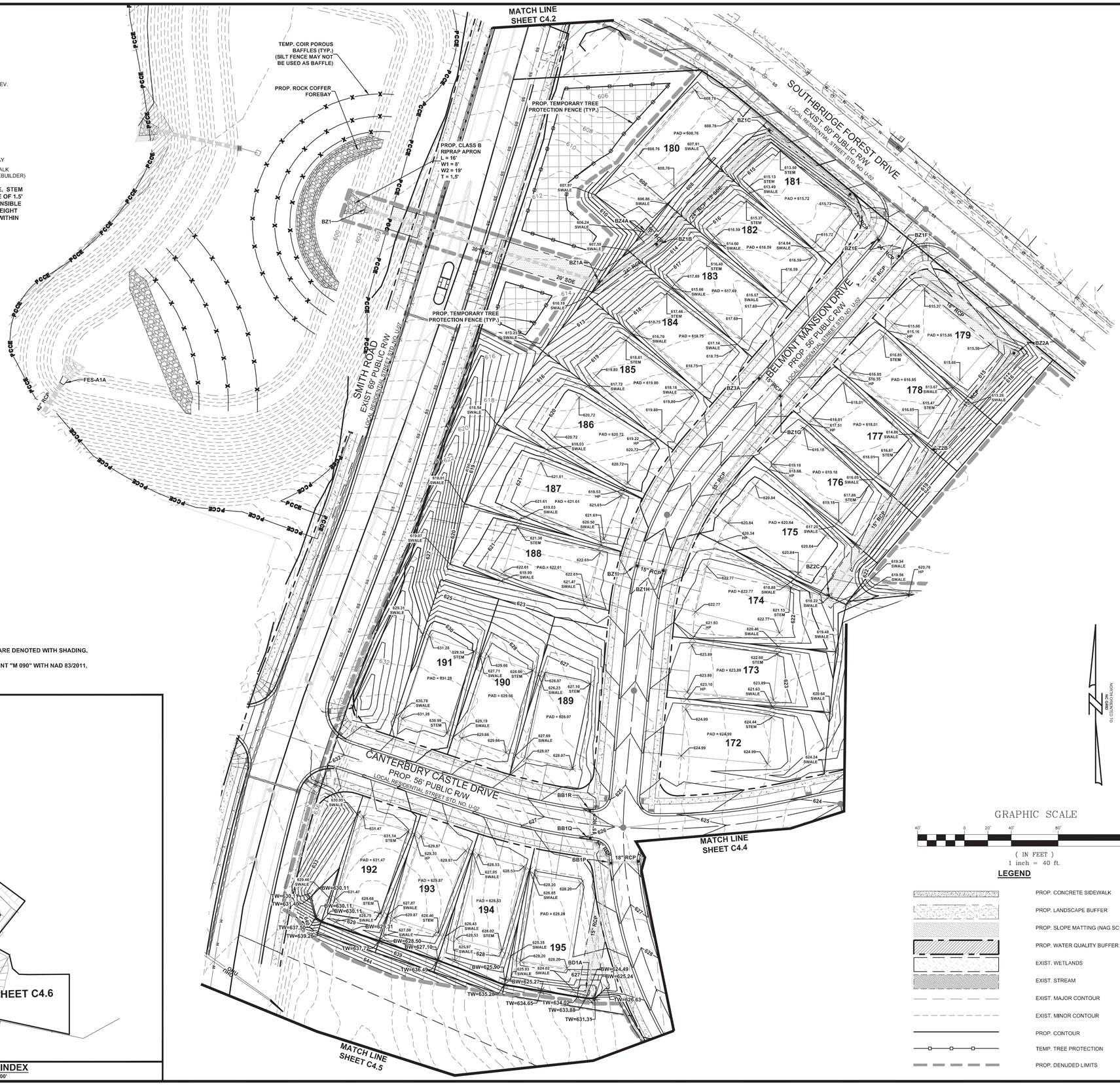

NOTES:

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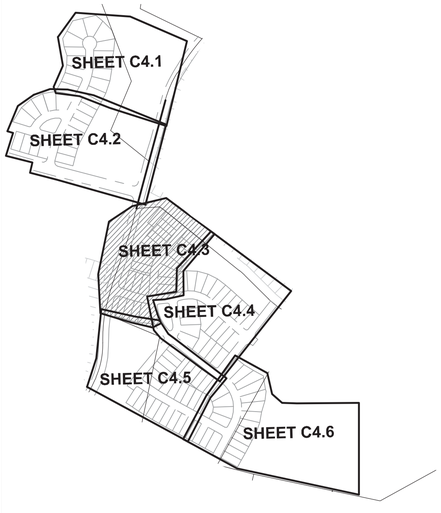

SHEET INDEX

1"=500'

GRAPHIC SCALE

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LEGEND

- PROP. CONCRETE SIDEWALK
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NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISIONS PER CITY OF CHARLOTTE COEMMENTS	DMS
2	11/5/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COEMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

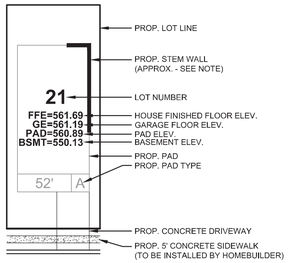
GRADING PLAN (SHEET 3 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C4.3



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TYPICAL LOT LAYOUT

NTS

NOTES:

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LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
- PROP. WATER QUALITY BUFFER
- EXIST. WETLANDS
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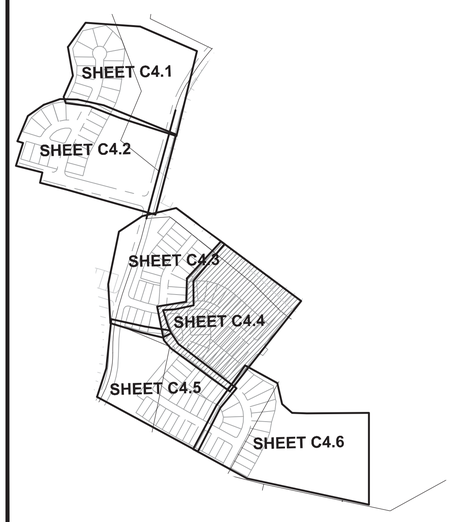
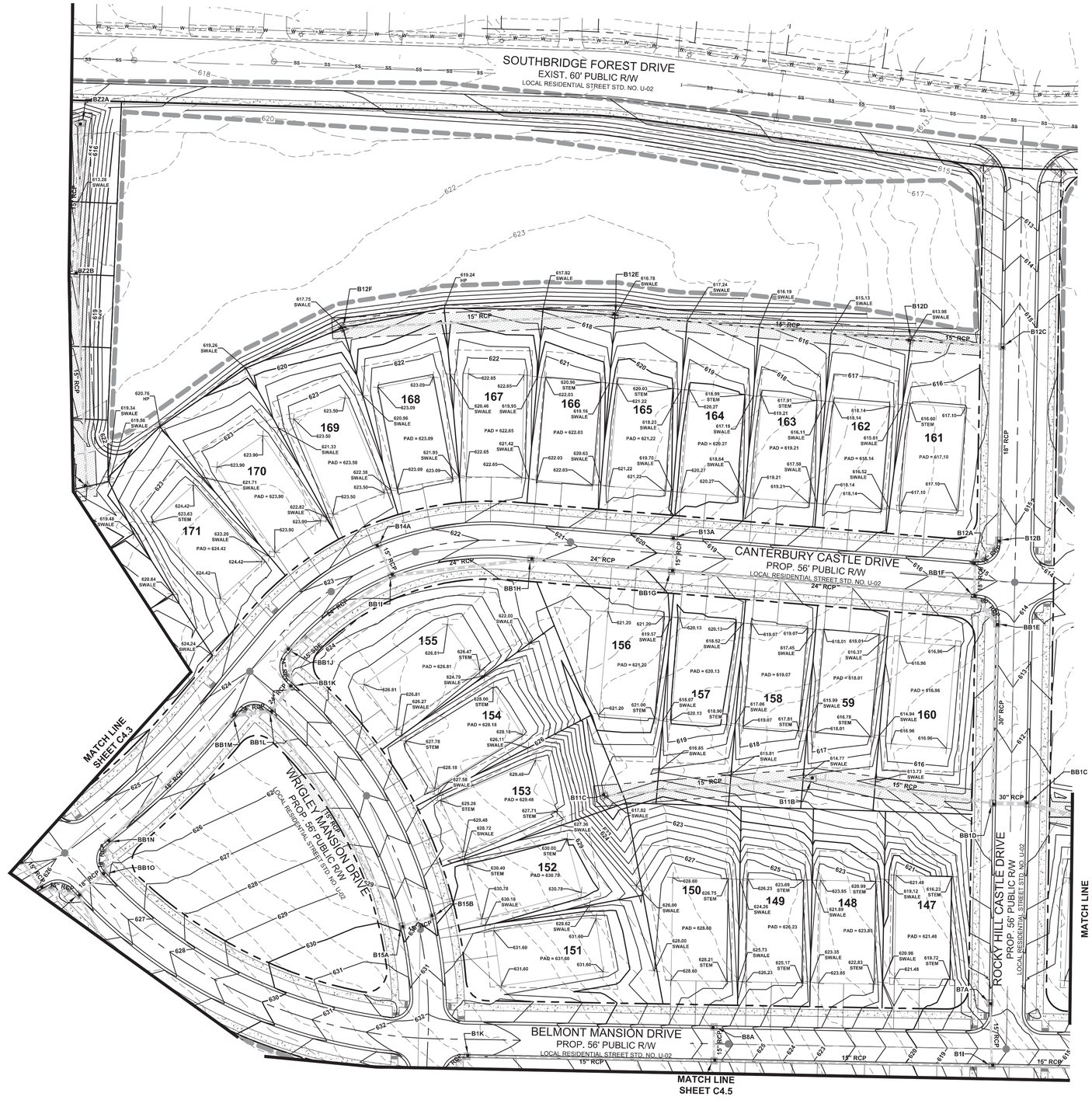


SHEET INDEX
1"=500'



SPOT ELEVATION LEGEND

PAD	TOP OF STRUCTURAL PAD
STEM	BOTTOM OF STEM WALL
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NORTH CAROLINA ESP ASSOCIATES, P.A. LICENSE NO. C-0587

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	9/15/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

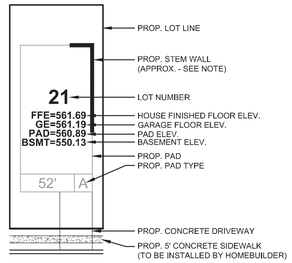
GRADING PLAN (SHEET 4 OF 6)

CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C4.4



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TYPICAL LOT LAYOUT

NTS

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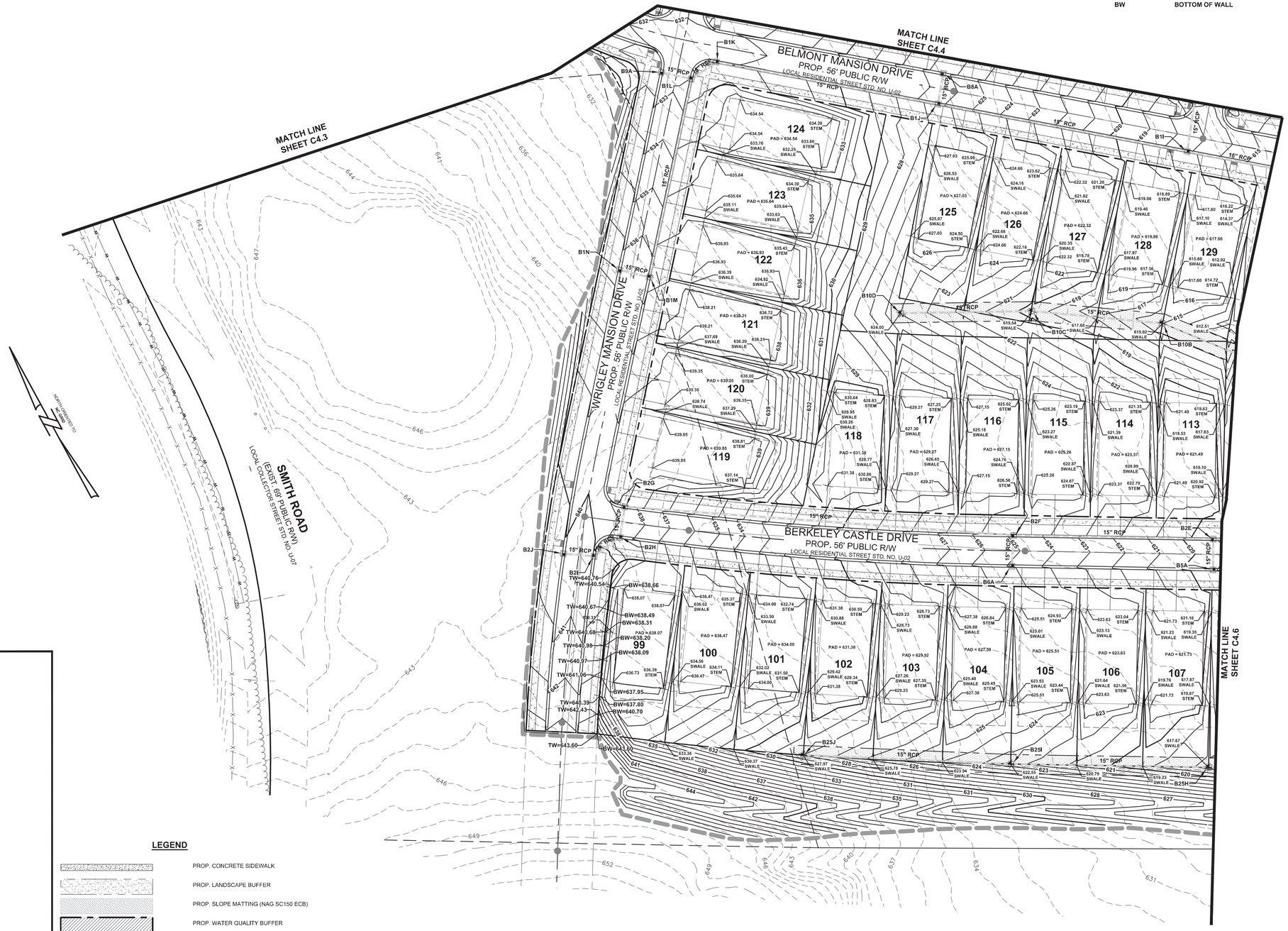

NOTES:

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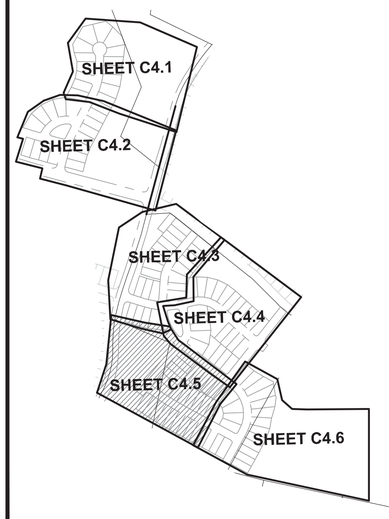

SHEET INDEX

1"=500'

LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
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- PROP. DENUDED LIMITS

GRAPHIC SCALE

40' 0 20' 40' 80' 160'

(IN FEET)
1 inch = 40 ft.

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NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

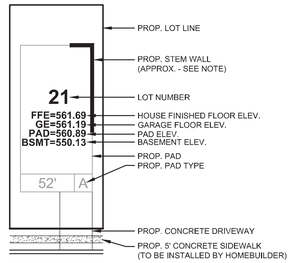
GRADING PLAN (SHEET 5 OF 6)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015
SHEET:	C4.5



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TYPICAL LOT LAYOUT

NTS

SPOT ELEVATION LEGEND

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15+00	592.95	593.95
16+00	594.50	595.50
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18+00	597.36	598.36
19+00	598.94	599.94
20+00	601.91	602.91

LEGEND

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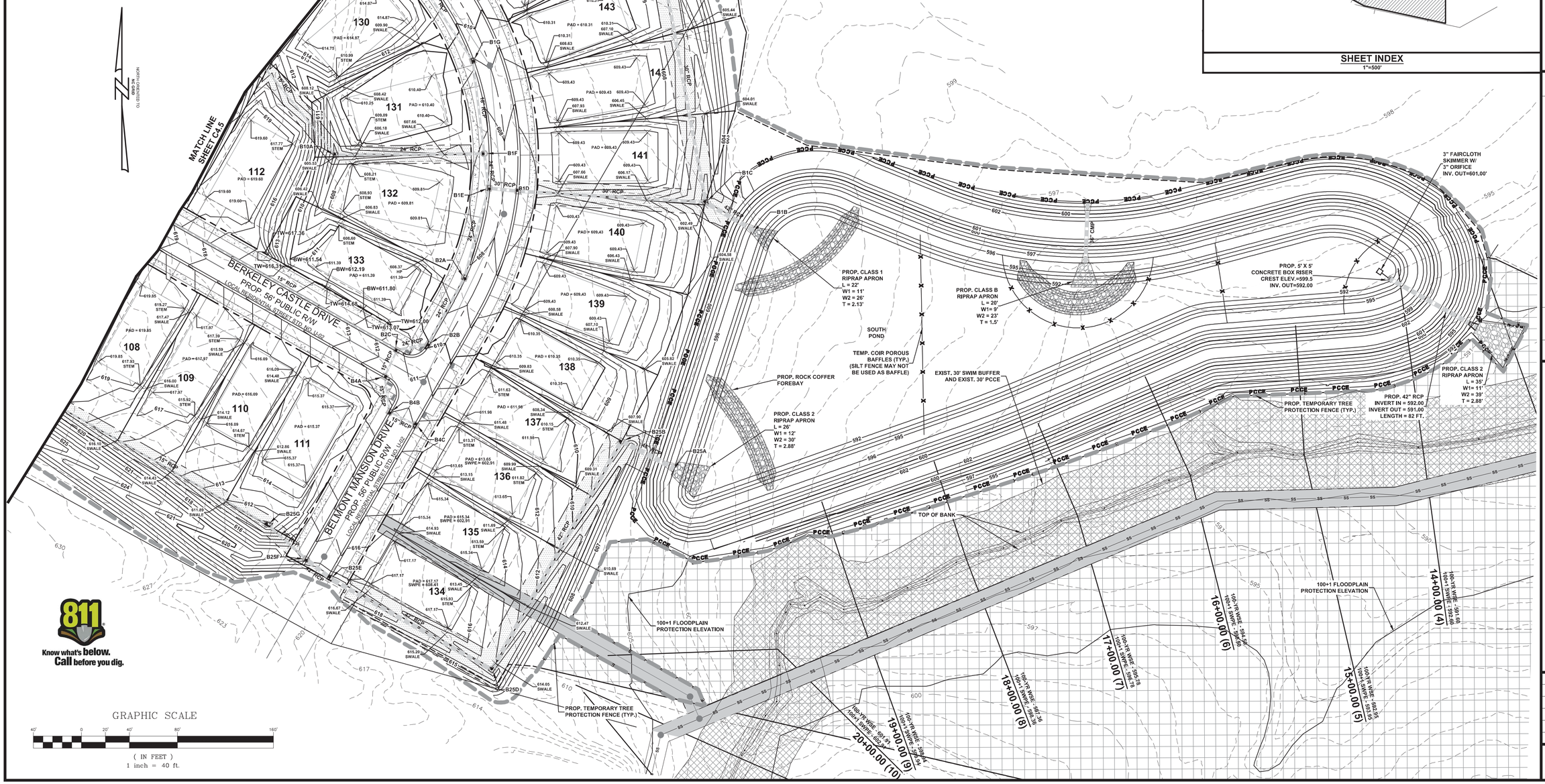
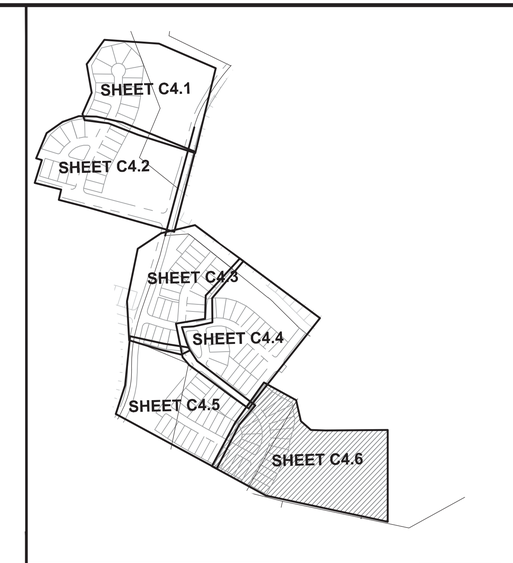
2. PROJECT LOCALIZED ON MONUMENT "M 090" WITH NAD 83/2011, NAVD 88 ELEVATION.





SHEET INDEX

1"=500'

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 1-A
Fort Mill, SC 29708
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA LICENSE NO. C-0587 ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BETHANN A. MARTIN 5/25/16

NO.	DATE	REVISION	BY
1	12/07/201	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

GRADING PLAN (SHEET 6 OF 6)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: **C4.6**

THE CHATEAU - VICINITY MAP

NORTH (ORIENTED TO NC GRID)

GRAPHIC SCALE

60' 0 30' 60' 120' 240'

(IN FEET)
1 inch = 60 ft.

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 1 - Lake Norman
Port Mill, SC 29708
704-583-4949 (NC)
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www.espassociates.com

NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BENJAMIN A. MARTIN
1/6/17

NO.	DATE	REVISION	BY
1	9/1/2015	REVISIONS PER CITY OF CHARLOTTE COMMENTS	DMS
7	1/6/2017	REVISION PER GRADING ADJUSTMENT	DMS

DRAINAGE AREA MAP (SHEET 1 OF 2)

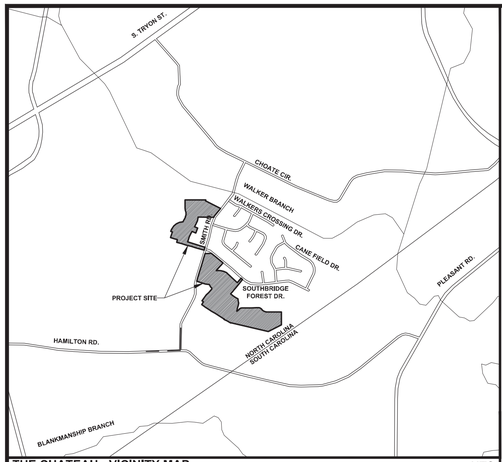
CHATEAU PHASE 2

CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET:
C4.7



THE CHATEAU - VICINITY MAP NTS

LEGEND

- PROP. CONCRETE SIDEWALK
- PROP. LANDSCAPE BUFFER
- PROP. SLOPE MATTING (NAG SC150 ECB)
- PROP. WATER QUALITY BUFFER
- EXIST. WETLANDS
- EXIST. STREAM
- EXIST. MAJOR CONTOUR
- EXIST. MINOR CONTOUR
- PROP. CONTOUR
- TEMP. TREE PROTECTION

GRAPHIC SCALE

100' 0 50' 100' 200' 400'

(IN FEET)
1 inch = 100 ft.

Know what's **below.**
Call before you dig.

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
3475 Lakemont Blvd.
Fort Mill, SC 29708
704-588-4948 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BRIANNA A. MARTIN 9/1/15

NO.	DATE	REVISION	BY
1	9/1/2015	REVISIONS PER CITY OF CHARLOTTE COMMENTS	DMS

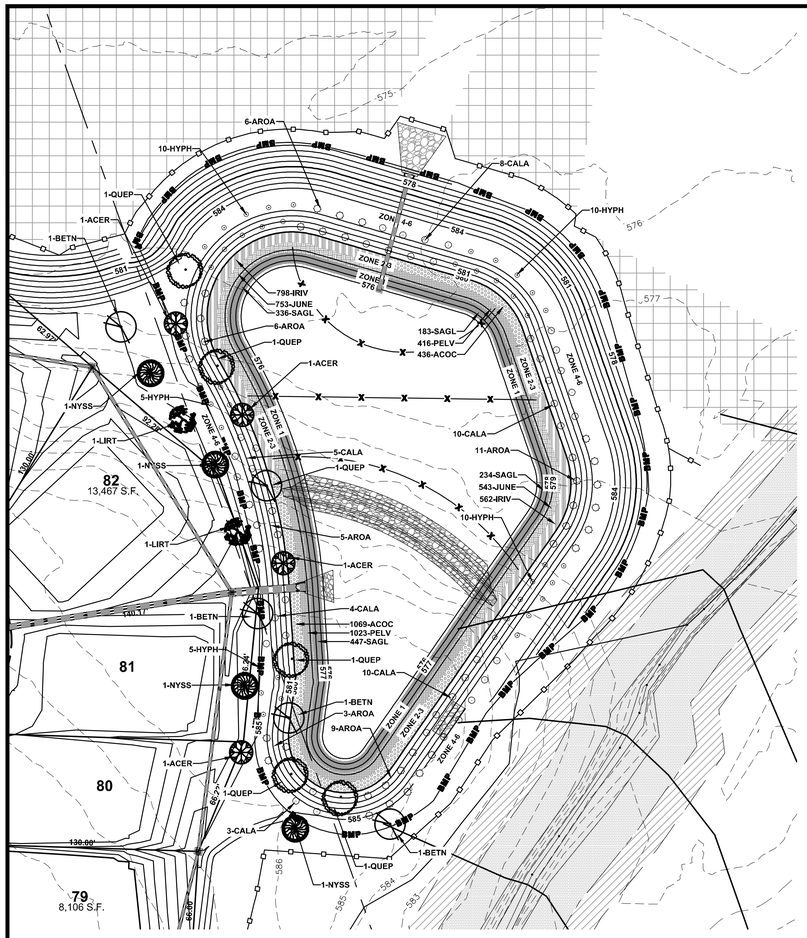
DRAINAGE AREA MAP (SHEET 2 OF 2)

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/15
SHEET:	C4.8



GENERAL BMP CONSTRUCTION SEQUENCE NOTES

1. AFTER SITE HAS BEEN STABILIZED AND SEDIMENT BASIN IS READY TO BE CONVERTED TO WET POND, DE-WATER BASIN. REMOVE ANY ACCUMULATED SEDIMENT AND LEGALLY DISPOSE OF MATERIAL. MATERIAL MAY BE DISPOSED OF ON-SITE IN AREAS NOT REQUIRING STRUCTURAL FILL. SEE GEOTECHNICAL REPORT.
2. EXCAVATE FOREBAY AND MAIN BAY OF BASIN. FINAL GRADE BASIN AND CONSTRUCT LITTORAL SHELF. VERIFY GRADES CONFORM TO THESE PLANS. CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE ELEVATIONS AT THE BOTTOM AND TOP OF THE LITTORAL SHELF, THE PERMANENT POOL ELEVATION, AND TOP OF EMBANKMENT AND VERIFY ALL GRADED ELEVATIONS ARE AS SHOWN ON THESE PLANS.
5. PROVIDE TEMPORARY SEEDING AS NEEDED TO STABILIZE SLOPES.
6. SUBMIT PRELIMINARY TOPOGRAPHIC SURVEY OF BASIN TO ENGINEER OF RECORD PRIOR TO INSTALLATION OF PLANTS ALONG LITTORAL SHELF OR INSTALLATION OF PERMANENT STABILIZATION MEASURES/SEEDING. CONTRACTOR SHALL NOT PERFORM ANY WORK BEYOND THIS PHASE UNTIL APPROVAL OF PRELIMINARY TOPOGRAPHIC SURVEY IS GRANTED BY ENGINEER OF RECORD.
7. REMOVE ANY TEMPORARY BLOCKAGES OR MODIFICATIONS TO CONTROL STRUCTURES REQUIRED FOR EROSION CONTROL AND VERIFY STRUCTURES CONFORM TO DETAILS.
8. SPREAD TOP SOIL AMENDED WITH ORGANIC FERTILIZER TO A DEPTH OF 2" OVER ENTIRE LITTORAL SHELF AND TILL INTO THE TOP 6" OF THE LITTORAL SHELF. CONTRACTOR SHALL BREAK UP AND TILL ALL CLODS GREATER THAN 2" IN LARGEST DIMENSION AND INTEGRATE WITH SOIL. ANY ROCKS, GRAVEL, AND DEBRIS LARGER THAN 1" IN LARGEST DIMENSION SHALL BE REMOVED FROM LITTORAL SHELF AND DISPOSED OF PRIOR TO INSTALLING PLANTINGS PER THE LANDSCAPE SCHEDULE. RECOMPACT SHELF USING HAND TOOLS AND VERIFY A UNIFORM SURFACE WITH SLOPE OF 10:1 IS PROVIDED.
9. INSTALL PLANT MATERIAL PER BMP PLANTING PLANS. DO NOT INSTALL PLANTINGS WHERE INFLOWS FROM STORM PIPES WILL DISLODGE OR DAMAGE PLANTS. ANCHOR PLANTINGS TO SHELF USING SOD STAPLES OR COMPARABLE METHOD OR DEVICE.
10. APPLY FERTILIZER PER SPECIFICATIONS.
11. PROVIDE TEMPORARY IRRIGATION FOR WET POND PLANTINGS FOR A PERIOD OF NO LESS THAN 30 DAYS OR UNTIL ESTABLISHMENT, IF INSTALLATION OCCURS DURING SUMMER MONTHS ADDITIONAL IRRIGATION BEYOND 30 DAYS WILL BE NECESSARY TO ESTABLISH PLANTINGS.
12. INSTALL MEASURES NECESSARY TO PREVENT DESTRUCTION OF VEGETATION BY WILDLIFE SUCH AS GEESE AND DEER. MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: ORANGE CONSTRUCTION FENCING, ALLIGATOR DECOYS,INSTALLATION OF HUMANE DETERRENT DEVICES SUCH AS GOOSE GUARDIAN OR AWAY WITH GEESE UNIT
13. PROVIDE AS-BUILTS OF BASIN. AS-BUILTS SHALL BE DONE PRIOR TO THE RELEASE OF THE BMP BOND.
14. MAINTENANCE EASEMENT SHALL BE RECORDED PRIOR TO THE RELEASE OF THE BMP BOND.

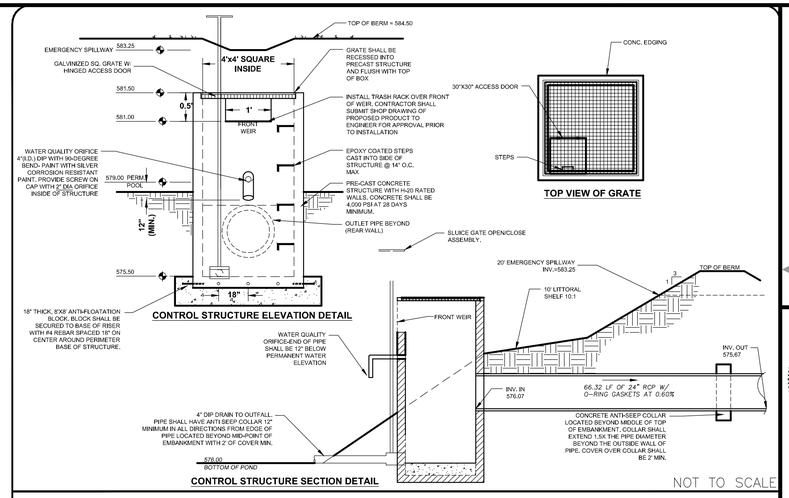
BMP PLANTING NOTES

1. SIZE, QUALITY AND OVERALL HEALTH OF ALL PLANT MATERIAL USED SHALL CONFORM TO THE LATEST EDITION OF ANSI Z60 "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. ALL PLANT MATERIALS SHALL BE GUARANTEED TO BE IN HEALTHY CONDITION FOR (1) YEAR AFTER FINAL ACCEPTANCE OF ALL PLANT MATERIAL BY OWNER.
3. ALL CONSTRUCTION MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM WITH CITY OF CHARLOTTE AND MECKLENBURG COUNTY STANDARDS.
4. IF BARE ROOT SPECIMENS ARE NOT TO BE USED WITHIN 4 DAYS, THEY SHOULD BE PLANTED IN SUITABLE BEDS WITH THE ASSUMPTION THAT IT WILL BE A WHILE BEFORE THEY CAN BE USED, AND THEY SHOULD BE PROVIDED WITH CONDITIONS MAKING IT POSSIBLE FOR THEM TO SURVIVE AND GROW AS OPTIMALLY AS POSSIBLE.
5. CONTAINER PLANTS WILL NEED TO BE WATERED REGULARLY (SEVERAL TIMES DAILY WHEN WEATHER IS HOT).
6. PIN ALL SUBMERGED/FLOATING PLANT MATERIAL SECURELY TO THE BOTTOM OF POND WITH 12" BENT WIRE PINS.
7. CUT BACK TALL AND EASILY BROKEN LEAVES AND STEMS AT THE TIME OF TRANSPLANTING.
8. NEWLY RECEIVED NURSERY STOCK AND DISTURBED TRANSPLANTS SHOULD NOT BE EXPOSED TO DIRECT SUN ANY MORE THAN NECESSARY UNTIL THEY ARE PLACED IN THEIR PERMANENT POSITIONS.
9. INSERT DRY FERTILIZER TABLETS OR SPIKES NEAR THE PLANTS AT THE TIME OF TRANSPLANTING.
10. FENCE ENTIRE PLANTING AREA WITH 36" TALL PLASTIC FENCING WITH 1.5"X2" OPENINGS. PLASTIC SHALL BE UV STABLE. COLOR SHALL BE BLACK. INSTALL WITH STEEL POSTS SPACED AT 10' O.C. MAX. PIN THE BOTTOM LAYER OF THE FABRIC TO THE GROUND WITH 10-12" PINS. FENCING TO REMAIN IN PLACE FOR A PERIOD OF ONE YEAR POST INSTALLATION OF PLANT MATERIAL.
11. STAKE PLANTING ZONES PRIOR TO INSTALLATION AND VERIFY AREAS ON PLAN.
12. PLANTS ARE TO BE INSTALLED IN A RANDOM ARRANGEMENT WITHIN THEIR GROUPS ZONES. INDIVIDUAL SPECIES MAY BE PLANTED TOGETHER IN GROUPS OF 3 TO 5. PLANTS MAY ALSO BE PLANTED INDIVIDUALLY.
13. PLANT QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION. PLANTS SHALL NOT BE COMPLETELY SUBMERGED WHEN PLANTED.

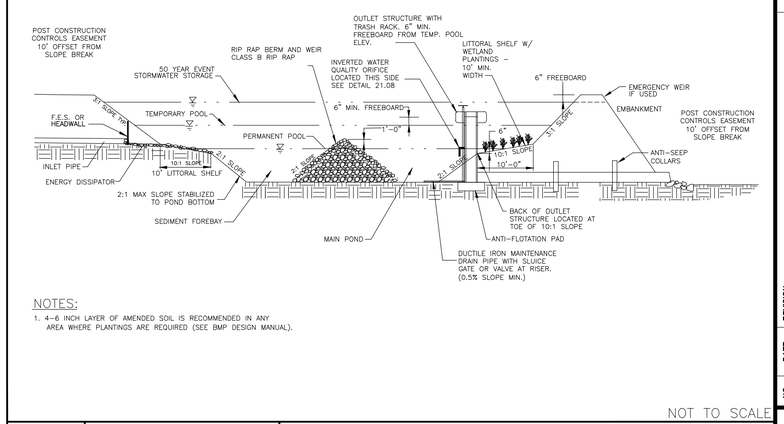
RECOMMENDED BMP MAINTENANCE

THE ITEMS NOTED BELOW SHALL BE POSTED ON-SITE AT EACH WET POND AT LOCATIONS SHOWN ON PLANS.

WET POND MAINTENANCE TASKS & SCHEDULE	
TASK	**SCHEDULE**
FOREBAY INSPECTION & CLEAN OUT.	MONTHLY INSPECTION. REMOVE SEDIMENT EVERY 7 YEARS OR WHENEVER THE SEDIMENT EXCEEDS 50% OF THE STORAGE VOLUME.
VOLUME MEASUREMENT	YEARLY - DREDGING NEEDED EVERY 20 YEARS OR WHEN 25% OF THE PERMANENT POOL VOLUMEN HAS BEEN LOST.
BANK MOWING AND INSPECTION / STABILIZATION OF ERODED AREAS	MONTHLY
OUTLET / INLET INSPECTION AND CLEANOUT	MONTHLY
UNWANTED VEGETATION AND TRASH REMOVAL	MONTHLY
VISUAL INSPECTION OF WATER QUALITY	MONTHLY
INSPECT / EXERCISE ALL MECHANICAL DEVICES, VALVES, ETC.	YEARLY
RODENT MANAGEMENT	AS NEEDED
PEST MANAGEMENT	AS NEEDED



WET POND 1 – CONTROL STRUCTURE #C2 DETAIL



NOTES:

1. 4–6 INCH LAYER OF AMENDED SOIL IS RECOMMENDED IN ANY AREA WHERE PLANTINGS ARE REQUIRED (SEE BMP DESIGN MANUAL).

NOT TO SCALE

CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

WETPOND 1 – PROFILE
BMP FIG. 4.2.2

STD. NO.	REV.
21.06	5

WET POND 1 PLANTING SCHEDULE

	KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY	LOCATION
ZONE 1–3: TOTAL AREA= +/– 13,440.51 SF (13,440.51 SF X .5 PLANTS/SF= 6,720.3 PLANTS) OR 6,721 TOTAL PLANTS REQUIRED: 6,721 PLANTS TOTAL PLANTS PROVIDED: 6,800 PLANTS							
	SAGL	*SAGITTARIA LATIFOLIA*	*DUCK POTATO*	*2"x5" PLUG*	*2.0' O.C.*	*1,200*	*ZONE 1*
	ACOC	*ACORNUS CALAMUS*	*SWEETFLAG*	*2"x5" PLUG*	*1.0' O.C.*	*1,504*	*ZONE 2 & 3*
	IRIV	*IRIS VIRGINICA*	*SOUTHERN BLUE FLAG*	*2"x5" PLUG*	*1.0' O.C.*	*1,360*	*ZONE 2 & 3*
	JUNE	*JUNCUS EFFUSUS*	*SOFT RUSH*	*2"x5" PLUG*	*0.5' O.C.*	*1,297*	*ZONE 2 & 3*
	PELV	*PELTANDRA VIRGINICA*	*ARROW ARUM*	*2"x5" PLUG*	*0.5' O.C.*	*1,438*	*ZONE 2 & 3*
ZONE 4–6: TOTAL AREA= +/– 14,433.13 SF = 0.331 AC x 400 STEMS/AC = 132.5 STEMS REQUIRED ADDITIONAL 20 TREES PER ACRE: 0.331 AC x 20 TREES/ACRE = 6.63 TREES 133 STEMS REQUIRED, 140 STEMS PROVIDED, 20 TREES INCLUDED.							
	QUEP	*QUERCUS PHELLOS*	*WILLOW OAK*	*8' TALL, MIN. 2"CAL.*	*PER PLAN*	5	*ZONE 4–6*
	BETN	*BETULA NIGRA*	*RIVER BIRCH*	*8' TALL, MIN. 2"CAL.*	*PER PLAN*	5	*ZONE 4–6*
	ACER	*ACER RUBRUM*	*RED MAPLE*	*8' TALL, MIN. 2"CAL.*	*PER PLAN*	4	*ZONE 4–6*
	LIRT	*LIRIODENDRON TULIPIFERA*	*TULIP POPLAR*	*8' TALL, MIN. 2"CAL.*	*PER PLAN*	2	*ZONE 4–6*
	NYSS	*NYSSA SYLVATICA*	*BLACK GUM*	*8' TALL, MIN. 2"CAL.*	*PER PLAN*	4	*ZONE 4–6*
	AROA	*ARONIA ARBUTIFOLIA*	*RED CHOKECHERRY*	*3' TALL, MIN. 2"CAL.*	*6.5' O.C.*	40	*ZONE 4–6*
	CALA	*CALLICARPA AMERICANA*	*AMERICAN BEAUTYBERRY*	*3' TALL, MIN. 2"CAL.*	*6.5' O.C.*	40	*ZONE 4–6*
	HYPH	*HYPERICUM HYPERICOIDES*	*ST. JOHN'S WORT*	*3' TALL, MIN. 2"CAL.*	*6.5' O.C.*	40	*ZONE 5–6*

1. SIZE, QUALITY AND OVERALL HEALTH OF ALL PLANT MATERIAL USED SHALL CONFORM TO THE LATEST EDITION OF ANSI Z60 "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. ALL PLANT MATERIALS SHALL BE GUARANTEED TO BE IN HEALTHY CONDITION FOR (1) YEAR AFTER FINAL ACCEPTANCE OF ALL PLANT MATERIAL BY OWNER.
3. ALL CONSTRUCTION MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM WITH CITY OF CHARLOTTE AND MECKLENBURG COUNTY STANDARDS.
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6. PIN ALL SUBMERGED/FLOATING PLANT MATERIAL SECURELY TO THE BOTTOM OF POND WITH 12" BENT WIRE PINS.
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11. STAKE PLANTING ZONES PRIOR TO INSTALLATION AND VERIFY AREAS ON PLAN.
12. PLANTS ARE TO BE INSTALLED IN A RANDOM ARRANGEMENT WITHIN THEIR GROUPS ZONES. INDIVIDUAL SPECIES MAY BE PLANTED TOGETHER IN GROUPS OF 3 TO 5. PLANTS MAY ALSO BE PLANTED INDIVIDUALLY.
13. PLANT QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION. PLANTS SHALL NOT BE COMPLETELY SUBMERGED WHEN PLANTED.
14. SOILS SHALL BE AMENDED PER CHARLOTTE-MECKLENBURG BMP DESIGN MANUAL.

GRAPHIC SCALE

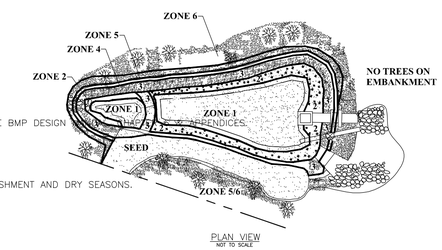
40' 0 20' 40' 80' 160'

(IN FEET)
1 inch = 40 ft.

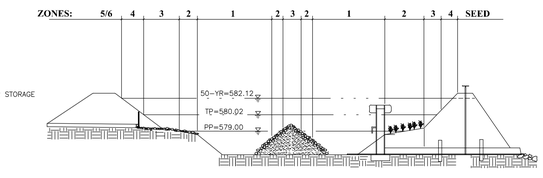
NORTH ORIENTED TO NGVD

NOTES:

1. PLANTINGS ZONES AND PLANT SELECTION PER THE BMP DESIGN
2. ALL PLANTINGS SHALL BE LOCAL NATIVE SPECIES.
3. IRRIGATION MAY BE PROVIDED FOR INITIAL ESTABLISHMENT AND DRY SEASONS.



PLAN VIEW
NOT TO SCALE



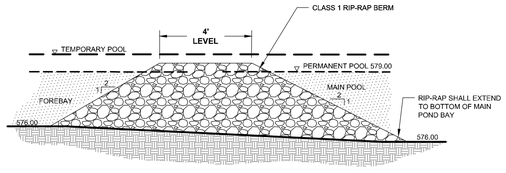
POND CROSS SECTION
NOT TO SCALE

NOT TO SCALE

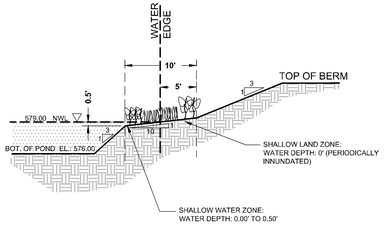
CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

WETPOND 1
PLANTING PLAN
BMP FIG. 4.2.5

STD. NO.	REV.
21.09	2



FOREBAY BERM SECTION B-B



NOT TO SCALE

WETPOND 1
LITTORAL SHELF AND BERM DETAIL

ESP Associates, P.A.
P.O. Box 7030
Charlotte, NC 28241
Suite 200, Phase I
Port Hill, SC 29908
704-583-4949 (NC)
803-802-2440 (SC)
www.espassociates.com

NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES, P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BENJAMIN A. MARTIN
1/6/17

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS
6	9/20/2016	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
7	1/7/2017	REVISION PER GRADING ADJUSTMENT	DMS

BMP PLAN & DETAILS - WET POND 1

CHATEAU PHASE 2

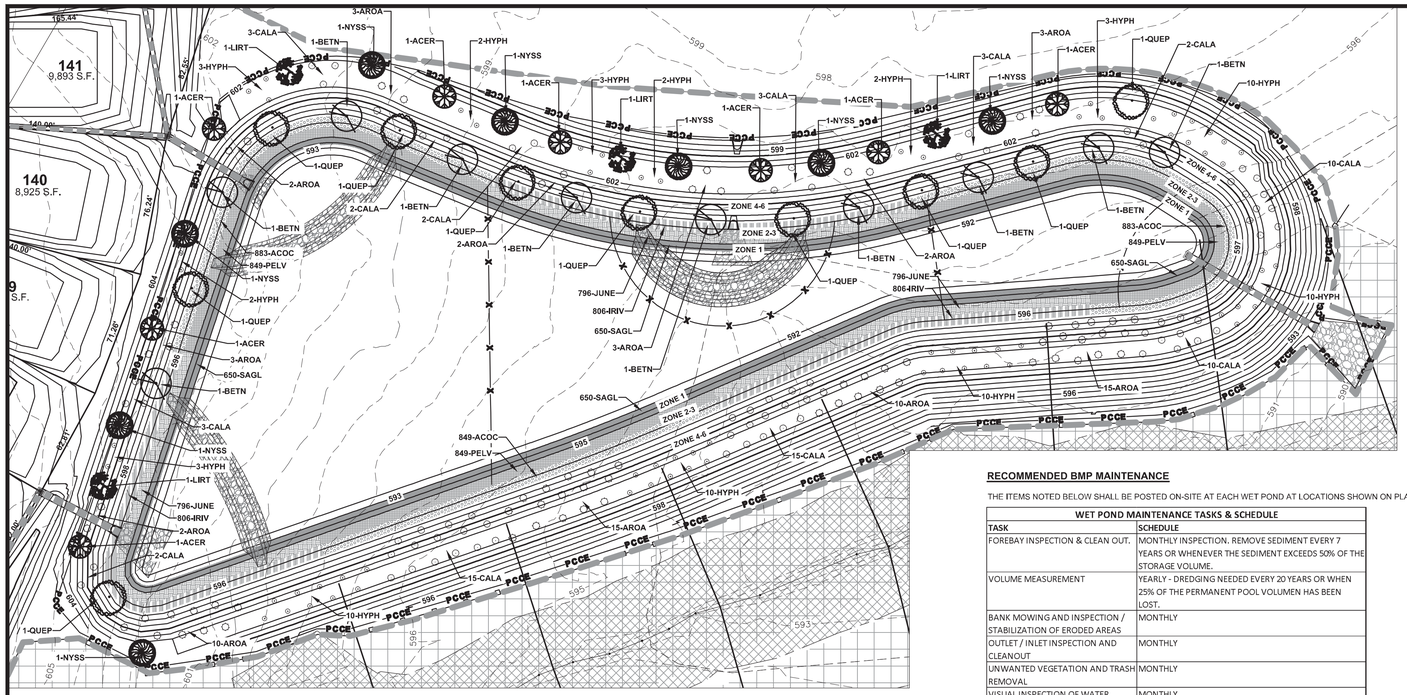
CHARLOTTE, NC

LENNAR CAROLINAS, LLC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: **C4.9**

V:\CN13.400 - Chateau Phase 2_CN13 Phase 2\Sheets\CN13_PH2_BMP PLN.dwg, SHEET 10 PDF.pc3



RECOMMENDED BMP MAINTENANCE

THE ITEMS NOTED BELOW SHALL BE POSTED ON-SITE AT EACH WET POND AT LOCATIONS SHOWN ON PLANS.

WET POND MAINTENANCE TASKS & SCHEDULE	
TASK	SCHEDULE
FOREBAY INSPECTION & CLEAN OUT.	MONTHLY INSPECTION. REMOVE SEDIMENT EVERY 7 YEARS OR WHENEVER THE SEDIMENT EXCEEDS 50% OF THE STORAGE VOLUME.
VOLUME MEASUREMENT	YEARLY - DREDGING NEEDED EVERY 20 YEARS OR WHEN 25% OF THE PERMANENT POOL VOLUMEN HAS BEEN LOST.
BANK MOWING AND INSPECTION / STABILIZATION OF ERODED AREAS	MONTHLY
OUTLET / INLET INSPECTION AND CLEANOUT	MONTHLY
UNWANTED VEGETATION AND TRASH REMOVAL	MONTHLY
VISUAL INSPECTION OF WATER QUALITY	MONTHLY
INSPECT / EXERCISE ALL MECHANICAL DEVICES, VALVES, ETC.	YEARLY
RODENT MANAGEMENT	AS NEEDED
PEST MANAGEMENT	AS NEEDED

WET POND 2 PLANTING SCHEDULE

KEY	BOTANICAL NAME	COMMON NAME	SIZE	SPACING	QTY	LOCATION
ZONE 1–3: TOTAL AREA= +/– 25,138.60 SF (25,138.60 X .5= 12,569.30) OR 12,570 TOTAL PLANTS REQUIRED: 12,570 PLANTS TOTAL PLANTS PROVIDED: 12,600 PLANTS						
SAGL	SAGITTARIA LATIFOLIA	DUCK POTATO	2"x5" PLUG	2.0' O.C.	2,600	ZONE 1
ACOC	ACORNUS CALAMUS	SWEETFLAG	2"x5" PLUG	1.0' O.C.	2,648	ZONE 2 & 3
IRIV	IRIS VIRGINICA	SOUTHERN BLUE FLAG	2"x5" PLUG	1.0' O.C.	2,418	ZONE 2 & 3
JUNE	JUNCUS EFFUSUS	SOFT RUSH	2"x5" PLUG	0.5' O.C.	2,388	ZONE 2 & 3
PELV	PELTANDRA VIRGINICA	ARROW ARUM	2"x5" PLUG	0.5' O.C.	2,546	ZONE 2 & 3
ZONE 4–6: TOTAL AREA= +/– 23,159.26 SF = 0.601 AC x 400 STEMS/AC = 240.21 STEMS REQUIRED ADDITIONAL 20 TREES PER ACRE: 0.601 AC x 20 TREES/ACRE = 12.0 TREES 241 STEMS REQUIRED, 250 STEMS PROVIDED, 40 TREES INCLUDED.						
QUEP	QUERCUS PHELLOS	WILLOW OAK	8' TALL, MIN. 2"CAL.	PER PLAN	10	ZONE 4–6
BETN	BETULA NIGRA	RIVER BIRCH	8' TALL, MIN. 2"CAL.	PER PLAN	10	ZONE 4–6
ACER	ACER RUBRUM	RED MAPLE	8' TALL, MIN. 2"CAL.	PER PLAN	8	ZONE 4–6
LIRT	LIRIODENDRON TULIPIFERA	TULIP POPLAR	8' TALL, MIN. 2"CAL.	PER PLAN	4	ZONE 4–6
NYSS	NYSSA SYLVATICA	BLACK GUM	8' TALL, MIN. 2"CAL.	PER PLAN	8	ZONE 4–6
AROA	ARONIA ARBUTIFOLIA	RED CHOKECHERRY	3' TALL, MIN. 2"CAL.	6.5' O.C.	70	ZONE 4–6
CALA	CALLICARPA AMERICANA	AMERICAN BEAUTYBERRY	3' TALL, MIN. 2"CAL.	6.5' O.C.	70	ZONE 4–6
HYPH	HYPERICUM HYPERICOIDES	ST. JOHN'S WORT	3' TALL, MIN. 2"CAL.	6.5' O.C.	70	ZONE 5–6

GENERAL BMP CONSTRUCTION SEQUENCE NOTES

1. AFTER SITE HAS BEEN STABILIZED AND SEDIMENT BASIN IS READY TO BE CONVERTED TO WET POND, DE-WATER BASIN, REMOVE ANY ACCUMULATED SEDIMENT AND LEGALLY DISPOSE OF MATERIAL. MATERIAL MAY BE DISPOSED OF ON-SITE IN AREAS NOT REQUIRING STRUCTURAL FILL, SEE GEOTECHNICAL REPORT.
2. EXCAVATE FOREBAY AND MAIN BAY OF BASIN. FINAL GRADE BASIN AND CONSTRUCT LITTORAL SHELF. VERIFY GRADES CONFORM TO THESE PLANS. CONTRACTOR SHALL PAY SPECIAL ATTENTION TO THE ELEVATIONS AT THE BOTTOM AND TOP OF THE LITTORAL SHELF, THE PERMANENT POOL ELEVATION, AND TOP OF EMBANKMENT AND VERIFY ALL GRADED ELEVATIONS ARE AS SHOWN ON THESE PLANS.
5. PROVIDE TEMPORARY SEEDING AS NEEDED TO STABILIZE SLOPES.
6. SUBMIT PRELIMINARY TOPOGRAPHIC SURVEY OF BASIN TO ENGINEER OF RECORD PRIOR TO INSTALLATION OF PLANTS ALONG LITTORAL SHELF OR INSTALLATION OF PERMANENT STABILIZATION MEASURES/SEEDING. CONTRACTOR SHALL NOT PERFORM ANY WORK BEYOND THIS PHASE UNTIL APPROVAL OF PRELIMINARY TOPOGRAPHIC SURVEY IS GRANTED BY ENGINEER OF RECORD.
7. REMOVE ANY TEMPORARY BLOCKAGES OR MODIFICATIONS TO CONTROL STRUCTURES REQUIRED FOR EROSION CONTROL AND VERIFY STRUCTURES CONFORM TO DETAILS.
8. SPREAD TOP SOIL AMENDED WITH ORGANIC FERTILIZER TO A DEPTH OF 2" OVER ENTIRE LITTORAL SHELF AND TILL INTO THE TOP 6" OF THE LITTORAL SHELF. CONTRACTOR SHALL BREAK UP AND TILL ALL CLODS GREATER THAN 3" IN LARGEST DIMENSION AND INTEGRATE WITH SOIL. ANY ROCKS, GRAVEL, AND DEBRIS LARGER THAN 1" IN LARGEST DIMENSION SHALL BE REMOVED FROM LITTORAL SHELF AND DISPOSED OF PRIOR TO INSTALLING PLANTINGS PER THE LANDSCAPE SCHEDULE. RECOMPACT SHELF USING HAND TOOLS AND VERIFY A UNIFORM SURFACE WITH SLOPE OF 10:1 IS PROVIDED.
9. INSTALL PLANT MATERIAL PER BMP PLANTING PLANS. DO NOT INSTALL PLANTINGS WHERE INFLOWS FROM STORM PIPES WILL DISLODGE OR DAMAGE PLANTS. ANCHOR PLANTINGS TO SHELF USING SOD STAPLES OR COMPARABLE METHOD OR DEVICE.
10. APPLY FERTILIZER PER SPECIFICATIONS.
11. PROVIDE TEMPORARY IRRIGATION FOR WET POND PLANTINGS FOR A PERIOD OF NO LESS THAN 30 DAYS OR UNTIL ESTABLISHMENT. IF INSTALLATION OCCURS DURING SUMMER MONTHS ADDITIONAL IRRIGATION BEYOND 30 DAYS WILL BE NECESSARY TO ESTABLISH PLANTINGS.
12. INSTALL MEASURES NECESSARY TO PREVENT DESTRUCTION OF VEGETATION BY WILDLIFE SUCH AS GEESE AND DEER. MEASURES MAY INCLUDE, BUT ARE NOT LIMITED TO: ORANGE CONSTRUCTION FENCING, ALLIGATOR DECOYS,INSTALLATION OF HUMANE DETERRENT DEVICES SUCH AS GOOSE GUARDIAN OR AWAY WITH GEESE UNIT
13. PROVIDE AS-BUILTS OF BASIN. AS-BUILTS SHALL BE DONE PRIOR TO THE RELEASE OF THE BMP BOND.
14. MAINTENANCE EASEMENT SHALL BE RECORDED PRIOR TO THE RELEASE OF THE BMP BOND.

BMP PLANTING NOTES

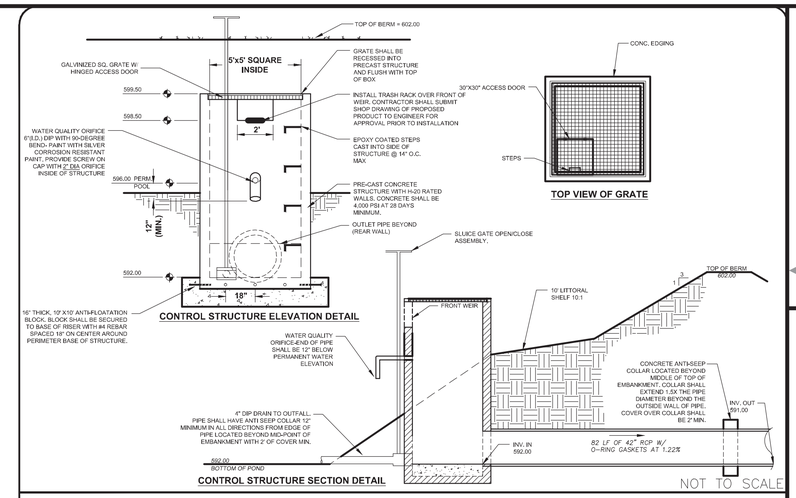
1. SIZE, QUALITY AND OVERALL HEALTH OF ALL PLANT MATERIAL USED SHALL CONFORM TO THE LATEST EDITION OF ANSI Z60 "AMERICAN STANDARD FOR NURSERY STOCK" AS PUBLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. ALL PLANT MATERIALS SHALL BE GUARANTEED TO BE IN HEALTHY CONDITION FOR (1) YEAR AFTER FINAL ACCEPTANCE OF ALL PLANT MATERIAL BY OWNER.
3. ALL CONSTRUCTION MATERIALS AND METHODS OF CONSTRUCTION SHALL CONFORM WITH CITY OF CHARLOTTE AND MECKLENBURG COUNTY STANDARDS.
4. IF BARE ROOT SPECIMENS ARE NOT TO BE USED WITHIN 4 DAYS, THEY SHOULD BE PLANTED IN SUITABLE BEDS WITH THE ASSUMPTION THAT IT WILL BE A WHILE BEFORE THEY CAN BE USED, AND THEY SHOULD BE PROVIDED WITH CONDITIONS MAKING IT POSSIBLE FOR THEM TO SURVIVE AND GROW AS OPTIMALLY AS POSSIBLE.
5. CONTAINER PLANTS WILL NEED TO BE WATERED REGULARLY (SEVERAL TIMES DAILY WHEN WEATHER IS HOT).
6. PIN ALL SUBMERGED/FLOATING PLANT MATERIAL SECURELY TO THE BOTTOM OF POND WITH 12" BENT WIRE PINS.
7. CUT BACK TALL AND EASILY BROKEN LEAVES AND STEMS AT THE TIME OF TRANSPLANTING.
8. NEWLY RECEIVED NURSERY STOCK AND DISTURBED TRANSPLANTS SHOULD NOT BE EXPOSED TO DIRECT SUN ANY MORE THAN NECESSARY UNTIL THEY ARE PLACED IN THEIR PERMANENT POSITIONS.
9. INSERT DRY FERTILIZER TABLETS OR SPIKES NEAR THE PLANTS AT THE TIME OF TRANSPLANTING.
10. FENCE ENTIRE PLANTING AREA WITH 36" TALL PLASTIC FENCING WITH 1.5"X2" OPENINGS. PLASTIC SHALL BE UV STABLE. COLOR SHALL BE BLACK. INSTALL WITH STEEL POSTS SPACED AT 10' O.C. MAX. PIN THE BOTTOM LAYER OF THE FABRIC TO THE GROUND WITH 10-12" PINS. FENCING TO REMAIN IN PLACE FOR A PERIOD OF ONE YEAR POST INSTALLATION OF PLANT MATERIAL.
11. STAKE PLANTING ZONES PRIOR TO INSTALLATION AND VERIFY AREAS ON PLAN.
12. PLANTS ARE TO BE INSTALLED IN A RANDOM ARRANGEMENT WITHIN THEIR GROUPS ZONES. INDIVIDUAL SPECIES MAY BE PLANTED TOGETHER IN GROUPS OF 3 TO 5. PLANTS MAY ALSO BE PLANTED INDIVIDUALLY.
13. PLANT QUANTITIES ARE TO BE VERIFIED BY CONTRACTOR PRIOR TO INSTALLATION. PLANTS SHALL NOT BE COMPLETELY SUBMERGED WHEN PLANTED.
14. SOILS SHALL BE AMENDED PER CHARLOTTE-MECKLENBURG BMP DESIGN MANUAL.

GRAPHIC SCALE

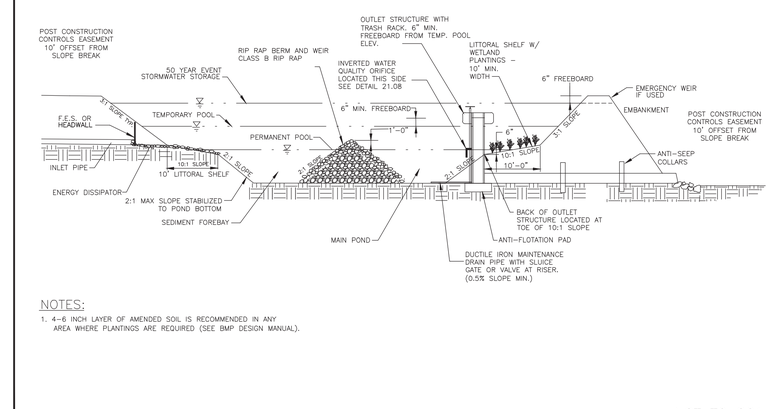
40' 0 20' 40' 80' 160'

(IN FEET)
1 inch = 40 ft.

NORTH (ORIENTED TO NAD 1983)



WET POND 2 – CONTROL STRUCTURE #C2 DETAIL



NOTES:

1. 4–6 INCH LAYER OF AMENDED SOIL IS RECOMMENDED IN ANY AREA WHERE PLANTINGS ARE REQUIRED (SEE BMP DESIGN MANUAL).

NOT TO SCALE

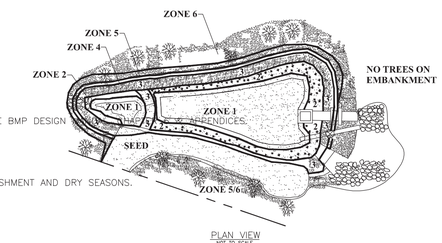
CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

WETPOND 2 – PROFILE
BMP FIG. 4.2.2

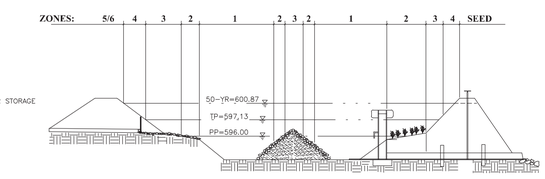
STD. NO.	REV.
21.06	5

NOTES:

1. PLANTINGS ZONES AND PLANT SELECTION PER THE BMP DESIGN
2. ALL PLANTINGS SHALL BE LOCAL NATIVE SPECIES.
3. IRRIGATION MAY BE PROVIDED FOR INITIAL ESTABLISHMENT AND DRY SEASONS.



PLAN VIEW
NOT TO SCALE



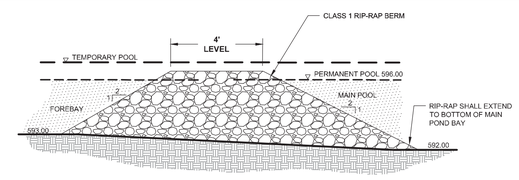
POND CROSS SECTION
NOT TO SCALE

NOT TO SCALE

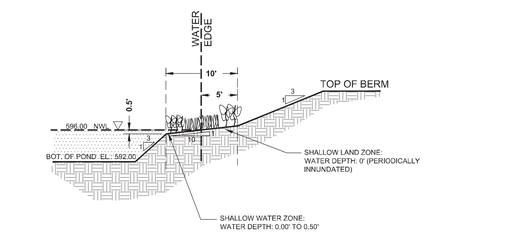
CITY OF CHARLOTTE
LAND DEVELOPMENT STANDARDS
INCLUDES CHARLOTTE ETJ

WETPOND 2
PLANTING PLAN
BMP FIG. 4.2.5

STD. NO.	REV.
21.09	2



FOREBAY BERM SECTION B-B



WETPOND 2
LITTORAL SHELF AND BERM DETAIL

ESP Associates, P.A.
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803-802-2440 (SC)
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NORTH CAROLINA
LICENSE NO.: C-0587
ESP ASSOCIATES P.A.

NORTH CAROLINA PROFESSIONAL SEAL 027971 ENGINEER BENJAMIN A. MARTIN
5/25/16

NO.	DATE	REVISION	BY
1	9/1/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
2	11/05/2015	REVISION PER CITY OF CHERLOTTE COMMENTS	DMS
3	12/07/2015	REVISION PER CITY OF CHARLOTTE COMMENTS	DMS
4	5/25/2016	REVISION PER GRADING ADJUSTMENTS	DMS

BMP PLAN & DETAILS - WET POND 2

CHATEAU PHASE 2

LENNAR CAROLINAS, LLC

CHARLOTTE, NC

PROJECT INFORMATION	
PROJECT MANAGER:	BAM
DESIGNED BY:	DRD
DRAWN BY:	CSH
PROJECT NUMBER:	CN13.400
ORIGINAL DATE:	6/1/2015

SHEET: C4.10