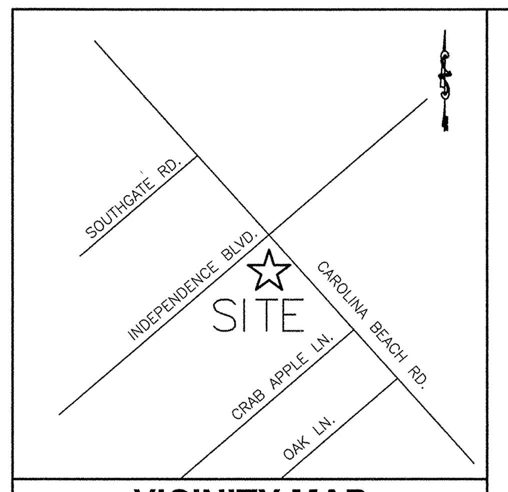

VICINITY MAP
N.T.S.

LEGEND

PROPERTY LINE	
RIGHT OF WAY	
EXISTING LOT LINES	
SD — SD	PROPOSED STORM DRAIN
6SS — 6SS	PROPOSED 6" SEWER
8W — 8W	PROPOSED 8" WATER LINE
(24)	PROPOSED CONTOUR
SSFM	EXISTING SS FORCEMAIN
SS — SS	EXISTING SEWER LINE
SD — SD	EXISTING STORM DRAIN
W — W	EXISTING WATER MAIN

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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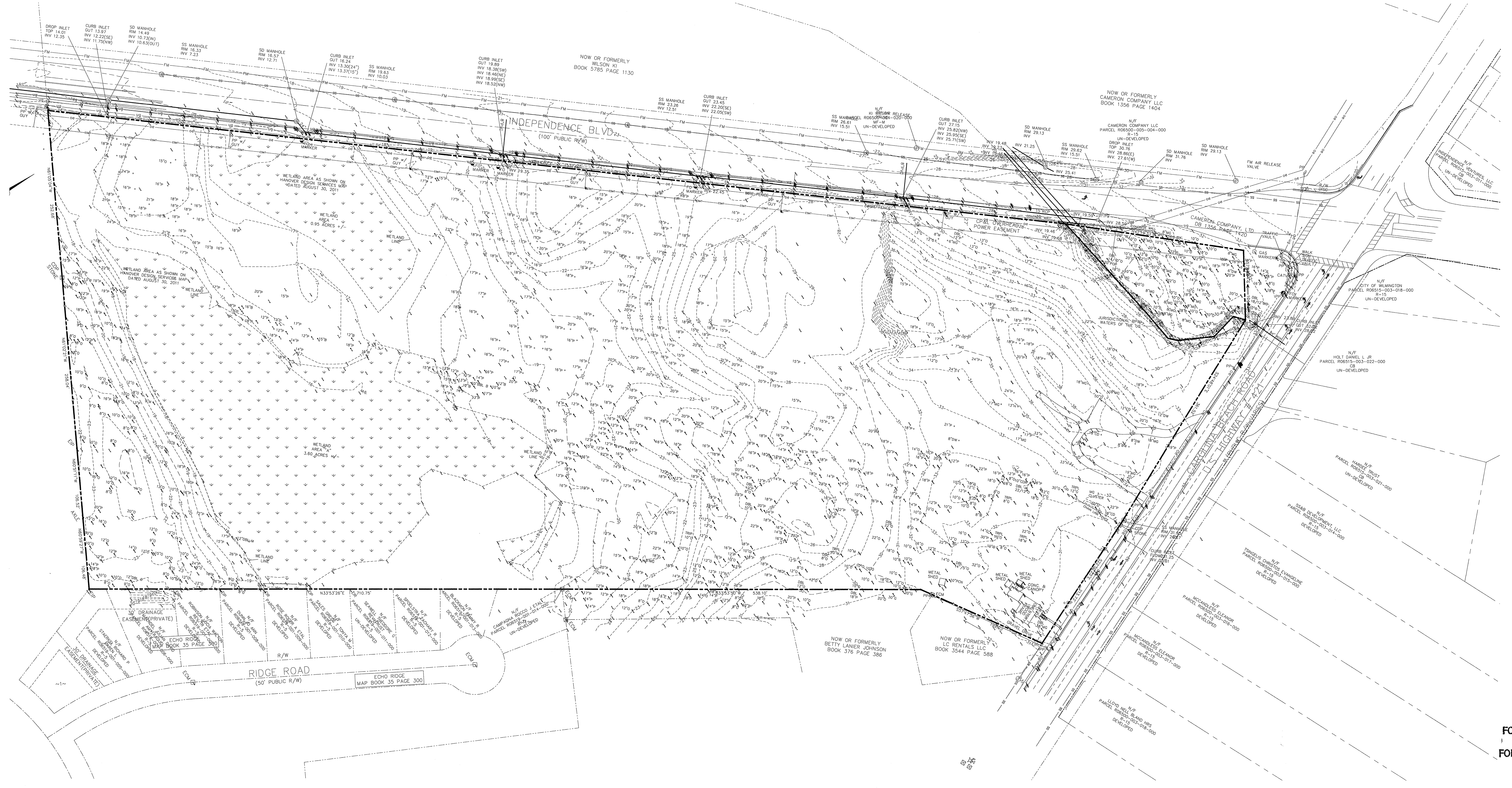
NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



SCALE: 1" = 60'
0 60 120 180

TREE EXHIBIT PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET 1429 ASH-LITTLE RIVER RD. NW
WILMINGTON, NC 28401 ASH, NC 28420
PHONE (910) 343-9653 PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

FOR REVIEW ONLY
DO NOT USE
FOR CONSTRUCTION

CAROLINA PROFESSIONAL SEAL ENGINEER JOHN PHILLIP NORRIS

C1

SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE
5" OAK		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X
6" DOGWOOD		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X
6" DOGWOOD		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" POPLAR		X
6" MAGNOLIA		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20"PINE	X	
6" MAGNOLIA		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
7" MAGNOLIA		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" GUM (TRIPLE)		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" OAK (TRIPLE)		X	14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" OAK (TRIPLE)		X	14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" PECAN		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	10" PINE		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	11" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	11" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK	X	
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK	X	
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK (DOUBLE)		X
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" DOGWOOD		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" MAPLE		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAPLE	X		12" MAPLE (DOUBLE)			14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" POPLAR		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	23" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	24" OAK	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	24" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE	X		18" PINE		X	24" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE	X		18" PINE		X	24" PINE		X
8" OAK		X	12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" MAGNOLIA		X	18" PINE		X	28" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" MAGNOLIA		X	18" PINE		X	30" OAK		X
8" OAK	X		12" OAK	X		15" OAK		X	17" PINE		X	18" PINE		X	30" PINE		X
8" OAK	X		12" OAK	X		15" OAK	X		17" PINE		X	18" PINE		X	32" OAK		X
8" OAK	X		12" OAK	X		15" OAK	X		17" PINE		X	18" PINE		X	33" HICKORY		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	33" HICKORY		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	50" OAK		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	50" OAK		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	MAGNOLIA CLUSTER		X
8" OAK	X		12" OAK (DOUBLE)		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" OAK (DOUBLE)	X		15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" WILLOW		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" MAPLE	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" CEDAR		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE	X		17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE	X		17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	16" BIRCH		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	16" MAGNOLIA (TRIPLE)	X		17" PINE		X	18" PINE	X				
10" GUM	X		12" PINE		X	16" OAK		X	17" PINE		X	18" PINE	X				
10" GUM	X		12" PINE		X	16" OAK		X	17" PINE	X		18" PINE	X				
10" MAPLE		X	12" PINE		X	16" OAK		X	17" PINE	X		19" MAGNOLIA		X			
10" MAPLE		X	12" PINE		X	16" OAK		X	17" PINE	X		19" PINE		X			
10" MAPLE (TRIPLE)		X	12" PINE		X	16" OAK	X		17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE	X				
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE	X				
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		20" GUM		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" CEDAR		X	20" OAK		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" CEDAR		X	20" OAK		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" GUM		X	20" OAK	X				
10" OAK		X	12" PINE		X	16" PINE		X	18" GUM		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAPLE (TRIPLE)		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK	X		20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE (DOUBLE)		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE (DOUBLE)		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" GUM		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" HICKORY		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" BIRCH		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" BIRCH		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE	X		20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE	X		20" PINE		X			

SYMBOL	DATE	DESCRIPTION	BY

REVISIONS

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TREE LIST PLAN

THE CROSSROADS AT INDEPENDENCE

INDEPENDENCE AND CAROLINA BEACH ROAD

BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

16023

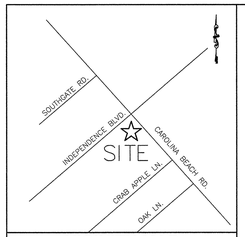
DES. JPN
CKD. JPN
DRWN. EDB

DATE 11/02/16

FOR REVIEW ONLY
DO NOT USE
FOR CONSTRUCTION

NORTH CAROLINA
SEAL
ENGINEER
JOHN PHILLIP NORRIS

TREE LIST



VICINITY MAP
N.T.S.

SITE DATA TABLE

SITE AREA:	1,050,550 SF± / 24.12 AC±		
CAMA LAND USE:	URBAN		
PARCEL ID#:	R06500-004-019-000 R06500-004-015-000 R06500-004-014-000 R06500-004-013-000 R06500-005-004-000		
PARCELS TO BE COMBINED UPON CONDITIONAL ZONING APPROVAL			
CURRENT ZONING:	R-15		
REQUESTED ZONING:	CB		
FEMA FLOOD ZONE:	SITE NOT IN FLOOD ZONE		
PROPOSED BUILDING:	SF OF BLDG:	USE:	HEIGHT:
BLDG. 1	76,000 SF	GROCERY	26' (41' VESTIBULE)
BLDG. 2	10,300 SF	RETAIL	18'
BLDG. 3	6,200 SF	RETAIL	18'
OUTPARCEL 1	20,000 SF	RETAIL	26'
OUTPARCEL 2	6,000 SF	RETAIL	18'
OUTPARCEL 3	200 SF	GAS	18'
MAX LOT COVERAGE:	30%		
ACTUAL LOT COVERAGE:			
LARGE SCALE RETAIL	21.89%		
BUILDING SETBACKS:	FRONT: 20' CORNER SIDE: 20'		
(ABUTS RESIDENTIAL)	REAR: 25' PROVIDED: 46' (INCREASE DUE TO BLDG. HEIGHT) REAR: 10'		
(ABUTS RESIDENTIAL)	SIDE: 20' PROVIDED: 41' (INCREASE DUE TO BLDG. HEIGHT) SIDE: 0		

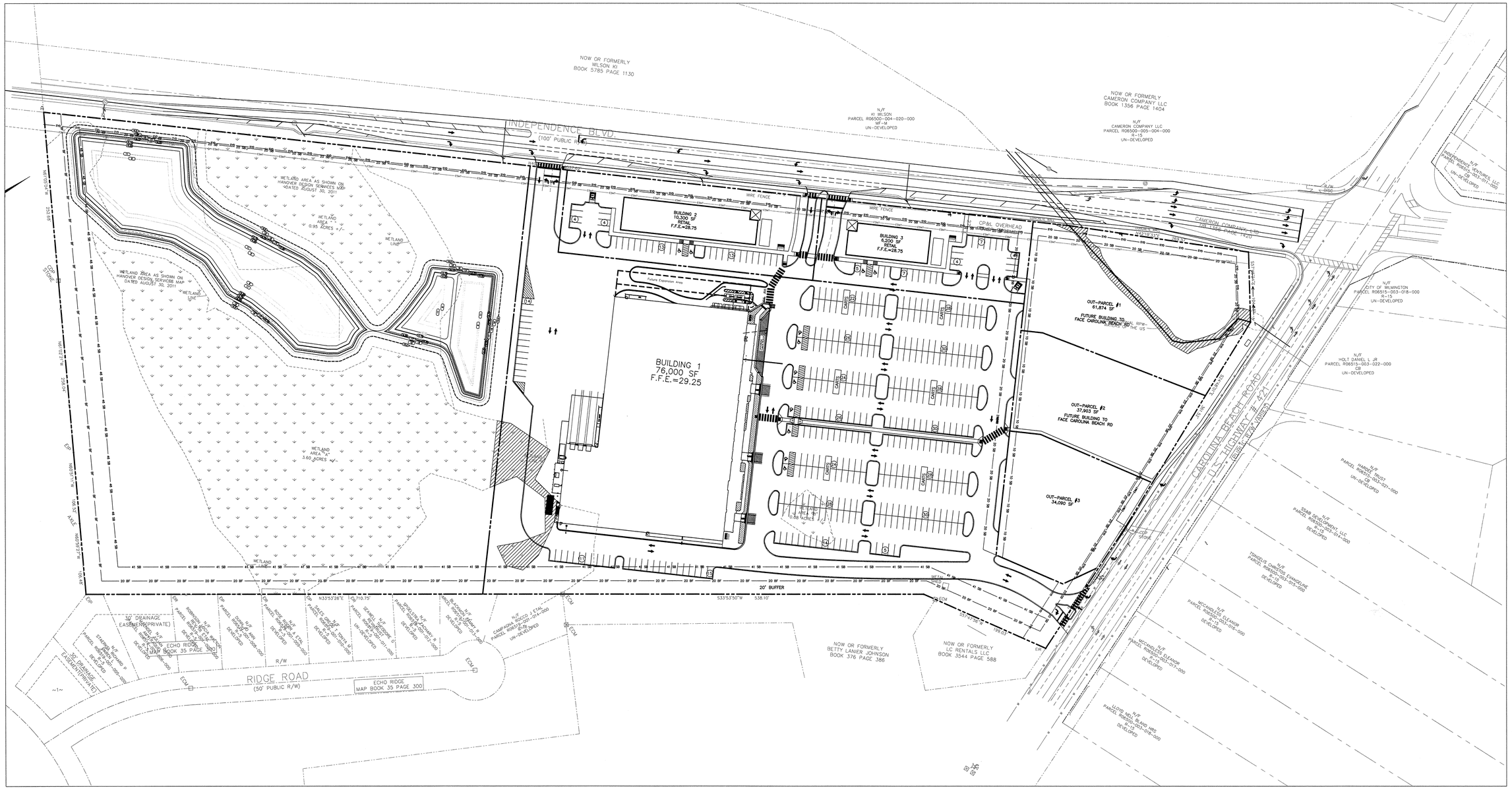
REQUIRED PARKING:	
LARGE SCALE RETAIL:	MIN. 1 SP / 400 SF GFA : 190 SPACES MAX. 1 SP / 200 SF GFA : 380 SPACES
GENERAL RETAIL:	MIN. 1 SP / 400 SF GFA : 20 SPACES MAX. 1 SP / 200 SF GFA : 40 SPACES
SERVICE STATION:	MIN. 1 SP / 400 SF GFA : 1 SPACE MAX. 1 SP / 200 SF GFA : 1 SPACE
PROVIDED PARKING:	444 SPACES (INCLUDES 12 HC)
IMPERVIOUS AREAS: PROPOSED	
PROPOSED BLDG.: HARRIS TEETER	76,000 SF
PROPOSED BLDGS.: BLDG'S 2 &3	16,500 SF
FUTURE BLDG.:	16,600 SF
OUTPARCEL #1:	55,500 SF
OUTPARCEL #2:	34,500 SF
OUTPARCEL #3: GAS STATION	26,500 SF
DRIVE ISLE / PARKING:	247,400 SF
CONCRETE:	27,000 SF
TOTAL IMPERVIOUS AREA:	500,000 SF
% IMPERVIOUS:	47.59%
DISTURBED AREA:	804,087 SF / 18.46 AC

BUFFER:	
SIDE:	20' – ABUTTING RESIDENTIAL
REAR:	25' – ABUTTING RESIDENTIAL
STREET YARD	MULTIPLIER: 18 MAX WIDTH: 27 MIN WIDTH: 9'
PRIMARY:	CAROLINA BEACH RD.
SECONDARY:	INDEPENDENCE BLVD.
PRIMARY REQUIRED:	
LARGE SCALE:	(100-58)36 = 1,512 SF
OUT-PARCEL:	580 (18) = 10,440 SF
PRIMARY PROVIDED:	
LARGE SCALE:	2,510 SF
OUT-PARCEL:	10,440 SF
SECONDARY REQUIRED:	
LARGE SCALE:	(800-48)18 = 13,536 SF
OUT-PARCEL:	(1,006-64)9 = 8,478 SF
SECONDARY PROVIDED:	
LARGE SCALE:	13,536 SF
OUT-PARCEL:	8,478 SF
FOUNDATION PLANTINGS REQUIRED:	
FRONT:	(~'(L)x~'(H))(.12)= 151.2 SF
SIDE:	(~'(L)x~'(H))(.12)= 280.8 SF
FOUNDATION PLANTINGS PROVIDED:	
FRONT:	–
SIDE:	–

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING LOT LINES
- SSFM — EXISTING SS FORCEMAIN
- SS — SS — EXISTING SEWER LINE
- SD — SD — EXISTING STORM DRAIN
- W — W — EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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OVERALL PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Main Street
Manchester, MA 01944
910-538-5855
deanscanfoni@comcast.net

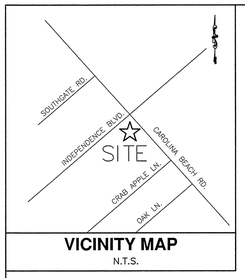
16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

FOR REVIEW ONLY
DO NOT USE
FOR CONSTRUCTION

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14968 JOHN PHILLIP NORRIS

C0



VICINITY MAP
N.T.S.

LEGEND

	PROPERTY LINE
	RIGHT OF WAY
	EXISTING LOT LINES
SD SD	PROPOSED STORM DRAIN
6SS 6SS	PROPOSED 6" SEWER
8W 8W	PROPOSED 8" WATER LINE
24	PROPOSED CONTOUR
SSFM	EXISTING SS FORCEMAIN
SS SS	EXISTING SEWER LINE
SD SD	EXISTING STORM DRAIN
W W	EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	
		© 2016 NORRIS & TUNSTALL	

ALL TREES WITHIN THIS AREA TO BE REMOVED

INDEPENDENCE BLVD.
(100' PUBLIC R/W)

RIDGE ROAD
(50' PUBLIC R/W)

ECHO RIDGE
MAP BOOK 35 PAGE 300

CAROLINA BEACH ROAD
U.S. HIGHWAY # 421

NOW OR FORMERLY WILSON KI BOOK 5785 PAGE 1130

NOW OR FORMERLY CAMERON COMPANY LLC BOOK 1356 PAGE 1404

CAMERON COMPANY, LTD DB 1356 PAGE 1420

NOW OR FORMERLY BETTY LANIER JOHNSON BOOK 376 PAGE 386

NOW OR FORMERLY LC RENTALS LLC BOOK 3544 PAGE 588

WETLAND AREA AS SHOWN ON HANOVER DESIGN SERVICES MAP DATED AUGUST 30, 2011

WETLAND AREA "A" 3.60 ACRES +/-

WETLAND AREA "B" 0.95 ACRES +/-

50' DRAINAGE EASEMENT(PRIVATE)

DUKE POWER EASEMENT

SCALE: 1" = 60'
0 60 120 180

TREE REMOVAL PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
dconstantfont@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
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license #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 11966 11/03/16 JOHN PHILLIP NORRIS

C1.1

SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE	SIZE	SAVE	REMOVE
5" OAK		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X
6" DOGWOOD		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X
6" DOGWOOD		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" POPLAR		X
6" MAGNOLIA		X	10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20"PINE	X	
6" MAGNOLIA		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
7" MAGNOLIA		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" OAK	X		16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" DOGWOOD		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" GUM (TRIPLE)		X	10" OAK	X		14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" OAK (TRIPLE)		X	14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" OAK (TRIPLE)		X	14" PINE		X	16" PINE		X	18" PINE		X	21" PINE		X
8" MAGNOLIA		X	10" PECAN		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	10" PINE		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	11" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK		X
8" MAGNOLIA		X	11" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK	X	
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK	X	
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" OAK (DOUBLE)		X
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" BIRCH		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" CEDAR		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" DOGWOOD		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" GUM		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAGNOLIA		X	12" MAPLE		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" MAPLE	X		12" MAPLE (DOUBLE)			14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	22" POPLAR		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	23" PINE	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	24" OAK	X	
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE		X	18" PINE		X	24" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE	X		18" PINE		X	24" PINE		X
8" OAK		X	12" OAK		X	14" PINE		X	16" PINE	X		18" PINE		X	24" PINE		X
8" OAK		X	12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	24" PINE	X	
8" OAK	X		12" OAK	X		14" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" PINE	X		16" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" PINE	X		18" PINE		X	26" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" MAGNOLIA		X	18" PINE		X	28" PINE		X
8" OAK	X		12" OAK	X		15" BIRCH		X	17" MAGNOLIA		X	18" PINE		X	30" OAK		X
8" OAK	X		12" OAK	X		15" OAK		X	17" PINE		X	18" PINE		X	30" PINE		X
8" OAK	X		12" OAK	X		15" OAK	X		17" PINE		X	18" PINE		X	32" OAK		X
8" OAK	X		12" OAK	X		15" OAK	X		17" PINE		X	18" PINE		X	33" HICKORY		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	33" HICKORY		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	50" OAK		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	50" OAK		X
8" OAK	X		12" OAK	X		15" PINE		X	17" PINE		X	18" PINE		X	MAGNOLIA CLUSTER		X
8" OAK	X		12" OAK (DOUBLE)		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" OAK (DOUBLE)	X		15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" OAK (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
8" WILLOW		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" MAPLE	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
9" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" OAK	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH	X		12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" BIRCH (DOUBLE)		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" CEDAR		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE		X			
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE	X		17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	15" PINE	X		17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	16" BIRCH		X	17" PINE		X	18" PINE	X				
10" GUM		X	12" PINE		X	16" MAGNOLIA (TRIPLE)	X		17" PINE		X	18" PINE	X				
10" GUM	X		12" PINE		X	16" OAK		X	17" PINE		X	18" PINE	X				
10" GUM	X		12" PINE		X	16" OAK		X	17" PINE	X		18" PINE	X				
10" MAPLE		X	12" PINE		X	16" OAK		X	17" PINE	X		19" MAGNOLIA		X			
10" MAPLE		X	12" PINE		X	16" OAK		X	17" PINE	X		19" PINE		X			
10" MAPLE (TRIPLE)		X	12" PINE		X	16" OAK	X		17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE	X				
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		19" PINE	X				
10" OAK		X	12" PINE		X	16" PINE		X	17" PINE	X		20" GUM		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" CEDAR		X	20" OAK		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" CEDAR		X	20" OAK		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" GUM		X	20" OAK	X				
10" OAK		X	12" PINE		X	16" PINE		X	18" GUM		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAGNOLIA		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" MAPLE (TRIPLE)		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK		X	20" PINE		X			
10" OAK		X	12" PINE		X	16" PINE		X	18" OAK	X		20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE (DOUBLE)		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	12" PINE (DOUBLE)		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" GUM		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" HICKORY		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK		X	13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		13" PINE	X		16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" BIRCH		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" BIRCH		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE		X	20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE	X		20" PINE		X			
10" OAK	X		14" OAK		X	16" PINE		X	18" PINE	X		20" PINE		X			

SYMBOL	DATE	DESCRIPTION	BY

REVISIONS

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TREE LIST PLAN

THE CROSSROADS AT INDEPENDENCE

INDEPENDENCE AND CAROLINA BEACH ROAD

BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
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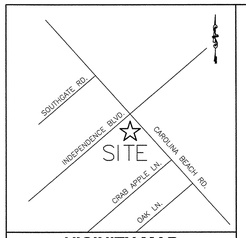
16023

DES. JPN
CKD. JPN
DRWN. EDB

DATE 11/02/16

NORTH CAROLINA PROFESSIONAL SEAL 11966 ENGINEER JOHN PHILLIP NORRIS 11/03/16

C1.2



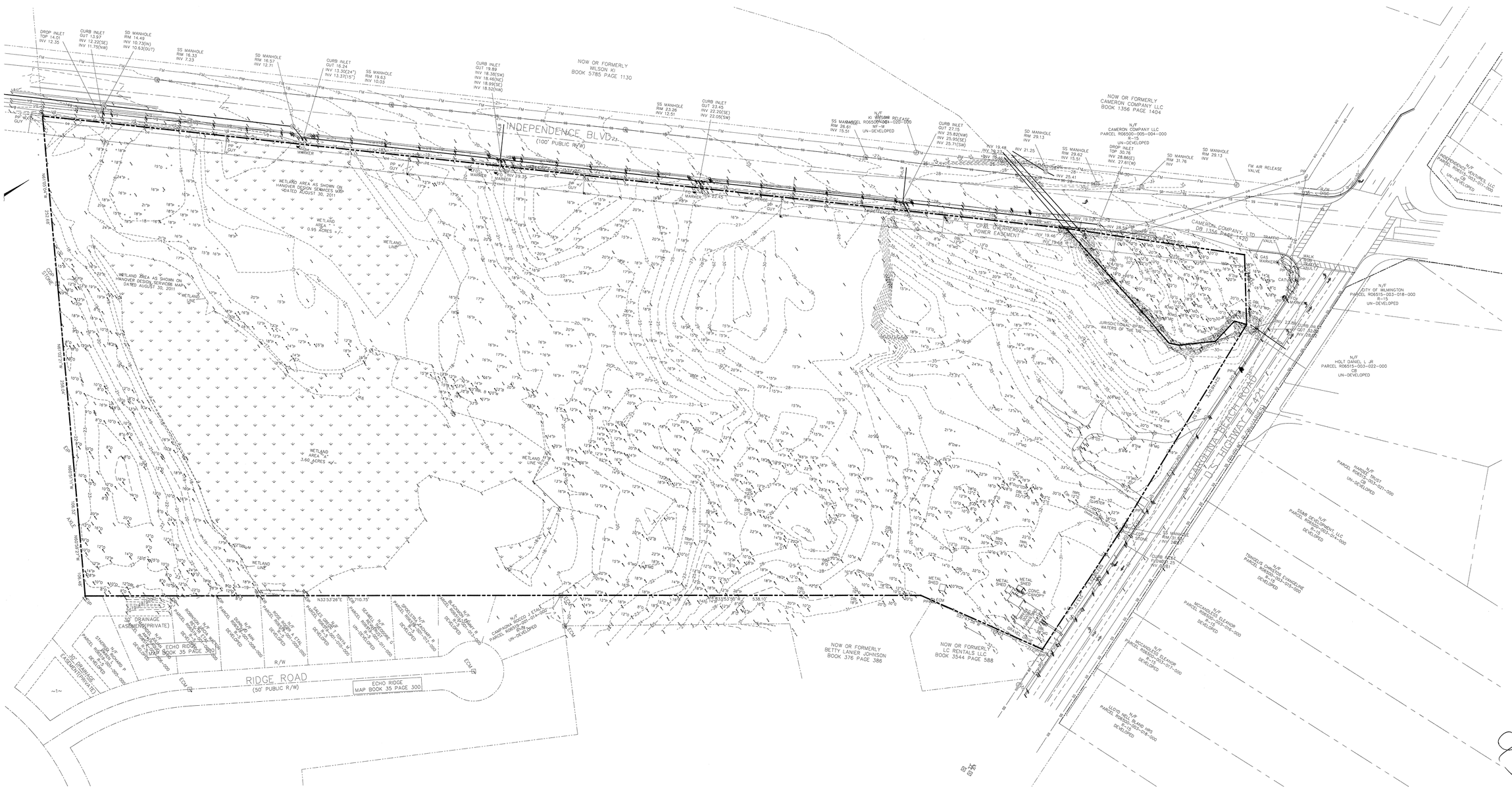
VICINITY MAP
N.T.S.

NOTES:
1. NORRIS AND TUNSTALL CONSULTING ENGINEERS, P.C.
2. LIVE OAK DEVELOPMENT COMPANY
3. SIGHT ADDRESS 3802-3906 CAROLINA BEACH RD.
4. LIVE OAK DEVELOPMENT COMPANY
5. LIVE OAK DEVELOPMENT COMPANY
6. R06500-004-019-000
   R06500-004-015-000
   R06500-004-014-000
   R06500-004-013-000
   R06500-005-004-000
   PARCELS ARE TO BE COMBINED.
7. PROPERTY IS ZONED CB (CD)
8. ADJACENT PROPERTY INFORMATION INDICATED ON PLAN.
9. VICINITY MAP ON PLAN.
10. TOPOGRAPHY ON PLAN.
11. THE PROJECT IS NOT LOCATED WITH THE 100 YR FLOOD PLAIN.
12. EXISTING DITCHES, CREEKS AND STREAMS SHOWN ON PLAN.
13. THE SOILS ON THIS SITE ARE MAPPED AS THE BAYMEADE FINE SAND, KUREB SAND, LEON SAND, LYNN HAVEN FINE SAND, RIMINI SAND, AND WAKULLA SAND SOIL SERIES.
14. THERE ARE NO CAMA AREAS OF CONCERN (AEC) OR ASSOCIATED SETBACKS.
15. CAMA LAND CLASSIFICATION IS URBAN.
16. THERE ARE WETLANDS ON THE SITE WHICH ARE SHOWN ON PLAN.
17. THIS SITE IS NOT RECOGNIZED AS A LOCAL, STATE OR FEDERALLY HISTORIC OR ARCHEOLOGICAL SITE.
18. NO CEMETERIES, BURIAL SITES, OR BURIAL GROUNDS EXIST ONSITE.
19. THE ENTIRE SITE IS WOODED.
20. WETLANDS SHOWN ON PLAN.
21. NO PRESENCE OF PROTECTED SPECIES OR HABITAT ARE FOUND ONSITE.
22. NO PRESENCE OF EXISTING OR PROPOSED THOROUGHFARES, BIKE ROUTES, PEDESTRIAN WALKS OR TRAILS AND TRANSIT FACILITIES EXIST ONSITE.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING LOT LINES
- SSFM — EXISTING SS FORCEMAIN
- SS — EXISTING SEWER LINE
- SD — EXISTING STORM DRAIN
- W — EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



SCALE: 1" = 60'
0 60 120 180

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

© 2016 NORRIS & TUNSTALL

SITE INVENTORY PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-3855
deanscrafton@comcast.net

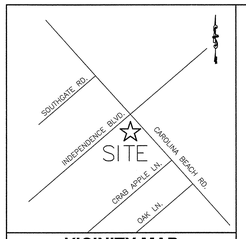
NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

16023

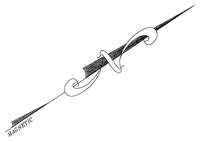
DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 11965 11/03/16 JOHN PHILLIP NORRIS

C1

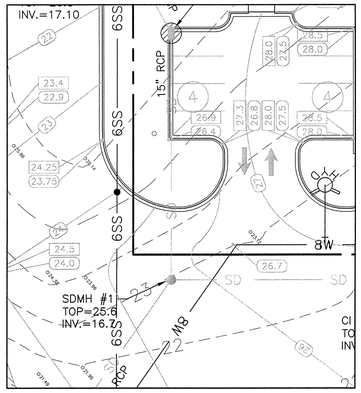


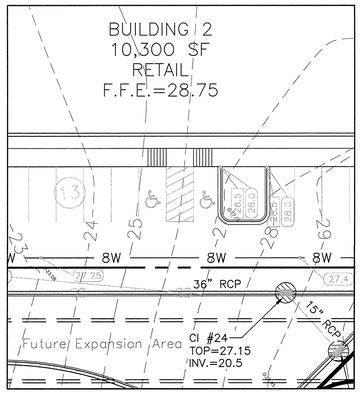
VICINITY MAP
N.T.S.

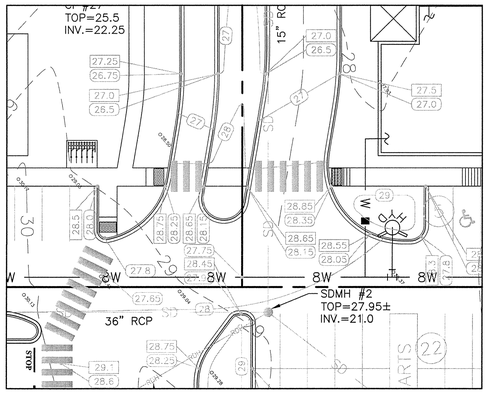


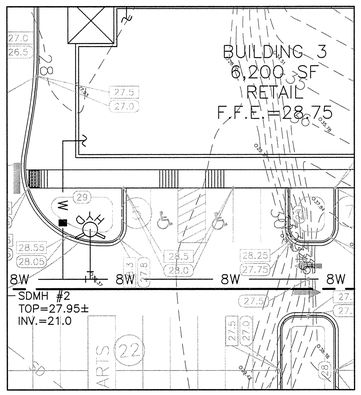
LEGEND

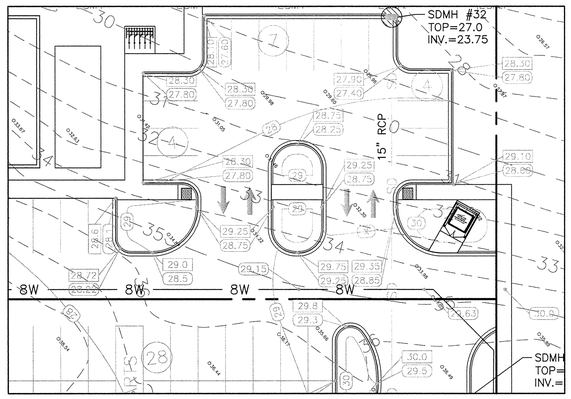
	PROPERTY LINE
	RIGHT OF WAY
LOD	LIMITS OF DISTURBANCE
	EXISTING LOT LINES
SD	PROPOSED STORM DRAIN
6SS	PROPOSED 6" SEWER
8W	PROPOSED 8" WATER LINE
24	PROPOSED CONTOUR
28.30	TOP OF CURB / SIDEWALK
27.80	PROPOSED GRADE
SSFM	EXISTING SS FORCEMAIN
SS	EXISTING SANITARY SEWER
SD	EXISTING STORM DRAIN
W	EXISTING WATER MAIN

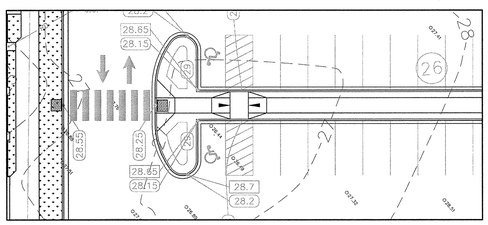


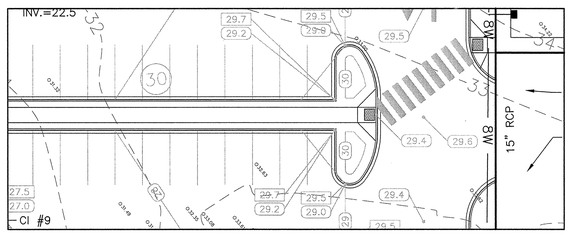










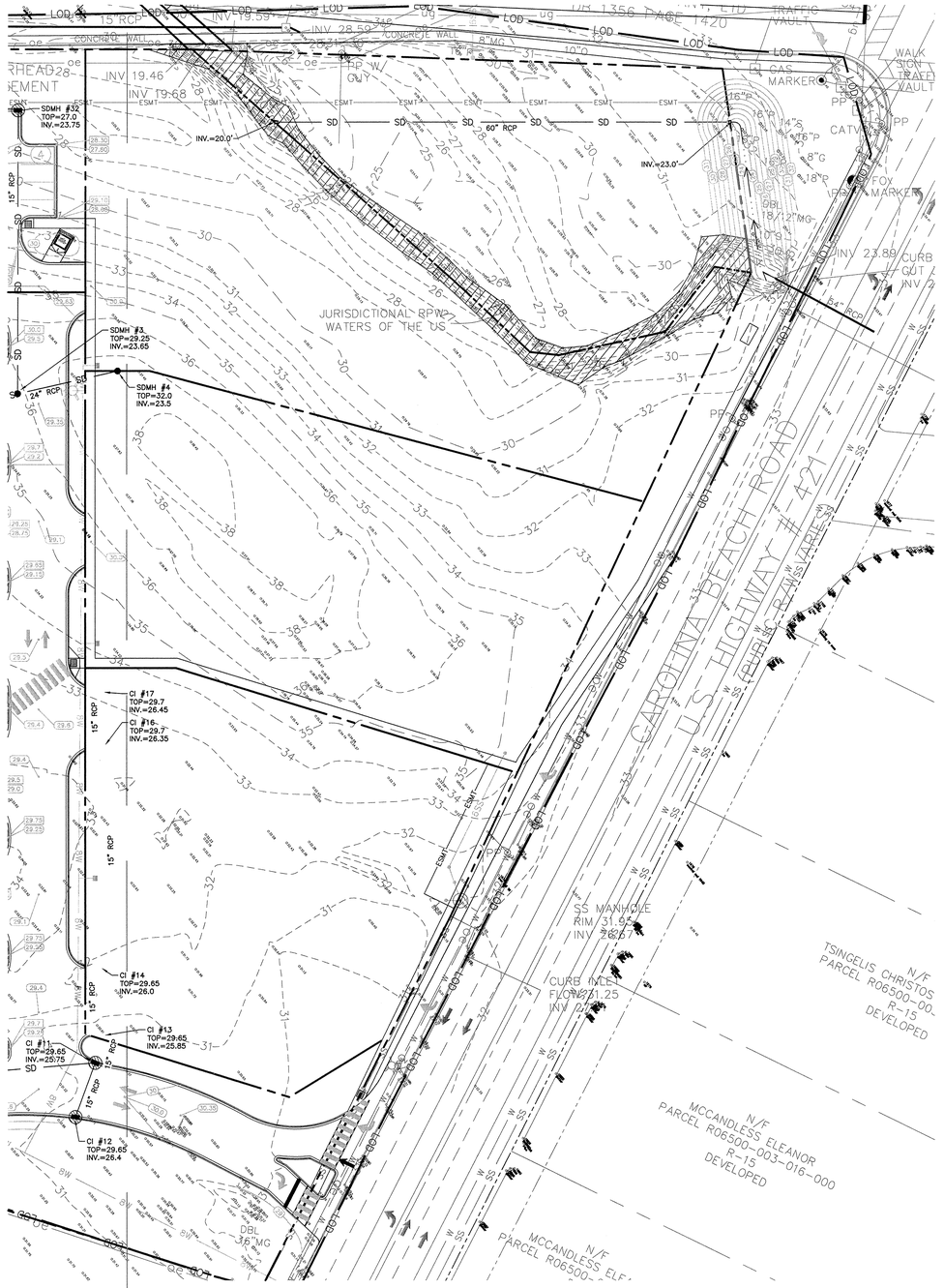


SCALE: 1" = 20'
0 20 40 60

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
3. THERE ARE CO CONSERVATION OVERLAY BOUNDARIES AFFECTING THIS PROPERTY.
4. THIS SITE IS NOT IMPACTED BY ANY RECOGNIZED HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE.
5. NO CEMETERIES WERE EVIDENCED ON THE SITE.
6. REGULATED VEGETATION WITHIN THE DEVELOPMENT AREA HAS BEEN LOCATED.
7. THERE ARE JURISDICTIONAL WETLANDS WITHIN THE PROJECT BOUNDARIES, AS DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND MITIGATED.
8. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

SEE SHEET C2



SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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GRADING AND DRAINAGE PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
dennscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH–LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
DD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER JOHN PHILLIP NORRIS

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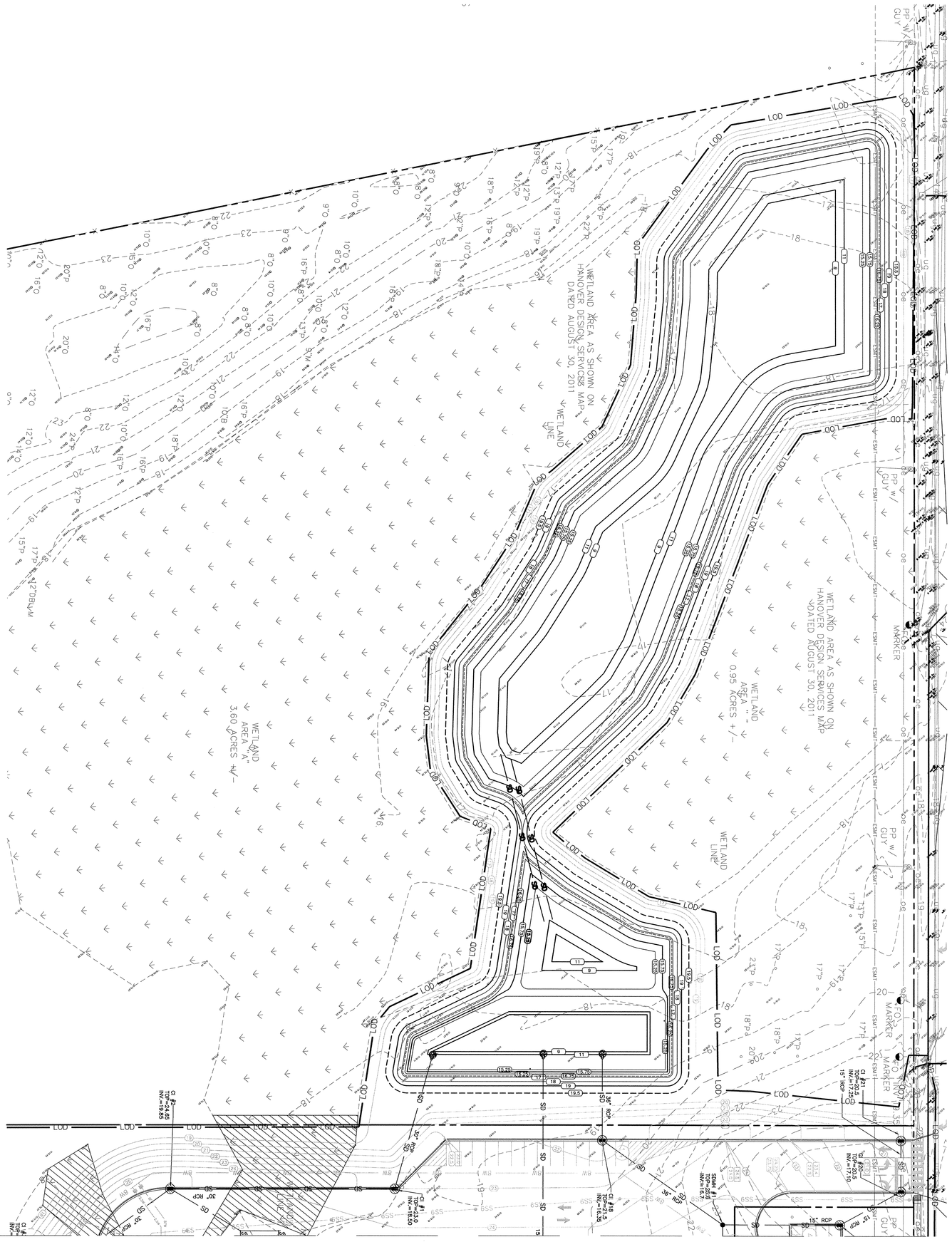
FOR CONSTRUCTION

C2.1



SEE SHEET C2

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

LEGEND

	PROPERTY LINE
	RIGHT OF WAY
LOD	LIMITS OF DISTURBANCE
	EXISTING LOT LINES
SD	PROPOSED STORM DRAIN
SD	EXISTING STORM DRAIN
SS	PROPOSED 6" SEWER
SS	EXISTING SANITARY SEWER
SSFM	EXISTING SS FORCEMAIN
W	PROPOSED 8" WATER LINE
W	EXISTING WATER MAIN
GSS	PROPOSED GAS LINE
BW	PROPOSED BURIED WIRE
MW	PROPOSED MISC. WIRE
28.39	TOP OF CURB / SIDEWALK
27.39	PROPOSED GRADE

NOTES:
1. SOILS ON SITE ARE (LEVY SAND) & (NO. 1 LOAMY FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AECC.
3. THERE ARE NO CONSERVATION OVERLAY BOUNDARIES AFFECTING THIS PROPERTY.
4. THERE ARE NO KNOWN HISTORIC OR ARCHAEOLOGICAL SIGNIFICANCE.
5. NO ENDANGERED SPECIES WERE PURPOSED ON THE SITE.
6. REGULATED VEGETATION WITHIN THE DEVELOPMENT AREA HAS BEEN LOCATED.
7. DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND NOT UNNECESSARILY DISTURBED.
8. THERE IS NO ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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SCALE: 1" = 30'
0 30 60 90

C2.2

FOR REVIEW ONLY
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JAMES P. NORRIS, PE
REGISTERED PROFESSIONAL ENGINEER

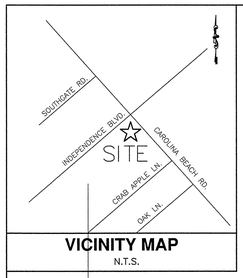
DES.	JPN
DRD.	JPN
CHKD.	EDB
DATE	11/02/16

16023

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

GRADING AND DRAINAGE PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA



VICINITY MAP
N.T.S.

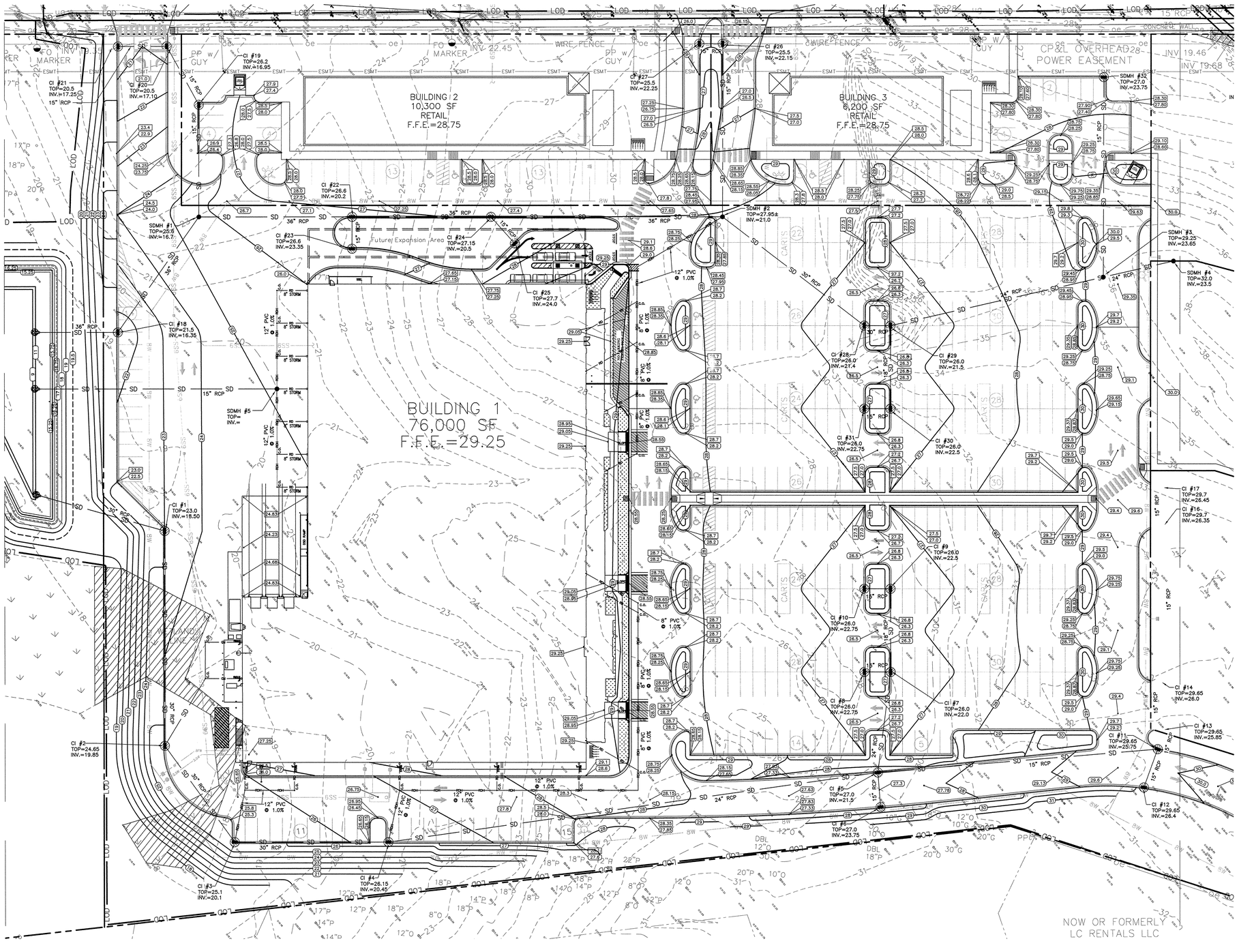
NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
3. THERE ARE CO CONSERVATION OVERLAY BOUNDARIES AFFECTING THIS PROPERTY.
4. THIS SITE IS NOT IMPACTED BY ANY RECOGNIZED HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE.
5. NO CEMETERIES WERE EVIDENCED ON THE SITE.
6. REGULATED VEGETATION WITHIN THE DEVELOPMENT AREA HAS BEEN LOCATED.
7. THERE ARE JURISDICTIONAL WETLANDS WITHIN THE PROJECT BOUNDARIES, AS DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND MITIGATED.
8. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720031350J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

SEE SHEET C2.1

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- LOD — LIMITS OF DISTURBANCE
- EXISTING LOT LINES
- SD — PROPOSED STORM DRAIN
- SSS — PROPOSED 6" SEWER
- W — PROPOSED 8" WATER LINE
- 24 — PROPOSED CONTOUR
- 28.30 — TOP OF CURB / SIDEWALK
- 27.80 — PROPOSED GRADE
- SSFM — EXISTING SS FORCEMAIN
- SS — EXISTING SANITARY SEWER
- SD — EXISTING STORM DRAIN
- W — EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



SEE SHEET C--- FOR POND INFORMATION

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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GRADING AND DRAINAGE PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Sand Creek Lane
Manchester, MA 01944
910-538-3855
deanscurafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET, WILMINGTON, NC 28401 PHONE (910) 343-9653
1429 ASH–LITTLE RIVER RD., NW ASHEVILLE, NC 28420 PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
DRD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 19665 JOHN PHILLIP NORRIS

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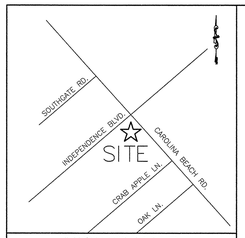
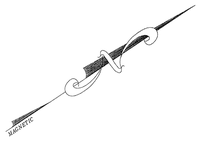
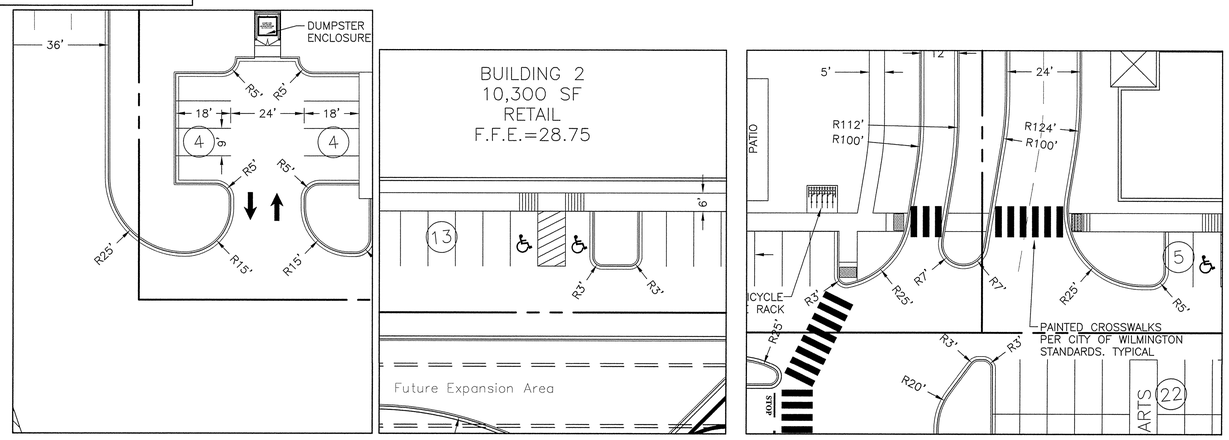
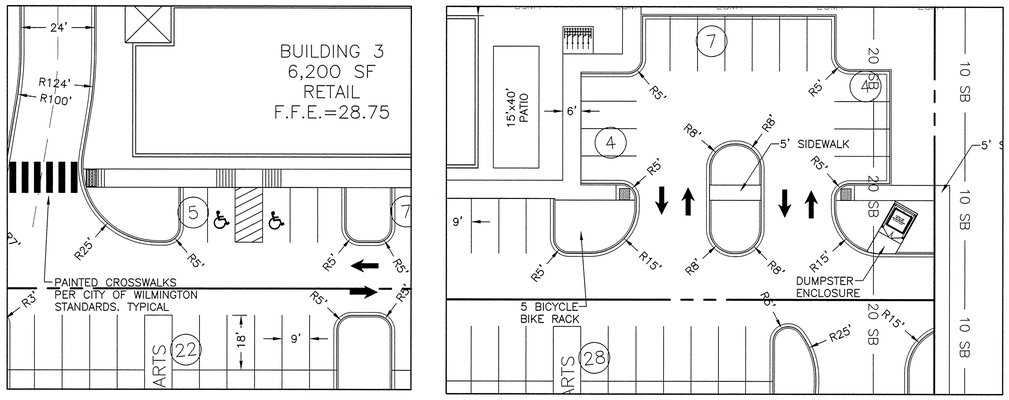
C2

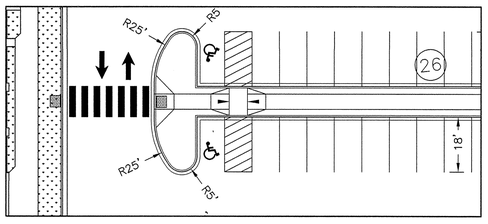


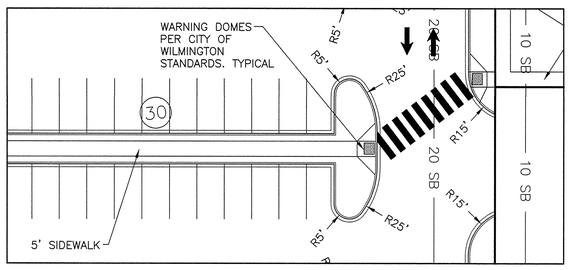
VICINITY MAP
N.T.S.











SCALE: 1" = 20'
0 20 40 60

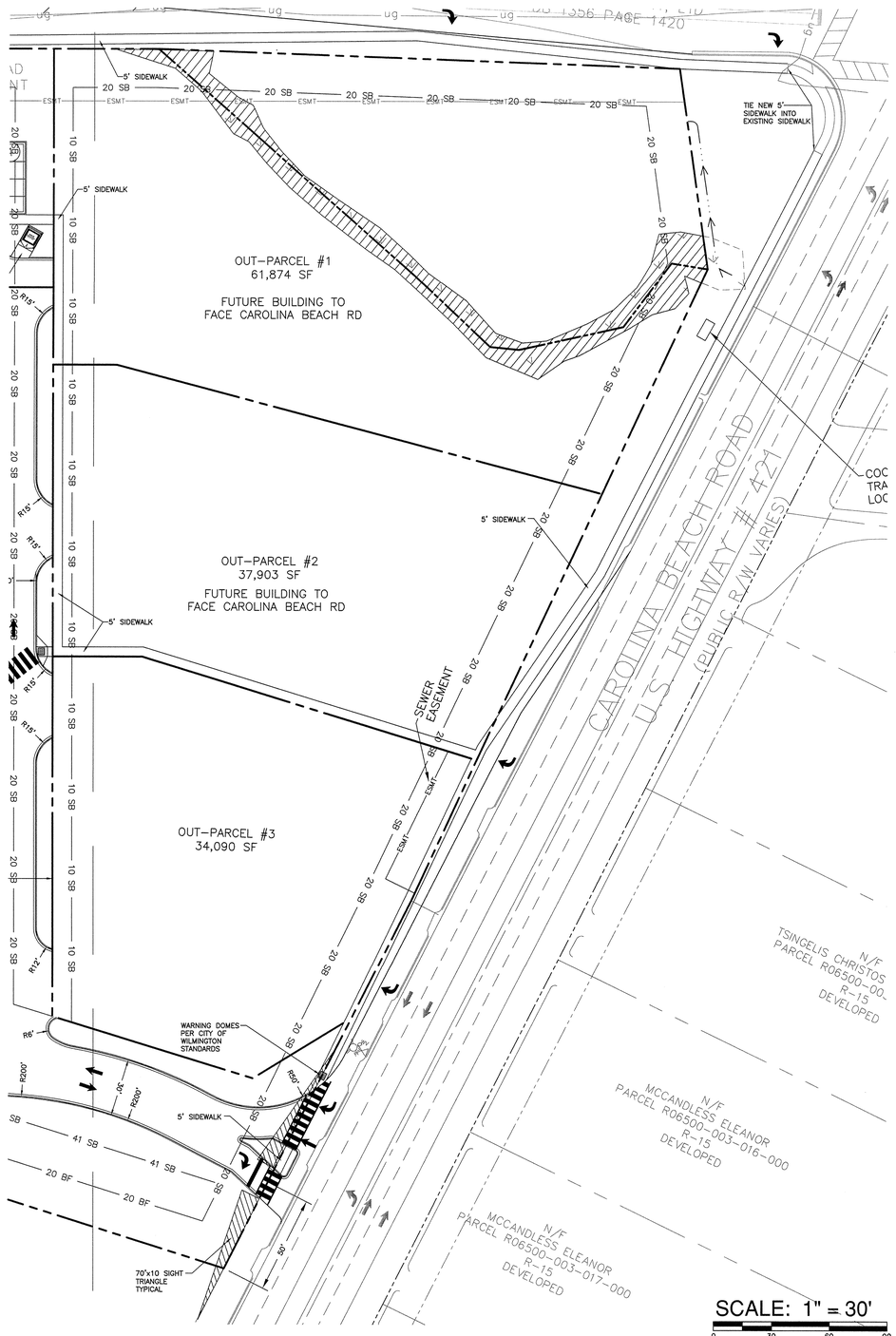
SEE SHEET C2

NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
3. THERE ARE CO CONSERVATION OVERLAY BOUNDARIES AFFECTING THIS PROPERTY.
4. THIS SITE IS NOT IMPACTED BY ANY RECOGNIZED HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE.
5. NO CEMETERIES WERE EVIDENCED ON THE SITE.
6. REGULATED VEGETATION WITHIN THE DEVELOPMENT AREA HAS BEEN LOCATED.
7. THERE ARE JURISDICTIONAL WETLANDS WITHIN THE PROJECT BOUNDARIES, AS DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND MITIGATED.
8. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720331500J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

LEGEND

	PROPERTY LINE
	RIGHT OF WAY
	EXISTING LOT LINES
SD SD	PROPOSED STORM DRAIN
6SS 6SS	PROPOSED 6" SEWER
8W 8W	PROPOSED 8" WATER LINE
24	PROPOSED CONTOUR
SSFM	EXISTING SS FORCEMAIN
SS SS	EXISTING SEWER LINE
SD SD	EXISTING STORM DRAIN
W W	EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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VEHICULAR CIRCULATION AND PARKING LAYOUT PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
1 S. Main Avenue
Manchester, MA 01944
910-538-5855
deanscera6ost@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET 1429 ASH-LITTLE RIVER RD. NW
WILMINGTON, NC 28401 ASH, NC 28420
PHONE (910) 343-9653 PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER JOHN PHILLIP NORRIS SEAL 036641

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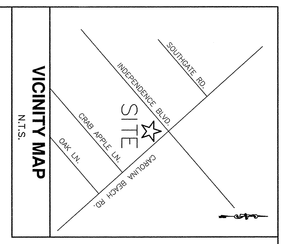
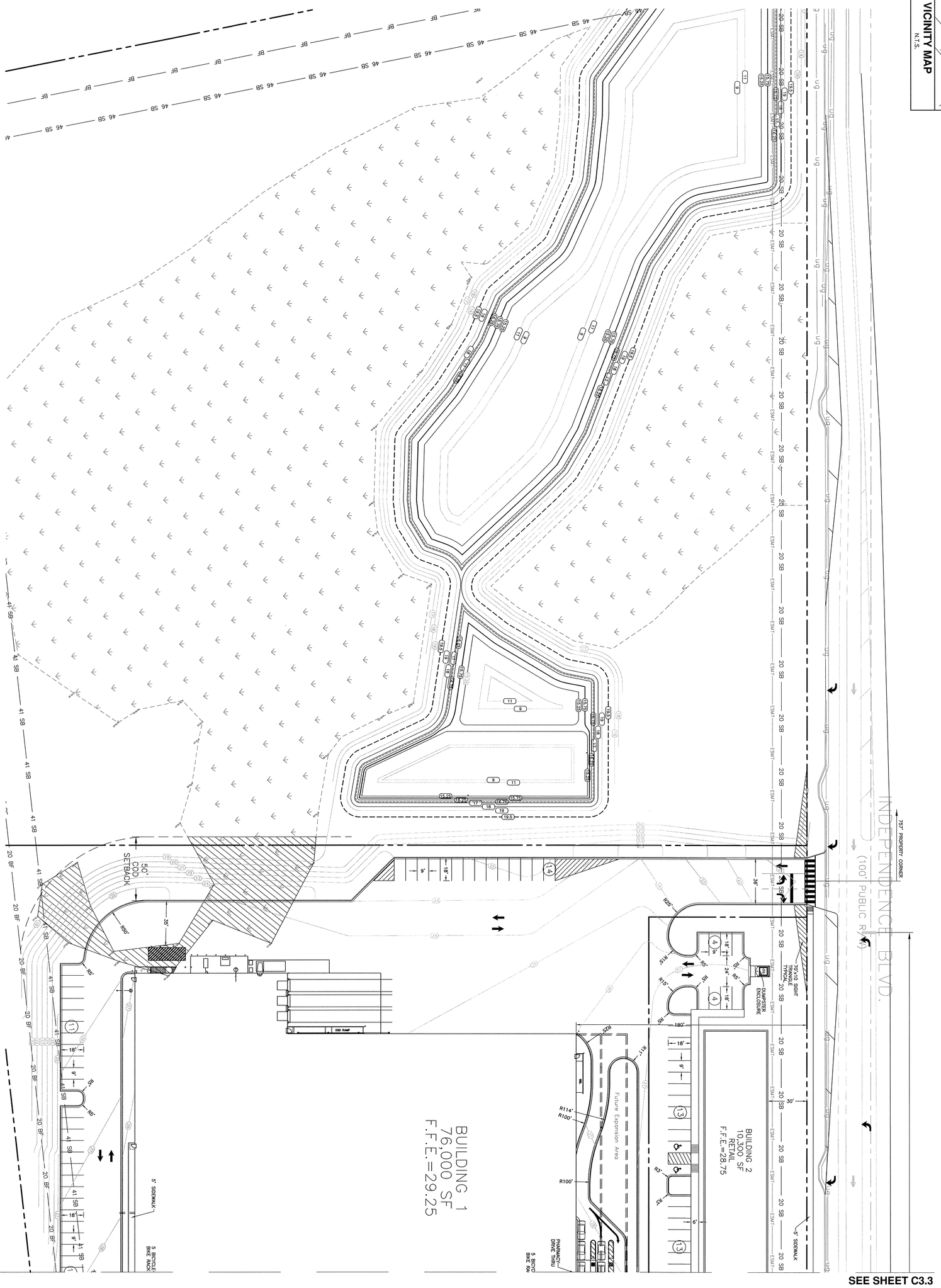
FOR CONSTRUCTION

C3.1

VICINITY MAP
N.T.S.





SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	DESCRIPTION	BY
REVISIONS			

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C3.2

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DES. JPN
DRD. JPN
DRWN. EDB
DATE 11/02/16

16023

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

ROADWAY IMPROVEMENTS
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

SEE SHEET C3.2

602' | 617' PROPERTY CORNER | 280' | 180' | 200'

CAMERON COMPANY, LTD
DB 1356 PAGE 1420

BUILDING 3
6,200 SF
RETAIL
F.F.E.=28.75

CP&L OVERHEAD POWER EASEMENT

OUT-PARCEL #1
61,874 SF
FUTURE BUILDING TO FACE CAROLINA BEACH RD

OUT-PARCEL #2
37,903 SF
FUTURE BUILDING TO FACE CAROLINA BEACH RD

OUT-PARCEL #3
34,090 SF

20' BUFFER

387'

180' | 193'

TIE NEW 5' SIDEWALK INTO EXISTING SIDEWALK

N/F
CITY OF WILMINGTON
PARCEL R06515-003-018
R-15
UN-DEVELOPED

N/F
HOLT DANIEL L JR
PARCEL R06515-003-022-000
CB
UN-DEVELOPED

COORDINATE WITH WAVE TRANSIT FOR BUS STOP LOCATION & DESIGN

CAROLINA BEACH ROAD
U.S. HIGHWAY # 421
(PUBLIC R/W VARIES)

SEWER EASEMENT

N/F
HARDEE TRUST
PARCEL R06515-003-021
CB
UN-DEVELOPED

N/F
S5&B DEVELOPMENT, LLC
PARCEL R06500-003-014-000
R-15
DEVELOPED

N/F
TSINGELIS CHRISTOS EVANGELINE
PARCEL R06500-003-015-000
R-15
DEVELOPED

N/F
MCCANDLESS ELEANOR
PARCEL R06500-003-016-000
R-15
DEVELOPED

N/F
MCCANDLESS ELEANOR
PARCEL R06500-003-017-000
R-15
DEVELOPED

N/F
LLOYD NELL
PARCEL R06

5 BICYCLE BIKE RACK
PAINTED CROSSWALKS PER CITY OF WILMINGTON STANDARDS. TYPICAL
DUMPSTER ENCLOSURE
WARNING DOMES PER CITY OF WILMINGTON STANDARDS. TYPICAL
WARNING DOMES PER CITY OF WILMINGTON STANDARDS
70'x10 SIGHT TRIANGLE TYPICAL
15'x40' PATIO
CARTS

SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	REVISIONS	BY
		DESCRIPTION	

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ROADWAY IMPROVEMENTS
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Mansfield, MA 01944
910-538-3855
deanscarsfoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET 1429 ASH-LITTLE RIVER RD. NW
WILMINGTON, NC 28401 ASH, NC 28420
PHONE (910) 343-9653 PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 040127 JOHN PHILLIP NORRIS

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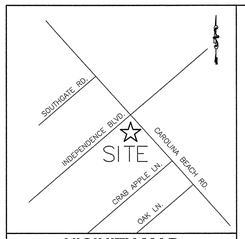
C3.3



VICINITY MAP
N.T.S.

SEE SHEET C3.1

LEGEND

	PROPERTY LINE
	RIGHT OF WAY
	EXISTING LOT LINES
SD	PROPOSED STORM DRAIN
6SS	PROPOSED 6" SEWER
8W	PROPOSED 8" WATER LINE
24	PROPOSED CONTOUR
SSFM	EXISTING SS FORCEMAIN
SS	EXISTING SEWER LINE
SD	EXISTING STORM DRAIN
W	EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
3. THERE ARE CO CONSERVATION OVERLAY BOUNDARIES AFFECTING THIS PROPERTY.
4. THIS SITE IS NOT IMPACTED BY ANY RECOGNIZED HISTORIC OR ARCHEOLOGICAL SIGNIFICANCE.
5. NO CEMETERIES WERE EVIDENCED ON THE SITE.
6. REGULATED VEGETATION WITHIN THE DEVELOPMENT AREA HAS BEEN LOCATED.
7. THERE ARE JURISDICTIONAL WETLANDS WITHIN THE PROJECT BOUNDARIES, AS DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND MITIGATED.
8. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
10. THE SITE DRAINAGE FLOWS INTO T ⁑ BARNARDS CREEK WATERSHED.

SEE SHEET C--- FOR POND INFORMATION

INDEPENDENCE BLVD.
(100' PUBLIC R/W)
757' PROPERTY CORNER
617' PROPERTY CORNER
70'x10' SIGHT TRIANGLE TYPICAL
5' SIDEWALK
DUMPSTER ENCLOSURE
BUILDING 2
10,300 SF
RETAIL
F.F.E.=28.75
15'x40' PATIO
BUILDING 3
6,200 SF
RETAIL
F.F.E.=28.75
CP&L OVERHEAD POWER EASEMENT
5 BICYCLE BIKE RACK
PAINTED CROSSWALKS PER CITY OF WILMINGTON STANDARDS, TYPICAL
Future Expansion Area
PHARMACY DRIVE THRU
BUILDING 1
76,000 SF
F.F.E.=29.25
CARTS
WARNING DOMES PER CITY OF WILMINGTON STANDARDS, TYPICAL
50' COD SETBACK
20' BUFFER

SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	
		© 2016 NORRIS & TUNSTALL	

VEHICULAR CIRCULATION AND PARKING LAYOUT PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Mill Pond Lane
Manchester, MA 01944
910-538-5855
deanscranfont@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET, WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD, NW ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

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DES.	JPN
DRD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036641 JOHN PHILLIP NORRIS

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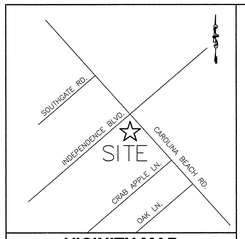
C3



VICINITY MAP
N.T.S.

NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
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7. THERE ARE JURISDICTIONAL WETLANDS WITHIN THE PROJECT BOUNDARIES, AS DOCUMENTED BY THE ARMY CORPS OF ENGINEERS. THESE AREAS OF IMPACT WILL BE MINIMIZED AND MITIGATED.
8. THERE IS NO EVIDENCE OF ENDANGERED SPECIES OR HABITAT ISSUES ON THE SITE.
9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720331500J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

SEE SHEET C2

LEGEND

	PROPERTY LINE
	RIGHT OF WAY
	EXISTING LOT LINES
SD	PROPOSED STORM DRAIN
6SS	PROPOSED 6" SEWER
8W	PROPOSED 8" WATER LINE
24	PROPOSED CONTOUR
28.30	TOP OF CURB / SIDEWALK
27.80	PROPOSED GRADE
SSFM	EXISTING SS FORCEMAIN
SS	EXISTING SANITARY SEWER
SD	EXISTING STORM DRAIN
W	EXISTING WATER MAIN

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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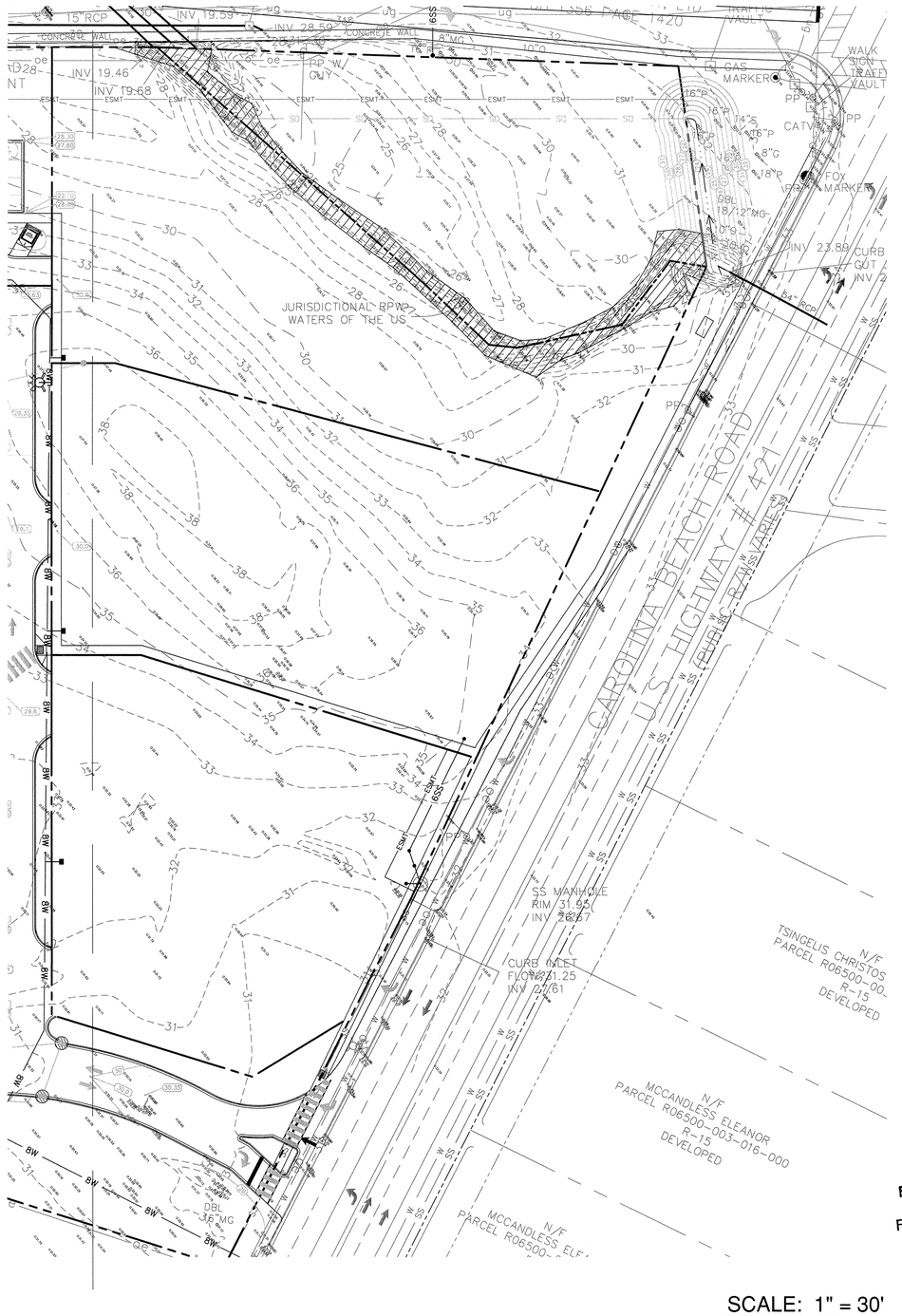

SCALE: 1" = 30'
0 30 60 90

OWNER:
Live Oak Development Company
5 Allen Avenue
Asheville, NC 01944
910-538-5855
deanscranford@comcast.net

UTILITY PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET 1429 ASH-LITTLE RIVER RD, NW
WILMINGTON, NC 28401 ASH, NC 28420
PHONE (910) 343-9653 PHONE (910) 287-5900
license #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

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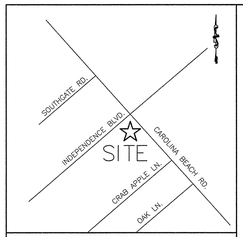
NORTH CAROLINA
REGISTERED
ENGINEER
JOHN PHILLIP NORRIS

C4.1



VICINITY MAP
N.T.S.

NOTES:
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9. THIS PROPERTY IS NOT WITHIN ANY FLOOD HAZARD AREA AS EVIDENCED ON N.C. FLOOD MAP 3720313500J.
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

SEE SHEET C4.1

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING LOT LINES
- SD — SD — PROPOSED STORM DRAIN
- 8SS — 8SS — PROPOSED 6" SEWER
- 8W — 8W — PROPOSED 8" WATER LINE
- 24 — PROPOSED CONTOUR
- 28.30 — TOP OF CURB / SIDEWALK
- 27.80 — PROPOSED GRADE
- SSFM — EXISTING SS FORCEMAIN
- SS — SS — EXISTING SANITARY SEWER
- SD — SD — EXISTING STORM DRAIN
- W — W — EXISTING WATER MAIN

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.

SEE SHEET C--- FOR POND INFORMATION

BUILDING 1
76,000 SF
F.F.E.=29.25

BUILDING 2
10,300 SF
RETAIL
F.F.E.=28.75

BUILDING 3
6,200 SF
RETAIL
F.F.E.=28.75

Future Expansion Area

CP&L OVERHEAD POWER EASEMENT

SCALE: 1" = 30'
0 30 60 90

SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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UTILITY PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Asheville, NC 28801
910-538-5855
deanscastroni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
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WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD, NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

16023

DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

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NORTH CAROLINA
SEAL
ENGINEER
JOHN PHILLIP NORRIS

C4

NOTES:
1. SOILS TYPE: LE (LEON SAND) & Mu (MURVILLE FINE SAND).
2. THIS PROPERTY IS NOT IMPACTED BY ANY AEC.
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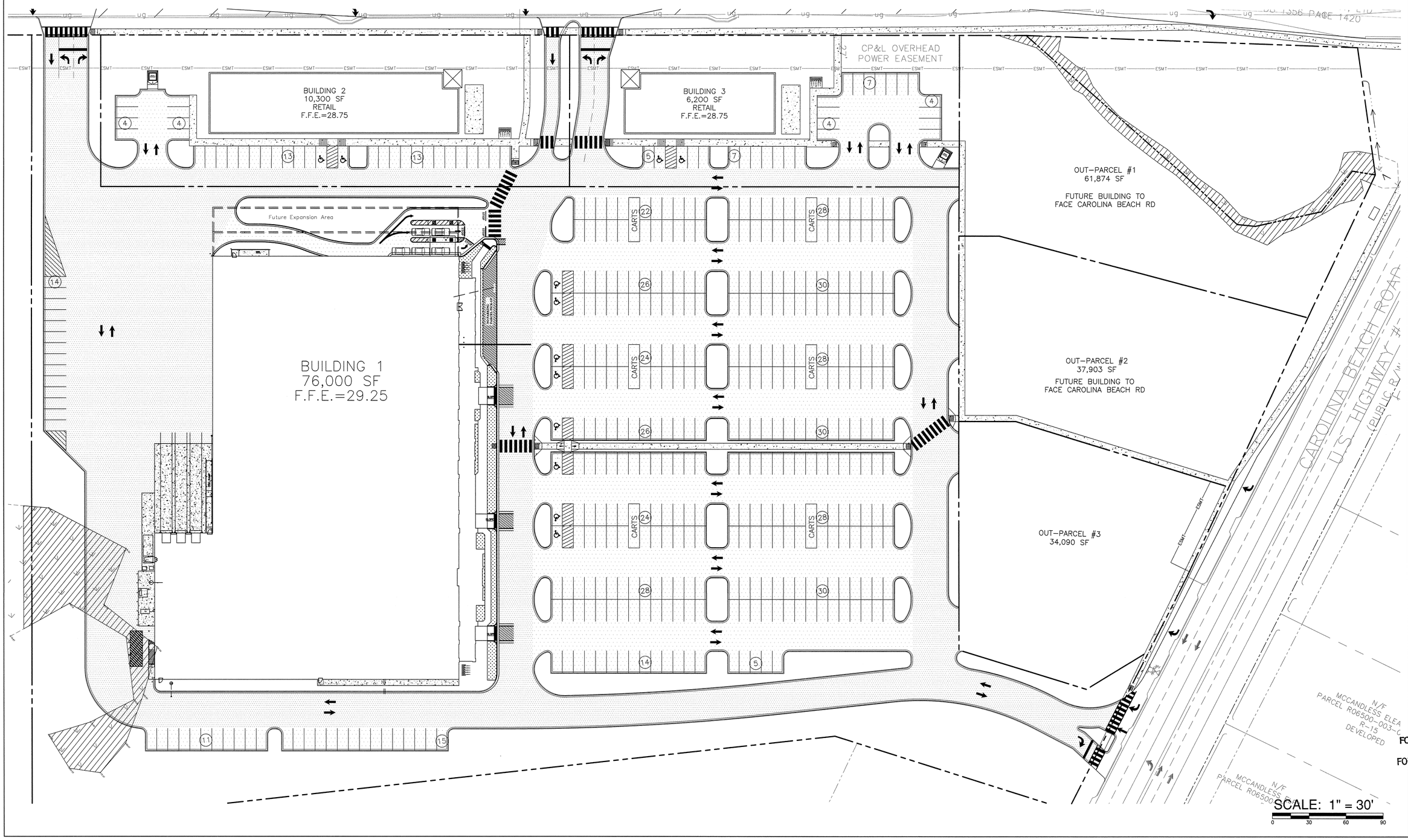
10. THE SITE DRAINAGE FLOWS INTO THE BARNARDS CREEK WATERSHED.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- HEAVY DUTY ASPHALT
- REGULAR DUTY ASPHALT

NOTE:
FIELD LOCATE AND VERIFY SIZE OF ALL ALL EXISTING UTILITIES.



SYMBOL	DATE	DESCRIPTION	BY
		REVISIONS	

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PAVING PLAN
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH-LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

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DES.	JPN
CKD.	JPN
DRWN.	EDB
DATE	11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 11965 JOHN PHILLIP NORRIS

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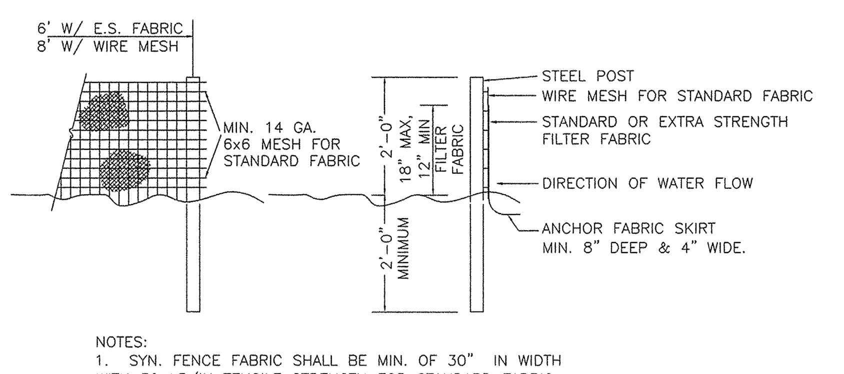
C5

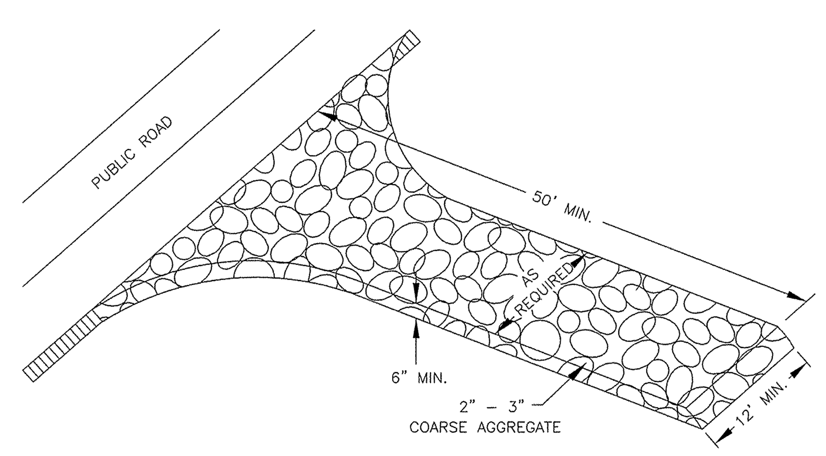


NOTES:
1. SYN. FENCE FABRIC SHALL BE MIN. OF 30" IN WIDTH WITH 30 LB/IN TENSILE STRENGTH FOR STANDARD FABRIC AND 50 LB/IN FOR EXTRA STRENGTH.
2. FABRIC SHALL BE CONTINUOUS LENGTH. IF JOINTS ARE NECESSARY, LAP FABRIC POST TO POST.
3. STEEL POST SHALL BE MIN 4' IN HEIGHT AND BE OF THE SELF-FASTENER STEEL ANGLE TYPE.

TEMPORARY SILT FENCE

NTS

TEMPORARY SILT FENCE MAINTENANCE
INSPECT SEDIMENT FENCES AT LEAST ONCE A WEEK AND EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
SHOULD THE FABRIC OF A SEDIMENT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE VOLUME FOR THE NEXT RAIN AND TO REDUCE PRESSURE ON THE FENCE. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
REMOVE ALL FENCING MATERIALS AND UNSTABLE IT AFTER THE CONTRIBUTING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.



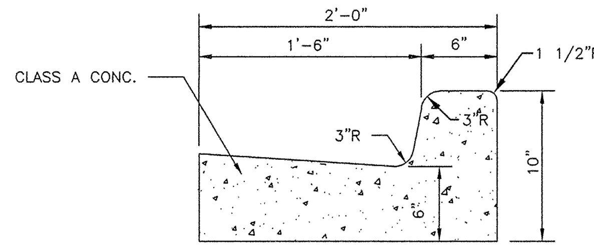
TEMPORARY GRAVELLED CONSTRUCTION ENTRANCE

NTS

GRAVEL CONSTRUCTION ENTRANCE

CONSTRUCTION SPECIFICATION:
1. CLEAR THE ENTRANCE AND EXIT AREA OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONABLE MATERIAL AND PROPERLY GRADE IT.
2. PLACE THE GRAVEL TO THE SPECIFIC GRADE AND DIMENSIONS SHOWN ON THE PLANS, AND SMOOTH IT.
3. PROVIDE DRAINAGE TO CARRY WATER TO A SEDIMENT TRAP OR OTHER SUITABLE OUTLET.
4. USE GEOTEXTILE FABRICS BECAUSE THEY IMPROVE STABILITY OF THE FOUNDATION IN LOCATIONS SUBJECT TO SEEPAGE OR HIGH WATER TABLE.

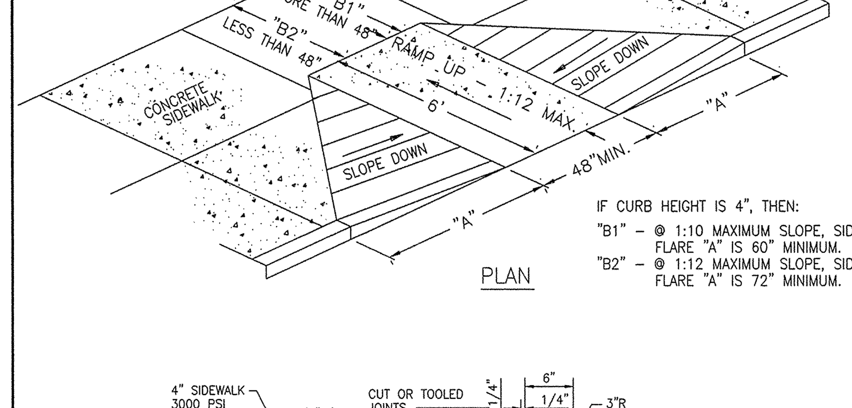
MAINTENANCE:
MAINTAIN THE GRAVEL PAD IS A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE CONSTRUCTION SITE. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2 INCH STONE. AFTER EACH RAINFALL, INSPECT ANY STRUCTURE USED TO TRAP SEDIMENT AND CLEAN IT OUT AS NECESSARY. IMMEDIATELY REMOVE ALL OBJECTIONABLE MATERIALS SPILLED, WASHED, OR TRACKED ONTO PUBLIC ROADWAYS.



24" FLOW LINE CURB SECTION

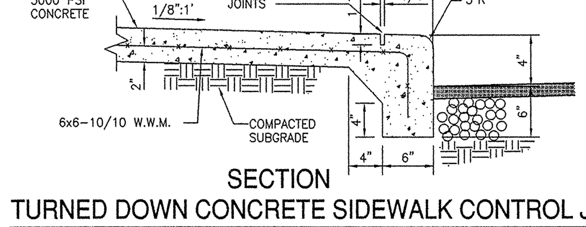
NTS

NOTE: CURB TYPE DEPENDS ON GRADES SHOWN ON GRADING PLAN. GRADES INDICATING FALL AWAY FROM CURB SHALL BE SPILL OFF TYPE CURB. GRADES INDICATING CURB ACCEPTING FLOW SHALL BE FLOW LINE TYPE.



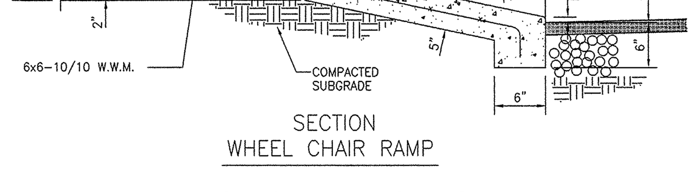
PLAN

IF CURB HEIGHT IS 4", THEN:
"B1" – @ 1:10 MAXIMUM SLOPE, SIDE FLARE "A" IS 60" MINIMUM.
"B2" – @ 1:12 MAXIMUM SLOPE, SIDE FLARE "A" IS 72" MINIMUM.



SECTION

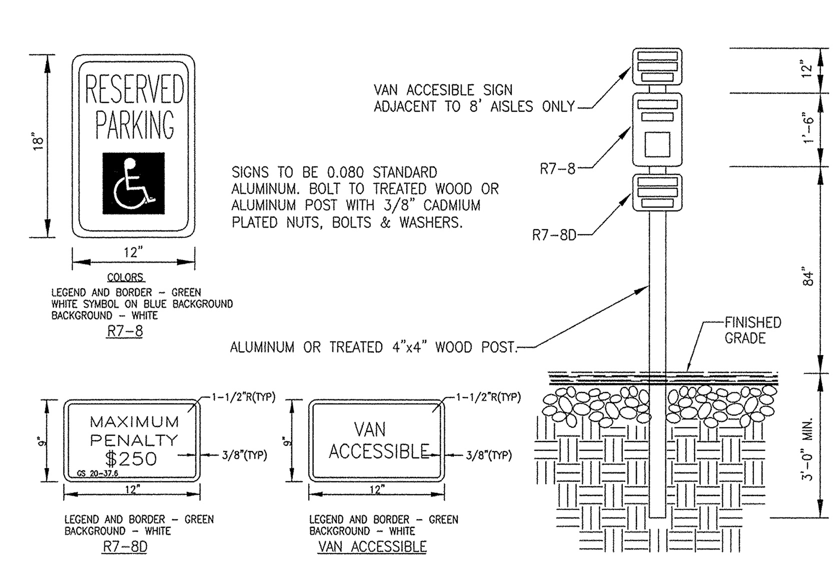
TURNED DOWN CONCRETE SIDEWALK CONTROL JOINT



SECTION
WHEEL CHAIR RAMP

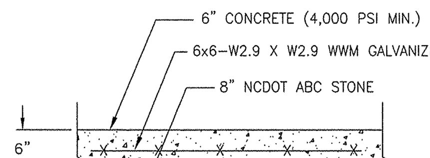
TYPICAL TURNED DOWN SIDEWALK AND WHEEL CHAIR RAMP DETAIL

NTS



TYPICAL HANDICAPPED SIGN DETAIL

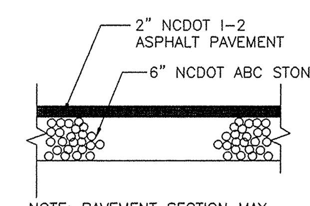
NTS



NOTES:
1. CONTROL JOINTS SHALL BE EVERY 15 FT. (MAX.) AND EXPANSION JOINTS SHALL BE EVERY 50 FT. (MAX).
2. PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. THE PAVING CONTRACTOR SHALL COORDINATE WITH OWNER REPRESENTATIVE AND GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

HEAVY DUTY CONCRETE PAVEMENT SECTION

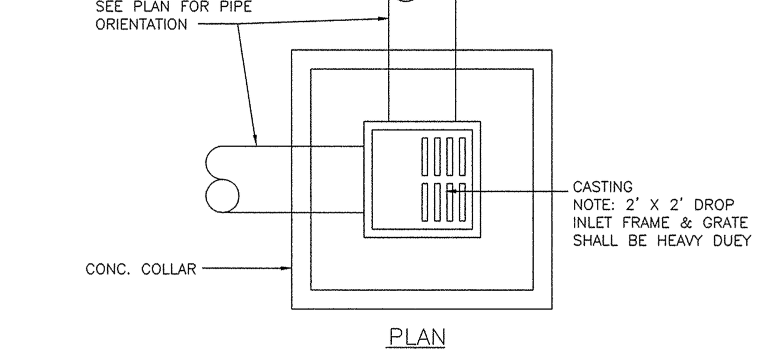
NTS



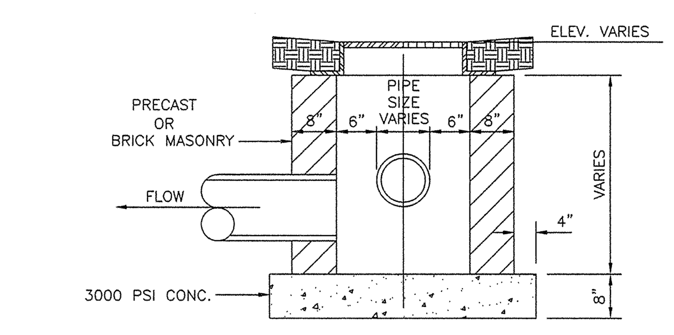
NOTE: PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. CONTRACTOR SHALL COORDINATE w/OWNER & GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

ON SITE ASPHALT PAVEMENT SECTION

NTS



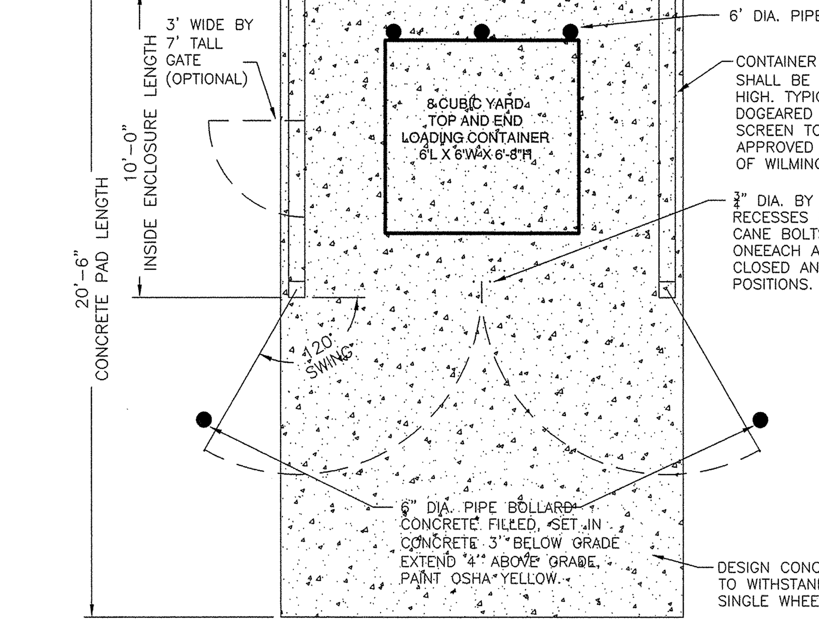
PLAN



SECTION

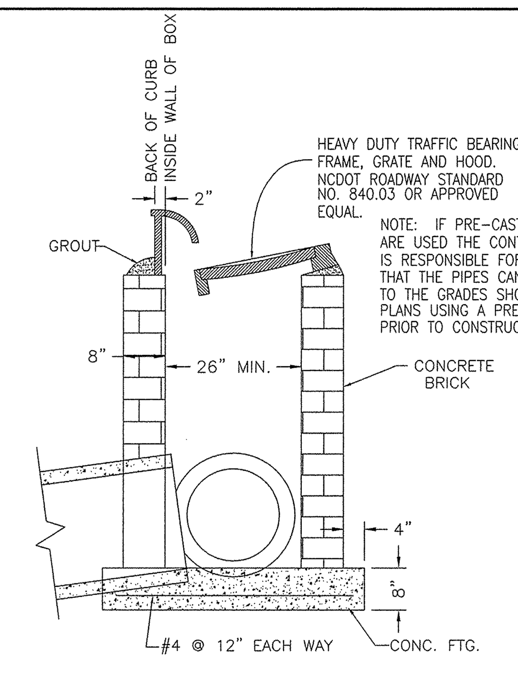
DROP INLET DETAIL

NTS



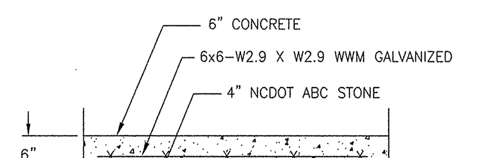
CONTAINER ENCLOSURE PLAN

NTS



TYPICAL CATCH BASIN

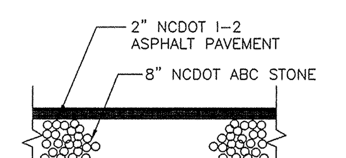
24" CURB AND GUTTER NTS



NOTES:
1. CONTROL JOINTS SHALL BE EVERY 15 FT. (MAX.) AND EXPANSION JOINTS SHALL BE EVERY 50 FT. (MAX).
2. PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. THE PAVING CONTRACTOR SHALL COORDINATE WITH OWNER REPRESENTATIVE AND GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

CONCRETE PAVEMENT SECTION

NTS



NOTE: PAVEMENT SECTION MAY VARY DEPENDING UPON FIELD CONDITIONS. CONTRACTOR SHALL COORDINATE w/OWNER & GEOTECHNICAL ENGINEER TO DETERMINE ACTUAL PAVEMENT SECTION.

ON SITE HEAVY DUTY ASPHALT PAVEMENT SECTION

NTS

TEMPORARY/PERMANENT GRASS SPECIFICATION

1. CHISEL COMPACTED AREAS AND SPREAD TOPSOIL 3 INCHES DEEP OVER ADVERSE SOIL CONDITIONS.
2. RIP THE ENTIRE AREA TO A 6 INCH DEPTH.
3. REMOVE ALL ROCKS, ROOTS AND OTHER OBSTRUCTIONS LEAVING SURFACES SMOOTH AND UNIFORM.
4. APPLY AGRICULTURAL LIME AND FERTILIZER UNIFORMLY AND MIX WITH SOIL.
   LIME: 45 LBS. PER 1000 S.F.
   PHOSPHOROUS: 20 LBS PER 1000 S.F.
   FERTILIZER: 17 LBS. PER 1000 S.F.
5. CONTINUE TILLAGE UNTIL A WELL PULVERIZED, FIRM, UNIFORM SEED BED IS PREPARED 4–6 INCHES DEEP.
6. SEED ON A FRESHLY PREPARED SEED BED AND COVER SEED LIGHTLY.
   2 – 3 LBS PER 1000 S.F. (SEE MIXTURE BELOW)
7. MULCH IMMEDIATELY AFTER SEEDING AND ANCHOR MULCH.
   GRAIN STRAW & HAY AT 75 TO 100 LBS PER 1000 S.F.
   WOOD CHIPS AT 500 LBS. PER 1000 S.F.
   JUTE & MESH AS PER MANUFACTURER
8. ASPHALT FOR ANCHORING MULCH SHALL BE TYPE SS–1 EMULSION AND APPLIED AT A RATE OF 1000 GAL. PER ACRE FOR SLOPE STABILIZATION, AND 150 GAL. PER TON OF STRAW FOR ANCHORING STRAW.
9. INSPECT ALL SEEDED AREAS AND MAKE NECESSARY REPAIRS OR RESEED WITHIN THE PLANTING SEASON, IF POSSIBLE. IF GRASS STAND SHOULD BE OVER 60% DAMAGED, REESTABLISH FOLLOWING ORIGINAL LIME, FERTILIZER AND SEEDING RATES.
10. CONSULT CONSERVATION INSPECTOR ON MAINTENANCE, TREATMENT, AND FERTILIZATION AFTER PERMANENT COVER IS ESTABLISHED.
11. SEED FOR TEMPORARY AND PERMANENT APPLICATIONS SHALL BE:
   20% CARPET GRASS
   24% BERMUDA GRASS
   20% TURF FESCUE 10% CREEPING RED FESCUE
   24% ANNUAL RYE GRAIN
   *BERMUDA SEED SHALL BE HULLED FOR WARM WEATHER PLANTING. PURITY OF SEED SHALL BE A MIN. OF 98% AND GERMINATION SHALL BE A MIN. OF 85%.

ALL DISTURBED AREA SHALL BE SEEDED WITHIN 7 TO 14 DAYS OF THE COMPLETION OF GRADING. CONSULT CONSERVATION ENGINEER OR SOIL CONSERVATION SERVICE FOR ADDITIONAL INFORMATION CONCERNING OTHER ALTERNATIVES FOR VEGETATION OF DENUDED AREAS. THE ABOVE VEGETATION RATES ARE THOSE WHICH DO WELL UNDER LOCAL CONDITIONS, OTHER SEEDING SCHEDULES MAY BE POSSIBLE.

NPDES STABILIZATION TIMEFRAMES

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

TEMPORARY SEEDING RECOMMENDATIONS FOR FALL
SEEDING MIXTURE

SPECIES RATE (lb/acre)
RYE (GRAIN) 120

SEEDING DATES
MOUNTAINS – AUG. 15 – DEC. 15
COASTAL PLAIN AND PIEDMONT – AUG. 15 – DEC. 15
SOIL AMENDMENTS
FOLLOW SOIL TEST OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 1,000 lb/acre 10–10–10 FERTILIZER.
MULCH
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.
MAINTENANCE
REPAIR AND REFERTILIZE DAMAGE AREAS IMMEDIATELY. TOP DRESS WITH 50 lb/acre OF NITROGEN IN MARCH, IF IT IS NECESSARY TO EXTENT TEMPORARY COVER BEYOND JUNE 15, OVERSEED WITH 50 lb/acre KOBE (PIEDMONT AND COASTAL PLAIN) OR KOREAN (MOUNTAINS) LESPEDEZA IN LATE FEBRUARY OR EARLY MARCH.

TEMPORARY SEEDING RECOMMENDATIONS FOR LATE WINTER AND EARLY SPRING
SEEDING MIXTURE

SPECIES RATE (lb/acre)

RYE (GRAIN) 120
ANNUAL LESPEDEZA 50
(KOBE IN PIEDMONT AND COASTAL PLAIN, KOREAN IN MOUNTAINS)

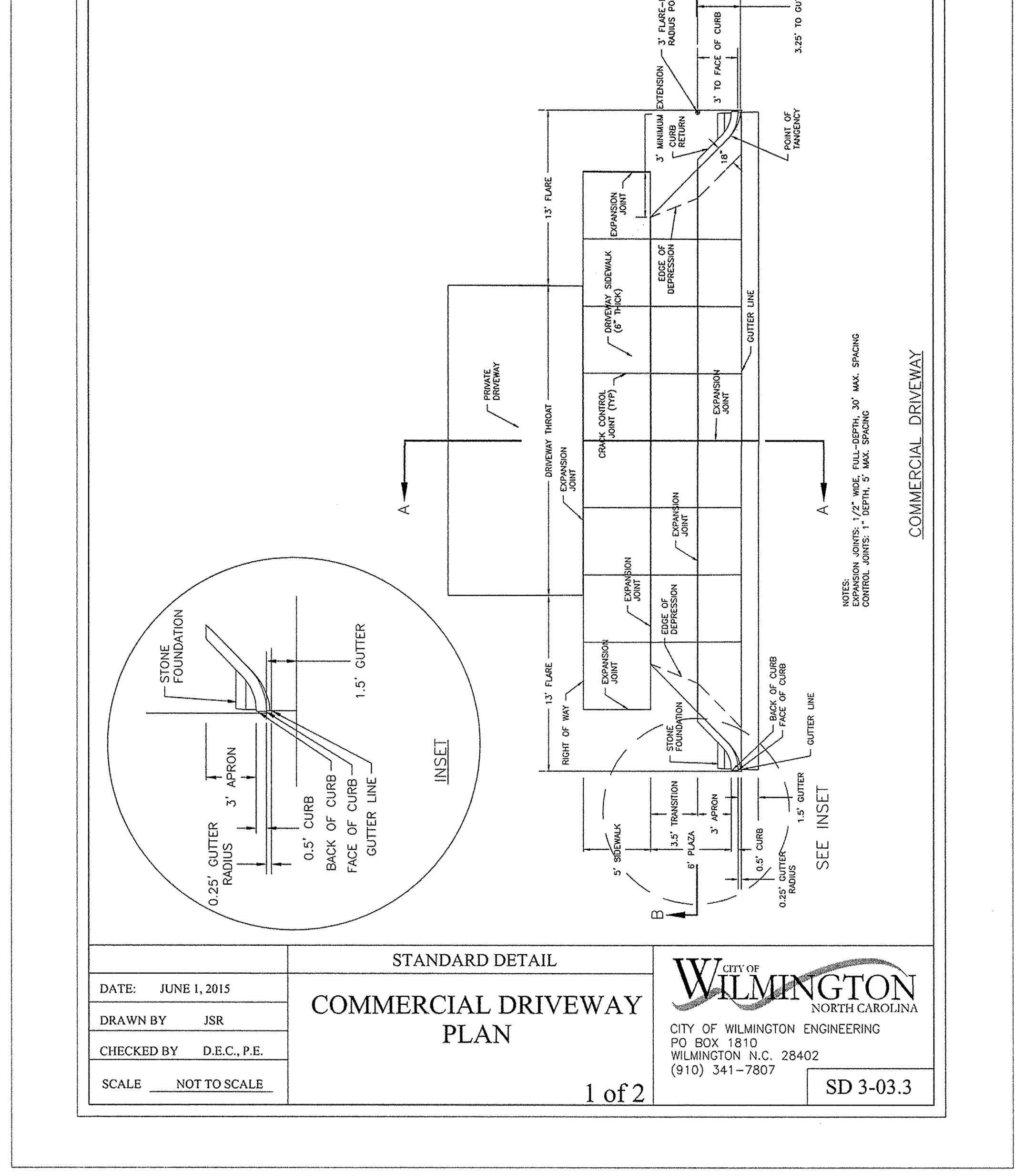
OMIT ANNUAL LESPEDEZA WHEN DURATION OF TEMPORARY COVER IS NOT TO EXTEND BEYOND JUNE.

SEEDING DATES
MOUNTAINS – ABOVE 2,500 FEET: FEB. 15 – MAY 15
BELOW 2,500 FEET: FEB. 1 – MAY 1
PIEDMONT – JAN. 1 – MAY 1
COASTAL PLAIN – DEC. 1 – APRIL 15

SOIL AMENDMENTS
FOLLOW RECOMMENDATIONS OF SOIL TESTS OR APPLY 2,000 lb/acre GROUND AGRICULTURAL LIMESTONE AND 750 lb/acre 10–10–10 FERTILIZER.

MULCH
APPLY 4,000 lb/acre STRAW. ANCHOR STRAW BY TACKING WITH ASPHALT, NETTING, OR A MULCH ANCHORING TOOL. A DISK WITH BLADES SET NEARLY STRAIGHT CAN BE USED AS A MULCH ANCHORING TOOL.

MAINTENANCE
REFERTILIZE IF GROWTH IS NOT FULLY ADEQUATE. RESEED, REFERTILIZE AND MULCH IMMEDIATELY FOLLOWING EROSION OR OTHER DAMAGE.



CITY OF WILMINGTON STANDARD NOTES:

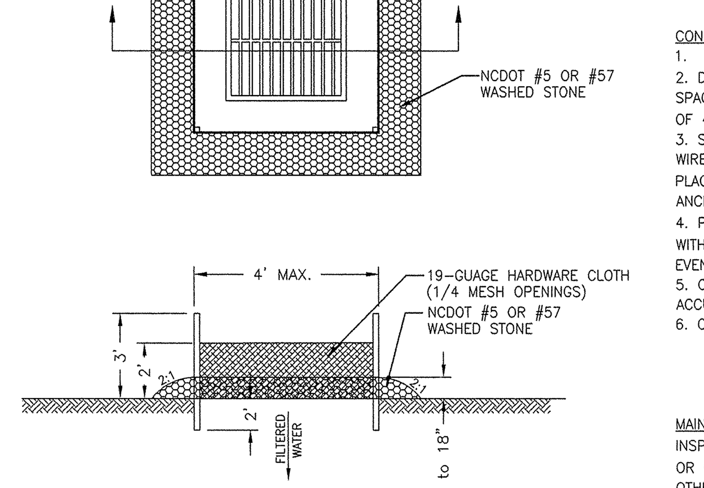
1. PRIOR TO ANY CLEARING, GRADING OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED AROUND PROTECTED TREES OR GROVES OF TREES. NO CONSTRUCTION WORKERS, TOOL, MATERIALS, OR VEHICLES ARE PERMITTED WITHIN THE PROTECTION FENCING.
2. ANY TREES AND/OR AREAS DESIGNATED TO BE PROTECTED MUST BE PROPERLY BARRICADED WITH FENCING AND PROTECTED THROUGHOUT CONSTRUCTION TO INSURE THAT NO CLEARING, GRADING OR STAGING OF MATERIALS WILL OCCUR IN THOSE AREAS.
3. NO EQUIPMENT IS ALLOWED ON SITE UNTIL ALL TREE PROTECTION FENCING AND SILT FENCING IS INSTALLED AND APPROVED. PROTECTIVE FENCING IS TO BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT, AND CONSTRUCTION SHALL RECEIVE ADEQUATE INSTRUCTION ON TREE PROTECTION METHODS.
4. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS–OF–WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET CITY AND/OR NCDOT STANDARDS.
5. ONCE STREETS ARE OPEN TO TRAFFIC, CONTACT TRAFFIC ENGINEERING REGARDING THE INSTALLATION OF TRAFFIC AND STREET NAME SIGNS. PROPOSED STREET NAMES MUST BE APPROVED PRIOR TO INSTALLATION OF STREET NAME SIGNS.
6. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
7. CONTACT TRAFFIC ENGINEERING AT 910–341–7888 TO ENSURE THAT ALL TRAFFIC SIGNAL FACILITIES AND EQUIPMENT ARE SHOWN ON THE PLAN.
8. CALL TRAFFIC ENGINEERING AT 910–341–7888 FORTY–EIGHT (48) HOURS PRIOR TO ANY EXCAVATION IN THE RIGHT–OF–WAY.
9. TRAFFIC ENGINEERING MUST APPROVE OF PAVEMENT MARKING PRIOR TO ACTUAL STRIPING.
10. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
11. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT–OF–WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER.
12. STOP SIGN AND STREET SIGNS TO REMAIN IN PLACE DURING CONSTRUCTION.
13. TACTILE WARNING MATS WILL BE INSTALLED ON ALL WHEELCHAIR RAMPS.
14. A UTILITY CUT PERMIT IS REQUIRED FOR EACH OPEN CUT OF A CITY STREET.
15. ANY BROKEN OR MISSING SIDEWALK PANELS WILL BE REPLACED.
16. CONTACT KAREN DIXON AT 910–341–7888 TO DISCUSS STREET LIGHTING OPTIONS.
17. WATER AND SEWER SERVICE SHALL MEET CAPE FEAR PUBLIC UTILITY AUTHORITY (CFPUA) DETAILS AND SPECIFICATIONS.
18. PROJECT SHALL COMPLY WITH CFPUA CROSS CONNECTION CONTROL REQUIREMENTS. WATER METER(S) CANNOT BE RELEASED UNTIL ALL REQUIREMENTS ARE MET AND THE STATE HAS GIVEN THEIR FINAL APPROVAL. CALL 910–343–3910 FOR INFORMATION.
19. IF THE CONTRACTOR DESIRES CFPUA WATER FOR CONSTRUCTION, HE SHALL APPLY IN ADVANCE FOR THIS SERVICE AND MUST PROVIDE A REDUCED PRESSURE ZONE (RPZ) BACKFLOW PREVENTION DEVICE ON THE DEVELOPER'S SIDE OF THE WATER METER BOX.
20. ANY IRRIGATION SYSTEM SUPPLIED BY CFPUA WATER SHALL COMPLY WITH THE CFPUA CROSS CONNECTION CONTROL REGULATIONS. CALL 919–343–3910 FOR INFORMATION.
21. ANY IRRIGATION SYSTEM SHALL BE EQUIPPED WITH A RAIN AND FREEZER SENSOR.
22. ANY BACKFLOW PREVENTION DEVICES REQUIRED BY CFPUA WILL NEED TO BE ON THE LIST OF APPROVED DEVICES BY USCFCCCHR OR ASSE.
23. CONTRACTOR TO FIELD VERIFY EXISTING WATER AND SEWER SERVICE LOCATIONS, SIZES AND MATERIALS PRIOR TO CONSTRUCTION. ENGINEER TO BE NOTIFIED OF ANY CONFLICTS.
24. CONTRACTOR SHALL MAINTAIN ALL–WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
25. UNDERGROUND FIRE LINE(S) MUST BE PERMITTED AND INSPECTED BY THE WILMINGTON FIRE DEPARTMENT FROM THE PUBLIC RIGHT–OF–WAY TO THE BUILDING. CONTACT THE WILMINGTON FIRE DEPARTMENT DIVISION OF FIRE AND LIFE SAFETY AT 910–341–0696.
26. NO OBSTRUCTIONS ARE PERMITTED IN THE SPACE BETWEEN THIRTY (30) INCHES AND TEN (10) FEET ABOVE THE GROUND WITHIN THE TRIANGULAR SIGHT DISTANCE.
27. CONTACT THE NORTH CAROLINA ONE CALL CENTER AT 1–800–632–4949 PRIOR TO DOING ANY DIGGING, CLEARING, OR GRADING.

SITE WORK NOTES:
1. THE CONTRACTOR SHALL VISIT THE SITE TO BECOME FAMILIAR WITH FIELD CONSTRUCTION CONDITIONS.
2. CONTRACTOR SHALL COORDINATE WORK WITHIN NCDOT AND LOCAL RIGHT OF WAYS WITH PROPER AUTHORITIES AND SHALL MEET ANY REQUIREMENTS AS TO TRAFFIC CONTROL AND CONNECTION TO EXISTING STREETS.
3. CLEARING AND GRUBBING: REMOVE ALL TREES AS REQUIRED UNLESS OTHERWISE NOTED TO REMAIN, STUMPS, ROOTS, SHRUBBERY, ASPHALT, CONCRETE, STRUCTURES, BURIED UTILITIES, STORAGE TANKS, ETC. WITHIN LIMITS OF CONSTRUCTION.
4. STRIPPING: BEFORE EXCAVATING OR FILLING, REMOVE ALL TOPSOIL, WOOD, LEAVES, AND ANY OTHER UNSUITABLE MATERIAL.
5. MUCKING: REMOVE ANY SOFT, ORGANIC SILT MATERIALS AND EXISTING BURIED CONSTRUCTION DEBRIS AS REQUIRED AND FILL TO SUBGRADE ELEVATIONS WITH A CLEAN SELECT–FILL COMPACTED AS SPECIFIED.
6. DISPOSAL: CLEARED, GRUBBED, STRIPPED OR EXCAVATED SPOIL SHALL BE REMOVED FROM SITE AND DISPOSED OF IN ACCORDANCE WITH ALL APPLICABLE LOCAL AND STATE CODES.
7. BORROW MATERIAL: THE CONTRACTOR SHALL FURNISH BORROW MATERIAL REQUIRED FROM OFF SITE AND OBTAIN ALL REQUIRED PERMITS ASSOCIATED WITH BORROW OPERATIONS.
8. FILL AND COMPACTION: AFTER STRIPPING THOSE AREAS DESIGNATED TO RECEIVE FILL SHOULD BE PROOFROLLED. THE TOP 8" OF SUBGRADE SHALL BE COMPACTED TO AT LEAST 98% OF MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT. ANY AREA WHICH PUMPS OR RUTS EXCESSIVELY SHOULD BE UNDERCUT AND REPLACED WITH A CLEAN, SILTY OR CLAYEY SAND HAVING A UNIFIED SOIL CLASSIFICATION OF SP, SM, OR SC. FILL MATERIAL 5' OUTSIDE OF BUILDING AREAS SHALL THEN BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D–698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED TO 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. FILL MATERIALS WITHIN BUILDING AREAS TO A LINE OUTSIDE THE BUILDING AREAS SHALL BE PLACED IN LAYERS NOT TO EXCEED 8" AND COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY (ASTM D–698) WITH THE UPPER 12 INCHES OF SUBGRADE BEING COMPACTED IN 6 INCH LAYERS TO 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IN AREAS WHERE NO STRUCTURAL FILL IS TO BE PLACED THE UPPER 12 INCHES OF IN–PLACE SUBGRADE SHOULD BE COMPACTED TO AT LEAST 98% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. IF THE MATERIAL IS TOO DRY TO COMPACT TO THE REQUIRED DENSITY EACH LAYER SHALL BE WETTED IN ACCORDANCE WITH COMPACTION REQUIREMENTS. IF THE MATERIAL IS TOO WET TO SECURE PROPER COMPACTION, IT SHALL BE HARROWED REPEATEDLY OR OTHERWISE AERATED WITH SUITABLE EQUIPMENT UNTIL OPTIMUM MOISTURE CONTENT IS OBTAINED. FILL SHALL BE PLACED IN SUCH A MANNER THAT THE SURFACE WILL DRAIN READILY AT ALL TIMES. SEE STRUCTURAL NOTES AND SOILS REPORT FOR ADDITIONAL REQUIREMENTS.
9. LAYOUT: THE CONTRACTOR SHALL PROVIDE ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE LOCATION AND PROTECTION OF EXISTING UTILITIES DURING CONSTRUCTION.
11. EXISTING BOUNDARY AND TOPOGRAPHIC INFORMATION FROM SURVEY BY ____________________ AND PROVIDED BY OWNER.
12. THE CONTRACTOR SHALL VERIFY DIMENSIONS AT JOBSITE.
13. THE CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF RELOCATION OR DISCONNECTION OF ALL EXISTING UTILITIES WITH APPLICABLE AGENCIES AND AUTHORITIES.
14. ALL PAVEMENT AND BASE MATERIALS AND WORKMANSHIP SHALL CONFORM TO NCDOT STANDARDS.
15. WATER AND SEWER SERVICES SHALL BE INSTALLED TO MEET LOCAL AND STATE PLUMBING CODES. METER AND TAPS SHALL MEET ALL LOCAL REQUIREMENTS.
16. ALL AREAS SHALL BE GRADED FOR POSITIVE DRAINAGE.
17. SEE ___________ REPORT __________ DATED _____, 19__ FOR ADDITIONAL REQUIREMENTS.
18. CONTRACTOR SHALL NOTE THAT EARTHWORK QUANTITIES ARE HIS RESPONSIBILITY. PLANS DO NOT REPRESENT A BALANCED EARTHWORK CONDITION.
19. REINF. CONC. PIPE SHALL BE CLASS III W/RUBBER GASKETED JOINT OR "RAM NECK". INSTALL PER MANUFACTURER'S REQUIREMENTS.
20. USE WHITE LANE MARKING PAINT FOR ALL PAVEMENT MARKINGS. PAINT SHALL BE A CHLORINATED RUBBER ALKYD, FS TT–P–115, TYPE III, FACTORY MIXED, QUICK DRYING, NON–BLEEDING.
21. REFER TO THE PLUMBING DRAWINGS FOR LOCATION AND INVERTS OF NEW WASTE AND WATER LINES.
22. SEE SHEETS P–2 FOR LOCATION AND INVERTS OF CONDENSATE AND ROOF DRAINS. THE GENERAL CONTRACTOR IS RESPONSIBLE TO CONNECT THESE LINES TO THE UNDERGROUND DOWNSPOUT DRAIN AT THE REQUIRED DEPTH TO DRAIN. ALL UNDERGROUND DOWNSPOUT DRAINS SHALL HAVE A MINIMUM SLOPE OF 1% AND BE SCH 40 PVC PIPE AS FOLLOWS: USE 4" PIPE FOR UP TO 4 DOWNSPOUT CONNECTIONS, 5" PIPE FOR 5 TO 8 DOWNSPOUT CONNECTIONS AND 8" PIPE FOR 9 OR MORE CONNECTIONS.
23. THE FINISHED GROUND ELEVATION AT THE BUILDING PERIMETER SHALL BE A MINIMUM OF 6 INCHES BELOW THE BUILDING FINISH FLOOR ELEVATION EXCEPT AT ENTRANCES AND ENTRANCE TRANSITIONS.

EROSION CONTROL NOTES AND MAINTENANCE PLAN
1. ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF–PRODUCING RAINFALL, BUT IN NO CASE, LESS THAN ONCE EVERY WEEK AND WITHIN 24 HOURS OF EVERY HALF–INCH RAINFALL.
2. ALL POINTS OF EGRESS WILL HAVE CONSTRUCTION ENTRANCES THAT WILL BE PERIODICALLY TOP–DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. THEY WILL BE MAINTAINED IN A CONDITION TO PREVENT MUD OR SEDIMENT FROM LEAVING THE SITE. IMMEDIATELY REMOVE OBJECTIONABLE MATERIAL SPILLED WASHED OR TRACKED ONTO THE CONSTRUCTION ENTRANCE OR ROADWAYS.
3. SEDIMENT WILL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL INLET PROTECTION, BLOCK AND GRAVEL INLET PROTECTION, ROCK DOUGHNUT INLET PROTECTION AND ROCK PIPE INLET PROTECTION WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS AS DESIGNED. DEBRIS WILL BE REMOVED FROM THE ROCK AND HARDWARE CLOTH TO ALLOW PROPER DRAINAGE. SILT SACKS WILL BE EMPTIED ONCE A WEEK AND AFTER EVERY RAIN EVENT. SEDIMENT WILL BE REMOVED FROM AROUND BEAVER DAMS, DANDY SACKS AND SOCKS ONCE A WEEK AND AFTER EVERY RAIN EVENT.
4. DIVERSION DITCHES WILL BE CLEANED OUT IMMEDIATELY TO REMOVE SEDIMENT OR OBSTRUCTIONS FROM THE FLOW AREA. THE DIVERSION RIDGES WILL ALSO BE REPAIRED. SWALES MUST BE TEMPORARILY STABILIZED WITHIN 7 CALENDAR DAYS OF CEASE OF ANY PHASE OF ACTIVITY ASSOCIATED WITH A SWALE.
5. SEDIMENT WILL BE REMOVED FROM BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF FILLED. THE SEDIMENT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL. STAKE SPACING WILL BE 6 FEET MAX. WITH THE USE OF EXTRA STRENGTH FABRIC, WITHOUT WIRE BACKING. STAKE SPACING WILL BE 8 FEET MAX. WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS ARE DESIGNED AT LOW POINTS IN THE SEDIMENT FENCE, THE ROCK WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF–FULL OF SEDIMENT, NO LONGER DRAINS AS DESIGNED OR IS DAMAGED.
6. SEDIMENT WILL BE REMOVED FROM SEDIMENT TRAPS WHEN THE DESIGNED STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. THE ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR WHEN THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED AND KEPT CLEAN WEEKLY.
7. SEDIMENT WILL BE REMOVED FROM THE SEDIMENT BASIN WHEN THE DESIGN STORAGE CAPACITY HAS BEEN HALF FILLED WITH SEDIMENT. ROCK WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS OR IF THE ROCK IS DISLODGED. BAFFLES WILL BE REPAIRED OR REPLACED IF THEY COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE. THEY WILL BE REPLACED PROMPTLY. SEDIMENT WILL BE REMOVED FROM BAFFLES WHEN DEPOSITS REACH HALF THE HEIGHT OF THE 1ST BAFFLE. FLOATING SKIMMERS WILL BE INSPECTED WEEKLY AND WILL BE KEPT CLEAN. :

LAND QUALITY REQUIRES

8. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED, ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN, TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL SLOPES WILL BE STABILIZED WITHIN 14 CALENDAR DAYS. ALL OTHER AREAS WILL BE STABILIZED WITHIN 14 WORKING DAYS. : WATER QUALITY REQUIRES ALL SEEDED AREAS BE FERTILIZED, RESEEDED AS NECESSARY AND MULCHED ACCORDING TO SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER. ALL PERIMETER DIKES, SWALES, HORIZONTAL TO DITCHES, PERIMETER SLOPES, ALL SLOPES STEEPER THAN (3:1) VERTICAL AND ALL HIGH QUALITY WATER (HQW) ZONES SHALL PROVIDE TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICAL BUT IN ANY EVENT WITHIN SEVEN (7) CALENDAR DAYS FROM THE LAST LAND–DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL PROVIDE TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICAL BUT IN ANY EVENT WITHIN FOURTEEN (14) CALENDAR DAYS FROM THE LAST LAND–DISTURBING ACTIVITY.
9. FLOCCULANTS WILL BE USED TO ADDRESS TURBIDITY ISSUES. THE PUMPS, TANKS, HOSES AND INJECT SYSTEMS WILL BE CHECKED FOR PROBLEMS OR TURBID DISCHARGES DAILY.
10. BASIN OUTLET STRUCTURES AND SKIMMERS SHALL WITHDRAW WATER FROM THE SURFACE.



HARDWARE CLOTH & GRAVEL INLET PROTECTION

NTS

CONSTRUCTION SEQUENCE:
1. UNIFORMLY GRADE A SHALLOW DEPRESSION APPROACHING THE INLET.
2. DRIVE 5' STEEL POST 2' INTO THE GROUND SURROUNDING THE INLET. SPACE POST EVENLY AROUND THE PERIMETER OF THE INLET, A MAXIMUM OF 4' APART.
3. SURROUND THE POST WITH WIRE MESH HARDWARE CLOTH. SECURE THE WIRE MESH TO THE STEEL POST AT THE TOP, MIDDLE AND BOTTOM. PLACING A 2' FLAP OF THE WIRE MESH UNDER THE GRAVEL FOR ANCHORING IS RECOMMENDED.
4. PLACE CLEAN GRAVEL (NCDOT #5 OR #57 STONE) ON A 2:1 SLOPE WITH A HEIGHT OF 16" TO 18" AROUND THE WIRE, AND SMOOTH TO AN EVEN GRADE.
5. ONCE THE CONTRIBUTING DRAINAGE AREA HAS BEEN STABILIZED, REMOVE ACCUMULATED SEDIMENT, AND ESTABLISH FINAL GRADING ELEVATIONS.
6. COMPACT THE AREA PROPERLY AND STABILIZE IT WITH GROUNDCOVER.

MAINTENANCE:
INSPECT INLETS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (1/2 INCH OR GREATER) RAINFALL EVENT. CLEAR THE MESH WIRE OF ANY DEBRIS OR OTHER OBJECTS TO PROVIDE ADEQUATE FLOW FOR SUBSEQUENT RAINS. TAKE CARE NOT TO DAMAGE OR UNDERCUT THE WIRE MESH DURING SEDIMENT REMOVAL. REPLACE STONE AS NEEDED.

SYMBOL	DATE	DESCRIPTION	BY

REVISIONS
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DETAILS
THE CROSSROADS AT INDEPENDENCE
INDEPENDENCE AND CAROLINA BEACH ROAD
BRUNSWICK COUNTY, NORTH CAROLINA

OWNER:
Live Oak Development Company
5 Allen Avenue
Manchester, MA 01944
910-538-5855
deanscarafoni@comcast.net

NORRIS & TUNSTALL
CONSULTING ENGINEERS, P.C.
902 MARKET STREET
WILMINGTON, NC 28401
PHONE (910) 343-9653
1429 ASH–LITTLE RIVER RD. NW
ASH, NC 28420
PHONE (910) 287-5900
licence #C-3641

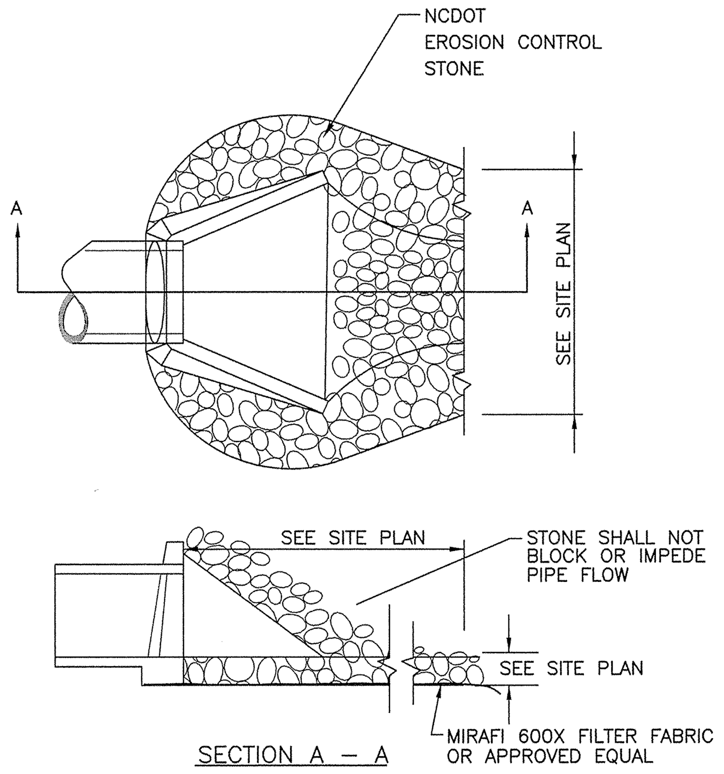
16023

DES. JPN
CKD. JPN
DRWN. EDB

DATE 11/02/16

NORTH CAROLINA PROFESSIONAL ENGINEER 11966 JOHN PHILLIP NORRIS
FOR REVIEW ONLY
DO NOT USE
FOR CONSTRUCTION

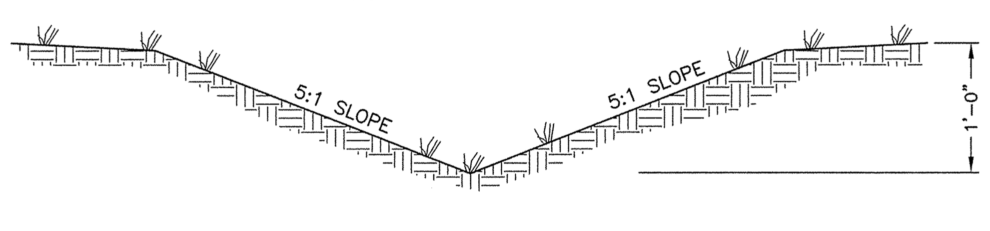
C6



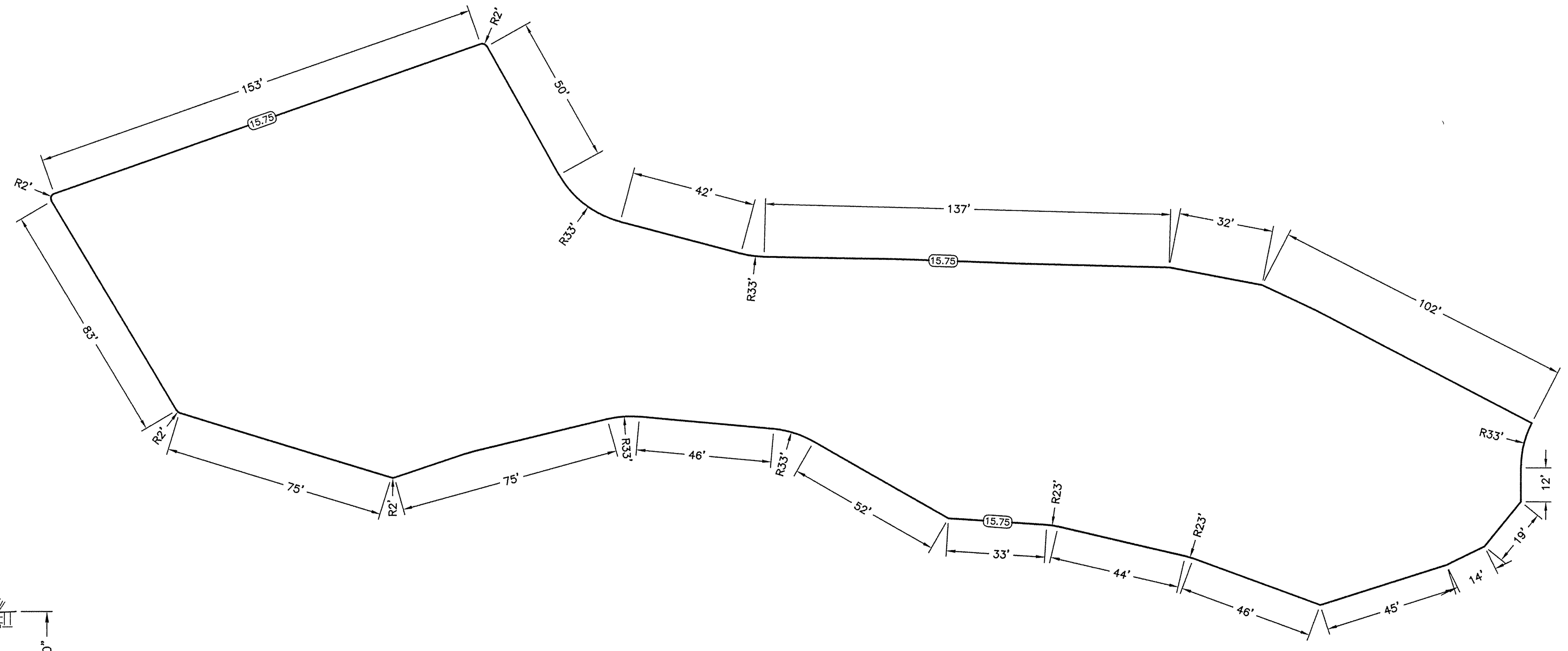
SECTION A – A

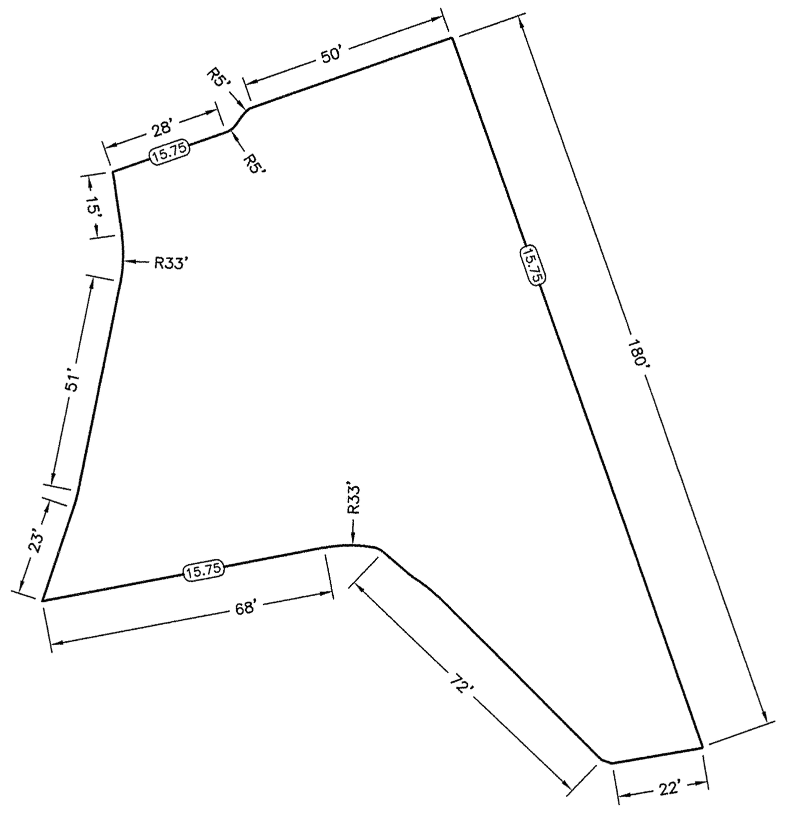
NOTE: FILTER FABRIC AND STONE SHALL BE TOED UNDER FLARED END SECTION

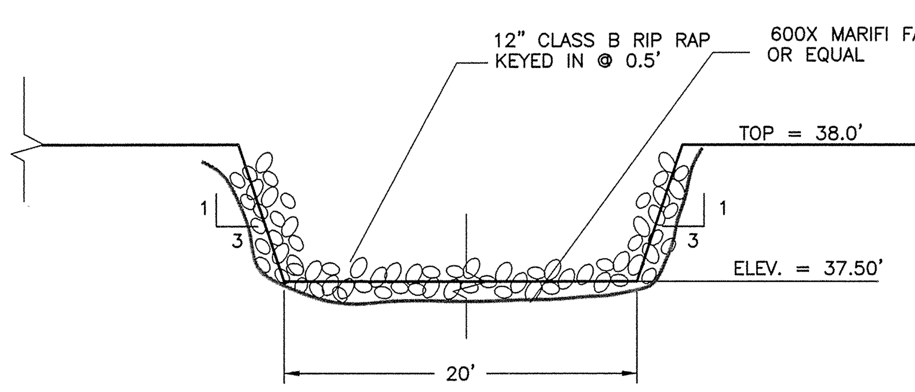
ENERGY DISSIPATOR
NTS



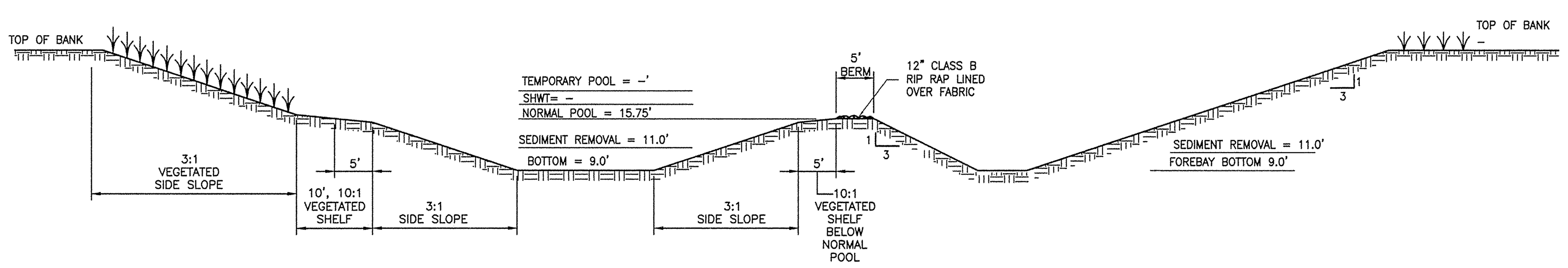
TYPICAL GRASS SWALE
N.T.S.







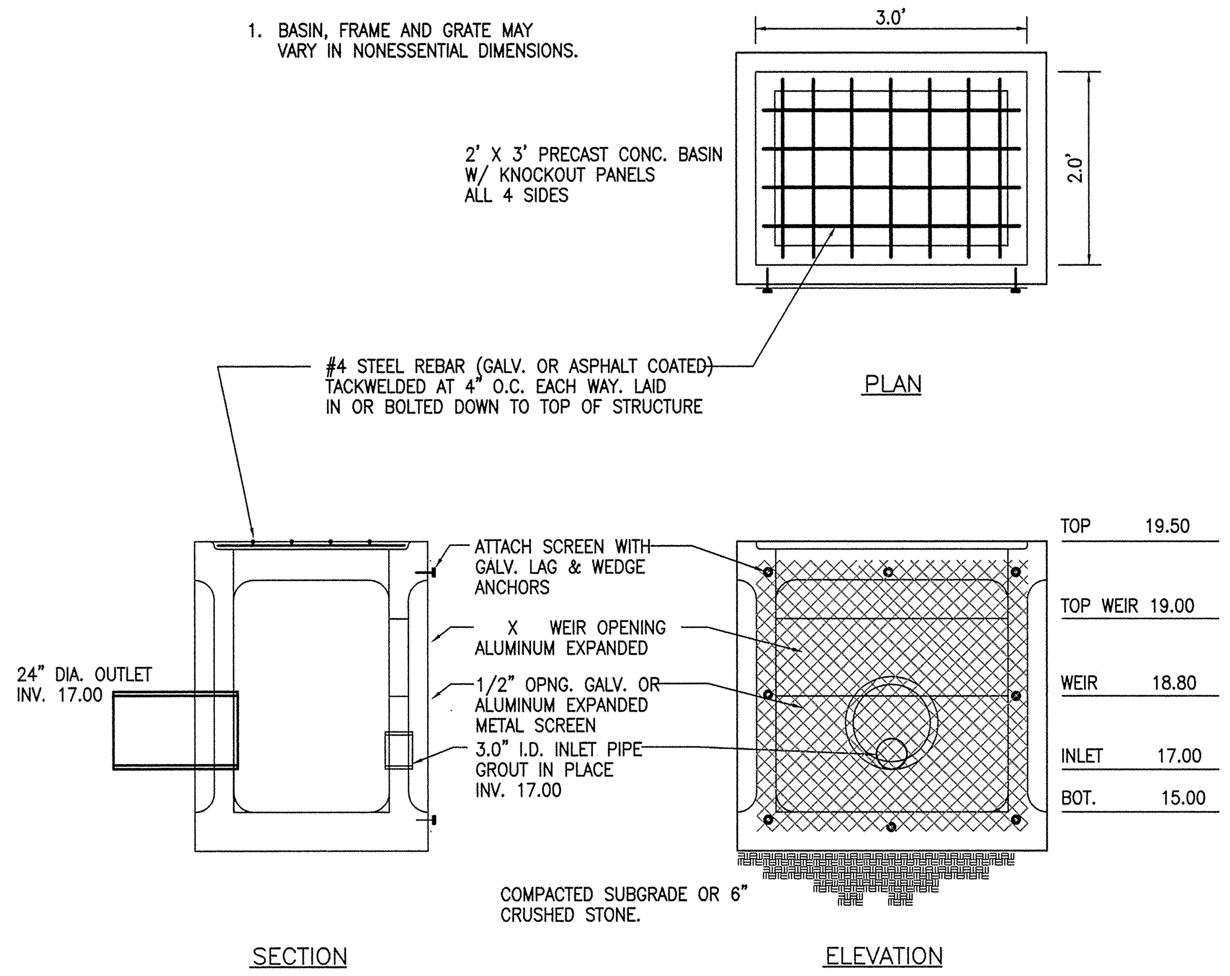
EMERGENCY SPILLWAY
NTS



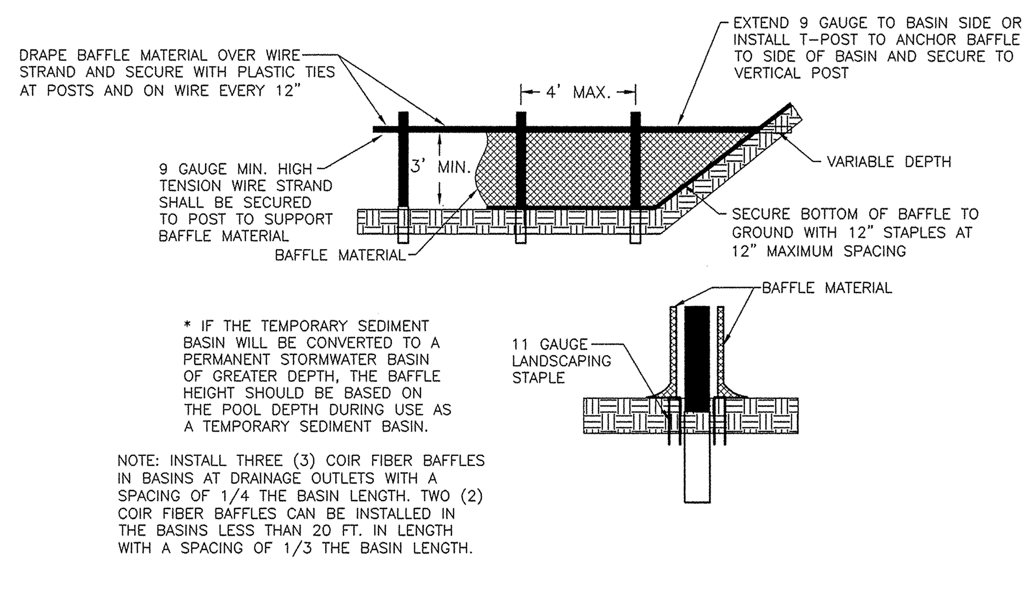
POND CROSS SECTION
NTS

NOTE

1. BASIN, FRAME AND GRATE MAY VARY IN NONESSENTIAL DIMENSIONS.



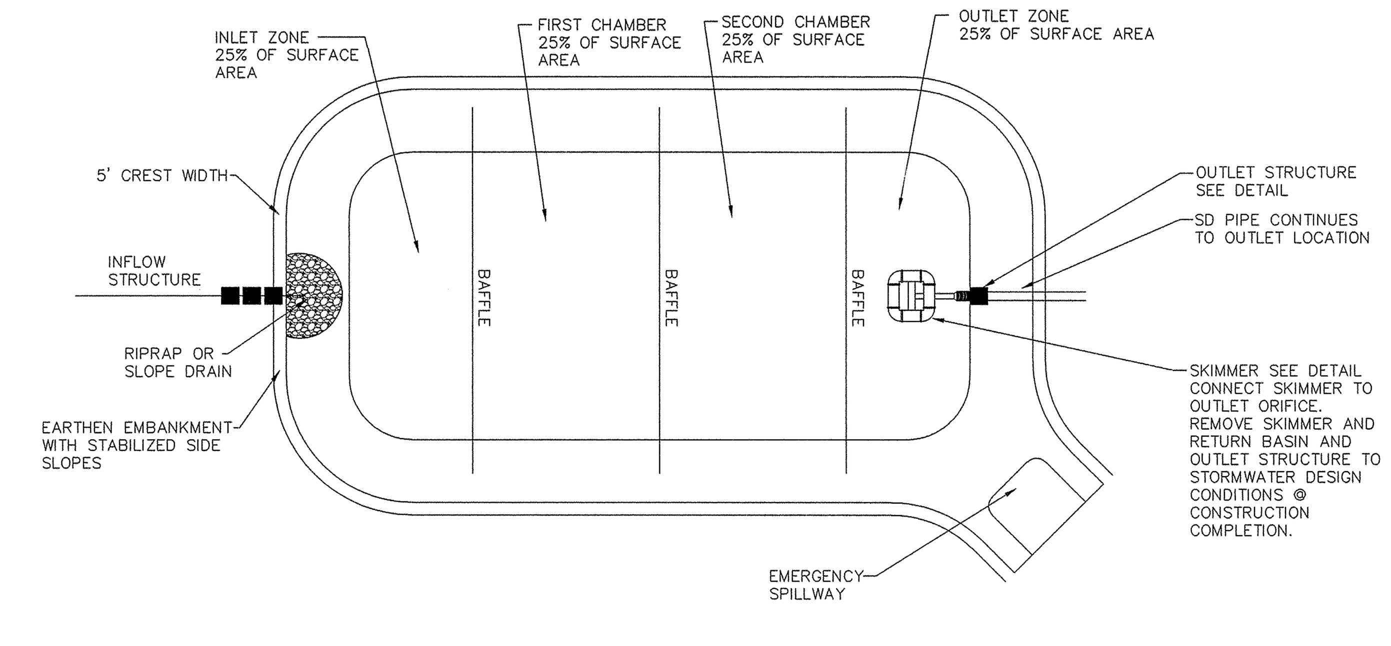
DETENTION POND OUTLET STRUCTURE
N.T.S.



* IF THE TEMPORARY SEDIMENT BASIN WILL BE CONVERTED TO A PERMANENT STORMWATER BASIN OF GREATER DEPTH, THE BAFFLE HEIGHT SHOULD BE BASED ON THE POOL DEPTH DURING USE AS A TEMPORARY SEDIMENT BASIN.

NOTE: INSTALL THREE (3) COIR FIBER BAFFLES IN BASINS AT DRAINAGE OUTLETS WITH A SPACING OF 1/4 THE BASIN LENGTH. TWO (2) COIR FIBER BAFFLES CAN BE INSTALLED IN THE BASINS LESS THAN 20 FT. IN LENGTH WITH A SPACING OF 1/3 THE BASIN LENGTH.

FIGURE 6.65b COIR FIBER BAFFLE DETAIL CROSS SECTION OF A POROUS BAFFLE IN A SEDIMENT BASIN.



POROUS BAFFLES IN A SEDIMENT BASIN. THE FLOW IS DISTRIBUTED EVENLY ACROSS THE BASIN TO REDUCE FLOW RATES AND TURBULENCE, RESULTING IN GREATER SEDIMENT RETENTION.

TYPICAL SKIMMER SEDIMENT BASIN & POROUS BAFFLE DETAIL
NTS

NOTE: SEE GRADING PLAN FOR BAFFLE LOCATIONS.

BAFFLE CONSTRUCTION SPECIFICATION

1. GRADE THE BASIN SO THAT THE BOTTOM IS LEVEL FRONT TO BACK AND SIDE TO SIDE.

2. INSTALL POSTS OR SAW HORSES ACROSS THE WIDTH OF THE SEDIMENT TRAP (PRACTICE 6.62, SEDIMENT FENCE).

3. STEEL POSTS SHOULD BE DRIVEN TO A DEPTH OF 24 INCHES, SPACED A MAXIMUM OF 4 FEET APART, AND INSTALLED UP THE SIDES OF THE BASIN AS WELL. THE TOP OF THE FABRIC SHOULD BE 6 INCHES HIGHER THAN THE INVERT OF THE SPILLWAY. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.

4. INSTALL AT LEAST THREE ROWS OF BAFFLES BETWEEN THE INLET AND OUTLET DISCHARGE POINT. BASINS LESS THAN 20 FEET IN LENGTH MAY USE 2 BAFFLES.

5, WHEN USING POSTS, ADD A SUPPORT WIRE OR ROPE ACROSS THE TOP OF THE MEASURE TO PREVENT SAGGING.

6. WRAP POROUS MATERIAL, LIKE JUTE BACKED BY COIR MATERIAL, OVER A SAWHORSE OR THE TOP WIRE. HAMMER REBAR INTO THE SAWHORSE LEGS FOR ANCHORING. THE FABRIC SHOULD HAVE FIVE TO TEN PERCENT OPENINGS IN THE WEAVE. ATTACH FABRIC TO A ROPE AND A SUPPORT STRUCTURE WITH ZIP TIES, WIRE, OR STAPLES.

7. THE BOTTOM AND SIDES OF THE FABRIC SHOULD BE ANCHORED IN A TRENCH OR PINNED WITH 8-INCH EROSION CONTROL MATTING STAPLES.

8. DO NOT SPLICE THE FABRIC, BUT USE A CONTINUOUS PIECE ACROSS THE BASIN.

MAINTENANCE

INSPECT BAFFLES AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.

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

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

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

SKIMMER BASIN CONSTRUCTION SPECIFICATION

1. CLEAR, GRUB, AND STRIP THE AREA UNDER THE EMBANKMENT OF ALL VEGETATION AND ROOT MAT. REMOVE ALL SURFACE SOIL CONTAINING HIGH AMOUNTS OF ORGANIC MATTER AND STOCKPILE OR DISPOSE OF IT PROPERLY. HAUL ALL OBJECTIONABLE MATERIAL TO THE DESIGNATED DISPOSAL AREA. PLACE TEMPORARY SEDIMENT CONTROL MEASURES BELOW BASIN BS NEEDED.
2. ENSURE THAT FILL MATERIAL FOR THE EMBANKMENT IS FREE OF ROOTS, WOODY VEGETATION, ORGANIC MATTER, AND OTHER OBJECTIONABLE MATERIAL. PLACE THE FILL IN LIFTS NOT TO EXCEED 9 INCHES, AND MACHINE COMPACT IT. OVER FILL THE EMBANKMENT 6 INCHES TO ALLOW FOR SETTLEMENT.
3. SHAPE THE BASIN TO THE SPECIFIED DIMENSIONS. PREVENT THE SKIMMING DEVICE FROM SETTLING INTO THE MUD BY EXCAVATING A SHALLOW PIT UNDER THE SKIMMER OR PROVIDING A LOW SUPPORT UNDER THE SKIMMER OF STONE OR TIMBER.
4. PLACE THE BARREL (TYPICALLY 4-INCH SCHEDULE 40 PVC PIPE) ON A FIRM, SMOOTH FOUNDATION OF IMPERVIOUS SOIL. DO NOT USE PERVIOUS MATERIAL SUCH AS SAND, GRAVEL, OR CRUSHED STONE AS BACKFILL AROUND THE PIPE. PLACE THE FILL MATERIAL AROUND THE PIPE SPILLWAY IN 4-INCH LAYERS AND COMPACT IT UNDER AND AROUND THE PIPE TO AT LEAST THE SAME DENSITY AS THE ADJACENT EMBANKMENT. CARE MUST BE TAKEN NOT TO RAISE THE PIPE FROM THE FIRM CON!ACT WITH ITS FOUNDATION WHEN COMPACTING UNDER THE PIPE HAUNCHES.

PLACE A MINIMUM DEPTH OF 2 FEET OF COMPACTED BACKFILL OVER THE PIPE SPILLWAY BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT. IN NO CASE SHOULD THE PIPE CONDUIT BE INSTALLED BY CUTTING A TRENCH THROUGH THE DAM AFTER THE EMBANKMENT IS COMPLETE.
5. ASSEMBLE THE SKIMMER FOLLOWING THE MANUFACTURER INSTRUCTIONS, OR AS DESIGNED.
6. LAY THE ASSEMBLED SKIMMER ON THE BOTTOM OF THE BASIN WITH THE FLEXIBLE JOINT AT THE INLET OF THE BARREL PIPE. ATTACH THE FLEXIBLE JOINT TO THE BARREL PIPE AND POSITION THE SKIMMER OVER THE EXCAVATED PIT OR SUPPORT. BE SURE TO ATTACH A ROPE TO THE SKIMMER AND ANCHOR IT TO THE SIDE OF THE BASIN. THIS WILL BE USED TO PULL THE SKIMMER TO THE SIDE FOR MAINTENANCE.
7, EARTHEN SPILLWAYS---INSTALL THE SPILLWAY IN UNDISTURBED SOIL TO THE GREATEST EXTENT POSSIBLE. THE ACHIEVEMENT OF PLANNED ELEVATIONS, GRADE, DESIGN WIDTH, AND ENTRANCE AND EXIT CHANNEL SLOPES ARE CRITICAL TO THE SUCCESSFUL OPERATION OF THE SPILLWAY. THE SPILLWAY SHOULD BE LINED WITH LAMINATED PLASTIC OR IMPERMEABLE GEOTEXTILE FABRIC. THE FABRIC MUST BE WIDE AND LONG ENOUGH TO COVER THE BOTTOM AND SIDES AND EXTEND ONTO THE TOP OF THE DAM FOR ANCHORING IN A TRENCH. THE EDGES MAY BE SECURED WITH 8-INCH STAPLES OR PINS. THE FABRIC MUST BE LONG ENOUGH TO EXTEND DOWN THE SLOPE AND EXIT ONTO STABLE GROUND. THE WIDTH OF THE FABRIC MUST BE ONE PIECE, NOT JOINED OR SPLICED; OTHERWISE WATER CAN GET UNDER THE FABRIC. IF THE LENGTH OF THE FABRIC IS INSUFFICIENT FOR THE ENTIRE LENGTH OF THE SPILLWAY, MULTIPLE SECTIONS, SPANNING THE COMPLETE WIDTH, MAY BE USED. THE UPPER SECTION(S) SHOULD OVERLAP THE LOWER SECTION(S) SO THAT WATER CANNOT FLOW UNDER THE FABRIC. SECURE THE UPPER EDGE AND SIDES OF THE FABRIC IN A TRENCH WITH STAPLES OR PINS. (ADAPTED FROM "A MANUAL FOR DESIGNING, INSTALLING AND MAINTAINING SKIMMER SEDIMENT BASINS." FEBRUARY, 1999. 1. W. FAIRCLOTH & SON.).
8, INLETS-DISCHARGE WATER INTO THE BASIN IN A MANNER TO PREVENT EROSION. USE TEMPORARY SLOPE DRAINS OR DIVERSIONS WITH OUTLET PROTECTION TO DIVERT SEDIMENT LADEN WATER TO THE UPPER END OF THE POOL AREA TO IMPROVE BASIN TRAP EFFICIENCY (REFERENCES: RUNOFF CONTROL MEASURES AND OUTLET PROTECTION.

9. EROSION CONTROL-CONSTRUCT THE STRUCTURE SO THAT THE DISTURBED AREA IS MINIMIZED. DIVERT SURFACE WATER AWAY FROM BARE AREAS. COMPLETE THE EMBANKMENT BEFORE THE AREA IS CLEARED. STABILIZE THE EMERGENCY SPILLWAY EMBANKMENT AND ALL OTHER DISTURBED AREAS ABOVE THE CREST OF THE PRINCIPAL SPILLWAY IMMEDIATELY AFTER CONSTRUCTION (REFERENCES: SURFACE STABILIZATION).
10. INSTALL POROUS BAFFLES AS SPECIFIED IN PRACTICE 6.65, POROUS BAFFLES.
11, AFTER ALL THE SEDIMENT-PRODUCING AREAS HAVE BEEN PERMANENTLY STABILIZED, REMOVE THE STRUCTURE AND ALL THE UNSTABLE SEDIMENT. SMOOTH THE AREA TO BLEND WITH THE ADJOINING AREAS AND STABILIZE PROPERLY (REFERENCES: SURFACE STABILIZATION).

MAINTENANCE

INSPECT SKIMMER SEDIMENT BASINS AT LEAST WEEKLY AND AFTER EACH SIGNIFICANT (ONE-HALF INCH OR GREATER) RAINFALL EVENT AND REPAIR IMMEDIATELY. REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN SEDIMENT ACCUMULATES TO ONE-HALF THE HEIGHT OF THE FIRST BAFFLE. PULL THE SKIMMER TO ONE SIDE 80 THAT THE SEDIMENT UNDERNEATH IT CAN BE EXCAVATED. EXCAVATE THE SEDIMENT FROM THE ENTIRE BASIN, NOT JUST AROUND THE SKIMMER OR THE FIRST CELL. MAKE SURE VEGETATION GROWING IN THE BOTTOM OF THE BASIN DOES NOT HOLD DOWN THE SKIMMER.

REPAIR THE BAFFLES IF THEY ARE DAMAGED. RE-ANCHOR THE BAFFLES IF WATER IS FLOWING UNDERNEATH OR AROUND THEM.

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

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

CHECK THE FABRIC LINED SPILLWAY FOR DAMAGE AND MAKE ANY REQUIRED REPAIRS WITH FABRIC THAT SPANS THE FULL WIDTH OF THE SPILLWAY. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, AND INSPECT THE EMBANKMENT FOR PIPING AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE SKIMMER AND POOL AREAS.

FREEZING WEATHER CAN RESULT IN ICE FORMING IN THE BASIN. SOME SPECIAL PRECAUTIONS SHOULD BE TAKEN IN THE WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.

SYMBOL	DATE	DESCRIPTION	BY

REVISIONS

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BRUNSWICK COUNTY, NORTH CAROLINA

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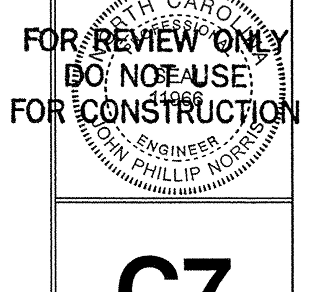

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