Planning Board Meeting
May 20, 2015 11:00 am

Pledge of Allegiance to the Flag and Moment of Silence

I. Call to Order
II. Approval of Minutes
    1. Approval of April 15, 2015 Minutes
III. Administrative Reports
    2. Staff Report
IV. New Business
    3. Calabash Lakes Phase 1C Revised Plat for Duplex Lots
V. Public Comment
VI. Adjournment

DDC
ENGINEERS®

April 8th, 2015

Mr. Jon Mendenhall
Town of Carolina Shores
200 Persimmon Road
Carolina Shores, North Carolina 28467
(910) 575-4877

Re: Calabash Lakes – Ph1C Revised Plat (Remaining Duplex Lots)
P/N: 15022 E

Dear Mr. Mendenhall:

I first would like to thank you for taking time to meet with us on March 24th to discuss our options with the future development of the remaining duplex lots in Calabash Lakes – Phase 1C.

We have contracted with East Coast Engineering and Surveying, P.C. and have prepared a revised Preliminary Plat based off of the previously approved and recorded Phase 1C Final Plat. On this plat we are requesting approval to reduce the existing 35ft front building setback to the current R8 Zoning front building setback of 25ft for the remaining lots only.

It was also stated during the meeting that the Town of Carolina Shores would like to see underdrains added to the entire unfinished sections of the roadway. DR Horton has contracted with a geotechnical firm (ECS Carolinas, LLP) to analyze the existing roadway base course. A copy of their findings is provided as an attachment. In summary the existing stone base will need to be fine graded and compacted to 100% its modified proctor maximum dry density value before placement of the asphalt. Asphalt will be installed in accordance with the approved plans and NCDOT paving specifications yielding a municipal roadway section sustainable to the residential traffic load of the development; see attached geotechnical analysis.

We trust the above responses adequately address the comments you provided. If you have any questions or require any additional information, please do not hesitate to contact me.

Sincerely,

Jason T. Willwerth
Senior Project Manager

Attachments: Subdivision Application
3 copies – Preliminary Plat Phase 1C
Geotechnical Roadway Base Course Analysis

cc: Andy Webster – DR Horton
Project Permit File

Consulting Engineers
Surveyors
Land Planners
Landscape Architects
Environmentalists

1298 Professional Drive
Myrtle Beach
South Carolina 29577

P. 843.692.3200
F. 843.692.3210

www.ddcinc.com

TOWN OF CAROLINA SHORES

SUBDIVISION APPLICATION FORM

Date of Application: 3/25/15

☐ Minor ☐ Major

☒ Preliminary Plat ☐ Final Plat

Owner: DR Horton, Inc.

Address: 4073 Belle Terre Blvd.
Myrtle Beach, SC 29579

Telephone: (843) 646-2305

Property Location: Intersection of Calabash Lakes Blvd. & Chadsey Lake Drive
(street address)

Tax #: Previously Recorded Ph 1C plat (Map Cabinet 48, pg 16-18)

Acres: ±15.5

Current Zoning: R8 Proposed Number of Lots: ~~58~~ 60 JHC

By submitting this application, the applicant/owner acknowledges that subdivisions are regulated in the Town of Carolina Shores under Title IX of the Code of Ordinances and has availed themselves of the information contained within the Code of Ordinances, paid the fee required by law, and further recognizes that application does not automatically grant approval,.

I, Bradford C. Bailey, hereby certify that the foregoing information is complete and accurate to the best of my knowledge.

[signature]
Signature of Owner

4-7-15
Date

January 22, 2015

D.R. Horton
Attn: Mr. Andy Webster
4073 Belle Terre Boulevard
Myrtle Beach, South Carolina 29579

Reference: Roadway Testing
Calabash Lakes – Phase 2
Calabash, North Carolina

ECS Project No. 22. 21632

Dear Mr. Webster:

An ECS representative arrived on site, as requested, to check the compaction of base course material at 5 locations in the roadways at Calabash Lakes, Phase 2. The roads presently contain base course material overlaying a gray brown silty sand. Grasses and debris are currently contained on the roadway surface. Please see the attached sketch for approximate test

At each compaction test location location, the undersigned also measured the thickness of the base course material. A sample of the material was picked up and returned to the ECS laboratory for particle size analysis and Modified Proctor Testing (ASTM D-1557). The base course thicknesses and compaction percentages are as follows:

Test Location	Base Course Compaction (%)	Base Course Thickness (in.)
1	87.6	8.5
2	85.2	7.5
3	87.8	8.5
4	88.4	8.5
5	86.7	8.5

ECS also checked the underlying roadway soils at each of the base course compaction test locations. The soils were checked by advancing a hand auger borings each to a depth of approximately three feet below the existing soil subgrade in the roadways. The underlying soils were sampled and were returned to the ECS laboratory for classification in accordance with USCS specifications. The approximate boring locations are shown on the attached drawing.

At the boring locations, a Kessler DCP was driven continuously through approximately the upper two feet of the soil subgrade. The Kessler DCP is driven into the soil by dropping a Dual-Mass 17.6 lb Hammer from a height of 22.6 in. The depth of cone penetration is measured at selected penetration or hammer drop intervals and the soil shear strength is reported in terms of DCP index. The DCP index is qualitative and based on the average penetration depth resulting from one blow of the 17.6 lb hammer.

Subsurface Conditions

The hand auger borings generally encountered fine to medium silty sands (SM) to the depths explored. The attached Hand Auger Boring Logs present the subsurface conditions encountered at each boring location.

Groundwater was encountered in hand auger borings 1 and 3 at approximately 2.0 feet below existing grades. Groundwater was not encountered in hand auger borings 2, 4, and 5 at the depths explored. We anticipate that water levels at the site could rise significantly during the wetter seasons of the year and after periods of heavy or extended rainfall.

Results

ECS understands that a municipal roadway will be constructed for the neighborhood. The subgrade soil observed and tested is suitable for the support of residential traffic load. The existing stone should be proofrolled and compacted to 100 percent of the modified Proctor maximum dry density value. Once the base course is fine graded and compacted, the roadways can be paved with a design pavement thickness of 2.0 inches of SF9.5A bituminous asphalt in accordance with NCDOT paving specifications.

Regardless of the section and type of construction utilized, saturation of the subgrade materials and asphalt pavement areas results in a softening of the subgrade material and shortened life span for the pavement. Therefore, we recommend that both the surface and subsurface materials for the pavement be properly graded to enhance surface and subgrade drainage. By quickly removing surface and subsurface water, softening of the subgrade can be reduced and the performance of the parking area can be improved.

If you have any questions after reviewing this letter or the attachments, please contact us at (910) 686-9114.

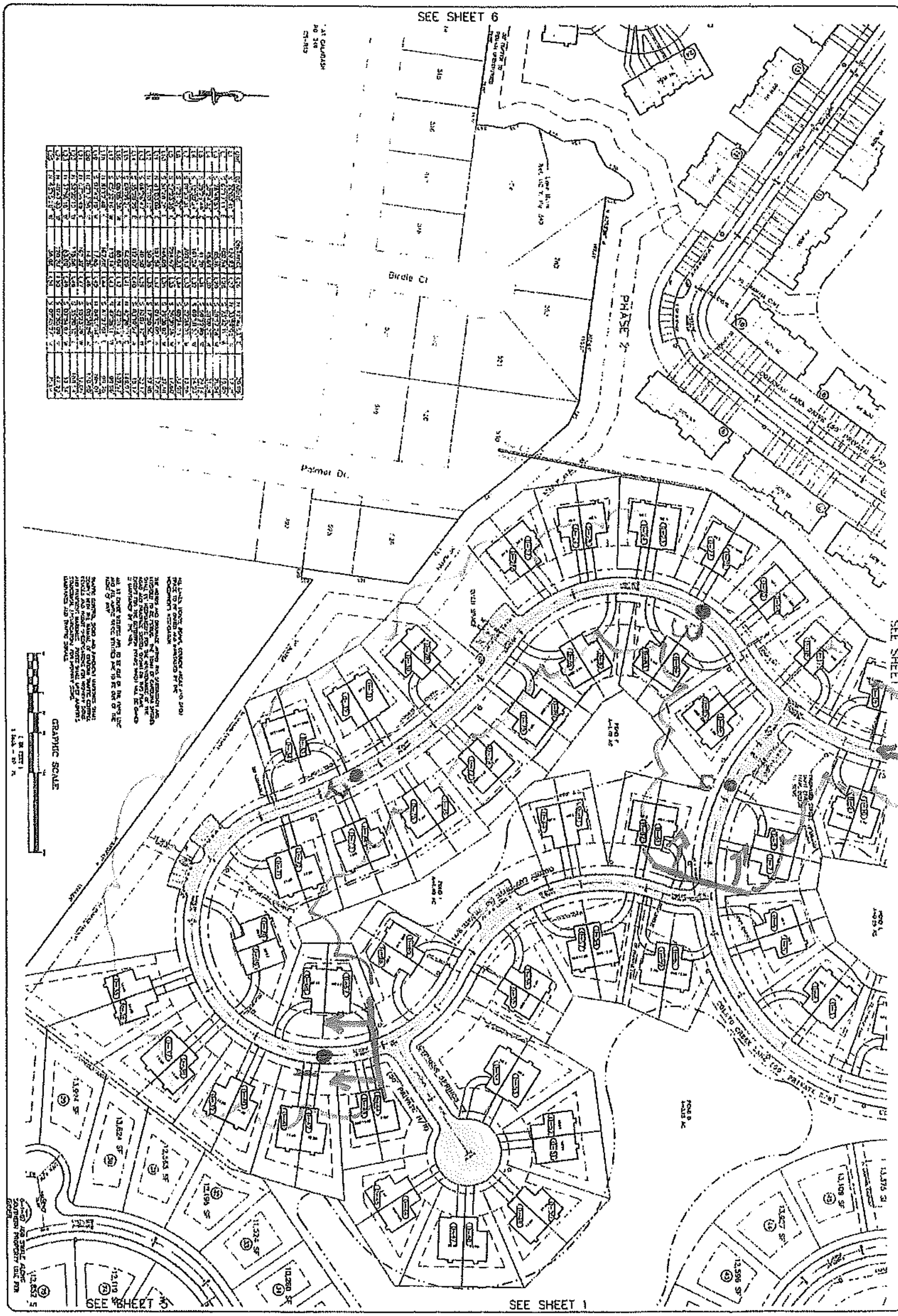
Respectfully Submitted,

ECS CAROLINAS, LLP

William Cromartie
Construction Service Manager

Winslow Goins, P.E.
Principal Engineer

Attachments: Site Maps and Pictures
Hand auger boring logs
Kessler DCP Data Sheets



ROAD PLAN

CALABASH LAKES AT CAROLINA SHORES

PREPARED FOR

PORTRAIT HOMES

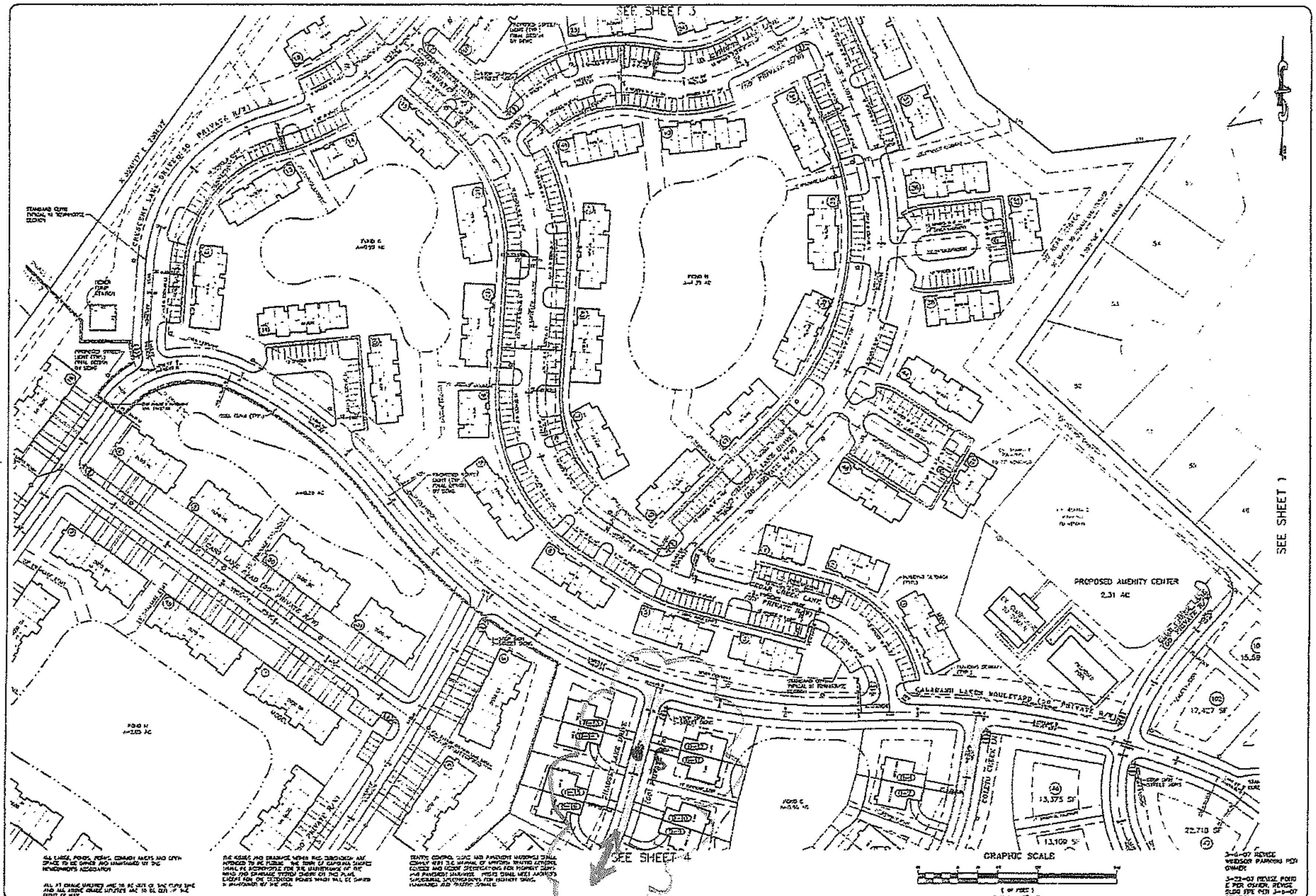
CAROLINA SITE DESIGN, INC.

ENGINEERING • PLANNING

R-4

21632 ● = test locations 10-1-14

21632 ● = Test locations 10-1-14



ROAD PLAN

CALABASH LAKES AT CAROLINA SHORES

PREPARED FOR
PORTRAIT HOMES
1200 48TH AVENUE NORTH, SUITE 201, MYRTLE BEACH, SC 29577

CAROLINA
SITE DESIGN, INC.
ENGINEERING • PLANNING
391-B S.C. HIGHWAY 90 E
POST OFFICE BOX 538
NORTH MYRTLE BEACH, S.C. 29597
(843) 280-5170
OFFICE & FAX

SCALE: 1"=60'
PROJECT #: 05032
DRAWN BY: A.S.D.

REVISION DATES:
4-21-06 ADD BUFFER TO SINGLE FAMILY SECTIONS PER TOWN REVIEW. REVISE LOT LAYOUT ACCORDINGLY
5-15-06 REVISIONS PER TOWN OF CAROLINA SHORES REVIEW
5-17-06 REVISIONS PER NCDENR-WQ REVIEW
6-19-06 ADD POND DIMENSIONS PER NCDENR-WQ REVIEW
7-25-06 ADD FIRE HYDRANTS PER BRUNSWICK CO.
10-30-06 REVISE BUILDINGS/PARKING PER OWNER
3-23-07-REVISE
3-6-07 REVISE WEDDSOR PARKING PER OWNER
3-23-07 REVISE POND & PER OWNER. REVISE BLDG SITE PER 3-6-07 REVISION

SHEET NUMBER
R-2

Hand Auger Borings
Calabash Lakes
Calabash, North Carolina
ECS Project No. 22.21632
October 1, 2014

Boring	Depth	Soil Description
1	0-36"	Gray Silty Sand
H_2O = 24"		

Boring	Depth	Soil Description
2	0-24"	Gray/Brown Silty Sand
H_2O = N/A		

Boring	Depth	Soil Description
3	0-12"	Gray/Brown Silty Sand
	12-36"	Gray Silty Sand
H_2O = 24"		

Boring	Depth	Soil Description
4	0-36"	Gray/Brown Silty Sand
H_2O = N/A		

Boring	Depth	Soil Description
5	0-36"	Gray/Brown Silty Sand
H_2O = N/A		

DCP TEST DATA

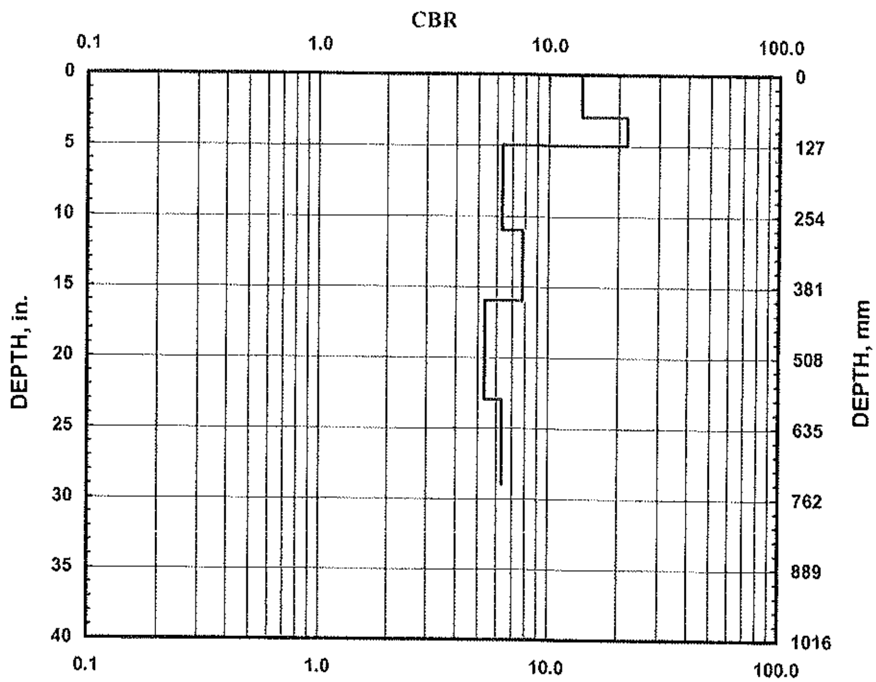
Project: *Calabash Lakes*
Location: 1

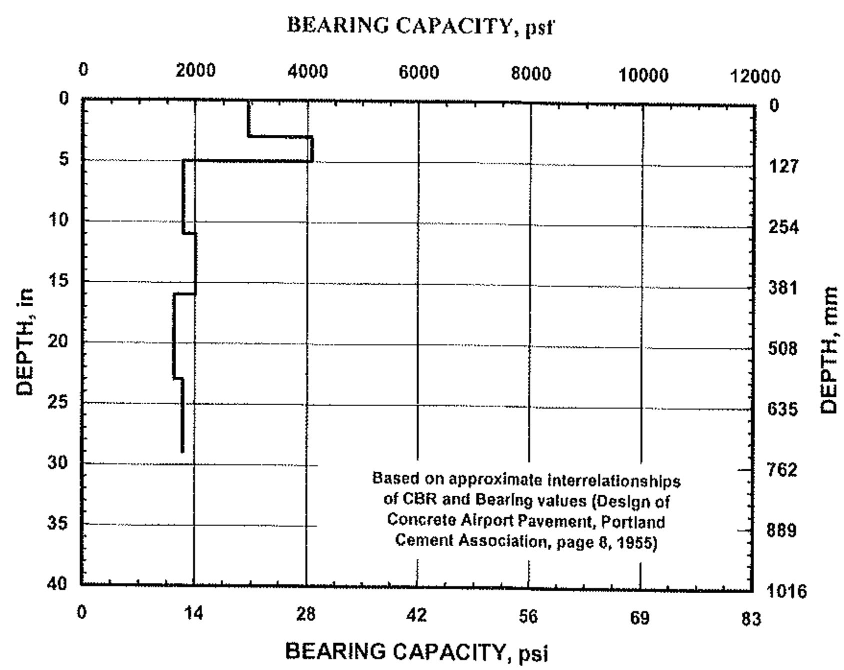
Date: 1-Oct-14
Soil Type(s): Gray Sand

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	76.2	1
5	127	1
5	279.4	1
5	406.4	1
5	584.2	1
5	736.6	1





DCP TEST DATA

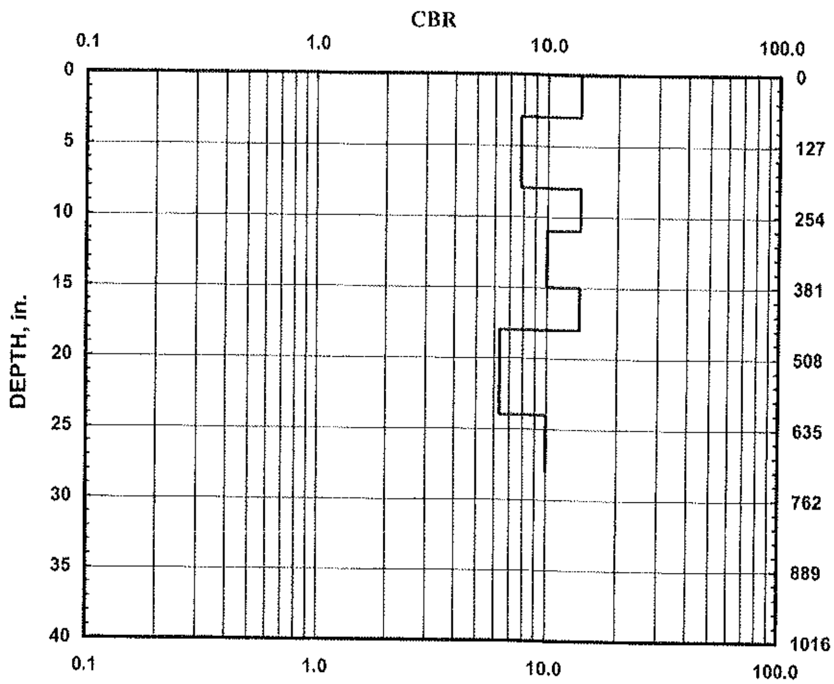
Project: *Calabash Lakes*
Location: 2

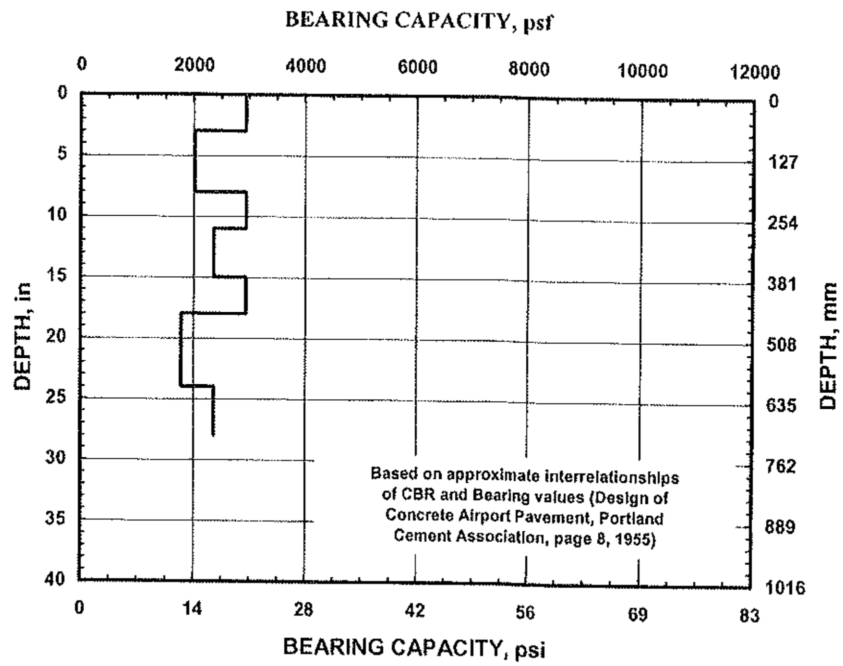
Date: 1-Oct-14
Soil Type(s): Gray Brown Silty Sand

Hammer
○ 10.1 lbs.
◉ 17.6 lbs.
○ Both hammers used

Soil Type
○ CH
○ CL
◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	76.2	1
5	203.3	1
5	279.4	1
5	381	1
5	457.2	1
5	609.6	1
5	711.2	1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1





DCP TEST DATA

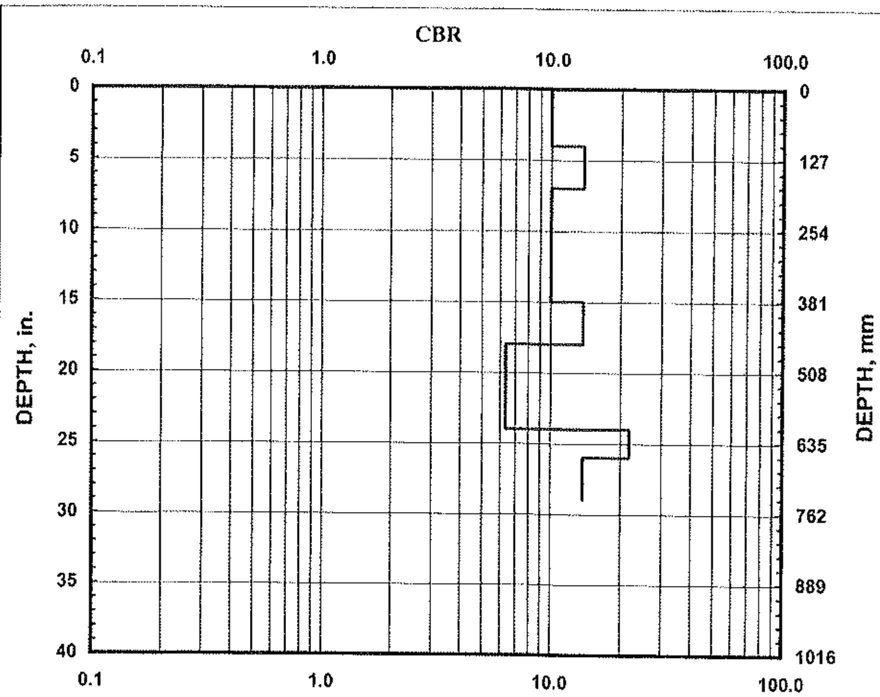
Project: *Calabash Lakes*
Location: 3

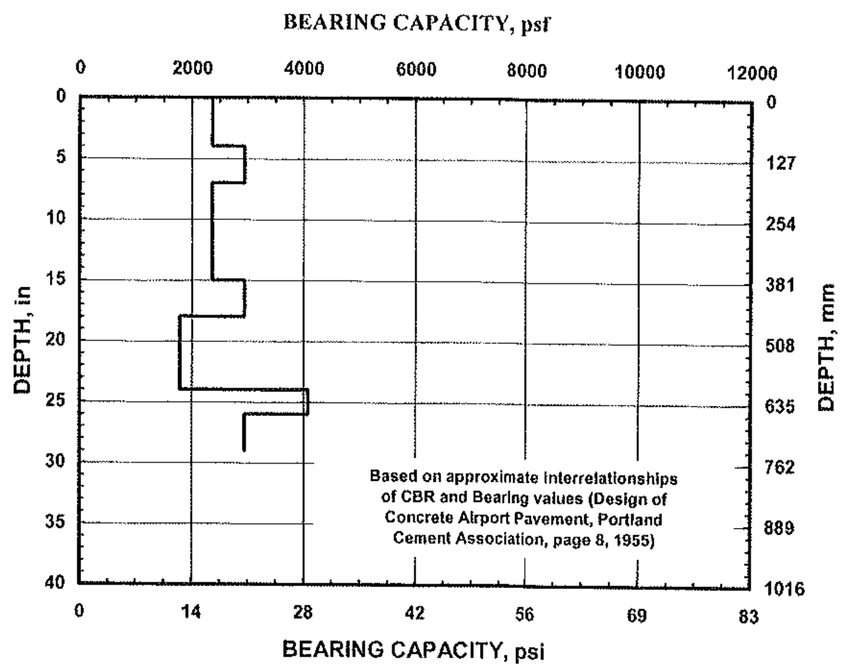
Date: 1-Oct-14
Soil Type(s): Gray Brown Silty Sand

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	101.6	1
5	177.8	1
5	279.4	1
5	381	1
5	457.2	1
5	609.6	1
5	660.4	1
5	736.6	1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1





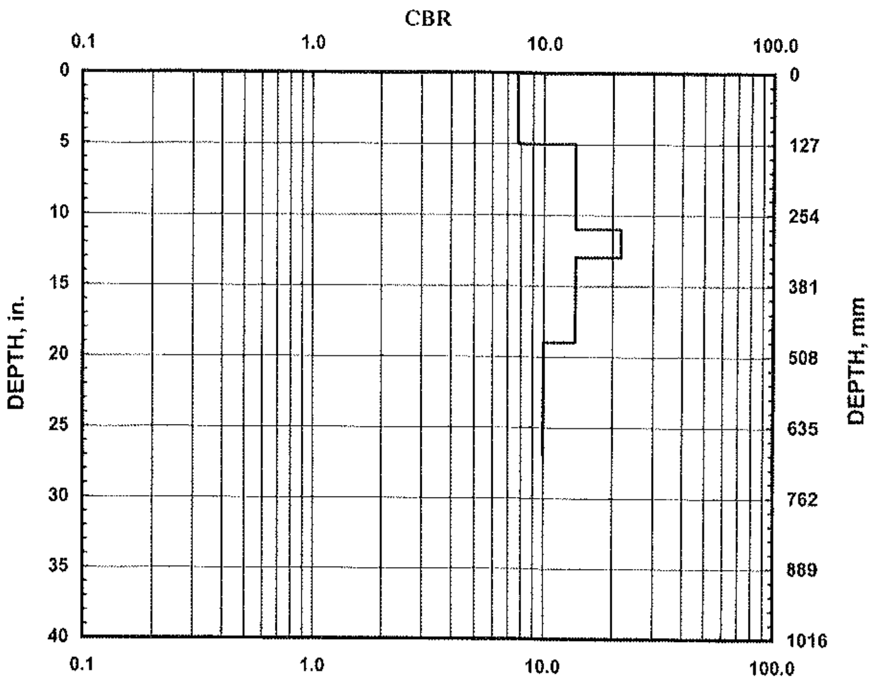
DCP TEST DATA

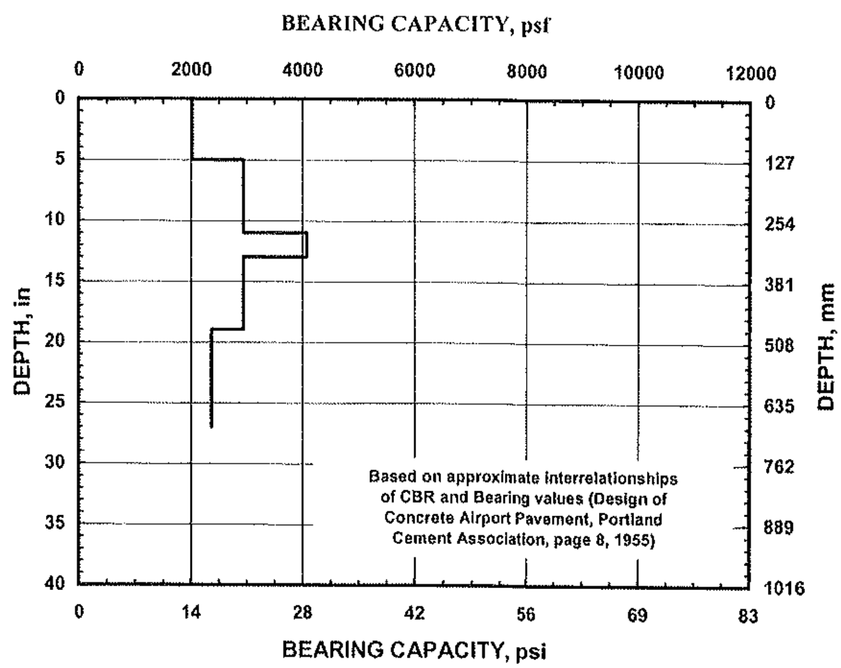
Project: *Calabash Lakes* Date: 1-Oct-14
Location: 4 Soil Type(s): Gray Brown Silty Sand

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	127	1
5	203.2	1
5	279.4	1
5	330.2	1
5	406.4	1
5	482.6	1
5	584.2	1
5	685.8	1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1





DCP TEST DATA

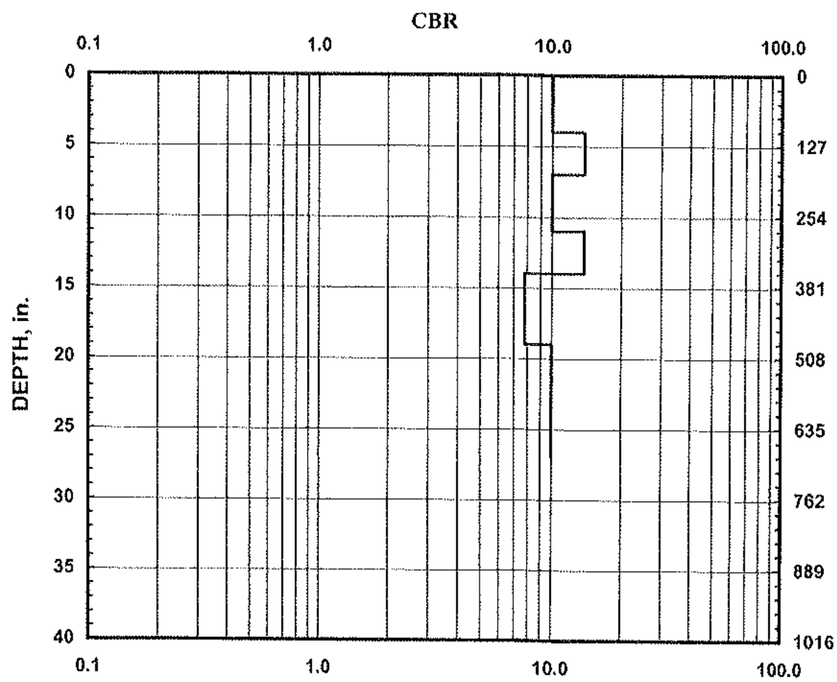
Project: *Calabash Lakes*
Location: 5

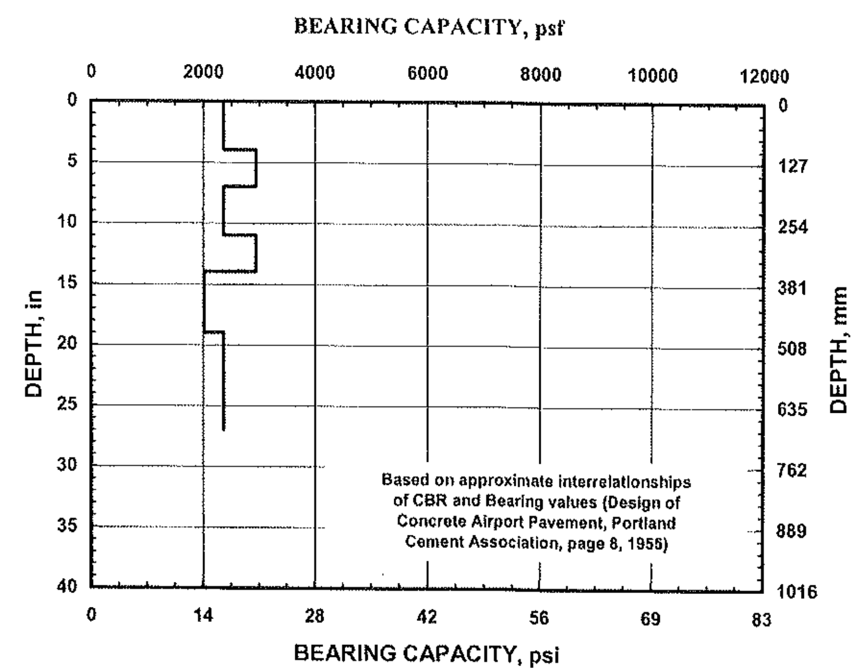
Date: 1-Oct-14
Soil Type(s): Gray Brown Silty Sand

Hammer
- ○ 10.1 lbs.
- ◉ 17.6 lbs.
- ○ Both hammers used

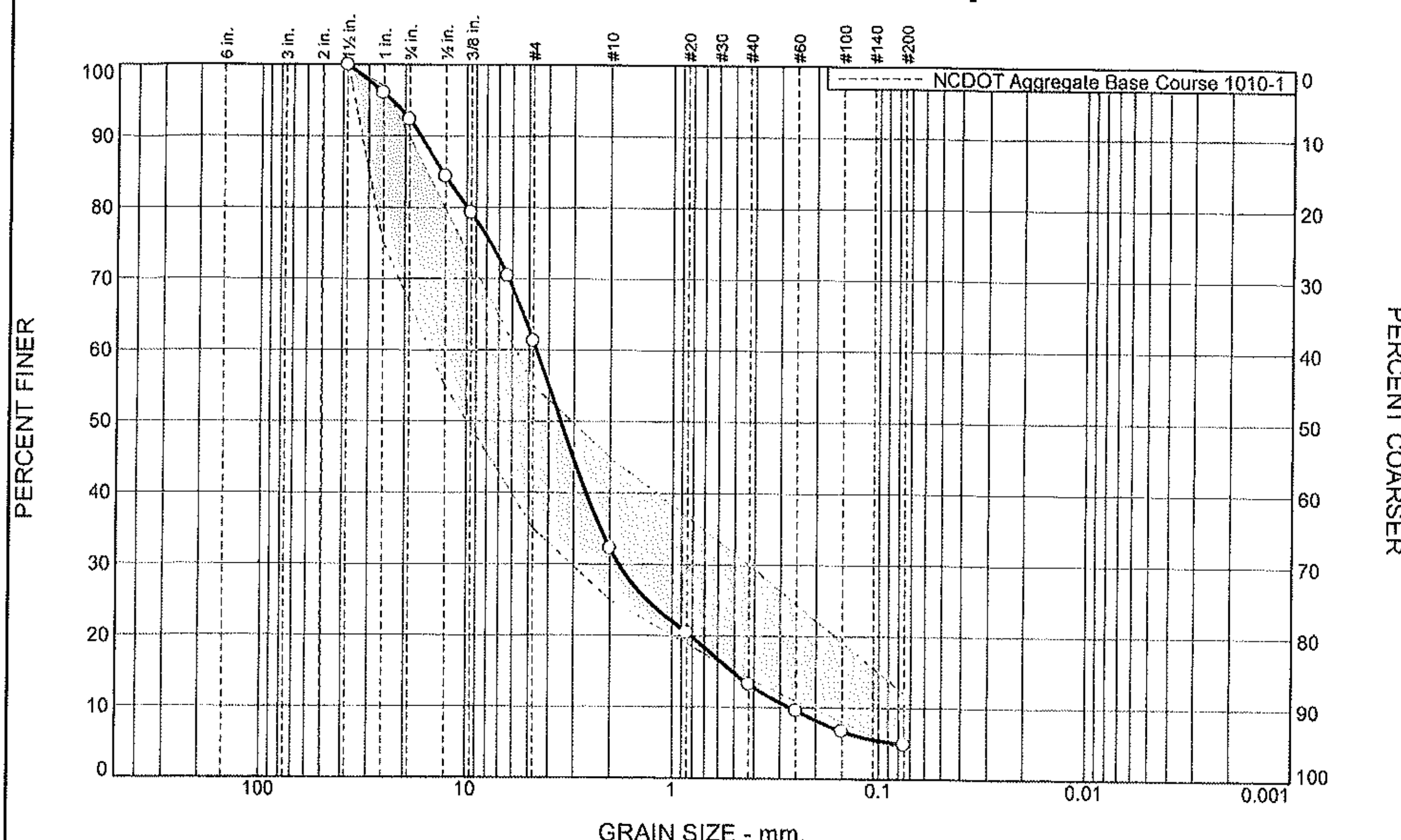
Soil Type
- ○ CH
- ○ CL
- ◉ All other soils

No. of Blows	Accumulative Penetration (mm)	Type of Hammer
0	0	1
5	101.6	1
5	177.8	1
5	279.4	1
5	355.6	1
5	482.6	1
5	584.2	1
5	685.8	1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1
		1





Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	7.7	31.0	29.1	19.0	8.4	4.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0	100.0	
1	96.0	75.0 - 97.0	
3/4	92.3		
1/2	84.4	55.0 - 80.0	X
3/8	79.2		
1/4	70.4		
#4	61.3	35.0 - 55.0	X
#10	32.2	25.0 - 45.0	
#20	20.5		
#40	13.2	14.0 - 30.0	X
#60	9.6		
#100	6.7		
#200	4.8	4.0 - 12.0	

* NCDOT Aggregate Base Course 1010-1

Soil Description

Gray, Well Graded Sand with Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.7669 D_{85}= 13.1241 D_{60}= 4.5801
D_{50}= 3.4781 D_{30}= 1.8115 D_{15}= 0.5116
D_{10}= 0.2681 C_u= 17.08 C_c= 2.67

Classification

USCS= SW AASHTO=

Remarks

F.M.=4.73

Source of Sample: Roadway **Depth:** 0.00-1.00
Sample Number: S-1

Date: 10/6/14

ECS CAROLINAS, LLP
6714 Netherlands Drive
Wilmington, NC 28405
Phone: (910) 686-9114
Fax: (910) 686-9666

Client: D.R. Horton
Project: Calabash Lakes Road Testing
Project No: 21632 **Figure**

Tested By: EG **Checked By:** KEL

COMPACTION TEST REPORT

Curve No.: S-1

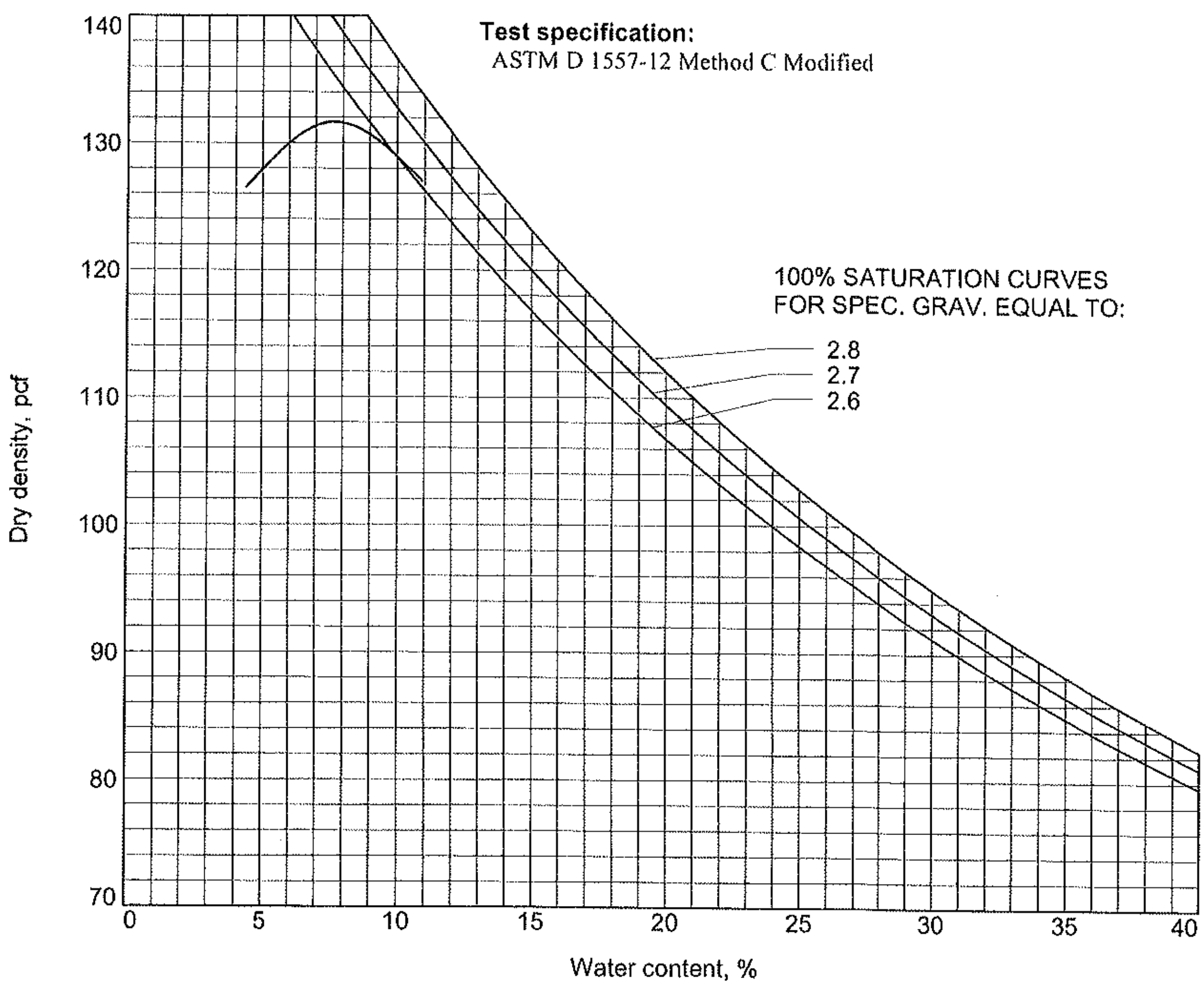
Project No.: 21632 **Date:** 10/2/14
Project: Calabash Lakes Road Testing
Client: D.R. Horton
Source of Sample: Roadway **Depth:** 0.00-1.00
Sample Number: S-1
Remarks:

MATERIAL DESCRIPTION

Description: Gray, Well Graded Sand with Gravel

Classifications - **USCS:** SW **AASHTO:**
Nat. Moist. = **Sp.G. =** 2.60
Liquid Limit = **Plasticity Index =**
% < No.200 = 4.8 %

TEST RESULTS
Maximum dry density = 131.6 pcf
Optimum moisture = 7.7 %



Figure

ECS Carolinas, LLP

Tested By: EG **Checked By:** KEL