CK-T-1-84

CDM
environmental engineers, scientists, planners, & management consultants

CAMP DRESSER & McKEE INC.
2001 Northwest 62nd Street
Post Office Box 9626
Fort Lauderdale, Florida 33310
305 776-1731

March 9, 1984

Mr. William Hoffman
Senior Geologist
North Carolina Department
of Natural Resources and
Community Development
P.O. Box 27687
Raleigh, NC 27611

Deep Test Boring Ocean Sands
Development, Outer Banks,
Currituck County, North Carolina

Dear Mr. Hoffman:

As per your request, enclosed are two copies of the lithologic log for the above referenced borehole. I have reviewed the available literature of the area and have attempted to select formational names based on the lithology, geophysical logs and stratigraphic interpretations. No effort was made for micro-paleontological determinations of time stratigraphic units. The interpretations are certainly open for discussion and are to be used solely to assist in your evaluation of the geology of the borehole data.

The surficial sand, clays, and shell to depth of 128 feet below land surface (bls) are thought to be of Pleistocene and Holocene age. The clay unit is probably of Miocene age, upper Miocene (Yorktown Formation) and the middle Miocene (Pungo River Formation). The formation break between these two units was indistinguishable. The units run from 128 feet bls to 894 feet bls. The base of the middle Miocene is marked by a phosphatic rubble zone, indicated by high gamma counts on the gamma ray log. Underlying the clay sediments is most probably the Castle Hayne Formation (Eocene) which was encountered at 894 feet.

We request an additional set of finalized geophysical logs to be sent to us. The copy previously sent was forwarded to McDowell and Associates, Inc.

Sent - 3/15/84 · 1 set Logs from CK-T-1-84
John Nicholson

Please do not hesitate to contact us if you have any questions regarding the lithologic log.

Sincerely,

CAMP DRESSER & McKEE INC.

Gerhardt M. Witt, P.G.
Hydrogeologist

GMW/sc

Enclosures

File: 6081-01-RT

cc: Mr. W. P. McDowell
Mr. J. L. Roberts
Mr. R. C. Johnson

GEOLOGIC LOG OF DEEP TEST WELL
OCEAN SANDS DEVELOPMENT - CURRITUCK COUNTY
NORTH CAROLINA

Depth (ft.)	Geologic Description
0-3	Sand - white, fine grained, quartz
3-12	Sand - brown, fine grained, quartz
12-14	Sand - black, very fine grained, quartz
14-16	Sand - black, very fine grained, quartz; woodchips
16-20	Organic Soils
20-32	Sand - black, fine grained, quartz; shells fragments
32-46	Sand - gray, fine grained, quartz; shell fragments
46-50	Shells and Sand, coarse shells, with sand, quartz, medium grained, unit took water
50-78	Sand - gray, fine to very fine grained, quartz, shell fragments
78-89	Clay - dark gray, large shells, limestone fragments
89-100	Sand - gray, medium to fine grained, quartz, trace of shells, trace of limestone
100-107	Clay - light gray, shells, sand, limestone
107-112	Sand - gray, quartz, shell, limestone
112-128	Clay - gray, sand, quartz
128-132	Clay - gray, soft, pliable
	Note sample interval from 0 - 132 feet are a composite of the driller's log and CDM geologist's descriptions of the samples.
132-161	Clay - blue-green, soft, silty to sandy; trace of shell fragments
161-181	Clay - blue-green, soft, sandy to silty; 10 percent shell fragments.
181-198	Clay - blue-green, soft, silty; sand, very fine grained, phosphatic

198-210	Clay - blue-green, soft, silty to sandy, phosphatic; 20 percent shell and shell fragments, Turritella sp.
201-215	Clay - blue-green, silty to sandy, phosphatic; 15 percent shell fragments, Turritella sp.
215-221	Shells - Turritella sp; Sand - fine grained, subround to round, quartz; sand - black medium grained, round, phosphatic
221-281	Clay - gray-green, soft; 30 percent quartz sand and phosphate, grades to silty; traces of Turritella sp.
281-301	Clay - gray-blue, soft, sandy to silty; streaks of white marl intermixed in the clay
301-321	Clay - gray-green, soft; trace of shell fragments
321-361	Clay - gray-green, extremely soft, sample being turned into drilling mud
361-386	Clay - gray-green, soft, sandy to silty, phosphatic; 5 percent shell fragments
386-387	Shale - green, very hard, good induration; oyster shell fragments; Turritella sp (recirculated?)
387-395	Clay - gray-green, soft, silty, phosphatic; trace of shell fragments
395-396	Hard - no returns from this interval - probably shale layer
396-465	Clay - gray-green, soft, silty, phosphatic, trace of shell fragments
465-466	Hard - no sample from this interval, probably shale layer
466-490	Clay - gray-green, soft, silty, phosphatic
490-491	Hard - no sample, drill bit is pulverizing the samples, probably shale
491-521	Clay - gray-green, soft, silty, phosphatic
521-620	Clay - gray-green, soft; trace of silt
620-655	Clay - gray-green, soft; trace of shell fragments
655-659	Sand - off-white, coarse grained, subround to subangular, frosted quartz; trace of shell fragments

659-760	Clay - gray-green, soft, silty, phosphatic, trace of sand
760-780	Sand - off-white, medium to fine grained, round to subround, quartz, trace of phosphatic sand; Clay mixed throughout interval, stringers of sand and clay; no potential for water development
780-800	Clay - gray-green, soft, dense, silty
800-820	Clay - gray-green, soft, dense, silty, sandy phosphatic
820-860	Clay - green, soft, dense
860-884	Clay - green, soft, dense, silty, sandy; trace of shell fragments in clay matrix
884-894	Sand - off-white, medium to coarse grained, quartz; sand - black, medium to coarse grained phosphatic; 50 percent shells hole pelecypods
894-899	Calcareous Sandstone - gray, medium to coarse grained, round to subround, good to excellent induration, very hard quartz
899-920	Calcareous Sandstone - gray, medium to fine grained, quartz; phosphatic, penetration 22 minutes per foot
920-940	Calcareous Sandstone - gray, medium to fine grained, quartz; shell fragments; taking some fluid, penetration rate 6 minutes per foot.

North Carolina Department of Natural Resources & Community Development
James B. Hunt, Jr., Governor
Joseph W. Grimsley, Secretary

DIVISION OF LAND RESOURCES
Stephen G. Conrad, Director
Telephone 919 733-3833

CK-T-1-84

January 11, 1984

Mr. Raymond Magette
Post Office Box 451
Ahoskie, North Carolina 27910

Dear Raymond:

In reply to your inquiry, enclosed is a map of Currituck County. It shows the location of the well nearest to Corolla for which we have good data. Also enclosed is a log of the well (an oil test) that shows the lithic units penetrated, the formations encountered, and a lithic "key". I would expect these same lithic units to be present at Corolla but, perhaps ± 75 feet closer to land surface. All of this information is from U. S. Geological Survey Professional Paper 796, published in 1972 but now out of print. Your brother has a copy if you are interested.

If you drill a thousand feet at Corolla, we would like a cut of the samples and would be available to run geophysical logs of the hole if you wish. In this event please call Bill Hoffman (919) 733-7353, who is in charge of our Coastal Plain operation.

With best regards.

Sincerely yours,

Phil

Philip M. Brown
Chief Geologist

PMB/mkp

Enclosures: Map of Currituck County
Professional Paper 796
Rock Types "Key"

COPY

cc: Bill Hoffman


STATES
OF THE INTERIOR
CAL SURVEY
CK-T-1-84
MOSSEY ISLANDS
7.5
DEPARTMENT OF NAT
AND COMMUNITY
RALEIGH, NORTH
423
424
425
50'
COROLLA 0.3 KM
426
Light
Currituck Beach
Whale Head Bay
Whale Head Hill
Light
Great Beach Pond
Shifting Sand
Peters Quarter
CK-T-1-84
Thorofare Island
Northeast Pond
Thorofare
Brant Island
Brant Island Pond
Sanders Bay
Research
Long Pond
Swan Island

CK-T-1-84

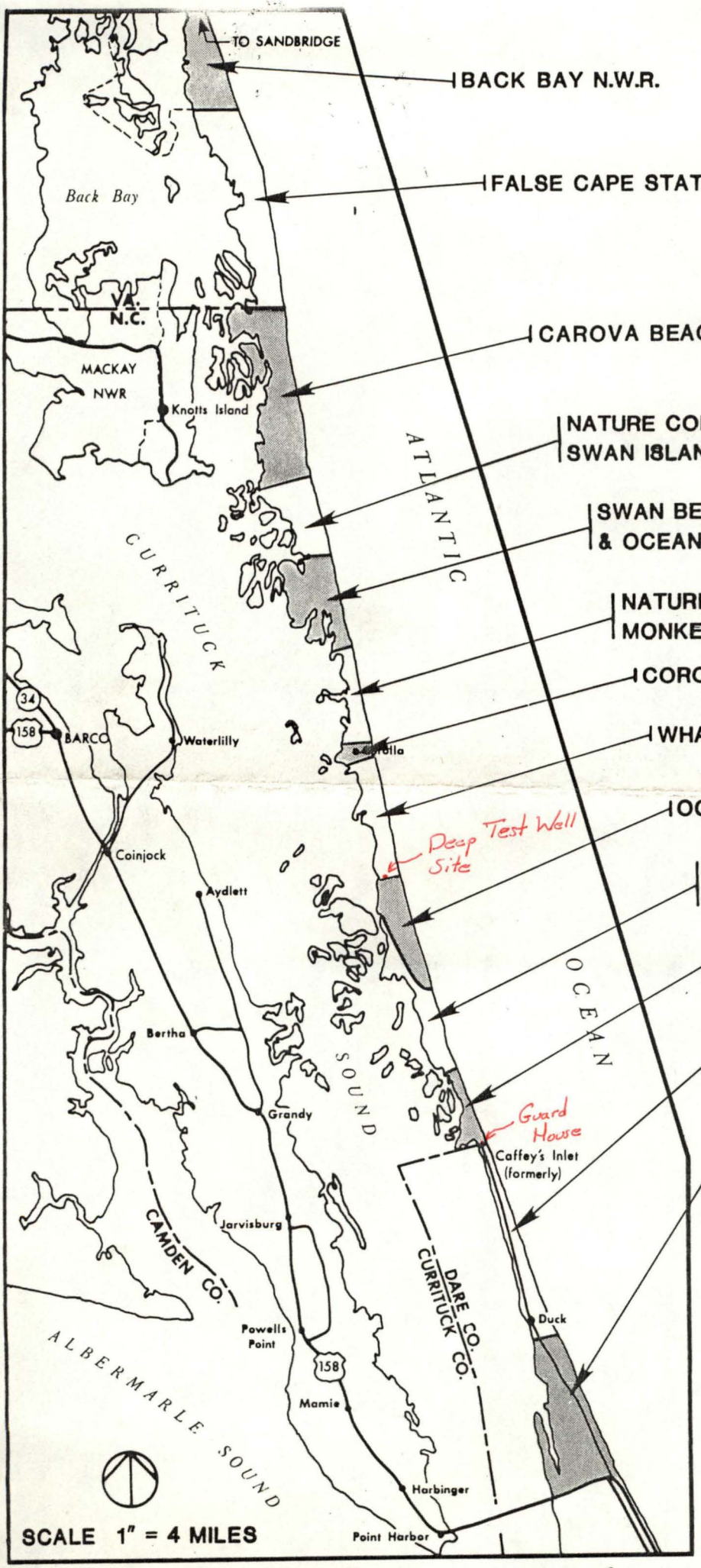

FIGURE II-1

LAND OWNERSHIP AND DEVELOPMENT AREAS, CURRITUCK OUTER BANKS