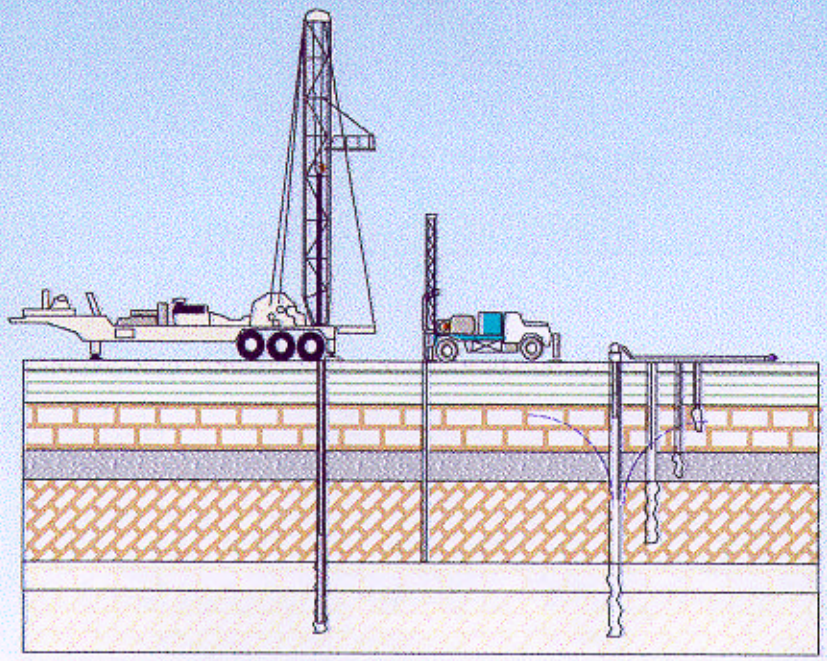
ROMP 13 TIPPEN BAY
MONITOR WELL SITE
DESOTO COUNTY, FLORIDA

VOLUME ONE

CORE DRILLING AND TESTING



Geohydrologic Data Section
Resource Data Department
Southwest Florida Water Management District
August 1997

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VOLUME ONE

CORE DRILLING AND TESTING

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August 1997

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VOLUME ONE

CORE DRILLING AND TESTING

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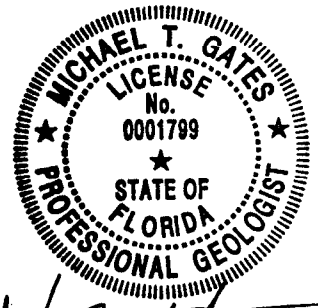
The geological evaluations and interpretations contained in the *ROMP 13 Core Drilling and Testing Report* have been prepared by or approved by a Certified Professional Geologist in the State of Florida, in accordance with Chapter 492, Florida Statutes.



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Date: 8-14-97

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1.0 INTRODUCTION

The ROMP 13 (WRAP S-4) Tippen Bay well site is one of six Regional Observation and Monitor-Well Program (ROMP) well sites constructed for the Southern District Water Resource Assessment Project (SDWRAP). The SDWRAP is a long-term study of the ground-water systems in Desoto County, Hardee County, and portions of Charlotte, Polk, and Sarasota Counties (Figure 1).

The ROMP 13 well site was obtained by the Southwest Florida Water Management District (SWFWMD) in November 1993 for construction of a multiple well monitor site. Drilling, testing, and monitor well construction at ROMP 13 was planned in several phases. The data collected during these phases is presented as a three-volume report: Volume One - **Core Drilling and Testing**, Volume two - **Exploratory Drilling and Testing**, Volume Three - **Monitor Well Construction and Aquifer Performance Testing**.

The first phase, initial coring from land surface to 1,544 feet (ft) below land surface (bls), began January 1994 and was completed in June 1994. The next phase of work, deep exploratory drilling (below 1,544 ft bls) and testing and monitor well construction was initiated in November 1995. The exploratory drilling and testing were completed in June 1996 and monitor well construction was completed in August 1996. The last phase of work at ROMP 13, aquifer performance testing, began in December 1996 and was completed in August 1997. This report, **Volume One - Core Drilling and Testing**, presents the data collected from the core drilling and testing at ROMP 13.

2.0 SITE LOCATION

The ROMP 13 (WRAP S-4) Tippen Bay well site is located in Desoto County, approximately 20 miles (32 km.) southeast of Arcadia (Figure 2). ROMP 13 is located along the south west coast of Tippen Bay in the southwest quarter of the northeast quarter of Section 21 , Township 39 South, Range 27 East, at latitude 27° 04' 17" , longitude 81° 36' 57" (Figure 3). Land surface elevation at the well site is approximately 60 ft above the National Geodetic Vertical Datum of 1929 (NGVD).

3.0 DATA COLLECTION METHODS

Hollow-stem auger, wire-line coring, and mud rotary drilling methods were used to collect lithologic and aqueous samples with depth. The hollow-stem auger method was used initially in the unconsolidated surficial sediments. The wire-line coring method was employed after encountering competent limestone. The mud-rotary method was used to install casing at various locations to advance the core-hole. A stainless steel bailer was used to collect the ground-water samples while drilling. All ground-water samples were collected in accordance with ROMP Water Quality Sampling Protocol.

3.1 LITHOLOGIC SAMPLING

Drilling at ROMP 13 during the coring phase of work was performed with the District-owned Central Mine Exploration (CME) 75 core drilling rig. Continuous cores were collected from land surface to 1,544 ft bls from January 1994 to June 1994. Figure 4 presents a diagram of the core drilling apparatus.

Hollow-stem augers and a split spoon sampler were used to collect unconsolidated lithologic samples from land surface to 44 ft bls. Hard limestone was encountered at 49 ft bls. Augering was terminated at 49 ft bls. The auger hole was back-plugged from 49 ft bls to 26 ft bls with bentonite pellets. Six-twenty grain size silica sand was then placed into the bore hole from 26 ft to 24 ft bls. Nineteen feet of 4.0- inch diameter polyvinyl-chloride (PVC) (24 ft bls to 5 ft bls) screen and seven feet of 4.0-inch diameter PVC casing (2ft als to 5 ft bls) was installed in the borehole. A temporary surficial aquifer water supply well was constructed (Figure 5).

Following the completion of the temporary surficial aquifer water supply well, a 17-inch diameter bore hole (Corehole No.1) was drilled from land surface to 44 ft bls using the mud-rotary method . Cuttings during mud rotary drilling were collected at intervals of five feet. Twelve-inch diameter PVC was installed to 42 ft bls and grouted in place. Four inch diameter HW steel casing was installed to the bottom of the twelve-inch PVC casing at 42 ft bls. A 5 5/8-inch pilot-hole was advanced from 42 ft bls to 199 ft bls. The pilot-hole was terminated at 199 ft bls and HW casing was installed. A bentonite slurry was installed in the annulus of the HW casing to seal borehole. A 3 3/4-inch tri-cone bit was installed in the HW casing and rotary drilling continued to a depth of 337 ft bls. The hole was then air developed to remove mud and cuttings introduced during the mud rotary drilling process. This hole was converted to a core drilling water supply well (Figure 6A).

Subsequent to the completion of the new core drilling water supply well, the CME rig moved to a new corehole location. A new 18-inch bore hole (Corehole No.2) was drilled to 39 ft bls and 40 ft of 12-inch schedule 40 PVC casing was grouted in place. A pilot-hole was initiated at 39 ft bls with a 5 5/8-inch bit and continued to a depth of 74.5 ft bls. HW casing was installed at 78 ft bls and coring resumed to 214 ft bls. The HW casing was pulled from the core hole and a 7 5/8-inch bit was used to ream the bore hole from land surface to 205 ft bls. Stiff clay was encountered at 205 ft bls. HW casing was then re-installed to 208 ft bls. A mud slurry mixture composed of water and bentonite was then pumped into the annulus of the HW casing and 7 5/8-inch bore hole. Coring was terminated at a total depth of 1544 ft bls. This bore hole was later converted to a Temporary Dual Zone Intermediate Observation Well (Figure 7).

Following the completion of the Temporary Dual Zone Intermediate Observation Well, the CME drill rig set up on the new core drilling water supply well. The borehole was initially cored to a depth of 337 ft bls with a 3 3/4-inch drill bit and then reamed to 199 ft bls with a 5 5/8-inch drill bit. Mud-rotary drilling resumed from 199 ft to 788 ft bls using a 5 5/8-inch drill bit. One-hundred and ten feet of 2.0-inch diameter schedule 40 PVC screen (670 ft to 780 ft bls) and six-hundred and seventy feet of schedule 40 PVC casing was installed into the borehole. A 6/20-grain silica sand was then installed into the borehole from 785 ft to 660 ft bls. The core hole was then grouted from land surface to 660 ft bls to complete the construction of a Suwannee Temporary Observation Well (Figure 6B).

3.2 GROUND-WATER SAMPLING

Split ground-water samples were collected at 20 ft to 40 ft intervals from land surface to 1,544 ft bls while advancing the core-hole. Sample intervals are determined by changes in lithology, water quality or water levels during drilling. One sample was analyzed in the field for temperature, specific conductance, pH, chloride, sulfate, and density. The other sample was delivered to the District Environmental Chemistry Laboratory for more extensive analyses. Chain-of-Custody forms were used to track the samples. Results of the ground-water sample analyses are presented in Section 6.0

Ground-water samples were collected using a 12.0 ft / 1.66-inch diameter stainless steel bailer containing a top and bottom check ball (Figure 8). Following airlifting (displacing water in the borehole by discharging air into the core rods) the bit is lowered to near bottom. The bailer is then lowered through the core rods, on a wire-line to the bottom of the drill string and retrieved. The bailer samples are generally representative of the water quality at depth, due to a moderate level of control provided by the check ball system of the bailer. However, these samples can be affected by water contribution from up-hole permeable beds. Table 1 presents the results of the ground-water samples analyzed by the District Environmental Chemistry Laboratory. Table 2 presents the results of the ground-water samples analyzed in the field.

3.3 GEOPHYSICAL LOGGING

Borehole geophysical logs were collected at ROMP 13 during various stages of core drilling and well construction to a total depth of 1,544 ft bls. Geophysical logs are used to delineate hydrogeologic units, characterize water quality, and to calculate the amount of well construction materials. Table 3 presents a summary of the geophysical logs run during core drilling at ROMP 13. Figures 9, 10, and 11 present geophysical logs run at various stages of core drilling. All logs were run with the Districts digital geophysical logging equipment and are archived with the ROMP 13 File of Record. The geophysical logs run during core drilling are identified below:

CALIPER	Three-arm caliper
GAM (NAT)	Natural Gamma
SP	Spontaneous Potential
RES (16N)	16" Normal resistivity
RES (64)	64" Normal resistivity
RES SUITE	Single point resistance (16", 64" Normal, lateral log)

RES (FL)	Fluid Resistivity
SP COND	Specific Conductance-fluid
TEMP	Temperature-fluid
IND	Induction

4.0 GEOLOGY

The ROMP 13 Tippen Bay well site is situated along the Gulf Coastal Lowlands physiographic province, a division of the Mid-Peninsular zone of the Floridan Peninsula (White, 1970). The wellsite is located on the Desoto Plain within the Peace River Basin. The approximate elevation of the wellsite is 60 ft (NGVD). The geomorphology encompassing the wellsite consists of several marine terraces indicative of Central Florida. ROMP 13 lies within the Penholoway Terrace (42 ft to 70 ft above land surface), which abuts the Wicomico Terrace to the northwest. The Penholoway Terrace is a dissected narrow band of Pliocene continental deposits formed due to wave erosion and deposition along the coastal region (White, 1970).

4.1 STRATIGRAPHY

The stratigraphy at ROMP 13 well site was defined from descriptions of lithologic samples collected during coring from land surface to a total cored depth of 1,544 ft bls. A generalized geologic and hydrostratigraphic framework of the ROMP 13 wellsite is presented in Figure 12. The following sections outline the lithology of the well site. The lithologic log for ROMP 13 is presented in Appendix A.

4.1.1 Undifferentiated Surficial Deposits (Quaternary-Tertiary System)

The uppermost geologic unit at ROMP 13 are the undifferentiated surficial deposits of the Pliocene to Holocene age. These deposits are described from land surface to 49 ft bls. The lithology is comprised of unconsolidated, grayish to yellowish brown, angular to sub-angular, very fine to medium grained quartz sands, variably iron stained, with variable amounts of clay and organics.

4.1.2 Peace River Formation (Tertiary System)

Underlying the undifferentiated surficial deposits, is the Peace River Formation, which is part of the Hawthorne Group of Miocene to Pliocene age marine siliciclasitic deposits. The Peace River Formation extends from 19 ft to 207.5 ft bls and consists of unconsolidated, very fine to fine quartz sands, and minor phosphatic clayey stringers. Thin limestone beds were encountered from 58 ft to 207.5 ft bls. The limestone beds were comprised of a white, grayish to yellowish gray, microcrystalline to cryptocrystalline calcilutite to a very fine grained calcarenite. Also described in the Peace River Formation were fossil fragments of mollusks, worm traces, sharks teeth, algae, and diatoms.

4.1.3 Arcadia Formation (Tertiary System)

The Arcadia formation is part of the Hawthorn Group of Middle-Miocene age and underlies the Peace River Formation (Scott,1988). This formation includes the Tampa and Nocatee Members in some areas of South Florida. The Arcadia Formation at ROMP 13 is described from 207.5 ft to 704 ft bls. The Tampa member was not present at this wellsite, but the Nocatee Member was described from 581 ft to 704 ft bls. The upper zone of the Arcadia Formation is characterized by white to moderate gray microcrystalline calcilutite, interbedded sandstone and dolostone, clay stringers, and minor amounts of phosphatic sands. Other features include fossils of mollusks, echinoids, corals, and benthic foraminifera. The Nocatee Member is characterized by fine, light gray to dark olive gray interbedded sands, sandstones and mudstones. Also, compositions of limestone vary from light gray to yellowish gray, microcrystalline to coarse grained calcilutite and calcarenite. Other features include fossil fragments of mollusks miliolids, crustacea, and shark teeth.

4.1.4 Suwannee Limestone (Tertiary System)

The Suwannee Limestone (704 ft to 777 ft bls) lies below the Arcadia Formation and is Oligocene in age. The Suwanee Limestone is usually distinguished from the overlying Arcadia Formation by the absence of phosphatic sand. The Suwannee Limestone consists of porous, chalky, light gray to light orange, microcrystalline to fine grained, fossiliferous calcarenite. Fossils fragments include mollusk molds, worm traces, miliolds, and benthic foraminifera.

4.1.5 Ocala Limestone (Tertiary System)

The Ocala Limstone was described from 777 ft to 1,054 ft bls and is Upper Eocene in age. The limestone is composed of microcrystalline to very fine, light orange to yellowish gray, chalky, interbedded fossiliferous calcilutite and calcarenite. Permeability within the Ocala Limestone at ROMP 13 was low (10-15%) due to its calcilutitic matrix. Fossils included benthic foraminifera, mollusk fragments, echinoids, and coral fragments.

4.1.6 Avon Park Formation (Tertiary System)

The Avon Park Formation is described from 1,054 ft to the final coring depth of 1,544 ft bls. The formation is characterized by yellowish gray to light orange, fractured, microcrystalline to medium grained calcaranite. Interbedded wackestone, packestone, and dolostone were present, as were thinly bedded dolosilt stringers. Fossils present in the Avon Park Formation included fragmented benthic foraminifera, mollusks, worm traces, echinoids, and corals.

5.0 HYDROLOGY

The Hydrogeology of the ROMP 13 Tippen Bay well site was delineated during the wire-line coring and exploratory drilling processes. Lithological descriptions, potentiometric levels, and water quality data enabled specific aquifer systems to be defined. During the coring process water level changes were recorded periodically. Figure 13 presents water level changes versus depth from land surface to a total cored depth of 1,544 ft bls.

5.1 SURFICIAL AQUIFER SYSTEM

The surficial aquifer system contains unconsolidated surfical and terrace sand deposits from 0 ft to 19 ft bls. The base of the aquifer overlies a confining zone comprised of interbedded clay and sand stringers extending to 49 ft bls. Water within the surficial aquifer system generally is unconfined, however weak semi-confined layers can exist, confining local ground waters (SWFWMD, 1988). The water level within the surficial aquifer fluctuates from one to five feet below land surface annually.

5.2 INTERMEDIATE AQUIFER SYSTEM

The intermediate aquifer system (IAS) is a confined hydrologic unit located between the overlying surficial aquifer system and the underlying Upper Floridan Aquifer. Two individual permeable zones were delineated in the aquifer system at ROMP 13. The permeable zones delineated at ROMP 13 are the middle intermediate and the lower intermediate. These two permeable zones were delineated from lithological analysis, water quality data, geophysical logs, and permeameter tests. A third upper permeable zone, sometimes present in some areas of Charlotte County, was not found at ROMP 13. The middle intermediate permeable zone is described from 275 ft to 420 ft bls. The lower intermediate permeable is described from 505 ft to 595 ft bls. The total thickness of the intermediate aquifer system is 655 ft, extending from 49 ft to 704 ft bls.

The intermediate aquifer system at ROMP 13 contains three distinct confining units within the Hawthorn group. The first unit separates the surficial aquifer and the middle permeable zone of the IAS and is comprised of sediments in the Peace River Formation and the undifferentiated Arcadia Formation. The second unit separates the middle permeable zone and lower permeable zone of the IAS and is comprised of sediments in the undifferentiated Arcadia Formation. The third unit separates the lower permeable zone of the IAS and the shallow permeable zone of the Upper Floridan and is comprised of sediments of the Nocatee Member in the Arcadia Formation. Such confining units retard vertical movement of the groundwater between the overlying surficial aquifer system and the underlying Upper Floridan Aquifer System. Lithology of these confining units consist of carbonate rock and discontinuous beds of clay and sand. The lithologies within the intermediate aquifer system is due to the variety of depositional environments that occurred in this region during the Pliocene and Miocene Epochs. The paleo-environments present were shallow water, open-marine, fluvial and estuarine processes (from Gilboy, 1985).

The potentiometric surface of the intermediate aquifer system at Romp 13 fluctuates seasonally from 16 ft bls to 10 ft bls. Figures 14 and 15 present a composite maps generated by the USGS which contains potentiometric contours based on synoptic measurements of water levels in hundreds of wells open to the intermediate aquifer system. Seasonal variations can cause fluctuations in the intermediate aquifer system potentiometric levels. Potentiometric levels within the intermediate aquifer system varied from 48 NGVD in September 1996 to 52 NGVD in May 1996, respectively (Figures 14 and 15). September water levels

are higher due to increased rainfall, subsequently leading to higher recharge within the underlying IAS. May water levels are lower, due to less rainfall and increased irrigation pumpage (Metz, 1995).

5.3 UPPER FLORIDAN AQUIFER

The Upper Floridan Aquifer at ROMP 13 is comprised of the Suwannee Limestone, Ocala Limestone and Avon Park Formation. The Upper Floridan Aquifer at ROMP 13 is sub-divided into the shallow permeable zone of the Upper Floridan Aquifer (704 ft to 777 ft bls) and the lower permeable zone of the Upper Florida Aquifer (1300 ft to a known total cored depth of 1544 ft bls). The lithology of the Upper Floridan Aquifer consists of limestone and interbedded dolostone with solution-fractures throughout the units. These solution-fractures are known to yield large quantities of water (SWFWMD, 1988). The shallow permeable zone of the Upper Floridan is overlain by the Nocatee Member confining unit and underlain by the Ocala Limestone and Avon Park Formation. The lower permeable zone of the Upper Floridan Aquifer is overlain by the Ocala Limestone and the slightly permeable beds of the Avon Park Formation.

The potentiometric surface of the Floridan Aquifer System at ROMP 13 fluctuates seasonally from 16 ft to 12 ft bls. Potentiometric maps prepared by the USGS indicate that the potentiometric levels within the Floridan Aquifer System varied from 48 ft NGVD in September 1996 to 44 ft NGVD in May 1996 (Figures 16 and 17). Water levels measured in the field during coring correlate with this data.

6.0 GROUND WATER-QUALITY

Water quality within aquifer systems are primarily affected by such factors as: chemistry of precipitation, composition and solubility of surficial material, fresh water/salt water interface, and surface water recharge (SWFWMD, 1988).

At ROMP 13, ground-water samples were collected from the surficial, intermediate, and shallow and lower permeable zones of the Upper Floridan Aquifers at 20 ft to 40 ft intervals while core drilling from land surface to 1544 ft bls.

Samples were collected utilizing the stainless steel bailer shown in figure 7. Laboratory and field results of ground-water quality samples are presented in Table 1 and 2. Figure 18 illustrates the trend of chloride/sulfate concentrations and specific conductance values of ground-water samples collected from land surface to 1544 ft bls while coring.

6.1 SURFICIAL AQUIFER SYSTEM

During coring, one ground-water sample was collected in the surficial aquifer system at 19 ft bls (Table 1). Chloride concentrations and Sulfate concentrations were 8 mg/l and 0 mg/l at 19 ft bls. Specific conductance concentration was 86 uMHOS/cm (Table 1).

6.2 INTERMEDIATE AQUIFER SYSTEM

Ground-water samples were collected at approximately 20 ft to 40 ft intervals while coring in the intermediate aquifer system (19 ft to 704 ft bls). Water quality in the middle permeable zone of the IAS (275 ft to 420 ft bls) is comparatively less mineralized than the lower permeable zone of the IAS (505 ft 595 ft bls).

The middle permeable zone sodium (<45 mg/l) and iron (0.145 mg/l) concentrations are well below the Florida State Secondary Drinking Water Standards. Chloride concentrations for samples collected within the middle permeable zone ranged from 31 mg/l at 284 ft bls to 35 mg/l at 394 ft bls. Sulfate concentrations ranged from 11 mg/l at 284 ft bls to 18 mg/l at 394 ft bls. Specific conductance concentrations ranged from 584 uMHOS/cm at 284 ft bls to 594 uMHOS/cm at 394 ft bls (Table 1 and 2).

The lower permeable zone water quality analyses indicate higher iron (0.446 mg/l) and sodium (>70 mg/l) concentrations. Chloride concentrations for samples collected within the lower permeable zone ranged from 31 mg/l at 524 ft bls to 38 mg/l at 599 ft bls. Sulfate concentrations decreased from 63 mg/l at 524 ft bls to 25 mg/l at 599 ft bls. Specific conductance concentrations ranged from 607 uMHOS/cm at 524 ft bls to 539 uMHOS/cm at 564 ft bls.

6.3 UPPER FLORIDAN AQUIFER

The Upper Floridan Aquifer (1300 ft to total cored depth of 1544 ft bls) is comprised of a shallow permeable zone (704 ft to 777 ft bls) and a lower permeable zone (1300 ft to a known total cored depth of 1544 ft bls). There are distinct water quality changes between the two permeable zones of the Upper Floridan aquifer. The transition from the lower permeable zone of the IAS into the shallow permeable zone of the Upper Floridan marks an increase in both chloride and sulfate concentrations. The transition from the shallow permeable zone of the Upper Floridan Aquifer to the lower permeable zone of the Upper Floridan Aquifer shows an increase in sulfate concentrations and a decrease in chloride concentrations.

Specific conductance values within both the shallow permeable zone and the lower permeable zone of the Upper Floridan Aquifer gradually increase with depth from 678 uMHOS/cm at 699 ft bls to 858 uMHOS/cm at 1544 ft bls. Chloride concentrations in the shallow permeable zone and the lower permeable zone of the Upper Floridan Aquifer range from 93 mg/l at 699 ft bls to 104 mg/l at 1544 ft bls, respectively. Sulfate concentrations in the permeable zones range from 64 mg/l at 699 ft bls to 88 mg/l at 1544 ft bls, respectively. Overall, chloride and sulfate concentrations at ROMP 13 gradually increase with depth.

7.0 HYDRAULIC DATA

Falling head permeameter tests were run on eight individual core samples collected at ROMP 13 Tippen Bay. Core samples were collected from the Peace River Formation, Arcadia Formation, Ocala Limestone, and Avon Park Formation. The samples were collected in order to calculate vertical hydraulic conductivity within the Intermediate and Upper Floridan Aquifer. These tests will assist in determining the confining properties within and between permeable zones of the intermediate and Upper Floridan Aquifer. Table 4 presents the results of the permeameter tests. Additional hydraulic data will be presented in **Volume three: Monitor Well Construction and Aquifer Performance Testing**.

8.0 SUMMARY

The ROMP 13 Tippen Bay well site is one of six Regional Observation and Monitor-Well Program (ROMP) well sites constructed for the Southern District Water Resource Assessment Project (SDWRAP).

The first phase, initial coring from land surface to 1,544 ft bls began January 1994 and was completed in June 1994. Wire-line coring was initiated to collect lithologic samples from land surface to a total cored depth of 1,544 ft bls. Split ground-water samples were collected on regular 20 ft to 40 ft intervals using a stainless steel bailer during advancement of the corehole. Water levels within the borehole varied from 3 ft to 17 ft bls during coring. Borehole geophysical logs were collected at ROMP 13 during various stages of core drilling and well construction.

Hydrogeological units were delineated by lithologic samples, potentiometric levels, and water quality data. Hydrologic results show an unconfined surficial aquifer, an artesian (confined) intermediate aquifer system consisting of two permeable zones, and an Upper Floridan Aquifer consisting of two permeable zones. Ground-water quality of the surficial aquifer is within potable limits established by Florida State Drinking Water Standards. Water quality within the intermediate aquifer varied with increased depth, but generally exceeded potable limits. The water quality within the shallow permeable zone of the Upper Floridan Aquifer exceeds the potable limits and mineralization increases with depth in the lower permeable zone of the Upper Floridan Aquifer.

Several temporary observation wells were constructed at ROMP 13 Tippen Bay upon completion of the coreholes. A four-inch temporary surficial aquifer observation well was constructed from 2 ft als to 24 ft bls. A two-inch suwannee temporary observation well was constructed from land surface to 780 ft bls. A two-inch dual intermediate observation well was constructed within the middle permeable zone (275 ft to 420 ft bls) and lower permeable zone of the IAS (505 ft to 590 ft bls). This corehole was back plugged from 1,544 ft to 595 ft bls.

9.0 REFERENCES

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FIGURES

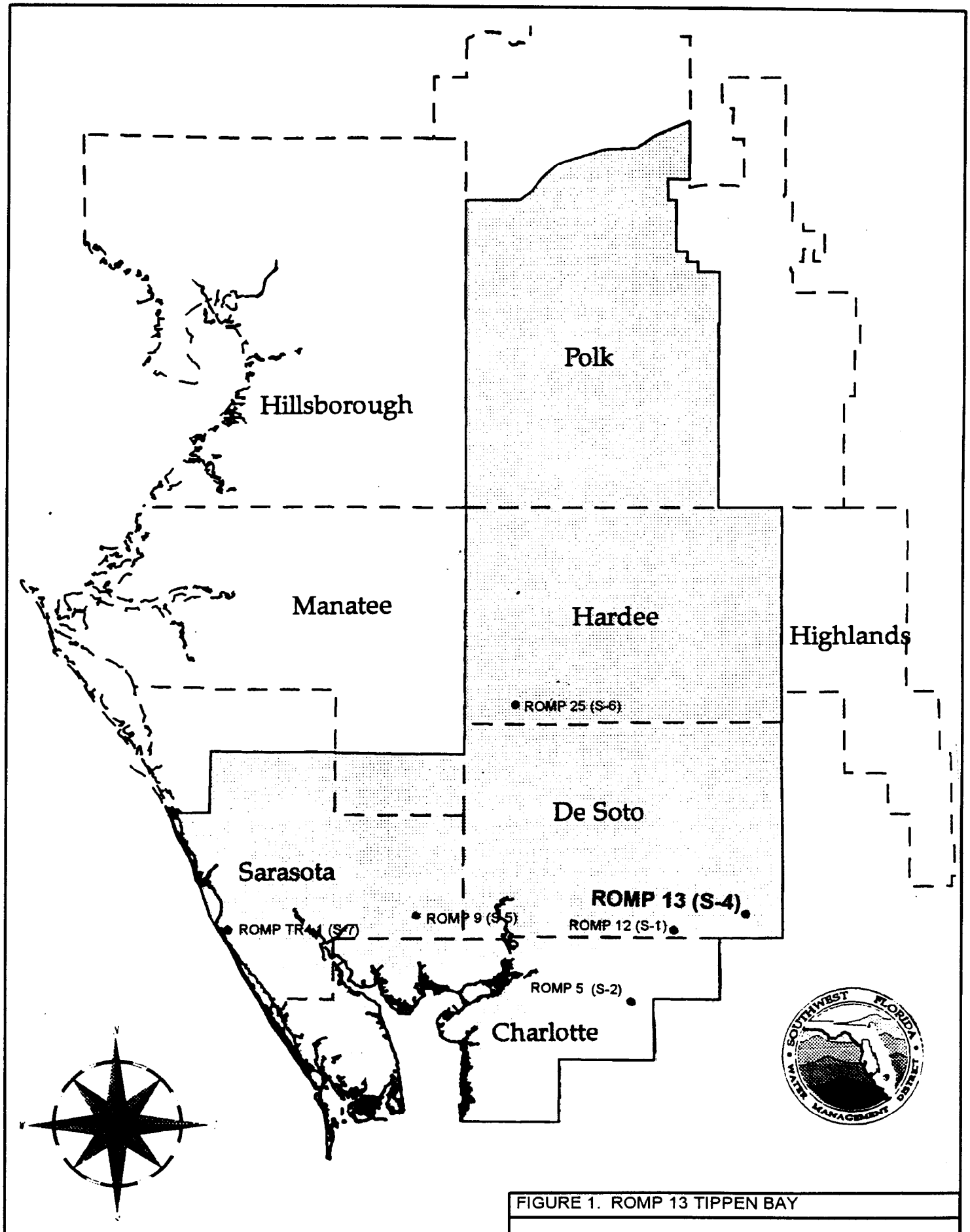
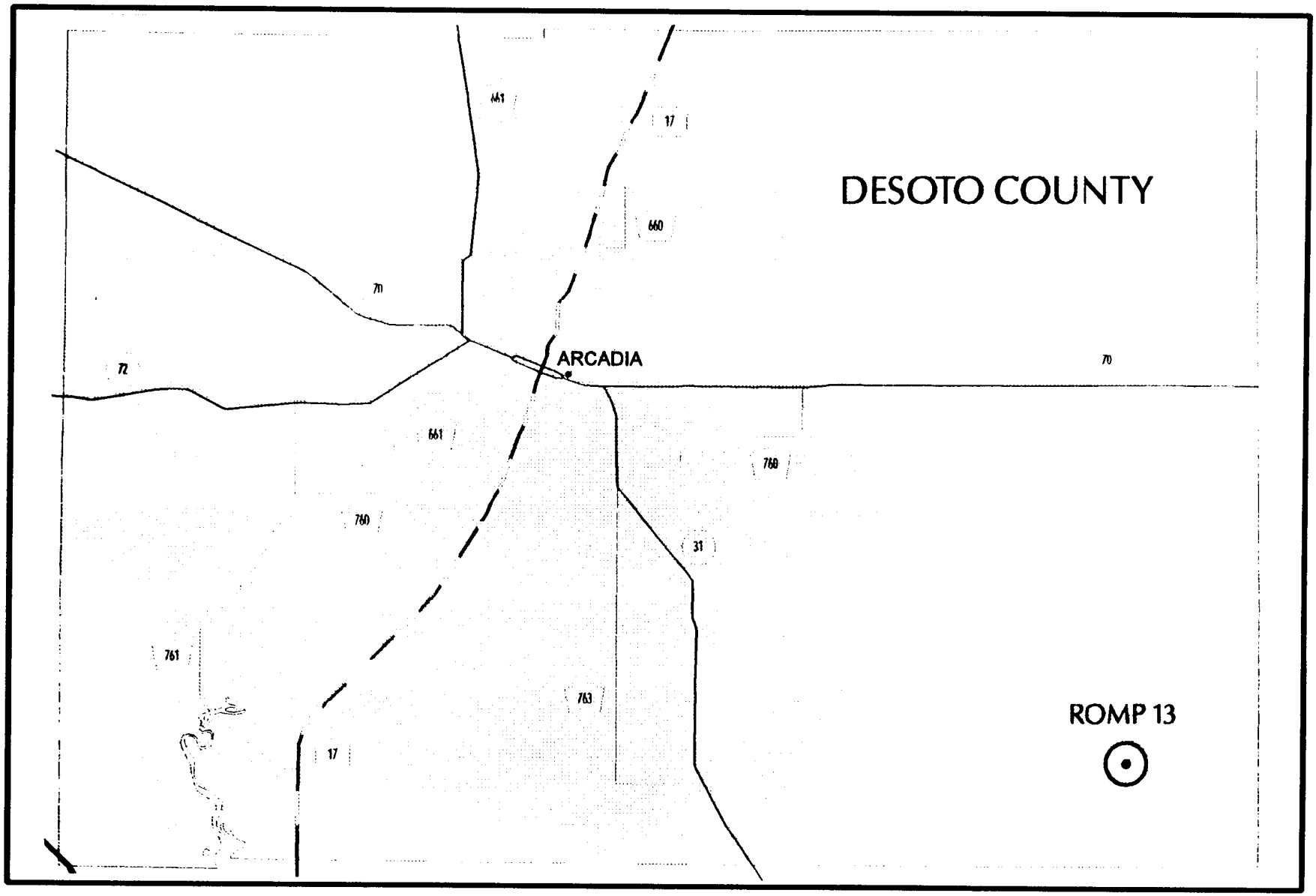


FIGURE 1. ROMP 13 TIPPEN BAY

Southern District
Water Resource Assessment Project Area



N

1" = 3.5 miles

0 .875 1.75 3.5 7.0

FIGURE 2. ROMP 13 TIPPEN BAY

GENERAL LOCATION MAP

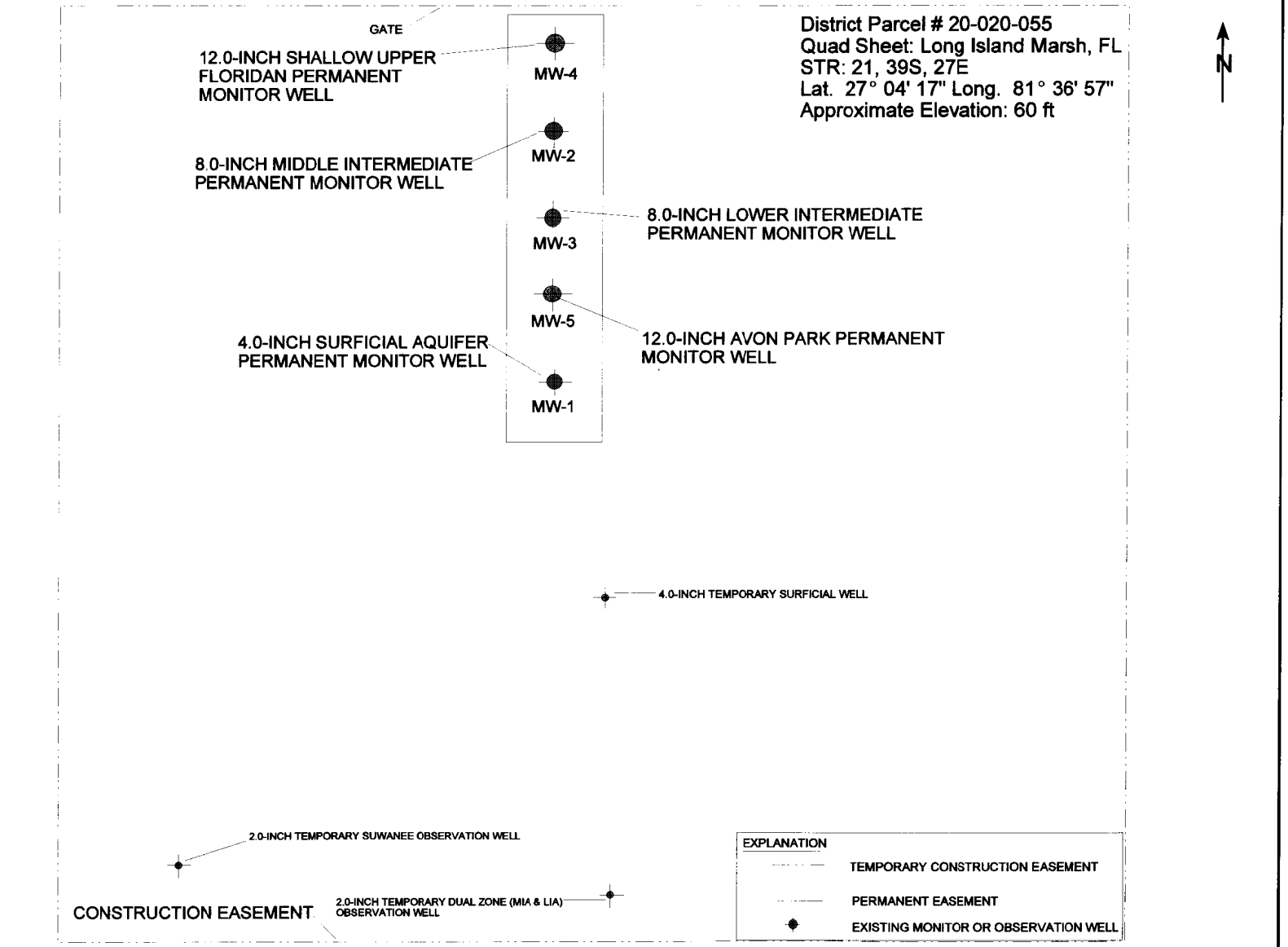


FIGURE 3. ROMP 13 TIPPEN BAY

WELL SITE DIAGRAM

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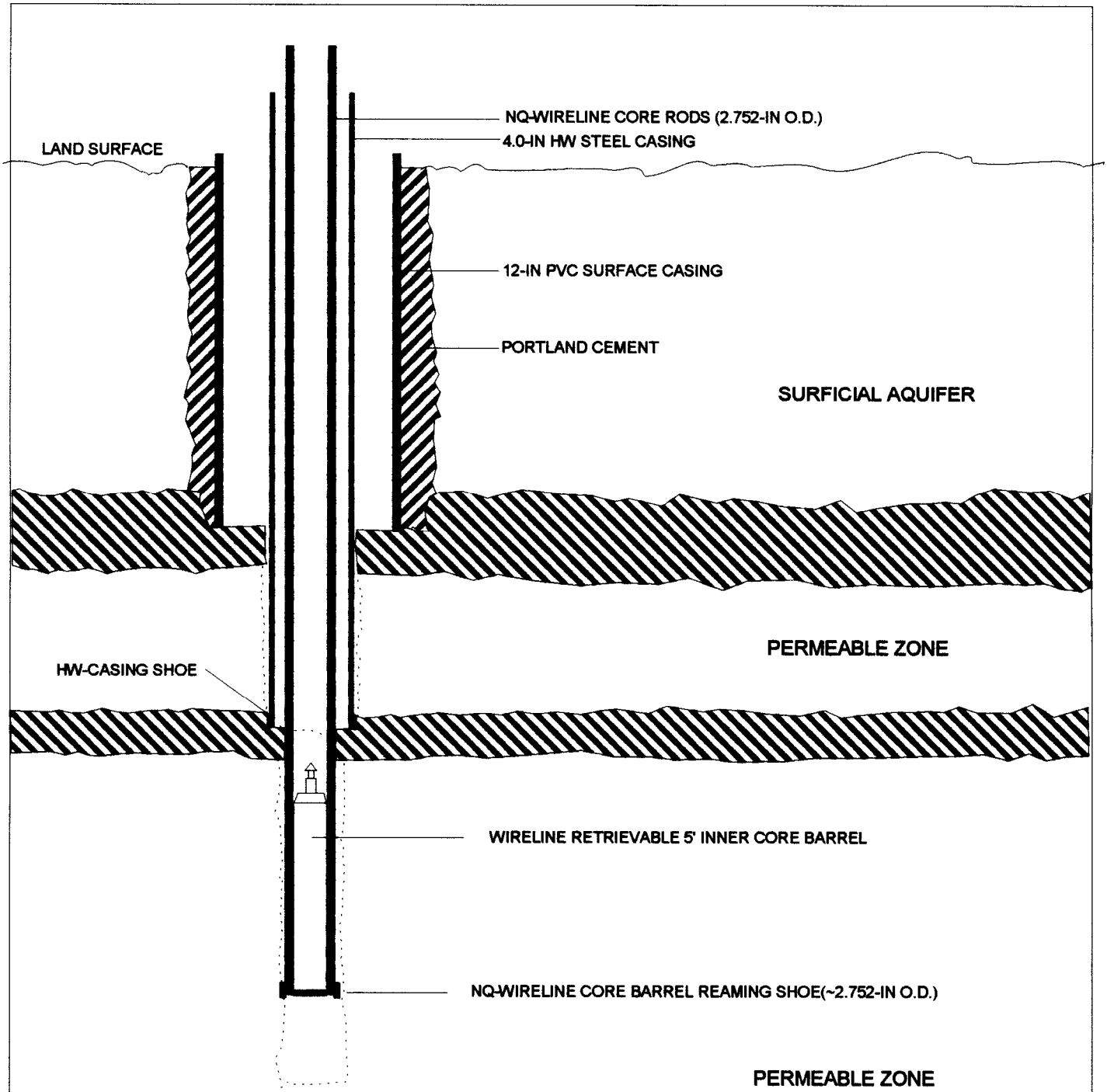

FIGURE 4. ROMP 13 TIPPEN BAY
CORE DRILLING DIAGRAM

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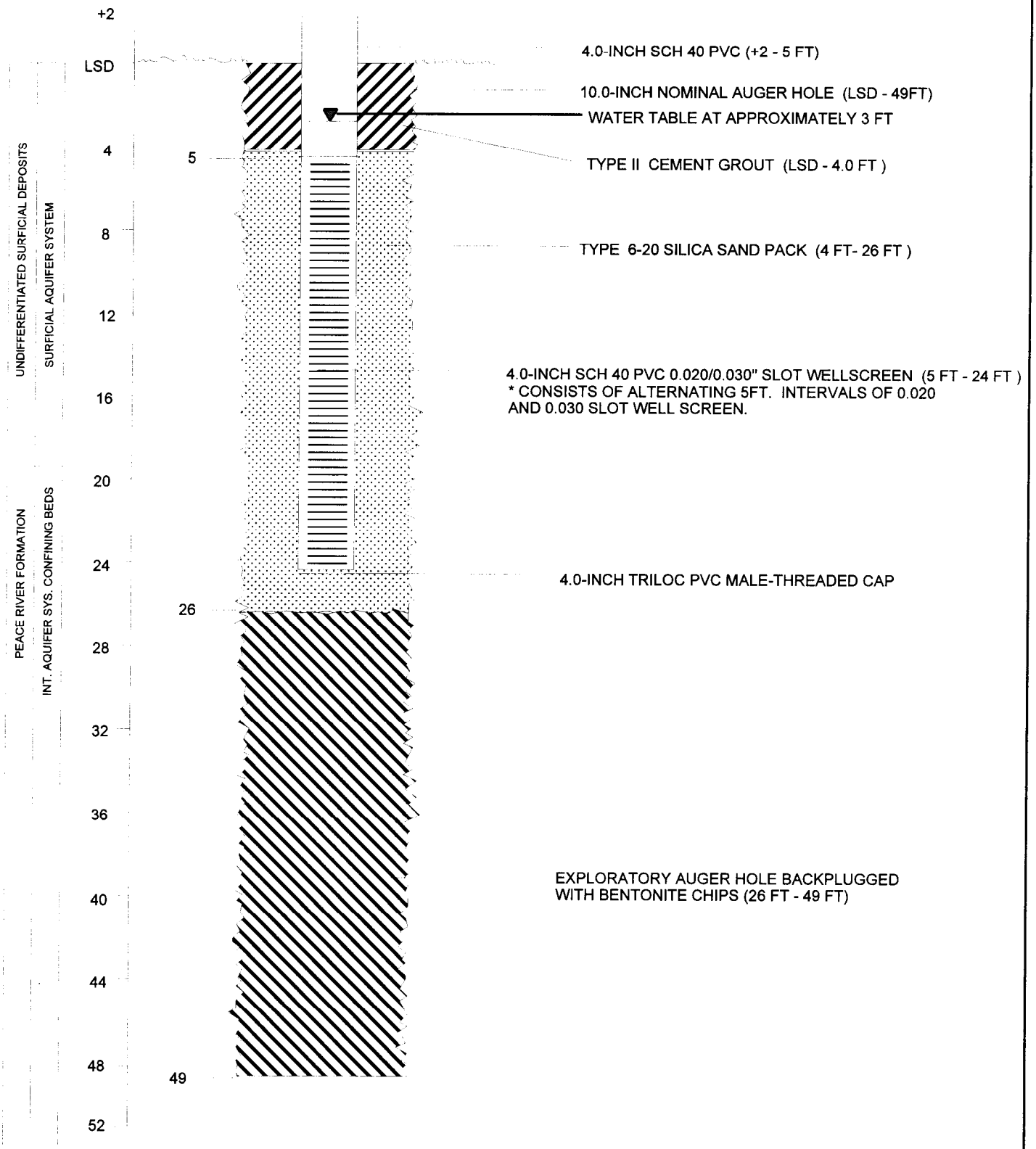


FIGURE 5. ROMP 13 TIPPEN BAY

TEMPORARY SURFICIAL AQUIFER WATER SUPPLY WELL

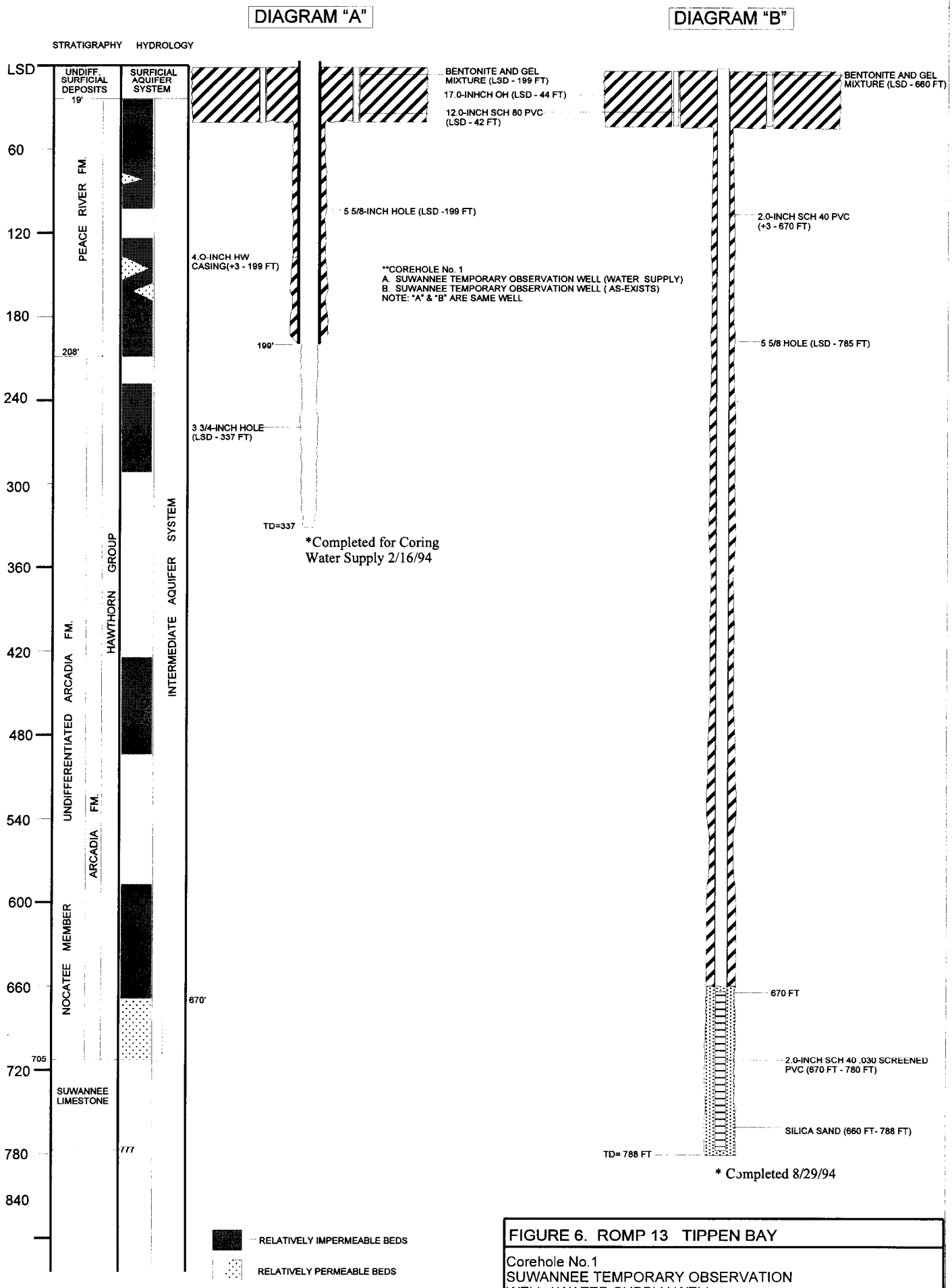


FIGURE 6. ROMP 13 TIPPEN BAY

Corehole No.1
SUWANNEE TEMPORARY OBSERVATION WELL / WATER SUPPLY WELL

ROMP13 \ MW3-AB.WPG DP7/21/97

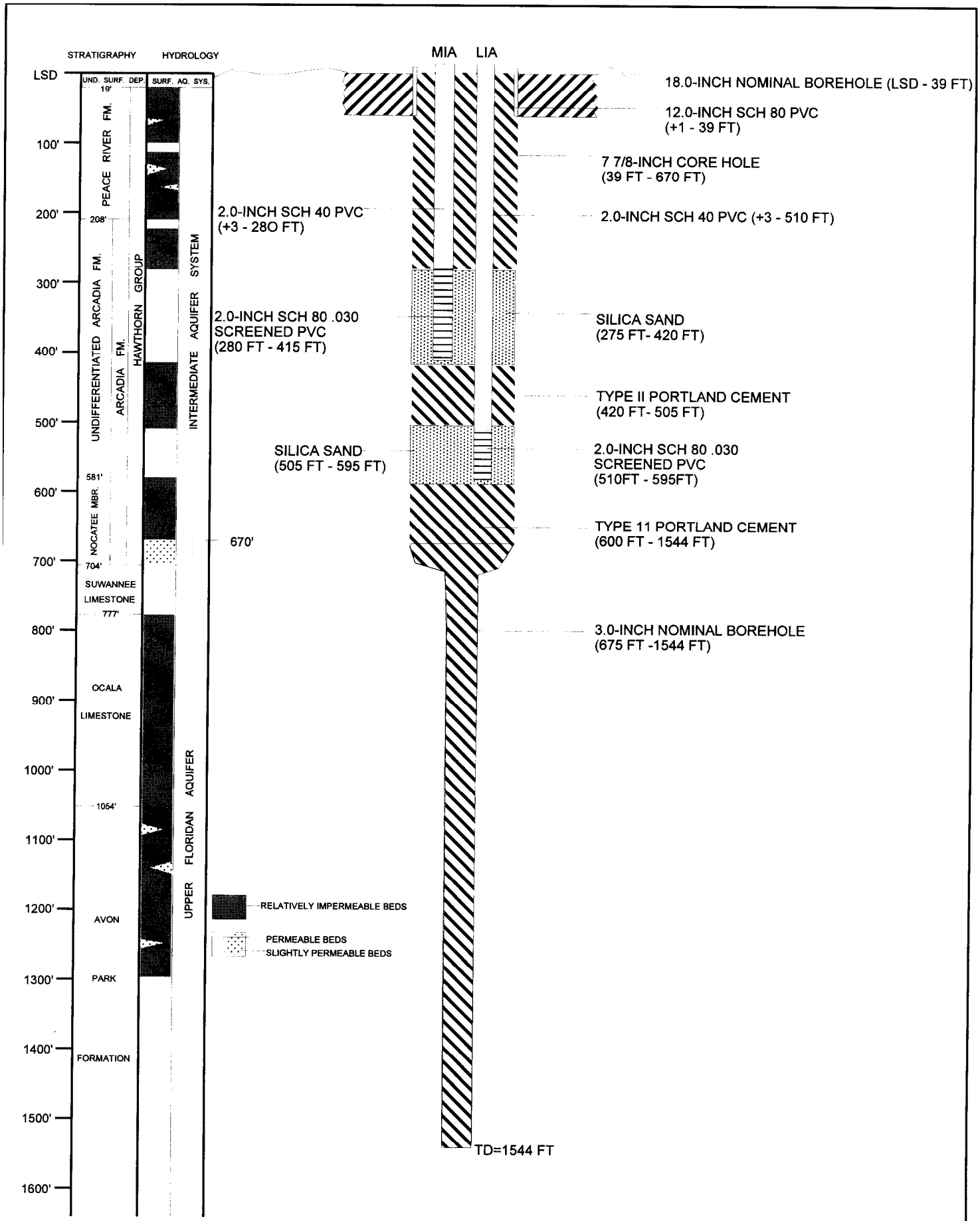


FIGURE 7. ROMP 13 TIPPEN BAY

TEMPORARY DUAL ZONE INTERMEDIATE OBSERVATION WELLS
Corehole No.2

ROMP13 DP 7/97

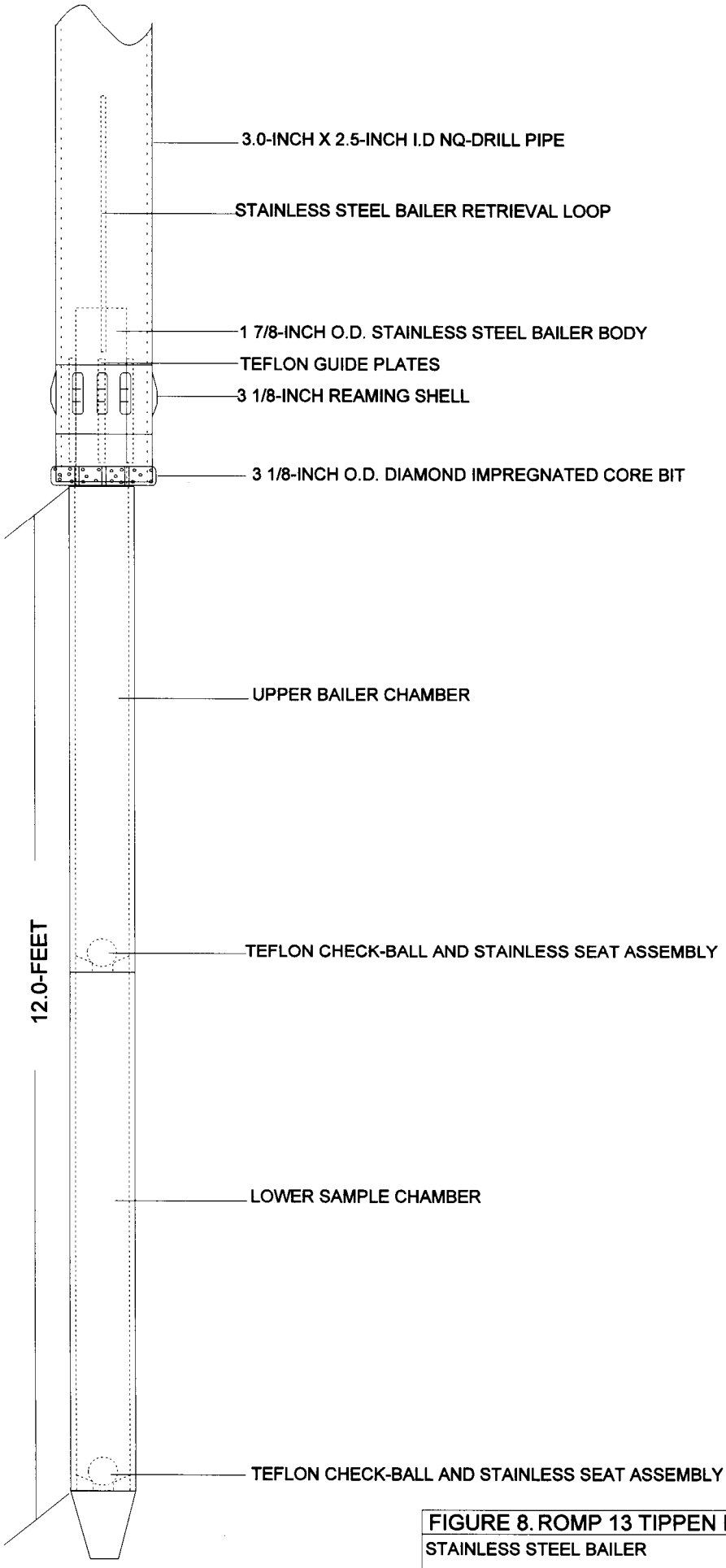
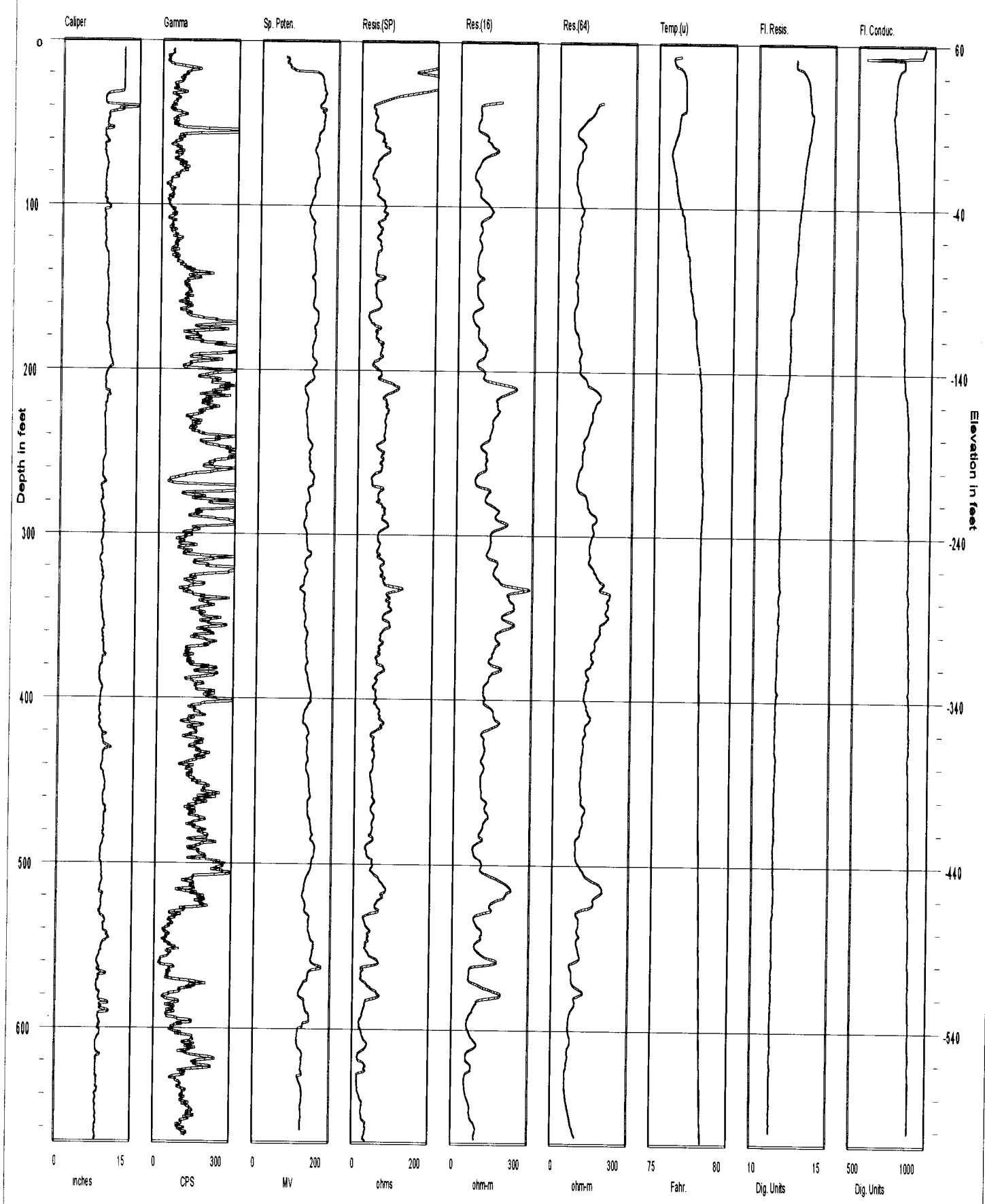
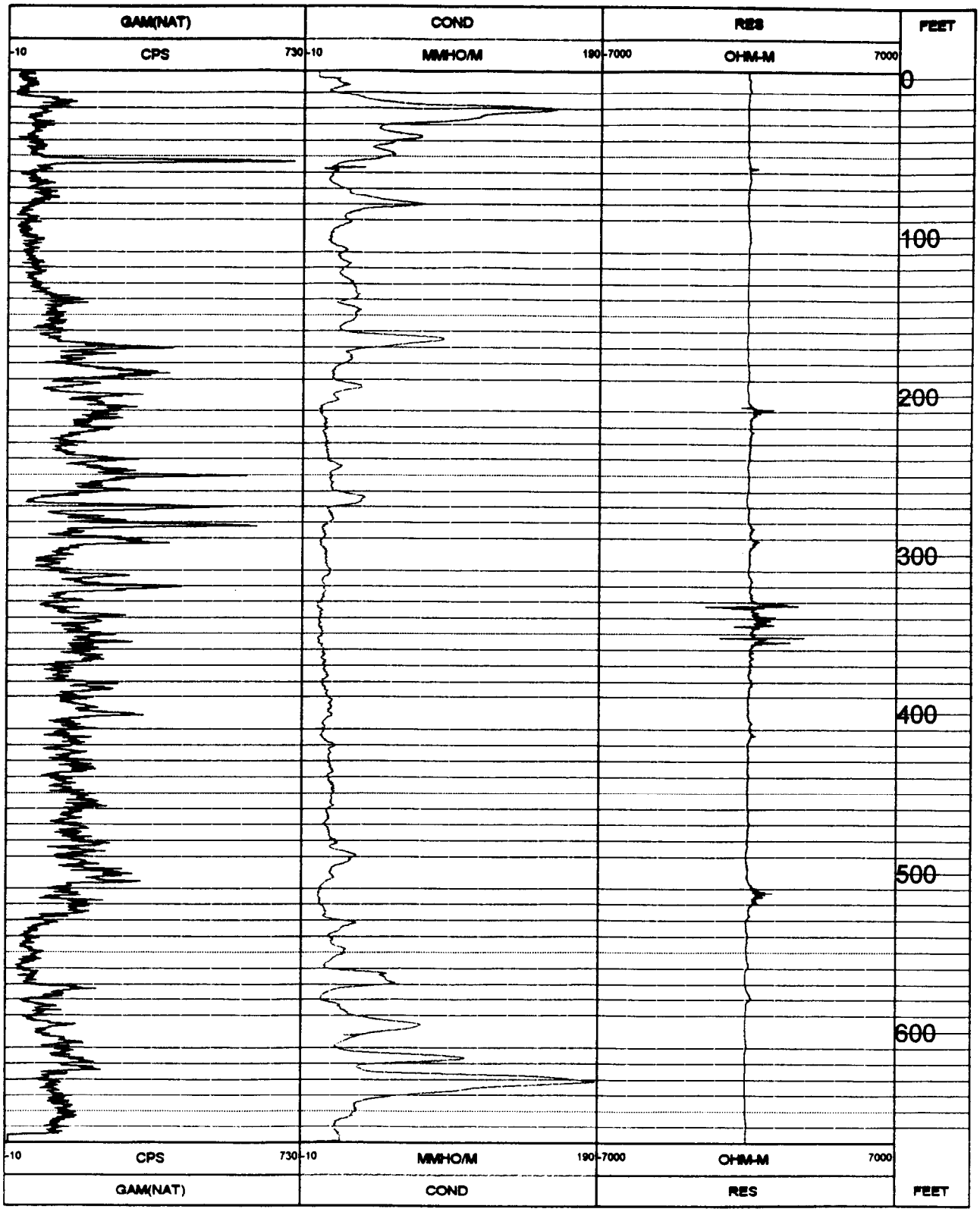


FIGURE 8. ROMP 13 TIPPEN BAY
STAINLESS STEEL BAILER



*Logged through open hole

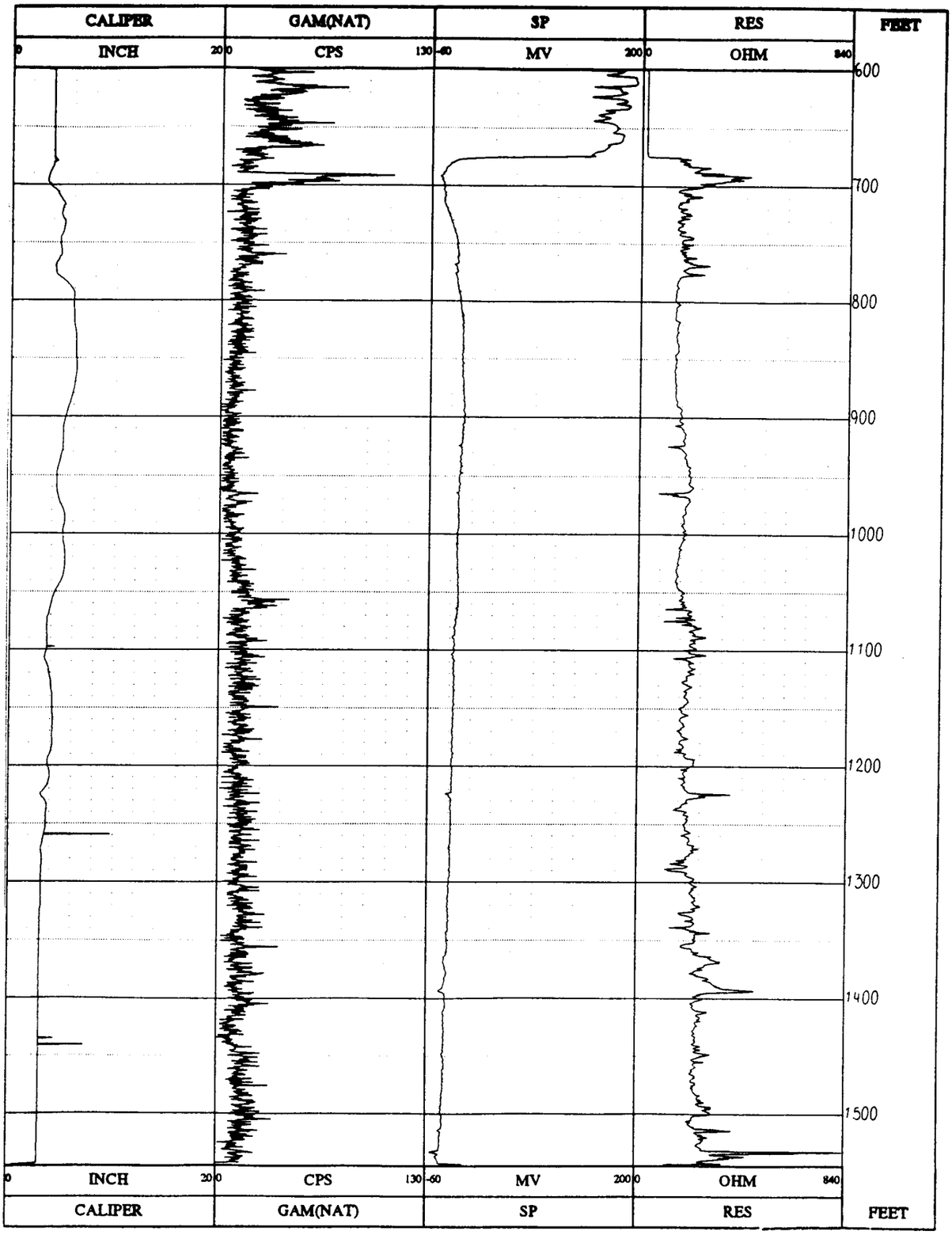
FIGURE 9. ROMP 13 TIPPEN BAY GEOPHYSICAL LOGS COREHOLE #2 (30 - 669FT BLS)



*Logged through 6-inch Open Hole (30 - 669 FT BLS)

FIGURE 10. ROMP 13 TIPPEN BAY

Geophysical Logs
(30 - 669 FT BLS)



*Logged through 4-inch HW casing

FIGURE 11. ROMP 13 TIPPEN BAY
GEOPHYSICAL LOGS
(600 - 1544 FT BLS)

R134logs.wpg

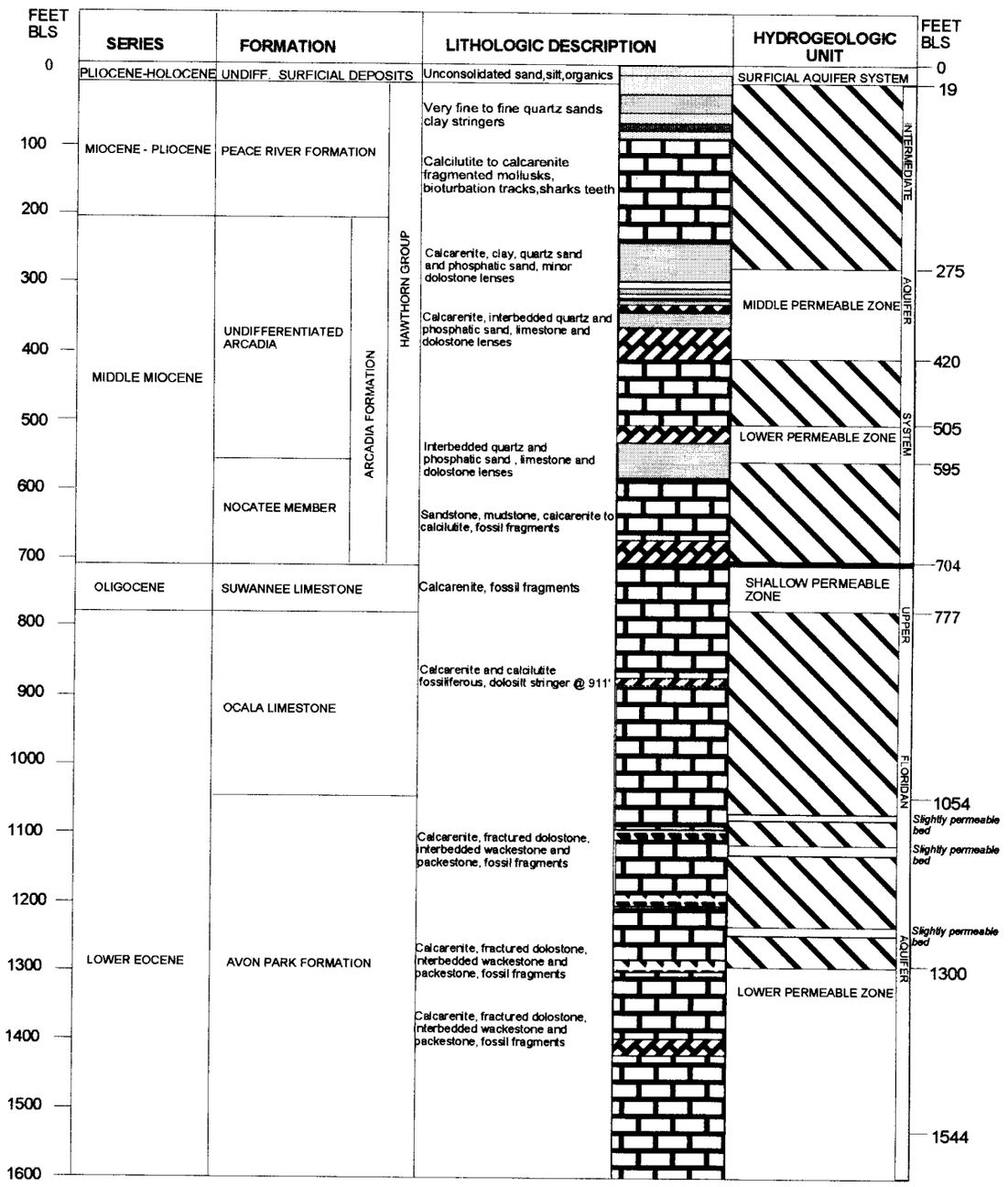


FIGURE 12. ROMP 13 TIPPEN BAY
HYDROGEOLOGY

R13hydr3.wpg

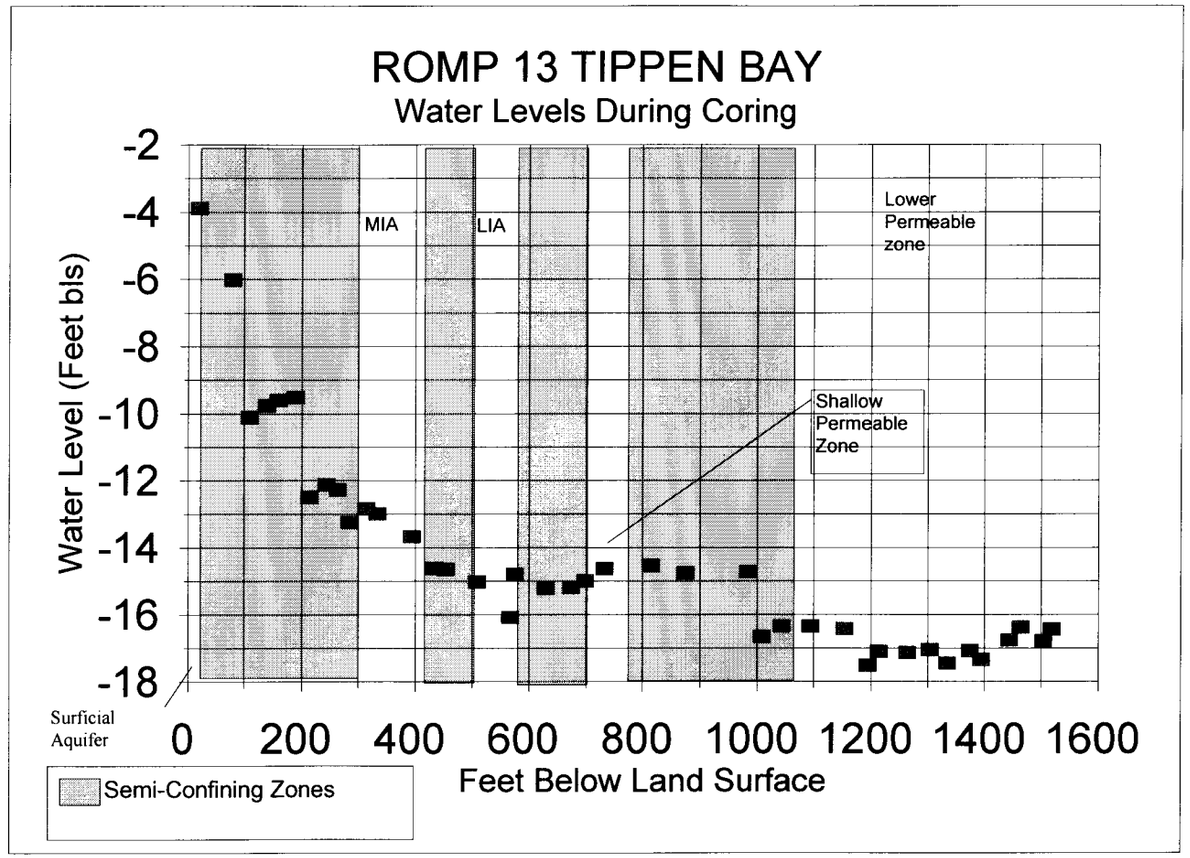
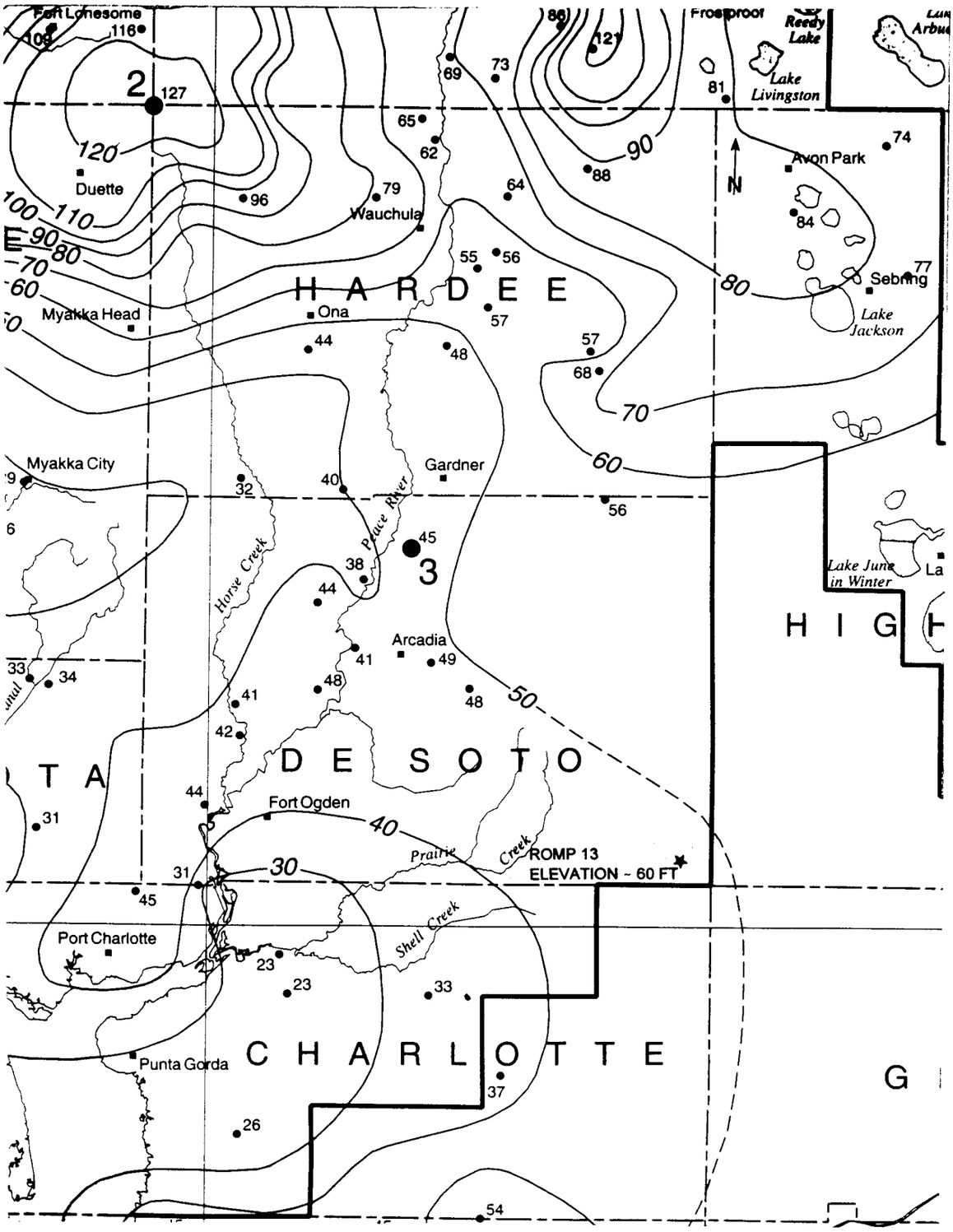


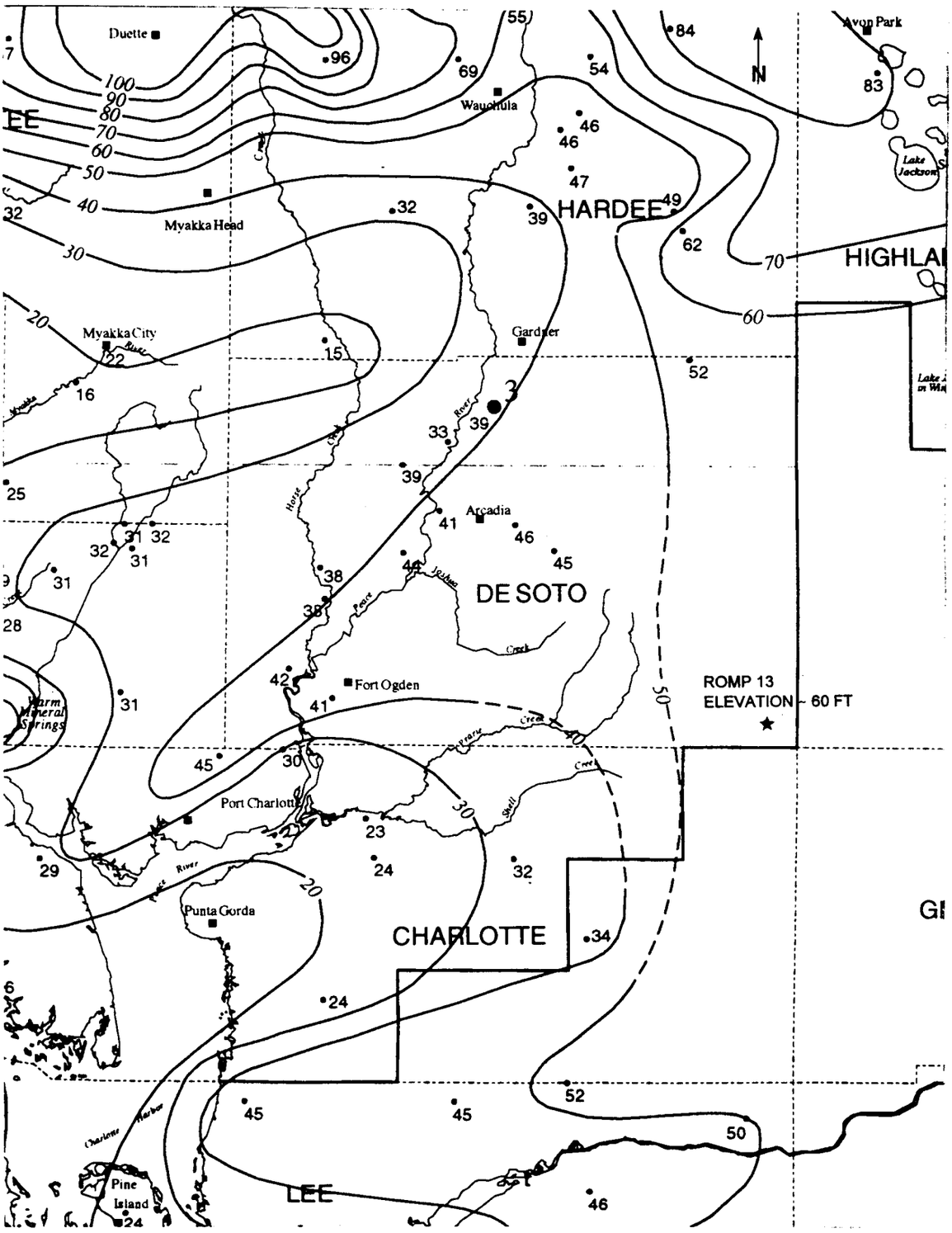
FIGURE 13. ROMP 13 TIPPEN BAY
WATER LEVELS DURING CORING
JANUARY 1994 - JUNE 1994



Source: USGS 1997

FIGURE 14. ROMP 13 TIPPEN BAY

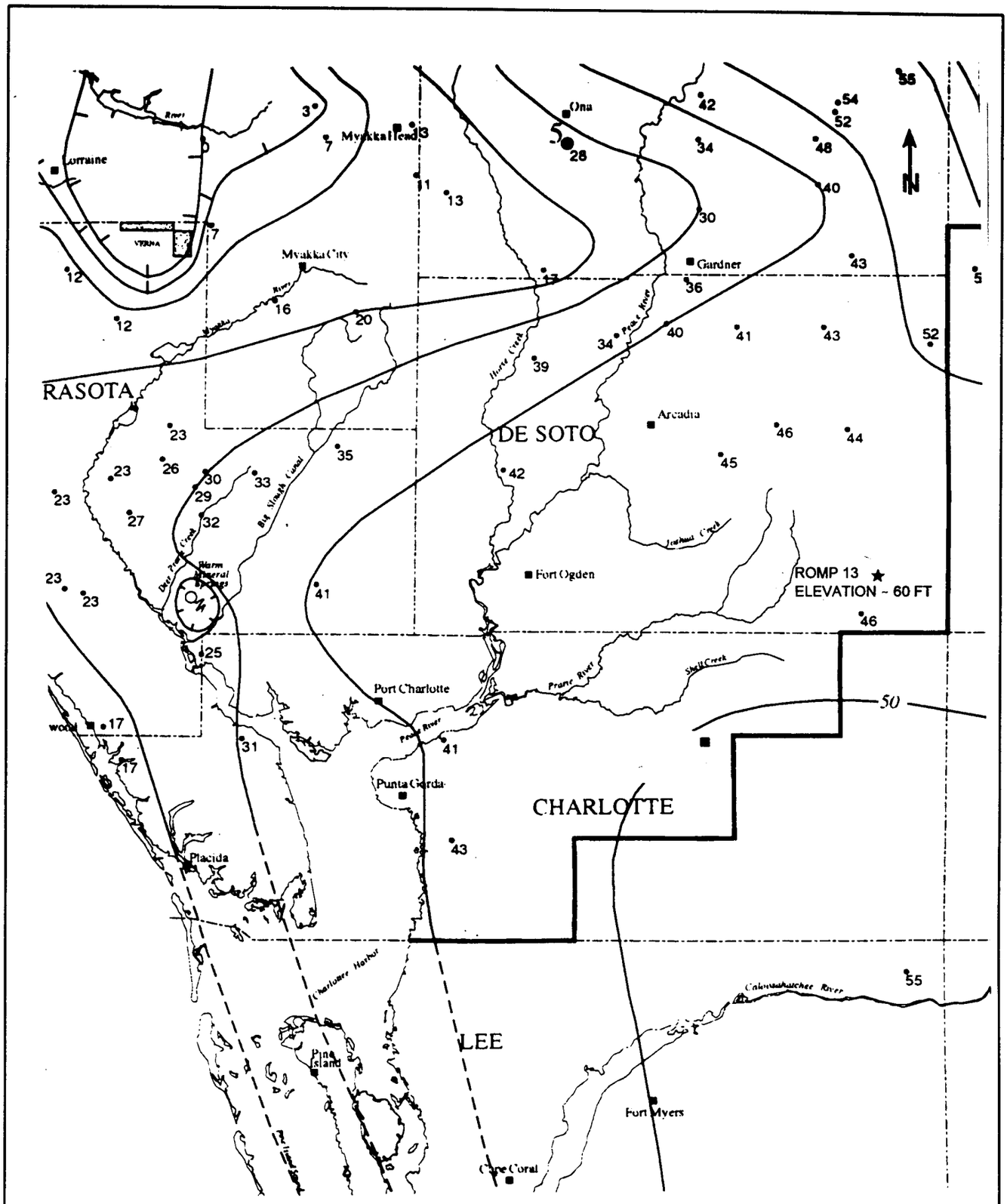
Potentiometric Map of the Intermediate Aquifer
September 1996



Source: USGS 1996

FIGURE 15. ROMP 13 TIPPEN BAY

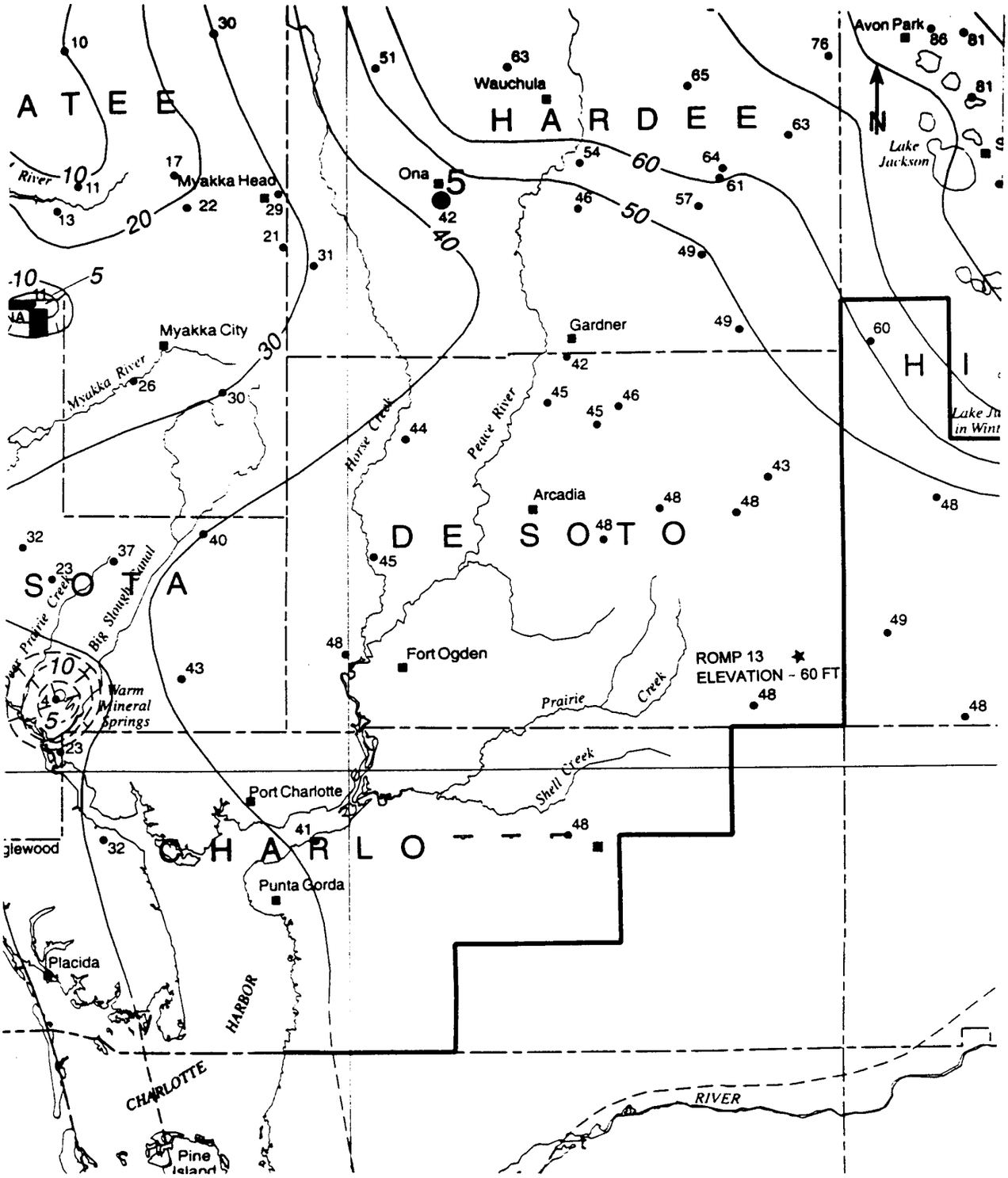
Potentiometric Map of the Intermediate Aquifer
May 1996



Source: USGS 1996

FIGURE 16. ROMP 13 TIPPEN BAY

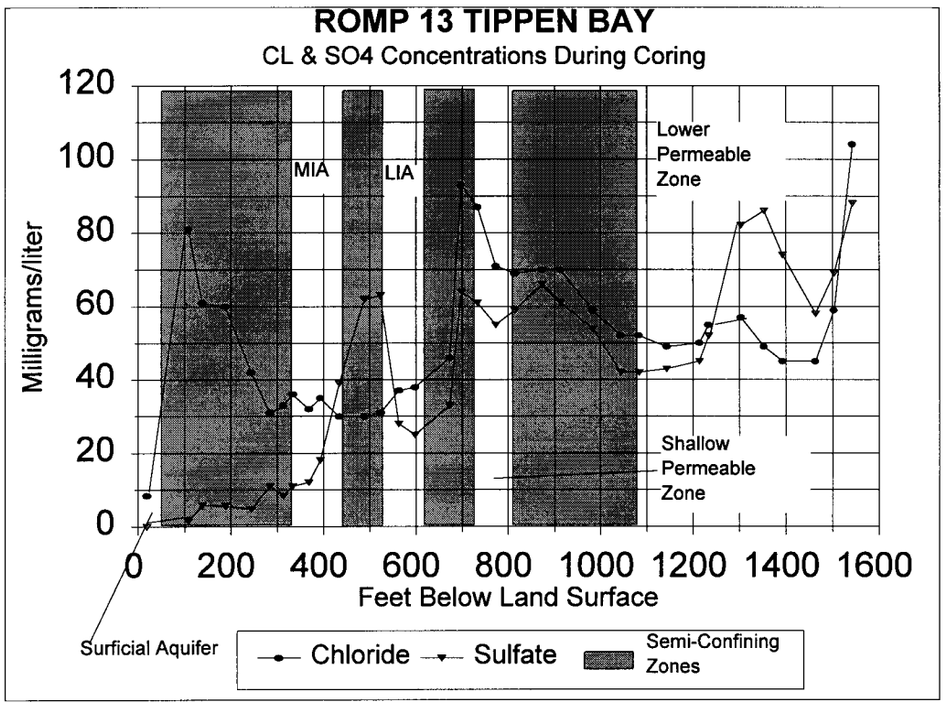
Potentiometric Map of the Upper Floridan Aquifer
May 1996



Source: USGS 1997

FIGURE 17. ROMP 13 TIPPEN BAY

Potentiometric Map of the Upper Floridan Aquifer
September 1996



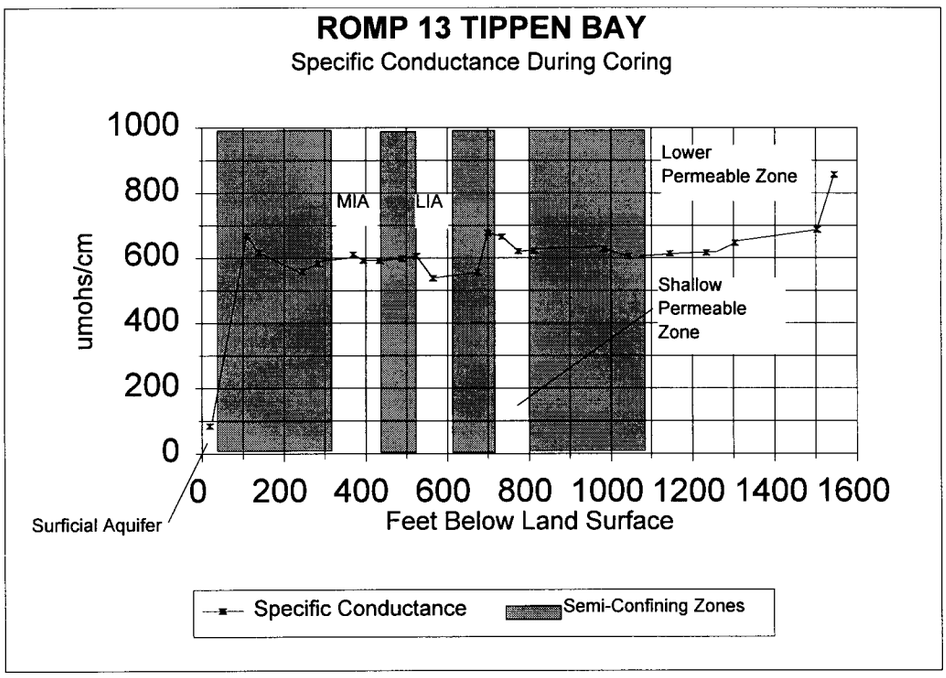


FIGURE 18. ROMP 13 TIPPEN BAY CHLORIDE, SULFATE, AND SPECIFIC CONDUCTANCE OF GROUNDWATER SAMPLES

TABLES

Table 1. Laboratory Analyses of Romp 13 Bailer Samples Collected During Coring

DATE (M/D/Y)	TIME	COREHOLE DEPTH (FT BLS)	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	DENSITY (g/ml at 20 DEGREES CELSIUS	ANALYSIS ION BALANCE (PERCENT) (EXCLUDES IRON)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	SODIUM (mg/l)	POTASSIUM (mg/l)	IRON (ug/l)	SILICA (as Si) (mg/l)	TOTAL HARDNESS (as CaCO3) (mg/l)	TOTAL DISSOLVED SOLIDS (mg/l)	CHLORIDE (mg/l)	SULFATE (mg/l)	TOTAL ALKALINITY (as CaCO3) (mg/l)	BROMIDE (mg/l)	FLUORIDE (mg/l)
01/27/94	05:00 PM	19.0	86	6.8	1.0000	14.62	9	3	5	0.3	0.454	2.2	36	63	8	0	23	0.0	0.18

Sample collected through 6-inch augers, casing not yet installed
N/A Not Analyzed

Table 1. (continued)

02/23/94	05:00 PM	109.0	670	8.0	1.0004	2.91	80	13	48	1.9	0.061	13.5	253	432	81	2	224	0.0	N/A

4" Steel casing 0 - 78.5' bls
N/A Not Analyzed

Table 1. (continued)

02/24/94	11:00 AM	139.0	618	8.0	1.0004	3.08	61	18	41	2.9	0.063	15.8	239	393	61	6	220	0.0	N/A
02/28/94	05:30 PM	189.0	N/A	N/A	N/A	N/A	62	19	N/A	N/A	0.113	N/A	N/A	375	60	6	222	0.0	N/A

4" Steel casing 0 - 80.5' bls @ 139.0' bls
4" Steel casing 0 - 97.5' bls @ 189.0' bls
N/A Not Analyzed

Table 1. (continued)

03/08/94	05:30 PM	244.0	560	8.0	1.0004	0.67	38	30	31	4.8	0.211	18.6	218	373	42	5	220	0.0	N/A
03/09/94	05:30 PM	284.0	584	8.0	1.0004	2.29	37	33	32	5.6	0.145	25.1	228	365	31	11	236	0.0	N/A
03/10/94	05:30 PM	314.0	N/A	N/A	N/A	N/A	38	32	N/A	N/A	N/A	N/A	N/A	233	33	8	222	0.0	N/A
03/14/94	05:30 PM	334.0	N/A	N/A	N/A	N/A	39	32	N/A	N/A	N/A	N/A	N/A	247	36	11	230	0.0	N/A
03/15/94	05:30 PM	369.0	612	7.9	1.0004	2.39	44	27	42	4.8	0.142	24.4	221	362	32	12	246	0.0	N/A
03/16/94	05:30 PM	394.0	594	8.1	1.0004	2.18	35	30	45	5.1	0.139	18.5	211	344	35	18	234	0.0	N/A

4" Steel casing 0 - 208.5' bls
4" Steel casing 0 - 210.5' bls @ 369.0' bls
4" Steel casing 0 - 212.5' bls @ 394.0' bls
N/A Not Analyzed

Table 1. (continued)

03/24/94	05:30 PM	434.0	593	8.1	1.0004	3.08	31	27	59	5.3	0.259	11.3	189	661	30	39	221	0.0	N/A
03/29/94	05:30 PM	489.0	599	8.2	1.0004	2.69	27	24	69	5.3	0.156	10.2	166	388	30	62	199	0.0	N/A
03/29/94	05:30 PM	524.0	607	8.1	1.0004	2.75	28	24	70	5.2	0.446	10.0	169	380	31	63	201	0.0	N/A
03/30/94	05:30 PM	564.0	539	8.3	1.0003	4.61	19	21	70	N/A	N/A	N/A	N/A	325	37	28	185	0.0	N/A
04/05/94	05:30 PM	599.0	N/A	N/A	N/A	N/A	22	20	N/A	N/A	N/A	N/A	N/A	321	38	25	191	0.0	N/A
04/06/94	05:30 PM	674.0	558	8.3	1.0003	0.21	24	19	62	4.9	0.072	11.3	138	404	46	33	181	0.0	N/A
04/26/94	05:30 PM	699.0	678	8.0	1.0004	1.68	40	23	60	2.7	0.018	9.1	195	456	93	64	142	0.0	N/A

4" Steel casing 0 - 395.0' bls
N/A Not Analyzed

Table 1. Laboratory Analyses of Romp 13 Bailer Samples Collected During Coring

DATE (M/D/Y)	TIME	COREHOLE DEPTH (FT BLS)	SPECIFIC CONDUCTIVITY (uMHOS/cm)	pH	DENSITY (g/ml at 20 DEGREES CELSIUS	ANALYSIS ION BALANCE (PERCENT) (EXCLUDES IRON)	CALCIUM (mg/l)	MAGNESIUM (mg/l)	SODIUM (mg/l)	POTASSIUM (mg/l)	IRON (ug/l)	SILICA (as Si) (mg/l)	TOTAL HARDNESS (as CaCO3) (mg/l)	TOTAL DISSOLVED SOLIDS (mg/l)	CHLORIDE (mg/l)	SULFATE (mg/l)	TOTAL ALKALINITY (as CaCO3) (mg/l)	BROMIDE (mg/l)	FLUORIDE (mg/l)
04/26/94	05:30 PM	734.0	667	8.1	1.0004	0.40	40	23	59	2.7	0.031	9.4	195	445	87	61	143	0.0	N/A
04/27/94	02:00 PM	774.0	622	8.1	1.0003	0.48	38	25	50	3.1	0.032	12.6	198	441	71	55	150	0.0	N/A
04/27/94	02:00 PM	814.0	623	7.9	1.0003	0.13	38	24	50	3.1	0.331	10.0	194	396	69	59	147	0.0	N/A
05/03/94	02:00 PM	874.0	N/A	N/A	N/A	N/A	38	26	N/A	N/A	N/A	N/A	N/A	376	70	66	151	N/A	N/A
05/04/94	02:00 PM	914.0	N/A	N/A	N/A	N/A	38	27	N/A	N/A	N/A	N/A	N/A	375	70	61	151	N/A	N/A
05/04/94	02:00 PM	984.0	628	7.8	1.0004	2.23	40	28	47	4.0	0.035	14.9	215	370	59	54	169	0.0	N/A
05/09/94	02:00 PM	1044.0	606	8.0	1.0004	3.26	39	30	44	4.9	0.031	16.6	221	393	52	42	185	0.0	1.35
05/10/94	02:00 PM	1084.0	N/A	N/A	N/A	N/A	38	32	N/A	N/A	0.039	N/A	N/A	403	52	42	185	N/A	N/A
05/11/94	02:00 PM	1144.0	615	8.0	1.0004	5.60	38	33	47	5.7	0.031	20.0	231	384	49	43	190	0.0	1.54
05/16/94	02:00 PM	1214.0	N/A	N/A	N/A	N/A	35	32	N/A	N/A	0.069	N/A	N/A	378	50	45	187	N/A	N/A
05/17/94	02:00 PM	1234.0	618	7.8	1.0004	1.02	34	29	45	4.8	0.070	16.0	204	400	55	52	183	0.0	1.30
05/17/94	02:00 PM	1299.0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
05/18/94	02:00 PM	1304.0	648	8.0	1.0004	2.95	38	29	44	4.4	0.060	13.1	214	407	57	82	169	0.0	1.10
05/24/94	02:00 PM	1354.0	N/A	N/A	N/A	N/A	42	30	N/A	N/A	N/A	N/A	N/A	401	49	86	166	0.0	N/A
05/25/94	02:00 PM	1394.0	N/A	N/A	N/A	N/A	47	27	N/A	N/A	N/A	N/A	N/A	394	45	74	189	0.0	N/A
05/31/94	02:00 PM	1464.0	N/A	N/A	N/A	N/A	49	27	N/A	N/A	N/A	N/A	N/A	405	45	58	183	N/A	N/A
06/01/94	02:00 PM	1504.0	688	8.0	1.0004	1.11	46	29	45	3.8	0.242	17.9	234	433	59	69	189	0.1	1.11
06/07/94	02:00 PM	1544.0	858	7.8	1.0005	2.46	52	29	65	3.9	3.024	16.7	249	494	104	88	177	0.3	0.78

Table 1. (continued)

4" Steel casing 0 - 675.0' bls
N/A Not Analyzed

Table 2. Field Analyses of Romp 13 Bailer Samples Collected During Coring

DATE (M/D/Y)	TIME	COREHOLE BORING DEPTH (FT BLS)	SPECIFIC CONDUCTANCE (uMHOS/cm) (ORION COMBINATION METER)	WATER TEMPERATURE (DEGREES CELSIUS) (ORION COMBINATION METER)	pH (TEMPERATURE-COMPENSATED) (ACCUMET 1000 METER)	SPECIFIC GRAVITY (HYDROMETER)	CHLORIDE (mg/l) (CHEMETRICS FIELD KIT)	SULFATE (mg/l) (HACH FIELD KIT)
02/23/94	05:00 PM	109.0	670	24.5	7.72	1	70	<50
02/24/94	11:00 AM	139.0	633	24.1	7.78	1	40	<50
02/28/94	05:30 PM	189.0	629	23.7	7.75	1	45	<50

4" Steel casing 0 - 80.5.0' bls @139.0' bls
4" Steel casing 0 - 97.5.0' bls @189.0' bls
N/A Not Analyzed

Table 2. (continued)

03/08/94	05:30 PM	244.0	548	24	7.82	0.999	36	<50
03/09/94	05:30 PM	284.0	565	24.4	7.66	0.999	32	<50
03/10/94	05:30 PM	314.0	561	24.3	7.73	0.998	34	<50
03/14/94	05:30 PM	334.0	567	23.6	7.85	0.999	26	<50
03/15/94	05:30 PM	369.0	589	23.7	7.85	0.999	32	<50
03/16/94	05:30 PM	394.0	583	24.5	7.86	0.998	38	<50

4" Steel casing 0 - 208.5' bls
4" Steel casing 0 - 210.5' bls @ 369.0' bls
4" Steel casing 0 - 212.5' bls @ 394.0' bls
N/A Not Analyzed

Table 2. (continued)

03/24/94	05:30 PM	434.0	606	25.5	7.91	0.998	29	55
03/29/94	05:30 PM	489.0	613	24.9	8.10	0.998	30	75
03/30/94	05:30 PM	524.0	619	23.9	8.12	0.998	34	77
03/30/94	05:30 PM	564.0	548	25	8.31	0.998	40	<50
04/05/94	05:30 PM	599.0	538	25.6	8.19	0.998	24	<50
04/06/94	05:30 PM	674.0	556	25.5	8.16	0.998	47	<55
04/26/94	05:30 PM	699.0	685	26.7	8.15	0.999	100	77

4" Steel casing 0 - 395.0' bls
N/A Not Analyzed

Table 2. (continued)

04/26/94	05:30 PM	734.0	670	25.7	8.11	0.999	85	80
04/27/94	02:00 PM	774.0	631	26.4	8.09	0.998	58	75
04/27/94	02:00 PM	814.0	627	26	8.00	0.998	70	75
05/03/94	02:00 PM	874.0	630	26.8	8.00	0.998	65	80
05/04/94	02:00 PM	914.0	636	27.6	7.97	0.998	70	75
05/04/94	02:00 PM	984.0	624	26	7.84	0.998	50	60
05/09/94	02:00 PM	1044.0	609	26.1	7.82	0.999	50	60
05/10/94	02:00 PM	1084.0	609	26.9	7.93	0.998	45	58
05/11/94	02:00 PM	1114.0	612	26.6	7.90	0.998	80	60
05/16/94	02:00 PM	1214.0	606	27.5	7.90	0.998	60	65
05/17/94	02:00 PM	1234.0	622	27.5	7.90	0.998	80	65
05/18/94	02:00 PM	1304.0	652	27.4	7.97	0.999	80	85
05/24/94	02:00 PM	1354.0	645	27.6	7.90	0.999	80	95
05/25/94	02:00 PM	1394.0	647	26.7	7.79	0.999	80	85
05/31/94	02:00 PM	1464.0	635	27.7	7.67	0.999	80	75
06/01/94	02:00 PM	1504.0	678	27.6	7.74	0.999	100	80
06/07/94	02:00 PM	1544.0	834	27.9	7.68	N/A	140	80

4" Steel casing 0 - 675.0' bls
N/A Not Analyzed

Table 3. Geophysical Logs Run During Core Drilling

LOGGING DATE	WELL	OPEN HOLE INTERVAL (Feet bls)	WELL CONSTRUCTION STATUS	LOG TYPE
4 - 21- 94	Corehole 2	30' - 669'	Logging prior to installation of dual 2-inch sch 40 PVC to 415 feet and 590 feet. Logged through 6-inch OH.	Caliper, Multi, Induction, SP(Pot)/(RES), RES.(16)/(64), Fl.Conductance, Temp., Fl.RES,
		30' - 669'	Logging prior to installation of dual 2-inch sch 40 PVC to 415 and 590 feet. Logged through 6-inch OH.	Slim-line Gamma Cond., RES.
6 - 7- 94	Corehole 2	600' - 1544'	Logged through 4-inch HW casing prior to installation of dual 2-inch PVC casing.	Caliper, Slim-line Gamma, SP., RES.

Table 4. Permeameter Tests for Romp 13 Tippen Bay

DEPTH (Feet bls)	FORMATION	K- VALUE (ft/day)			AVERAGE K (ft/day)
		RUN 1	RUN 2	RUN 3	
87	Peace River	N/A	N/A	N/A	N/A
200	Peace River	4.49E-04	4.38E-04	4.17E-04	4.35E-04
268	Arcadia	1.01E-05	7.08E-06	N/R	8.59E-06
860.5	Ocala	8.61E-03	8.99E-03	8.62E-03	8.74E-03
1019.5	Ocala	6.30E-03	6.44E-03	6.35E-03	6.37E-03
1182.5	Avon Park	7.81E-02	1.20E-01	8.99E-02	9.60E-02
1319	Avon Park	1.83E-02	2.09E-02	2.29E-02	2.07E-02
1469	Avon Park	9.16E-03	1.01E-02	1.06E-02	9.94E-03

N/A Not Analyzed (Insufficent Sample)

APPENDIX A

ROMP 13 LITHOLOGIC LOG

LITHOLOGIC WELL LOG PRINTOUT SOURCE - FGS

WELL NUMBER: W-30026 COUNTY - DESOTO
TOTAL DEPTH: 1544 FT. LOCATION: T.39S R.27E S.21 cb
SAMPLES - NONE LAT = 27D 04M 17S
LON = 81D 36M 57S
COMPLETION DATE: 07/01/82 ELEVATION: 60 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, ELECTRIC, GAMMA, TEMPERATURE, INDUCT

OWNER/DRILLER:SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
SWFWMD ROMP 13/"TIPPEN BAY" (BOB PAUL, INC. PROPERTY)

WORKED BY:DOUG RAPPUHN (SWFWMD GEOLOGIST). J. PAT MEADORS (SWFWMD DRILLER):
HOLLOW-STEM AUGER, WIRELINE CORING FROM LSD-1544' BLS.
THIS SAMPLE DESCRIPTION IS A COMPOSITE OF TWO CLOSELY SPACED BORINGS:
(A) HOLLOW-STEM AUGER SAMPLES: 0-49'; (B) WIRELINE CORE: 49-1544' (1994)
WIRELINE CORING ACCOMPLISHED USING PLAIN WATER AS DRILLING FLUID,
ALLOWING ROUTING POTENTIOMETRIC PROFILING AND WATER SAMPLING DURING THE
COURSE OF CORING. DETAILED INFORMATION AVAILABLE FROM SWFWMD
GEOHYDROLOGIC DATA SECTION.
SURFACIAL AQUIFER: LSD-19' BLS.
INTERMEDIATE AQUIFER: 19-665' BLS.
UPPER FLORIDAN AQUIFER: 665-

0.	-	19.	090UDSC	UNDIFFERENTIATED SAND AND CLAY
19.	-	704.	122HTRN	HAWTHORN GROUP
19.	-	207.5	122PCRV	PEACE RIVER FM.
207.5	-	581.	122ARCA	ARCADIA FM.
581.	-	704.	122NOCA	NOCATEE MEMBER OF ARCADIA FM.
704.	-	777.	123SWNN	SUWANNEE LIMESTONE
777.	-	1054.	124OCAL	OCALA GROUP
1054.	-	.	124AVPK	AVON PARK FM.

0 - 0.5 SHELL DRILL PAD

0.5- 1.5 SAND; DARK GRAY TO YELLOWISH GRAY
30% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MEDIUM SPHERICITY; UNCONSOLIDATED
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: PLANT REMAINS-20%
FOSSILS: ORGANICS
CONTAINS THATCHY LAYER ASSOCIATED WITH ORIGINAL LAND
SURFACE.

1.5- 2 SAND; GRAYISH BROWN TO MODERATE BROWN
25% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): IRON CEMENT, ORGANIC MATRIX
ACCESSORY MINERALS: PLANT REMAINS-10%, IRON STAIN-05%
FOSSILS: ORGANICS
IRON-STAINED QTZ SAND. MOIST.

2 - 2.8 SAND; GRAYISH BROWN TO MODERATE BROWN
30% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: ROUNDED TO SUB-ANGULAR; MEDIUM SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-03%, IRON STAIN-02%
TRACE VERY FINE PHOSPHATE.

2.8- 4 SAND; GRAYISH BROWN TO PINKISH GRAY
30% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: ROUNDED TO SUB-ANGULAR; HIGH SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: LIMONITE-02%
OTHER FEATURES: SUCROSIC
CLEAN QTZ SAND. SCANT TRACE VERY FINE PHOSPHATE. SOME LIMONITIC CONCRETION.

4 - 5 SAND; GRAYISH BROWN RED
25% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; UNCONSOLIDATED
ACCESSORY MINERALS: IRON STAIN-03%, PLANT REMAINS-02%

5 - 8 SAND; MODERATE REDDISH BROWN TO MODERATE ORANGE PINK
30% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): IRON CEMENT
ACCESSORY MINERALS: IRON STAIN-06%, PLANT REMAINS-03%
FOSSILS: ORGANICS
IRON-STAINED QTZ SAND WITH TREE ROOTS OR WOODY FRAGMENTS.

8 - 10 SAND; DARK YELLOWISH ORANGE TO LIGHT BROWN
35% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: ROUNDED TO SUB-ANGULAR; HIGH SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: IRON STAIN-04%
WELL SORTED PERMEABLE IRON-STAINED QTZ SAND. SCANT TRACE PHOSPHATE.

10 - 10.5 SAND; LIGHT GRAYISH BROWN
25% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-05%, IRON STAIN-03%
PLANT REMAINS-10%
FOSSILS: ORGANICS
THIN BED, RICH IN FIBROUS PLANT MATERIAL (PALMETTO?). SOME SMALL SHELL FRAGMENTS.

10.5- 11.5 SAND; GRAYISH BROWN
30% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; UNCONSOLIDATED
ACCESSORY MINERALS: IRON STAIN-04%, PHOSPHATIC SAND-01%

11.5- 14 SAND; GRAYISH ORANGE TO DARK BROWN
30% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): IRON CEMENT
SEDIMENTARY STRUCTURES: STREAKED
ACCESSORY MINERALS: IRON STAIN-06%, PHOSPHATIC SAND-01%
OTHER FEATURES: VARIEGATED
VARIEGATED QTZ SAND CONTAINING BRANDS AND NODULES OF IRON-CEMENTED SAND, AND VERY PALE ORANGE QTZ SAND.

14 - 19 NO SAMPLES
AUGERED EASILY. ABSOLUTELY NO SAMPLE RETRIEVED. PROBABLY POROUS SAND BED.

19 - 20 SAND; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-01%
OTHER FEATURES: SPLINTERY, PARTINGS
UPPERMOST CLAYEY UNIT.

20 - 21.5 CLAY; GRAYISH GREEN TO VERY LIGHT GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-02%
OTHER FEATURES: PLASTIC, PARTINGS, VARIEGATED
INTERBEDDED CLEAN BLUE-GREEN CLAY AND THIN STRINGERS OF QTZ-PHOS SAND.

21.5- 31 CLAY; GRAYISH GREEN TO LIGHT OLIVE GRAY
05% POROSITY: NOT OBSERVED; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BANDED, STREAKED
ACCESSORY MINERALS: QUARTZ SAND-04%, PHOSPHATIC SAND-01%
OTHER FEATURES: PLASTIC, PARTINGS, VARIEGATED
CLEAN COLOR-STREAKED CLAY WITH MINOR QTZ-PHOS SAND STRINGERS.

31 - 32 SAND; GRAYISH GREEN TO DARK GREENISH GRAY
20% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-10%
OTHER FEATURES: SPECKLED, SPLINTERY

32 - 33 CLAY; YELLOWISH GRAY TO OLIVE GRAY
12% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED, NODULAR
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%
OTHER FEATURES: VARIEGATED, SPLINTERY
PALE GREEN CLAY CONTAINING BURROW DEPOSITS OF QTZ-PHOS SAND.

33 - 37 SAND; LIGHT OLIVE GRAY TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO COARSE
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-08%
OTHER FEATURES: SPECKLED, MUDDY
UNIT GRADES CLAYIER WITH DEPTH.

37 - 38 CLAY; LIGHT OLIVE GRAY
05% POROSITY: NOT OBSERVED; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-05%
OTHER FEATURES: PLASTIC, VARIEGATED
PALE CLEAN CLAY WITH THIN STRINGERS OF QTZ-PHOS SAND.

38 - 47 CLAY; GRAYISH GREEN
05% POROSITY: NOT OBSERVED; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: QUARTZ SAND-05%
OTHER FEATURES: PLASTIC

47 - 49 SAND; GRAYISH GREEN TO DARK GREENISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-08%
OTHER FEATURES: SPECKLED, MUDDY
CLAYEY QTZ-PHOS SAND WITH STRINGERS OF CLEAN CLAY. CEASED AUGERING AND MOVED TO COREHOLE #1.

49 - 53 NO SAMPLES
SAMPLE NOT RETRIEVED DUE TO OVER-DRILLING WHEN MOVED TO NEXT BOREHOLE.

53 - 58 CLAY; GRAYISH OLIVE TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-20%, QUARTZ SAND-15%
PHOSPHATIC SAND-08%
SAMPLE DESCRIBED FROM A FEW CORE FRAGMENTS: 48-58'.

58 - 59 LIMESTONE; BLACK TO YELLOWISH GRAY
POROSITY: NOT OBSERVED, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: NODULAR, MOTTLED
ACCESSORY MINERALS: DOLOMITE-40%, PYRITE-01%
GLAUCONITE- %
OTHER FEATURES: DOLOMITIC, VARIEGATED, WEATHERED
HARD ALTERED DENSE DOLOMITIC LIMESTONE. CONTAINS ENCRUSTING MICROCRYSTALLINE PYRITE AND SWIRLS OF DARK MINERAL. VERY LITTLE CORE RETRIEVED 49-59'. THIS APPEARS TO BE A SECONDARY INFILL LITHOLOGY IN CLAYEY SAND.

59 - 65 CALCILUTITE; VERY LIGHT GRAY TO YELLOWISH GRAY
10% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: CLAY-15%
OTHER FEATURES: CHALKY
64-65 IS CLAYEY.

65 - 66 CALCILUTITE; YELLOWISH GRAY
18% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
25% ALLOCHEMICAL CONSTITUENTS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

66 - 71 CALCARENITE; LIGHT GRAY
28% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
FOSSILS: FOSSIL MOLDS, MOLLUSKS, CORAL, WORM TRACES
MUCH LAMINATED MOLDIC POROSITY (MOLLUSCAN, CORALLINE).

71 - 79 CALCILUTITE; WHITE TO VERY LIGHT GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY-02%
OTHER FEATURES: CHALKY
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
CLAY IS AS BLEBS.

79 - 84.5 CLAY; LIGHT YELLOWISH GREEN
POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, CALCILUTITE-10%
NO CORE RECOVERY - DESCRIBE FROM CUTTINGS, CORE 84-84.5'.

84.5- 91 CALCILUTITE; VERY LIGHT GRAY TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-05%, PYRITE-01%
INTERBEDDED CALCILUTITE, LESSER CALCAREOUS CLAY, TRACE
PYRITE IN CLAY. 40% CLAY IN TOP AND BOTTOM 1'.

91 - 98.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, PELLET
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-15%, QUARTZ SAND-10%
OTHER FEATURES: PARTINGS
VARIABLY INDURATED CLAYEY CALCILUTITE.

98.5- 110 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
35% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, WORM TRACES
BRITTLE MOLDIC RECRYSTALLIZED LIMESTONE. MUCH MOLLUSCAN FAUNA. SOME PELLETAL ZONES. TRANSMISSIVE.

110 - 113 CALCILUTITE; GREENISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, PELLET
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-04%
CLAY-10%
OTHER FEATURES: VARIEGATED
FOSSILS: MOLLUSKS
STURDY GREEN SANDY CALCILUTITE. DOLOMITIC ?

113 - 115.5 CALCILUTITE; LIGHT OLIVE GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CLAY-20%, QUARTZ SAND-05%
PHOSPHATIC SAND-04%
OTHER FEATURES: VARIEGATED, SPLINTERY, PARTINGS
FOSSILS: FOSSIL FRAGMENTS

115.5- 119.2 SAND; YELLOWISH GRAY TO GREENISH GRAY
12% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: CLAY-25%, CALCILUTITE-15%
PHOSPHATIC SAND-04%
OTHER FEATURES: PARTINGS, VARIEGATED
VARIABLY CALCAREOUS - UP TO 40%.

119.2- 128.7 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
22% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: QUARTZ SAND-30%, CLAY-15%
PHOSPHATIC SAND-06%
OTHER FEATURES: VARIEGATED, PARTINGS
FOSSILS: MOLLUSKS
VARIABLY QUARTZ SANDY (15-30%) & CLAYEY (10-20%).

128.7- 134 SANDSTONE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-05%
OTHER FEATURES: SPECKLED
INTERBEDDED SANDSTONE AND SAND. POOR CORE RECOVERY.

134 - 143.5 SAND; GREENISH GRAY
32% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: ROUNDED TO SUB-ANGULAR; HIGH SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-05%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: VARIEGATED
WELL SORTED QUARTZ SAND WITH GREEN INTERSTITIAL CLAY. MINOR CLAYEY (30%) STRINGERS, AND 10% PHOSPHATIC SAND IN LOWER 1'. BOTTOM 3" IS CALCAREOUS.

143.5- 146 CALCILUTITE; VERY LIGHT GRAY TO YELLOWISH GRAY
22% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-14%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: SPECKLED, CHALKY
FOSSILS: SHARKS TEETH
MUCH PHOSPHATIC SAND IN MODERATELY HARD CHALKY CALCILUTITE.

146 - 149 SANDSTONE; LIGHT GRAYISH GREEN TO GRAYISH GREEN
28% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; LOW SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CLAY-40%, PHOSPHATIC SAND-12%
PHOSPHATIC GRAVEL-01%, CALCILUTITE-07%
OTHER FEATURES: SPECKLED, CALCAREOUS

149 - 159 SAND; LIGHT OLIVE TO LIGHT GRAYISH GREEN
32% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CLAY-35%, PHOSPHATIC SAND-12%
CALCILUTITE-07%
OTHER FEATURES: SPECKLED, CALCAREOUS
PHOSPHATIC CLAYEY SANDSTONE. MINOR THIN STRINGERS OF GREEN CLAY.

159 - 162 SANDSTONE; LIGHT OLIVE
28% POROSITY: INTERGRANULAR
GRAIN SIZE: MEDIUM; RANGE: VERY FINE TO VERY COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-10%
CLAY-15%
OTHER FEATURES: CALCAREOUS, SPECKLED
CONTAINS THIN STREAKS OF CALCAREOUS CLAY.

162 - 164 SAND; DARK GRAY
40% POROSITY: INTERGRANULAR
GRAIN SIZE: COARSE; RANGE: FINE TO VERY COARSE
ROUNDNESS: ROUNDED TO SUB-ANGULAR; HIGH SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: PHOSPHATIC SAND-35%, CALCILUTITE-03%
PHOSPHATIC GRAVEL-02%
OTHER FEATURES: SPECKLED, VARIEGATED

164 - 165 CALCILUTITE; BROWNISH GRAY
22% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 05% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCITE-02%
OTHER FEATURES: CHALKY

165 - 174.2 CLAY; GRAYISH GREEN TO GREENISH GRAY
20% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, STREAKED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-15%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: PLATY, PARTINGS, VARIEGATED, GRANULAR
VERY SANDY (VERY FINE -FINE) CLAY, CONTAINING STREAKS OF CLEAN GREEN CLAY WITH INTERBEDS OF UNCONSOLIDATED PHOSPHATIC (30%) QUARZT SAND. CLAYS CONTAIN PHOSPHATIC SAND TO 30% ALSO.

174.2- 175.5 LIMESTONE; YELLOWISH GRAY TO GREENISH GRAY
25% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED, NODULAR
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-18%
QUARTZ SAND-04%
EXTREMELY PHOSPHATIC (VERY FINE - FINE).

175.5- 181 CLAY; GRAYISH GREEN TO MODERATE GRAYISH GREEN
18% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-20%
CALCILUTITE-10%
OTHER FEATURES: PARTINGS, VARIEGATED, GRANULAR
UNIT IS VERIABLY PHOSPHATIC 10-25%. CONTAINS BRECCIATED CLACILUTITIC BED AT 178'. EXHIBITS DESICCATION/INFILL STRUCTURES.

181 - 189.7 CLAY; YELLOWISH GRAY TO GRAYISH OLIVE GREEN
15% POROSITY: INTERGRANULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-10%
OTHER FEATURES: CALCAREOUS, PARTINGS
UNIT IS VARIABLY CALCAREOUS. CALCILUTITE IS BOTH DISSEMINATED IN THE CLAY (MARLY) AND AS THIN BEDS OF MOLDIC LIMESTONE OR AN APPARENT BRECCIA OF CLASTS AND SHELL FRAGMENTS IN CLAYEY MATRIX.

189.7- 195 CALCILUTITE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
17% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-25%, PHOSPHATIC SAND-06%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: MUDDY, PLATY, POOR SAMPLE
MEDIUM RECRYSTALLIZATION, GREASY
UNIT CONTAINS HARD STRINGERS OF MOLDIC CALCILUTITE.

195 - 204 CLAY; GRAYISH OLIVE GREEN TO LIGHT GRAYISH GREEN
12% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-06%
QUARTZ SAND-05%, PHOSPHATIC GRAVEL-01%
FOSSILS: ALGAE, DIATOMS
VARIABLY PHOSPHATIC. UNIT APPEARS BURROWED IN UPPER 1' AND
CONTAINS MINOR PHOSPHATIC GRAVEL. UNIT GRADES MORE
CALCAREOUS (TO 25%) WITH DEPTH.

204 - 207.5 CLAY; LIGHT OLIVE GRAY
12% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-15%
CALCILUTITE-10%
OTHER FEATURES: CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS
CONTAINS OCCASIONAL QTZ-PHOS SAND STRINGERS.

207.5- 214 CALCILUTITE; WHITE TO MODERATE GRAY
25% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: PHOSPHATIC SAND-18%, QUARTZ SAND-12%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: SPECKLED, CHALKY, VARIEGATED
FOSSILS: MOLLUSKS
UPPER 1' CONTAINS INTERBEDS OF PREVIOUS SANDY CLAY
LITHOLOGY. RICH IN MOLLUSC FOSSILS.

214 - 219 PHOSPHATE; DARK GRAY
30% POROSITY: INTERGRANULAR; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-35%, CALCILUTITE-25%
OTHER FEATURES: SPECKLED, CALCAREOUS
INTERBEDDED PHOSPHATIC SAND, QUARTZ SAND & CALCILUTITE (CUTTINGS).

219 - 221.8 CALCILUTITE; MODERATE GRAY
22% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, SKELTAL CAST, SKELETAL
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND-25%, QUARTZ SAND-20% SHELL-20%
OTHER FEATURES: SPECKLED, GRANULAR, PLATY
FOSSILS: MOLLUSKS, FOSSIL MOLDS, WORM TRACES
PHOSPHATE-SANDY FOSSILIFEROUS CALCILUTIE. PELYCYPODS GASTROPODS.

221.8- 224 CLAY; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: LOW PERMEABILITY, INTERGRANULAR
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-18% QUARTZ SAND-12%
OTHER FEATURES: CALCAREOUS, PLATY, SPECKLED, GRANULAR
FOSSILS: MOLLUSKS, FOSSIL MOLDS

224 - 228 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-40%, PHOSPHATIC SAND-10% QUARTZ SAND-10%
OTHER FEATURES: PARTINGS, MUDDY, SPECKLED
FOSSILS: MOLLUSKS
INTERBEDDED VARIABLY HARD, VARIABLY CLAYEY (35-48%) SANDY CALCILUTITE. QUARTZ & PHOSPHATIC SAND STINGERS & DISSEMINATED.

228 - 238 CALCILUTITE; LIGHT GRAYISH GREEN TO LIGHT OLIVE GRAY
10% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-35%, PHOSPHATIC SAND-16%
QUARTZ SAND-14%
OTHER FEATURES: MUDDY, PARTINGS, SPECKLED
INTERBEDDED VARIABLY INDURATED, VARIABLY CLAYEY (TO 60%)
UNIT. SOME RELATIVELY PURE THIN GREEN CLAY STRINGERS. MUCH
MATRIX CLAY.

238 - 243.6 CALCILUTITE; LIGHT GRAYISH GREEN TO LIGHT GREENISH GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-30%, PHOSPHATIC SAND-12%
QUARTZ SAND-08%, SHELL-05%
OTHER FEATURES: MUDDY, PARTINGS, SPECKLED
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
INTERBEDDED VARIBLY CLAYEY (25-50%) PHOSPHATIC CALCILUTITE.

243.6- 248.5 CLAY; OLIVE GRAY TO GREENISH GRAY
05% POROSITY: LOW PERMEABILITY; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED, STREAKED
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-10%
QUARTZ SAND-10%
OTHER FEATURES: PLATY, PARTINGS, CALCAREOUS
STIFF SOMEWHAT SANDY, SLIGHTLY CALCAREOUS CLAY.

248.5- 251.5 CALCILUTITE; YELLOWISH GRAY TO GREENISH GRAY
GRAIN TYPE: CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CLAY-28%, PHOSPHATIC SAND-16%
QUARTZ SAND-12%
OTHER FEATURES: SPECKLED, VARIEGATED

251.5- 253 CLAY; OLIVE GRAY TO GREENISH GRAY
08% POROSITY: LOW PERMEABILITY, INTERGRANULAR
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: SHELL-05%, PHOSPHATIC SAND-22%
QUARTZ SAND-20%, CALCILUTITE-05%
OTHER FEATURES: GRANULAR, PARTINGS, SPECKLED, VARIEGATED
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
EXTREMELY SANDY, FRAGMENTED GREEN CLAY.

253 - 254 CALCILUTITE; WHITE TO MODERATE GRAY
25% POROSITY: MOLDIC, INTERGRANULAR
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND-18%, QUARTZ SAND-12%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: VARIEGATED, GRANULAR, PLATY
FOSSILS: MOLLUSKS, ECHINOID

254 - 257 CALCILUTITE; LIGHT OLIVE GRAY TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-30%, QUARTZ SAND-10%
CLAY-25%
OTHER FEATURES: SPECKLED, GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS
GUMMY PHOSPHATE-RICH CLAYEY CALCILUTITE.

257 - 259 CALCILUTITE; LIGHT OLIVE GRAY TO WHITE
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: STREAKED, BEDDED
ACCESSORY MINERALS: CLAY-35%, SHELL-20%
PHOSPHATIC SAND-08%, QUARTZ SAND-08%
OTHER FEATURES: PARTINGS, PLATY, VARIEGATED, MUDDY
FOSSILIFEROUS
FOSSILS: MOLLUSKS
TRANSITIONAL BED - LOWER PORTION CONTAINS LITTLE CLAY
NUMEROUS FOSSILS - LARGE MOLLUSCS.

259 - 262.5 CALCILUTITE; WHITE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%
OTHER FEATURES: CHALKY
FOSSILS: MOLLUSKS
GUMMY, VARIABLY HARD CALCILUTITE, OYSTERS?

262.5- 271 CLAY; OLIVE GRAY TO LIGHT OLIVE GRAY
02% POROSITY: NOT OBSERVED; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
OTHER FEATURES: PLATY, VARVED
FOSSILS: NO FOSSILS
DENSE, HARD, WAXY CLAY. UPPER 1' CONTAINS CALCILUTITE
STRINGERS WITH OYSTER(?) SHELL.

271 - 274 LIMESTONE; YELLOWISH GRAY TO MODERATE DARK GRAY
26% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCILUTITE-70%, PHOSPHATIC GRAVEL-20%
PHOSPHATIC SAND-08%
OTHER FEATURES: SPECKLED, VARIEGATED, FOSSILIFEROUS
FOSSILS: MOLLUSKS, ECHINOID, CORAL
PEBBLE PHOSPHATE CONGLOMERATE WITH CALCILUTITIC MATRIX.

274 - 283 LIMESTONE; LIGHT GRAY TO MODERATE GRAY
20% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-65%, CLAY-25%
DOLOMITE- %, PHOSPHATIC SAND-03%
OTHER FEATURES: MUDDY, FOSSILIFEROUS, PARTINGS
FOSSILS: MOLLUSKS
VARIABLY INDURATED & CLAYEY (DOLOMITIC?) LIMESTONE.

283 - 303.5 CALCARENITE; VERY LIGHT GRAY TO YELLOWISH GRAY
26% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-07%
PHOSPHATIC SAND-01%
OTHER FEATURES: CHALKY, GRANULAR, PARTINGS
MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS
INTERBEDDED CHALKY FOSSILIFEROUS CALCILUTUITE AND LESSER
CLAYEY LIMESTONE AND OLIVE CLAY CONTAINING CALCAREOUS
INTERCLASTS AND PELLETS. ALL BEDS GENERALLY MOLLUSC-RICH.

303.5- 310.5 LIMESTONE; YELLOWISH GRAY TO WHITE
22% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CALCILUTITE-50%, PHOSPHATIC GRAVEL-03%
PHOSPHATIC SAND-03%, CLAY-03%
OTHER FEATURES: CHALKY, GRANULAR, MUDDY, FOSSILIFEROUS
GRAINY MODERATELY SOFT LIMESTONE CONTAINING PHOSPHATIC
GRAVEL & CLASTS 1-4 CM LONG.

310.5- 312.5 DOLOSTONE; LIGHT OLIVE GRAY
05% POROSITY: LOW PERMEABILITY, PIN POINT VUGS
10-50% ALTERED; ANHEDRAL
GRAIN SIZE: VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: PHOSPHATIC SAND-02%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: GRANULAR

312.5- 314 LIMESTONE; LIGHT OLIVE GRAY TO MODERATE OLIVE BROWN
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-75%, DOLOMITE-15%
CLAY-08%, PHOSPHATIC SAND-02%
OTHER FEATURES: MUDDY, GRANULAR, DOLOMITIC

314 - 320.5 LIMESTONE; VERY LIGHT GRAY
35% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-50%, PHOSPHATIC SAND-08%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: FOSSILIFEROUS, PLATY, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA
ECHINOID, BRYOZOA
EXTREMELY MOLDIC UNIT. RICH IN MOLLUSC FAUNA. SORTIES.
DISSEMINATED PHOSPHATE SAND AND CONCENTRATED STRINGERS.

320.5- 323 SANDSTONE; LIGHT OLIVE TO GRAYISH OLIVE GREEN
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; MODERATE INDURATION
CEMENT TYPE(S): SILICIC CEMENT, CALCILUTITE MATRIX
CLAY MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: CLAY-25%, CALCILUTITE-15%
PHOSPHATIC SAND-07%, PHOSPHATIC GRAVEL-01%
OTHER FEATURES: MUDDY, VARIEGATED, CALCAREOUS
FOSSILS: MOLLUSKS
VARIABLY CLAYEY SANDSTONE WITH LARGE MOLLUSC FRAGMENTS.

323 - 326 CALCARENITE; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-45%, PHOSPHATIC SAND-04%
PHOSPHATIC GRAVEL-01%, QUARTZ-01%
OTHER FEATURES: CHALKY
FOSSILS: FOSSIL MOLDS
FAIRLY TIGHT, VERY FINE CALCARENITE, CONTAINS VEINLETS AND
LIMITED VUG-FILL OF SECONDARY, OFTEN EUHEDRAL QUARTZ, SOME
PHOSPHATIC STRINGERS.

326 - 336 LIMESTONE; VERY LIGHT GRAY TO WHITE
30% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-45%, CHERT-06%, QUARTZ-05%
PHOSPHATIC SAND-02%
OTHER FEATURES: FOSSILIFEROUS, CHALKY
FOSSILS: MOLLUSKS
RICH MOLLUSCAN FAUNA - EUHEDRAL QUARTZ VUG FILL AND CHERT
BRECCIA - FILL. DOLOMITIC?

336 - 339.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
28% POROSITY: MOLDIC, INTERGRANULAR; 0-10% ALTERED
SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-08%
CHERT-02%, CLAY-02%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS
EXTREMELY MOLDIC (MOLLUSC). BROWN CHERT VUG FILL. SOME
OPALESCENT WHITE SANDY CLAY VUG FILL.

339.5- 356 LIMESTONE; VERY LIGHT GRAY TO WHITE
30% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-45%, QUARTZ-08%
PHOSPHATIC SAND-05%, CLAY-01%
OTHER FEATURES: FOSSILIFEROUS, CHALKY
FOSSILS: MOLLUSKS, CORAL
MOLDIC (MOLLUSC, CORAL) BURROWED UNIT. CONTAINS SOME
EUHEDRAL QUARTZ VUG FILL. THIN CLAY LENS AT 342.5'. UNUSUAL
CHERT REPLACEMENT STRUCTURE AT 351'.

356 - 357 LIMESTONE; MODERATE GRAY TO LIGHT GRAY
16% POROSITY: LOW PERMEABILITY, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
ACCESSORY MINERALS: CALCILUTITE-60%, SHELL-15%
QUARTZ SAND-15%, PHOSPHATIC SAND-10%
OTHER FEATURES: SPECKLED, VARIEGATED
FOSSILS: MOLLUSKS, CORAL, BENTHIC FORAMINIFERA
THIN HARD SILICEOUS UNIT. SOME EUHEDRAL QUARTZ IN VUGS.
CHERTY? SORITES.

357 - 364 CALCILUTITE; VERY LIGHT GRAY TO WHITE
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: PHOSPHATIC SAND-06%, QUARTZ SAND-08%
QUARTZ-02%
OTHER FEATURES: CHALKY
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL MOLDS
POROSITY VARIES FROM 12% INTERGRANULAR TO 25% MOLDIC.
SORITES.

364 - 372.5 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
30% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: CALCILUTITE, SKELTAL CAST
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-08%, PHOSPHATIC SAND-07%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA
INTERBEDDED VERY MOLDIC CALCILUTITE AND VERY MOLDIC SANDY
CALCILUTITE. GASTROPODS, BIVALVES, SORITES.

372.5- 374 DOLOSTONE; YELLOWISH GRAY
25% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, CALCILUTITE-20%
OTHER FEATURES: FOSSILIFEROUS, CALCAREOUS
FOSSILS: MOLLUSKS, FOSSIL MOLDS

374 - 376 CALCILUTITE; VERY LIGHT GRAY TO WHITE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-14%, PHOSPHATIC SAND-10%
OTHER FEATURES: CHALKY, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
GRADES SANDIER WITH DEPTH.

376 - 377 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
20% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CRYSTALS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC SAND-12%
QUARTZ SAND- %
OTHER FEATURES: FOSSILIFEROUS, GRANULAR, SPECKLED
MEDIUM RECRYSTALLIZATION
FOSSILS: MOLLUSKS
DOLOMITIC?

377 - 378.5 CALCARENITE; YELLOWISH GRAY TO MODERATE GRAY
16% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-15%
PHOSPHATIC SAND-08%, DOLOMITE- %
OTHER FEATURES: VARVED, VARIEGATED
FOSSILS: MOLLUSKS, FOSSIL MOLDS
IRREGULAR PILLOWY-BEDDED CALCARENITE AND QTZ-PHOS SANDY
CALCILUTITE.

378.5- 383.7 DOLOSTONE; LIGHT OLIVE GRAY TO GRAYISH ORANGE
25% POROSITY: MOLDIC, INTERGRANULAR
POSSIBLY HIGH PERMEABILITY; 0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-15%
PHOSPHATIC SAND-15%
OTHER FEATURES: CALCAREOUS, FOSSILIFEROUS, SPECKLED
PARTINGS
FOSSILS: FOSSIL MOLDS, MOLLUSKS
BOTTOM 1' MOSTLY HARD BEDDED DOLOMITIC CALCILUTITE.

383.7- 387 CALCARENITE; LIGHT OLIVE GRAY TO MODERATE GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-25%
PHOSPHATIC SAND-23%, DOLOMITE- %
OTHER FEATURES: SPECKLED, GRANULAR

387 - 390.5 LIMESTONE; LIGHT OLIVE GRAY
35% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: DOLOMITE-35%, CALCILUTITE-20%
QUARTZ SAND-14%, PHOSPHATIC SAND-10%
OTHER FEATURES: FOSSILIFEROUS, SPECKLED, DOLOMITIC
FOSSILS: MOLLUSKS, FOSSIL MOLDS, ECHINOID, CORAL

390.5- 400 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-05%
DOLOMITE- %
OTHER FEATURES: CHALKY, SPECKLED, DOLOMITIC
FOSSILS: ECHINOID
1% OF QUARTZ SAND IS VERY COARSE SIZE AND WELL-ROUND, REST IS FINE SIZE. VARIABLY PHOSPHATIC. SOMEWHAT DOLOMITIC? IN LOWER PART.

400 - 402 DOLOSTONE; YELLOWISH GRAY TO DARK GREENISH GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
0-10% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, NODULAR
ACCESSORY MINERALS: QUARTZ SAND-25%, CALCILUTITE-20%
PHOSPHATIC SAND-08%
OTHER FEATURES: CALCAREOUS, PARTINGS, SPECKLED
INTERBEDS OF MODERATELY HARD QTZ-PHOSPHATIC SANDY CALCAREOUS DOLOMITE AND PASTY POORLY INDURATED SAME. QTZ SAND RANGES 15-40%.

402 - 408.5 CALCILUTITE; WHITE TO VERY LIGHT GRAY
24% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: QUARTZ SAND-12%, PHOSPHATIC SAND-05%
CHERT-01%
OTHER FEATURES: FOSSILIFEROUS, CHALKY, GRANULAR
FOSSILS: MOLLUSKS, FOSSIL MOLDS
EXTREMELY MOLLUSC-RICH UNIT. BROWN CHERT TUBE AT 403.5'.

408.5- 412 LIMESTONE; PINKISH GRAY TO LIGHT OLIVE GRAY
16% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-18%, PHOSPHATIC SAND-08%
OTHER FEATURES: PARTINGS, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS
THIN ZONE OF VARIABLE LITHOLOGY: BEDS OF QTZ-PHOS SANDY MOLDIC CALCILUTITE, DENSE QTZ-PHOS SANDY DOLOMITE & POORLY CONSOLIDATED PASTY, QTZ-PHOS SANDY CALCILUTITE.

412 - 415.5 CALCILUTITE; VERY LIGHT GRAY TO LIGHT GRAY
26% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST
15% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-24%, PHOSPHATIC SAND-12%
OTHER FEATURES: FOSSILIFEROUS
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA
SORITES. QTZ + PHOS SAND TO 50% TOWARD UNIT BOTTOM.

415.5- 418.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
POROSITY: NOT OBSERVED, LOW PERMEABILITY; 0-10% ALTERED ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-25%, QUARTZ SAND-20%
PHOSPHATIC SAND-06%
OTHER FEATURES: CALCAREOUS, SPECKLED
VERY HARD, DENSE & IMPERMEABLE.

418.5- 420.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-08%
DOLOMITE- %
OTHER FEATURES: PARTINGS, SPECKLED
INTERBEDDED MODERATELY HARD QTZ-PHOS SANDY CALCILUTITE AND SOFT PASTY QTZ-PHOS SANDY CALCILUTITE.

420.5- 424.3 CALCARENITE; YELLOWISH GRAY
24% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-08%
OTHER FEATURES: FOSSILIFEROUS, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS, BENTHIC FORAMINIFERA
SORITES.

424.3- 437.5 CALCILUTITE; YELLOWISH GRAY
16% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-05%
INTERBEDDED MODERATELY AND POORLY INDURATED VERY SANDY UNIT. PHOSPHATIC SAND % INCREASES TOWARD BASE TO 20%.

437.5- 439.5 CALCILUTITE; VERY LIGHT GRAY TO WHITE
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY, MOLDIC
GRAIN TYPE: CALCILUTITE, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-06%
OTHER FEATURES: GRANULAR, CHALKY, PARTINGS
FOSSILS: MOLLUSKS, FOSSIL MOLDS
INTERBEDDED VARIABLY INDURATED UNIT. TWO INCH LAYER OF PURE, MOLDIC CALCILUTITE AT BASE.

439.5- 442 CALCILUTITE; VERY LIGHT GRAY TO LIGHT GRAY
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO COARSE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-06%
OTHER FEATURES: GRANULAR, CHALKY, PARTINGS, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS
THIN INTERBEDS OF MOLLUSCAN CALCILUTITE AND VERY QTZ-SANDY
(TO 45%) CALCILUTITE.

442 - 445 SAND; VERY LIGHT GRAY TO LIGHT OLIVE GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%, PHOSPHATIC SAND-10%
OTHER FEATURES: CALCAREOUS, SPECKLED

445 - 453.5 SANDSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-12%
OTHER FEATURES: CALCAREOUS, PARTINGS, SPECKLED, MUDDY
FOSSILS: ECHINOID
VARIABLY INDURATED (POOR TO MODERATE) CALCILUTITE MATRIX.

453.5- 460.5 CALCILUTITE; LIGHT OLIVE GRAY
18% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: QUARTZ SAND-38%, PHOSPHATIC SAND-08%
OTHER FEATURES: GRANULAR, FOSSILIFEROUS
FOSSILS: MOLLUSKS
INTERBEDDED GRANULAR FOSSILIFEROUS HARD SANDY CALCILUTITE
AND SOFT SANDY NON-FOSSILIFEROUS CALCILUTITE.

460.5- 461.8 LIMESTONE; WHITE TO VERY LIGHT GRAY
25% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELTAL CAST, CALCILUTITE, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-75%, PHOSPHATIC SAND-15%
QUARTZ SAND-10%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS

461.8- 469.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-30%
PHOSPHATIC SAND-05%
OTHER FEATURES: GRANULAR
POORLY INDURATED VERY FINE SANDY CALCARENITE & MODERATELY
HARD SAME.

469.5- 472.5 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
20% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-25%
PHOSPHATIC SAND-15%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS

472.5- 482 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
16% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, STREAKED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-14%
OTHER FEATURES: VARIEGATED, GRANULAR, PARTINGS, SPECKLED
VERIABLY (POORLY TO MODERATELY) INDURATED, VERY SANDY UNIT.

482 - 482.5 CHERT; YELLOWISH GRAY TO LIGHT BLUISH GRAY
04% POROSITY: LOW PERMEABILITY, FRACTURE; GOOD INDURATION
CEMENT TYPE(S): SILICIC CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-05%
PHOSPHATIC SAND-05%
OTHER FEATURES: VARIEGATED
HARD CHERT LENS.

482.5- 485 LIMESTONE; WHITE TO MODERATE GRAY
18% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST, SKELETAL
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-45%, QUARTZ SAND-20%
PHOSPHATIC SAND-20%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS

485 - 490.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING, MOTTLED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-08%
CLAY- %
OTHER FEATURES: VARIEGATED, SPECKLED
CONSISTANT UNIT. SAND IS VERY FINE. CLAYEY? UPWARD-FINING FROM NEXT UNIT.

490.5- 495.7 CALCILUTITE; LIGHT OLIVE GRAY TO GREENISH GRAY
16% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 10% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING
ACCESSORY MINERALS: QUARTZ SAND-34%, PHOSPHATIC SAND-15%
CLAY- %
OTHER FEATURES: GRANULAR, SPECKLED, FOSSILIFEROUS
FOSSILS: MOLLUSKS
COARSER SANDY MEMBER OF FINING-UPWATD SEQUENCE DESCRIBED ABOVE. SOME CHALKY MOLLUSC FRAGMENTS AND MORE CALCAREOUS IN LOWER 2'.

495.7- 496.8 CALCILUTITE; WHITE TO YELLOWISH GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRAVEL; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING, NODULAR
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-02%
PHOSPHATIC GRAVEL-01%
OTHER FEATURES: SPLINTERY
FOSSILS: MOLLUSKS
GUMMY CALCILUTITE.

496.8- 501.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: STREAKED, GRADED BEDDING
ACCESSORY MINERALS: CLAY-20%, PHOSPHATIC SAND-18%
QUARTZ SAND-03%, PHOSPHATIC GRAVEL-01%
OTHER FEATURES: VARIEGATED, SPECKLED, PARTINGS, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
UPPERMOST 2-4' IS COARSER LAYER CONTAINING 3 CM CALCILUTITE CLASTS AND MUCH COARSE PHOSPHORITE. OTHERWISE IS A FINING-UPWARD SEQUENCE WITH MUCH QTZ-PHOS SAND IN LOWER HALF, CLAY AND LESS SAND IN UPPER. SLUMP STRUCTURES IN UPPER BED.

501.5- 503.7 CLAY; DARK GREENISH GRAY
08% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: STREAKED
ACCESSORY MINERALS: CALCILUTITE-25%, PHOSPHATIC SAND-12%
QUARTZ SAND-03%
OTHER FEATURES: CALCAREOUS, GRANULAR, SPECKLED, PARTINGS
FOSSILS: MOLLUSKS

503.7- 506 CALCILUTITE; LIGHT OLIVE GRAY TO OLIVE GRAY
16% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-14%
QUARTZ SAND-05%
OTHER FEATURES: PARTINGS, GRANULAR, SPECKLED
LOWER HALF OF UNIT IS CLAYIER THAN TOP.

506 - 520 LIMESTONE; VERY LIGHT GRAY TO WHITE
22% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCILUTITE-45%, DOLOMITE-20%
PHOSPHATIC SAND-08%, QUARTZ SAND-05%
OTHER FEATURES: SPECKLED, CHALKY
FOSSILS: MOLLUSKS, FOSSIL MOLDS, CORAL
VARIABLY QUARTZ SANDY (2-15%), VARIABLY CLAYEY (0-15%)
CALCILUTITIC LIMESTONE CONTAINING MANY DOLOMITIC CLASTS AND PHOSPHATIC SAND AND GRAVEL.

520 - 526 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING, MOTTLED
ACCESSORY MINERALS: CLAY-25%, QUARTZ SAND-14%
PHOSPHATIC SAND-10%
OTHER FEATURES: MUDDY, GRANULAR, VARIEGATED
FINING-UPWARD BED. LOWER HALF CONTAINS MUCH SAND (50%) AND CALCILUTITE INTERCLASTS, UPPER HALF IS CLAYEY. BOTTOM 4" IS SANDY CALCAREOUS CLAY.

526 - 529.2 DOLOSTONE; VERY LIGHT GRAY TO WHITE
24% POROSITY: VUGULAR, INTERGRANULAR; 0-10% ALTERED ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCILUTITE-20%, PHOSPHATIC GRAVEL-10%
PHOSPHATIC SAND-05%, QUARTZ SAND-03%
OTHER FEATURES: CALCAREOUS
UNIT CONTAINS MUCH APPARENT POROSITY DUE TO WASH-OUT OF VUG-FILL DURING CORING. THIN (0.2') LAYER OF EXTREMELY MOLDIC RECRYSTALLIZED GOLDEN DOLOMITE.

529.2- 534 SAND; YELLOWISH GRAY TO GREENISH GRAY
25% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-03%
CALCARENITE-02%
INTERBEDDED, UNCONSOLIDATED, VERY FINE QUARTZ SAND AND THIN LENSES OF POORLY CONSOLIDATED GREEN CLAYEY SAND & CLAY. POOR CORE RECOVERY.

534 - 539 SAND; YELLOWISH GRAY TO GREENISH GRAY
25% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-10%, LIMESTONE-05%
PHOSPHATIC SAND-03%, CALCARENITE-02%
INTERBEDDED, UNCONSOLIDATED VERY FINE QUARTZ SAND AND THIN LENSES OF MODERATELY CONSOLIDATED QUARTZ ARENITE AND QUARTZ-SANDY RECRYSTALLIZED MOLDIC LIMESTONE. POOR CORE RECOVERY.

539 - 544 SAND; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-30%, CLAY-10%
PHOSPHATIC SAND-03%, SPAR-02%
INTERBEDDED UNCONSOLIDATED VERY FINE-SILT SIZE QUARTZ SAND AND LENSES OF MODERATELY HARD RECRYSTALLIZED MOLDIC LIMESTONE WITH SOME EUHEDRAL CALCITE MOLD-FILL. POOR CORE RECOVERY.

544 - 549 SAND; GREENISH GRAY TO LIGHT OLIVE GRAY
25% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-15%, LIMESTONE-10%
CLAY-05%, PHOSPHATIC SAND-03%
INTERBEDDED UNCONSOLIDATED VERY FINE QUARTZ SAND AND BEDS
OF SANDY HARD BUFF CALCILUTITE AND RECRYSTALLIZED MOLDIC
LIMESTONE. POOR CORE RECOVERY.

549 - 554 SAND; LIGHT OLIVE GRAY
22% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-10%
PHOSPHATIC SAND-02%
INTERBEDDED UNCONSOLIDATED VERY FINE QUARZT SAND AND BEDS
OF VERY SANDY, CLAYEY POORLY CONSOLIDATED CALCILUTITE.

554 - 559 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY
25% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-20%, CLAY-08%
PHOSPHATIC SAND-02%
INTERBEDDED UNCONSOLIDATED VERY FINE QUARTZ SAND AND BEDS
OF VERY SANDY, EXTREMELY HARD DENSE LIMESTONE AND
CALCAREOUS QUARTZ SANDSTONE. POOR CORE RECOVERY.

559 - 562 LIMESTONE; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE
45% POROSITY: POSSIBLY HIGH PERMEABILITY, FRACTURE, MOLDIC
GRAIN TYPE: CRYSTALS; 35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO COARSE; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: SPAR-85%, CALCILUTITE-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS
EXTREMELY TRANSMISSIVE, RECRYSTALLIZED LIMESTONE WITH
EUHEDRAL CALCITE CRYSTALS IN VUGS AND FRACTURES.

562 - 562.5 CLAY; GRAYISH OLIVE GREEN TO VERY LIGHT GRAY
POROSITY: NOT OBSERVED; GOOD INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE- %
OTHER FEATURES: PARTINGS
VERY THIN CLAY LENSES SANDWICHING A THIN CHALKY CALCILUTITE BED.

562.5- 564 NO SAMPLES
PROBABLY VERY FINE QUARTZ SAND.

564 - 566 SANDSTONE; GREENISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, FISSILE
ACCESSORY MINERALS: CLAY-35%, CALCILUTITE-12%
PHOSPHATIC SAND-02%, SHELL-02%
OTHER FEATURES: VARVED, PARTINGS, CALCAREOUS, VARIEGATED
FOSSILS: MOLLUSKS, FOSSIL FRAGMENTS
GREEN CLAY INCLUDED AS VARVES NEAR TOP AND AS ROUNDED CLASTS (TO 1 CM) NEAR BOTTOM.

566 - 570.3 CLAY; DARK GREENISH GRAY
04% POROSITY: LOW PERMEABILITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED, FISSILE, INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ SAND-15%
OTHER FEATURES: VARVED, PARTINGS
CLAY WITH INTERBEDS OF LIMESTONE AND CALCAREOUS CLASTS (568.5') IN UPPER SECTION. CLAY WITH VARVES OF SAND IN LOWER SECTION.

570.3- 571 LIMESTONE; LIGHT OLIVE GRAY
10% POROSITY: LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CLAY-25%, QUARTZ SAND-06%
PHOSPHATIC SAND-01%
OTHER FEATURES: VARVED, PARTINGS, GRANULAR

571 - 574 SAND; LIGHT OLIVE GRAY TO MODERATE LIGHT GRAY
14% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
LOW SPHERICITY; UNCONSOLIDATED
ACCESSORY MINERALS: PHOSPHATIC SAND-09%, CALCARENITE-02%
OTHER FEATURES: SPECKLED
DESCRIBED FROM CUTTINGS - POOR CORE RECOVERY.

574 - 577.8 SANDSTONE; LIGHT GRAY
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-15%, PHOSPHATIC SAND-04%
OTHER FEATURES: SPECKLED, CALCAREOUS
FOSSILS: FOSSIL MOLDS
MODERATELY DURABLE CALCAREOUS SANDSTONE WITH MINOR MOLDIC CLACAREOUS LENSES.

577.8- 580 LIMESTONE; GRAYISH ORANGE TO YELLOWISH GRAY
38% POROSITY: MOLDIC, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: OOLITE CLAST, SKELTAL CAST, CALCILUTITE
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: SPAR-35%, QUARTZ SAND-30%
PHOSPHATIC SAND-05%
OTHER FEATURES: COQUINA, HIGH RECRYSTALLIZATION
FOSSILS: MOLLUSKS, FOSSIL MOLDS
VARIABLY QUARTZ SANDY (15-40%) RECRYSTALLIZED COQUINA BED.

580 - 580.5 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING
ACCESSORY MINERALS: QUARTZ SAND-25%, CLAY-15%
OTHER FEATURES: PARTINGS

580.5- 589 SAND; GREENISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CALCARENITE-03%
DESCRIBED FROM CUTTINGS. 584-589' APPEARS TO BE VERY FINE GRAINED.

589 - 594 MUDSTONE; LIGHT OLIVE GRAY
POROSITY: NOT OBSERVED
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, CLAY-20%
CALCILUTITE-06%
OTHER FEATURES: VARVED, CALCAREOUS
FOSSILS: NO FOSSILS
LOWER SECTION CONTAINS VARVES OF DARK GREEN CLAY.

594 - 601.3 SANDSTONE; DARK GREENISH GRAY
05% POROSITY: LOW PERMEABILITY
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MEDIUM SPHERICITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CLAY-35%, PHOSPHATIC SAND-02%
OTHER FEATURES: PARTINGS, GRANULAR, LOW RECRYSTALLIZATION
INTERBEDDED HARD CLAYEY SAND, AND VERY SANDY SOFT CLAY OR
CLAYEY SAND. UPPER HALF OF SECTION IS LESS SANDY.

601.3- 604 NO SAMPLES
PROBABLY SAND AS DESCRIBED BELOW.

604 - 609 SAND; GREENISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MEDIUM SPHERICITY; UNCONSOLIDATED
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, CALCARENITE-02%
CLAY- %
OTHER FEATURES: MUDDY
DESCRIBED FROM CUTTINGS.

609 - 613.5 SANDSTONE; LIGHT GRAY
18% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MEDIUM SPHERICITY; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: CLAY-15%, PHOSPHATIC SAND-03%
OTHER FEATURES: SUCROSIC
UNIT SHOWS IRREGULAR EROSIONAL/FILL SURFACES. CLAY IS
DISSEMINATED AND AS CLASTS, FILL.

613.5- 618 SANDSTONE; GRAYISH OLIVE GREEN
14% POROSITY: INTERGRANULAR
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MEDIUM SPHERICITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CLAY-40%, PHOSPHATIC SAND-02%
CALCILUTITE-03%
OTHER FEATURES: VARVED, PARTINGS
FOSSILS: NO FOSSILS
CLAY IS DISSEMINATED? AS VARVES.

618 - 625.5 CALCILUTITE; LIGHT OLIVE GRAY TO VERY LIGHT GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE; 95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-40%, CLAY-07%
PHOSPHATIC SAND-03%
OTHER FEATURES: GRANULAR
PRIMARILY A VERY SANDY, HARD CALCILUTITE WITH INTERBEDS OF
QTZ - SANDY CALCARENITE AND CLAYEY SAND. SOME CLAYEY
SAND-FILLED BURROWS IN THE CALCILUTITE.

625.5- 631.5 CLAY; DARK GREENISH GRAY
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-03%
OTHER FEATURES: PARTINGS, VARIEGATED, PLATY
FOSSILS: SHARKS TEETH
INTERBEDDED CLEAN DENSE DARK OLIVE CLAY AND VERY SANDY
(15-40%) CLAY.

631.5- 639 SANDSTONE; DARK GREENISH GRAY
15% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MEDIUM SPHERICITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CLAY-35%, PHOSPHATIC SAND-05%
OTHER FEATURES: MUDDY
CLAY % IS BOTH DISSEMINATED AND AS BLEBS AND STRINGERS.

639 - 644 SAND; DARK GREENISH GRAY
13% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: STREAKED
ACCESSORY MINERALS: CLAY-35%, PHOSPHATIC SAND-04%
OTHER FEATURES: MUDDY

644 - 654 SAND; DARK GREENISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY
UNCONSOLIDATED
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-07%
OTHER FEATURES: SPECKLED
SAMPLE DESCRIPTION FROM CUTTINGS.

654 - 665 SANDSTONE; GRAYISH GREEN TO DARK GREENISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MEDIUM SPHERICITY; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: CLAY-10%, PHOSPHATIC SAND-08%
CALCILUTITE-05%
LOWER 0.4' CONTAINS SMALL LIMESTONE CLASTS.

665 - 668.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
28% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELTAL CAST
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-08%
OTHER FEATURES: FOSSILIFEROUS, SPECKLED
FOSSILS: MOLLUSKS, FOSSIL MOLDS
MUCH MOLDIC POROSITY.

668.5- 670 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: LOW PERMEABILITY, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO COARSE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS, MOLLUSKS
HARD DENSE BED. TOP 3" BED OF UNCONSOLIDATED CALCARENITE.

670 - 673 CALCARENITE; YELLOWISH GRAY
35% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-04%
OTHER FEATURES: FOSSILIFEROUS, GRANULAR, SPLINTERY
FOSSILS: CRUSTACEA, FOSSIL MOLDS, MOLLUSKS
LOWER HALF OF BED IS VERY FRIABLE. CRAB CLAWS.

673 - 676.5 LIMESTONE; YELLOWISH GRAY
18% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-04%
OTHER FEATURES: FOSSILIFEROUS, PARTINGS
LOW RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, MILIOLIDS, CRUSTACEA
MOLDIC INTERVAL 673-674'; REST OF UNIT IS TIGHT (10-15%
POROSITY) WITH SOME THIN SOFT ZONES.

676.5- 679 NO SAMPLES
PROBABLY AS BELOW, OR UNCONSOLIDATED CALCILUTITE.

679 - 683.8 CALCARENITE; YELLOWISH GRAY
16% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-06%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, MILIOLIDS, CRUSTACEA

683.8- 692.5 LIMESTONE; YELLOWISH GRAY
35% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, CRYSTALS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SILICIC CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-03%
SPAR-10%
OTHER FEATURES: FOSSILIFEROUS, COQUINA, SPLINTERY
FOSSILS: FOSSIL MOLDS, MOLLUSKS, CRUSTACEA, BRYOZOA
VERY POROUS SHELL HASH WITH ENCRUSTING EUHEDRAL QUARTZ
VUG-FILL.

692.5- 694.5 CALCARENITE; YELLOWISH GRAY
06% POROSITY: MOLDIC, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ-10%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL MOLDS, MOLLUSKS, CORAL
HARD SILISIC MILIOLID-RICH. MOLDIC AT BASE (MOLLUSCS).

694.5- 696.2 LIMESTONE; LIGHT GRAY TO MODERATE GRAY
32% POROSITY: MOLDIC
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%, PHOSPHATIC SAND-07%
QUARTZ SAND-15%, QUARTZ-05%
OTHER FEATURES: FOSSILIFEROUS, SPLINTERY
FOSSILS: FOSSIL MOLDS, MOLLUSKS, MILIOLIDS
POROUS MOLDIC LIMESTONE.

696.2- 697.5 CALCARENITE; YELLOWISH GRAY
10% POROSITY: MOLDIC, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%, QUARTZ-05%
QUARTZ SAND-02%, PHOSPHATIC SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: MILIOLIDS, FOSSIL MOLDS, MOLLUSKS
DENSE HARD BED. EUHEDRAL QUARTZ VUG: MOLDIC LINING.

697.5- 698.8 LIMESTONE; LIGHT GRAY TO MODERATE GRAY
32% POROSITY: MOLDIC
GRAIN TYPE: BIOGENIC, SKELTAL CAST, CALCILUTITE
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, QUARTZ SAND-25%
PHOSPHATIC SAND-15%, QUARTZ-04%
OTHER FEATURES: FOSSILIFEROUS, SPLINTERY
FOSSILS: FOSSIL MOLDS, MOLLUSKS
POROUS MOLDIC PHOSPHATIC SANDY LIMESTONE.

698.8- 704 LIMESTONE; LIGHT GRAY TO VERY LIGHT ORANGE
18% POROSITY: FRACTURE, MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, NODULAR
ACCESSORY MINERALS: CALCILUTITE-30%, CALCARENITE-50%
QUARTZ SAND-16%, PHOSPHATIC SAND-04%
OTHER FEATURES: VARIEGATED, SPECKLED, GRANULAR
FOSSILS: FOSSIL MOLDS, MOLLUSKS
AGGREGATION OF HAWTHORN PHOSPHATIC-QUARTZ SANDY LIMESTONE
AND SUWANNEE (PALE ORANGE) SKELETAL PACKSTONE/CALCARENITE.
MAY REPRESENT HAWTHORN INFILL ON ERODED OR DESICCATED
SUWANNEE SURFACE OR REWORKED SUWANNEE CLASTS (3-5 CM) IN
HAWTHORN BED.

704 - 706 CALCARENITE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: FOSSIL MOLDS, MILIOLIDS
TOP OF TYPICAL WEST-CENTRAL FLORIDA SUWANNEE LITHOLOGY.
THIS UNIT IS VARIABLY INDURATED (POOR-MODERATE).

706 - 710.5 CALCARENITE; VERY LIGHT ORANGE
25% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%, SPAR-01%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS, MOLLUSKS, WORM TRACES, MILIOLIDS
FOSSIL FRAGMENTS

710.5- 718 PACKSTONE; VERY LIGHT ORANGE
23% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, BIOGENIC, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-10%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS, MOLLUSKS

718 - 719 CALCARENITE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS

719 - 735.3 CALCARENITE; VERY LIGHT ORANGE
23% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%
OTHER FEATURES: GRANULAR, LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, WORM TRACES, ECHINOID
BENTHIC FORAMINIFERA
VARIABLY MOLDIC UNIT. TRACE AMOUNTS BLACK SPECKS 719-733'
INCREASING TO 1-2% AT 733-735.3'. SORITES.

735.3- 738.8 CALCARENITE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS

738.8- 749 CALCARENITE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, MILIOLIDS, MOLLUSKS
THIN HARDER LENSES AT 740' AND 749'.

749 - 751 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY
25% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CALCILUTITE-10%
OTHER FEATURES: SPECKLED, GRANULAR
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL MOLDS
PHOSPHATIC SAND CONCENTRATION 5-25% DECREASES WITH DEPTH.

751 - 769.2 CALCARENITE; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-01%
OTHER FEATURES: GRANULAR
FOSSILS: MILIOLIDS, FOSSIL MOLDS, MOLLUSKS, ECHINOID

769.2- 777 CALCARENITE; YELLOWISH GRAY TO WHITE
28% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL MOLDS, MOLLUSKS, FOSSIL FRAGMENTS
UPPER 2' SLIGHTLY FINER-GRAINED THAN REMAINDER.

777 - 779 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
18% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-35%
HARD BED (778-778.8') BETWEEN SOFTER OCALA-LIKE LITHOLOGY.

779 - 788 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE
UNCONSOLIDATED
ACCESSORY MINERALS: CALCILUTITE-05%
FOSSILS: NO FOSSILS
SAMPLE DESCRIBED FROM CUTTINGS. POORLY TO UNCONSOLIDATED
CALCAREOUS SAND.

788 - 809 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: CHALKY
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
BRYOZOA
VERY FINE GRAINED MICRITIC CALCARENITE. OBSCURE TRACES
LEPIDOCYCLINA. TRACE FINE PHOSPHATE.

809 - 814 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY
FOSSILS: BENTHIC FORAMINIFERA
MINOR LEPIDOCYCLINA, INTERBEDS MODERATE TO POORLY
CONSOLIDATED.

814 - 815 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY

815 - 818.7 CALCILUTITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL MOLDS

818.7- 829.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA

829.5- 834 CALCILUTITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL MOLDS

834 - 844 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, PHOSPHATIC SAND-01%
OTHER FEATURES: CHALKY
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS, WORM TRACES
LEPIDOCYCLINA. NUMMULITES. SOME POSSIBLE SHRINKAGE - CHALK
INFILL OF GRAY (CLAYEY?) CALCILUTITE.

844 - 872 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
OTHER FEATURES: CHALKY, GRANULAR

872 - 885.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: CHALKY, GRANULAR, PARTINGS
FOSSILS: BENTHIC FORAMINIFERA, SPICULES
LEPIDOCYCLINA. FEW NUMMULITES. CONTAINS SOME THIN BEDS OF
POORLY INDURATED GRAINY CALCILUTITE.

885.5- 892 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
17% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
LEPIDOCYCLINA. FEW NUMMULITES. TRACE GRAY DOLOMITIC OR
PHOSPHATIC GRAINS.

892 - 925 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, BIOGENIC
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-25%
OTHER FEATURES: FOSSILIFEROUS, CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
UNIT CONTAINS SEVERAL GRADED SUBUNITS. ABUNDANCE OF LEPIDOCYCLINA (UP TO 40% OF UNIT IS SKELETAL), ALTHOUGH ABSENT FROM FINER CALCILUTITE INTERBEDS. SOME NUMMULITES OCCASIONAL ECHINOID, CORAL, TRACE OF ALTERED/DOLOMITIC (GRAY) FORAM SKELETONS AND GRAINS. BELOW 911' SEQUENCE PICKS UP SOME DISSEMINATED OLIVE GRAY CLAY OR DOLOSILT.

925 - 928.6 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
13% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-45%
OTHER FEATURES: CHALKY, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL MOLDS
FOSSIL FRAGMENTS
APPROXIMATE 3% ALTERED/DOLOMITIC FORAM SKELETONS (GRAY). INTERBEDDED FORAMINIFEROUS VERY FINE GRAINED CALCARENITE AND SOFTER CALCILUTITE (SLIGHTLY CLAYEY). LEPIDOCYCLINA & NUMMULITES.

928.6- 937.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: FOSSILIFEROUS, CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ABUNDANT LEPIDOCYCLINA, LESSER NUMMULITES SKELETONS. SOME (1-2%) ALTERED, HIGH ANGLE FRACTURES @ 931'.

937.5- 938.8 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: FOSSILIFEROUS, CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
CRUMBLY BED.

938.8- 963 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: FOSSILIFEROUS, CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
ABUNDANT LEPIDOCYCLINA (30-35%) IN VERY FINE MATRIX. HIGH
ANGLE FRACTURE AT 955'.

963 - 968.6 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
11% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: CALCARENITE-25%, CLAY- %
OTHER FEATURES: MUDDY, PARTINGS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
INTERBEDDED PALE OLIVE CLAYEY(?) CALCILUTITE AND
FORAMINIFEROUS CALCARENITE AS ABOVE.

968.6- 991.5 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
ABUNDANT LEPIDOCYCLINA HASH (30-40%) IN VERY FINE - FINE
GRAINED CALCARENITE MATRIX. IRREGULAR GRAINY CALCILUTITE
LENSES ALSO COMMON. SOME OLD HIGH ANGLE FRACTURE.

991.5- 1004.2 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
11% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-40%, CLAY- %
OTHER FEATURES: CHALKY, GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
UNIT CONTAINS GRADED SUBUNITS WITH VARIABLE AMOUNTS
LEPIDOCYCLINA HASH (5-30%). VERY FINE - FINE FORAMINIFEROUS
CALCARENITE TO GRAINY CALCILUTITE. SLIGHTLY CLAYEY BED AT
1004'.

1004.2- 1004.6 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
CONTAINS ALTERED (DOLOMITIC?) GRAY FORAM FRAGMENTS TO 8%.

1004.6- 1012.2 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA
LEPIDOCYCLINA COMMON.

1012.2- 1014.8 CALCARENITE; YELLOWISH GRAY
11% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY
FOSSILS: BENTHIC FORAMINIFERA
LEPIDOCYCLINA.

1014.8- 1030 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
13% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR, FOSSILIFEROUS
FOSSILS: BENTHIC FORAMINIFERA
TRACE AMOUNTS DARK, FINELY GRANULAR MINERAL (SPECKS
FRACTURE- COATING). LOWER 3' CONTAINS APPROX 40%
CALCILUTITE.

1030 - 1032 CALCILUTITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE-30%
OTHER FEATURES: GRANULAR

1032 - 1044.3 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
LEPIDOCYCLINA SCARCE. FAINT MOTTLING (BIOTURBATION) IN
LOWER 8'.

1044.3- 1046 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE-40%
OTHER FEATURES: GRANULAR

1046 - 1054.2 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA
SOME NUMMULITES. TRACE AMOUNTS CARBONACEOUS DEBRIS OR ALTERED SKELETAL FRAGMENTS. RECRYSTALLIZED (ORGANIC?) STRUCTURE AT 1053'.

1054.2- 1059.2 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY, VARIEGATED
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
TRACE OF SMALL EUHEDRAL QUARTZ LINING SOME MOLDS. OCCASIONAL COILED FORAM. SOME MOLLUSC FRAGS.

1059.2- 1060 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE-40%
OTHER FEATURES: MUDDY, GRANULAR
OLIVE-TAN LIMY MUD WITH POORLY INDURATED CALCARENITE STRINGERS.

1060 - 1060.9 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, FOSSIL MOLDS
GASTROPOD, BIVALVE MOLDS. TRACE FINE EUHEDRAL QUARTZ IN MOLDS.

1060.9- 1061.9 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BIOTURBATED
ACCESSORY MINERALS: CALCILUTITE-50%
OTHER FEATURES: MUDDY, VARIEGATED
FOSSILS: MOLLUSKS, WORM TRACES, ECHINOID, FOSSIL MOLDS
MOTTLED BED ATOP LOWER ORGANIC STRINGER CONTAINING NUMEROUS ECHINOIDS.

1061.9- 1063.5 CALCARENITE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-15%
OTHER FEATURES: GRANULAR
FOSSILS: MOLLUSKS, WORM TRACES, FOSSIL MOLDS

1063.5- 1077.5 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: MOLDIC
GRAIN TYPE: SKELETAL, CALCILUTITE, CRYSTALS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-50%, SPAR-15%
DOLOMITE- %
OTHER FEATURES: PARTINGS, SPLINTERY, VARIEGATED
FOSSILS: ECHINOID, WORM TRACES
BANDED INTERBEDDING OF SLIGHTLY DOLOMITIC CALCILUTITE (5% POROSITY) AND RECRYSTALLIZED ECHINOID (NEOLAGANUM) HASH (15-20% POROSITY). BEDS ALTERNATE EVERY 2-5 CM. HASH BEDS MAY BE RESULT OF WINNOWING AWAY FINES.

1077.5- 1081 PACKSTONE; VERY LIGHT ORANGE
22% POROSITY: MOLDIC
GRAIN TYPE: SKELETAL, BIOGENIC, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: SHELL-45%, CALCARENITE-25%, SPAR-15%
QUARTZ-03%
OTHER FEATURES: SPLINTERY, PARTINGS
FOSSILS: ECHINOID, WORM TRACES
VERITABLE SMORGASBORD OF ECHINOID SHELLS AND WORM TUBES. EUHEDRAL QUARTZ SHELL-FILL AND MUCH SPARRY CALCITE. SOME STRINGERS OF DOLOMITIC CALCILUTITE. WINNOWED HASH RESIDIUM BED?

1081 - 1091 CALCILUTITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, SKELETAL, BIOGENIC
40% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED, BEDDED
ACCESSORY MINERALS: CALCARENITE-25%, SHELL-15%, SPAR-05%
OTHER FEATURES: DOLOMITIC, GREASY
FOSSILS: ECHINOID
VARIABLY THINLY BEDDED TO VARVED DOLOMITIC CALCILUTITE (PALE TO DARK OLIVE) CONTAINING MODERATE QUANTITY OF ECHINOIDS. INTERBEDS OF FINE-MED GRAINED CALCARENITE CONTAINING SUBSTANTIAL CONCENTRATION OF ECHINOIDS - 15% POROSITY. CYCLICAL DEPOSITION REGIME OR DEPOSITION & WINNOWING.

1091 - 1092.5 PACKSTONE; VERY LIGHT ORANGE
22% POROSITY: MOLDIC
GRAIN TYPE: SKELETAL, BIOGENIC, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCARENITE-50%, SHELL-25%, SPAR-15%
CALCILUTITE-10%
OTHER FEATURES: FOSSILIFEROUS, SPLINTERY, GRANULAR
FOSSILS: ECHINOID, WORM TRACES, ORGANICS
MEDIUM GRAINED CALCARENITE CONTAINING ABUNDANT ECHINOIDS AND WORM TUBES. THIN ORGANIC STRINGERS AT TOP & BOTTOM.

1092.5- 1100.2 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
VERY FINE GRAINED, TIGHT DOLOMITIC (?)
CALCARENITE/CALCILUTITE. ECHINOIDS COMMON. LAMINATED AND
VARVED NEAR UNIT BOTTOM WITH A FEW COARSER CALCARENITE
STRINGERS, SLIGHTLY DOLOMITIC?

1100.2- 1106.2 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
15% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, SPAR-15%, SHELL-15%
INTERBEDDED SOMEWHAT RECRYSTALLIZED FOSSILIFEROUS
(ECHINOIDS, WORM TUBES, FRAGMENTS) CALCARENITE AND
DOLOMITIC (?) THINNLY BEDDED, TIGHT CALCILUTITE.

1106.2- 1110.2 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-45%, DOLOMITE- %
OTHER FEATURES: VARVED, GRANULAR, VARIEGATED
FOSSILS: ECHINOID, BENTHIC FORAMINIFERA, CONES
INTERBEDDED FINE CALCARENITE AND LAMINATED PALE OLIVE
CALCILUTITE/ VERY FINE CALCARENITE. ECHINOIDS COMMON IN
COARSER GRAINED BEDS AND UPPER 1'. HARD DOLOMITE STRINGER
AT 1107'. DICTYOCONUS AT 1106.4'. MILIOLIDS OR OTHER FORAMS
ALSO.

1110.2- 1111 PACKSTONE; VERY LIGHT ORANGE
16% POROSITY: MOLDIC, INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, CRYSTALS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: CRYPTOCRYSTALLINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: CALCARENITE-50%, SPAR-15%
CALCILUTITE-10%
OTHER FEATURES: FOSSILIFEROUS, SPLINTERY, GRANULAR
FOSSILS: ECHINOID, WORM TRACES, SPICULES
ABUNDANT ECHINOIDS, EUHEDRAL CALCITE-FILL. BOTTOM OF BED IS
A SCOUR SURFACE.

1111 - 1125.5 CALCARENITE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, MOTTLED
ACCESSORY MINERALS: CALCILUTITE-20%
OTHER FEATURES: GRANULAR
FOSSILS: ECHINOID, WORM TRACES
COMPLEXLY BEDDED UNIT. DOMINANT LITHOLOGY IS FINE-MED
GRAINED CALCARENITE WITH APPARENT SCOUR & FILL SURFACES
RIP-UP CLASTS, DESICCATION AND INFILL STRUCTURES, SLOPED
INTERBEDS. NUMEROUS VERTICLE FEATURES/SURFACES 1111-1113'.

1125.5- 1132.5 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: MUDDY, PARTINGS, GRANULAR
FOSSILS: ECHINOID, WORM TRACES, BENTHIC FORAMINIFERA
OSTRACODS, CONES
VARIABLY INTERBEDDED FINE GRAINED CALCARENITE AND
CALCILUTITE/ CALCARENITES. SOME THIN ORGANIC LAMINAE. SOME
DICTYOCUNUS.

1132.5- 1143.5 PACKSTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, OOLITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%
OTHER FEATURES: GRANULAR
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA
SKELETAL PACKSTONE OF WORM TUBES, FORAMS, FRAGMENTS &
OOLITES. A FEW INTERCLASTS. DICTYOCONUS.

1143.5- 1146.8 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
18% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, PLANT REMAINS-10%
OTHER FEATURES: VARVED, MUDDY, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
UNIT CONTAINS MUCH DISSEMINATED SILT-SIZE ORGANIC SPECKS.
SOME ORGANIC VARVES. INTERCLASTS AND STRINGERS OF CLEANER
CALCARENITE.

1146.8- 1151.5 CALCARENITE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: GRANULAR, PARTINGS, FROSTED
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, ORGANICS
CONTAINS THIN BEDS OF OLIVE CALCILUTITE/CALCARENITE IN
LOWER HALF OF UNIT. SOFT SEDIMENT SLUMP FEATURES AT
1148.5'.

1151.5- 1155 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-45%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, ECHINOID, FOSSIL FRAGMENTS
CRUSTACEA, ORGANICS
BANDED WITH SLIGHTLY SOFTER HORIZONS. OCCASIONAL
DICTYOCONUS.

1155 - 1157 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-20%
OTHER FEATURES: GRANULAR
FOSSILS: WORM TRACES, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS, ORGANICS, CONES
RARE DICTYOCONUS.

1157 - 1159.6 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: PARTINGS, GRANULAR, VARIEGATED
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, ORGANICS
UNIT CONTAINS VARIOUS FINE (ORGANIC PARTINGS) TO COARSE
(CALCARENITE CLASTS) HORIZONS, ALSO DISSEMINATED ORGANIC
SPECKS. MAY BE SEVERAL GRADED UNITS.

1159.6- 1166 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%, CLAY-02%
OTHER FEATURES: GRANULAR
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA
CLAY STRINGERS AT 1160.5'. A FEW ORGANIC LAMINATIONS.

1166 - 1168 CALCARENITE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: PARTINGS, GRANULAR, CHALKY
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, ORGANICS
UNIT CONTAINS ABUNDANT PAPER-THIN LAMINATIONS OF TAN-BROWN
ORGANIC CLAY OR MICRITE; ALSO THIN BANDS OF GRAY CLAYEY
MICRITE.

1168 - 1173.8 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-45%, CLAY-10%
OTHER FEATURES: CHALKY, GRANULAR, PARTINGS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS, ORGANICS, WORM TRACES
INTERBEDDED SOFT CLAYEY VERY FINE CALCARENITE/CALCILUTITE
AND GRANULAR ECHINOID-RICH, VARIABLY ORGANIC-LAMINATED
CALCARENITE. SCOUR AND FILL STRUCTURES. POROSITY VARIES:
8-16%.

1173.8- 1177.5 CALCARENITE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: BENTHIC FORAMINIFERA, WORM TRACES, MOLLUSKS

1177.5- 1180.5 CALCARENITE; LIGHT OLIVE TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-40%, CLAY-10%
OTHER FEATURES: PARTINGS, GRANULAR, CHALKY
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, CONES
THINNLY INTERBEDDED, BANDED GRANULAR CALCARENITE AND
GRAY-GREEN CLAYEY CALCILUTITE. A FEW DICTYOCONUS.

1180.5- 1197.2 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-40%, CLAY-06%
OTHER FEATURES: CHALKY, GRANULAR, PARTINGS
FOSSILS: WORM TRACES, BENTHIC FORAMINIFERA, ECHINOID
MOLLUSKS
SEVERAL GRADED-BED SEQUENCES: FINE-MED FOSSILIFEROUS
CALCARENITE GRADING TO SOMEWHAT CLAYEY GRAY-GREEN
CALCILUTITE, LOWER 2' IS SOMEWHAT MOTTLED, BRECCIATED
CONTAINS PARTIALLY HEALED HIGH ANGLE FRACTURE.

1197.2- 1209.4 CALCARENITE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: CONES, FOSSIL FRAGMENTS, ECHINOID
BENTHIC FORAMINIFERA
RELATIVELY CONSISTANT FINE-MED GRAINED CALCARENITE WITH A FEW VERY FINE AND CALCILUTITE INTERBEDS. SOME ANHEALED HIGH ANGLE FRACTURES.

1209.4- 1214.4 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-40%, CLAY-08%
DOLOMITE-05%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA, MOLLUSKS, ORGANICS
FINE GRAINED CALCARENITE WITH THIN INTERBEDS OF LAMINATED CLAYEY CALCILUTITE AND TAN DOLOMITE.

1214.4- 1218.5 LIMESTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING, INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-15%
DOLOMITE-08%
OTHER FEATURES: PARTINGS, VARVED, GRANULAR, VARIEGATED
FOSSILS: ORGANICS, WORM TRACES, CONES, ECHINOID
BENTHIC FORAMINIFERA
UNIT CONTAINS GRADED BEDS (POORLY SORTED WITH PEBBLE-SIZE CLASTS TO CALCILUTITE), AND INTERBEDS (FINE-MED CALCARENITES). ORGANIC AND DOLOMITIC VARVES.

1218.5- 1223 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA, ECHINOID
INTERBEDDED GRAINY FINE-MED CALCARENITE (16% POROSITY) AND
VERY FINE CALCARENITE/CALCILUTITE. SOME VARVED HORIZONS.

1223 - 1224.8 DOLOSTONE; GRAYISH ORANGE TO DARK GRAYISH YELLOW
16% POROSITY: MOLDIC, FRACTURE, INTERCRYSTALLINE
0-10% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: CALCILUTITE-15%, PLANT REMAINS-03%
OTHER FEATURES: GRANULAR
FOSSILS: ECHINOID

1224.8- 1226.8 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-35%, CALCILUTITE-15%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: ECHINOID
CONTAINS THIN INTERBEDS OF CALCILUTITE AND FOSSILIFEROUS
NON- DOLOMITIC CALCARENITE.

1226.8- 1231 CALCARENITE; VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%, PLANT REMAINS-01%
OTHER FEATURES: GRANULAR
FOSSILS: ECHINOID, CONES, WORM TRACES, ORGANICS
BENTHIC FORAMINIFERA
DICTYOCONUS; COSKINOLINA OR LITUONELLA.

1231 - 1234.3 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-40%
OTHER FEATURES: CHALKY, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WORM TRACES, ECHINOID
BANDED VARIATIONS OF VERY FINE TO FINE GRAINED CALCARENITE.

1234.3- 1236.3 LIMESTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: INTRACLASTS, BIOGENIC, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: CHALKY, GRANULAR, MUDDY, VARIEGATED
PARTINGS
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS, ECHINOID, ORGANICS
POORLY SORTED UNIT CONTAINING CALCILUTITE TO 3 CM CARBONATE
CLASTS. ORGANIC VARVES. SOME HIGH ANGLE FRACTURES.

1236.3- 1238.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, PELLET, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-20%, CLAY-06%
OTHER FEATURES: CHALKY, GRANULAR, PARTINGS
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA
FINE GRAINED CALCARENITE WITH THIN BANDS OF CLAYEY
CALCILUTITE.

1238.5- 1241.8 LIMESTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MOTTLED, BEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-42%, CALCARENITE-42%
DOLOMITE-10%, PLANT REMAINS-04%
OTHER FEATURES: VARIEGATED, GRANULAR, PARTINGS
FOSSILS: ECHINOID, FOSSIL FRAGMENTS
UNIT CONTAINS FREQUENT IRREGULAR THIN BEDS OF DOLOMITIC LIMESTONE AND MANY ORGANIC PARTINGS.

1241.8- 1247.7 PACKSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
18% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, CALCILUTITE
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-05%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: WORM TRACES, BENTHIC FORAMINIFERA, CONES
POROUS (20%) SKELETAL PACKSTONE WITH SOME THIN BEDS OF ORGANIC CALCILUTITE.

1247.7- 1255 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
16% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-30%, CLAY-04%
ORGANICS-01%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA, ORGANICS, ECHINOID
CONTAINS THIN INTERBEDS OF VERY FINE CALCARENITE/CALCILUTITE. UPPER 0.3' CONTAINS ORGANIC VARVES. SOME HIGH ANGLE FRACTURES.

1255 - 1267.7 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: SKELETAL, BIOGENIC, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-15%
OTHER FEATURES: GRANULAR, CHALKY, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
ECHINOID
INTERBEDDED FINE-MED SKELETAL PACKSTONE 18% AND VERY
FINE-FINE CALCARENITE 12%. SOME ORGANIC VARVES AT 1258'.
SOME DOLOMITIC GRAINS?

1267.7- 1269.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY
16% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WORM TRACES
VARIABLY GRADED. SKELETAL & INTERCLASTIC DOLOSILT AT BASE.
MOLDIC CALCILUTITE AT TOP. FABULARIA?

1269.5- 1277.4 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING, NODULAR
ACCESSORY MINERALS: CALCARENITE-40%, CALCILUTITE-25%
DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WORM TRACES, ORGANICS
VERY POORLY SORTED CLASTIC CARBONATE. CLASTS TO 4 CM IN A
FINE-MED GRAINED CALCARENITE MATRIX, GRADES UPWARD TO
CALCARENITE/CALCILUTITE.

1277.4- 1281.5 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, PELLET
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: GRANULAR, PARTINGS
INTERBEDDED VERY FINE-FINE CALCARENITE (12% POROSITY) &
PELLETAL/ SKELETAL PACKSTONE (25% POROSITY) WITH THIN BANDS
OF CALCILUTITE; ORGANIC LAMINATIONS CONTAINING CLEAR
EUHEDRAL CALCITE GRAINS.

1281.5- 1285.5 LIMESTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED, INTERBEDDED
ACCESSORY MINERALS: CALCARENITE-50%, CALCILUTITE-50%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES
BENTHIC FORAMINIFERA
INTERBEDDED FINE-MED SKELETAL CALCARENITE AND GRAINY
SKELETAL CALCILUTITE. FABULARIA? MILIOLIDS?

1285.5- 1287.4 CALCARENITE; YELLOWISH GRAY TO DARK YELLOWISH BROWN
14% POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, NODULAR
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-05%
OTHER FEATURES: PARTINGS, GRANULAR, VARIEGATED
FOSSILS: ORGANICS, FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
INTERBEDDED BROWN LITHIC ORGAIC CALCILUTITE/CALCARENITE AND
FINE- MEDIUM GRAINED CALCARENITE. ORGANICS ARE FINELY
DISSEMINATED IN BROWN BEDS AND AS LARGER SPECKS, VARVES
AND ACCUMULATIONS. UNIT CONTAINS ANGULAR CALCAREITE CLASTS
(2-35 MM).

1287.4- 1290 CALCILUTITE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
06% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, INTRACLASTS, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRAVEL; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, NODULAR, INTERBEDDED
ACCESSORY MINERALS: CALCARENITE- %, CLAY- %
OTHER FEATURES: PARTINGS, VARIEGATED
FOSSILS: FOSSIL FRAGMENTS
SOMEWHAT SOFT DENSE CLAYEY CALCILUTITE BEDDED WITH AND ABUTTING A LITHIC (TO 3 CM) CALCARENITE. SOME HIGH ANGLE SLICKENSIDES.

1290 - 1295 LIMESTONE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, SKELETAL
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-55%, CALCARENITE-40%
OTHER FEATURES: GRANULAR
UNIT CONTAINS 5% ALTERED (DOLOMITIC OR PHOSPHATIC) CLASTS OR SKELETAL MATERIAL. HIGH ANGLE FRACTURE WITH CALCITIC SLICKENSIDES AT 1294'.

1295 - 1304.1 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, MOLDIC
GRAIN TYPE: SKELETAL, PELLET, BIOGENIC
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-10%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES
BENTHIC FORAMINIFERA, CONES
WINNOWED DEPOSIT. GENERALLY COARSER (MED-COARSE), AND MORE PELLETAL AND MORE POROUS IN UPPER HALF.

1304.1- 1305.4 LIMESTONE; GRAYISH ORANGE TO DARK YELLOWISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-08%
OTHER FEATURES: PARTINGS, VARVED, SPLINTERY, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, ORGANICS
VARIABLY THINNLY BEDDED, VARIABLY SORTED ORGANIC LIMESTONES. ABUNDANT ANGULAR CALCAREOUS GRAVEL IN SOME BEDS.

1305.4- 1308.8 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-03%
OTHER FEATURES: PARTINGS, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES
BENTHIC FORAMINIFERA, CONES, MILIOLIDS
INTERBEDDED VERY FINE CALCARENITE WITH LESSER LITHIC ORGANIC CALCILUTITE/CALCARENITE, AND MEDIUM GRAINED SKELETAL CALCARENITE.

1308.8- 1312 PACKSTONE; MODERATE ORANGE PINK TO GRAYISH ORANGE
18% POROSITY: INTERGRANULAR
GRAIN TYPE: PELLET, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-05%
OTHER FEATURES: GRANULAR
FOSSILS: WORM TRACES, FOSSIL FRAGMENTS
WELL-SORTED PELLETAL/SKELETAL PACKSTONE. A FEW ANHEALED HIGH ANGLE FRACTURES.

1312 - 1315.2 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
22% POROSITY: INTERGRANULAR, VUGULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-25%
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, CONES

1315.2- 1319.5 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, PELLET
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-35%
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: FOSSIL FRAGMENTS
UPPER TIGHT BED ATOP A LOWER MORE POROUS BED.

1319.5- 1321.2 WACKESTONE; GRAYISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE- %, CALCILUTITE-40%
ORGANICS-06%
OTHER FEATURES: GRANULAR, MUDDY
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, ORGANICS
ORGANIC-RICH, POORLY SORTED LITHIC LIMESTONE. ORGANICS ARE
DISSEMINATED AND AS SURFACE COATINGS.

1321.2- 1334.8 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BRECCIATED, NODULAR
ACCESSORY MINERALS: CALCARENITE-35%, CALCILUTITE-35%
OTHER FEATURES: VARIEGATED, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES
VERY POORLY SORTED UNIT: ANGULAR & SUBROUNDED LITHIC CLASTS
IN A WELL-INDURATED FINE MUDDY CALCARENITE.

1334.8- 1337 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-04%
DOLOMITE- %
OTHER FEATURES: PARTINGS, VARVED, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, ORGANICS, WORM TRACES, ECHINOID
THINNLY BANDED FINE-MED CALCARENITE (DOLOMITIC?) & VARIABLY
ORGANIC CALCILUTITE/CALCARENITE. SOME LARGE (2 CM) ROUNDED
FLAT CLASTS.

1337 - 1338.5 LIMESTONE; YELLOWISH GRAY TO GRAYISH BROWN
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
50% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO GRANULE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-50%, ORGANICS-07%
OTHER FEATURES: PARTINGS, MUDDY
FOSSILS: FOSSIL FRAGMENTS, ORGANICS, ECHINOID
MUDDY HARD UNIT, VARIABLY LAMINATED WITH ORGANIC HORIZONS.

1338.5- 1344 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: PARTINGS, VARIEGATED
LOW RECRYSTALLIZATION, SPLINTERY
FOSSILS: FOSSIL FRAGMENTS
INTERBEDDED SOMEWHAT RECRYSTALLIZED CALCARENITE, WACKE, AND
LAMINATED CHALKY GRANULAR CALCILUTITES. SOME VERTICAL
FRACTURES.

1344 - 1351.8 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-10%, ORGANICS-04%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, ORGANICS
FINE-MED SKELETAL CALCARENITE WITH LESSER INTERBEDS OF
ORGANIC GRAINY CALCILUTITE. INTERTONGUING WITH FINER
CALCARENITES IN LOWER 2-5'.

1351.8- 1359.1 WACKESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, NODULAR, MOTTLED
ACCESSORY MINERALS: CALCILUTITE-30%, ORGANICS-06%
OTHER FEATURES: PARTINGS, VARIEGATED, GRANULAR, MUDDY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WORM TRACES, ORGANICS
INTERBEDDED VARIABLY ORGANIC LITHIC CALCARENITE (CALCAREOUS
CONGLOMERATE) AND MEDIUM GRAIND CALCARENITE. CONCENTRATION
OF ORGANICS AT 1355', 1359'. SLICKENSIDES AT 1359'.

1359.1- 1368 CALCARENITE; YELLOWISH GRAY
18% POROSITY: INTERGRANULAR, VUGULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-20%, ORGANICS-02%
OTHER FEATURES: GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WORM TRACES, ORGANICS
FINE-MED POROUS CALCARENITE WITH LESSER INTERBEDS OF
ORGANIC CALCILUTITE (WITH 1" STRINGER OF COAL) AT 1361' AND
LITHIC CALCARENITE 1365-1368'.

1368 - 1372.7 WACKESTONE; GRAYISH BROWN TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-08%
DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, VARIEGATED
VARIABLY ORGANIC LITHIC CALCARENITE/CALCAREOUS
CONGLOMERATE.

1372.7- 1377 CALCARENITE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, VUGULAR, FRACTURE
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCILUTITE-30%
OTHER FEATURES: GRANULAR, LOW RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES
BENTHIC FORAMINIFERA, MILIOLIDS
CALCARENITES: UPPER VERY FINE GRAINED & LOWER SOMEWHAT
RECRYSTALLAIZED BED WITH ORGANIC COATING ON FRACTURE.

1377 - 1380 WACKESTONE; GRAYISH BROWN TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, INTRACLASTS
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO GRAVEL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: NODULAR
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-04%
DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, VARIEGATED
FOSSILS: BENTHIC FORAMINIFERA
LITHIC CALCARENITE/CALCAREOUS CONGLOMERATE.

1380 - 1392.5 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: GRADED BEDDING
ACCESSORY MINERALS: CALCILUTITE-25%, ORGANICS-02%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
GRADED BEDS OF CALCARENITE CAPPED WITH ORGANIC
VARVED/LAMINATED BEDS. LOWER 2' SHOW SOME, HIGH ANGLE
FRACTURES. UP TO 6% ALTERED (DOLOMITIC?) GRAY GRAINS.

1392.5- 1398 LIMESTONE; OLIVE GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
20% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED, BANDED
ACCESSORY MINERALS: CALCILUTITE-45%, ORGANICS-40%
CLAY-10%, SPAR-05%
OTHER FEATURES: VARVED, PARTINGS, VARIEGATED
FOSSILS: ORGANICS
THINNLY BANDED UNIT CONTAINING ABUNDANT ORGANICS LAYERED
BETWEEN BANDS OF PURE AND CLAYEY CALCILUTITE. SOME EUHEDRAL
CALCITE AND RECRYSTALLIZED QUARTZ SAND AS VUG FILL.

1398 - 1403 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-45%, DOLOMITE- %
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
CONTAINS UP TO 15% ALTERED (DOLOMITIC?) SHELL FRAGMENTS.
FABULARIAS.

1403 - 1405.5 CALCILUTITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
08% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
30% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCARENITE-30%, CLAY-15%
OTHER FEATURES: PARTINGS, VARIEGATED
FOSSILS: FOSSIL FRAGMENTS, ECHINOID
SLIGHTLY SOFT CALCILUTITE ATOP BANDED VFINE
CALCARENITE/CLAYEY CALCILUTITE OR DOLOSILT. ALTERED
SKELETAL FRAGMENTS.

1405.5- 1410.5 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-40%, DOLOMITE- %
OTHER FEATURES: GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
GENERALLY FULL OF FABULARIA (?) AND UP TO 15% ALTERED
SKELETAL FRAGMENTS. UPPER 2' IS WELL FRACTURED.

1410.5- 1432 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-25%, ORGANICS-01%
OTHER FEATURES: GRANULAR, CHALKY
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, ORGANICS
FAINTLY BANDED IN PART. DISTINCT BLACK ORGANIC STREAKS (TO
2 CM) IN UPPER 8'. SOME RELATIVELY ANHEALED VERTICAL
FRACTURES.

1432 - 1441 CALCARENITE; YELLOWISH GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, CHALKY
FOSSILS: FOSSIL FRAGMENTS
FAINTLY BANDED UNIT. SOMEWHAT DOLOMITIC? SOME FRACTURING AT 1435' AND 1440.5'.

1441 - 1445 CALCARENITE; GRAYISH ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-20%, DOLOMITE- %
OTHER FEATURES: GRANULAR
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, MILIOLIDS
VARIABLY POROUS (12-18%).

1445 - 1445.5 CALCILUTITE; VERY LIGHT ORANGE
08% POROSITY: LOW PERMEABILITY, INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC
35% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE-35%
OTHER FEATURES: GRANULAR

1445.5- 1451 CALCARENITE; GRAYISH BROWN TO GRAYISH ORANGE
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED
ACCESSORY MINERALS: CALCILUTITE-30%, DOLOMITE-20%
SILT-SIZE DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
ORGANICS
VARIABLY BANDED & POROUS UNIT (10-18%). UPPER HALF CONTAINS ORGANIC VARVES. LOWER HALF CONTAINS DOLOMITIC CLASTS (4-40 MM) & ORGANIC STREAKS.

1451 - 1455 CALCARENITE; LIGHT GRAYISH BROWN TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO VERY COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, ORGANIC MATRIX
SEDIMENTARY STRUCTURES: BANDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-25%, ORGANICS-18%
DOLOMITE- %
OTHER FEATURES: VARVED, PARTINGS, GRANULAR, SPECKLED
FOSSILS: ORGANICS, FOSSIL FRAGMENTS, ECHINOID
ORGANIC CALCARENITE, BANDED TO LAMINATED WITH ORGANIC-RICH
HORIZONS. POORLY SORTED. OCCASIONAL VUG FILL OF EUHEDRAL
CLEAR CALCITE (LOOSE) SAND.

1455 - 1457.5 LIMESTONE; YELLOWISH GRAY
08% POROSITY: LOW PERMEABILITY, INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: CALCARENITE-50%, CALCILUTITE-45%
ORGANICS- %
OTHER FEATURES: GRANULAR, SPECKLED
MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, CONES, ORGANICS
HARD RECRYSTALLIZED UNIT CONTAINING 5% ALTERED (DOLOMITIC?)
CLASTS AND MODERATE AMOUNT CHALKY WHITE FORAM TESTS.
DICTYOCONUS, CRIBROBULIMINA, FABULARIA.

1457.5- 1465.5 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-02%
CALCITE-01%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, ORGANICS
INTERBEDDED FINE CALCARENITE AND ORGANIC-VARVED
CALCARENITE. SOME SCATTERED (LOOSE) EUHEDRAL CALCITE SAND.

1465.5- 1472.5 CALCARENITE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-02%
CALCITE-02%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, ORGANICS, CONES
INTERBEDDED MEDIUM CALCARENITE AND ORGANIC LAMINATED
CALCARENITES. SCATTERED AND BEDDED LOOSE EUHEDRAL CALCITE.

1472.5- 1482 CALCARENITE; YELLOWISH GRAY TO LIGHT GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE-30%, SHALE-02%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, ORGANICS
INTERBEDDED FINE-MEDIUM CALCARENITE AND LESSER CALCILUTITE
AND ORGANIC-VARVED CALCARENITE.

1482 - 1485.2 CALCARENITE; YELLOWISH GRAY TO DARK GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-35%, ORGANICS-14%
CALCITE-01%
OTHER FEATURES: GRANULAR, PARTINGS, VARVED
FOSSILS: FOSSIL FRAGMENTS, ORGANICS, WORM TRACES
INTERBEDDED FINE-MEDIUM CALCARENITE AND LAMINATED VERY
ORGANIC LIMESTONE, LOOSE EUHEDRAL CALCITE IN ORGANIC BED AT
1482' WITH CALCAREOUS CLASTS TO 4 MM.

1485.2- 1488.5 CALCARENITE; YELLOWISH GRAY
14% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, CONES
FAINTLY LAMINATED DOLOMITIC CALCARENITE. PARTLY ANHEALED/
DEVELOPING HIGH ANGLE FRACTURES. DICTYOCONUS.

1488.5- 1500.3 CALCARENITE; YELLOWISH GRAY TO DARK YELLOWISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, INTRACLASTS, CALCILUTITE
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: MICROCRYSTALLINE TO GRANULE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-18%, ORGANICS-10%
DOLOMITE- %
OTHER FEATURES: GRANULAR, PARTINGS, VARVED, DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, ORGANICS, CONES, WORM TRACES
BENTHIC FORAMINIFERA
INTERBEDDED DOLOMITIC MEDIUM CALCARENITE AND VARIABLY
CLASTIC ORGANIC-RICH/ORGANIC VARVED CALCARENITE. ANHEALED
VUGS OF GRANULAR EUHEDRAL CLEAR CALCITE AT 1492' & 1500'.
DICTYOCONUS.

1500.3- 1512 LIMESTONE; YELLOWISH GRAY TO DARK GRAY
12% POROSITY: INTERGRANULAR
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
45% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, ORGANIC MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, BANDED
BRECCIATED
ACCESSORY MINERALS: CALCILUTITE-50%, CALCARENITE-42%
ORGANICS-08%, CALCITE-01%
OTHER FEATURES: PARTINGS, VARVED, GRANULAR
FOSSILS: FOSSIL FRAGMENTS, ORGANICS, WORM TRACES
INTERBEDDED GRANULAR CALCILUTITE/CALCARENITE AND BRECCIATED
VERY FINELY VARVED ORGANIC LIMESTONE (VARIABLY CALCILUTITIC
AND GRANULAR).

1512 - 1514.3 DOLOSTONE; MODERATE YELLOWISH BROWN TO GRAYISH BROWN
22% POROSITY: INTERCRYSTALLINE, VUGULAR; 10-50% ALTERED
EUHEDRAL
GRAIN SIZE: FINE; RANGE: CRYPTOCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BANDED, LAMINATED
ACCESSORY MINERALS: CALCITE-25%, CALCILUTITE-20%
ORGANICS-06%
OTHER FEATURES: CALCAREOUS, HIGH RECRYSTALLIZATION
GRANULAR, PARTINGS
FOSSILS: ORGANICS
THIN BEDS OF MEDIUM-GRAINED EUHEDRAL CALCITE, VFINE/FINE
DOLOMITE AND ORGANIC-LAMINATED, VARIABLY DOLOMITIC
CALCILUTITE.

1514.3- 1531.5 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH BROWN
16% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, BANDED
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-15%
ORGANICS- %
OTHER FEATURES: GRANULAR, DOLOMITIC, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, WORM TRACES, CONES
BENTHIC FORAMINIFERA, ORGANICS
INTERBEDDED FINE-MED CALCARENITE AND VARIABLY
ORGANIC-VARVED DOLOMITIC VFINE CALCARENITE. DICTYOCONUS.

1531.5- 1533.1 DOLOSTONE; GRAYISH BROWN TO LIGHT GRAYISH BROWN
16% POROSITY: FRACTURE, VUGULAR; 10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO MEDIUM
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BEDDED
ACCESSORY MINERALS: CALCILUTITE-03%, ORGANICS-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: ECHINOID
EXCEPTIONAL EXAMPLE OF GRADATION OF CALCARENITE INTO
DOLOMITE AND BACK TO CALCARENITE. SINUOUS NEAR-VERTICAL
FRACRUTE LINED WITH EUHEDRAL DRUSY DOLOMITE XLS.

1533.1- 1535.5 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH BROWN
14% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BANDED, LAMINATED
ACCESSORY MINERALS: CALCILUTITE-25%, DOLOMITE-20%
ORGANICS-03%
OTHER FEATURES: CHALKY, CRYSTALLINE, PARTINGS, GRANULAR
FOSSILS: FOSSIL FRAGMENTS

1535.5- 1538.5 CALCARENITE; VERY LIGHT ORANGE TO DARK YELLOWISH BROWN
15% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, CALCILUTITE
55% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-25%, CALCILUTITE-20%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
GRANULAR, PARTINGS
FOSSILS: CORAL, SPICULES
INTERBEDDED DOLOMITIC CALCARENITE, DOLOMITE BANDED
CALCARENITE, AND GRANULAR CRYSTALLINE DOLOMITE. ORGANIC
LAMINATIONS SOME OF THE DOLOMITE.

1538.5- 1544 CALCARENITE; GRAYISH ORANGE TO VERY LIGHT ORANGE
14% POROSITY: INTERGRANULAR, FRACTURE
GRAIN TYPE: BIOGENIC, SKELETAL, CALCILUTITE
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: MICROCRYSTALLINE TO FINE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, BRECCIATED
ACCESSORY MINERALS: DOLOMITE-20%, CALCILUTITE-15%
ORGANICS-04%
OTHER FEATURES: DOLOMITIC, GRANULAR, PARTINGS
FOSSILS: FOSSIL FRAGMENTS, ORGANICS
INTERBEDDED FINE DOLOMITIC CALCARENITE (VERTICALLY
FRACTURED) AND INFILLED BRECCIATED DOLOMITIC CALCARENITE.
BRECCIA CONAINS CLASTS GREATER THAN 5 CM. INFILL IS
SOMEWHAT ORGANIC. WIRELINE CORING ENDS AT 1544'.

1544 TOTAL DEPTH