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EXECUTIVE SUMMARY  
R●MP 57X (HILLCREST ELEMENTARY)  
Polk County, Basin 20  
S1, T30S, R27E  
20-020-047

June 20, 1986

G. L. Henderson

- I. SITE LOCATION
- II. TYPE AND PURPOSE OF MONITORS
- III. GEOLOGY
- IV. HYDROGEOLOGY AND WATER QUALITY
- V. WELL DESIGN AND CONSTRUCTION
- VI. GEOPHYSICAL LOGS

I. SITE LOCATION

The ROMP #57X wellsite is located near the Hillcrest Elementary School in Lake Wales, Polk County, Florida. The wellsite can be found by proceeding one mile East on S.R. 60 from Alternate U.S. 27; then turning North onto 11th Street and proceeding to the rear of the Lake Wales Hospital; finally turning West onto the hospital deliveries' lane and proceeding West approximately 300 feet (See Site Location Map). The wellsite is located in a shady and grassy field approximately 750 feet Northeast of Hillcrest Elementary and approximately 160 feet West of the Lake Wales Hospital. The wellsite encompasses a 100'x100' temporary construction easement and a 30'x30' perpetual easement. The ROMP #57X wellsite is located in the NE 1/4 of the SE 1/4 of the SE 1/4 of Section 1, Township 30 South, Range 27 East; at latitude 27° 53' 43" North, longitude 81° 33' 59" West.

II. TYPE AND PURPOSE OF MONITORS

A Dual Zone Floridan Aquifer Monitor well and a Surficial Aquifer Monitor well were drilled at the ROMP #57X wellsite.

The Floridan Monitor will monitor two zones; a small cavity or "production zone" near the top of the Hawthorn Formation and the upper portion of the Ocala Group. The Floridan Monitor will provide long term water levels for the Floridan Aquifer (potentiometric level).

The Surficial Monitor will monitor the upper portion of the Undifferentiated Terrace Deposits. The Surficial Monitor will provide long term water levels for the Surficial Aquifer (water table).

These monitor wells were drilled for the primary purpose of determining if leakage between the Surficial Aquifer and the Floridan Aquifer is occurring in this area as a result of their hydrostatic level differential. By comparing the long term hydrostatic (water) level records for each aquifer, significant trends in leakage patterns may be determined.

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### III. GEOLOGY

ROMP #57X is found on the longitudinal sand ridge known as the Lake Wales Ridge, within the Central Highlands physiographic land feature of peninsular Florida. The wellsite is near the southeastern shoreline of the sinkhole lake known as Lake Wales. The wellsite is located on the Coharie Terrace (of Pleistocene age) at an approximate elevation of 197 feet above NGVD. The geology for this wellsite was interpreted from the 344.5' test corehole and geophysical logs. The interpreted stratigraphic sequence for this wellsite is as follows:

<u>WELL DEPTH</u> <u>(FT. BELOW LSD)</u>	<u>STRATIGRAPHIC UNIT/AGE</u> <u>LITHOLOGIC DESCRIPTION</u>
LSD - 192.0'	<u>UNDIFFERENTIATED TERRACE</u> <u>DEPOSITS/PLEISTOCENE</u> Quartz Sand; light gray-light yellowish gray, fine-coarse grained, frosted-translucent, subangular-subrounded, unconsolidated, moderate-high porosity and permeability.  Clayey Quartz Sand; dark yellowish gray-reddish orange-dark brown, fine-medium grained, frosted-translucent, subangular-subrounded, kaolinitic-micaceous, organic-stained in parts, poor induration, moderate-high porosity, low-moderate permeability.
192.0'-236.0'	<u>HAWTHORN FORMATION (UPPER UNIT)/MIOCENE</u> Calcarenite; light gray-light yellowish gray, chalky-granular, phosphoritic-very sandy, fossiliferous (some mollusk casts and molds, some foram <u>Sorites</u> molds, some crab claw <u>Callianassa</u> fragments), moderate-good induration, low-moderate porosity, low permeability.  Calcilutite; light yellowish gray-light brown, clayey-chalky, phosphoritic-sandy, fossiliferous (some millioids), good induration, low porosity and permeability.  Dolomite; dark yellowish gray-dark grayish brown, very fine-fine crystalline, phosphoritic-clayey, moderate-good induration, low porosity and permeability.  Clay; light gray-light greenish gray, kaolinitic-montmorillonitic, sandy-slightly phosphoritic, low-moderate porosity, low permeability.  Phosphorite; dark reddish orange-dark reddish brown, very coarse sand-very coarse pebble sized, low porosity and permeability, usually found in matrix of other lithologic units.
236.0'-257.8'	<u>HAWTHORN FORMATION (LOWER UNIT)/MIOCENE</u> Calcarenite; light yellowish gray-pale orange, chalky-granular, sandy-slightly phosphoritic, very fossiliferous (common mollusk molds, millioids, and bryozoans), moderate-good induration, low-moderate porosity and permeability.

Clay; light greenish gray, montmorillonitic, very sandy-phosphoritic, low porosity and permeability.

Dolomite; dark yellowish gray-dark yellowish brown, cryptocrystalline; good induration, very low porosity and permeability.

257.8'-344.5'

(T.D.)

CRYSTAL RIVER FORMATION (OCALA GROUP)/EOCENE

Calcarenite; pale orange - light yellowish gray, chalky-finely granular, very fossiliferous (common milliolids, common foram Lepidocyclina ocalana, trace foram Nummulites, common mollusk Pecten molds, common bryozoan fragments), moderate induration, moderate-high porosity, moderate permeability.

#### IV. HYDROGEOLOGY AND WATER QUALITY

Two aquifers were identified at the ROMP #57X wellsite, the Surficial Aquifer and the Floridan Aquifer System (See Figure 1.).

The Surficial Aquifer extended from land surface datum (LSD) to 192 feet below LSD (5 feet above NGVD) at this wellsite. The Surficial Aquifer consisted mainly of unconsolidated, terrace sands and poorly indurated, slightly clayey sands of Pleistocene age. Generally, the water quality of the Surficial Aquifer is very good.

The Surficial Aquifer generally exhibited moderate to high porosity and permeability values. Yields of local wells utilizing the Surficial Aquifer ranged from about 10 to 1200 gpm (gallons per minute). Hydraulic coefficients of the aquifer determined from tests in the area showed transmissivities averaging 1400 gpd/ft (gallons per day per foot), according to the Highlands Ridge Hydrologic Investigation report by Geraghty & Miller, Inc. that was submitted to the Southwest Florida Water Management District in September, 1980.

The hydrostatic level (water table) of the Surficial Aquifer fluctuates seasonally through a range of 5 to 10 feet. The on-going severe drought that has prevailed District-wide probably has produced below normal water table levels, as the Surficial Aquifer responds fairly quickly to precipitation (and pumped withdrawals) in this area. The hydrostatic level (water table) at this wellsite was found 101 feet below LSD (96 feet above NGVD).

The confining bed between the Surficial Aquifer and the Floridan Aquifer System is called the Intermediate Confining Unit (Gilboy, 1985). The Intermediate Confining Unit was found to encompass the entire Hawthorn Formation, except for a small, solutional cavity zone found near the top of the Hawthorn Formation. Although, this hydrogeologic feature is probably a localized zone of low productivity, its hydrostatic level (98.5 feet above NGVD) will be monitored in order to establish a data point that may prove helpful in the future determination of leakage patterns in the Highlands Ridge region.

The Intermediate Confining Unit extended from 192 feet below LSD (5 feet above NGVD) to 257.8 feet below LSD (60.8 feet below NGVD) at this wellsite. The Intermediate Confining Unit was primarily composed of light yellowish gray, clayey to sandy, phosphoritic to calcarenitic, limestones and greenish gray, sandy clays

grading to greenish-yellowish gray, clayey dolomites; with some dark brown-black, sandy to cherty, dolomite lenses; with trace of dark brown-black, phosphorite gravels.

Water quality in the cavity zone was found to be potable with conductivity values of 180-220 u-ohms/cm., chloride value of 9 mg/l, and sulfate values of 5-10 mg/l. Overall, the Intermediate Confining Unit exhibited low to moderate porosity values, with low permeability values.

The Floridan Aquifer System is the principal source of water for agricultural, industrial, and municipal usage in this region. At this wellsite, the Floridan Aquifer System consisted of the following stratigraphic units (oldest to youngest): Lake City Formation, Avon Park Formation, Ocala Group. The Ocala Group was the only portion of the Floridan Aquifer System penetrated at this wellsite.

The Floridan Aquifer extended from 257.8 feet below LSD (60.8 feet below NGVD) to 344.5 feet below LSD (147.5 feet below NGVD) at this wellsite. The Floridan Aquifer consisted mainly of pale orange-light yellowish gray, chalky to granular, calcarenitic limestone; with some dark brown, cherty dolomite lenses.

Water quality in the Floridan Aquifer was found to be potable with conductivity values of 170-230 u-ohms/cm., chloride values of 7-10 mg/l, and sulfate values of 5-10 mg/l. The hydrostatic level (potentiometric level) of the Floridan Aquifer was found 95.5 feet below LSD (101.5 feet above NGVD) at this wellsite.

The Floridan Aquifer generally exhibited moderate to high porosity and permeability values. Yields of local wells utilizing the Floridan Aquifer ranged from about 100 to 6,000 gpm (gallons per minute). Hydraulic coefficients of the Floridan Aquifer as determined by a September, 1979 aquifer pumping test conducted by Geraghty & Miller, Inc. on a nearby Lake Wales municipal well (W-500), indicated an average transmissivity value of 385,000 gpd/ft. (gallons per day per foot). A detailed account can be found in the final report; Highlands Ridge Hydrologic Investigation by Geraghty & Miller, 1980.

Generally, when hydrostatic level values between the Surficial Aquifer and the Floridan Aquifer System are nearly equable, the Intermediate Confining Bed might exhibit characteristics of a semi-leaky confiner. However, when hydrostatic level values between the Surficial Aquifer and the Floridan Aquifer System are substantially unequable, the Intermediate Confining Unit might exhibit characteristics of a leaky confiner. A preliminary comparison of the measured hydrostatic level values at this wellsite for the Surficial Aquifer (96.0 feet above NGVD) and for the Floridan Aquifer (101.5 feet above NGVD), indicated the Intermediate Confining Bed probably exhibits the characteristics of a semi-leaky confiner.

Hydrostatic level differential in this area usually occurs as a consequence of these factors: varying quantities of precipitation; evapotranspiration; domestic, agricultural, and industrial groundwater (or surface water) withdrawals; or any combination of the preceding factors. At present, a public controversy is reigning over which of the aforementioned factors is the greatest contributor to the declination of hydrostatic levels (water table and potentiometric) in the Highlands Ridge area.

The gradual lowering of Lake Wales' water level during the past few years has not escaped the discerning eyes of its local residents. A comparison of the hydrostatic level values between Lake Wales (101.8 feet above NGVD) and the Floridan Aquifer (101.5 feet above NGVD) might suggest that Lake Wales is hydrologically connected to the Floridan Aquifer. A possible explanation for such a hydraulic connection would be the sinkhole that caused Lake Wales to form in the geologic past. If Lake Wales' water budget is being maintained by the Floridan Aquifer, then one might explain why Lake Wales' hydrostatic level has been steadily lowered over the years. For a number of years, the quantity of precipitation for the region has been slowly decreasing while the groundwater withdrawals (from the Floridan Aquifer) by public and private interests have been slowly increasing. Thus, a gradual lowering of the potentiometric level of the Floridan Aquifer might induce a similar response in the hydrostatic level of Lake Wales. Also, one might concur that what little precipitation is absorbed by the Surficial Aquifer may be transmitted to the Floridan Aquifer through the sinkhole "conduit" known as Lake Wales.

No substantial conclusions on this region's complex hydrology can be determined until the long-term hydrostatic level data has been collected and evaluated in respect to this region's water budget. Thus, further speculation on the hydrologic mechanisms of this region would be inappropriate at this time.

## V. WELL DESIGN AND CONSTRUCTION

### A. Surficial Monitor (See As-Built Well Design Diagram)

A shallow Surficial Monitor was designed to monitor and to record any fluctuations in the water table (hydrostatic level) of the Surficial Aquifer. The water table was found 101 feet below LSD (96 feet above NGVD) as measured on November 21, 1985.

This well's construction was initiated by drilling a 10 inch nominal borehole on mud rotary to a depth of 135 feet below LSD. A one foot sediment trap of 6 inch PVC casing and 20 feet of 6 inch PVC (0.020 inch slot) wellscreen coupled onto 116 feet of 6 inch PVC casing was set into the borehole. Approximately 2.6 feet of the 6 inch PVC casing was left standing above LSD to facilitate the later installation of the USGS water-level recorder. The well's annulus from 15-135 feet below LSD was silica sand-packed (6-20 type). The well's annulus from 15 feet below LSD to LSD was cement-grouted. The well was thoroughly developed utilizing Barafoss until its water ran clear, and then injected with HTH (10% chlorine) to prevent any bacterial contamination of the Surficial Aquifer. All construction on the well was completed by October 10, 1985.

### B. Dual Zone Floridan Monitor (See As-Built Well Design Diagram)

The Floridan Monitor was designed primarily to monitor and to record any fluctuations in the potentiometric surface (hydrostatic level) of the Floridan Aquifer. The Floridan's potentiometric surface was found 95.5 feet below LSD (101.5 feet above NGVD) as measured on November 21, 1985.

The Floridan Monitor was designed to also monitor any fluctuations in the potentiometric surface (hydrostatic level) of the small "production zone" found near the top of the Intermediate Confining Unit. The production zone's potentiometric surface was found 98.5 feet below LSD (98.5 feet above NGVD) as measured on November 21, 1985.

Construction on this dual zone monitor well was initiated by drilling a 22 inch nominal borehole on mud rotary to a depth of 60 feet below LSD. Approximately 60 feet of 16 inch steel surface casing was set and cement-grouted back to LSD.

Next, a 15 inch nominal borehole was drilled on mud rotary to a depth of 192 feet below LSD. Approximately 194 feet of 10 inch PVC casing was set and cement-grouted back to LSD. Approximately 3 feet of the 10 inch PVC casing was left standing above LSD to facilitate the later installation of the USGS water-level recorder.

A 10 inch nominal borehole was then drilled out of the 10 inch casing on reverse-air rotary to a total depth of 315 feet below LSD. A one foot sediment trap of 6 inch PVC casing and 40 feet of 6 inch PVC (0.030 inch slot) wellscreen coupled onto 276 feet of 6 inch PVC casing was set into the borehole. The well's annulus from 264-315 feet below LSD was silica sand-packed (6-20 type). The well's annulus from 210-264 feet below LSD was then cement-grouted.

The sand-packed interval (264-315 feet) around the 6 inch PVC wellscreen will serve as the Floridan Aquifer (Ocala Group) monitor. The well's open annulus from 192-210 feet below LSD (between the 6 inch Floridan monitor tube and the 10 inch nominal borehole) will serve as the Intermediate Confining Unit (Hawthorn Fm.) monitor.

Both monitor zones were injected with HTH (10% chlorine) to prevent any bacterial contamination of their respective hydrologic units. A USGS water-level recorder will be installed on the 6 inch Floridan Aquifer monitor, while the Intermediate Confining Unit (4 inch) monitor will have to be hand-taped for measurements.

## VI. GEOPHYSICAL LOGS

Geophysical logs were run on both the corehole and the Floridan Monitor well with Southwest Florida Water Management District logging equipment by John Decker. Caliper, Fluid Temperature, Fluid Conductivity, Fluid Sampler, Gamma Ray (Natural), and Electric (Spontaneous Potential, Single Point Resistivity) geophysical logs were run at the ROMP #57X wellsite.

## OUTSIDE SOURCES USED

Geraghty & Miller, Inc., 1980; Highlands Ridge Hydrologic Investigation; Final Report/Aquifer Testing Program:

Gilboy, A. E., 1985; Hydrogeology of the Southwest Florida Water Management District; SWFWMD, Regional Analysis Section; Technical Report 85-01:

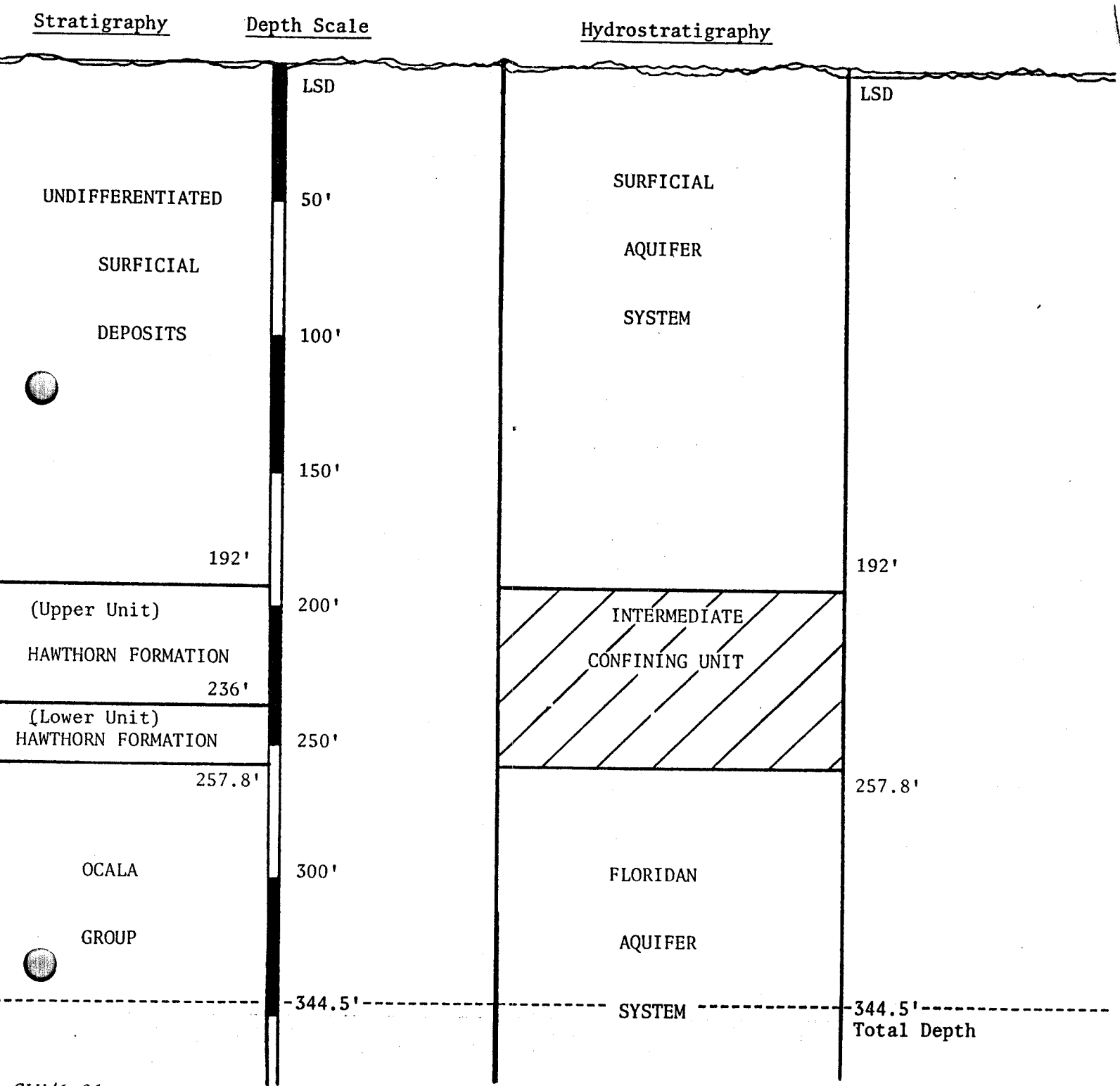
Jones, K. C., 1978; Hydrogeology of the Lake Buffum Area; SWFWMD, Resource Evaluation Section:

Stewart, H. G., 1966; Groundwater Study of Polk County; Florida Bureau of Geology, Reports of Investigations #44:

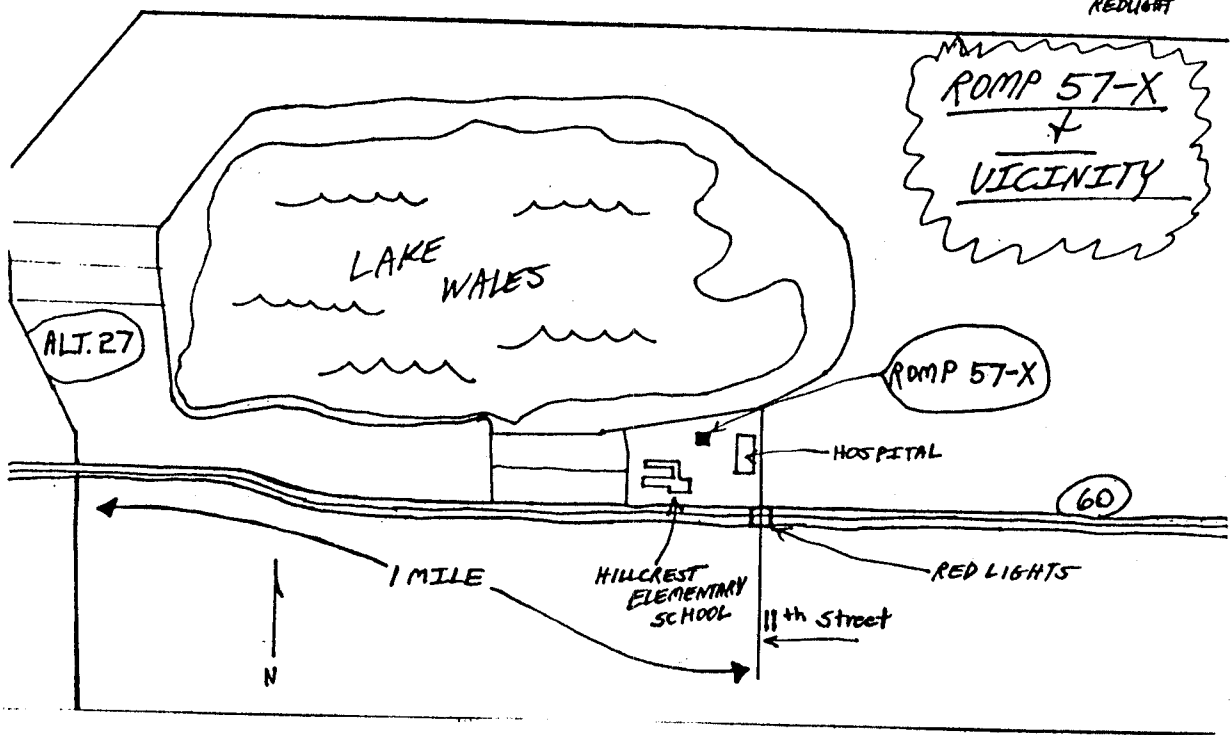
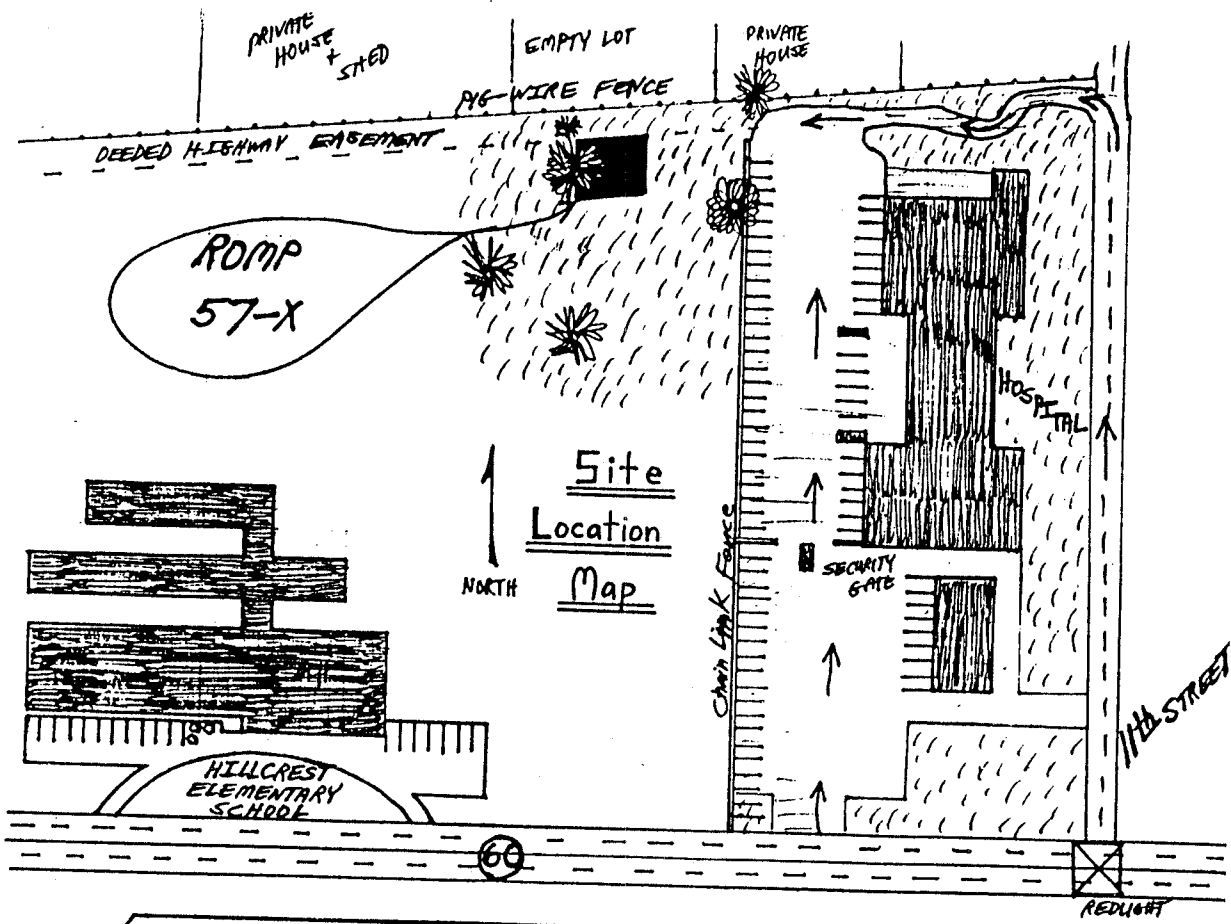
White, W. A., 1970; The Geomorphology of the Florida Peninsula; Florida Bureau of Geology, Bulletin #51:

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(FIGURE 1): BASIC HYDROGEOLOGY AT ROMP # 57X WELLSITE



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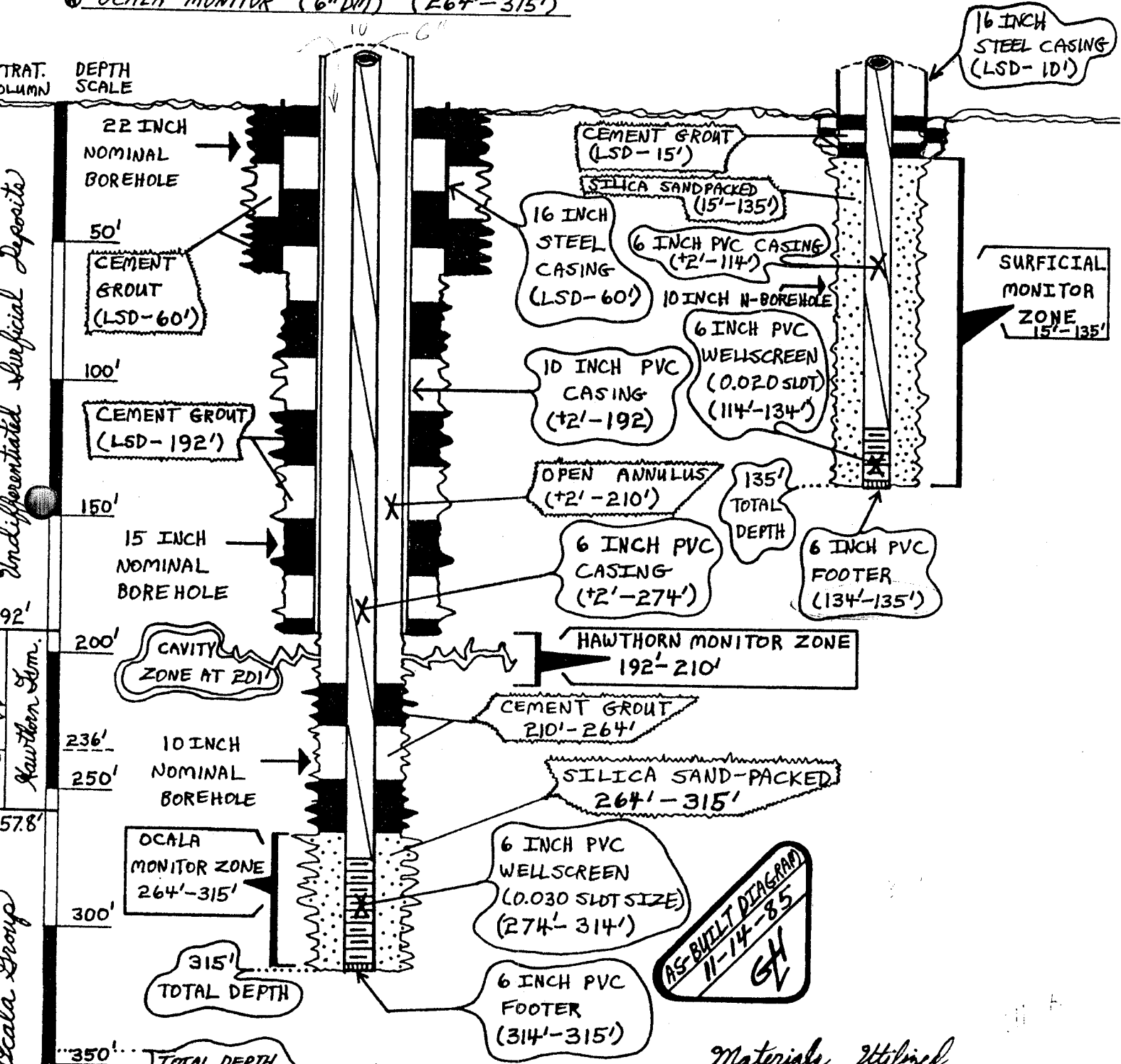
# ROMP # 57X (HILLCREST ELEM.) AS-BUILT WELL DESIGN DIAGRAM

## DUAL ZONE FLORIDAN WELL

- ① HAWTHORN MONITOR (≈4" DM) (192'-210')
- ② OCALA MONITOR (6" DM) (264'-315')

## WATER TABLE WELL

- ③ SURFICIAL MONITOR (6" DM) (15'-135')



Unconsolidated Surficial Deposits  
 Hawthorn Grm.  
 Ocala Group

DEPTH SCALE

22 INCH NOMINAL BOREHOLE  
 50'  
 CEMENT GROUT (LSD-60')  
 100'  
 CEMENT GROUT (LSD-192')  
 150'  
 15 INCH NOMINAL BOREHOLE  
 192'  
 200'  
 CAVITY ZONE AT 201'  
 236'  
 250'  
 10 INCH NOMINAL BOREHOLE  
 264'  
 OCALA MONITOR ZONE 264'-315'  
 300'  
 315'  
 TOTAL DEPTH  
 350'  
 TOTAL DEPTH OF TEST COREHOLE 344.5' BELOW LSD

16 INCH STEEL CASING (LSD-15')  
 CEMENT GROUT (LSD-15')  
 SILICA SANDPACKED (15'-135')  
 6 INCH STEEL CASING (LSD-60')  
 6 INCH PVC CASING (+2'-114')  
 10 INCH N-BOREHOLE  
 6 INCH PVC WELLSCREEN (0.020 SLOT) (114'-134')  
 SURFICIAL MONITOR ZONE 15'-135'  
 135' TOTAL DEPTH  
 6 INCH PVC FOOTER (134'-135')  
 6 INCH PVC CASING (+2'-192')  
 10 INCH PVC CASING (+2'-192')  
 OPEN ANNULUS (+2'-210')  
 6 INCH PVC CASING (+2'-274')  
 HAWTHORN MONITOR ZONE 192'-210'  
 CEMENT GROUT 210'-264'  
 SILICA SAND-PACKED 264'-315'  
 6 INCH PVC WELLSCREEN (0.030 SLOT SIZE) (274'-314')  
 6 INCH PVC FOOTER (314'-315')

AS-BUILT DIAGRAM  
 11-14-85  
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### Materials Utilized

DUAL ZONE FLORIDAN MONITOR	
GROUTING (LSD-192') → 75 BAGS CEMENT (PORTLAND-TYPE II)	
DRILLING (LSD-315') → 46 BAGS QWIK-GEL	
WATER TABLE MONITOR	
GROUTING (LSD-15') → 15 BAGS CEMENT (PORTLAND-TYPE II)	
SANDPACK (15'-135') → 87 BAGS SILICA SAND	

ⓐ = SUITABLE FOR HAND-TAPED MEASUREMENTS.  
 ⓑ = SUITABLE FOR MECHANICALLY RECORDED

## LITHOLOGIC WELL LOG PRINTOUT

SOURCE - SWFW

WELL NUMBER: W-16309  
 TOTAL DEPTH: 344.5 FT.  
 SAMPLES - NONE

COUNTY - POLK  
 LOCATION: T.30S R.27E S.01 DD  
 LAT = 27D 53M 43S  
 LON = 81D 33M 59S

COMPLETION DATE: 29/08/85

ELEVATION: 197 FT

OTHER TYPES OF LOGS AVAILABLE - B, ELECTRIC, FLUID COND., GAMMA, TEMPERATURE

OWNER/DRILLER: S.W.F.W.M.D. [ROMP 57-X] (HILLCREST ELEMENTARY) DRILLER: L.H. J

WORKED BY: G.L. HENDERSON.

FAIR HOLLOW STEM, SPLIT-SPOON, MUD TUBE SAMPLES (LSD-117' BELOW LSD).

GOOD CUTTINGS SAMPLES (117'-194'); GOOD CORE SAMPLES (194'-344.5').

00.	-	192.0	090UDSC	UNDIFFERENTIATED SAND AND CLAY
192.0	-	257.8	122HTRN	HAWTHORN GROUP
257.8	-	344.5	124OCAL	OCALA GROUP
0	-	0.5	SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY 50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE MEDIUM SPHERICITY; UNCONSOLIDATED CEMENT TYPE(S): ORGANIC MATRIX, CLAY MATRIX SEDIMENTARY STRUCTURES: MASSIVE ACCESSORY MINERALS: PLANT REMAINS-05%, CLAY-02% IRON STAIN-01% OTHER FEATURES: FROSTED, GRANULAR FOSSILS: NO FOSSILS	
0.5-		2.6	SAND; DARK YELLOWISH BROWN TO LIGHT OLIVE GRAY 50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE MEDIUM SPHERICITY; UNCONSOLIDATED CEMENT TYPE(S): ORGANIC MATRIX, CLAY MATRIX SEDIMENTARY STRUCTURES: MASSIVE ACCESSORY MINERALS: PLANT REMAINS-05%, CLAY-02% IRON STAIN-01% OTHER FEATURES: FROSTED, GRANULAR FOSSILS: NO FOSSILS	
2.6-		2.6	SAND; LIGHT OLIVE GRAY TO GRAYISH ORANGE 50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE MEDIUM SPHERICITY; UNCONSOLIDATED CEMENT TYPE(S): ORGANIC MATRIX, CLAY MATRIX SEDIMENTARY STRUCTURES: MASSIVE ACCESSORY MINERALS: CLAY-03%, IRON STAIN-01% OTHER FEATURES: FROSTED, GRANULAR FOSSILS: NO FOSSILS	
2.6-		4	NO SAMPLES 60% RECOVERY.	
4	-	6.4	SAND; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE 40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE	

MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%  
IRON STAIN-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS

- 6.4- 9 NO SAMPLES  
48% RECOVERY.
- 9 - 12.5 SAND; LIGHT BROWN TO DARK YELLOWISH ORANGE  
30% POROSITY: INTERGRANULAR  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX, IRON CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-06%, HEAVY MINERALS-01%  
IRON STAIN-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 12.5- 14 NO SAMPLES  
70% RECOVERY.
- 14 - 16.8 SAND; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX, IRON CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%  
IRON STAIN-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 16.8- 19 NO SAMPLES  
56% RECOVERY.
- 19 - 21.7 SAND; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 21.7- 24 NO SAMPLES  
54% RECOVERY.
- 24 - 26.5 SAND; GRAYISH ORANGE TO LIGHT YELLOWISH ORANGE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX

SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS

- 26.5- 29 NO SAMPLES  
50% RECOVERY.
- 29 - 31.3 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 31.3- 34 NO SAMPLES  
46% RECOVERY.
- 34 - 36.3 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 36.3- 39 NO SAMPLES  
46% RECOVERY.
- 39 - 40.3 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 40.3- 42.3 SAND; VERY LIGHT ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 42.3- 44 NO SAMPLES  
66% RECOVERY.

- 44 - 46.8 SAND; VERY LIGHT ORANGE TO WHITE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 46.8- 49 NO SAMPLES  
56% RECOVERY.
- 49 - 49.9 SAND; VERY LIGHT ORANGE TO WHITE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 49.9- 51.6 SAND; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX, IRON CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-02%  
IRON STAIN-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
SOME DARK YELLOWISH ORANGE CLAYEY SAND LAMINATIONS.
- 51.6- 54 NO SAMPLES  
52% RECOVERY.
- 54 - 56.6 SAND; VERY LIGHT ORANGE TO LIGHT YELLOWISH ORANGE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 56.6- 59 NO SAMPLES  
52% RECOVERY.
- 59 - 61.3 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED

ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS

- 61.3- 64 NO SAMPLES  
46% RECOVERY.
- 64 - 65.9 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 65.9- 66.5 NO SAMPLES  
76% RECOVERY.
- 66.5- 68.6 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 68.6- 69 NO SAMPLES  
84% RECOVERY.
- 69 - 71.1 SAND; VERY LIGHT ORANGE TO GRAYISH ORANGE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 71.1- 71.5 NO SAMPLES  
84% RECOVERY.
- 71.5- 73.6 SAND; VERY LIGHT ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 73.6- 74 NO SAMPLES

84% RECOVERY.

- 74 - 76.2 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 76.2- 76.5 NO SAMPLES  
88% RECOVERY.
- 76.5- 78.7 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 78.7- 79 NO SAMPLES  
88% RECOVERY.
- 79 - 81.2 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 81.2- 81.5 NO SAMPLES  
88% RECOVERY.
- 81.5- 83.5 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH ORANGE  
48% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 83.5- 84 NO SAMPLES  
80% RECOVERY.
- 84 - 86.3 SAND; GRAYISH ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM

MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS

- 86.3- 86.5 NO SAMPLES  
92% RECOVERY.
- 86.5- 88.7 SAND; VERY LIGHT ORANGE TO WHITE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-01%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 88.7- 89 NO SAMPLES  
88% RECOVERY.
- 89 - 91.4 SAND; VERY LIGHT ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 91.4- 91.5 NO SAMPLES  
96% RECOVERY.
- 91.5- 93.7 SAND; WHITE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 93.7- 94 NO SAMPLES  
88% RECOVERY.
- 94 - 96 SAND; VERY LIGHT ORANGE TO LIGHT YELLOWISH ORANGE  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR



FOSSILS: NO FOSSILS

- 96 - 96.5 NO SAMPLES  
80% RECOVERY.
- 96.5- 98.2 SAND; VERY LIGHT ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 98.2- 99 NO SAMPLES  
68% RECOVERY.
- 99 - 102 NO SAMPLES
- 102 - 103.6 SAND; VERY LIGHT ORANGE TO GRAYISH YELLOW  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
25% RECOVERY BY SPLIT-SPOONING.
- 103.6- 107 NO SAMPLES
- 107 - 108 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
40% RECOVERY BY SPLIT-SPOONING.
- 108 - 109.5 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
47% RECOVERY BY MUD TUBE.
- 109.5- 112 NO SAMPLES

- 112 - 113 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
100% RECOVERY BY MUD TUBE.
- 113 - 116 SAND; VERY LIGHT ORANGE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; UNCONSOLIDATED  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 116 - 117 NO SAMPLES  
33% RECOVERY BY MUD TUBE.
- 117 - 122 SAND; WHITE TO YELLOWISH GRAY  
50% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-01%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 122 - 127 AS ABOVE
- 127 - 132 SAND; LIGHT YELLOWISH ORANGE TO DARK YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO COARSE  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX,  
SEDIMENTARY STRUCTURES: BRECCIATED  
ACCESSORY MINERALS: -2H%, -1 %  
OTHER FEATURES: GRANULAR, MUDDY
- 132 - 137 SAND; GRAYISH ORANGE TO DARK YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 137 - 141 AS ABOVE

- 141 - 142 SAND; WHITE  
35% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE  
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY  
MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-02%, HEAVY MINERALS-01%, MICA-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 142 - 147 AS ABOVE
- 147 - 152 AS ABOVE
- 152 - 157 AS ABOVE
- 157 - 162 AS ABOVE
- 162 - 164 AS ABOVE
- 164 - 167 SAND; MODERATE REDDISH ORANGE TO DARK YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%, MICA-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 167 - 172 SAND; MODERATE REDDISH ORANGE TO MODERATE YELLOW  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%, MICA-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 172 - 177 SAND; MODERATE REDDISH ORANGE TO LIGHT YELLOWISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%, MICA-01%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS
- 177 - 182 SAND; GRAYISH YELLOW TO MODERATE REDDISH ORANGE  
40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
MEDIUM SPHERICITY; MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE

- ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%, MICA-01%  
 OTHER FEATURES: FROSTED, GRANULAR  
 FOSSILS: NO FOSSILS
- 182 - 187 SAND; LIGHT YELLOWISH ORANGE TO MODERATE REDDISH ORANGE  
 40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
 MEDIUM SPHERICITY; MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX  
 SEDIMENTARY STRUCTURES: MASSIVE  
 ACCESSORY MINERALS: CLAY-04%, HEAVY MINERALS-01%, MICA-01%  
 OTHER FEATURES: FROSTED, GRANULAR  
 FOSSILS: NO FOSSILS
- 187 - 189.5 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH ORANGE  
 40% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
 GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE  
 MEDIUM SPHERICITY; MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX  
 SEDIMENTARY STRUCTURES: MASSIVE  
 ACCESSORY MINERALS: CLAY-03%, HEAVY MINERALS-01%, MICA-01%  
 OTHER FEATURES: FROSTED, GRANULAR  
 FOSSILS: NO FOSSILS
- 189.5- 192 SAND; LIGHT YELLOWISH ORANGE TO GRAYISH YELLOW  
 35% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
 GRAIN SIZE: MEDIUM; RANGE: MEDIUM TO VERY COARSE  
 ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY  
 MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX  
 SEDIMENTARY STRUCTURES: MASSIVE  
 ACCESSORY MINERALS: CLAY-04%, PHOSPHATIC SAND-02%  
 HEAVY MINERALS-01%, MICA-01%  
 OTHER FEATURES: FROSTED, GRANULAR  
 FOSSILS: NO FOSSILS
- 192 - 192 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
 12% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
 GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
 MODERATE INDURATION  
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
 SEDIMENTARY STRUCTURES: MASSIVE  
 ACCESSORY MINERALS: QUARTZ SAND-02%, HEAVY MINERALS-01%  
 SPAR-01%  
 OTHER FEATURES: SPLINTERY, CHALKY, WEATHERED  
 MEDIUM RECRYSTALLIZATION  
 FOSSILS: MILIOLIDS, FOSSIL FRAGMENTS, FOSSIL MOLDS  
 TRACE BROWN-BLACK COARSE-GRAINED PHOSPHATIC SAND.
- 192 - 193 NO SAMPLES
- 193 - 194 CALCILUTITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
 14% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
 GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
 MODERATE INDURATION  
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
 SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED

ACCESSORY MINERALS: QUARTZ SAND-08%, HEAVY MINERALS-01%  
SPAR-02%  
OTHER FEATURES: SPLINTERY, CHALKY, WEATHERED  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, MOLLUSKS, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
SOME FOSSIL MOLDS INFILLED WITH SECONDARY CALCITE.

- 194 - 194.5 NO SAMPLES  
66% CORE RECOVERY.
- 194.5- 199.1 CALCILUTITE; VERY LIGHT GRAY TO YELLOWISH GRAY  
15% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE  
CEMENT TYPE(S): CALCILUTITE MATRIX, CALCILUTITE MATRIX  
SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED, BRECCIATED  
LAMINATED  
ACCESSORY MINERALS: -H0%, ORGANICS-R0%, SHELL-X0%  
OTHER FEATURES: FOSSILIFEROUS, CHALKY, SPLINTERY  
MEDIUM RECRYSTALLIZATION  
FOSSILS: BRYOZOA, CORAL, MOLLUSKS, ECHINOID
- 199.1- 199.1 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
12% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
10-50% ALTERED; FIBROUS  
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE  
GOOD INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED  
BRECCIATED, LAMINATED  
ACCESSORY MINERALS: CALCILUTITE-02%, QUARTZ SAND-01%  
OTHER FEATURES: DOLOMITIC, SPLINTERY, LOW RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, ECHINOID, FOSSIL FRAGMENTS, FOSSIL MOLDS  
SOME INFILLED ECHINOID MOLDS (CLYPEASTER ROGERSI?).
- 199.1- 199.5 NO SAMPLES  
92% CORE RECOVERY.
- 199.5- 201.2 CALCARENITE; VERY LIGHT GRAY TO YELLOWISH GRAY  
15% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED, BRECCIATED  
LAMINATED  
ACCESSORY MINERALS: QUARTZ SAND-04%, HEAVY MINERALS-01%  
SPAR-02%, PHOSPHATIC GRAVEL-01%  
OTHER FEATURES: CHALKY, SPLINTERY, MEDIUM RECRYSTALLIZATION  
FOSSILS: BRYOZOA, CORAL, MOLLUSKS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 201.2- 201.2 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
12% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
10-50% ALTERED; FIBROUS  
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE  
GOOD INDURATION

- CEMENT TYPE(S): DOLOMITE CEMENT  
 SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED  
 BRECCIATED, LAMINATED  
 ACCESSORY MINERALS: CALCILUTITE-02%, QUARTZ SAND-01%  
 OTHER FEATURES: DOLOMITIC, SPLINTRY, LOW RECRYSTALLIZATION  
 FOSSILS: MOLLUSKS, CORAL, FOSSIL FRAGMENTS, FOSSIL MOLDS
- 201.2- 201.2 CLAY; GRAYISH GREEN  
 10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
 MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX  
 SEDIMENTARY STRUCTURES: BIOTURBATED, CROSS-BEDDED  
 OTHER FEATURES: GREASY  
 FOSSILS: NO FOSSILS
- 201.2- 202.2 DOLOSTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
 30% POROSITY: INTERGRANULAR, MOLDIC  
 POSSIBLY HIGH PERMEABILITY; 10-50% ALTERED; FIBROUS  
 GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO MICROCRYSTALLINE  
 GOOD INDURATION  
 CEMENT TYPE(S): DOLOMITE CEMENT  
 SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED  
 BRECCIATED, LAMINATED  
 ACCESSORY MINERALS: CALCILUTITE-01%, QUARTZ SAND-01%  
 OTHER FEATURES: DOLOMITIC, CHALKY, SPLINTRY  
 LOW RECRYSTALLIZATION  
 FOSSILS: BENTHIC FORAMINIFERA, MOLLUSKS, CRUSTACEA  
 FOSSIL FRAGMENTS, FOSSIL MOLDS
- 202.2- 202.2 CLAY; GRAYISH ORANGE  
 08% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
 MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX  
 SEDIMENTARY STRUCTURES: BIOTURBATED, CROSS-BEDDED  
 ACCESSORY MINERALS: IRON STAIN-01%  
 OTHER FEATURES: GREASY  
 FOSSILS: NO FOSSILS  
 CLAY INFILLING FOSSIL MOLDS. GASTROPOD AND PELECYPOD  
 (CHIONE) MOLDS. CRAB (CALIANASSA SP) CLAW, FORAMS  
 (SORITES?).
- 202.2- 204.5 NO SAMPLES  
 54% CORE RECOVERY; LOST CIRCULATION AT 201.5 FEET. POSSIBLE  
 CLAY FILLED CAVITY WITHIN THIS INTERVAL..
- 204.5- 209 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
 40% POROSITY: INTERGRANULAR, MOLDIC  
 POSSIBLY HIGH PERMEABILITY  
 GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
 MODERATE INDURATION  
 CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
 SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
 ACCESSORY MINERALS: QUARTZ SAND-02%, HEAVY MINERALS-01%  
 SPAR-01%  
 OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
 FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CRUSTACEA  
 FOSSIL FRAGMENTS, FOSSIL MOLDS

ABUNDANT MOLLUSK CASTS AND MOLDS (CHIONE & TURRITELLA).  
REDDISH BROWN CLAY INFILLING FOSSIL MOLDS. FORAMS (SORITES)  
SOME SECONDARY CALCITE LINING VUGS.

- 209 - 209.5 NO SAMPLES  
90% CORE RECOVERY
- 209.5- 213.8 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
20% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: QUARTZ SAND-03%, HEAVY MINERALS-01%  
SPAR-01%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
MOLLUSK FRAGMENTS (PECTEN) & FORAMS (SORITES)
- 213.8- 214.5 NO SAMPLES  
86% CORE RECOVERY
- 214.5- 219.3 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT  
SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED, MOTTLED  
ACCESSORY MINERALS: QUARTZ SAND-03%, HEAVY MINERALS-01%  
PHOSPHATIC GRAVEL-02%  
OTHER FEATURES: CHALKY, DOLOMITIC, SPLINTERY, GRANULAR  
HIGH RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BRYOZOA, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 219.3- 219.3 DOLOSTONE; YELLOWISH GRAY TO PINKISH GRAY  
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED, INTERBEDDED  
ACCESSORY MINERALS: CLAY-01%, QUARTZ SAND-01%  
OTHER FEATURES: DOLOMITIC, SPLINTERY  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
MOLLUSK MOLDS (CHIONE); SOME BROWN, PHOSPHATIC GRAVEL.
- 219.3- 219.5 NO SAMPLES  
96% CORE RECOVERY
- 219.5- 220.7 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
15% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT  
CLAY MATRIX

SEDIMENTARY STRUCTURES: MASSIVE, BRECCIATED, MOTTLED  
ACCESSORY MINERALS: QUARTZ SAND-03%, PHOSPHATIC GRAVEL-04%  
OTHER FEATURES: CHALKY, DOLOMITIC, GRANULAR, SPLINTERY  
HIGH RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS

- 220.7- 222.8 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY  
12% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
50-90% ALTERED; SUBHEDRAL  
GRAIN SIZE: MICROCRYSTALLINE  
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE  
ACCESSORY MINERALS: QUARTZ SAND-02%, HEAVY MINERALS-01%  
PHOSPHATIC GRAVEL-02%, CLAY-02%  
OTHER FEATURES: DOLOMITIC, SPLINTERY, SUCROSIC  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 222.8- 222.8 CLAY; LIGHT GRAYISH GREEN TO GRAYISH GREEN  
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
ACCESSORY MINERALS: GLAUCONITE-03%  
OTHER FEATURES: PLASTIC, GREASY  
FOSSILS: NO FOSSILS
- 222.8- 222.8 CLAY; WHITE TO VERY LIGHT GRAY  
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
OTHER FEATURES: CALCAREOUS, GREASY  
FOSSILS: NO FOSSILS
- 222.8- 222.8 SAND; YELLOWISH GRAY TO VERY LIGHT ORANGE  
18% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY  
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM  
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MEDIUM SPHERICITY  
POOR INDURATION  
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED  
ACCESSORY MINERALS: CALCILUTITE-03%, PHOSPHATIC SAND-02%  
OTHER FEATURES: FROSTED, GRANULAR  
FOSSILS: NO FOSSILS  
SOME OFF-WHITE KAOLINITIC CLAY LAMINATIONS. SAND INFILLING  
FOSSIL MOLDS IN DOLOMITE (WORM BURROWS?).
- 222.8- 224.5 NO SAMPLES  
66% CORE RECOVERY.
- 224.5- 228.3 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY  
12% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
50-90% ALTERED; SUBHEDRAL  
GRAIN SIZE: MICROCRYSTALLINE



RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: QUARTZ SAND-02%, HEAVY MINERALS-01%  
PHOSPHATIC GRAVEL-02%, CLAY-05%  
OTHER FEATURES: DOLOMITIC, SPLINTERY, SUCROSIC  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS

- 228.3- 228.3 CLAY; LIGHT OLIVE TO LIGHT GRAYISH GREEN  
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
ACCESSORY MINERALS: DOLOMITE-03%, QUARTZ SAND-01%  
OTHER FEATURES: CHALKY, GREASY  
FOSSILS: NO FOSSILS  
SOME FOSSIL MOLDS INFILLED BY CLAY.
- 228.3- 229.5 NO SAMPLES  
76% CORE RECOVERY.
- 229.5- 234.3 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY  
15% POROSITY: INTERGRANULAR, MOLDIC; 50-90% ALTERED  
SUBHEDRAL  
GRAIN SIZE: MICROCRYSTALLINE  
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: CLAY-04%, QUARTZ SAND-01%  
HEAVY MINERALS-01%, PHOSPHATIC GRAVEL-02%  
OTHER FEATURES: DOLOMITIC, SPLINTERY, SUCROSIC  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 234.3- 234.3 CLAY; LIGHT OLIVE TO LIGHT GRAYISH GREEN  
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
ACCESSORY MINERALS: DOLOMITE-03%, QUARTZ SAND-01%  
FOSSILS: NO FOSSILS
- 234.3- 234.5 NO SAMPLES  
96% CORE RECOVERY.
- 234.5- 236 DOLOSTONE; LIGHT OLIVE GRAY TO LIGHT OLIVE GRAY  
15% POROSITY: INTERGRANULAR, MOLDIC; 50-90% ALTERED  
SUBHEDRAL  
GRAIN SIZE: MICROCRYSTALLINE  
RANGE: VERY FINE TO MICROCRYSTALLINE; MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: CLAY-04%, QUARTZ SAND-01%  
HEAVY MINERALS-01%, PHOSPHATIC GRAVEL-02%

OTHER FEATURES: CRYSTALLINE, SPLINTERY, SUCROSIC  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS

- 236 - 236 CLAY; LIGHT OLIVE TO LIGHT GRAYISH GREEN  
10% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
ACCESSORY MINERALS: DOLOMITE-03%, QUARTZ SAND-01%  
FOSSILS: NO FOSSILS  
CLAY INFILLING FOSSIL MOLDS.
- 236 - 237.5 CALCARENITE; WHITE TO YELLOWISH GRAY  
18% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED, BRECCIATED  
ACCESSORY MINERALS: QUARTZ SAND-02%, DOLOMITE-02%, CLAY-01%  
HEAVY MINERALS-01%  
OTHER FEATURES: DOLOMITIC, SPLINTERY, CHALKY  
MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, ECHINOID, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
MOLLUSK MOLDS & SOME ECHINOID FRAGMENTS.
- 237.5- 239.5 NO SAMPLES  
60% CORE RECOVERY.
- 239.5- 240.6 CALCARENITE; WHITE TO YELLOWISH GRAY  
28% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: QUARTZ SAND-01%, HEAVY MINERALS-02%  
OTHER FEATURES: SPLINTERY, CHALKY  
FOSSILS: MOLLUSKS, MILIOLIDS, CORAL, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
ABUNDANT MOLLUSK CASTS AND MOLDS.
- 240.6- 244.5 NO SAMPLES  
22% CORE RECOVERY.
- 244.5- 247.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
20% POROSITY: INTERGRANULAR, MOLDIC  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX  
DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: CALCILUTITE-05%, DOLOMITE-03%, CLAY-01%  
OTHER FEATURES: SPLINTERY, CHALKY, DOLOMITIC

LOW RECRYSTALLIZATION

FOSSILS: MOLLUSKS, MILIOLIDS, CORAL, FOSSIL FRAGMENTS

FOSSIL MOLDS

SOME DOLOMITIZED LENSES; TRACE ECHINOID SPINES.

- 247.5- 249.5 NO SAMPLES  
60% CORE RECOVERY.
- 249.5- 251.2 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
20% POROSITY: INTERGRANULAR, MOLDIC  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX  
DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: CALCILUTITE-05%, DOLOMITE-02%, CLAY-01%  
OTHER FEATURES: SPLINTERY, CHALKY, LOW RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 251.2- 254 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
10% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
10-50% ALTERED; FIBROUS  
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE  
GOOD INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX  
ORGANIC MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED  
ACCESSORY MINERALS: PLANT REMAINS-04%, DOLOMITE-04%  
CLAY-03%  
OTHER FEATURES: DOLOMITIC, CHALKY, GREASY  
LOW RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, ORGANICS, FOSSIL FRAGMENTS  
FOSSIL MOLDS
- 254 - 254 CLAY; DARK BROWN TO MODERATE BROWN  
05% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX  
SEDIMENTARY STRUCTURES: INTERBEDDED  
ACCESSORY MINERALS: PLANT REMAINS-08%  
OTHER FEATURES: GREASY, MUDDY  
FOSSILS: ORGANICS, FOSSIL FRAGMENTS  
CLAYEY DOLOMITE LAMINATED WITH ORGANIC CLAY LENSES.
- 254 - 254.5 NO SAMPLES  
90% CORE RECOVERY.
- 254.5- 254.6 DOLOSTONE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
10% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY  
10-50% ALTERED; FIBROUS  
GRAIN SIZE: VERY FINE; RANGE: VERY FINE TO FINE  
GOOD INDURATION  
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX  
ORGANIC MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, LAMINATED  
ACCESSORY MINERALS: PLANT REMAINS-02%, DOLOMITE-04%

- CLAY-02%  
 OTHER FEATURES: DOLOMITIC, CHALKY, GREASY  
 LOW RECRYSTALLIZATION  
 FOSSILS: MILIOLIDS, ORGANICS, FOSSIL FRAGMENTS  
 FOSSIL MOLDS
- 254.6- 254.6 CLAY; DARK BROWN TO MODERATE BROWN  
 05% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
 MODERATE INDURATION  
 CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX  
 SEDIMENTARY STRUCTURES: INTERBEDDED  
 ACCESSORY MINERALS: PLANT REMAINS-08%  
 OTHER FEATURES: GREASY, MUDDY  
 FOSSILS: ORGANICS, FOSSIL FRAGMENTS
- 254.6- 257.8 DOLOSTONE; YELLOWISH GRAY TO DARK GRAYISH YELLOW  
 08% POROSITY: FRACTURE, LOW PERMEABILITY; 90-100% ALTERED  
 ANHEDRAL  
 GRAIN SIZE: MICROCRYSTALLINE  
 RANGE: VERY FINE TO CRYPTOCRYSTALLINE; GOOD INDURATION  
 CEMENT TYPE(S): DOLOMITE CEMENT  
 SEDIMENTARY STRUCTURES: MASSIVE  
 ACCESSORY MINERALS: IRON STAIN-01%, CLAY-01%  
 OTHER FEATURES: SPLINTERY, HIGH RECRYSTALLIZATION  
 FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
 FOSSIL MOLDS  
 MOLLUSKS, SOME MILIOLID MOLDS.
- 257.8- 258.8 CALCARENITE; VERY LIGHT ORANGE TO GRAYISH YELLOW  
 10% POROSITY: INTERGRANULAR, MOLDIC  
 GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL  
 MODERATE INDURATION  
 CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX  
 SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
 ACCESSORY MINERALS: CALCILUTITE-04%, DOLOMITE-03%  
 OTHER FEATURES: CHALKY, SPLINTERY, DOLOMITIC  
 MEDIUM RECRYSTALLIZATION  
 FOSSILS: MOLLUSKS, MILIOLIDS, BRYOZOA, FOSSIL FRAGMENTS  
 FOSSIL MOLDS
- 258.8- 259.5 NO SAMPLES  
 86% CORE RECOVERY.
- 259.5- 263.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
 30% POROSITY: INTERGRANULAR, MOLDIC  
 POSSIBLY HIGH PERMEABILITY  
 GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
 MODERATE INDURATION  
 CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT  
 SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
 ACCESSORY MINERALS: DOLOMITE-02%  
 OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
 FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL, ECHINOID  
 FOSSIL FRAGMENTS  
 MILIOLIDS; FORAMS (LEPIDOCYCLINA OCALANA). SOME ECHINOID  
 FRAGMENTS, CORAL MOLDS.

- 263.5- 264.5 NO SAMPLES  
80% CORE RECOVERY.
- 264.5- 267.8 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
28% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-01%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, ECHINOID  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
FORAMS (LEPIDOCYCLINA OCALANA), MOLLUSK MOLDS.
- 267.8- 269.5 NO SAMPLES  
66% CORE RECOVERY.
- 269.5- 274.3 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: DOLOMITE-01%, SPAR-01%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, CORAL  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
MILIOLIDS COMMON; SOME GASTROPOD (TURRITELLA) MOLDS. SOME  
SMALL PELECYPOD (CHIONE) MOLDS, TRACE CORAL MOLDS. LARGE  
FORAMS (LEPIDOCYCLINA OCALANA). BOTTOM OF SECTION SLIGHTLY  
DOLOMITIZED.
- 274.3- 274.5 NO SAMPLES  
96% CORE RECOVERY.
- 274.5- 276 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
MOLLUSK MOLDS, ABUNDANT LARGE FORAMS (LEPIDOCYCLINA).
- 276 - 279.5 NO SAMPLES  
30% CORE RECOVERY.
- 279.5- 283.5 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-03%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
ABUNDANT FORAMS (LEPIDOCYCLINA OCALANA). SOME MOLLUSK CASTS  
AND MOLDS (TURRITELLA).

- 283.5- 284.5 NO SAMPLES  
80% CORE RECOVERY.
- 284.5- 287.5 CALCARENITE; LIGHT OLIVE GRAY TO GRAYISH BROWN  
20% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-01%, CALCILUTITE-03%, CLAY-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, BENTHIC FORAMINIFERA, BRYOZOA  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
SOME BRYOZOAN PAVEMENT, FORAMS (LEPIDOCYCLINA OCALANA)
- 287.5- 289.5 NO SAMPLES  
60% CORE RECOVERY.
- 289.5- 294.5 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-01%, CALCILUTITE-03%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
MILIOLIDS COMMON, NO CORE RECOVERY. CUTTINGS SAMPLE  
DESCRIBED.
- 294.5- 299.5 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-01%, CALCILUTITE-03%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, FOSSIL FRAGMENTS  
FOSSIL MOLDS  
NO CORE RECOVERY, CUTTINGS SAMPLES ONLY FROM 294.5 - 304.5  
FT. CUTTINGS SAMPLES SAME MATERIALS AS FROM 289.5 - 294.5.

- 299.5- 301.5 CALCARENITE; LIGHT OLIVE GRAY TO GRAYISH BROWN  
20% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-01%, CALCILUTITE-03%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, BENTHIC FORAMINIFERA  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
MILIOLIDS, SOME FORAMS (LEPIDOCYCLINA OCALANA).
- 301.5- 304.5 NO SAMPLES  
40% CORE RECOVERY.
- 304.5- 314.5 CALCARENITE; LIGHT OLIVE GRAY TO VERY LIGHT ORANGE  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MOLLUSKS, MILIOLIDS, BENTHIC FORAMINIFERA  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
MILIOLIDS COMMON; NO CORE RECOVERY, CUTTINGS SAMPLES ONLY.  
FORAMS (LEPIDOCYCLINA), (GYPSINA GLOBULA). TRACE FORAM  
(NUMMULITES). CUTTINGS SAMPLES ONLY FOR 304.5 - 314.5 FT.
- 314.5- 319.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
NO CORE RECOVERY, CUTTINGS SAMPLE DESCRIBE FROM 314.5 -  
324.5. MILIOLIDS, SOME MOLLUSK FRAGMENTS (PECTEN).
- 319.5- 320.3 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
30% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS  
FOSSIL FRAGMENTS, FOSSIL MOLDS

MILIOLIDS, LARGE FORAMS (LEPIDOCYCLINA OCALANA). MOLLUSK  
FRAGMENTS (PECTEN), TRACE FORAMS (NUMMULITES).

- 320.3- 324.5 NO SAMPLES  
16% CORE RECOVERY.
- 324.5- 334.5 CALCARENITE; YELLOWISH GRAY TO MODERATE LIGHT GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS  
FOSSIL FRAGMENTS, FOSSIL MOLDS  
NO CORE RECOVERY, CUTTINGS SAMPLE DESCRIBED FROM 324.5 -  
334.5. MILIOLIDS, TRACE FORAMS (NUMMULITES, LEPIDOCYCLINA)  
LIGHT GRAY VERY FINE CALCARENITE FROM 329.5 - 334.5.
- 334.5- 336.2 CALCARENITE; VERY LIGHT ORANGE TO LIGHT OLIVE GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS  
FOSSIL FRAGMENTS, FOSSIL MOLDS
- 336.2- 336.2 CLAY; BLACK TO LIGHT OLIVE GRAY  
20% POROSITY: INTERGRANULAR, LOW PERMEABILITY  
MODERATE INDURATION  
CEMENT TYPE(S): CLAY MATRIX, ORGANIC MATRIX  
ACCESSORY MINERALS: PLANT REMAINS-05%, CALCILUTITE-01%  
OTHER FEATURES: GREASY  
FOSSILS: ORGANICS  
ORGANIC CLAY AT TOP OF SECTION AND LINING SOME  
FRACTURES(?). FORAMS (LEPIDOCYCLINA) & MILIOLIDS COMMON.
- 336.2- 339.5 NO SAMPLES  
34% CORE RECOVERY.
- 339.5- 340.5 CALCARENITE; VERY LIGHT ORANGE TO YELLOWISH GRAY  
25% POROSITY: INTERGRANULAR, MOLDIC  
POSSIBLY HIGH PERMEABILITY  
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELTAL CAST  
MODERATE INDURATION  
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT  
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED  
ACCESSORY MINERALS: SPAR-02%, CALCILUTITE-02%  
OTHER FEATURES: CHALKY, GRANULAR, MEDIUM RECRYSTALLIZATION  
FOSSILS: MILIOLIDS, BENTHIC FORAMINIFERA, MOLLUSKS  
FOSSIL FRAGMENTS, FOSSIL MOLDS



MILLIOLIDS, FORAMS (LEPIDOCYCLINA, NUMMULITES).

340.5- 344.5 NO SAMPLES  
20% CORE RECOVERY.

344.5 TOTAL DEPTH