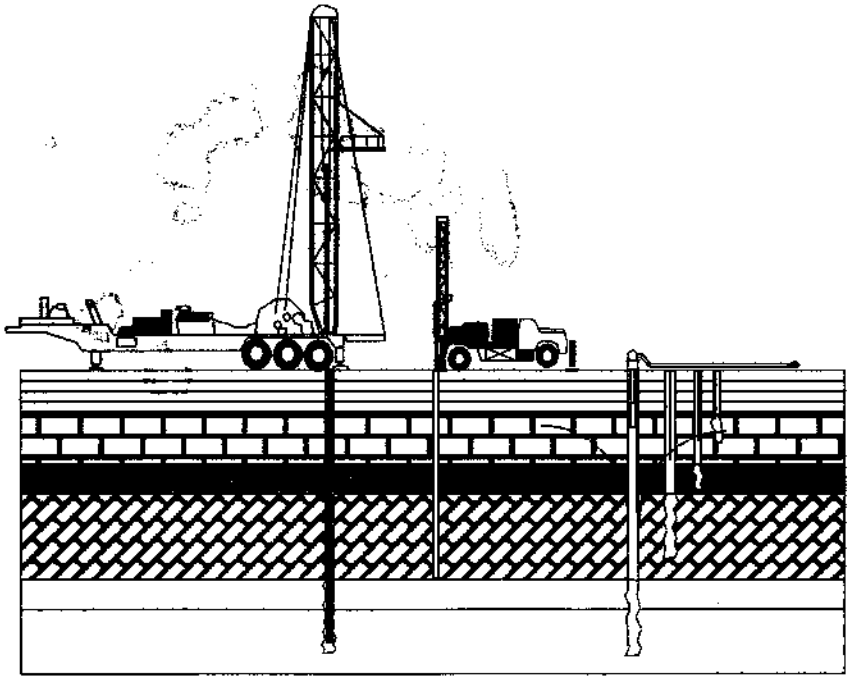
MONITOR WELL SITE
DEE COUNTY, FLORIDA

FINAL REPORT



Geohydrologic Data Section
Resource Data Department
Southwest Florida Water Management District

March 1988

EXECUTIVE SUMMARY
ROMP 17 "HORSE CREEK"
DESOTO COUNTY
BASIN 20,S.14,T.38S.,R.23E

3/30/88 **J. L. Decker**

I. SITE LOCATION
II. GEOLOGY
III. HYDROGEOLOGY
IV. REASONS FOR THE MONITORS
V. WELL CONSTRUCTION
VI. AQUIFER TEST

I. SITE LOCATION

The ROMP 17 wellsite is located about 9.3 miles southwest of Arcadia, DeSoto County, Florida. The wellsite can be found by proceeding about 1.9 miles west of U.S. 17 on S.R. 70; then turning left on S.R. 72 and proceeding southwest for a distance of 5 miles. Upon reaching S.R. 761, turn left and proceed south for a distance of 1.4 miles. Turn right and travel 1 mile west on a secondary road leading to the Environmental Learning Laboratory operated by DeSoto County. The wellsite has an access road and permanent easement (Figure 1). The ROMP 17 wellsite is located in the SE 1/4 of the NE 1/4 of the NE 1/4 of Section 14, Township 38 South, Range 23 East; latitude 27° 10' 26"N, longitude 81° 58' 36"W.

II. GEOLOGY

ROMP 17 is located on the Floridan Mid-Peninsular Zone which consists of a sub-division called the Coastal Lowlands. The Coastal Lowlands proper consists of poorly drained low-lying land at elevations of 30' to 40' or less in central and southwestern DeSoto County (White, 1970).

The ROMP 17 wellsite is located on the Pamlico terrace, a former marine shoreline formed by the invasion of the sea during the Pleistocene Epoch. The elevation of this wellsite is about 23' above NGVD. The wellsite is about .5 mile east of Horse Creek, a tributary of Peace River (Figure 2).

The wellsite is underlain by a thick sequence of sedimentary rocks whose lithology and structure control the occurrence and movement of groundwater. The uppermost stratigraphic units include: Undifferentiated Surficial Deposits, Tamiami Formation, Hawthorn Formation, Tampa Formation, Suwannee Formation, Ocala Group, Avon Park Formation, Lake City Formation and Cedar Keys Formation (Woodward, 1964).

In general, beds of the various rock units dip at a low angle in a southerly direction. The thicknesses of the beds are variable and primarily reflect periods of deposition followed by uplift, and erosion including solution activity. The erosional surfaces between beds are irregular, owing to differences in composition and solubility of the rocks (Wilson, 1977).

The uppermost and youngest formation at ROMP 17, based on the examination of core samples and the gamma ray geophysical log, are the Undifferentiated Surficial Deposits of Pleistocene and Holocene age. These deposits consist of unconsolidated to poorly indurated clastic deposits, dominated by dark yellowish brown, white quartz sand, clay and organic material which extend from land surface to 18' below LSD (5' above NGVD).

The Tamiami Formation of Pliocene age is composed principally of light gray to light olive gray, sandy limestone. The thickness of this unit at the ROMP 17 wellsite is about 8' (+5' to 3' below NGVD).

The Hawthorn Formation of Miocene age is composed of clastic and carbonate (limestone, calcilutite, dolomite, sand and clay) sediments of varying thicknesses. This complex sequence of lithologies was formed in a variety of depositional environments. The sequence reflects a pattern ranging from an initial transgressive phase to a major regressive sequence in its later development (Scott and MacGill, 1981). The Hawthorn sediments in the ROMP 17 locality may have been deposited in an open-marine, shallow-water and coastal marine environment.

Current research by Tom Scott, Florida Bureau of Geology, suggests that the Hawthorn Formation should incorporate the Tampa Formation and be raised to group status as the Hawthorn Group.

The Hawthorn Formation extends from 26' to 208' below LSD (3'-185' below NGVD) at ROMP 17. Note: Tom Scott, FBG, includes this interval as part of the Hawthorn Group (26'-439' below LSD). The clastics in the upper Hawthorn Formation (26'-99' below LSD) are composed of quartz sand and clay, interbedded with limestone and dolomite. Note: Tom Scott, FBG, designated this interval as the Peace River Formation.

The lower Hawthorn Formation (99'-208' below LSD) is composed primarily of dolomite. This carbonate section of the Hawthorn Formation also includes limestone, calcilutite and some clastic beds. Note: Tom Scott, FBG, designates this interval as the upper part of the Arcadia Formation. Clastic beds containing variable proportions of clay, quartz sand and phosphate occur sporadically throughout the Arcadia Formation (Scott, 1986).

The Tampa Formation of early Miocene age was formed in a shallow marine environment. This formation consists of limestone with varying percentages of quartz sand and clay embedded in a carbonate matrix. It appears to be differentiated from the overlying Hawthorn Formation by a decrease of phosphorite described in the core samples and the lower activity as indicated on the gamma ray log.

The upper Tampa Formation (208'-292' below LSD) consists of a white to gray to light orange limestone. Tom Scott, FBG, designates this interval as the Tampa Member of the Arcadia Formation.

The lower Tampa Formation (292'-439' below LSD) consists of limestone, calcilutite, and often crystalline dolomite. This interval is comprised of a high percentage of quartz sand, variable amounts of phosphorite, and clay. Note: Tom Scott, FBG, describes this "sand and clay" unit as the Nocatee Member of the basal Arcadia Formation. This "sand and clay" clastic unit consists of carbonates in the matrix.

The lower Tampa Formation (Nocatee Member of the Arcadia Formation) lies unconformably above the Suwannee Formation of Oligocene age. The Suwannee Formation extends from 439' to a depth of 840' below LSD at the ROMP 17 wellsite. The formation is predominately a granular, fossiliferous limestone. Three intervals of yellowish gray, crystalline dolomite (480'-484', 577.5'-580.5, 816'-820.5' below LSD) were identified within the Suwannee Formation. With the exception of

the dolomite layers, activity on the gamma ray log decreasad substantially below the base of the Tampa Formation. Density and resistivity in the dolomite units were higher than that of limestone units (See cross plot data in the file).

The Ocala Group contact was identified about 840' below LSD. The Ocala Group of Eocene age underlies the Suwannee Formation at ROMP 17. It is composed of three formations (Crystal River, Williston and Inglis). Much of the upper Ocala Group is composed of a fine grained chalky, fossiliferous limestone. The upper Ocala Group (Crystal River Formation) was identified from the presence of the foraminifera (Lepidocyclina ocalana and Nummulities vanderstoki). The lower Ocala Group (Williston and Inglis Formations) was identified by the presence of the foraminifera (Operculinoides) and some echinoid fragments (possibly Durhamella floridana and Durhamella ocalana). From the depth of about 990' below LSD, the Ocala Group is harder, more consolidated, and dolomitic. The lower Ocala Group grades from a finer grained calcilutitic limestone to a coarser grained calcarenitic limestone, with beds of light-moderate brown and pale yellowish brown crystalline dolomite. The Ocala Group is about 355' thick (840'-1115' below LSD) at the ROMP 17 wellsite. The contact with the Avon Park is unconformable. The Avon Park contact (1115' below LSD) was identified from the electric log (spontaneous potential, single point resistivity). The foraminifera (Dictyconus cookei, Coskinolina floridana), fossil indicators of the Avon Park Formation, were not identified until the depth of 1150' below LSD.

The upper Avon Park Formation is composed of yellowish gray limestone and light-brown-pale brown dolomite. A sucrosic crystalline, vuggy, fractured dolomite unit (estimated to be about 200' thick) was encountered at 1393' below LSD. This is near the middle of the Avon Park Formation. Only a portion of the dolomite unit (1393'-1430' below LSD) was penetrated during the construction of the Deep Floridan Monitor.

The Undifferentiated Surficial Deposits, Tamiami, Hawthorn, Tampa, Suwannee Formations, Ocala Group and Avon Park Formation are described below (Figure 3):

DEPTH (Ft. Below LSD)	STRATIGRAPHIC UNIT/AGE Lithologic Description
LSD - 18'	**UNDIFFERENTIATED SURFICIAL DEPOSITS/PLEISTOCENE** Sand; quartz, grayish brown, dark yellowish brown, white, intergranular, grain size (fine to coarse), subangular-rounded, some clay and phosphorite; moderate-high porosity.
18' - 26'	**TAMIAMI FORMATION/PLIOCENE** Limestone; light gray, light olive gray, intergranular, moldic, pin point vugs, grain type (biogenic and calcilutitic); moderately indurated, 30% quartz sand, phosphatic sand; fossiliferous (mollusks, molds); low porosity.
26' - 208'	**HAWTHORN FORMATION/MIDDLE MIOCENE AGE** **HAWTHORN GROUP: PEACE RIVER FORMATION (26'-99')** Limestone; light-olive-yellowish gray, intergranular, moldic, pin point vugs; grain type (biogenic and calcilutitic); some quartz sand, phosphatic sand, clay, silt; fossiliferous (mollusks and benthonic foraminifera); moderate porosity and low permeability.

Dolomite; pinkish gray, light olive gray, dark grayish yellow, intercrystalline, moldic; grain size (very fine to microcrystalline); some clay and phosphatic sand; moderate porosity, low permeability.

Sand; quartz, light olive gray, yellowish gray, intergranular; grain size (very fine to medium); some clay, silt and phosphatic sand; fossiliferous (benthonic foraminifera, molds, mollusks), poorly indurated; moderate porosity and permeability.

Clay; olive gray, light olive gray, intergranular, bioturbated, quartz sand, silt, fossil fragments, poor induration; low permeability.

HAWTHORN GROUP: ARCADIA FORMATION (99'-208')

Dolomite; yellowish gray, pinkish gray, light olive gray, intercrystalline; grain size (very fine-cryptocrystalline), moldic, pin point vugs, subhedral, some quartz and phosphatic sand, silt; fossiliferous (mollusks, molds, benthonic foraminifera), poor-good induration; low-good porosity and permeability.

Limestone; yellowish gray, light gray, intergranular, moldic, pin point vugs; grain type (calcilutitic, biogenic, skeletal); fossiliferous (molds, mollusks, benthonic foraminifera, algae), poor-good induration; poor-good porosity and permeability.

Sand; quartz, light olive gray, light gray, intergranular; grain size (fine-medium); subangular, rounded, some phosphatic sand and clay, poorly indurated, clay matrix; low-moderate porosity.

Clay; olive gray, light olive gray, intergranular, moldic, quartz and phosphatic sand, silt; low permeability.

208' - 439'

TAMPA FORMATION/EARLY MIOCENE AGE
HAWTHORN GROUP: ARCADIA FORMATION - TAMPA MEMBER (208'-292')

Limestone; light gray, yellowish gray, white, pinkish gray, intergranular, moldic, pin point vugs; grain type (biogenic, calcilutitic, crystals, skeletal); some quartz and phosphatic sand; fossiliferous (molds, mollusks, benthonic foraminifera), moderate-good induration; low-high porosity.

Dolomite; pinkish gray-yellowish gray, intercrystalline, moldic, pin point vugs; grain size (microcrystalline-cryptocrystalline), minor quartz and phosphatic sand, silt; fossiliferous (molds, mollusks, bryozoan), good induration; usually low-moderate porosity.

Sand; yellowish gray, light olive gray, pinkish gray; grain size (very fine-fine); subangular-angular, poor induration, dolomite cement, some phosphatic sand; moderate-porosity and permeability.

Clay; light gray, yellowish gray, olive gray, intergranular, moldic, silty, dolomitic cement, some quartz and phosphatic sand, moderate induration; low permeability.

439' - 840' **SUWANNEE FORMATION/OLIGOCENE AGE**

Limestone; yellowish gray, white, very light orange, light gray, intergranular, moldic, pin point vugs; grain type (biogenic, calcilutitic, skeletal); sparry calcite cement, some quartz sand; fossiliferous (molds, mollusks, ostracods, echinoids, benthonic foraminifera), moderate induration; usually moderate-good porosity.

Dolomite; light gray, light olive gray, intercrystalline, moldic, pin point vugs, microcrystalline-cryptocrystalline, good induration, some quartz sand, minor chert; low porosity.

840' - 1115' **OCALA GROUP/EOCENE**

Limestone; white, cream, tan, chalky, soft, nodular, granular; fossiliferous (Lepidocyclina ocalana, Camerina, Nummulites, Operculinoides); some yellowish brown, gray, dark brown dense, sucrosic dolomite near the bottom of the section; minor chert and calcareous clay, recrystallized limestone, dolomitic limestone; usually low-moderate porosity and permeability.

1115' - 1430' (TD) **AVON PARK FORMATION/EOCENE AGE**

Limestone; yellowish gray, soft to moderately hard, chalky, intergranular, biogenic, grain type: (calcilutite, skeletal), interbedded, dolomitic, granular, sucrosic; fossiliferous (Dictyoconus cookei, Coskinolina floridana); low-moderate porosity and permeability.

Clay; light cream, green, calcareous, plastic; low permeability.

Dolomite; light brown, pale yellowish brown, dark brown, crystalline, sucrosic, mottled, fine-microcrystalline, hard, brittle; fossiliferous (Dictyoconus cookei, Coskinolina floridana); low-high porosity and permeability; some fracture and solutional porosity.

III. HYDROGEOLOGY

In DeSoto County, the Surficial, Intermediate and Floridan Aquifer Systems have been identified.

The Surficial Aquifer System extends from land surface to 18' below LSD (23'-5' above NGVD) at the ROMP 17 wellsite. The upper sand unit, consisting principally of fine-coarse grained quartz sand, blankets the wellsite. The shell and sand unit, and the phosphorite unit were not identified, even though some phosphorite was described in the upper sand unit.

The Pamlico shoreline lies in the vicinity of ROMP 17 and is part of the Gulf Coast Lowlands physiographic subdivision (Wilson, 1977). Much of the Undifferentiated Surficial Deposits at ROMP 17, a distance of .5 mile from Horse Creek, are likely to be fluvial or terrace in origin. Erosion of these deposits has probably resulted in the thinness of the Surficial Aquifer System in this locality.

Infiltration rates to the Surficial Aquifer System in DeSoto County vary depending on depth to the water table, soil type, soil moisture, topography, vadose zone material, evapo-transpiration and runoff characteristics (Watson, 1988).

The Surficial Aquifer System contains water derived from direct recharge of local precipitation and moves to points of discharge along Horse Creek in the wellsite locality. The water table (hydrostatic level) at the ROMP 17 wellsite in May, 1988 was 1.04' below LSD (21.96' above NGVD).

Hydraulic properties of the Surficial Aquifer System differ due to a variation in types of materials that comprise the aquifer and their physical characteristics, such as grain size, sorting and thickness of the saturated zone (Watson, 1988).

Average hydraulic conductivity of the sand unit of the Surficial Aquifer System is estimated to be a few tens of feet per day in DeSoto County. Average hydraulic conductivity is about 34 ft/d (Wilson, 1977). This figure may be less at ROMP 17 due to the poor sorting of the sediments (fine-coarse grained) and the thinness of the Surficial Aquifer System (18').

Average transmissivity of the Surficial Aquifer System in DeSoto County is about 1,100 ft^2/d. Transmissivity values undoubtedly have a wide range due to thickness and the lithology of the aquifer (Wilson, 1977).

Transmissivity in the Surficial Aquifer System at the AMAX S site in west-central DeSoto County was estimated to be 602 ft^2/d (Figure 3). Storage coefficient was estimated to be .025 $ft^3/d/ft^3$ (Watson, 1988).

The Intermediate Aquifer System lies between the Surficial Aquifer System and the Floridan Aquifer System at ROMP 17. The top of the Intermediate Aquifer System lies about 18' below LSD (5' above NGVD), while the base is about 390' below LSD (367' below NGVD). This system at ROMP 17 includes at least two noteworthy water-bearing units. The two units consist of discontinuous permeable sand, shell, limestone and dolomite beds of the Tamiami Formation (18'-26' below LSD), the Hawthorn Formation (26'-208' below LSD) and a portion of the Tampa Formation (208'-390' below LSD).

The limestone bed which comprises the Tamiami Formation is not very thick and appears to be low in porosity and permeability. It cannot be considered an economical water-bearing unit, or "Zone 1" as it is called in Charlotte County (Sutcliffe, 1975).

There appears to be a small water-bearing unit near the top of the Hawthorn Formation (26'-31', 35'-45' below LSD). Between 45' and 109' below LSD, much of the upper Hawthorn Formation is composed of fine-grained limestone (calcilutite), dolomite and clays having confining properties.

The first major water-bearing unit of the Intermediate Aquifer System (109'-167' below LSD) is about 58' thick at ROMP 17. The first indication of excessive hydraulic head during coring operations was noted at 109.5' below LSD (86.5' below NGVD). Potentiometric surface levels ranged from 1.4' to 1.5' above LSD (24.4'-24.5' above NGVD). There appears to be a small confining unit, consisting of clay and dolomite between 167'-178' below LSD.

Following the initial construction of the Intermediate Aquifer Monitor, potentiometric surface level was measured at 16.52' above LSD. At this stage of construction the open hole interval was between 110' and 357' below LSD. This well was allowed to flow during the aquifer test (May 10-12, 1988).

The second major water-bearing unit of the Intermediate Aquifer System appears to extend from about 178' to 363' below LSD. During coring operations potentiometric surface levels began to rise near the bottom of the Hawthorn Formation and increased to 13' above LSD (36' above NGVD) at a depth of 214' below LSD. The limestone, calcilutite, dolomite, and sand beds of the lower Hawthorn-upper Tampa Formations are variable in porosity and permeability. These variable characteristics appeared to affect potentiometric surface levels and discharge rates during coring. Potentiometric surface levels corresponding to the 234'-363' below LSD open wellbore varied between 11.2'-17' above LSD (34.2'-40' above NGVD). The clay, sand and dolomite beds (363'-390' below LSD) of the lower Tampa Formation appear to have some confining properties.

Transmissivity in the Intermediate Aquifer System averages 2200 ft^2/d. It appears to be more related to solution development than aquifer thickness and is recharged mainly by lateral flow. An estimated average transmissivity of 4,000 ft^2/d in vicinity of Arcadia was determined from pump testing (Wilson, 1977).

Near the Peace River, transmissivity is generally higher than 4,000 ft^2/d, indicating that perhaps a more active flow system exists in a carbonate section where ground-water discharges to the river. The carbonate rocks' secondary porosity has also been enhanced by dissolution, thus providing greater permeability (Watson, 1988). This would also probably hold true at ROMP 17, which is located near Horse Creek.

Note: the Hawthorn Formation and the upper Tampa Formation do not appear to be in direct hydraulic connection with the lower lying rock units at ROMP 17. Therefore, they are considered part of the Intermediate Aquifer System.

The top of the Floridan Aquifer System at ROMP 17 was identified at 390' below LSD (367' below NGVD) in the lower Tampa Formation. This was the depth at which the first consistent limestone of early Miocene age was identified.

The Floridan Aquifer System at ROMP 17 includes all or part of the Lake City and Avon Park Formations, the Ocala Group, the Suwannee Formation and the lower Tampa Formation. In DeSoto and Hardee Counties, at least two (and sometimes more) distinct and widespread water-bearing zones are known to exist in the Floridan Aquifer System.

Hydraulic heads between the Intermediate and Floridan Aquifer Systems are somewhat different. The hydraulic head in the Floridan Aquifer System is higher than the Intermediate Aquifer System, resulting in upward leakage (Wilson, 1977).

Potentiometric surface of the Floridan Aquifer System lies above land surface at ROMP 17. At this wellsite, high potentiometric surface is due in part to the wellsite's relatively low elevation of (23' above LSD). The wellsite is located along the lowlands bordering Horse Creek.

The potentiometric surface of the Floridan Aquifer System in the ROMP 17 locality changes constantly from season to season and year to year due to changes in recharge and discharge associated with irrigation pumpage and precipitation. Regional flow of ground-water in the Floridan Aquifer System is toward the southwest and from areas of high altitude of potentiometric surface toward areas of low altitude.

The potentiometric surface of the Floridan Aquifer System in the wellsite locality during May and September, 1986 were 43' and 50' above NGVD respectively. Potentiometric surface can be expected to range from 20' to 27' or more above land surface. This data is comparable to potentiometric surfaces recorded from December, 1982 to February, 1983 during coring operations.

During coring operations, potentiometric surface at the depth of 404' was 16.6' above LSD. The potentiometric surface continued to rise until it reached a height of 25.9' above LSD at a depth of 829' below LSD (total depth of the corehole). Variations in potentiometric surface and discharge rates were observed while coring the interval between 390' and 829' below LSD.

Following construction of the Upper Floridan Monitor, potentiometric surface was measured at 21.54' above LSD for the interval (395'-470' below LSD).

Potentiometric surface in the Middle Floridan Monitor, following construction, was measured at 19.33' above LSD for the interval (620'-670' below LSD).

During construction of the Lower Floridan Monitor, potentiometric surface for the open hole interval (415'-1273' below LSD) was 25.80' above LSD (March, 1988). Following construction of the monitor, the potentiometric surface for the interval (1115'-1430' below LSD) was 21.60' above LSD (May, 1988).

The first major water-bearing unit of the Floridan Aquifer System, comprising the lower Tampa and Suwannee Formations and part of the upper Ocala Group, appears to be separated by a small confining unit of limestone, dolomite, and chert between 569' and 584' below LSD. The lower part of this unit extends from 584' below LSD to a depth located in the middle of the Ocala Group (about 980'-1000' below LSD).

The second major water-bearing unit located in the Avon Park Formation is composed of fractured, vuggy, permeable dolomite. The top of this dolomite unit was identified at a depth of 1393' below LSD. The thickness of this water-bearing zone is probably about 200' at the ROMP 17 wellsite.

All of these producing zones in the Floridan Aquifer System are separated from one another by semi-confining units of low vertical permeability. The confining units have low hydraulic conductivity and consequently retard interaquifer ground-water flow.

The following data published by Wolansky, 1983, gives an estimated range of aquifer and well characteristics for the Floridan Aquifer System in the Sarasota-Port Charlotte area.

	Thickness (feet)	Transmissivity (ft^2/d)	Storage coefficient ((ft/d)/ft))	Leakage coefficient
*	1,700 (1,400–1,900)	130,000 (100,000–500,000)	$1.3x10^{-3}$ $1.1–1.7x10^{-3}$)	$5x10^{-6}$ $1–10x10^{-6}$)

	Horizontal hydraulic conductivity (ft/d)	Vertical hydraulic conductivity (ft/d)	Yield of wells (gal/min)	Specific capacity ((gal/min)/ft)
*	75 (60–300)	1 (0.1–10)	2,000 (500–5,000)	350 (250–1,000)

TABLE 1

*Upper number is the average and lower number is the range.

During extensive aquifer tests completed in northeastern DeSoto County, transmissivity of the combined Intermediate and Floridan Aquifer Systems was calculated to be 270,000 ft^2/d. The estimated storage coefficient was about $3x10^{-5}$ (Wilson, 1977).

During August, 1973, an aquifer test in southwestern DeSoto County near the Peace River, indicated the combined Intermediate and Floridan Aquifer Systems (excluding the Avon Park Formation) to have an aquifer transmissivity of 10,900 ft^2/d, while the confining-bed leakance coefficient was $3.14x10^4$ (ft/d)ft.) Wilson, 1977).

Transmissivity at the Peace River site was substantially less than that estimated from tests performed in northeastern DeSoto County. Reasons for this may be due to changes in aquifer characteristics. Also, the tests conducted at the Peace River site were completed only into the Ocala Group.

Water quality degradation in DeSoto County may be due in part to the upward movement of deep thermal waters in a zone generally parallel to the Peace River. Horse Creek, a tributary of the Peace River, is in the vicinity of the ROMP 17 wellsite. Deep upward circulation through an apparent fault zone or fracture of high permeability with its solution of evaporites now contaminates large areas of DeSoto County. This contamination is expected to increase as ground-water use increases and potentiometric surface decline.

During coring operations water quality remained fairly constant (600–650 Umhos) throughout the Hawthorn Formation and the upper Tampa Formation (119'–264' bellow LSD). Chlorides ranged from 65–71 mg/l, while sulfates ranged from 1 to 14 mg/l. Temperature of the samples retrieved averaged about 23°C.

Following the initial construction of the Intermediate Aquifer Monitor, specific conductivity was 910 Umhos in the open hole interval (110'–357' below LSD). Temperature of the sample retrieved was 25°C.

During coring operations specific conductivity of the water samples collected between 284' and 584' below LSD (Tampa-upper Suwannee Formations) increased from 695 to 1140 Umhos. Chlorides ranged from 95 to 160 Umhos, while sulfates ranged from 55-94 mg/l. Temperature increased to 25°C at 424' below LSD (near the bottom of the Tampa Formation).

Following construction of the Upper Floridan Monitor, specific conductivity in the open hole interval (420'-470' below LSD) was 950 Umhos. The chloride and sulfate values were 120 mg/l and 320 mg/l respectively. Chloride values decreased while sulfates increased while coring below the confining unit (569'-586' below LSD). It should also be noted that temperature increased (25°C to 26° C) within the Suwannee Formation (524'-534' below LSD).

Specific conductivity values (584'-829' below LSD) during coring operations remained fairly constant, ranging from 1140 to 1200 Umhos. Chlorides dropped from 160 mg/l to values ranging from 66 to 110 mg/l. At 584' below LSD, sulfates increased to 263 mg/l, but usually ranged from 337 to 383 mg/l between 584' and 829' below LSD.

Following construction of the Middle Floridan Monitor, specific conductivity in the open hole interval (620'-670' below LSD) was 1200 Umhos. The chloride and sulfate values were 100 mg/l and 300 mg/l respectively.

During construction of the Lower Floridan Monitor, with an open hole (414'-1273' below LSD), the specific conductivity of a water sample retrieved at the top of the well flowing between 1200-1300 gpm was 1200 Umhos. The chloride and sulfate values were 120 mg/l and 236 mg/l respectively. Total dissolved solids (TDS) were 721 mg/l. The temperature of this sample was 27°C.

Following construction of the Lower Floridan Monitor, specific conductivity in the open hole interval (1115'-1430' below LSD) was 1480 Umhos. Chloride and sulfate values for this interval were 120 mg/l and 839 mg/l respectively. Temperature of the sample retrieved was 31°C.

Throughout coring operations and monitor well construction, temperature increases appeared to coincide with potentiometric surface increases and discharge rate increases.

IV. REASONS FOR THE MONITORS

Five monitor wells were constructed for the purpose of monitoring the water levels in the Surficial, Intermediate and Floridan Aquifer Systems and the evaluation of water quality and discharge rates of these systems. Values of permeability, transmissivity, storage and leakance will be derived from the aquifer test that was conducted in the Intermediate Aquifer System by District and USGS personnel.

Lithology and stratigraphic units were described and identified between land surface and 1430' below LSD.

V. WELL CONSTRUCTION

A. LOWER FLORIDAN MONITOR (Figure 4)

The Lower Floridan Monitor was drilled to a depth of 1430' below LSD for the purpose of monitoring potentiometric surface level and water quality in the vuggy, fractured dolomite and dolomitic limestone beds near the middle of the Avon Park Formation.

The construction of the Lower Floridan Monitor was initiated by drilling a 22" dia. nominal borehole, using mud-rotary drilling techniques, to a depth of 40' below LSD. Eighteen inch (18") dia. steel casing was then set and cement grouted to land surface (LSD-40). This was done to prevent unconsolidated sands and poorly indurated sandy clay in the upper 40' from collapsing into the well.

A seventeen inch (17") dia. nominal borehole was then drilled to a depth of 550' below LSD, using stabilizers and mud-rotary drilling techniques. Four hundred fifteen feet (415') of 12" dia. PVC casing (LSD-415' below LSD) was set and cement-grouted to land surface. A twelve inch (12") dia. nominal borehole was then drilled out of the bottom of the 12" dia. PVC casing, using a 11 5/8" dia. drill bit and mud rotary drilling techniques, to a depth of 1270' below LSD. Six inch (6") dia. PVC casing was then set and cement-grouted from 1270' to land surface. A six inch (6") dia. nominal borehole (1115'-1430' below LSD) was drilled through the side of the 6" dia. PVC casing using mud-rotary and reverse-air drilling techniques. (Note: construction difficulties).

Following well development in the open hole interval (1115'-1430' below LSD) a solution of HTH (5% chlorine) was injected in the well to prevent bacteria contamination. About twenty eight feet (28') of 6" dia. PVC casing was left standing above ground level to halt the flowing of the well and facilitate the later installation of a recorder box and instrumentation.

B. MIDDLE FLORIDAN MONITOR (Figure 5)

The Middle Floridan Monitor was drilled to a depth of 670' below LSD. This well will monitor potentiometric surface level and water quality (sulfate and chloride) changes in the Suwannee Formation.

The construction of the Middle Floridan Monitor was initiated by drilling an 18" dia. nominal borehole to a depth of 20' below LSD. Twenty feet (20') of 12" dia. steel casing was set and cement-grouted to land surface. This prevented unconsolidated sand and poorly indurated sandy clay from collapsing into the well. A ten inch (10") dia. nominal borehole was then drilled to a depth of 620' below LSD, using mud-rotary drilling techniques. Six hundred twenty feet (620') of 6" dia. PVC casing was then set and cement-grouted to land surface. A 6" dia. nominal borehole was drilled out of the bottom of the casing to a depth of 670' below LSD.

The well was then developed until its water ran clear. Following development a solution of HTH (5% chlorine) was injected into the well to prevent bacterial contamination. About twenty-seven feet (27') of 6" dia. PVC casing was left standing above ground level to halt the well's flow and facilitate the later installation of a recorder box and instrumentation.

C. UPPER FLORIDAN MONITOR (Figure 6)

The Upper Floridan Monitor was drilled to a depth of 470' below LSD for the purpose of measuring potentiometric level changes which occur near the top of the Floridan Aquifer System at ROMP 17.

The construction of the Upper Floridan Monitor was initiated by drilling an 18" dia. nominal borehole to a depth of 21' below LSD. Twenty-one feet (21') of 12" dia. steel casing was set and cement-grouted to land surface. This prevented unconsolidated sand and poorly indurated sandy clay from collapsing into the well. A ten inch (10") dia. nominal borehole was then drilled to a depth of 395' below LSD, using mud-rotary drilling techniques. Three hundred ninety-five feet (395') of 6" dia. PVC casing was then set and cement-grouted to land surface. A six inch (6") dia. nominal borehole was drilled out of the bottom of the casing to a depth of 470' below LSD.

The well was then developed until its water ran clear. Following development a solution of HTH (5% chlorine) was injected into the well to prevent bacterial contamination. About twenty-eight feet (28') of 6" dia. PVC casing was left standing above ground level to halt the well's flow and facilitate the later installation of a recorder box and instrumentation.

D. INTERMEDIATE AQUIFER MONITOR (Figure 7)

The Intermediate Aquifer Monitor was initially drilled to a depth of 357' for the purpose of acting as the flowing well during aquifer testing. This monitor will also be used to determine potentiometric surface level changes and water quality in the Intermediate Aquifer System.

The construction of the Intermediate Aquifer Monitor was initiated by drilling an 22" dia. nominal borehole to a depth of 20' below LSD. Twenty feet (20') of 16" dia. steel casing was set and cement grouted to land surface. This prevented unconsolidated sand and poorly indurated sandy clay from collasping into the well. A 15" dia. nominal borehole was then drilled to a depth of 110' below LSD, using mud-rotary drilling techniques. One hundred ten feet (110') of 12" dia. PVC casing was set and cement-grouted to land surface. A 12" dia. nominal borehole was then drilled out of the 12" dia. PVC casing to a depth of 357' below LSD. Following aquifer testing the interval (240'-357' below LSD) was cement-grouted. Forty feet (40') of 8" dia. PVC well screen (0.030" slot/200'-240' below LSD) was coupled onto 8" dia. PVC casing (+21.'-200' below LSD) and set into the borehole. The well's annulus from 240' to 195' below LSD was sandpacked with 6-20 type silica sand. The remainder of the well's annulus from 195' to land surface was cement grouted.

Following completion the well was developed until its water ran clear. A solution of HTH (5% chlorine) was then injected into the well to prevent bacterial contamination. About twenty-one feet (21') of 8" dia. PVC casing was left standing above ground level to halt the well's flow and facilitate the later installation of a recorder box and instrumentation.

E. WATER TABLE MONITOR

The Water Table Monitor was drilled to a depth of 18' below LSD for the purpose of measuring the water level in the Surficial Aquifer System.

The construction of the Water Table Monitor was initiated by drilling an 12" dia. nominal borehole to a depth of 18' below LSD. Ten feet (10') of 6" dia. PVC wellscreen (0.010" slot/8'-18' below LSD) was coupled onto 6" dia. PVC casing (+3' to 8' below LSD) and set into the borehole. The well's annulus from 18' to 4' below LSD was sandpacked with 6-20 type silica sand. The remainder of the well's annulus from 4' below LSD to land surface was cement grouted.

Following completion, the well was developed until its water ran clear. A solution of HTH (5% chlorine) was then injected into the well to prevent bacterial contamination. Three feet (3') of 6" dia. PVC casing was left standing above ground level to facilitate the later installation of a recorder box and instrumentation.

Note: the monitor wells may have pressure transducers to replace the recorder box type of instrumentation at a future date.

VI. AQUIFER TEST

Upon completion of the District's five (5) monitor wells located on the ROMP 17 wellsite and the two observation wells constructed by the USGS, an aquifer test was conducted during the time period May 10, 1988 - May 12, 1988. Values of transmissivity (T), leakance (k/b) and storage coefficient (S) for the Intermediate Aquifer System at ROMP 17 will be determined from the data collected during the aquifer test. Measurements during the aquifer test were collected by the District's data logger (Enviro-Lab Equipment) with hand measurements (electric tape) recorded as a backup.

The aquifer test was conducted for the purpose of stressing the Intermediate Aquifer System under natural artesian flowing conditions. This was accomplished by recording responses in the monitor wells on the ROMP 17 wellsite and the two USGS observation wells (Intermediate and Surficial observation wells) located respectively about 192' and 186.7' from the flowing well (Intermediate Aquifer Monitor). The USGS Intermediate observation well had an open hole interval from 110' to 343' below LSD. The open hole interval for the Intermediate Aquifer Monitor (12" dia.) was from 110' to 357' below LSD. The open hole intervals for the other monitor wells on the ROMP 17 wellsite are as follows: Surficial Monitor (8'-18' below LSD), Upper Floridan Monitor (395'-470' below LSD), Middle Floridan Monitor (620'-670; below LSD), and Lower Floridan Monitor (1115'-1430' below LSD). The well location diagram (Figure 9) indicates the distances of the monitor and observation wells from the flowing well (Intermediate Aquifer Monitor).

Background data for the aquifer test was acquired for a period of about 20 hours prior to the actual aquifer test.

During the flowing phase the Intermediate Aquifer Monitor was allowed to freely flow from 8:00 a.m. on May 10, 1988 to 2:30 p.m. on May 11, 1988 (30.5 hrs.). During this phase of the aquifer test, flow rates varied from 165 to 300 gpm. In the early stage of the test, variations in the flow rate may have been attributed to well development. Flow rate variations may also be due to errors in measurement, changes in local pumpage, or pressure differences due to dewatering of the Intermediate Aquifer System.

Good response was seen in the Upper Floridan Monitor and the Intermediate observation well. Distinct local pumping events were noted in the Middle and Lower Floridan Monitors on the morning of May 11, 1988. The decision was therefore made to end the flowing phase of the aquifer test and begin the recovery phase. Again, some effects of local pumping were observed in the Lower and Middle Floridan Monitors. The Upper Floridan Monitor and the USGS Intermediate observation well appeared to be only slightly affected by the local pumping activity. The recovery phase lasted for a period of 17 hours.

REFERENCES

Geraghty & Miller, Inc., February 1978, Hydrological Effects of Developing 15MGD of Water from the Floridan Aquifer in the Pine Level Area, DeSoto and Manatee Counties, Florida, CUP Application 7500103.

Gilboy, A. E., March, 1985, Hydrogeology of the Southwest Florida Water Management District, Regional Analysis Section, Technical Report 85-01, 18p.

Moore, D. L., Martin, D. W., Walker, S. T. Rauch, J. T., 1986, Design and Establishment of a Background Ground-Water Quality Monitor Network in the Southwest Florida Water Management District, 129p.

Scott, T. M., 1986, A Revision of the Miocene Lithostratigraphic Nomenclature, Southwestern Florida, Transactions-Gulf Coast Association of Geological Societies, Volume XXXV.

Sutcliffe, H. Jr., 1973, Appraisal of Water Resources of Charlotte County, Florida: U.S. Geological Survey Open-File Report 73010, 61p.

Watson, J. D., 1988, Ground-Water Resource Availability Inventory: DeSoto County, Florida: Resource Management and Planning Departments of the Southwest Florida Water Management District, 186p.

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

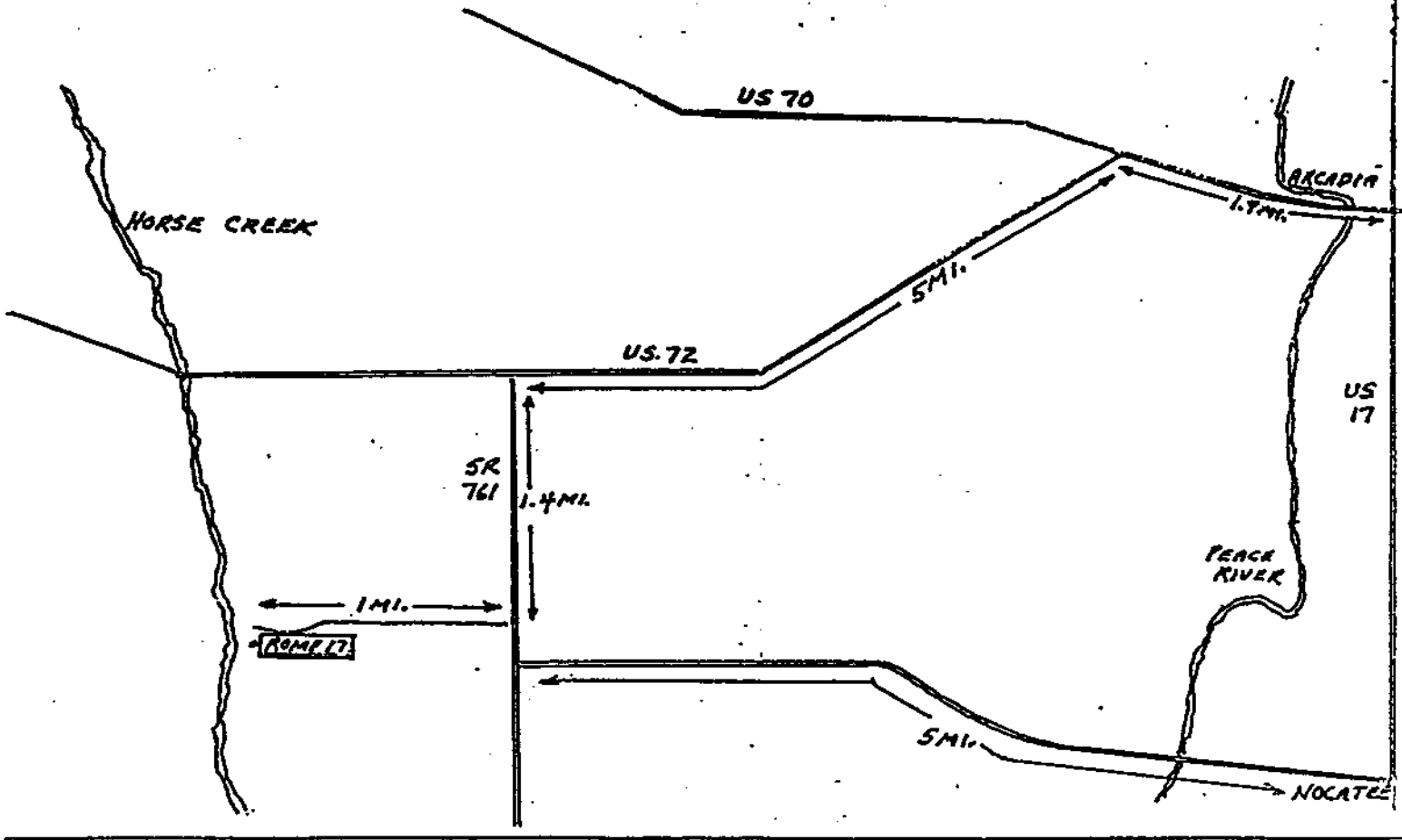
Wilson, W. E., 1977, Ground-Water Resources of DeSoto and Hardee Counties, Florida: Florida Bureau of Geology Report of Investigations #51, 102p.

Wolansky, R. M., 1983, Hydrogeology of the Sarasota-Port Charlotte Area, Florida: U. S. Geological Survey Water-Resources Investigations Report 82-4089, 48p.

Wolansky, R. M. and Corral, M. D., 1985, Aquifer Tests in West-Central Florida 1952-76: U. S. Geological Survey Water Resources Investigation Report 84-4044, 127p.

Woodard, H. J., 1964, Preliminary Report on the Geology and Ground-Water-Resources of Hardee and DeSoto Counties, Florida: Unpublished Report Prepared in Cooperation with the Peace River Basin Board, Southwest Florida Water Management District, 74p.

SITE LOCATION MAP - ROMP 17 "HORSE CREEK"



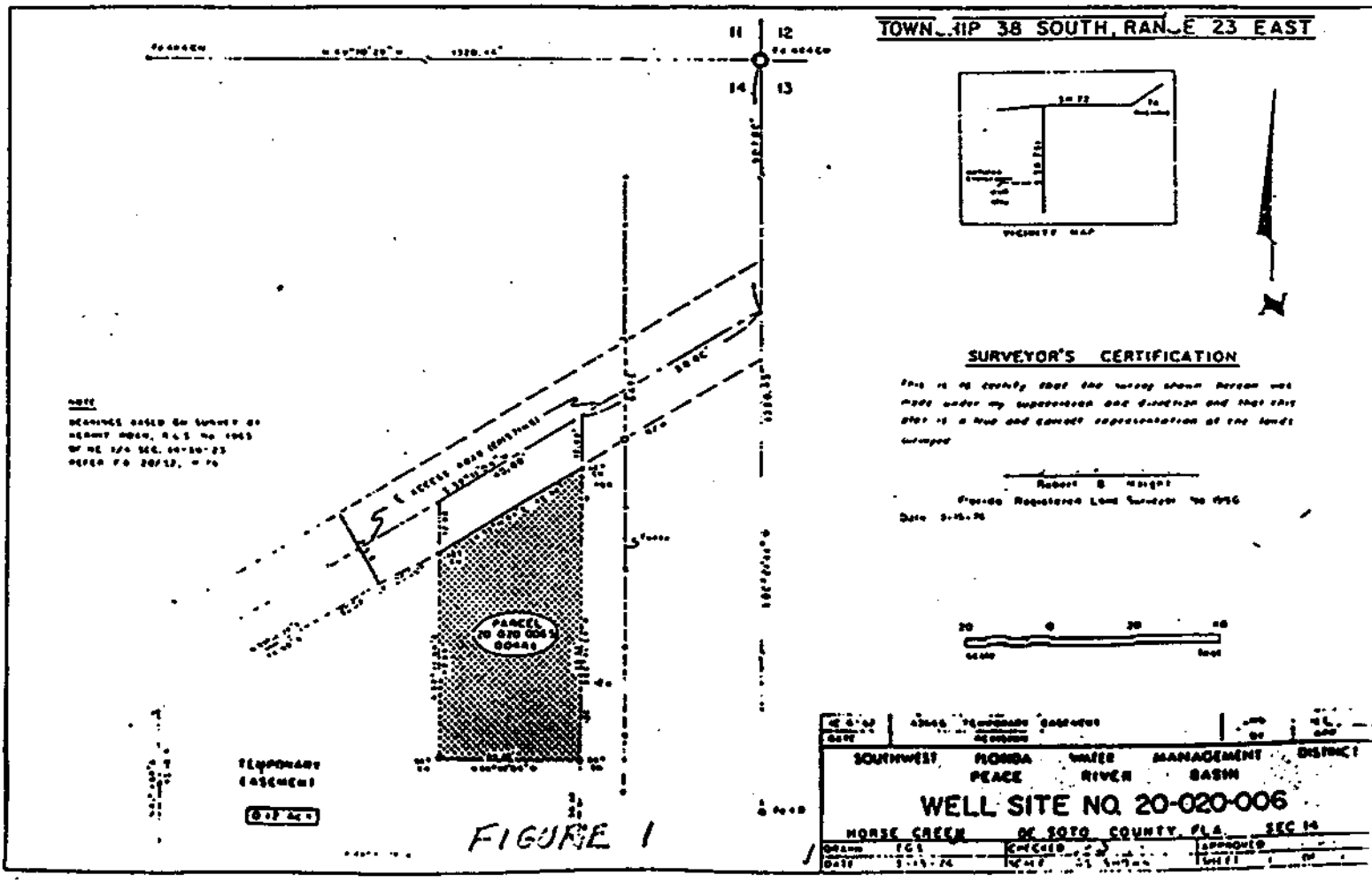


FIGURE 1

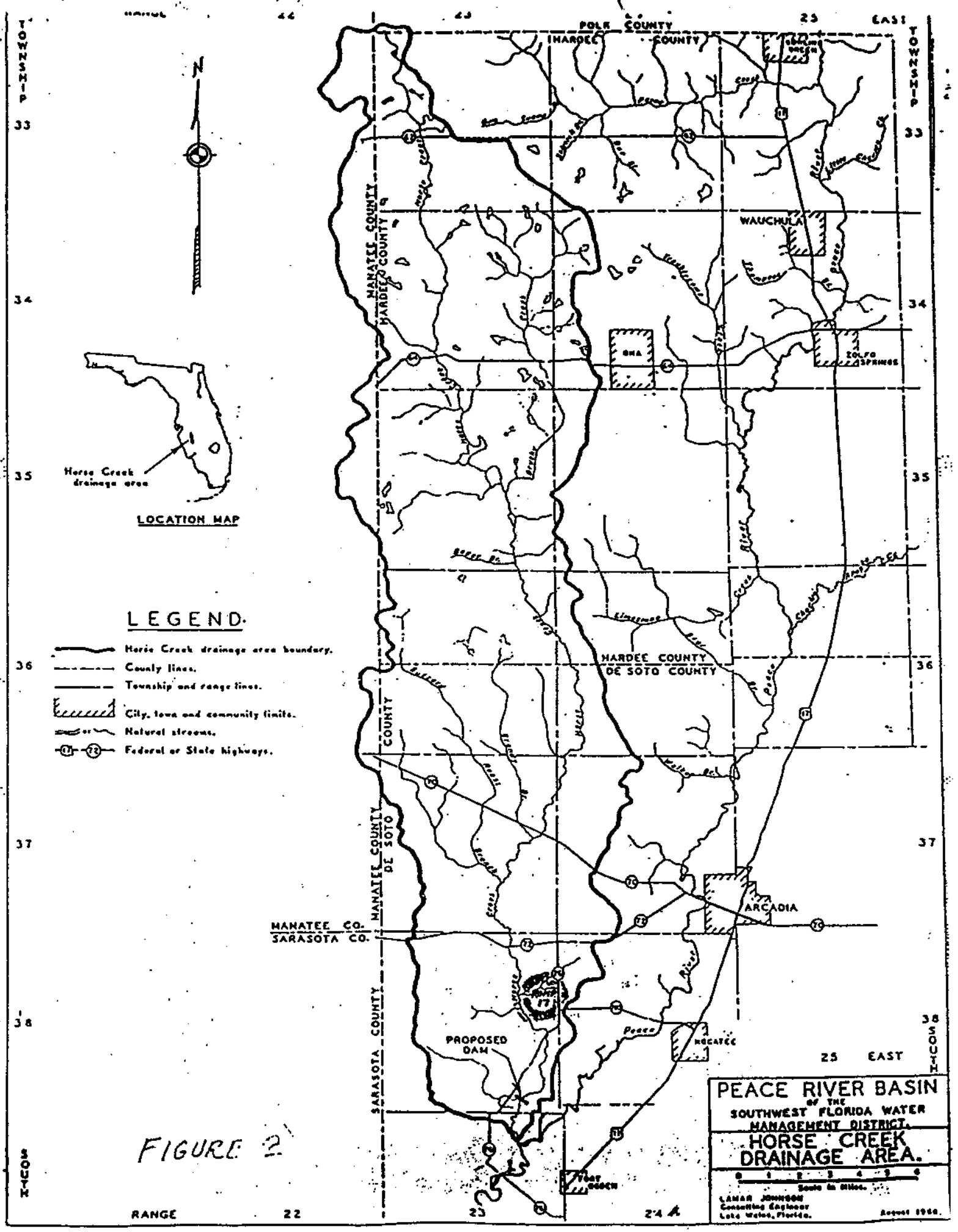

TOWNSHIP
SOUTH
EAST
POLK COUNTY
HARDEE COUNTY
MANATEE COUNTY
DE SOTO COUNTY
SARASOTA COUNTY
WAUCHULA
ZOLFO SPRINGS
ARCADIA
HOSPITAL
HARDEE COUNTY
DE SOTO COUNTY
MANATEE CO.
SARASOTA CO.
PROPOSED DAM
NOCATEE
FORT OGDEN
RANGE
22
23
24
25
26
N
Horse Creek drainage area
LOCATION MAP
LEGEND
Horse Creek drainage area boundary.
County lines.
Township and range lines.
City, town and community limits.
Natural streams.
Federal or State highways.
PEACE RIVER BASIN
OF THE
SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT.
HORSE CREEK DRAINAGE AREA.
Scale in Miles.
LAMAR JOHNSON
Consulting Engineer
Lake Wales, Florida.
August 1960.

FIGURE 2

HYDROGEOLOGY ROMP 17

5-21-87

HORSE CREEK

J. L. DECKER

S. 14, T 38 S., R 23 E.

HYDROSTRATIGRAPHY AND GEOLOGY

KEY - SAND CLAY LIMESTONE

LITHOLOGY DOLOMITE

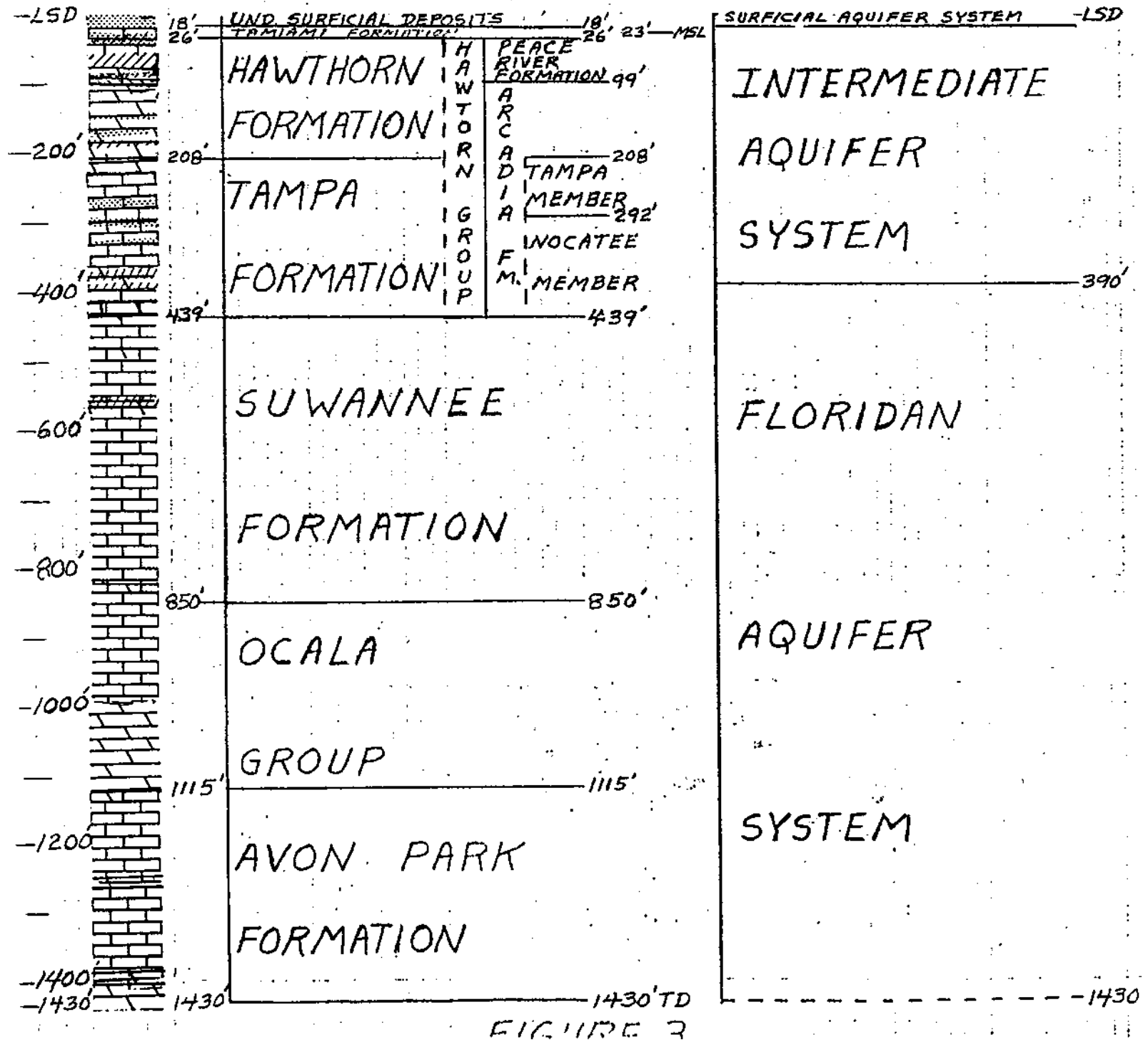


FIGURE 3

ROMP 17 "HORSE CREEK"

WELL DESIGN DIAGRAM
LOWER FLORIDAN MONITOR

4-30-86

J. L. DECKER

AS BUILT

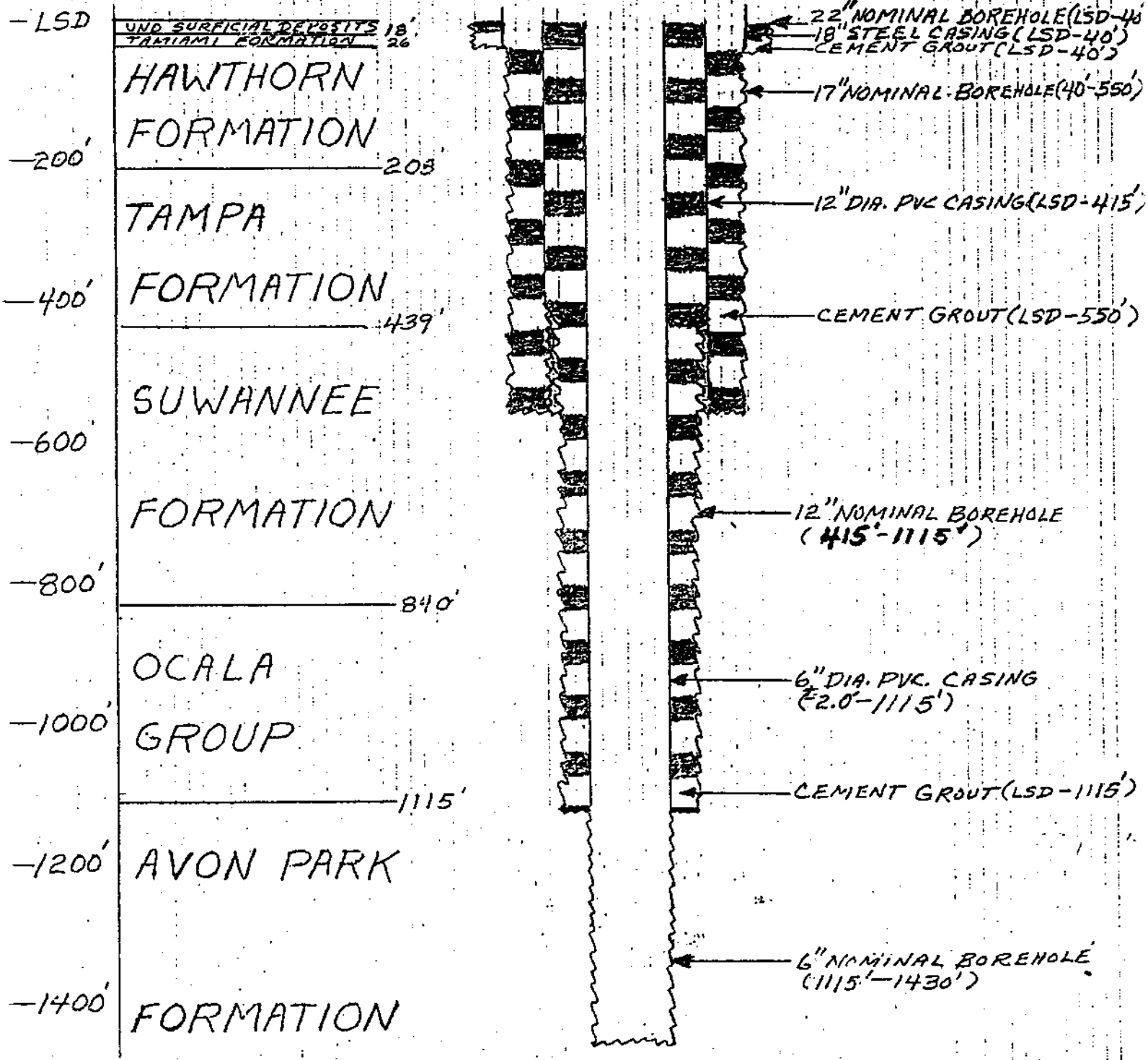


FIGURE 4

ROMP 17 "HORSE CREEK"

4-8-88 WELL DESIGN DIAGRAM J.L. DECKER

MIDDLE FLORIDAN MONITOR

AS BUILT

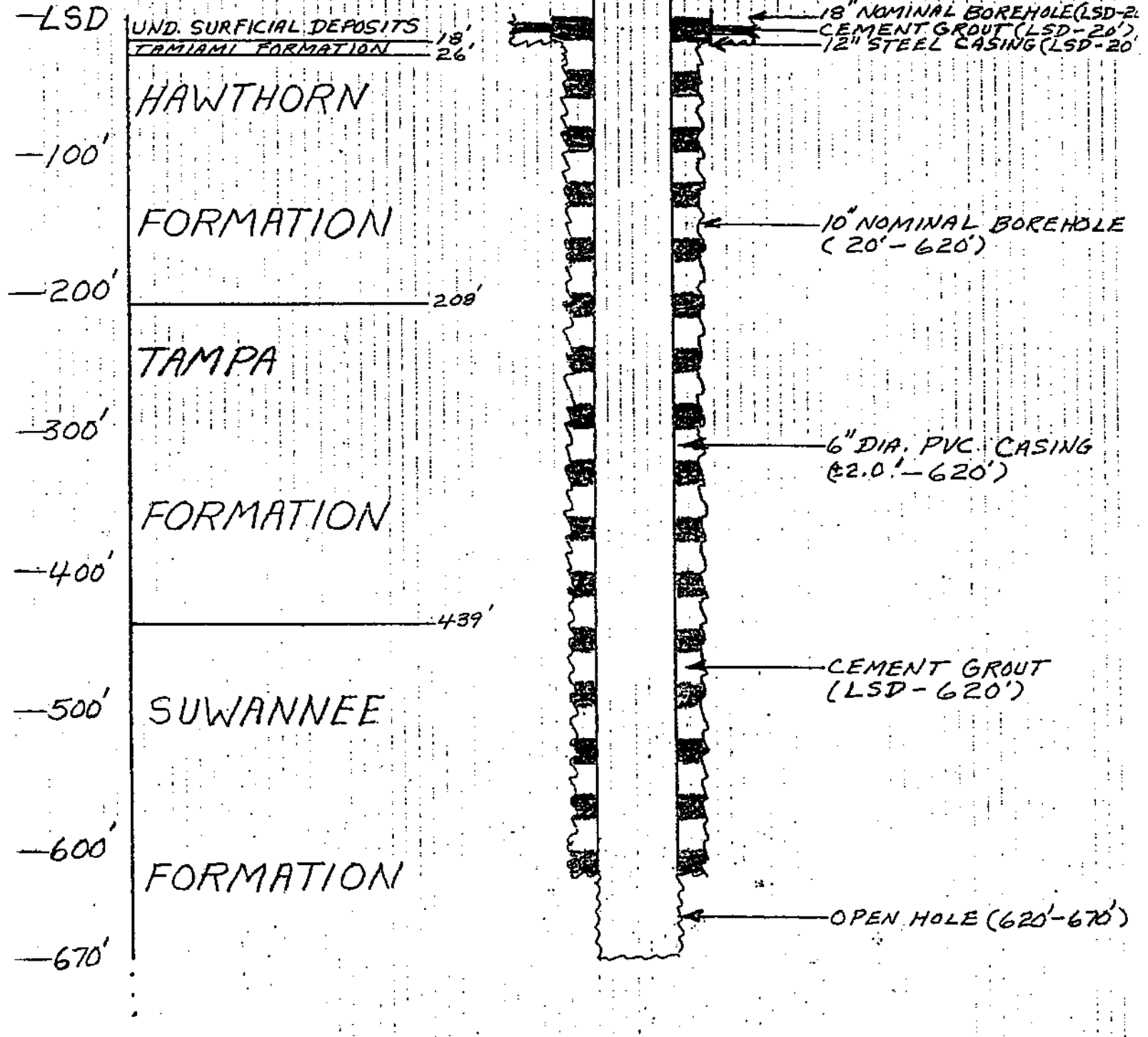


FIGURE 5

ROMP 17 "HORSE CREEK"

WELL DESIGN DIAGRAM

4-13-88

J.L. DECKER

UPPER FLORIDAN MONITOR

AS BUILT

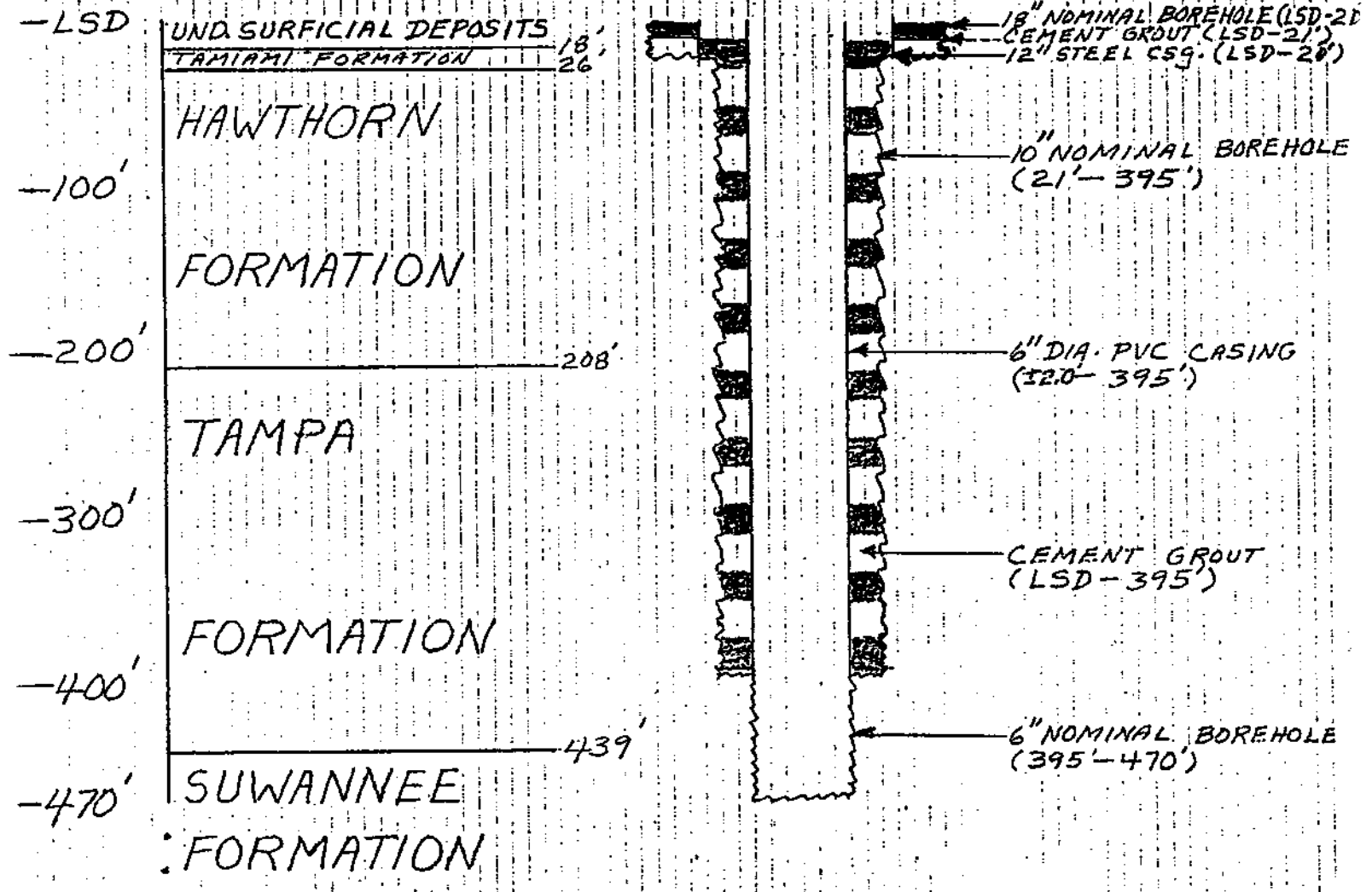


FIGURE 6

5-20-88 ROMP 17 "HORSE CREEK" J.L. DECKER

WELL DESIGN DIAGRAM
INTERMEDIATE ~~FLORIDAN~~ MONITOR
AS BUILT

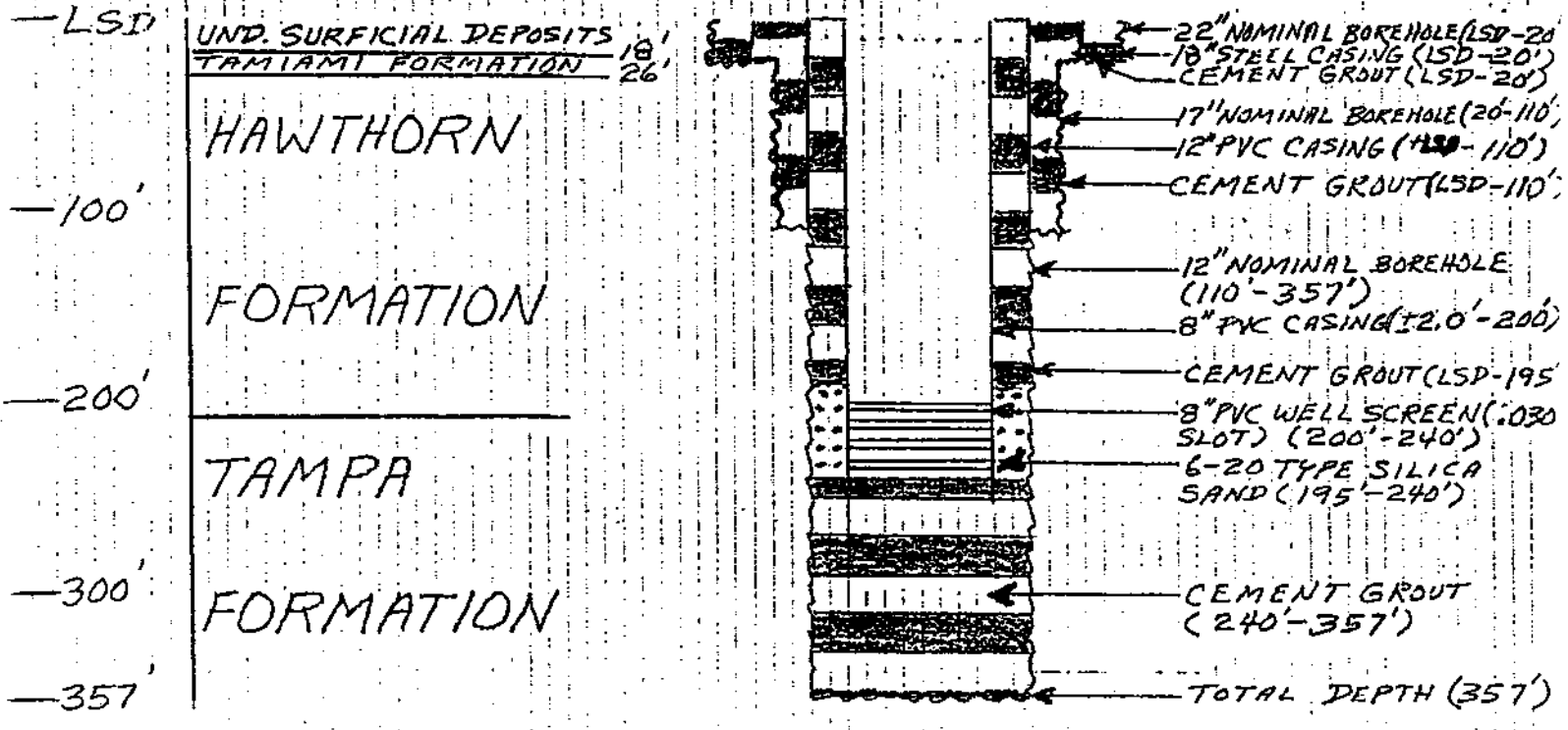


FIGURE 7

ROMP 17 "HORSE CREEK" WATER TABLE MONITOR AS BUILT

11-23-87 J.L. DECKER

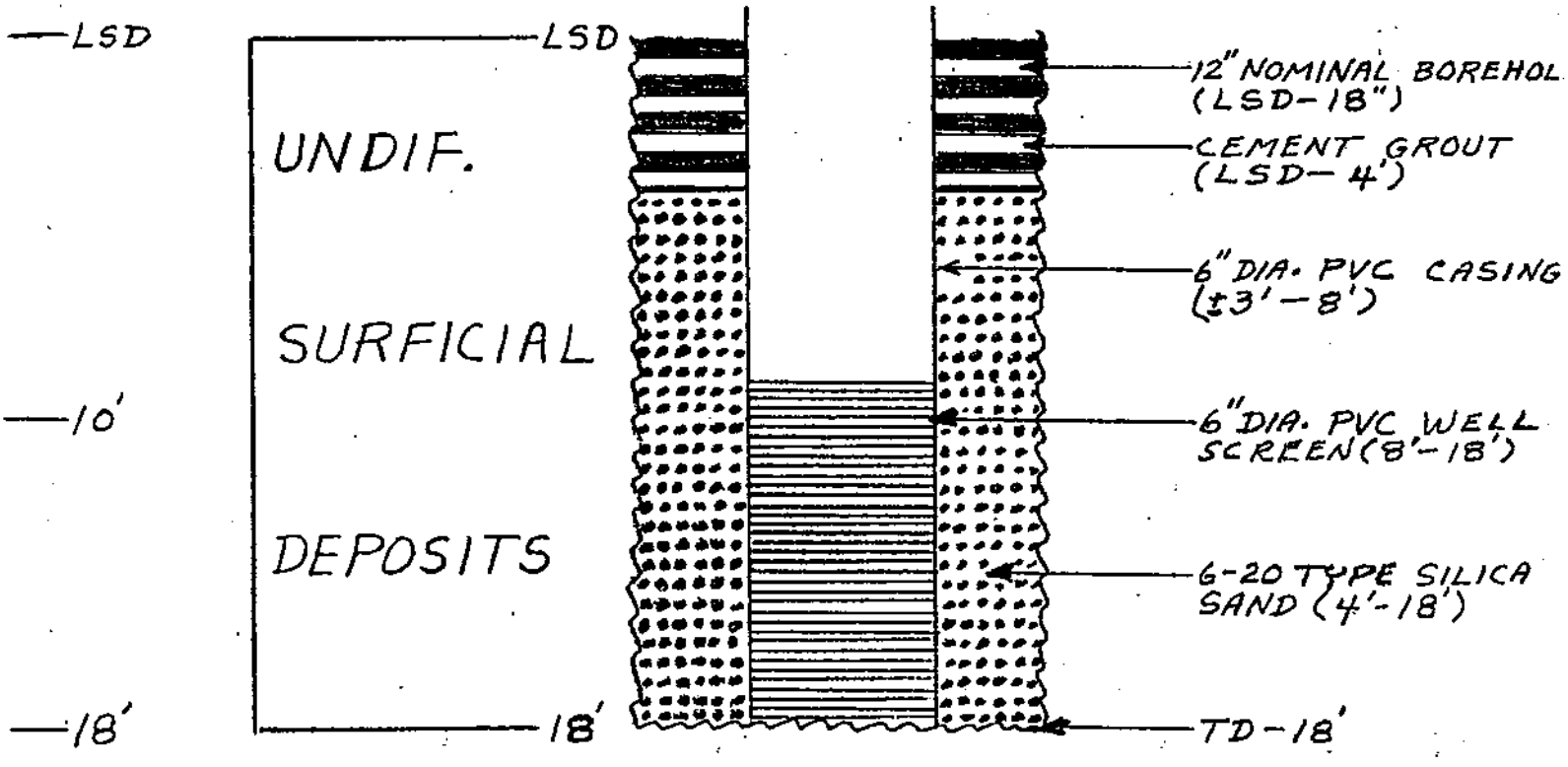


FIGURE 8

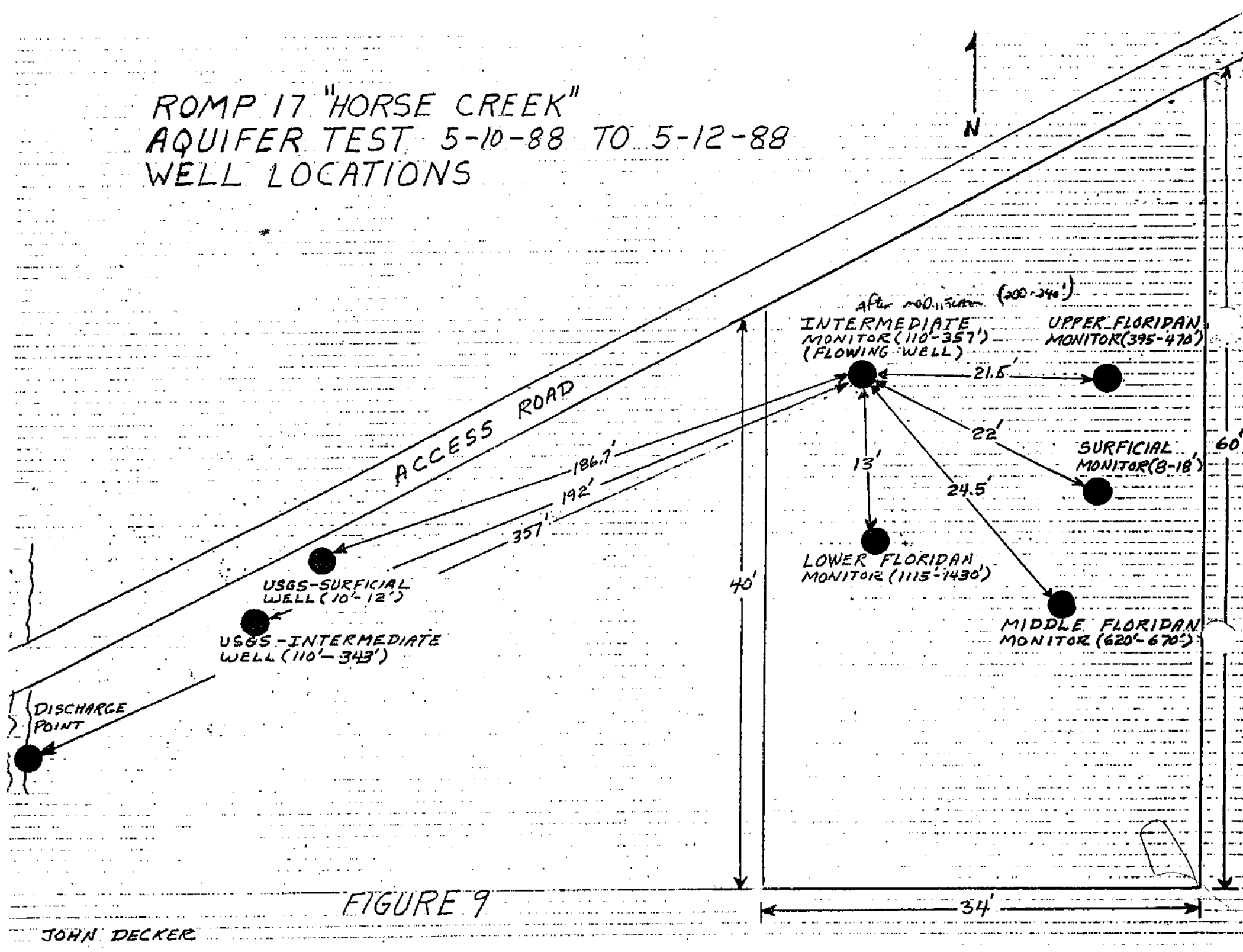


FIGURE 9

JOHN DECKER

LITHOLOGIC WELL LOG PRINTOUT

SOURCE - FGS

WELL NUMBER: W-15303
TOTAL DEPTH: 1430 FT.
198 SAMPLES FROM 0 TO 1430 FT.

COUNTY - DESOTO
LOCATION: T.38S R.23E S.14 BB
LAT = 27D 10M 26S
LON = 81D 58M 36S

COMPLETION DATE: 21/04/88
ELEVATION: 22 FT
OTHER TYPES OF LOGS AVAILABLE - CALIPER, GAMMA, CALIPER, ELECTRIC, FLUID COND

OWNER/DRILLER:SWFWMD [ROMP #17 ARCADIA]

WORKED BY:TOM SCOTT 2/83 TO 839'. TYPE TAMPA NOT PRESENT
IN THIS WELL. HOWEVER, 208-439 MAY REPRESENT THE EQUIVALENT
OF TAMPA. DRILL CUTTINGS(800'-1430'). POOR-AVERAGE, J. DECKER
WORKED CUTTINGS TO 1430'.

00.	- 260.	090UDSS	UNDIFFERENTIATED SAND, CLAY, AND SHELLS
260.	- 4390.	122HTRN	HAWTHORN GROUP
260.	- 790.	122PCRV	PEACE RIVER FM.
790.	- 4390.	122ARCA	ARCADIA FM.
2080.	- 2920.	122TAMP	TAMPA MEMBER OF ARCADIA FM.
2920.	- 4390.	122NOCA	NOCATEE MEMBER OF ARCADIA FM.
4390.	- 8290.	123SWNN	SUWANNEE LIMESTONE
8400.	-11150.	124OCAL	OCALA GROUP
11170.	-14300.	124AVPK	AVON PARK FM.

0 - 5 SAND; GRAYISH BROWN TO DARK YELLOWISH BROWN
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX

5 - 18 SAND; TRANSPARENT TO WHITE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; UNCONSOLIDATED
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
MATRIX POSSIBLY REMOVED BY DRILLING AND WASHING PROBABLY
WAS CLAYEY.

18 - 26 LIMESTONE; LIGHT GRAY TO LIGHT OLIVE GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, FOSSIL MOLDS

26 - 31 SAND; LIGHT OLIVE GRAY TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CLAY- %, SILT-%

31 - 35 CLAY; OLIVE GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC

POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-05%
SILT- %
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA

35 - 45 SAND; LIGHT OLIVE GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: CLAY-40%, PHOSPHATIC SAND-05%, SILT- %
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
VARIABLE TO VERY SANDY CLAY.

45 - 56 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-15%
CLAY- %
FOSSILS: FOSSIL FRAGMENTS
CRYSTAL NODULES. CLAY INCREASES WITH DEPTH.

56 - 67 CLAY; OLIVE GRAY TO LIGHT OLIVE GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-05%
SILT- %, LIMESTONE-25%
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
LIMESTONE DECREASES WITH DEPTH. CORE STARTS 67

67 - 71 CLAY; LIGHT OLIVE GRAY TO MODERATE BLUISH GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%, SILT- %, DOLOMITE-03%

71 - 79 CLAY; OLIVE GRAY TO LIGHT OLIVE GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-18%
DOLOMITE-02%, SILT- %
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
VARIABLE ACCESSORIES IN THIN ZONES. DOLOMITE INCREASES WITH DEPTH. THIN DOLOMITE BEDS PRESENT. DOLOMITE IS VERY CLAYEY.

79 - 89 DOLOSTONE; PINKISH GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%
OTHER FEATURES: POOR SAMPLE
FOSSILS: FOSSIL MOLDS, MOLLUSKS
SOFT ZONES LOST. PROBABLY SANDY CLAYEY DOLOMITE TO SANDY DOLOMITIC CLAY.

89 - 91 DOLOSTONE; LIGHT OLIVE GRAY TO DARK GRAYISH YELLOW
POROSITY: LOW PERMEABILITY, INTERCRYSTALLINE, MOLDIC
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: CLAY-30%, QUARTZ SAND-10%
PHOSPHATIC SAND-10%, SILT-%
GRADES INTO CLAY.

91 - 92.5 CLAY; OLIVE GRAY
POROSITY: LOW PERMEABILITY, INTERGRANULAR, MOLDIC
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-15%
SILT-%
ZONES OF HIGHER PHOS. BECOMES CALCAREOUS WITH DEPTH.

92.5- 94 SAND; OLIVE GRAY TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-20%, CLAY-20%
CALCILUTITE-25%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

94 - 95 LIMESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-20%
CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS

95 - 96 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, QUARTZ SAND-15%
CLAY-20%, SILT- %
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE TO CLAY. MORE DOLOMITIC WITH DEPTH.

96 - 99 CLAY; LIGHT OLIVE GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY

POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, QUARTZ SAND-15%
SILT- %, DOLOMITE- %
OTHER FEATURES: DOLOMITIC

99 - 109 CALCILUTITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, QUARTZ SAND-15%
SILT- %, CLAY- %
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BRYOZOA, FOSSIL MOLDS
VARIABLE ACCESSORIES. THIN BEDS OF SILT AND CLAY

109 - 110 LIMESTONE; YELLOWISH GRAY TO WHITE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-12%
SILT- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA, FOSSIL FRAGMENTS

110 - 111.5 DOLOSTONE; YELLOWISH GRAY
20% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA

111.5- 114 DOLOSTONE; YELLOWISH GRAY
20% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL MOLDS, MOLLUSKS

114 - 116 LIMESTONE; VERY LIGHT GRAY TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%
DOLOMITE-20%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS

116 - 120 DOLOSTONE; YELLOWISH GRAY

10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-07%
CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
SOFT ZONES. INTERBEDDED LS.

120 - 126 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
30% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

126 - 129 DOLOSTONE; YELLOWISH GRAY
15% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-05%
FOSSILS: FOSSIL MOLDS, MOLLUSKS

129 - 130.5 DOLOSTONE; PINKISH GRAY TO YELLOWISH GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-04%
FOSSILS: FOSSIL MOLDS

130.5- 134 DOLOSTONE; PINKISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-05%
FOSSILS: FOSSIL MOLDS
RUBBLY ZONES

134 - 139 DOLOSTONE; YELLOWISH GRAY
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-08%

139 - 147 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY

05% POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%
CLAY-%
PHOS INCREASES WITH DEPTH AS DOES SAND AND CLAY

147 - 155 SAND; LIGHT OLIVE GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, CLAY- %
DOLOMITE-25%
OTHER FEATURES: DOLOMITIC
DOLOMITE INCREASES WITH DEPTH. PHOS VARIABLE TO 30 PERCENT.

155 - 159 DOLOSTONE; YELLOWISH GRAY
07% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-12%
CLAY- %
FOSSILS: FOSSIL MOLDS
ZONES OF DOLOMITIC SAND

159 - 164 DOLOSTONE; YELLOWISH GRAY
25% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-07%
CLAY- %, SILT- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS
MOLDS OF LARGER RIBBED PECTINS

164 - 165.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-07%, PHOSPHATIC SAND-04%
CLAY-10%, SILT- %
FOSSILS: FOSSIL MOLDS

165.5- 167.5 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
07% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; POOR INDURATION

CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-12%
CLAY-20%, SILT- %
FOSSILS: FOSSIL MOLDS

167.5- 168.5 CLAY; LIGHT OLIVE GRAY TO OLIVE GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-15%
DOLOMITE-20%, SILT-%

168.5- 170 DOLOSTONE; YELLOWISH GRAY TO LIGHT GRAY
15% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-10%
CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA
GRADES INTO CLAY ABOVE AND BELOW

170 - 171 CLAY; OLIVE GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-25%
DOLOMITE- %, SILT-%
DOLOMITE RUBBLE INCORPORATED

171 - 178 DOLOSTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-20%
CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS
THIN VERY POROUS ZONES. INTRACLASTS SCATTERED. VARIABLE
ACCESSORIES

178 - 179 SAND; LIGHT GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CLAY- %
DOLOMITE-%

179 - 181 LIMESTONE; PINKISH GRAY TO WHITE
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
10% ALLOCHEMICAL CONSTITUENTS
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX

ACCESSORY MINERALS: QUARTZ SAND-02%, PHOSPHATIC SAND-01%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE

181 - 182 DOLOSTONE; YELLOWISH GRAY
15% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-03%, PHOSPHATIC SAND-01%
CLAY- %
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE

182 - 192 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
15% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%
CLAY- %
FOSSILS: FOSSIL MOLDS
VARIABLE ACCESSORIES

192 - 196 DOLOSTONE; YELLOWISH GRAY
03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: VERY FINE; RANGE: MICROCRYSTALLINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%, PHOSPHATIC SAND-02%
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA
INDURATION VARIABLE TO POOR

196 - 204 DOLOSTONE; LIGHT OLIVE GRAY
03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-03%, PHOSPHATIC SAND-01%
CLAY- %
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
VARIABLE INDURATION

204 - 208 DOLOSTONE; YELLOWISH GRAY TO YELLOWISH GRAY
15% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-03%, PHOSPHATIC SAND-03%
CLAY- %

FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA

208 - 210 CALCILUTITE; WHITE TO PINKISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, QUARTZ SAND-01%
FOSSILS: FOSSIL FRAGMENTS, ALGAE, FOSSIL MOLDS, MOLLUSKS
ABUNDANT ALGAE

210 - 214 DOLOSTONE; PINKISH GRAY TO YELLOWISH GRAY
07% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%, PHOSPHATIC SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, ALGAE
BENTHIC FORAMINIFERA
SORITES PRESENT. THIN VERY POROUS ZONES

214 - 219 LIMESTONE; VERY LIGHT GRAY TO WHITE
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC, INTRACLASTS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%, PHOSPHATIC SAND-04%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE
ABUNDANT SORITES IN ZONES

219 - 221 LIMESTONE; WHITE TO VERY LIGHT GRAY
03% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-01%, QUARTZ SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE

221 - 226 LIMESTONE; PINKISH GRAY TO WHITE
03% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-03%, QUARTZ SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE

226 - 232 LIMESTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
03% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: CALCILUTITE, BIOGENIC, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-07%, PHOSPHATIC SAND-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
BRYOZOA, ALGAE
VARIABLE ACCESSORIES

232 - 233.5 LIMESTONE; PINKISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

233.5- 234 LIMESTONE; PINKISH GRAY TO LIGHT OLIVE GRAY
POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT

234 - 239 LIMESTONE; VERY LIGHT ORANGE TO WHITE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-04%, PHOSPHATIC SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

239 - 243.5 LIMESTONE; PINKISH GRAY TO VERY LIGHT GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-04%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ALGAE
VARIABLE POROSITY. SAND INCREASES WITH DEPTH

243.5- 245.5 LIMESTONE; LIGHT GRAY TO VERY LIGHT GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-04%
OTHER FEATURES: HIGH RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

245.5- 247 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-03%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

247 - 250.5 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE INDURATION

250.5- 252 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

252 - 257 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
MORE POROUS WITH DEPTH

257 - 259 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

259 - 264 LIMESTONE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

264 - 266 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

266 - 267 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

267 - 273 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-08%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
SAND AND PHOSPHATE INCREASE WITH DEPTH. THIN BEDS OF SAND

273 - 274 LIMESTONE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA

274 - 277 LIMESTONE; LIGHT GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-04%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

277 - 278 SANDSTONE; LIGHT GRAY TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

278 - 279 LIMESTONE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

279 - 282.5 LIMESTONE; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

282.5- 284.5 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-03%
OTHER FEATURES: HIGH RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE ACCESSORIES

284.5- 292 LIMESTONE; PINKISH GRAY TO VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-03%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
PHOS VARIABLE TO 5%.

292 - 299 LIMESTONE; PINKISH GRAY TO VERY LIGHT GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE ACCESSORIES. PHOS INCREASES WITH DEPTH

299 - 305.5 SAND; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CLAY- %
CALCILUTITE- %
FOSSILS: FOSSIL MOLDS

LS INCREASES WITH DEPTH.

305.5- 307 CALCILUTITE; YELLOWISH GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, QUARTZ SAND-30%
CLAY-%
GRADES INTO UNDERLYING UNIT

307 - 310 LIMESTONE; WHITE TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-12%, QUARTZ SAND-25%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

310 - 316 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-20%, QUARTZ SAND-30%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
PHOS DECREASES WITH DEPTH.

316 - 319 DOLOSTONE; VERY LIGHT GRAY TO YELLOWISH GRAY
POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-07%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL MOLDS
LESS DOLOMITIC WITH DEPTH

319 - 320.5 SAND; YELLOWISH GRAY TO LIGHT OLIVE GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ROUNDED; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CALCILUTITE-40%
CLAY- %
FOSSILS: FOSSIL FRAGMENTS

320.5- 325 CALCILUTITE; VERY LIGHT GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-07%

CLAY- %
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS
VARIABLE SAND IN THIN ZONES

325 - 326 LIMESTONE; WHITE TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-05%
CLAY- %
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS

326 - 333 SAND; VERY LIGHT GRAY TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CALCILUTITE-35%
CLAY- %, SILT- %
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL FRAGMENTS, FOSSIL MOLDS, MOLLUSKS
BENTHIC FORAMINIFERA

333 - 336 DOLOSTONE; YELLOWISH GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-04%
SILT- %
FOSSILS: FOSSIL MOLDS

336 - 338 CALCILUTITE; PINKISH GRAY TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-04%
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS

338 - 339.5 LIMESTONE; WHITE TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

339.5- 343 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX

ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ALGAE
VARIABLE ACCESSORIES

343 - 345 LIMESTONE; WHITE TO VERY LIGHT GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
SAND INCREASES WITH DEPTH

345 - 347 SAND; YELLOWISH GRAY TO LIGHT GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, CLAY- %
CALCILUTITE-40%, SILT- %
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA, ALGAE
CLAY INCREASES SLIGHTLY WITH DEPTH

347 - 355 SAND; LIGHT GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: PHOSPHATIC SAND-15%, CLAY- %
CALCILUTITE-30%, SILT- %
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
MORE DOLOMITIC WITH DEPTH. MORE INDURATED WITH DEPTH.

355 - 362 DOLOSTONE; YELLOWISH GRAY TO VERY LIGHT GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-03%
SILT-%
SAND FILLED BURROWS. THIN DOLOMITE AND SAND LAIMNAE BETWEEN
357-359. VARIABLE ACCESSORIES DOLOMITE AND CLAY LAMINAE AT
BASE OF UNIT.

362 - 363.5 SAND; LIGHT OLIVE GRAY TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT

ACCESSORY MINERALS: PHOSPHATIC SAND-10%, CLAY- %, SILT-%
THIN CLAY BEDS

363.5- 366 CLAY; OLIVE GRAY TO LIGHT OLIVE GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-10%
SILT- %, DOLOMITE-%
VARIABLE ACCESSORIES

366 - 369.5 DOLOSTONE; YELLOWISH GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%, PHOSPHATIC SAND-03%
THIN VERY CLAYEY DOLOMITE AT 369

369.5- 373 DOLOSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
25% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA
VOIDS OFTEN FILLED WITH PHOSPHATIC SAND

373 - 374 DOLOSTONE; VERY LIGHT GRAY TO LIGHT GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-40%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS

374 - 374 SAND; LIGHT OLIVE GRAY TO OLIVE GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-07%, CLAY-30%
DOLOMITE-%

374 - 375.5 SAND; PINKISH GRAY TO VERY LIGHT GRAY
10% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-05%, DOLOMITE- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS

375.5- 381 SAND; VERY LIGHT GRAY TO PINKISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; POOR INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: PHOSPHATIC SAND-10%, DOLOMITE-%
DOLOMITE CONTENT AND INDURATION INCREASES WITH DEPTH.

381 - 386 CLAY; OLIVE GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, MOLDIC, LOW PERMEABILITY
MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-05%
SILT- %, DOLOMITE-%
ACCESSORIES DECREASE WITH DEPTH

386 - 387.5 DOLOSTONE; LIGHT OLIVE GRAY TO YELLOWISH GRAY
POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CLAY MATRIX
SEDIMENTARY STRUCTURES: BIOTURBATED
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-04%
CLAY-%
CLAY DECREASES WITH DEPTH

387.5- 390 DOLOSTONE; LIGHT GRAY TO YELLOWISH GRAY
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-08%

390 - 394 LIMESTONE; WHITE TO PINKISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-10%
CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE CLAY CONTENT

394 - 395 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

395 - 406.5 LIMESTONE; WHITE TO YELLOWISH GRAY

25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-08%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

406.5- 408 SAND; LIGHT OLIVE GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
ROUNDNESS: SUB-ANGULAR TO ANGULAR; MODERATE INDURATION
CEMENT TYPE(S): CLAY MATRIX, CALCILUTITE MATRIX
ACCESSORY MINERALS: PHOSPHATIC SAND-04%, CLAY-%

408 - 408.5 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-02%
FOSSILS: FOSSIL MOLDS

408.5- 410 LIMESTONE; WHITE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%, PHOSPHATIC SAND-07%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

410 - 417 LIMESTONE; LIGHT GRAY TO WHITE
10% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION, DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BRYOZOA
BENTHIC FORAMINIFERA

417 - 418.5 LIMESTONE; PINKISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-07%

418.5- 421 LIMESTONE; PINKISH GRAY TO LIGHT GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION

FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
POROSITY INCREASES WITH DEPTH. RECRYSTALLIZED SHELL BED.

421 - 424 SHELL BED; YELLOWISH GRAY TO PINKISH GRAY
35% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS

424 - 427.5 LIMESTONE; PINKISH GRAY TO LIGHT GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, INTERCRYSTALLINE
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-07%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS
POROSITY DECREASES WITH DEPTH

427.5- 431 LIMESTONE; PINKISH GRAY TO WHITE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
THIN VERY SANDY ZONE AT BASE

431 - 433 DOLOSTONE; LIGHT GRAY
05% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-25%, PHOSPHATIC SAND-05%

433 - 434 LIMESTONE; PINKISH GRAY TO YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, PHOSPHATIC SAND-01%
CLAY-%

434 - 439 LIMESTONE; YELLOWISH GRAY TO DARK GRAYISH YELLOW
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-35%

439 - 439.5 LIMESTONE; YELLOWISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS

GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: BRECCIATED
ACCESSORY MINERALS: QUARTZ SAND-10%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

439.5- 449 CALCARENITE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-03%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
POROSITY INCREASES WITH DEPTH. VARIABLE RECRYSTALLIZATION
OFTEN OBSCURES GRAINS. MICRITIZED ZONES.

449 - 452 AS ABOVE

452 - 458 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

458 - 461 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

461 - 463 CALCARENITE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

463 - 466 CALCARENITE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL

85% ALLOCHEMICAL CONSTITUENTS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: LAMINATED
ACCESSORY MINERALS: QUARTZ SAND-15%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

466 - 467 LIMESTONE; YELLOWISH GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%
OTHER FEATURES: HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

467 - 469 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%
OTHER FEATURES: HIGH RECRYSTALLIZATION

469 - 471 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%
FOSSILS: FOSSIL MOLDS

471 - 480 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS

480 - 484 DOLOSTONE; YELLOWISH GRAY TO LIGHT OLIVE GRAY
07% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
10-50% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%
FOSSILS: FOSSIL MOLDS

484 - 489 LIMESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, CRYSTALS
GOOD INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%

OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS

489 - 494 LIMESTONE; VERY LIGHT ORANGE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-03%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

494 - 495 LIMESTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-03%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

495 - 500 LIMESTONE; VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS

500 - 504 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
35% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

504 - 510.5 LIMESTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

510.5- 514 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND- %, CLAY- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

514 - 516 LIMESTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE

MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS

516 - 519 LIMESTONE; VERY LIGHT ORANGE
12% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

519 - 520.5 LIMESTONE; VERY LIGHT ORANGE TO WHITE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-03%
FOSSILS: FOSSIL MOLDS, MOLLUSKS

520.5- 525 LIMESTONE; VERY LIGHT ORANGE TO WHITE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ALTERNATING HARD AND SOFT LAYERS

525 - 527.5 LIMESTONE; VERY LIGHT ORANGE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-07%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

527.5- 529 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
35% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-04%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
CORAL
THIN VERY SANDY PHOSPHATIC CLAY AT 529

529 - 531 LIMESTONE; VERY LIGHT ORANGE TO WHITE
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX

ACCESSORY MINERALS: QUARTZ SAND-30%, PHOSPHATIC SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

531 - 532 LIMESTONE; YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%

532 - 536 LIMESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

536 - 543 LIMESTONE; YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

543 - 548 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: VERY FINE TO FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

548 - 549 LIMESTONE; YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%, CLAY- %
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS

549 - 550 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-05%

FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA

550 - 554.5 LIMESTONE; WHITE TO VERY LIGHT GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-01%
FOSSILS: FOSSIL MOLDS

554.5- 556 LIMESTONE; VERY LIGHT ORANGE TO WHITE
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-10%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
SAND INCREASES WITH DEPTH TO 25%

556 - 560 LIMESTONE; WHITE TO MODERATE ORANGE PINK
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-25%
FOSSILS: FOSSIL MOLDS

560 - 564 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-20%
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA
POROUS ZONE AT BASE

564 - 569 LIMESTONE; WHITE TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-05%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
LESS POROUS MORE INDURATED AT BASE

569 - 571 LIMESTONE; WHITE TO PINKISH GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
20% ALLOCHEMICAL CONSTITUENTS
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-03%
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS

571 - 576 LIMESTONE; WHITE TO VERY LIGHT ORANGE
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
25% ALLOCHEMICAL CONSTITUENTS
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA

576 - 577.5 DOLOSTONE; VERY LIGHT ORANGE TO WHITE
03% POROSITY: INTERCRYSTALLINE, MOLDIC, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO VERY FINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: HIGH RECRYSTALLIZATION
CHERT AT 577.5

577.5- 580.5 DOLOSTONE; LIGHT GRAY TO LIGHT OLIVE GRAY
POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-%
CLAYEY ZONE AT BASE

580.5- 584 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%

584 - 586 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

586 - 594 LIMESTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

594 - 599 LIMESTONE; VERY LIGHT GRAY
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA

599 - 604 LIMESTONE; WHITE TO VERY LIGHT GRAY
05% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS
BENTHIC FORAMINIFERA, MOLLUSKS

604 - 609 LIMESTONE; WHITE TO VERY LIGHT GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA

609 - 612 LIMESTONE; VERY LIGHT GRAY TO PINKISH GRAY
35% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
98% ALLOCHEMICAL CONSTITUENTS
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%
OTHER FEATURES: HIGH RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, FOSSIL FRAGMENTS, MOLLUSKS
BENTHIC FORAMINIFERA
MORE INDURATED WITH DEPTH

612 - 614 LIMESTONE; VERY LIGHT GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

614 - 624 LIMESTONE; VERY LIGHT GRAY TO WHITE
30% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT

ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

624 - 625 LIMESTONE; VERY LIGHT GRAY TO WHITE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

625 - 634 LIMESTONE; WHITE TO VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

634 - 655 LIMESTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS
OSTRACODS

655 - 661 LIMESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS
ECHINOID, OSTRACODS

661 - 666 LIMESTONE; VERY LIGHT ORANGE
35% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION

FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ECHINOID

666 - 674 LIMESTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA

674 - 675 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
35% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

675 - 684 LIMESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%, HEAVY MINERALS-01%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

684 - 687.5 LIMESTONE; VERY LIGHT ORANGE
07% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
POOR INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND- %
FOSSILS: FOSSIL MOLDS

687.5- 699 LIMESTONE; VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
VARIABLE SAND CONTENT TRACE TO 20% AT 600-699 SAND IS VERY FINE GRAINED TO SILT SIZED.

699 - 711 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
65% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT

ACCESSORY MINERALS: QUARTZ SAND-10%, SILT- %
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS
SCATTERED OCCURRENCE OF FINE GRAINED BLACK MINERAL POSSIBLY ORGANIC MATTER OR PYRITE UPPER ONE FOOT IS MORE POROUS.

711 - 719 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-10%, SILT- %
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, MOLLUSKS
SAND VARIABLE TO 20%

719 - 724 LIMESTONE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-15%
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA, CRUSTACEA

724 - 739.5 LIMESTONE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-20%
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA
VARIABLE SAND CONTENT

739.5- 743 LIMESTONE; WHITE TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
90% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
HIGH RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

743 - 749 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
SCATTERED DARK MINERAL PERHAPS GLAUCONITE FILLING SOME FORAM TESTS. THIN VERY POROUS ZONE AT 746-747.

749 - 757 LIMESTONE; YELLOWISH GRAY
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL

85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ABUNDANT GLAUCONITE (?).

757 - 771 LIMESTONE; YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
COMMENT AS 757.

771 - 774 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%, GLAUCONITE- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

774 - 782.5 LIMESTONE; YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%, GLAUCONITE-%

782.5- 785 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: GLAUCONITE- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
ECHINOID
VERY RECRYSALLIZED ZONE AT TOP

785 - 789 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
95% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; RANGE: FINE TO MEDIUM
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
CLAY MATRIX
ACCESSORY MINERALS: GLAUCONITE-%

789 - 790 CALCILUTITE; WHITE TO VERY LIGHT GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
FOSSILS: FOSSIL MOLDS
SLICKENSIDES NOTED

790 - 793.5 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
80% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: MEDIUM; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-02%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS

793.5- 801.5 LIMESTONE; YELLOWISH GRAY TO PINKISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-30%, GLAUCONITE- %
SILT- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
FOSSIL FRAGMENTS
TRACE OF PHOSPHATE

801.5- 803.5 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %, GLAUCONITE- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

803.5- 807 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): SPARRY CALCITE CEMENT, CALCILUTITE MATRIX
ACCESSORY MINERALS: QUARTZ SAND-15%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

807 - 811.5 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
25% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-05%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

811.5- 813 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
60% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-05%
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA
RECRYSTALLIZED ZONES

813 - 816 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
75% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND- %
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

816 - 820.5 DOLOSTONE; YELLOWISH GRAY
POROSITY: INTERCRYSTALLINE, MOLDIC, LOW PERMEABILITY
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT

820.5- 824 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
20% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
85% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
OTHER FEATURES: DOLOMITIC
FOSSILS: FOSSIL MOLDS, MOLLUSKS, BENTHIC FORAMINIFERA

824 - 829 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
15% POROSITY: INTERGRANULAR, MOLDIC, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
70% ALLOCHEMICAL CONSTITUENTS
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
ACCESSORY MINERALS: QUARTZ SAND-01%
FOSSILS: FOSSIL MOLDS, BENTHIC FORAMINIFERA

829 - 840 LIMESTONE; VERY LIGHT ORANGE TO GRAYISH BROWN
25% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE, INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE- %, DOLOMITE- %
CALCITE- %, CLAY- %
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS
CRYSTAL RIVER FORMATION(OCALA GROUP). LEPIDOCYCLINA SP.

840 - 850 LIMESTONE; YELLOWISH GRAY

20% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS

850 - 860 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, DOLOMITE- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
LEPIDOCYCLINA.

860 - 890 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
25% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, CLAY MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCILUTITE- %, CLAY- %, SILT- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS
FOSSILS: FOSSIL FRAGMENTS, MOLLUSKS, BENTHIC FORAMINIFERA
NUMMULITES, LEPIDOCYCLINA.

890 - 910 CALCILUTITE; VERY LIGHT ORANGE TO MODERATE GRAY
20% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
GRAIN SIZE: VERY FINE; MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: SILT- %, CALCITE- %, DOLOMITE- %
LIMESTONE- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS, CHALKY
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
NUMMULITES, LEPIDOCYCLINA; LT. BROWN-BROWNISH GRAY
DOLOMITE.

910 - 930 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: CALCITE- %, DOLOMITE- %
PHOSPHATIC SAND- %, CALCILUTITE- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS, SPECKLED
GRANULAR
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, MOLLUSKS
SPICULES

GYPSINA GLOBULA, NUMMULITES, GASTROPOD, LEPIDOCYLINA
SPICULES.

930 - 950 LIMESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-01%, PHOSPHATIC SAND- %
CALCITE- %, CALCILUTITE- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS, SPECKLED
GRANULAR
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA
WILLISTON FM. OPERCULINOIDES, NUMMULITES, LEPIDOCYCLINA.

950 - 970 LIMESTONE; VERY LIGHT ORANGE
25% POROSITY: INTERGRANULAR, POSSIBLY HIGH PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO VERY FINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: PHOSPHATIC SAND- %, CALCILUTITE- %
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS, SPECKLED
GRANULAR
FOSSILS: FOSSIL FRAGMENTS, BENTHIC FORAMINIFERA, SPICULES

970 - 990 LIMESTONE; VERY LIGHT ORANGE
20% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SPARRY CALCITE CEMENT
DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, BIOTURBATED
ACCESSORY MINERALS: DOLOMITE- %, CALCILUTITE- %
CALCITE- %, QUARTZ SAND- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION
LOW RECRYSTALLIZATION, CALCAREOUS, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
LT BROWN, SUCROSIC DOLOMITE. OPERCULINOIDES,NUMMULITES.

990 - 1004 LIMESTONE; VERY LIGHT ORANGE TO MODERATE BROWN
15% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SPARRY CALCITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, BIOTURBATED
ACCESSORY MINERALS: DOLOMITE-40%, CALCILUTITE- %
CALCITE- %
OTHER FEATURES: LOW RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION, CALCAREOUS, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

LT. BROWN, SUCROSIC DOLOMITE. LEPIDOCYLINA, NUMMULITES.

1004 - 1015 DOLOSTONE; MODERATE BROWN
04% POROSITY: INTERGRANULAR; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-30%
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
LT. BROWN, SUCROSIC DOLOMITE.

1015 - 1035 DOLOSTONE; MODERATE BROWN TO MODERATE BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-25%, CALCITE- %
QUARTZ SAND- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, SPICULES

1035 - 1040 LIMESTONE; VERY LIGHT ORANGE TO YELLOWISH GRAY
10% POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GRAIN SIZE: VERY FINE; RANGE: FINE TO COARSE
MODERATE INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-45%
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

1040 - 1050 DOLOSTONE; MODERATE BROWN TO LIGHT BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-40%, CALCITE- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

1050 - 1070 DOLOSTONE; LIGHT BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
PIN POINT VUGS; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE

ACCESSORY MINERALS: LIMESTONE- %, CALCILUTITE- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
SUCROSIC; OPERCULINOIDES, NUMMULITES(ALTERED), GYPSINA GLOBULA.

1070 - 1100 DOLOSTONE; MODERATE BROWN TO MODERATE YELLOWISH BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE- %, CALCILUTITE- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

1100 - 1115 DOLOSTONE; GRAYISH BROWN TO LIGHT BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE- %, CALCILUTITE- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: FOSSIL FRAGMENTS
AVON PARK FORMATION CONTACT.

1115 - 1130 DOLOSTONE; GRAYISH BROWN TO LIGHT BROWN
04% POROSITY: INTERGRANULAR, INTERCRYSTALLINE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: VERY FINE TO MICROCRYSTALLINE; GOOD INDURATION
CEMENT TYPE(S): SILICIC CEMENT, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: LIMESTONE-30%, CALCILUTITE- %
OTHER FEATURES: SUCROSIC, MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, SPICULES
ECHINOID
GRADES TO A DOLOMITIC LIMESTONE; ECHINOID SPINES & FRAGMENTS.

1130 - 1150 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: MASSIVE
ACCESSORY MINERALS: DOLOMITE-10%
OTHER FEATURES: LOW RECRYSTALLIZATION, CALCAREOUS
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
DICTYOCONUS COOKEI,COSKINOLINA FLORIDANA; AVON PARK FORMATION.

1150 - 1160 LIMESTONE; YELLOWISH GRAY
18% POROSITY: INTERGRANULAR

GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: DOLOMITE-20%
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, SUCROSIC
CALCAREOUS, DOLOMITIC
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS
SOME CRYSTALLINE DOLOMITE(LT. BROWN); DICTYCONUS COOKEI.

1160 - 1170 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
GOOD INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-15%, CALCITE- %
OTHER FEATURES: MEDIUM RECRYSTALLIZATION, SUCROSIC
CALCAREOUS, DOLOMITIC
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS
SOME LT. BROWN LAMINATED DOLOMITE(ALGAL LAMINATIONS?).

1170 - 1215 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-05%
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION, SUCROSIC
GRANULAR, COQUINA
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS

1215 - 1245 CALCARENITE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-05%, CALCITE- %
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
MEDIUM RECRYSTALLIZATION, GRANULAR
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, MOLLUSKS
ORGANICS
COSKINOLINA FLORIDANA; THIN SEAMS OF DK BROWN DOLOMITE

1245 - 1255 CALCARENITE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: DOLOMITE-20%, CALCITE- %
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION, COQUINA
MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS
DICTYCONUS COOKEI, COSKINOLINA FLORIDANA, ORGANICS.

1255 - 1260 LIMESTONE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE- %
OTHER FEATURES: DOLOMITIC, LOW RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS

1260 - 1265 DOLOSTONE; YELLOWISH GRAY TO DARK YELLOWISH BROWN
POROSITY: INTERGRANULAR; 10-50% ALTERED; ANHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SILICIC CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED
ACCESSORY MINERALS: LIMESTONE-40%, CALCITE- %
QUARTZ SAND- %
OTHER FEATURES: DOLOMITIC, SUCROSIC
MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS

1265 - 1270 LIMESTONE; YELLOWISH GRAY TO DARK YELLOWISH BROWN
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-30%, QUARTZ SAND- %
CALCITE- %
OTHER FEATURES: DOLOMITIC, COQUINA, GRANULAR
MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS

1270 - 1280 CALCARENITE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR, PIN POINT VUGS
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-20%, QUARTZ SAND- %
CALCITE- %
OTHER FEATURES: DOLOMITIC, GRANULAR
MEDIUM RECRYSTALLIZATION
FOSSILS: BENTHIC FORAMINIFERA, FOSSIL FRAGMENTS, ORGANICS

1280 - 1320 CALCARENITE; YELLOWISH GRAY TO YELLOWISH GRAY
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND- %
CALCITE- %

OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
COQUINA, GRANULAR
FOSSILS: ORGANICS, FOSSIL FRAGMENTS
SOME BROWN-BLACK ORGANICS.

1320 - 1340 CALCARENITE; YELLOWISH GRAY TO VERY LIGHT ORANGE
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-10%, QUARTZ SAND- %
CALCITE- %
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
FOSSILS: ORGANICS, FOSSIL FRAGMENTS

1340 - 1360 LIMESTONE; YELLOWISH GRAY TO LIGHT OLIVE
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE, SKELETAL
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: DOLOMITE-20%, CALCITE- %
CALCILUTITE- %, QUARTZ SAND- %
OTHER FEATURES: CALCAREOUS, DOLOMITIC, SUCROSIC
FOSSILS: FOSSIL FRAGMENTS, ORGANICS

1360 - 1370 LIMESTONE; YELLOWISH GRAY TO VERY LIGHT ORANGE
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
SEDIMENTARY STRUCTURES: INTERBEDDED, LAMINATED, MOTTLED
ACCESSORY MINERALS: DOLOMITE-15%, CALCITE- %
CALCILUTITE- %, QUARTZ SAND- %
OTHER FEATURES: CALCAREOUS, DOLOMITIC, SUCROSIC
FOSSILS: ORGANICS

1370 - 1393 LIMESTONE; YELLOWISH GRAY TO LIGHT GRAYISH BROWN
POROSITY: INTERGRANULAR
GRAIN TYPE: BIOGENIC, CALCILUTITE
MODERATE INDURATION
CEMENT TYPE(S): CALCILUTITE MATRIX, DOLOMITE CEMENT
ORGANIC MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED, LAMINATED
ACCESSORY MINERALS: DOLOMITE-40%
OTHER FEATURES: DOLOMITIC, MEDIUM RECRYSTALLIZATION
SUCROSIC
FOSSILS: ORGANICS

1393 - 1399.5 DOLOSTONE; MODERATE BROWN TO LIGHT BROWN
POROSITY: INTRAGRANULAR, INTERGRANULAR; 50-90% ALTERED
SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT

SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED
ACCESSORY MINERALS: LIMESTONE-10%
OTHER FEATURES: DOLOMITIC, HIGH RECRYSTALLIZATION
SPLINTERY, PARTINGS
FOSSILS: NO FOSSILS
HARD, CRYSTALLINE, SUCROSIC, PLATY DOLOMITE.

1399.5- 1405 DOLOSTONE; MODERATE BROWN TO MODERATE BROWN
POROSITY: INTERGRANULAR, INTERCRYSTALLINE
POSSIBLY HIGH PERMEABILITY; 50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: MICROCRYSTALLINE
RANGE: CRYPTOCRYSTALLINE TO MICROCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED
OTHER FEATURES: HIGH RECRYSTALLIZATION, SUCROSIC, SPLINTERY
FOSSILS: NO FOSSILS
FRACTURES, INCREASE IN POROSITY, DISSOLUTION OF PARTICLES
IN MATRIX; SLIGHTLY WEATHERED, SOME DK. BROWN DOLOMITE.

1405 - 1411 LIMESTONE; VERY LIGHT ORANGE TO MODERATE ORANGE PINK
POROSITY: INTERGRANULAR, LOW PERMEABILITY
GRAIN TYPE: BIOGENIC, CALCILUTITE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, CALCILUTITE MATRIX
SEDIMENTARY STRUCTURES: INTERBEDDED, MOTTLED
ACCESSORY MINERALS: DOLOMITE-40%
OTHER FEATURES: CALCAREOUS, SUCROSIC, DOLOMITIC
FOSSILS: ORGANICS, FOSSIL FRAGMENTS

1411 - 1420 DOLOSTONE; LIGHT BROWN TO MODERATE YELLOWISH BROWN
POROSITY: INTRAGRANULAR, INTERGRANULAR, FRACTURE
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED
ACCESSORY MINERALS: CLAY- %, QUARTZ- %
OTHER FEATURES: SUCROSIC, SPLINTERY
FOSSILS: NO FOSSILS
VERY HARD SUCROSIC DOLOMITE, GRAYISH GREEN CLAY SEAM(415').
SOME FRACTURE POROSITY(419.5'-1420'), QUARTZ
CRYSTAL,WEATHERING.

1420 - 1430 DOLOSTONE; LIGHT BROWN TO MODERATE BROWN
POROSITY: INTRAGRANULAR, LOW PERMEABILITY, PIN POINT VUGS
50-90% ALTERED; SUBHEDRAL
GRAIN SIZE: CRYPTOCRYSTALLINE
RANGE: MICROCRYSTALLINE TO CRYPTOCRYSTALLINE
GOOD INDURATION
CEMENT TYPE(S): DOLOMITE CEMENT, SILICIC CEMENT
SEDIMENTARY STRUCTURES: MASSIVE, MOTTLED
ACCESSORY MINERALS: QUARTZ- %
OTHER FEATURES: SUCROSIC
FOSSILS: NO FOSSILS

1430 TOTAL DEPTH