STATE OF FLORIDA

FLORIDA GEOLOGICAL SURVEY
Guy H. Means, *State Geologist and Director*

OPEN-FILE REPORT 114

Text to accompany geologic map of the USGS Naples 30 x 60 minute quadrangle, southwestern Florida

By

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2024
ISSN (1058-1391)

This project was funded in part by the USGS National Cooperative Geologic Mapping Program under assistance award numbers G22AC00572 and G23AC00573 in Federal fiscal years 2022 and 2023

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ABSTRACT

The accompanying 1:100,000 scale geologic map (Open-File Map Series 117, Plate 1) depicts the areal distribution of surficial geologic units for the U.S. Geological Survey (USGS) Naples 30 x 60 minute quadrangle. The map was constructed using a combination of field mapping (at 1:24,000 scale), compilation of data from existing maps (various scales), borehole core and cuttings analyses and descriptions, and analyses of various Geographic Information System (GIS) data sources. The resulting data were compiled in ESRI® ArcGIS® ArcPro™ 3.2.1 software for publication as part of the Florida Geological Survey Open-File Map Series. Mapped geologic units range in age from Pliocene to Holocene. Important resources in the mapped area include potable groundwater, sand, fossil shells, and limestone.

The geologic map and accompanying plates produced for this area not only provide a greater understanding of the interaction between the geologic units and ecosystems but have utility as a land management tool for economic development, mineral and energy production, and environmental protection for Florida. Examples include designing new construction projects, siting new water supply wells, wastewater treatment plants, energy production facilities, waste management and storage facilities, locating sources of mineable resources, and protecting surface and groundwater quality.

Keywords: Florida, geologic map, Hawthorn Group, Arcadia Formation, Peace River Formation, Tamiami Formation, Tertiary/Quaternary undifferentiated shelly sediments, geomorphology, hydrogeology, Floridan aquifer system, Collier County, Hendry County, Lee County, Bonita Springs, Estero, Immokalee, Naples

INTRODUCTION

Florida Geological Survey (FGS) Open-File Report (OFR) 114 accompanies Open-File Map Series (OFMS) 117, which is comprised of two plates. Plate 1 depicts the near-surface geology of the USGS Naples 30 x 60 minute quadrangle. Plate 2 depicts six geologic cross sections, a stratigraphic correlation chart, and an index geologic map with cross-section lines for the study area.

The study area is in southwestern Florida (Figure 1) and covers portions of Collier, Hendry, and Lee counties. It includes the communities of Bonita Springs, Estero, Immokalee, and Naples. The quadrangle is bounded to the north by the USGS Fort Myers 30 x 60 minute quadrangle (Green et al., 2024a; Green et al., 2024b), to the east by the USGS Fort Lauderdale 30 x 60 minute quadrangle (to be mapped 2024-2025), to the south by the USGS Everglades City 30 x 60 minute quadrangle, and to the west by the Sanibel 30 x 60 minute quadrangle.

One objective of this report is to provide basic geologic information for the accompanying OFMS 117. Information provided in this report and on the plates from OFMS 117 is intended for a diverse audience of professionals in geology, hydrology, engineering, environmental and urban planning, and laypersons, all of whom have varying levels of geologic knowledge. The maps can help users identify and interpret geologic features which impact activities related to groundwater quality and quantity, as well as aid in locating mineral resources, land-use planning, and construction project design. Applied uses of the maps and data in this report include: 1) identifying potential new mineral resources, 2) characterizing zones of geologic hazards, 3) characterizing potential aquifer recharge, discharge, and confinement, 4) surface water, groundwater, and fate and transport modeling, 5) aiding water-management decisions on groundwater usage, 6) providing information on aquifer vulnerability to potential pollution, 7) characterizing ecosystems, and 8) recreational activities.

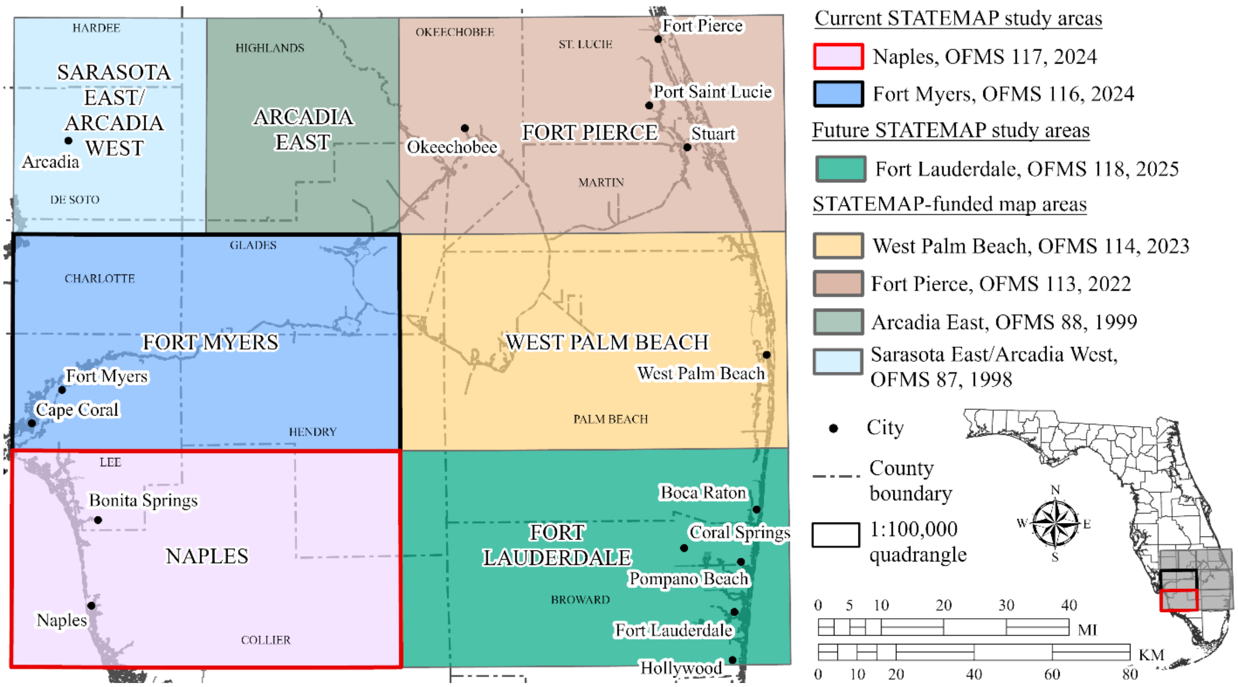

Figure 1. Nearby areas mapped under the FGS STATEMAP Program.

Methods

Mapping efforts consisted of 1) reviewing and compiling existing geologic literature and data, 2) mapping geologic units in the field at 1:24,000 scale using standard techniques, 3) analyzing existing borehole core, cuttings, and field (M-Series) samples from the FGS Sample Collections Facility, 4) drilling and analyzing new cores, 5) collecting and describing outcrop samples, 6) compiling the available data in order model the surface and overburden thickness for selected units, and 7) preparing a geologic map and geologic cross-sections of the area. Fieldwork, performed during the fall of 2022 through the summer of 2024, consisted of sampling and describing outcrops, as well as samples from beach and pit exposures.

Ninety-nine new geologic samples were added to the FGS surface-sample archives (M-Series) and four cores (548 feet [167 meters] total) were drilled. Numerous outcrops were also examined during this project. In addition to the new M-series samples collected, 17 historical M-series samples were examined. All data, including formation picks from over 200 FGS boreholes from the study area, were compiled and analyzed. Figure 2 shows the locations of FGS cores and cuttings used for geologic models. Figure 3 shows FGS M-Series samples and outcrops in the study area. Figure 4 shows borehole locations for consultant data used for models. Appendix A lists boreholes utilized within the quadrangle. Appendix B lists consultant boreholes utilized within the quadrangle (see page 6 for more information about this). The map and accompanying plates were developed in ESRI® ArcGIS® ArcPro™ 3.2.1 software for publication as part of OFMS 117.

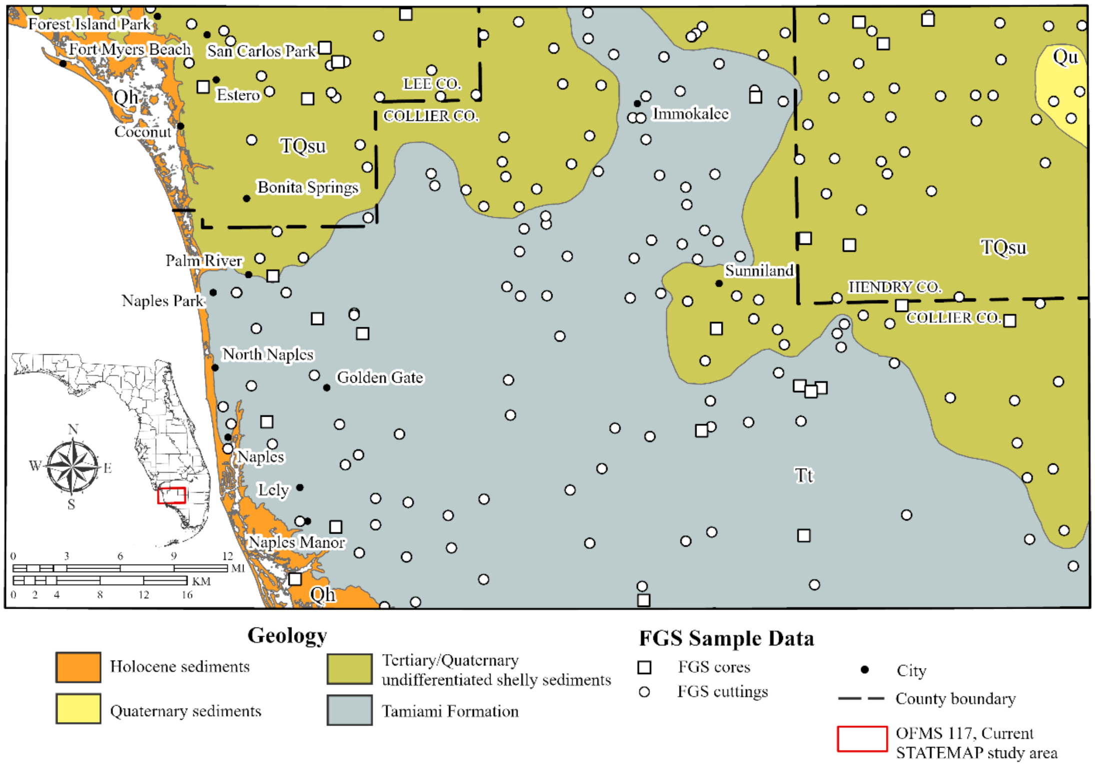

Figure 2. FGS cores and cuttings used for models.

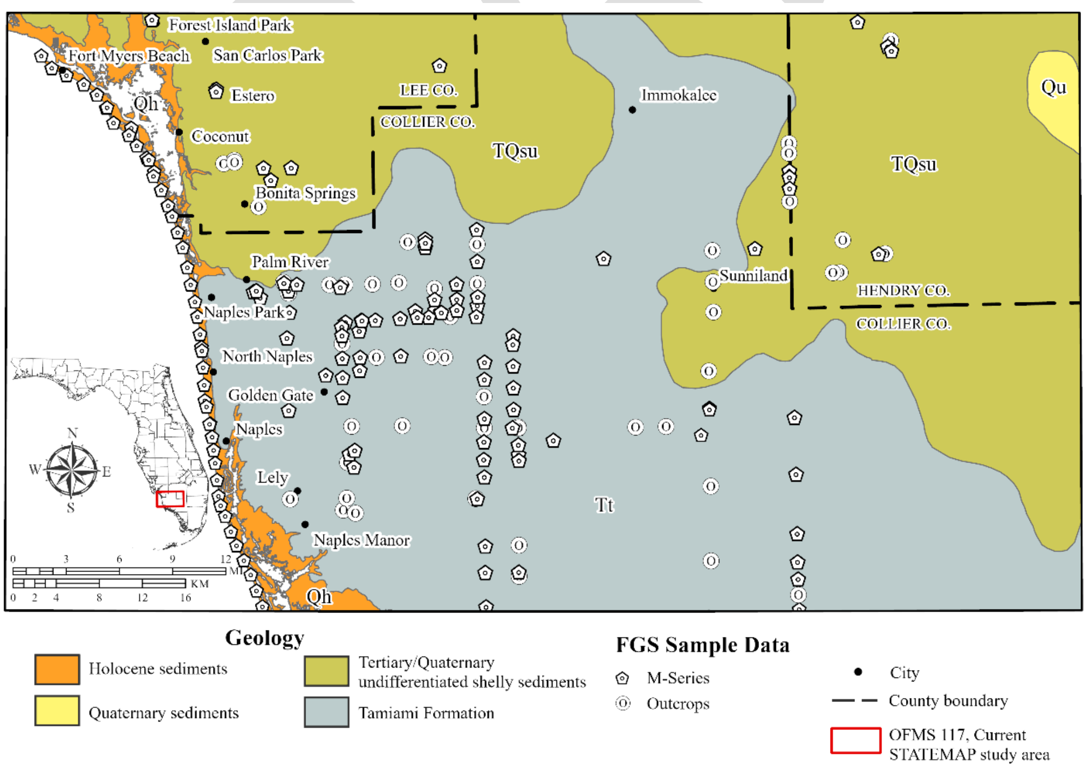

Figure 3. FGS M-series and outcrops used for models.

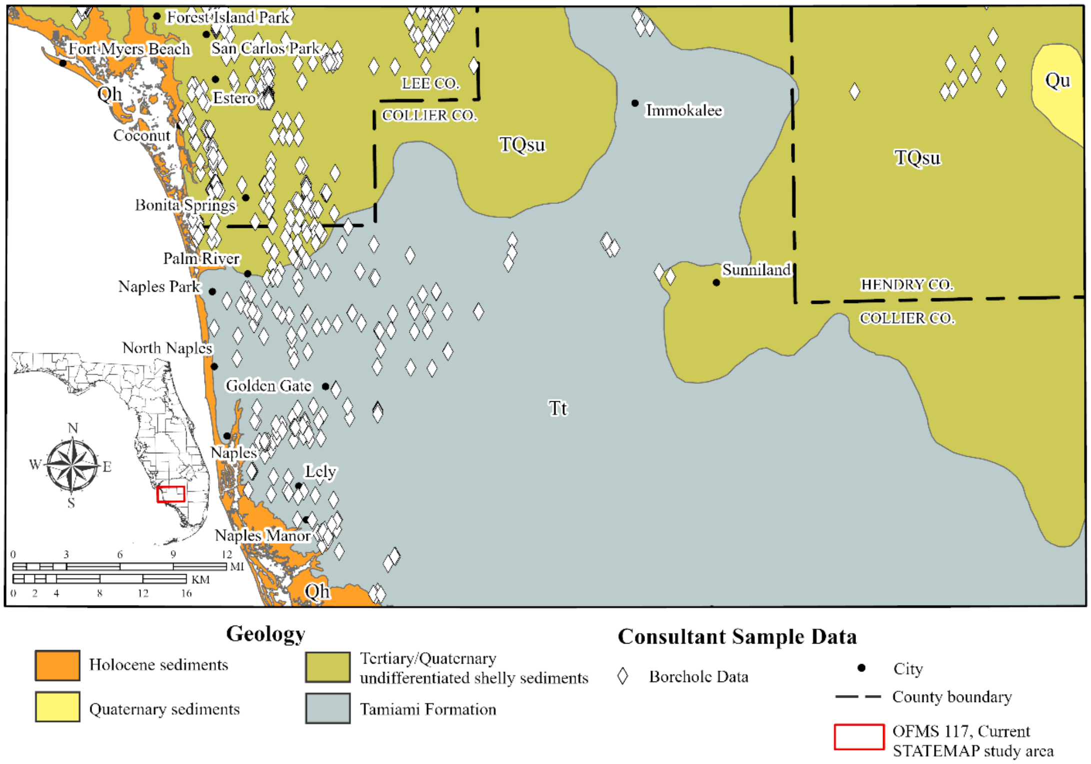

Figure 4. Borehole locations of consultant data used for models.

Five USGS tiles from the 3D Elevation Program (3DEP; U.S. Geological Survey, 2022) were mosaicked together in ArcPro 3.2.1 to create the digital elevation model for this study area. All elevation values are in meters and are referenced to the North American Vertical Datum of 1988 (NAVD 88). These data have a horizontal resolution of 1/3 arc-second (approximately 10 meters), and a vertical resolution of one meter.

Top-of-unit rasters were created for several geologic units within the study area using the borehole descriptions completed during this study. In order to produce interpolated top-of-unit rasters, the borehole depth for the top of each unit was first converted from depths below land surface into elevations referenced to mean sea-level. This conversion was performed by taking the elevation value of the borehole location from the digital elevation model raster and subtracting the depth below land surface value, resulting in the mean sea-level elevation for the top-of-unit for each borehole location.

The mean sea-level elevation data for each geologic top-of-unit was used to create a Natural Neighbor (NN) interpolation of the top-of-unit surface. The NN method of interpolation is a simple and exact interpolation method that relies on Voronoi tessellation (a partitioning of a plane into regions based on distances to points) to select a local subset of points and determine a weighted influence at every raster grid cell. This method produces a surface that passes through every data point in the input data set and thus does not attempt to account for errors or outliers. The NN method is particularly useful for visualizing the 'raw' data for problematic areas and extreme outliers prior to building and optimizing the final model.

After examining the initial models created for geologic units, it was evident that some of the predictive errors in the first model were directly attributable to either low data density, local outliers in the borehole data, or both. Outliers are a common occurrence in Florida geologic data for a variety of reasons, both human and natural, including: 1) the contact between units can be difficult to distinguish at times, and therefore some degree of uncertainty may exist in locating contacts, 2) many of the borehole samples are based on cuttings taken at intervals of 10 feet (3.1 meters), which introduces uncertainty in the elevation of the contacts even when the contact is clearly evident and 3) dissolution in carbonate units can produce significantly different unit elevations in boreholes that are a short distance apart.

In cases where the accuracy metrics of the modeled surfaces indicated large amounts of error due to outliers, an iterative modeling process was used to reduce the average standard error of the interpolated surface and the least-accurate boreholes were removed from the dataset via cross-validation to improve predictive accuracy. After the removal of outlier data points (generally fewer than ten boreholes per unit), a new interpolated raster was generated.

Figure 5 is a boxplot used to illustrate the distribution and range of elevation values, relative to mean sea level (MSL), for each geologic unit investigated within the study area. The crossbar within the box represents the median elevation value for each geologic unit. The upper and lower borders of each box correspond to the 25th and 75th percentiles, or the first and third quartiles, respectively; this area is also called the interquartile range and represents the middle 50% of the values in each group. The whiskers that extend from each boxplot reach no further than 150% of the interquartile range. Data that fall beyond the whiskers are considered outlier points and are represented by a dot.

Once the top-of-unit models were completed, they were subtracted from the digital elevation model to produce a raster showing overburden depth between each unit and land surface. The overburden rasters were then used to assist in drawing the final surficial geologic map for the study area.

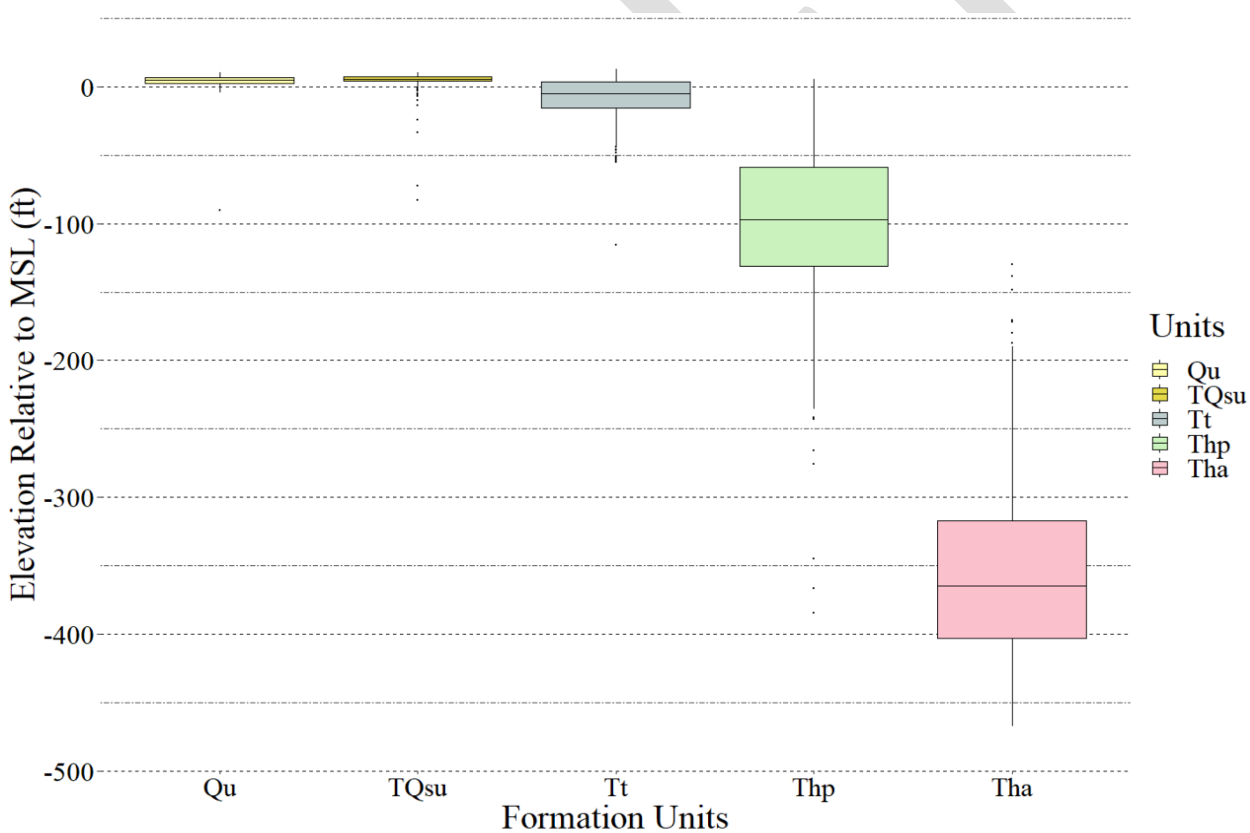

Figure 5. Boxplot of top of lithostratigraphic unit elevation ranges.

Much of the study area is blanketed by a veneer of Quaternary undifferentiated sediments. For this reason, and in keeping with geologic mapping practices developed by Scott et al. (2001), the authors have adopted the procedure of mapping the first named geologic unit within 20 feet (6.1 meters) of the surface. If Quaternary undifferentiated sediments (Qu) have a thickness greater than 20 feet (6.1 meters), they appear as the mapped unit. If these undifferentiated sediments are less than 20 feet (6.1 meters) thick, the underlying lithostratigraphic unit appears on the map. The geologic map (OFMS 117, Plate 1) and the geologic cross-sections (OFMS 117, Plate 2) may appear to disagree slightly when depicting the upper unit due to this convention. This is because geologic cross-section contacts are based on straight-line projection between boreholes, which may lead to apparent unit thicknesses between boreholes not supported by field evidence or other nearby boreholes.

Public access in portions of the mapped area was hindered by the presence of numerous wetlands, mines, farms, ranches, and privately-owned land. Fieldwork access was typically limited to public roads, state-owned lands, and county-owned lands. As such, large sections of the mapped area were inaccessible. In these areas, the authors had to rely on existing core, cuttings, outcrop, and M-Series sample data.

Previous Work

The current study builds on previous geologic investigations in and around the present map area. Preliminary county geologic maps for Collier (Duncan, 1993), Hendry (Scott, 1993a), and Lee (Missimer and Scott, 1993) counties were previously published at a 1:126,720 scale by the FGS. However, each of these geologic maps were constructed in an average timeframe of two weeks utilizing selected in-house geologic data with little-to-no field work. A statewide geologic map (Scott et al., 2001), published by the FGS, provided a framework for the current, more detailed mapping. Although these maps provided a starting point for the detailed geologic mapping undertaken for this project, significant refinement of prior geologic maps was possible because of this additional field work and data.

Scott (1988) published detailed descriptions, structure contour maps, and isopach maps for units of the Hawthorn Group. This study also benefited from the work performed during geologic mapping of the Sarasota, Arcadia (Green et al., 1997; Green et al., 1998; Green et al., 1999), Fort Myers (Green et al., 2024 a; Green et al.,2024b) and West Palm Beach (Green et al., 2023a; Green et al., 2023b) 30 x 60 minute quadrangles. Some of the field relationships and stratigraphic problems were worked out during those projects.

Dr. Thomas Missimer, a consulting geologist with over five decades of experience in the region, generously provided data from hundreds of consulting reports that were generated during his career. Data from several hundred boreholes in Lee, Collier, and Hendry counties were compiled and analyzed by the authors in order to refine our geologic models and understanding of the regional geology for this project (Figure 4).

GEOLOGIC SUMMARY

The near-surface geology of the USGS 30 x 60 minute Naples quadrangle is composed of a complex mixture of Tertiary to Quaternary carbonate and siliciclastic sediments. A combination of factors, including fluvio-deltaic deposition, marine deposition and erosion of sediments as a result of eustatic changes in sea level, dissolution of underlying carbonates (karstification), and structural features have influenced the geology of the study area.

The oldest unit to crop out in the Naples quadrangle is the Tertiary Tamiami Formation. The unit can be seen in numerous pits and quarries throughout the map area (OFMS 117, Plate 1). The Tertiary Tamiami Formation overlies the Peace River Formation throughout the mapped area (OFMS 117, Plate 2). The oldest unit investigated for geologic cross-sections is the Oligocene-Miocene Arcadia Formation (Hawthorn Group; OFMS 117, Plate 2). Detailed descriptions of the lithology of all units investigated in the study area begin on page 12 of this publication.

The Naples quadrangle encompasses portions of the Caloosahatchee River, Everglades-West Coast, and Florida Southeast Coast hydrologic basins (Figure 6). There are no known springs within the study area.

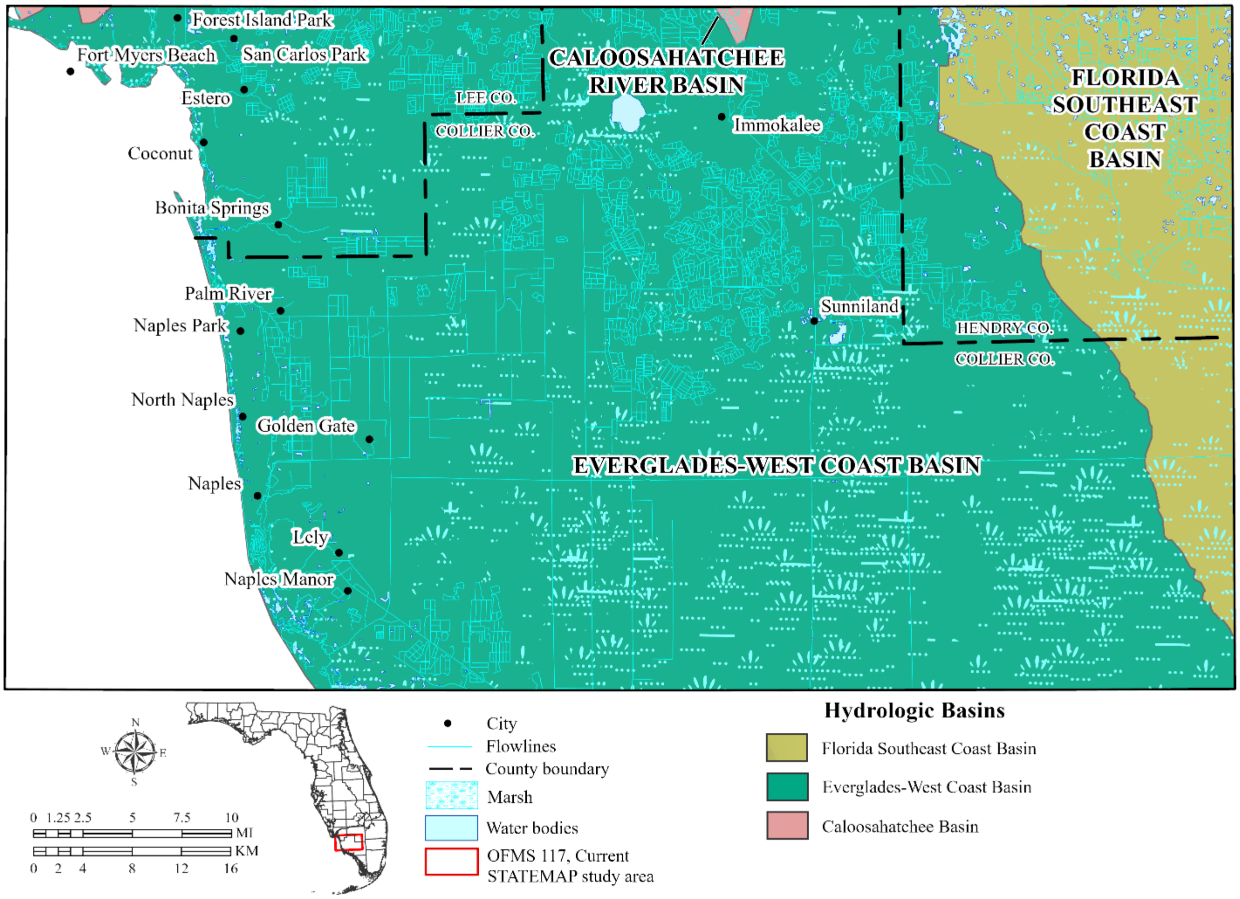

Figure 6. Location of selected river basins and other water bodies (modified from Hydrologic Unit Codes: Basins, 1993).

Structure

The South Florida Basin (Applin and Applin, 1965; Winston, 1971) is a stratigraphic basin which contributed to the thickening and deepening towards the south of Mesozoic and early Cenozoic lithostratigraphic units in the southern Florida Peninsula. The basin encompasses most of the southern Florida Peninsula and is an area where the stratigraphic units generally dip gently to the south and southeast.

The Okeechobee Basin (Riggs, 1979), which includes most of southern Florida (Figure 7), is an area where mid-Cenozoic and younger stratigraphic units gently dip south and southeast. As can be seen in the geologic cross sections (OFMS 117, Plate 2), the South Florida and Okeechobee basins have had minimal influence on the late Cenozoic units in the mapped area.

Several seismic studies have been performed in the Fort Myers quadrangle (Missimer and Gardner, 1976; Warzeski et al., 1996; Cunningham et al., 2001), indicating channels are developed in the sediments of the Arcadia Formation (Hawthorn Group) which have influenced deposition in the region. Missimer and Gardner (1976) identified folds in the "Hawthorn Formation" (the Arcadia Formation of Scott [1988]) and numerous large-scale angular beds in the "green clay unit of the Tamiami Formation" [later renamed as the Peace River Formation by Scott (1988)], which dip eastwards. Missimer and Gardner (1976) also identified numerous deeply cut paleochannels in the Caloosahatchee River. They did not note any faults in the strata. Cunningham et al. (2001) indicated that the folding discussed by Missimer and Gardner (1976) were likely created by karstic collapse.

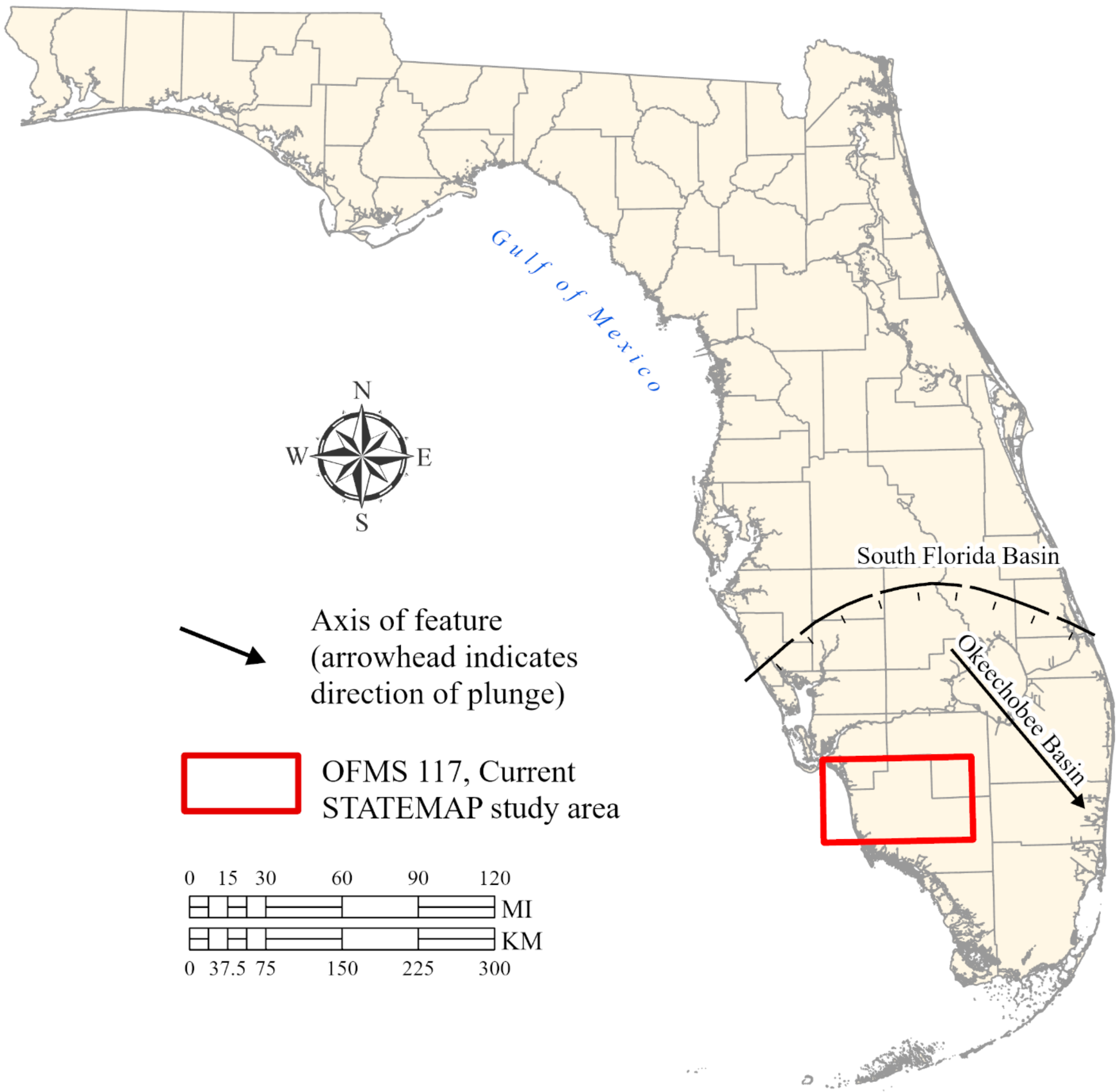

Figure 7. Principal subsurface structures of the Florida Peninsula (modified from Scott, 1988).

Geomorphology

The Florida Geological Survey recently published the Florida Geomorphology Atlas (Williams et al., 2022). The atlas synthesized over a century of geomorphic writings and maps about Florida, along with the addition of new data and interpretations of the geomorphology. These include specific regional discussions of landforms and relationships to the underlying geology and the coastal, fluvial, and karst processes that have affected the evolution of landforms. *The Geomorphology of the Florida Peninsula* (White, 1970), in addition to work by former FGS colleague, Thomas M. Scott, was central to the new statewide atlas. Recent data and technology, including the addition of LiDAR coverages and new possibilities for digital geomorphological mapping that employ spatiotemporal and geocomputational approaches to data analysis, allowed the FGS to revise nomenclature and refine geomorphic district and province boundaries. In the following section, all geomorphic unit names and most discussions are from Williams et al., 2022.

The new atlas shows the geomorphology by regional units (districts; Figure 8) and sub-regional to local units (provinces; Figure 9). Districts are defined by regional groupings to form map polygons that have landforms which are distinct from adjacent districts. Defining the more localized provinces and their landforms is important for the characterization of the regions within districts. A brief discussion of districts and provinces within the Naples quadrangle is listed below. For more information and detail, the reader can refer to Williams et al., 2022.

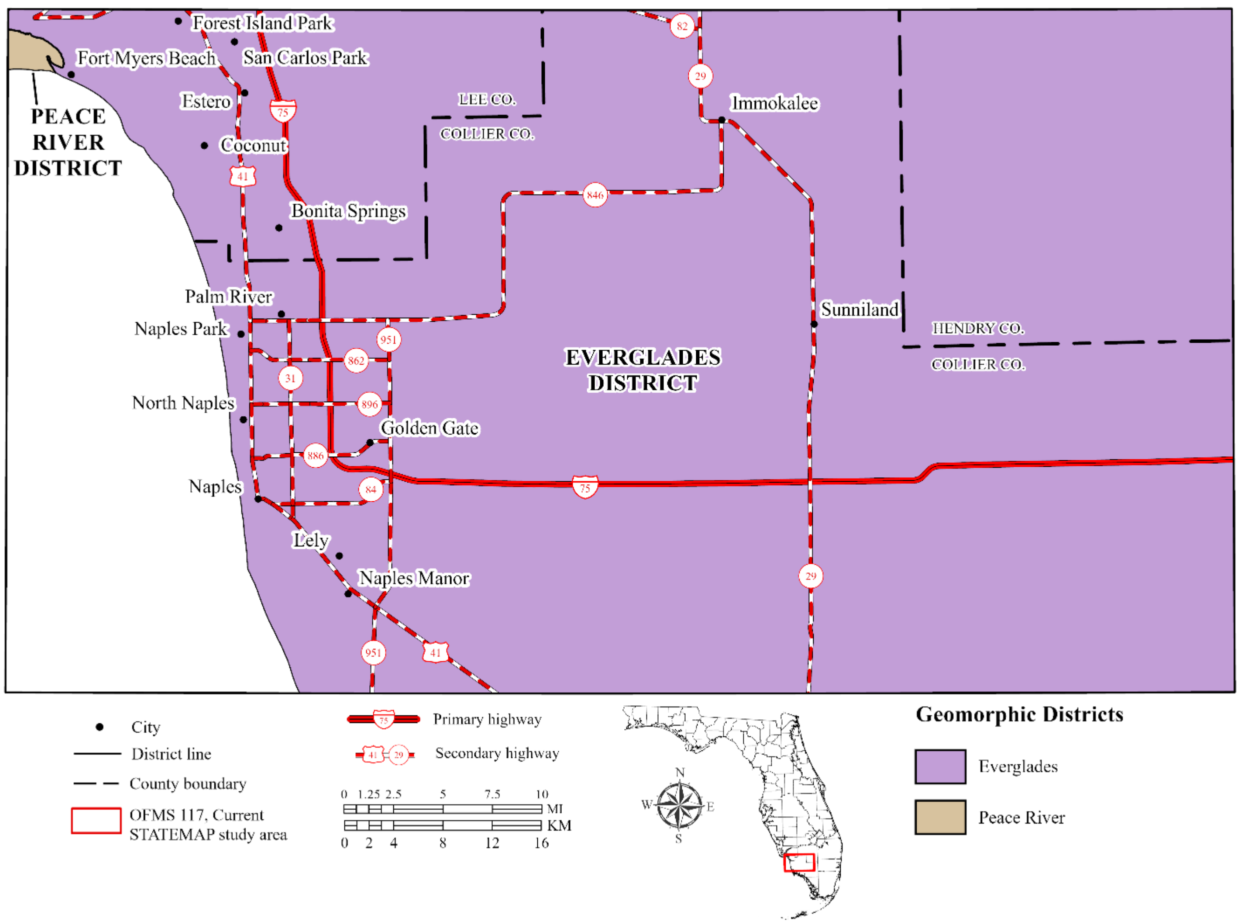

Figure 8. Geomorphic districts within the Naples quadrangle.

Everglades District

The Everglades District includes the southern part of peninsular Florida. All the provinces within the Everglades District are related to a vast and complex drainage system that begins with the Kissimmee River and its tributaries in the Barrier Island Sequence District to the north of the mapped area. Many areas are characterized by wetlands, but others include Quaternary carbonate islands and coastal ridges. The dominant flow of water through the central and eastern Everglades District has historically been north to south. Drainage in much of the district is by way of sloughs, sheet flow in wetlands, and poorly defined stream systems. The dominant flow of water through the western part of the Everglades District is more complex.

In the study area, most of the drainage is to the west and southwest toward the Gulf of Mexico. All the provinces within the district have relatively flat landscapes, and elevation changes of inches or a few feet often mark the differences between provinces. With a few exceptions, pre-development drainage was as sheet flow and through sloughs (wetlands).

The Everglades District is subdivided within the mapped area into four provinces: Caloosahatchee Valley, Immokalee Rise, Big Cypress, and Ten Thousand Islands (Figure 9). The Everglades District has little topographic relief. Elevations within the district gradually decrease from north to south. Elevations of the district within the mapped area range from sea level at the Gulf of Mexico to 40 feet (12.2 meters) MSL.

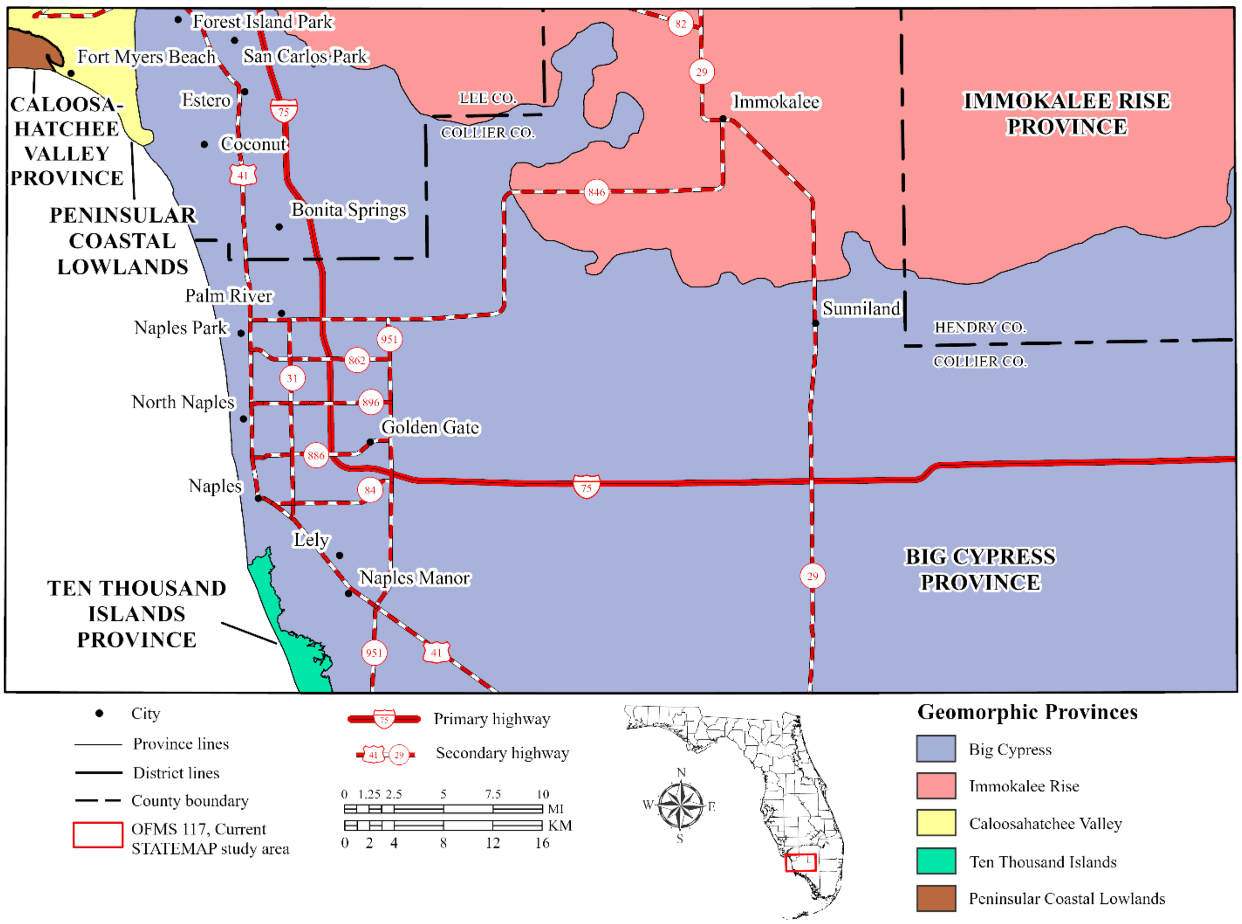

Figure 9. Geomorphic provinces within the Naples quadrangle.

Big Cypress Province

The Big Cypress Province is primarily located within Collier County and includes areas of southern Lee and Hendry counties, and small areas of Broward, Miami-Dade, and Monroe counties. The Big Cypress Province includes the Big Cypress Swamp, Corkscrew Swamp, and the other ridge and slough regions from the Gulf of Mexico coast north of Naples and east to the marshlands of the Everglades Province. The Big Cypress Province includes an important and complex ecosystem that is dominated by shallow sloughs (locally known as strands) separated by low ridges. In the Big Cypress Province, the water table is near land surface and drainage becomes less well organized. Many cypress sloughs (strands) and the intervening ridges in the study area drain southwest toward the Gulf of Mexico. East of the study area, many drain south and southeast toward the Everglades. The boundary between the Big Cypress and Caloosahatchee Valley provinces to the northwest approximates the drainage divide between Six Mile Slough and the

Caloosahatchee River and separates Lovers Key from Estero Island at Big Carlos Pass. Highest elevations in the Big Cypress Province are in the north, and the land surface slopes gently to the south, east, and west. The Big Cypress Province occurs in most of the western and southeastern parts of the study area (Figure 9). Elevations of the Big Cypress Province in the study area vary from sea level at the Gulf of Mexico to 20 feet (6.1 meters) MSL.

Caloosahatchee Valley Province

The Caloosahatchee Valley is located in central Lee, northern Hendry, and southern Glades counties. The province consists of the pre-development Caloosahatchee River valley, and the low valley between Lake Okeechobee and the Caloosahatchee River. Historically, excess water entering the northern Everglades from the Kissimmee River, Fisheating Creek, other smaller drainages, and Lake Okeechobee overflowed westward into the low valley of wetlands and lakes, including Lake Hicpochee and Lake Flirt. Most of these lakes were drained by 20th Century construction of the Caloosahatchee Canal which permanently connected Lake Okeechobee to the Caloosahatchee River for flood control and navigation. Where development has not occurred, there are many swampy regions along streams. The significant number of drainage canals associated with development suggest that much of the land surface was historically poorly drained. Only the southwestern most part of the Caloosahatchee Valley Province that borders the Gulf of Mexico occurs in the northwesternmost part of the study area (Figure 9). Elevations of the province within the study area range from sea level at the Gulf of Mexico to 15 feet (4.6 meters) MSL.

Immokalee Rise Province

The Immokalee Rise Province is located within much of Hendry, north-central Collier, and eastern Lee counties. The province is a region of slightly higher elevation compared to its neighboring provinces. Accordingly, the drainage off the Immokalee Rise can be north to the Caloosahatchee River, west and south to the Gulf of Mexico, and east into the Everglades. It is relatively flat but has abundant closed topographic depressions. It has swampy drainage with more-or-less linear marshes and cypress sloughs that discharge to adjacent provinces. Landforms that were created by the marine inundations are indistinct, but present, on the land surface. Immokalee Rise occurs in the north-central to northeastern part of the study area (Figure 9). Elevations of the province within the study area range from 15 feet (4.6 meters) to 40 feet (12.2 meters) MSL.

Ten Thousand Islands Province

The Ten Thousand Islands Province extends from Keewaydin Island to Gordon Pass near Naples in Collier County, southeast along the mainland portion of Monroe County, and into the southwestern corner of Miami-Dade County. The northern Ten Thousand Islands Province consists of a chain of islands, embayments, and tidal channels that lie west and southwest of the Big Cypress and Everglades provinces onto the Florida mainland. The province is an important estuarine ecosystem. The Ten Thousand Islands Province consists of low, coastal, mangrove islands and adjacent bays offshore of southwestern peninsular Florida. The bays are characterized by oyster banks, many of which are populated by mangroves. The oyster banks give the islands irregular outlines and often connect the islands by shallow, tombolo-like bars. Surficial sediments on the islands in the province include mangrove peat with varying amounts of siliciclastic and carbonate sediments. Islands and spits with well-developed beach ridges have shelly sand. The mangrove peat tends to develop on the sand and shell deposits underlie the peat and are exposed on the beach faces. Siliciclastic sediments (primarily quartz sand) predominate in the northwestern reaches of the province and within the study area. Siliciclastic sediments become less important and are replaced by carbonates towards the southeast. The Ten Thousand Islands Province occurs at the Gulf of Mexico coast in the southwestern part of the study area (Figure 9). Most elevations in the province within the study area range from sea level to five feet (1.5 meters) MSL but can be up to eight feet (2.4 meters) MSL.

LITHOSTRATIGRAPHIC UNITS

Tertiary System

Oligocene-Pliocene Series

Hawthorn Group

The lower Oligocene to lower Pliocene Hawthorn Group (Th) within the mapped area is composed of sediments from the Arcadia and Peace River formations. The Peace River Formation unconformably overlies the Arcadia Formation and is unconformably overlain by the Tertiary Tamiami Formation, throughout the mapped area (OFMS 117, Plate 2). The top of the Hawthorn Group ranges from approximately 20 feet (6.1 meters) below MSL in W-17941, to 275 feet (83.8 meters) below MSL in W-8979 (Appendix A). Only a few boreholes in this study were investigated to the base of the Hawthorn Group, therefore we did not calculate the total thickness of the unit. Scott (1988) indicated that the thickness of the Hawthorn Group in this area ranges from approximately 600 feet (182.9 meters) to 700 feet (213.4 meters).

The Hawthorn Group forms part of the intermediate aquifer system/intermediate confining unit (IAS/ICU) in the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Arcadia Formation

The upper Oligocene to middle Miocene (Covington, 1993; Brewster-Wingard et al., 1997) Arcadia Formation (Tha) is a poorly to moderately indurated, yellowish gray to white carbonate with variable amounts of quartz sand and phosphate, interbedded with siliciclastic-dominant sediments. Phosphate content can be highly variable, ranging up to 25 percent, but is more commonly in the 10 percent range (Scott, 1988). Although limestone is present, dolostone is most common, ranging in grain size from microcrystalline to medium, with the coarser material often having a sucrosic texture. Minor clay and chert beds (some composed of silicified clay) also occur (Scott, 1988). Porosity types include intergranular and moldic.

According to Scott (1988), the Arcadia Formation ranges from approximately 150 feet (45.7 meters) below MSL in the northwestern part of the quadrangle to approximately 400 feet (121.9 meters) below MSL in the eastern portion of the quadrangle. The unit ranges from approximately 400 feet (121.9 meters) thick to approximately 550 feet (167.6 meters) thick in the Naples quadrangle. The Arcadia Formation forms part of the intermediate aquifer system/intermediate confining unit (IAS/ICU) in the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Peace River Formation

The middle Miocene to lower Pliocene (Scott, 1988; Covington, 1993) Peace River Formation (Thp) is comprised of unconsolidated to poorly indurated yellowish gray to olive-gray, interbedded quartz sands, clays, and carbonates. Siliciclastics are the predominant component of the unit (Scott, 1988). Phosphatic sand and gravel are most common in the uppermost beds, although they are generally interspersed throughout the unit. The Peace River Formation contains a diverse fossil assemblage of marine and terrestrial fauna. Porosity types in the formation are generally intergranular.

In the mapped area, the upper Peace River Formation is primarily composed of siliciclastic sediments, while the lower portion of the unit is more carbonate rich (Cunningham et al., 2001). The sediments assigned herein to the upper part of the Peace River Formation are uncharacteristically coarse for the unit as was defined by Scott (1988). This is particularly noticeable in the eastern portion of the quadrangle. These sediments may contain quartz gravel, discoid quartz pebbles, and coarse quartz sand. They may also contain feldspars, rock clasts, and mica (Missimer and Maliva, 2017). Guertin et al. (1995) suggested that these sediments were deposited during a sea-level lowstand. Proposed mechanisms for deposition of these sediments include longshore marine transport (Alt, 1974; Winker and Howard, 1977; and Kane, 1984), or transport within a fluvial system (Bishop, 1956, Klein et al., 1964, Peacock, 1983) and redistribution within a nearshore marine environment (Peck et al., 1979, Ginsburg et al., 1989, Missimer and Maliva, 2006). Missimer and Maliva (2017) provide more discussion on the character of these sediments.

While these sediments are placed in the Peace River Formation in this study area, there is a possibility that they are younger than the typical Peace River Formation and that they may belong to the distal (northern) end of the Long Key Formation. Further work, which is beyond the scope of this study, would be needed to answer this question and clearly define the upper and lower boundaries, ages, and stratigraphic relationships of the Peace River and Long Key formations. High-resolution reflection profiles collected along the Caloosahatchee River (Cunningham et al., 2001) and in the Florida Keys (Warzeski et al., 1996) show the stratigraphic framework in the upper Peace River Formation and channels in the southern peninsula of Florida, where these sediments appear to have been discharged onto the Portales Terrace (Long Key Formation).

The percentage of carbonate beds is higher near the base of the unit, and the contact is marked in some areas by the presence of a phosphate rubble zone and/or a dolomitized hardground. In areas where the carbonate component of the Peace River Formation is high, or the siliciclastic component of the Arcadia Formation is high, identifying the contact between these formations can be difficult. In such cases, the contact of the Peace River Formation with the Arcadia Formation is placed where the overall lithologic sequence becomes more carbonate-dominant (Scott, 1988).

The Peace River Formation ranges from approximately 20 feet (6.1 meters) below MSL in W-17941, to 275 feet (83.8 meters) below MSL in W-8979 (Appendix A). Thicknesses range from approximately 70 feet (21.3 meters) in W-19221, to 345 feet (105.2 meters) in W-9413 (Appendix A).

The Peace River Formation sediments comprise a low-permeability confining- to semi-confining facies within the IAS/ICU within the study area (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Tertiary/Quaternary Systems

Pliocene Series

Tamiami Formation

The “Tamiami limestone” was named by Mansfield (1939) for a series of sandy limestone outcrops that were exposed during the digging of shallow ditches to form the roadbed of the Tamiami Trail (U.S. 41) in Collier and Monroe counties. The unit was formally renamed, revised, redescribed, and redefined as the Tamiami Formation by Parker and Cooke (1944). Since then, additional work on the Tamiami Formation has been done (Hunter and Wise, 1980; Meeder, 1987; Missimer, 1984; Missimer, 1992).

The Pliocene Tamiami Formation consists of a complex mixture of limestone, fossil shell beds, quartz sand, and clay (Missimer, 1992). The top of the Tamiami Formation can be lithologically variable, ranging from limestone, sandstone, quartz sand, marl, shell, or clay (Missimer, 1992). Colors of different facies can range from white to gray to buff depending on lithology and sand, shell, and carbonate content.

The Tamiami Formation is composed of numerous localized facies in the mapped area and some informal subdivisions have been proposed including the Pinecrest sand, Ochopee limestone and the Buckingham limestone members. Many of these informal units and facies are thin (in some cases less than

5 feet [1.5 meters] thick) and lithologically variable across short distances. Because of this, they are difficult to delineate on geological maps, especially when using cuttings. Therefore, this report, accompanying maps, and cross-sections (OFMS 117, Plates 1 and 2), simply depict the Tamiami Formation. The reader is referred to Missimer (1992) for more discussion of the lithology and stratigraphic relationship of these complex units and informal units.

The Tamiami Formation unconformably overlies the Peace River Formation (Hawthorn Group) throughout the mapped area. The base of the Tamiami Formation in most of the mapped area occurs at the top of the first major green dolosilt/sand unit, which is the top of the Peace River Formation (Missimer, 1992). In southern Lee County, there is a green dolosilt unit within the Tamiami Formation, and in this area the top of the Peace River Formation occurs in a gray quartz sand unit (Missimer, 1992). The Tamiami Formation occurs at or near the land surface in parts of the mapped area (OFMS 117, Plates 1 and 2). In places where it is not exposed, it is overlain by Tertiary/Quaternary undifferentiated shelly sediments (TQsu) or undifferentiated Quaternary sediments (Qu). There were some instances noted in the field where Tertiary/Quaternary undifferentiated shelly sediments (TQsu) were present in limited outcrops, but they were too small to map at this scale.

The top of the Tamiami Formation ranges from approximately 10 Feet (3.1 meters) above MSL in W-8961, to 50 feet (15.2 meters) below MSL in W-15997. The thickness of the Tamiami Formation in the mapped area varies from approximately 20 feet (6.1 meters) in W-3879 to 250 feet (76.2 meters) in W-16884 (Appendix A).

Pliocene/Pleistocene Series

Tertiary/Quaternary undifferentiated shelly sediments

The Tertiary/Quaternary undifferentiated shelly sediments (TQsu) disconformably overlie the Tamiami Formation throughout the map area. There are problems in mapping these sediments as separate units because their historical definitions are biostratigraphic, not lithostratigraphic (Scott and Allmon, 1990; Scott and Wingard, 1995). Scott (1993b) informally applied the name Okeechobee formation to these sediments in an effort to provide a lithostratigraphic framework for them. Since the Okeechobee formation was never formalized, and because to do so is beyond the scope of this project, we are following the convention of Scott et al. (2001) and referring to this unit as Tertiary/Quaternary undifferentiated shelly sediments (TQsu).

The Tertiary/Quaternary undifferentiated shelly sediments may include Pleistocene Caloosahatchee, Bermont, and Fort Thompson faunas (Scott, 1993b) and the Pliocene “Pinecrest beds” of Olson (1964). The lithologies of these biostratigraphic units are generally indistinguishable from one another without the aid of index taxa. Although some of these biostratigraphic units, contain some of the most macrofossiliferous sediments in the Atlantic Coastal Plain, their usage as lithostratigraphic units does not follow the North American Code of Stratigraphic Nomenclature.

Tertiary/Quaternary undifferentiated shelly sediments typically consist of fine-to-medium quartz sand and marine mollusk shell beds with variable amounts of micrite, silt, clay, and calcite cement. The unit occasionally contains lenses and thin beds of fresh-water mollusks. Colors range from light gray to light-olive gray to light orange and white. Fossil mollusk shells, which may vary from whole to fragments, are often highly weathered and abraded and regularly become the dominant lithology. Porosity is generally intergranular and moldic. Other accessory minerals may include calcite, aragonite, mica, heavy minerals, pyrite, and minor phosphate sand and gravel. In the study area, the TQsu sediments occur in the form of both unconsolidated sand with varying percentages of shell fragments and calcite-cemented sand and shell fragments, with occasional lithified carbonate beds.

The TQsu sediments are overlain by undifferentiated Quaternary sediments in parts of the mapped area (OFMS 117, Plate 2). The Tertiary/Quaternary undifferentiated shelly sediments are exposed in several quarries within the study area. Where present, the TQsu sediments disconformably overlie the Tamiami Formation throughout the Naples quadrangle.

The Tertiary/Quaternary undifferentiated shelly sediments present in the study area are generally less than 10 feet (3.1 meters) above MSL, with most of the unit being above five feet (1.5 meters) above MSL (OFMS 117, Plate 2, cross-sections). The elevation of the TQsu is highest in the eastern portion of the mapped area and lowest along the Gulf Coast (OFMS 117, Plate 2). The top of the Tertiary/Quaternary undifferentiated shelly sediments ranges from approximately 10 Feet (3.1 meters) above MSL in W-13721, to 35 feet (10.7 meters) below MSL in W-9978. The thickness of the TQsu sediments range from less than a foot (0.3 meters) in field areas where the Tamiami Formation crops out, to approximately 60 feet (18.3 meters) in W-17864 (Appendix A). Permeable strata within the Tertiary/Quaternary undifferentiated shelly sediments form part of the surficial aquifer system (SAS; Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Pleistocene/Holocene Series

Quaternary undifferentiated sediments

Quaternary undifferentiated sediments (Qu) include siliciclastic sediments, organics, and freshwater carbonates. While not a formally recognized lithostratigraphic unit, following the convention of Scott et al. (2001), the Quaternary undifferentiated sediments are mapped as a discrete unit where these sediments exceed 20 feet thick above recognized lithostratigraphic units. The Quaternary undifferentiated sediments in the mapped area may be highly variable in thickness. Quaternary undifferentiated sediments in the study area lie unconformably on Tertiary/Quaternary undifferentiated shelly sediments (OFMS 117, Plate 2).

Quaternary undifferentiated sediments generally consist of white-to-gray to orange-to-brown, fine- to coarse-grained, clean-to-clayey (usually) unfossiliferous quartz sand, sandy clays and clays, with variable admixtures of organics. Minor shell fragments and marls are sometimes present in Quaternary undifferentiated sediments near the coast. The Quaternary undifferentiated sediments form part of the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

Holocene sediments

Sediments mapped as Holocene (Qh) may include quartz sands, marls, organics, and minor carbonate sands and mud. They occur along the western portion of the mapped area and are associated with mangroves and marshes along the coast and in some coastal lowlands (OFMS 117; Plate 1). These sediments are considered part of the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986).

HYDROGEOLOGY

Hydrostratigraphic units within the map area, in ascending order, consist of the FAS, the IAS/ICU, and the SAS (Southeastern Geological Society Ad Hoc Committee on Florida Hydrostratigraphic Unit Definition, 1986). A correlation chart of the hydrostratigraphic units, and their relationship to lithostratigraphic units, can be seen on OFMS 117, Plate 2, Figure 2. The sands, silts, clays, and carbonates of the Hawthorn Group comprise the IAS/ICU. The SAS is comprised of Holocene sediments, Quaternary undifferentiated sediments, Tertiary/Quaternary undifferentiated shelly sediments, and Tamiami Formation.

DERIVATIVE PRODUCTS

Several derivative products were developed in the process of completing this project. During the mapping efforts, data from over 600 boreholes were analyzed and used (Appendices A and B). Formation picks made on these cores and cutting samples will allow creation of structure contour and isopach maps for the top of several units in the area, as well as future 3-D models. Additional derivative products anticipated to come from this mapping effort include aquifer vulnerability assessment maps, karst susceptibility and risk maps, and aquifer and confining unit maps. Data derived from prior STATEMAP products have often been used to augment other Florida Geological Survey and Florida Aquifer Vulnerability Assessment (FAVA) projects in the state (Arthur et al., 2007; Baker et al., 2007; Kromhout et al., 2017). These geologic maps will also be compiled and published as part of the Statewide Surficial Geologic Map in the next decade.

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ACKNOWLEDGEMENTS

The authors would like to extend thanks to the personnel that assisted with permitting and land access for drill sites. Big Cypress National Preserve staff devoted time assisting with permitting, site selection and access at Big Cypress National Preserve. Dinner Island Wildlife Management Area staff devoted time assisting with permitting, site selection, and access at Dinner Island Wildlife Management Area. Bonnie Ciolino with the South Florida Collections Management Center aided in reporting and finalization of the National Park Service field research permitting process. Donald Moore with the Florida Fish and Wildlife Conservation Commission assisted with permitting on state lands and provided information on best practices and inter-agency coordination. South Florida Water Management District staff assisted with the permitting process. Jennifer Tobias and Vincent Birdsong with the Florida Department of State Division of Historical Resources assisted in permitting and coordination with the State of Florida's archaeological spatial data.

The authors would like to extend a special thanks to Dr. Thomas M. Missimer for access to his consulting report data. Dr. Missimer gave the authors over 1,000 geological consultant reports from Charlotte, Collier, Collier, and Hendry counties which his various companies have produced over the last 50 years or so. These reports and the data within them were very helpful in refining the geological maps for the area. Austin Bezdek, Sam Bookhardt, and Brittany Duffey helped extensively with extracting geological data from these reports.

Brandon Reese, Jesse Hurd and Nicholas Bloodworth operated the drill rig, and David Paul coordinated drill rig operations. Fieldwork was performed by Sam Bookhardt, Ben Davis, Brittany Duffey, Preston Earley, Rick Green, Nickolaus Hall, Sean Jones, Clint Kromhout, and Erick McMahan. Alan Baker, Clint Kromhout, and David Paul reviewed, discussed, and edited the product. Katherine Etheridge, Archivist at the Florida Geological Survey, devoted considerable time compiling literature pertinent to the project. Amanda Kubes assisted with LiDAR and DEM data, as well as borehole verification.

This geologic map was funded in part by the Florida Geological Survey (a Division of the Florida Department of Environmental Protection) and by the United States Geological Survey National Cooperative Geologic Mapping Program under assistance award numbers G22AC00572 and G23AC00523.

APPENDIX A: FLORIDA GEOLOGICAL SURVEY BOREHOLES UTILIZED FOR STUDY

This table lists FGS boreholes within the boundaries of the USGS Naples 30 x 60 minute quadrangle utilized for the project. Due to graphical constraints, not all boreholes will appear on Plate 1 of OFMS 116. The first 40 boreholes in the table were utilized for geologic cross-sections and appear on Plates 1 and 2 of OFMS 116.

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
1	W-5359	FGS	Cuttings	26.155556	-81.266111	MILES CITY	4	700
2	W-8909	FGS	Cuttings	26.255278	-81.370556	SUNNILAND	5	950
3	W-8916	FGS	Cuttings	26.063611	-81.348611	DEEP LAKE	3	1220
4	W-8925	FGS	Cuttings	26.0725	-81.728333	BELLE MEADE	2	1380
5	W-8947	FGS	Cuttings	26.35	-81.372222	SUNNILAND	6	1100
6	W-8964	FGS	Cuttings	26.435833	-81.485833	IMMOKALEE	6	960
7	W-8979	FGS	Cuttings	26.259722	-81.525	CORKSCREW SE	5	1411
8	W-8980	FGS	Cuttings	26.258056	-81.423611	IMMOKALEE SW	4	1420
9	W-8987	FGS	Cuttings	26.314167	-81.354722	SUNNILAND	6	992
10	W-9321	FGS	Cuttings	26.426944	-81.566111	CORKSCREW	5	1030
11	W-9323	FGS	Cuttings	26.425	-81.655278	CORKSCREW NW	6	1200
12	W-9409	FGS	Cuttings	26.127778	-81.674444	BELLE MEADE NW	5	750
13	W-9411	FGS	Cuttings	26.088333	-81.628611	BELLE MEADE	2	1530
14	W-9413	FGS	Cuttings	26.019722	-81.253889	DEEP LAKE	3	1680
15	W-9416	FGS	Cuttings	26.429722	-81.377222	IMMOKALEE	8	1330
16	W-9591	FGS	Cuttings	26.424722	-81.202778	CROWS NEST HAMMOCK	7	340
17	W-9632	FGS	Cuttings	26.257778	-81.2325	DOCTORS HAMMOCK	5	430
18	W-9639	FGS	Cuttings	26.425833	-81.103889	ROCKY LAKE STRAND	7	390
19	W-9648	FGS	Cuttings	26.369444	-81.039722	COW BONE ISLAND	6	430
20	W-9705	FGS	Cuttings	26.091111	-81.558611	BELLE MEADE SE	2	340
21	W-9710	FGS	Cuttings	26.043056	-81.63	BELLE MEADE	3	300
22	W-9756	FGS	Cuttings	26.366667	-81.666597	CORKSCREW SW	5	340
23	W-9757	FGS	Cuttings	26.324639	-81.665768	CORKSCREW SW	6	390
24	W-9784	FGS	Cuttings	26.424444	-81.695833	CORKSCREW NW	5	400
25	W-9849	FGS	Cuttings	26.258333	-81.119722	COW BONE ISLAND	5	1230
26	W-9978	FGS	Cuttings	26.420556	-81.031667	ROCKY LAKE STRAND	7	1050
27	W-9999	FGS	Cuttings	26.034522	-81.01534	THOMPSON PINE ISLAND	3	1249
28	W-10024	FGS	Cuttings	26.187778	-81.028333	WHIDDEN LAKE	4	1130
29	W-10031	FGS	Cuttings	26.115278	-81.033611	THOMPSON PINE ISLAND	3	1110
30	W-10036	FGS	Cuttings	26.252778	-81.045	COW BONE ISLAND	5	1030
31	W-10039	FGS	Cuttings	26.064167	-81.023611	THOMPSON PINE ISLAND	4	1170
32	W-10050	FGS	Cuttings	26.475833	-81.656111	CORKSCREW NW	8	1070
33	W-10176	FGS	Cuttings	26.256389	-81.305	SUNNILAND	4	1110
34	W-10223	FGS	Cuttings	26.098611	-81.479167	DEEP LAKE SW	3	1370
35	W-13975	FGS	Cuttings	26.0775	-81.168889	AIRPLANE PRAIRIE	4	11900
36	W-16434	FGS	Continuous Core	26.424722	-81.3075	IMMOKALEE NE	8	715
37	W-18408	FGS	Cuttings	26.243889	-81.678611	BELLE MEADE NW	4	1200
38	W-18511	FGS	Continuous Core	26.060556	-81.263611	DEEP LAKE	3	365
39	W-19225	FGS	Cuttings	26.262332	-81.787342	BONITA SPRINGS	4	3250
40	W-20187	FGS	Continuous Core	26.180167	-81.256806	MILES CITY	4	398
41	W-3041	FGS	Cuttings	26.153333	-81.791944	NAPLES NORTH	1	78
42	W-3043	FGS	Cuttings	26.421111	-81.281944	IMMOKALEE NE	8	54
43	W-3045	FGS	Cuttings	26.167564	-81.799408	NAPLES NORTH	3	157
44	W-3122	FGS	Cuttings	26.132672	-81.794968	NAPLES NORTH	1	68
45	W-3804	FGS	Cuttings	26.407778	-81.421111	IMMOKALEE	8	278
46	W-3858	FGS	Cuttings	26.425556	-81.408889	IMMOKALEE	10	292
47	W-3879	FGS	Cuttings	26.460278	-81.438611	IMMOKALEE	11	184

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
48	W-4235	FGS	Cuttings	26.4075	-81.413611	IMMOKALEE	9	167
49	W-4236	FGS	Cuttings	26.1725	-81.349722	MILES CITY	4	170
50	W-7008	FGS	Cuttings	26.290278	-81.361389	SUNNILAND	5	11650
51	W-8905	FGS	Cuttings	26.2925	-81.321944	SUNNILAND	5	1170
52	W-8917	FGS	Cuttings	26.151111	-81.349167	MILES CITY	4	1360
53	W-8923	FGS	Cuttings	26.046389	-81.673611	BELLE MEADE	2	1440
54	W-8933	FGS	Cuttings	26.389722	-81.408889	IMMOKALEE	7	1030
55	W-8939	FGS	Cuttings	26.348611	-81.51	CORKSCREW SE	7	1070
56	W-8941	FGS	Cuttings	26.363333	-81.453056	IMMOKALEE SW	6	1021
57	W-8943	FGS	Cuttings	26.306111	-81.403889	IMMOKALEE SW	6	968
58	W-8946	FGS	Cuttings	26.291111	-81.42	IMMOKALEE SW	5	1058
59	W-8953	FGS	Cuttings	26.391667	-81.540278	CORKSCREW	6	900
60	W-8954	FGS	Cuttings	26.347778	-81.575278	CORKSCREW SE	6	880
61	W-8957	FGS	Cuttings	26.361389	-81.6075	CORKSCREW SE	5	860
62	W-8961	FGS	Cuttings	26.495	-81.4625	IMMOKALEE	13	1200
63	W-8962	FGS	Cuttings	26.465556	-81.494167	IMMOKALEE	9	1070
64	W-8963	FGS	Cuttings	26.333889	-81.526111	CORKSCREW SE	7	910
65	W-8967	FGS	Cuttings	26.334167	-81.558889	CORKSCREW SE	6	980
66	W-8968	FGS	Cuttings	26.296667	-81.525833	CORKSCREW SE	4	1020
67	W-8969	FGS	Cuttings	26.319444	-81.501111	CORKSCREW SE	6	900
68	W-8975	FGS	Cuttings	26.315556	-81.521667	CORKSCREW SE	7	1370
69	W-8976	FGS	Cuttings	26.261944	-81.395278	IMMOKALEE SW	5	950
70	W-8977	FGS	Cuttings	26.326111	-81.501667	CORKSCREW SE	6	1411
71	W-8985	FGS	Cuttings	26.26	-81.500556	CORKSCREW SE	4	1230
72	W-8986	FGS	Cuttings	26.358889	-81.538611	CORKSCREW SE	5	1360
73	W-8988	FGS	Cuttings	26.305278	-81.3425	SUNNILAND	4	1330
74	W-8992	FGS	Cuttings	26.2675	-81.5375	CORKSCREW SE	5	1630
75	W-8993	FGS	Cuttings	26.024444	-81.558889	BELLE MEADE SE	1	1500
76	W-8998	FGS	Cuttings	26.476389	-81.559167	CORKSCREW	8	1350
77	W-9316	FGS	Cuttings	26.498333	-81.898889	FORT MYERS BEACH	1	1520
78	W-9317	FGS	Cuttings	26.453056	-81.831667	ESTERO	3	1317
79	W-9319	FGS	Cuttings	26.4975	-81.971944	FORT MYERS BEACH	2	1580
80	W-9322	FGS	Cuttings	26.447222	-81.607222	CORKSCREW	8	1260
81	W-9324	FGS	Cuttings	26.385278	-81.673333	CORKSCREW NW	5	1540
82	W-9356	FGS	Cuttings	26.454167	-81.686944	CORKSCREW NW	6	1330
83	W-9377	FGS	Cuttings	26.478056	-81.28	IMMOKALEE NE	8	890
84	W-9393	FGS	Cuttings	26.425556	-81.087778	ROCKY LAKE STRAND	7	1260
85	W-9395	FGS	Cuttings	26.431944	-81.179167	CROWS NEST HAMMOCK	7	1208
86	W-9419	FGS	Cuttings	26.203611	-81.179722	LITTLE MARSH	4	1620
87	W-9420	FGS	Cuttings	26.360833	-81.185833	DOCTORS HAMMOCK	7	1560
88	W-9421	FGS	Cuttings	26.4525	-81.341111	IMMOKALEE NE	8	1300
89	W-9593	FGS	Cuttings	26.373056	-81.266944	SUNNILAND	7	380
90	W-9595	FGS	Cuttings	26.401944	-81.259167	IMMOKALEE NE	7	370
91	W-9606	FGS	Cuttings	26.459722	-81.300278	IMMOKALEE NE	8	390
92	W-9608	FGS	Cuttings	26.373611	-81.234444	DOCTORS HAMMOCK	7	370
93	W-9610	FGS	Cuttings	26.404444	-81.103333	ROCKY LAKE STRAND	6	370
94	W-9612	FGS	Cuttings	26.346389	-81.145	DOCTORS HAMMOCK	6	400
95	W-9613	FGS	Cuttings	26.378889	-81.169722	CROWS NEST HAMMOCK	7	340
96	W-9614	FGS	Cuttings	26.344444	-81.242222	DOCTORS HAMMOCK	7	410
97	W-9619	FGS	Cuttings	26.424167	-81.235	CROWS NEST HAMMOCK	8	360
98	W-9623	FGS	Cuttings	26.489722	-81.243889	CROWS NEST HAMMOCK	8	390
99	W-9625	FGS	Cuttings	26.430556	-81.308333	IMMOKALEE NE	8	420
100	W-9638	FGS	Cuttings	26.243333	-81.208333	LITTLE MARSH	5	390
101	W-9640	FGS	Cuttings	26.236389	-81.183889	LITTLE MARSH	4	400
102	W-9643	FGS	Cuttings	26.425278	-81.136389	CROWS NEST HAMMOCK	7	410
103	W-9645	FGS	Cuttings	26.330833	-81.209722	DOCTORS HAMMOCK	7	400
104	W-9649	FGS	Cuttings	26.428611	-81.0075	ROCKY LAKE STRAND	7	410
105	W-9652	FGS	Cuttings	26.405556	-81.047778	ROCKY LAKE STRAND	7	410
106	W-9655	FGS	Cuttings	26.406389	-81.015556	ROCKY LAKE STRAND	6	430

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
107	W-9658	FGS	Cuttings	26.455278	-81.080278	ROCKY LAKE STRAND	7	400
108	W-9659	FGS	Cuttings	26.483333	-81.005136	ROCKY LAKE STRAND	7	360
109	W-9660	FGS	Cuttings	26.485778	-81.08125	ROCKY LAKE STRAND	7	410
110	W-9661	FGS	Cuttings	26.492222	-81.146667	CROWS NEST HAMMOCK	8	380
111	W-9685	FGS	Cuttings	26.069722	-81.658611	BELLE MEADE	2	260
112	W-9688	FGS	Cuttings	26.001667	-81.650278	BELLE MEADE	0	110
113	W-9690	FGS	Cuttings	26.091667	-81.658611	BELLE MEADE	2	260
114	W-9697	FGS	Cuttings	26.0775	-81.591667	BELLE MEADE SE	2	160
115	W-9725	FGS	Cuttings	26.116417	-81.449856	DEEP LAKE SW	3	410
116	W-9726	FGS	Cuttings	26.143056	-81.405556	CATHERINE ISLAND	3	510
117	W-9727	FGS	Cuttings	26.056111	-81.3725	DEEP LAKE	3	360
118	W-9730	FGS	Cuttings	26.193889	-81.715278	BELLE MEADE NW	3	270
119	W-9748	FGS	Cuttings	26.262387	-81.741422	CORKSCREW SW	2	240
120	W-9749	FGS	Cuttings	26.313056	-81.75	CORKSCREW SW	5	260
121	W-9750	FGS	Cuttings	26.291389	-81.725556	CORKSCREW SW	4	290
122	W-9753	FGS	Cuttings	26.290833	-81.765833	BONITA SPRINGS	4	270
123	W-9777	FGS	Cuttings	26.425556	-81.598889	CORKSCREW	6	280
124	W-9800	FGS	Cuttings	26.498611	-81.8675	ESTERO	2	220
125	W-9893	FGS	Cuttings	26.108056	-81.0575	THOMPSON PINE ISLAND	3	1140
126	W-9895	FGS	Cuttings	26.136944	-81.066667	WHIDDEN LAKE	4	1129
127	W-9905	FGS	Cuttings	26.174722	-81.128333	LITTLE MARSH	4	1280
128	W-9911	FGS	Cuttings	26.479353	-81.199697	CROWS NEST HAMMOCK	9	1053
129	W-9972	FGS	Cuttings	26.408056	-81.1825	CROWS NEST HAMMOCK	7	1020
130	W-9975	FGS	Cuttings	26.228333	-81.2325	LITTLE MARSH	5	1354
131	W-10040	FGS	Cuttings	26.056944	-81.055556	THOMPSON PINE ISLAND	4	1197
132	W-10173	FGS	Cuttings	26.302778	-81.375556	IMMOKALEE SW	6	1560
133	W-10175	FGS	Cuttings	26.259722	-81.325278	SUNNILAND	4	1090
134	W-10188	FGS	Cuttings	26.216944	-81.228889	LITTLE MARSH	4	1120
135	W-10197	FGS	Cuttings	26.473611	-81.462222	IMMOKALEE	11	1100
136	W-10199	FGS	Cuttings	26.4875	-81.526667	CORKSCREW	6	1070
137	W-10202	FGS	Cuttings	26.018611	-81.412778	DEEP LAKE SW	2	1390
138	W-10207	FGS	Cuttings	26.483056	-81.036111	ROCKY LAKE STRAND	7	900
139	W-10220	FGS	Cuttings	26.15	-81.437778	CATHERINE ISLAND	3	1030
140	W-10222	FGS	Cuttings	26.054444	-81.461111	DEEP LAKE SW	2	1370
141	W-10224	FGS	Cuttings	26.392778	-81.461111	IMMOKALEE	7	1050
142	W-11574	FGS	Cuttings	26.485278	-81.829444	ESTERO	4	33
143	W-11865	FGS	Cuttings	26.232583	-81.769	NAPLES NORTH	3	50
144	W-11974	FGS	Cuttings	26.19	-81.536111	BELLE MEADE NE	3	114
145	W-11979	FGS	Cuttings	26.160833	-81.534167	BELLE MEADE NE	3	100
146	W-12689	FGS	Cuttings	26.185	-81.773333	NAPLES NORTH	2	50
147	W-13721	FGS	Cuttings	26.434722	-81.450278	IMMOKALEE	10	195
148	W-14003	FGS	Continuous Core	26.240833	-81.7125	BELLE MEADE NW	3	180
149	W-14015	FGS	Cuttings	26.195833	-81.286667	MILES CITY	4	11897
150	W-14071	FGS	Continuous Core	26.454167	-81.693889	CORKSCREW NW	6	100
151	W-14072	FGS	Continuous Core	26.465833	-81.706111	CORKSCREW NW	10	362
152	W-14227	FGS	Cuttings	26.136667	-81.753889	NAPLES NORTH	2	60
153	W-14534	FGS	Cuttings	26.153056	-81.691944	BELLE MEADE NW	4	540
154	W-14832	FGS	Cuttings	26.451111	-81.700833	CORKSCREW NW	5	146
155	W-14919	FGS	Cuttings	26.154811	-81.314522	MILES CITY	5	1220
156	W-15034	FGS	Cuttings	26.428611	-81.7	CORKSCREW NW	5	235
157	W-15130	FGS	Cuttings	26.236111	-81.225833	LITTLE MARSH	4	11803
158	W-15131	FGS	Cuttings	26.475	-81.365833	IMMOKALEE NE	9	11543
159	W-15274	FGS	Continuous Core	26.228333	-81.670833	BELLE MEADE NW	3	180
160	W-15275	FGS	Continuous Core	26.155	-81.759167	NAPLES NORTH	3	120

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
161	W-15287	FGS	Continuous Core	26.493611	-81.631111	CORKSCREW NW	8	382
162	W-15291	FGS	Cuttings	26.231667	-81.2875	MILES CITY	5	11725
163	W-15371	FGS	Cuttings	26.4525	-81.211944	CROWS NEST HAMMOCK	8	2290
164	W-15411	FGS	Cuttings	26.429444	-81.757222	ESTERO	5	98
165	W-15529	FGS	Cuttings	26.351389	-81.604167	CORKSCREW SE	5	335
166	W-15530	FGS	Cuttings	26.292778	-81.481667	IMMOKALEE SW	5	380
167	W-15531	FGS	Cuttings	26.369444	-81.477778	IMMOKALEE SW	6	520
168	W-15534	FGS	Cuttings	26.145	-81.636667	BELLE MEADE NW	3	240
169	W-15535	FGS	Cuttings	26.360768	-81.345115	SUNNILAND	6	460
170	W-15747	FGS	Cuttings	26.479722	-81.799444	ESTERO	5	45
171	W-15997	FGS	Cuttings	26.475278	-81.365833	IMMOKALEE NE	9	245
172	W-16032	FGS	Cuttings	26.371111	-81.191389	DOCTORS HAMMOCK	7	400
173	W-16146	FGS	Continuous Core	26.024444	-81.732778	BELLE MEADE	1	200
174	W-16184	FGS	Cuttings	26.335556	-81.371111	SUNNILAND	6	270
175	W-16194	FGS	Cuttings	26.458333	-81.392222	IMMOKALEE	9	300
176	W-16239	FGS	Cuttings	26.205833	-81.354444	MILES CITY	5	262
177	W-16505	FGS	Continuous Core	26.147778	-81.357778	MILES CITY	4	702
178	W-16523	FGS	Continuous Core	26.433056	-81.818611	ESTERO	4	822
179	W-16884	FGS	Cuttings	26.245472	-81.678472	BELLE MEADE NW	4	3380
180	W-16925	FGS	Cuttings	26.477778	-81.3625	IMMOKALEE NE	9	615
181	W-16927	FGS	Cuttings	26.24064	-81.309517	MILES CITY	4	2270
182	W-16929	FGS	Cuttings	26.36	-81.396389	IMMOKALEE SW	7	378
183	W-17047	FGS	Continuous Core	26.2325	-81.344167	MILES CITY	4	28
184	W-17048	FGS	Cuttings	26.219167	-81.281389	MILES CITY	4	16
185	W-17051	FGS	Continuous Core	26.185	-81.267222	MILES CITY	4	33
186	W-17389	FGS	Continuous Core	26.006944	-81.411389	DEEP LAKE SW	2	227
187	W-17403	FGS	Cuttings	26.226389	-81.488611	CATHERINE ISLAND	4	380
188	W-17406	FGS	Cuttings	26.475	-81.366944	IMMOKALEE NE	9	245
189	W-17454	FGS	Continuous Core	26.067778	-81.695278	BELLE MEADE	2	210
190	W-17653	FGS	Cuttings	26.005556	-81.621667	BELLE MEADE SE	0	73
191	W-17654	FGS	Cuttings	26.050556	-81.588611	BELLE MEADE SE	2	182
192	W-17746	FGS	Continuous Core	26.183142	-81.247575	LITTLE MARSH	5	201
193	W-17748	FGS	Continuous Core	26.238417	-81.073131	WHIDDEN LAKE	5	201
194	W-17750	FGS	Continuous Core	26.251389	-81.172778	DOCTORS HAMMOCK	5	179
195	W-17782	FGS	Continuous Core	26.301667	-81.221111	DOCTORS HAMMOCK	6	151
196	W-17785	FGS	Continuous Core	26.3075	-81.261944	SUNNILAND	6	181
197	W-17864	FGS	Cuttings	26.4425	-81.244444	CROWS NEST HAMMOCK	8	225
198	W-17867	FGS	Cuttings	26.172222	-81.068889	WHIDDEN LAKE	4	200
199	W-17941	FGS	Cuttings	26.389166	-81.773613	ESTERO	5	718
200	W-18079	FGS	Continuous Core	26.423333	-81.721944	CORKSCREW NW	5	19
201	W-18291	FGS	Continuous Core	26.276111	-81.753611	BONITA SPRINGS	4	300
202	W-18589	FGS	Cuttings	26.442228	-81.764632	ESTERO	4	1570
203	W-18760	FGS	Cuttings	26.119522	-81.686569	BELLE MEADE	3	442
204	W-18829	FGS	Cuttings	26.471269	-81.793268	ESTERO	6	3015
205	W-19221	FGS	Cuttings	26.262347	-81.786971	BONITA SPRINGS	4	1260
206	W-19559	FGS	Cuttings	26.371181	-81.541811	CORKSCREW SE	6	1600

Map ID	Well Label	Data Source	Sample Type	Latitude	Longitude	24k Quad	Elevation (ft.)	Total Depth (ft.)
207	W-20109	FGS	Continuous Core	26.468831	-81.189231	CROWS NEST HAMMOCK	9	24
208	W-20110	FGS	Continuous Core	26.486775	-81.211667	CROWS NEST HAMMOCK	9	28
209	W-20130	FGS	Continuous Core	26.488417	-81.14775	CROWS NEST HAMMOCK	8	23

APPENDIX B: CONSULTANT BOREHOLES UTILIZED FOR STUDY

This table lists data from reports provided by Dr. Thomas M. Missimer within the boundaries of the USGS Naples 30 x 60 minute quadrangle utilized for the project. Due to graphical constraints, not all boreholes will appear on Plate 1 of OFMS 116.

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
CO-00011	09-77	Tom Missimer	26.130792	-81.754382	NAPLES NORTH	2	110
CO-00027	09-77	Tom Missimer	26.137476	-81.765149	NAPLES NORTH	3	90
CO-00028	09-77	Tom Missimer	26.137436	-81.756863	NAPLES NORTH	2	90
CO-00029	09-77	Tom Missimer	26.137635	-81.752255	NAPLES NORTH	2	90
CO-00030	09-77	Tom Missimer	26.125939	-81.75992	NAPLES NORTH	2	85
CO-00033	340-87	Tom Missimer	26.136163	-81.759211	NAPLES NORTH	2	240
CO-00035	09-77	Tom Missimer	26.136083	-81.760098	NAPLES NORTH	2	67
CO-00092	406-88	Tom Missimer	26.225066	-81.761063	NAPLES NORTH	2	80
CO-00094	406-88	Tom Missimer	26.273684	-81.730036	CORKSCREW SW	5	105
CO-00098	200-83	Tom Missimer	26.288579	-81.721904	CORKSCREW SW	5	95
CO-00110	431-88	Tom Missimer	26.302112	-81.737274	CORKSCREW SW	4	80
CO-00151	50-80	Tom Missimer	26.064066	-81.704406	BELLE MEADE	1	105
CO-00152	50-80	Tom Missimer	26.051213	-81.706611	BELLE MEADE	1	141
CO-00153	50-80	Tom Missimer	26.061379	-81.705285	BELLE MEADE	2	75
CO-00154	50-80	Tom Missimer	26.061762	-81.711068	BELLE MEADE	1	74
CO-00155	50-80	Tom Missimer	26.061941	-81.707425	BELLE MEADE	2	75
CO-00156	50-80	Tom Missimer	26.058905	-81.700395	BELLE MEADE	2	70
CO-00157	50-80	Tom Missimer	26.055406	-81.701397	BELLE MEADE	1	70
CO-00201	50-80	Tom Missimer	26.064576	-81.693476	BELLE MEADE	2	145
CO-00220	319-87	Tom Missimer	26.28787	-81.729923	CORKSCREW SW	5	65
CO-00221	319-87	Tom Missimer	26.288378	-81.731308	CORKSCREW SW	5	260
CO-00242	406-88	Tom Missimer	26.232139	-81.807122	NAPLES NORTH	3	70
CO-00296	406-88	Tom Missimer	26.293982	-81.726011	CORKSCREW SW	4	105
CO-00448	52-80	Tom Missimer	26.298256	-81.439971	IMMOKALEE SW	6	144
CO-00449	185-83	Tom Missimer	26.298869	-81.435862	IMMOKALEE SW	6	75
CO-00450	185-83	Tom Missimer	26.304089	-81.44459	IMMOKALEE SW	7	76
CO-00468	185-83	Tom Missimer	26.304684	-81.44304	IMMOKALEE SW	6	75
CO-00485	340-87	Tom Missimer	26.140969	-81.74832	BELLE MEADE NW	1	15
CO-00486	340-87	Tom Missimer	26.146403	-81.748981	BELLE MEADE NW	1	14
CO-00487	52-80	Tom Missimer	26.151746	-81.744129	BELLE MEADE NW	1	14
CO-00488	340-87	Tom Missimer	26.146714	-81.743623	BELLE MEADE NW	3	144
CO-00489	1462-91	Tom Missimer	26.235401	-81.770255	NAPLES NORTH	2	62
CO-00503	99-81	Tom Missimer	26.31949	-81.821838	BONITA SPRINGS	3	30
CO-00505	99-81	Tom Missimer	26.313221	-81.82613	BONITA SPRINGS	4	25
CO-00506	99-81	Tom Missimer	26.322422	-81.827358	BONITA SPRINGS	1	28
CO-00507	99-81	Tom Missimer	26.30873	-81.821857	BONITA SPRINGS	3	28
CO-00523	97-82	Tom Missimer	26.319259	-81.822067	BONITA SPRINGS	3	104
CO-00524	97-82	Tom Missimer	26.312943	-81.819787	BONITA SPRINGS	3	84
CO-00525	97-82	Tom Missimer	26.305752	-81.823511	BONITA SPRINGS	3	63
CO-00526	237-84	Tom Missimer	26.319927	-81.821292	BONITA SPRINGS	4	80
CO-00544	119-82	Tom Missimer	26.062848	-81.705892	BELLE MEADE	0	45
CO-00545	119-82	Tom Missimer	26.05832	-81.701177	BELLE MEADE	1	45
CO-00546	1438-92	Tom Missimer	26.305989	-81.805201	BONITA SPRINGS	4	75
CO-00547	200-83	Tom Missimer	26.278657	-81.703508	CORKSCREW SW	4	75
CO-00549	67-82	Tom Missimer	26.274053	-81.659129	CORKSCREW SW	5	140
CO-00554	67-82	Tom Missimer	26.316416	-81.682974	CORKSCREW SW	4	80
CO-00557	1462-91	Tom Missimer	26.225578	-81.785073	NAPLES NORTH	3	59
CO-00573	340-87	Tom Missimer	26.155117	-81.723004	BELLE MEADE NW	3	170
CO-00574	340-87	Tom Missimer	26.154569	-81.710326	BELLE MEADE NW	4	80
CO-00575	340-87	Tom Missimer	26.167089	-81.714976	BELLE MEADE NW	3	80
CO-00576	406-88	Tom Missimer	26.150413	-81.72705	BELLE MEADE NW	3	74
CO-00577	340-87	Tom Missimer	26.157893	-81.734539	BELLE MEADE NW	3	80
CO-00578	340-87	Tom Missimer	26.164893	-81.729511	BELLE MEADE NW	1	80
CO-00579	283-85	Tom Missimer	26.139101	-81.718346	BELLE MEADE NW	4	80
CO-00632	254-84	Tom Missimer	26.244788	-81.720535	BELLE MEADE NW	4	64
CO-00656	158-84	Tom Missimer	26.228451	-81.72586	BELLE MEADE NW	2	60
CO-00658	158-84	Tom Missimer	26.241251	-81.767402	NAPLES NORTH	2	70

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
CO-00659	158-84	Tom Missimer	26.212399	-81.720271	BELLE MEADE NW	4	80
CO-00660	158-84	Tom Missimer	26.212011	-81.734527	BELLE MEADE NW	4	70
CO-00695	160-83	Tom Missimer	26.159487	-81.706509	BELLE MEADE NW	3	115
CO-00700	GeoLOG (CO-700)	Tom Missimer	26.157555	-81.68152	BELLE MEADE NW	3	101
CO-00707	156-83	Tom Missimer	26.234187	-81.703489	BELLE MEADE NW	3	37
CO-00708	156-83	Tom Missimer	26.251226	-81.623705	CORKSCREW SE	4	52
CO-00709	156-83	Tom Missimer	26.199919	-81.655944	BELLE MEADE NW	1	32
CO-00714	156-83	Tom Missimer	26.229188	-81.62143	BELLE MEADE NE	4	40
CO-00723	340-87	Tom Missimer	26.112746	-81.771545	NAPLES SOUTH	2	55
CO-00724	340-87	Tom Missimer	26.112745	-81.771622	NAPLES SOUTH	2	51
CO-00725	340-87	Tom Missimer	26.112923	-81.772226	NAPLES SOUTH	2	52
CO-00728	155-83	Tom Missimer	26.112939	-81.770637	NAPLES SOUTH	2	50
CO-00729	396-87	Tom Missimer	26.316705	-81.714279	CORKSCREW SW	6	80
CO-00731	396-87	Tom Missimer	26.310593	-81.71402	CORKSCREW SW	5	90
CO-00733	396-87	Tom Missimer	26.310201	-81.721265	CORKSCREW SW	5	80
CO-00735	396-87	Tom Missimer	26.302894	-81.713116	CORKSCREW SW	4	120
CO-00741	155-83	Tom Missimer	26.301757	-81.688553	CORKSCREW SW	4	21
CO-00743	185-83	Tom Missimer	26.278816	-81.394651	IMMOKALEE SW	5	60
CO-00745	155-84	Tom Missimer	26.275066	-81.384235	IMMOKALEE SW	5	50
CO-00747	185-84	Tom Missimer	26.279692	-81.672091	CORKSCREW SW	5	40
CO-00753	194-83	Tom Missimer	26.490967	-81.413165	IMMOKALEE	11	180
CO-00754	194-83	Tom Missimer	26.491307	-81.41378	IMMOKALEE	11	183
CO-00755	194-83	Tom Missimer	26.490697	-81.412732	IMMOKALEE	11	185
CO-00756	194-83	Tom Missimer	26.491823	-81.415013	IMMOKALEE	11	195
CO-00757	194-83	Tom Missimer	26.482042	-81.411726	IMMOKALEE	11	180
CO-00758	194-83	Tom Missimer	26.48237	-81.403002	IMMOKALEE	11	180
CO-00786	194-83	Tom Missimer	26.281051	-81.713909	CORKSCREW SW	5	60
CO-00789	339-86	Tom Missimer	26.108408	-81.708937	BELLE MEADE	2	60
CO-00791	339-86	Tom Missimer	26.068452	-81.697806	BELLE MEADE	3	60
CO-00799	339-86	Tom Missimer	26.092862	-81.713137	BELLE MEADE	3	60
CO-00820	339-86	Tom Missimer	26.089111	-81.696234	BELLE MEADE	4	176
CO-00823	340-87	Tom Missimer	26.107553	-81.738083	BELLE MEADE	4	45
CO-00899	340-87	Tom Missimer	26.108344	-81.751855	NAPLES SOUTH	2	57
CO-00907	339-86	Tom Missimer	26.09373	-81.754043	NAPLES SOUTH	2	65
CO-00909	340-87	Tom Missimer	26.096526	-81.739398	BELLE MEADE	2	65
CO-00912	339-86	Tom Missimer	26.097103	-81.775253	NAPLES SOUTH	1	152
CO-00915	339-86	Tom Missimer	26.094683	-81.737814	BELLE MEADE	0	152
CO-00926	244-84	Tom Missimer	26.140407	-81.70806	BELLE MEADE NW	4	80
CO-00927	244-84	Tom Missimer	26.138894	-81.733361	BELLE MEADE NW	3	70
CO-00928	340-87	Tom Missimer	26.152237	-81.749727	BELLE MEADE NW	4	80
CO-00963	283-85	Tom Missimer	26.153516	-81.722827	BELLE MEADE NW	4	14
CO-00964	283-85	Tom Missimer	26.147364	-81.72064	BELLE MEADE NW	4	59
CO-00965	283-85	Tom Missimer	26.144851	-81.721182	BELLE MEADE NW	3	50
CO-00966	283-85	Tom Missimer	26.072476	-81.729712	BELLE MEADE	2	41
CO-00967	283-85	Tom Missimer	26.142105	-81.724159	BELLE MEADE NW	4	46
CO-00969	283-85	Tom Missimer	26.143618	-81.719385	BELLE MEADE NW	3	64
CO-00970	283-85	Tom Missimer	26.150709	-81.724955	BELLE MEADE NW	4	80
CO-01037	1462-91	Tom Missimer	26.273479	-81.748382	CORKSCREW SW	4	64
CO-01053	406-88	Tom Missimer	26.235652	-81.692972	BELLE MEADE NW	4	25
CO-01073	406-88	Tom Missimer	26.230356	-81.643235	BELLE MEADE NW	4	45
CO-01075	406-88	Tom Missimer	26.205054	-81.732843	BELLE MEADE NW	3	40
CO-01167	406-88	Tom Missimer	26.236247	-81.670635	BELLE MEADE NW	4	30
CO-01168	406-88	Tom Missimer	26.23242	-81.711747	BELLE MEADE NW	3	50
CO-01169	406-88	Tom Missimer	26.265695	-81.728724	CORKSCREW SW	4	56
CO-01301	299-86	Tom Missimer	26.230255	-81.609445	BELLE MEADE NE	3	134
CO-01302	299-86	Tom Missimer	26.245002	-81.609488	BELLE MEADE NE	4	140
CO-01303	299-86	Tom Missimer	26.244031	-81.641587	BELLE MEADE NW	4	120
CO-01304	299-86	Tom Missimer	26.246006	-81.562187	BELLE MEADE NE	4	140
CO-01305	299-86	Tom Missimer	26.20661	-81.785854	NAPLES NORTH	3	120
CO-01306	299-86	Tom Missimer	26.245949	-81.591073	BELLE MEADE NE	4	150
CO-01307	299-86	Tom Missimer	26.212915	-81.5906	BELLE MEADE NE	4	145
CO-01308	299-86	Tom Missimer	26.262332	-81.601314	CORKSCREW SE	4	150

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
CO-01309	299-86	Tom Missimer	26.260365	-81.613848	CORKSCREW SE	4	140
CO-01310	299-86	Tom Missimer	26.245902	-81.621337	BELLE MEADE NE	3	130
CO-01311	299-86	Tom Missimer	26.214511	-81.652749	BELLE MEADE NW	2	125
CO-01312	406-88	Tom Missimer	26.230383	-81.654659	BELLE MEADE NW	4	125
CO-01313	299-86	Tom Missimer	26.199307	-81.625	BELLE MEADE NE	5	125
CO-01351	312-86	Tom Missimer	26.16411	-81.65551	BELLE MEADE NW	15	255
CO-01354	312-86	Tom Missimer	26.163896	-81.655375	BELLE MEADE NW	13	43
CO-01355	312-86	Tom Missimer	26.163687	-81.655403	BELLE MEADE NW	13	27
CO-01356	312-86	Tom Missimer	26.162719	-81.655306	BELLE MEADE NW	11	27
CO-01357	312-86	Tom Missimer	26.160515	-81.655493	BELLE MEADE NW	24	27
CO-01362	299-86	Tom Missimer	26.244782	-81.60726	BELLE MEADE NE	4	150
CO-01373	331-87	Tom Missimer	26.137846	-81.759062	NAPLES NORTH	2	100
CO-01374	331-87	Tom Missimer	26.137846	-81.760393	NAPLES NORTH	2	60
CO-01560	406-88	Tom Missimer	26.222091	-81.735039	BELLE MEADE NW	4	80
CO-01561	406-88	Tom Missimer	26.226446	-81.735657	BELLE MEADE NW	2	70
CO-01604	451-88	Tom Missimer	26.154279	-81.767729	NAPLES NORTH	2	65
CO-01624	406-88	Tom Missimer	26.180485	-81.694107	BELLE MEADE NW	4	20
CO-01628	400-87	Tom Missimer	26.180952	-81.694354	BELLE MEADE NW	4	60
CO-01643	372-88	Tom Missimer	26.273974	-81.657762	CORKSCREW SW	2	101
CO-01650	425-88	Tom Missimer	26.149822	-81.732822	BELLE MEADE NW	1	52
CO-01651	425-88	Tom Missimer	26.149195	-81.732783	BELLE MEADE NW	1	50
CO-01652	425-88	Tom Missimer	26.14916	-81.731774	BELLE MEADE NW	3	50
CO-01653	1462-91	Tom Missimer	26.263793	-81.778099	BONITA SPRINGS	1	45
CO-01654	408-88	Tom Missimer	26.260259	-81.773053	BONITA SPRINGS	3	49
CO-01690	408-88	Tom Missimer	26.263774	-81.775549	BONITA SPRINGS	1	50
CO-01699	1163-91	Tom Missimer	26.036118	-81.645727	BELLE MEADE	1	120
CO-01700	1163-91	Tom Missimer	26.042121	-81.638826	BELLE MEADE	2	100
CO-01977	1163-91	Tom Missimer	26.042352	-81.639724	BELLE MEADE	1	45
CO-01984	717-90	Tom Missimer	26.229831	-81.653607	BELLE MEADE NW	4	35
CO-01986	717-90	Tom Missimer	26.212707	-81.590407	BELLE MEADE NE	2	45
CO-01988	717-90	Tom Missimer	26.245851	-81.561985	BELLE MEADE NE	4	68
CO-01990	717-90	Tom Missimer	26.198766	-81.605092	BELLE MEADE NE	3	110
CO-01992	717-90	Tom Missimer	26.262743	-81.601362	CORKSCREW SE	4	150
CO-01993	717-90	Tom Missimer	26.292727	-81.62564	CORKSCREW SW	4	90
CO-02003	711-90	Tom Missimer	26.012447	-81.655342	BELLE MEADE	0	45
CO-02006	711-90	Tom Missimer	26.010861	-81.659295	BELLE MEADE	2	17
CO-02012	734-90	Tom Missimer	26.010236	-81.652409	BELLE MEADE	1	8
CO-02029	773-90	Tom Missimer	26.304859	-81.530635	CORKSCREW SE	5	32
CO-02030	773-90	Tom Missimer	26.294761	-81.531137	CORKSCREW SE	5	36
CO-02031	773-90	Tom Missimer	26.286207	-81.534437	CORKSCREW SE	5	27
CO-02064	801-90	Tom Missimer	26.31639	-81.73759	CORKSCREW SW	5	101
CO-02066	801-90	Tom Missimer	26.314458	-81.730724	CORKSCREW SW	4	101
CO-02068	801-90	Tom Missimer	26.307845	-81.741535	CORKSCREW SW	4	100
CO-02070	801-90	Tom Missimer	26.303229	-81.729957	CORKSCREW SW	4	101
CO-02072	781-90	Tom Missimer	26.242718	-81.744643	BELLE MEADE NW	4	<Null>
CO-02080	976-91	Tom Missimer	26.04629	-81.690997	BELLE MEADE	1	1608
CO-02081	975-91	Tom Missimer	26.167083	-81.683307	BELLE MEADE NW	4	1600
CO-02115	1462-91	Tom Missimer	26.250988	-81.782576	BONITA SPRINGS	4	132
CO-02117	1095-91	Tom Missimer	26.247581	-81.776075	NAPLES NORTH	4	80
CO-02119	1462-91	Tom Missimer	26.243384	-81.767498	NAPLES NORTH	4	65
CO-02130	982-91	Tom Missimer	26.128879	-81.771181	NAPLES NORTH	2	30
CO-02270	1095-91	Tom Missimer	26.246537	-81.771685	NAPLES NORTH	4	80
CO-02279	1462-91	Tom Missimer	26.254541	-81.795359	BONITA SPRINGS	4	65
CO-02292	1276-91	Tom Missimer	26.072718	-81.692669	BELLE MEADE	2	16
CO-02293	1276-91	Tom Missimer	26.072032	-81.693135	BELLE MEADE	3	16
CO-02317	1700-93b	Tom Missimer	26.244761	-81.679438	BELLE MEADE NW	3	3380
CO-02318	1700-93b	Tom Missimer	26.24463	-81.679183	BELLE MEADE NW	4	1930
CO-03280	801-90	Tom Missimer	26.323526	-81.736166	CORKSCREW SW	5	101
CO-03281	801-90	Tom Missimer	26.323559	-81.728022	CORKSCREW SW	5	101
CO-99191	991-91	Tom Missimer	26.165728	-81.767272	NAPLES NORTH	2	15
HM-00271	310-86	Tom Missimer	26.474149	-81.084112	ROCKY LAKE STRAND	7	146

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
HM-00272	310-86	Tom Missimer	26.442871	-81.100096	ROCKY LAKE STRAND	7	137
HM-00273	310-86	Tom Missimer	26.430903	-81.07652	ROCKY LAKE STRAND	7	138
HM-00274	310-86	Tom Missimer	26.451968	-81.077297	ROCKY LAKE STRAND	7	138
HM-00275	310-86	Tom Missimer	26.45904	-81.100952	ROCKY LAKE STRAND	7	138
HM-00276	310-86	Tom Missimer	26.451852	-81.123743	ROCKY LAKE STRAND	7	138
HM-00290	311-87	Tom Missimer	26.429975	-81.121671	ROCKY LAKE STRAND	7	125
HM-00310	311-87	Tom Missimer	26.43967	-81.112304	ROCKY LAKE STRAND	7	140
HM-00901	310-86	Tom Missimer	26.42884	-81.212935	CROWS NEST HAMMOCK	9	300
HM-00908	310-86	Tom Missimer	26.428226	-81.129061	CROWS NEST HAMMOCK	7	165
LM-00224	403-87	Tom Missimer	26.288417	-81.723683	CORKSCREW SW	5	40
LM-00607	254-84	Tom Missimer	26.487662	-81.935593	FORT MYERS BEACH	1	300
LM-00610	25-78	Tom Missimer	26.492272	-81.804687	ESTERO	5	248
LM-00619	254-84	Tom Missimer	26.431437	-81.817574	ESTERO	4	235
LM-00621	254-84	Tom Missimer	26.435095	-81.788335	ESTERO	4	261
LM-00622	254-84	Tom Missimer	26.434345	-81.773841	ESTERO	5	184
LM-00623	183-84	Tom Missimer	26.448954	-81.758225	ESTERO	6	1405
LM-00624	183-84	Tom Missimer	26.452342	-81.729842	CORKSCREW NW	8	210
LM-00625	183-84	Tom Missimer	26.452952	-81.716066	CORKSCREW NW	6	513
LM-00628	183-84	Tom Missimer	26.449937	-81.659376	CORKSCREW NW	8	340
LM-00629	183-84	Tom Missimer	26.449835	-81.639735	CORKSCREW NW	8	180
LM-00630	183-84	Tom Missimer	26.450343	-81.610935	CORKSCREW	8	380
LM-00632	254-84	Tom Missimer	26.4507	-81.566602	CORKSCREW	7	390
LM-00633	72-81	Tom Missimer	26.387417	-81.826349	ESTERO	5	300
LM-00636	7-77	Tom Missimer	26.36107	-81.695173	CORKSCREW SW	5	460
LM-00638	72-81	Tom Missimer	26.346377	-81.802191	BONITA SPRINGS	1	345
LM-00640	254-84	Tom Missimer	26.330873	-81.737838	CORKSCREW SW	6	525
LM-00652	254-84	Tom Missimer	26.333573	-81.723158	CORKSCREW SW	4	136
LM-00660	431-88	Tom Missimer	26.327617	-81.695925	CORKSCREW SW	5	660
LM-00681	305-86	Tom Missimer	26.471794	-81.74128	CORKSCREW NW	5	230
LM-00685	305-86	Tom Missimer	26.470687	-81.766913	ESTERO	7	345
LM-00788	24-78	Tom Missimer	26.479971	-81.806023	ESTERO	5	45
LM-00789	24-78	Tom Missimer	26.480938	-81.805879	ESTERO	5	47
LM-00790	24-78	Tom Missimer	26.482405	-81.805879	ESTERO	5	43
LM-00791	24-78	Tom Missimer	26.48318	-81.805865	ESTERO	5	36
LM-00883	242-84	Tom Missimer	26.418454	-81.814539	ESTERO	4	320
LM-00922	7-77	Tom Missimer	26.458107	-81.704685	CORKSCREW NW	7	304
LM-00923	7-77	Tom Missimer	26.453016	-81.698627	CORKSCREW NW	5	324
LM-00924	7-77	Tom Missimer	26.453753	-81.695412	CORKSCREW NW	5	164
LM-00926	7-77	Tom Missimer	26.462018	-81.704273	CORKSCREW NW	7	195
LM-00928	7-77	Tom Missimer	26.453938	-81.703449	CORKSCREW NW	6	264
LM-00929	7-77	Tom Missimer	26.457849	-81.699657	CORKSCREW NW	6	284
LM-00931	7-77	Tom Missimer	26.454713	-81.693022	CORKSCREW NW	6	290
LM-00933	7-77	Tom Missimer	26.459288	-81.69261	CORKSCREW NW	6	305
LM-00934	7-77	Tom Missimer	26.454565	-81.694836	CORKSCREW NW	6	305
LM-00936	7-77	Tom Missimer	26.464182	-81.693458	CORKSCREW NW	7	284
LM-00938	7-77	Tom Missimer	26.45154	-81.703078	CORKSCREW NW	5	285
LM-00940	7-77	Tom Missimer	26.451503	-81.697432	CORKSCREW NW	5	284
LM-01228	23-78	Tom Missimer	26.495588	-81.930288	FORT MYERS BEACH	2	17
LM-01230	23-78	Tom Missimer	26.494579	-81.930236	FORT MYERS BEACH	2	16
LM-01235	23-78	Tom Missimer	26.496391	-81.927018	FORT MYERS BEACH	1	98
LM-01238	23-78	Tom Missimer	26.49819	-81.925693	FORT MYERS BEACH	1	18
LM-01240	23-78	Tom Missimer	26.49865	-81.925706	FORT MYERS BEACH	1	18
LM-01256	23-78	Tom Missimer	26.498179	-81.930708	FORT MYERS BEACH	1	16
LM-01316	25-78	Tom Missimer	26.485192	-81.794934	ESTERO	6	32
LM-01317	25-78	Tom Missimer	26.475553	-81.792825	ESTERO	6	41

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
LM-01318	25-78	Tom Missimer	26.459893	-81.788838	ESTERO	5	60
LM-01319	25-78	Tom Missimer	26.457156	-81.796379	ESTERO	6	33
LM-01520	47-80	Tom Missimer	26.435113	-81.772054	ESTERO	5	35
LM-01521	47-80	Tom Missimer	26.441118	-81.760509	ESTERO	6	28
LM-01522	47-80	Tom Missimer	26.449226	-81.761843	ESTERO	6	50
LM-01523	47-80	Tom Missimer	26.449205	-81.770025	ESTERO	6	45
LM-01524	47-80	Tom Missimer	26.449394	-81.755943	ESTERO	5	28
LM-01525	47-80	Tom Missimer	26.443329	-81.7556	ESTERO	7	45
LM-01536	GeoLogs (1)	Tom Missimer	26.442504	-81.757795	ESTERO	6	107
LM-01538	47-80	Tom Missimer	26.435016	-81.756579	ESTERO	5	25
LM-01539	47-80	Tom Missimer	26.427896	-81.756404	ESTERO	5	35
LM-01540	47-80	Tom Missimer	26.428209	-81.763472	ESTERO	5	40
LM-01541	47-80	Tom Missimer	26.420869	-81.764677	ESTERO	5	31
LM-01543	47-80	Tom Missimer	26.420772	-81.756008	ESTERO	5	110
LM-01638	72-81	Tom Missimer	26.370178	-81.820329	BONITA SPRINGS	4	100
LM-01644	72-81	Tom Missimer	26.360607	-81.808733	BONITA SPRINGS	3	88
LM-01646	72-81	Tom Missimer	26.361052	-81.820091	BONITA SPRINGS	3	133
LM-01649	83-81	Tom Missimer	26.346987	-81.804486	BONITA SPRINGS	3	100
LM-01676	72-81	Tom Missimer	26.352558	-81.807395	BONITA SPRINGS	4	120
LM-01677	72-81	Tom Missimer	26.352603	-81.806366	BONITA SPRINGS	4	125
LM-01679	72-81	Tom Missimer	26.352301	-81.805876	BONITA SPRINGS	3	120
LM-01680	72-81	Tom Missimer	26.351521	-81.804151	BONITA SPRINGS	2	127
LM-01682	204-84	Tom Missimer	26.35073	-81.804429	BONITA SPRINGS	3	127
LM-01683	72-81	Tom Missimer	26.351892	-81.804661	BONITA SPRINGS	3	30
LM-01684	204-84	Tom Missimer	26.350652	-81.804544	BONITA SPRINGS	3	33
LM-01685	72-81	Tom Missimer	26.350471	-81.804813	BONITA SPRINGS	3	34
LM-01687	83-81	Tom Missimer	26.334408	-81.790445	BONITA SPRINGS	4	80
LM-01688	83-81	Tom Missimer	26.351228	-81.781667	BONITA SPRINGS	3	70
LM-01689	83-81	Tom Missimer	26.334896	-81.761234	BONITA SPRINGS	3	100
LM-01690	72-81	Tom Missimer	26.350743	-81.806498	BONITA SPRINGS	3	33
LM-01713	1046-91	Tom Missimer	26.330714	-81.826903	BONITA SPRINGS	2	255
LM-01718	72-81	Tom Missimer	26.352588	-81.807142	BONITA SPRINGS	4	238
LM-01719	72-81	Tom Missimer	26.352649	-81.806602	BONITA SPRINGS	4	248
LM-01720	72-81	Tom Missimer	26.352634	-81.805724	BONITA SPRINGS	3	255
LM-01821	99-81	Tom Missimer	26.321365	-81.806338	BONITA SPRINGS	4	21
LM-01879	431-88	Tom Missimer	26.367476	-81.724721	CORKSCREW SW	4	63
LM-01881	431-88	Tom Missimer	26.342101	-81.721747	CORKSCREW SW	4	39
LM-01883	431-88	Tom Missimer	26.345031	-81.704765	CORKSCREW SW	4	54
LM-01884	431-88	Tom Missimer	26.343893	-81.703163	CORKSCREW SW	4	32
LM-01885	431-88	Tom Missimer	26.344794	-81.703004	CORKSCREW SW	4	62
LM-01886	431-88	Tom Missimer	26.343469	-81.721842	CORKSCREW SW	4	22
LM-01887	431-88	Tom Missimer	26.344821	-81.721941	CORKSCREW SW	4	32
LM-01888	431-88	Tom Missimer	26.34274	-81.71938	CORKSCREW SW	4	18
LM-01889	431-88	Tom Missimer	26.349244	-81.722108	CORKSCREW SW	4	60
LM-01969	83-81	Tom Missimer	26.338274	-81.731311	CORKSCREW SW	5	<Null>
LM-01971	83-81	Tom Missimer	26.337944	-81.754914	BONITA SPRINGS	3	80
LM-01981	83-81	Tom Missimer	26.365974	-81.755269	BONITA SPRINGS	4	90
LM-01982	83-81	Tom Missimer	26.358463	-81.755111	BONITA SPRINGS	4	97
LM-01983	83-81	Tom Missimer	26.246922	-81.748973	BELLE MEADE NW	5	97
LM-01984	352-87	Tom Missimer	26.497601	-81.798904	ESTERO	6	79
LM-01989	352-87	Tom Missimer	26.494328	-81.828836	ESTERO	4	21
LM-02036	183-84	Tom Missimer	26.437448	-81.72591	CORKSCREW NW	6	150
LM-02130	180-83	Tom Missimer	26.397735	-81.815537	ESTERO	5	120
LM-02132	180-83	Tom Missimer	26.397134	-81.827681	ESTERO	5	120
LM-02164	396-87	Tom Missimer	26.330761	-81.713616	CORKSCREW SW	4	80
LM-02171	988-91	Tom Missimer	26.434008	-81.758032	ESTERO	6	97
LM-02179	183-84	Tom Missimer	26.433333	-81.764179	ESTERO	6	105
LM-02200	199-83	Tom Missimer	26.351377	-81.761097	BONITA SPRINGS	4	14
LM-02201	199-83	Tom Missimer	26.351728	-81.761016	BONITA SPRINGS	4	14
LM-02202	199-83	Tom Missimer	26.350848	-81.755683	BONITA SPRINGS	4	67
LM-02203	199-83	Tom Missimer	26.351412	-81.760532	BONITA SPRINGS	4	75
LM-02241	204-84	Tom Missimer	26.350134	-81.804228	BONITA SPRINGS	3	30
LM-02242	204-84	Tom Missimer	26.349317	-81.804096	BONITA SPRINGS	3	120

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
LM-02244	204-84	Tom Missimer	26.34776	-81.803942	BONITA SPRINGS	3	120
LM-02248	208-84	Tom Missimer	26.346472	-81.808105	BONITA SPRINGS	2	36
LM-02249	208-84	Tom Missimer	26.346073	-81.807966	BONITA SPRINGS	3	30
LM-02251	208-84	Tom Missimer	26.346582	-81.810314	BONITA SPRINGS	3	30
LM-02252	208-84	Tom Missimer	26.347178	-81.810839	BONITA SPRINGS	2	30
LM-02253	208-84	Tom Missimer	26.34777	-81.809943	BONITA SPRINGS	1	26
LM-02255	208-84	Tom Missimer	26.347207	-81.808606	BONITA SPRINGS	4	36
LM-02258	208-84	Tom Missimer	26.345894	-81.809147	BONITA SPRINGS	3	25
LM-02289	431-88	Tom Missimer	26.3379	-81.729633	CORKSCREW SW	4	112
LM-02328	177-84	Tom Missimer	26.480111	-81.79823	ESTERO	5	45
LM-02450	233-85	Tom Missimer	26.329697	-81.755915	BONITA SPRINGS	4	100
LM-02454	233-85	Tom Missimer	26.320506	-81.769305	BONITA SPRINGS	4	80
LM-02459	431-88	Tom Missimer	26.352096	-81.721725	CORKSCREW SW	4	145
LM-02460	431-88	Tom Missimer	26.352076	-81.722663	CORKSCREW SW	4	125
LM-02461	431-88	Tom Missimer	26.350916	-81.722081	CORKSCREW SW	4	125
LM-02462	431-88	Tom Missimer	26.35039	-81.721923	CORKSCREW SW	4	125
LM-02463	431-88	Tom Missimer	26.34788	-81.722194	CORKSCREW SW	5	112
LM-02834	351-87	Tom Missimer	26.49316	-81.812349	ESTERO	4	30
LM-02835	351-87	Tom Missimer	26.497266	-81.811407	ESTERO	5	25
LM-02836	351-87	Tom Missimer	26.498557	-81.813643	ESTERO	5	20
LM-02837	351-87	Tom Missimer	26.499645	-81.81136	ESTERO	5	20
LM-02842	386-87	Tom Missimer	26.439639	-81.789796	ESTERO	4	30
LM-02968	434-88	Tom Missimer	26.421091	-81.7633	ESTERO	5	40
LM-02970	434-88	Tom Missimer	26.421127	-81.761698	ESTERO	5	40
LM-02971	434-88	Tom Missimer	26.421085	-81.760179	ESTERO	4	43
LM-02972	434-88	Tom Missimer	26.42109	-81.758922	ESTERO	4	43
LM-02973	434-88	Tom Missimer	26.42107	-81.757747	ESTERO	5	46
LM-02976	901-9	Tom Missimer	26.421111	-81.763301	ESTERO	5	40
LM-02978	901-91	Tom Missimer	26.421097	-81.76018	ESTERO	4	43
LM-02982	434-88	Tom Missimer	26.427638	-81.757121	ESTERO	5	40
LM-02983	901-91	Tom Missimer	26.427636	-81.757198	ESTERO	5	40
LM-02984	434-88	Tom Missimer	26.426269	-81.757069	ESTERO	5	45
LM-02986	434-88	Tom Missimer	26.425257	-81.757069	ESTERO	5	40
LM-02988	434-88	Tom Missimer	26.424172	-81.757063	ESTERO	5	45
LM-02989	901-91	Tom Missimer	26.424172	-81.757122	ESTERO	5	45
LM-02990	434-88	Tom Missimer	26.422563	-81.757036	ESTERO	5	45
LM-02997	434-88	Tom Missimer	26.420988	-81.756839	ESTERO	5	45
LM-02998	901-91	Tom Missimer	26.420928	-81.756839	ESTERO	5	45
LM-03274	746-90	Tom Missimer	26.433789	-81.827142	ESTERO	3	135
LM-03275	746-90	Tom Missimer	26.432005	-81.824037	ESTERO	5	260
LM-03276	746-90	Tom Missimer	26.434155	-81.825334	ESTERO	4	26
LM-03277	746-90	Tom Missimer	26.434048	-81.828132	ESTERO	3	25
LM-03278	746-90	Tom Missimer	26.427088	-81.828428	ESTERO	4	27
LM-03279	746-90	Tom Missimer	26.428024	-81.821297	ESTERO	5	27
LM-03410	902-91	Tom Missimer	26.385122	-81.812982	ESTERO	5	31
LM-03459	722-90	Tom Missimer	26.372946	-81.803525	BONITA SPRINGS	4	25
LM-03461	722-90	Tom Missimer	26.366227	-81.799582	BONITA SPRINGS	3	22
LM-03476	819-90	Tom Missimer	26.396346	-81.811239	ESTERO	5	35
LM-03477	819-90	Tom Missimer	26.397656	-81.814462	ESTERO	4	35
LM-03478	819-90	Tom Missimer	26.397728	-81.812122	ESTERO	5	35
LM-03494	745-90	Tom Missimer	26.406432	-81.829357	ESTERO	1	40
LM-03495	745-90	Tom Missimer	26.408517	-81.831061	ESTERO	4	150
LM-03496	745-90	Tom Missimer	26.410415	-81.831684	ESTERO	3	36
LM-03497	745-90	Tom Missimer	26.40219	-81.836338	ESTERO	2	21
LM-03498	745-90	Tom Missimer	26.409226	-81.836773	ESTERO	2	25
LM-03499	745-90	Tom Missimer	26.412162	-81.832307	ESTERO	3	29
LM-03500	901-91	Tom Missimer	26.397127	-81.811076	ESTERO	4	30
LM-03558	901-91	Tom Missimer	26.440255	-81.757045	ESTERO	5	123
LM-03611	1040-91	Tom Missimer	26.383441	-81.808748	ESTERO	5	30
LM-03612	1040-91	Tom Missimer	26.380788	-81.808688	ESTERO	5	30
LM-03613	1040-91	Tom Missimer	26.384314	-81.812824	ESTERO	4	30
LM-03614	1040-91	Tom Missimer	26.383846	-81.812764	ESTERO	4	30
LM-03649	1067-91	Tom Missimer	26.497327	-81.60695	CORKSCREW	9	48

Well Number	Report number	Data Source	Latitude	Longitude	24K Quad	Elevation (ft.)	Total Depth (ft.)
LM-03650	1067-91	Tom Missimer	26.490211	-81.60485	CORKSCREW	9	82
LM-03651	1067-91	Tom Missimer	26.494635	-81.596261	CORKSCREW	8	64
LM-03652	1067-91	Tom Missimer	26.48738	-81.602071	CORKSCREW	8	62
LM-03653	1067-91	Tom Missimer	26.486039	-81.59544	CORKSCREW	8	39
LM-03654	1067-91	Tom Missimer	26.486167	-81.589626	CORKSCREW	9	43
LM-03655	1067-91	Tom Missimer	26.482862	-81.607378	CORKSCREW	8	63
LM-03656	1067-91	Tom Missimer	26.482454	-81.601451	CORKSCREW	8	43
LM-03657	1067-91	Tom Missimer	26.481914	-81.595096	CORKSCREW	9	44
LM-03658	1067-91	Tom Missimer	26.476946	-81.598105	CORKSCREW	8	80
LM-03660	1067-91	Tom Missimer	26.473511	-81.607625	CORKSCREW	9	43
LM-03662	1067-91	Tom Missimer	26.469159	-81.603542	CORKSCREW	8	75
LM-03678	1040-91	Tom Missimer	26.383882	-81.813828	ESTERO	4	30
LM-03679	1040-91	Tom Missimer	26.38208	-81.810453	ESTERO	4	29
LM-03791	1439-92	Tom Missimer	26.494627	-81.604782	CORKSCREW	8	242
LM-03792	1439-92	Tom Missimer	26.495673	-81.591553	CORKSCREW	9	183
LM-03856	1439-92	Tom Missimer	26.499219	-81.61121	CORKSCREW	9	190
LM-03857	1439-92	Tom Missimer	26.49957	-81.601473	CORKSCREW	8	45
LM-03859	1439-92	Tom Missimer	26.492248	-81.589165	CORKSCREW	8	42
LM-03860	1439-92	Tom Missimer	26.477636	-81.609983	CORKSCREW	8	60
LM-03862	1439-92	Tom Missimer	26.496498	-81.611188	CORKSCREW	8	224
LM-03869	1552-92	Tom Missimer	26.375899	-81.810381	ESTERO	3	20
LM-03916	1654-93	Tom Missimer	26.368205	-81.808413	BONITA SPRINGS	6	34
LM-03917	1654-93	Tom Missimer	26.370738	-81.80834	BONITA SPRINGS	6	32
LM-03920	1654-93	Tom Missimer	26.375289	-81.808288	ESTERO	3	5
LM-131492	1314-92	Tom Missimer	26.453697	-81.700432	CORKSCREW NW	6	31
LS-06187	GeoLogs (10)	Tom Missimer	26.464686	-81.617003	CORKSCREW	8	296
LS-06190	GeoLogs (10)	Tom Missimer	26.476963	-81.622221	CORKSCREW	9	176
LS-06191	GeoLogs (10)	Tom Missimer	26.487096	-81.626529	CORKSCREW NW	9	146
LS-06192	GeoLogs (10)	Tom Missimer	26.499611	-81.623944	CORKSCREW	9	176
LS-06194	GeoLogs (10)	Tom Missimer	26.498659	-81.61615	CORKSCREW	8	136
LS-06205	GeoLOG (12)	Tom Missimer	26.404592	-81.728777	CORKSCREW NW	5	96
LS-06207	GeoLOG (12)	Tom Missimer	26.404132	-81.74019	CORKSCREW NW	5	66
LS-06208	GeoLOG (12)	Tom Missimer	26.405256	-81.748693	CORKSCREW NW	5	46
LS-06210	GeoLOG (12)	Tom Missimer	26.391404	-81.743728	CORKSCREW NW	5	56
LS-06211	GeoLOG (12)	Tom Missimer	26.39212	-81.751489	ESTERO	5	56
LS-06212	GeoLOG (12)	Tom Missimer	26.390739	-81.737736	CORKSCREW NW	5	66
LS-06213	GeoLOG (12)	Tom Missimer	26.390382	-81.729405	CORKSCREW NW	5	76
LS-06229	GeoLogs(10)	Tom Missimer	26.495964	-81.616247	CORKSCREW	9	200
LS-06231	GeoLogs (10)	Tom Missimer	26.475874	-81.618345	CORKSCREW	8	110
MC-05019	101-97	Tom Missimer	26.091789	-81.729089	BELLE MEADE	2	3400
ML-05010	GeoLOGS 10+	Tom Missimer	26.420545	-81.818184	ESTERO	8	230