

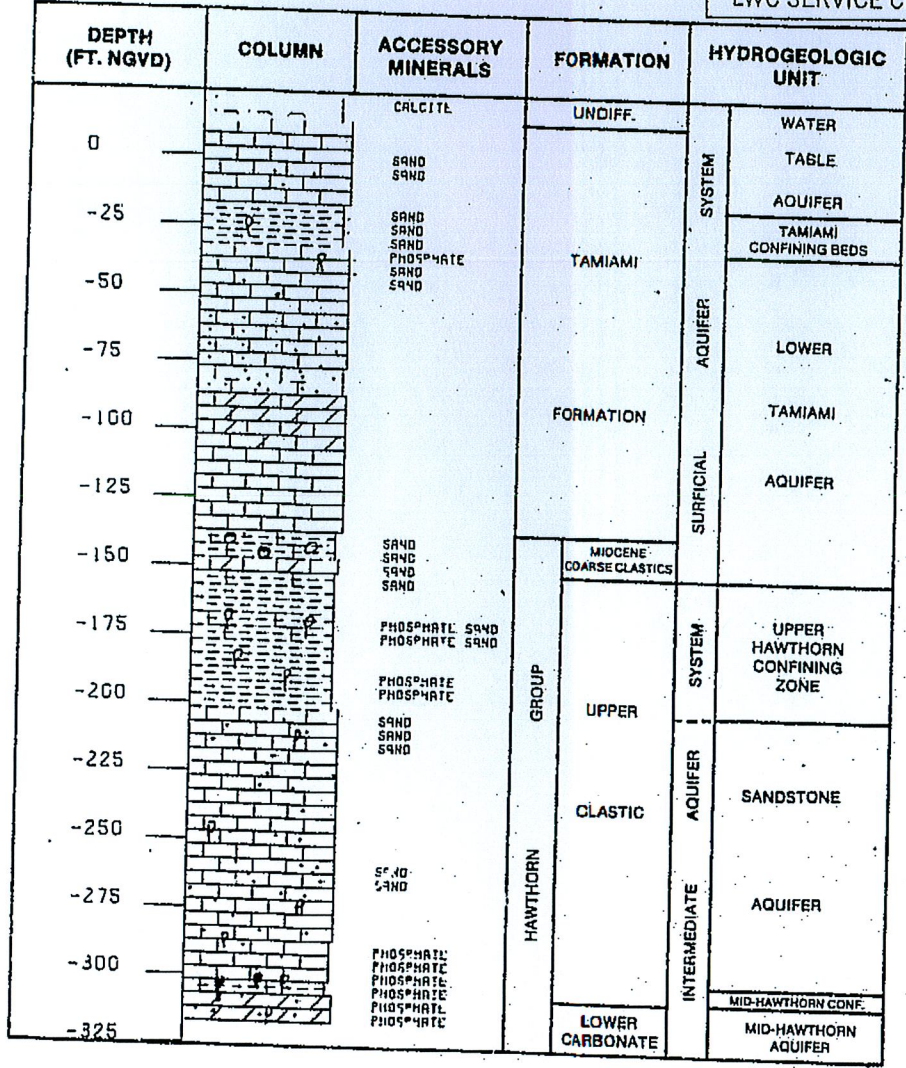
Letter 11-02256

District School Board of Collier County

ORIGINAL SUBMITTAL

AUG 07 2003

LWC SERVICE CENTER



APPLICATION NUMBER

030807-6

Water Resource Solutions PROJECT NAME: COLLIER COUNTY ELEMENTARY SCHOOL "F" DWG. NUMBER: A-014516N1D-1
 PROJECT NUMBER: 01-04516310 DATE: 07/31/03

FIGURE II-3.2 HYDROSTRATIGRAPHIC SECTION, SFWMD WELL WC 203B.

The sources of the data for the inventory are Collier County well construction permit data, USGS records, SFWMD records, published data, and Water Resource Solution's in-house database.

Well Inventory

A total of 243 wells were identified in the 9-section area of review. Table II-3.1 presents a summary of the wells identified during the inventory.

The preponderance of the wells identified in the inventory (more than 80%) are completed in the Lower Tamiami Aquifer. Domestic and Irrigation water use classifications are the majority of the inventoried wells.

Water Quality Evaluation

Using the data collected during the inventory and from a review of the literature, it was possible to determine the water quality of the aquifers in the vicinity of the project. Of particular interest to this investigation was the presence of brackish water within the potential water supply aquifers.

A limited number of wells with water quality data were identified in the area of review during the inventory. However, data from the literature were used to determine the quality of the groundwater in the vicinity of the site. The water quality determined from wells within the inventoried area confirmed the water quality data delineated in the literature (Environmental Science and Engineering, 1979; Knapp, et al., 1986; Schmerge, 2001).

Water quality in the water table aquifer, expressed as chloride concentration, ranges from between 12 mg/l to less than 100 mg/l in the inventoried area. Local water quality in the Lower Tamiami Aquifer, which is commonly used near the project site, ranges

APPLICATION NUMBER

030807-6

ORIGINAL SUBMITTAL

AUG 07 2003

IWC SERVICE CENTER

from 15 mg/l to less than 100 mg/l. Water quality data shows that the Lower Tamiami Aquifer contains brackish water in Collier County. However, the information collected from the well inventory and from the data research does not indicate the presence of brackish water in the vicinity of the project site. The location of the project site lies well beyond the extent of brackish water within the Lower Tamiami Aquifer.

No wells with reported chloride data in the Sandstone and Mid-Hawthorn aquifers were identified in the inventory. Data from the literature and from the U. S. Geologic Survey's National Water Information System were reviewed to determine the chloride concentrations in these aquifers.

The Sandstone Aquifer, which in some areas of the county is hydraulically connected to and forms the base of the Lower Tamiami Aquifer, reflects chloride concentrations similar to the Lower Tamiami Aquifer, ranging between 50 mg/l and 100 mg/l. The chloride concentration in the Mid-Hawthorn Aquifer in the project vicinity generally falls below 250 mg/l.

Based on the water quality data obtained from the inventory, four potential irrigation supply zones were identified. These zones are the water table, Lower Tamiami, Sandstone, and Mid-Hawthorn aquifers. Regional data indicates that water quality in the deeper zones is too saline for an irrigation source.

Regional Geology

To determine the geology of the area, a review of the literature was conducted. A hydrostratigraphic column of well WC 2038, located approximately 3 miles from the site in Section 27, Township 47 South, Range 27 East, is provided as Figure II-3.2.

The geology review indicates that the water table aquifer is present in the area of the site from land surface to approximately 20 to 40 feet below land surface. A confining

APPLICATION NUMBER

030807-6

ORIGINAL SUBMITTAL

AUG 07 2003

WVC SERVICE CENTER

unit of the Bonita Springs Marl separates the Lower Tamiami Aquifer from the water table. Regionally, the thickness of the confining unit varies from roughly 20 feet to 50 feet. The underlying Lower Tamiami Aquifer is present from approximately 60 feet to 130 feet bls in the investigated area.

A clay confining unit of the Peace River Formation of the Hawthorn Group separates the Lower Tamiami Aquifer from the underlying Sandstone Aquifer. The confining unit is approximately 30 feet to 60 feet thick in the vicinity of the project. The Sandstone Aquifer is present from approximately 160 feet to 300 feet bls. A thin confining unit separates the Sandstone Aquifer and Mid-Hawthorn aquifers. The confining unit ranges from 0 to 30 feet thick and consists of interbedded units of clays, marls, and limestone. The top of the Mid-Hawthorn is located at approximately 325 feet bls and has a thickness of greater than 200 feet. Numerous permeable zones are located below the Mid-Hawthorn Aquifer, but the water quality is not suitable for potable supply and are not considered for use at the project.

CONCLUSIONS

Based on this investigation, it is concluded that the irrigation and potable supply source for the project should be the Lower Tamiami Aquifer. The hydraulics of the unit and the water quality in the aquifer make this an acceptable source of irrigation supply. Although the Lower Tamiami Aquifer is commonly used in the vicinity of the project, the high productivity of this aquifer should be sufficient to prevent adverse impacts to adjacent water users.

Water table, Sandstone, and Mid-Hawthorn aquifers are not deemed appropriate for irrigation supply. The potential impacts to surface water bodies and adjacent wetlands preclude use from the water table. The Sandstone Aquifer is not preferred as an irrigation source because of the aquifer productivity and the presence of unconsolidated sands requiring screened well completions. Although the Sandstone

APPLICATION NUMBER

030807-6

ORIGINAL SUBMITTAL

AUG 07 2003

TABLE - A
Description Of Wells.

Application Number: 030807-6

Well ID	144357	144358
Name	Main	Backup
Map Designator	Main	
FLUWID Number		
Well Field		
Existing/Proposed	P	P
Well Diameter(inches)	6	6
Total Depth(feet)	120	120
Cased Depth(feet)	100	100
Facility Elev. (ft. NGVD)	21	21
Screened Interval From		
To		
Pumped Or Flowing	P	P
Pump Type	submersible	submersible
Pump Int. Elev. Feet (NGVD)	-19	-19
Feet (BLS)	-40	-40
Pump Capacity(GPM)	250	250
Year Drilled	2004	2004
Planar Location		
Source	DIGITIZED	DIGITIZED
Feet East	476659	476659
Feet North	729557	729328
Accounting Method	none	none
Use Status	Primary	Standby
Water Use Type	Public Water Supply	Public Water Supply
Aquifer	Lower Tamiami Aquifer	Lower Tamiami Aquifer

Exhibit No: 5