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III. Hydrogeology

A. Supply Aquifer

Based on the on-site hydrogeologic conditions, the Lower Tamiami aquifer was selected as the supply aquifer for the Town of Ave Maria construction trailers. The Lower Tamiami aquifer is composed of the Ochopee limestone of the Pliocene-age (3.5 to 4.6 mya). This formation consists of very permeable and porous limestone that has high yields of good quality water. This unit is expected to be encountered at the site at a depth of approximately 50 feet BLS (-30 feet below NGVD). The thickness of this zone ranges from about 25 to 75 feet in the area. A lithologic log for an on-site well which is typical for the site is provided as Figure 3-1. An Ochopee limestone thickness contour map for the area obtained from the Lower West Coast Potentiometric Mapping Project (Water Resource Solutions, 2003) is provided as Figure 3-2.

The Lower Tamiami aquifer is separated from the water-table aquifer by a low permeability zone, which is composed of clay and silt with shells, this zone is commonly referred to as the Bonita Springs Marl. The Bonita Springs Marl has a thickness of approximately 20 feet at the site.

It should be noted that the previously permitted on-site agricultural wells were completed in the Lower Tamiami aquifer (casing setting depth at approximately 50 feet below land surface) and they were inaccurately labeled in the water use permit as water-table aquifer wells. A summary of these previously permitted on-site agricultural wells is provided on Table 3-1. A map showing the location of these wells is provided as Figure 3-3.

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GEOLOGIST'S LOG OF WELL CO-468

Depth(ft)	Description
0-15	Sand, brown, fine-very fine, clayey in part, medium permeability.
15-26	Limestone, white, medium-soft, chalky, micritic, microfossils, medium permeability.
26-30	Clay and silt, beige, soft, quartz sand minor, traces of shell, moderately sorted, phosphatic, low permeability.
30-40	Clay and silt, beige-greenish, soft, shell common, moderately sorted, phosphatic, low permeability.
40-47	Clay and silt, similar to above, low permeability.
47-50	Limestone, white-gray, biomicritic, chalky, small vugs, quartz silt from above, medium permeability.
50-60	Limestone, gray-white, hard, good secondary porosity, microspar lining in vugs, moldic fossil-rich, bryozoans common, high permeability.
60-65	Limestone, white, biomicritic, medium, with increasing amount of spar (5%), vugged, minor quartz sand (5%), high permeability.
65-70	Limestone, white, biomicritic as above, greater quartz sand than above, (10%), subangular, moderately sorted, medium-high permeability.
70-75	Sand, calcareous, fine-medium sized, subangular, moderately sorted, medium permeability.

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FIGURE 3-1. LITHOLOGIC LOG FOR THE TOWN OF AVE MARIA SITE.

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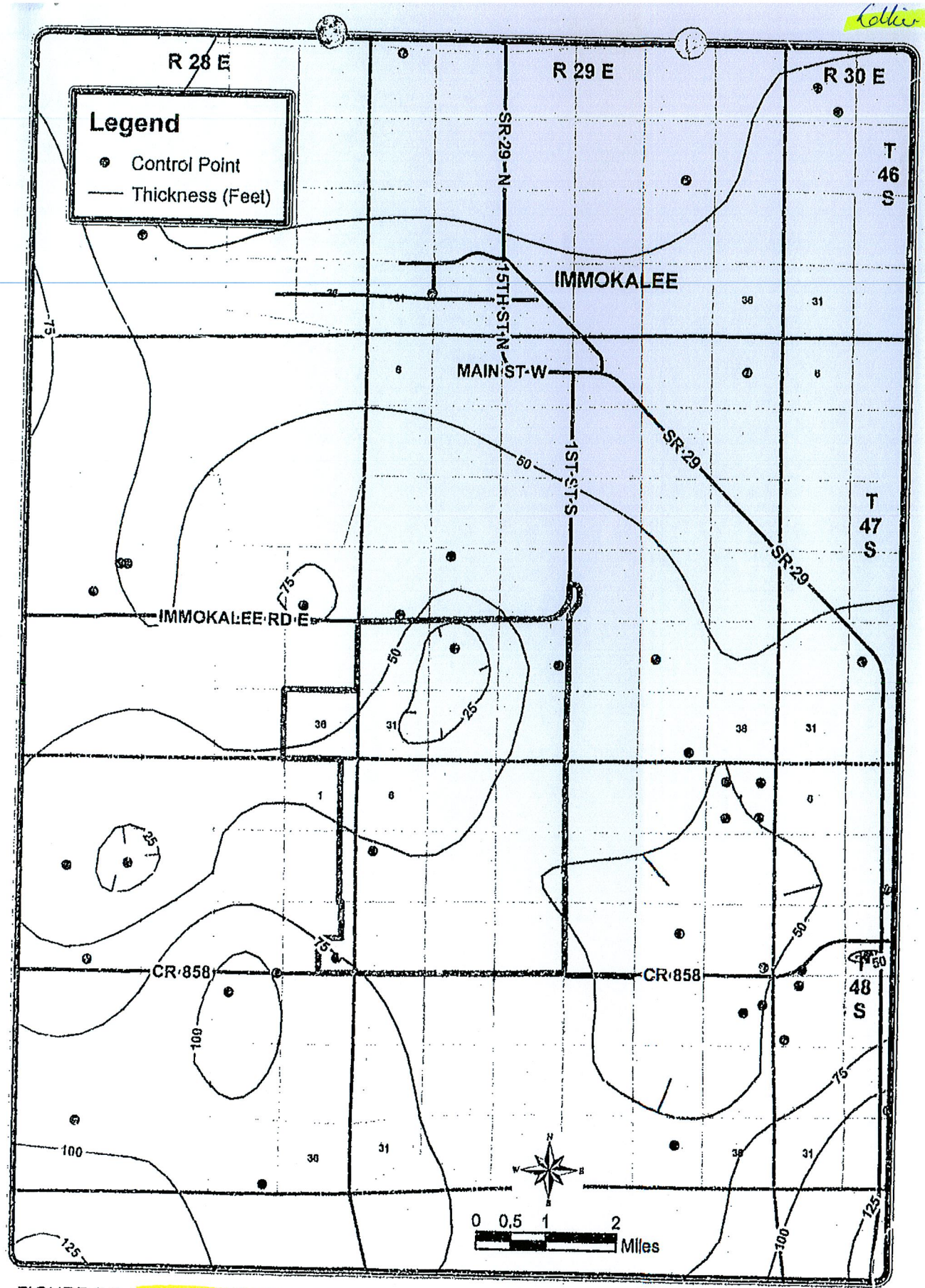

FIGURE 3-2- OCHOPEE LIMESTONE THICKNESS CONTOUR MAP.