INTRODUCTION

The Levee 31N Seepage Management Pilot Project was launched in 2001 as part of the Comprehensive Everglades Restoration Plan (CERP) to address the problem of excess water in the south-central Everglades. The project is designed to reduce water levels in the Levee 31N study area by preventing the northward flow of water and reducing the water level fluctuations at the south end of the study area. The project involves the installation of monitoring wells and the drilling of test coreholes to collect data on the geology and hydrology of the area.

METHODS OF INVESTIGATION

High-resolution geophysical and drilling data were collected to characterize the geologic formations, hydrologic units, and lithology of the Levee 31N study area. Geophysical methods, such as high-resolution electrical resistivity tomography, seismic reflection, and ground-penetrating radar, were used to image the subsurface. Drill holes were advanced using reverse circulation techniques, and core samples were collected for detailed geologic analysis. The collected data were used to develop a geologic model of the study area.

HYDROGEOLOGY

Geologic units in the Levee 31N study area consist of surficial and deep geologic formations, as well as karst aquifers. The surficial geologic formations include sandstone, gravel, and clay, which act as semi-confined or leaky units. The deep geologic formations include carbonate and sandstone, which act as confining units. The karst aquifers are characterized by zones of karstic dissolution, which can create conduits for groundwater flow. The hydrogeologic model developed for the Levee 31N study area includes a detailed representation of the geologic and hydrologic variations across the study area.