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**A THREE-DIMENSIONAL FINITE DIFFERENCE  
GROUND WATER FLOW MODEL OF  
WESTERN COLLIER COUNTY, FLORIDA**

by

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## ABSTRACT

The western portion of Collier County is underlain by three aquifer systems: the Surficial Aquifer System, the Intermediate Aquifer System and the Floridan Aquifer System. The Surficial Aquifer System is composed of the Surficial and lower Tamiami aquifers and represents the predominate source of ground water for urban and agricultural withdrawals. These two aquifers are separated by the lower Tamiami confining unit over the majority of the model area. The Intermediate Aquifer System is represented by the sandstone, mid-Hawthorn, and lower Hawthorn aquifers and intervening confining units. The Floridan Aquifer System is comprised of the Suwannee and deeper aquifers. A three-dimensional ground water flow model was developed using the U. S. Geological Survey modular flow code (MODFLOW). The model consists of five layers representing the Surficial, lower Tamiami, sandstone, mid Hawthorn and lower Hawthorn aquifers. The model area was discretized using a finite difference grid of 47 columns and 73 rows. Initial aquifer parameters were obtained from the first phase of the ground water resource assessment of Collier County and the District's three-dimensional ground water flow models of Hendry and Lee counties. A transient calibration was performed for a 35 month period (February 1986 to December 1988) by comparing simulated water levels against observed levels from an extensive ground water monitor network. The monthly simulated heads were in general agreement with observed water levels in the majority of the monitor wells used to calibrate the model. Analysis of the sensitivity tests indicate that heads in the lower Tamiami, sandstone and mid-Hawthorn aquifers are sensitive to changes in vertical conductance ( $V_{cont}$ ). Heads in the Surficial aquifer are sensitive to changes in the degree of stresses such as recharge and evapotranspiration and to variations in the evapotranspiration surface.



## INTRODUCTION

### PURPOSE AND SCOPE

The purpose of this study was to develop a three-dimensional ground water flow model to assess the natural and man-made stresses that act upon the Surficial and Intermediate aquifer systems in western Collier County. The model was calibrated to existing data and has greater capabilities in assessing the interaction between the various aquifers caused by these stresses than the existing analytical and two-dimensional ground water flow models used by the District. An immediate use will be to evaluate requests for large ground water withdrawals in environmentally sensitive areas, assess the impacts of proposed water use upon adjacent users and to conduct drought impact assessments. It can also be used to determine the long term development potential of the ground water resource(s) and as a tool to develop a water supply plan for western Collier County.

### LOCATION OF STUDY AREA

Collier County is located along the southwest coast of Florida (Figure 1). The study area (Figure 2) encompasses all of Collier County west of SR 29 and a six to ten mile buffer zone into the adjacent counties of Lee and Hendry. It lies generally within Township 45 through 49 South, and Ranges 25 through 31 East, and covers approximately 3,000 square miles.

### PREVIOUS INVESTIGATIONS

Numerous geologic and stratigraphic investigations of southern Florida including Collier County have been conducted since the early 1900's. Geologic studies include works by Matson and Clapp (1909), Matson and Sanford (1913), and Cooke and Mossom (1929), which were later summarized by Parker and Cooke (1944), and Parker et al. (1955). The regional stratigraphic framework of Collier County has been delineated by Cole (1941), Applin and Applin (1944 and 1964), Dubar (1958 and 1962), Chen (1964), Puri and Vernon (1964) and Peck et al. (1977 and 1979). A summary of the geology of southern Florida has been completed by Missimer (1984). In this work, he also suggests establishing the Hawthorn Formation as a stratigraphic group. The presence of structural features within the underlying bedrock such as folds and faults has been suggested by Tanner (1965), Sproul et al. (1972), Missimer and Garner (1976) and Burns (1983).

In recognition of increased urban development along the coastal portion of the Collier County, hydrogeologic investigations were initiated by the county in cooperation with the U.S. Geological Survey. These studies include Klein (1954) and Schroeder and Klein (1961), which outlined the geologic and hydraulic framework in western and northwestern Collier County. McCoy (1962) incorporated these works and additional information into a more regional hydrogeologic investigation of Collier County. Other hydrogeologic investigations of the Surficial and Intermediate Aquifer Systems in sections of Collier County include Gee and Jensen (1980) of the East Naples area, Jakob (1983) south of Naples, and Missimer and Associates (1983) of the Cocohatchee Watershed. Stewart et al. (1982) conducted a surface resistivity study in connection with assessing the ground water resources of Collier County. The most recent regional ground water assessment of western Collier County was completed by Knapp et al. (1986). In that study, the hydrogeologic parameters from their investigation and previous works are summarized and incorporated into two-dimensional models for various portions of Collier County. Hunter Hydrossoft (1989) utilized this information in creating a ground water flow model depicting flow around public water supply wellfields under future withdrawal scenarios. In addition, numerous hydrogeologic studies have been conducted and models developed for various localized areas within the County by private consultants.

Regional hydrogeologic investigations of the adjacent counties include Wedderburn et al. (1982) and Montgomery and Associates (1988) of Lee County and Smith and Adams (1988) of Hendry County. Three-dimensional ground water flow models have been developed for Lee County by Camp Dresser and McKee (1987) and Bower et al. (1990). In an unpublished thesis, Painter (1984) discusses the results of a three-dimensional model for a portion of Lee County. Smith (1990) documents the development and results of a three-dimensional model for Hendry County.

### HYDROGEOLOGY

Western Collier County is underlain by three aquifer systems: the Surficial Aquifer System, the Intermediate Aquifer System and the Floridan Aquifer System. The model developed in this study incorporates both the Surficial and Intermediate

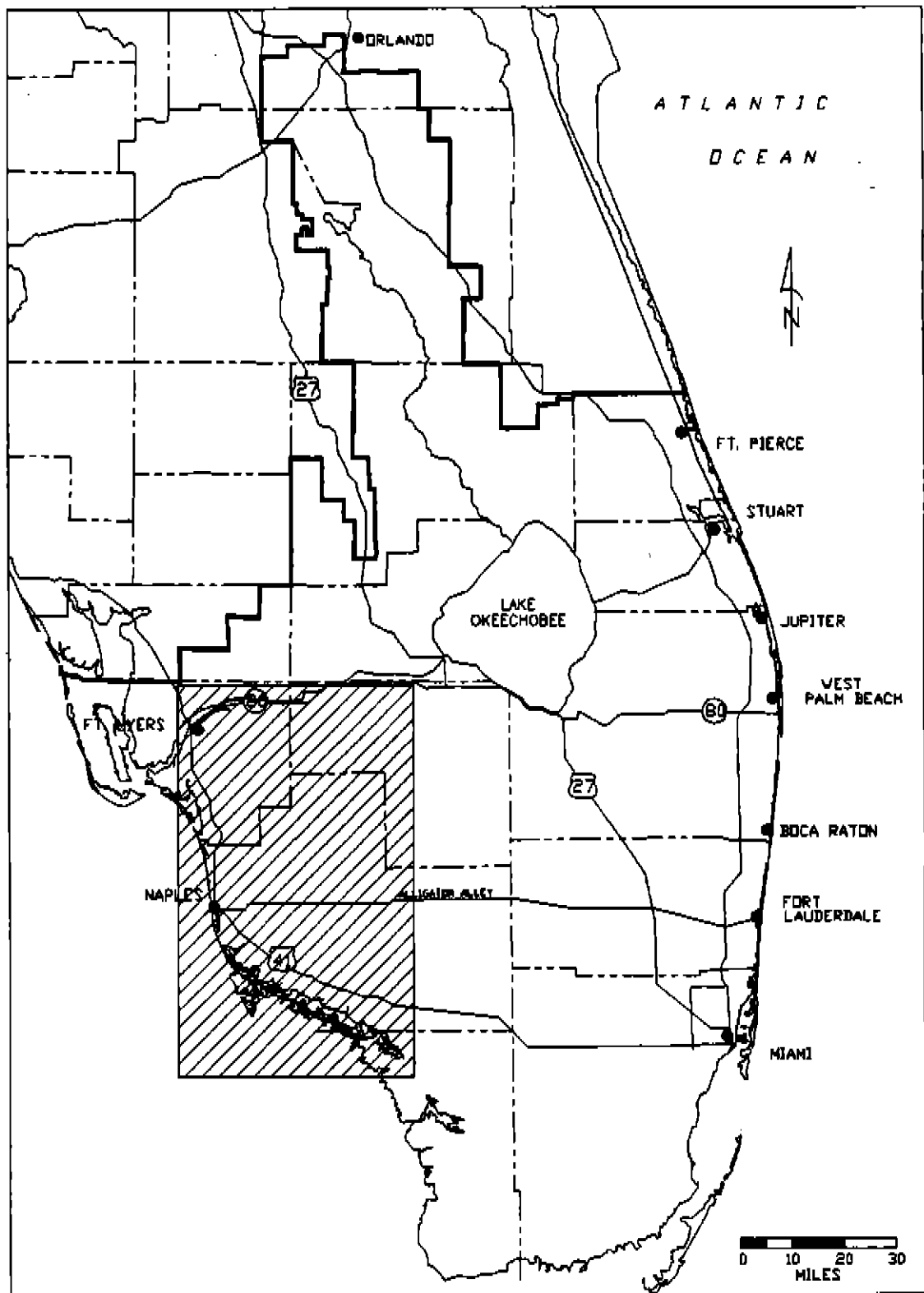


FIGURE 1. Location of Study Area

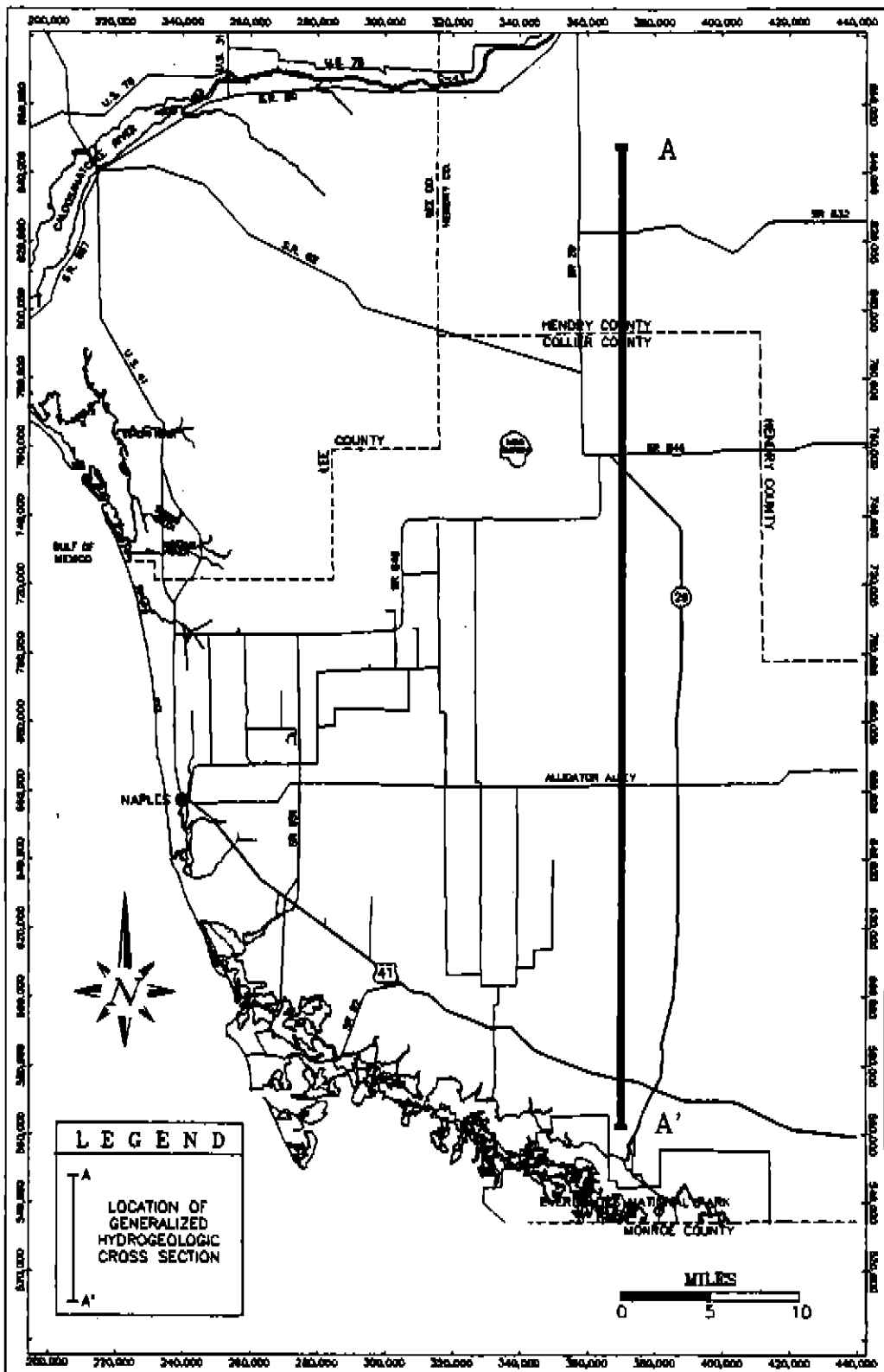


FIGURE 2. Study Area

**Aquifer Systems.** The lower portion of the Intermediate System (lower Hawthorn aquifer) is only used to hydraulically support the overlying aquifers. Relative depths and thicknesses of the aquifers are indicated in Figure 3.

### **Surficial Aquifer System**

In southwest Florida, the Surficial Aquifer System is composed of the Surficial and lower Tamiami aquifers. These aquifers are the predominate source of ground water for urban and agricultural withdrawals.

**Surficial Aquifer.** The Surficial aquifer is under unconfined conditions and is composed primarily of fine to medium grained quartz sands, with minor amounts of clay and shell material of the Pleistocene and Holocene terrace deposits and sandy biogenic limestones of the Tamiami Formation. Hydraulic conductivities range from 100 ft/day to over 3,500 ft/day with the higher transmissivities occurring in the Cocohatchee watershed where the aquifer is composed of highly permeable coralline limestone.

**Lower Tamiami Confining Unit.** The Surficial aquifer is separated from the lower Tamiami aquifer over most of the model area by the lower Tamiami confining unit. This unit is composed of low permeable calcareous sandy clays, and poorly indurated limestone and dolosilts, which retard the vertical flow of water between the Surficial and lower Tamiami aquifers. These beds are considered leaky with leakance values ranging from  $1 \times 10^{-1}$  to  $1 \times 10^{-5}$  ft/day<sup>-1</sup> depending on clay content and degree of induration. In the southern portion of Lee County, north of the Bonita Springs area, minimal to no confinement occurs between the two aquifers due to the thinning or absence of these confining beds.

**Lower Tamiami Aquifer.** The lower Tamiami aquifer is under semi-confined conditions caused by the overlying and underlying confining units which restrict vertical flow. The majority of recharge to the aquifer comes from downward vertical flow through the leaky lower Tamiami confining unit from the Surficial aquifer. The lower Tamiami aquifer ceases to act as a semi-confined aquifer where confinement is minimal or non-existent (Figure 4). Within such areas, the lower Tamiami and Surficial aquifers function as a single unconfined aquifer (Surficial Aquifer System). This area generally corresponds to a thick occurrence of the Surficial aquifer.

Reported transmissivities in the lower Tamiami aquifer range from approximately 10,000 ft<sup>2</sup>/day to 320,000 ft<sup>2</sup>/day. The most productive locations are found within the Golden Gate Estates

area. Transmissivities generally decrease towards the east due to thinning of the carbonate facies and increased elastic content in the formation (Knapp et al., 1986). This aquifer is generally the predominate water producing unit in most of Collier County as a result of its relatively shallow depth, good water quality and high productivity.

### **Intermediate Aquifer System**

The Intermediate Aquifer System separates and confines the poorer quality water of the Floridan Aquifer System from the higher quality water of the Surficial Aquifer System. It contains the sandstone, mid-Hawthorn and lower Hawthorn aquifers and intervening confining units.

**Upper Hawthorn Confining Unit.** Wedderburn et al. (1982) denotes the upper Hawthorn confining unit as zone of low permeability in the uppermost portion of the Hawthorn Group in Lee County. This unit separates the lower Tamiami aquifer from the sandstone aquifer where the sandstone is present. In southern Collier and eastern Hendry counties, the sandstone aquifer pinches out and the upper Hawthorn confining unit lies directly on top of the mid-Hawthorn confining unit. The upper Hawthorn confining unit consists of a mixture of low permeable clays, dolosilts and limestones. Vertical leakance for the upper Hawthorn confining unit range from  $1 \times 10^{-3}$  to  $1 \times 10^{-6}$  day<sup>-1</sup>.

**Sandstone Aquifer.** The sandstone aquifer is a semi-confined aquifer separated from the Surficial Aquifer System by the overlying upper Hawthorn confining unit. This aquifer is continuous across most of the model area, but pinches out south of Alligator Alley (Knapp et al., 1986) and in west-central Hendry County (Smith and Adams, 1988). It consists of sandy limestone, sandstone, sandy dolomites and calcareous sands. In Collier and Hendry counties, the sandstone aquifer is predominately utilized for agricultural irrigation, but in Lee County it is stressed by both agricultural and urban withdrawals. Reported values of transmissivity in the sandstone aquifer range from approximately 160 ft<sup>2</sup>/day to 25,000 ft<sup>2</sup>/day.

**Mid-Hawthorn Confining Unit.** The mid-Hawthorn confining unit underlies the sandstone aquifer. This unit merges with the upper Hawthorn confining unit in those areas where the sandstone aquifer is absent. Lithologically, it consists of a relatively thick sequence of clayey dolosilt (Knapp et al., 1986) which effectively limits vertical flow to the overlying aquifers. Vertical leakance for the mid-Hawthorn confining unit range from  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  day<sup>-1</sup>.

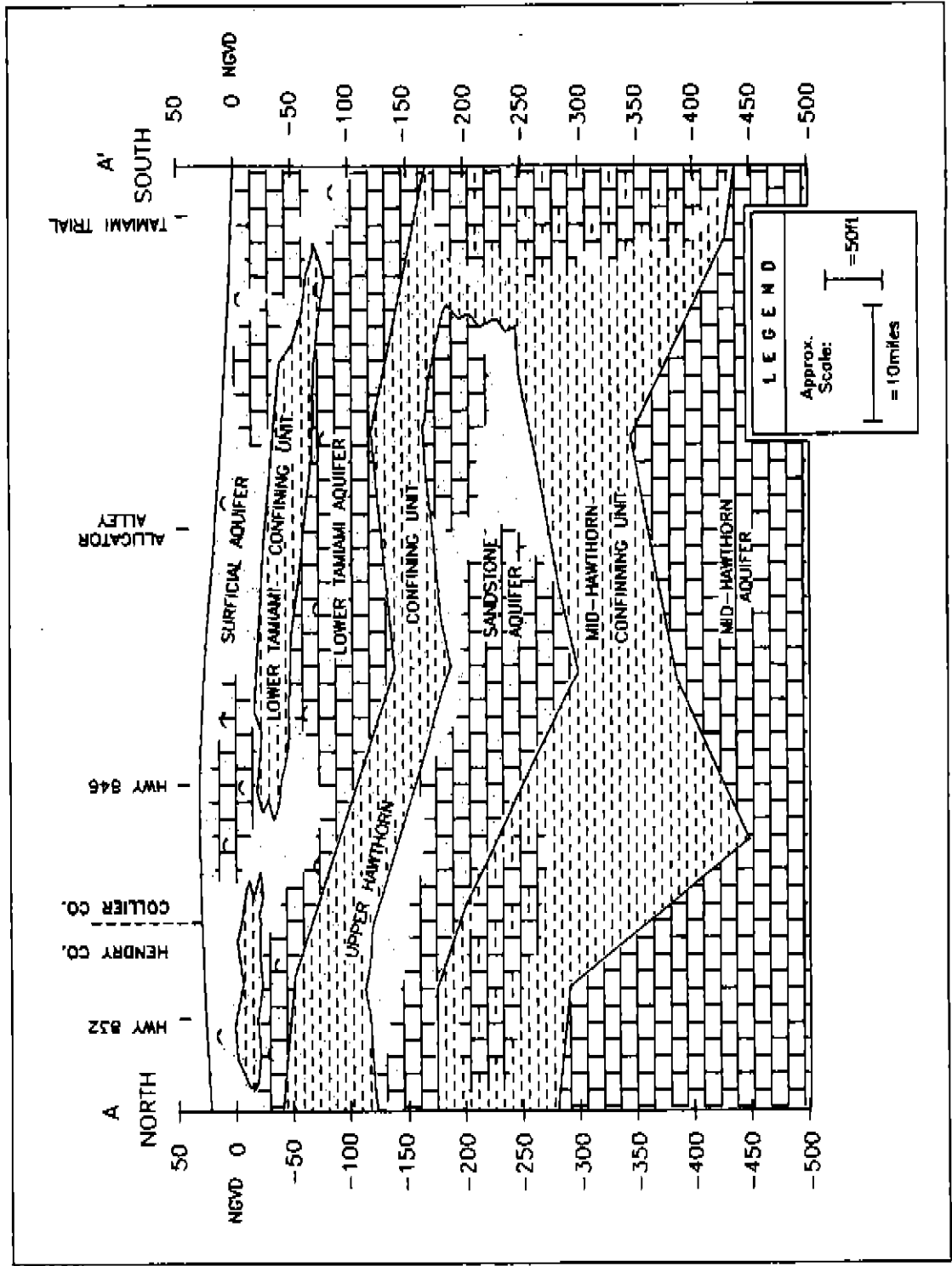


FIGURE 3. Generalized Hydrogeologic Cross Section of Collier County

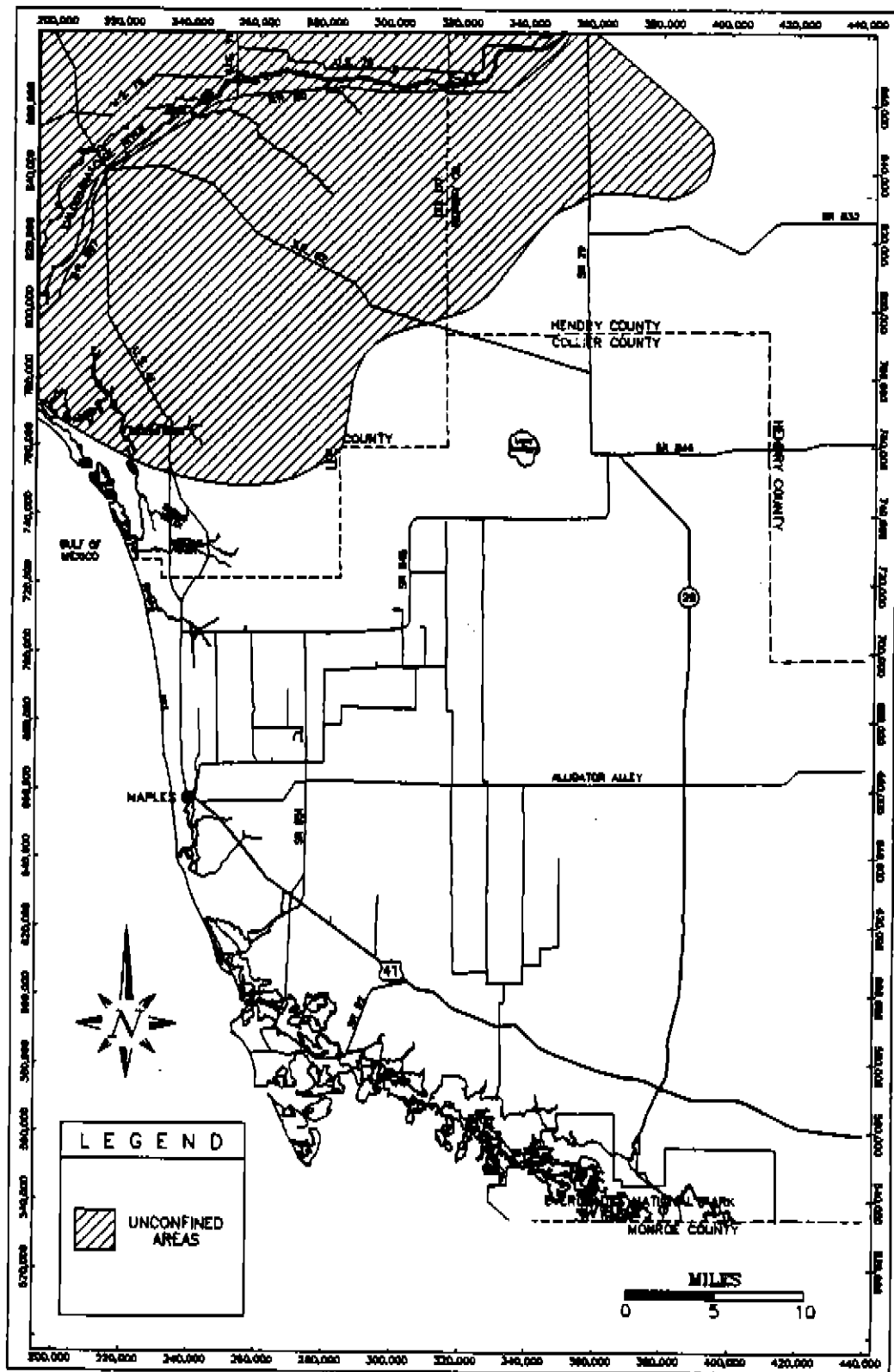


FIGURE 4. Areal Extent of Unconfined Occurrence of Lower Tamiami Aquifer



**Mid-Hawthorn Aquifer.** The mid-Hawthorn aquifer is not highly utilized in either Collier or adjacent Hendry counties due to increased well depths, poorer quality water and relatively low yields. Only recently have wells been drilled into this aquifer to supplement agricultural withdrawals from the overlying aquifers in Collier County. However, in Lee County, the mid-Hawthorn aquifer has been greatly stressed by significant residential irrigation withdrawals. This aquifer is composed of sandy and phosphatic limestones and dolomites interbedded with lower permeable beds of dolosilt and poorly indurated limestones (Knapp et al., 1986). Locally transmissivities may exceed 4,000 ft<sup>2</sup>/day, but generally range from 500 ft<sup>2</sup>/day to 1,200 ft<sup>2</sup>/day over the model area.

**Lower Hawthorn Confining Unit.** The lower Hawthorn confining unit underlies the mid-Hawthorn aquifer and consists of varying thicknesses of poorly indurated limestone and interbedded clays, dolosilt, and carbonate muds. Vertical leakance for this confining unit range from  $1 \times 10^{-3}$  to  $1 \times 10^{-6}$  day<sup>-1</sup>, based primarily on data from the Cape Coral/Ft. Myers area in Lee County (Missimer, 1991).

**Lower Hawthorn Aquifer.** The lower Hawthorn aquifer is also a semi-confined aquifer and is composed primarily of fossiliferous limestone containing minor amounts of silts and sands. Transmissivity values are highly variable and range from 1,800 ft<sup>2</sup>/day to 12,500 ft<sup>2</sup>/day. This hydraulic information is based on aquifer tests conducted in the Cape Coral/Ft. Myers area of Lee County (Missimer, 1991). Ground water withdrawals from this aquifer are very limited within Collier County due to its poor water quality (high chloride concentration) and greater well depths.



## MODEL DESCRIPTION

### INTRODUCTION

The model used in this study is the modular three-dimensional finite-difference ground water flow model (MODFLOW) developed by the U.S. Geological Survey (McDonald and Harbaugh, 1988). This model was selected for the following reasons:

1. It is available in the public domain and is compatible with most computer systems,
2. The modular structure of the code and its excellent documentation allow easy modification of the code and the addition of new modules for specialty applications,
3. MODFLOW allows great flexibility of data file structure and management; this facilitates the employment of and interaction with other software for data manipulation,
4. The cell-by-cell flow feature of the code can be used to:
  - A. Evaluate in detail flow and head changes associated with various withdrawal scenarios, and
  - B. Generate boundary conditions for higher-resolution models within areas of regional flow model.

The MODFLOW code contains modules which simulate recharge, evapotranspiration, rivers, drains, wells, and other sources and sinks of water external to the model. Three iterative solution schemes are available for simulating flow problems: slice successive over relaxation (SSOR), strongly implicit procedure (SIP), and the preconditioned conjugate gradient (PCG) method (Kuiper, 1987). SSOR is the better solution method for some multiple layered conditions, however, it is not as direct as SIP and it requires more time to arrive at a solution. PCG is frequently faster than SIP or SSOR for complex flow systems. The SIP solution method was used in the western Collier County model because of its efficiency under normal conditions. Table 1 summarizes the MODFLOW modules and their specific application to the western Collier County model.

MODFLOW allows several types of boundaries to be set in a model: specified head, specified flux and head dependent flux. Constant head is a specified head boundary which maintains the same user-specified head level throughout the

transient simulation and may be used when the cell is in contact with a large surface water body. Specified flux boundaries can be simulated through the use of external source terms in the model. A no-flow boundary is a type of specified flux boundary and is used where the ground water flow regime is such that flow across the boundary is not expected to occur. Head dependent flux boundaries, as the name implies, generates a flux which depends on the head in the cell and a user specified head assigned to the external source and upon some proportionality factor. All types of boundary conditions can be set anywhere within a model grid. A specified flux (no flow) boundary is implicit along the outer edges of each layer and bottom of a model grid.

### DISCRETIZATION

The study area was discretized into a horizontal grid comprised of cells measuring one square mile, assembled into a grid of 73 rows and 47 columns (Figure 5). The model grid was set to spatially match and overlap the grid used in the existing SFWMD three-dimensional ground water flow model of Lee County (Bower et al., 1990) and in close proximity to the Hendry County model (Smith, 1990).

MODFLOW offers two options for vertical discretization. In a fully three-dimensional model, the confining zones are represented in the model as individual layers. Values of transmissivity, storage, and vertical hydraulic conductivity for the confining zone are required for this approach. A fully three-dimensional model would more accurately simulate flow conditions where horizontal flow in the confining zone is an important part of the flow regime. In a quasi-three-dimensional model, the confining zones are not represented as individual layers, but as vertical conductance terms (Vcont), which represents a hypothetical interface separating the model layers. Within the study area, the values of hydraulic conductivity exhibited by the aquifers are several orders of magnitude greater than those in the confining zones. Therefore, it can be assumed that on the regional scale of this model, flow in the aquifers is primarily horizontal and flow across the confining zones is primarily vertical. Thus, the quasi-three-dimensional approach is a good approximation of the ground water flow regime in Collier County.

The western Collier County model contains five layers (Figure 6), representing the Surficial,

**TABLE 1  
MODFLOW MODULES AND APPLICATION TO THE  
COLLIER COUNTY MODEL**

<b>MODFLOW MODULE</b>	<b>FUNCTION</b>	<b>USE IN MODEL</b>
Basic	Model Administration	Used
Block Centered Flow	Computation of Aquifer Parameter Input Sets	Used
Well	Simulates a source/sink to the model that is not affected by aquifer head	Used to simulate pumpage
Drain	Simulates discharge from model dependent on aquifer head	Used to simulate major drainage canals.
River	Simulates effects of river leakage. May recharge or drain model depending on head differences.	Used to simulate surface water interactions
ET	Simulates discharge through evapotranspiration	Used
General Head Boundary	Simulates a source/sink at rates depending on head differences between source/sink and aquifer	Used
Recharge	Simulates recharge to model from infiltration of rainfall	Used
SIP	Solves finite difference equations using the Strongly Implicit Procedure	Used for final steady- state and transient calibration
SSOR	Solves finite difference equations using the Slice Successive Over Relaxation Method	Not Used
PCG	Solves finite difference equations using the Preconceived Con- jugate Gradient Method	Not Used
Output Control	Specifies output format	Used
Observation Nodes	Generates a file of computed heads for selected nodes	Used to generate convergence maps and hydrographs

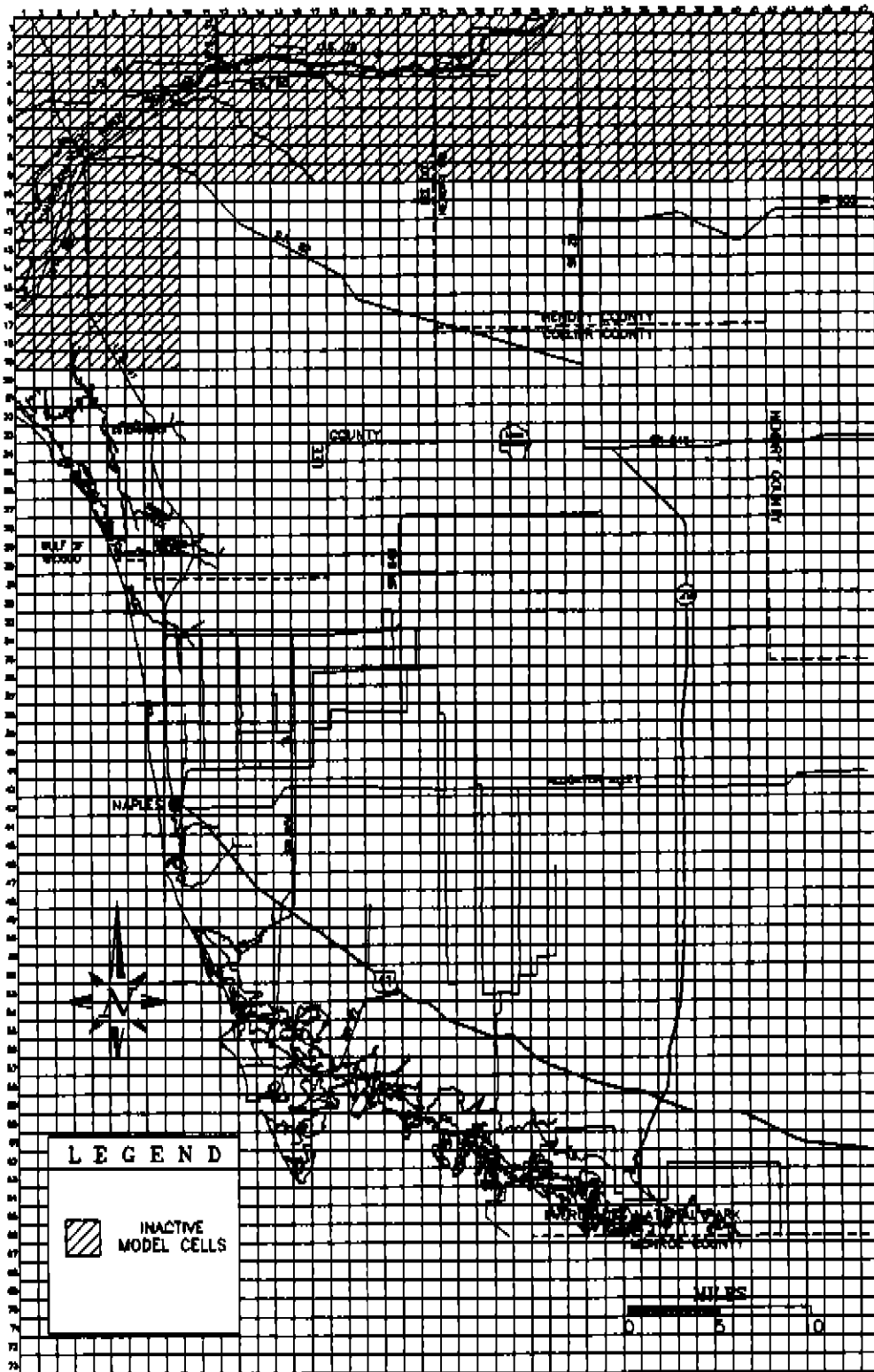


FIGURE 5.

Model Grid

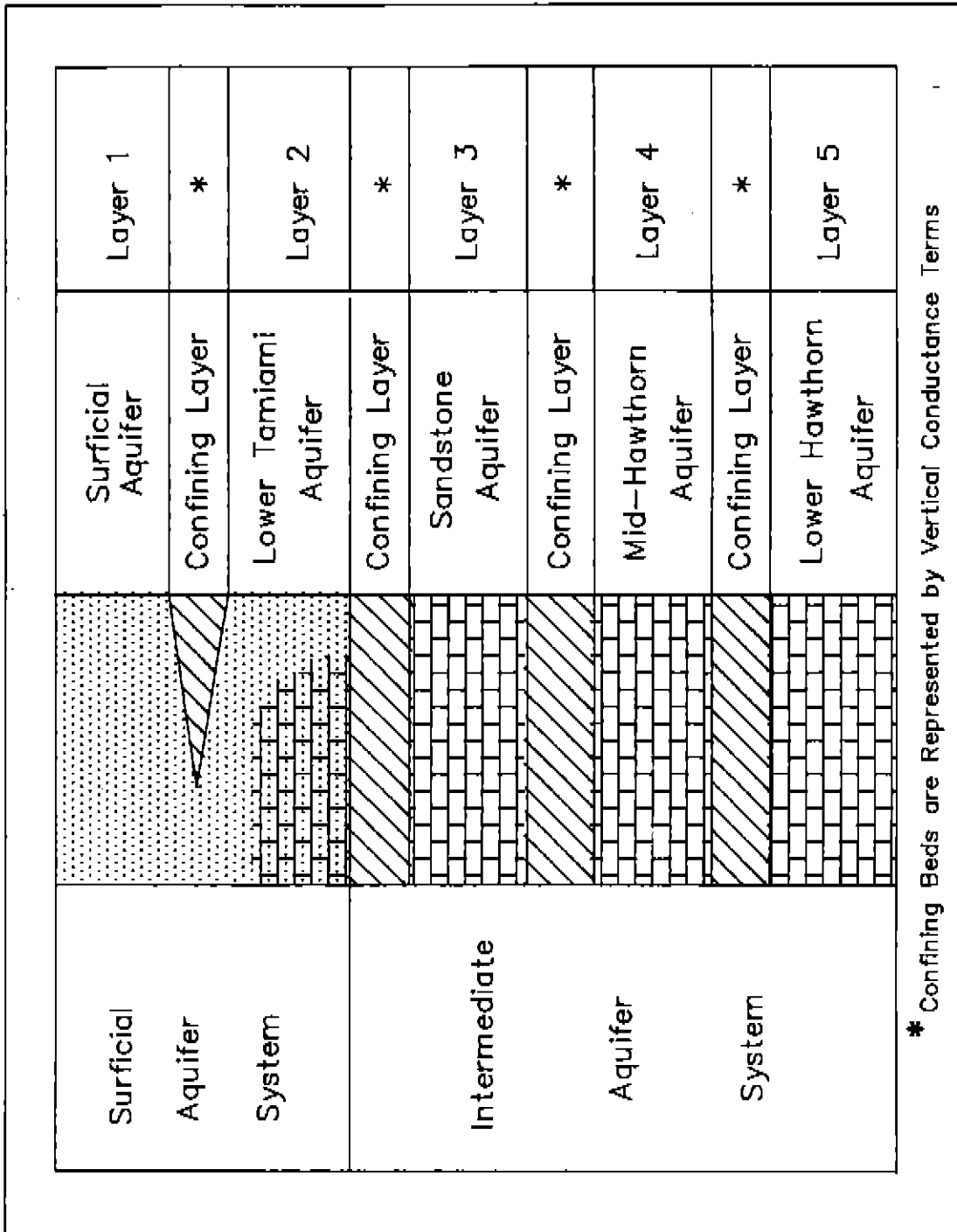


FIGURE 6. Hydrogeologic Units and Corresponding Model Layers

lower Tamiami, sandstone, mid-Hawthorn and lower Hawthorn aquifers. The confining zones separating these aquifers are represented as vertical conductance terms at the bottom of layers one through four, respectively.

## BOUNDARY CONDITIONS

Constant heads (specified heads) were chosen for the model boundaries in Collier County where the cells are in contact with a large surface water body such as the Gulf of Mexico. This type of boundary represents an inexhaustible source of water where the ground water system may either draw from or discharge to without changing the head within that cell. General head boundaries were established along the northern and eastern limits to simulate flow in or out of the model. The flux across this boundary depend on the head differential between the user specified head on one side of the boundary and model calculated head on the other (Anderson and Woessner, 1991). This type of boundary condition was used to more accurately reflect inflows or outflows of water to the model area, because it allows the head along the boundary to change with time. It can also help to alleviate the potential problem of overestimating flow into the model if steep ground water gradients (such as those around a pumping well) approach the boundary during a model simulation.

In layers 1 and 2, representing the Surficial and lower Tamiami aquifers, the northern and eastern boundaries consist of general head cells set six to ten miles outside the county border. This distance was chosen to minimize the effects of stresses within Collier County upon the boundaries by assuming that heads along the boundary will not change in response to those stresses. Within layer 1, the coastline and surface of the Gulf of Mexico are established as a constant head of 0 feet NGVD (Figure 7); no corrections for tidal fluctuations have been made. For the lower Tamiami aquifer (layer 2), a constant head of 0 feet NGVD was set for all cells two miles west of the coastline. This was done to simulate the head distribution at the terminus of the Tamiami confining unit and undersea subcropping of the lower Tamiami aquifer (Figure 8). General heads were also used along the northern and eastern boundaries for layer 3 (sandstone aquifer), but constant heads were used to represent the western and southern model limits (Figure 9). Specified heads were used along the entire outer edge of layer 4 (mid-Hawthorn aquifer) (Figure 10). This type of boundary was chosen due to insufficient data along the edge of this layer which is needed to accurately represent the parameters used in the calculation of inflow or outflows by the other types of boundary

conditions. Constant heads were used for the entire bottom layer which represents the lower Hawthorn aquifer. Constant heads in the lower Hawthorn were used to hydraulically support the mid-Hawthorn and overlying aquifers through upward leakage. The constant head values for the lower Hawthorn aquifer were created by determining the average water levels from existing monitor wells over the transient calibration period (Figure 11). The use of an average head distribution for this layer was chosen because of easier file management, very limited monthly water level data, and insignificant changes in water levels over the simulation period.

## HYDRAULIC CHARACTERISTICS

All data describing hydraulic and aquifer parameters such as conductivity, transmissivity, vertical conductance, thicknesses, and aquifer bottoms are presented in Appendix A.

### Transmissivity

**Layer 1 (Surficial Aquifer).** MODFLOW calculates the transmissivity of unconfined aquifers by multiplying the hydraulic conductivity by the saturated thickness of the aquifer. Initial saturated thickness is calculated from the starting head and aquifer bottom elevation, both of which are required input for an unconfined aquifer. Head changes throughout the simulation result in changes in the calculated transmissivity in an unconfined aquifer. When the simulated head in a cell drops to a level at or below the aquifer bottom elevation, the transmissivity of the cell becomes zero, resulting in the cell "going dry" and becomes inactive for the remainder of the simulation. This situation does not occur in this calibrated model.

Hydraulic conductivity of the Surficial aquifer in the western Collier County model ranges between 100 ft/day and 3,500 ft/day. The distribution of hydraulic conductivity was based on pump test data from various consultants, SFWMD and U.S. Geological Survey reports. The conductivity values used in the SFWMD three-dimensional models of Lee and Hendry counties were then assigned to the appropriate model cells. The single array was then smoothed using the cubic spline interpolation technique to eliminate any sharp breaks and establish continuity between the data sets.

**Layer 2 (Lower Tamiami Aquifer).** The transmissivity grid for layer 2 was developed by regionalization of the transmissivity values reported in various ground water reports. The regionalization was accomplished using a kriging interpolation technique, and resulted in a range of transmissivity from 10,000 ft<sup>2</sup>/day to 296,600 ft<sup>2</sup>/day. Where the lower Tamiami confining unit is absent in southern

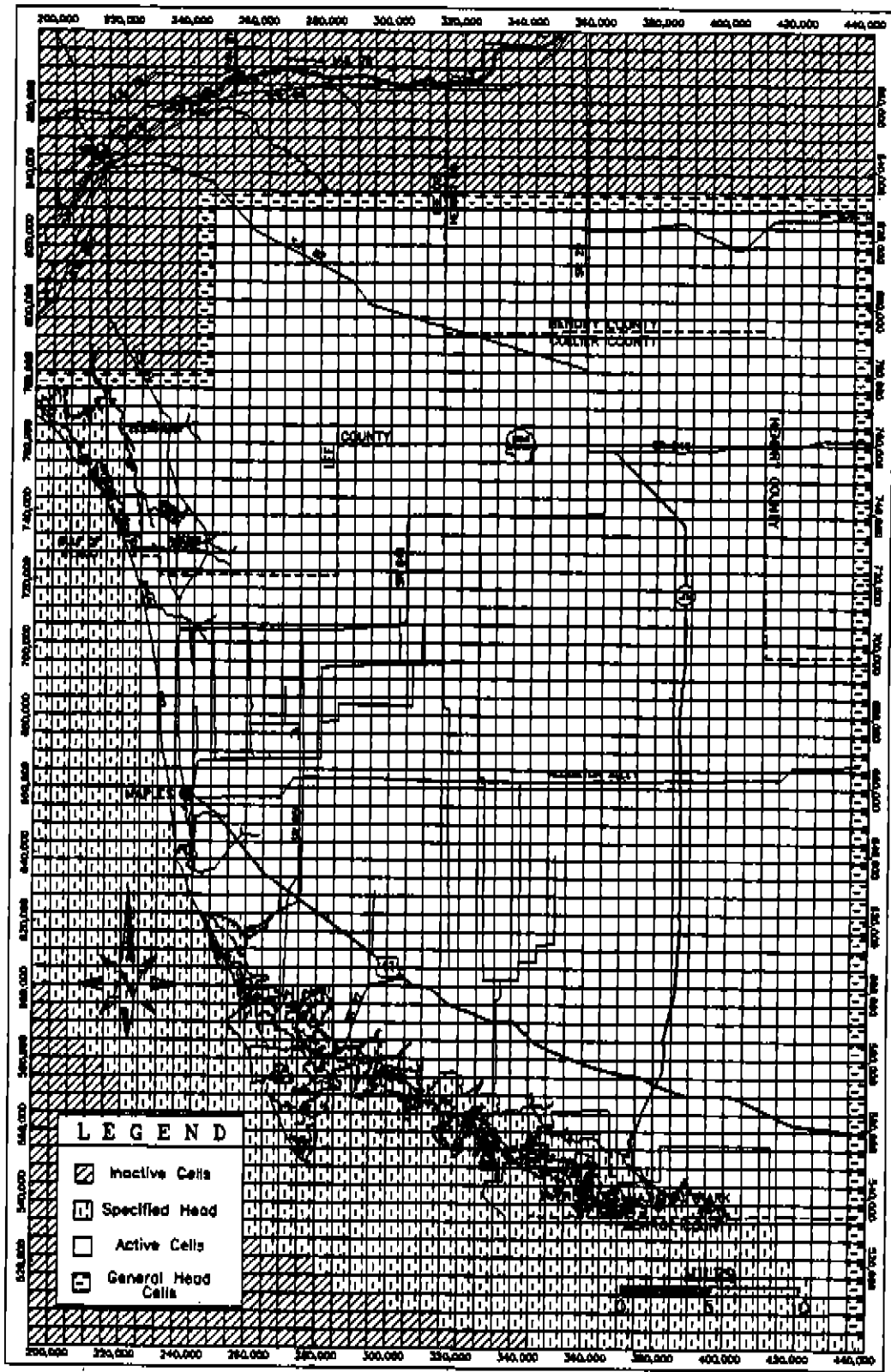


FIGURE 7. Model Cell Types, Layer 1



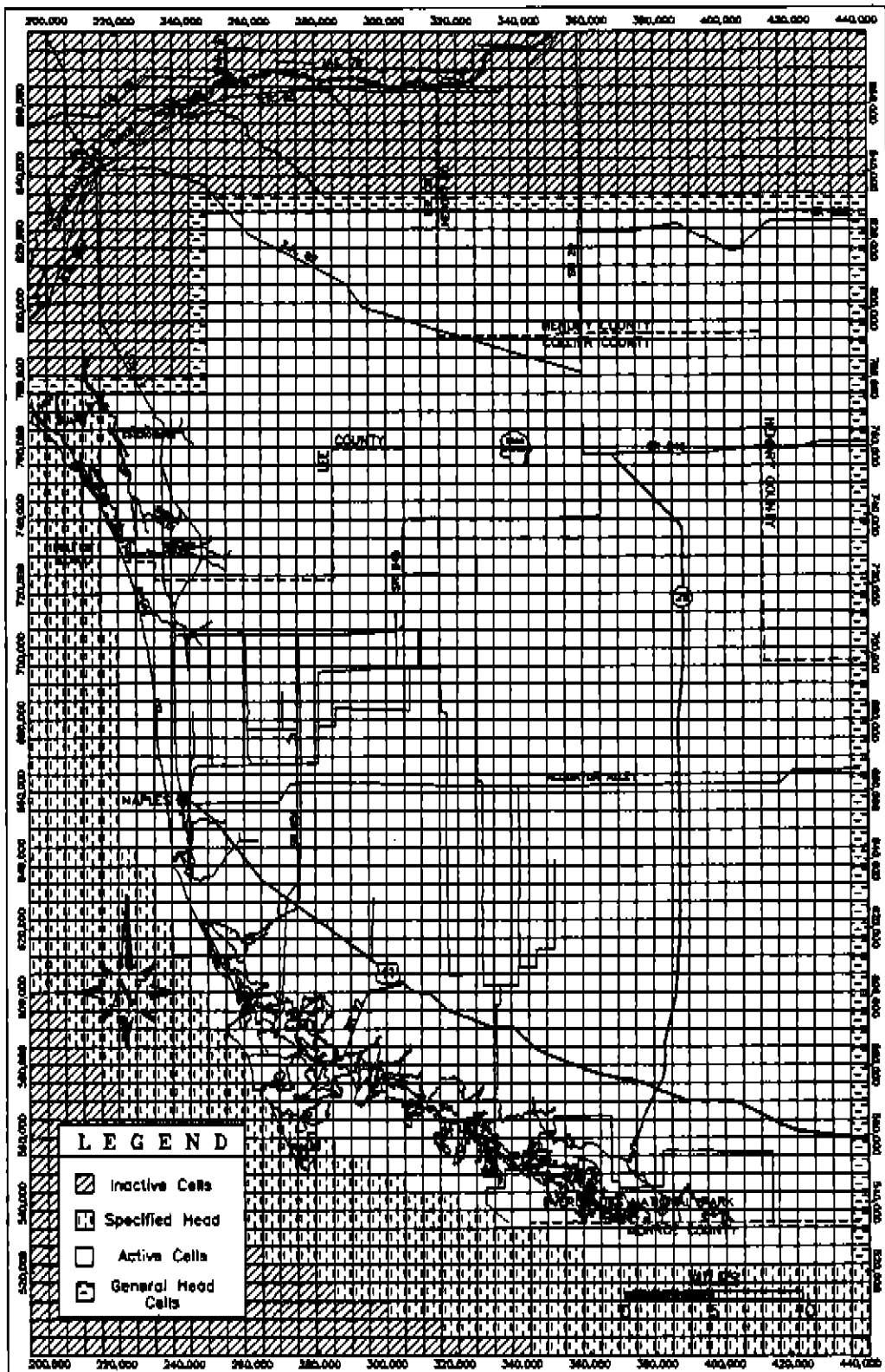


FIGURE 8. Model Cell Types, Layer 2

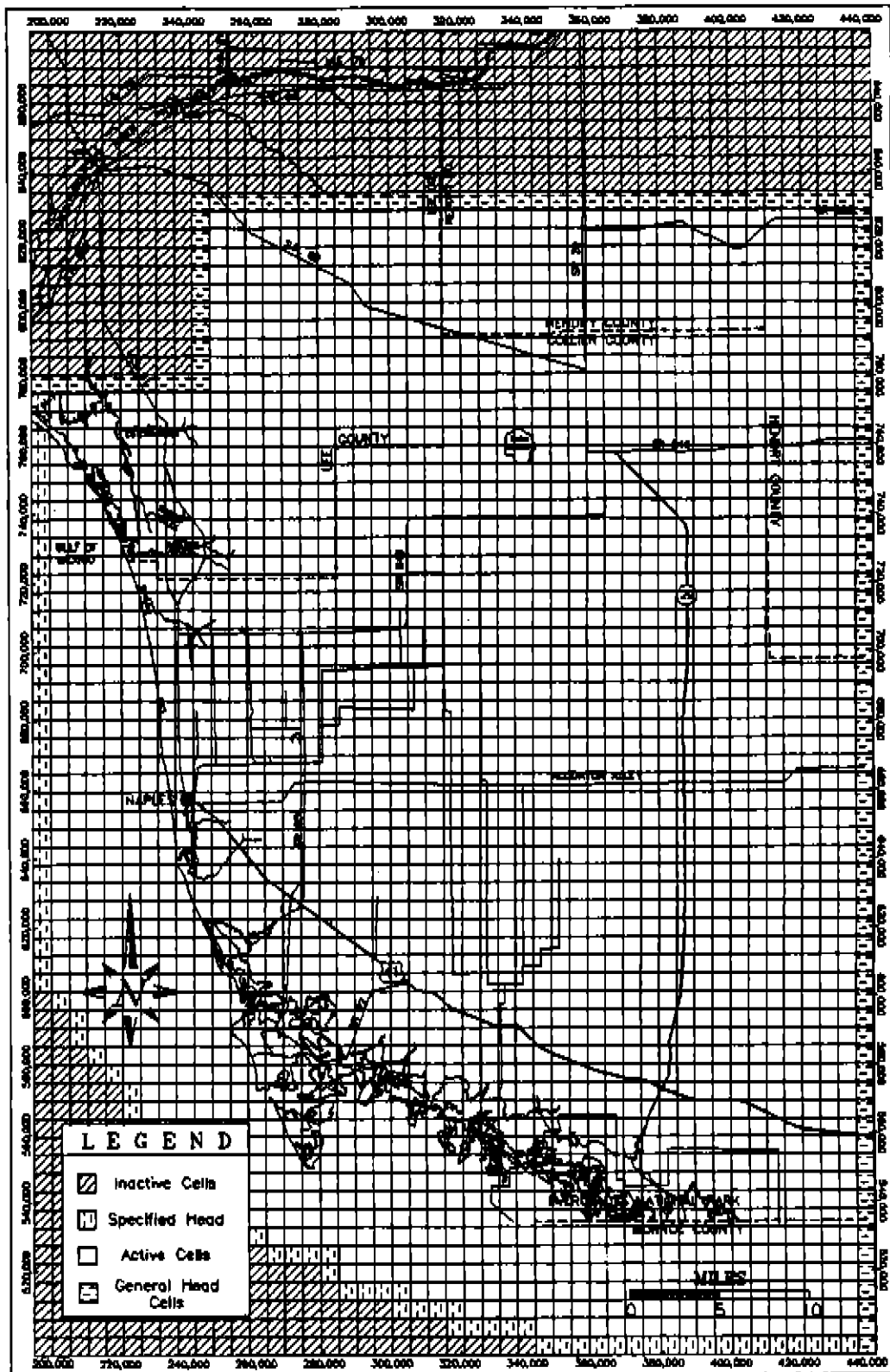


FIGURE 9. Model Cell Types, Layer 3

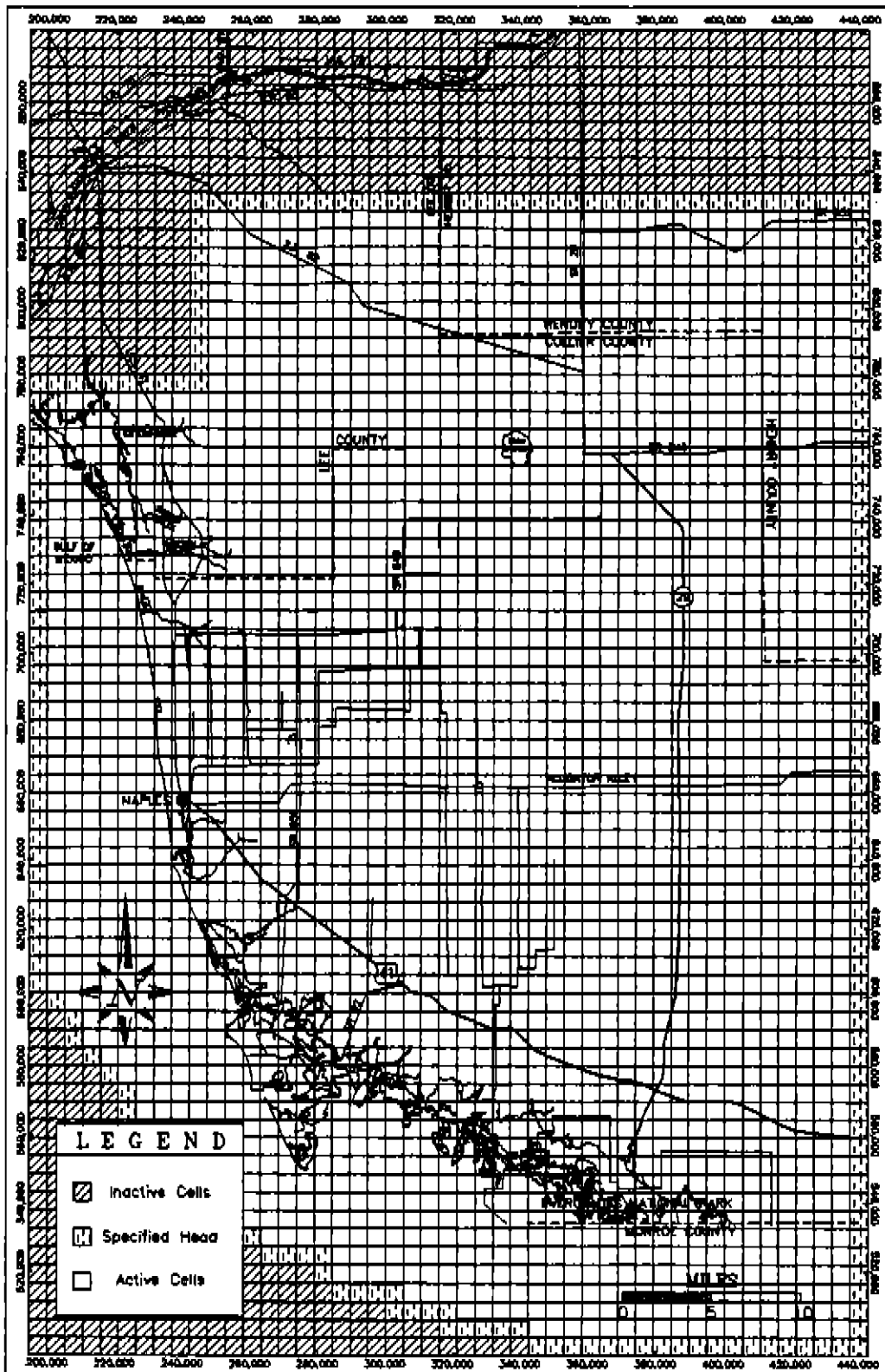


FIGURE 10. Model Cell Types, Layer 4

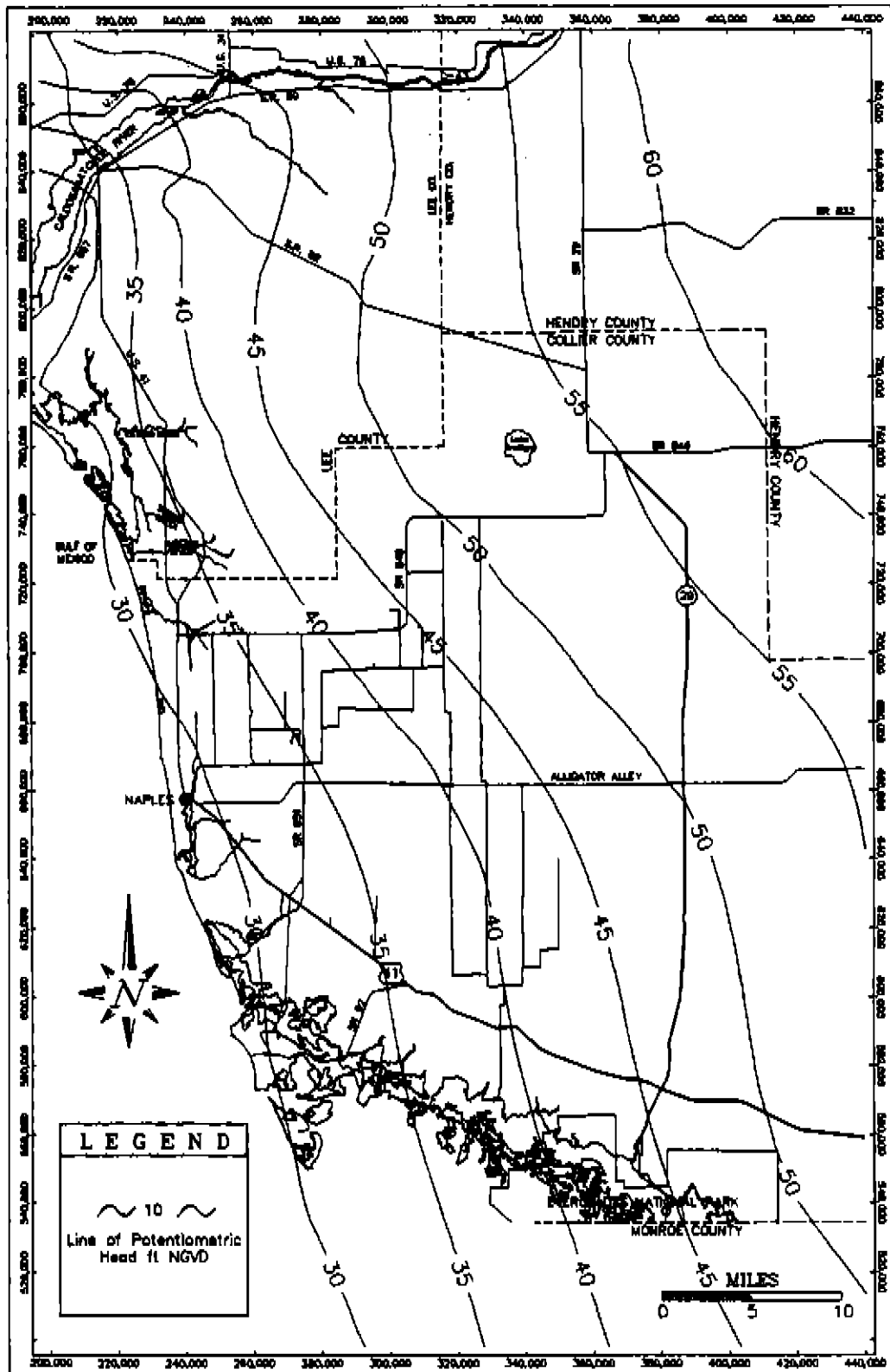


FIGURE 11. Specified Head Used in Layer 5

Lee County, the layer is represented by a hydraulic conductivity of 500 ft/day multiplied by thickness of one foot, a negligible value which has no effect on model results (Bower et al., 1990). Instead of establishing a no flow boundary at this point, a relatively small transmissivity value (500 ft<sup>2</sup>/day) and large vertical hydraulic conductivity value (1x10<sup>-1</sup> ft/day) was used to allow for maximum vertical flow to occur between the lower Tamiami and Surficial aquifers. This approach enables direct hydraulic interaction between the sandstone and Surficial aquifer to occur where the lower Tamiami aquifer ceases to function as a confined aquifer.

**Layer 3 (Sandstone Aquifer).** The transmissivity grid for layer 3 was developed using zoned averaged conductivity values based on pump test data from within Collier County multiplied by aquifer thickness. Aquifer thickness were obtained from JMM (1988) for Lee County and reinterpreted hydrogeologic cross sections of western Collier County compiled from various sources (Klein, 1954; McCoy, 1962; Gee & Jensen 1980; Knapp et al., 1986). The aquifer thickness grid generated from the kriging algorithm did not accurately represent the sandstone aquifer in southern Collier and central Hendry counties, where it does not occur. The transmissivity values in these areas were significantly reduced (1 to 10 ft<sup>2</sup>/day) which simulates the southern and eastern boundary of the aquifer. Resulting values of transmissivity for the sandstone aquifer ranged from 160 ft<sup>2</sup>/day to 14,500 ft<sup>2</sup>/day.

**Layer 4 (Mid-Hawthorn Aquifer).** Relatively little is known about the hydraulic characteristics of the mid-Hawthorn aquifer and the degree in which it is connected to the lower Hawthorn aquifer. Within Collier County, transmissivity array for layer 4 was developed using average conductivity values based on pump test data (primarily from western Lee County) multiplied by aquifer thickness. Aquifer thickness was once again obtained from hydrogeologic cross-sections compiled from various sources (James M. Montgomery, 1988 and Knapp et al., 1986). Resulting transmissivity values for the mid-Hawthorn aquifer range from 300 to 5,000 ft<sup>2</sup>/day.

#### Specific Yield

Reliable data on specific yield for the Surficial aquifer in Collier County is very limited. Therefore, specific yield for layer 1 (Surficial aquifer) was set at 0.2 (Fetter, 1980, Driscoll, 1986). This value represents an average specific yield for the type of sediments that comprise the Surficial aquifer.

#### Storage

The storage coefficients in layer 2 through 5, representing the lower Tamiami through lower Hawthorn aquifers, were set to  $1 \times 10^{-6}$  feet<sup>-1</sup> multiplied by the aquifer thickness. This methodology was also used to determine storage coefficients for the ground water flow models of Eastern Palm Beach County (Shine et al., 1989) and Lee County (Bower et al., 1990).

#### Vertical Conductance

Within MODFLOW, for a quasi-three-dimensional approach, flow between layers is controlled by the vertical conductance parameter (Vcont). Vertical flow through the confining layer is a function of the vertical conductance term and the head difference between the two layers. Horizontal flow in the confining layer within the area is negligible and flow is assumed to be primarily vertical. The JMM (1988) study reports these average vertical hydraulic conductivity values for the following confining layers:

Lower Tamiami	0.012400 ft/day
Upper Hawthorn	0.008860 ft/day
Mid Hawthorn	0.000310 ft/day
Lower Hawthorn	0.0002565 ft/day

Leakance values used in the model were obtained by dividing the above referenced vertical hydraulic conductivities by the thickness of each confining zone. The vertical conductance (Vcont) term for each model cell is then calculated within MODFLOW by multiplying the leakance value by its area.

Thickness data for the lower Hawthorn confining unit is quite limited in Collier County. Therefore, the leakance array used to represent this confining unit was initially set to an average value of 0.0000200 day<sup>-1</sup>, obtained from the SFWMD ground water flow model of Lee County (Bower et al., 1990) and adjusted during steady state calibrations. The resulting calibrated leakance values representing the lower Hawthorn confining unit ranged from 0.0000015 day<sup>-1</sup> to 0.0000500 day<sup>-1</sup>.

#### SURFACE WATER INTERACTIONS

##### Rivers

The river module of MODFLOW was used to simulate the interaction of ground water and distinct surface water bodies such as rivers and lakes. The simulated flow between ground and surface water is controlled by the hydraulic conductance of the river bed sediment, river stage, aquifer head, and elevation of the river bottom. River bed conductance

(CRIV) for a cell is obtained by using the following equation (McDonald and Harbaugh, 1983):

$$CRIV = \frac{KLW}{M} \quad (1)$$

where,

K = hydraulic conductivity of the river bed sediment,

L = length of the river reach that occur in the cell,

W = width on wetted perimeter of the river reach, and

M = estimated thickness of the river bed sediment.

The rate of flow (QRIV) is determined by the difference between river stage and aquifer head, and is proportional to the conductance of the river bed sediment and is given by:

$$QRIV = CRIV (HRIV - h_{ijk}) \quad (2)$$

where,

CRIV = river bed conductance,

HRIV = river stage, and

$h_{ijk}$  = head in the cell underlying the river reach.

Effluent or influent flow can occur, depending on the gradient between river stage and aquifer head. When the aquifer head is higher than the river stage, flow is from the aquifer into the river and conversely, when the river stage is higher than the aquifer head, flow is from the river into the aquifer. If the aquifer head falls below the bottom of the river, flow into the aquifer occurs at a rate equal to the difference between the river stage and river bottom elevation, and is proportional to the conductance of the river bed sediment. Further reductions in aquifer head produce no increase in flow into the aquifer (McDonald & Harbaugh, 1983).

Only those surface water bodies with reliable information on widths, depths, and stages were simulated in the western Collier County model. They included the tidal portions of Faka Union Canal, Barron River, Henderson Creek, Lely Canal, Naples Bay, Cocohatchee River, Imperial River, Estero River, and Lake Trafford. Bottom elevations, profiles, and configurations for the majority of the canals were obtained from various surface water consultant reports and aerial photographs. Stage data was obtained from both District and U. S Geological Survey recorder stations. Cells

containing river reaches are shown in Figure 12. Model input data and stage recorder locations used to compile the river module is presented in Appendix B.

### Drains

The rate at which water is removed from the aquifer in the drain package of MODFLOW is defined by McDonald and Harbaugh (1983) as:

$$QD_{ijk} = CD_{ijk} (h_{ijk} - d_{ijk}) \quad (3)$$

where,

$CD_{ijk}$  = hydraulic conductance of the drain,

$h_{ijk}$  = aquifer head in the cell occupied by the drain, and

$d_{ijk}$  = drain elevation.

The drain elevation may be represented by either the bottom elevation of the canal or flow point of the water control structure (i.e. weir). The water control structure retains water within the cell until the crest elevation is exceeded, then water is removed from that cell. If the aquifer head drops below the bottom of the drain, flow to the drain ceases and no return flow from the drain occurs.

The primary canals of the major drainage basins within Collier County such as the Golden Gate and Faka Union and the East County Control District (ECWCD) of Lee County were simulated using the drain package. Cells containing drains are shown in Figure 12. Model input data and water control structure locations used to compile the drain module is presented in Appendix C.

### RECHARGE

The average recharge depth in a model cell resulting from precipitation,  $R_p$ , can be computed using the mass balance equation as:

$$R_p = P_n - Q_d - ET_u - ET_s \quad (4)$$

where

$P_n$  = the average net precipitation depth over the cell not lost to interception or depression storage,

$Q_d$  = the average depth of water lost to surface drainage (not otherwise simulated using a MODFLOW package),

$ET_s$  = the average evapotranspiration depth from the saturated zone (calculated by

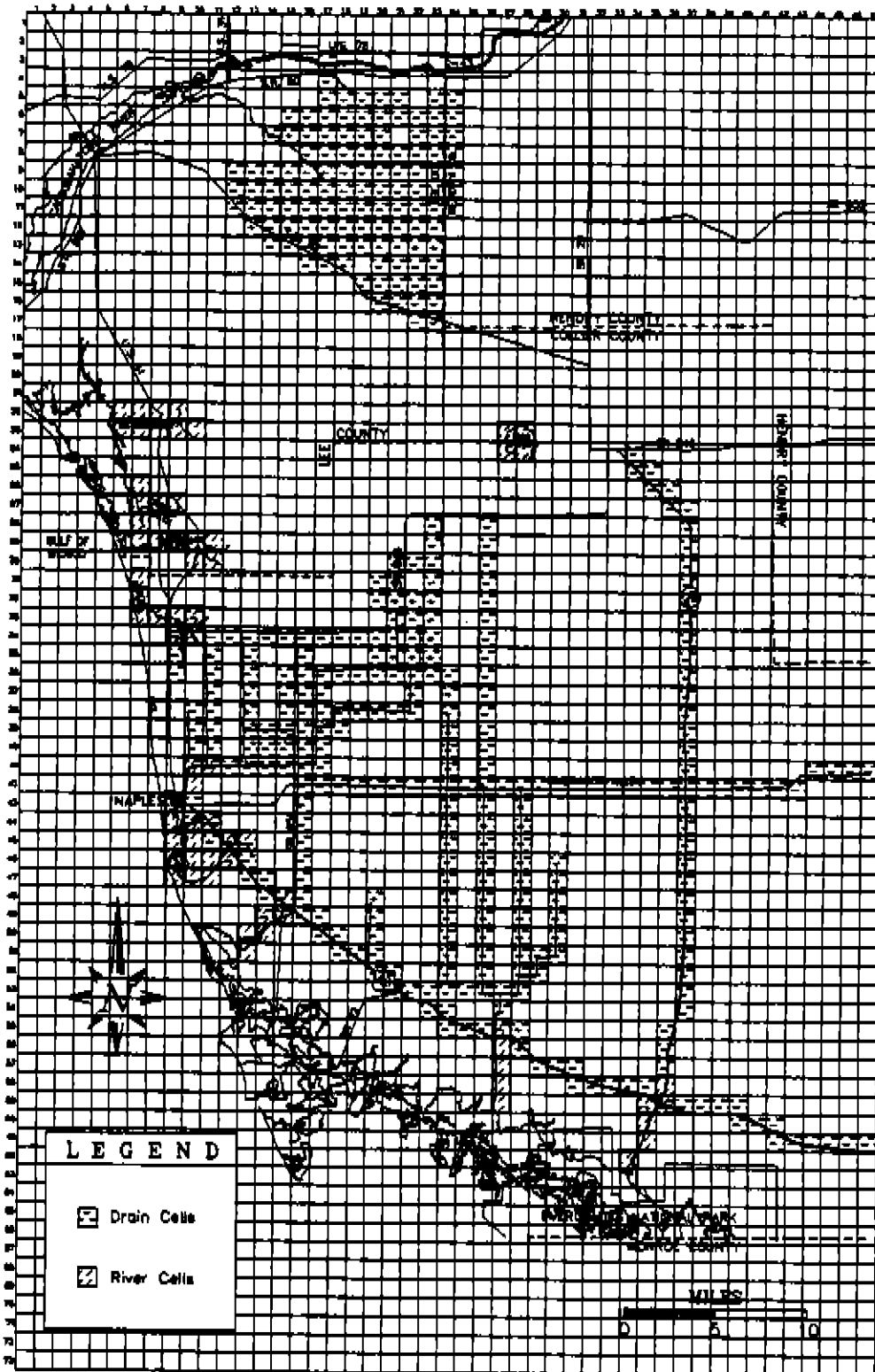


FIGURE 12. Model Cells Containing River and Drain Reaches, Layer 1

the evapotranspiration package in MODFLOW), and

$ET_u$  = the average evapotranspiration depth from the unsaturated zone (not calculated by the evapotranspiration package in MODFLOW).

### Net Precipitation

The average monthly net precipitation depth,  $P_n$ , for a cell can be approximated from the total monthly precipitation depth over the cell,  $P_t$ , as:

$$P_n = \text{MAX} \left\{ K_i P_t - \sum_{n=1}^N K_d(n), 0 \right\} \quad (5)$$

where,

$K_i$  = the interception coefficient,

$K_d(n)$  = the daily maximum depression storage loss, and,

$N$  = the number of days in the month.

Interception is that portion of the gross precipitation which wets and adheres to above ground objects until it returns to the atmosphere through evaporation (Viessman, et al., 1977). The quantity of water intercepted depends largely upon the storm character, the season of the year, and the species, age, and density of the prevailing plants and trees. The percentage of water intercepted by an individual plant is directly related to the type and density of the foliage. For non-urban land uses, extreme values of  $K_i$  are defined as (Viessman, et al., 1977):

$$K_i = \begin{cases} 1.00 & \text{for clear bare ground (0\% interception)} \\ 0.75 & \text{for dense closed forest (25\% interception).} \end{cases}$$

Values for  $K_i$  in urban areas ranged from 1.00 to 0.50, depending upon the land use type. The value of  $K_i$  assigned to a model cell represents the weighted average of the  $K_i$  values for all land use types within that cell.  $K_i$  values for the various land use codes used in the western Collier County model are listed in Appendix D.

Precipitation that reaches the ground surface may infiltrate, flow over the surface, or become trapped in numerous small depressions. The depression-storage loss for impervious drainage areas varies from 0.05 in., on a 2.5% slope, up to 0.11 in., on a slope of one percent (Bower, et al., 1990). The upper limit of 0.11" was assumed for the model because of the relative lack of slope within or

between model cells. The model depression storage loss,  $K_d(d)$ , or simply  $K_d$ , was calculated as:

$$K_d = K_d^{\text{max}} \left\{ \text{MAX} \left[ \left( 1 - \left( \frac{K}{K_m} \right)^{\frac{1}{2}} \right), 0 \right] \right\} \quad (6)$$

where,

$K_d^{\text{max}}$  = the maximum daily depression storage losses in inches for the stress period (an upper limit of 0.11 inches was assumed for each day),

$K$  = the average saturated vertical hydraulic conductivity of the soil layer in a cell, and

$K_m$  = a calibration parameter. It is the value of hydraulic conductivity at which infiltration is assumed to be nearly instantaneous, thus precluding evaporative losses from storage in depressions.

A value of  $(K/K_m) = 0$ , signifying an impervious drainage area, implies a value of  $K_d = 0.11$  inches per single precipitation event, and a value of  $(K/K_m) = 1$ , a highly pervious area, implies a  $K_d = 0$ . Rainfall of less than the critical daily precipitation depth  $K_d$  evaporates and creates neither infiltration nor runoff.

Only one precipitation event per day of at least 0.11 inches was assumed. Interception-storage capacity is usually reached early in a storm event. This suggests that a larger fraction of rainfall is intercepted in depressions during numerous small storms than during one equivalent severe storm (Linsley, et al., 1982).

Soil hydraulic conductivity ( $K$ ) values for all applicable soil associations were determined by examining tables of saturated vertical permeability for the various soil horizons for each soil type (Carlisle et al., 1988). A composite soil permeability was created for each soil association based on the vertical permeability of each horizon within a given soil type, than by the relative percentage of each soil type in that association. A composite soil permeability for each model cell was then calculated as the sum of the percentage of each soil association within that cell multiplied by the appropriate permeabilities. Soil permeability values for the various associations ranged from 4.46 ft/day to 20 ft/day throughout the model area. The instantaneous vertical hydraulic conductivity,  $K_m$ , was set at 36 ft/day.



## Surface Drainage

The surface drainage depth is defined as the difference between the net precipitation depth,  $P_n$ , and the net infiltration (Bower, et al., 1990). Net average depth of water lost to surface drainage,  $Q_d$ , can be estimated by:

$$Q_d = (K_s)(K_a)(P_n) \quad (7)$$

where,

$K_s$  = a coefficient relating the potential for runoff to surface drainage, and

$K_a$  = a coefficient relating the potential for aquifer recharge from surface drainage.

$K_s$  varies between 0 and 1, depending on the land use types potential for surface drainage into canals or surface water bodies. The effect of surface drainage systems which may recharge the unsaturated zone are taken into account by the factor  $K_s$ . Model values for  $K_s$  varied between 0.1 and 0.3 with 0.1 being most common. The value of  $K_a$  is a function of the average hydraulic conductivity and the average slope of the land surface. If there is no drainage into the unsaturated zone  $K_a = 1$ , and 0 when rainfall completely recharges the unsaturated zone. The value of  $K_a$  was defined as:

$$K_a = K_a^{max} (1 - K/K_{max}) \quad (8)$$

where

$K_a^{max}$  = the maximum that  $K_a$  may take (less than or equal to 1), and

$K_{max}$  = the maximum soil hydraulic conductivity in the study area.

The net direct surface runoff in southwestern Florida is assumed to be relatively small, therefore,  $K_s$  was uniformly set to 0.1. Appendix D shows land use codes and their assigned values for  $K_s$ ,  $K_a$  and  $K_i$ .

Stations supplying precipitation data are shown in Figure 13. Precipitation was distributed throughout the model based on the Thiessen method, which uses a weighing factor to adjust for nonuniform gauge distribution. This method divides the model area into polygons based on the nearest rainfall station. Once the area is subdivided, the rainfall from the nearest station is distributed over that polygon. Total precipitation polygons are shown in Figures 14 and 15 for January and July of 1988, respectively.

## EVAPOTRANSPIRATION

Water loss through direct evaporation and through transpiration by plants is simulated in the model by the evapotranspiration (ET) package of MODFLOW. The following assumptions are applied (McDonald and Harbaugh, 1983):

1. When the water table is at or above a specified elevation, termed "ET surface", ET loss from the water table occurs at a specified maximum rate.
2. When the depth of the water table is below the ET surface exceeds a specified value, termed the "extinction depth" or "root zone", ET from the water table ceases.
3. ET from the water table varies linearly as water table levels fluctuate between the above two limits.

### Evapotranspiration Surface

The evapotranspiration surface is represented by the land surface within the model area. Surveyed land surface elevations were obtained for each of the U. S Geological Survey monitor wells within and outside the model area. These values were then used in a kriging interpolation technique to generate a grid containing an elevation for each model cell. Within specified areas, where kriging did not accurately represent the land surface, representative values were inserted into the model grid. Figure E-1 in appendix E shows the ET surface values for each model cell.

### Maximum Evapotranspiration Rate

The maximum evapotranspiration rate was estimated using the Blaney-Criddle equation. The basic form of the equation is:

$$U = k k_t \frac{P_m t_m}{100} \quad (9)$$

where

$U$  = the crop ET for a particular time period in inches from layer 1,

$k$  = a consumptive use coefficient which varies according to crop type,

$k_t$  = a climatic coefficient which is related to the mean air temperature,

(It is defined as  $k_t = 0.0173t - 0.314$  where  $t$  is in degrees Fahrenheit),

$P_m$  = the percent of daytime hours of the year which occurred during the month,

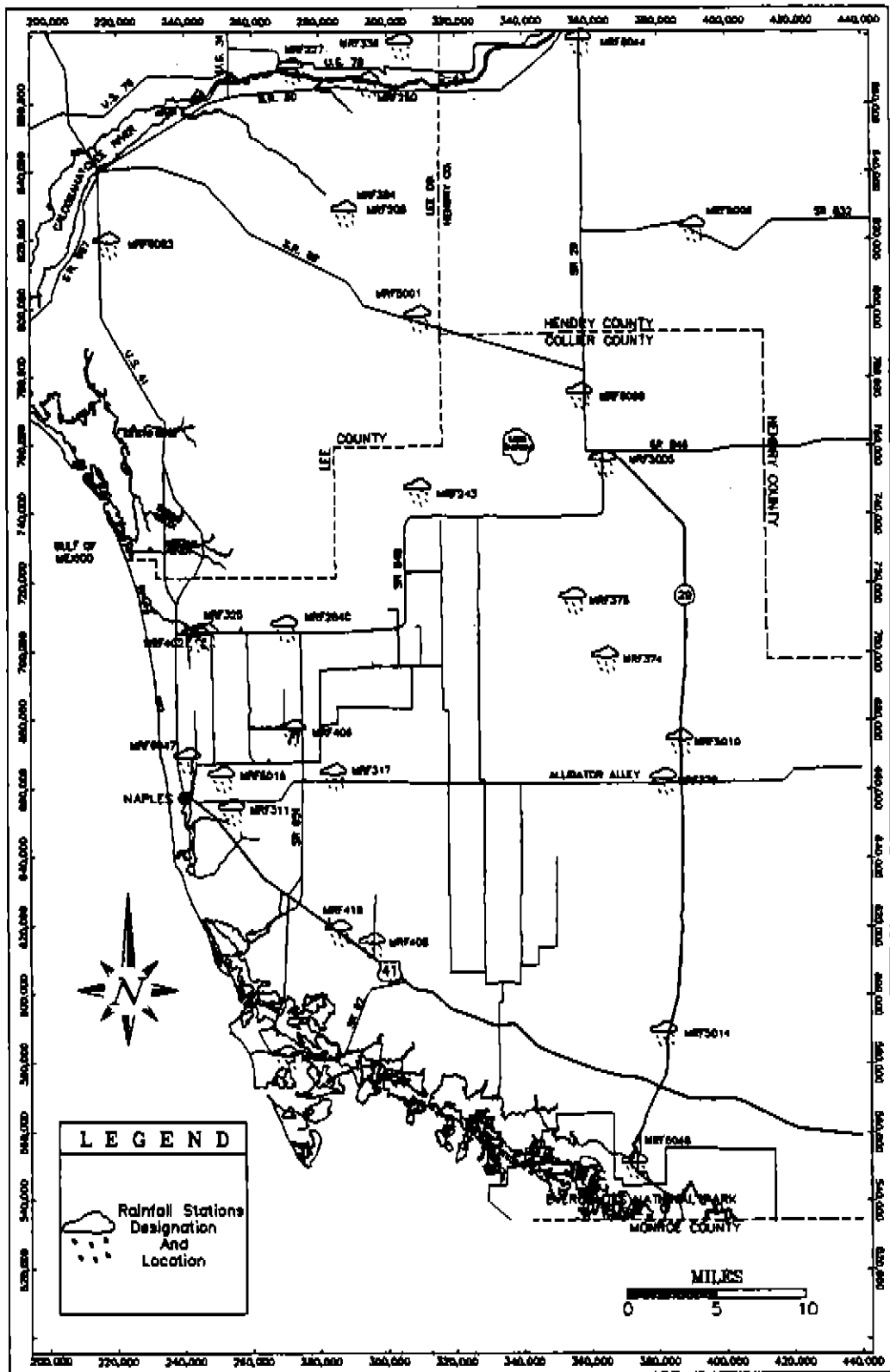


FIGURE 13. Rainfall Stations

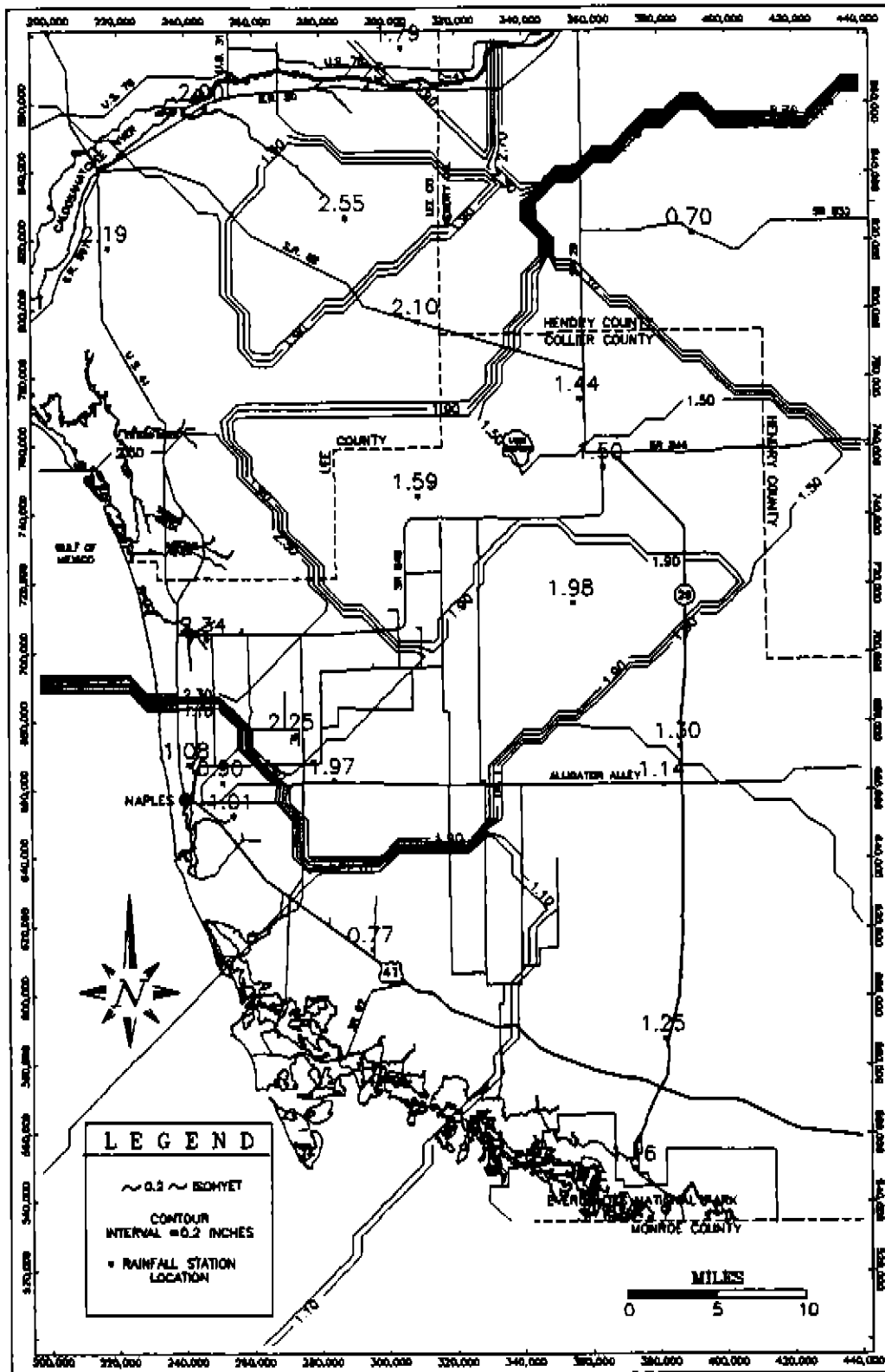


FIGURE 14. Rainfall Distribution for January, 1988

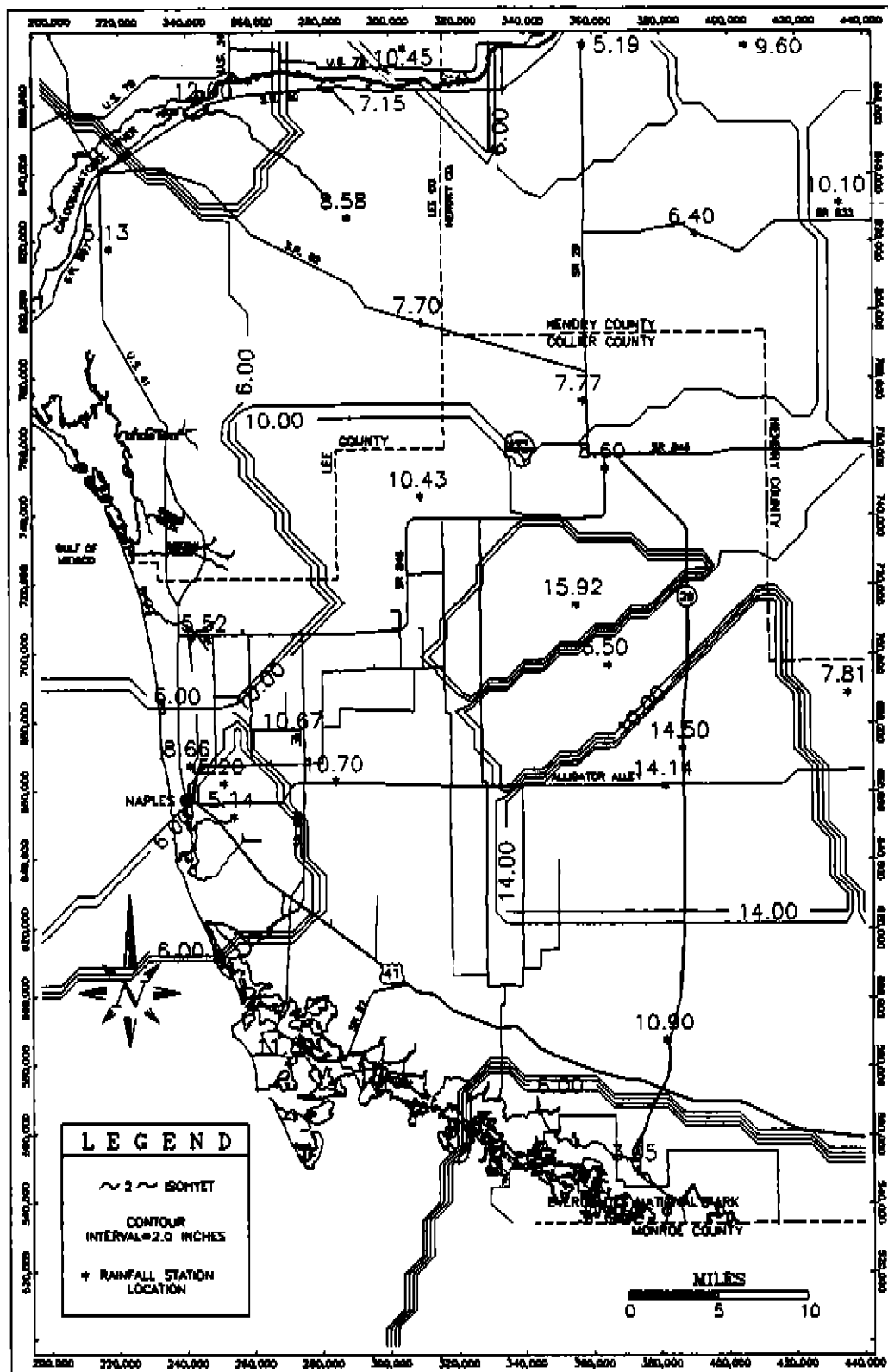


FIGURE 15. Rainfall Distribution for July, 1988

$t_m$  = the mean temperature for the month, in degrees Fahrenheit.

Percentage of daytime hours and mean temperature data were from the Everglades City rainfall station (compiled from forty-three years of data) was used in the above calculation. The consumptive use coefficient (k) is defined as:

$$k = kc * kf \quad (10)$$

where

kc = a coefficient reflecting the growth state of the crop (Appendix E), and

kf = is a coefficient reflecting the fraction of land surface which is covered with a specified type of vegetation (also Appendix E). kf = 1 for non-urban land uses; it varies between 0.1 and 1.0 for urban land uses.

Crop coefficients (kc) were either taken directly or inferred from values presented in Tables C-1 and C-2, SFWMD's Permit Information Manual Volume III. Surface water permit data were used to determine kf values for urban land uses from ratios of pervious to impervious areas. A value of 1 was assigned to all land use types except urban and barren land.

#### Extinction Depth

Extinction depth represents the depth of the water table below the ET surface elevation beyond which evapotranspiration from the water table ceases. Extinction depths in the model are related to land use and are based upon estimated root depths for various types of vegetation (Teets, SFWMD, personal communication). Land use codes and their assigned extinction depth values are shown in Appendix E.

#### GROUND WATER USE

Water use figures for the model were determined using data from individual water use permits issued by the SFWMD. Individual water use permits are required if the average daily water use equals or exceeds 100,000 gallons per day (gpd). An individual water use permit is also required of smaller uses (average daily use exceeding 10,000 gpd) in Reduced Threshold Areas (RTA's). The entire coastal portion of Collier County and all of Lee County are designated as RTA's. The District also issues general water use permits to all uses less than 100,000 gallons per day, with the exception of single family homes, duplexes, and water used strictly for fire-fighting (SFWMD, 1985).

General water use permits were not included in the determination of ground water withdrawals from the model because the total volume covered in these permits are insignificant when compared to individual permits. The time frame and available manpower for model development also limited the processing of the general water use permits.

#### Agricultural and Other Irrigation

Agricultural and landscape irrigation withdrawals account for approximately 78 percent of the ground water use in the model area based on 1988 estimates. Only a limited number of accurate agricultural monthly pumpage records exist, therefore, agricultural and landscape withdrawals were estimated. Irrigation water requirements of different crops were estimated using a method described by the U. S. Soil Conservation Service (USDA, 1970). This method uses the modified Blaney-Criddle formula to estimate supplemental water requirements for various crops. Factors such as crop type, soil type, air temperature, daylight hours, total rainfall, and irrigation system efficiency are used to calculate the irrigation requirements for the various types of crops found within the study area.

Agricultural water use data from each water use permit was assembled into a spreadsheet. This information included crop types, total irrigated acreage, irrigation efficiency, well and surface water information, soil types and rainfall station. Supplemental irrigation requirements for the following rainfall stations were used in determining irrigation withdrawals: Naples, Ft. Myers, Clewiston, LaBelle, Big Cypress and Everglades City. Irrigation withdrawals were calculated by multiplying irrigated acreage by the appropriate monthly supplemental crop requirement, and dividing by the irrigation system efficiency (if known). The total volume of water for each permitted user is then divided amongst all wells and surface water facilities in proportion to their pump capacities. Supplemental irrigation withdrawals for each permitted user was calculated for each month of the calibration period (February 1986 through December 1988). Permitted agricultural water use data is presented in Appendix F. Figures 16, 17, and 18 show the distribution of cells with simulated agricultural withdrawals from layer 1 (Surficial aquifer), layer 2 (lower Tamiami aquifer), and layer 3 (sandstone aquifer), respectively. A relatively insignificant amount of ground water within the model area is withdrawn from layer 4 (mid-Hawthorn aquifer) for agricultural purposes and, therefore, is not presented.

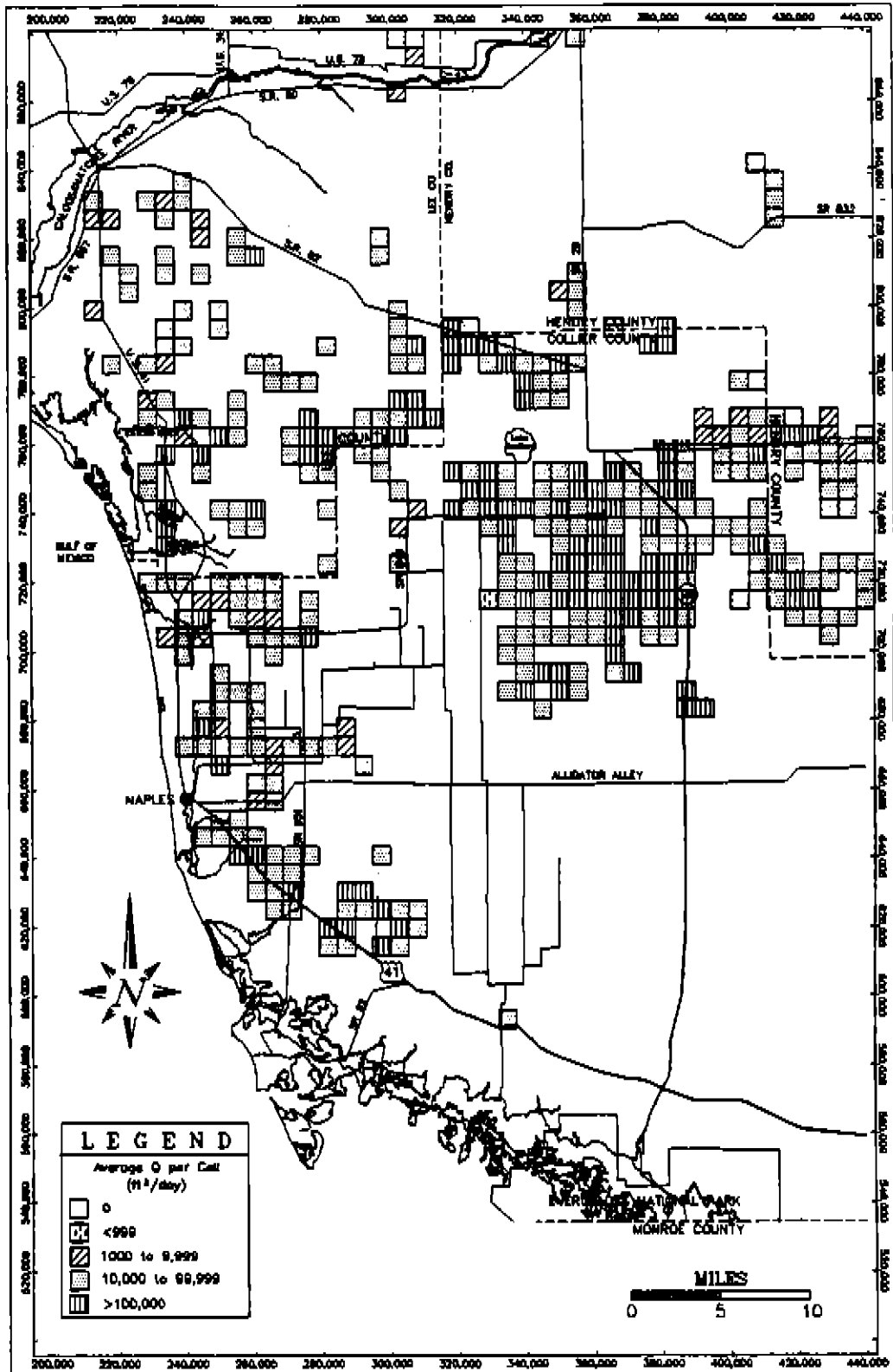


FIGURE 16. Model Cells Containing Agricultural Pumping Wells, Layer 1 (Surficial Aquifer)

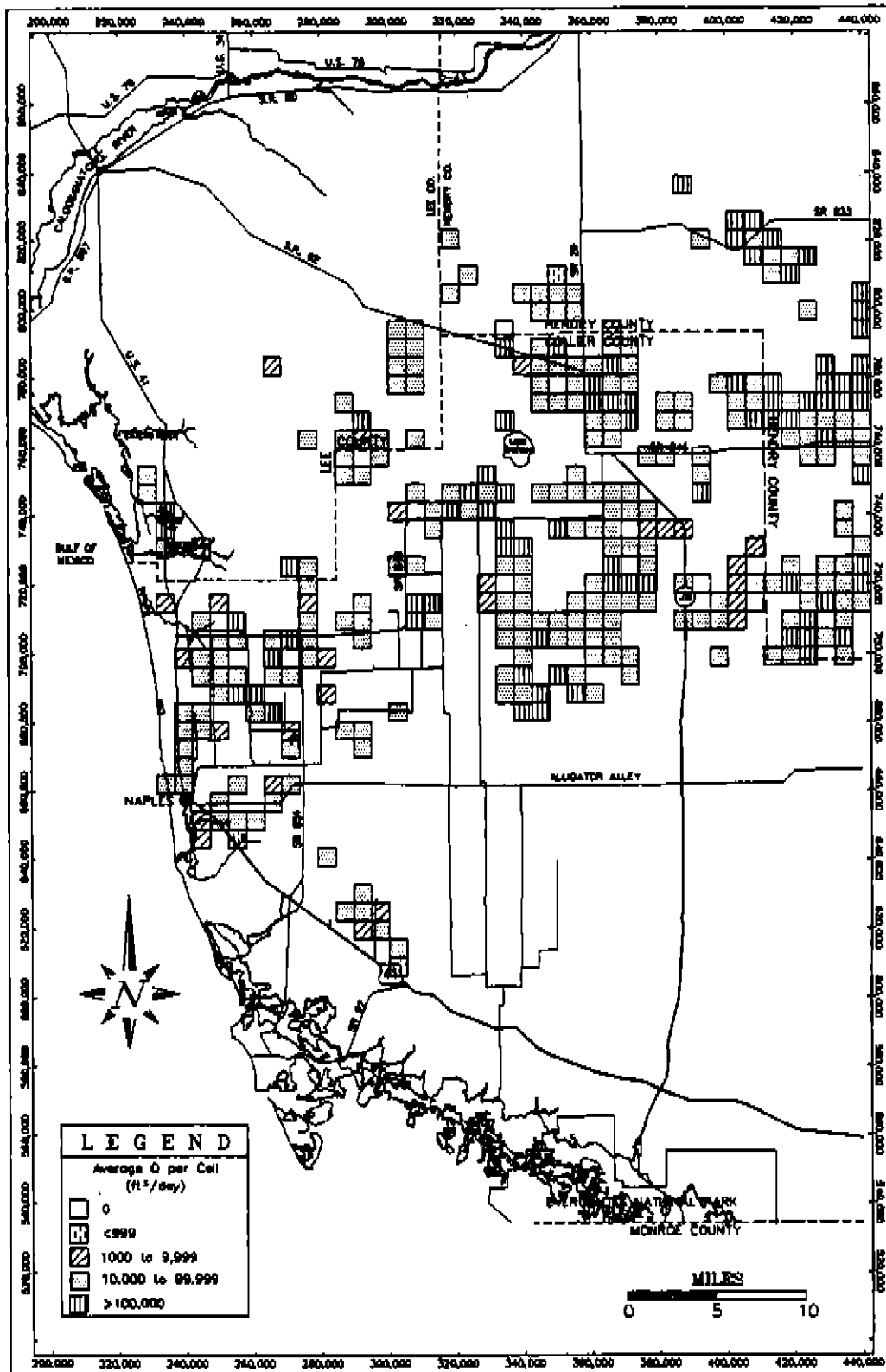


FIGURE 17. Model Cells Containing Agricultural Pumping Wells, Layer 2 (Lower Tamiami Aquifer)

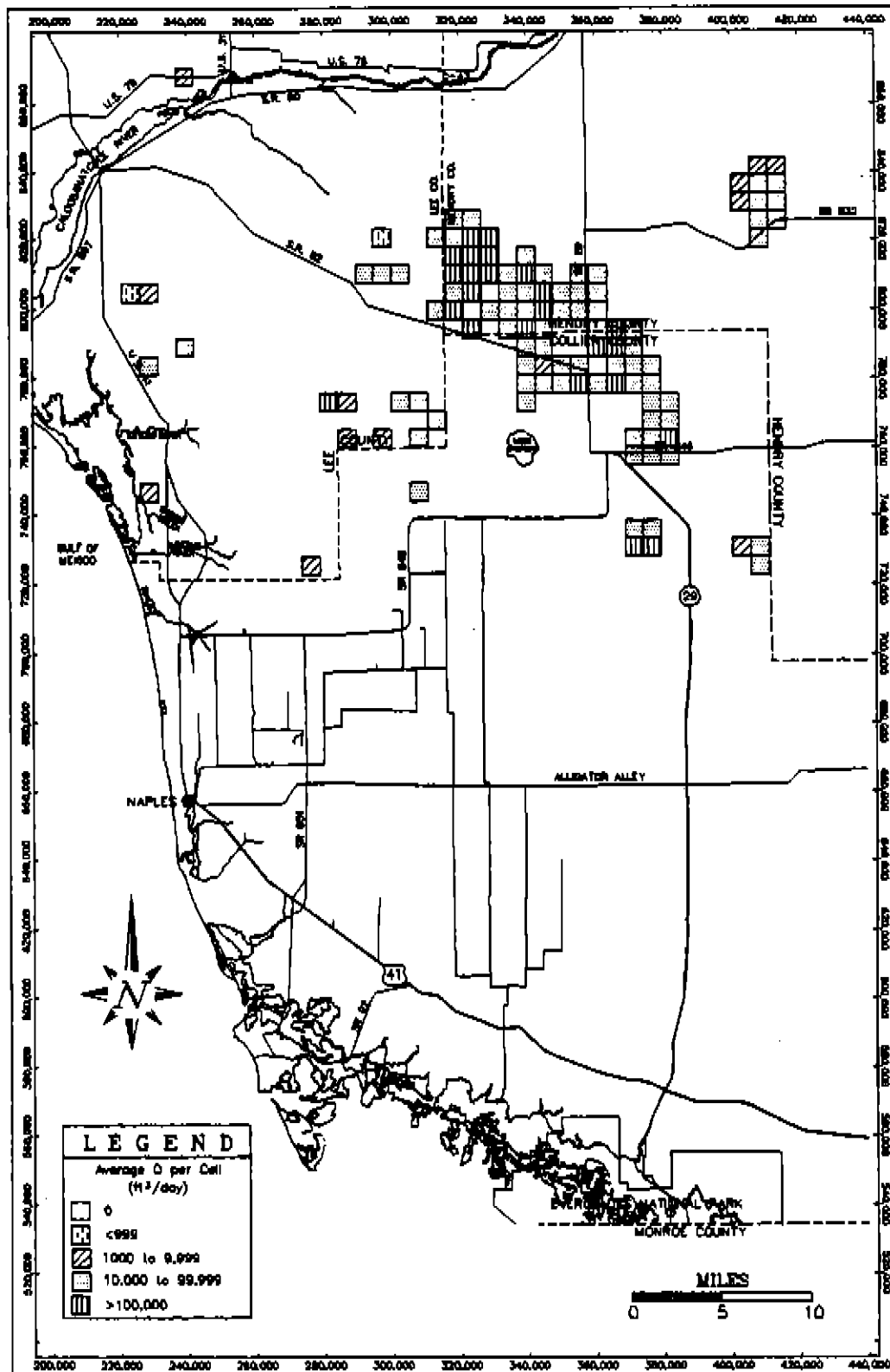


FIGURE 18. Model Cells Containing Agricultural Pumping Wells, Layer 3 (Sandstone Aquifer)



### **Public Water Supply**

Public water supply withdrawals were determined from monthly pumpage reports from each of the wellfields within the study area. Each report contained monthly pumpages for either individual wells at the facility or total monthly pumpages. If total monthly pumpages were reported, these volumes were divided proportionally amongst each well based on their pump capacity, total operating hours or information supplied by facility personnel. This was done to simulate withdrawals from individual pumping wells, because many of the wellfields in Collier and adjacent counties are distributed over several model cells and multiple aquifers. Therefore, each public water supply well had a given monthly pumpage for each of the 35 stress periods. The location of the public water supply wellfields and their wells are shown in Figure 19. Information on public water supply wells and their withdrawals over the transient calibration period is presented in Appendix G.

### **Domestic Self Supply**

Domestic self supply withdrawals were calculated for those areas designated as residential and not presently served by a public water supply system. A composite land use map of the study area was used to determine total acreage for each residential land use type within a given cell. All residential areas currently served (not built out) by a public water supply system were delineated. For each residential land use type, a specific density per acre and per capita consumption was assigned. These values were then combined with total acreage to determine the withdrawals for each cell. Eighty percent of the withdrawals were assumed to be from the lower Tamiami aquifer with the remaining 20 percent from the Surficial aquifer. These percentages are based on an independent survey conducted by Missimer & Associates in the Golden Gate Estates area. For that portion of the model covering Lee County, domestic self supply withdrawals were calculated using the methodology described in Bower et al. (1990).

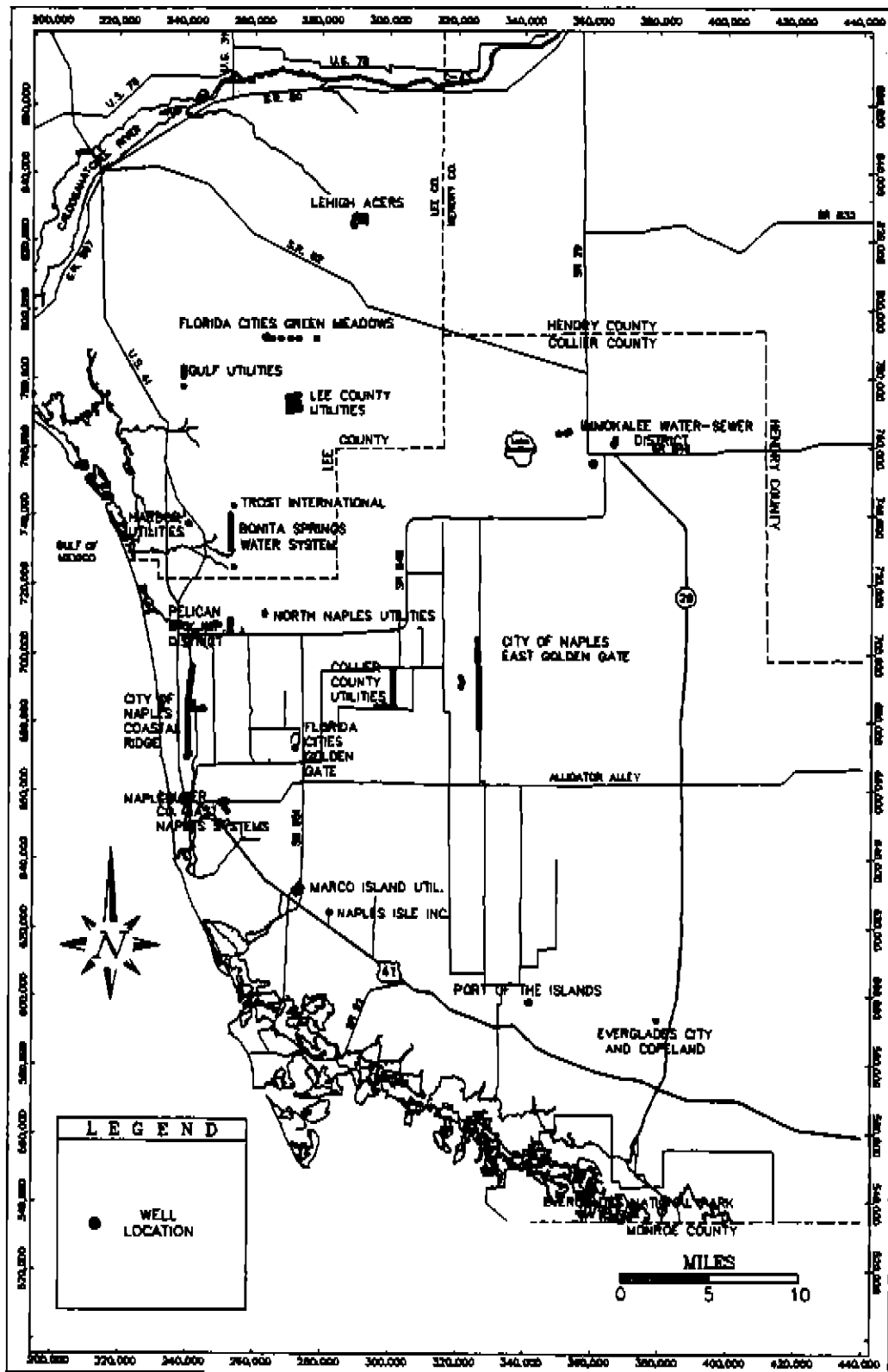


FIGURE 19. Location of Public Water Supply Wellfields

## MODEL CALIBRATION

The western Collier County model was calibrated to both steady state and transient conditions. Figures 20, 21, 22 and 23 show the location of the ground water monitor wells used in the calibration process. The model was calibrated to ground water conditions that existed during February 1986 through December 1988. This period was chosen because it represented a period which included ample water level observations, surface water levels and hydrogeologic information. A multi-year period was chosen to show the effects of annual and seasonal variations in evapotranspiration, river stage, rainfall and pumpage.

### STEADY STATE CALIBRATION

Steady state calibration served to make initial adjustments to aquifer parameters and stresses used in the model. These stresses included average values of recharge, evapotranspiration, pumpage and surface water stage elevations. The average values were calculated from the monthly values over the 35 month interval used in the transient calibration. The simulated head distribution generated during steady state runs were compared to water levels from monitor wells averaged over the calibration period. The final steady state model was re-run using the adjusted parameters generated during the transient calibration. This model subsequently provided much of the information concerning the ground water flow system in western Collier County and acted as the base for the sensitivity analyses.

### TRANSIENT CALIBRATION

Transient calibration was completed by using 35 stress periods comprised of monthly intervals, with each stress period divided into five time steps. Starting heads for each layer were generated from water level data obtained from USGS ground water monitor wells for January 1986. End of month water level data for this month was chosen because it would accurately represent actual ground water levels at the beginning of the transient calibration period (February, 1986). The data was regionalized using a kriging interpolation

technique which provides a starting head value for each model cell.

During transient calibration, aquifer parameters and stresses are adjusted so that a general agreement exists between observed and computed ground water levels for a monitor well located in a particular model cell. The model is assumed to be calibrated when a good visual correlation exists between calculated and observed monthly water levels and when the majority (75%) of simulated monthly water levels fell within the calculated standard deviation for a particular monitor well. If limited historical water level data existed for a monitor well, so that an accurate standard deviation could not be calculated, the following ranges for the average difference between observed and computed head over the transient calibration period were used to calibrate the model:

Layer 1 (Surficial aquifer)	± 2 feet
Layer 2 (lower Tamiami aquifer)	± 3 feet
Layer 3 (sandstone aquifer)	± 4 feet
Layer 4 (mid-Hawthorn Aquifer)	± 5 feet

These intervals are consistent with those used to calibrate the Lee County (Bower et al., 1990) and Hendry County (Smith, 1990) models. The same range of values were assumed to be valid for the western Collier County model because of similar hydrogeologic conditions and because the aquifers are part of the same regional ground water flow system.

The tolerance levels for the various aquifers were increased with depth for the following reasons:

1. Wetland and surface drainage patterns may be impacted by small changes in water levels within the Surficial aquifer.
2. Due to aquifer parameters and the confined nature of the deeper aquifers in this area, water levels fluctuate more widely in response to stresses as compared to an unconfined aquifer.

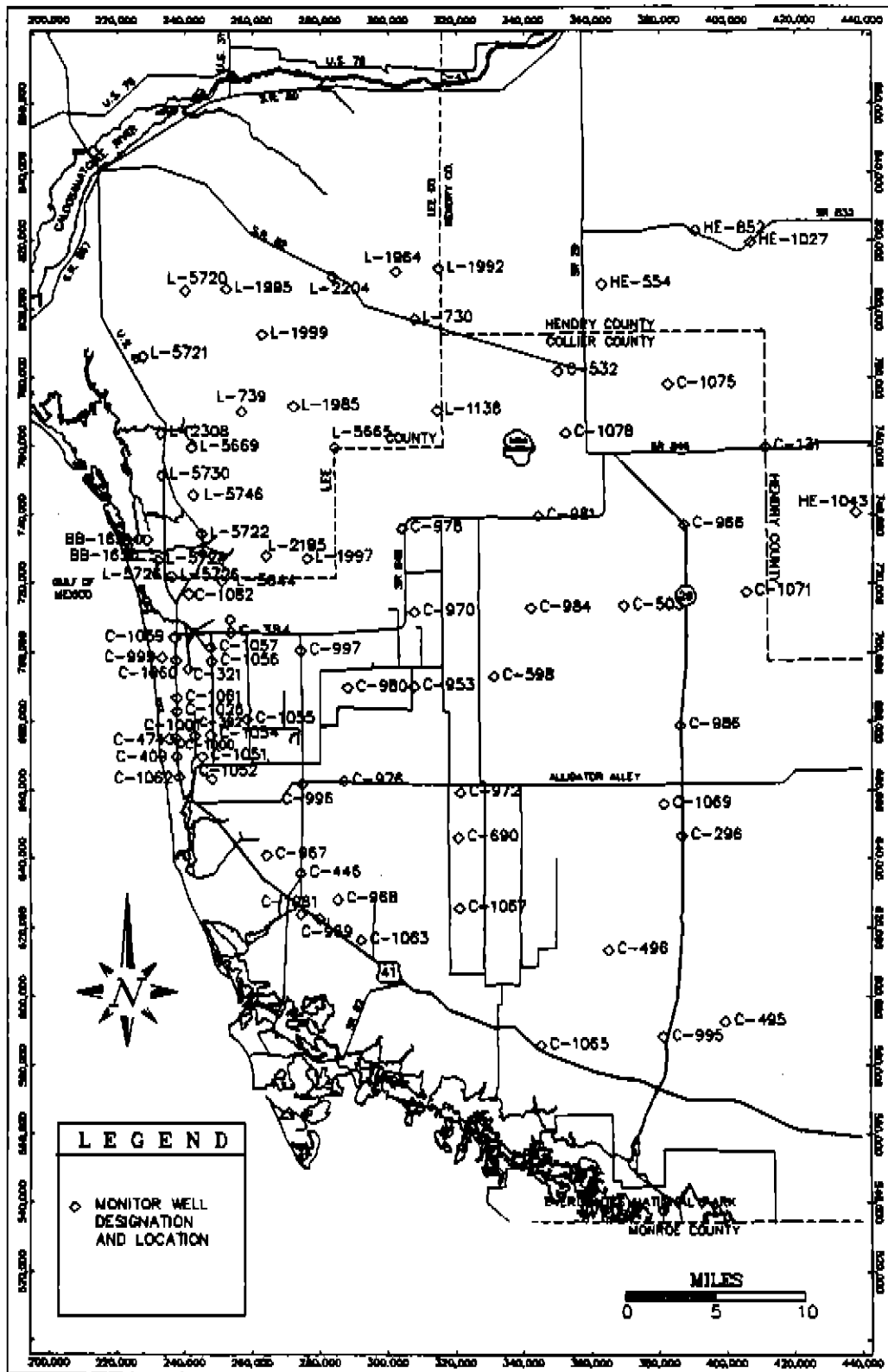


FIGURE 20. Observation Wells, Layer 1 (Surficial Aquifer)

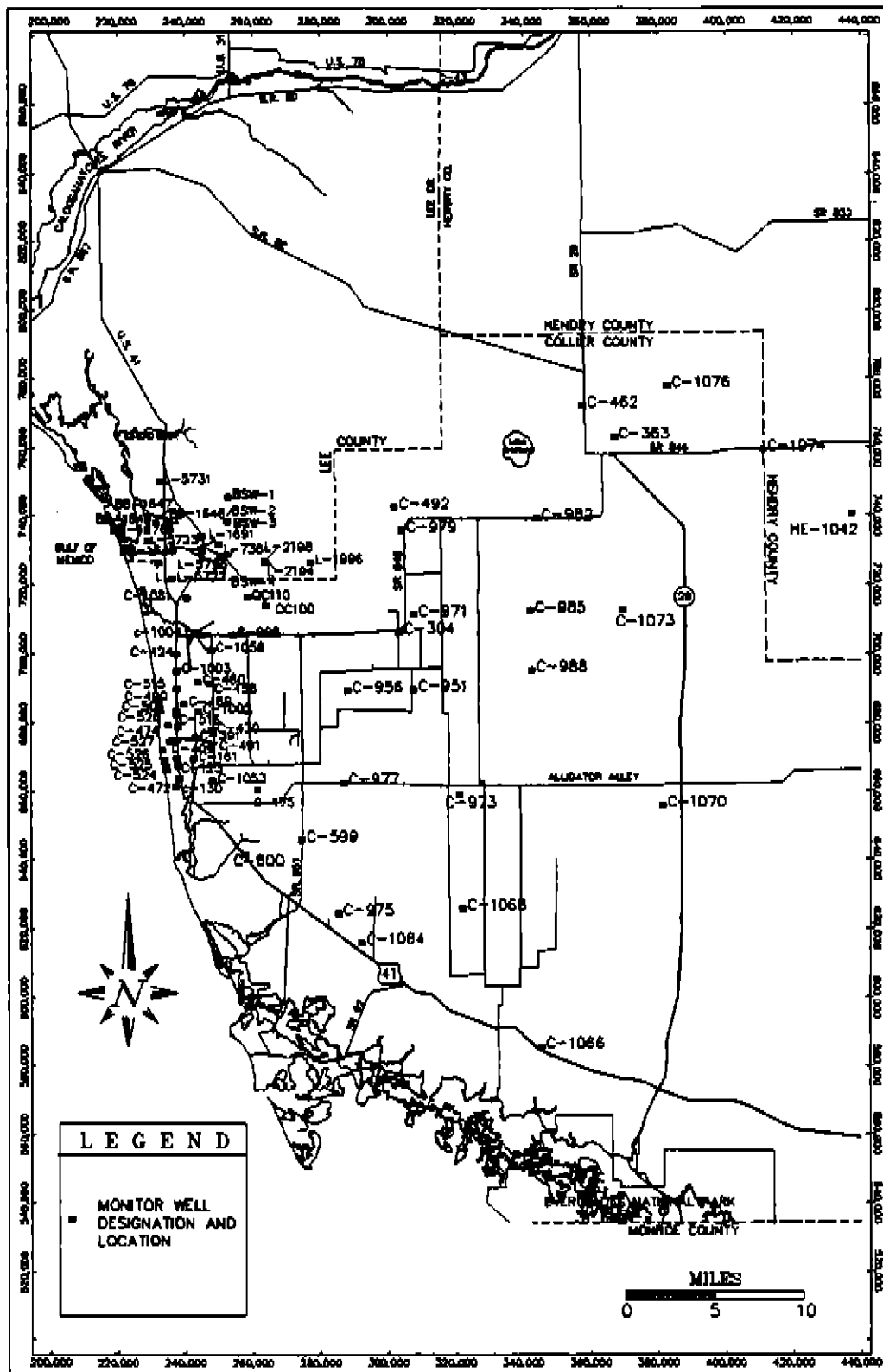


FIGURE 21. Observation Wells, Layer 2 (Lower Tamiami Aquifer)

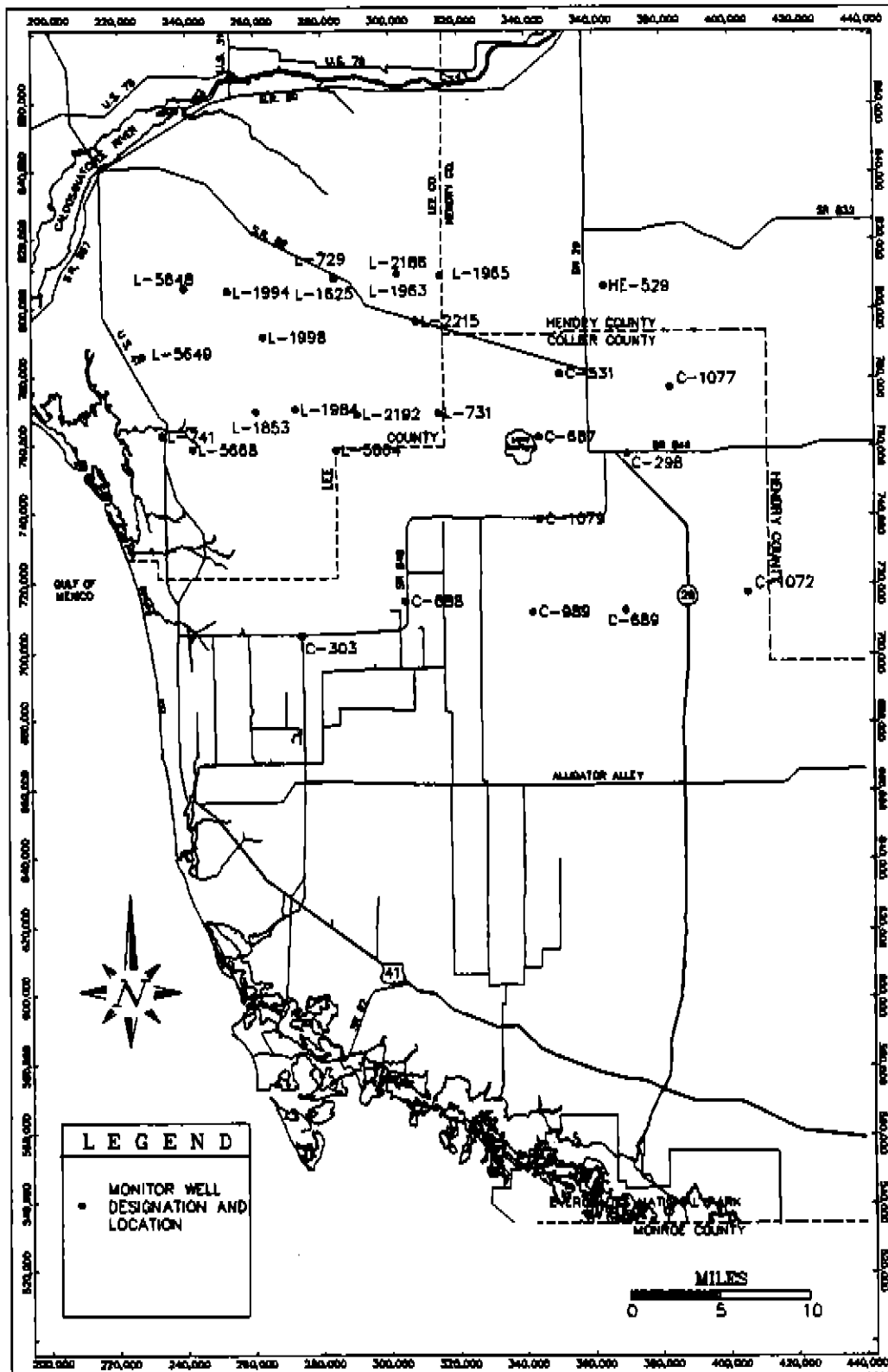


FIGURE 22. Observation Wells, Layer 3 (Sandstone Aquifer)

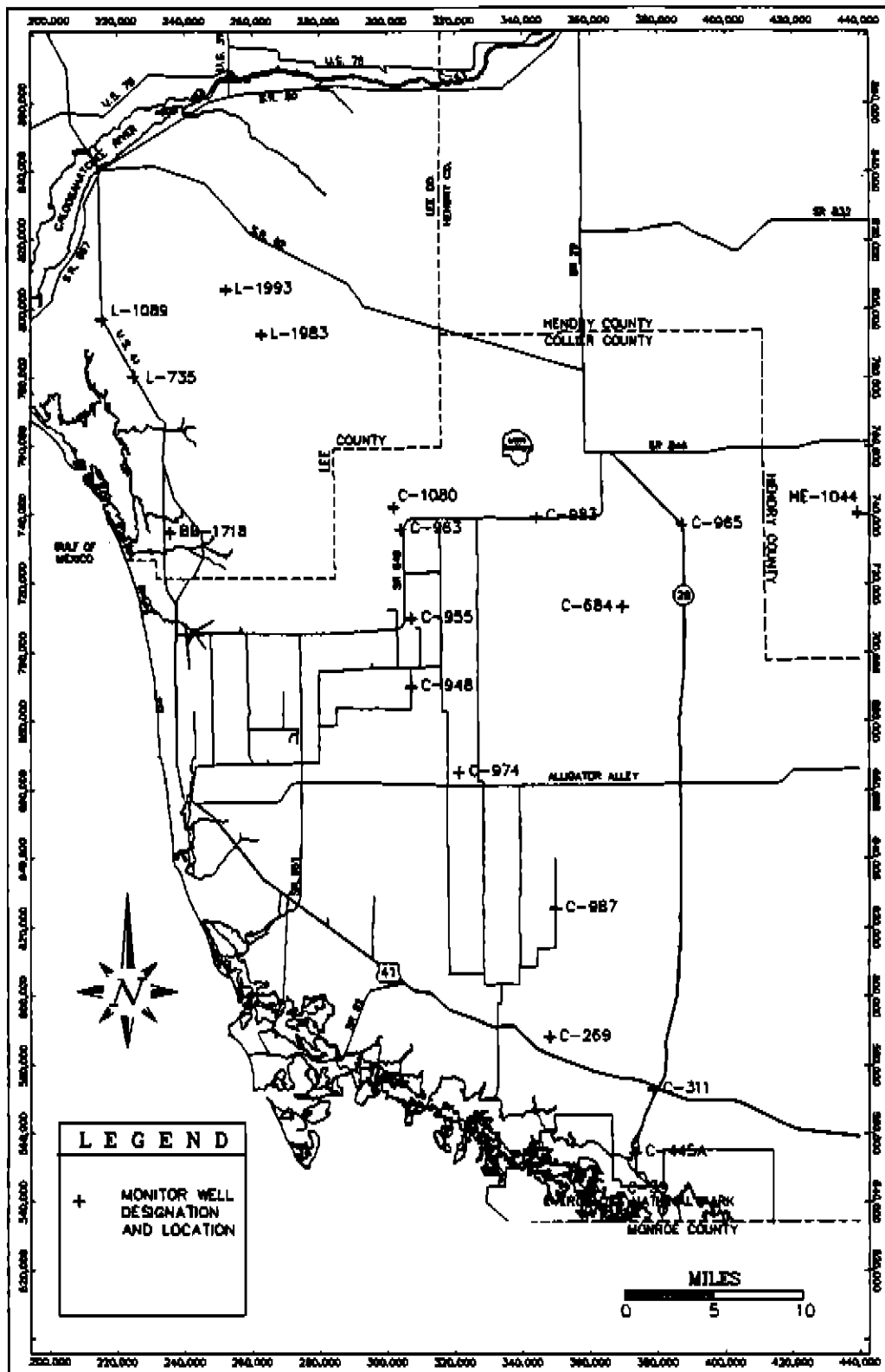


FIGURE 23. Observation Wells, Layer 4 (Mid-Hawthorn Aquifer)

3. Determining the actual regional water levels and deviation of simulated heads in the deeper aquifers is more difficult due to fewer available water level monitor wells.

Comparative hydrographs showing observed and simulated water levels were generated for those cells that contained USGS monitor wells within the model area. These hydrographs were used in the calibration process to determine how the simulated water levels changed over time in response to varying stresses and their general agreement to observed water levels. These comparative hydrographs are presented in Appendix H.

Agreement of model generated water levels with observed water levels can be affected by the following conditions:

1. Using monthly stress periods, simulated heads represent water levels at the end of each month. Observed water levels used in the model are taken over a period of several days near the end of any given month. Therefore, differences between observed and model simulated heads can be minimized by averaging these differences over the transient calibration period.
2. Ground water withdrawals from a model cell are simulated as a single stress located at the center of the cell. In reality, there may be numerous pumping wells located within a particular model cell. Combining all the well pumpages and locating it at the center of the cell may not accurately simulate actual condition. In addition, the simulated head in a model cell represents the average of all heads contained within that cell. However, actual water levels may vary greatly across a cell depending upon its dimension. In areas of intense pumpage, higher ground water gradients may develop causing water levels to vary significantly from the average. The location of a monitor well in relationship to the center of the cell and distance from an area of high ground water withdrawals can cause the observed head to vary greatly from the simulated head. However, the gradient across most of the model cells in this application were small enough for the simulated heads to

accurately depict observed ground water levels.

3. Most rainfall events that occur in the study area are of short duration and cover a relatively small area. Ground water levels in the Surficial Aquifer System respond quickly to these events. Only a limited number of monitor wells are located within a short distance to rainfall stations, so an intense rainfall event causing water levels to fluctuate may not be represented in the rainfall data. Therefore, using rainfall data from these stations in the calculation of net recharge may cause large differences between simulated and observed water levels within localized areas. The time at which ground water levels are taken in relationship to these events may also cause large discrepancies between simulated and observed water levels for particular months. The discrepancies caused by these factors can also be minimized by averaging the difference between observed and simulated heads over the transient calibration period when comparing results.

The model was run with the input data sets compiled in the manner as discussed in the Model Description section of this report. However, to calibrate the model, modifications to the initial data sets were necessary. These modifications are discussed in the following section.

#### Layer 1 (Surficial Aquifer)

The initial hydraulic conductivity array for layer 1 (Surficial aquifer) was reduced in the Coastal Ridge area along U. S. Highway 41 because the results of the initial kriged array was influenced by large conductivity values in the Golden Gate Estates area. Conductivity values in the eastern portion of the model area were also reduced because the kriging interpolation technique did not reasonably depict the hydraulic conductivity for the Surficial aquifer in this area. This problem is the result of inadequate hydrogeologic information for the Surficial aquifer in the model area east of SR 29.

The evapotranspiration surface in the Coastal Ridge and Immokalee areas of Collier



County and Bonita Springs area in Lee County was adjusted because of the inability of the kriging interpolation technique to accurately reflect the large difference in land surface between model cells within these areas. No changes were made to the specific yield values during the calibration process. Vertical conductance (Vcont) between layer 1 and layer 2 was varied in order to change the head distribution in the two layers. The final Vcont distribution representing the lower Tamiami confining unit over the model area falls within the range of values obtained from aquifer tests. In the Bonita Springs area, however, Vcont values were reduced to  $0.0000010 \text{ day}^{-1}$  -  $0.0000050 \text{ day}^{-1}$ , which are slightly outside the range of leakage values obtained in this area. These values were assumed to be reasonable because a nested pair of wells in this area responds very slowly and shows small fluctuations in observed water levels in layer 1 (Surficial aquifer) when ground levels change significantly in layer 2 (lower Tamiami aquifer). The final leakage distributions used to represent the lower Tamiami confining unit in the calibration process is presented in Appendix A.

The average difference between observed and computed heads for the monitor wells in the various layers are shown in Figures 24 through 27. The average difference for each monitor well is positioned at the center of each model cell in which it is located, thus a slight discrepancy may be observed between these figures and those that show their exact locations.

Figure 24 shows the average difference between the observed and simulated heads in layer 1 (Surficial aquifer) over the 35 month calibration period. The majority of the monitor wells fall within the tolerance range of  $\pm 2$  feet for the average difference and within the confidence bands using the wells' calculated standard deviation. Computed water levels in the cells occupied by wells C-981, C-1071 and L-1992, do not fall within the desired tolerance range. Inspection of aerial photographs reveal large areas of agricultural development within the cells occupied by C-981, C-1071, and L-1992. These areas may have been unpermitted or the permits were missing during the compilation of the agricultural water use database. These wells may have also been designated to withdraw from a different aquifer in the initial water use permit

application or influenced by small capacity agricultural drainage canals. The result of not accurately simulating these withdrawals or drainage canals may have caused the computed heads to be significantly higher than observed heads within these localized areas.

#### Layer 2 (Lower Tamiami Aquifer)

During the transient calibration process, no changes were made to the initial transmissivity or specific storage values. Minor modifications were made to the vertical conductance term between layers 1 and 2 and layers 2 and 3 to alter the head distribution in layer 2 (lower Tamiami aquifer). Final leakage values representing the upper Hawthorn confining unit range from  $0.0000055 \text{ day}^{-1}$  to  $0.0008800 \text{ day}^{-1}$ , which are within the range of reported values from aquifer tests. Appendix A shows the final leakage distribution of the lower Tamiami and upper Hawthorn confining units used in the transient calibration process.

The agreement between the observed and simulated water levels for layer 2 (lower Tamiami aquifer) is shown in Figure 25. Of the 46 monitor wells, 72 percent show an average difference of less than  $\pm 1$  foot, with only four wells falling outside the specified tolerance range of  $\pm 3$  feet. Monitor wells C-988 and C-1073 show an average difference of -3.82 and -4.19 feet between observed and simulated water levels, respectively. Both of these wells are located in areas of high agricultural development and the simulated heads may reflect the results of overestimation of pumpage from this aquifer in this area. The opposite results are seen in monitor wells L-738 and L-5723, located in the Bonita Springs area of Lee County. These wells show high positive average differences between observed and simulated water levels and may reflect the underestimation or inaccurate trends of domestic self supply withdrawals from this highly urbanized area. The comparative hydrographs for these wells (Appendix H) shows the computed heads do not accurately reflect monthly water levels or trends found in the observed water level data. The hydraulic parameters within these areas were also changed within reasonable limits. These changes did not significantly affect the quality of calibration of these wells.

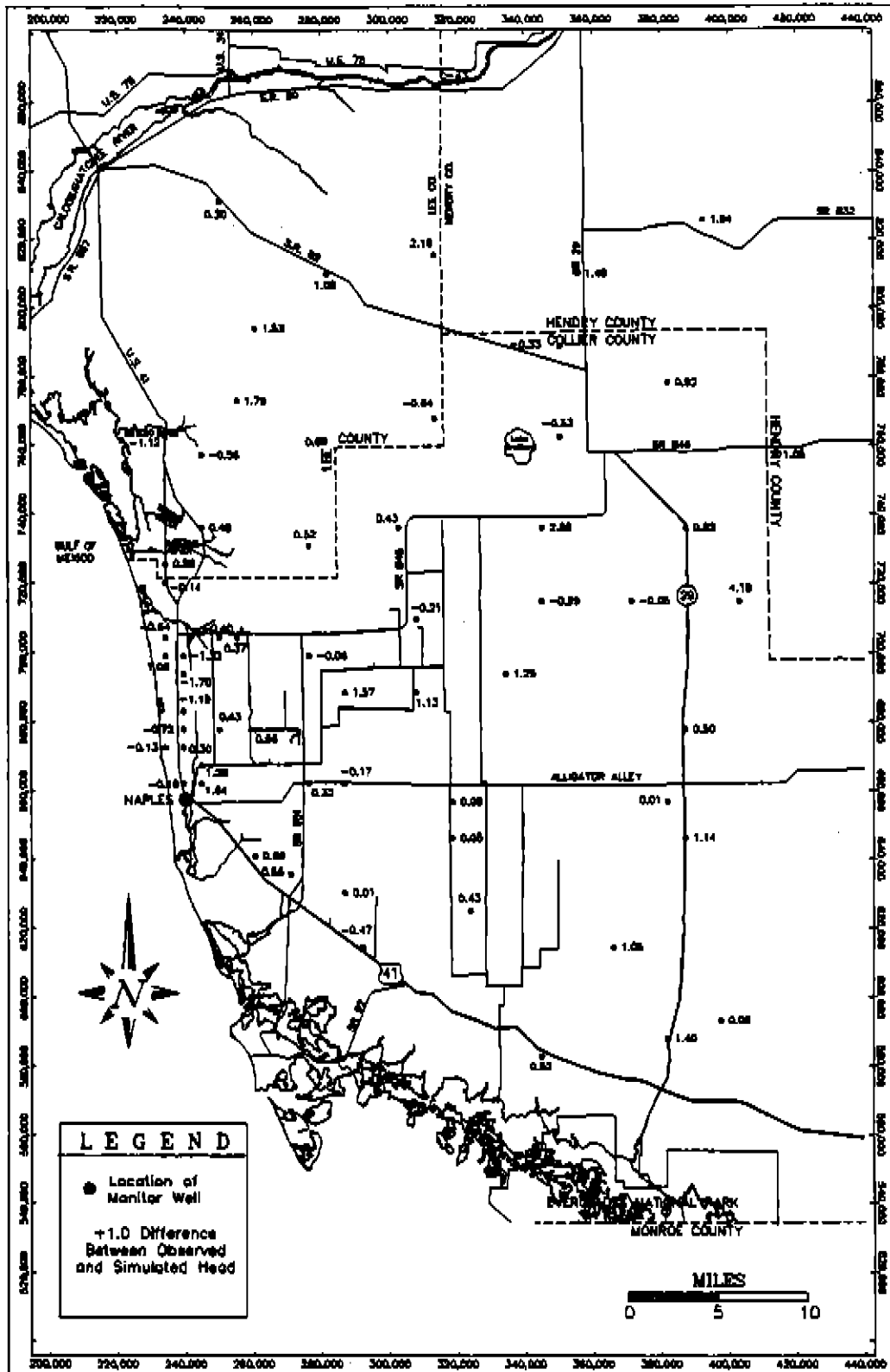


FIGURE 24. Average Difference Between Observed and Computed Water Levels, Layer 1 (Surficial Aquifer)

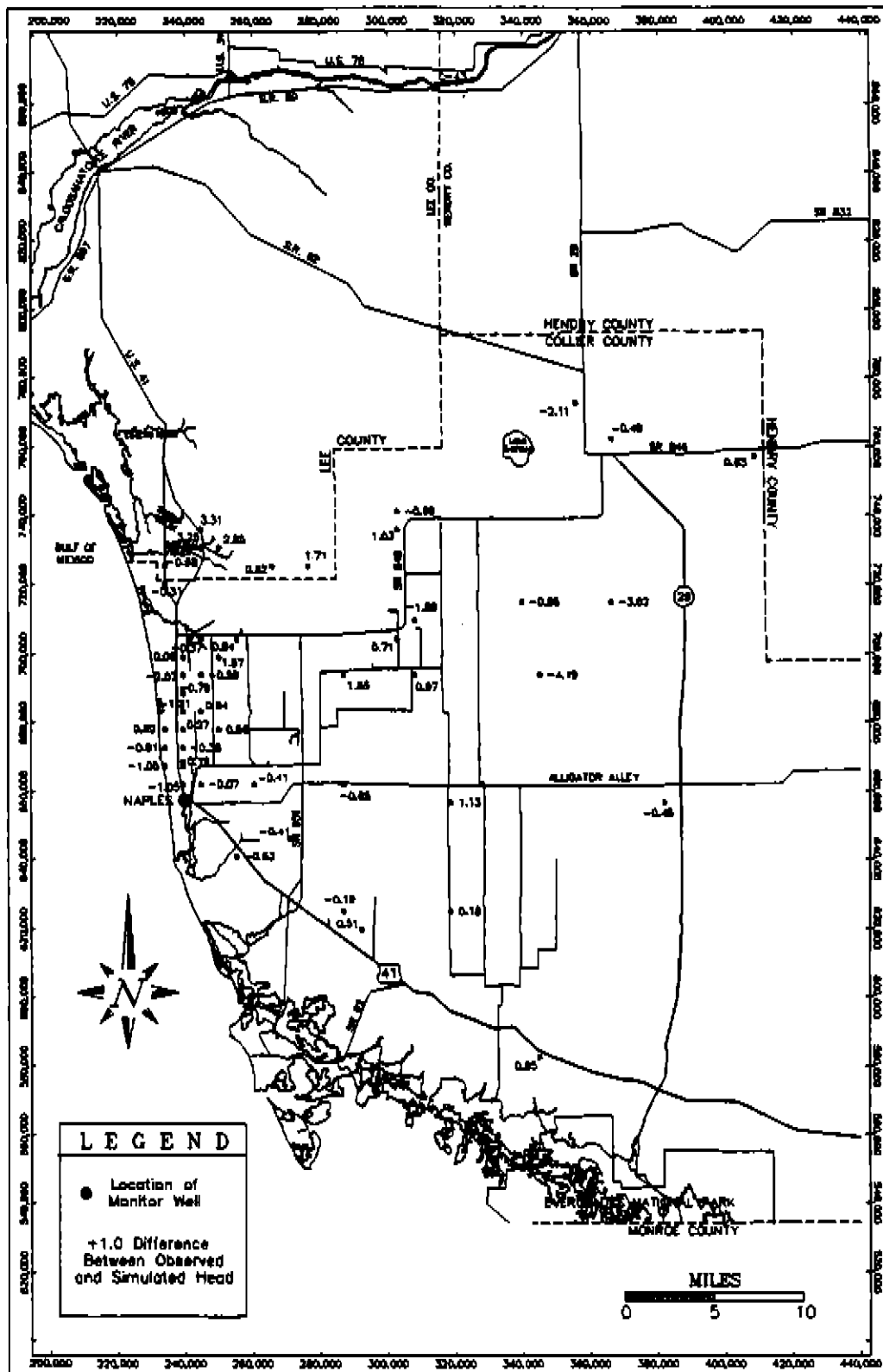


FIGURE 25. Average Difference Between Observed and Computed Water Levels, Layer 2 (Lower Tamiami Aquifer)

### Layer 3 (Sandstone Aquifer)

The initial transmissivity array representing this layer was altered only slightly and no changes were made to the specific storage values during the transient calibration process. The head distribution in this layer was primarily modified by changing the leakance values between layers 2 and 3 and layers 3 and 4. However, slight changes in leakance values between layers 3 and 4 caused significant changes in the head distribution within layer 3. The large head gradient that exists between layers 3 and 4 is the primary driving force controlling upward leakance and represents the majority of the recharge into layer 3. The final leakance distributions representing the upper and lower Hawthorn confining units used in the model calibration process are presented in Appendix A.

Figure 26 shows the average difference between observed and simulated water levels for monitor wells in the sandstone aquifer (Layer 3). The average difference for the majority of the monitor wells within the sandstone aquifer are within the acceptable tolerance range of  $\pm 4$  feet and monthly simulated heads fall within their confidence band based on their computed standard deviation. However, monitor wells C-1079, L-1984 and L-1998 fell outside these tolerance ranges. Similar results occurred for L-1984 and L-1998 in the Lee County Model. Bower et al., (1990) suggests these discrepancies are attributed to cell wide averaging due to their proximity to the Green Meadow and Corkscrew wellfields. The large discrepancies found in C-1079 may be due to inaccurate (under-estimated) agricultural withdrawals from this aquifer within this localized area or to cell-wide averaging.

### Layer 4 (Mid-Hawthorn Aquifer)

During transient calibration, no changes were made to the initial transmissivity or specific storage arrays. The leakance values between layers 4 and 5, which represents the lower Hawthorn confining unit, was altered slightly from those generated during steady state calibration. Minor alterations in the leakance distribution that separate these two layers caused significant head distribution changes in layer 4. The final leakance distribution representing the lower Hawthorn confining unit

within the model area range from 0.0000008 day<sup>-1</sup> to 0.0000200 day<sup>-1</sup> and is presented in Appendix A.

The average differences between observed and computed water levels for layer 4 are shown in Figure 27. The majority (92%) of the monitor wells fell below the specific tolerance level of  $\pm 5$  feet. The only significant difference between observed and simulated water range occurs in monitor well L-1983. Computed water levels generated by the Lee County Model (Bower et al., 1990) were also consistently lower than observed water levels for this well. The lower simulated water levels may reflect overestimated domestic self supply withdrawals. Geologically, the mid-Hawthorn aquifer both thins and dips rapidly to the southwest which may isolate this portion from responding to conditions present to the north and west (Bower et al., 1990).

## RESULTS

### Transient Calibration

**Layer 1 (Surficial Aquifer).** Figures 28 and 29 show the simulated head distribution for April 1988 (end of dry season) and October 1988 (end of wet season) in layer 1. The highest water table altitudes occur north of Immokalee and flow radially from this area which also corresponds to the highest land elevation in the model area. A ground water divide also develops across the model area along a N40W trend and fluctuates in response to areal recharge and pumpage. The lowest levels occur along the coast where ground water discharges into the Gulf of Mexico. Comparison between Figures 28 and 29 show very little seasonal fluctuation with most occurring near areas of intense agricultural withdrawals.

**Layer 2 (Lower Tamiami Aquifer).** Figures 30 and 31 show the simulated head distribution in layer 2 (lower Tamiami aquifer) in April and October 1988. Comparison between layer 1 (Surficial aquifer) and layer 2 (lower Tamiami aquifer) shows similar head distributions and resulting flow patterns. However, both simulated and natural head distributions are lower in layer 2 over the majority of the model area. Seasonal fluctuations are more apparent in layer 2 due to its semi-confined nature and larger simulated withdrawals. The larger, more intensive water users are seen as cones of depression on these



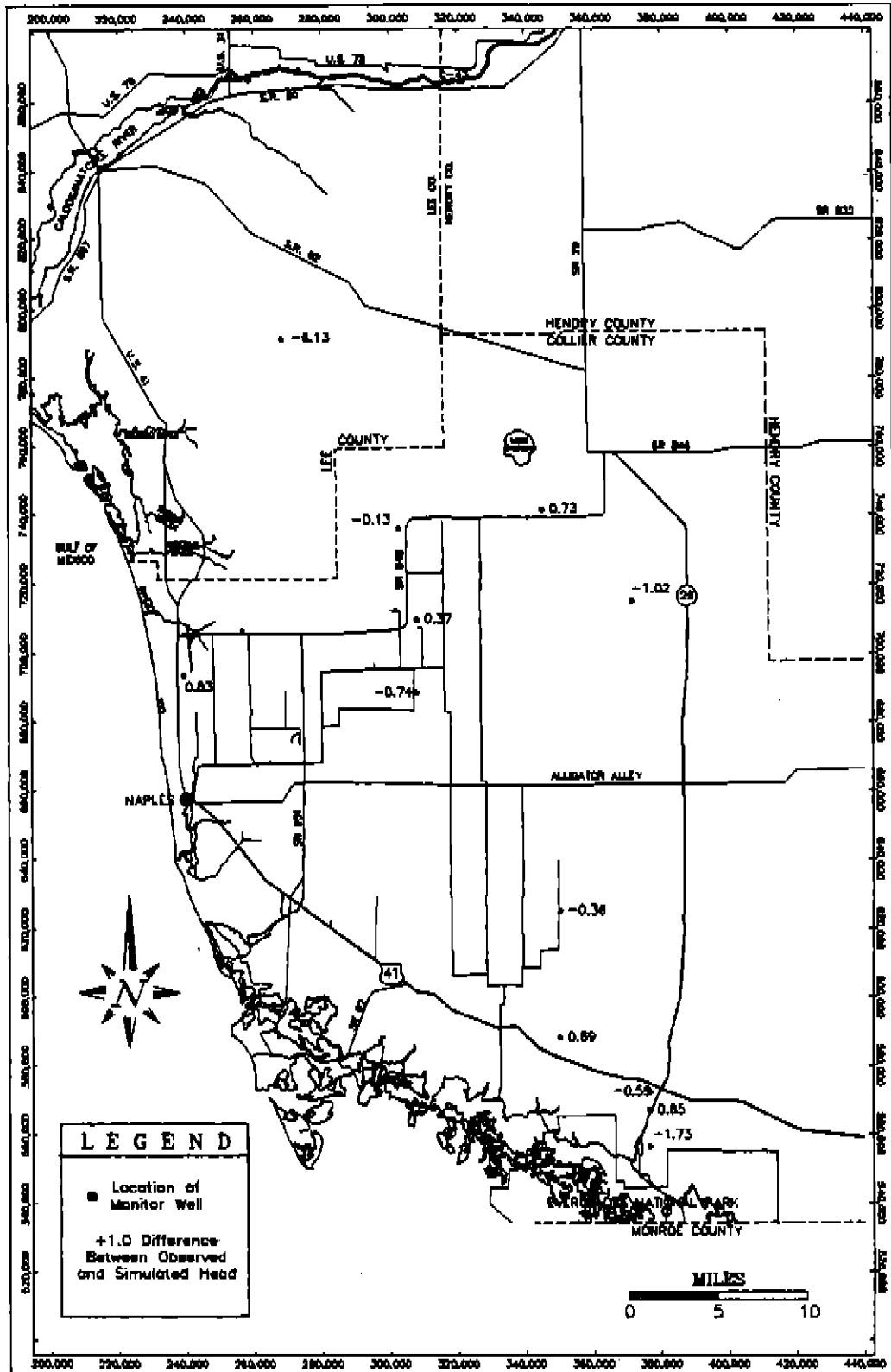


FIGURE 27. Average Difference Between Observed and Computed Water Levels, Layer 4 (Mid-Hawthorn Aquifer)

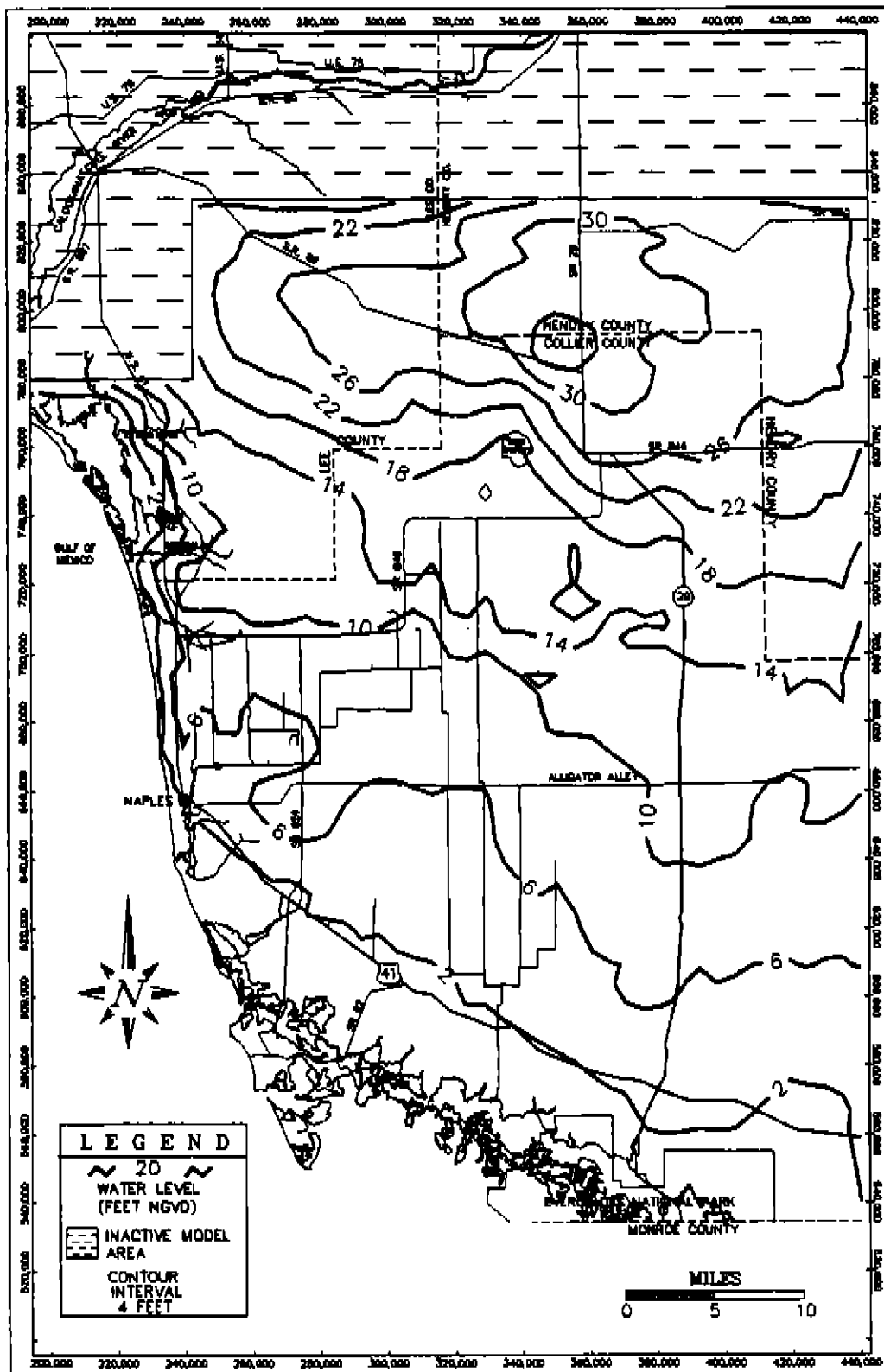


FIGURE 28. Computed Water Levels, Layer 1 (Surficial Aquifer) April 1988

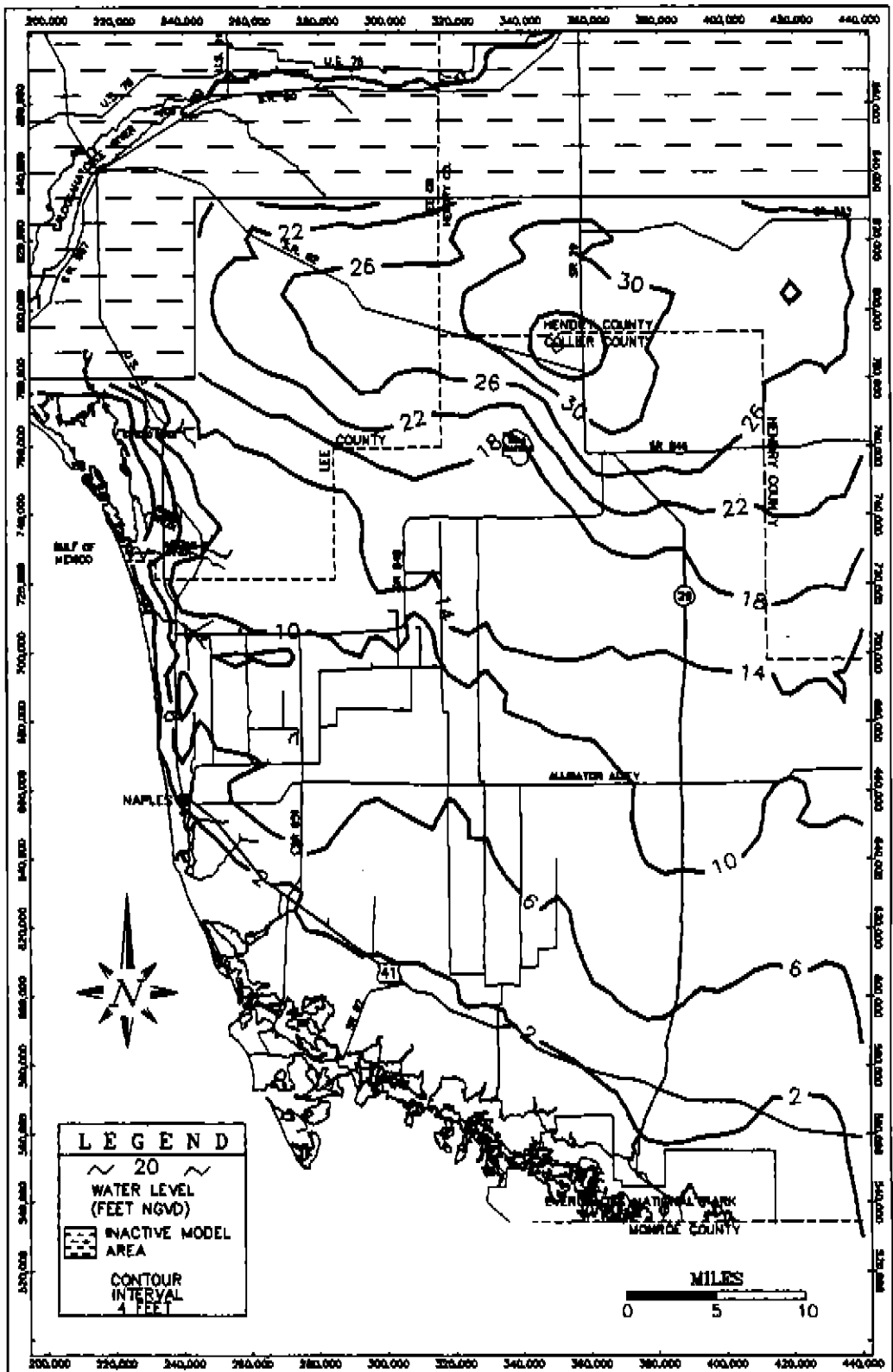


FIGURE 29. Computed Water Levels, Layer 1 (Surficial Aquifer) October 1988



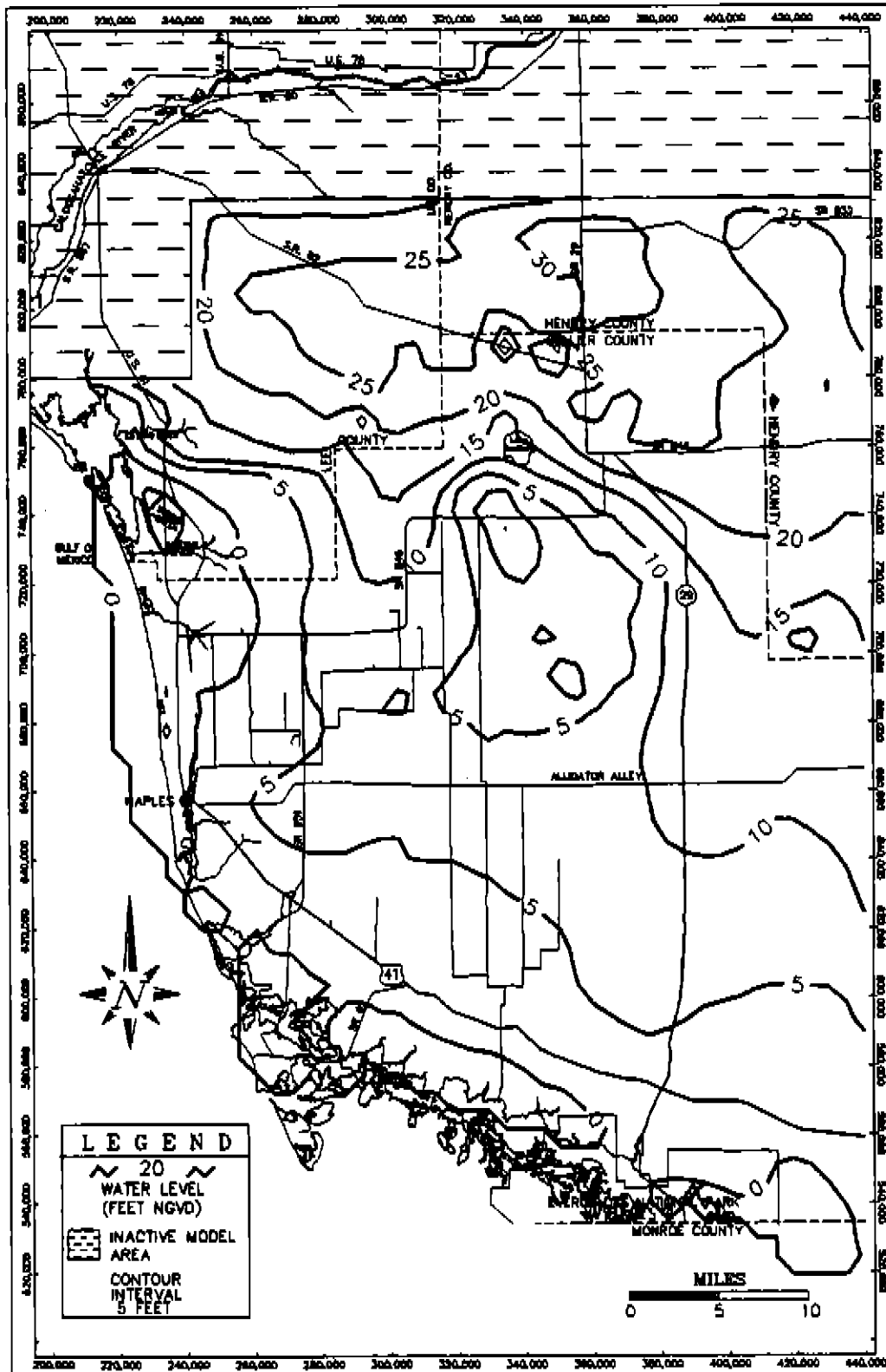


FIGURE 30. Computed Water Levels, Layer 2 (Lower Tamiami Aquifer) April 1988

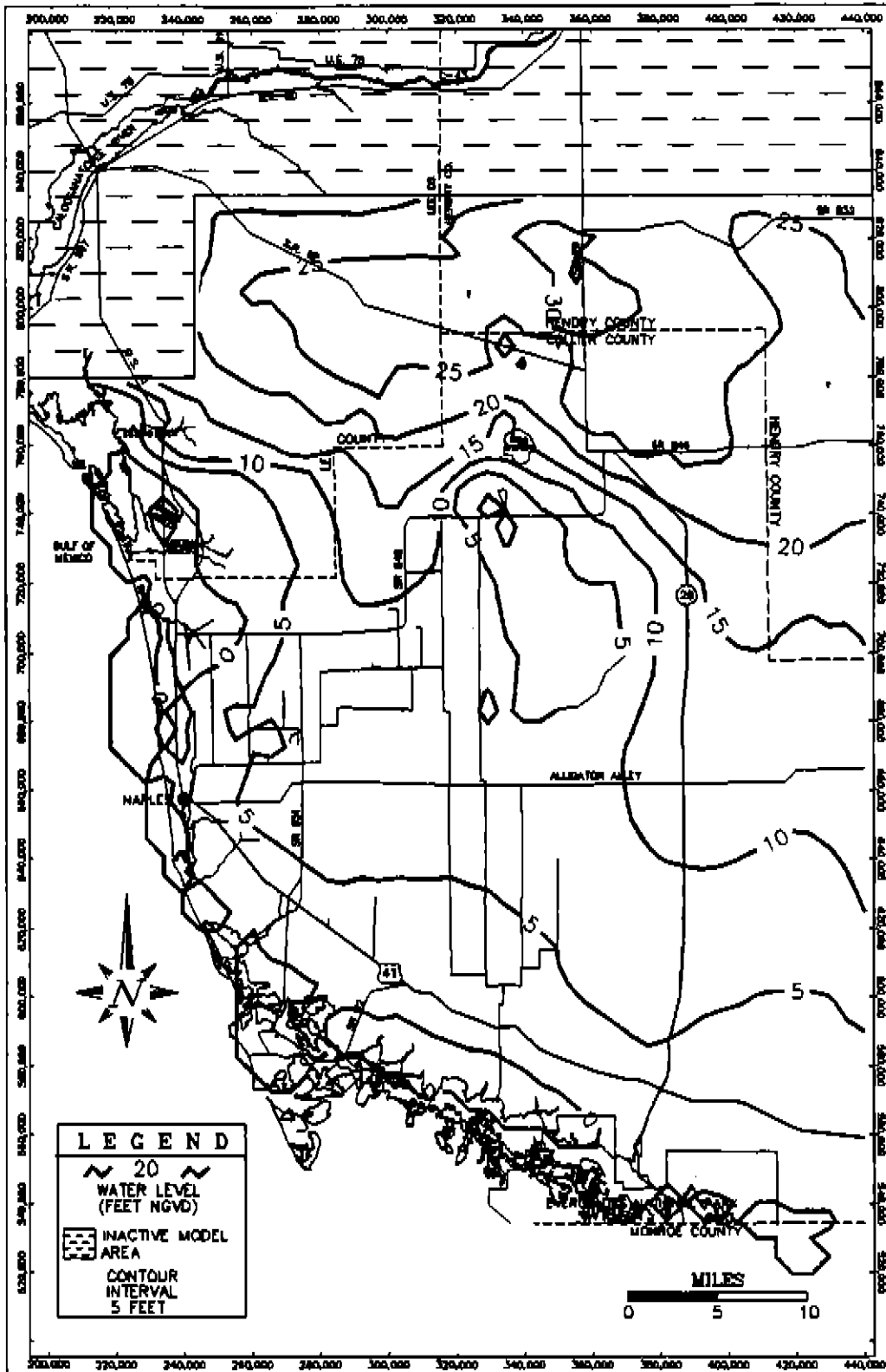


FIGURE 31. Computed Water Levels, Layer 2 (Lower Tamiami Aquifer) October 1988

maps. Simulated head distributions in layer 2 are consistent with observed water level distributions for these months.

**Layer 3 (Sandstone Aquifer).** Figures 32 and 33 show the computed head distributions in the sandstone aquifer for April and October 1988. Large withdrawals from the sandstone aquifer causes deep cones of depression of small areal extent. These deep cones of depression are due to its relatively poor hydraulic characteristics and limited areal extent. Seasonal fluctuation are also more apparent in areas of intense pumpage.

**Layer 4 (Mid-Hawthorn Aquifer).** The mid-Hawthorn simulated head distributions for April 1988 and October 1988 are shown in Figures 34 and 35. A comparison between the end of dry (Figure 34) and end of wet (Figure 35) seasons simulated head distributions show only minor fluctuations. These figures also reveal only limited withdrawals from this aquifer in Collier County. The majority of the pumpage occurs in central Lee County or outside the model area in southern Ft. Myers and Cape Coral area.

### Steady State

Time dependent variables such as recharge, evapotranspiration, well withdrawals and surface water levels were averaged over the 35 month transient calibration period. The calibrated aquifer hydraulic parameters from the transient run were used in the final steady state runs. These calibrated parameters served as the bases for the sensitivity analysis and provided information on the ground water flow system in Collier County.

**Layer 1 (Surficial Aquifer).** The arrows shown in Figure 36 indicate the magnitude and direction of simulated horizontal flow in the Surficial aquifer. The magnitude and direction of each of the arrows represent the flow between adjacent cells under average conditions. These vectors show that horizontal flow in the Surficial aquifer is primarily towards large surface water bodies, major canals and areas of intense ground water withdrawals.

The volumetric budget for layer 1 (Surficial aquifer) is shown in Figure 37. Analysis of this budget indicates that recharge from precipitation (RECH) accounts for approximately 95 percent of the total inflow to the aquifer. The remaining five percent results

from inflows entering through the northern and eastern model boundaries (GEN) and upward leakage from the lower Tamiami aquifer (LAY2). However, 52 percent of the water within the Surficial aquifer is lost by evapotranspiration (ET). A significant amount of water is also removed by an extensive network of canals (CAN) and as a result of downward leakage into the lower Tamiami aquifer (LAY2). Agricultural (AGW), domestic supply (DSS) and public water supply (PWS) withdrawals account for approximately 14 percent of the total outflows with the majority (10-12%) for agricultural and landscape irrigation use (AGW).

**Layer 2 (Lower Tamiami Aquifer).** Figure 38 shows the magnitude and direction of simulated horizontal flow in the lower Tamiami aquifer. The flow vectors indicate areas of significant withdrawals from both agricultural and public water supply wells.

Analysis of the volumetric budget for layer 2 (lower Tamiami Aquifer) is shown in Figure 39. Downward leakage from the overlying Surficial aquifer (LAY1) and upward leakage from the sandstone aquifer (LAY3) account for 81.6% and 10.5% of the inflows, respectively. Figure 40 shows the relative magnitude and direction of vertical leakage across the lower Tamiami confining unit under steady-state conditions. Approximately eight percent of the total volume of water enters the aquifer along the model boundaries from Lee and Hendry counties (GEN). Average withdrawals from the various users represents approximately 72 percent of the outflows from this aquifer with agricultural and landscape withdrawals (AGW) responsible for 138.4 MGD of the 273.7 MGD of the total steady-state pumpage.

**Layer 3 (Sandstone Aquifer).** The sandstone aquifer is used extensively in the Lehigh area of Lee County and Immokalee area of Collier County as indicated by the large horizontal flow vectors seen in Figure 41. Figure 42 shows the areas of increased leakage from the overlying lower Tamiami aquifer through the upper Hawthorn confining unit associated with these withdrawals.

Figure 43 shows the volumetric budget for layer 3 (sandstone aquifer) and indicates that flow into the aquifer occurs through the confining layers from the lower Tamiami (LAY2)

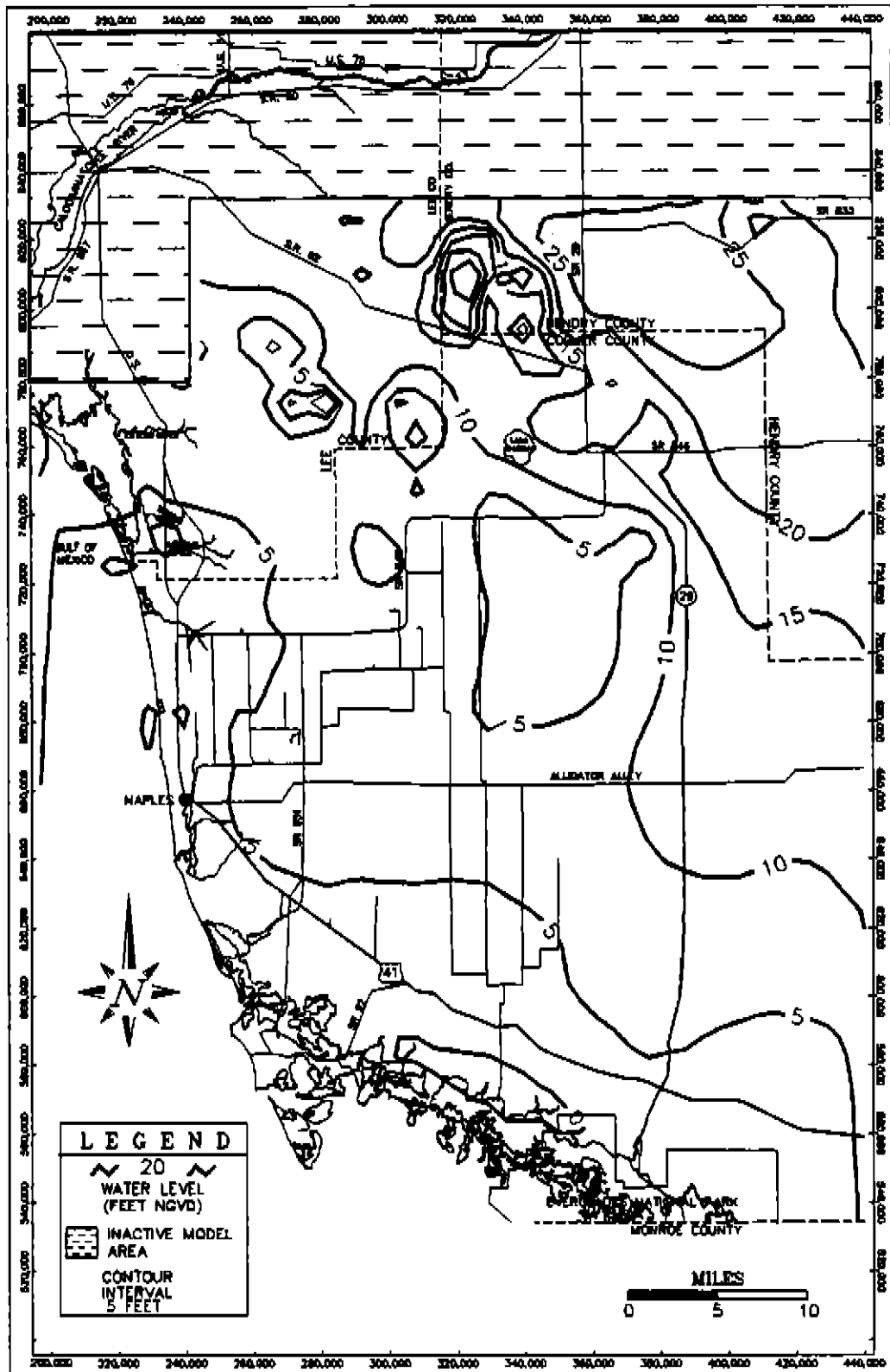


FIGURE 32. Computed Water Levels, Layer 3 (Sandstone Aquifer) April 1988

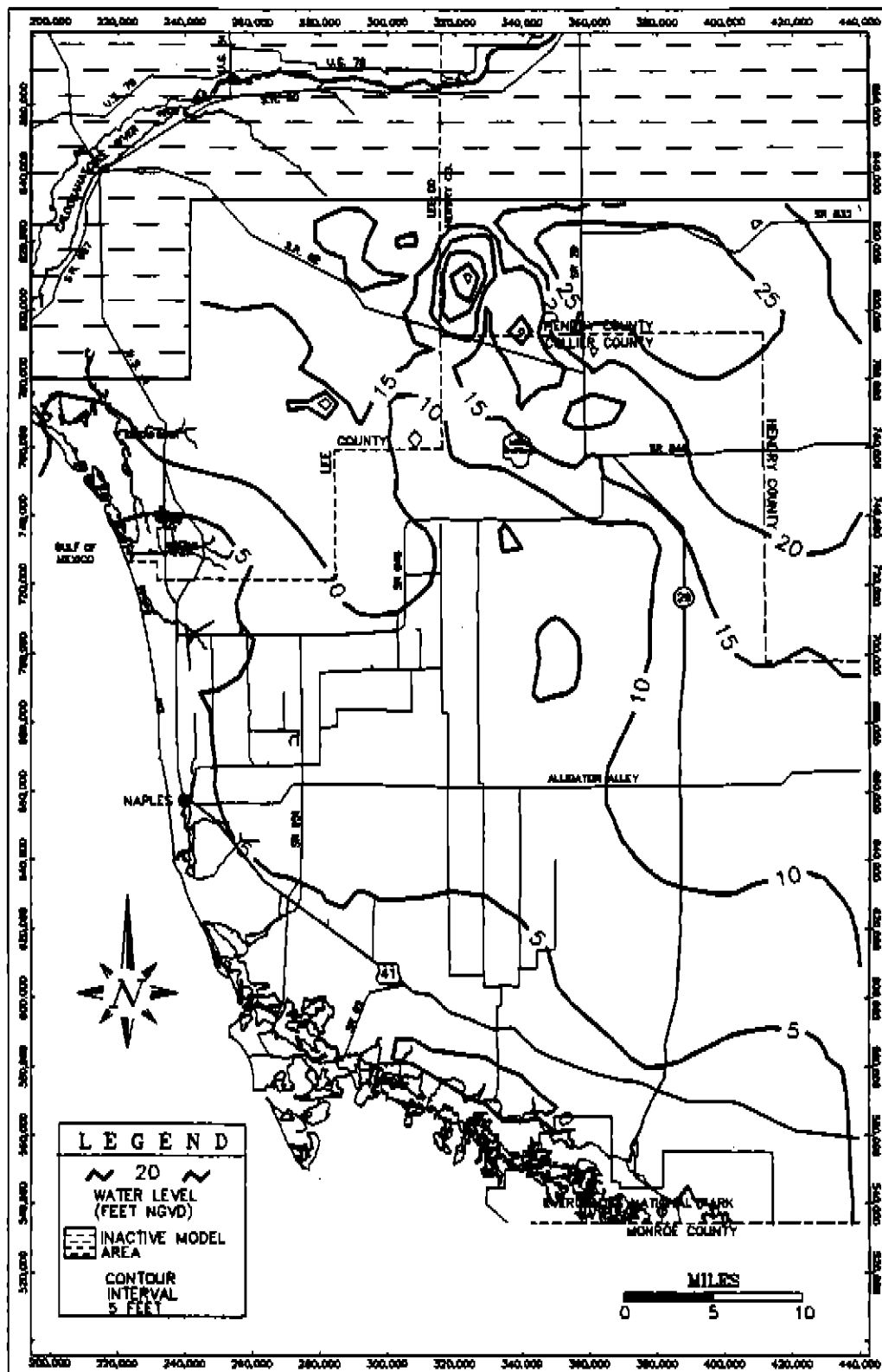


FIGURE 33. Computed Water Levels, Layer 3 (Sandstone Aquifer) October 1988

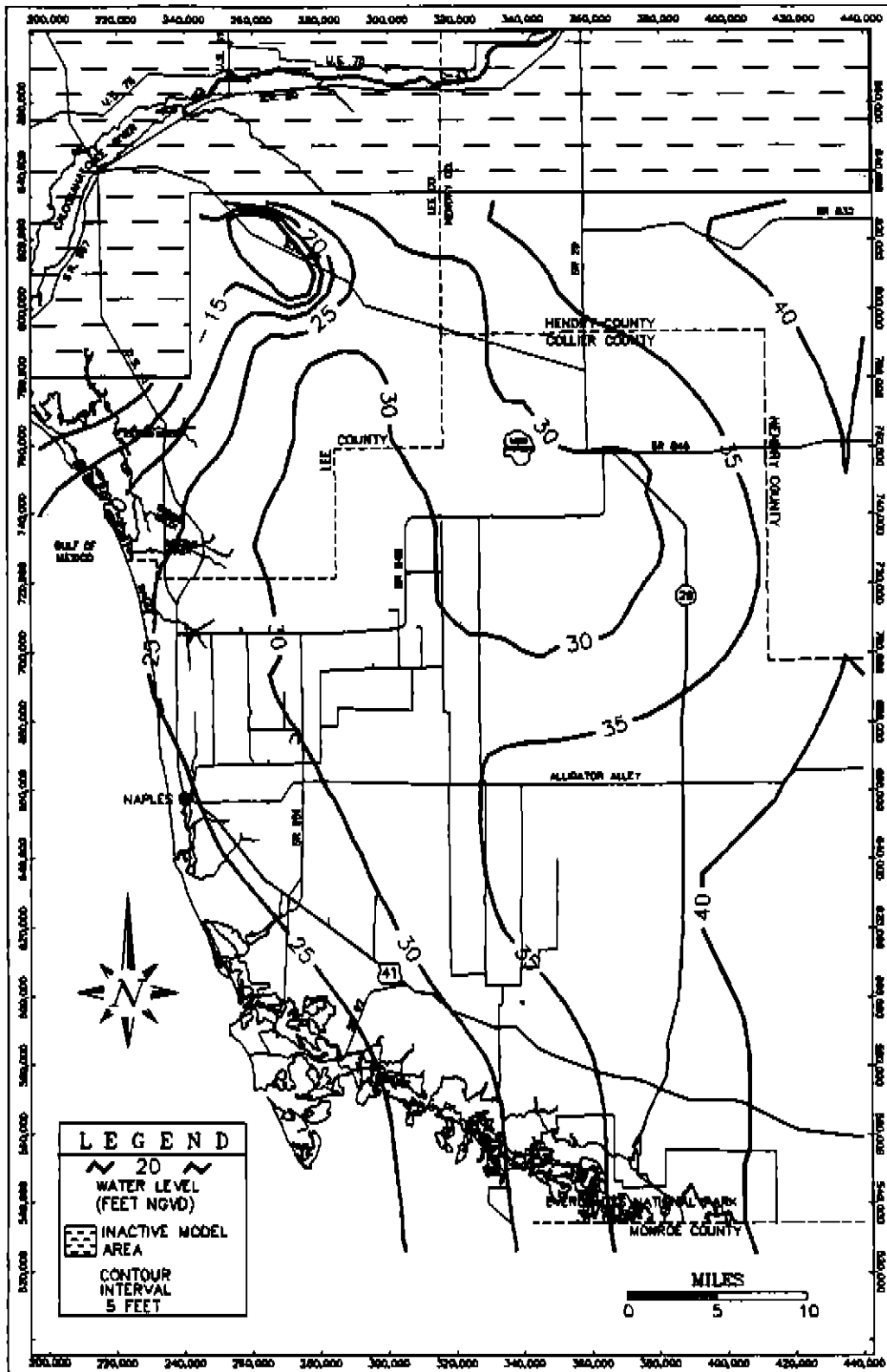


FIGURE 34. Computed Water Levels, Layer 4 (Mid-Hawthorn Aquifer) April 1988

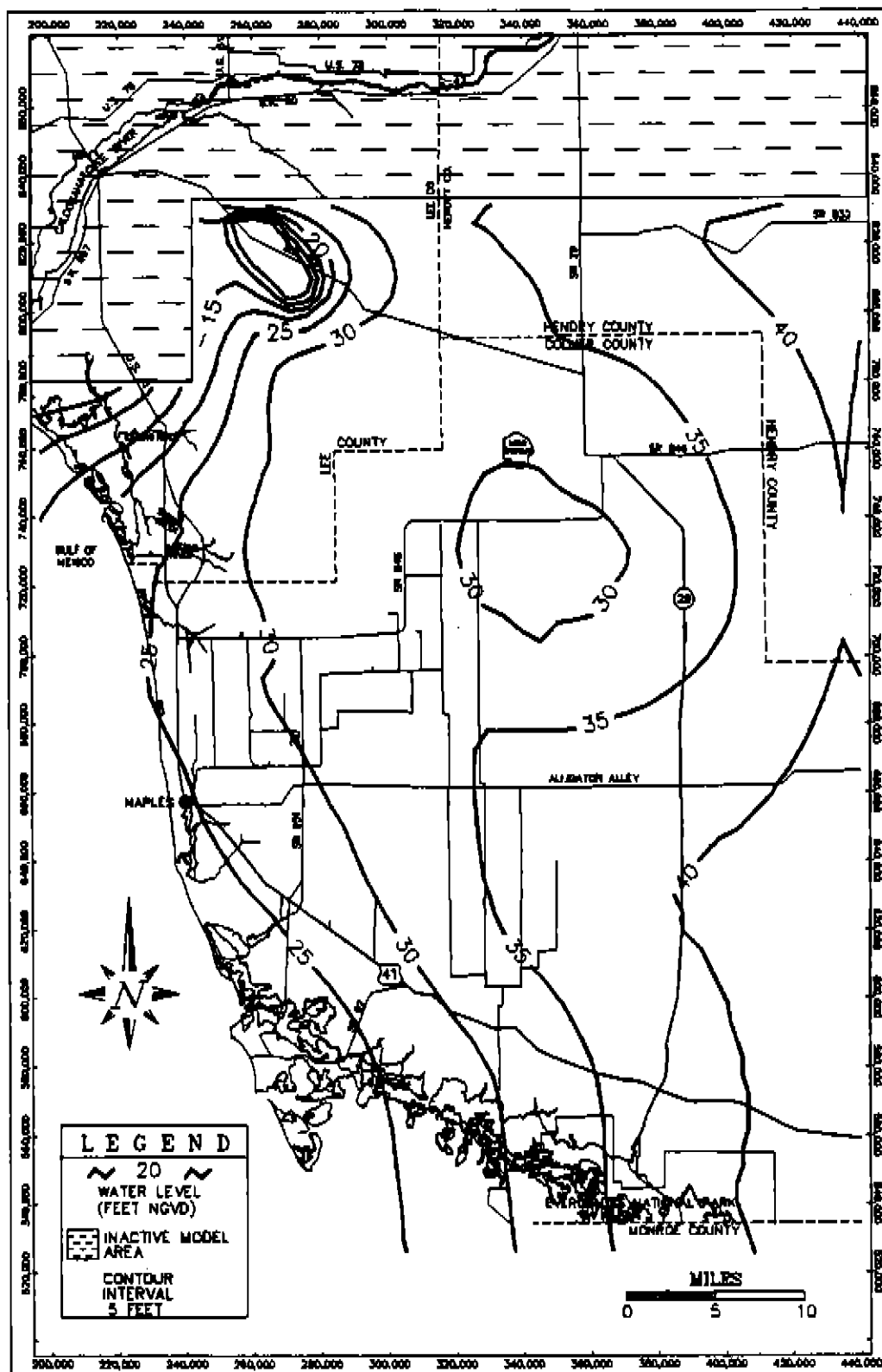


FIGURE 35. Computed Water Levels, Layer 4 (Mid-Hawthorn Aquifer) October 1988

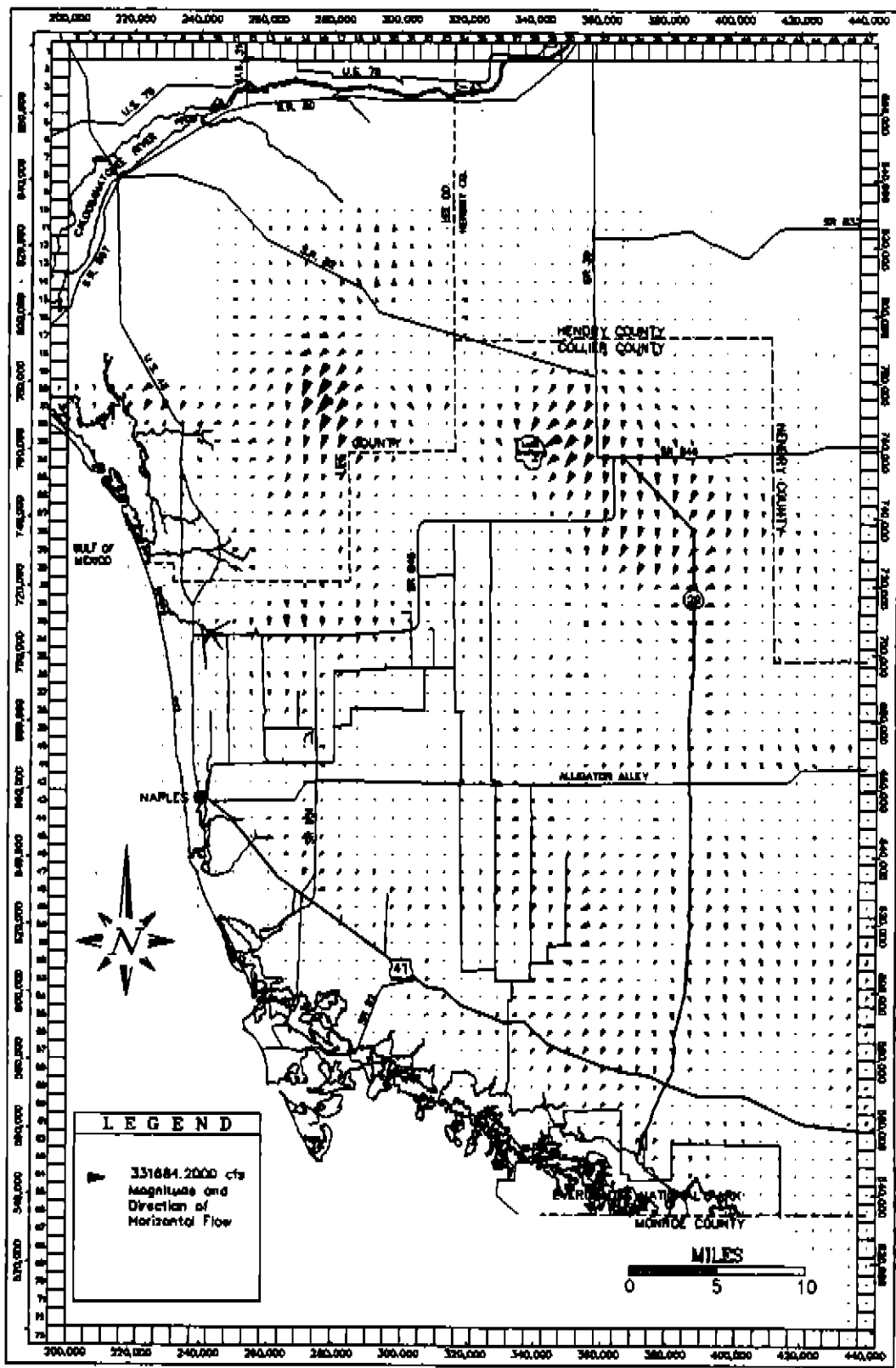


FIGURE 36. Simulated Steady State Horizontal Flow Vectors, Layer 1 (Surficial Aquifer)



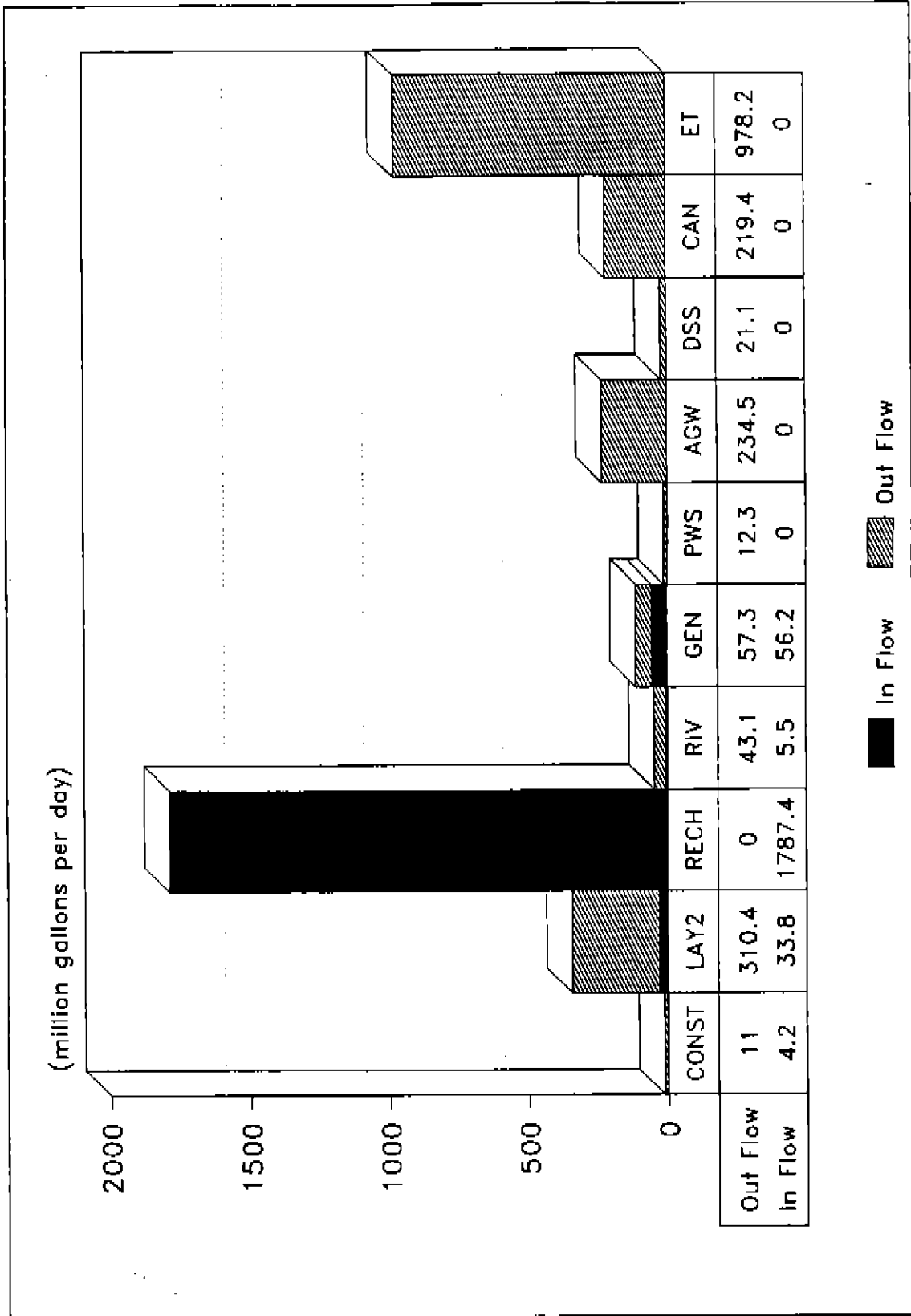
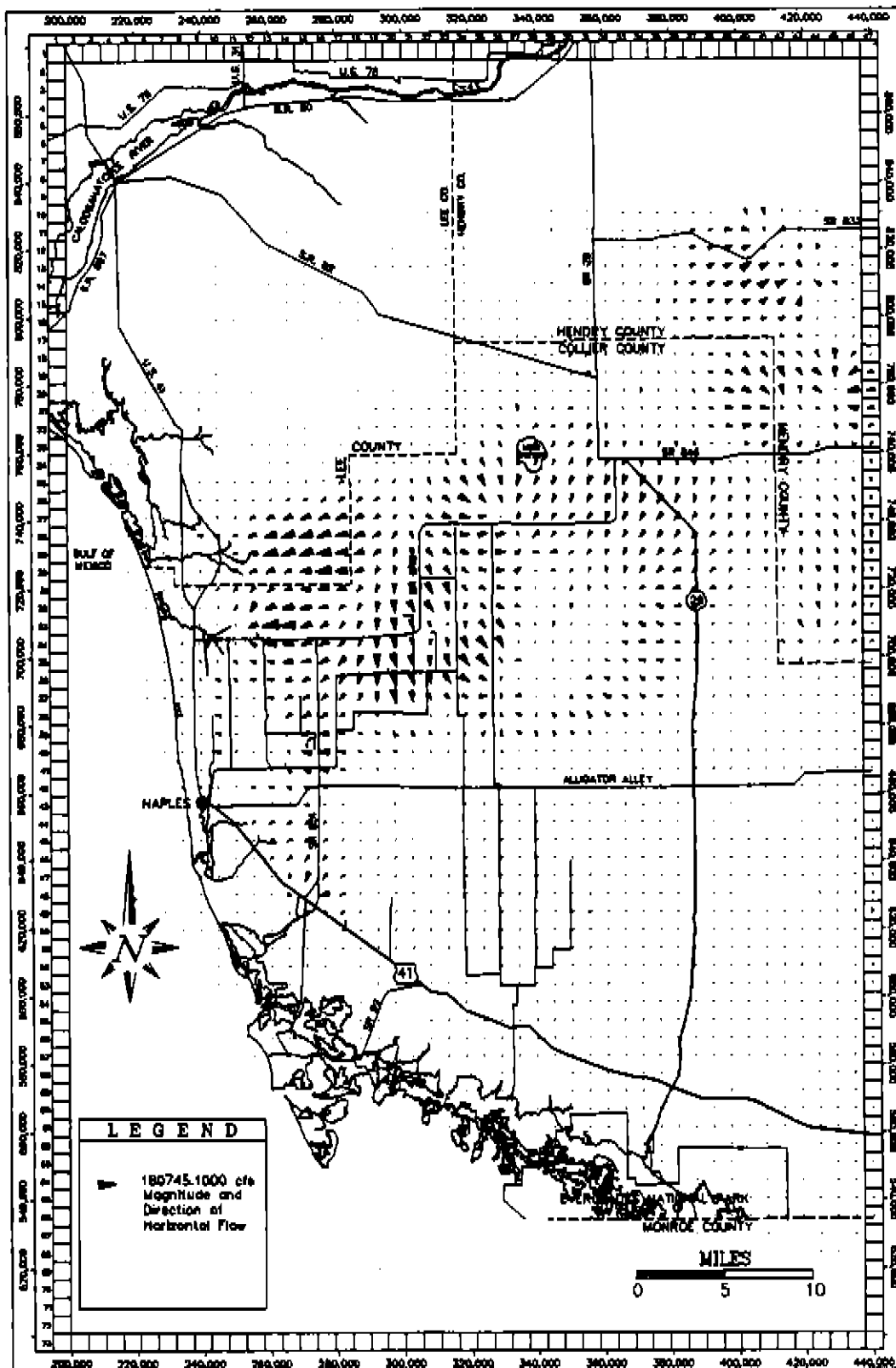


FIGURE 37. Volumetric Budget, Layer 1 (Surficial Aquifer) Steady State Conditions



-FIGURE 38. Simulated Steady State Horizontal Flow Vectors, Layer 2 (Lower Tamiami Aquifer)

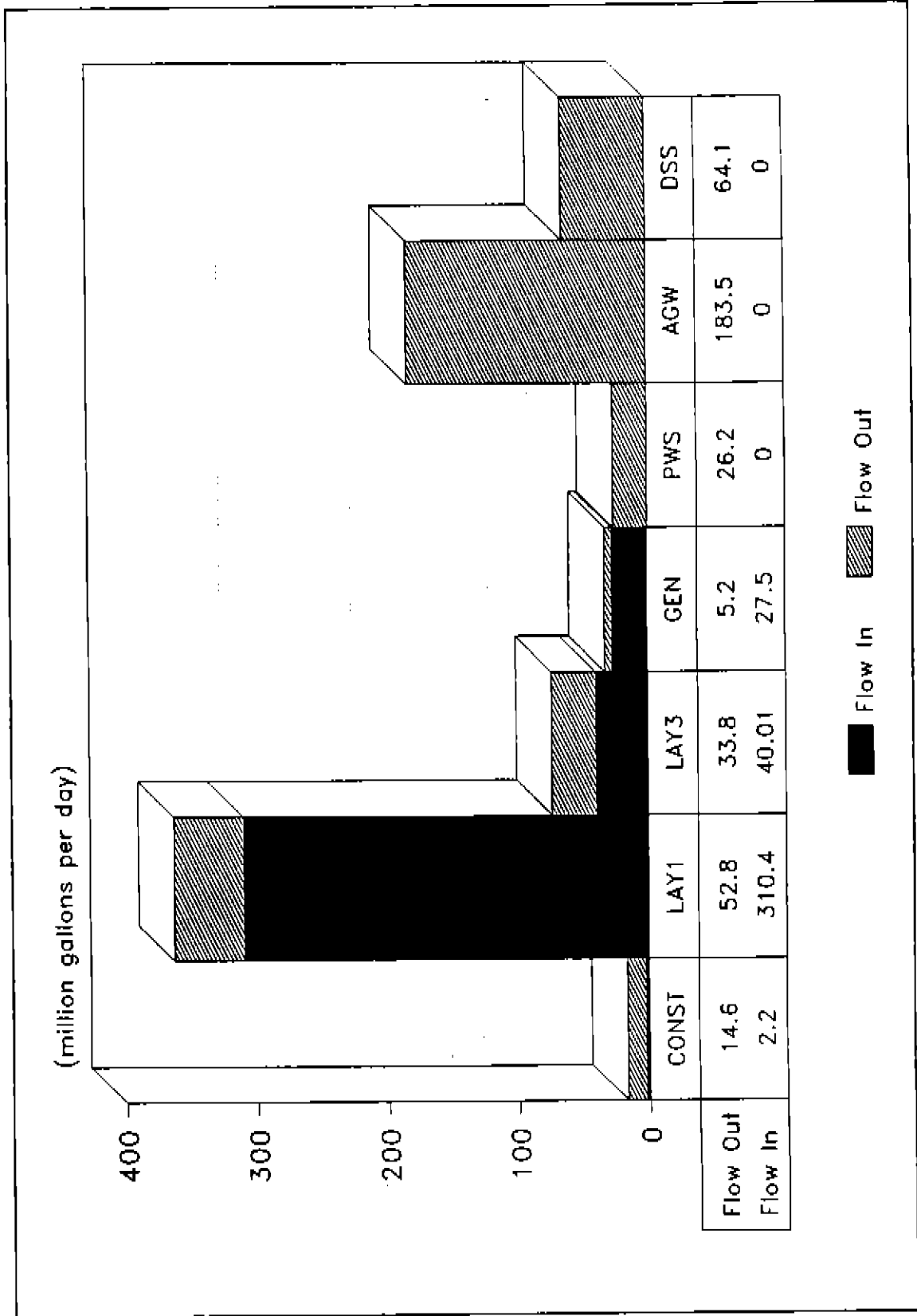


FIGURE 39. Volumetric Budget, Layer 2 (Lower Tamiami Aquifer) Steady State Conditions

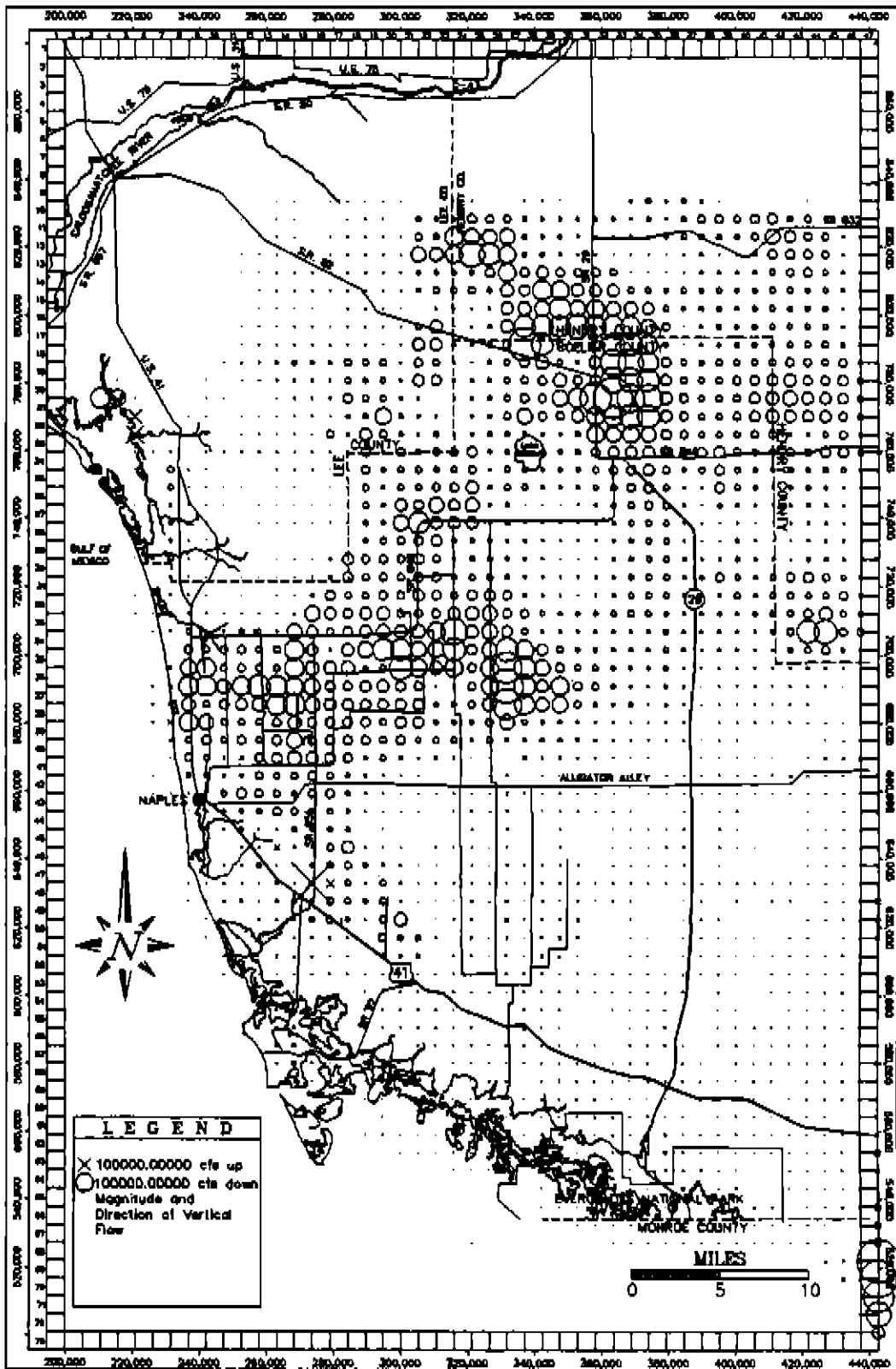


FIGURE 40. Simulated Steady State Vertical Flow Between Layer 1 (Surficial Aquifer) and Layer 2 (Lower Tamiami Aquifer)

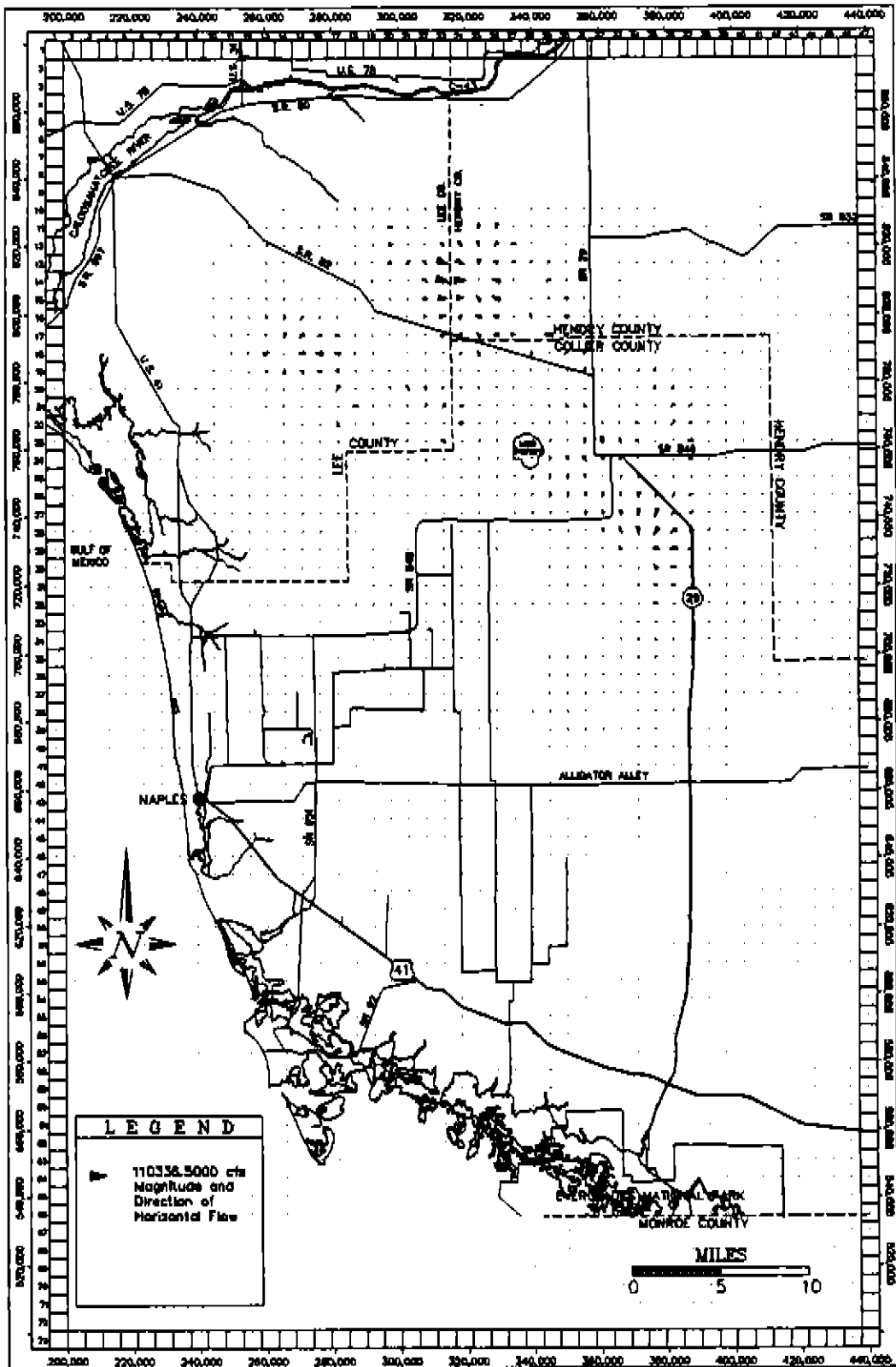


FIGURE 41. Simulated Steady State Horizontal Flow Vectors, Layer 3 (Sandstone Aquifer)

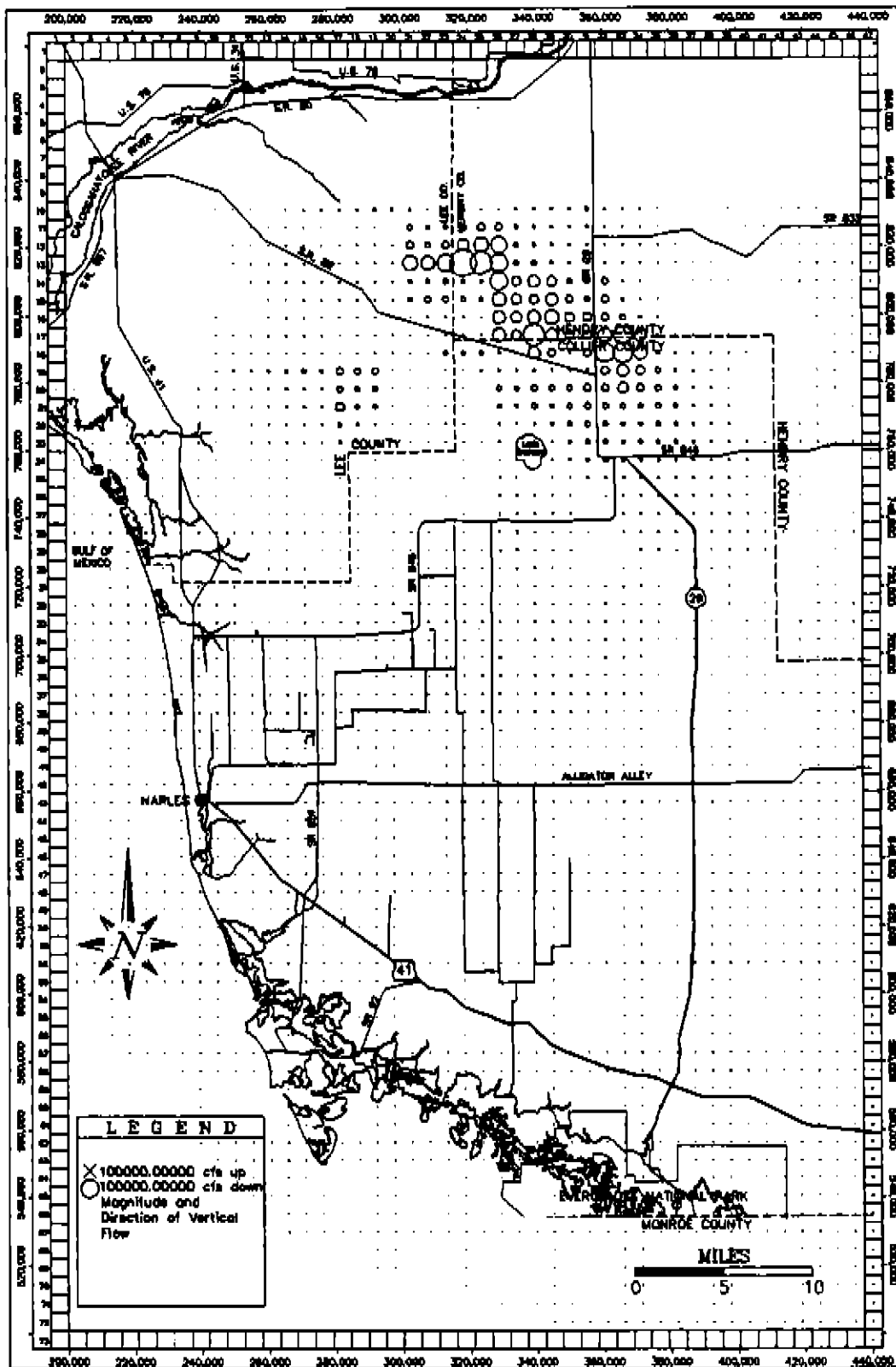


FIGURE 42. Simulated Steady State Vertical Flow Between Layer 2 (Lower Tamiami Aquifer) and Layer 3 (Sandstone Aquifer)

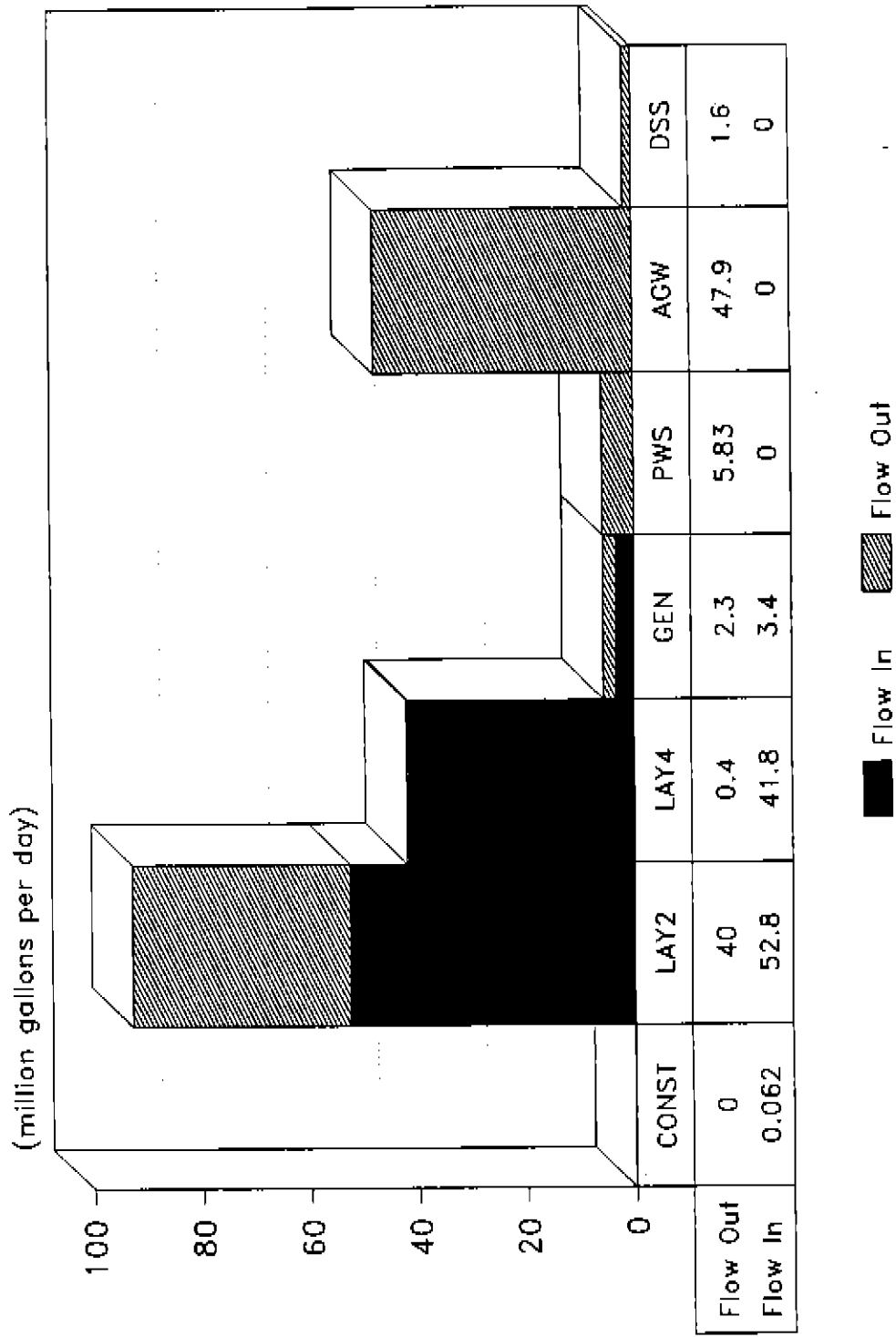


FIGURE 43. Volumetric Budget, Layer 3 (Sandstone Aquifer) Steady State Conditions

and mid-Hawthorn (LAY4) aquifers. The majority of the simulated flow out of this aquifer is through upward leakage to the lower Tamiami (LAY2) aquifer (40.8%) and to agricultural and landscape (AGW) pumpage (48.9%). Both public water supply (PWS) and domestic self supply (DSS) withdrawals are considerably less from the sandstone aquifer in comparison to the Surficial and lower Tamiami aquifers.

#### **Layer 4 (Mid-Hawthorn Aquifer).**

Figure 44 illustrates the magnitude and direction of the simulated horizontal flow in the mid-Hawthorn aquifer. The magnitude and direction of the horizontal flow vectors within Collier County indicate no significant areas of pumpage from the mid-Hawthorn. However, an area of intense pumpage can be seen in the central Lee County. Figures 45 and 46 show the simulated leakage across the confining units into the mid-Hawthorn from the overlying sandstone and underlying lower Hawthorn aquifers.

The volumetric budget for layer 4 (mid-Hawthorn aquifer) is illustrated in Figure 47. Almost all of the recharge to the mid-Hawthorn (98%) permeates through the lower Hawthorn confining unit from the underlying lower Hawthorn (LAY5) aquifer. The remaining two percent comes from specified heads (CONST) along the model boundaries. Of the total outflows, 91 percent is a result of

upward leakage to the sandstone aquifer (LAY3) and 4.8 percent through specified head (CONST) cells along the model boundary. Total simulated pumpage is 2.09 MGD which accounts for 4.5 percent of the flow out of this layer, domestic self supply (DSS) withdrawals represent the majority (88%) of this total which occurs almost exclusively in Lee County.

#### **Total Model Volumetric Budget**

Figure 48 represents the total volumetric budget for the model area. Recharge (RECH) (rainfall) accounts for 92.5 percent of the total flow into the model with the remaining 7.5 percent consisting of flow from outside the model area (7.25%) and river leakage (0.25%). Evapotranspiration (ET) is the most significant stress which removes water from the ground water flow system. It represents 50.6 percent of the total simulated outflows. Withdrawals through public water supply (PWS), domestic self supply (DSS) and agricultural and landscape (AGW) pumpage is approximately 31 percent of the total outflow with the majority being withdrawn for agricultural use. The major canal systems (CAN) in the model area are responsible for 11.35 percent of total outflow and occurs exclusively from layer 1 (Surficial aquifer). The other parameters that contribute to the total simulated outflows consist of flow through general (GEN) and specified head (CONST) cells (4.8%) and river leakage (RIV) (2.2%) to the Surficial aquifer.



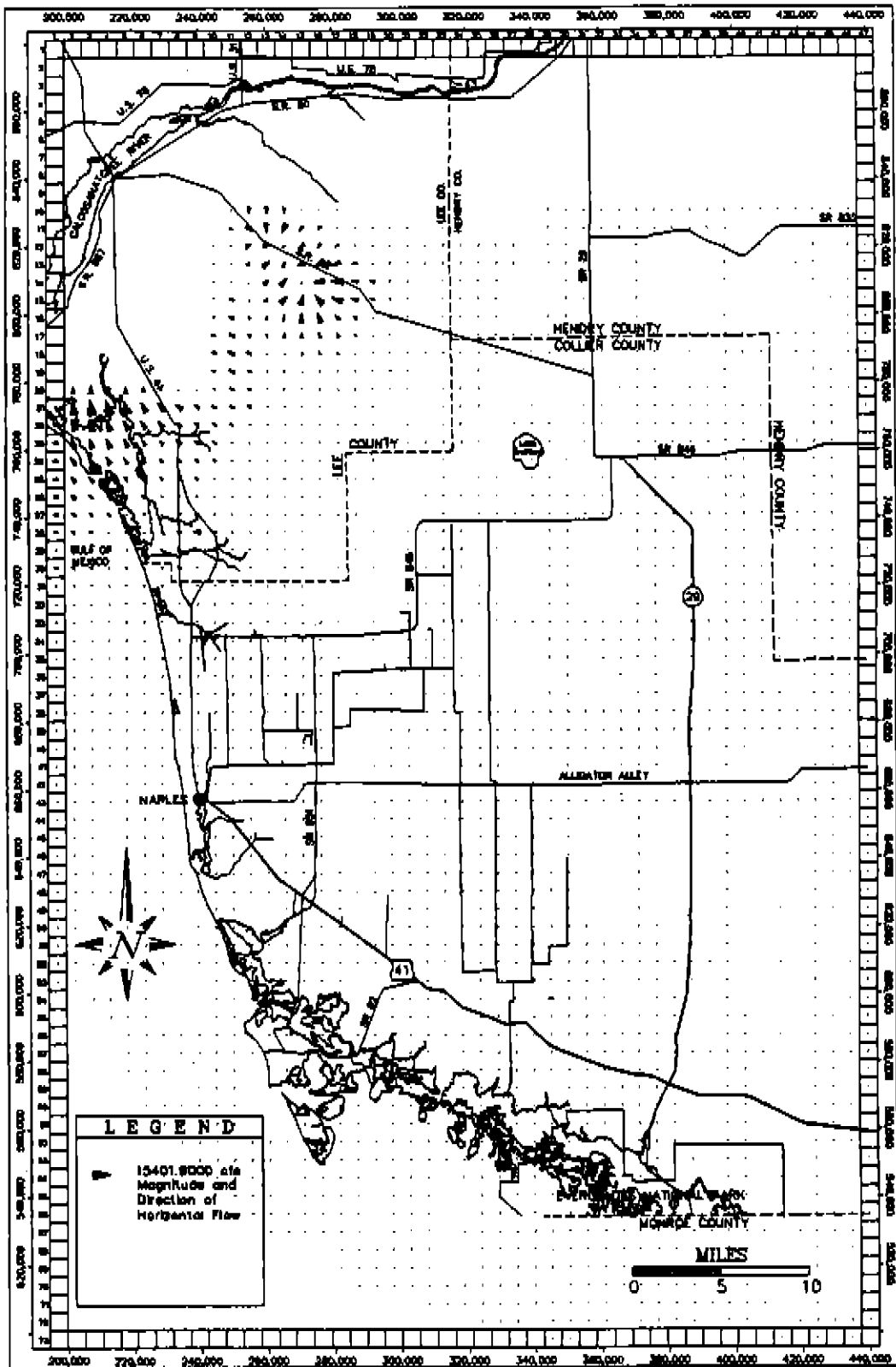


FIGURE 44. Simulated Steady State Horizontal Flow Vectors, Layer 4 (Mid-Hawthorn Aquifer)

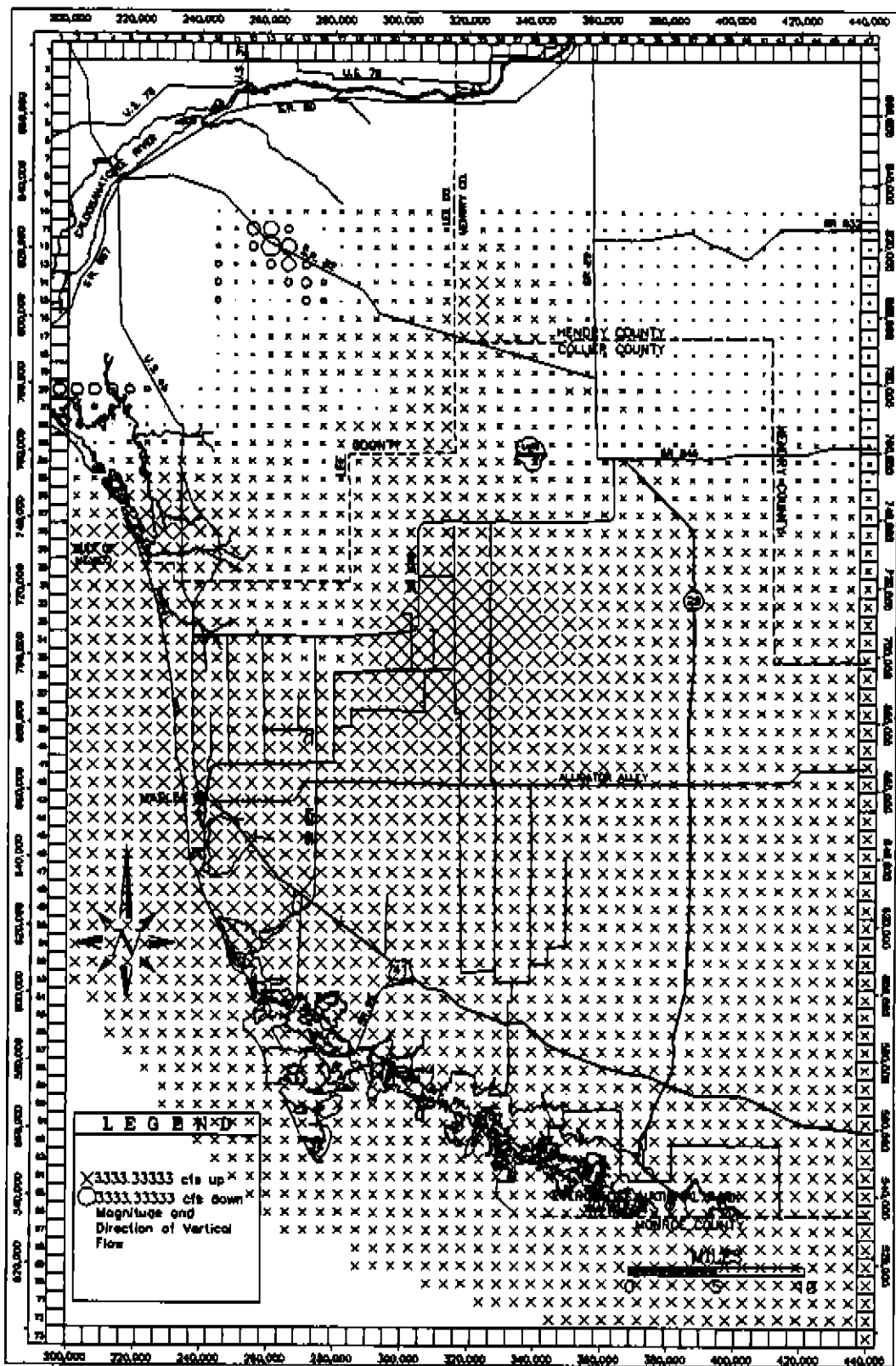


FIGURE 45.- Simulated Steady State Vertical Flow Between Layer 3 (Sandstone Aquifer) and Layer 4 (Mid-Hawthorn Aquifer)

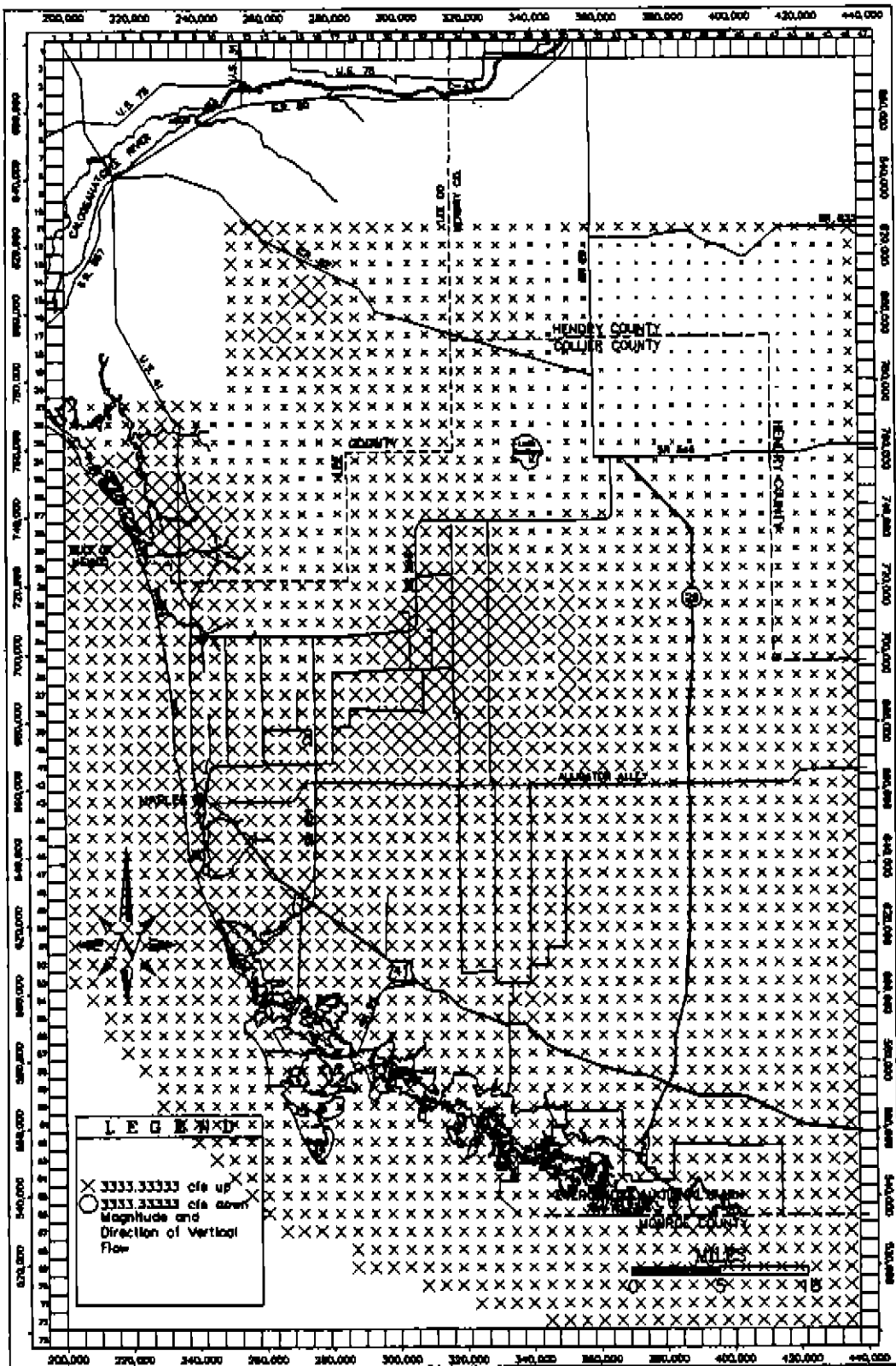


FIGURE 46. Simulated Steady State Vertical Flow Between Layer 4 (Mid-Hawthorn Aquifer) and Layer 5 (Lower Hawthorn Aquifer)

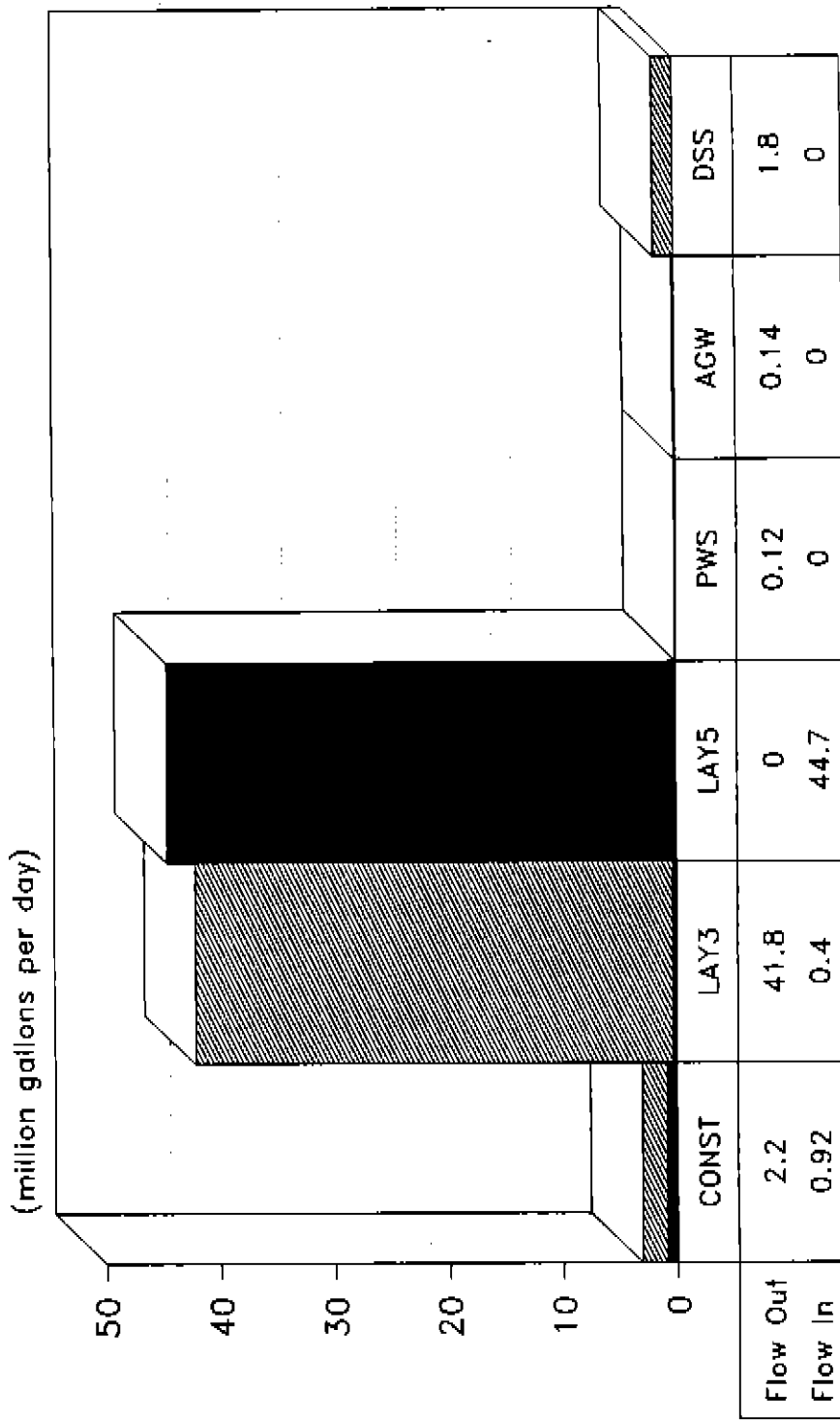


FIGURE 47. Volumetric Budget, Layer 4 (Mid-Hawthorn Aquifer) Steady State Conditions

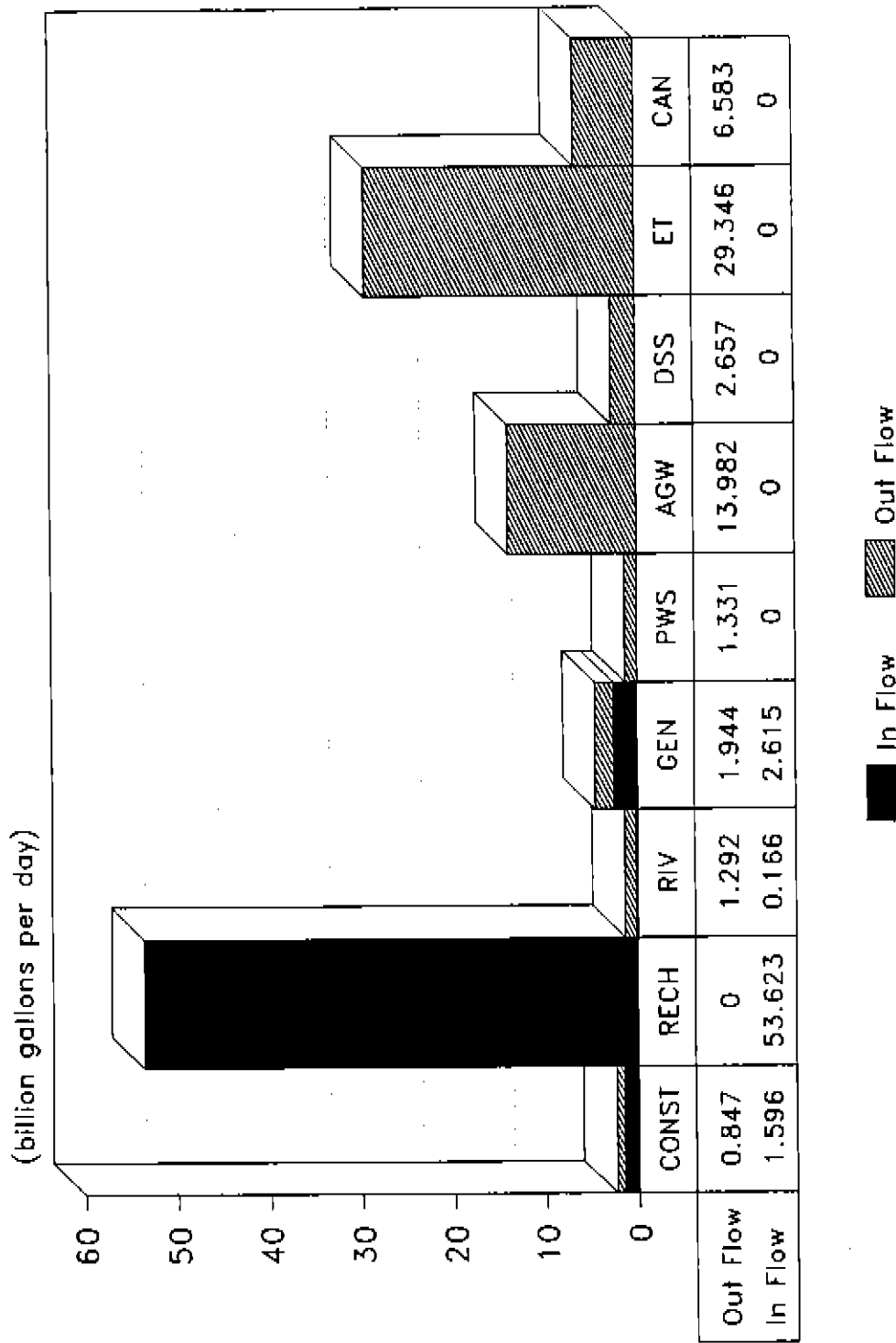


FIGURE 48. Volumetric Budget for Entire Model, Steady State Conditions



## SENSITIVITY TESTING

Sensitivity tests were performed to ascertain the dependency of the results on the estimated aquifer parameters used in the model. The aquifer parameters were tested by altering the hydraulic conductivity and river bed conductance in layer 1 and  $V_{cont}$  between layers 1 and 2. The transmissivities for Layers 2, 3 and 4 and  $V_{cont}$  between the respective layers were also altered. These parameters were doubled then halved one at a time to test the sensitivity of the model to a specific parameter. They were also increased and decreased by an order of magnitude to test the stability and sensitivity of the model to large changes in these parameters. It was assumed testing this range of values would bracket the interval of uncertainty for each of the parameters. Head changes in each layer were examined to determine their relative sensitivity. The results of these tests are presented in Tables 2 through 6. In these tables, the changes that occurred within the layer are presented, followed by the resulting changes in the overlying, and then underlying layers.

The model was also tested for its sensitivity to change in recharge, maximum evapotranspiration rates and evapotranspiration surface. Recharge and maximum ET rates were increased and decreased by 10 percent, and ET surface was varied by  $\pm 1.5$  feet. These intervals were assumed to bracket the range of uncertainty for these stresses. Head changes in each layer were once again examined to determine their relative sensitivity.

### Layer 1 (Surficial Aquifer).

Simulated water levels in layer 1 were not generally sensitive to changes in aquifer parameters. Changes in hydraulic conductivity caused a small drop (-0.01 to -0.05 feet) in overall simulated head values (Table 2). However, significant changes in computed head levels occurred within areas of intense withdrawals, but these changes were confined to localized areas. Layers 2 through 4 reacted to changes in aquifer parameter in layer 1 in a similar manner. Layer 1 is, however, sensitive to changes in recharge, maximum ET rates and ET surface. Altering the ET surface by  $\pm 1.5$  feet, causes overall simulated heads in layer 1 to fluctuate between -0.98 and 0.92 feet. Changes in recharge and maximum ET rates by  $\pm 10\%$  do not produce as significant changes in overall simulated heads as compared to altering the ET surface (Table 3). Layers 2 to 4 react to changes in these stresses and

ET surface in a similar manner but to a lesser degree.

### Layer 2 (Lower Tamiami Aquifer).

Simulated heads in layer 2 are more sensitive to changes in aquifer parameters as compared to layer 1. Decreasing the transmissivity by half causes a maximum drop in simulated head of -8.89 feet (in a heavily pumped area), and overall, causes the heads to decrease an average of 0.21 feet. Multiplying  $V_{cont}$  between layers 1 and 2 by 0.5 and 2.0 causes the most significant changes in the overall simulated head distribution. As a result, simulated head values in layer 2 range on average from -0.88 to 0.52 feet (Table 4). This is expected, as downward leakage from the overlying layer (Surficial aquifer) is the major source of flow to layer 2 (lower Tamiami aquifer).

### Layer 3 (Sandstone Aquifer).

Simulated heads in layer 3 are sensitive to changes in  $V_{cont}$  between layers 2 and 3 and layers 3 and 4. Analysis of the volumetric budget for layer 3 shows that approximately 99 percent of the total inflow is the result of leakage from layers 2 (lower Tamiami aquifer) and 4 (mid-Hawthorn aquifer). Doubling the  $V_{cont}$  between layers 2 and 3 results in an average increase in stimulated head of 0.60 feet while reducing it by half causes heads to decrease an average of -0.47 feet (Table 5).

Layer 3 is slightly more sensitive to changes in transmissivity than layer 2 because of its overall lower transmissivity. Doubling this parameter resulted in a maximum increase in simulated head of 9.08 feet. Decreasing transmissivity by half resulted in a maximum decline in simulated head of 14.17 feet. Once again, the largest changes in simulated heads occurred in areas of intense ground water withdrawals.

### Layer 4 (Mid Hawthorn Aquifer).

Overall, simulated heads in layer 4 are sensitive to changes in  $V_{cont}$ , representing the lower Hawthorn confining unit and only slightly sensitive to changes in transmissivity. Transmissivity values for this aquifer are relatively uniform based on existing hydraulic data except for specific areas. Doubling transmissivity resulted in a maximum rise in head of 16.31 feet while cutting transmissivity by half caused a decrease of 20.95 feet. These changes in transmissivity within the model area also cause

**TABLE 2. SENSITIVITY RESPONSES TO CHANGES IN LAYER 1  
(Head Changes in Feet)**

	MAXIMUM HEAD	MINIMUM HEAD	AVERAGE HEAD CHANGE	STD. DEV.
<b>Change in Layer 1</b>				
Conductivity Doubled	3.16	-3.03	-0.05	0.47
Conductivity Halved	2.26	-5.81	-0.01	0.50
Conductivity *10	5.96	-11.56	-0.59	1.76
*Conductivity *0.1	--	--	--	--
Vcont Doubled (Layer 1-2)	0.33	-1.44	-0.03	0.12
Vcont Halved (Layer 1-2)	2.24	-0.45	+0.03	0.14
Vcont *10 (Layer 1-2)	0.09	-3.37	-0.07	0.29
Vcont *0.1 (Layer 1-2)	7.16	-2.36	-0.09	0.47
Canal Cond. Doubled	0.00	-1.54	-0.15	0.21
Canal Cond. Halved	1.90	0.00	+0.15	0.22
<b>Change in Underlying Layer 2</b>				
Conductivity Doubled	1.58	-1.67	-0.04	0.29
Conductivity Halved	0.89	-2.18	-0.01	0.25
Conductivity *10	4.92	-7.38	-0.53	1.44
*Conductivity *0.1	--	--	--	--
Vcont Doubled (Layer 1-2)	4.28	-0.36	+0.52	0.75
Vcont Halved (Layer 1-2)	0.32	-6.20	-0.88	1.19
Vcont *10 (Layer 1-2)	9.29	-0.99	+1.04	1.60
Vcont *0.1 (Layer 1-2)	0.69	-31.91	-7.98	7.41
Canal Cond. Doubled	0.00	-0.96	-0.14	0.16
Canal Cond. Halved	1.01	0.00	+0.15	0.18
<b>Change in Underlying Layer 3</b>				
Conductivity Doubled	1.09	-1.21	-0.03	0.20
Conductivity Halved	0.54	-1.13	-0.01	0.16
Conductivity *10	2.73	-6.26	-0.43	1.09
*Conductivity *0.1	--	--	--	--
Vcont Doubled (Layer 1-2)	2.84	-0.30	+0.44	0.65
Vcont Halved (Layer 1-2)	0.29	-4.28	-0.75	1.06
Vcont *10 (Layer 1-2)	6.11	-0.85	+0.87	1.34
Vcont *0.1 (Layer 1-2)	0.67	-27.59	-6.88	6.67
Canal Cond. Doubled	0.00	-0.64	-0.11	0.14
Canal Cond. Halved	0.79	0.00	+0.12	0.15
<b>Change in Underlying Layer 4</b>				
Conductivity Doubled	0.20	-0.49	-0.02	0.08
Conductivity Halved	0.21	-0.31	0.00	0.06
Conductivity *10	0.38	-2.74	-0.22	0.49
*Conductivity *0.1	--	--	--	--
Vcont Doubled (Layer 1-2)	1.20	-0.02	+0.20	0.30
Vcont Halved (Layer 1-2)	0.02	-2.04	-0.34	0.50
Vcont *10 (Layer 1-2)	2.60	-0.05	+0.39	0.60
Vcont *0.1 (Layer 1-2)	0.07	-13.20	-2.96	3.17
Canal Cond. Doubled	0.00	-0.15	-0.04	0.04
Canal Cond. Halved	0.17	0.00	+0.04	0.04

\*Failed to converge



**TABLE 3. SENSITIVITY RESPONSES TO CHANGES IN STRESSES  
(Head Changes in Feet)**

	MAXIMUM HEAD	MINIMUM HEAD	AVERAGE HEAD CHANGE	STD. DEV.
<u>Change in Layer 1</u>				
Recharge at 110%	1.37	0.00	+ 0.30	0.25
Recharge at 90%	0.00	-1.77	-0.33	0.30
Max ET Rate at 110%	0.00	-0.75	-0.11	0.09
Max ET Rate at 90%	0.88	0.00	+ 0.14	0.12
ET Surface + 1.5 feet	1.53	0.00	+ 0.92	0.46
ET Surface -1.5 feet	0.00	-1.53	-0.98	0.44
<u>Change in Underlying Layer 2</u>				
Recharge at 110%	1.04	0.00	0.26	0.21
Recharge at 90%	0.00	-1.20	-0.29	0.25
Max ET Rate at 110%	0.00	-0.53	-0.10	0.08
Max ET Rate at 90%	0.64	0.00	0.12	0.10
ET Surface + 1.5 feet	1.49	0.00	+ 0.78	0.46
ET Surface -1.5 feet	0.00	-1.49	-0.84	0.46
<u>Change in Underlying Layer 3</u>				
Recharge at 110%	0.76	0.00	0.21	0.20
Recharge at 90%	0.00	-1.10	-0.23	0.23
Max ET Rate at 110%	0.00	-0.34	-0.08	0.07
Max ET Rate at 90%	0.40	0.00	0.09	0.08
ET Surface + 1.5 feet	1.46	0.00	+ 0.61	0.46
ET Surface -1.5 feet	0.00	-1.45	-0.66	0.48
<u>Change in Underlying Layer 4</u>				
Recharge at 110%	0.38	0.00	0.08	0.10
Recharge at 90%	0.00	-0.44	-0.09	0.10
Max ET Rate at 110%	0.00	-0.14	-0.03	0.03
Max ET Rate at 90%	0.16	0.00	0.03	0.04
ET Ext. Surface + 1.5 feet	0.80	0.00	+ 0.22	0.21
ET Ext. Surface -1.5 feet	0.00	-0.80	-0.23	0.21

**TABLE 4. SENSITIVITY RESPONSES TO CHANGES IN LAYER 2  
(Head Changes in Feet)**

	MAXIMUM HEAD	MINIMUM HEAD	AVERAGE HEAD CHANGE	STD. DEV.
<b>Change in Layer 2</b>				
Transmissivity Doubled	5.76	-1.15	+0.16	0.66
Transmissivity Halved	1.04	-8.98	-0.21	0.81
Transmissivity *10	11.95	-4.50	+0.27	1.74
Transmissivity *0.1	2.92	-45.37	-0.78	3.44
Vcont Doubled (Layer 2-3)	1.10	-1.00	+0.02	0.08
Vcont Halved (Layer 2-3)	0.98	-0.79	-0.02	0.09
Vcont *10 (Layer 2-3)	3.32	-2.80	+0.04	0.22
Vcont *0.1 (Layer 2-3)	3.26	-1.43	-0.05	0.33
<b>Change in Overlying Layer 1</b>				
Transmissivity Doubled	1.47	-0.48	+0.03	0.18
Transmissivity Halved	0.34	-2.03	-0.03	0.18
Transmissivity *10	3.68	-2.35	+0.03	0.51
Transmissivity *0.1	0.89	-5.76	-0.10	0.50
Vcont Doubled (Layer 2-3)	0.19	-0.32	0.00	0.02
Vcont Halved (Layer 2-3)	0.49	-0.12	0.00	0.01
Vcont *10 (Layer 2-3)	0.59	-0.83	0.00	0.06
Vcont *0.1 (Layer 2-3)	2.16	-0.35	0.01	0.13
<b>Change in Underlying Layer 3</b>				
Transmissivity Doubled	3.00	-0.78	+0.14	0.43
Transmissivity Halved	0.84	-4.51	-0.17	0.50
Transmissivity *10	6.39	-3.27	+0.24	1.19
Transmissivity *0.1	2.18	-21.32	-0.62	1.91
Vcont Doubled (Layer 2-3)	9.01	-2.75	+0.08	1.42
Vcont Halved (Layer 2-3)	3.32	-12.81	-0.09	2.62
Vcont *10 (Layer 2-3)	20.59	-8.11	+0.20	3.11
Vcont *0.1 (Layer 2-3)	13.32	-55.50	-0.29	13.22
<b>Change in Underlying Layer 4</b>				
Transmissivity Doubled	0.86	-0.19	+0.05	0.15
Transmissivity Halved	0.14	-0.93	-0.07	0.15
Transmissivity *10	2.05	-1.20	+0.08	0.41
Transmissivity *0.1	0.31	-2.93	-0.23	0.47
Vcont Doubled (Layer 2-3)	2.68	-0.71	+0.13	0.55
Vcont Halved (Layer 2-3)	0.76	-4.09	-0.20	1.07
Vcont *10 (Layer 2-3)	5.88	-2.01	+0.27	1.17
Vcont *0.1 (Layer 2-3)	2.76	-20.90	-1.20	2.76

**TABLE 5. SENSITIVITY RESPONSES TO CHANGES IN LAYER 3  
(Head Changes in Feet)**

	MAXIMUM HEAD	MINIMUM HEAD	AVERAGE HEAD CHANGE	STD. DEV.
<u>Change in Layer 3</u>				
Transmissivity Doubled	9.08	-1.67	+ 0.09	0.63
Transmissivity Halved	2.14	-14.17	-0.09	0.87
Transmissivity * 10	19.15	-4.92	0.33	1.68
Transmissivity * 0.1	7.35	-81.09	-1.51	4.46
Vcont Doubled (Layer 3-4)	3.42	-0.36	0.60	0.50
Vcont Halved (Layer 3-4)	0.21	-2.83	-0.47	0.42
Vcont * 10 (Layer 3-4)	9.66	-2.09	2.00	1.69
Vcont * 0.1 (Layer 3-4)	-0.40	-6.36	-1.03	0.94
<u>Change in Overlying Layer 1</u>				
Transmissivity Doubled	0.36	-0.15	0.00	0.03
Transmissivity Halved	0.17	-0.32	0.00	0.03
Transmissivity * 10	1.14	-0.57	0.02	0.12
Transmissivity * 0.1	0.51	-0.89	-0.02	0.07
Vcont Doubled (Layer 3-4)	0.22	0.00	0.03	0.04
Vcont Halved (Layer 3-4)	0.00	-0.17	-0.02	0.03
Vcont * 10 (Layer 3-4)	0.67	0.00	0.00	0.10
Vcont * 0.1 (Layer 3-4)				
<u>Change in Overlying Layer 2</u>				
Transmissivity Doubled	0.75	-0.29	0.02	0.10
Transmissivity Halved	0.50	-1.03	-0.01	0.08
Transmissivity * 10	1.95	-1.21	0.10	0.38
Transmissivity * 0.1	1.89	-3.80	-0.09	0.21
Vcont Doubled (Layer 3-4)	0.56	0.00	0.08	0.09
Vcont Halved (Layer 3-4)	0.00	-0.47	-0.07	0.08
Vcont * 10 (Layer 3-4)	1.68	-0.01	0.00	0.28
Vcont * 0.1 (Layer 3-4)	0.00	-1.03	-0.15	0.18
<u>Change in Underlying Layer 4</u>				
Transmissivity Doubled	1.10	-0.29	0.03	0.14
Transmissivity Halved	0.27	-1.60	-0.04	0.16
Transmissivity * 10	2.56	-1.33	0.12	0.48
Transmissivity * 0.1	0.73	-8.09	-0.30	0.70
Vcont Doubled (Layer 3-4)	5.12	-7.12	-4.20	1.51
Vcont Halved (Layer 3-4)	7.31	-3.44	3.43	1.55
Vcont * 10 (Layer 3-4)	20.01	-21.30	-13.39	4.77
Vcont * 0.1 (Layer 3-4)	18.56	-6.79	+ 7.66	4.09

average simulated heads to fluctuate between -0.12 and 0.09 feet.

Simulated heads are most sensitive to change in  $V_{cont}$  between layers 4 and 5. Multiplying the  $V_{cont}$  term by 0.5 and 2 did not cause as large maximum or minimum changes in simulated head as occurred while altering the transmissivity.

However, the average simulated heads for the model area fluctuated between -4.70 and 4.14 feet in comparison to -0.12 and 0.09 feet (Table 6). These changes are expected due to the large inflow (97%) to layer 4 from upward leakage from the underlying lower Hawthorn aquifer (Layer 5).

**TABLE 6. SENSITIVITY RESPONSES TO CHANGES IN LAYER 4  
(Head Changes in Feet)**

	MAXIMUM HEAD	MINIMUM HEAD	AVERAGE HEAD CHANGE	STD. DEV.
<u>Change in Layer 4</u>				
Transmissivity Doubled	16.31	-2.42	-0.12	0.93
Transmissivity Halved	3.06	-20.95	+ 0.09	1.08
Transmissivity * 10	35.23	-6.89	-1.35	2.41
Transmissivity * 0.1	9.56	-71.94	0.23	3.68
Vcont Doubled (Layer 4-5)	10.54	0.00	4.14	1.51
Vcont Halved (Layer 4-5)	0.00	-8.40	-4.70	1.40
Vcont * 10 (Layer 4-5)	38.21	0.00	+ 10.09	4.68
Vcont * 0.1 (Layer 4-5)	0.00	-20.64	-14.09	4.78
<u>Change in Overlying Layer 1</u>				
Transmissivity Doubled	0.00	0.00	0.00	0.00
Transmissivity Halved	0.00	0.00	0.00	0.00
Transmissivity * 10	0.02	-0.02	0.00	0.00
Transmissivity * 0.1	0.01	-0.01	0.00	0.00
Vcont Doubled (Layer 4-5)	0.11	0.00	0.01	0.01
Vcont Halved (Layer 4-5)	0.00	-0.12	-0.01	0.02
Vcont * 10 (Layer 4-5)	0.25	0.00	0.03	0.04
Vcont * 0.1 (Layer 4-5)				
<u>Change in Overlying Layer 2</u>				
Transmissivity Doubled	0.01	-0.04	0.00	0.01
Transmissivity Halved	0.03	-0.01	0.00	0.00
Transmissivity * 10	0.05	-0.20	-0.01	0.03
Transmissivity * 0.1	0.05	-0.02	0.00	0.01
Vcont Doubled (Layer 4-5)	0.23	0.00	0.04	0.05
Vcont Halved (Layer 4-5)	0.00	-0.26	-0.04	0.05
Vcont * 10 (Layer 4-5)	0.58	0.00	0.09	0.12
Vcont * 0.1 (Layer 4-5)	0.00	-0.81	-0.13	0.15
<u>Change in Overlying Layer 3</u>				
Transmissivity Doubled	0.31	-0.54	-0.01	0.07
Transmissivity Halved	0.54	-0.34	-0.01	0.06
Transmissivity * 10	0.70	-1.62	-0.07	0.25
Transmissivity * 0.1	1.56	-0.94	0.03	0.61
Vcont Doubled (Layer 4-5)	1.63	0.00	0.24	0.25
Vcont Halved (Layer 4-5)	0.00	-1.70	-0.27	0.27
Vcont * 10 (Layer 4-5)	4.46	0.00	0.58	0.64
Vcont * 0.1 (Layer 4-5)	1.56	-4.82	-0.77	0.77



## RESULTS AND CONCLUSIONS

1. The most important source of recharge to the Surficial Aquifer System in Collier County is rainfall. Under average conditions for the 35 month period from February 1986 through December 1988, rainfall accounted for approximately 92 percent of the total recharge to the study area. The remaining eight percent came from ground water flow into the model from adjacent areas in Hendry and Lee counties.
2. The majority of the outflow from the model area was through evapotranspiration which accounted for approximately 51 percent of the total. The remaining outflow consists of well withdrawals (31%), canal drainage (11%), ground water flow out of the model area primarily to the Gulf of Mexico (5%) and river leakage (2%).
3. During model runs, the Surficial aquifer developed only a limited number of cones of depression of significant extent. These simulations are consistent with ground water level maps composed from observed water level data. In the highly developed agricultural areas of central Collier County, the ground water levels in the Surficial aquifer are being held within certain ranges by supplemental withdrawals from the underlying aquifers and distributed by various irrigation practices. This practice reduces ground water level fluctuations in the Surficial aquifer (Layer 1).
4. The model indicates a large cone of depression within Layer 2 (lower Tamiami aquifer) in central Collier County. This cone of depression develops during average conditions as result of simulated agricultural pumpage which extends over a 15 square mile area. However, during individual months with intense agricultural demands, the cone of depression may double in area.
5. The model suggests that the sandstone aquifer is heavily impacted by current pumpage in several localized areas. Ground water withdrawals through pumpage accounts for approximate 12 percent of the flow out of this aquifer. These withdrawals occur primarily along the Lee-Hendry County border as result of intense agricultural irrigation.
5. Model simulation of ground water flow indicates a slight curvature in ground water contours for the mid-Hawthorn aquifer in central Collier County. This occurrence is consistent with observed ground water levels and represent an area of depressed ground water levels. This may be the result of upward leakage through the mid-Hawthorn confining unit due to large withdrawals in the overlying aquifers. A small cone of depression develops during model simulation in central Lee County. This feature may be the result of overestimation of simulated domestic self supply withdrawals.
6. The horizontal discretization and regional nature of the model limits its use in accurately assessing small scale impacts. As a result, impacts on adjacent users and wetlands from nearby withdrawals may be obscured by cell wide averaging. Smaller scale models for specific areas using the regional model for boundary conditions and aquifer parameters would better define the impacts on adjacent users and environmentally sensitive areas (i.e. wetlands).
7. The model was difficult to calibrate under steady state and transient conditions in several areas. Probable reasons are cell wide averaging or uncertainty in aquifer parameters or stress rates.

## RECOMMENDATIONS

1. Additional hydrogeologic investigations should be undertaken in those areas where existing data is incomplete or suspect. For the Surficial and lower Tamiami aquifers, these areas include the northwest portion of Hendry County and the Faka Union drainage basin of Collier County. The extent of the sandstone aquifer needs to be better defined in the areas south of Alligator Alley in central and southern Collier County. Hydrogeologic information concerning the mid-Hawthorn and lower Hawthorn aquifers is needed throughout Collier County. The additional hydrogeologic information will help to increase the overall accuracy and confidence level of the model which would result in a better assessment of the water supply potential of the various aquifers.
2. Additional ground water monitor wells should be installed, particularly in the eastern portion of Collier County for the Surficial, lower Tamiami and sandstone aquifers. Monitor wells for the mid-Hawthorn and lower Hawthorn aquifers should be installed throughout the county. Once constructed, these wells should be incorporated into the U. S. Geological Survey ground water monitor network for long term data collection. This will provide additional data for calibration of the updated models.
3. The location and operation of the network of small agricultural canals in the study area should be investigated to determine their effects on the ground water flow system. Also, once model regriding capabilities are established, the model cell size should be reduced to better simulate the affects of these small scale drainage canals. This would improve the calibration of the Surficial and underlying aquifers.
4. Domestic self supply is very widespread and accounts for a significant volume of water withdrawn from the system, but accurate ground water withdrawals from these users are not well known. Therefore, estimates of domestic water use need to be refined and made as accurate as possible to enhance the accuracy and reliability of the model. A large percentage of water is also withdrawn from the Surficial Aquifer System for agricultural and landscape irrigation within the study area. Compliance with water use permit limiting conditions requiring the reporting of irrigation water use should be stressed.
5. The model should be refined and updated as additional information becomes available and emphasis should be placed on obtaining information on parameters to which the model is most sensitive. The updated information would improve the confidence and reliability of the model. The model should also be used to provide boundary conditions for individual models when more detailed scale is needed to address a site specific planning or regulatory question.
6. The data from the existing models of Lee and Hendry counties should be integrated with that of western Collier County. This would result in a regional three-dimensional ground water flow model of the Surficial and Intermediate Aquifer Systems for the Lower West Coast. A regional ground water flow model would help to eliminate the effect of the approximated boundary conditions from the separate models within the region.



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**APPENDIX A**

**AQUIFER PARAMETERS**



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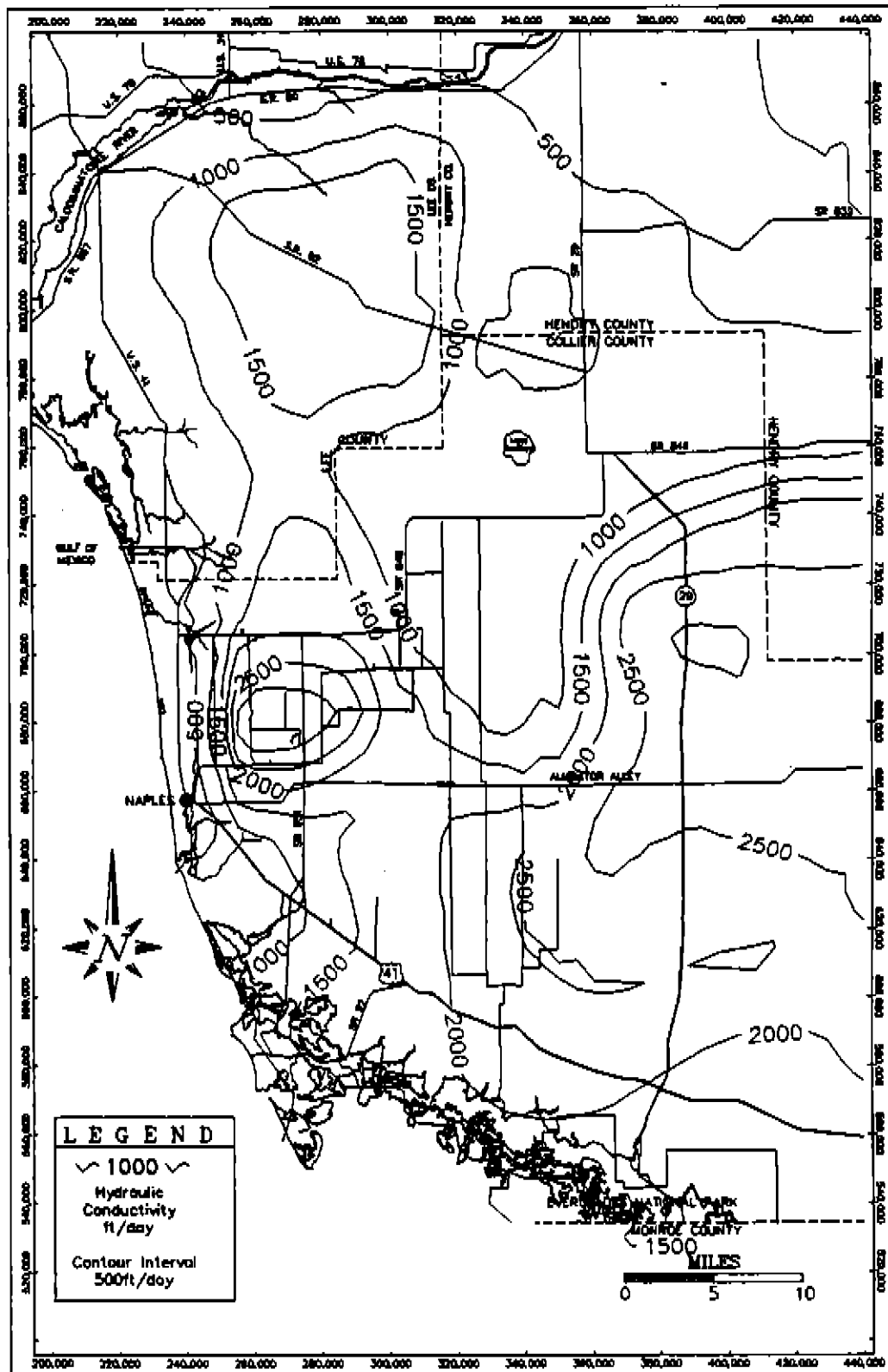


FIGURE A-1. Hydraulic Conductivity, Layer 1 (Surficial Aquifer)

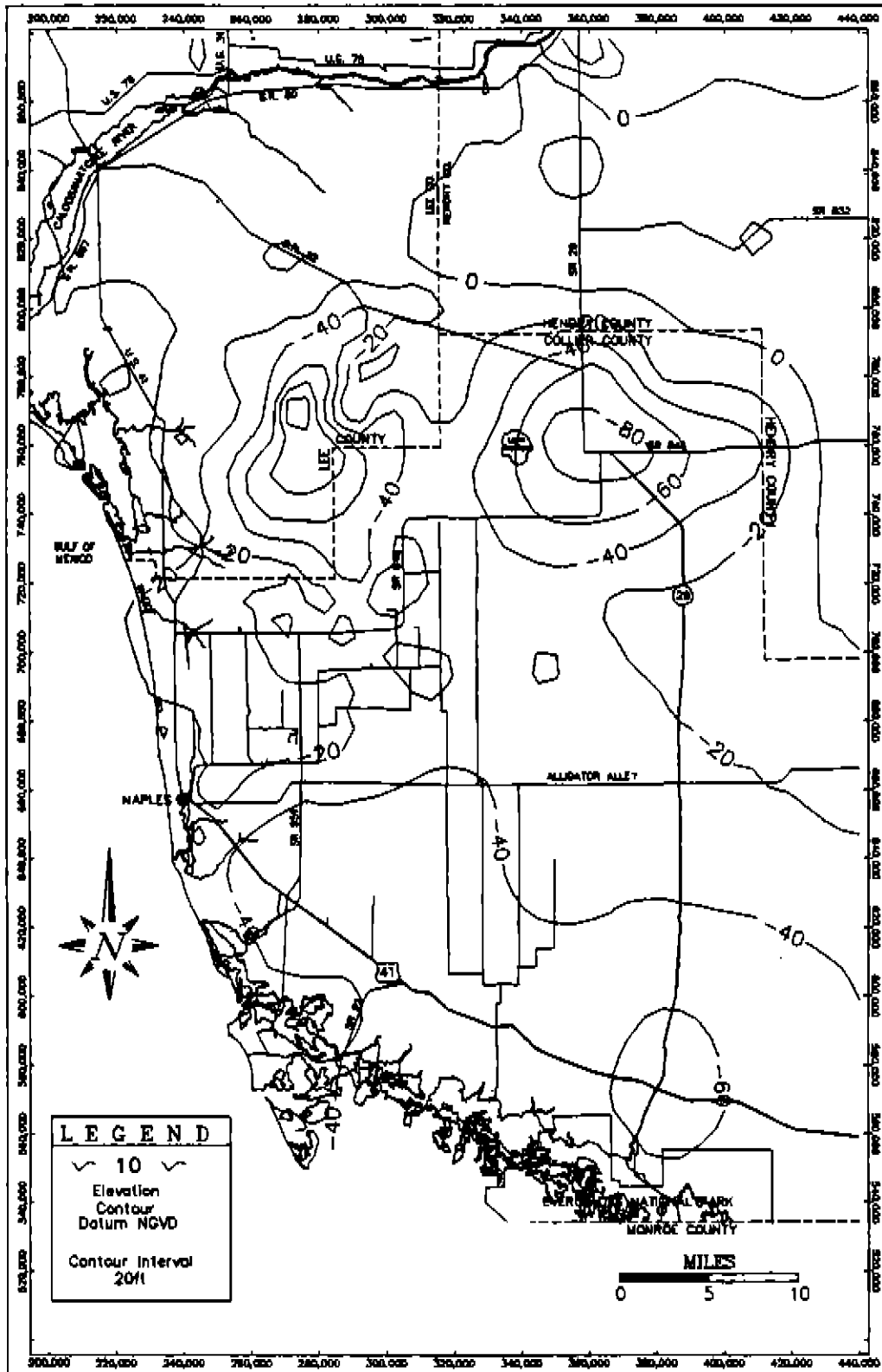


FIGURE A-2. Bottom Elevation of Layer 1 (Surficial Aquifer)

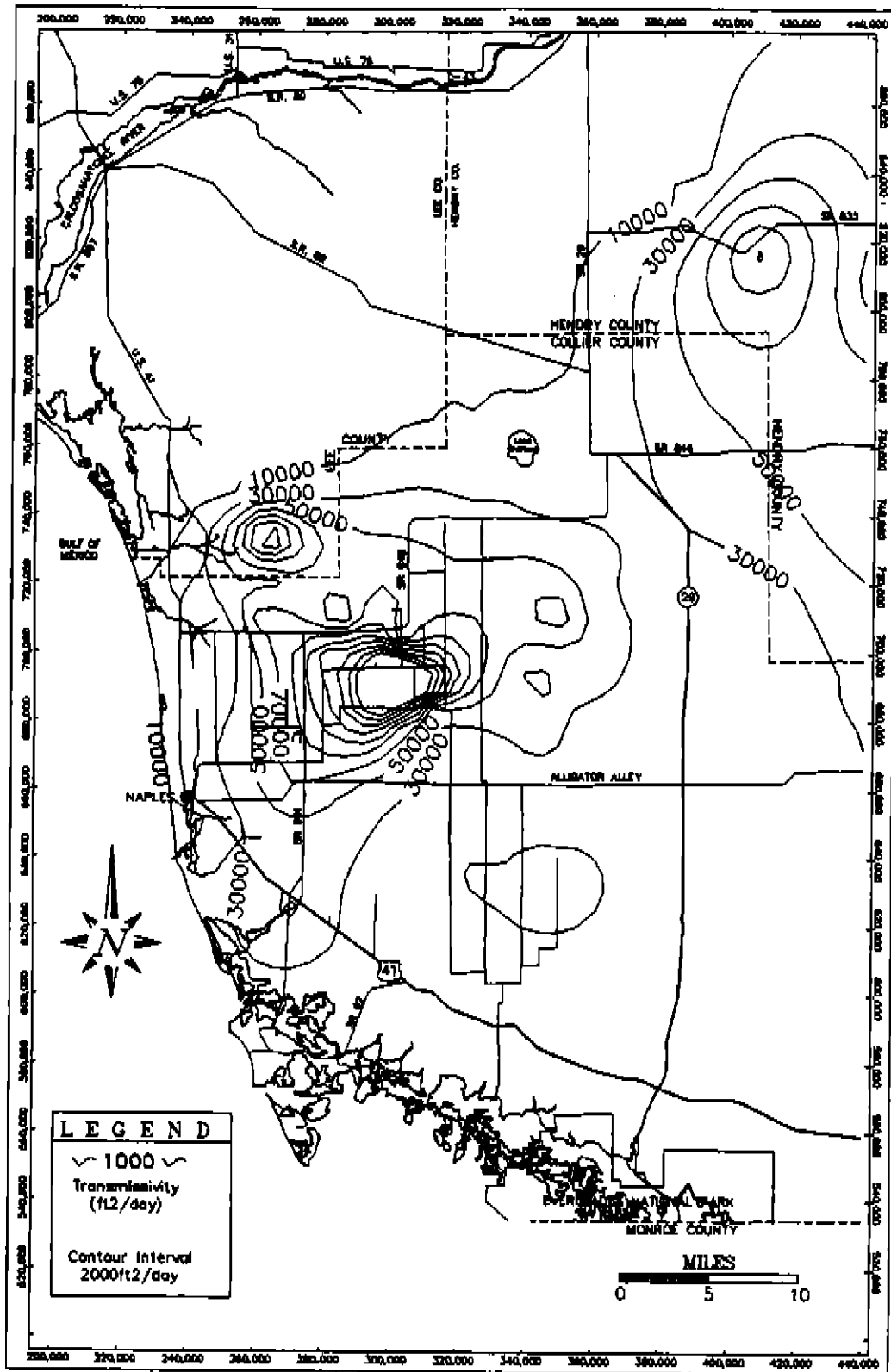


FIGURE A-4. Transmissivity, Layer 2 (Lower Tamiami Aquifer)



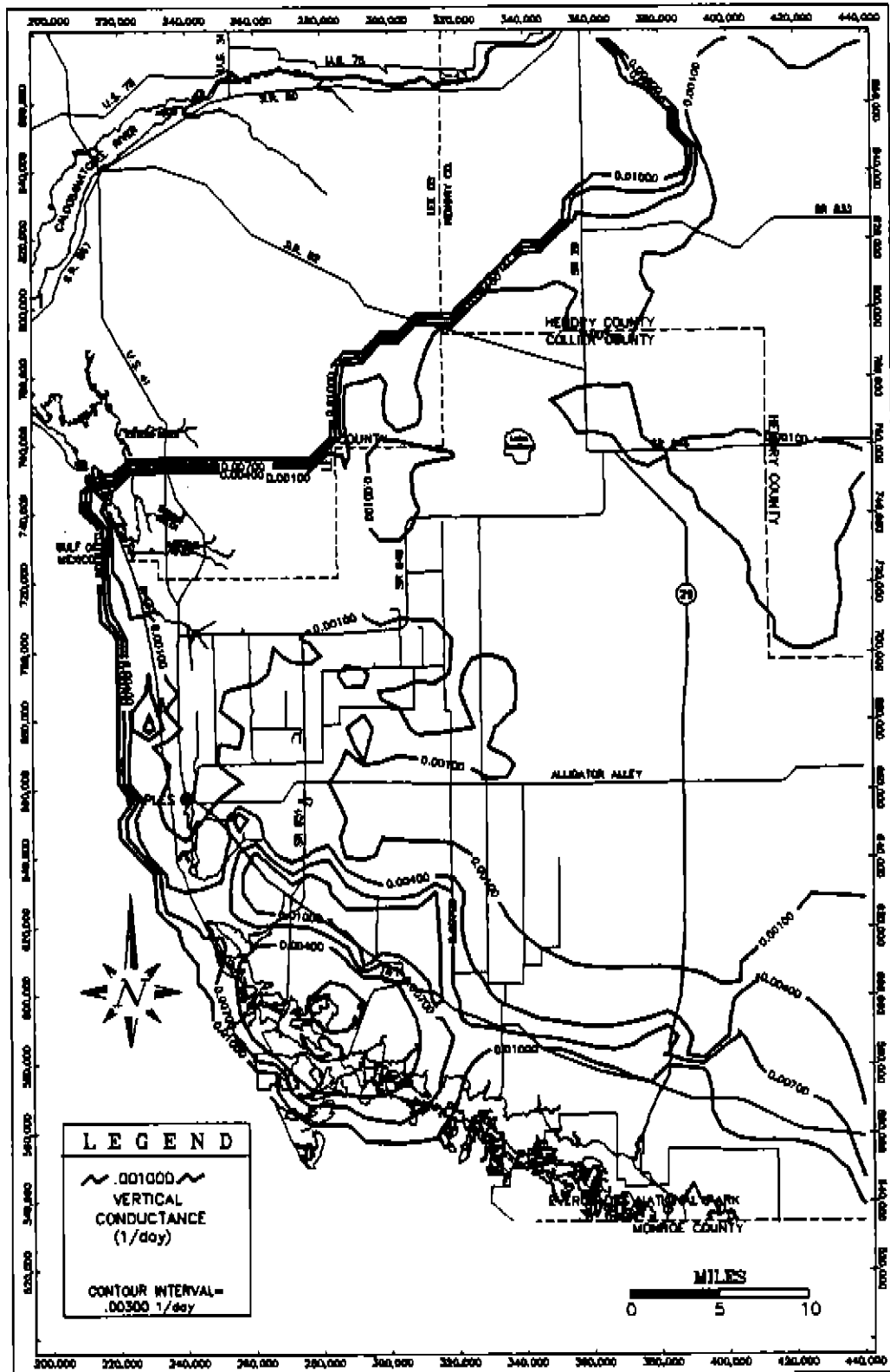
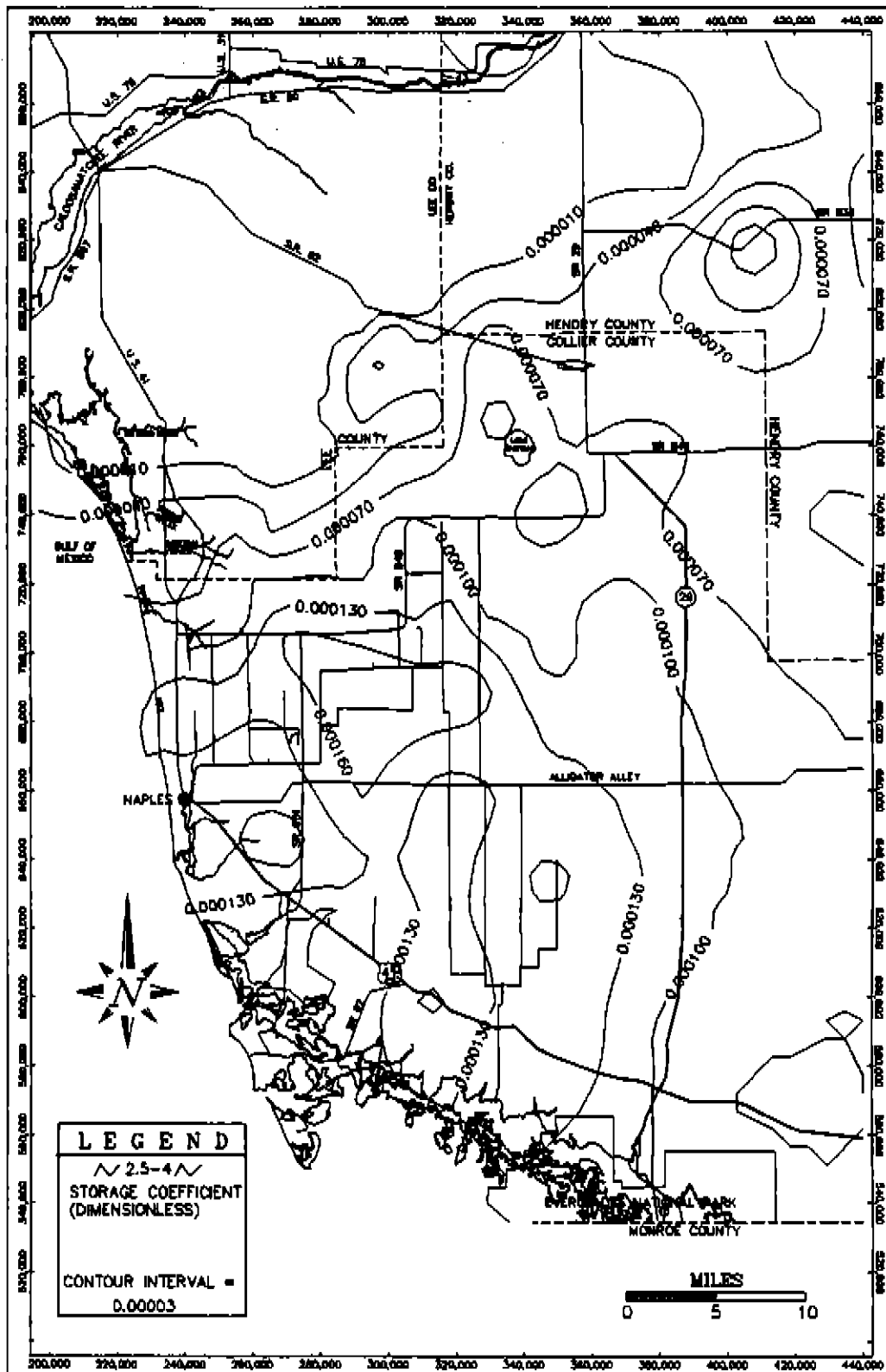


FIGURE A-3. Vertical Conductance, Bottom of Layer 1



**FIGURE A-5. Storage Coefficient, Layer 2 (Lower Tamiami Aquifer)**

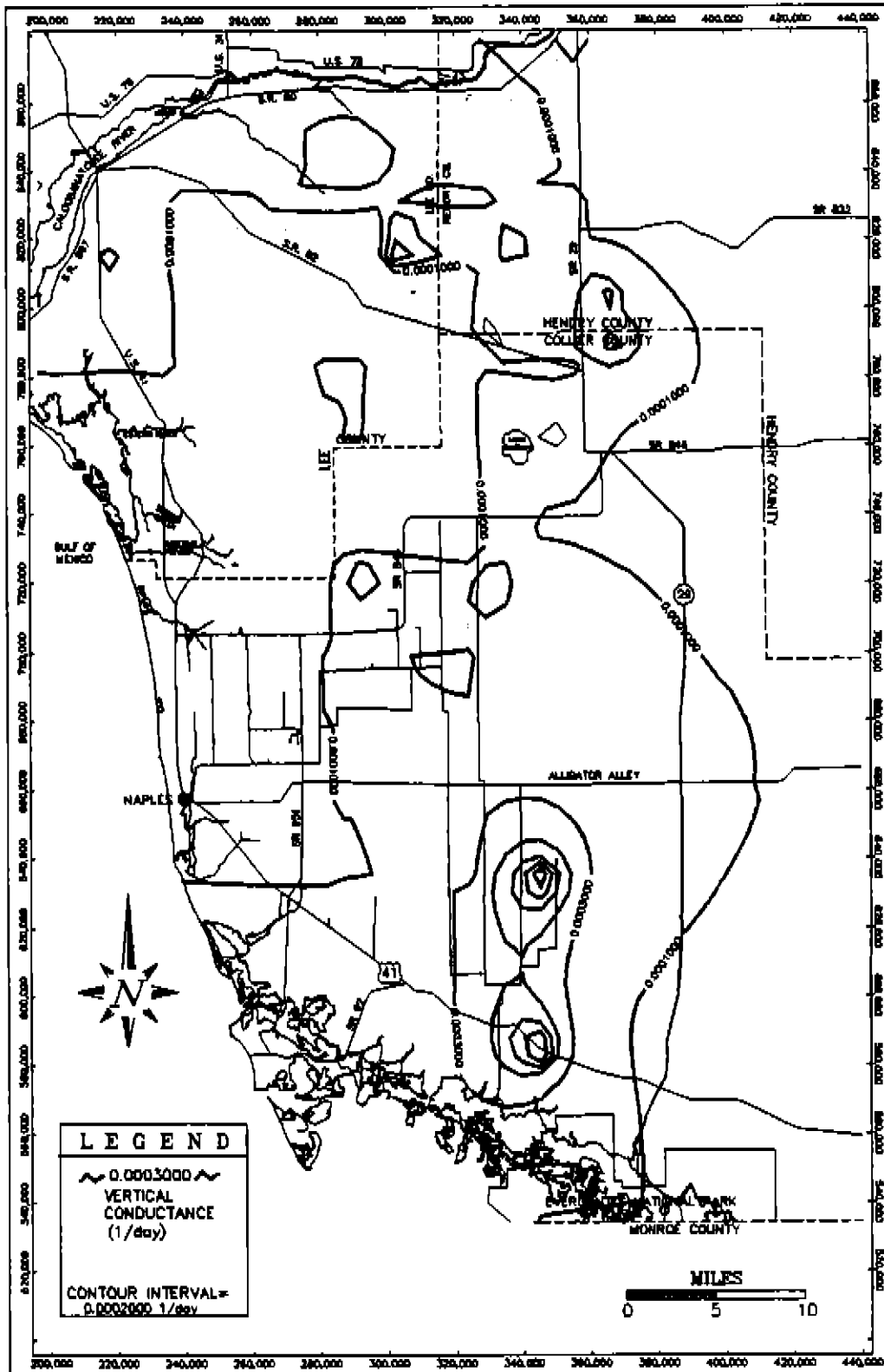


FIGURE A-6. Vertical Conductance, Bottom of Layer 2

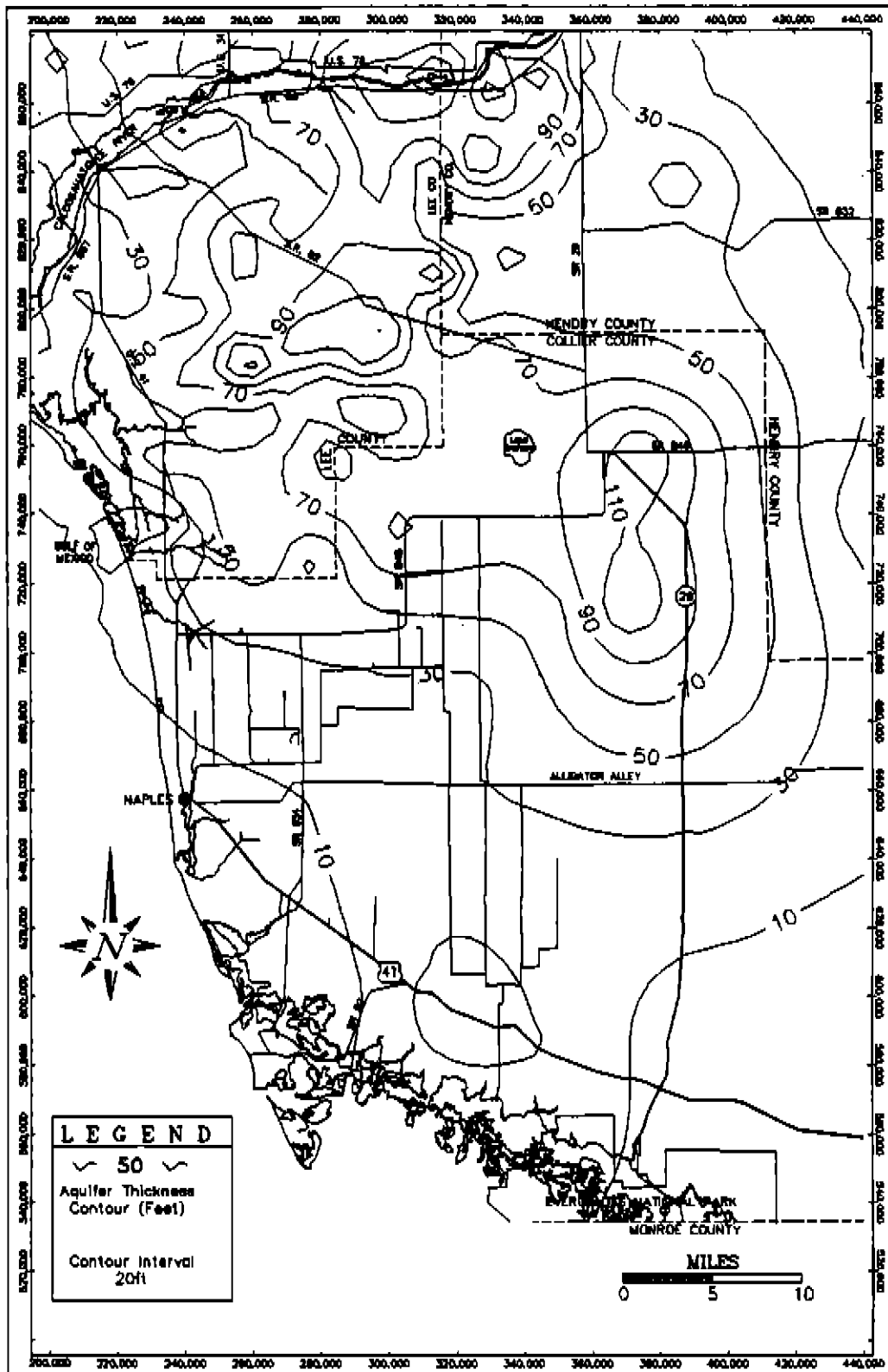


FIGURE A-7. Thickness of Layer 3 (Sandstone Aquifer)

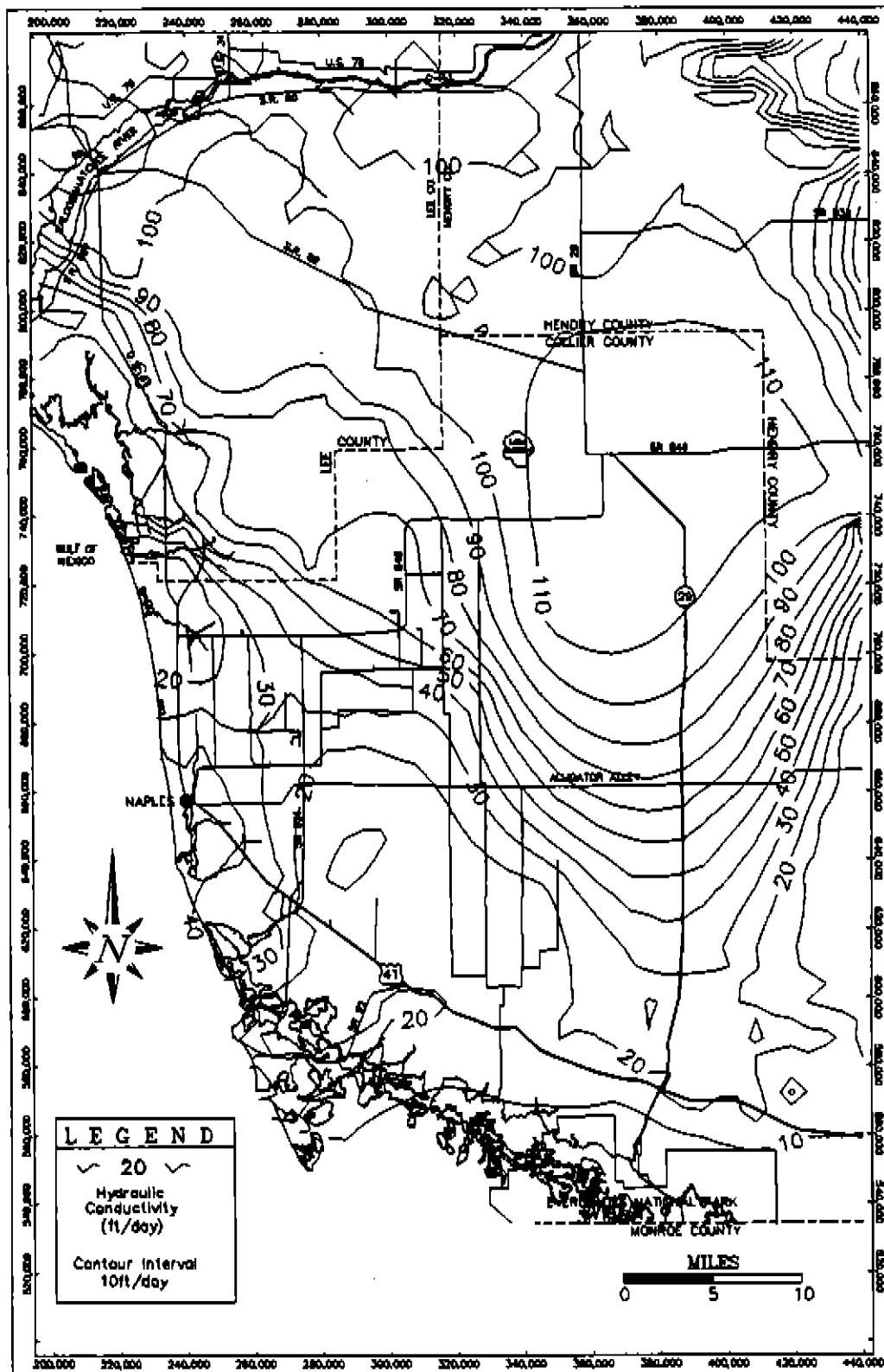


FIGURE A-8. Hydraulic Conductivity, Layer 3 (Sandstone Aquifer)

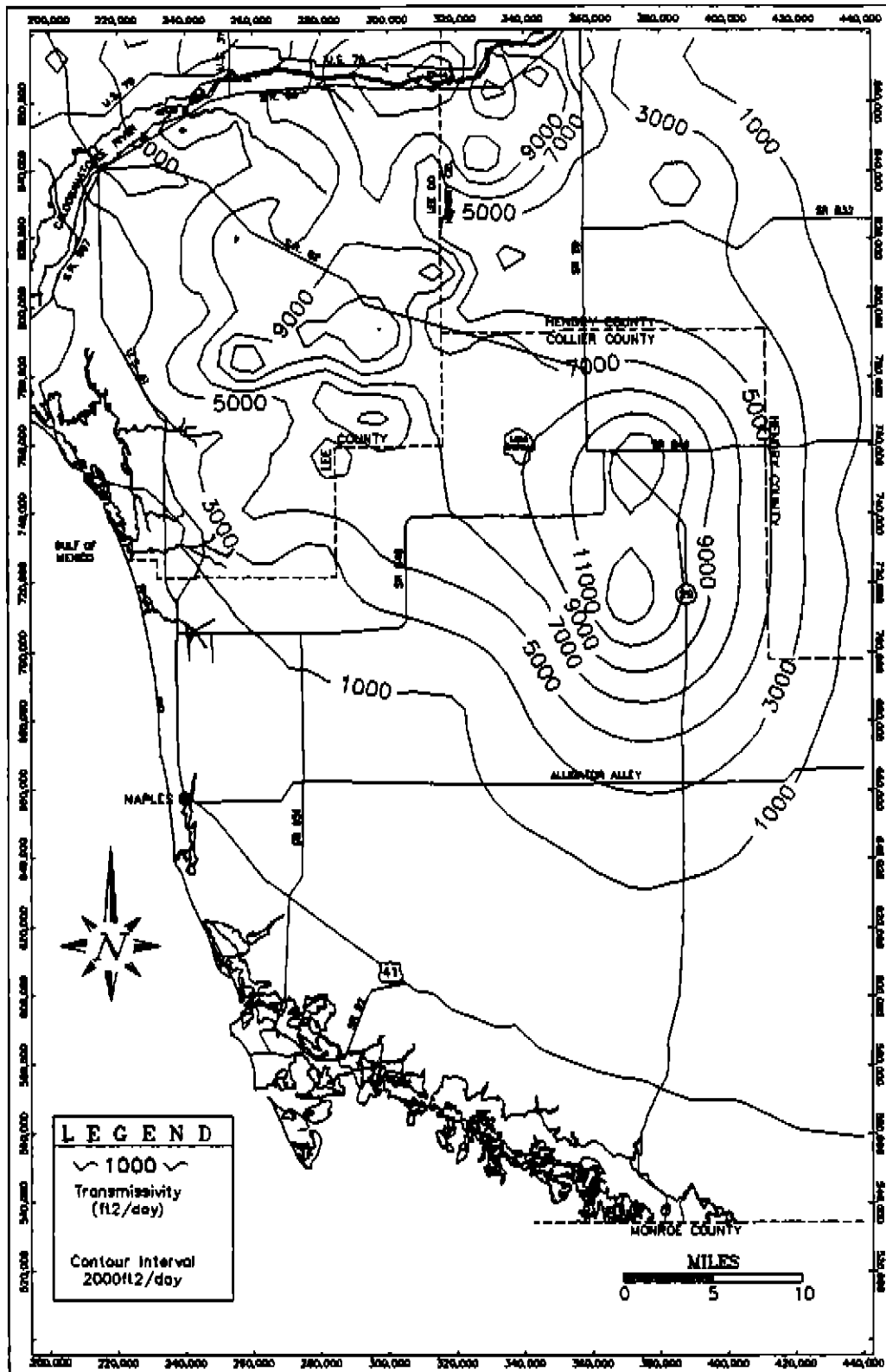


FIGURE A-9. Transmissivity, Layer 3 (Sandstone Aquifer)

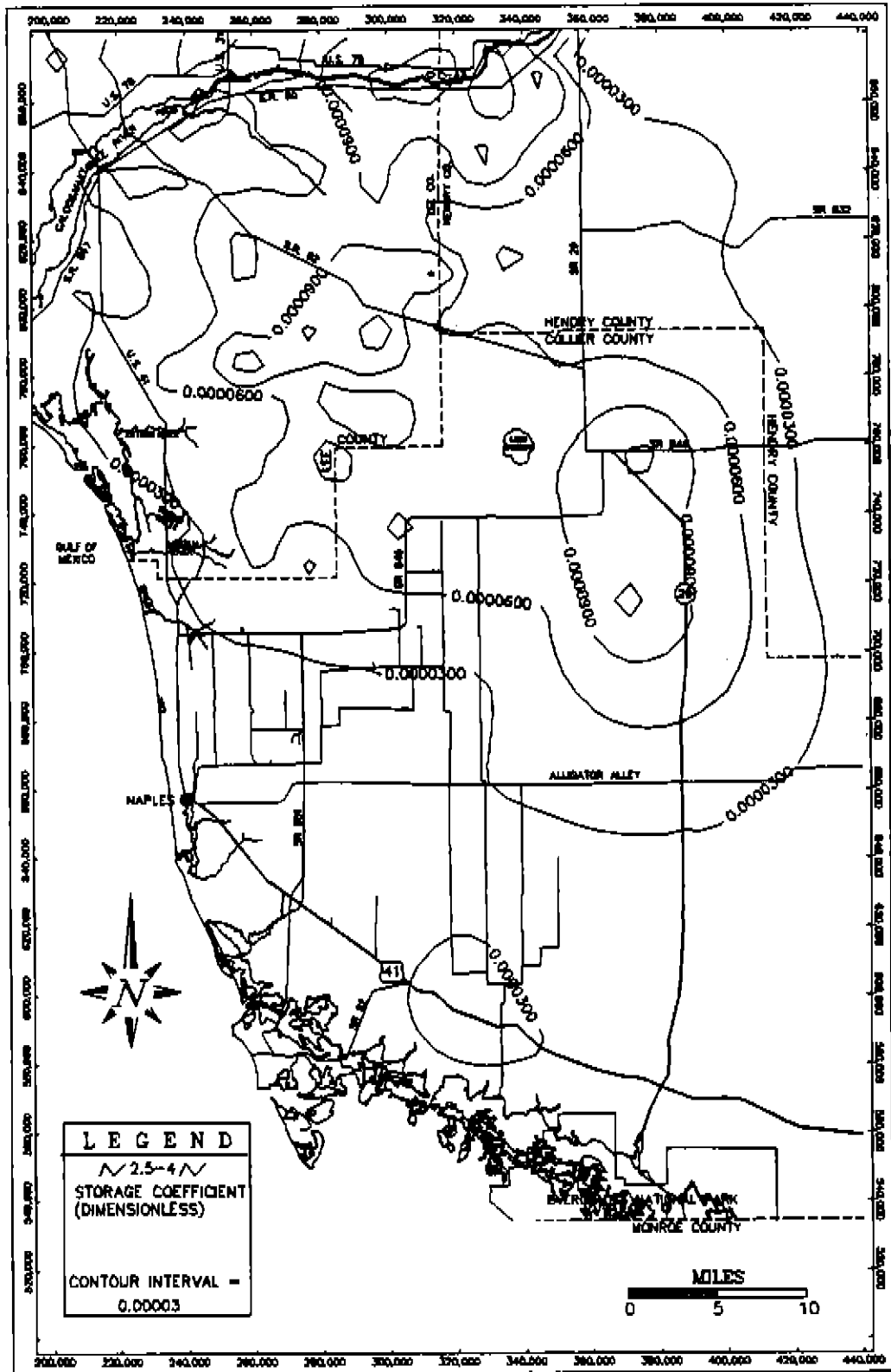


FIGURE A-10. Storage Coefficient, Layer 3 (Sandstone Aquifer)

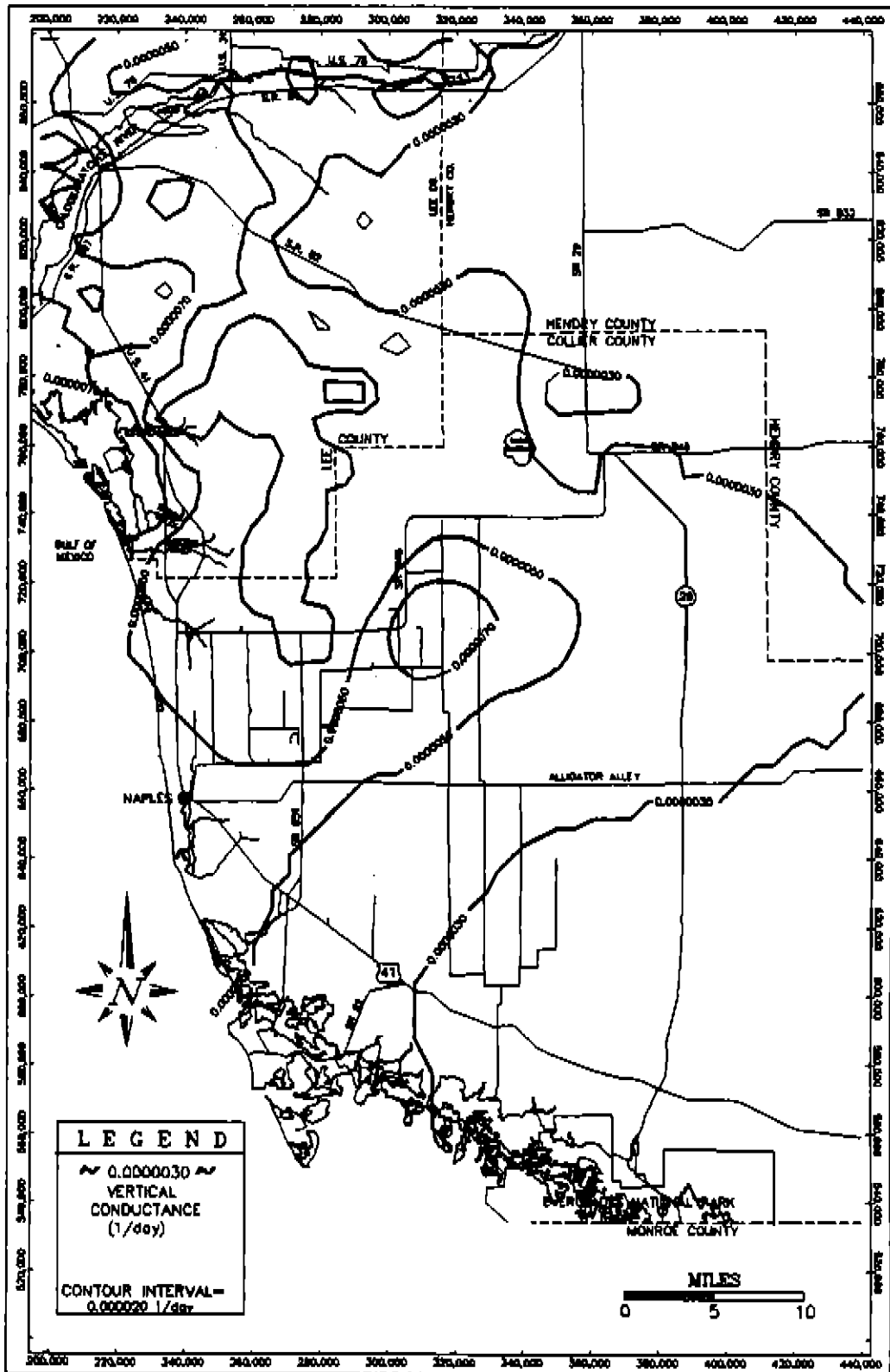


FIGURE A-11. Vertical Conductance, Bottom of Layer 3



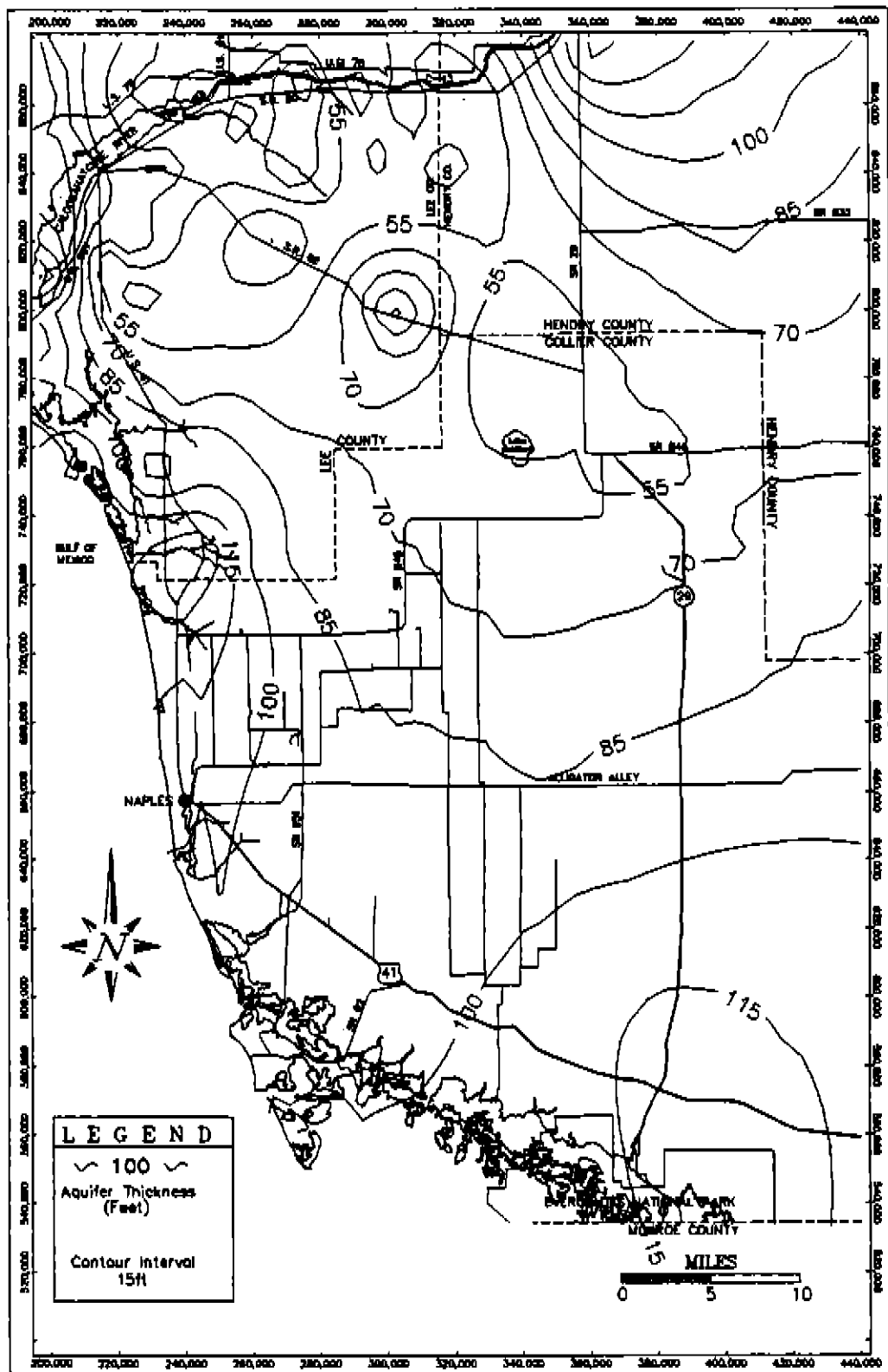


FIGURE A-12. Thickness of Layer 4 (Mid-Hawthorn Aquifer)

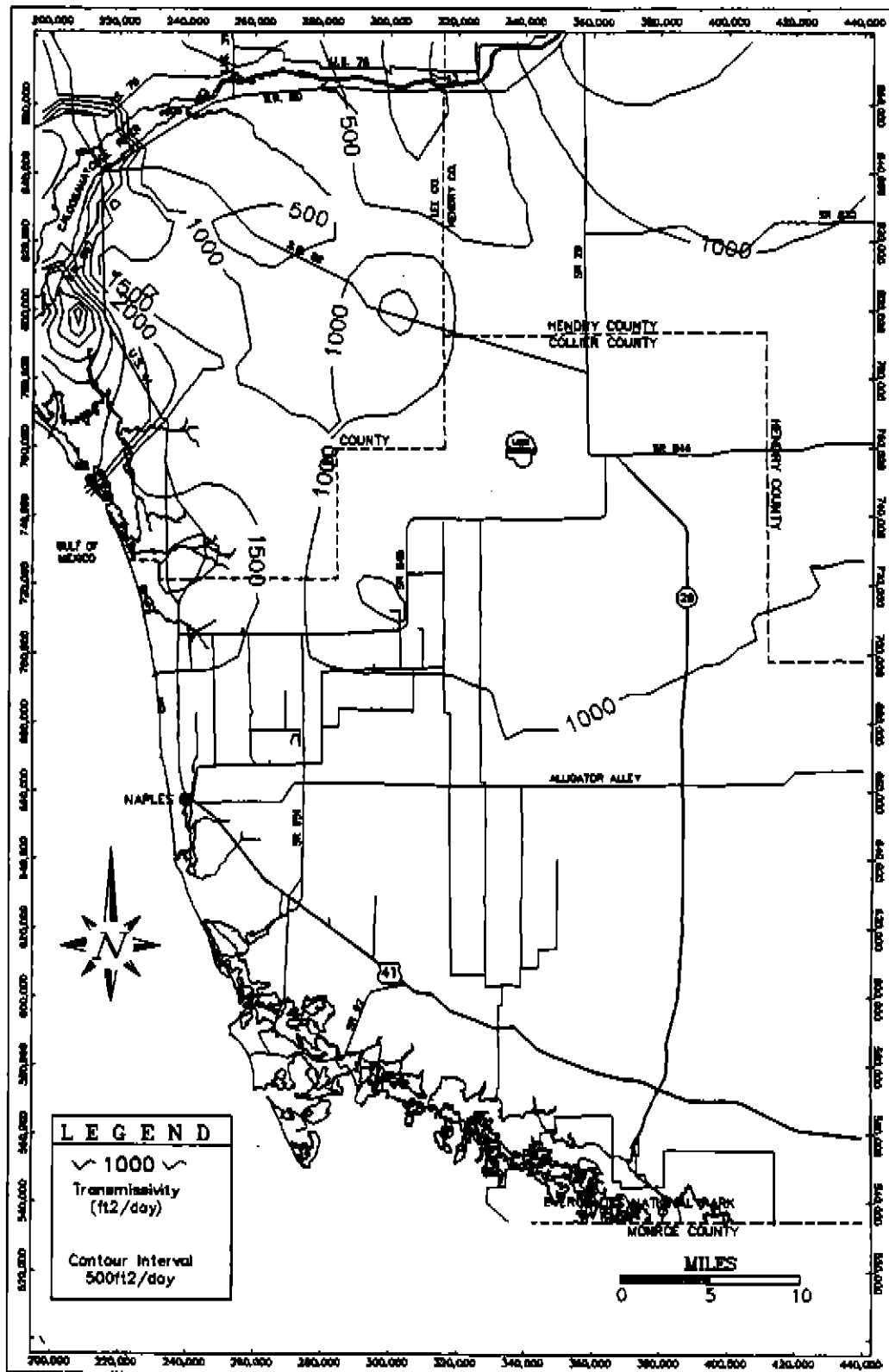


FIGURE A-13. Transmissivity, Layer 4 (Mid-Hawthorn Aquifer)

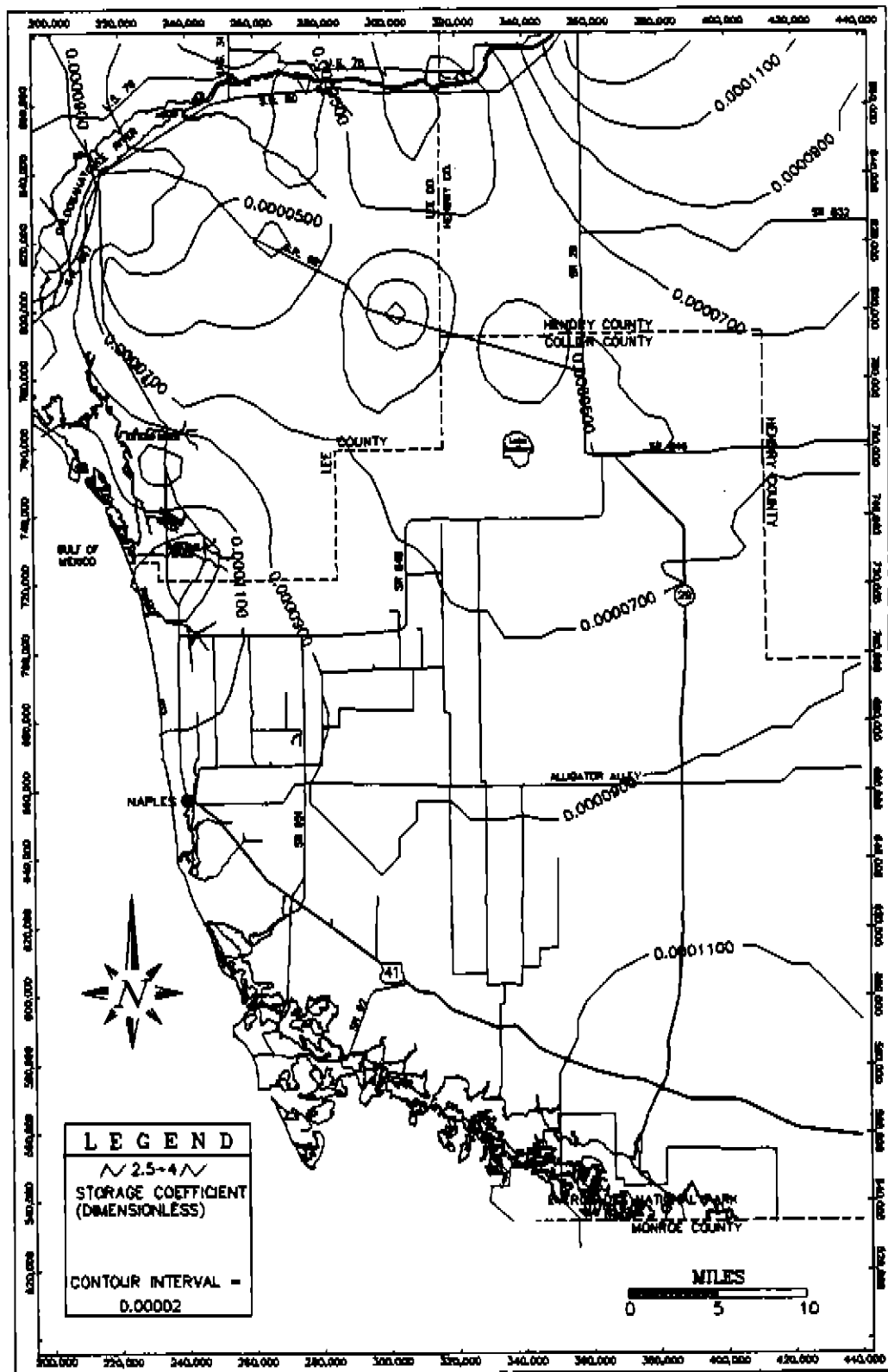


FIGURE A-14. Storage Coefficient, Layer 4 (Mid-Hawthorn Aquifer)

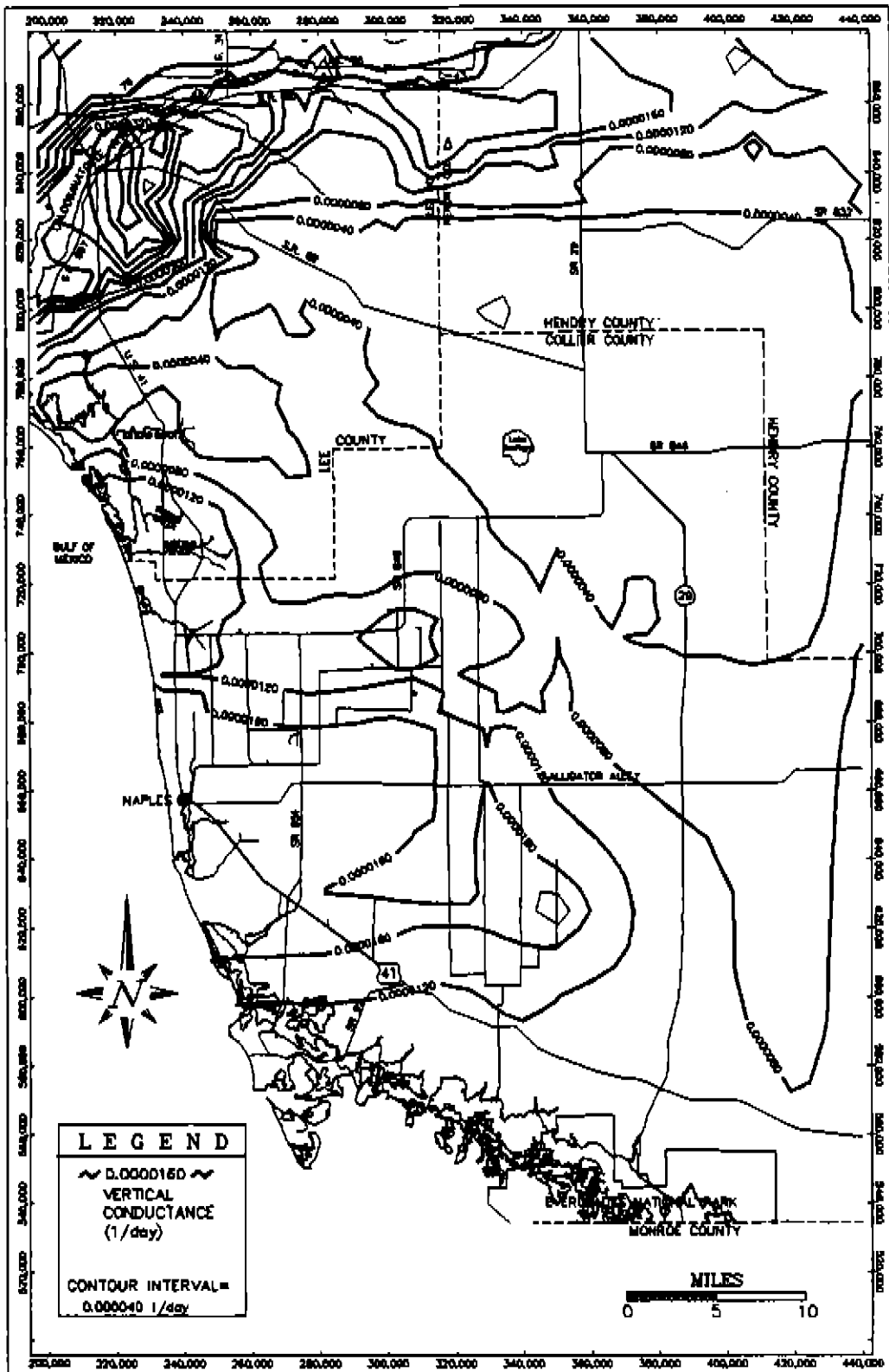
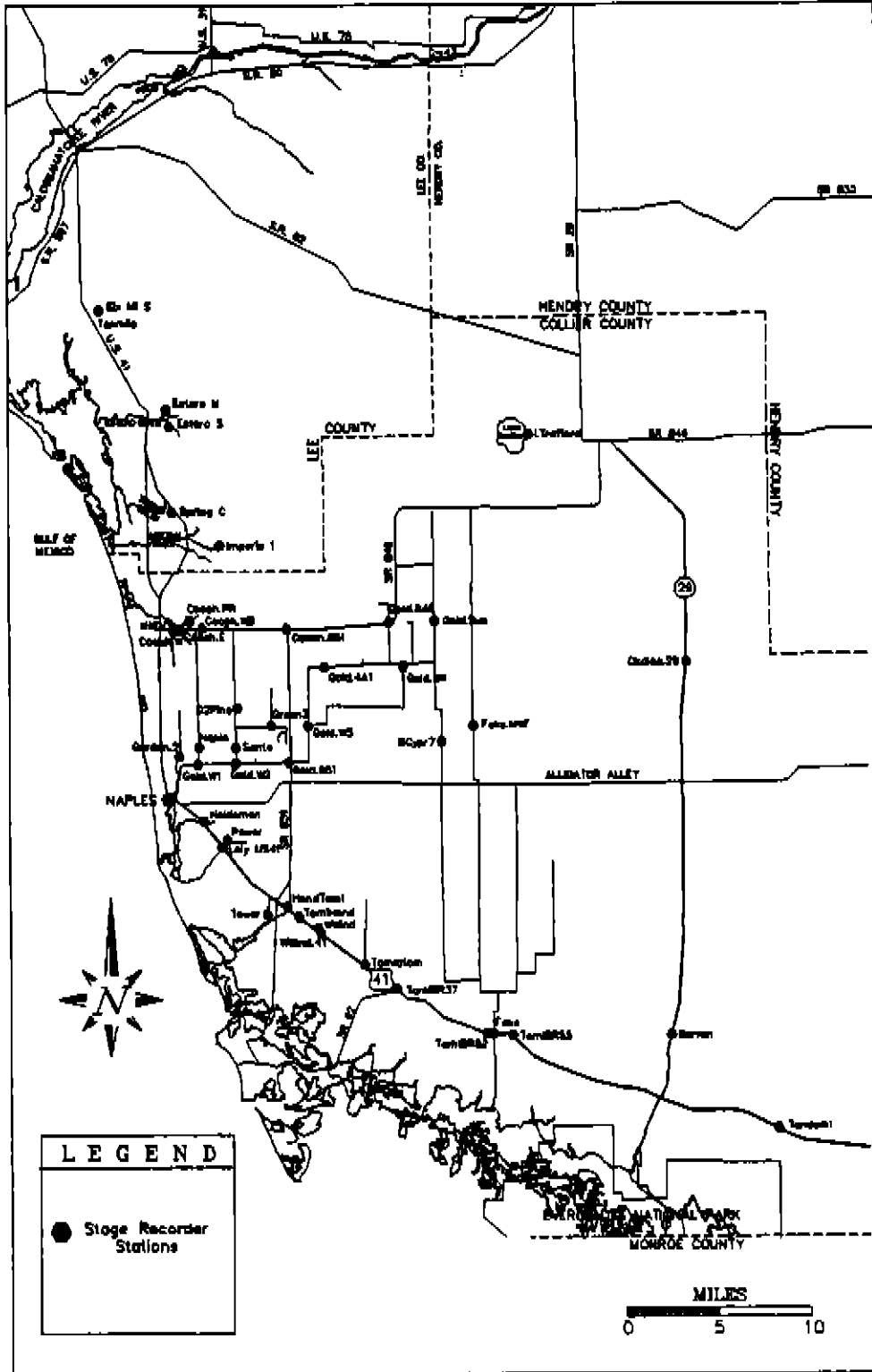


FIGURE A-15. Vertical Conductance, Bottom of Layer 4

**APPENDIX B**

**RIVER PACKAGE INPUT DATA**





Location of Stage Recorder Stations





RIVER PACKAGE DATA

Layer	Row	Column	Average Stage	River Bed Conductance	River Bottom Elevation
1	58	36	0.38	51427.	-2.00
1	59	36	0.38	66144.	-2.00
1	59	35	0.38	39488.	-2.00
1	60	35	0.38	47760.	-3.00
1	61	35	0.38	23867.	-4.00
1	62	34	0.38	82620.	-5.00
1	55	27	0.38	77138.	-6.00
1	56	27	0.38	380180.	-6.00
1	57	27	0.38	304128.	-6.00
1	58	27	0.38	253440.	-6.00
1	59	27	0.38	347340.	-6.00
1	41	11	0.34	42800.	-6.00
1	41	10	0.34	177600.	-8.00
1	41	10	0.34	25707.	-6.00
1	42	10	0.34	10400.	-8.00
1	43	9	0.34	851840.	-8.00
1	44	9	0.34	1858560.	-8.00
1	34	9	1.13	15808.	-2.00
1	34	10	1.46	9787.	-3.00
1	34	10	1.57	9787.	-3.00
1	33	9	1.13	117787.	-3.00
1	33	8	0.81	342667.	-4.00
1	33	7	0.81	244800.	-4.00
1	32	7	0.81	1890000.	-5.00
1	31	7	0.81	224000.	-6.00
1	33	10	1.46	13007.	-3.00
1	34	10	1.46	20811.	-3.00
1	49	14	0.43	32125.	-4.00
1	49	15	0.43	137109.	-3.00
1	49	14	0.43	130067.	-4.00
1	50	14	0.43	578400.	-5.00
1	50	13	0.43	1234800.	-6.00
1	51	13	0.43	502333.	-6.50
1	45	13	1.08	55808.	-2.00
1	45	12	1.08	111440.	-2.00
1	46	12	0.63	37200.	-2.00
1	46	11	0.63	37873.	-2.00
1	47	11	0.63	17440.	-2.50
1	47	10	0.50	20576.	-3.00

\* Average monthly stage (Feb 1986 - Dec 1988) used in steady state runs. Actual monthly values used in transient runs. River stage and river bottom elevations are in feet (NGVD)

\*\* River bed conductance for each cell is calculated as the product of the average wetted perimeter of the river, the length of the river reach in a cell and the hydraulic conductivity of the river bed divided by the thickness of the river bed.

RIVER PACKAGE DATA

Layer	Row	Column	Average Stage	River Bed Conductance	River Bottom Elevation
1	47	9	0.37	1461456.	-3.00
1	44	11	0.37	40400.	-3.00
1	44	10	0.37	137700.	-3.00
1	45	9	0.37	1281280.	-5.00
1	45	10	0.37	901120.	-5.00
1	46	9	0.37	3322667.	-5.00
1	46	10	0.37	984480.	-5.00
1	23	27	20.00	2695000.	10.00
1	23	28	20.00	2953513.	10.00
1	24	27	20.00	2024007.	10.00
1	24	28	20.00	6145920.	10.00
1	23	6	0.37	280000.	-2.50
1	22	6	0.37	46667.	-2.50
1	23	7	0.83	74667.	-2.50
1	22	7	0.83	117333.	-2.50
1	23	8	1.28	49333.	-2.50
1	22	8	1.28	30000.	-2.50
1	23	10	1.74	10000.	0.00
1	23	9	1.74	82133.	-2.50
1	22	9	3.18	56000.	0.00
1	26	7	0.36	320000.	-2.50
1	27	7	0.47	283333.	-3.00
1	28	7	1.23	28000.	-4.00
1	27	8	1.99	48000.	0.00
1	27	9	2.76	20000.	-4.50
1	29	7	0.49	373333.	-7.00
1	29	8	0.77	268000.	-5.50
1	29	9	1.24	154667.	-5.50
1	28	8	1.24	154667.	-5.50
1	29	10	1.73	128000.	-5.00
1	28	11	2.23	28000.	-7.00
1	30	10	1.73	74667.	-3.60
1	30	11	2.04	37333.	3.00
1	28	10	1.73	21600.	-3.40
1	29	11	2.23	32760.	2.00
1	30	11	2.43	9096.	4.00

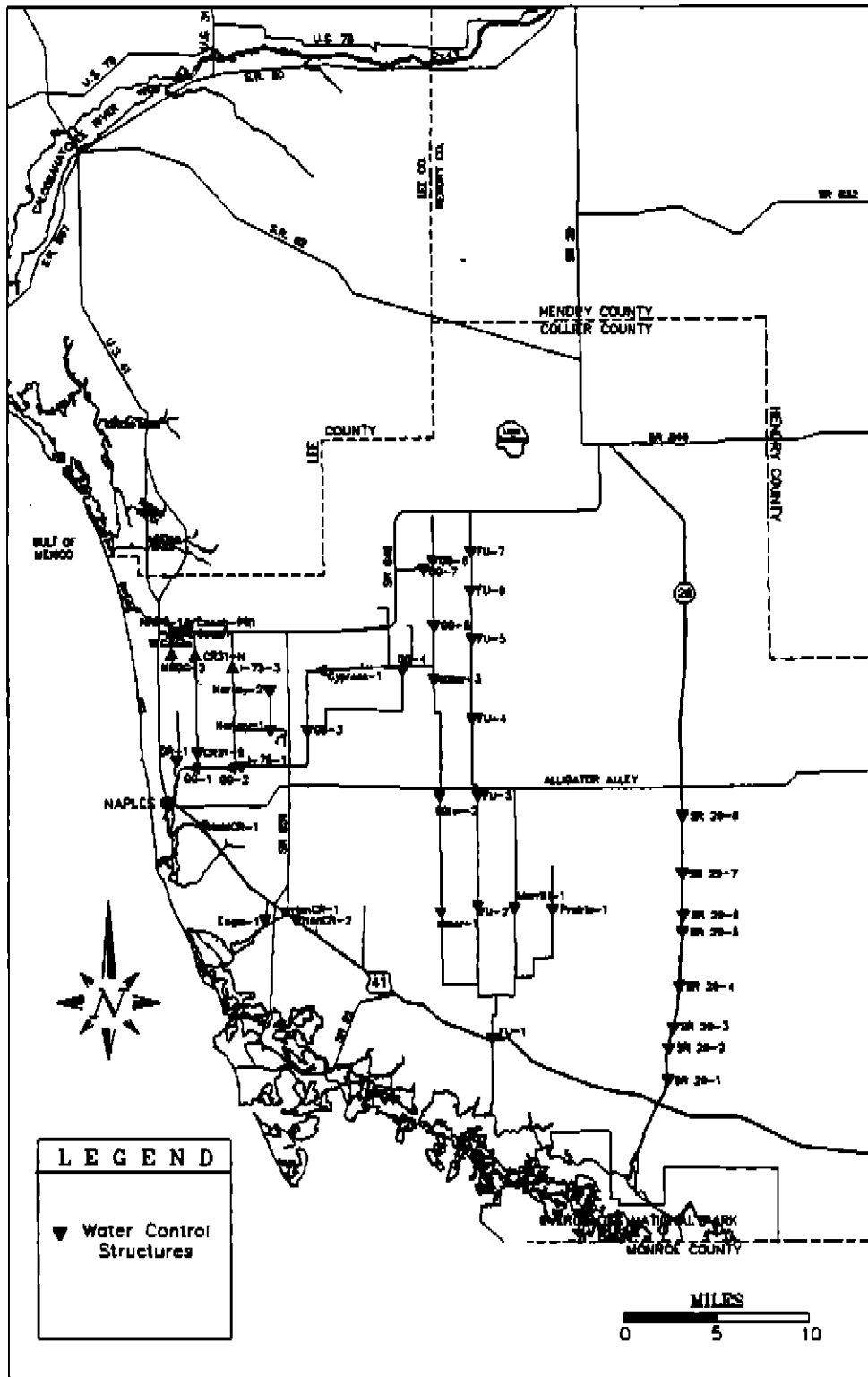
\* Average monthly stage (Feb 1988 - Dec 1988) used in steady state runs. Actual monthly values used in transient runs. River stage and river bottom elevations are in feet (NGVD)

\*\* River bed conductance for each cell is calculated as the product of the average wetted perimeter of the river, the length of the river reach in a cell and the hydraulic conductivity of the river bed divided by the thickness of the river bed.

## **APPENDIX C**

### **DRAIN PACKAGE INPUT DATA**





Location of Water Control Structures



DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	34	10	1.0	76032.
1	34	11	2.0	76032.
1	34	12	2.0	76032.
1	34	13	3.0	76032.
1	34	14	4.0	76032.
1	34	15	5.0	76032.
1	34	16	6.0	76032.
1	34	17	6.0	63360.
1	34	18	7.0	84480.
1	34	19	7.0	84480.
1	34	20	7.0	76032.
1	33	21	8.0	76032.
1	42	16	6.0	112640.
1	42	17	6.0	112640.
1	42	18	6.0	112640.
1	42	19	6.0	112640.
1	42	20	6.0	112640.
1	42	21	6.0	112640.
1	42	22	6.0	112640.
1	42	23	6.0	112640.
1	42	24	6.0	112640.
1	42	25	6.2	112640.
1	42	26	6.2	112640.
1	42	27	7.2	112640.
1	42	28	7.2	112640.
1	42	29	8.0	112640.
1	42	30	8.0	112640.
1	42	31	9.0	112640.
1	42	32	9.5	112640.
1	42	33	9.5	112640.
1	42	34	9.5	112640.
1	42	35	9.5	112640.
1	42	36	9.5	112640.
1	42	37	9.5	112640.
1	42	38	9.5	112640.
1	42	39	9.5	112640.
1	42	40	9.5	112640.
1	42	41	9.0	112640.
1	42	42	9.0	112640.
1	42	43	9.0	112640.
1	41	44	9.0	112640.
1	41	45	9.0	112640.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	41	46	0.0	112640.
1	41	47	0.0	112640.
1	61	47	2.5	44080.
1	61	46	2.5	84480.
1	61	45	2.5	84480.
1	61	44	2.5	84480.
1	61	43	2.5	110208.
1	61	42	2.5	23872.
1	60	42	2.5	60608.
1	60	41	2.5	91840.
1	60	40	2.0	40400.
1	59	40	2.0	40400.
1	59	39	2.0	67584.
1	59	38	2.0	56320.
1	59	37	2.0	117547.
1	59	36	2.0	103584.
1	59	35	2.0	61802.
1	58	35	2.0	51802.
1	58	34	2.0	107733.
1	58	33	2.0	126720.
1	58	32	2.0	103584.
1	58	31	2.0	25760.
1	57	31	2.0	60608.
1	57	30	2.0	90000.
1	57	29	2.0	62400.
1	58	28	2.0	72693.
1	55	28	2.0	24230.
1	55	27	2.0	103584.
1	55	26	2.0	90000.
1	55	25	2.0	90000.
1	55	24	2.0	40400.
1	54	24	2.0	59680.
1	54	23	2.0	52040.
1	53	23	2.0	24480.
1	53	22	2.0	95520.
1	53	21	2.0	35808.
1	52	21	2.0	28160.
1	52	20	2.0	101008.
1	51	19	2.0	68133.
1	51	18	2.0	17173.
1	50	18	2.0	39179.

\* Drain elevations are in feet (MGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.



DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	50	17	2.0	41320.
1	49	17	2.0	9200.
1	48	18	2.0	101008.
1	48	15	2.0	16827.
1	48	15	2.0	67333.
1	48	14	2.0	33520.
1	47	14	2.0	25099.
1	47	13	2.0	24480.
1	46	13	2.0	18363.
1	46	12	2.0	21440.
1	45	12	2.0	28320.
1	45	11	2.0	9787.
1	44	11	2.0	30613.
1	44	10	2.0	7957.
1	43	10	2.0	27547.
1	43	9	2.0	7344.
1	24	34	24.0	7800.
1	25	34	23.0	36000.
1	25	35	22.0	22864.
1	26	35	20.0	86320.
1	26	36	19.0	24800.
1	27	36	17.5	93600.
1	27	37	16.5	48480.
1	28	37	15.0	66120.
1	28	37	15.0	42240.
1	30	37	15.0	50888.
1	31	37	15.0	46464.
1	32	37	14.5	42240.
1	33	37	14.0	50688.
1	34	37	13.5	46464.
1	35	37	13.0	42240.
1	36	37	12.5	63360.
1	37	37	12.0	63360.
1	38	37	11.5	63360.
1	39	37	11.0	63360.
1	40	37	10.5	36016.
1	40	37	10.0	63360.
1	41	37	10.0	84480.
1	42	37	9.5	188960.
1	43	37	9.0	70400.
1	44	37	8.0	56320.

\* Drain elevations are in feet (MGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	45	37	8.0	56320.
1	46	37	8.0	56320.
1	47	37	7.0	56320.
1	48	37	7.0	56320.
1	49	37	7.0	12267.
1	49	37	6.0	47947.
1	50	37	6.0	11733.
1	50	37	5.0	56320.
1	51	37	5.0	56320.
1	52	37	5.0	56320.
1	53	37	4.0	70400.
1	54	37	4.0	61413.
1	55	36	4.0	14667.
1	65	38	3.0	53867.
1	56	38	3.0	19573.
1	56	36	2.0	53866.
1	57	38	2.0	56320.
1	46	30	3.7	29376.
1	47	30	3.7	101376.
1	48	30	3.7	101376.
1	49	30	2.0	168960.
1	50	30	2.0	168960.
1	51	30	2.0	168960.
1	51	29	2.0	159840.
1	52	29	2.0	140800.
1	52	28	2.0	71640.
1	42	28	5.6	137107.
1	43	28	5.6	84480.
1	44	28	5.6	101376.
1	45	28	5.6	126720.
1	46	28	5.6	126720.
1	47	28	5.6	126720.
1	48	28	5.6	126720.
1	49	28	2.0	168960.
1	50	28	2.0	202752.
1	51	28	2.0	202752.
1	52	28	2.0	274392.
1	53	28	2.0	196224.
1	53	27	2.0	123264.
1	28	28	18.1	63360.
1	29	28	18.1	63360.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	30	26	14.1	63360.
1	31	26	14.1	63360.
1	32	26	11.3	70400.
1	33	26	11.3	84480.
1	34	26	11.3	45904.
1	34	26	9.6	84480.
1	35	26	9.6	84480.
1	36	26	9.6	190080.
1	37	26	9.6	190080.
1	38	26	9.6	190080.
1	39	26	6.2	190080.
1	40	26	6.2	152064.
1	41	26	6.2	152064.
1	42	26	6.2	350528.
1	43	26	4.0	112640.
1	44	26	4.0	112640.
1	45	26	4.0	126720.
1	46	26	4.0	140800.
1	47	26	4.0	168960.
1	48	26	4.0	158668.
1	48	26	2.0	232141.
1	49	26	2.0	337920.
1	50	26	2.0	337920.
1	51	26	2.0	202752.
1	52	26	2.0	309200.
1	53	26	2.0	495600.
1	53	27	2.0	408824.
1	54	27	2.0	627840.
1	55	27	2.0	456192.
1	36	24	6.2	28336.
1	37	24	6.2	116160.
1	38	24	6.2	159060.
1	38	24	6.2	126720.
1	40	24	6.2	126720.
1	41	24	6.2	168960.
1	42	24	6.2	281600.
1	43	24	3.9	168960.
1	44	24	3.9	168960.
1	45	24	3.9	140800.
1	46	24	3.9	154880.
1	47	24	3.9	168960.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	48	24	3.9	168960.
1	49	24	3.9	22016.
1	49	24	2.0	168960.
1	50	24	2.0	168960.
1	51	24	2.0	168960.
1	52	24	2.0	168960.
1	53	24	2.0	105600.
1	53	25	2.0	202752.
1	53	26	2.0	581616.
1	28	23	15.7	44064.
1	29	23	15.7	60688.
1	30	23	15.7	60688.
1	31	23	10.5	126720.
1	32	23	10.5	126720.
1	33	23	10.5	148752.
1	32	22	10.5	209640.
1	32	23	10.5	314040.
1	33	23	10.5	303072.
1	32	22	10.5	273000.
1	32	23	10.5	377400.
1	33	23	8.5	344400.
1	34	23	8.5	152064.
1	35	23	8.5	162064.
1	36	23	8.5	175190.
1	36	22	8.5	102528.
1	36	22	7.0	269952.
1	37	22	7.0	253440.
1	38	22	7.0	188240.
1	38	21	7.0	253440.
1	38	20	7.0	253440.
1	38	19	7.0	225280.
1	38	18	7.0	337200.
1	39	18	7.0	96960.
1	39	17	7.0	171878.
1	34	16	5.0	141232.
1	35	16	5.0	84480.
1	36	16	5.0	84480.
1	37	16	5.0	84480.
1	38	16	5.0	70400.
1	39	16	5.0	56320.
1	40	16	5.0	56320.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	41	16	5.0	22027.
1	36	15	10.0	35820.
1	37	15	10.0	23480.
1	37	15	8.0	87300.
1	38	15	8.0	101376.
1	39	15	8.0	60600.
1	40	15	6.3	68880.
1	39	15	6.3	383800.
1	39	14	8.3	168960.
1	39	13	6.3	132224.
1	39	14	8.3	337920.
1	39	15	6.3	431800.
1	40	14	6.3	59200.
1	34	13	10.0	138464.
1	35	13	10.0	84480.
1	36	13	6.3	104640.
1	37	13	6.3	188960.
1	38	13	6.3	202752.
1	39	13	6.3	301184.
1	40	13	6.3	253440.
1	41	13	6.3	128720.
1	35	11	8.5	15150.
1	36	11	8.5	31680.
1	37	11	8.5	42240.
1	38	11	8.7	135168.
1	39	11	8.7	135168.
1	40	11	8.7	79820.
1	41	11	3.4	57840.
1	39	17	6.0	282011.
1	40	17	6.0	281600.
1	41	17	6.0	140800.
1	41	16	6.0	275467.
1	41	15	6.0	188960.
1	40	14	6.0	235520.
1	41	14	6.0	73600.
1	40	15	6.0	142480.
1	41	15	6.0	352640.
1	41	14	5.5	242560.
1	41	13	5.0	378320.
1	41	12	3.4	225280.
1	41	11	3.4	224440.

\* Drain elevations are in feet (MGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	36	22	8.5	336000.
1	36	21	8.5	126720.
1	38	20	8.5	112640.
1	38	19	8.5	101376.
1	38	18	8.5	101376.
1	36	17	7.0	248760.
1	37	17	7.0	84480.
1	38	17	7.0	84480.
1	39	17	7.0	309547.
1	33	22	8.5	277240.
1	34	22	8.5	101376.
1	35	22	8.5	101376.
1	36	22	8.5	477826.
1	30	21	12.5	9150.
1	31	20	12.5	51400.
1	31	21	12.5	52800.
1	32	20	12.5	52800.
1	32	21	12.5	52800.
1	32	21	11.6	118920.
1	33	21	11.5	202752.
1	34	21	10.5	101376.
1	35	21	9.5	101376.
1	36	21	8.5	137760.
1	34	20	8.5	148432.
1	35	20	8.5	70400.
1	30	22	13.1	83360.
1	30	23	13.1	80988.
1	30	23	10.5	126438.
1	38	10	3.5	38560.
1	39	10	3.5	84480.
1	40	10	3.5	83920.
1	41	10	3.5	18280.
1	36	9	7.2	6123.
1	35	9	7.2	11013.
1	35	9	6.0	41877.
1	34	9	6.0	26736.
1	34	9	4.0	35016.
1	34	10	4.0	100501.
1	33	10	4.5	10700.
1	43	16	6.0	56320.
1	44	16	6.0	84480.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	45	16	6.0	84480.
1	46	16	6.0	101376.
1	47	16	6.0	101376.
1	48	16	5.5	112640.
1	49	16	5.0	147008.
1	48	14	2.0	127787.
1	49	14	2.0	120400.
1	44	11	2.5	98965.
1	48	20	3.0	19893.
1	49	20	3.0	70400.
1	50	20	2.5	70400.
1	51	20	2.0	70400.
1	52	20	2.0	171408.
1	9	18	14.0	36000.
1	9	17	14.0	27000.
1	10	17	14.0	37800.
1	10	18	18.5	58500.
1	10	19	18.5	13500.
1	11	19	18.5	40500.
1	11	20	18.5	36000.
1	11	20	20.6	49600.
1	11	21	20.5	49500.
1	11	22	20.5	46000.
1	11	23	20.5	49500.
1	9	18	14.0	79200.
1	10	18	19.7	67500.
1	11	16	19.7	22500.
1	11	18	23.1	46800.
1	12	16	23.1	47700.
1	13	16	23.1	47700.
1	14	16	23.1	10800.
1	10	17	19.7	84600.
1	11	17	19.7	16200.
1	11	17	24.0	48600.
1	12	17	24.0	48600.
1	13	17	24.0	40500.
1	9	17	14.0	51300.
1	9	17	15.8	73800.
1	8	18	15.8	46800.
1	8	19	15.8	46800.
1	8	20	15.8	46800.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	8	21	15.8	46800.
1	8	17	15.8	46800.
1	7	17	15.8	46800.
1	6	17	15.8	46800.
1	6	23	17.9	36000.
1	7	23	17.9	47700.
1	8	23	17.9	13500.
1	8	23	21.2	47700.
1	9	23	21.2	45000.
1	10	23	21.2	46800.
1	11	23	21.2	96300.
1	6	24	20.6	24300.
1	7	24	20.6	46800.
1	8	24	20.6	12600.
1	8	24	22.6	46800.
1	9	24	22.6	47700.
1	10	24	22.6	46800.
1	11	24	22.6	66400.
1	12	23	22.6	8100.
1	12	23	24.1	46900.
1	14	23	24.1	47700.
1	15	23	24.1	46800.
1	16	23	24.1	46800.
1	17	23	24.1	31500.
1	5	17	10.5	47700.
1	4	17	8.0	47700.
1	5	23	12.0	31500.
1	6	23	12.0	42300.
1	5	24	15.0	45000.
1	6	24	15.0	46800.
1	17	23	27.0	102620.
1	16	23	27.0	110720.
1	15	23	27.0	111200.
1	14	23	27.0	98900.
1	13	23	27.0	53200.
1	12	23	27.0	94700.
1	17	22	27.0	26800.
1	16	22	27.0	57600.
1	15	22	27.0	85600.
1	14	22	27.0	80400.
1	13	22	27.0	75200.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.



DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	12	22	27.0	49200.
1	16	21	27.0	34800.
1	15	21	27.0	46000.
1	14	21	27.0	60000.
1	13	21	27.0	56200.
1	12	21	27.0	28400.
1	12	23	20.5	104700.
1	12	22	20.5	77200.
1	12	21	20.5	38800.
1	11	21	20.5	84700.
1	10	23	21.2	67820.
1	10	22	21.2	21120.
1	9	22	21.2	20000.
1	9	23	21.2	68120.
1	8	23	21.2	68820.
1	8	22	21.2	20000.
1	7	22	17.9	20000.
1	7	23	17.9	68820.
1	6	23	17.9	84540.
1	6	22	17.9	42400.
1	6	21	15.0	72720.
1	6	20	15.0	48000.
1	6	19	15.0	58800.
1	6	18	15.0	66000.
1	7	18	15.0	12000.
1	5	18	15.0	20000.
1	5	19	15.0	20000.
1	5	20	15.0	20000.
1	5	21	15.0	6000.
1	16	21	27.4	56000.
1	15	21	27.4	73600.
1	14	21	27.4	83200.
1	13	21	27.4	85600.
1	18	20	27.4	30400.
1	15	20	27.4	74800.
1	14	20	27.4	65200.
1	13	20	27.4	65200.
1	15	19	28.0	31200.
1	14	18	28.0	38000.
1	13	19	24.0	90800.
1	12	18	24.0	29200.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	13	18	24.0	44800.
1	12	21	24.7	76800.
1	11	21	24.7	105900.
1	12	20	24.7	98400.
1	12	19	24.7	44400.
1	13	18	24.0	68800.
1	12	18	24.0	82400.
1	11	18	24.0	92000.
1	14	17	23.1	18000.
1	13	17	23.1	89700.
1	12	17	23.1	95000.
1	11	17	23.1	67400.
1	3	17	23.1	8800.
1	13	16	23.1	86100.
1	12	16	23.1	95300.
1	11	16	23.1	85600.
1	13	15	23.1	34800.
1	12	15	23.1	38800.
1	13	14	23.1	5600.
1	12	14	23.1	9800.
1	11	17	19.7	88200.
1	11	16	19.7	95200.
1	10	16	19.7	97100.
1	12	15	19.7	59200.
1	11	15	19.7	69600.
1	10	15	19.7	85600.
1	12	14	19.7	66800.
1	11	14	19.7	84400.
1	10	14	19.7	76000.
1	9	14	19.7	33600.
1	12	13	19.7	32400.
1	11	13	19.7	4000.
1	10	13	19.7	88400.
1	9	13	19.7	46000.
1	11	12	19.7	39200.
1	10	12	19.7	68400.
1	9	12	19.7	31200.
1	10	17	14.0	94600.
1	9	17	14.0	110200.
1	10	16	14.0	130300.
1	9	16	14.0	133200.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.

DRAIN PACKAGE DATA

LAYER	ROW	COLUMN	DRAIN ELEVATION	DRAIN CONDUCTANCE
1	8	18	14.0	46800.
1	7	18	14.0	30400.
1	9	15	14.0	57200.
1	9	14	14.0	43600.
1	7	14	14.0	10000.
1	11	21	18.5	118300.
1	10	21	18.5	20000.
1	9	21	18.5	20000.
1	10	20	18.5	21200.
1	9	20	18.5	21200.
1	11	19	18.5	85300.
1	10	18	18.5	37500.
1	9	19	18.5	20000.
1	10	18	18.5	94500.
1	9	18	18.5	20400.
1	10	17	18.5	113800.
1	7	20	15.8	21200.
1	7	19	15.8	20800.
1	7	18	15.8	33200.
1	8	17	15.8	90000.
1	7	17	15.8	91200.
1	8	17	15.8	78800.
1	6	16	15.8	44800.
1	7	16	15.8	53200.
1	7	15	15.8	8400.
1	6	17	13.0	118000.
1	6	16	13.0	91200.
1	6	15	13.0	115200.

\* Drain elevations are in feet (NGVD)

\*\* Drain Bed Conductance for each cell is calculated as the product of the average wetted perimeter of the drain, the length of the drain reach in a cell and the hydraulic conductivity of the drain bed divided by the thickness of the drain bed.



**APPENDIX D**

**RECHARGE PACKAGE INPUT DATA**



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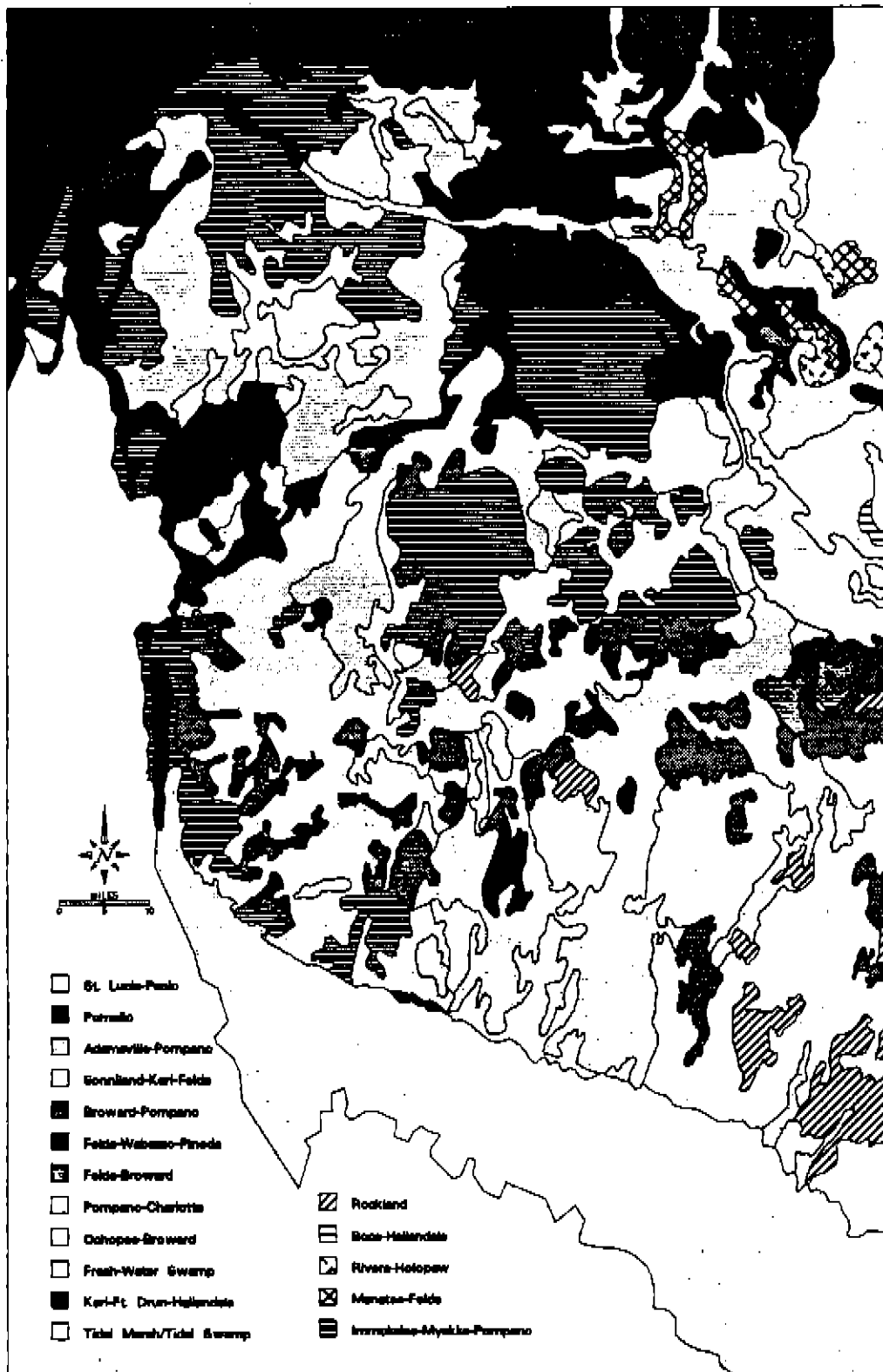


FIGURE D-1.

Soil Associations

TABLE D-1: Average Vertical Soil Hydraulic Conductivities

Soil Association	Vertical Hydraulic Conductivity (inches/hr)
St. Lucie - Paolo	10.0
Pomello	11.0
Immokalee - Myakka - Pompano	3.4
Adamsville - Pompano	7.2
Sunniland - Keri - Felda	2.8
Broward - Pompano	6.0
Keri - Ft. Drum - Hallandale	3.7
Felda - Wabasso - Pineda	3.6
Felda - Broward	3.8
Pompano - Charlotte	6.0
Ochopee - Broward	3.2
Fresh-Water Swamp	10.0
Tidal Marsh / Tidal Swamp	13.0
Rockland	8.5
Boca - Hallandale	10.9
Riveria - Holopaw	2.2
Manatee - Felda	3.8

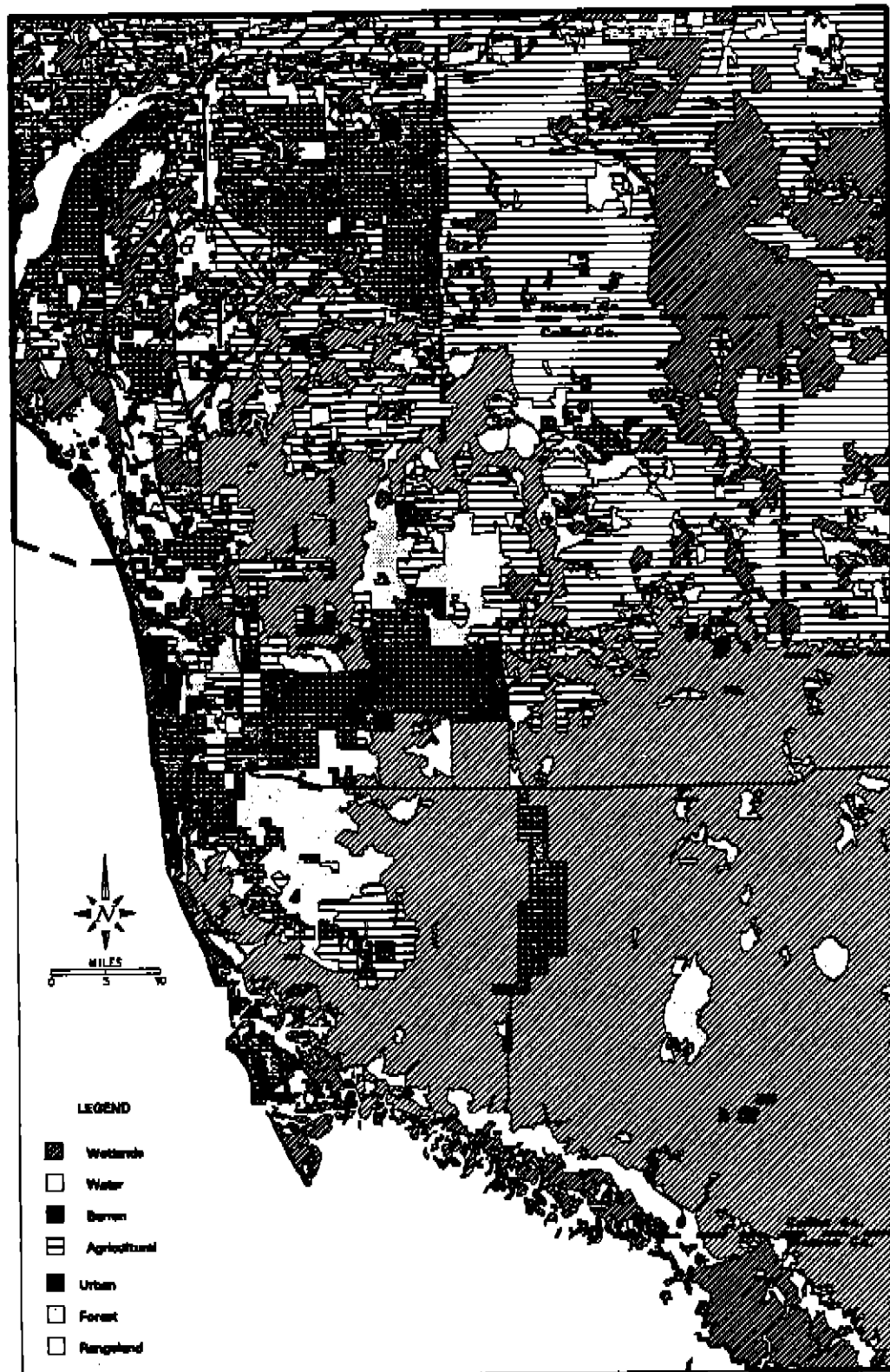


FIGURE D-2.

General Land Use (Level 1)

**TABLE D-2.**

**S.F.W.M.D. LAND USE AND LAND COVER CLASSIFICATION CODE**

**LEVEL I      LEVEL II      LEVEL III**

**(U) Urban and built-up land**

**(UR) Residential**

- (URSL) Single-family, Low Density (under 2 D.U./gross acre)**
- (URSM) Single-family, Medium Density (2 to 5 D.U./gross acre)**
- (URSH) Single-family, High Density (over 5 D.U./gross acre)**
- (URMF) Multi-family building**
- (URMH) Mobile homes**

**(UC) Commercial and Services**

- (UCPL) Parking lot**
- (UCSC) Shopping center**
- (UCSS) Sales and services**
- (UCCE) Cultural and Entertainment**
- (UCMC) Marine commercial (Marinas)**
- (UCHM) Hotel-Motel**

**(UI) Industrial**

- (UIJK) Junkyard**
- (UILT) Other light industrial**
- (UIHV) Other heavy industrial**

**(US) Institutional**

- (USED) Educational**
- (USMD) Medical**
- (USRL) Religious**
- (USMF) Military**
- (USCF) Correctional**
- (USGF) Governmental (other than military or correctional)**
- (USSS) Social services (Elks, Moose, Eagles)**

**(UT) Transportation**

- (UTAP) Airports**
- (UTAG) Small grass airports**
- (UTRR) Railroad yards and terminals**
- (UTPF) Port facilities**
- (UTEP) Electrical power facilities**
- (UTTL) Major transmission lines**
- (UTHW) Major highway and rights-of-way**
- (UTWS) Water supply plants**
- (UTSP) Sewerage treatment plants**
- (UTSW) Solid waste disposal**

(UTRS) Antenna arrays  
(UTOG) Oil and gas storage

**(UO) Open and others**

(UORC) Recreational facilities  
(UOGC) Golf courses  
(UOPK) Parks  
(UOCM) Cemeteries  
(UORV) Recreational vehicle parks  
(UOUD) Open under development  
(UOUN) Open and undeveloped within urban area

**(A) Agriculture**

**(AC) Cropland**

(ACSC) Sugar cane  
(ACTC) Truck crops  
(ACRF) Rice fields

**(AP) Pasture**

(APIM) Improved pasture  
(APUN) Unimproved pasture

**(AM) Groves, Ornamentals, Nurseries, Tropical fruits**

(AMCT) Citrus  
(AMTF) Tropical fruits  
(AMSF) Sod farms  
(AMOR) Ornamentals

**(AF) Confined feeding operations**

(AFFL) Cattle feed lots  
(AFDF) Dairy farms  
(AFFF) Fish farms  
(AFHT) Horse training and stables  
(AFPY) Poultry

**(R) Rangeland**

**(RG) Grassland**

**(RS) Scrub and brushland**

(RSPP) Palmetto prairies  
(RSSB) Brushland

**(F) Forested uplands**

**(FE) Coniferous**

- (FEPF)** Pine flatwoods
- (FESP)** Sand pine scrub
- (FECF)** Commercial forest (pine)

**(FO) Non-coniferous**

- (FOAP)** Australian pine
- (FOBP)** Brazilian pepper
- (FOPA)** Palms
- (FOSO)** Scrub oak
- (FOOK)** Oak
- (FOCF)** Commercial forest

**(FM) Mixed forested**

- (FMTW)** Temperate hardwoods
- (FMCM)** Cabbage palms/Melaleuca
- (FMCO)** Cabbage palms/Oaks
- (FMPM)** Pine/Melaleuca
- (FMPO)** Pine/Oak
- (FMTH)** Tropical hammocks
- (FMOF)** Old fields forested
- (FMCD)** Coastal dunes
- (FMPC)** Pine/Cabbage palms

**(W) Wetlands**

**(WF) Forested fresh**

- (WFCM)** Cypress/Melaleuca
- (WFCY)** Cypress
- (WFWL)** Willow
- (WFME)** Melaleuca
- (WFSB)** Scrub and brushland
- (WFMX)** Mixed forested

**(WN) Non-forested fresh**

- (WNSG)** Sawgrass
- (WNCT)** Cattail
- (WNBR)** Bullrush
- (WNWC)** Wire cordgrass
- (WNAG)** Mixed aquatic grass
- (WNWL)** Sloughs

**(WS) Forested salt**

- (WSRM)** Red mangrove
- (WSBW)** Black and White mangrove

**(WM) Non-forested salt**

**(WX) Mixed forested and non-forested fresh**

**(WXPP) Pine and wet prairies**

**(WXCP) Cypress domes and wet prairies**

**(WXHM) Hardwood marsh**

**(H) Water**

**(B) Barren land**

**(BB) Beaches**

**(BP) Extractive**

(strip mines, quarries, and  
gravel pits)

**(BS) Spoil areas**

**(BL) Levees**

\* Documentation of major codes from "LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM, A TECHNICAL MANUAL", Department of Transportation, State Topographic Office Remote Sensing Center, Kuyper, Becker and Shopmyer, February 1981

**TABLE D-3. CROP COEFFICIENTS/LAND USE TYPE COEFFICIENTS**

Land Use	Month												
	Covered %	1	2	3	4	5	6	7	8	9	10	11	12
U	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UR	.48	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
URSL	.67	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
URSM	.53	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
URSH	.45	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
URMF	.33	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
URMH	.40	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UC	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCPL	.25	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCSC	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCSS	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCCE	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCMC	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UCHM	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UI	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UIK	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UILT	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UIHV	.05	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
US	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USED	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USMD	.60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USRL	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USMF	.60	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USCF	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USGF	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
USSS	.70	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UT	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTAP	.10	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0



UTAG	.20	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTRR	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTPF	.05	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTEP	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTTL	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTHW	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTWS	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTSP	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTSW	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTRS	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UTOG	.50	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UO	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UORC	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UOGC	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UOPK	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UOCM	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UORV	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UOUD	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
UOUN	.90	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
AC	1.0	.41	.44	.63	.67	.64	.69	.72	.71	.72	.86	.74	.64
ACSC	1.0	.39	.30	.53	.61	.70	.79	.79	.84	.73	.88	.72	.69
ACTC	1.0	.44	.71	.82	.78	.53	.49	.57	.44	.71	.82	.78	.53
ACRF	1.0	.39	.30	.53	.61	.70	.79	.79	.84	.73	.88	.72	.69
AP	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
APIM	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
APUN	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AM	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
AMCT	1.0	.63	.66	.68	.7	.71	.71	.71	.71	.7	.68	.67	.64
AMTF	1.0	.27	.42	.58	.7	.78	.81	.77	.71	.63	.54	.43	.3
AMSF	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
AMOR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

AF	.76	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AFFL	.75	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AFDF	.80	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AFFF	.75	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AFHT	.75	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
AFPY	.75	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
R	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
RG	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
RS	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
RSPP	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
RSSB	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
F	1.0	.63	.73	.86	.98	1.09	1.13	1.11	1.06	.99	.90	.78	.66
FE	1.0	.63	.73	.86	.98	1.09	1.13	1.11	1.06	.99	.90	.78	.66
FEPF	1.0	.63	.73	.86	.98	1.09	1.13	1.11	1.06	.99	.90	.78	.66
FESP	1.0	.63	.73	.86	.98	1.09	1.13	1.11	1.06	.99	.90	.78	.66
FECF	1.0	.63	.73	.86	.98	1.09	1.13	1.11	1.06	.99	.90	.78	.66
FO	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOAP	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOBP	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOPA	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOSO	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOOK	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FOCF	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMTW	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMCM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMCO	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMPM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMPO	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMTH	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMOF	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75

FMCD	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
FMPC	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
W	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WF	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFCM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFCY	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFWL	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFME	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFSB	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WFMX	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WN	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNSG	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNCT	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNBR	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNWC	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNAG	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WNWL	1.0	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55
WS	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WSRM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WSBW	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WX	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WXPP	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WXCP	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
WXHM	1.0	.73	.84	.99	1.14	1.24	1.30	1.28	1.22	1.14	1.05	.90	.75
H	1.0	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
B	.50	.49	.57	.73	.85	.90	.92	.92	.91	.87	.79	.67	.55

**TABLE D-4.**  
**Coefficients used in Recharge Preprocessing**

Land Use	Ki	Ks	Ka
U	.75	.10	.10
UR	.70	.10	.10
URSL	.80	.10	.10
URSM	.75	.10	.10
URSH	.70	.10	.10
URMF	.65	.10	.10
URMH	.60	.10	.10
UC	.50	.30	.10
UCPL	.50	.30	.10
UCSC	.50	.30	.10
UCSS	.50	.30	.10
UCCE	.60	.20	.10
UCMC	.50	.20	.10
UCHM	.50	.20	.10
UI	.50	.30	.10
UIDK	.50	.30	.10
UILT	.50	.20	.10
UIHV	.50	.30	.10
US	.50	.20	.10
USED	.60	.20	.10
USMD	.50	.30	.10
USRL	.50	.20	.10
USMF	.50	.20	.10
USCF	.50	.20	.10
USGF	.50	.20	.10
USSS	.50	.20	.10
UT	.60	.20	.10
UTAP	.60	.20	.10

UTAG	.70	.10	.10
UTRR	.60	.10	.10
UTPF	.60	.20	.10
UTEP	.60	.10	.10
UTTL	.60	.10	.10
UTHW	.60	.10	.10
UTWS	.60	.10	.10
UTSP	.60	.20	.10
UTSW	.60	.10	.10
UTRS	.60	.10	.10
UTOG	.60	.20	.10
UO	.98	.10	.10
UORC	.90	.10	.10
UOGC	.75	.10	.10
UOPK	.90	.10	.10
UOCM	.90	.10	.10
UORV	.80	.20	.10
UOUD	.98	.10	.10
UOUN	.75	.10	.10
A	.80	.10	.10
AC	.95	.10	.10
ACSC	.83	.10	.10
ACTC	.95	.10	.10
ACRF	.86	.10	.10
AP	.83	.10	.10
APIM	.83	.10	.10
APUN	.83	.10	.10
AM	.85	.10	.10
AMCT	.85	.10	.10
AMTF	.85	.10	.10
AMSF	.90	.10	.10

AMOR	.70	.10	.10
AF	.90	.10	.10
AFFL	.90	.10	.10
AFDF	.90	.10	.10
AFFF	.90	.10	.10
AFHT	.90	.10	.10
AFPY	.90	.10	.10
R	.75	.10	.10
RG	1.00	.10	.10
RS	.80	.10	.10
RSPP	.75	.10	.10
RSSB	.80	.10	.10
F	.85	.10	.10
FE	.85	.10	.10
FEPF	.85	.10	.10
FRSP	.85	.10	.10
FECF	.85	.10	.10
FO	.85	.10	.10
FOAP	.85	.10	.10
FOBP	.85	.10	.10
FOPA	.85	.10	.10
FOSO	.85	.10	.10
FOOK	.85	.10	.10
FOCF	.85	.10	.10
FM	.85	.10	.10
FMTW	.85	.10	.10
FMCM	.85	.10	.10
FMCO	.85	.10	.10
FMPM	.85	.10	.10
FMPO	.85	.10	.10
FMTH	.85	.10	.10

FMOF	.85	.10	.10
FMCD	.85	.10	.10
FMPC	.85	.10	.10
W	.90	.10	.10
WF	.85	.10	.10
WFCM	.85	.10	.10
WFCY	.85	.10	.10
WFWL	.85	.10	.10
WFME	.87	.10	.10
WFSB	.80	.10	.10
WFMX	.80	.10	.10
WN	.90	.10	.10
WNSG	.90	.10	.10
WNCT	.90	.10	.10
WNBR	.90	.10	.10
WNWC	.90	.10	.10
WNAG	.90	.10	.10
WNWL	.90	.10	.10
WS	.85	.10	.10
WSRM	.85	.10	.10
WSBW	.85	.10	.10
WM	.90	.10	.10
WX	.90	.10	.10
WXPP	.90	.10	.10
WXCP	.90	.10	.10
WXHM	.90	.10	.10
H	1.00	.10	.10





**APPENDIX E**

**EVAPOTRANSPIRATION PACKAGE  
INPUT DATA**



**LIST OF FIGURES - APPENDIX E**

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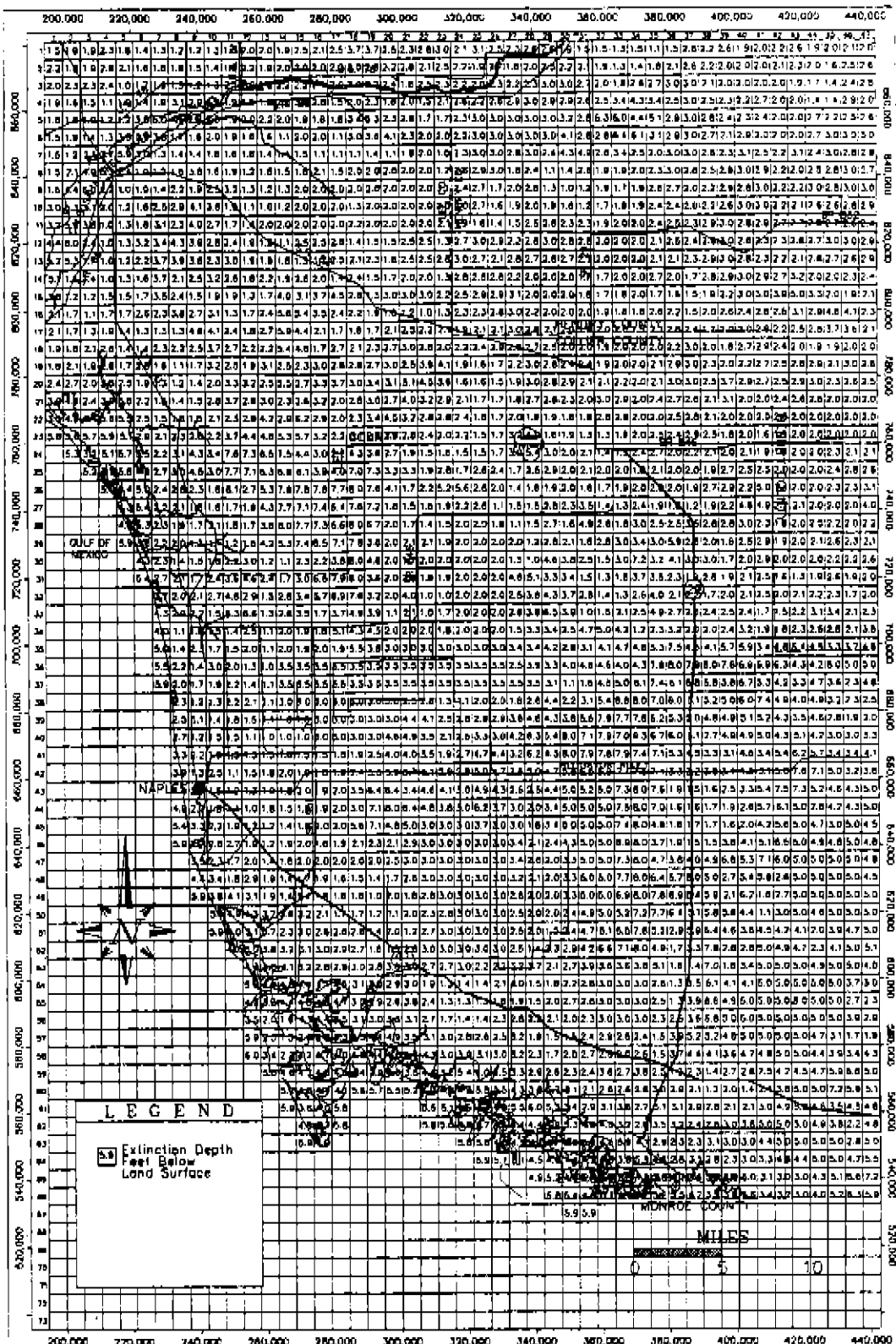


FIGURE E-1. Extinction Depths Per Model Cell

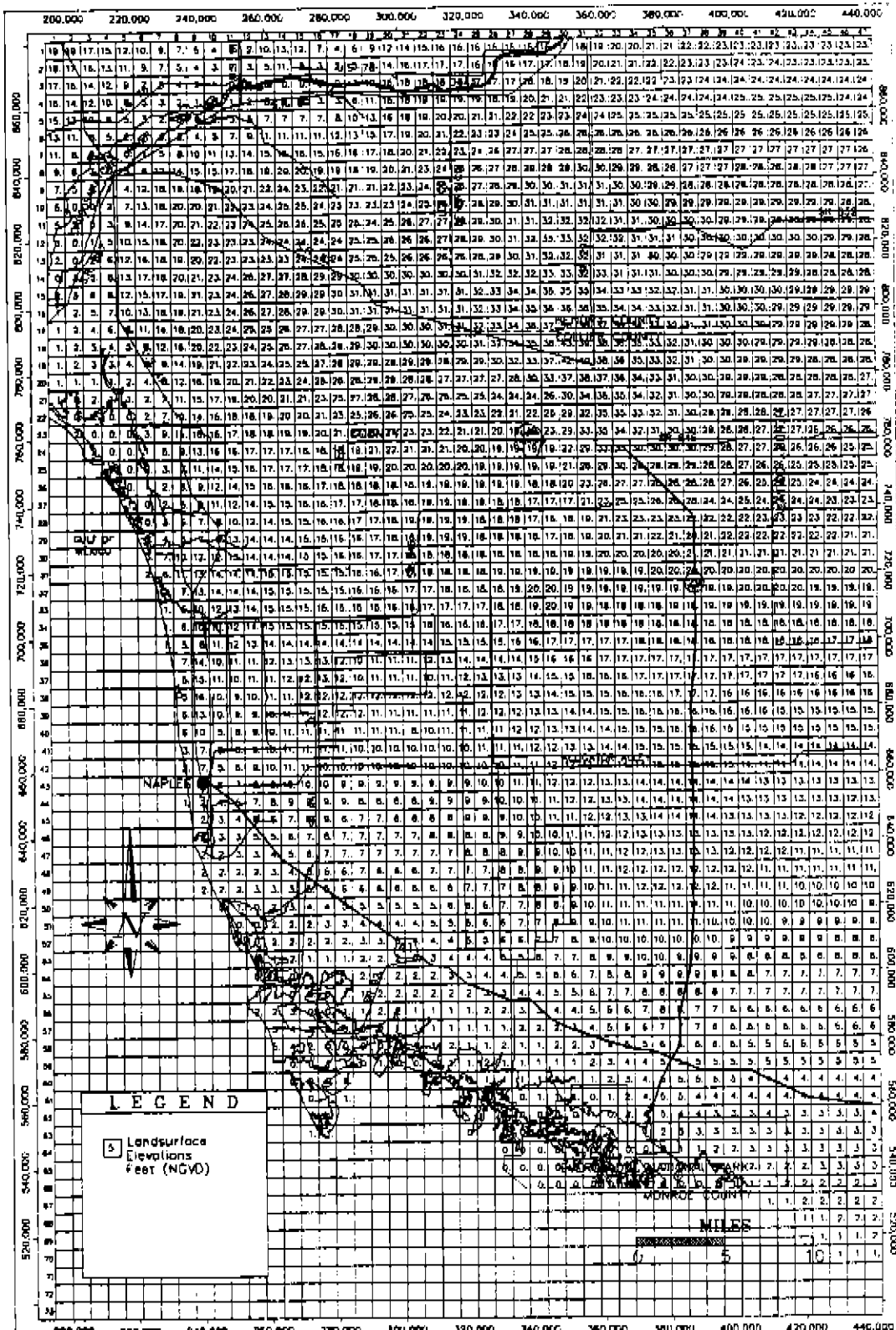


FIGURE E-2. Evapotranspiration Surface Per Model Cell

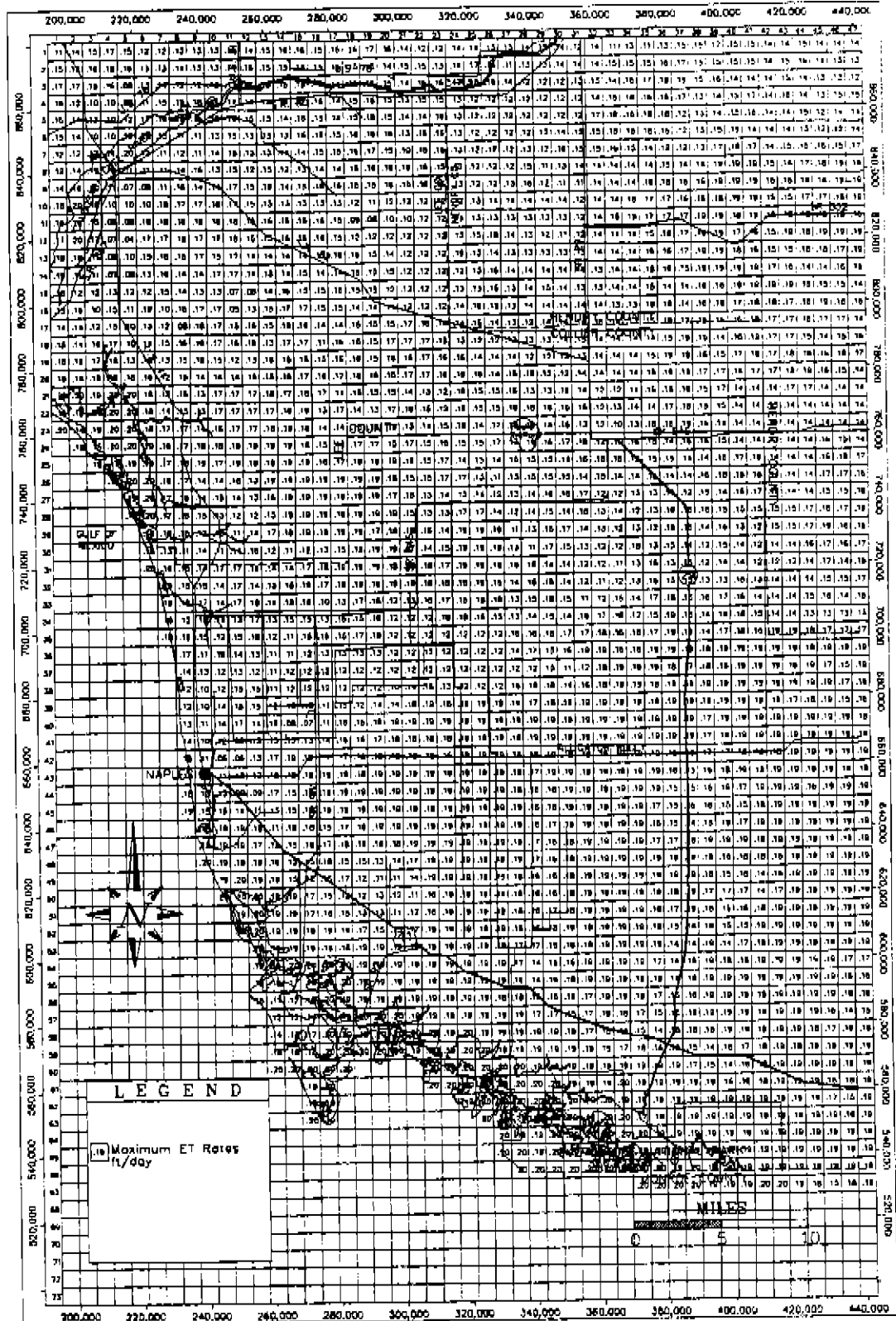


FIGURE E-3. Steady-State Maximum Evapotranspiration Rates

**TABLE E-1: S.F.W.M.D. LAND USE AND LAND COVER CLASSIFICATION CODE**

**LEVEL I      LEVEL II      LEVEL III**

**(U) Urban and built-up land**

**(UR) Residential**

- (URSL)** Single-family, Low Density (under 2 D.U./gross acre)
- (URSM)** Single-family, Medium Density (2 to 5 D.U./gross acre)
- (URSH)** Single-family, High Density (over 5 D.U./gross acre)
- (URMF)** Multi-family building
- (URMH)** Mobile homes

**(UC) Commercial and Services**

- (UCPL)** Parking lot
- (UCSC)** Shopping center
- (UCSS)** Sales and services
- (UCCE)** Cultural and Entertainment
- (UCMC)** Marine commercial (Marinas)
- (UCHM)** Hotel-Motel

**(UI) Industrial**

- (UIJK)** Junkyard
- (UILT)** Other light industrial
- (UIHV)** Other heavy industrial

**(US) Institutional**

- (USED)** Educational
- (USMD)** Medical
- (USRL)** Religious
- (USMF)** Military
- (USCF)** Correctional
- (USGF)** Governmental (other than military or correctional)
- (USSS)** Social services (Elks, Moose, Eagles)

**(UT) Transportation**

- (UTAP)** Airports
- (UTAG)** Small grass airports
- (UTRR)** Railroad yards and terminals
- (UTPF)** Port facilities
- (UTEP)** Electrical power facilities
- (UTTL)** Major transmission lines
- (UTHW)** Major highway and rights-of-way
- (UTWS)** Water supply plants
- (UTSP)** Sewerage treatment plants
- (UTSW)** Solid waste disposal



(UTRS) Antenna arrays  
(UTOG) Oil and gas storage

(UO) Open and others

(UORC) Recreational facilities  
(UOGC) Golf courses  
(UOPK) Parks  
(UOCM) Cemeteries  
(UORV) Recreational vehicle parks  
(UOUD) Open under development  
(UOUN) Open and undeveloped within  
urban area

(A) Agriculture

(AC) Cropland

(ACSC) Sugar cane  
(ACTC) Truck crops  
(ACRF) Rice fields

(AP) Pasture

(APIM) Improved pasture  
(APUN) Unimproved pasture

(AM) Groves, Ornamentals, Nurseries, Tropical fruits

(AMCT) Citrus  
(AMTF) Tropical fruits  
(AMSF) Sod farms  
(AMOR) Ornamentals

(AF) Confined feeding operations

(AFFL) Cattle feed lots  
(AFDF) Dairy farms  
(AFFF) Fish farms  
(AFHT) Horse training and stables  
(AFPY) Poultry

(R) Rangeland

(RG) Grassland

(RS) Scrub and brushland

(RSPP) Palmetto prairies  
(RSSB) Brushland

(F) Forested uplands

**(FE) Coniferous**

- (FEPF)** Pine flatwoods
- (FESP)** Sand pine scrub
- (FECF)** Commercial forest (pine)

**(FO) Non-coniferous**

- (FOAP)** Australian pine
- (FOBP)** Brazilian pepper
- (FOPA)** Palms
- (FOSO)** Scrub oak
- (FOOK)** Oak
- (FOCF)** Commercial forest

**(FM) Mixed forested**

- (FMTW)** Temperate hardwoods
- (FMCM)** Cabbage palms/Melaleuca
- (FMCO)** Cabbage palms/Oaks
- (FMPP)** Pine/Melaleuca
- (FMPO)** Pine/Oak
- (FMTH)** Tropical hammocks
- (FMOF)** Old fields forested
- (FMCD)** Coastal dunes
- (FMPC)** Pine/Cabbage palms

**(W) Wetlands**

**(WF) Forested fresh**

- (WFCM)** Cypress/Melaleuca
- (WFCY)** Cypress
- (WFWL)** Willow
- (WFME)** Melaleuca
- (WFSB)** Scrub and brushland
- (WFMX)** Mixed forested

**(WN) Non-forested fresh**

- (WNSG)** Sawgrass
- (WNCT)** Cattail
- (WNBR)** Bullrush
- (WNWC)** Wire cordgrass
- (WNAG)** Mixed aquatic grass
- (WNWL)** Sloughs

**(WS) Forested salt**

- (WSRM)** Red mangrove
- (WSBW)** Black and White mangrove

**(WM) Non-forested salt**

**(WX) Mixed forested and non-forested fresh**

**(WXPP) Pine and wet prairies**

**(WXCP) Cypress domes and wet prairies**

**(WXHM) Hardwood marsh**

**(H) Water**

**(B) Barren land**

**(BB) Beaches**

**(BP) Extractive**

(strip mines, quarries, and  
gravel pits)

**(BS) Spoil areas**

**(BL) Levees**

\* Documentation of major codes from "LAND USE, COVER AND FORMS CLASSIFICATION SYSTEM, A TECHNICAL MANUAL", Department of Transportation, State Topographic Office Remote Sensing Center, Kuyper, Becker and Shopmyer, February 1981

TABLE E-2; Extinction Depths Used in ET Preprocessing

Land Use Code	Extinction Depth (feet)	Land Use Code	Extinction Depth (feet)	Land Use Code	Extinction Depth (feet)
U	1.0	UOGC	1.0	FOCF	2.0
UR	1.0	UOPK	1.25	FM	2.40
URSL	1.0	UOCM	1.0	FMTW	6.0
URSM	1.0	UORV	1.25	FMCN	1.6
URSH	1.0	UOUD	1.0	FMCO	1.6
URMF	1.0	UOUN	1.25	FMPM	2.0
URMH	1.0	A	1.4	FMPO	3.0
UC	1.0	AC	1.65	FMTH	1.5
UCPL	1.0	ACSC	3.0	FMOF	2.0
UCSC	1.0	ACTC	1.0	FMCD	3.0
UCSS	1.0	ACRF	1.0	FMPC	2.0
UCCE	1.0	AP	2.5	W	2.25
UCMC	1.0	APIM	2.5	WF	3.35
UCHM	1.0	APUN	2.5	WFCM	5.0
UI	1.0	AM	2.25	WFCY	6.0
UIJK	1.0	AMCT	3.0	WFVL	1.0
UILT	1.0	AMTF	3.0	WFME	1.5
UIHV	1.0	AMSF	1.25	WFSB	1.5
US	1.0	AMOR	1.5	WFMX	2.5
USED	1.0	AF	1.0	WN	1.5
USMD	1.0	APFL	1.0	WNSG	2.5
USRL	1.0	AFDF	1.0	WNCT	2.5
USMF	1.0	AFFF	1.0	WNBR	1.0
USCF	1.0	AFHT	1.0	WNWC	1.0
USGF	1.0	APFY	1.0	WNAG	1.0
USSS	1.0	R	2.0	WNWL	1.0
UT	1.0	RG	2.0	WS	3.0
UTAP	1.0	RS	2.0	WSRM	3.0
UTAG	1.0	RSPP	2.0	WSBW	3.0
UTRR	1.0	RSSB	2.0	WM	1.25
UTPF	1.0	F	2.30	WX	4.0
UTEP	1.0	FE	2.65	WXPP	2.6
UTTL	1.0	FEFF	2.0	WXCP	4.5
UTHW	1.0	FESP	6.0	WXHM	4.6
UTWS	1.0	FECP	1.0	H	6.0
UTSP	1.0	FO	2.0	B	.50
UTSW	1.0	FOAP	1.0		
UTRS	1.0	FOBP	1.0		
UTQG	1.0	FOPA	1.5		
UO	1.10	FOSO	1.5		
UORC	1.0	FOOK	6.0		

**APPENDIX F**  
**WATER USE DATA**



## INTRODUCTION

Appendix F contains information on individual water use permits issued by the Water Use Division, Regulation Department of the South Florida Water Management District. This information was used to compile the agricultural and landscape irrigation withdrawal file used in the model.

The information is subdivided into three separate spreadsheets and contains water use permits issued through January 1990. The first spreadsheet contains information on the individual water use permits for agricultural and landscape water use within Collier County. The other two spreadsheets contain agricultural and landscape irrigation water use for the six to ten mile buffer zone within adjacent Lee and Hendry counties. A legend for these spreadsheets may be found on the following page.





**AN.ALL.** - Annual Permitted Allocation  
**ALL.UNT.** - Annual Allocation Units  
     01 - MGD  
     02 - MGN  
     03 - MGY  
     04 - AC-FT  
**MAXMO** - Maximum Monthly Permitted Allocation  
     01 - MGD  
     02 - MGN  
     03 - AC-FT  
**CO** - County Code (from permit number)  
**DATE ISS** - Date Permit Issued (mo/yr)  
**USE TYPE** - AG, IND, GLF, PWS, COM, REC  
**SRC** - Source (SW, GW, BOTH)  
**NO.WLS.** - Number of ACTIVE permitted wells  
**SWPMPs** - Number of Surface Water Pumps  
  
**DEVNO.** - Development Number (for projected uses only)  
**AQ.** - Aquifer  
     01 - Water Table  
     02 - Surficial (Semi-confined)  
     03 - Lower Tamiame  
     04 - Sandstone  
     05 - mid-Hawthorn  
     06 - lower Hawthorn  
     07 - Suwannee  
     08 - Floridan  
     09 - Biscayne  
**CROP TYPE** - Blaney-Criddle Code  
     11 - Alfalfa  
     12 - Avacado  
     13 - Citrus  
     14 - Grapes  
     15 - Turf  
     16 - Sugar Beet  
     20 - Pasture  
     51 - Dry Beans  
     52 - Green Beans  
     53 - Grain Corn  
     54 - Silage Corn  
     55 - Sweet Corn  
     56 - Melons  
     57 - Peas  
     58 - Potato  
     59 - Soybeans  
     60 - Tomato  
     61 - Small Vegetables  
     5 or 70 - Nursery  
**RAINST** - Rain Station Code Number  
     1 - NAPLES  
     2 - FT. MYERS  
     3 - WEST PALM BEACH  
     4 - STUART  
     5 - FT. LAUDERDALE  
     6 - KISSIMMEE  
     7 - MELBOURNE  
     8 - ORLANDO  
     9 - TITUSVILLE  
     10 - FELLSMERE  
     11 - FT. PIERCE  
     12 - OKEECHOBEE  
     13 - AVON PARK  
     14 - MOORE HAVEN  
     15 - LABELLE  
     16 - BELLE GLADE  
     17 - LOXAHATCHEE  
     18 - JUPITER  
     21 - TAMIAHI 4  
     22 - HOMESTEAD  
     23 - POMPANO BEACH  
     24 - INDIANTOWN  
     25 - HYPOLUXO  
     26 - BIG CYPRESS  
     27 - EVERGLADES  
     28 - HIALEAH  
     29 - LAKE PLACID  
     30 - MERRIT ISLAND  
     31 - VERO BEACH

LOS - Level of Service (leave blank)

STS - Status

- 01 - Existing
- 02 - Proposed
- 03 - Stand By/Backup
- 04 - To Be Plugged

DEPTH CODE - Datum for Elevations

- 01 - NGVD
- 02 - Land Surface

PMPINT - Depth to Pump Intake (Wells Only)

PUMP TYPE

- 01 - Centrifical (suction)
- 02 - Lift (turbine, jet, submersible)
- 03 - Unknown

PUMP CAP. - Capacity in GPM (SW & GW Facilities)

- 01 - Unknown

MTR? - Is use Metered by Volume or Power Consumption and Reported to the District?

- Y - Yes
- N - No

YPLNR - North Planar Coordinate

XPLNR - East Planar Coordinate

COLLIER COUNTY MODEL AREA WATER USE INFORMATION THROUGH 1/89

LINE 1 HEADINGS - Existing Water Use - Permit Information and Table 2 - Forecasted Agricultural Demand for Each Permit)

PERMIT NO.	AN. Aft.	ALL. *	MAX. UNT.	MO. MO.	DATE USE	SRC. NO.	SW	PMPS	OWNER	CROP TYPE	SOIL TYPE	RAIN ST	IRR ACRES	IRR EFF
1100003														

LINE 2+ HEADINGS - Existing Water Use - Facilities Information for Each Permit)

PERMIT NO.	FACILITY NUMBER	QUAD NO.	WELL DIA.	DPTH CODE	TD	CD	PMP INT	PUMP TYPE	PUMP CAP.	MTR?	XPLNR	YPLNR	SRC AQ	COMMENTS
1100003	116.14	03	42.75	02	11	8/87	AG	GW	2		BERRY GROVES		13	0.8 26 149 0.50
	1100003	190 01	02	175					250		352585	781673	GW	03
	1100003	190 01	02	175					250		352604	780947	GW	03
1100007	163.57	03	49.50	02	11	7/77	AG	GW	7		C. A. THOMAS		15	0.8 26 240 0.50
	1100007	191 01	02						300		391886	749868	GW	03
	1100007	191 01	02						300		390353	749919	GW	03
	1100007	191 01	02						300		391436	748807	GW	03
	1100007	191 01	02						300		391943	748299	GW	03
	1100007	191 01	02						300		392450	747837	GW	03
	1100007	191 01	02						300		391213	747722	GW	03
	1100007	191 01	02						300		390312	747128	GW	03
1100008	103.46	03	14.58	02	11	9/88	LAN	BOTH	2		B NAPLES BATH AND TENNIS CLUB		15	0.4 1 80 0.75
	1100008-1	217 01	4.00	02	75	40			200		246371	680131	GW	03
	1100008-2	217 01	2.00	02	75	40			400		247682	680330	GW	03
	1100008-SW1	217 01	4.00						650		246391	680267	SW	01
	1100008-SW2	217 01	4.00						320		245899	680106	SW	01
	1100008-SW3	217 01	4.00						320		246440	679715	SW	01
	1100008-SW4	217 01	2.50						57		247271	679821	SW	01
	1100008-SW5	217 01	3.00						120		247597	681053	SW	01
	1100008-SW6	217 01	3.00						150		247205	681113	SW	01
	1100008-SW7	217 01	3.00						150		246677	681148	SW	01
	1100008-SW8	217 01	4.00						320		245644	681610	SW	01
1100019	1100019-1	217 01	2.73	02	11	10/88	GLF	GW	1		HIGH POINT COUNTRY CLUB		15	0.4 1 15 0.75
			6.00	02	15	10			500		239027	673957	GW	01
1100020	94.70	03	65.7	02	11	6/79	LAN	BOTH	6		THE GLADES, INC.		15	0.4 1 245 0.50
	1100020-1	217 01	8.00	02	125				700		250157	651175	GW	03
	1100020-2	217 01	8.00	02	125				800		252544	652616	GW	03
	1100020-3	232 01	9.00	02	60	40			800		251409	650224	GW	03
	1100020-4	232 01	8.00	02	40				700		251385	650812	GW	01
	1100020-5	232 01	6.00	02	30				400		251449	651552	GW	01
	1100020-6	217 01	8.00	02					200		249509	652071	GW	01
1100024	1100024-1	190 03	47.38	02	11	4/87	AG	GW	10		IFAS/UNIVERSITY OF FLORIDA		20	0.8 19 115 0.50
	1100024-2	190 03	4.00	02	170	150			100		356488	773406	GW	01
	1100024	190 03	6.00	02	80	60			150		355330	773075	GW	01

1100024-3	190 01	8.00 02	100	60	02	650	353732	773903	GW 01				
1100024-4	190 03	8.00 02	100	60 60	02	500	356805	773723	GW 01				
1100024-5	190 01	6.00 02	97	60 55	02	150	355995	773402	GW 01				
1100024-6	190 01	6.00 02	93	60 55	02	150	354866	773899	GW 01				
1100024-7	190 02	10.00 02	100		03	700	354353	774676	GW 01				
1100024-8	190 02	10.00 02	100		03	700	354301	775874	GW 01				
1100024-9	190 02	6.00 02	100		03	150	353039	775153	GW 01				
1100024-10	190 02	6.00 02	100		03	150	353019	773302	GW 01				
1100027	4.34	15.8	02	11 1/78	AG	1	E. J. CURRY			61	0.8	1	20 0.50
1100027-1	204 01	6.00 02	43	24	03	1000	309795	739149	GW 01				
1100030	50.73	21.87	02	11 10/168	GLF	2	HOLE-IN-THE-WALL-GOLF-CLUB			15	0.4	1	120 0.75
1100030-1	217 01	8.00 02	65	60 20	02	520	240946	676453	GW 03				
1100030-1A	217 01	3.00 02	65	60 20	02	104	240492	675348	GW 03				
1100032	49.90	6.00	02	11 1/79	AG	3	THE PINE CO.			61	0.4	1	120 0.50
1100032-1	202 04	6.00				600	246421	702054	GW 01				
1100032-2	202 04	6.00				600	246346	704008	GW 01				
1100032-3	202 04	6.00				600	244369	704030	GW 01				
1100033	1050.00	632	02	11 5/78	AG	13	WILFORD J. PIPER			20	0.8	1	3480 0.50
1100033-1	203 01	6.00 02	90		03	250	284651	710858	GW 03	61	0.8	1	1000 0.50
1100033-2	203 01	6.00 02	90		03	250	285713	711181	GW 03				
1100033-3	203 01	6.00 02	90		03	70	289589	712379	GW 03				
1100033-4	203 03	6.00 02	90		01	150	289588	716271	GW 03				
1100033-5	203 03	6.00 02	90		03	150	294855	714926	GW 03				
1100033-6	203 03	6.00 02	90		03	150	291532	710107	GW 03				
1100033-7	203 01	6.00 02	90		03	70	290882	708753	GW 03				
1100033-8	203 03	6.00 02	90		03	150	292248	707843	GW 03				
1100033-9	203 03	6.00 02	90		03	150	279734	710806	GW 03				
1100033-10	203 01	6.00 02	90		03	150	276512	710033	GW 03				
1100033-11	203 03	6.00 02	90		03	150	280360	713652	GW 03				
1100033-12	203 03	6.00 02	90		03	150	280326	714985	GW 03				
1100033-13	203 03	6.00 02	90		03	150	282261	713690	GW 03				
1100034	84.72	8.00	02	11 11/78	AG	7	JOHN E. PRICE, JR.			61	0.8	26	240 0.50
1100034-1	206 01	8.00 02	1200			1200	392806	721115	GW 03				
1100034-2	206 01	8.00 02	1200			1200	394899	721149	GW 03				
1100034-3	206 01	8.00 02	1200			1200	391859	719914	GW 03				
1100034-4	206 01	8.00 02	1200			1200	393069	719772	GW 03				
1100034-5	206 01	8.00 02	1200			1200	394404	719770	GW 03				
1100034-6	206 01	8.00 02	1200			1200	395021	718815	GW 03				
1100034-7	206 01	8.00 02	1200			1200	379078	735748	GW 03				
1100035	344.6R	98.91	02	11 1/89	AG	19	JOHN E. PRICE, JR.			61	3.6	26	450 0.50
1100035-11	206 01	4.00 02	100			400	405012	709836	GW 03	13	3.6	26	175 0.50
1100035	206 03	6.00 02	100			600	393716	710624	GW 03				
1100035	206 01	6.00 02	100			600	394763	710615	GW 03				
1100035	206 01	6.00 02	100			600	397601	713205	GW 03				
1100035	206 01	6.00 02	100			600	399634	713269	GW 03				
1100035	206 01	6.00 02	100			600	387075	710046	GW 03				
1100035	206 01	6.00 02	100			600	386944	708086	GW 03				
1100035	206 01	8.00 02	100			1200	389324	711069	GW 03				

1100035	206 01	8.00 02	100	1200	390392	709977	GW	03				
1100035	206 01	8.00 02	100	1200	390547	711118	GW	03				
1100035	206 03	8.00 02	100	1200	390042	715673	GW	03				
1100035	206 03	8.00 02	100	1200	402545	699368	GW	03				
1100035	206 03	8.00 02	100	1200	397737	700909	GW	03				
1100035	206 03	8.00 02	100	1200	399927	701243	GW	03				
1100035	206 03	8.00 02	100	1200	400368	698685	GW	03				
1100035	206 03	8.00 02	100	1200	398111	698518	GW	03				
1100035	206 01	12.00 02	100	1200	398946	711411	GW	03				
1100035	206 01	12.00 02	100	1200	399689	712155	GW	03				
1100035	206 01	12.00 02	100	1200	397378	698547	GW	03				
1100036	136.52		11 5/78	AG	GW				13	0.8	26	365 0.85
1100036									15	0.8	26	253 0.50
1100036-7	172 01	8.00 02	102	350	347703	789943	GW	03				
1100036-8	172 01	8.00 02	102	350	349291	789967	GW	03				
1100036-9	172 01	8.00 02	102	350	350899	790007	GW	03				
1100036-10	172 01	8.00 02	102	350	351425	788503	GW	03				
1100036-1	190 01	8.00 02	102	350	348553	785891	GW	03				
1100036-2	190 01	8.00 02	102	350	350429	786130	GW	03				
1100036-3	190 01	8.00 02	102	350	351189	786697	GW	03				
1100036-4	190 01	8.00 02	102	350	349720	786605	GW	03				
1100036-5	190 01	8.00 02	102	350	347523	786569	GW	03				
1100036-6	190 01	8.00 02	102	350	347666	787318	GW	03				
1100036-11	190 02	8.00 02	200	350	347489	787687	GW	04				
1100037	51.80		11 5/78	AG	GW				13	0.8	26	40 0.85
1100037									15	0.8	26	198 0.50
1100037-1	224 01	8.00 02	83	800 N	526200	691470	GW	03				
1100037-2	224 01	8.00 02	103	800 N	526200	691470	GW	03				
1100037-3	224 01	8.00 02	83	800 N	526200	691470	GW	03				
1100037-4	224 02	8.00 02	100	800 N	526200	691470	GW	03				
1100037-5	224 02	8.00 02	100	800 N	526200	691470	GW	03				
1100039	545.54		11	AG	SW				20	0.4	1	280 0.50
1100039-SW1	203 03	68.10	02	11	AG	SW						
1100039-SW2	203 01											
1100039-SW3	203 03											
1100040	199.00		11 1/8	AG	GW				61	0.4	1	480 0.50
1100040-4-1	188 01	6.00 02	39	21	295185	759024	GW	01				
1100040-4-2	189 01	6.00 02	55	49	297166	759315	GW	01				
1100040-4-3	189 01	6.00 02	36	19	299208	758133	GW	01				
1100040-4-4	189 01	6.00 02	52	46	299636	758669	GW	01				
1100040-4-5	189 01	6.00 02	38	24	299444	757683	GW	01				
1100040-4-6	188 01	6.00 02	51	45	294780	754185	GW	01				
1100040-4-7	189 02	12.00 02	100	60	294720	754350	GW	03				
1100040-4-8	189 02	12.00 02	100	60	295450	754612	GW	03				
1100042			11 11/8	AG	GW				12	0.8	26	140 0.75
1100042									13	0.8	26	1880 0.75
1100042-1	206 01	8.00 02	80	22	409274	732985	GW	01				
1100042-2	206 01	8.00 02	80	22	408556	732966	GW	01				
1100042-3	206 01	8.00 02	80	22	407843	732999	GW	01				
1100042-4	206 01	8.00 02	290	190	408400	733050	GW	04				
1100042-5	206 01	16.00 02	90	39	409600	732000	GW	01				
DAVID C BROWN												
H. I. H. GROVES												
3 MULE PEN QUARRY CORP.												
SEE PERMIT #1100412 FOR WELL LOCATIONS												
ISABEL COLLIER READ												

1100042 6	206 01	8.00 02	75	45	03	1000 N	406400	732000	GW 01	
1100042-7	206 01	16.00 02	78	18	02	1500 N	409800	730800	GW 01	
1100042-8	206 01	5.00 02	80	20	03	500 N	408650	730700	GW 01	
1100042-9	206 01	6.00 02	300	197	03	800 N	407850	730700	GW 04	
1100042-10	206 01	8.00 02	300	200	03	1000 N	406200	730700	GW 01	
1100042-11	206 01	8.00 02	300	200	03	500 N	406200	731000	GW 04	
1100042-12	206 01	8.00 02	60	40	03	1000 N	404200	730600	GW 01	
1100042-13	206 01	8.00 02	290	240	03	800 N	404200	731000	GW 04	
1100042-14	206 01	8.00 02	65	50	03	600 N	401200	730600	GW 01	
1100042-15	206 01	16.00 02	79	32	02	1500 N	409600	729600	GW 01	
1100042-16	206 01	16.00 02	90	33	03	1000 N	409600	728400	GW 01	
1100042-17	206 01	14.00 02	90	33	03	1000 N	409600	727800	GW 01	
1100042-18	206 01	8.00 02	315	212	03	800 N	407900	728300	GW 04	
1100042-19	206 01	8.00 02	120	44	03	550 N	406500	728300	GW 03	
1100042-20	206 01	16.00 02	75	20	02	1500 N	411000	727000	GW 03	
1100042-21	206 01	16.00 02	74	20	02	1500 N	409600	727000	GW 03	
1100042-22	206 01	6.00 02	75	40	03	900 N	406500	727000	GW 03	
1100042-23	206 01	8.00 02	80	27	01	1000 N	409600	725300	GW 01	
1100042-24	206 01	8.00 02	300	200	03	500 N	409600	725600	GW 04	
1100042-25	206 01	8.00 02	300	200	03	500 N	408150	725600	GW 04	
1100042-26	206 01	6.00 02	200	100	03	500 N	405500	725600	GW 03	
1100042-F-1	206 01	10.00 02	90	33	03	1000 N	410150	731950	GW 01	
1100042-F-2	206 01	10.00 02	90	33	03	1000 N	410150	731400	GW 01	
1100042-F-3	206 01	10.00 02	90	33	03	1000 N	410400	730800	GW 01	
1100042-F-4	206 01	10.00 02	90	33	03	1000 N	410400	730000	GW 01	
1100042-F-5	206 01	10.00 02	90	33	03	1000 N	410400	729400	GW 01	
1100042-F-6	206 01	10.00 02	90	33	03	1000 N	410400	728600	GW 01	
1100042-F-7	206 01	13.00 02	45	28	02	1250 N	406900	732700	GW 01	
1100042-F-8	206 01	13.00 02	53	25	02	1250 N	407800	732700	GW 01	
1100042-F-9	206 01	13.00 02	53	34	02	1250 N	406800	732700	GW 01	
1100042-F-10	206 01	13.00 02	55	32	02	1250 N	409400	732700	GW 01	
1100042-F-11	206 01	13.00 02	46	39	02	1250 N	410100	732700	GW 01	
1100043	352.70	03	11	12/89	AG	BOTH	3	1	LELY DEVELOPMENT CORP.	
1100043-1	233 01	8.00 02	50	45	01	800	257509	640459	GW 01	
1100043-2	233 01	8.00 02	50	45	01	800	256696	640049	GW 01	
1100043-3	233 01	8.00 02	50	45	01	800	258071	639988	GW 01	
1100043-SW1	233 01			2	01	200	256110	639192	SW 01	
1100044	419.00	03	11	2/89	GLF	BOTH	10	4	LELY ESTATES, INC.	
1100044-1	233 02	10.00 02	30	20	02	500	272505	639466	GW 01	
1100044-2	233 02	10.00 02	30	20	02	500	270279	639941	GW 01	
1100044-3	233 02	10.00 02	30	20	02	500	269888	639645	GW 01	
1100044-4	233 02	10.00 02	30	20	02	500	267949	638413	GW 01	
1100044-5	233 02	10.00 02	30	20	02	500	267143	642218	GW 01	
1100044-6	233 02	10.00 02	30	20	02	500	269000	633374	GW 01	
1100044-7	233 02	10.00 02	30	20	02	500	270269	637085	GW 01	
1100044-8	233 02	10.00 02	30	20	02	500	266773	640367	GW 01	
1100044-9	233 02	10.00 02	30	20	02	500	272050	641555	GW 01	
1100044-10	233 02	10.00 02	30	20	02	500	265107	638148	GW 01	
1100044-SW1	233 02			20	02	2000	270039	639892	SW 01	
1100044-SW2	233 02			750	02	750	272287	639305	SW 01	
1100044-SW3	233 02			750	02	750	268106	638147	SW 01	
1100044-SW4	233 02			750	02	750	267551	642161	SW 01	
							61	0.4	1	62 0.50
							70	0.4	1	74 0.20
							15	0.4	1	324 0.75

1100045	95.60	03	85.60	02	11	7/78	GLF	SW	4	ROYAL POINCIANA GOLF CLUB	15	0.4	J	312	0.75
1100045-SW1	217 01	217 01					03	03	600	01 WITHDRAWALS FROM MAN-MADE LAKE					
1100045-SW2	217 01	217 01					03	03	600						
1100045-SW3	217 01	217 01					03	03	600						
1100045-SW4	217 01	217 01					03	03	400						
1100050			11.40	02	11	7/79	LAM	SW	2	US HOME CORP.					
1100050-SW3	232 01	232 01					03	03	460						
1100050-SW4	232 01	232 01					03	03	460						
1100052	603.00	03	111.9	02	11	6/89	LAM	GW	7	PELICAN BAY IMPROVEMENT DISTRICT	15	0.4	1	614	0.75
1100052-1	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-2	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-3	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-4	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-5	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-6	202 01	202 01	10.00	02	100	50	01	01	300						
1100052-7	202 01	202 01	10.00	02	100	50	01	01	350						
1100053	21.10	03	21.60	02	11	2/79	GLF	GW	1	RIVIERA GOLF CLUB	15	0.4	1	85	0.75
1100053-1	233 01	233 01	10.00	02	80	80	02	02	850						
1100054	8.69	03	10.40	02	11	7/78	GLF	GW	4	MOORING GOLF CLUB OF NAPLES	15	0.4	1	38	0.75
1100054-1	217 01	217 01	2.00	02	52		03	03	50						
1100054-2	217 01	217 01	2.00	02	31		03	03	50						
1100054-3	217 01	217 01	2.00	02	37		03	03	50						
1100054-4	217 01	217 01	4.00	02	45		03	03	350						
1100055			132.83	02	11	10/86	AG	GW	9	JACK W. JOHNSON JR.	60	0.8	2	540	0.50
1100055-1	189 03	189 03	8.00	02	60	40	21	01	1000						
1100055-2	189 01	189 01	8.00	02	60	40	22	01	1000						
1100055-3	189 01	189 01	8.00	02	60	40	21	01	1000						
1100055-4	189 01	189 01	8.00	02	60	40	22	01	1000						
1100055-5	189 01	189 01	10.00	02	60	40	22	01	1500						
1100055-6	189 01	189 01	10.00	02	60	40	22	01	1500						
1100055-7	189 01	189 01	8.00	02	60	40	22	01	1000						
1100055-8	189 01	189 01	10.00	02	60	40	21	01	1500						
1100055-9	189 02	189 02	10.00	02	60	40	22	01	1500						
1100056	34.86	03	8.00	02	11	7/78	AG	GW	7	E.L. JOHNSON, JR.	15	0.8	15	355	0.50
1100056-1	190 01	190 01	6.00	02	200				1200						
1100056-2	190 01	190 01	6.00	02	200				1200						
1100056-3	190 01	190 01	6.00	02	200				1200						
1100056-4	190 01	190 01	6.00	02	200				1200						
1100056-5	190 01	190 01	8.00	02	200				1200						
1100056-6	190 01	190 01	8.00	02	200				1200						
1100056-7	190 01	190 01	6.00	02	200				1200						
1100057	155.19	03	21.87	02	11	10/86	GLF	GW	3	WILDRESS COUNTRY CLUB	15	0.4	1	120	0.75
1100057-1	217 01	217 01	8.00	02	70		01	01	450						
1100057-2	217 01	217 01	8.00	02	70		01	01	450						
1100057-3	217 01	217 01	8.00	02	70		01	01	450						
1100058	222.60	03	68.10	02	11	1/82	GLF	BOTH	5	7 IMPERIAL GOLF CLUB INC.	15	0.8	1	260	0.50
1100058-1	202 01	202 01	3.00	02	65	63	03	03	200						
1100058-2	202 01	202 01	3.00	02	75	72	03	03	200						

PUMP #1-4 ARE @ PUMP STATION #1  
PUMPS #5-7 ARE @ PUMP STATION #2

1100056-3	202 01	3.00 02	80	78	03	200 03	245410	711796	GW	03	15	0.4	1	107	0.50
1100058-4	202 01	8.00 02	85	65	03	600 03	242716	711234	GW	03					
1100058-SW1	202 01				03	300	245660	712167	SW	01					
1100058-SW2	202 01				03	400	242841	711325	SW	01					
1100058-SW3	202 01				03	500	242841	711330	SW	01					
1100058-SW4	202 01				03	600	242841	711335	SW	01					
1100058-SW5	202 01				03	500	242841	711340	SW	01					
1100050-SW6	202 01				03	500	242841	711345	SW	01					
1100058-SW7	202 01				03	150	242841	711350	SW	01					
1100063	23.70	29.3	02	11 9/78	GLF BOTH	5	NAPLES GOLF AND BEACH CLUB								
1100063-1	217 01	4.00 02	80	78	03	750	236642	664269	GW	03					
1100063-2	217 01	6.00 02	80	78	03	750	236838	664494	GW	03					
1100063-3	217 01	6.00 02	80	78	03	750	236842	664510	GW	03					
1100063-4	217 01	6.00 02	80	78	03	750	236825	664605	GW	03					
1100063-5	217 01	8.00 02	80	78	03	750	236801	664809	GW	03					
1100063-SW1	217 01	8.00 02			03	1200	236981	664512	GW	03					
1100064	25.90	31.50	02	11 9/78	GLF BOTH	3	THE COUNTRY CLUB OF NAPLES								
1100064-1	217 01	8.00 02	81		03	1050	241722	680454	GW	03					
1100064-2	217 01	6.00 02	56		03	200	241919	680055	GW	03					
1100064-3	217 01	8.00 02	73		03	1050	242446	680508	GW	03					
1100067	3.26	5.70	02	11 9/78	AG	1	RAY SMITH								
1100067-1	233 01	6.00 02	40	40	03	600	261488	635560	GW	01	61	0.4	1	10	0.50
1100068	21.73			11 10/78	AG	3	CARROLL & RENEE ROLLINS								
1100068-1	190 01	6.00 02	240	190	03	250	352703	784959	GW	04	13	0.8	15	50	0.80
1100068-5	190 01	8.00 02	65		03	350	354109	785019	GW	03	13	0.8	15	50	0.50
1100068-6	190 02	6.00 02			03	350	352623	787419	GW	03					
1100069	116.00	173.0	02	11 10/78	AG	4	RAY SMITH								
1100069-1	218 01	8.00 02	140	40	03	1000	290842	673380	GW	03	60	0.4	1	200	0.50
1100069-2	218 01	8.00 02	140	40	03	1000	292642	674434	GW	03					
1100069-3	218 01	8.00 02	140	40	03	1000	292636	675042	GW	03					
1100069-4	218 01	8.00 02	140	40	03	1000	292674	675694	GW	03					
1100070	13.90	20.80	02	11 10/78	AG	2	MANATEE FRUIT CO.								
1100070-1	202 03	8.00 02			03	800	251972	703342	GW	03	60	0.4	1	24	0.50
1100070-2	202 01	8.00 02			03	800	252401	703408	GW	03					
1100071	135.00	181	02	11 11/78	AG	5	MANATEE FRUIT CO.								
1100071-1	202 01	10.00 02			03	1200	245952	697507	GW	03	60	0.4	1	233	0.50
1100071-2	202 01	8.00 02			03	1000	245060	697640	GW	03					
1100071-3	202 01	8.00 02			03	1000	242540	698862	GW	03					
1100071-4	217 01	8.00 02			03	1000	245665	695509	GW	03					
1100071-5	217 01	8.00 02			03	1000	244286	695098	GW	03					
1100072	20.60	7.58	02	11 10/78	AG	5	JAMES FRITCHEY								
1100072-1	233 01	8.00 02			03	1000	289437	623589	GW	01	61	0.4	1	30	0.50
1100072-2	233 02	8.00 02			03	1000	290332	622855	GW	01					
1100072-3	233 03	8.00 02			03	1000	289308	621859	GW	01					
1100072-4	233 03	8.00 02			03	1000	289501	624588	GW	01					
1100072-5	233 03	8.00 02			03	1000	288145	624573	GW	01					



1100073	20.40	03	11.40	02	30	11/78 REC GW	1	15	0.4	1	45 0.50
1100073	1100073-1	233 02	6.00	02	30	03	600	61	0.8	1	210 0.50
1100074	87.30	02	163	02	11	AG BOTH	9	61	0.4	1	400 0.50
		02 03	8.00	02	30	03	800	61	0.4	1	1200 0.50
		202 03	8.00	02	30	03	800				
		202 03	8.00	02	30	03	800				
		203 03	6.00	02	30	03	800				
		203 04	10.00	02	30	03	800				
		203 01	8.00	02	30	03	800				
		203 01	8.00	02	30	03	800				
		203 01	8.00	02	30	03	800				
		203 01	8.00	02	30	03	800				
		203 03	8.00	02	30	03	800				
		203 02	8.00	02	30	03	6000				
1100076	1337.42	02	8.87	02	11	AG GW	40	61	0.4	1	400 0.50
1100076		233 03	8.00	02	65	03	500	61	0.4	1	1200 0.50
		233 01	8.00	02	65	01	500				
		233 03	8.00	02	45	03	500				
		233 03	8.00	02	85	03	500				
		233 01	8.00	02	65	01	500				
		234 01	8.00	02	60	01	500				
		234 01	16.00	02	65	01	1400				
		234 03	8.00	02	60	03	500				
		234 03	8.00	02	65	03	500				
		234 01	16.00	02	45	01	1400				
		234 01	16.00	02	43	01	1400				
		234 03	8.00	02	80	03	500				
		234 03	8.00	02	85	03	500				
		234 01	8.00	02	65	01	2000				
		234 01	16.00	02	65	01	2000				
		234 03	8.00	02	86	03	500				
		234 03	8.00	02	85	03	500				
		234 03	8.00	02	45	03	500				
		233 01	8.00	02	85	03	500				
		234 03	8.00	02	90	03	500				
		234 01	10.00	02	95	01	500				
		234 01	16.00	02	95	01	800				
		234 01	16.00	02	31	01	2000				
		234 03	8.00	02	35	03	500				
		234 01	8.00	02	50	01	500				
		234 03	8.00	02	45	03	500				
		234 03	8.00	02	42	03	500				
		234 03	8.00	02	42	03	500				
		234 03	8.00	02	45	03	500				
		234 03	8.00	02	40	03	500				
		234 03	8.00	02	32	03	500				
		234 03	8.00	02	60	03	500				
		234 03	8.00	02	55	03	500				
		234 01	8.00	02	55	01	500				
		233 01	8.00	02	31	01	500				
		234 03	8.00	02	50	03	500				
		234 03	8.00	02	50	03	500				









1100112 1100112	2411.53	03	786.0	02	11	11/89	AG	GW	118	COLLIER ENT. (CMC FARMS INC.)	60	0.8	26	3165	0.50
											61	0.8	26	1501	0.50
1100111-22-1	205 03	8.00	02	72	43	33	03	800	368022	711612	GW	03			
1100111-22-4	205 03	6.00	02	66	32	32	01	600	367767	710624	GW	03			
1100111-22-5	205 03	6.00	02	64	33	33	01	600	363907	710273	GW	03			
1100111-22-6	205 04	8.00	02	75	23	23	03	800	363908	709187	GW	01			
1100111-22-7	205 03	8.00	02	58	34	34	03	600	366401	708094	GW	01			
1100111-22-8	205 03	8.00	02	53	48	48	03	800	364404	708226	GW	01			
1100111-23-1	205 04	8.00	02	67	23	23	03	800	369585	712407	GW	01			
1100111-23-2	205 03	6.00	02	44	27	27	03	600	370439	712461	GW	01			
1100111-23-3	205 03	6.00	02	12	12	12	03	600	373021	712312	GW	01			
1100111-23-4	205 03	6.00	02	41	28	28	03	600	371626	710943	GW	01			
1100111-23-5	205 03	10.00	02	21	19	19	03	1000	373729	709683	GW	01			
1100111-23-6	205 03	10.00	02	69	42	42	03	1000	373713	709038	GW	01			
1100111-23-7	205 03	6.00	02	62	39	39	03	600	373750	708533	GW	01			
1100111-23-8	205 03	8.00	02	61	39	39	03	800	373984	708312	GW	01			
1100111-27-1	205 01	13.00	02	28	26	26	03	1000	368694	706055	GW	01			
1100111-27-2	205 03	13.00	02	31	33	33	03	1000	365127	704032	GW	01			
1100111-27-3	205 03	13.00	02	36	33	33	03	1000	365159	702766	GW	01			
1100111-27-4	205 03	13.00	02	50	43	43	03	1000	364558	703205	GW	01			
1100111-25-6	205 01	8.00	02	54	38	38	01	800	374640	705155	GW	01			
1100111-25-2	206 03	9.00	02	48	36	36	01	900	377992	707154	GW	01			
1100111-25-4	205 03	8.00	02	47	34	34	03	800	374814	706487	GW	01			
1100111-25-3	205 03	9.00	02	140	110	110	03	900	374782	707173	GW	03			
1100111-25-5	205 03	9.00	02	52	39	39	03	800	375720	705464	GW	01			
1100111-25-1	205 01	9.00	02	48	36	36	01	900	377082	707338	GW	01			
1100111-25-7	205 03	8.00	02	47	28	28	01	800	375192	703148	GW	01			
1100111-24-1	205 03	8.00	02	50	41	41	03	800	375013	712367	GW	01			
1100111-35-3	205 03	8.00	02	46	22	22	03	800	373517	701777	GW	01			
1100111-35-4	205 03	8.00	02	45	21	21	03	800	372118	701137	GW	01			
1100111-35-5	205 03	8.00	02	46	23	23	03	800	373188	701218	GW	01			
1100111-35-A	205 01	10.00	02	85	40	40	01	1000	373396	700518	GW	03			
1100111-35-B	205 01	10.00	02	85	40	40	01	1000	373905	700084	GW	03			
1100111-35-6	205 03	8.00	02	45	22	22	01	800	373987	698421	GW	01			
1100111-36-1	205 03	8.00	02	46	24	24	01	800	376175	699140	GW	01			
1100111-34-1	205 01	10.00	02	100	80	80	01	1200	367336	699561	GW	03			
1100111-24-2	205 01	8.00	02	56	44	44	01	800	375766	708708	GW	01			
1100111-35-1	205 03	8.00	02	45	23	23	01	800	373167	702244	GW	01			
1100111-35-2	205 03	8.00	02	43	21	21	01	800	373868	702151	GW	01			
1100112-2-1	205 01	14.00	02	100	80	80	02	1400	337525	728322	GW	03			
1100112-2-2	205 03	9.00	02	75	50	50	03	900	337379	725939	GW	01			
1100112-2-3	205 03	9.00	02	67	48	48	03	900	337671	725172	GW	01			
1100112-2-4	205 01	14.00	02	100	80	80	02	1400	338674	726761	GW	03			
1100112-2-5	205 01	12.00	02	87	51	51	02	1200	340182	726412	GW	01			
1100112-2-6	205 01	12.00	02	76	45	45	02	1200	342161	726360	GW	01			
1100112-2-7	205 02	14.00	02	180	100	100	02	1400	342104	728203	GW	03			
1100112-2-8	205 02	14.00	02	180	100	100	02	1400	341107	724211	GW	03			
1100112-3-1	204 02	12.00	02	90	60	60	02	1200	335260	728168	GW	01			
1100112-3-2	204 03	9.00	02	99	53	53	03	900	335576	726836	GW	01			
1100112-3-3	204 03	9.00	02	78	51	51	03	900	335993	727543	GW	01			
1100112-3-4	204 03	8.00	02	45	31	31	03	800	332184	723837	GW	01			
1100112-3-5	204 03	8.00	02	31	25	25	03	800	333295	724587	GW	01			
1100112-3-6	204 01	12.00	02	85	60	60	02	1200	333368	724146	GW	01			
1100112-1-7	204 03	6.00	02	32	20	20	03	600	334092	724566	GW	01			
1100112-3-8	204 03	8.00	02	36	21	21	03	800	335334	724559	GW	01			

1100112-3-9	204 01	8.00 02	82	43 43 01	800	333524	723384	GW 01
1100112-3-10	204 01	8.00 02	78	39 39 01	800	334370	723635	GW 01
1100112-3-11	204 03	9.00 02	95	53 53 03	900	334967	724905	GW 03
1100112-3-12	204 02	14.00 02	180	100 100 02	1400	335728	726086	GW 03
1100112-3-12	204 02	14.00 02	180	100 100 02	1400	332915	722715	GW 01
1100112-10-1	204 01	8.00 02	93	44 44 01	800	332678	720717	GW 01
1100112-10-2	204 01	8.00 02	81	50 50 02	800	335828	722204	GW 01
1100112-10-3	204 03	6.00 02	26	21 21 03	600	334485	722709	GW 03
1100112-10-4	204 02	14.00 02	180	100 100 02	1400	338053	722686	GW 01
1100112-11-1	205 01	9.00 02	74	42 42 02	900	342109	722330	GW 01
1100112-11-2	205 01	9.00 02	60	39 39 01	900	342296	719361	GW 01
1100112-11-3	205 01	6.00 02	43	20 20 01	600	342024	718693	GW 01
1100112-11-3	205 03	6.00 02	33	20 20 03	600	341700	718114	GW 01
1100112-11-4	205 01	13.00 02	115	55 55 02	600	339685	722953	GW 03
1100112-11-5	205 02	14.00 02	180	100 100 02	1400	345645	717819	GW 01
1100112-11-6	205 02	14.00 02	43	23 23 03	800	345142	716744	GW 01
1100112-13-1	205 03	8.00 02	41	21 21 01	1200	346305	717070	GW 01
1100112-13-2	205 01	8.00 02	34	18 18 01	800	347597	713889	GW 01
1100112-13-3	205 01	8.00 02	85	45 45 01	800	347513	715292	GW 01
1100112-13-4	205 01	8.00 02	100	60 60 02	1200	340487	714800	GW 01
1100112-13-5	205 02	12.00 02	23	20 20 01	800	340023	714302	GW 01
1100112-14-1	205 01	8.00 02	24	18 18 01	600	340592	714283	GW 01
1100112-14-2	205 01	6.00 02	24	18 18 01	600	341112	713494	GW 01
1100112-14-3	205 01	9.00 02	39	20 20 01	900	341799	714464	GW 01
1100112-14-3	205 01	12.00 02	100	60 60 02	1200	340892	717662	GW 03
1100112-14-4	205 03	8.00 02	29	18 18 03	800	331861	717473	GW 01
1100112-14-6	205 02	14.00 02	180	100 100 02	1400	331956	716684	GW 01
1100112-15-1	204 01	8.00 02	45	21 21 01	800	332159	715749	GW 01
1100112-15-2	204 01	8.00 02	53	23 23 01	800	332173	714819	GW 01
1100112-15-3	204 01	8.00 02	97	43 43 01	800	332076	713338	GW 01
1100112-15-4	204 01	8.00 02	45	19 19 01	800	334200	712820	GW 03
1100112-15-4	204 01	8.00 02	89	40 40 01	800	335971	712825	GW 01
1100112-15-5	204 01	8.00 02	101	55 55 02	1200	334858	713697	GW 01
1100112-15-6	204 01	12.00 02	101	55 55 02	1200	332274	712323	GW 01
1100112-15-7	204 03	8.00 02	35	25 25 03	800	332307	711798	GW 03
1100112-15-8	204 02	14.00 02	100	60 60 02	1400	333412	712356	GW 01
1100112-15-8	204 03	9.00 02	43	25 25 03	900	333237	709998	GW 03
1100112-15-8	204 03	9.00 02	43	25 25 03	900	331987	707942	GW 01
1100112-22-1	204 03	9.00 02	43	25 25 03	900	334126	712492	GW 03
1100112-22-2	204 01	12.00 02	120	53 53 02	1200	334747	712468	GW 01
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1100112-22-4	204 01	12.00 02	115	60 60 02	1200	335607	707516	GW 01
1100112-22-5	204 03	8.00 02	43	21 21 03	800	334282	712343	GW 01
1100112-22-6	204 01	12.00 02	115	60 60 02	1200	334219	710637	GW 03
1100112-22-7	204 03	8.00 02	53	23 23 03	800	335239	710534	GW 03
1100112-22-8	204 01	12.00 02	115	60 60 02	1200	337617	712425	GW 03
1100112-22-9	204 03	10.00 02	72	43 43 03	1000	339090	712212	GW 01
1100112-22-10	204 03	9.00 02	69	38 38 03	900	339876	712304	GW 01
1100112-22-11	204 03	8.00 02	21	19 19 03	800	340297	711789	GW 01
1100112-22-12	204 02	14.00 02	100	100 100 02	1400	340929	712314	GW 01
1100112-22-13	204 03	14.00 02	180	100 100 02	1400	341654	712301	GW 01
1100112-23-1	205 02	10.00 02	95	53 53 03	1000	337475	708740	GW 01
1100112-23-2	205 03	6.00 02	43	22 22 03	600	337941	707504	GW 01
1100112-23-3	205 01	9.00 02	76	49 49 01	900			
1100112-23-4	205 01	12.00 02	106	60 60 01	1200			
1100112-23-5	205 01	10.00 02	98	57 57 02	1000			
1100112-23-6	205 01	10.00 02	81	19 19 01	1000			
1100112-23-7	205 03	6.00 02	22	19 19 03	600			
1100112-23-8	205 03	11.00 02	73	22 22 03	800			

1100084-1-5	205 01	8. 00						375290	727639	GW 01
1100084-1-7	206 01	12. 00						377223	724085	GW 01
1100084-1-9	206 01	8. 00						377217	725652	GW 01
1100084-1-11	206 01	12. 00						377548	727063	GW 01
1100084-3-1	205 01	12. 00						366579	726042	GW 01
1100084-3-2	205 01	12. 00						364746	726255	GW 01
1100084-3-3	205 01	12. 00						365303	727549	GW 01
1100084-3-4	205 01	12. 00						367257	728049	GW 01
1100084-10-1	205 01	12. 00						365045	720697	GW 01
1100084-10-3	205 01	12. 00						365185	723027	GW 01
1100084-10-5	205 01	12. 00						367360	720677	GW 01
1100084-10-6	205 01	12. 00						368121	723012	GW 01
1100084-11-1	205 01	12. 00						370416	719964	GW 01
1100084-11-2	205 01	12. 00						370505	721938	GW 01
1100084-11-3	205 01	12. 00						372802	722204	GW 01
1100084-11-5	205 01	12. 00						373410	720826	GW 01
1100084-12-1	205 01	12. 00						375303	719956	GW 01
1100084-12-3	205 01	12. 00						376154	721967	GW 01
1100084-12-5	205 01	12. 00						377151	720737	GW 01
1100084-12-7	205 01	12. 00						375880	722952	GW 01
1100084-13-2	206 01	12. 00						377390	716011	GW 01
1100084-13-3	205 01	12. 00						376188	716265	GW 01
1100084-13-4	205 01	8. 00						374559	715807	GW 01
1100084-13-5	205 01	8. 00						374902	718040	GW 01
1100084-13-6	206 01	8. 00						378772	715412	GW 01
1100084-14-1	205 01	12. 00						369557	717883	GW 01
1100084-14-3	205 01	12. 00						372096	717782	GW 01
1100084-14-4	205 01	12. 00						371820	715479	GW 01
1100084-14-5	205 01	12. 00						372793	715342	GW 01
1100084-15-1	205 01	12. 00						368561	714723	GW 01
1100084-15-3	205 01	12. 00						367538	713646	GW 01
1100084-15-6	205 01	12. 00						367650	715945	GW 01
1100084-15-7	205 01	12. 00						366534	718055	GW 01
1100084-34-4	205 01	12. 00						364699	733173	GW 01
1100084-34-5	205 01	12. 00						365776	731892	GW 01
1100084-34-7	205 01	12. 00						367361	731112	GW 01
1100084-34-8	205 01	12. 00						368675	731124	GW 01
1100084-34-9	205 01	12. 00						368295	733634	GW 01
1100084-34-2	205 01	12. 00						365750	729677	GW 01
1100084-41	205 03	12. 00	02	255	220			370232	738100	GW 04
1100084-28	205 03	12. 00	02	120	90			372783	738063	GW 03
1100084-42	205 03	8. 00	02	218	173			370260	736874	GW 03
1100084-29	205 03	8. 00	02	340	200			372762	736685	GW 04
1100084-30	205 03	8. 00	02	240	190			370088	735529	GW 04
1100084-44	205 03	8. 00	02	319	199			372944	735730	GW 04
1100084-31	205 02	8. 00	02	247	167			370056	732627	GW 04
1100084-33	205 02	8. 00	02	319	199			373255	734290	GW 04
1100084-45	205 03	12. 00	02	310	190			370056	732627	GW 04
1100084-47	205 02	8. 00	02	160	140			373058	733042	GW 03
1100084-32	205 02	8. 00	02	305	175			370067	729723	GW 04
1100084-46	205 02	8. 00	02	215	120			373360	729503	GW 03
1100084-53	205 02	8. 00	02	300	200			369991	731614	GW 04
1100084-63	206 02	8. 00	02	300	200			373046	731211	GW 04
1100084-54	205 02	8. 00	02	300	200			375726	733601	GW 04
								377993	733337	GW 04
								375676	731442	GW 04



1100084-64	206 02	8.00 02	300	200	02	800	377930	731705	GW 04
1100084-55	205 02	8.00 02	300	200	02	800	375728	729667	GW 04
1100084-65	206 02	8.00 02	300	200	02	800	377916	729749	GW 04
1100084-1	205 03	12.00 02	120	80	02	538	364753	732702	GW 03
1100084-14	205 03	12.00 02	120	60	02	580	367874	732888	GW 03
1100084-3	205 03	12.00 02	120	60	02	538	364757	729369	GW 01
1100084-16	205 03	12.00 02	120	80	02	580	368019	729490	GW 01
1100084-5	205 03	12.00 02	100	60	02	548	365130	726615	GW 01
1100084-18	205 03	12.00 02	120	80	02	647	367844	726935	GW 01
1100084-6	205 03	12.00 02	100	60	02	580	365106	725305	GW 01
1100084-19	205 03	12.00 02	100	80	02	494	367848	725557	GW 01
1100084-38	205 02	12.00 02	150	100	02	485	370444	716689	GW 03
1100084-62	205 02	12.00 02	150	100	02	485	375227	714630	GW 03
1100084-68	206 02	12.00 02	150	100	02	485	378445	724032	GW 03
1100084-40	205 02	12.00 02	150	100	02	485	370916	713878	GW 03
1100084-25	205 02	12.00 02	150	100	02	485	370234	720432	GW 03
1100084-73	206 02	12.00 02	150	100	02	509	378470	717668	GW 03
1100084-36	205 02	12.00 02	150	100	02	509	370091	718746	GW 03
1100084-20	205 02	12.00 02	150	100	02	530	367672	724288	GW 03
1100084-60	205 02	12.00 02	150	100	02	530	375160	720331	GW 03
1100084-71	206 02	12.00 02	150	100	02	384	378767	720081	GW 03
1100084-66	206 02	12.00 02	150	100	02	397	378090	728123	GW 03
1100084-72	206 02	12.00 02	150	100	02	432	377408	719063	GW 03
1100084-34	205 02	12.00 02	150	100	02	452	370237	722346	GW 03
1100084-37	205 02	12.00 02	150	100	02	452	370863	717800	GW 03
1100084-70	206 02	12.00 02	150	100	02	313	377303	721374	GW 03
1100084-48	205 02	12.00 02	150	100	02	331	373225	727991	GW 03
1100084-74	206 02	12.00 02	150	100	02	355	378367	716198	GW 03
1100084-17A	205 02	12.00 02	150	100	02	361	368027	728088	GW 03
1100084-17B	205 02	12.00 02	150	100	02	361	369350	728329	GW 03
1100084-7	205 02	12.00 02	100	60	02	591	365087	724119	GW 03
1100084-2	205 02	12.00 02	150	100	02	538	364866	730875	GW 03
1100084-75	206 02	12.00 02	150	100	02	548	378037	714189	GW 03
1100084-4	205 02	12.00 02	150	100	02	562	364837	727866	GW 03
1100084-50	205 02	12.00 02	150	100	02	562	372777	720994	GW 03
1100084-59	205 02	12.00 02	150	100	02	562	375732	722234	GW 03
1100084-58	205 02	12.00 02	150	100	02	562	375423	724175	GW 03
1100084-69	206 02	12.00 02	150	100	02	562	378618	722489	GW 03
1100084-9	205 02	12.00 02	150	100	02	562	364966	720458	GW 03
1100084-51	205 02	12.00 02	150	100	02	562	372921	718934	GW 03
1100084-12	205 02	12.00 02	150	100	02	562	365036	716051	GW 03
1100084-22	205 02	12.00 02	150	100	02	562	367939	720661	GW 03
1100084-10	205 02	12.00 02	150	100	02	562	365004	718872	GW 03
1100084-11	205 02	12.00 02	150	100	02	562	364937	717538	GW 03
1100084-24	205 02	12.00 02	150	100	02	562	367497	717567	GW 03
1100084-25	205 02	12.00 02	150	100	02	562	367557	716217	GW 03
1100084-23	205 02	12.00 02	150	100	02	562	367921	718939	GW 03
1100084-8	205 02	12.00 02	150	100	02	580	365120	722977	GW 03
1100084-21	205 02	12.00 02	150	100	02	580	367825	723074	GW 03
1100084-61	205 02	12.00 02	150	100	02	580	374353	716469	GW 03
1100084-15	205 02	12.00 02	150	100	02	580	367937	731189	GW 03
1100084-52	205 02	12.00 02	150	100	02	591	373243	714457	GW 03
1100084-67	206 02	12.00 02	150	100	02	591	378225	725691	GW 03
1100084-38	205 02	12.00 02	150	100	02	647	370444	716689	GW 03
1100084-49	205 02	12.00 02	150	100	02	647	372814	722636	GW 03
1100084-13	205 02	12.00 02	150	100	02	664	365122	714268	GW 03

1100084-26	205 02	12.00 02	150	100	02	664	367650	714313	GW 03								
1100084-57	205 02	12.00 02	150	100	02	664	375305	725926	GW 03								
1100084-56	205 02	12.00 02	150	100	02	674	375694	727995	GW 03								
1100085	32.90	03	11	12/78	AG	3	COLLIER DEVELOPMENT CORP.						61	0.4	1	70	0.50
1100085-1	233 01	8.00 02	40			800	257910	635259	GW 01								
1100085-2	233 03	8.00 02	40			800	257316	635110	GW 01								
1100085-3	233 04	8.00 02	40			800	256557	635216	GW 01								
1100086	26.10	03	11	12/78	AG	3	COLLIER DEVELOPMENT CORP.						61	0.4	1	75	0.50
1100086-24-1	232 01	9.00 02	26	19	01	800	253664	645777	GW 01								
1100086-24-2	232 01	8.00 02	23	20	01	800	251255	645722	GW 01								
1100086-24-3	232 01	8.00 02	25	18	01	800	250171	645722	GW 01								
1100087	7.60	03	11	12/78	AG	1	COLLIER DEVELOP. CORP. (LANDMARK)						60	0.4	1	35	0.50
1100087-1	202 01	8.00				1000	241753	699952	GW 01								
1100088	15.20	03	11	12/78	AG	1	WILLIAM LEINWEBER						13	0.8	1	70	0.50
1100088-4	190 01	6.00 02				500	351761	783790	GW 01								
1100089	78.60	03	11	5/83	AG	3	MARGUERITE R. COLLIER, TRUST						61	0.8	1	175	0.75
1100089-1	202 01	8.00			03	800	238435	703228	GW 01								
1100089-2	202 01	8.00			03	800	238815	703222	GW 01								
1100089-3	202 01	8.00			03	800	238361	701354	GW 01								
1100089-SW1	202 01				01	600	238435	703228	SW 01								
1100090	209.00	03	11	12/78	AG	8000	1 NEEV CORP (GULF COAST RAPIDS INC.)						60	0.4	1	320	0.50
1100090-SW1	233 01				SW		284466	629540	SW 01				(4-8" WEIPLS NOT IN USE)				
1100091	15.22	03	11	12/78	AG	1	R.A. BETHRA, JR.						13	0.8	15	70	0.50
1100091-3	190 01	6.0 02			GW	500	350660	784110	GW 01								
1100092	700.50	03	11	4/83	AG	6	1 EDITH COLLIER SPROOL, TRUST						61	0.4	1	600	0.50
1100092-1	217 03	8.00 02			03	800	250593	674516	GW 01								
1100092-2	217 04	8.00 02	60	40		800	249541	672450	GW 01								
1100092-3	217 04	8.00 02	80	52		800	250857	672508	GW 01								
1100092-4	217 03	8.00			03	800	250862	670132	GW 01								
1100092-5	217 03	8.00			03	800	248077	670435	GW 01								
1100092-6	217 03	8.00			03	800	248062	672443	GW 01								
1100092-SW1	217 01	18.00				10000	247587	667474	SW 01								
1100093	28.44	03	11	12/78	AG	2	TONY ROSEBOUGH						33	0.8	15	131	0.50
1100093-1	190 01	6.00 02			GW	500	348420	784663	GW 01								
1100093-2	190 01	6.00 02			GW	500	349206	784487	GW 01								
1100094	2774.00	03	11	1/87	AG	53	3 TURNER CORPORATION						13	1.5	15	2575	0.85
1100094-1	190 01	8.00 02	60	40		600	342000	783200	GW 01								
1100094-2	190 03	8.00 02	60	40		600	342100	783800	GW 01								
1100094-3	190 01	8.00 02	60	40		600	342150	784500	GW 01								
1100094-4	190 01	8.00 02	60	40		600	341600	785700	GW 01								
1100094-5	190 03	8.00 02	60	40		600	336040	786150	GW 01								
1100094-6	190 01	8.00 02	160	100		600	342150	785700	GW 03								
1100094-7	190 03	8.00 02	160	120		600	342150	785050	GW 03								
1100094-8	190 03	8.00 02	170	120		600	341532	786547	GW 03								
1100094-6A	190 01	8.00 02	260	140		600	342300	786200	GW 03								
1100094-7	190 03	8.00 02	60	40		600	343700	782400	GW 01								

1100094-8	190 01	8.00 02	80	50	600	343650	784550	GW 01	
1100094-9	190 01	8.00 02	215	138	1000	344000	784550	GW 03	
1100094-10	190 01	8.00 02	195	135	1000	344900	783500	GW 03	
1100094-11	190 01	8.00 02	300	250	600	346250	782700	GW 04	
1100094-3	190 01	8.00 02	60	40	600	347100	781100	GW 01	
1100094-4	190 01	8.00 02	60	40	600	343600	779700	GW 01	
1100094-5	190 03	8.00 02	60	40	600	342500	776600	GW 01	
1100094-7	190 01	8.00 02	195	135	1000	343700	777400	GW 03	
1100094-8	190 01	12.00 02	260	208	300	345700	777400	GW 04	
1100094-9	190 01	8.00 02	60	40	600	344800	780200	GW 01	
1100094-10	190 01	8.00 02	290	238	600	345950	780650	GW 04	
1100094-15	190 01	8.00 02	275	168	600	343800	778300	GW 04	
1100094-16	190 01	8.00 02	275	172	800	343900	777400	GW 04	
1100094-1	190 01	8.00 02	60	40	600	339600	777700	GW 01	
1100094-2	190 01	8.00 02	60	40	600	339600	780550	GW 01	
1100094-3	190 01	10.00 02	60	40	900	341900	779150	GW 01	
1100094-4	190 01	10.00 02	60	40	600	341900	780450	GW 01	
1100094-5	190 01	8.00 02	60	40	600	342000	781500	GW 01	
1100094-6	190 01	8.00 02	60	40	600	341950	777800	GW 01	
1100094-7	190 01	8.00 02	60	40	600	341950	776900	GW 01	
1100094-1	190 01	8.00 02	60	40	600	339650	772300	GW 01	
1100094-2	190 01	8.00 02	60	40	600	339600	776250	GW 01	
1100094-3	190 01	8.00 02	236	174	1000	339050	775050	GW 04	
1100094-4	190 01	8.00 02	185	180	1000	339700	773600	GW 04	
1100094-5	190 01	12.00 02	235	167	2000	338100	773600	GW 04	
1100094-6	190 01	8.00 02	60	40	600	342500	771700	GW 01	
1100094-1	190 01	8.00 02	60	40	600	343100	772100	GW 01	
1100094-2	190 01	8.00 02	60	40	600	346200	772550	GW 01	
1100094-3	190 01	8.00 02	60	40	600	346100	775200	GW 01	
1100094-4	190 01	8.00 02	60	40	600	343150	775500	GW 01	
1100094-5	190 01	8.00 02	60	40	600	343150	776200	GW 01	
1100094-6	190 01	8.00 02	60	40	600	342000	771000	GW 01	
1100094-1	190 01	8.00 02	60	40	600	341500	770900	GW 01	
1100094-2	190 01	8.00 02	275	172	800	343900	777400	GW 04	
1100094-8	190 01	10.00 02	275	240	650	339600	776600	GW 04	
1100094-9	190 01	10.00 02	270	235	650	339600	777800	GW 04	
1100094-10	190 01	10.00 02	260	223	650	339600	779150	GW 04	
1100094-11	190 01	10.00 02	260	220	650	339600	780650	GW 04	
1100094-9	190 01	10.00 02	260	220	700	339600	781800	GW 04	
1100094-10	190 02	10.00 02	260	220	600	339606	783299	GW 04	
1100094-11	190 02	10.00 02	260	220	600	339469	784577	GW 04	
1100094-12	190 02	10.00 02	260	220	600	339442	786029	GW 04	
1100094-SW1	190 01	10.00 02	260	220	2500	338000	772900	SW 01	
1100094-SW2	190 01	10.00 02	260	220	2500	338000	773200	SW 01	
1100094-SW3	190 01	10.00 02	260	220	6000	338000	776150	SW 01	
1100095	193.00	633.0	02	11	7/83	AG	DOTII	20	
1100095-18-1	233 01	16.00 02	50	03	4000	3 A. DUDA & SONS INC.	285203	618661	GW 01
1100095-18-2	233 03	8.00 02	50	03	1000	285162	618258	GW 01	
1100095-18-3	233 01	16.00 02	50	03	4000	286122	617991	GW 01	
1100095-18-4	233 01	16.00 02	50	03	4000	287153	617262	GW 01	
1100095-18-5	233 03	8.00 02	50	03	1000	286377	616596	GW 01	
1100095-18-6	233 01	16.00 02	50	03	4000	287999	616076	GW 01	
1100095-18-7	233 01	16.00 02	50	03	8000	288230	616058	SW 01	
1100095-18-8	233 03	8.00 02	50	03	1000	288426	615371	GW 01	

6t 0.4 1 825 0.50





1100113-9-3	189 01	8.00	03	800	330029	750799	GW	01
1100113-9-4	189 01	8.00	03	800	329687	750126	GW	01
1100113-9-5	189 01	16.00	03	800	330320	750293	GW	01
1100113-9-6	189 01	6.00	03	1600	330692	750253	GW	03
1100113-9-7	189 01	4.00	03	600	330952	749795	GW	01
1100113-9-8	189 01	8.00	03	400	330212	749810	GW	01
1100113-10-1	189 01	8.00	03	600	331773	750060	GW	01
1100113-15-1	189 01	6.00	03	600	331640	749297	GW	01
1100113-15-2	189 01	8.00	03	600	331581	748577	GW	01
1100113-15-3	189 01	8.00	03	800	331638	747265	GW	01
1100113-15-4	189 01	16.00	03	1600	332823	747410	GW	03
1100113-15-5	189 01	8.00	03	800	332001	745765	GW	03
1100113-15-6	189 01	16.00	03	1600	331637	745373	GW	03
1100113-15-7	189 01	8.00	03	800	334805	745801	GW	03
1100113-15-8	189 01	9.00	03	900	334425	745384	GW	03
1100113-15-9	189 01	8.00	03	800	335831	744708	GW	03
1100113-17-1	189 01	6.00	03	600	324211	748375	GW	03
1100113-17-2	189 01	8.00	03	800	325689	748142	GW	03
1100113-17-3	189 01	8.00	03	800	325801	747252	GW	03
1100113-17-4	189 01	6.00	03	600	324102	746479	GW	03
1100113-17-5	189 01	8.00	03	800	325751	746537	GW	03
1100113-17-6	189 01	8.00	03	800	325795	744756	GW	01
1100113-17-7	189 01	8.00	03	800	323972	744904	GW	01
1100113-18-1	189 01	6.00	03	600	315932	744500	GW	03
1100113-18-2	189 01	6.00	03	600	317993	744625	GW	03
1100113-18-3	189 01	6.00	03	600	318887	744749	GW	03
1100113-19-1	189 01	8.00	03	800	316675	743409	GW	03
1100113-19-2	189 01	8.00	03	800	317060	743082	GW	03
1100113-19-3	189 01	6.00	03	600	318669	743203	GW	03
1100113-19-4	189 01	8.00	03	800	316771	742564	GW	01
1100113-19-5	189 01	8.00	03	800	316113	742834	GW	01
1100113-19-6	204 01	8.00	03	800	316512	742137	GW	01
1100113-19-7	204 01	8.00	03	600	318531	741576	GW	01
1100113-19-8	204 01	6.00	03	600	319035	742170	GW	01
1100113-19-9	204 01	6.00	03	600	316566	741364	GW	03
1100113-19-10	204 01	8.00	03	800	315890	740103	GW	03
1100113-20-1	189 01	8.00	03	800	322571	744361	GW	03
1100113-20-2	189 01	9.00	03	900	323443	743857	GW	03
1100113-20-3	189 01	9.00	03	900	323305	743206	GW	03
1100113-20-4	189 01	6.00	03	600	324689	743118	GW	03
1100113-20-5	189 01	6.00	03	800	323303	742514	GW	01
1100113-21-1	189 01	8.00	03	800	330303	744110	GW	01
1100113-21-2	189 01	8.00	03	800	326124	743901	GW	01
1100113-21-3	189 01	9.00	03	800	330403	743421	GW	01
1100113-21-4	189 01	8.00	03	800	327244	743035	GW	01
1100113-21-5	189 01	8.00	03	800	326152	742553	GW	03
1100113-21-6	189 01	8.00	03	800	330235	742683	GW	03
1100113-21-7	204 01	8.00	03	800	329097	741805	GW	03
1100113-21-8	204 01	6.00	03	600	329733	741105	GW	03
1100113-21-9	204 01	6.00	03	600	329730	740504	GW	03
1100113-21-10	204 01	8.00	03	800	328261	739269	GW	03
1100113-21-11	204 01	8.00	03	800	327684	739252	GW	03
1100113-19-J	189 01	8.00	03	800	316675	743409	GW	03

3260.40 03 1380.0 02 11 1/79 AG GW 36 THE COLLIER CO. 62 0.8 1 2138 0.50  
28 0.8 1 1906 0.50

1100114  
1100114









1100123	3.25	03	3.14	02	11 9/84	AG	GW	2	PAUL J. KRUSE	13	0.4	1	15	0.75
1100123-1	219 02	219 02	8.00 02	100 80			01	1200	303524 683180 GW					
1100123-2	219 02	219 02	8.00 02	100 80			01	1200	303497 682545 GW					
1100125	190.40	03	50.70	02	11 1/85	AG	BOYF	3	ROYCE O. STALLING	61	0.4	1	60	0.50
1100125-1	217 01	217 01	8.00 02	45 40			02	800	249517 682981 GW	61	0.4	1	40	0.85
1100125-2	217 01	217 01	8.00 02	45 40			02	800	250765 682967 GW					
1100125-3	217 01	217 01	8.00 02	40 20			02	205	248364 681735 GW					
1100125-SW1	217 01	217 01	20.00				02	8000	248131 682218 SW					
1100125-SW2	217 01	217 01	20.00				02	8000	249447 681873 SW					
1100125-SW3	217 01	217 01	20.00				02	8000	250439 681935 SW					
1100126	13.03	03	51.90	02	11 3/79	AG	GW	2	D.T. FARMS INC.	60	0.4	1	60	0.50
1100126-1	218 03	218 03	8.00 02	45 45				1000	255711 695518 GW					
1100126-2	218 03	218 03	8.00 02	45 45				700	254854 695493 GW					
1100128	1415.0	01	11 9/81	AG	GW	25			ALICO	13	1.5	15	3455	0.50
1100128	189 01	189 01	8.00 02	32				600	318734 787715 GW					
1100128	189 01	189 01	9.00 02	30				600	319407 787660 GW					
1100128	189 01	189 01	9.00 02	44				600	320776 785500 GW					
1100128	189 01	189 01	6.00 02	28				600	318378 784756 GW					
1100128	189 01	189 01	9.00 02	41				600	318202 781523 GW					
1100128	189 01	189 01	6.00 02	45				600	334723 783071 GW					
1100128	189 01	189 01	6.00 02	45				500	333385 784507 GW					
1100128	189 01	189 01	6.00 02	55				500	334168 784656 GW					
1100128	189 01	189 01	6.00 02	55				500	332745 787685 GW					
1100128	189 01	189 01	6.00 02	30				500	329628 785595 GW					
1100128	189 01	189 01	6.00 02	90				500	331994 786998 GW					
1100128-14	171 01	171 01	8.00 02	190				650	334530 791410 GW					
1100128-15	171 01	171 01	8.00 02	190				650	335678 791091 GW					
1100128-1	171 01	171 01	6.00 02	60				500	336215 790122 GW					
1100128-2	171 01	171 01	6.00 02	150				500	336215 788608 GW					
1100128-3	171 01	171 01	10.00 02	196				1100	335974 788155 GW					
1100128-10	171 01	171 01	4.00 02	48				350	329939 788177 GW					
1100128-11	171 01	171 01	6.00 02	30				500	329495 789057 GW					
1100128-12	171 01	171 01	6.00 02	45				500	329382 788205 GW					
1100128-1	171 04	171 04	7.00 02	45				500	315806 790673 GW					
1100128-2	171 01	171 01	10.00 02	45				1100	319980 791368 GW					
1100128-3	171 01	171 01	9.00 02	39				600	322822 791611 GW					
1100128-4	171 01	171 01	9.00 02	38				600	321103 789453 GW					
1100128-5	171 01	171 01	9.00 02	46				600	322600 789637 GW					
1100128-6	171 01	171 01	9.00 02	33				600	323823 789630 GW					
1100129	10.85	03	4.82	02	11 3/79	AG	GW	1	RED CATTLE CO.	13	0.8	1	25	0.75
1100129-1	190 03	190 03	6.00 02	240				800	359196 758512 GW					
1100130	53.10	03	41.8	02	11 3/79	LAN	GW	1200	SHELTON CORP OF CANADA LTD.	15	0.4	1	150	0.75
1100130-SW1	217 01	217 01					03		247587 667474 SW					
1100131	85.80	03	82.30	02	11 3/79	LAN	GW	3	LELY ESTATES INC.	15	0.4	1	300	0.75
1100131-1	233 01	233 01	12.00 02	32			03	1200	256496 644394 GW					
1100131-2	233 01	233 01	10.00 02	18			03	900	257855 642358 GW					
1100131-3	233 01	233 01	6.00 02	17			03	300	260264 643109 GW					

1100135	387.93	03	93.34	02	11	12/87	AG	GW	13	LAKE TRAFFORD GROVE	13	0.4	26	333	0.85			
1100135												20	0.4	26	200	0.50		
1100135-1	205 01	205 01	6.00	02	110			01	800	359716	739215	GW	01					
1100135-2	205 01	205 01	10.00	02	110			01	1200	361030	739218	GW	01					
1100135-3	205 01	205 01	6.00	02	110			01	800	361615	739242	GW	01					
1100135-4	205 01	205 01	6.00	02	110			01	800	362271	739142	GW	01					
1100135-5	205 01	205 01	6.00	02	110			01	800	362352	737523	GW	01					
1100135-6	205 01	205 01	10.00	02	110			01	1200	362315	736726	GW	01					
1100135-7	205 01	205 01	10.00	02	110			01	1200	362350	734182	GW	01					
1100135-8	205 01	205 01	8.00	02	110			01	800	363388	734195	GW	01					
1100135-9	205 01	205 01	10.00	02	110			01	1200	359567	734265	GW	01					
1100135-10	205 01	205 01	10.00	02	46			01	550	362985	736704	GW	01					
1100135-11	205 01	205 01	10.00	02	46			01	550	363033	736347	GW	01					
1100135-12	205 01	205 01	12.00	02	200	120		01	1000	361251	736291	GW	03					
1100135-13	205 01	205 01	12.00	02	200	120		01	1000	360397	736596	GW	03					
1100136	8.47	03	5.91	02	11	3/79	AG	GW	2	ASEROW SEED CO.				60	0.4	1	23	0.50
1100136														15	0.4	1	1	0.50
1100136-1	203 01	203 01	8.00	02	179			03	450	269061	705434	GW	03					
1100136-2	203 01	203 01	8.00	02	184			03	450	269083	703533	GW	03					
1100138	35.50	03	21.10	02	11	5/79	GOLF	SW	500	2	GOLDEN GATE GOLF COURSE			15	0.4	1	77	0.75
1100138-SW1	218 01	218 01						03	500	272582	671487	SW	01					
1100138-SW2	218 01	218 01						03	500	274142	670117	SW	01					
1100140	18.25	03	47.50	02	11	5/79	AG	GW	2	HARRY C. McDONALD				13	0.8	26	84	0.50
1100140-1	190 01	190 01	6.00	02	120			02	600	353512	779223	GW	03					
1100140-2	190 01	190 01	8.00	02	120			02	600	353540	780012	GW	03					
1100143	30.58	03	10.35	02	11	10/89	AG	GW	5	T. SIMPSON (BIG ISLAND CURRIES)				13	0.4	1	57	0.85
1100143														70	0.4	1	4	0.20
1100143-1	204 04	204 04	6.00	02	130	20		01	500	314543	738710	GW	01					
1100143-2	204 04	204 04	6.00	02	130	20		01	500	315259	737043	GW	01					
1100143-3	204 04	204 04	6.00	02	160	20		01	500	313986	737007	GW	01					
1100143-4	204 01	204 01	12.00	02	160	133		02	700	314527	737741	GW	03					
1100143-5	204 01	204 01	12.00	02	160	133		02	700	315172	737717	GW	03					
1100144	214.59	03	49.0	02	11	3/84	AG	GW	3	DAN McALLISTER (DOUBLE DEARM)				63	0.4	1	200	0.50
1100144-3	233 01	233 01	0.00	02	40	20		01	400	266893	625425	GW	01					
1100144-4	233 01	233 01	8.00	02	45	25		01	600	266489	625078	GW	01					
1100144-5	233 02	233 02	8.00	02	60	30		01	350	266457	627798	GW	01					
1100145	47.40	03	13.70	02	11	3/80	EAN	SW	300	3	KINGS LAKE, LTD.			15	0.4	1	50	0.75
1100145-SW1	218 02	218 02						02	700	254888	651994	SW	01					
1100145-SW2	233 02	233 02						02	700	255421	651697	SW	01					
1100145-SW3	218 02	218 02						02	700	256153	652134	SW	01					
1100146			22.60	02	11	7/86	AG	GW	2	HARRY C. McDONALD				13	0.8	15	40	0.50
1100146-1	190 01	190 01	6.00	02	84			01	500	354736	784631	GW	01					
1100146-2	190 01	190 01	6.00	02	84			01	500	354638	783403	GW	01					
1100147			177.0	02	11	3/82	AG	GW	41	MILES SCOFIELD				13	4.8	26	648	0.85
1100147-29-1	192 01	192 01	6.00	02	61			03	600	420434	767462	GW	03					
1100147-28-1	192 01	192 01	6.00	02	84			03	600	426408	771287	GW	03					
1100147-28-2	192 01	192 01	6.00	02				03	600	424256	769126	SW	03					



1100152-2	203 03	8.00 02	48	03	600	258682	706578	GW	01	FROM NIMROY DRAINAGE OPERATION		
1100152-3	203 03	8.00 02	48	03	600	258585	708240	GW	01	VIA 30"X16' PLASIDGARD		
1100152-SW1	203 01			03	6000	260589	705739	SW	01	(HARPER BRGS. POT #1)		
1100157		164.0 02	11 9/79	AG	5	MANATBE FRUIT CO.			60	0.4	1	272 0.50
1100157-1	202 01	6.00 02		03	700	248698	702630	GW	03			
1100157-2	202 01	8.00 02	60	03	700	248074	697420	GW	03			
1100157-3	202 01	8.00 02	60	03	700	249128	697623	GW	03			
1100157-4	202 01	8.00 02		03	1000	247488	698677	GW	03			
1100157-5	217 01	8.00 02		03	700	248065	695654	GW	03			
1100158	1 175.2J	48.0 02	11 3/80	AG	5000	J KENT MANLEY (MANLEY FARMS)			61	0.4	1	260 0.50
1100158-SW1	218 01			01		258810	677946	SW	01			
1100164	423.00	415.0 02	11 11/79	AG	19	HARVEY BROTHERS FARMS			61	0.4	1	900 0.50
1100164-27-1	203 01	8.00 02	60	03	800	269101	702221	GW	03			
1100164-27-2	203 01	8.00 02	60	03	900	270355	702097	GW	03			
1100164-27-3	203 01	8.00 02	60	03	900	270372	704077	GW	03			
1100164-27-4	203 01	8.00 02	60	03	600	270488	704867	GW	03			
1100164-28-1	203 04	8.00 02	60	03	800	268809	704418	GW	03			
1100164-28-2	203 01	8.00 02	60	03	600	268825	705406	GW	03			
1100164-28-3	203 01	8.00 02	60	03	600	267831	705050	GW	03			
1100164-33-1	218 01	8.00 02	60	03	600	265268	694966	GW	03			
1100164-33-2	218 01	8.00 02	60	03	600	265424	696070	GW	03			
1100164-33-3	218 01	8.00 02	60	03	600	264141	696743	GW	03			
1100164-33-4	218 01	8.00 02	60	03	600	267866	695450	GW	03			
1100164-33-5	218 01	8.00 02	60	03	600	268072	697114	GW	03			
1100164-33-6	203 01	8.00 02	60	03	600	266356	697749	GW	03			
1100164-33-7	203 01	8.00 02	60	03	600	266625	698541	GW	03			
1100164-33-8	203 01	8.00 02	60	03	600	266395	699136	GW	03			
1100164-33-9	203 01	8.00 02	60	03	600	267710	699563	GW	03			
1100164-33-10	203 01	8.00 02	60	03	600	264492	700231	GW	03			
1100164-34-1	218 01	8.00 02	60	03	600	270907	695348	GW	03			
1100164-34-2	218 01	8.00 02	60	03	600	273156	695385	GW	03			
1100167	220.00	63.20 02	11 5/80	LAN BOTH	2	WYNDEMERE HOLDING INC.			15	0.4	1	232 0.75
1100167-1	218 01	8.00 02		03	650	258067	674467	GW	01			
1100167-2	218 01	8.00 02		03	650	257778	674284	GW	01			
1100167-SW1	218 01			03	750	257370	674237	SW	01			
1100167-SW2	218 01			03	750	257370	674237	SW	01			
1100170	21.99	3.09 02	11 12/89	LAN BOTH	2	CAN-AMERICAN NAPLES LTD.			15	0.4	1	17 0.75
1100170-1	217 01	4.00 02	65 60	01	400	248404	687571	GW	03			
1100170-2	217 01	6.00 02	65 60	01	600	250500	687599	GW	03			
1100170-SW1	217 01			01	1000	249481	687573	SW	01			
1100171	74.80	93.0 02	11 1/80	AG	8	DIANE WILLIAMS			61	0.8	2	120 0.75
1100171-1	202 01	6.00 02	30	03	600	250087	718724	GW	01			
1100171-2	202 01	6.00 02	30	03	600	249565	718631	GW	01			
1100171-3	202 01	6.00 02	30	03	600	249016	718685	GW	01			
1100171-4	202 01	6.00 02	30	03	600	248872	718152	GW	01			
1100171-5	202 01	6.00 02	30	03	600	248951	717874	GW	01			
1100171-6	202 01	6.00 02	30	03	600	249227	717239	GW	01			
1100171-7	202 01	6.00 02	30	03	600	247972	717284	GW	01			
1100171-8	202 01	6.00 02	72	03	600	248689	716861	GW	03			



1100199-1	217 01	H-00 02	11 2/81	LAN	BOTH	03	500	253284	687836	GW	01	15	0.4	1	44	0.75
1100200	85.38	193 02	11 2/81	LAN	BOTH	03	2	1	THE MOORINGS, INC.							
1100200-1	217 02	2.00 02	60	40	03	50	50	241268	681813	GW	03					
1100200-2	217 02	2.00 02	60	40	03	50	50	240561	679244	GW	03					
1100200-SW1	217 03				03	475		240866	681894	SW	01					
1100201	93.90	51.8 02	11 7/82	AG	GW	2	2	R. SMITS & SONS				13	0.4	1	120	0.50
1100201-1	233 01	8.00 02	60	55	03	600	600	281861	640641	GW	03					
1100201-2	233 01	8.00 02	60	55	03	600	600	283606	639157	GW	03					
1100203	23.90	19.8 02	11 3/81	AG	GW	1	1	DELBERT H. SANDERS				61	0.4	1	20	0.50
1100203-1	233 02	6.00			03	600	600	294835	642727	GW	01	20	0.4	1	15	0.50
1100206	58.44	8.70 02	11 3/80	LAN	GW	2	2	2	BAY FOREST HOMEOWNERS ASSOC.			15	0.8	1	50	0.75
1100206-1	202 01	8.00 02	35	25	01	800	800	230886	719134	GW	01					
1100206-2	202 01	8.00 02	35	25	01	800	800	230718	718507	GW	01					
1100206-SW1	202 01				01	200	200	231026	719162	SW	01					
1100206-SW2	202 01				01	200	200	230907	718638	SW	01					
1100207	19.50	32.7 02	11 8/81	AG	GW	2	2	J. & N FARMS				61	0.4	1	42	0.50
1100207-1	233 02	8.00 02	30	30	02	1300	1300	287135	619090	GW	01					
1100207-2	233 02	8.00 02	30	30	02	1300	1300	287667	617768	GW	01					
1100210	70.10	9.87 02	11 6/83	GW	BOTH	10	10	3	WHISPERING PINES(WINDSPAR)			15	0.4	1	54	0.75
1100210-1	232 02	4.00 02	45		01	80	80	246041	647580	GW	03					
1100210-2	232 02	4.00 02	45		01	80	80	246281	647569	GW	03					
1100210-3	232 02	4.00 02	45		01	80	80	246570	647560	GW	03					
1100210-4	232 02	4.00 02	45		01	80	80	246858	647560	GW	03					
1100210-5	232 02	4.00 02	45		01	80	80	247110	647560	GW	03					
1100210-6	232 02	4.00 02	45		01	80	80	246053	647208	GW	03					
1100210-7	232 02	4.00 02	45		01	80	80	246285	647192	GW	03					
1100210-8	232 02	4.00 02	45		01	80	80	246529	647176	GW	03					
1100210-9	232 02	4.00 02	45		01	80	80	246854	647176	GW	03					
1100210-10	232 02	4.00 02	45		01	80	80	247126	647176	GW	03					
1100210-SW1	232 02				01	750	750	244388	647205	SW	01					
1100210-SW2	232 02				01	750	750	244394	647205	SW	01					
1100210-SW3	232 02				01	500	500	244398	647205	SW	01					
1100214	152.00	130.0 02	11 12/81	AG	BOTH	10	10	2	CHRIS SNAPP			13	0.8	26	240	0.50
1100214-1	206 01	8.00 02	100		03	800	800	402343	715753	GW	03					
1100214-2	206 01	8.00 02	100		03	800	800	401697	715746	GW	03					
1100214-3	206 01	8.00 02	100		03	800	800	401100	716171	GW	03					
1100214-4	206 01	8.00 02	100		03	800	800	401118	717454	GW	03					
1100214-5	206 01	8.00 02	100		03	800	800	401856	717694	GW	03					
1100214-6	206 01	8.00 02	100		03	800	800	404221	717811	GW	03					
1100214-7	206 01	8.00 02	100		03	800	800	404565	717045	GW	03					
1100214-8	206 01	8.00 02	100		03	800	800	406302	717940	GW	03					
1100214-9	206 01	8.00 02	100		03	800	800	406299	718750	GW	03					
1100214-10	206 01	8.00 02	100		03	800	800	405085	718756	GW	03					
1100214-SW1	206 01				03	16000	16000	403458	716585	SW	01					
1100214-SW2	206 01				03	16000	16000	403807	716785	SW	01					
1100215	183 01	374.0 02	11 1/82	AG	GW	10	10	ESTATE OF BARKER COLLIER				61	0.8	1	402	0.50
1100215-S22	183 01	8.00			03	800	800	294451	757646	GW	01					

ALL SW PUMPS ARE LOCATED IN A SINGLE PUMPING FACILITY PERMIT MAY HAVE EXPIRED 6/86

1100215-523	188 01	8.00	11	3/87	AG	GW	B1	294446	758250	GW	01
1100215-524	188 01	8.00	72	44	01	1000	348438	722769	GW	01	
1100215-525	188 01	8.00	71	46	02	800	352903	722376	GW	01	
1100215-526	188 01	8.00	75	47	02	1000	351742	721394	GW	01	
1100215-527	188 01	8.00	59	42	03	500	351366	719858	GW	01	
1100215-528	188 01	8.00	68	44	02	900	351617	719067	GW	01	
1100215-529	188 01	9.00	76	55	03	1000	357152	723026	GW	01	
1100215-1	188 02	6.00	76	48	03	600	355944	721656	GW	01	
1100215-2	188 02	6.00	75	46	02	900	356715	721386	GW	01	
							356005	720670	GW	01	
							354495	718637	GW	01	
							359768	722822	GW	01	
							362787	723057	GW	01	
							361873	722499	GW	01	
							359895	721651	GW	01	
							361008	720862	GW	01	
							360143	720451	GW	01	
							359920	720100	GW	01	
							358823	719708	GW	01	
							363520	719665	GW	01	
							358071	718581	GW	01	
							361138	717903	GW	03	
							358706	715781	GW	01	
							360686	715851	GW	01	
							361154	715719	GW	03	
							359375	715131	GW	01	
							360196	715137	GW	01	
							362765	715126	GW	01	
							360251	714387	GW	01	
							361269	714436	GW	01	
							360931	714206	GW	03	
							361729	714236	GW	01	
							361751	714547	GW	01	
							353530	717678	GW	01	
							354099	717670	GW	01	
							354748	717625	GW	01	
							355422	717649	GW	01	
							355900	717600	GW	01	
							356668	717595	GW	01	
							357249	717599	GW	01	
							357798	717611	GW	01	
							358394	716998	GW	01	
							353408	716233	GW	01	
							354301	716246	GW	01	
							354846	716198	GW	01	

BARRON COLLIER CO. (SVR STRD SO) 12 0.4 19 975 0.50  
61 0.4 19 1846 0.50

1100216  
1100216



1100216-17-13	205 01	13.00 02	80	50	02	1300	355411	716250	GM	01
1100216-17-14	205 01	13.00 02	80	50	02	1300	356036	716189	GM	01
1100216-17-15	205 01	13.00 02	80	50	02	1300	356710	716224	GM	01
1100216-17-16	205 01	13.00 02	80	50	02	1300	357239	716196	GM	01
1100216-17-17	205 01	13.00 02	80	50	02	1300	357944	716179	GM	01
1100216-17-18	205 01	13.00 02	80	50	02	1300	353425	714846	GM	01
1100216-17-19	205 01	13.00 02	80	50	02	1300	354251	714820	GM	01
1100216-17-20	205 01	13.00 02	80	50	02	1300	354824	714852	GM	01
1100216-17-21	205 01	13.00 02	80	50	02	1300	355461	714847	GM	01
1100216-17-22	205 01	13.00 02	80	50	02	1300	356006	714855	GM	01
1100216-17-23	205 01	13.00 02	80	50	02	1300	356660	714890	GM	01
1100216-17-24	205 01	13.00 02	80	50	02	1300	357297	714898	GM	01
1100216-17-25	205 01	13.00 02	80	50	02	1300	357894	714857	GM	01
1100216-17-26	205 01	13.00 02	80	50	02	1300	358410	714124	GM	01
1100216-17-27	205 01	13.00 02	80	50	02	1300	353484	713523	GM	01
1100216-17-28	205 01	13.00 02	80	50	02	1300	354177	713470	GM	01
1100216-17-29	205 01	13.00 02	80	50	02	1300	354862	713457	GM	01
1100216-17-30	205 01	13.00 02	80	50	02	1300	355644	713471	GM	01
1100216-17-31	205 01	13.00 02	80	50	02	1300	356325	713534	GM	01
1100216-17-32	205 01	13.00 02	80	50	02	1300	357038	713501	GM	01
1100216-17-33	205 01	13.00 02	80	50	02	1300	357644	713513	GM	01
1100216-17-34	205 01	13.00 02	80	50	02	1300	358213	713500	GM	01
1100216-18-1A	205 04	9.00 02	67	42	03	900	351931	715478	GM	01
1100216-18-2A	205 01	8.00 02	71	45	02	800	348589	714909	GM	01
1100216-18-3A	205 01	8.00 02	69	42	01	800	349156	713559	GM	01
1100216-18-1	205 01	13.00 02	80	50	02	1380	351116	717468	GM	01
1100216-18-2	205 01	13.00 02	80	50	02	1380	351613	717456	GM	01
1100216-18-3	205 01	13.00 02	80	50	02	1380	352876	717587	GM	01
1100216-18-4	205 01	13.00 02	80	50	02	1380	351062	716117	GM	01
1100216-18-5	205 01	13.00 02	250	100	02	1200	351740	716101	GM	01
1100216-18-6	205 01	13.00 02	80	50	02	1380	352914	716196	GM	01
1100216-18-7	205 01	13.00 02	80	50	02	1380	350860	714780	GM	01
1100216-18-8	205 01	13.00 02	80	50	02	1380	351850	714785	GM	01
1100216-18-9	205 01	13.00 02	80	50	02	1380	352828	714738	GM	01
1100216-18-10	205 01	13.00 02	80	50	02	1380	350914	713426	GM	01
1100216-18-11	205 01	13.00 02	80	50	02	1380	351736	713399	GM	01
1100216-18-12	205 01	13.00 02	80	50	02	1380	352886	713415	GM	01

61 0.8 26 280 0.50

C. M. HEARTLAND

12 12

AG GW

03 03

14 0.4 1 12 0.75

2 MAPLES MEMORIAL GARDEN

600

LAN SW 03

3.13 02

202 01

1100220-1

202 01

ID	Property/Well	Area	Acres	Date	Value	Acres	Value	Acres	Value	Acres	Value	
1140221	1100221-1	121.28	03	34.14	02	11	3/82	LAN	GW	1200	1	US HOME CORPORATION(FOXFIRE) 255257 659603 GW 03 WITHDRAWAL FROM L. FAMIAMI TO RECHARGE LAKE SYSTEM
1100222	1100222-1	41.20	03	15.3	02	11	3/82	AG	BOTH	2	2	3 STALLMANN & SONS NURSERY 245640 685637 GW 03 246473 684999 GW 03 245517 685017 SW 01 245521 685009 SW 01 245538 684845 SW 01
1100223	1100223-3		01	302.0	02	11	3/84	AG	GW	7	7	THE COLLIER COMPANY 385030 687000 GW 01 385060 687000 GW 01 385090 687000 GW 01 385120 687000 GW 01 385150 687000 GW 01 385180 687000 GW 01 385210 687000 GW 01
1140224	1100224-1		01	15.0	02	11	4/82	LAN	BOTH	2	2	2 QUAIL RUN COUNTRY CLUB 245631 682226 GW 01 243458 682641 GW 01 245631 682226 SW 01 243462 682657 SW 01
1100233	1100233-1	2304.36	03	848.13	02	11	9/87	AG	GW	35	35	BARRON COLLIER SILVER SPRD DIV 364189 786355 GW 03 365869 786048 GW 03 367548 786275 GW 04 370309 786280 GW 03 370609 782450 GW 04 369180 783422 GW 03 366018 783609 GW 04 364556 783323 GW 03 366071 780892 GW 03 367156 780899 GW 04 368542 778705 GW 04 367441 777928 GW 04 364594 778259 GW 03 363246 777707 GW 04 364522 775198 GW 03 367844 775668 GW 04 367027 772686 GW 03 364892 772005 GW 03 361763 772504 GW 03 359066 772526 GW 03 361467 775160 GW 03 359204 776390 GW 03 358516 779558 GW 03 360922 779602 GW 03 362734 760586 GW 03 358096 781148 GW 04 358609 783906 GW 04 361287 783914 GW 03 361078 786241 GW 04



1100261-12	205 01	10.00	01	1000	360765	729048	GW	01
1100261-13	205 01	8.00	01	800	348921	727354	GW	01
1100261-14	205 01	8.00	01	800	349693	727185	GW	01
1100261-15	205 01	8.00	01	800	350562	727060	GW	01
1100261-16	205 03	6.00	02	87	351884	727802	GW	01
1100261-17	205 01	8.00	01	800	352511	727806	GW	01
1100261-18	205 03	8.00	02	85	352568	725490	GW	01
1100261-19	205 01	10.00	01	1000	354387	728244	GW	01
1100261-20	205 01	8.00	01	800	356374	728279	GW	01
1100261-21	205 01	8.00	02	100	357687	728048	GW	01
1100261-22	205 01	10.00	01	1000	354544	726997	GW	01
1100261-23	205 01	8.00	01	1000	355780	727398	GW	01
1100261-24	205 01	10.00	01	1000	357142	727367	GW	01
1100261-25	205 01	8.00	01	800	355451	726615	GW	01
1100261-26	205 03	8.00	02	83	356148	726691	GW	01
1100261-27	205 03	8.00	02	72	356706	726772	GW	01
1100261-28	205 03	9.00	02	80	353533	726097	GW	01
1100261-29	205 03	8.00	02	77	355692	725412	GW	01
1100261-30	205 01	9.00	01	900	355366	723679	GW	01
1100261-31	205 03	6.00	02	75	350366	727808	GW	01
1100261-32	205 01	8.00	01	800	358441	726910	GW	01
1100261-34	205 03	8.00	02	88	358422	725748	GW	01
1100261-35	205 01	8.00	01	800	360281	725758	GW	01
1100261-36	205 04	6.00	04	600	361956	725788	GW	01
1100261-37	205 01	10.00	01	1000	358775	724356	GW	01
1100261-38	205 01	8.00	01	800	359245	723865	GW	01
1100261-39	205 01	9.00	01	900	361966	724001	GW	01
1100261-40	205 01	9.00	01	900	362901	723711	GW	01
1100261-41	205 03	6.00	02	96	342828	721837	GW	01
1100261-42	205 01	9.00	01	900	343617	721793	GW	01
1100261-43	205 01	6.00	01	600	344991	722466	GW	01
1100261-44	205 01	10.00	01	1000	344724	720720	GW	01
1100261-45	205 01	6.00	01	600	344528	720133	GW	01
1100261-46	205 03	10.00	04	1000	345086	718207	GW	01
1100261-47	205 01	8.00	02	90	357128	738700	GW	01
1100261-48	205 01	6.00	02	200	357645	738168	GW	03
1100261-49	205 01	8.00	01	800	353555	737535	GW	01
1100261-50	205 01	9.00	02	47	355129	736648	GW	01
1100261-51	205 01	8.00	02	140	351204	738322	GW	01
1100261-52	205 03	9.00	02	45	351425	738292	GW	01
1100261-53	205 03	9.00	02	52	351835	737893	GW	01
1100261-54	205 01	6.00	02	102	349094	737076	GW	03
1100261-55	205 03	6.00	02	26	349063	736648	GW	01
1100261-56	205 03	9.00	02	78	350884	736978	GW	01
1100261-57	205 01	13.00	02	160	350878	736645	GW	03
1100261-58	205 03	9.00	02	93	351777	736135	GW	03
1100261-59	205 03	8.00	02	39	352039	735140	GW	01
1100261-60	205 01	8.00	02	140	351425	734278	GW	03
1100261-61	205 02	12.00	02	80	350226	732719	GW	01
1100261-62	205 02	12.00	02	80	349440	731125	GW	01
1100261-63	205 02	12.00	02	80	352112	731742	GW	01
1100261-64	205 02	12.00	02	80	353728	729994	GW	01
1100261-65	205 02	12.00	02	80	354966	730055	GW	01
1100261-66	205 02	12.00	02	80	356328	730007	GW	01
1100261-67	205 02	12.00	02	80	357401	729945	GW	01
1100261-68	205 02	12.00	02	80	356724	732625	GW	01

BURIED

BURIED

1100263-0	190 03	6.00 02	34	33	01	600	372331	748077	GW 01
1100263-9	190 03	6.00 02	37	36	01	600	372792	747228	GW 01
1100263-4	190 01	6.00 02			01	600	370236	750825	GW 01
1100263-5	190 03	6.00 02	19	19	01	600	371338	750228	GW 01
1100263-6	190 03	8.00 02	62	62	01	800	374130	749463	GW 01
1100263-1	190 03	6.00 02	43	39	01	600	369071	751446	GW 01
1100263-2	190 01	9.00 02	40	29	01	900	369395	750865	GW 01
1100263-3	190 01	9.00 02	39	28	01	900	369892	750509	GW 01
1100263-10	190 03	10.00 02	33	25	01	1000	373165	745786	GW 01
1100263-11	190 03	8.00 02	36	25	01	600	372315	745261	GW 01
1100263-12	190 03	6.00 02	28	25	01	600	371606	745305	GW 01
1100263-13	190 03	6.00 02	45	27	01	600	364993	747232	GW 01
1100263-14	190 03	6.00 02	33	25	01	600	367180	749804	GW 01
1100263-15	190 03	6.00 02	27	26	01	600	368265	748654	GW 01
1100263-16	190 03	6.00 02	36	33	01	600	368201	747340	GW 01
1100263-17	190 03	6.00 02	44	38	01	600	367645	746287	GW 01
1100263-18	190 01	8.00 02			01	800	373629	744492	GW 01
1100263-19	190 03	8.00 02	36	36	01	600	371919	742657	GW 01
1100263-20	190 01	8.00 02			01	800	373754	742729	GW 01
1100263-21	205 01	8.00 02	58	50	01	800	371227	741947	GW 01
1100263-22	205 01	6.00 02	52	48	01	600	371451	741416	GW 01
1100263-23	205 03	8.00 02			01	800	373007	740986	GW 01
1100263-24	205 03	10.00 02	52	41	01	1000	370741	739915	GW 01
1100263-25	205 01	8.00 02	50	49	01	800	367947	739044	GW 01
1100263-26	205 01	8.00 02	39	24	01	800	367290	738412	GW 01
1100263-27	205 03	8.00 02	28	27	01	800	366352	734793	GW 01
1100263-28	205 03	6.00 02	24	22	01	600	366933	734793	GW 01
1100263-29	190 01	8.00 02	35	34	01	800	365786	744304	GW 01
1100263-30	206 01	8.00 02	31	30	01	800	380767	740397	GW 01
1100263-31	206 01	8.00 02	41	44	01	800	383625	739892	GW 01
1100263-32	205 01	8.00 02	48	47	01	800	365236	741637	GW 01
1100263-33	205 01	8.00 02	41	40	01	800	368250	741954	GW 01
1100263-34	205 01	8.00 02	41	40	01	800	364988	740430	GW 01
1100263-35	205 01	8.00 02	76	60	01	800	367879	740287	GW 01
1100263-36	190 01	8.00 02			01	800	374563	744316	GW 01
1100263-37	190 01	10.00 02			01	900	375732	742429	GW 01
1100263-38	205 01	6.00 02	46	40	01	600	375093	741384	GW 01
1100263-39	206 03	8.00 02	200	200	01	800	378210	740969	GW 01
1100263-40	190 02	10.00 02	200	200	02	800	368065	748305	GW 03
1100263-41	190 02	10.00 02	200	200	02	800	371262	749081	GW 03
1100263-42	190 02	10.00 02	200	200	02	800	373295	748734	GW 03
1100263-43	190 02	10.00 02	200	200	02	800	373798	746069	GW 03
1100263-44	190 02	10.00 02	200	200	02	800	371446	745727	GW 03
1100263-45	190 02	10.00 02	200	200	02	800	368070	747227	GW 03
1100263-46	190 02	10.00 02	200	200	02	800	366151	746332	GW 03
1100263-47	190 02	10.00 02	200	200	02	800	365997	743758	GW 03
1100263-48	190 02	10.00 02	200	200	02	800	368165	743532	GW 03
1100263-49	190 02	10.00 02	200	200	02	800	370526	743546	GW 03
1100263-50	190 02	10.00 02	200	200	02	800	373387	743813	GW 03
1100263-51	190 02	10.00 02	200	200	02	800	375488	743161	GW 03
1100263-52	206 02	10.00 02	200	200	02	800	377710	741470	GW 03
1100263-53	206 02	10.00 02	200	200	02	800	378814	740515	GW 03
1100263-54	205 02	10.00 02	200	200	02	800	375842	740990	GW 03
1100263-55	205 02	10.00 02	200	200	02	800	373474	740944	GW 03
1100263-56	205 02	10.00 02	200	200	02	800	371047	741054	GW 03
1100263-57	205 02	10.00 02	200	200	02	800	369067	740874	GW 03





1100327	1100324-2A	189 02	10.00 02	250	150	02	1200	306127	745855	GW	04							
	1100324-2B	189 01	10.00 02	300	120	02	1200	305977	744684	GW	04							
	960.00	03	28.8	01	11	6/87	IND SW	2 WILLOW RUN EXCAVATION PIT										
	1100327-SW1	01					12000	SW 01 FACILITIES CONTAIN 2 SW PUMPS										
	1100327-SW2	02					8000	SW 01 WITHDRAWALS ARE FROM GW SOURCES										
1100328	2.59	03	.36	02	11	11/85	LAN GW	3 THE HAMLET CONDOMINIUM ASSOC										
	1100328-1	233 02	2.00 02	60	48	01	48	255295	646892	GW	03	15	0.4	1	2	0.75		
	1100328-2	233 02	2.00 02	60	48	01	48	255110	647114	GW	03							
	1100328-3	233 02	2.00 02	60	48	01	48	255029	647415	GW	03							
1100330	5.17	03	.72	02	11	11/85	LAN GW	1 COLLIER CO. SCHOOL BOARD										
	1100330-1	218 02	6.00 02	100	60	02	70	279818	689089	GW	03	15	0.4	1	4	0.75		
1100332	12.93	03	1.83	02	11	12/85	REC GW	1 NORTH MAPLES COMMUNITY PARK										
	1100332-1	202 02	6.00 02	40	30	01	90	242745	703726	GW	01	15	0.4	1	10	0.75		
1100333	12.93	03	1.83	02	11	12/85	REC GW	1 GOLDEN GATE PARK(COLLIER CO.)										
	1100333-1	218 02	6.00 02	40	25	01	90	264878	667583	GW	01	15	0.4	1	10	0.75		
1100335	4.17	03	1.53	02	11	12/85	AG GW	1 A. STOCKTON RENFROE										
	1100335-A	218 02	8.00 02	50	30	03	120	256466	690314	GW	01	70	1.5	1	8	0.20		
1100336	206.95	03	29.13	02	11	12/85	GLF GW	2 ROYAL PALM COUNTRY CLUB										
	1100336-2	233 01	10.00 02	18	17	03	700	260715	642344	GW	01	15	0.4	1	160	0.75		
	1100336-4	233 01	10.00 02	22	20	03	700	261587	645080	GW	01							
1100337	4.75	03	.54	02	11	12/85	AG GW	2 HOWARD MAYE										
	1100337-1	189 01	2.00 02	85		03	40	308783	743919	GW	03	15	0.8	1	8	0.75		
	1100337-2	189 02	6.00 02	80	60	03	400	309571	744436	GW	03	15	0.8	1	3	0.85		
1100344	25.77	03	4.71	02	11	2/86	AG SW	4 AL SZABO										
	1100344-SW1	202 01				03	190	236915	719876	SW	01	70	0.4	1	8	0.20		
	1100344-SW2	202 01				03	120	236923	719872	SW	01							
	1100344-SW3	202 01				03	35	236943	719908	SW	01							
	1100344-SW4	202 01				03	35	236951	719920	SW	01							
1100349	119.00	03	16.7	02	11	4/86	GLF BOTH	1 U.S. HOME CORP.(BERKSHIRE LK)										
	1100349-1	218 01	10.00 02	59	40	02	700	263406	659021	GW	03	15	0.4	1	92	0.75		
	1100349-SW1	218 02				03	1800	263406	659025	SW	01							
1100350	31.96	03	4.5	02	11	5/86	AG SW	7 LAKE LOUISE, INC.(LOCH LOUISE)										
	1100350-SW1	218 01				03	30	257131	653931	SW	01	15	0.4	1	28	0.85		
	1100350-SW2	218 01				03	30	257395	653962	SW	01							
	1100350-SW3	218 01				03	30	256913	653368	SW	01							
	1100350-SW4	218 01				03	30	257658	653369	SW	01							
	1100350-SW5	218 01				03	30	256953	652195	SW	01							
	1100350-SW6	218 01				03	30	257626	652205	SW	01							
	1100350-SW7	233 01				03	30	257214	651468	SW	01							
1100352	118.42	03	34.35	02	11	12/86	AG GW	5 JAMES D. HULL										
	1100352-1	204 01	6.00 02	80	60	40 01	700	304910	723617	GW	03	61	0.8	1	140	0.50		
	1100352-2	204 01	8.00 02	20	18	10 01	700	304299	726700	GW	01	56	0.8	1	60	0.50		





1100363-C7	190 01	12.00 02	235	140 40 02	800	371558	773603	GW	03
1100363-C8	190 01	12.00 02	180	120 50 02	800	372516	773715	GW	03
1100363-B4	190 01	12.00 02	180	120 50 02	600	369684	771796	GW	03
1100363-B5	190 01	12.00 02	206	140 50 02	800	371694	772108	GW	03
1100363-D1	190 02	12.00 02	287	212 40 02	800	375316	774961	GW	04
1100363-D2	190 02	12.00 02	250	210 100 02	600	381163	773821	GW	04
1100363-D3	190 02	12.00 02	250	200 100 02	600	375320	773751	GW	04
1100363-D4	191 01	12.00 02	250	220 100 02	600	382421	771960	GW	04
1100363-E5	190 01	12.00 02	210	180 100 02	600	376333	771748	GW	04
1100363-E1	190 01	12.00 02	210	190 100 02	600	372331	782231	GW	04
1100363-E2	190 01	12.00 02	210	180 100 02	600	372211	780865	GW	04
1100363-E3	190 01	12.00 02	210	140 100 02	600	374899	780813	GW	04
1100363-E4	190 01	12.00 02	210	190 100 02	600	372512	779471	GW	04
1100363-E5	190 01	12.00 02	210	180 100 02	600	375144	779455	GW	04
1100363-E6	190 01	12.00 02	210	180 100 02	600	373097	777584	GW	04
1100363-E7	190 01	12.00 02	210	180 100 02	600	375120	777665	GW	04
1100363-E8	190 01	12.00 02	270	205 138 02	600	377163	777665	GW	04
1100363-3-17	191 03	10.00 02	200	100 138 02	455	380348	775194	GW	03
1100363-3-21	191 03	10.00 02	200	100 138 02	455	382089	773406	GW	03
1100363-3-23	191 02	10.00 02	200	100 138 02	350	380871	771968	GW	03
1100363-3-24	191 02	10.00 02	200	100 138 02	350	383700	771452	GW	03
1100363-3-25	191 02	10.00 02	200	100 138 02	350	386934	771319	GW	03
1100363-3-27	191 02	10.00 02	200	100 138 02	370	382342	770422	GW	03
1100363-3-28	191 02	10.00 02	200	100 138 02	370	378041	758942	GW	03
1100363-3-30	191 02	10.00 02	200	100 138 02	335	383292	768572	GW	03
1100363-3-32	191 02	10.00 02	200	100 138 02	395	383735	766998	GW	03
1100363-3-33	191 02	10.00 02	200	100 138 02	395	386142	766807	GW	03
1100363-4-1	190 02	10.00 02	240	140 138 02	390	376796	769366	GW	04
1100363-4-2	190 02	10.00 02	240	140 138 02	390	376504	768636	GW	04
1100363-4-3	191 02	10.00 02	240	140 138 02	390	378561	769231	GW	04
1100363-4-4	191 02	10.00 02	240	140 138 02	510	379329	766367	GW	04
1100363-4-5	191 02	10.00 02	240	140 138 02	510	381627	766303	GW	04
1100363-4-6	190 02	10.00 02	240	140 138 02	380	376655	765578	GW	04
1100363-4-7	190 02	10.00 02	240	140 138 02	480	376733	764288	GW	04
1100363-4-8	191 02	10.00 02	240	140 138 02	400	380493	763694	GW	04
1100363-4-9	191 02	10.00 02	240	140 138 02	400	382152	763905	GW	04
1100363-4-10	191 02	10.00 02	240	140 138 02	400	383655	764140	GW	04
1100363-4-11	191 02	10.00 02	240	140 138 02	520	377478	763312	GW	04
1100363-4-12	190 02	10.00 02	240	140 138 02	310	379366	762869	GW	04
1100363-4-13	191 02	10.00 02	240	140 138 02	310	376317	763205	GW	04
1100363-4-14	191 02	10.00 02	240	140 138 02	350	380524	762649	GW	04
1100363-4-15	191 02	10.00 02	240	140 138 02	350	382665	762596	GW	04
1100363-4-16	191 02	10.00 02	240	140 138 02	350	383844	762813	GW	04
1100363-4-17	190 02	10.00 02	240	140 138 02	310	371392	761397	GW	04
1100363-4-18	190 02	10.00 02	240	140 138 02	310	373472	761596	GW	04
1100363-4-19	190 02	10.00 02	240	140 138 02	185	376234	761758	GW	04
1100363-4-20	191 02	10.00 02	240	140 138 02	455	383877	761544	GW	04
1100363-4-21	190 02	10.00 02	240	140 138 02	455	370672	760307	GW	04
1100363-4-22	190 02	10.00 02	240	140 138 02	350	373361	760157	GW	04
1100363-4-23	191 02	10.00 02	240	140 138 02	330	379335	761024	GW	04
1100363-4-24	191 02	10.00 02	240	140 138 02	520	384024	760057	GW	04
1100363-4-25	190 02	10.00 02	240	140 138 02	400	371904	758813	GW	04
1100363-4-26	191 02	10.00 02	240	140 138 02	390	378041	758942	GW	04
1100363-4-27	191 02	10.00 02	240	140 138 02	410	381733	758624	GW	04
1100363-4-28	191 02	10.00 02	240	140 138 02	410	384021	758732	GW	04

1100365 61 0.8 1 3744 0.75

Parcel	APN	Area	Units	Value	Price	Acres	AG	GW	Location
1100365-1	205 01	12.00	02	11 9/86	63	02	AG	GW	PACIFIC LAND CO. (SOUTH RANCH)
1100365-2	205 01	12.00	02	100	80	02	AG	GW	348065 707474 GW 03
1100365-3	205 01	8.00	02	70	50	02	AG	GW	350672 709812 GW 03
1100365-4	205 01	8.00	02	80	60	02	AG	GW	352353 712498 GW 01
1100365-5	205 01	12.00	02	95	70	02	AG	GW	353325 712398 GW 01
1100365-6	205 01	8.00	02	80	60	02	AG	GW	353254 711289 GW 01
1100365-7	205 01	12.00	02	87	44	02	AG	GW	353318 710011 GW 01
1100365-8	205 01	12.00	02	90	60	02	AG	GW	348055 703568 GW 01
1100365-9	205 01	12.00	02	104	60	02	AG	GW	349497 702909 GW 01
1100365-10	205 01	12.00	02	60	40	02	AG	GW	350613 702093 GW 01
1100365-11	205 01	12.00	02	85	60	02	AG	GW	350525 703223 GW 01
1100365-12	205 01	12.00	02	160	140	02	AG	GW	353140 703783 GW 01
1100365-13	205 01	12.00	02	118	87	02	AG	GW	352680 701999 GW 03
1100365-14	205 01	8.00	02	60	40	02	AG	GW	353731 702384 GW 03
1100365-15	205 01	8.00	02	60	40	02	AG	GW	353803 712567 GW 03
1100365-16	205 01	8.00	02	70	40	02	AG	GW	356275 712583 GW 01
1100365-17	205 01	8.00	02	90	70	02	AG	GW	357561 712602 GW 01
1100365-18	205 01	8.00	02	60	40	02	AG	GW	358606 712611 GW 03
1100365-19	205 01	8.00	02	75	50	02	AG	GW	360013 712670 GW 01
1100365-20	205 01	8.00	02	77	62	02	AG	GW	363074 712762 GW 01
1100365-21	205 01	8.00	02	60	40	02	AG	GW	363361 711414 GW 01
1100365-22	205 01	12.00	02	90	60	02	AG	GW	358405 709484 GW 03
1100365-23	205 01	8.00	02	80	60	02	AG	GW	356010 710017 GW 03
1100365-24	205 01	12.00	02	200	120	02	AG	GW	350724 703682 GW 03
1100365-25	205 01	12.00	02	200	120	02	AG	GW	358849 702723 GW 03
1100365-26	205 02	12.00	02	60	40	03	AG	GW	359572 701765 GW 01
1100365-27	205 01	12.00	02	115	44	02	AG	GW	363922 702241 GW 01
1100365-28	205 01	12.00	02	115	44	02	AG	GW	363919 700074 GW 01
1100365-29	205 03	8.00	02	60	40	03	AG	GW	364703 702248 GW 01
1100365-30	205 03	8.00	02	60	40	03	AG	GW	359031 703779 GW 01
1100365-31S	205 03	8.00	02	55	40	03	AG	GW	363519 700189 GW 01
1100365-32S	205 04	8.00	02	60	40	03	AG	GW	352754 702291 GW 01
1100365-33S	205 04	8.00	02	60	40	03	AG	GW	351840 702209 GW 01
1100365-34S	205 03	8.00	02	70	50	03	AG	GW	349151 704486 GW 01
1100365-35S	205 04	8.00	02	70	45	03	AG	GW	358519 710954 GW 01
1100365-36S	205 04	8.00	02	70	45	03	AG	GW	362256 712723 GW 01
1100365-38	205 02	12.00	02	150	80	02	AG	GW	358497 711747 GW 03
1100365-39	205 02	12.00	02	150	80	02	AG	GW	356129 711670 GW 03
1100365-40	205 02	12.00	02	150	80	02	AG	GW	350236 707383 GW 03
1100365-41	205 02	12.00	02	150	80	02	AG	GW	349894 704798 GW 03
1100365-42	205 02	12.00	02	150	80	02	AG	GW	363185 705307 GW 03
1100365-43	205 02	12.00	02	150	80	02	AG	GW	363075 703857 GW 03
1100365-44	205 02	12.00	02	150	80	02	AG	GW	361864 698201 GW 03
1100365-45	205 02	12.00	02	150	80	02	AG	GW	363206 698244 GW 03
1100365-46	205 02	12.00	02	150	80	02	AG	GW	359464 712662 GW 03
1100367	318.00	1.36	02	11 9/86	80	35	AG	GW	RTCHARD SHAW(S-R PARM)
1100367-1	204 02	6.00	02	110	80	01	AG	GW	304634 739161 GW 03
1100369	3.88	.57	02	11 10/86	32	03	LAN	GW	MEADOWOOD CLUB APARTMENT
1100369-1	218 02	2.00	02	40	32	03	AG	GW	271294 674056 GW 03
1100369-2	218 02	2.00	02	40	32	03	AG	GW	272012 676054 GW 03
1100369-3	218 02	2.00	02	40	32	03	AG	GW	273014 676279 GW 03
1100369-4	218 02	2.00	02	40	32	03	AG	GW	273050 674042 GW 03

61 0.8 1 3744 0.75







1100415	49.43	03	6.96	02	11	9-87	LAN BOTH	1	4	LONE OAK, LTD.	15	0.4	1	37	0.75
1100415											20	0.4	1	1	0.75
1100415		217	01	6.00	02			01	150	249467	690189	GW	01		
1100415-SW1		217	02					01	300	249326	688960	SW	01		
1100415-SW2		217	02					01	300	250729	689047	SW	01		
1100415-SW3		217	02					01	300	250699	690339	SW	01		
1100415-SW4		217	02					01	300	249542	690733	SW	01		
1100416	80.92	03	02	02	11	9-88	AG GW	2	2	NORTHROP KING CO.	61	0.4	1	58	0.50
1100416-2A		233	01	8.00	02	70	40	40	1200	286514	624628	GW	01		
1100416-2B		233	02	8.00	02	70	40	40	1000	287134	624645	GW	01		
1100419	158.78	03	0.6525	01	11	9-87	PWS GW	2	2	ORANGE TREE ASSOC.					
1100419-1		204	02	12.00	02	180	70	60	500	308907	712671	GW	03		
1100419-2		204	02	12.00	02	180	70	60	500	307954	713652	GW	03		
1100420	34.07	03	22.92	02	11	9-87	LAN SW	2	8	LONGSHORE LAKES JOINT VENTURE	15	0.8	1	30	0.75
1100420-1		203	02					02	400	261398	709247	SW	01		
1100420-2		203	02					02	200	261398	709252	SW	01		
1100420-3		203	02					02	500	263568	710864	SW	01		
1100420-4		203	02					02	200	263568	710869	SW	01		
1100420-5		203	02					02	400	263455	707317	SW	01		
1100420-6		203	02					02	200	263455	707322	SW	01		
1100420-7		203	02					02	300	261587	705835	SW	01		
1100420-8		203	02					02	200	261587	705840	SW	01		
1100422	29.75	03	4.41	02	11	10-87	LAN SW	1	1	JOSEPH D. BONNESS, JR., TRUSTEE	15	0.4	1	23	0.75
1100422-1		217	02					01	275	248291	692602	SW	01	(WINDRL FR ON-SITE LAKE)	
1100423	124.40	03	17.52	02	11	1-89	GLF BOTH	1	3	ELBA DEVELOPMENT CORP.	15	0.4	1	96	0.75
1100423-1		233	02	12.00	02	40		02	650	263059	647814	GW	01		
1100423-SW1		233	02					02	500	262156	646736	SW	01		
1100423-SW2		233	02					02	500	263913	647385	SW	01		
1100423-SW3		233	02					02	250	262551	648678	SW	01		
1100424	7.88	03	0.864	02	11	10-87	IND GW	1	1	CENTRAL NAPLES TEXACO RECOVERY WELL FOR UST					
1100424-1		217	01	8.00	02	21	20	03	25	238808	663209	GW	01		
1100428	3900.00	03			11	1-88	IND GW	14	14	LONGSHORE LAKE JOINT-VENTURE					
1100428-SW1		203	01					01	5000	263289	710680	SW	01		
1100428-SW2		203	01					01	5000	262941	710686	SW	01		
1100428-SW3		203	01					01	5000	261715	710570	SW	01		
1100428-SW4		203	01					01	5000	263150	709706	SW	01		
1100428-SW5		203	01					01	5000	261782	710009	SW	01		
1100428-SW6		203	01					01	5000	261430	710210	SW	01		
1100428-SW7		203	01					01	5000	262268	708613	SW	01		
1100428-SW8		203	01					01	5000	262329	708167	SW	01		
1100428-SW9		203	01					01	5000	261860	708599	SW	01		
1100428-SW10		203	01					01	5000	261880	708115	SW	01		
1100428-SW11		203	01					01	5000	261980	707617	SW	01		







1100536	12.00	03	4.38	02	11	4-89	AG	GW	1											
1100536-1	203	02	8.00	02	105	100		01	600	RANDY RINER		13	0.8	1	26	0.85				
1100546	0.34	03	.84	02	11	5-89	AG	GW	1			70	0.4	1	17	0.20				
1100546-1	233	01	2.00	02	27	24		01	70	GARY CARLO										
1100547	381.20	03	67.2	02	11	6-89	AG	BOTH	12	2 R.S. & SONS FARMS		61	0.4	1	30	0.85				
1100547-1	204	01	8.00	02	75	70		03	1000	331570 713235 GW 03		61	0.4	1	35	0.50				
1100547-2	204	01	8.00	02	52			03	600	330966 713243 GW 01										
1100547-3	204	01	10.00	02	90	70		03	600	331735 713890 GW 03										
1100547-4	204	01	10.00	02	90	70		03	600	329166 714691 GW 03										
1100547-5	204	01	8.00	02	75	70		03	600	331711 714563 GW 03										
1100547-6	204	01	10.00	02	90	70		01	600	331715 715232 GW 03										
1100547-7	204	01	10.00	02	90	70		01	600	328231 716805 GW 03										
1100547-8	204	01	10.00	02	90	70		03	600	327591 716905 GW 03										
1100547-9	204	01	10.00	02	90	70		01	600	330831 717862 GW 03										
1100547-10	204	02	10.00	02	90	70		02	1760	328457 717607 GW 03										
1100547-11	204	02	10.00	02	90	70		02	1760	327982 717717 GW 03										
1100547-12	204	02	10.00	02	90	70		02	520	327407 717832 GW 03										
1100547-SW1	204	01						02	17000	SW 01										
1100547-SW2	204	01						02	12000	SW 01										

COLLIER COUNTY MODEL BOUNDARY OVERLAP AREA OF HENDRY COUNTY

LINE 1 HEADINGS - Existing Water Use - Permit Information and Table 2 - Forecasted Agricultural Demand for Each Permit)

PERMIT NO.	ALL.	AN.	ALL.	MAX. MO.	DATE	USE SRC.	NO.	SW	PMPS	OWNER	CROP TYPE	SOIL TYPE	RAIN	IRR ST	IRR ACRES	BFT
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LINE 2: HEADINGS - Existing Water Use - Facilities Information for Each Permit)

PERMIT NO.	FACILITY NUMBER	QUAD NO.	WELL DIA.	DEPTH	PMP INT	PUMP TYPE	AG	GW	37	MTR?	XPLNR	YPLNR	SRC	AQ	COMMENTS	20	0.8	26	16384	0.50
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2600052	29.36	03	5.68	02	26	10/87	AG	GW	5		JOHN F. CHARLTON					15	1.5	15		5 0.50
2600052	2600052-1	172	01	6.00	02	58			500		366793	795161	GW	03		52	1.5	15		25 0.50



2600073-22	193 04	6.00 02	120	70	600	466552	764547	03
2600073-23	193 04	6.00 02	120	70	600	469857	763504	03
2600073-24	193 04	6.00 02	120	70	600	470945	772151	03
2600073-25	193 04	10.00 02	120	70	600	472098	772069	03
2600073-26	193 04	6.00 02	120	70	600	470325	770677	03
2600073-27	193 04	6.00 02	120	70	600	469905	767808	03
2600073-28	193 04	6.00 02	120	70	600	472515	767853	03
2600073-29	193 04	6.00 02	120	70	600	474573	768281	03
2600073-30	193 04	6.00 02	120	70	600	474418	767561	03
2600073-31	193 04	6.00 02	120	70	600	471325	764676	03
2600073-32	193 04	6.00 02	120	70	600	471325	763533	03
2600073-33	193 04	6.00 02	120	70	600	473765	763270	03
2600073-34	193 04	6.00 02	120	70	600	473472	769061	03
2600073-35	193 04	6.00 02	120	70	600	471367	762910	03
2600073-36	193 04	6.00 02	120	70	600	472572	770552	03
2600073-	193 01	10.00 02	100	60	600	460551	763400	03
2600073-	193 01	10.00 02	100	60	600	463348	763454	03
2600073-	193 01	10.00 02	100	60	600	460326	765916	03
2600073-	193 01	10.00 02	100	60	600	463133	765806	03
2600073-	193 01	10.00 02	100	60	600	460641	768454	03
2600073-	193 01	10.00 02	100	60	600	460652	770901	03
2600073-	193 01	10.00 02	100	60	600	463371	770956	03
2600073-	193 01	10.00 02	100	60	600	462800	768558	03
2600073-	193 01	10.00 02	100	60	600	464859	765593	03
2600073-	193 01	10.00 02	100	60	600	466946	765670	03
2600073-	193 01	10.00 02	100	60	600	469573	765682	03
2600073-	193 01	10.00 02	100	60	600	465244	762510	03
2600073-	193 01	10.00 02	100	60	600	468560	762751	03
2600073-	193 01	10.00 02	100	60	600	464965	768315	03
2600073-	193 01	10.00 02	100	60	600	467301	768327	03
2600073-	193 01	10.00 02	100	60	600	469381	768398	03
2600073-	193 01	10.00 02	100	60	600	465025	770902	03
2600073-	193 01	10.00 02	100	60	600	467282	771039	03
2600073-	193 01	10.00 02	100	60	600	470944	770821	03
2600073-	193 01	10.00 02	100	60	600	473404	770971	03
2600073-	193 01	10.00 02	100	60	600	473466	768350	03
2600073-	193 01	10.00 02	100	60	600	471012	768620	03
2600073-	193 01	10.00 02	100	60	600	473687	765281	03
2600073-	193 01	10.00 02	100	60	600	471283	765456	03
2600073-	193 01	10.00 02	100	60	600	473778	763044	03
2600073-	193 01	10.00 02	100	60	600	471357	763117	03
2600075 63.86	03	11.72	02	26 4/87	AG GW	D. B. TOWNSEND		20 0.8 15 63 0.50
2600075-1	172 01	3.00 02	60	40	200 N	357476	801361	01
2600075-2	172 01	3.00 02	60	40	200 N	355743	801313	01
2600075-3	172 01	3.00 02	60	40	250 N	356482	801323	01
2600079 33.56	03	11.72	02	26 3/77	AG GW	LAWAYNE RAWLS		13 0.0 15 143 0.85
2600079-	172 01	6.00 02	30	20	600 N	354900	806400	01
2600079-	172 01	6.00 02	80		600 N	354900	806400	03
2600079-	172 01	6.00 02	80		600 N	354900	806400	03
2600079-	172 01	8.00 02	160		600 N	354900	806400	04
2600083 131.77	03	26.55	02	26 12/87	AG GW	CROOKS RANCH		61 0.8 26 135 0.50
2600083-1	193 03	6.00 02	80	50	600	459457	772693	03
2600083-2	193 03	6.00 02	80	50	600	459907	774400	03





2600108-106	175 01	6.00 02	80	496751	805438	GW	03
2600108-105	175 01	6.00 02	80	497252	806152	GW	03
2600108-100	175 01	6.00 02	80	496555	810852	GW	03
2600108-99	175 01	6.00 02	80	496238	811730	GW	03
2600108-95	175 01	6.00 02	80	498462	821350	GW	03
2600108-83	175 01	6.00 02	80	490043	826170	GW	03
2600108-82	175 01	6.00 02	80	493036	824819	GW	03
2600108-84	175 01	6.00 02	80	491188	817680	GW	03
2600108-85	175 01	6.00 02	80	492792	816085	GW	03
2600108-86	175 01	6.00 02	80	492746	812034	GW	03
2600108-88	175 01	6.00 02	80	495004	812401	GW	03
2600108-87	175 01	6.00 02	80	493732	811285	GW	03
2600108-89	175 01	8.00 02	80	493020	808982	GW	03
2600108-91	175 01	6.00 02	80	490371	807664	GW	03
2600108-94	175 01	8.00 02	80	491682	807199	GW	03
2600108-90	175 01	6.00 02	80	491436	806630	GW	03
2600108-93	175 01	6.00 02	80	493430	799428	GW	03
2600108-92	175 01	6.00 02	80	489800	799165	GW	03
2600108-112	175 01	6.00 02	130	489383	801957	GW	03
2600108-77	175 01	8.00 02	80	485211	808782	GW	03
2600108-78	175 01	8.00 02	80	485168	810005	GW	03
2600108-113	175 01	8.00 02	80	489993	810489	GW	03
2600108-28	175 01	6.00 02	80	481987	796735	GW	03
2600108-27	175 01	8.00 02	80	481543	797001	GW	03
2600108-26	175 01	6.00 02	80	484690	798476	GW	03
2600108-24	175 01	6.00 02	80	481647	801095	GW	03
2600108-25	175 01	6.00 02	80	485133	801814	GW	03
2600108-72	175 01	6.00 02	80	481232	803097	GW	03
2600108-75	175 01	6.00 02	80	484934	804985	GW	03
2600108-73	175 01	6.00 02	80	480096	804951	GW	03
2600108-74	175 01	10.00 02	80	479903	806475	GW	03
2600108-76	175 01	10.00 02	80	481309	809645	GW	03
2600108-79	175 01	6.00 02	80	483638	812450	GW	03
2600108-80	175 01	10.00 02	80	482634	814655	GW	03
2600108-81	175 01	10.00 02	80	480626	815890	GW	03
2600108-71	175 01	6.00 02	80	477748	796345	GW	03
2600108-70	175 01	6.00 02	80	477748	803704	GW	03
2600108-68	175 01	6.00 02	80	475758	804637	GW	03
2600108-69	175 01	6.00 02	80	478823	805025	GW	03
2600108-66	175 01	8.00 02	80	475897	806632	GW	03
2600108-67	175 01	8.00 02	80	475843	806878	GW	03
2600108-65	175 01	6.00 02	80	475965	807987	GW	03
2600108-64	175 01	8.00 02	80	479459	814168	GW	03
2600108-63	175 01	6.00 02	80	477698	819072	GW	03
2600108-116	175 01	6.00 02	80	471954	789761	GW	03
2600108-115	175 01	6.00 02	80	469641	789748	GW	03
2600108-114	175 01	6.00 02	80	470796	793091	GW	03
2600108-23	175 01	6.00 02	80	471321	795354	GW	03
2600108-22	175 01	6.00 02	80	469812	794863	GW	03
2600108-21	175 01	6.00 02	80	470573	795855	GW	03
2600108-56	175 01	6.00 02	80	473882	799466	GW	03
2600108-57	175 01	6.00 02	80	473263	802057	GW	03
2600108-58	175 01	6.00 02	80	472509	803257	GW	03
2600108-59	175 01	8.00 02	80	473228	804711	GW	03
2600108-60	175 01	6.00 02	80	472984	806156	GW	03
2600108-35	175 01	6.00 02	80	470288	806550	GW	03



2600108-62	175 01	6.00 02	80	600	474323	809962	GW	03
2600108-61	175 01	6.00 02	80	600	473173	811396	GW	03
2600108-54	175 01	6.00 02	80	600	469317	814526	GW	03
2600108-53	175 01	6.00 02	80	600	470667	817696	GW	03
2600108-51	175 01	6.00 02	80	600	469595	818004	GW	03
2600108-52	175 01	6.00 02	80	600	470536	822133	GW	03
2600108-20	175 01	6.00 02	80	800	469173	796457	GW	03
2600108-48	175 01	8.00 02	80	800	468368	801661	GW	03
2600108-47	175 01	6.00 02	80	800	465729	812753	GW	03
2600108-46	175 01	6.00 02	80	800	465691	813635	GW	03
2600108-18	175 01	6.00 02	80	800	467416	813196	GW	03
2600108-17	175 01	6.00 02	80	800	468081	813849	GW	03
2600108-50	175 01	6.00 02	80	800	467992	818369	GW	03
2600108-49	175 01	6.00 02	80	800	467957	818818	GW	03
2600108-42	175 01	6.00 02	80	800	461865	794663	GW	03
2600108-43	175 01	8.00 02	80	800	462631	795389	GW	03
2600108-16	174 01	6.00 02	80	800	456362	794403	GW	03
2600108-14	174 01	6.00 02	80	800	453491	796851	GW	03
2600108-15	174 01	6.00 02	80	800	457688	799141	GW	03
2600108-13	174 01	6.00 02	80	600	458293	800268	GW	03
2600108-12	174 01	6.00 02	80	800	452591	800268	GW	03
2600108-11	174 01	6.00 02	80	800	449582	801416	GW	03
2600108-10	174 01	6.00 02	80	800	451170	802132	GW	03
2600108-9	174 01	6.00 02	80	800	450107	804443	GW	03
2600108-40	174 01	6.00 02	80	800	450805	805584	GW	03
2600108-39	174 01	6.00 02	80	800	450381	808527	GW	03
2600108-36	174 01	6.00 02	80	800	444994	800972	GW	03
2600108-37	174 01	6.00 02	80	800	446827	804761	GW	03
2600108-34	174 01	8.00 02	80	800	442745	807866	GW	03
2600108-35	174 01	8.00 02	80	800	443107	808164	GW	03
2600108-38	174 01	6.00 02	80	800	442696	814456	GW	03
2600108-8	174 01	6.00 02	80	378	441362	795660	GW	03
2600108-7	174 01	6.00 02	80	800	441061	796419	GW	03
2600108-6	174 01	6.00 02	80	800	439637	796921	GW	03
2600108-5	174 01	6.00 02	80	800	439488	797811	GW	03
2600108-33	174 01	6.00 02	80	800	442029	802393	GW	03
2600108-32	174 01	6.00 02	80	800	441841	803799	GW	03
2600108-31	174 01	6.00 02	80	800	441299	803830	GW	03
2600108-30	174 01	6.00 02	80	800	440307	807003	GW	03
2600108-29	174 01	6.00 02	80	800	425787	800031	GW	03
2600108-27	174 01	4.00 02	80	800	421996	814401	GW	03
2600108-4	174 01	6.00 02	80	800	424383	816071	GW	03
2600108-	174 01	6.00 02	80	800	418369	809667	GW	03
2600108-28	174 01	4.00 02	80	800	418900	809593	GW	03
2600108-25	174 01	4.00 02	80	800	420772	809583	GW	03
2600108-36	174 01	4.00 02	80	850	418332	811213	GW	03
2600108-2	174 01	6.00 02	80	750	420234	811548	GW	03
2600108-3	174 01	6.00 02	80	800	458708	810067	GW	03
2600108-44	174 01	6.00 02	80	800	459151	808221	GW	03
2600108-45	174 01	6.00 02	80	800	457851	810084	GW	03
2600108-41	173 01	6.00 02	80	800	417573	813793	GW	03
2600108-1	173 01	6.00 02	80	800	416060	814337	GW	03
2600108-23	173 01	6.00 02	80	800	413494	809661	GW	03
2600108-22	173 01	3.00 02	80	800	414734	818732	GW	03
2600108-19	173 01	6.00 02	80	800	415575	821387	GW	03
2600108-13	173 01	6.00 02	80	600				



2600112-151	207 01	4.00 02	45	1000	421004	720936	GW	01
2600112-152	207 01	10.00 02	91	1000	420102	719907	GW	03
2600112-153	207 01	8.00 02	76	800	418176	719103	GW	03
2600112-154	207 01	10.00 02	52	1000	422323	721060	GW	03
2600112-155	207 01	8.00 02	57	800	425862	720710	GW	03
2600112-156	207 01	8.00 02	48	800	431655	723888	GW	03
2600112-157	207 01	8.00 02	50	800	432731	724043	GW	01
2600112-158	207 01	8.00 02	52	800	435275	723381	GW	01
2600112-159	207 01	8.00 02	79	800	438534	723462	GW	03
2600112-160	207 01	8.00 02	73	800	439839	723586	GW	03
2600112-161	207 01	8.00 02	57	800	440124	722600	GW	01
2600112-162	207 01	8.00 02	77	800	441493	720907	GW	03
2600112-163	207 01	8.00 02	78	600	438538	722050	GW	03
2600112-164	207 01	6.00 02	64	600	438341	720673	GW	03
2600112-165	207 01	6.00 02	64	900	440111	720604	GW	03
2600112-166	207 01	6.00 02	65	600	440824	720844	GW	03
2600112-167	207 01	8.00 02	76	800	442149	719948	GW	03
2600112-168	207 01	6.00 02	70	600	439008	719576	GW	03
2600112-169	207 01	6.00 02	60	600	442067	718916	GW	03
2600112-170	207 01	6.00 02	58	600	442400	717412	GW	03
2600112-171	207 01	8.00 02	65	800	440596	716259	GW	03
2600112-172	207 01	8.00 02	66	800	439837	715917	GW	03
2600112-173	207 01	8.00 02	64	800	441532	716209	GW	03
2600112-174	207 01	6.00 02	64	600	439786	714452	GW	03
2600112-175	207 01	8.00 02	54	800	435205	718985	GW	03
2600112-176	207 01	8.00 02	53	800	435428	717710	GW	03
2600112-177	207 01	8.00 02	46	800	433307	714676	GW	03
2600112-178	207 01	8.00 02	67	800	429933	715888	GW	03
2600112-179	207 01	8.00 02	67	800	430286	714666	GW	03
2600112-180	207 01	6.00 02	66	600	432853	737934	GW	03
2600112-69	207 01	8.00 02	61	800	433747	739220	GW	03
2600112-70	207 01	9.00 02	63	900	436490	739357	GW	03
2600112-71	207 01	9.00 02	63	900	433958	737761	GW	03
2600112-72	207 01	9.00 02	63	900	445124	733896	GW	01
2600112-73	207 01	8.00 02	44	800	444168	730597	GW	01
2600112-74	207 01	6.00 02	30	600	445940	731651	GW	01
2600112-75	207 01	8.00 02	34	800	447753	730507	GW	01
2600112-76	207 01	8.00 02	39	800	441430	731884	GW	03
2600112-77	207 01	9.00 02	61	900	439745	729655	GW	03
2600112-122	207 01	9.00 02	60	800	442056	729257	GW	03
2600112-123	207 01	8.00 02	58	800	439896	727615	GW	03
2600112-124	207 01	9.00 02	60	1000	442210	727588	GW	01
2600112-125	207 01	10.00 02	79	800	442210	727588	GW	01
2600112-126	207 01	8.00 02	54	800	438179	727299	GW	03
2600112-127	207 01	8.00 02	116	800	438223	726380	GW	03
2600112-128	207 01	8.00 02	101	800	441277	726344	GW	03
2600112-129	207 01	8.00 02	74	800	438270	725596	GW	03
2600112-130	207 01	8.00 02	77	800	435285	727403	GW	03
2600112-131	207 01	6.00 02	62	600	429910	726192	GW	01
2600112-132	207 01	8.00 02	41	800	431321	725920	GW	01
2600112-133	207 01	8.00 02	41	800				
2600116 348.18	03	128.15 02	26	3	B-J GROVES			
2600116-	192 01	8.00 02	90	400	442821	751200	GW	03
2600116-	192 01	8.00 02	90	400	440426	751088	GW	03
2600116-	192 01	8.00 02	90	400	438165	751027	GW	03

1.3 0.8 26 757 0.54





2600143-51	193 01	6.00 02	135	1200	493191	774186	GW 03
2600143-52	193 01	6.00 02	135	1200	493112	773229	GW 03
2600143-53	193 01	6.00 02	135	1200	491887	773204	GW 03
2600143-58	193 01	6.00 02	130	1200	495360	768410	GW 03
2600143-59	193 01	6.00 02	130	1200	493136	768224	GW 03
2600143-62	193 01	6.00 02	130	1200	495550	766965	GW 03
2600143-63	193 01	6.00 02	130	1200	494144	766746	GW 03
2600143-64	193 01	6.00 02	130	1200	492228	766649	GW 03
2600143-65	193 01	6.00 02	130	1200	492228	766996	GW 03
2600143-66	193 01	6.00 02	130	1200	491386	767042	GW 03
2600143-67	193 01	6.00 02	130	1200	491582	766086	GW 03
2600143-77	193 01	2.00 02	90	800	496636	764472	GW 03
2600143-78	193 01	6.00 02	130	800	495742	764892	GW 03
2600143-79	193 01	2.00 02	80	400	495712	764348	GW 03
2600143-80	193 01	6.00 02	130	800	495120	764882	GW 03
2600143-81	193 01	2.00 02	80	400	495136	764315	GW 03
2600143-82	193 01	6.00 02	130	800	494451	764817	GW 03
2600143-83	193 01	6.00 02	130	800	493875	764798	GW 03
2600143-84	193 01	6.00 02	130	400	493861	764303	GW 03
2600143-85	193 01	2.00 02	110	800	493426	764686	GW 03
2600143-86	193 01	2.00 02	80	400	492132	764559	GW 03
2600143-87	193 01	2.00 02	80	400	491614	764373	GW 03
2600143-88	193 01	2.00 02	80	400	491975	764844	GW 03
2600143-89	193 01	6.00 02	120	800	491172	764108	GW 03
2600143	193 01	2.00 02	120	800	491181	762922	GW 03
2600143-	193 02	12.00 02	120	2500	493432	764618	GW 03
2600143-	193 02	12.00 02	120	80	493604	766586	GW 03
2600143-	193 02	12.00 02	120	80	493657	768270	GW 03
2600143-	193 02	12.00 02	120	80	503979	787342	GW 03
2600143-16	194 01	6.00 02	130	1200	504024	786471	GW 03
2600143-19	194 01	6.00 02	130	1200	501405	786124	GW 03
2600143-20	194 01	6.00 02	130	1200	500186	786144	GW 03
2600143-21	194 01	6.00 02	130	1200	500235	784662	GW 03
2600143-24	194 01	6.00 02	130	1200	504536	783527	GW 03
2600143-27	194 01	6.00 02	130	1200	500766	783069	GW 03
2600143-28	194 01	6.00 02	130	1200	500708	781760	GW 03
2600143-30	194 01	6.00 02	130	1200	504378	778124	GW 03
2600143-39	194 01	6.00 02	135	1200	504794	777045	GW 03
2600143-44	194 01	6.00 02	135	1200	504117	777036	GW 03
2600143-46	194 01	6.00 02	135	1200	504557	775563	GW 03
2600143-49	194 01	6.00 02	135	1200	505495	774228	GW 03
2600143-50	194 01	6.00 02	135	1200	504563	774603	GW 03
2600143-54	194 01	6.00 02	130	800	503259	772844	GW 03
2600143-92	194 01	6.00 02	130	800	502840	772198	GW 03
2600143-55	194 01	6.00 02	130	800	503271	771658	GW 03
2600143-56	194 01	6.00 02	130	800	504620	770105	GW 03
2600143-57	194 01	6.00 02	130	800	503232	770188	GW 03
2600143-91	194 01	6.00 02	160	800	500500	769027	GW 03
2600143-60	194 01	6.00 02	130	800	505760	767721	GW 03
2600143-61	194 01	6.00 02	130	800	502097	767530	GW 03
2600143-69	194 01	6.00 02	130	800	505948	766642	GW 03
2600143-70	194 01	6.00 02	130	800	503270	766583	GW 03
2600143-71	194 01	6.00 02	130	800	502353	766610	GW 03
2600143-72	194 01	6.00 02	130	800	500756	766546	GW 03
2600143-73	194 01	6.00 02	130	800	505526	764779	GW 03
2600143-74	194 01	2.00 02	130	200	501557	764641	GW 03







Table with 13 columns: Line Number, Date, Time, Location (AG/GW), Rate, Quantity, Unit Price, Total, and other identifiers. Contains entries for NEIL JOLLY and JO MAR EL CITRUS.



2600266-8	192 01	8.00 02			800	420596	764019 GW 01
2600266-9	192 01	6.00 02			600	421775	762726 GW 01
2600266-10	192 01	8.00 02			800	421814	761267 GW 01
2600266-11	192 01	8.00 02	57		800	422523	764387 GW 01
2600266-12	192 01	8.00 02	56		800	424984	762504 GW 01
2600267							
1345.06	03	285.64 02	26	12/88	8	COLLIER ENTERPRISES	
2600267-6	192 01	6.00 02			600	419105	765877 GW 01
2600267-7	192 01	6.00 02			600	420365	764665 GW 01
2600267-8	192 01	8.00 02			800	420596	764019 GW 01
2600267-21	191 01	8.00 02	60		800	415976	762346 GW 01
2600267-22	191 01	8.00 02	54		800	412636	761568 GW 01
2600267-23	191 01	8.00 02	52		800	411813	764282 GW 01
2600267-24	191 01	8.00 02	50		800	411684	765691 GW 01
2600267-25	191 01	8.00 02	61		800	415681	764767 GW 01
2600270							
97.74	03	35.97 02	26	7/87	2	R. A. BETHA - M & H FARMS	
2600270-1	207 01	6.00 02	55	42	800	427769	706419 GW 01
2600270-2	207 01	8.00 02	55	42	800	428351	707662 GW 01
2600277							
234.58	03	86.34 02	26	10/87	5	TURNER CORPORATION	
2600277-1	172 02	12.00 02	200	140	420	338465	813190 GW 04
2600277-2	172 02	12.00 02	200	140	425	338080	811812 GW 04
2600277-3	172 02	12.00 02	200	140	465	339065	810550 GW 04
2600277-4	172 02	12.00 02	200	140	550	339268	808882 GW 04
2600277-5	172 02	12.00 02	200	140	500	341436	811270 GW 04
2600279							
582.28	03	199.60 02	26	10/87	4	GUTWEIN GROVES	
2600279-35-4	172 02	8.00 02	240		600	337933	794070 GW 04
2600279-35-5	172 02	8.00 02	240		600	338011	792717 GW 04
2600279-35-6	172 02	8.00 02	240		600	341660	793542 GW 04
2600279-36-1	172 02	8.00 02	240		600	345252	796690 GW 04
2600279-SW	172				1000	399299	854351 SW 01
2600279-SW	172				3000	399379	848999 SW 01
2600281							
200.54	03	73.81 02	26	1/88	6	TURNER CORPORATION	
2600281-32-1	171 02	10.00 02	260	120	420	323820	796484 GW 04
2600281-32-2	171 02	10.00 02	260	120	415	324721	796526 GW 04
2600281-32-3	171 02	10.00 02	260	120	532	321831	795916 GW 04
2600281-32-4	171 02	10.00 02	260	120	426	322958	796469 GW 04
2600281-32-5	171 02	10.00 02	260	120	527	322328	793747 GW 04
2600281-32-6	171 02	10.00 02	260	120	422	326034	794093 GW 04
2600282							
515.15	03	189.60 02	26	12/87	11	USSC - DEVIL'S GARDEN CITRUS NO	
2600282-	193 02	10.00 02	100	60	600	471357	763117 GW 03
2600282-	193 02	10.00 02	100	60	600	471064	774238 GW 03
2600282-	193 02	10.00 02	100	60	600	473370	774329 GW 03
2600282-	193 02	10.00 02	100	60	600	471225	776488 GW 03
2600282-	193 02	10.00 02	100	60	600	473485	776608 GW 03
2600282-	193 02	10.00 02	100	60	600	471157	779119 GW 03
2600282-	193 02	10.00 02	100	60	600	473378	779180 GW 03
2600282-	193 02	10.00 02	100	60	600	471100	781556 GW 03
2600282-	193 02	10.00 02	100	60	600	473543	781591 GW 03
2600282-	193 02	10.00 02	100	60	600	470642	784815 GW 03
2600282-	193 02	10.00 02	100	60	600	470070	786915 GW 03

2600300	1294.31	03	476.38	03	26	1/89	AG	GW	54	COLLIER ENTERPRISES-CROW'S NEST
2600300-79		192 01	8.00	02	49				800	438402 758983 GW 01
2600300-80		192 01	8.00	02	47				800	438418 758070 GW 01
2600300-81		192 01	8.00	02	48				800	438418 757570 GW 01
2600300-82		192 01	8.00	02	48				800	438532 757130 GW 01
2600300-83		192 01	8.00	02	50				800	440035 760460 GW 01
2600300-84		192 01	20.00	02	91				1000	440018 759106 GW 03
2600300-85		192 01	8.00	02	52				800	441398 759753 GW 01
2600300-86		192 01	8.00	02	51				800	441400 758845 GW 01
2600300-87		192 01	8.00	02	37				800	441418 757692 GW 01
2600300-88		192 01	8.00	02	42				800	441958 759963 GW 01
2600300-89		192 01	8.00	02	51				800	435540 751806 GW 01
2600300-90		192 01	8.00	02	60				800	436325 747380 GW 01
2600300-91		192 01	6.00	02	65				600	435251 746328 GW 01
2600300-103		192 01	9.00	02	62				900	435781 743741 GW 01
2600300-105		192 01	9.00	02	62				900	445642 760007 GW 03
2600300-183		192 01	6.00	02	102				600	446982 758192 GW 03
2600300-184		192 01	6.00	02	84				600	422523 764387 GW 01
2600300-11		192 01	8.00	02	57				800	424984 762504 GW 01
2600300-12		192 01	8.00	02	56				800	424984 762504 GW 01
2600300-13		192 01	1.50	02	57				200	423700 765453 GW 01
2600300-14		192 01	8.00	02	78				800	430831 765560 GW 03
2600300-15		192 01	6.00	02	87				600	427577 764647 GW 03
2600300-16		192 01	6.00	02	56				600	429008 763378 GW 03
2600300-17		192 01	6.00	02	61				600	431358 764492 GW 03
2600300-18		192 01	6.00	02	64				800	431315 763462 GW 03
2600300-19		192 01	6.00	02	65				600	431349 762319 GW 03
2600300-20		192 01	6.00	02	53				600	431018 761702 GW 03
2600300-21		192 01	2.00	02	83				200	438156 763268 GW 03
2600300-22		192 01	8.00	02	83				800	443679 765730 GW 03
2600300-23		192 01	9.00	02	90				900	444544 765621 GW 03
2600300-24		192 01	8.00	02	800				800	447023 765509 GW 03
2600300-25		192 01	8.00	02	47				800	443743 763430 GW 03
2600300-26		192 01	8.00	02	80				800	444208 762719 GW 03
2600300-27		192 01	6.00	02	600				600	446915 763937 GW 03
2600300-28		192 01	8.00	02	800				800	451818 766080 GW 03
2600300-29		192 01	8.00	02	800				800	448986 765338 GW 03
2600300-30		192 01	6.00	02	600				600	448508 764017 GW 03
2600300-31		192 01	6.00	02	800				800	451571 764181 GW 03
2600300-32		192 01	8.00	02	600				600	451842 762961 GW 03
2600300-33		192 01	8.00	02	800				800	454251 765994 GW 03
2600300-34		192 01	12.50	02	25				1000	456946 765545 GW 01
2600300-35		192 01	8.00	02	61				800	454105 764241 GW 03
2600300-36		192 01	6.00	02	600				600	454727 762996 GW 03
2600300-37		192 01	12.00	02	1000				1000	456409 764697 GW 03
2600300-38		192 01	8.00	02	800				800	458707 763108 GW 03
2600300-		192 02	12.00	02	100				1400	441715 762384 GW 03
2600300-		192 02	12.00	02	100				1400	438383 762336 GW 03
2600300-		192 02	12.00	02	100				1400	438666 765316 GW 03
2600300-		192 02	12.00	02	100				1400	434626 762843 GW 03
2600300-		192 02	12.00	02	100				1400	433174 765174 GW 03
2600300-		192 02	12.00	02	100				1400	435777 765175 GW 03
2600300-		192 02	12.00	02	100				1400	430987 762376 GW 03
2600300-		192 02	12.00	02	100				1400	427971 762257 GW 03
2600300-		192 02	12.00	02	100				1400	430434 765419 GW 03

2600315	459.95	03	169.29	02	26	8/88	AG	BOTH	22	6	ALICO	835600	GW	04
2600315-	155	02	8.00	02	270	240		02	600		415400	835600	GW	04
2600315-	155	02	8.00	02	270	240		02	600		415400	833600	GW	04
2600315-	155	02	8.00	02	270	240		02	600		414800	840400	GW	04
2600315-	155	02	8.00	02	270	240		02	600		412900	836300	GW	04
2600315-	155	02	8.00	02	270	240		02	600		409800	836500	GW	04
2600315-	155	02	8.00	02	270	240		02	600		410100	833300	GW	04
2600315-	155	02	8.00	02	270	240		02	600		406100	833400	GW	04
2600315-	155	02	8.00	02	270	240		02	600		407200	840100	GW	04
2600315-	155	02	8.00	02	270	240		02	600		404900	838000	GW	04
2600315-	173	02	8.00	02	270	240		02	500		406700	836500	GW	04
2600315-	173	02	8.00	02	270	240		02	600		413700	826000	GW	04
2600315-	173	02	8.00	02	270	240		02	600		413700	827400	GW	04
2600315-	173	02	8.00	02	270	240		02	600		415500	830100	GW	04
2600315-	173	02	8.00	02	270	240		02	600		409300	831900	GW	04
2600315-	173	02	8.00	02	270	240		02	600		411100	830000	GW	04
2600315-	173	02	8.00	02	270	240		02	600		409500	826400	GW	04
2600315-	173	02	8.00	02	270	240		02	600		410000	822500	GW	04
2600315-	173	02	8.00	02	270	240		02	600		410700	823100	GW	04
2600315-	173	02	8.00	02	270	240		02	600		406300	826800	GW	04
2600315-	173	02	8.00	02	270	240		02	600		405900	823900	GW	04
2600315-	173	02	8.00	02	270	240		02	600		405900	818900	GW	04
2600315-	173	02	8.00	02	270	240		02	600		405100	830400	GW	04
2600315-	02								1000		415600	827600	SW	01
2600315-	02								1000		415600	830800	SW	01
2600315-	02								1200		415500	834300	SW	01
2600315-	02								1200		415500	837800	SW	01
2600315-	02								4500		412000	824100	SW	01
2600315-	02								1500		407200	841100	SW	01

2600325	6.52	03	2.4	02	26	12/88	AG	GW	2	ABC FARMS	798706	GW	04	
2600325-	172	01	12.00	02	200	140		02	800		364625	798706	GW	04
2600325-	172	02	12.00	02	200	140		02	800		364647	798893	GW	04



COLLIER COUNTY MODEL BOUNDARY OVERLAP AREA OF LEE COUNTY

LINE 1 HEADINGS - Existing Water Use - Permit Information and Table 2 - Forecasted Agricultural Demand for Each Permit)

PERMIT AN.	ALL.	MAX MO.	DATE USE SRC.NO.	SW	OWNER	CROP TYPE	SOIL TYPE	RAIN ST	IRR ACRES	IRR EFF			
3600005	368.27	03	36 12/87	AG	BOTH	2	1	YODER BROTHERS	20	0.8	2	120	0.50
3600005-1	152	152	6.00	02	120	75	293842	865724	GW	04			
3600005-2	152	152	6.00	02	120	75	264470	859569	GW	04			
3600005-SW1	152	152	6.00	02	120	75	273045	864587	SW	01			

LINE 2+ HEADINGS - Existing Water Use - Facilities Information for Each Permit)

PERMIT NO.	FACILITY NUMBER	QUAD. NO.	WELLS STS DIA.	DPTH CODE	TD	CD	PMP INT	PUMP TYPE	PUMP CAP.	MTR?	XPLNR	YPLNR	SRC AQ	COMMENTS		
3600016	69.00	03	36 7/77	AG	GW	10	T. H. BAKER									
3600016-1	134	01	4.00	02	20	400	355671	880035	GW	01						
3600016-2	134	01	4.00	02	20	400	347021	878703	GW	01						
3600016-3	153	01	4.00	02	20	400	305910	877692	GW	01						
3600016-4	153	01	4.00	02	700	400	306001	877458	GW	08						
3600016-5	153	01	4.00	02	20	400	305987	876262	GW	01						
3600016-6	153	01	4.00	02	20	100	306006	875238	GW	01						
3600016-7	153	01	2.00	02	20	200	304774	877847	GW	01						
3600016-8	153	01	2.00	02	10	200	304928	877488	GW	01						
3600016-9	153	01	1.50	02	20	150	304778	877080	GW	01						
3600016-10	153	01	2.00	02	20	200	304789	876303	GW	01						
3600019	62.78	03	36 4/78	GLF	SW	310	2 CITY OF FT. MYERS									
3600019-SW1	168	01	8.00	02	20	490	212680	828744	SW	01	PERMIT IS REISSUED	15	0.8	2	55	0.75
3600019-SW2	168	01	8.00	02	20	490	212786	828715	SW	01						
3600049	81.00	03	36 5/78	AGR	GW	1	LEHIGH ACRES DEVEL.									
3600049-1	170	01	31.40	02	80	1000	294506	812407	GW	04						
3600061	139.16	03	36 9/78	AGR	GW	11	CONKSCREW GROWERS INC									
3600061-1	203	01	8.00	02	60	1500	273701	722353	GW	03						
3600061-2	203	01	8.00	02	60	1500	273752	725875	GW	03						
3600061-3	203	01	8.00	02	60	1500	273240	726645	GW	03						
3600061-4	203	01	8.00	02	60	1500	271301	726711	GW	03						
3600061-5	203	01	8.00	02	60	1500	271344	723168	GW	03						
3600061-6	203	01	8.00	02	60	1500	271066	723201	GW	03						
3600061-7	203	01	8.00	02	60	1500	270946	723936	GW	03						
3600061-8	203	01	8.00	02	60	1500	268747	723957	GW	03						
3600061-9	203	01	8.00	02	60	1500	271066	725474	GW	03						
3600061-10	203	01	8.00	02	60	1500	268686	725526	GW	03						
3600061-11	203	01	8.00	02	60	1500	268695	726763	GW	03						
3600062	109.17	03	36 9/78	AGR	GW	4	JOHNSON FARMS									
3600062-1	203	01	8.00	02	20	1600	279644	725535	GW	01						
3600062-2	203	01	8.00	02	20	1600	280993	725523	GW	01						
3600062-3	203	01	8.00	02	20	1600	282079	725509	GW	01						
3600062-4	203	01	8.00	02	20	1600	283588	725489	GW	01						





3600087-2	169 01	6.00 02							453	234214	824898	GW 01	
3600087-3	169 01	6.00 02							500	232843	825303	GW 01	
3600088	107.00	32.70 02	36 1/79	GLP GW	7					SEVEN LAKES ASSOCIATION			15 0.8 2 125 0.50
3600088-1	168 01	4.00 02	225	140	70					213349	807505	GW 05	
3600088-2	168 01	6.00 02			150					212481	807503	GW 05	
3600088-3	168 01	4.00 02			180					213625	806963	GW 05	
3600088-4	168 01	6.00 02	360	180	150					211271	807109	GW 06	
3600088-5	168 01	6.00 02	605	260	225					211974	807063	GW 06	
3600088-6	168 04	6.00 02	440		120					211587	807423	GW 06	WELLS ARE PLUGGED
3600088-7	168 04	6.00 02	220		85					211765	807256	GW 05	WELLS ARE PLUGGED
3600089	309.07	6.00 02	36 1/79	AGR BOTH	3					2 JPPERER FARMS/BUCKINGHAM FARM			70 0.8 2 282 0.75
3600089-1	151 01	6.00 02	20		1200					241524	834546	GW 01	
3600089-2	151 01	6.00 02	20		1200					241495	833983	GW 01	
3600089-3	151 01	6.00 02	20		1500					241495	833781	GW 01	
3600089-SW1	151 01	6.00 02	20		1000					239167	835936	SW 01	
3600089-SW2	169 01	6.00 02			5000					241768	830903	SW 01	
3600090	13.04	29.90 02	36 2/79	AGR GW	2					R.G. BEARDSLEE			61 0.8 2 20 0.50
3600090		8.00 02	23	20	1500					299208	768555	GW 01	60 0.8 2 30 0.50
3600090 2		8.00 02	23	20	1500					299590	768522	GW 01	
3600093	278.00	700.00 02	36 2/79	AGR GW	1					TROT INTERNATIONAL LTD. INC.			13 0.8 2 1080 0.50
3600093-1		6.00 02			600					GW 01 PERMIT MISSING			61 0.8 2 200 0.50
3600094	13.04	13.10 02	36 2/79	AGR GW	5					PENINSULAR GROVES INC.			12 0.8 2 60 0.85
3600094-1	188 01	13.00 02	130	25	1200					295179	760036	GW 03	
3600094-2	188 01	10.00 02	130	40	1200					295494	760028	GW 03	
3600094-3	188 01	10.00 02	130	40	1200					296360	760070	GW 03	
3600094-4	189 01	10.00 02	130	40	1200					296717	760067	GW 03	
3600094-5	189 01	8.00 02	190	160	500					295927	759967	GW 04	
3600095	10.85	10.20 02	36 2/79	AGR GW	5					PENINSULAR GROVES INC			13 0.8 2 32 0.85
3600095-1	188 01	13.00 02	100	40	1200					286682	770356	GW 03	12 0.8 2 18 0.85
3600095-2	188 01	13.00 02	100	40	1200					286725	770845	GW 03	
3600095-3	188 01	13.00 02	100	40	1200					286784	771461	GW 03	
3600095-4	188 01	13.00 02	100	40	1200					286854	771986	GW 03	
3600095-5	188 01	8.00 02	200	116	500					287130	771500	GW 04	
3600101	6.19	5.05 02	36 2/79	AGR GW	4					SOUTHALL CORP.			70 0.8 2 20 0.50
3600101-1	187 01	6.00 02	160	50	300					231174	747034	GW 04	
3600101-2	187 01	6.00 02	40	40	200					229775	746990	GW 01	
3600101-3	187 01	6.00 02	60	50	50					229796	746854	GW 03	
3600101-4	187 01	6.00 02	45	40	90					229773	746593	GW 01	
3600102	1302.00	620.00 02	36 2/79	AGR GW	15					WALDEE BROTHERS FARMS			63 0.8 2 800 0.50
3600102-5	188 01	8.00 02	40	25	1800					266393	786525	GW 01	WELLS #1-4,16,18-21 ARE NO LONGER IN USE.
3600102-6	170 01	8.00 02	40	25	1800					262551	791952	GW 01	
3600102-7	170 01	8.00 02	40	25	1800					262659	789985	GW 01	
3600102-8	170 01	8.00 02	40	25	1800					260899	791958	GW 01	
3600102-9	170 01	8.00 02	40	25	1800					261024	789758	GW 01	
3600102-10	170 01	8.00 02	40	25	1800					260099	788418	GW 01	





3600129-23-4	189 01	12.00 02	60	40	759	309702	773640	GW 01
3600129-23-5	189 01	12.00 02	54	39	542	309712	773054	GW 01
3600129-23-6	189 01	12.00 02	57	39	542	309307	773039	GW 01
3600129-23-7	189 01	12.00 02	41	34	542	308947	773002	GW 01
3600129-23-8	189 01	12.00 02	37	31	542	308476	773015	GW 01
3600129-23-9	189 01	12.00 02	42	28	542	308141	772966	GW 01
3600129-23-10	189 01	10.00 02	260	114	450	307930	773364	GW 04
3600129-23-11	189 01	12.00 02	38	31	875	307814	774813	GW 01
3600129-23-12	189 01	12.00 02	47	34	875	309913	774725	GW 01
3600129-23-13	189 01	9.00 02	225	115	175	309920	774453	GW 04
3600129-23-1	189 01	12.00 02	60	31	823	307342	772689	GW 01
3600129-25-2	189 01	12.00 02	60	33	823	307658	772695	GW 01
3600129-25-3	189 01	12.00 02	65	32	422	306764	772001	GW 01
3600129-25-4	189 01	9.00 02	302	120	450	306755	772397	GW 04
3600129-25-5	189 01	12.00 02	65	32	768	306110	772379	GW 01
3600129-25-6	189 01	12.00 02	65	40	823	305608	772324	GW 01
3600129-25-7	189 01	12.00 02	60	39	430	305354	772519	GW 01
3600129-25-8	189 01	12.00 02	55	32	823	307601	774337	GW 01
3600129-25-9	189 01	12.00 02	60	31	823	307102	774361	GW 01
3600129-25-10	189 01	12.00 02	60	34	768	306537	774191	GW 01
3600129-25-11	189 01	9.00 02	235	100	450	306281	773832	GW 04
3600129-25-12	189 01	12.00 02	60	34	768	305612	774101	GW 01
3600129-25-13	189 01	12.00 02	60	32	768	305966	774097	GW 01
3600129-26-1	189 01	12.00 02	50	35	700	309992	771303	GW 01
3600129-26-2	189 01	12.00 02	50	37	700	309560	771261	GW 01
3600129-26-3	189 01	12.00 02	60	39	875	309100	771297	GW 01
3600129-26-4	189 01	12.00 02	60	39	700	308634	771316	GW 01
3600129-26-5	189 01	9.00 02	430	227	450	307967	771879	GW 04
3600129-26-6	189 01	8.00 02	450	212	400	307961	771159	GW 04
3600129-26-7	189 01	8.00 02	65	50	545	307964	771010	GW 01
3600129-26-8	189 01	12.00 02	60	39	677	307070	771270	GW 01
3600129-26-9	189 01	12.00 02	70	35	700	306389	771198	GW 01
3600129-26-10	189 01	12.00 02	51	36	700	305819	771173	GW 01
3600129-26-11	189 01	12.00 02	43	34	700	305543	770591	GW 01
3600129-1	189 01	12.00 02	43	39	950	304747	770930	GW 01
3600129-2	189 01	12.00 02	42	36	950	304162	770937	GW 01
3600129-3	189 01	12.00 02	300	114	800	304871	772600	GW 04
3600129-4	189 01	12.00 02	40	35	950	304225	772566	GW 01
3600129-5	189 01	12.00 02	36	34	1000	303623	772528	GW 01
3600129-X7	189 01	12.00 02	53	49	885	303401	773699	GW 01
3600129-X8	189 01	12.00 02	240	140	885	302650	773720	GW 01
3600129-X9	189 01	12.00 02	38	37	885	302870	772487	GW 04
3600129-X10	189 01	12.00 02	140	127	885	303478	771574	GW 01
3600129-X11	189 01	12.00 02	38	34	885	302691	771197	GW 01
3600129-X12	189 01	12.00 02	35	32	885	302113	771129	GW 04
3600129-X13	189 01	12.00 02	230	112	885	302413	773138	GW 01
3600129-X14	189 01	10.00 02	39	36	750	302509	774655	GW 01
3600129-X15	189 01	10.00 02	47	33	830	302509	774655	GW 01
3600129-X16	189 01	10.00 02	60	36	895	302332	774552	GW 01
3600134	139.16	55.70 02	36	5/79	4	H. FLINT		
3600134-1	188 01	6.00 02	100	645	280294	774863	GW 04	
3600134-2	188 01	6.00 02	100	645	281208	774877	GW 04	
3600134-3	188 01	6.00 02	100	645	282704	774913	GW 04	
3600134-4	188 01	6.00 02	100	645	283964	772954	GW 04	

20 0.8 2 640 0.50

LEHIGH ACRES DEVELOPMENT, INC 15 0.8 2 160 0.50

3600143	03	41.00 02	36 7/79	IAN GW	10	299766	808884	GW 04
3600143-1	171 01	8.00 02	80	60	250	300210	809836	GW 04
3600143-2	171 01	8.00 02	81	64	250	300546	810029	GW 04
3600143-3	171 01	8.00 02	80	60	300	301816	809829	GW 04
3600143-4	171 01	8.00 02	81	60	300	301743	810363	GW 04
3600143-5	171 01	8.00 02	80	62	240	300574	809308	GW 04
3600143-6	171 01	8.00 02	80	65	240	299845	809113	GW 04
3600143-7	171 01	8.00 02	80	60	240	300862	810214	GW 04
3600143-8	171 01	8.00 02	80	63	240	300985	810751	GW 04
3600143-9	171 04	8.00 02	80	64	240	301854	810875	GW 04
3600143-10	171 03	8.00 02	80	62	240			

WELL IS CAPPED

3600153	03	361.00 02	36 10/79	AGR GW	12	238550	786958	GW 04
3600153-1	187 01	6.00 02	110	45	1000	239046	786937	GW 04
3600153-2	187 01	6.00 02	110	45	1000	239148	786769	GW 01
3600153-3	187 01	6.00 02	30	20	2333	239148	786769	GW 04
3600153-4	187 01	6.00 02	110	60	1000	239221	786571	GW 01
3600153-5	187 01	6.00 02	30	20	1666	239307	786433	GW 01
3600153-6	187 01	6.00 02	30	20	2333	238904	786593	GW 01
3600153-7	187 01	6.00 02	30	20	1000	238460	786612	GW 04
3600153-8	187 01	6.00 02	110	60	833	238456	790644	GW 04
3600153-9	169 01	6.00 02	103		833	237380	790767	GW 04
3600153-10	169 01	6.00 02	103		833	235523	790610	GW 01
3600153-11	169 01	6.00 02	30		1333	236976	786799	GW 01
3600153-12	187 01	6.00 02	30		1333			

ANDREW J. NYCHYK

WELLS #3 & 4 ARE PUMPED SIMULTANEOUSLY.

3600154	03	115.00 02	36 10/79	AGR GW	7	223464	805103	GW 07
3600154-1	169 01	6.00 02	870	160	200	223239	803593	GW 07
3600154-2	169 01	6.00 02	870	160	250	224579	802075	GW 07
3600154-3	169 01	6.00 02	925	160	250	225714	802569	GW 01
3600154-4	169 01	6.00 02	35	19	666	225722	802290	GW 01
3600154-5	169 01	6.00 02	35	19	666	225576	807710	GW 01
3600154-6	169 01	6.00 02	35	15	1666	225765	807504	GW 01
3600154-7	169 01	6.00 02	35	15	1666			

ANDREW J. NYCHYK RANCH

3600167	03	6.00 02	36 12/79	AGR GW	44	301592	791011	GW 01
3600167-1	171 01	8.00 02	40	20	1200	302957	786612	GW 01
3600167-2	189 01	8.00 02	40	20	1200	301689	786731	GW 01
3600167-3	189 01	6.00 02	40	20	1200	304463	785024	GW 01
3600167-4	189 01	6.00 02	40	20	1200	303890	784308	GW 01
3600167-5	189 01	6.00 02	40	20	1200	307135	787714	GW 01
3600167-6	189 01	6.00 02	40	20	1200	306809	788057	GW 01
3600167-7	189 01	6.00 02	40	20	1200	307425	787490	GW 01
3600167-8	189 01	6.00 02	40	20	1200	303995	784851	GW 01
3600167-9	171 01	6.00 02	40	20	1200	307693	788393	GW 01
3600167-10	189 01	6.00 02	40	20	1200	308760	787252	GW 01
3600167-11	189 01	6.00 02	40	20	1200	305808	785217	GW 01
3600167-12	171 02	12.00 02	100	60	550	306511	795580	GW 03
3600167-13	171 02	12.00 02	100	60	550	308579	795562	GW 03
3600167-14	171 02	12.00 02	100	60	550	307234	794319	GW 03
3600167-15	171 02	12.00 02	100	60	550	308786	793187	GW 03
3600167-16	171 02	12.00 02	100	60	550	309186	791345	GW 03
3600167-17	171 02	12.00 02	100	60	550	308788	790512	GW 03
3600167-18	171 02	12.00 02	100	60	550	306631	790064	GW 03
3600167-19	171 02	12.00 02	100	60	550	309271	788994	GW 03

WILDCAT FARMS, LTD.

TO BE USED AS RACK-UP. Wells #33-44

3600167-9	171 02	12.00 02	100	60	550	300204	791960	GW	03
3600167-10	171 02	12.00 02	100	60	550	303594	791521	GW	03
3600167-11	171 02	12.00 02	100	60	550	300840	789325	GW	03
3600167-12	171 02	12.00 02	100	60	550	302677	789266	GW	03
3600167-13	189 02	12.00 02	100	60	550	305330	787698	GW	03
3600167-14	189 02	12.00 02	100	60	550	302191	786897	GW	03
3600167-15	189 02	12.00 02	100	60	550	303756	786810	GW	03
3600167-16	189 02	12.00 02	100	60	550	305518	787063	GW	03
3600167-17	171 02	12.00 02	100	60	550	307112	788655	GW	03
3600167-18	189 02	12.00 02	100	60	550	303246	784638	GW	03
3600167-19	189 02	12.00 02	100	60	550	307482	783619	GW	03
3600167-20	189 02	12.00 02	100	60	550	305615	783019	GW	03
3600167-21	189 02	12.00 02	100	60	550	301512	781737	GW	03
3600167-22	189 02	12.00 02	100	60	550	303386	781880	GW	03
3600167-23	189 02	12.00 02	100	60	550	301373	779635	GW	03
3600167-24	189 02	12.00 02	100	60	550	303436	779546	GW	03
3600167-25	189 02	12.00 02	100	60	550	305379	780160	GW	03
3600167-26	189 02	12.00 02	100	60	550	301125	777142	GW	03
3600167-27	189 02	12.00 02	100	60	550	301718	775542	GW	03
3600167-28	189 02	12.00 02	100	60	550	305149	777555	GW	03
3600167-29	189 02	12.00 02	100	60	550	308758	780120	GW	03
3600167-30	189 02	12.00 02	100	60	550	307142	779046	GW	03
3600167-31	189 02	12.00 02	100	60	550	307253	776261	GW	03
3600167-32	189 02	12.00 02	100	60	550	308329	777365	GW	03
3600186	281.00	41.70 02	36	1/82	1	1 BONITA SPRINGS GOLF & CC			
3600186-1		116 40	116	40	1110	03 PERMIT MISSING			
3600186-SW1						01			
3600201	1612.00	130.00 02	36	7/80	9	COL-LBE GROVES INC			
3600201-1	189 01	6.00	500		500	305195	764955	GW	01 wt assumed
3600201-2	189 01	8.00	500		500	302493	764422	GW	01
3600201-3	189 01	6.00	500		500	301223	764407	GW	01
3600201-4	189 04	8.00	500		500	301248	762144	GW	01 INACTIVE
3600201-5	189 01	8.00	500		500	300726	761881	GW	01
3600201-6	189 04	6.00	500		500	298910	761863	GW	01 INACTIVE
3600201-7	189 01	8.00	500		500	297625	760805	GW	01
3600201-8	189 01	6.00	500		500	296831	761870	GW	01
3600201-9	189 01	6.00	500		500	296752	761530	GW	01
3600218	241.48	117.00 02	36	12/80	4	BERRY GROVES INC/MAW #1 GROVE			
3600218-1	188 01	8.00 02	1000	60	1000	276122	767632	GW	01
3600218-2	188 01	8.00 02	1000	60	1000	276160	768241	GW	01
3600218-3	188 03	8.00 02	1000	60	1000	276235	768933	GW	01 INACTIVE
3600218-4	188 03	8.00 02	1000	60	1000	277620	767393	GW	01 INACTIVE
3600221	125.00	28.10 02	36	1/81	1	F. WEEKS			
3600221-1	203 01	8.00 02	650		650	255378	737287	GW	01
3600225						CARL GLIDDEN			
3600225-1		02 02	22	18	650	GW 01 PERMIT MISSING			
3600243	17.00	3.10 02	36	5/81	3	GREEN JEMS INC.			
3600243-1	187 01	4.00 02	10	9	600	237361	767191	GW	01 REMAINING 7 WELLS ARE UNUSED-
3600243-2	187 01	6.00 02	900		900	237376	767592	GW	01 NO FURTHER DATA AVAILABLE.
3600243-3	187 01	4.00 02	35	25	900	237355	767787	GW	01

3600252	3600252-SW1	187 01	29.58 02	36 10/81 LAN SW	750	2 WILDCAT DEV CORP	15 0.8 2	113 0.75
	3600252-SW2	187 01	02		750	254378 766497 SW 01		
			02			254583 763274 SW 01		
3600261	226.90	03	8.00 02	36 10/83 GLF BOTH	2	3 FIDDLESTICKS LTD	15 0.8 2	265 0.75
	3600261-1	169 01	8.00 02	640 432	700	234471 796024 GW 06		
	3600261-2	169 03	8.00 02	*** 950	70	234561 795747 GW 07	TEST & MONITOR WELL	
	3600261-SW1	169 01			500	235750 792703 SW 01		
	3600261-SW2	169 01			500	232273 795134 SW 01		
	3600261-SW3	169 01			300	235992 792482 SW 01		
3600282	1200.00	03	8.00 02	36 10/82 LAN GW	12	BONITA BAY PROPERTIES	15 0.8 2	2375 0.75
	3600282-W1	202 01	10.00 02	33 19	350	236467 734293 GW 01		
	3600282-W2	202 02	10.00 02	32 19	200	236140 733485 GW 01		
	3600282-W3	202 02	10.00 02	32 19	200	236135 732714 GW 01		
	3600282-W4	202 02	10.00 02	27 18	200	235466 734241 GW 01		
	3600282-W5	202 02	10.00 02	29 18	200	235448 733851 GW 01		
	3600282-W6	202 02	10.00 02	30 19	200	235477 733466 GW 01		
	3600282-W7	202 02	10.00 02	32 19	200	235465 733072 GW 01		
	3600282-W8	202 02	10.00 02	32 19	200	235421 732772 GW 01		
	3600282-T1	202 01	10.00 02	120 74	350	236527 734455 GW 03		
	3600282-T2	202 02	10.00 02	120 75	350	236334 733490 GW 03		
	3600282-T3	202 02	10.00 02	120 75	350	236320 732691 GW 03		
	3600282-H1	202 01	8.00 02	255 235	1000	236199 734284 GW 05		
3600283	573.00	03	250.00 02	36 10/82 AGR BOTH	3	2 S. JAMERSON	61 0.8 2	323 0.50
	3600283-1	188 01	8.00 02	85	600	274765 780683 GW 01		
	3600283-2	188 01	8.00 02	85	600	275984 779809 GW 01		
	3600283-3	188 01	8.00 02	85	600	278594 780335 GW 01		
	3600283-SW1	188 01			6000	274163 778066 SW 01		
	3600283-SW2	188 01			10000	274816 778129 SW 01		
3600286	69.57	03	8.00 02	36 10/82 AGR GW	3	POTTINGER'S NURSERY INC	70 1.5 2	20 0.20
	3600286-1	188 01	4.00 02	60 40	300	266550 783696 GW 01	PERMIT REISSUED	
	3600286-2	188 01	4.00 02	120 101	500	266456 783425 GW 04		
	3600286-3	188 01	14.00 02	120 100	500	266284 783657 GW 04		
3600303	153.00	03	23.30 02	36 6/82 GLF GW	4	CYPRESS PINES COUNTRY CLUB	15 0.8 2	89 0.75
	3600303-1	170 01	4.00 02	50 50	300	295006 813398 GW 01		
	3600303-2	170 01	4.00 02	50 50	300	295193 813564 GW 01		
	3600303-3	170 01	4.00 02	50 50	300	295339 813706 GW 01		
	3600303-4	170 02	4.00 02	50 50	300	295519 813808 GW 01		
3600308	115.28	03	8.00 02	36 3/82 GLF BOTH	4	3 SAN CARLOS GOLF, INC	15 0.8 2	101 0.75
	3600308-1	187 01	8.00 02	40 19	197	229835 781408 GW 01		
	3600308-4	187 01	8.00 02	42 25	394	230859 782105 GW 01		
	3600308-5	187 02	12.00 02	130 110	600	229764 782153 GW 04		
	3600308-6	187 02	12.00 02	130 110	600	230694 781129 GW 04		
	3600308-SW1	187 01			405	229829 781673 SW 01		
	3600308-SW2	187 01			405	229827 781673 SW 01	PUMP #3- JOCKEY PUMP	
	3600308-SW3	187 01			405	229827 781673 SW 01		
3600312	3600312-SW1	170 01	124.00 02	36 4/82 AGR SW	3000	1 WALDEE BROS. FARM	61 0.8 2	160 0.75















3601272	7.70	03	36	9/89	NUR	GW	3	L.A.R.P. NURSERY	61	0-8	2	2	0.20
3601272-1		169 01	40	20			35	219802 832532 GW 01					
3601272-2		169 01	40	20			35	219840 832545 GW 01					
3601272-3		169 01	40	20			35	219850 832560 GW 01					
3601307	26.30	03	36	10/89	IND	GW	3	WILDCAT RUN DEV. CORP				2	
3601307-1		187 02	30	3			506	252708 763786 GW 01					
3601307-2		187 02	18	3			506	252522 763818 GW 01					
3601307-3		187 02	18	3			506	252515 763577 GW 01					

**APPENDIX G**

**PUBLIC WATER SUPPLY DATA**





## INTRODUCTION

The first portion of Appendix G contains the following parameters: utility name and permit number, utility well designations and their corresponding Florida planar coordinates, model locations, layer designations, well construction parameters and pump capacities. This information is followed by monthly pumpages in million gallon per month for each of the public water supply wells over the transient calibration period (February 1986 to December 1988).



Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity
IMMOKALEE WATER SEWER DISTRICT 11-00013	ISWD-1	360094	754878	3	24	32	275	236	4.00	200
	ISWD-7	358634	754561	3	24	32	255	228	6.00	200
	ISWD-8	360231	755285	3	24	32	315	230	8.00	200
	ISWD-9	358944	754642	3	24	32	275	250	8.00	225
	ISWD-10	360016	754319	3	25	32	310	236	8.00	250
	ISWD-11	360216	754630	3	24	32	310	234	8.00	250
	ISWD-101	352425	763614	2	23	30	195	145	8.00	250
	ISWD-102	352286	763870	2	23	30	154	114	6.00	250
	ISWD-103	352855	764177	2	23	31	180	140	8.00	200
	ISWD-201	355944	760365	2	23	33	180	140	8.00	200
	ISWD-202	366295	760377	2	23	33	180	140	8.00	200
	ISWD-301	349705	763471	2	23	30	200	140	8.00	250
	ISWD-302	360017	763501	2	23	30	200	140	8.00	250
	ISWD-303	366698	762119	2	23	33	200	140	8.00	250
	ISWD-304	366694	761503	2	23	33	200	140	8.00	250
	COLLIER CO EAST NAPLES 11-00015	CCEN-35	250203	655884	2	43	11	55	38	8.00
CCEN-76		250886	656493	2	43	11	60	30	8.00	200
CCEN-77		251360	655539	2	43	11	60	38	8.00	200
CCEN-78		252281	656444	2	43	11	60	36	8.00	200
CCEN-1		252242	653543	2	44	11	56	40	10.00	200
CCEN-2		251584	654369	2	43	11	61	40	10.00	200
CITY OF NAPLES COASTAL RIDGE 11-00017	NCR-1	240215	669124	2	41	9	90	56	8.00	350
	NCR-2	240480	670085	2	40	9	87	57	8.00	350
	NCR-3	241062	670119	2	40	9	89	56	8.00	350
	NCR-4	240450	670877	2	40	9	82	53	8.00	350
	NCR-5	240452	672049	2	40	9	82	53	8.00	350
	NCR-6	240422	673247	2	40	9	82	51	8.00	350
	NCR-7	240438	674131	2	40	9	89	60	8.00	350
	NCR-8	240414	675228	2	39	9	80	58	8.00	350
	NCR-8	240374	676452	2	38	9	40	24	8.00	350
	NCR-10	240370	677712	2	38	9	87	54	8.00	350
	NCR-11	240385	678803	2	38	9	87	64	8.00	350
	NCR-12	240319	679544	2	38	9	83	64	8.00	350
	NCR-13	240366	680279	2	38	9	83	63	8.00	350

Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity	
CITY OF MAPLES COASTAL RIDGE 11-00017	MCR-14	240357	680986	2	38	9	83	64	8.00	350	
	MCR-15	240331	681654	2	38	9	83	64	8.00	350	
	MCR-16	240421	682957	2	38	9	80	60	10.00	350	
	MCR-17	240317	683628	2	38	9	85	81	8.00	350	
	MCR-18	240442	684588	2	38	9	85	81	8.00	350	
	MCR-19	240559	685564	2	38	9	85	81	8.00	350	
	MCR-20	240699	686759	2	37	9	85	62	8.00	350	
	MCR-21	240803	687778	2	37	9	85	81	8.00	350	
	MCR-22	240998	688987	2	37	9	85	81	8.00	350	
	MCR-23	241178	690454	2	37	9	85	81	8.00	350	
	MCR-24	241273	691515	2	36	9	85	63	8.00	350	
	MCR-25	241410	692495	2	36	9	85	62	8.00	350	
	MCR-26	241573	693552	2	36	9	85	62	8.00	350	
	MCR-27	241678	694401	2	36	9	85	61	8.00	350	
	MCR-28	241821	695849	2	36	9	85	61	8.00	350	
	MCR-29	241890	694184	2	36	9	85	54	8.00	350	
	MCR-30	242087	695065	2	38	10	85	54	8.00	350	
	MCR-31	241788	693218	2	38	9	85	54	8.00	350	
	MCR-32	243030	693198	2	38	10	85	54	8.00	350	
	MCR-33	244284	693161	2	38	10	85	54	8.00	350	
	MCR-34	245174	693234	2	38	10	85	54	8.00	350	
	CITY OF MAPLES E. GOLDEN GATE 11-00018	MEGG-1	326435	695331	2	36	25	71	42	14.00	500
		MEGG-2	326561	693901	2	36	26	93	48	14.00	500
		MEGG-3	326456	692573	2	36	25	80	39	14.00	500
		MEGG-4	326458	691247	2	36	25	81	42	14.00	700
		MEGG-5	326488	689952	2	37	26	98	42	14.00	900
		MEGG-6	326468	688600	2	37	26	101	42	14.00	700
		MEGG-7	326510	687299	2	37	26	109	47	14.00	900
		MEGG-8	326502	685937	2	37	26	133	42	14.00	900
		MEGG-9	326480	684640	2	38	26	82	42	14.00	700
		MEGG-10	326490	683287	2	38	26	131	42	14.00	700
		MEGG-11	326546	681992	2	38	26	112	37	14.00	600
		MEGG-12	326549	680656	2	38	26	100	37	14.00	700
		MEGG-13	326575	679306	2	39	26	100	40	14.00	700
MEGG-14		326581	677980	2	39	26	80	38	14.00	700	

Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity
CITY OF NAPLES E. GOLDEN GATE 11-00018	NEGG-16	315759	697851	2	35	26	137	39	14.00	1000
	NEGG-17	315691	704185	2	34	26	117	40	14.00	1000
	NEGG-18	315770	703086	2	34	26	100	38	14.00	1000
	NEGG-19	315800	701483	2	35	26	85	42	14.00	1000
	NEGG-20	315718	700467	2	35	26	86	46	14.00	1000
	NEGG-21	315741	699130	2	35	26	78	51	14.00	600
	NEGG-22	321159	689887	2	37	24	100	40	14.00	700
	NEGG-23	321608	691209	2	36	25	100	40	14.00	700
NEGG-24	321222	682582	2	38	25	100	40	14.00	700	
PELICAN BAY IMP. DISTRICT 11-00052	PB10-1	253058	705689	2	34	12	90	53	10.00	300
	PB10-2	253022	706418	2	34	12	98	70	10.00	300
	PB10-3	253040	707029	2	33	12	100	89	10.00	300
	PB10-4	253037	707515	2	33	12	100	89	10.00	300
	PB10-5	253038	708189	2	33	12	98	49	10.00	300
	PB10-6	253052	708805	2	33	12	100	52	10.00	300
	PB10-7	253086	709368	2	33	12	102	53	10.00	300
MARCO ISLAND UTILITIES 11-00080	MIU-S1	273685	631605	1	48	16		SURFACE WATER PUMP		3000
	MIU-S2	274280	631198	1	48	16		SURFACE WATER PUMP		3000
	MIU-S3	273938	630269	1	48	16		SURFACE WATER PUMP		2300
	MIU-S4	273988	630591	1	48	15		SURFACE WATER PUMP		2300
	MIU-S5	273228	630018	1	48	16		SURFACE WATER PUMP		1500
	MIU-S6	272586	628810	1	48	16		SURFACE WATER PUMP		5000
	MIU-S7	272135	630727	1	48	16		SURFACE WATER PUMP		6000
FLORIDA CITIES GOLDEN GATE 11-00148	FCMC-1	272112	671905	1	40	15	20	15	4.00	75
	FCMC-3	272496	671991	1	40	15	45	35	6.00	250
	FCMC-4	272338	671872	1	40	15	45	35	8.00	250
	FCMC-5	272471	672191	1	40	15	45	15	8.00	250
	FCMC-8	272475	671883	1	40	15	23	17	8.00	250
EVERGLADE CITY COPELAND	EC-2	378682	582766	1	55	36	25	15	8.00	200
	EC-3	379485	582787	1	55	36	25	15	8.00	200

Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity
NORTH MAPLES UTILITIES	MMU-1	263238	711348	1	33	14	35	20	10.00	1000
	MMU-2	263138	710925	1	33	14	40	18	10.00	500
NAPLES ISLE 11-00235	MIU-1	282554	624410	1	49	17	20	20	4.00	68
	MIU-2	282802	624086	1	49	17	20	20	4.00	68
	MIU-3	282442	624077	1	49	17	20	20	4.00	68
COLLIER COUNTY UTILITIES 11-00249	CCU-1	296316	683989	2	38	20	96	50	16.00	700
	CCU-2	297711	683949	2	38	20	100	50	16.00	700
	CCU-3	296987	684110	2	38	20	100	51	16.00	700
	CCU-4	300500	683852	2	38	21	102	52	16.00	700
	CCU-5	301927	683811	2	38	21	108	50	16.00	700
	CCU-6	301241	684117	2	38	21	101	65	12.00	700
	CCU-7	301238	685300	2	38	21	106	65	12.00	700
	CCU-8	301242	686488	2	37	21	106	70	12.00	700
	CCU-9	303201	687688	2	37	21	114	65	12.00	700
	CCU-10	301192	686884	2	37	21	112	71	12.00	700
	CCU-11	301230	689825	2	37	21	137	90	12.00	700
	CCU-12	301187	691095	2	36	21	133	90	12.00	700
	CCU-13	301210	692054	2	36	21	130	84	12.00	700
	CCU-14	301194	693198	2	36	21	131	85	12.00	700
	CCU-15	301187	694102	2	36	21	130	84	12.00	700
CCU-16	301181	695091	2	36	21	150	90	12.00	700	
PORT OF ISLAND 11-00271	POI-1	341288	587908	4	54	28	380	300	6.00	300
	POI-2	342232	597959	4	54	28	380	300	6.00	300
LEE COUNTY UTILITIES 36-00003	LCU-1	269802	774088	3	21	15	205	135	12.00	350
	LCU-2	271440	774482	3	21	15	250	160	12.00	350
	LCU-3	273078	774878	3	21	15	260	180	12.00	350
	LCU-4	269871	770048	3	21	16	300	190	12.00	350
	LCU-5	271508	770241	3	21	15	300	205	12.00	350
	LCU-6	273236	770535	3	21	15	300	215	12.00	350
	LCU-7	269880	771765	1	21	15	135	45	12.00	500
	LCU-8	270605	771458	1	21	15	145	60	12.00	500
	LCU-9	271423	771453	1	21	15	145	55	12.00	500

Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity	
LEE COUNTY UTILITIES 36--00003	LCU-10	272240	771247	1	21	15	156	60	12.00	500	
	LCU-11	273332	771342	1	21	15	150	55	12.00	500	
	LCU-12	269963	770351	1	21	15	145	50	12.00	500	
	LCU-13	270781	770348	1	21	15	140	50	12.00	500	
	LCU-14	271800	770544	1	21	15	150	50	12.00	500	
	LCU-15	272509	770438	1	21	15	150	58	12.00	500	
	LCU-16	273327	770534	1	21	15	155	60	12.00	500	
	LCU-18	270251	773075	1	21	15	115	45	12.00	500	
	LCU-19	271614	773088	1	21	15	120	50	12.00	500	
	LCU-20	272785	772961	1	21	15	120	50	12.00	500	
	LCU-21	270430	774185	1	21	15	105	35	12.00	500	
	LCU-22	270094	774284	1	21	15	110	40	12.00	500	
	LCU-23	272077	774580	1	21	15	115	45	12.00	500	
	LCU-24	272532	774679	1	21	15	120	50	12.00	500	
	BONTIA SPRINGS UTILITIES 36-00008	BSWS-1	252844	735512	2	28	12	80	64	8.00	315
		BSWS-2	252935	733897	2	28	12	80	65	8.00	225
		BSWS-3	252930	733088	2	29	12	80	65	8.00	225
		BSWS-4	252925	732281	2	29	12	80	64	8.00	225
		BSWS-5	252921	731675	2	29	12	80	64	8.00	465
		BSWS-6	252916	730885	2	29	12	80	58	8.00	225
		BSWS-7	252929	736318	2	28	12	97	66	12.00	470
		BSWS-8	252955	737430	2	28	12	85	70	8.00	200
		BSWS-9	252960	738339	2	28	12	85	70	8.00	265
		BSWS-10	252967	738448	2	27	12	90	66	12.00	475
BSWS-11		252911	729858	2	29	12	97	67	12.00	520	
GULF UTILITIES 36-00122	GULF-6	238979	760208	1	20	9	40	19	8.00	500	
	GULF-7	238991	761758	1	19	9	37	19	8.00	200	
	GULF-8	238998	762709	1	19	9	38	19	8.00	400	
	GULF-9	238983	760656	1	20	9	45	22	8.00	600	
	GULF-10	238956	777156	1	20	9	38	20	8.00	250	
FLORIDA CITIES GREEN MEADOWS 36-00150	GM-1	262893	761593	3	13	13	170	170	10.00	500	
	GM-1D	262993	761593	1	13	13	40	14	10.00	500	
	GM-2	263808	761286	3	13	13	170	170	10.00	500	

Utility	Well Id	Xcoord	Ycoord	Layer	Row	Column	Total Depth	Cased Depth	Well Diameter	Pump Capacity	
FLORIDA CITIES GREEN MEADOWS 38-00150	GM-2A	263809	781286	1	13	13	38	20	10.00	500	
	GM-3	263722	781892	3	13	13	195	100	10.00	500	
	GM-3A	263722	781892	1	13	13	42	17	10.00	500	
	GM-3B	263722	781892	1	13	13	42	22	10.00	500	
	GM-4	265354	781277	3	13	13	185	106	10.00	500	
	GM-4A	265354	781277	1	13	13	42	20	10.00	508	
	GM-5	267806	781263	3	13	13	185	102	10.00	500	
	GM-6	270623	781246	3	13	13	235	90	10.00	350	
	GM-7	273186	781234	3	13	13	235	90	10.00	600	
LEHIGH ACRES 38-00166	GM-9	278344	781206	3	13	13	208	91	10.00	500	
	GM-9A	278344	781206	1	13	13	42	20	10.00	500	
	LEN-1	292547	826744	3	11	18	65	50	8.00	150	
	LEN-2	291035	825256	3	11	18	89	52	8.00	150	
	LEN-3	288881	824773	3	11	18	68	58	8.00	200	
	LEN-4	290049	827114	3	11	18	85	60	8.00	150	
	LEN-5	290995	826507	3	11	18	68	66	8.00	150	
	LEN-6	289244	826470	3	11	18	62	62	8.00	100	
	LEN-7	282833	825042	3	11	18	85	57	8.00	200	
TROST INTERNATIONAL	LEN-8	288827	824058	3	11	18	60	62	8.00	250	
	LEN-9A	288425	823968	3	11	18	60	63	8.00	200	
	TROST1	253800	742200	3	27	12	95	84	4.00	250	
	TROST2	253800	724400	3	27	12	95	84	4.00	250	
	HARBOR UTILITIES 38-00366	HAR-1	240614	737081	2	28	8	65	65	2.50	70
		HAR-2	240712	736973	2	28	8	65	65	2.50	120
		HAR-3	240862	736819	2	28	8	65	65	2.50	120
		HAR-4	240446	736937	2	28	8	65	65	4.00	120
		HAR-5	240607	736806	2	28	8	65	65	4.00	120
HAR-6		240607	736806	2	28	8	65	65	4.00	120	



MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86
IMMOKALEE WATER SEWER DISTRICT 11-00013	IWS0-1	5.558	5.199	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-7	5.556	5.189	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-8	5.556	5.199	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-9	5.556	5.189	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-10	5.556	5.199	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-11	5.556	5.189	5.565	7.176	8.263	5.163	5.085	5.993	6.074	6.466	6.766	7.172
	ISWD-101	7.380	6.287	7.006	8.631	6.254	6.899	4.705	4.723	4.481	5.222	5.200	5.232
	ISWD-102	7.380	6.287	7.006	8.631	6.254	6.899	4.705	4.723	4.491	5.222	5.200	5.232
	ISWD-103	7.380	6.287	7.006	8.631	6.254	6.899	4.705	4.723	4.491	5.222	5.200	5.232
	ISWD-201	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-202	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-302	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ISWD-304	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
COLLIER CD EAST MAPLES 11-00016	CCEN-35	1.726	2.029	2.332	2.123	1.913	1.479	0.383	1.617	1.443	1.616	2.410	1.966
	CCEN-76	1.726	2.029	2.332	2.123	1.913	1.479	0.383	1.617	1.443	1.646	2.410	1.966
	CCEN-77	1.726	2.029	2.332	2.123	1.913	1.479	0.383	1.617	1.443	1.648	2.410	1.966
	CCEN-78	1.726	2.029	2.332	2.123	1.913	1.479	0.383	1.617	1.443	1.646	2.410	1.966
	CCEN-1	1.726	2.029	2.332	2.123	1.913	0.000	0.000	0.000	0.000	0.000	0.000	1.966
	CCEN-2	1.726	2.029	2.332	2.123	1.913	0.000	0.000	0.000	0.000	0.000	0.000	1.966
CITY OF MAPLES COASTAL RIDGE 11-00017	NCR-1	3.263	2.960	2.735	3.031	3.866	2.832	3.766	2.888	8.039	8.047	7.985	2.050
	NCR-2	3.263	2.960	2.735	3.031	3.718	2.832	3.766	2.888	7.562	8.925	7.985	2.035
	NCR-3	3.263	2.960	2.735	3.031	3.718	2.832	3.766	2.888	7.562	8.925	7.985	2.035
	NCR-4	3.263	2.960	2.735	3.031	3.401	2.832	3.766	2.888	7.916	8.047	7.985	2.119
	NCR-6	3.263	2.960	2.735	3.031	3.401	2.832	3.766	2.888	7.916	8.047	7.985	2.119
	NCR-6	3.263	2.960	2.735	3.031	3.401	2.832	3.766	2.888	7.916	8.047	7.985	2.119
	NCR-7	3.263	2.960	2.735	3.031	3.539	2.832	3.766	2.888	8.026	8.047	7.985	2.068
	NCR-8	0.816	0.699	0.684	0.758	0.044	0.708	0.941	0.722	0.077	0.075	0.073	0.039
	NCR-9	2.447	2.097	2.052	2.273	3.636	2.124	2.824	2.166	8.026	8.032	7.924	2.214
	NCR-10	0.816	0.699	0.684	0.758	0.032	0.708	0.941	0.722	0.077	0.075	0.073	0.039
	NCR-11	2.447	2.097	2.052	2.273	3.046	2.124	2.824	2.166	8.775	8.003	7.955	2.218
	NCR-12	3.263	2.860	2.735	3.031	3.265	8.450	3.766	2.888	7.859	7.987	7.847	2.182



MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86
CITY OF MAPLES E. GOLDEN GATE 11-00016	MEGG-13	22.838	22.443	24.129	26.737	20.576	10.809	8.793	17.521	8.641	17.984	12.408	19.726
	MEGG-14	22.838	22.443	24.129	0.000	20.576	10.809	8.783	17.521	8.841	12.613	12.466	19.726
	MEGG-16	32.271	31.713	34.095	36.443	28.075	15.273	13.837	24.758	12.211	14.016	17.615	27.873
	MEGG-17	32.271	31.713	34.095	35.682	29.075	15.273	13.837	24.758	12.211	0.000	17.615	27.873
	MEGG-18	32.271	31.730	34.095	35.853	29.075	15.273	13.837	24.758	12.211	26.932	17.615	27.873
	MEGG-19	32.271	31.730	34.095	0.000	29.075	15.273	13.837	24.758	12.211	0.000	17.615	27.873
	MEGG-20	32.271	31.730	34.095	0.000	29.075	15.273	13.837	24.758	12.211	0.000	17.615	27.873
	MEGG-21	19.363	19.027	20.457	0.000	17.445	9.184	8.302	14.856	7.326	0.000	10.569	16.724
	MEGG-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	MEGG-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
MEGG-24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PELICAN BAY JMP. DISTRICT 11-00052	PBID-1	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-2	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-3	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-4	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-5	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-6	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
	PBID-7	5.212	5.412	5.741	6.433	6.074	5.166	5.272	5.287	5.682	6.179	6.367	6.372
MARCO ISLAND UTILITIES 11-00080	MIU-S1	16.869	20.654	19.714	22.677	22.531	21.044	11.972	16.635	13.713	14.560	17.604	17.485
	MIU-S2	18.869	20.654	19.714	22.677	22.531	21.044	11.972	16.635	13.713	14.560	17.604	17.485
	MIU-S3	13.977	15.298	14.803	16.946	16.690	15.588	8.888	12.322	10.158	10.785	13.040	12.952
	MIU-S4	13.977	15.298	14.803	16.946	16.690	15.588	8.888	12.322	10.158	10.785	13.040	12.952
	MIU-S5	11.977	10.709	10.222	11.882	11.683	10.912	6.207	8.625	7.111	7.550	9.128	9.066
	MIU-S6	32.147	35.188	33.587	38.976	38.387	35.852	20.396	28.341	23.363	24.806	28.892	29.790
	MIU-S7	32.147	35.188	33.587	38.976	38.387	35.852	20.396	28.341	23.363	24.806	29.992	29.790
FLORIDA CITIES GOLDEN GATE 11-00148	FCWC-1	0.042	0.120	0.000	0.000	0.017	0.000	0.000	0.000	0.000	0.000	0.000	0.100
	FCWC-3	3.627	1.303	0.424	0.000	1.031	2.094	2.118	1.137	1.678	0.881	0.275	0.289
	FCWC-4	4.147	3.325	5.878	3.940	4.106	3.941	2.459	4.796	5.741	3.885	1.235	0.729
	FCWC-5	4.829	6.223	8.267	7.558	7.376	5.677	7.542	7.689	6.006	8.108	10.584	10.383
	FCWC-6	4.832	6.086	6.178	8.029	7.327	5.682	7.192	6.950	6.334	8.733	9.677	10.644

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86
EVERGLADE CITY COPELAND	EC-2	0.900	1.571	1.558	1.258	1.118	1.003	0.888	1.216	1.464	1.361	1.396	1.317
	EC-3	0.900	1.571	1.558	1.258	1.118	1.003	0.888	1.216	1.464	1.361	1.396	1.317
	NMU-1	1.185	1.432	1.469	2.248	2.759	1.443	1.562	1.250	1.373	2.272	1.686	1.786
NORTH MAPLES UTILITIES	NMU-2	1.185	1.432	1.469	2.248	2.769	1.443	1.562	1.250	1.373	2.272	1.686	1.786
	CCU-1	28.002	30.685	24.087	31.824	26.682	19.653	17.656	17.749	19.708	22.258	26.479	27.111
COLLIER COUNTY UTILITIES 11-00249	CCU-2	28.002	27.660	19.267	25.224	22.091	11.212	17.656	17.749	19.708	22.258	26.479	27.111
	CCU-3	28.002	30.685	24.179	31.899	22.056	16.348	17.656	17.749	19.708	22.258	26.479	27.111
	CCU-4	0.000	0.000	26.677	32.453	30.244	22.325	17.656	17.749	19.708	22.258	26.479	27.111
	CCU-5	28.002	30.646	26.598	21.988	28.804	22.925	17.656	17.749	19.708	22.258	26.479	27.111
	CCU-6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CCU-7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PORT OF ISLAND 11-00271	POI-1	1.584	1.470	1.989	1.692	2.020	2.015	2.088	1.847	1.316	1.931	2.039	1.884
	POI-2	1.584	1.470	1.989	1.692	2.020	2.015	2.088	1.847	1.316	1.931	2.039	1.884
LEE COUNTY UTILITIES 36-00003	LCU-1	2.037	0.378	0.819	0.168	10.980	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	LCU-2	3.822	9.261	9.576	11.000	10.980	0.504	1.008	0.000	0.000	0.000	8.850	0.072
	LCU-3	5.523	8.464	2.289	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	LCU-4	4.242	1.995	11.080	0.000	0.000	0.000	0.987	0.000	0.000	0.000	7.959	7.560
	LCU-5	2.814	1.113	11.580	11.000	10.270	0.840	1.155	0.000	0.000	0.000	8.064	7.056
	LCU-6	4.536	0.000	10.180	11.000	10.270	1.008	1.008	0.000	0.000	0.000	6.552	7.560
	LCU-7	6.600	9.000	7.560	11.280	10.830	6.360	6.840	7.140	8.690	7.020	6.480	8.330
	LCU-8	6.660	8.250	6.840	9.750	7.620	5.780	7.920	6.840	7.530	7.350	7.500	8.610
	LCU-9	5.910	1.660	9.120	7.110	6.570	6.240	6.120	6.660	7.080	7.560	5.640	6.660

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86	
LEE COUNTY UTILITIES 36-00003	LCU-10	0.000	0.060	0.000	9.860	8.400	6.720	6.030	6.960	4.820	6.390	6.780	5.280	
	LCU-11	6.860	9.640	6.100	3.570	7.440	7.200	6.150	3.060	3.450	6.300	7.880	7.500	
	LCU-12	6.060	6.220	3.600	7.380	7.880	7.005	6.210	5.790	7.170	9.060	4.440	7.440	
	LCU-13	4.320	6.830	3.210	4.770	4.830	6.390	7.230	6.530	6.480	7.830	3.750	1.440	
	LCU-14	5.160	1.170	6.090	1.440	2.040	6.480	5.670	6.600	6.420	6.760	2.790	5.840	
	LCU-15	4.500	8.430	2.880	3.800	3.360	6.720	5.700	6.660	7.020	7.020	4.320	3.330	
	LCU-16	8.300	8.610	2.940	1.440	3.210	6.720	6.730	6.670	4.440	8.910	4.280	4.500	
	LCU-18	6.890	5.850	7.620	7.580	6.750	6.720	5.820	6.420	5.670	8.250	5.480	7.930	
	LCU-19	6.840	6.780	6.010	8.520	7.770	5.760	7.170	6.810	4.470	6.000	6.670	7.200	
	LCU-20	6.750	4.320	0.180	9.240	6.520	6.300	5.480	6.900	7.020	6.280	6.330	8.870	
	LCU-21	5.880	6.700	4.500	6.220	6.160	6.480	6.600	6.310	8.860	6.690	6.750	7.680	
	LCU-22	6.270	2.620	4.320	2.520	4.380	7.200	6.700	5.940	6.030	8.040	4.920	4.560	
	LCU-23	4.850	2.100	3.270	3.810	2.880	6.640	6.850	5.780	6.840	7.140	2.160	4.500	
	LCU-24	6.800	4.580	6.160	10.200	10.620	6.570	7.620	7.230	6.180	8.700	7.650	7.710	
	BONTIA SPRINGS UTILITIES 36-00008	BSWS-1	4.615	4.373	4.814	4.818	4.253	3.292	3.541	3.177	3.279	0.000	0.000	0.000
		BSWS-2	3.289	3.116	3.431	3.434	3.031	2.346	2.524	2.264	2.337	0.000	0.000	0.000
		BSWS-3	3.289	3.116	3.431	3.434	3.031	2.346	2.524	2.264	2.337	0.000	0.000	0.000
		BSWS-4	3.289	3.116	3.431	3.434	3.031	2.346	2.524	2.264	2.337	3.525	1.086	1.458
		BSWS-5	6.843	6.484	7.138	7.146	6.306	4.881	5.251	4.710	4.861	6.401	7.157	6.408
		BSWS-6	3.289	3.116	3.431	3.434	3.031	2.346	2.524	2.264	2.337	1.224	0.732	0.000
		BSWS-7	6.896	6.534	7.193	7.201	6.355	4.919	5.292	4.747	4.889	6.102	11.880	8.334
		BSWS-8	2.816	2.764	3.043	3.047	2.689	2.081	2.239	2.008	2.073	2.870	3.809	4.104
		BSWS-9	3.872	3.869	4.039	4.044	3.568	2.762	2.972	2.865	2.751	3.864	5.028	5.292
		BSWS-10	7.002	6.634	7.304	7.312	6.452	4.895	5.373	4.829	4.975	9.702	1.932	7.862
BSWS-11		7.639	7.238	7.968	7.877	7.038	6.448	5.882	5.258	5.427	8.639	12.474	14.580	
GULF UTILITIES 36-00122	GULF-6	8.113	8.222	9.352	12.048	11.160	8.357	8.414	7.729	6.015	9.696	10.352	10.243	
	GULF-7	3.048	3.084	3.128	4.029	3.732	2.795	2.814	2.585	2.880	3.242	3.339	3.304	
	GULF-8	6.066	6.138	6.225	8.019	7.428	5.562	5.600	5.144	5.335	6.453	6.846	6.774	
	GULF-9	7.575	7.665	7.773	10.014	8.276	6.946	6.993	6.424	6.662	8.059	8.515	8.425	
	GULF-10	3.787	3.832	3.887	5.007	4.638	3.473	3.487	3.212	3.331	4.029	4.341	4.296	

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN86	FEB86	MAR86	APR86	MAY86	JUN86	JUL86	AUG86	SEP86	OCT86	NOV86	DEC86	
FLORIDA CITIES GREEN MEADOWS 36-00150	GM-1	19,739	11,440	12,837	10,050	10,847	14,282	10,763	10,211	10,960	23,673	0,888	5,938	
	GM-1D	8,419	3,002	3,105	0,000	0,000	5,594	17,627	8,572	13,325	7,420	8,817	6,547	
	GM-2	13,719	13,295	15,301	18,186	10,855	10,727	4,780	4,410	0,471	11,191	5,770	3,973	
	GM-2A	11,567	2,815	1,464	7,544	2,727	8,823	1,208	12,348	7,577	7,713	4,847	0,102	
	GM-3	0,000	0,000	0,000	3,372	14,667	15,343	11,015	11,415	12,929	10,561	14,710	17,610	
	GM-3A	6,873	0,858	1,867	7,824	0,063	4,178	1,970	1,087	2,561	2,803	17,702	3,434	
	GM-3B	8,218	2,527	0,812	7,833	2,291	1,858	0,483	8,480	17,984	14,635	0,444	19,801	
	GM-4	10,884	16,857	21,647	16,834	8,388	0,000	0,000	0,000	0,000	0,000	0,000	15,531	28,286
	GM-4A	17,559	0,738	21,257	17,751	0,007	1,488	8,176	7,500	22,174	23,168	8,741	0,750	
	GM-5	20,945	19,079	21,228	20,597	21,488	17,654	20,000	14,474	0,000	22,827	20,878	21,579	
GM-6	8,403	0,000	9,244	10,864	19,514	12,442	14,546	8,855	0,900	0,000	4,011	0,614		
GM-7	8,014	10,585	17,822	15,161	15,857	16,892	18,021	18,933	19,578	0,000	11,608	19,070		
GM-9	5,410	10,011	19,349	6,327	7,423	0,000	0,533	0,000	0,000	0,000	0,000	12,158	20,226	
GM-9A	0,510	10,482	21,040	0,000	0,001	0,000	0,000	0,000	0,000	0,000	0,001	0,001	0,000	
LEHIGH ACRES 36-00166	LEH-1	2,560	3,170	3,015	3,346	1,702	2,219	2,219	1,912	0,615	2,875	2,254	2,509	
	LEH-2	1,049	1,208	1,880	2,716	1,484	1,523	2,875	3,156	2,968	4,967	4,808	4,855	
	LEH-3	3,760	4,913	5,600	6,621	4,686	4,454	3,841	2,880	4,408	4,970	2,620	4,867	
	LEH-4	2,475	1,492	1,347	0,758	1,804	2,428	1,508	3,037	0,984	0,000	4,608	2,816	
	LEH-5	1,898	0,601	2,595	0,966	2,190	1,278	1,986	1,393	2,358	1,079	1,072	0,880	
	LEH-6	1,885	1,422	1,685	1,224	1,518	1,577	1,295	1,505	2,288	2,802	2,242	1,860	
	LEH-7	3,810	4,538	4,519	5,728	3,758	3,739	3,860	3,104	2,173	3,607	4,855	2,121	
	LEH-8	7,470	6,524	6,889	8,634	6,595	4,495	3,187	3,638	5,386	3,663	1,437	5,933	
	LEH-9A	6,544	0,009	6,417	5,172	6,205	4,081	6,854	7,072	8,907	7,584	6,132	5,734	
TREST INTERNATIONAL	TREST1	2,216	2,877	2,316	2,639	1,669	0,648	0,970	0,083	0,515	1,214	1,934	3,026	
	TREST2	2,216	2,877	2,316	2,639	1,669	0,648	0,970	0,083	0,515	1,214	1,934	3,026	
HARBOR UTILITIES 36-00366	HAR-1	0,585	0,380	0,420	0,366	0,243	0,198	0,198	0,185	0,168	0,211	0,256	0,380	
	HAR-2	0,585	0,380	0,420	0,366	0,243	0,198	0,198	0,185	0,168	0,211	0,256	0,380	
	HAR-3	0,585	0,380	0,420	0,366	0,243	0,198	0,198	0,185	0,168	0,211	0,256	0,380	
	HAR-4	0,585	0,380	0,420	0,366	0,243	0,198	0,198	0,185	0,168	0,211	0,256	0,380	
	HAR-5	0,585	0,380	0,420	0,366	0,243	0,198	0,198	0,185	0,168	0,211	0,256	0,380	







MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN87	FEB87	MAR87	APR87	MAY87	JUN87	JUL87	AUG87	SEP87	OCT87	NOV87	DEC87	
CITY OF NAPLES E. GOLDEN GATE 11-00018	MEG6-13	18,520	18,992	22,027	23,108	22,920	15,162	10,716	14,704	17,077	19,980	18,733	16,591	
	MEG6-14	18,520	18,992	22,027	23,108	22,920	16,056	10,716	14,704	12,682	11,823	17,167	17,598	
	MEG6-16	26,170	26,837	31,126	32,653	32,367	25,127	16,143	20,777	26,952	30,063	27,034	25,764	
	MEG6-17	26,170	26,837	31,126	32,653	32,367	19,094	15,143	20,777	18,738	27,185	23,938	11,253	
	MEG6-18	26,170	26,837	31,126	32,653	32,367	26,688	16,143	20,777	18,527	27,517	16,523	25,786	
	MEG6-19	26,170	26,837	31,126	32,653	32,367	17,710	15,143	20,777	11,511	33,921	27,840	26,395	
	MEG6-20	26,170	26,837	31,126	32,653	32,367	26,821	15,430	20,777	26,061	30,474	27,579	25,178	
	MEG6-21	15,702	16,102	18,676	19,582	19,432	16,878	9,088	12,488	10,701	0,000	0,000	0,000	4,335
	MEG6-22	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
	MEG6-23	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
MEG6-24	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	
PELICAN BAY IMP. DISTRICT 11-00052	PBID-1	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-2	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-3	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-4	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-5	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-6	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
	PBID-7	6,701	6,216	4,513	4,796	6,212	4,803	2,811	3,815	5,481	5,219	4,434	3,965	
MARCO ISLAND UTILITIES 11-00080	MIU-S1	22,310	22,194	23,487	25,779	22,064	20,616	17,434	13,882	14,787	23,258	20,385	21,946	
	MIU-S2	22,310	22,194	23,487	25,779	22,064	20,616	17,434	13,882	14,787	23,258	20,385	21,946	
	MIU-S3	16,532	16,440	17,398	18,098	16,344	15,271	12,914	10,135	10,961	17,272	15,085	16,256	
	MIU-S4	16,532	16,440	17,398	18,098	16,344	15,271	12,914	10,135	10,961	17,272	15,085	16,256	
	MIU-S5	11,572	11,508	12,178	13,367	11,441	10,689	9,040	7,095	7,673	12,059	10,559	11,379	
	MIU-S6	38,023	37,812	40,020	43,920	37,590	35,123	29,702	23,311	25,210	39,622	34,696	37,388	
	MIU-S7	38,023	37,812	40,020	43,920	37,590	35,123	29,702	23,311	25,210	39,622	34,696	37,388	
FLORIDA CITIES GOLDEN GATE 11-00148	FCWC-1	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	
	FCWC-3	0,033	0,135	0,096	0,093	1,873	2,075	0,000	0,000	3,163	3,568	4,215	2,768	
	FCWC-4	0,463	2,242	2,640	3,074	4,503	4,588	4,449	2,451	4,400	4,778	4,984	5,502	
	FCWC-5	10,891	9,367	10,450	10,030	8,043	7,553	10,455	10,182	8,786	7,958	7,630	10,596	
	FCWC-6	10,889	9,783	10,928	10,473	8,492	7,982	9,643	9,441	7,014	7,525	6,885	9,521	

MONTHLY PUMPAGE (MG/W)

UTILITY	WELL#	JAN87	FEB87	MAR87	APR87	MAY87	JUN87	JUL87	AUG87	SEP87	OCT87	NOV87	DEC87
EVERGLADE CITY COPELAND	EC-2	1.525	1.746	1.553	1.523	1.443	1.025	1.147	1.183	1.313	1.203	1.125	1.330
	EC-3	1.525	1.746	1.553	1.523	1.443	1.025	1.147	1.183	1.313	1.203	1.125	1.330
		1.997	2.037	2.610	2.698	2.659	2.318	1.593	1.940	1.714	1.824	1.854	2.142
NORTH MAPLES UTILITIES	MNU-1	1.997	2.037	2.610	2.698	2.659	2.318	1.593	1.940	1.714	1.824	1.854	2.142
	MNU-2	1.997	2.037	2.610	2.698	2.659	2.318	1.593	1.940	1.714	1.824	1.854	2.142
COLLIER COUNTY UTILITIES 11-00249	CCU-1	28.058	27.559	28.277	28.236	30.110	24.838	17.656	19.303	19.786	21.692	17.180	23.772
	CCU-2	28.058	27.559	28.277	28.236	30.110	24.838	17.656	19.303	19.786	21.692	17.180	23.772
	CCU-3	28.058	27.559	28.277	28.236	30.110	24.838	17.656	19.303	19.786	21.692	17.180	23.772
	CCU-4	28.058	27.559	28.277	28.236	30.110	24.838	17.656	19.303	19.786	21.692	17.180	23.772
	CCU-5	28.058	27.559	28.277	28.236	30.110	24.838	17.656	19.303	19.786	21.692	17.180	23.772
	CCU-6	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
CCU-7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-11	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-12	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-13	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-14	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-15	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
CCU-16	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PORT OF ISLAND 11-00271	POI-1	1.921	1.711	1.885	1.903	1.885	1.844	1.898	2.282	2.113	2.353	2.150	1.892
	POI-2	1.921	1.711	1.885	1.903	1.885	1.844	1.898	2.282	2.113	2.353	2.150	1.892
LEE COUNTY UTILITIES 36-00003	LCU-1	0.000	0.777	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	LCU-2	8.001	7.938	7.434	7.580	5.922	4.535	1.008	1.008	1.260	1.008	6.048	7.896
	LCU-3	0.000	0.000	0.755	5.544	6.972	5.040	1.008	1.008	1.008	1.512	6.048	8.148
	LCU-4	8.484	8.720	5.460	7.644	6.510	4.137	1.008	1.008	1.008	1.008	6.048	7.980
	LCU-5	6.972	5.859	4.536	4.032	5.166	5.040	1.008	1.008	1.260	1.008	6.022	6.573
	LCU-6	8.085	8.783	7.224	5.544	5.670	5.040	1.008	1.008	1.134	1.134	8.526	6.573
	LCU-7	7.110	6.600	6.930	7.710	7.080	5.340	7.710	7.320	6.390	7.020	4.980	6.090
	LCU-8	5.880	4.950	7.860	6.030	7.880	7.710	8.250	8.100	6.900	8.430	5.760	5.970
	LCU-9	5.420	6.330	5.310	7.580	6.830	7.800	6.660	7.200	7.110	7.170	6.810	6.300

MONTHLY PUMPAGE (MG/N)

UTILITY	WELL#	JAN87	FEB87	MAR87	APR87	MAY87	JUN87	JUL87	AUG87	SEP87	OCT87	NOV87	DEC87	
LEE COUNTY UTILITIES 36-00003	LCU-10	5.910	4.800	7.770	5.240	6.860	6.420	7.710	7.740	7.020	7.410	5.190	6.420	
	LCU-11	7.050	8.390	8.990	7.500	7.200	8.130	7.380	7.890	7.280	8.840	6.750	6.540	
	LCU-12	4.800	4.590	5.490	4.560	7.500	7.260	8.510	8.220	6.690	7.280	6.480	6.120	
	LCU-13	2.790	2.550	6.510	2.880	4.080	6.810	6.480	3.780	7.200	7.980	0.720	0.510	
	LCU-14	4.260	3.450	6.120	4.710	5.250	5.130	8.040	7.080	5.790	6.180	3.930	3.240	
	LCU-15	4.170	2.160	3.870	5.040	4.080	5.760	5.760	7.110	5.970	6.660	5.100	5.580	
	LCU-16	3.480	5.310	5.730	4.650	7.380	5.400	5.180	7.080	5.760	5.610	2.760	5.220	
	LCU-18	5.520	8.000	8.100	6.060	6.900	4.890	6.480	6.840	6.240	6.240	4.470	5.520	
	LCU-19	6.510	5.130	4.680	7.380	6.390	5.430	7.080	5.850	6.120	6.980	5.970	4.170	
	LCU-20	5.070	6.300	7.170	5.400	6.420	5.640	5.160	6.030	6.090	6.720	6.060	6.720	
	LCU-21	6.27	5.760	6.490	6.090	6.810	6.720	7.950	5.610	6.570	8.280	4.710	6.720	
	LCU-22	5.100	4.830	7.140	2.820	5.100	5.700	6.040	5.820	6.330	5.910	4.860	5.610	
	LCU-23	5.040	5.040	3.960	5.760	3.900	5.490	4.740	6.980	5.880	6.510	5.070	4.230	
	LCU-24	5.070	6.660	7.410	6.420	7.200	6.270	6.660	6.300	6.890	8.250	4.680	5.880	
	BONTIA SPRINGS UTILITIES 36-00008	BSWS-1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-4	0.582	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.135	0.000	0.459	0.000
		BSWS-5	12.247	9.878	16.128	8.845	14.616	0.737	12.499	12.120	8.266	11.544	3.578	16.392
		BSWS-6	0.000	1.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-7	11.064	8.362	9.576	12.456	10.170	10.584	5.232	6.408	7.776	11.448	7.956	11.538
		BSWS-8	3.276	2.232	3.607	3.555	2.610	0.045	0.018	0.000	0.000	0.486	1.089	1.242
		BSWS-9	5.076	4.956	6.108	2.052	3.696	4.020	1.776	1.032	3.384	5.328	2.028	2.376
		BSWS-10	6.376	12.550	11.088	12.197	5.502	0.000	4.788	14.062	6.678	17.388	18.144	15.824
BSWS-11		12.072	10.224	7.506	13.652	10.233	19.035	15.578	10.584	13.560	2.712	11.016	4.941	
GULF UTILITIES 36-00122	GULF-6	0.000	0.000	11.375	12.871	11.862	9.355	9.529	9.907	10.039	10.535	10.275	10.943	
	GULF-7	0.000	0.000	3.669	4.152	3.826	3.018	3.074	3.196	3.239	3.388	3.314	3.530	
	GULF-8	0.000	0.000	7.523	8.511	7.644	5.188	6.302	6.551	6.639	6.966	6.795	7.236	
	GULF-9	0.000	0.000	9.357	10.567	9.757	7.695	7.838	8.149	8.258	8.665	8.452	9.002	
	GULF-10	0.000	0.000	4.771	5.397	4.974	3.923	3.996	4.155	4.210	4.418	4.309	4.589	

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN87	FEB87	MAR87	APR87	MAY87	JUN87	JUL87	AUG87	SEP87	OCT87	NOV87	DEC87	
FLORIDA CITIES GREEN MEADOWS 36-00150	GM-1	2.839	17.393	12.434	7.602	23.239	8.259	17.352	19.219	16.725	9.504	16.827	25.145	
	GM-10	4.318	3.813	3.028	2.244	2.887	5.458	3.768	7.777	7.793	4.191	17.180	14.078	
	GM-2	9.653	9.864	12.643	13.123	5.459	7.019	14.002	12.828	11.702	6.410	10.835	5.393	
	GM-2A	1.463	17.094	11.862	19.938	15.292	2.151	10.408	5.758	0.482	7.628	3.319	8.990	
	GM-3	11.037	10.548	19.820	14.205	18.000	0.284	5.933	1.175	11.984	8.926	11.387	13.731	
	GM-3A	4.535	4.849	1.842	3.588	3.880	8.888	6.255	7.830	4.542	4.908	1.807	3.135	
	GM-3B	4.125	5.241	17.343	14.359	7.114	1.089	2.119	8.539	0.691	5.553	19.242	12.644	
	GM-4	23.073	3.730	18.755	21.352	0.080	21.000	15.898	6.467	10.388	8.805	1.044	12.782	
	GM-4A	22.887	20.417	3.107	0.000	16.057	0.017	23.085	3.085	11.885	10.403	0.001	0.108	
LEHIGH ACRES 36-00166	GM-5	21.641	19.212	20.698	20.898	0.012	19.876	21.871	7.486	18.988	19.918	12.654	18.461	
	GM-6	14.616	14.457	14.157	2.734	15.191	15.120	0.000	1.074	0.000	0.503	0.750	14.500	
	GM-7	20.088	7.624	18.427	17.282	14.892	16.929	0.000	1.328	0.000	0.598	1.734	17.518	
	GM-9	7.024	0.011	15.450	17.531	0.012	18.204	0.000	16.822	10.958	7.818	1.016	4.819	
	GM-9A	12.187	19.940	5.872	0.000	22.905	0.036	0.000	0.003	9.717	13.551	19.127	18.310	
	LEH-1	2.774	1.059	2.857	3.872	3.821	3.359	2.757	2.767	2.681	3.821	3.867	3.849	0.345
	LEH-2	5.035	4.925	5.883	5.102	4.893	4.376	4.804	5.334	5.051	5.282	4.737	5.057	
	LEH-3	3.790	4.887	8.890	3.200	1.801	3.058	2.484	3.157	4.039	4.236	3.581	2.914	
	LEH-4	2.885	2.050	2.733	2.533	3.231	3.589	2.330	3.234	2.876	3.515	3.183	2.012	
LEH-5	1.409	2.417	3.070	2.298	3.772	2.91	2.674	1.720	3.085	0.993	2.548	1.174		
LEH-6	1.787	2.445	2.144	2.786	1.425	1.851	1.841	1.010	0.731	0.225	0.239	0.385		
LEH-7	2.287	2.997	1.777	0.473	0.711	1.006	1.778	0.871	0.441	1.154	1.247	3.139		
LEH-8	7.111	4.476	1.882	6.886	5.704	4.175	3.638	4.720	0.935	3.572	3.298	5.810		
LEH-9A	5.904	5.888	7.060	6.035	6.005	5.188	5.707	5.289	7.557	0.799	7.393	7.149		
TREST INTERNATIONAL	TROST1	3.434	3.055	2.807	2.514	2.195	0.838	1.085	0.815	0.525	0.496	1.012	0.835	
	TROST2	3.434	3.055	2.807	2.514	2.195	0.838	1.085	0.815	0.525	0.496	1.012	0.835	
HARBOR UTILITIES 36-00366	HAR-1	0.401	0.451	0.504	0.388	0.275	0.200	0.214	0.243	0.189	0.281	0.354	0.457	
	HAR-2	0.401	0.451	0.504	0.388	0.275	0.200	0.214	0.243	0.189	0.281	0.354	0.457	
	HAR-3	0.401	0.451	0.504	0.388	0.275	0.200	0.214	0.243	0.189	0.281	0.354	0.457	
	HAR-4	0.401	0.451	0.504	0.388	0.275	0.200	0.214	0.243	0.189	0.281	0.354	0.457	
	HAR-5	0.401	0.451	0.504	0.388	0.275	0.200	0.214	0.243	0.189	0.281	0.354	0.457	

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88
IMMOKALEE WATER SEWER DISTRICT 11-00013	JWSD-1	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-7	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-8	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-9	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-10	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-11	5.143	5.021	5.265	5.722	5.711	4.641	4.388	4.520	4.270	5.133	4.631	4.648
	ISWD-101	3.951	4.029	4.525	5.541	6.200	5.463	5.486	6.642	6.741	7.043	6.742	7.213
	ISWD-102	3.951	4.029	4.525	5.541	6.200	5.463	5.486	6.642	6.741	7.043	6.742	7.213
	ISWD-103	3.951	4.029	4.525	5.541	6.200	5.463	5.486	6.642	6.741	7.043	6.742	7.213
	ISWD-201	11.935	10.733	12.030	14.837	15.154	10.821	9.763	10.133	12.013	15.277	15.445	18.601
	ISWD-202	11.935	10.733	12.030	14.837	15.154	10.821	9.763	10.133	12.013	15.277	15.445	18.601
COLLIER CO EAST MAPLES 11-00015	ISWD-301	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-302	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-303	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	ISWD-304	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	CCEN-36	2.203	2.464	2.693	2.633	2.641	2.017	2.423	2.149	2.092	2.358	2.774	2.689
	CCEN-76	2.203	2.464	2.693	2.633	2.641	2.017	2.423	2.149	2.092	2.358	2.774	2.689
	CCEN-77	2.203	2.464	2.693	2.633	2.641	2.017	2.423	2.149	2.092	2.358	2.774	2.689
	CCEN-78	2.203	2.464	2.693	2.633	2.641	2.017	2.423	2.149	2.092	2.358	2.774	2.689
CITY OF MAPLES CORSTAL RIDGE 11-00017	CCEN-1	2.203	2.464	2.693	2.633	2.641	2.017	0.000	0.000	0.000	2.358	2.774	2.689
	CCEN-2	2.203	2.464	2.693	2.633	2.641	2.017	0.000	0.000	0.000	2.358	2.774	2.689
	MCR-1	2.949	2.028	2.928	4.576	3.252	1.887	1.423	3.206	6.821	6.451	1.530	1.821
	MCR-2	2.580	2.217	3.209	4.448	3.112	1.785	1.071	3.540	2.256	3.135	1.629	1.028
	MCR-3	2.580	2.217	3.209	4.448	3.112	1.785	1.071	3.540	2.256	3.135	1.629	1.028
	MCR-4	2.582	2.240	2.789	4.515	3.172	1.980	1.025	3.818	6.784	7.040	1.604	1.074
	MCR-5	2.582	2.240	2.789	4.515	3.172	1.960	1.025	3.818	6.784	7.040	1.604	1.074
	MCR-6	2.582	2.240	2.789	4.515	3.172	1.960	1.025	3.818	6.784	7.040	1.604	1.074
	MCR-7	2.635	2.131	2.627	4.585	3.326	1.797	1.192	3.936	7.084	6.891	2.113	1.282
	MCR-8	0.078	0.062	0.094	0.063	0.031	0.075	0.036	0.319	0.042	0.026	0.609	0.025
	MCR-9	2.632	2.049	2.896	5.032	3.317	1.910	1.119	3.898	6.587	7.457	2.247	2.142
	MCR-10	0.078	0.062	0.094	0.063	0.031	0.075	0.036	0.319	0.042	0.040	0.599	0.025
MCR-11	2.895	1.167	2.865	4.869	3.510	1.835	1.131	4.182	7.064	7.632	2.908	0.382	
MCR-12	3.035	0.430	2.691	4.884	3.750	1.923	1.270	4.379	6.841	7.794	2.776	0.155	

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88	
CITY OF MAPLES COASTAL RIDGE 11-00017	MCR-13	3.113	0.552	3.006	5.133	3.859	2.050	1.272	4.479	6.874	5.985	2.852	0.749	
	MCR-14	3.184	2.434	3.356	4.918	3.973	2.503	1.351	4.833	2.935	3.853	3.378	0.951	
	MCR-15	3.254	2.354	3.761	6.040	4.424	2.630	1.382	5.336	7.067	8.158	3.847	1.346	
	MCR-16	2.588	2.354	3.761	6.040	4.424	2.630	1.382	5.336	7.067	8.158	3.847	1.346	
	MCR-17	8.030	5.884	7.394	7.742	5.884	4.647	2.856	5.512	6.934	8.312	4.027	4.859	
	MCR-18	8.329	5.884	7.394	7.742	6.058	4.647	2.856	5.512	6.934	8.312	4.027	4.859	
	MCR-19	8.685	6.187	7.330	7.684	6.131	4.658	3.089	5.638	6.988	8.328	4.531	5.363	
	MCR-20	8.585	6.187	7.330	7.684	6.131	4.658	3.089	5.638	6.986	8.328	4.531	5.363	
	MCR-21	8.679	6.376	7.456	7.807	6.221	5.011	3.635	5.704	2.896	4.208	4.699	5.563	
	MCR-22	8.679	6.376	7.456	7.807	6.221	5.011	3.635	5.704	2.896	4.206	4.699	5.563	
	MCR-23	8.805	6.771	7.840	7.784	6.142	5.137	3.858	5.875	5.875	8.340	4.857	5.824	
	MCR-24	8.805	6.771	7.840	7.784	6.142	5.137	3.858	5.875	5.875	8.340	4.857	5.824	
	MCR-25	8.801	7.021	7.930	7.920	6.412	5.111	4.110	5.890	5.902	7.779	4.510	5.286	
	MCR-26	8.801	7.021	7.930	7.920	6.412	5.111	4.110	5.890	5.902	7.779	4.510	5.286	
	MCR-27	8.898	6.927	7.899	7.895	6.412	5.111	4.211	5.970	1.387	4.053	6.171	5.779	
	MCR-28	8.898	6.927	7.899	7.895	6.412	5.111	4.211	5.970	1.387	4.053	6.171	5.779	
	MCR-29	1.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	MCR-30	1.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	MCR-31	1.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	MCR-32	1.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	MCR-33	1.370	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	MCR-34	1.502	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	CITY OF MAPLES E. GOLDEN GATE 11-00018	MEGG-1	14.201	14.686	13.748	15.455	14.061	15.166	15.380	14.020	1.374	15.458	14.293	16.236
		MEGG-2	14.826	15.205	16.577	17.288	17.587	16.096	15.327	14.674	10.459	13.852	13.276	16.302
		MEGG-3	14.836	12.874	10.438	16.255	16.478	13.531	8.713	14.479	10.800	15.531	14.585	16.105
		MEGG-4	22.014	22.418	23.543	24.273	24.730	23.254	22.418	22.188	18.281	23.079	18.397	22.650
		MEGG-5	27.694	26.308	29.950	30.806	31.798	29.868	28.678	27.237	22.524	19.232	0.000	0.960
		MEGG-6	21.282	21.875	23.138	24.239	24.730	23.008	21.719	20.584	16.503	19.443	21.101	22.859
		MEGG-7	27.757	28.339	25.867	30.227	28.995	16.599	25.898	3.627	3.682	11.488	24.231	26.501
		MEGG-8	26.690	26.482	29.837	31.209	31.589	27.844	28.400	10.805	5.304	23.676	27.757	29.134
		MEGG-9	21.100	21.953	22.602	23.963	24.335	22.960	21.346	21.439	15.886	22.457	20.900	22.472
		MEGG-10	20.820	21.778	22.633	24.273	24.801	23.531	22.472	21.381	16.495	22.684	20.237	22.578
		MEGG-11	18.298	18.987	18.852	20.806	21.197	19.776	18.085	17.849	15.598	17.423	16.081	19.489
		MEGG-12	21.160	21.889	20.604	23.957	24.558	23.346	22.279	21.069	15.962	21.186	20.717	22.339

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88
CITY OF NAPLES E. GOLDEN GATE 11-00018	NEGG-13	18.784	22.054	20.386	24.273	24.730	23.280	15.335	5.503	0.000	14.739	22.137	23.171
	NEGG-14	21.279	21.080	22.728	24.273	24.730	22.999	15.428	13.698	10.898	19.831	21.869	23.517
	NEGG-16	30.009	31.799	33.194	34.488	34.186	31.341	31.585	28.622	2.388	29.378	30.618	33.220
	NEGG-17	18.548	31.880	33.148	28.255	33.884	31.500	32.485	18.613	24.798	29.145	31.303	32.625
	NEGG-18	30.941	31.649	32.089	34.876	34.847	32.965	32.823	28.853	24.884	28.803	31.663	33.079
	NEGG-19	29.919	31.836	33.339	34.676	34.489	33.321	31.134	29.403	23.452	31.277	31.359	31.826
	NEGG-20	10.232	12.487	33.781	34.676	35.187	32.742	33.304	30.649	0.000	0.864	15.394	33.321
	NEGG-21	18.103	18.781	0.101	12.866	20.852	18.153	17.888	12.454	11.231	16.383	18.713	18.433
NEGG-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
NEGG-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
NEGG-24	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
PELICAN BAY IMP. DISTRICT 11-00052	PB1D-1	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-2	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-3	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-4	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-5	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-6	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
	PB1D-7	4.812	3.753	4.470	7.260	8.528	7.869	6.798	5.223	3.998	8.957	8.799	7.009
MARCO ISLAND UTILITIES 11-00080	MIU-S1	22.310	22.194	23.487	25.778	22.084	20.616	17.434	13.882	14.787	23.258	20.365	21.946
	MIU-S2	22.310	22.194	23.487	25.778	22.084	20.616	17.434	13.882	14.787	23.258	20.365	21.946
	MIU-S3	16.532	16.440	17.398	18.096	16.344	15.271	12.914	10.135	10.961	17.272	15.085	16.256
	MIU-S4	16.532	16.440	17.398	18.096	16.344	15.271	12.914	10.135	10.961	17.272	15.085	16.256
	MIU-S5	11.572	11.508	12.178	13.367	11.441	10.889	9.040	7.095	7.673	12.059	10.559	11.379
	MIU-S6	38.023	37.812	40.020	43.920	37.590	35.123	29.702	23.311	25.210	39.822	34.686	37.388
	MIU-S7	36.023	37.812	40.020	43.920	37.590	35.123	29.702	23.311	25.210	39.822	34.686	37.388
FLORIDA CITIES GOLDEN GATE 11-00148	FCWC-1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	7.101	9.053	9.318
	FCWC-3	3.585	2.948	3.758	3.680	3.758	3.528	2.226	3.188	2.753	4.132	3.893	4.549
	FCWC-4	5.750	4.500	4.585	6.085	5.548	4.399	3.803	4.893	5.233	5.461	5.630	6.215
	FCWC-5	11.037	10.245	10.950	10.620	10.508	9.968	7.584	9.334	8.858	6.280	4.461	3.384
	FCWC-8	9.911	8.919	9.136	8.830	10.136	8.511	7.299	9.021	7.302	4.744	3.590	3.287

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88
EVERGLADE CITY COPELAND	EC-2	1.588	1.684	1.976	1.848	1.408	1.127	1.184	1.212	0.105	1.289	1.739	2.090
	EC-3	1.588	1.684	1.976	1.848	1.408	1.127	1.184	1.212	0.105	1.269	1.739	2.090
		2.495	2.275	2.454	2.828	2.710	2.362	1.638	1.227	2.192	3.018	2.989	2.479
NORTH MAPLES UTILITIES	NNU-1	2.495	2.275	2.454	2.828	2.710	2.362	1.638	1.227	2.192	3.018	2.989	2.479
	NNU-2	2.495	2.275	2.454	2.828	2.710	2.362	1.638	1.227	2.192	3.018	2.989	2.479
COLLIER COUNTY UTILITIES 11-00249	CCU-1	24.331	24.678	15.031	15.515	6.310	9.178	7.216	5.259	6.445	15.487	13.826	14.862
	CCU-2	24.331	24.678	15.031	15.515	6.310	9.178	7.216	5.259	12.108	15.487	13.826	14.862
	CCU-3	24.331	24.678	15.031	15.515	6.310	9.178	7.216	5.259	0.000	15.487	13.826	14.862
	CCU-4	24.331	24.678	15.031	15.515	6.310	9.178	7.216	5.259	4.858	15.487	13.826	14.862
	CCU-5	24.331	24.678	15.031	15.515	6.310	9.178	7.216	5.259	3.823	15.487	13.826	14.862
	CCU-6	0.000	0.000	0.000	0.000	6.310	9.178	7.216	5.259	0.000	15.487	13.826	14.862
	CCU-7	0.000	0.000	0.000	0.000	6.310	9.178	7.216	5.259	0.041	15.487	13.826	14.862
	CCU-8	0.000	0.000	0.000	0.000	6.310	9.178	7.216	5.259	0.000	15.487	13.826	14.862
	CCU-9	0.000	0.000	0.000	0.000	6.310	9.178	7.216	5.259	7.473	15.487	13.826	14.862
	CCU-10	0.000	0.000	0.000	0.000	6.310	9.178	7.216	5.259	0.000	15.487	13.826	14.862
	CCU-11	0.000	0.000	15.031	15.515	6.310	9.178	7.216	5.259	2.754	15.487	13.826	14.862
	CCU-12	0.000	0.000	0.000	15.515	6.310	9.178	7.216	5.259	0.000	15.487	13.826	14.862
	CCU-13	0.000	0.000	15.031	15.515	6.310	9.178	7.216	5.259	0.582	15.487	13.826	14.862
	CCU-14	0.000	0.000	0.000	0.000	0.000	0.000	9.178	7.216	0.399	15.487	13.826	14.862
	CCU-15	0.000	0.000	15.031	15.515	6.310	9.178	7.216	5.259	2.715	15.487	13.826	14.862
	CCU-16	0.000	0.000	15.031	0.000	6.310	9.178	7.216	5.259	9.410	15.487	13.826	14.862
PORT OF ISLAND 11-00271	POI-1	1.759	1.627	1.719	1.743	1.820	1.587	1.488	1.397	1.301	1.615	2.106	1.310
	POI-2	1.759	1.627	1.719	1.743	1.820	1.587	1.488	1.397	1.301	1.615	2.106	1.310
LEE COUNTY UTILITIES 36-00003	LCU-1	7.560	5.376	9.597	10.080	3.108	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	LCU-2	7.560	6.858	4.221	8.064	9.218	6.846	4.305	4.977	3.843	4.032	3.350	2.940
	LCU-3	7.560	5.376	8.741	8.064	7.329	0.000	0.000	0.000	0.000	0.000	0.000	2.583
	LCU-4	5.943	5.544	8.337	8.072	7.140	3.780	0.818	0.777	3.927	4.368	3.423	4.200
	LCU-5	8.001	6.552	5.355	6.972	8.883	8.756	2.646	5.040	3.717	4.032	3.444	2.709
	LCU-6	8.001	5.544	5.481	5.040	8.883	5.228	7.245	4.767	3.990	3.192	5.145	3.528
	LCU-7	6.030	5.820	8.030	11.730	12.540	8.610	12.540	9.120	8.340	9.480	11.820	12.390
	LCU-8	7.290	6.910	7.350	8.550	11.100	12.180	7.560	8.730	7.560	8.490	8.820	10.230
	LCU-9	6.750	5.550	8.490	7.707	11.880	8.680	11.220	9.240	7.860	10.800	11.250	11.970



MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88	
LEE COUNTY UTILITIES 36-00003	LCU-10	5.280	7.830	6.510	8.970	8.180	12.300	8.840	9.660	7.320	9.600	11.340	9.360	
	LCU-11	4.230	5.260	6.070	10.800	9.420	8.820	10.410	8.790	8.700	11.520	13.020	12.810	
	LCU-12	6.090	7.500	8.070	7.710	9.810	9.600	9.120	8.550	7.830	10.860	10.860	9.330	
	LCU-13	4.830	5.400	3.090	6.210	5.100	2.880	9.450	7.200	6.040	8.130	7.590	8.340	
	LCU-14	5.940	5.310	6.150	5.730	3.990	6.210	7.350	7.410	6.880	10.080	8.520	8.940	
	LCU-15	4.320	5.400	6.210	5.730	5.040	5.850	9.830	6.450	5.480	9.450	9.120	9.120	
	LCU-16	5.640	3.980	7.600	7.320	2.490	0.000	0.180	0.210	6.870	8.820	9.570	5.130	
	LCU-18	6.450	4.680	7.440	11.550	6.540	11.700	9.960	6.600	6.070	12.120	11.910	12.120	
	LCU-19	5.370	6.070	7.680	7.920	8.100	8.490	6.030	5.760	6.870	10.290	9.420	7.110	
	LCU-20	6.330	3.510	6.270	7.880	5.220	11.070	10.650	8.730	7.350	10.100	10.470	11.820	
	LCU-21	4.710	8.760	7.140	5.730	9.450	11.340	1.230	7.110	5.430	7.850	11.160	13.410	
	LCU-22	4.880	5.370	8.310	8.300	3.540	0.360	0.300	2.100	7.620	10.410	6.100	0.000	
	LCU-23	5.250	3.240	7.500	6.090	4.080	6.000	6.810	6.480	6.480	11.640	7.950	12.270	
	LCU-24	4.850	3.850	9.810	5.430	9.090	11.250	9.420	6.310	7.170	11.940	11.730	11.340	
	BONTIA SPRINGS UTILITIES 36-00008	BSWS-1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
		BSWS-4	0.000	0.000	6.120	1.314	0.000	0.232	0.000	0.000	0.000	0.000	0.000	3.744
		BSWS-5	18.472	15.552	15.422	15.298	13.951	10.781	10.588	17.362	16.251	15.094	13.296	13.608
		BSWS-6	0.000	0.576	8.928	8.136	6.225	1.358	2.918	1.888	1.581	0.000	8.544	5.562
		BSWS-7	12.384	15.480	11.592	11.439	9.959	10.987	9.768	3.381	3.185	11.616	3.159	12.312
		BSWS-8	0.720	0.432	1.808	2.692	2.670	3.185	5.121	4.212	3.942	2.322	5.196	4.284
		BSWS-9	3.732	2.604	5.644	7.104	5.315	3.132	1.908	3.000	2.808	1.944	5.198	5.94
		BSWS-10	15.603	9.891	12.033	14.091	14.278	11.119	12.298	7.488	7.008	15.816	11.208	14.973
BSWS-11		4.347	14.760	4.580	7.506	6.995	7.378	8.189	10.861	10.185	15.930	14.52	4.242	
GULF UTILITIES 36-00122	GULF-6	11.361	11.846	13.434	15.570	17.319	13.558	12.161	10.943	11.872	14.859	13.625	16.615	
	GULF-7	3.685	3.757	4.336	5.023	5.587	4.374	3.823	3.530	3.829	4.793	4.395	5.358	
	GULF-8	7.512	7.702	8.884	10.266	11.453	8.966	8.042	7.236	7.851	9.826	9.009	10.987	
	GULF-9	8.345	8.453	11.051	12.808	14.248	11.529	10.003	9.002	9.785	12.222	11.207	13.867	
	GULF-10	4.764	4.884	5.634	6.529	7.263	5.886	5.099	4.589	4.979	6.232	5.714	6.967	

MONTHLY PUMPAGE (MG/M)

UTILITY	WELL#	JAN88	FEB88	MAR88	APR88	MAY88	JUN88	JUL88	AUG88	SEP88	OCT88	NOV88	DEC88
FLORIDA CITIES GREEN MEADOWS 36-00150	GM-1	20,571	20,543	20,888	17,662	2,541	11,178	2,400	0,000	0,000	0,284	5,839	3,479
	GM-1D	4,875	15,701	18,628	15,431	17,487	16,271	8,088	20,986	20,745	14,674	12,057	11,577
	GM-2	6,648	2,574	8,588	9,772	6,290	5,887	5,441	4,821	0,119	7,800	11,518	8,632
	GM-2A	4,346	7,967	12,407	4,568	6,931	5,576	12,865	3,488	5,783	0,490	7,756	4,622
	GM-3	13,272	10,852	5,953	9,798	11,030	20,286	9,222	0,565	1,545	5,064	4,568	14,584
	GM-3A	1,487	20,381	16,012	5,419	12,616	5,488	11,034	21,206	21,048	18,110	11,061	8,314
	GM-3B	9,287	8,686	14,752	7,393	15,960	18,292	18,349	8,470	20,460	16,345	12,587	17,660
	GM-4	4,023	7,386	20,992	18,868	8,867	17,863	9,658	1,887	20,439	5,245	19,828	18,067
	GM-4A	18,994	11,786	1,945	17,178	17,830	11,143	13,073	6,535	16,277	18,056	0,082	7,444
	GM-5	21,276	19,001	11,916	12,454	8,803	9,007	14,898	11,208	3,342	12,518	18,280	16,332
GM-6	16,070	0,000	1,200	10,286	14,461	9,398	1,459	2,506	0,126	1,292	1,897	0,008	
GM-7	18,302	0,000	1,320	10,339	18,021	6,010	3,550	4,024	0,003	0,000	0,368	5,417	
GM-8	12,034	11,846	16,487	12,211	17,787	12,190	11,504	8,131	0,001	6,663	16,859	3,987	
GM-9A	16,938	10,544	7,331	13,573	15,057	4,382	12,898	4,680	0,027	4,125	21,012	19,675	
LEHIGH ACRES 36-00186	LEH-1	3,840	3,288	2,847	3,688	3,688	2,808	2,808	1,982	2,510	3,573	3,602	4,018
	LEH-2	4,838	3,284	4,546	4,231	4,023	3,898	3,564	2,445	1,886	4,562	4,644	5,070
	LEH-3	2,643	3,221	5,585	3,549	3,805	3,840	3,897	4,668	4,888	3,686	4,242	5,671
	LEH-4	3,388	1,768	2,787	3,198	2,976	1,872	2,955	2,616	1,173	2,132	3,190	1,413
	LEH-5	1,943	3,412	1,808	2,568	2,924	0,790	0,954	1,081	1,439	1,569	0,823	0,785
	LEH-6	1,884	1,704	1,884	2,054	1,134	1,243	0,858	0,255	0,974	1,523	1,830	2,085
	LEH-7	3,105	3,999	2,307	3,432	2,527	1,888	2,675	3,588	4,200	4,480	1,460	1,119
	LEH-8	4,795	5,771	7,337	2,821	4,445	4,586	4,800	6,958	8,250	5,812	7,186	8,600
	LEH-9A	7,676	7,131	7,438	7,246	7,383	6,855	6,724	6,618	6,411	7,217	7,087	7,267
TREST INTERNATIONAL	TROST1	2,984	1,283	1,522	0,494	0,189	1,143	0,971	1,184	1,219	2,270	2,800	2,654
	TROST2	2,984	1,283	1,522	0,494	0,189	1,143	0,971	1,184	1,219	2,270	2,800	2,654
HARBOR UTILITIES 35-00386	HAR-1	0,478	0,380	0,523	0,480	0,366	0,263	0,206	0,196	0,236	0,242	0,310	0,434
	HAR-2	0,478	0,380	0,523	0,490	0,366	0,263	0,206	0,198	0,236	0,242	0,310	0,434
	HAR-3	0,478	0,380	0,523	0,480	0,366	0,263	0,206	0,196	0,236	0,242	0,310	0,434
	HAR-4	0,478	0,380	0,523	0,480	0,366	0,263	0,206	0,195	0,236	0,242	0,310	0,434
	HAR-5	0,478	0,380	0,523	0,490	0,366	0,263	0,206	0,196	0,236	0,242	0,310	0,434

**APPENDIX H**

**COMPARATIVE HYDROGRAPHS**



## INTRODUCTION

Appendix H contains comparative hydrographs for each monitor well within the model area for layers 1 through 4, respectively. The top graphs show a plot of monthly observed heads (\*) versus simulated heads (+) for the 35 month transient calibration period. The solid line shown on the top graphs indicate the calculated historic standard deviation and the dashed line depicts the monthly historical standard deviation. The corresponding lower graphs show the net difference between the observed and model simulated heads for each month (stress period) over the 35 month calibration period (February, 1986 to December, 1988).

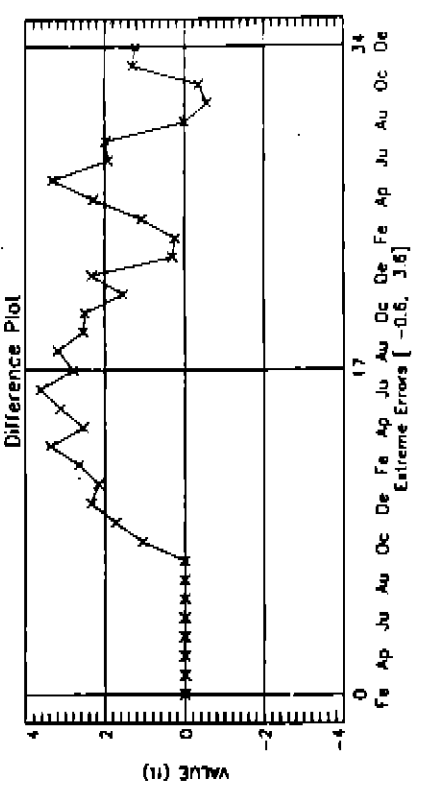
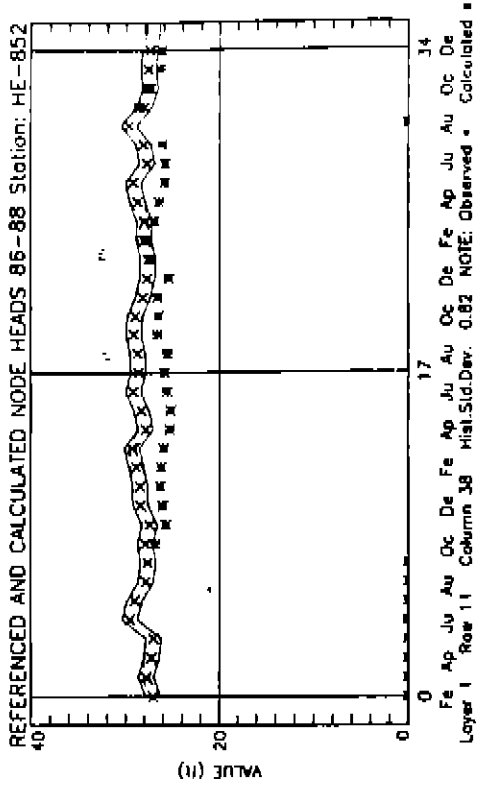
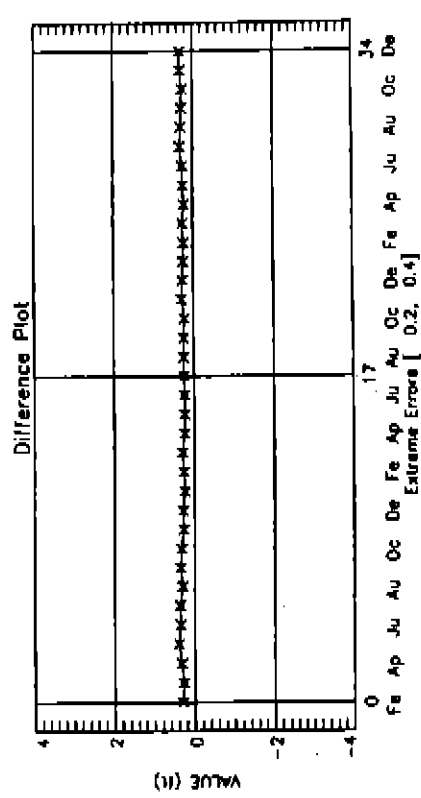
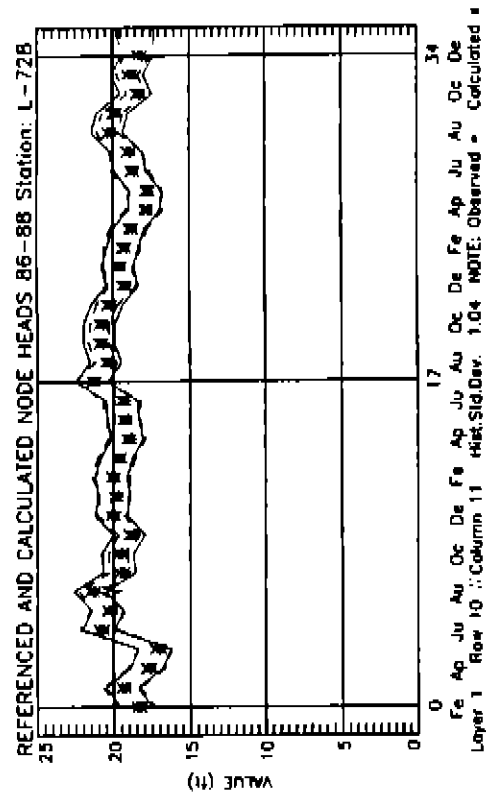


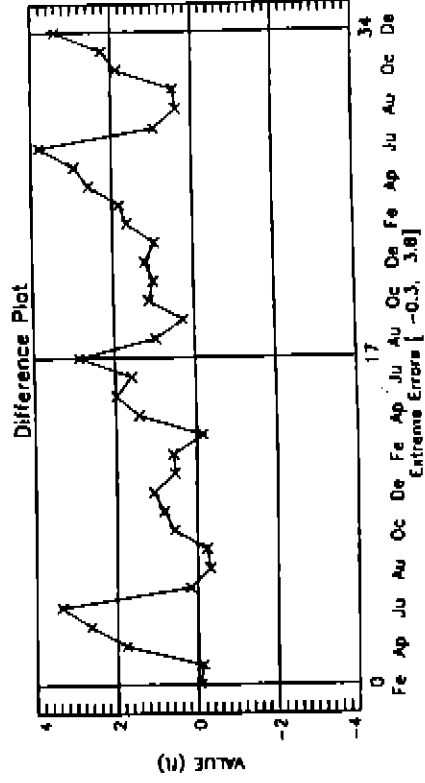
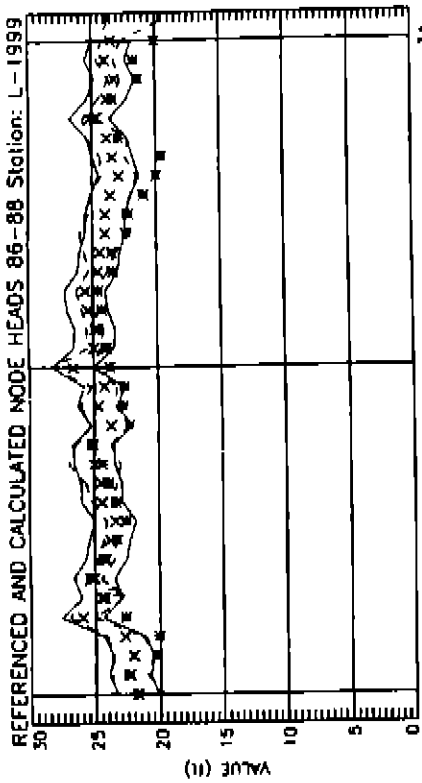
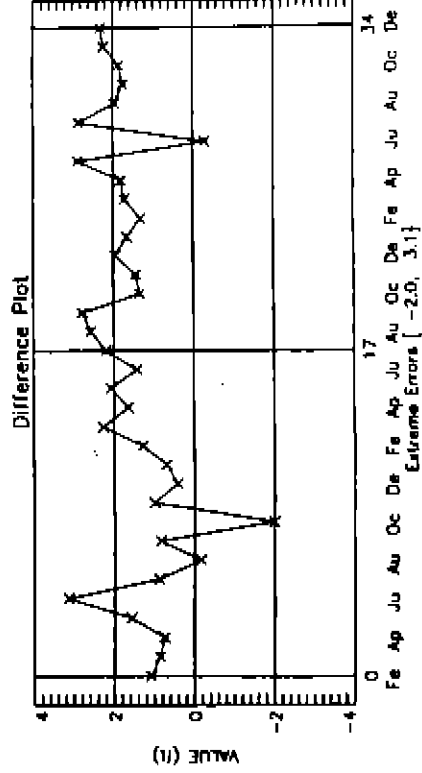
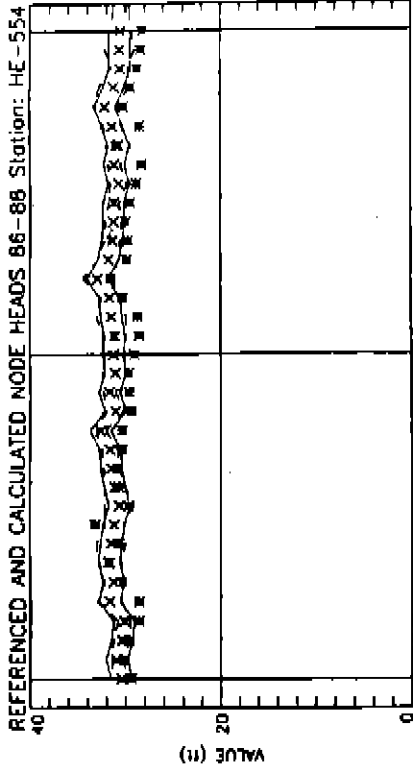
**LAYER 1**

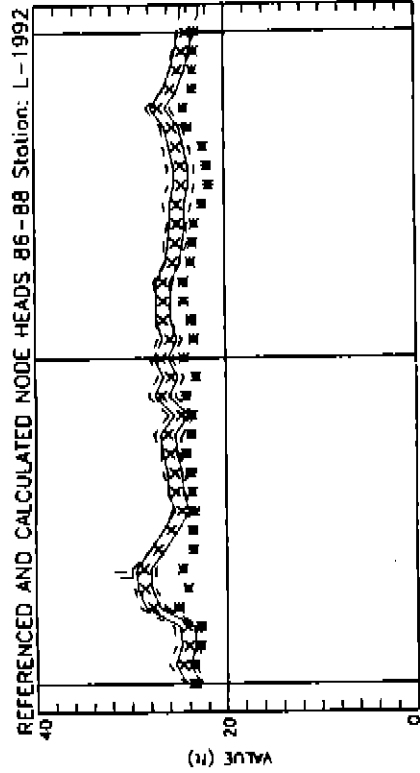
**SURFICIAL AQUIFER**  
**COMPARATIVE HYDROGRAPHS**



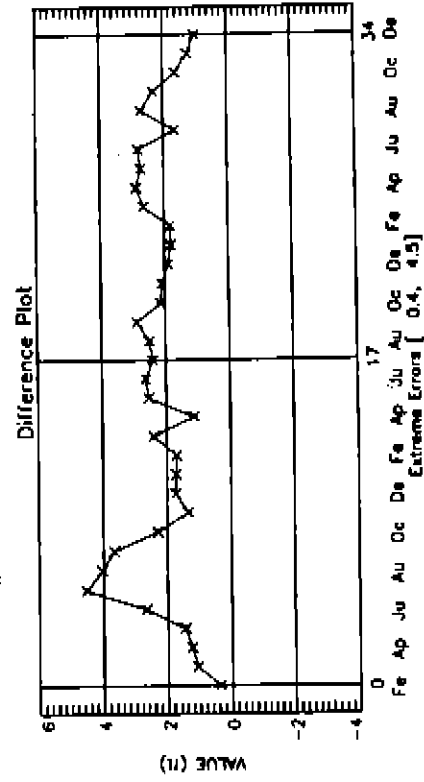




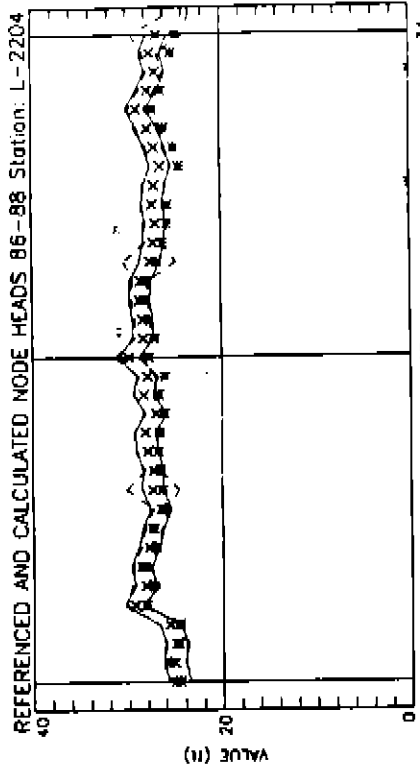




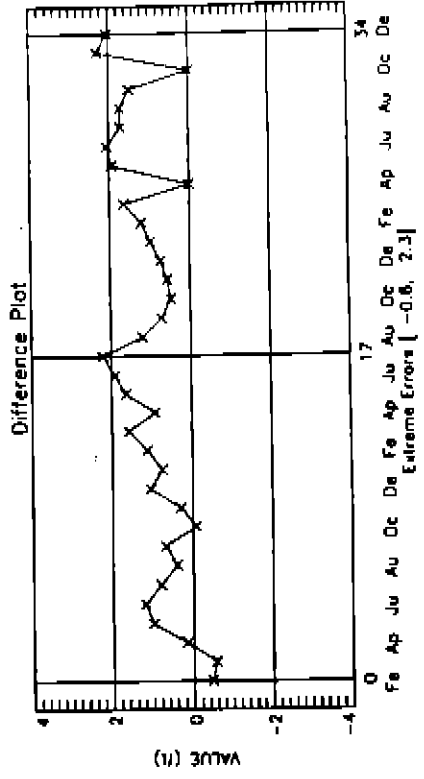
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 Layer 1 Row 13, Column 23 Hist.Stat.Dev. 0.75 NOTE: Observed - Calculated x



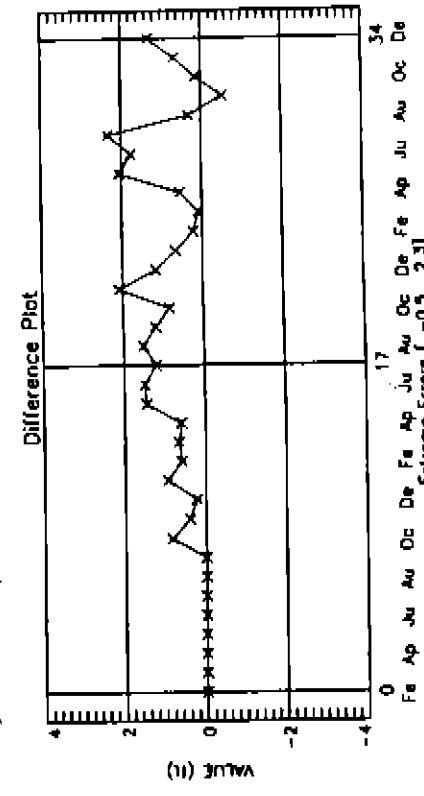
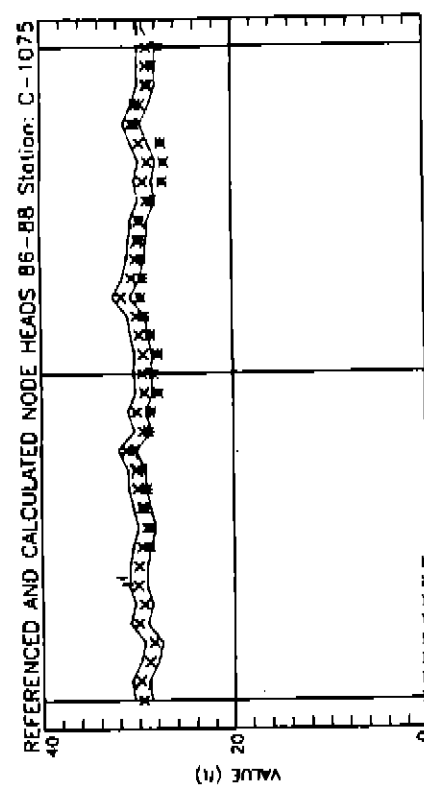
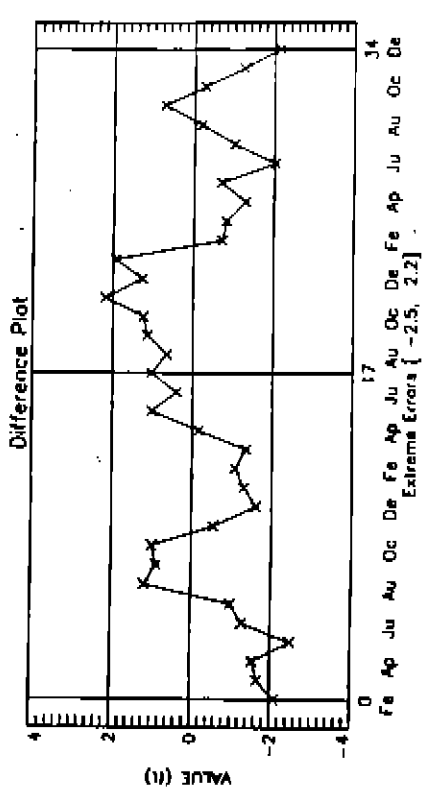
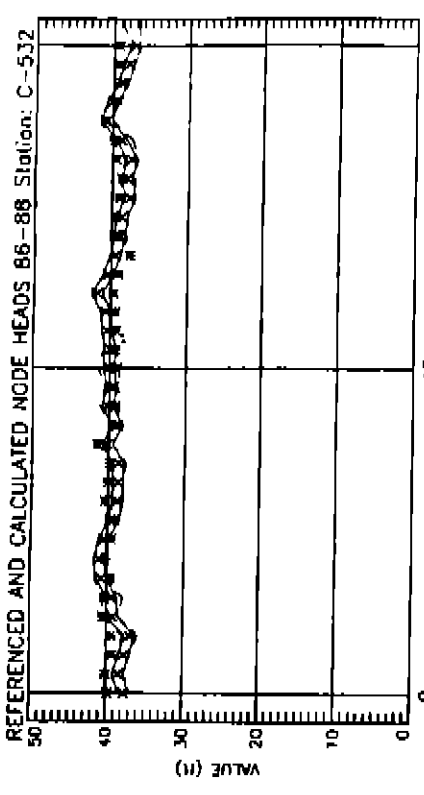
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [ 0.4, 4.5]

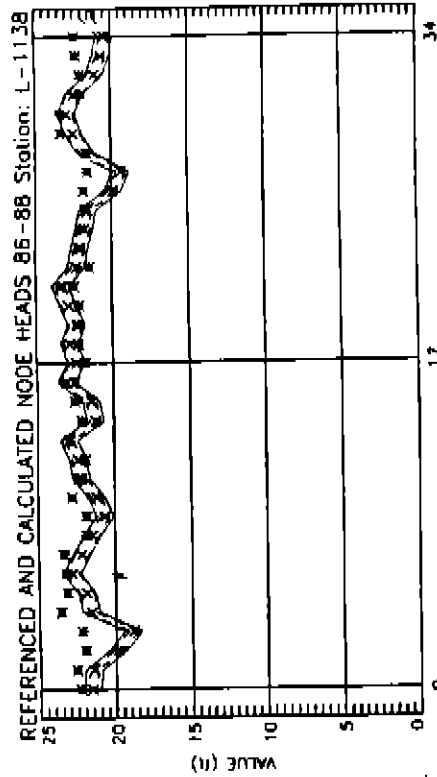


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 Layer 1 Row 14, Column 17 Hist.Stat.Dev. 1.11 NOTE: Observed - Calculated x

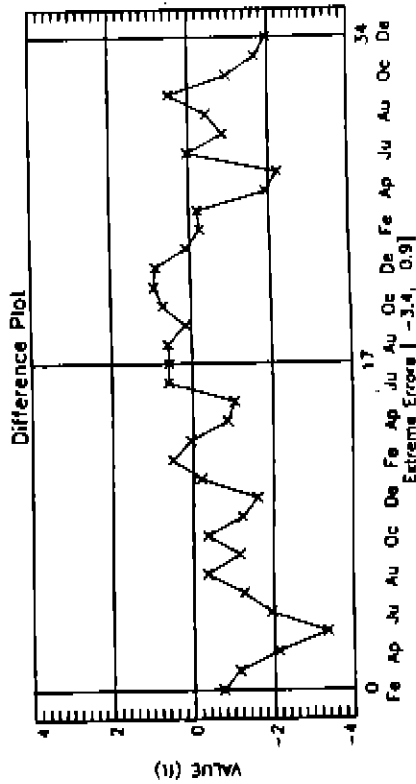


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [ -0.6, 2.3]

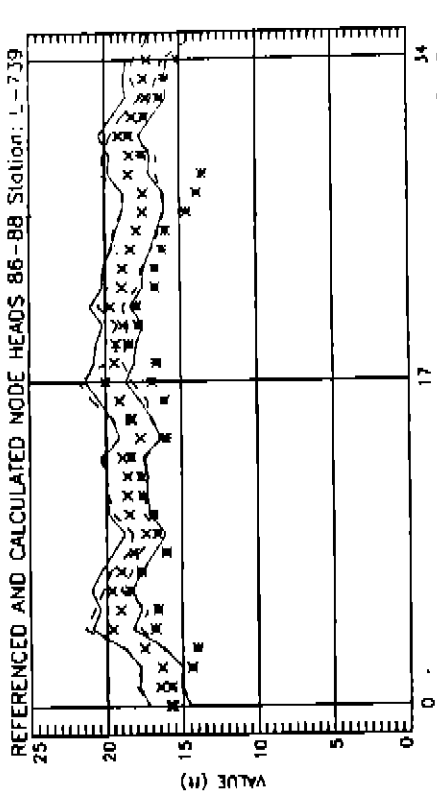




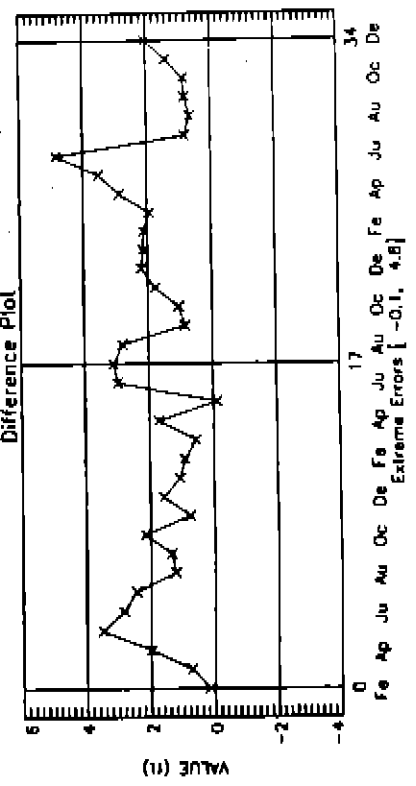
Layer 1 Row 22, Column 25 Hgt.Std.Dev. 0.56 NOTE: Observed \* Calculated x



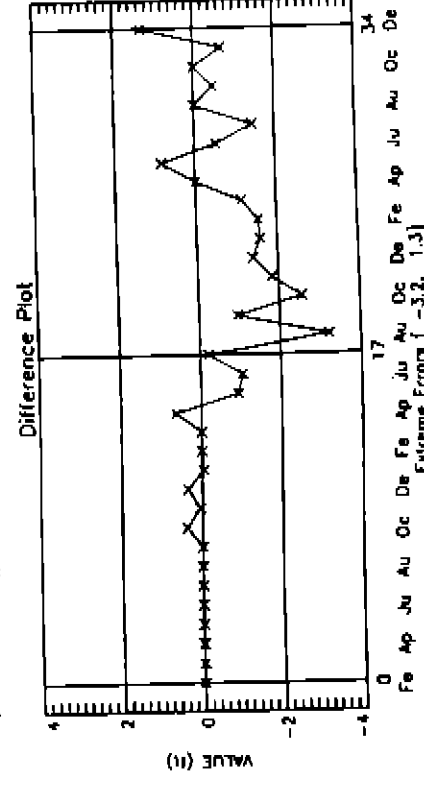
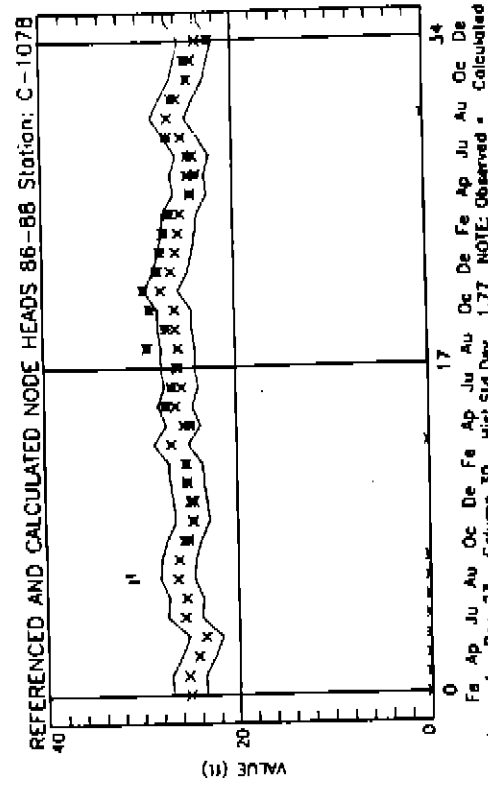
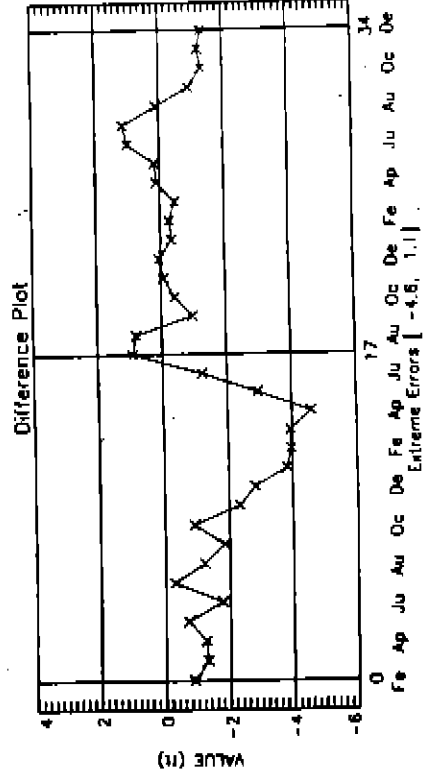
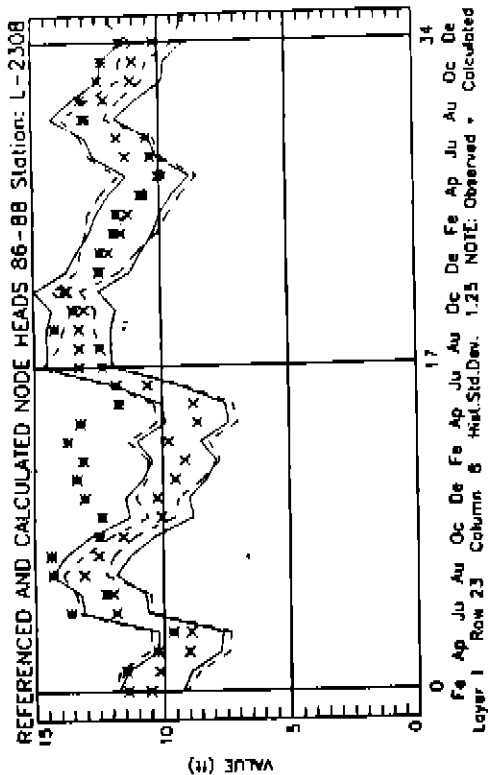
Extreme Errors [-3.4, 0.9]

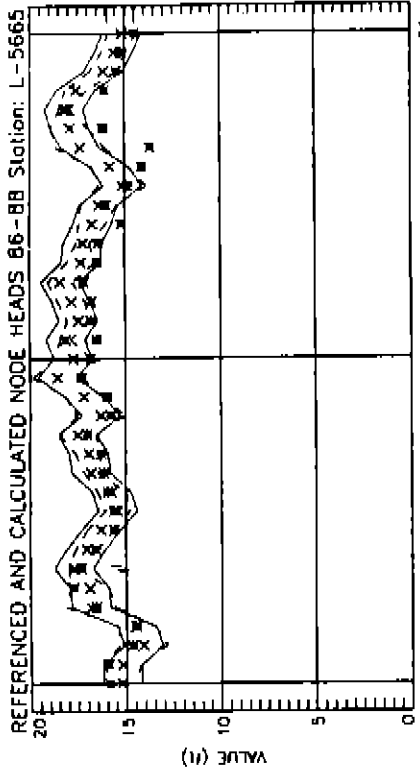


Layer 1 Row 21, Column 12 Hgt.Std.Dev. 1.35 NOTE: Observed \* Calculated x

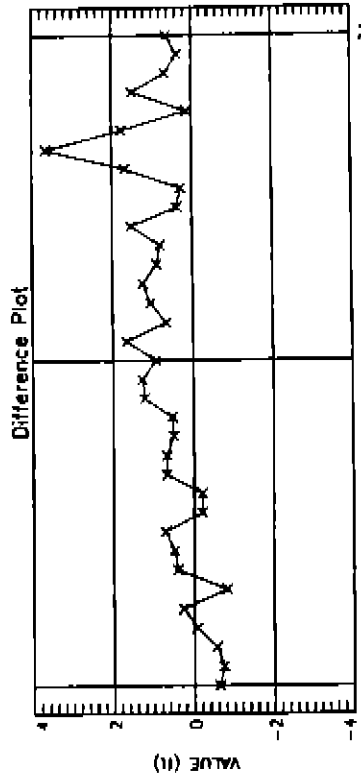


Extreme Errors [-0.1, 4.8]

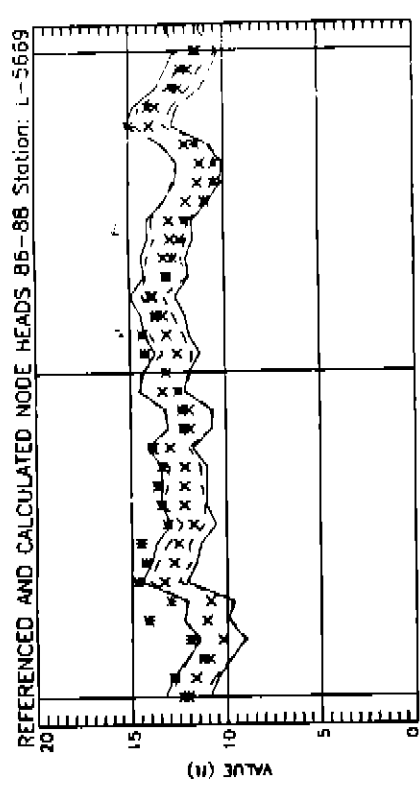




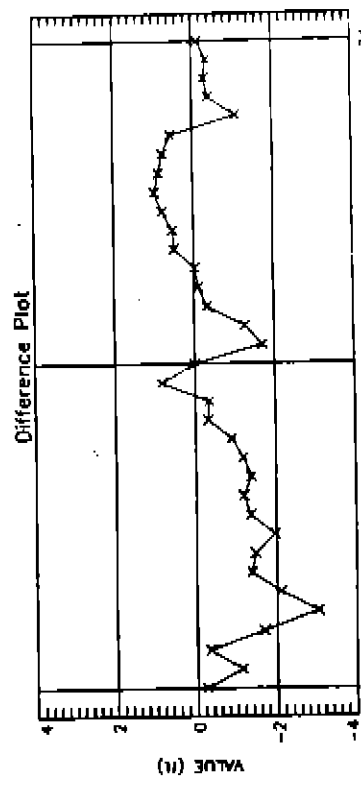
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 24 Column 17 Hist.Std.Dev. 1.01 NOTE: Observed • Calculated x



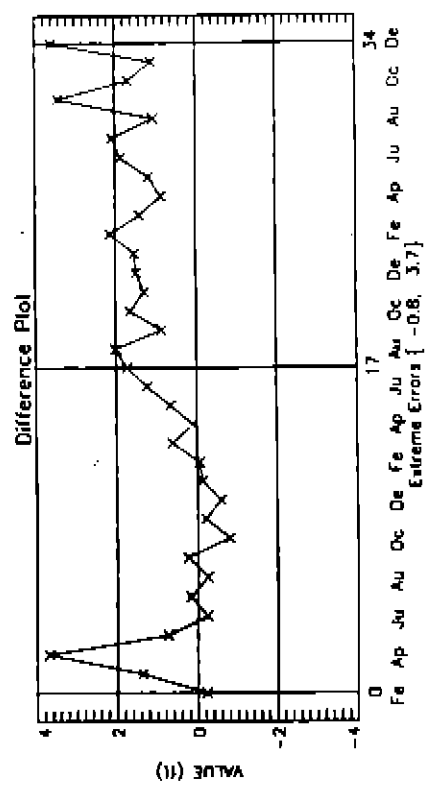
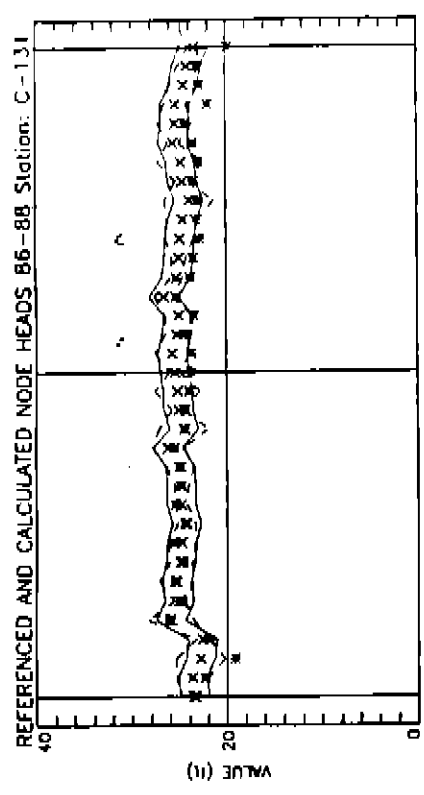
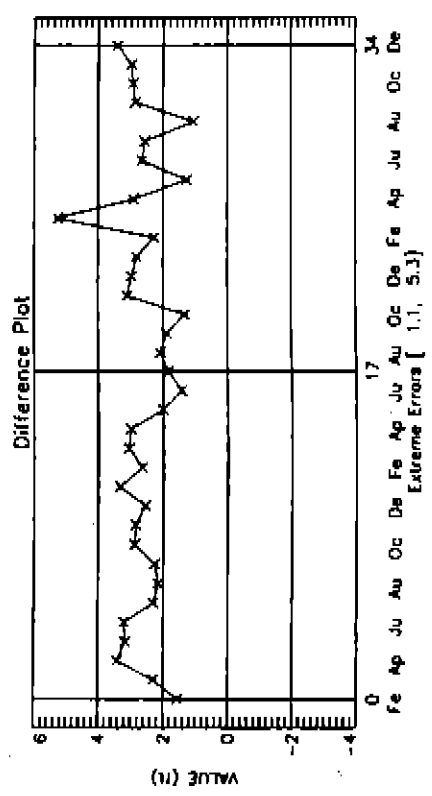
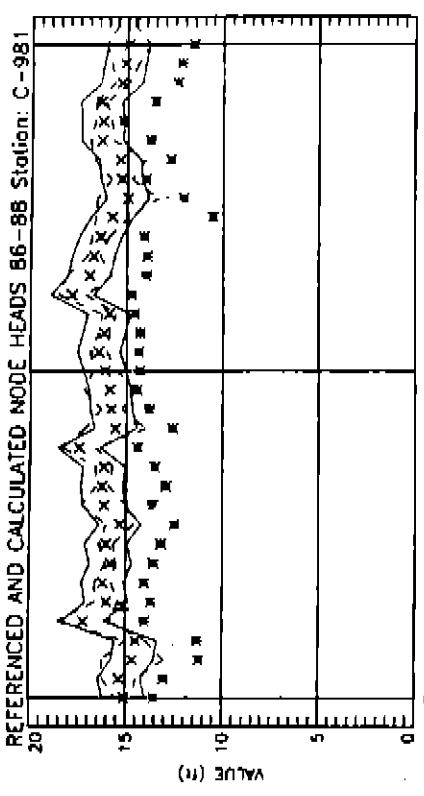
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-0.8, 3.7]



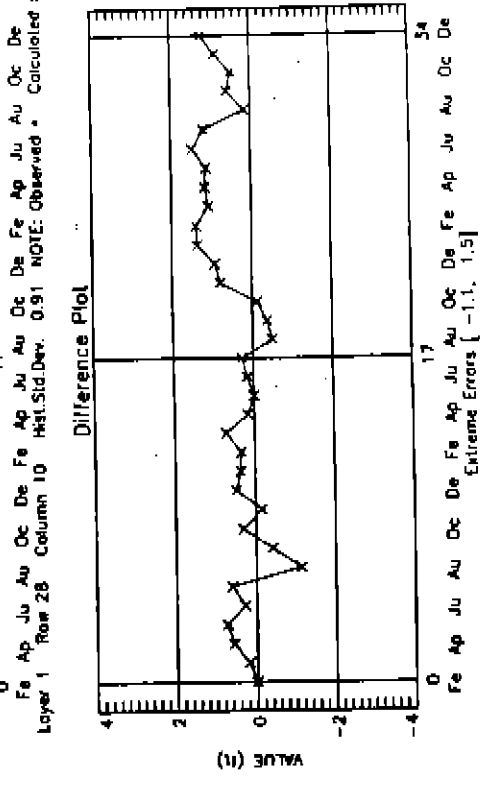
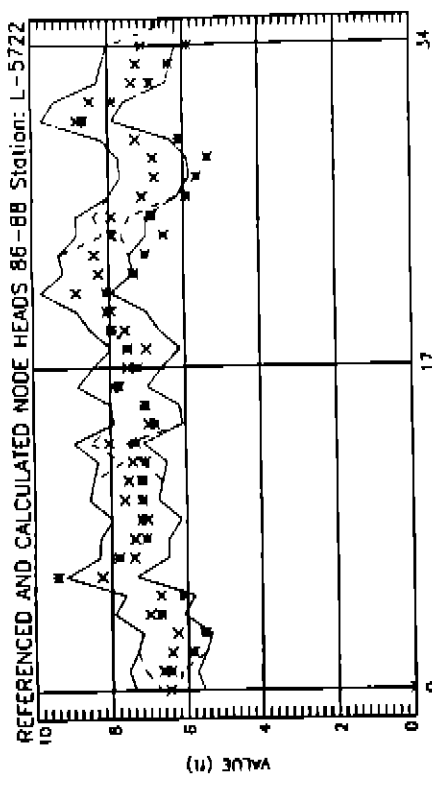
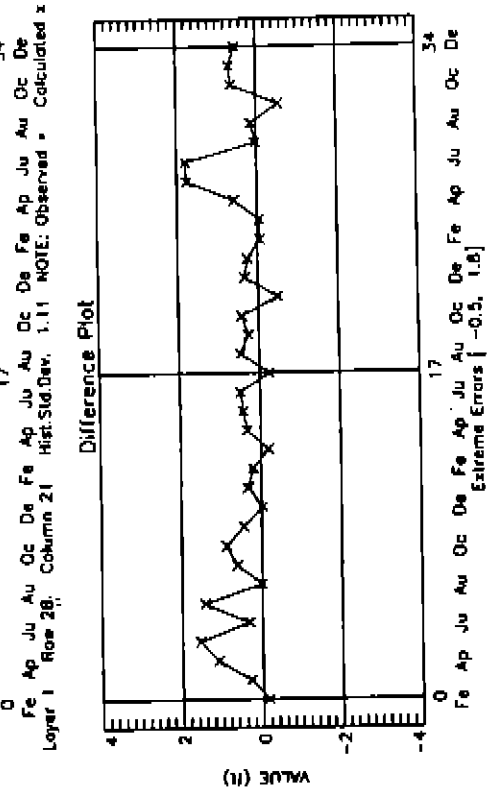
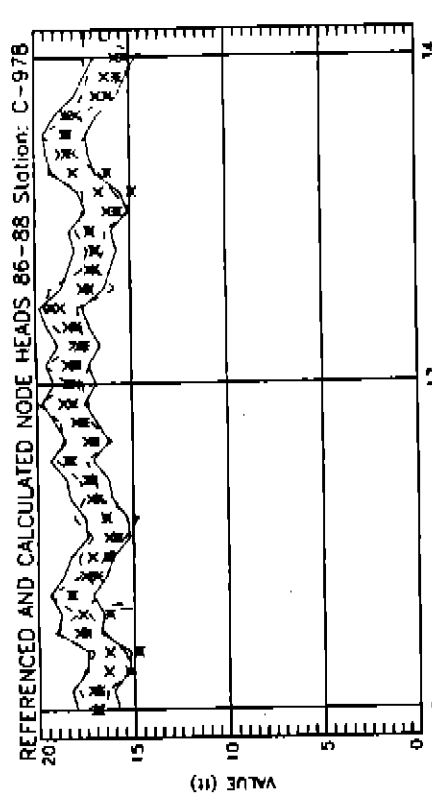
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 Layer 1 Row 24 Column 10 Hist.Std.Dev. 1.17 NOTE: Observed • Calculated x



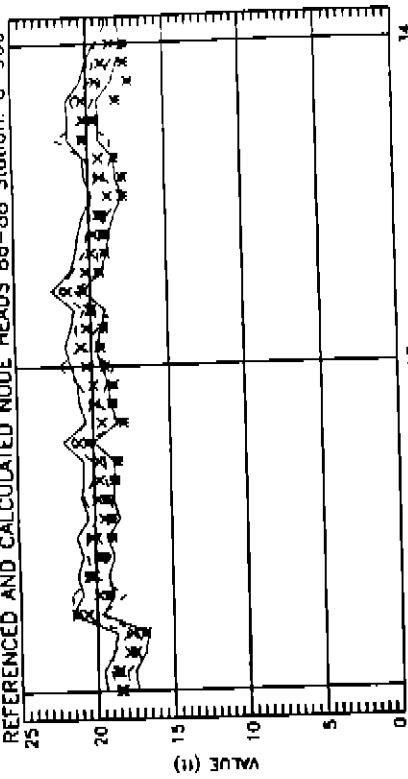
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 Extreme Errors [-3.0, 1.0]





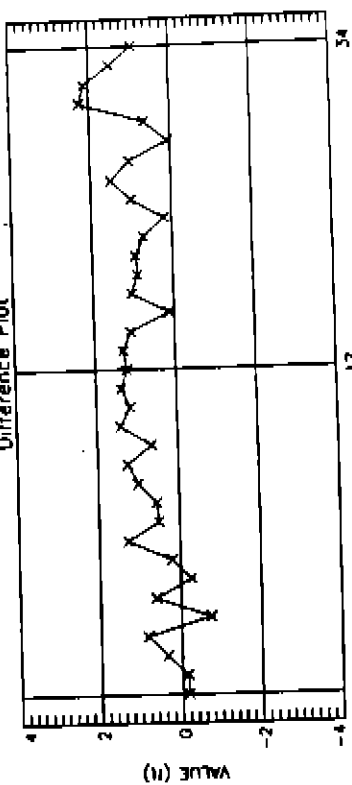


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-956



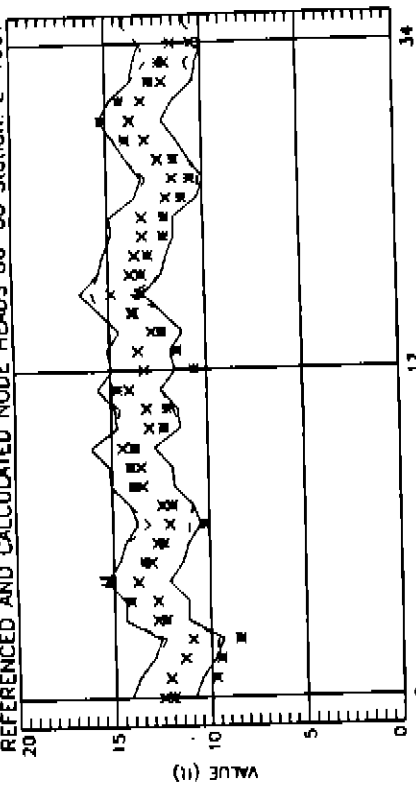
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 28 Column 37 Hist.Std.Dev. 1.02 NOTE: Observed - Calculated =

Difference Plot



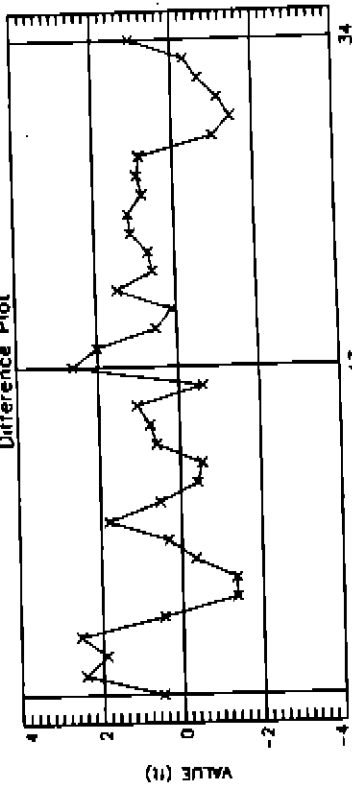
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-0.7, 2.2]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: L-1997

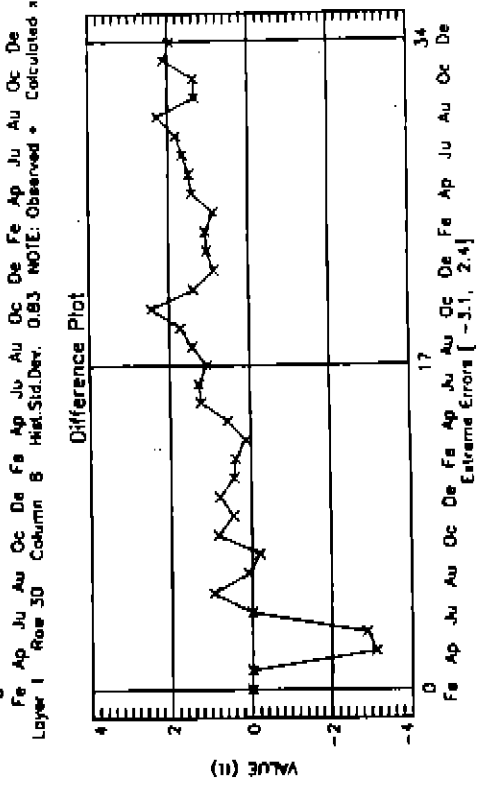
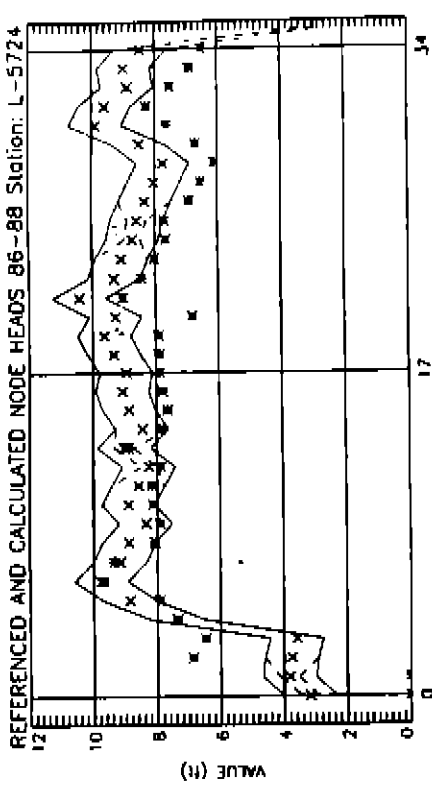
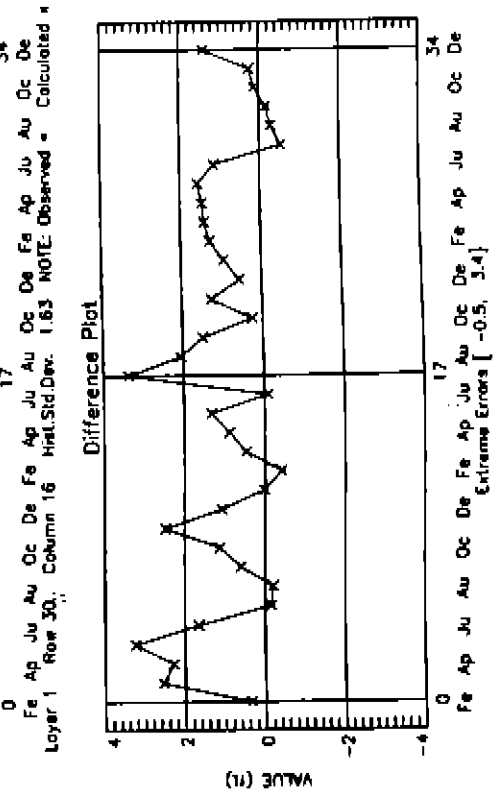
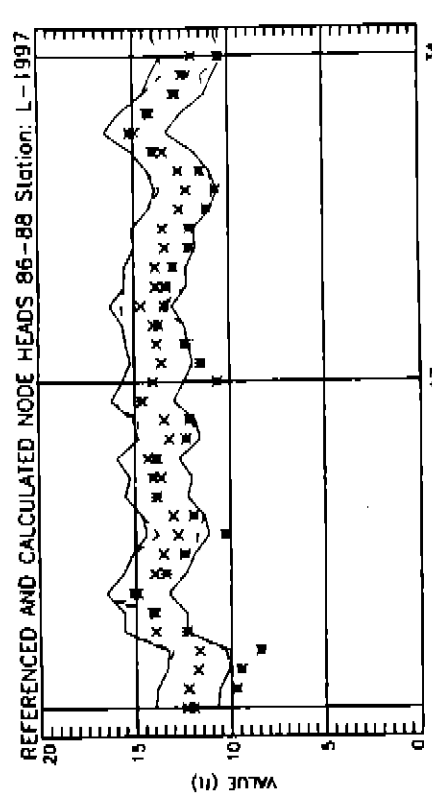


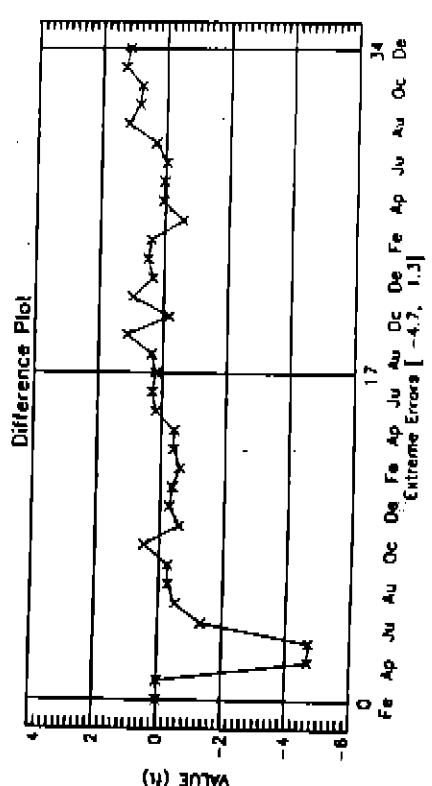
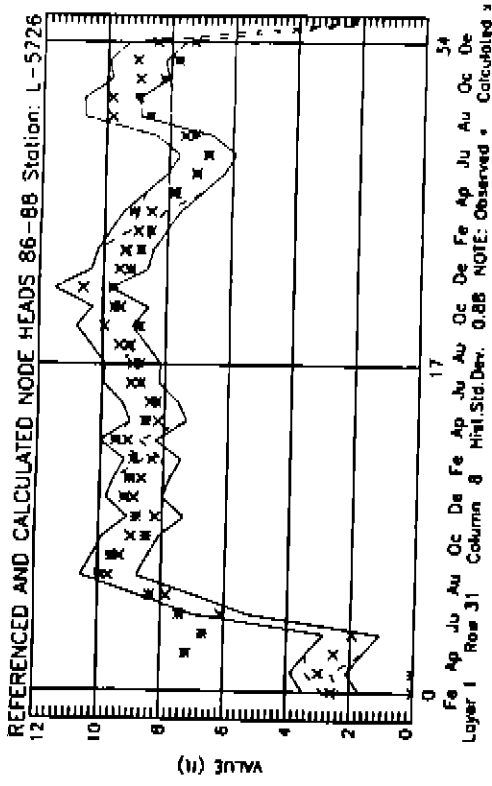
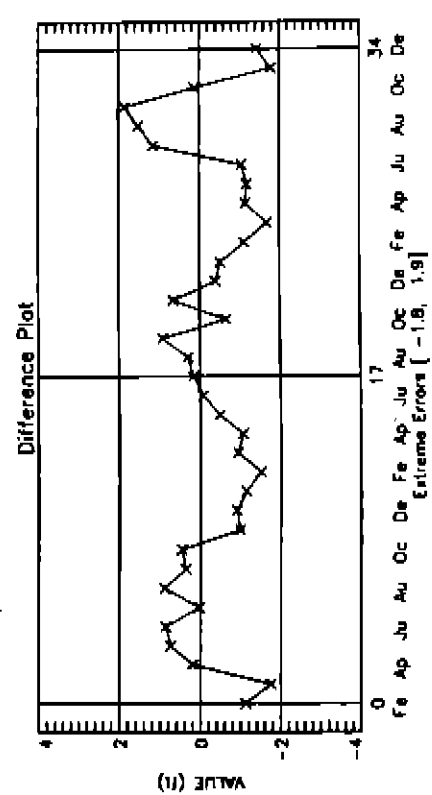
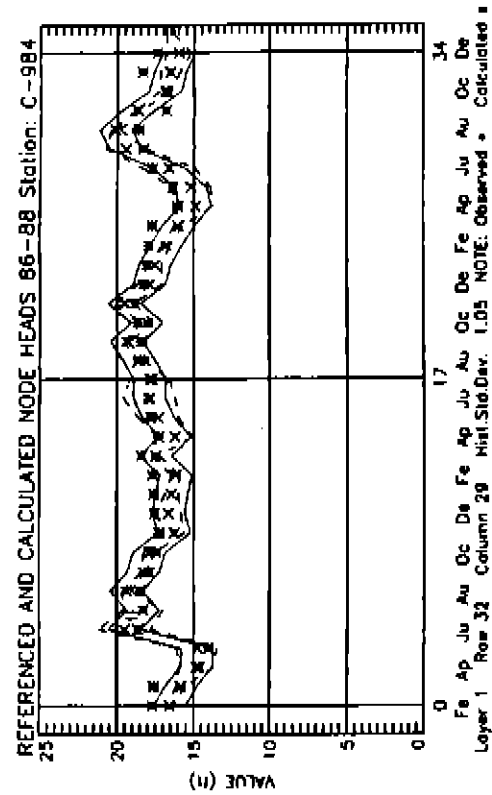
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 29 Column 16 Hist.Std.Dev. 1.63 NOTE: Observed - Calculated =

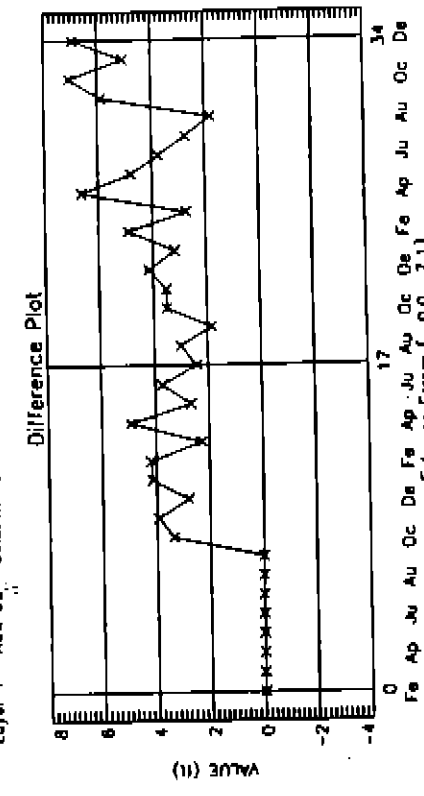
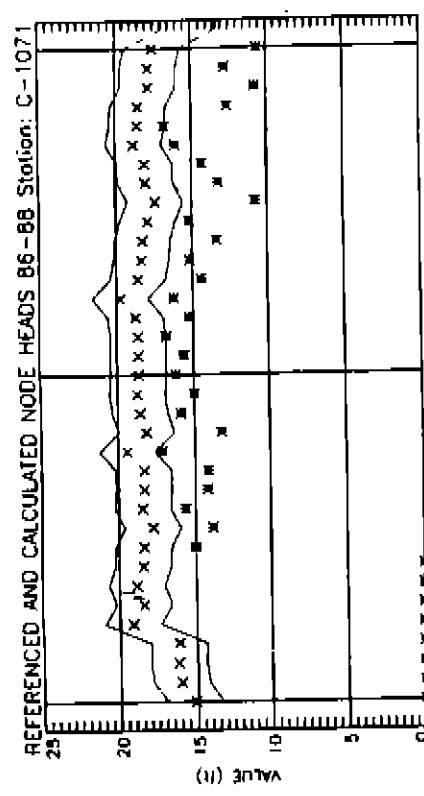
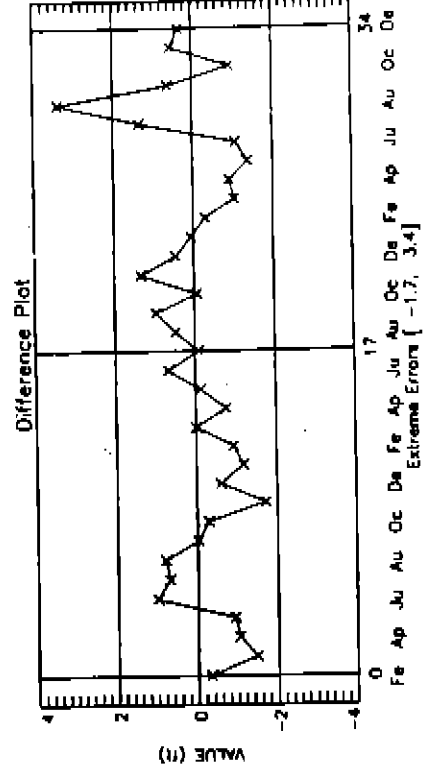
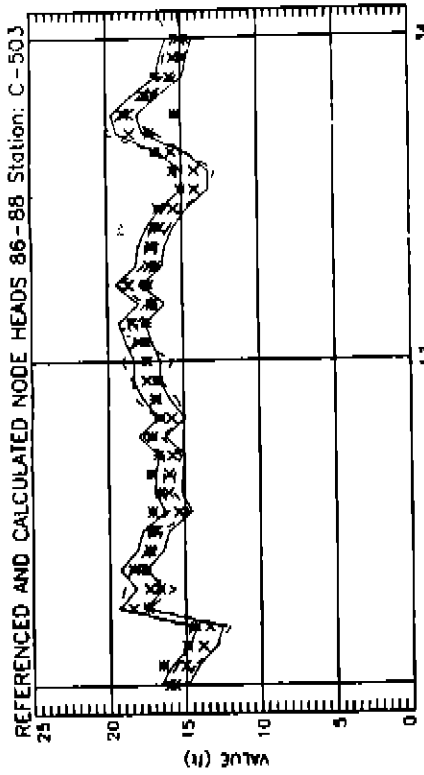
Difference Plot

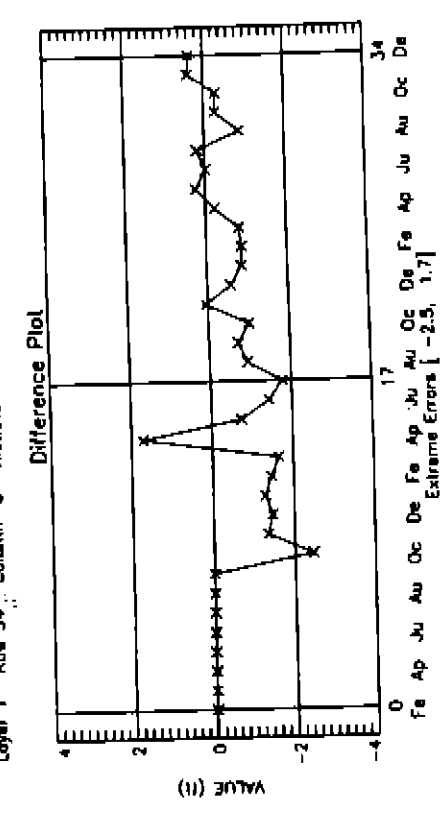
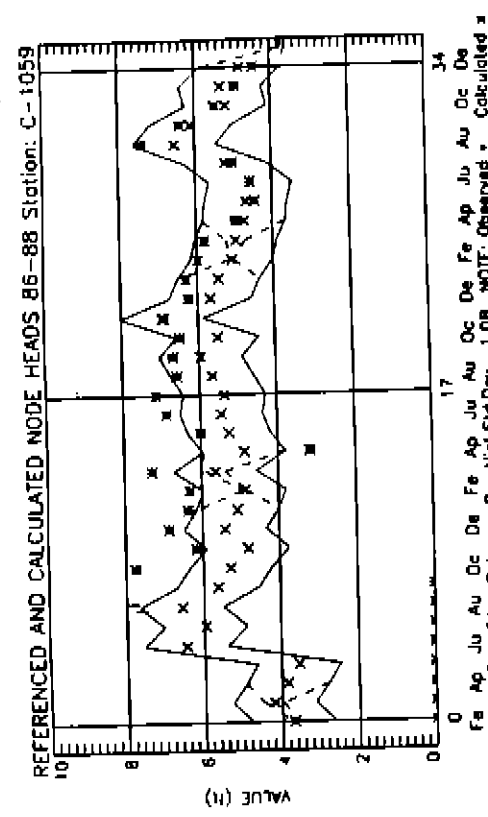
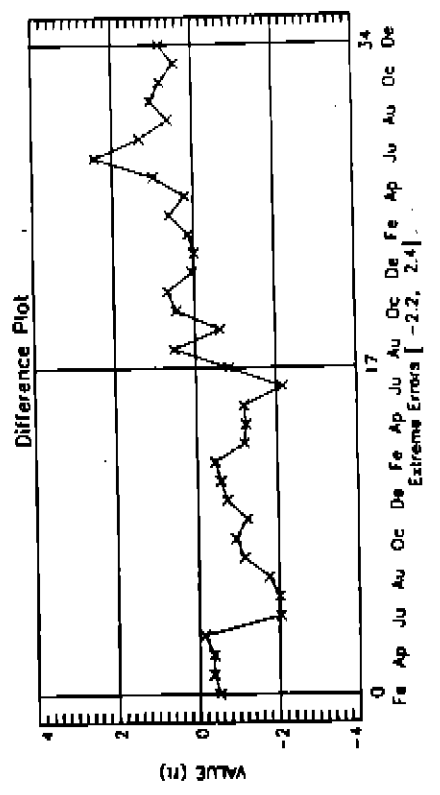
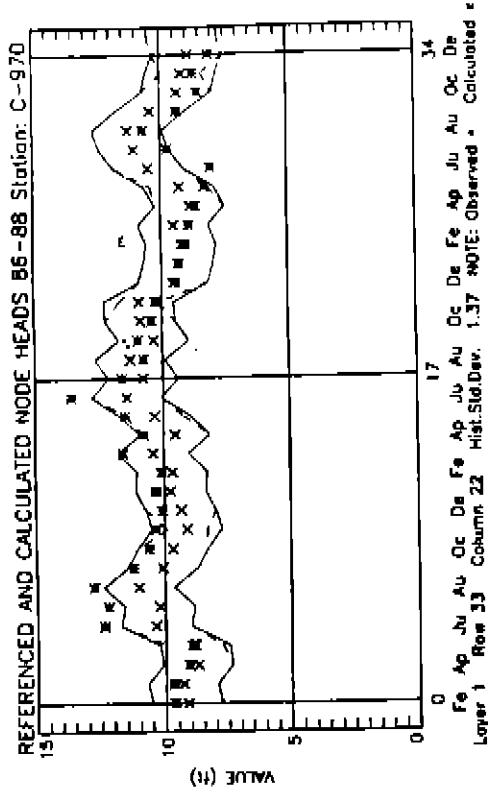


0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.5, 2.6]

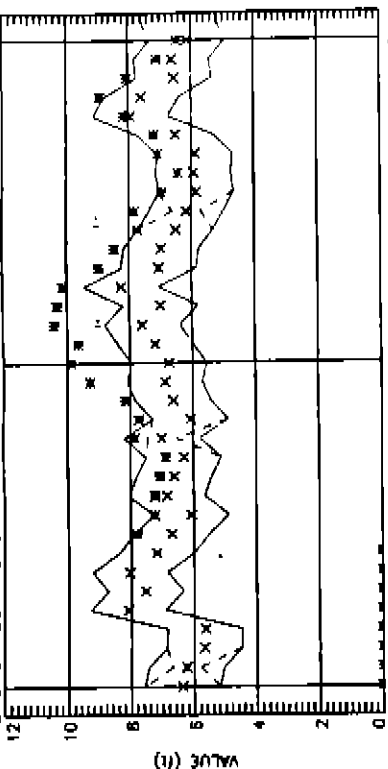






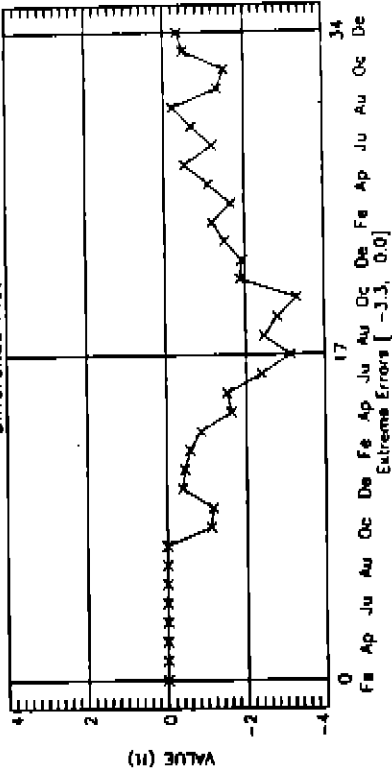


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1057



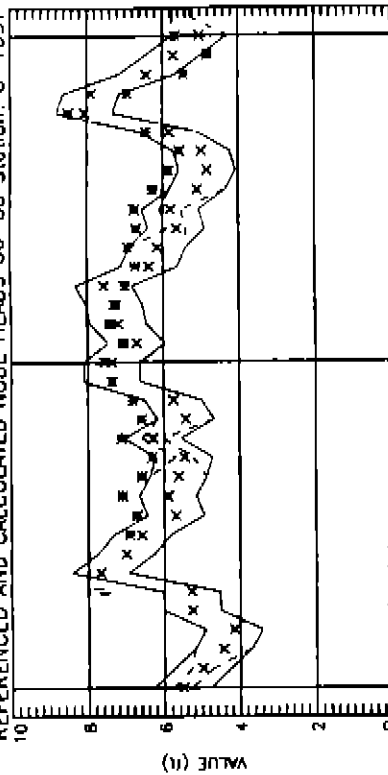
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 Layer 1 Row 35 Column 9 Hist.Std.Dev. 1.19 NOTE: Observed - Calculated

Difference Plot



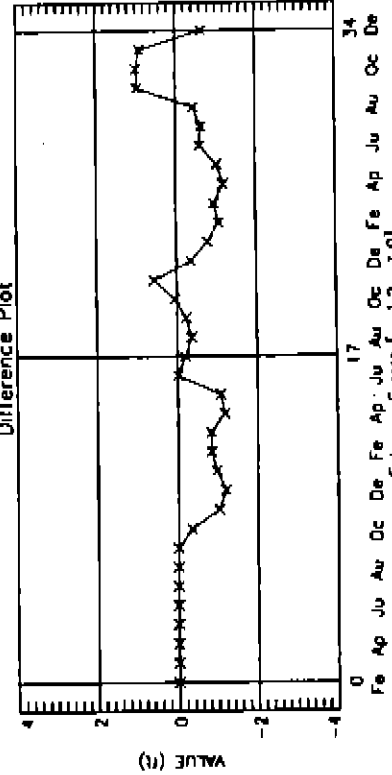
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-3.3, 0.0]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1060

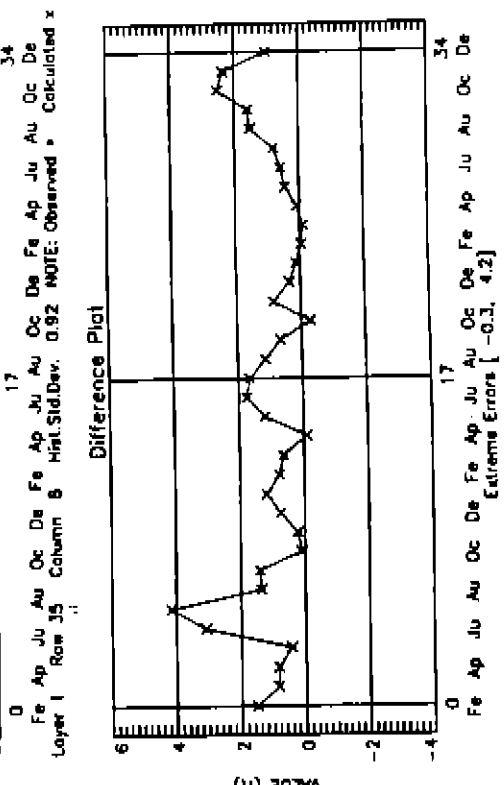
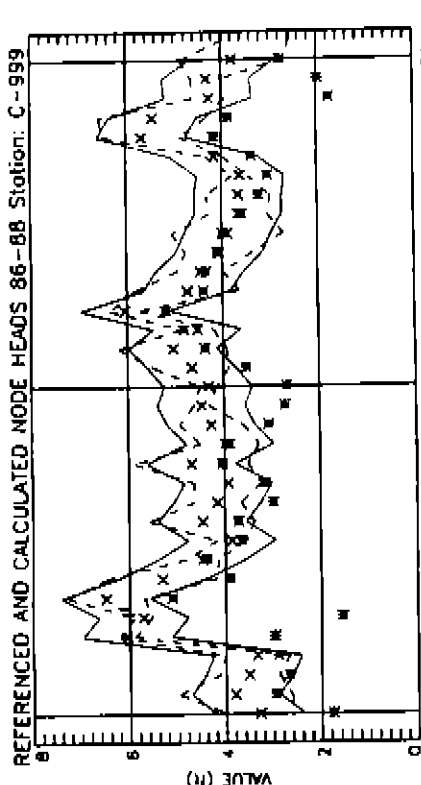
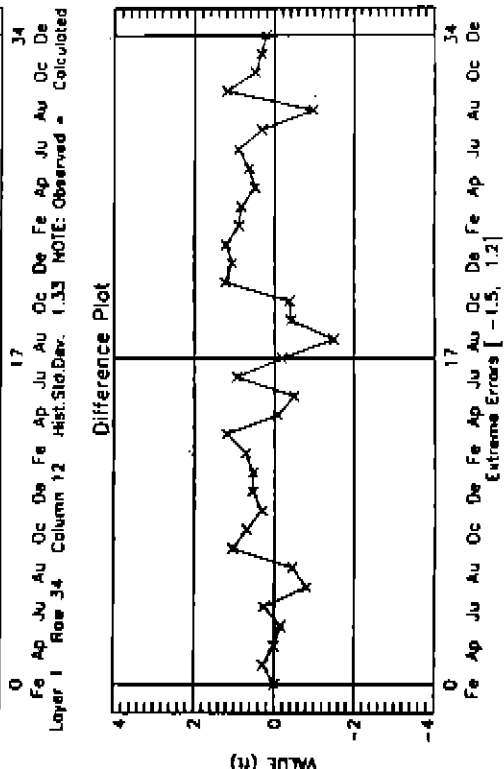
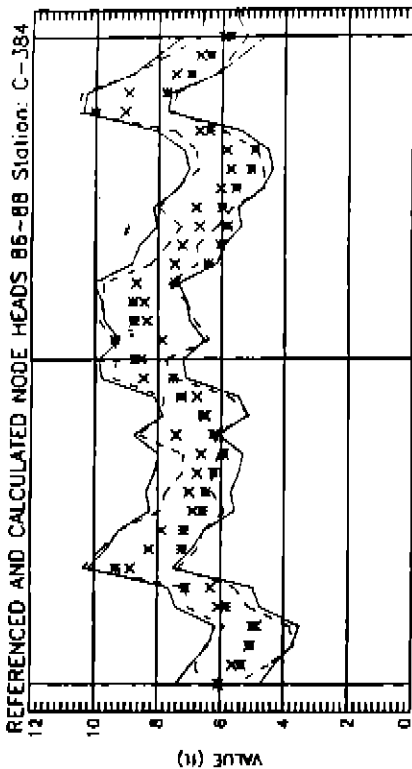


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 34 Column 11 Hist.Std.Dev. 0.75 NOTE: Observed - Calculated

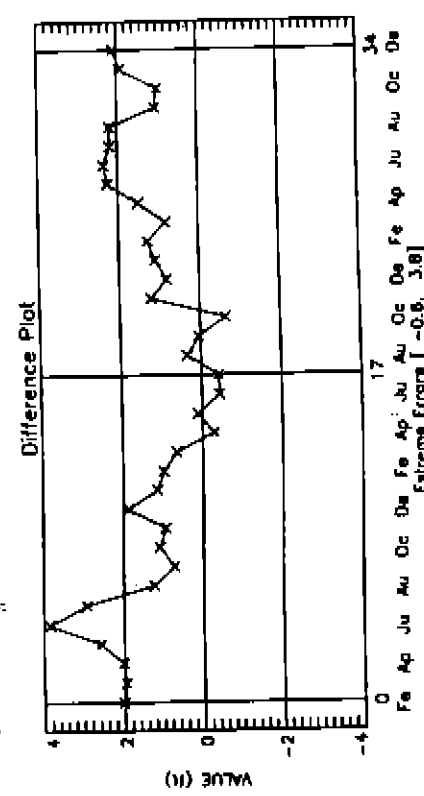
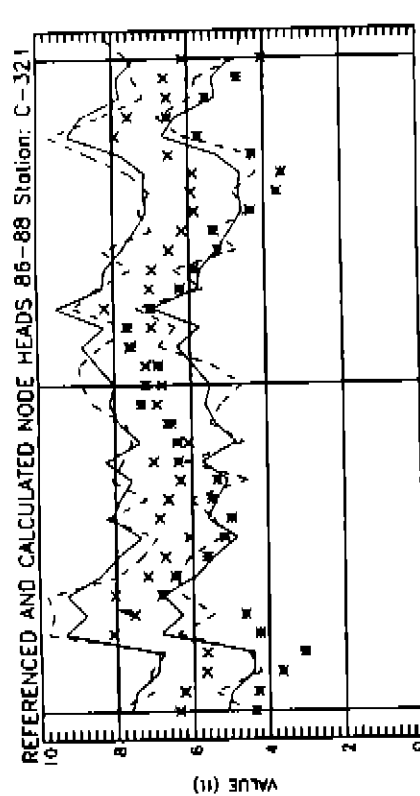
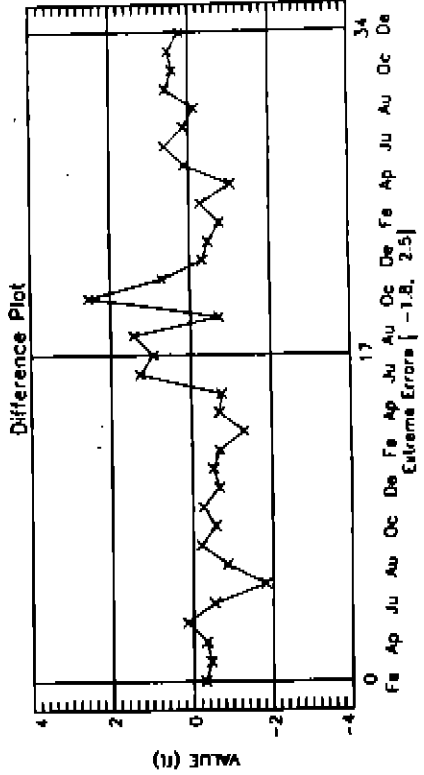
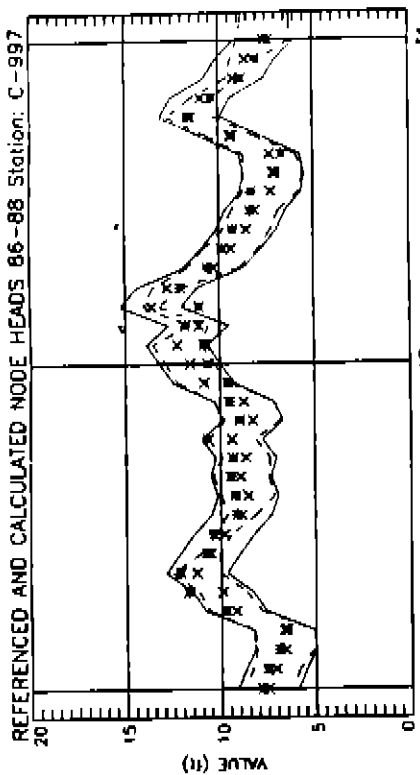
Difference Plot



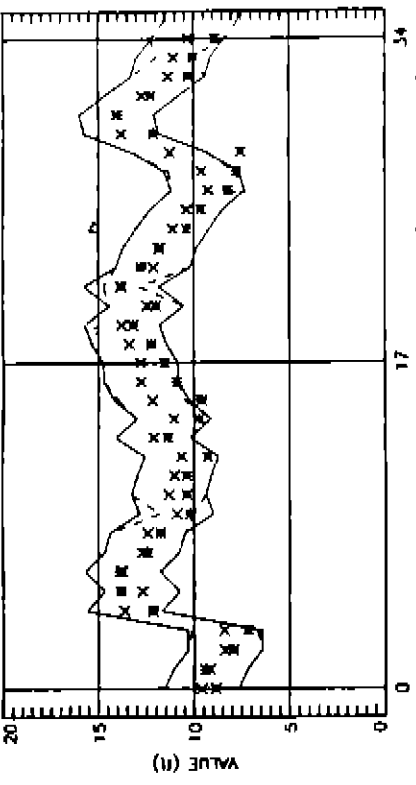
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.2, 1.0]





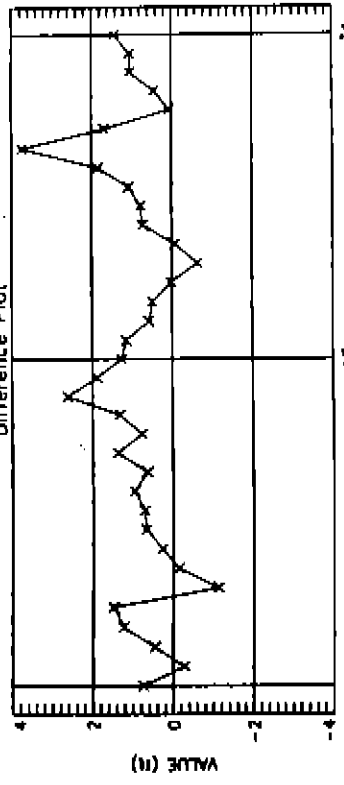


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-598



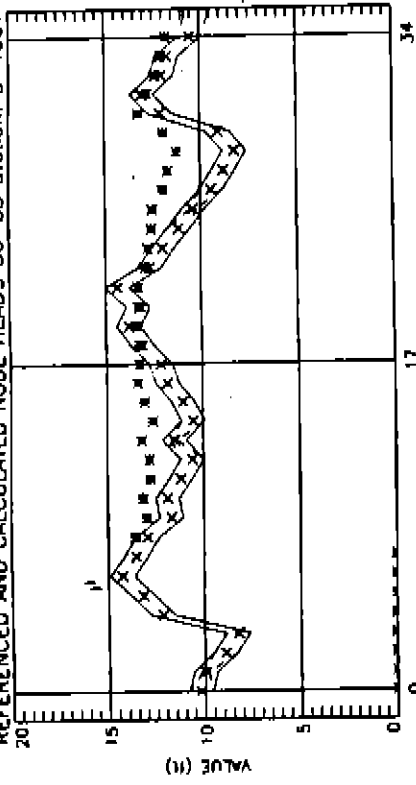
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 Layer 1 Row 36 Column 27 Hist.Std.Dev. 1.95 NOTE: Observed + Calculated x

Difference Plot



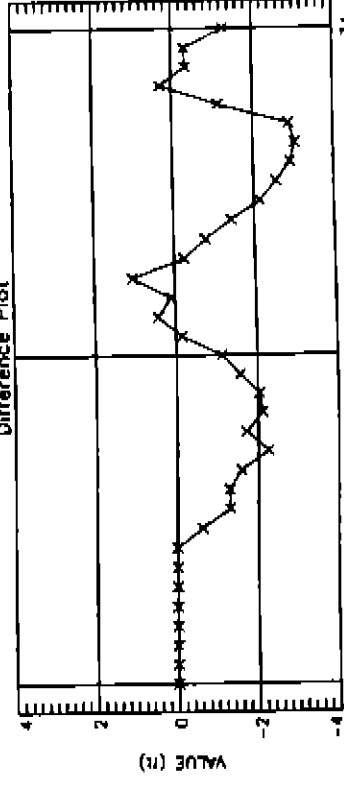
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.1, 3.8]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1061

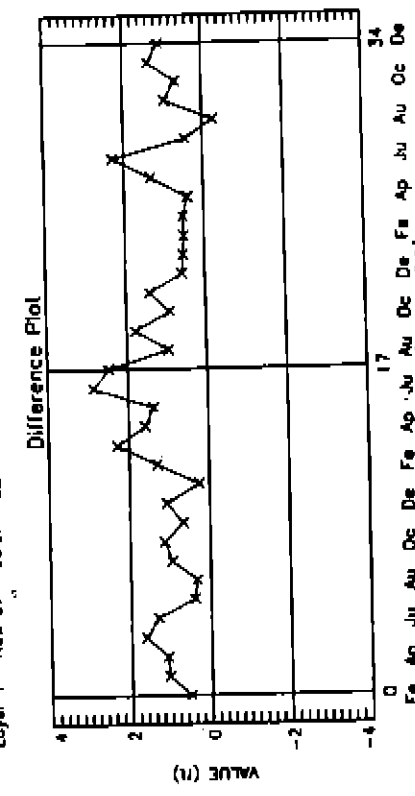
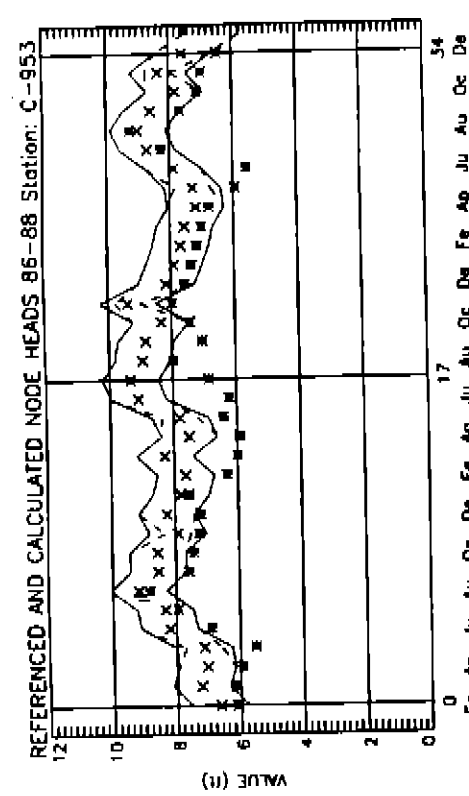
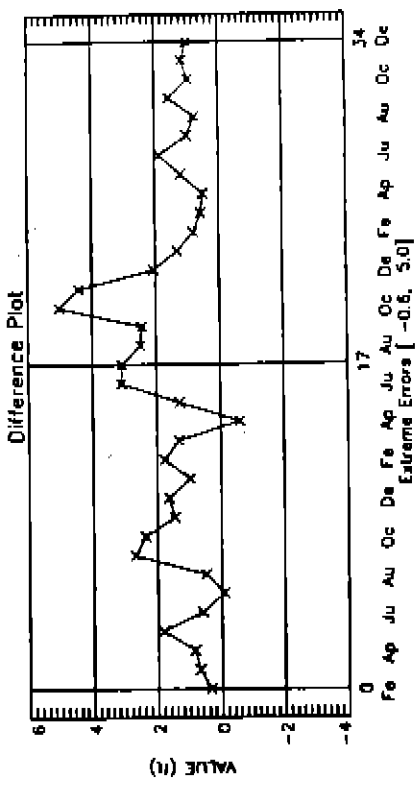
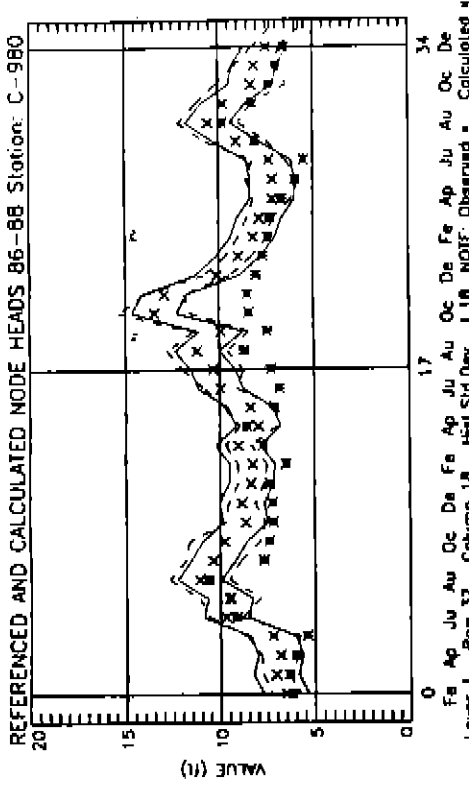


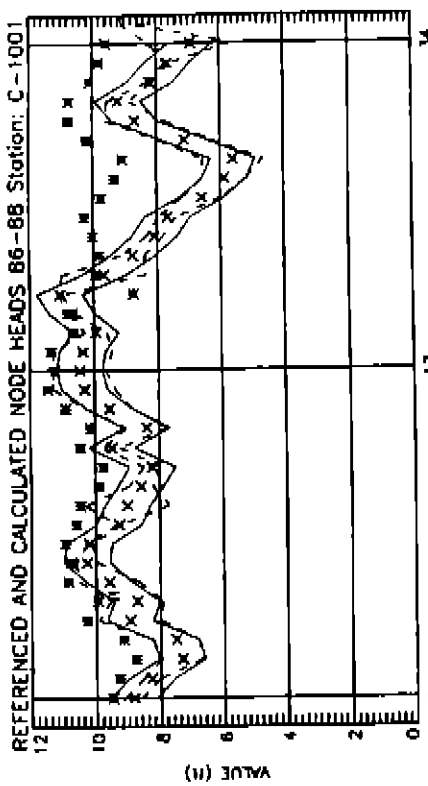
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 34 Column 9 Hist.Std.Dev. 0.61 NOTE: Observed + Calculated x

Difference Plot

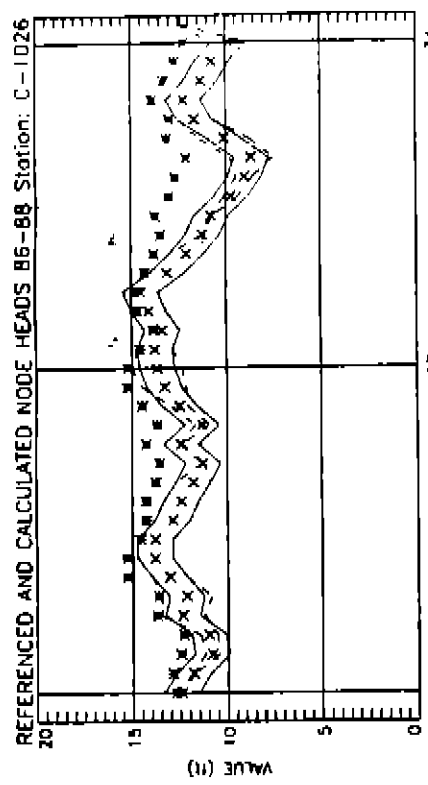
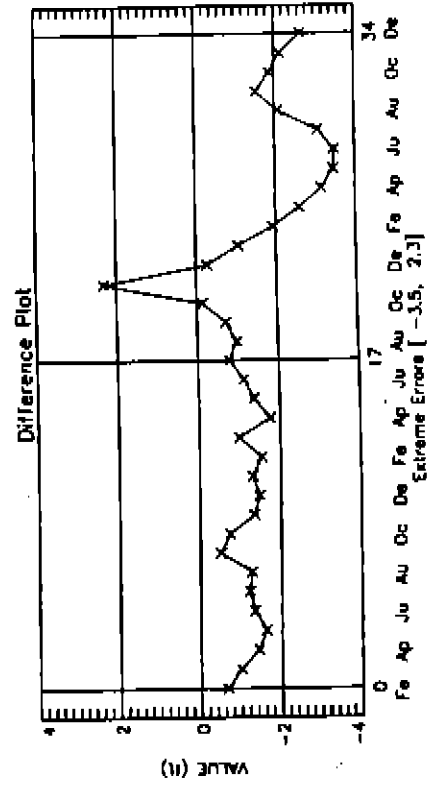


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-3.0, 1.1]

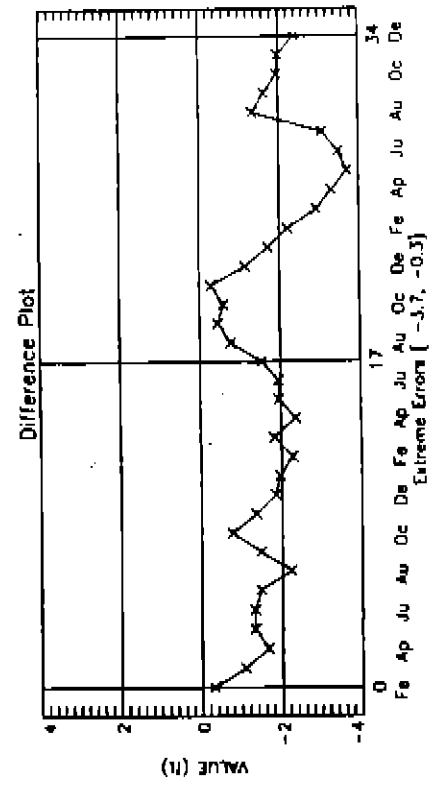


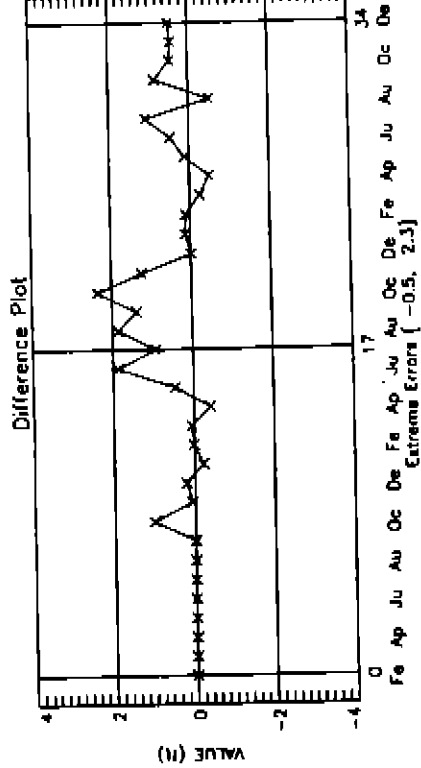
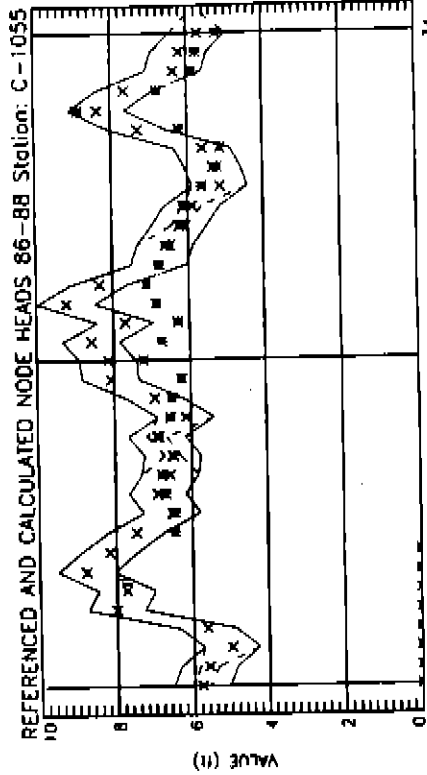
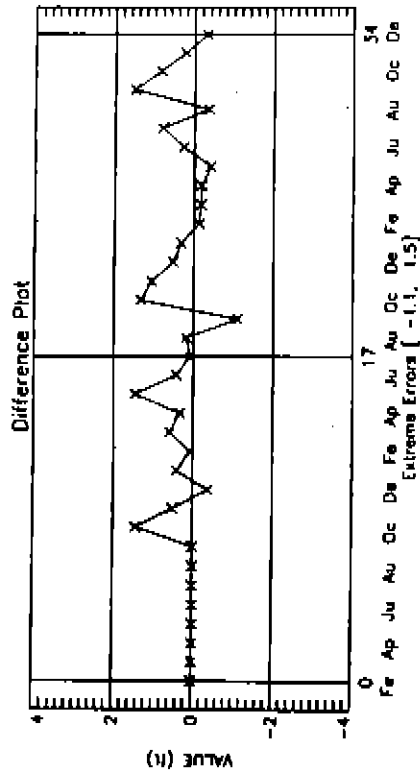
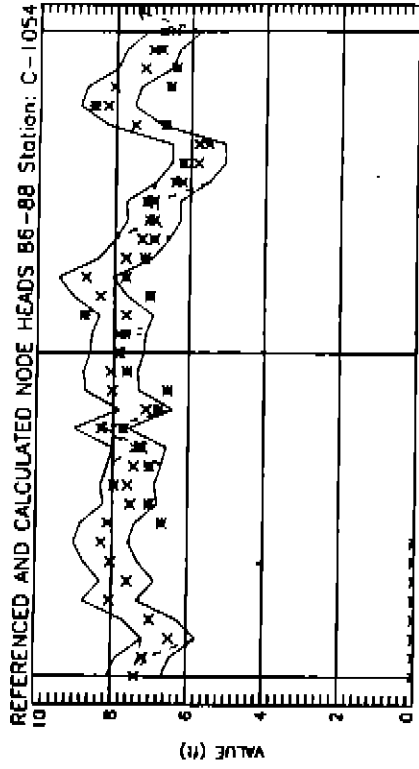


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 38 Column 9 Hist.Std.Dev. 0.71 NOTE: Observed - Calculated

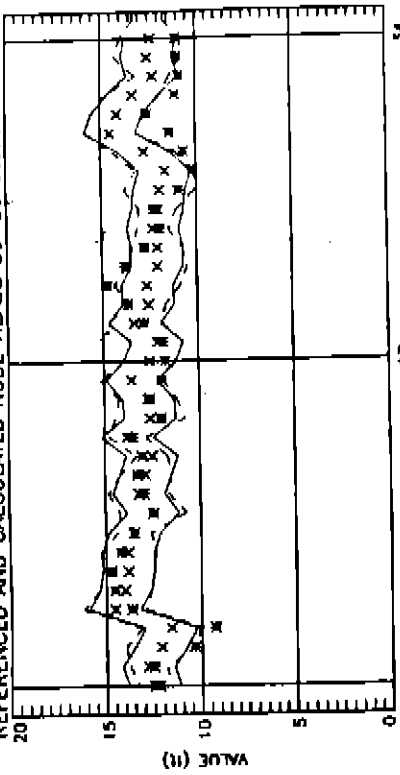


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 36 Column 9 Hist.Std.Dev. 0.91 NOTE: Observed - Calculated



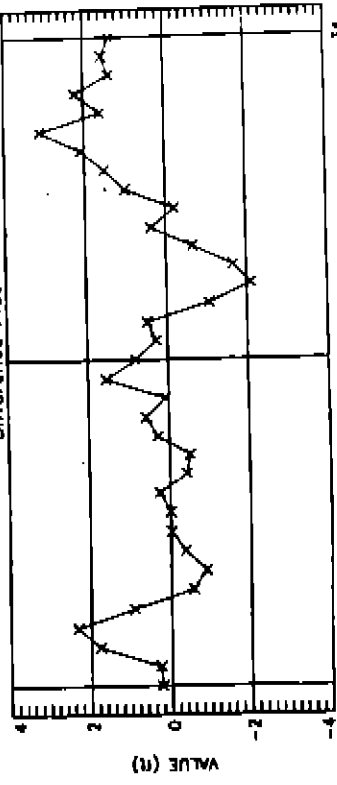


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-986



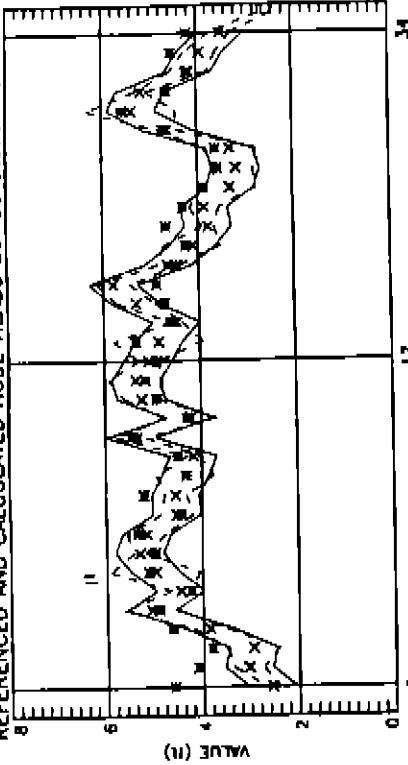
Layer 1 Row 39 Column 37 Stat.Std.Dev. 1.35 NOTE: Observed - Calculated x

Difference Plot



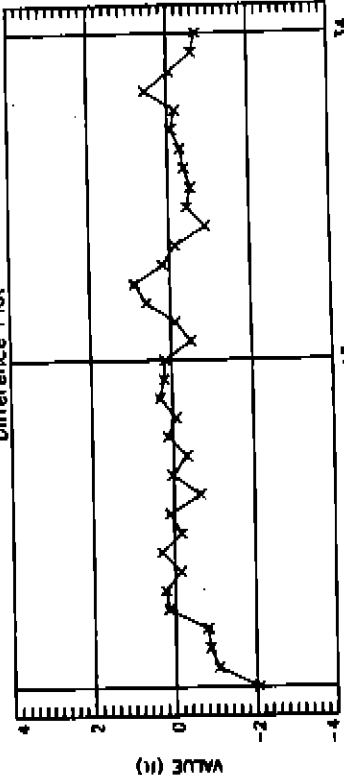
Extreme Errors [-2.1, 3.1]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-474

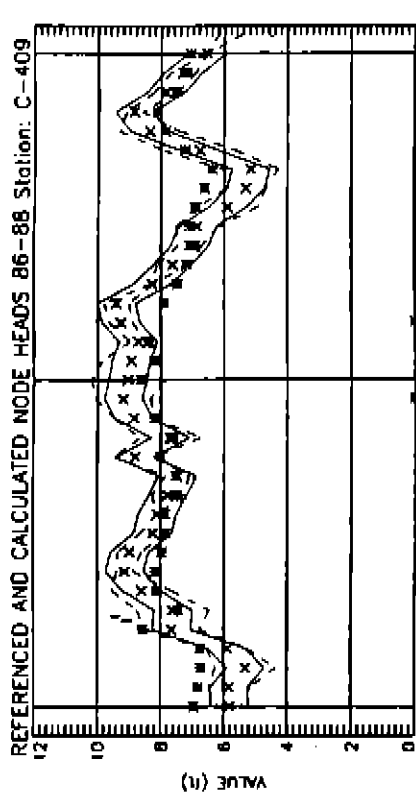


Layer 1 Row 40 Column 8 Stat.Std.Dev. 0.50 NOTE: Observed - Calculated x

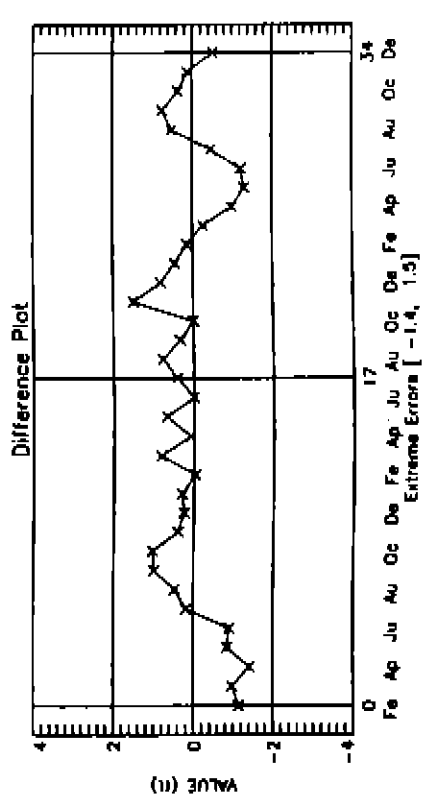
Difference Plot



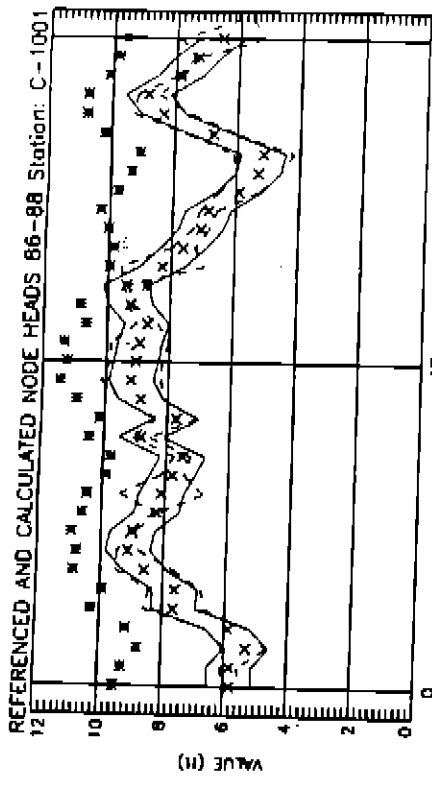
Extreme Errors [-2.1, 0.9]



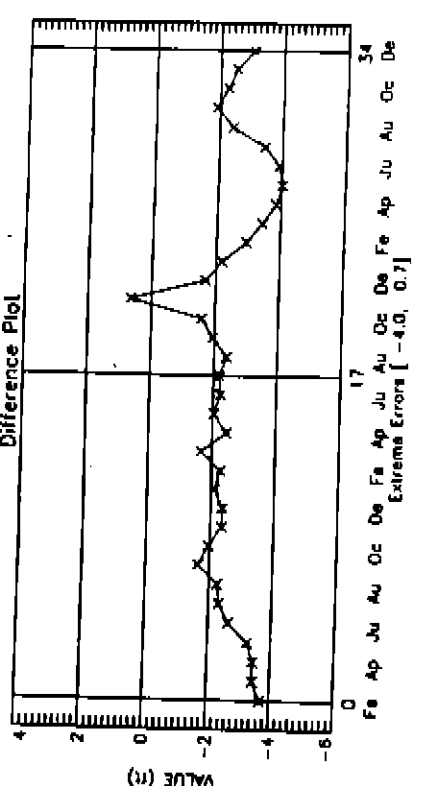
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 40 Column 9 Hist.Std.Dev. 0.80 NOTE: Observed \* Calculated \*



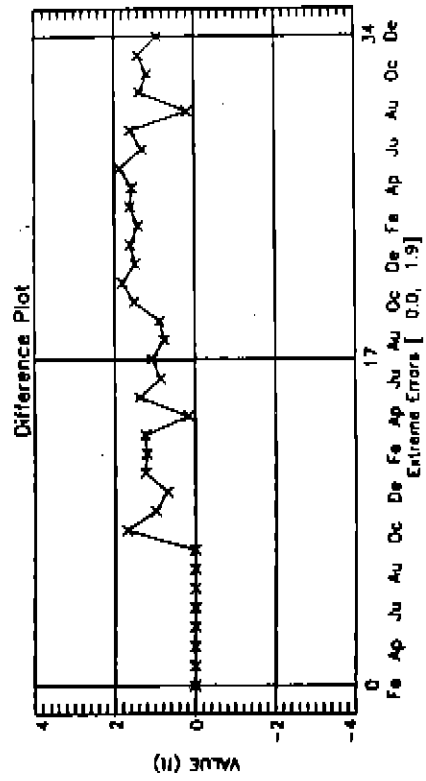
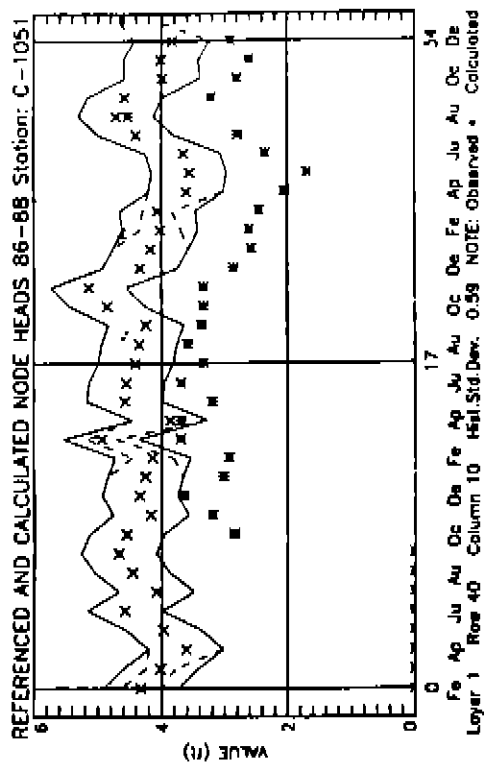
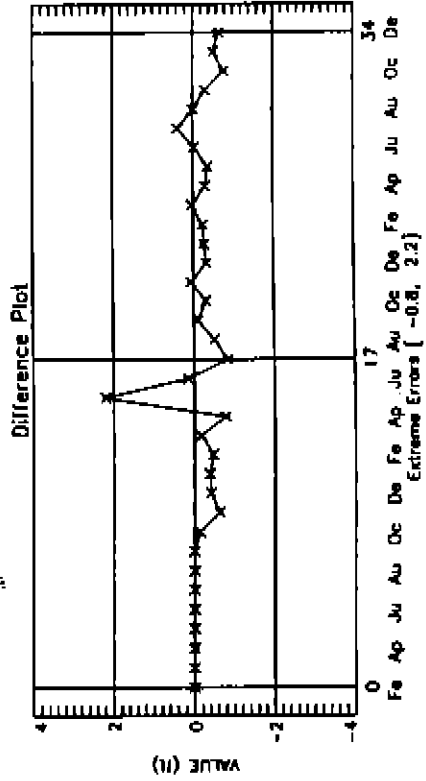
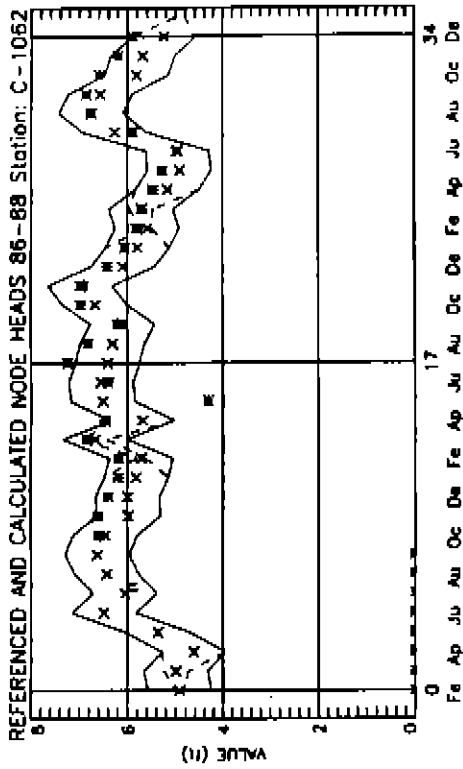
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.4, 1.3]



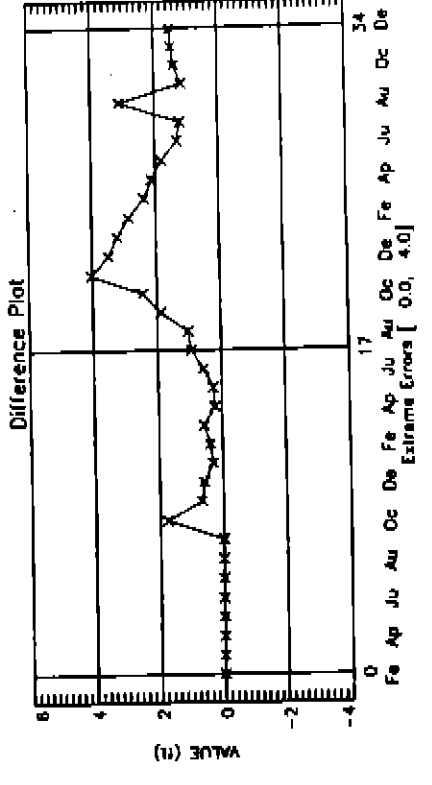
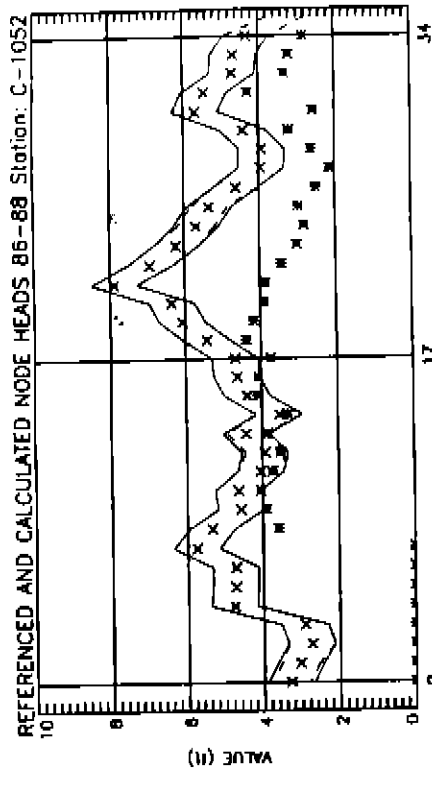
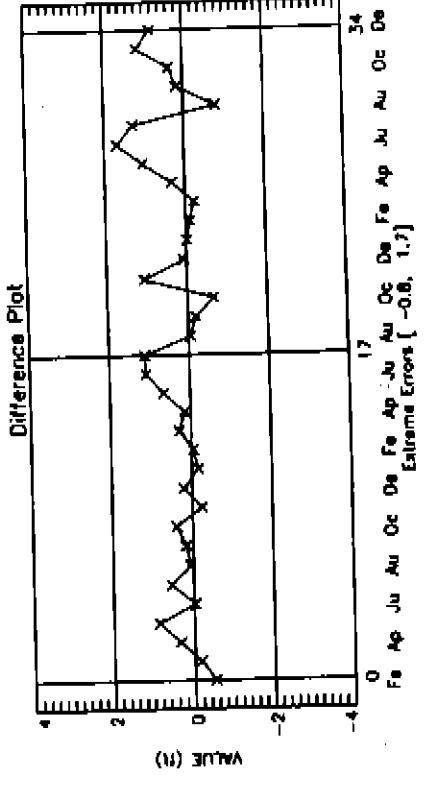
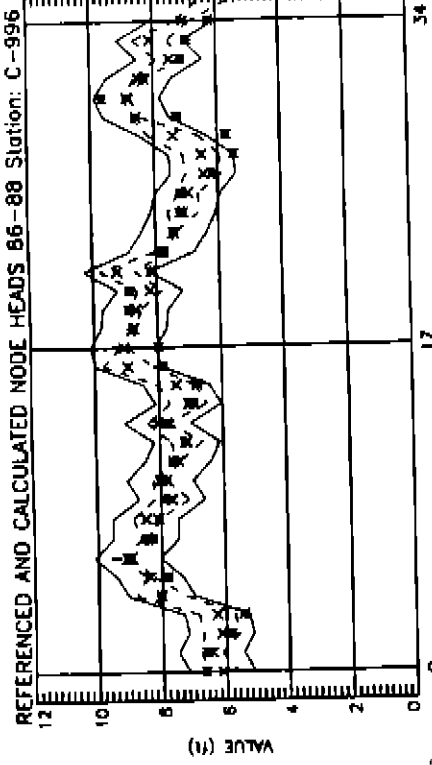
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 40 Column 9 Hist.Std.Dev. 0.71 NOTE: Observed \* Calculated \*



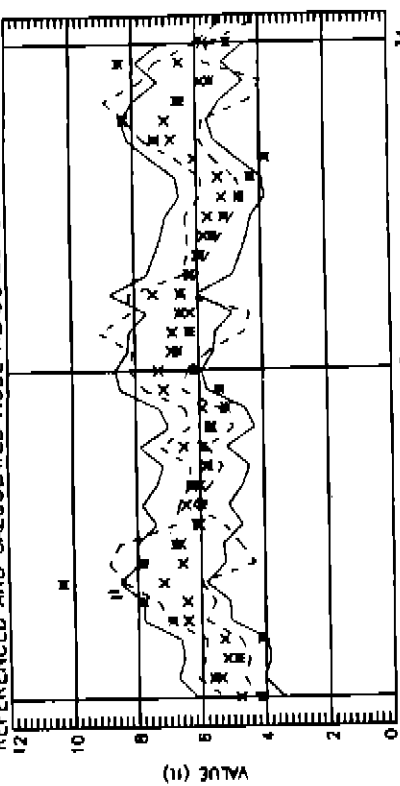
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.0, 0.7]





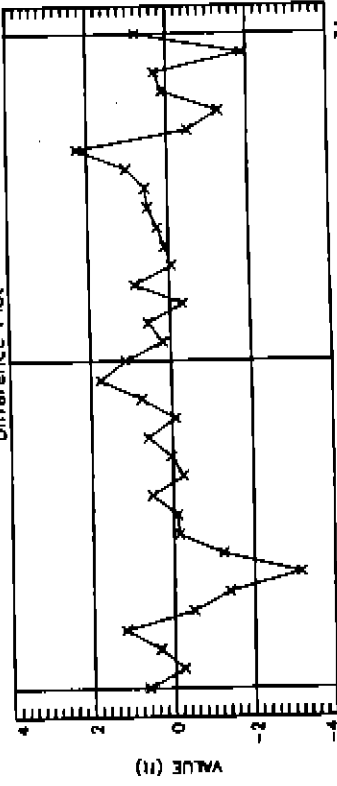


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-972



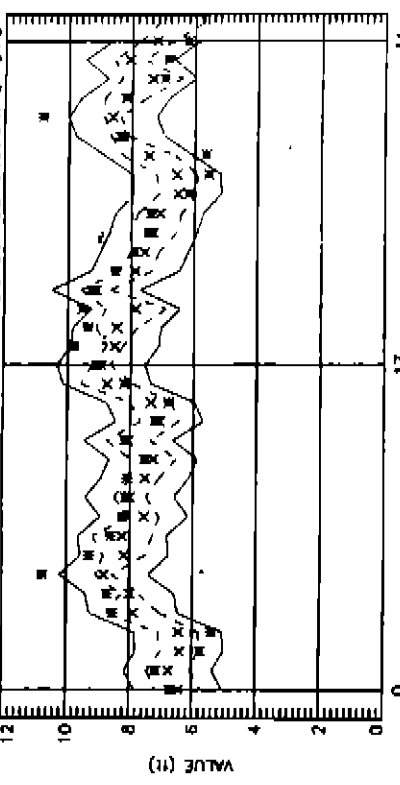
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 43 Column 24 Hist.Std.Dev. 1.36 NOTE: Observed - Calculated x

Difference Plot



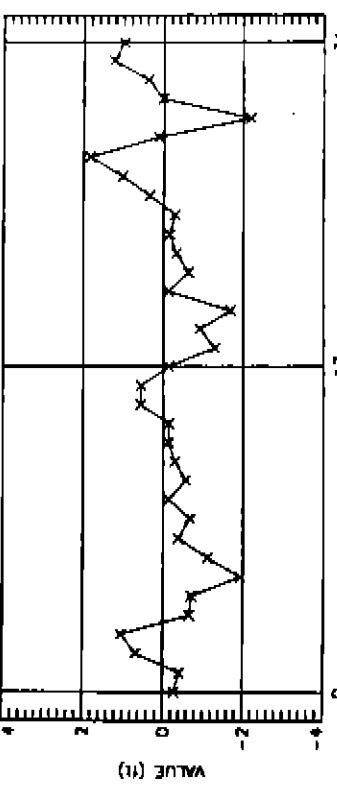
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-3.2, 2.3]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-976

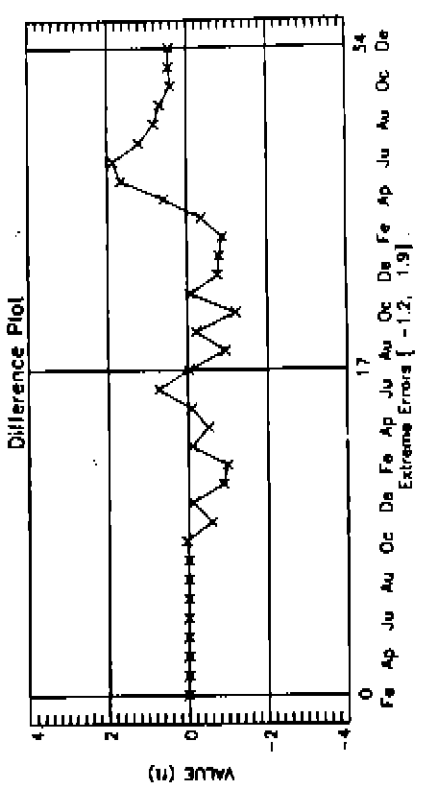
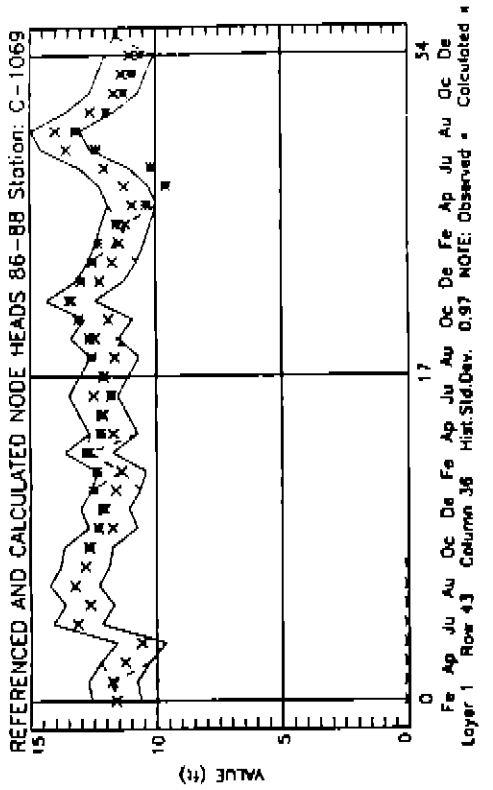
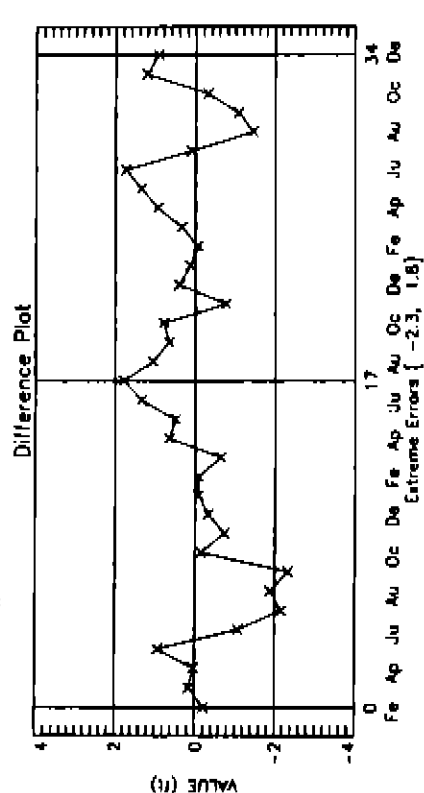
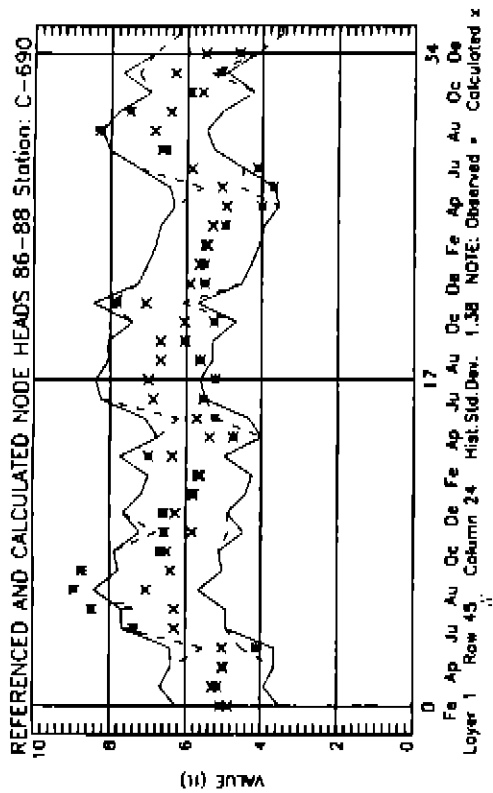


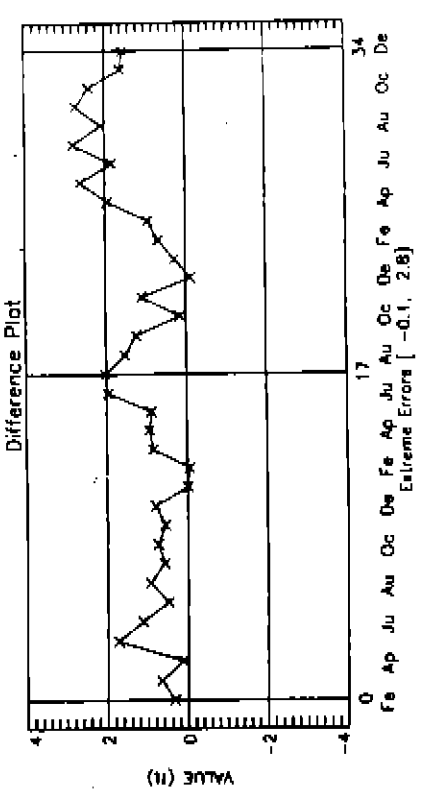
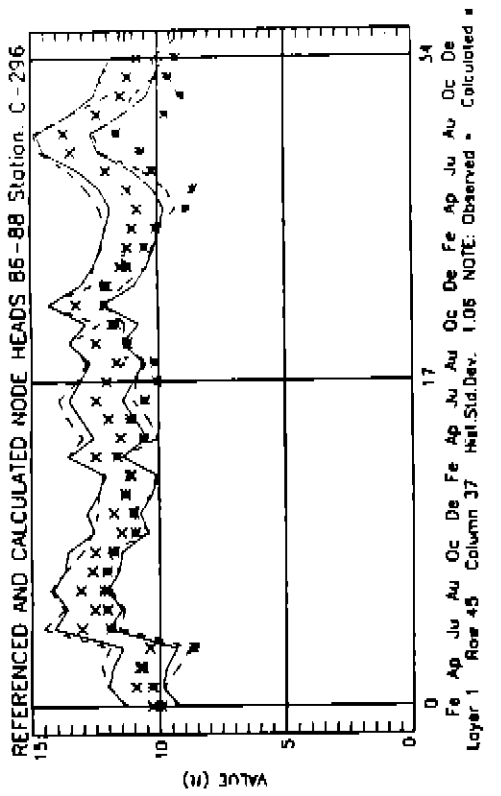
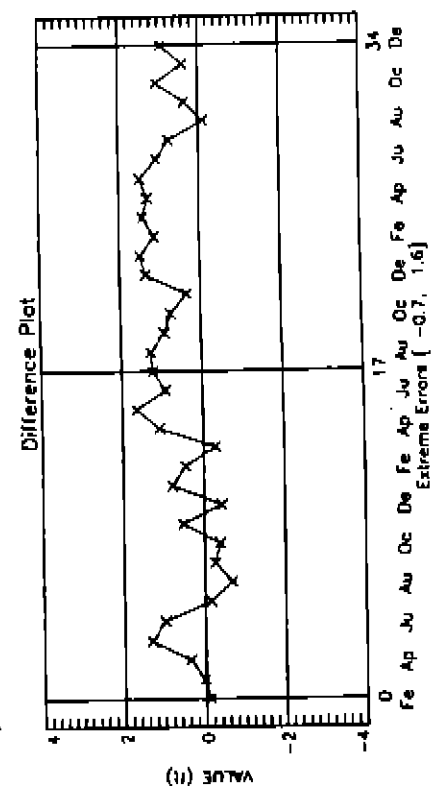
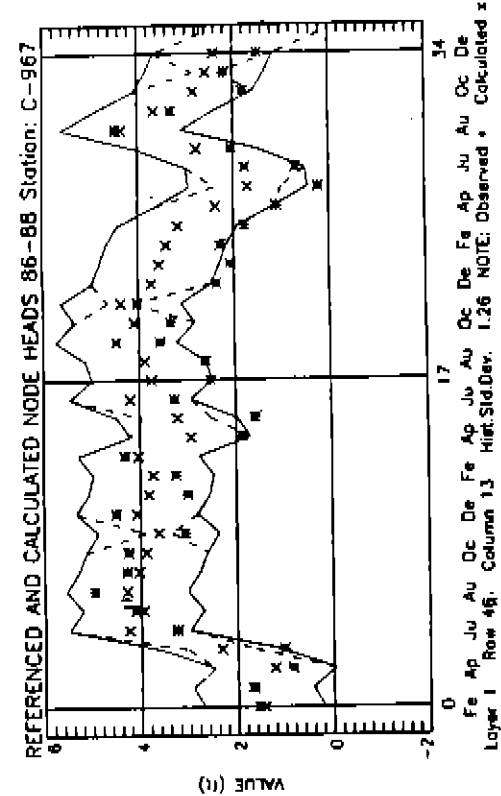
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 42 Column 18 Hist.Std.Dev. 1.39 NOTE: Observed - Calculated x

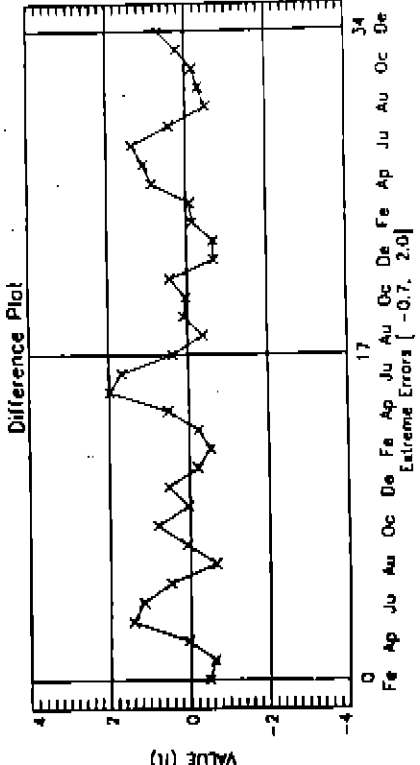
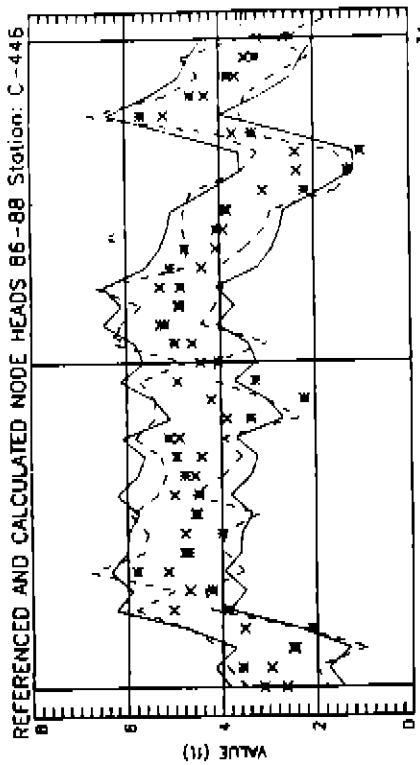
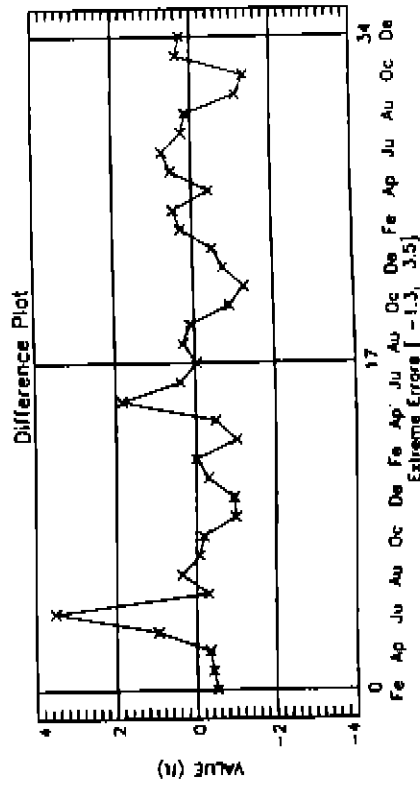
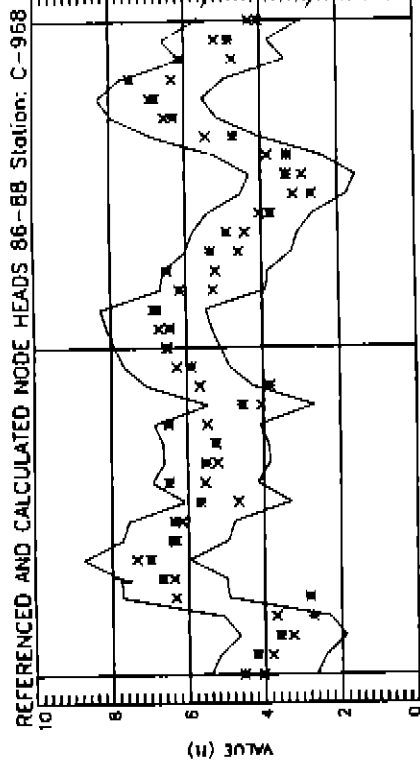
Difference Plot



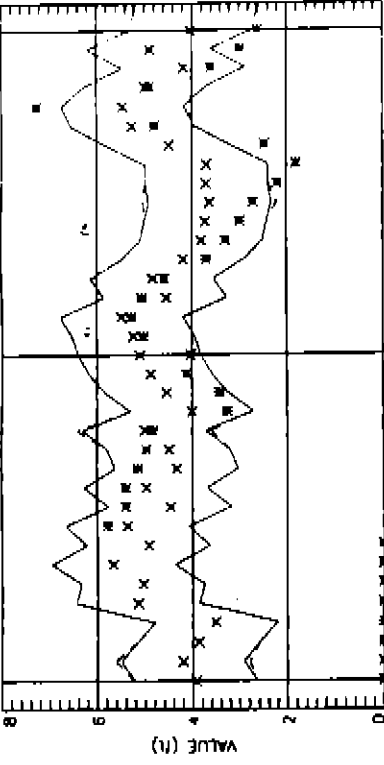
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.2, 1.8]





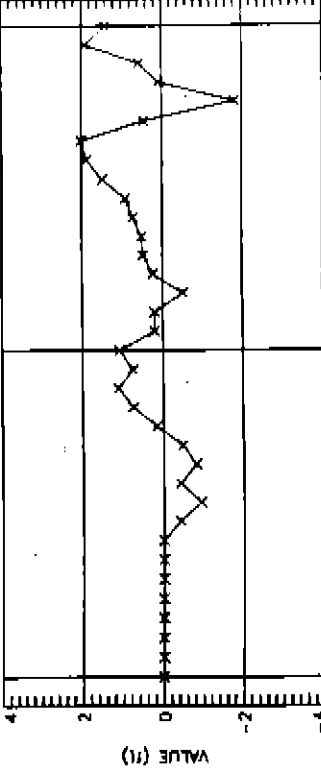


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1067



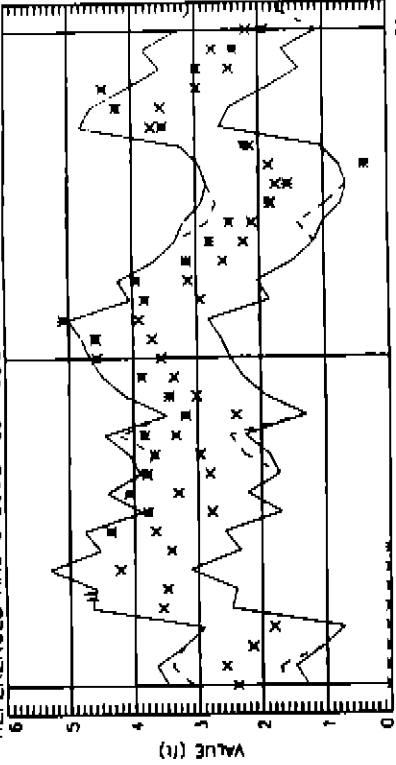
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 49 Column 25 Hist.Std.Dev. 1.29 NOTE: Observed \* Calculated x

Difference Plot



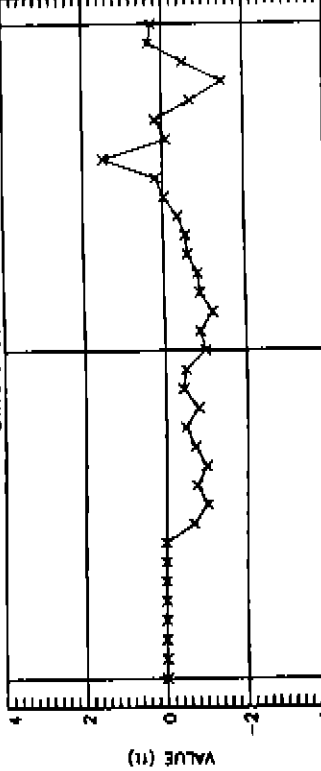
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors (-1.8, 2.0)

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1063



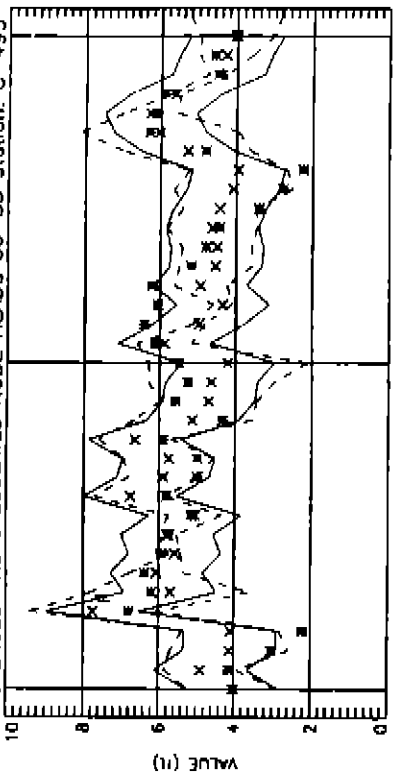
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 51 Column 19 Hist.Std.Dev. 1.09 NOTE: Observed \* Calculated x

Difference Plot



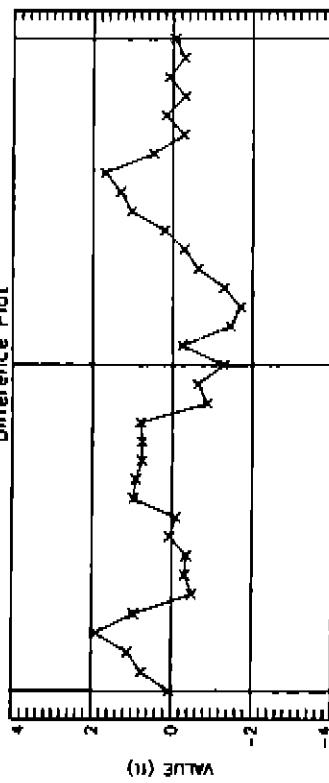
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors (-1.5, 1.5)

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-495



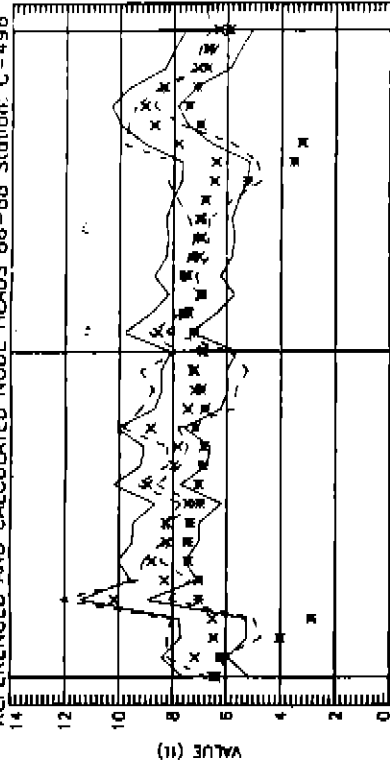
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 55 Column 38 Hdt.Std.Dev. 1.22 NOTE: Observed - Calculated x

Difference Plot



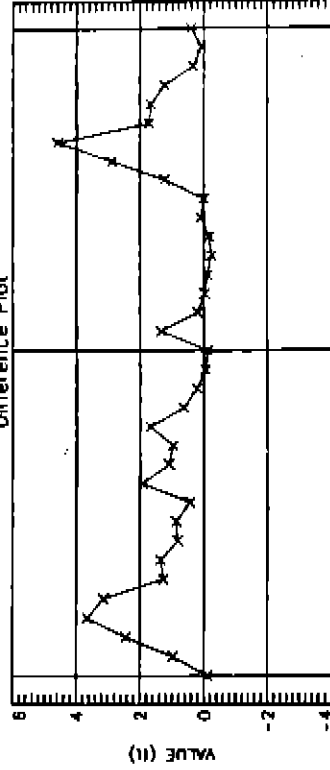
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.7, 1.9]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-496

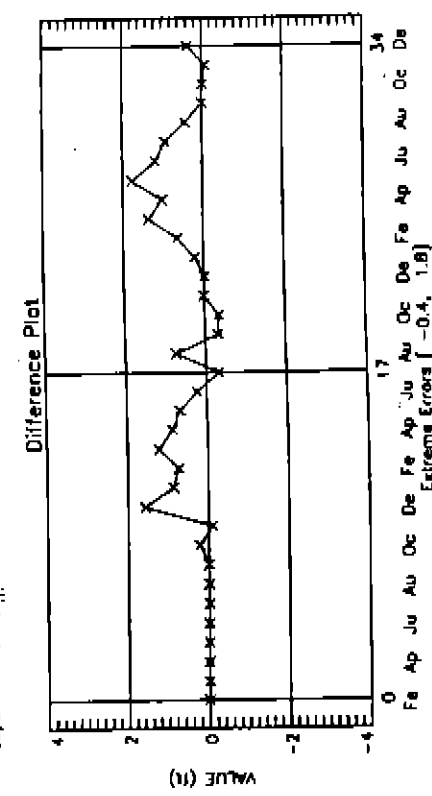
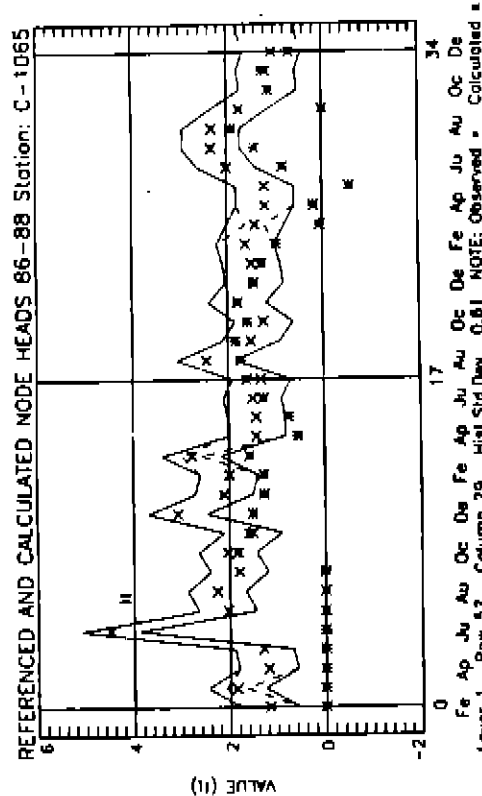
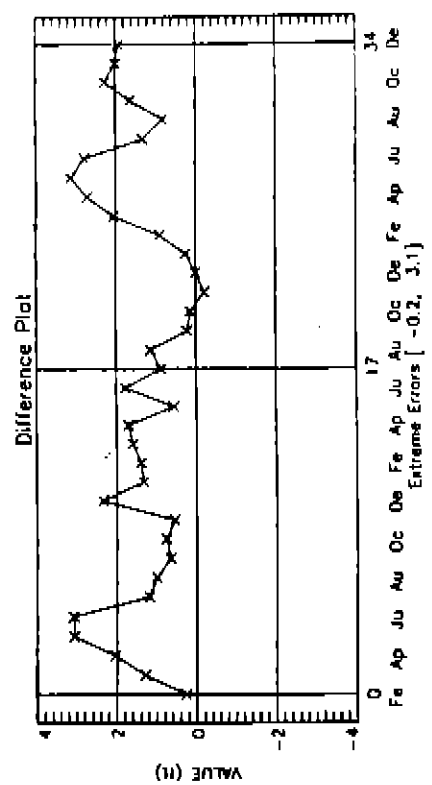
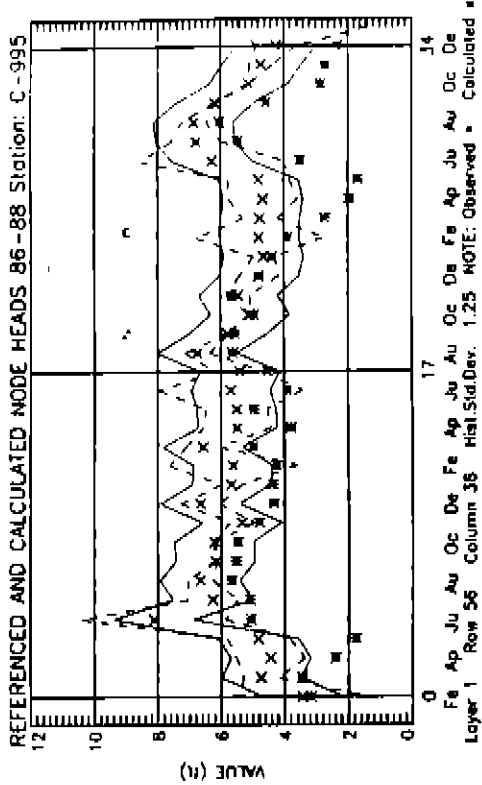


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 1 Row 51 Column 33 Hdt.Std.Dev. 1.24 NOTE: Observed - Calculated x

Difference Plot



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-0.2, 4.6]



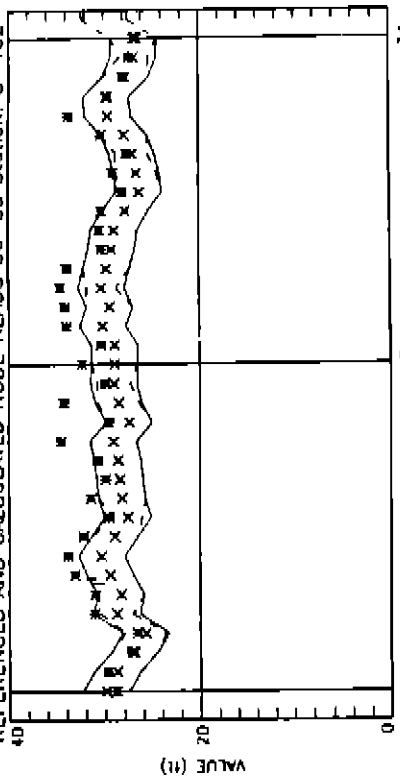


**LAYER 2**

**LOWER TAMIAMI AQUIFER  
COMPARATIVE HYDROGRAPHS**

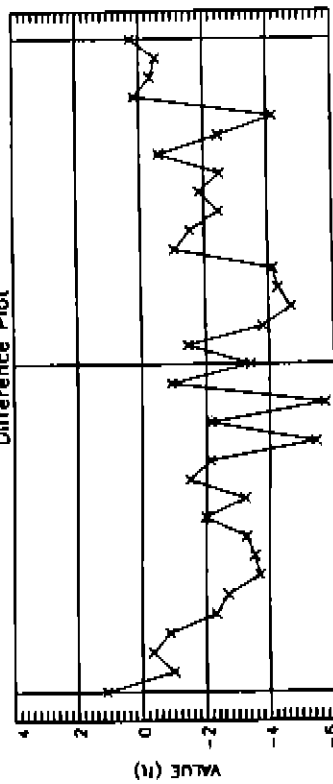


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-462



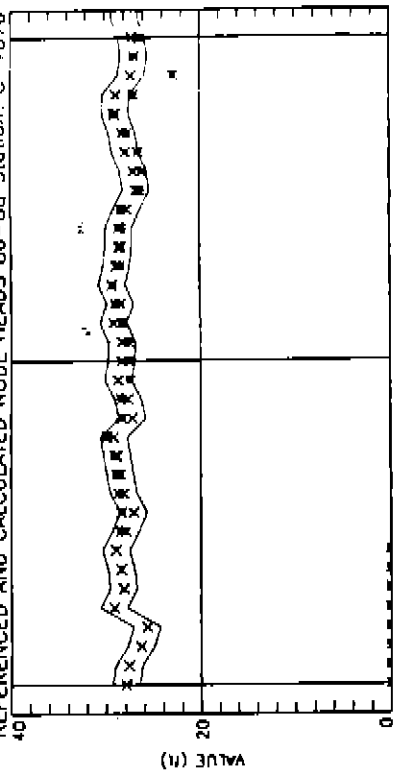
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 21, Column 31 Hist.Std.Dev. 2.42 NOTE: Observed - Calculated x

Difference Plot



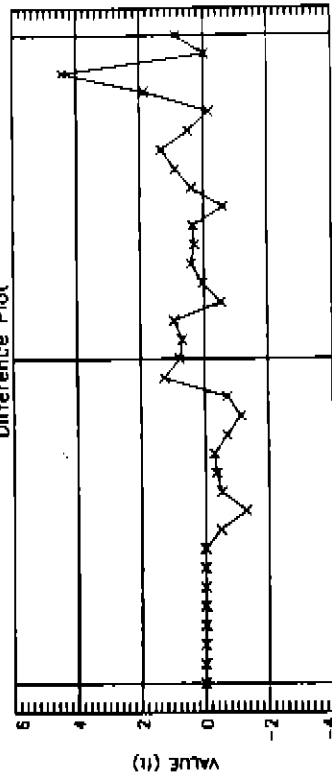
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-5.7, 1.1]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-1076

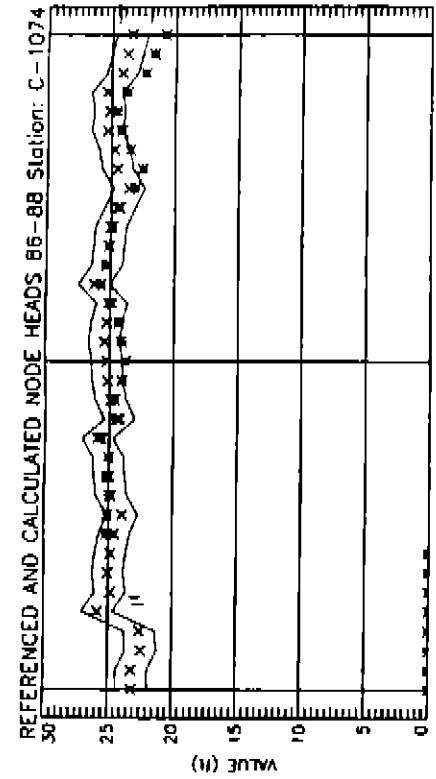


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 20 Column 36 Hist.Std.Dev. 1.40 NOTE: Observed - Calculated x

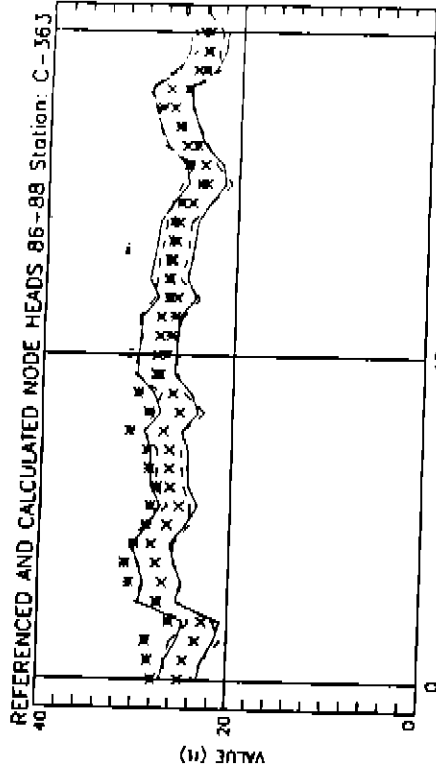
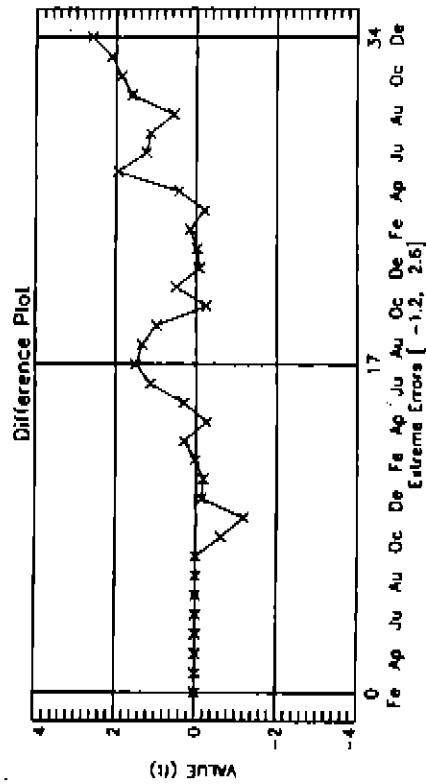
Difference Plot



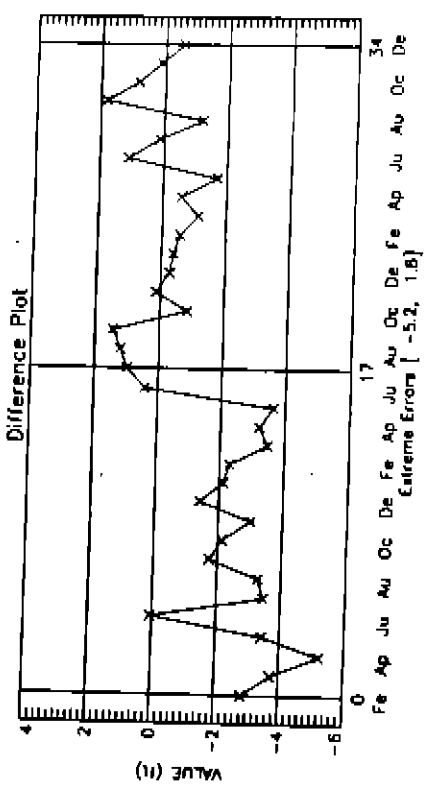
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.3, 4.4]

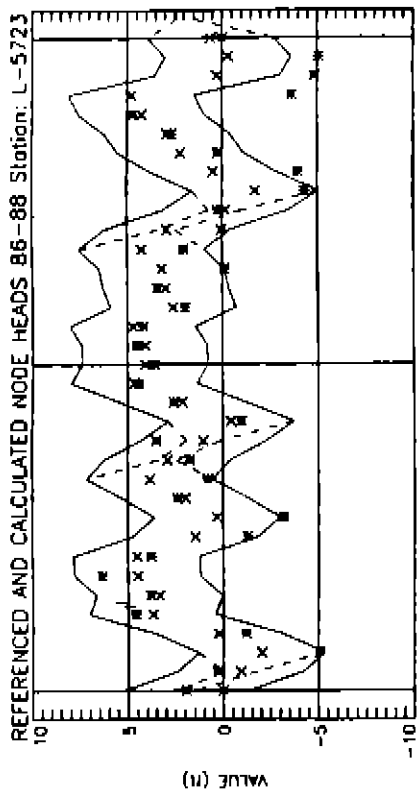


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 24 Column 41 Hist.Std.Dev. 1.22 NOTE: Observed - Calculated \*

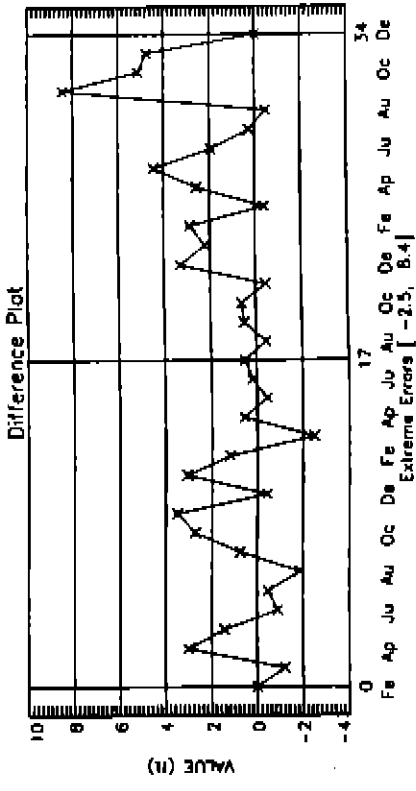


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 23 Column 33 Hist.Std.Dev. 1.95 NOTE: Observed - Calculated \*

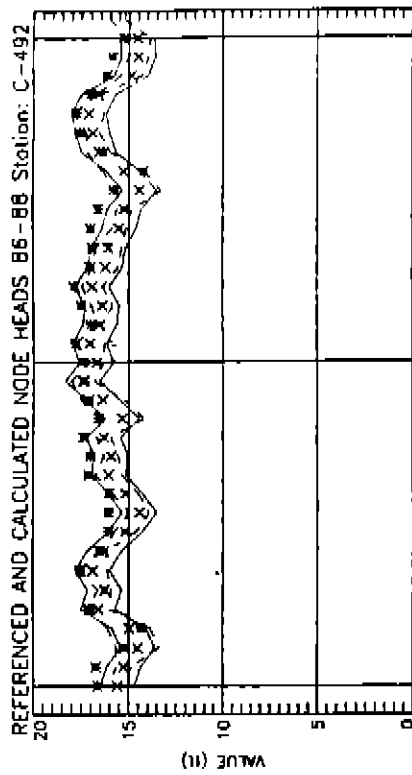




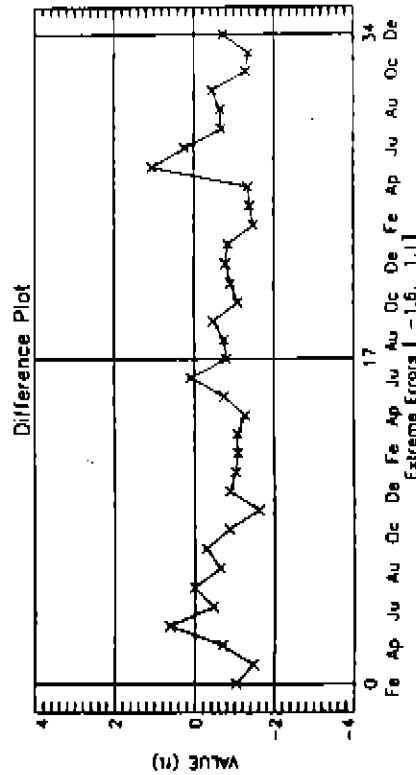
Layer 2 Row 28 Column 10 Hist.Std.Dev. 3.31 NOTE: Observed - Calculated \*



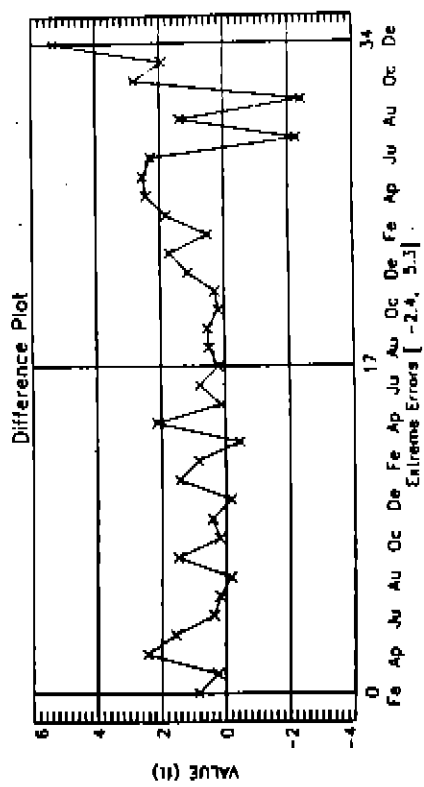
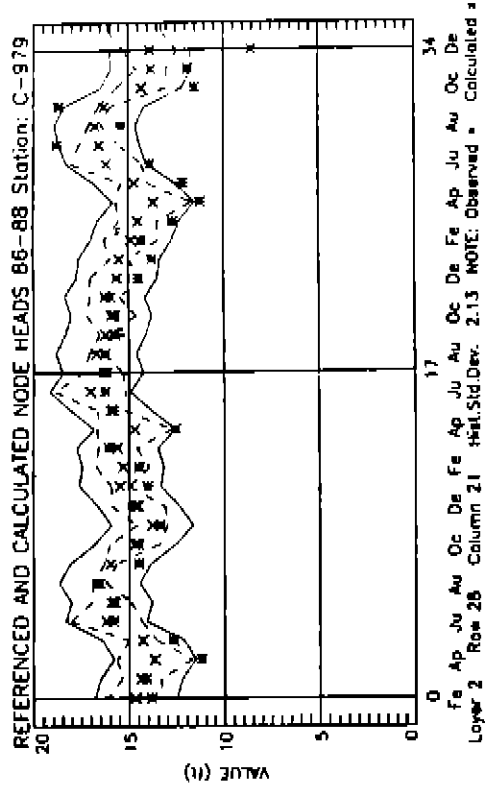
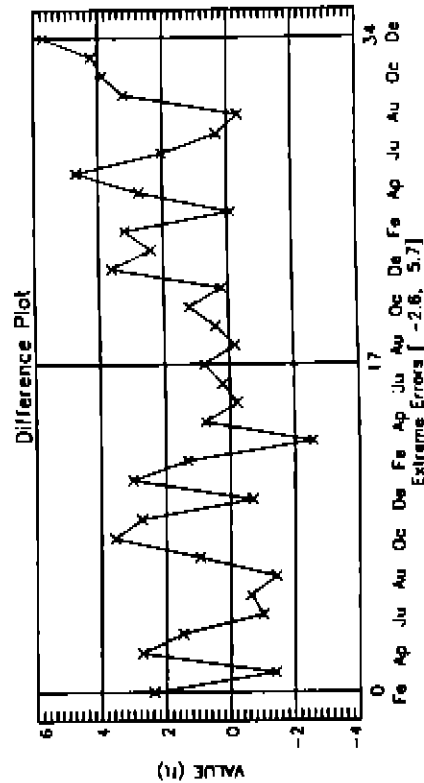
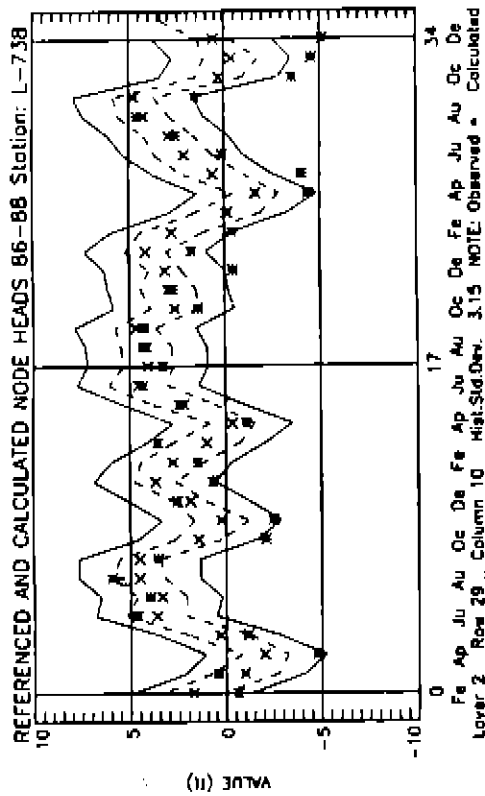
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.5, 8.4]

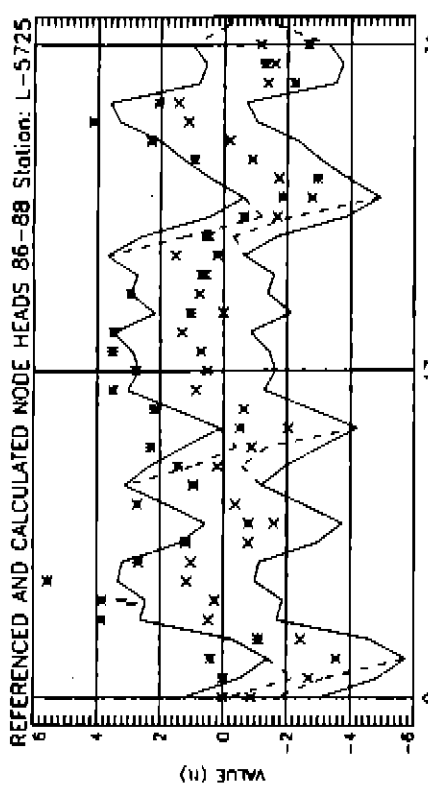


Layer 2 Row 27 Column 21 Hist.Std.Dev. 0.90 NOTE: Observed - Calculated \*

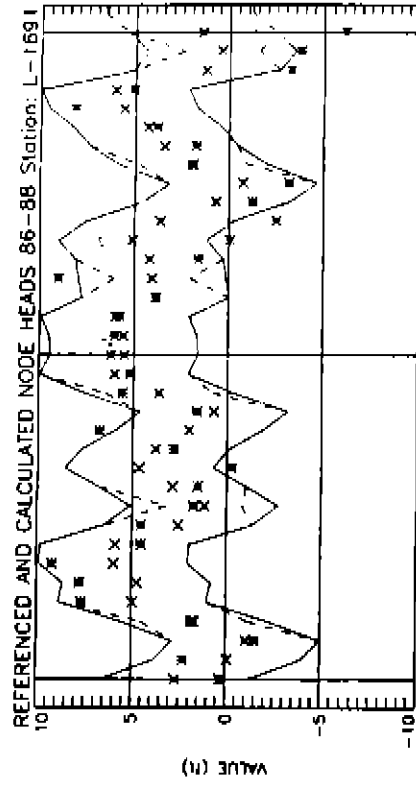
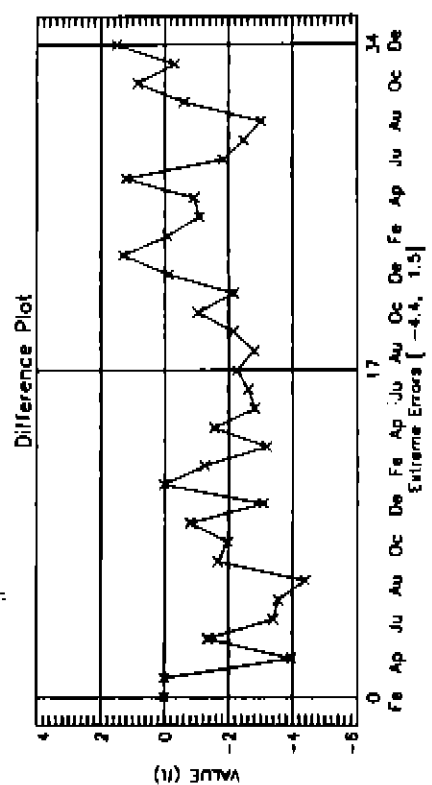


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.6, 1.1]

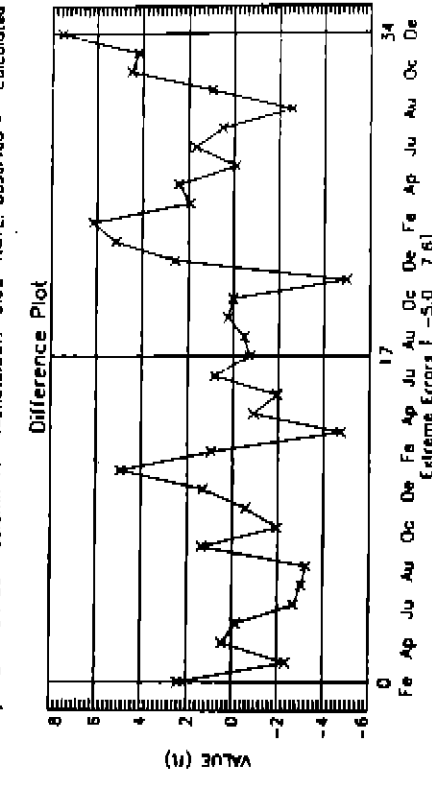




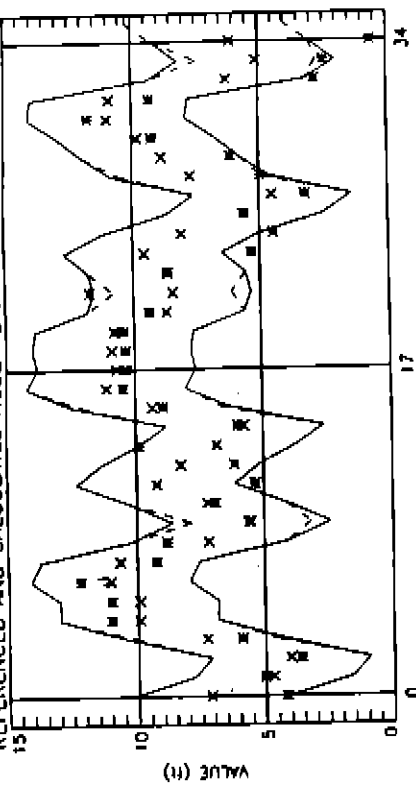
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 30 Column 8 Hist.Std.Dev. 2.16 NOTE: Observed - Calculated \*



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 29 Column 11 Hist.Std.Dev. 3.92 NOTE: Observed - Calculated \*

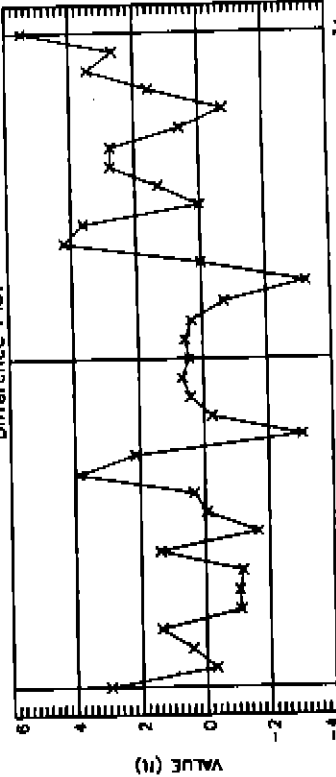


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: L-1996



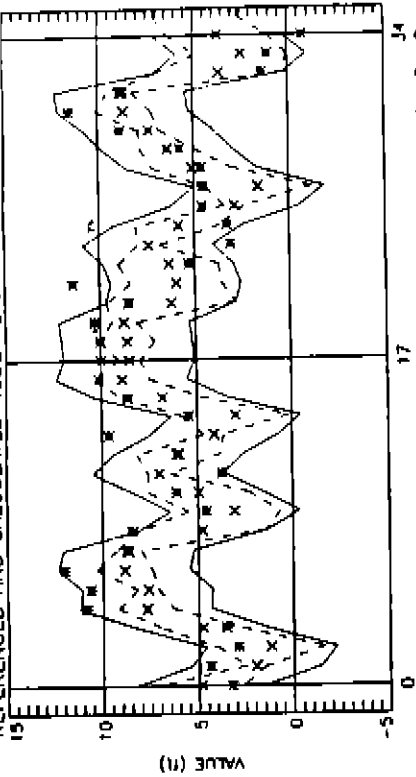
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 30 Column 16 Hist.Std.Dev. 3.09 NOTE: Observed - Calculated x

Difference Plot



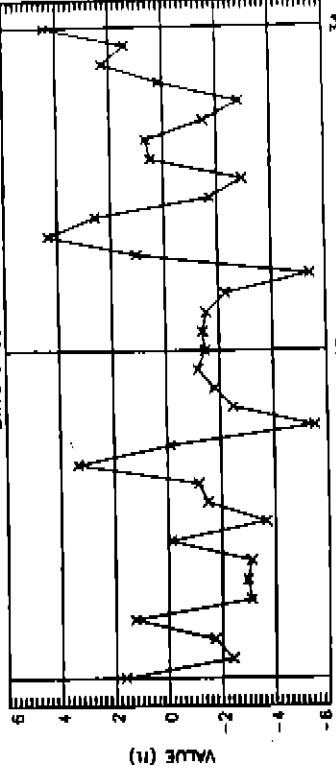
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-3.2, 5.5]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: L-2194



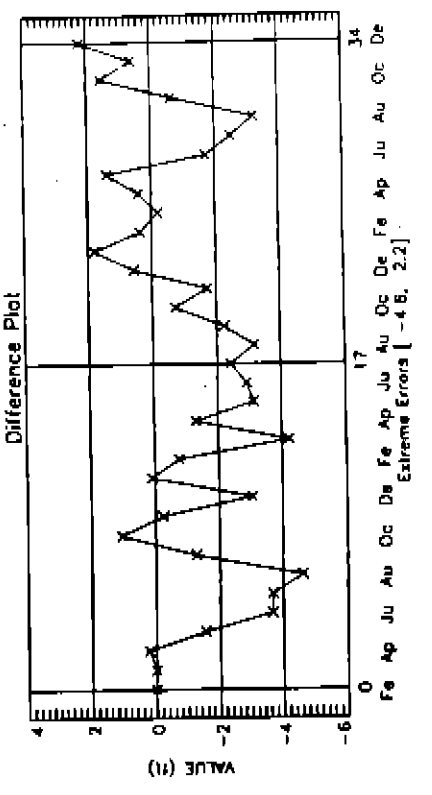
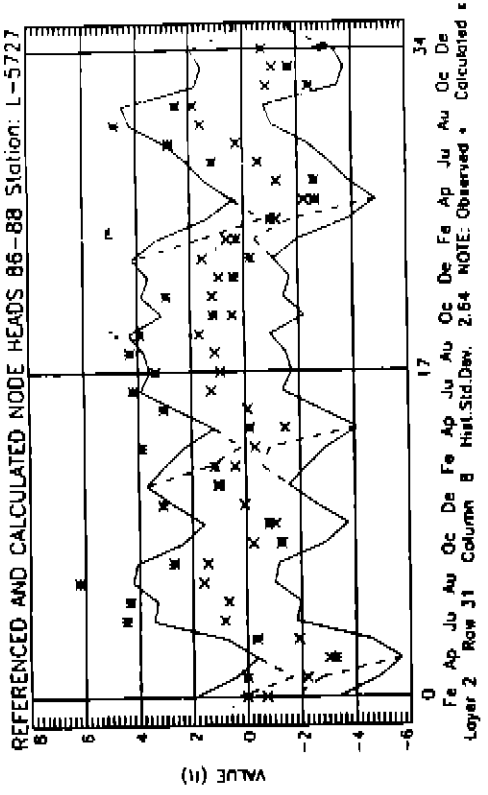
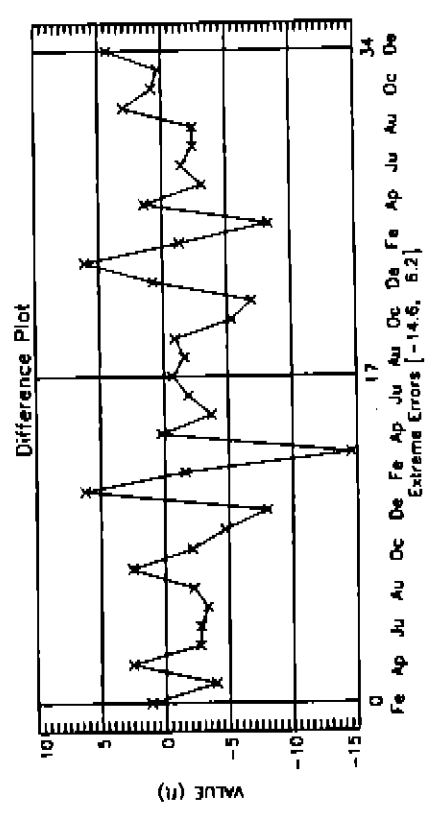
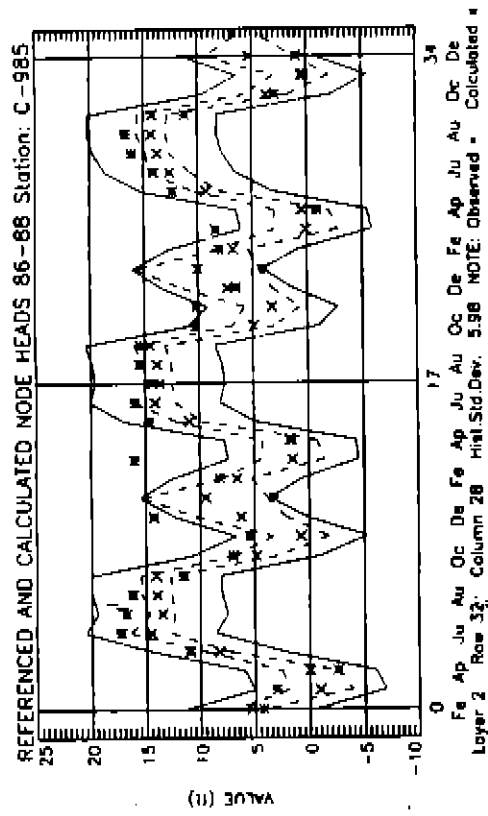
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 30 Column 14 Hist.Std.Dev. 3.42 NOTE: Observed - Calculated x

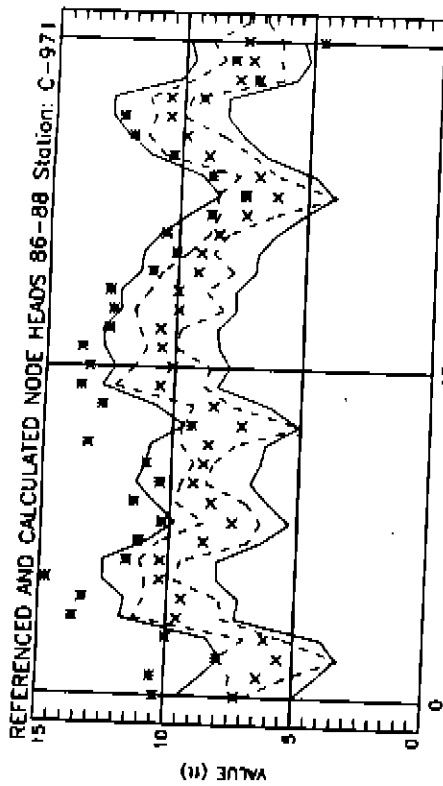
Difference Plot



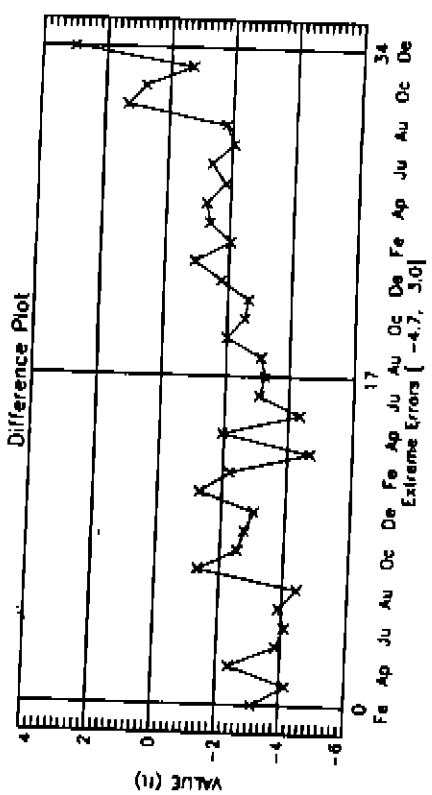
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-5.5, 4.4]



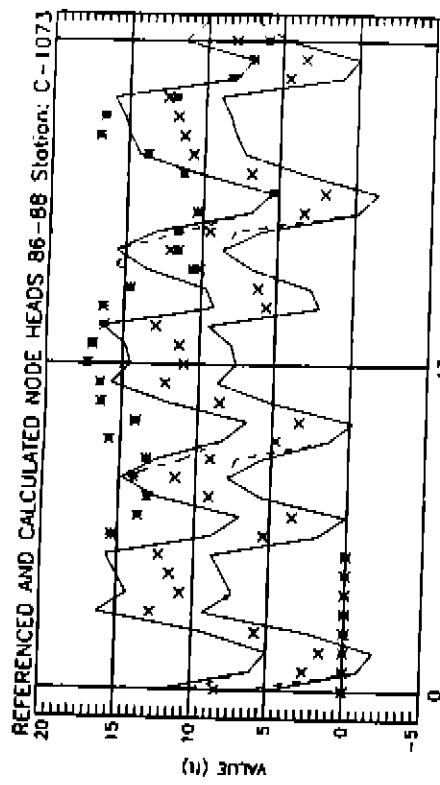




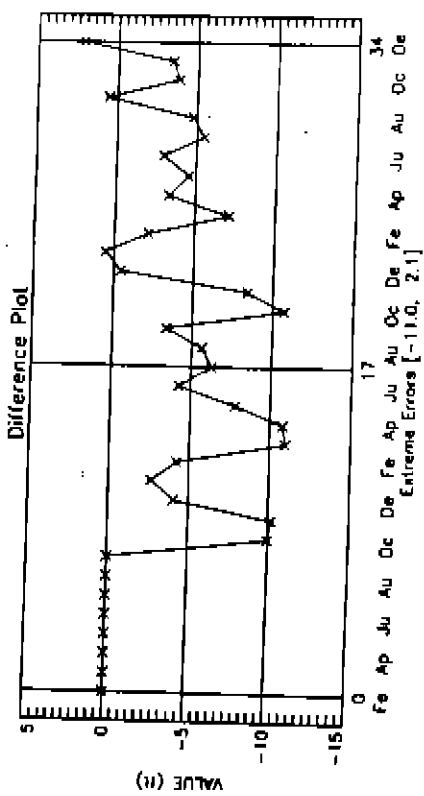
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 33 Column 22 Hist.Std.Dev. 2.24 NOTE: Observed • Calculated x



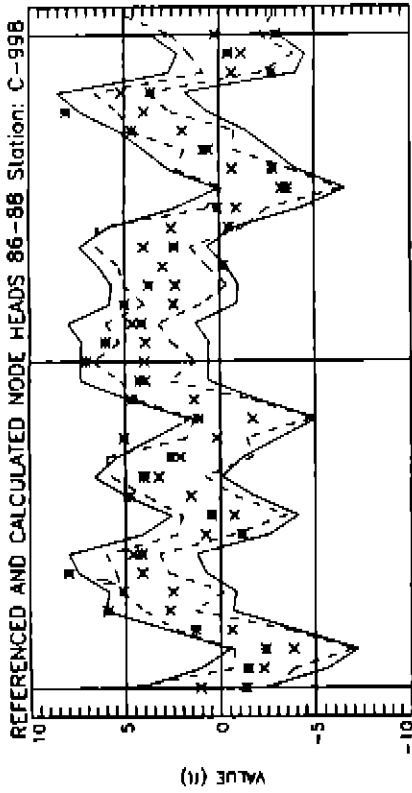
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.7, 3.0]



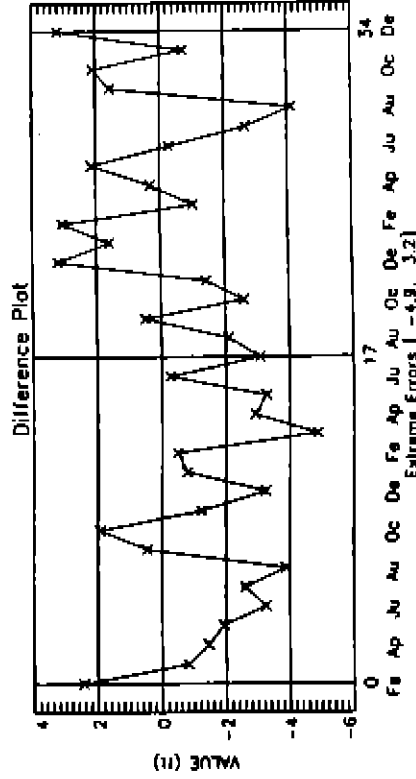
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 32 Column 33 Hist.Std.Dev. 3.47 NOTE: Observed • Calculated x



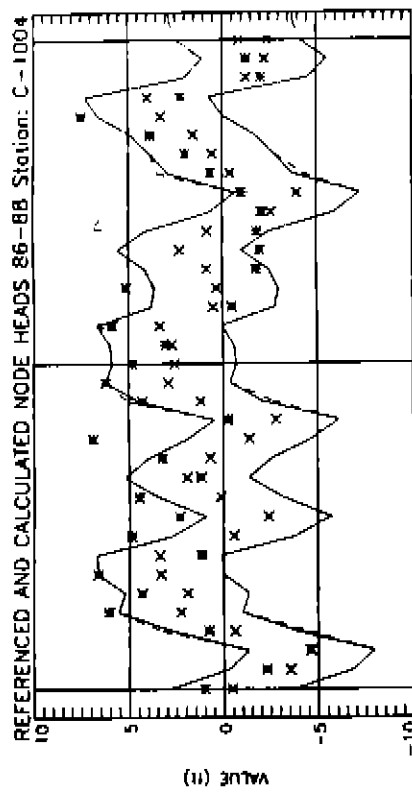
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-11.0, 2.1]



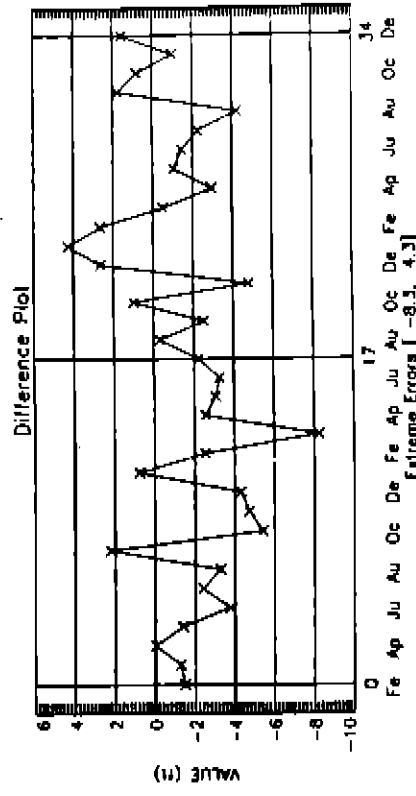
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 34: Column 12 Hist.Std.Dev. 3.35 NOTE: Observed - Calculated x



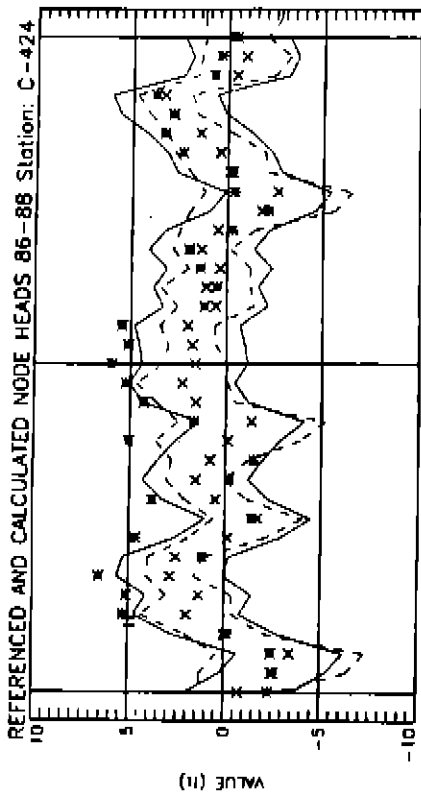
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.9, 3.2]



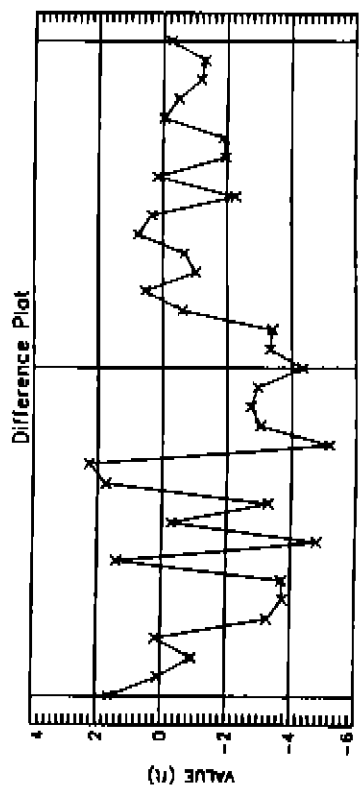
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 34 Column 10 Hist.Std.Dev. 3.29 NOTE: Observed - Calculated x



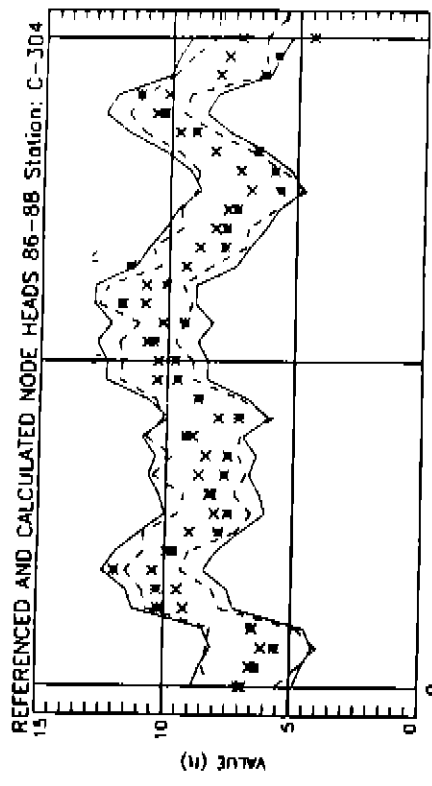
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-8.3, 4.3]



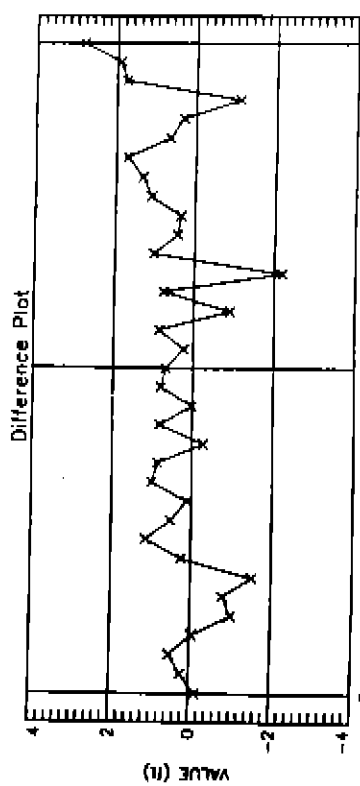
34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 35 Column 9 Hist.Std.Dev. 2.76 NOTE: Observed - Calculated x



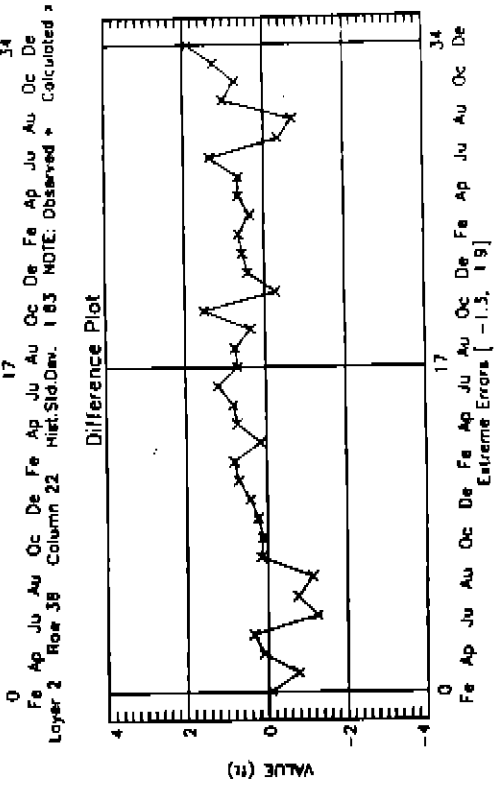
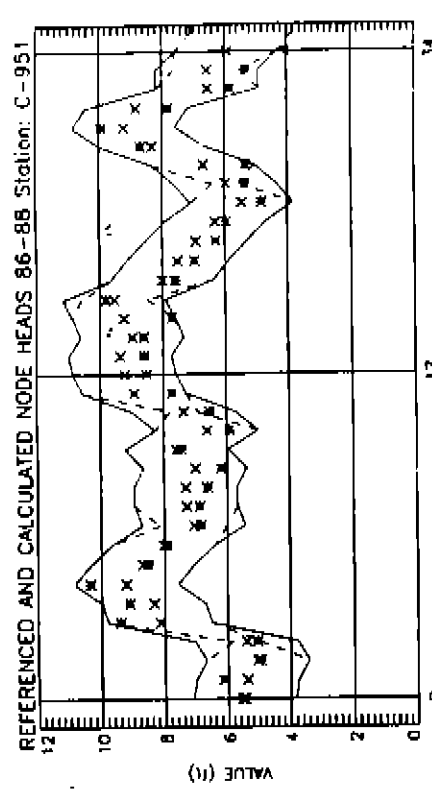
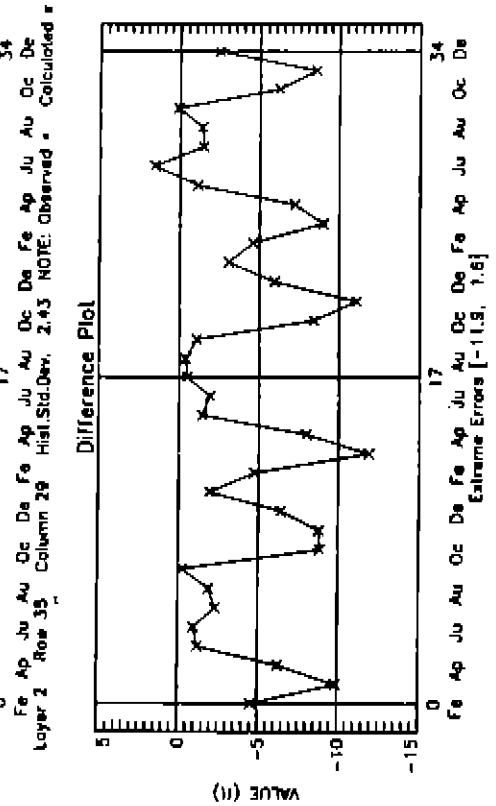
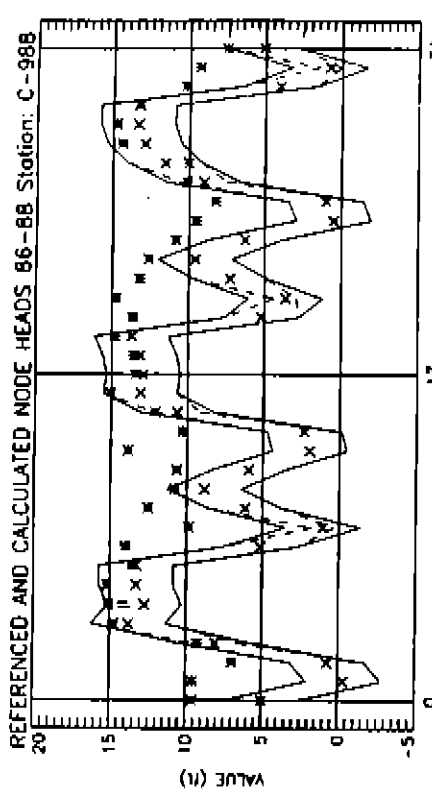
34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-5.2, 2.3]

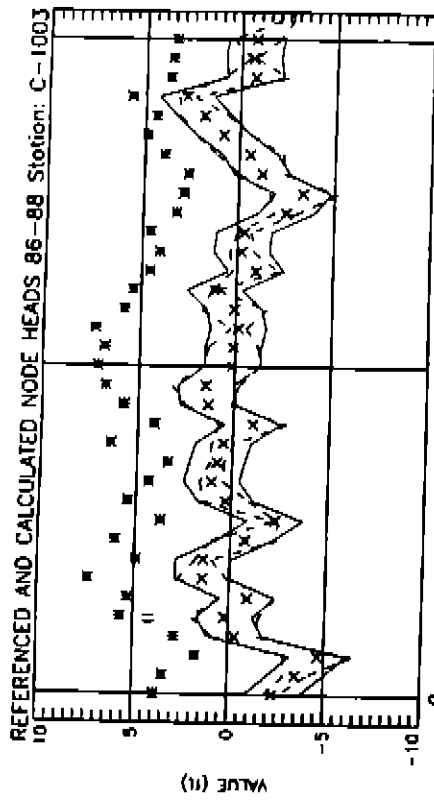


34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 34 Column 21 Hist.Std.Dev. 1.99 NOTE: Observed - Calculated x

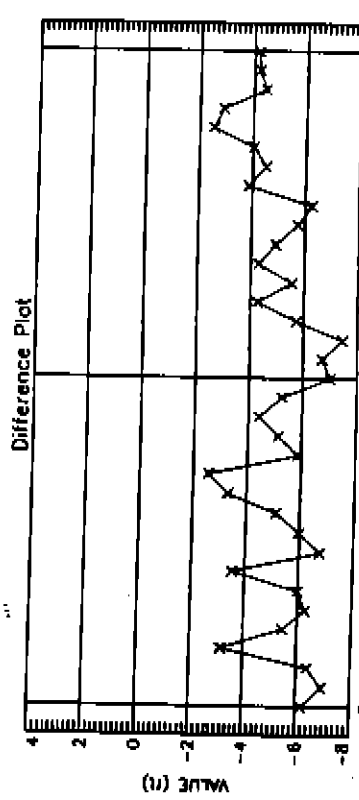


34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.2, 2.8]

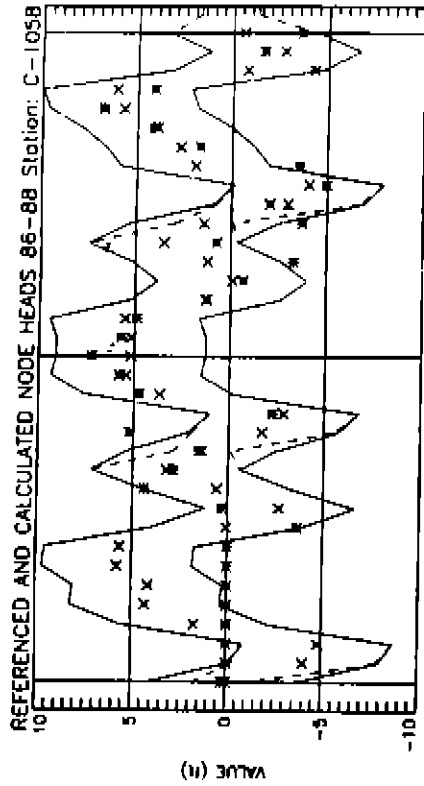




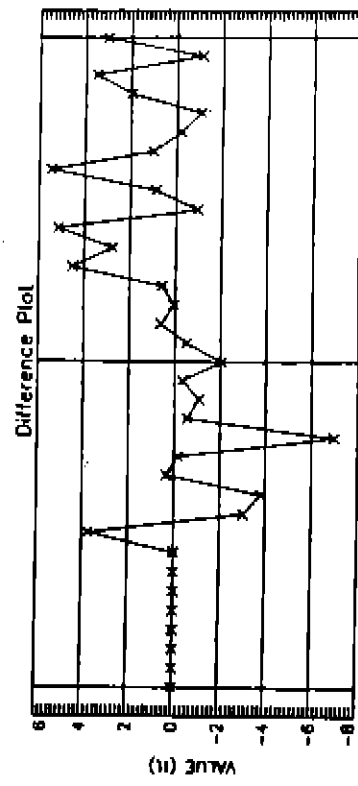
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 17 34



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 17 34

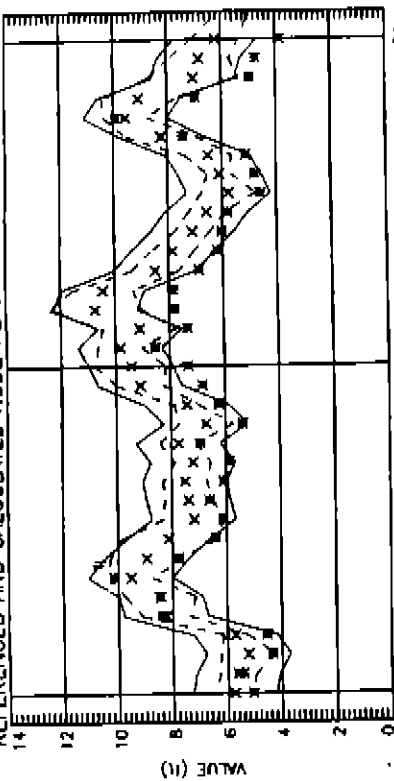


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 17 34



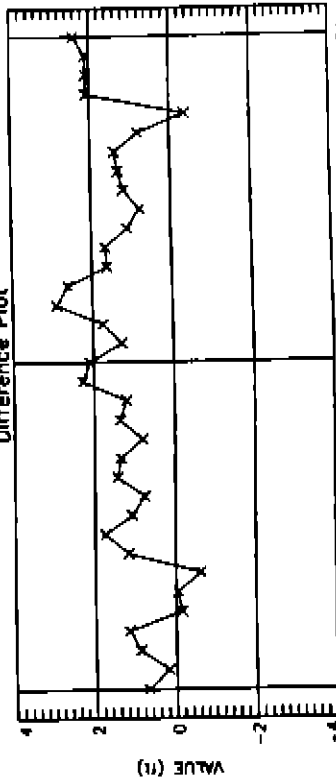
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 17 34

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-956



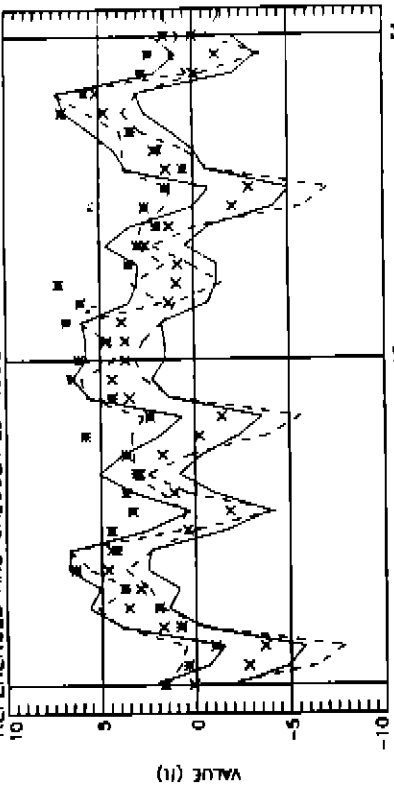
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 36 Column 18 Hist.Std.Dev. 1.54 NOTE: Observed - Calculated x

Difference Plot



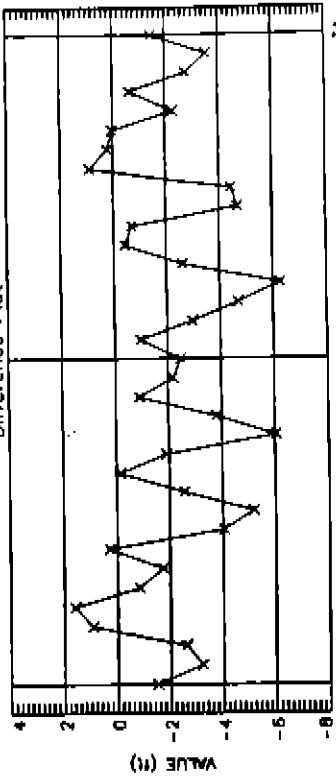
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-0.6, 2.9]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-450

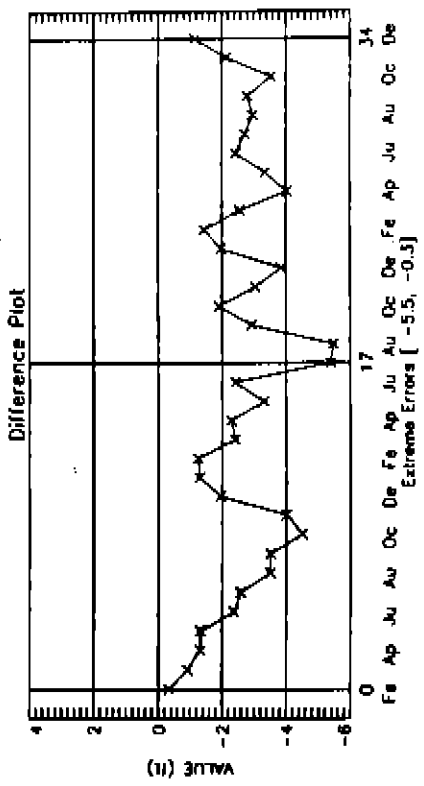
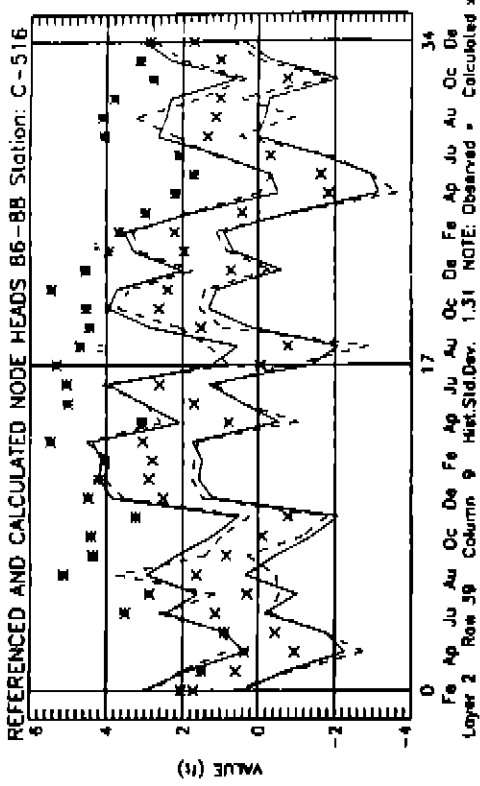
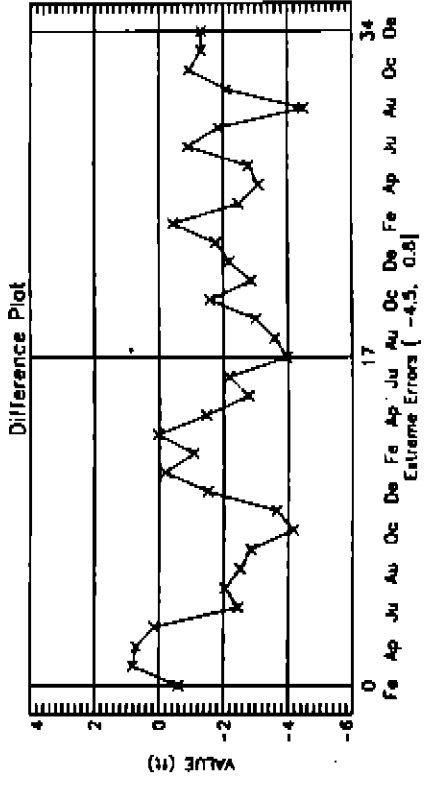
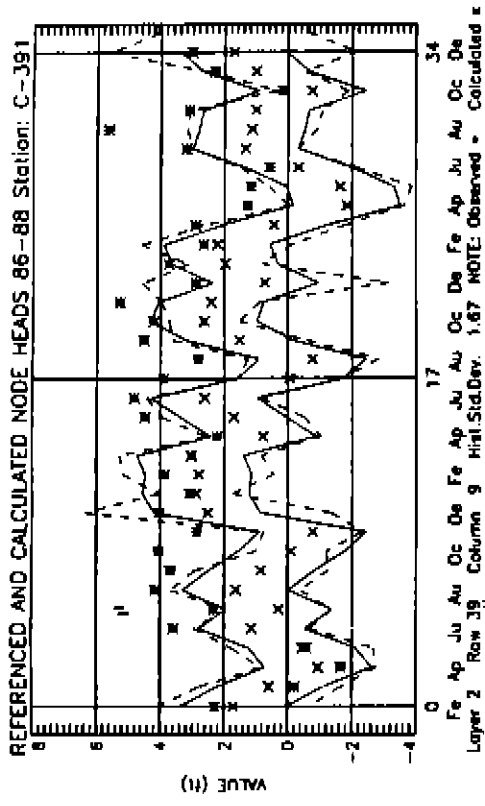


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 36 Column 10 Hist.Std.Dev. 2.11 NOTE: Observed - Calculated x

Difference Plot

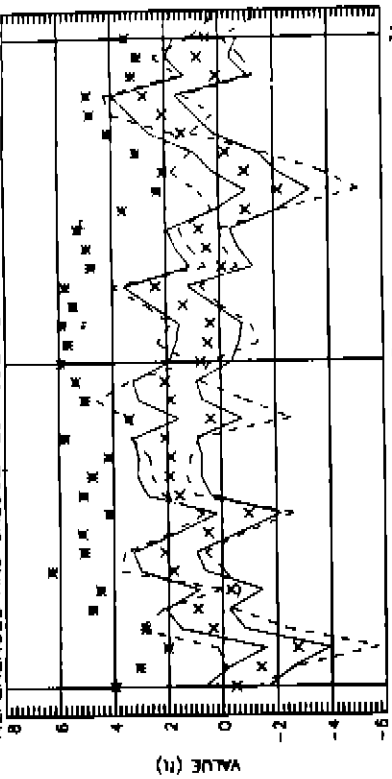


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-6.3, 1.6]



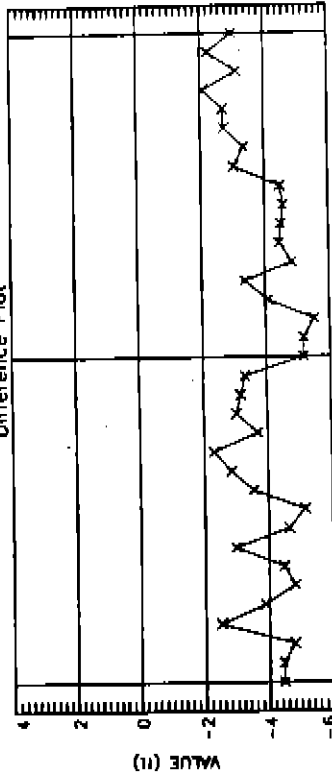


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-515



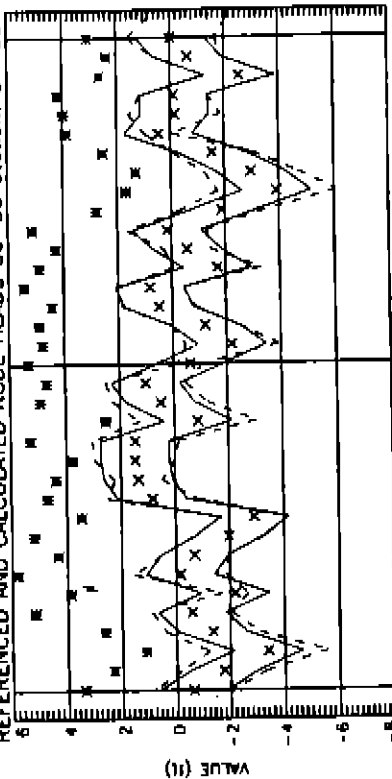
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 37 Column 9 Hist.Std.Dev. 1.17 NOTE: Observed • Calculated x

Difference Plot



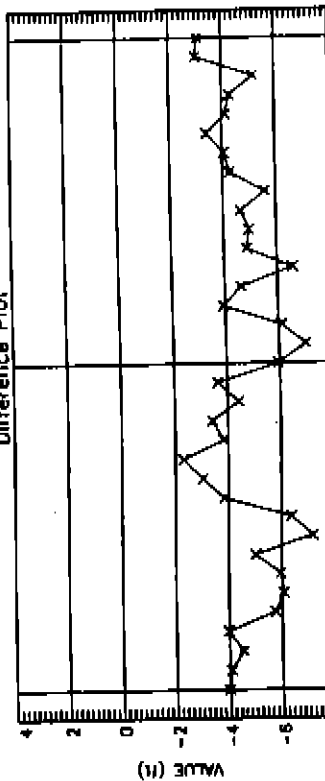
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-5.5, -2.1]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-490

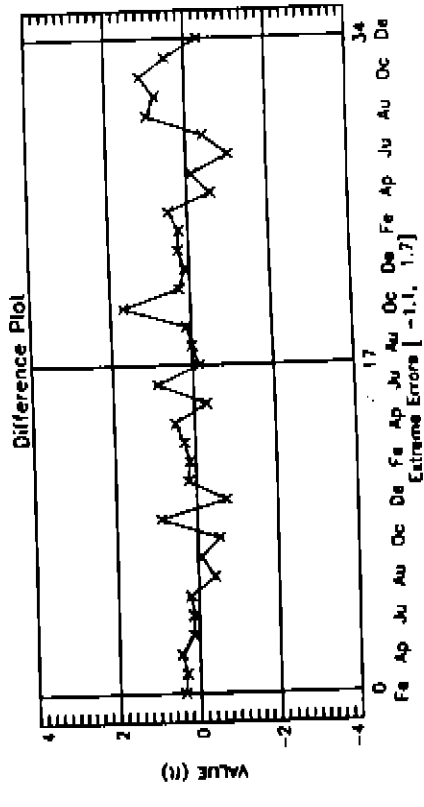
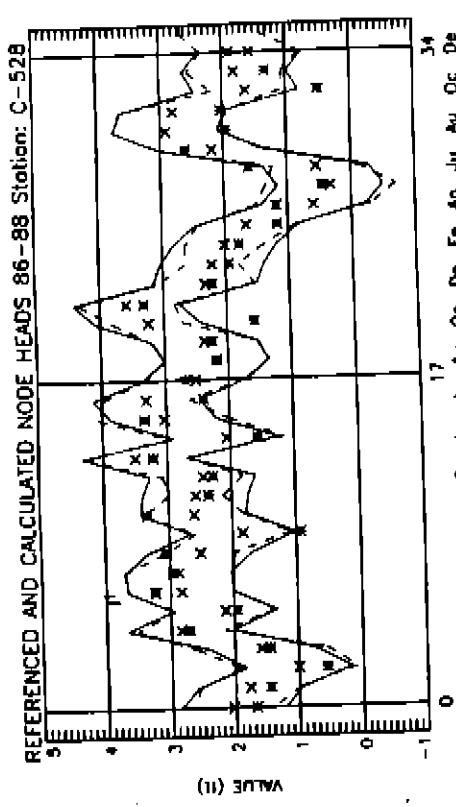
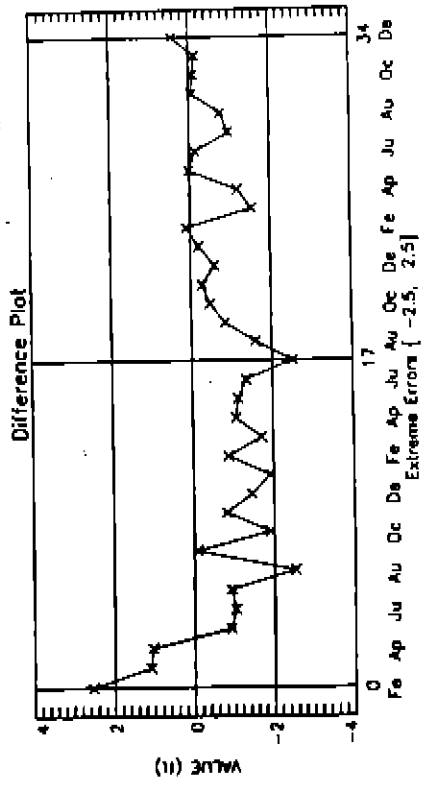
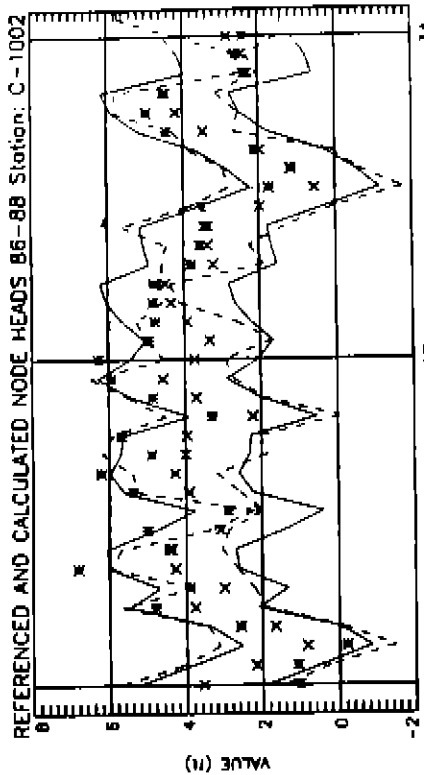


0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 38 Column 9 Hist.Std.Dev. 1.26 NOTE: Observed • Calculated x

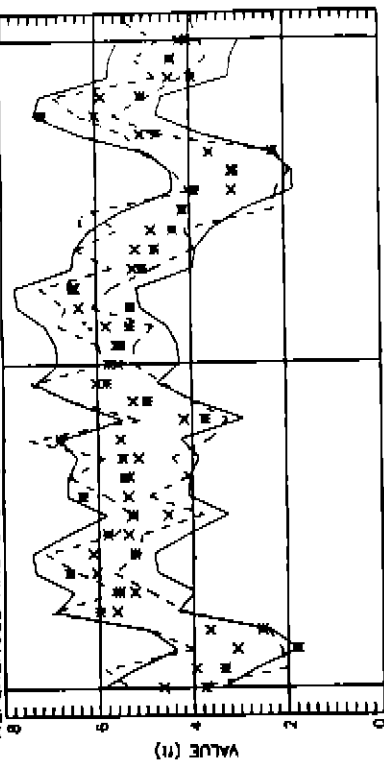
Difference Plot



0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-7.2, -2.3]

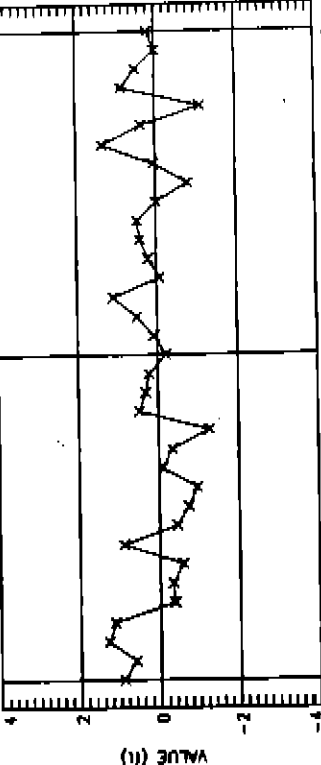


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-430



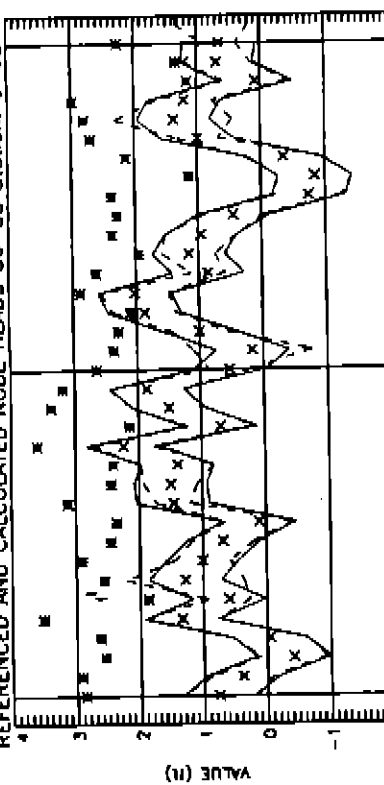
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 3B Column 11 Hist.Std.Dev. 1.23 NOTE: Observed - Calculated \*

Difference Plot



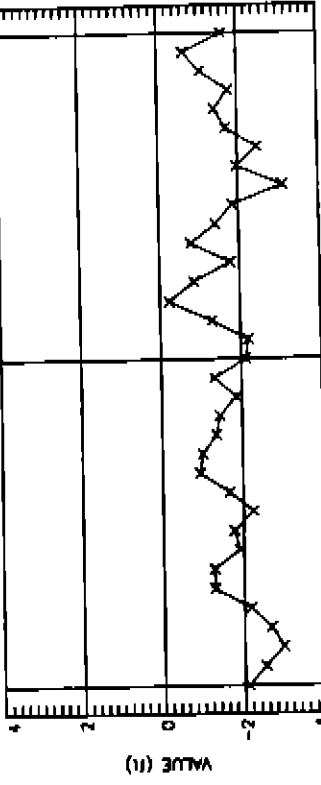
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.3, 1.3]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-527



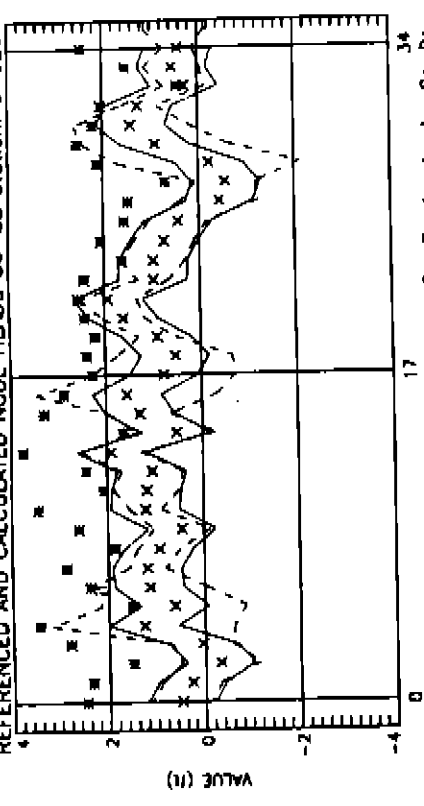
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 4Q Column 8 Hist.Std.Dev. 0.57 NOTE: Observed - Calculated \*

Difference Plot



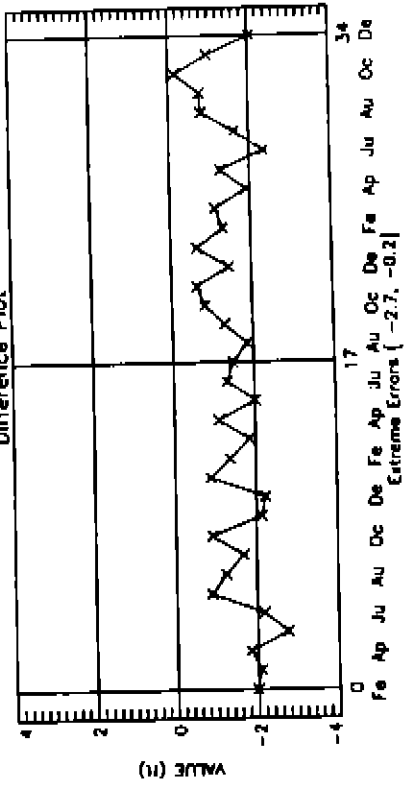
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-3.1, -0.2]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-526



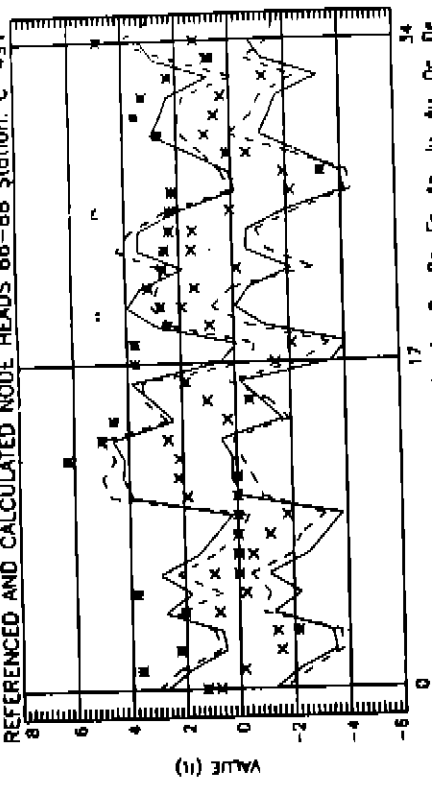
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 41 Column 8 Hist.Std.Dev. 0.71 NOTE: Observed - Calculated x

Difference Plot



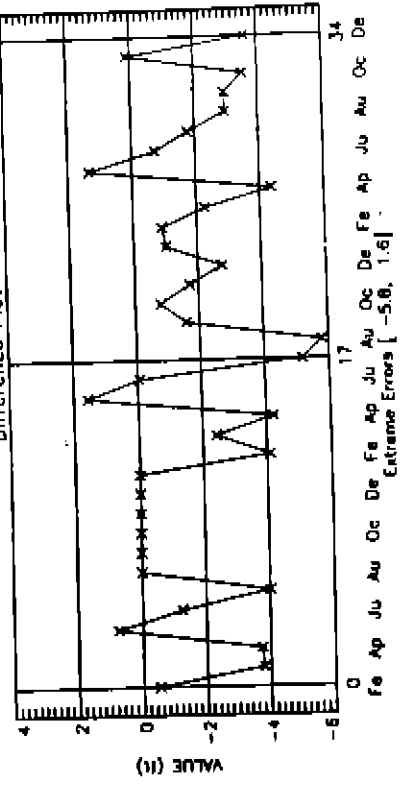
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.7, -0.2]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-491

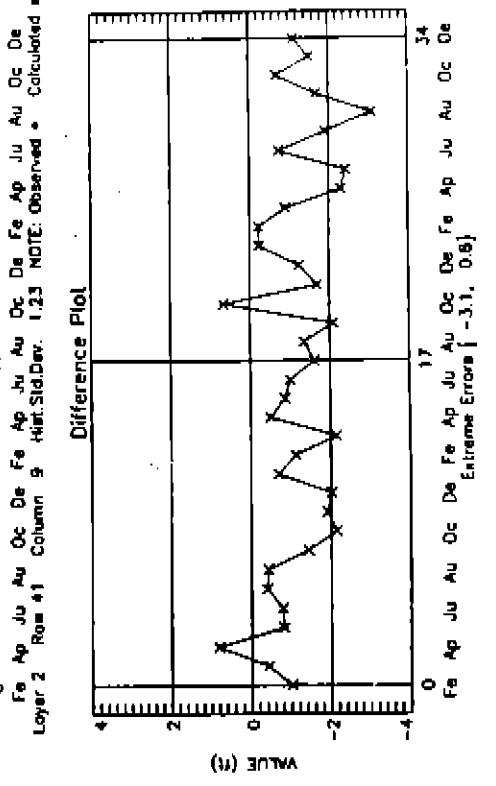
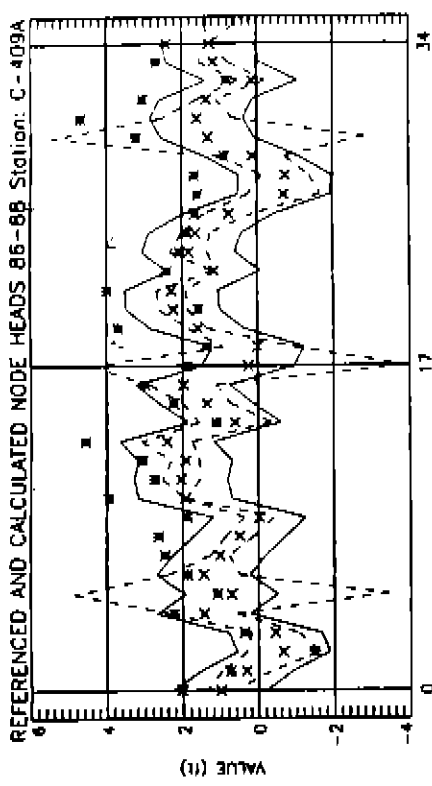
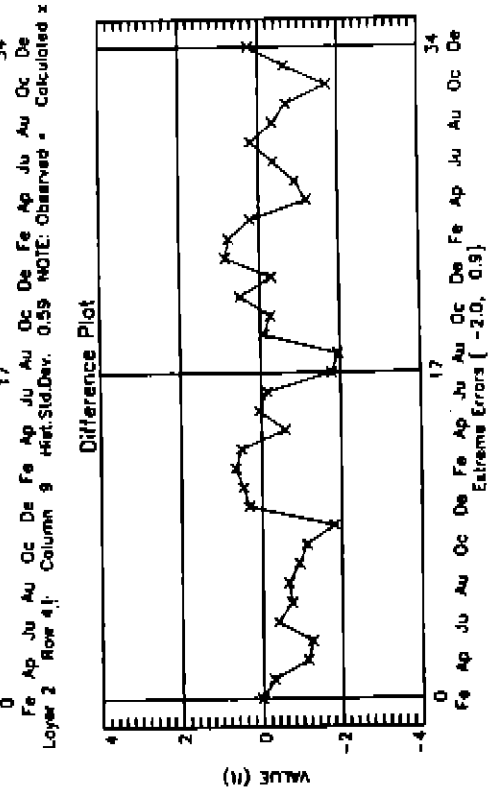
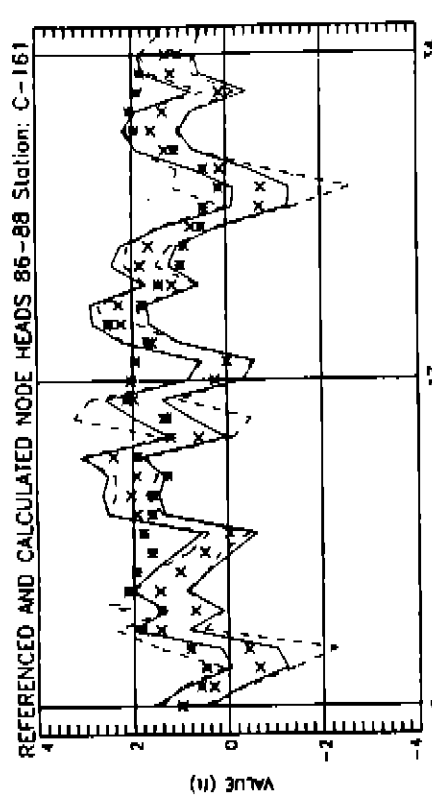


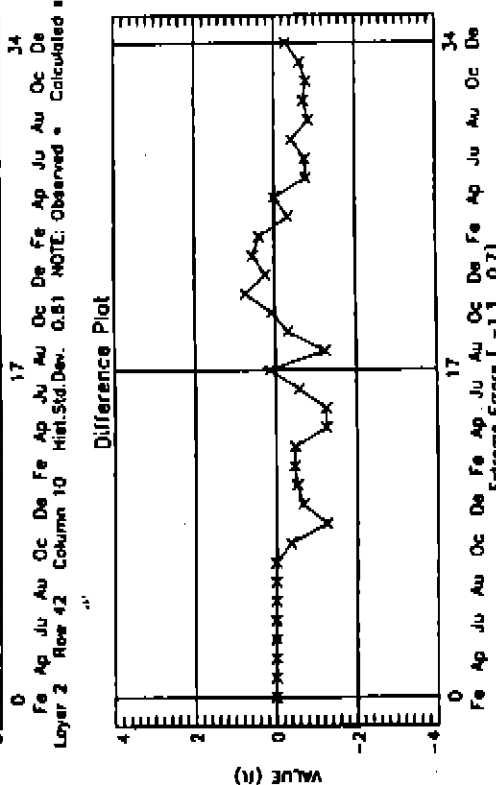
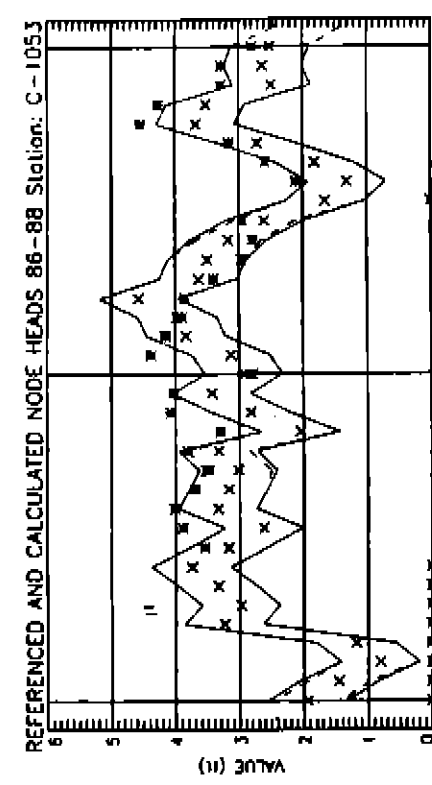
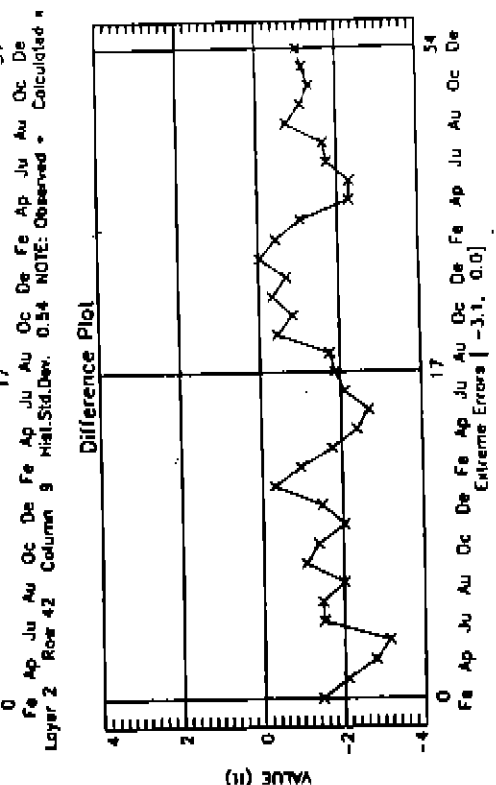
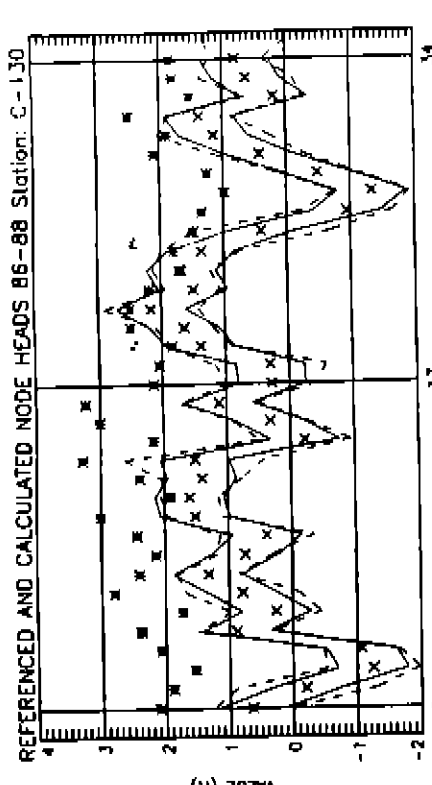
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 40 Column 9 Hist.Std.Dev. 2.01 NOTE: Observed - Calculated x

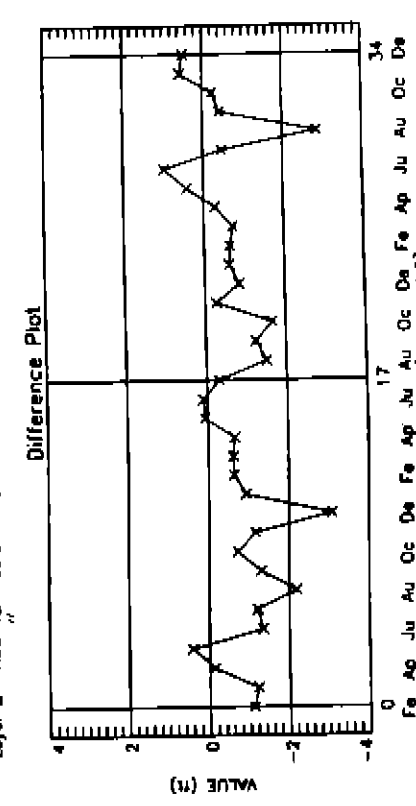
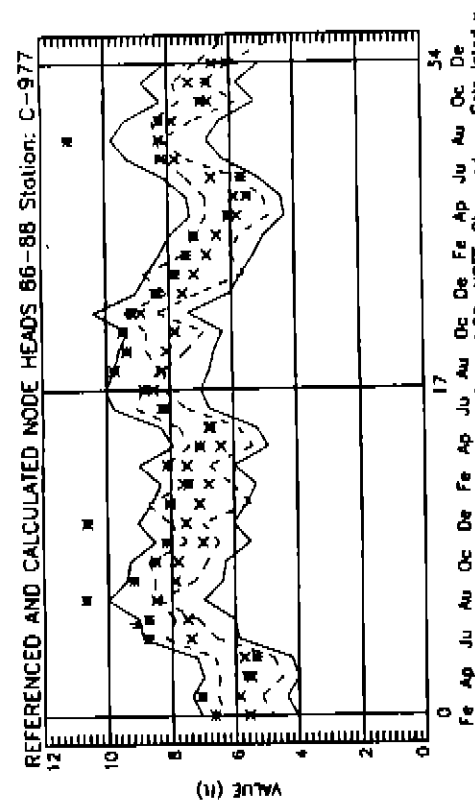
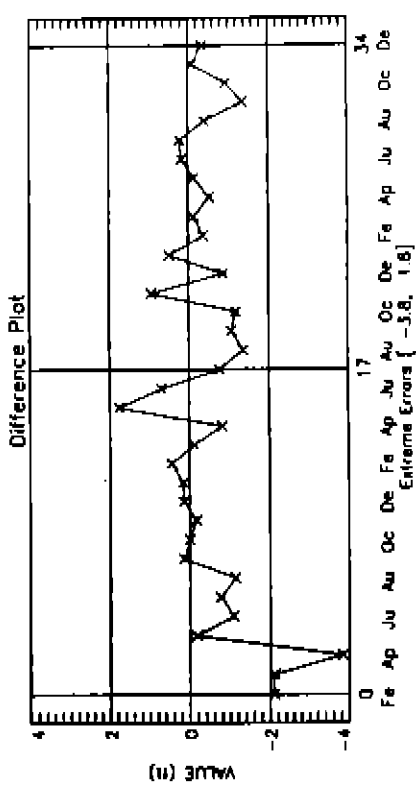
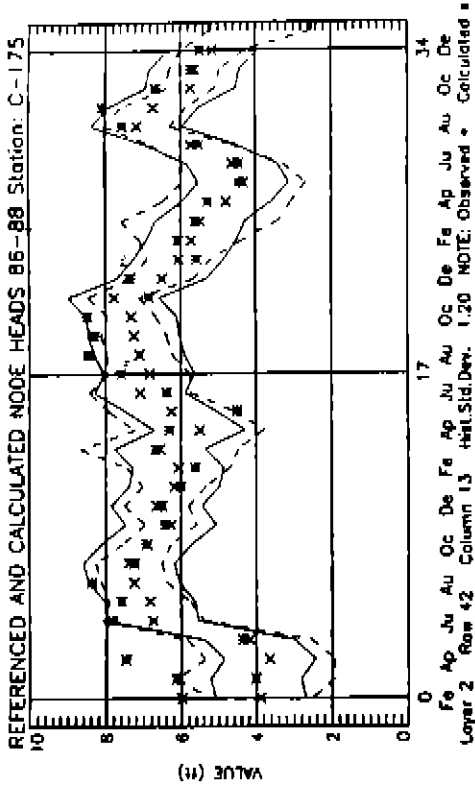
Difference Plot

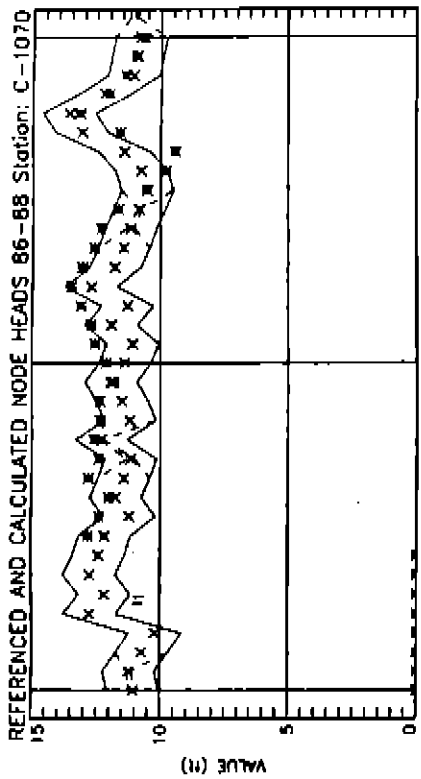


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-5.8, 1.6]

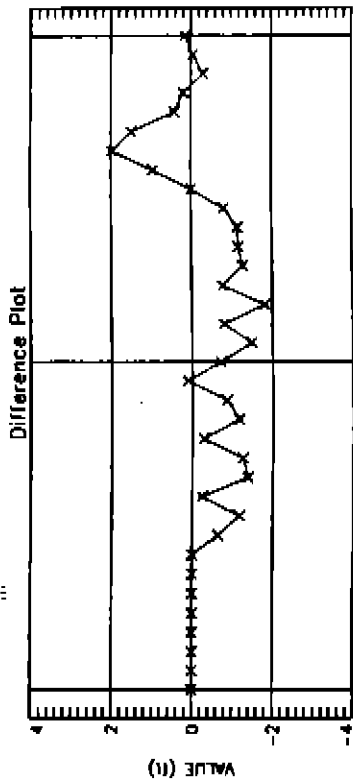




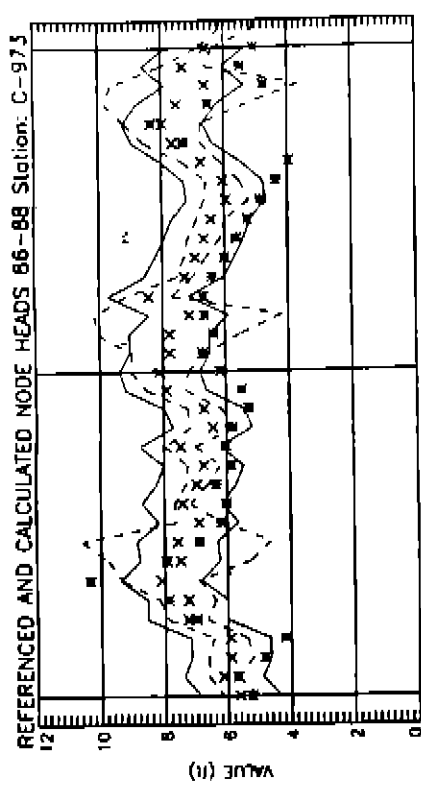




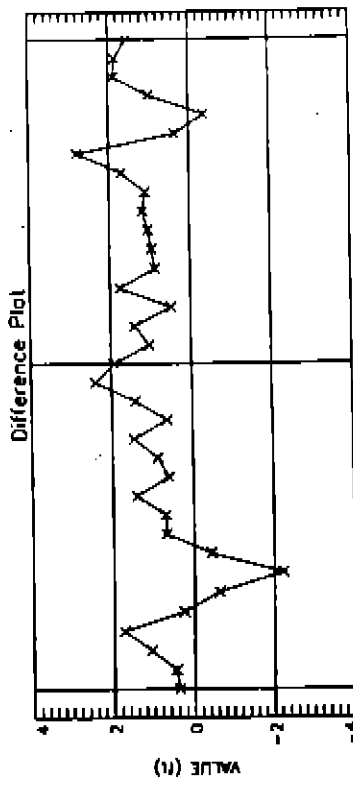
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 4.3 Column 36 Hist.Std.Dev. 1.02 NOTE: Observed - Calculated x



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.8, 2.0]



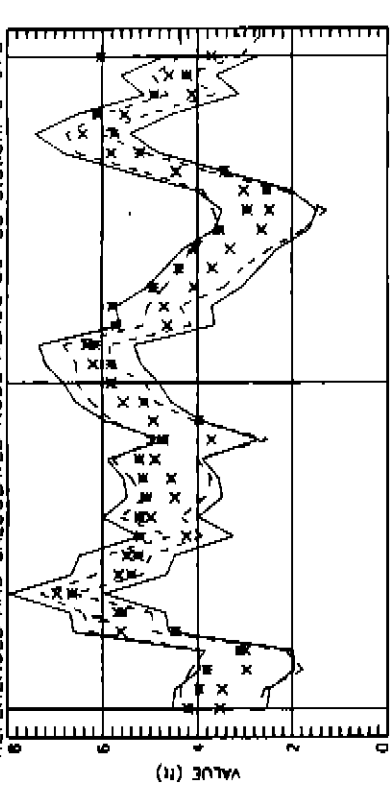
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 4.3 Column 24 Hist.Std.Dev. 1.27 NOTE: Observed - Calculated x



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.2, 2.8]

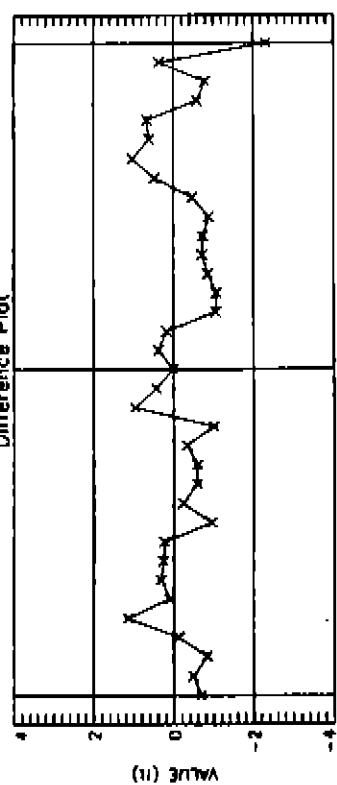


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-975



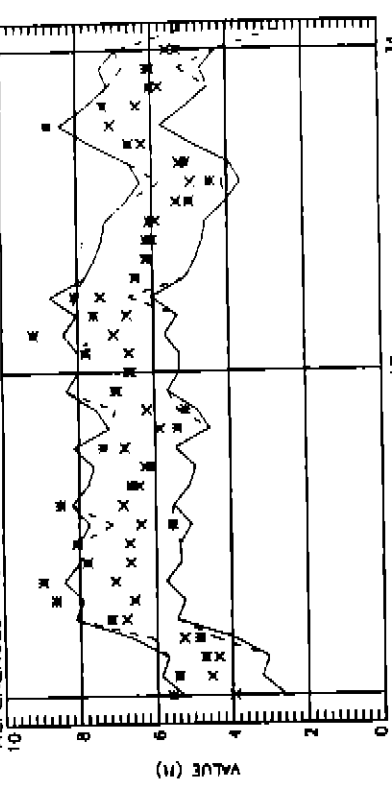
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 49 Column 18 Hst.Std.Dev. 1.00 NOTE: Observed - Calculated x

Difference Plot



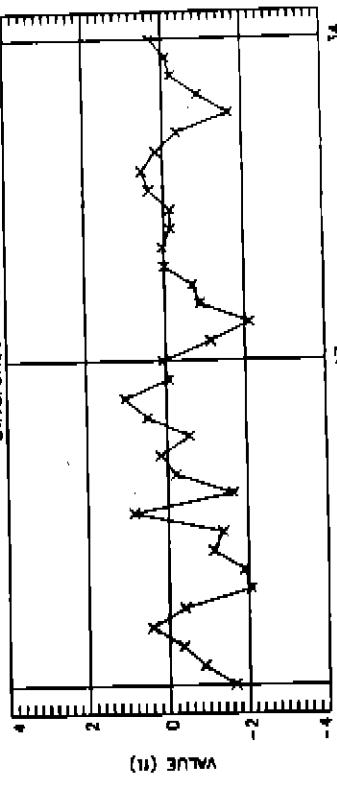
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.3, 1.1]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-599

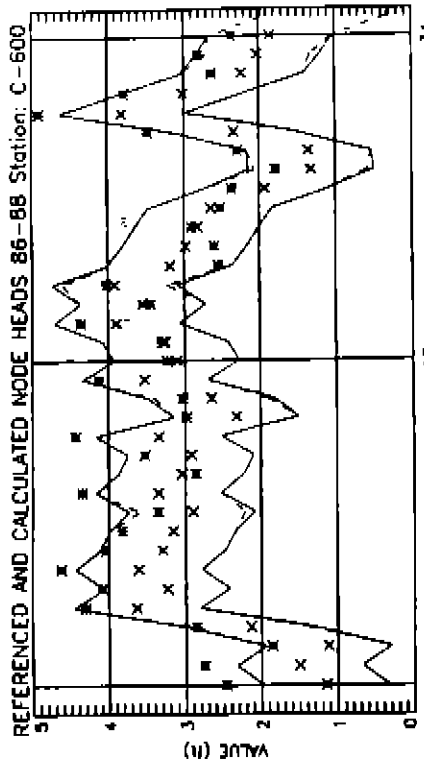


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 45 Column 15 Hst.Std.Dev. 1.34 NOTE: Observed - Calculated \*

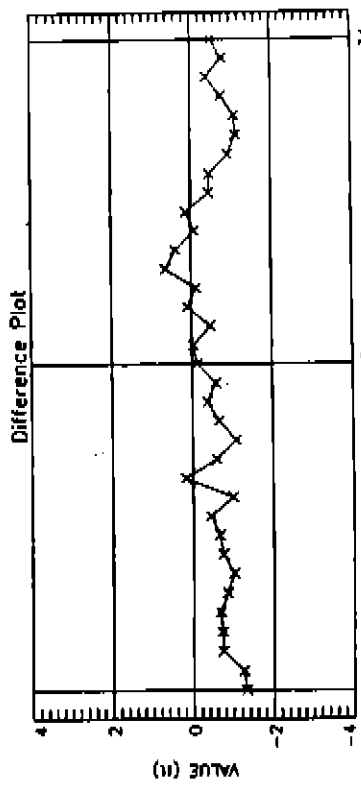
Difference Plot



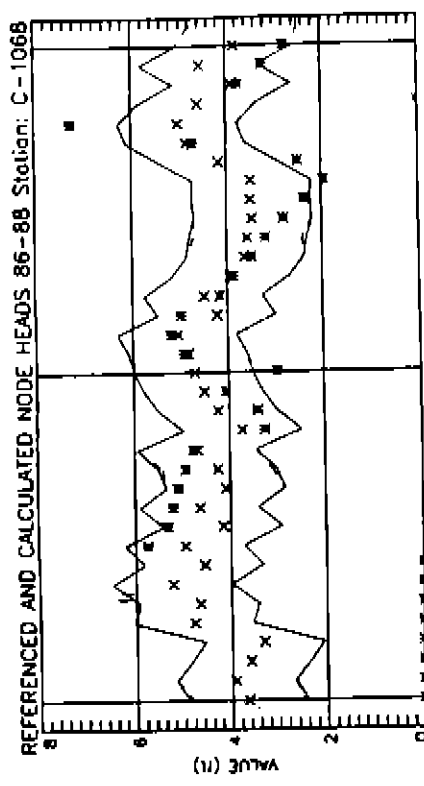
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.1, 1.0]



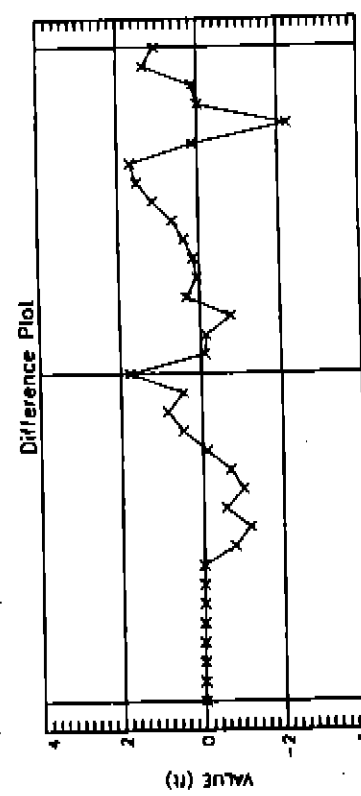
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 48 Column 12 Hist.Std.Dev. 0.82 NOTE: Observed • Calculated x



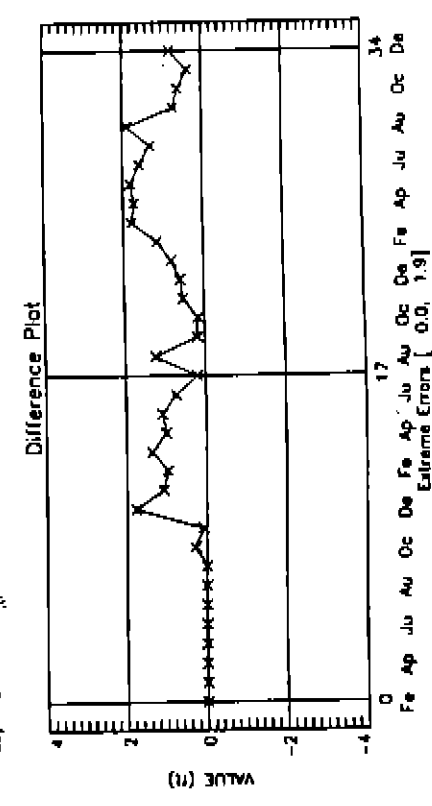
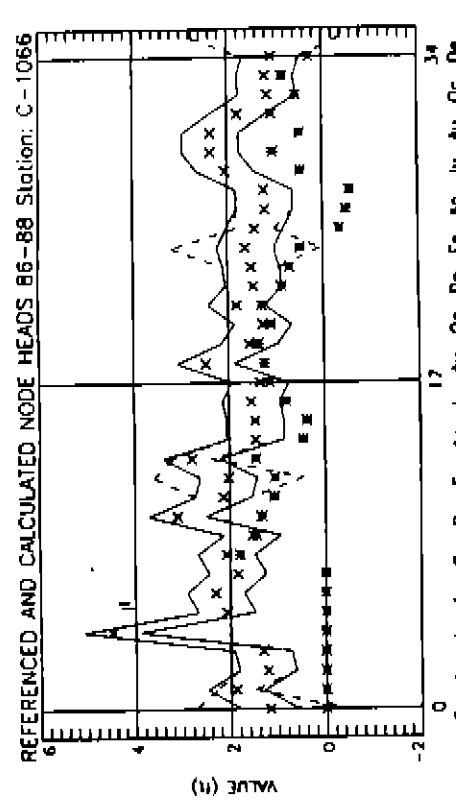
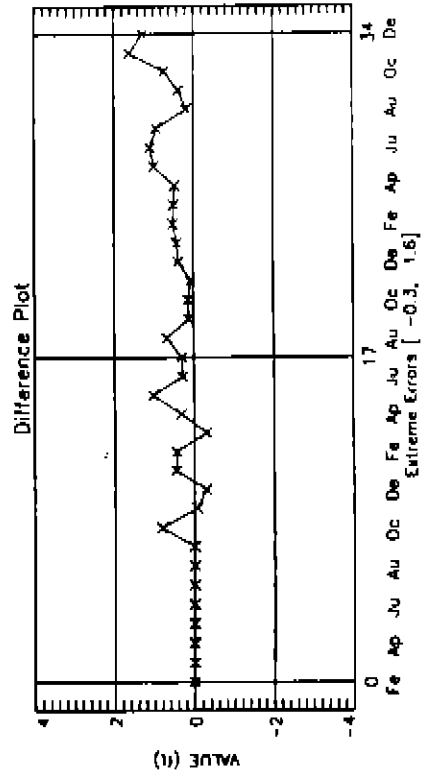
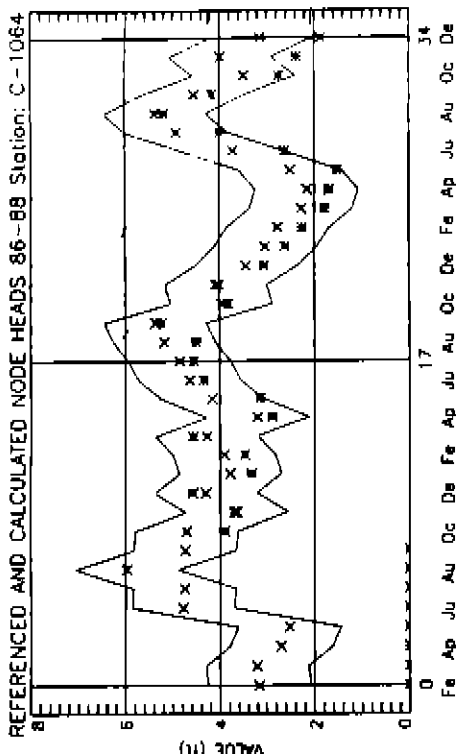
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-1.3, 0.6]



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 2 Row 49 Column 24 Hist.Std.Dev. 1.25 NOTE: Observed • Calculated x



Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.2, 1.8]

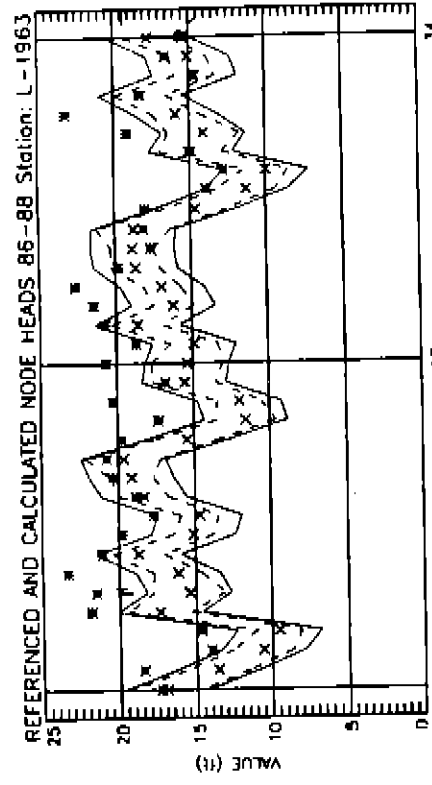




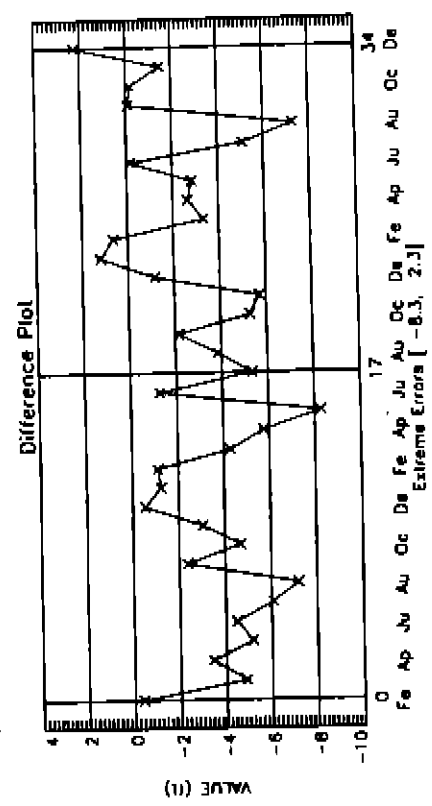
**LAYER 3**

**SANDSTONE AQUIFER**  
**COMPARATIVE HYDROGRAPHS**

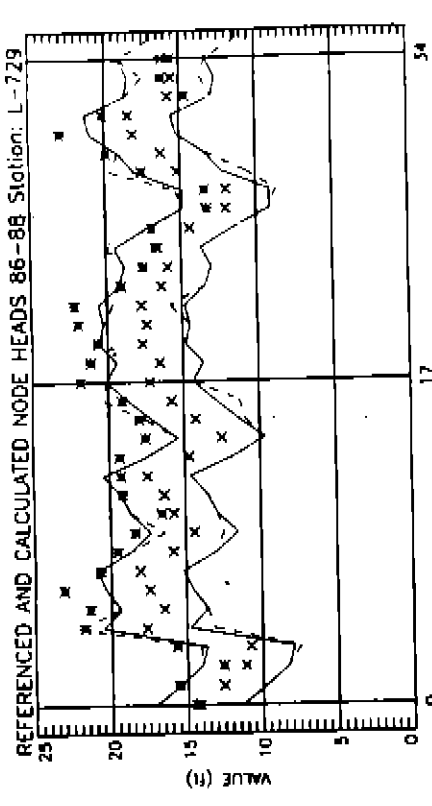




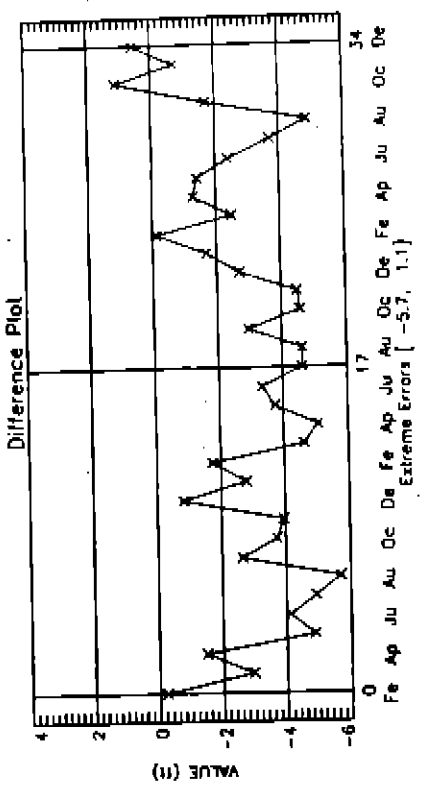
0 17 34  
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
Layer 3 Row 14 Column 21 Hist.Std.Dev. 2.75 NOTE: Observed " Calculated x



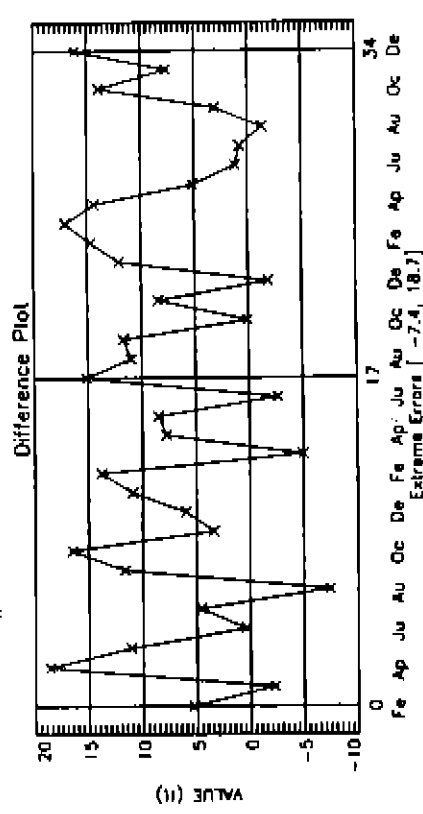
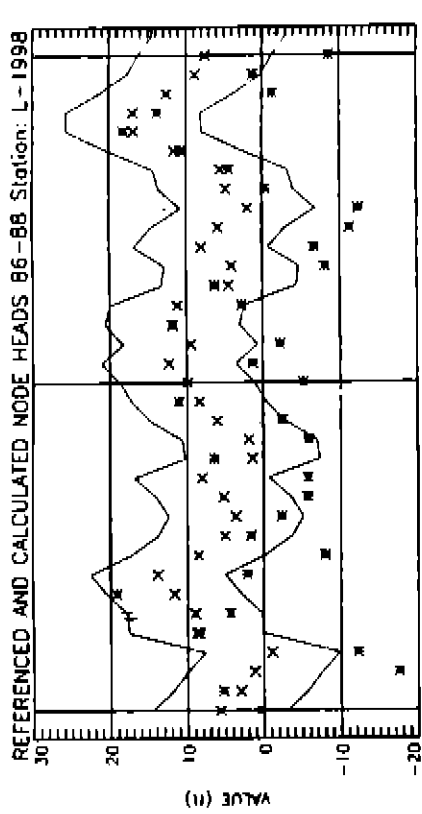
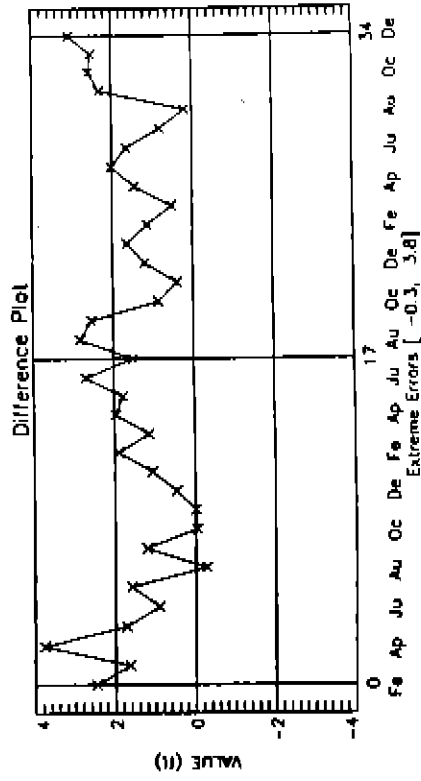
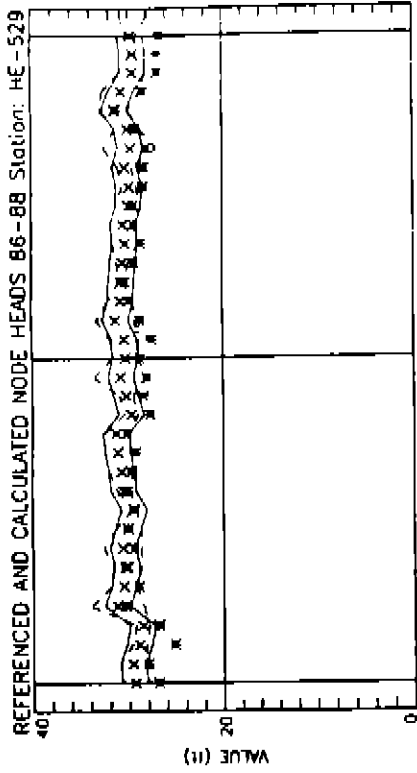
0 17 34  
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
Extreme Errors [-8.3, 2.3]



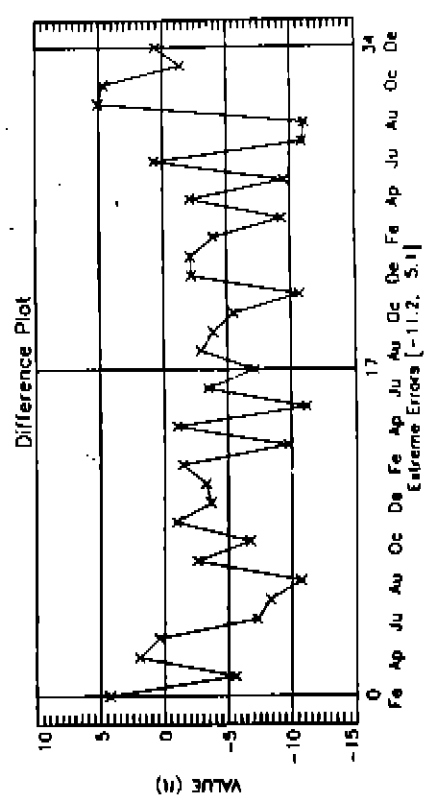
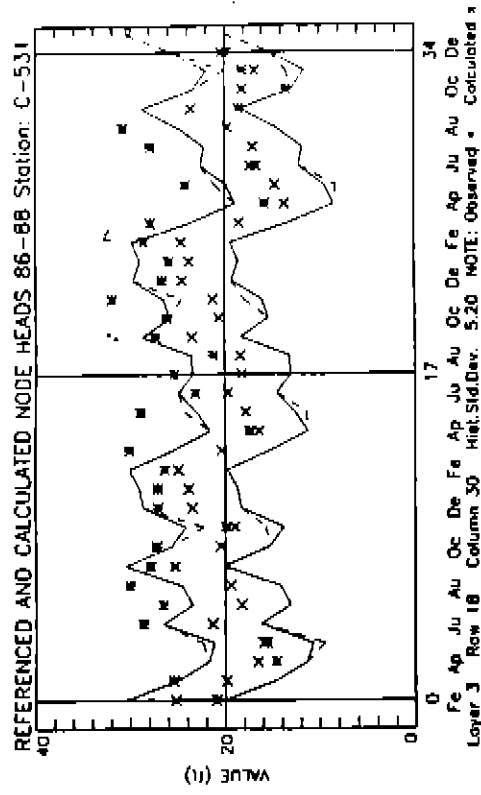
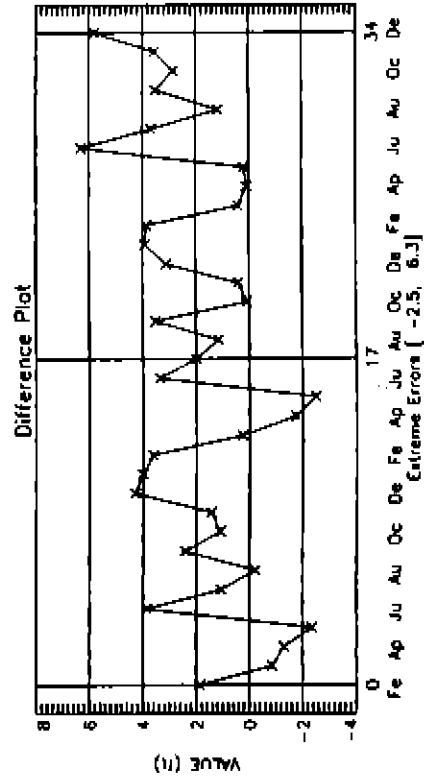
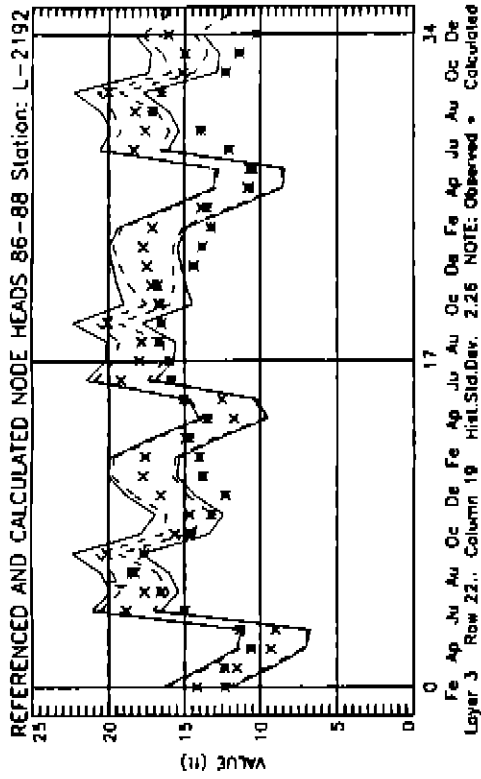
0 17 34  
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
Layer 3 Row 14 Column 17 Hist.Std.Dev. 2.88 NOTE: Observed " Calculated x

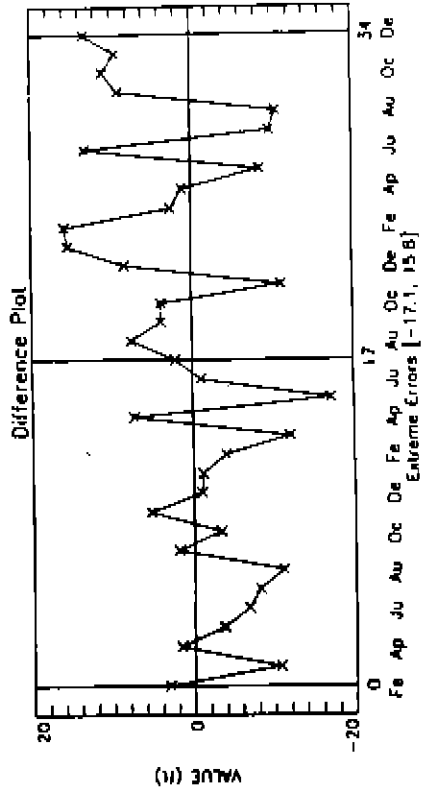
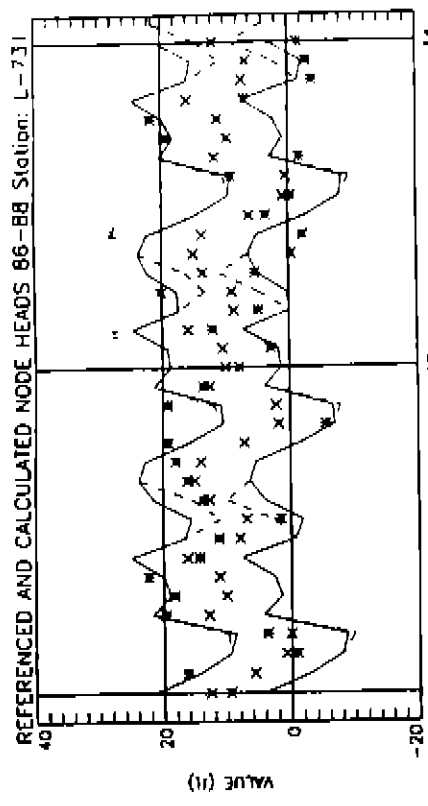
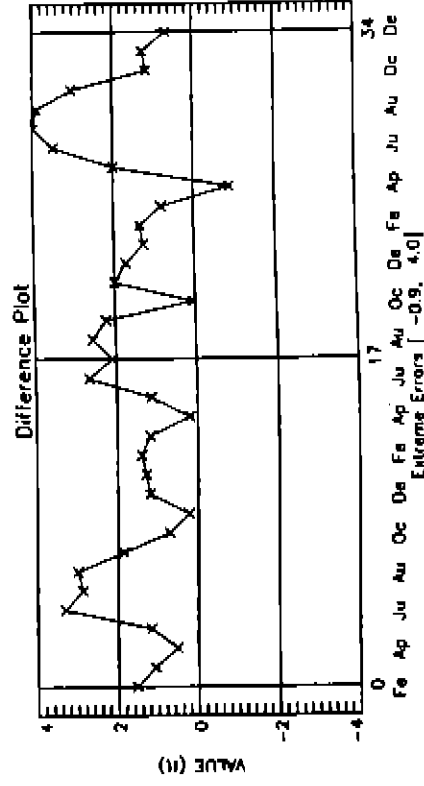
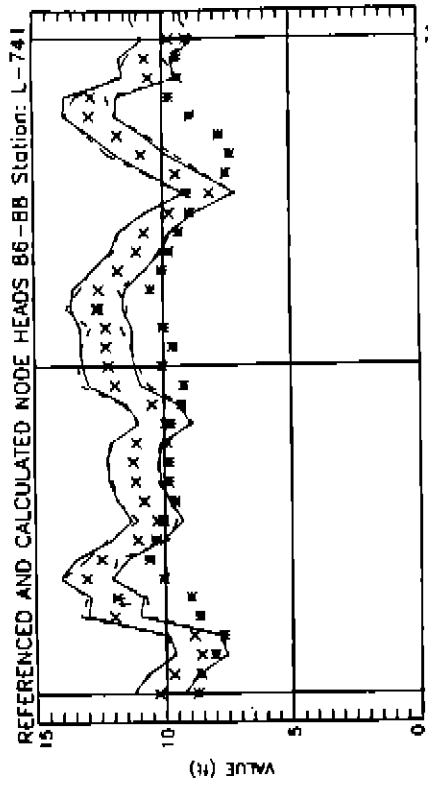


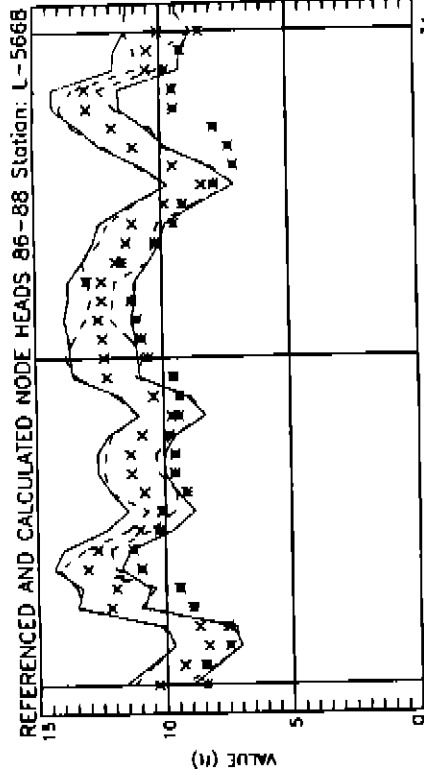
0 17 34  
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
Extreme Errors [-5.7, 1.1]



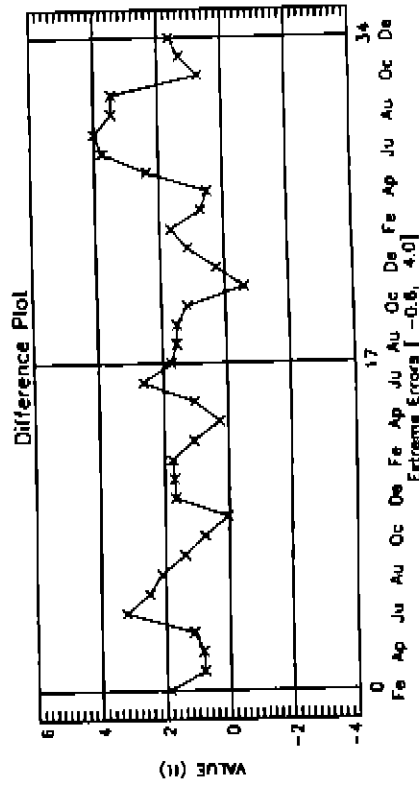




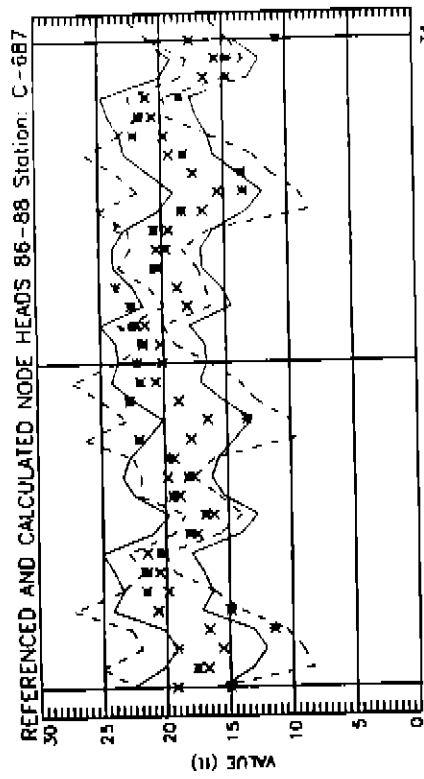




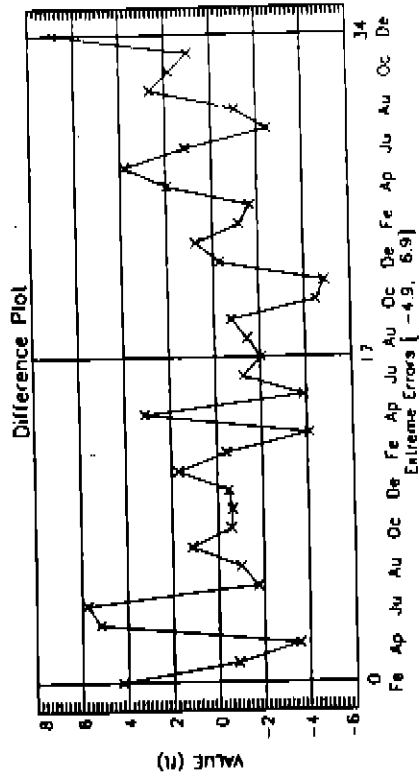
0 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De



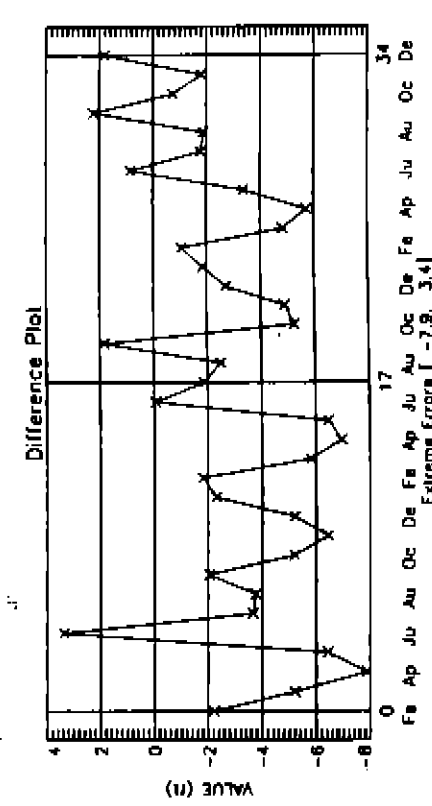
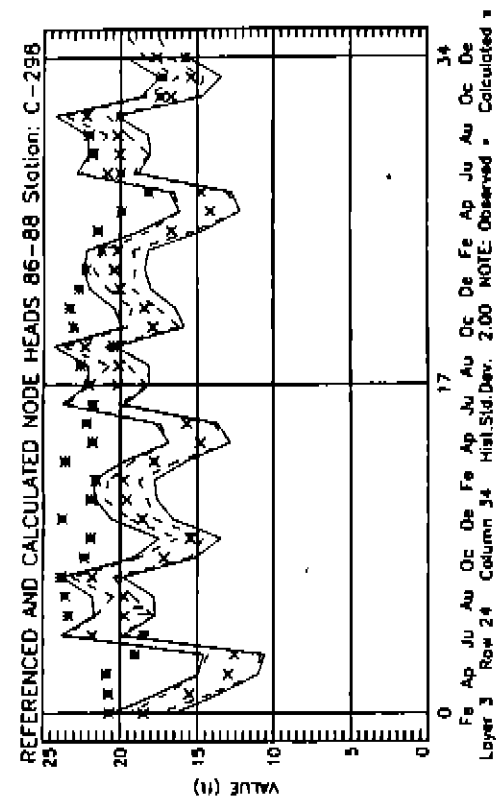
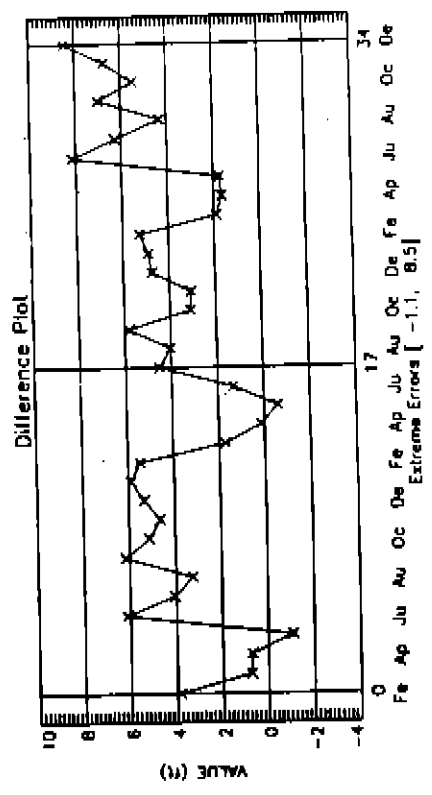
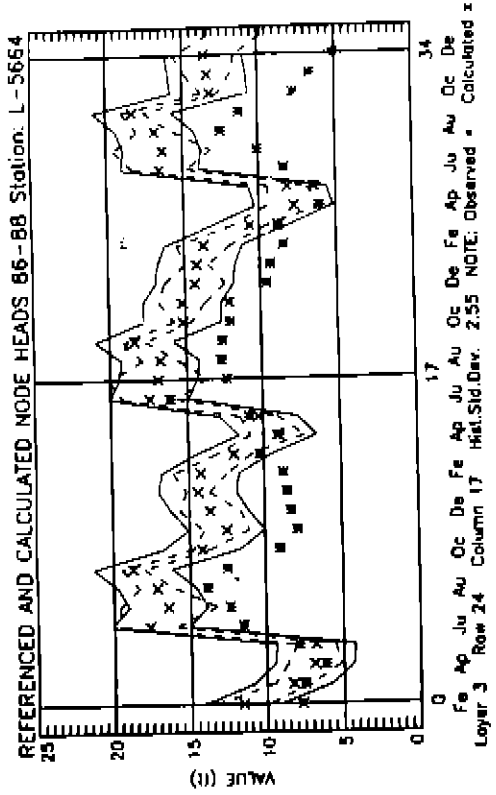
0 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De



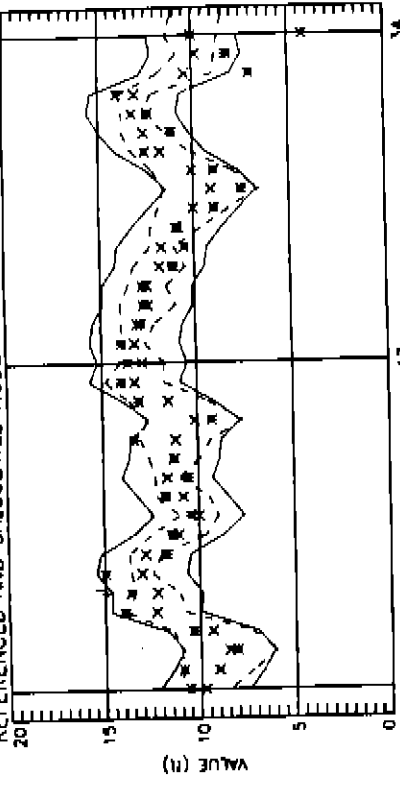
0 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De



0 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De

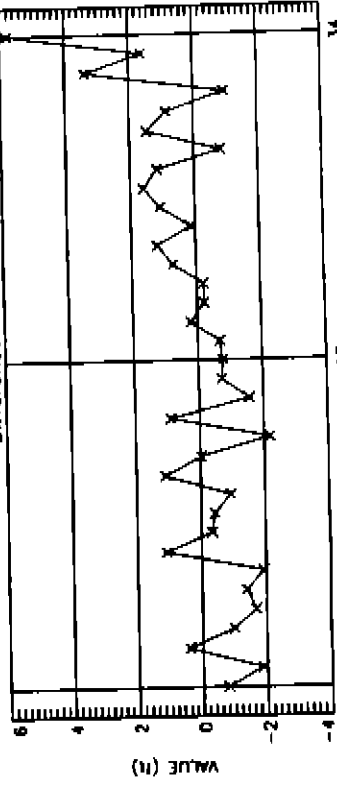


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-688



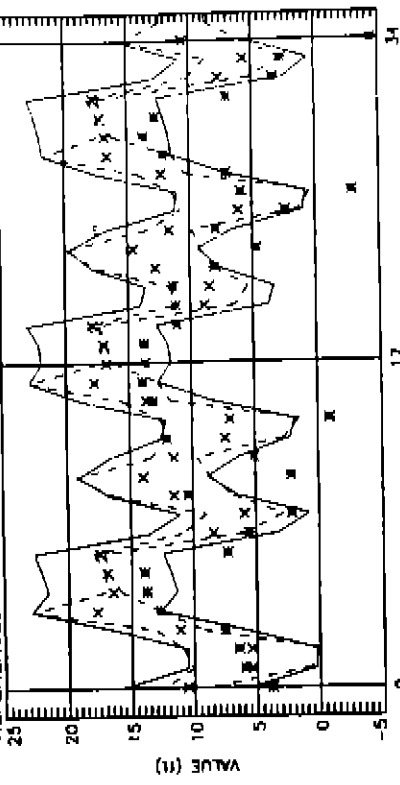
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 3 Row 32 Column 21 Hist.Std.Dev. 2.38 NOTE: Observed \* Calculated \*

Difference Plot



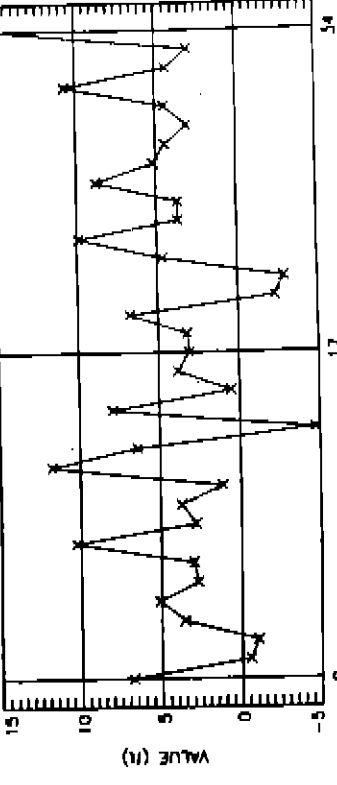
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-2.2, 5.8]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-982

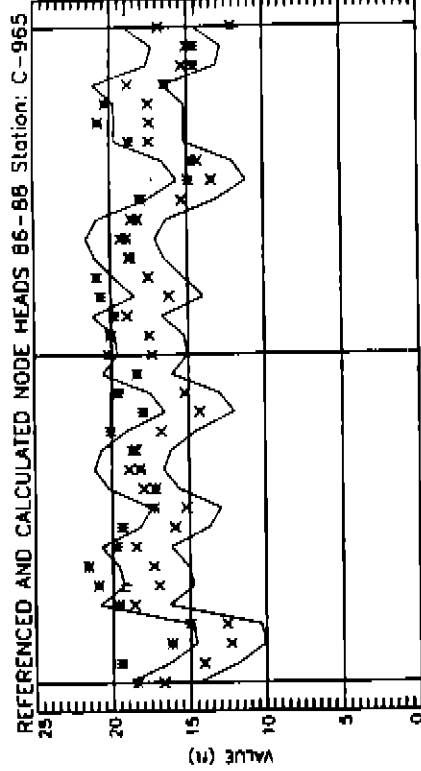


Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 3 Row 27 Column 29 Hist.Std.Dev. 5.13 NOTE: Observed \* Calculated \*

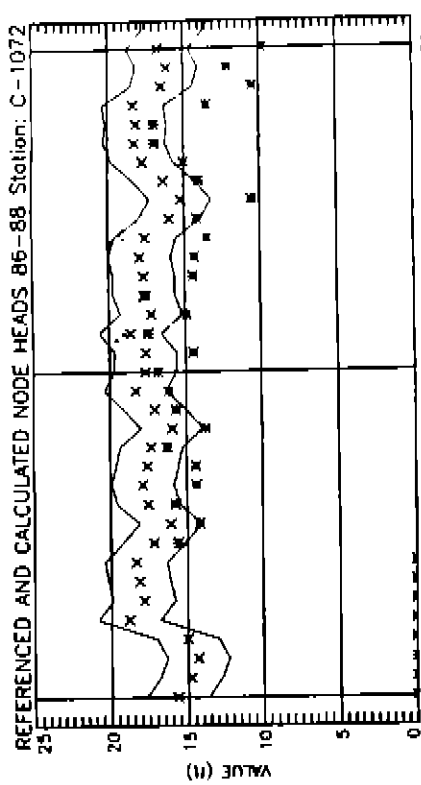
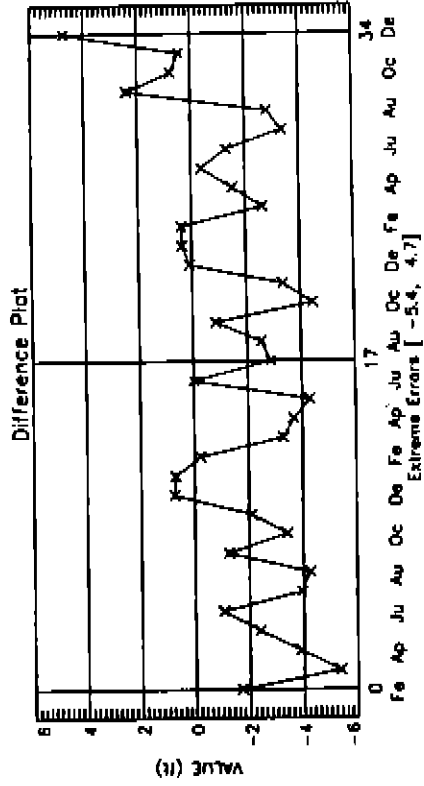
Difference Plot



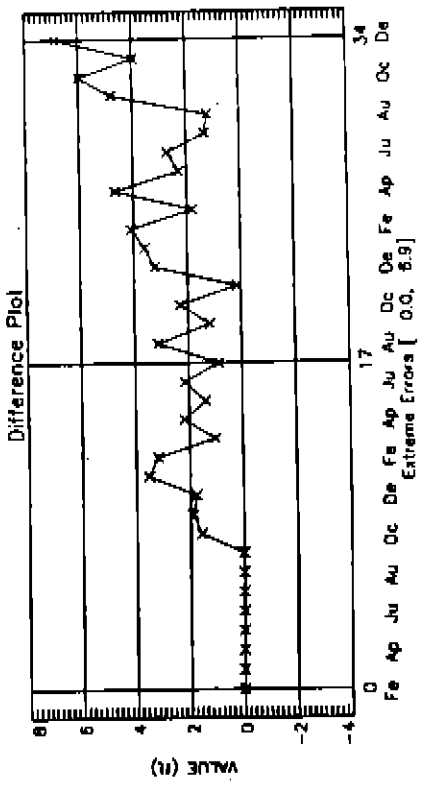
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.7, 15.0]

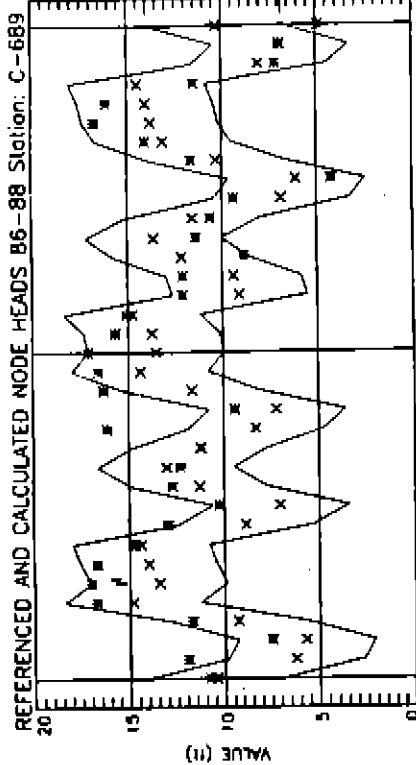


Layer 3 Row 28 Column 37 Unit:Std.Dev. 2.26 NOTE: Observed - Calculated x

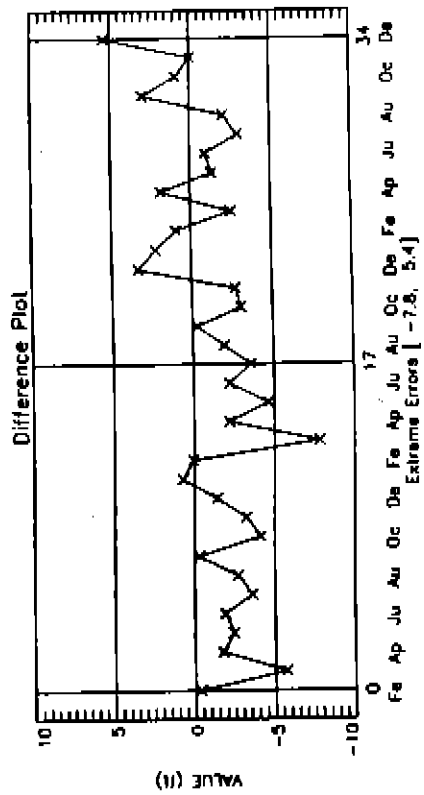


Layer 3 Row 32 Column 40 Unit:Std.Dev. 2.04 NOTE: Observed - Calculated x

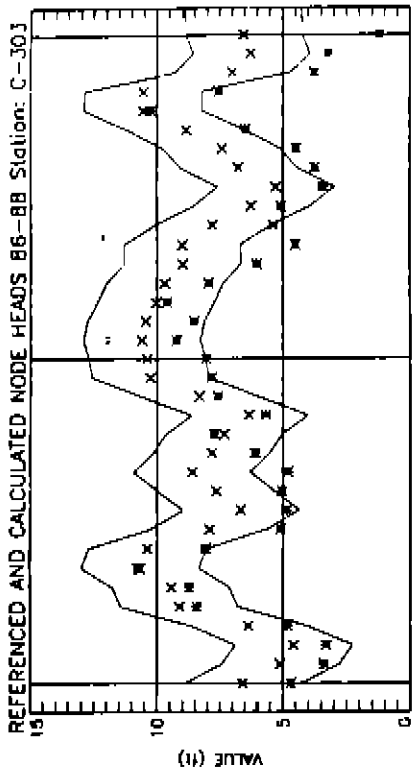




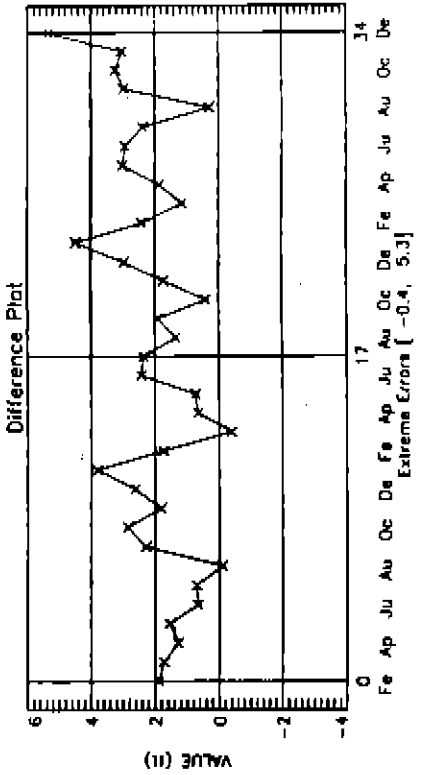
0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 3 Row 34 Column 34 Hist.Std.Dev. 3.58 NOTE: Observed \* Calculated x



0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-7.8, 5.4]



0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 3 Row 34 Column 15 Hist.Std.Dev. 2.32 NOTE: Observed \* Calculated x



0 17 34  
 Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-0.4, 5.3]



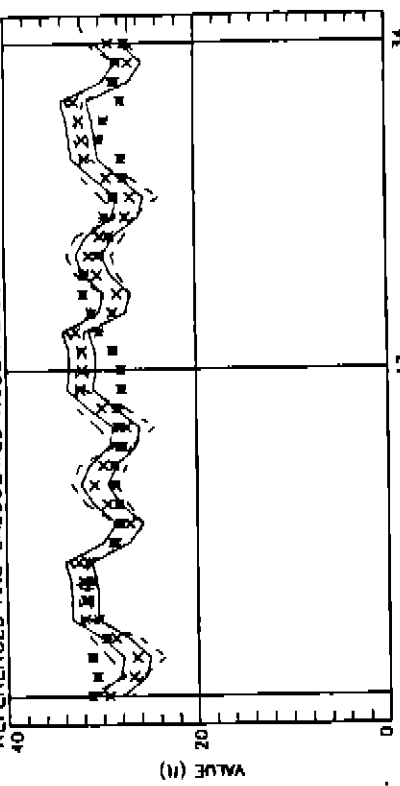


**LAYER 4**

**MID-HAWTHORN AQUIFER  
COMPARATIVE HYDROGRAPHS**

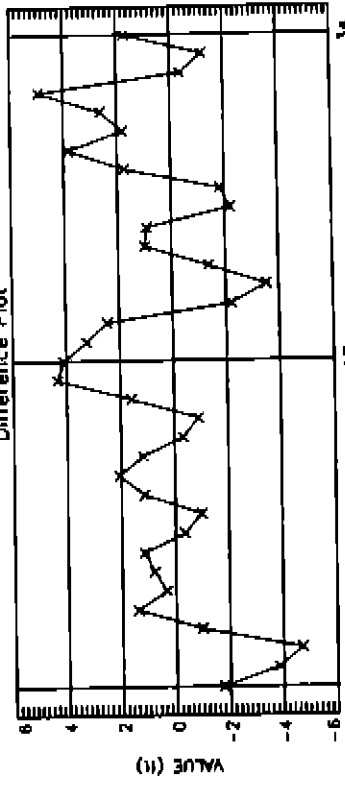


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-983



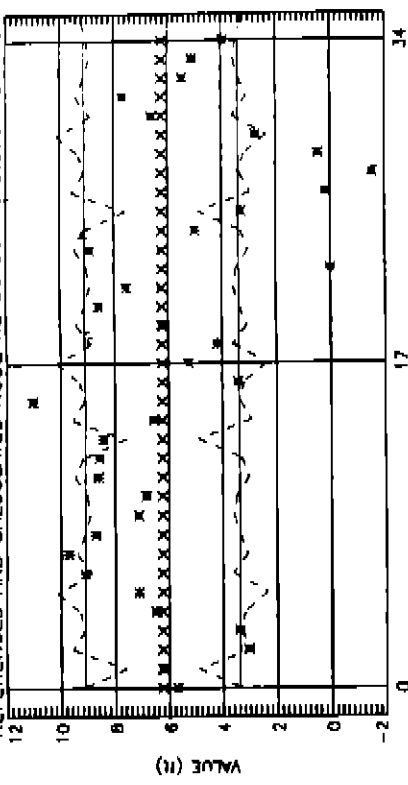
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 4 Row 27: Column 29 Hist.Std.Dev. 1.35 NOTE: Observed - Calculated x

Difference Plot



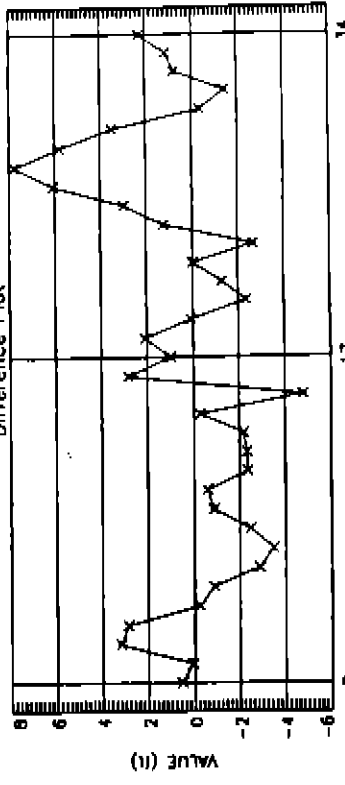
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.7, 4.9]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: L-735

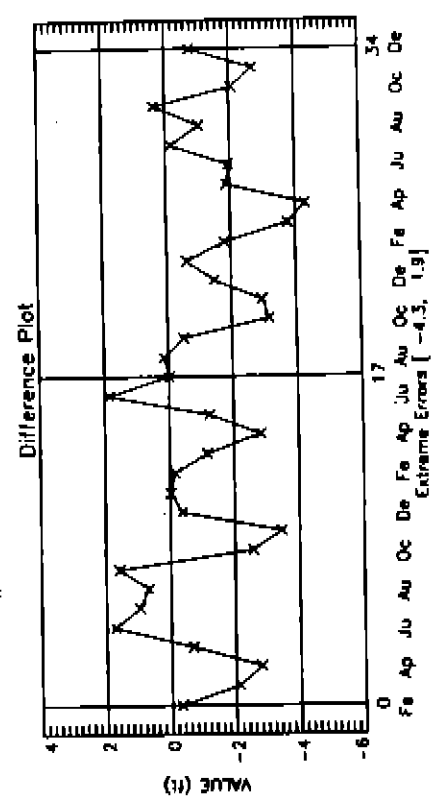
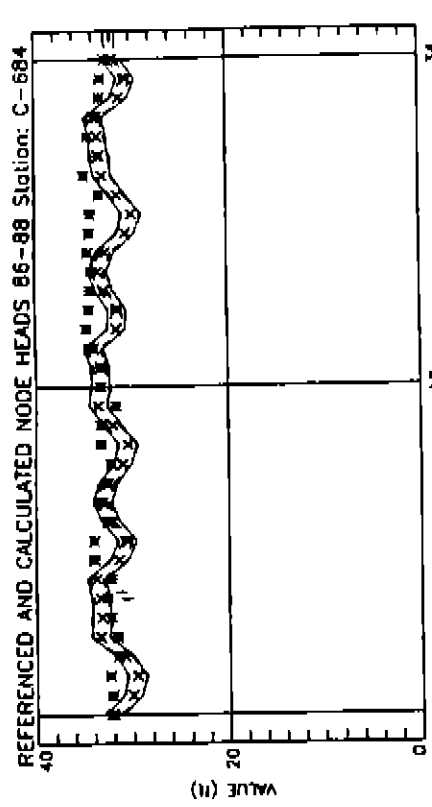
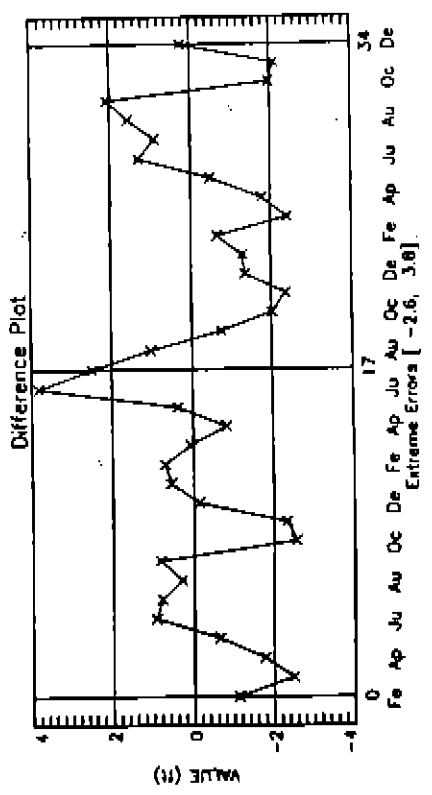
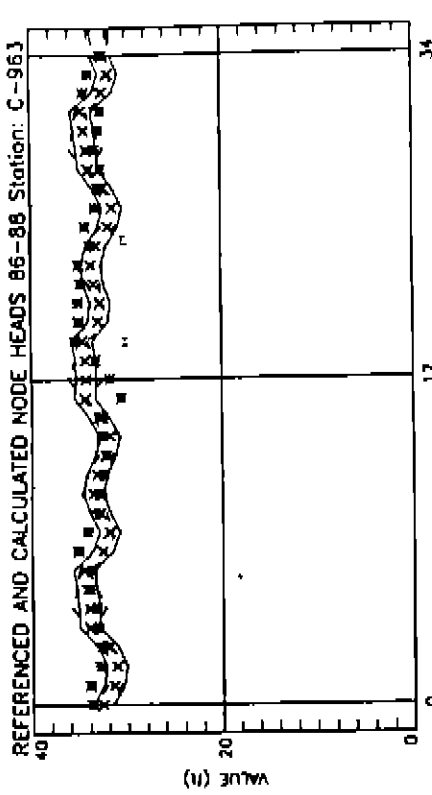


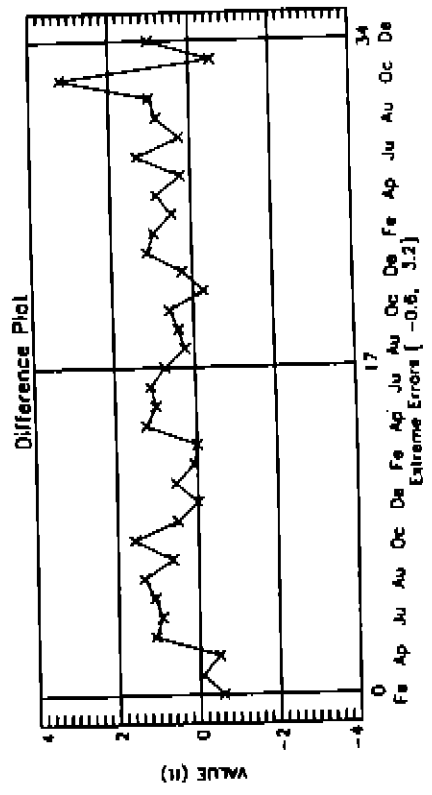
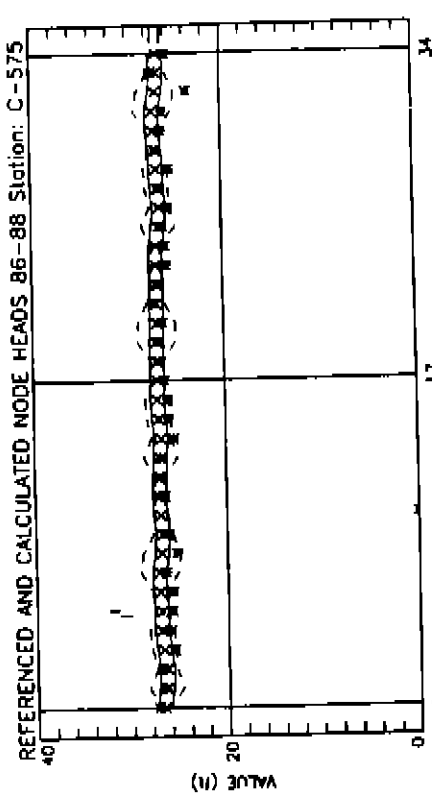
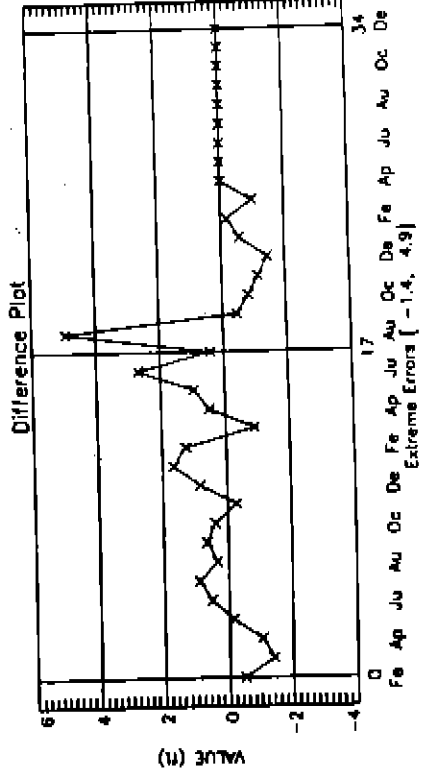
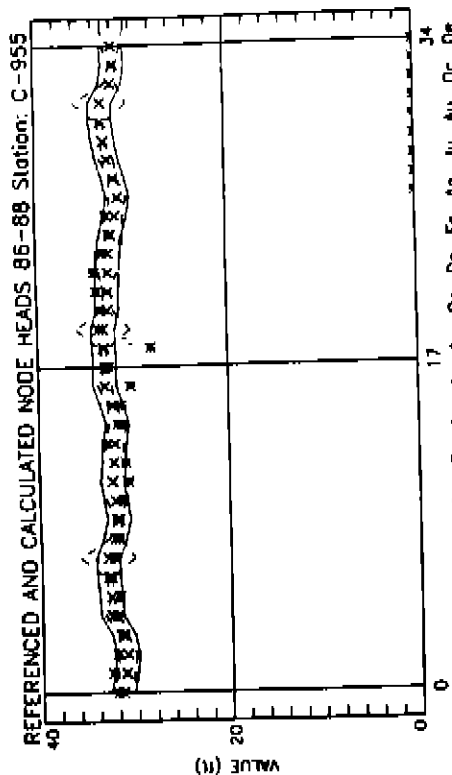
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Layer 4 Row 20 Column 6 Hist.Std.Dev. 2.87 NOTE: Observed - Calculated x

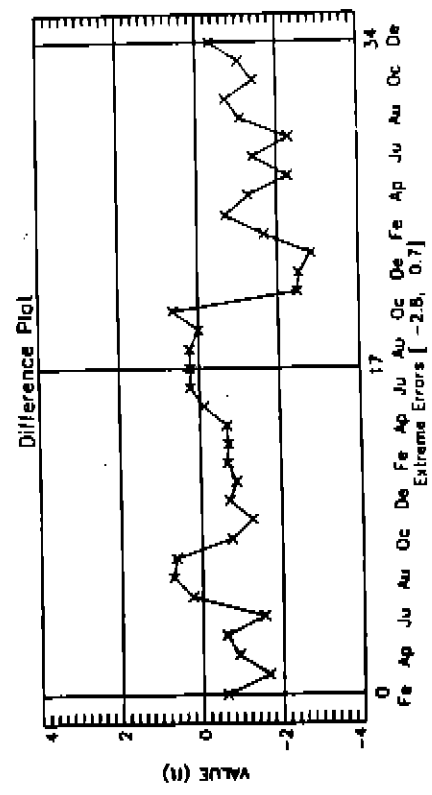
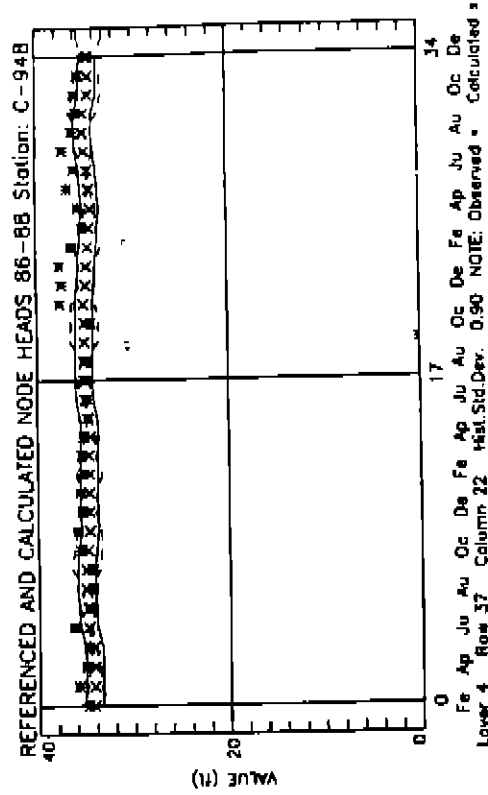
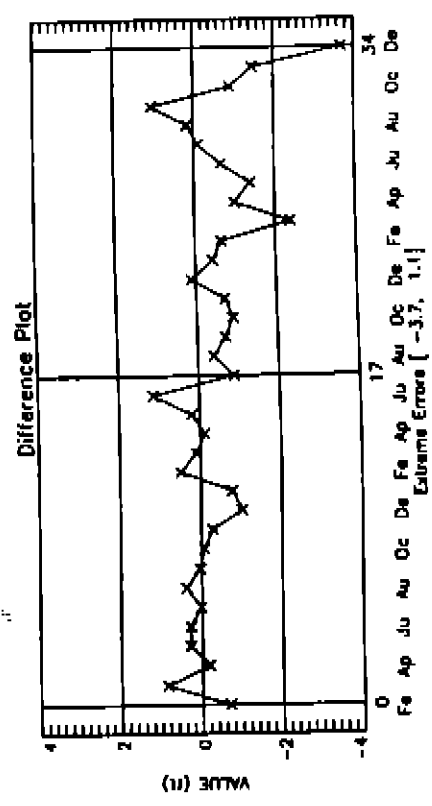
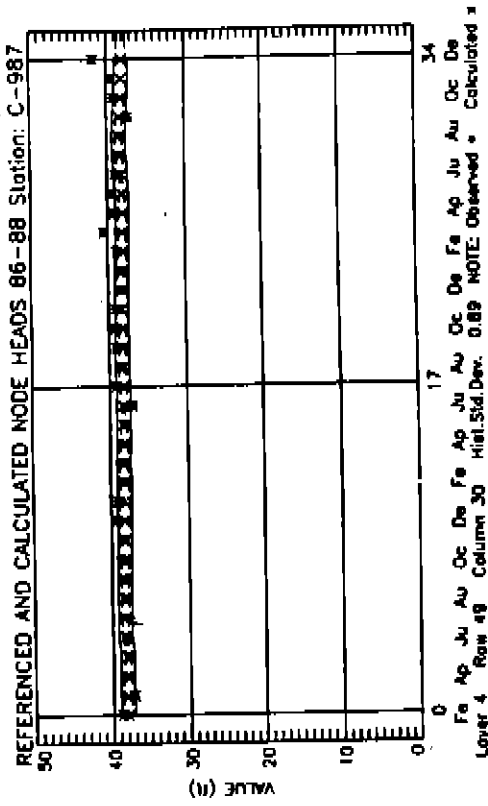
Difference Plot



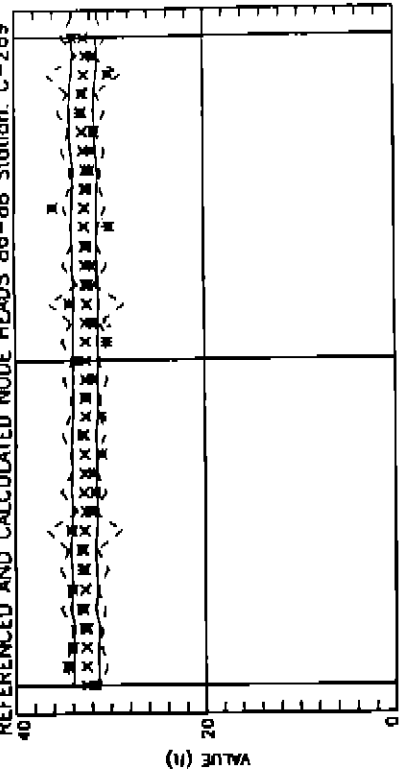
Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De Fe Ap Ju Au Oc De  
 Extreme Errors [-4.8, 7.8]





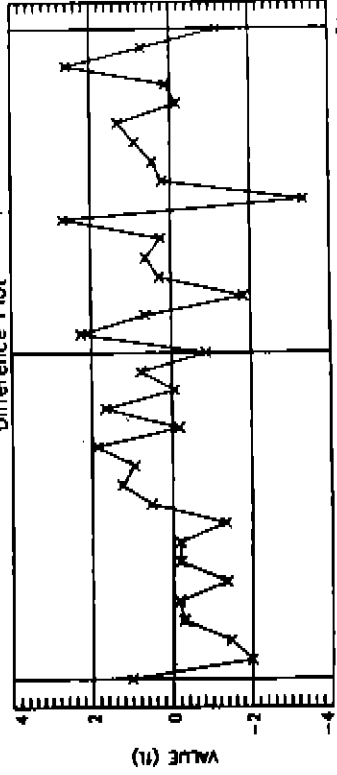


REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-269



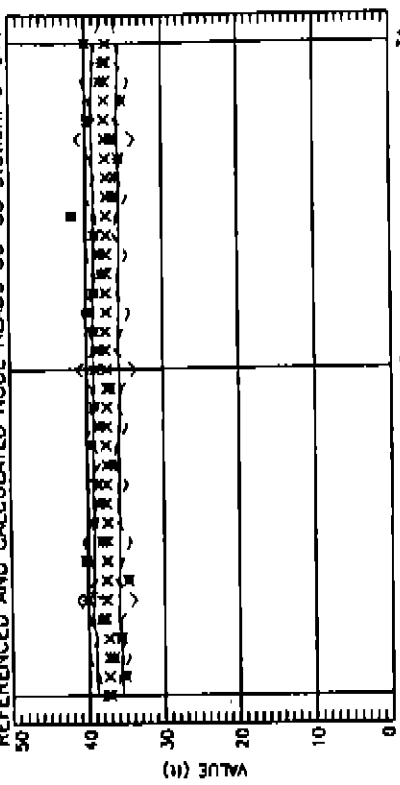
Layer 4 Row 56 Column 29 Hist.Std.Dev. 1.31 NOTE: Observed \* Calculated \*

Difference Plot



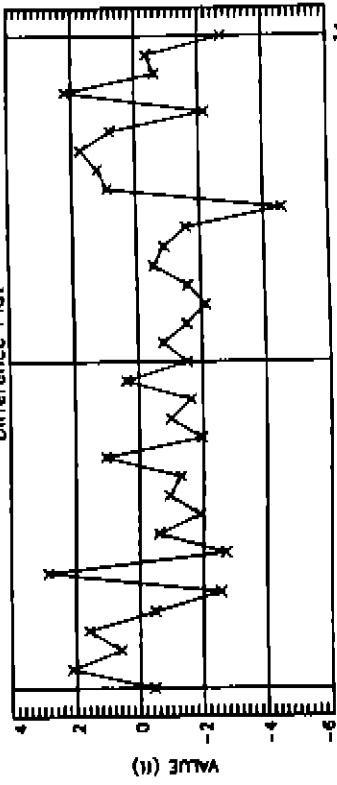
Extreme Errors [-3.4, 2.7]

REFERENCED AND CALCULATED NODE HEADS 86-88 Station: C-311



Layer 4 Row 59 Column 35 Hist.Std.Dev. 1.88 NOTE: Observed \* Calculated \*

Difference Plot



Extreme Errors [-4.6, 2.9]

