TECHNICAL MEMORANDUM

REVISION AND RECALIBRATION OF THE THREE-DIMENSIONAL GROUND WATER FLOW MODEL OF PALM BEACH COUNTY, FLORIDA

by

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EXECUTIVE SUMMARY

Introduction

The Palm Beach County ground water flow models were among the first models developed as part of the South Florida Water Management District's program to quantify the ground water resources of the District and to provide tools for planning and regulatory applications. Since the development of the Palm Beach models, major advances have been made in groundwater modeling, including the incorporation of Geographic Information System technology and the availability of many new or revised modules for the MODFLOW code, making possible more accurate simulation of the various components of the hydrologic cycle. In addition, a significant amount of data and information have been developed and collected since the models were completed.

The District anticipated this situation and designed a process in which ground water flow models are periodically revised and recalibrated in order to ensure that they remain as accurate and reliable as possible. Specific tasks to be completed as part of each model revision include:

1. Updating the supporting data sets with the most recent data available,

2. Incorporating any new technology into the revised models,

3. Correcting any problems or deficiencies detected during the application of the models, and

4. Improving the calibration of the models.

The Palm Beach County ground water flow models were the first models to be revised and recalibrated. Specific tasks in this project include:

1. Combination of the two original models into one county-wide model grid,

2. Calibration of the model using an additional 198 monitoring wells,

3. Calibration of the model to both transient and steady state conditions,

4. Redescription of the model boundary conditions and simulation of additional areas,

5. Inclusion of data from the Martin and Broward County models to improve consistency between models, particularly the surface water data and the vertical discretization,

6. Revision of surface water level input from constant values used throughout the simulation period to average monthly values, and

7. Inclusion of other data collected subsequent to completion of the original models.

Revision and recalibration efforts were constrained by time and manpower; therefore, additional improvements, such as updating surface water GIS data over the entire study area, were not completed.

Model Calibration

The revised Palm Beach County model was calibrated against observed ground water levels in 272 observation wells for the period from January 1989 through June 1990. This period was chosen because it contains ample data for calibration and represents a moderately dry period. For the transient calibration, 208 wells (76%) either met the calibration criteria or were influenced by factors that prevented calibration. For the steady state calibration, 58% of the wells met the calibration criteria. Detailed sensitivity analyses were not performed due to time constraints. However, the revised model should exhibit sensitivity to the same parameters (canal bed conductance, surface water levels, ground water pumping rates, recharge and evapotranspiration) as the original models.

Results and Conclusions

Analysis of the volumetric budget for the revised model indicates that under steady state conditions inflow to the model consists of 81.8% recharge from rainfall, 14.3% leakage from surface water bodies, 1.5% return flow from irrigation, and 2.4% from the head dependent boundaries. Outflow from the model consists of 46.9% evapotranspiration, 20.9% discharge to surface water bodies, 14.2% to well pumpage, and 18.0% to head dependent boundaries. This also compares favorably to the results from the original models. Vertical and horizontal flow vector diagrams show the direction and magnitude of flow simulated under steady state conditions. Analysis of all output from the revised model, combined with the good match obtained between simulated and observed water levels, demonstrate that the revised model closely simulates the dynamics of the hydrogeologic system of Palm Beach County.

Recommendations

No matter how accurate a model is, it is still only an approximation of a physical system. There will always be inaccuracies resulting from assumptions and data limitations. Therefore, improvement is always possible and the following refinements are recommended for future revisions:

1. Since rainfall and evapotranspiration account for the majority of inflow and outflow to the model, more accurate estimates of both parameters are critical to further model refinements and linkage with surface water models. Studies to improve estimation methodologies should be initiated.

2. Flow between ground water and surface water bodies also accounts for significant portions of inflow and outflow to the model. Much of the input data associated with the surface water simulation, such as canal construction details and stage levels, are limited. Inaccuracies associated with estimates of these parameters may significantly impact the accuracy and reliability of the model. Efforts should be made, both through data acquisition studies and the regulatory process, to obtain the needed data and information.

3. The nature of the shallow ground water system in Palm Beach County results in a significant link between ground water and surface water flow. MODFLOW does not provide an adequate simulation of ground water - surface water interactions. A fully integrated ground water - surface water model should be developed in order to provide a comprehensive tool for use in water resource planning and management.

4. Additional information should be gathered to improve the accuracy of the ground water use simulation of the model. Required information includes utility service area boundaries, planar coordinates of supply and monitor wells, and pumpage records for individual wells. This information can be collected and maintained in a database through the District's regulatory program.

Model Availability

Electronic copies of the model data sets are available for a fee from the SFWMD Hydrogeology Division. If, in using the model, users include new or more detailed data that results in a better calibration, they are encouraged to share the data with the District. This will result in a more consistent and accurate model available for use by all interested parties. Refinement of the model will be a continuous, ongoing process.

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INTRODUCTION

BACKGROUND

Two three-dimensional ground water models for the eastern Palm Beach County area were developed by the South Florida Water Management District (SFWMD) in 1989. The models were calibrated against the average ground water level data collected by the United States Geological Survey (USGS) between October 1983 and May 1985 at 74 observation wells. The model documentation (Shine et al., 1989) describes in detail the aquifer systems, the hydrologic conditions, and the model calibration. In addition to compiling and evaluating existing hydrogeologic data, one of the objectives of the project was to make predictive simulations with the model and to assess the potential impacts of different climatic and hydrologic conditions on the groundwater resources of eastern Palm Beach County. The models were used to simulate ground water level declines after droughts of 90 and 180 days duration.

After 1989, the District made significant efforts to develop other county-wide ground water flow models to support county-wide and regional water supply planning. Among the county-wide ground water models, the Martin County ground water model (Adams, 1992) and the Broward County ground water model (Restrepo, et al., 1992) were developed by early 1992. During this period, it was realized that a significant amount of updated information for Palm Beach County area had been collected, including data on topography and land use. Since Palm Beach County had experienced a relatively dry period from January 1989 to June 1990, it was decided to update the model input data and re-calibrate the Palm Beach County ground water model to the dry period.

PURPOSE

The study was undertaken as part of the South Florida Water Management District's Water Supply Planning initiative. The model can be used within the SFWMD by the Planning Department in the development of Water Supply Plans and by the Regulation Department to review applications for water use to assure their consistency with District regulatory criteria. The Water Supply Plans include projections of future water demands for the years 2010, identification of water sources and methods to meet the demands on a regional scale, and an analysis of impacts associated with alternate water supply methods.

In order to accurately simulate different scenarios corresponding to future water supply alternatives, the most up-to-date information should be used. With the most recent information (detailed land use information, updated stresses, and rainfall), the Palm Beach County ground water model will be more useful for both planning and regulatory applications.

SCOPE

The scope of the re-calibration effort included:

(1) redefining the model boundaries,

(2) combining the two original models into a single model,

(3) updating selected time series and static data, and

(4) calibrating the revised model.

The location and area covered by the model are shown in Figures 1 and 2, respectively. The eastern boundary of the model is the Intracoastal Waterway. The western boundary of the model consists of Lake Okeechobee, the West Palm Beach Canal, Water Conservation Area 1 (WCA 1) and L-36. The north boundary is approximately 5 miles north of the Palm Beach and Martin County boundary and includes part of the C-44 canal. The south boundary is approximately 7 miles south of the Palm Beach and Broward County boundary at the C-14 canal.

Selected time series data were updated to the January 1989 to June 1990 time period. Updated data includes rainfall, temperature, ground water pumpage, and surface water stage elevations. In the original models, surface water elevations were averaged over the calibration period and not varied for each stress period. Monthly average elevations were used in the updated model. One hundred and ninety eight additional monitoring wells were added, resulting in a total of 272 monitoring wells used to calibrate the model.

Land use data for 1988 and the newly developed GIS soil maps were used for calculating potential evapotranspiration (ET) and recharge. The general land use information is shown in Figure 3. Additional surface water data was included as part of this project.

AQUIFER SYSTEMS OF THE MODELED AREA

Palm Beach County, Florida is underlain by two aquifer systems: the Surficial Aquifer System and the deeper Floridan Aquifer System. This study focused upon the Surficial Aquifer System which is widely used for irrigation and public water supply in Palm Beach County. In the development of the two previous models, the Surficial Aquifer System was divided into two hydrogeologic zones: a production zone, consisting of highly to moderately transmissive aquifers, and a non-production zone, comprising less transmissive formations. The production zone was further divided into a highly transmissive interval, which is the Biscayne aquifer, and a moderately transmissive interval, referred to as the non-Biscayne production zone. A conceptualized cross section of the hydrogeologic zones of the surficial aquifer can be found in Figure 4. A more detailed discussion of the hydrogeology of the model area can be found in Shine, et al., 1989.

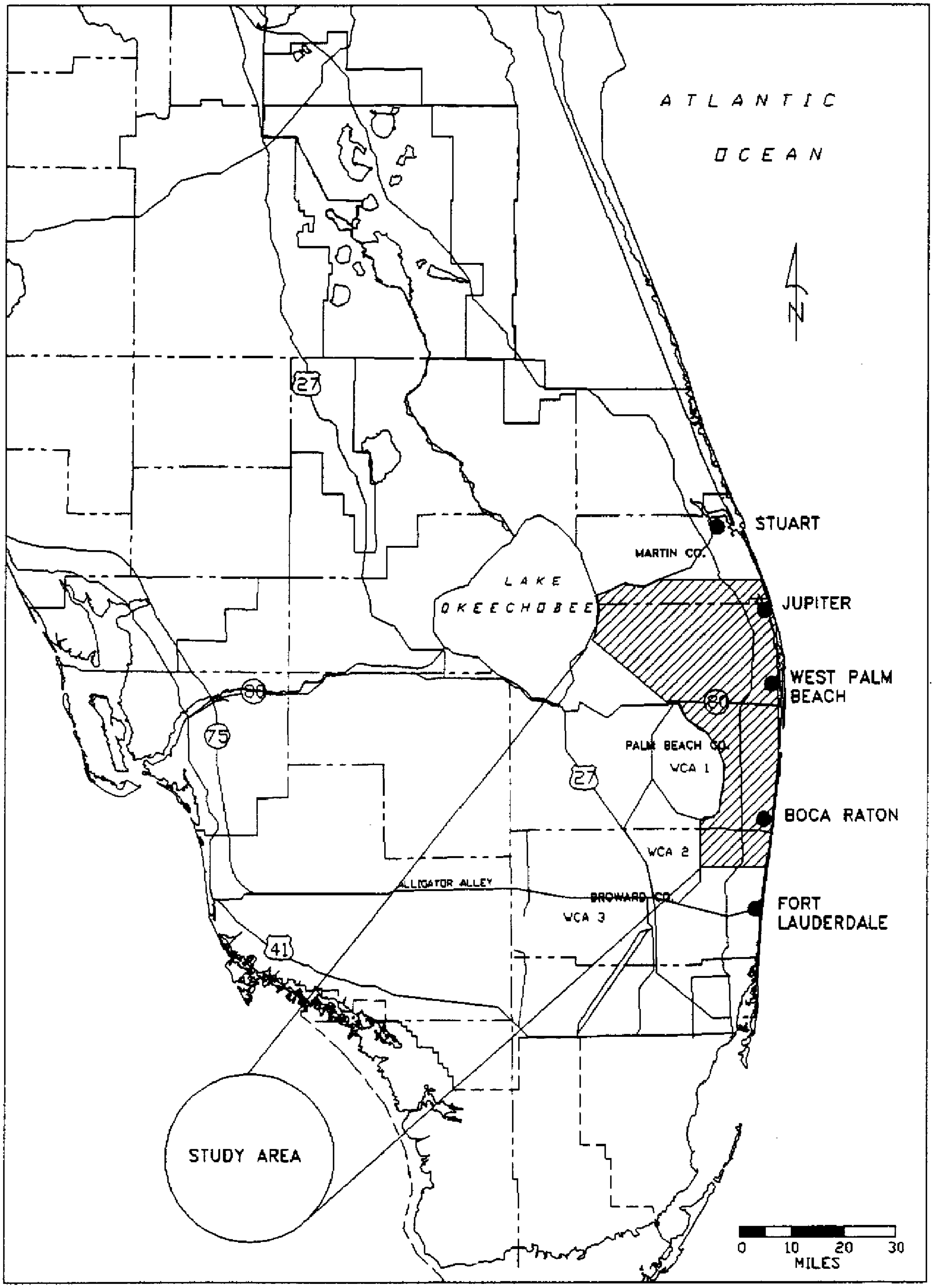

Figure 1. Location of Study Area

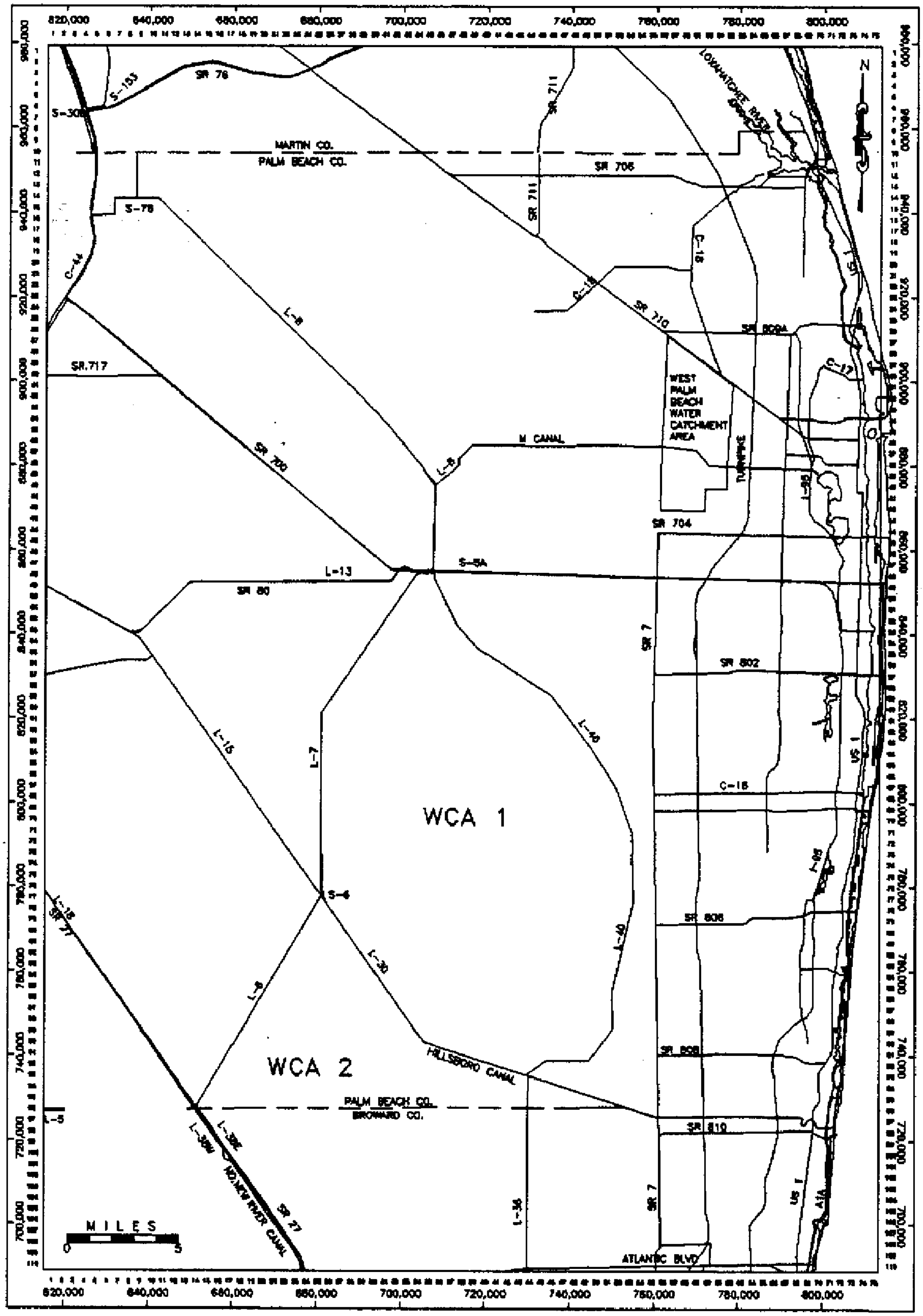

Figure 2. Study Area

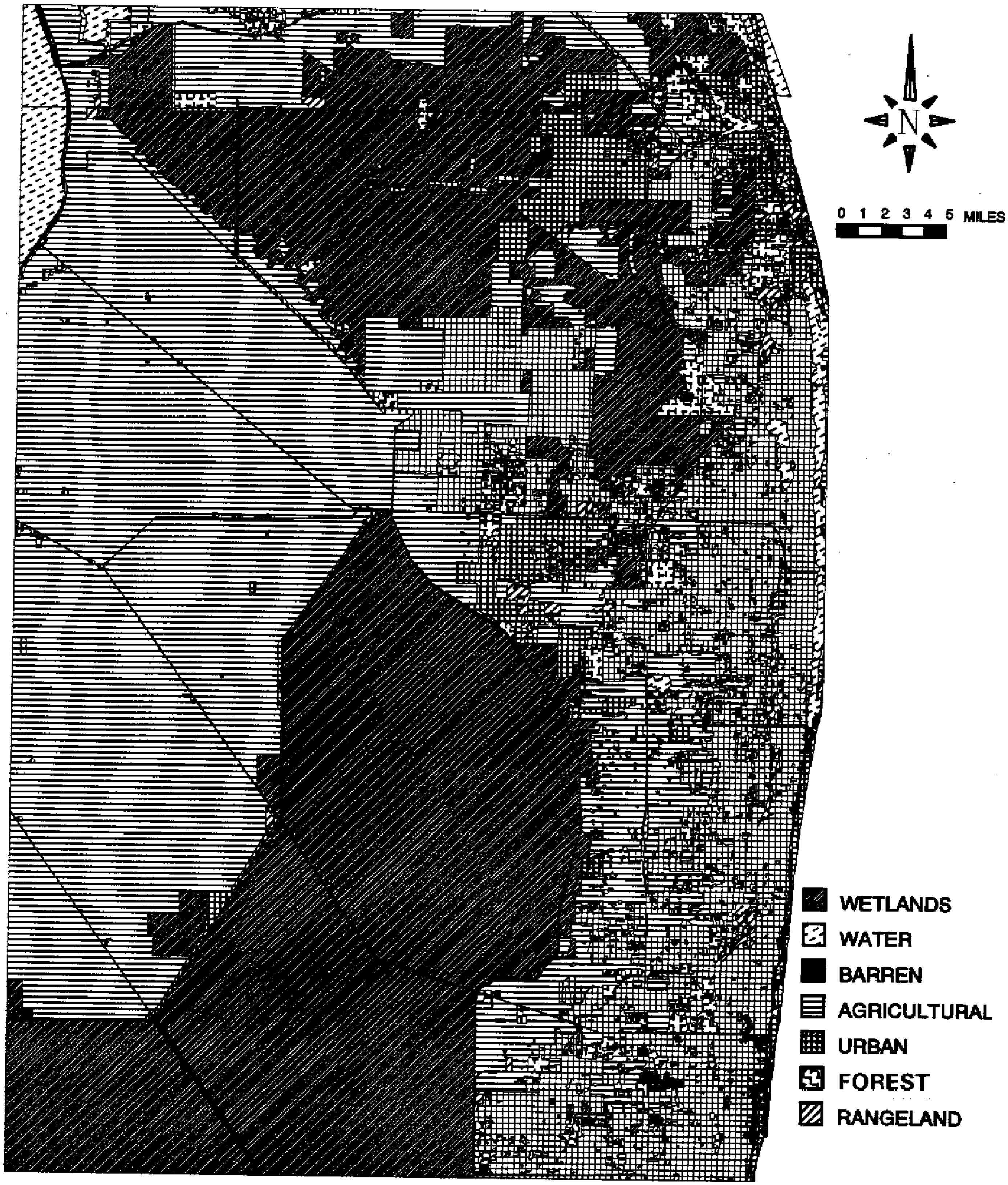

Figure 3. Land Use Types In Study Area

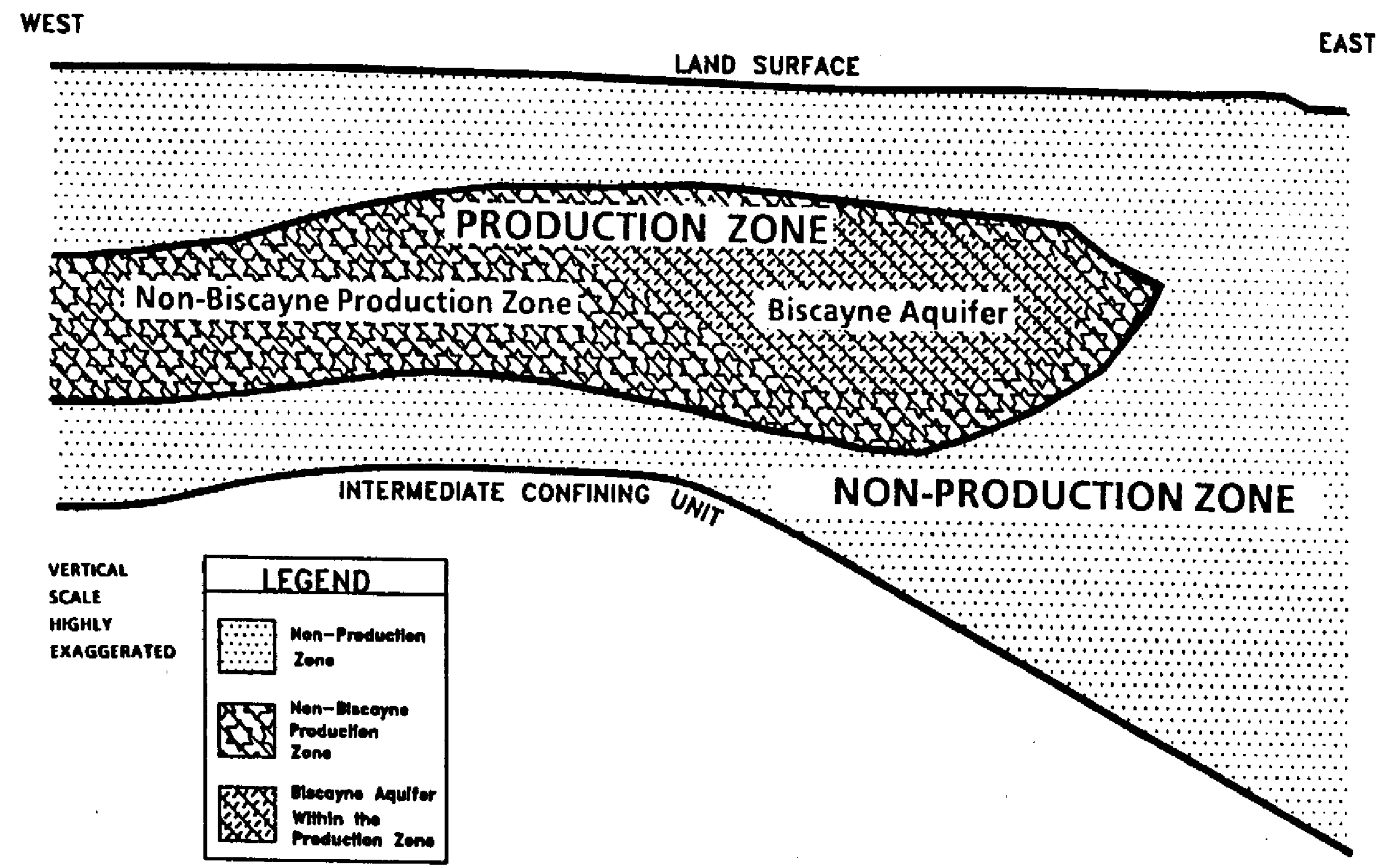

Figure 4. CONCEPTUAL CROSS SECTION OF HYDROGEOLOGIC ZONES WITHIN THE SURFICIAL AQUIFER SYSTEM, EASTERN PALM BEACH COUNTY, FLORIDA (after Shine et al.)

MODEL DEVELOPMENT

The U.S. Geological Survey modular three-dimensional finite-difference ground water flow simulation program, commonly known as MODFLOW (McDonald and Harbaugh, 1988), was used to develop the Palm Beach County ground water model. MODFLOW simulates ground water flow in anisotropic, heterogeneous, layered aquifer systems. The finite-difference approach is block-centered. Layers may be simulated as confined, unconfined or convertible (confined/unconfined). This model was selected for the following reasons:

1. It is available in the public domain,

2. It is compatible with most computers with only minor modifications,

3. The modular structure of the code and its excellent documentation allow easy modification of the code and the addition of new modules for special applications,

4. MODFLOW allows great flexibility of data file structure and management, which facilitates the employment of and interaction with other software for data manipulation, and

5. 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 the regional flow model.

The MODFLOW code is written in modular form. It consists of a main routine and a series of highly independent subroutines called modules. These modules are grouped into packages which address the general use of the model, specific features of the hydrologic system, or particular solution techniques. The hydrologic system packages simulate recharge, evapotranspiration from the saturated aquifer zone, rivers, drains, wells, and other sources and sinks of water external to the model (boundary conditions). Three solution technique packages are available for simulating flow problems: 1) slice successive over relaxation (SSOR), 2) strongly implicit procedure (SIP), and 3) the preconditioned conjugate gradient (PCG) method. The SIP method was used in this study. The MODFLOW modules used in this study are listed in Table 1, which are the same as those used by the original north and south Palm Beach models.

Three types of boundary conditions are available for the model formulation; prescribed head, prescribed flux and mixed boundary. A prescribed head boundary is defined when the head is specified as a known function of space and time at the boundary. Similarly, prescribed flux is defined when the flux is specified as a known function of time at the outer edges of boundaries. The mixed boundary condition, a type of head-dependent flux, is defined when the ratio between the head gradient and flux is known. Constant head boundaries, which are a particular case of prescribed head boundaries, maintain the same user-specified head levels throughout the simulation.

Table 1. MODFLOW PACKAGES USED IN THE PALM BEACH MODEL

MODFLOW PACKAGE	FUNCTION	USE IN MODEL
Basic	Handles model administration.	Used
Block Centered Flow	Computes coefficients of finite difference equations for ground water flow, in an isolated aquifer system considering constant head cells.	Used to represent aquifer system without constant head cells.
Well	Simulates a source or sink to the aquifer at a specific rate not affected explicitly by heads and cell area.	Used to simulate pumpage and injection wells.
River	Simulates the effects of river leakage. River may act as recharge or discharge sources depending on the head gradient between the river stage and the ground water regime.	Used to simulate the interaction between a surface water body and the aquifer in cells with maintained SFWMD canals, secondary canals with recharge systems, or secondary canals having free flow with SFWMD canals.
Drain	Simulates the effects of drains, which remove water from the aquifer when the head in the aquifer is higher than the head in the drain.	Used to simulate water levels in unmaintained canals and some lakes which are not isolated.
Recharge	Simulates recharge to the aquifer from deep percolation due to precipitation.	Used
Evapotranspiration	Simulates the effects of evapotranspiration from a saturated aquifer system.	Used
General Head Boundary	Simulates a source/sink of water outside model area which provides or removes water to a model active cell at a rate proportional to the head gradient between the source and the cell.	Used to simulate General Head Boundary conditions and prescribed heads.
Strongly Implicit Procedure (SIP)	Solves the model's finite difference equations using the SIP method.	Used
Observation Nodes	Generates computed aquifer heads for selected model cells.	Used for calibration and comparison purposes.

Prescribed flux boundaries can be simulated in MODFLOW through the use of external source terms in the model. No-flow boundaries are a type of prescribed flux boundary for which no flow is simulated between the inactive cell and any adjacent active cell. Head-dependent flux boundaries generate a flux dependent on the head in the cell and a user-prescribed head assigned to the external source. Prescribed head can be represented in MODFLOW as a particular case of head-dependent flux, where the flux is set as large as needed. All types of boundary conditions can be set anywhere within a model grid. A no-flow boundary is implicit along the outer edges and bottom layer of a model grid.

DISCRETIZATION

Space Discretization

The model area is horizontally discretized into half mile by half mile cells and consists of 110 rows and 75 columns (Figure 5). This model covers a larger area than the two previous models. The upper left hand corner of the previous north Palm Beach model is located at row 9 and column 18 of the current model. The lower right hand corner cell of the south Palm Beach model is located at row 97 and column 75 of the current model. The state plane coordinates of the lower right hand corner are X = 813346 feet and Y = 688948 feet. The vertical discretization is similar to the original models except that layer 5 and layer 6 of the previous models were combined into one layer (layer 5) in this model. A conceptual cross section of the vertical discretization can be found in Shine, et al., 1989. The top and bottom elevations of each model layer are presented in Appendix C. The thicknesses of layers 2 through 5 are presented in Appendix D. Vertical discretization of the Surficial Aquifer System was designed as follows:

1. Layer 1 contains all river, drain, recharge and evapotranspiration cells. Layer 1 extends from the water table to a depth about -20 ft NGVD. This depth was selected in order to portray soil conditions while avoiding drying of cells during model simulations. This layer is mainly composed of low permeability aquifer formations.

2. Layer 2 contains all sediments from the bottom of layer 1 to the top of the highly permeable limestones of the Biscayne aquifer. This layer extends from about -20 to -60 ft NGVD. The bottom depth of layer 2 represents the top of the Biscayne aquifer.

3. Layers 3 and 4 represent the Biscayne aquifer. The top of layer 3 (bottom of layer 2) was assigned to the first occurrence of highly permeable limestone seen in cores and well logs, or at the top of strata identified as having hydraulic conductivities of 1600 ft/day. The top of layer 4 (bottom of layer 3) is approximately the midpoint of the Biscayne aquifer.

4. Layer 5 begins at the bottom of the Biscayne aquifer, or when the highly permeable limestones found above give way to significantly less permeable sands, silts, and shell. The bottom of layer 5 generally coincides with the bottom of the Surficial Aquifer System.

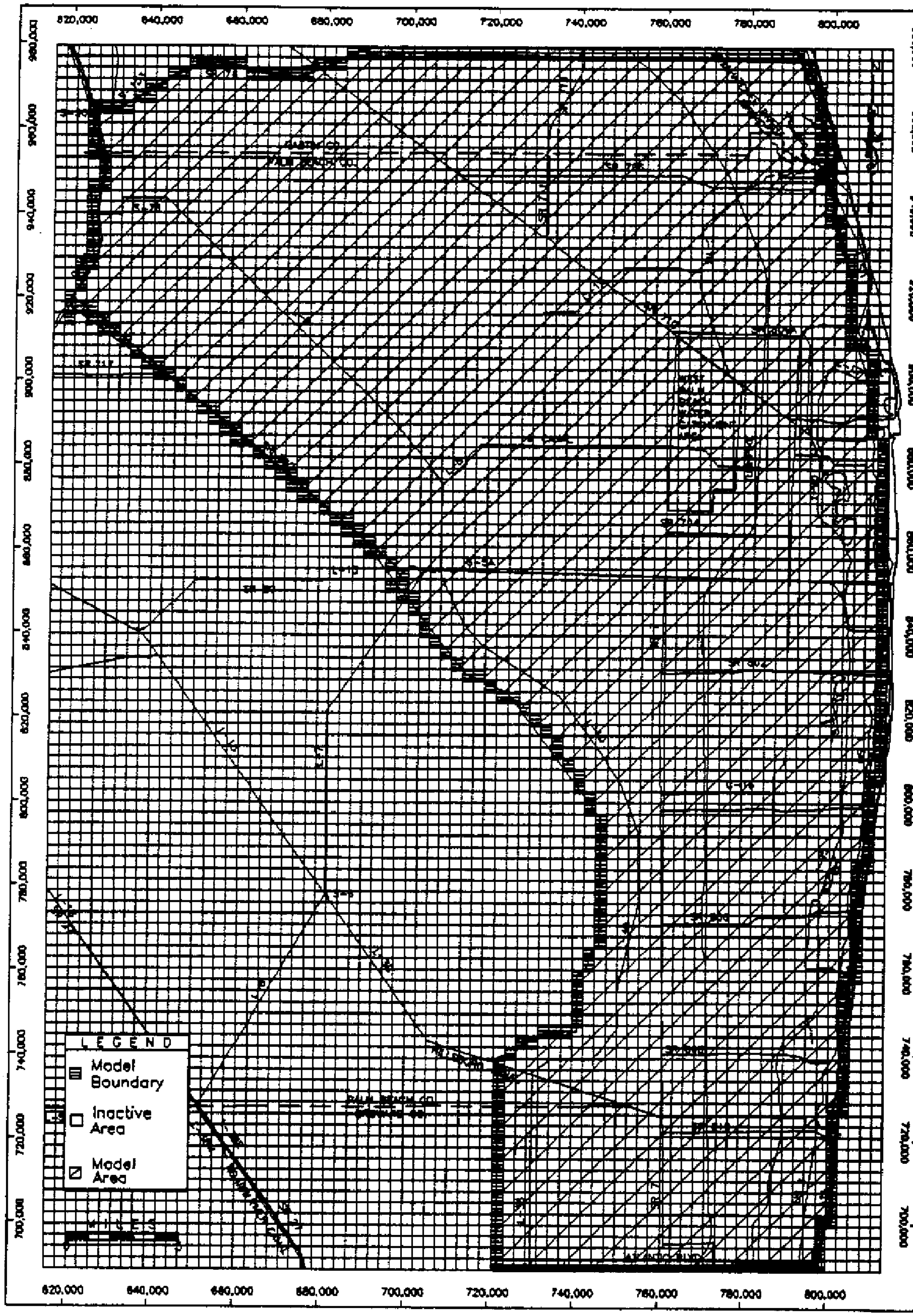

Figure 5. Model Grid, Model Area and Model Boundaries

Time Discretization

Transient model runs were separated into 18 one month stress periods to match end of month water level readings for calibration purposes. There are 4 equal length time steps per stress period. Steady state conditions were established using the average values of the 18 stress periods, which simulates the scenario that the system has stress, recharge and ET under the average conditions for a length of time equal to the 18 stress periods and reaches a steady-state condition. Under the steady-state condition, there is no further change in water levels throughout the system for a given set of inflow/outflow conditions.

Transient discretization into one-month stress periods was chosen because of the availability of monthly pumping reports from public water utilities and computer storage considerations at the beginning of the modeling effort. The transient calibration period was from January 1989 through June 1990.

BOUNDARY CONDITIONS

Model boundary conditions determine effects of the external flow system on the modeled area. Boundary conditions are expressed in mathematical equations which represent the physical conditions to be simulated in the model. Whether a model's boundaries are true physical conditions or practical representations, boundary condition specification is extremely important and requires an understanding of the mathematical role of boundary conditions as well as the hydrogeological relationships. In order to assure the best simulation results in the areas of interest, two principles were used to define the boundaries of the model: 1) use the MODFLOW modules which represent the physical conditions of boundaries, 2) place the model boundaries at a great distance from the areas of interest to reduce the boundary effects.

A combination of no-flow, general-head, and general-head acting as prescribed head boundaries were used in the model. The active and inactive cells, and general head cells, which are boundary cells, are shown in Figure 5. The boundary conditions of this model were set up slightly different from those of the two original models. The differences are mainly that most of the constant head boundaries and the no-flow boundaries described in the original models have been converted to general head boundaries or prescribed head boundaries. These boundaries include the entire eastern boundary, the western boundary, and part of the southern and northern boundaries. Also the north and south boundaries were extended beyond the county lines into Martin and Broward County, respectively.

The general head package was used to generate head dependent flux and prescribed head boundaries. According to McDonald and Harbaugh (1988), a general head boundary consists of a water source outside the modeled area which supplies or removes water to a model cell at a rate proportional to the head difference between the source and the cell. The rate at which water is supplied to a cell is given by:

$$Q_i = C_i(HB_i - h) \qquad (1)$$

where

Q_i = the flow rate to the cell from boundary i, or vice versa (ft^3/day),

C_i	=	the constant of proportionality for boundary i (ft^2/day),
HB_i	=	the average head at the source boundary i (ft), and
h	=	the average head in the cell (ft).

The constant of proportionality for the boundary i is defined herein as the horizontal conductance. C_i, (ft^2/day), and was calculated using the equation:

$$C_i = K_h * b * W/L \quad (2)$$

where

K_h	=	the horizontal hydraulic conductivity of the cell (ft/day),
b	=	the average thickness of the layer (ft),
W	=	the width of the cell (ft), and
L	=	the length of the assumed flow path line (ft).

Prescribed head cells differ from constant head cells in that the head values can change between stress periods and the conductance can be calculated according to the physical conditions of boundary cells.

Eastern Boundary

The eastern boundary of the model is either the Intracoastal Waterway or the ocean. In the original models, the boundary was treated as a constant head boundary at layer 1, and no-flow boundaries in the lower layers. Tidal waterbodies are actually infinite sources or sinks which can be considered a head-dependent flow boundary at each of the aquifer layers. This boundary was described using the general head boundary package. The monthly mean sea levels were used as the heads of the external sources. A conversion of salt water head to equivalent fresh water head was not used. In layers 1 and 2, the eastern boundary cells were assumed in direct contact with the tidal water body. Accordingly, horizontal conductance values were set large enough to provide an unlimited source/sink of water, thereby acting as a prescribed head boundary. Layers 3, 4 and 5 are located within aquifer material and a more restrictive general head boundary was assigned. The horizontal conductance was decreased with depth in the three lower layers in order to simulate the salt water/fresh water interface along the coast.

Western Boundary

The western boundary was defined by canals, levees, Lake Okeechobee and the Water Conservation Area 1 (WCA-1). Since the surface water system exhibits a significant link with the underlying aquifers, and the water levels change significantly with time, the boundary was set as a general head boundary instead of a constant head boundary as in the original models. The general head cells differ from constant head cells in that the head values can change between stress periods and the recharge or discharge flows are calculated based on the conductances and head gradient between the assigned heads and the calculated heads of the corresponding cells. These designations are closer to reality. For simulating flow from WCA-1 into the modeled area, the boundary was located west of the perimeter levee. In layer 1, the cells were given large conductance values to allow the cells to function as prescribed head cells. In layers 2 through 5, conductance was decreased from layer to layer with depth approaching the conductance calculated using the actual inter-block transmissivity in the lower layers. As a result, the general head cells in layers 2 through 5 may function more like general head boundaries than prescribed head boundaries. The heads in all layers for the boundary were assumed the same as the water levels in the WCA-1 and the water levels in the L-10 canals. The western boundary extends far enough westward from the levees on the eastern side of the WCAs so that the boundary effects have little impact on the results caused by the stresses occurring within the developed areas.

Northern Boundary

The northern boundary of the model was placed five miles north of the Palm Beach County/Martin County border to reduce any boundary effects from the edges of the model to the areas of interest. Unlike the western boundaries, actual aquifer conductance values were used in the areas where canals do not exist. For the portion of the north boundary which is not controlled by canals or surface water bodies, the data for the general head boundary were obtained from the calibrated Martin County model.

Southern Boundary

The south boundary was set at the C-14 Canal which is located 7 miles south of the Palm Beach/Broward County border. The canal is located far enough into Broward County so that stresses occurring near the county border should not be affected by the boundary conditions or vice versa. General head boundary conditions are assumed for all layers. The conductance of layer one was estimated based on the data associated with C-14 canal. The conductance in layers 2 through 5 was estimated based on the aquifer hydraulic conductivity and the cell size of the model. The head values for all layers are assumed as the canal water levels for the modeling period.

HYDRAULIC CHARACTERISTICS

Conductivity

The hydraulic conductivity of the aquifer systems is a combination of the hydraulic conductivity values from the two previous Palm Beach models, the Martin County model and the Broward County model. The hydraulic conductivities of these models were based on aquifer tests. The conductivity values from the Martin County and Broward County models were used in the part of the model which covers portions of other counties. The conductivity values from the original Palm Beach models were used for the remaining areas. These three data sets formed the hydraulic conductivity arrays for the current Palm Beach County model. The conductivity values for layer 1 were directly used as model input. The hydraulic conductivity values were further adjusted in the calibration process. The values of hydraulic conductivity for layer 1 range between 2 feet/day and 668 feet/day.

Transmissivity

Pre-calibration transmissivities for all layers in the model were initially based on the hydraulic conductivity arrays described above. Transmissivity of layers 2 and 5 were calculated as the product of layer thicknesses and hydraulic conductivity values. Transmissivity values ranged between 1,015 and 64,122 ft^2/day for layer 2 and between 55 and 9,775 ft^2/day for layer 5. These layers are classified as confined/unconfined, with the thicknesses of each layer remaining unchanged throughout the simulation. Storage coefficients may alternate between confined and unconfined values should the layers desaturate. Initial transmissivity estimates for layers 3 and 4 range from 875 to 115,840 ft^2/day and from 955 to 160,640 ft^2/day respectively.

Specific Yield and Storage

Specific yield was set to a uniform value of 0.25. Storage coefficient was set to a uniform value of 0.0001. Repeated model runs at a range of values between 0.20 and 0.30 for specific yield and between 0.00005 and 0.0002 for storage coefficient show that the head change on average is not very sensitive to these two parameters. This is consistent with the sensitivity analysis results of Martin and Broward County models. By understanding that the set up of this model and the hydrogeologic conditions of the Palm Beach area have many similarities with the other two county models, it was assumed that the results of sensitivity analysis would be the same as those from Martin and Broward County models, as well as the previous Palm Beach models. Due to time constraints, a systematic sensitivity analysis to all model parameters was not carried out.

Vertical Conductance (Vcont)

The vertical conductances were calculated using the vertical hydraulic conductivity values divided by the distance between the center of the two adjacent layers. The vertical hydraulic conductivities were assumed equal to 0.1 times the horizontal hydraulic conductivities. Vcont between layer 1 and layer 2 is plotted in Figure 6.

Within the MODFLOW model, vertical flow between layers is controlled by the vertical conductance coefficients (V_{cont}). V_{cont} is a composite term which is input into the model. V_{cont} is expressed in units of day^{-1}. It is calculated for two nodes located at vertically adjacent geohydrologic units as:

$$V_{cont} = \frac{1}{\dfrac{b_u/2}{K_u * a} + \dfrac{b_l/2}{K_l * a}} \qquad (3)$$

where

b_u and b_l are the thicknesses of the upper and lower layers (ft),
K_u and K_l are the horizontal hydraulic conductivities for the upper and lower layers (ft/day), and
a is the ratio of vertical to horizontal hydraulic conductivity (the vertical anisotropy factor) for each layer under consideration.

V_{cont} was adjusted non-uniformly in space during the calibration process.

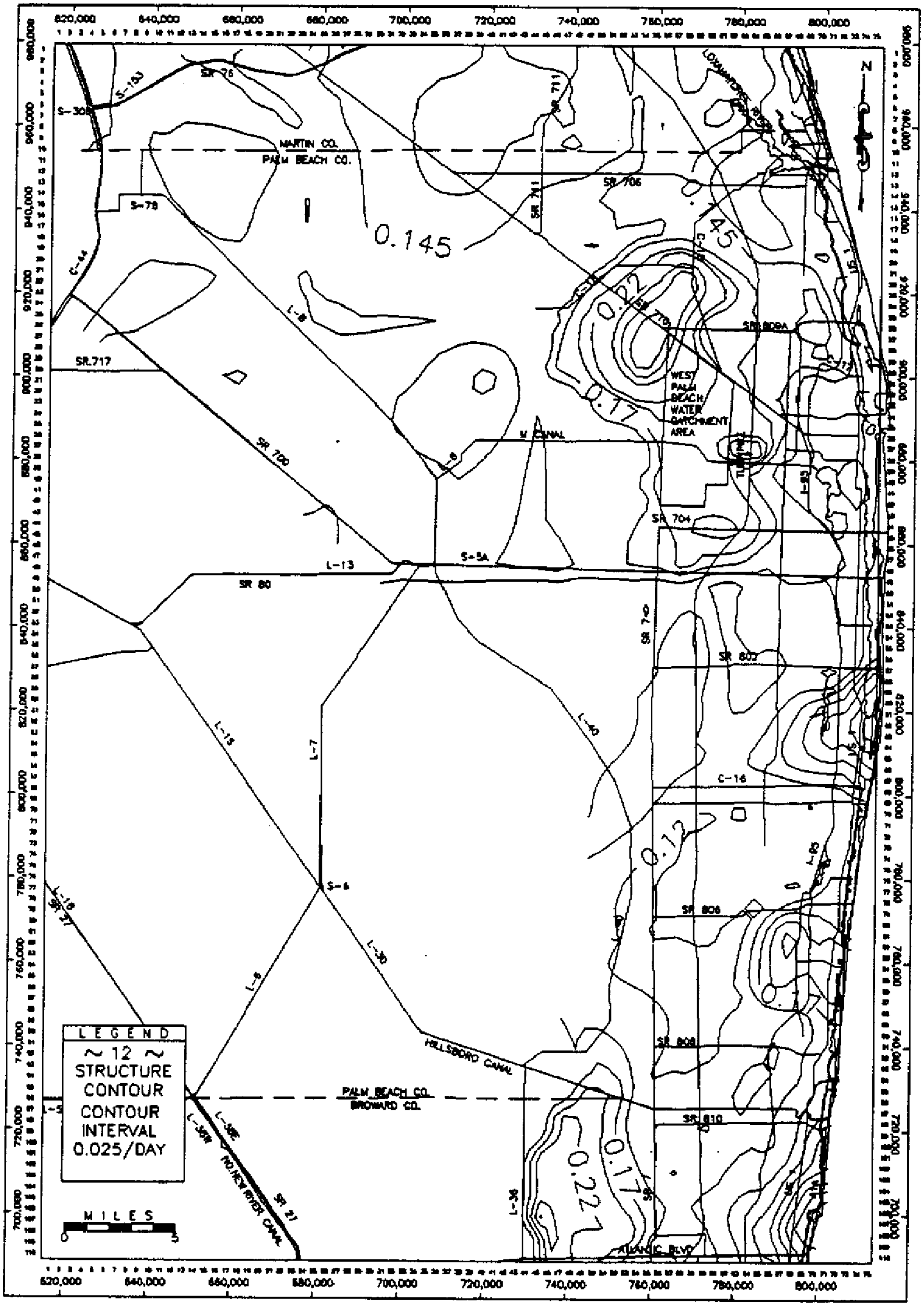

Figure 6. Vertical Conductance between Layer 1 and Layer 2

EVAPOTRANSPIRATION

The Modified Blaney-Criddle method (SFWMD, 1985) was used to calculate the potential evapotranspiration rate (ft/month). Temperature data collected in Palm Beach County from 1989 to 1990 were used. Crop coefficients were taken from values presented in SFWMD's Permit Information Manual Volume III (SFWMD, 1985). The land use information was obtained from the District's 1988 land use coverage. The ET surface was set to 1.5 feet below the land surface elevation. The extinction depth was determined based on land use type and crop rooting depth. The procedure used to generate the various ET arrays is discussed in detail in the following paragraphs.

Water loss through direct evaporation and through transpiration from the saturated zone by plants is simulated in the model by the evapotranspiration (ET) package of MODFLOW. The following assumptions are applied (McDonald and Harbaugh, 1988):

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 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 between the above limits.

ET Surface

The ET surface elevation is represented by the land surface elevation of the modeled area minus any significant capillary zone height. Initial land surface values were taken from USGS 7.5 minute topographic quadrangle maps and from additional control points such as land surface elevation from USGS monitor wells. These points were then contoured and smoothed using SURFER (Golden Software). Where water bodies such as lakes or borrow pits were present, the free water surface was used as the base elevation. The ET surface was then determined as 1.5 feet below land surface during the calibration process.

Maximum ET Rate

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

$$U = k^*k_t^*(P_m{}^*t_m / 100) \qquad (4)$$

where

U = the crop ET for the time period (i.e., a month) in inches per day from layer 1,
k = the consumptive use coefficient which varies according to the crop,
k_t = the climatic coefficient which is related to the mean air temperature (defined as k_t = .0173t - .314),
p = the percent of daytime hours during the month,
t = the mean temperature for the month, in degrees Fahrenheit, and
m = the month.

The consumptive use coefficient is defined:

$$k = k_c * k_f \tag{5}$$

where

k_c = the crop coefficient reflecting the growth state of the crop, and
k_f = the coefficient reflecting the fraction of land surface which is covered with a specific type of vegetation. It varies between 0.1 and 1.0. The specific values of k_c and k_f can be found in Appendix C of the Broward County Model Documentation (Restrepo, et al., 1992).

Temperature data were used from meteorological stations in West Palm Beach. Crop coefficients for each land use type (k_c) were either taken directly from or inferred from values presented in SFWMD's Permit Information Manual Volume III (1985). Values of k_f for urban land uses were determined for each land use type by examination of appropriate surface water permit data for ratios of pervious to impervious area. A k_f 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. It physically represents the depth to which the roots of plants extend below land surface. Extinction depths in the model are related to land use and are based upon estimated root depths for various kinds of vegetation. Land use codes and their assigned extinction depth values are shown in Table 2 and Table 3 respectively.

Water Table and Capillary Fringe

The variation of evapotranspiration with the water table depth depends on the ground cover conditions. It is apparent that the deeper the roots, the greater the depth at which water losses occur. Even with relatively deep water tables, evapotranspiration does not necessarily cease because upward transport can still occur. Capillary rise is a function of soil grain size and can vary from 0.3 feet in a coarse gravel to 6 feet in clay (Fetter, 1980). Since MODFLOW does not address ET that occurs when the water table drops below the root zone, capillary fringe ET can be approximated by lowering the original ET surface by an amount equal to the capillary fringe height. To be physically accurate, however, the capillary zone height should be added to the water table level. Since the elevation of the water table changes with time, this raising of the available water level would need to be incorporated within the MODFLOW program. Therefore, in order to simplify the representation of the capillary fringe ET, the capillary zone height was represented in the ET surface values. The model results show that the actual ET is zero in the areas where the groundwater level is relatively deep. This is particularly true in cases where canals keep ground water levels below the root zone. There is ET in agricultural areas but it comes from irrigation water in the unsaturated zone. One of the disadvantages of the MODFLOW code is that ET from the unsaturated zone can not be simulated directly.

Table 2. SFWMD 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

Table 2. (Continued)

(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

Table 2. (Continued)

(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

Table 2. (Continued)

(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 3. 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	5.0
URSM	1.0	UORV	1.25	FMCM	1.5
URSH	1.0	UOUD	1.0	FMCO	1.5
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	WFWL	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	AFFL	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	AFPY	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	2.5
UTTL	1.0	FEPF	2.0	WXCP	4.5
UTHW	1.0	FESP	5.0	WXHM	4.5
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		
UTOG	1.0	FOPA	1.5		
UO	1.10	FOSO	1.5		
UORC	1.0	FOOK	5.0		

THE SURFACE WATER SYSTEM IN THE MODELING AREA

The surface water system in the area consists mainly of canals and lakes. Many major and minor canals exist within the study area. Understanding the function of these canals and their relation to the ground water levels is essential in developing an effective model for the study area.

The major canals are managed by the South Florida Water Management District (SFWMD) through the use of pump stations and control structures (Sherwood, et al., 1973). During dry periods, water is transported via canals from Lake Okeechobee and the Water Conservation Areas into the study area for water supply, to maintain adequate water levels in the canals, and to prevent salt water intrusion. During wet periods, water is either discharged to the ocean or pumped into the Water Conservation Areas in order to reduce the potential for flooding.

Most of the secondary canals and lakes throughout the study area are managed by local water control districts, drainage districts, or improvement districts. For example, the Hillsboro Basin is managed by the Lake Worth Drainage District (LWDD). The LWDD withdraws water from the Hillsboro Canal via pumps on the E-2-W Canal in order to maintain the control elevations in the canals. This operational strategy increases the ground water level of the basin and reduces salt water intrusion.

According to the previous discussion, the canals operated by the SFWMD, canals owned and operated by drainage districts which had active recharge systems during the calibration period, and canals, which are subject to tidal influences, are simulated using the river package. All other canals within the study area were simulated using the drain package.

Rivers

Rivers function as a source of recharge to the aquifer and a recipient of discharge from the aquifer. River-aquifer interaction is dependent on several factors:

1. the degree of hydraulic connection between the river and the aquifer,
2. the difference in water levels between the aquifer and the river,
3. the shape of the flow lines in the aquifer surrounding the river reach (for example, the flow lines may be more vertical or more horizontal),
4. the local hydraulic conductivity associated with the river reach,
5. the geometric characteristics of the cross-section of the river reach, and
6. restricted seepage rates due to clogging of the river reach by fine sediments of significantly lower hydraulic conductivity than the underlying material.

McDonald and Harbaugh (1988) approximated vertical leakage through the river bed by the following equation:

$$Q = K*L*W*(H_c - h)/M \qquad (6)$$

where

Q	=	the leakage through the reach of the river bed (ft^3/day),
K	=	the hydraulic conductivity of the river bed (ft/day),
L	=	the length of the reach (ft),
W	=	the width of the river (ft),
M	=	the thickness of the river bed (ft),
H_c	=	the average monthly river stage (ft), and
h	=	the average head in the aquifer cell containing the river reach (ft).

A total of 3,633 river reaches were identified and described in the river package. The rivers include the canals and lakes providing recharge to the underlaying aquifer. The river stages were set to the maintained elevations as reported in monthly average stage data from SFWMD and USGS. The bottom elevations of rivers were determined from construction drawings, survey maps, and topographic maps. The model cells containing rivers are plotted in Figure 7. All rivers are in the first layer of the model.

Drains

Drains are the canals which are not likely to provide recharge water to aquifers, instead, they only discharge water from aquifer. The drain elevations were set to control structure elevations or to canal bottom elevations if the canal was uncontrolled. Drain bed conductance was estimated using the method discussed in the river section. The cells containing drains are shown in Figure 8.

The information describing the canals in the areas overlapped with the Martin and Broward County models were entered into a Geographic Information System (GIS), then converted into the appropriate cells in the model grid using an ARC/INFO report file and a pre-processor. The information describing the canals in the remaining area of the model were converted into the new model format from the original model data sets, except that average monthly stage levels were used instead of stage levels averaged over the calibration period as was done in the original model.

The canals classified as drains were simulated using the drain package. Only layer 1 has drain cells. The difference between the river package and the drain package is that the drain package only allows flow from the aquifer into the drain.

The vertical hydraulic conductivity values for both river and drain cells were initially set as soil hydraulic conductivities or the values used in the original models. A vertical conductance was calculated for each river or drain reach in each model cell. Through the calibration process, the conductance values were adjusted. The thickness parameter M was assumed as 1.0 foot since there were no measured data available. The errors caused by this assumption were reduced during calibration process, since the values of conductance of river and drain were varied non-uniformly in space to achieve a satisfactory calibration. There are 7,286 reaches of rivers and drains in the model. Since it is not convenient to list this amount of data in this document, the information used for river and drain data is maintained in electronic format as the files "fort.14" and "fort.13". The files can be found, together with other

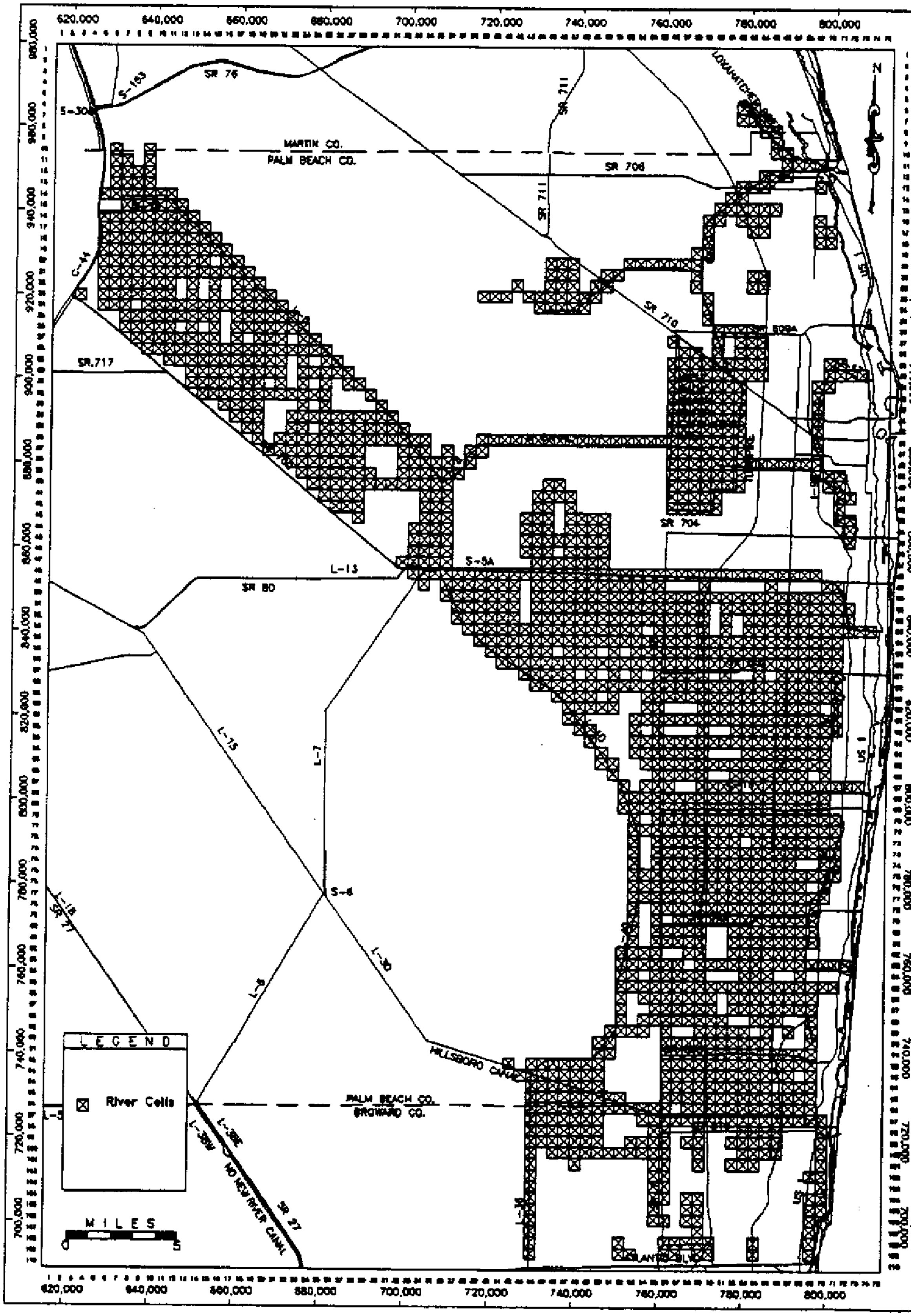

Figure 7. Cells Containing River Reaches

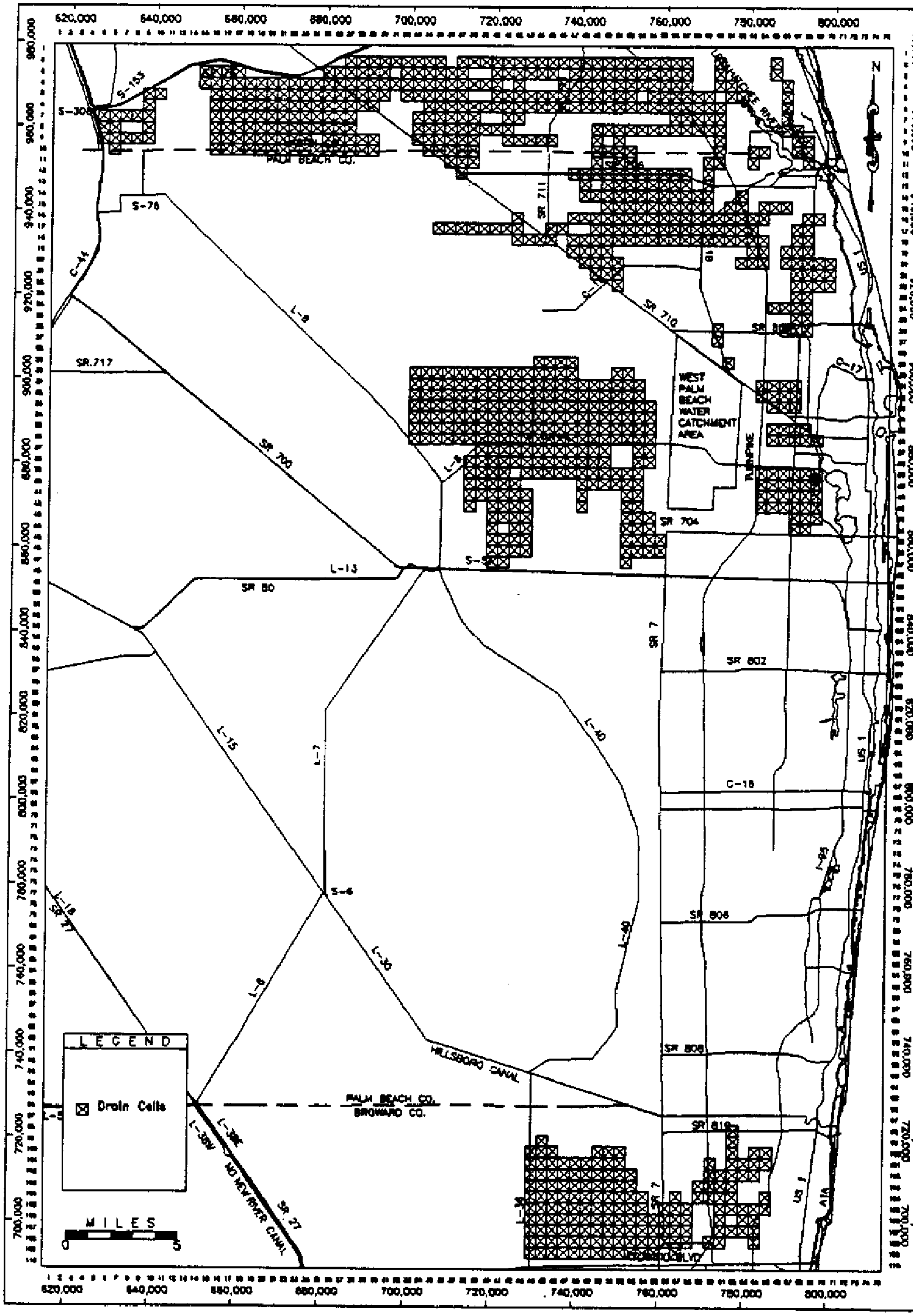

Figure 8. Cells Containing Drain Reaches

model input and output files, in the SFWMD Hydrogeology Division groundwater model information base. The files for the Palm Beach County model in the groundwater model information base are listed in Appendix F.

RECHARGE

The recharge to the aquifer from rainfall was estimated using daily rainfall data obtained from the SFWMD DBHYDRO database, GIS land use type, the GIS soil map with mean vertical hydraulic conductivity calculated for each soil type, interception coefficients for various plants, and surface runoff and soil storage coefficients. The meteorological stations that provided data for the model are shown in Figure 9. Rainfall records from these stations indicate that the amount of rainfall during the period of 1989 through 1990 is below normal, which resulted in less than normal recharge to the aquifer. Precipitation was regionalized throughout the model using a kriging algorithm. The recharge was calculated using a standard procedure described below:

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

$$R_p = P_n - Q_d - ET_u \qquad (7)$$

where

P_n = the average net precipitation depth over the cell not lost to interception or depressional storage.

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

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

The evapotranspiration depth from the unsaturated zone, ET_u, was not considered in this model. In areas where there is a significant unsaturated zone above the water table, however, the recharge calculations may become inaccurate without considering ET_u.

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:

$$P_n = MAX\{(K_i)(P_t) - (Sum[K_d(n), n=1,N]),0\} \qquad (8)$$

where

K_i = the interception coefficient,
$K_d(n)$ = the depth of daily maximum depression storage loss, and
n = the number of days in the month.

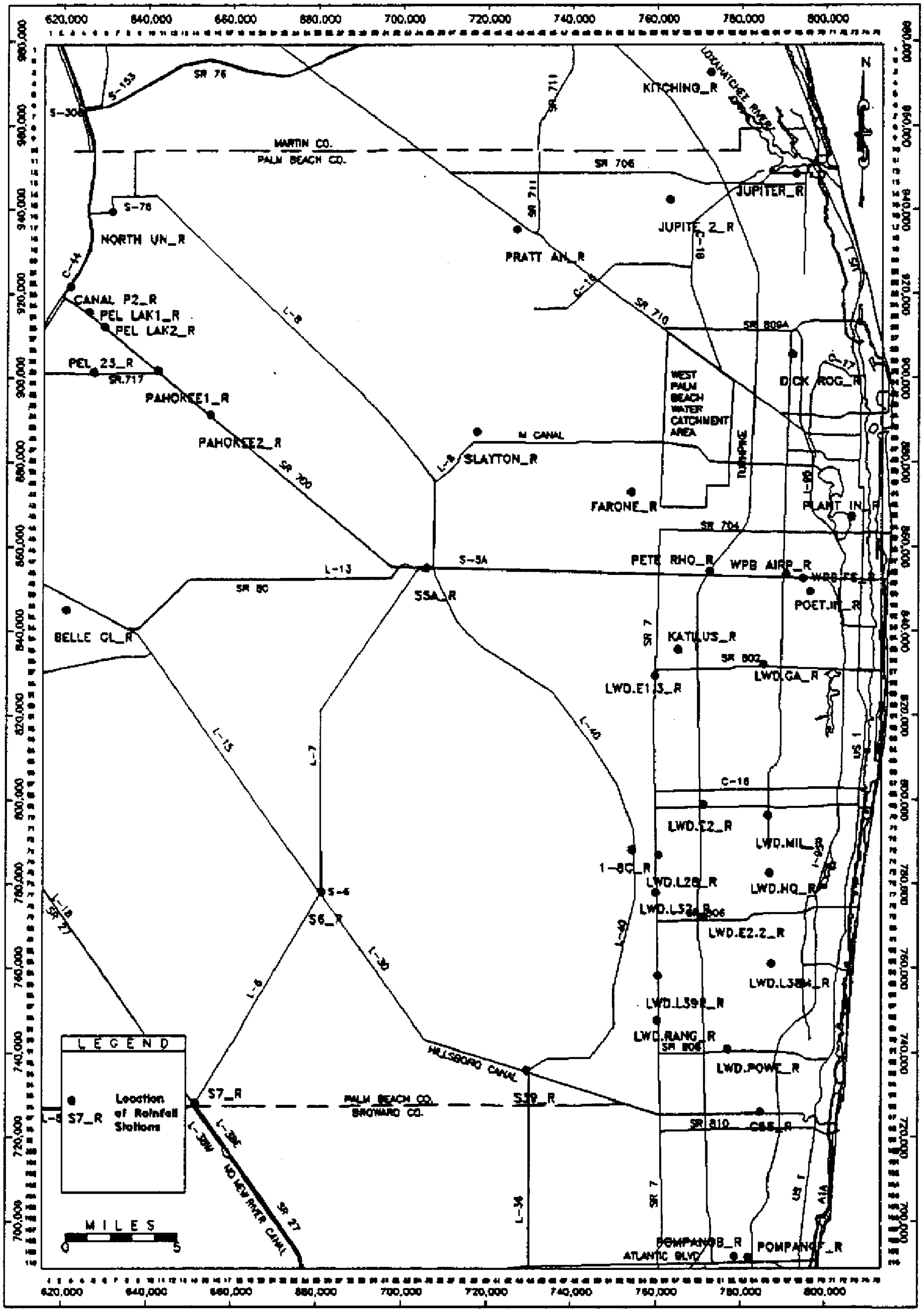

Figure 9. Rainfall Stations Supplying Precipitation Data

Interception is that portion of gross precipitation which wets and adheres to above ground objects until it returns to the atmosphere through evaporation (Bower, et al., 1990). The quantity of water intercepted depends upon the storm character, the season of the year, and the species, age, and density of the prevailing plants and trees. The total interception by an individual plant is directly related to the amount of foliage. For non-urban land uses, extreme values of K_i can be defined as (Viessman, et al., 1977):

K_i = 1.00 for clear bare ground surface (0% interception)
K_i = 0.75 for dense closed forest (25% interception)

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 represented the weighted average of the K_i values for all land use types within the cell.

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 inch, on a slope of 2.5%, up to 0.11 inch, on a slope of 1% (Bower, et al., 1990). The upper limit of 0.11 inch was assumed for the model. The model depression storage loss, $K_d(d)$, or simply K_d, was calculated as:

$$K_d = K_d^{max} * MAX\{[1 - SQR(K/K_m)], 0\} \qquad (9)$$

where

K_d^{max} = the sum of maximum daily depression storage losses, in inches, for the stress period computed on a daily basis (an upper limit of 0.11 inches was assumed for each day).

K = the vertical hydraulic conductivity of the soil layer.

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

A value of $(K/K_m) = 0$, signifying an impervious drainage area, implies a value of $k_d = 0.11"$ 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 drainage.

Only one precipitation event per rainy day of at least 0.11" was assumed. Interception - storage capacity is usually reached early in a storm event. This implies that a larger fraction of rainfall is intercepted in depressions during numerous small storms than that during infrequent severe storms (Bower, et al., 1990).

The value of soil hydraulic conductivity, K, in a model cell was estimated by examination of the tables of saturated vertical permeability for applicable soil types found in Soil Conservation Service soil survey books (Pendleton, et al., 1976 and McCollum, et al., 1978). Soil permeability values ranged from 12 feet/day to 40 feet/day throughout the modeled area.

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). The net average depth of water lost to surface drainage, Q_d, can be estimated by:

$$Q_d = (K_s)(K_a)(P_n) \qquad (10)$$

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 potential of the land use type to have surface drainage into a surface water body. The value of K_a is a function of the average hydraulic conductivity and the average slope of the land surface. K_a takes into account the effect of drainage systems which may recharge the unsaturated zone of the aquifer. It has a value of 1 if there is no drainage into the unsaturated zone, and has a value of 0 when rainfall completely recharges the unsaturated zone. Model values for K_s varied between 0.1 and 0.3, with most values being 0.1. The value for K_a was defined as:

$$K_a = K_a^{max} (1 - K/K_{max}) \qquad (11)$$

where

K_a^{max} = the maximum value that K_a may take (less than or equal to 1), and
K_{max} = the maximum soil hydraulic conductivity in the study area.

The lists of land use codes and corresponding values for K_i, K_s and K_a can be found in Appendix C of the Broward Model Documentation (Restrepo, et al., 1992). The direct surface drainage in southeastern Florida is assumed to be relatively small. However, the effective recharge into the aquifer depends on the amount of ground water storage available. In many cases, the ground water flow into the canals due to precipitation may be quite large, depending on the availability of stored ground water. At the same time, the amount of water released into the ocean due to a given precipitation event depends on the storage available in the surface water bodies and on flood protection criteria imposed on canal systems.

PUBLIC WATER SUPPLY

The volume of pumpage from public water supply wells was obtained from the monthly pumpage reports supplied by the utilities. The pumpage of individual wells in each wellfield was estimated by two steps, 1) determine each well's percent contribution (based on pump capacity) to the total capacity of the wellfield, 2) multiplying that percent by the monthly raw water entering the treatment plant, as reported by the utility. The information used in the model is summarized in Appendix E. The location of these wells represented in the model can be found in Figure 10.

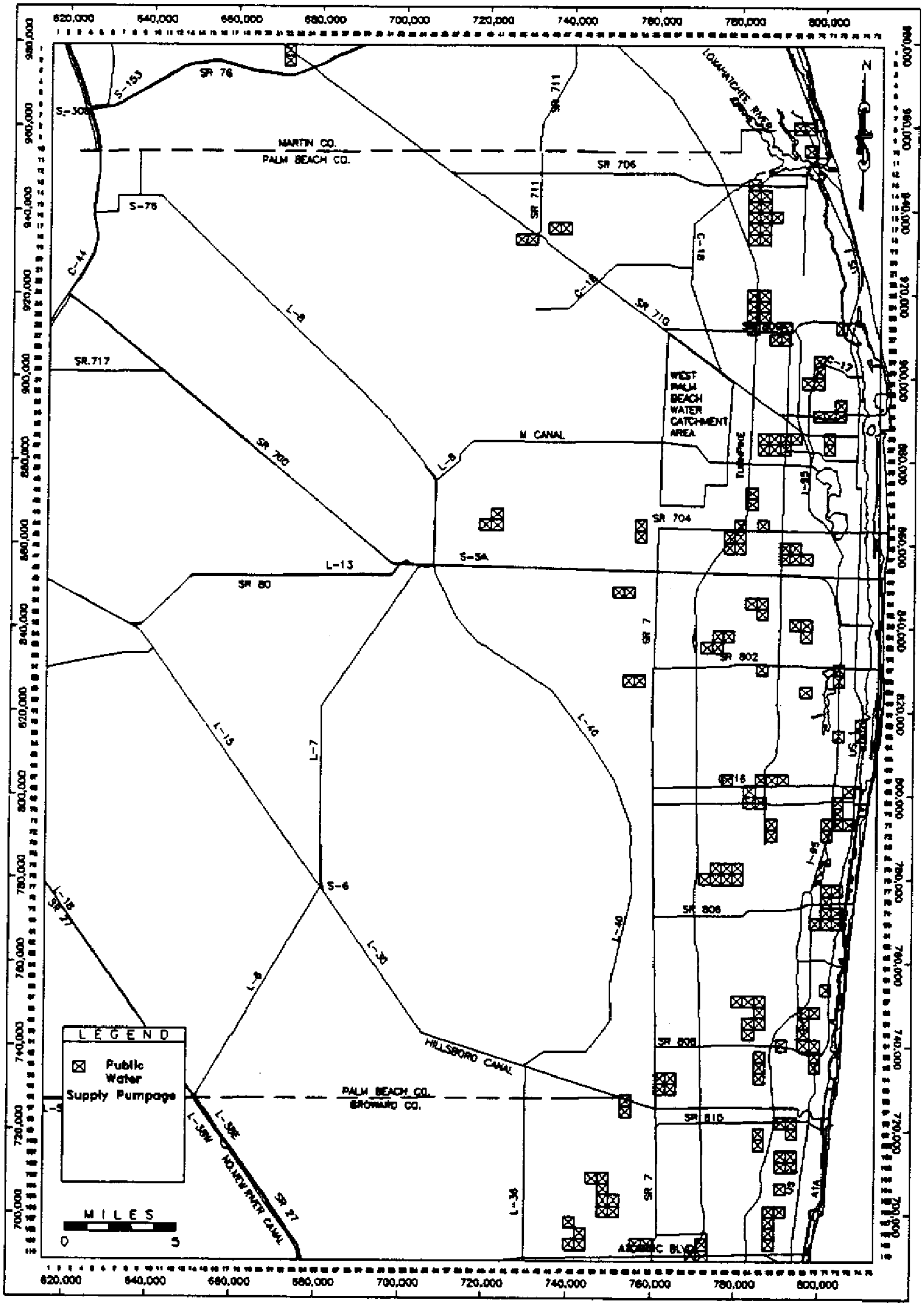

Figure 10. Cells Containing Public Water Supply Wells

NON-PUBLIC WATER SUPPLY

Non-public water supply includes agriculture, industry, golf course, nursery, and recreation area. When available, the actual pumpage was used. When the actual pumpage is not available, the modified Blaney-Criddle equation was used to calculate the crop water requirement and then to estimate the irrigation requirement based on rainfall, crop water requirement, crop type, and irrigation efficiencies. In reality, some of the water pumped from wells for irrigation is returned to the aquifer as recharge. The amount of recharge was calculated based on irrigation efficiency. It was assumed that the recharge is to layer 1. The cells with non-public water supply were plotted in Figure 11. The information for non-public water supply is summarized in Appendix E.

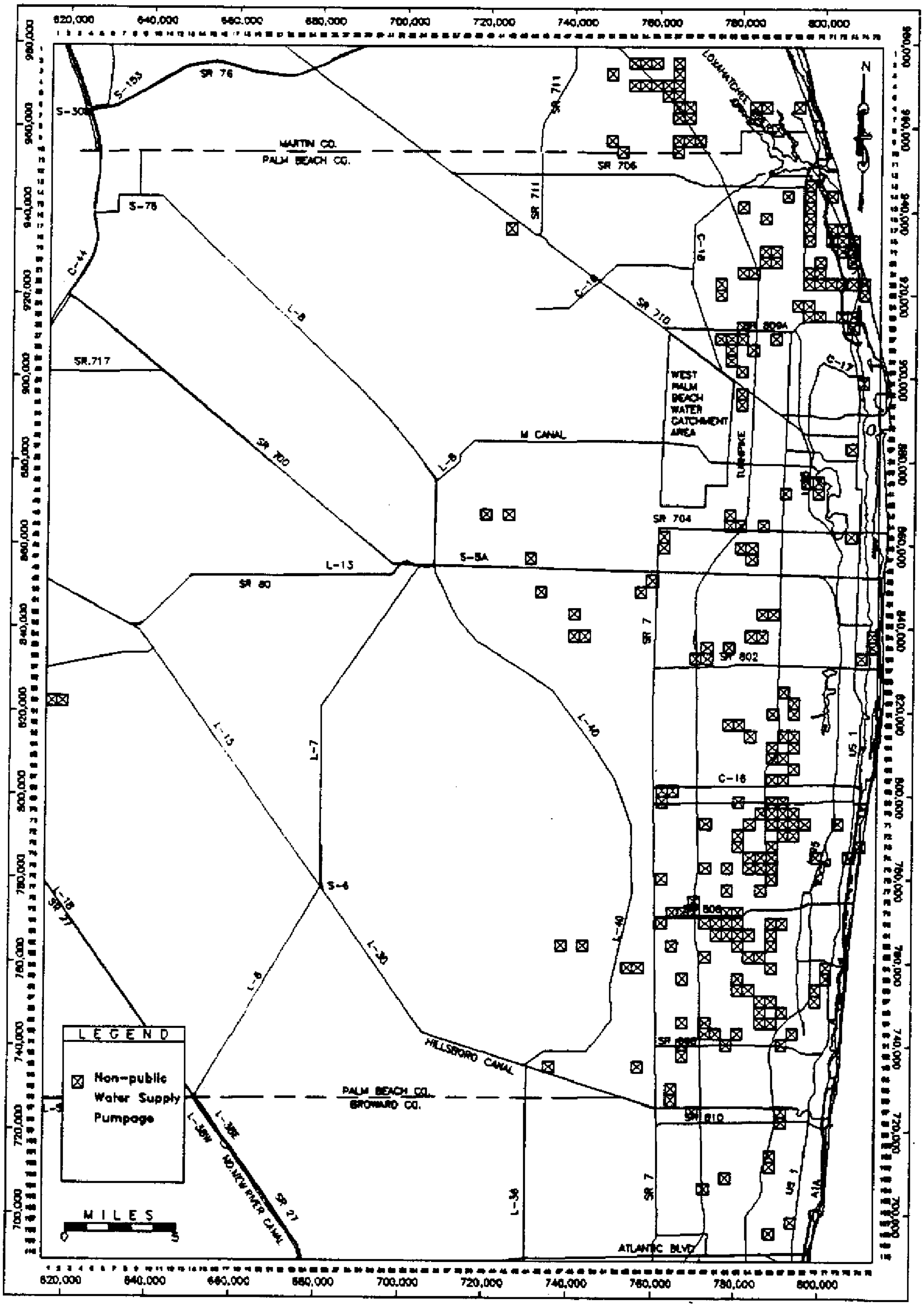

Figure 11. Cells Containing Non-Public Water Supply Wells

MODEL CALIBRATION

Calibration was completed by running the revised model and comparing the model results with the measurable physical components of the hydrogeologic system. The measured ground water levels from 272 monitoring wells were compared with the simulated heads. If the simulated and the observed temporal variations of hydraulic head match reasonably well, the model is considered to be calibrated. If not, various parameters in the model are altered until the simulated and the observed heads are in reasonable agreement, which indicates that the model closely simulates the dynamics of the physical system.

Model calibration is a lengthy process involving professional judgment and trial and error. Five simulation periods were used in the initial calibration until relatively stable conditions in the aquifer systems were achieved (e.g. head levels were realistic and showed reasonable variation over time). The model was calibrated to both steady state and transient conditions. Initial steady state runs served to make the first adjustments to the aquifer parameters. The adjusted aquifer parameter data sets then were used in the transient calibration runs, where they were refined until the model was calibrated. Then, the steady state model was re-run using the data sets from the latest transient calibration to obtain a final steady state result.

The calibration period was January 1989 through June 1990. This period was chosen because it is the most recent period represented by ample water level observations, and it is a dry period. Locations of the monitor wells in each layer used in the calibration process are shown in Figures 12 through 16. The strongly implicit procedure (SIP) was the solution method used in the calibration process.

STEADY STATE CALIBRATION

Criteria

Average values of recharge, evapotranspiration, pumpage, and surface water stage elevations from January 1989 to June 1990 were used for steady state simulation. The simulated ground water levels were compared with the minimum to maximum water level range observed from January 1989 to June 1990. If the simulated water levels fell within the range observed for that well or the difference between the average value of the observed water levels and the simulated water level is less than 1.0 foot, the well was considered calibrated.

Results

All time series data were calculated to monthly average values and used for the steady state simulation. The calibration residuals from average measured water levels are shown in Figure 17. The comparison between the simulated water levels, the average observed water levels, and the minimum and the maximum water levels is listed in Appendix A. Fifty-eight percent of the wells meet the calibration criteria. The relative magnitude of flow in vertical and horizontal flow directions for each layer, from the steady-state simulation, are presented in Appendix B.

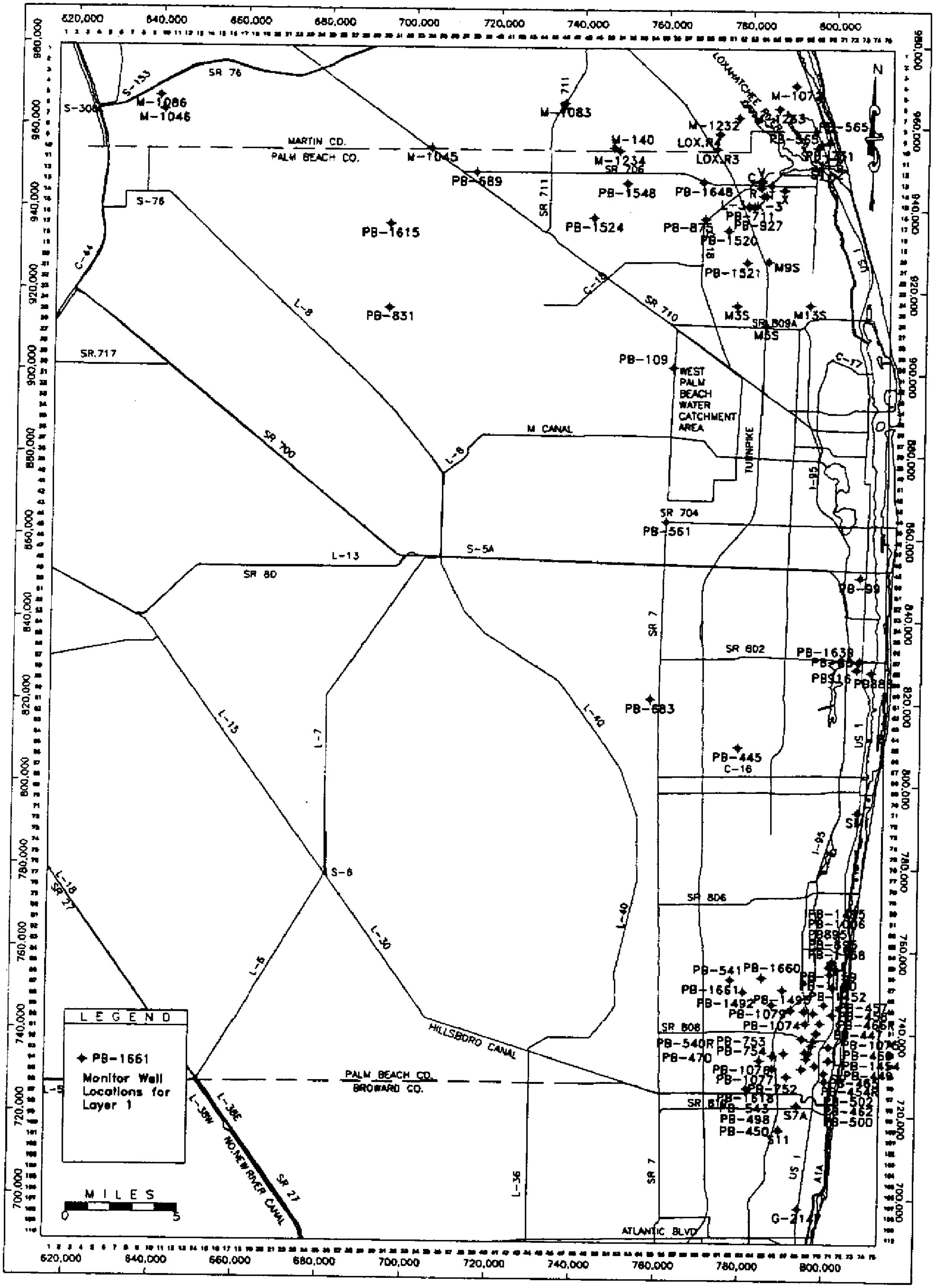

Figure 12. Observation Wells, Layer 1

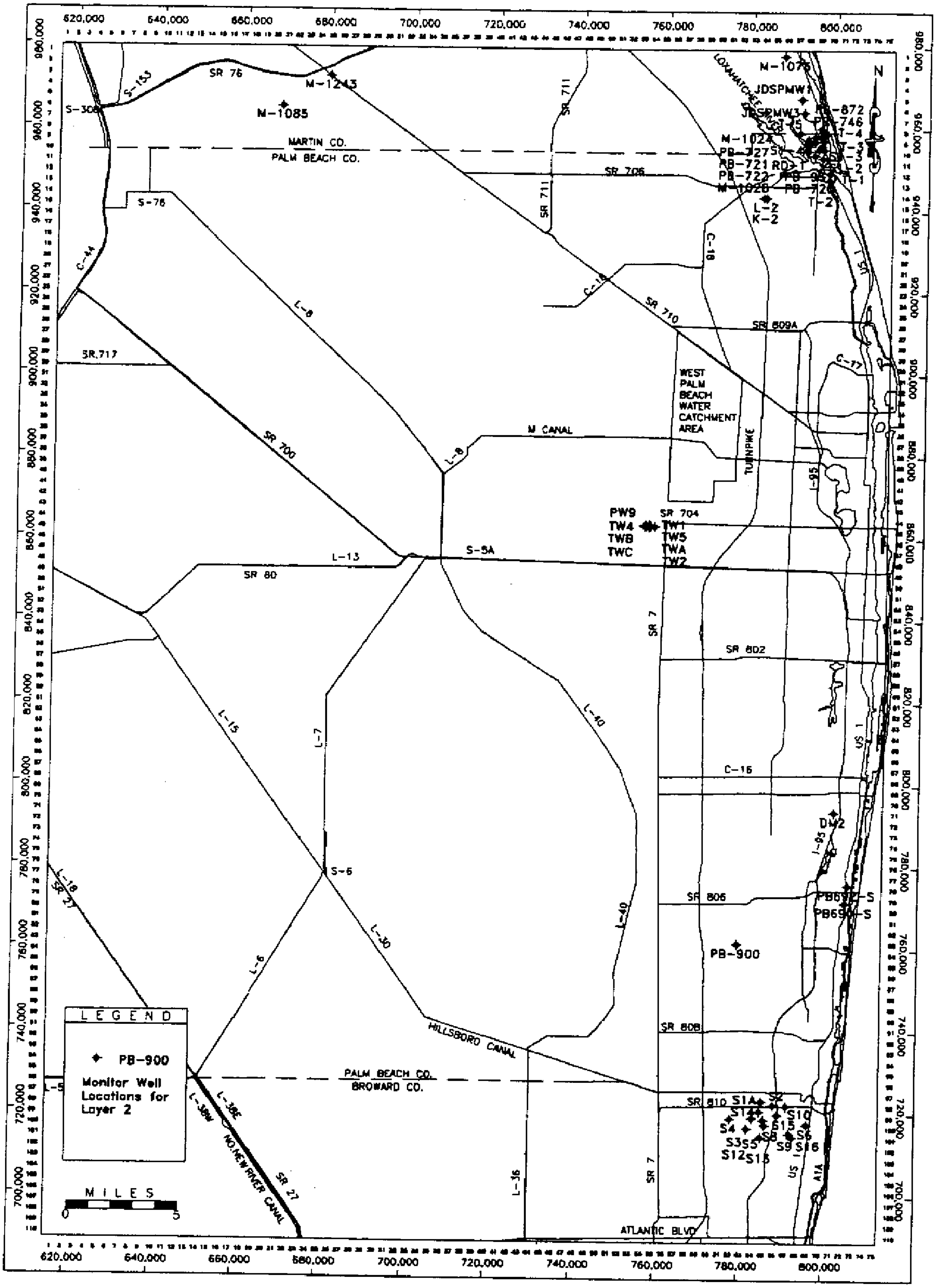

Figure 13. Observation Wells, Layer 2

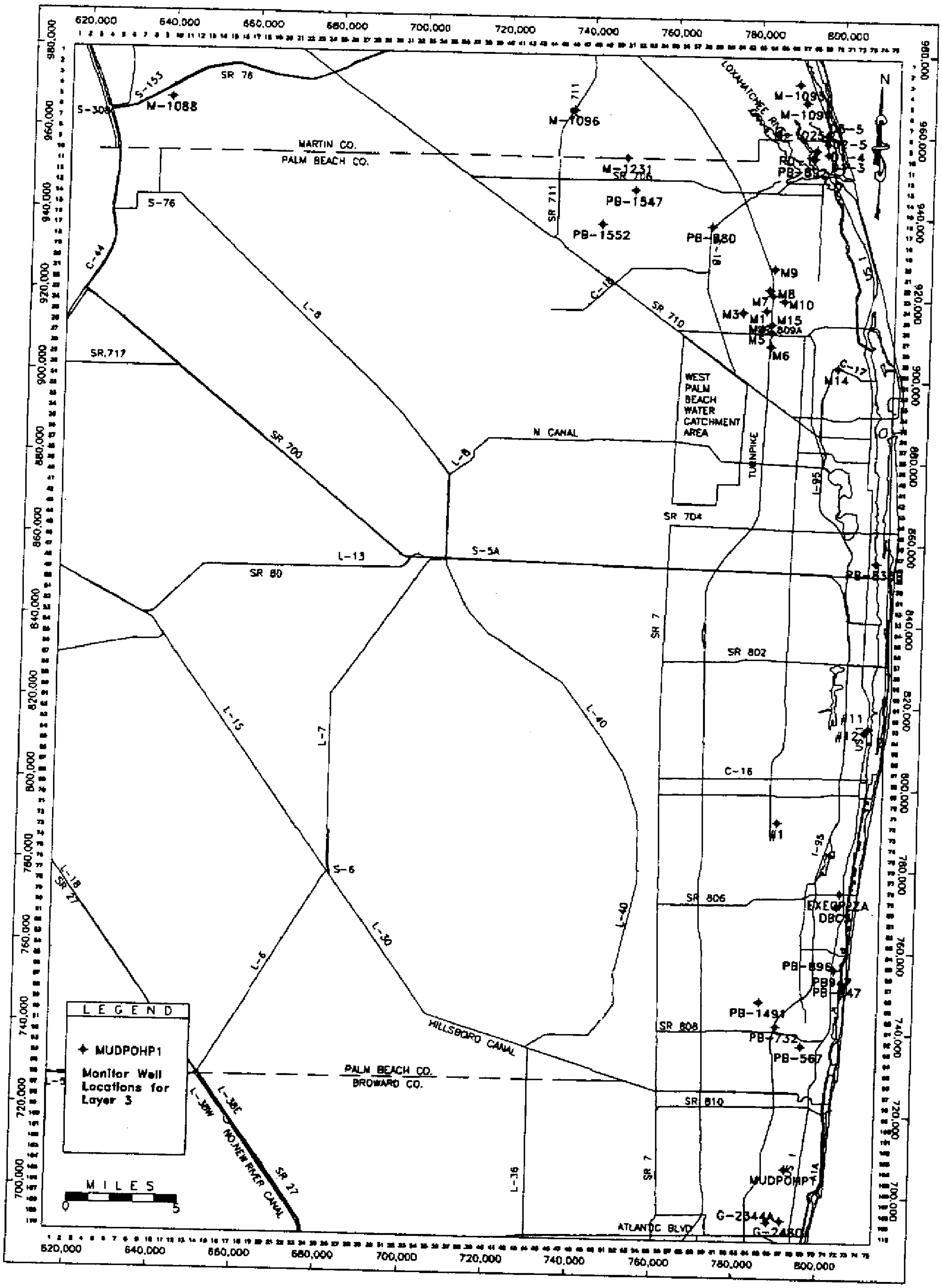

Figure 14. Observation Wells, Layer 3

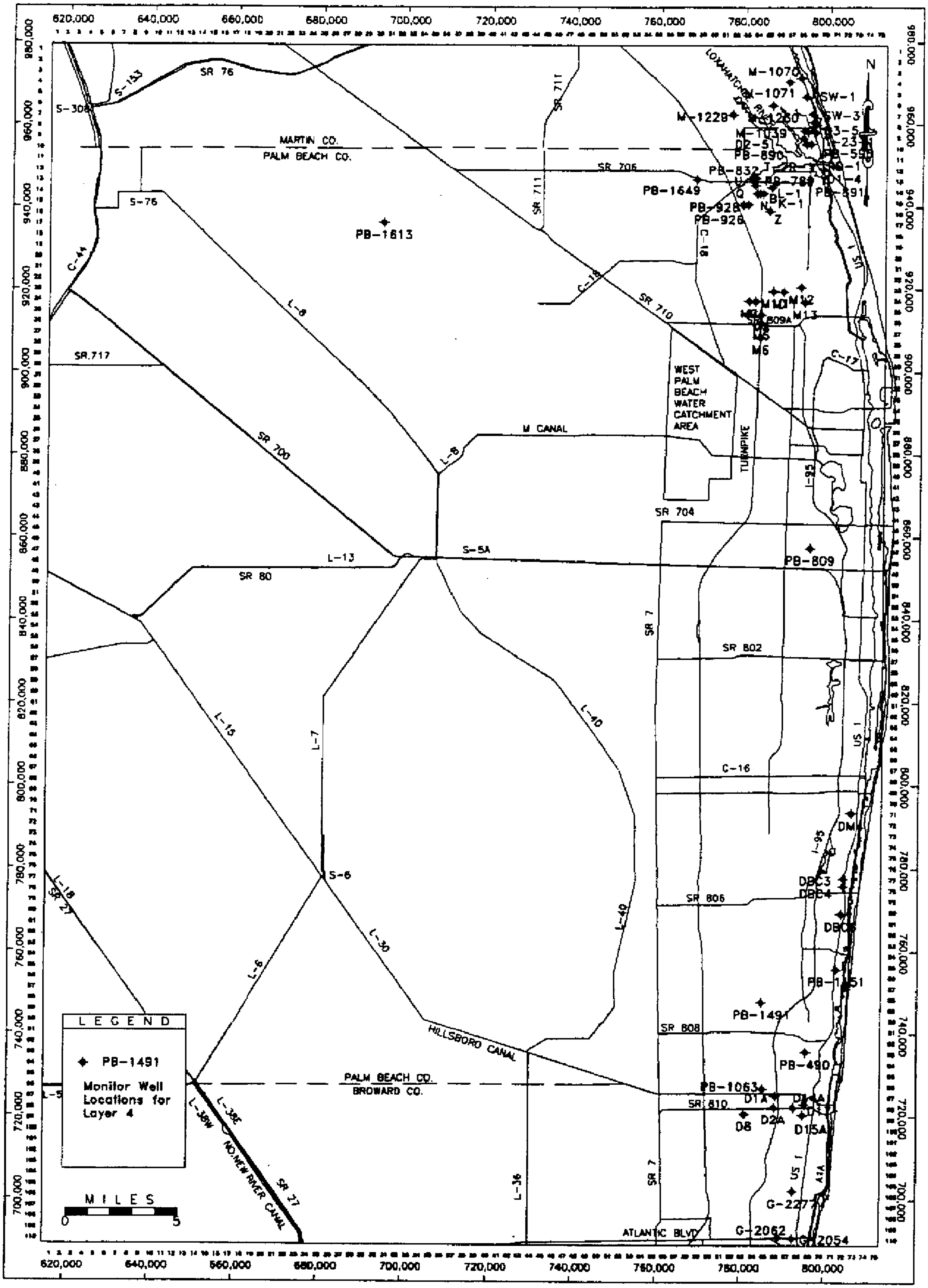

Figure 15. Observation Wells, Layer 4

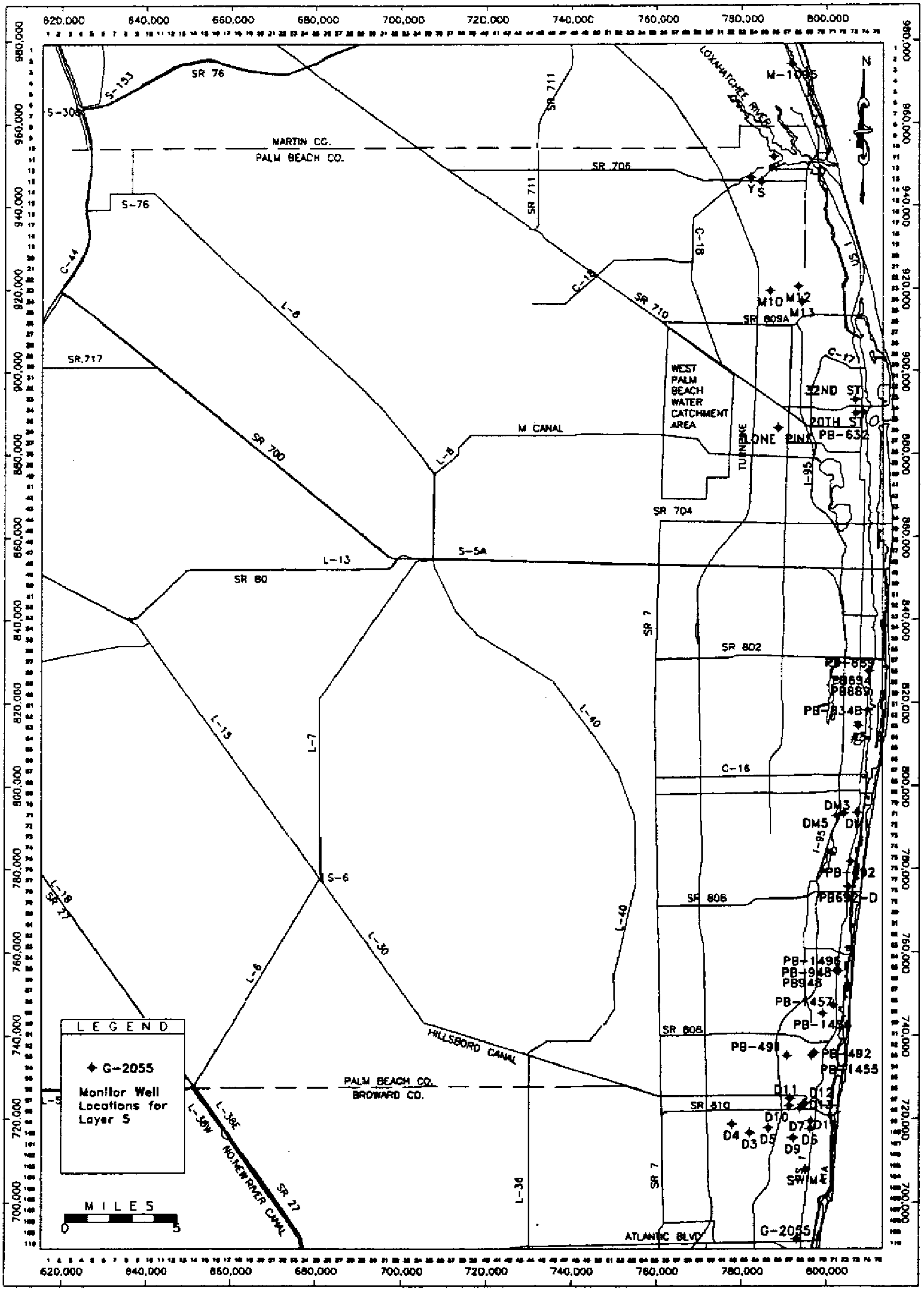

Figure 16. Observation Wells, Layer 5

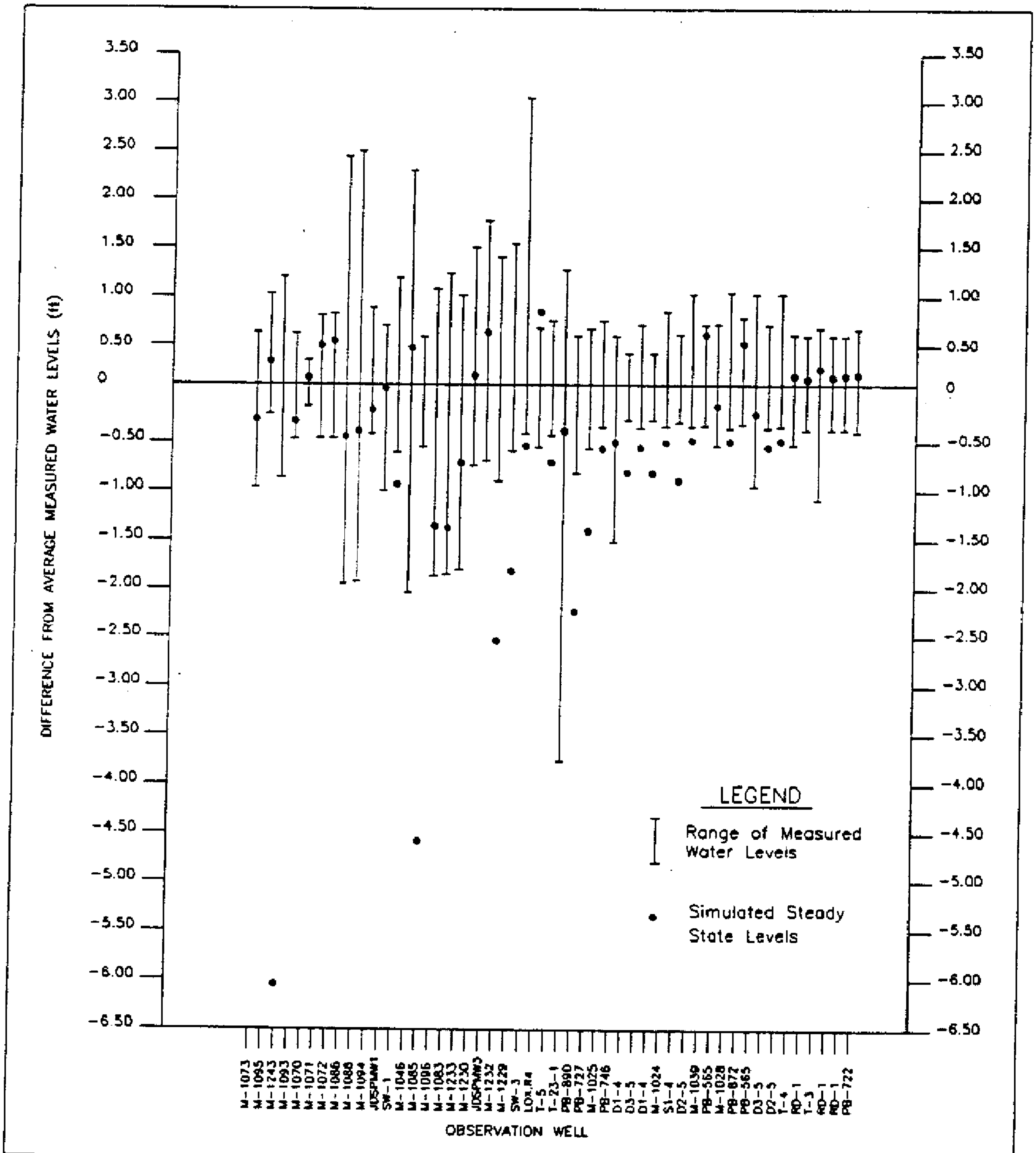

Figure 17. **Steady State Calibration Residuals from Average Measured Water Levels**

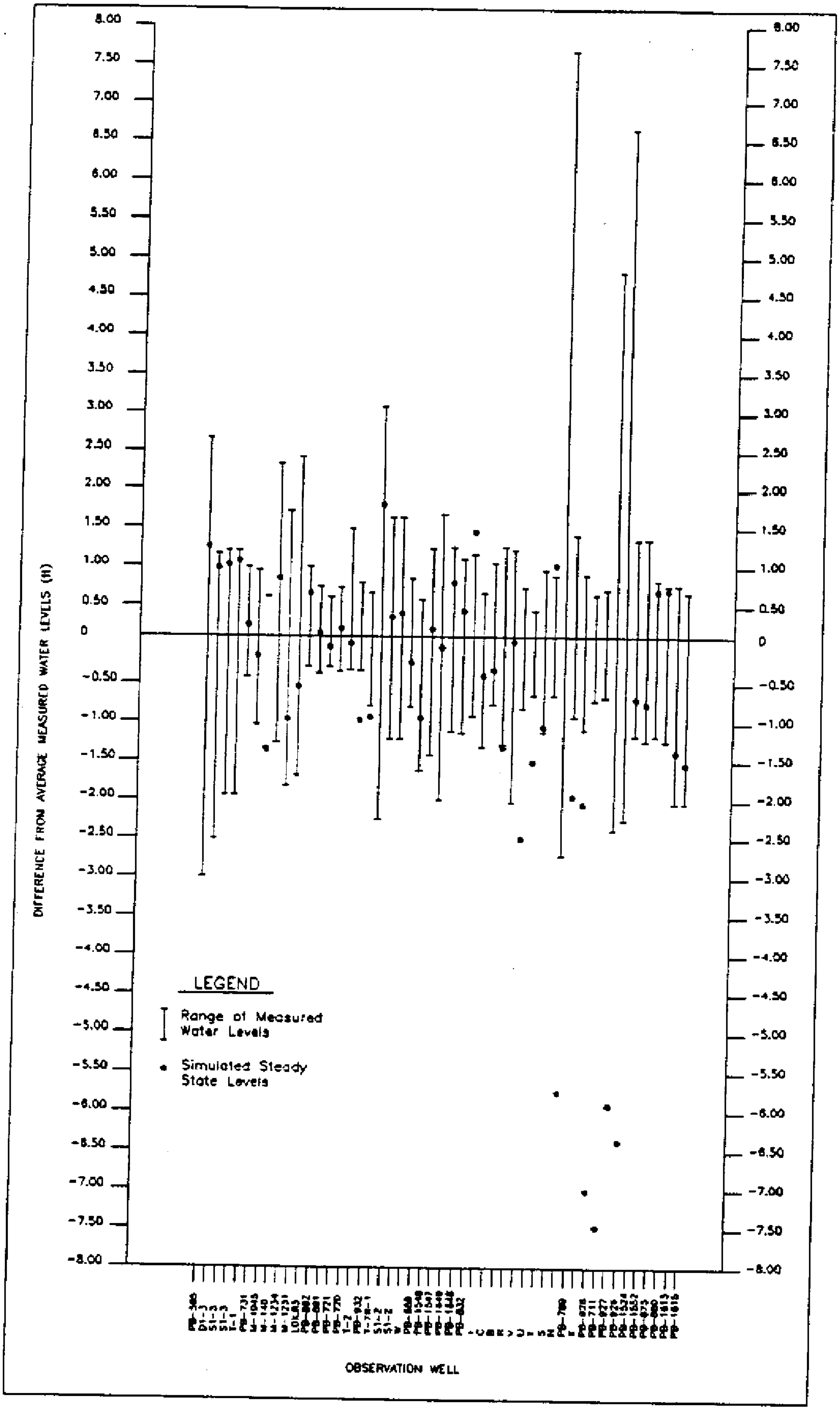

Figure 17. Steady State Calibration Residuals from Average Measured Water Levels (Continued)

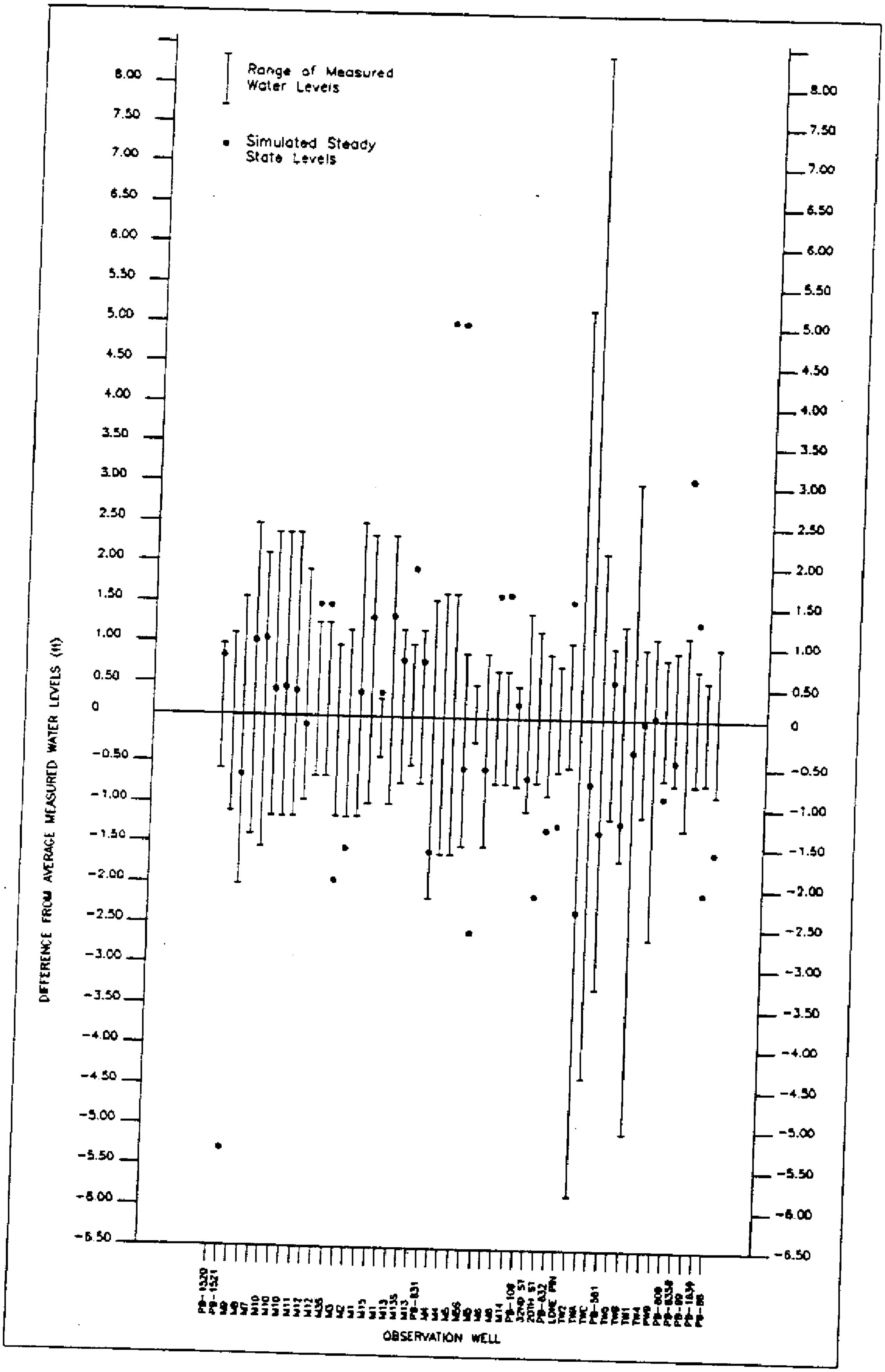

Figure 17. Steady State Calibration Residuals from Average Measured Water Levels (Continued)

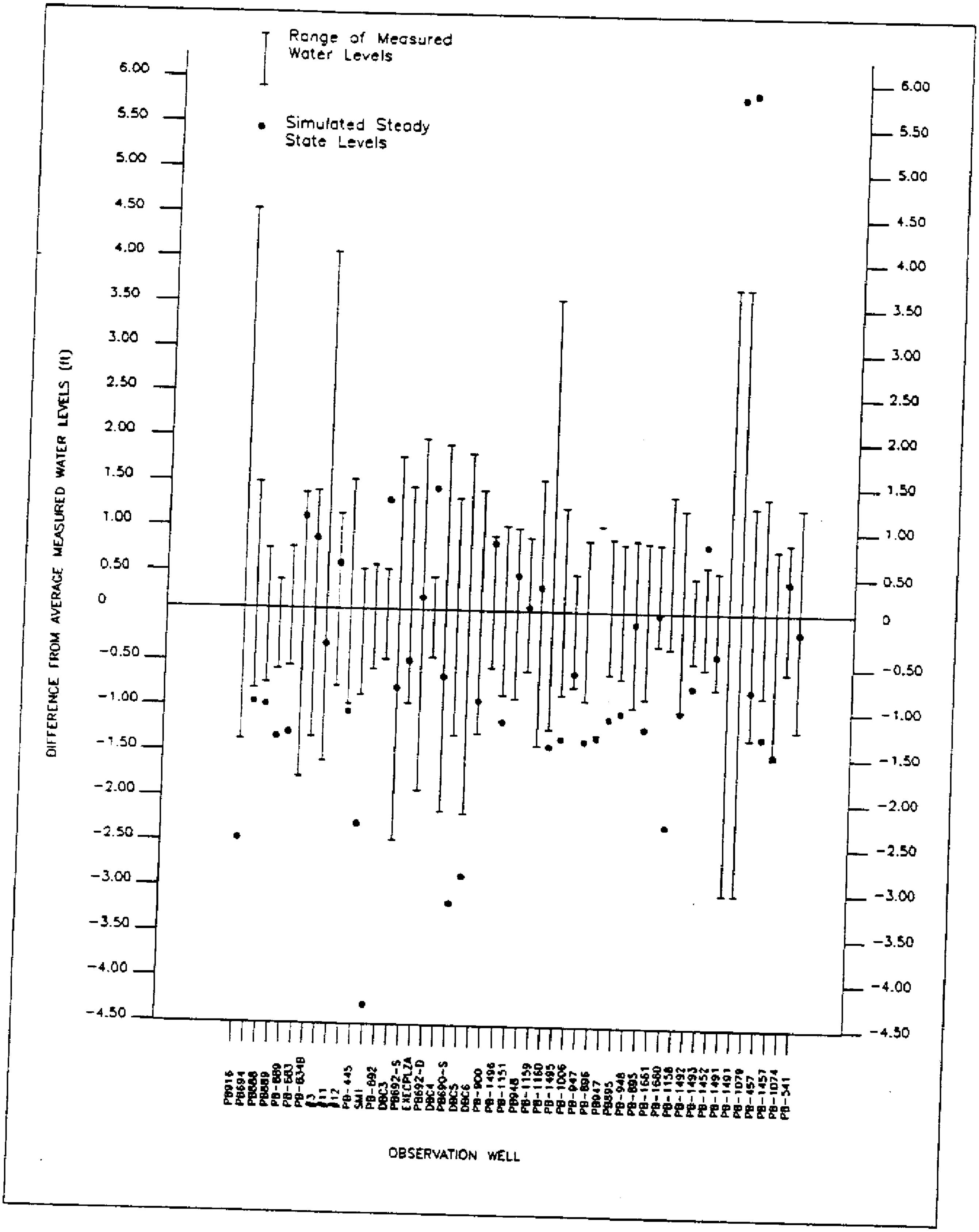

Figure 17. **Steady State Calibration Residuals from Average Measured Water Levels (Continued)**

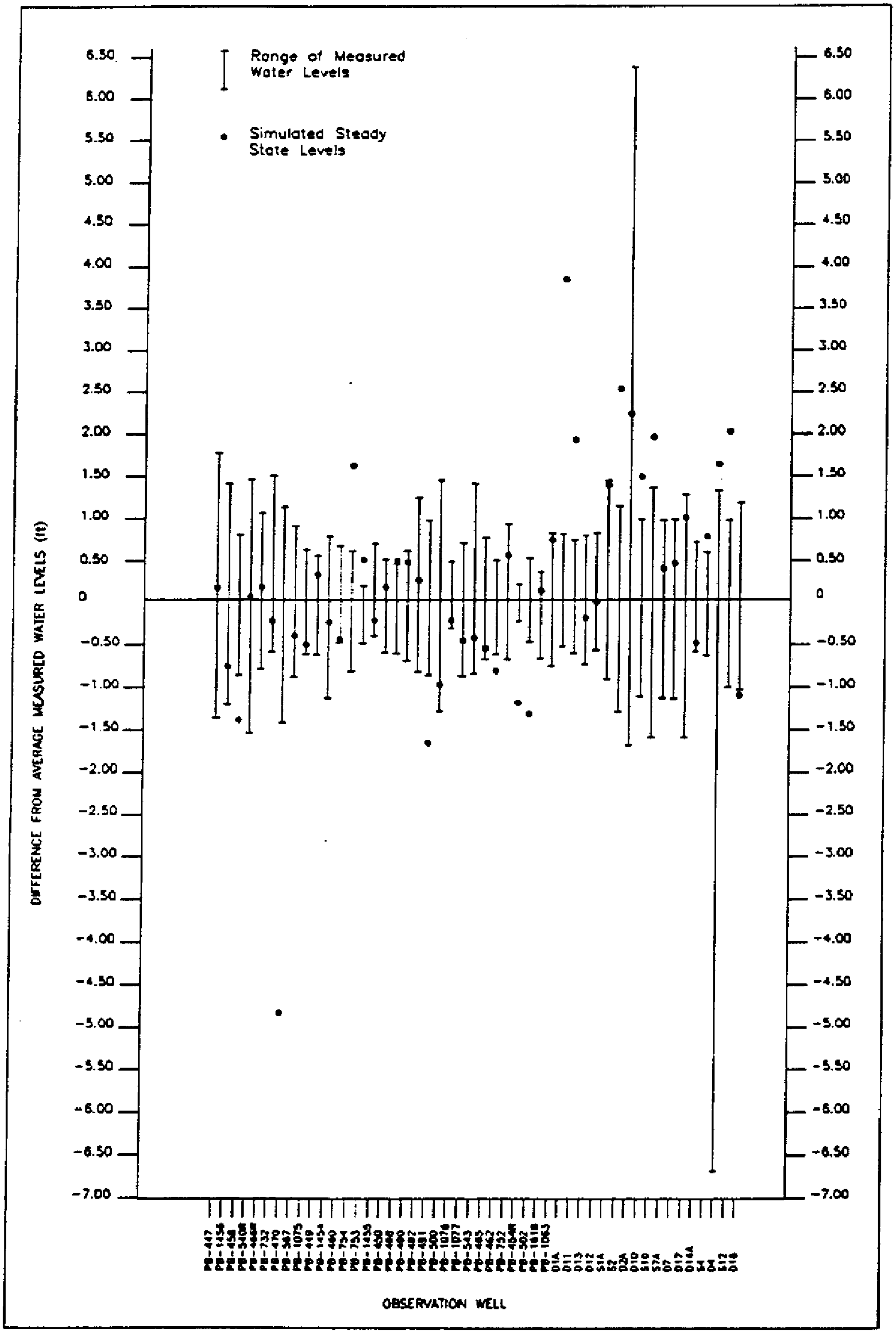

Figure 17. Steady State Calibration Residuals from Average Measured Water Levels (Continued)

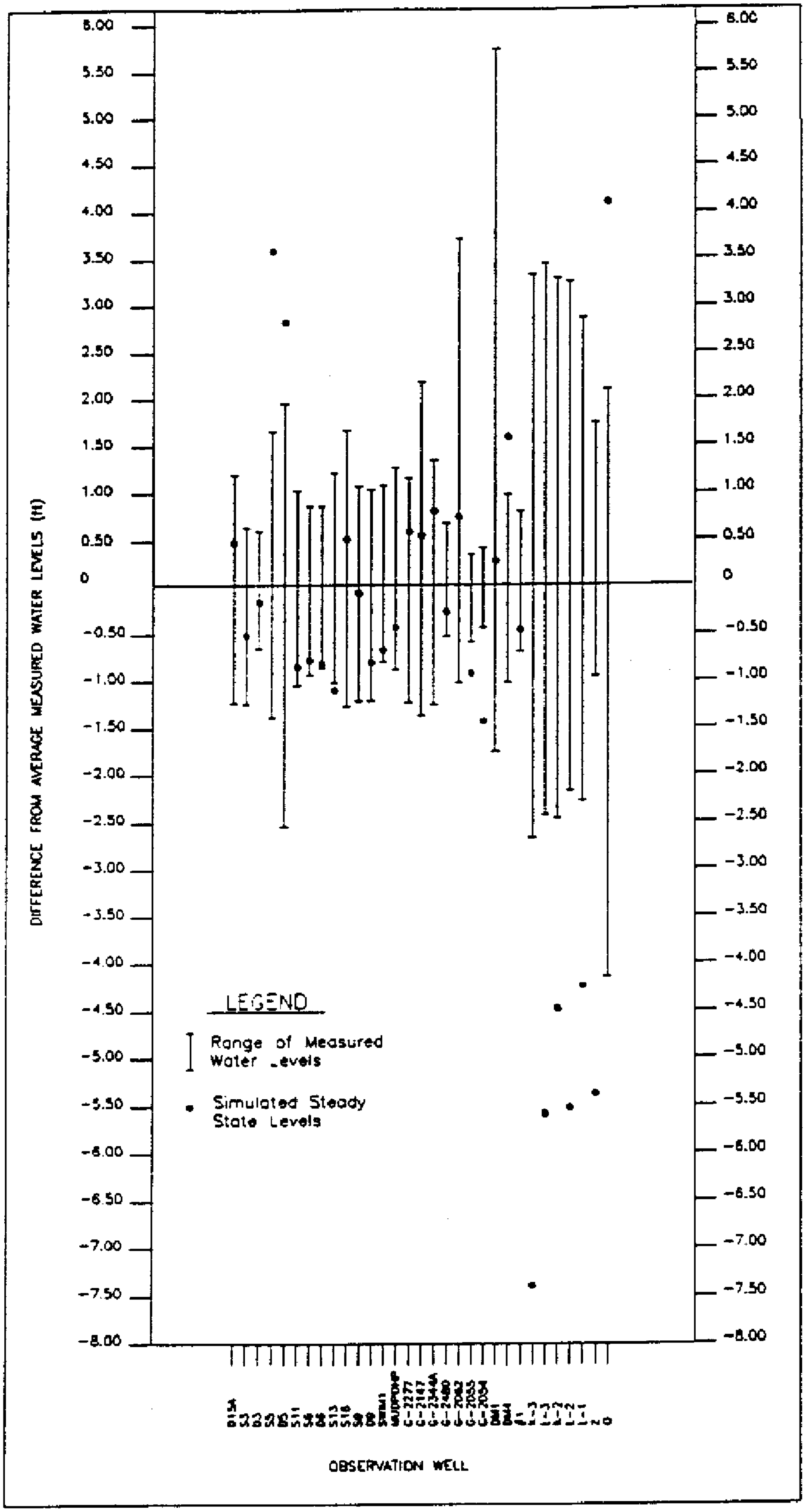

Figure 17. Steady State Calibration Residuals from Average Measured Water Levels (Continued)

TRANSIENT CALIBRATION

Criteria

The simulated hydrographs were compared with observed hydrographs at the end of each one month stress period. A well was considered calibrated if 75 percent of the simulated values fell within 1.0 foot difference from the observed values. Fifty-one percent of the wells meet this criteria. Half of the wells which do not meet the criteria were either explainable or can be considered calibrated by using water levels interpolated to the actual well locations.

Results

Appendix G is an example of the calibration results, which compare hydrographs for observed and simulated water levels at the end of each stress period. The transient simulations comprise 18 stress periods of one month each. Each stress period contained four time steps.

The wells were broken into three calibration categories: 1) wells that met the calibration criteria, 2) wells that did not meet the criteria but the reason for being outside the range is explainable, and 3) wells that did not meet criteria, indicating an area of the model that needs further refinement. Table 4 presents the current status of observation wells used in the transient model calibration.

Wells categorized as "explainable" did not meet calibration criteria but other influences prevented a better apparent calibration. One of the most common influences is that MODFLOW uses information and provides results only at the designated node, or center of the cell. In reality, the area represented by a cell may contain many pumping wells, monitor wells and other stresses such as rivers and drains. This situation is common throughout the Palm Beach County model, due to

Table 4. Transient Calibration Results

	layer 1		layer 2		layer 3		layer 4		layer 5	
	#	%	#	%	#	%	#	%	#	%
Calibrated	51	57	22	47	27	66	23	43	17	41
Explainable	17	19	13	28	10	24	15	28	13	32
Not Calibrated	21	24	12	25	4	10	16	29	11	27
Total	89		47		41		54		41	

= number of observation wells
% = percentage of observation wells in the respective layer

the size of the model cells. On the other hand, the observed water levels may only represent the water levels at a specific location, which is usually not the center of the cell. Examples of common situations include a monitoring well located near the edge of a cell, a monitoring well in the same cell with several pumping wells and their associated cones of depression, a monitoring well in an area of high ground water gradients, and several monitor wells located in the same cell showing different water levels.

Other influences include the time of measurements, short term rainfall effects, uneven rainfall distributions, localized canal effects, and ET parameters. A detailed discussion of all possible influences can be found in the Broward County model documentation (Restrepo, et al., 1992) and the Martin County model documentation (Adams, 1992). Some of the wells that fit this category are listed and may be explained as follows: wells PB-832 and M3 are affected by their locations within model cells; if the interpolated water levels at the location of the well were used for calibration, the well would appear calibrated; wells M-1096 and M-1083 may be affected by location and canals, wells M-1039 and Station-V may be affected by localized cones of depression, wells M-1045, PB-1613, and PB-1615 may be affected by uneven rainfall distribution, wells M15 and M1 are in the same cell with different observed water levels, therefore, the model can only be calibrated against the observed water levels in one of the wells, in this case, M15 is calibrated and M1 is not. Wells PB692-S, EXECPLZA, DBC4, and PB692-D are all in row 78, column 72 but in layer 2, 3, 4, and 5 respectively, the first three wells have about same observed water levels and all are calibrated, but well PB692-D has much lower observed water levels than those of other wells. There was no pumpage in the layer 5 and the well could not be calibrated no matter how Vcont was adjusted. In this case, the model indicated that the recorded water levels in well PB692-D may not be accurate or the low water level is a result of a localized effect. Another such example is well DM3. The well is located in layer 5, row 71 and column 72, which is just two cells from the intracoastal waterway. The model simulated mean water level is 0.2 ft. Considering the hydraulic conditions around cell, the model results seem more reasonable than what was recorded. The mean, max, and min of the observed water levels of the well are -19.64, -8.41 and -36.6 respectively. Well DM3 is in the Boynton Beach wellfield. The low hydraulic head is a local effect and may be caused by the public water supply pumpage, this kind of local effect can not be simulated with the current model grid. These examples indicated that the model should be used to simulate regional water supply scenarios instead of site specific cases.

Figures 18 through 22 depict the average difference between observed and modeled water levels over the entire transient calibration period for each monitor well. This map gives a general indication of model calibration; however, if the model water level is much higher than observed during one stress period and then equally low at another time, they would, of course, cancel themselves out,resulting in a small average difference. But if a well or group of wells is consistently high or low, this would show up and give guidance on which areas need additional work. The computed steady state water levels for each layer are listed in Appendix A. The observed water levels of monitoring wells for each stress period of the transient simulation are listed in Appendix F, and hydrographs comparing observed and computed water levels over the transient time period are in Appendix G.

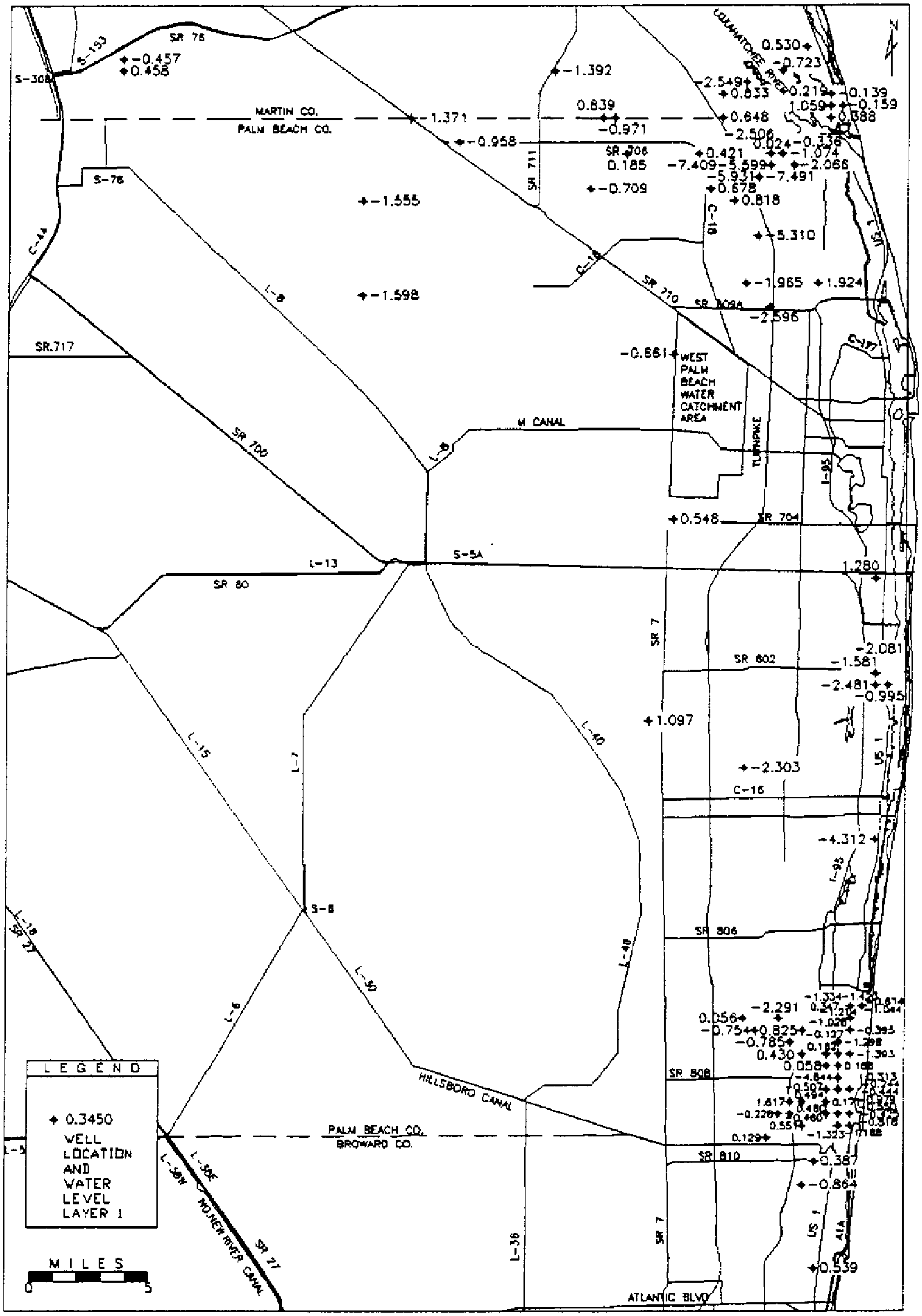

Figure 18. Difference Between Observed and Calculated Water Levels, layer 1

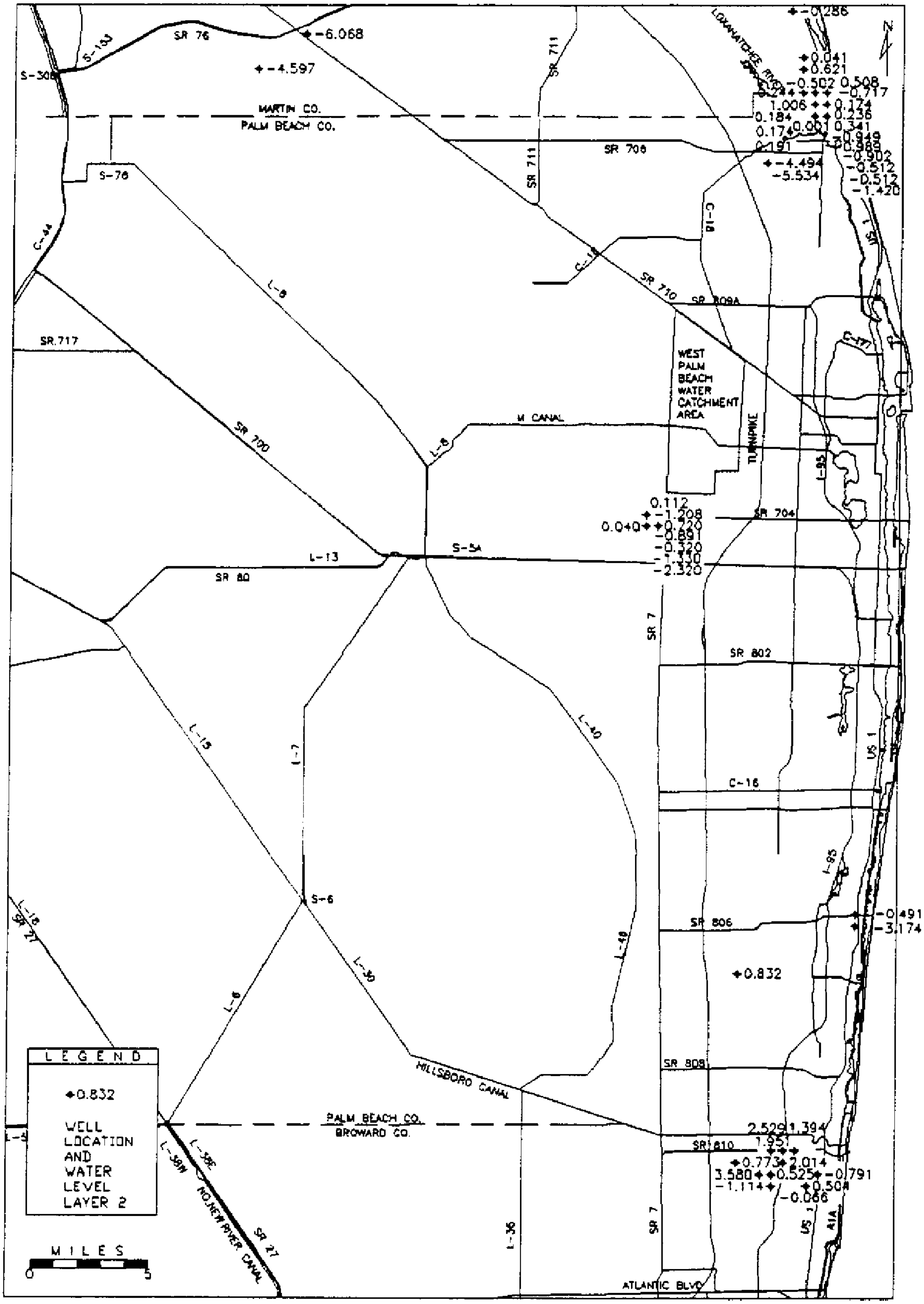

Figure 19. Difference Between Observed and Calculated Water Levels, layer 2

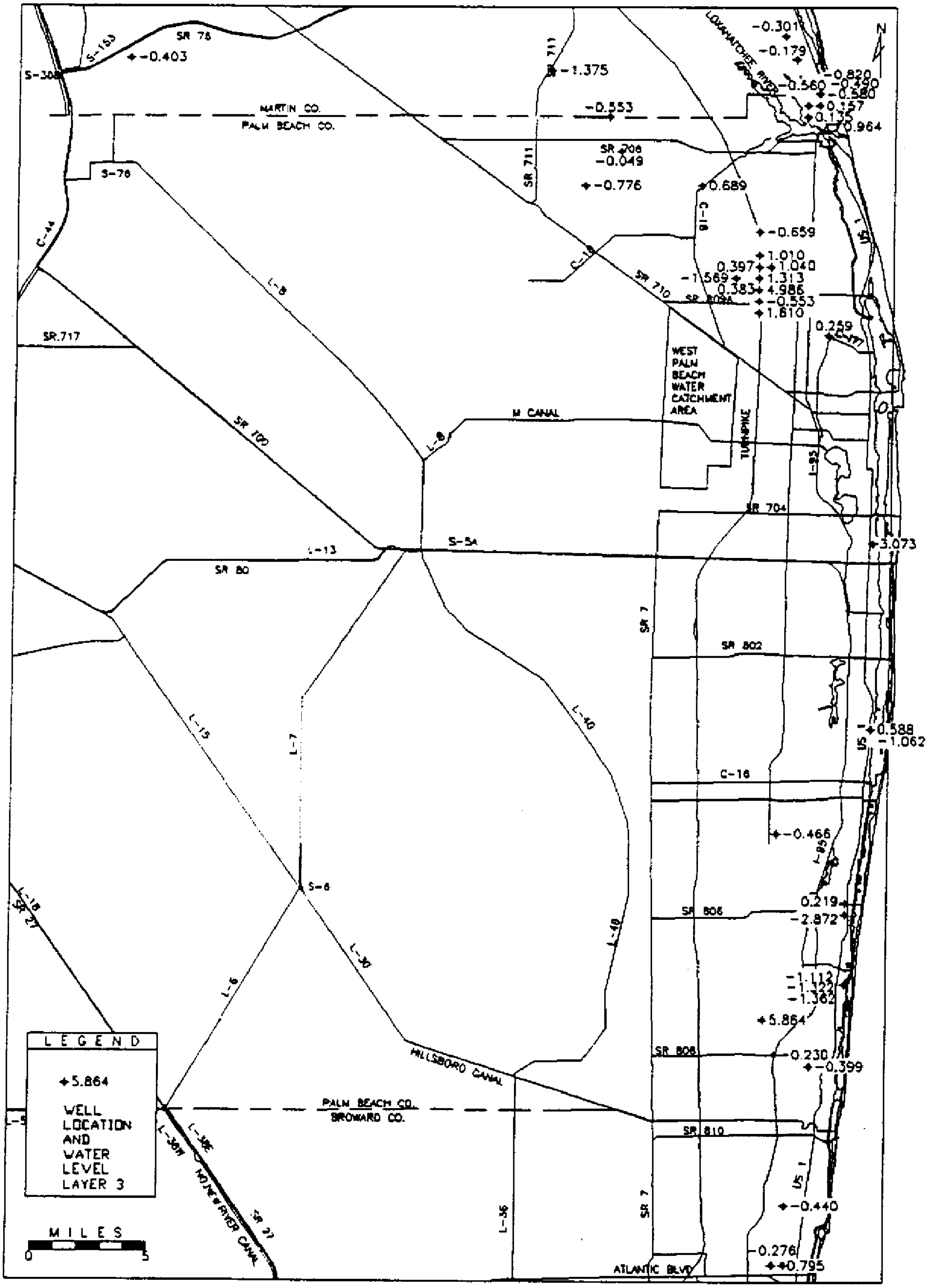

Figure 20. Difference Between Observed and Calculated Water Levels, layer 3

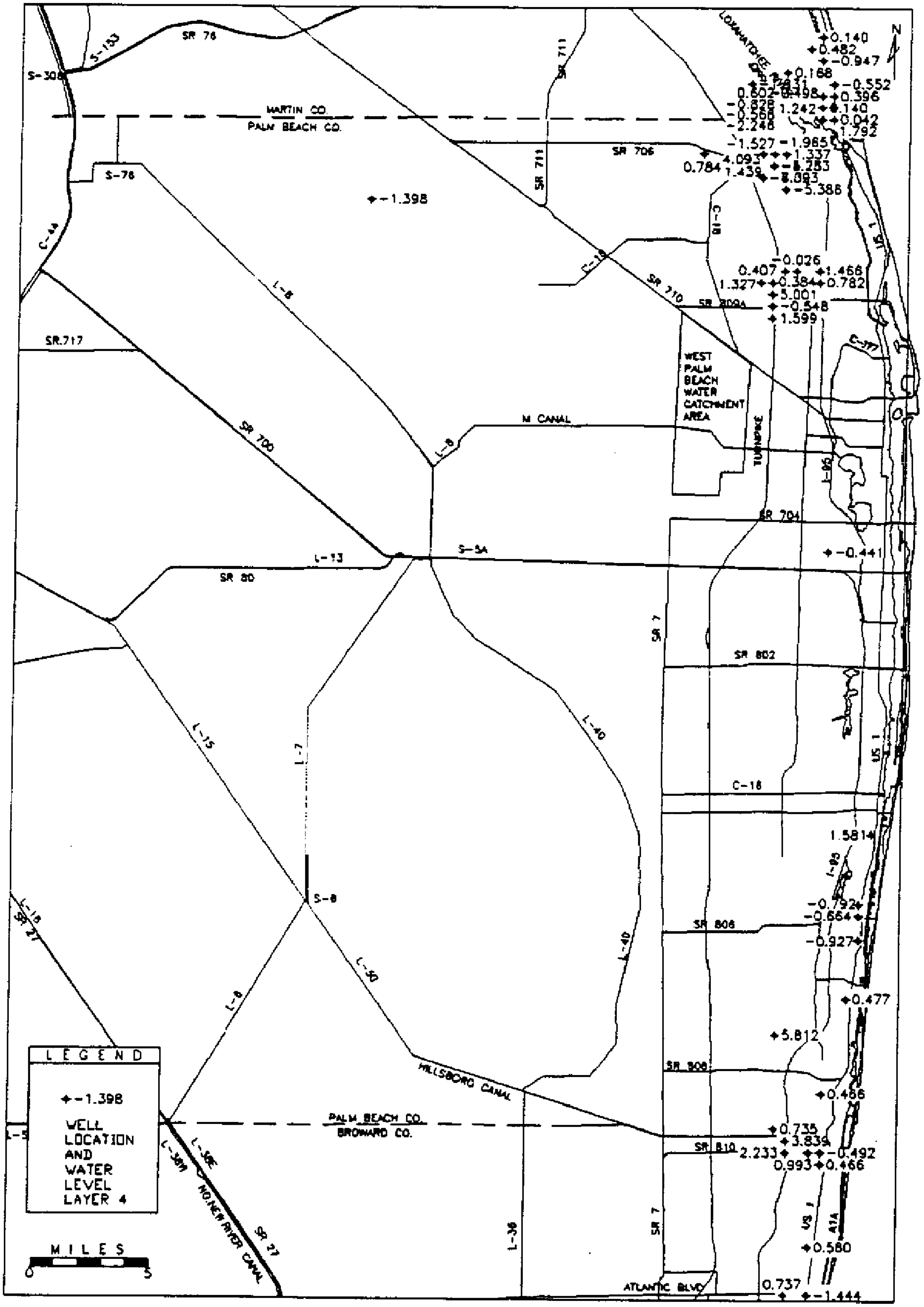

Figure 21. Difference Between Observed and Calculated Water Levels, layer 4

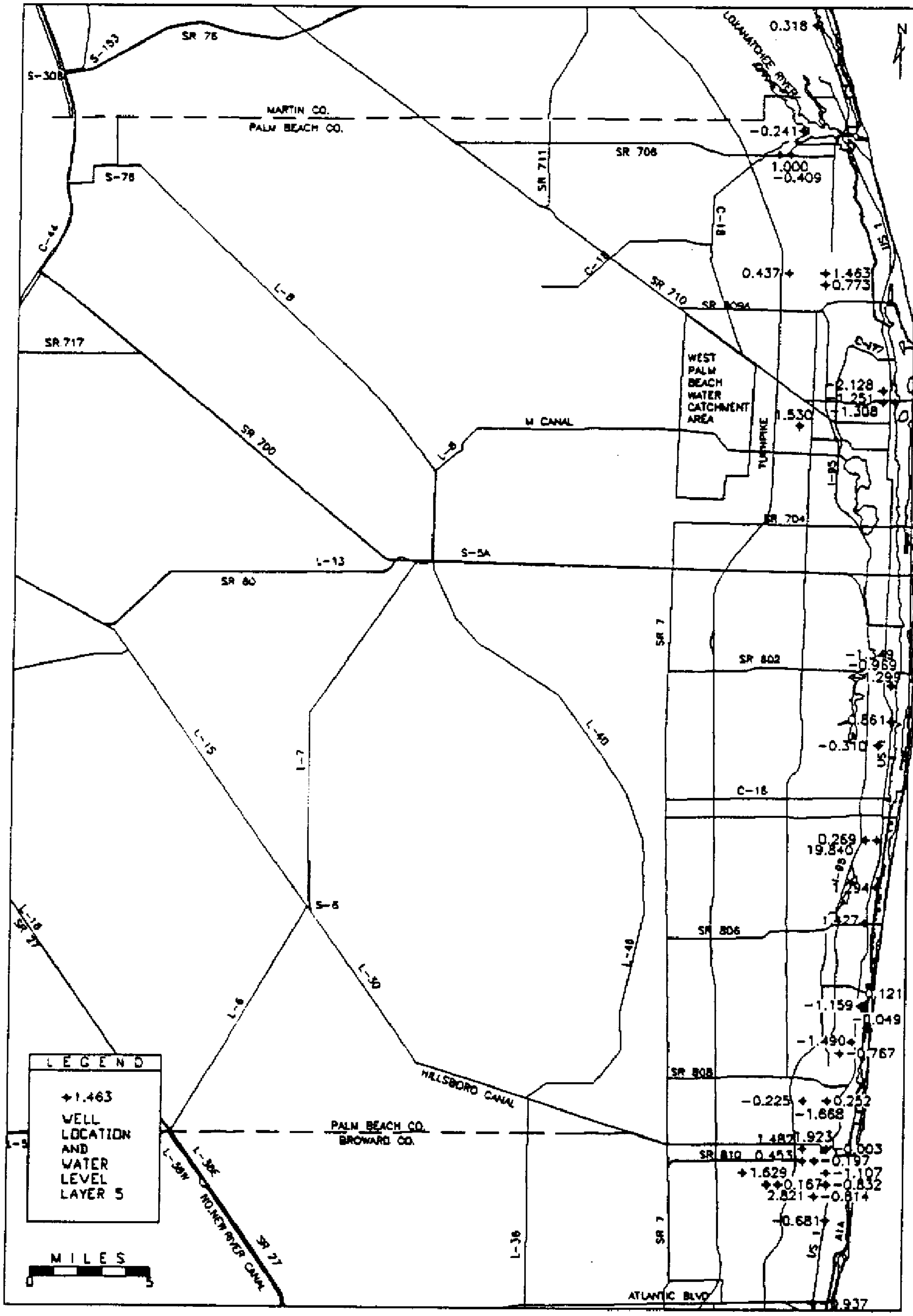

Figure 22. Difference Between Observed and Calculated Water Levels, layer 5

Volumetric Budget

The volumetric budget of the model shows the relative magnitude of flow components in the model area. By analyzing the volumetric budget, the key flow components can be identified and clues may be found for developing better management plans and practices. The volumetric budget can also be used to verify whether the model results are reasonable. A steady state volumetric budget for the model area is provided in Table 5. The inflow consists of 82 percent recharge from rainfall, 14 percent leakage from rivers, 2.4 percent from head dependent boundaries, and 2.6 percent return flow from irrigation. The outflow consists of 47 percent evapotranspiration from layer 1, 14 percent to well pumpage, 18 percent to boundaries, and 20.8 percent discharge from groundwater to the surface water system (6.3 percent discharge through drainage canals and 14.5 percent discharge through rivers).

Table 5. VOLUMETRIC BUDGET OF THE MODEL
(STEADY-STATE CONDITIONS)

	RATE (Million Gallons/day)	RATE (Acre-Feet/day)	PERCENTAGE
IN FLOW			
Wells	25	77	1.5%
Drains	0	0	
Recharge	1,341	4,117	81.8%
ET	0	0	
River Leakage	234	720	14.3%
Head Dept. Boundaries	39	121	2.4%
Total In	1,639	5,035	
OUT			
Wells	233	714	14.2%
Drains	103	317	6.3%
Recharge	0	0	
ET	769	2,361	46.9%
River Leakage	239	732	14.6%
Head Dept. Boundaries	297	911	18.0%
Total Out	1,641	5,035	

In order to eliminate boundary effects on the budgets and show how groundwater in Palm Beach County was affected by different areas and major canal systems, a model volumetric budget for the area covered by the previous Palm Beach County models only was calculated and broken out further for specific boundaries and canal systems. The results are shown in Table 6.

Table 6. VOLUMETRIC BUDGET FOR THE AREA COVERED BY THE PREVIOUS PALM BEACH COUNTY MODELS

	IN* (ft^3/day) x10^3	OUT* (ft^3/day) x10^3	NET* (ft^3/day) x10^3	IN%	OUT%
Northern Boundary	50.14	545.53	-495.38	0.04%	0.40%
L-8 Boundary	23.83	1,293.37	-1,269.54	0.02%	0.96%
WCA-1	1,334.38	7.77	1,326.61	0.96%	0.01%
Ocean Boundary	67.34	4,744.50	4,677.16	0.05%	3.51%
River Leakage	18,528.04	36,018.63	-17,490.59	13.33%	26.67%
Drains	0	5,941.44	-5,941.44	0.00%	4.40%
Wells	3,324.17	32,832.79	-29,508.61	2.39%	24.31%
ET	0	53,006.65	-53,006.65	0.00%	39.25%
Recharge	115,460.69	0	115,460.69	83.10%	0.00%
Southern Boundary	156.75	655.23	-498.48	0.11%	0.49%
TOTAL	138,945.34	135,045.91	13,253.77	100.00%	100.00%
C-51	96.01	3,794.38	-3,698.77	0.07%	2.81%
LWDD Canals	13,332.00	19,397.37	-6,065.36	9.60%	14.36%
Acme Canals	2,562.23	5,791.93	-3,229.70	1.84%	4.29%
Hillsboro Canals	338.44	2,104.65	-1,766.21	0.24%	1.56%

The mass balances for the previous Palm Beach model area only show that recharge from rainfall is the largest water resources for the area. Canal systems in the area provide the second largest recharge to groundwater although the canal systems as a whole discharge more water than recharge. This means that the canal systems provide two important functions effectively, recharging groundwater where groundwater levels are lower than canal stages and discharging water where groundwater levels are higher. Best management of the canal system is one of the most important tasks for water managers. Among the canal systems, Lake Worth Drainage District canal system, ACME canal system, C-51, and Hillsboro canals contributed most of the recharge and discharge. Water exchange along county borders is not significant under the current condition. Although ET accounts for the largest loss of groundwater, well withdrawals are the second largest groundwater loss.

SENSITIVITY ANALYSIS

Systematic sensitivity analyses were not carried out for the revised model. However, the earlier tests of the model for initial re-calibration showed that the sensitivity analysis conducted in the original Palm Beach models is consistent with the updated model. The model is sensitive to the following parameters: canal conductance, canal water levels, ground water pumping rates, recharge from rainfall, and evapotranspiration. The model was fairly insensitive to hydraulic parameters in the non-pumpage areas and was moderately sensitive in the areas adjacent to pumping wells.

CONCLUSIONS

The revised and re-calibrated Palm Beach County MODFLOW model provides information on natural variations of ground water inflow and outflow from canal systems, the water conservation areas, evapotranspiration, and recharge to the water table from rainfall. It also provides information on impacts of ground water withdrawals and the ground water levels in unmonitored areas. Therefore, the model can be used to simulate different water supply scenarios under different hydrogeologic conditions.

In eastern Palm Beach County, public water supplies comprise the largest class of consumptive ground water use. For the calibration period, the model shows that the withdrawals account for 18.5 percent of total outflow from the area. ET from water table accounts for 41 percent of the total outflow, which is the largest water loss in the area. Recharge from rainfall to the water table accounts for 77 percent of total inflows to the area. Recharge from canals and surface water bodies to the aquifer accounts for 18.5 percent, which is consistent with the knowledge that the canal systems are widely used to maintain water levels, provide recharge to wellfields and prevent salt water intrusion. The head dependent boundaries provide 2.5 percent inflow to the modeled area, which mainly comes from the north and west boundaries and the water conservation area. Recharge from irrigation return water contributes 1.5 percent. Thirty-six (36) percent of the total discharge from groundwater is to canals and 6 percent is to the head dependent boundaries. The results from the model indicate that discharge from groundwater to canals exceeds recharge to the groundwater from canals throughout the study area as a whole.

The re-calibration effort has succeeded in producing a better model in the sense that it more accurately simulates the hydrogeologic system of eastern Palm Beach County. The revised model uses as much of the recently collected data and knowledge of the system as was available and could be incorporated within the manpower and time constraints of the re-calibration effort. Progress has been made from calibrating the models against 74 observation wells in a steady state mode to 272 wells in a transient simulation mode. However, to improve our understanding of the real system and enhance our predictive abilities, refining the model during its applications should continue to be an ongoing process.

RECOMMENDATIONS

The revised and re-calibrated Palm Beach model can be used as a tool for developing County-wide water supply plans and for assisting the development of the lower east coast regional water supply plan. The model can also be used in the evaluation of water use permit applications for regional uses. The ground water levels in the model can be checked against existing permits and new proposed control elevations. Where a finer scale or site-specific evaluation is required, the regional model can be used to provide boundary conditions. The data associated with the model can be used to develop localized models with finer grid resolution. The model should continue to be refined and updated as additional information becomes available. The model in its present configuration is not accurate in assessing ground water withdrawal impacts on a small scale. The model is also not accurate enough to be used in surface water permitting to determine exact control elevations or to set wetland elevations due to the way surface water interactions are simulated.

The model provides a water budget table with all the important flow components. These flow components provide information in terms of relative magnitude and may not present accurate quantities. For example, the discharge and recharge through canals accounted for 27 and 18.5 percent of total flows respectively. Unlike the calculated hydraulic heads, these flow components can not be verified against measurable data. The model can be calibrated with over-estimated inflow and over-estimated outflows, or vise versa. The potential errors come from the difficulties associated with defining the conductance of the canal bottoms; because the data on sedimentation thickness of canals and its hydraulic conductivity are sparse.

The model showed that the magnitudes of ET, recharge from rainfall, recharge from canals and the discharge from groundwater are much greater than the total well withdrawals from the system. It suggested that the accuracy of these model components in the simulation may be important in certain areas, particularly in the case that surface water from the regional system is brought to local areas for recharging the underlying aquifer or maintaining water levels for preventing salt water intrusion or meeting agricultural demands.

To improve the accuracy of the budget components of the model, a fully integrated surface, unsaturated and saturated flow model should be developed. Such a model should be rigorous in the representation and conceptualization of the water allocation and surface water body operations and other physical processes involved in a canal-aquifer system such as the Palm Beach County hydrogeologic system. The re-calibrated model indicated that the water resources system of Palm Beach County is a highly integrated surface water/ground water system. A water supply plan will definitely involve management and use of both surface water and ground water systems. With an integrated model, the alternative water supply plan scenarios can be simulated more accurately. The information about impacts of surface water and ground water can be provided simultaneously, and, more importantly, the interaction between surface water and ground water can be better understood.

The County-wide MODFLOW models are intended to be used with the regional South Florida Water Management Model (SFWMM) to develop water supply plans. If the County-wide models were developed using integrated models, the regional model could be used to set up boundary conditions. The consistency checks which must be carried out in the current modeling procedure could be eliminated. The speed of simulating different scenarios with conjunctive use of surface water and ground water can be increased and the accuracy of the model results can be improved significantly.

New methods for calculating potential ET and the actual ET should be developed to improve their accuracy in the model. The ET rates currently calculated are based on a modified Blaney-Criddle equation, which relies on temperature to calculate monthly rates. Numerous studies, however, show that ET is also generally dependent on solar radiation and wind effects for south Florida conditions. ET estimates based on temperature alone are less accurate than estimates based on other methods for south Florida conditions. Currently, the District is investigating the application of the Penman-Monteith or modified Penman methods for improving the accuracy of the potential ET and a method for calculating ET from both unsaturated zones and saturated zones. When the new methods are tested and sufficient data collected to support the use of these methods, they should be used to improve the model's predictive abilities.

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APPENDIX A

Model Results for Steady State Simulation

LIST OF TABLES - APPENDIX A

LIST OF FIGURES - APPENDIX A

Table A-1. Comparison of the Variation Range of Observed Water Levels to the Water Levels Simulated under Steady-State Conditions

Layer	Row	Column	Well-ID	Simulated Water Level(ft)	Observed Mean Level(ft)	Observed Minimum Level(ft)	Observed Maximum Level(ft)	Calibration Status
2	1	66	M-1073	3.354	3.640	2.640	4.240	* CALIBRATED *
5	2	67	M-1095	1.818	1.500	1.250	2.500	* CALIBRATED *
2	3	25	M-1243	14.662	20.730	19.830	21.900	Not Calibrated
3	3	66	M-1093	1.979	2.280	1.780	2.870	* CALIBRATED *
4	3	68	M-1070	1.100	0.960	0.790	1.270	* CALIBRATED *
4	4	67	M-1071	2.402	1.920	1.430	2.700	* CALIBRATED *
1	4	67	M-1072	2.460	1.930	1.440	2.720	* CALIBRATED *
1	5	10	M-1086	19.563	20.020	18.040	22.430	* CALIBRATED *
3	5	10	M-1088	19.577	19.980	18.020	22.440	* CALIBRATED *
3	5	67	M-1094	1.911	2.090	1.650	2.950	* CALIBRATED *
2	5	67	JDSPMW1	1.921	1.880	0.850	2.550	* CALIBRATED *
4	5	68	SW-1	2.143	3.090	2.450	4.250	* CALIBRATED *
1	6	10	M-1046	21.698	21.240	19.170	23.500	* CALIBRATED *
2	6	21	M-1085	17.903	22.500	21.920	23.060	Not Calibrated
3	6	46	M-1096	19.225	20.600	18.700	21.650	* CALIBRATED *
1	6	46	M-1083	19.258	20.650	18.760	21.850	* CALIBRATED *
1	6	65	M-1233	2.217	2.940	1.100	3.920	* CALIBRATED *
4	6	65	M-1230	2.178	2.010	1.240	3.480	* CALIBRATED *
2	6	67	JDSPMW3	0.881	0.260	-0.460	2.010	* CALIBRATED *
1	7	62	M-1232	1.891	4.440	3.510	5.810	Not Calibrated
4	7	62	M-1229	1.939	3.770	3.150	5.280	Not Calibrated
4	7	69	SW-3	0.748	1.300	0.860	4.310	* CALIBRATED *
1	8	60	LOX.R4	2.333	1.500	0.920	2.150	* CALIBRATED *
2	8	67	T-5	0.733	1.450	0.990	2.170	* CALIBRATED *
4	8	68	T-23-1	0.284	0.680	-3.120	1.920	* CALIBRATED *
4	8	68	PB-890	0.284	2.530	1.680	3.100	Not Calibrated
2	8	68	PB-727	0.230	1.650	1.050	2.290	Not Calibrated
3	8	69	M-1025	1.120	1.700	1.320	2.420	* CALIBRATED *
2	8	69	PB-746	1.128	1.640	0.090	2.210	* CALIBRATED *
3	8	69	D1-4	1.120	1.940	1.630	2.330	* CALIBRATED *
4	8	69	D3-5	1.112	1.680	1.290	2.360	* CALIBRATED *
4	8	69	D1-4	1.112	1.940	1.630	2.330	* CALIBRATED *
2	8	69	M-1024	1.128	1.640	1.270	2.460	* CALIBRATED *
2	8	69	S1-4	1.128	2.030	1.700	2.610	* CALIBRATED *
3	8	69	D2-5	1.120	1.610	1.240	2.610	* CALIBRATED *
4	8	69	M-1039	1.112	0.510	0.150	1.190	* CALIBRATED *
1	8	69	PB-565	1.161	1.300	0.730	1.990	* CALIBRATED *
2	8	69	M-1028	1.128	1.630	1.240	2.640	* CALIBRATED *
2	8	69	PB-872	1.128	0.620	0.270	1.370	* CALIBRATED *
1	8	69	PB-565	1.161	1.380	0.400	2.380	* CALIBRATED *
3	8	69	D3-5	1.120	1.680	1.290	2.360	* CALIBRATED *
4	8	69	D2-5	1.112	1.610	1.240	2.610	* CALIBRATED *
2	9	68	T-4	1.564	1.390	0.830	1.970	* CALIBRATED *
4	9	68	RD-1	1.530	1.390	0.990	1.960	* CALIBRATED *
2	9	68	T-3	1.564	1.320	0.200	1.970	* CALIBRATED *
3	9	68	RD-1	1.547	1.390	0.990	1.960	* CALIBRATED *
2	9	68	RD-1	1.564	1.390	0.990	1.960	* CALIBRATED *
2	9	68	PB-722	1.564	1.380	0.950	2.020	* CALIBRATED *
4	9	69	PB-595	1.852	0.610	-2.420	3.240	* CALIBRATED *
3	9	69	D1-3	1.884	0.920	-1.620	2.050	* CALIBRATED *
2	9	69	S1-3	1.916	0.910	-1.070	2.080	* CALIBRATED *
1	9	69	S1-3	1.969	0.910	-1.070	2.080	* CALIBRATED *
2	9	69	T-1	1.916	1.680	1.230	2.640	* CALIBRATED *
1	9	70	PB-731	1.261	1.420	0.350	2.340	* CALIBRATED *
1	10	34	M-1045	23.109	24.480	23.110	25.060	Not Calibrated
1	10	50	M-140	15.979	15.140	13.840	17.440	* CALIBRATED *
1	10	51	M-1234	14.239	15.210	13.360	16.890	* CALIBRATED *
3	10	51	M-1231	14.177	14.730	13.010	17.120	* CALIBRATED *
1	10	60	LOX.R3	4.088	3.440	3.120	4.410	* CALIBRATED *
3	10	68	PB-892	1.485	1.350	0.950	2.060	* CALIBRATED *
4	10	68	PB-891	1.458	1.500	1.180	2.080	* CALIBRATED *
2	10	68	PB-721	1.511	1.320	0.940	2.020	* CALIBRATED *

Table A-1. Comparison of the Variation Range of Observed Water Levels to the Water Levels Simulated under Steady-State Conditions (Continued)

Layer	Row	Column	Well-ID	Simulated Water Level(ft)	Observed Mean Level(ft)	Observed Minimum Level(ft)	Observed Maximum Level(ft)	Calibration Status
2	10	68	PB-720	1.511	1.510	1.150	2.970	* CALIBRATED *
2	10	69	T-2	0.571	1.560	1.190	2.320	* CALIBRATED *
2	10	69	PB-932	0.571	1.520	0.700	2.150	* CALIBRATED *
4	10	69	T-7R-1	0.622	-1.170	-3.450	1.870	* CALIBRATED *
2	10	69	S1-2	0.571	0.230	-1.020	1.830	* CALIBRATED *
1	10	69	S1-2	0.618	0.230	-1.020	1.830	* CALIBRATED *
5	11	66	W	0.669	0.910	0.080	1.730	* CALIBRATED *
1	12	38	PB-689	22.992	23.950	22.290	24.500	* CALIBRATED *
1	13	52	PB-1548	15.915	15.730	14.280	16.930	* CALIBRATED *
3	13	52	PB-1547	15.881	15.930	13.900	17.570	* CALIBRATED *
4	13	58	PB-1649	11.134	10.350	9.200	11.570	* CALIBRATED *
1	13	58	PB-1648	11.141	10.720	9.550	11.790	* CALIBRATED *
4	13	63	PB-832	1.059	-0.380	-1.330	0.750	Not Calibrated
5	13	64	Y	-1.719	-1.310	-2.660	-0.680	* CALIBRATED *
1	13	64	C	-1.466	-1.130	-1.930	-0.110	* CALIBRATED *
4	13	64	B	-1.707	-0.370	-1.690	0.870	Not Calibrated
1	13	64	R	-1.466	-1.490	-3.550	-0.300	* CALIBRATED *
1	13	64	V	-1.466	1.040	0.190	1.740	Not Calibrated
4	13	64	Q	-1.707	-5.800	-9.980	-3.730	Not Calibrated
4	13	64	U	-1.707	-0.180	-0.870	0.230	Not Calibrated
1	13	65	T	-0.864	0.210	-0.950	1.140	* CALIBRATED *
5	13	65	S	-0.910	-1.910	-2.600	-1.050	Not Calibrated
1	14	64	K-3	-11.369	-3.960	-6.660	-0.660	Not Calibrated
1	14	64	L-3	-11.369	-5.770	-8.220	-2.350	Not Calibrated
2	14	64	K-2	-11.384	-6.890	-9.380	-3.630	Not Calibrated
2	14	64	L-2	-11.384	-5.850	-8.050	-2.620	Not Calibrated
4	14	64	L-1	-11.513	-7.260	-9.570	-4.420	Not Calibrated
4	14	64	N	-11.513	-5.750	-8.490	1.890	Not Calibrated
4	13	65	PB-789	-0.905	1.060	0.100	2.440	Not Calibrated
1	14	66	X	0.194	2.260	1.130	3.130	Not Calibrated
4	15	63	PB-928	0.137	7.160	6.410	7.770	Not Calibrated
1	15	63	PB-711	0.279	7.770	7.060	8.440	Not Calibrated
1	15	63	PB-927	0.279	6.210	3.790	10.990	Not Calibrated
4	15	63	PB-926	0.137	6.530	4.240	13.140	Not Calibrated
1	16	49	PB-1524	16.571	17.280	16.070	18.600	* CALIBRATED *
3	16	49	PB-1552	16.584	17.360	16.080	18.690	* CALIBRATED *
1	16	59	PB-875	13.208	12.530	11.320	13.330	* CALIBRATED *
3	16	59	PB-880	13.219	12.530	11.250	13.250	* CALIBRATED *
4	16	65	Z	-4.926	0.460	-0.530	2.170	Not Calibrated
4	17	30	PB-1613	22.212	23.610	21.540	24.340	* CALIBRATED *
1	17	30	PB-1615	22.225	23.780	21.710	24.420	* CALIBRATED *
1	17	61	PB-1520	12.758	11.940	11.330	12.890	* CALIBRATED *
1	20	63	PB-1521	7.290	12.600	11.460	13.680	Not Calibrated
3	20	64	M9	6.751	7.410	5.360	8.940	* CALIBRATED *
3	22	64	M8	4.940	3.930	2.510	6.380	* CALIBRATED *
3	23	64	M7	3.060	2.020	0.440	4.100	* CALIBRATED *
4	23	65	M10	2.717	2.310	1.120	4.650	* CALIBRATED *
5	23	65	M10	2.747	2.310	1.120	4.650	* CALIBRATED *
3	23	65	M10	2.707	2.310	1.120	4.650	* CALIBRATED *
4	23	66	M11	6.004	6.030	5.040	7.910	* CALIBRATED *
4	23	68	M12	7.596	6.130	5.450	7.350	Not Calibrated
5	23	68	M12	7.593	6.130	5.450	7.350	Not Calibrated
1	24	62	M3S	11.564	13.530	12.350	14.480	Not Calibrated
3	24	62	M3	11.531	13.100	11.910	14.230	Not Calibrated
4	24	63	M2	7.454	7.070	5.890	9.540	* CALIBRATED *
3	24	64	M1	3.103	1.790	0.760	4.100	* CALIBRATED *
3	24	64	M15	3.103	2.720	2.280	3.010	* CALIBRATED *
4	24	64	M1	3.117	1.790	0.760	4.100	* CALIBRATED *
4	24	68	M13	8.092	7.310	6.550	8.450	* CALIBRATED *
1	24	68	M13S	8.134	6.210	5.670	7.180	Not Calibrated
5	24	68	M13	8.083	7.310	6.550	8.450	* CALIBRATED *
1	25	30	PB-831	19.332	20.930	18.740	22.440	* CALIBRATED *

Table A-1. Comparison of the Variation Range of Observed Water Levels to the Water Levels Simulated under Steady-State Conditions (Continued)

Layer	Row	Column	Well-ID	Simulated Water Level(ft)	Observed Mean Level(ft)	Observed Minimum Level(ft)	Observed Maximum Level(ft)	Calibration Status
4	25	64	M4	6.541	1.540	-0.110	3.140	Not Calibrated
3	25	64	M4	6.526	1.540	-0.110	3.140	Not Calibrated
4	26	64	M5	10.512	11.060	9.520	11.920	* CALIBRATED *
1	26	64	M5S	10.544	13.140	12.900	13.610	Not Calibrated
3	26	64	M5	10.507	11.060	9.520	11.920	* CALIBRATED *
4	27	64	M6	13.539	11.940	11.190	12.590	Not Calibrated
3	27	64	M6	13.550	11.940	11.190	12.590	Not Calibrated
3	29	70	M14	1.679	1.420	0.640	1.880	* CALIBRATED *
1	30	56	PB-109	15.589	16.250	15.160	17.620	* CALIBRATED *
5	33	73	32ND ST	3.072	5.200	4.470	6.340	Not Calibrated
5	34	73	20TH ST	3.412	4.720	3.830	5.580	Not Calibrated
5	34	74	PB-632	1.809	3.060	2.460	3.780	Not Calibrated
5	36	66	LONE PIN	11.080	9.550	9.010	10.560	Not Calibrated
2	45	54	TW2	6.340	8.660	2.800	13.830	* CALIBRATED *
2	45	54	TWA	6.340	7.060	2.660	15.410	* CALIBRATED *
2	45	54	TWC	6.340	7.670	4.380	9.800	* CALIBRATED *
1	44	56	PB-561	12.668	12.120	10.950	13.070	* CALIBRATED *
2	44	54	TW5	10.982	12.190	10.490	13.410	* CALIBRATED *
2	45	54	TWB	6.340	6.660	1.580	9.660	* CALIBRATED *
2	45	54	TW1	6.340	6.300	5.160	7.240	* CALIBRATED *
2	44	54	TW4	10.982	10.870	8.200	11.950	* CALIBRATED *
2	45	55	PW9	10.479	11.370	10.680	12.180	* CALIBRATED *
4	47	69	PB-809	9.419	9.860	9.120	10.760	* CALIBRATED *
3	47	74	PB-835B	5.203	2.130	0.820	3.220	Not Calibrated
1	49	73	PB-99	8.210	6.930	6.180	7.620	Not Calibrated
1	57	73	PB-1639	1.319	3.400	2.670	3.940	Not Calibrated
1	57	73	PB-88	1.319	2.900	2.020	3.860	Not Calibrated
1	58	73	PB916	0.319	2.800	1.400	7.300	Not Calibrated
5	58	74	PB694	1.571	2.540	1.700	4.000	* CALIBRATED *
1	58	74	PB888	1.675	2.670	1.900	3.400	* CALIBRATED *
5	58	74	PB889	1.571	2.920	2.300	3.300	Not Calibrated
5	58	74	PB-889	1.571	2.870	2.290	3.610	Not Calibrated
1	61	54	PB-683	15.327	14.230	12.420	15.570	* CALIBRATED *
5	61	74	PB-834B	2.511	1.650	0.290	3.020	* CALIBRATED *
5	63	73	#3	4.640	4.950	3.320	8.980	* CALIBRATED *
3	63	74	#11	2.668	2.080	1.280	3.200	* CALIBRATED *
3	63	74	#12	2.668	3.730	2.730	5.230	Not Calibrated
1	65	62	PB-445	15.067	17.370	16.480	17.880	Not Calibrated
5	71	72	DM3	0.200	-19.640	-36.600	-8.410	Not Calibrated
1	71	73	SM1	0.548	4.860	4.250	5.420	Not Calibrated
5	71	73	DM1	0.759	0.490	-1.290	6.210	* CALIBRATED *
4	71	73	DM4	0.621	-0.960	-2.010	-0.010	Not Calibrated
3	72	66	#1	11.694	12.160	11.440	12.940	* CALIBRATED *
5	75	73	PB-692	1.464	0.170	-0.330	0.680	Not Calibrated
4	77	72	DBC3	1.758	2.550	0.050	4.300	* CALIBRATED *
2	78	72	PB692-S	1.589	2.080	1.100	3.500	* CALIBRATED *
3	78	72	EXECPLZA	1.569	1.350	-0.600	3.300	* CALIBRATED *
5	78	72	PB692-D	1.497	0.070	-0.400	0.500	Not Calibrated
4	78	72	DBC4	1.546	2.210	0.040	4.100	* CALIBRATED *
2	79	72	PB690-S	-1.774	1.400	0.070	2.700	Not Calibrated
3	79	72	DBC5	-1.772	1.100	-1.100	2.900	Not Calibrated
4	80	72	DBC6	0.683	1.610	0.300	3.000	* CALIBRATED *
2	83	62	PB-900	15.271	14.440	13.860	15.330	* CALIBRATED *
5	85	72	PB-1496	1.331	2.490	1.610	3.490	Not Calibrated
4	85	71	PB-1151	3.457	2.980	2.060	3.960	* CALIBRATED *
5	85	72	PB948	1.331	1.210	0.600	2.080	* CALIBRATED *
1	85	71	PB-1159	3.477	3.130	1.690	4.640	* CALIBRATED *
1	85	71	PB-1160	3.477	4.900	3.650	8.430	Not Calibrated
1	85	72	PB-1495	1.446	2.780	1.910	3.990	Not Calibrated
1	85	72	PB-1006	1.446	2.060	1.280	2.540	* CALIBRATED *
3	85	72	PB-947	1.378	2.740	1.810	3.590	Not Calibrated
3	85	72	PB-896	1.378	2.700	1.390	3.710	Not Calibrated

Table A-1. Comparison of the Variation Range of Observed Water Levels to the Water Levels Simulated under Steady-State Conditions (Continued)

Layer	Row	Column	Well-ID	Simulated Water Level(ft)	Observed Mean Level(ft)	Observed Minimum Level(ft)	Observed Maximum Level(ft)	Calibration Status
3	85	72	PB947	1.378	2.490	1.860	3.360	Not Calibrated
1	85	72	PB895	1.446	2.490	1.810	3.310	Not Calibrated
5	85	72	PB-948	1.331	1.380	0.380	2.240	* CALIBRATED *
1	85	72	PB-895	1.446	2.660	1.760	3.490	Not Calibrated
1	86	62	PB-1661	14.626	14.570	14.260	15.390	* CALIBRATED *
1	86	65	PB-1660	11.019	13.310	12.970	14.660	Not Calibrated
1	86	71	PB-1158	2.512	3.540	2.500	4.740	* CALIBRATED *
1	87	63	PB-1492	12.956	13.710	13.210	14.160	* CALIBRATED *
1	87	67	PB-1493	6.445	5.620	5.060	6.200	* CALIBRATED *
1	87	71	PB-1452	2.585	2.980	2.200	3.500	* CALIBRATED *
4	88	65	PB-1491	6.192	0.380	-2.680	4.060	Not Calibrated
3	88	65	PB-1491	6.244	0.380	-2.680	4.060	Not Calibrated
1	88	66	PB-1079	6.645	7.430	6.100	8.670	* CALIBRATED *
1	88	70	PB-457	3.052	4.350	3.480	5.690	Not Calibrated
5	88	71	PB-1457	2.290	3.780	2.240	4.550	* CALIBRATED *
1	89	67	PB-1074	5.140	4.710	4.110	5.550	* CALIBRATED *
1	89	69	PB-541	3.123	3.250	2.020	4.480	* CALIBRATED *
1	89	70	PB-447	2.812	2.650	1.260	4.400	* CALIBRATED *
5	89	70	PB-1456	2.733	3.500	2.270	4.890	* CALIBRATED *
1	89	71	PB-458	2.197	3.590	2.700	4.370	Not Calibrated
1	90	69	PB-540R	2.788	2.730	1.160	4.160	* CALIBRATED *
1	90	70	PB-466R	2.388	2.220	1.400	3.260	* CALIBRATED *
3	91	66	PB-732	4.530	4.760	4.150	6.240	* CALIBRATED *
1	91	70	PB-470	1.556	6.400	4.960	7.510	Not Calibrated
3	92	69	PB-567	1.621	2.020	1.110	2.900	* CALIBRATED *
1	92	69	PB-1075	1.573	2.080	1.440	2.680	* CALIBRATED *
1	92	69	PB-449	1.573	1.260	0.610	1.790	* CALIBRATED *
1	92	70	PB-1454	1.246	1.490	0.330	2.250	* CALIBRATED *
1	92	71	PB-460	1.506	1.950	1.450	2.590	* CALIBRATED *
1	93	66	PB-754	4.257	2.640	1.800	3.220	Not Calibrated
1	93	67	PB-753	2.724	2.230	1.720	2.400	* CALIBRATED *
5	93	67	PB-1455	2.935	3.160	2.740	3.830	* CALIBRATED *
1	93	69	PB-450	1.581	1.410	0.790	1.890	* CALIBRATED *
1	93	69	PB-498	1.581	1.100	0.470	1.530	* CALIBRATED *
4	93	69	PB-490	1.616	1.150	0.430	1.730	* CALIBRATED *
5	93	69	PB-492	1.622	1.370	0.520	2.590	* CALIBRATED *
5	93	69	PB-491	1.622	3.290	2.400	4.240	Not Calibrated
1	93	69	PB-500	1.581	2.560	1.250	3.980	* CALIBRATED *
1	94	65	PB-1076	7.182	7.410	7.080	7.870	* CALIBRATED *
1	94	66	PB-1077	5.300	5.760	4.860	6.440	* CALIBRATED *
1	94	69	PB-543	1.515	1.940	1.070	3.330	* CALIBRATED *
1	94	70	PB-465	1.570	2.120	1.420	2.860	* CALIBRATED *
1	94	71	PB-462	1.452	2.270	1.630	2.740	* CALIBRATED *
1	95	67	PB-752	3.191	2.640	1.940	3.540	* CALIBRATED *
1	95	70	PB-454R	1.592	2.780	2.530	2.970	Not Calibrated
1	95	71	PB-502	1.317	2.640	2.150	3.140	Not Calibrated
1	96	64	PB-1618	8.669	8.540	7.850	8.870	* CALIBRATED *
4	96	65	PB-1063	7.445	6.710	5.930	7.510	* CALIBRATED *
4	97	66	D1A	4.899	1.060	0.510	1.850	Not Calibrated
5	97	67	D11	2.773	0.850	0.220	1.570	Not Calibrated
5	98	68	D13	0.753	0.950	0.190	1.720	* CALIBRATED *
5	97	69	D12	1.117	1.120	0.530	1.920	* CALIBRATED *
2	98	65	S1A	5.644	4.250	3.320	5.670	* CALIBRATED *
2	98	66	S2	3.259	0.730	-0.590	1.850	Not Calibrated
4	98	66	D2A	3.323	1.090	-0.620	7.430	* CALIBRATED *
5	98	67	D10	1.652	0.170	-0.970	1.130	Not Calibrated
2	98	67	S10	1.631	-0.320	-1.940	1.010	Not Calibrated
1	98	68	S7A	0.737	0.350	-0.810	1.300	* CALIBRATED *
5	98	68	D7	0.753	0.300	-0.870	1.260	* CALIBRATED *
4	98	68	D17	0.723	-0.270	-1.890	0.980	* CALIBRATED *
4	98	69	D14A	0.878	1.370	0.760	2.060	* CALIBRATED *
2	99	62	S4	8.583	7.810	7.150	8.370	* CALIBRATED *

Table A-1. Comparison of the Variation Range of Observed Water Levels to the Water Levels Simulated under Steady-State Conditions (Continued)

Layer	Row	Column	Well-ID	Simulated Water Level(ft)	Observed Mean Level(ft)	Observed Minimum Level(ft)	Observed Maximum Level(ft)	Calibration Status
5	99	62	D4	8.589	6.960	0.240	8.260	Not Calibrated
2	99	66	S12	2.354	0.340	-0.690	1.290	Not Calibrated
5	99	69	D16	0.533	1.640	0.580	2.790	Not Calibrated
4	99	69	D15A	0.536	0.070	-1.190	1.230	* CALIBRATED *
2	100	64	S3	7.015	7.540	6.270	8.140	* CALIBRATED *
5	100	64	D3	6.833	7.000	6.320	7.570	* CALIBRATED *
2	100	65	S5	3.090	-0.490	-1.910	1.140	Not Calibrated
5	100	65	D5	3.201	0.380	-2.190	2.300	Not Calibrated
1	100	67	S11	-0.854	0.010	-1.070	1.010	* CALIBRATED *
2	100	69	S6	0.119	0.910	-0.060	1.740	* CALIBRATED *
5	100	69	D6	0.108	0.940	0.050	1.770	* CALIBRATED *
2	101	65	S13	3.146	4.260	3.210	5.440	Not Calibrated
2	101	68	S16	-1.906	-2.410	-3.710	-0.770	* CALIBRATED *
2	101	68	S9	-1.906	-1.840	-3.080	-0.800	* CALIBRATED *
5	101	68	D9	-2.594	-1.780	-3.020	-0.770	* CALIBRATED *
5	103	69	SWIM1	0.219	0.900	0.070	1.950	* CALIBRATED *
3	104	67	MUDPOHP	0.420	0.860	-0.050	2.100	* CALIBRATED *
4	106	68	G-2277	0.370	-0.210	-1.470	0.920	* CALIBRATED *
1	107	68	G-2147	0.159	-0.380	-1.780	1.770	* CALIBRATED *
3	109	66	G-2344A	0.655	-0.140	-1.420	1.180	* CALIBRATED *
3	109	67	G-2480	0.594	0.870	0.320	1.520	* CALIBRATED *
4	110	66	G-2062	0.917	0.180	-0.870	3.870	* CALIBRATED *
5	110	68	G-2055	0.593	1.530	0.910	1.850	* CALIBRATED *
4	110	68	G-2054	0.596	2.040	1.580	2.430	Not Calibrated

Percent of nodes calibrated = 58.08
Percent of nodes with water level less than one foot diff from mean = 59.93
Number of Calibrated Nodes = 158
Number of Total Nodes = 272
Number of Nodes with Water Levels Less Than One Foot Diff from Mean = 163

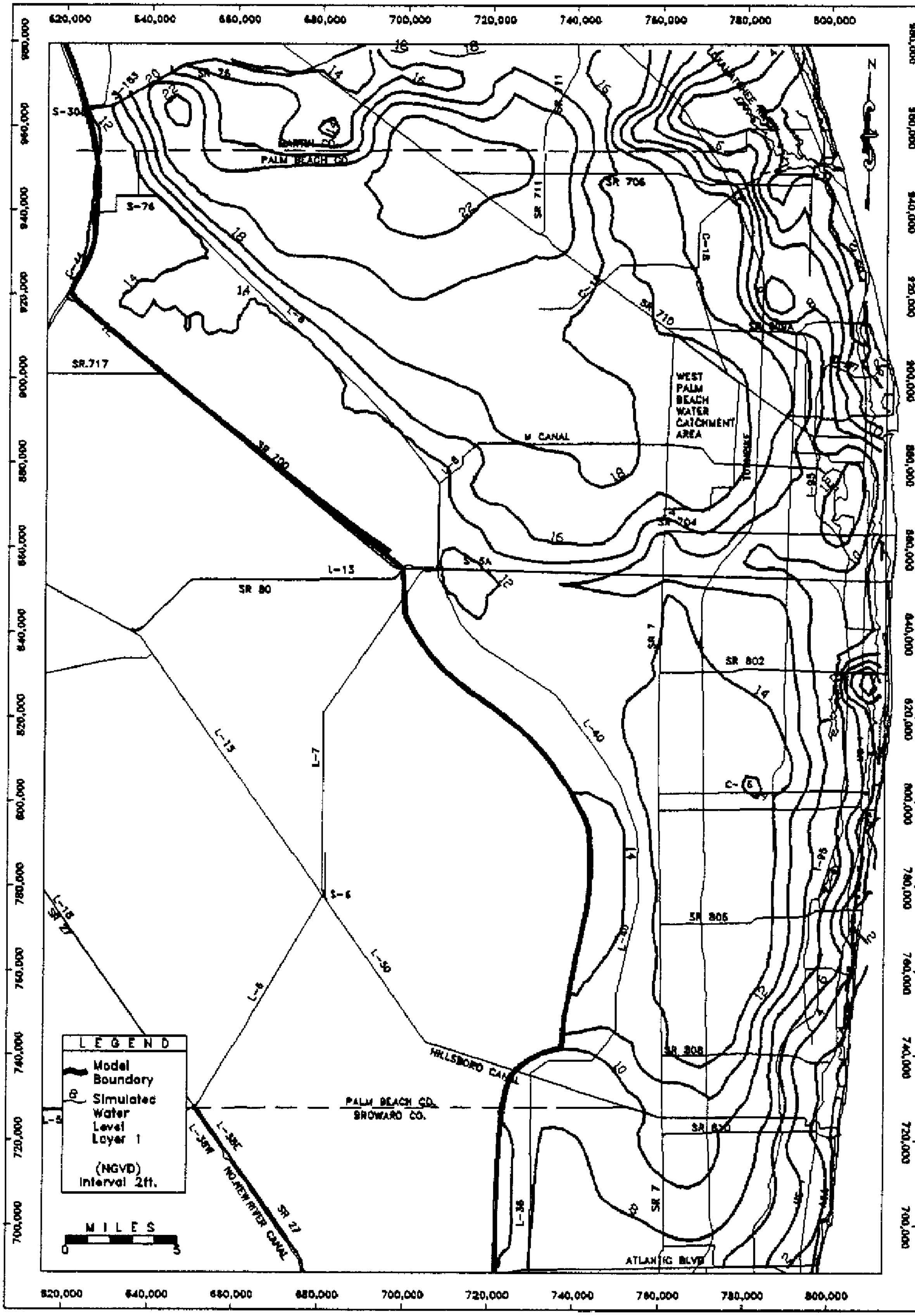


Figure A-1. Maps of Average Water Levels of Layer 1

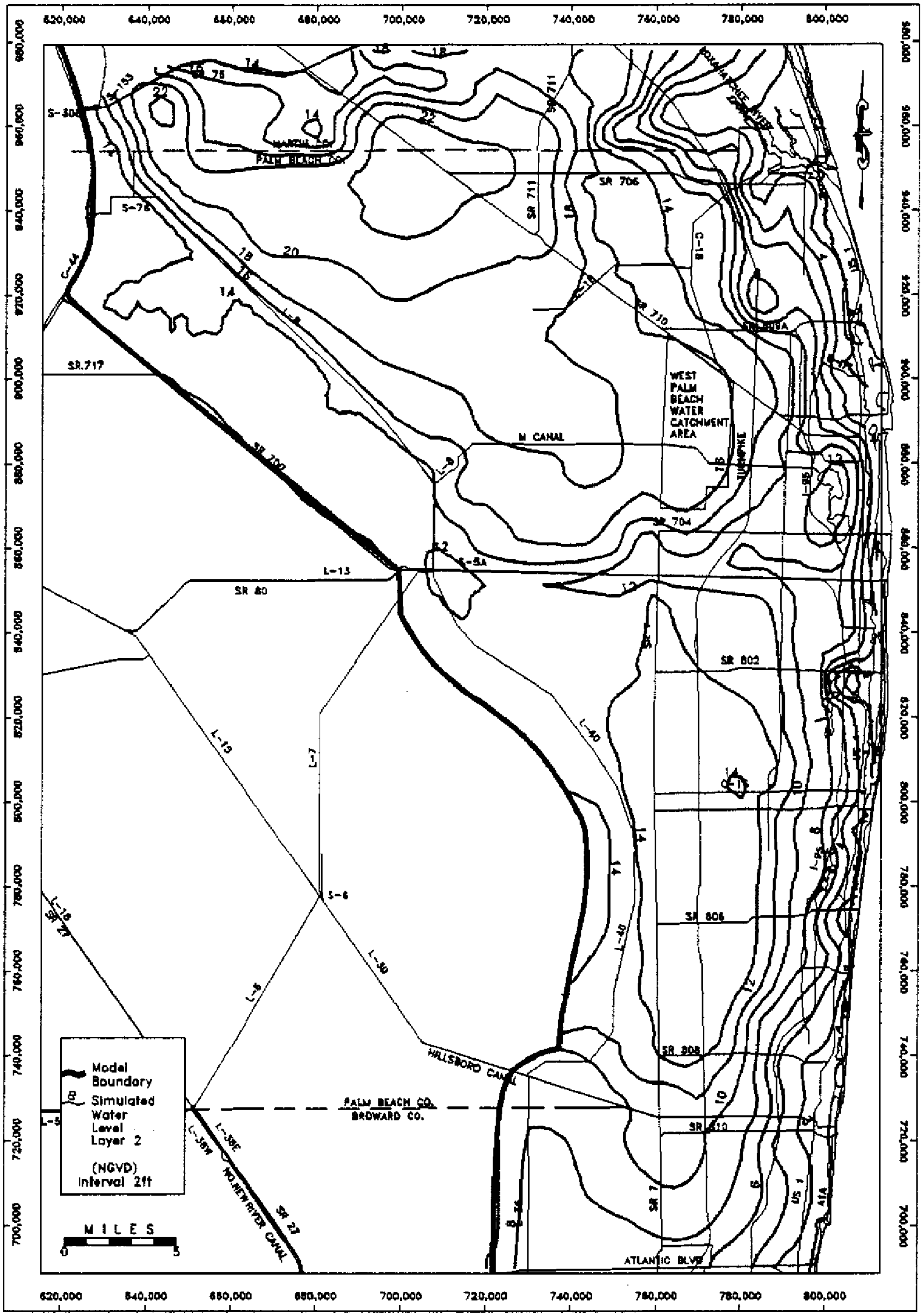


Figure A-2. Maps of Average Water Levels of Layer 2

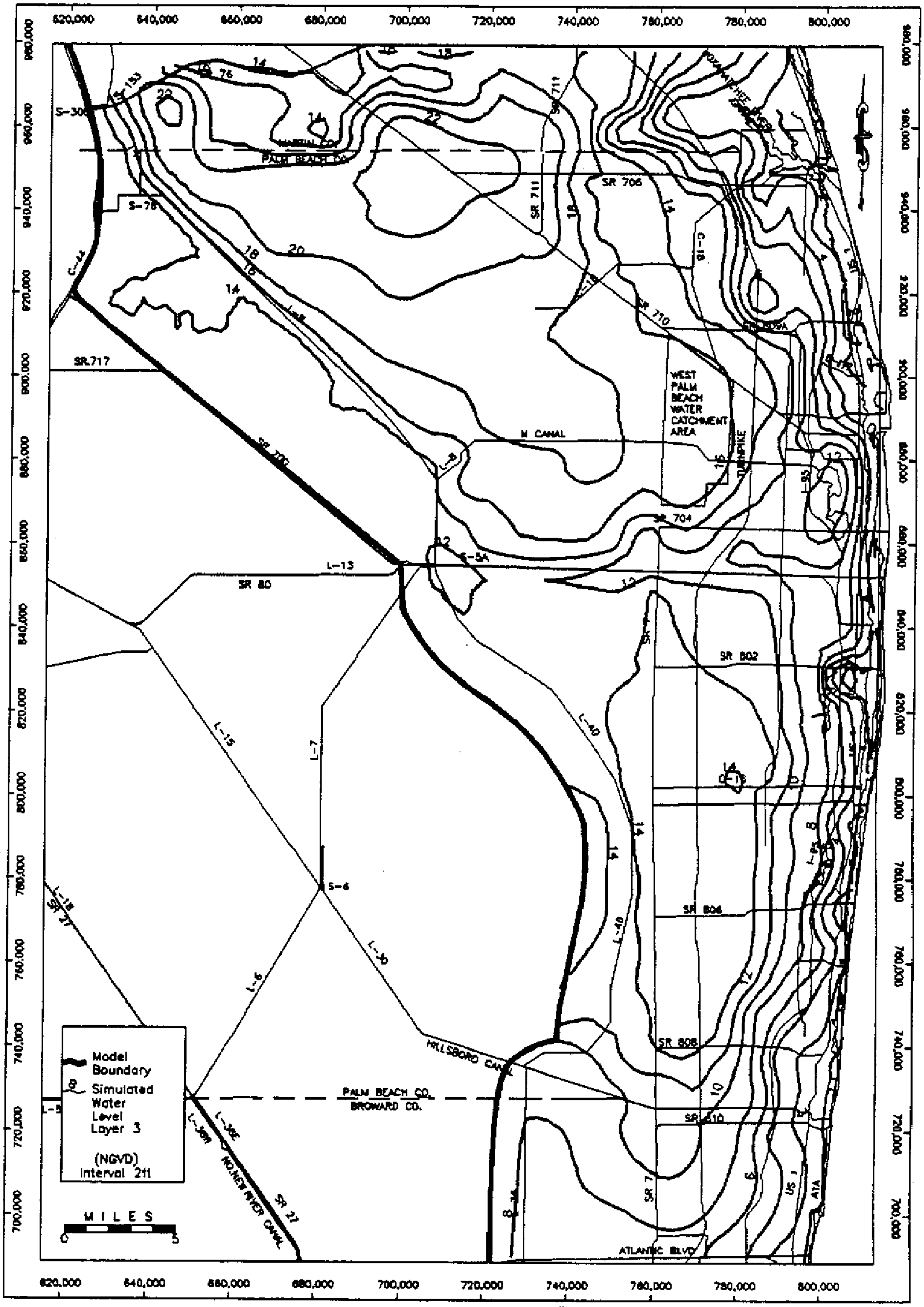


Figure A-3. Maps of Average Water Levels of Layer 3

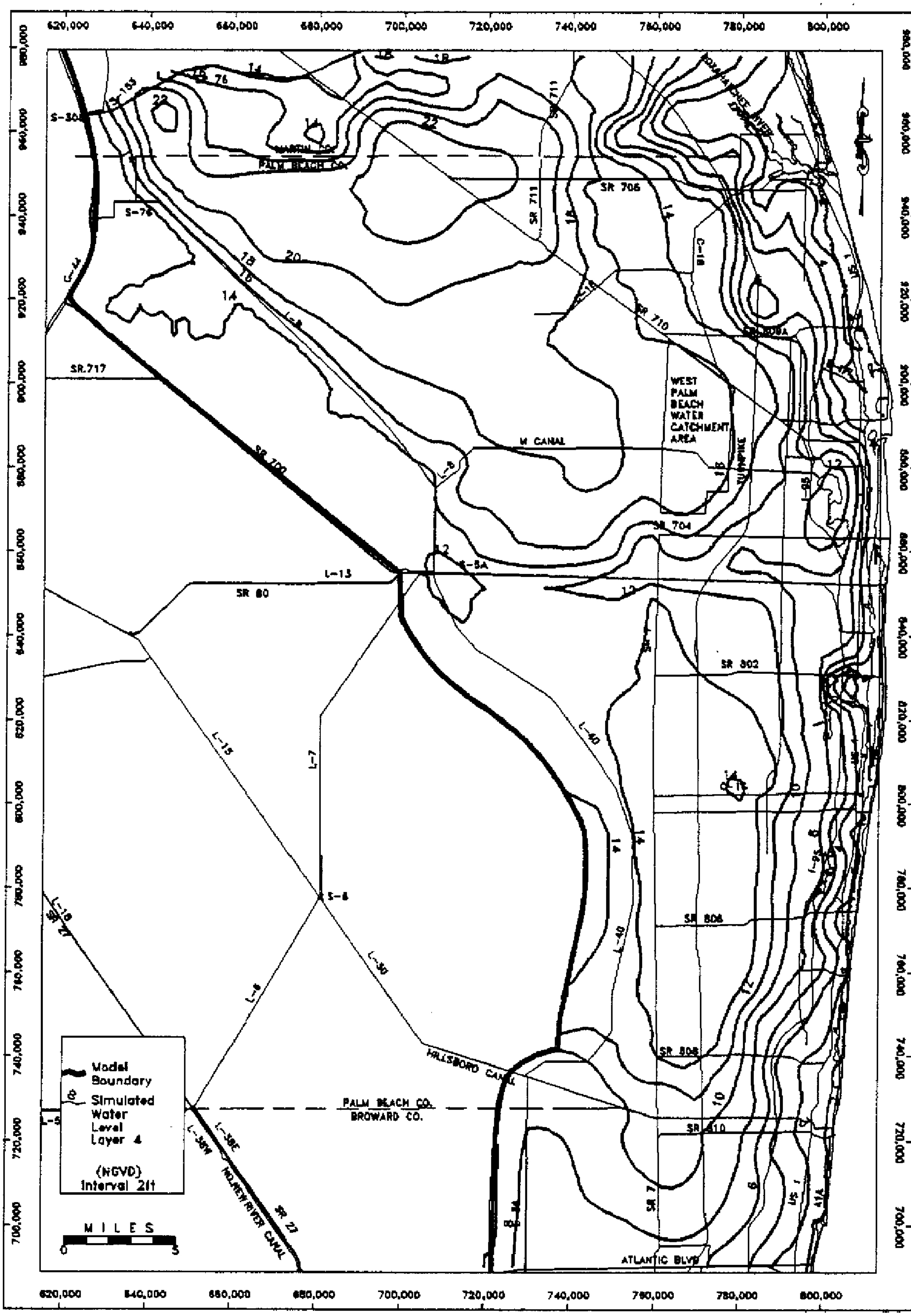


Figure A-4. Maps of Average Water Levels of Layer 4

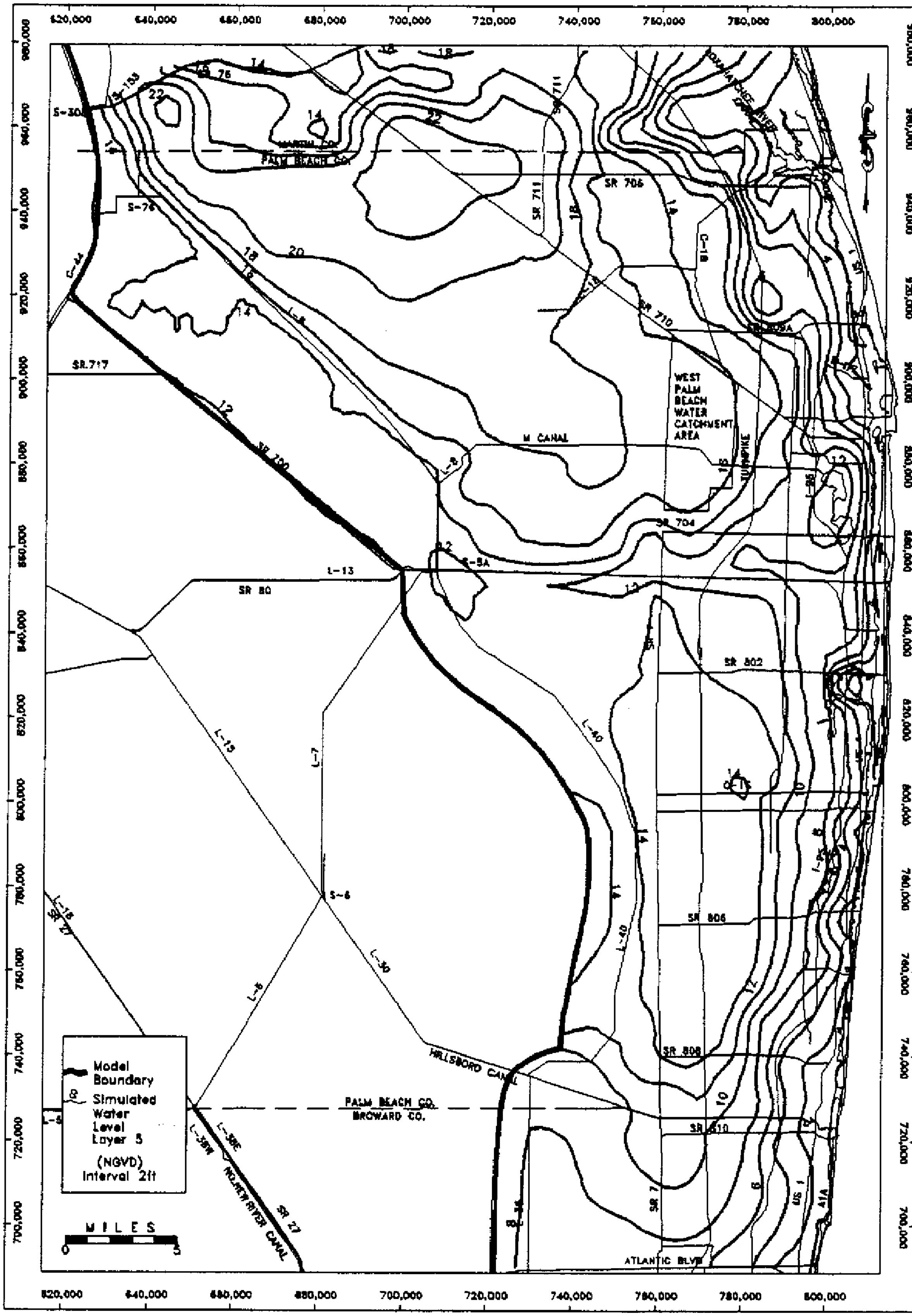


Figure A-5. Maps of Average Water Levels of Layer 5

APPENDIX B

Magnitude and Direction of Flow

LIST OF FIGURES - APPENDIX B

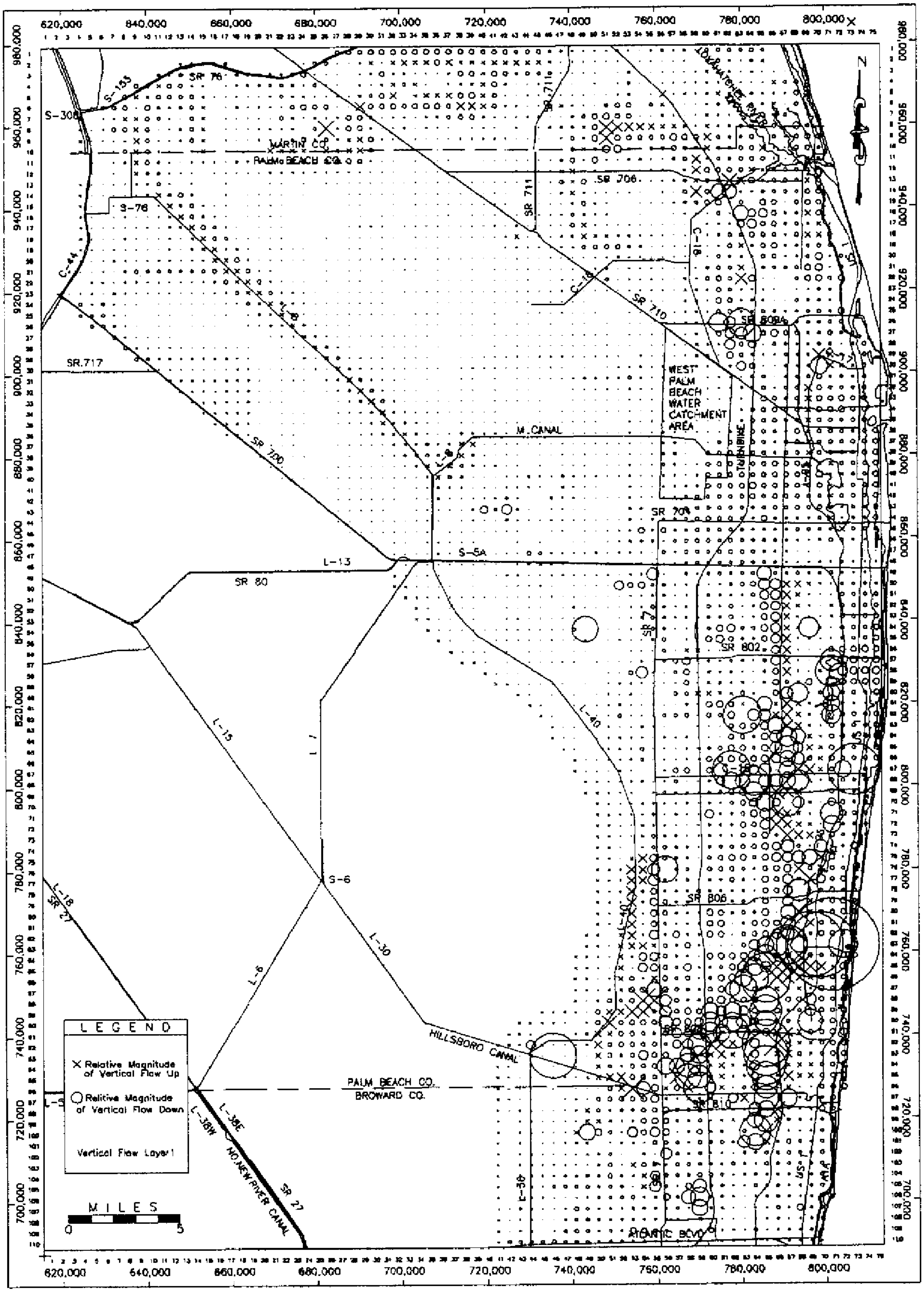


Figure B-1. Magnitude and Direction of Vertical Flow of Layer 1

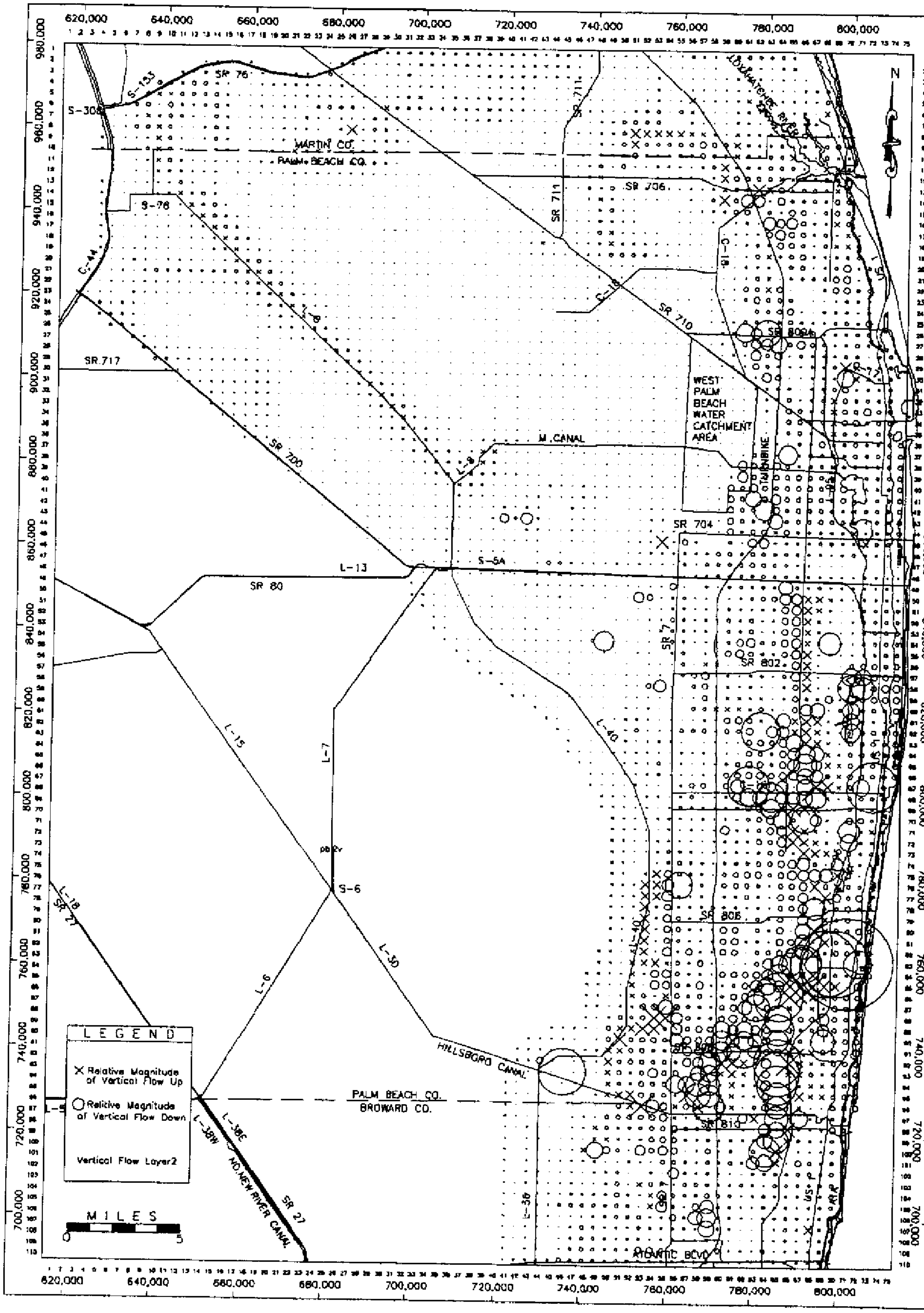


Figure B-2. Magnitude and Direction of Vertical Flow of Layer 2

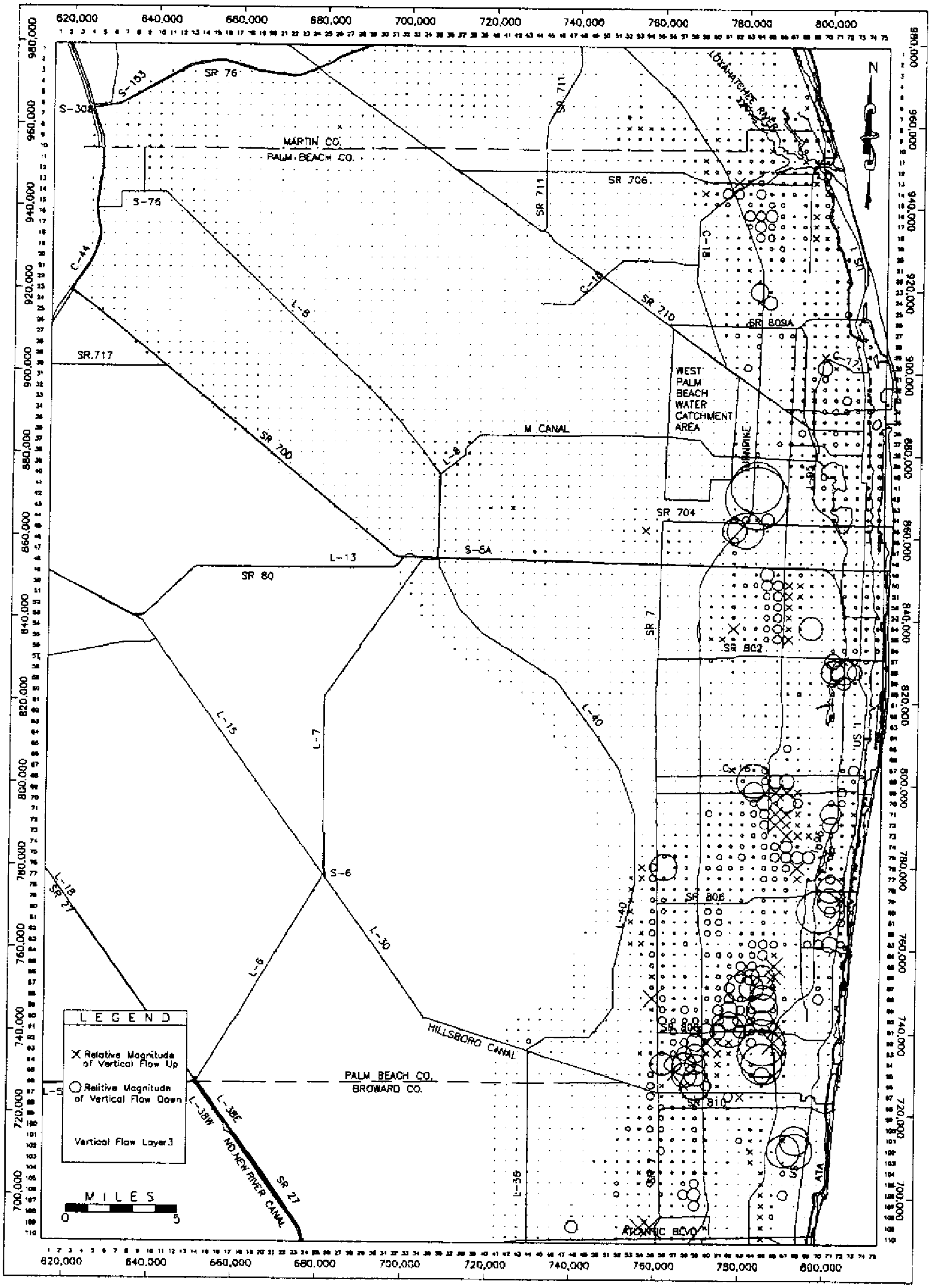


Figure B-3. Magnitude and Direction of Vertical Flow of Layer 3

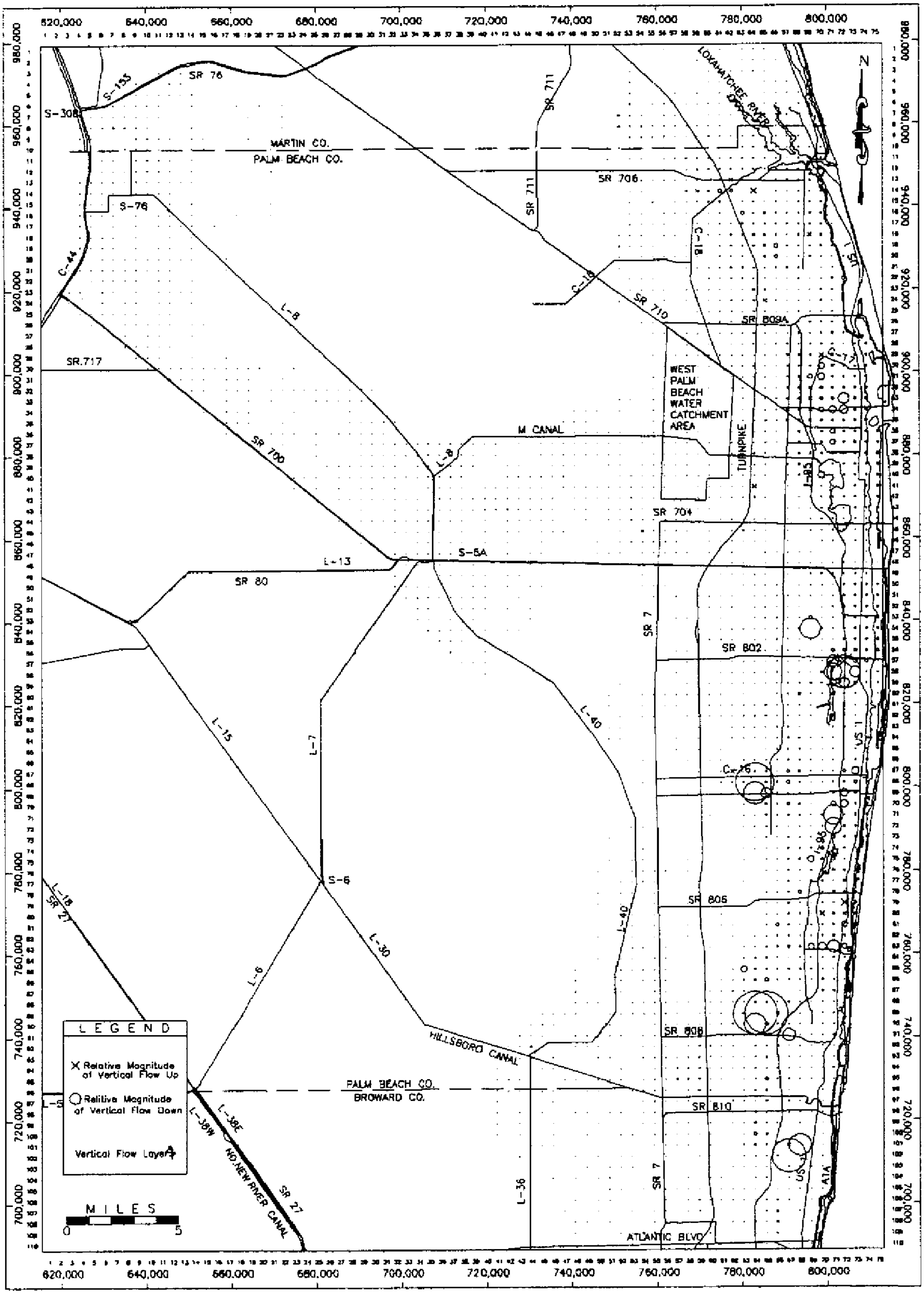


Figure B-4. Magnitude and Direction of Vertical Flow of Layer 4

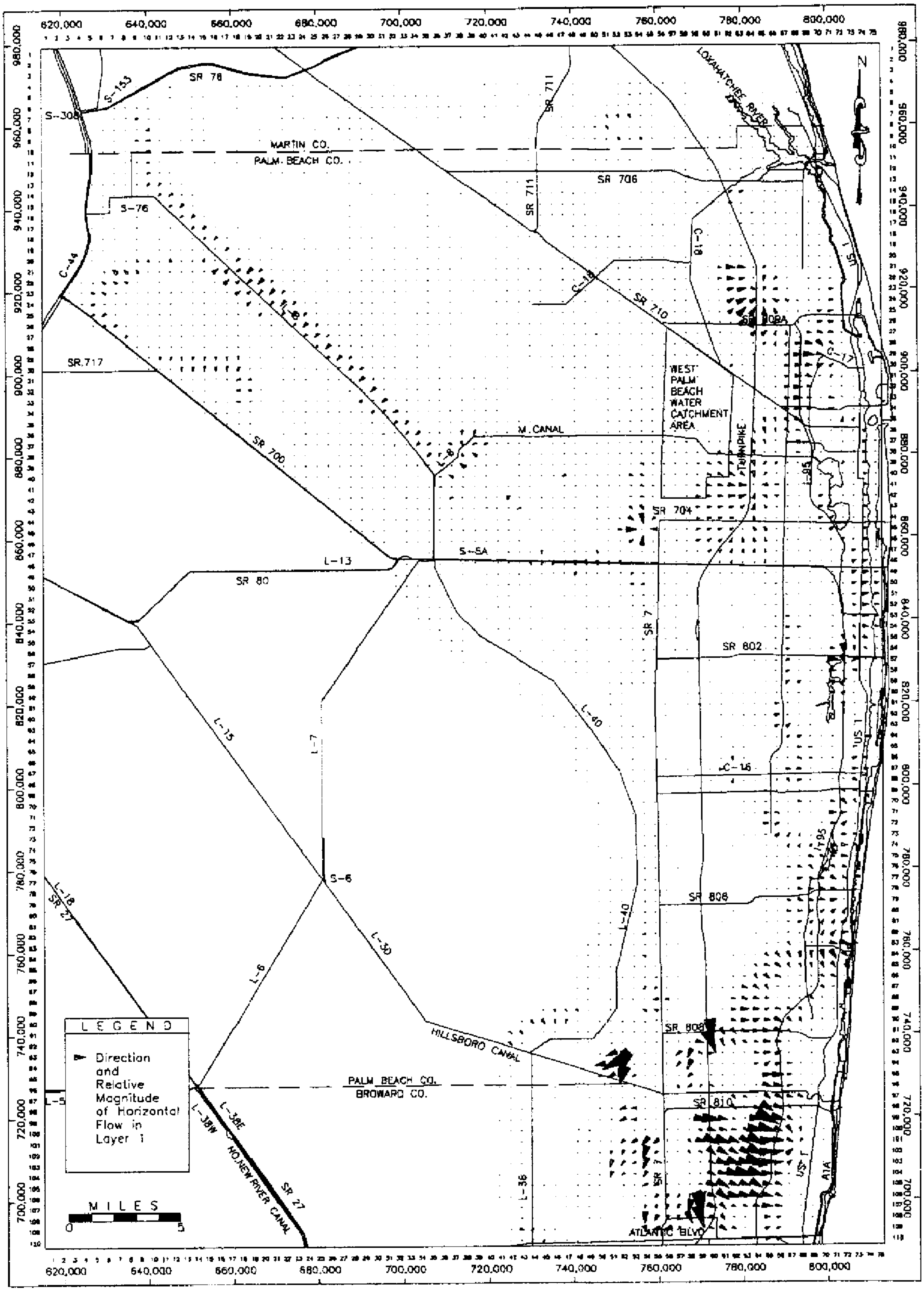


Figure B-5. Magnitude and Direction of Horizontal Flow in Layer 1

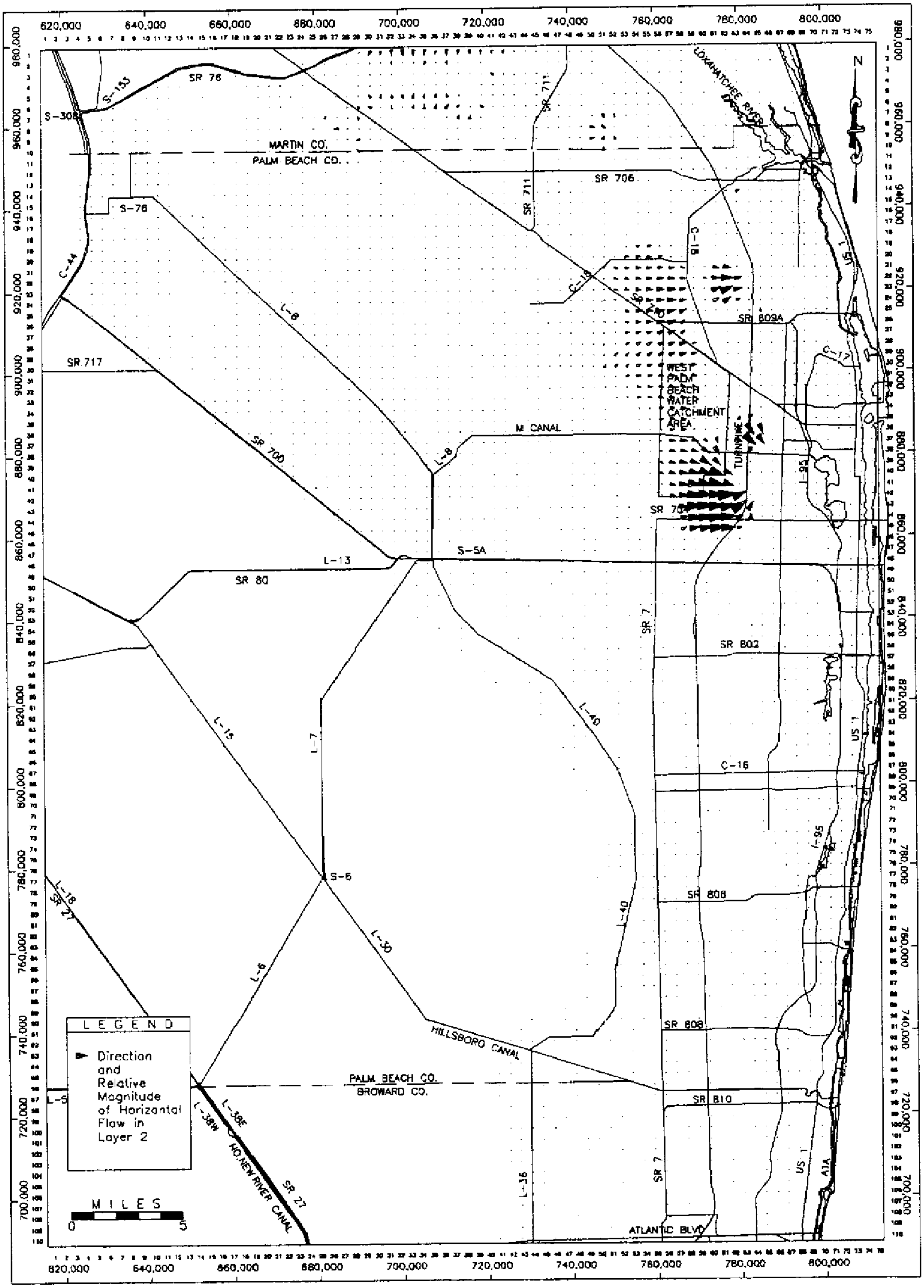


Figure B-6. Magnitude and Direction of Horizontal Flow in Layer 2

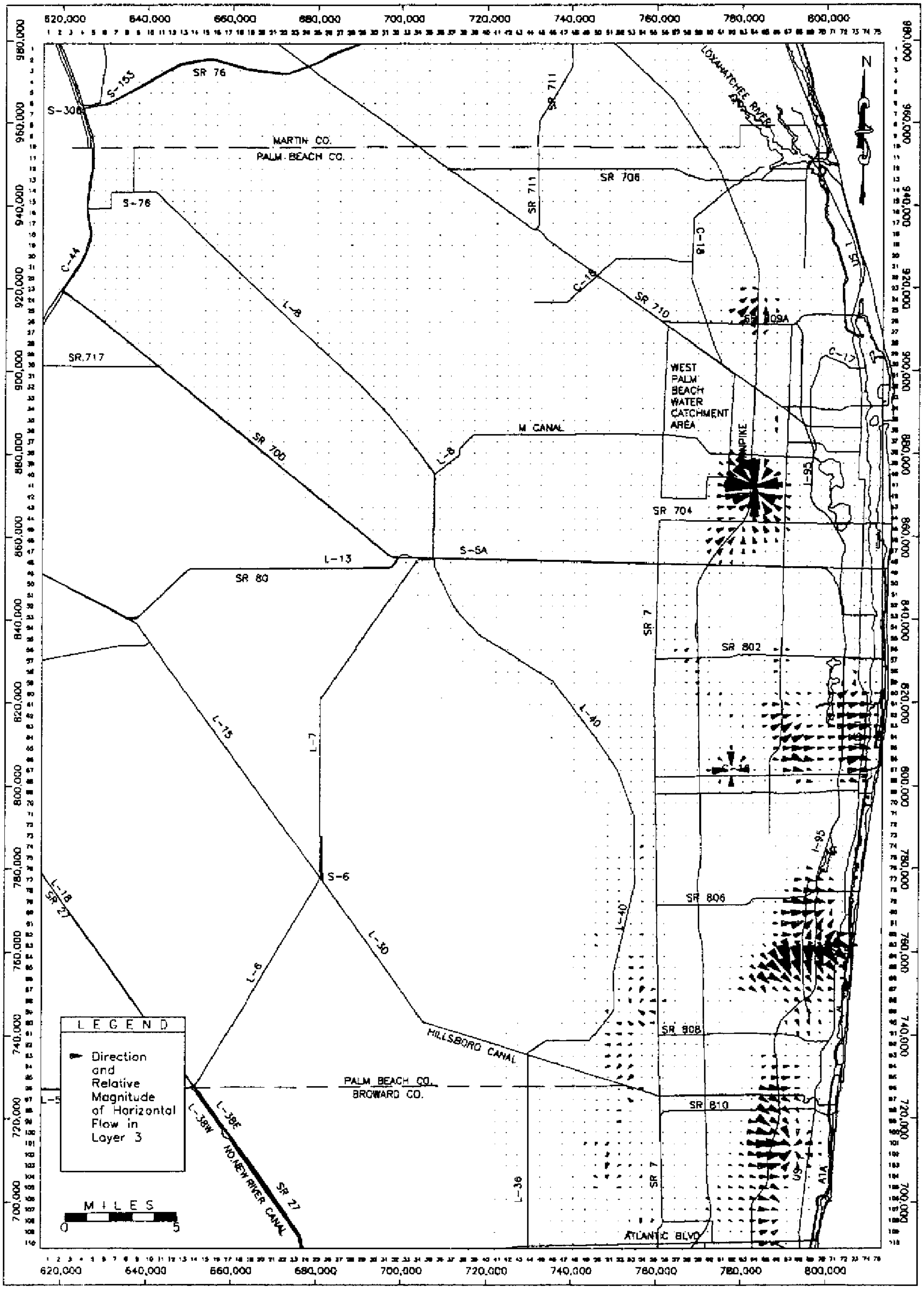


Figure B-7. Magnitude and Direction of Horizontal Flow in Layer 3

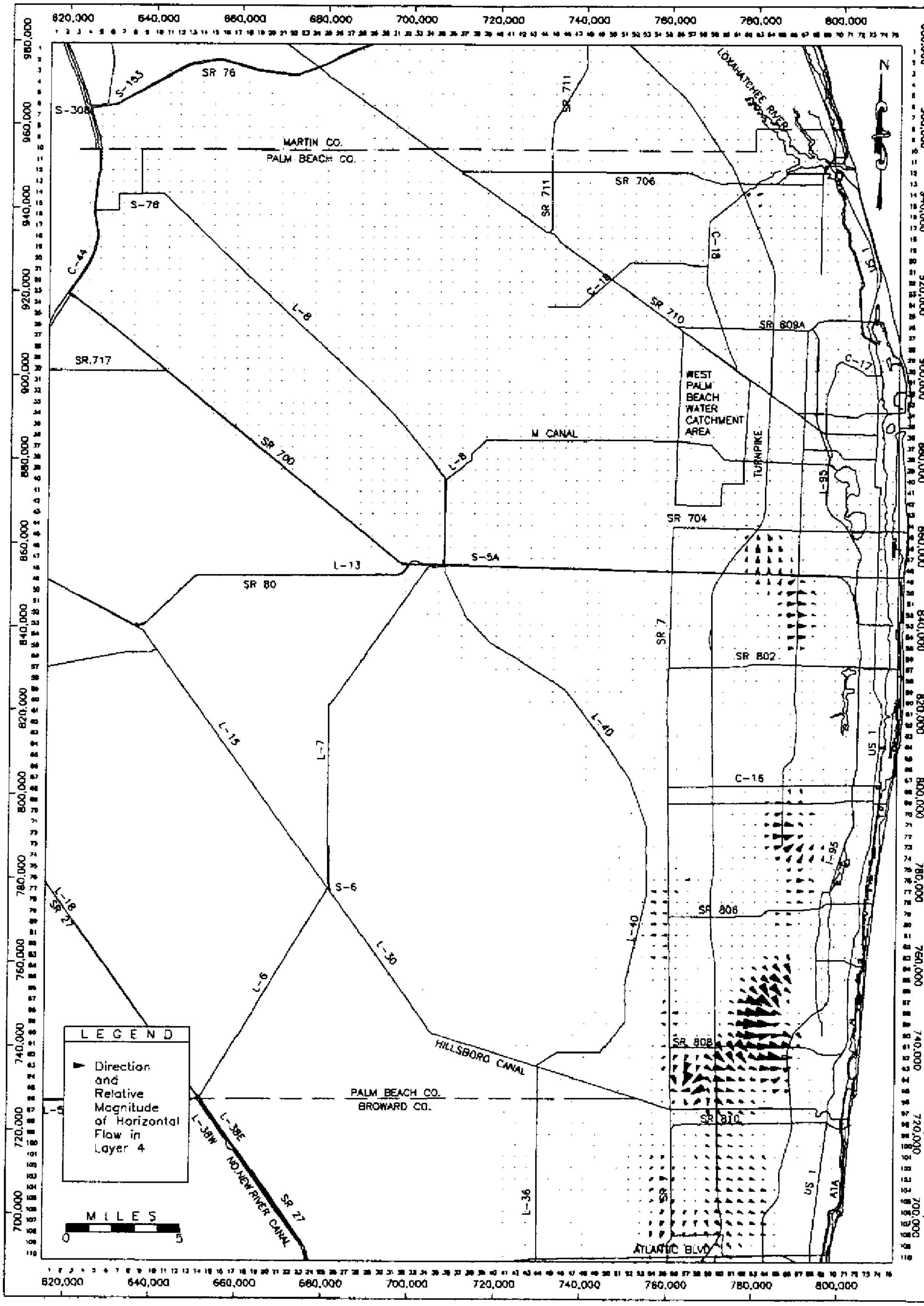


Figure B-8. Magnitude and Direction of Horizontal Flow in Layer 4

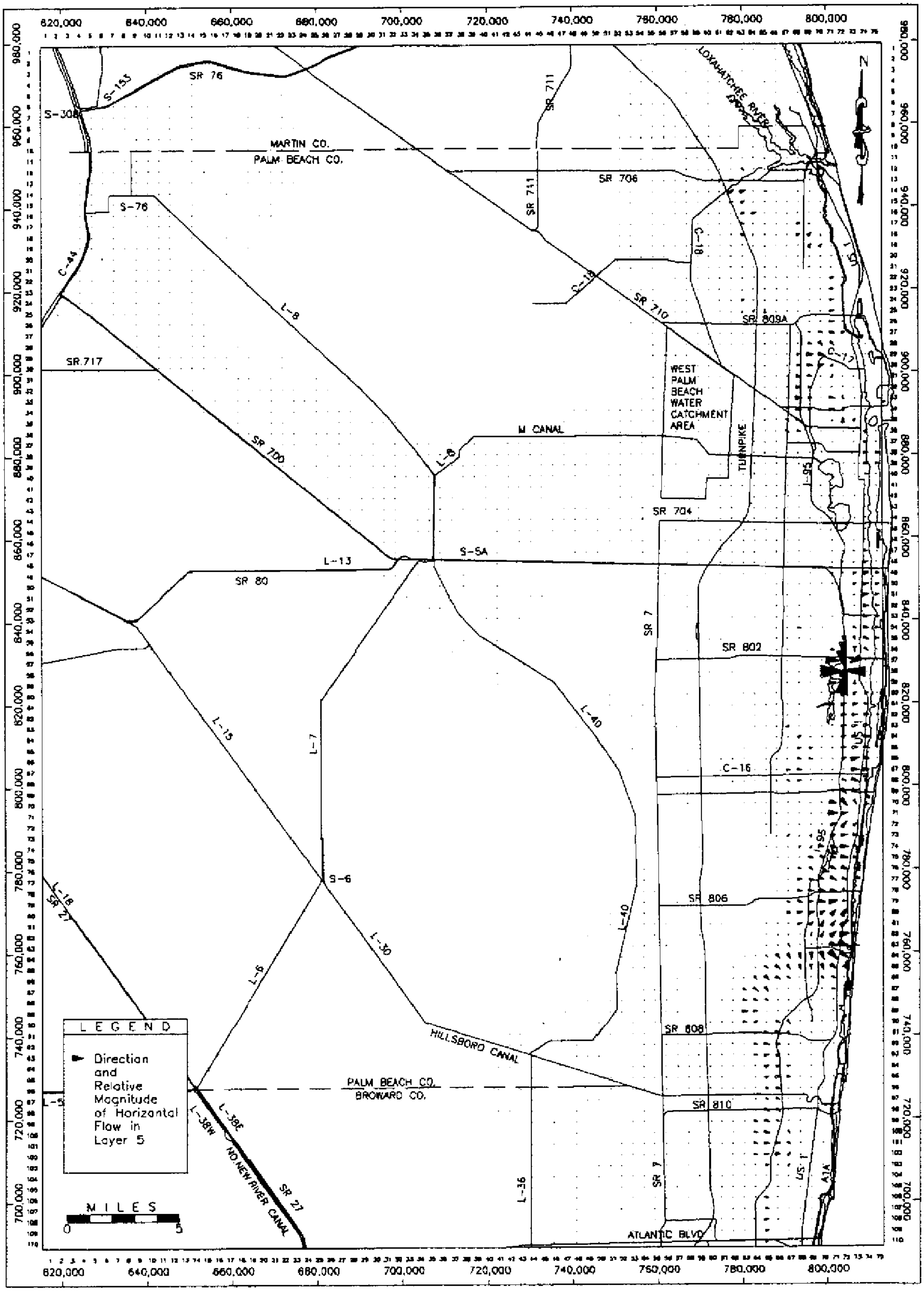


Figure B-9. Magnitude and Direction of Horizontal Flow in Layer 5

APPENDIX C

Maps of Model Layer Elevation

LIST OF FIGURES - APPENDIX C

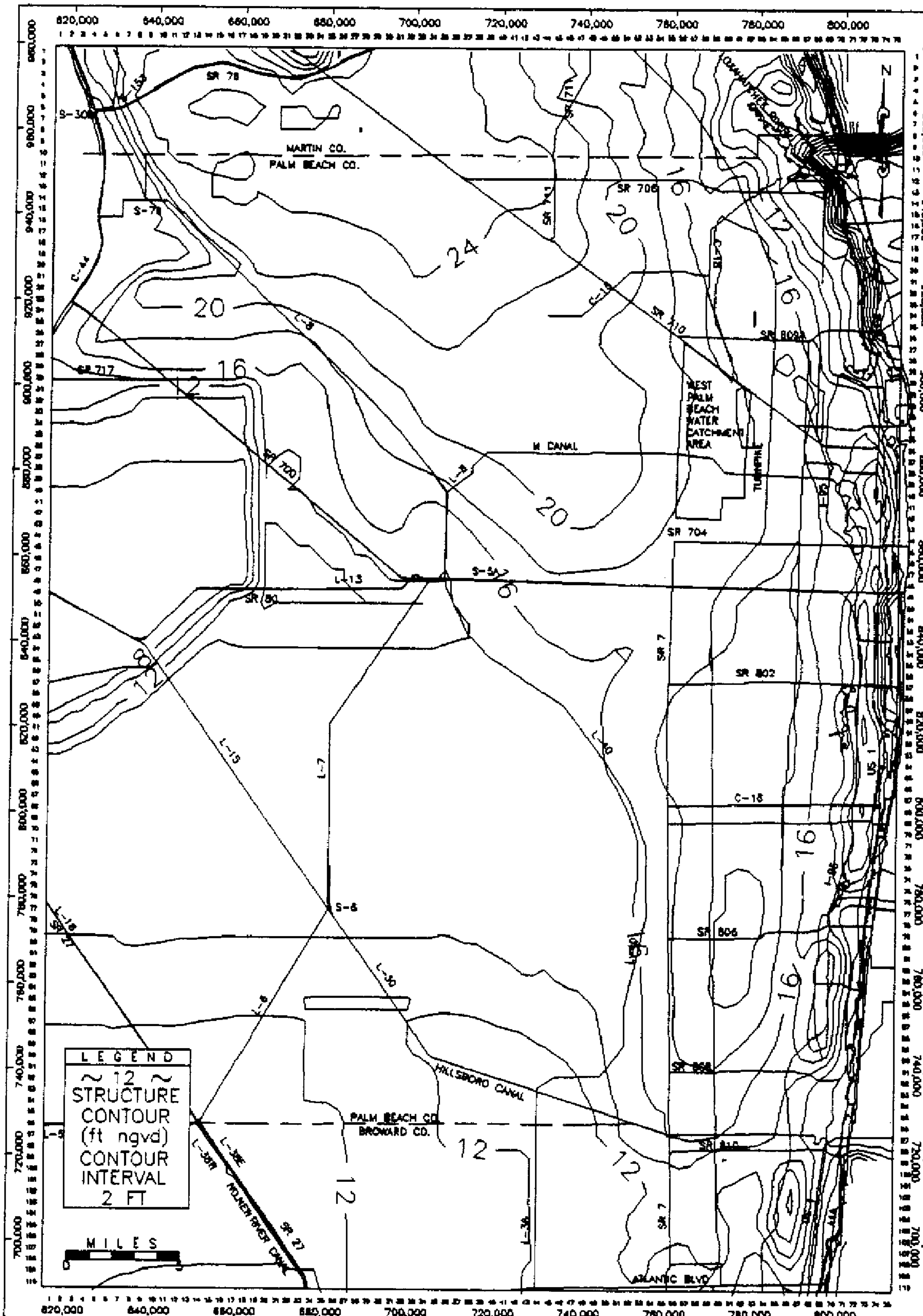


Figure C-1. Land Surface Elevation

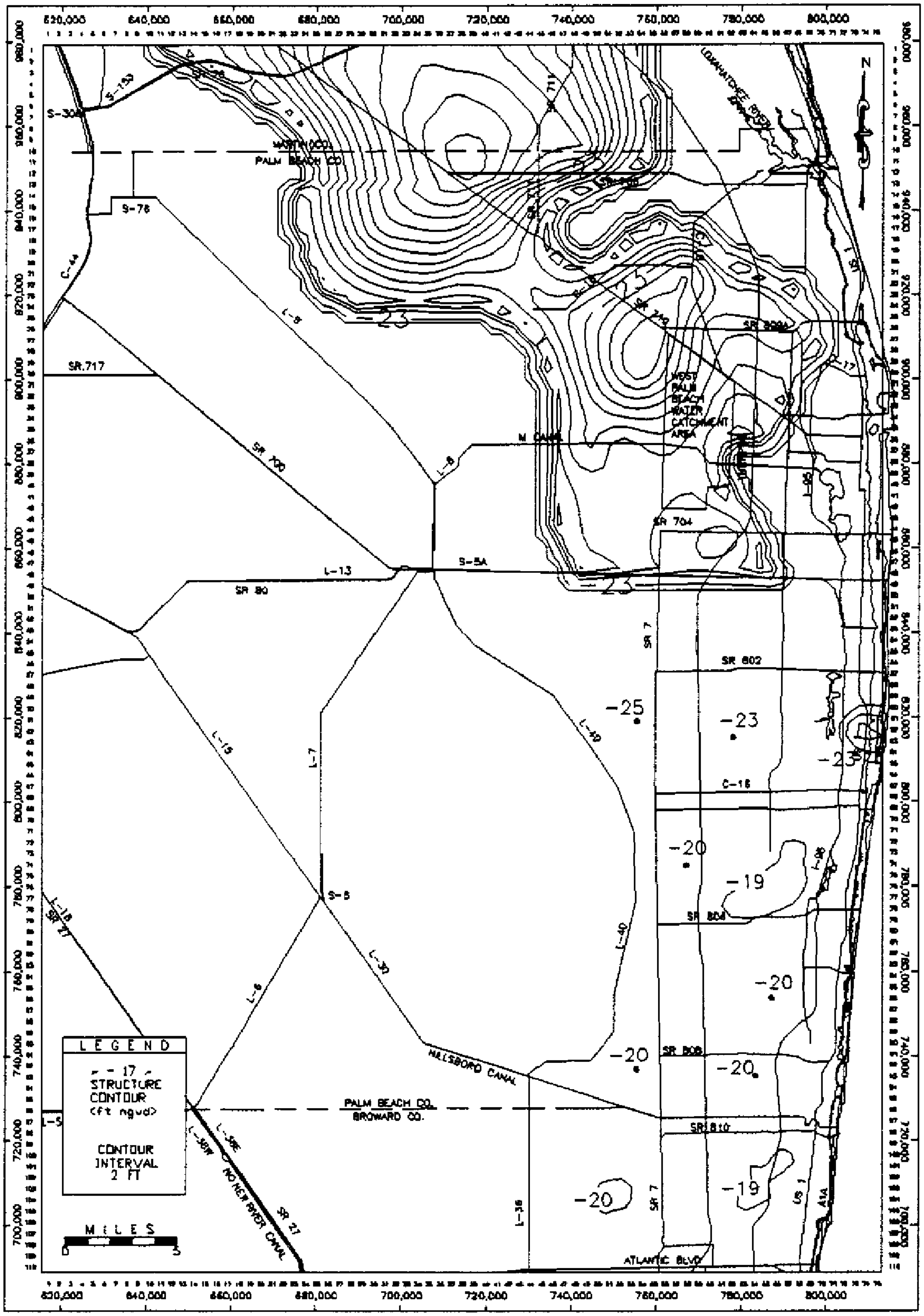


Figure C-2. Bottom Elevation of Layer 1

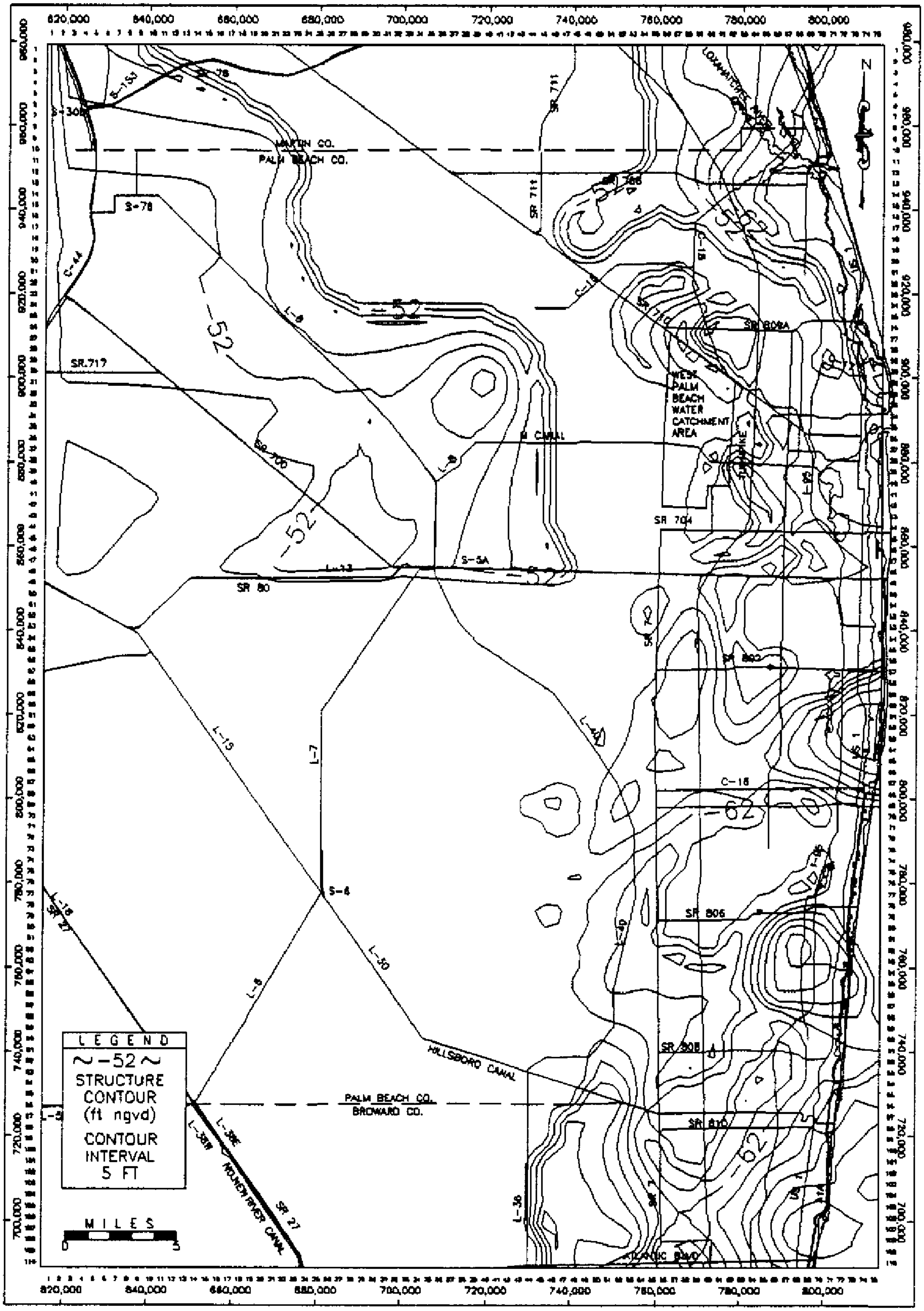


Figure C-3. Bottom Elevation of Layer 2

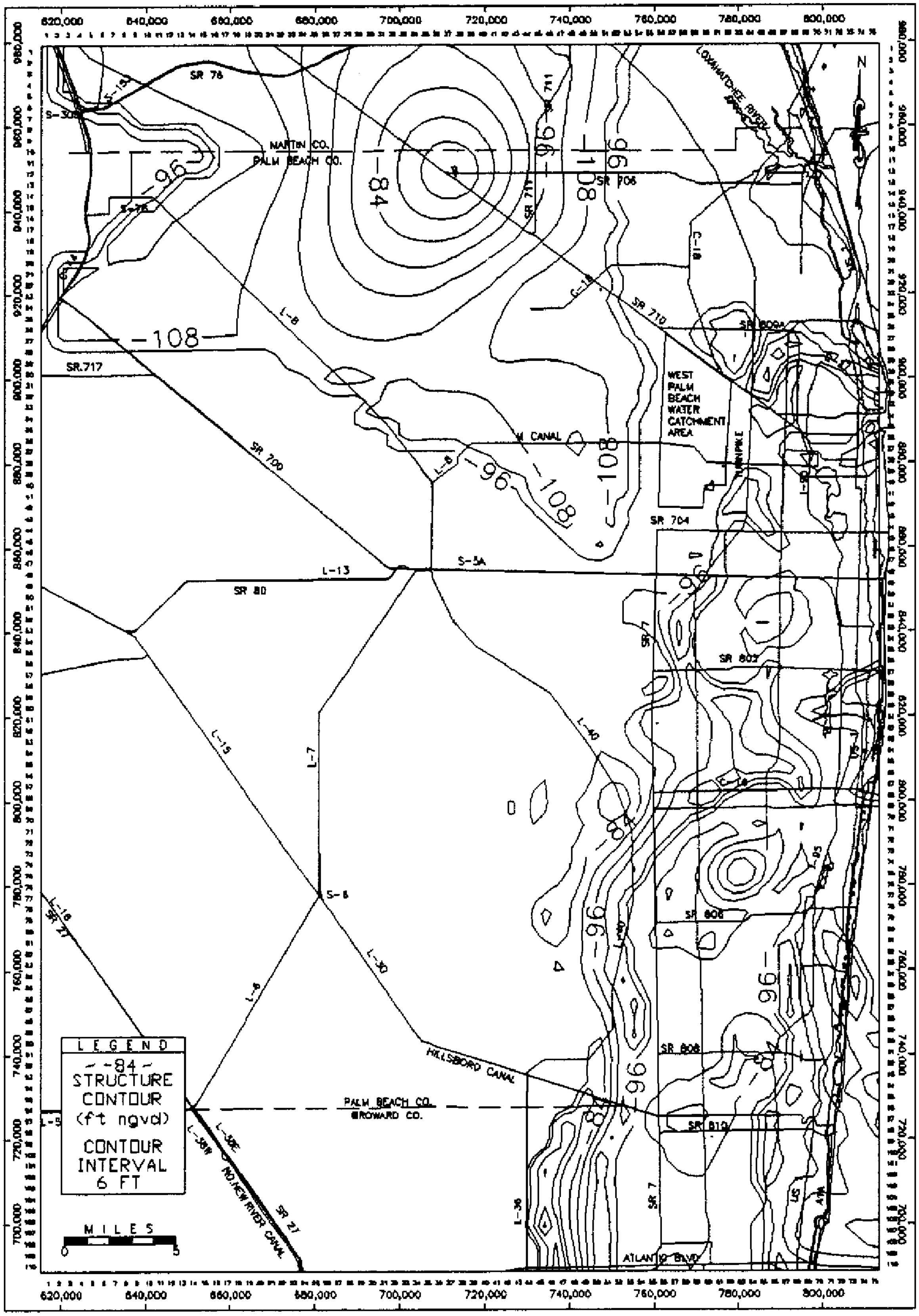


Figure C-4. Bottom Elevation of Layer 3

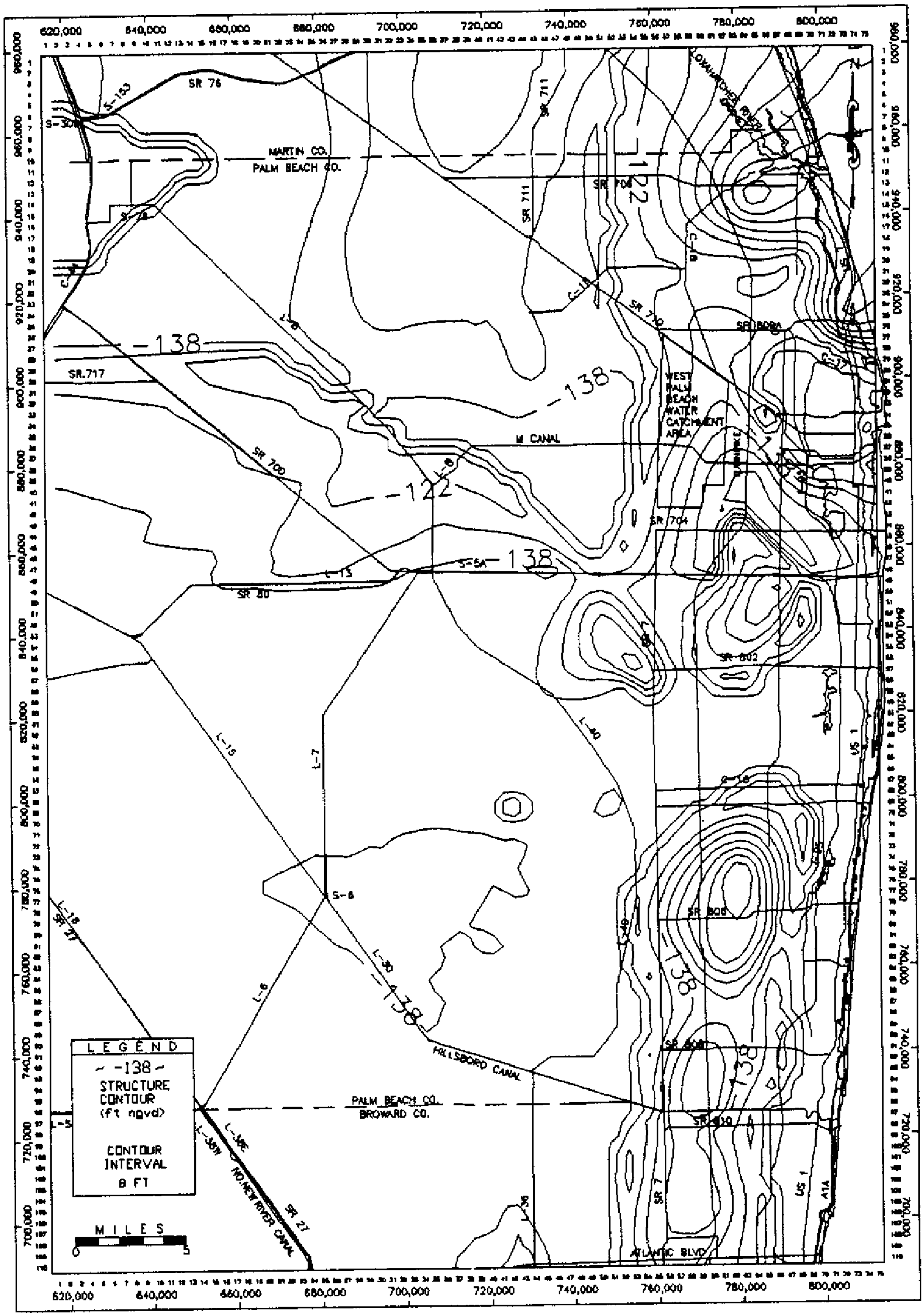


Figure C-5. Bottom Elevation of Layer 4

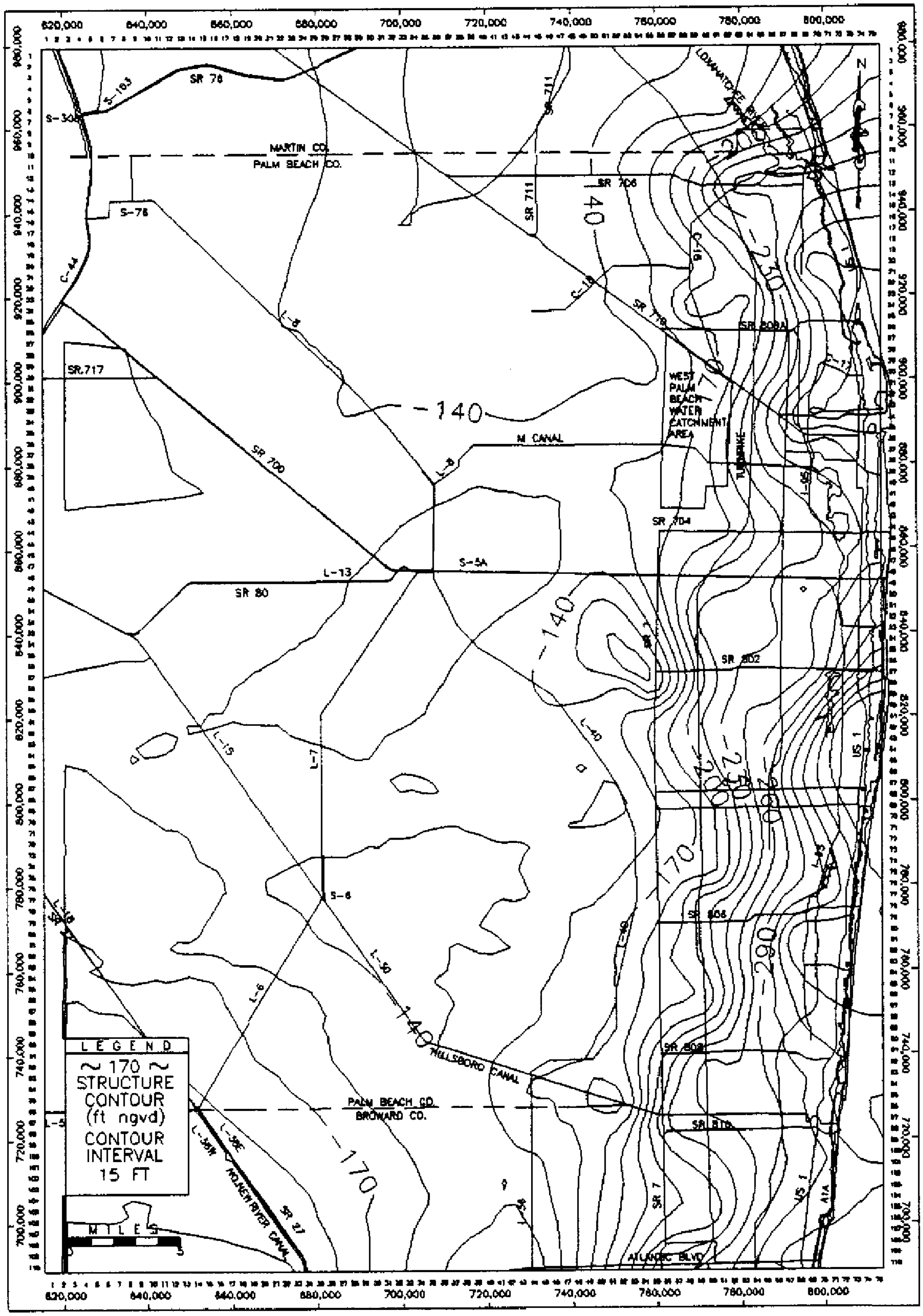


Figure C-6. Bottom Elevation of Layer 5

APPENDIX D

Maps of Model Layer Thickness

LIST OF FIGURES - APPENDIX D

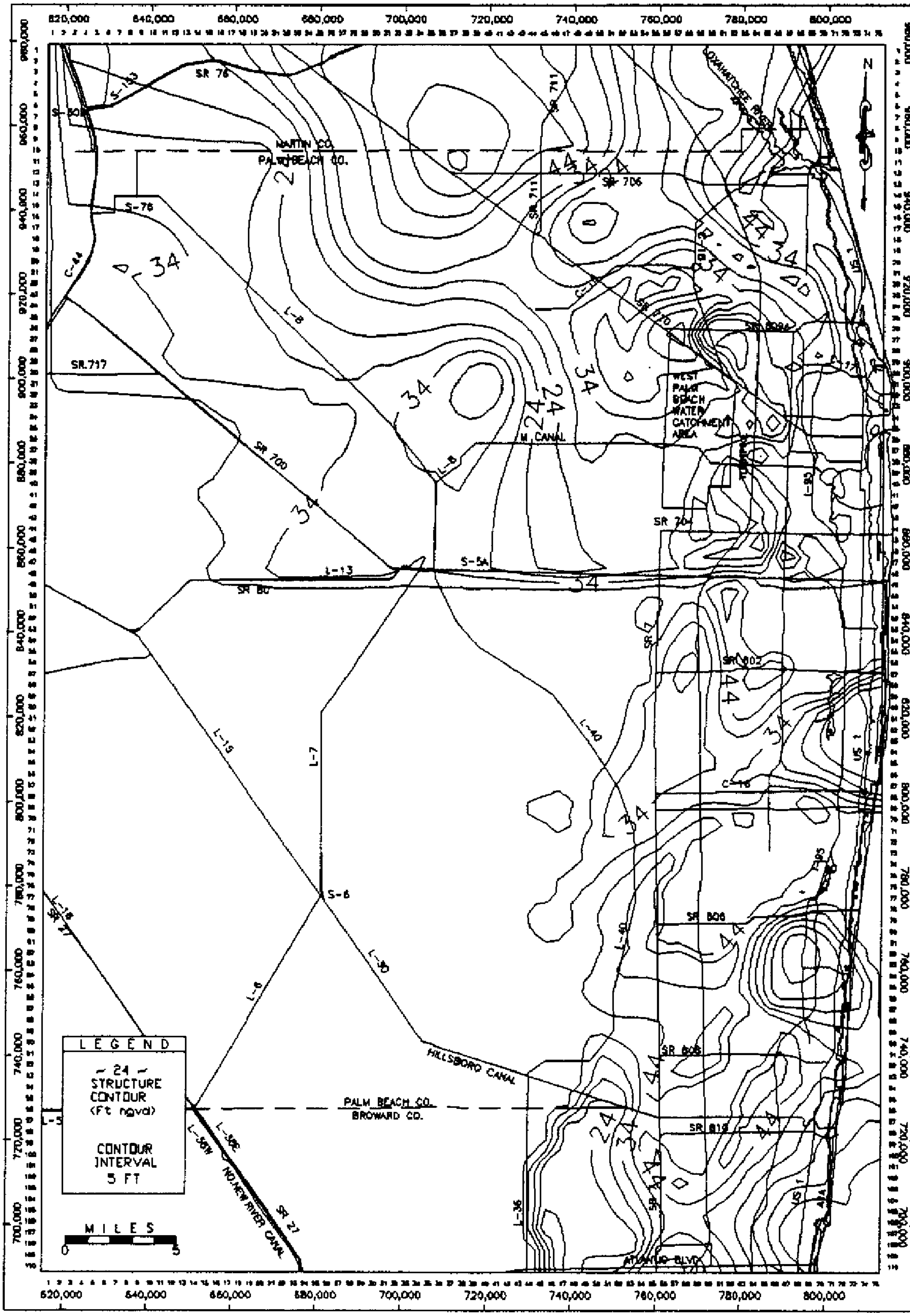


Figure D-1. Thickness of Layer 2

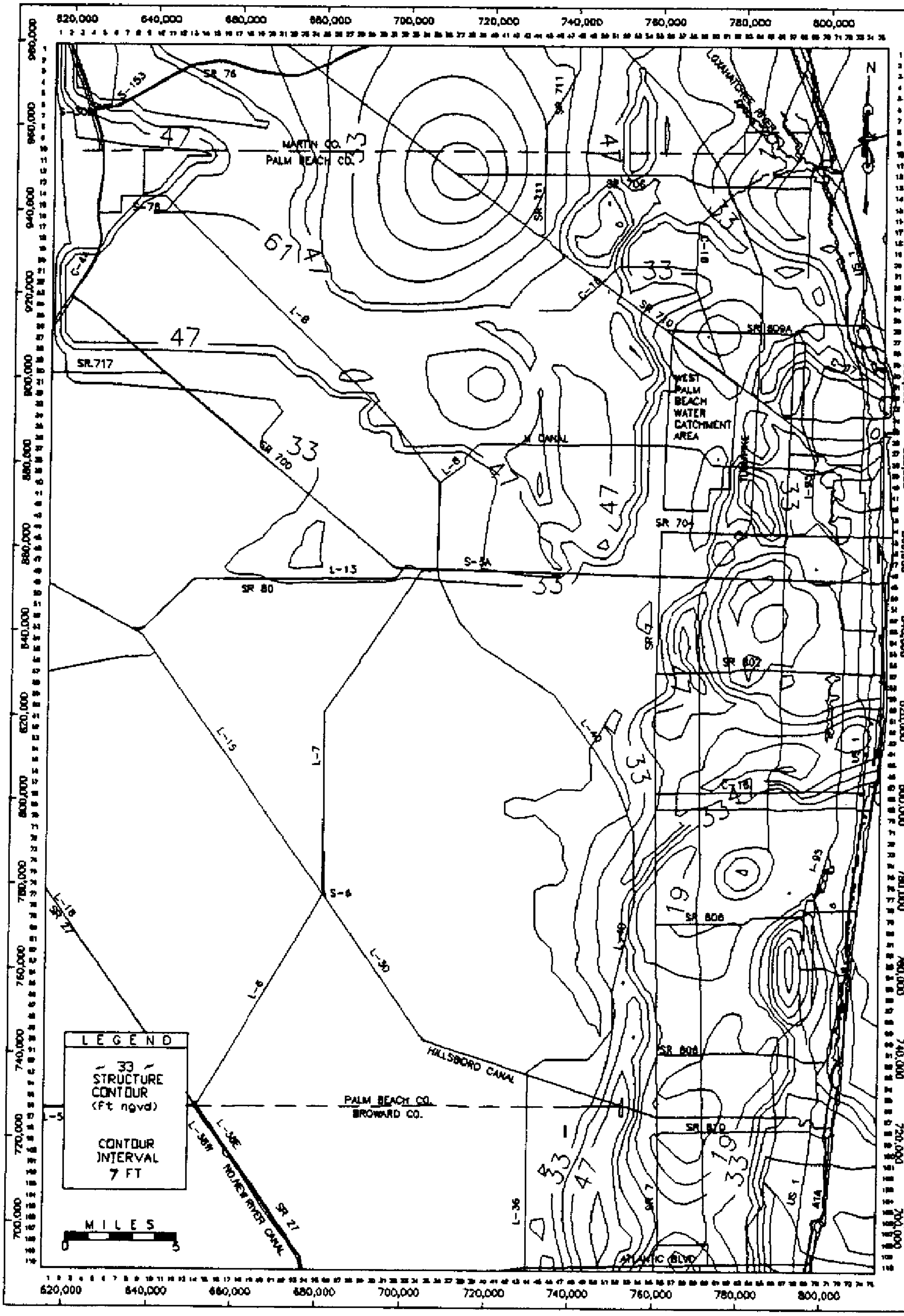


Figure D-2. Thickness of Layer 3

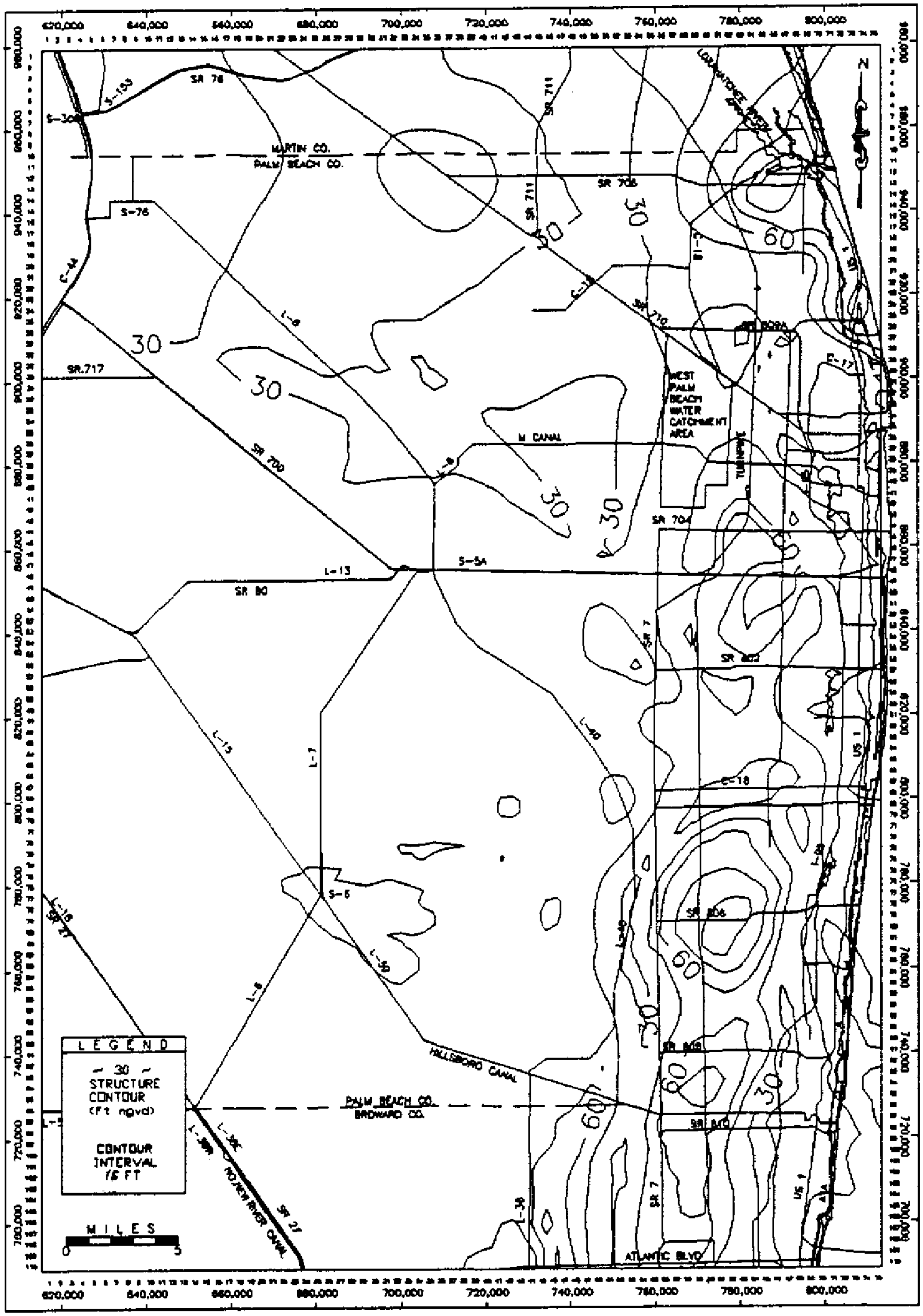


Figure D-3. Thickness of Layer 4

APPENDIX E

Information Used for Calculating Pumpage

LIST OF TABLES - APPENDIX E

Table E-1. Public Water Supply Spreadsheet

PALM BEACH COUNTY-EAA

Permit #	Owner	Date Issued (mo/yr)	Lay	Row	Col	Type Use Code	Type Crop Code	Type Soil Code	Rain Stat Code	Irr Acres	Irr Eff (%)	Annual Alloc (mg)	Max Month (mg)	Source GW,SW	# of Wells	# of SW Pumps	# of Culvs	Facil #	Quad	Planer East	Planer North	Depth Code	Pump Intake Depth (ft)	Well Depth (ft)	Casing Depth (ft)	Well Diam (in)	Stat Code	Pump Type Code	Pump Capac (gpm)	Culv Diam (in)	Comments
5000267W	U.S.SUGAR CORP.	6/76	2	42	10	PWS	00			630.0		50.4	0.4	SW	1	2	0	1W	142	639336	870196	2	6	42	24	12	1	2	320	-1	
P010010W	JUPITER, TOWN OF	091074	4	13	64	PWS	00		18	8320.0		6,630.0		GW	41	0	0	1	126	783284	945800	2	-1	160	110	8	1	2	250	-1	5000010W
P020010W			4	13	64													2	126	782654	945800	2	-1	147	120	8	1	2	250	-1	5000010W
P030010W			4	13	64													3	126	783209	945516	2	-1	156	110	8	1	2	200	-1	5000010W
P050010W			4	13	64													5	126	783521	945369	2	-1	156	127	10	1	2	200	-1	5000010W
P060010W			4	14	64													6	126	782284	943619	2	-1	122	118	8	1	2	240	-1	5000010W
P070010W			4	14	64													7	126	782279	943852	2	-1	125	118	8	1	2	300	-1	5000010W
P080010W			4	14	64													8	126	782327	944409	2	-1	140	117	10	1	2	300	-1	5000010W
P090010W			4	14	64													9	126	782328	944609	2	-1	140	121	10	1	2	350	-1	5000010W
P100010W			4	14	64													10	126	782309	944810	2	-1	155	120	10	1	2	350	-1	5000010W
P110010W			4	14	64													11	126	782352	944179	2	-1	138	113	8	1	2	300	-1	5000010W
P120010W			4	14	64													12	126	783376	943594	2	-1	201	130	12	1	2	700	-1	5000010W
P130010W			4	14	64													13	126	784223	943258	2	-1	200	136	12	1	2	700	-1	5000010W
P140010W	74' OPEN IN L4, 19' IN L5		4	14	65													14	126	785039	943222	2	-1	210	117	12	1	2	500	-1	5000010W
P150010W			4	16	65													15	126	785108	938260	2	-1	185	110	12	1	2	250	-1	5000010W
P160010W			4	16	65													16	127	785949	938172	2	-1	165	130	12	1	2	650	-1	5000010W
P170010W			4	16	65													17	127	786809	938112	2	-1	165	132	12	1	2	550	-1	5000010W
P180010W			4	16	66													18	127	787609	938134	2	-1	177	120	12	1	2	350	-1	5000010W
P190019W			4	15	65													19	127	785217	942215	2	114	153	138	16	1	2	395	-1	5000010W
P200010W			4	15	64													20	126	783112	939829	2	92	148	104	16	1	2	360	-1	5000010W
P210010W			4	16	64													21	126	783436	938002	2	108	161	144	16	1	2	560	-1	5000010W
P220010W			4	16	64													22	126	782450	937940	2	108	153	137	16	1	2	590	-1	5000010W
P230010W			4	17	65													23	126	785105	934084	2	104	148	142	12	1	2	500	-1	5000010W
P240010W			4	18	65													24	126	785030	932500	2	104	148	142	12	1	2	820	-1	5000010W
P250010W			4	18	64													25	126	783441	932609	2	104	140	138	12	1	2	590	-1	5000010W
P260010W			4	18	64													26	126	782603	933058	2	104	145	145	12	1	2	340	-1	5000010W
P270010W			4	17	64													27	126	783034	934542	2	104	140	135	12	1	2	480	-1	5000010W
P280010W			4	17	64													28	126	781789	935292	2	104	158	125	12	1	2	400	-1	5000010W
5000010W	WELLS 29 AND GREATER NOT		4	19	65													29	127	785400	929505	2	104	150	135	12	3	2	500	-1	
5000010W	PUMPING IN 89 OR 90		4	19	65													30	127	785394	930737	2	104	150	135	12	2	2	400	-1	
5000010W			4	18	65													31	127	785375	931901	2	104	150	135	12	2	2	400	-1	
5000010W			4	18	65													32	127	785497	933891	2	104	150	135	12	2	2	400	-1	
5000010W			4	17	65													33	127	785504	934697	2	104	150	135	12	2	2	400	-1	
5000010W			4	18	66													34	127	787840	934291	2	104	150	135	12	2	2	400	-1	
5000010W			4	17	66													35	127	787242	936155	2	104	150	135	12	2	2	400	-1	
5000010W			4	17	65													36	127	785435	935691	2	104	150	135	12	2	2	400	-1	
5000010W			4	17	65													37	127	785440	936929	2	104	150	135	12	2	2	400	-1	
5000010W			4	17	64													38	126	784077	936601	2	104	150	135	12	2	2	400	-1	
5000030W	MANGONIA PARK UTILITY COMP	111574	5	37	71	PWS	00	0.9	3	640.0		230.0		GW	6	0	0	1	146	802197	883723	1	145	185	160	6	1	2	275	-1	
5000030W			5	37	71													2	146	802188	883920	1	145	185	160	8	1	2	325	-1	
5000030W			5	37	71													3	146	801976	884259	1	165	212	190	8	1	2	325	-1	
5000030W			5	37	71													4	146	802394	884286	1	131	187	146	8	1	2	325	-1	
5000030W			5	37	71													5	146	802147	884246	1	145	188	160	8	1	2	325	-1	
5000030W	14' IN L5, 10' IN L4		5	36	71													6	146	801660	884336	1	134	170	146	8	1	3	325	-1	
5000036W	PALM SPRINGS, VILLAGE OF	111574	5	54	69	PWS	00	0.8	3	3900.0		1,606.0		GW	12	0	0	1	165	795735	838561	2	-1	171	-1	8	1	2	250	-1	ONE WELL IS MONITORING;FAC.#
5000036W			5	54	69													2	165	795723	838872	2	-1	170	-1	8	1	2	250	-1	NOT KNOWN.
5000036W			5	54	69													3	165	795433	838755	2	1	182	1	10	1	2	400	1	
5000036W			4	54	69													4	165	795447	838483	2	-1	150	-1	12	1	2	500	-1	
5000036W			5	54	69													5	165	795257	839416	2	-1	223	-1	12	1	2	500	-1	
5000036W			5	54	69													6	165	795826	839372	2	-1	205	-1	12	1	2	500	-1	
5000036W			5	53	69													7	165	795406	839969	2	-1	200	-1	12	1	2	500	-1	
5000036W			5	53	69													8	165	795815	839931	2	-1	200	160	12	2	3	715	-1	3120GPM=Total Pump Capacity
5000036W			4	53	68													9	165	794514	841902	2	-1	210	104	12	2	3	700	-1	
5000036W			4	53	68													10	165	793640	841925	2	1	210	102	12	2	3	700	-1	
5000036W			4	53	68													11	165	792731	841964	2	-1	210	104	12	2	3	700	-1	
5000046W	TEQUESTA, VILLAGE OF	121374	2	10	69	PWS	00		18	3300.0		584.0		GW	22	0	0	5	127	795300	955154	2	-1	70	55	6	3	2	200	-1	
5000046W	ONLY WELLS WITH P-NAME		1	9	69													10	127	796133	956333	2	-1	45	30	6	3	2	175	-1	
5000046W	WERE PUMPED DURING 89-90		2	9	69													11	127	795772	958072	2	-1	60	40	6	3	2	175	-1	
5000046W	'		2	9	69													12	127	796546	958089	2	-1	60	40	6	3	2	175	-1	
5000046W	'		2	8	69													14	127	796217	958382	2	-1	60	40	6	3	2	175	-1	
5000046W	'		2	9	69													15	127	796172	958069	2	-1	60	40	6	3	2	175	-1	
5000046W	'		2	8	69													17	127	795655	958336	2	-1	80	60	8	3	2	180	-1	

Table E-1. Public Water Supply Spreadsheet (Continued)

P180046W			2	8	69										18	127	795035	959808	2	-1	60	38	8	1	2	200	-1	5000046W
P190046W			2	8	68										19	127	794853	960302	2	-1	60	36	8	1	2	200	-1	5000046W
P200046W			2	8	68										20	127	794709	960705	2	-1	60	35	8	1	2	200	-1	5000046W
5000046W '			2	8	69										21	127	795269	960705	2	-1	60	36	8	1	2	150	-1	
5000046W '			2	8	69										22	127	795724	960652	2	-1	60	35	8	1	2	150	-1	
P7R0046W			2	10	69										7R	127	795705	955229	2	-1	60	45	10	1	2	750	-1	5000046W
P230046W			2	8	68										23	127	794071	958635	2	-1	60	45	10	1	2	1250	-1	5000046W
P8R0046W			2	10	69										8R	127	796361	955487	2	-1	70	50	10	1	2	750	-1	5000046W
5000046W '			2	7	68										24	127	793003	961716	2	36	80	50	10	2	2	1000	-1	
5000046W '			2	10	67										1P	127	790529	954986	2	36	70	50	16	2	2	435	-1	
5000046W '			2	9	66										2P	127	787607	956522	2	36	70	50	16	2	2	600	-1	
5000046W '			2	9	66										3P	127	787867	956013	2	36	70	50	16	2	2	330	-1	
5000046W '			2	8	69										4P	127	795147	959584	2	36	80	50	11	2	2	800	-1	
5000083W	ATLANTIS, CITY OF	041175	3	59	69	PWS	00	3	856.0	267.8	GW	5	0	0	1	183	796730	825551	2	-1	-1	85	8	1	2	250	-1	Shallow Aquifer
5000083W			3	59	69										2	183	797424	825525	2	-1	-1	85	8	1	2	250	-1	
5000083W			3	59	69										3	183	797097	825497	2	-1	-1	100	8	1	2	250	-1	
5000083W			3	59	69										4	183	796380	825580	2	-1	-1	95	10	1	2	250	-1	
5000083W			3	59	69										5	183	797369	825014	2	-1	-1	95	8	1	2	250	-1	
P1W0135W	PALM BCH CO BD OF COMMISSI	081575	4	47	69	PWS	00	3	64100.0	4,890.0	GW	40	0	0	1-1	165	795033	857502	2	-1	156	107	10	1	2	350	-1	PLANT #1W 5000135
P1W0135W			4	47	69										1-2	165	795472	856754	2	-1	168	128	10	1	2	350	-1	PERMIT TO AUGUST BOARD;REVIE
P1W0135W			4	47	68										1-4	165	794347	857020	2	-1	177	137	10	1	2	350	-1	PLANT #1W 5000135 TIONS(APP
P1W0135W			4	47	69										1-5	165	795989	857888	2	-1	180	140	10	1	2	350	-1	PLANT #1W 5000135
P1W0135W			4	47	69										1-6	165	797347	857886	2	-1	180	140	10	1	2	350	-1	PLANT #1W 5000135
P1W0135W			4	46	68										1-7	165	793709	857991	2	-1	180	115	10	1	2	750	-1	PLANT #1W 5000135
P1W0135W			4	46	68										1-8	165	792788	858393	2	-1	155	130	12	1	2	750	-1	PLANT #1W 5000135
P1W0135W	14' IN LAY3, 26' IN LAY4		4	46	67										1-9	165	792159	858909	2	-1	150	110	12	1	2	50	-1	PLANT #1W 5000135
P1W0135W	24' IN LAY3, 16' IN LAY4		3	46	67										1-10	165	791607	858260	2	-1	140	100	12	1	2	1000	-1	PLANT #1W 5000135
P1W0135W			4	47	67										1-11	165	792173	857388	2	-1	145	105	12	1	2	800	-1	PLANT #1W 5000135
P1W0135W			4	47	67										1-12	165	792150	856436	2	-1	140	100	12	1	2	1000	-1	PLANT #1W 5000135
P1W0135W			4	47	67										1-13	165	791535	855669	2	-1	140	100	12	1	2	900	-1	PLANT #1W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	61										2-1	164	775586	836821	2	-1	120	90	10	1	2	600	-1	PLANT #2W-5 FUTURE WELLS
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	61										2-2	164	775948	836795	2	-1	120	90	10	1	2	600	-1	PLANNED:2-14 THRU 2-2 18
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	62										2-3	164	776411	837115	2	-1	120	90	10	1	2	600	-1	PLANT #2W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	62										2-4	164	776471	837673	2	-1	120	90	10	1	2	600	-1	PLANT #2W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	62										2-5	164	776468	838156	2	-1	120	90	10	1	2	1000	-1	PLANT #2W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	62										2-6	164	776445	838594	2	-1	120	90	10	1	2	1000	-1	PLANT #2W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	54	62										2-7	164	777030	836826	2	-1	120	90	10	1	2	1000	-1	PLANT #2W 5000135
P2W0135W			3	55	61										2-9	164	774999	836404	2	-1	115	85	12	1	2	1000	-1	PLANT #2W 5000135
P2W0135W			3	55	61										2-10	164	774538	836375	2	-1	115	85	12	1	2	1000	-1	PLANT #2W 5000135
P2W0135W			3	55	61										2-11	164	774016	836375	2	-1	115	85	12	1	2	1000	-1	PLANT #2W 5000135
P2W0135W	18' IN LAY3, 12' IN LAY4		3	55	60										2-12	164	773539	836389	2	-1	120	90	12	1	2	1000	-1	PLANT #2W 5000135
P2W0135W			3	55	60										2-13	164	773036	836360	2	-1	100	70	12	1	2	1000	-1	PLANT #2W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-1	164	779403	862424	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-2	164	779772	862911	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	44	63										8-3	164	780246	863453	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-4	164	780617	862784	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-5	164	781178	862793	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-7	164	780640	862017	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-8	164	779556	862038	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	27' IN LAY3, 13' IN LAY4		3	46	62										8-10	164	777489	860156	2	-1	120	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	62										8-12	164	778556	861435	2	-1	150	80	12	1	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	62										8-11	164	778138	860978	2	-1	150	80	12	2	2	1000	-1	PLANT #8W 5000135
P8W0135W	27' IN LAY3, 43' IN LAY4		4	46	62										8-15	164	778606	860301	2	-1	150	80	12	2	2	1000	-1	PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	62										8-14	164	778633	860856	2	60	150	80	12	2	2	1000		PLANT #8W 5000135
P8W0135W	OPEN TO BOTH L3 AND L4		4	45	63										8-6	164	781659	861986	2	60	150	80	12	2	2	1000		PLANT #8W 5000135
P5W0135W			3	67	62										5-1	164	778587	803952	2	-1	120	90	12	1	3	700	-1	PLANT #5W 5000134
P5W0135W			3	67	62										5-2	164	778517	804815	2	-1	120	90	12	1	3	700	-1	PLANT #5W 5000134
5000137W	TROPICAL BREEZE ESTATES,	I090575	4	67	67	PWS	00	25	48.0	23.7	0.2 GW	2	0	0	1	183	790160	803387	2	-1	120	115	6	1	3	200	-1	
5000137W			4	67	67										2	183	790334	803500	2	-1	120	115	6	1	3	200	-1	
5000177W	DELRAY BEACH, CITY OF					PWS	00		12000.0	5,610.0	GW	29	0	0	7-W	201			2	6.91	130	80	12	1	3	750	-1	WESTERN WELLFIELD;WELL LOC.N
5000177W															8-W	201			2	-1	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W															9-W	201			2	-1	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W															10-W	201			2	-1	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W															11-W	201			2	-1	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W															12-W	201			2	-1	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W															14-W	201			2	7.2	150	100	12	1	3	750	-1	WELL LOCATION N/A
5000177W			3	77	72										1	201	803790	778599	2	-1	90	-1	2	1	3	-1	-1	EASTERN WELLFIELD
5000177W			3	77	72										2	201	803580	777887	2	-1	97	-1	2	1	3	1500	-1	

Table E-1. Public Water Supply Spreadsheet (Continued)

5000177W			4	77	71													3	201	802641	776955	2	-1	108	-1	2	1	3	1000	-1	
5000177W			4	78	71													5	201	802592	775845	2	-1	120	-1	2	1	3	1500	-1	
5000177W			4	78	71													6	201	802562	775143	2	-1	100	-1	2	1	3	1000	-1	
5000177W			4	78	71													7	201	802303	774778	2	-1	109	-1	2	1	3	1000	-1	
5000177W			4	79	71													8	201	802291	773176	2	-1	100	-1	2	1	3	1000	-1	
5000177W			4	79	71													9	201	802300	772479	2	-1	100	-1	2	1	3	1000	-1	
5000177W			2	79	72													10	201	803601	772375	2	-1	63	-1	2	1	3	1000	-1	
5000177W			3	79	72													11	201	803376	771892	2	-1	93	-1	2	1	3	-1	-1	
5000177W			3	79	72													12	201	802973	771865	2	-1	88	-1	2	1	3	1000	-1	
5000177W			4	79	71													13	201	802381	771012	2	-1	114	-1	2	1	3	1000	-1	
5000177W			3	79	72													14	201	803323	770814	2	-1	74	-1	2	1	3	1000	-1	
5000177W			3	80	72													15	201	803279	769779	2	-1	76	-1	2	1	3	700	-1	
5000177W			4	80	71													16	201	802517	769651	2	-1	90	-1	2	1	3	1000	-1	
5000177W			3	80	72													17	201	803287	769307	2	-1	93	-1	2	1	3	800	-1	
5000177W			4	80	70													21	201	798251	770328	2	-1	150	110	2	1	3	1000	-1	
5000177W			4	80	70													22	201	798517	769852	2	-1	150	110	2	1	3	1000	-1	
5000177W			4	80	70													23	201	798337	769500	2	-1	150	110	2	1	3	1000	-1	
5000177W			4	80	70													24	201	798326	769176	2	-1	140	100	2	1	3	1000	-1	
5000177W			4	80	70													25	201	798182	768805	2	-1	150	110	2	1	3	1000	-1	
5000177W			4	80	70													26	201	797933	768491	2	-1	150	110	2	1	3	1000	-1	
5000178W	CENTURY VILLAGE, INC	111475	4	44	65	PWS	00			690.0				GW	1	0	0	1	164	784716	863776	2	-1	157	122	12	1	2	700	-1	
5000179W	JAMICA BAY, INC.	111475	3	67	66	PWS	15	0.8	25	103.0	75	69.2	11.6	GW	4	0	0	1	183	787645	803830	2	-1	105	100	8	1	2	165	-1	2 WELLS FOR PWS & 2
5000179W			3	67	66													2	183	787455	803824	2	-1	105	100	8	1	2	165	-1	WELLS FOR IRRIGATION.
5000179W			3	67	66													3	183	789149	803920	2	-1	105	100	8	1	2	525	-1	
5000179W			3	67	65													4	183	786792	803573	2	-1	105	100	8	1	2	525	-1	
5000234W	LAKE WORTH UTILITIES	051376	5	58	72	PWS	00		25	5200.0		2,850.0		GW	14	0	0	1	183	805232	828038	2	-1	250	-1	12	1	3	1000	-1	
5000234W			5	58	72													2	183	805294	828499	2	-1	200	-1	14	1	3	900	-1	
5000234W			3	58	72													4	183	804981	828226	2	-1	110	-1	12	1	3	600	-1	
5000234W			3	58	72													5	183	804692	828706	2	-1	108	-1	12	1	3	300	-1	
5000234W			3	58	72													6	183	804561	828667	2	-1	100	-1	10	5	3	150	-1	
5000234W			4	58	72													7	183	804589	828379	2	-1	150	-1	12	1	3	1000	-1	
5000234W			4	57	72													8	183	805026	829277	2	-1	110	-1	10	1	3	500	-1	
5000234W			3	57	72													9	183	805024	829974	2	-1	105	-1	14	1	3	1000	-1	
5000234W			3	57	72													10	183	804533	830003	2	-1	90	-1	12	1	3	1100	-1	
5000234W			3	57	72													11	183	804415	830050	2	-1	102	-1	12	1	3	500	-1	
5000234W			4	57	72													13	183	805019	829647	2	-1	140	-1	10	1	3	650	-1	
5000234W			5	58	72													14	183	805289	828211	2	-1	250	-1	12	1	3	1000	-1	
5000234W			3	57	72													15	183	803700	829300										constructed, abandoned,
5000346W	HIGHLAND BEACH, TOWN OF		3	86	71	PWS	00			290.0		508.0		GW	7	0	0	3	201	902730	754119	2	-1	70	-1	-1	1	3	250	-1	proposed to be replaced.
5000346W	OPEN TO BOTH L2 AND L3		3	66	71													4	201	801054	753617	2	-1	104	37	18	1	1	400	-1	
5000346W	OPEN TO BOTH L2 AND L3		3	86	71													5	201	801204	754457	2	-1	104	37	18	1	1	410	-1	
5000346W	OPEN TO BOTH L2 AND L3		3	86	71													6	201	801250	754880	2	-1	120	37	18	1	1	700	-1	
5000346W	16' IN L3, 24' IN L4		4	86	71													7	201	800247	754180	2	-1	120	80	12	2	2	600	-1	
5000365W	SEACOAST UTILITIES AUTHORI	041588	4	30	70	PWS	00		3			7,060.0		GW	38	0	0	1	146	799255	901764	2	-1	147	65	10	1	3	500	-1	OLD DIXIE WELLFIELD NOT IN
5000365W	(PERMIT BEING COMPLETELY		4	30	70													2	146	799234	902129	2	-1	140	-1	10	1	3	350	-1	NEW DATA WELLS #9-17 HAVE
5000365W	REVIEWED-SEE J.GIDDINGS		4	30	70													3	146	799160	902325	2	-1	145	103	10	1	3	400	-1	BEEN REPLACED BY BURMA
5000365W	OR S.KRUPA)		4	30	70													4	146	798998	902572	2	-1	161	131	12	1	3	600	-1	ROAD WELLFIELDS
5000365W	20' IN L4, 30' IN L5		5	29	70													5	146	798742	902863	2	-1	180	130	12	1	3	600	-1	N=N.P.B. WELLFIELD
5000365W			3	30	70													6	146	798670	902573	2	-1	80	-1	12	1	3	350	-1	
5000365W	25' IN L4, 25' IN L5		5	30	70													7	146	798641	902333	2	-1	180	130	12	1	3	600	-1	
5000365W	20' IN L4, 25' IN L5		5	30	70													8	146	798829	901794	2	-1	180	135	12	1	3	600	-1	
5000365W			5	31	69													21	146	797090	897958	2	1	190	150	12	2	3	600	-1	B=BURMA RD.
5000365W			5	31	69													22	146	797333	898524	2	-1	180	150	12	2	3	600	-1	
5000365W			5	31	70													23	146	797529	899065	2	-1	180	150	12	2	3	600	-1	
5000365W			5	31	70													24	146	797719	899497	2	-1	180	150	12	2	3	600	-1	
5000365W			5	31	70													25	146	797840	900030	2	-1	180	150	12	2	3	600	-1	
5000365W																		P-4	146			2	-1	180	-1	12	1	3	50	-1	P=P.B.G. WELLFIELDWELL LOC.N
5000365W																		P-6	146			2	-1	145	-1	8	1	3	300	-1	WELL LOCATION N/A (GUESSED)
5000365W																		P-7	146			2	-1	180	130	12	1	3	450	-1	WELL LOCATION N/A
5000365W																		P-8	146			2	-1	140	-1	12	1	3	1500	-1	WELL LOCATION N/A
5000365W																		P-9	146			2	-1	140	-1	12	1	3	1500	-1	WELL LOCATION N/A
5000365W																		P-10	146			2	-1	140	-1	12	1	3	1500	-1	WELL LOCATION N/A
5000365W																		P-11	146			2	-1	180	-1	16	1	3	750	-1	WELL LOCATION N/A
5000365W	OPEN TO L3, L4, L5		4	23	64													H-1	145	784143	919680	2	-1	200	80	12	1	3	1230	-1	NO MAPS FOR THESE WELLS:#1,
5000365W	OPEN TO L3, L4, L5		4	23	64													H-5	145	784101	918803	2	-1	200	90	12	1	3	1230	-1	#5-18 H=HOOD RD.
5000365W	ALSO OPEN TO PART OF 4		3	24	64													H-6	145	784039	918036	2	-1	123	78	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO OPEN TO PART OF 4		3	24	64													H-7	145	784024	917207	2	-1	125	78	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO OPEN TO PART OF 4		3	23	65													H-8	145	784806	918770	2	-1	125	88	12	1	3	1230	-1	WELL LOCATION N/A

Table E-1. Public Water Supply Spreadsheet (Continued)

5000365W	21 IN L3, 13' IN L4		3	24	65										H-9	145	784808	917983	2	-1	120	86	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	21' IN L3, 23' IN L4		4	24	65										H-10	145	784792	917291	2	-1	130	86	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	21' IN L3, 23' IN L4		4	24	65										H-11	145	784716	916350	2	-1	130	86	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO EXTENDS 23' INTO L4		3	24	64										H-12	145	784012	916479	2	-1	130	75	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO EXTENDS 37' INTO L4		3	25	64										H-13	145	783991	915851	2	-1	130	74	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO OPEN TO PART OF L4		3	25	65										H-14	145	784706	915510	2	-1	130	72	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO OPEN TO PART OF L4		3	24	65										H-16	146	785493	916220	2	-1	129	72	12	1	3	1230	-1	WELL LOCATION N/A
5000365W	ALSO OPEN TO PART OF L4		3	25	64										H-17	145	783964	915027	2	-1	130	72	12	1	3	1230	-1	WELL LOCATION N/A
5000365W															H-18	146			2	-1	193	138	12	1	3	1230	-1	WELL LOCATION N/A
5000365W			4	26	60										C-1	146	771500	911800	2	-1	106	-1	6	3	3	190	-1	NO MAPS FOR THESE WELLS:#1-4
5000365W			4	30	70										C-2	146	798000	900300	2	-1	106	-1	6	3	3	125	-1	C=CABANA COLONY
5000365W			4	24	70										C-3	146	799400	917700	2	-1	106	-1	6	3	3	200	-1	WELL LOCATION N/A
5000365W															C-4	146			2	-1	110	-1	10	3	3	350	-1	WELL LOCATION N/A
P1E0367W	CITY OF BOCA RATON	061688	3	93	70	PWS	00	23		15,750.0	GW	64	0	0	1E	216	797876	734405	2	-1	120	90	12	1	2	700	-1	SOUTHEAST WELLFIELD
P3E0367W	21' IN L3, 8' IN L4		3	93	70										3E	216	797872	736188	2	-1	120	91	12	1	2	700	-1	SOUTHEAST WELLFIELD
P4E0367W	21' IN L3, 8' IN L4		3	92	70										4E	216	797884	737188	2	-1	120	91	12	1	2	700	-1	SOUTHEAST WELLFIELD
P5E0367W	21' IN L3, 8' IN L4		3	92	70										5E	216	798157	737999	2	-1	120	91	12	1	2	700	1	SOUTHEAST WELLFIELD
P9E0367W			3	91	70										9E	216	797633	740116	2	-1	113	92	14	1	2	700	-1	SOUTHEAST WELLFIELD
P10E367W			3	91	70										10E	216	797790	740610	2	-1	113	88	14	1	2	700	-1	SOUTHEAST WELLFIELD
P11E367W			3	91	70										11E	216	798004	741399	2	-1	113	90	14	1	2	700	-1	SOUTHEAST WELLFIELD
P12E367W			3	91	69										12E	216	796920	741509	2	-1	120	85	14	1	2	700	-1	SOUTHEAST WELLFIELD
P13E367W			3	90	69										13E	216	796863	742014	2	-1	120	85	14	1	2	700	-1	NORTHEAST WELLFIELD
P14E367W			3	90	69										14E	216	796919	742614	2	-1	120	85	14	1	2	700	-1	NORTHEAST WELLFIELD
P15E367W			3	90	69										15E	201	796547	743429	2	-1	120	85	14	1	2	700	-1	NORTHEAST WELLFIELD
P16E367W			3	90	69										16E	201	796558	744117	2	-1	120	85	14	1	2	700	-1	NORTHEAST WELLFIELD
P17E367W			3	89	69										17E	201	796589	744628	2	-1	110	85	14	1	2	700	-1	NORTHEAST WELLFIELD
P18E367W			3	89	69										18E	201	796540	745741	2	-1	115	90	14	1	2	700	-1	NORTHEAST WELLFIELD
P19E367W			3	89	69										19E	201	797363	745601	2	-1	119	90	14	1	2	700	-1	NORTHEAST WELLFIELD
P20E367W			3	89	69										20E	201	797070	746555	2	-1	120	90	14	1	2	700	-1	NORTHEAST WELLFIELD
P21E367W			3	88	69										21E	201	796247	747137	2	-1	117	90	14	1	2	700	-1	NORTHEAST WELLFIELD
P22E367W	21' IN L3, 19' IN L4		3	88	69										22E	201	797324	747579	2	-1	140	100	14	1	2	700	-1	NORTHEAST WELLFIELD
P23E367W			4	88	70										23E	201	797758	748044	2	-1	140	107	14	1	2	700	-1	NORTHEAST WELLFIELD
P24E367W			3	91	69										24E	216	796582	740308	2	-1	150	87	18	1	2	1400	-1	SOUTHEAST WELLFIELD
P25E367W			3	91	69										25E	216	797015	740959	2	-1	130	87	12	1	2	1400	-1	SOUTHEAST WELLFIELD
P1W0367W			4	92	65										1W	215	784560	739015	2	-1	116	109	20	1	2	1400	-1	SOUTHWEST WELLFIELD
P2W0367W			4	92	65										2W	215	784580	738429	2	-1	124	104	14	1	2	1400	-1	SOUTHWEST WELLFIELD
P3W0367W			4	92	65										3W	215	784568	737480	2	-1	118	107	20	1	2	1400	-1	SOUTHWEST WELLFIELD
P4W0367W			4	93	65										4W	215	784604	736123	2	-1	110	107	24	1	2	1400	-1	SOUTHWEST WELLFIELD
P5W0367W			4	93	65										5W	215	784583	735338	2	-1	107	105	20	1	2	1400	-1	SOUTHWEST WELLFIELD
P6W0367W			4	93	65										6W	215	784634	734574	2	-1	121	105	24	1	2	1400	-1	SOUTHWEST WELLFIELD
P7W0367W			4	94	65										7W	215	784595	733589	2	-1	150	105	14	1	2	1400	-1	SOUTHWEST WELLFIELD
P8W0367W			4	94	65										8W	215	784653	732442	2	-1	124	108	24	1	2	1400	-1	SOUTHWEST WELLFIELD
P9W0367W			4	94	65										9W	215	est row & col		2	-1	150	109	14	1	2	1400	-1	WELL MAY BE ABANDONED-SW FIE
P10W367W			4	91	67										10W	216	791028	740576	2	-1	120	100	24	1	2	1400	-1	CENTRAL WELLFIELD
P11W367W			5	91	67										11W	216	791723	739202	2	-1	153	144	20	1	2	1400	-1	CENTRAL WELLFIELD
P12W367W			5	91	67										12W	216	792052	740794	2	-1	150	141	20	1	2	1400	-1	CENTRAL WELLFIELD
P13W367W	26' IN L4, 73' IN L5		5	90	64										13W	200	782101	744162	2	-1	180	127	12	1	2	1400	-1	NORTHWEST WELLFIELD
P14W367W			5	89	64										14W	200	782946	744599	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P15W367W			5	89	64										15W	200	783871	745176	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P16W367W			5	89	65										16W	200	784877	745361	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P17W367W			5	89	65										17W	200	784864	746749	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P18W367W			4	88	65										18W	200	784830	747610	2	-1	140	99	12	1	2	1400	1	NORTHWEST WELLFIELD
P19W367W	38' IN L4, 14' IN L5		4	88	65										19W	200	784839	748858	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P20W367W			4	87	65										20W	200	784819	749735	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P21W367W			4	87	64										21W	200	784023	749740	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P22W367W			4	87	64										22W	200	782481	749777	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P23W367W			4	87	64										23W	200	781692	749726	2	-1	167	115	12	1	2	1400	-1	NORTHWEST WELLFIELD
P24W367W			4	87	65										24W	200	785722	749756	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P25W367W			4	88	65										25W	201	786867	749434	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
P26W367W			4	87	63										26W	200	780477	749697	2	-1	162	110	12	1	2	1400	-1	NORTHWEST WELLFIELD
5000401W	PALM BCH CO UTILITIES	011377	4	94	57	PWS	00	23	12,000.0	3,200.0	GW	7	0	0	1	215	763324	731687	2	-1	170	160	10	1	3	580	-1	
5000401W			4	94	57										2	215	763510	732003	2	-1	115	105	12	1	3	1000	-1	FROM BISCAYNE AQUIFER
5000401W			4	94	57										3	215	764199	731456	2	-1	125	120	12	1	3	1000	-1	
5000401W			4	95	57										4	215	764950	731154	2	-1	111	105	12	1	3	1000	-1	
5000401W			4	95	57										5	215	765653	730747	2	-1	115	110	12	1	3	1000	-1	
5000401W			4	94	56										6	215	762410	732007	2	-1	116	110	12	1	3	1000	-1	
5000401W			4	95	56										7	215	762550	730915	2	-1	125	113	12	1	3	1000	-1	
P100444W	ROYAL PALM BCH, VILLAGE OF	051277	2	45	54	PWS	00		4,963.0			11	0	0	1L	164	755886	862862	2	-1	70	64	8	1	2	400	-1	5000444W

Table E-1. Public Water Supply Spreadsheet (Continued)

P200444W			2	45	54											2L	164	755348	862918	2	-1	66	61	8	1	2	400	-1	5000444W
P300444W			2	44	54											3L	164	755372	863551	2	-1	66	61	8	1	2	300	-1	5000444W
P400444W			2	45	54											4L	164	755266	862422	2	-1	69	55	8	1	2	525	-1	5000444W
P500444W			2	45	54											5L	164	755880	862408	2	-1	64	54	8	1	2	525	-1	5000444W
P600444W	23' IN L2, 12' IN L3		2	45	54											6L	164	756663	862314	2	-1	90	55	12	1	2	600	-1	5000444W
P700444W	23' IN L2, 7' IN L3		2	45	54											7L	164	757407	862286	2	-1	85	55	12	1	2	600	-1	5000444W
001-460W	RIVIERA BEACH, CITY OF	071477	2	34	72	PWS	00		3	8,700.0	3,250.0	GW	24	0	0	1	146	804672	891054	2	50	74	54	8	1	2	345	-1	
002-460W			2	34	72											2	146	804577	891325	2	50	73	53	8	1	2	425	-1	
004-460W			5	34	72											4	146	804283	891706	2	65	210	170	8	1	2	225	-1	
005-460W			5	34	72											5	146	804248	891861	2	65	210	185	12	1	2	250	-1	
006-460W			5	34	72											6	146	804130	892028	2	65	238	198	12	1	2	265	-1	
007-460W			5	34	72											7	146	804784	890634	2	65	201	181	12	1	2	525	-1	
009-460W			5	34	71											9A	146	800588	891006	2	65	190	160	12	1	2	425	-1	
010-460W			5	34	71											10A	146	800614	891393	2	65	200	170	12	1	2	285	-1	
011-460W			5	34	72											11	146	803369	891317	2	65	312	272	12	1	2	475	-1	
012-460W			5	34	71											12	146	801298	890622	2	65	190	160	10	1	2	600	-1	
013-460W			5	33	72											13	146	804029	892361	2	65	233	193	12	1	2	360	-1	
015-460W			5	34	72											15	146	805078	889722	2	65	227	187	12	1	2	400	-1	
016-460W			5	33	72											16	146	804497	893155	2	65	230	190	10	1	2	360	-1	
017-460W			5	33	72											17	146	803691	893347	2	65	245	205	10	1	2	575	-1	
018-460W			5	33	72											18	146	804943	892258	2	65	222	182	10	1	2	375	-1	
021-460W			5	34	70											21	146	799289	890304	2	65	205	165	12	1	2	450	-1	
801-460W			5	36	71											801	146	800781	886669	2	80	220	180	12	1	2	600	-1	
802-460W			4	36	68											802	146	792287	886083	2	80	152	112	12	1	2	600	-1	
803-460W			3	36	67											803	146	790851	886572	2	80	135	95	12	1	2	550	-1	
805-460W			4	36	68											805	146	793500	886607	2	95	145	105	12	1	2	500	-1	
851-460W			4	37	66											851	146	788564	882867	2	80	160	100	12	1	2	700	-1	
852-460W			4	37	67											852	146	789910	882892	2	80	160	100	12	1	2	700	-1	
861-460W			3	37	65	GUESSING LAYERS UNTIL SPECS RESEARCHED										861	146	785600	884000										
862-460W			3	37	65	GUESSING LAYERS UNTIL SPECS RESEARCHED										862	146	785600	883100										
871-460W			3	36	66	GUESSING LAYERS UNTIL SPECS RESEARCHED										871	146	787700	884450										
5000464W	ACME IMPROVEMENT DISTRICT	071477	1	51	64	PWS	00	0.4	17	6,500.0		GW	25	0	0	1	164	782052	846862	2	15	35	20	6	1	2	66	-1	
5000464W			2	51	64											4	164	782467	846549	2	25	50	25	3	1	2	95	-1	
5000464W			2	51	64											5	164	782731	846896	2	25	45	20	3	1	2	60	-1	
5000464W			3	50	52											RO1	164	750821	847984	2	-1	120	70	24	1	3	625	-1	
5000464W			3	50	52											RO2	164	750352	847609	2	-1	100	75	20	2	3	625	-1	
5000464W			3	50	52											RO3	164	750071	848130	2	-1	100	75	20	2	3	625	-1	
5000464W			3	50	53											RO4	164	752797	848482	2	-1	100	75	20	2	3	625	-1	
5000464W			3	50	53											RO5	164	754726	849199	2	-1	100	75	20	2	3	625	-1	
5000464W			1	51	65											7	165	786706	847121	2	20	40	20	6	1	1	115	-1	
5000464W	19' in 11, 20'(all) of 12 1' of 1		2	51	65											8	165	786711	846499	2	20	80	20	6	1	3	300	-1	
5000464W			1	51	65											13	165	786691	844736	2	20	40	20	6	1	1	110	-1	
5000464W			1	52	65											15	165	786671	843585	2	20	40	20	6	1	1	223	-1	
5000464W	19' in 11, 20'(all) of 12 1' of 1		2	52	65											17	165	786659	842543	2	20	60	20	6	1	1	227	-1	
5000464W			3	58	53											18	182	754636	826753	2	70	90	70	12	1	2	1150	-1	
5000464W			3	58	54											19	182	756133	826853	2	70	90	70	12	1	2	1150	-1	
5000464W			3	58	54											20	182	757861	826810	2	70	90	70	12	1	2	1150	-1	
5000464W			3	58	55											22	182	759465	828479	2	-1	-1	85	12	2	3	-1	-1	
5000464W			3	57	55											23	182	759548	829944	2	-1	-1	85	12	2	3	-1	-1	
5000464W			3	57	55											24	182	758798	831210	2	-1	-1	85	12	2	3	-1	-1	
5000499W	BOYNTON BEACH, CITY OF	041678	2	71	73	PWS	00		25		7,680.0	GW	35	0	0	1E	183	806571	793310	2	-1	54	48	8	1	3	620	-1	ORIGINAL PLANER COORDINATES
5000499W			2	71	73											2E	183	806500	792903	2	-1	60	49	8	1	3	625	1	ORIGINAL PLANER COORDINATES
5000499W			2	71	73											3E	183	806270	793226	2	-1	62	52	8	1	3	625	-1	ORIGINAL PLANER COORDINATES
5000499W			2	72	72											6E	183	804469	793377	2	-1	76	54	6	1	3	486	-1	
5000499W			2	71	72											7E	183	804852	793375	2	-1	75	54	8	1	3	833	-1	
5000499W			2	71	72											8E	183	804779	793130	2	-1	70	50	8	1	3	694	-1	
5000499W	11' in 12, 19' in 13		3	71	72											9E	183	804471	793099	2	-1	103	73	8	1	3	650	-1	
5000499W			5	71	72											10E	183	804163	793130	2	-1	270	235	12	1	3	750	-1	
5000499W			5	71	72											11E	183	804148	793346	2	-1	270	235	12	1	3	750	-1	
5000499W			5	70	72											12E	183	803504	794705	2	-1	270	235	12	1	3	750	-1	
5000499W			5	71	72											13E	183	803761	793843	2	-1	270	235	12	1	3	750	-1	
5000499W			5	70	72											14E	183	803966	794732	2	-1	270	235	12	1	3	750	-1	
5000499W			5	71	71											15E	183	802219	792663	2	-1	234	204	12	1	3	764	-1	
5000499W			5	71	71											16E	183	802009	791986	2	-1	239	209	12	1	3	694	-1	
5000499W			5	72	71											17E	183	801895	791489	2	-1	201	165	12	1	3	556	-1	
5000499W			5	72	71											18E	183	801656	790953	2	-1	201	165	12	1	3	850	-1	
5000499W			5	72	71											19E	183	801332	790949	2	-1	204	168	12	1	3	833	-1	
5000499W			5	72	71											20E	183	801344	791440	2	1	206	170	12	1	3	625	-1	

Table E-1. Public Water Supply Spreadsheet (Continued)

5000499W			5	71	71												21E	183	801206	791978	2	-1	204	166	12	1	3	833	-1	
5000499W			5	71	71												22E	183	801083	792646	2	-1	204	168	12	1	3	625	-1	
5000499W			5	70	72												23E	183	803258	796809	2	-1	270	235	12	2	3	750	-1	
5000499W			5	69	72												24E	183	803243	797792	2	-1	270	235	12	2	3	750	-1	
5000499W			5	69	64												1W	182	783312	798550	2	-1	164	132	16	1	3	1000	-1	TEST/PRODUCTION WELL
5000499W			5	68	64												2W	182	782402	800062	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												3W	182	782831	801190	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												4W	182	781806	801293	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												5W	182	782433	801337	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	69	64												6W	182	782549	799351	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	69	64												7W	182	782993	798945	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												8W	182	782990	799890	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												9W	182	783469	799889	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	68	64												10W	182	783947	799866	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	69	64												11W	182	783943	798902	2	-1	160	130	16	2	2	1000	-1	
5000499W			5	69	65												12W	182	784398	798548	2	-1	164	131	24	1	3	1000	-1	
5000499W			5	69	65												13W	182	784399	798909	2	-1	160	130	16	2	3	1000	-1	TEST/PRODUCTION WELL
5000501W	UNITED TECHNOLOGIES CORP	121577	1	18	43	PWS	00		18	7,078.4	105.6	43.9	GW	8	0	0	1	125	727160	933893	2	10	55	35	8	1	2	300	-1	
5000501W			1	18	43												2	125	727672	933915	2	12	57	37	8	1	2	300	-1	
5000501W			1	18	43												3	125	728235	933908	2	5	54	34	8	1	2	300	-1	
5000501W			1	18	43												4	125	728714	933911	2	11	56	36	8	1	2	300	-1	
5000501W			1	18	43												7	125	728442	933446	2	11	55	35	8	1	2	300	-1	
5000501W			1	18	44												8	125	729002	933428	2	10	54	34	8	1	2	300	-1	
5000506W	MANALAPAN, TOWN OF	111777	5	63	72	PWS	00		25	626.0	472.0	2.0	GW	12	0	0	2	183	805368	814519	2	8	206	171	8	1	2	300	-1	
5000506W			5	68	73												3	183	805866	814513	2	8	206	171	8	1	2	435	-1	
5000506W	8' in 13(biscayne), 12' in 14		3	63	74												4	183	809617	814823	2	8	114	94	8	1	2	295	-1	
5000506W			3	63	74												10	183	809402	814939	2	7	57	52	6	1	1	200	-1	
5000506W			3	63	74												11	183	809427	814811	2	7	62	54	6	1	1	200	-1	
5000506W			3	63	74												12	183	808154	813249	2	4	75	55	12	1	1	750	-1	
5000506W			3	63	74												13	183	808142	813990	2	4	75	55	12	2	1	750	-1	
5000511W	PALM BEACH CO WATER UTILIT	061578	4	75	63	PWS	00		3		3,328.0		GW	18	0	0	1	200	779637	781947	2	100	150	120	12	1	2	700	-1	GW FROM BISCAYNE AQUIFER
5000511W			4	75	62												2	200	779724	781397	2	100	150	120	12	1	2	700	1	
5000511W			4	75	63												3	200	779958	783197	2	100	155	120	12	1	2	700	-1	
5000511W			4	75	63												4	200	779475	782442	2	100	150	127	12	1	2	700	-1	
5000511W			4	75	63												5	200	781358	782457	2	100	150	120	12	1	2	500	-1	
5000511W			4	75	63												6	200	780555	782459	2	100	150	120	12	1	2	700	-1	
5000511W			4	75	62												7	200	778878	783501	2	100	150	120	12	1	2	700	-1	
5000511W			4	75	63												8	200	779123	781998	2	80	180	135	12	1	2	700	-1	
5000511W			4	75	63												9	200	779155	781592	2	80	185	130	12	1	2	700	-1	
5000511W			4	76	63												10	200	779144	781107	2	80	185	135	12	1	2	700	-1	
5000511W			4	76	62												11	200	776865	780991	2	100	180	120	16	2	2	1000	-1	
5000511W			4	76	61												12	200	775585	780978	2	100	180	120	16	2	2	1000	-1	
5000511W			4	75	61												13	200	774399	780974	2	100	180	120	16	2	2	1000	-1	
5000511W			4	76	60												14	200	772940	779917	2	100	180	120	16	2	2	1000	-1	
5000511W			4	76	60												15	200	771905	779916	2	100	180	120	16	2	2	1000	-1	
5000511W			4	75	61												16	200	775905	783538	2	100	180	120	16	2	2	1000	-1	
5000511W			4	75	61												17	200	774991	783494	2	100	180	120	16	2	2	1000	-1	
5000511W			4	75	61												18	200	774140	783506	2	100	180	120	16	2	2	1000	-1	
5000562W	MEADOWBROOK UTILITY SYSTEM	041378	3	40	63	PWS	00		3	1,660.0	625.0		GW	3	0	0	1	164	779508	659498	2	45	100	100	8	1	2	1100	-1	
5000562W			3	46	63												2	164	779271	859718	2	45	100	100	8	1	2	1100	-1	
5000562W			3	46	63												3	164	779282	860221	2	-1	100	100	8	2	2	1100	-1	
5000572W	NAT'L MOBILE INDUSTRIES,IN	051178	3	57	65	PWS	00		3	126.0	97.6		GW	2	0	0	1	est	786300	829500	2	-1	104	99	7.5	1	2	40	1	PERMIT EXPIRED 4/89 and
5000572W			3	57	65												2	est	786300	829500	2	-1	104	99	7.5	1	2	350	-1	well loc estimated
5000575W	LANTANA, TOWN OF	051178	3	62	74	PWS	00		25	1,380.0			GW	5	0	0	3	183	808620	817933	2	25	88	48	12	1	2	1000	-1	GW FROM SHALLOW AQUIFER
5000575W			3	62	74												4	183	808371	817951	2	25	80	47	12	1	2	1000	-1	ANNUAL ALLOC. VARIES
5000575W			3	62	74												5	183	808512	817940	2	25	95	55	12	1	2	1000	-1	
5000575W			3	62	74												6	183	808490	816319	2	25	105	60	14	1	2	1000	-1	
5000605W	LION COUNTRY SAFARI, INC	081078	3	44	41	PWS	00	0.4	17	659.0			GW	3	0	0	1	163	722557	865436	2	40	115	95	12	1	2	200	-1	
5000605W			3	44	40												2	163	720313	865049	2	50	115	95	12	2	2	200	-1	
5000605W			3	43	41												3	163	722295	865950	2	-1	70	70	2	1	1	50	-1	
5000612W	VILLAGE OF GOLF	091478	3	71	66	PWS	00		25	11,181.0	140.0		GW	3	0	0	1	163	788315	792031	2	-1	100	70	10	1	2	350	-1	WELL LOCATION N/A
5000612W			3	72	66												2	163	788831	791317	2	-1	100	70	10	1	2	350	-1	WELL LOCATION N/A
5000612W			3	72	66												3	163	789539	791362	2	-1	100	70	10	1	2	350	-1	WELL LOCATION N/A
5000615W	WEST PALM BEACH, CITY OF	071279	3	41	64	PWS	00		3	25,300.0	11,600.0		BOTH	10	10	0	1	164	782940	873509	2	-1	150	80	18	1	2	2780	-1	GW FROM SURFICIAL AQUIFER SY
5000615W	26' in 13, 44 in 14		4	41	64												2	164	783956	873495	2	-1	166	96	18	1	2	2780	-1	
5000615W	38' in 13, 32 in 14		3	41	64												3	164	782899	872765	2	-1	154	84	18	1	2	2780	-1	
5000615W	42' in 13, 28 in14		3	41	64												4	164	783940	872741	2	-1	150	80	18	1	2	2780	-1	
5000615W	42' in 13, 28 in14		3	41	64												5	164	782986	871930	2	-1	150	80	18	1	2	2780	-1	

Table E-1. Public Water Supply Spreadsheet (Continued)

5000615W	22' in 13, 48' in 14		4	41	64												6	164	783951	871957	2	-1	170	100	18	1	2	2780	-1	
5000615W	38' in 13, 32' in 14		3	41	64												7	164	782867	871116	2	-1	153.5	83.5	18	1	2	2780	-1	
5000615W	28' in 13, 42' in 14		4	42	64												8	164	783938	871079	2	-1	163	93	18	1	2	2780	-1	
5000615W	38' in 13, 32' in 14		3	42	64												9	164	782881	870333	2	-1	152.5	82.5	18	1	2	2780	-1	
5000615W	41' in 13, 29' in 14		4	42	64												10	164	783929	870341	2	-1	150	80	18	1	2	2780	-1	
5000653W	GOOD SAMARITAN HOSPITAL	031579	2	42	74	PWS	00	0.4	3	3.5	91.3		GW	3	0	0	3	165	809433	870521	2	-1	65	45	8	1	3	250	-1	GW FROM SHALLOW AQUIFER
5000653W			2	42	74												2	165	809106	870408	2	-1	73	54	12	1	3	250	-1	
5000653W			2	42	74												1	165	809056	870163	2	-1	72	52	12	1	3	250	-1	
5000713W	CONSOLIDATED UTILITY	121379	4	37	65	PWS	00		3	120.0	87.8		GW	5	0	0	1	146	785635	884256	2	-1	120	120	8	1	3	300	-1	
5000713W			4	36	65												2	146	786380	884689	2	-1	120	120	8	1	3	400	-1	
5000713W	all L3(21'), 16' L2, 23' L4		4	37	65												817	146	786695	884248	2	65	130	70	14	1	2	1000	-1	
5001283W	ARROWHEAD MOBILE HOME PARK	121384	3	61	68	PWS	00		25	100.00	0.06	0.36	GW	2	0	0	1	183	792250	819000	2	-1	-1	75	8	1	2	350	-1	OCTOBER BOARD-FILE N/A
5001283W			3	61	68												2	183	792250	819000	2	-1	-1	75	8	1	2	350	-1	OCTOBER BOARD-FILE N/A
5001528W	PALM BEACH PARK OF COMMERC	121186	3	17	47	PWS	00		18	323.00	147.28		GW	0	3	0	1	125	737315	935062	2	-1	94	74	6	1	3	150	-1	
5001528W			3	17	46												2	125	736207	935097	2	-1	100	75	6	2	3	150	-1	
5001528W			3	17	46												3	125	736244	936057	2	-1	100	75	6	2	3	150	-1	
M100041W	INDIANTOWN CO., INC.	11/76	3	2	22	PWS	00				355.0		GW	8	0	0	1	108	673249	976576	2	60	115	115	10	01	2	85	-1	4300041W
M200041W			3	1	22												2	108	672909	976797	2	80	125	100	10	01	2	200	-1	4300041W
M300041W			3	2	22												3	108	672711	976588	2	80	120	85	8	01	2	250	-1	4300041W
M400041W			3	1	22												4	108	672338	976779	2	60	115	115	10	01	2	100	-1	4300041W
M500041W			3	1	22												5	108	671930	977061	2	60	125	125	8	01	2	200	-1	4300041W
M600041W			3	1	22												6	108	671568	977312	2	80	125	125	8	01	2	150	-1	4300041W
M700041W			3	1	22												7	108	671283	977530	2	60	125	125	8	01	2	150	-1	4300041W
0600003W	ROYAL UTILITIES COMPANY	2/14/85	4	103	51	PWS	00		23		157.8	27.0	GW	3	0	0	1	215	747602	708623	2	-1	140	127	8	01	02	1350	-1	PERMIT # 06-00003-W WAS ORIG
0600003W			4	103	50												2	215	747130	708326	2	-1	165	140	12	01	02	1350	-1	on SEPT. 13, 1974. THE PERM
0600003W			4	103	51												3	215	747375	707978	2	-1	138	132	12	01	02	1350	-1	AND AGAIN IN FEB. 1985. THE
0600070W	CITY OF POMPANO BEACH		3	109	66	PWS	00						GW				2		787808	692317			75					960		0600070W NOT ON DAWN REID'S
0600070W			3	109	66												3		788415	693873								1500		ENTERED BY C. BEVIER 3/2/92
0600070W			3	108	66												4		789099	694418								1500		
0600070W			3	108	66												5		789041	695139			108	97				1800		
0600070W			4	108	66												6		787883	695229			156	100				1500		
0600070W			3	108	66												7		787344	696496			90	90				2200		
0600070W			3	107	66												8		789248	697522			90	90				1500		
0600070W			3	107	66												9		788318	697725			131	97				1500		
0600070W			3	107	66												10		789281	698133			113	93				1500		
0600070W			3	107	66												11		788774	699453			127	88				1800		
0600070W			3	106	66												12		789532	699557			123	90				1500		
0600070W			3	106	67												13		789964	700092			115	115				1500		
0600070W			3	106	66												14		788961	700263			114	114				1800		
0600070W			3	106	66												15		789057	700646			140	115				1500		
0600070W			4	106	67												16		790021	700569			130	113				2000		
0600070W			4	110	59												17		770085	690516			150	76				2400		
0600070W			3	110	59												18		770383	690944			130	72				2400		
0600070W			4	110	59												19		770719	691462			159	78				2100		
0600070W			3	110	60												20		771377	690705			154	80				2100		
0600070W			4	110	60												21		771531	691381			153	80				1600		
0600070W			3	109	60												22		772252	691959			153	79				2100		
0600082W	CITY OF DEERFIELD	5/9/85	3	98	68	PWS					4,270.0	570.0	GW	20	0	0	1	215	792883	722667	2	40	92	-1	8	04	02	-1	-1	WELL # 1 HAS BEEN CAPPED AND
0600082W			3	98	68												2	215	793056	722647	2	40	96	-1	12	03	02	700	-1	WELLS # 2, 3, AND 9 ARE USED
0600082W			3	98	68												3	215	793869	723015	2	40	110	-1	12	03	02	700	-1	WELLS # 17 THROUGH 20 ARE I
0600082W			3	98	67												4	215	792087	721518	2	40	112	-1	12	01	02	700	-1	DUE TO POLLUTION PROBLEMS, T
0600082W			3	98	67												5	215	791109	721509	2	40	100	-1	12	01	02	1000	-1	USED SPARINGLY IN THE PAST.
0600082W			3	98	67												6	215	791140	721821	2	40	87	66	12	01	02	700	-1	
0600082W			3	98	67												7	215	791022	721452	2	40	100	67	12	01	02	700	1	ALL XY COORD FOR DEERFIELD W
0600082W			3	98	67												8	215	790602	721729	2	40	100	64	12	01	02	700	-1	FROM JOHN LUKE'S CORRECTED S
0600082W			3	98	68												9	215	793062	723182	2	40	100	-1	12	03	02	700	-1	
0600082W			3	98	68												10	215	792911	722007	2	40	90	60	14	01	02	700	-1	
0600082W			3	98	68												11	215	792777	721556	2	40	85	60	14	01	02	700	-1	
0600082W			3	98	68												12	215	793074	720876	2	40	83	60	14	01	02	700	-1	
0600082W			3	99	68												13	215	793091	720360	2	40	85	60	14	01	02	700	-1	
0600082W			3	99	68												14	215	793100	719711	2	40	96	60	14	01	02	700	-1	
0600082W			3	99	68												15	215	793104	718986	2	40	96	60	14	01	02	700	-1	
0600082W			3	99	68												16	215	792485	718651	2	40	96	60	14	01	02	700	-1	
0600082W			3	99	65												17	215	786737	719849	2	46	180	60	14	01	02	2800	-1	
0600082W			3	100	65												18	215	785966	717474	2	46	180	60	14	01	02	2800	-1	
0600082W			3	99	65												19	215	786355	718623	2	-1	101	75	20	01	02	2800	-1	
0600082W			3	99	65												20	215	786124	720426	2	-1	103	60	20	01	02	2800	-1	
0600100W	CORAL SPRINGS IMPROVEMENT	9/10/87	3	108	49	PWS					1,870.0	314.8	GW	7	0	0	1	214	742401	694954	2	30	105	60	8	01	02	700	-1	PERMIT # 06-00100-W WAS ORIG

Table E-1. Public Water Supply Spreadsheet (Continued)

0600100W			3	108	49								2	214	742429	695262	2	30	105	60	8	01	02	700	-1	ISSUED ON MARCH 10, 1987.
0600100W			3	108	49								3	214	742395	695571	2	30	105	60	8	01	02	700	-1	WELLS # 6 AND 7 WERE COMPLET
0600100W			3	109	49								4	214	742727	693614	2	25	120	60	8	01	02	800	-1	WELLS # 1 - 5 WERE INSTALLED
0600100W			4	109	48								5	214	742005	693081	2	30	140	60	16	01	02	1700	-1	THE X AND Y COORDINATES WERE
0600100W			3	107	48								6	214	739918	696908	2	30	120	60	16	01	02	1200	-1	
0600100W			3	107	48								7	214	740491	697933	2	30	120	60	16	01	02	1200	-1	
0600101W	TOWN OF HILLSBORO BEACH	11/12/8	3	104	67	PWS	409.0	57.0	GW	4	0	0	1	216	791441	706948	2	-1	71	61	8	01		250	-1	PERMIT # 06-00101-W WAS ORIG
0600101W			3	104	67								2	216	791142	706889	2	-1	73	64	8	01		250	-1	ISSUED IN MARCH 1977. THE PE
0600101W			3	104	67								3	216	790796	707250	2	-1	104	90	12	01		1200	-1	IN 1980 AND AGAIN IN 1981. T
0600101W			4	104	67								4	216	790618	706669	2	-1	138	128	12	01		1200	-1	ON 12 NOV 1986. THE TOWN HAS
0600102W	CITY OF CORAL SPRINGS	10/08/8	3	104	67	PWS	2,890.0		GW	17	0	0	1	214	790618	706669	2	69	134	81	10	01	02	226	-1	IN HOUSE. HOWEVER, THE ALLOC
0600102W			3	104	51								2	214	748852	706913	2	65	130	77	10	01	02	310	-1	MAY BE REDUCED.
0600102W			3	104	51								3	214	748668	706782	2	41	165	53	12	01	02	385	-1	
0600102W			3	104	51								4	214	748856	706614	2	46	175	58	12	01	02	345	-1	
0600102W			3	104	51								5	214	748687	706551	2	55	155	67	16	01	02	300	-1	
0600102W			3	104	51								6	214	748866	706378	2	45	175	57	16	01	02	350	-1	
0600102W			3	104	51								7	214	748743	706172	2	46	175	58	16	01	02	430	-1	
0600102W			3	103	51								8	214	748720	707447	2	36	156	48	16	01	02	265	-1	
0600102W			3	103	51								9	214	749422	707462	2	65	150	77	16	01	02	495	-1	
0600102W			3	104	51								10	214	748608	705151	2	65	155	77	16	01	02	353	-1	
0600102W			3	105	51								11	214	748613	704571	2	56	150	68	16	01	02	350	-1	
0600102W			3	105	51								12	214	748918	703916	2	63	150	75	16	01	02	496	-1	
0600102W			4	105	52								13	214	750137	704619	2	-1	165	110	20	01	02	900	-1	
0600102W			3	105	51								14	214	749631	702947	2	-1	165	110	20	01	02	900	-1	
0600102W			3	105	51								15	214	749838	702161	2	-1	165	110	20	01	02	900	-1	
0600102W			3	106	51								16	214	749821	701009	2	-1	152	87	20	01	02	900	-1	
0600102W			4	106	52								17	214	750269	700568	2	-1	145	85	20	01	02	900	-1	
0600121W	CITY OF MARGATE	8/11/77	3	109	55	PWS	3,600.0		GW	12	0	0	1	230	758000	694027	2	-1	100	90	8	01	03	800	-1	WELL CONSTRUCTION DATA TAKEN
0600121W			3	109	55								2	230	758557	693659	2	-1	100	100	12	01	03	1000	-1	PACKAGE Mr. VAN ACKER SENT M
0600121W			3	109	55								3	230	758081	693629	2	-1	100	100	12	01	03	1000	-1	THERE ARE ONLY 13 WELLS. DUE
0600121W			3	109	55								4	230	758209	693647	2	-1	105	1000	12	01	03	1000	-1	THE 3 NEW WELLS WERE INITIAL
0600121W			4	109	54								5	230	757699	694047	2	-1	105	100	12	01	03	1000	-1	AND 14. THIS MISTAKE WAS COR
0600121W			4	109	54								6	230	757900	693867	2	-1	105	100	12	01	03	1000	-1	SEE PAGE 4 OF 1977 STAFF REP
0600121W			3	109	54								7	230	757461	693935	2	-1	105	95	18	01	03	1500	-1	DATA WAS GIVEN FOR THE EXIST
0600121W			3	109	54								8	230	757146	693912	2	-1	105	95	18	01	03	1500	-1	
0600121W			3	109	54								9	230	756838	693903	2	-1	105	88	18	01	03	2100	-1	
0600121W			3	109	55								10	230	758436	694028	2	-1	105	88	18	01	03	2100	-1	
0600121W			3	109	54								11	230	757506	693593	2	-1	105	88	18	01	03	2100	-1	
0600121W			3	109	54								12	230	757249	693518	2	-1	105	88	18	01	03	2100	-1	
0600142W	BROWARD COUNTY 2A	9/88	5	101	68	PWS	4,860.0		GW	9	0	0	1	216	792862	713278	2	-1	178	-1	8	01	02	600	-1	THE PERMITTED 13.31 MGD IS A
0600142W			5	101	68								2	216	792715	713218	2	-1	180	154	12	01	02	2100	-1	REDUCTION FROM THE PREVIOUSL
0600142W			4	101	68								3	216	793752	713279	2	-1	143	-1	8	01	02	800	-1	MGD WHICH WAS PERMITTED ON J
0600142W			3	101	67								4	216	792214	713248	2	-1	120	107	18	01	02	3000	-1	FUTURE PLANS INCLUDE JOINING
0600142W			4	102	68								5	216	792724	712664	2	-1	142	125	12	01	02	1800	-1	WELLFIELD SYSTEM.
0600142W			4	102	68								6	216	792481	712662	2	-1	133	125	18	01	02	2100	-1	
0600142W			5	102	67								7	216	792111	712681	2	-1	176	156	20	01	02	4000	-1	
0600142W			3	101	67								8	216	789832	712956	2	-1	150	80	24	01	02	3100	-1	
0600142W			3	101	67								9	216	790720	712978	2	-1	155	85	24	01	02	2400	-1	
0600242W	PARKLAND UTILITIES	3/14/85	3	96	53	PWS	116.6	17.7	GW	2	0	0	1		754679	726750			90	90				400		
0600242W			4	97	53								2	215	754391	725139	2	30	140	140	10	01	02	400	-1	ON MAY 17, 1979, PARKLAND UT WAS ISSUED A PERMIT WITH

Table E-2. Non-Public Water Supply Spreadsheet

PALM BEACH COUNTY-EAA

Permit #	Owner	Date Issued (mo/yr)	Lay	Row	Col	Type Use Code	Type Crop Code	Type Soil Code	Rain Stat Code	Irr Acres	Irr Eff (%)	Annual Alloc (mg)	Max Month (mg)	Source GW,SW	# of Wells	# of SW Pumps	# of Culvs	Facil #	Quad	Planer East	Planer North	Pump Depth Code	Intake Depth (ft)	Well Depth (ft)	Casing Depth (ft)	Well Diam (in)	Stat Code	Pump Type Code	Pump Capac (gpm)	Culv Diam (in)	Comments
5000348W	A. DUDA & SONS, INC.	10/76	2	60	2	AGR	1	3.6	16	4,314.0	50	2,458.9	497.2	BOTH	2	5	18	WELLA	178	617995	821717	2	-1	60	30	10	1	2	900	-1	
5000348W			2	60	1	AGR	63	3.6	16	2,714.0	50	1,995.8	334.6					WELLB	178	617869	821121	2	-1	60	30	10	3	2	900	-1	
5000512W	FIA.SUGAR REFINERY	12/77	1	58	22	IND	00		16	160.0		600.0	50.0	BOTH	1	1	0	1W	162	673326	828142	2	-1	30	-1	4	1	3	300	-1	
5001398W	TEM-COLE, INC.	11/85	1	100	7	IND	00		23		0		108.0	GW	1	0	0	1W	197	631564	715802	2	-1	30	20	12	2	2	-1	-1	
5000007W	ROYAL PALM POLO SPORTS CLU	081674	5	85	63	LAN	15	0.8	25	116.0	75	127.3	2.1	BOTH	2	1	0	1	200	780286	757323	1	17	215	185	10	1	2	600	-1	Biscayne Aquifer
5000007W			5	85	63													2	200	780050	757337	1	17	245	205	10	1	2	600	-1	
5000039W	BOYNTON BEACH, CITY OF	121374	2	71	72	LAN	15	0.4	25	20.0	75	8.1	3.0	GW	1	0	0	1	183	805102	793481	2	40	70	50	6	1	2	320	-1	Biscayne Aquifer
5000054W	BOCA DEL MAR COUNTRY CLUB	020775		94	64	GOL	15	0.8	23	125.0	75	129.6	20.6	BOTH	1	2	0	1	215	782926	732321	2	22.25	-1	-1	8	1	2	250	-1	
5000063W	OUR LADY OF FIA. MONASTERY	022875	2	26	73	LAN	15		3	7.8		2.5			3	0	0	1	146	806220	911334	2	35	50	40	6	1	2	150	-1	
5000063W			2	26	73													2	146	806029	911755	2	35	50	40	6	1	2	150	-1	
5000063W			2	26	73													3	146	806087	912121	2	35	50	40	6	1	2	150	-1	
5000088W	BOCA TECCA COUNTRY CLUB, I	050975	4	87	70	GOL	15	0.4	25	103.0	75	126.7	20.2	BOTH	4	2	0	1	201	798563	750871	2	-1	275	100	12	1	2	750	-1	Biscayne Aquifer
5000088W			5	87	70													2	201	799974	750169	2	-1	250	200	10	1	2	500	-1	
5000088W			5	86	70													3	201	799232	752583	2	-1	250	200	10	1	2	500	-1	
5000091W	HAFT-GAINES ASSOCIATES	050975	3	20	70	GOL	15	0.8	18	394.5		178.9		BOTH	5	16	0	1	127	798720	927237	2	-1	100	80	2	2	3	-1	-1	
5000091W			3	21	70													2	146	798087	924651	2	-1	100	80	2	2	3	-1	-1	
5000091W			3	22	70													3	146	798256	923732	2	-1	100	80	2	2	3	-1	-1	
5000091W			3	22	69													4	146	795867	922569	2	-1	100	80	2	2	3	-1	-1	
5000091W			3	21	69													5	146	795421	925413	2	-1	100	80	6	2	3	-1	-1	
5000103W	ALLAN MURRAY NURSERY, INC.	061375	3	65	66	NUR	103	0.8	25	3.0	75	3.3	0.6	GW	5	0	0	1	183	788613	808815	2	-1	70	70	6	1	3	600	-1	WELL LOCATION APPROX.
5000103W			3	65	66	NUR	103			12.0	20	40.8	7.5					2	183	788356	808676	2	-1	75	75	2	1	3	50	-1	WELL LOCATION APPROX.
5000103W			3	65	66	NUR	103			5.0	85	4.0	0.7					3	183	787935	808838	2	-1	75	75	2	1	3	50	-1	WELL LOCATION APPROX.
5000103W			3	65	66													4	183	787674	808938	2	-1	86	84	6	1	3	300	-1	WELL LOCATION APPROX.
5000103W			3	65	66													5	183	787392	808920	2	-1	75	75	6	1	3	600	-1	WELL LOCATION APPROX.
5000111W	TRAFALGAR DEVELOPERS OF FL	061375				GOL	15	0.8	18	357.0			95.0	BOTH	8	1	0	1				2	-1	110	90	8	1	3	300	-1	PERMIT EXPIRED 7/88
5000111W																		2				2	-1	110	90	8	1	3	300	-1	PERMIT EXPIRED 7/88
5000111W																		3				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000111W																		4				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000111W																		5				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000111W																		6				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000111W																		7				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000111W																		8				2	-1	130	-1	8	1	3	500	-1	PERMIT EXPIRED 7/88
5000120W	GYNOGYOSI, JOSEPH & EVA	071175	4	46	63	LAN	15	0.8	3	41.0	75	44.0	7.1	GW	2	0	0	1	164	780739	858228	2	-1	120	-1	8	1	3	250	-1	
5000120W			4	46	64													2	164	783009	860392	2	-1	120	-1	8	1	3	250	-1	
5000126W	LOXAHATCHEE RIVER ENVIRONM	081575	4	14	63	IND	00			167.0		68.3		GW	1	0	0	1	126	779952	943152	2	-1	130	10	-1	1	3	250	-1	
5000144W	BOYNTON NURSERIES	091478	3	65	67	AGR	15	0.8	25	60.0	20	130.9	22.0	BOTH	4	1	0	2	183	791767	807834	2	-1	92	-1	8	1	1	650	-1	
5000144W			4	65	67						50							3	183	790920	807937	2	-1	145	-1	10	1	2	750	-1	
5000144W			4	65	67													4	183	790965	808369	2	-1	145	-1	6	1	2	250	-1	
5000144W			3	65	67													5	183	792055	808357	2	-1	91	-1	6	1	2	250	-1	
5000145W	BOYNTON NURSERIES	101075	3	66	68	AGR	13	0.8	25	24.0	50	30.9	6.8	GW	1	0	0	1	183	792568	807096	2	-1	94	-1	8	1	1	650	-1	
5000150W	COUNTRY MANORS CONDO, INC.	101075	2	76	66	LAN	15	0.4	25	37.6	75	46.3	7.4	GW	5	0	0	1	201	788987	779664	2	-1	60	60	4	1	1	80	-1	
5000150W			4	76	66													2	201	788892	779676	2	-1	120	120	4	1	1	80	-1	
5000150W			4	76	66													3	201	787668	779643	2	-1	127	127	4	1	1	80	-1	
5000150W			4	76	66													4	201	787390	778782	2	-1	141	141	4	1	1	80	-1	
5000150W			4	76	66													5	201	787969	778846	2	-1	140	140	4	1	1	80	-1	
5000153W	RESTIGOUCHE, INC.	100986	4	16	65	LAN	15	0.8	18	74.6	75	80.8		BOTH	3	8	0	1	127	785330	938186	2	-1	165	165	2	1	1	25	-1	SEE 50-01702-W
5000153W			4	16	65													2	127	785330	938186	2	-1	165	165	2	1	1	25	-1	WELLS #1,2-SAME LOCATION
5000153W			4	14	67													3	127	789604	942937	2	-1	138	138	2	1	1	40	-1	
5000158W	MICHAEL'S NURSERIES & FARM	111475	3	75	65	AGR	15	0.8	25	33.1	75	38.8	6.5	BOTH	5	13	0	1	200	784480	783256	2	110	110	-1	6	1	1	1200	-1	
5000158W			3	75	65													2	200	784589	783834	2	110	110	-1	6	1	1	600	-1	
5000158W			3	75	64													3	200	784141	783757	2	110	110	-1	8	1	1	550	-1	
5000158W			3	75	64													4	200	783345	783677	2	90	90	-1	2	1	1	70	-1	
5000158W			3	75	64													5	200	783399	783284	2	100	100	-1	2	1	1	70	-1	
5000159W	ROYAL PALM YACHT & C C	111475				REC	00	0.4	23	131.4			17.8	GW	4	0	0	1				2	-1	-1	-1	6	1	3	300	-1	PERMIT EXPIRED 4/89
5000159W																		2				2	-1	-1	-1	8	1	3	410	-1	PERMIT EXPIRED 4/89
5000159W																		3				2	-1	-1	-1	8	1	3	410	-1	PERMIT EXPIRED 4/89
5000159W																		4				2	-1	-1	-1	8	1	3	410	-1	PERMIT EXPIRED 4/89
5000198W	GREEN CAY FARMS	021976	3	75	60	AGR	61	0.8	25	255.0	50	119.8	14.5	BOTH	1	3	0	1	200	773463	782506	2	-1	108	108	4	1	3	175	-1	
5000201W	LOST TREE VILLAGE ASSOCIAT	021976	2	26	74	OTH	00			13.0		237.0		GW	2	0	0	1	146	810112	911162	2	40	62	43	12	1	2	1202	-1	
5000201W	'IA CELL!		4	26	74													2	146	810126	911664	2	-1	160	43	12	2	3	300	-1	
5000203W	FIAGLER SYSTEM, INC	051376	3	46	56	GOL	15	0.8	17	291.5	75	266.5	45.0	BOTH	8	6	0	1	164	762394	859538	2	-1	95	85	8	1	2	500	-1	SEPTEMBER BOARD-FILE N/A
5000203W			3	45	56													2	164	762326	860759	2	-1	110	100	8	1	2	500	-1	SEPTEMBER BOARD-FILE N/A

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000206W	MAZZONI, WILLIAM & DOROTHY	021976	3	71	60	AGR	15	0.8	25	150.0	50	299.5	52.0	BOTH	6	2	0	1	182	771264	793643	2	-1	100	-1	8	1	3	750	-1	
5000206W			4	71	60			1.5			20							2	182	771276	793498	2	-1	120	-1	8	1	3	750	-1	
5000206W			4	71	60													3	182	772731	793698	2	-1	120	-1	8	1	3	750	-1	
5000206W			4	71	60													4	182	772692	793472	2	-1	120	-1	8	1	3	750	-1	
5000206W			4	71	60													5	182	773232	793189	2	-1	120	-1	8	1	3	350	-1	
5000206W			4	71	60													6	182	773226	793012	2	-1	120	-1	6	1	3	-1	-1	
5000218W	ROYAL PALM MEMORIAL GARDEN	031876	5	37	73	LAN	15	0.4	3	30.0	75	36.4	5.6	GW	1	0	0	1	146	805568	883186	2	-1	245	-1	8	1	3	310	-1	
5000223W	TEQUESTA COUNTRY CLUB	041576	3	8	66	GOL	15	0.8	18	100.0		500.0		GW	2	0	0	5	127	787664	958507	2	70	95	70	8	1	2	200	-1	
5000223W			3	8	66													9	127	789124	958266	2	77	92	77	8	1	2	200	-1	
5000224W	PRESIDENT COUNTRY CLUB, IN	041576	5	40	69	LAN	15	0.8	3	246.7	75	265.2	42.7	GW	4	0	0	1	165	797350	874594	2	15	200	120	12	1	2	600	-1	
5000224W			5	40	70													2	165	798716	874170	2	-1	193	120	12	1	2	600	-1	
5000224W			5	40	70													3	165	799918	873800	2	-1	193	120	10	1	2	600	-1	
5000224W			4	41	70													4	165	798742	872902	2	-1	193	120	10	1	2	600	-1	
5000237W	JONATHAN'S LANDING, INC	041576	3	16	69	GOL	15	0.8	18	120.0	50		47.0	BOTH	4	12	0	1	127	795290	939162	2	55	100	60	8	1	2	700	-1	not active
5000237W			3	15	69													2	127	795319	941284	2	55	100	60	8	2	2	450	-1	
5000237W			3	14	69													3	127	795357	943112	2	55	100	60	8	2	2	750	-1	
5000237W			3	13	69													4	127	795368	945134	2	55	100	60	8	2	2	450	-1	
5000257W	WEST PALM BEACH, CITY OF	061076				LAN	15	0.4	3	17.5	75	21.2	3.3	GW	1	0	0	1				2	42	132	120	8	1	2	260	-1	PERMIT EXPIRED 4/89
5000256W	DAHLGREN, CLARK E	061076	3	63	67	AGR	53	0.8	25	22.0	50	46.9	9.0	GW	3	0	0	1	183	792007	814340	2	-0.5	90	84	6	1	1	500	-1	
5000258W			3	63	67		5	1.5			20							2	183	792222	813546	2	-0.5	90	84	6	1	1	500	-1	
5000258W			3	63	67						50							3	183	791985	813377	2	-0.5	90	84	6	2	1	500	-1	
5000264W	DUBOIS, JR. W A	061076				AGR	63	0.4	25	79.0	50	79.8	14.7	BOTH	1	1	0	1				2	15.5	90	-1	10	3	3	1200	-1	PERMIT EXPIRED 4/89
5000268W	RICH, ROBERT K.	061076	3	55	60	GOL	15	0.8	3	72.5	75	77.8	12.5	BOTH	2	1	0	1	164	773551	835014	2	50	100	80	10	1	2	420	-1	
5000268W			3	55	60													2	164	771412	834514	2	50	100	80	10	1	2	420	-1	
5000284W	HAMLET GOLF & TENNIS CLUB,	070876	3	80	67	LAN	15	0.8	25	114.3	75	125.4	21.1	BOTH	4	5	0	1	201	790699	769123	2	45	100	60	10	1	2	915	-1	
5000284W			3	80	67													2	201	790563	768981	2	45	100	60	8	1	2	915	-1	
5000284W			3	80	66													3	201	789382	770284	2	45	100	60	8	1	2	950	-1	
5000284W			3	80	67													4	201	790178	770701	2	-1	100	60	3	1	1	146	-1	
5000285W	FISCHERA, JOHN	070876	4	92	58	AGR	61	0.8	25	40.0	50	12.1	4.7	BOTH	1	1	0	1	215	768218	738601	2	-1	128	100	12	1	2	2500	-1	PERMIT EXPIRED 4/89
5000288W	FLORAL ACRES, INC	081276	3	80	63	AGR	15	0.8	25	80.0	75	80.1	13.5	GW	20	0	0	1	200	780173	770397	2	70	130	90	4	1	1	100	-1	
5000288W			3	80	63		15	0.8			85							2	200	780387	769781	2	70	130	90	2	1	1	100	-1	
5000288W			4	79	63													3	200	780321	770364	2	70	130	90	2	1	1	250	-1	
5000288W			3	80	63													4	200	780543	770675	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													5	200	781061	770440	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													6	200	781040	770006	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													7	200	779196	769856	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													8	200	779261	769617	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													9	200	779825	769956	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													10	200	780051	769979	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													11	200	779784	769308	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													12	200	780092	769304	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													13	200	780445	769313	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													14	200	780773	769315	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													15	200	781111	769681	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													16	200	781103	769334	2	70	130	90	4	1	1	250	-1	
5000288W			3	80	63													17	200	779972	768656	2	70	130	90	3	1	1	175	-1	
5000288W			3	80	63													18	200	780984	768719	2	70	130	90	3	1	1	175	-1	
5000288W			3	80	63													19	200	779217	769162	2	70	130	90	2	1	1	100	-1	
5000288W			3	80	63													20	200	779525	769145	2	70	130	90	2	1	1	100	-1	
5000325W	FILKIN, ROSE A.	100776				AGR	63	0.8	25	150.0	50	128.4	24.4	BOTH	2	2	0	1	200			2	-1	90	-1	8	3	1		-1	PERMIT EXPIRED 4/89
5000325W																		2	200			2	-1	90	-1	8	3	1	-1	-1	2SW PUMPS IN STAFF REPT.
5000328W	BOCA RATON HOTEL & CLUB	090976				LAN	15		25	210.0		305.0	56.5	GW	4	0	0	1	216			2	-1	110	-1	10	1	3	600	-1	PERMIT EXPIRED 4/89
5000328W																		2	216			2	-1	110	-1	10	1	3	600	-1	PERMIT EXPIRED 4/89
5000328W																		3	216			2	-1	110	-1	8	1	3	350	-1	PERMIT EXPIRED 4/89
5000328W																		4	216			2	-1	110	-1	6	1	3	350	-1	PERMIT EXPIRED 4/89
5000331W	SUMMIT ASSOCIATES, LTD.	090976				GOL	15	0.8	25	473.0	75	519.2	87.3	BOTH	11	6	0	1	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		2	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		3	201			2	-1	90	70	6	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		4	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		5	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		6	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		7	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		8	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		9	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		10	201			2	-1	90	70	4	1	1	250	-1	PERMIT EXPIRED 5/90
5000331W																		11	201			2	-1	90	70	4	2	1	250	-1	PERMIT EXPIRED 5/90
5000333W	PB NURSERIES, INC.	090976	4	75	66	AGR	15	0.8	25	22.0	20	90.6	15.2	BOTH	4	1	0	1	201	787931	781777	2	-1	120	-1	6	1	3	550	-1	NURSERY PLANTS
5000333W			4	75	66													2	201	787948	781633	2	-1	120	-1	4	1	3	100	-1	

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000333W			4	75	66													3	201	787954	781394	2	-1	120	-1	4	1	3	100	-1	
5000333W			4	75	66													4	201	787939	781941	2	-1	140	136	8	2	1	400	-1	
5000343W	KNOLLWOOD GROVES, INC	100776	3	64	68	AGR	13	0.8	25	83.0	50	64.9	23.9	BOTH	2	1	0	1	183	793144	812188	2	-1	104	-1	4	1	1	200	-1	
5000343W			3	63	69													2	183	794223	813626	2	-1	104	-1	4	1	1	200	-1	
5000344W	S & J FARMS	100776				AGR	63			240.0			185.0	GW	10	0	0	1	146			2	-1	130	-1	8	1	3	800	-1	WELL LOCATION N/A
5000344W			2	22	72													2	146	804785	921482	2	-1	80	-1	8	1	3	800	-1	PERMIT EXPIRED 4/89; ANN.
5000344W			2	22	72													3	146	805155	921578	2	-1	70	-1	6	1	3	500	-1	ALLOC.=240 A/F
5000344W			2	22	72													4	146	805175	921318	2	-1	70	-1	6	1	3	500	-1	
5000344W			2	22	73													5	146	806414	921667	2	-1	70	-1	6	1	3	500	-1	
5000344W			2	22	73													6	146	807063	921646	2	-1	75	-1	8	1	3	700	-1	
5000344W			2	22	73													7	146	807303	921489	2	-1	78	-1	10	1	3	1200	-1	
5000344W			3	23	74													8	146	808505	921131	2	-1	88	-1	10	1	3	1400	-1	
5000344W			2	23	74													9	146	808497	920914	2	-1	70	-1	8	1	3	700	-1	
5000344W																		10	146			2	-1	87	-1	8	1	3	700	-1	WELL LOCATION N/A
5000349W	SEMINOLE GOLF CLUB	031678	5	22	72	GOL	15	0.4	3	105.4			14.0	GW	8	0	0	2	146	804565	921323	2	-1	180	-1	6	1	3	540	-1	
5000349W			5	22	72													3	146	804999	921714	2	-1	180	-1	6	1	3	540	-1	
5000349W			5	22	72													4	146	805155	921335	2	-1	180	-1	6	1	3	540	-1	
5000349W			2	22	73													5	146	806193	921665	2	-1	45	-1	6	1	3	450	-1	
5000349W			2	22	73													6	146	806852	921596	2	-1	45	-1	6	1	3	450	-1	
5000349W			2	22	73													7	146	807234	921400	2	-1	45	-1	6	1	3	450	-1	
5000349W			2	23	74													8	146	808635	921129	2	-1	45	-1	6	1	3	450	-1	
5000349W			2	22	74													9	146	808644	921907	2	-1	45	-1	6	1	3	450	-1	
5000353W	FICHERA, JOHN	100776	3	75	62	AGR	63	0.8	25	200.0	50	60.4	23.7	BOTH	2	2	0	1	200	778998	781621	2	1	128	100	12	1	1	1800	-1	
5000353W			3	77	62													2	200	776744	778408	2	1	128	100	12	1	1	1800	-1	
5000363W	MANGUS NURSERY & LANDSCAPE	111276	3	74	64	AGR	15	0.8	25	20.0	50	28.0	4.7	BOTH	2	1	0	1	200	784263	785790	2	-1	98	98	4	1	2	350	-1	quad #200
5000364W	MOESLY NURSERIES, INC.	111276	2	63	64	NUR	15	0.8	26	15.0	50	24.4	3.6	GW	5	0	0	1	182	782039	813712	2	-1	78	68	2	1	1	3400	-1	quad #182
5000364W			2	63	64													2	182	782718	813532	2	-1	78	68	2	1	1	3400	-1	
5000364W			2	63	64													3	182	782284	813633	2	-1	78	68	6	1	1	3400	-1	
5000364W			2	63	64													4	182	782809	813681	2	-1	78	68	6	1	1	-1	-1	
5000364W			2	63	64													5	182	782804	913763	2	-1	78	68	6	1	3	-1		
5000374W	LION COUNTRY SAFARI, INC.	111276	3	43	42	JAN	15	0.8	17	659.0	75	67.9	14.8	BOTH	5	1	0	1	163	723781	868243	2	-1	75	60	8	2	3	200	-1	ALSO CROP TYPE REC.
5000374W			3	43	42													2	163	723667	867866	2	-1	75	60	8	2	3	200	-1	IRRIGATED ACRES MAY BE=57
5000374W			3	43	42													3	163	723719	867391	2	-1	75	60	8	2	3	200	-1	
5000374W			3	43	40													4	163	719180	867704	2	-1	75	60	8	2	3	200	-1	
5000374W			3	43	40													5	163	718931	868823	2	-1	75	60	8	2	3	200	-1	
5000377W	GULF SRTEAM GOLF CLUB	071477	2	74	73	GOL	15	0.8	25	120.0		146.0	67.5	GW	4	0	0	1	201	806676	785282	2	-1	60	40	12	1	1	650	-1	
5000377W			2	74	73													2	201	806452	785405	2	-1	60	40	12	1	1	700	-1	
5000377W			2	74	73													3	201	805742	785435	2	-1	70	40	8	1	1	650	-1	
5000377W			2	74	73													4	201	805771	785805	2	-1	59	40	8	1	1	650	-1	
5000406W	ATLANTIS GOLF CLUB	021077	2	60	68	GOL	15	0.6	25	150.0	75	164.6	27.7	BOTH	3	8	0	1	183	792381	822498	1	35	50	50	8	1	2	400	-1	PERMIT EXPIRED 4/89
5000406W			2	60	68													2	183	793015	822285	1	35	50	50	8	1	2	400	-1	
5000406W			2	61	68													3	183	793506	820507	1	35	50	50	10	1	2	600	-1	
5000407W	HEYDER MANAGEMENT	031077	3	84	53	AGR	63	0.8	25	320.0	50	211.0	87.1	BOTH	2	2	0	1	200	755043	758290	2	-1	108	-1	6	1	3	1000	-1	
5000407W			4	84	54													2	200	755570	758142	2	-1	108	-1	6	1	3	1000	-1	
5000411W	COVE CLUB INVESTORS LTD.	A031077	4	95	57	GOL	15	0.8	23	155.0	75	160.7	25.5	SW?	4	0	0	1	215	763602	730993	2	45	100	95	12	1	2	900	-1	
5000411W			3	96	57													2	215	763624	727493	2	45	100	85	10	1	3	650	-1	
5000411W			3	96	57													3	215	763624	727489	2	45	100	85	10	1	3	650	72	
5000411W			3	96	57													4	215	763614	727509	2	45	100	85	4	1	3	265	72	
5000419W	QUAIL RIDGE COUNTRY CLUB,	031077	3	71	67	GOL	15	0.8	25	137.0	75	216.2	36.3	GW	12	0	0	1	183	790867	792308	2	30	80	76	8	1	2	300	-1	
5000419W			3	72	67													2	183	789977	790643	2	45	80	73	10	1	2	300	-1	
5000419W			3	71	66													3	183	788652	792081	2	30	80	76	8	1	2	300	-1	
5000419W			3	72	68													4	183	793900	790379	2	30	80	76	8	1	2	300	-1	
5000419W			3	71	69													5	183	795356	792836	2	30	80	76	8	1	2	300	-1	
5000419W			3	71	68													6	183	793592	792414	2	30	60	76	8	1	2	300	-1	
5000419W			3	70	68													7	183	794620	796953	2	30	80	76	8	1	2	300	-1	
5000419W			3	71	68													8	183	794741	793498	2	30	80	76	8	1	2	465	-1	
5000419W			3	70	68													9	183	794653	795813	2	30	80	76	8	1	2	465	-1	
5000419W			3	71	67													10	183	791951	792885	2	30	80	76	8	1	2	465	-1	
5000419W			3	71	68													11	183	794680	793079	2	30	80	76	8	1	2	465	-1	
5000419W			3	71	67													12	183	789973	792857	2	30	80	76	8	1	2	465	-1	
5000421W	LOST TREE CLUB, INC	031077	4	25	72	REC	15		18	130.0		236.0		GW	5	0	0	1	146	805088	914504	2	16	157	127	10	1	3	190	-1	
5000421W			4	25	72													2	146	805324	914616	2	15	181	161	10	1	3	175	-1	
5000421W			4	25	73													3	146	805743	914584	2	15	159	144	10	1	3	175	-1	
5000421W			4	25	72													4	146	805092	915551	2	13	160	140	10	1	3	195	-1	
5000421W			1	25	73													5	146	805607	914515	2	-1	42	32	8	1	3	70	-1	
5000425W	BOWMAN AND SONS, INC	041477	4	76	56	AGR	20	0.8	25	605.0	50	532.4	100.3	BOTH	2	2	0	1	200	763036	780546	2	-1	95	95	4	1	3	200	-1	
5000425W			4	76	56													2	200	763032	780232	2	-1	95	95	4	1	3	200	-1	
5000433W	NURSERYMEN'S EXCHANGE, INC	041477				NUR	15	0.8	25	15.0	20	61.7	10.4	GW	3	0	0	1	200			2	-1	130	-1	4	1	3	300	1	WELL LOCATION N/A

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000433W																		2	200			2	-1	130	-1	4	1	3	300	-1	WELL LOCATION N/A
5000433W																		3	200			2	-1	130	-1	4	1	3	300	-1	WELL LOCATION N/A
5000434W	LITTLE CLUB, INC - THE	041477	1	73	74	GOL	15	0.4	25	33.0	75	40.6	6.5	GW	4	0	0	1	183	809495	789219	2	7	18	18	2	1	1	75	-1	
5000434W			1	73	74													2	183	809551	788679	2	7	20	20	2	1	1	75	-1	
5000434W			1	73	74													3	201	809487	788221	2	3	13	13	2	1	1	75	-1	
5000434W			1	73	74													4	201	809454	787867	2	12	16	16	2	1	1	75	-1	
5000450W	KERN, JOSEPH F.	021182	3	93	46	AGR	15	3.6	25	250.0	20	296.3	62.8	GW	1	5	0	1	214	734353	735687	2	-1	75	-1	2	1		-1	-1	
5000452W	ATLANTIS COUNTRY CLUB	060977	3	59	67	GOL	15	0.8	25	100.0	75	109.8	18.5	GW	2	0	0	1	183	790068	825897	2	70-90	110	90	10	1	2	600	-1	
5000452W			3	59	67													2	183	790073	825556	2	70-90	110	90	10	1	2	600	-1	
5000472W	GREENTREE VILLAS CONDO ASS	071080	2	70	66	LAN	15	0.8	25	80.0	75	87.8	14.8	BOTH	2	6	0	1	183	787769	796962	2	15.5	66	63	6	1	1	220	-1	
5000472W			2	70	66													2	183	787793	796553	2	15.5	66	63	6	1	1	220	-1	
5000489W	ARVIDA CORPORATION	101377	4	74	66	GOL	15	0.8	25	90.0	75	98.8	16.6	GW	3	0	0	1	201	787591	785124	2	-1	124	115	10	1	3	600	-1	
5000489W			4	74	66													2	201	787584	785183	2	-1	125	115	8	1	3	150	-1	
5000489W			4	74	66													3	201	787567	785275	2	1	127	117	10	1	3	600	-1	
5000502W	INTERNATIONAL BUSINESS MAC	041378	4	88	67	LAN	15	0.8	23	76.5	75	79.3	12.6	BOTH	2	2	0	1	201	790757	748307	2	-1	150	-1	14	1	3	1500	-1	ORIGINAL PLANER COORDINATES
5000502W			5	88	67													2	201	790723	747883	2	-1	175	-1	8	1	3	1000	-1	ORIGINAL PLANER COORDINATES
5000521W	PALMERO, JOE	011978	3	64	66	NUR	103	1.5	25	17.0	20	9.6	3.1	GW	2	0	0	1	183	789141	811982	2	-1	100	100	2	1	1	40	-1	
5000521W			3	64	66			0.8			75							2	183	789241	812138	2	-1	100	100	2	1	1	40	-1	
5000534W	DGC ASSOC BY PAIR, INC	021678				REC	15	0.8	25	190.0			52.6	GW	4	0	0	1				2	-1	60	-1	12	1	3	750	-1	ANNUAL ALLOC.=340 ACRES/FT.
5000534W																		2				2	-1	60	-1	12	1	3	750	-1	PERMIT EXPIRED 4/89
5000534W																		3				2	-1	60	-1	12	1	3	750	-1	PERMIT EXPIRED 4/89
5000534W																		4				2	-1	60	-1	8	1	3	100	-1	PERMIT EXPIRED 4/89
5000535W	PINE TREE GOLF COURSE	021678	3	70	67	GOL	15	0.8	25	136.0	75	149.3	25.1	BOTH	1	2	0	1	183	790408	795723	2	-1	85	-1	10	1	2	1000	-1	
5000537W	MAYACOO LAKES COUNTRY CLUB	021678	1	46	56	GOL	15	0.8	23	140.0	75	128.0	21.6	BOTH	2	3	0	A	164	761891	859424	2	-1	30	10	3	1	3	25	-1	WELL LOCATION APPROX.
5000537W			1	46	56													B	164	762055	859528	2	-1	30	10	3	1	3	25	-1	WELL LOCATION APPROX.
5000560W	GRQ LIMITED	041378	3	62	63	AGR	15	0.8	25	736.0	50	1,183.3	195.3	BOTH	2	14	0	1	182	780676	816117	2	-1	90	-1	3	1	3	180	-1	PERMIT EXPIRED 6/90
5000560W			3	62	63		62											2	182	781261	816786	2	-1	90	-1	9	1	3	600	-1	PLANER COORDINATES ARE FROM
5000577W	KOSLOW, LEONARD J	061578	4	80	56	NUR	103	1.5	25	19.0	20	64.5	11.9	GW	2	0	0	1	200	762504	770204	2	-1	150	115	4	1	3	300	-1	
5000577W			4	80	56													2	200	762710	769929	2	-1	150	100	2	1	3	100	-1	
5000578W	MACARTHUR LAND TRUST	061578	5	20	65	AGR	63	0.8	18	273.0	50	415.3	76.5	GW	7	0	0	1	127	785720	927709	2	-1	175	-1	8	1	3	1000	-1	
5000578W			5	20	66		54				50							2	127	788587	927712	2	-1	175	1	8	1	3	1000	-1	
5000578W			5	19	65													3	127	785806	930295	2	-1	175	-1	8	1	3	1000	-1	
5000578W			5	19	66													4	127	788371	930222	2	-1	175	-1	8	1	3	1000	-1	
5000578W			5	20	66													5	127	786992	928006	2	-1	175	-1	8	1	3	1000	-1	
5000578W			5	19	66													6	127	789257	930535	2	-1	175	-1	8	1	3	1000	-1	
5000578W			5	19	66													7	127	787820	931752	2	-1	175	-1	8	1	3	1000	1	
5000599W	CORZO, PEDRO A.	081078	4	47	44	AGR	15	0.8	17	10.0	50	13.7	2.3	BOTH	2	4	1	1	163	730954	857415	2	-1	120	-1	4	1	3	100	-1	
5000599W			4	47	44													2	163	730624	857401	2	-1	120	-1	4	1	3	100	-1	
5000617W	PGA NAT'L GOLF CLUB & SPOR	091478	4	27	61	GOL	15	0.8	18	507.0		548.9		BOTH	12	12	0	1	145	775031	909533	2	-1	100	-1	8	1	2	600	-1	Expired
5000617W			3	28	62													2	145	778385	907523	2	-1	87	68	8	1	2	600	-1	
5000617W			4	27	62													3	145	777704	909056	2	-1	106	90	6	1	2	600	-1	
5000617W			3	29	62													4	145	777598	903897	2	-1	93	74	8	1	2	600	-1	
5000617W			3	27	61													5	145	776337	910358	2	-1	90	70	8	1	2	600	-1	
5000617W			3	27	61													6	145	774691	910624	2	-1	89	70	8	1	2	600	-1	
5000617W			4	30	63													7	145	780432	901187	2	-1	100	-1	8	3	2	600	-1	
5000617W			4	28	64													8	145	782962	905891	2	-1	100	-1	8	1	2	600	-1	
5000617W			4	30	63													9	145	779214	902177	2	-1	100	-1	8	1	2	600	-1	
5000617W			3	28	62													10	145	777351	906467	2	-1	100	81	8	1	2	600	-1	
5000617W			3	27	63													11	145	781119	909021	2	-1	90	80	6	1	2	600	-1	
5000617W			3	26	63													12	145	781386	911026	2	-1	100	80	8	1	2	600	-1	
5000631W	WILLOW BEND ASSOCIATES, IN	121081	3	56	60	LAN	15	0.8	3	36.6	75	39.3	6.3	BOTH	2	5	0	1	182	772118	832608	2	30	80	75	10	1	1	600	-1	
5000631W			3	56	59													2	182	771036	832597	2	30	90	75	10	1	1	600	1	
5000649W	ANTHONY GROVES, INC.	021579	2	49	55	AGR	20	0.4	17	213.0	50	169.9	59.2	BOTH	4	2	0	1	164	760207	850333	2	-1	60	-1	2	1	1	40	-1	
5000649W			3	49	55		13											2	164	759328	850206	2	-1	90	-1	2	1	1	20	-1	
5000649W			3	49	55													3	164	759184	850181	2	-1	90	-1	2	1	1	30	-1	
5000649W			2	50	54													4	164	757707	849683	2	-1	40	-1	2	1	1	40	-1	
5000655W	FLORIDA ATLANTIC UNIVERSIT	031579	1	90	68	LAN	15	0.8	23	250.0	75	259.2	41.2	BOTH	2	3	0	1	216	792786	742025	2	-1	20	20	6	1	1	400	-1	
5000655W			1	91	67													2	216	791080	741680	2	-1	20	20	8	1	1	450	-1	
5000666W	HIGH POINT OF DELRAY WEST	010782	4	77	65	LAN	15	0.8	25	99.8	75	109.5	18.4	BOTH	1	7	0	1	200	785765	776975	2	6	110	100	6	1	2	250	-1	
5000670W	COUNTRY JOE'S NURSERY, INC	051779	3	67	67	AGR	15	0.8	23	14.0	20	57.6	9.7	GW	3	0	0	1	183	791888	802578	1	-1	100	-1	6	1	1	800	-1	
5000670W			5	67	67													2	183	791325	802640	1	-1	140	-1	10	1	1	800	-1	
5000670W			2	67	67													3	183	791309	802614	1	-1	45	-1	2	1	1	400	-1	
5000697W	BIERNBAUM, RALPH	121379				GOL	15		25	135.0			39.8	BOTH	3	4	0	1				2	65	80	-1	8	1	3	400	-1	GW FROM SURFICAL AQUIFER
5000697W																		2				2	65	80	-1	8	1	3	800	-1	SW FROM E-4 CANAL AND
5000697W																		3				2	65	80	-1	8	1	3	800	-1	ON-SITE LAKE
5000703W	BILTMORE CONDOMINIUM	091379				IND	00		3	10.0		1,100.0		GW	2	0	0	1				2	-1	100	-1	12	2	3	1050	-1	EXPIRED 9/13/89
5000703W																		2				2	-1	100	-1	12	2	3	1050	-1	EXPIRED 9/13/89
5000729W	CENTURY VILLAGE WEST, INC	031380	4	89	58	LAN	15	0.8	23	200.80	75	208.15	33.07	BOTH	2	1	0	1	200	767291	745602	2	-1	110	110	6	1	3	130	-1	

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000729W			4	89	58													2	200	767452	745812	2	-1	110	110	6	1	3	130	-1	
5000737W	BOCA WOODS COUNTRY CLUB,	I010782	3	93	54	GOL	15	0.8	25	311.30	75	341.69	57.42	BOTH	6	3	0	1	215	757659	735393	2	-1	110	100	12	1	3	-1	-1	
5000737W			3	93	54													2	215	757646	735387	2	-1	110	100	8	1	3	-1	-1	
5000737W			3	93	54													3	215	757665	735387	2	-1	110	100	12	1	3	-1	-1	
5000741W	DEP OF NATURAL RESOURCES	050880	3	53	61	REC	00			812.00			13.40	GW	2	0	0	1	164	774593	840655	2	-1	100	75	8	1	3	600	-1	GW FROM TURNPIKE AQUIFER
5000741W			3	52	61													2	164	775130	842140	2	-1	100	75	8	1	3	600	-1	
5000763W	PEREZ, J S	071080		23	67	AGR	63	0.8	18	100.00			72.80	BOTH	2	1	0	1	146	792165	918873	2	-1	-1	-1	10	1	3	600	-1	GW FROM SHALLOW AQUIFER
5000763W				23	68													2	146	793019	919618	2	-1	-1	-1	10	3	3	600	-1	
5000814W	PB CO PARKS + REC DEPT.	040981	4	74	70	LAN	15	0.8	25	21.40	75	23.49	3.95	GW	2	0	0	1	201	799420	786235	2	18	160	130	10	1	2	400	-1	
5000814W			4	74	70													2	201	799440	786229	2	20	160	130	4	1	2	50	-1	
5000849W	BELVEDERE GOLF CLUB	080681	3	47	64	LAN	15			25.00			6.50	GW	2	0	0	1	164	782437	857301	2	-1	80	-1	8	1	3	250	-1	
5000849W			3	47	64													2	164	782727	857244	2	-1	80	-1	8	1	3	250	-1	
5000851W	DELRAY DUNES GOLF & CNTRY	080681	2	73	66	GOL	15	0.8	25	110.00	75	120.74	20.29	GW	3	0	0	1	183	788668	789095	2	20	80	60	6	1	2	350	-1	
5000851W			2	73	66													2	193	788922	789101	2	10	80	60	10	1	2	750	-1	
5000851W			2	73	66													3	201	788104	787909	2	10	80	60	10	1	2	750	-1	
5000852W	HANSEN FLORIDA, INC.	080681	3	27	66	GOL	15	0.8	18	163.80	75	177.34	29.03	BOTH	1	5	0	1W	146	787756	910647	2	-1	110	60	4	1	2	240	-1	
5000855W	RETIREMENT BUILDERS, INC.	091081	4	54	65	LAN	15	0.8	3	60.00	75	64.42	10.37	GW	66	0	0	1	165	786809	839030	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													2	165	786778	838736	2	-1	-1	100	2	1	1	40	-1	
5000855W	need id for these wells...		4	54	65													3	165	786787	838477	2	-1	-1	100	2	1	1	40	-1	
5000855W	constructed yet?		4	54	65													4	165	786823	838265	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													5	165	786469	838161	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													6	165	786457	838407	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													7	165	786441	838649	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													8	165	786452	838878	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													9	165	786378	839316	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													10	165	786035	839360	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													11	165	785991	839148	2	1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													12	165	785945	838886	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													13	165	785967	838621	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													14	165	785962	838340	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													15	165	785922	838068	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													16	165	785364	837777	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													17	165	785959	837469	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													18	165	786197	837157	2	1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													19	165	785981	837165	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													20	164	785573	837761	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													21	164	785593	837565	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													22	164	785773	837136	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													23	164	785495	837138	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													24	164	785221	837117	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													25	164	784986	837109	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													26	164	784757	837137	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													27	164	784467	837133	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													28	164	785210	837998	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													29	164	785015	837560	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													30	164	784632	837409	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													31	164	784642	837814	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													32	164	785053	837811	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													33	164	785475	838015	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													34	164	785435	838252	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													35	164	785464	838578	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													36	164	785446	838823	2	-1	-1	100	2	1	1	40	1	
5000855W			4	54	65													37	164	785334	839063	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													38	164	785326	839334	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													39	164	785014	839127	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													40	164	784715	839351	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													41	164	784697	839032	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													42	164	784691	838777	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													43	164	784680	838571	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													44	164	785185	838806	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													45	164	785137	838565	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													46	164	785135	838280	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													47	164	785166	838042	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													48	164	784637	838049	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	65													49	164	784655	838248	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													50	164	784079	838079	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													51	164	784025	838338	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													52	164	784044	838635	2	-1	-1	100	2	1	1	40	-1	

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000855W			4	54	64													53	164	784049	838834	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													54	164	784031	839105	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													55	164	784043	839366	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													56	164	783692	839144	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													57	164	783761	838843	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													58	164	783710	838575	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													59	164	783692	838350	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													60	164	783667	838069	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													61	164	783207	838040	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													62	164	783215	838301	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													63	164	783227	838569	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													64	164	783236	838866	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													65	164	783369	839156	2	-1	-1	100	2	1	1	40	-1	
5000855W			4	54	64													66	164	783126	839092	2	-1	-1	100	2	1	1	40	-1	
5000865W	PALM HILL VILLAS	100881	3	52	65	LAN	15	0.8	3	19.00		15.30	4.90	GW	4	0	0	1	165	786131	843570	2	-1	100	-1	4	1	3	-1	-1	SHALLOW AQUIFER
5000865W			3	52	65													2	165	785942	843751	2	-1	100	-1	4	1	3	-1	-1	
5000865W			3	52	65													3	165	785910	844009	2	-1	100	-1	4	2	3	-1	-1	
5000865W			3	52	66													4	165	787126	843531	2	-1	100	-1	4	2	3	-1	-1	
5000866W	LAKE WORTH, CITY OF	100881	2	55	75	GOL	15	0.4	3	97.00	75	179.10	28.60	BOTH	8	2	0	1	165	810742	836784	2	-1	40	-1	2	1	2	70	-1	
5000866W			2	55	75													2	165	810758	836689	2	-1	40	-1	2	1	2	70	-1	
5000866W			2	56	74													3	183	810617	832248	2	-1	40	-1	2.5	1	2	70	-1	
5000866W			2	56	74													4	183	810642	832107	2	-1	40	-1	2.5	1	2	70	-1	
5000866W			2	54	75													5	165	810769	836954	2	-1	40	-1	3	1	2	130	-1	
5000866W			2	54	75													6	165	810762	836853	2	-1	40	-1	3	1	2	130	-1	
5000866W			2	56	74													7	183	810640	831717	2	-1	40	-1	3	1	2	130	-1	
5000866W			2	56	74													8	183	810642	831573	2	-1	40	-1	3	1	2	130	-1	
5000867W	DAHLGREN, CLARK E.	100881	3	64	66	NUR	103	0.8	25	2.00	75	26.89	0.37	BOTH	2	1	0	1	183	789461	810562	2	-1	110	90	8	1	1	500	-1	
5000867W			1	65	67					15.00	50		4.15					2	183	789732	809037	2	-1	30	-1	2	1	1	50	-1	CROP-TREES
5000872W	PLUMMER BROTHERS, INC.	100881				AGR	15	0.8	25	90.00	85	295.95	54.51	GW	6	0	0	1	200			2	15	100	90	8	1	1	450	-1	WELL LOCATION N/A
5000872W								1.5			20							2	200			2	15	115	110	6	1	1	250	-1	WELL LOCATION N/A
5000872W																		3	200			2	15	103	93	4	1	1	100	-1	WELL LOCATION N/A
5000872W																		4	200			2	15	110	100	8	1	1	400	-1	WELL LOCATION N/A
5000883W	LANDMARK LAND COMPANY OF F	111281	3	54	49	LAN	15	0.8	3	587.00	75	630.26	101.45	BOTH	9	26	0	5	163	743416	837299	2	-1	100	98	2	1	1	20	-1	EXPIRED 2/7/90;CROP TYPE ALS
5000883W			3	54	49													6	163	743504	837296	2	-1	100	98	2	1	1	20	-1	
5000883W			3	54	49													7	163	743608	837288	2	-1	100	98	2	1	1	20	-1	
5000883W			3	54	49													8	163	743796	837290	2	-1	100	99	2	1	1	20	-1	
5000883W			3	54	49													9	163	743792	837290	2	-1	100	98	2	1	1	20	-1	
5000883W			3	54	49													10	163	743901	837295	2	-1	100	98	2	1	1	20	-1	
5000883W			3	54	49													11	163	744029	837311	2	-1	100	98	2	1	1	20	-1	
5000883W			3	54	48													12	163	741977	838093	2	-1	100	98	2	1	1	20	-1	
5000883W			2	54	49													13	163	742286	838660	2	-1	50	47	3	1	1	50	-1	
5000890W	CENTURY VILLAGE, INC	121081	4	44	65	LAN	15	0.8	3	60.70		73.57	11.37	BOTH	1	2	0	1	165	785719	864051	2	-1	157	122	12	1	2	700	-1	CROP TYPE ALSO GOL
5000892W	MORNING STAR NURSERY, INC.	121081	4	63	67	AGR	15	0.8	25	18.00	20	74.09	12.45	GW	2	0	0	1	183	789991	815094	2	65	85	85	10	1	1	1000	-1	
5000892W			4	63	67													2	183	790977	815272	2	70	90	90	10	1	1	1000	-1	
5000904W	MCDOUGALD, WALTER	010782	4	81	63	AGR	15	0.8	23	1.00	75	51.57	0.17	GW	2	0	0	1	200	781550	765574	2	-1	170	160	6	1	1	350	-1	ALSO BACK-UP PUMP-80 & 250GP
5000904W			4	82	63					13.00	20		8.03					2	200	781405	765496	2	-1	170	160	6	1	1	400	-1	ALSO BACK-UP PUMP-250 GPM
5000908W	BOCA DELRAY ASSOCIATES, IN	081282	4	83	64	GOL	15	0.8	23	89.00	75	92.26	14.66	BOTH	3	3	0	1	200	784282	761992	2	30	163	134	6	1	1	500	-1	CROP TYPE ALSO LAN
5000908W			4	83	65													2	201	786638	761133	2	30	162	152	8	1	1	250	-1	WELL LOCATION N/A
5000908W			4	63	64													3	200	783672	761941	2	30	145	124	10	1	1	750	-1	
5000910W	RODRIGUEZ, JL & M	010782	3	68	57	NUR	103	0.8	25	96.00	50	158.06	26.56	BOTH	1	1	0	1	182	765221	802060	2	-1	100	-1	-1	1	3	1000	-1	MAP DESIGNATION=A
5000911W	LIGHT WAVE NURSERY, INC.	010782	4	80	56	AGR	15	0.8	25	4.00	20	16.46	2.77	GW	1	0	0	1	200	762836	769447	2	-1	110	110	4	1	2	400	-1	WELL LOCATION IS APPROXIMATE
5000919W	DUBOIS, W A	010782				AGR	63	3.5	25	160.00	50		125.00	BOTH	2	2	0	1	182			2	-1	90	-1	10	1	3	1200	-1	EXPIRED 2/88
5000919W																		2	182			2	-1	90	-1	10	1	3	1200	-1	EXPIRED 2/88
5000923W	TALNO, ROY	010782				LAN	15	0.8	25	20.00	50	363.24	71.51	BOTH	1	3	0	1	200			2	-1	100	90	12	1	1	1050	-1	EXPIRED 4/89
5000930W	BLOOD, NW JR. & CAROLYN	010782	3	82	66	AGR	13	0.8	25	85.00	85	39.10	14.39	BOTH	3	0	1	1	201	788149	763357	2	-1	75	-1	6	1	1	60	-1	
5000930W			3	82	66													2	201	789310	765335	2	-1	90	-1	8	1	1	200	-1	
5000930W			5	81	66													3	201	788549	765958	2	-1	160	-1	12	1	1	1500	-1	
5000941W	EASTPOINTE COUNTRY CLUB	021182	3	21	63	GOL	15	0.8	18	133.90	75	144.97	23.73	BOTH	3	2	0	1	126	781443	925253	2	-1	120	100	8	1	2	500	-1	
5000941W																		2	126			2	-1	120	100	4	1	2	300	-1	WELL LOCATION N/A
5000941W			4	21	64													3	126	783340	924273	2	-1	120	100	10	1	3	500	-1	
5000943W	TAHERI, F.E.	021182	4	82	66	AGR	15	0.8	25	20.00	20	82.32	13.83	GW	2	0	0	1	201	787299	763841	2	-1	120	120	8	1	1	650	-1	
5000943W			4	82	66													2	201	788120	764252	2	-1	126	126	10	1	1	800	-1	
5000949W	BRYNTESON, JENS	021182	1	61	66	NUR	103	1.5	25	43.00	20	146.04	26.93	BOTH	2	4	0	W1	183	787660	819221	2	-1	20	20	2	1	2	50	-1	
5000949W			2	61	66													W2	183	787363	818941	2	-1	60	60	3	1	1	50	-1	
5000956W	CHARLES GREEN'S NURSERY OF	031182	4	69	63	AGR	15	0.8	25	15.00	85	55.45	9.32	GW	2	0	0	1	182	780200	797500	2	-1	120	100	8	1	2	550	-1	LOCATION ESTIMATED
5000956W			4	69	63						20							2	182	780200	797500	2	-1	113	113	6	1	1	400	-1	LOCATION ESTIMATED
5000966W	AMESTOY, RICK	031182	3	68	56	AGR	63	0.8	25	170.00	50	63.03	34.83	BOTH	2	2	0	1	182	762450	799957	2	100	100	100	12	1	2	1500	-1	WELL USED FOR BACKUP ONLY
5000966W			3	69	59													2	182	762491	798242	2	100	100	100	12	1	2	1500	-1	WELL USED FOR BACKUP ONLY

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5000967W	LUCERNE PARK, LTD.	041582	4	55	62	GOL	15	0.8	3	32.60	75	35.00	5.63	BOTH	2	2	0	1	164	778499	835999	2	60	150	60	4	1	2	200	-1	
5000967W			3	55	62													2	164	778509	835594	2	25	100	90	6	2	2	425	-1	
5000970W	BOCA RATON EXEC. COUNTRY C	031182	2	84	71	GOL	15	0.8	25	32.00	75	35.12	5.90	BOTH	2	2	0	1	201	800597	759109	2	-1	40	710	4	1	3	200	-1	CROP TYPE ALSO LAN
5000970W			2	85	71													2	201	800277	757557	2	-1	40	710	4	1	3	200	-1	
5000971W	KINGS POINT HOUSING CORP.	031182	2	81	64	GOL	15	0.8	25	220.00	75	241.48	40.58	BOTH	8	20	0	17	200	784141	766315	2	-1	85	40	1.5	1	1	90	-1	
5000971W			2	80	62													18	200	777122	770696	2	-1	85	40	2	1	1	90	-1	
5000971W			2	79	62													19	200	777103	770899	2	-1	85	40	2	1	1	90	-1	
5000971W			2	80	62													20	200	777285	770614	2	-1	85	40	2	1	1	90	-1	
5000971W			2	81	62													21	200	778717	766976	2	-1	85	40	2	1	1	90	-1	
5000971W			2	81	62													22	200	778534	767111	2	-1	85	40	2	1	1	90	-1	
5000971W			2	81	64													23	200	781789	767329	2	-1	85	40	2	1	1	90	-1	
5000971W			2	81	64													24	200	783843	767481	2	-1	85	40	2	1	1	90	-1	
5000977W	SOUTHERN ORNAMENTAL PLANTS	041589	4	71	64	AGR	15	0.8	25	30.00	75	32.93	5.53	GW	7	0	0	1	182	781736	794428	2	-1	135	127	6	1	1	425	-1	
5000977W			3	71	64													2	182	781728	793634	2	-1	100	92	6	1	1	700	-1	
5000977W			4	71	64													3	182	782086	793626	2	-1	132	127	6	1	1	425	-1	
5000977W			4	71	64													4	182	782307	794233	2	-1	137	130	8	1	1	700	-1	
5000977W			4	71	64													5	182	782467	794371	2	-1	136	128	8	1	1	700	-1	
5000977W			4	71	64													6	182	781960	794457	2	-1	130	127	3	1	1	225	-1	
5000977W			4	71	64													7	182	782914	794227	2	-1	130	127	8	1	1	700	-1	
5000979W	DUBOIS FARMS, INC	041582				AGR	63	0.8	25	65.00	50	55.60	10.50	BOTH	1	1	0	1	164			2	12	90	1	10	1	1	1200	-1	EXPIRED 4/89
5000984W	CLINTMOORE ROAD NURSERY	041582	3	85	58	NUR	103	0.8	23	40.00	20	108.84	17.30	BOTH	1	4	1	1	200	766660	755561	2	99	105	105	8	1	1	800	-1	PERMIT MAP NOT ACCURATE
5000992W	BOCA WEST CLUB, INC.	041582	3	90	60	GOL	15	0.8	23	634.00	50	657.22	104.44	BOTH	9	3	0	1	200	772230	742692	2	50	100	100	10	1	2	750	-1	
5000992W			3	90	60													2	200	772475	742617	2	50	100	100	6	1	2	50	-1	
5000992W			3	90	60													3	200	772888	742672	2	50	100	100	10	1	2	750	-1	
5000992W			4	91	62													4	200	777333	741060	2	50	100	100	10	1	2	750	-1	
5000992W			4	91	62													5	200	777343	740756	2	50	100	100	6	1	2	50	-1	
5000992W			4	90	63													6	200	779236	742165	2	50	100	100	10	1	2	750	-1	
5000992W			3	89	60													10	200	771692	745664	2	50	100	100	10	1	2	750	-1	
5000992W			3	89	60													11	200	771643	745906	2	50	100	100	6	1	2	250	-1	
5000992W			3	89	60													12	200	771651	746263	2	50	100	100	10	1	2	750	-1	
5001001W	CADILLAC FAIRVIEW	051382	3	72	63	LAN	15	0.8	25	88.26	75	96.88	16.28	BOTH	2	8	0	3	182	781564	791705	2	-1	100	40	6	1	1	140	-1	PROPOSED: 10-6" WELLS PUMPED
5001001W			2	73	63													5	182	781608	789268	2	-1	80	20	4	1	1	85	-1	@ VARIOUS RATE.
5001068W	F.P.A. CORPORATION	041483	3	84	66	GOL	15	0.8	25	130.00	75	142.69	23.98	GW	4	0	0	1	201	789340	759273	2	-1	85	75	12	1	2	750	-1	
5001068W			3	74	66													2	201	789303	759031	2	-1	75	65	8	1	2	250	-1	
5001068W			3	84	66													3	201	789532	759003	2	-1	100	80	12	1	2	800	-1	
5001068W																		4	201			2	-1	95	90	8	1	2	500	1	WELL #4 WILL BE WITHIN 50' OF
5001071W	SHOEMAKER, J.D.	041483	4	79	57	NUR	103	0.8	25	15.75	50	25.93	4.36	GW	2	0	0	1	200	765761	772492	2	-1	118	118	4	1	3	500	-1	#1,2,3
5001071W			4	79	58													2	200	766061	771875	2	-1	118	118	4	1	3	500	-1	
5001079W	GREATER BOCA RATON BCH TAX	021183	4	88	65	LAN	15	0.8	23	27.21	75	28.21	4.48	GW	1	0	0	1	200	784844	749296	2	254	150	100	8	1	2	250	-1	GW FROM BISCAYNE AQUIFER
5001085W	ABBEY DELRAY	060983				LAN	15	0.8	25	10.00	75	16.46	2.70	BOTH	3	3	0	1	201			2	-1	60	-1	4	3	1	200	-1	WELL LOCATION N/A
5001085W																		2	201			2	-1	60	-1	3	3	1	500	-1	WELL LOCATION N/A
5001085W																		3	201			2	-1	60	-1	4	3	1	200	-1	WELL LOCATION N/A
5001131W	SEA OATS OF JUNO BEACH, IN	070987	1	20	73	LAN	15	0.8	18	12.74	75	13.80		BOTH	2	4	0	1	127	805740	927488	2	-1	40	36	3	2	1	70	-1	EXPIRED 4/15/89
5001131W			1	20	73													2	127	806236	929240	2	-1	40	36	3	2	1	70	-1	EXPIRED 4/15/89
5001140W	VALLEY VIEW FARM, IN	020984	4	69	63	IND	00		25	10.00		32.40		GW	2	0	0	1	182	779682	799044	2	-1	123	113	10	2	3	1000	-1	
5001140W			4	69	63													2	182	779676	798569	2	-1	123	113	10	2	3	1000	-1	INJECTION WELL ONLY
5001194W	MOTOROLA, INC.	080984				LAN	15	0.4	25	40.50	75	49.84	7.96	BOTH	1	3	0	1	183			2	-1	90	85	4	1	1	200	-1	EXPIRED 10/89
5001214W	RAINBERRY DEVELOPERS ONE,I	121489	4	80	60	GOL	15	0.8	25	109.41	75	120.09	20.18	BOTH	2	3	0	1	200	772767	769184	2	-1	150	90	12	2	2	800	-1	QUAD MAP NOT ACCURATE ENOUGH
5001214W			4	80	61													2	200	774721	768866	2	-1	150	90	12	2	2	800	-1	WELL & PUMP LOCATIONS ARE
5001225W	AMREP SOUTHEAST, INC.	121087	2	44	63	LAN	3	0.8	3	6.00	75	6.44	1.04	GW	1	0	0	1	164	780154	863340	2	-1	70	50	4	2	3	175	-1	
5001282W	RIDGE AT THE BLUFFS, H.O.	121384	2	19	72	LAN	15			158.30		51.60		BOTH	10	2	0	1	127	803461	930931	2	18	40	20	4.5	1	2	100	-1	
5001282W			2	19	72													2	127	803775	931473	2	18	40	20	4.5	1	2	100	1	
5001282W			1	18	72													3	127	803757	932149	2	18	40	20	4.5	1	2	100	-1	
5001282W			1	18	72													4	127	803529	932834	2	18	40	20	4.5	1	2	100	-1	
5001282W			1	18	73													5	127	805530	932754	2	18	40	20	4.5	1	2	100	-1	
5001282W			1	18	72													6	127	803720	934082	2	18	40	20	4.5	1	2	100	-1	
5001282W			1	17	72													7	127	804416	935093	2	18	40	20	4.5	1	2	100	-1	
5001282W			1	17	72													8	127	803207	936466	2	18	40	20	4.5	1	2	100	-1	
5001282W			2	19	72													9	127	803247	931286	2	18	40	20	4.5	1	2	100	-1	
5001282W			2	19	72													10	127	803275	931783	2	18	40	20	4.5	1	2	100	-1	
5001345W	OKEAN, P.Z. & J.M. - TRUST	061385	4	78	59	NUR	103	1.5	25	60.00	20	184.20	30.86	BOTH	3	1	0	1	200	769260	773528	2	90	110	110	14	2	1	1500	-1	
5001345W			4	79	59													2	200	769033	772890	2	90	110	110	14	2	1	1500	-1	
5001345W			4	78	59													3	200	768566	773480	2	90	110	110	14	2	1	1500	-1	
5001373W	RIVER HOMEOWNERS ASSOC. IN	091285	2	18	71	LAN	15	0.8	18	20.00	80	21.65		BOTH	3	2	0	1	127	802763	932876	2	1.5	60	40	4.5	1	2	100	-1	
5001373W			2	18	71													2	127	802715	934332	2	1.5	60	40	4.5	1	2	100	-1	
5001373W			2	17	71													3	127	802666	935683	2	1.5	60	40	4.5	1	2	100	-1	
5001391W	LANDSITES, INC.(JUPITER BA	101085	2	14	71	LAN	15			19.20		8.37		BOTH	4	3	0	1	127	801218	944460	2	48	60	50	6	1	2	100	-1	EXPIRED 4/89
5001391W			2	14	71													2	127	800918	944467	2	48	60	50	6	1	2	100	-1	EXPIRED 4/89

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5001391W			2	14	71													3	127	800712	944265	2	48	60	50	6	1	2	100	-1	EXPIRED 4/89
5001391W			2	14	71													4	127	800705	943965	2	48	60	50	6	1	2	100	-1	EXPIRED 4/89
5001442W	ENGLE GROUP, INC., THE	041086	5	22	71	LAN	15	0.8	18	13.20	75	14.29	78,000	BOTH	1	1	0	1	146	802236	923654	2	-1	203	200	6	2	2	140	-1	
5001443W	OLD MARCH PARTNERS	041086	3	23	61	GOL	15	0.8	18	125.20	75	130.56	21.58	BOTH	2	1	0	1	145	776341	921193	2	60	114	74	10	1	2	350	-1	
5001443W			3	22	61		1				75							2	145	776136	922305	2	60	120	80	10	1	2	650	-1	
5001466W	MISSION BAY DEV COMPANY,	I071086	4	91	55	REC	00		23	0.00		32.75	0.19	GW	2	0	0	1	215	759852	739678	2	-1	120	110	10	2	1	360	-1	
5001466W			4	91	55													2	215	759874	739560	2	-1	120	110	10	2	1	360	-1	
5001469W	WEST PALM BEACH, CITY OF	081486	3	45	73	LAN	15	0.4	3	17.00	75	20.60	3.18	GW	1	0	0	1	165	806510	861463	2	42	100	65	8	1	2	280	-1	
5001484W	JUPITER BEACHCOMBER CONDO	100986	1	19	73	LAN	15	0.8	18	4.14	75	1.35		GW	3	0	0	1	127	806408	931390	2	26	34	26	2	2	1	45	-1	MONTHLY ALLOC.=7,400 ?
5001484W			1	19	73													2	127	806399	931442	2	26	34	26	2	2	1	45	-1	
5001484W			1	19	73													3	127	806357	931502	2	26	34	26	2	2	1	45	-1	
5001500W	FALLS COUNTRY CLUB, THE	111386	3	62	62	GOL	15	0.8	25	153.00	75	167.94	28.22	BOTH	1	3	8	I	182	777327	816821	2	40	90	60	8	2	2	750	-1	
5001511W	ARVIDA/JMB PARTNERS	111386	4	86	64	LAN	15	0.8	23	17.40	75	18.04	2.87	GW	4	0	0	1	200	782500	752363	2	40	120	115	6	1	1	350	-1	
5001511W			4	86	63													2	200	779495	752620	2	-1	142	135	2	1	1	350	-1	
5001511W			5	87	66													3	200	787329	750116	2	50	144	140	6	1	1	350	-1	
5001511W			4	87	65													4	200	784331	751213	2	42	135	131	6	1	1	350	-1	
5001523W	SUMMIT ASSOCIATES	121186				LAN	15		25	16.73			3.09	GW	1	0	0	1	201			2	90	90	70	4	2	1	250	-1	EXPIRED 4/89
5001525W	MINTO BUILDERS, FLORIDA,	I121186	3	70	65	LAN	15	0.8	25	25.25	75	27.72	4.66	BOTH	1	1	0	1	183	786780	795691	2	-1	90	80	4	2	3	100	-1	
5001552W	ADMIRALS COVE ASSOCIATION,	031287	3	17	69	LAN	15		18	122.00		132.00		BOTH	2	3	0	1	127	795255	937049	2	80	80	-1	8	1	1	350	-1	
5001552W			3	18	69													2	127	795198	934426	2	80	80	-1	8	1	1	350	-1	
5001557W	SCHAAF & JOHNSON, INC.	040987	4	15	63	LAN	15	0.8	18	58.04	75	62.84	10.29	BOTH	1	14	0	W1	126	780675	939820	2	85	175	155	4	2	2	350	-1	
5001585W	PALM BCH CO SCHOOL DISTRIC	081387	4	50	45	LAN	15	0.4	17	27.00	75	28.55	4.43	GW	2	0	0	1	163	733345	847780	2	30	125	125	6	2	2	200	-1	
5001585W			4	50	45													2	163	733339	847571	2	30	125	125	6	2	2	250	-1	
5001586W	BENT TREE WATER MGT ASSOC,	081387	3	69	66	LAN	15	0.8	25	83.80	75	91.98	15.46	BOTH	6	18	0	W1	183	787821	799713	2	67	85	80	4	1	1	139	-1	
5001586W			3	69	66													W2	183	788413	799572	2	72	90	85	4	1	1	136	-1	
5001586W			3	69	66													W3	183	788437	799133	2	62	80	75	4	1	1	136	-1	
5001586W			3	69	67													W4	183	789854	799108	2	67	85	80	4	1	1	145	-1	
5001586W			3	69	67													W5	183	791349	798704	2	62	80	75	4	1	1	138	-1	
5001586W			3	69	67													W6	183	791928	799775	2	62	80	75	4	2	1	107	-1	
5001607W	FOUNDATION LAND COMPANY,	I100887	4	25	70	LAN	15	0.8	10	33.00	75	10.75	195,000	GW	1	0	0	1	146	797718	912836	2	96	145	120	8	2	2	250	-1	
5001614W	ASSOCIATED GROWERS, INC.	111287	3	82	57	AGR	15	1.5	25	17.50	20	59.43	10.96	GW	2	0	0	1	200	765479	765488	2	5	106	90	8	1	1	200	-1	WELL LOCATION N/A
5001614W			3	82	57													2	200	765249	765270	2	5	106	100	8	1	1	200	-1	WELL LOCATION N/A
5001643W	N. PALM BCH CO. W.C. DISTR	031088	4	24	68	LAN	15	0.6	18	89.00	75	96.40	0.05	GW	3	0	0	1	146	794743	916501	2	-1	140	120	-1	2	3	175	-1	PERMIT IS MISSING
5001643W			4	25	69													2	146	795070	914464	2	1	140	120	1	2	3	175	-1	PERMIT IS MISSING
5001643W			4	24	69													3	146	797269	916526	2	-1	140	120	-1	2	3	200	-1	PERMIT IS MISSING
5001646W	SUGARCANE GROWERS COOP OF	031088				IND	00			1.00		140.00	384,000	GW	2	0	0	1		614389	862247	2	9	30	14	10	1	1	400	-1	EAA PLOT
5001646W																		2		614389	862049	2	9	30	14	10	1	1	400	-1	EAA PLOT
5001663W	UNITED TECHNOLOGIES CORP	051288	2	18	43	IND	00			7,078.40		1.26	5.26	BOTH	6	16	0	1	125	727164	933896	2	10	55	35	8	1	2	300	-1	
5001663W			2	18	43													2	125	727672	933893	2	12	57	37	8	1	2	300	-1	
5001663W			2	18	43													3	125	728256	933895	2	8	54	34	8	1	2	300	-1	
5001663W			2	18	43													4	125	728702	933922	2	11	56	36	8	1	2	300	-1	
5001663W			2	18	43													7	125	728417	933460	2	11	55	35	8	1	2	300	-1	
5001663W			1	18	44													8	125	728987	933433	2	9	54	34	8	1	2	300	-1	
5001664W	UNITED TECHNOLOGIES CORP.	051288	1	17	42	LAN	15	0.8	18	35.00	75	37.89	6.20	BOTH	1	12	0	PINK	125	726002	934557	2	7	60	20	6	1	1	40	-1	GW FROM SURFICIAL AQUIFER
5001666W	COLONIAL ESTATES, INC.	051288	1	74	65	LAN	15	0.8	25	19.00	75	20.85	3.50	GW	14	0	0	1	200	785963	786002	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													2	201	786207	786134	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													3	201	786394	786106	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													4	201	786627	786046	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													5	201	786275	785837	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													6	200	785330	785355	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													7	200	785464	785355	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													8	200	785693	785354	2	-1	20	15	2	1	1	100	1	
5001666W			1	74	65													9	200	785863	785341	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													10	200	786027	785357	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													11	201	786215	785512	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													12	201	786395	785533	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													13	200	785679	785020	2	-1	20	15	2	1	1	100	-1	
5001666W			1	74	65													14	201	786605	785188	2	-1	20	15	2	1	1	100	-1	
5001692W	PALM BEACH COUNTY SCHOOL	B090888	3	41	67	LAN	15	0.8	3	22.30	75	23.94	3.85	GW	2	0	0	1	165	791987	873347	2	30	100	70	6	2	2	200	-1	WELL LOCATION APPROXIMATE
5001692W			3	41	67													2	165	791081	872529	2	30	100	70	6	2	2	160	-1	WELL LOCATION APPROXIMATE
5001702W	HAMPTON'S AT MAPLEWOOD	071488	4	16	65	LAN	15		18	60.70		49.60	4.10	GW	1	6	0	W1	127	786032	938849	2	-1	150	120	6	2	2	200	-1	LOCATION MAY NOT BE ACCURATE
5001710W	NORTHERN TELECOM ELECTRONI	100688	2	36	71	IND	00		3	11.00		113.00		GW	4	0	0	RW1	146	800987	884479	2	21	70	35	8	1	2	100	-1	
5001710W			2	36	71													RW2A	146	801186	884570	2	20	100	40	8	2	2	100	-1	
5001710W			5	36	71													RW2B	146	801094	884572	2	20	210	140	8	2	2	100	-1	
5001710W			4	36	71													RW3	146	801275	884453	2	20	140	90	8	2	2	100	-1	
5001773W	JAMICA BAY, INC.	020989	3	67	66	LAN	15	0.8	25	51.53	75	56.53	9.50	GW	2	0	0	1	183	789191	804515	2	-1	105	100	8	1	2	525	-1	
5001773W			3	67	66													2	183	787045	804295	2	-1	105	100	8	1	2	525	-1	
5001794W	BOCA LAKES CONDOMINIUM ASS	030989	3	91	58	LAN	15	0.8	23	36.00	75	37.32	5.93	BOTH	1	2	0	1	215	766598	740002	2	-1	100	90	8	2	3	450	-1	

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

5001838W	PALM BEACH CO.SCHOOL BOARD	121489	2	52	48	LAN	15	0.4		39.23	75	41.48	6.43	BOTH	2	2	0	1	163	739894	843099	2	70	90	50	8	1	2	300	-1	
5001838W			2	52	40													2	163	739485	842264	2	70	90	50	8	1	2	300	-1	
5001842W	MARQUETTE ELECTRONICS, INC	041389		15	68	LAN	15	0.8	18	4.74	75	5.13	0.84	GW	1	0	0	1	127	792583	941465	2	-1	-1	-1	4	2	1	1356	-1	WELL LOCATION APPROX.
5001858W	SEAGRASS PROPERTIES, INC	051189	4	83	60	GOL	15	0.8	25	236.00	75	259.04	43.53	BOTH	2	8	0	W1	200	772471	761937	2	-1	140	120	-1	2	3	-1	-1	
5001858W			4	81	61													W2	200	775303	765750	2	-1	140	120	-1	2	3	-1	-1	
5001883W	BOCA WEST CLUB, INC	061589	3	90	61	LAN	15	0.8	23	26.00	75	26.95	4.28	GW	1	0	0	13	215	776364	742802	2	50	100	100	4	1	1	200	-1	
5001903W	COLLEGE OF BOCA RATON	061589	5	89	66	LAN	15			60.00		62.20	9.88	BOTH	5	2	0	1	201	787340	745789	2	-1	135	140	8	2	2	500	-1	
5001903W			5	89	66													2	201	787048	745941	2	-1	135	140	8	2	2	500	-1	
5001903W			4	89	65													3	200	786219	746589	2	-1	135	140	8	2	2	500	-1	
5001903W			4	89	65													4	200	786220	745701	2	-1	135	140	8	2	2	500	-1	
5001903W			4	89	65													5	201	786884	746293	2	-1	135	140	4	1	2	250	-1	
5001906W	N PLM BCH CO WATER CNTRL D	061589	3	32	63	GOL	15	0.4	3	182.80	75	221.55	34.25	SW	2	0	0	1	145	780695	896359	2	100	120	80	10	2	2	500	-1	
5001906W			3	33	63													2	145	780195	894044	2	100	120	80	10	2	2	500	-1	
5001922W	N PALM BCH WATER CONTROL D	071389	4	43	62	GOL	15	0.8	18	21.70	75	168.75	26.34	GW	2	0	0	1	164	778029	867744	2	-1	180	120	12	2	3	900	-1	
5001922W			4	44	62													2	164	778412	865805	2	-1	180	120	12	2	3	900	-1	
5001932W	MOESLY NURSERIES, INC	071389	3	63	67	AGR	15	0.8	25	20.00	50	32.93	5.53	GW	5	0	0	1	183	789750	814123	2	-1	78	68	4	1	1	6800	-1	
5001932W			3	63	67													2	183	789798	813992	2	-1	78	68	2	1	1	3400	-1	
5001932W			3	63	67													3	183	789874	814109	2	-1	78	68	6	1	1	700	-1	
5001932W			3	63	67													4	183	790038	814128	2	-1	78	68	6	1	1	700	-1	
5001932W			3	63	67													5	183	790068	814282	2	-1	78	68	6	1	1	700	-1	
5001988W	PALM BEACH COUNTY SCHOOL B	091489	4	82	49	LAN	15	0.8	23	37.50	75	38.87	6.18	GW	2	0	0	1	200	743942	765215	2	10	150	140	6	2	2	250	-1	PLANNER COORD. GIVEN IN FILE
5001988W			4	82	47													2	215	738860	764995	2	10	150	140	6	2	2	250	-1	PUMP DATA MISSING
5002034W	EASTLAND DEVELOPMENT CORP	110989	2	31	74	LAN	15	0.4	3	4.80	75	5.82	0.90	GW	1	0	0	3	146	808625	898272	2	43	50	30	6	2	1	150	-1	TEST WELL
4300054W	JUPITER HILLS CLUB	11/89	2	6	68	GOL	15	0.4	18	240.0	75	180.6	32.4	GW	5	0	0	1	127	793020	964275	2	-1	64	45	8	01	3	350	-1	1990-25% WASTEWATER
4300054W			2	6	68													2	127	792993	964489	2	-1	64	45	8	01	3	450	-1	1991-50% WASTEWATER
4300054W			2	6	68													3	127	792680	964763	2	-1	80	50	8	01	3	350	-1	
4300054W			2	6	68													4	127	792396	965233	2	-1	64	45	2	01	3	300	-1	
4300054W			2	6	68													5	127	792535	965670	2	-1	64	45	8	01	3	350	-1	
4300057W	HOBE-ST. LUCIE CONSERVANCY	10/87	3	1	50	AGR	13	1.5	18	1,281.0	85	4,460.0		BOTH	58	4	0	38	110	745338	978154	2	60	90	70	8	01	2	460	-1	
4300057W			3	4	53		13	1.5	18	2,903.0	60							39	110	753828	970243	2	60	90	70	8	01	2	460	-1	
4300057W			3	4	53		13	1.5	24	1,520.0	35							40	110	754842	970290	2	60	90	70	8	01	2	460	-1	
4300057W			3	4	54		63	1.5	24	300.0	35							41	110	756144	970306	2	60	90	70	8	01	2	460	-1	
4300057W			3	4	54													42	110	757655	970265	2	60	90	70	8	01	2	460	-1	
4300057W			3	4	55													43	110	759096	970234	2	60	90	70	8	01	2	460	-1	
4300057W			2	2	53													44	110	754652	975798	2	60	90	60	10	01	2	520	-1	
4300057W			3	2	57													45	110	763393	975224	2	60	90	60	10	01	2	520	1	
4300057W			3	2	57													46	110	763393	974538	2	60	90	60	10	01	2	520	-1	
4300057W			3	3	57													47	110	763331	972049	2	60	90	60	10	01	2	520	-1	
4300057W			3	3	57													48	110	763404	971562	2	60	90	60	10	01	2	520	-1	
4300057W			3	4	57													49	110	763378	970795	2	60	90	60	10	01	2	520	-1	
4300057W			3	2	54													54	110	755517	974734	2	60	90	60	10	01	2	520	-1	
4300057W			3	2	55													55	110	758743	974887	2	60	90	60	10	01	2	520	-1	
4300057W			2	3	51													56	110	748257	971607	2	60	90	60	10	01	2	520	-1	
4300057W			3	3	51													57	110	747910	973632	2	60	90	60	10	01	2	520	-1	
4300057W			2	1	47													33	109	737780	979258	2	60	80	70	8	01	2	460	-1	
4300057W			2	1	47													34	109	737730	978352	2	60	80	70	8	01	2	460	-1	
4300057W			2	1	47													35	109	738803	978269	2	60	80	70	8	01	2	460	-1	
4300057W			2	1	48													36	109	740832	978339	2	60	80	70	8	01	2	460	-1	
4300057W			2	1	49													37	109	742104	978230	2	60	80	70	8	01	2	460	-1	
4300057W			3	4	56													50	126	763082	969499	2	60	80	70	8	01	2	460	-1	
4300057W			3	4	56													51	126	763132	968931	2	60	80	70	8	01	2	460	-1	
4300057W			3	5	57													52	126	763254	968324	2	60	80	70	8	01	2	460	-1	
4300057W			3	5	57													53	126	763260	967507	2	60	80	70	8	01	2	460	-1	
4300091W	RIVER BEND GOLF COURSE	1277	4	7	64	GOL	15	0.4	18	71.0	75			BOTH	1	3	0	1	126	782998	962206	2	64	126	126	12	01	2	250	-1	
4300120W	GULFSTREAM CITRUS	9/89	3	5	57	AGR	13	1.5	18	1,244.0	85	532.0	196.0	BOTH	9	1	0	1	126	764189	966200	2	-1	90	40	6	03	3	310	-1	
4300120W			3	6	57													2	126	765300	965888	2	-1	90	40	6	03	3	1050	-1	
4300120W			3	6	58													3	126	766400	966065	2	-1	90	40	8	03	3	200	-1	
4300120W			3	7	57													6	126	764033	963159	2	-1	90	40	8	01	3	180	-1	
4300120W			3	7	57													7	126	763300	962900	2	-1	90	40	8	01	3	500	-1	
4300120W			3	6	57													9	126	763400	964644	2	-1	90	40	8	03	3	500	-1	
4300120W			3	5	56													10	126	762773	966226	2	-1	90	40	8	03	3	500	-1	
4300120W			3	7	57													8	126	765654	961793	2	-1	90	40	10	01	3	1200	-1	
4300120W			3	7	58													11	126	768146	961399	2	-1	90	40	3	03	3	25	-1	
4300138W	LINKS GROUP (CYPRESS LINKS	6/89	2	10	52	GOL	15	1.5	18	150.0	75	134.9		BOTH	5	3	0	1	126	750162	955468	2	1	70	70	2	01	1	70	-1	
4300138W			2	10	52													2	126	750220	955307	2	-1	70	70	2	01	1	70	-1	
4300138W			2	10	52													3	126	750279	955169	2	-1	70	70	2	01	1	70	-1	
4300138W			3	9	51													4	126	749747	955991	2	-1	100	90	4	01	1	125	-1	
4300138W			3	9	51													5	126	749815	955768	2	-1	100	90	4	01	1	125	-1	

Table E-2. Non-Public Water Supply Spreadsheet (Continued)

4300200W	JOHN D. & NANCY P. MARTIN	9/85	3	10	57	AGR	63	1.5	18	360.0	50	295.0		GW	5	0	0	1	126	764355	954180	2	-1	105	100	12	01	2	800	-1	
4300200W			3	9	57													2	126	764149	956537	2	-1	105	100	12	01	2	800	-1	
4300200W			3	9	57													3	126	765685	956628	2	-1	105	100	12	01	2	800	-1	
4300200W			3	9	58													4	126	767644	956620	2	-1	105	100	12	01	2	800	-1	
4300200W			3	9	59													5	126	769215	956626	2	-1	105	100	12	01	2	800	-1	
4300202W	LITTLE CLUB CONDO ASSOC.	8/88	4	6	65	LAN	15	0.4	18	20.0	75	24.3		BOTH	2	2	0	2	127	785378	964329	2	-1	100	-1	4	02	1	120	-1	
4300202W			4	6	64													1	126	784207	964086	2	10	120	100	4	01	1	90	-1	
4300418W	S.N. & STEPHEN KNIGHT & S.	4/88	3	1	13	AGR	13	0.8	4	77.0	85	35.4		GW	1	0	0	1	107	647406	977411	2	80	125	105	10	02	2	500	-1	
0600007W	CITY OF POMPANO, HOUSING A	9/74	2	108	63	AGR			23	44.5	75	22.2	0.1	GW	2	0	0	1	230	780529	695674	2	-1.0	40	-1	8	1				THE IRRIGATION EFFICIENCY WA
0600007W			2	108	65													2	230	780610	695654	2	-1.0	40	-1	8	1				75%.EXPIRED 1984. CITY wants
0600024W	FPA CORPORATION	10/87	2	110	61	GLF	15	0.4	23	662.0	75	778.7	118.6	BOTH	7	8	0	5A	230	774497	690232	2	-1.0	75	-1	6	1		50		THERE ARE TWO WELLS AT SITE
0600024W			2	110	60													5B	230	772033	690459	2	-1.0	75	-1	12	1		400		SURFACE WATER PUMPS AT SITE
0600024W			2	110	60													6A	230	772354	690446	2	-1.0	75	-1	6	1		133		EACH AND ONE AT SITE 9B (50
0600024W			2	110	59													6B	230	770539	688340	2	-1.0	75	-1	12	1		133	-1	SURFACE WATER PUMP 4 HAS BEE
0600024W			4	110	59													7	230	770519	688291	2	-1.0	127	-1	10	1		133	-1	MOST OF THE WELL AND PUMP IN
0600024W			3	110	59													8	230	770710	688067	2	-1.0	100	-1	10	1		400	-1	FROM THE PERMIT ISSUED 10-8-
0600024W			3	110	59													11	230	770723	688089	2	-1.0	100	-1	10	1		400	-1	ACCORDING TO THE PERMITTEE,
0600025W	CITY OF POMPANO BEACH	4/24/86	2	107	68	GLF	15	0.4	23	351.0	75	30.0	1.0	GW	4	0	0	1	216	792437	698916	2	-1.0	40	-1	8	1	2			THIS AREA HAS EXPERIENCED SA
0600025W			2	107	68													2	216	792616	698873	2	-1.0	40	-1	8	1	2			TO ALLEVIATE THIS PROBLEM, T
0600025W			2	107	68													3	216	793419	699312	2	-1.0	40	-1	8	1	2	600		TO UTILIZE WASTE WATER FOR G
0600025W			2	107	68													4	216	793915	698843	2	-1.0	40	-1	8	1	2			HAS COMPLIED WITH THIS CONDI
0600034W	DEERFIELD COUNTRY CLUB	7/88	3	97	67	GLF	15	0.4	23	62.7	75	73.8	11.2	GW	4	0	0	1	216	790344	724733	2	-1.0	100	-1	6	1	2	320	-1	THE PROJECT SOTE IS LOCATED
0600034W			3	96	67													2	216	790929	722887	2	-1.0	100	-1	6	1	2	320	1	HILLSBORO CANAL AND NORTHWES
0600034W			3	98	67													3	216	790282	722680	2	-1.0	100	-1	6	1	2	320	-1	PWS WELLFIELD.
0600034W			3	97	67													4	216	789752	724368	2	-1.0	100	-1	6	1	2	320	-1	
0600059W	WILLOW LAKES ESTATES, INC	1/89	3	102	66	LAN	15	0.4	23	20.0	75	23.5	3.6	GW	1	0	0	1	216	788216	711958	2	15.0	90	90	8	1	2	690	-1	
0600068W	FOREST LAWN MEMORIAL GARDE	7/76	3	106	65	AGR	00	0.4	23	40.0	50	43.3	10.8	GW	2	0	0	1	215	785969	701045	2	-1.0	100	-1	6	1	3	800	-1	THE PERMIT EXPIRED ON 4/89 A
0600068W			3	106	66													2	215	787223	701102	2	-1.0	100	-1	6	1	3	800	-1	THE ANNUAL ALLOCATION WAS 43
0600074W	KEVIN KRAFT	5/89	4	94	62	AGR			23	27.0	20	91.4	15.4	BOTH	3	11	0	1W	215	778484	732652	2	10.0	170	-1	8	1	1	800	-1	
0600074W			4	94	63				23	7.0	65							2W	215	779769	732694	2	10.0	170	-1	5	2	1	1250	-1	THE CROP TYPE IS NURSERY STO
0600074W			4	94	63													3W	215	779298	732024	2	10.0	170	-1	5	2	1	1250	-1	POLICY NURSERY STOCK RECEIVE
0600081W	CITY OF POMPANO BEACH	7/13/89	3	109	69	AGR	00	0.8	23	44.8	75	15.9	0.0	GW	2	0	0	1	231	792774	693839	2	-1.0	90	-1	6	1	2	400	-1	THE PERMITTEE'S WELLS ARE LO
0600081W			3	109	67													2	231	792088	693761	2	-1.0	90	-1	6	1	2	370	-1	SALINE WATER INTIUSION PROHM
0600098W	GARDEN POINT, INC.	6/13/85	3	110	67	IND	00		23			75.7	0.2	GW	1	0	0	1	231	[illegible]	689954	2	65.0	74	65	6	1	1	140	-1	THIS PERMIT IS FOR AIR [illegible]
0600193W	POMPANO PARK RACEWAY	8/13/87	3	110	62	GLF	15	0.4	23	90.3	75	106.2	16.2	BOTH	12	3	0	1	230	776830	688568	2	80.0	80	80	4	1	1	200	-1	THE SOURCES FOR SURFACE WATE
0600193W			3	110	62													2	230	777532	688610	2	80.0	80	80	2	1	1	36	-1	THE C-14 CANAL.
0600193W			3	110	62													3	230	777566	688138	2	80.0	80	80	2	1	1	36	-1	THERE ARE TWO TYPES OF WATER
0600193W			3	110	62													4	230	777722	688650	2	80.0	80	80	2	1	1	36	-1	
0600193W			3	110	62													5	230	777755	688119	2	80.0	80	80	2	1	1	36	-1	
0600193W			3	110	62													8	230	778024	689246	2	-1.0	80	-1	4	1	1	500	-1	
0600193W			3	110	63													10	230	779931	688177	2	-1.0	80	-1	2	1	1	100	-1	
0600193W			3	110	63													11	230	779073	687269	2	-1.0	80	-1	3	1	1		-1	
0600193W			3	110	62													12	230	777909	686863	2	-1.0	80	-1	4	1	1	1000	-1	
0600193W			3	110	62													13	230	777397	686826	2	-1.0	80	-1	8	1	1	1800	-1	
0600193W			3	110	62													14	230	776729	686218	2	-1.0	80	-1	2	1	1	36	-1	
0600193W			3	110	62													15	230	776737	686034	2	-1.0	80	-1	2	1	1	36	-1	
0600310W	BROWARD COUNTY PARKS	9/12/85	4	100	61	REC	00		05	432.0	81	113.9	0.8	GW	1	0	0	1	215	776009	717911	2	-1.0	140	140	12	1	2	520	-1	THIS PERMIT IS FOR
0600330W	RICHARD DANIELS	3/9/89	3	108	66	LAN	15	0.4	23	25.0	75	29.4	4.5	GW	1	0	0	1	231	788334	695821	2	-1.0	100	60	6	1	2	200	-1	
0600371W	CRYSTAL LAKE FARM #1	1/7/82	4	103	62	AGR	63	0.4	23	70.0	50		54.1	BOTH	1	2	0	1	215	777268	708878	2	-1.0	130	-1	8	1	3	2500	-1	THE SURFACE WATER SOURCE IS
0600380W	FRED SPEAR INC	4/13/89	4	104	60	AGR	63	0.8	23	60.0	50	27.6	8.9	BOTH	1	1	0	1	215	772927	706835	2	-1.0	130	-1	12	1	3	2500	-1	FAC.#1 IS A WELL;FAC.#2 IS A
0600385W	DEERFIELD BEACH HIGH SCHOO	2/9/89	2	101	66	LAN	15	0.8	23	17.5	75	18.1	2.9	GW	4	0	0	1	216	788826	714153	2	-1.0	60	60	8	1	2	500	-1	
0600385W			2	101	66													2	216	789296	713716	2	1.0	60	60	6	1	2	350	-1	
0600385W			2	101	66													3	216	789310	714198	2	-1.0	60	60	6	1	2	350	-1	
0600385W			2	101	66													4	216	788683	713356	2	-1.0	60	60	2	1	2	90	-1	
0600416W	WILLIAM LEONARD	5/13/82	2	97	59	GLF	15	0.8	23	102.4	50	79.7	25.3	BOTH	1	2	0	1	215	769767	724558	2	-1.0	60	-1	8	1	3	900	-1	THE SURFACE WATER SOURCES AR
0600416W			4	97	59													2	215	769477	724489		-1.0	-1	-1		1	3	900	-1	ON-SITE LAKES. EXP.05/13/85
0600416W			4	97	59													3	215	769863	724347		-1.0	-1	-1		1	3	900	-1	ESTIMATED ANNUAL ALLOCATION
0600862W	TURTLE RUN JOINT VENTURE	7/9/87	3	101	54	IND	00					2,630.0	7.2	GW	0	2	0	1	215	755877	714566	1	-14.0		-1	8	1	1	2500	-1	IT IS DEWATERING OPERATION.
0600862W			3	101	54													2	215	751583	712876	1	-14.0		-1	8	1	1	2500	-1	EVEN THOUGH S.W.PUMPS ARE

APPENDIX F

Model Input Data

LIST OF TABLES - APPENDIX F

Table F-1. List of Data Files for Palm Beach Model

Following files are located at /net/wmd11/usr2/users/jason/PBSS for steady state calibration or PBTS for transient state calibration. The length unit is feet and the time unit is day for all corresponding files.

fort.1	Basic package
fort.11	Block center flow control file
fort.12	Public water supply pumpage
fort.13	Drain package
fort.14	River package
fort.15	ET control file
fort.17	General head boundary
fort.18	Recharge control file
fort.19	SIP solver file
fort.20	Non-public water supply pumpage
fort.22	Output control file
fort.24	Observation well nodes
fort.28	Recharge file
fort.29	IBOUND file
fort.30	Starting heads
fort.32	Transmissivity for layer 2 through layer 5
fort.33	Layer conductivities
fort.34	Layer bottom elevations
fort.35	VCONT file
fort.37	Aquifer top elevations for layer 2 through layer 5
fort.70	ET surface
fort.71	Maximum ET rates
fort.72	Extinction depth array
fort.91	Model simulated heads
fort.92	Model simulated drawdowns
fort.99	Cell by cell flow terms

. Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
2	1	66	M-1073	1989	3.72	3.53	4.20	4.05	3.47	2.64	3.57	4.24	3.95	3.76	3.65	3.95
				1990	3.65	3.95	3.50	3.37	3.12	3.20						
5	2	67	M-1095		1.46	1.35	-99.99	1.53	1.43	1.33	1.27	1.53	1.66	1.60	1.51	1.41
					1.51	1.41	1.25	2.50	1.27	1.45						
2	3	25	M-1243		20.30	20.46	20.51	21.01	19.83	21.19	20.55	20.99	21.46	21.90	20.87	20.89
					20.87	20.89	20.16	21.11	20.27	19.83						
3	3	66	M-1093		2.24	2.05	2.71	2.87	1.99	2.25	2.20	2.57	2.26	2.56	2.10	2.65
					2.10	2.65	2.17	2.11	1.78	1.83						
4	3	68	M-1070		0.89	0.90	-99.99	1.27	1.04	0.82	0.88	1.00	1.09	1.02	1.02	0.94
					1.02	0.94	0.83	0.90	0.79	1.04						
4	4	67	M-1071		1.86	1.68	2.51	2.70	1.78	1.80	1.87	2.23	1.70	1.86	1.69	2.28
					1.69	2.28	1.82	1.73	1.43	1.59						
1	4	67	M-1072		1.91	1.68	2.52	2.72	1.82	1.85	1.89	2.24	1.71	1.87	1.70	2.27
					1.70	2.27	1.83	1.72	1.44	1.65						
1	5	10	M-1086		19.19	18.44	18.62	18.82	18.04	20.02	19.18	21.87	21.81	22.43	21.29	20.89
					21.29	20.89	20.04	20.15	19.14	18.32						
3	5	10	M-1088		19.12	18.76	19.34	18.75	18.02	19.98	19.09	21.83	21.60	22.44	21.11	20.68
					21.11	20.68	19.85	20.03	19.03	18.25						
3	5	67	M-1094		2.14	1.91	2.78	2.95	2.10	1.95	2.03	-99.99	1.80	-99.99	1.87	2.42
					1.87	2.42	1.93	1.81	1.65	1.84						
2	5	67	JDSPMW1		2.22	1.87	2.44	2.55	2.33	1.95	1.78	1.71	1.54	1.64	1.84	1.84
					1.84	1.84	-99.99	-99.99	-99.99	0.85						
4	5	68	SW-1		-99.99	-99.99	-99.99	-99.99	4.25	2.55	2.45	-99.99	3.25	3.35	2.75	3.24
					2.75	3.24	3.24	3.45	3.25	2.45						
1	6	10	M-1046		20.28	20.06	20.75	20.28	19.17	22.16	20.37	23.50	23.19	-99.99	22.11	22.02
					22.11	22.02	21.13	21.67	20.52	19.71						
2	6	21	M-1085		22.71	22.69	21.92	22.46	22.60	22.67	22.55	23.06	22.76	22.51	22.61	-99.99
					22.61	-99.99	22.08	-99.99	22.17	22.07						
3	6	46	M-1096		19.80	19.07	19.77	20.09	18.70	20.01	20.84	21.20	21.35	21.65	21.04	21.15
					21.04	21.15	21.03	21.31	20.81	20.81						
1	6	46	M-1083		19.80	19.09	19.70	20.76	18.76	20.64	20.98	21.13	21.31	21.85	20.77	21.11
					20.77	21.11	20.94	21.32	20.73	20.92						
1	6	65	M-1233		2.60	1.10	3.15	3.79	2.80	3.00	3.62	3.92	3.16	1.59	2.90	3.54
					2.90	3.54	2.88	2.79	2.72	2.89						
4	6	65	M-1230		1.70	1.30	1.80	2.65	1.24	1.82	2.45	2.34	1.98	3.48	1.93	2.15
					1.93	2.15	2.03	1.76	1.74	1.74						
2	6	67	JDSPMW3		0.45	-0.07	0.68	0.70	0.51	-0.04	-0.04	-0.21	-0.46	-0.18	0.16	0.25
					0.16	0.25	0.35	-0.09	-99.99	2.01						
1	7	62	M-1232		4.06	3.87	4.20	5.05	3.83	4.96	5.81	5.67	4.40	4.37	4.13	4.99
					4.13	4.99	4.13	3.80	3.51	4.02						
4	7	62	M-1229		3.56	3.36	3.59	4.16	3.15	5.28	4.72	4.59	3.63	3.55	3.48	4.08
					3.48	4.08	3.40	3.25	3.23	3.35						
4	7	69	SW-3		-99.99	-99.99	-99.99	-99.99	4.31	1.16	0.86	-99.99	1.16	1.36	0.86	1.10
					0.86	1.10	1.04	1.02	1.06	1.06						
1	8	60	LOX.R4		1.41	1.36	1.49	1.36	1.36	1.36	1.44	1.81	1.97	2.15	1.63	1.46
					1.63	1.46	1.40	1.36	-99.99	0.92						
2	8	67	T-5		1.12	1.06	1.56	2.17	1.25	1.40	1.36	1.33	1.41	1.98	1.45	1.60
					1.45	1.60	0.99	1.24	1.39	1.68						
4	8	68	T-23-1		-1.94	-3.12	1.57	-0.73	1.92	1.32	1.56	0.86	0.91	1.81	1.10	1.91
					1.10	1.91	1.17	1.39	-99.99	-1.16						
4	8	68	PB-890		1.68	1.88	2.62	3.10	2.71	2.35	2.51	2.37	2.51	3.01	2.49	2.80
					2.49	2.80	2.27	2.47	2.68	2.87						
2	8	68	PB-727		2.26	1.47	1.44	1.93	2.29	1.41	1.82	2.10	1.88	1.61	1.49	1.42
					1.49	1.42	1.05	1.14	1.48	1.98						
3	8	69	M-1025		1.48	1.35	1.78	2.42	1.82	1.57	1.61	1.73	1.90	2.22	1.58	1.71
					1.58	1.71	1.32	1.48	1.51	1.77						
2	8	69	PB-746		1.91	0.09	2.21	2.09	1.27	1.45	1.58	1.84	2.02	-99.99	-99.99	1.64
					-99.99	1.64	1.41	1.58	1.86	1.95						
3	8	69	D1-4		2.33	-99.99	1.95	-99.99	2.23	1.76	1.79	1.86	1.94	2.29	1.72	2.11
					1.72	2.11	1.63	1.76	1.96	1.85						
4	8	69	D3-5		1.47	1.33	1.80	2.36	1.79	1.55	1.59	1.70	1.88	2.23	1.58	1.66
					1.58	1.66	1.29	1.47	1.50	1.76						
4	8	69	D1-4		2.33	-99.99	1.95	-99.99	2.23	1.76	1.79	1.86	1.94	2.29	1.72	2.11
					1.72	2.11	1.63	1.76	1.96	1.85						
2	8	69	M-1024		1.43	1.27	1.74	2.46	1.78	1.46	1.57	1.65	1.83	2.12	1.50	1.66
					1.50	1.66	1.27	1.42	1.41	1.73						
2	8	69	S1-4		2.61	-99.99	2.02	-99.99	2.56	1.76	1.83	1.94	1.94	2.27	1.70	2.18
					1.70	2.18	1.73	1.78	2.00	2.33						
3	8	69	D2-5		1.59	1.42	1.74	2.61	1.85	1.42	1.53	1.56	1.72	-99.99	1.37	1.68
					1.37	1.68	1.24	1.41	1.47	1.77						
4	8	69	M-1039		0.35	0.15	0.78	1.19	0.92	0.28	0.45	0.67	0.86	0.58	0.41	0.35
					0.41	0.35	0.22	0.32	0.34	0.64						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	8	69	PB-565	1989	1.07	0.73	1.18	1.79	1.99	1.31	1.31	1.38	1.24	1.15	1.35	1.17
				1990	1.35	1.17	1.26	-99.99	-99.99	-99.99						
2	8	69	M-1028		1.60	1.46	1.72	2.64	1.87	1.43	1.50	1.58	1.73	1.99	1.25	1.72
					1.25	1.72	1.24	1.40	1.56	1.76						
2	8	69	PB-872		0.52	0.61	0.60	1.37	0.77	0.45	0.29	0.54	0.76	1.14	0.56	0.51
					0.56	0.51	0.27	-99.99	0.74	0.42						
1	8	69	PB-565		1.10	0.40	1.58	2.38	1.66	0.97	1.59	1.29	1.24	1.55	0.92	1.71
					0.92	1.71	1.09	1.30	1.59	1.84						
3	8	69	D3-5		1.47	1.33	1.80	2.36	1.79	1.55	1.59	1.70	1.88	2.23	1.58	1.66
					1.58	1.66	1.29	1.47	1.50	1.76						
4	8	69	D2-5		1.59	1.42	1.74	2.61	1.85	1.42	1.53	1.56	1.72	-99.99	1.37	1.68
					1.37	1.68	1.24	1.41	1.47	1.77						
2	9	68	T-4		0.92	0.83	1.32	1.97	1.64	-99.99	1.30	1.13	1.31	1.96	1.33	1.56
					1.33	1.56	0.96	1.31	1.44	1.77						
4	9	68	RD-1		1.07	1.04	1.31	1.92	1.46	1.18	1.09	1.14	1.36	1.96	1.43	1.42
					1.43	1.42	0.99	1.36	1.65	1.79						
2	9	68	T-3		0.96	0.69	1.44	0.20	1.65	1.09	1.36	1.05	1.17	1.74	1.32	1.72
					1.32	1.72	1.23	1.35	1.80	1.97						
3	9	68	RD-1		1.07	1.04	1.31	1.92	1.46	1.18	1.09	1.14	1.36	1.96	1.43	1.42
					1.43	1.42	0.99	1.36	1.65	1.79						
2	9	68	RD-1		1.07	1.04	1.31	1.92	1.46	1.18	1.09	1.14	1.36	1.96	1.43	1.42
					1.43	1.42	0.99	1.36	1.65	1.79						
2	9	68	PB-722		1.08	1.08	1.28	1.81	1.33	1.18	1.05	1.23	1.42	2.02	1.43	1.39
					1.43	1.39	0.95	1.37	1.68	1.69						
4	9	69	PB-595		0.66	-2.42	0.92	3.24	0.78	0.25	0.38	0.65	0.83	1.04	0.44	0.99
					0.44	0.99	0.13	0.43	0.69	0.61						
3	9	69	D1-3		1.46	1.25	1.39	0.01	-1.01	-1.62	-0.46	1.28	1.56	1.41	1.35	1.29
					1.35	1.29	1.05	1.20	2.05	1.69						
2	9	69	S1-3		1.46	1.25	-0.70	0.56	-0.54	-1.07	-0.04	1.26	1.53	1.37	1.34	1.30
					1.34	1.30	1.05	1.21	2.08	1.69						
1	9	69	S1-3		1.46	1.25	-0.70	0.56	-0.54	-1.07	-0.04	1.26	1.53	1.37	1.34	1.30
					1.34	1.30	1.05	1.21	2.08	1.69						
2	9	69	T-1		1.66	1.60	1.67	2.64	1.78	1.23	1.34	1.56	1.80	1.92	1.62	1.64
					1.62	1.64	1.26	1.38	1.85	1.98						
1	9	70	PB-731		1.31	0.35	1.35	1.70	1.32	2.34	1.09	1.46	1.58	1.09	1.57	1.36
					1.57	1.36	-99.99	1.35	1.66	1.76						
1	10	34	M-1045		23.62	23.72	23.59	24.76	23.11	24.71	24.66	25.01	25.06	-99.99	24.86	24.81
					24.86	24.81	24.57	24.84	24.38	24.77						
1	10	50	M-140		14.33	13.84	14.94	14.88	14.19	14.03	15.23	17.44	17.34	-99.99	-99.99	-99.99
					-99.99	-99.99	-99.99	-99.99	-99.99	-99.99						
1	10	51	M-1234		13.68	13.49	14.33	14.67	13.36	14.89	15.87	16.89	16.82	16.71	16.23	15.70
					16.23	15.70	-99.99	-99.99	-99.99	13.59						
3	10	51	M-1231		13.76	13.40	14.11	14.35	13.28	14.95	16.15	17.12	16.13	16.42	15.15	15.08
					15.15	15.08	14.19	14.25	13.51	13.01						
1	10	60	LOX.R3		3.13	3.13	3.13	3.26	3.12	3.12	3.41	4.15	4.12	4.41	3.42	3.17
					3.42	3.17	-99.99	-99.99	-99.99	-99.99						
3	10	68	PB-892		1.17	1.33	1.24	1.56	1.15	1.27	0.99	1.40	1.49	2.06	1.53	1.37
					1.53	1.37	0.95	1.35	1.54	1.06						
4	10	68	PB-891		1.31	1.28	1.47	2.08	1.22	1.22	1.18	1.31	1.51	1.85	1.63	1.50
					1.63	1.50	1.19	1.41	1.88	1.91						
2	10	68	PB-721		1.11	1.27	1.17	1.55	1.09	1.18	0.94	1.24	1.52	2.02	1.50	1.35
					1.50	1.35	1.08	1.34	1.51	1.00						
2	10	68	PB-720		1.34	1.34	1.40	2.06	1.16	1.18	1.18	1.17	1.36	2.97	1.69	1.65
					1.69	1.65	1.27	1.30	1.69	1.15						
2	10	69	T-2		1.30	1.32	1.52	2.32	1.64	1.30	1.19	1.40	1.55	1.98	1.67	1.68
					1.67	1.68	1.27	1.37	1.82	1.33						
2	10	69	PB-932		1.55	1.42	1.34	2.06	0.99	0.70	1.19	1.48	1.72	-99.99	1.62	1.85
					1.62	1.85	1.27	1.39	2.15	1.72						
4	10	69	T-TR-1		1.37	-1.36	-2.49	1.87	-3.45	0.39	1.02	-2.49	-2.45	-2.50	-2.66	-2.10
					-2.66	-2.10	0.40	-2.45	-0.97	1.63						
2	10	69	S1-2		1.33	0.22	-0.37	1.83	-1.02	0.35	0.96	-0.28	-0.13	-0.21	-0.31	-0.18
					-0.31	-0.18	0.21	-0.29	1.02	1.58						
1	10	69	S1-2		1.33	0.22	-0.37	1.83	-1.02	0.35	0.96	-0.28	-0.13	-0.21	-0.31	-0.18
					-0.31	-0.18	0.21	-0.29	1.02	1.58						
5	11	66	W		1.68	1.51	1.18	1.73	0.28	1.38	0.08	1.30	1.00	0.94	0.10	-99.99
					0.10	-99.99	0.43	-99.99	-99.99	1.03						
1	12	38	PB-689		-99.99	-99.99	23.09	24.08	22.29	24.15	23.85	24.35	24.18	24.50	24.02	24.17
					24.02	24.17	24.01	24.21	23.87	24.21						
1	13	52	PB-1548		-99.99	-99.99	14.70	15.08	14.28	16.50	16.72	16.93	16.37	16.17	15.60	16.01
					15.60	16.01	15.39	15.81	15.29	15.23						
3	13	52	PB-1547		-99.99	-99.99	14.68	14.51	13.90	17.52	17.45	17.57	16.88	16.58	15.78	16.24
					15.78	16.24	15.46	15.98	15.33	14.97						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
4	13	58	PB-1649	1989	-99.99	-99.99	9.20	10.37	9.40	9.87	11.57	11.50	10.65	10.67	10.26	10.64
				1990	10.26	10.64	10.47	10.04	9.97	10.15						
1	13	58	PB-1648		-99.99	-99.99	9.85	10.44	9.55	10.12	11.69	11.79	10.96	11.14	10.59	11.28
					10.59	11.28	10.79	10.45	10.57	10.35						
4	13	63	PB-832		0.18	-0.39	-0.35	-99.99	-0.42	-1.00	0.63	0.14	0.02	-0.07	-1.33	-0.63
					-1.33	-0.63	-0.88	0.75	-0.65	-0.48						
5	13	64	Y		-0.68	-99.99	-99.99	-2.66	-99.99	-99.99	-0.80	-99.99	-99.99	-1.02	-99.99	-99.99
					-99.99	-99.99	-1.71	-99.99	-99.99	-1.01						
1	13	64	C		-1.93	-99.99	-99.99	-0.86	-99.99	-99.99	-1.84	-99.99	-99.99	-1.09	-99.99	-99.99
					-99.99	-99.99	-0.11	-99.99	-99.99	-0.93						
4	13	64	B		-0.09	0.61	-0.54	-1.14	-1.69	0.21	-0.49	0.87	-0.94	0.11	-0.72	-99.99
					-0.72	-99.99	-0.64	-99.99	-99.99	0.06						
1	13	64	R		-0.30	-99.99	-99.99	-0.50	-99.99	-99.99	-0.83	-99.99	-99.99	-1.78	-99.99	-99.99
					-99.99	-99.99	-3.55	-99.99	-99.99	-1.95						
1	13	64	V		0.99	1.47	1.19	0.79	0.19	1.04	0.54	1.44	1.17	1.64	0.85	-99.99
					0.85	-99.99	0.69	-99.99	-99.99	1.74						
4	13	64	Q		-9.98	-99.99	-99.99	-4.83	-99.99	-99.99	-3.73	-99.99	-99.99	-5.13	-99.99	-99.99
					-99.99	-99.99	-6.33	-99.99	-99.99	-4.83						
4	13	64	U		0.18	-99.99	-99.99	-0.87	-99.99	-99.99	-0.22	-99.99	-99.99	0.18	-99.99	-99.99
					-99.99	-99.99	-0.57	-99.99	-99.99	0.23						
1	13	65	T		1.14	0.74	0.44	0.99	-0.06	0.64	-0.43	0.40	0.59	0.16	-0.40	-99.99
					-0.40	-99.99	-0.95	-99.99	-99.99	0.09						
5	13	65	S		-1.05	-99.99	-99.99	-1.15	-99.99	-99.99	-2.58	-99.99	-99.99	-2.60	-99.99	-99.99
					-99.99	-99.99	-2.45	-99.99	-99.99	-1.65						
1	14	64	K-3		-0.66	-99.99	-99.99	-2.01	-99.99	-99.99	-4.54	-99.99	-99.99	-5.95	-99.99	-99.99
					-99.99	-99.99	-6.66	-99.99	-99.99	-99.99						
1	14	64	L-3		-2.35	-99.99	-99.99	-3.08	-99.99	-99.99	-6.03	-99.99	-99.99	-7.51	-99.99	-99.99
					-99.99	-99.99	-8.22	-99.99	-99.99	-7.43						
2	14	64	K-2		-3.63	-99.99	-99.99	-4.51	-99.99	-99.99	-6.53	-99.99	-99.99	-8.58	-99.99	-99.99
					-99.99	-99.99	-9.38	-99.99	-99.99	-8.73						
2	14	64	L-2		-2.62	-99.99	-99.99	-3.26	-99.99	-99.99	-6.04	-99.99	-99.99	-7.72	-99.99	-99.99
					-99.99	-99.99	-8.05	-99.99	-99.99	-7.39						
4	14	64	L-1		-4.42	-99.99	-99.99	-5.22	-99.99	-99.99	-7.01	-99.99	-99.99	-9.57	-99.99	-99.99
					-99.99	-99.99	-9.17	-99.99	-99.99	-8.17						
4	14	64	N		1.89	-99.99	-99.99	-6.64	-99.99	-99.99	-6.14	-99.99	-99.99	-6.82	-99.99	-99.99
					-99.99	-99.99	-8.49	-99.99	-99.99	-8.29						
4	13	65	PB-789		-99.99	-99.99	2.27	2.44	1.83	1.46	1.69	1.71	1.25	0.78	0.43	0.26
					0.43	0.26	0.10	0.32	0.77	0.92						
1	14	66	X		3.13	-99.99	-99.99	2.53	-99.99	-99.99	1.13	-99.99	-99.99	1.86	-99.99	-99.99
					-99.99	-99.99	2.81	-99.99	-99.99	2.13						
4	15	63	PB-928		-99.99	-99.99	7.46	7.77	7.06	6.98	7.34	7.66	6.94	6.72	6.41	7.52
					6.41	7.52	7.47	7.26	6.93	7.11						
1	15	63	PB-711		-99.99	-99.99	7.97	8.44	7.77	7.67	8.41	8.43	7.55	7.29	7.06	7.91
					7.06	7.91	7.93	7.75	7.48	7.62						
1	15	63	PB-927		3.79	-99.99	-99.99	6.83	-99.99	-99.99	4.71	-99.99	-99.99	4.74	-99.99	-99.99
					-99.99	-99.99	10.99	-99.99	-99.99	-99.99						
4	15	63	PB-926		4.54	-99.99	-99.99	6.25	-99.99	-99.99	4.49	-99.99	-99.99	4.24	-99.99	-99.99
					-99.99	-99.99	13.14	-99.99	-99.99	-99.99						
1	16	49	PB-1524		-99.99	-99.99	16.31	16.84	16.07	17.90	17.79	18.60	18.14	18.26	17.23	17.32
					17.23	17.32	16.97	17.01	16.72	16.81						
3	16	49	PB-1552		-99.99	-99.99	16.46	16.96	16.08	17.95	17.96	18.69	18.33	18.42	17.30	17.37
					17.30	17.37	16.99	17.05	16.78	16.72						
1	16	59	PB-875		-99.99	-99.99	-99.99	11.32	-99.99	11.58	12.88	13.33	12.92	13.00	12.49	12.92
					12.49	12.92	12.62	12.42	12.14	12.45						
3	16	59	PB-880		-99.99	-99.99	-99.99	11.25	-99.99	-99.99	12.76	13.25	12.83	12.92	12.38	12.86
					12.38	12.86	12.52	12.31	12.22	12.34						
4	16	65	Z		2.17	1.37	0.77	1.55	0.77	0.47	0.42	0.57	0.24	-0.49	-0.39	-99.99
					-0.39	-99.99	-0.53	-99.99	-99.99	-0.10						
4	17	30	PB-1613		-99.99	-99.99	-99.99	23.41	21.54	23.95	23.44	24.10	-99.99	24.34	23.83	23.88
					23.83	23.88	23.49	-99.99	-99.99	23.63						
1	17	30	PB-1615		-99.99	-99.99	-99.99	23.99	21.71	24.13	23.60	24.21	-99.99	24.42	23.94	23.98
					23.94	23.98	23.70	-99.99	-99.99	23.76						
1	17	61	PB-1520		-99.99	-99.99	12.07	12.35	11.42	12.03	12.45	12.89	12.25	-99.99	11.69	12.11
					11.69	12.11	11.64	11.45	11.33	11.68						
1	20	63	PB-1521		-99.99	-99.99	-99.99	13.27	12.43	-99.99	12.85	13.68	13.46	13.34	12.78	12.46
					12.78	12.46	11.87	11.80	11.46	11.72						
3	20	64	M9		8.94	8.34	8.49	7.92	8.50	8.21	8.30	7.46	7.54	7.66	7.21	7.04
					7.21	7.04	6.25	6.19	5.70	5.36						
3	22	64	M8		6.38	5.11	5.21	4.47	4.43	3.50	3.78	3.79	3.55	3.98	3.13	3.93
					3.13	3.93	3.38	3.29	3.18	2.51						
3	23	64	M7		4.10	2.75	3.00	3.00	2.20	1.64	1.82	1.60	1.57	2.52	1.28	2.25
					1.28	2.25	1.60	1.55	1.44	0.44						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
4	23	65	M10	1989	4.65	3.90	3.65	3.17	2.81	2.25	2.39	1.80	1.58	1.97	1.72	1.67
				1990	1.72	1.67	1.57	1.69	1.12	2.18						
5	23	65	M10		4.65	3.90	3.65	3.17	2.81	2.25	2.39	1.80	1.58	1.97	1.72	1.67
					1.72	1.67	1.57	1.69	1.12	2.18						
3	23	65	M10		4.65	3.90	3.65	3.17	2.81	2.25	2.39	1.90	1.58	1.97	1.72	1.67
					1.72	1.67	1.57	1.69	1.12	2.18						
4	23	66	M11		7.91	7.41	7.08	6.76	6.86	6.33	6.30	5.86	5.77	5.75	5.65	5.35
					5.65	5.35	5.26	5.21	5.09	5.04						
4	23	68	M12		7.35	6.71	6.78	6.59	6.63	6.17	6.33	5.76	5.68	6.46	5.65	5.45
					5.65	5.45	5.66	5.89	6.11	5.99						
5	23	68	M12		7.35	6.71	6.78	6.59	6.63	6.17	6.33	5.76	5.68	6.46	5.65	5.45
					5.65	5.45	5.66	5.89	6.11	5.99						
1	24	62	M3S		12.35	-99.99	-99.99	-99.99	12.66	12.58	12.92	-99.99	14.48	14.33	13.69	13.67
					13.69	13.67	14.17	13.82	13.37	13.98						
3	24	62	M3		12.33	11.91	13.47	12.83	12.72	12.56	13.00	13.37	14.23	14.13	13.31	13.00
					13.31	13.00	13.42	13.22	12.85	13.21						
4	24	63	M2		9.54	8.56	9.42	8.51	7.66	6.38	6.08	6.43	6.51	6.74	6.37	6.47
					6.37	6.47	6.75	6.57	5.89	6.47						
3	24	64	M1		4.10	2.78	3.36	3.40	1.75	1.22	0.98	0.90	0.76	1.65	1.17	1.46
					1.17	1.46	1.59	1.72	1.51	1.17						
3	24	64	M15		2.61	-99.99	-99.99	-99.99	2.59	-99.99	3.01	-99.99	-99.99	2.92	-99.99	-99.99
					-99.99	-99.99	2.70	2.28	2.61	3.00						
4	24	64	M1		4.10	2.78	3.36	3.40	1.75	1.22	0.98	0.90	0.76	1.65	1.17	1.46
					1.17	1.46	1.59	1.72	1.51	1.17						
4	24	68	M13		8.45	8.16	8.00	7.93	7.65	7.41	-99.99	7.05	7.00	7.15	7.15	7.14
					7.15	7.14	6.85	6.81	6.68	6.55						
1	24	68	M13S		5.80	-99.99	-99.99	-99.99	6.24	6.74	-99.99	-99.99	-99.99	-99.99	6.30	6.19
					6.30	6.19	5.95	5.77	5.67	7.18						
5	24	68	M13		8.45	8.16	8.00	7.93	7.65	7.41	-99.99	7.05	7.00	7.15	7.15	7.14
					7.15	7.14	6.85	6.81	6.68	6.55						
1	25	30	PB-831		19.46	18.90	19.49	19.20	18.74	20.08	19.80	21.95	22.44	22.19	22.29	22.18
					22.29	22.18	21.43	21.61	21.49	21.09						
4	25	64	M4		3.14	1.90	2.39	1.95	0.99	0.64	-0.11	1.54	0.96	1.17	1.02	0.97
					1.02	0.97	2.53	2.18	1.49	2.95						
3	25	64	M4		3.14	1.90	2.39	1.95	0.99	0.64	-0.11	1.54	0.96	1.17	1.02	0.97
					1.02	0.97	2.53	2.18	1.49	2.95						
4	26	64	M5		10.34	9.71	11.14	10.24	10.62	9.52	10.57	11.54	11.91	11.90	11.52	11.11
					11.52	11.11	11.67	11.56	11.20	11.92						
1	26	64	M5S		-99.99	-99.99	-99.99	-99.99	12.90	-99.99	-99.99	-99.99	-99.99	13.61	12.98	-99.99
					12.98	-99.99	13.25	13.01	-99.99	13.28						
3	26	64	M5		10.34	9.71	11.14	10.24	10.62	9.52	10.57	11.54	11.91	11.90	11.52	11.11
					11.52	11.11	11.67	11.56	11.20	11.92						
4	27	64	M6		11.81	11.29	12.24	11.69	12.18	11.19	11.68	11.94	12.52	12.42	12.02	11.67
					12.02	11.67	12.22	12.00	11.82	12.59						
3	27	64	M6		11.81	11.29	12.24	11.69	12.18	11.19	11.68	11.94	12.52	12.42	12.02	11.67
					12.02	11.67	12.22	12.00	11.82	12.59						
3	29	70	M14		0.83	-99.99	-99.99	-99.99	0.64	-99.99	1.57	-99.99	-99.99	1.86	-99.99	-99.99
					-99.99	-99.99	1.65	1.53	1.88	1.43						
1	30	56	PB-109		16.08	15.78	16.70	17.23	15.16	15.18	17.62	17.40	16.49	16.76	16.16	16.53
					16.16	16.53	15.99	15.72	15.40	15.56						
5	33	73	32ND ST		6.34	5.59	5.09	5.26	4.76	6.26	4.67	5.01	4.76	5.26	4.93	5.57
					4.93	5.57	4.72	4.47	5.28	5.05						
5	34	73	20TH ST		5.44	4.77	4.77	5.35	4.60	4.52	4.35	4.60	4.52	5.02	4.44	5.58
					4.44	5.58	4.31	4.23	3.83	4.66						
5	34	74	PB-632		-99.99	3.36	-99.99	2.94	-99.99	-99.99	2.77	-99.99	-99.99	3.78	-99.99	-99.99
					-99.99	-99.99	-99.99	2.46	-99.99	3.06						
5	36	66	LONE PIN		9.31	9.39	9.81	10.56	9.31	9.31	9.64	10.22	9.64	9.56	9.22	9.67
					9.22	9.67	9.33	9.04	9.01	9.94						
2	45	54	TW2		11.05	-99.99	5.88	-99.99	2.80	-99.99	6.88	7.96	13.83	-99.99	9.21	9.63
					9.21	9.63	-99.99	9.05	-99.99	8.80						
2	45	54	TWA		15.41	-99.99	4.41	-99.99	2.66	5.33	5.49	6.41	5.49	-99.99	8.49	6.41
					8.49	6.41	-99.99	8.16	-99.99	8.58						
2	45	54	TWC		9.80	-99.99	6.13	-99.99	4.38	-99.99	6.30	7.22	7.00	-99.99	8.88	8.30
					8.88	8.30	-99.99	8.35	-99.99	8.55						
1	44	56	PB-561		11.36	10.95	11.51	12.33	11.34	11.44	11.97	12.76	12.61	12.35	12.23	13.07
					12.23	13.07	12.76	12.20	11.68	12.22						
2	44	54	TW5		11.24	-99.99	11.74	-99.99	10.49	-99.99	13.32	13.41	12.66	-99.99	11.99	12.91
					11.99	12.91	-99.99	11.41	-99.99	12.24						
2	45	54	TWB		9.66	-99.99	5.66	-99.99	1.58	4.25	5.50	6.33	4.33	-99.99	7.83	8.75
					7.83	8.75	-99.99	7.58	-99.99	8.58						
2	45	54	TW1		6.16	-99.99	5.16	-99.99	-99.99	-99.99	5.49	6.41	6.37	-99.99	6.33	7.24
					6.33	7.24	-99.99	6.08	-99.99	6.49						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
2	44	54	TW4	1989	11.28	-99.99	9.70	-99.99	8.20	-99.99	10.53	11.12	10.49	-99.99	11.45	11.95
				1990	11.45	11.95	-99.99	10.87	-99.99	11.45						
2	45	55	PW9		10.93	-99.99	10.93	-99.99	-99.99	-99.99	10.68	11.76	11.34	-99.99	11.26	12.18
					11.26	12.18	-99.99	11.01	-99.99	11.51						
4	47	69	PB-809		9.39	9.12	9.52	10.13	9.49	10.31	10.09	10.45	9.94	10.76	9.91	10.14
					9.91	10.14	9.76	9.67	9.27	9.40						
3	47	74	PB-835B		-99.99	1.83	-99.99	2.25	-99.99	-99.99	2.20	-99.99	-99.99	3.22	-99.99	-99.99
					-99.99	-99.99	-99.99	0.82	-99.99	2.44						
1	49	73	PB-99		7.08	6.59	6.66	7.62	6.89	7.15	6.88	7.28	7.00	7.39	7.08	7.14
					7.08	7.14	6.71	6.51	6.18	6.28						
1	57	73	PB-1639		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	3.56	3.37	3.94	3.66	3.65
					3.66	3.65	3.39	3.01	2.67	2.89						
1	57	73	PB-88		3.86	3.19	3.00	3.07	2.44	2.02	2.58	3.10	3.32	3.26	3.03	2.98
					3.03	2.98	2.99	2.61	2.28	2.44						
1	58	73	PB916		3.00	2.25	3.00	2.25	1.60	-99.99	2.40	2.00	2.10	-99.99	7.30	2.10
					7.30	2.10	2.10	2.00	1.40	1.90						
5	58	74	PB694		3.00	4.00	2.00	1.70	2.00	-99.99	3.00	2.90	2.70	-99.99	2.50	2.20
					2.50	2.20	2.20	2.60	2.30	2.90						
1	58	74	PB888		2.90	2.65	2.40	3.40	1.90	-99.99	3.10	3.10	3.10	-99.99	2.70	2.40
					2.70	2.40	2.40	2.70	2.30	2.60						
5	58	74	PB889		3.10	3.15	2.90	3.15	2.30	-99.99	3.20	3.30	3.10	-99.99	2.90	2.65
					2.90	2.65	2.65	2.90	2.70	3.10						
5	58	74	PB-889		-99.99	-99.99	-99.99	2.97	-99.99	-99.99	2.66	-99.99	-99.99	3.61	-99.99	-99.99
					-99.99	-99.99	-99.99	2.29	-99.99	2.80						
1	61	54	PB-683		12.68	12.42	14.22	14.37	12.77	13.31	13.17	14.61	13.49	15.28	14.86	15.25
					14.86	15.25	14.69	14.79	14.52	15.57						
5	61	74	PB-834B		-99.99	-99.99	-99.99	1.80	-99.99	-99.99	3.02	-99.99	-99.99	2.27	-99.99	-99.99
					-99.99	-99.99	-99.99	0.29	-99.99	0.87						
5	63	73	#3		5.32	4.65	4.57	4.65	3.98	3.98	4.40	3.73	4.48	4.65	5.40	8.98
					5.40	8.98	5.14	3.65	3.73	3.32						
3	63	74	#11		3.20	1.45	1.86	1.28	-99.99	3.11	3.03	1.78	2.03	-99.99	2.45	2.03
					2.45	2.03	1.28	1.53	1.86	1.95						
3	63	74	#12		2.98	3.15	3.40	3.73	3.23	3.40	3.65	2.73	5.23	4.65	4.56	4.31
					4.56	4.31	3.31	3.23	2.89	3.81						
1	65	62	PB-445		17.52	17.50	17.30	17.49	16.48	16.87	17.09	17.45	17.29	17.37	17.37	17.58
					17.37	17.58	17.44	17.41	17.67	17.88						
5	71	72	DM3		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-12.40	-12.40	-8.41	-9.41	-29.40
					-9.41	-29.40	-34.40	-36.60	-15.40	-18.80						
1	71	73	SM1		4.40	5.00	-99.99	4.25	5.20	5.00	5.42	5.08	4.75	4.75	4.75	-99.99
					4.75	-99.99	5.00	-99.99	-99.99	-99.99						
5	71	73	DM1		-0.29	-1.29	3.71	-0.19	-0.29	-1.29	-1.29	0.71	-0.29	-0.29	-0.29	-0.29
					-0.29	-0.29	2.71	6.21	1.54	0.38						
4	71	73	DM4		-99.99	-99.99	-99.99	-99.99	-2.01	-2.01	-2.01	-1.01	-99.99	-0.01	-0.01	-1.01
					-0.01	-1.01	-1.01	-99.99	-1.26	-0.18						
3	72	66	#1		-99.99	12.54	12.04	12.44	11.44	12.94	11.84	12.74	12.11	12.44	12.04	12.14
					12.04	12.14	-99.99	12.14	11.44	-99.99						
5	75	73	PB-692		-99.99	-99.99	-99.99	-0.13	-99.99	-99.99	-0.33	-99.99	-99.99	0.68	-99.99	-99.99
					-99.99	-99.99	-99.99	-0.02	-99.99	0.65						
4	77	72	DBC3		0.70	0.05	0.70	0.80	0.70	1.30	2.10	2.40	2.80	3.30	3.70	3.90
					3.70	3.90	4.00	3.80	3.70	4.30						
2	78	72	PB692-S		1.10	1.20	1.50	1.60	1.60	1.80	1.70	1.50	1.50	2.00	2.20	2.70
					2.20	2.70	3.00	2.90	2.70	3.50						
3	78	72	EXECPLZA		-0.60	-0.09	-0.10	0.10	-0.40	-0.20	0.20	0.60	1.30	2.00	2.30	2.50
					2.30	2.50	2.90	2.90	2.80	3.30						
5	78	72	PB692-D		-0.20	-0.04	-0.20	-0.10	-0.10	-0.10	-0.40	-0.30	-0.10	0.30	0.30	0.40
					0.30	0.40	0.30	0.20	0.10	0.50						
4	78	72	DBC4		0.60	0.04	0.60	0.70	0.70	1.10	1.80	1.80	2.20	2.90	3.10	3.40
					3.10	3.40	3.40	3.40	3.50	4.10						
2	79	72	PB690-S		0.90	0.07	0.80	0.80	0.70	1.00	0.90	1.10	1.00	1.50	1.70	2.00
					1.70	2.00	2.20	2.20	2.00	2.70						
3	79	72	DBC5		-0.60	-1.10	-0.40	-99.99	-0.50	-0.40	-0.10	0.60	0.90	1.50	2.00	2.10
					2.00	2.10	2.60	2.60	2.50	2.90						
4	80	72	DBC6		0.50	-99.99	0.30	0.50	0.80	0.60	0.50	1.40	1.40	2.50	2.20	2.30
					2.20	2.30	2.40	2.20	2.20	3.00						
2	83	62	PB-900		14.49	14.58	13.89	14.31	13.86	14.84	14.28	14.59	14.11	14.27	14.61	14.41
					14.61	14.41	14.38	14.47	14.41	15.33						
5	85	72	PB-1496		2.64	1.64	2.16	1.61	1.66	2.83	2.75	2.72	3.49	3.00	2.95	2.68
					2.95	2.68	2.08	1.63	1.98	3.45						
4	85	71	PB-1151		2.79	2.50	2.71	2.50	2.29	3.12	3.13	3.46	3.96	3.31	3.41	3.17
					3.41	3.17	2.48	2.06	2.45	3.72						
5	85	72	PB948		0.75	0.75	0.92	0.92	0.67	2.08	1.08	1.58	1.92	1.83	1.58	1.17
					1.58	1.17	0.92	0.60	0.67	1.50						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
1	85	71	PB-1159	1989	2.57	1.69	2.61	2.48	2.40	2.92	3.92	-99.99	4.64	3.51	3.75	3.46
				1990	3.75	3.46	3.02	2.33	2.23	4.52						
1	85	71	PB-1160		4.15	3.81	8.43	4.05	3.96	4.61	5.36	5.44	6.01	5.12	5.14	4.71
					5.14	4.71	4.23	3.87	3.65	5.79						
1	85	72	PB-1495		2.32	2.07	2.23	2.22	1.91	3.63	2.93	3.13	3.65	3.31	3.27	2.70
					3.27	2.70	2.30	2.23	2.22	3.99						
1	85	72	PB-1006		1.98	1.87	1.96	1.84	-99.99	2.08	2.08	2.22	2.54	2.33	2.41	2.19
					2.41	2.19	1.53	1.28	1.73	2.37						
3	85	72	PB-947		2.63	2.28	2.56	2.28	2.01	2.72	2.65	3.02	3.59	3.15	3.20	3.18
					3.20	3.18	2.22	1.81	2.26	3.35						
3	85	72	PB-896		2.64	2.30	2.60	2.31	1.98	2.71	3.71	3.10	3.63	3.14	3.26	3.01
					3.26	3.01	2.32	1.88	2.31	1.39						
3	85	72	PB947		2.03	1.86	2.11	2.11	1.95	3.36	1.95	2.86	3.20	3.11	2.95	2.53
					2.95	2.53	2.20	1.95	2.03	3.12						
1	85	72	PB895		2.15	2.06	-99.99	-99.99	1.81	3.31	2.48	2.65	3.15	2.98	2.90	2.31
					2.90	2.31	1.90	1.89	1.89	3.15						
5	85	72	PB-948		1.47	0.80	1.40	1.04	0.69	1.38	1.27	1.74	2.24	1.83	1.83	1.68
					1.83	1.68	0.89	0.38	0.90	1.83						
1	85	72	PB-895		2.45	-99.99	-99.99	-99.99	1.96	2.75	2.68	2.90	3.49	2.84	3.09	2.73
					3.09	2.73	2.04	1.76	2.14	3.19						
1	86	62	PB-1661		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	14.49
					-99.99	14.49	14.37	14.42	14.26	15.39						
1	86	65	PB-1660		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	13.36	13.25	13.10
					13.25	13.10	13.05	13.06	12.97	14.66						
1	86	71	PB-1158		3.20	2.57	-99.99	2.68	2.50	3.34	4.06	4.23	4.74	3.90	4.04	3.85
					4.04	3.85	3.19	2.63	2.57	4.73						
1	87	63	PB-1492		-99.99	13.21	-99.99	13.44	-99.99	-99.99	13.80	-99.99	-99.99	-99.99	13.67	-99.99
					13.67	-99.99	-99.99	14.02	-99.99	14.16						
1	87	67	PB-1493		-99.99	5.45	-99.99	5.17	-99.99	-99.99	5.75	-99.99	-99.99	6.07	-99.99	-99.99
					-99.99	-99.99	-99.99	5.06	-99.99	6.20						
1	87	71	PB-1452		-99.99	2.83	-99.99	2.98	-99.99	-99.99	3.11	-99.99	-99.99	3.27	-99.99	-99.99
					-99.99	-99.99	-99.99	2.20	-99.99	3.50						
4	88	65	PB-1491		-1.28	-2.31	-2.68	-0.59	-2.42	-0.41	-0.27	1.90	2.91	2.33	0.08	1.01
					0.08	1.01	1.27	0.17	2.00	4.06						
3	88	65	PB-1491		-1.28	-2.31	-2.68	-0.59	-2.42	-0.41	-0.27	1.90	2.91	2.33	0.08	1.01
					0.08	1.01	1.27	0.17	2.00	4.06						
1	88	66	PB-1079		-99.99	8.38	-99.99	6.68	-99.99	-99.99	6.10	-99.99	-99.99	8.43	-99.99	-99.99
					-99.99	-99.99	-99.99	6.30	-99.99	8.67						
1	88	70	PB-457		-99.99	4.02	-99.99	3.89	-99.99	-99.99	4.54	-99.99	-99.99	4.46	-99.99	-99.99
					-99.99	-99.99	-99.99	3.48	-99.99	5.69						
5	88	71	PB-1457		3.91	3.41	4.02	3.74	3.26	3.73	3.86	4.13	4.55	4.11	4.27	3.97
					4.27	3.97	3.27	2.89	2.24	4.51						
1	89	67	PB-1074		-99.99	4.37	-99.99	4.11	-99.99	-99.99	4.86	-99.99	-99.99	5.07	-99.99	-99.99
					-99.99	-99.99	-99.99	4.32	-99.99	5.55						
1	89	69	PB-541		-99.99	2.02	-99.99	3.11	-99.99	-99.99	3.48	-99.99	-99.99	3.36	-99.99	-99.99
					-99.99	-99.99	-99.99	3.04	-99.99	4.48						
1	89	70	PB-447		-99.99	1.26	-99.99	1.74	-99.99	-99.99	2.91	-99.99	-99.99	2.83	-99.99	-99.99
					-99.99	-99.99	-99.99	2.75	-99.99	4.40						
5	89	70	PB-1456		3.20	3.06	3.81	2.80	2.38	2.27	2.60	4.24	4.35	3.75	3.97	4.03
					3.97	4.03	3.50	3.14	3.09	4.89						
1	89	71	PB-458		-99.99	3.20	-99.99	3.30	-99.99	-99.99	3.63	-99.99	-99.99	4.32	-99.99	-99.99
					-99.99	-99.99	-99.99	2.70	-99.99	4.37						
1	90	69	PB-540R		-99.99	1.16	-99.99	2.28	-99.99	-99.99	3.29	-99.99	-99.99	2.83	-99.99	-99.99
					-99.99	-99.99	-99.99	2.66	-99.99	4.16						
1	90	70	PB-466R		-99.99	1.81	-99.99	1.40	-99.99	-99.99	2.42	-99.99	-99.99	3.26	-99.99	-99.99
					-99.99	-99.99	-99.99	-99.99	-99.99	-99.99						
3	91	66	PB-732		4.96	4.67	4.72	4.33	4.15	4.98	5.34	5.91	5.24	4.92	4.25	4.29
					4.25	4.29	4.45	4.41	4.36	6.24						
1	91	70	PB-470		-99.99	4.96	-99.99	-99.99	-99.99	-99.99	6.44	-99.99	-99.99	6.80	-99.99	-99.99
					-99.99	-99.99	-99.99	6.28	-99.99	7.51						
3	92	69	PB-567		1.88	1.11	2.50	1.83	1.65	1.87	2.61	1.89	2.54	2.17	1.76	2.41
					1.76	2.41	1.85	1.63	1.60	2.90						
1	92	69	PB-1075		-99.99	1.44	-99.99	1.70	-99.99	-99.99	2.40	-99.99	-99.99	2.46	-99.99	-99.99
					-99.99	-99.99	-99.99	1.78	-99.99	2.68						
1	92	69	PB-449		-99.99	0.65	-99.99	1.26	-99.99	-99.99	1.54	-99.99	-99.99	1.79	-99.99	-99.99
					-99.99	-99.99	-99.99	0.61	-99.99	1.74						
1	92	70	PB-1454		-99.99	0.33	-99.99	1.65	-99.99	-99.99	1.90	-99.99	-99.99	1.91	-99.99	-99.99
					-99.99	-99.99	-99.99	0.93	-99.99	2.25						
1	92	71	PB-460		-99.99	1.79	-99.99	1.87	-99.99	-99.99	2.25	-99.99	-99.99	1.77	-99.99	-99.99
					-99.99	-99.99	-99.99	1.45	-99.99	2.59						
1	93	66	PB-754		-99.99	2.19	-99.99	2.83	-99.99	-99.99	3.22	-99.99	-99.99	2.94	-99.99	-99.99
					-99.99	-99.99	-99.99	1.80	-99.99	2.87						
1	93	67	PB-753		-99.99	2.24	-99.99	2.34	-99.99	-99.99	2.34	-99.99	-99.99	2.35	-99.99	-99.99
					-99.99	-99.99	-99.99	1.72	-99.99	2.40						

Note: -99.99 means no data for the period.

Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
5	93	67	PB-1455	1989	3.52	3.17	3.24	2.86	2.80	3.35	3.53	3.83	3.42	3.58	2.99	2.82
				1990	2.99	2.82	2.85	2.74	2.84	3.47						
1	93	69	PB-450		-99.99	1.13	-99.99	1.23	-99.99	-99.99	1.77	-99.99	-99.99	1.89	-99.99	-99.99
					-99.99	-99.99	-99.99	0.79	-99.99	1.67						
1	93	69	PB-498		-99.99	-99.99	-99.99	0.90	-99.99	-99.99	1.26	-99.99	-99.99	1.53	-99.99	-99.99
					-99.99	-99.99	0.47	-99.99	1.32	-99.99						
4	93	69	PB-490		1.37	0.81	1.13	0.92	0.83	1.23	1.23	1.73	1.58	1.64	1.21	1.26
					1.21	1.26	0.65	0.43	0.91	1.26						
5	93	69	PB-492		1.36	0.64	1.37	1.25	0.72	1.17	1.40	2.59	2.20	1.81	1.72	1.76
					1.72	1.76	1.09	0.64	0.52	1.02						
5	93	69	PB-491		3.08	2.40	3.01	2.71	2.88	3.56	3.44	4.24	4.22	-99.99	3.87	3.39
					3.87	3.39	2.55	-99.99	2.77	3.19						
1	93	69	PB-500		-99.99	1.25	-99.99	2.11	-99.99	-99.99	2.92	-99.99	-99.99	3.11	-99.99	-99.99
					-99.99	-99.99	-99.99	2.00	-99.99	3.98						
1	94	65	PB-1076		-99.99	7.28	-99.99	7.23	-99.99	-99.99	7.87	-99.99	-99.99	7.58	-99.99	-99.99
					-99.99	-99.99	-99.99	7.08	-99.99	-99.99						
1	94	66	PB-1077		-99.99	5.78	-99.99	5.54	-99.99	-99.99	6.44	-99.99	-99.99	6.37	-99.99	-99.99
					-99.99	-99.99	-99.99	4.86	-99.99	5.56						
1	94	69	PB-543		-99.99	1.62	-99.99	-99.99	-99.99	-99.99	1.88	-99.99	-99.99	3.33	-99.99	-99.99
					-99.99	-99.99	-99.99	1.07	-99.99	1.81						
1	94	70	PB-465		-99.99	1.72	-99.99	1.62	-99.99	-99.99	2.86	-99.99	-99.99	2.75	-99.99	-99.99
					-99.99	-99.99	-99.99	1.42	-99.99	2.33						
1	94	71	PB-462		-99.99	1.87	-99.99	2.24	-99.99	-99.99	2.58	-99.99	-99.99	2.74	-99.99	-99.99
					-99.99	-99.99	-99.99	1.63	-99.99	2.58						
1	95	67	PB-752		-99.99	2.50	-99.99	2.35	-99.99	-99.99	3.05	-99.99	-99.99	3.54	-99.99	-99.99
					-99.99	-99.99	-99.99	1.94	-99.99	2.45						
1	95	70	PB-454R		-99.99	2.97	-99.99	-99.99	-99.99	-99.99	2.53	-99.99	-99.99	2.77	-99.99	-99.99
					-99.99	-99.99	-99.99	2.81	-99.99	2.84						
1	95	71	PB-502		-99.99	2.35	-99.99	2.65	-99.99	-99.99	-99.99	-99.99	-99.99	3.14	-99.99	-99.99
					-99.99	-99.99	-99.99	2.15	-99.99	2.89						
1	96	64	PB-1618		-99.99	8.87	-99.99	8.62	-99.99	-99.99	8.83	-99.99	-99.99	8.67	-99.99	-99.99
					-99.99	-99.99	-99.99	7.85	-99.99	8.39						
4	96	65	PB-1063		7.16	6.34	7.01	6.76	6.75	6.75	7.14	7.34	7.51	7.28	6.44	6.57
					6.44	6.57	6.07	5.93	6.01	6.71						
4	97	66	D1A		1.13	0.90	0.81	0.82	0.51	1.31	1.22	1.47	1.34	1.85	1.30	0.92
					1.30	0.92	0.72	0.75	0.87	0.94						
5	97	67	D11		0.65	0.46	0.22	0.34	0.37	1.34	1.04	1.37	1.31	1.57	1.24	0.78
					1.24	0.78	0.44	0.57	0.62	0.92						
5	98	68	D13		0.82	0.44	0.19	0.42	0.42	1.72	1.15	1.61	1.42	1.55	1.28	0.85
					1.28	0.85	0.51	0.69	0.69	1.17						
5	97	69	D12		0.92	0.69	0.70	0.62	0.53	1.74	1.32	1.43	1.60	1.92	1.40	0.96
					1.40	0.96	0.85	1.12	0.98	1.07						
2	98	65	S1A		-99.99	-99.99	3.87	3.84	3.32	5.67	5.03	5.41	4.19	4.87	4.48	4.34
					4.48	4.34	3.47	3.48	3.37	3.82						
2	98	66	S2		1.14	0.75	0.57	0.45	-0.59	0.63	0.26	1.02	0.97	1.85	1.63	0.84
					1.63	0.84	0.36	0.16	0.23	0.46						
4	98	66	D2A		1.14	0.74	0.54	0.44	-0.62	7.43	0.14	1.01	0.93	1.84	1.58	0.82
					1.58	0.82	0.34	0.17	0.24	0.48						
5	98	67	D10		-0.28	-0.38	-0.97	-0.39	-0.53	0.91	0.59	1.13	0.98	0.91	0.48	0.13
					0.48	0.13	-0.30	-0.25	-0.15	0.48						
2	98	67	S10		-1.47	-0.86	-1.94	-0.77	-0.94	0.67	0.41	1.01	0.93	0.43	-0.49	-0.17
					-0.49	-0.17	-0.75	-0.91	-0.54	0.31						
1	98	68	S7A		0.26	-0.33	-0.81	-0.36	-0.28	1.19	0.81	1.30	1.04	0.92	0.59	0.27
					0.59	0.27	-0.16	-0.12	-0.03	1.09						
5	98	68	D7		0.20	-0.37	-0.87	-0.40	-0.28	1.15	0.75	1.26	0.83	0.87	0.56	0.36
					0.56	0.36	-0.21	-0.07	-0.06	0.78						
4	98	68	D17		-0.61	-1.02	-1.89	-0.99	-0.92	0.72	0.41	0.98	0.88	0.23	-99.99	-0.25
					-99.99	-0.25	-0.75	-0.77	-0.54	0.43						
4	98	69	D14A		1.16	0.94	0.76	0.92	0.78	2.06	1.52	2.03	1.83	1.96	1.81	1.25
					1.81	1.25	0.93	1.14	1.08	1.44						
2	99	62	S4		7.63	7.73	7.29	7.38	7.15	8.26	7.70	8.28	7.85	8.13	7.94	7.84
					7.94	7.84	7.46	7.93	7.79	8.37						
5	99	62	D4		7.90	7.87	6.68	6.73	6.49	0.24	7.11	7.60	7.47	8.20	7.45	7.06
					7.45	7.06	6.88	7.81	6.98	8.26						
2	99	66	S12		0.61	-0.01	-0.31	-0.21	-0.69	0.54	0.43	1.12	1.08	1.29	0.91	0.41
					0.91	0.41	-0.10	-0.25	-0.18	0.19						
5	99	69	D16		1.80	1.06	0.81	1.06	0.58	2.48	2.79	2.35	2.21	1.99	2.22	1.63
					2.22	1.63	1.16	1.03	1.01	1.53						
4	99	69	D15A		0.33	-0.69	-1.19	-0.82	-0.85	0.82	0.63	1.23	1.13	0.57	0.41	0.06
					0.41	0.06	-0.41	-0.36	-0.49	0.43						
2	100	64	S3		6.27	6.82	7.03	7.04	7.01	8.04	7.51	8.04	7.93	7.96	7.91	7.74
					7.91	7.74	7.11	7.77	7.80	8.14						

Note: -99.99 means no data for the period.

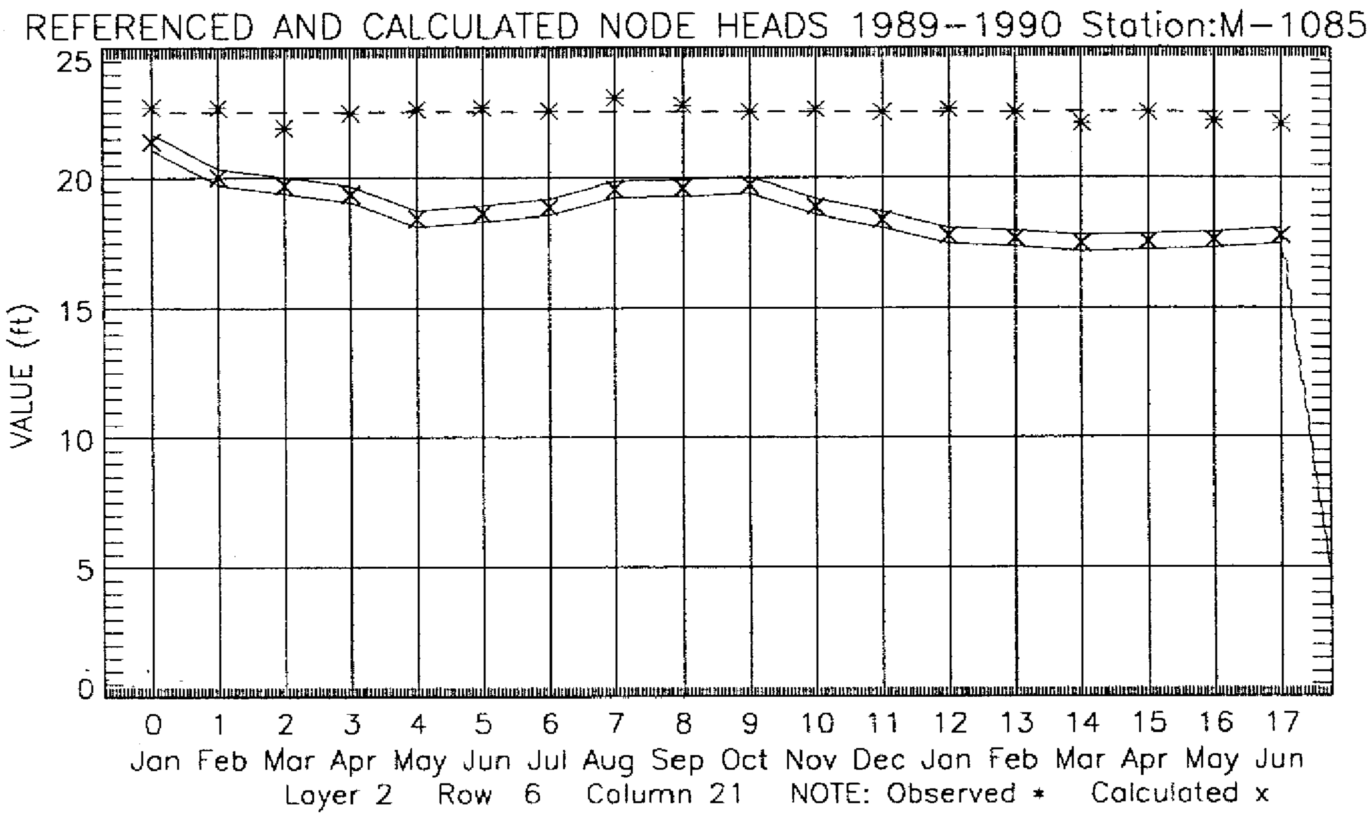
Table F-2. Observed Water Levels of Monitoring Wells for Each Stress Period (Continued)

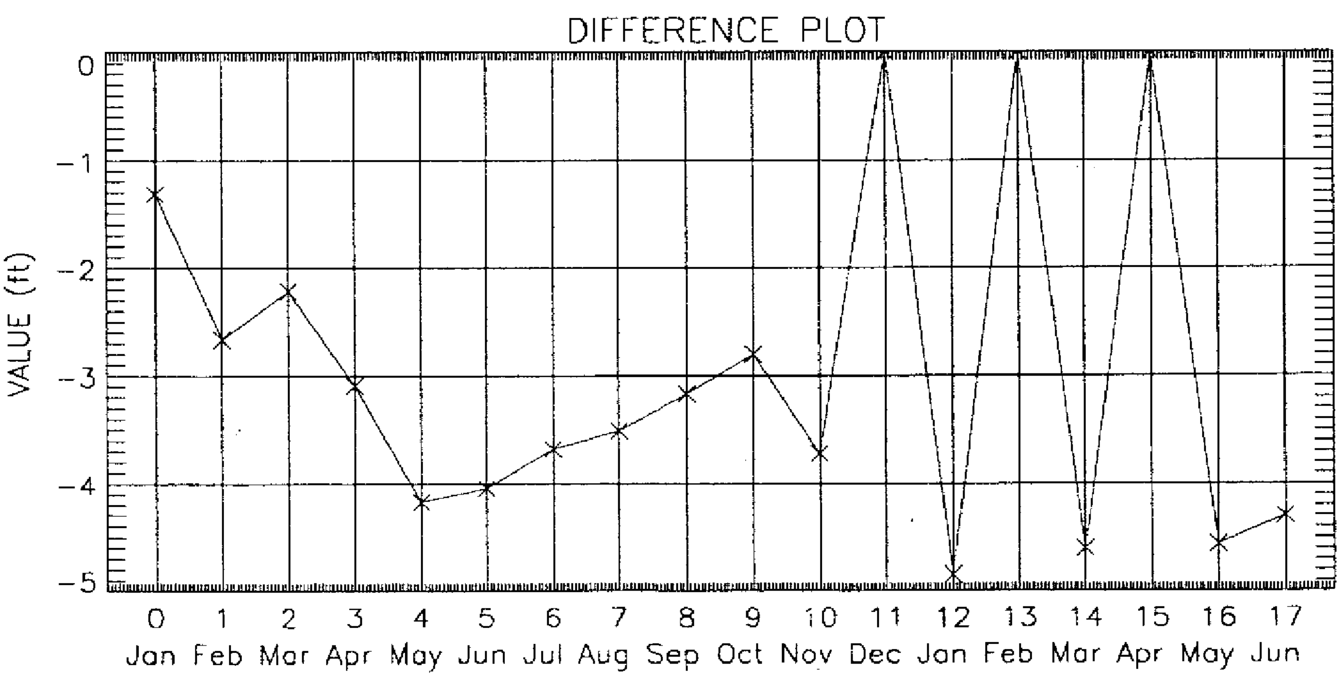
Layer	Row	Column	Well-ID	Year	Jan.	Feb.	March	April	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
5	100	64	D3	1989	6.32	6.87	6.44	6.44	6.40	7.48	6.88	7.40	7.17	7.34	7.23	7.14
				1990	7.23	7.14	6.52	7.09	7.27	7.57						
2	100	65	S5		-0.71	-1.08	-1.26	0.67	-1.91	-0.70	-0.76	0.56	0.45	1.14	0.06	-0.09
					0.06	-0.09	-1.32	-1.19	-1.43	-1.19						
5	100	65	D5		0.14	-0.13	-0.36	0.84	-1.31	1.74	-0.16	1.44	1.28	2.30	1.39	1.04
					1.39	1.04	-1.38	-2.19	-0.29	-0.01						
1	100	67	S11		0.34	-0.32	-0.64	-0.57	-1.07	0.18	0.10	0.86	0.68	1.01	0.60	0.11
					0.60	0.11	-0.44	-0.58	-0.55	-0.16						
2	100	69	S6		1.24	0.69	0.15	0.37	-0.06	1.74	1.10	1.64	1.54	1.39	1.49	0.87
					1.49	0.87	0.43	0.37	0.31	0.76						
5	100	69	D6		1.16	0.75	0.44	0.39	0.05	1.77	1.09	1.64	1.54	1.39	1.49	0.94
					1.49	0.94	0.44	0.37	0.34	0.76						
2	101	65	S13		4.23	3.81	3.52	4.05	3.21	4.20	4.34	5.22	5.10	5.44	4.87	4.55
					4.87	4.55	3.82	3.77	3.34	3.87						
2	101	68	S16		-1.78	-2.99	-3.71	-3.18	-3.52	-0.77	-1.99	-1.75	-1.83	-1.49	-2.18	-2.35
					-2.18	-2.35	-2.94	-3.06	-2.98	-2.36						
2	101	68	S9		-1.30	-2.40	-3.08	-2.52	-3.00	-1.29	-1.56	-0.80	-1.10	-0.99	-1.41	-1.73
					-1.41	-1.73	-2.28	-2.40	-2.38	-1.72						
5	101	68	D9		-1.28	-2.34	-3.02	-2.45	-2.98	-1.26	-1.53	-0.77	-0.94	-0.97	-1.34	-1.67
					-1.34	-1.67	-2.27	-2.35	-2.27	-1.67						
5	103	69	SWIM1		1.70	1.03	0.60	0.48	0.15	0.81	1.15	1.80	1.95	1.49	1.05	1.01
					1.05	1.01	0.41	0.07	0.17	0.35						
3	104	67	MUDPOHP		1.80	1.00	0.55	0.26	0.10	0.45	1.10	1.95	2.10	1.57	1.08	1.00
					1.08	1.00	0.30	-0.03	-0.05	0.21						
4	106	68	G-2277		0.81	-99.99	-99.99	-0.06	-99.99	-99.99	-99.99	-99.99	-99.99	0.49	-99.99	-99.99
					-99.99	-99.99	-0.91	-1.47	-1.28	0.92						
1	107	68	G-2147		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-0.96	-99.99	-0.64	-99.99	-99.99
					-99.99	-99.99	-1.71	-1.78	1.01	1.77						
3	109	66	G-2344A		-0.42	-99.99	-99.99	-99.99	-1.42	-99.99	-99.99	0.68	-99.99	1.18	-99.99	-99.99
					-99.99	-99.99	-0.18	-99.99	-0.10	-0.69						
3	109	67	G-2480		-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	-99.99	1.23	-99.99	1.52	-99.99	-99.99
					-99.99	-99.99	0.39	-99.99	0.32	0.91						
4	110	66	G-2062		-0.04	-99.99	0.01	-0.57	-0.87	-99.99	-99.99	-0.28	-99.99	3.87	-99.99	-99.99
					-99.99	-99.99	-0.78	-99.99	-99.99	0.14						
5	110	68	G-2055		1.85	-99.99	-99.99	1.83	-99.99	-99.99	-99.99	1.61	-99.99	1.64	-99.99	-99.99
					-99.99	-99.99	0.91	1.36	-99.99	1.48						
4	110	68	G-2054		1.85	-99.99	2.43	-99.99	1.58	-99.99	-99.99	2.02	2.34	-99.99	-99.99	-99.99
					-99.99	-99.99	-99.99	-99.99	-99.99	-99.						

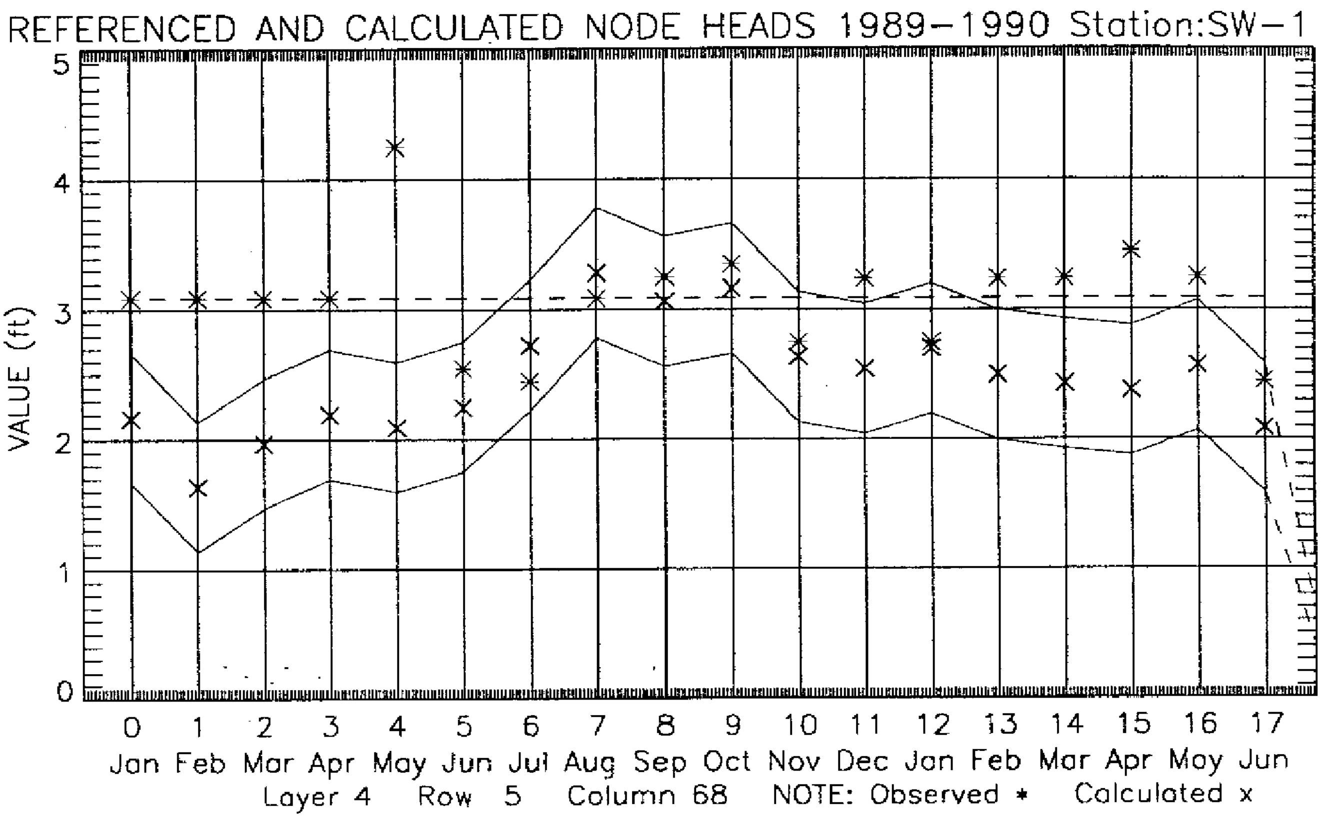
Note: -99.99 means no data for the period

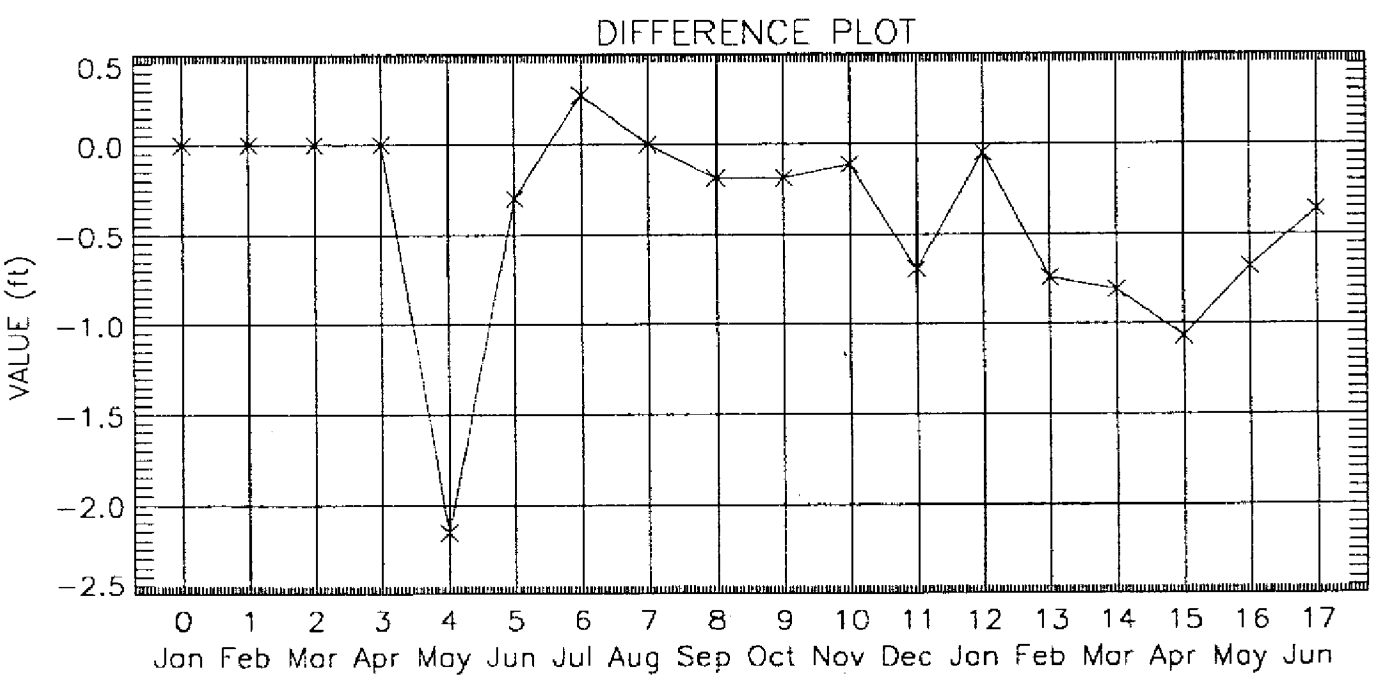
APPENDIX G

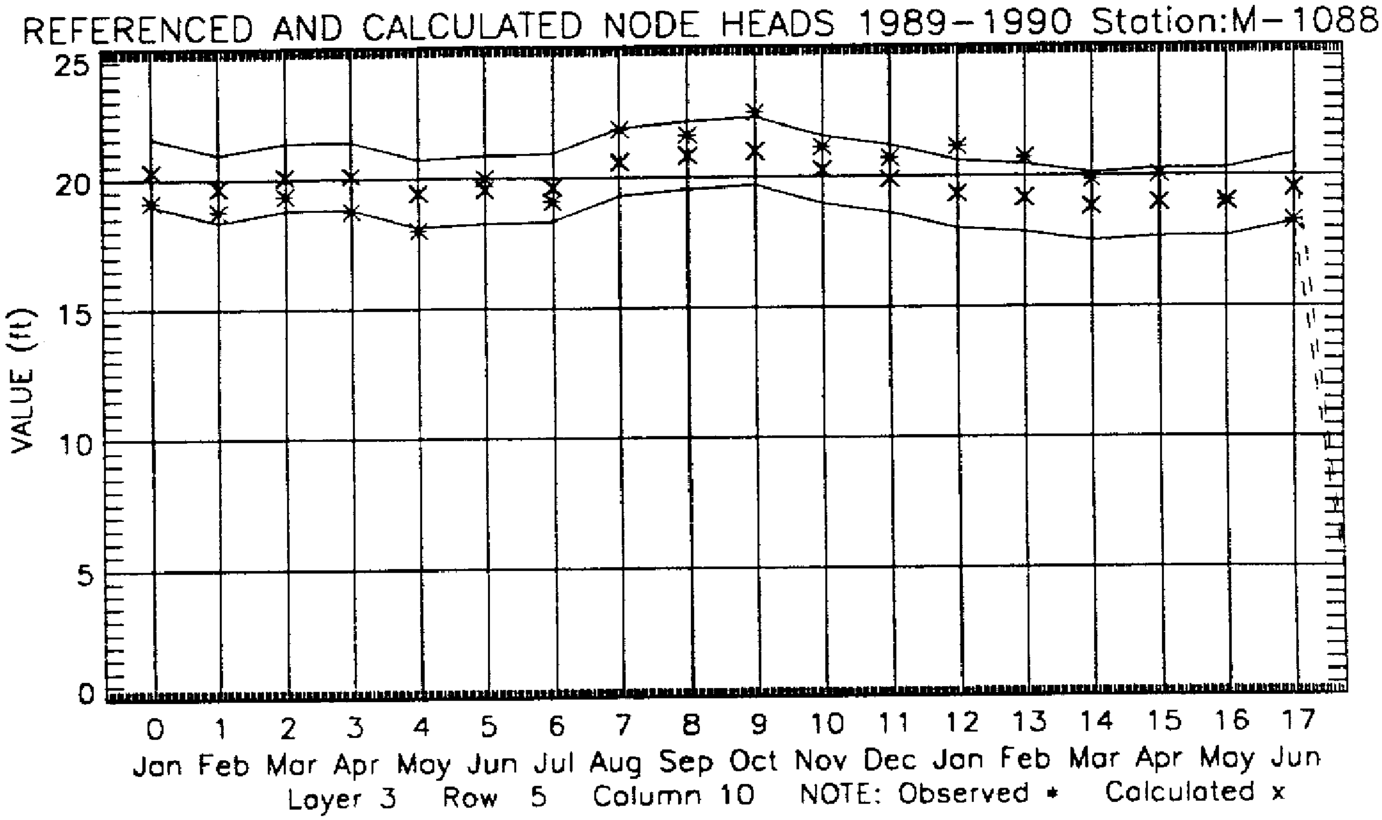
Selected Hydrograph Comparison

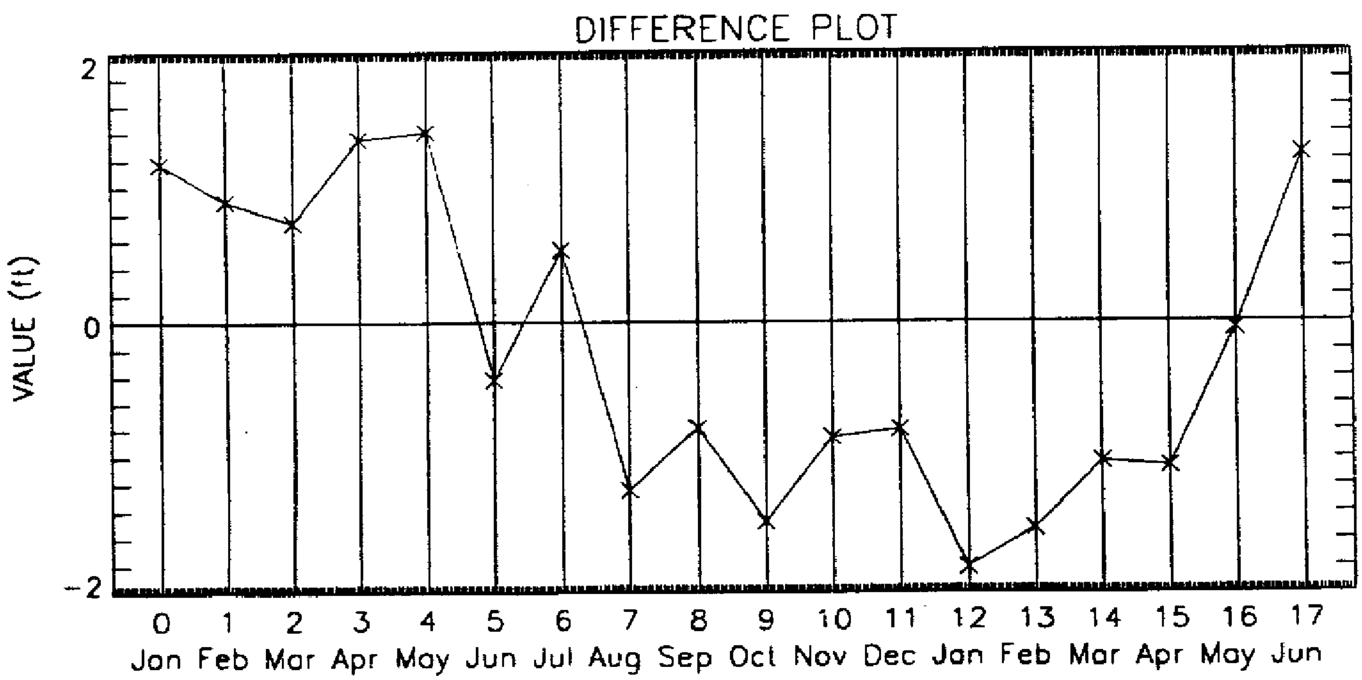

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1085
VALUE (ft)
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 6 Column 21 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
0
–1
–2
–3
–4
–5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

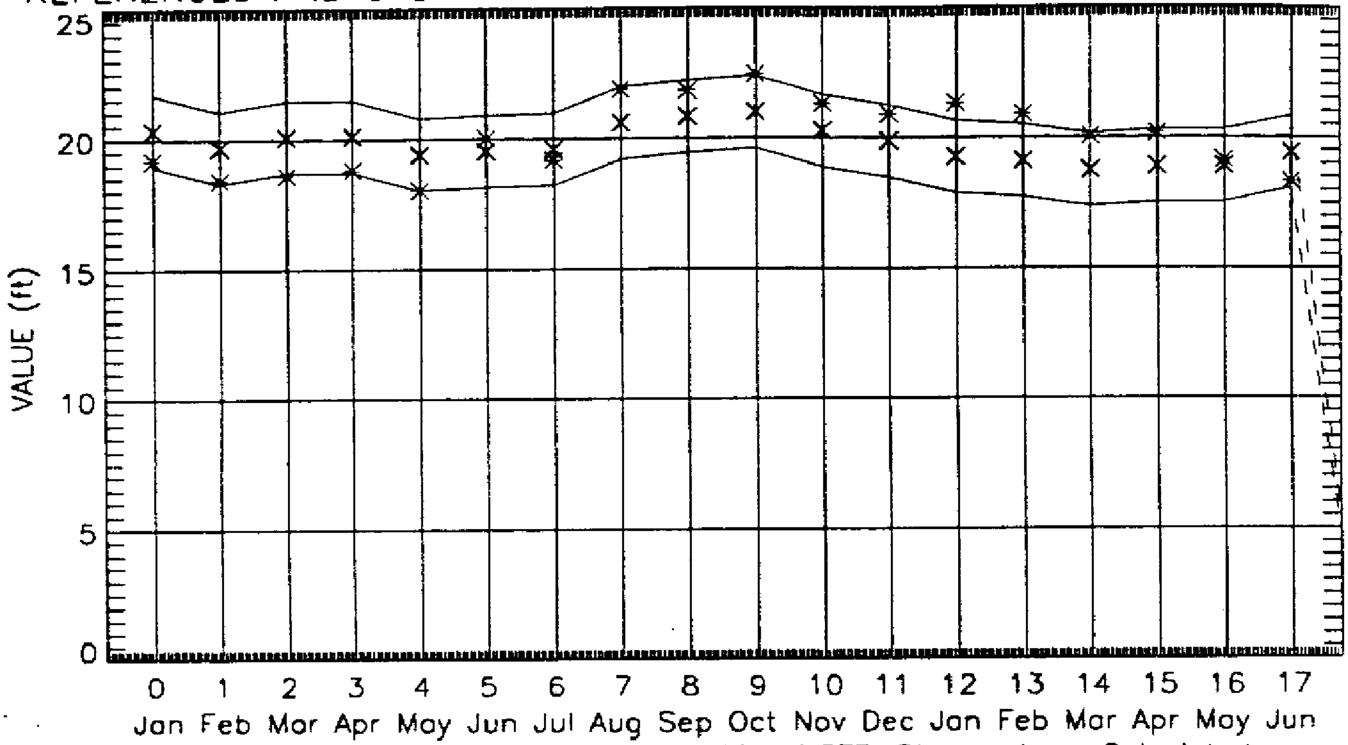

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:SW-1
VALUE (ft)
0 1 2 3 4 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 5 Column 68 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
0.5 0.0 -0.5 -1.0 -1.5 -2.0 -2.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1088
VALUE (ft)
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 5 Column 10 NOTE: Observed * Calculated x

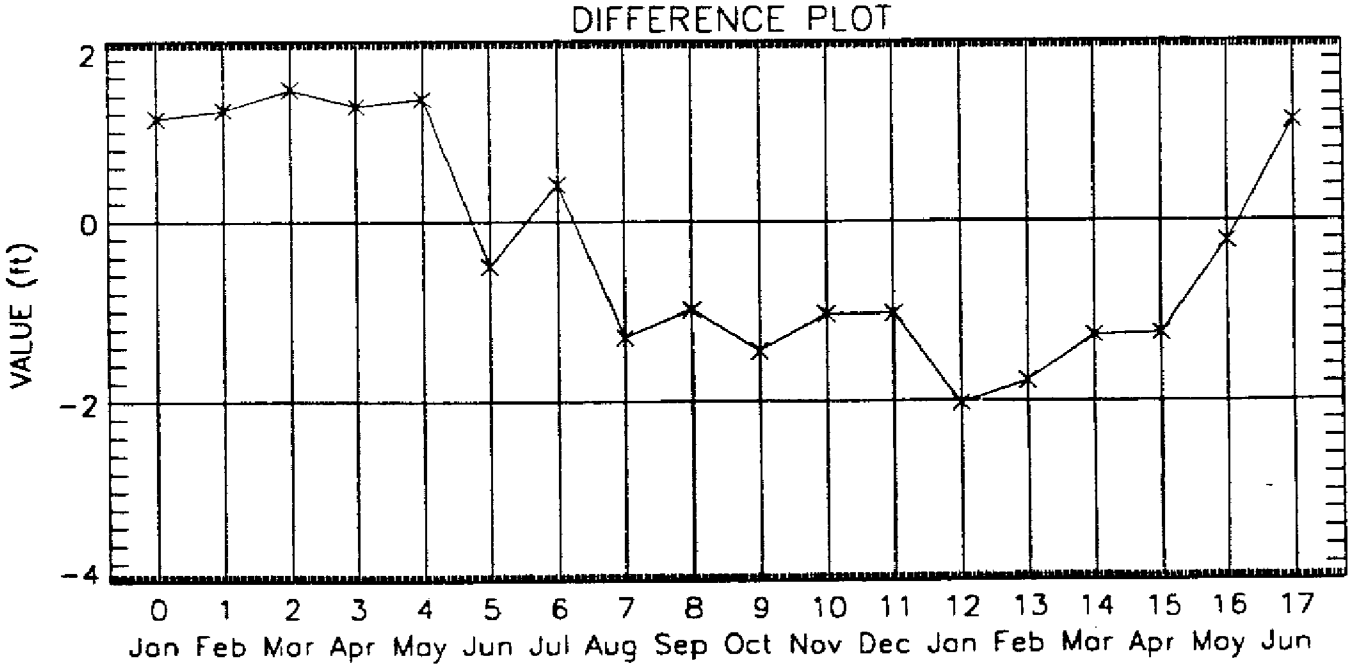

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

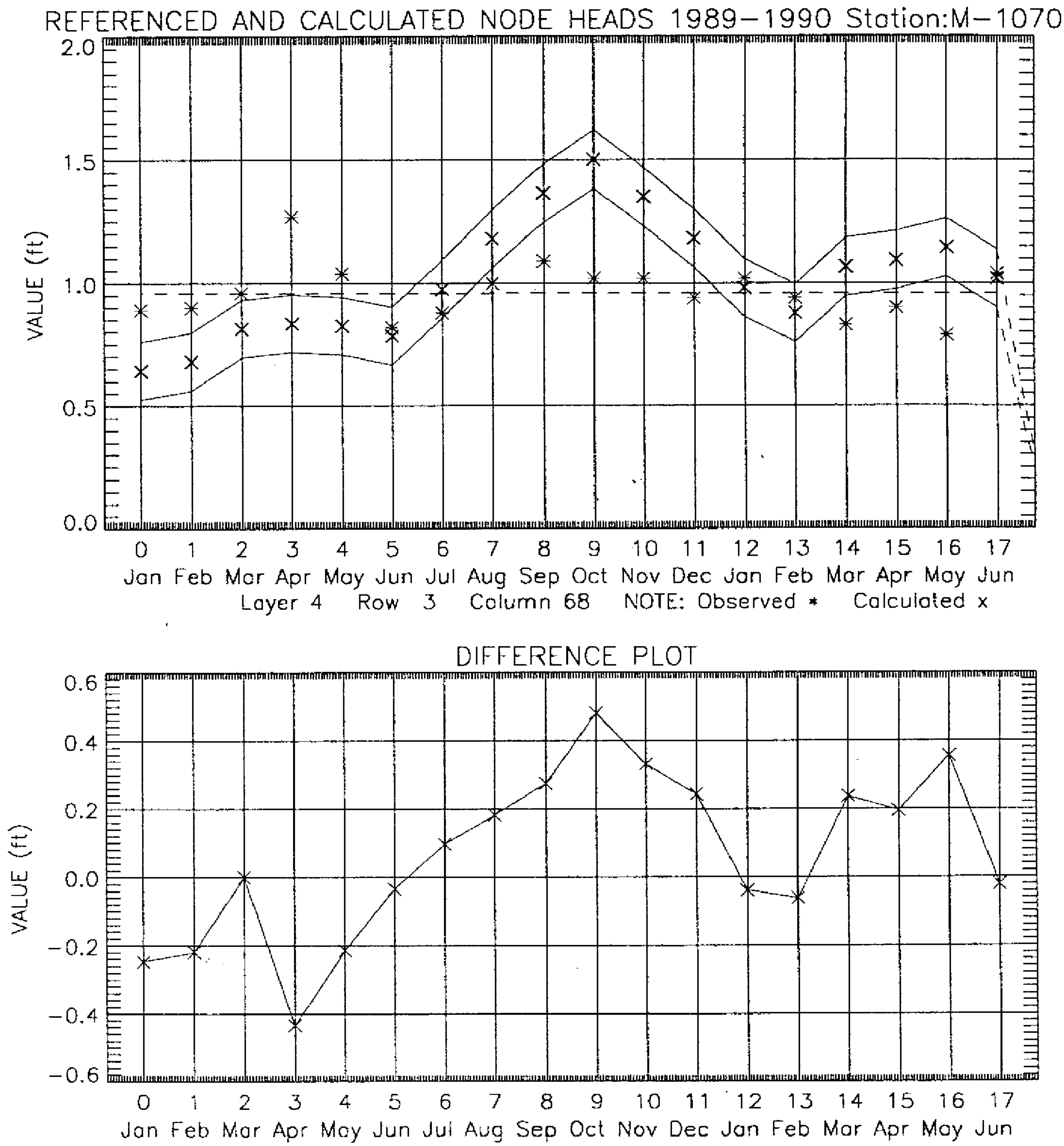
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1086

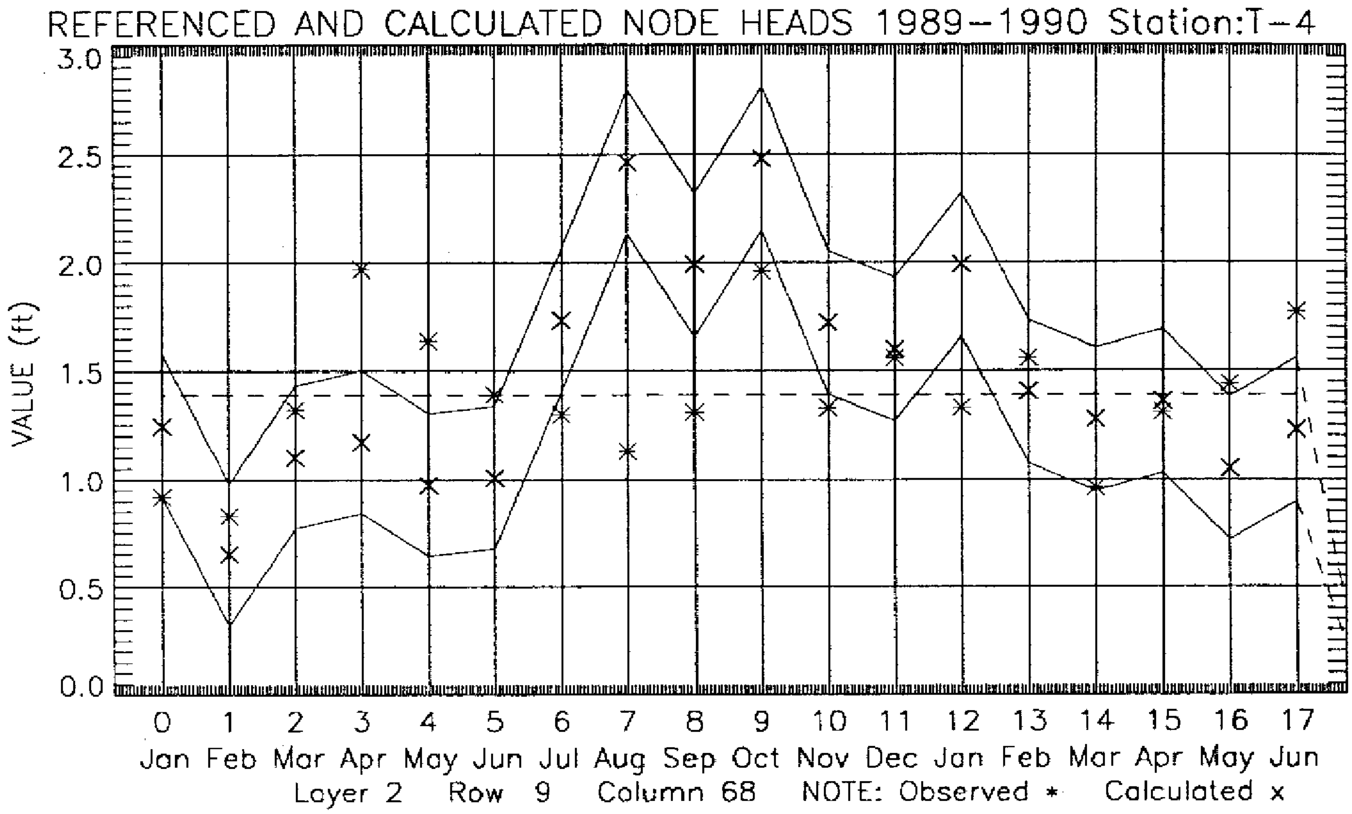


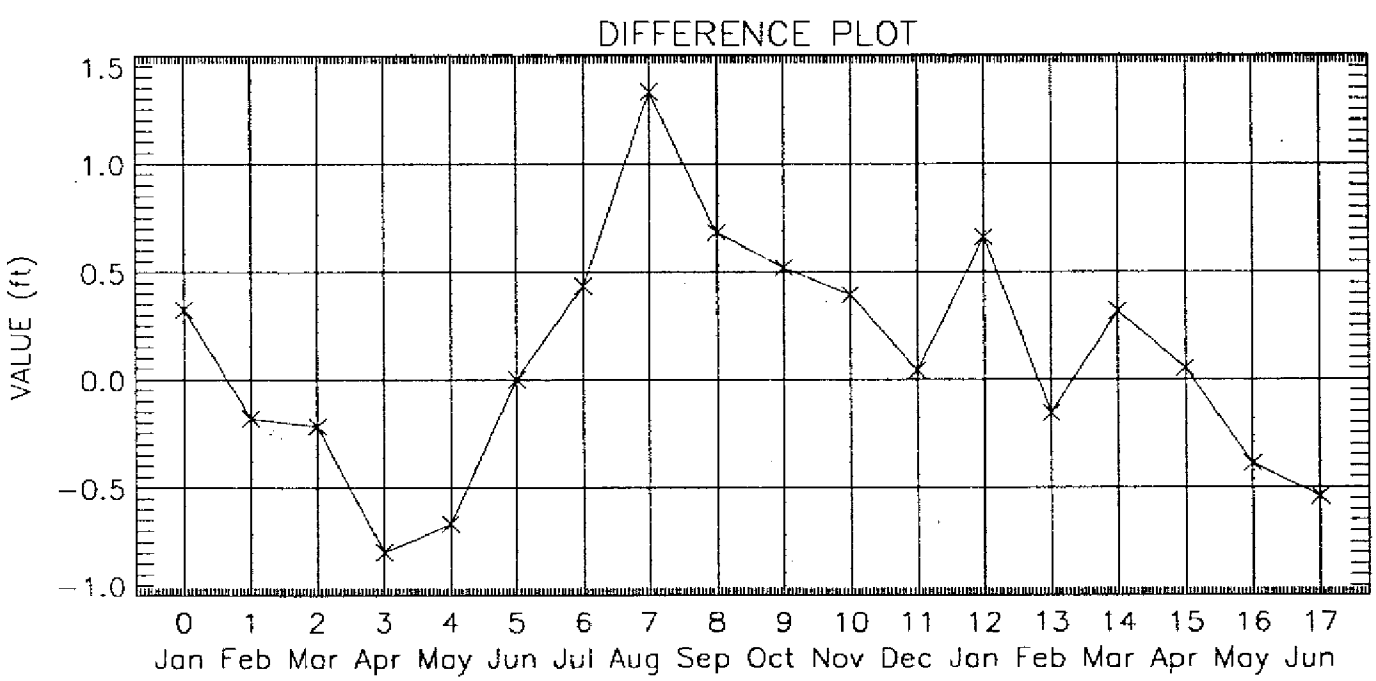
Layer 1 Row 5 Column 10 NOTE: Observed * Calculated x

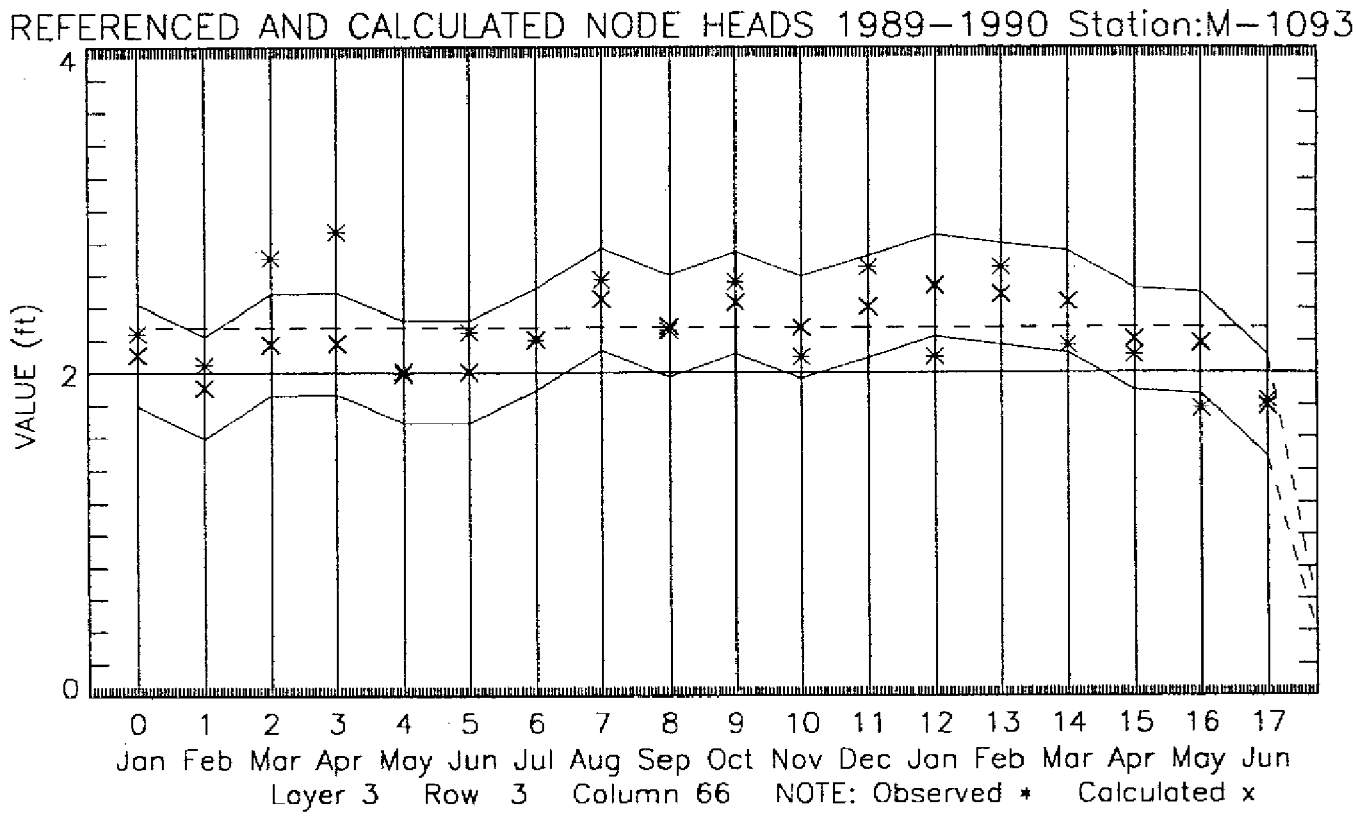
DIFFERENCE PLOT

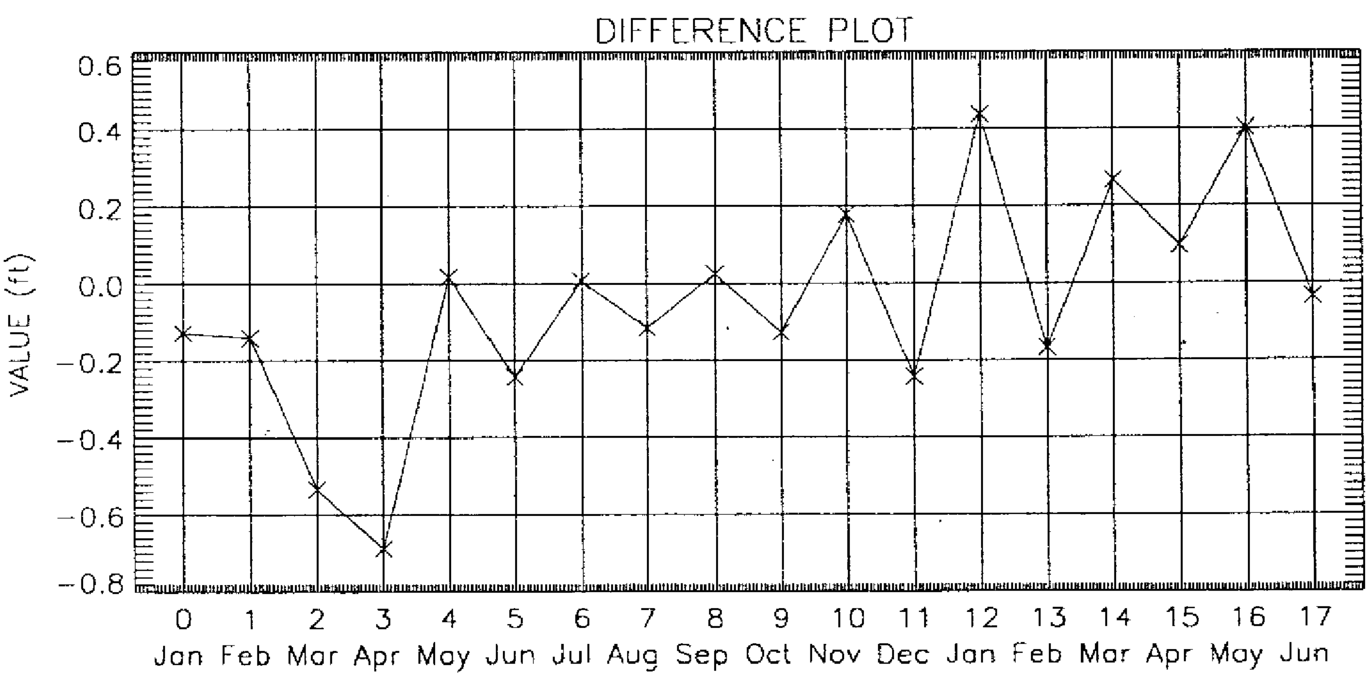


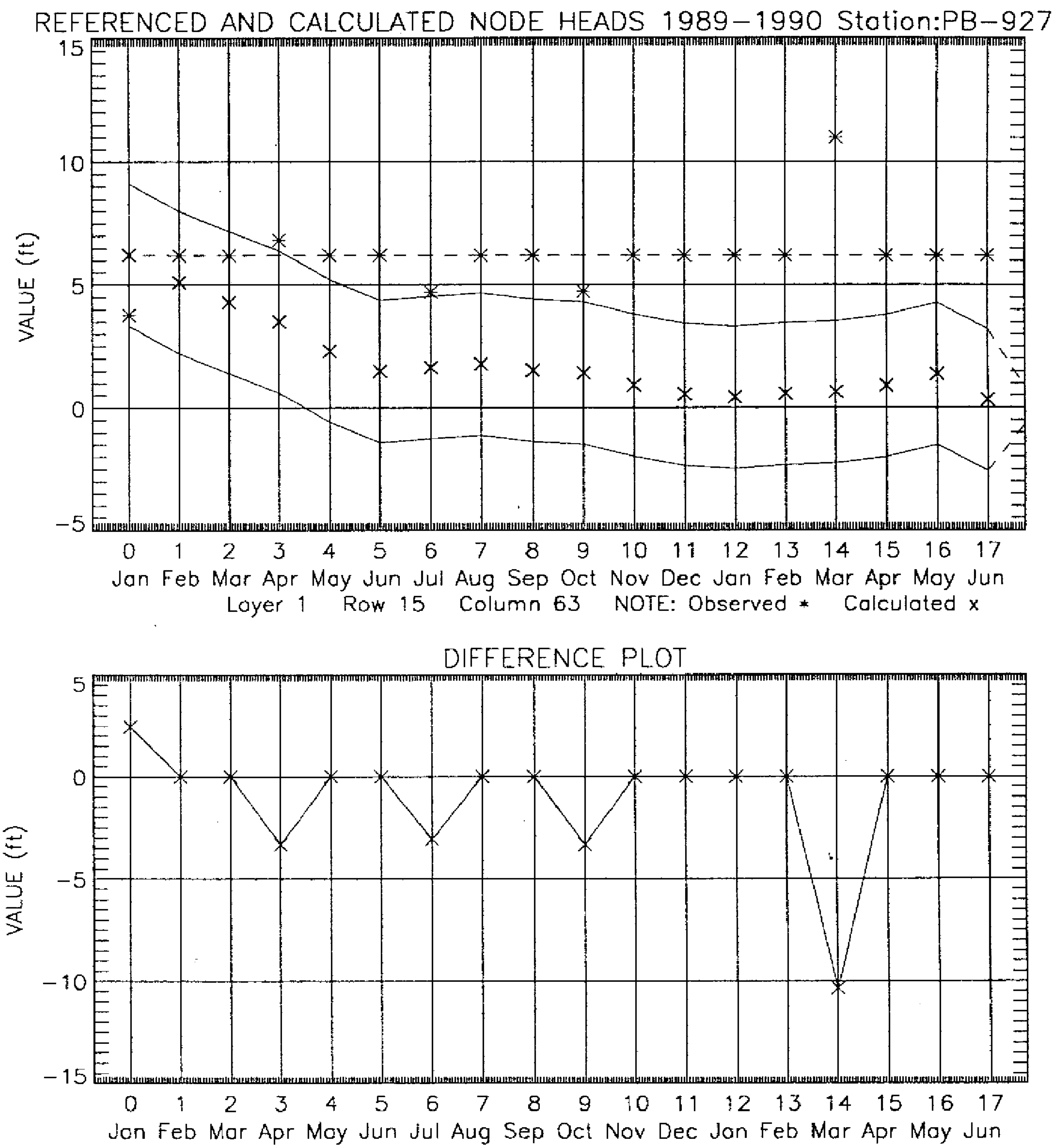

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1070
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 3 Column 68 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

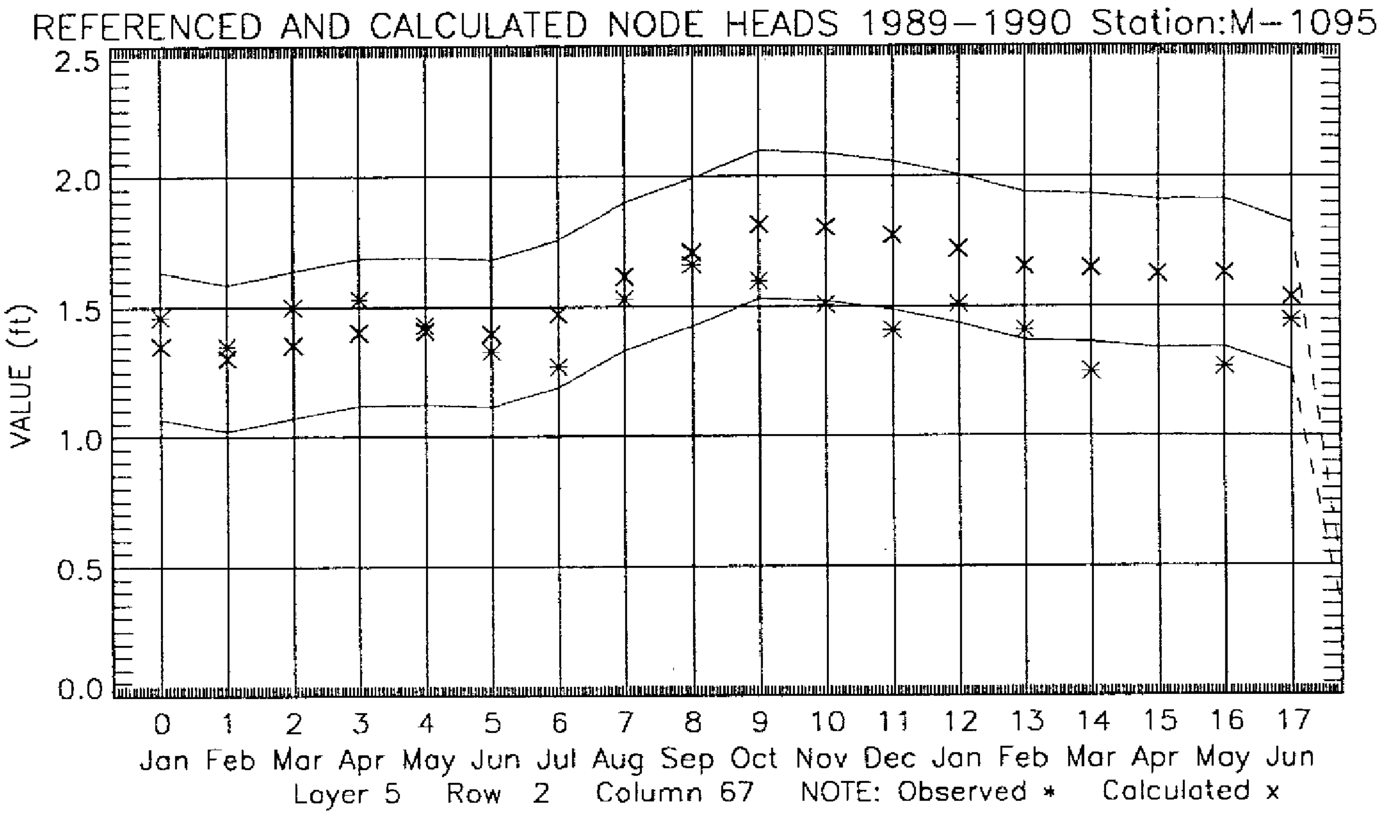

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:T–4
VALUE (ft)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 9 Column 68 NOTE: Observed * Calculated x

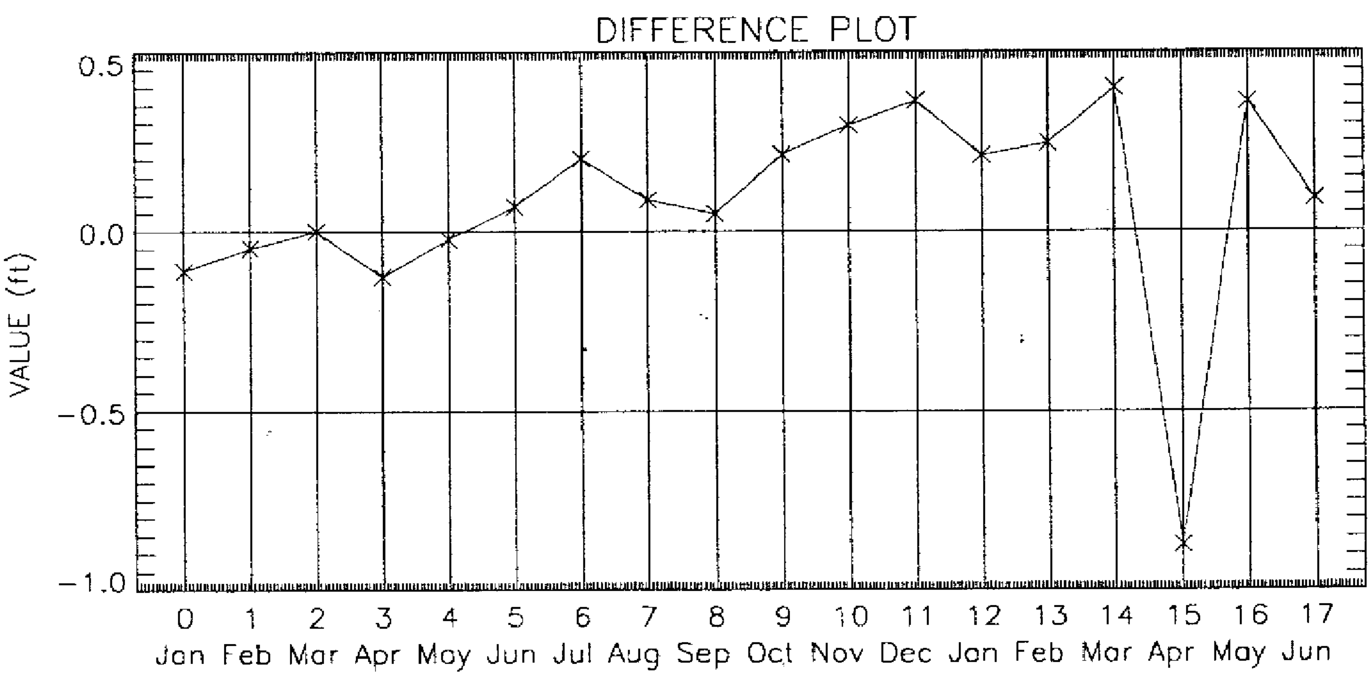

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

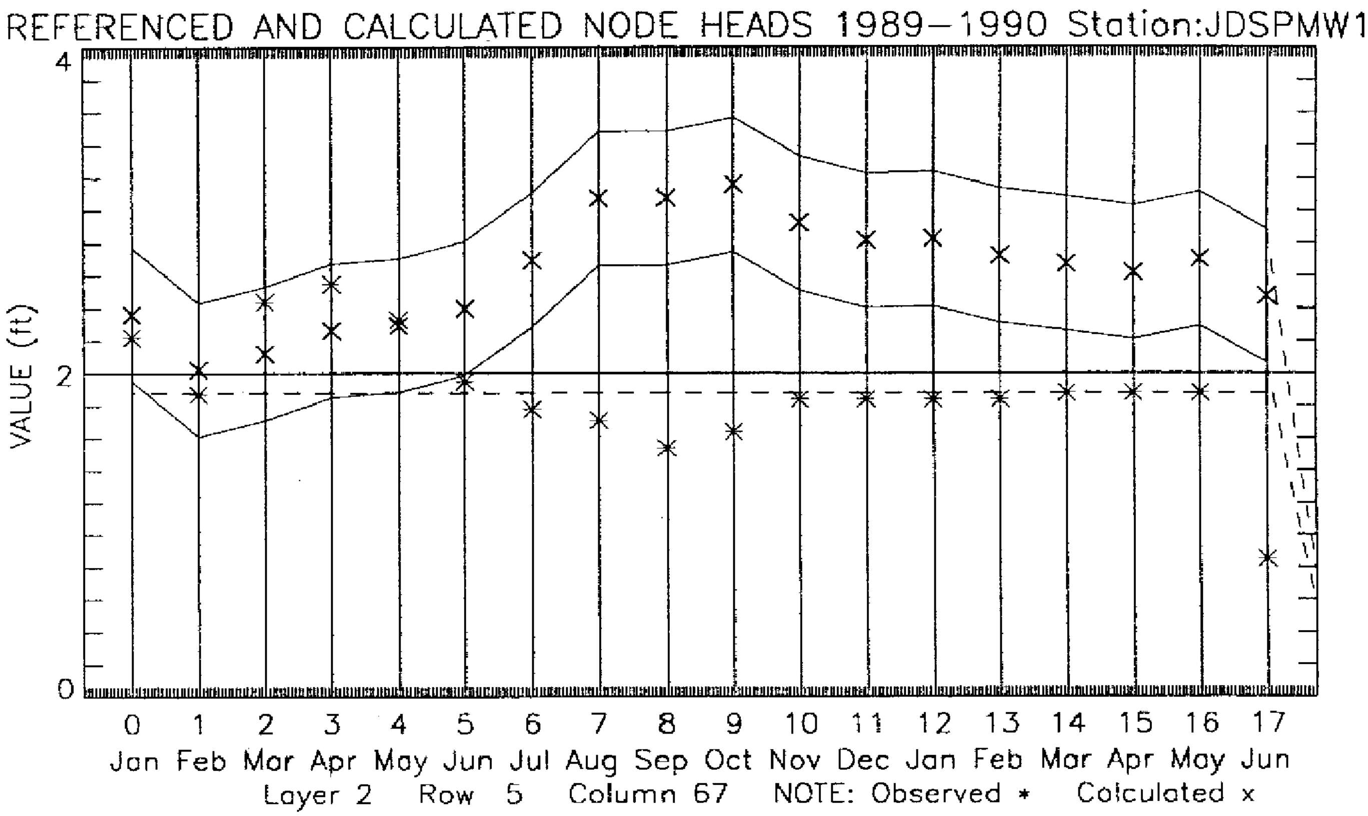

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1093
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 3 Column 66 NOTE: Observed * Calculated x

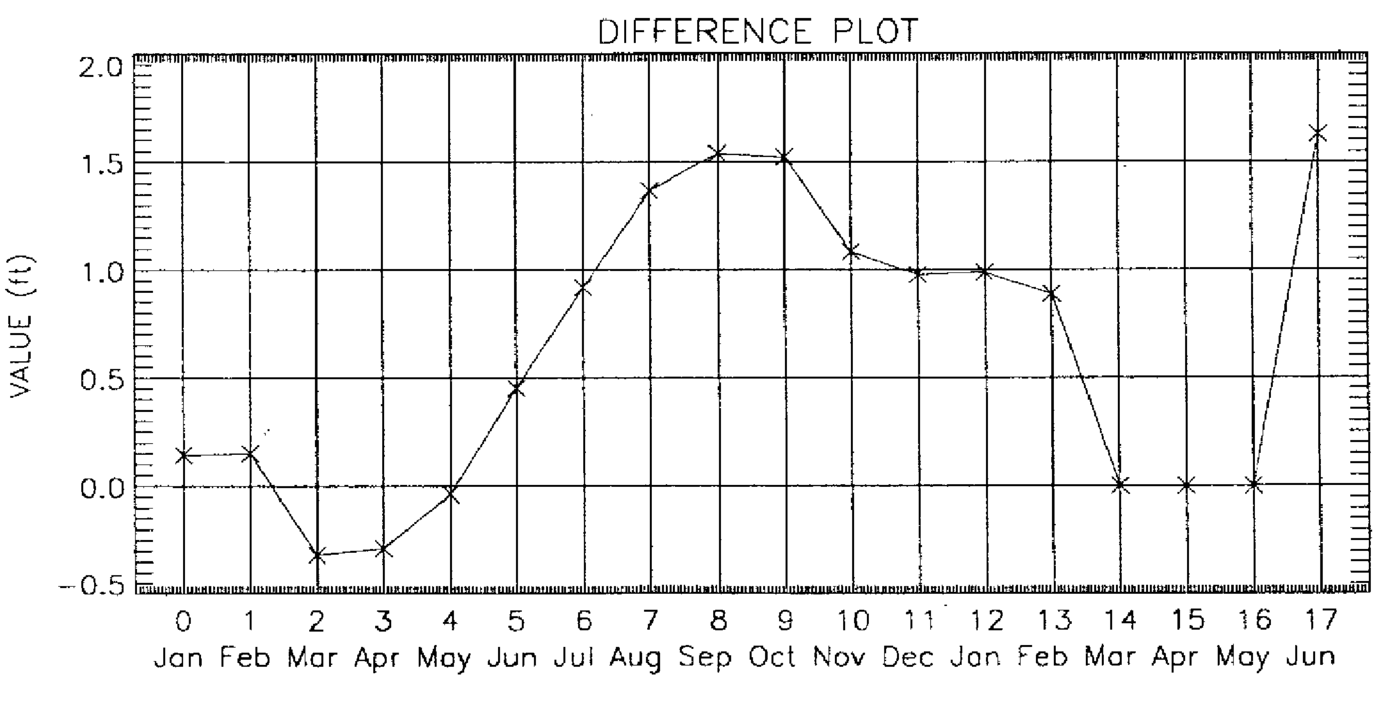

DIFFERENCE PLOT
VALUE (ft)
0.6
0.4
0.2
0.0
–0.2
–0.4
–0.6
–0.8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

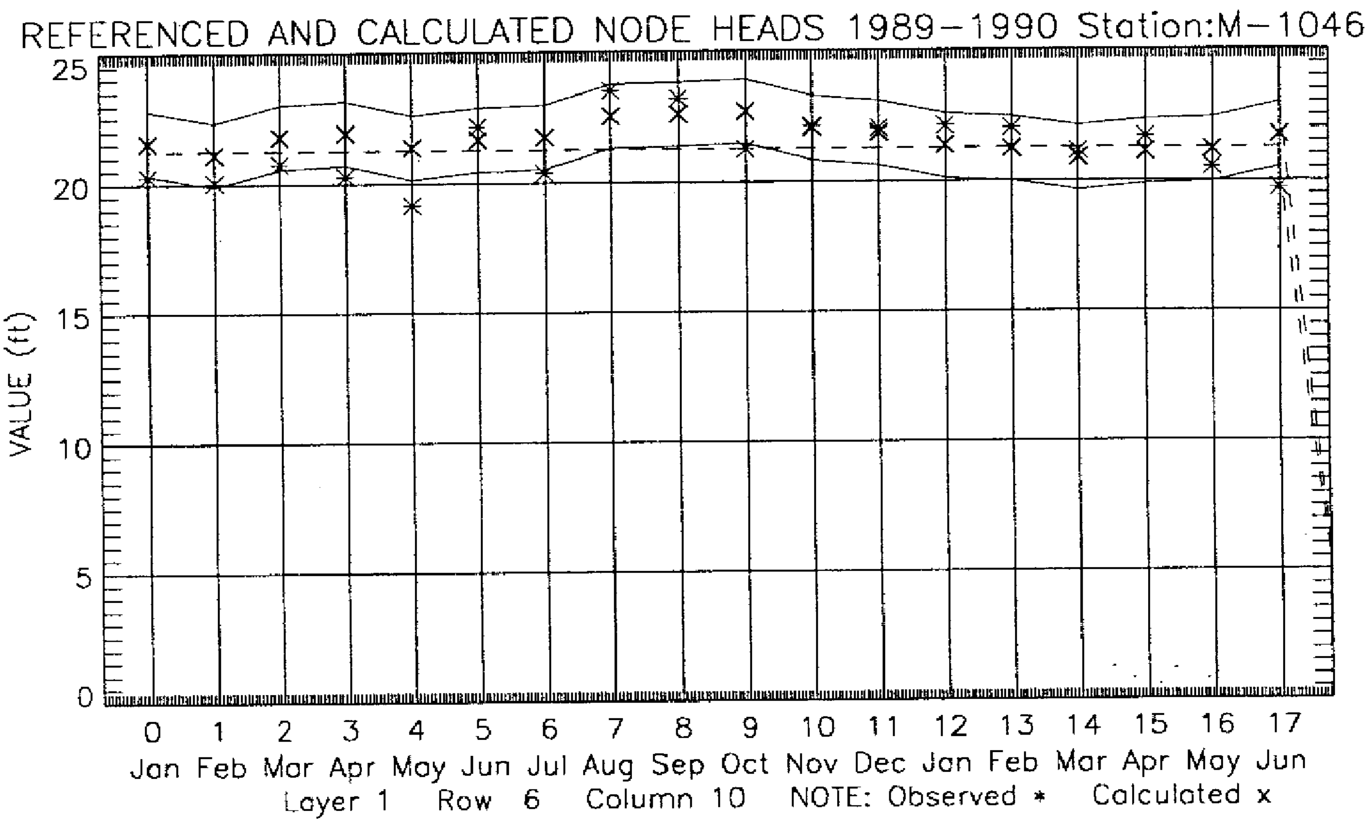

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−927
VALUE (ft)
15
10
5
0
−5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 15 Column 63 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
5
0
−5
−10
−15
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

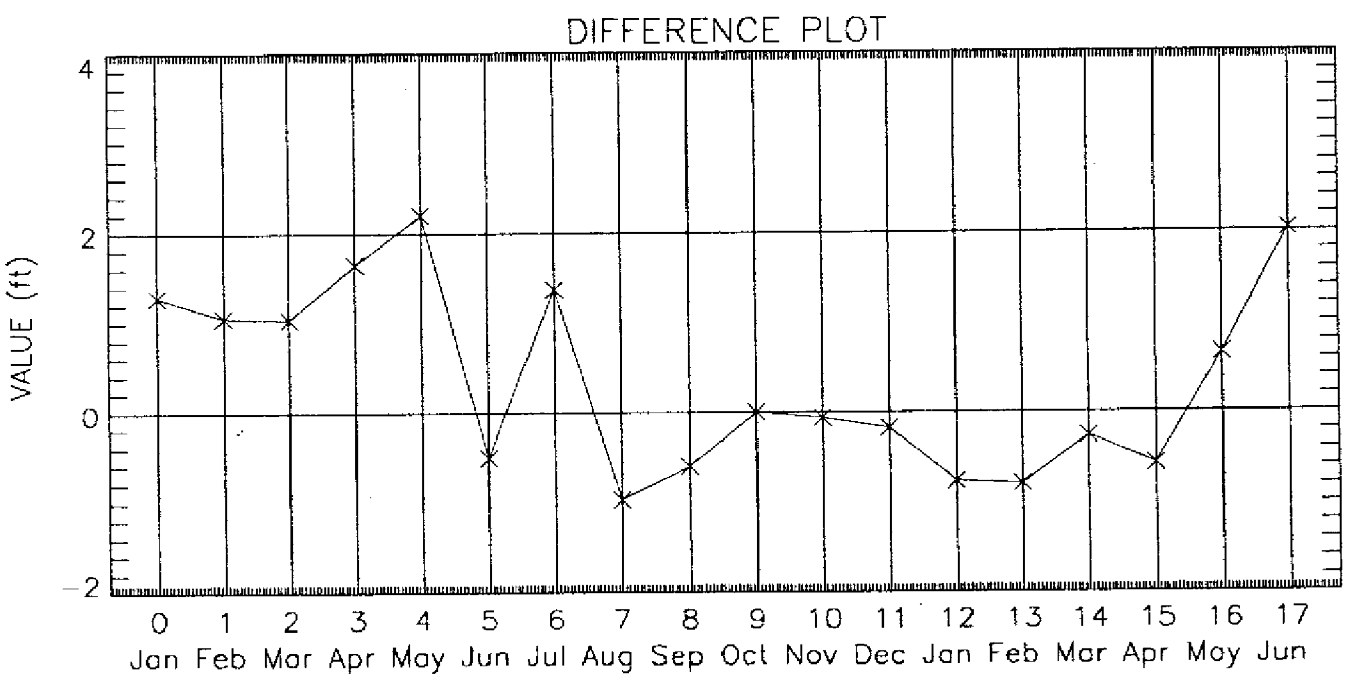

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1095
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 2 Column 67 NOTE: Observed * Calculated x

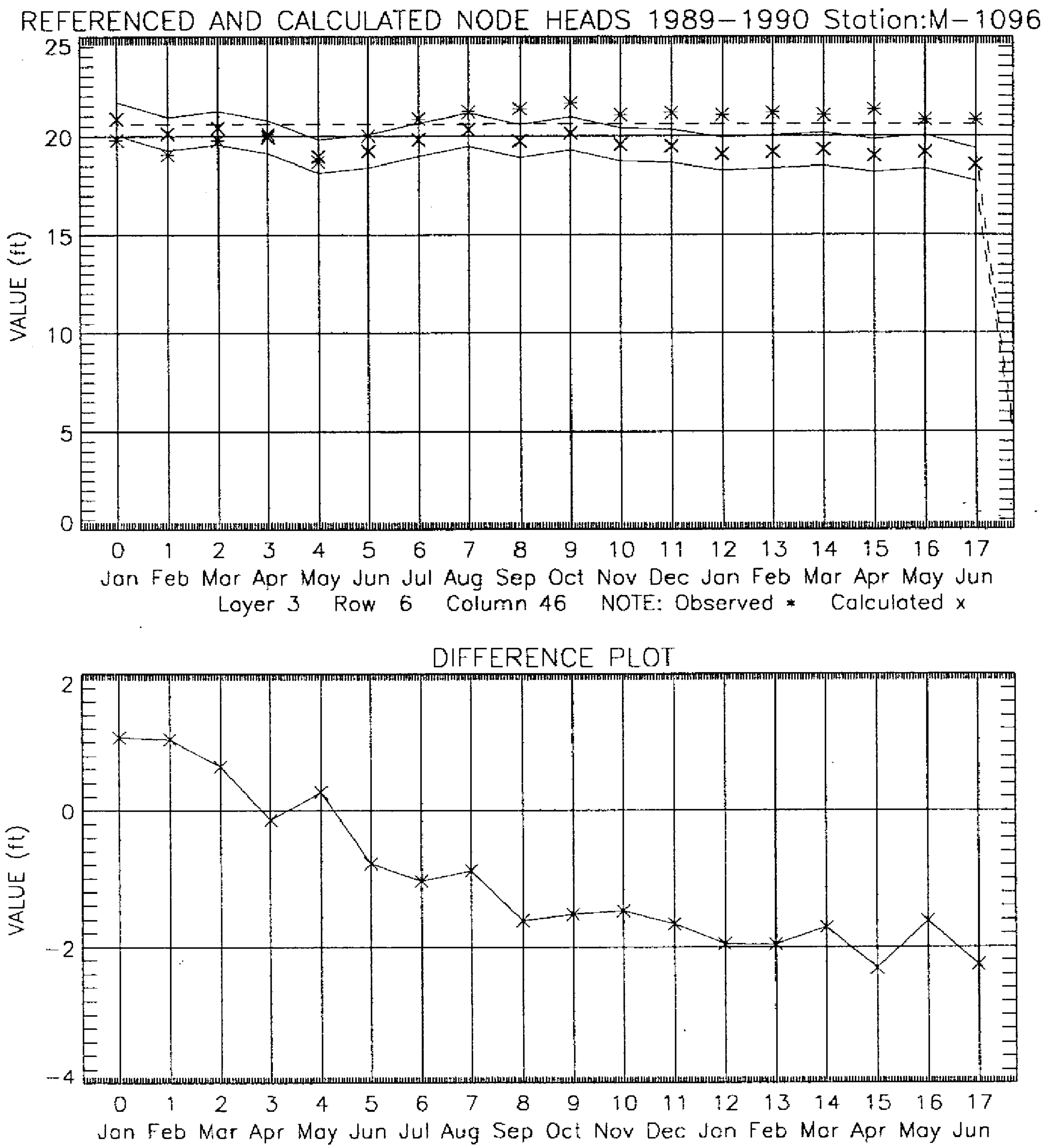

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

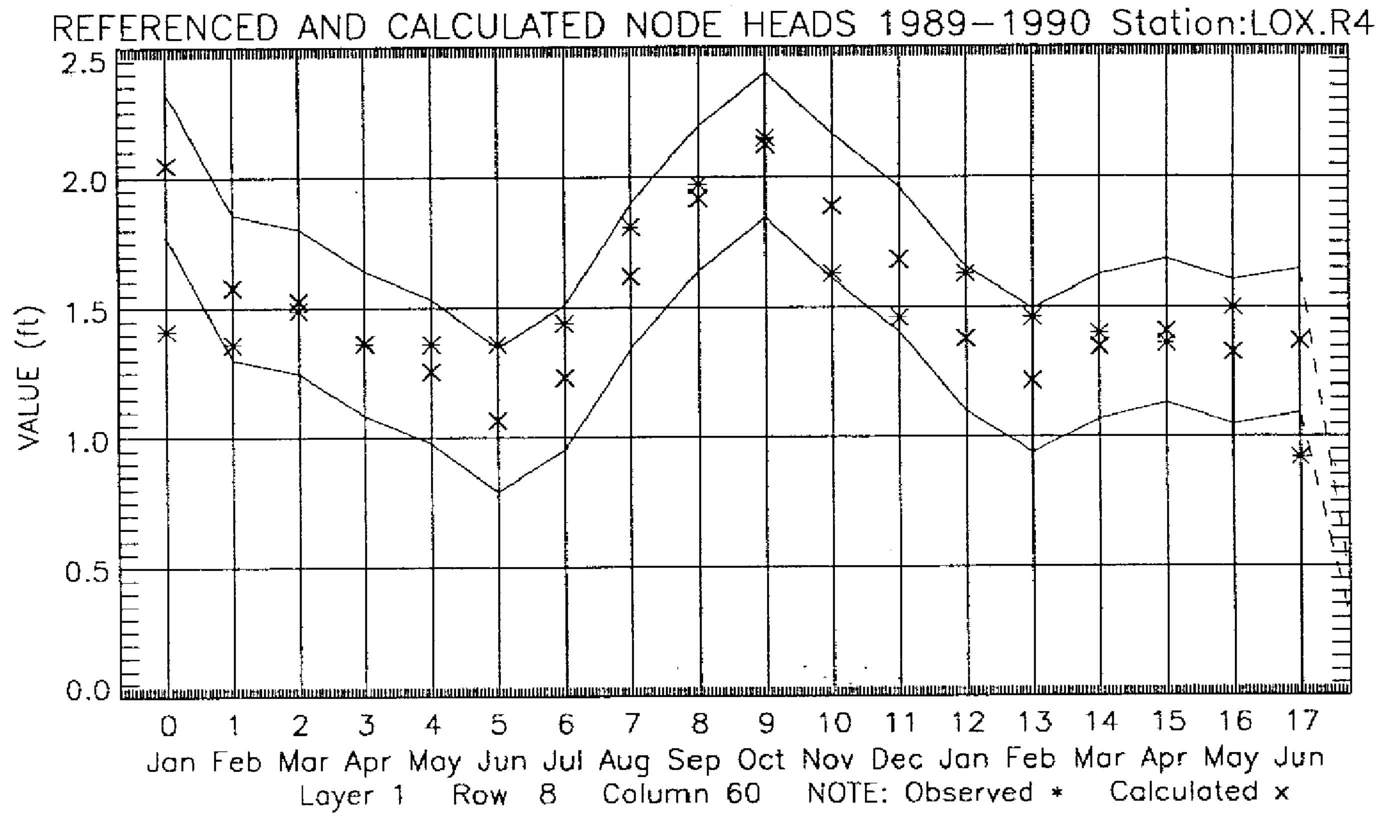

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:JDSPMW1
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 5 Column 67 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

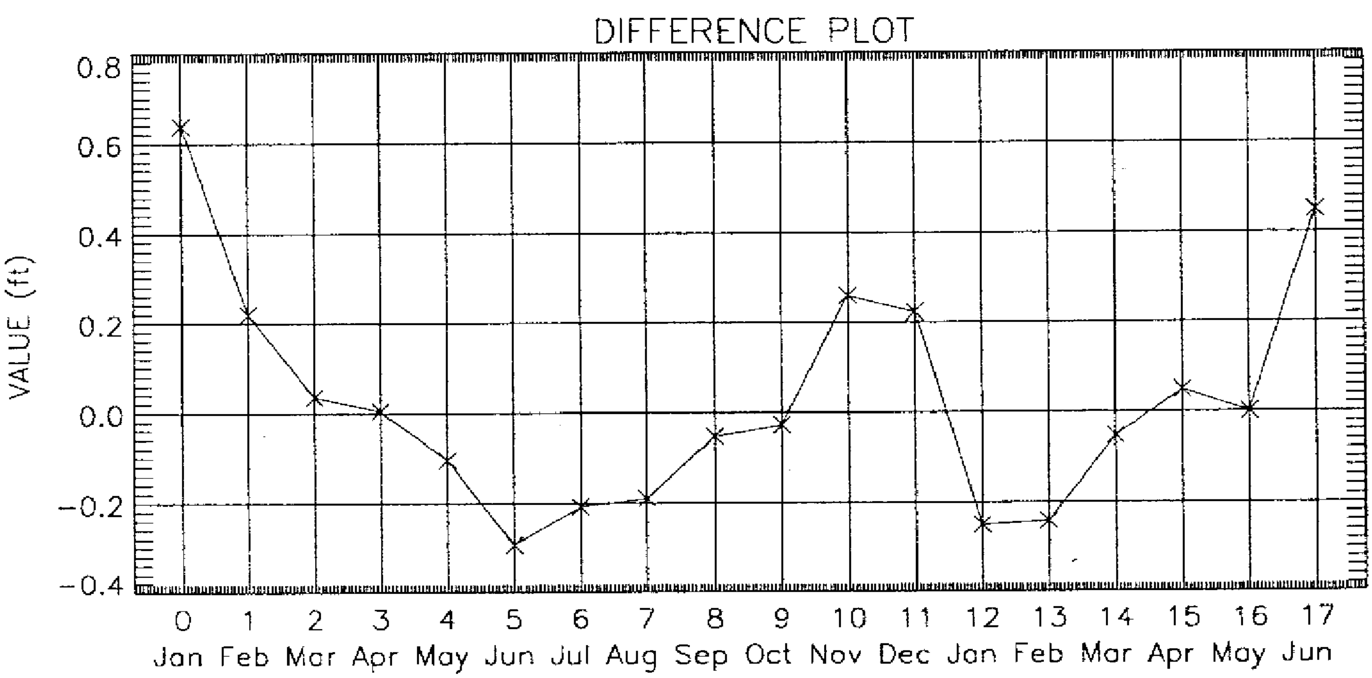

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1046
VALUE (ft)
0 5 10 15 20 25
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 6 Column 10 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
–2 0 2 4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

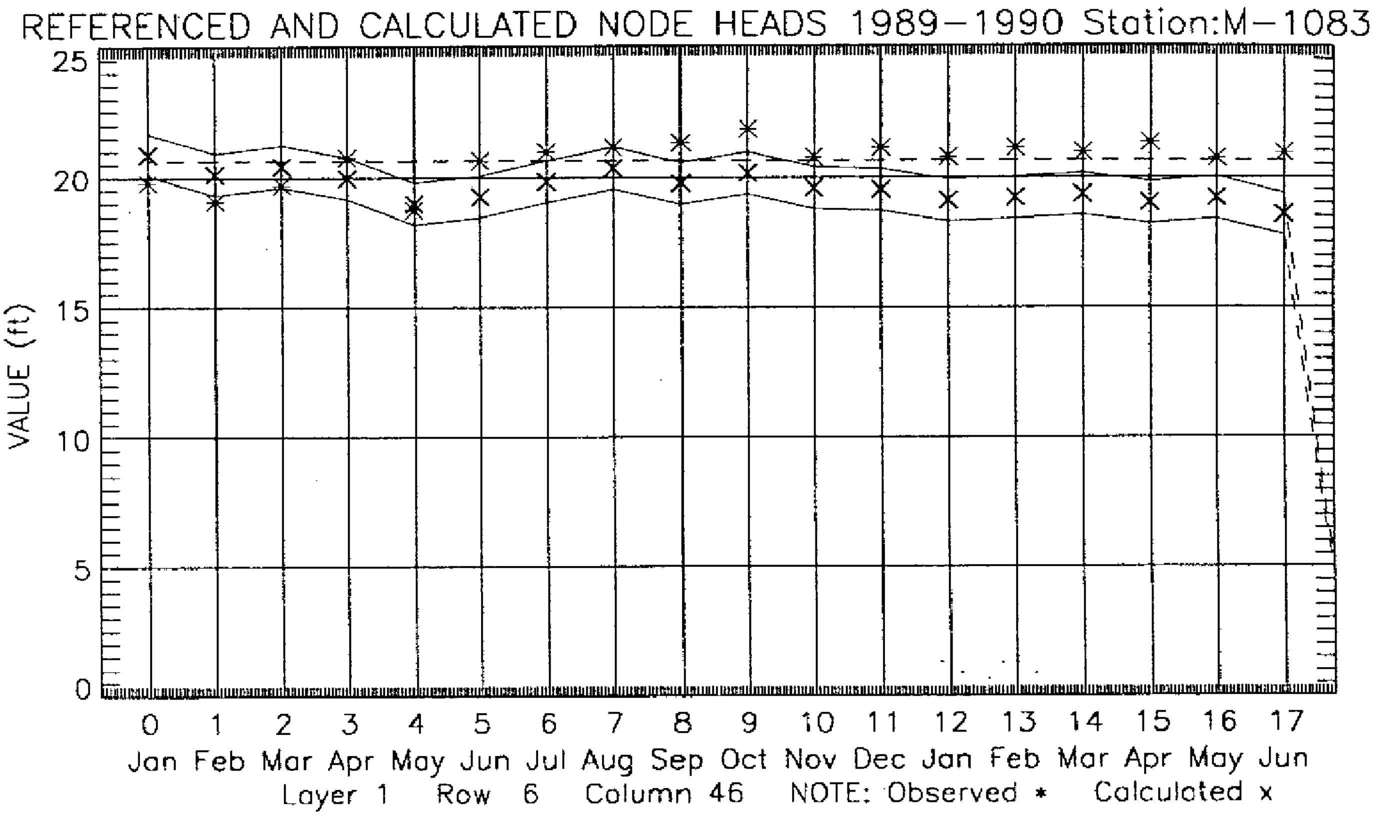

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1096
VALUE (ft)
0 5 10 15 20 25
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 6 Column 46 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
2 0 −2 −4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

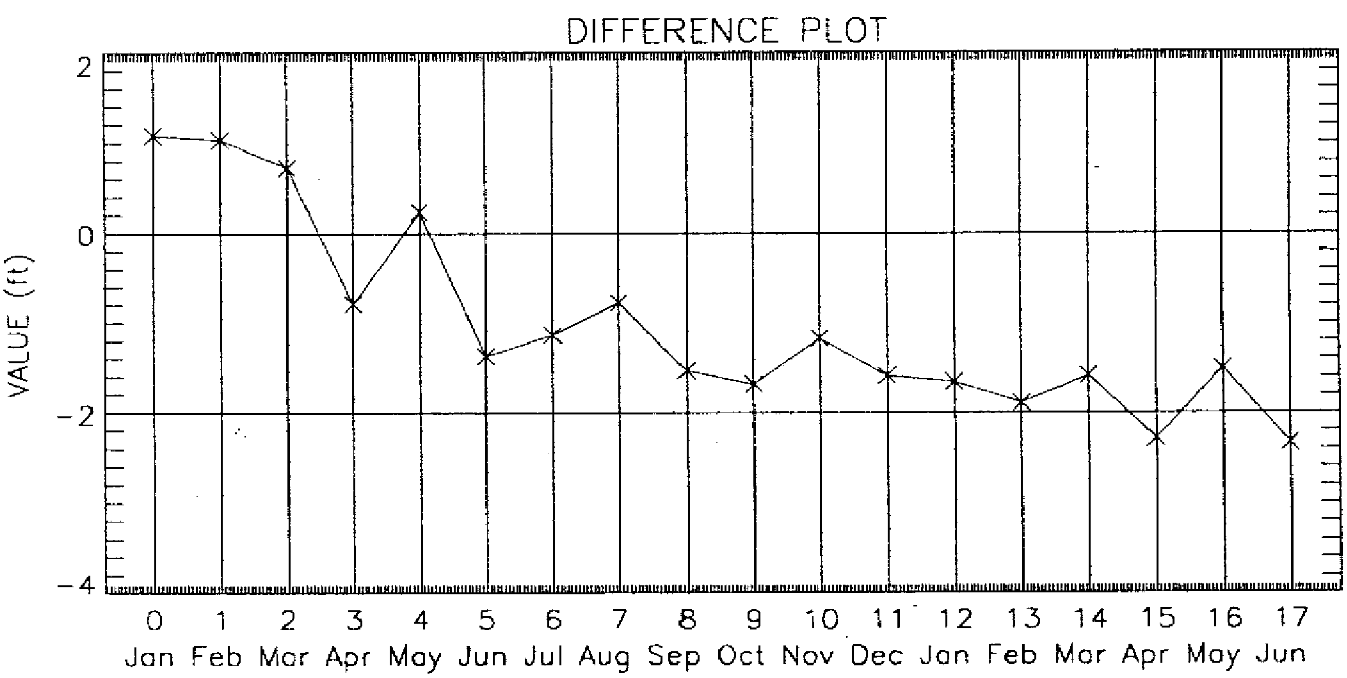


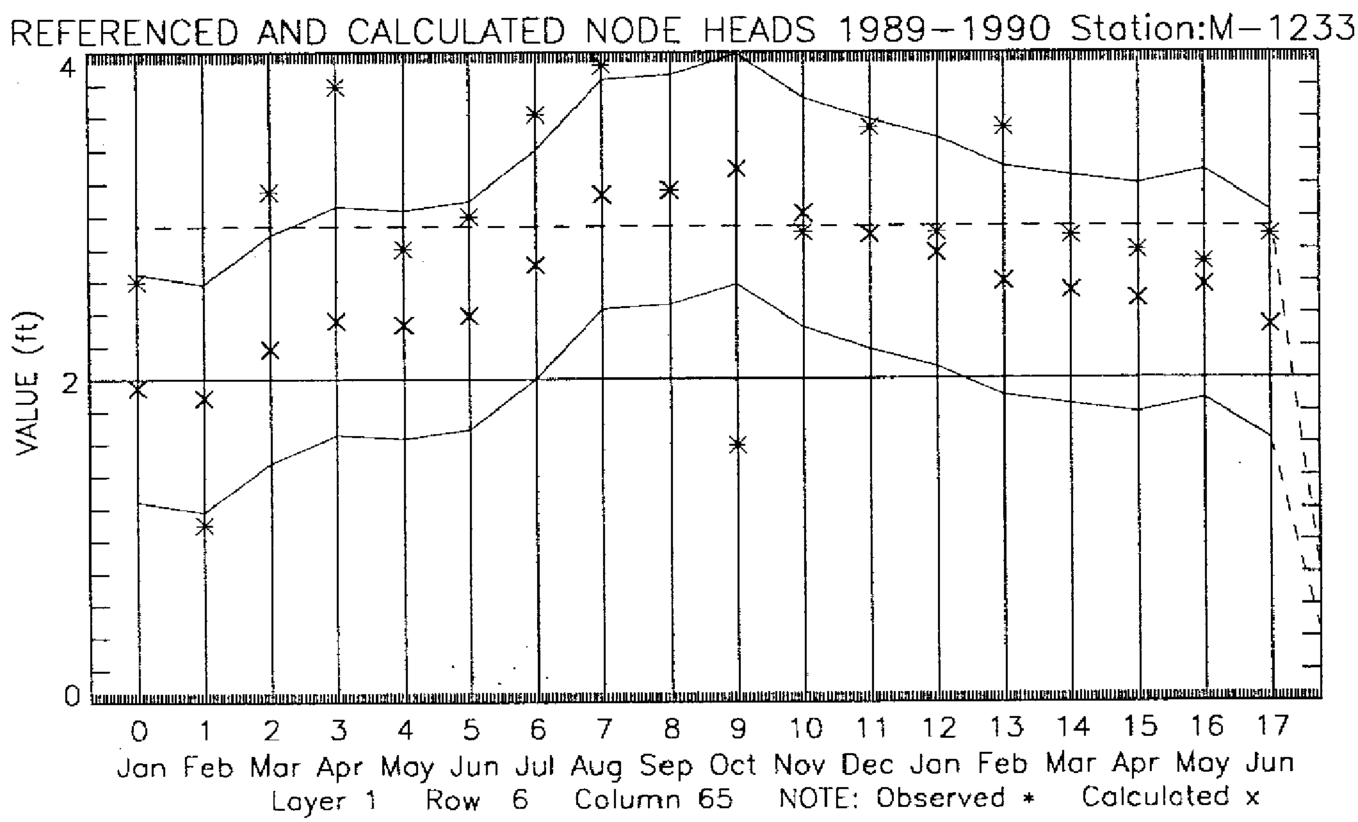
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:LOX.R4
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 8 Column 60 NOTE: Observed * Calculated x

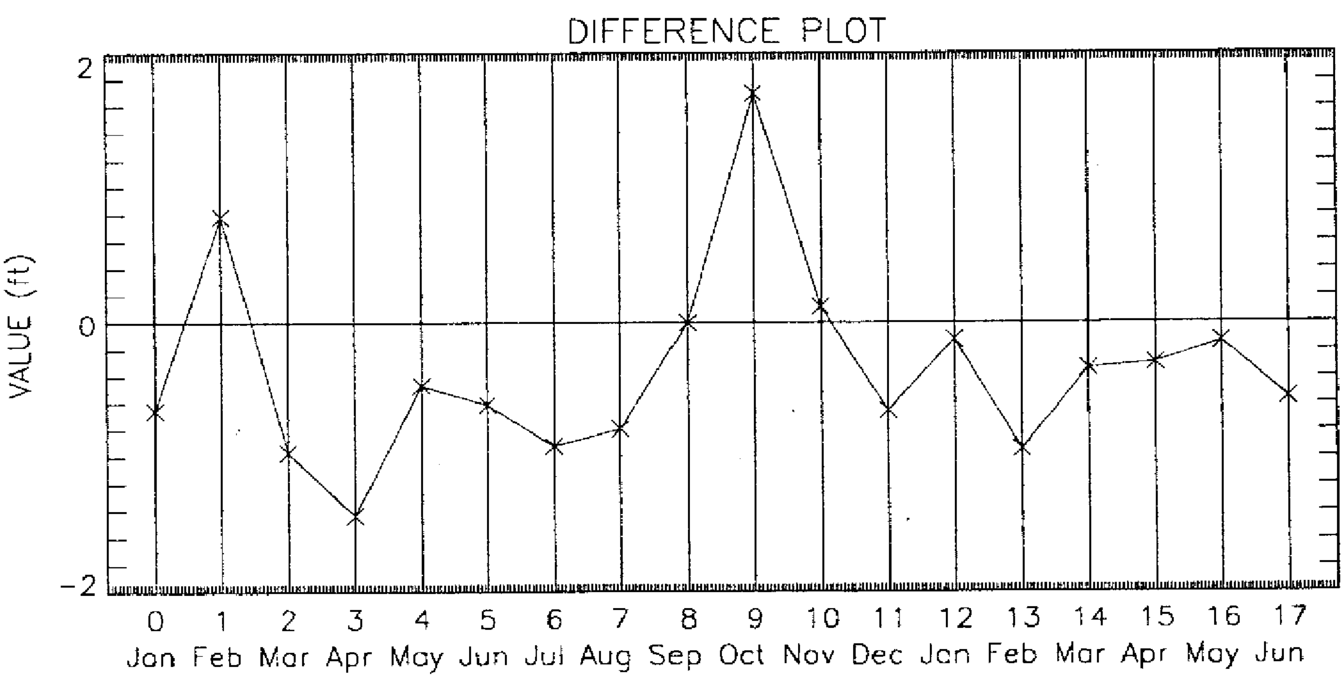


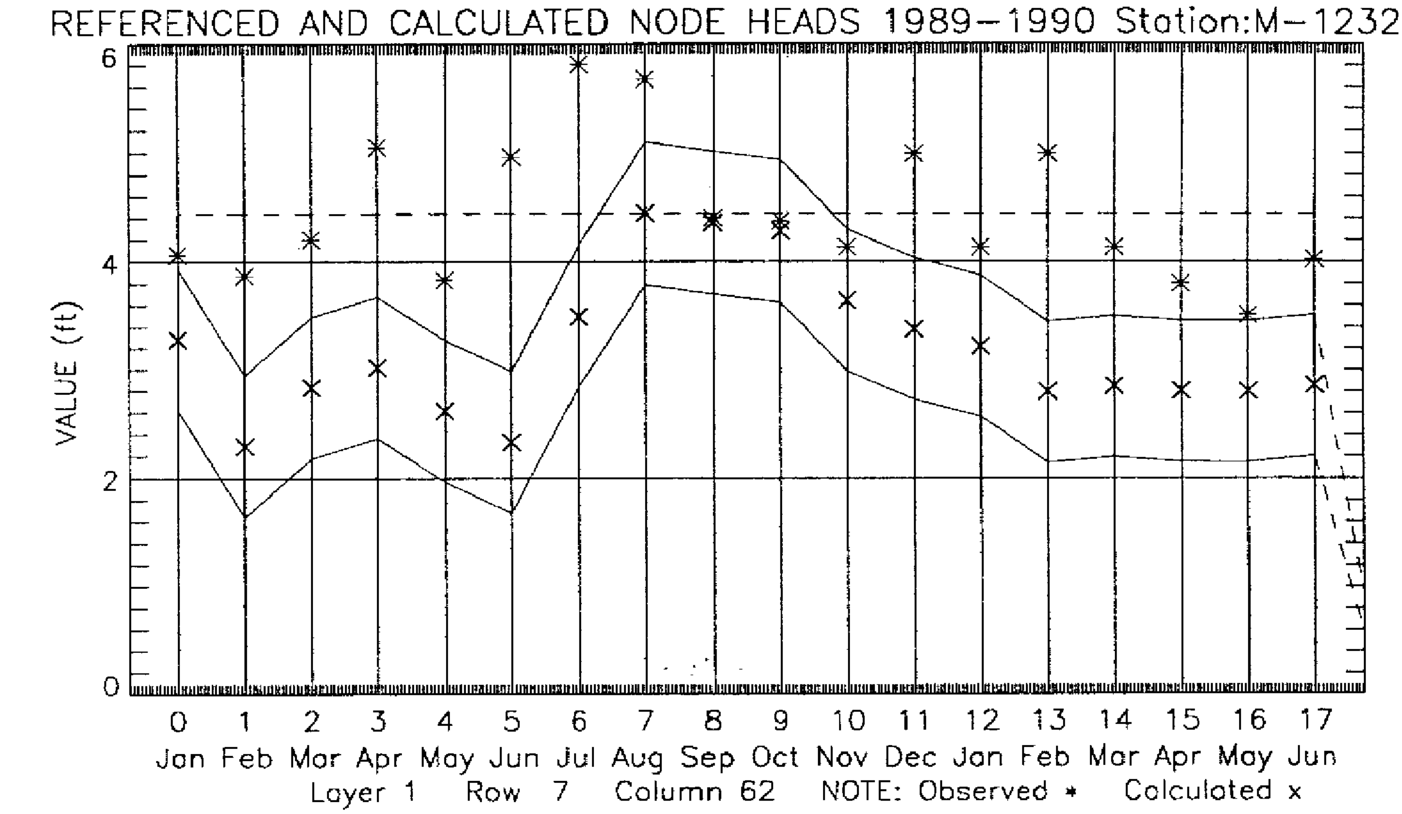
DIFFERENCE PLOT
VALUE (ft)
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

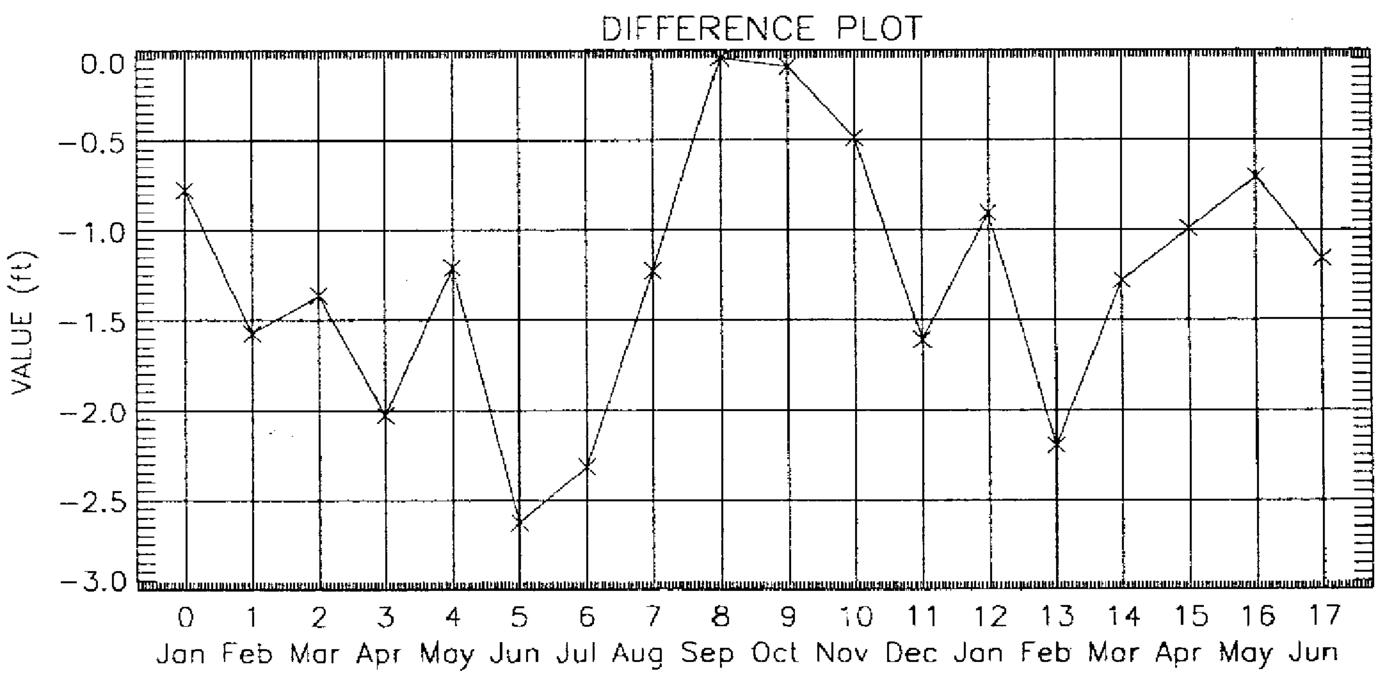

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1083
25
20
15
10
5
0
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 6 Column 46 NOTE: Observed * Calculated x

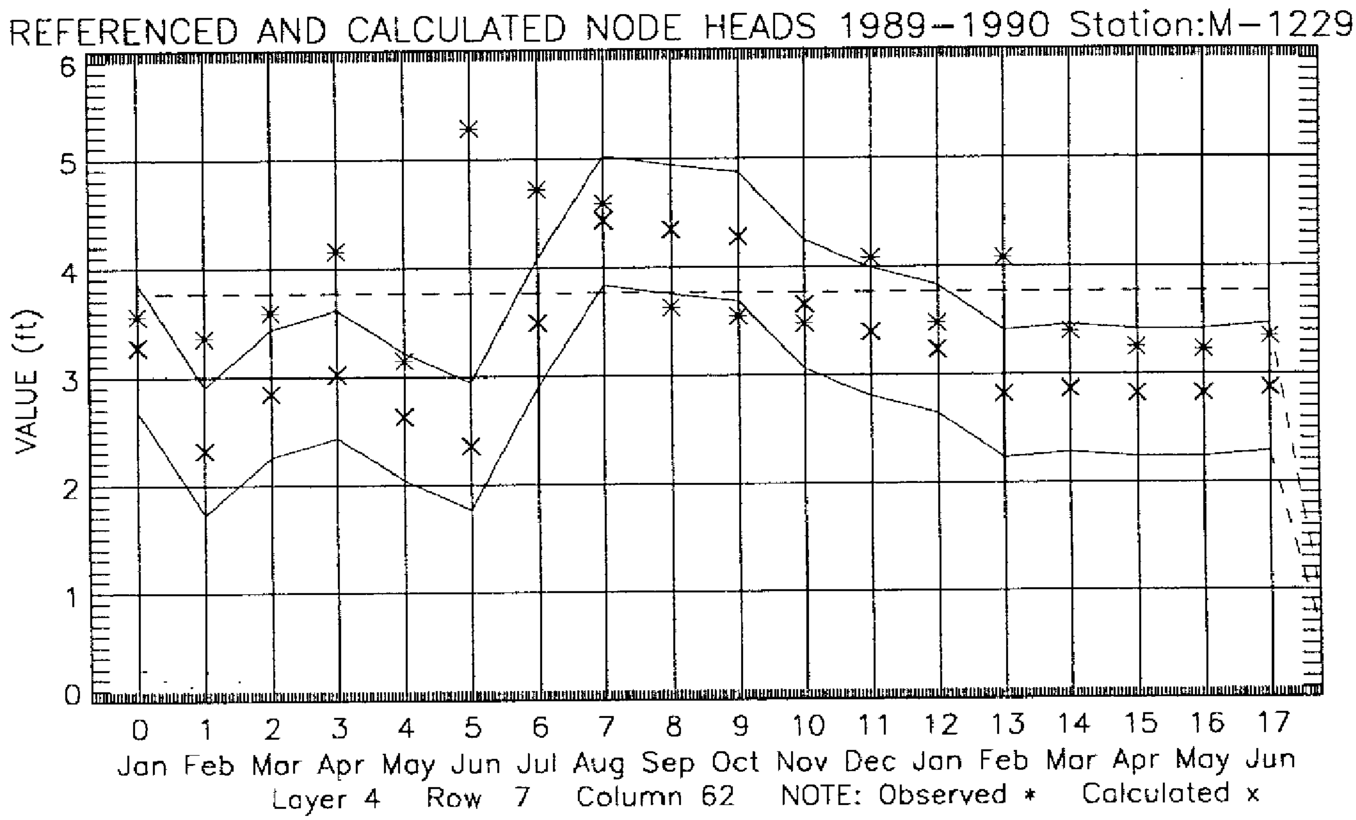

DIFFERENCE PLOT
2
0
-2
-4
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

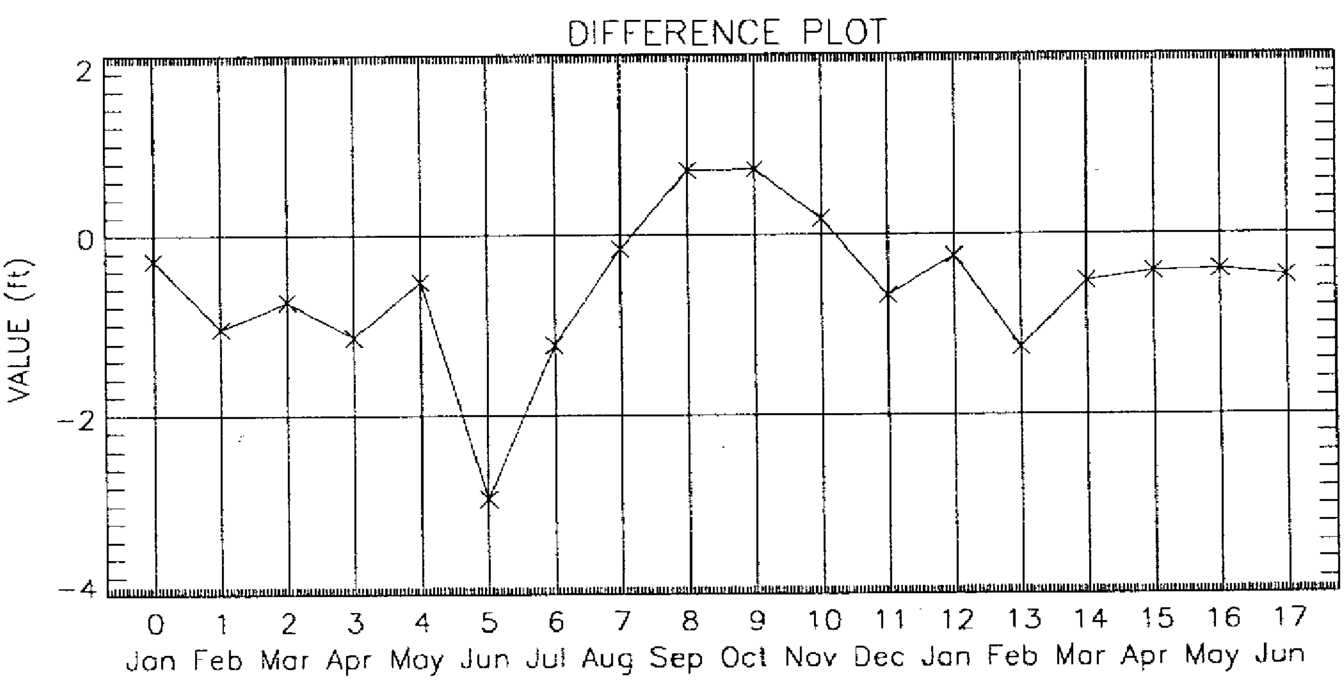

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1233
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 6 Column 65 NOTE: Observed * Calculated x

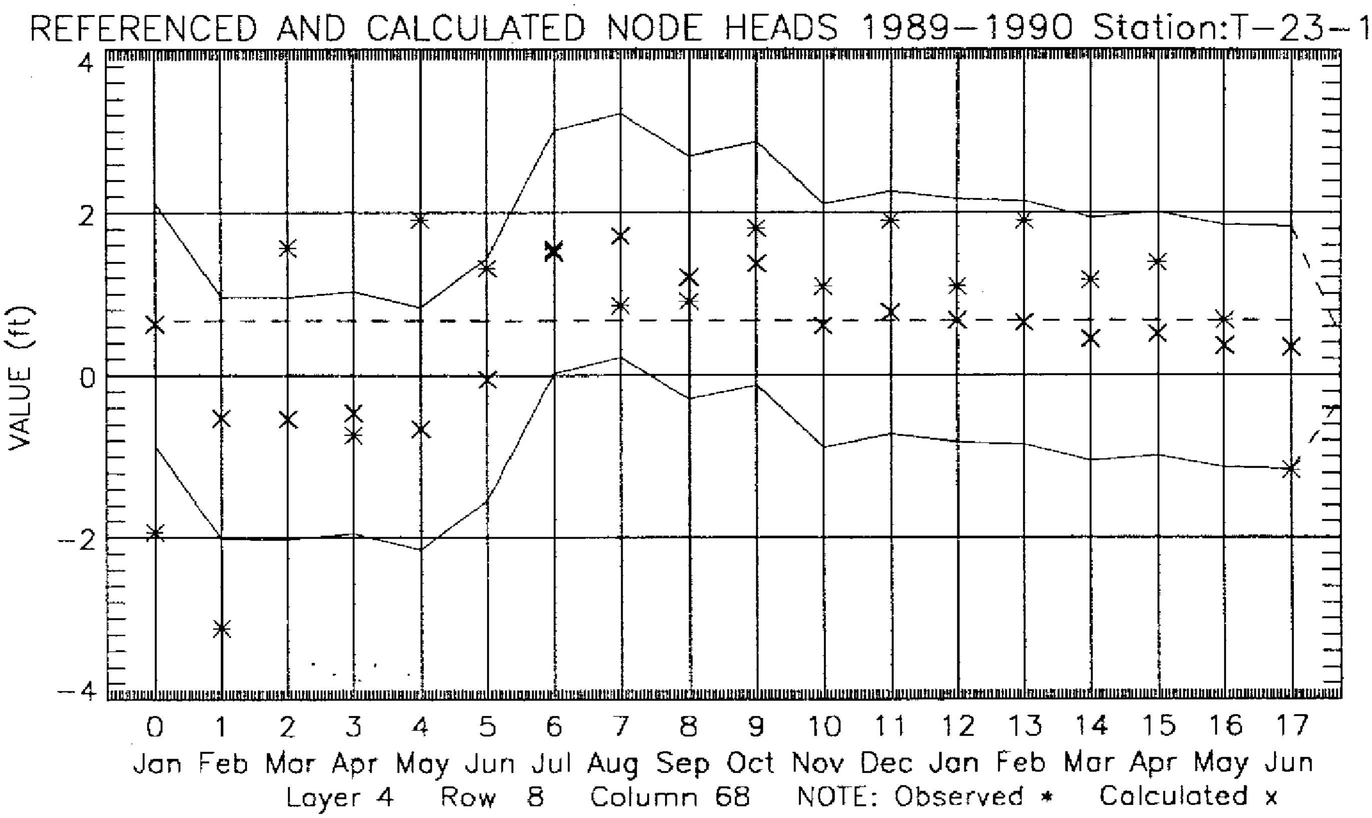

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

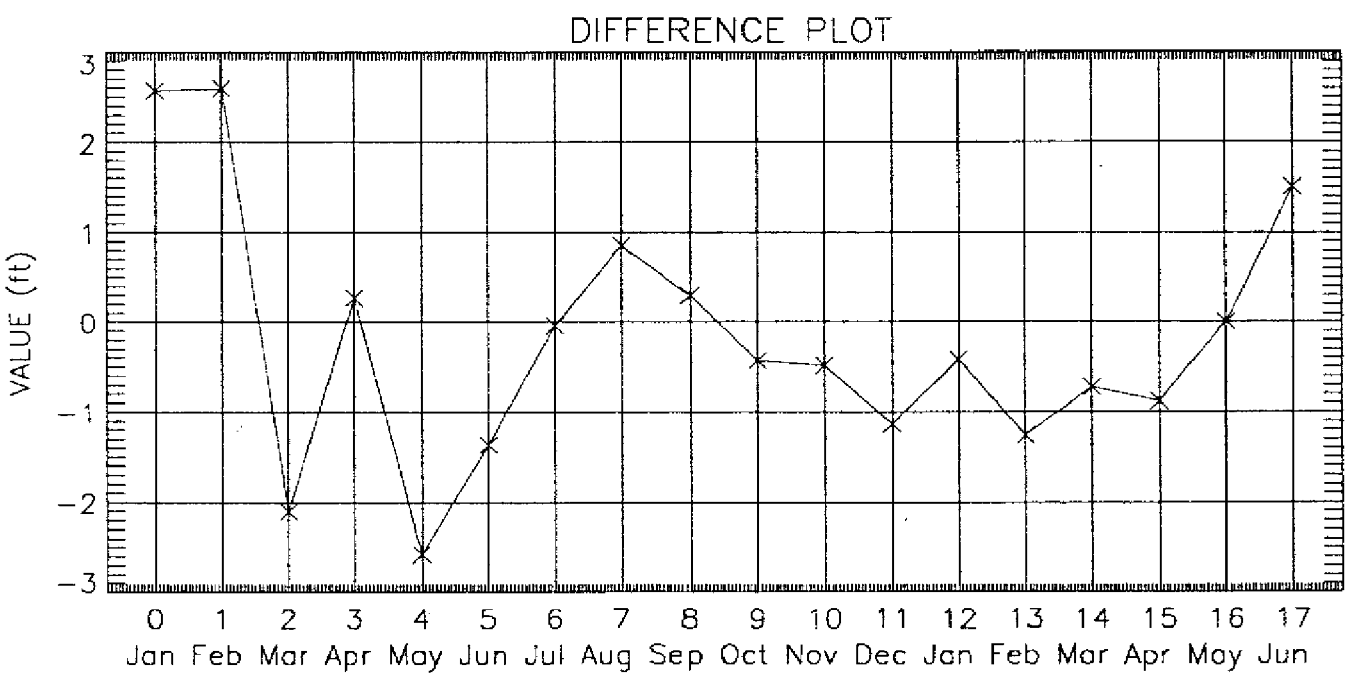

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1232
VALUE (ft)
0
2
4
6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 7 Column 62 NOTE: Observed * Calculated x

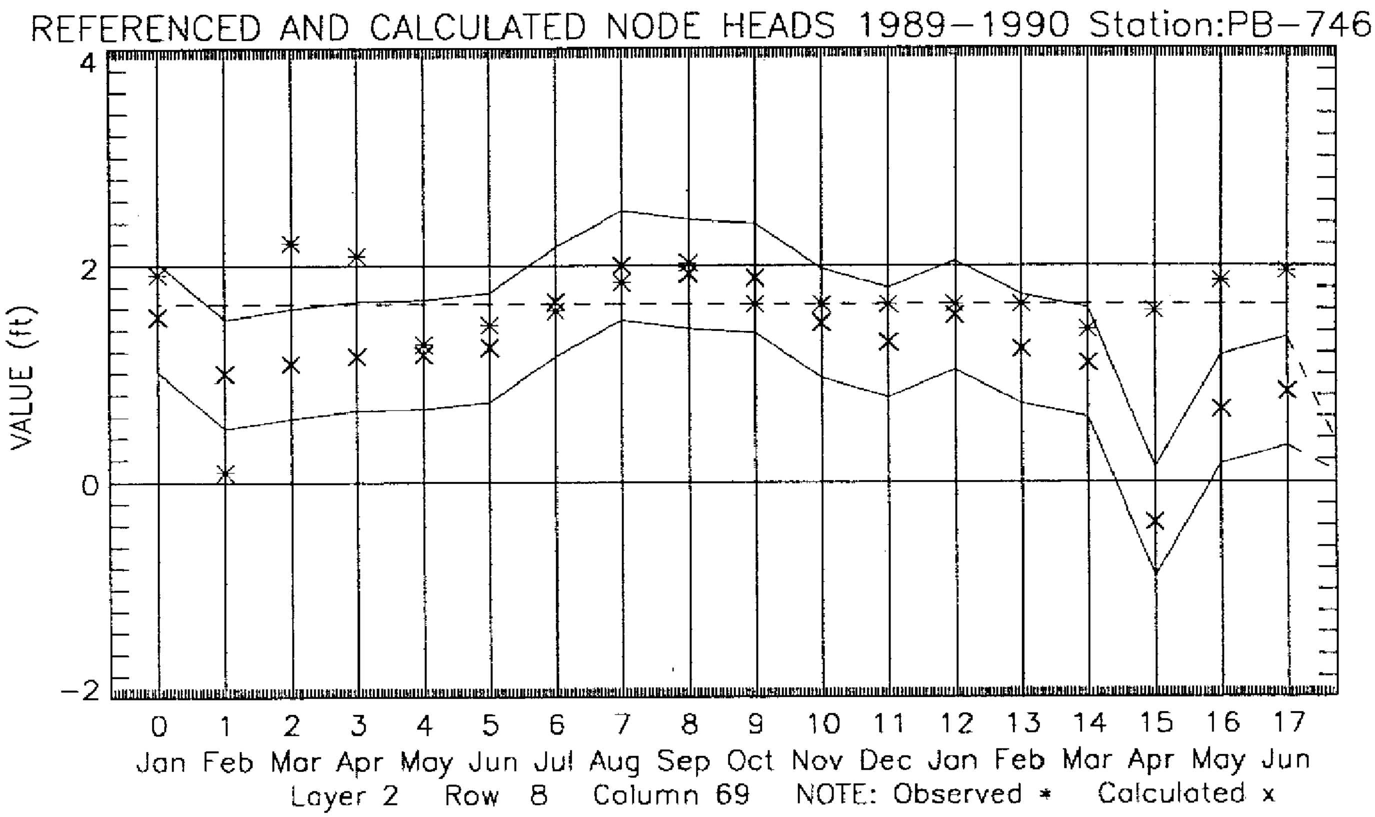

DIFFERENCE PLOT
VALUE (ft)
0.0
–0.5
–1.0
–1.5
–2.0
–2.5
–3.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

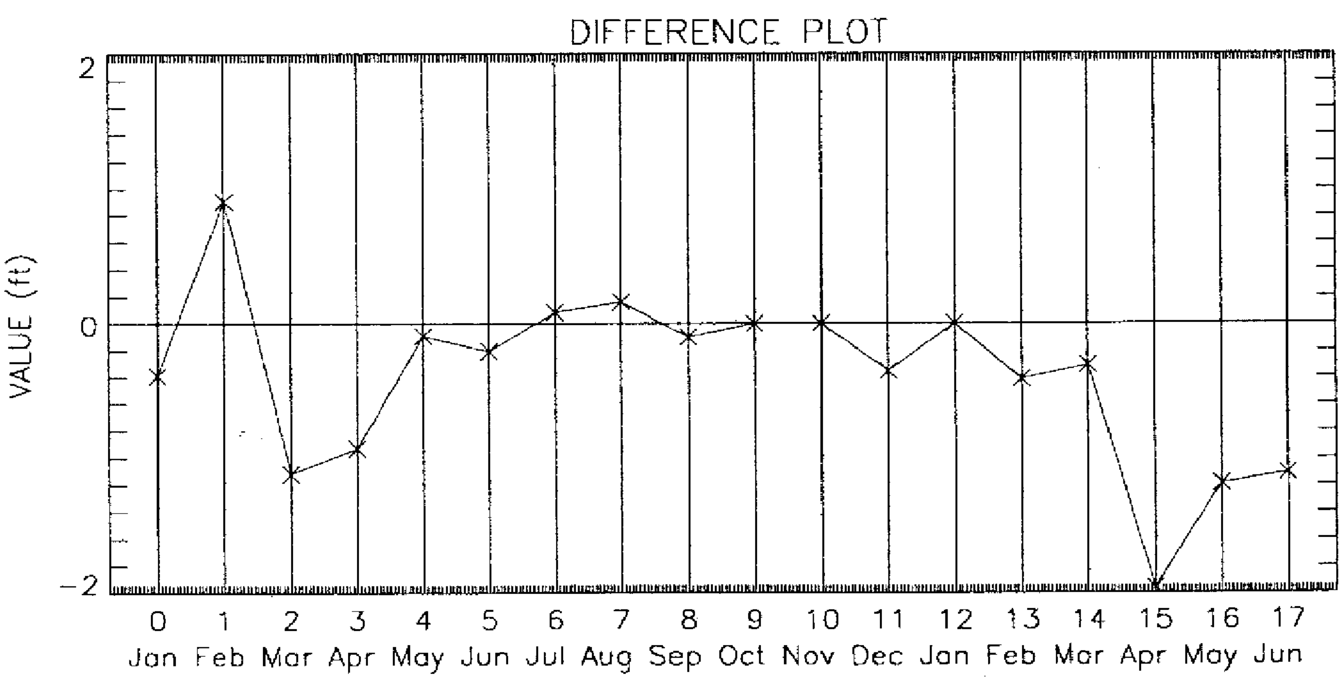

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1229
VALUE (ft)
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 7 Column 62 NOTE: Observed * Calculated x

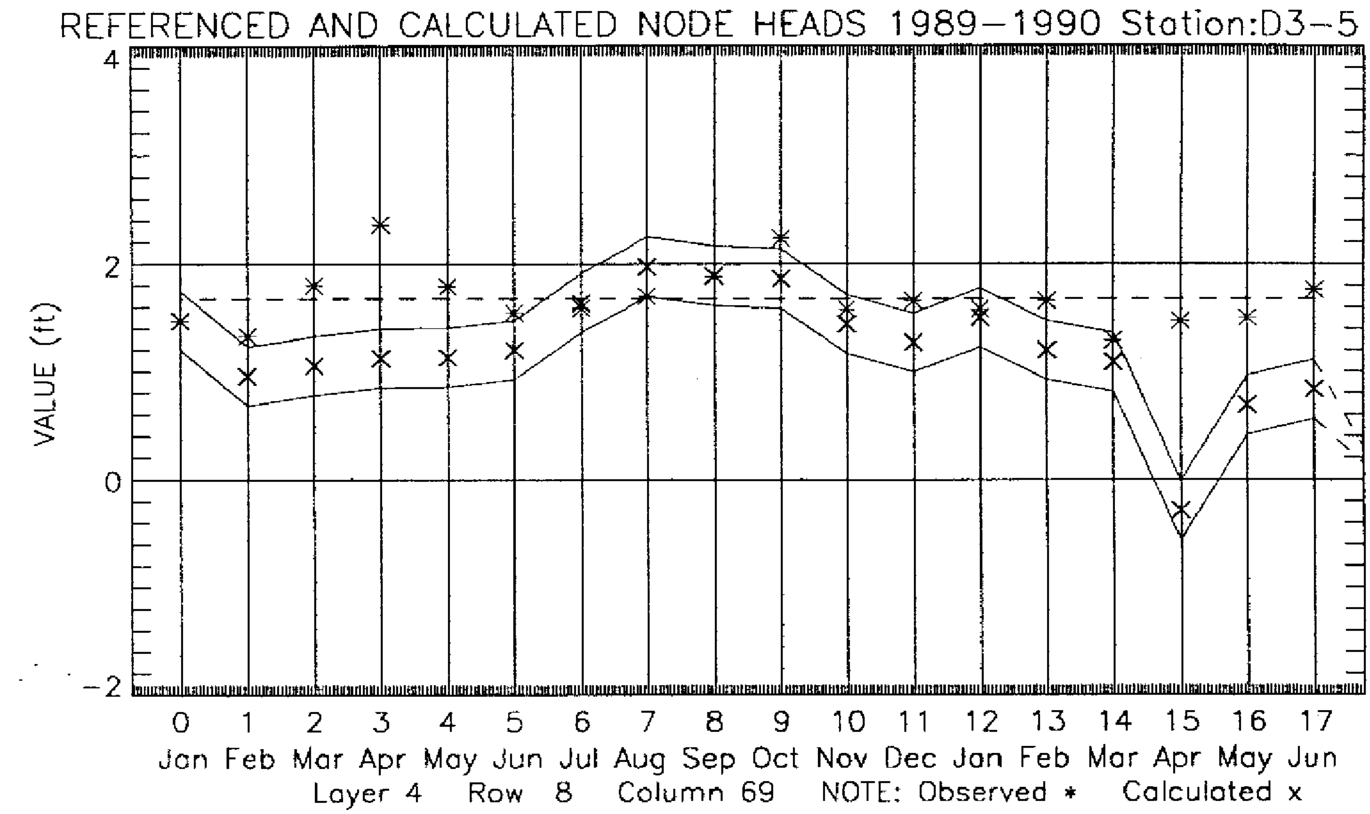

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
-4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

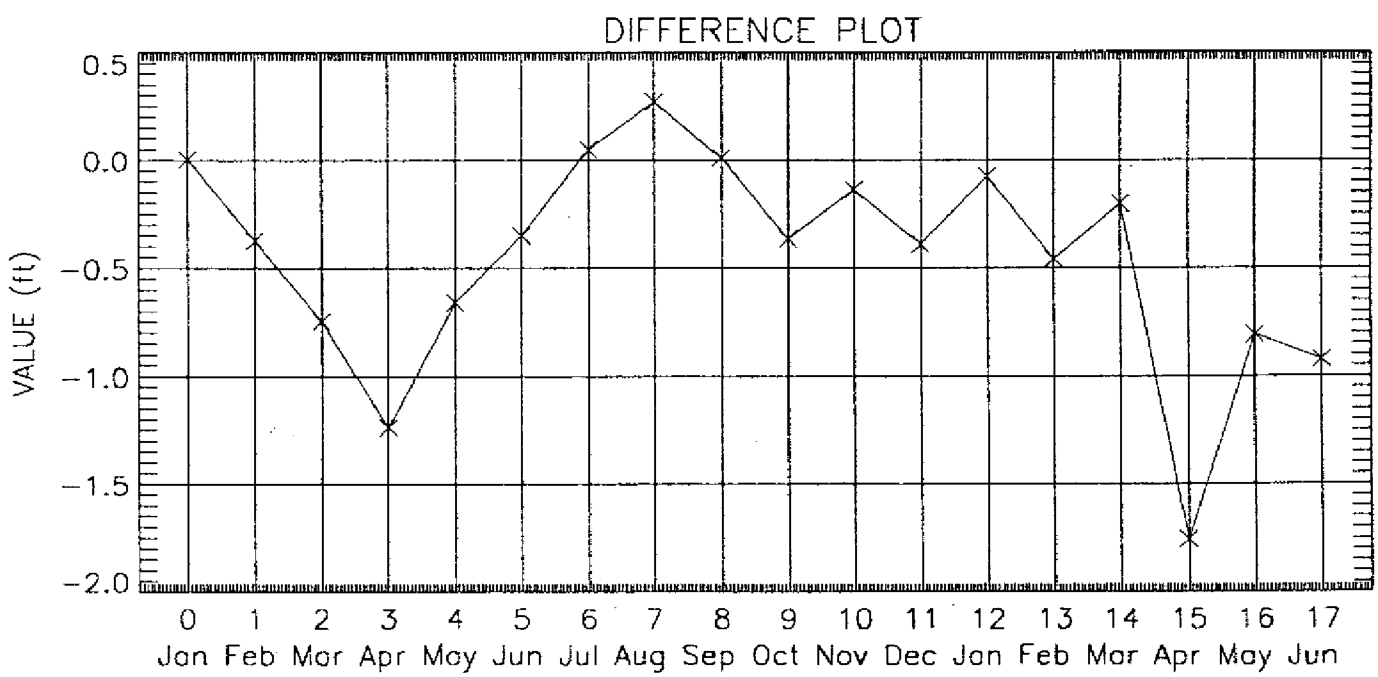

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:T−23−1
VALUE (ft)
4
2
0
−2
−4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 8 Column 68 NOTE: Observed * Calculated x

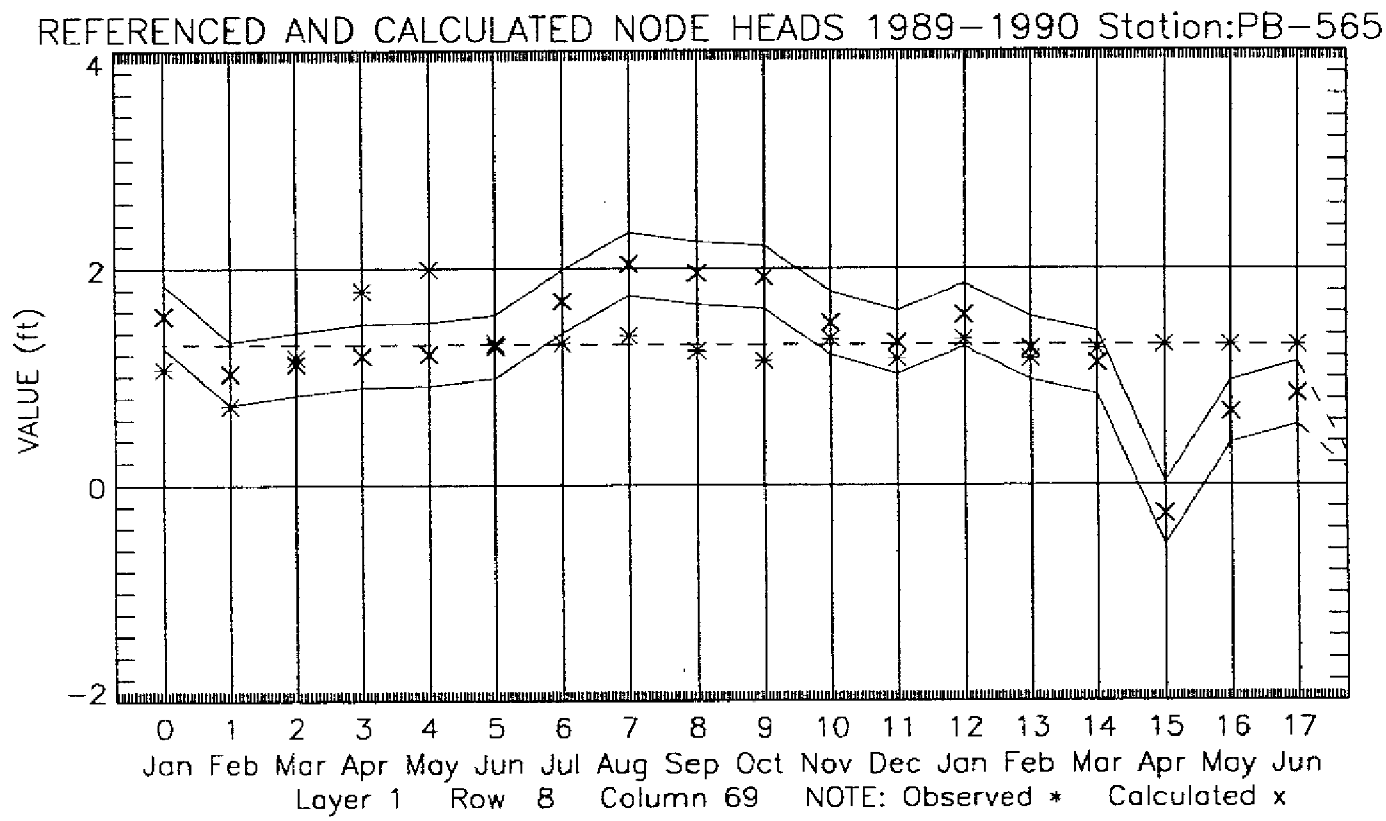

DIFFERENCE PLOT
VALUE (ft)
3
2
1
0
−1
−2
−3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-746
VALUE (ft)
4
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 8 Column 69 NOTE: Observed * Calculated x

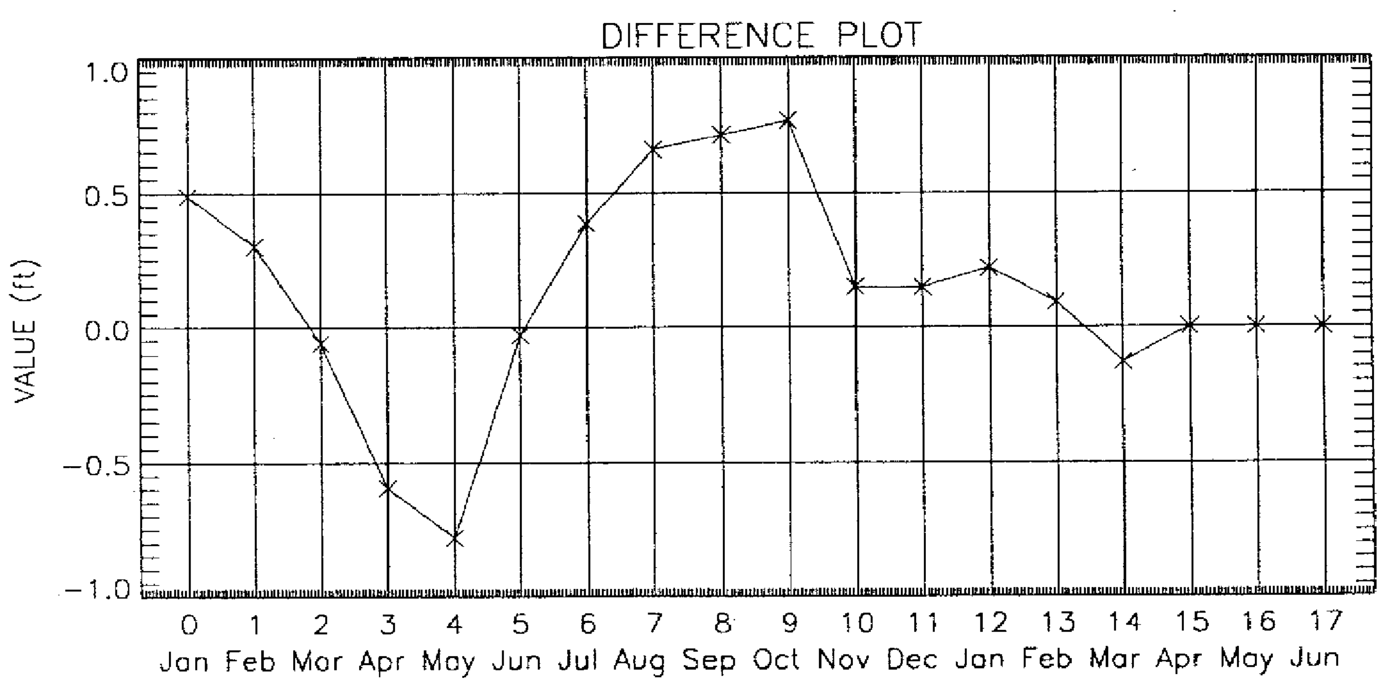

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:D3−5
VALUE (ft)
4
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 8 Column 69 NOTE: Observed * Calculated x

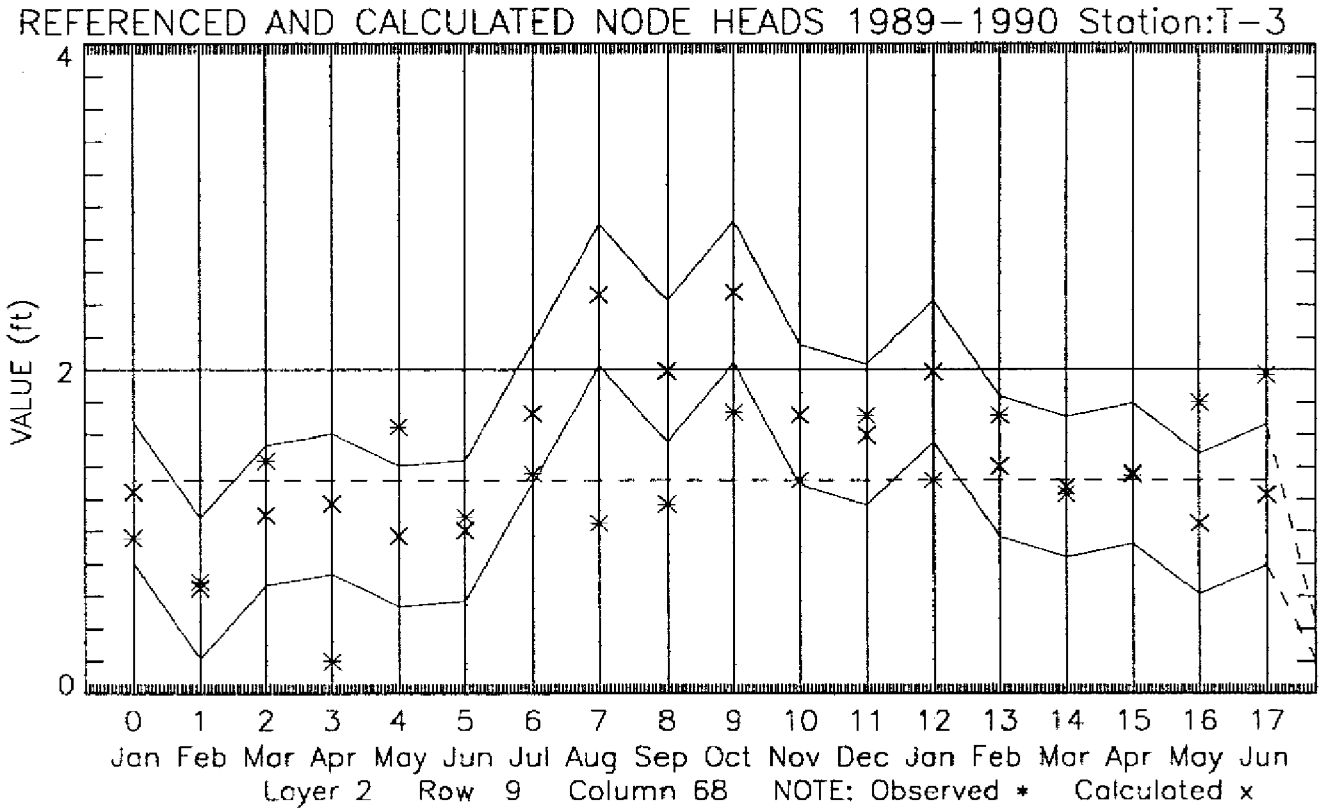

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

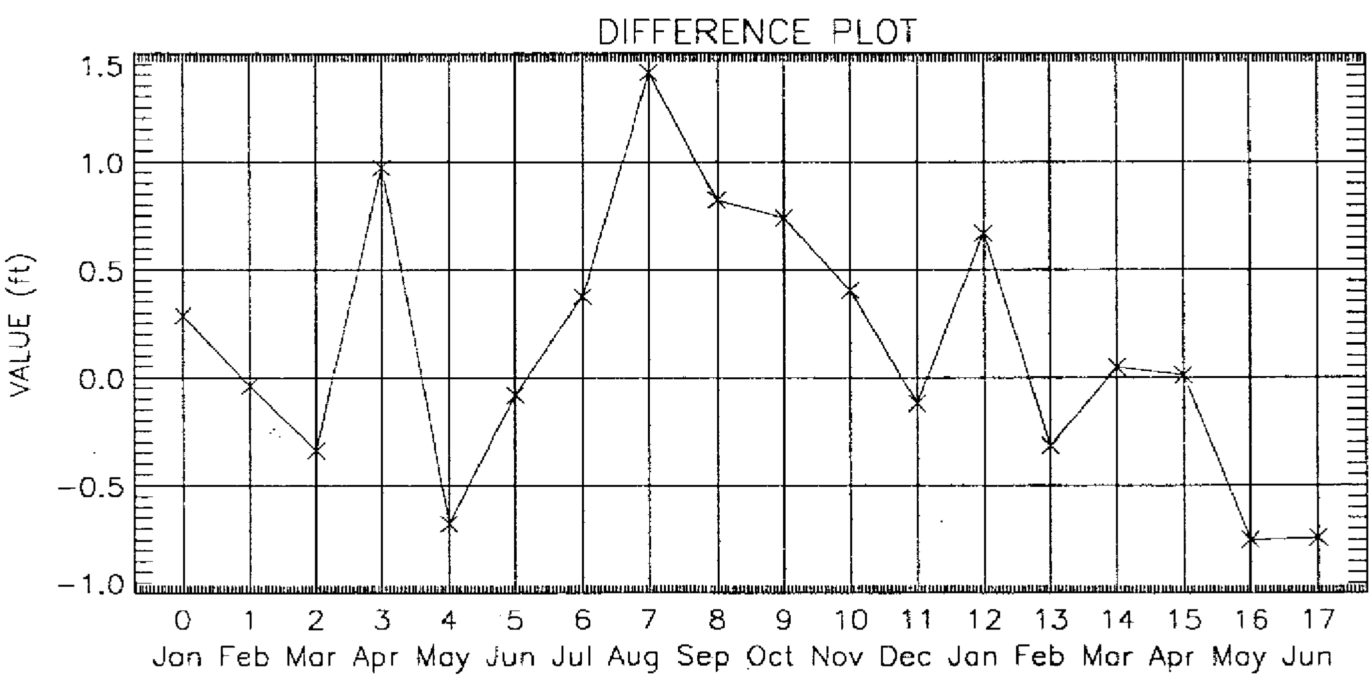


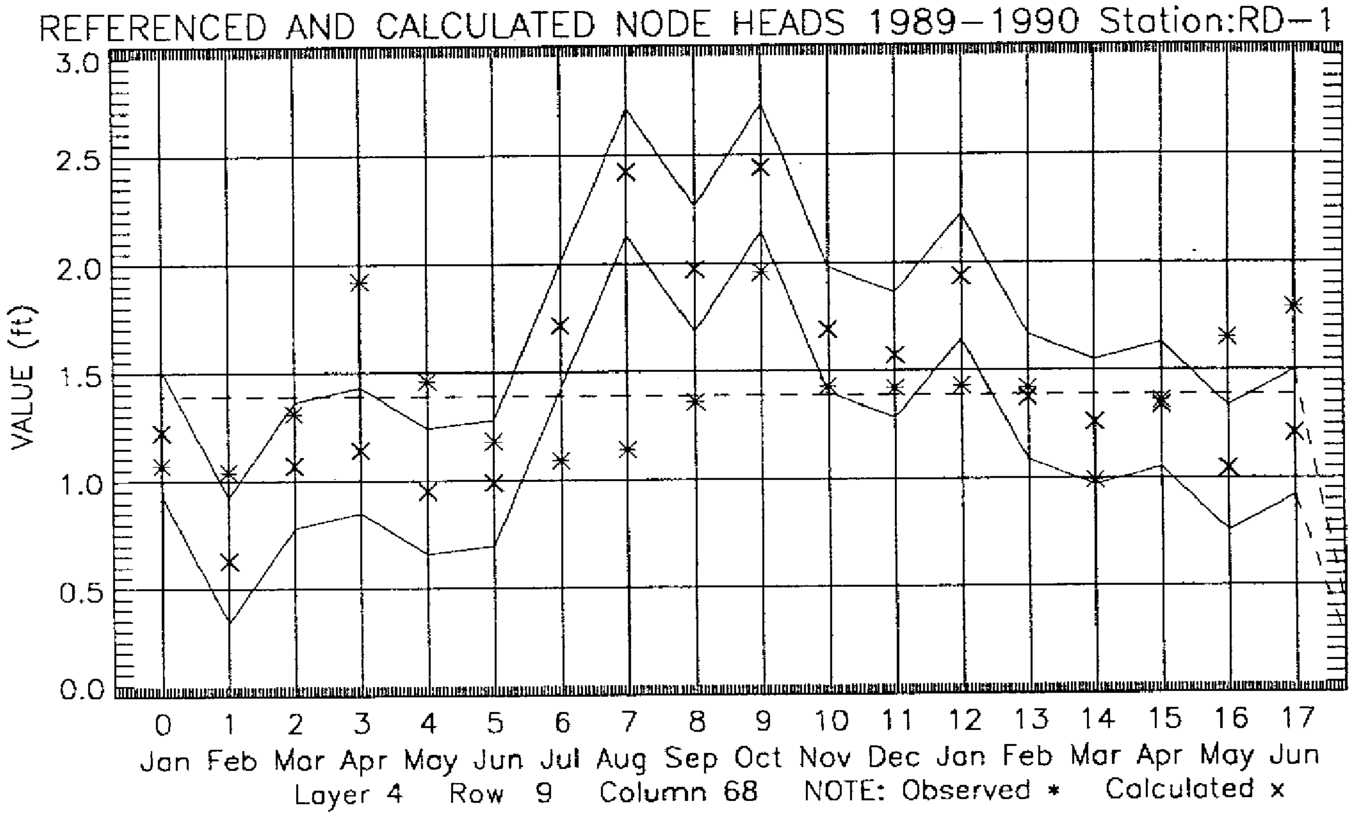
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−565
VALUE (ft)
4
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 8 Column 69 NOTE: Observed * Calculated x



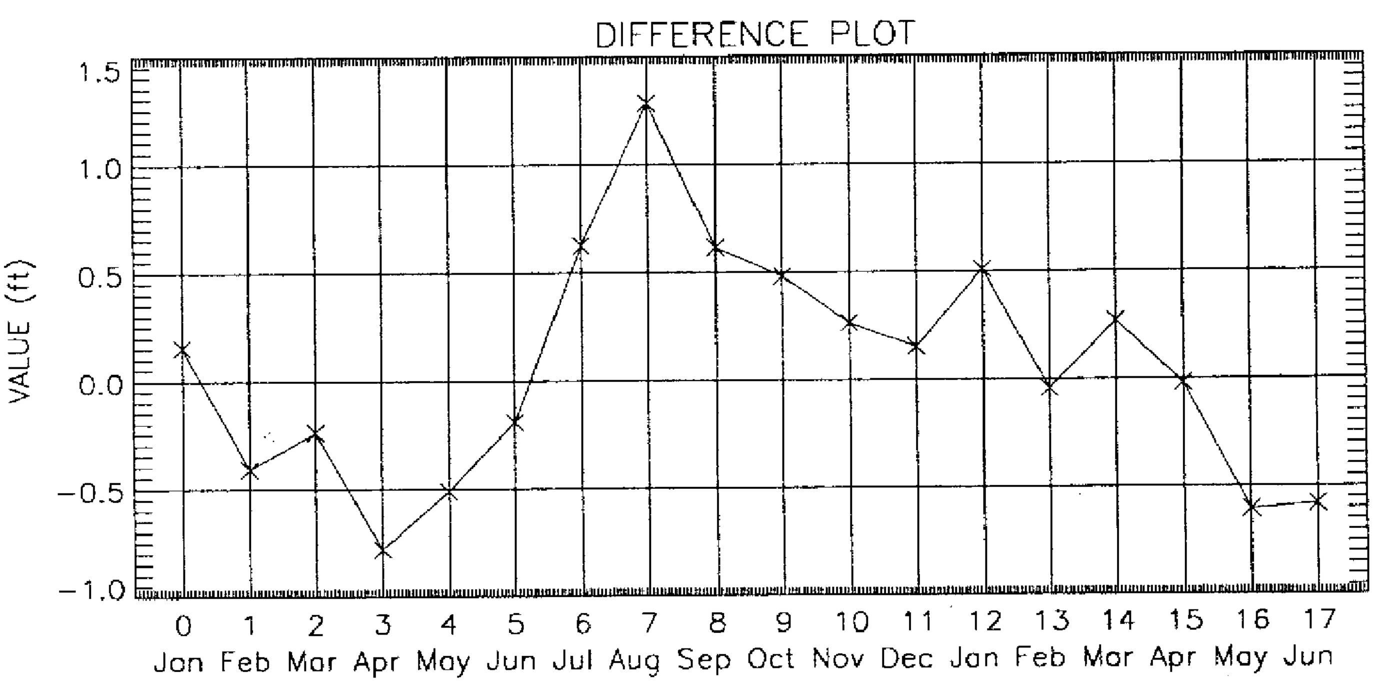
DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:T−3
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 9 Column 68 NOTE: Observed * Calculated x

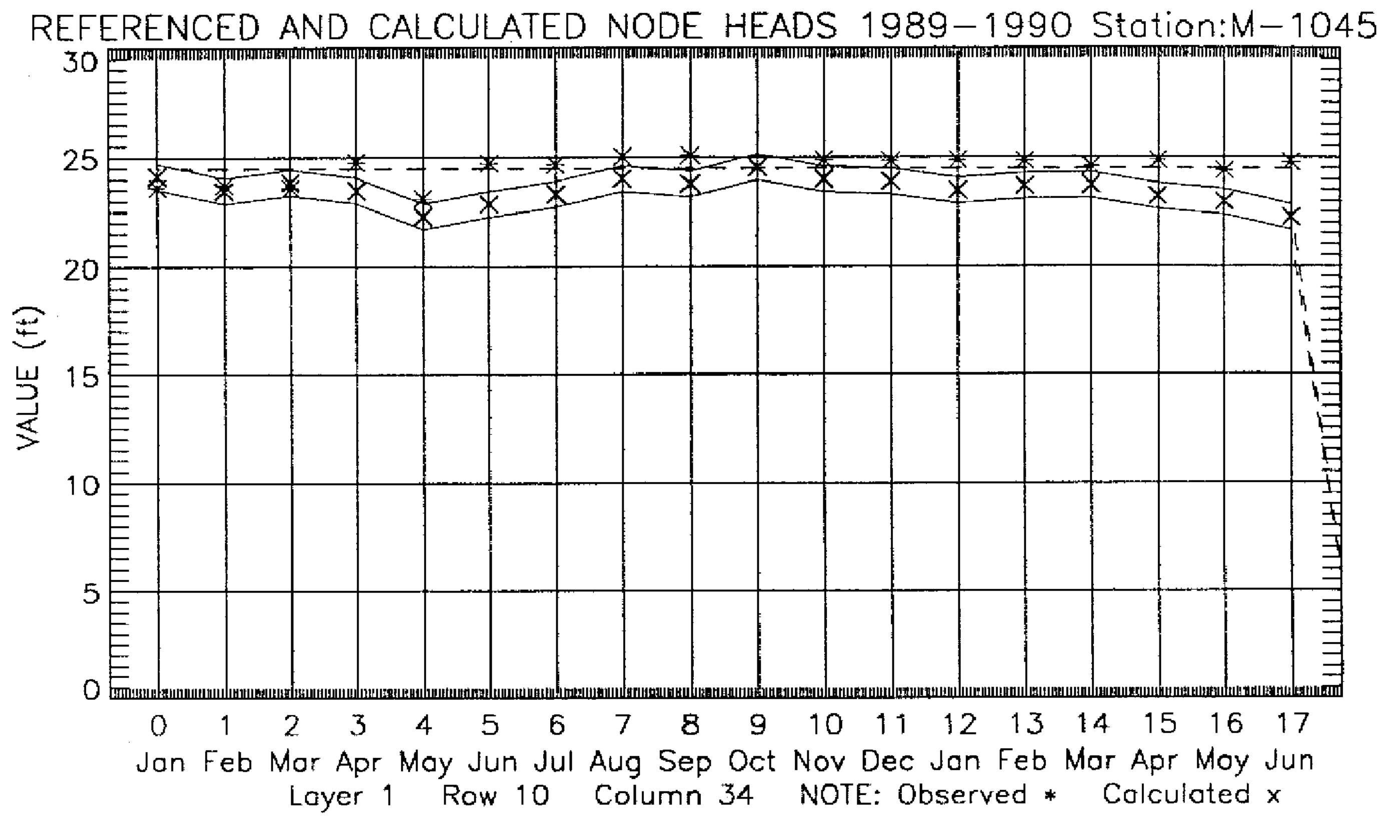

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

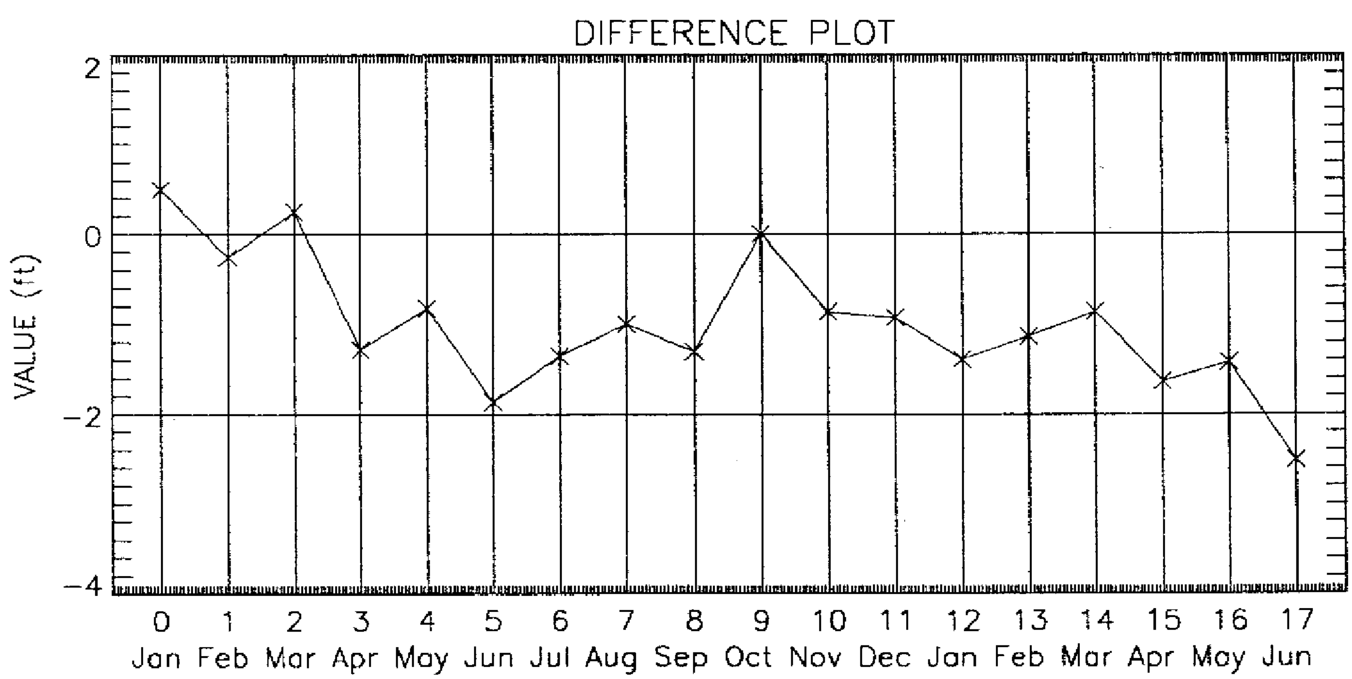


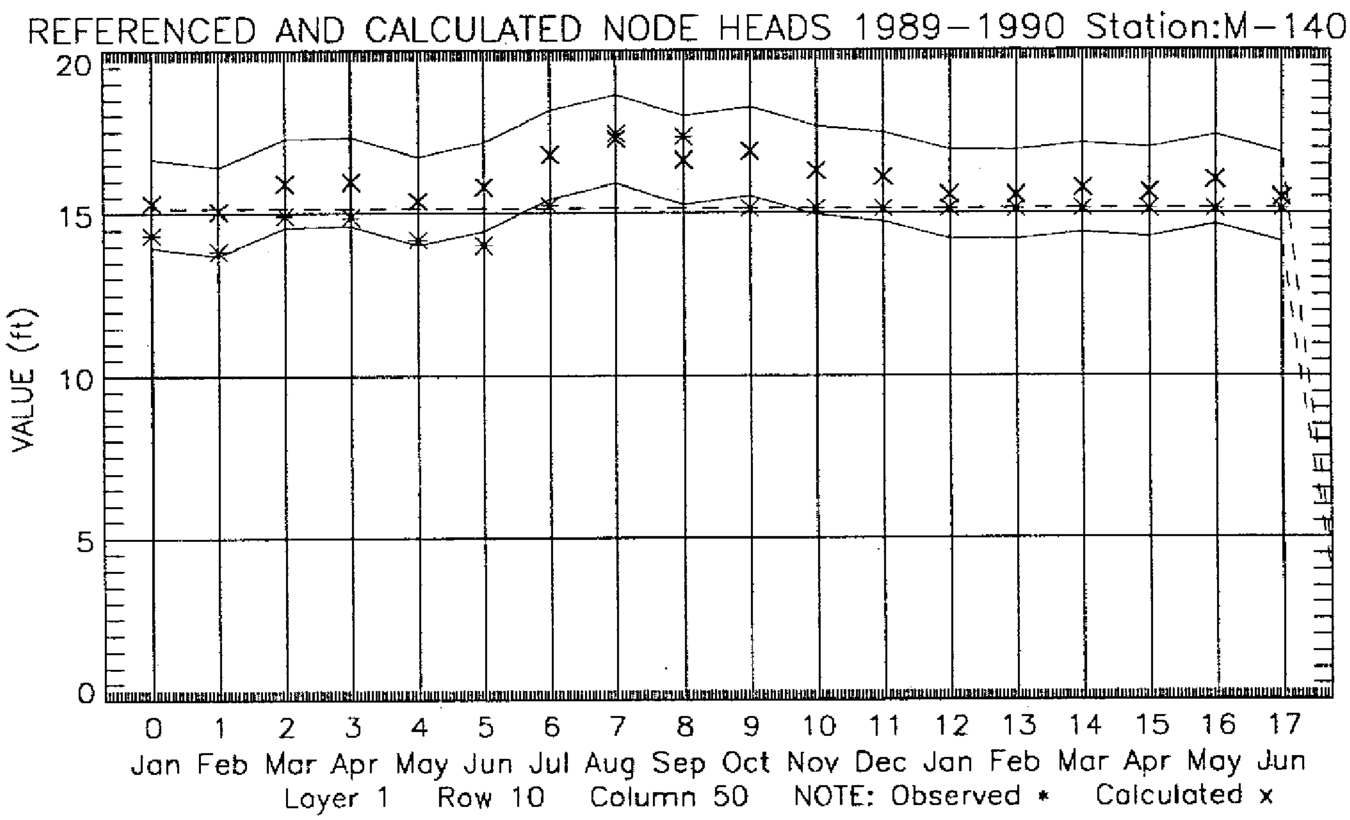
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:RD−1
3.0
2.5
2.0
1.5
1.0
0.5
0.0
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 9 Column 68 NOTE: Observed * Calculated x

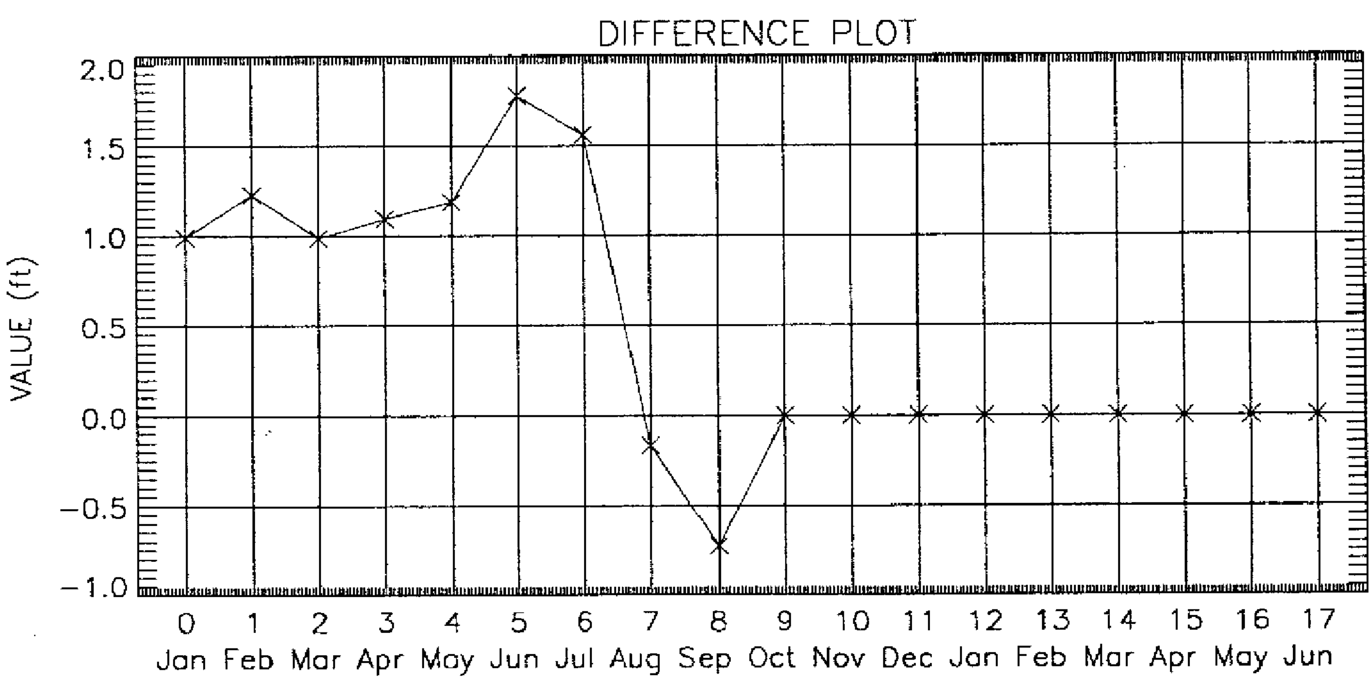


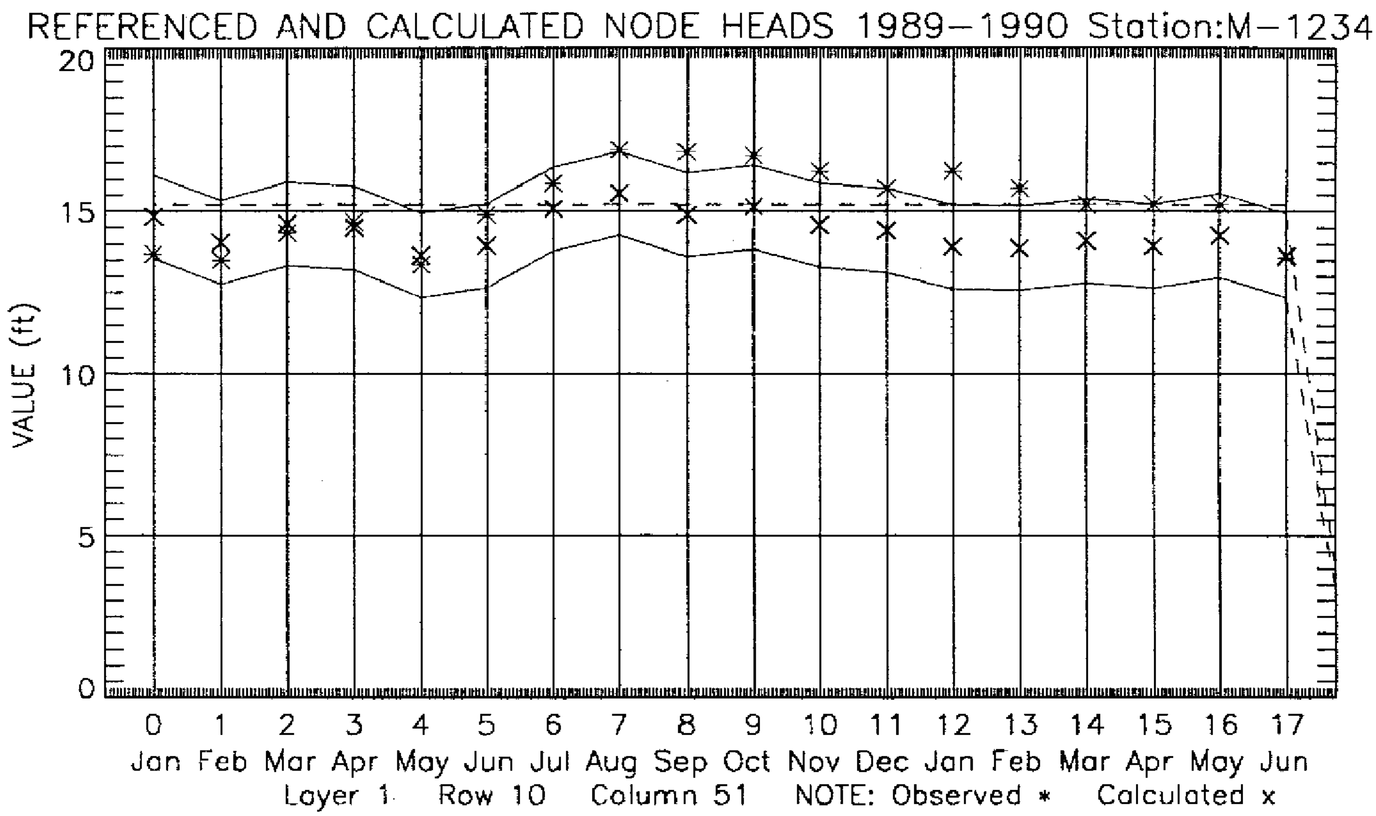
DIFFERENCE PLOT
1.5
1.0
0.5
0.0
−0.5
−1.0
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

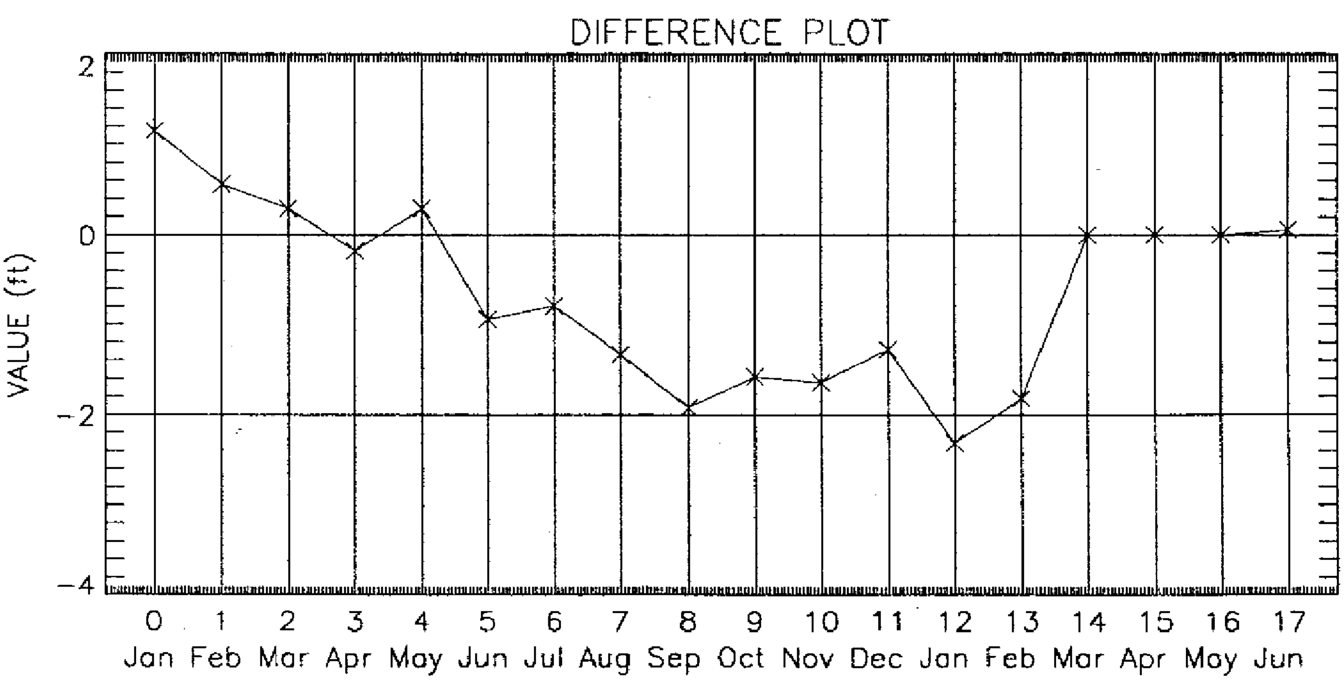

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1045
VALUE (ft)
30
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 34 NOTE: Observed * Calculated x

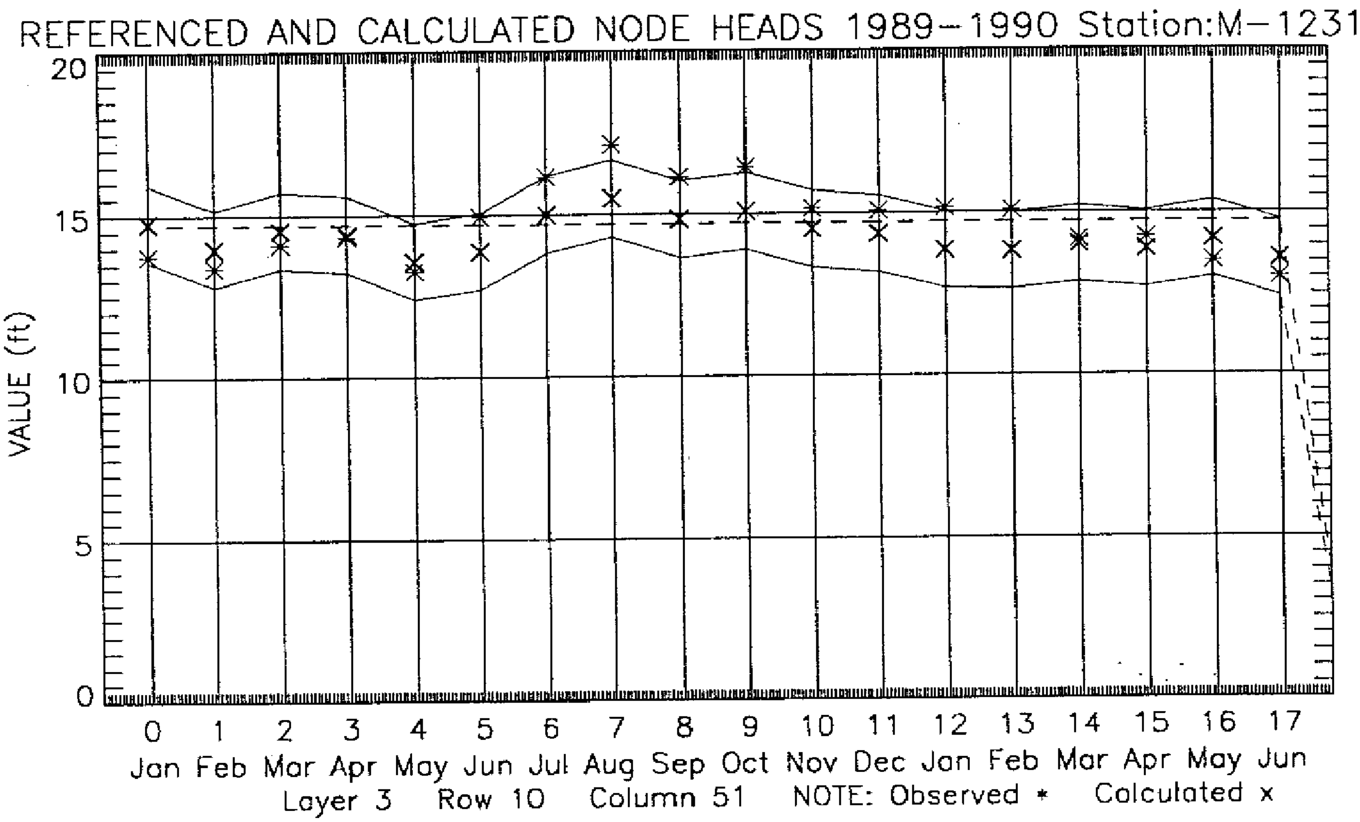

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
−4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−140
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 50 NOTE: Observed * Calculated x

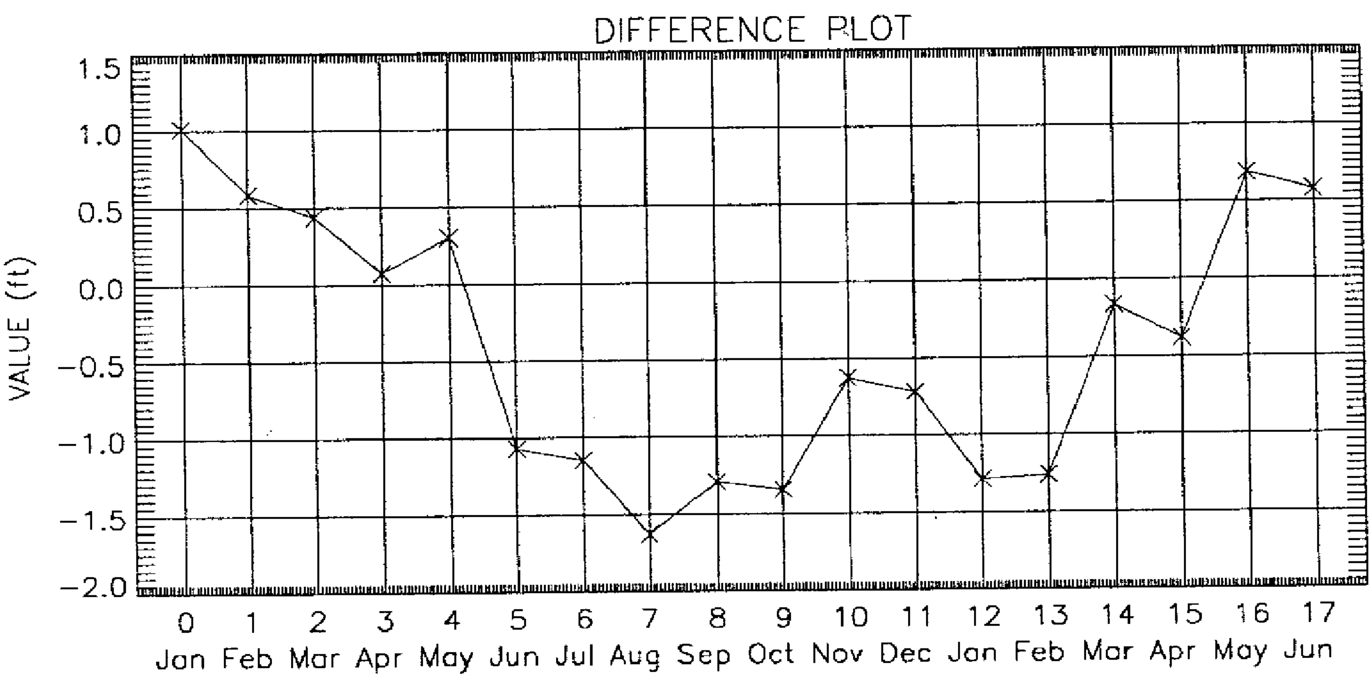

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1234
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 51 NOTE: Observed * Calculated x

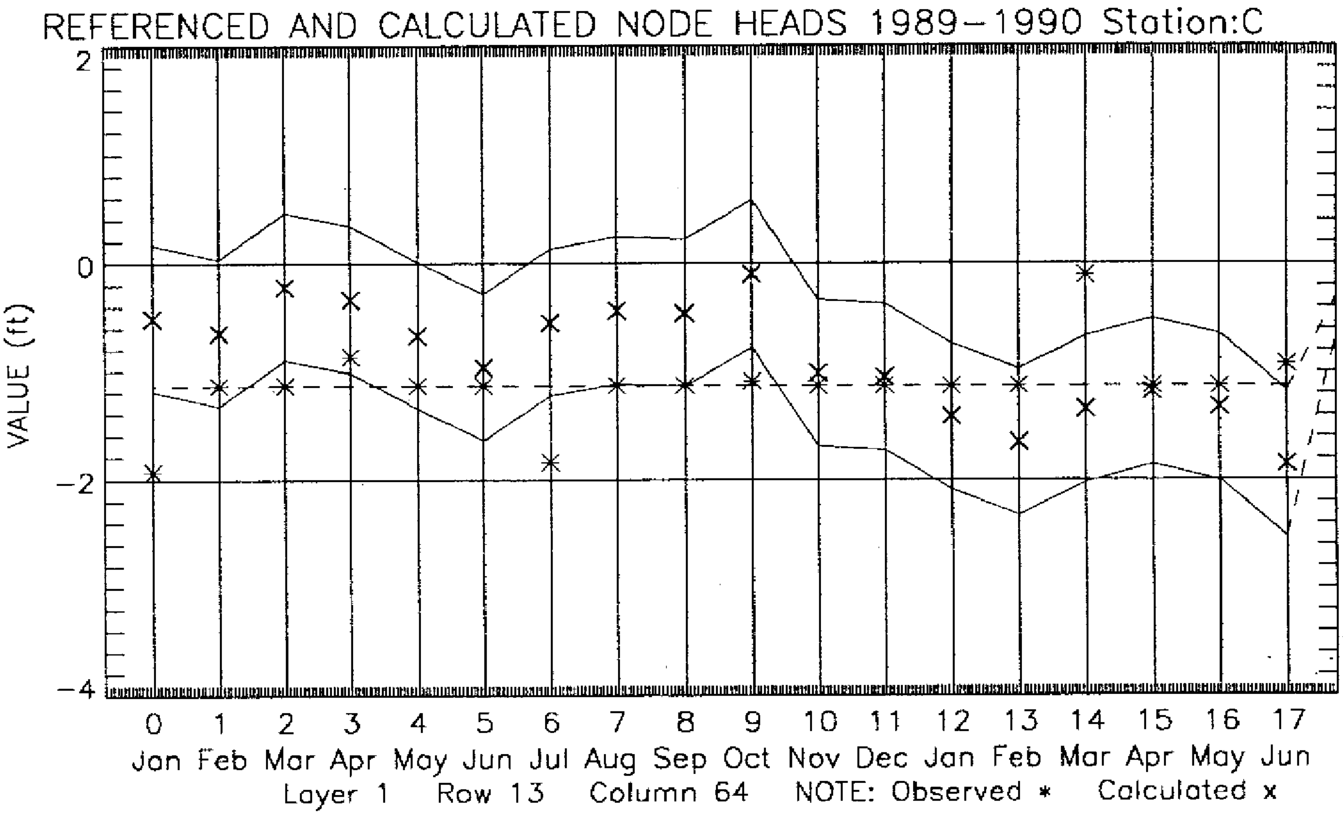

DIFFERENCE PLOT
VALUE (ft)
2
0
–2
–4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

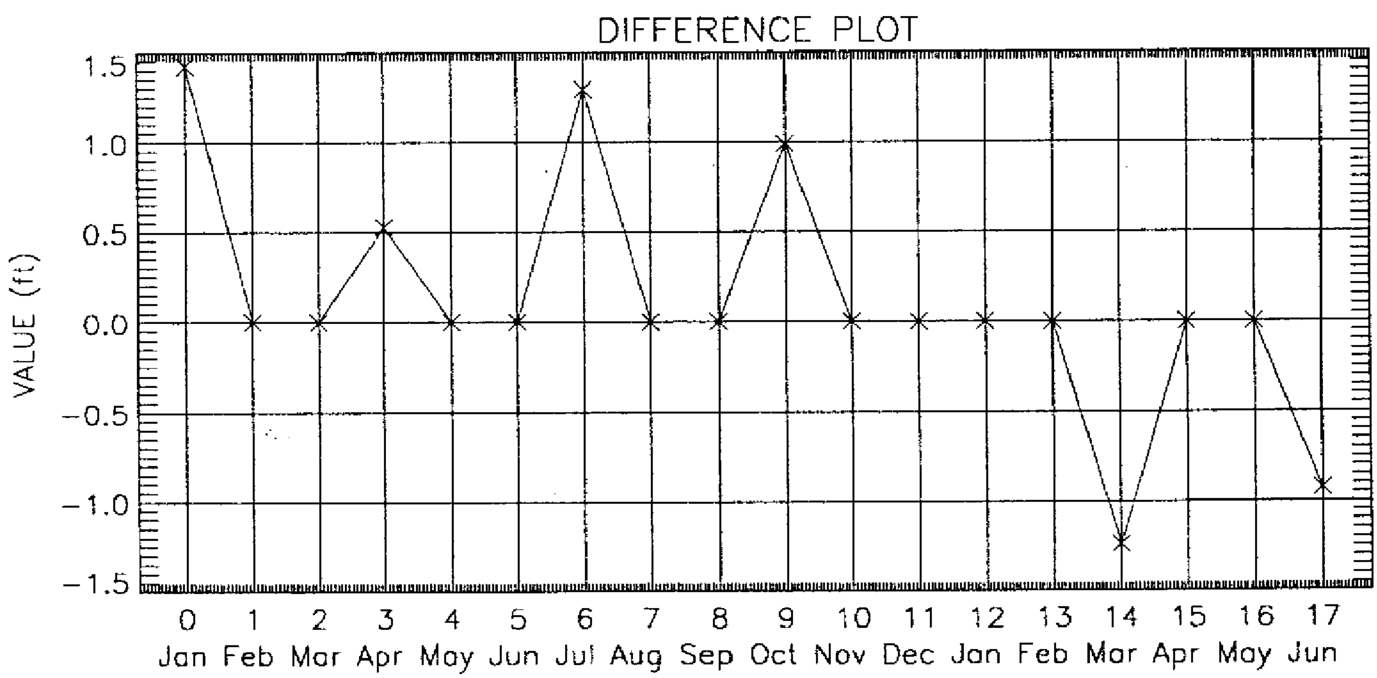


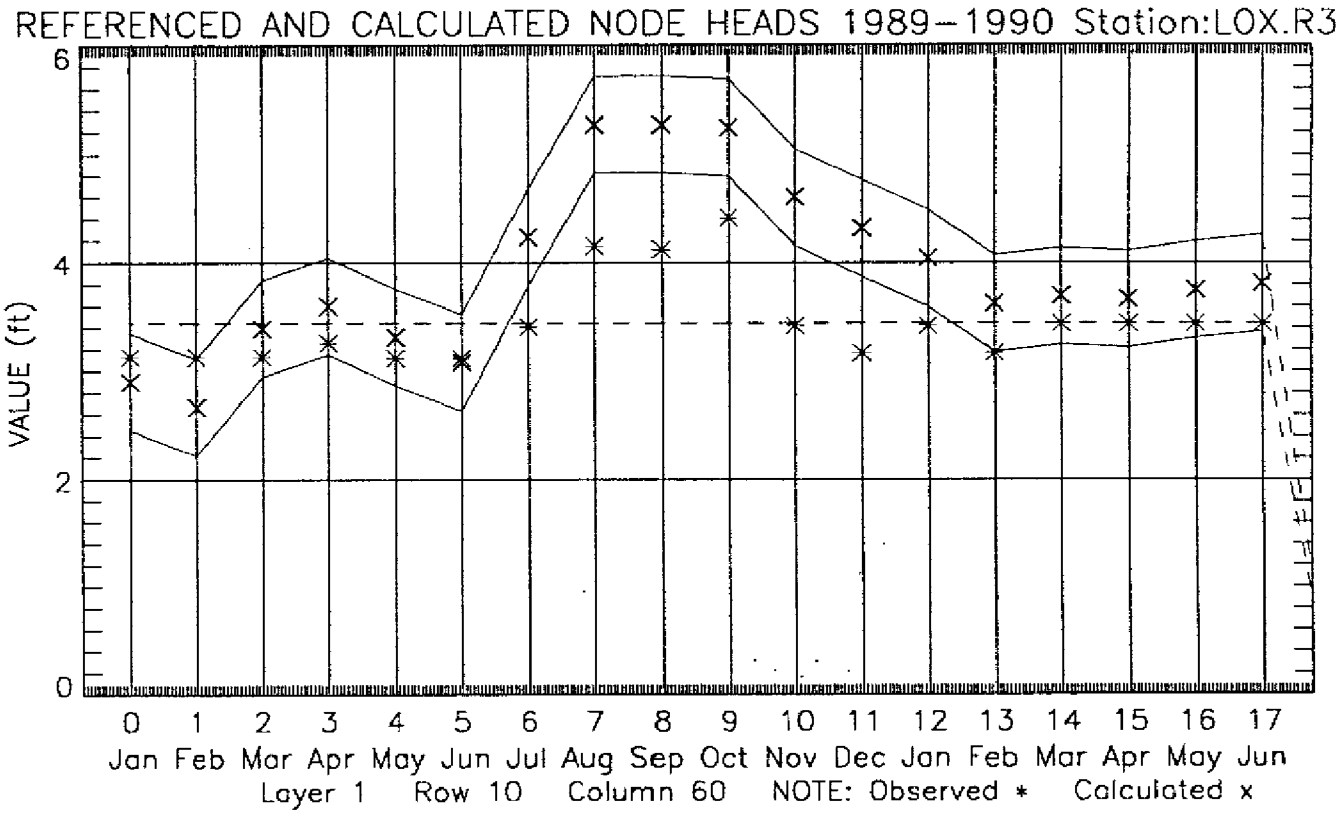
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1231
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 10 Column 51 NOTE: Observed * Calculated x

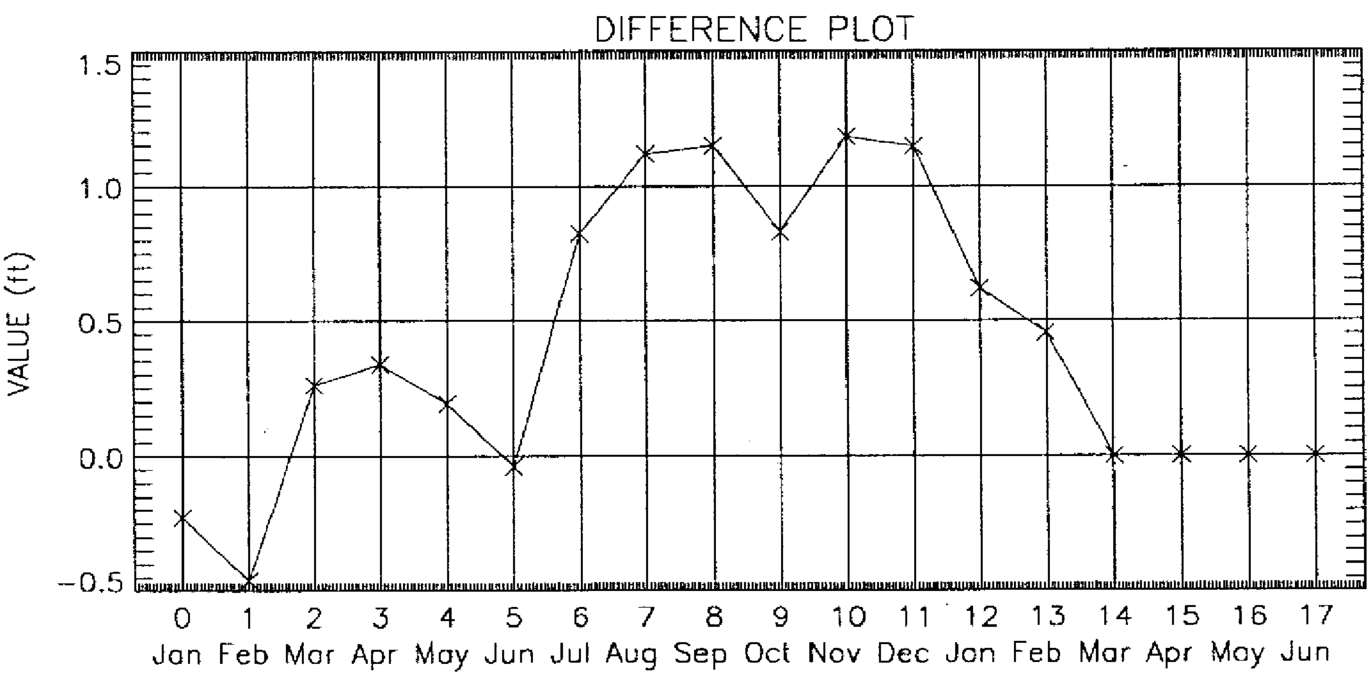


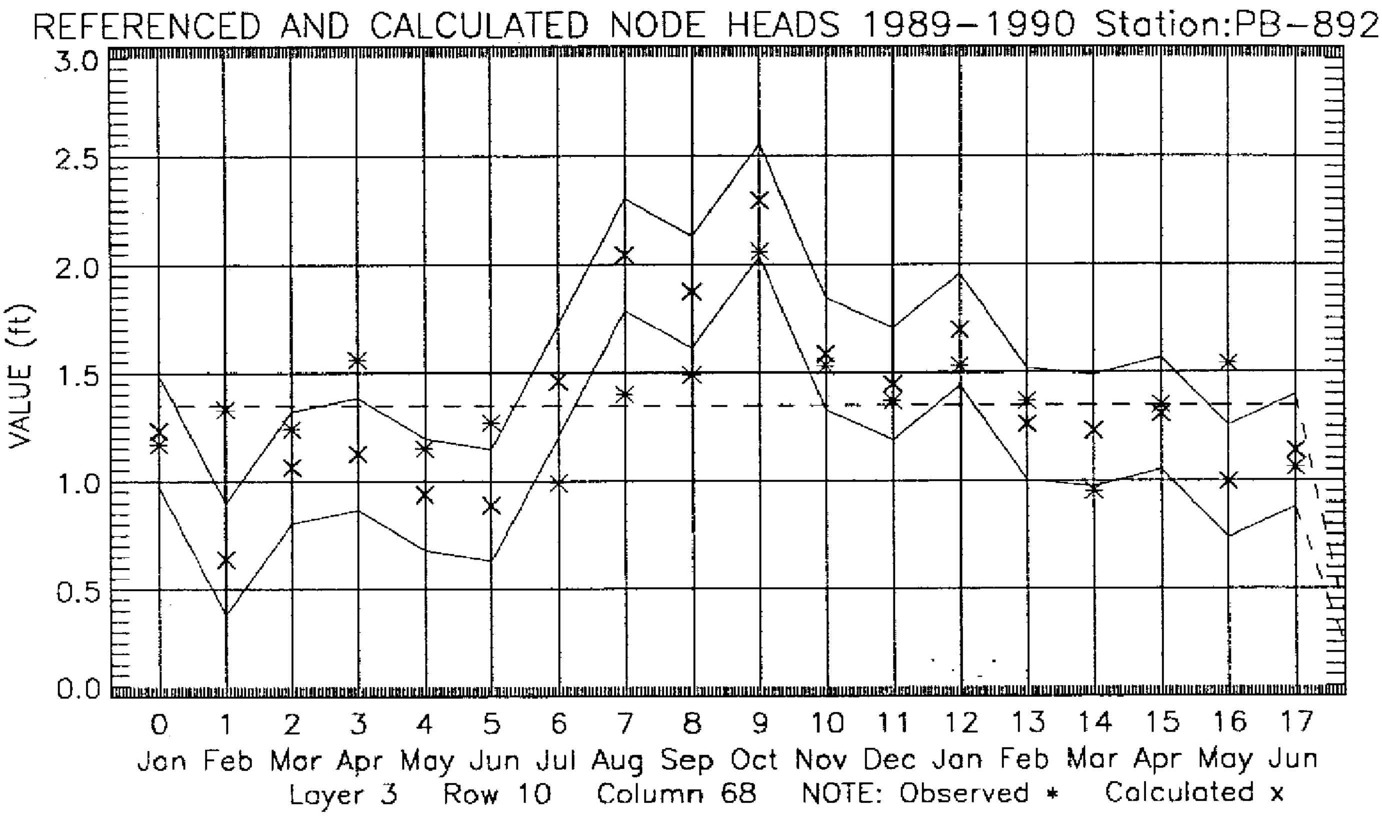
DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
–0.5
–1.0
–1.5
–2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

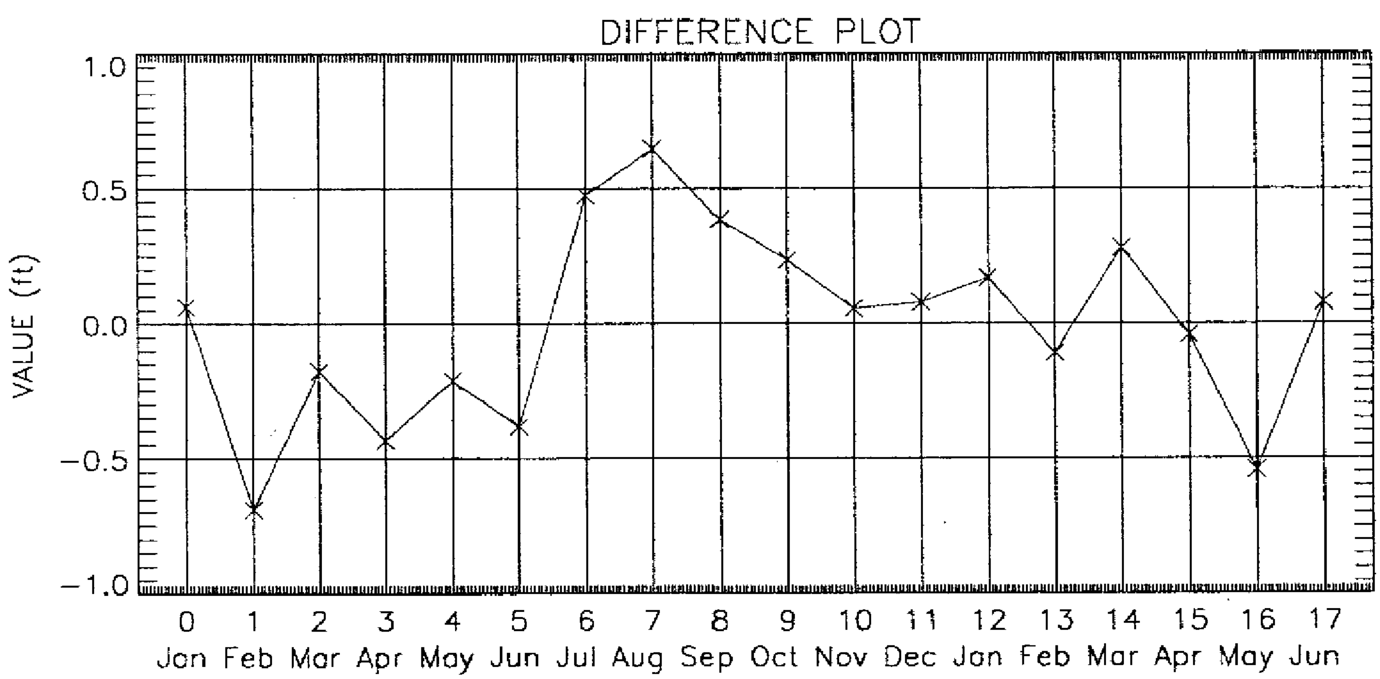

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:C
VALUE (ft)
2
0
-2
-4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 13 Column 64 NOTE: Observed * Calculated x

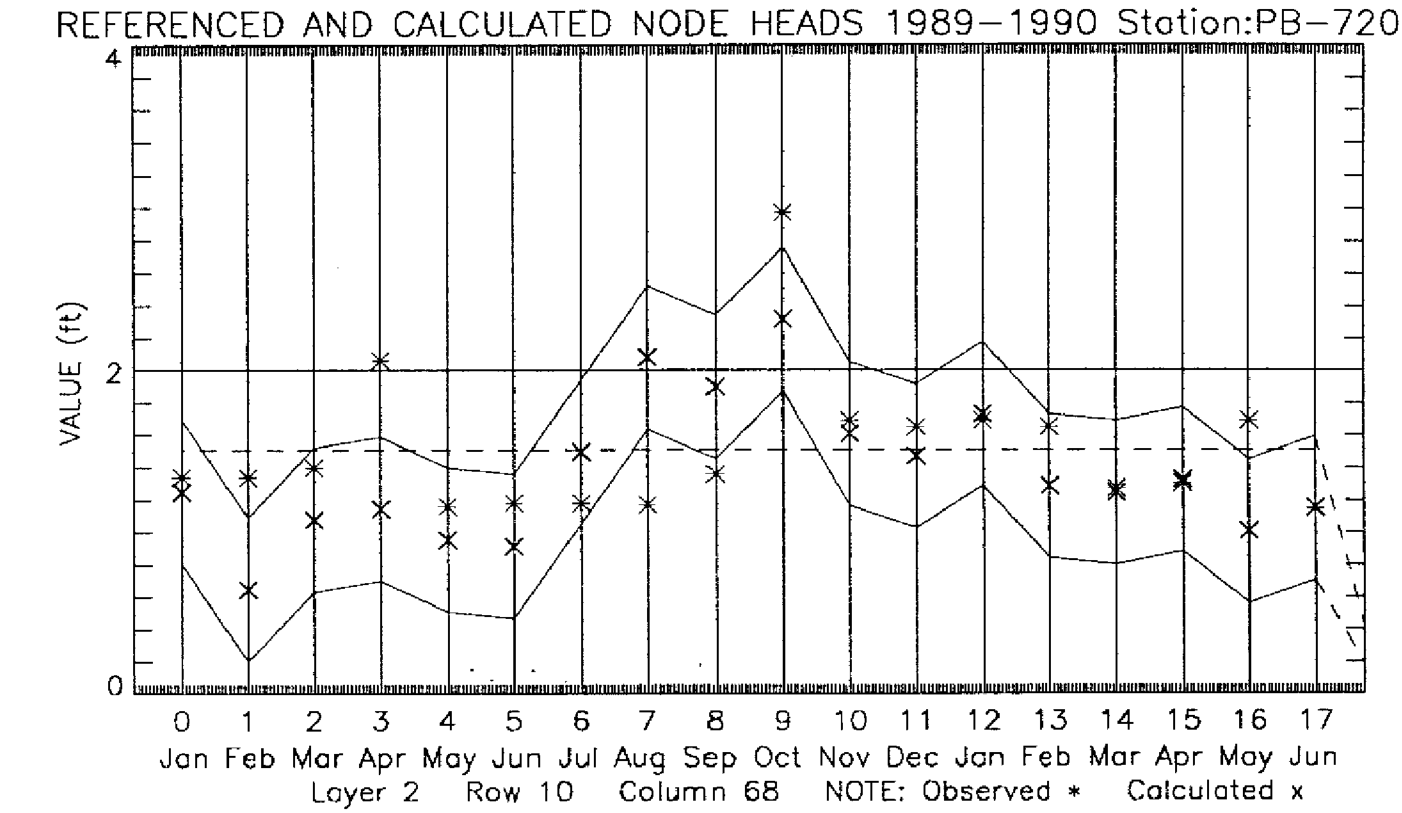

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

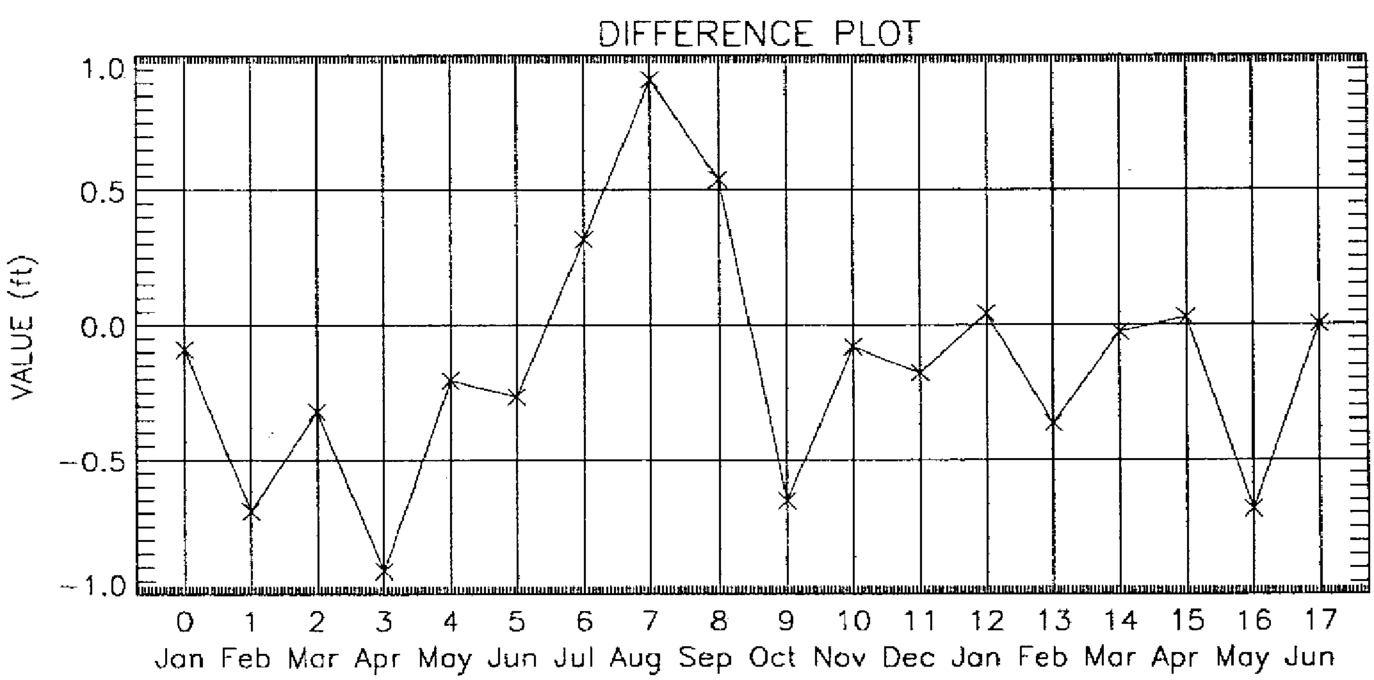

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:LOX.R3
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 60 NOTE: Observed * Calculated x

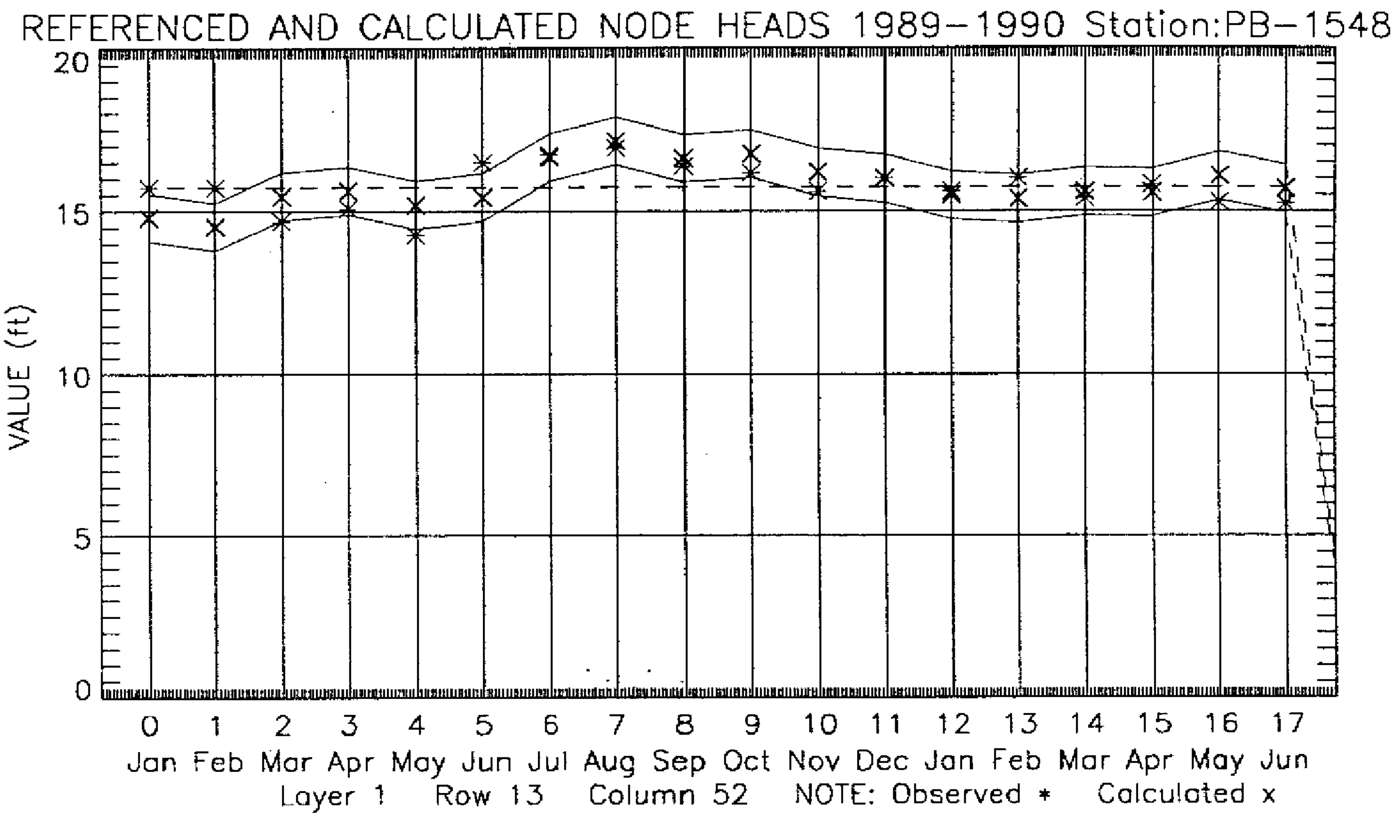

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

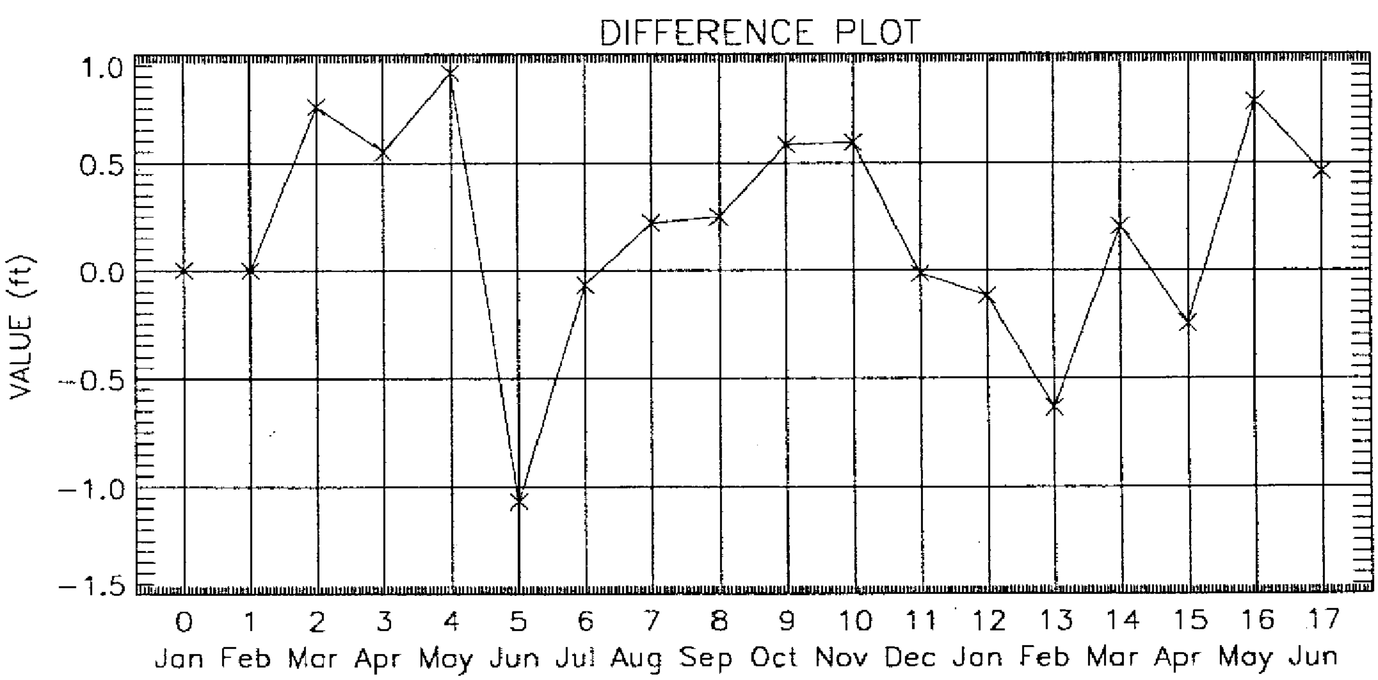

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−892
VALUE (ft)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 10 Column 68 NOTE: Observed * Calculated x

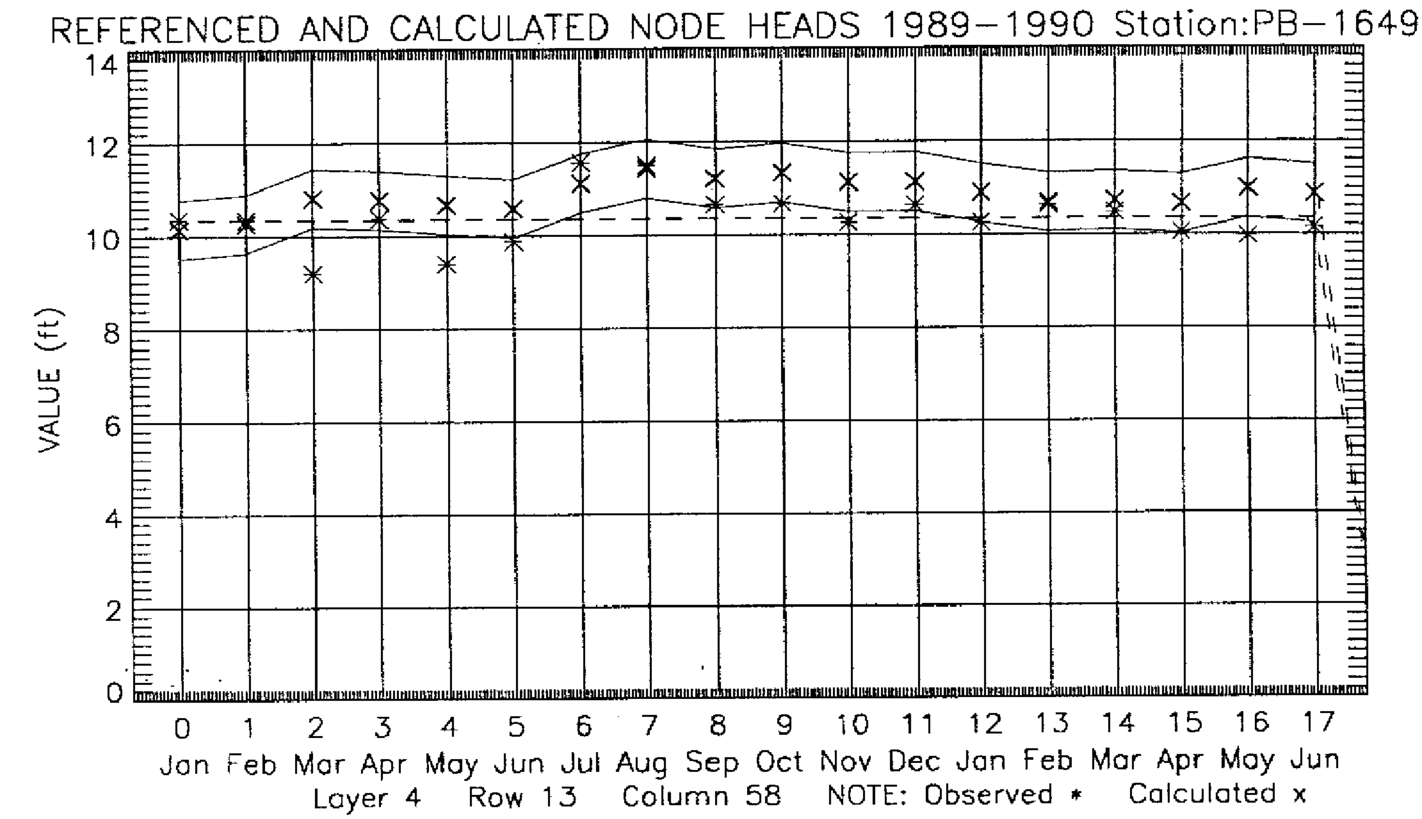

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

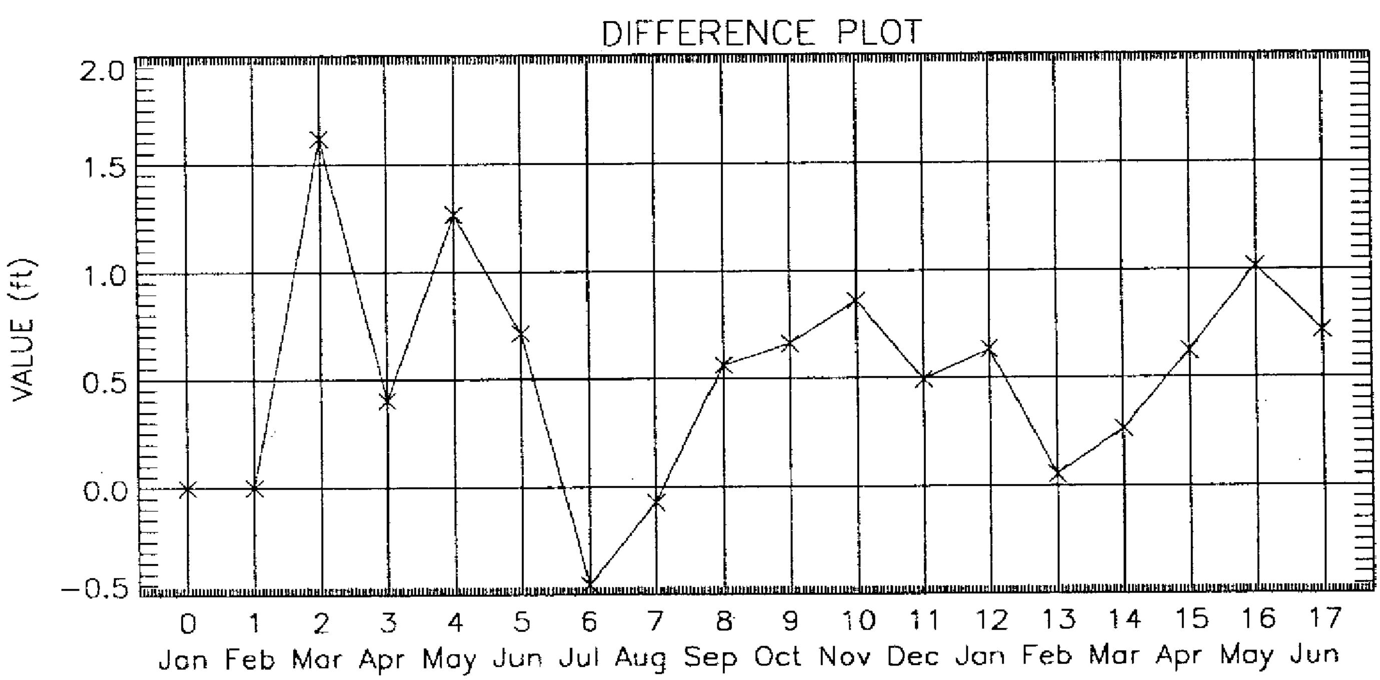

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–720
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 10 Column 68 NOTE: Observed * Calculated x

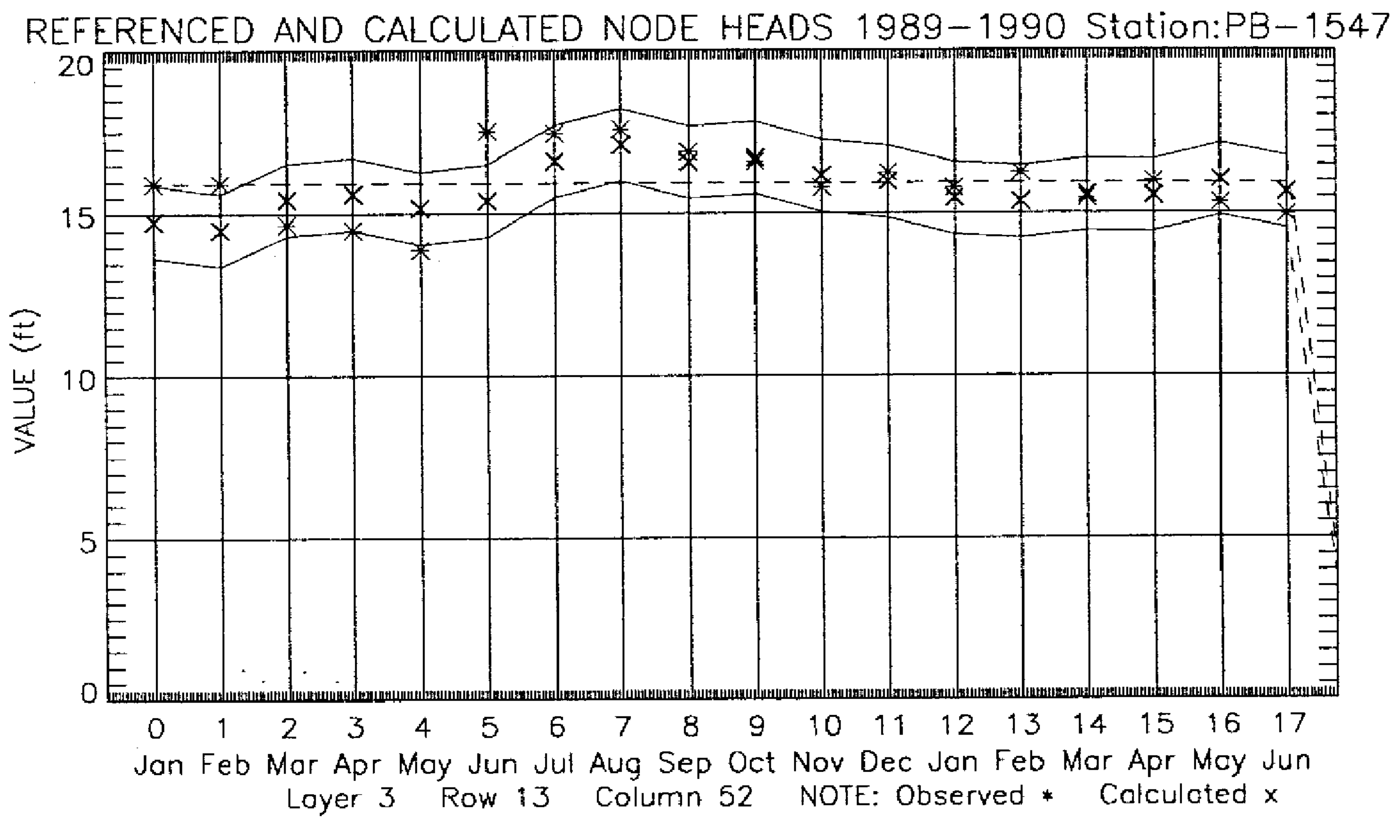

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

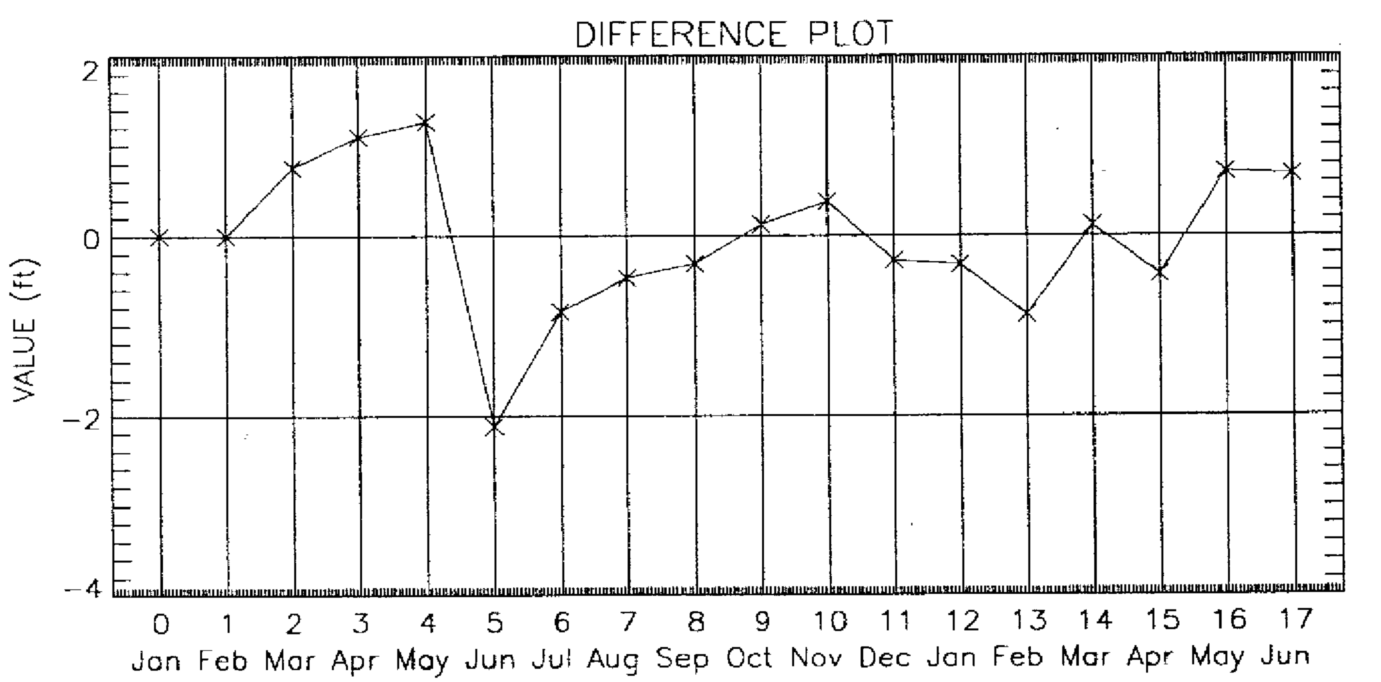

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1548
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 13 Column 52 NOTE: Observed * Calculated x

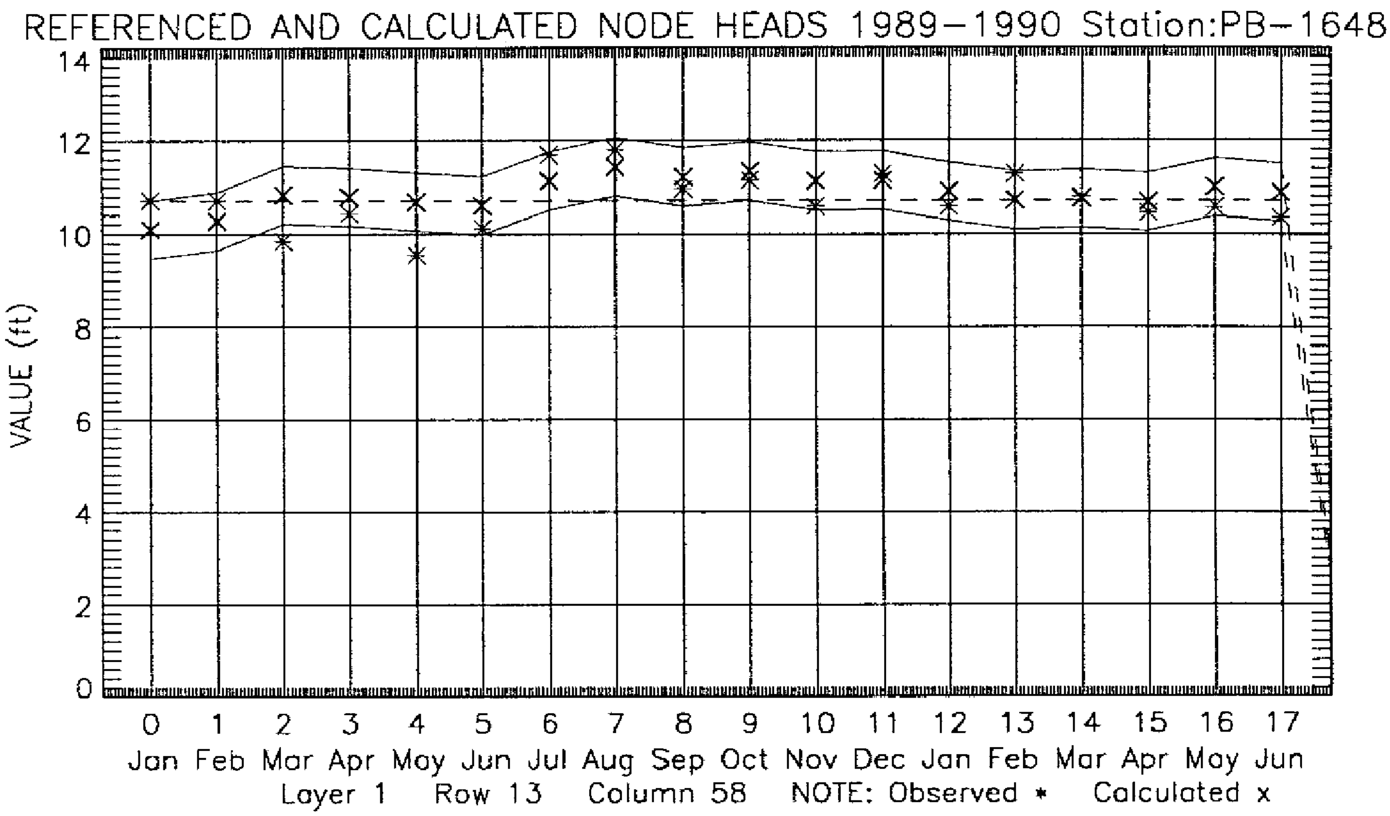

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
–0.5
–1.0
–1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

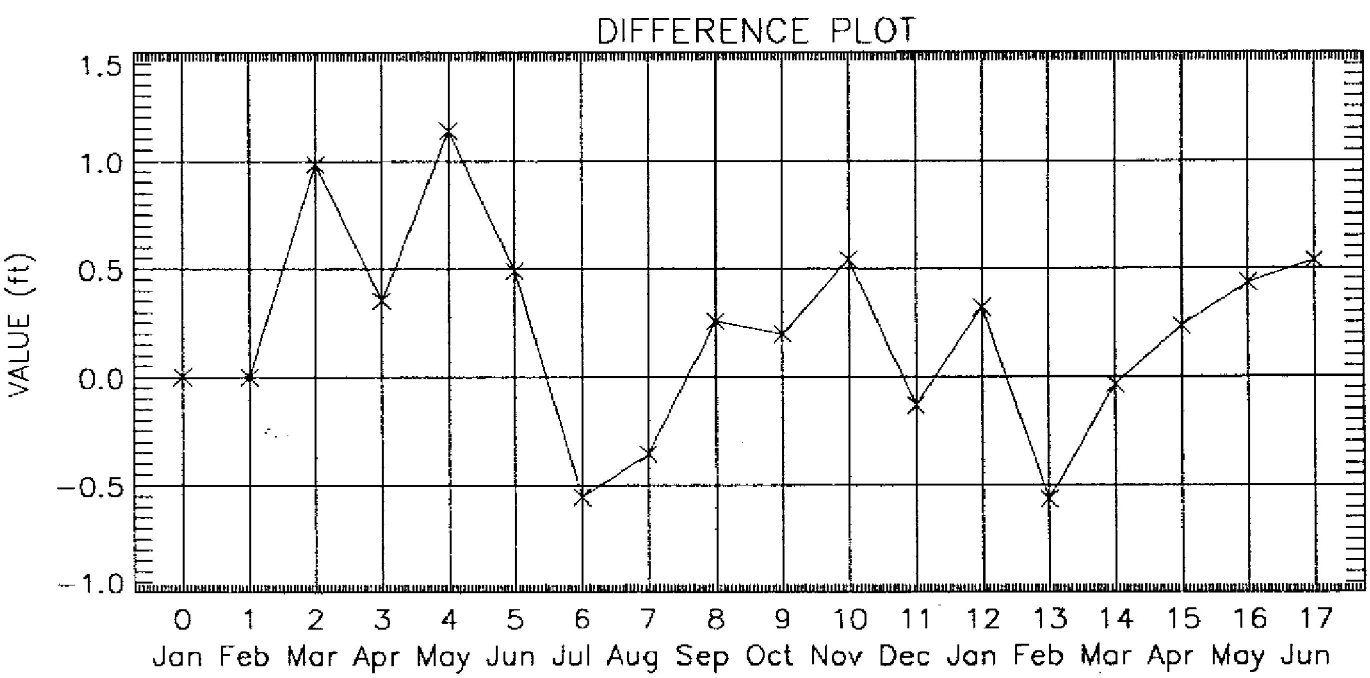

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1649
VALUE (ft)
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 13 Column 58 NOTE: Observed * Calculated x

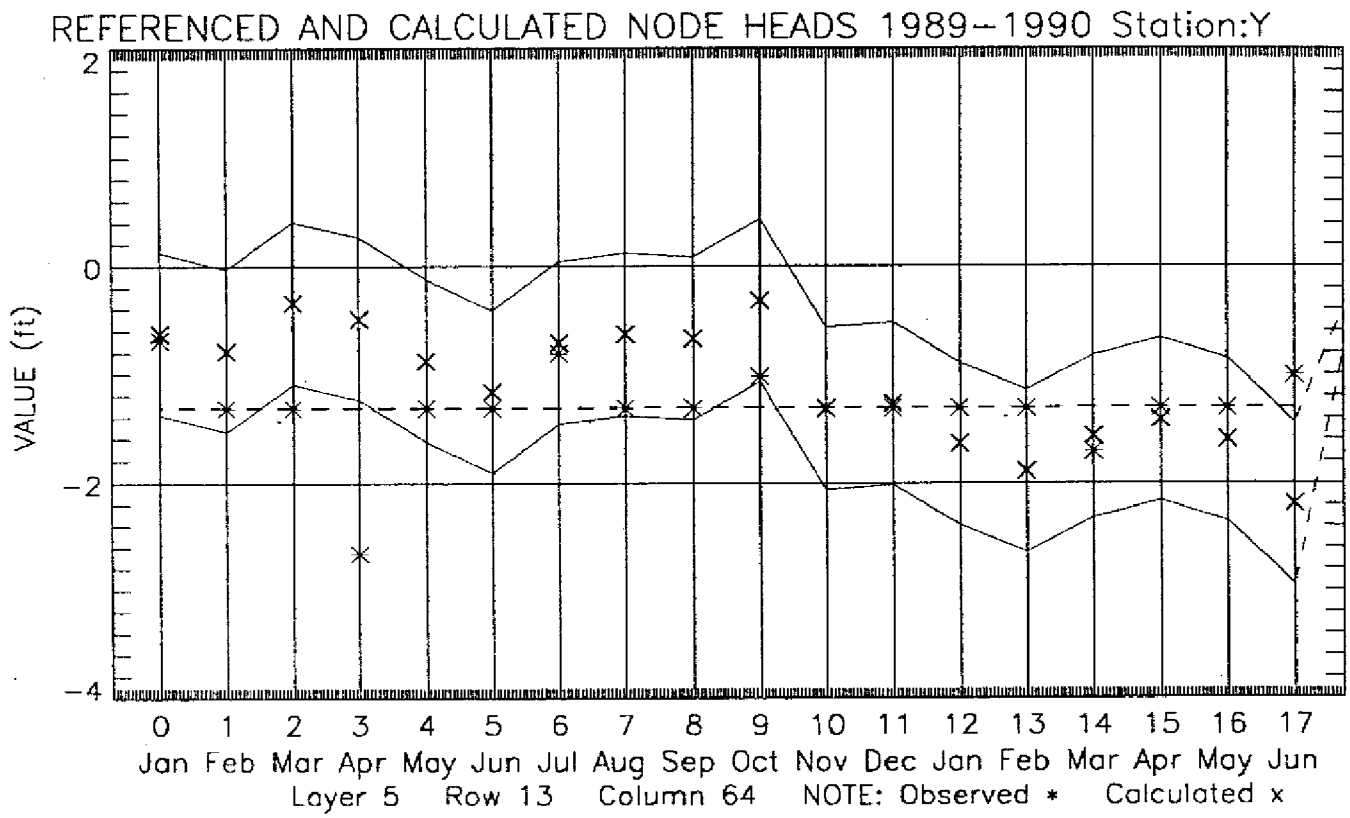

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
–0.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1547
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 13 Column 52 NOTE: Observed * Calculated x

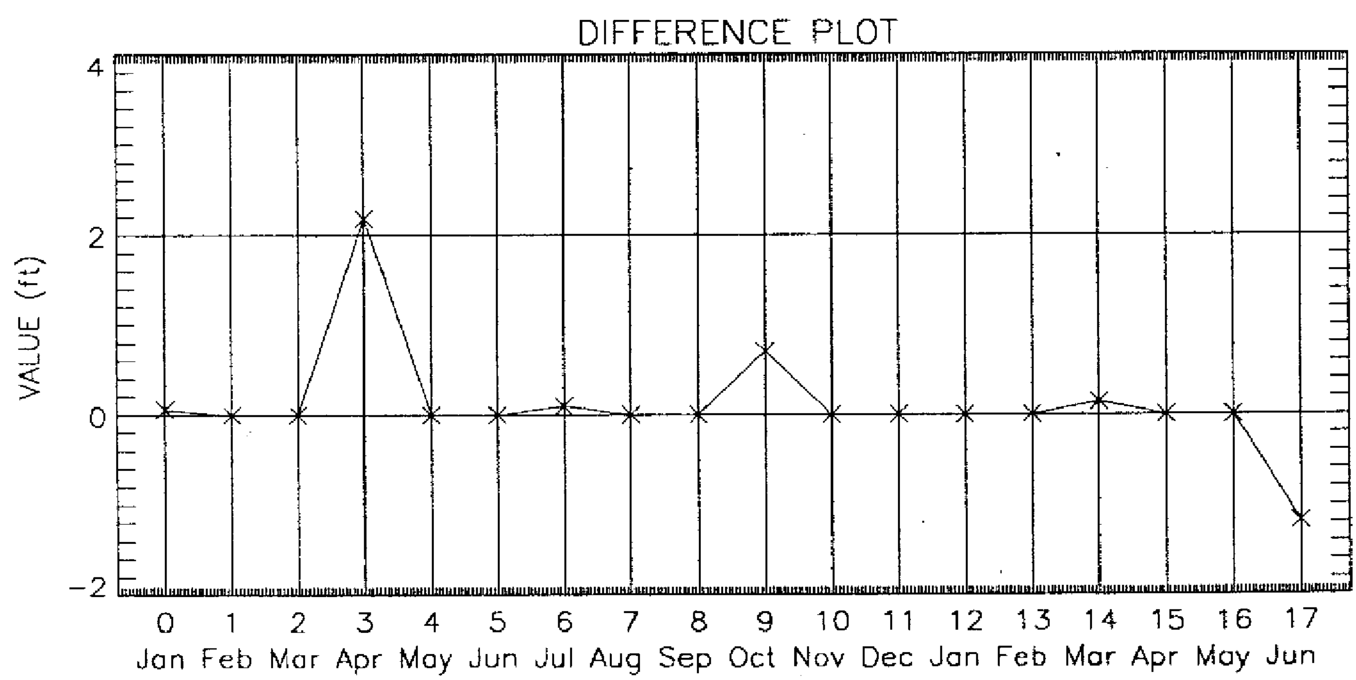

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
-4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1648
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 13 Column 58 NOTE: Observed * Calculated x

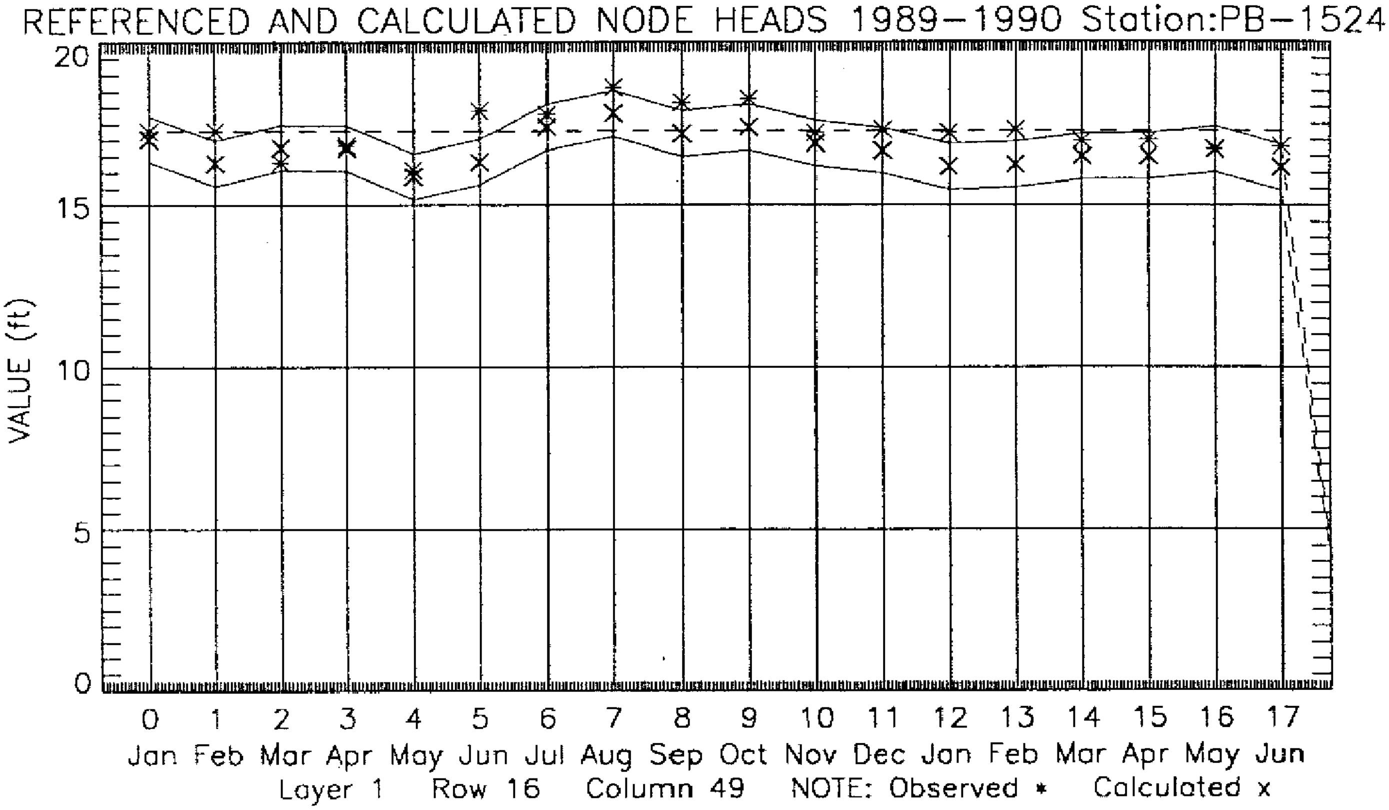

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

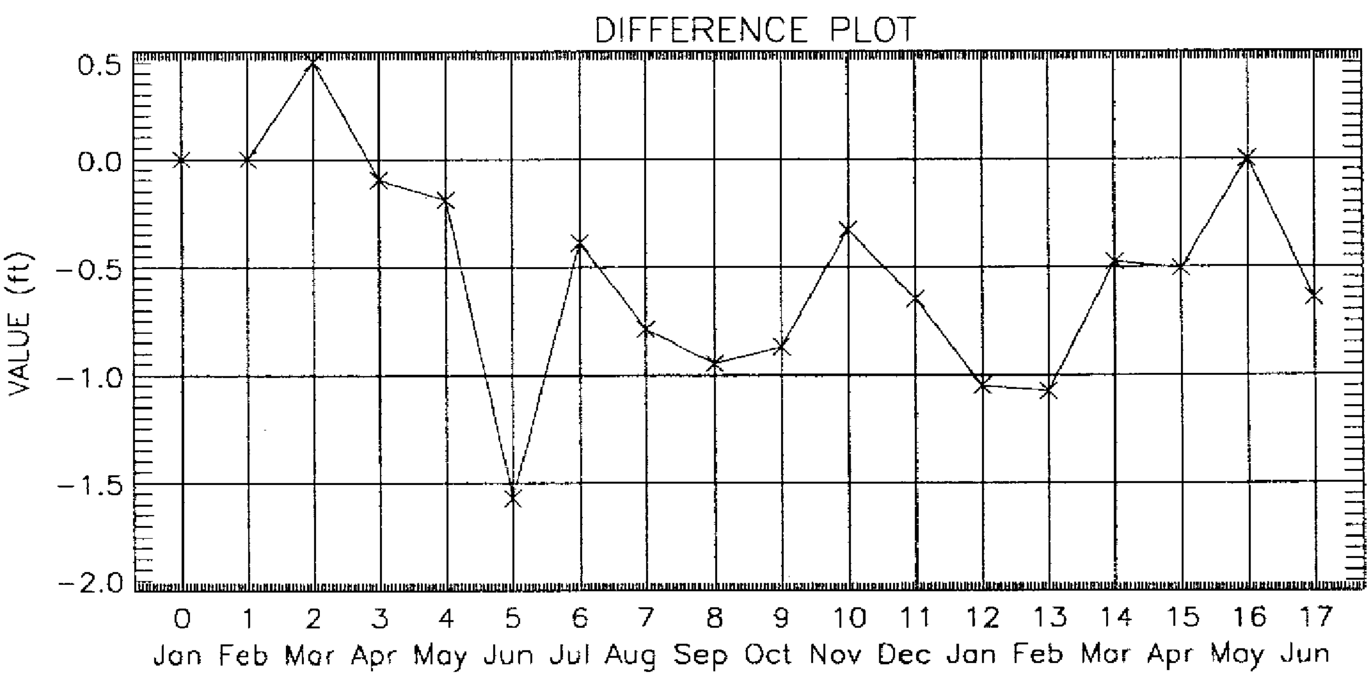


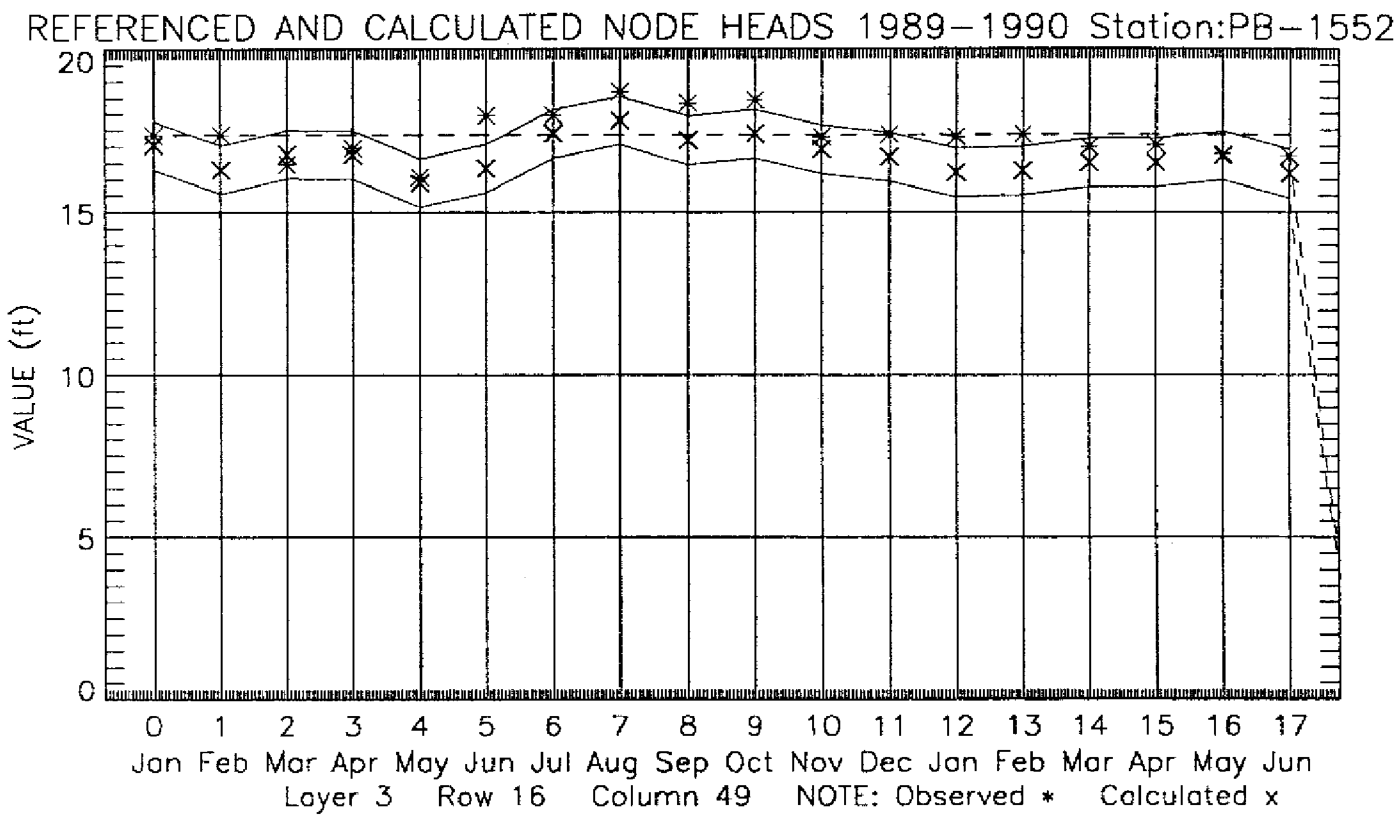
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:Y
VALUE (ft)
2
0
-2
-4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 13 Column 64 NOTE: Observed * Calculated x

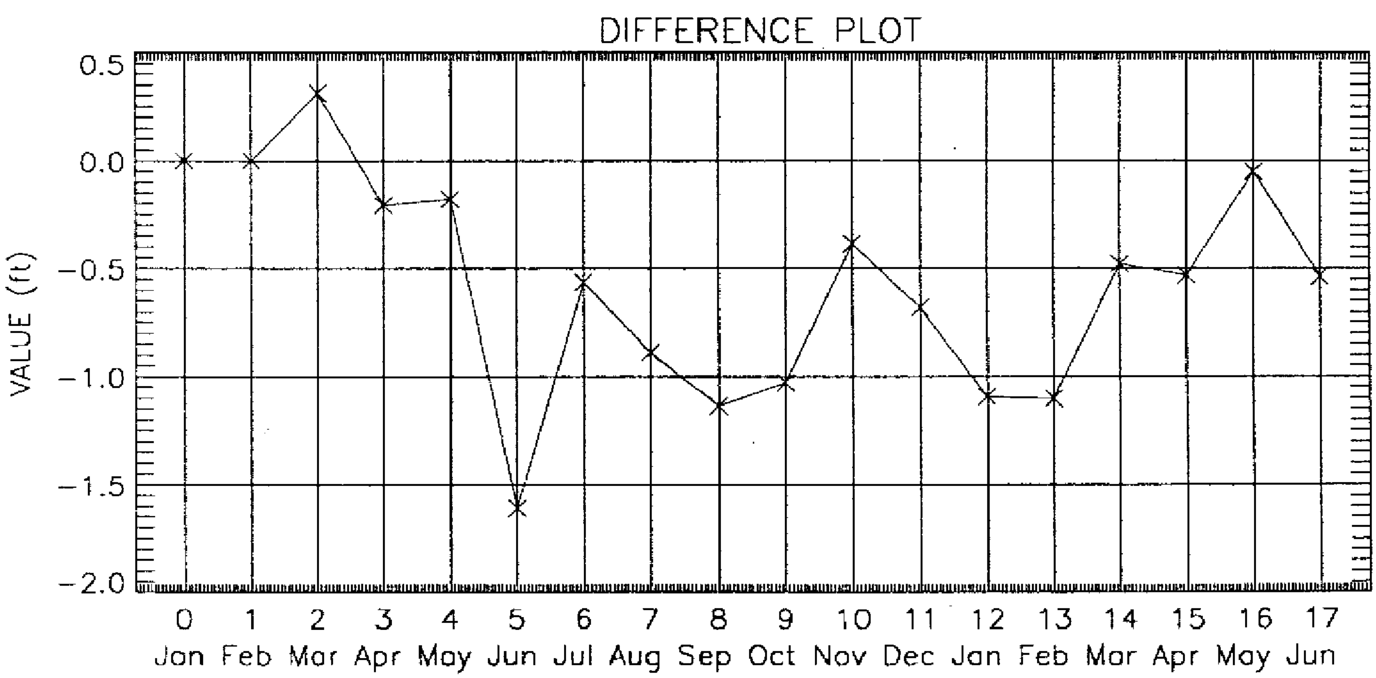


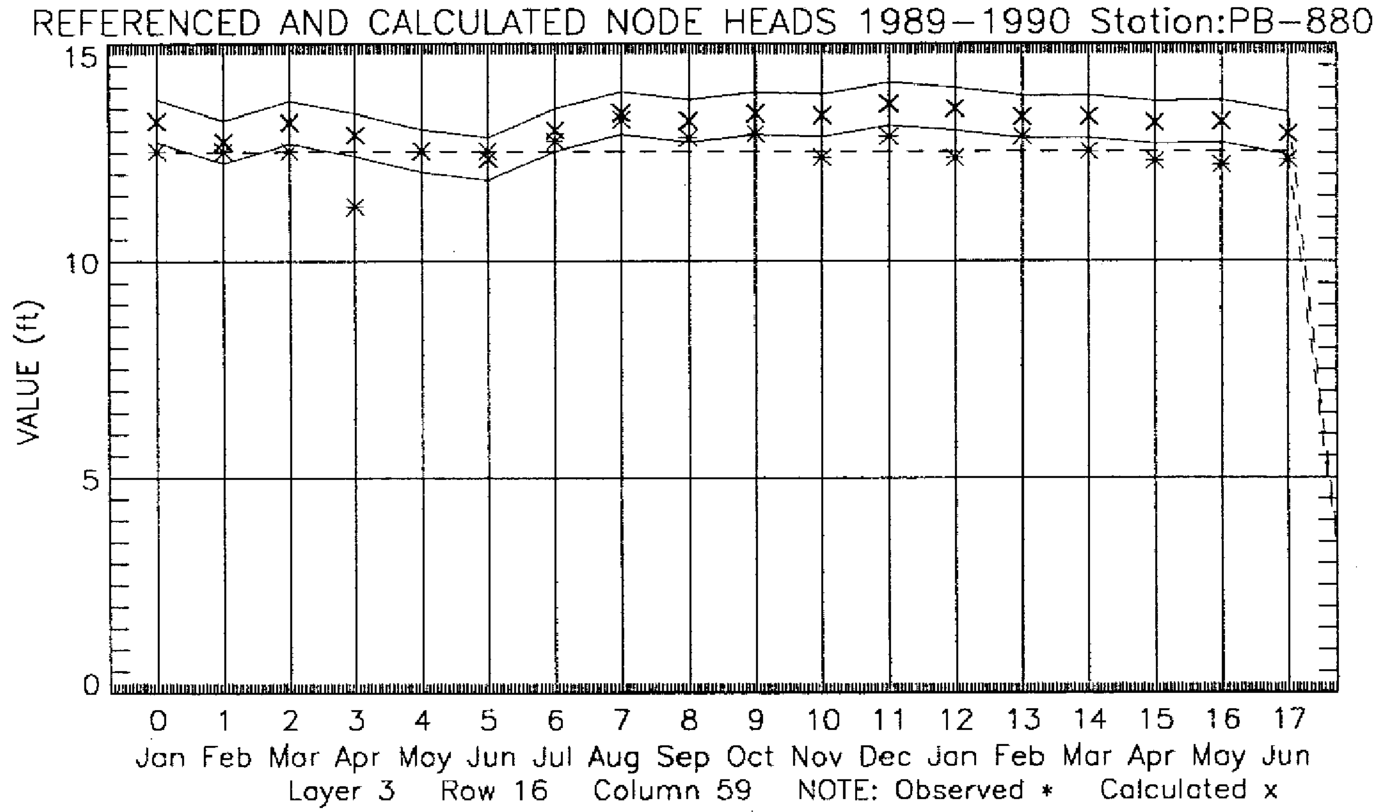
DIFFERENCE PLOT
VALUE (ft)
4
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

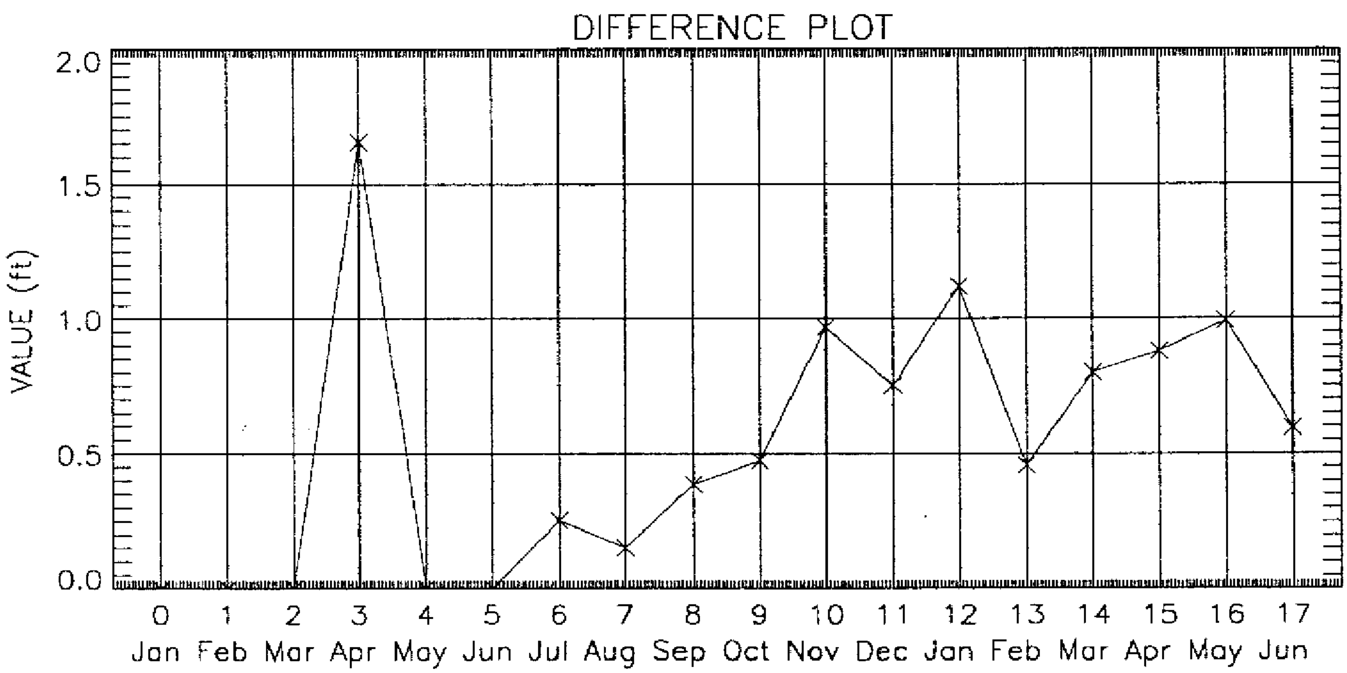

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1524
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 16 Column 49 NOTE: Observed * Calculated x

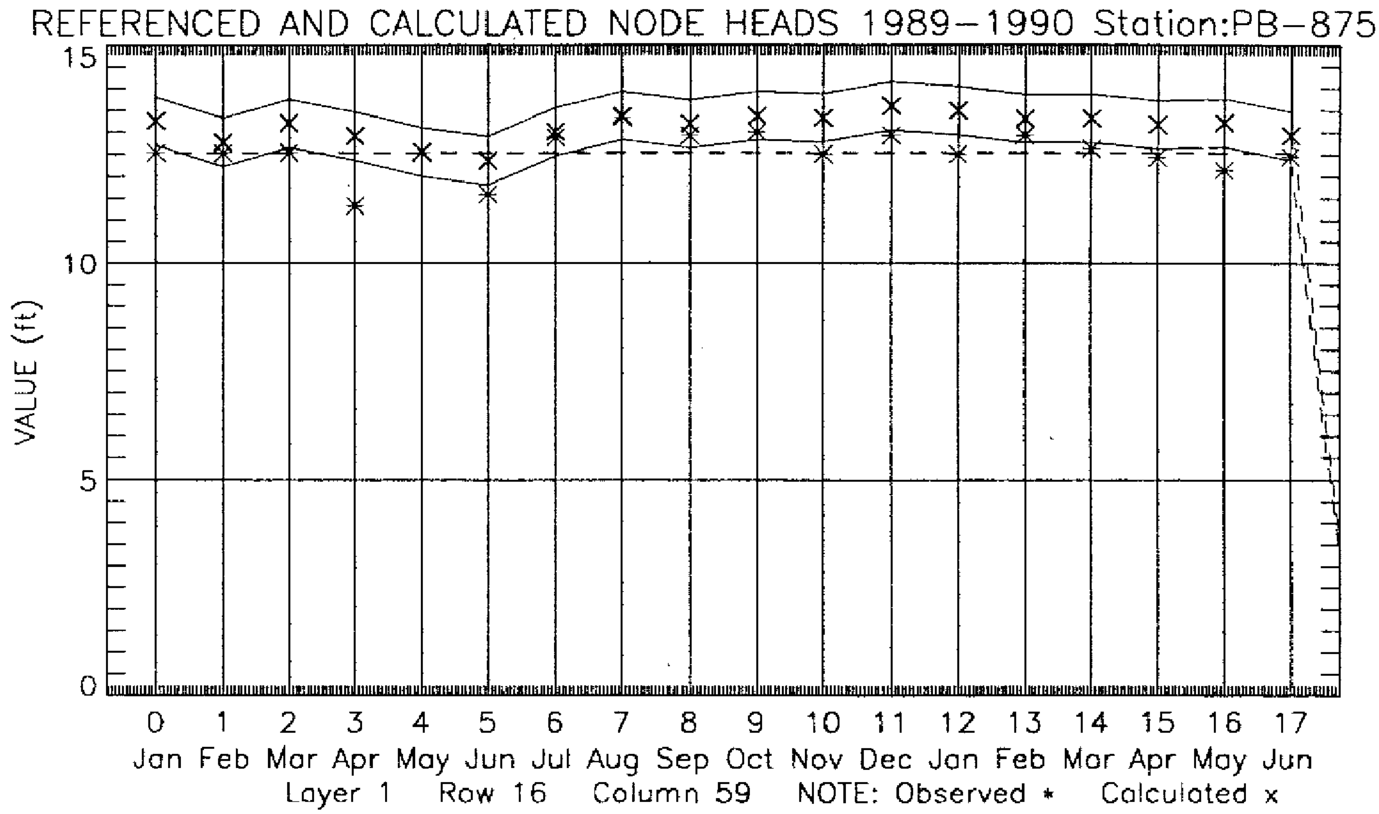

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

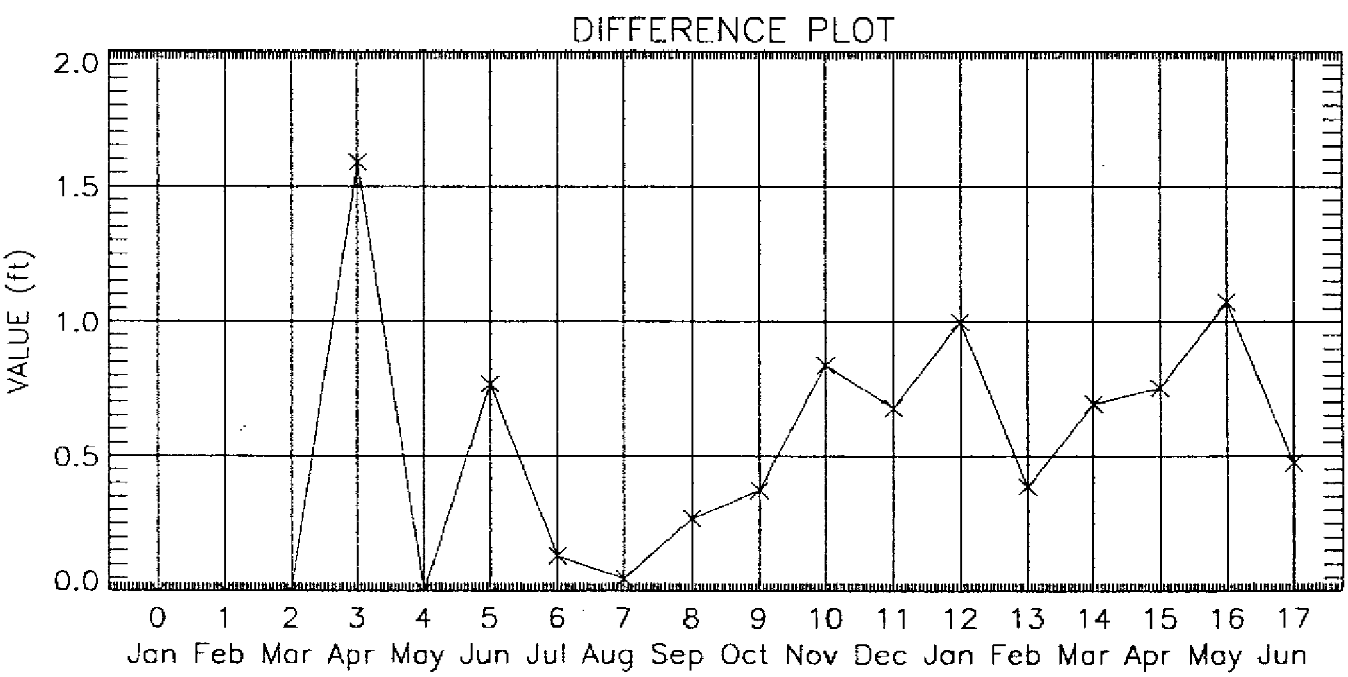

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1552
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 16 Column 49 NOTE: Observed * Calculated x

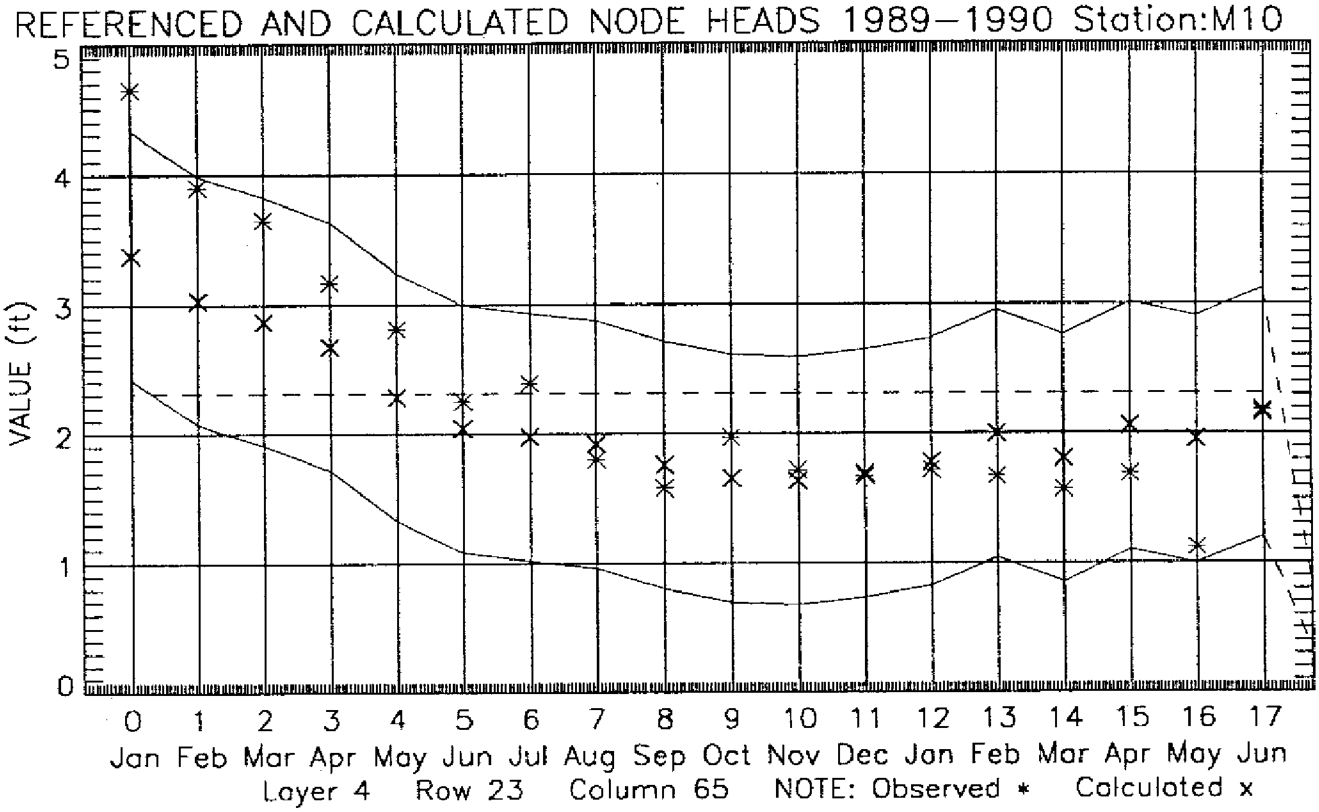

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−880
15
10
5
0
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 16 Column 59 NOTE: Observed * Calculated x

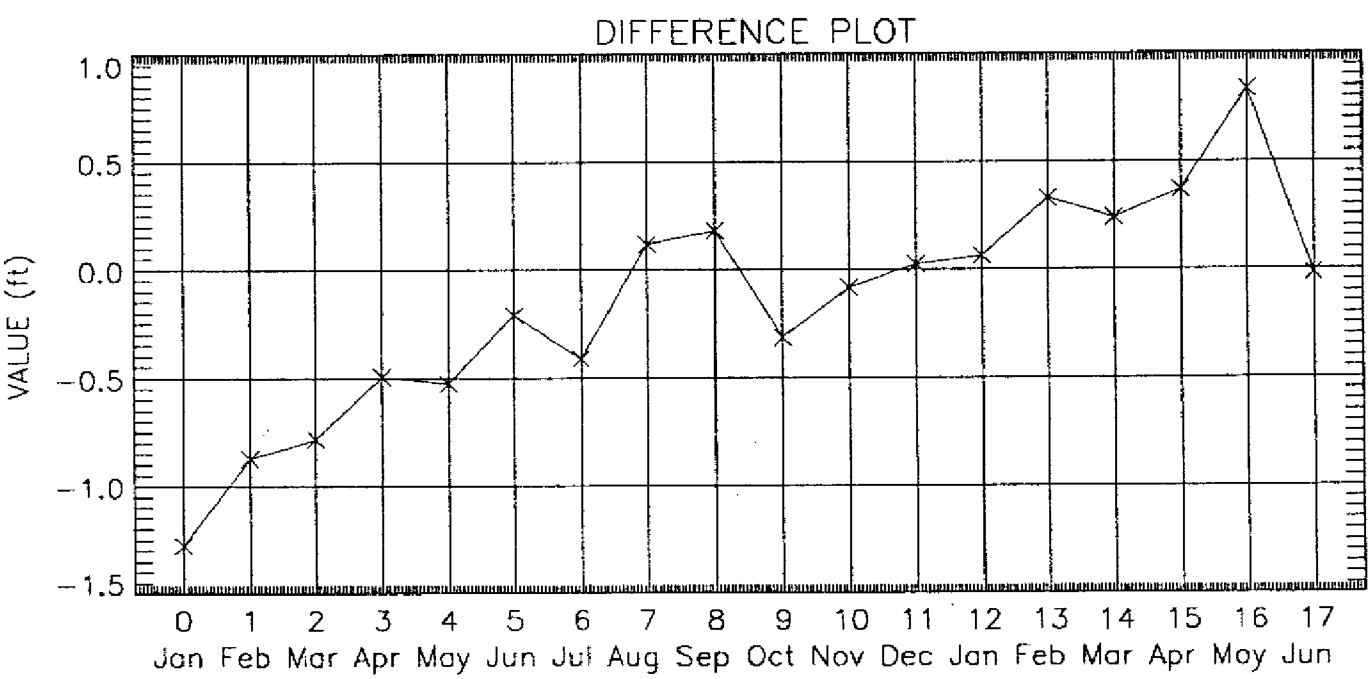

DIFFERENCE PLOT
2.0
1.5
1.0
0.5
0.0
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-875
VALUE (ft)
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 16 Column 59 NOTE: Observed * Calculated x

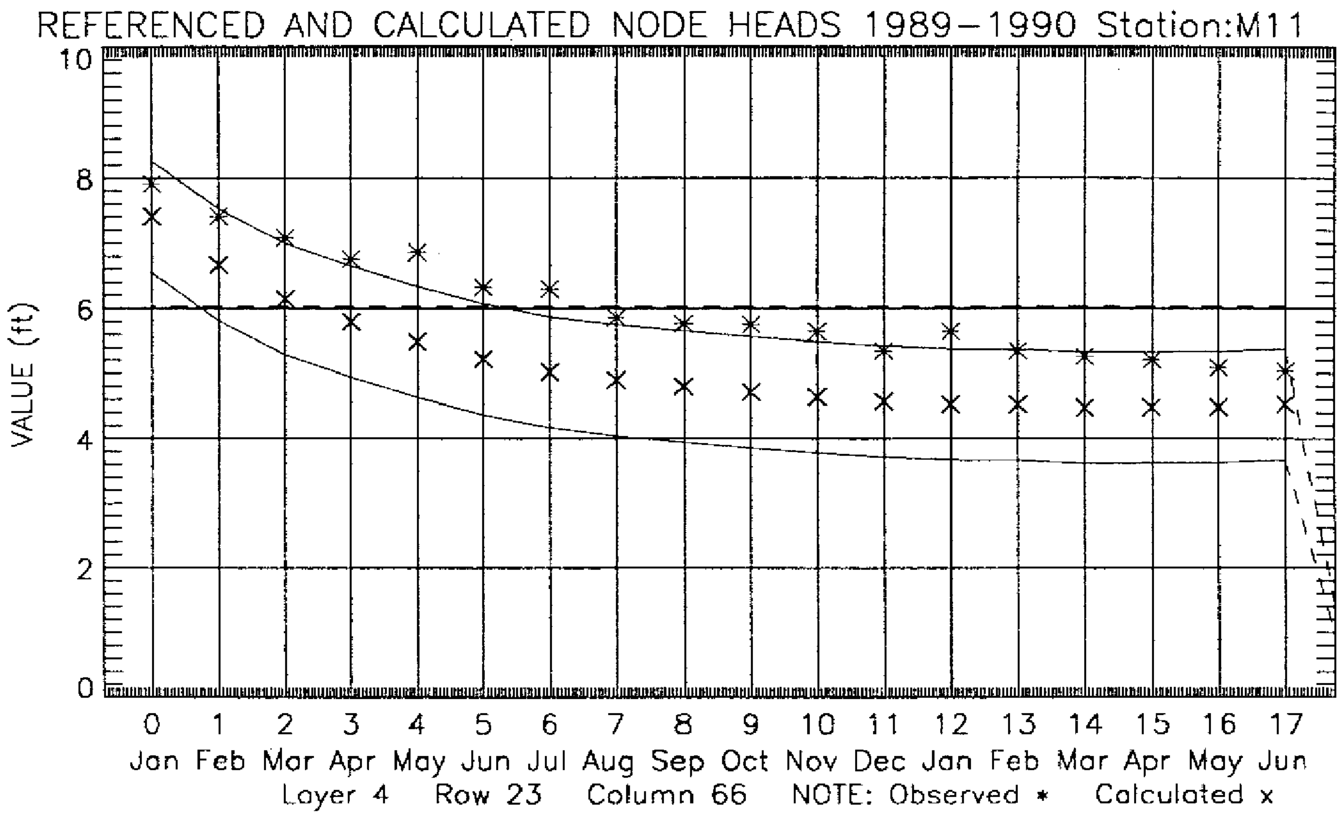

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun



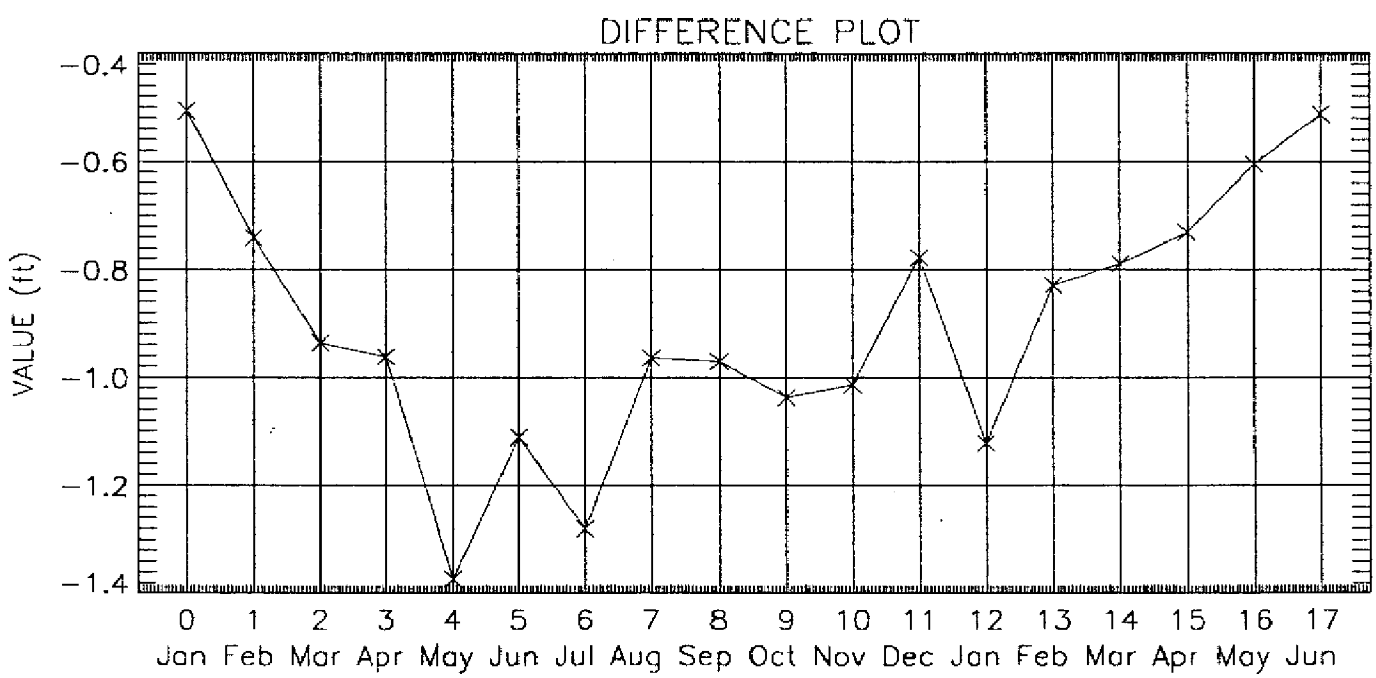
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M10
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 23 Column 65 NOTE: Observed * Calculated x



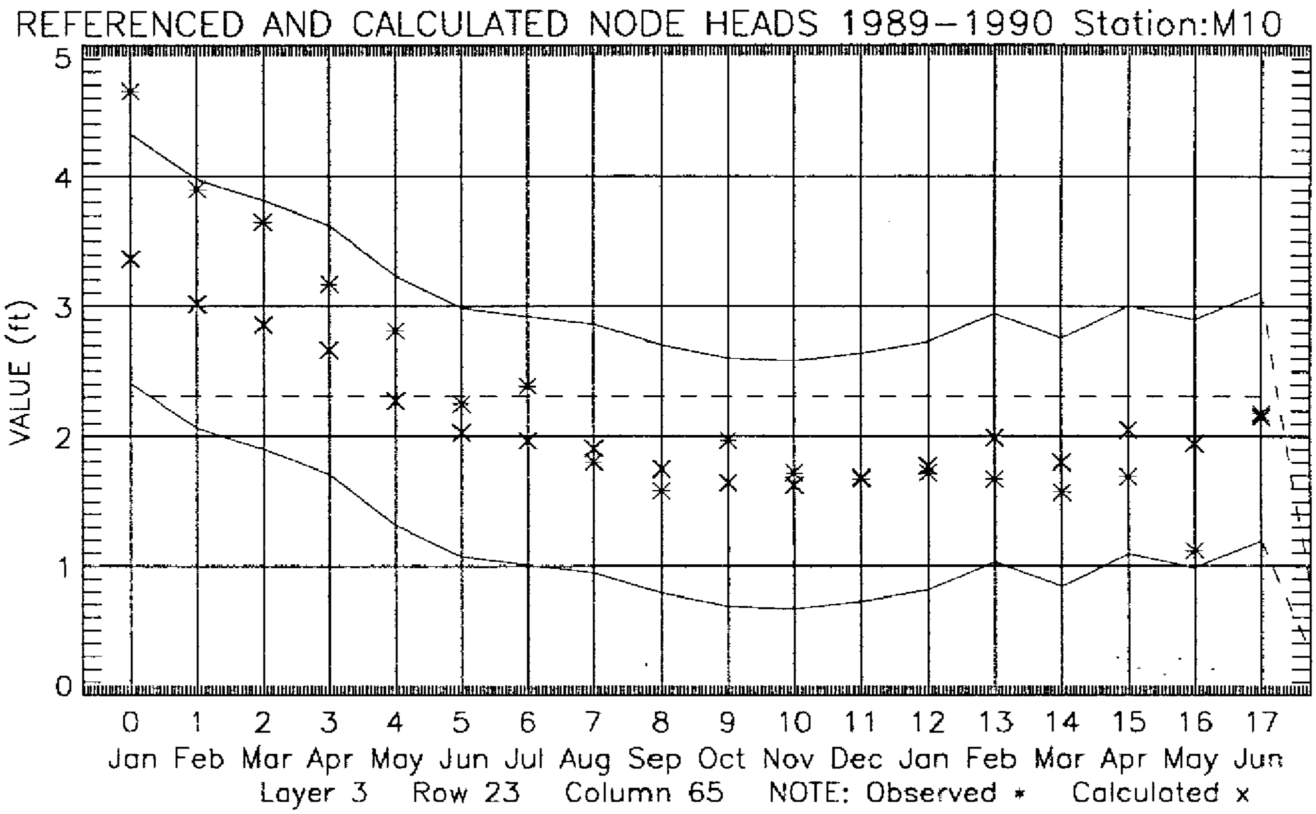
DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

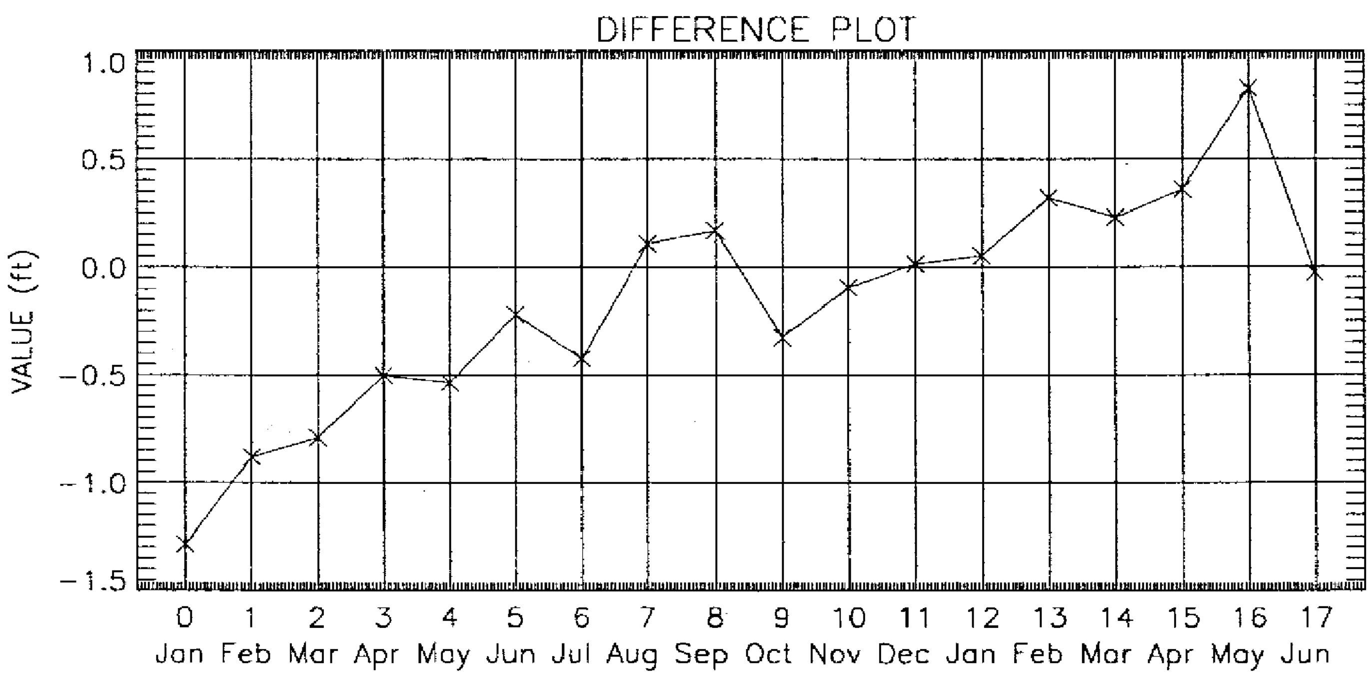


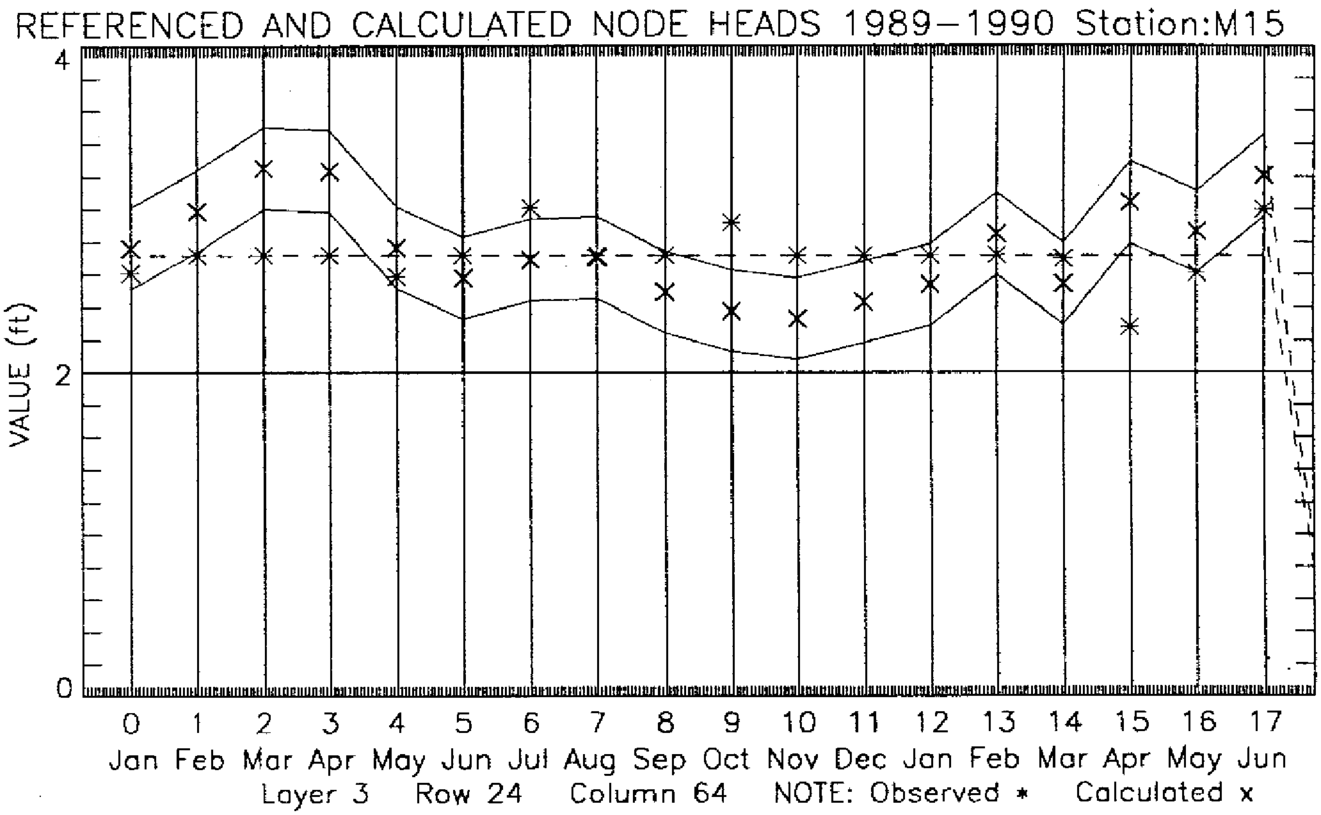
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M11
VALUE (ft)
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 23 Column 66 NOTE: Observed * Calculated x

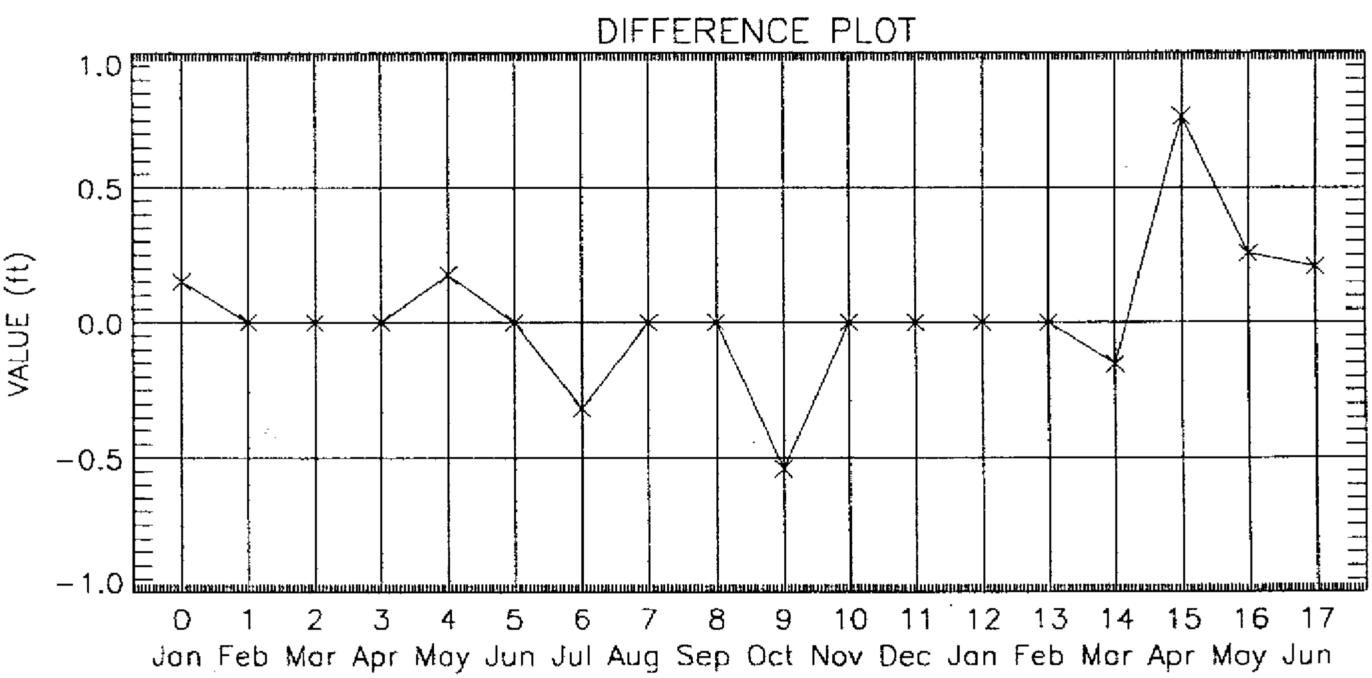


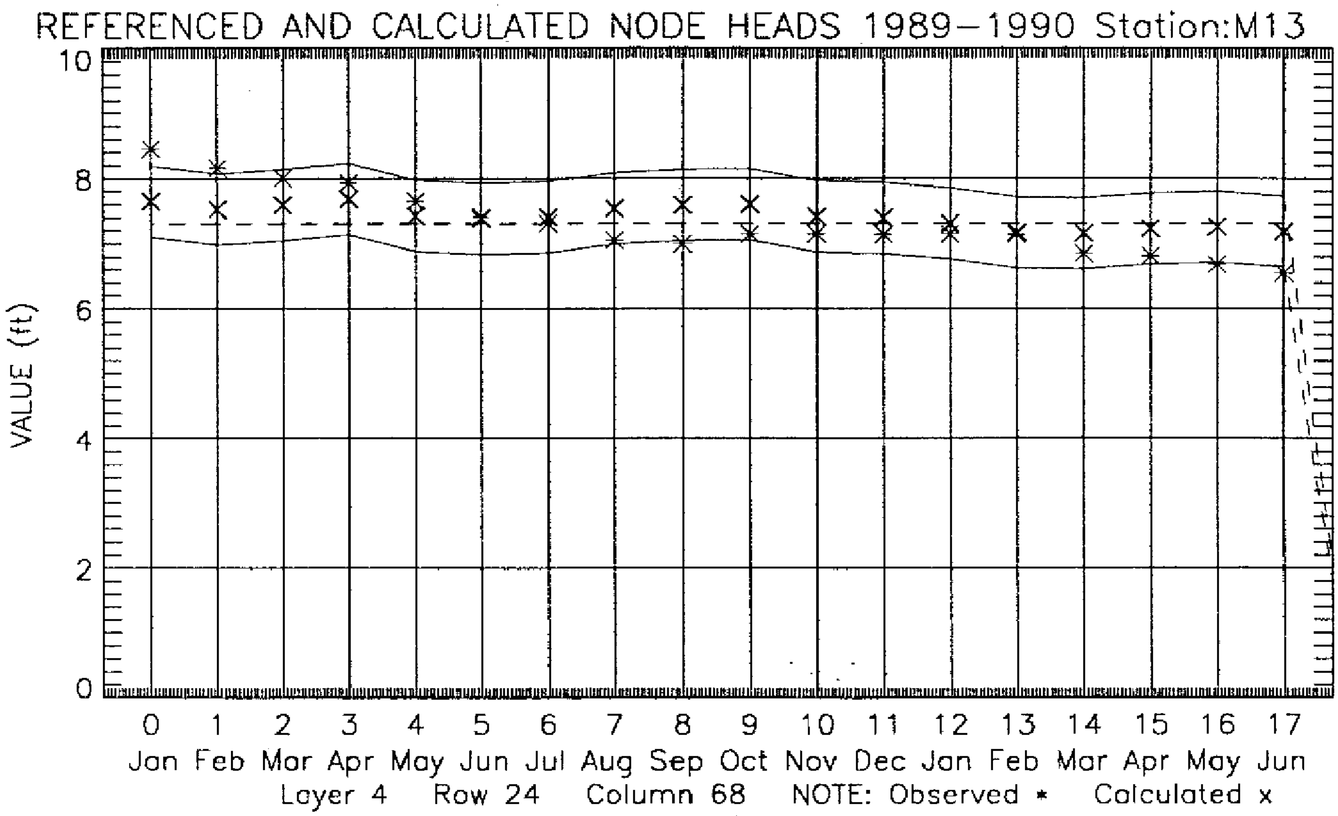
DIFFERENCE PLOT
VALUE (ft)
-0.4
-0.6
-0.8
-1.0
-1.2
-1.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

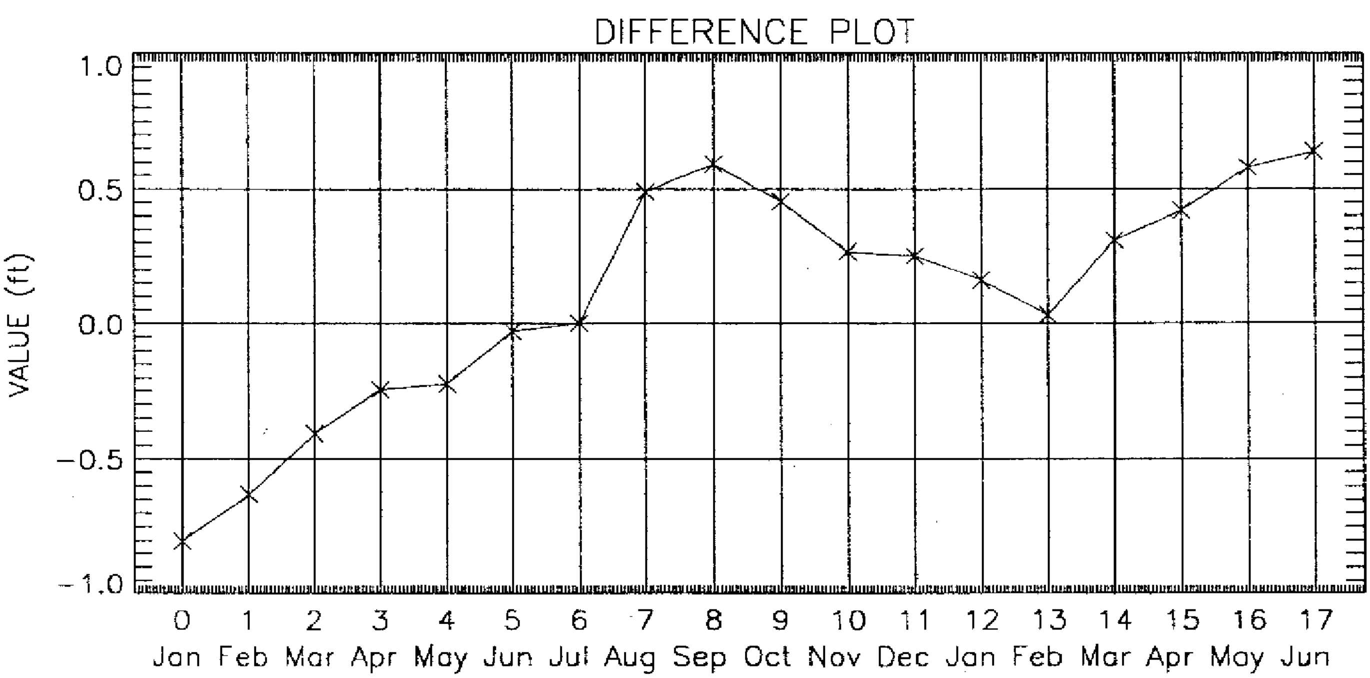

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M10
VALUE (ft)
0
1
2
3
4
5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 23 Column 65 NOTE: Observed * Calculated x

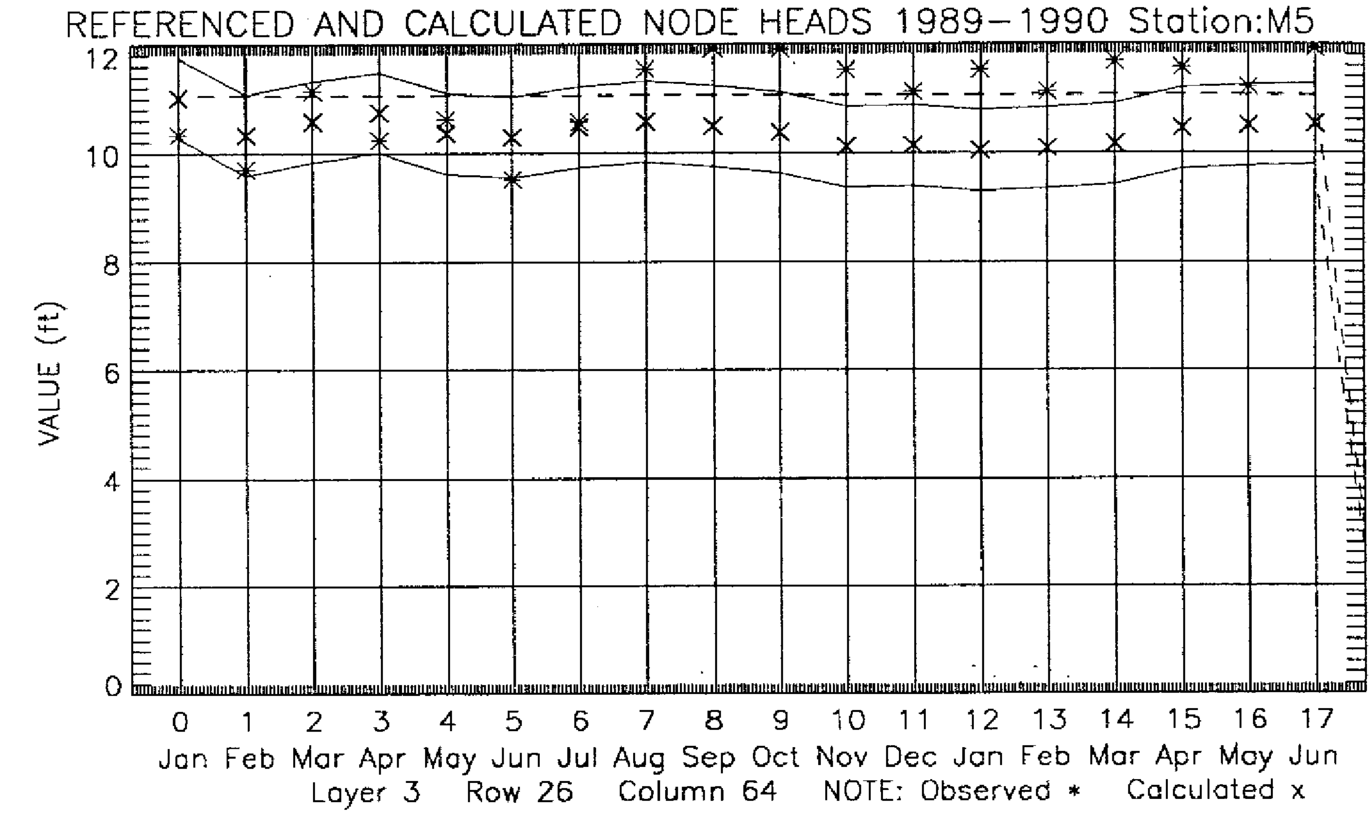

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
−1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

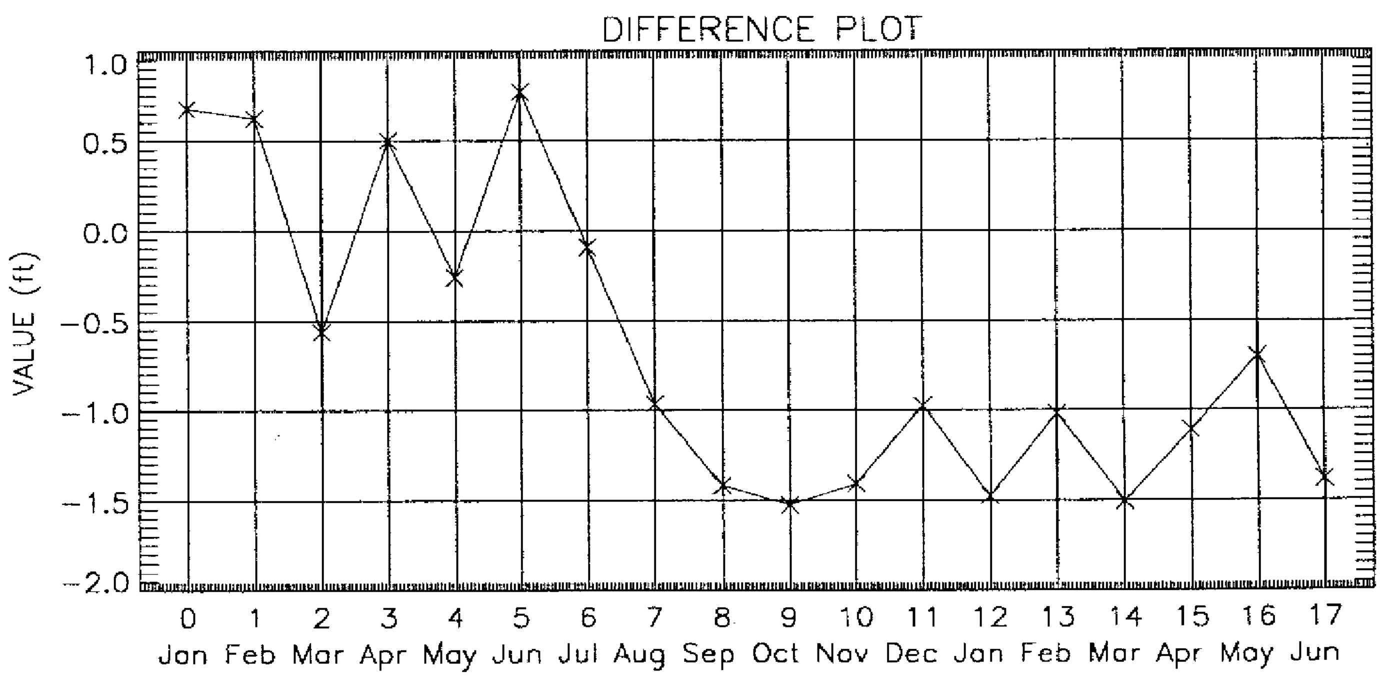

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M15
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 24 Column 64 NOTE: Observed * Calculated x

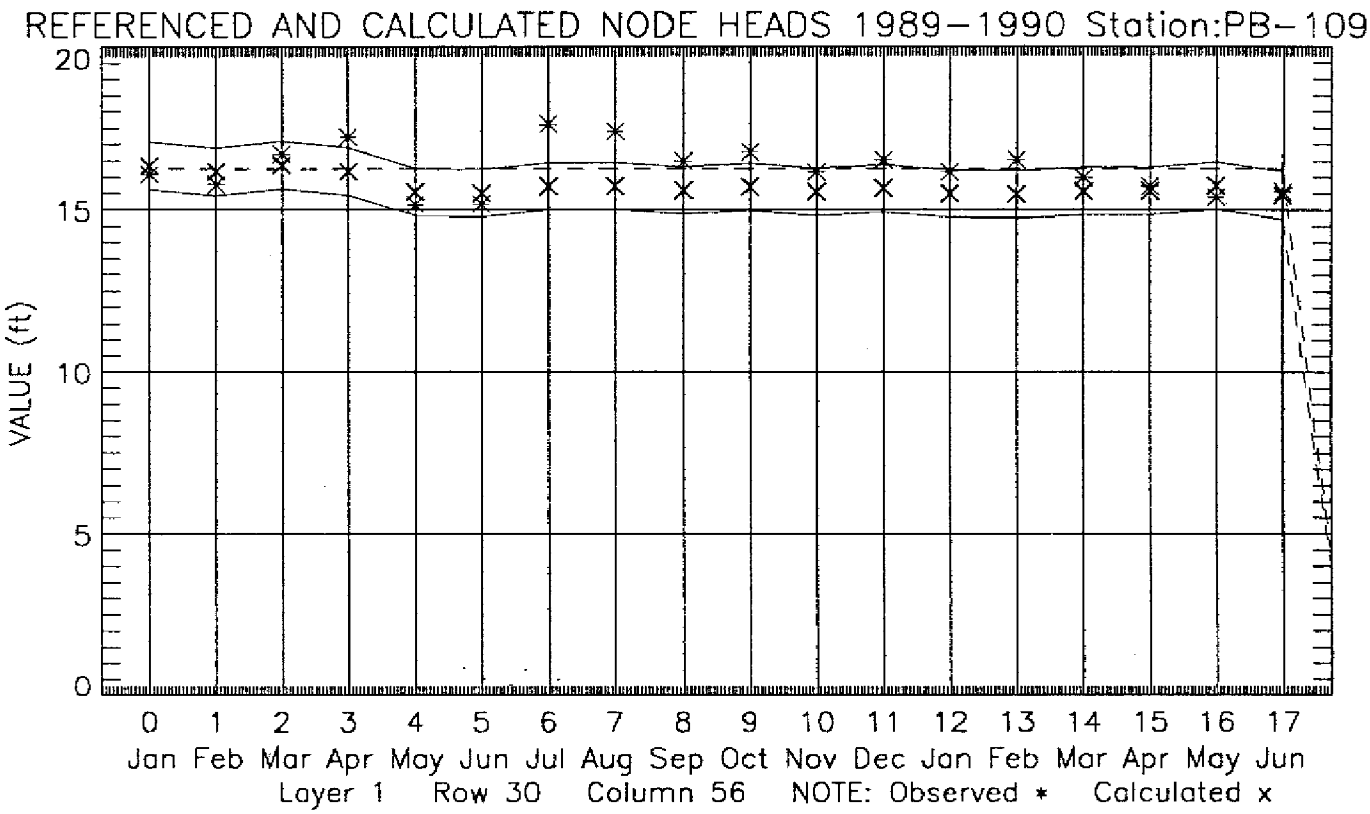

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

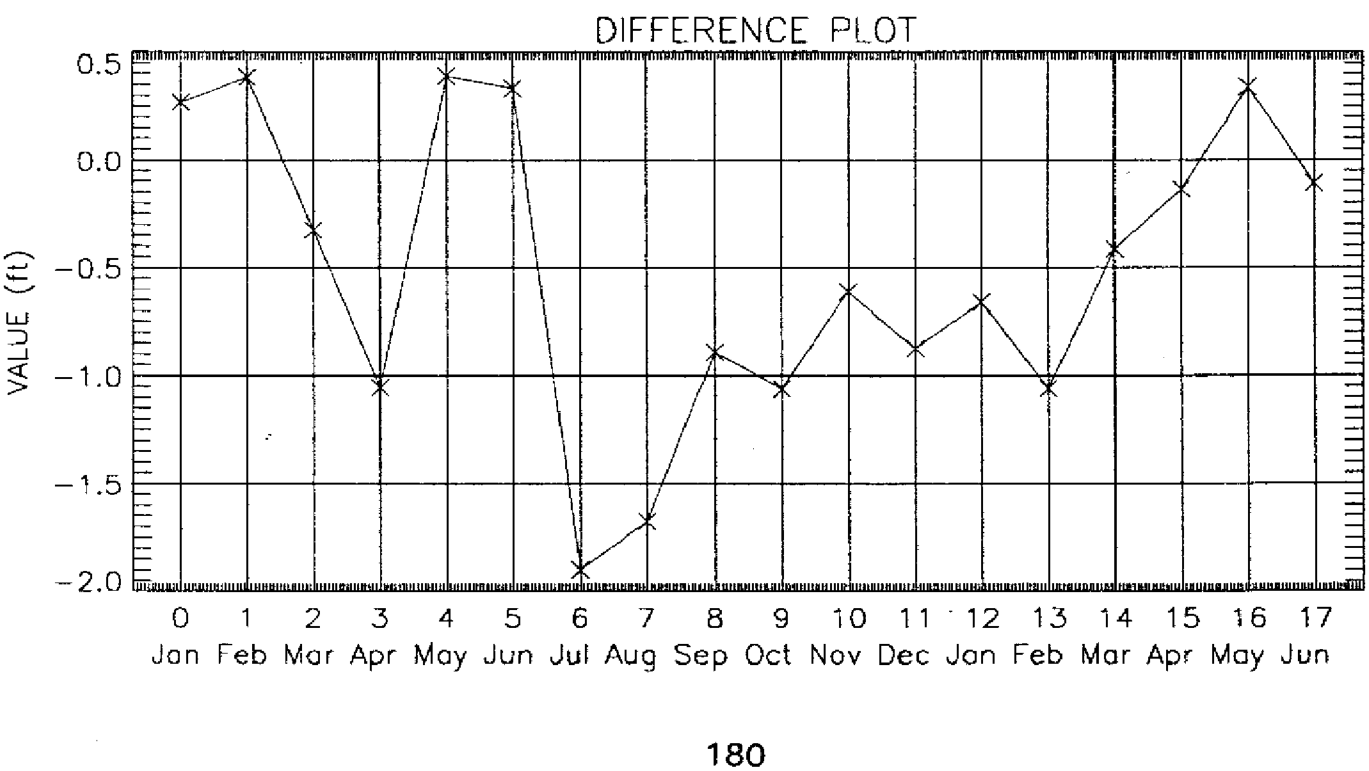

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M13
VALUE (ft)
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 24 Column 68 NOTE: Observed * Calculated x

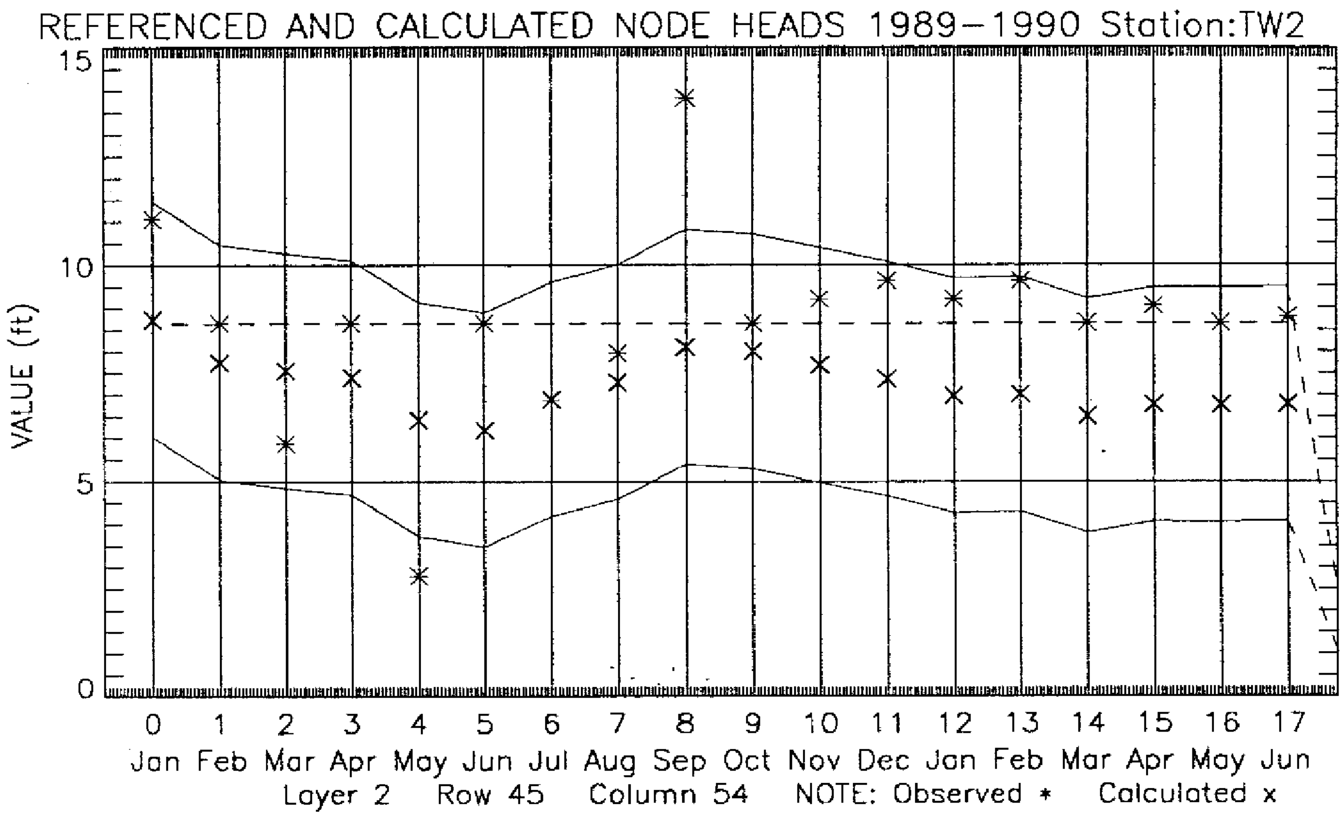

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M5
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 26 Column 64 NOTE: Observed * Calculated x

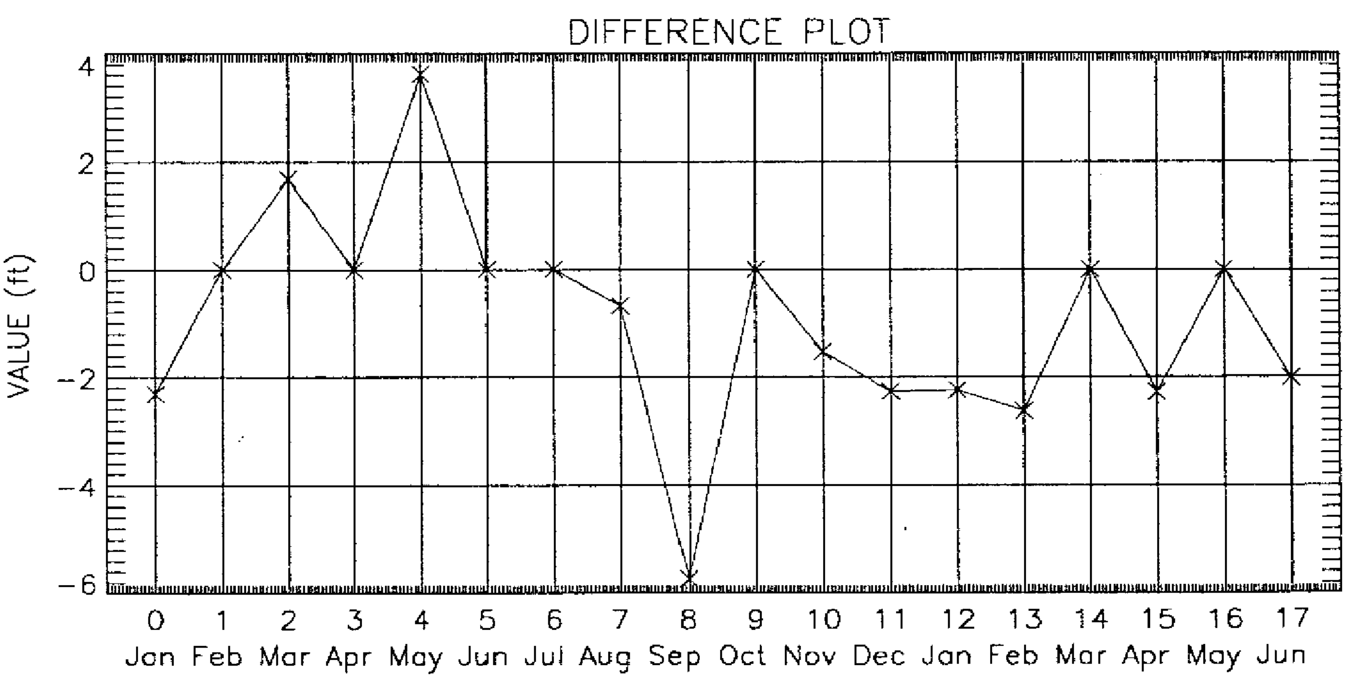

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−109
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 30 Column 56 NOTE: Observed * Calculated x

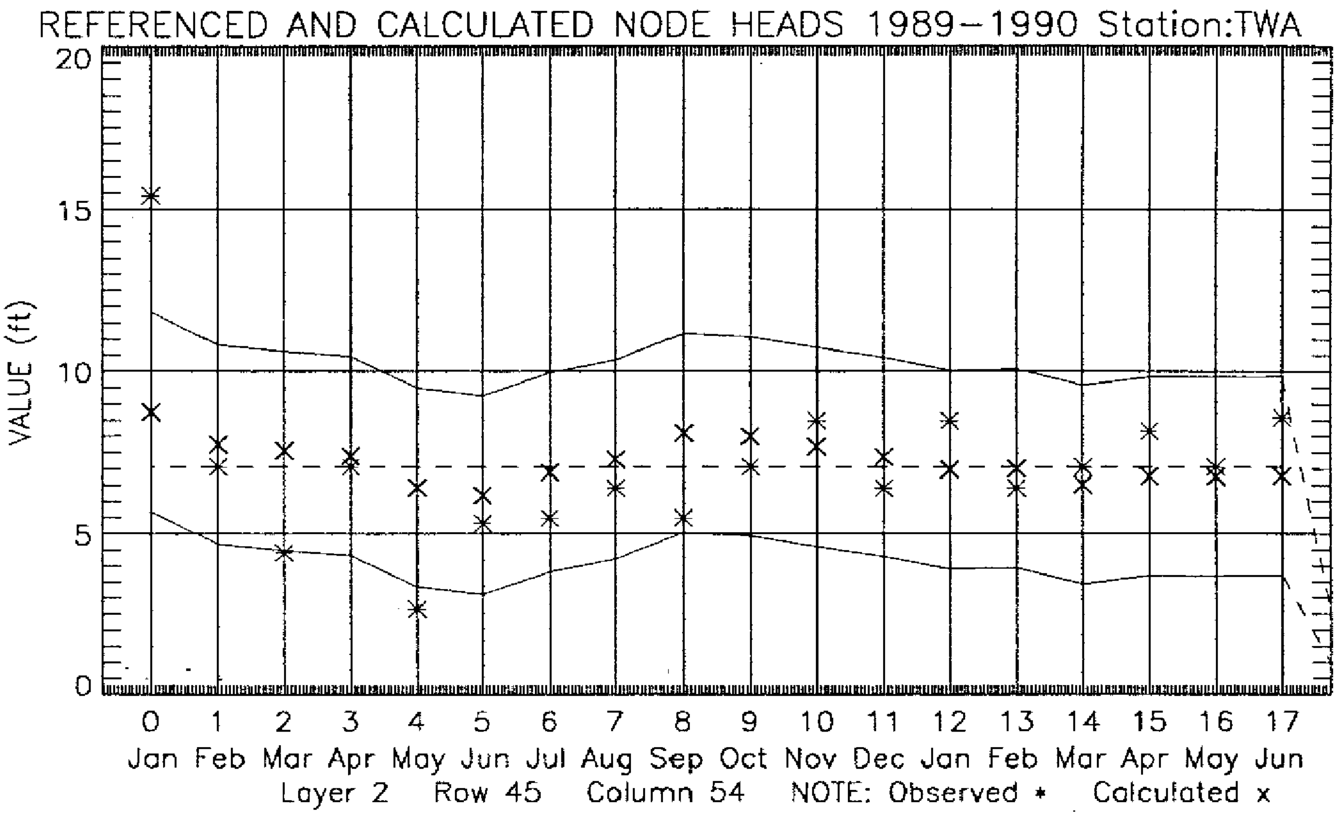

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

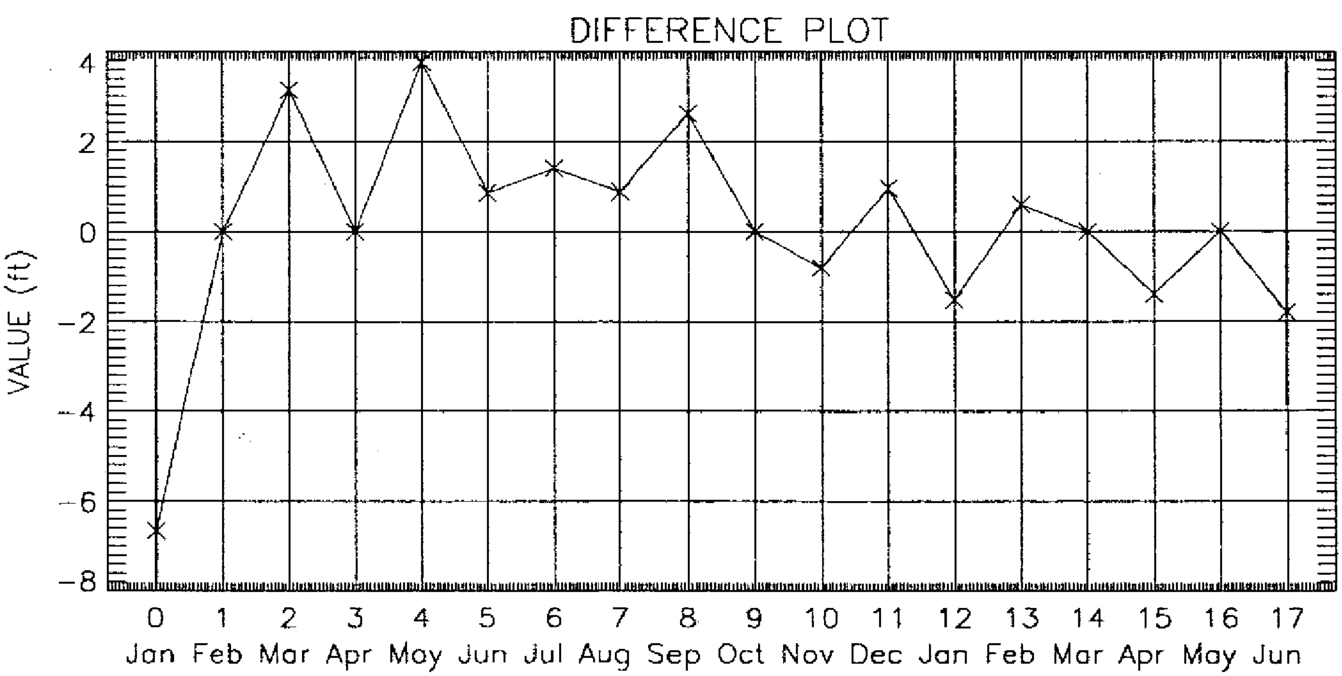


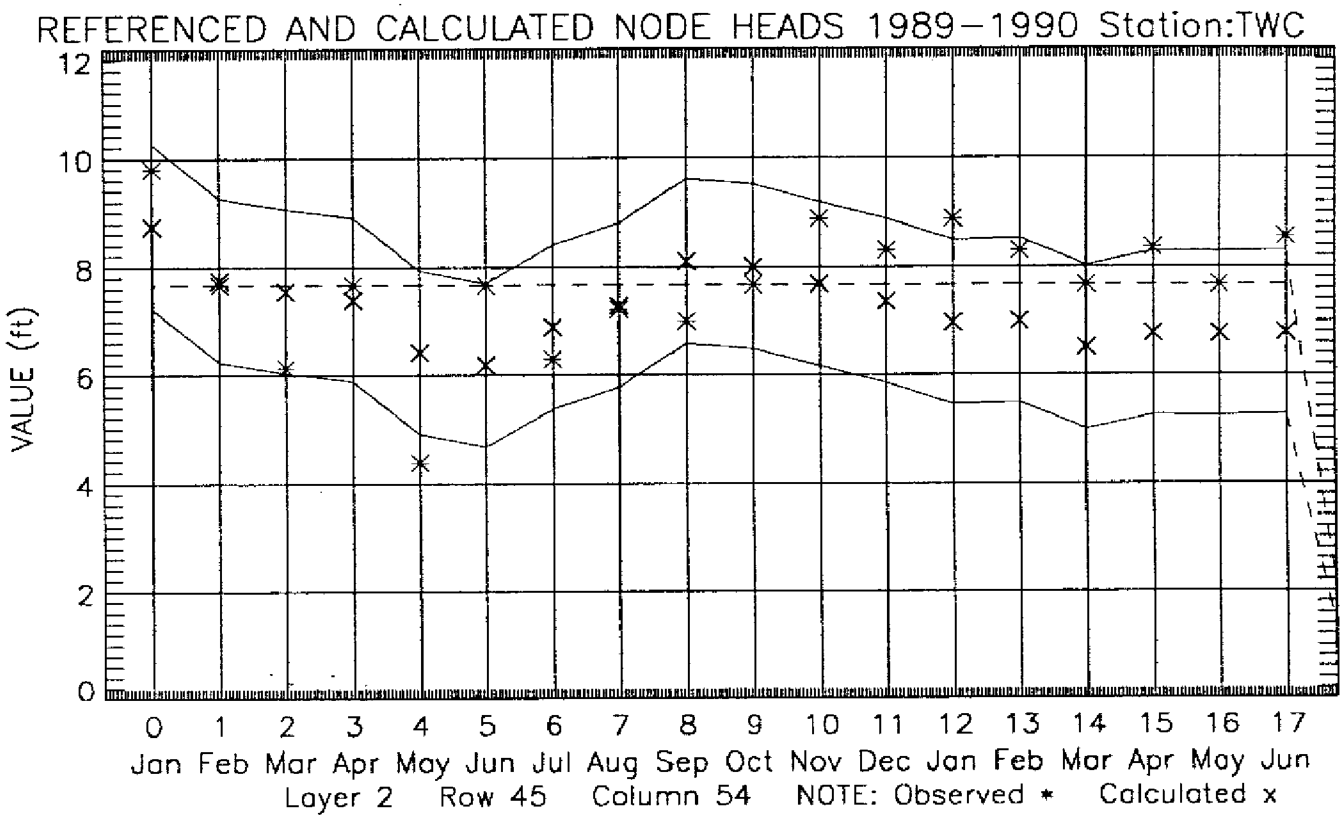
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:TW2
VALUE (ft)
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 54 NOTE: Observed * Calculated x

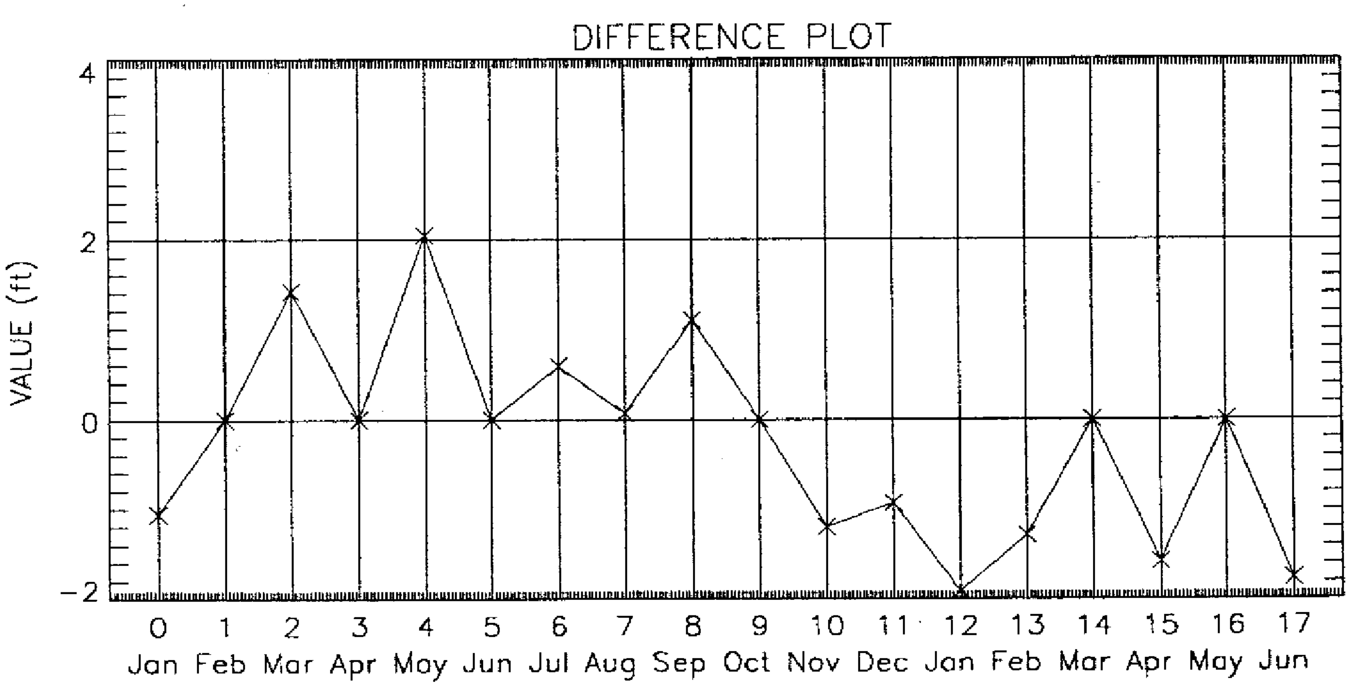


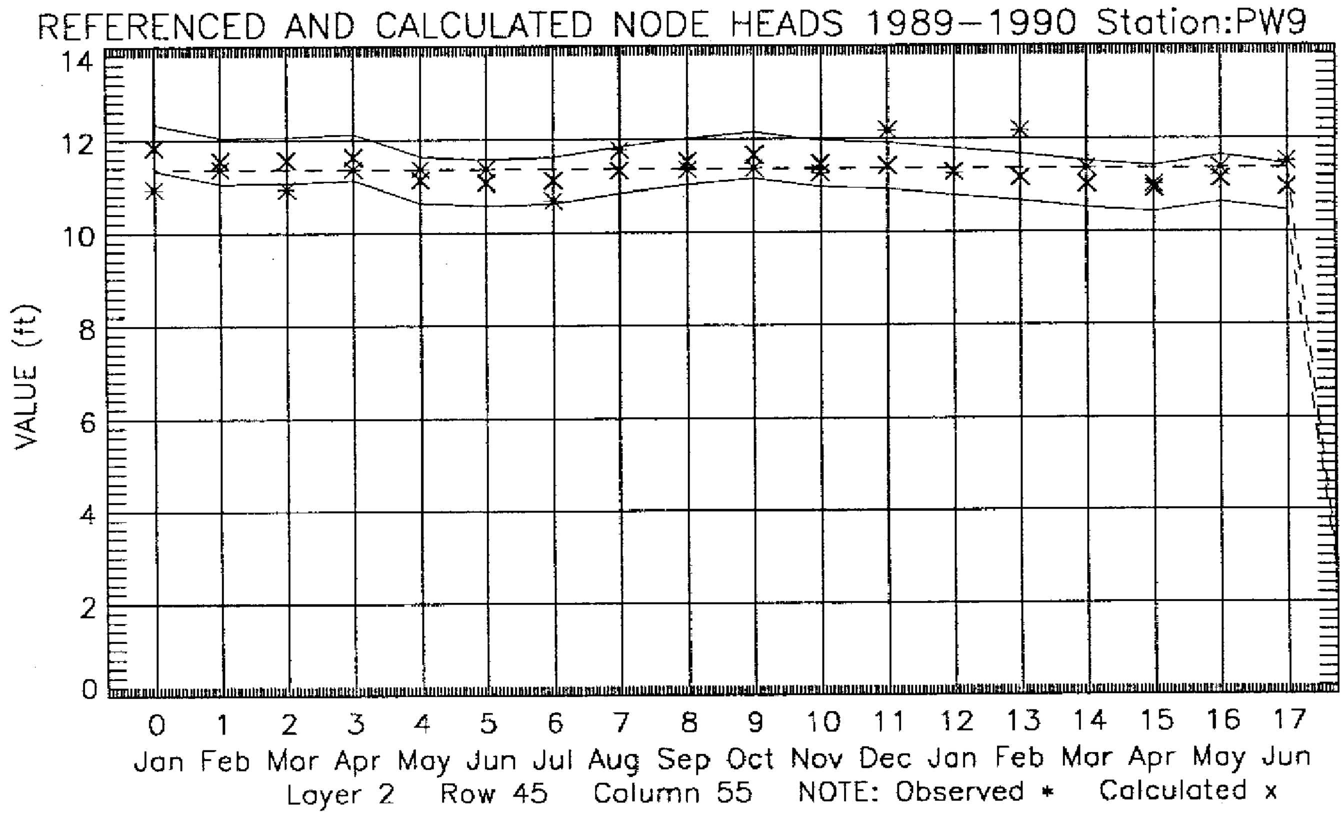
DIFFERENCE PLOT
VALUE (ft)
4
2
0
-2
-4
-6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

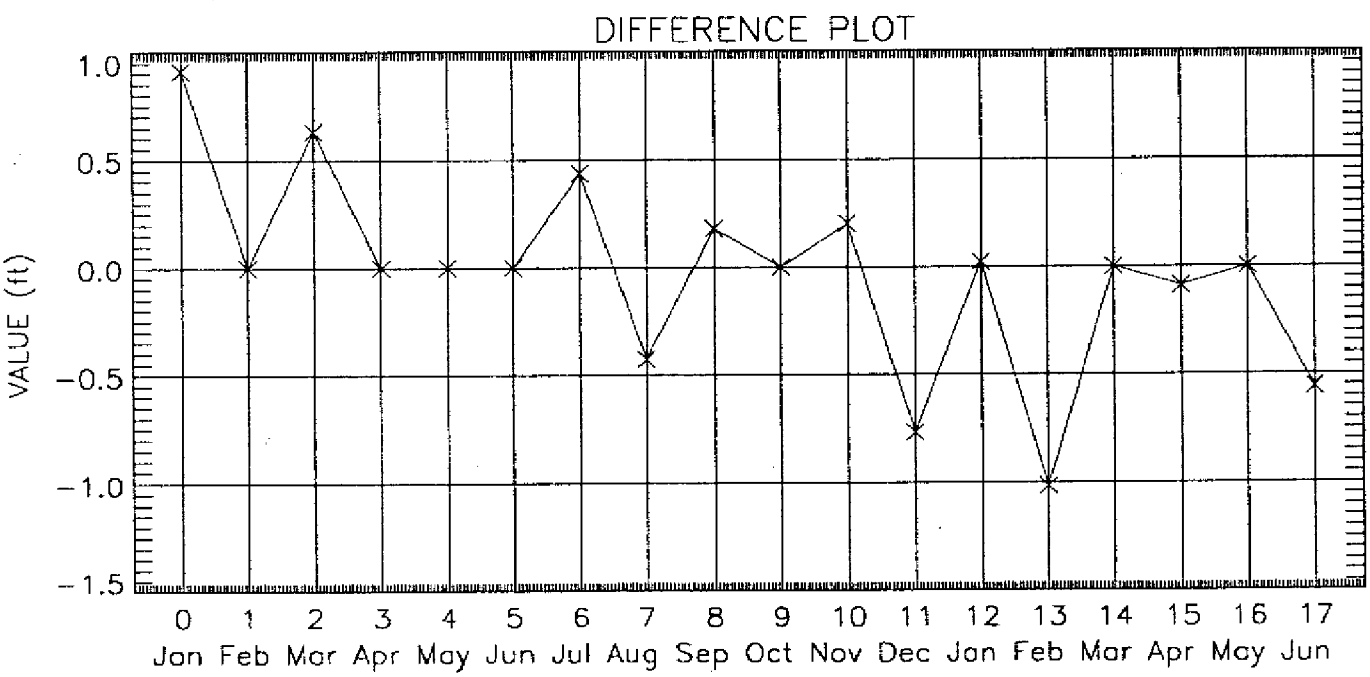

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:TWA
VALUE (ft)
0 5 10 15 20
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 54 NOTE: Observed * Calculated x

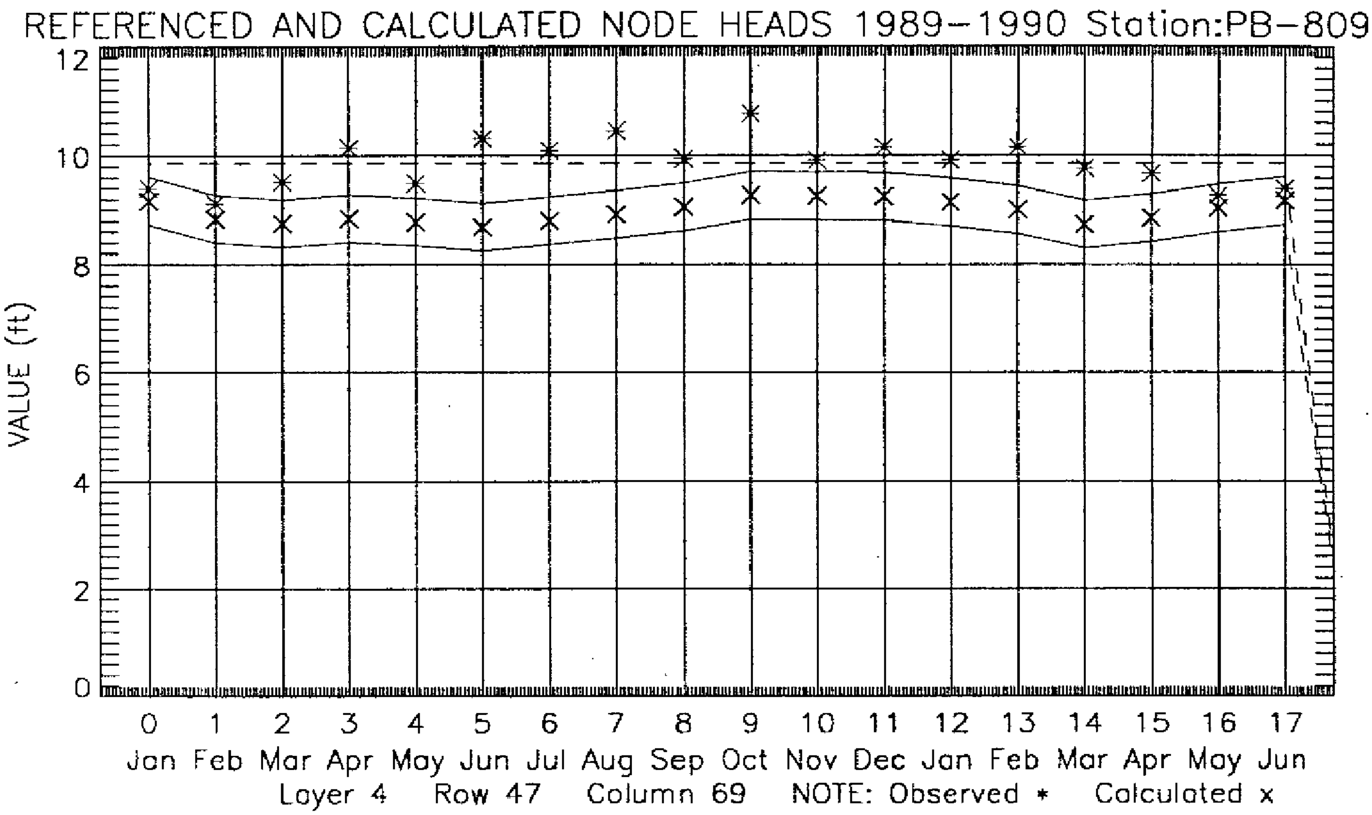

DIFFERENCE PLOT
VALUE (ft)
4 2 0 −2 −4 −6 −8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:TWC
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 54 NOTE: Observed * Calculated x

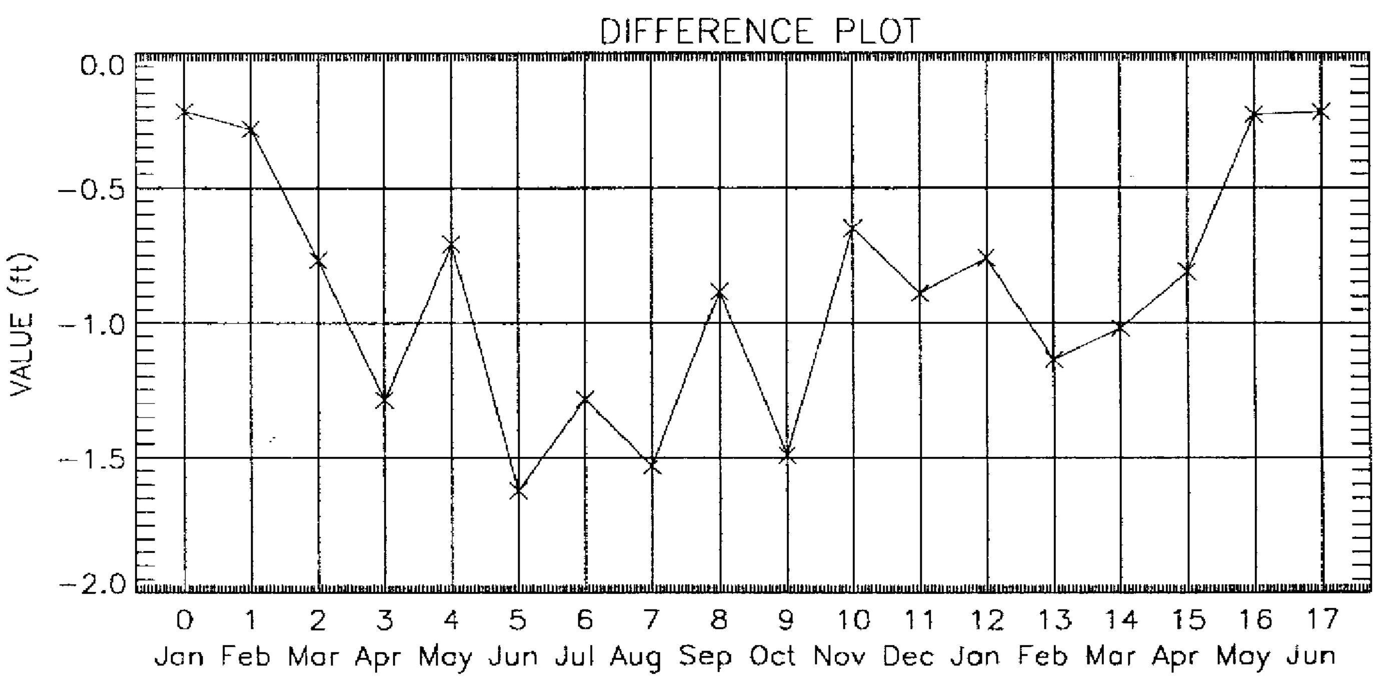

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PW9
VALUE (ft)
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 55 NOTE: Observed * Calculated x

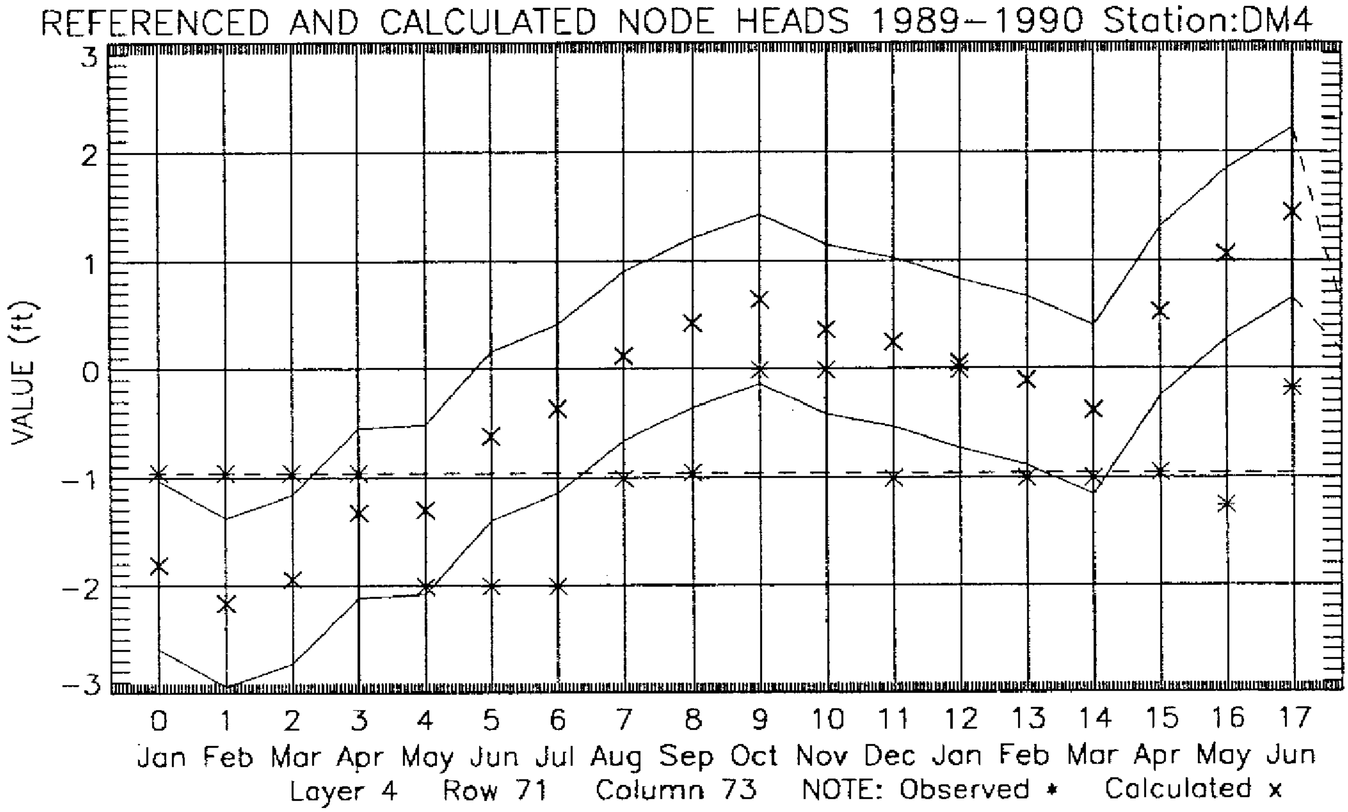

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
−1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

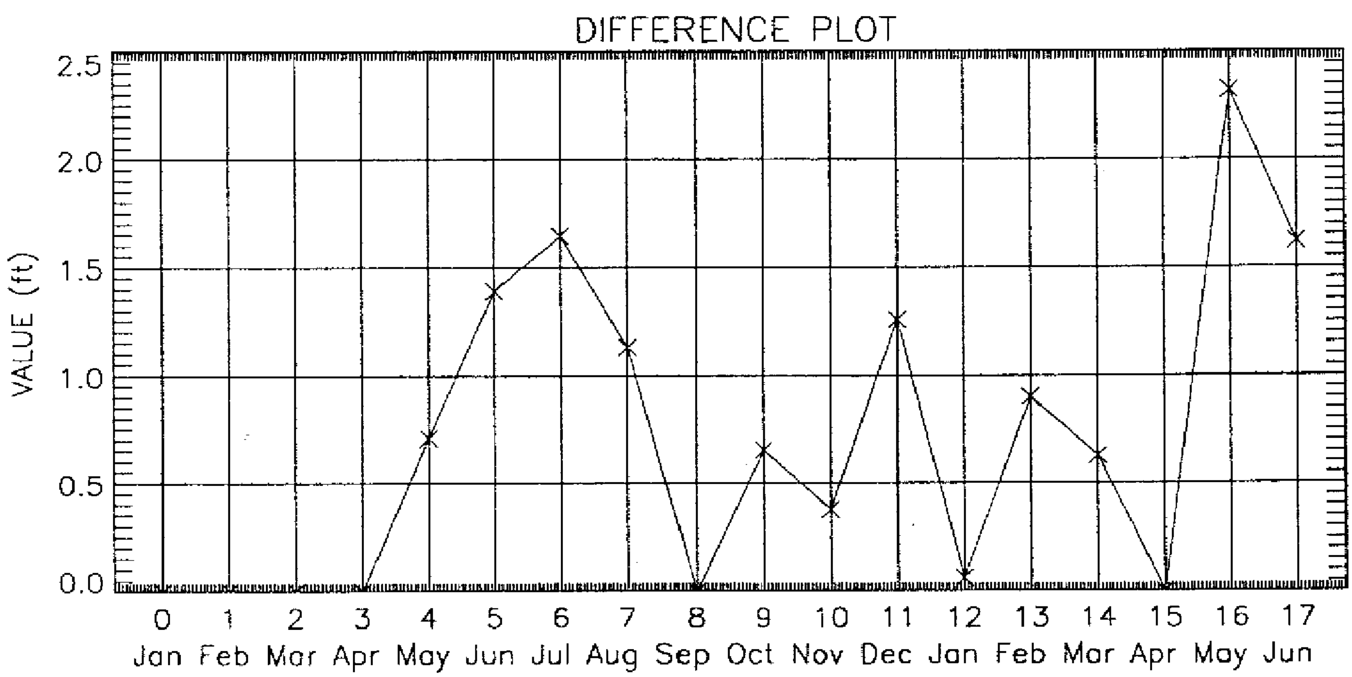


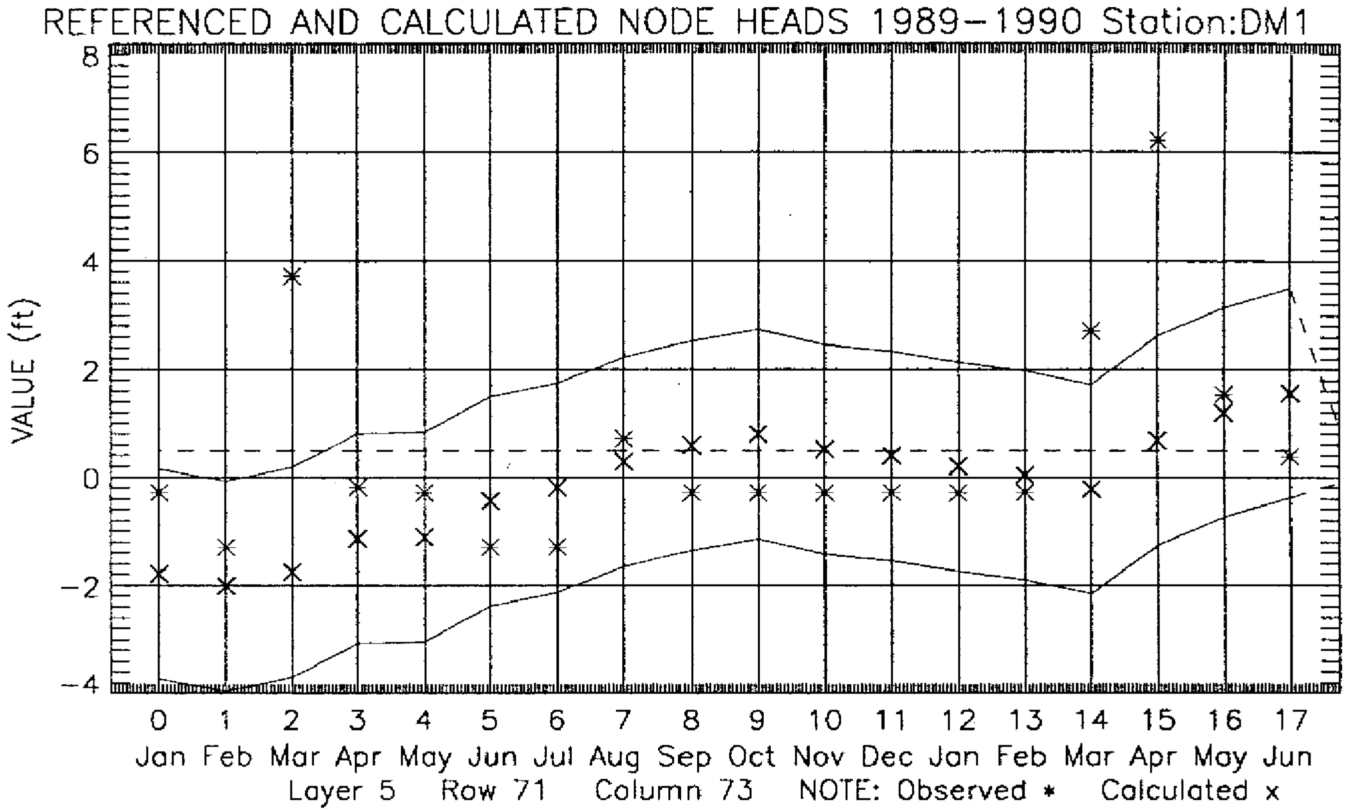
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−809
VALUE (ft)
12
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 47 Column 69 NOTE: Observed * Calculated x

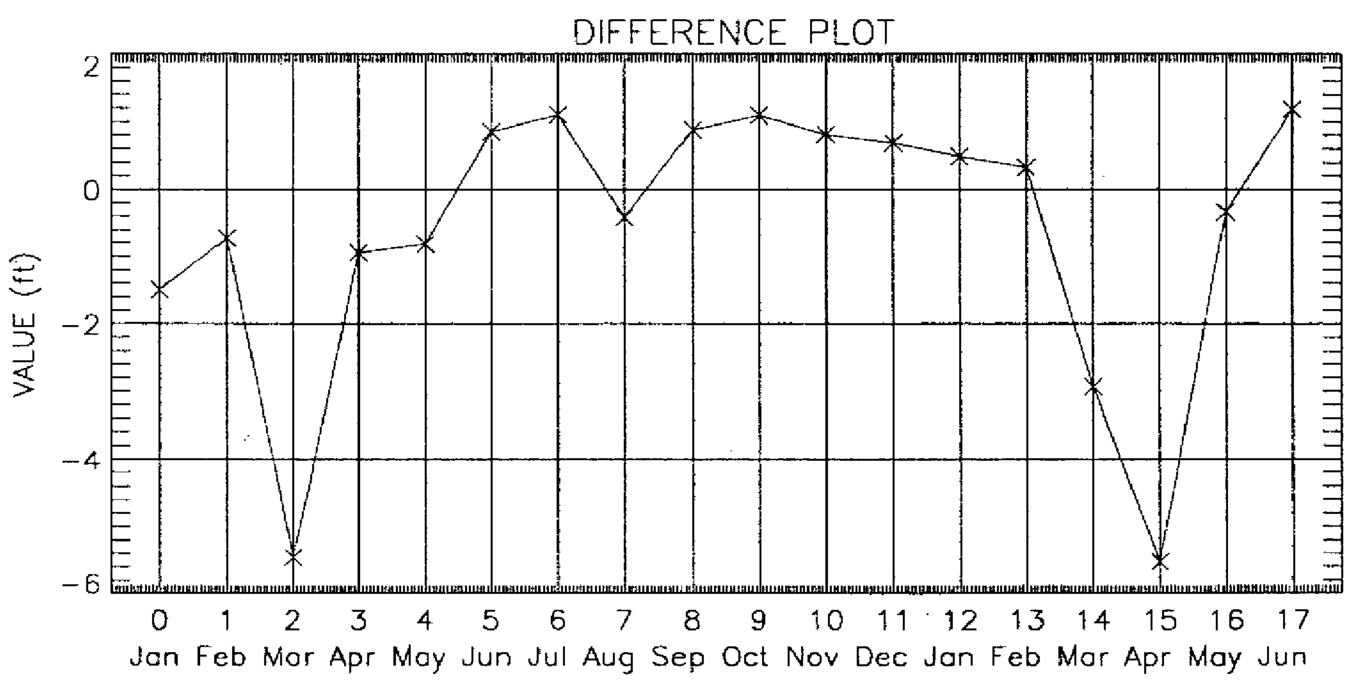


DIFFERENCE PLOT
VALUE (ft)
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

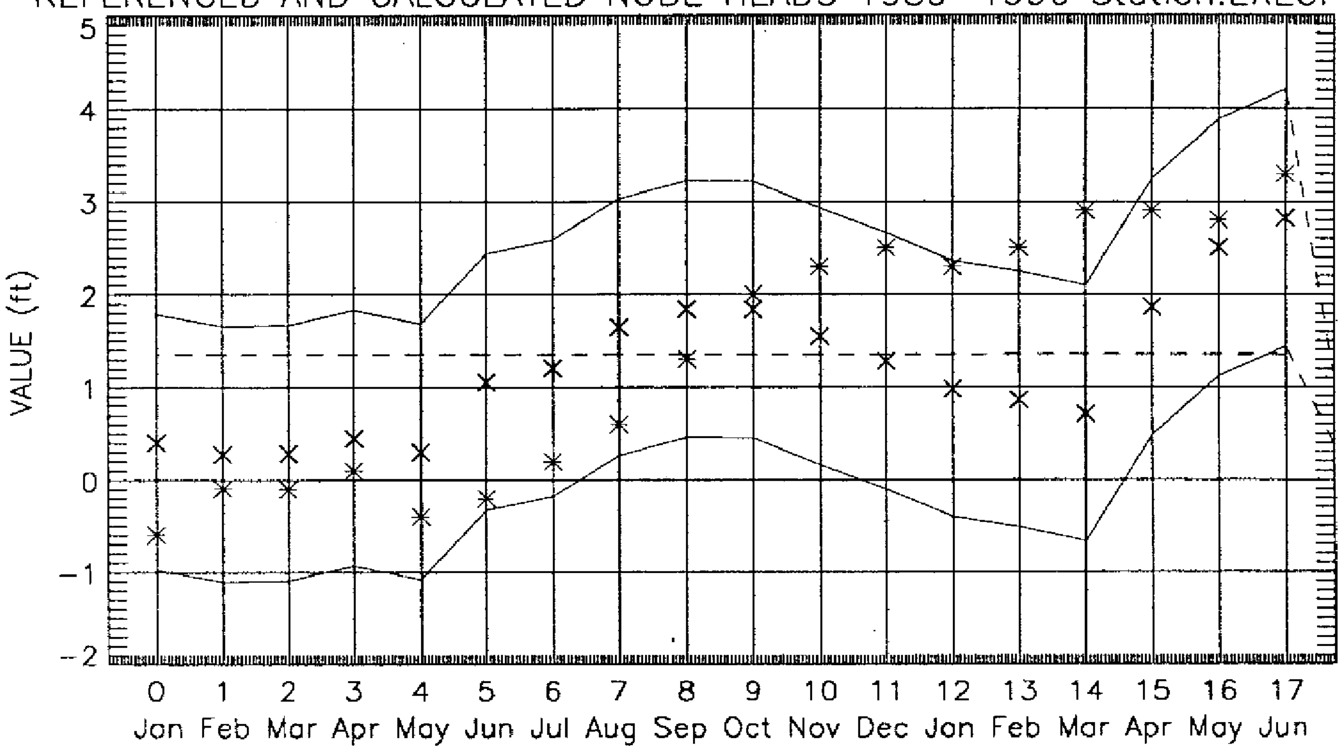

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:DM4
VALUE (ft)
3
2
1
0
−1
−2
−3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 71 Column 73 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:DM1
VALUE (ft)
8
6
4
2
0
-2
-4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 71 Column 73 NOTE: Observed * Calculated x

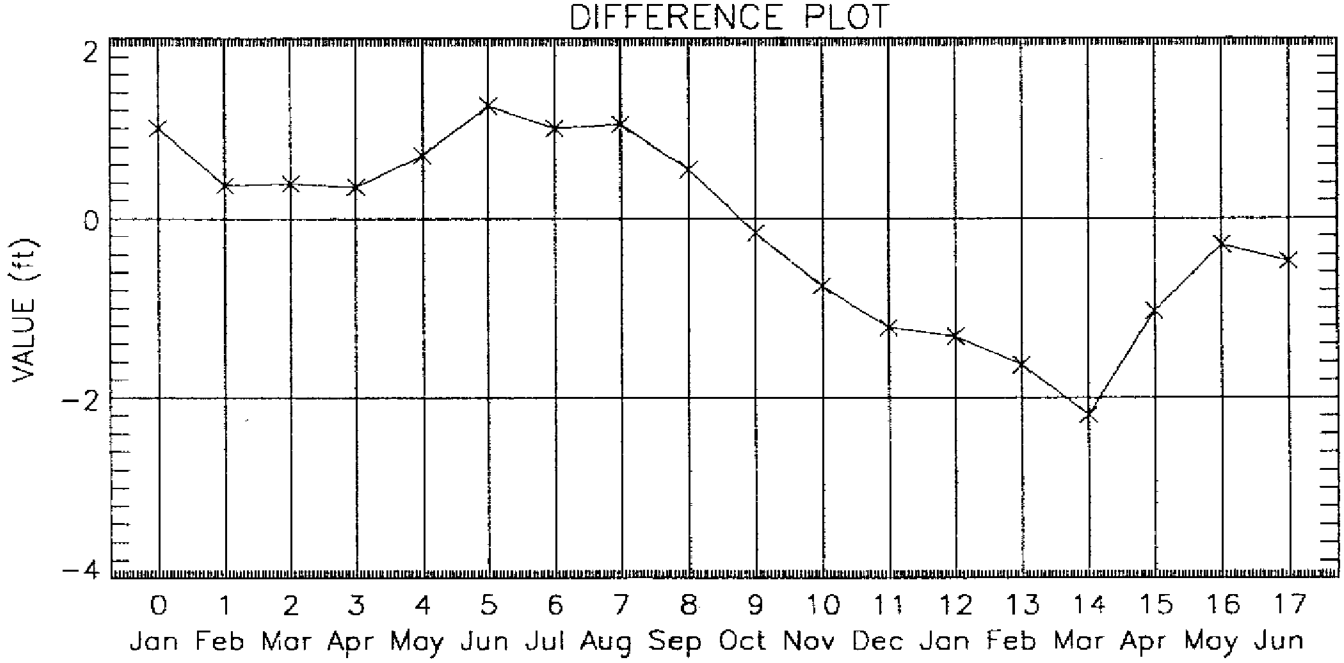

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
-4
-6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

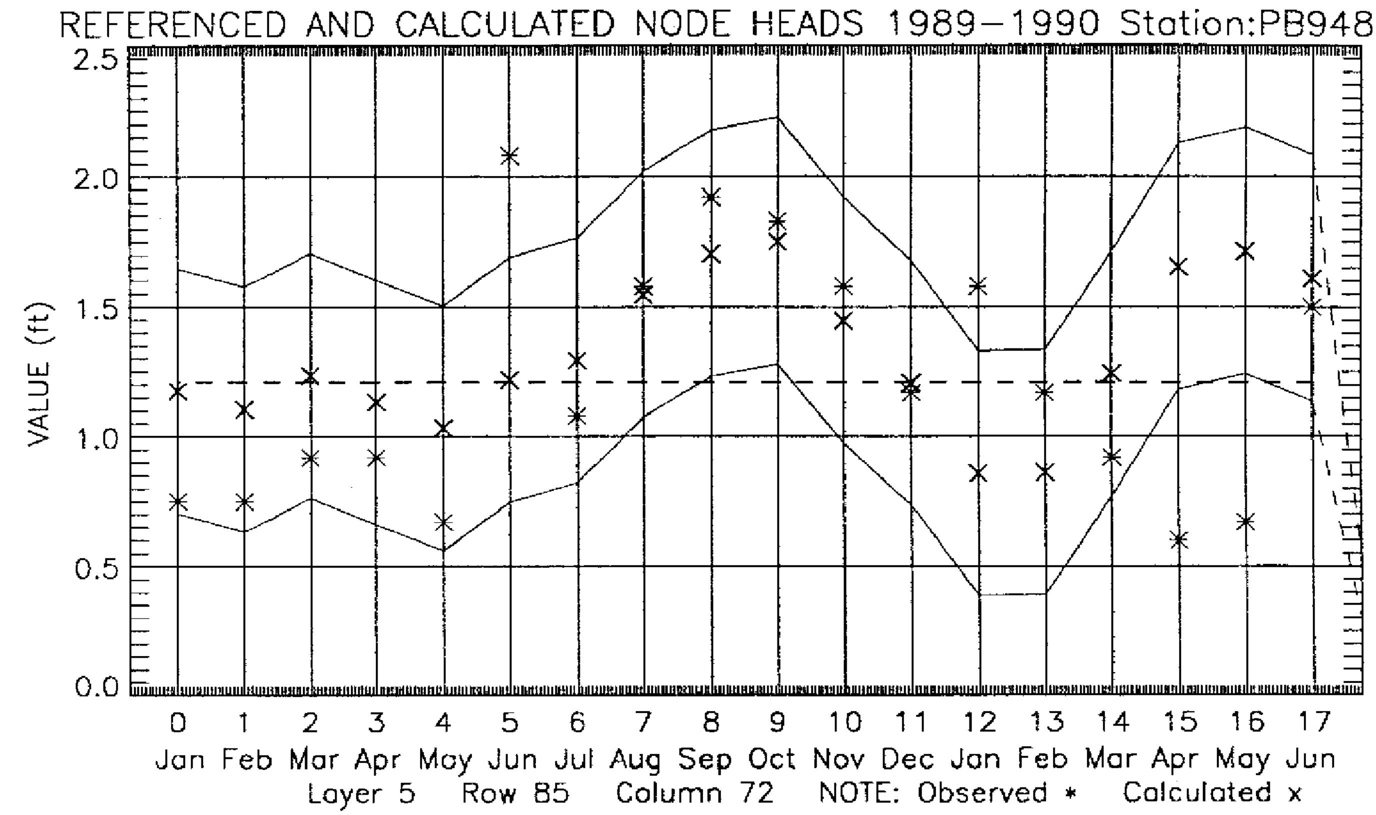
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:EXECPLZA

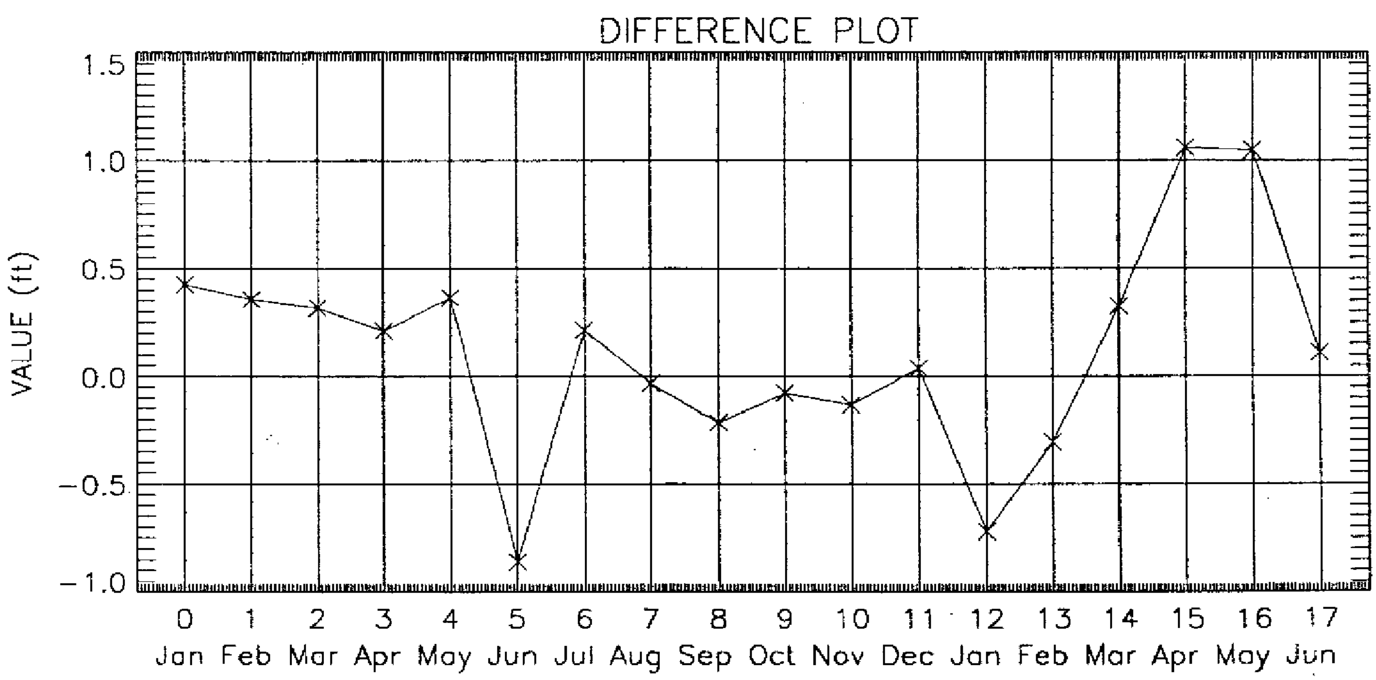


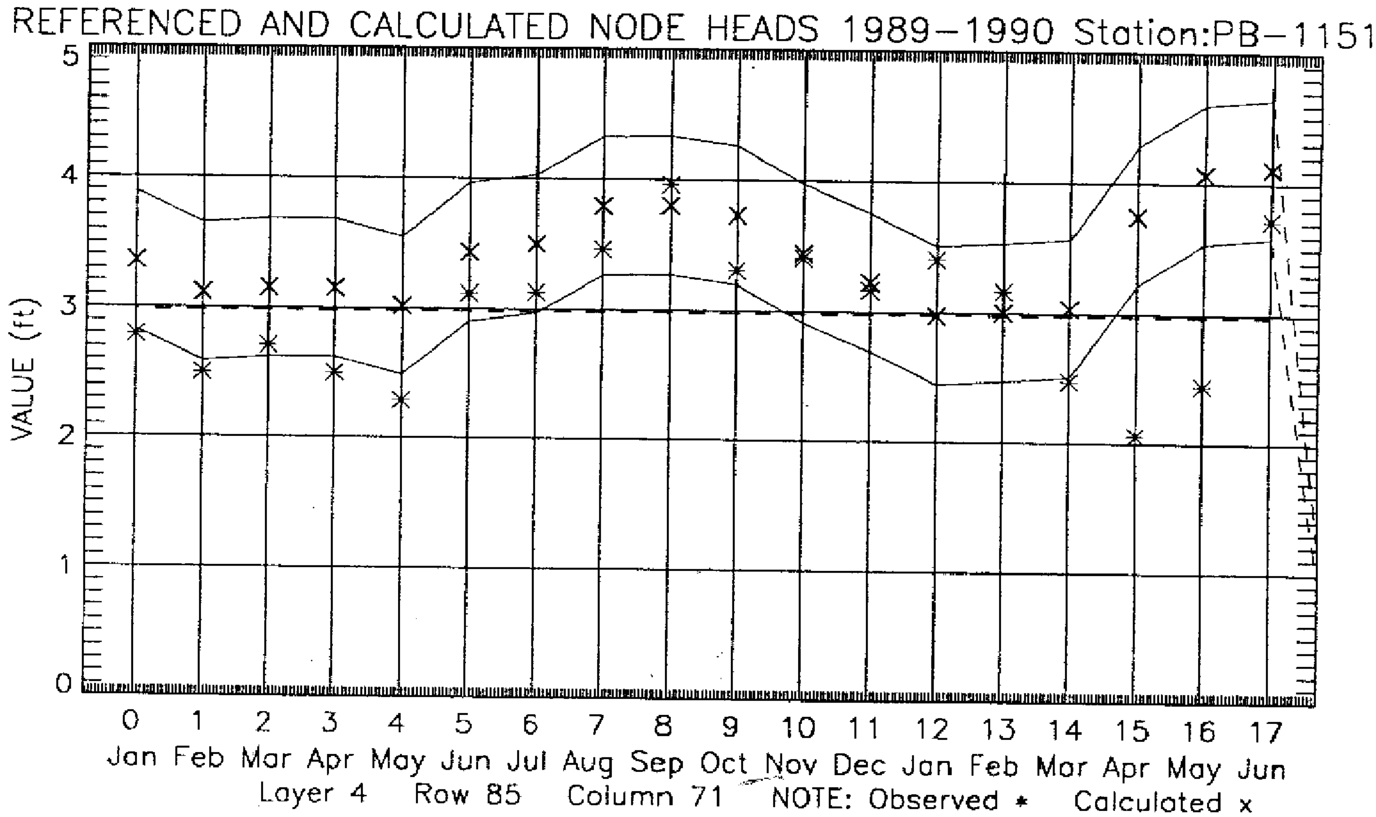
Layer 3 Row 78 Column 72 NOTE: Observed * Calculated x

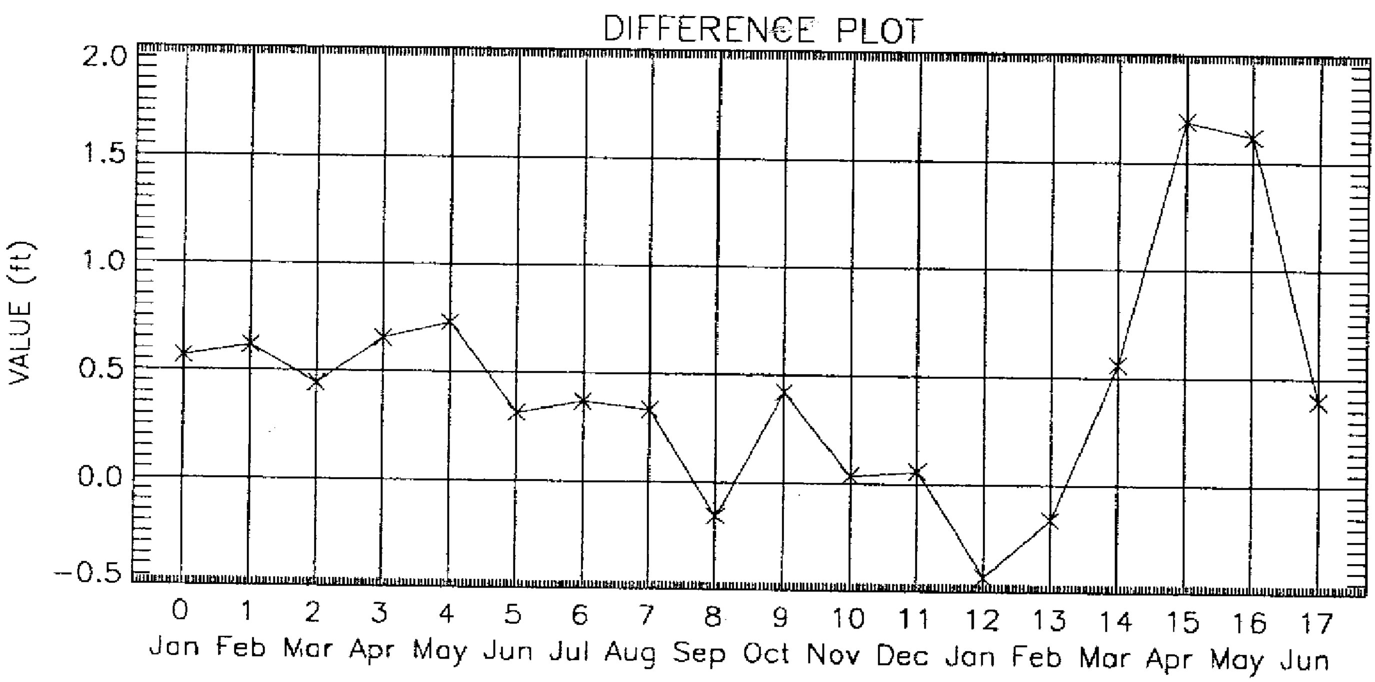
DIFFERENCE PLOT

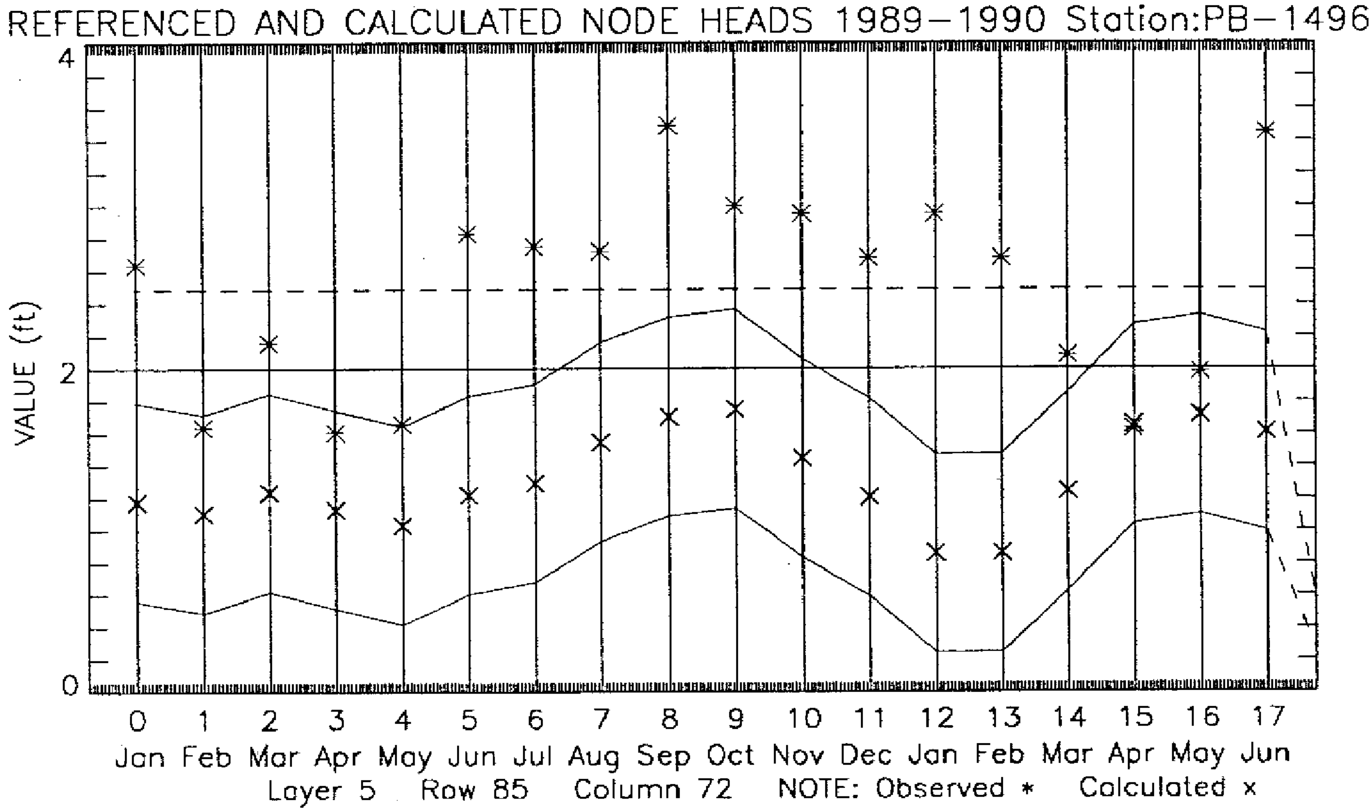


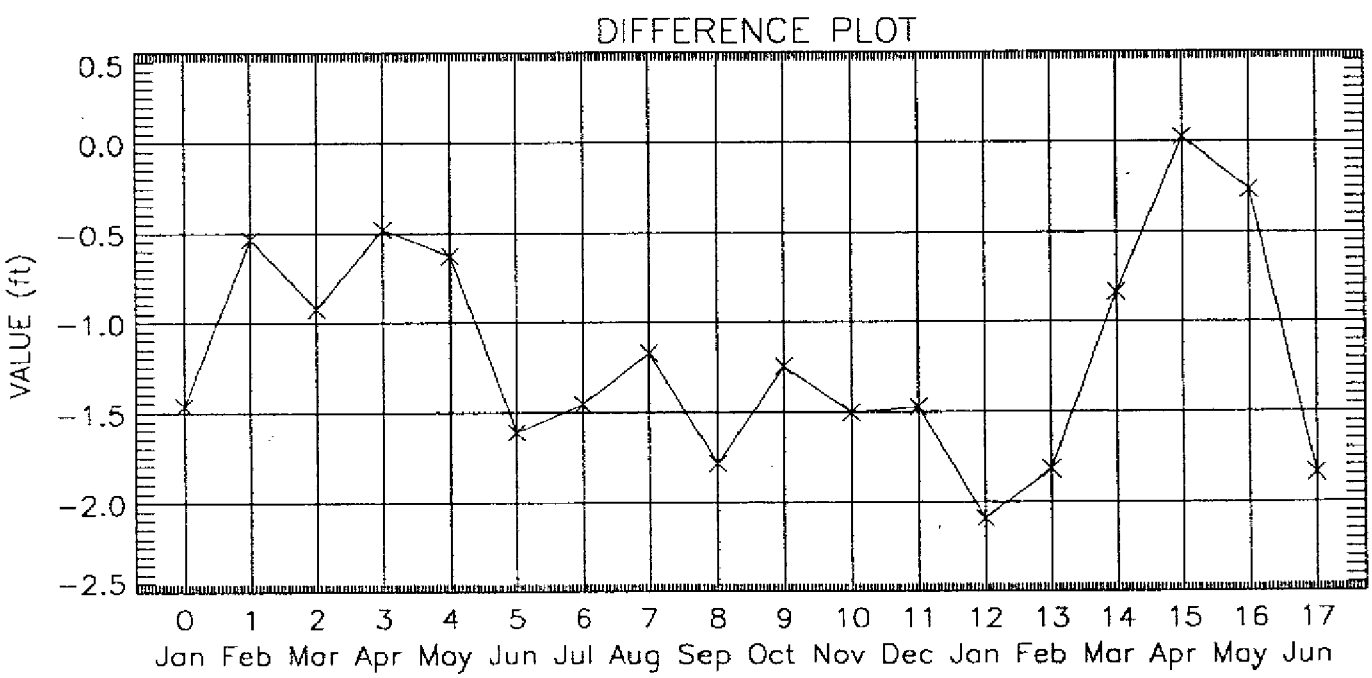

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB948
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 85 Column 72 NOTE: Observed * Calculated x

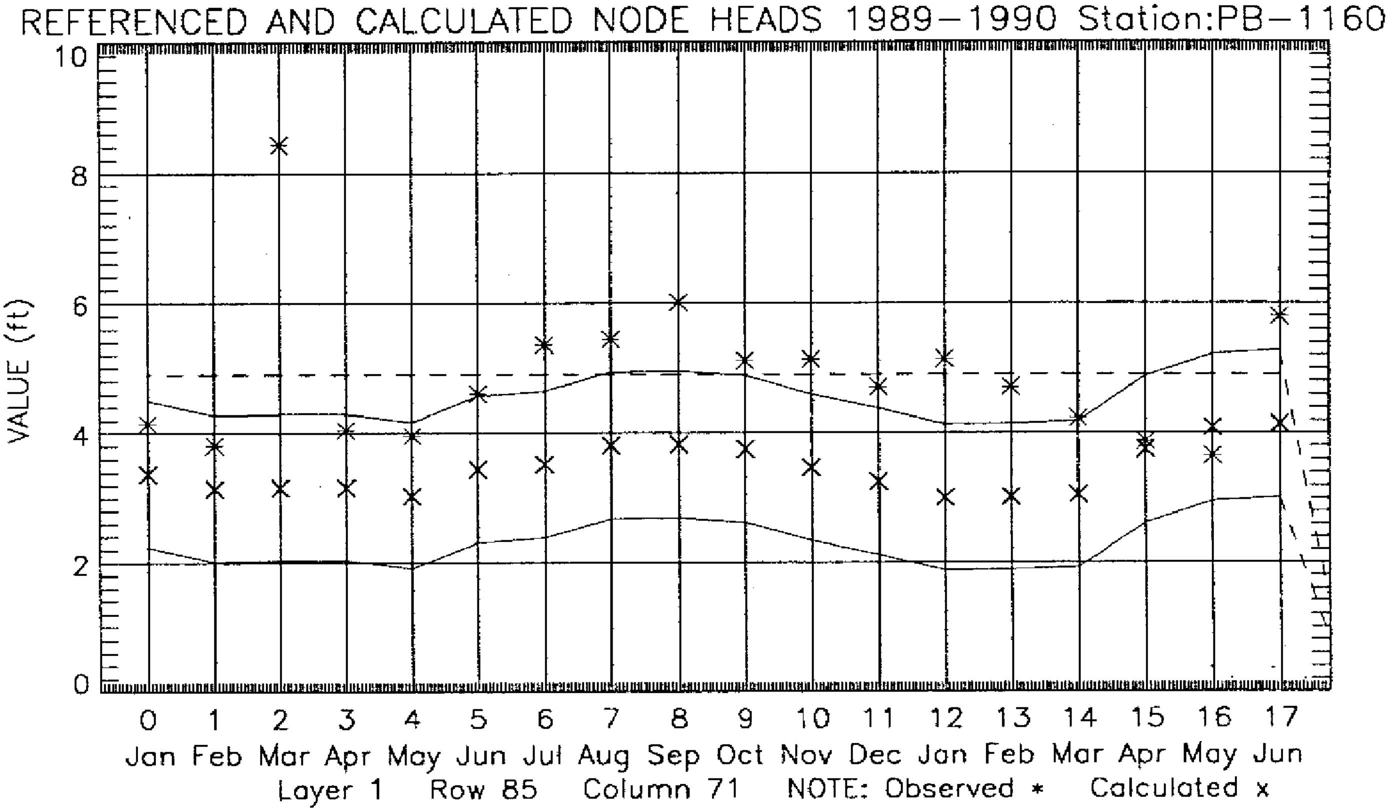

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

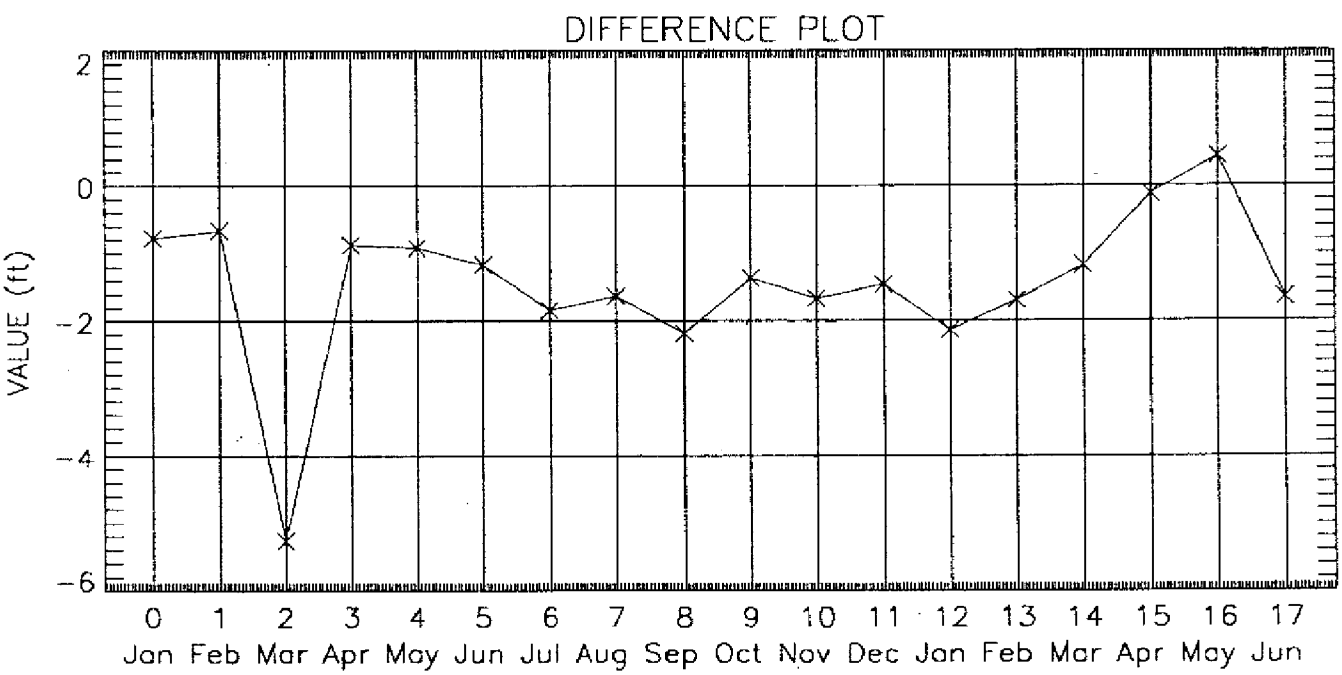

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1151
VALUE (ft)
0 1 2 3 4 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 85 Column 71 NOTE: Observed * Calculated x

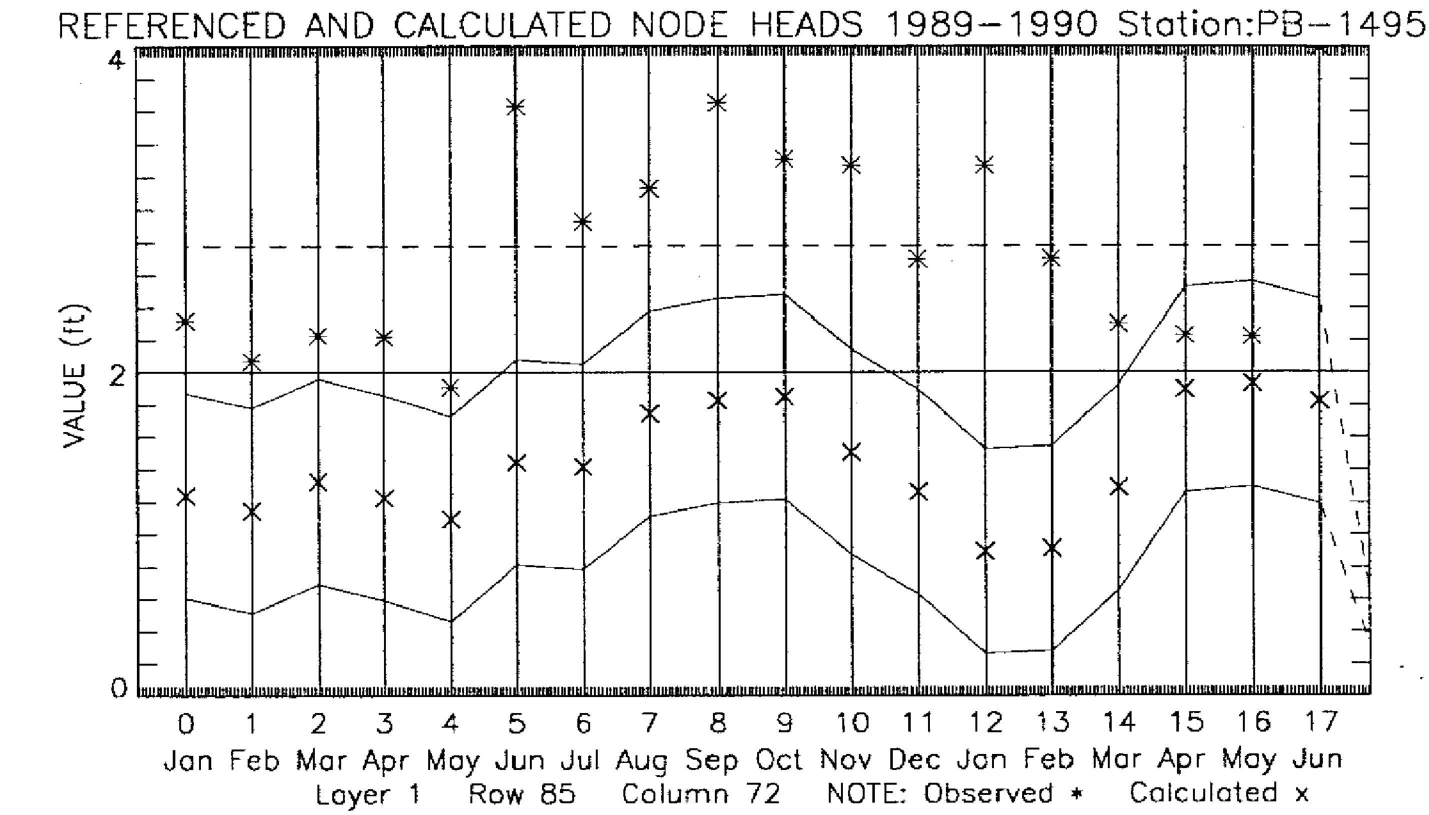

DIFFERENCE PLOT
VALUE (ft)
−0.5 0.0 0.5 1.0 1.5 2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

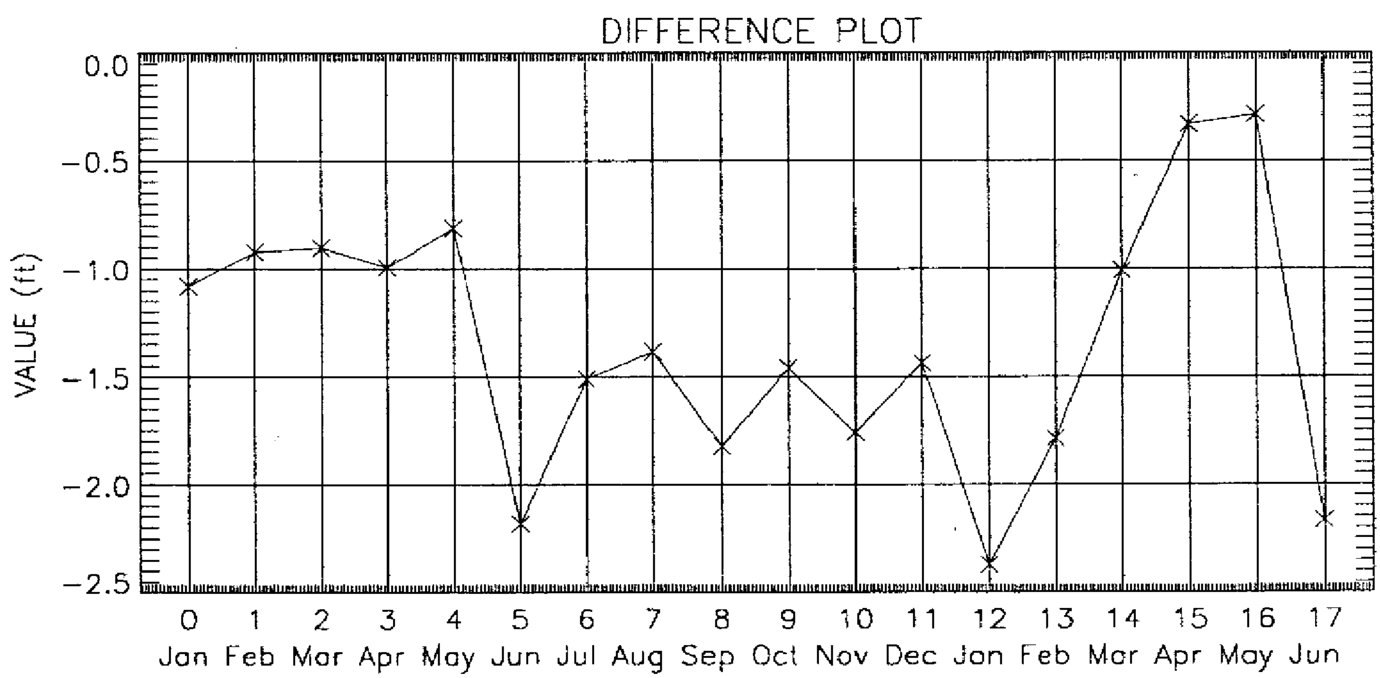

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1496
VALUE (ft)
0 2 4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 85 Column 72 NOTE: Observed * Calculated x

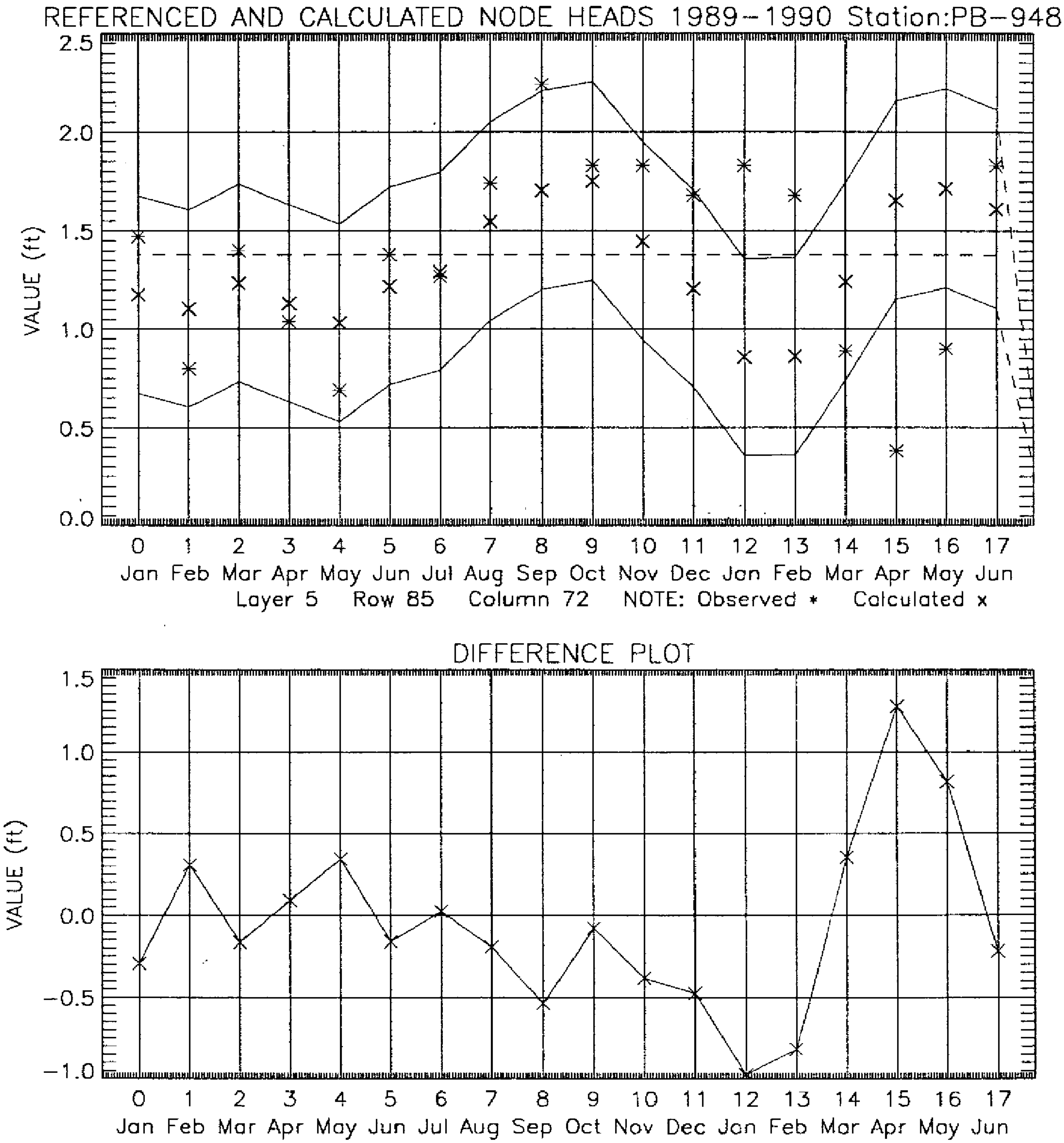

DIFFERENCE PLOT
VALUE (ft)
0.5 0.0 −0.5 −1.0 −1.5 −2.0 −2.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

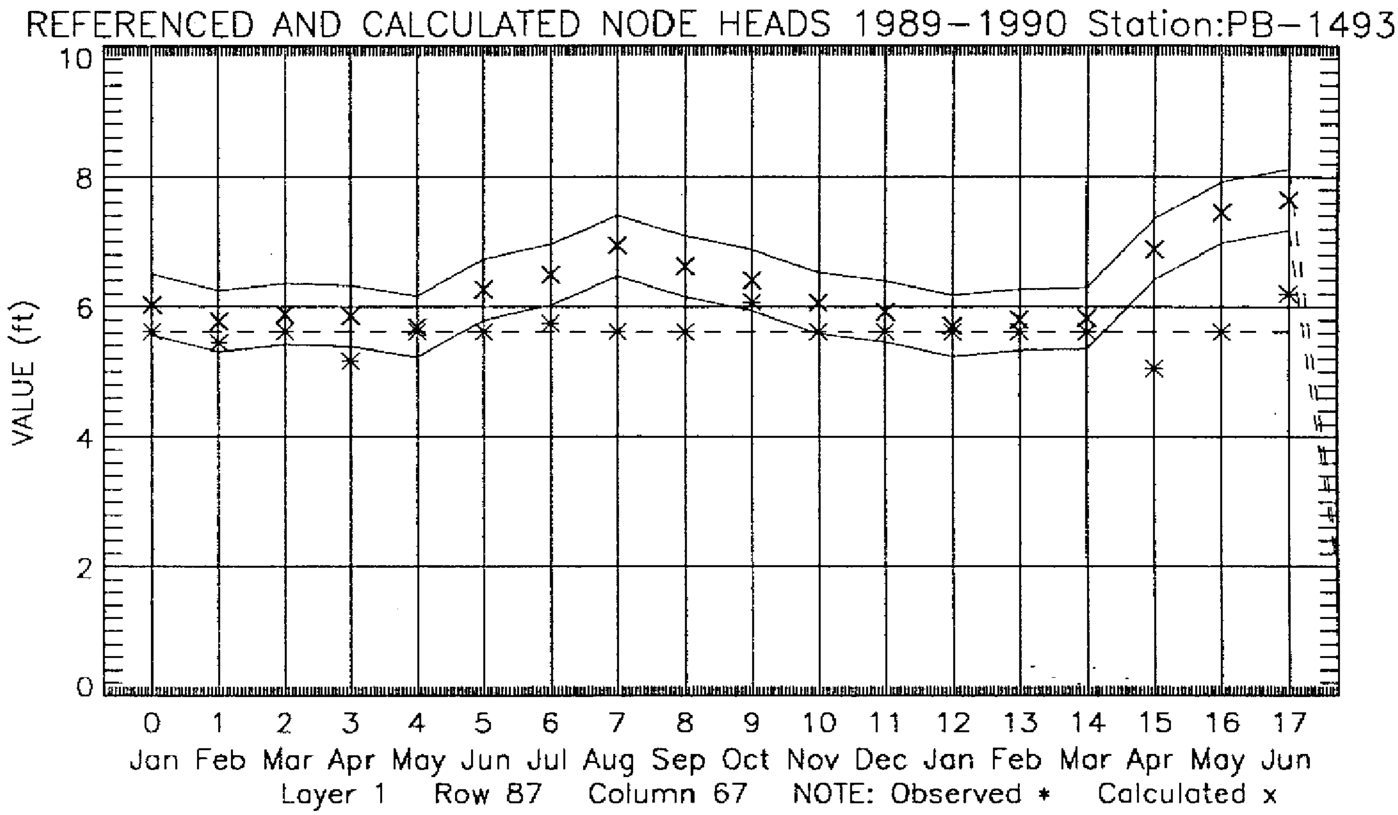

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1160
VALUE (ft)
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 85 Column 71 NOTE: Observed * Calculated x

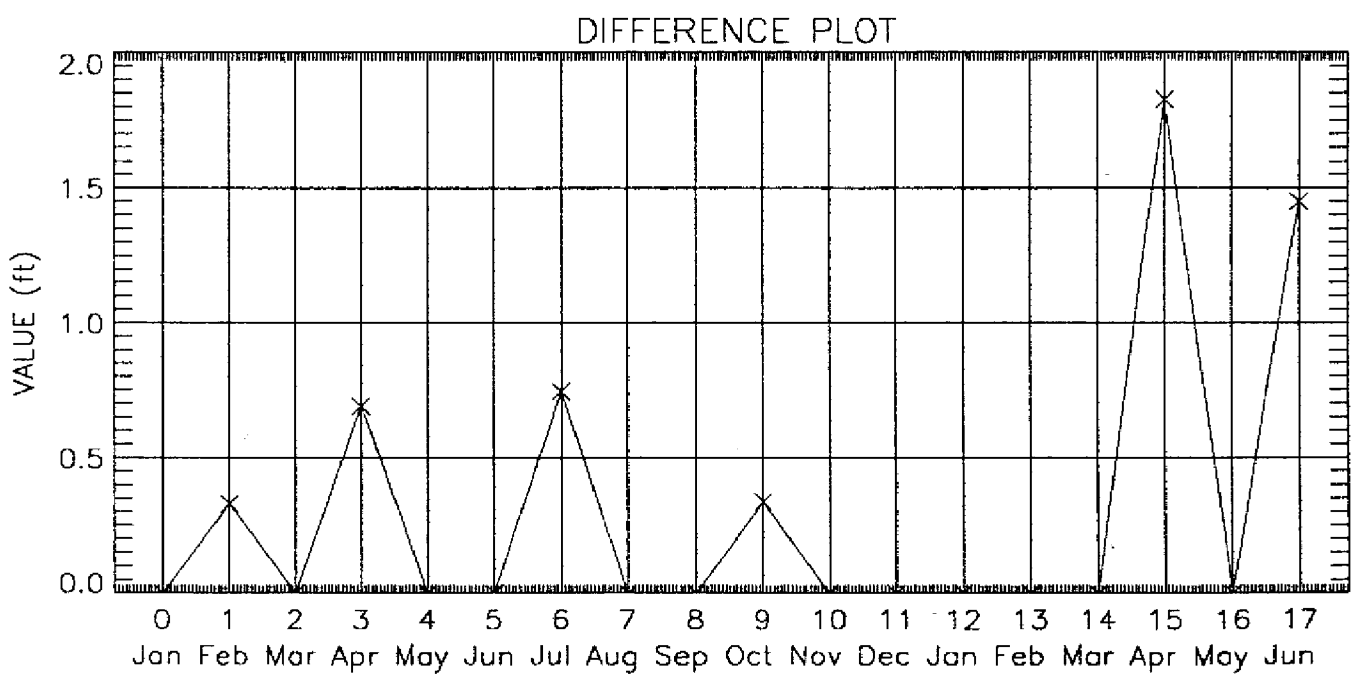

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
−4
−6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

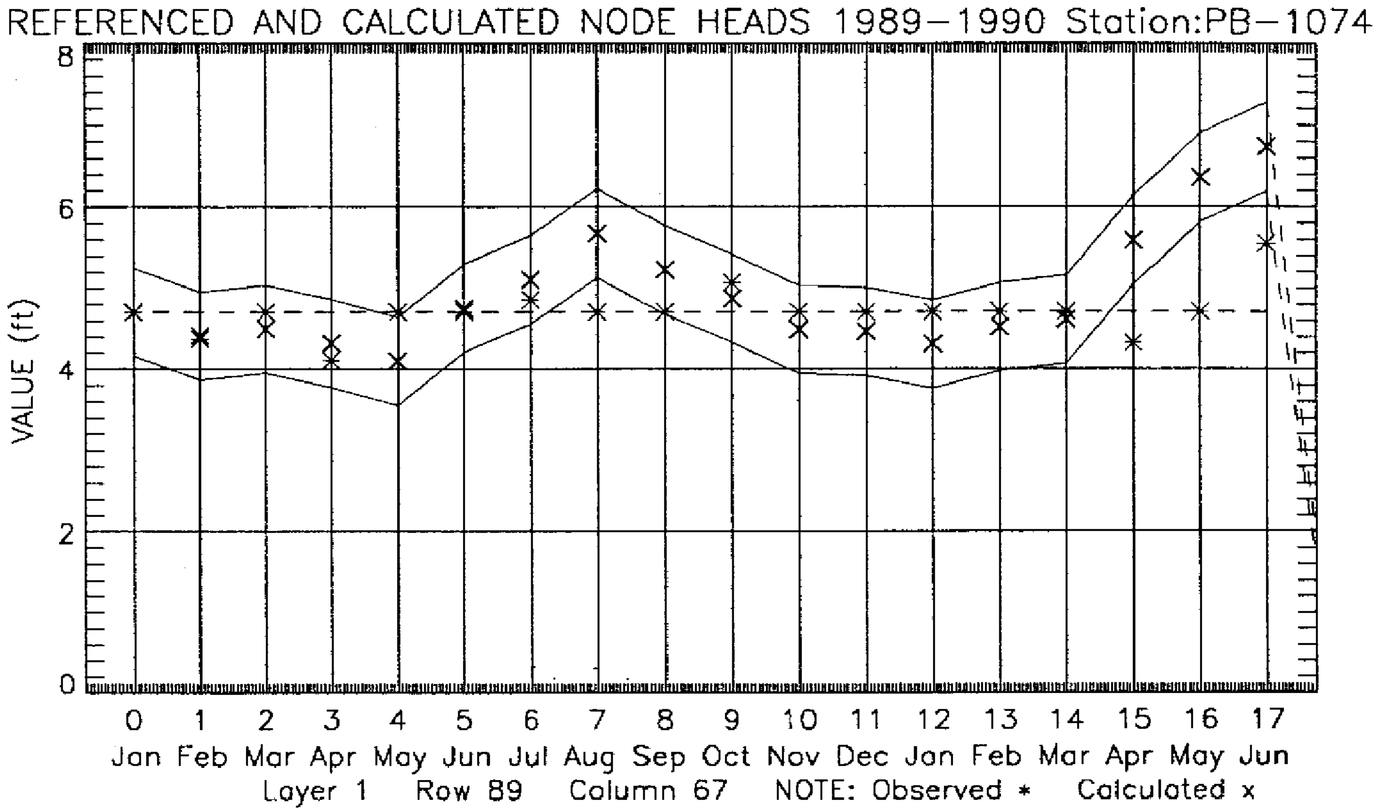

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1495
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 85 Column 72 NOTE: Observed * Calculated x

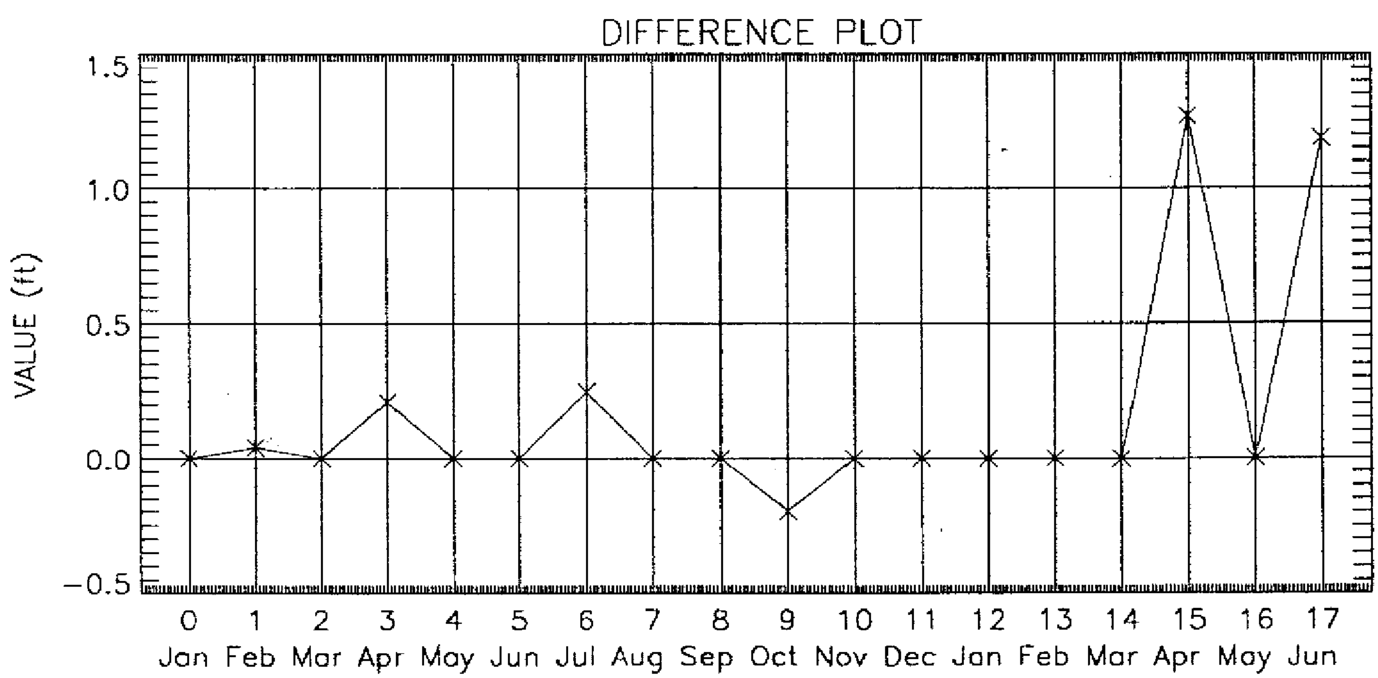

DIFFERENCE PLOT
VALUE (ft)
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

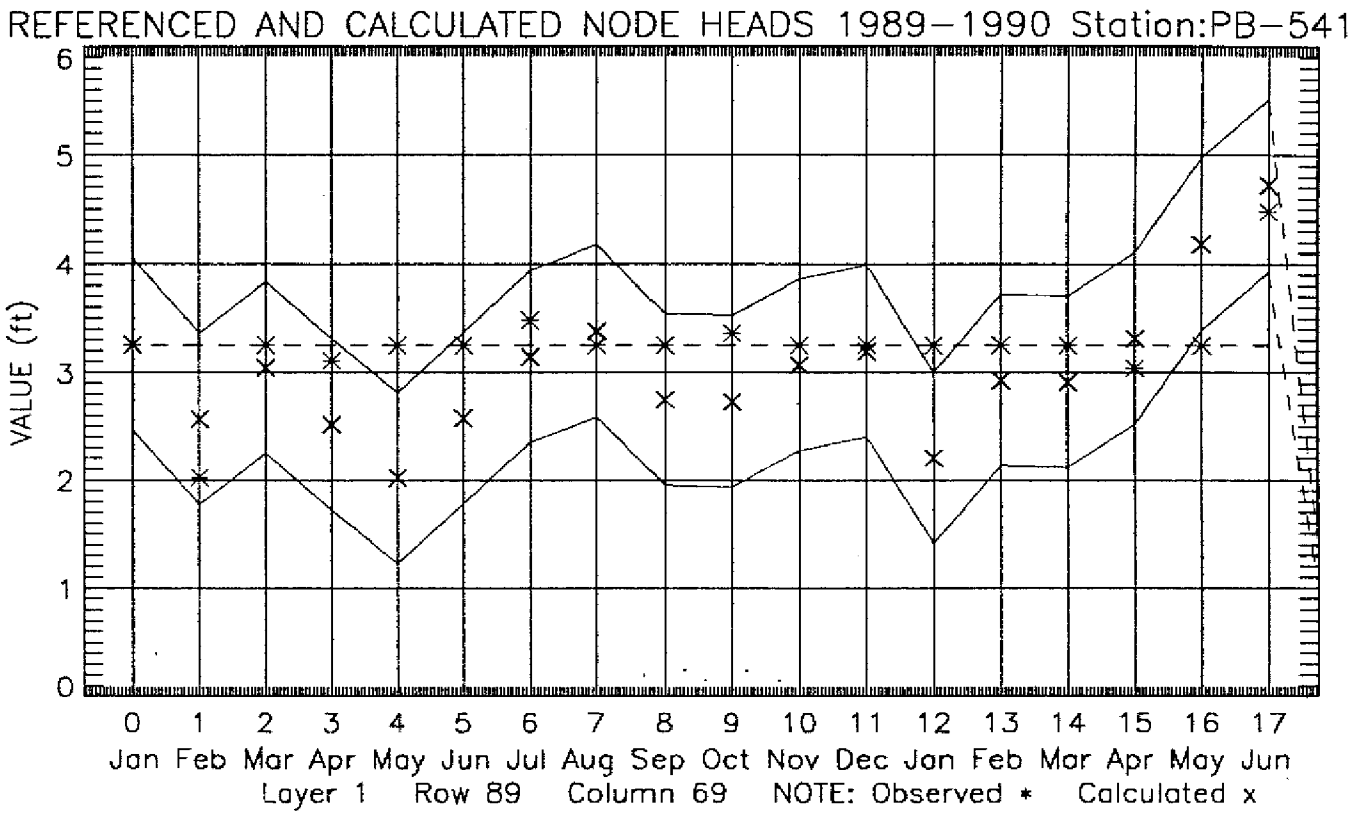

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-948
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 85 Column 72 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
-0.5
-1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

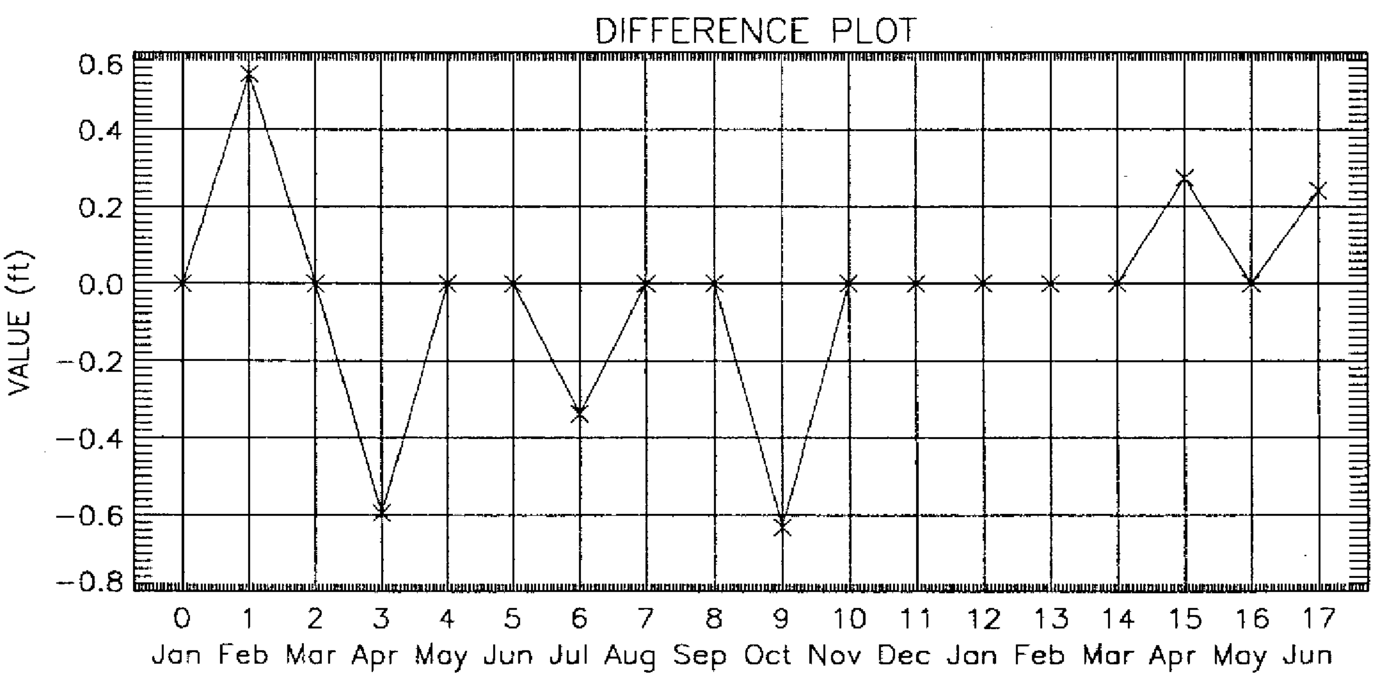

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1493
VALUE (ft)
0 2 4 6 8 10
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 87 Column 67 NOTE: Observed * Calculated x

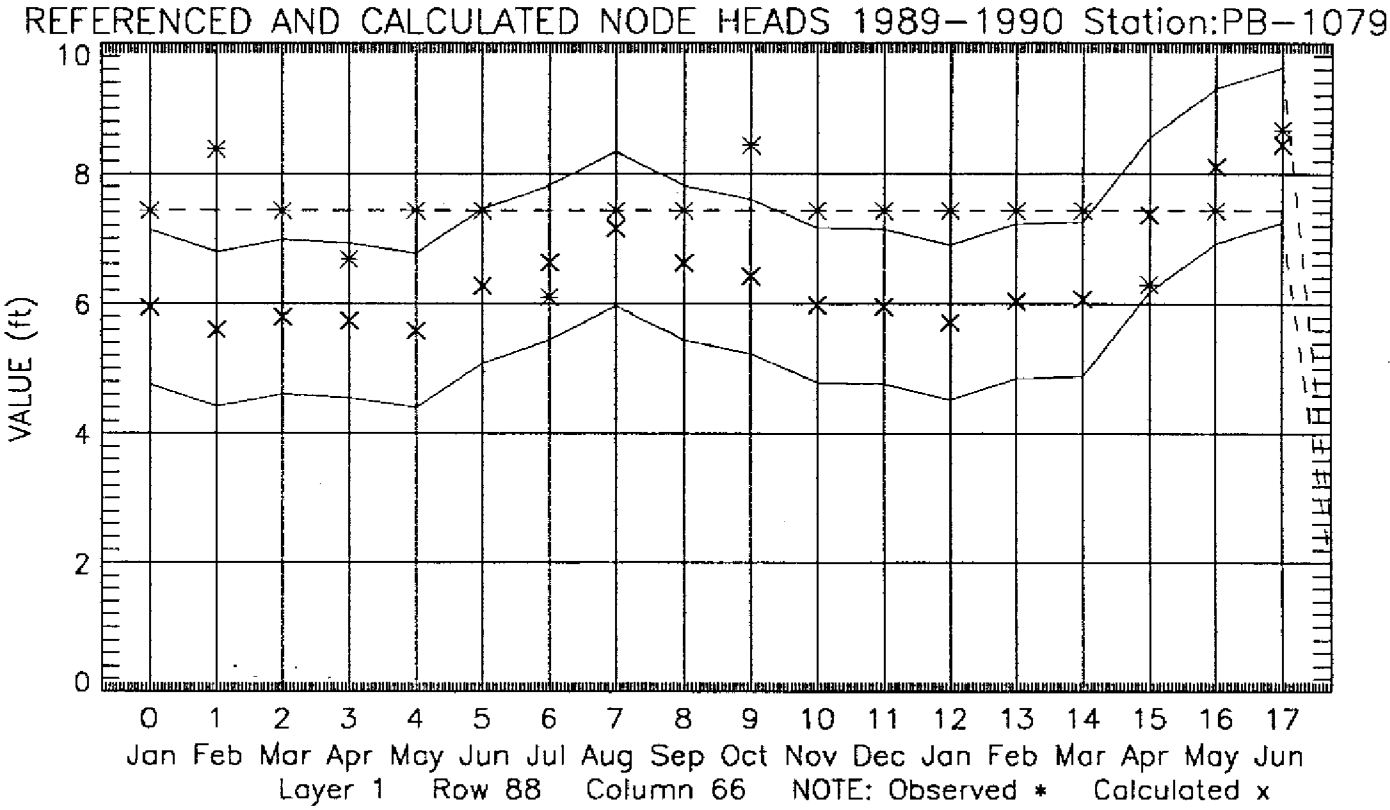

DIFFERENCE PLOT
VALUE (ft)
0.0 0.5 1.0 1.5 2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

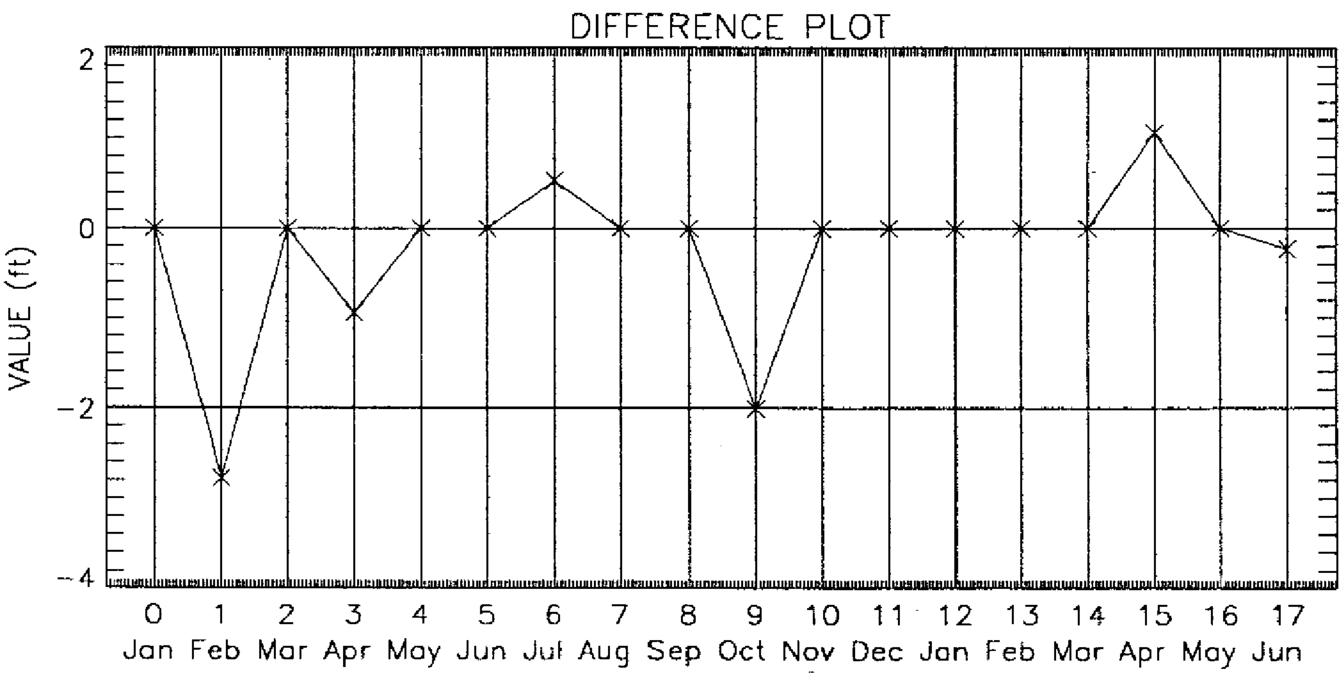

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1074
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 89 Column 67 NOTE: Observed * Calculated x

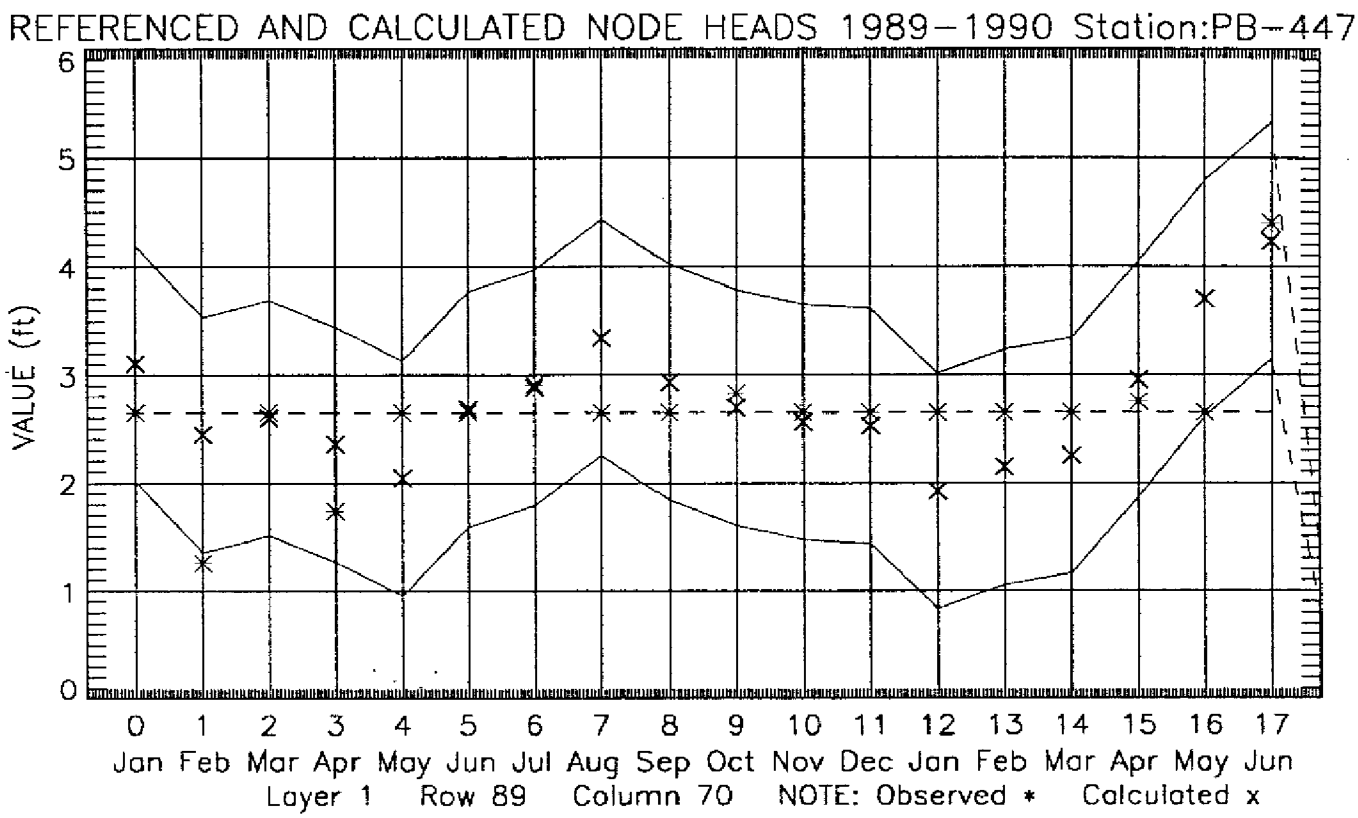

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

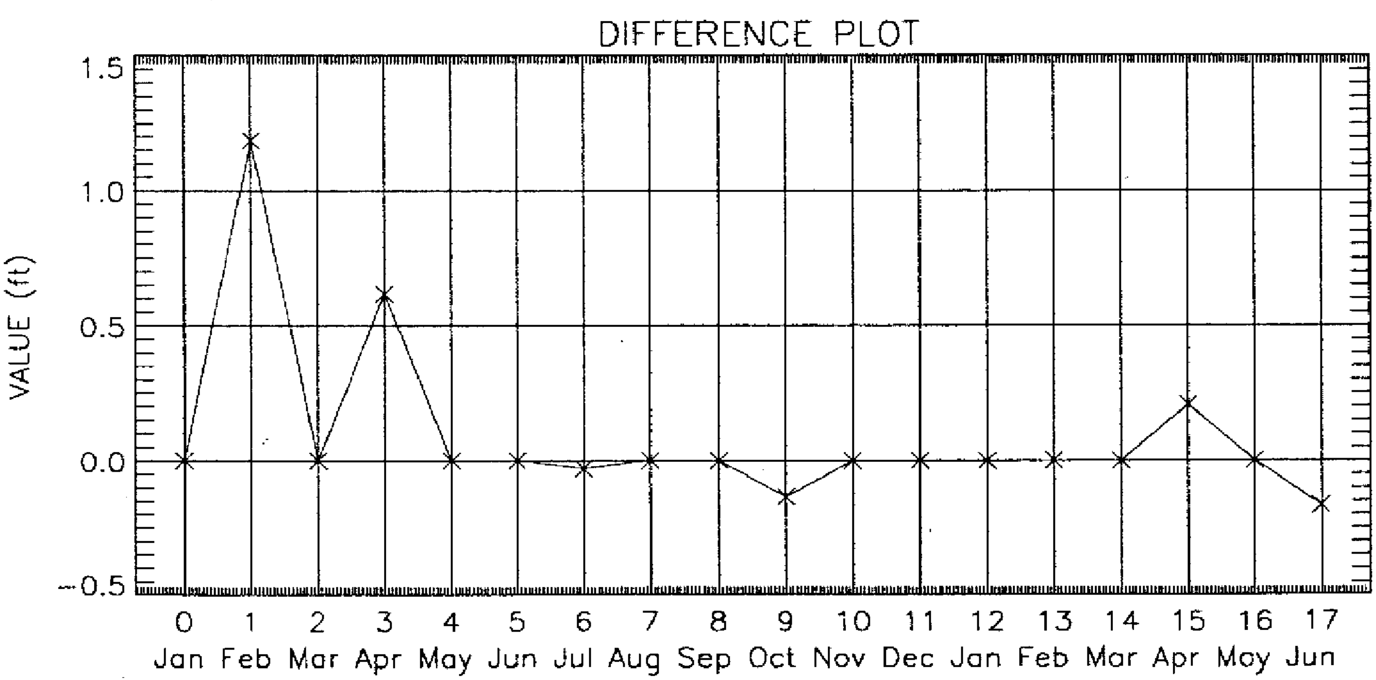

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-541
VALUE (ft)
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 89 Column 69 NOTE: Observed * Calculated x

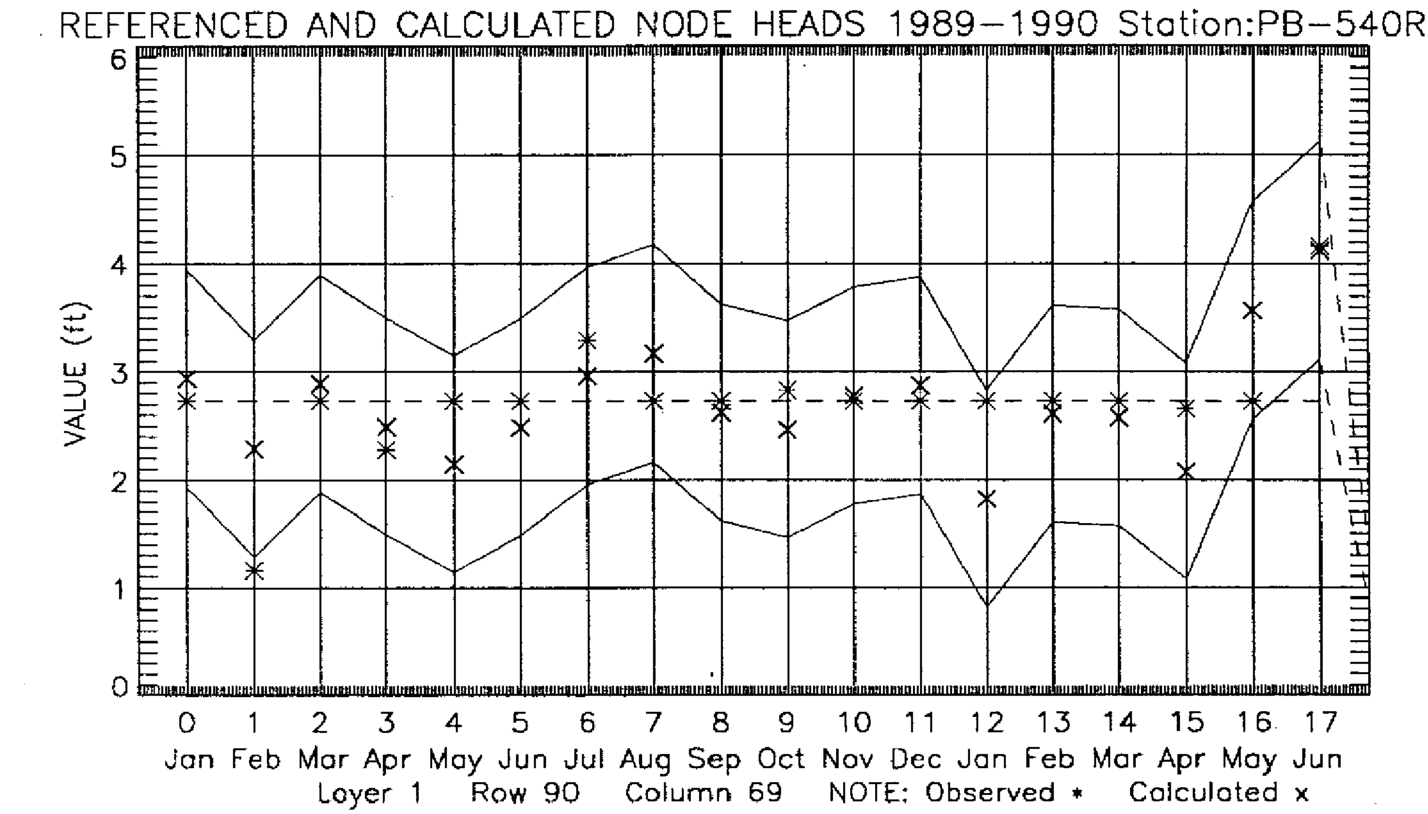

DIFFERENCE PLOT
VALUE (ft)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
-0.8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

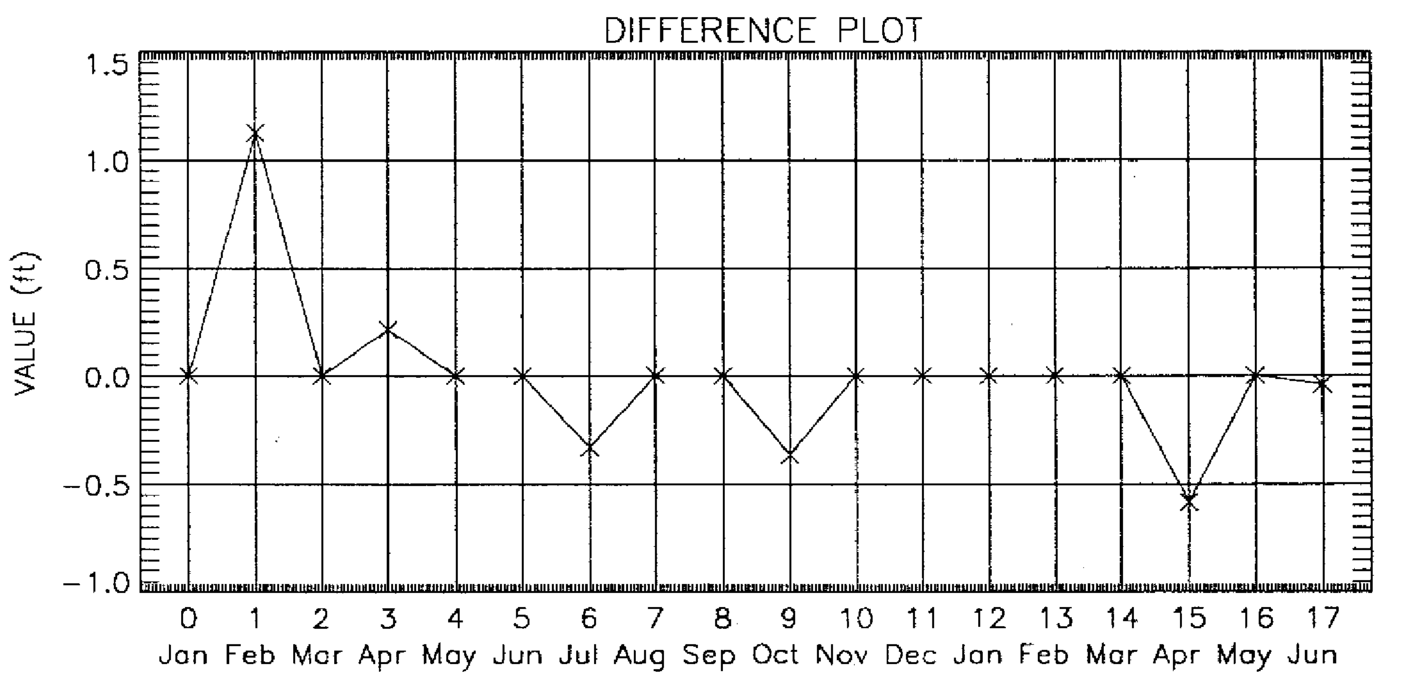

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1079
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 88 Column 66 NOTE: Observed * Calculated x

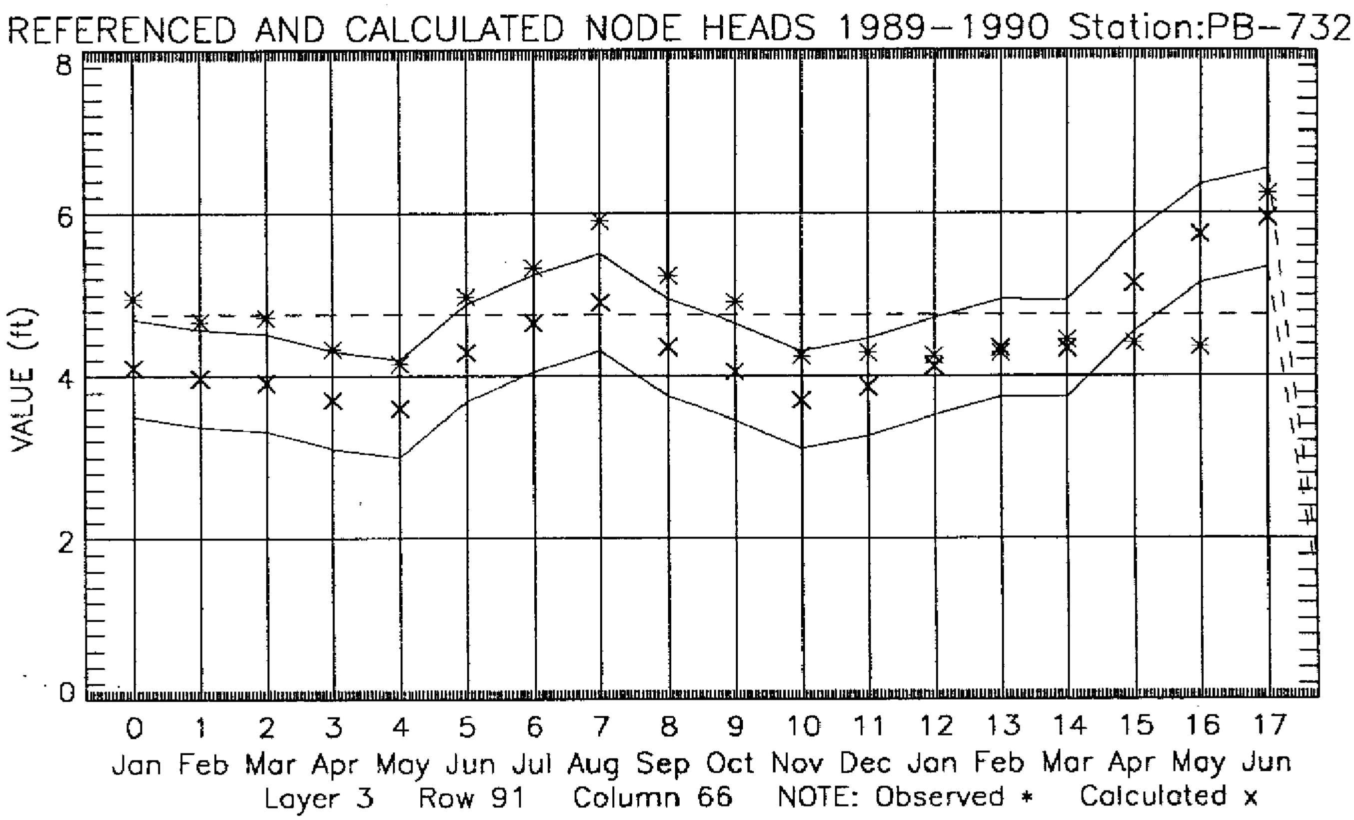

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

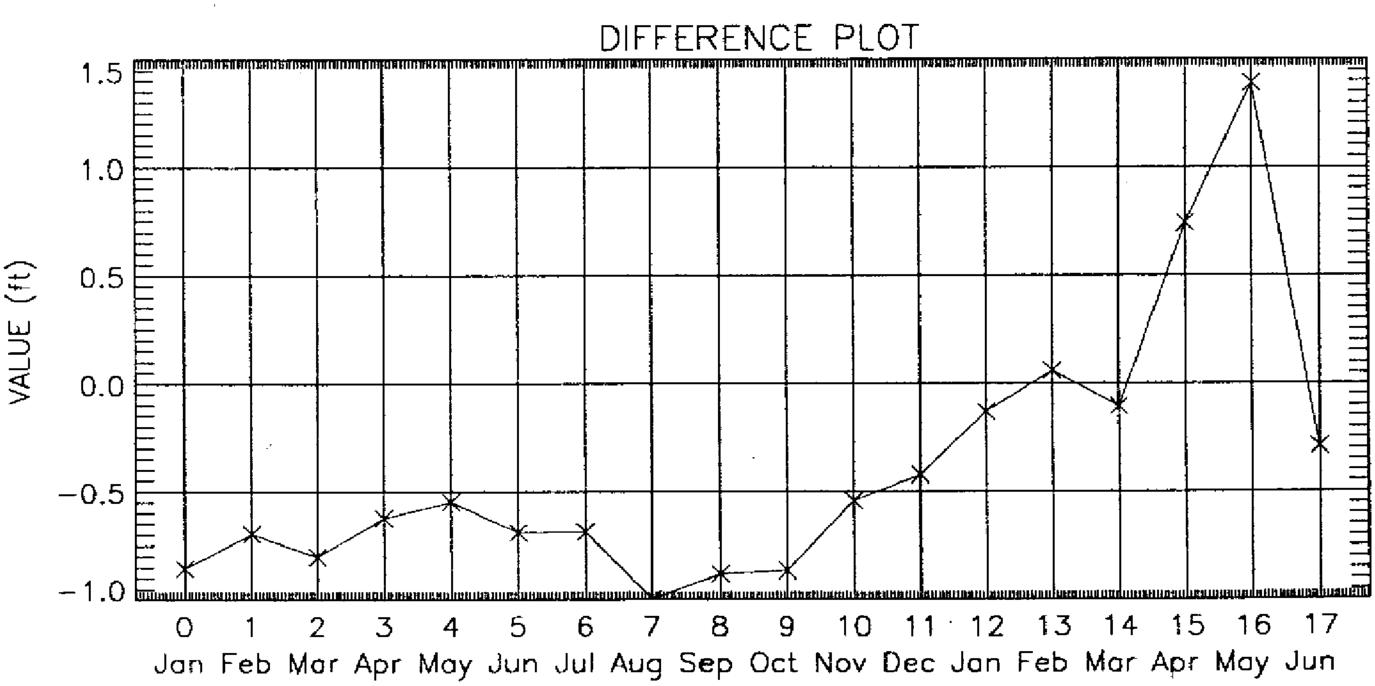

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−447
VALUE (ft)
0
1
2
3
4
5
6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 89 Column 70 NOTE: Observed * Calculated x

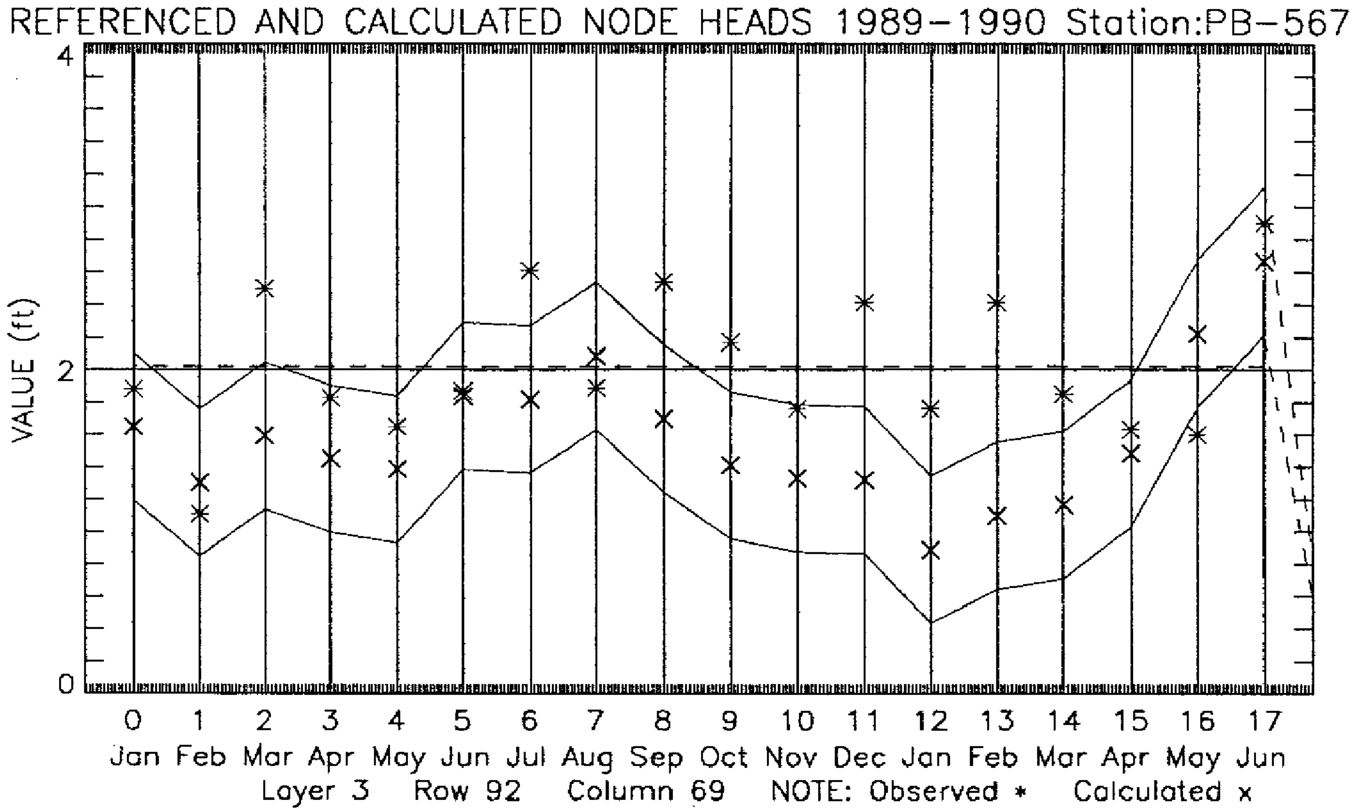

DIFFERENCE PLOT
VALUE (ft)
−0.5
0.0
0.5
1.0
1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–540R
VALUE (ft)
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 90 Column 69 NOTE: Observed * Calculated x

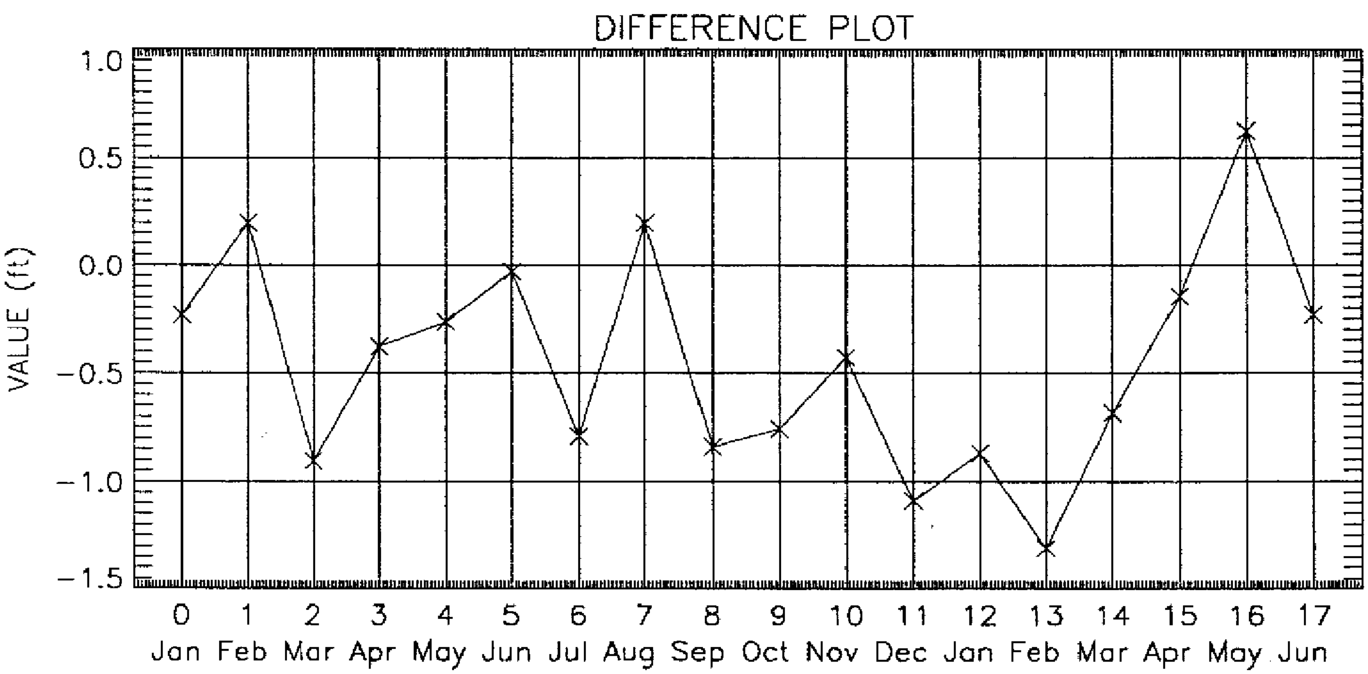

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB-732
VALUE (ft)
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 91 Column 66 NOTE: Observed * Calculated x

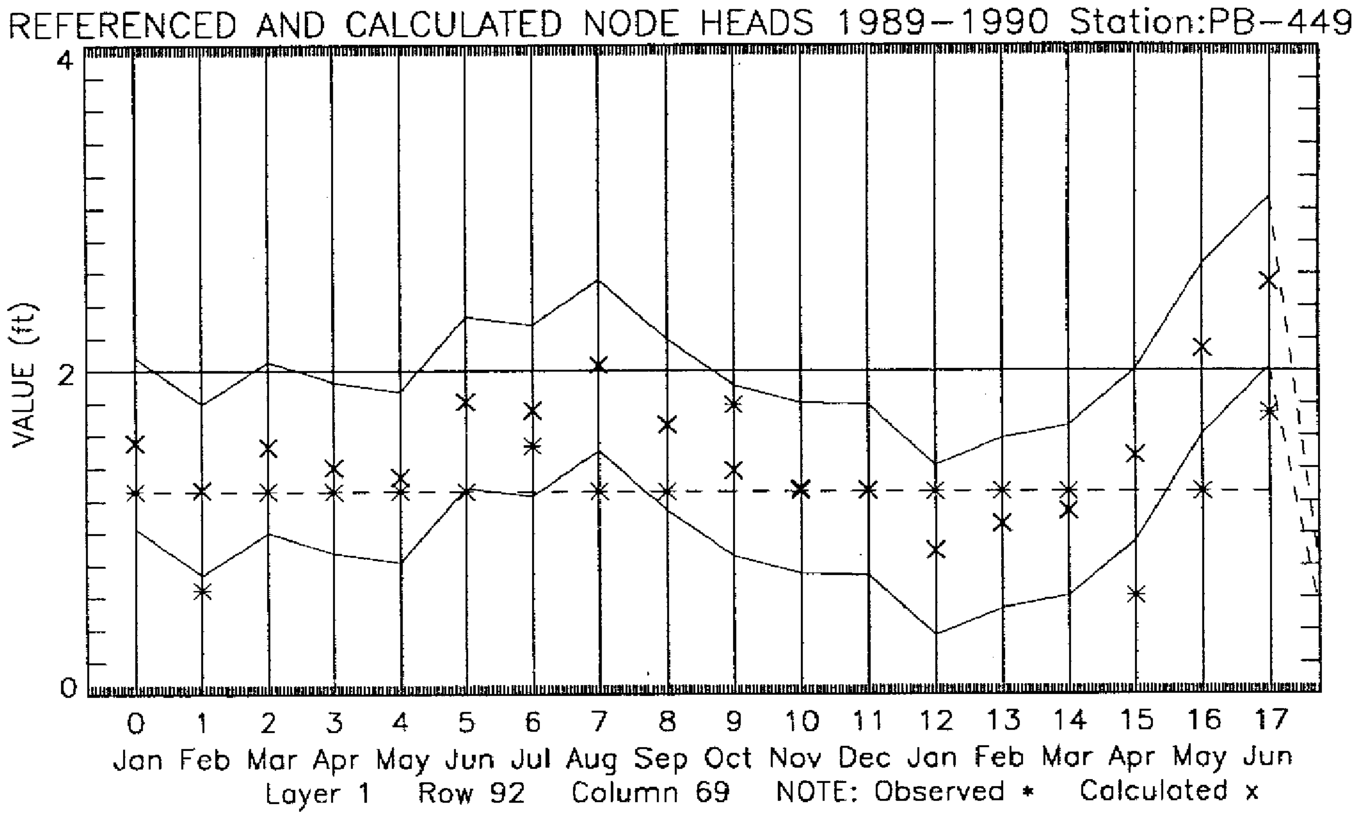

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

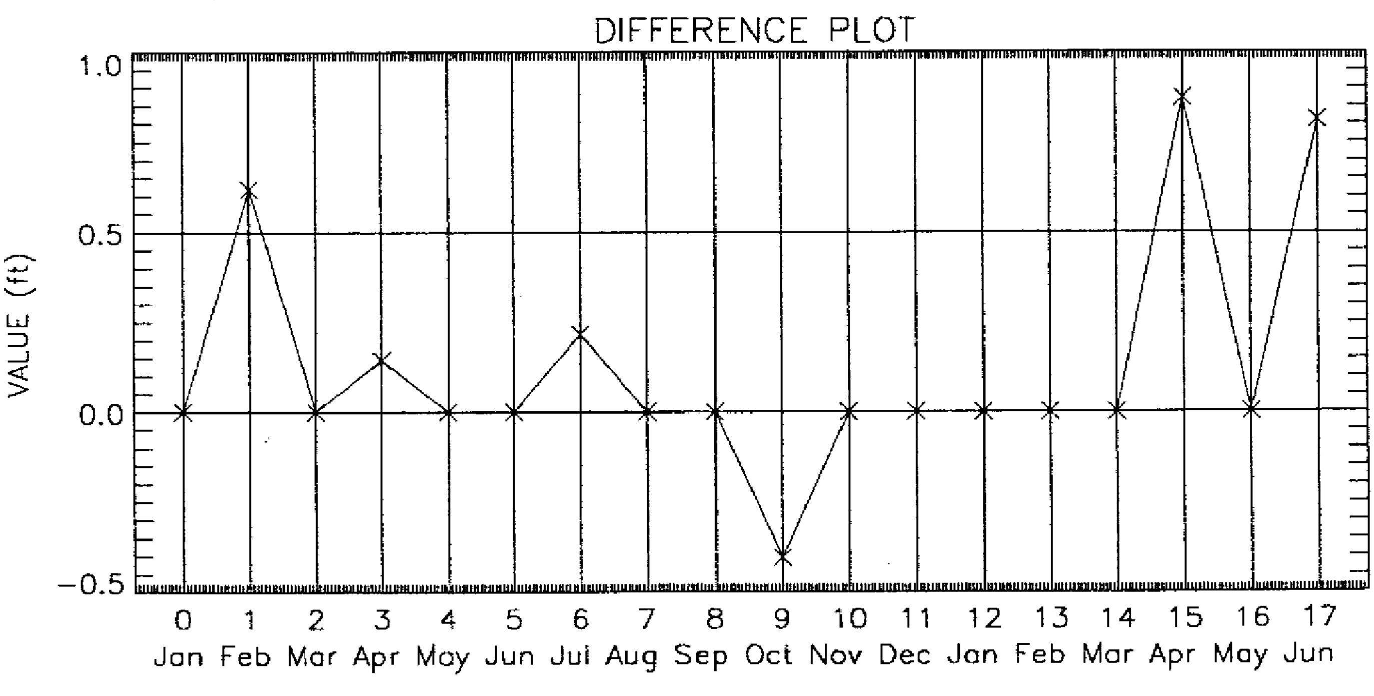


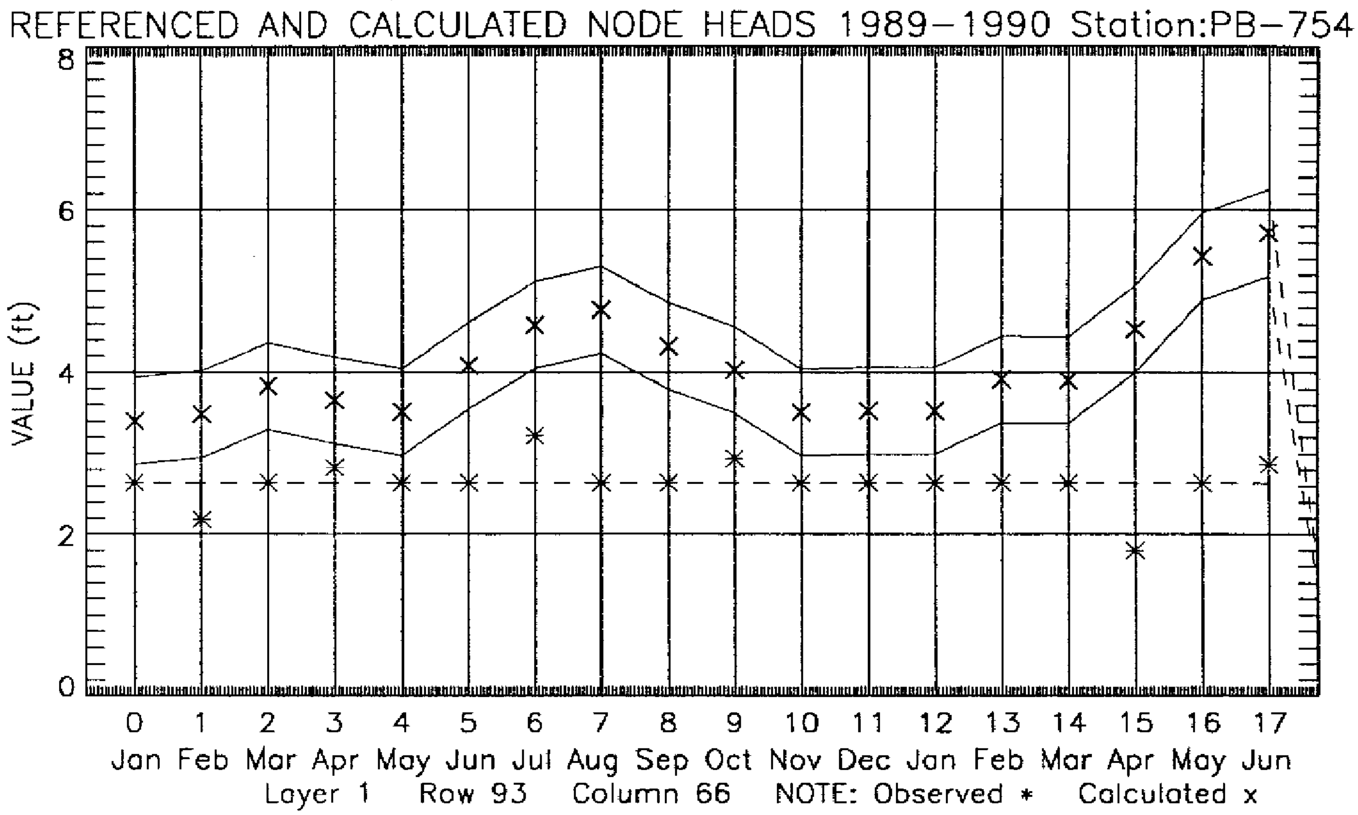
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-567
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 92 Column 69 NOTE: Observed * Calculated x

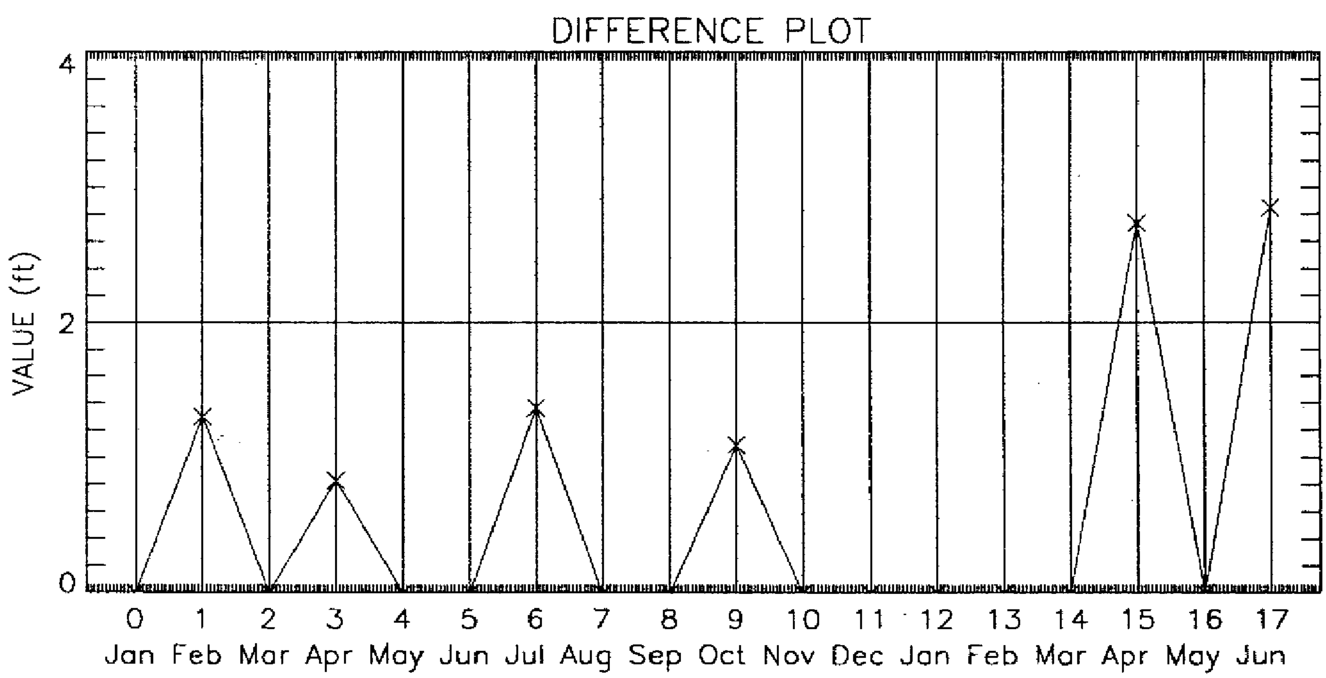


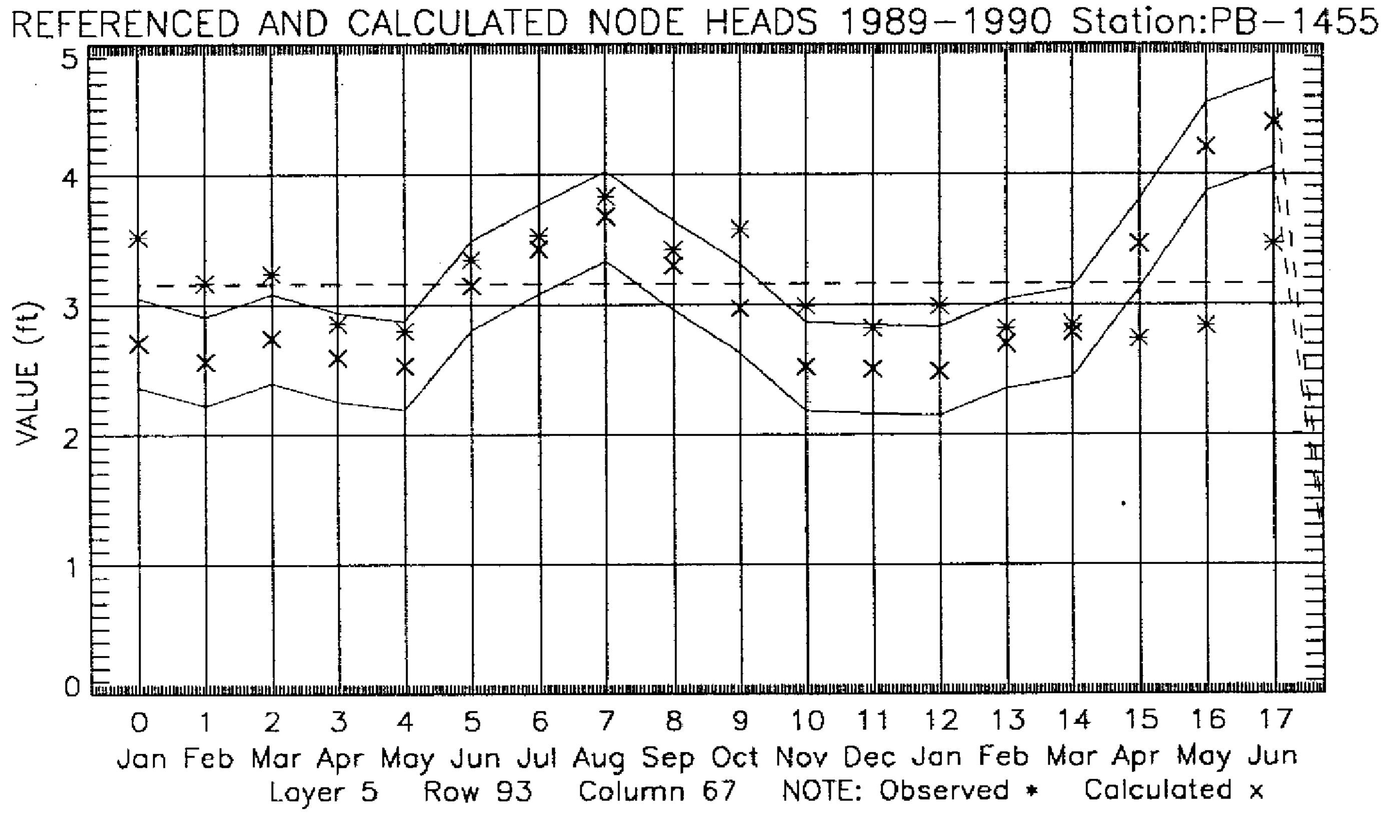
DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

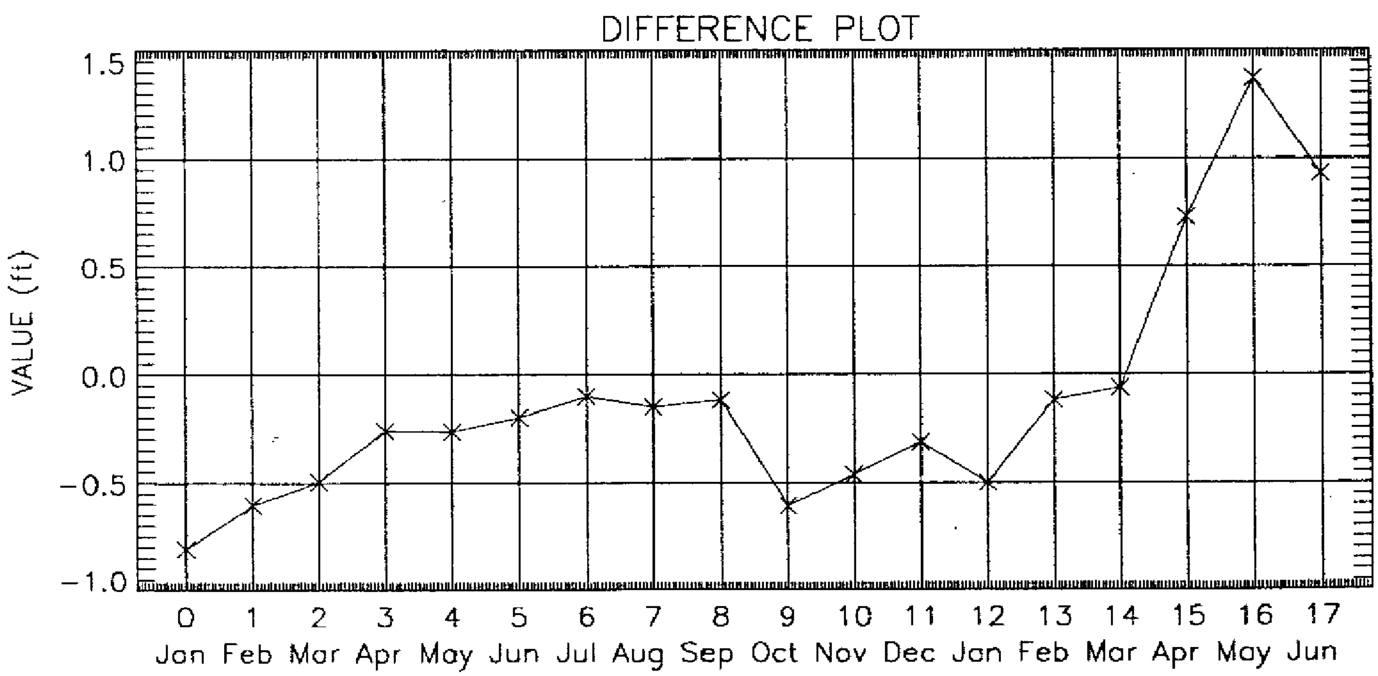

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-449
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 92 Column 69 NOTE: Observed * Calculated x

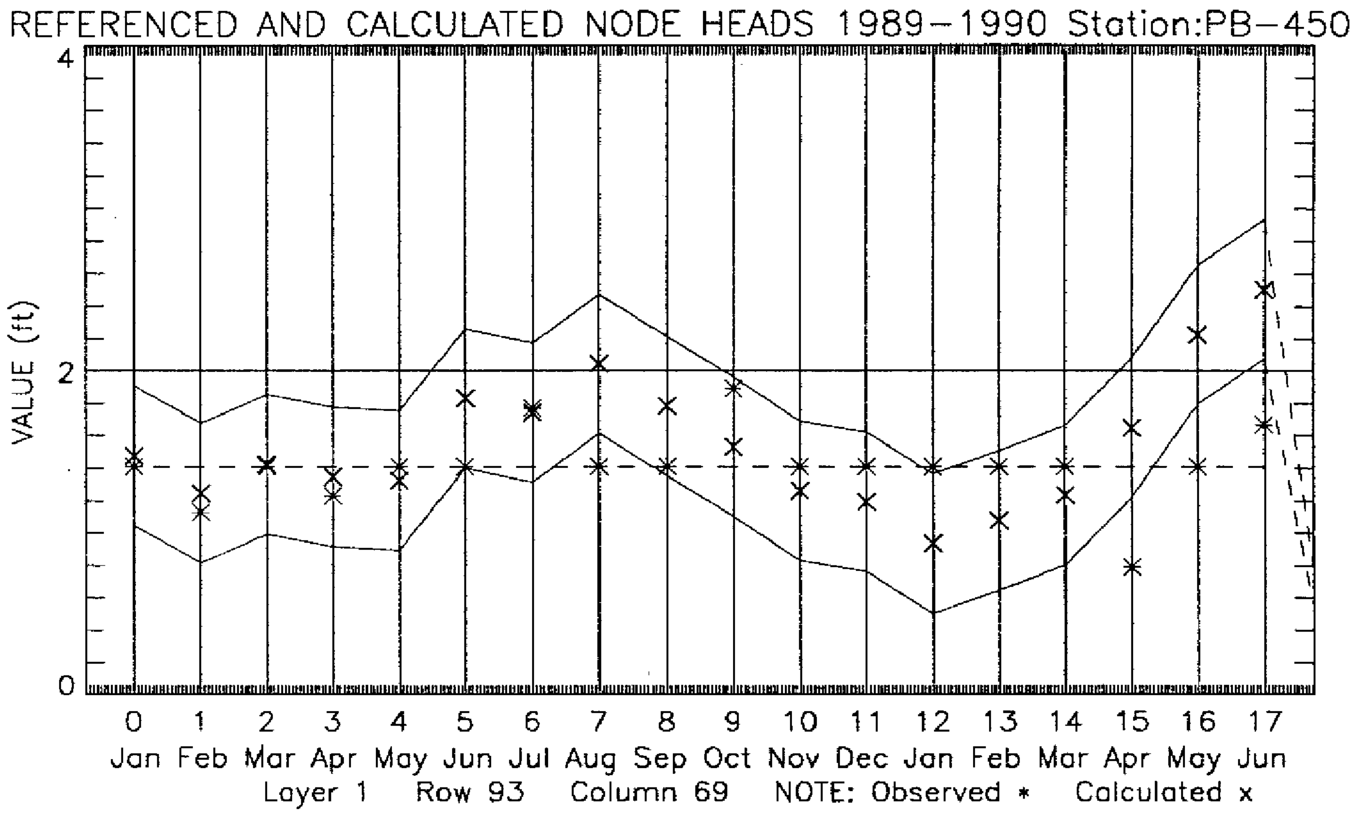

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

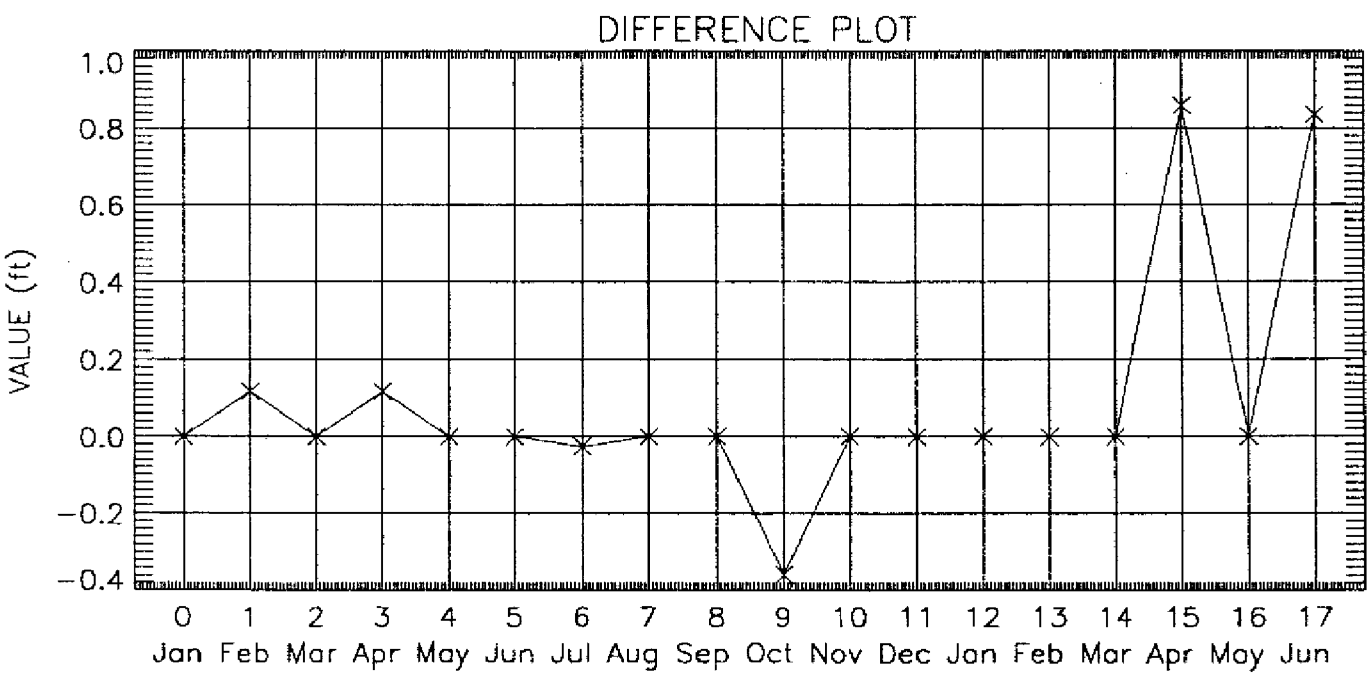

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–754
VALUE (ft)
0 2 4 6 8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 93 Column 66 NOTE: Observed * Calculated x

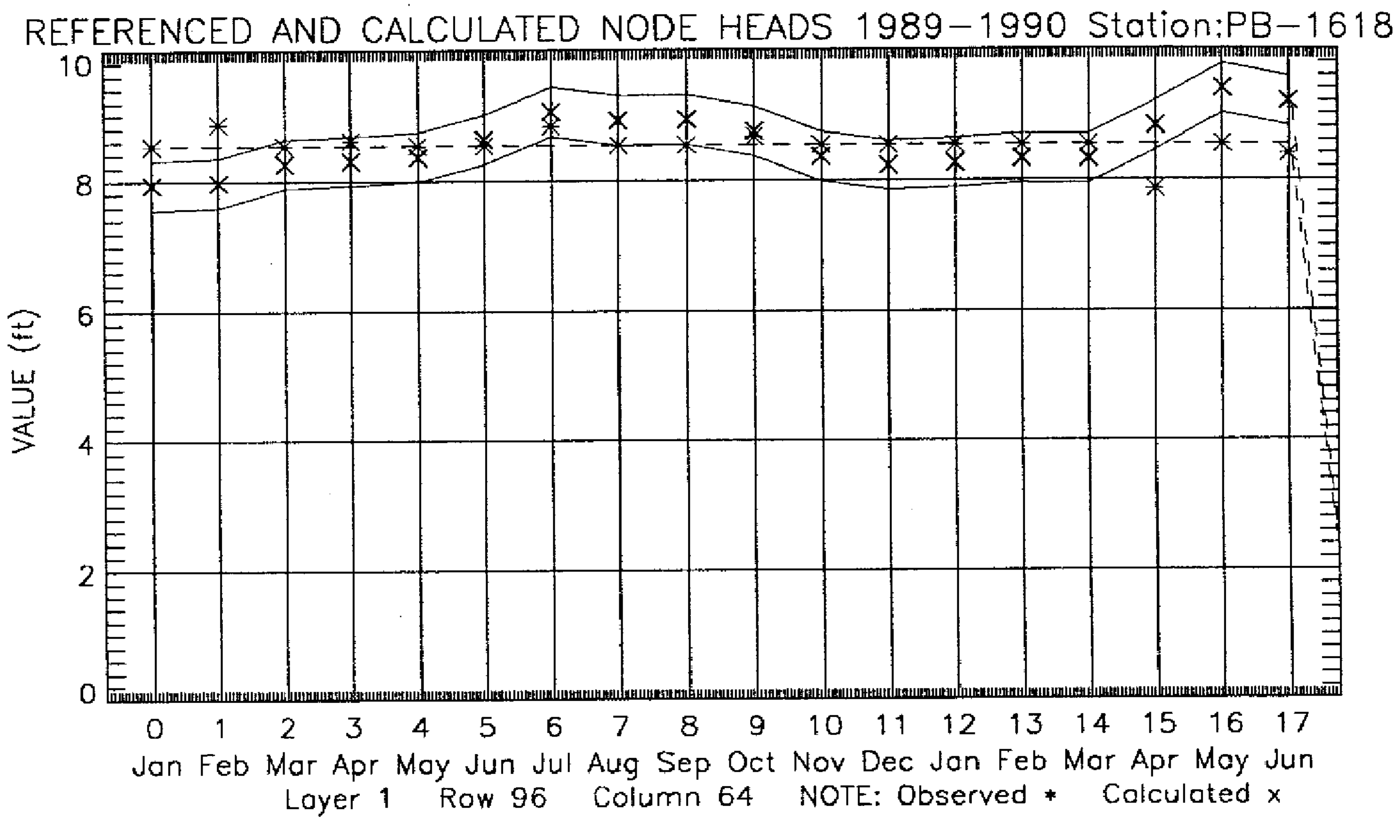

DIFFERENCE PLOT
VALUE (ft)
0 2 4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1455
VALUE (ft)
0 1 2 3 4 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 93 Column 67 NOTE: Observed * Calculated x

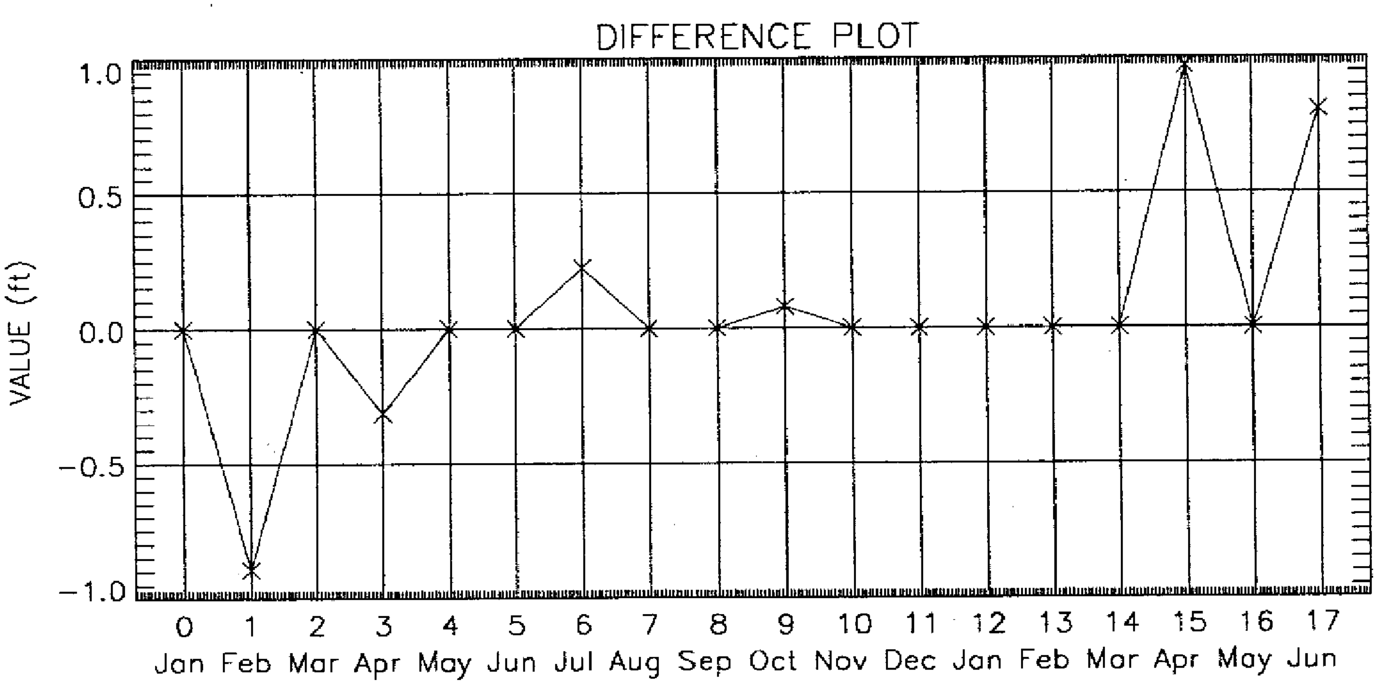

DIFFERENCE PLOT
VALUE (ft)
−1.0 −0.5 0.0 0.5 1.0 1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-450
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 93 Column 69 NOTE: Observed * Calculated x

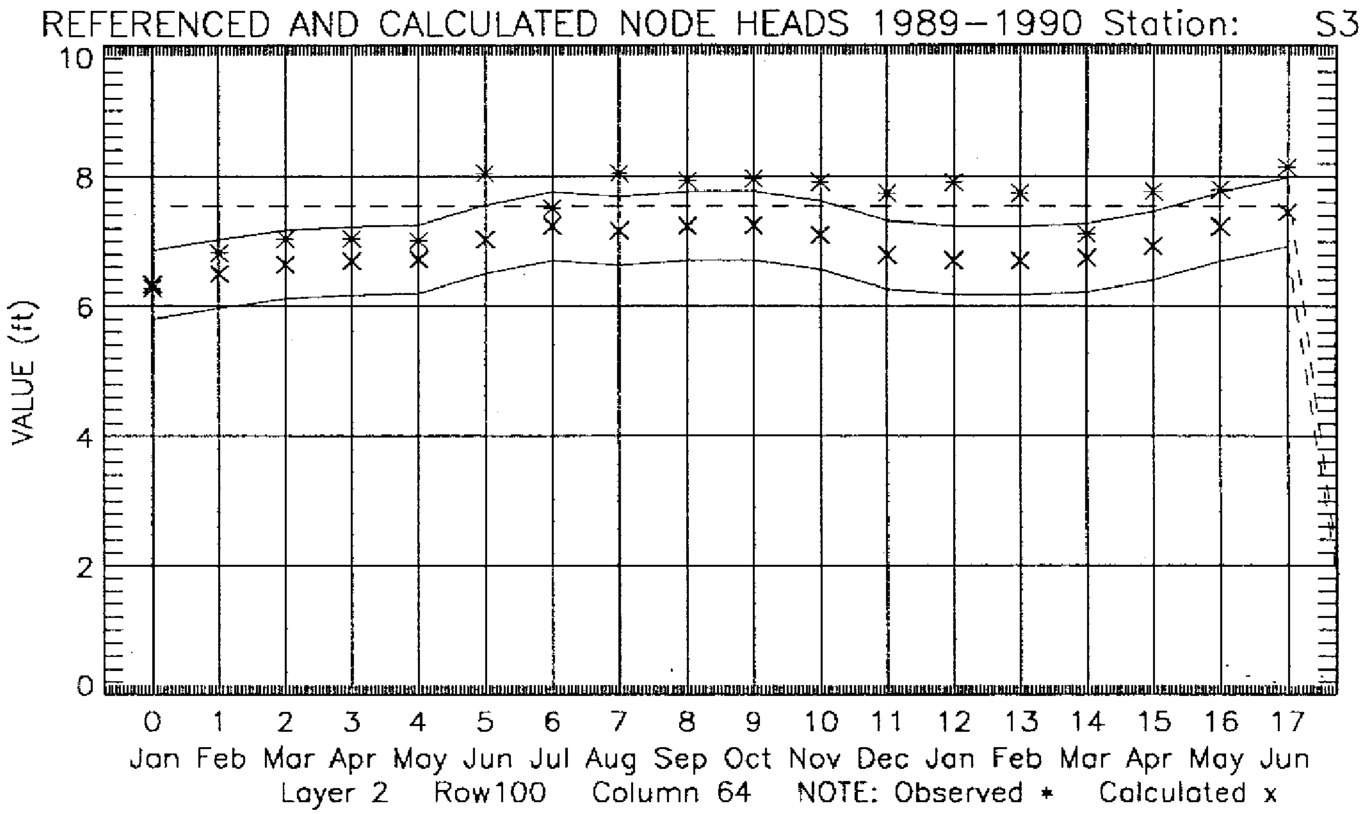

DIFFERENCE PLOT
VALUE (ft)
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

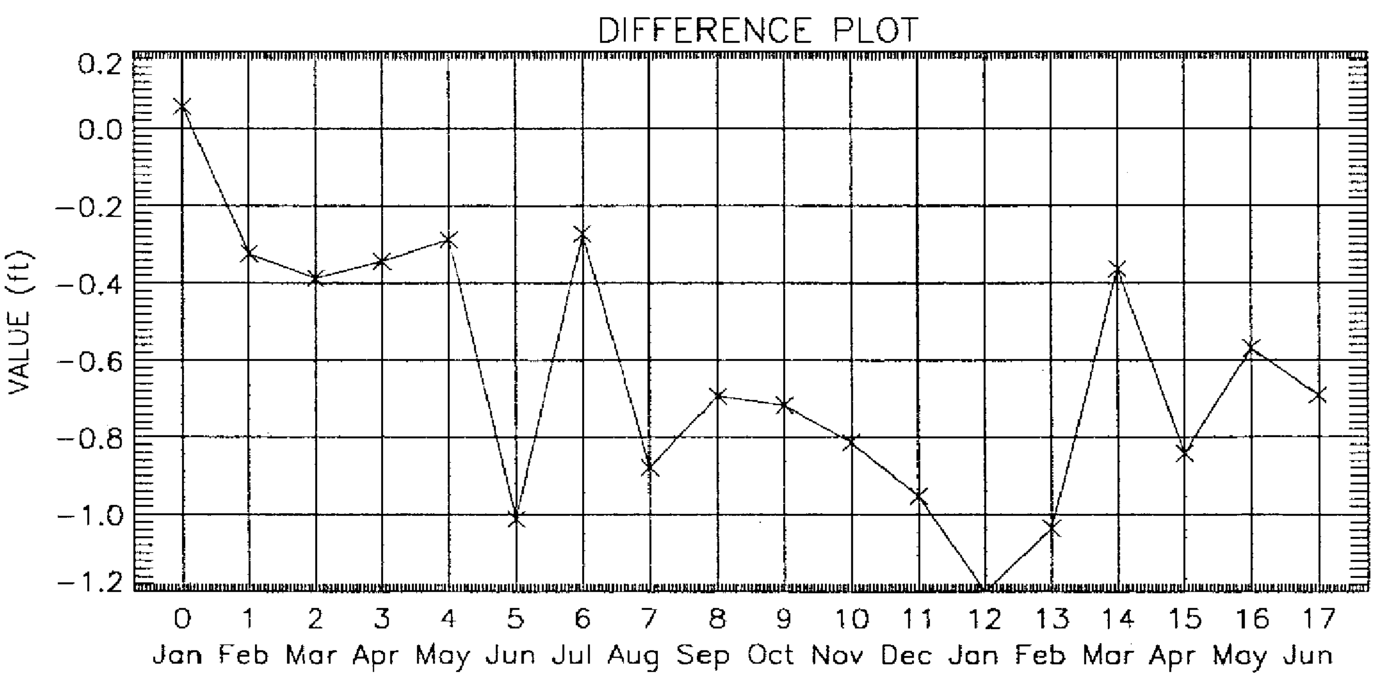


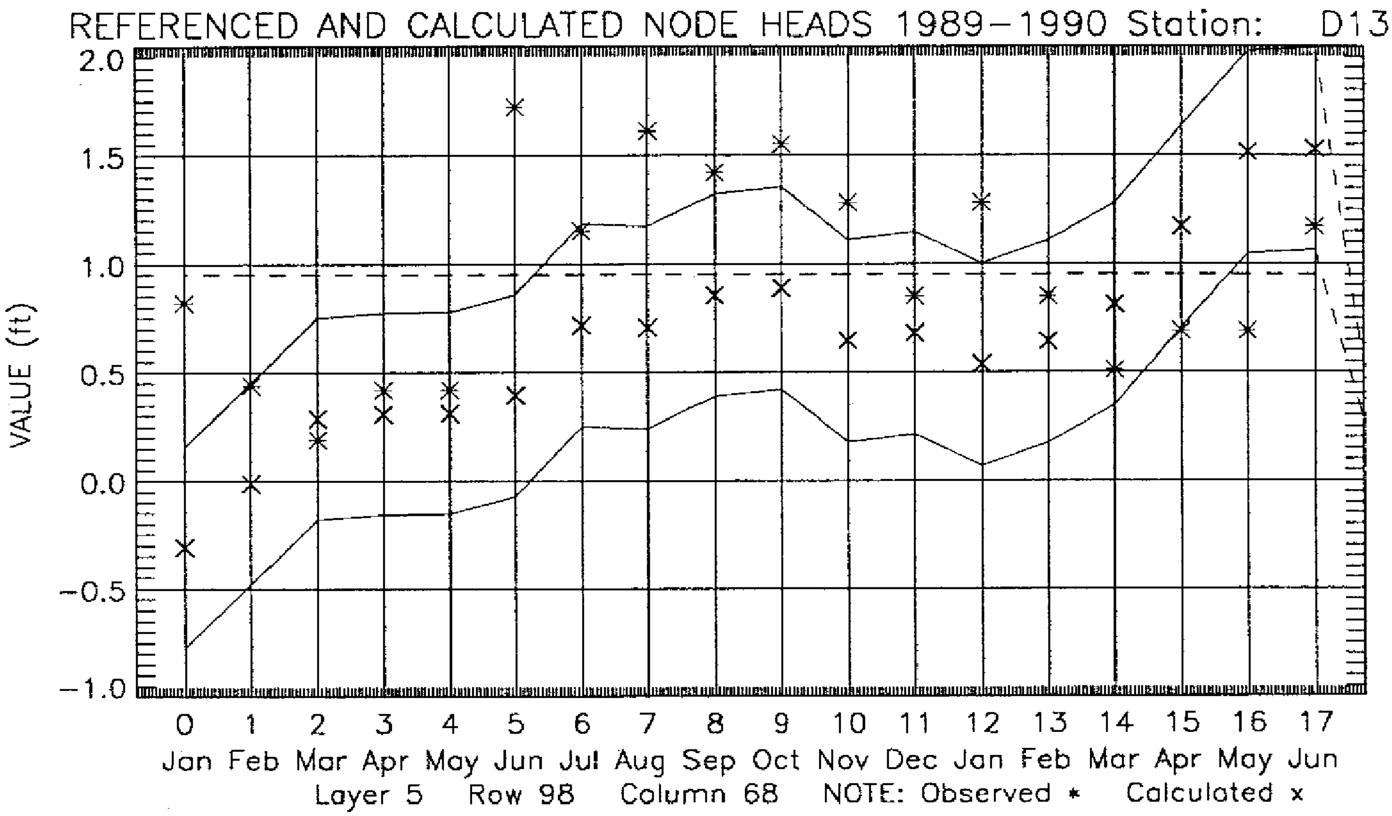
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1618
VALUE (ft)
0
2
4
6
8
10
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 96 Column 64 NOTE: Observed * Calculated x

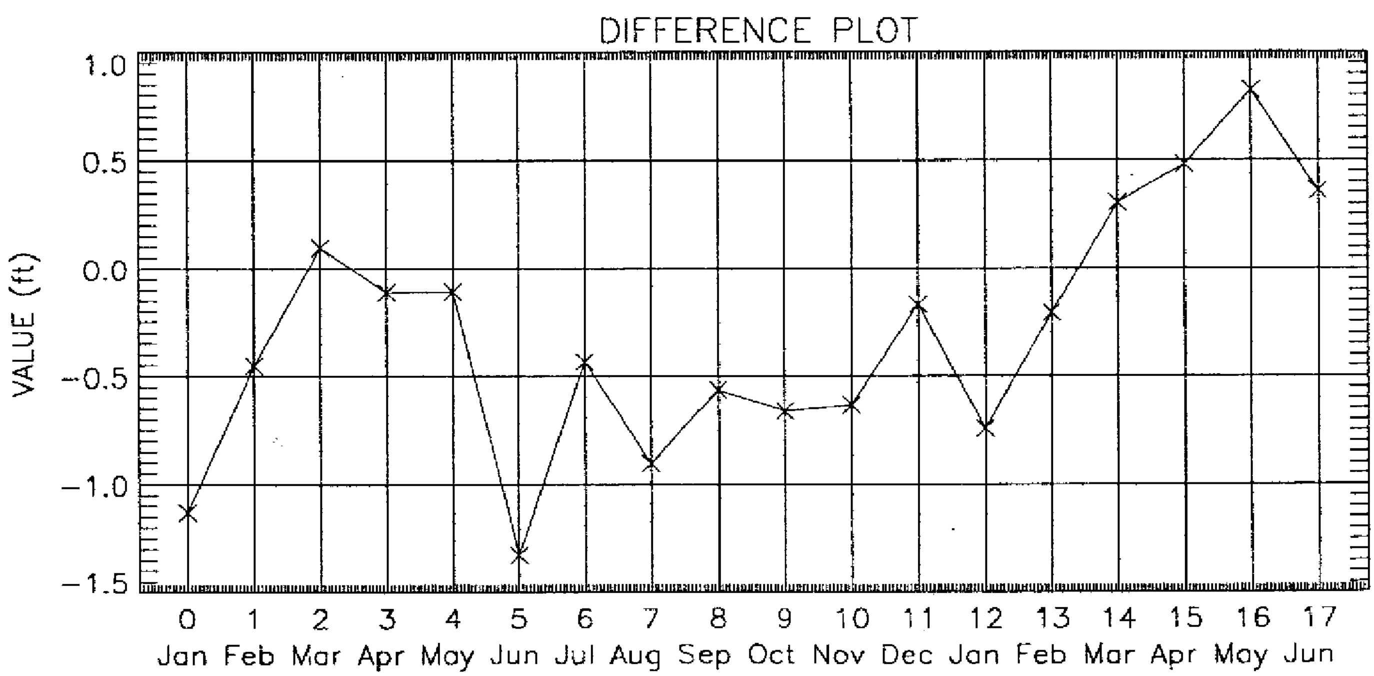


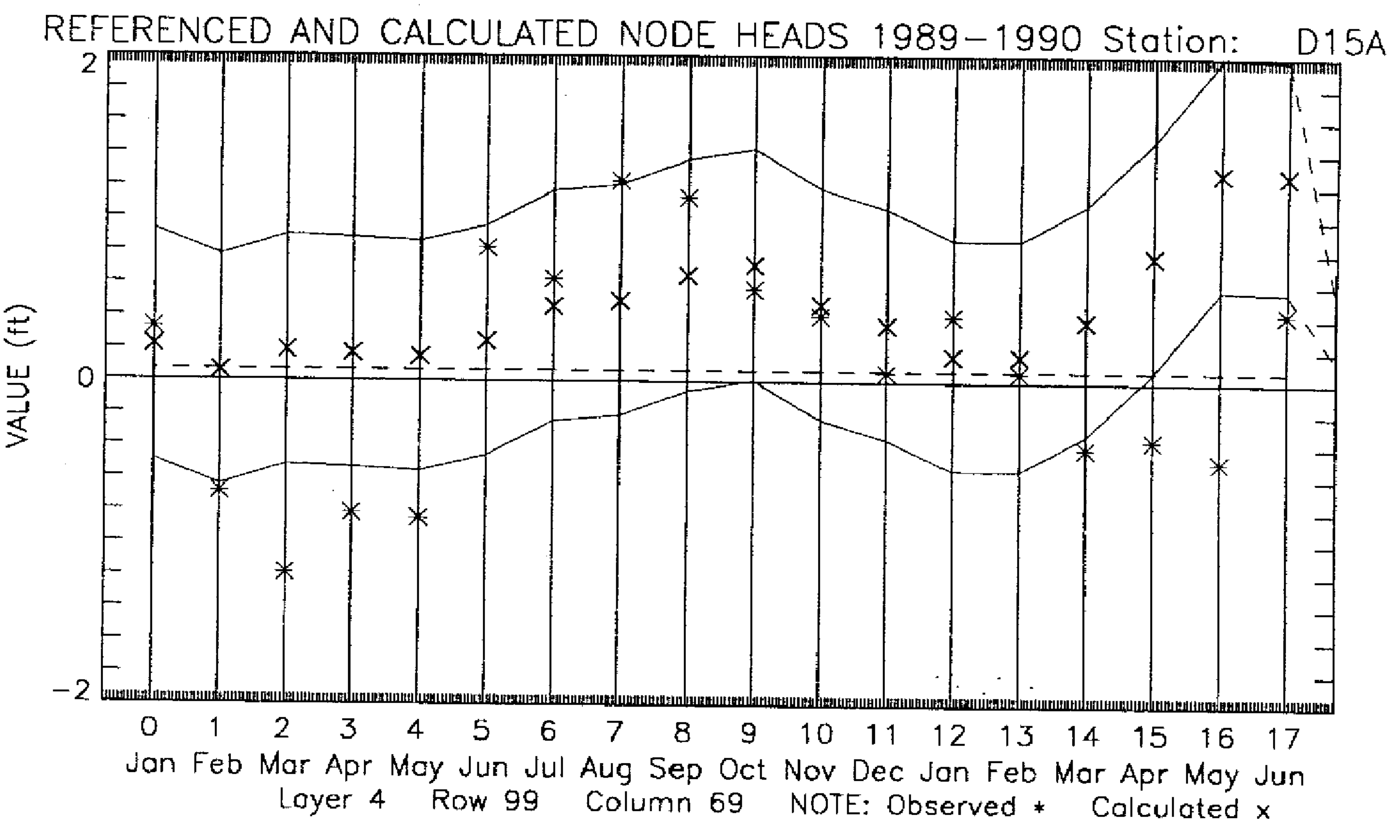
DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

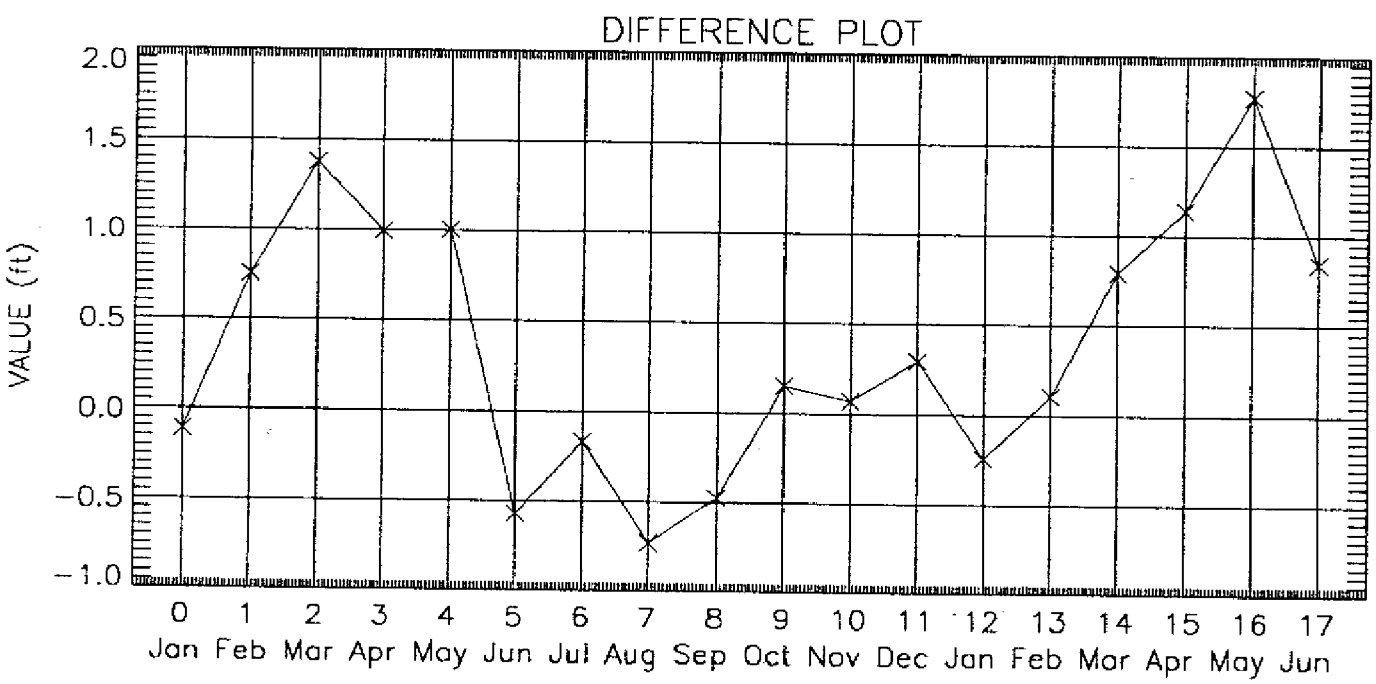

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station: S3
VALUE (ft)
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row100 Column 64 NOTE: Observed * Calculated x

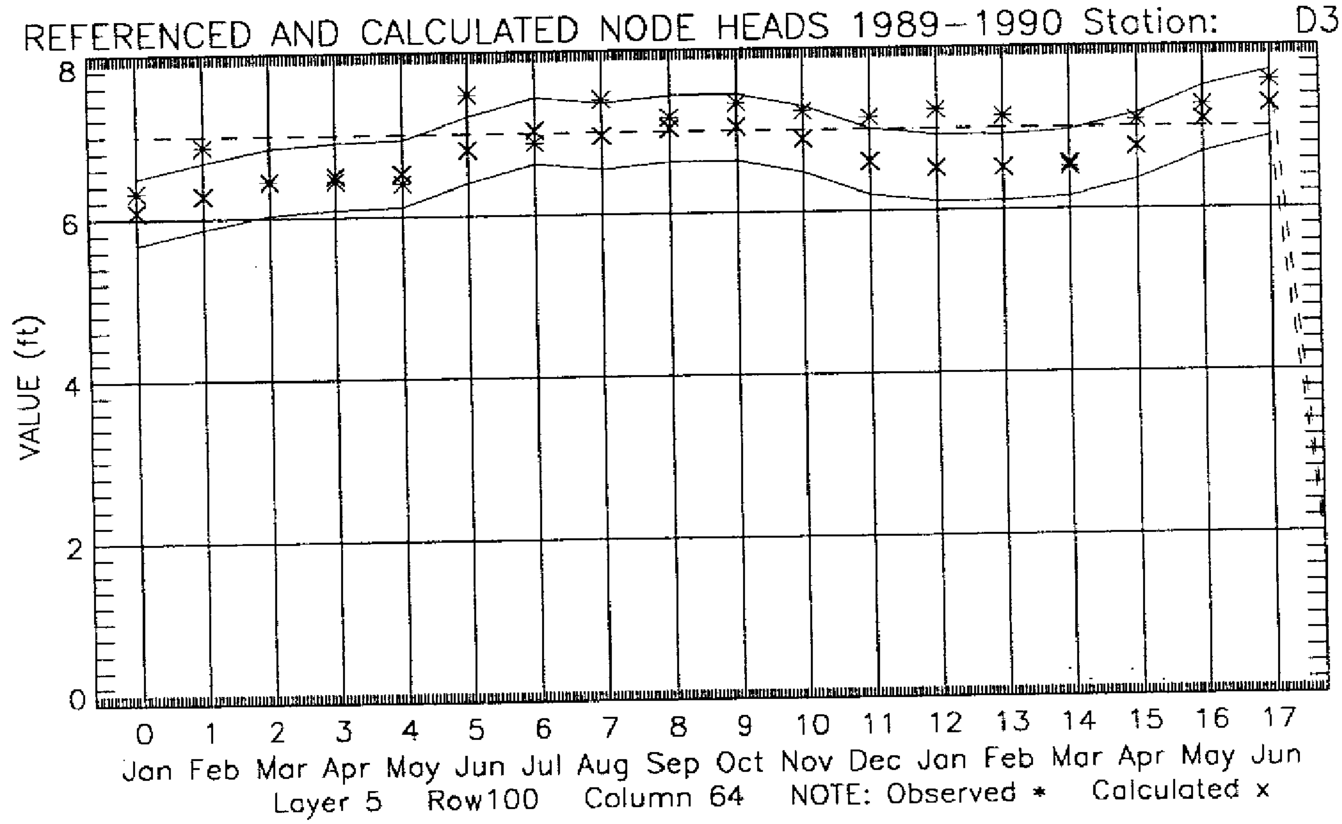

DIFFERENCE PLOT
VALUE (ft)
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
−1.2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

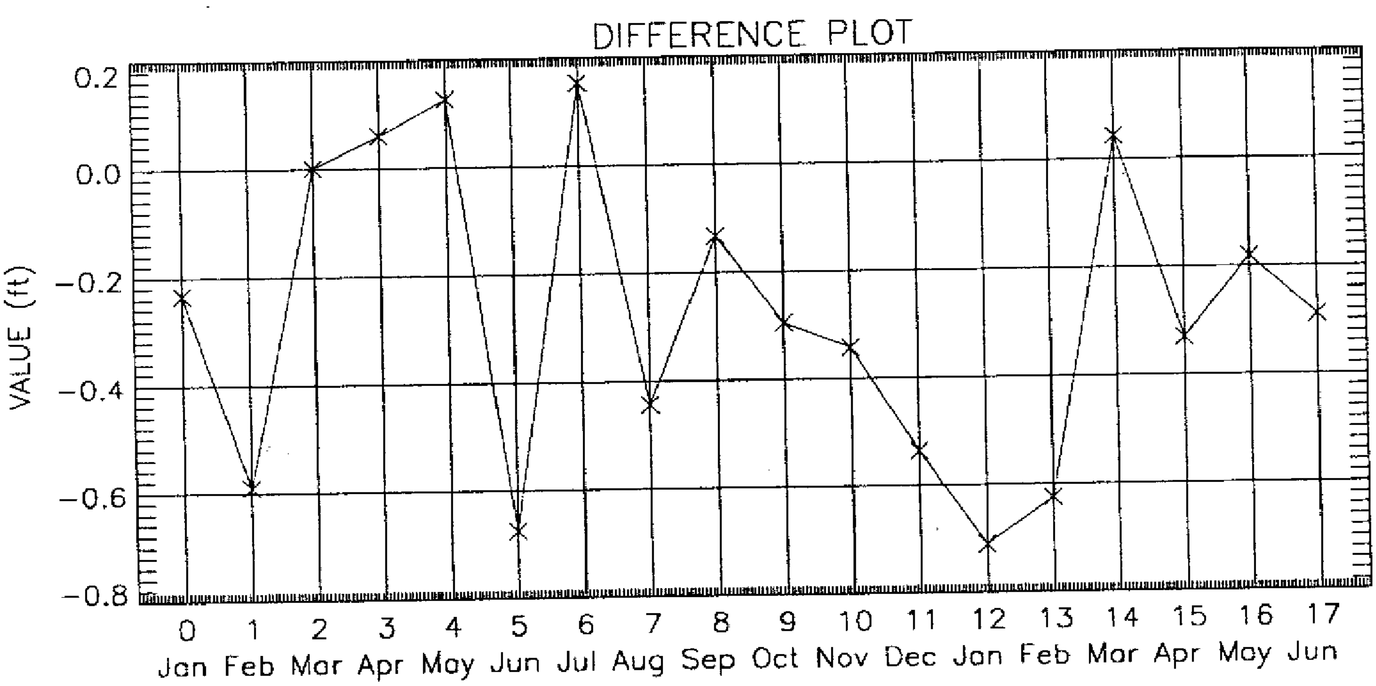

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station: D13
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 98 Column 68 NOTE: Observed * Calculated x

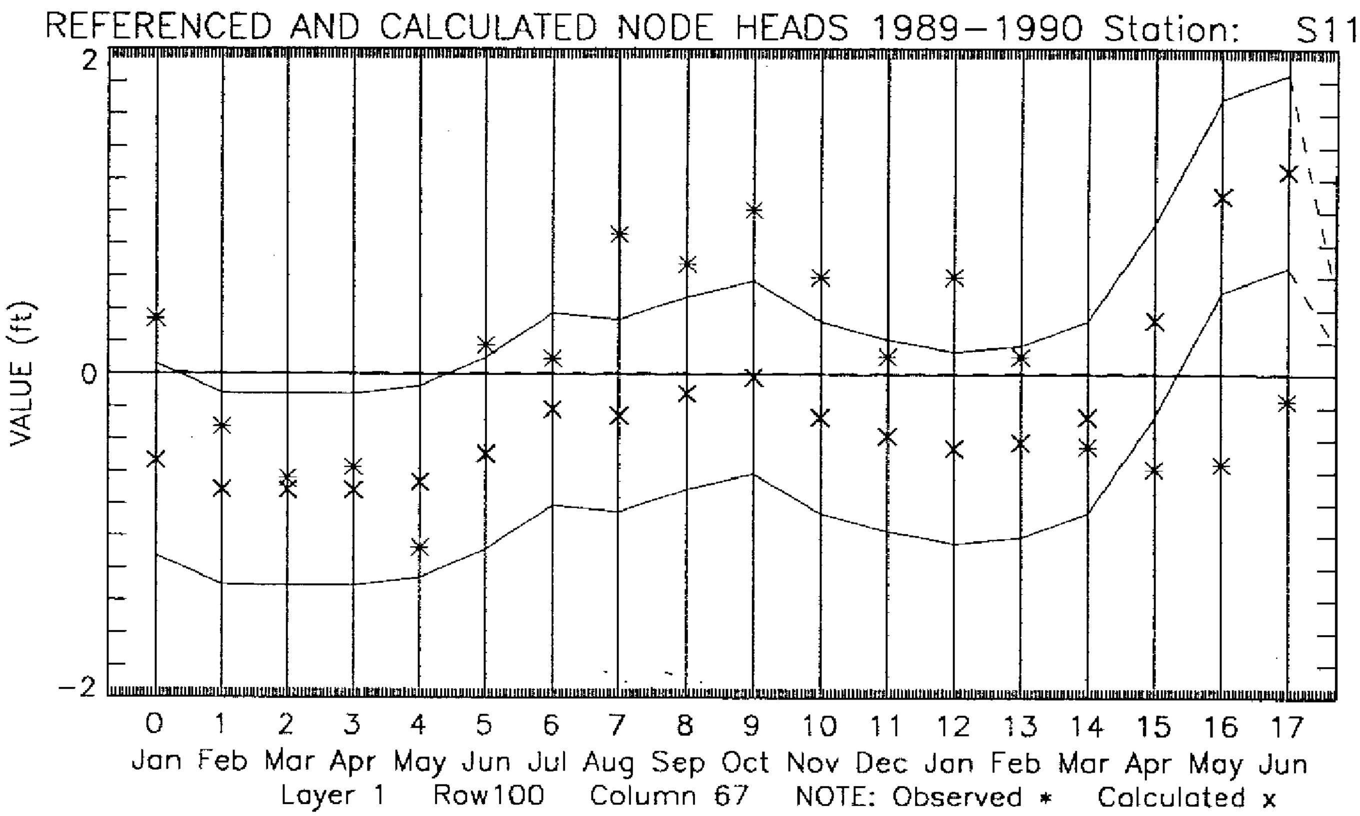

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
−0.5
−1.0
−1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

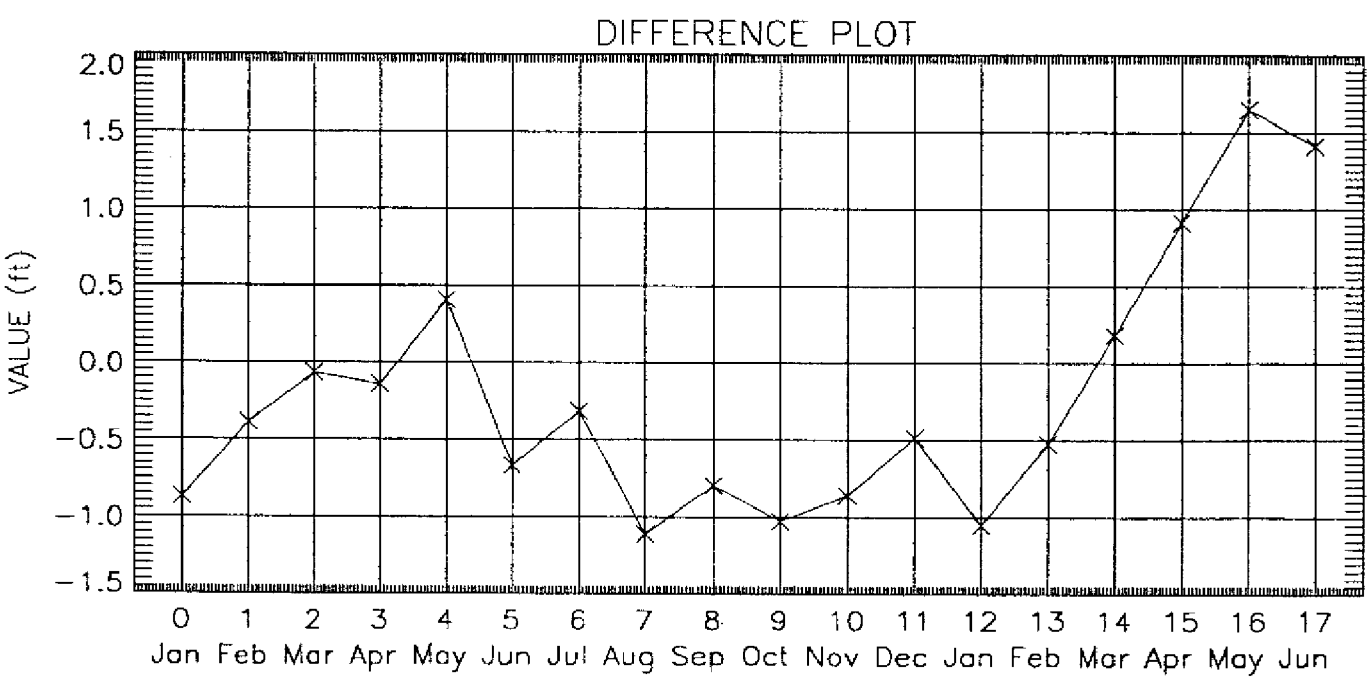

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station: D15A
VALUE (ft)
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 99 Column 69 NOTE: Observed * Calculated x

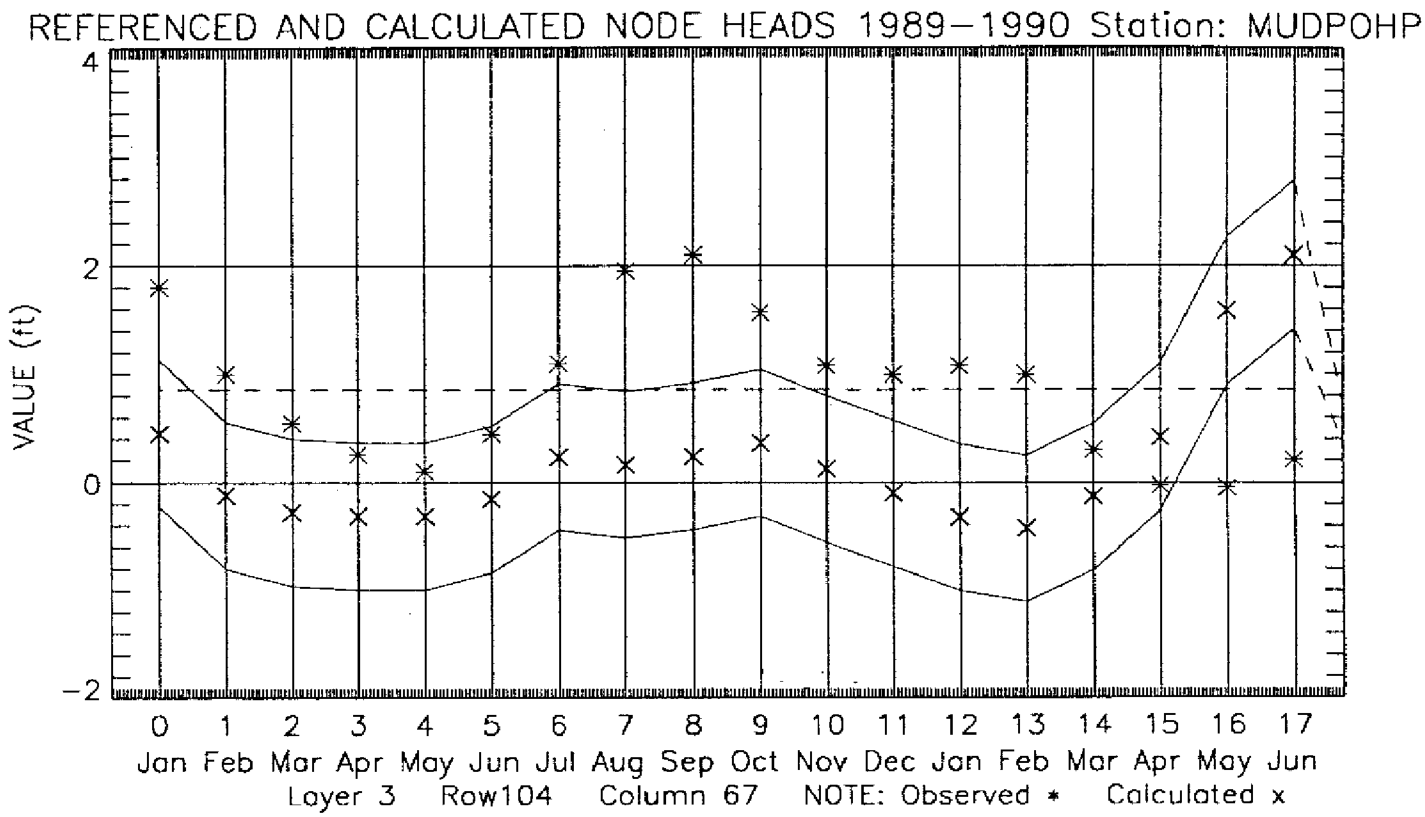

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

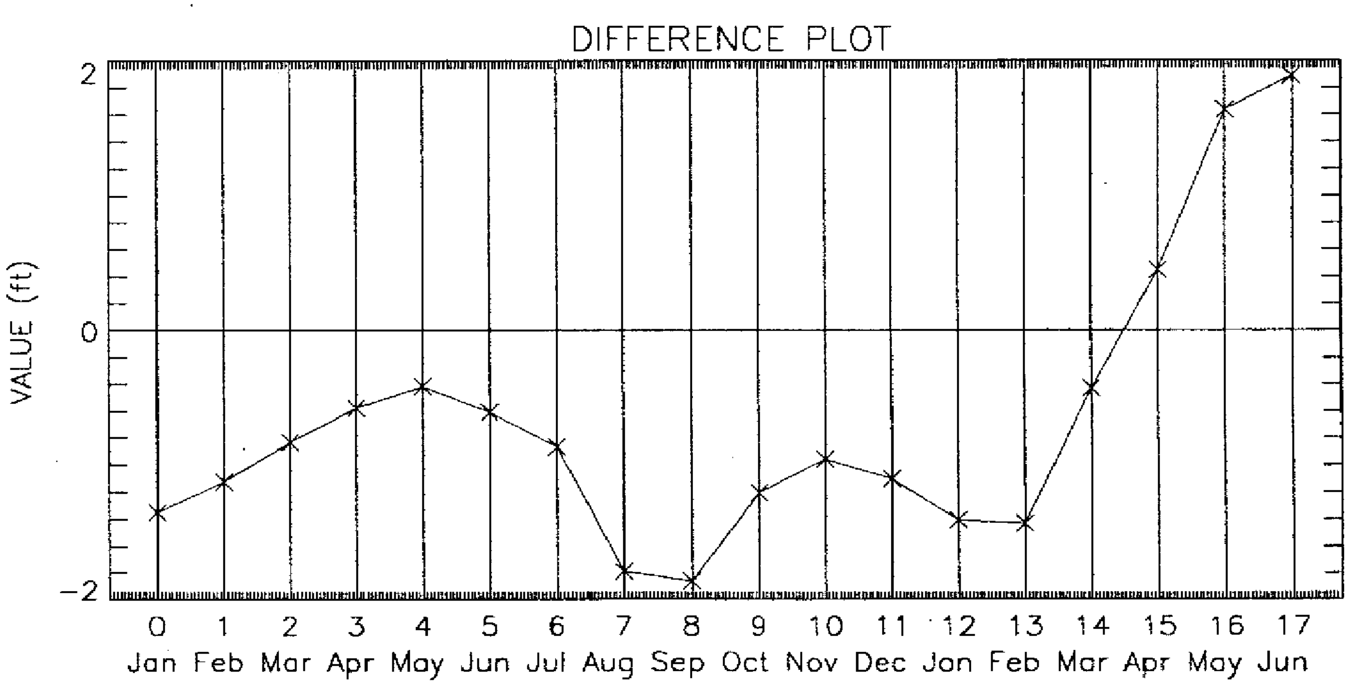

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station: D3
VALUE (ft)
0 2 4 6 8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row100 Column 64 NOTE: Observed * Calculated x

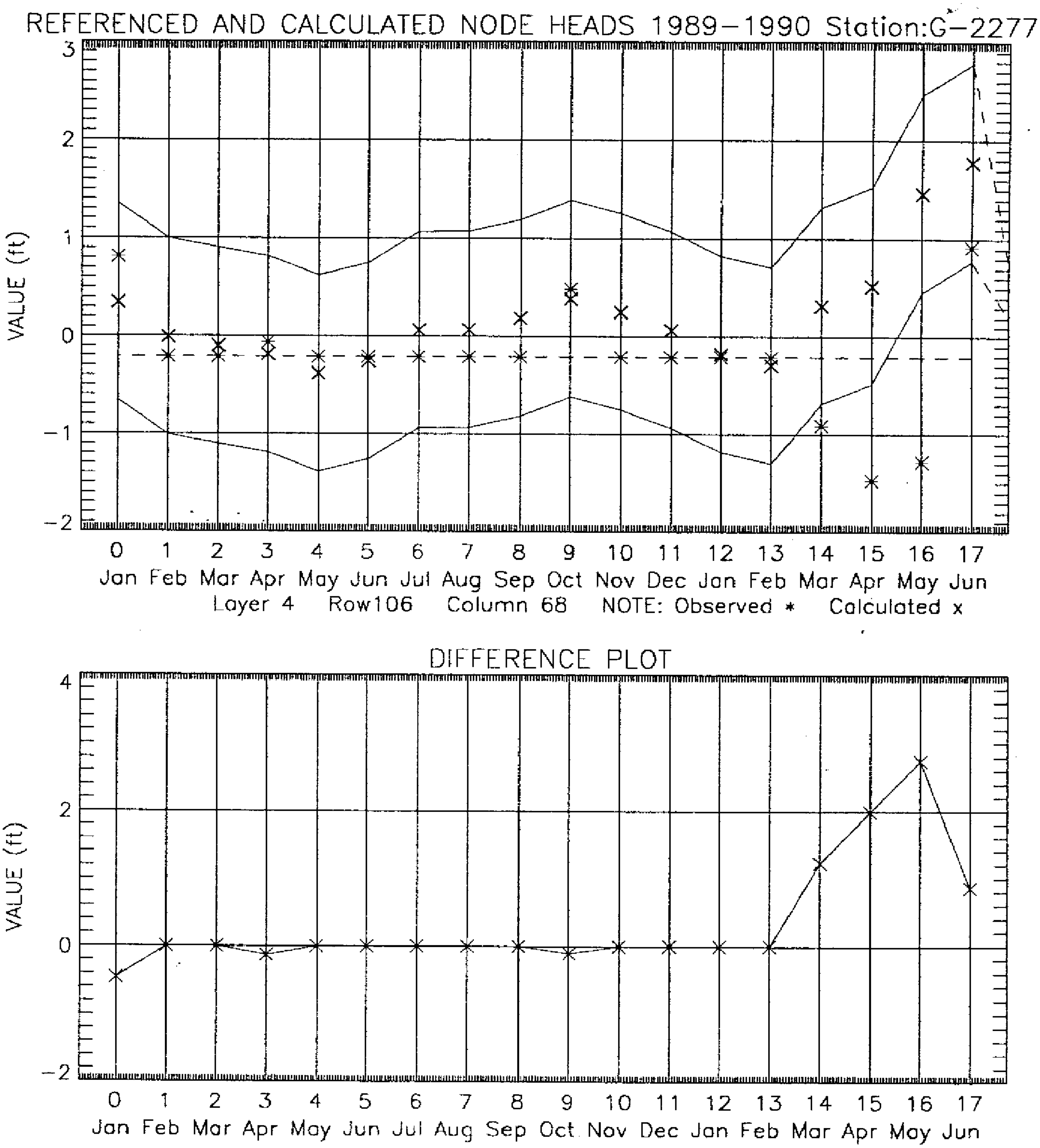

DIFFERENCE PLOT
VALUE (ft)
0.2 0.0 -0.2 -0.4 -0.6 -0.8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station: S11
VALUE (ft)
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row100 Column 67 NOTE: Observed * Calculated x

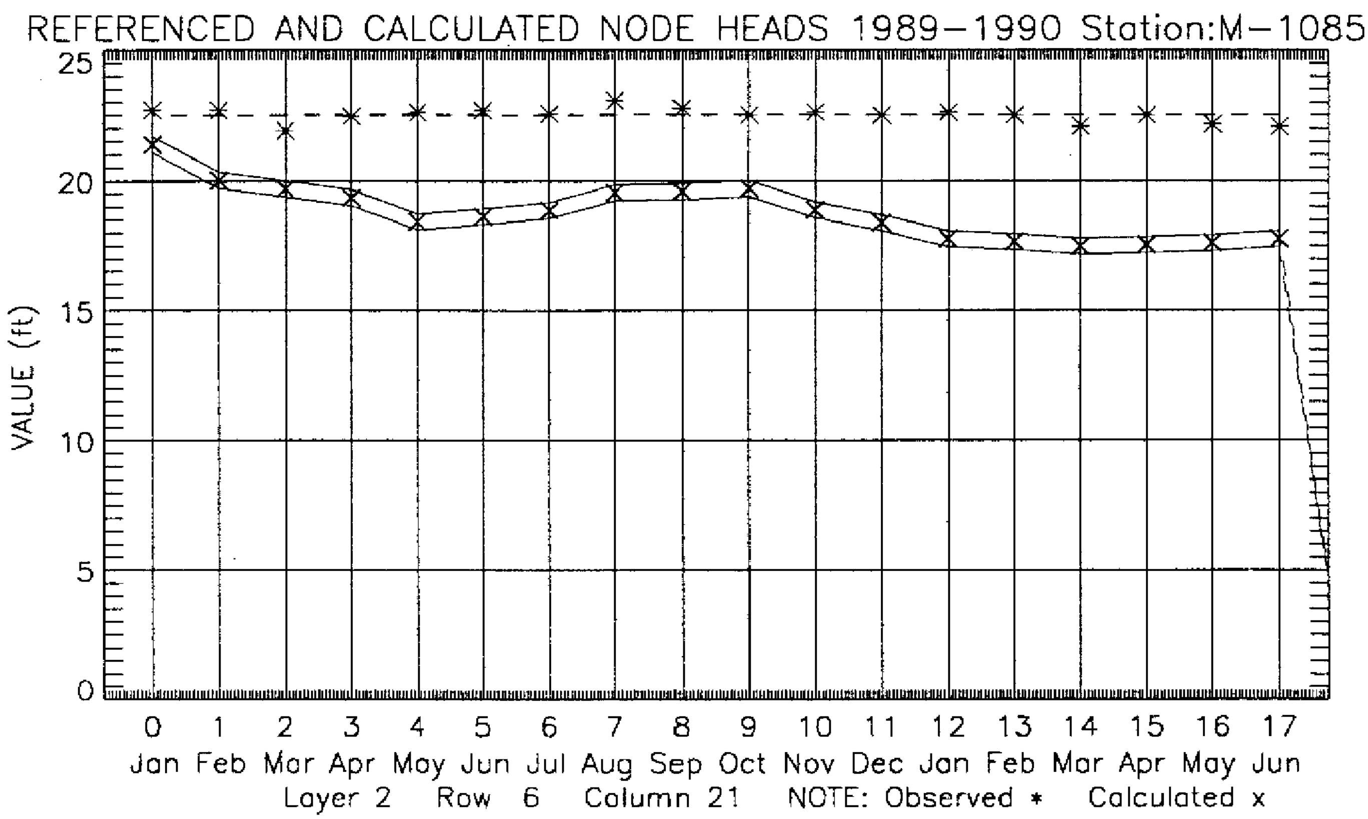

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station: MUDPOHP
VALUE (ft)
4
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row104 Column 67 NOTE: Observed * Calculated x

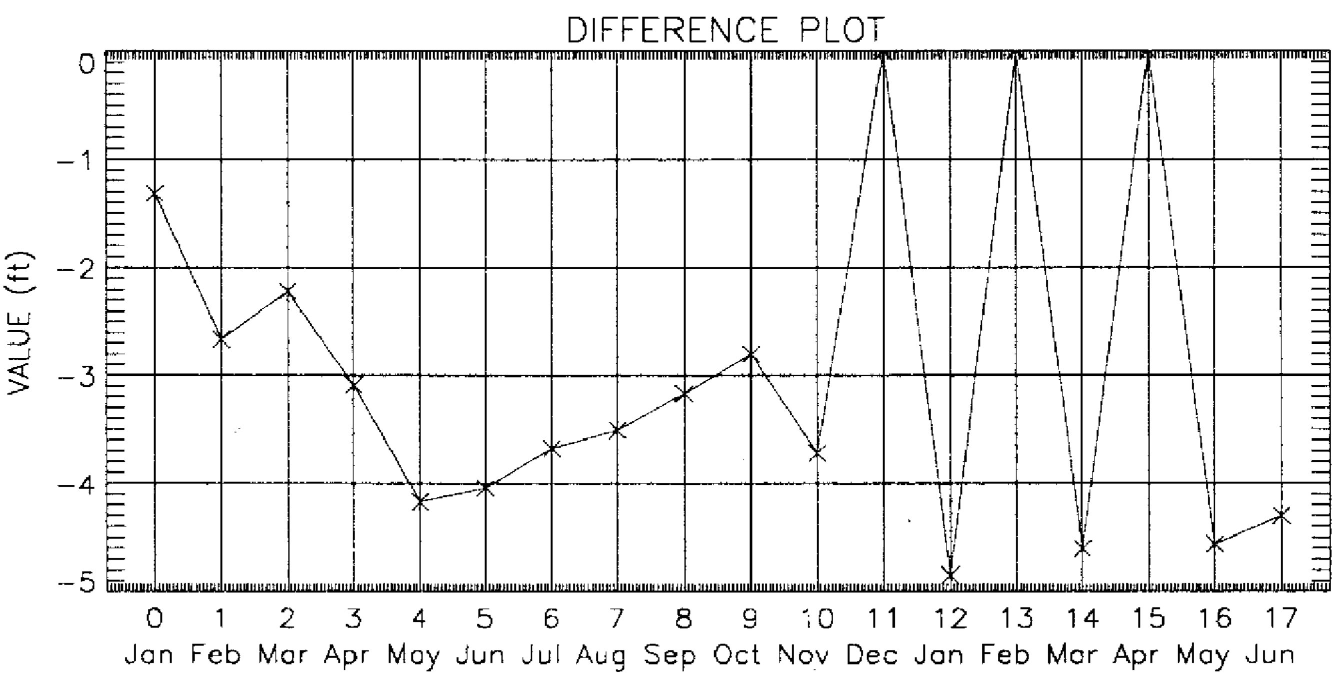

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun



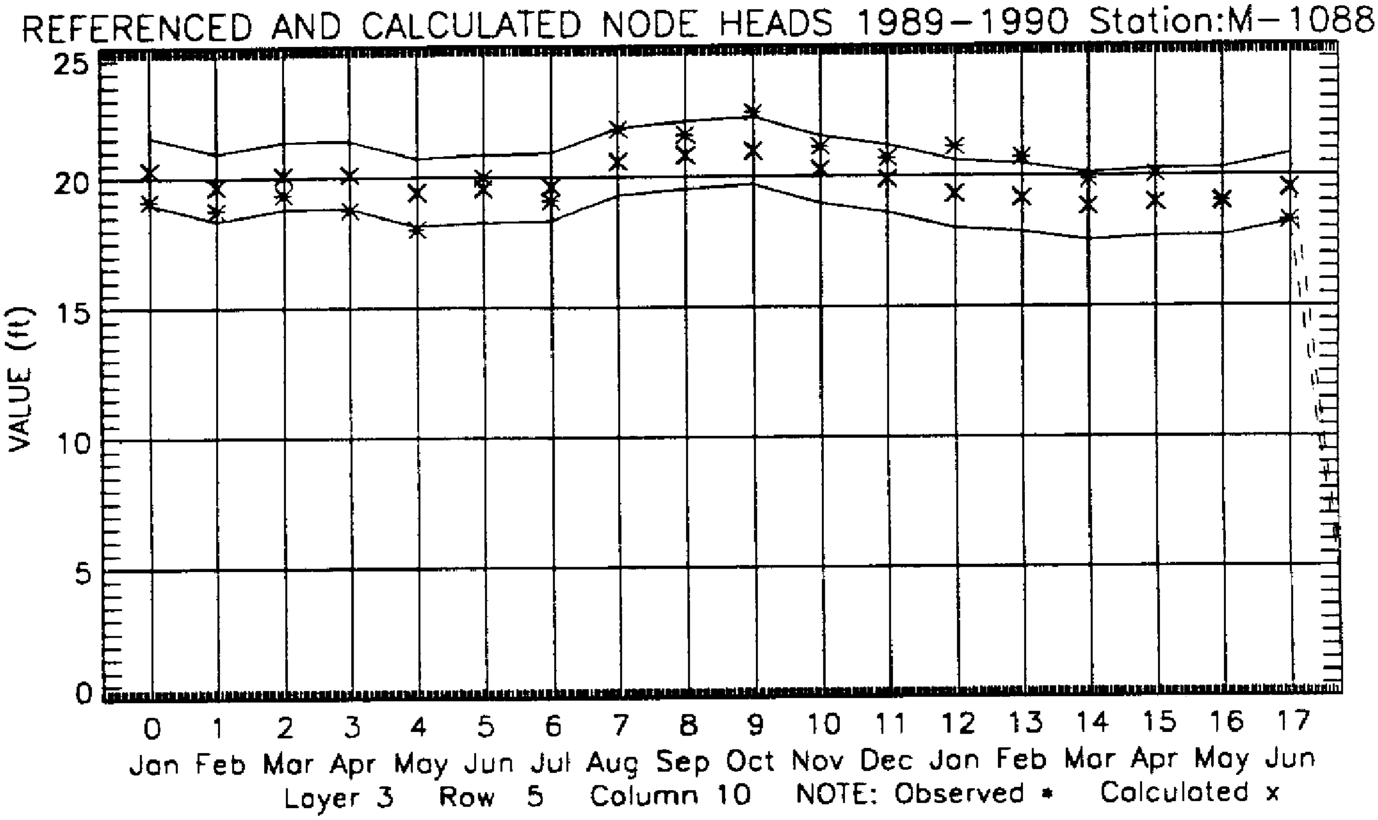
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:G–2277
VALUE (ft)
3
2
1
0
–1
–2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row106 Column 68 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
4
2
0
–2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

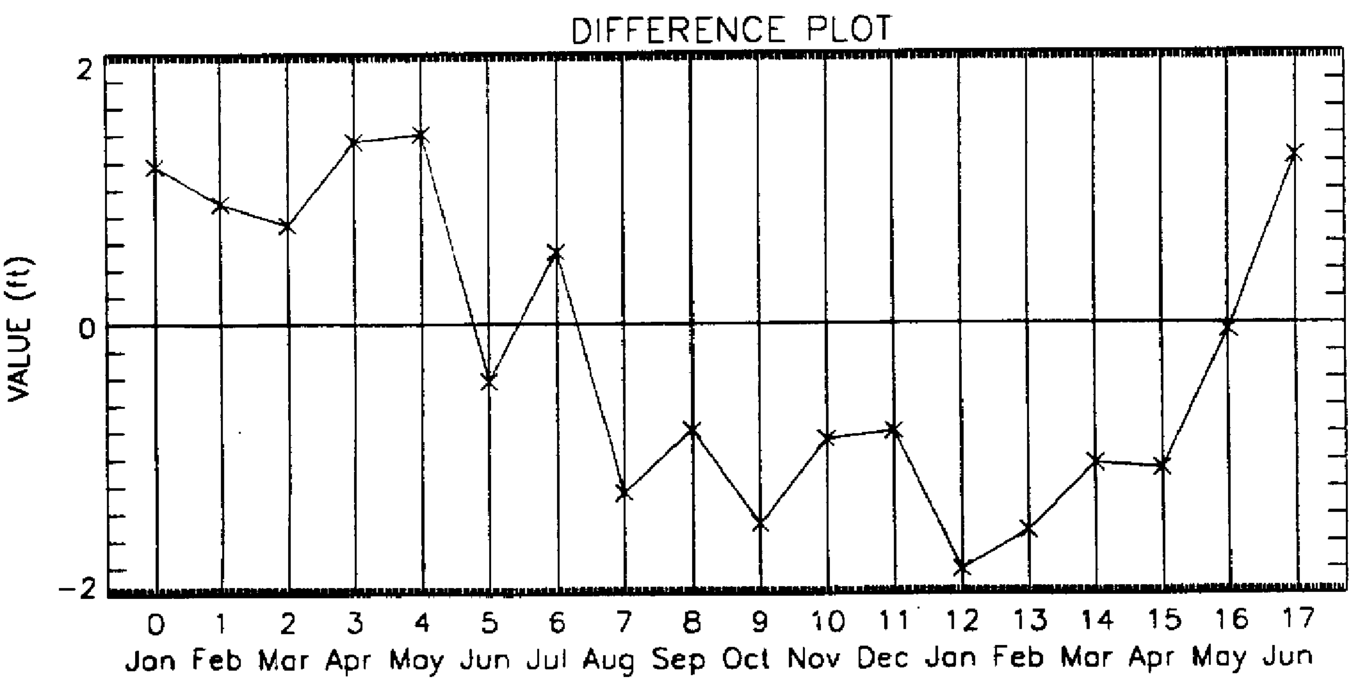


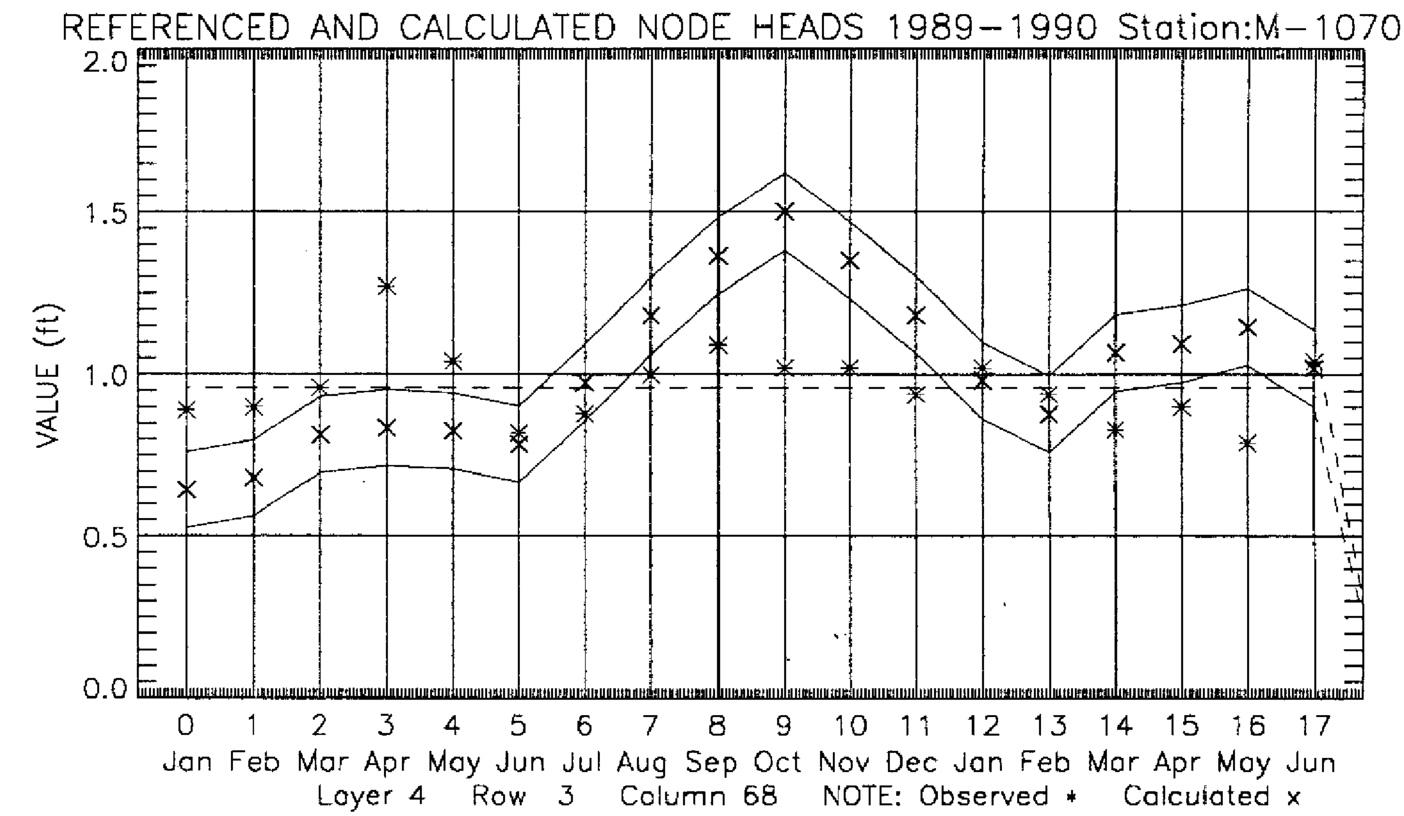
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1085
VALUE (ft)
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 6 Column 21 NOTE: Observed * Calculated x

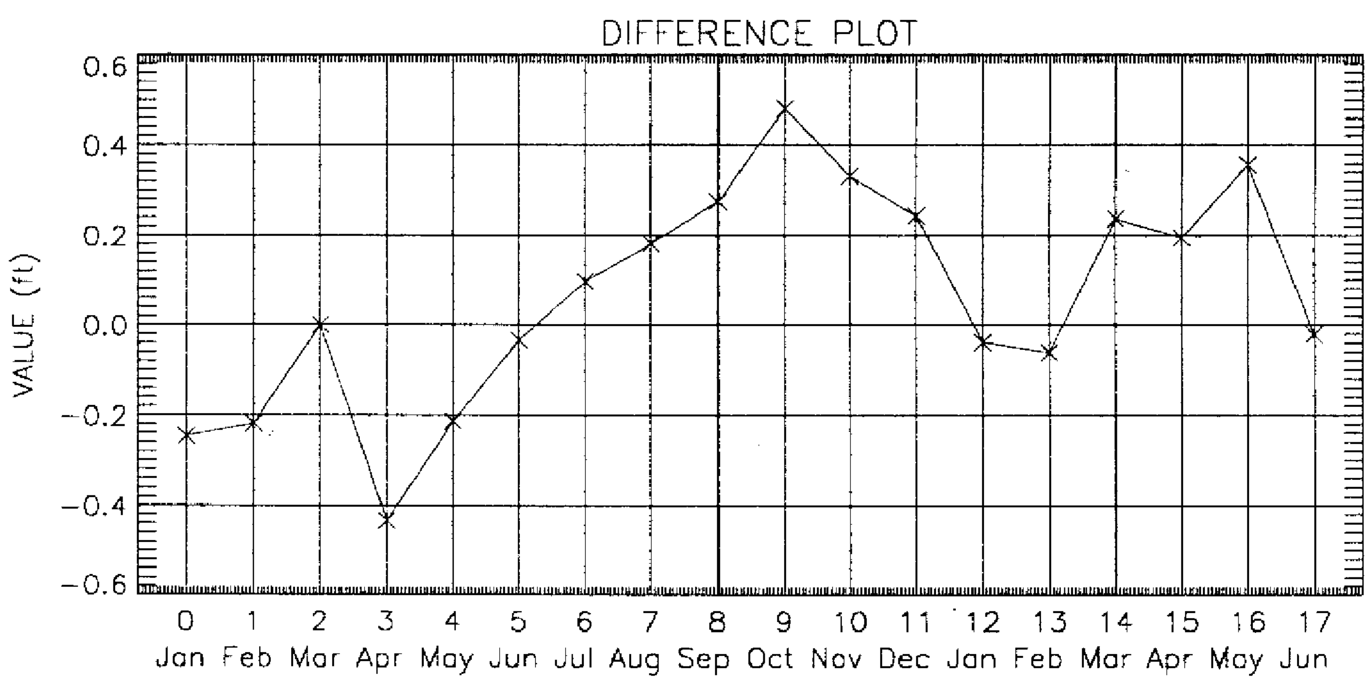


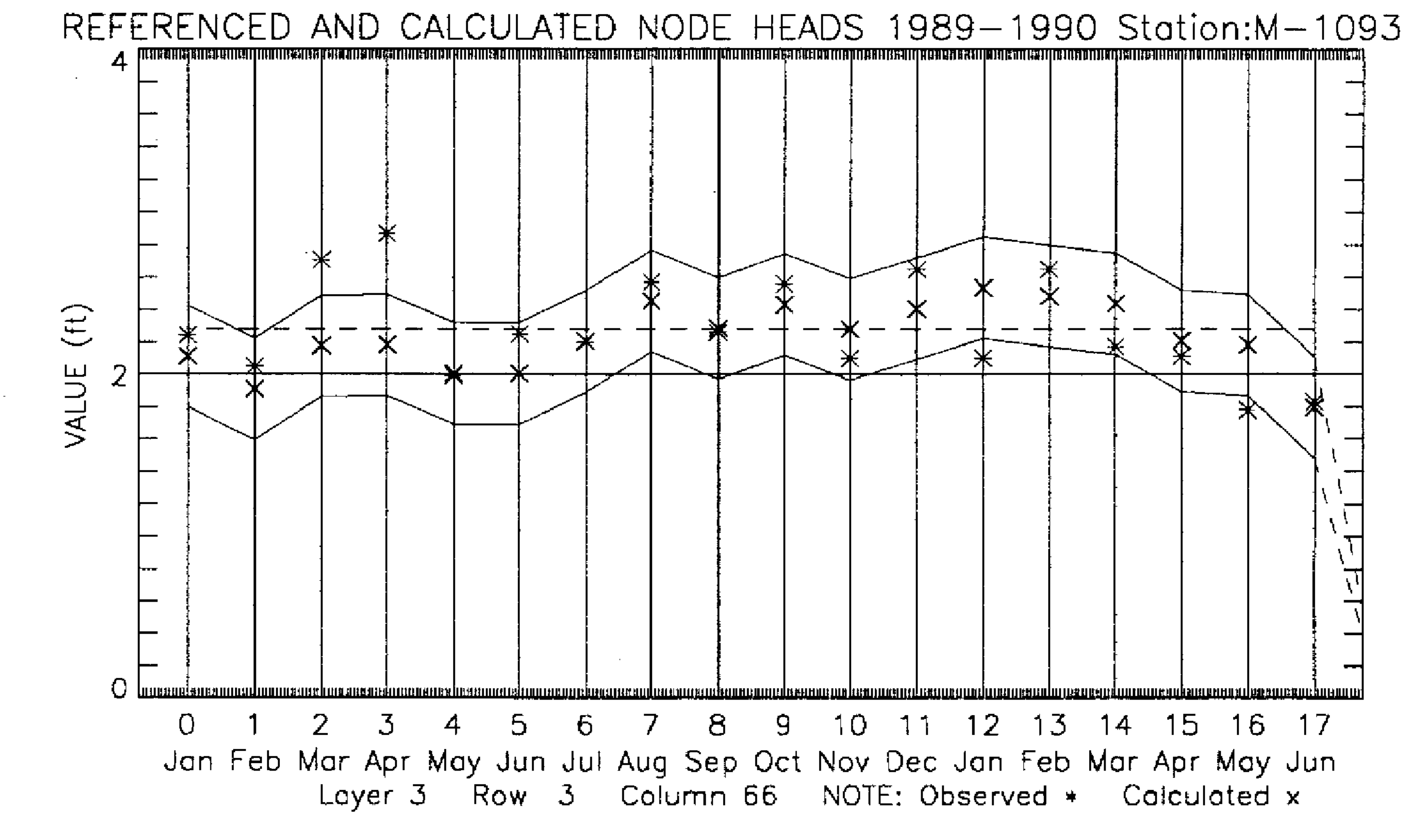
DIFFERENCE PLOT
VALUE (ft)
0
-1
-2
-3
-4
-5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

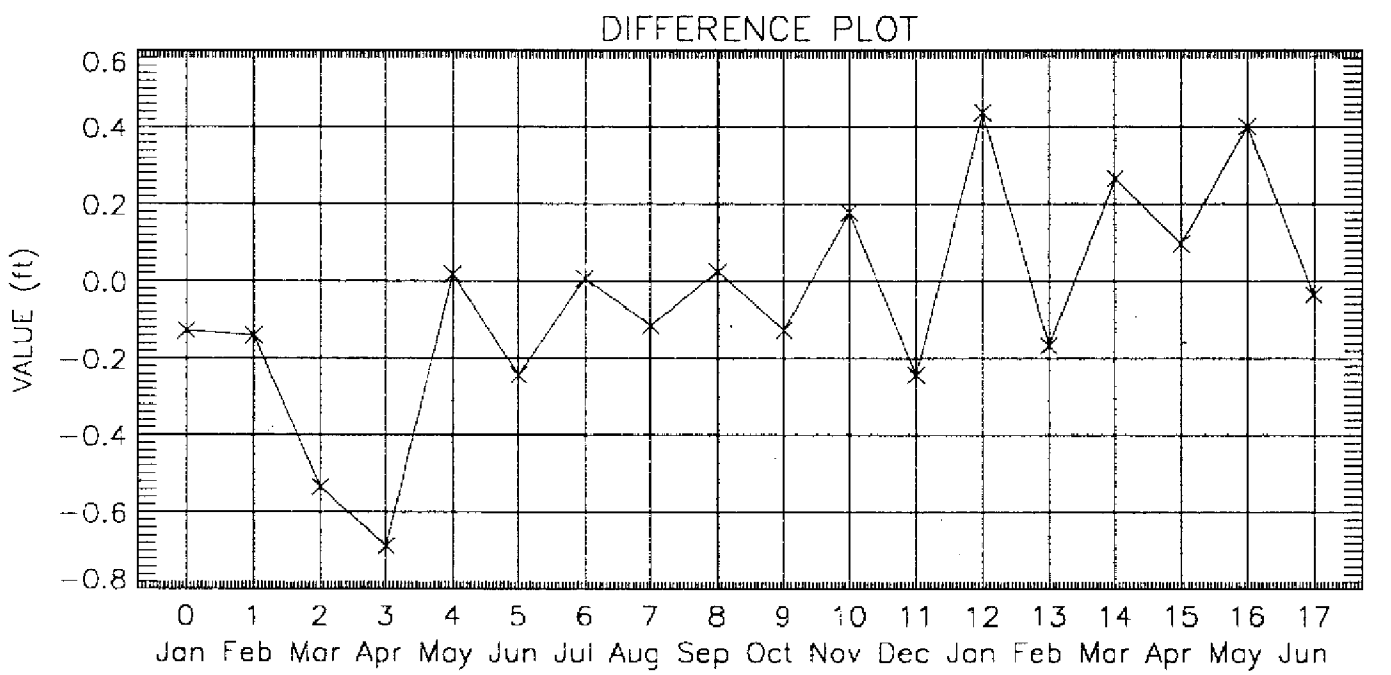

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1088
VALUE (ft)
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 5 Column 10 NOTE: Observed * Calculated x

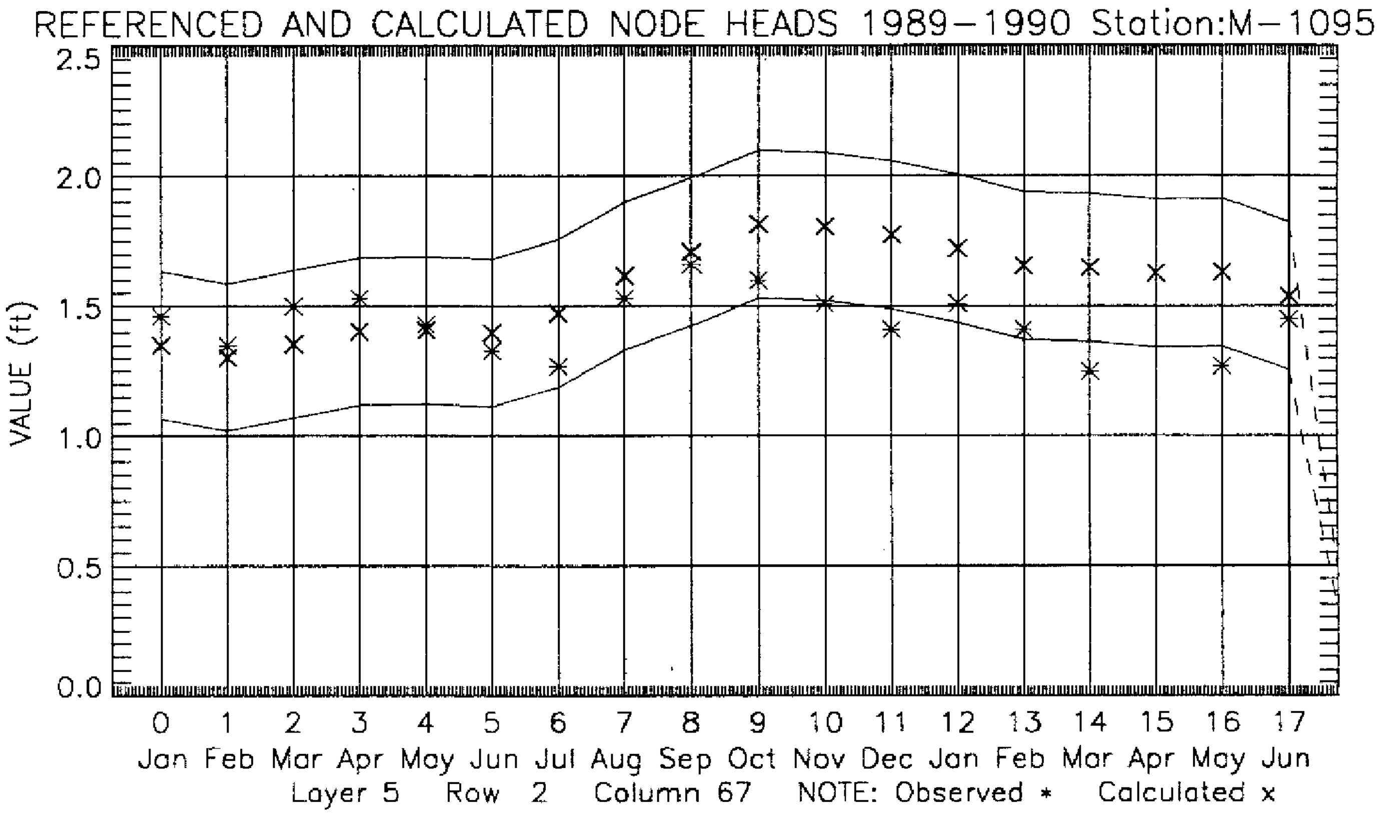

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

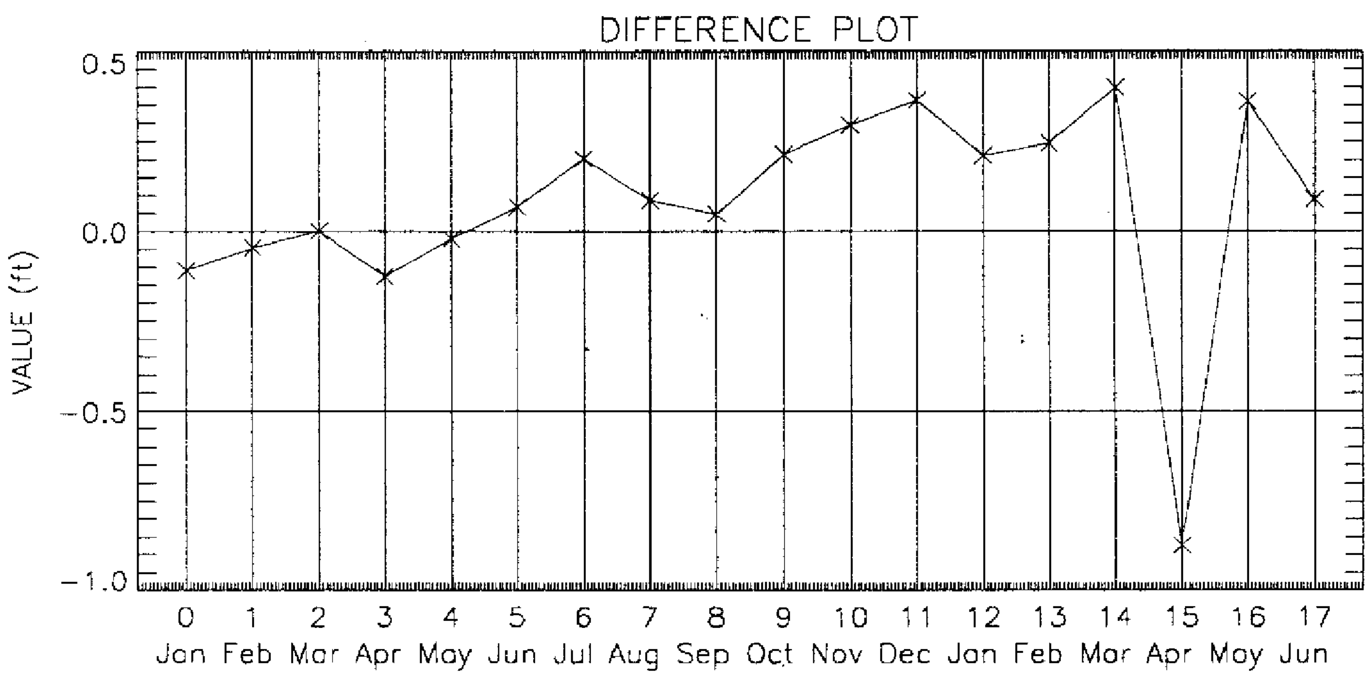

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1070
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 3 Column 68 NOTE: Observed * Calculated x

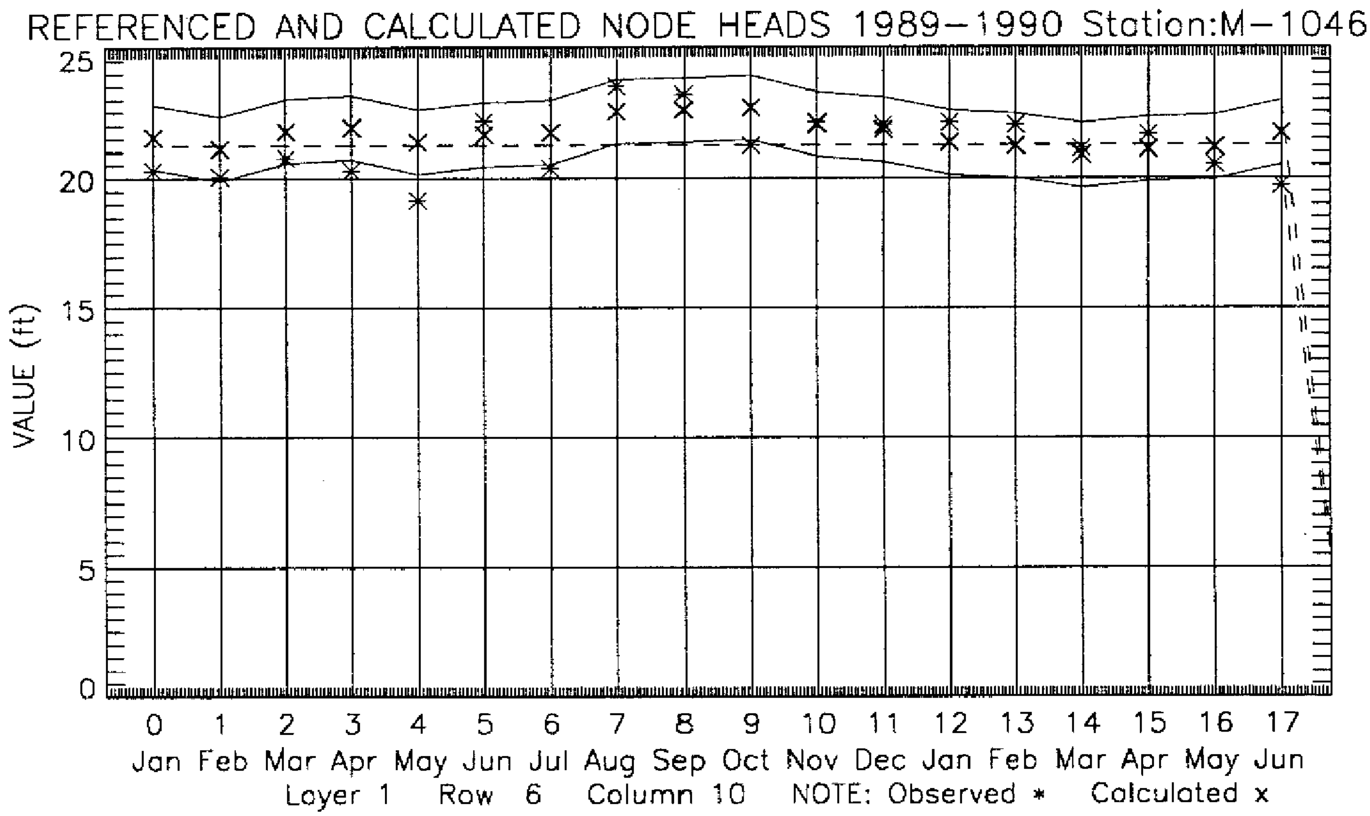

DIFFERENCE PLOT
VALUE (ft)
0.6
0.4
0.2
0.0
-0.2
-0.4
-0.6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

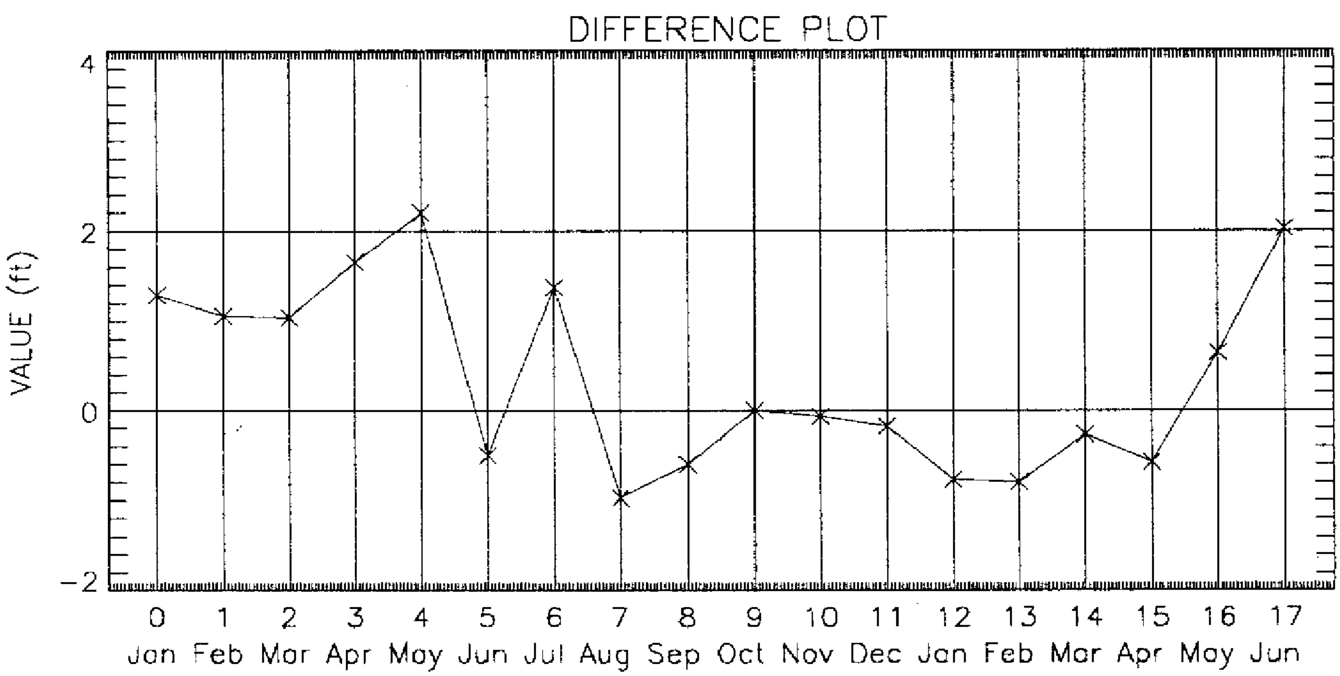

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1093
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 3 Column 66 NOTE: Observed * Calculated x

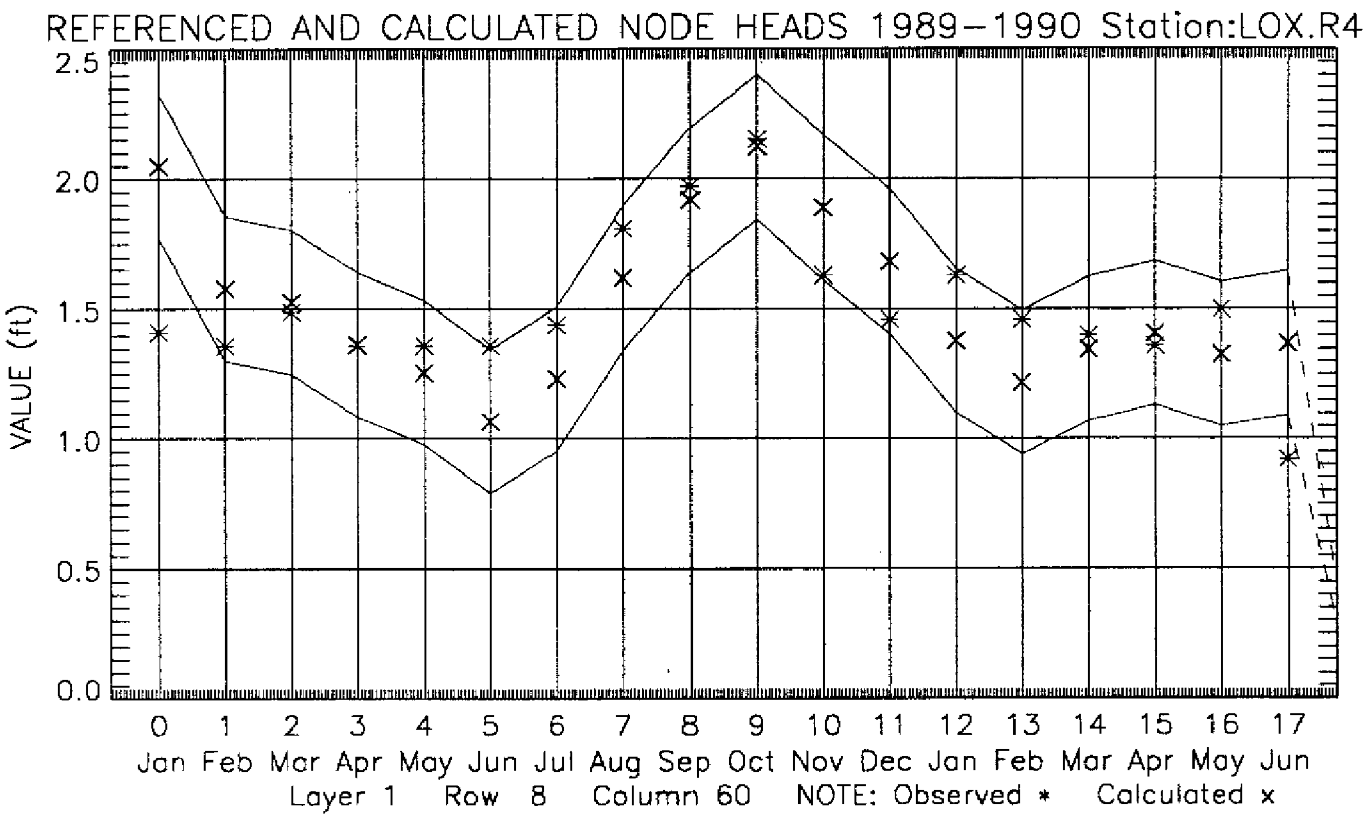

DIFFERENCE PLOT
VALUE (ft)
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
−0.8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

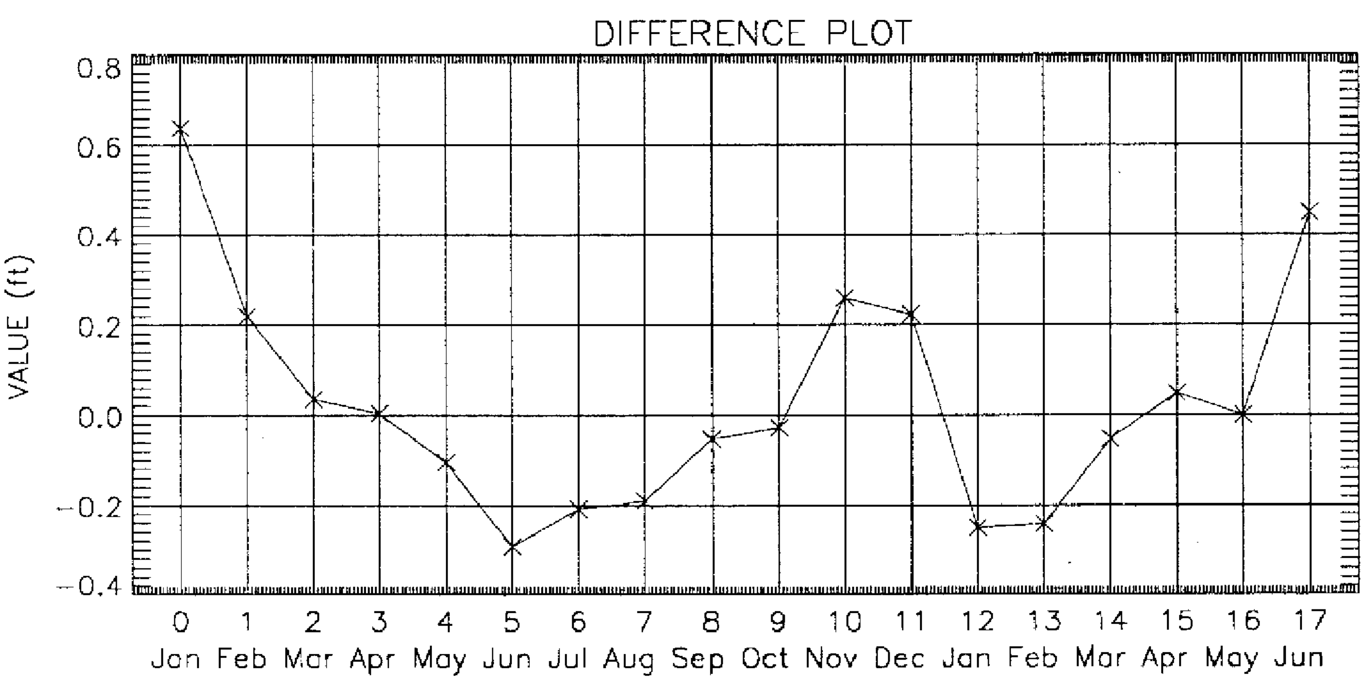

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1095
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 2 Column 67 NOTE: Observed * Calculated x

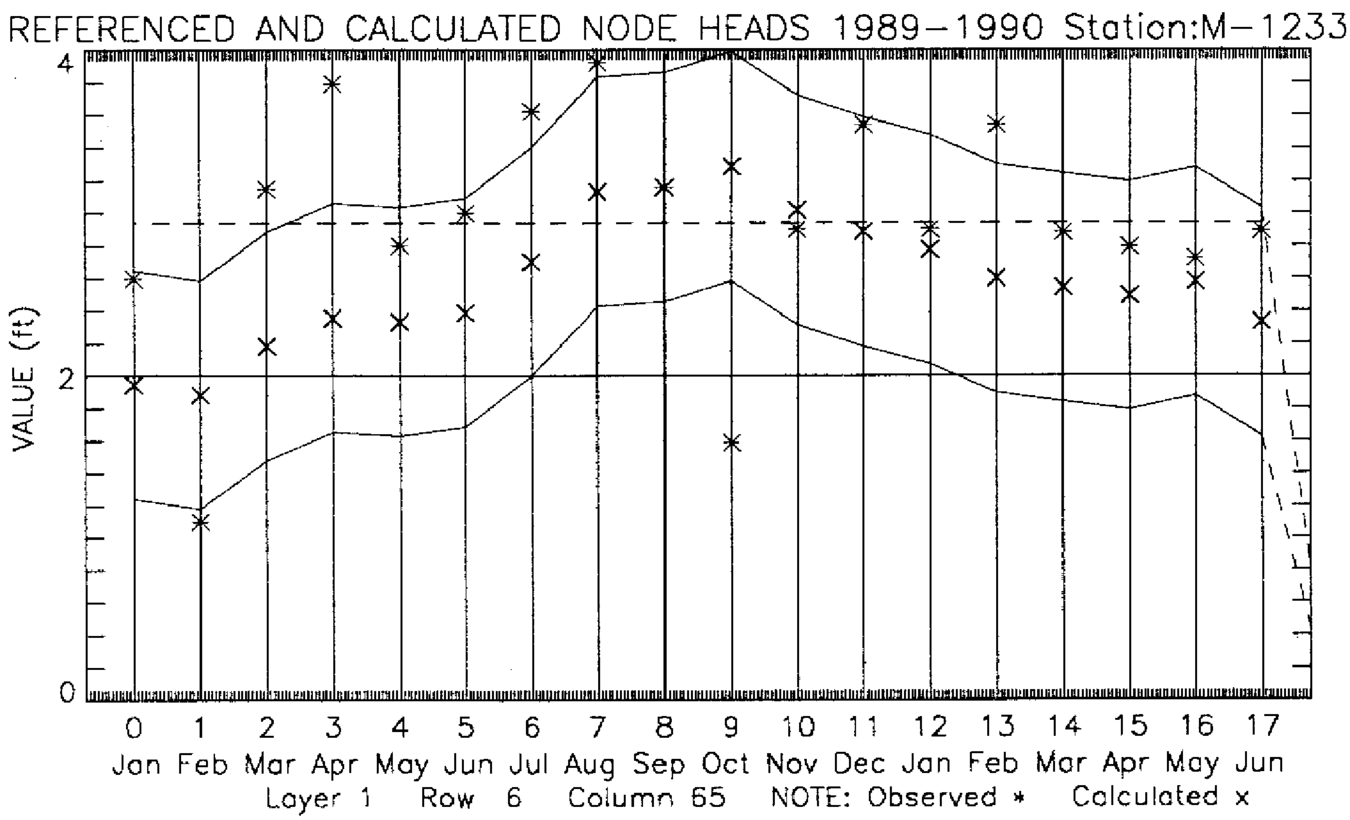

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

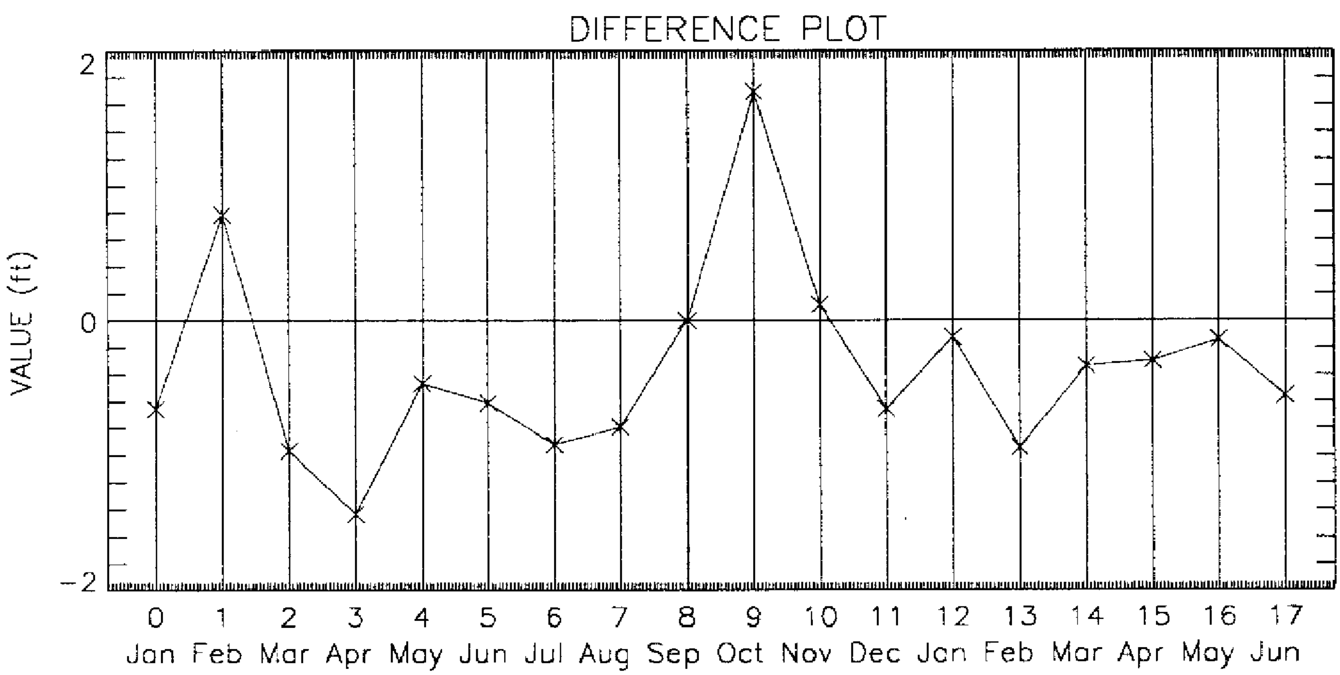

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:M–1046
VALUE (ft)
25
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 6 Column 10 NOTE: Observed * Calculated x

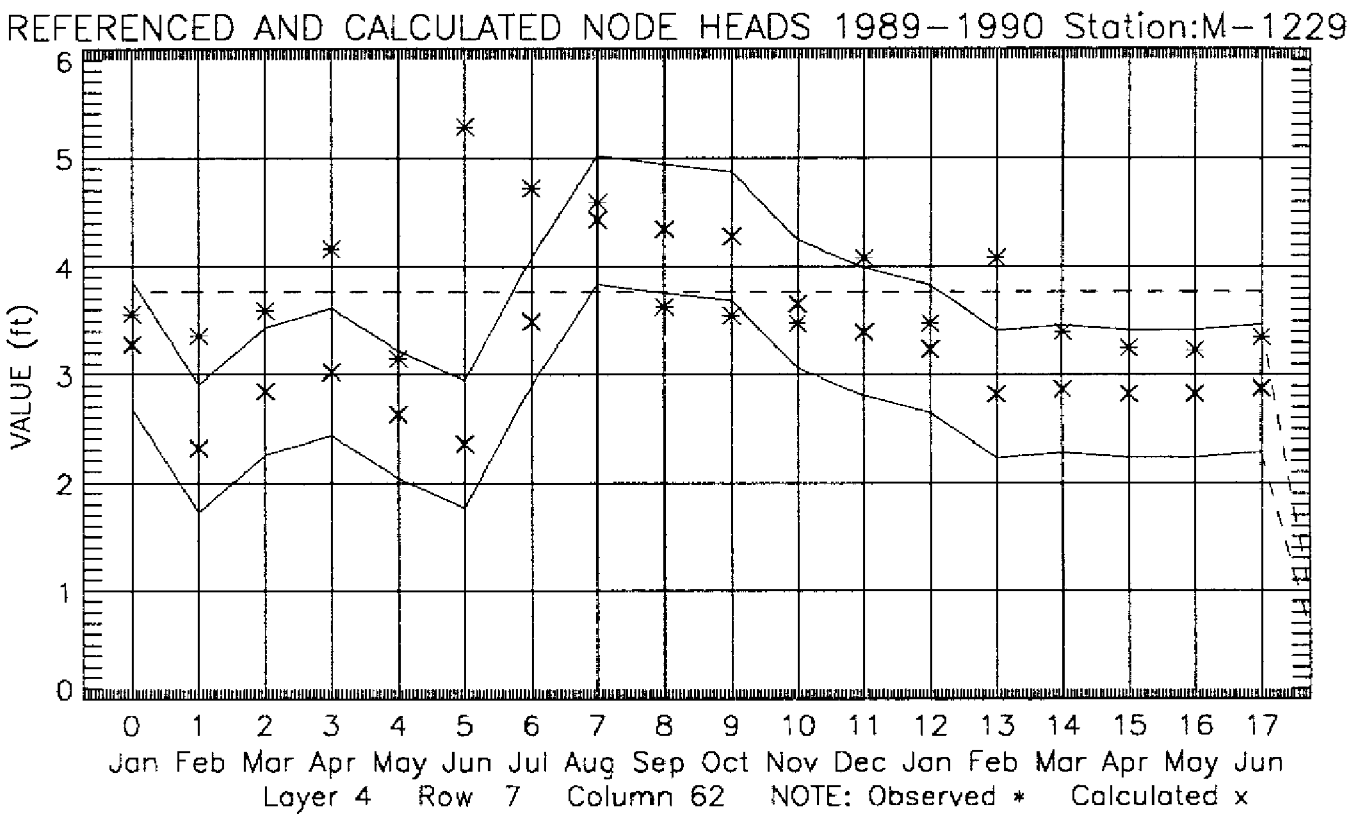

DIFFERENCE PLOT
VALUE (ft)
4
2
0
–2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

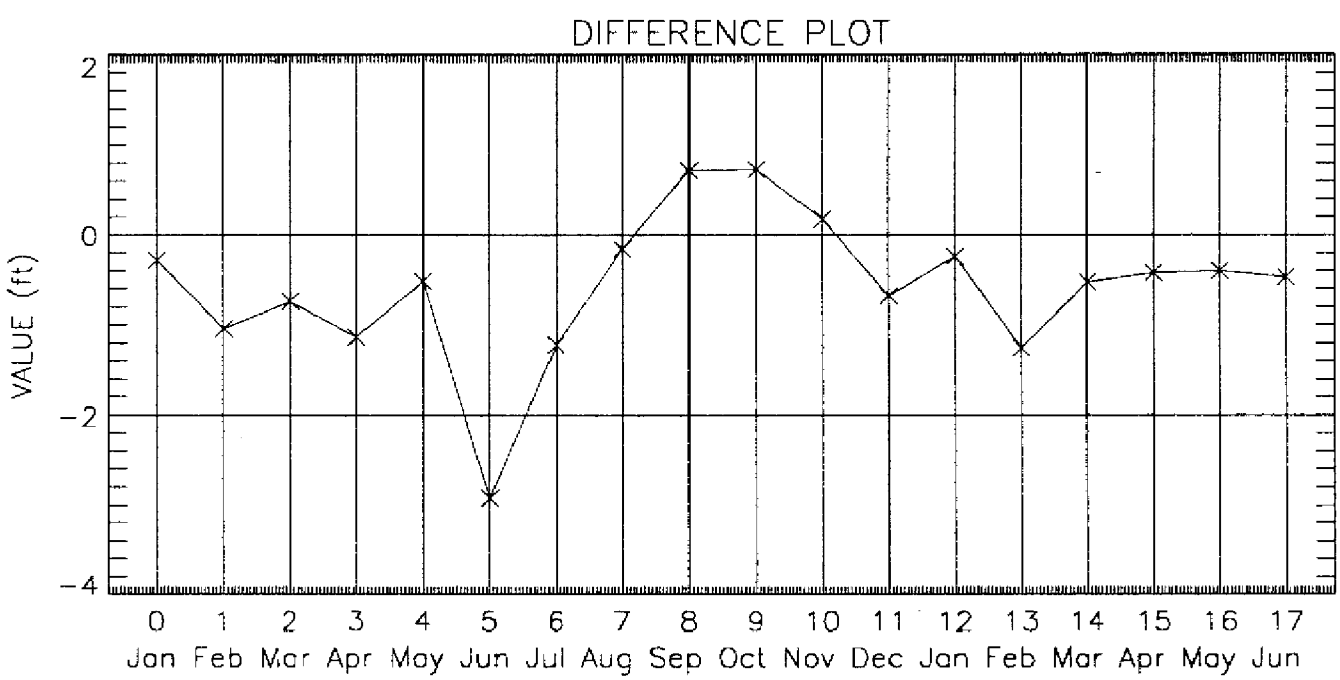

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:LOX.R4
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 8 Column 60 NOTE: Observed * Calculated x

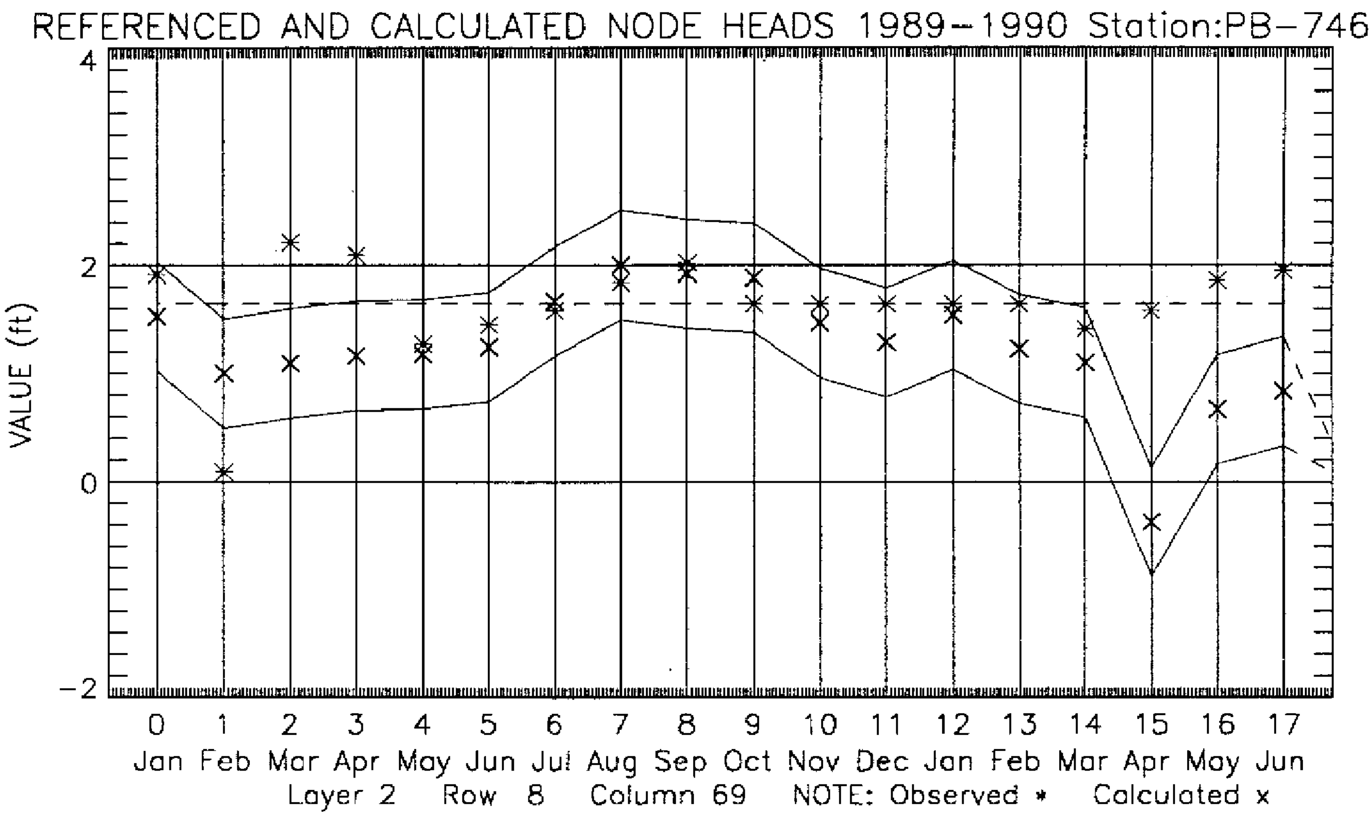

DIFFERENCE PLOT
VALUE (ft)
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

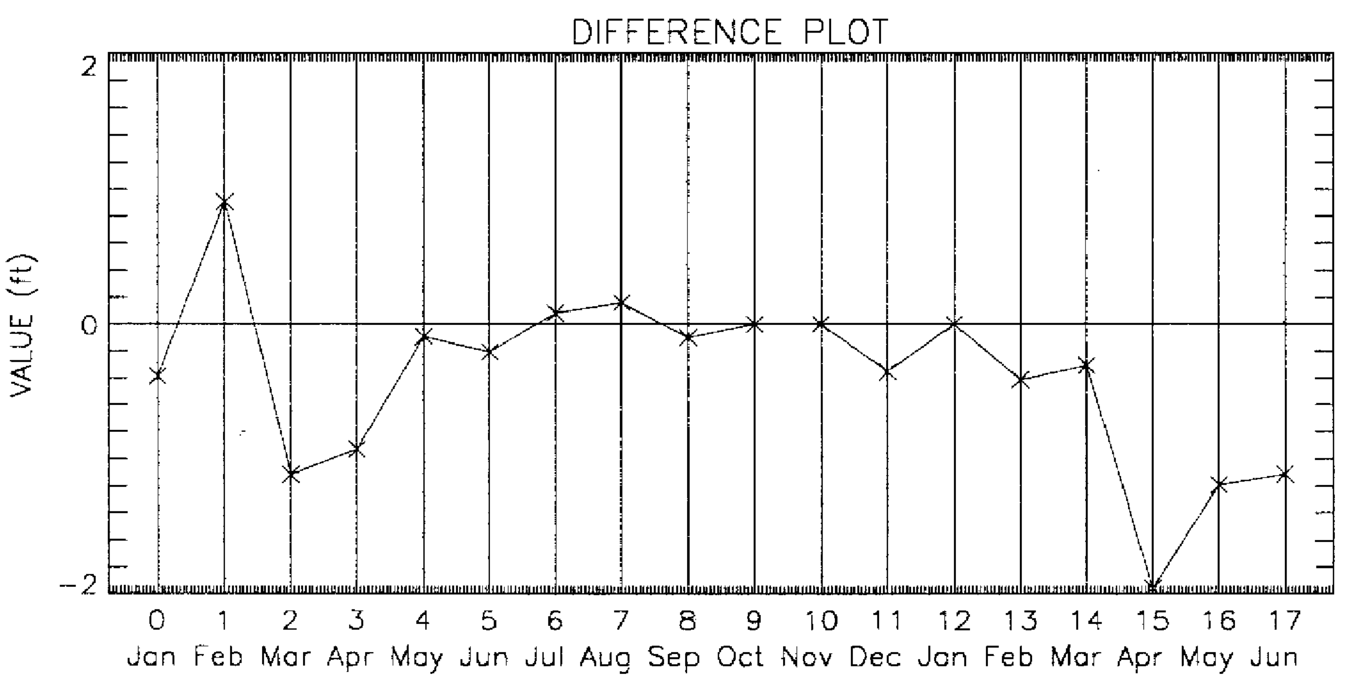

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1233
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 6 Column 65 NOTE: Observed * Calculated x

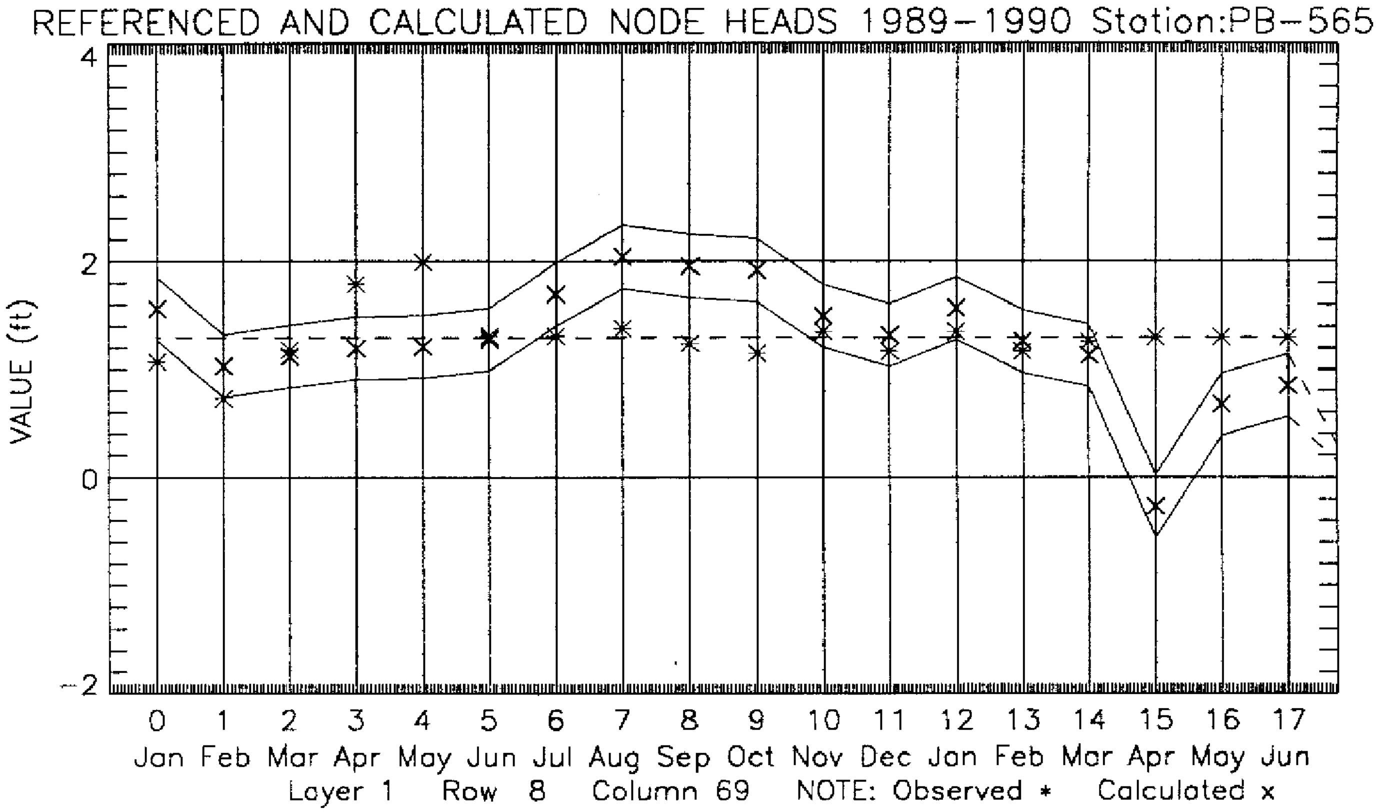

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

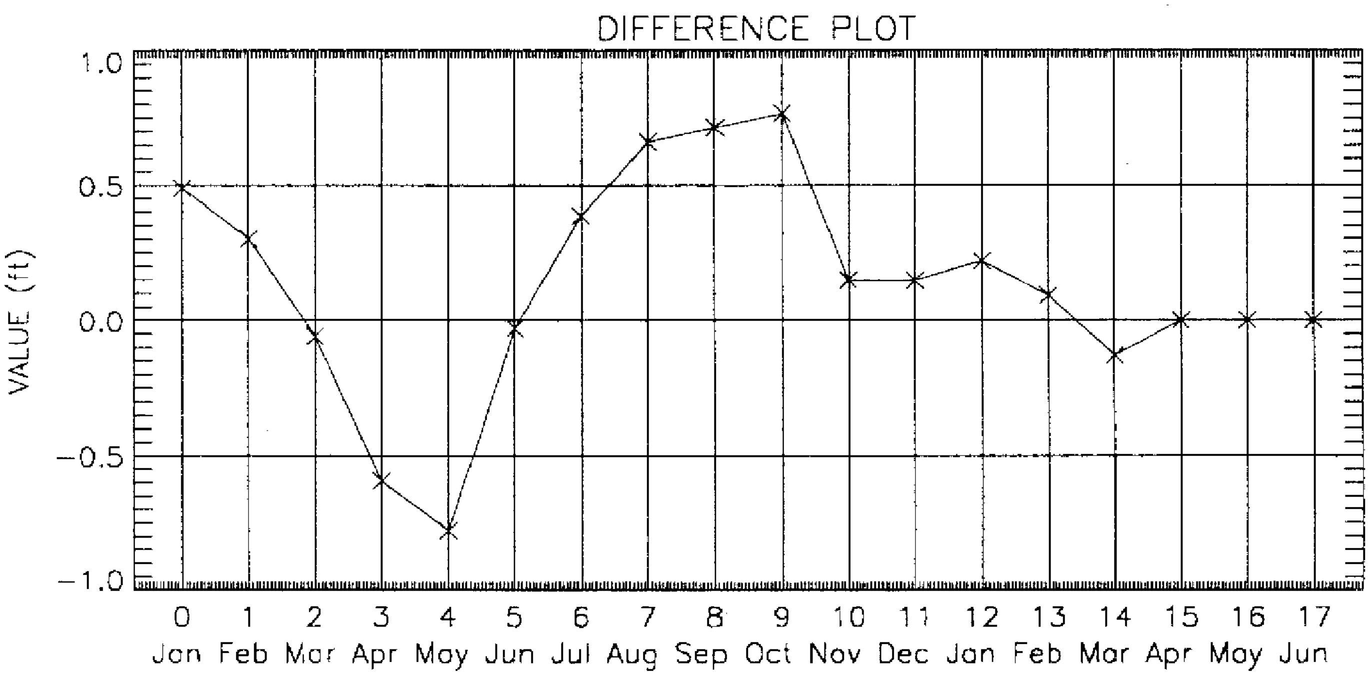

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M-1229
VALUE (ft)
0 1 2 3 4 5 6
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 7 Column 62 NOTE: Observed * Calculated x

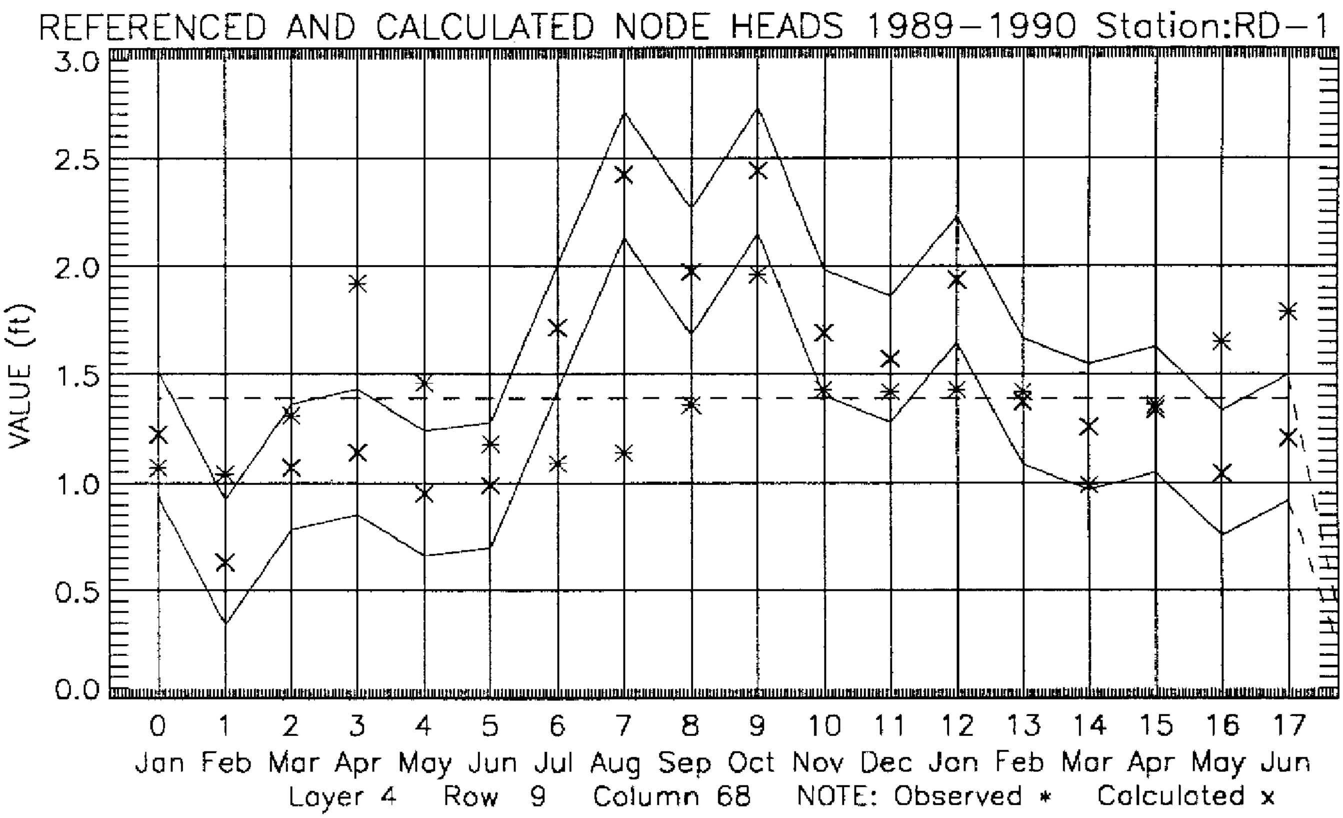

DIFFERENCE PLOT
VALUE (ft)
2 0 -2 -4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

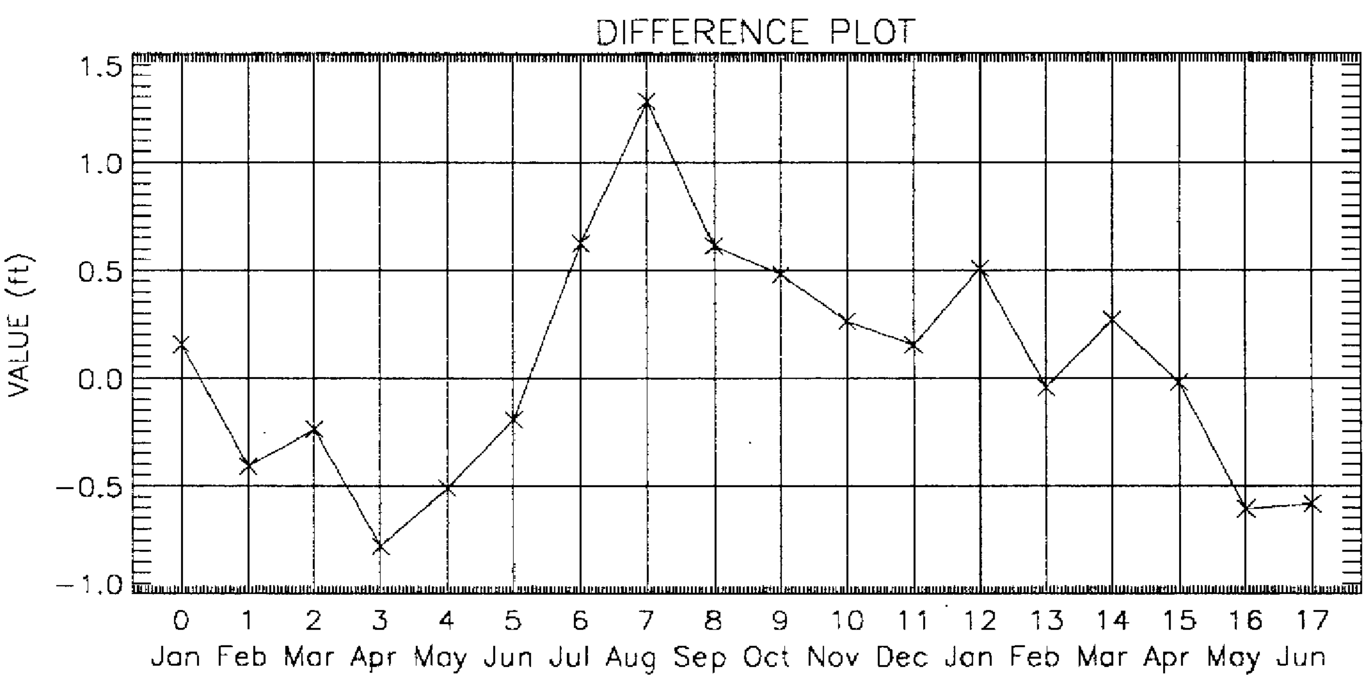

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-746
VALUE (ft)
4
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 8 Column 69 NOTE: Observed * Calculated x

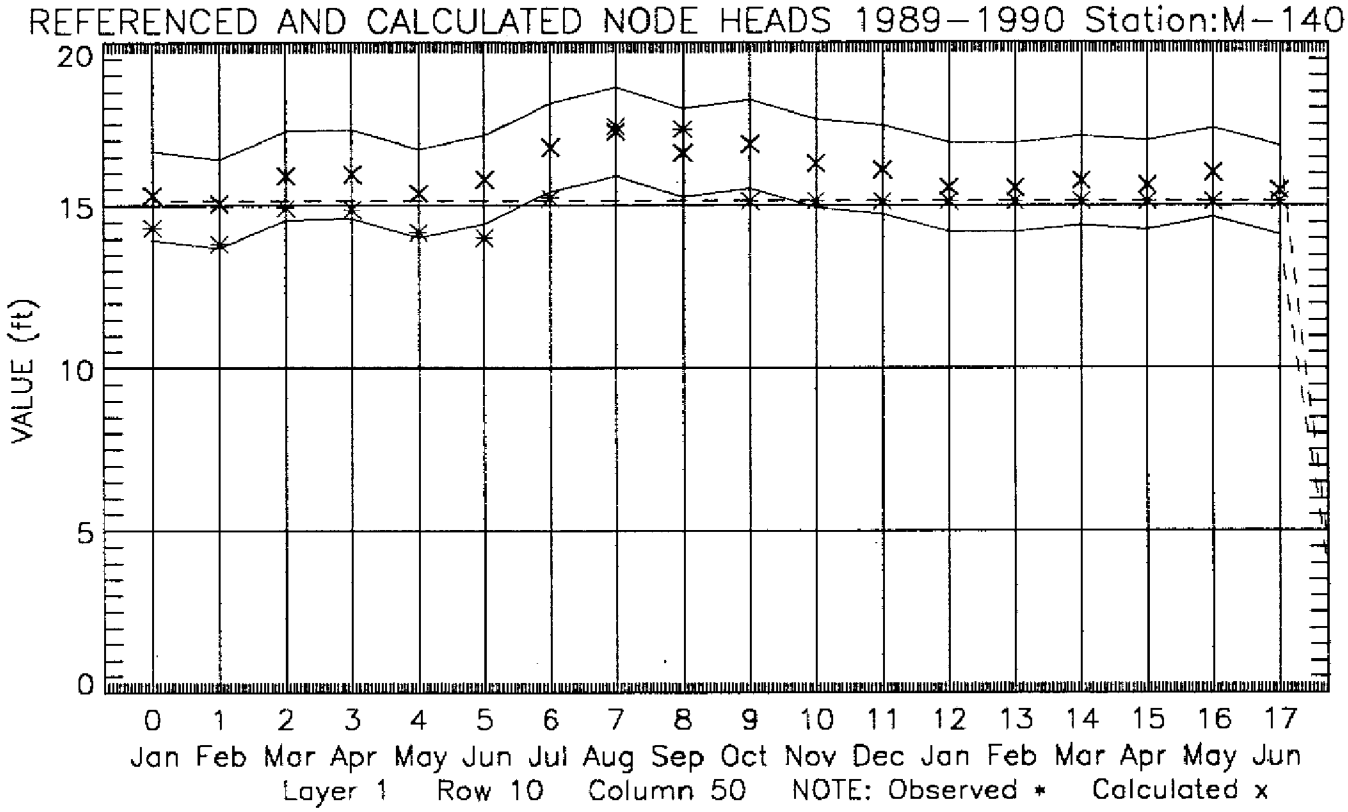

DIFFERENCE PLOT
VALUE (ft)
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

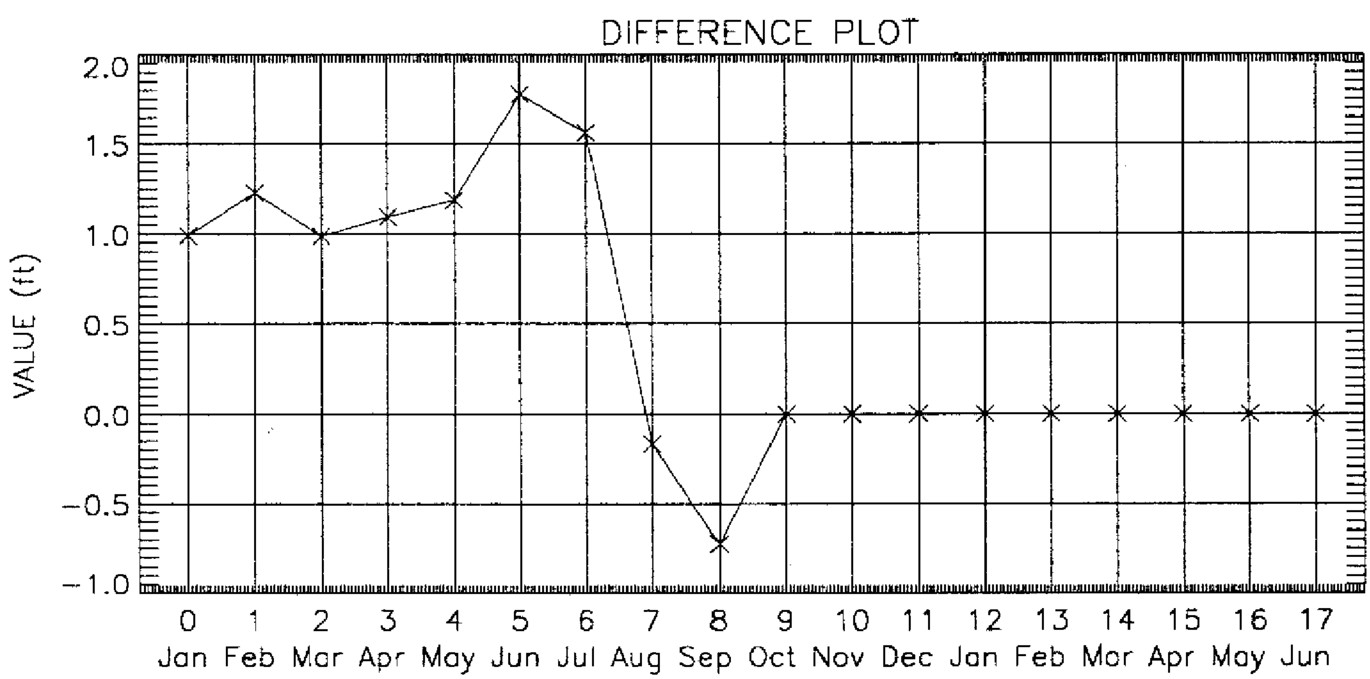

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-565
VALUE (ft)
4
2
0
-2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 8 Column 69 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

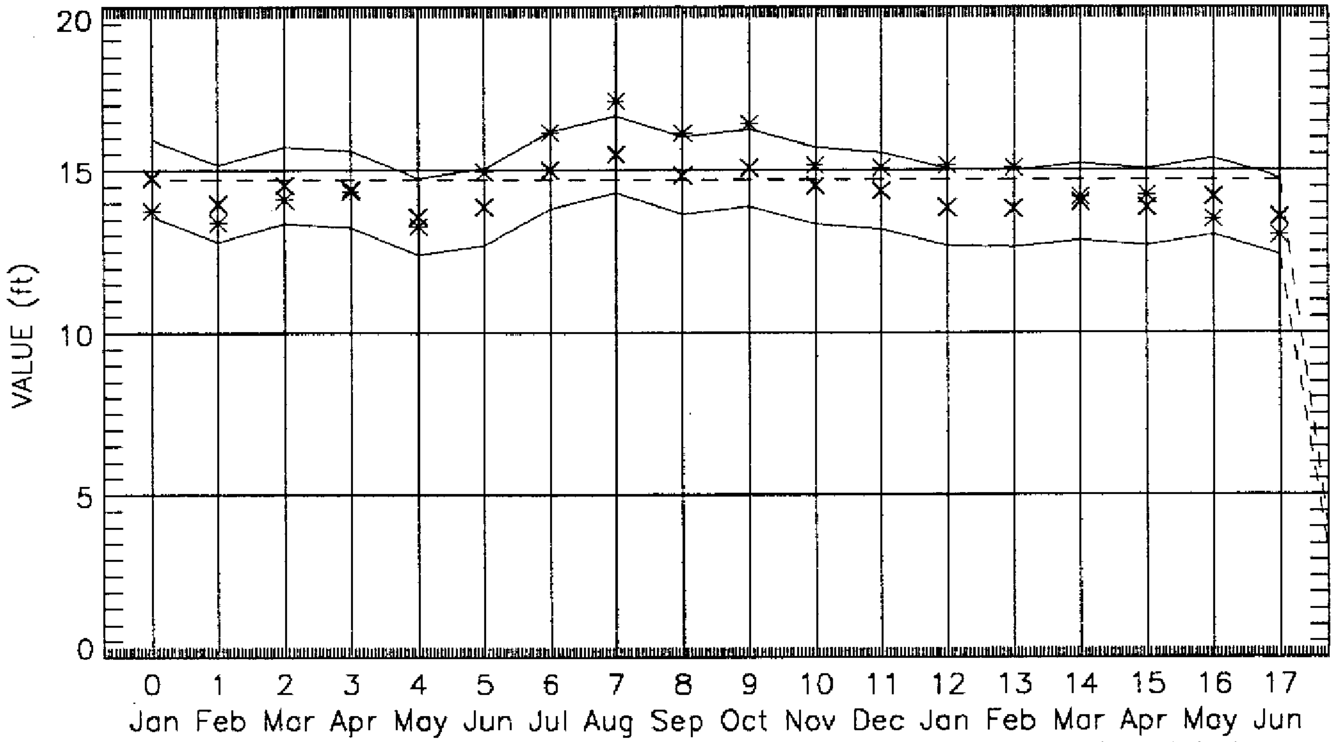

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:RD−1
VALUE (ft)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 9 Column 68 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−140
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 50 NOTE: Observed * Calculated x

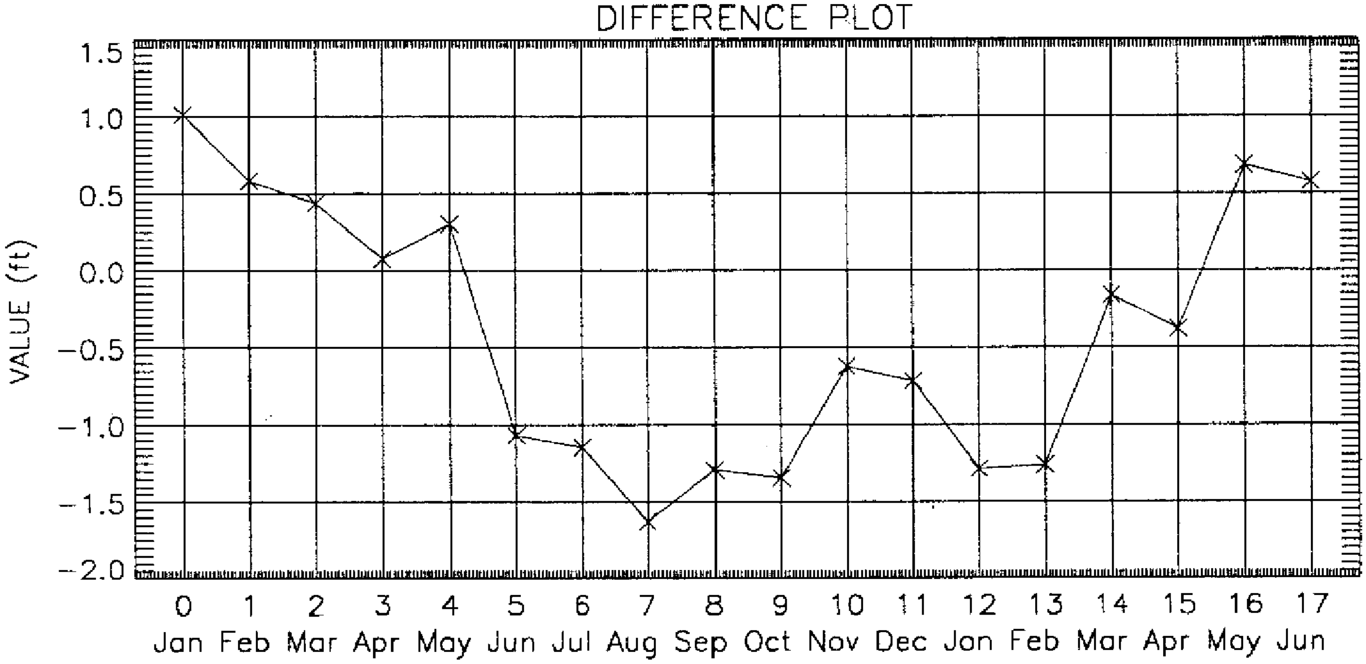

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

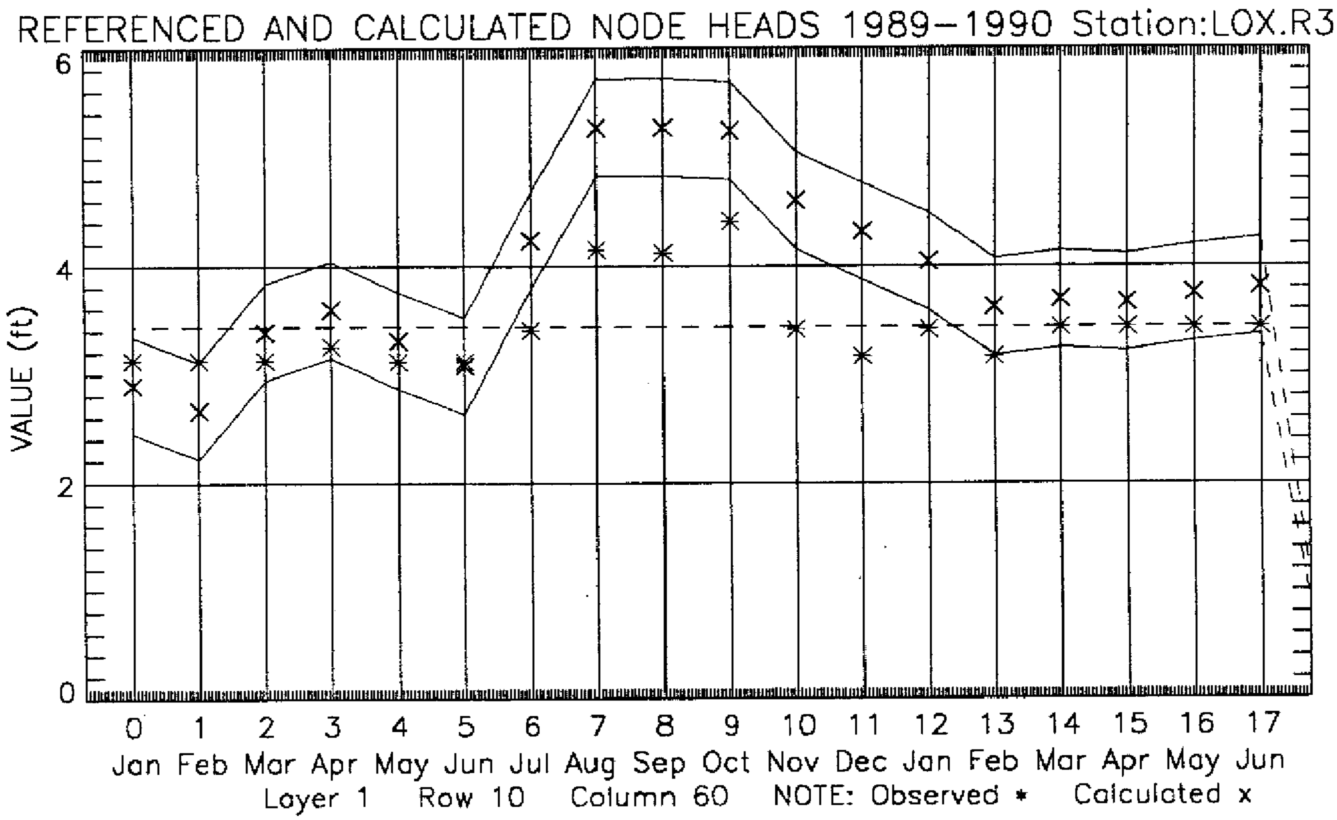
REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:M−1231

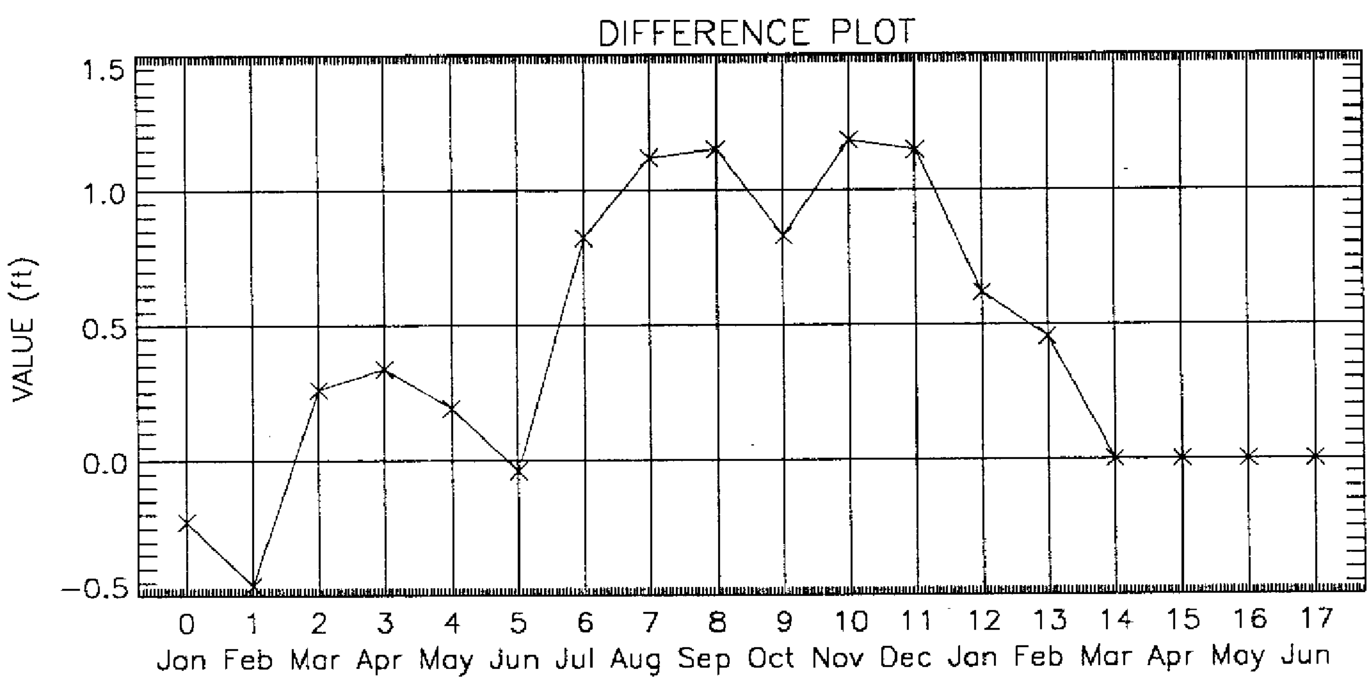


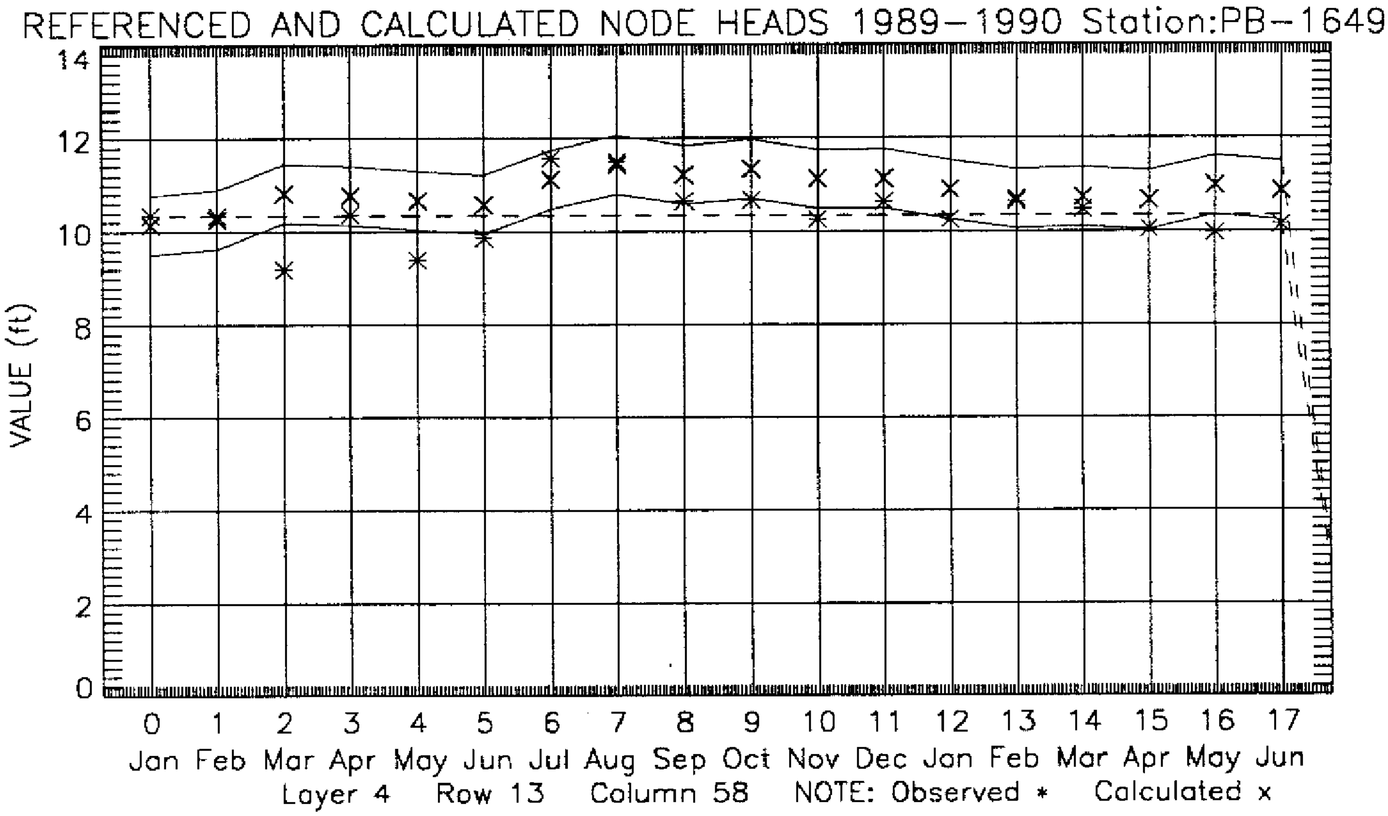
Layer 3 Row 10 Column 51 NOTE: Observed * Calculated x

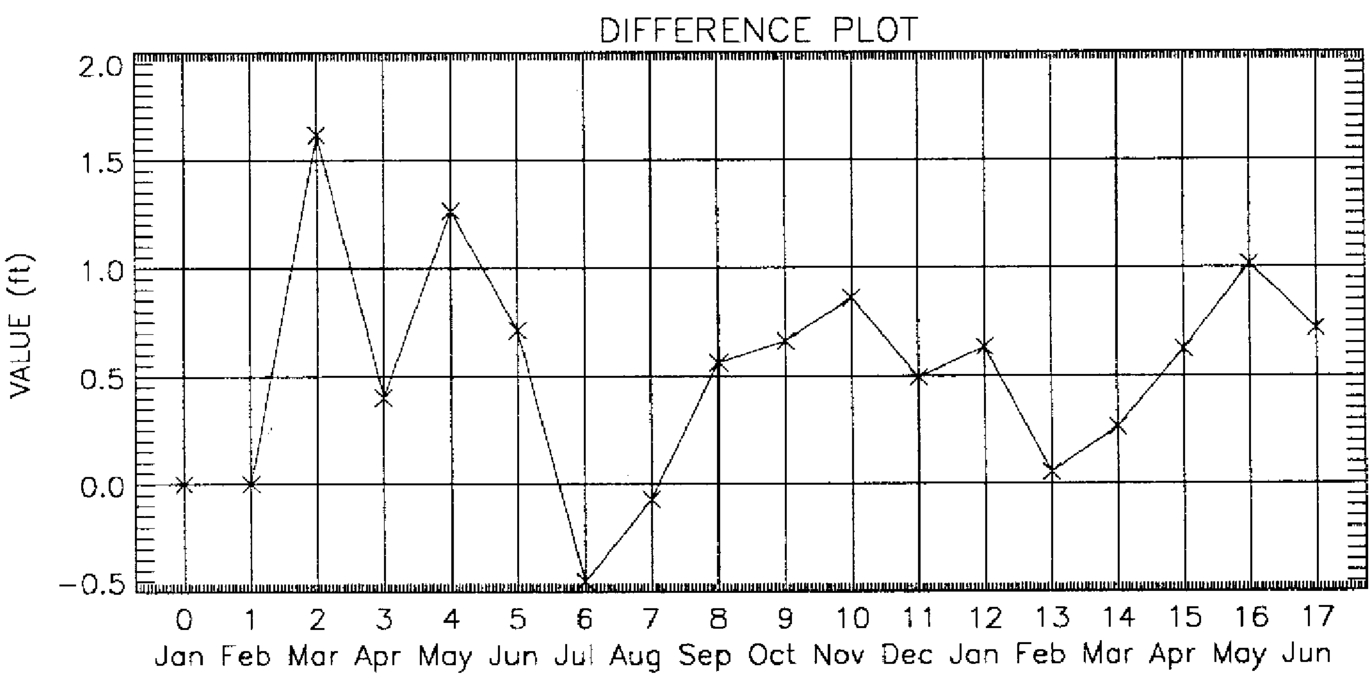
DIFFERENCE PLOT

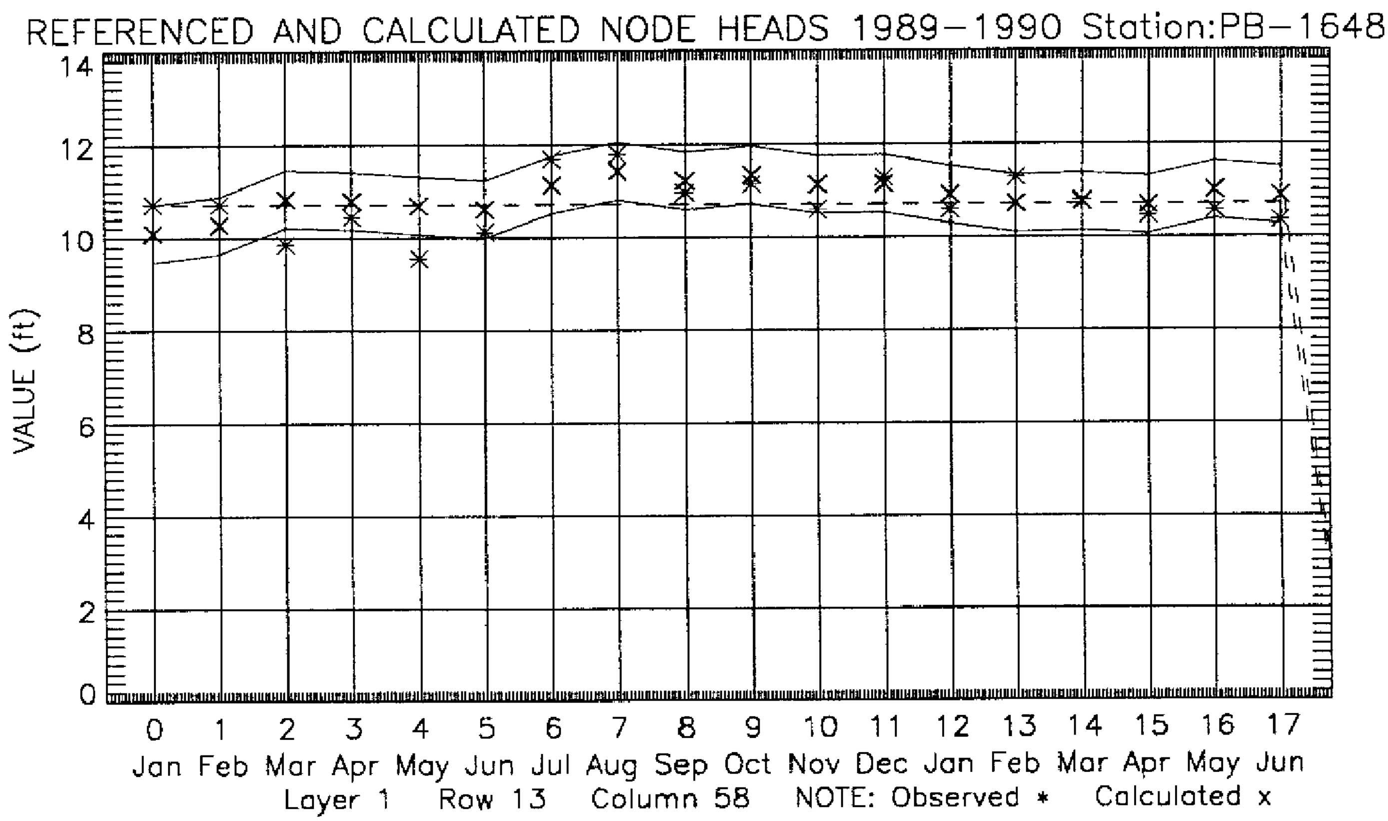


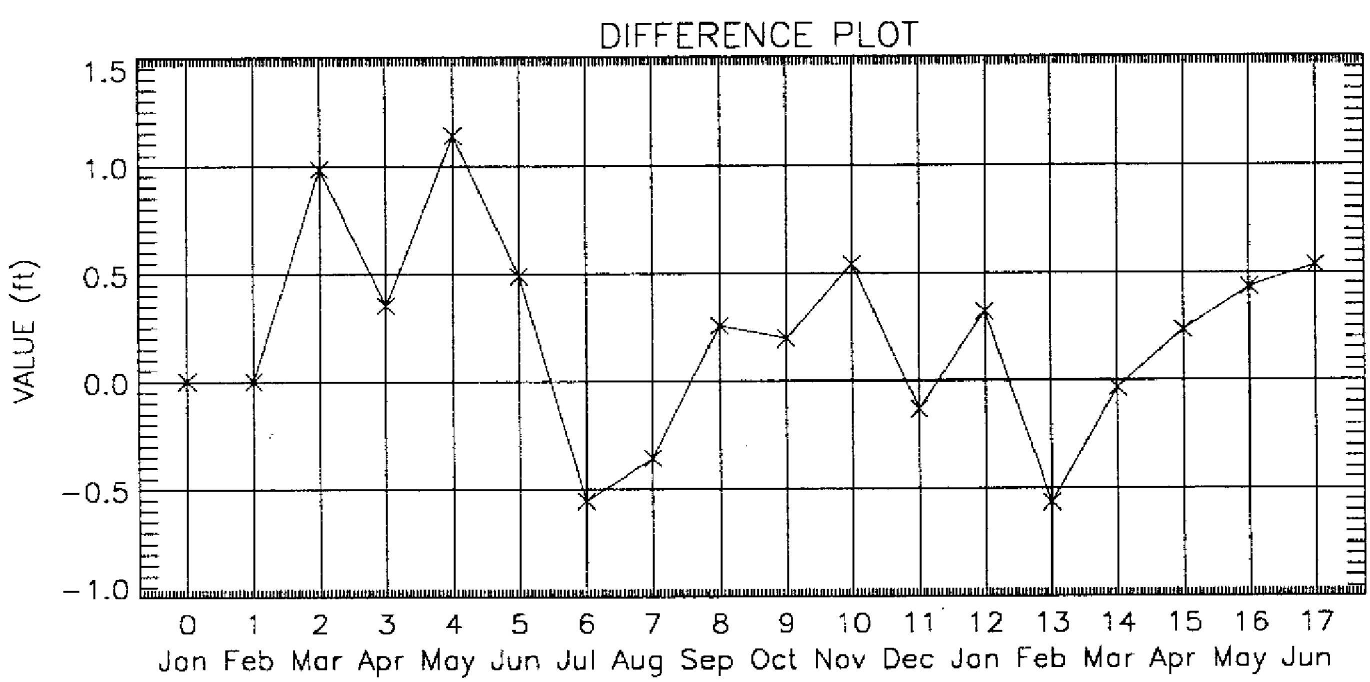

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:LOX.R3
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 10 Column 60 NOTE: Observed * Calculated x

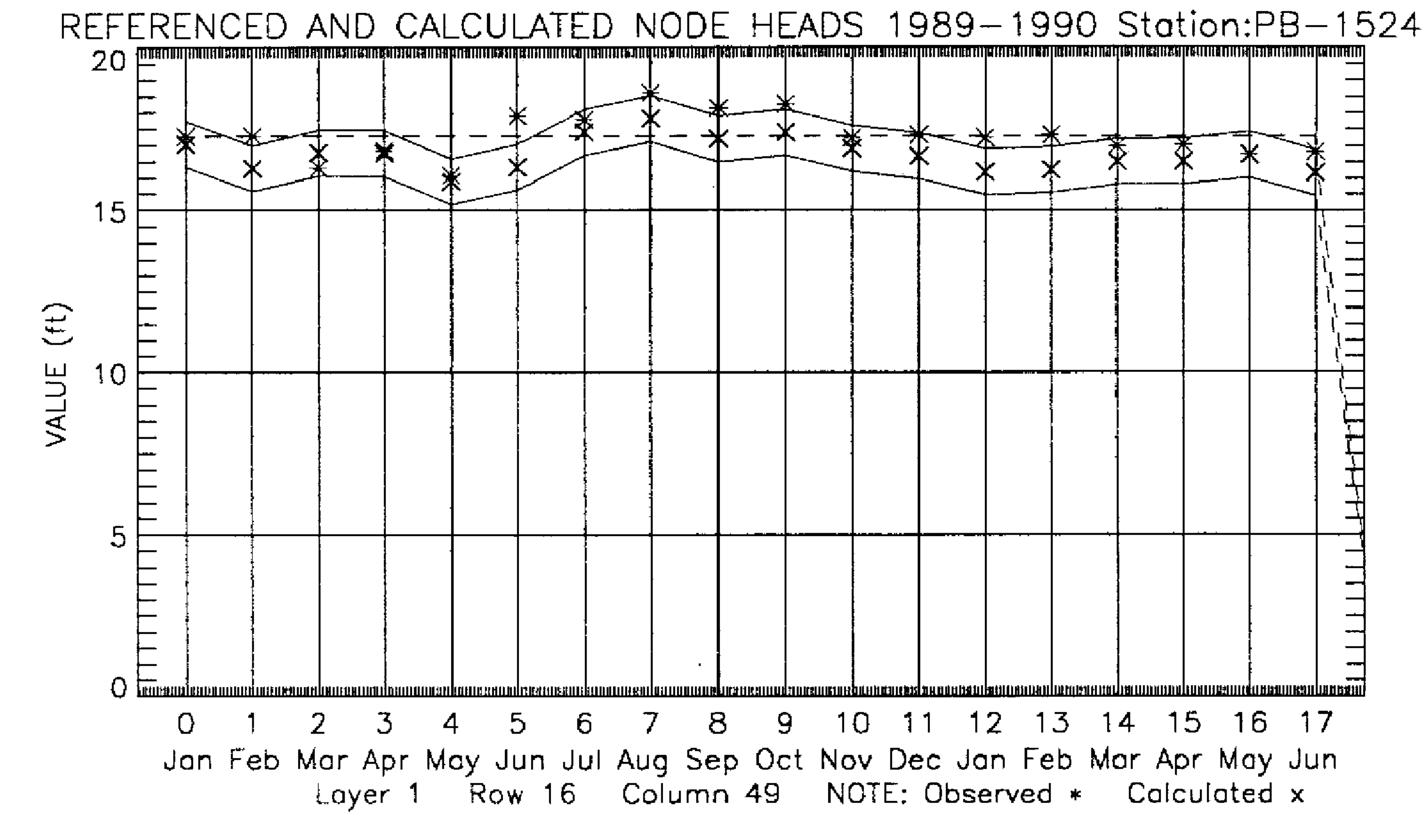

DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

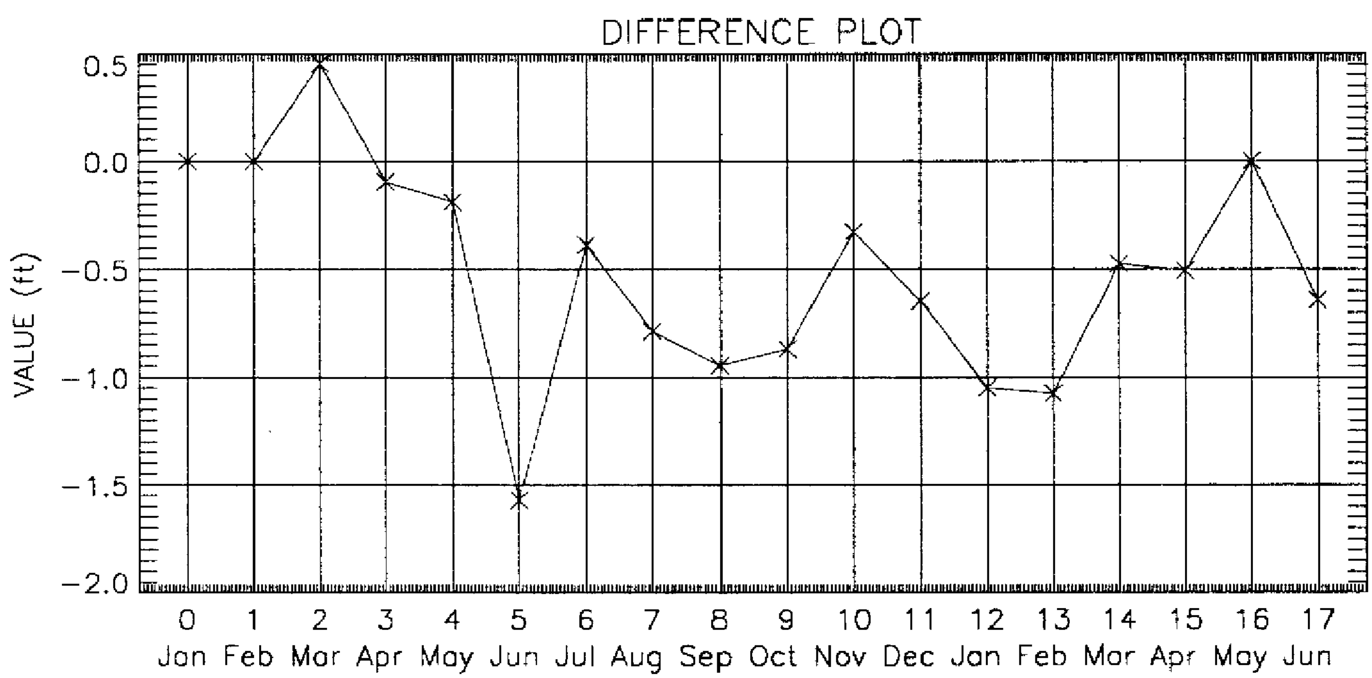

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1649
VALUE (ft)
0 2 4 6 8 10 12 14
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 13 Column 58 NOTE: Observed * Calculated x

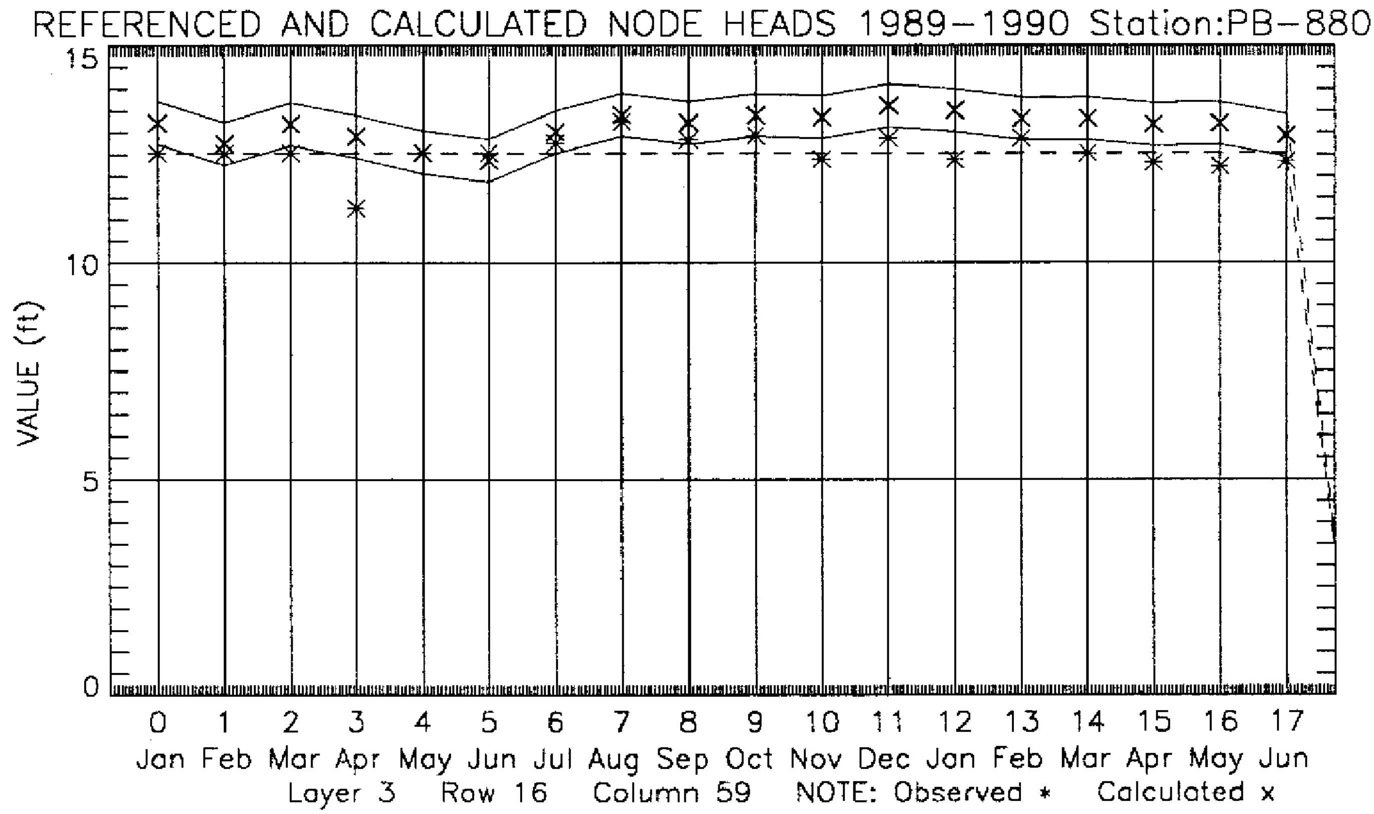

DIFFERENCE PLOT
VALUE (ft)
-0.5 0.0 0.5 1.0 1.5 2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

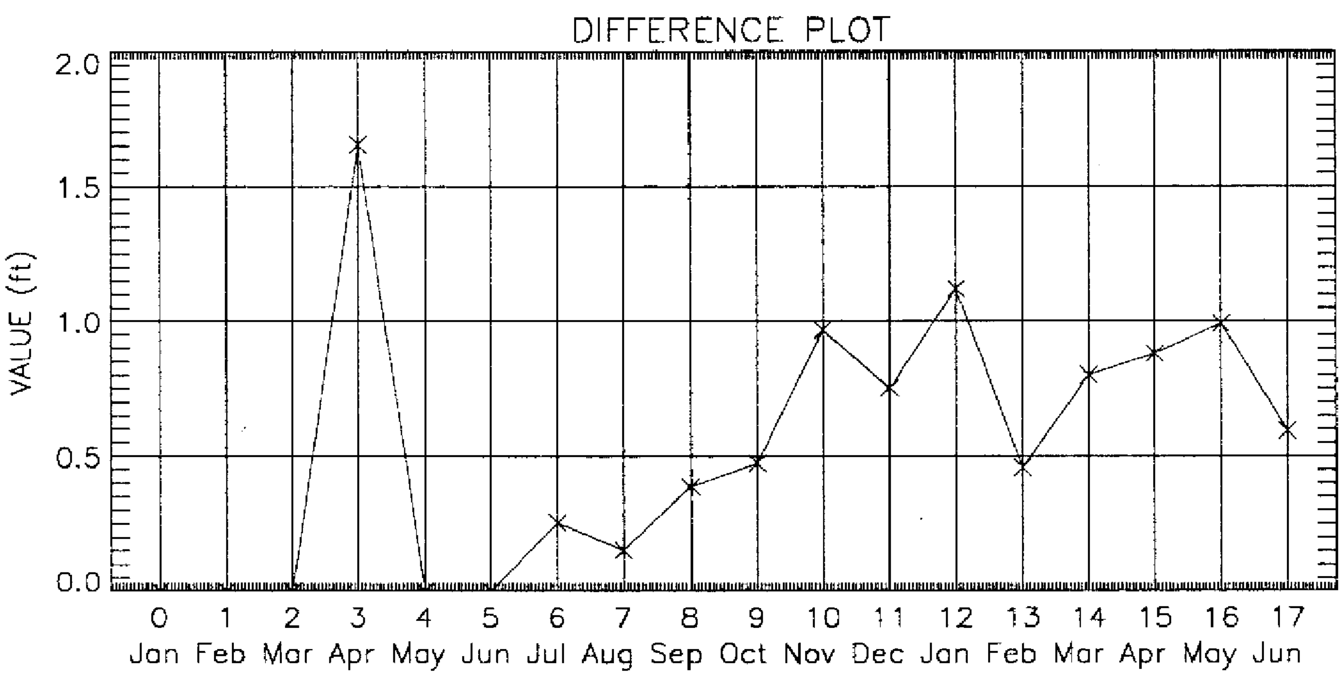

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1648
VALUE (ft)
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 13 Column 58 NOTE: Observed * Calculated x

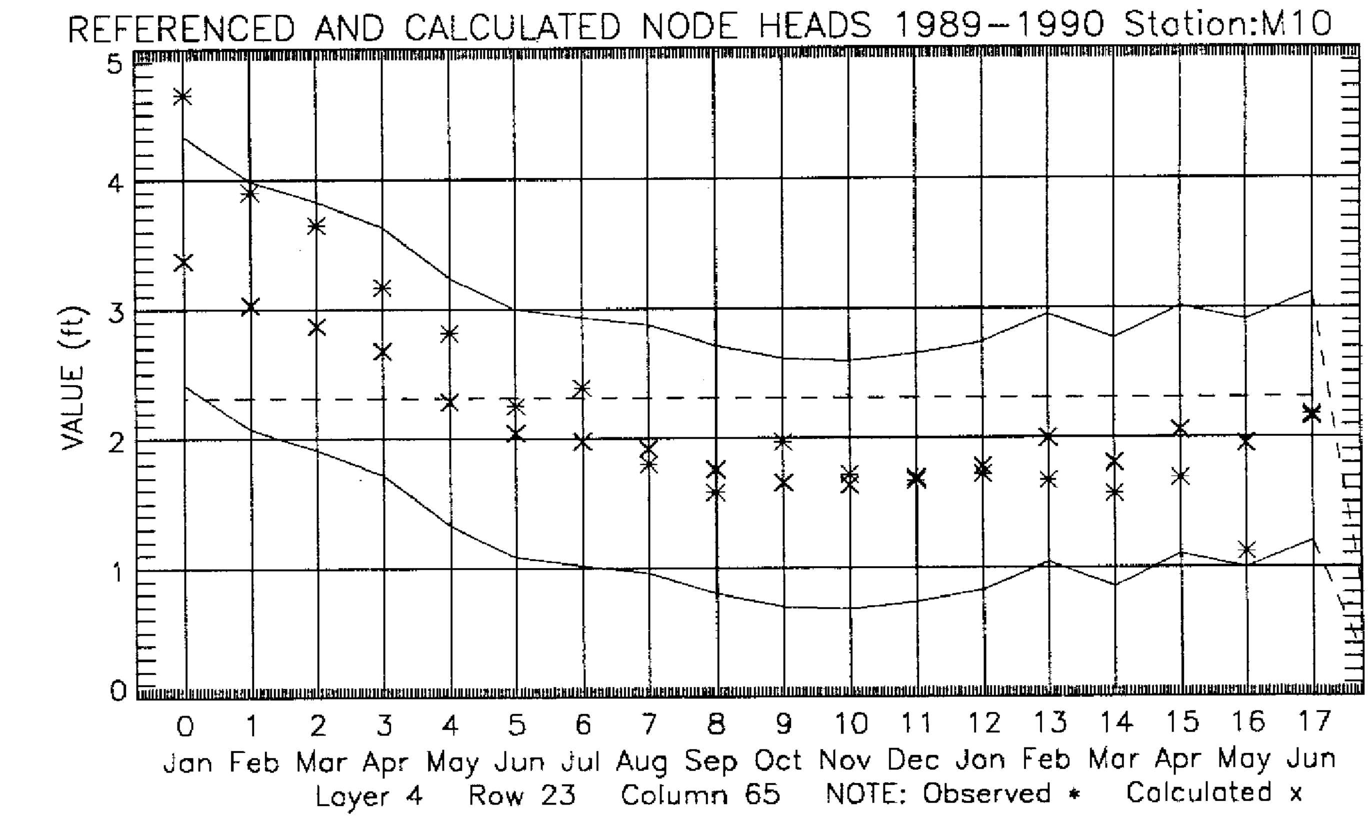

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
–0.5
–1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

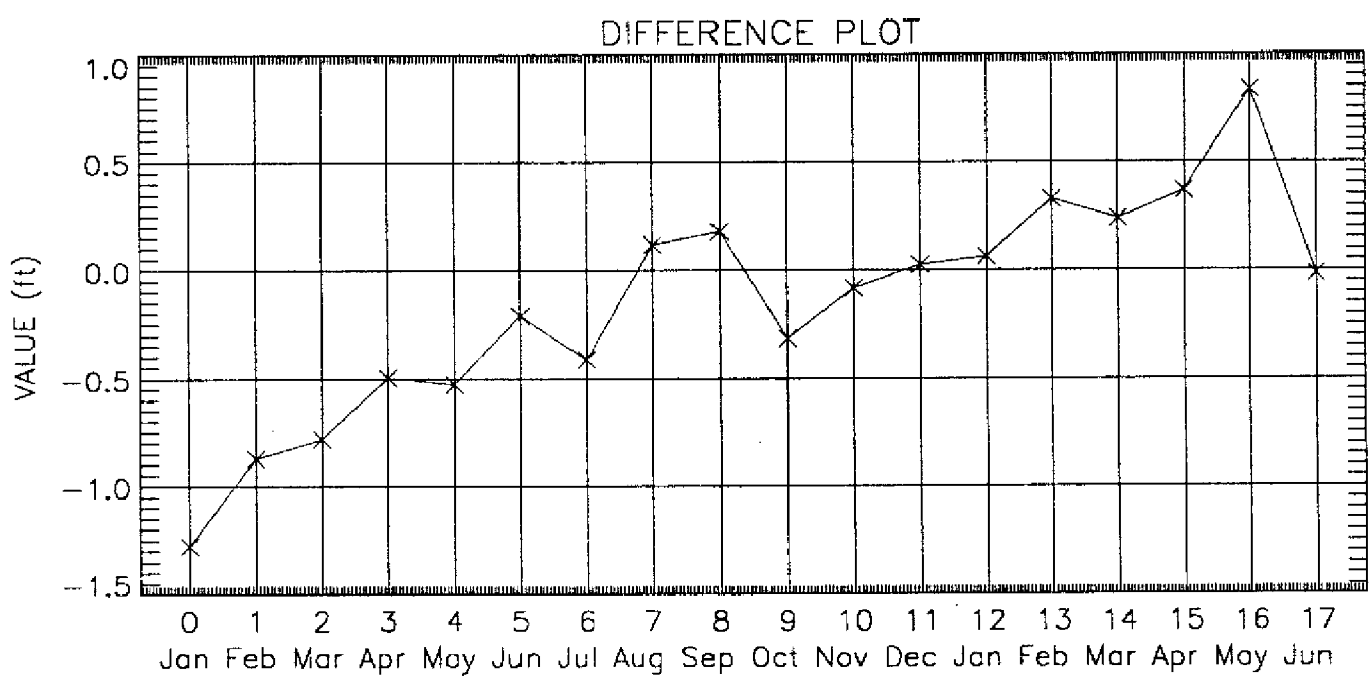

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−1524
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 16 Column 49 NOTE: Observed * Calculated x

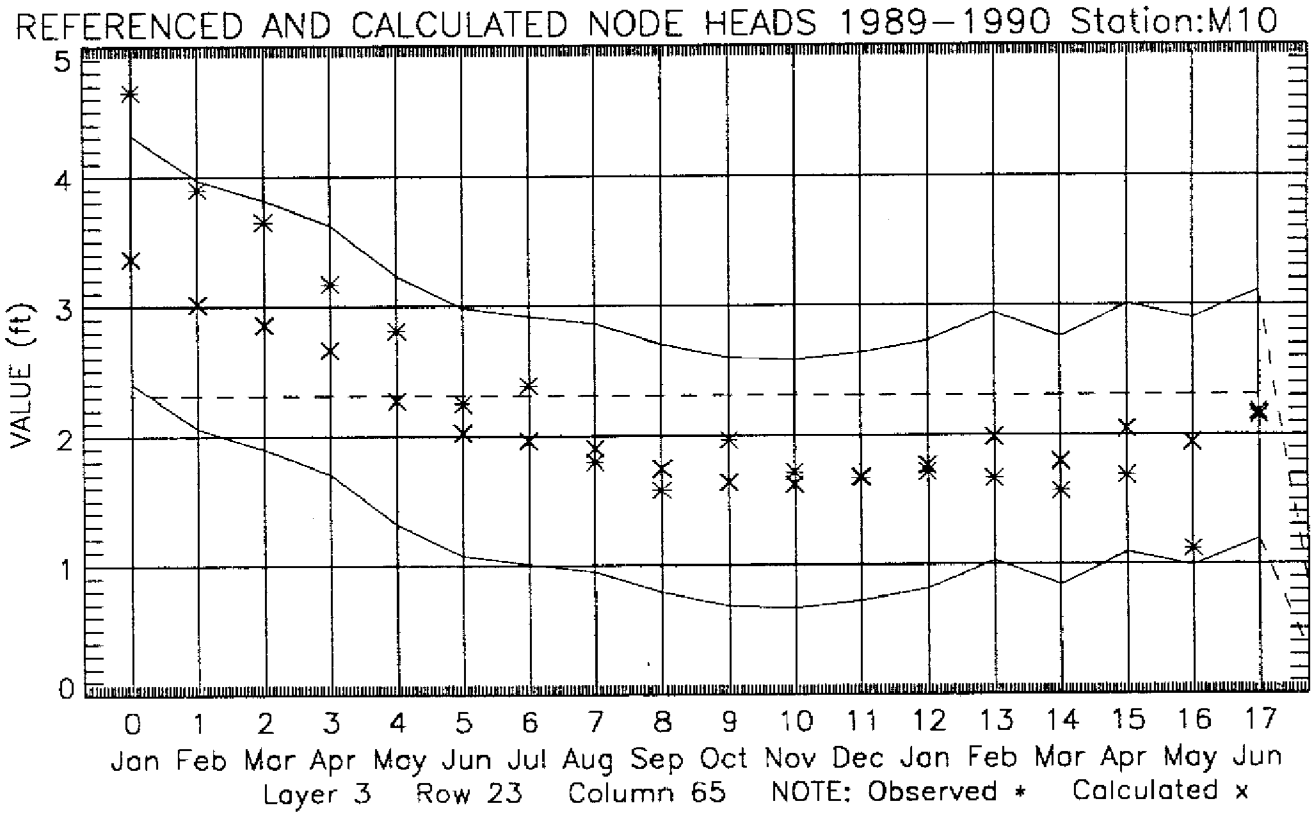

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

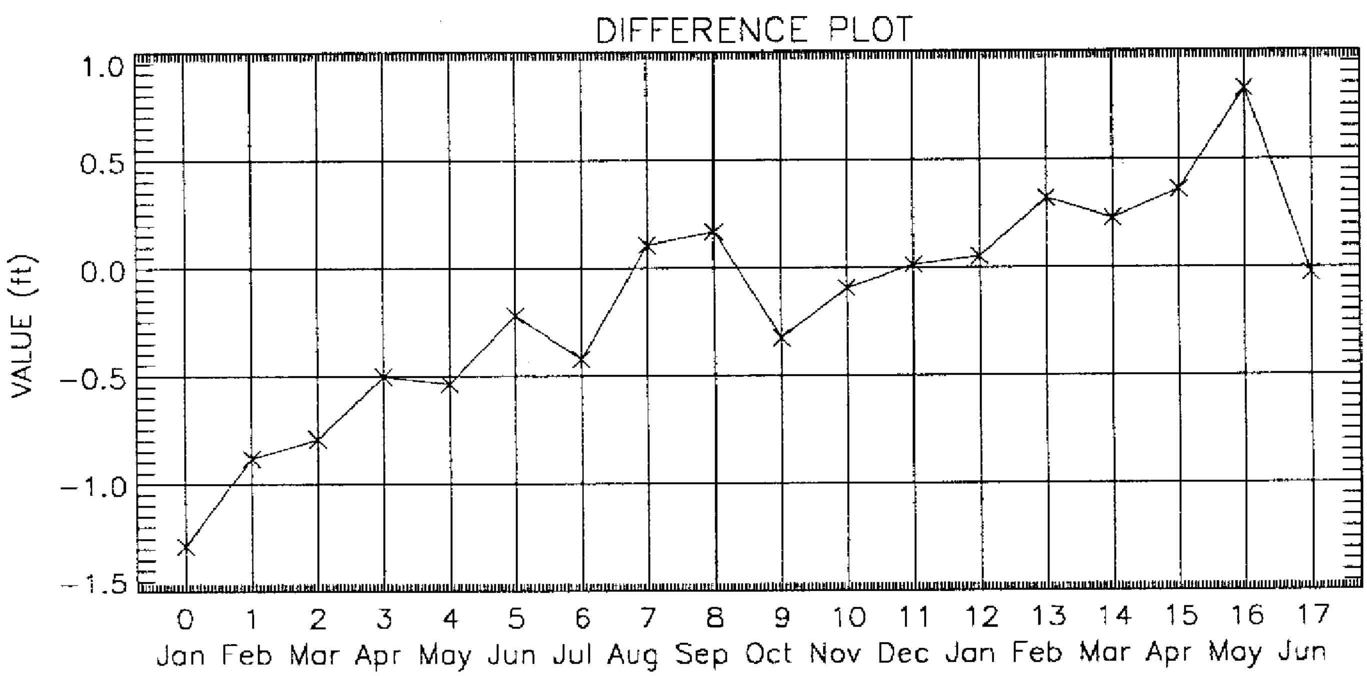

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-880
VALUE (ft)
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 16 Column 59 NOTE: Observed * Calculated x

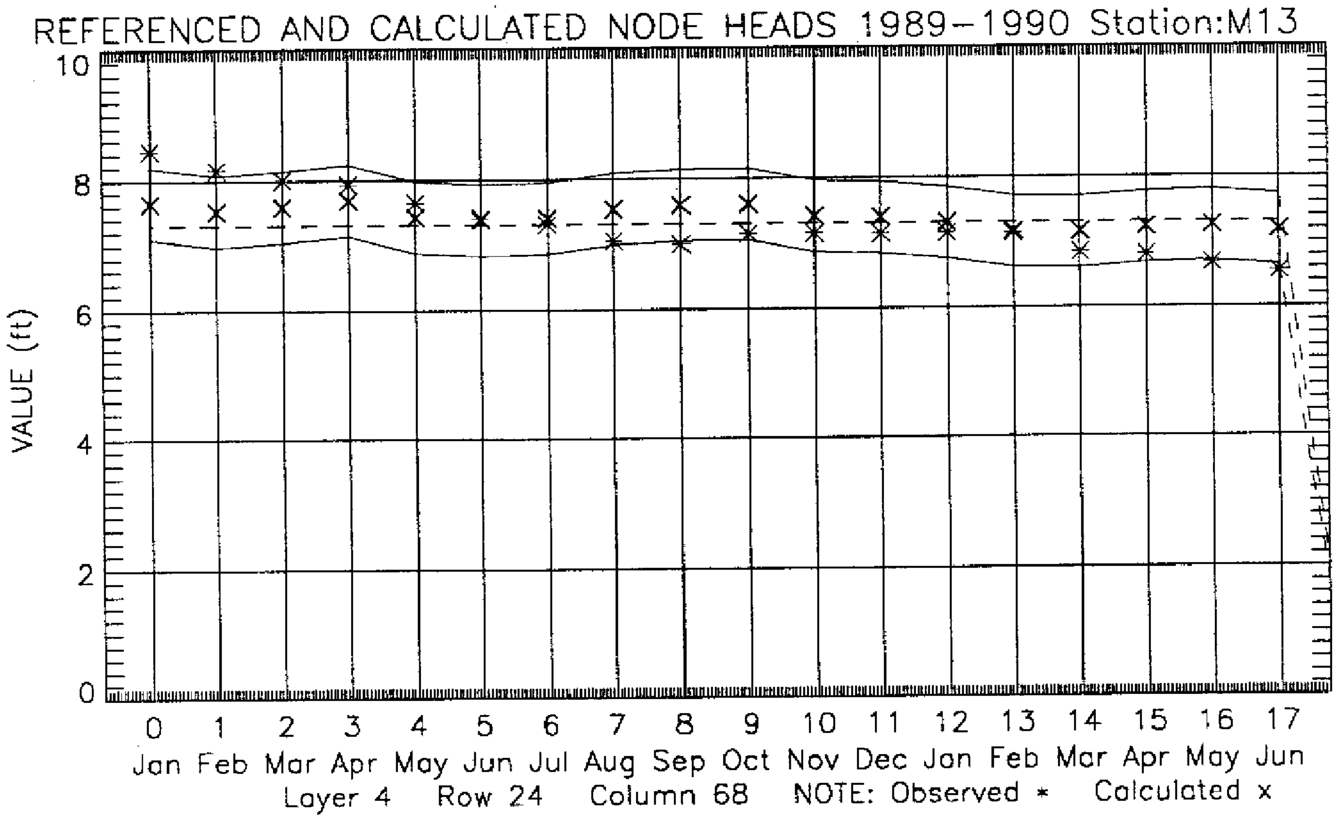

DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

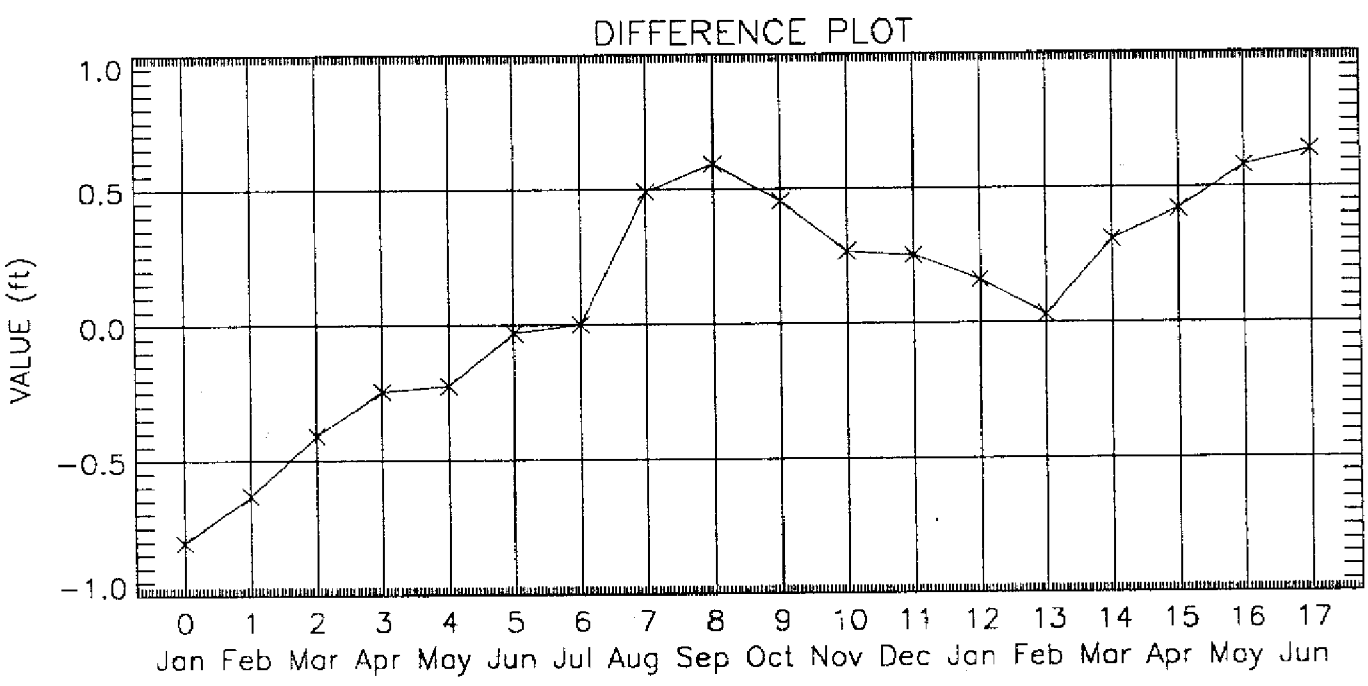

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M10
VALUE (ft)
0
1
2
3
4
5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 23 Column 65 NOTE: Observed * Calculated x

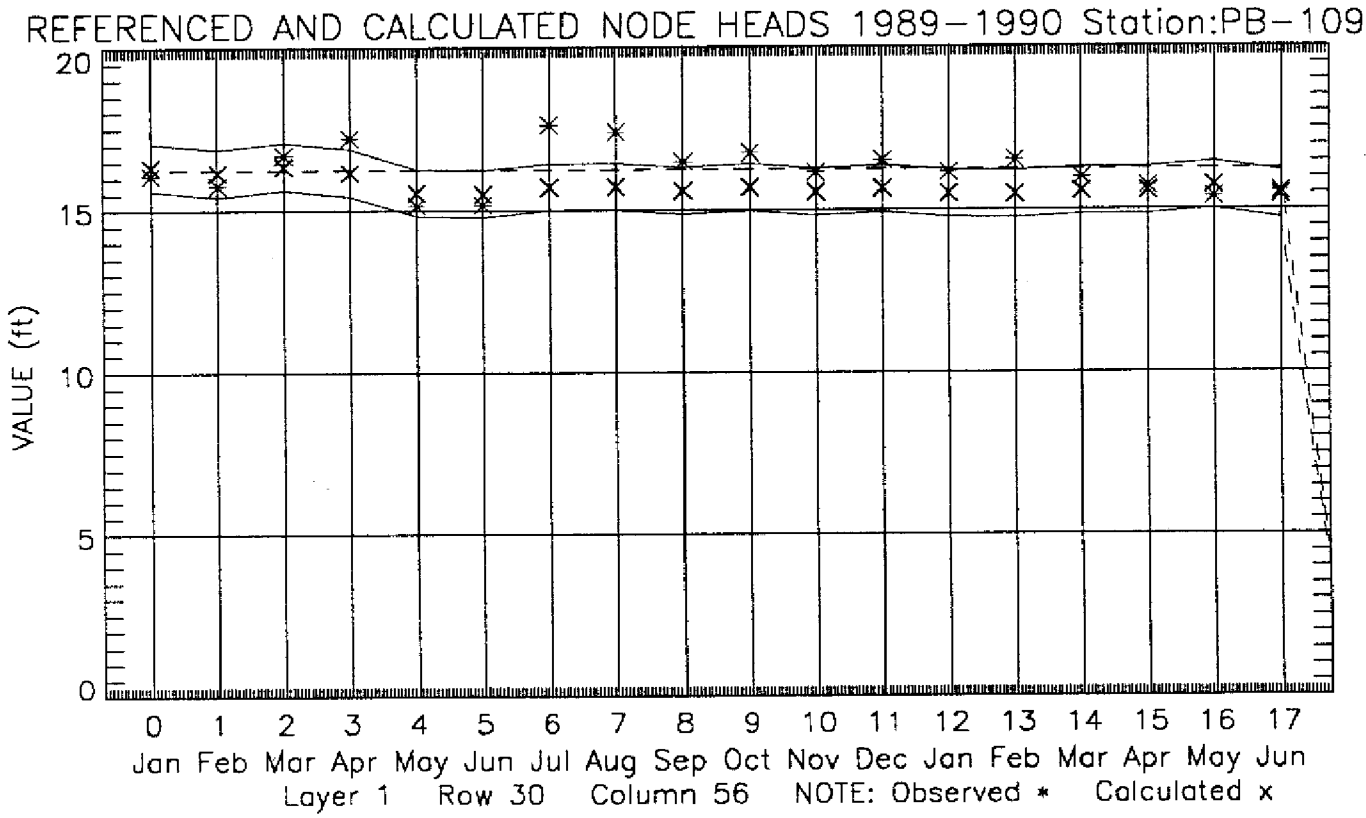

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

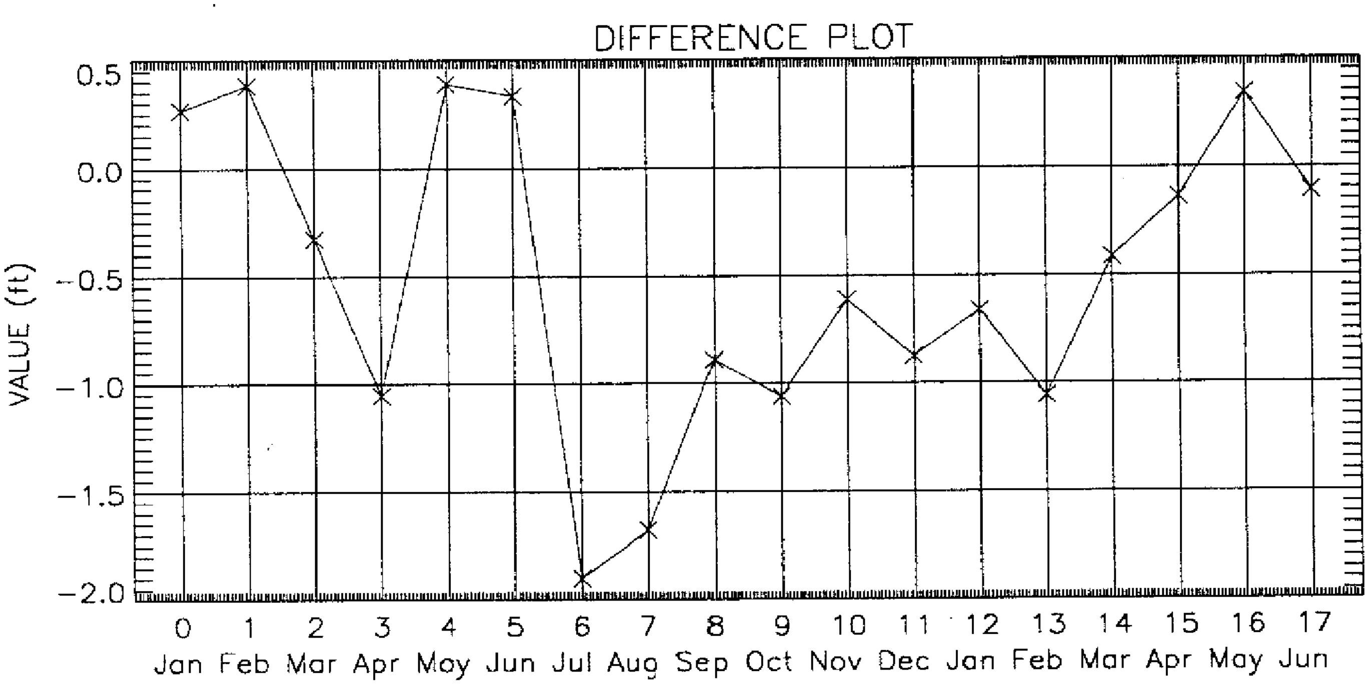

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M10
VALUE (ft)
0 1 2 3 4 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 23 Column 65 NOTE: Observed * Calculated x

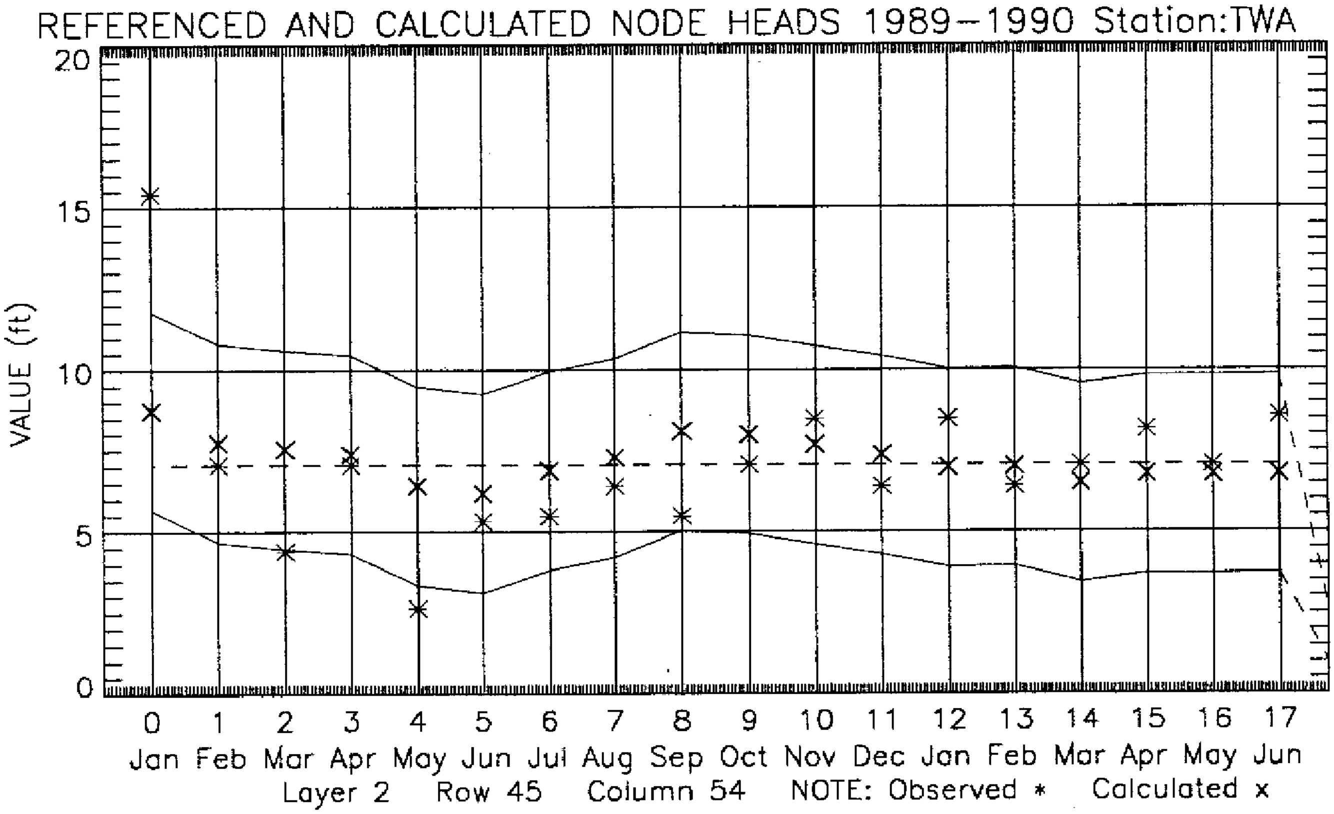

DIFFERENCE PLOT
VALUE (ft)
1.0 0.5 0.0 -0.5 -1.0 -1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

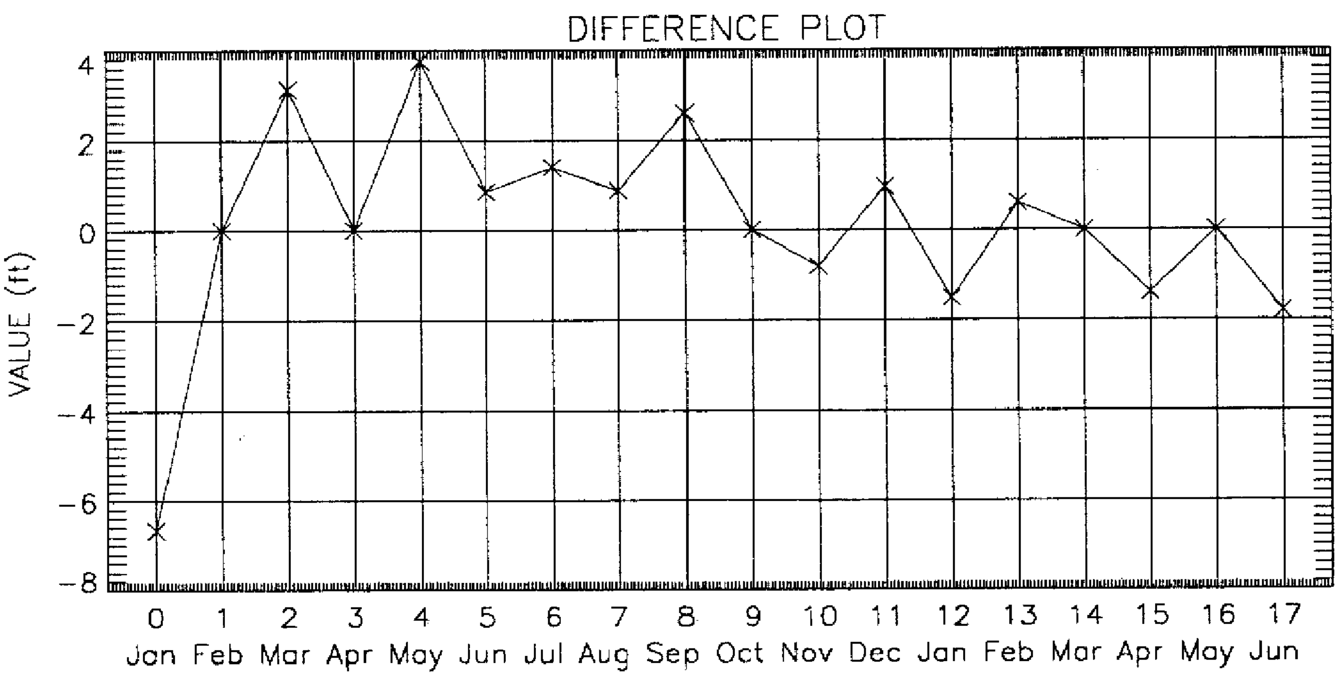

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:M13
VALUE (ft)
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 24 Column 68 NOTE: Observed * Calculated x

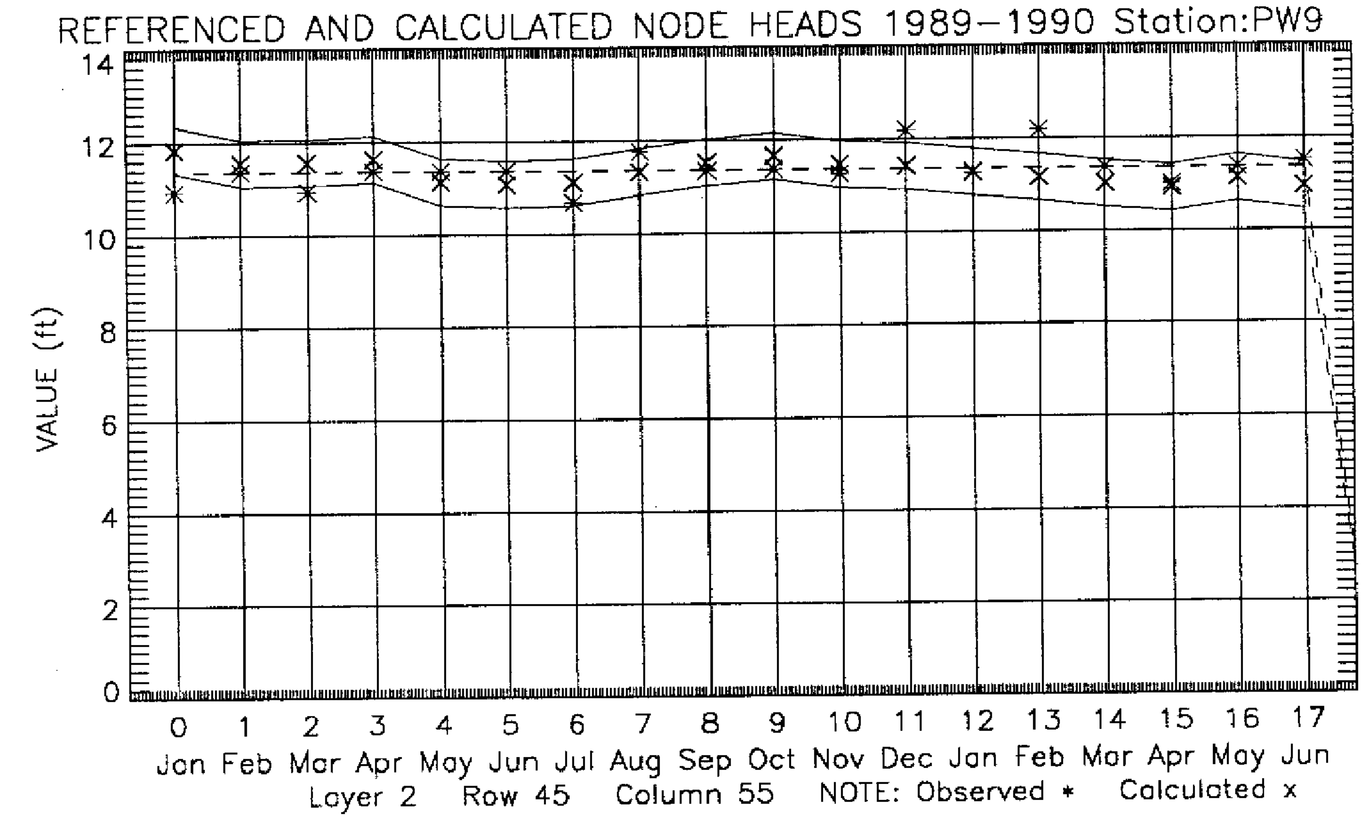

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−109
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 30 Column 56 NOTE: Observed * Calculated x

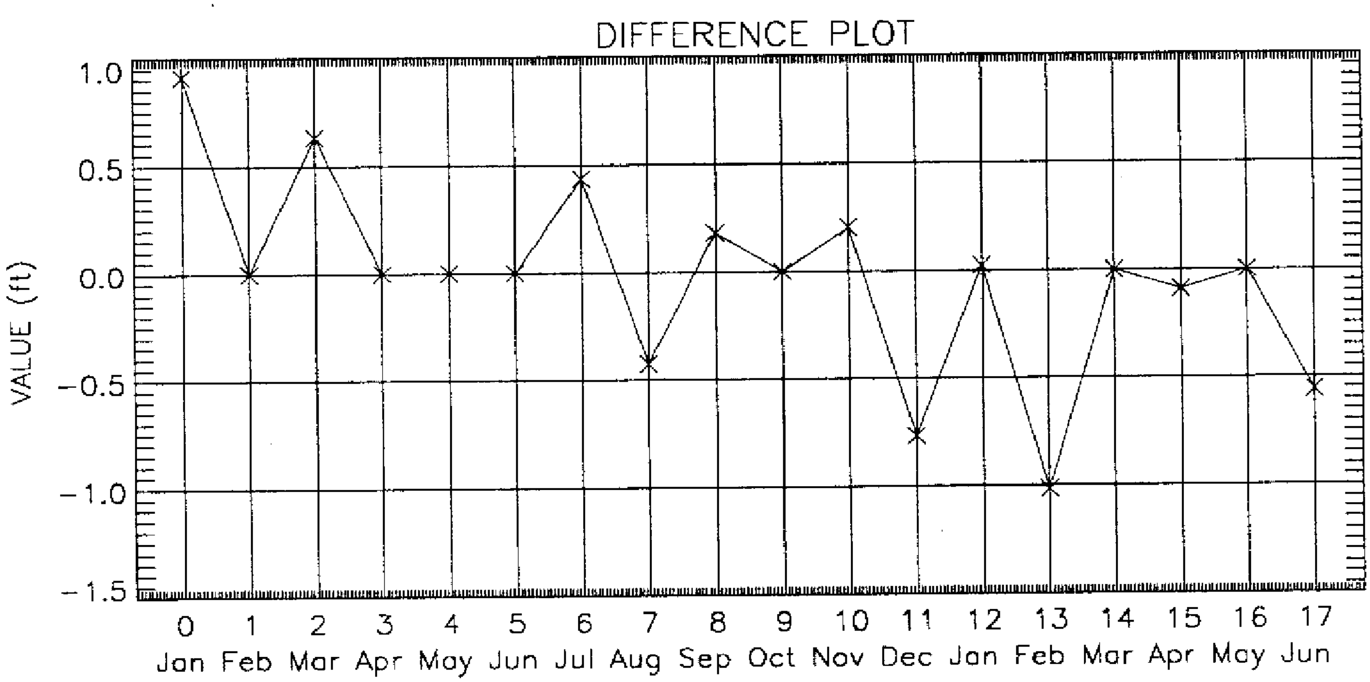

DIFFERENCE PLOT
VALUE (ft)
0.5
0.0
−0.5
−1.0
−1.5
−2.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:TWA
VALUE (ft)
20
15
10
5
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 54 NOTE: Observed * Calculated x

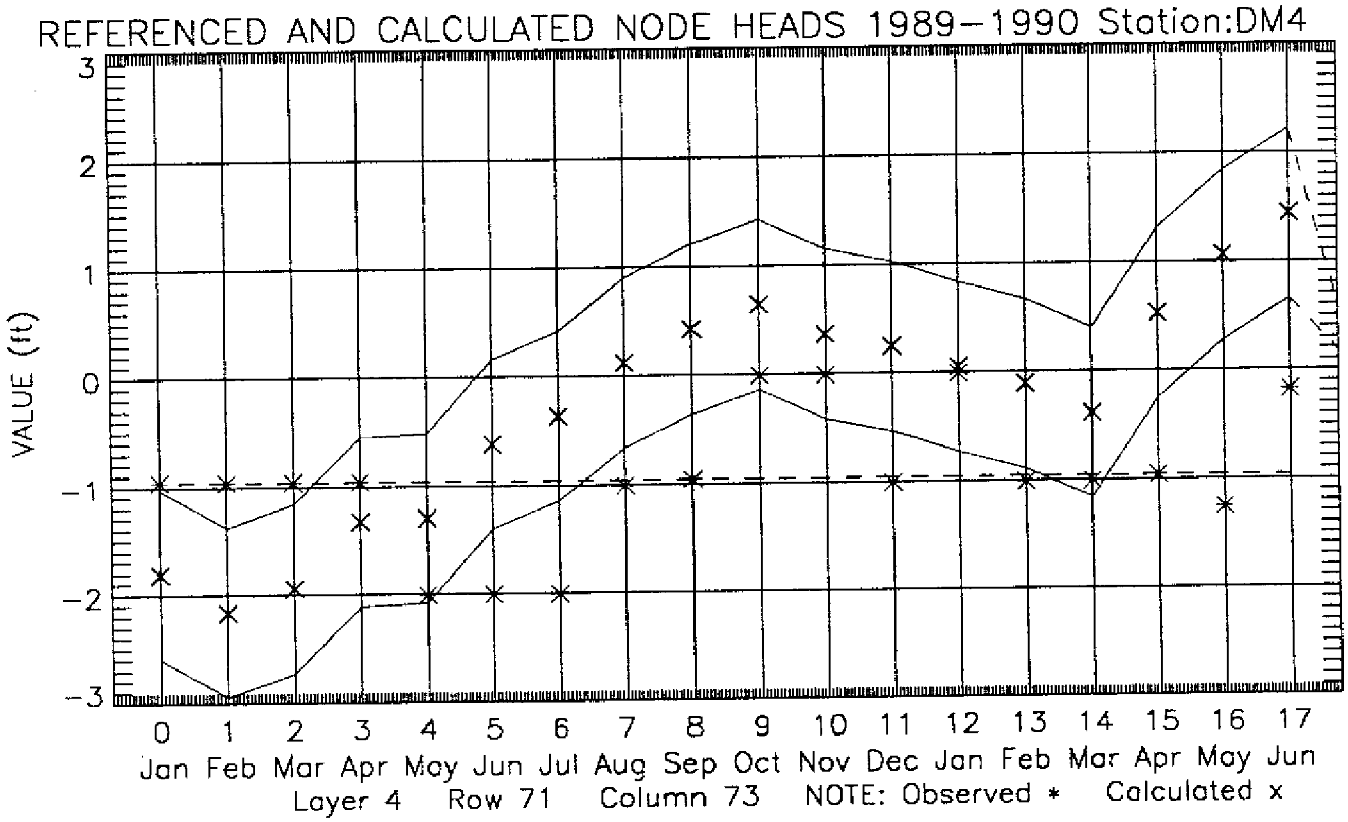

DIFFERENCE PLOT
VALUE (ft)
4
2
0
-2
-4
-6
-8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

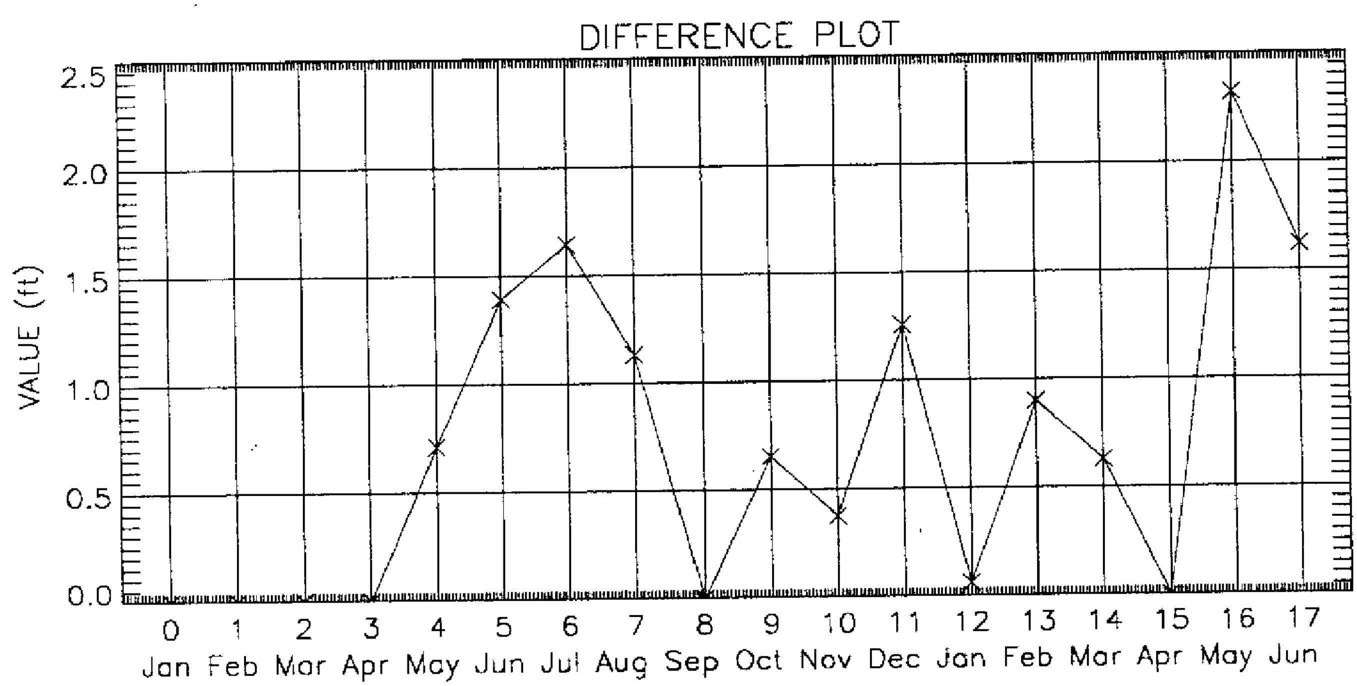


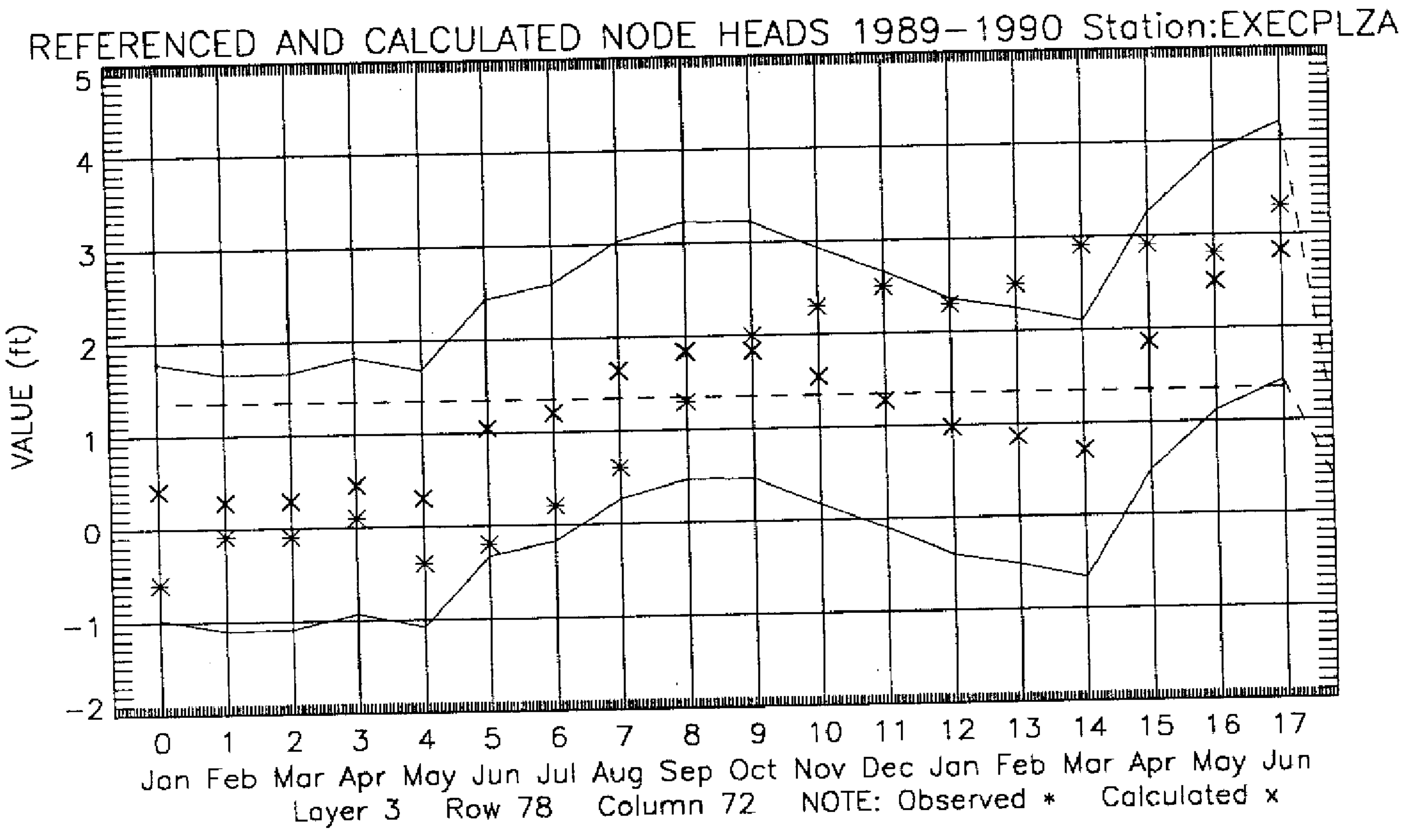
REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PW9
VALUE (ft)
14
12
10
8
6
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row 45 Column 55 NOTE: Observed * Calculated x

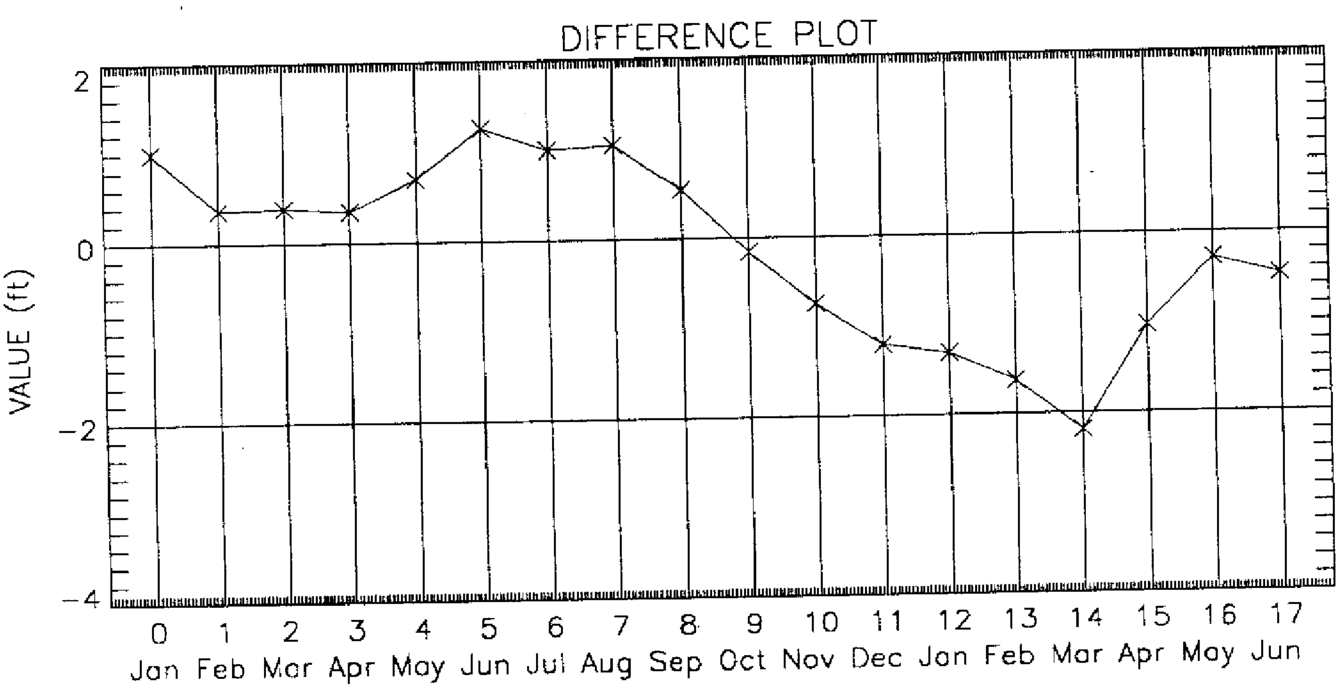


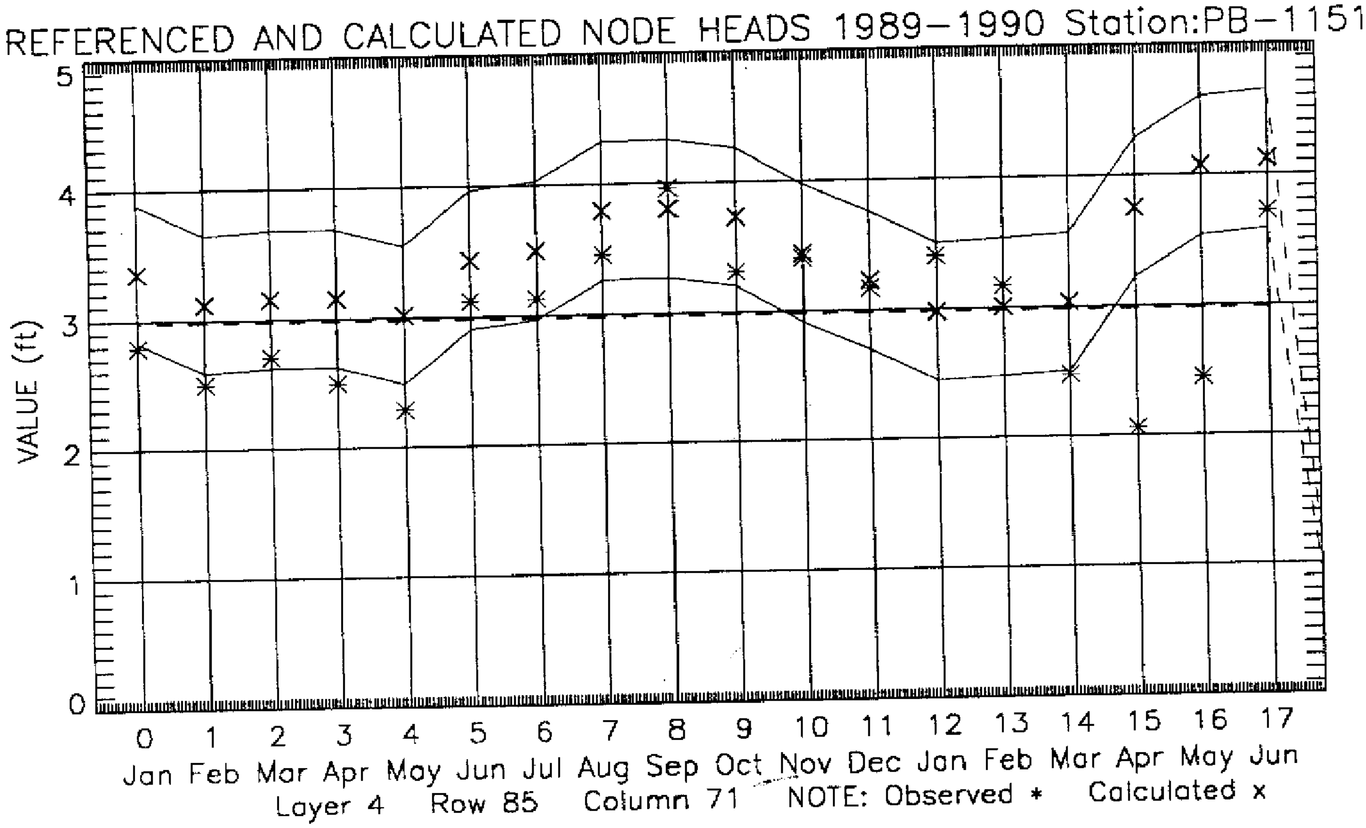
DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

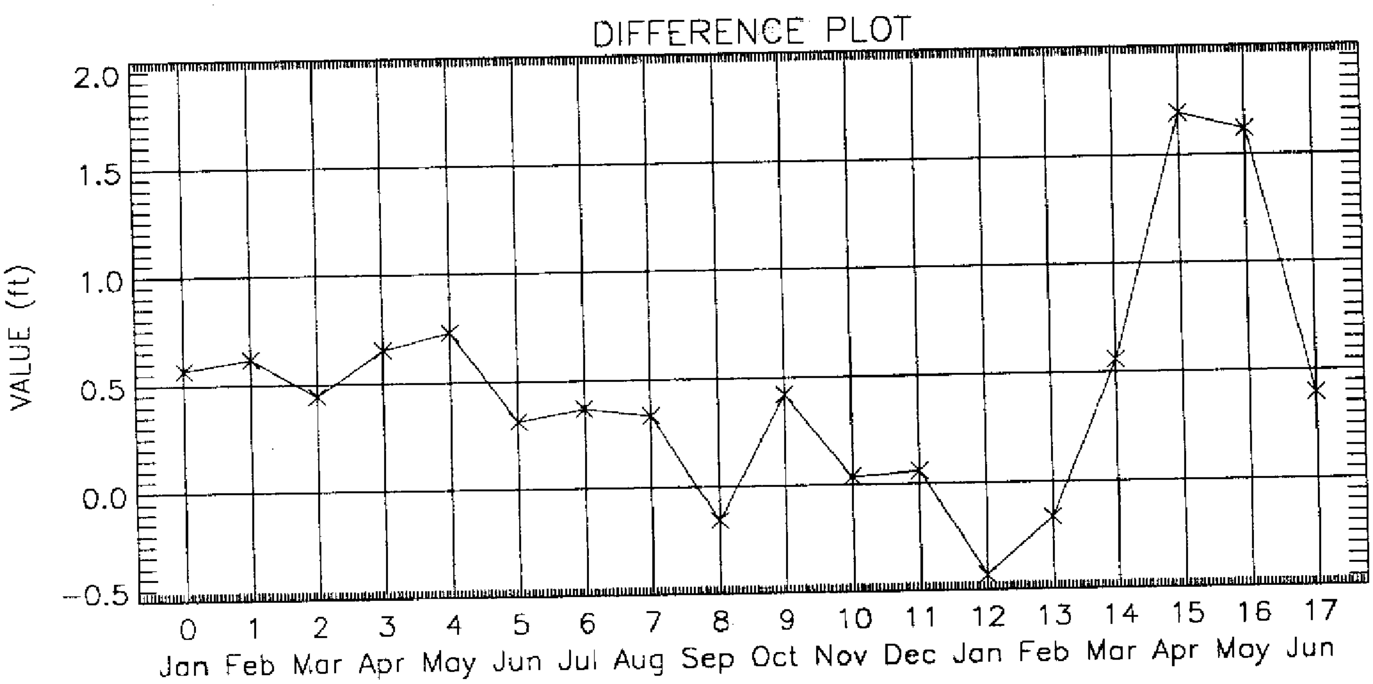

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:DM4
VALUE (ft)
3
2
1
0
−1
−2
−3
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 71 Column 73 NOTE: Observed * Calculated x

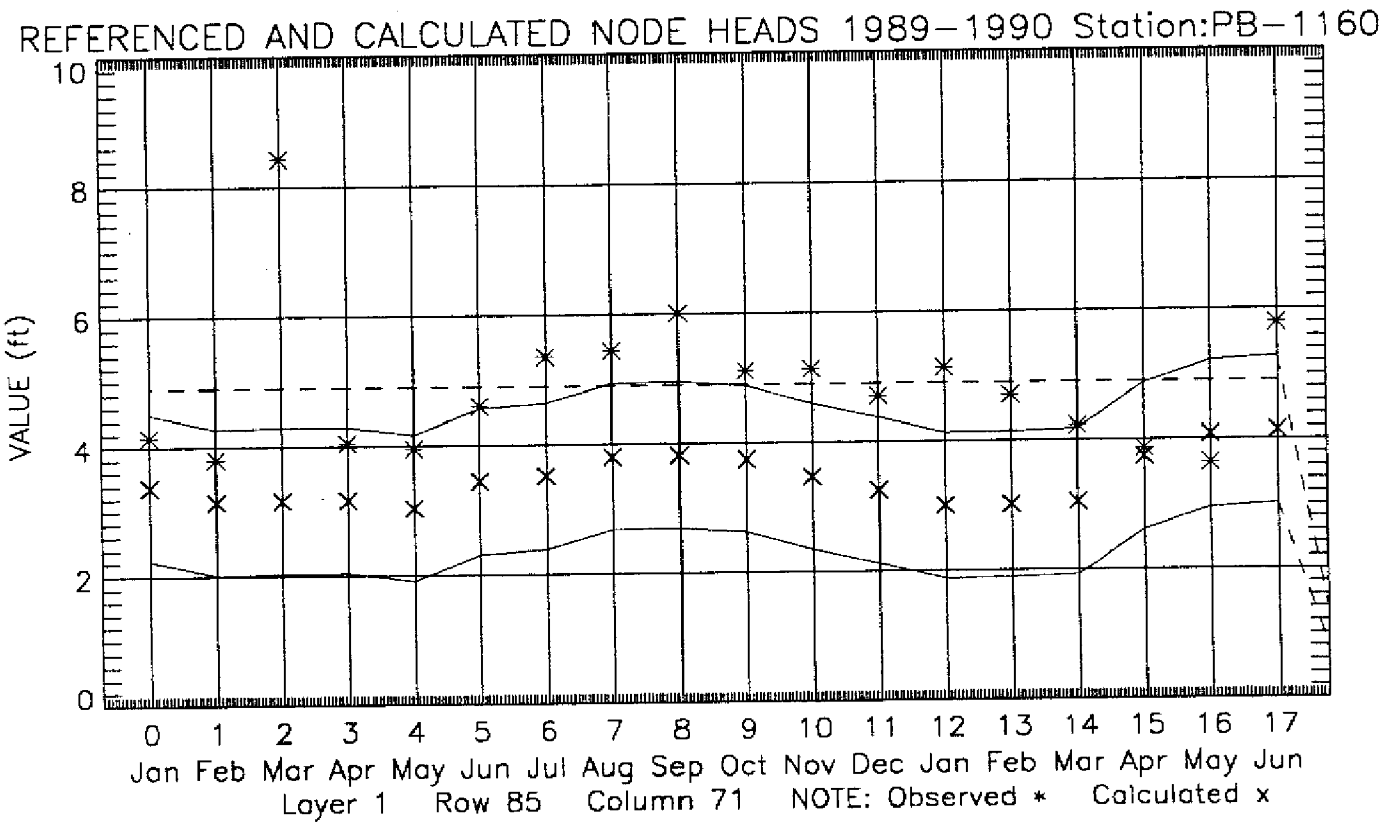

DIFFERENCE PLOT
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

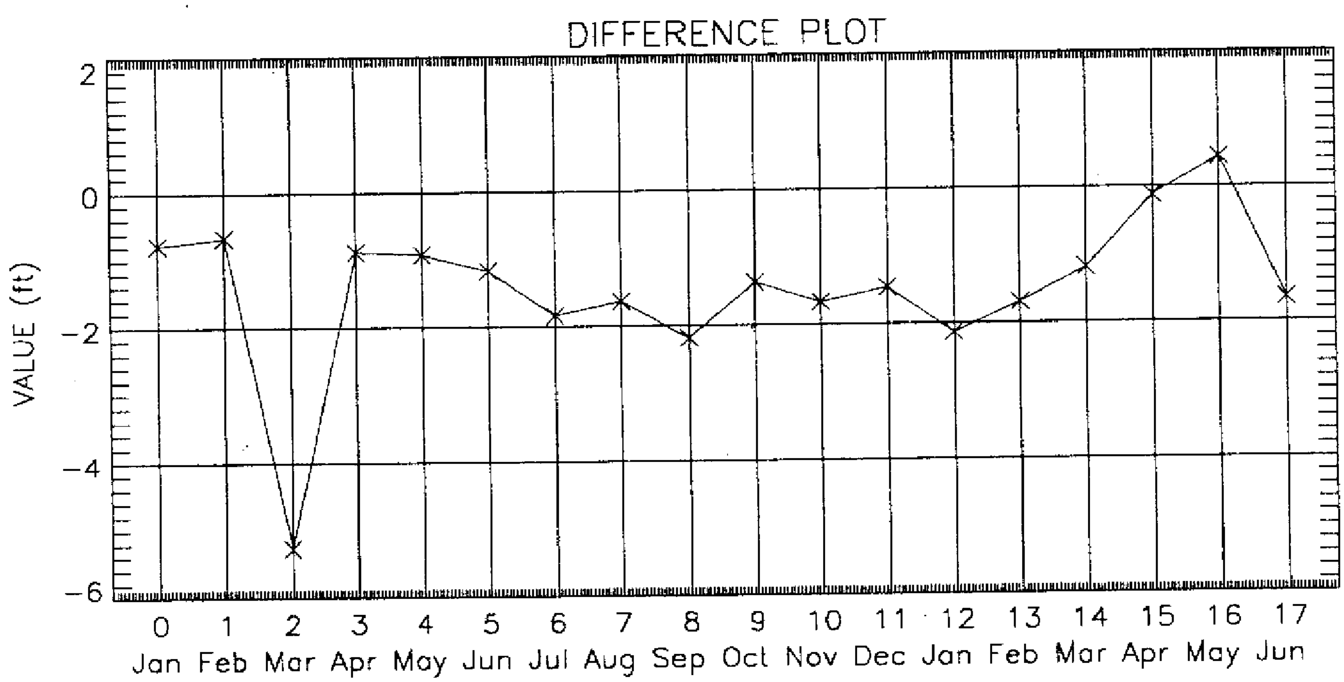

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:EXECPLZA
VALUE (ft)
5
4
3
2
1
0
−1
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 78 Column 72 NOTE: Observed * Calculated x

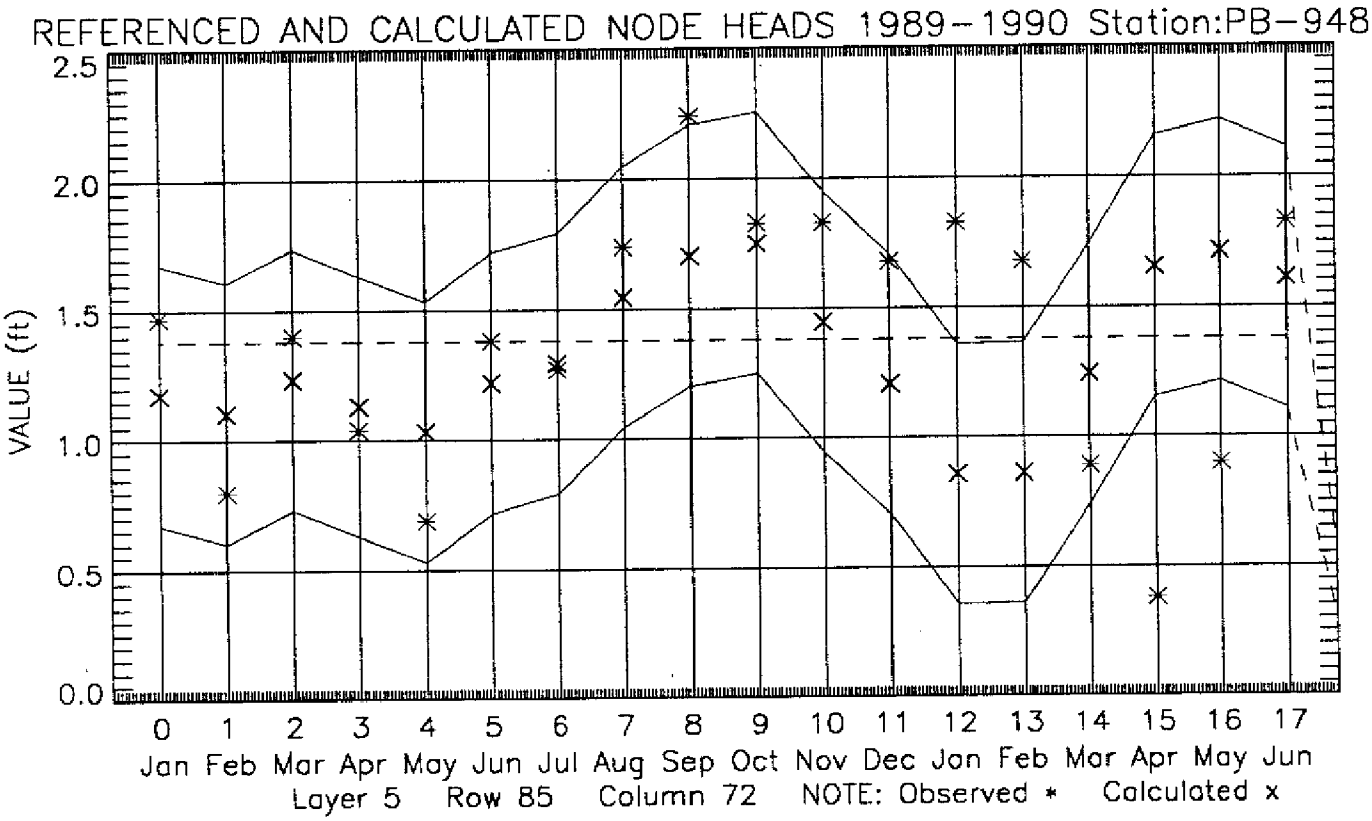

DIFFERENCE PLOT
VALUE (ft)
2
0
−2
−4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

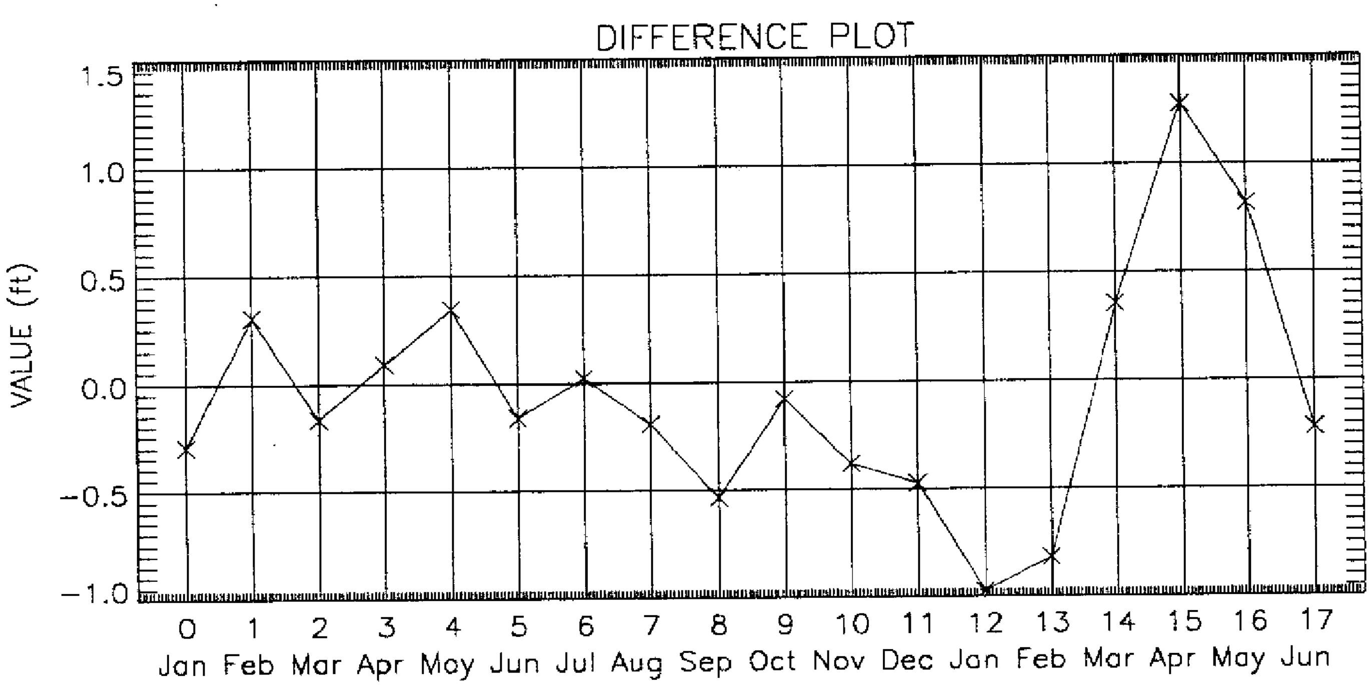

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB-1151
VALUE (ft)
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 85 Column 71 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
–0.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

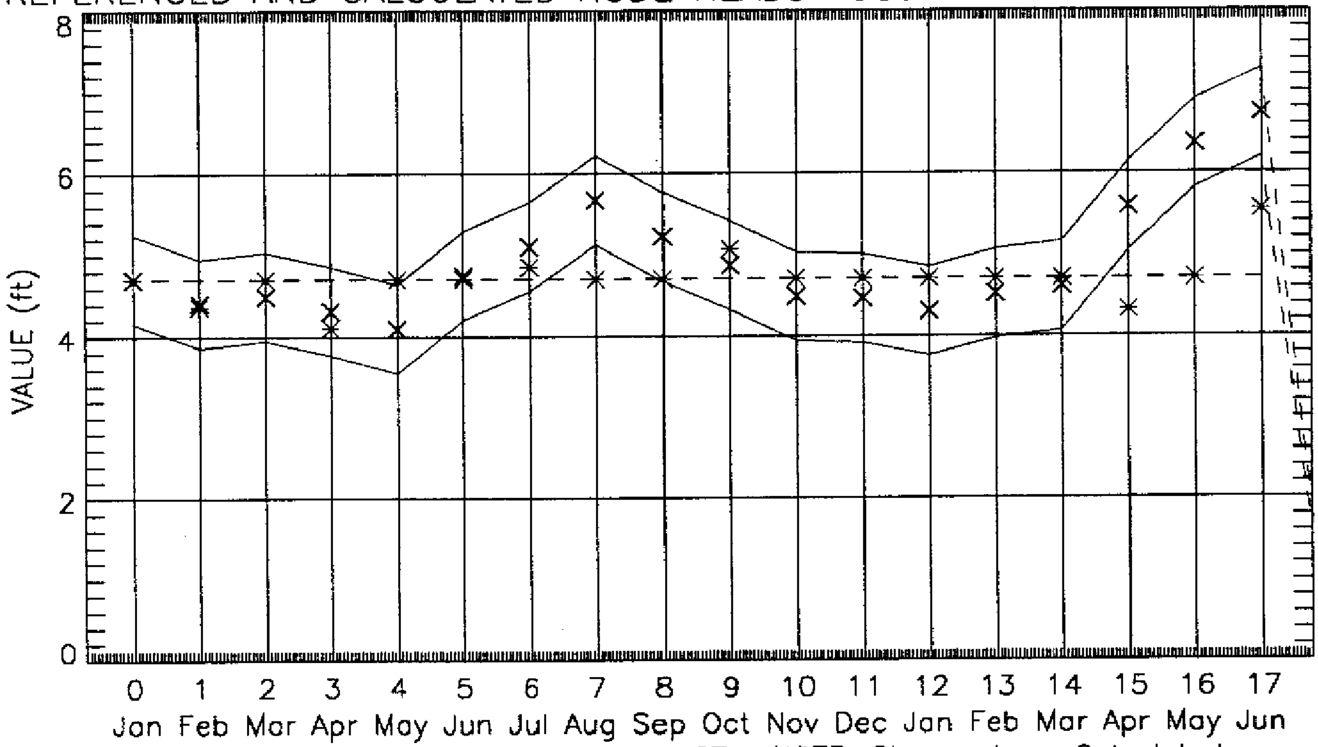

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-1160
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 85 Column 71 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-948
VALUE (ft)
2.5
2.0
1.5
1.0
0.5
0.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 5 Row 85 Column 72 NOTE: Observed * Calculated x

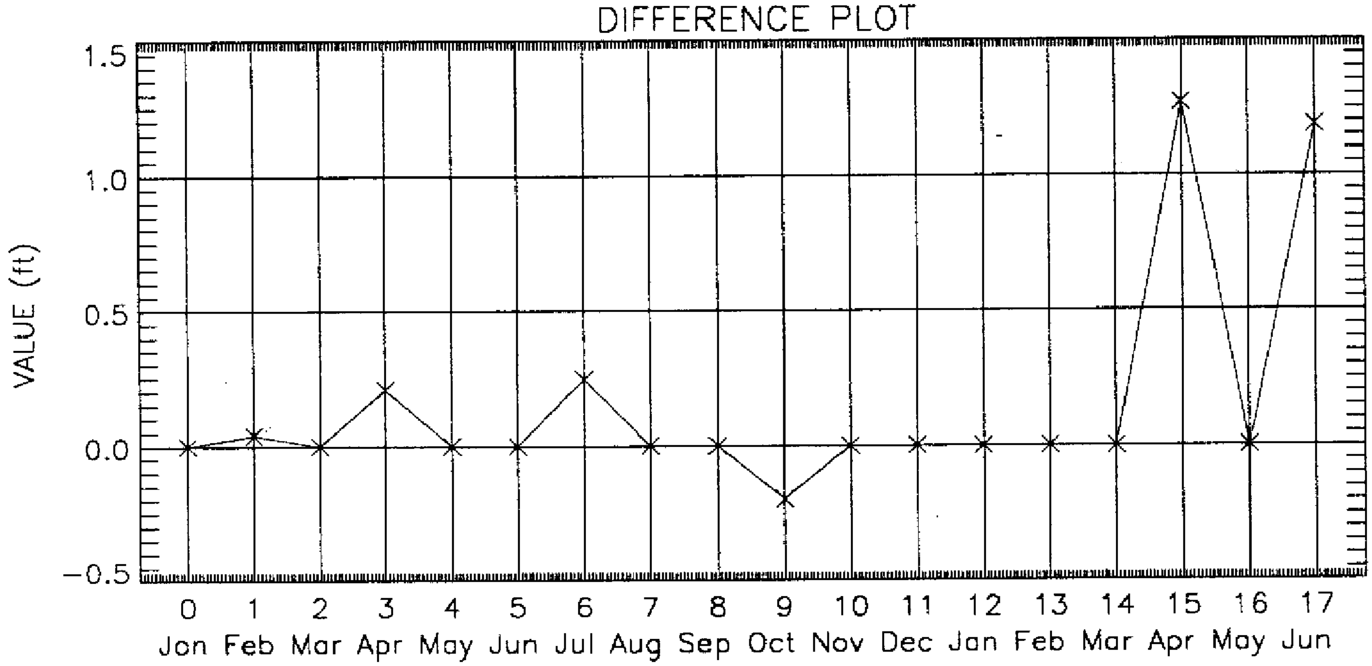

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
-0.5
-1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

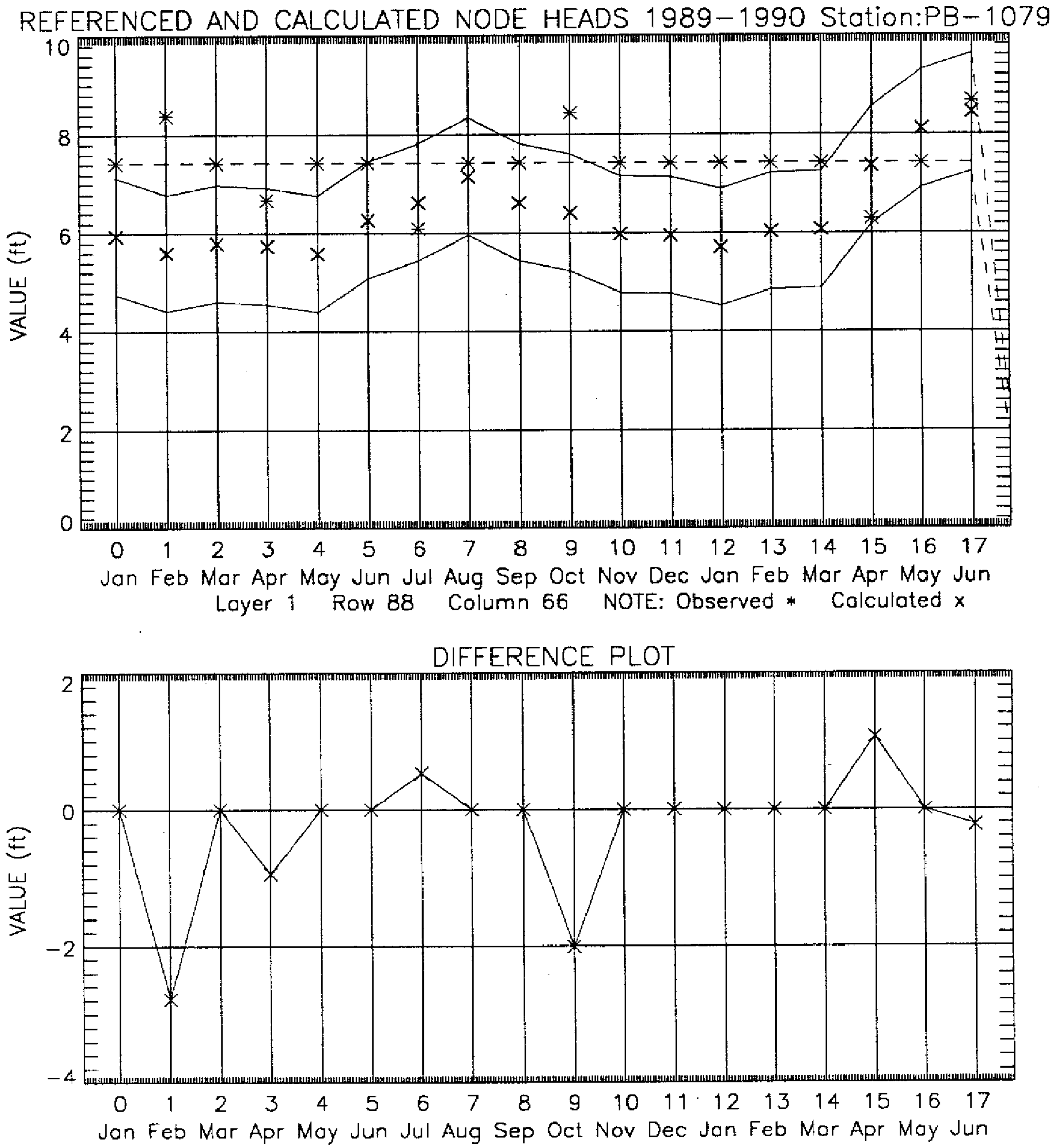
REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1074

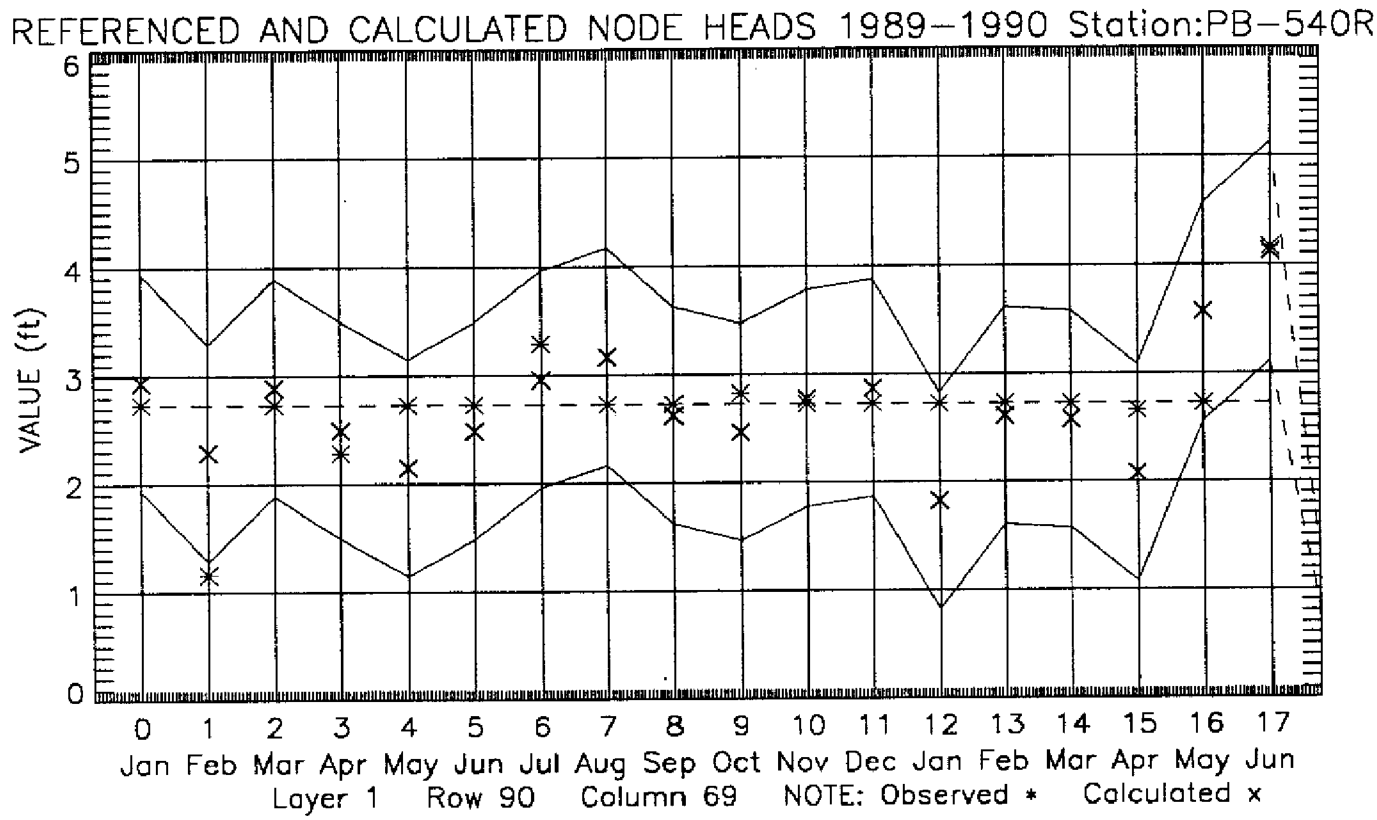


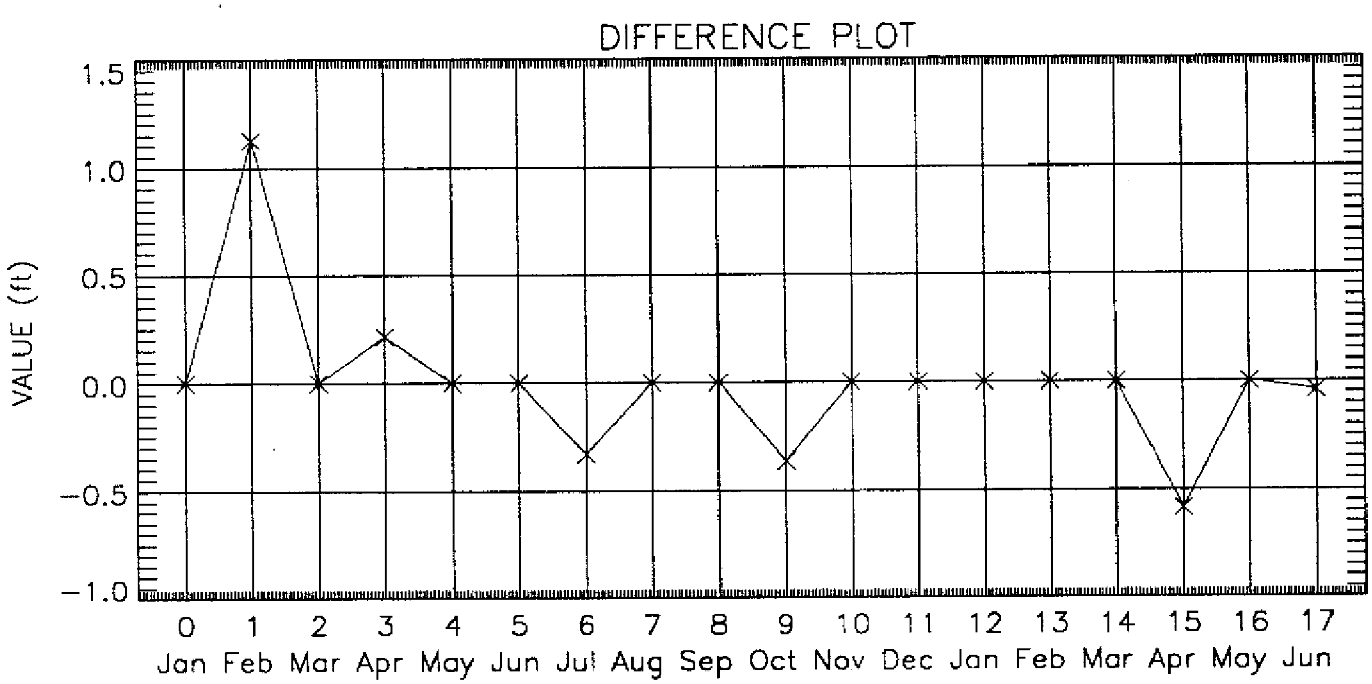
Layer 1 Row 89 Column 67 NOTE: Observed * Calculated x

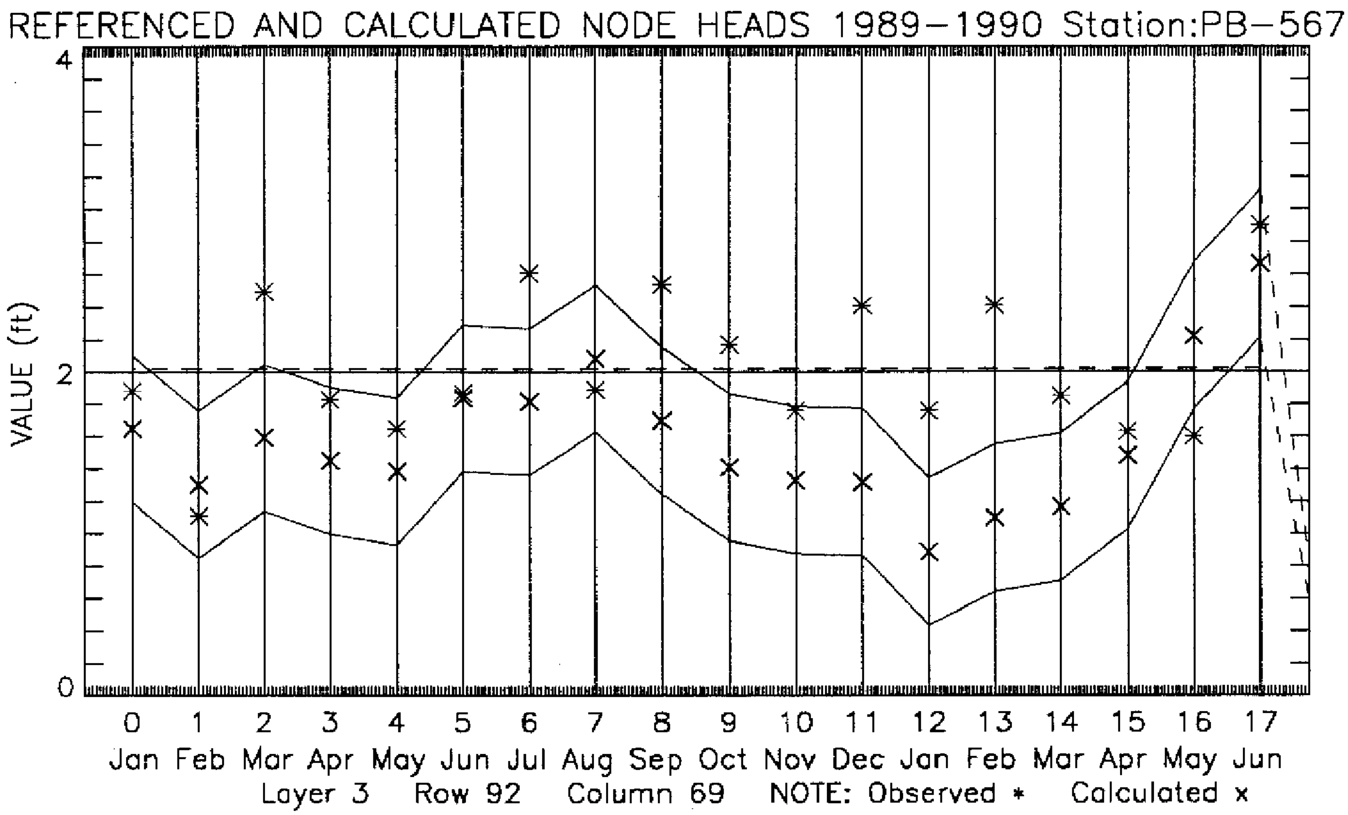
DIFFERENCE PLOT

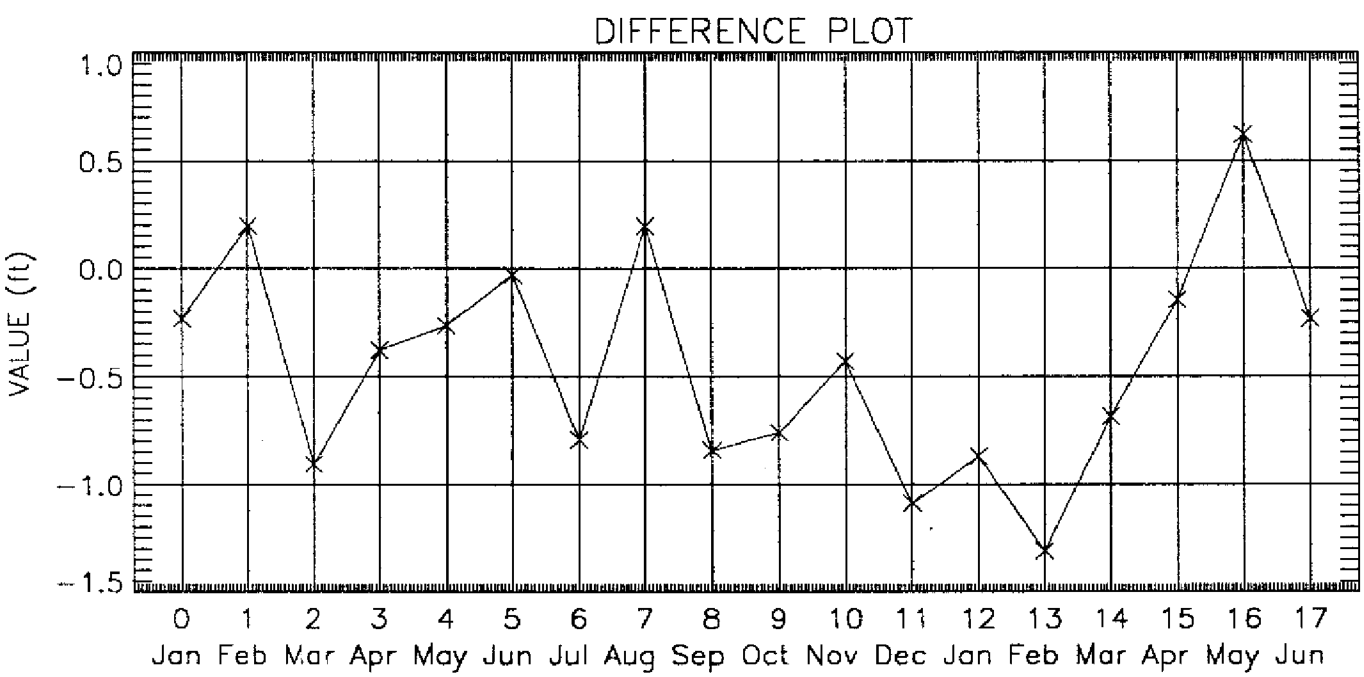


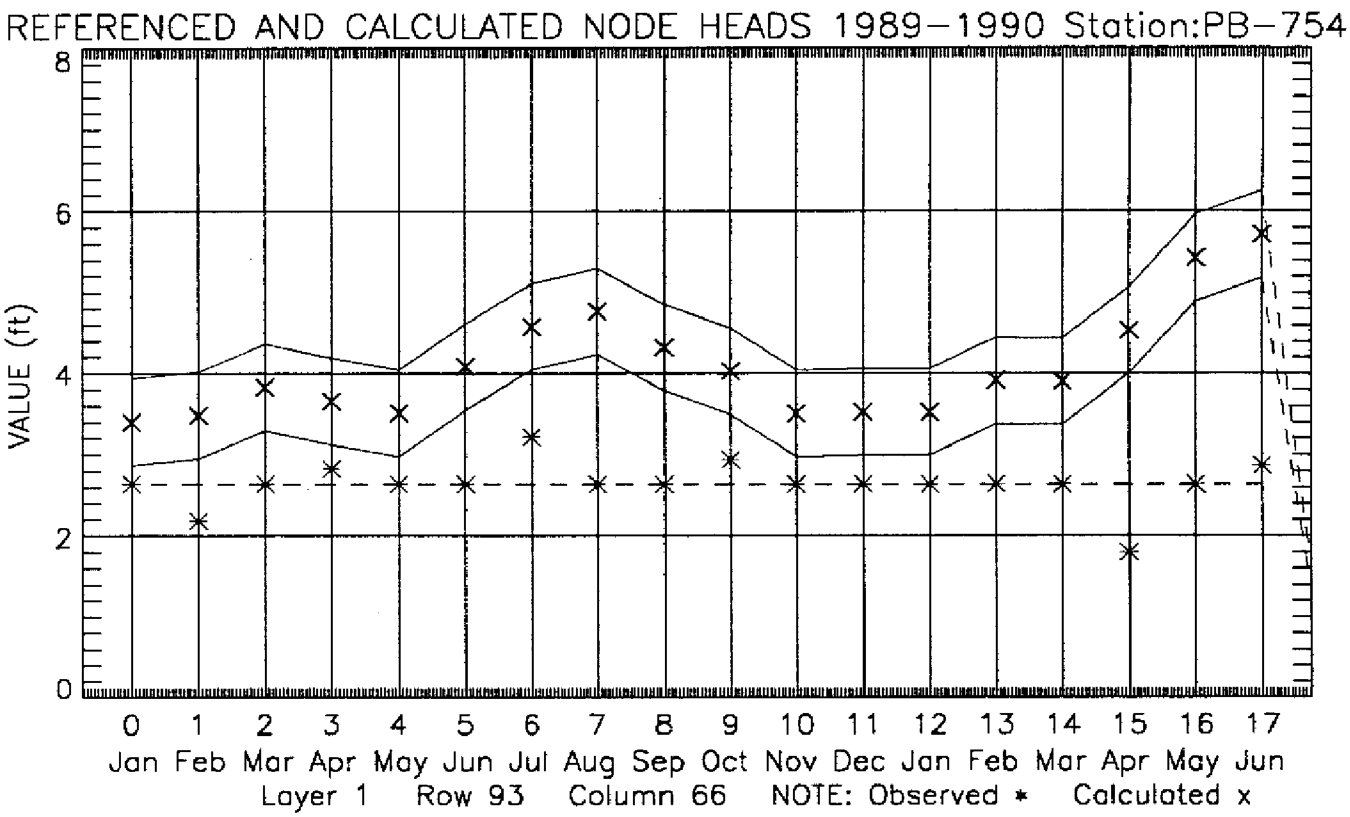

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–1079
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 88 Column 66 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

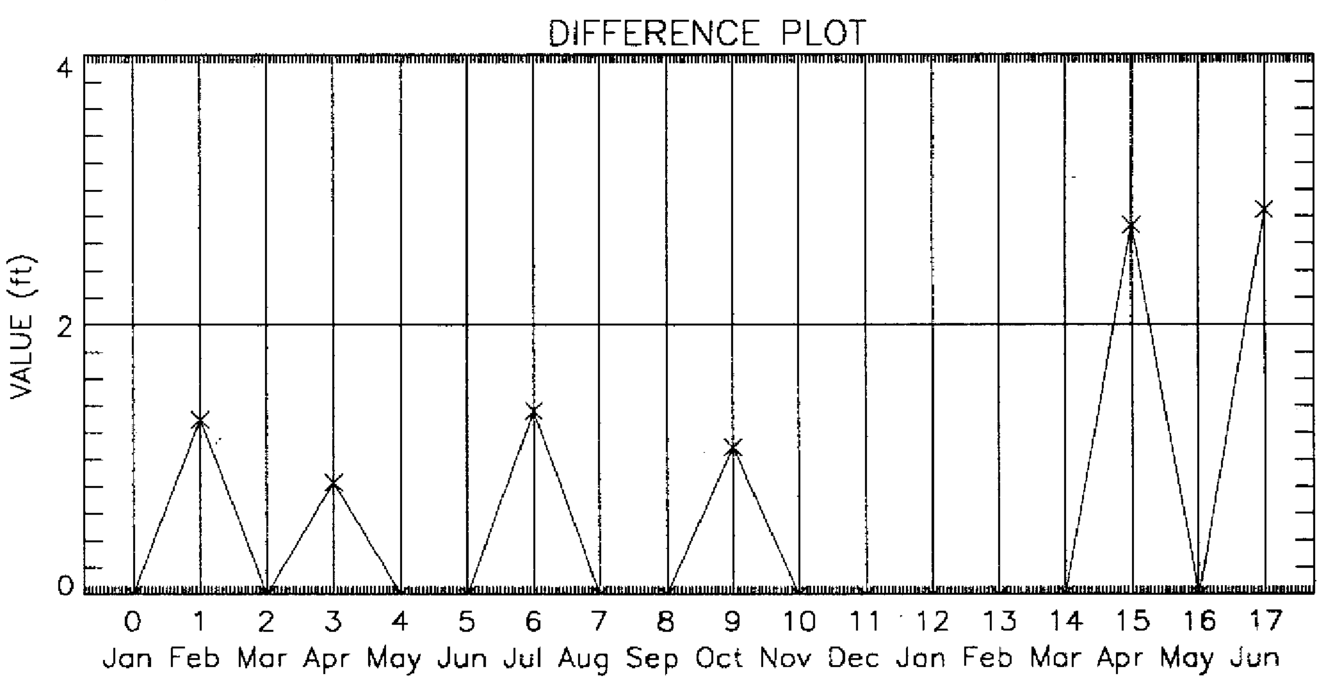

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB-540R
VALUE (ft)
6
5
4
3
2
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 90 Column 69 NOTE: Observed * Calculated x

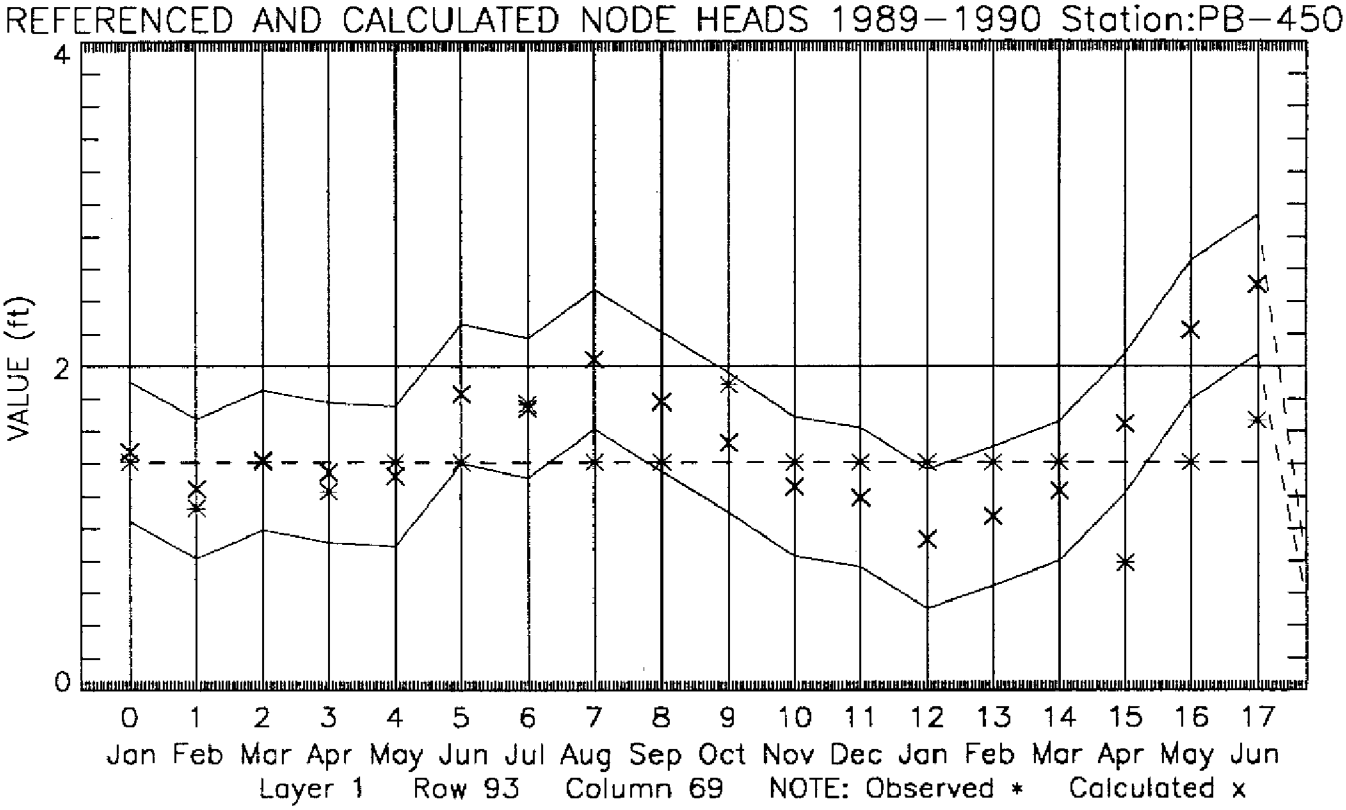

DIFFERENCE PLOT
VALUE (ft)
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

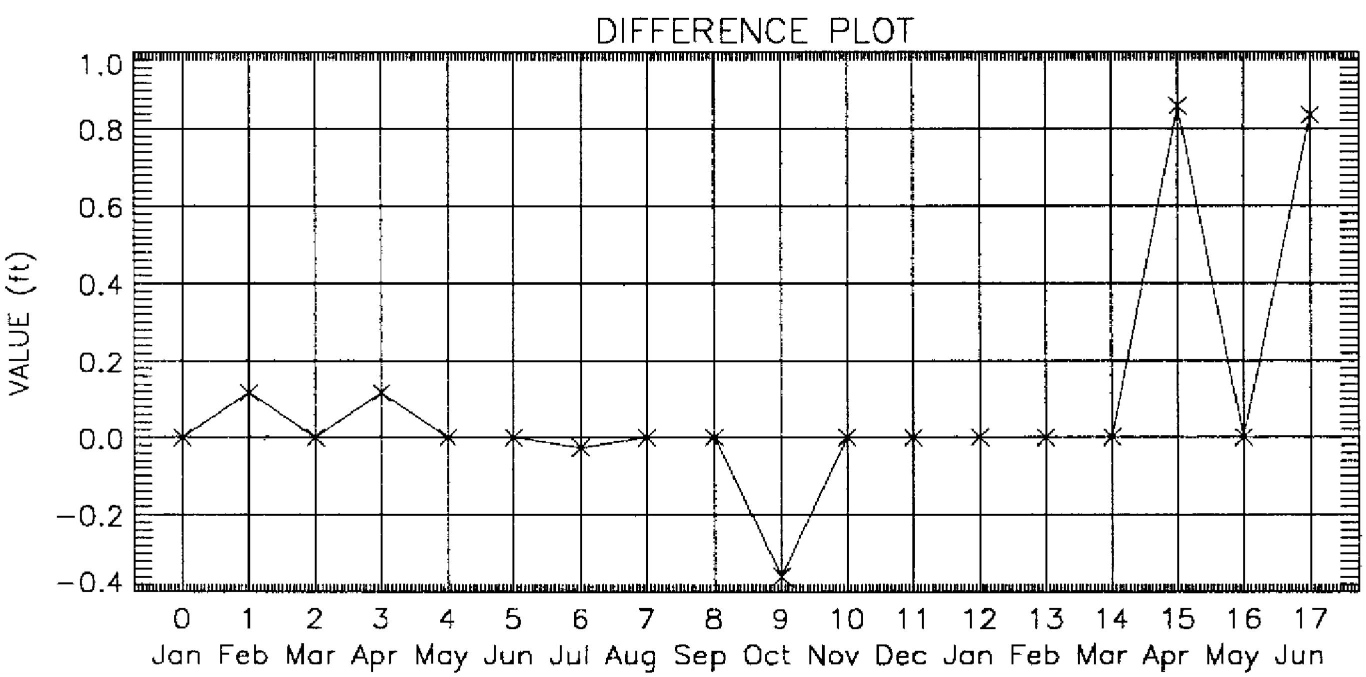

REFERENCED AND CALCULATED NODE HEADS 1989-1990 Station:PB-567
VALUE (ft)
4
2
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 3 Row 92 Column 69 NOTE: Observed * Calculated x

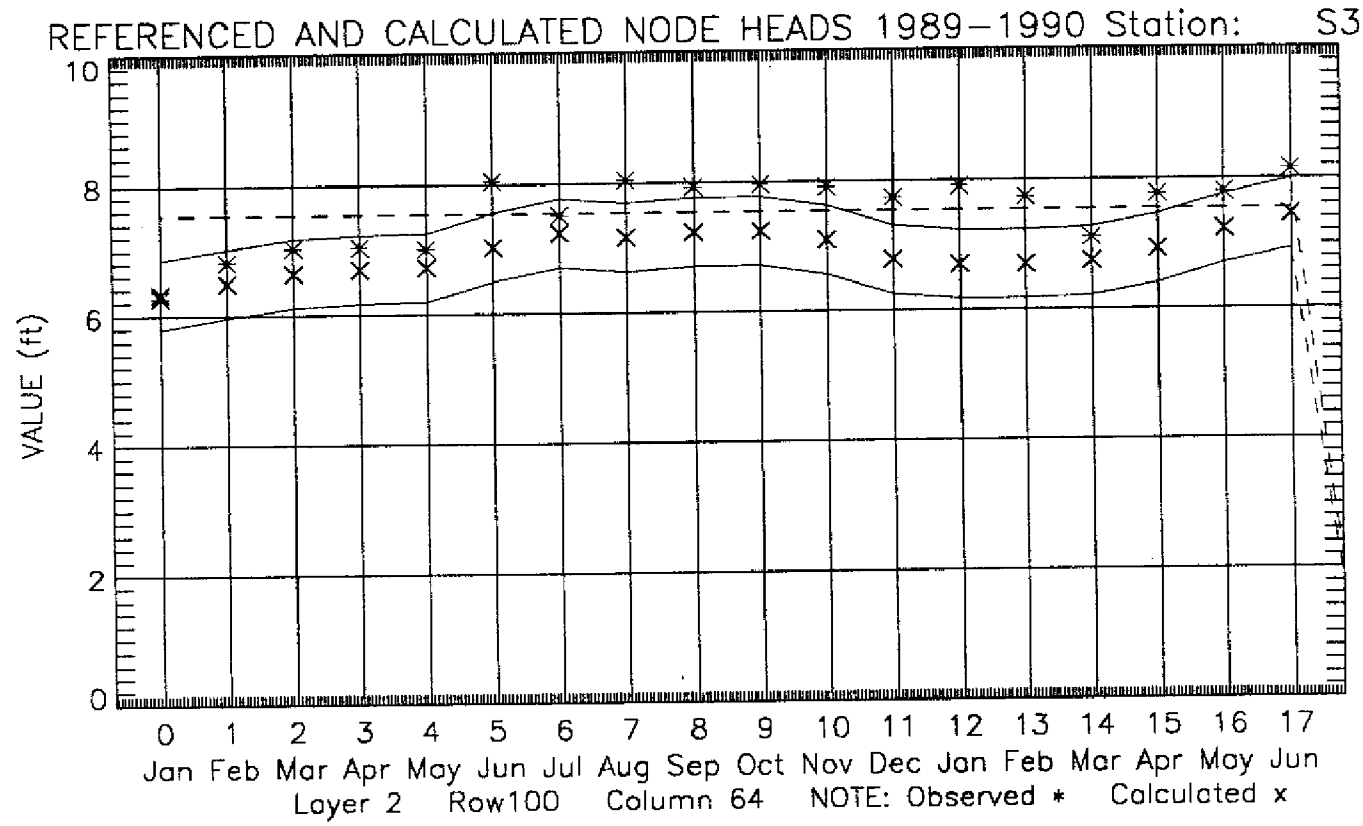

DIFFERENCE PLOT
VALUE (ft)
1.0
0.5
0.0
-0.5
-1.0
-1.5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

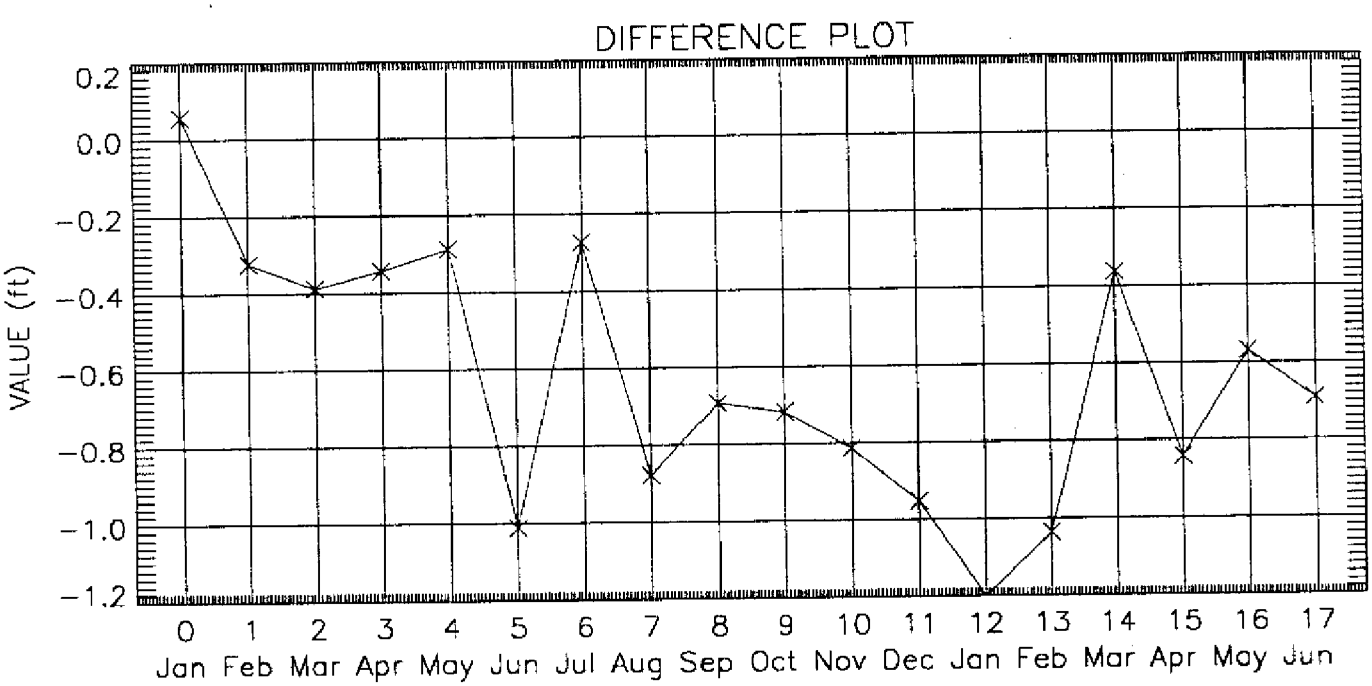

REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:PB−754
VALUE (ft)
0
2
4
6
8
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 93 Column 66 NOTE: Observed * Calculated x

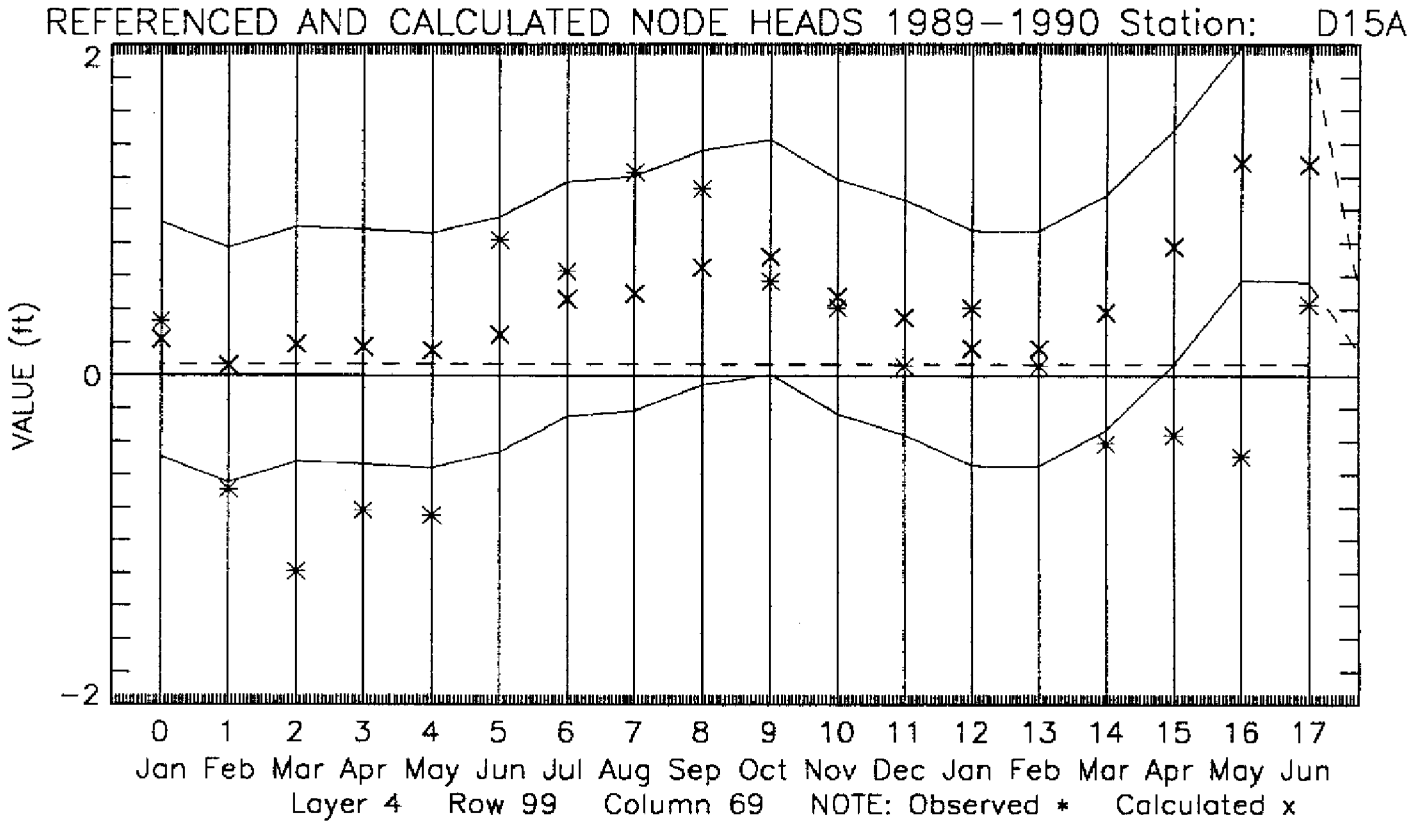

DIFFERENCE PLOT
VALUE (ft)
0
2
4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun

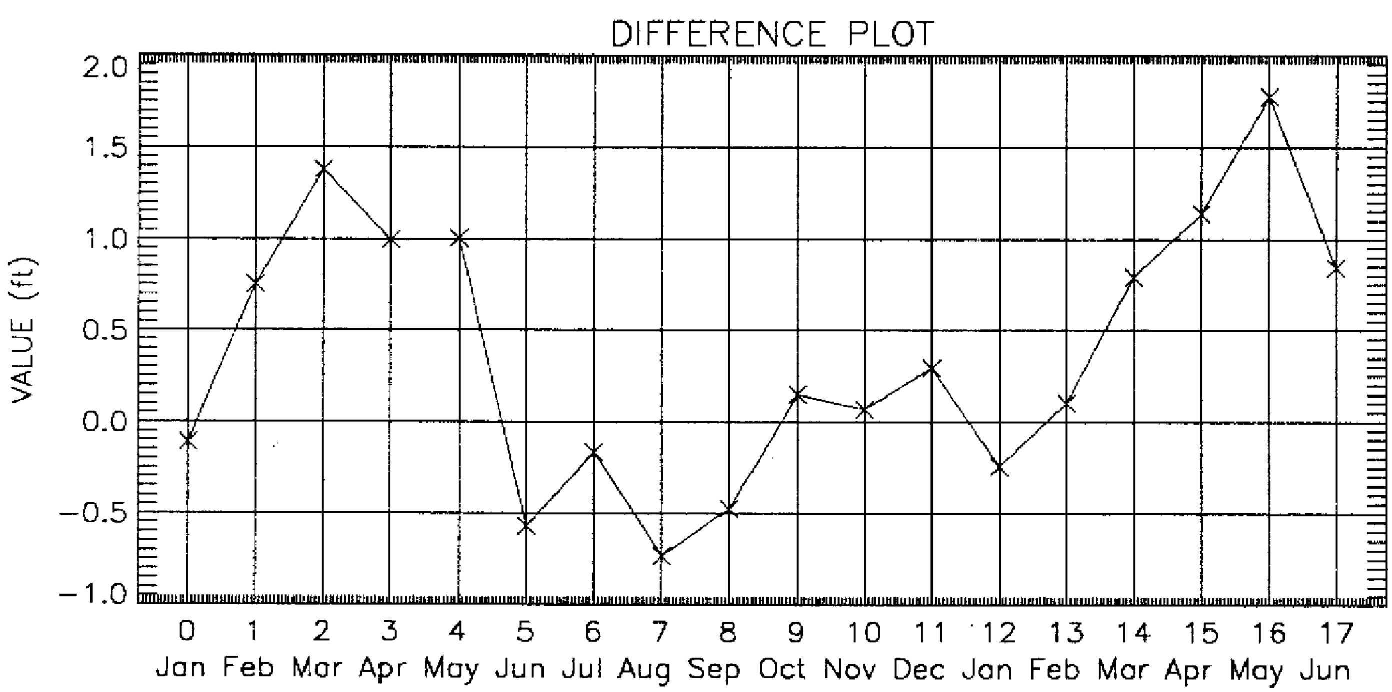

REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station:PB–450
VALUE (ft)
0
2
4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 1 Row 93 Column 69 NOTE: Observed * Calculated x

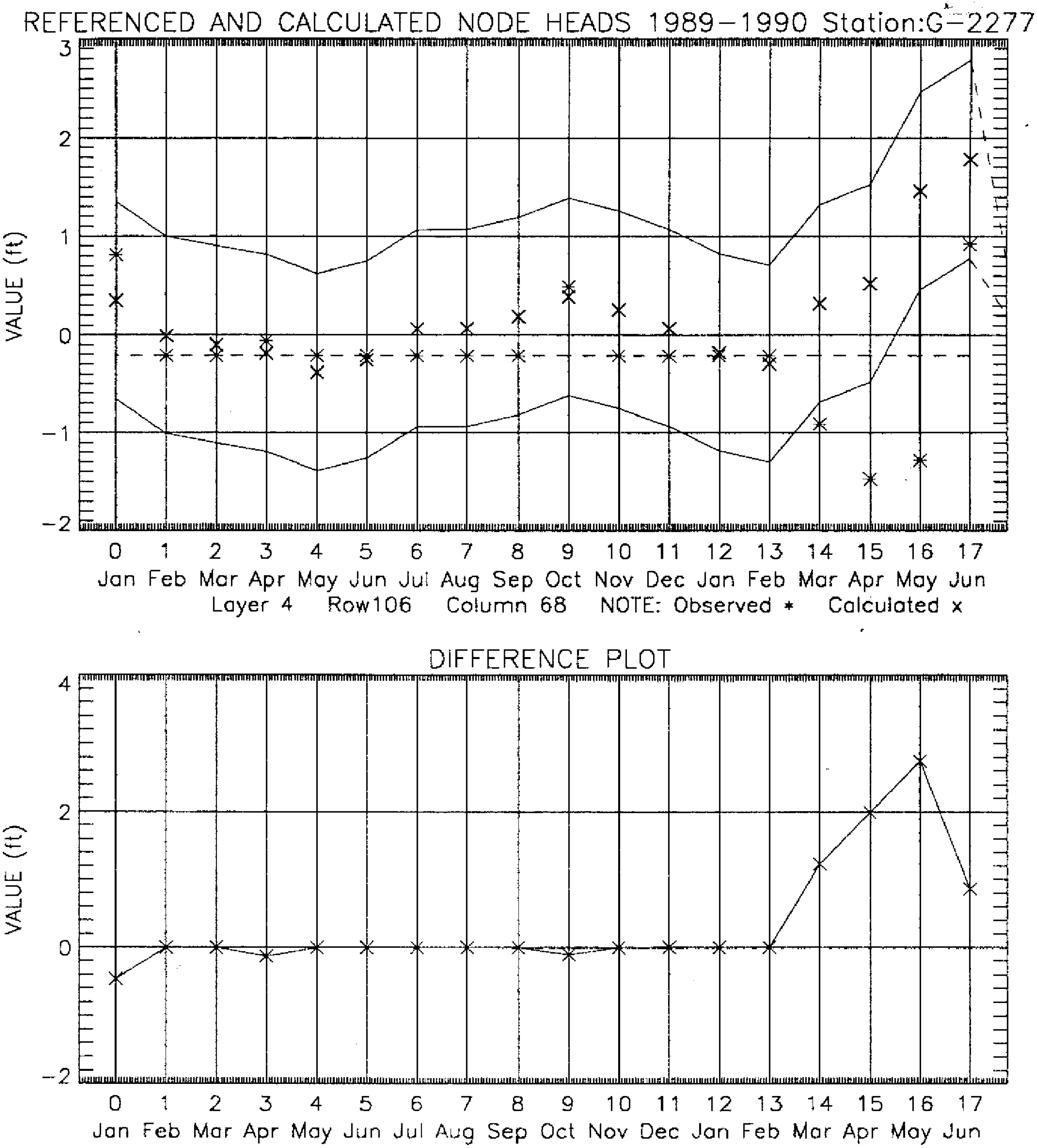

DIFFERENCE PLOT
VALUE (ft)
1.0
0.8
0.6
0.4
0.2
0.0
–0.2
–0.4
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station: S3
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 2 Row100 Column 64 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989–1990 Station: D15A
VALUE (ft)
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row 99 Column 69 NOTE: Observed * Calculated x


DIFFERENCE PLOT
VALUE (ft)
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun


REFERENCED AND CALCULATED NODE HEADS 1989−1990 Station:G−2277
VALUE (ft)
3
2
1
0
−1
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
Layer 4 Row106 Column 68 NOTE: Observed * Calculated x
DIFFERENCE PLOT
VALUE (ft)
4
2
0
−2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun