agreement, understanding, or representation relating to the subject matter of this MOU.

g. *Partial Invalidity*. If, after the date of execution of this MOU, any provision of this MOU is held to be illegal, invalid, or unenforceable under present or future laws effective during the term of this MOU, such provision shall be fully severable. However, in lieu thereof, there shall be added a provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and be legal, valid and enforceable.

h. *Waivers*. Waiver of any breach or default hereunder shall not constitute a continuing waiver or a waiver of any subsequent breach either of the same or of another provision of this MOU and forbearance to enforce one or more of the remedies provided in this MOU shall not be deemed to be a waiver of that remedy.

i. *Necessary Actions*. Each Party agrees to execute and deliver additional documents and instruments and to take any additional actions as may be reasonably required to carry out the purposes of this MOU.

j. *Compliance with Law*. In performing their respective obligations under this MOU, the Parties shall comply with and conform to all applicable laws, rules, regulations, and ordinances.

k. *Liability*. Each Party agrees to indemnify and hold every other Party to the Agreement, and their officers, agents and employees, free and harmless from any costs or liability imposed upon any other Party, officers, agents, or employees arising out of any acts or omissions of its own officers, agents or employees.

l. *Third Party Beneficiaries*. This MOU shall not create any right or interest in any non-Party or in any member of the public as a third party beneficiary.

m. *Counterparts*. This MOU may be executed in one or more counterparts, each of which shall be deemed to be an original, but all of which together shall constitute but one and the same instrument.

n. *Notices*. All notices, requests, demands or other communications required or permitted under this MOU shall be in writing unless provided otherwise in this MOU and shall be deemed to have been duly given and received on: (i) the date of service if served personally or served by electronic mail or facsimile transmission on the Party to whom notice is to be given at the address(es) provided below, (ii) on the first day after mailing, if mailed by Federal Express, U.S. Express Mail, or other similar overnight courier service, postage prepaid, and addressed as provided below, or (iii) on the third day after mailing if mailed to the Party to whom notice is to be given by first class mail, registered or certified, postage prepaid, addressed as follows:

City of Antioch
City Manager
P.O. Box 5007
Antioch, CA 94531-5007
Telephone: (925) 779-7011
Facsimile: (925) 779-7003

City of Brentwood

City Manager

150 City Park Way

Brentwood, CA 94513

Phone: (925) 516-5400

Fax: (925) 516-5441

Byron Bethany Irrigation District

General Manager

7995 Bruns Road

Byron, CA 94514-1625

Telephone: (209) 835-0375

Facsimile: (209) 835-2869

Contra Costa Water District

General Manager

Contra Costa Water District

P. O. Box H20

Concord, CA 94524

Phone (925) 688-8032

Fax (925) 688-8197

Contra Costa County

Director, Department of Conservation and Development

30 Muir Road

Martinez, CA 94553

Phone (925) 674-7866

Diablo Water District

Attn: General Manager

P.O. Box 127

87 Carol Lane

Oakley, CA 94561

Phone: (925) 625-3798

Fax: (925) 625-0814

East Contra Costa Irrigation District

General Manager

1711 Sellers Avenue

Brentwood, CA 94513

Phone: (925) 634-3544

Fax: (925) 634-0897

Discovery Bay Community Services District

C/O: General Manager

1800 Willow Lake Road

Discovery Bay, CA 94505-9376

Telephone: (925) 634-1131

Facsimile: (925) 513-2705

8. Signatures. The Following signatures attest each Party's agreement hereto.

[Remainder of page left blank. Signatures on next pages.]

CITY OF ANTIOCH

By: _____ Date: 2/21/2020

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: 2/21/2020

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: 3/10/20

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: 3-7-20

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

Tim Y. Ogden, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: 04/6/2020

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: _____

Stephen J. Welch, General Manager

CITY OF ANTIOCH

By: _____ Date: _____

Rowland E. Bernal Jr., City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Thomas Lloyd Smith, City Attorney

CITY OF BRENTWOOD

By: _____ Date: _____

, City Manager

APPROVED AS TO FORM:

By: _____ Date: _____

Damien Brower, City Attorney

BYRON BETHANY IRRIGATION DISTRICT

By: _____ Date: _____

Rick Gilmore, General Manager

CONTRA COSTA WATER DISTRICT

By: _____ Date: April 13, 2020

Stephen J. Welch, General Manager

APPROVED AS TO FORM:

By: _____ Date: April 9, 2020

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

DISCOVERY BAY COMMUNITY SERVICES DISTRICT

By: _____ Date: _____

Michael R. Davies, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: 4-13-2020

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: 4/7/2020

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: Dan Muelrath Date: April 6, 2020

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: _____

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

APPROVED AS TO FORM:

By: _____ Date: _____

District Legal Counsel

CONTRA COSTA COUNTY

By: _____ Date: _____

John Kopchik, Director of

Conservation and Development

APPROVED AS TO FORM:

Sharon L. Anderson, County Counsel

By: _____ Date: _____

Deputy County Counsel

DIABLO WATER DISTRICT

By: _____ Date: _____

Dan Muelrath, General Manager

EAST CONTRA COSTA IRRIGATION DISTRICT

By: _____ Date: 4/7/2020

Aaron Trott, General Manager

APPROVED AS TO FORM:

By: _____ Date: April 4, 2020

District Legal Counsel

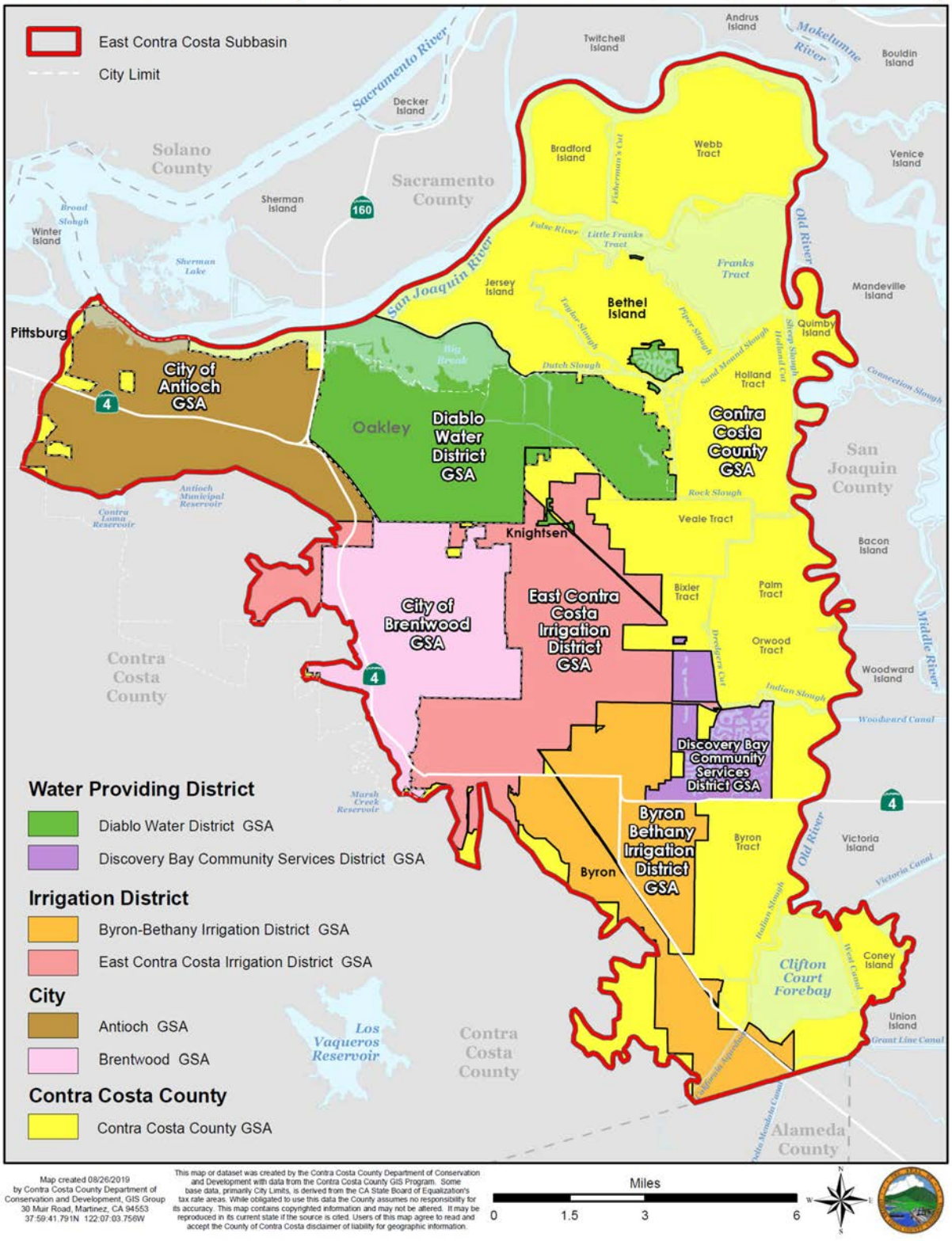
DISCOVERY BAY COMMUNITY SERVICES DISTRICT

By: _____ Date: 2/19/2020

Michael R. Davies, General Manager

EXHIBIT A

Groundwater Sustainability Agencies in the East Contra Costa Subbasin (5-022.19)



Map created 08/26/2019
by Contra Costa County Department of Conservation and Development, GIS Group
30 Muir Road, Martinez, CA 94553
37:59:41.791N 122:07:03.756W

APPENDIX 3a

Investigation of Ground-water Resources in East Contra Costa Area, 1999

Investigation of Ground-Water Resources in the East Contra Costa Area

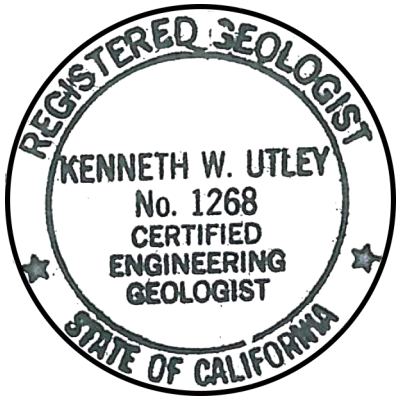
March 1999

Investigation of Ground-Water Resources in the East Contra Costa Area

prepared by

Luhdorff and Scalmanini
Consulting Engineers
Woodland, California

March 1999



Thomas Elson
Senior Engineer

Kenneth Utley
Senior Engineering Geologist

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I. Introduction

Purpose

An investigation was authorized by five east county public agencies in August 1998 to develop a greater understanding about ground-water resources in a portion of eastern Contra Costa County. The participating agencies were the Contra Costa County Water Agency, Contra Costa Sanitation District No. 19 (now Discovery Bay Community Services District), the City of Brentwood, Diablo Water District, and the East Contra Costa Irrigation District. The study area was generally defined as the region encompassing Brentwood and the East Contra Costa Irrigation District, extending to Byron to the south, Oakley to the north, and Discovery Bay to the east. The investigation focused on gathering existing information and organizing it in a manner in which it could be interpreted and analyzed to answer a set of basic questions concerning ground water.

This report documents the results of the subject investigation. Besides the discussion of results contained in the text, the final work product of the investigation includes eight geologic cross sections depicting the distribution of aquifer units throughout the study area, hydrographs showing the fluctuations of ground-water levels over time, water level contour maps, and various graphs and maps of water quality constituents. All of these figures and graphs are included as exhibits to this report.

Scope

The scope of the investigation was posed as a set of basic questions about ground water within the study area:

- What is the areal extent of the ground-water system in the study area? How is the aquifer system vertically divided and distributed?

- Is the ground-water system in the study area hydraulically connected to that in Discovery Bay to the east or Oakley to the north?

- What are the characteristics of the ground-water system in terms of quantity and quality of water?

- How is ground water recharged? How does ground water discharge, or flow out of the area?

- Is the ground-water system overdrafted?

- Can more ground water be developed? How much? Where?

These questions represent significant issues facing public agencies throughout California with respect to managing existing resources and planning for future needs. In the east Contra Costa County study area, ground water has been used for various purposes for decades. However, no previous studies have addressed these questions to the extent that even a conceptual answer to the question concerning overdraft has been documented. In particular, there are no maps, cross sections, or descriptions of aquifer units containing ground water that have been historically targeted for domestic, municipal, or agricultural water supply purposes. In addition, there has been no basis for determining or predicting how incremental increases in ground-water pumping might affect the basin in the future. Finally, with regard to scope, this investigation was intended to address the questions cited above on a regional scale and assumed that, at least to some degree, the ground-water system would be found to be interconnected across boundaries of multiple water entities in the east county area.

Methods

The methods used in the investigation relied on existing information and data. This included material provided by various water entities within the study area, other information found through literature searches, and data obtained through the State Department of Water Resources and Division of Oil and Gas. The information sought for the investigation included anything related to ground water and consisted primarily of well data contained in drillers' reports, i.e., descriptions of aquifer materials encountered while drilling wells. Other useful well data included measurements of

ground-water levels over time, results of ground-water quality tests, and well yields or production capacities.

Multiple tools were used to depict ground-water conditions in the study area and included:

Geologic Cross Sections - Cross sections were used to delineate and interpret the distribution and extent of aquifer materials throughout the study area. Aquifer materials were identified from drillers reports, geophysical surveys (electrical logs, or E-logs), as well as surveys conducted in oil and gas exploratory boreholes. Eight cross sections were constructed to correlate the occurrence of aquifer units throughout the study area and provide a depiction of horizontal and vertical distribution of these materials.

Water Level Hydrographs - Hydrographs depicting water levels in wells over time were used to illustrate historical conditions in the ground-water system. Distinguishing trends were noted and used to interpret climatic influences versus possible impacts of pumping activities.

Water Level Contour Maps - Water level contour maps were constructed to show the relative elevation of ground water throughout the study area. The maps illustrate the ground-water flow directions, and can be interpreted to define gradients for ground-water flow. Maps were constructed representing various points in time to interpret flow patterns on a seasonal basis, changes due to extremes in climatic conditions (e.g., drought periods), and changes due to influences of urbanization.

Depth-to-Water Contour Maps - Depth-to-Water contour maps were constructed to show the proximity of ground water to the ground surface and to illustrate depth-to-water changes over time within the study area.

Water Quality Maps and Graphs - Ground-water quality constituents were mapped and plotted in various forms to delineate and interpret distribution and trends in overall water quality.

Findings

In brief, the significant findings of the investigation include:

- There are four ground-water regions within the study area; those regions are distinguished by the manner in which aquifer materials were distributed and deposited.

- Ground-water conditions in the western part of the study area (the vicinity of Brentwood) are distinct from the eastern region (the vicinity of Discovery Bay as well as northward to Oakley) as a result of depositional history.

- For most of the study area, the extent of aquifer materials capable of yielding quantities of water suitable for municipal and/or agricultural purposes is to depths of 400 feet.

- There is no apparent overdraft of the main ground-water system, suggesting that historical extraction patterns have not exceeded the safe yield of the basin with respect to ground-water levels and storage.

- There have been no significant changes in the direction and rate of movement of ground-water within the study area since the late 1950's.

- Data was found to be limiting for the purposes of defining patterns and factors influencing ground-water quality. However, total dissolved solids (TDS) and nitrate concentrations were found to be significant water quality factors throughout much of the study area. Discovery Bay is notable for relatively better water quality in terms of lower TDS and very low nitrate concentration.

With respect to future needs, east county agencies with interests in ground-water resources would benefit from a program aimed at ongoing monitoring of ground-water conditions to avoid adverse impacts to the quantity and quality as a result of any future changes (e.g., increased pumpage) in historical use patterns. Such monitoring can be incrementally implemented with ongoing pumping plus any additions to pumpage which might be undertaken by one ore more of the local agencies.

The following chapters discuss the basis for the findings cited above. In Chapter IV, Conclusions, specific recommendations are provided with regard to instituting a ground-water monitoring program which is considered especially important for management of ground-water resources in the east County area.

II. Geology and Hydrogeology

Introduction

This chapter presents the results of a detailed analysis and interpretation of subsurface conditions throughout the study area based primarily on information contained in well drillers' reports. Three work products were produced in conjunction with this part of the ground-water investigation and are referred to below in the discussions of geologic setting and hydrogeology. The first work product is the project Base Map on which the study area is delineated through annotations of geologic and hydrogeologic features. The second is the project Well Map on which all the wells found and used to interpret the geologic setting are located. The third is a series of eight geologic cross sections which depict subsurface conditions throughout the study area. The location of the cross sections are delineated on the Base Map. The maps and cross sections appear at the end of this report.

The discussion of the geologic setting is presented below to establish the background necessary to develop the subsequent description and interpretation of hydrogeology. Here, hydrogeology refers to how the geology of the study area is related to the occurrence of ground water. Ultimately, the interpretation of geologic setting and the hydrogeology of the study area is used to form distinct depositional models of four regions within the study area which are depicted on the Base Map. These regions are the Alluvial Plain (e.g., the greater Brentwood area), the Fluvial Plain (e.g., the area around Discovery Bay), the Delta Islands, and the Marginal Delta Dunes (e.g,. Oakley and vicinity). These regions have distinguishing subsurface characteristics which are derived from their geologic history.

The depositional models are significant because they provide a basis for describing and predicting the occurrence and characteristics of ground water. Since this investigation is concerned with the beneficial use of ground water, i.e., as a water supply resource, the depositional models may be used to guide ground-water resource development and exploration. The cross sections are particularly suited for defining the horizontal and vertical extent and distribution of aquifer materials which might be targeted as ground-water supply sources. On a small scale, such models may prove useful

in explaining such matters of interest as variations in well yields, water quality, and mutual pumping interference. On a larger scale, the models can serve to describe regional patterns of recharge and ground-water flow direction.

References pertaining to the discussion of the geologic setting are listed in Chapter V. It is notable that there were no useful references found regarding hydrogeology and the occurrence of ground water for the East Contra Costa study area. Thus, the material contained in this section and throughout this report is new and represents a basis for future studies and modeling, exploration efforts, water supply development, or any other activities which require some initial description of the hydrogeology of the project area.

Geologic Setting

The East Contra Costa County study area occurs on the western side of the northern San Joaquin Valley portion of the Great Valley province of California. West of the study area lies the lower foothills of the Diablo Mountains of the Coast Range province. At the north in the study area, the Sacramento and San Joaquin Rivers combine in the Delta and drain westward into the San Francisco Bay region.

Surficial geology of the area is shown on the two regional geologic maps for the Sacramento and San Francisco-San Jose quadrangles (Wagner and others, 1981; Wagner and others, 1990). In the Coast Ranges, the geology consists of strongly deformed (faulted and folded) Mesozoic (pre-63 million years ago) marine sedimentary rocks of the Franciscan Complex and Great Valley Sequence. Along the northeastern edge of the Coast Range occur slightly less deformed, Tertiary (Eocene to Miocene, 55 to 5 million years) marine sedimentary rocks. The marine rocks of sandstones, shales, and mudstones trend northwest/southeast and dip, or slope, steeply to the north/northeast. These rocks are exposed in low hills from Deer Valley north to near Antioch, and southeast of Marsh Creek Reservoir. The Tertiary marine rocks extend east beneath the San Joaquin Valley with increasing depths to several thousand feet. These rocks contain saline water from their marine deposition and natural gas accumulations which are exploited in numerous gas fields in the area.

Detailed surface geologic maps of the Coast Range in this area include Davis and Goldman (1958), Brabb and others (1971), and Dibblee (1980 a, b, c). Subsurface characterization of the marine rocks beneath the San Joaquin Valley are contained in oil and gas field summaries produced by the California Division of Oil & Gas (1982), and Theskenand and Adams (1995). General geologic

descriptions and histories of these marine rocks are contained in Bartow (1991), and Bertoldi and others (1991). Because of their marine origin, well consolidated nature, and saline water, the Mesozoic and Tertiary marine rocks are not a source of fresh ground water in the study area.

Overlying the Tertiary marine rocks is a sequence of late Tertiary (Pliocene 5.3 to 1.6 million years) and Quaternary (Pleistocene 1.6 to 0.6 million years) non-marine sedimentary deposits. Surface exposures of these Plio-Pleistocene deposits are limited to an area south of Antioch to Oakley, and a small area south of Brentwood. These beds dip moderately to the east to northeast and extend eastward below the San Joaquin Valley. The nature of these Plio-Pleistocene deposits is poorly known in the study area. Subsurface information is limited to a few deep water well boreholes and oil and gas exploratory test holes. It is believed that these deposits occur below about 400 feet to depths of 1,500 to 2,000 feet below the San Joaquin River. Westward, the sequence thins and rises to near the surface overlying the Tertiary marine rocks of the Coast Range. These deposits seem to be dominated by fine-grained clays, silts, and mudstones with few sand beds. Water quality from electrical logs is difficult to interpret, but appears to become brackish with depth in the few sands encountered.

Pleistocene to Holocene (600,000 years to present) alluvium overlies all of the older geologic units. These deposits are largely unconsolidated beds of gravel, sand, silts, and clays becoming weakly consolidated with increasing age and burial depth. These units were deposited by surface stream systems and contain fresh ground water and represent sources for extraction by water wells. Surface geologic mapping of the youngest units have used various names and subdivisions, largely based on soil characteristics (Welch, 1977), topographic position (Helley and others, 1979), and depositional environments (Atwater, 1982).

In the subsurface, separation of the alluvium is difficult because of similar lithologic character and its poorly stratified nature. At best, correlation of sand and gravel beds of the alluvium is locally possible based on relative elevation and lateral extent and the use of water well drillers' reports. The fine-grained silts and clay beds are generally so massive, thick, and homogenous that stratigraphic correlation is not possible. The alluvium thickens from a few tens of feet in the west to about 300 feet beneath Brentwood, and then generally thickens to about 400 feet beneath Old River. Sand and gravel beds tend to be thin and discontinuous in the west, and thin to pinch-out east of Brentwood. Beneath the river floor to the east, is a sequence of thicker more laterally extensive beds of sand and gravel deposited by the river within flood plain silts and clays. Description of the sand and gravel beds and their distribution in the study area are discussed in subsequent sections.

Hydrogeology

Ground water studies or hydrogeologic studies in the area are relatively limited. Regional studies of the thickness of the Tertiary-Quaternary non-marine sedimentary deposits were made by Page (1974), and attempts were also made to evaluate the depth to base of fresh water by California State Water Project Authority (1956), and Berkstresser (1973). Regional studies of the Sacramento-San Joaquin Valley ground water basin include Bertoldi and others (1991), Page (1986), and Williamson and others (1989). The U.S. Geological Survey compiled water quality information which covers the area in a series of reports (Keeter 1980; Sorenson 1981; and Fogelman 1982). However, detailed hydrogeologic studies of east Contra Costa County examining aquifer nature and characteristics are virtually non-existent.

Because of the lack of detailed hydrogeologic study of the subject East County area, a search of water well drillers' reports on file at Department of Water Resources (DWR) was made. The area encompassed eastern Contra Costa County from about two miles west of Oakley, through the Delta Islands to just east of the county line, and extended south through Brentwood to about two miles south of Byron (see Base Map). Between 400 and 500 well logs were collected and the wells were located on topographic base maps based on each report's description. The wells were classified into depth zones of 100 foot intervals and are color coded on the Well Map. The vast majority of wells are less than 300 feet deep, with only a few wells (or boreholes) extending to greater depths. The wells also tend to be clustered in areas of suburban development where municipal water supply systems are not present. These areas are north of Brentwood towards Oakley, east of Oakley, and areas along the edges of the Delta Islands. Outside of these areas, well density is relatively low, generally only a few are located per square mile. The eastern area along the San Joaquin River flood plain has very low well density, with areas of few or no wells present. Outside of Byron, the southern area also has very low well density.

Municipal supply wells are located in Brentwood, Oakley, Discovery Bay, and small service areas in the Delta. Agricultural/irrigation wells are scattered across the area. It is likely that many more domestic and some irrigation wells exist in the area, but do not have water well drillers' reports on file with DWR.

Lithologic descriptions on drillers' reports are subjective, with the quality of the information provided in them dependent upon the experience, attention, and diligence of the multitude of drillers who have drilled in the region over the years. A more quantitative evaluation of subsurface

lithologies is possible from geophysical borehole surveys (electrical logs) run by professional well logging services. A search of DWR files, LSCE's in-house files, and water agency files was also made for electrical logs. A few dozen electrical logs were found as a result of this effort, mostly in the Brentwood and Discovery Bay areas. The electrical logs provide the most precise delineation of aquifer units and for that purpose are considered a primary tool.

Because of the lack of deep well control (over 500 feet) over most of the study area, a search of Division of Oil and Gas files was made to review electrical logs from the numerous oil and gas exploratory test holes in the area. About 200 oil and gas test hole files were reviewed. Many of these test holes were associated with the natural gas fields near Brentwood and north to the Delta. Scattered wildcat test holes (outside of the gas fields) were found across the study area with the lowest density in the southern portion of the study area. Most of the oil and gas electrical logs begin at depths of 800 to 1,000 feet, below the surface casing which is installed to protect fresh ground water in accordance with Division of Oil and Gas regulations. A few older test holes, pre-1960, extend to shallower depths, and in a few cases to the surface. The electrical logs were reviewed and notes made of depth of surface casing, lithologic character (clays and sands), and nature of water quality (saline, brackish, fresh). Most of the oil and gas electrical logs showed that the geologic material below 800 feet is dominated by fine-grained (clay and shale) deposits and some sandy zones with indications of saline or brackish water present. The base of fresh water was more difficult to determine, but seemed to correspond with published information. In general, the lack of suitable aquifers (sand and gravels) below 800 feet and their geophysical responses indicate that deep fresh water bearing aquifers do not exist in the area. One exception to this was found in a few oil and gas geophysical logs in the far northeast, outside the study area in San Joaquin County, where some fresh water aquifers in the 1,000 to 2,500 feet horizon were indicated. These may represent Tertiary non-marine deposits which were sourced from the Sierra Nevada. These deposits appear to pinch-out rapidly westward into finer-grained deposits and do not extend beneath the study area. A similar pattern has been seen in southern Sacramento County in the Elk Grove area.

Geologic Cross Sections - In order to evaluate subsurface geologic conditions and relationships, a series of geologic cross sections was constructed as shown on the Base Map. Five cross sections were constructed in an east-west direction extending from the western foothills of the Coast Range out to the east Contra Costa County line (Cross Sections 1-5). Three additional cross sections were drawn in a north-south direction from the Delta to south of Byron (Cross Sections A-C). Because of the few wells extending to depths below 300 feet and areas of low well density, information from

electrical logs found at the Division of Oil and Gas was added to the cross sections to show the uppermost extent of deep well control.

Review of these cross sections shows some general patterns in the occurrence and character of sand and gravel aquifers. Four regions having distinguishing characteristics were found and are delineated on the project Base Map. First, from about Lone Tree Road to south of Brentwood, extending about five miles east of the Coast Range foothills, exists the Alluvial Plain region consisting of eastward thickening deposits overlying Tertiary marine rocks. Most of the sand and gravel beds are located in the shallowest portion of these deposits. Near the foothills, the sand and gravel beds are about 100 feet or less in thickness, deepening to about 300 feet below Brentwood. These deposits are believed to be the Quaternary alluvium overlying the finer-grained Plio-Pleistocene non-marine deposits which extend to the base of fresh water or Tertiary marine rocks. The sand and gravel beds in the alluvium are largely thin bedded (less than 10 feet) and discontinuous laterally (Cross Sections 1, 2, 3, A, and B). Locally there are areas where several thin to thick sand beds exist in sequence (Cross Sections 1, 2, 3, and A). East of Brentwood, the number of sand and gravel beds appear to decrease, and bed thickness also decreases (Cross Sections 1, 2, and 3). This decrease in sand bed content can be seen by comparing Cross Sections A and B south of Cross Section 3. About one mile east of Brentwood, Cross Section B shows that most wells encounter mostly silt and clay with only a few thin, fine sand beds south of Cross Section 2. This pattern of low sand bed content extends south through Byron (see Cross Section B).

A second region, Fluvial Plain, occurs to the east below the San Joaquin Valley floor. In this area, the sand and gravel beds appear to be thicker (20 to 30 feet) and more laterally extensive (Cross Sections 1, 2, and 3). These beds seem to correlate well in a north-south direction from Discovery Bay to Rock Slough (Cross Section C; north to about Cross Section 4). Westward, these beds seem to pinch out rapidly and disappear away from the river channels (Cross Sections 1, 2, and 3). The cross sections also show that below depths of 400 feet, a barren zone of few sand and gravel beds exist to at least 800 feet in depth (Cross Sections 1 and C).

North of the Alluvial and Fluvial Plain regions occur two additional regions. The Delta Islands region swings in an arcurate westward direction (Cross Sections 4, 5, A, B, and C). In this area, more numerous thick, fine sand and gravel beds exist and appear to correlate moderately well. Details of the western end of this area beneath Jersey Island is limited by low well density (Cross Section A). Again, at depths below 400 feet, few sand beds are encountered to depths of at least 800

feet (Cross Sections B and C). Evidence of shallow saline or brackish water may be present in the shallow sand beds below the Delta Islands.

The fourth region, Marginal Delta Dune, exists north of Lone Tree Road extending north to the edge of the Delta and westward beneath Oakley towards Antioch. This region has thick, fine sand beds beneath the northeastern and northern areas which correlate moderately well (Cross Sections 5, A, B, and C). In this region, a surficial deposit of Aeolian dune sands occurs, and some of the thicker subsurface fine sands may represent older buried dune fields, which were fed from the Delta Island area sand deposits. Towards the Coast Range, the area has fewer thin sand beds and the western portion, west of Oakley towards Antioch, seems to lack thick sand beds, although well density is very low.

Net Sand Thickness - In conjunction with generalized characteristics derived from the cross sections, sand bed distribution across the entire area was assessed by computing net sand thickness in 100 foot intervals for all wells reviewed. Overlay work maps were generated in 100 foot intervals with well locations color coded to depict net sand thickness. Mapping was performed for the 0-100, 100-200, and 200-300 foot depth ranges. Beneath the Fluvial Plain, the net sand thickness maps show sand thickness of 30 feet or more per hundred feet. The thicknesses are composed of 1 or 2 thick sand beds (20 to 30 feet) which correlate well laterally. To the west, the sand thickness rapidly decreases. In the 0-100 foot interval net sand thickness is low, less than 10 to 20 feet.

In the Delta Islands, net sand thickness appears to thicken northward from about 30 feet to 60 feet and more per hundred feet beneath Bethel Island. This pattern appeared on all of the net sand thickness work maps. The number and thicknesses of the sand beds appear to increase as net thickness increases. To the west below Jersey Island, low well density does not allow accurate evaluation of sand bed thicknesses to be made.

In the Marginal Delta Dune area, net sand thickness appears to be on the order of 30 to 60 feet per hundred feet. The number of sand beds appears to increase, although bed thickness is variable from thin to thick. Local areas of thick net sand thickness appear to occur, possibly related to stream or distributary channels.

In the Alluvial Plain, net sand thickness is generally low, less than 20 feet per hundred, and occurs in several thin beds on all maps. However, local pockets or bands of thicker net sand (30 to 40 feet per hundred feet) occur at various depths. These pockets consist of several thin (10 to 20 foot) beds

overlying each other, and may represent stream channel deposits. The work maps also showed the general decrease of sand beds westward towards the Fluvial Plain. Finally, along the western edge of the maps, the bottom of the alluvium is reflected by the increasing depth eastward at which pre-alluvium deposits are encountered.

The net sand evaluation added appreciably to the development of the depositional models described below. The effort to use them as a tool may be useful for other future purposes such as modeling. However, the work maps were not advanced to a final work product and are not included in this report.

Depositional Model of Alluvium

Based on the review of drillers' logs, electrical logs, geologic cross sections, and net sand thickness analysis, a general model of depositional environments responsible for the configuration and character of the sedimentary deposits across the area was developed. The depositional model describes the physical processes which formed the deposits and caused the areal and physical characteristics in different areas. The depositional model is divided into subareas based upon sedimentary characteristics formed by different depositional processes. The model is delineated as four regions on the Base Map.

Fluvial Plain - Along the floor of the San Joaquin Valley, a zone of well-defined, thick-bedded (20 to 30 feet) sands and gravels occurs. These few beds appear to occur at distinct levels or depths separated by intervening clay to silt beds, and extend northward in fairly well defined sequences. The sand and gravel beds were probably deposited in stream channels which migrated laterally through time, and are confined within and overlain by flood-plain clay and silt deposits. The setting was probably similar to that which occurs today with northward flowing river channels, distributaries, and sloughs across floodplains of overbank areas. The deposits extend to depths of about 350 feet, below which occur largely fine-grained silts and clays.

Delta Islands - North of the Fluvial Plain region is the Delta Islands area (see Base Map). Sand and gravel beds correlate to the Fluvial Plain, but net sand thicknesses and number of beds appear to increase northward. Net sand thickness increases to 60 feet or more per hundred feet beneath much of the Delta Island areas. To the west where well control is limited, the nature of the Delta area is not well documented. The sand beds appear to be somewhat finer-grained than the fluvial plain,

with fewer reports of gravel materials. As in other areas, the sand beds exist to depths of about 300 to 350 feet, below which few sands are encountered.

The depositional environment for the Delta Islands is interpreted as multiple stream channels meandering between islands. Channels would be active with through-flowing waters, then abandoned as new channels developed. Possibly slower stream flow and tidal fluctuations allowed thicker, fine-grained sand deposits to form.

Marginal Delta Dunes - Southwest of the Delta Islands region, an area is defined by numerous thin to thick sand beds as the Marginal Delta Dunes region. Net sand thicknesses are generally greater than 30 feet of sand per hundred feet. The sand beds tend to be similar to the Delta Island area, generally finer-grained sands, but thinner individual beds. Locally, areas of thicker sand beds occur.

The depositional environment is envisioned to be a mixture of delta fluvial distributary channels and possibly aeolian dune fields. Between Oakley and northern Brentwood, a surface deposit of rolling gentle hills of relic sand dunes occur. These sand dunes are believed to have been generated by strong winds blowing sand off the delta margins. Some of the deeper sand beds across the Marginal Delta Dunes area are suspected to be similar older dune fields.

Alluvial Plain - South of the Marginal Delta Dune area and west of the Fluvial Plain is the final depositional environment, the Alluvial Plain. This area is characterized by thin sand and gravel beds which correlate poorly between wells. Net sand thicknesses are generally low, less than 20 feet of sand per hundred feet, and generally occurring as several beds. Locally, pockets or bands of thicker sand and gravel beds occur where slightly thicker beds may occur.

The depositional environment for the Alluvial Plain region is one of small streams draining eastward from the Coast Range foothills to the west. Flood flows of these streams spread out from the hills depositing fine-grained deposits, possibly as mud flows with high sediment content. Stream flows deposited thicker sand and gravel beds which tended to stack upon each other causing the thicker bands of sand beds. The Alluvial Plain deposits thin westward to pinch-out against the Coastal Range foothills. These deposits appear to thicken to about 300 to 350 feet eastward. The sand and gravel beds appear to decrease eastward, so the eastern half of the alluvial plain is dominated by silts and clays. These distal alluvial plain deposits probably interbed with floodplain deposits from the adjacent Fluvial Plain region. The thicker stream deposited sand and gravel bands extend eastward

until the sands either pinch out or have not been reached by wells. In the north, the stream deposits appear to reach into the Marginal Delta Dunes area and blends into the sand beds that are present there.

Antioch and Byron Areas - These two areas could only be briefly examined due to lack of well control. The Antioch area appears to be a small alluvial plain area with thin sand beds. Possibly, the Plio-Pleistocene non-marine deposits occur at shallow depths and the alluvium is thin in this area. More extensive study towards Antioch would be required to evaluate the area. The Byron area also appears to have few thin sand beds of small alluvial plain area marginal to the greater Fluvial Plain region where fine-grained deposits appear to dominate.

Depositional Model of Plio-Pleistocene Non-Marine Deposits

As reported in the literature and seen on the cross sections, below the alluvium occur poorly defined Plio-Pleistocene deposits. These non-marine deposits appear to thicken eastward from exposure areas to thicknesses of 1,500 to 2,000 feet below the San Joaquin River. Limited borehole data indicates that these deposits are mostly fine-grained silt, clays and mudstones with few sand beds. Electrical logs indicate that fresh to brackish water quality exists in these deposits, although it is difficult to determine because of their fine grained nature.

Regional geologic studies (Bartow, 1991; and Bertoldi and others, 1991) have shown that Miocene marine deposition occurred in the area as shown by the Tertiary marine rocks exposed in the Coast Ranges. During the following Pliocene, the San Joaquin Valley drained to the south to the ocean via the Salinas Valley. The Sacramento Valley drained westward through the Delta area, and the Coast Range locally apparently had not been uplifted as yet. Deposition may have been confined to distal fluvial plains sourced from the Sierra Nevada area, such that little sand was carried into the area. Similar aged fine grained deposits are seen in southern Sacramento County, near Vacaville, and around Rio Vista reaching thicknesses of 2,000 to 2,500 feet.

In the Quaternary (mid-Pleistocene) period, the San Joaquin Valley south of Tracy was occupied by a large fresh water lake, Corcoran Lake. The study area appears to have remained in low relief, and fine-grained fluvial plain deposition continued. At about 600,000 years ago, northern San Joaquin River drainage and local Coast Range uplift began. It is suspected that this activity marked the beginning of the alluvium deposition where coarse-grained deposits were formed and carried into the area by the San Joaquin River and eroded off of the uplifting Coast Ranges.

III. Ground-Water Conditions

Introduction

This chapter discusses ground-water conditions in terms of ground-water levels, which are a reflection of ground-water storage, and ground-water quality. Throughout the study area, the primary water-bearing units for water supply purposes exist primarily in the upper 300 to 400 feet of geologic material. From the analyses presented in the previous chapter, there is no apparent basis for subdividing the aquifer system into subunits on a regional scale due to a lack of correlation although locally there are apparent variations in aquifer characteristics, water levels, and water quality.

The most extensive collection of historical water level and quality data was provided by the East Contra Costa Irrigation District (ECCID). This data covered the area from Oakley in the north to south of Brentwood, and from west of Highway 4 east toward Discovery Bay. The period of record for the ECCID data began in 1958 and provided an excellent basis to evaluate trends in water levels over time, especially during drought periods. This data was the primary source for the generation of contour maps of equal ground-water elevation and depth-to-water, and water level hydrographs discussed below. Ground-water quality data is also predominantly from this area but is also very limited in scope so that only a few general conclusions could be drawn with respect to questions concerning this topic.

Ground-Water Level Hydrographs

Representative water level elevation hydrographs of wells monitored by ECCID were constructed and evaluated to assess historical trends. A hydrograph, which is a plot of water level versus time, reflects ground-water storage over time. The factors which affect ground-water levels and storage include seasonal and climatic changes, use patterns (e.g., municipal and agricultural pumping), and artificial and natural recharge. A long-term or permanent decline in ground-water elevation is generally interpreted as an overdraft condition where extraction of ground water exceeds the

recharge components. Short-term water level declines may result from climatic conditions such as drought. In this case, overdraft would not exist if water levels recover after the drought period. In areas where ground water is extracted for various purposes, seasonal fluctuations can often be correlated to recharge during the winter period (water level rise) and pumping through spring and summer (water levels fall). The hydrographs analyzed for this study and a well location map are included under Exhibits at the end of this report.

Ground-water level data obtained from ECCID spanned from the late 1950's and served as an excellent basis for interpreting ground-water storage over time for a significant portion of the study area. The data indicates that water levels in the east county area have remained fairly stable with no evidence of long term or dramatic declines. Minor shifts in water levels have occurred in two areas of the east county region. Wells located north of Lone Tree Way in Brentwood in the Marginal Delta Dune area have exhibited an upward to relatively flat trend in water levels. The upward trend is exhibited by an increase of approximately two to five feet over the last 25 to 35 years.

Wells located in the Alluvial Plain area south of the Marginal Delta Dune area have generally exhibited either stable or slightly declining trends in water levels. The wells which have shown a slightly decreasing trend have had a decline of two to five feet in the last 25 to 35 years, almost a mirror image of the upward trend in the Marginal Delta Dune area. The amount of decline is not considered significant in terms of impacts to either ground-water quantity or quality in the affected area.

Climatic and seasonal water level changes are most noticeable in wells located in the western portion of ECCID's well network. These wells commonly have seasonal or climatic water level changes of five to twenty feet. Wells located in other areas of ECCID do not have pronounced seasonal or climatic water level changes. These wells may be affected by proximity to the Delta whereas the wells located in the western portion of ECCID are likely influenced more by boundary effects caused by proximity to the edge of the ground-water system, i.e., the Coast Range foothills.

Long-term water level data were not found for other east County areas. This problem could be addressed by extending the monitoring conducted by ECCID to the other regions including south of Brentwood in the Byron area, the Oakley area, the Discovery Bay area, and east beyond the county line. However, considering that the most significant historical ground-water extraction activities have been focused in the greater Brentwood area, it is expected that the outlying areas would not show a significant deviation from the stability reflected in the ECCID data. In Discovery Bay, long-

term monitoring of water levels of the confined unit tapped by its municipal wells would be of key importance with regard to ground-water conditions in that area.

Ground-Water Level Contour Maps

Regional water level contours were constructed for spring and fall of 1958, 1975, and 1991, and spring or fall of 1977, 1986, and 1996. The 1991 contour maps were augmented with data from Diablo Water District and Discovery Bay. The contour maps were used to assess historical changes in ground-water flow directions since 1958 during time periods which experienced wide variations in precipitation, e.g., during "wet" years (mid 1980's) and "dry" years (mid 1970's, late 1980's). The plots were also used to determine areas which have experienced increases in ground-water pumpage and which have little or no recorded water level data.

All the ground-water elevation contour plots show ground-water flow directions from west to east in the southern portion of the study area (Brentwood to Discovery Bay) and from southwest to northeast in the central and northern portions of the area (from Brentwood toward Holland Tract). Immediately south and southwest of Brentwood near ECCID's Main Canal, there appears to be a flattening of ground-water elevations, possibly resulting from ground-water pumping in the vicinity (an effort should be made in the future to verify the measuring point elevations in this area as the apparent flattening of contours could be a data quality problem). This is most noticeable from 1975 through 1991, when more water level data is available in this area, and does not appear to be developing into a ground-water depression, even during drought periods (1977 and 1991). There is a lack of data south of Brentwood in 1996 and prior to 1975 to evaluate whether the flattening of ground-water levels persists before or after that time period. This area does not appear to have a dramatic affect on water levels either in the Discovery Bay area or in the Brentwood area.

The hydraulic gradient is approximately 15 feet per mile in the southern portion of the basin to 20 feet per mile in the northern portion of the basin. The hydraulic gradients have not changed significantly since 1958 with the exception of the flattening of the gradient in the area south of Brentwood since 1975.

Depth-to-Water Contour Maps

Depth-to-water contour maps were prepared for the same time periods as the water level elevation contours discussed above. These maps, included in the Exhibits section along with the ground-water elevation maps, can be used to assess how depth-to-water in a particular area has changed over time; they can also, for example, serve as a useful reference when assessing available drawdown for well development purposes. Unfortunately, there is a lack of historical water level data west of Highway 4, in the Oakley area, south of Brentwood to Byron, and in the Dutch Slough, Rock Slough, and Indian Slough areas; this lack of data limits the scope of depth-to-water mapping in the overall study area.

The depth-to-water maps show that ground water occurs at shallower depths from west to east. These maps are consistent with the hydrographs and elevation contour maps in that they indicate no significant changes over time nor any apparent significant impacts by historical extraction within the area for which data is available.

Ground-Water Levels in Newer Brentwood Municipal Wells - Although there is no extensive data on water levels in municipal wells operated by the City of Brentwood, it is known that static levels in the City's two main well fields (Wells 6, 7, and 8 near Marsh Creek and Wells 11, 12, and 13 to the south) are deeper than the shallower levels reflected in the broad ECCID data base. Static water level readings from Brentwood's wells indicate that the water level difference may be 20 to 40 feet in magnitude and is most likely caused by the municipal pumping. The City's pumping, however, has not impacted the larger regional system as reflected in the well hydrographs or water elevation contours discussed previously. At least locally, the City should be concerned with how the water level difference between the deeper completion zones of its newer municipal wells and the shallow zones might cause degradation of water quality by inducing downward movement of water quality constituents of local concern (e.g., nitrate). As development of the deepest portion of the aquifer occurs, it would be advisable to monitor the municipal wells separately to determine if a distinction of the aquifer system into shallow and deep units is appropriate.

Ground-Water Quality

Ground-water quality data was reviewed to assess trends and characteristics of ground water throughout the study area. Data was limited in quantity and distribution, with most concentrated in the greater Brentwood area and within the East Contra Costa Irrigation District. Water quality data is presented in a series of graphs for wells located on the study Base Map under Exhibits at the end of this report.

Ground-water quality data posted on maps include concentrations of total dissolved solids (TDS), chloride, and nitrate. As discussed below, because of the limited amount of data, the most significant finding concerning water quality variations throughout the study area is the notably better water quality in Discovery Bay as compared to other areas where data is available.

A series of graphs was also used to assess water quality characteristics for this investigation. These graphs were constructed by plotting various water quality constituents versus the depth of the well intake structure; that is, the top of the well perforations or screen. Most notably, there is a strong correlation between nitrate concentration and the depth of the intake structure, which is consistent with the generally understood concept that nitrate degradation occurs as a result of surficial influences. Other constituents also showed a relationship that suggests that water quality improves with depth as discussed below.

Total Dissolved Solids - Data on total dissolved solids in ground water in the study area varies widely, although it is characteristically high, up to 1,000 mg/l, in many areas (see TDS map). Discovery Bay is notable for significantly lower TDS in ground water with all measured values between 500 and 600 mg/l. As discussed further below, this information lends support to the theory that the ground-water system in that area may be hydraulically distinct from the depositional areas to the west and perhaps the north. This hydraulic distinction is not apparent from the ground-water elevation maps discussed previously because of a lack of data around Discovery Bay.

Other constituents of ground-water quality, including electrical conductivity, were plotted as a function of the depth of the well intake structure. Each of these indicates a slight trend of better water quality with depth. Considering a very strong relationship with nitrate, which is usually derived from surficial sources, it may be possible that there is some degradation in ground-water quality (besides nitrate) that is a result of the same influences. However, the preponderance of the data suggests that water quality is naturally high in TDS (up to 1,000 mg/l) and other constituents

such as chloride, and that local degradation may have occurred possibly due to man-made influences.

Nitrate - Nitrate in ground water is widely distributed in the study area, with some values exceeding the maximum contaminant level (MCL) set by EPA for drinking water (45 mg/l as nitrate). The eastern portion of the study area is notable as having significantly lower values; the wells in Discovery Bay have no detectable nitrate present. While the occurrence of nitrate in ground water in this area has generally been attributed to agricultural influences, its occurrence is clearly limited to the upper sequences of aquifer materials as reflected in the plot of nitrate concentration versus depth of well intake structures. For the available data, nitrate concentrations decline appreciably for wells completed below 200 feet; i.e., for wells where the top of the perforations are 200 feet or more below the surface. This suggests that, in many cases, nitrate contamination may be mitigable through well design, for example, by incorporation of wells seals to 200 feet and limitation of well screens to depths below 200 feet.

Aquifer Confinement

The representative hydrographs and contour maps analyzed for this investigation are included at the back of the report under Exhibits. The wells monitored by ECCID are widely distributed throughout the region and are representative of the main aquifer system which occurs in the upper 300 to 400 feet below ground surface. The water level data reflects primarily conditions in the western portion of the study area, with most of that falling within the Alluvial Plain depositional region but extending into the Marginal Delta Dune region around Oakley. Considering the depositional region as well as the consistencies in data from well to well, the aquifer system appears to act locally confined. That is, there appears to be hydraulic continuity from the shallow aquifer materials to the deeper ones as reflected by the similarities in water levels from all wells.

The hypothesis of local confinement is supported by the apparent discontinuous nature of aquifer materials as reflected in the cross sections discussed in the previous chapter. Under this model, some local confinement would be expected as a result of the presence of clay beds and would affect the drawdown characteristics of wells, for example. However, these beds are not areally extensive and hydraulic equilibrium would likely be reached between shallow and deep zones when wells are inactive (e.g., in the winter). In the Brentwood area, this is consistent with the experience that well sealing can successfully mitigate nitrate degradation by preventing locally induce downward migration of shallow ground water as a result of deeper pumping.

In contrast to the apparent conditions in the Alluvial Plain, municipal wells in Discovery Bay produce from a zone which appears to be confined by an extensive layer of clay material (see Cross Sections 1 and C). The confinement of the main aquifer in the Discovery Bay area is indicated also by the difference in head between the deep zone and a shallow brackish zone which has caused some problems in operation of the municipal well facilities. These problems have been shown to be effectively mitigated by sealing the well through the brackish zone to achieve complete hydraulic isolation of both the deeper aquifer and the well structures from the brackish aquifer.

The apparent confinement of the main aquifer at Discovery Bay appears to be representative of the Fluvial Plain region. The same may not be true immediately north into the Delta Islands where the cross section interpretation seems to make confinement more difficult to correlate and there is no water level data for added support.

Recharge Sources

The study area consists of an aquifer system having a mix of depositional patterns as discussed in Chapter II. From the depositional models, it is not unlikely that there are different sources of recharge of the various aquifer materials which are sources of water supply. From water level data, it is clear that ground water is moving from the Coast Range foothills toward the east through the Alluvial Plain and Marginal Delta Dune regions. As discussed above, there is no clear extensive confinement of aquifer materials in these areas. In contrast, ground water developed in municipal supply wells in Discovery Bay appears to be confined and, when water quality information is considered, it is likely that there is different recharge source as well. One possibility is that the Fluvial Plain region, where Discovery Bay is located, is recharged from the south in a manner that is consistent with the depositional model discussed previously. Again, it should be noted that this is not reflected on the ground-water elevation contour maps primarily because of lack of data around Discovery Bay.

Recharge of the Delta Islands may be a combination of fluvial influences from the south but also the hydraulics of the Delta system. The lack of pronounced seasonal and climatic influences on water levels as cited previously underscores the likely significance of the Delta system with regard to recharge. The latter is especially true considering the lack of the correlatable confinement that is a characteristic of the Fluvial Plain. No other conclusions regarding recharge could be made except for those cited above mainly because of the lack of water level information outside of the ECCID area. It should be noted that in some areas, particularly to the north in the Delta Islands and

Marginal Delta Dune regions, significant increases in pumpage may have the potential to induce recharge from poor quality, or brackish, water as a result of proximity to Bay and Delta influences. The inability to assess recharge in parts of the study area underscores the need to develop a broader range of water level monitoring outside the boundaries of ECCID. In Discovery Bay particularly, where ground water is relied on for municipal water supply purposes, it would be desirable to investigate ground-water conditions in more detail to the north, south, and east to delineate flow direction and potential recharge influences.

Basin Yield

Historical conditions as reflected in the hydrographs and contour maps discussed above suggest that, for much of the Alluvial Plain and Marginal Delta Dune regions, where most of the historical data is available, extraction activities have not exceeded the sustainable yield of the ground-water system. Here, sustainable yield, sometimes called "safe" yield, refers to that level at which extraction has not adversely impacted ground-water conditions, e.g. levels, storage, quality, etc. As cited above, stability in ground-water levels and storage reflected in the well hydrographs and the ground-water contour maps.

Although it may be stated that the sustainable yield in much of the east County area has not been adversely impacted as reflected by the ground-water level data, less certainty exists at Discovery Bay and other areas, including Brentwood (deeper zones), because of the lack of data and/or short period of record. It is unlikely, however, that sustainable yield, as defined above, has been exceeded because of the general lack of ground-water development throughout much of these other areas. Furthermore, areas in the vicinity of the river and Delta systems have a large source of potential recharge which could offset potential adverse impacts due to increased extraction.

Sustainable yield also refers to that level at which ground-water extraction does not degrade water quality. On this matter, less is apparent based on available water quality data in the study area. It is likely that pumping on a local level in the Brentwood area, for example, induces some degradation by nitrate. However, it is also likely that some of these local influences are caused by, and can therefore be mitigated through, well design practices. On a regional scale, significant increases in pumpage could cause migration of poor quality water in some areas, particularly the Alluvial Plain region, which could degrade water quality (e.g., nitrate, TDS). In the Delta areas, increased extraction may not affect quantity, but may induce movement of shallow brackish water that would be a hazard to fresh ground-water sources. Again, these considerations further point to the need for

expanded monitoring in parts of the study area to better understand local conditions beyond where historical data is concentrated.

IV. Conclusions

Data Quantity and Quality

Initial efforts to collect and organize information resulted in the development of a large data base of well driller's reports and ground-water levels which formed the basis for addressing the investigation objectives. Ground-water quality data was the most sparse and lacking of the primary categories of information sought for the study. As a result, some firm conclusions could be drawn with respect to the occurrence and distribution of aquifer materials, as well as historical ground-water conditions, but with limited conclusions regarding ground-water quality.

Well data in the form of driller's reports permitted construction of geologic cross sections covering the entire study area. These tools can serve various future water supply development needs including targeting depths for exploratory test holes prior to new well construction. Since there was a limited quantity of electrical logs available, which provide precise delineation of lithologies, the cross sections should be reassessed when new logs become available (from new wells).

The data did not permit quantification of how much additional pumpage might be sustained in the basin without impacting the sustainable yield. As a result, it is recommended below that any significant incremental pumpage be monitored to determine if sustainable yield is exceeded. This can be accomplished by identifying key representative wells for the purposes of tracking water levels in the form of updated hydrographs and water level contour maps. These tools will permit detection of adverse or downward trends in water levels or flow patterns; they will also allow identification of appropriate local or other corrective measures (e.g., relocation or redistribution of pumpage, augmentation of recharge, etc.).

Because of the lack of water quality data, a systematic ground-water quality sampling and testing program is also recommended to more fully assess ground-water quality in the region and to serve as a basis for future ground-water management activities.

Hydrogeologic Regions

Four ground-water regions were delineated in the study area which are distinguished by the manner in which aquifer materials were distributed and deposited. These include the Alluvial Plain, Fluvial Plain, Delta Islands, and the Marginal Delta Dune. For reference, the aquifer system underlying the City of Brentwood is representative of the Alluvial Plain region; the aquifer system in Discovery Bay is representative of the Fluvial Plain; Bethel Island is central to the Delta Islands regions; and Oakley is within the Marginal Delta Dunes. The western extent of the entire hydrogeologic system is at the Coast Range foothills which represent the most distinct hydrogeologic boundary in the study area.

For most of the study area, the extent of aquifer materials capable of yielding quantities of water suitable for municipal and/or agricultural purposes is to depths of 400 feet. Each region has characteristic quantities of aquifer materials (i.e., net sand thickness) that are related to depositional patterns.

The depositional models are useful for a number of purposes. For example, differences in the occurence and patterns of aquifer units, as well as ground-water quality and quantity, between the western part of the study area (represented by Brentwood) and the eastern (represented by Discovery Bay as well as the other regions) can be attributed to the natural history (i.e., geology) of the region. The distinctions between the Alluvial Plain and the Fluvial Plain likely include different recharge sources which explains some significant differences in water quality between Brentwood and Discovery Bay, for example.

Ground-Water Conditions

Water level hydrographs reflect seasonal fluctuations and, in some areas, climatic influences (such as drought periods) on ground water. In general, comparing conditions since the late 1950's to present, the data indicates that there is no apparent overdraft of the ground-water system, suggesting that historical extraction patterns have not exceeded the sustainable yield of the system. However, there may be localized pumping influences around Brentwood that should be investigated further. In that area, newer municipal wells which tap deeper aquifer units (below 300 feet) have apparent lower static water levels than measured in the surrounding ECCID data base.

Ground water contour maps, constructed to depict ground-water levels at various times since the late 1950's, reveal patterns and directions of ground-water flow throughout a large portion of the study

area from the western edge toward Discovery Bay. The maps indicate that there have been no significant changes in movement of ground water within the study area since the late 1950's. Furthermore, there have apparently been limited, if any, adverse impacts to ground-water storage in the study area as a result historical use patterns. Impacts appear to be limited to the occurrence of elevated nitrate concentrations in shallow ground water which is likely a result of agriculture and, in some cases, possibly septic systems.

Ground-Water Quality

Ground-water quality data, while sparse, indicates wide variations in TDS and nitrate concentrations. Discovery Bay is notable for relatively better water quality in terms of lower TDS and no detectable nitrate concentrations when compared to areas directly to the west. This is likely attributable to the distinct depositional environments associated with the two areas, as cited previously, as well as differences in historical land use. Nitrate problems in the greater Brentwood area are likely a result of surficial influences by agricultural practices where localized infiltration has caused introduction of nitrogen to shallow ground water. Such problems are most likely best addressed through specific well design features, such as selective well completions and deep annular well seals, to hydraulically isolate the shallow zones from the target completion intervals (i.e., water zones) in supply wells.

In the northern hydrogeologic regions, shallow, poor quality water (i.e., brackish) may exist as a result of influence by the Bay in the Delta over geologic time. The extend of this problem can be identified through exploration tools such as electrical logs and may be mitigated through well design. The known shallow brackish zone at Discovery Bay is considered anomalous in that the fluvial depositional model does not suggest a source of the poor quality water.

Ground-Water Exploration and Development Potential

Based on the geologic evaluation and cross sections, some general conclusions may be drawn regarding future ground-water exploration and development in the study area. In general, exploration should be confined to depths above about 400 feet except within a mile or two of the Coast Range Foothills where depths of exploration would be even shallower. Most alluvium sand and gravels beds occur above about 350 feet depth. Some thin sand or sandstone beds may be found below 400 feet.

In the Fluvial Plain region, wells of relatively high yields (up to 2,200 gpm capacity) have been constructed above 400 feet in the Discovery Bay area. However, shallow and possibly deeper brackish water problems have been found which must be avoided. The better water quality (in terms of lower TDS) developed in the municipal wells in Discovery Bay, as compared to the other regions, is likely due to the existence of a separate recharge source to the south. This source is likely related to the depositional pattern of the river system.

Development of wells in the Fluvial Plain region, with characteristics similar to the Discovery Bay municipal wells, may be possible particularly north of that community. However, this area does not have a population base to warrant such development at present. It is expected that exploration below 400 feet will not encounter suitable aquifers for water supply purposes.

In the eastern Delta Islands, wells of moderate yield appear to have been constructed. From the drillers' reports, depths of 400 feet appear to be the bottom of exploration potential. Brackish or saline water quality problems, especially in shallow aquifers above 200 feet, may be found as discussed previously.

In the Marginal Delta Dunes area, limited exploration has occurred to 400 feet. Potentially moderate yielding wells may be possible, but exploration is needed to evaluate deeper aquifer potential. Potential shallow aquifer problems of brackish water may be present and should be evaluated as part of any exploration effort in that area.

In the Alluvial Plain area, local areas of thick alluvial sand and gravel above 350 feet represent the best potential for development of ground-water sources. Two areas have been identified, one to the north near City of Brentwood Wells 6, 7, and 8, and an area to the south near City Well 13. In the southern area, additional exploration to the northeast may allow mapping of the sand beds of the

channel sequence. Exploration between the north and south area is recommended to evaluate the possibility of correlation between the two areas, which may reveal a greater distribution of aquifer units suitable for ground-water extraction.

Some development of deeper aquifers below 300 feet has occurred, but has resulted in low well yields (less than 400 gpm capacity) due to poor aquifer characteristics, although good water quality was encountered (Brentwood Well 13). In general, it is suspected that high yielding wells (1,000 gpm capacity or more) suitable for municipal or irrigation needs will only be found in the alluvium to about 300 to 350 feet in depth. Shallow water quality has been found to be degraded by the presence of nitrate in the upper 100 to 200 feet of the alluvium zone and must be considered in well development programs. Exploration to the east, outside of the trends of the stream channel sand zones, is not likely to be encouraging based on the results of this subsurface investigation.

The area west of Oakley towards Antioch is poorly defined, but is suspected to be a poor ground-water supply region due to lack of alluvium deposits and possible brackish water quality problems. The Byron area shows very low exploration potential due to limited sand beds present and its apparent marginal relationship to the greater Alluvial Plain region in which Brentwood is central as well as representative.

Recommendations

The east County water entities are in a position to manage ground-water resources at a point in time that impacts of future development can readily be assessed for a system which has been relatively stable over several decades. Considering the vertical extent as well as the quality of aquifer materials present in the study area, the entities should prepare to react to any adverse changes in the historical water level and flow patterns caused by changes in extraction patterns. This need is underscored by the fact that water quality is poor in many areas (e.g., high TDS and nitrate) and the aquifer system is limited areally and vertically (i.e., to depths of about 400 feet) as reflected in the geologic cross sections constructed for this investigation.

The east County entities should be concerned with any increment of ground-water extraction that results in downward trends in water levels or shifts in flow direction. The affected entities should consider instituting a program to monitor conditions on a periodic basis. Since the basin extends across multiple boundaries of influence, it would be beneficial to share information in order to completely depict regional ground-water conditions. This program should consist of:

- identification of key wells for water level monitoring and water quality testing.

- updating hydrographs for key wells on a semi-annual (spring and fall) basis.

- updating water level contour maps on a semi-annual (spring and fall) basis.

- production of an annual report which incorporates updated hydrographs, contour maps, and water quality test results; the report should highlight any significant changes in ground-water use patterns.

Such a program is conducted in many major ground-water basins in the State. The various maps and hydrographs created for this investigation can serve as initial products of an ongoing monitoring program. These products can be easily interpreted for ground-water management purposes including protection of water quality and limiting of extraction to the sustainable yield of the basin. They would also be useful with efforts to increase sustainable yield, correspondingly increasing pumpage, by management actions such as augmenting recharge and treatment of high TDS and/or nitrate-contaminated water.

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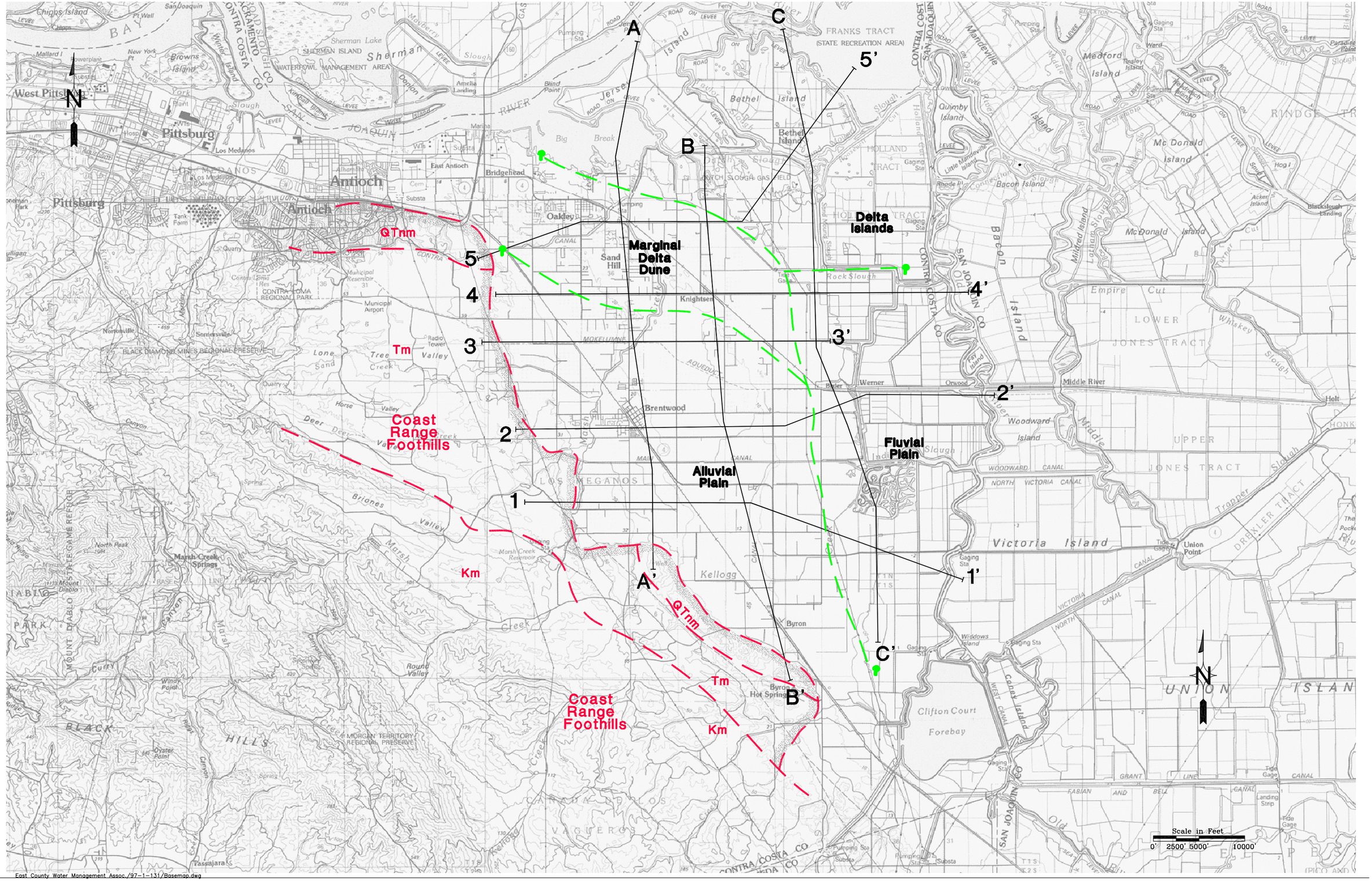
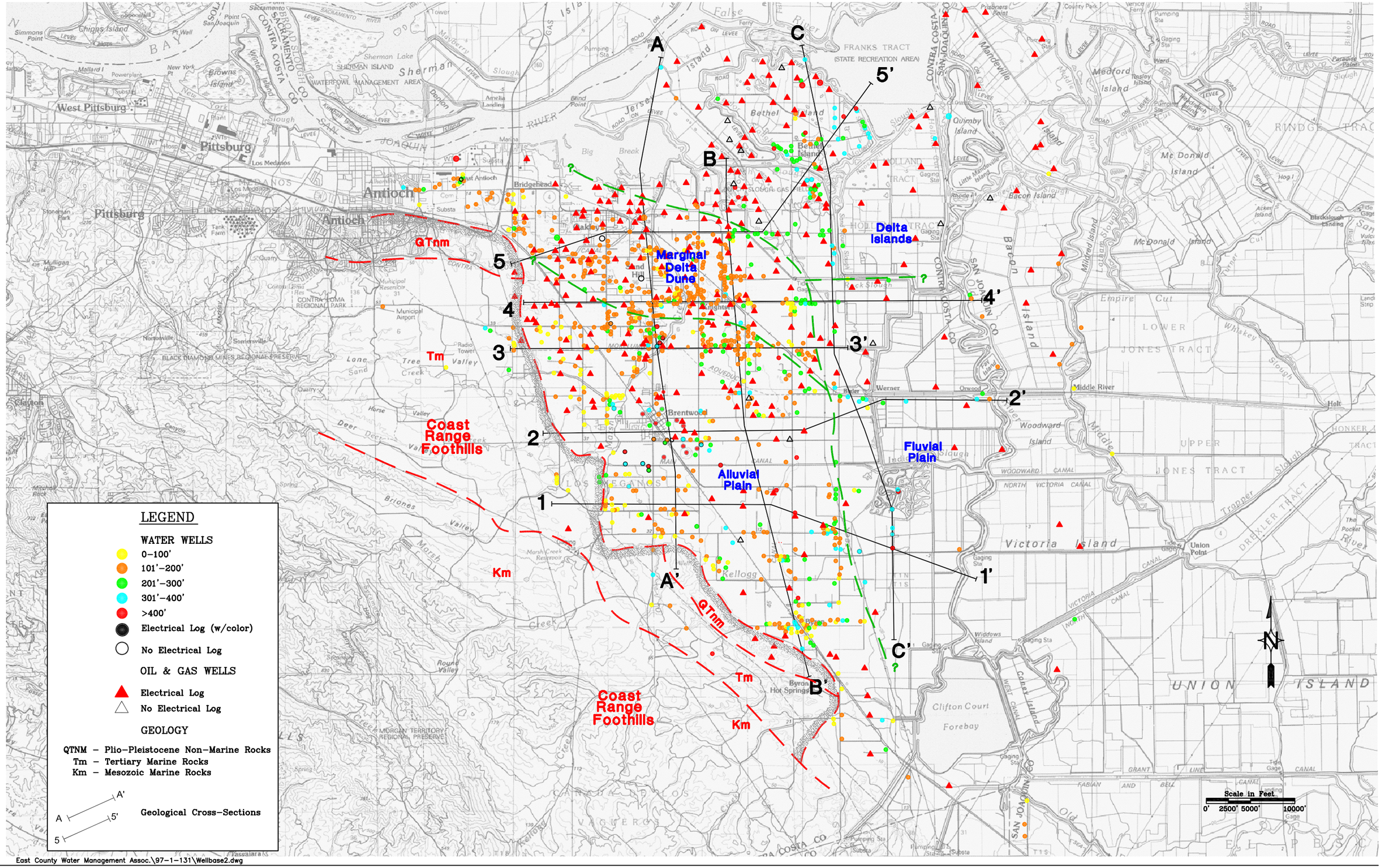
E X H I B I T S



East County Water Management Assoc./97-1-131/Basemap.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Base Map
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

WATER WELLS

- 0–100'
- 101'–200'
- 201'–300'
- 301'–400'
- >400'
- Electrical Log (w/color)
- No Electrical Log

OIL & GAS WELLS

- Electrical Log
- No Electrical Log

GEOLOGY

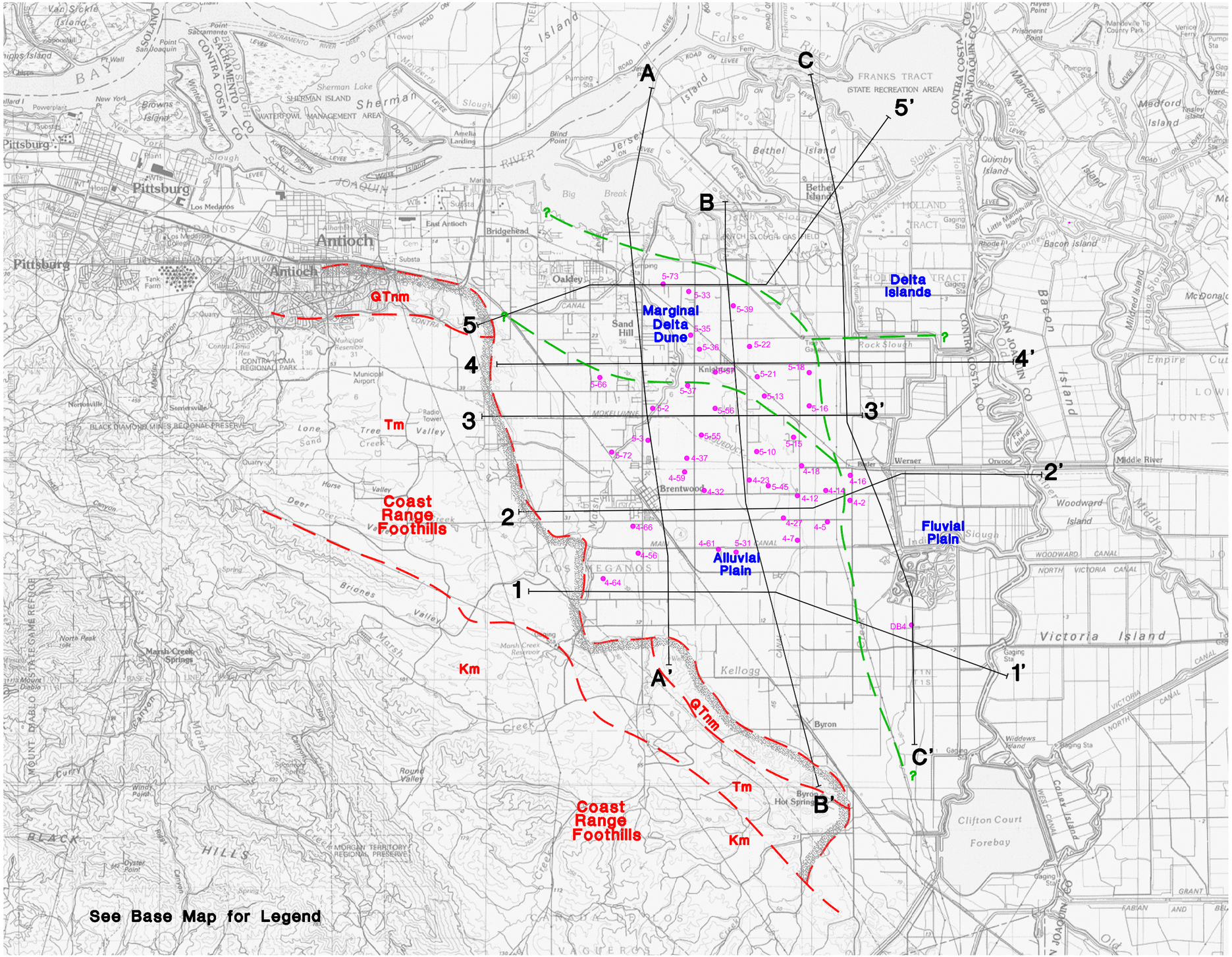
QTNM – Plio–Pleistocene Non–Marine Rocks
Tm – Tertiary Marine Rocks
Km – Mesozoic Marine Rocks

A–A' 5–5' Geological Cross–Sections

East County Water Management Assoc.\97–1–131\Wellbase2.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Well Map
East County Water Management Association
Ground-Water Resources Assessment



East County Water Management Assoc./97-1-131/Hydrobase.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Well Hydrograph Location Map
East County Water Management Association
Ground-Water Resources Assessment

1

1'

ELEVATION

500
400
300
200
100
0
−100
−200
−300
−400
−500
−600
−700
−800
−900
−1000
−1100
−1200

ALLUVIAL PLAIN

FLUVIAL PLAIN

Concord Ave.

Marsh Ck.

Canal

Walnut Blvd.

X-SECTION A-A'

X-SECTION B-B'

X-SECTION C-C'

Discovery Bay

Kellog Ck.

BEND

Old River

Tm

26H 200
25M 120
25K 100
25K 300
DOG 25L ?
30E 118
30F 139
P.N. DOG 30J TOL ? ? ? bfw?
DOG 29C R.R
P.N. 29Q 396
DOG 29H TOL 436 ? bfw?
P.S 28C 140
P.N. 28P
P.S 28C 200
P.S 28B 260
BEND Canal
27E 500
DOG 27M 420
P.N 27P 320
DOG 27Q 360
27R
P.S. DOG 26E
35E 360
D.B. #5 375
D.B. #4 750
31G 120

TOL 819 SAL 25L
SAL 30J
TOL 819 29C
bfw? 29H
TOL 628 27M
TOL 714 27P
TOL 818 26E

LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

NOTES: DOG=Division Oil & Gas

PROJECTED
P.N. – North
P.S. – South
P.S.E. – Southeast
P.N.W. – Northwest

QTnm = Plio Pleistocene Non–Marine Rocks
Tm = Tertiary Marine Rocks
TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'
Vertical Exag. 20X

East County Water Management Assoc./97–1–131/X–Sect1–1'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section 1-1'
East County Water Management Association
Ground-Water Resources Assessment

2 — 2'

ALLUVIAL PLAIN — FLUVIAL PLAIN

ELEVATION

CITY OF BRENTWOOD

Deer Creek; P.S. DOG 14E; Fairview Ave.; 14M; N.S. DOG 14H; Minn. Ave.; DOG 23A; P.S. 13E; Marsh Creek; P.S. 13D; P.S. CB 5; P.S. DOG 12Q; P.N. CB 10; P.S. DOG 13B; 13J; Walnut Boulevard; CROSS SECTION A-A'; P.S. DOG 18K; CB 13; Spellers Ave.; P.S. 17E; 17N; CROSS SECTION B-B'; 17R; 16E; 16F; P.S. DOG 16G; Byron Hwy.; P.N. 22E; P.S. 15E; BEND; DOG 15N; Bixler Rd.; P.S. 14D; P.S. 14D; CROSS SECTION C-C'; 14B; 14B; Werner Dredge Cut; P.S.E. DOG 11K; BEND; 14A; 13C; DOG 7P; DOG 18B; 18A; 17D; 17; Old River

Tm

100; 140; 335; 300; 460; 202; 120; 320; 190; 160; 245; 740; 260; 800; 295; 340; 380; 320; 220; 320; 380; 186

TOL 581; TOL 810; SAL; 14E; TOL 1631; SAL; Nortonville Shale; 14H; 23A; TOL 878; 12Q; TOL 816; SAL; 13B; TOL 900; Thin S.S. & Shale; 18K; TOL 869; 16G; TOL 892; 15N; TOL 868; 14A; TOL 1363; 7P; TOL 864; Brac?; 18B

LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

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P.S.E. – Southeast
P.N.W. – Northwest

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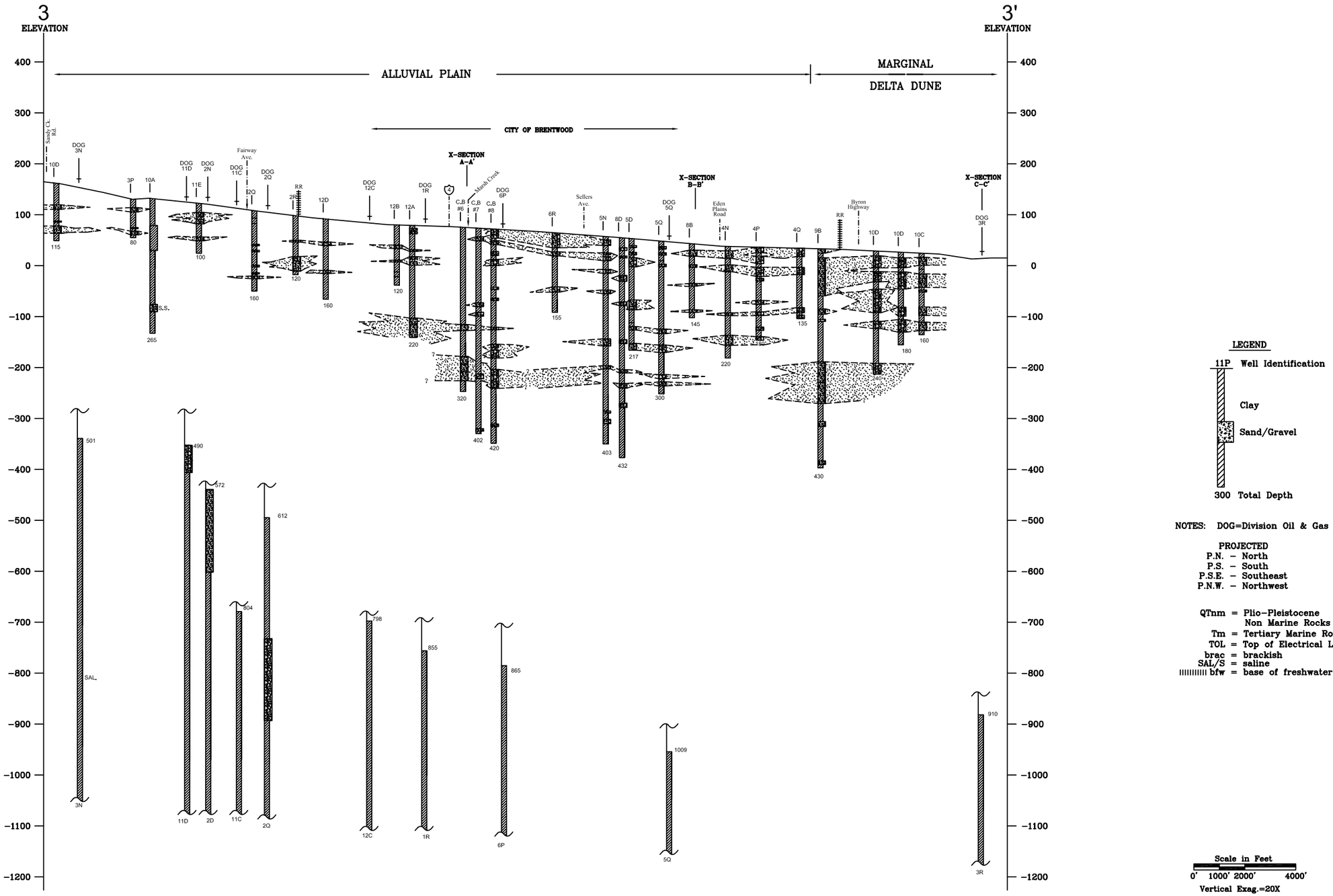
Tm = Tertiary Marine Rocks
TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'

East County Water Management Assoc./97-1-131/X-Sect2-2'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section 2-2'
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

NOTES: DOG=Division Oil & Gas

PROJECTED
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P.N.W. – Northwest

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TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'
Vertical Exag.=20X

East County Water Management Assoc./97-1-131/X-Sect3-3'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section 3-3'
East County Water Management Association
Ground-Water Resources Assessment

4 ELEVATION

4' ELEVATION

MARGINAL DELTA DUNE

FLUVIAL PLAIN

OLD DUNE FIELD

KNIGHTSEN

VEALE TRACT

PALM TRACT

Cross-Section A-A'

Cross-Section B-B'

Cross-Section C-C'

Empire Ave.

P.N. DOG 2N

DOG 2C

P.N. DOG 2K

Ohara Ave.

Anderson Lane

Marsh Creek

DOG 6A

Sellers Ave.

DOG 5B

Edens Plains Road

DOG 4A

Byron Highway

Delta Road

P.S. DOG 35L

P.N. DOG 3J

P.S. 36M

Slough

P.N. DOG 6M

Old River

Tm

TOL 80

BRAC.

TOL 572

SAL

TOL 658

SNDY

TOL 979

TOL 791

bfw?

TOL 811

TOL 990

TOL 508

BRAC.?

TOL 863

bfw

TOL 603

bfw

2N

2C

2K

6A

5B

4A

3J

35L

35R

5M

LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

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P.S. – South
P.S.E. – Southeast
P.N.W. – Northwest

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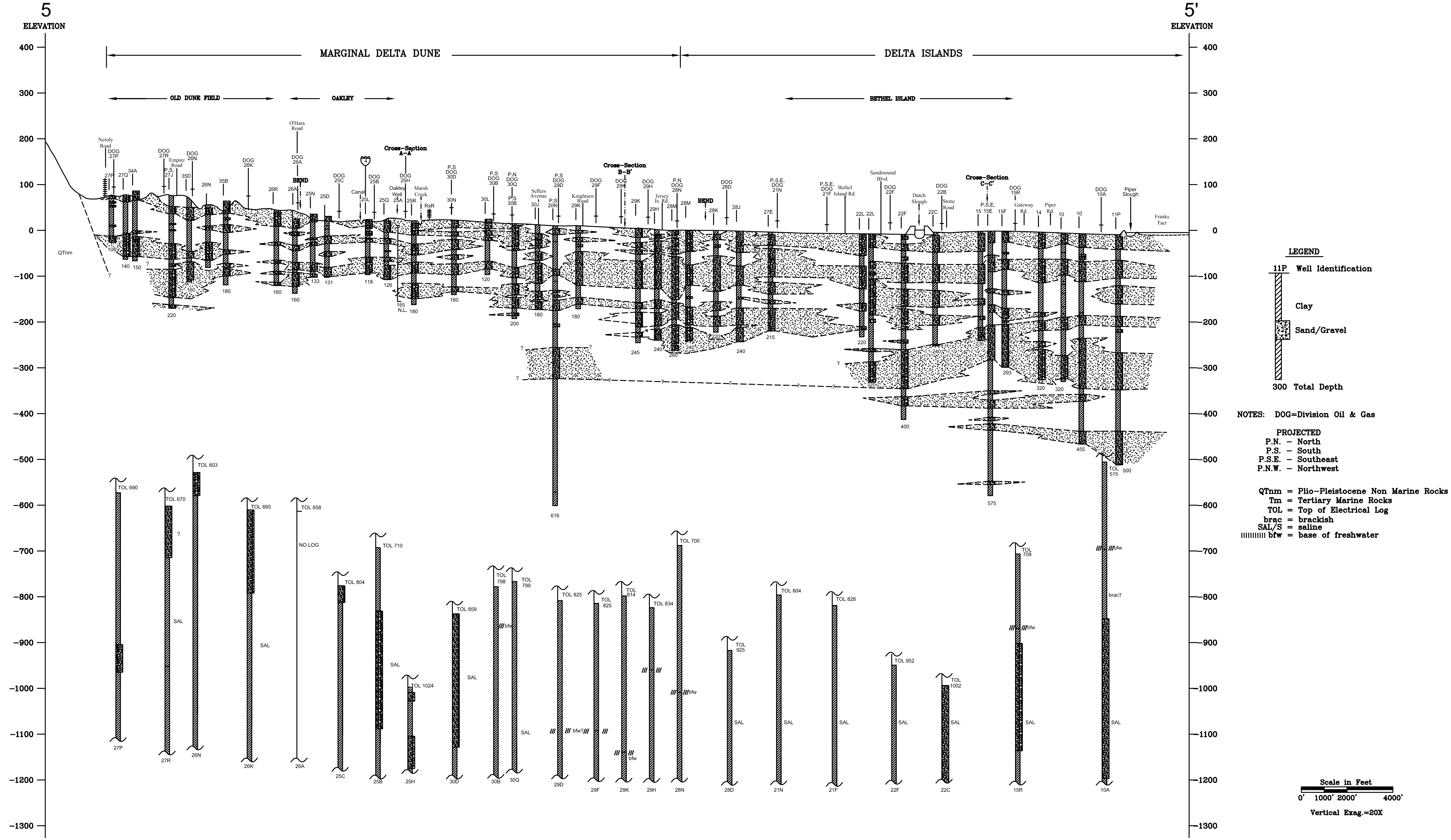
TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'
Vertical Exag.=20X

East County Water Management Assoc./97-1-131/X-Sec4-4'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section 4-4'
East County Water Management Association
Ground-Water Resources Assessment



East County Water Management Assoc./97-1-131/X-Sect5-5'.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Geologic Cross Section 5-5'
East County Water Management Association
Ground-Water Resources Assessment

A

A'

ELEVATION

ELEVATION

DELTA ISLANDS

MARGINAL DETA DUNE

ALLUVIAL PLAIN

JERSEY ISLAND

BIG BREAK

City of Brentwood

CROSS-SECTION 5-5'

CROSS-SECTION 4-4'

CROSS-SECTION 3-3'

CROSS-SECTION 2-2'

CROSS-SECTION 1-1'

San Joaquin River

Dutch Slough

Canal

OAKLEY WELL 25A

Laurel Rd.

Delta Rd.

Marsh Ck.

Balfour Rd.

EECID Main Canal

Payne Rd.

Concord Ave.

Marsh Creek Rd.

Kellog Ck.

DOG 6P, 7N, 6N, 7F, 7O, D.W DOG 7R, 24L, 24J, 24Q, 25B, 25G, 25H, 25K, 31C, 31Q, 31N, 36R, 6D, 6E, 1J, 6M, CB #3, C.B. #6, CB #7, CB #6, 1R, 12A, 17D, P.E. 12A, 7N, 18D, 18D, 18E, DOG 18K, P.E. C.B. #4, C.B. #4, 18M, C.B. #13, P.W. 18Q, C.B.#12, P.W. C.B. #1, P.W. 19H, 19J, 19Q, 30B, 30F, DOG 30J, P.W. 30R, 30Q, 31C, QTnm

TOL 825, SAL, 6P

TOL 510, SAL, 7F

TOL 636, SAL, bfw, 7R

TOL 807, sndy SAL, 24L

TOL 552, SAL, 24J

TOL 848, SAL, 24Q

TOL 1028, SAL, 25B

TOL 710, SAL, 25G

TOL 1018, SAL, 25K

TOL 796, bfw ?, SAL, 31C

TOL 847, TOL 1001, SAL, 31Q, 31N

TOL 961, SAL, 1R

TOL 975, SAL, 12A

TOL 950, SAL, 7Q

TOL 900, Brac., 18K

740

30J

LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

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P.S. – South
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P.N.W. – Northwest

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TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'
Vertical Exag.=20X

East County Water Management Assoc.\97-1-131\X-SectA-A'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section A-A'
East County Water Management Association
Ground-Water Resources Assessment

B

ELEVATION

B'

ELEVATION

DELTA ISLANDS

MARGINAL DELTA DUNE

ALLUVIAL PLAIN

BYRON

CROSS-SECTION 5-5

CROSS-SECTION 4-4

CROSS-SECTION 3-3

CROSS-SECTION 2-2

CROSS-SECTION 1-1

BEND

Dutch Slough

Contra Costa Canal

Cypress Rd.

Delta Rd.

Sunset Rd.

Brentwood Rd.

Balfour Rd.

Marsh Ck. Rd.

Mokelumne Aqueduct

C.C.C.

EECID MAIN CANAL

EECID LATERIAL CANAL

KELLOG CREEK

CAMINO DIABLO ROAD

EDGE

P.W.

P.E.

DOG 17P, 20A, 20D, 20H, 20L, 20B, 20Q, 20N, 20R, 29B, 29F, 29K, 29Q, 32C, 32G, 32B, 32K, 32P, 32R, 5A, 5B, 5H, 4E, 5J, 5P, 5Q, 8B, 9D, 9E, 9F, 9M, 8R, 9N, 8Q, 16D, 16E, 17A, 16F, 17R, 21D, 28C, 28B, 29H, 28P, 27M, 33H, 33J, 34F, 33R, 34N, 34P, 4A, 3E, 3M, 3N, 10D, 10E, 10J

QTnm

TOL 800, 815, 814, 835, 798, 820, 805, 798, 825, 814, 792, 874, 1000, 1040, 824, 791, 915, 1000, 903, 1014, 886, 969, 1026, 1003, 915, 1002, 436, 625, 677, 1013, 801

SAL., Sndy brac., Sndy2 SAL., bfw ?, bfw2, N.L.

428, 400, 610, 240, 245, 230, 240, 200, 200, 285, 320, 240, 360, 160, 300, 240, 200, 248, 325, 320, 160, 245, 190, 110, 200, 500, 260, 175, 230, 360, 200, 184, 300, 380, 545, 190, 340, 305, 420

LEGEND

11P Well Identification

Clay

Sand/Gravel

300 Total Depth

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PROJECTED
P.N. – North
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P.S.E. – Southeast
P.N.W. – Northwest

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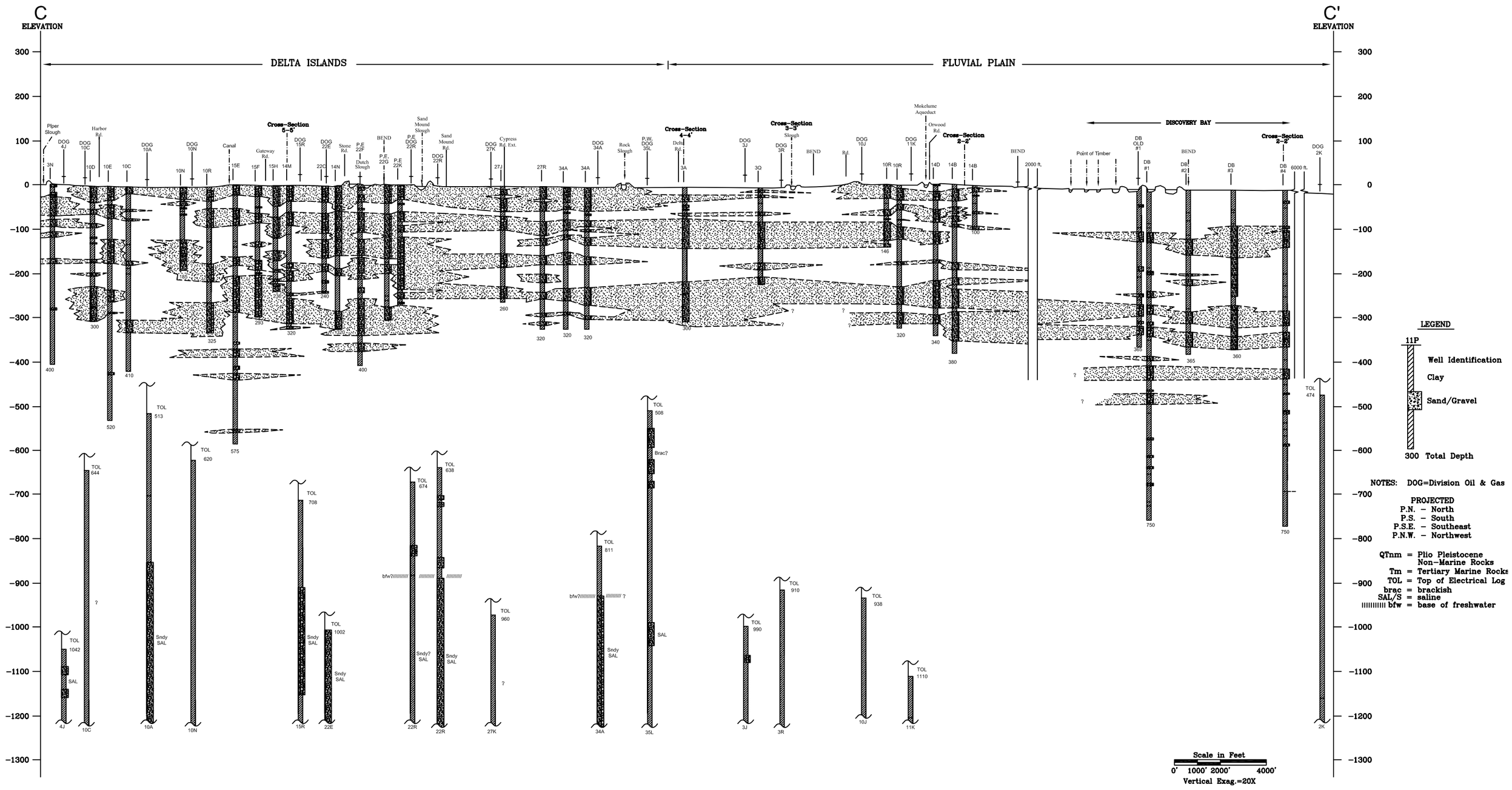
Tm = Tertiary Marine Rocl
TOL = Top of Electrical Log
brac = brackish
SAL/S = saline
bfw = base of freshwater

Scale in Feet
0' 1000' 2000' 4000'
Vertical Exag.=20X

East County Water Management Assoc.\97-1-131\X-SectB-B'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross Section B-B'
East County Water Management Association
Ground-Water Resources Assessment



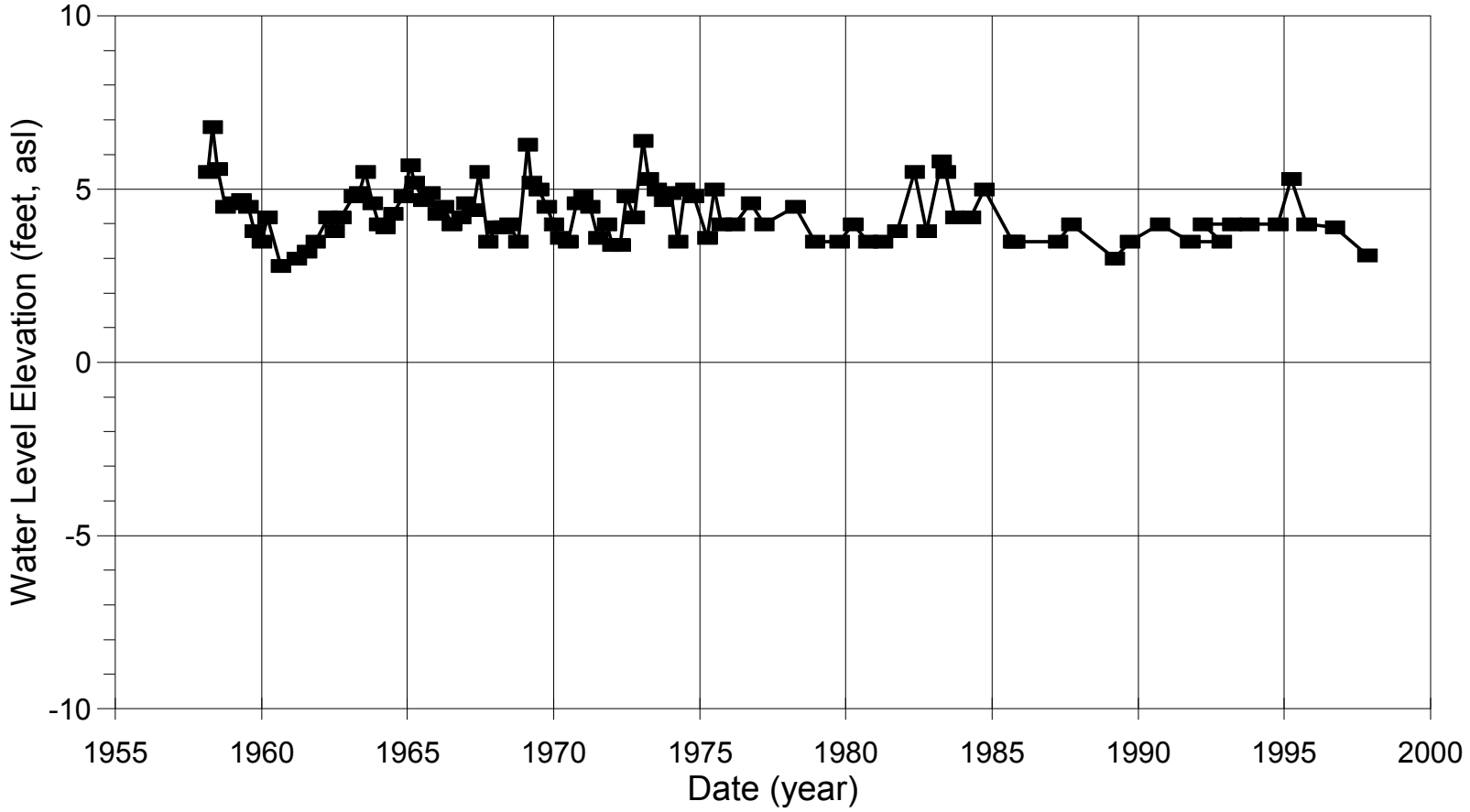
East County Water Management Assoc.\97-1-131\X-SectC-C'.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Geologic Cross-Section C-C'
East County Water Management Association
Ground-Water Resources Assessment

Water Level Elevation Hydrograph

ECCID Well T1N/R3E-22J1 4-1



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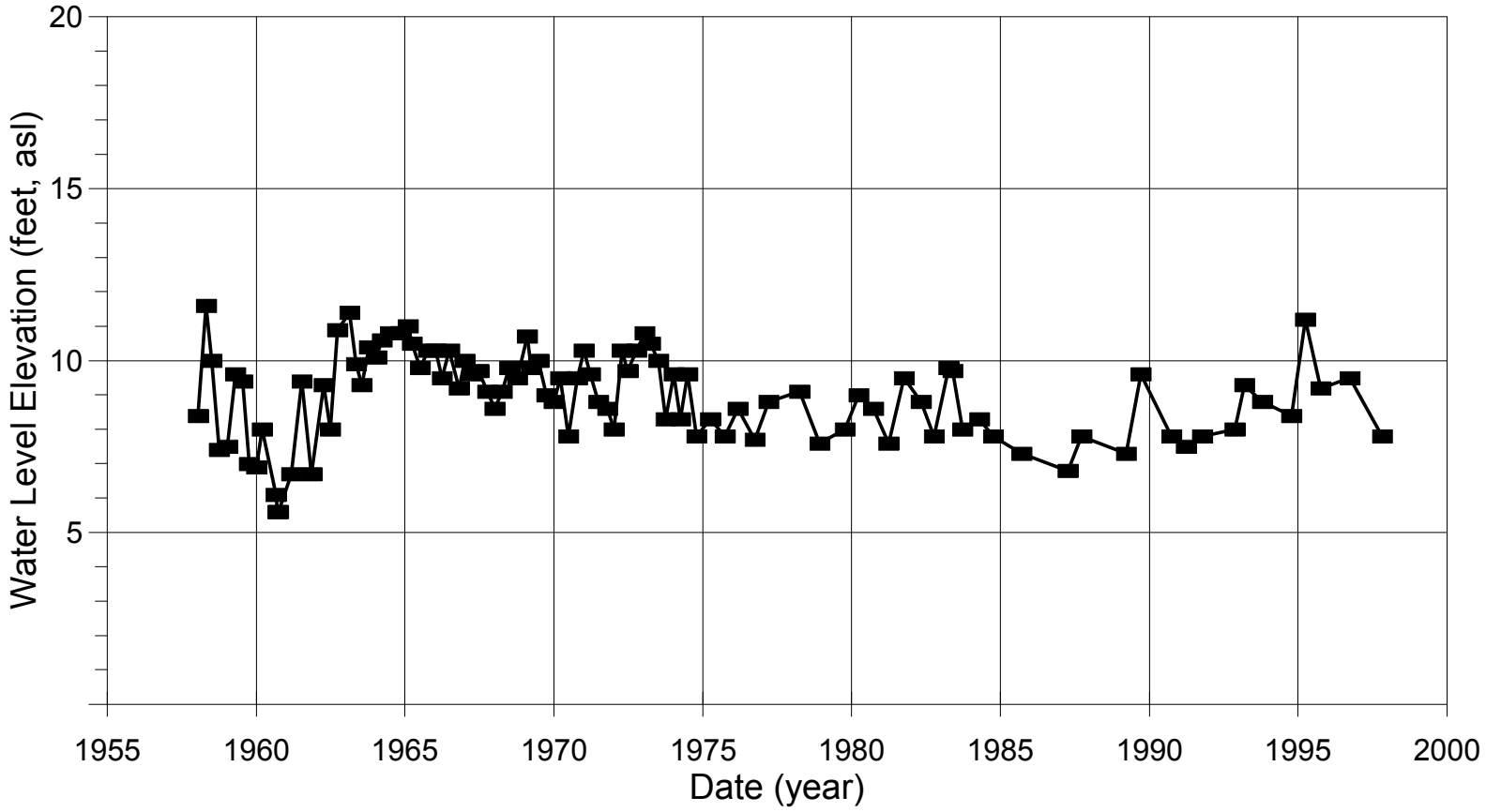
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-14m1 4-2



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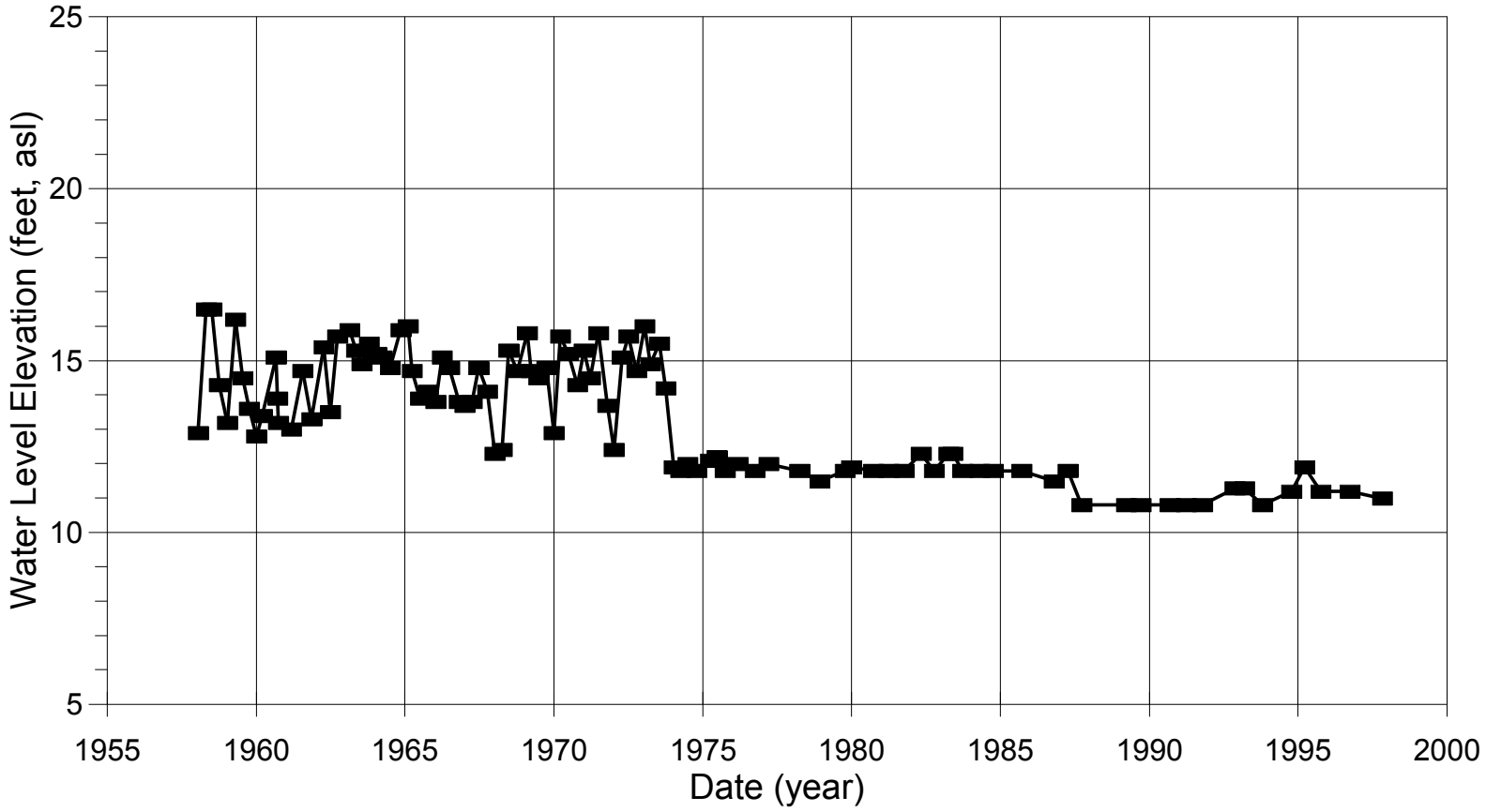
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-22b2 4-5



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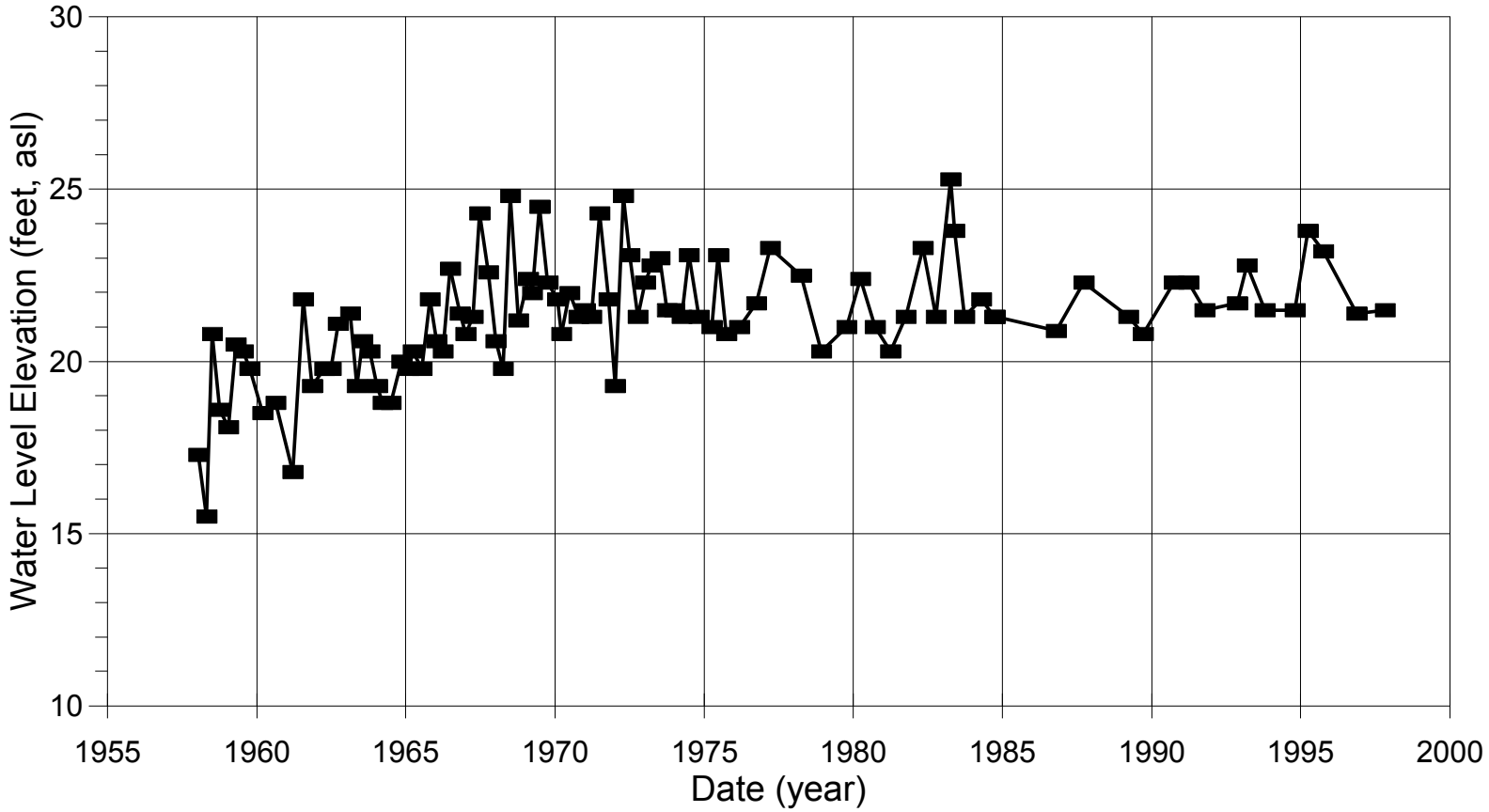
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-22e1 4-7



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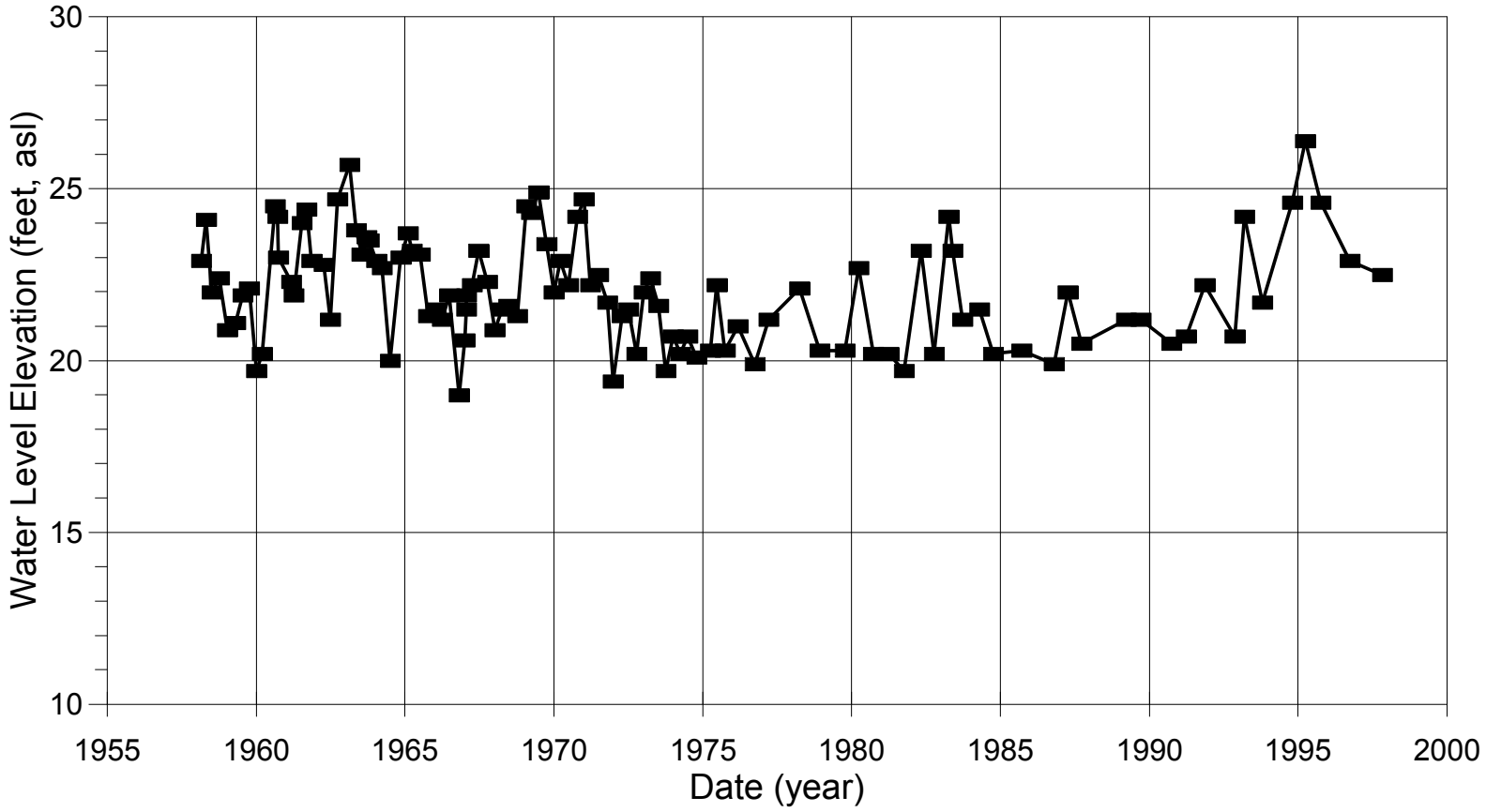
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-16j1 4-12



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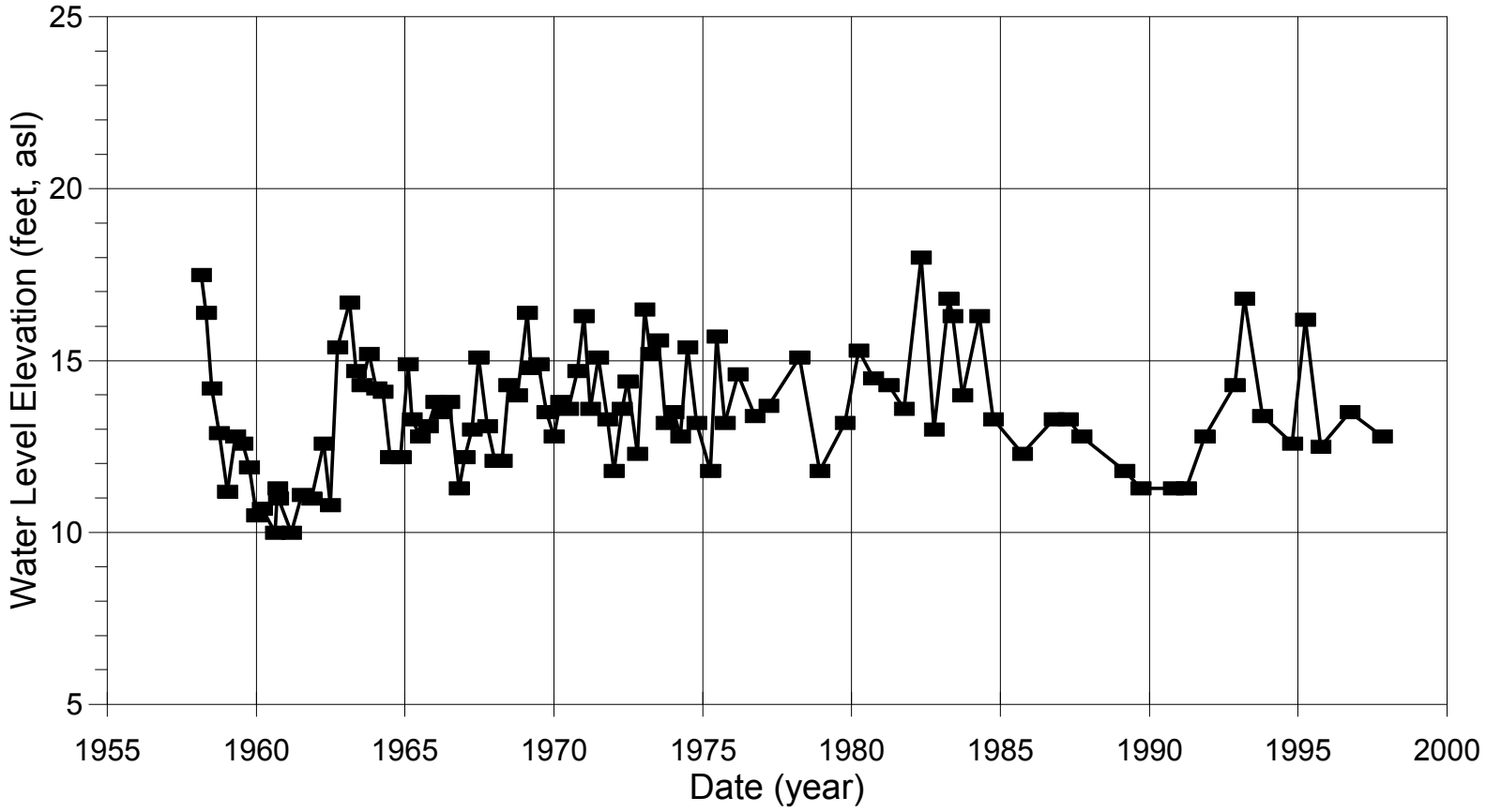
Water Level Elevation Hydrograph

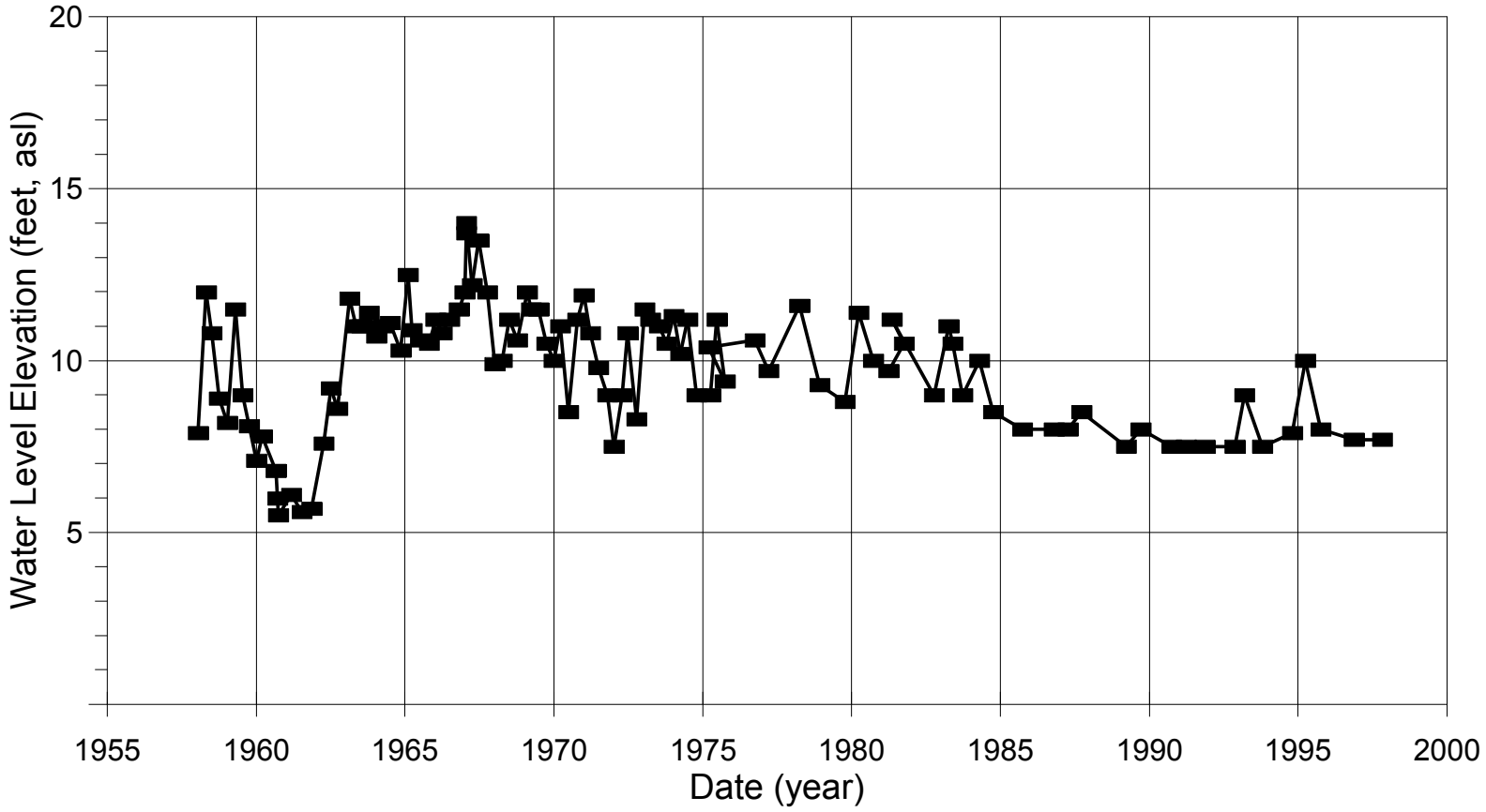
ECCID Well T1N/R3E-15G1 4-14



wlh.h:\projects\east county\data\summarydata.wb3

Water Level Elevation Hydrograph

ECCID Well T1N/R3E-15A1 4-16



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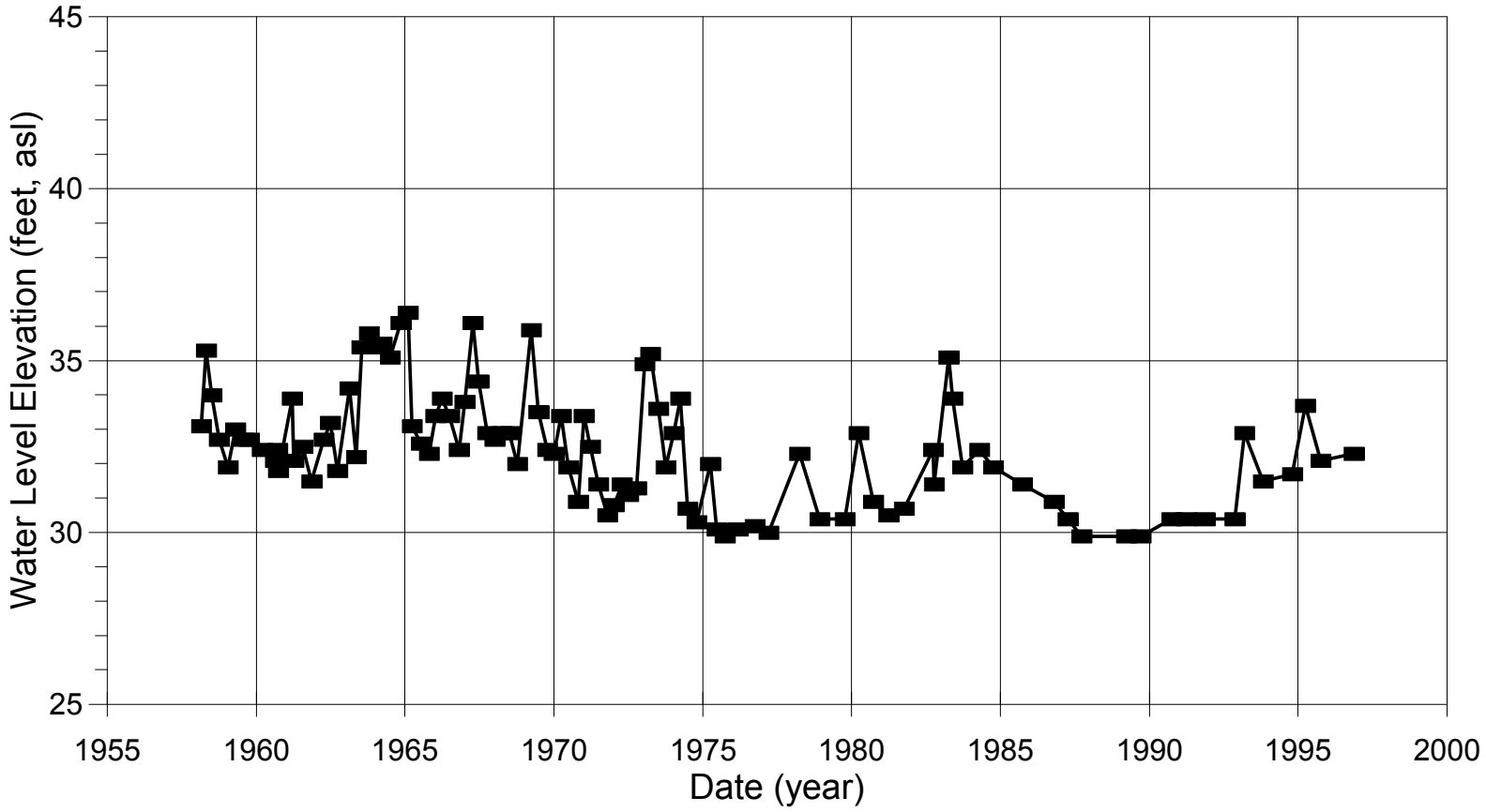
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-16D1 4-23



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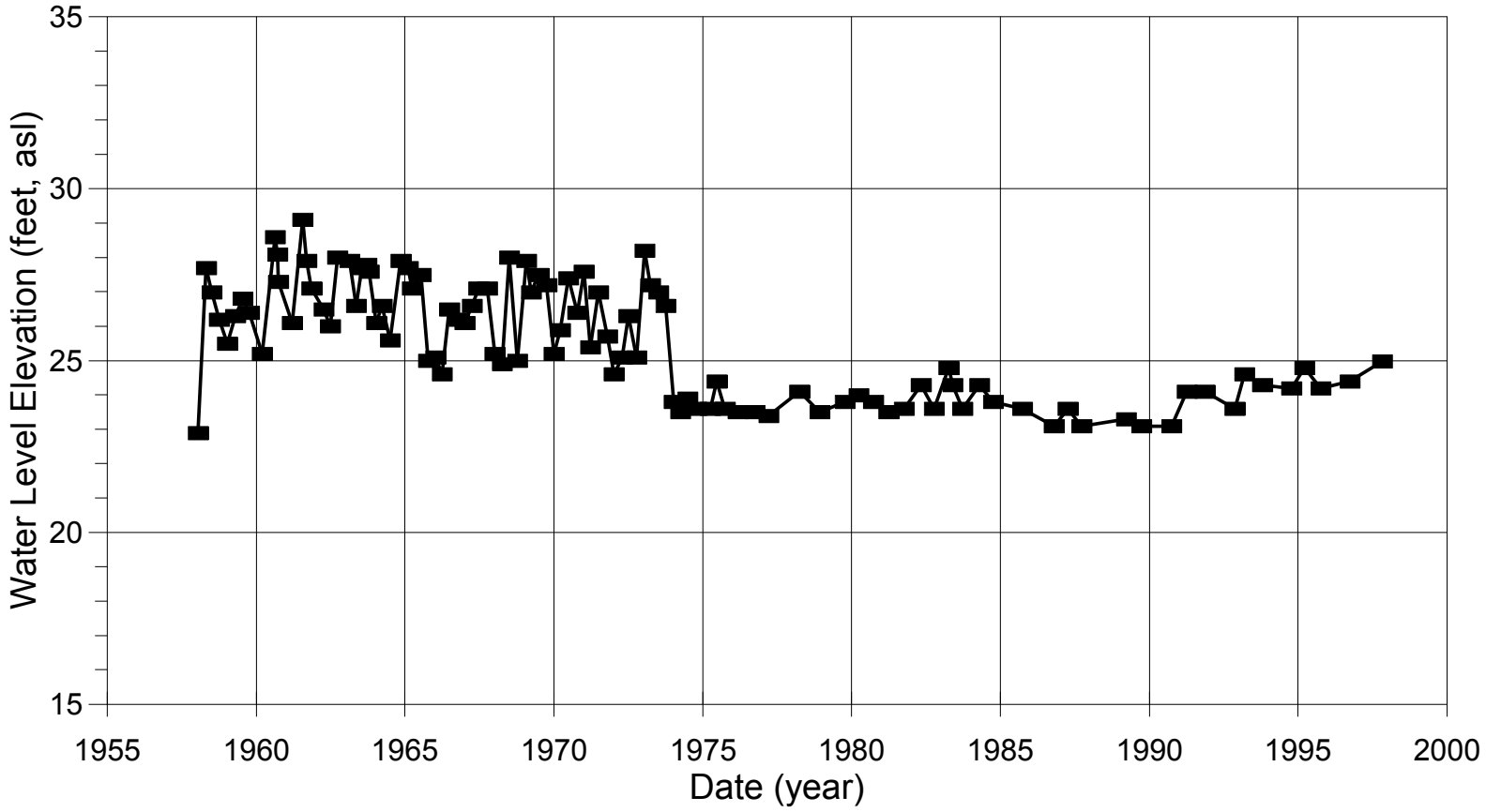
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-21B1 4-27



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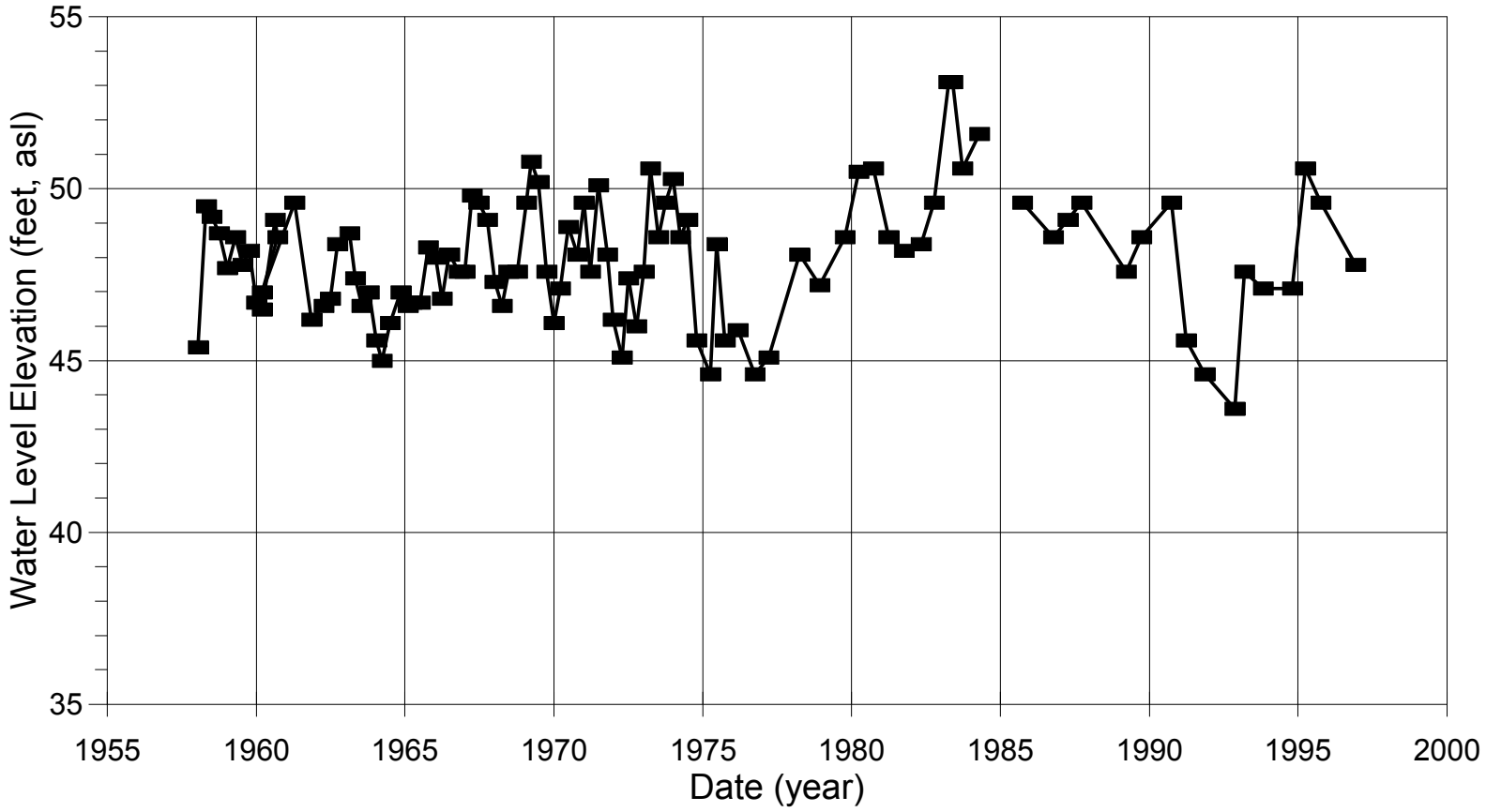
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-17e1 4-32



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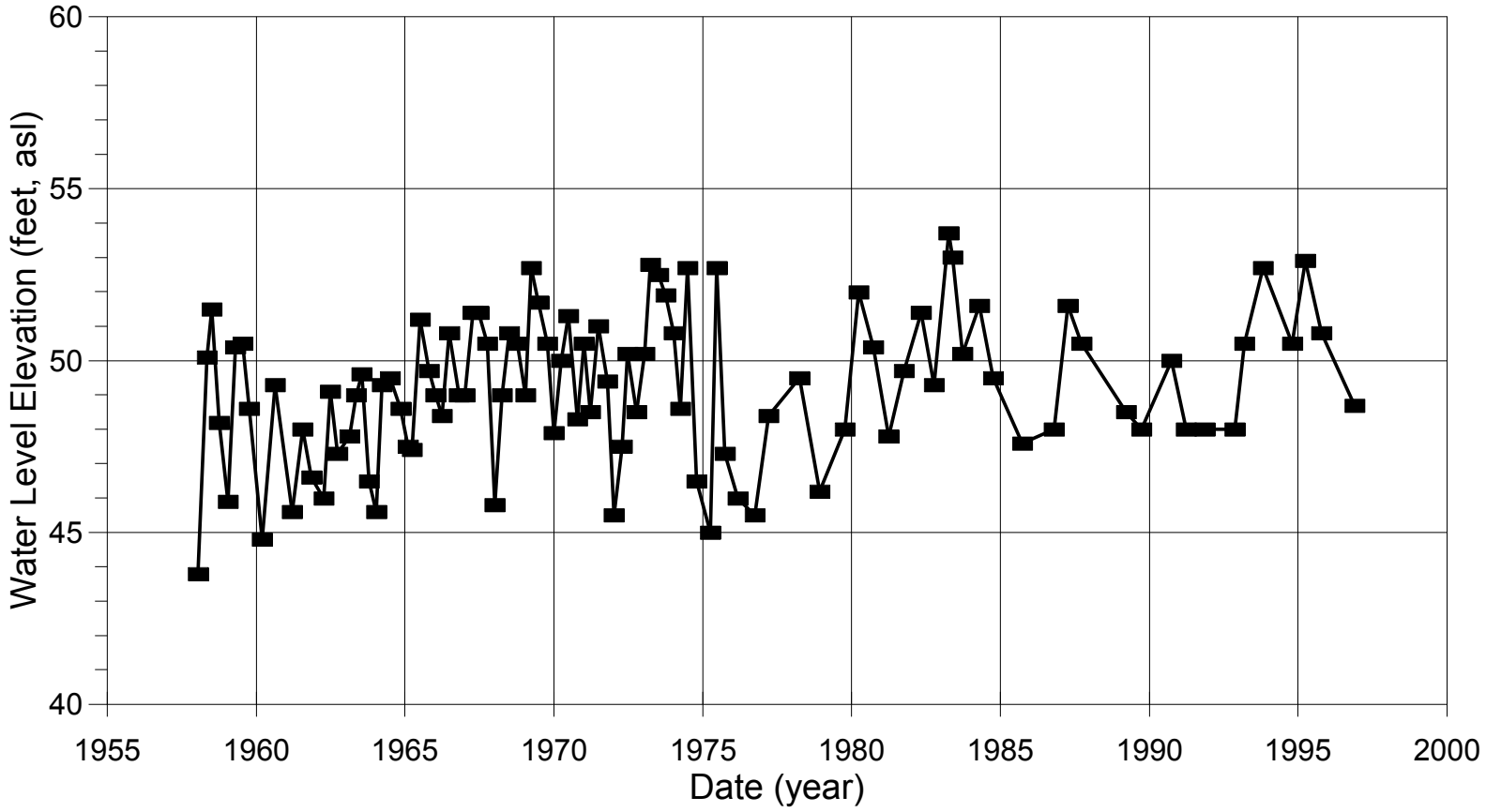
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-7Q1 4-37



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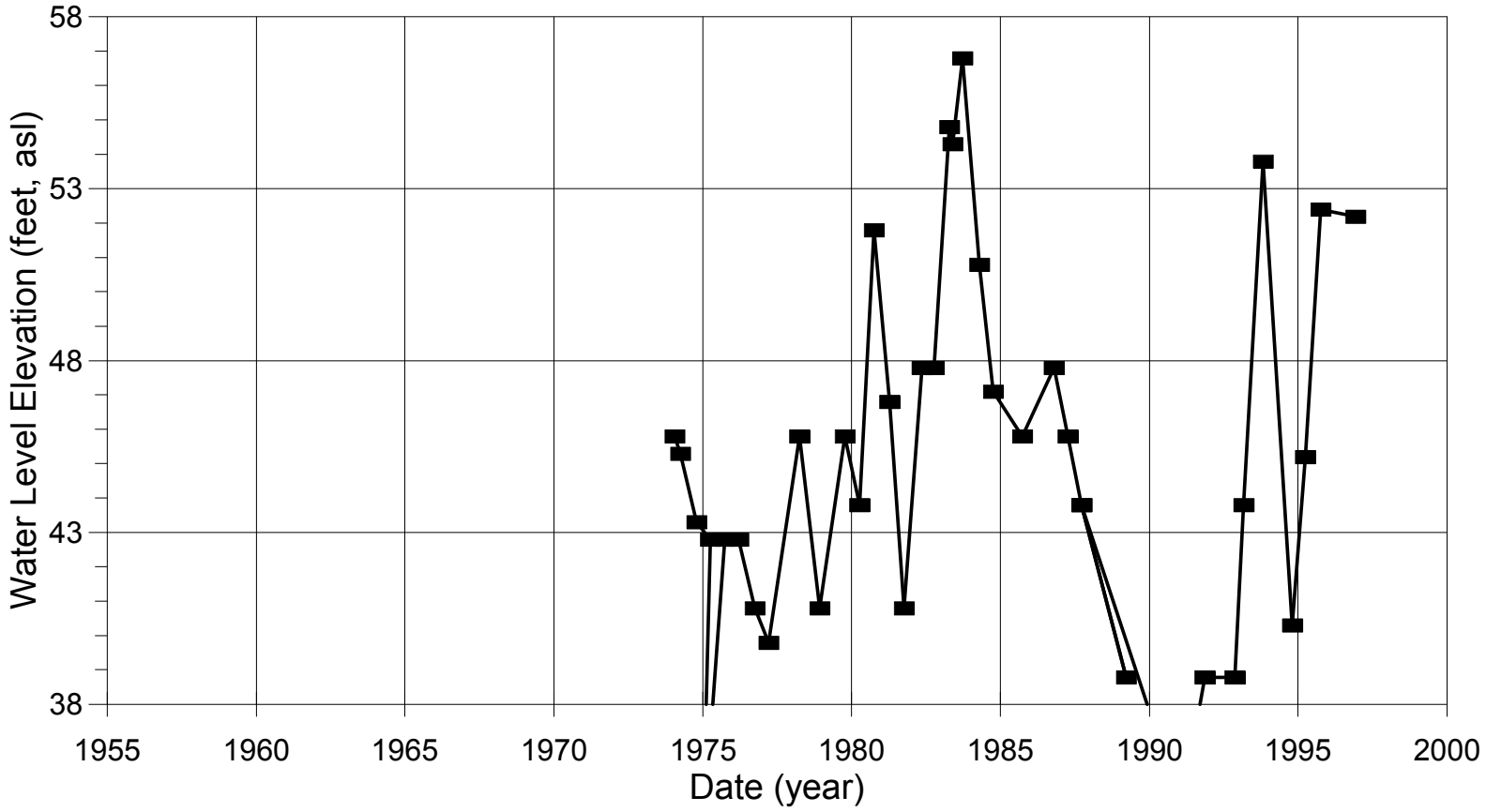
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-24J1 4-56



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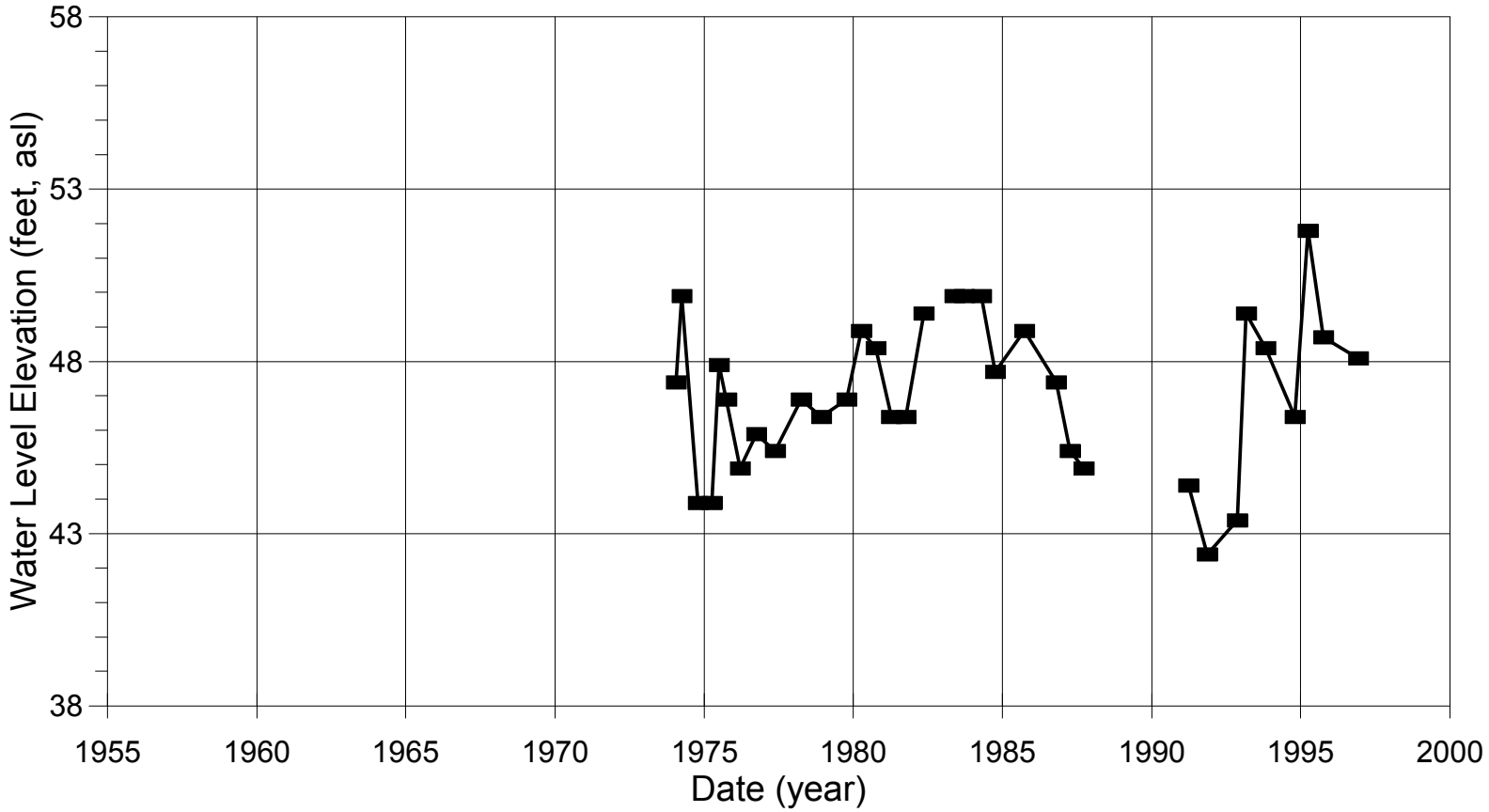
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-18B1 4-59



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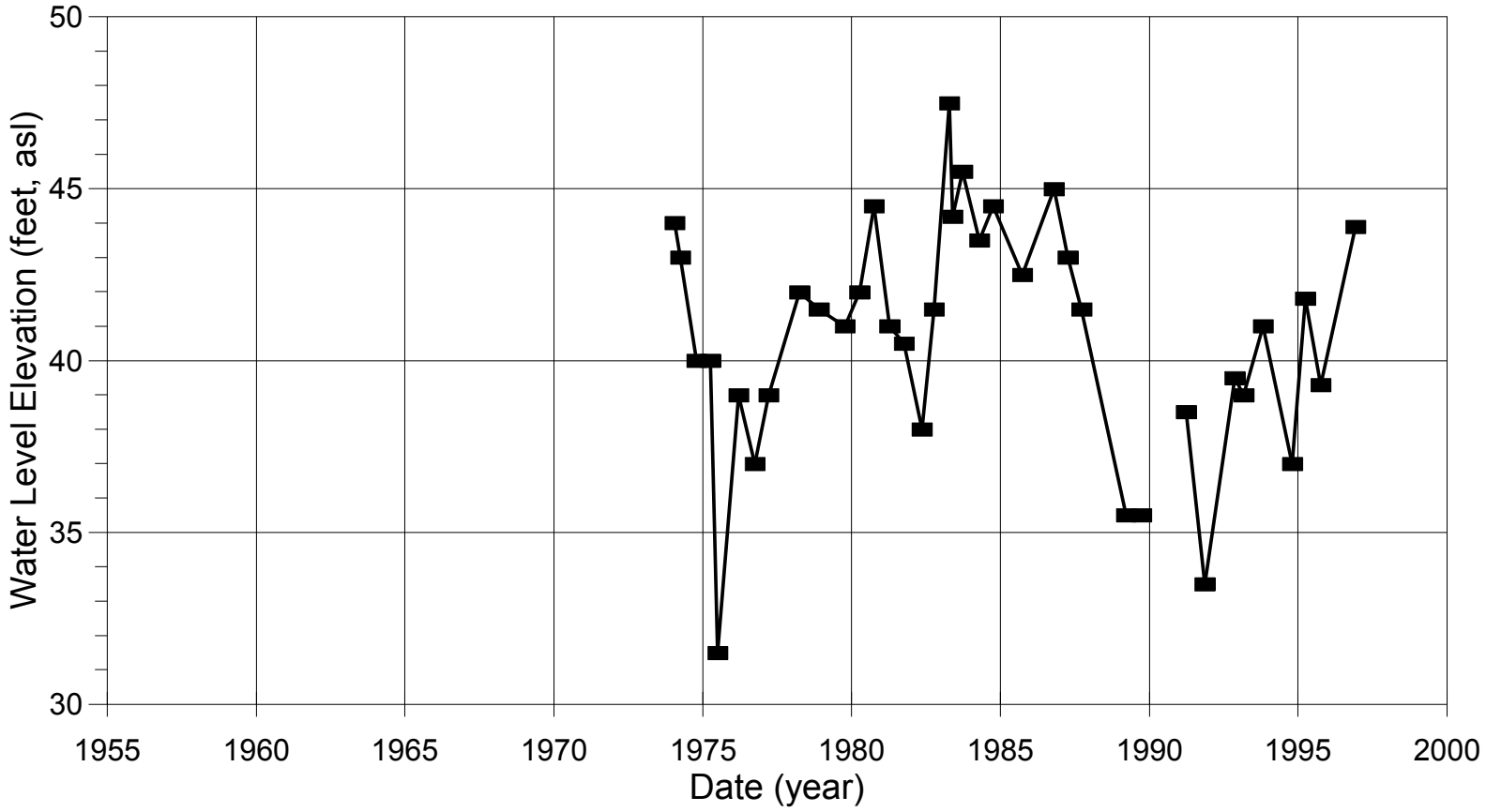
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-20l1 4-61



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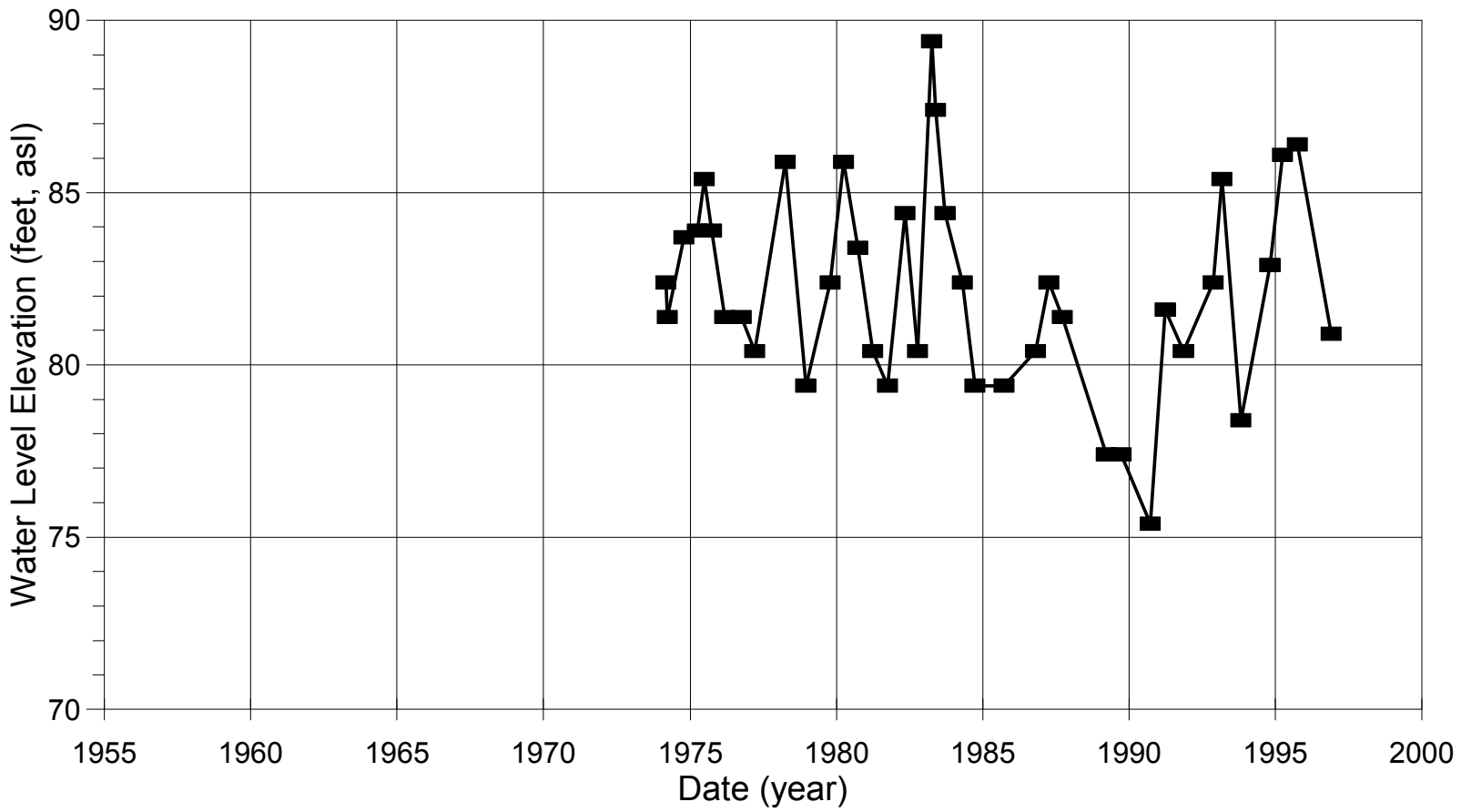
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-25M1 4-64



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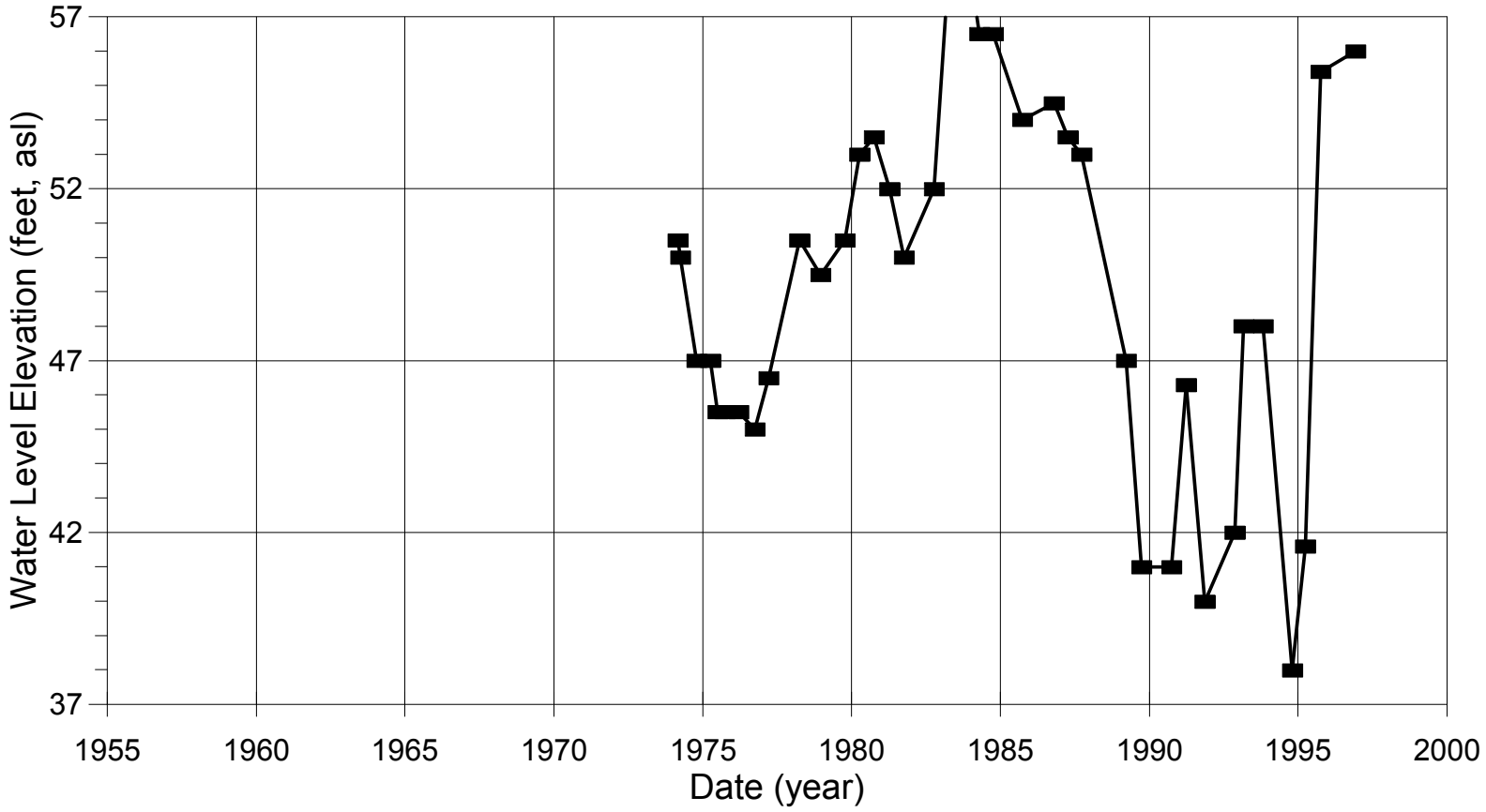
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-24A1 4-66



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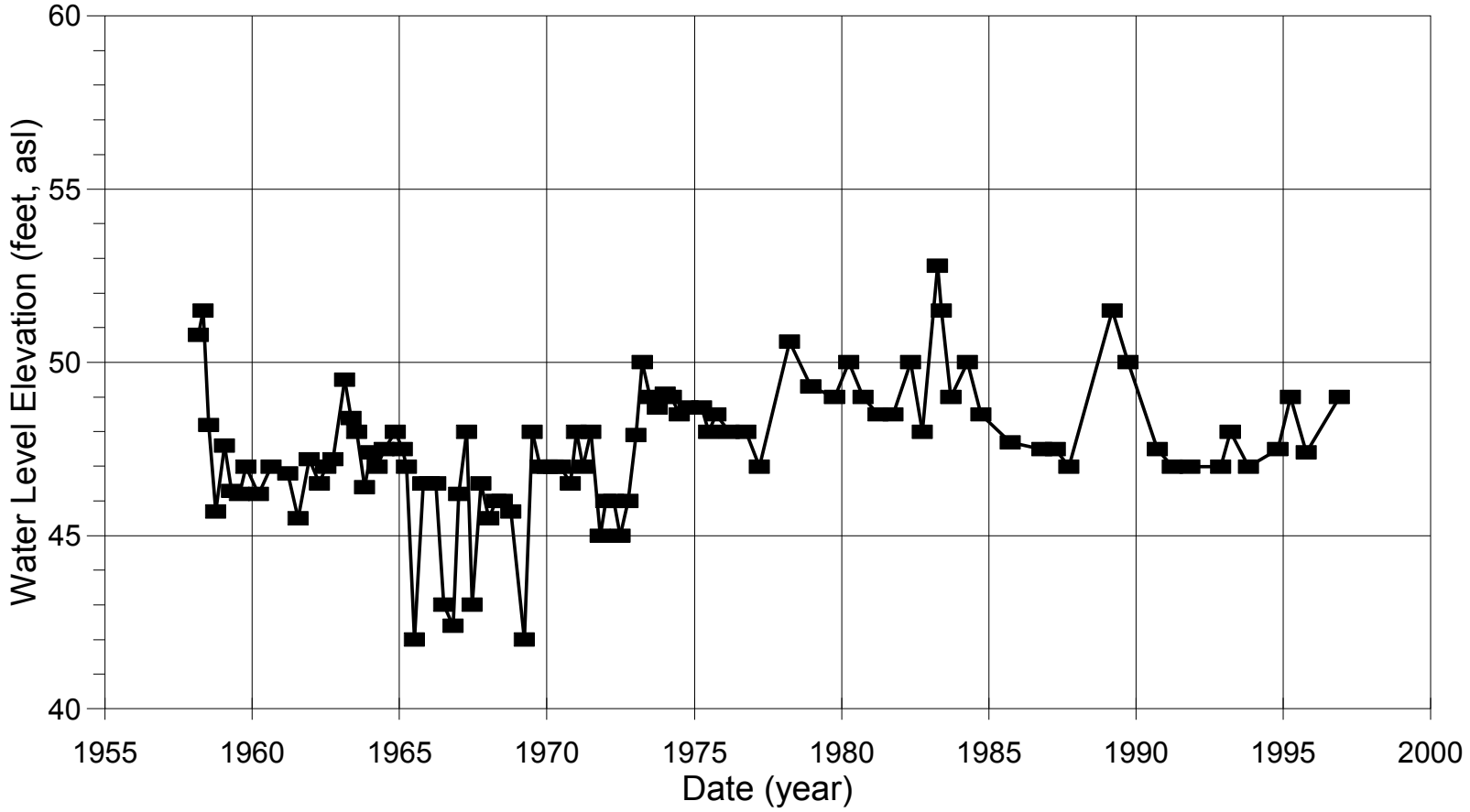
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-6N1 5-2



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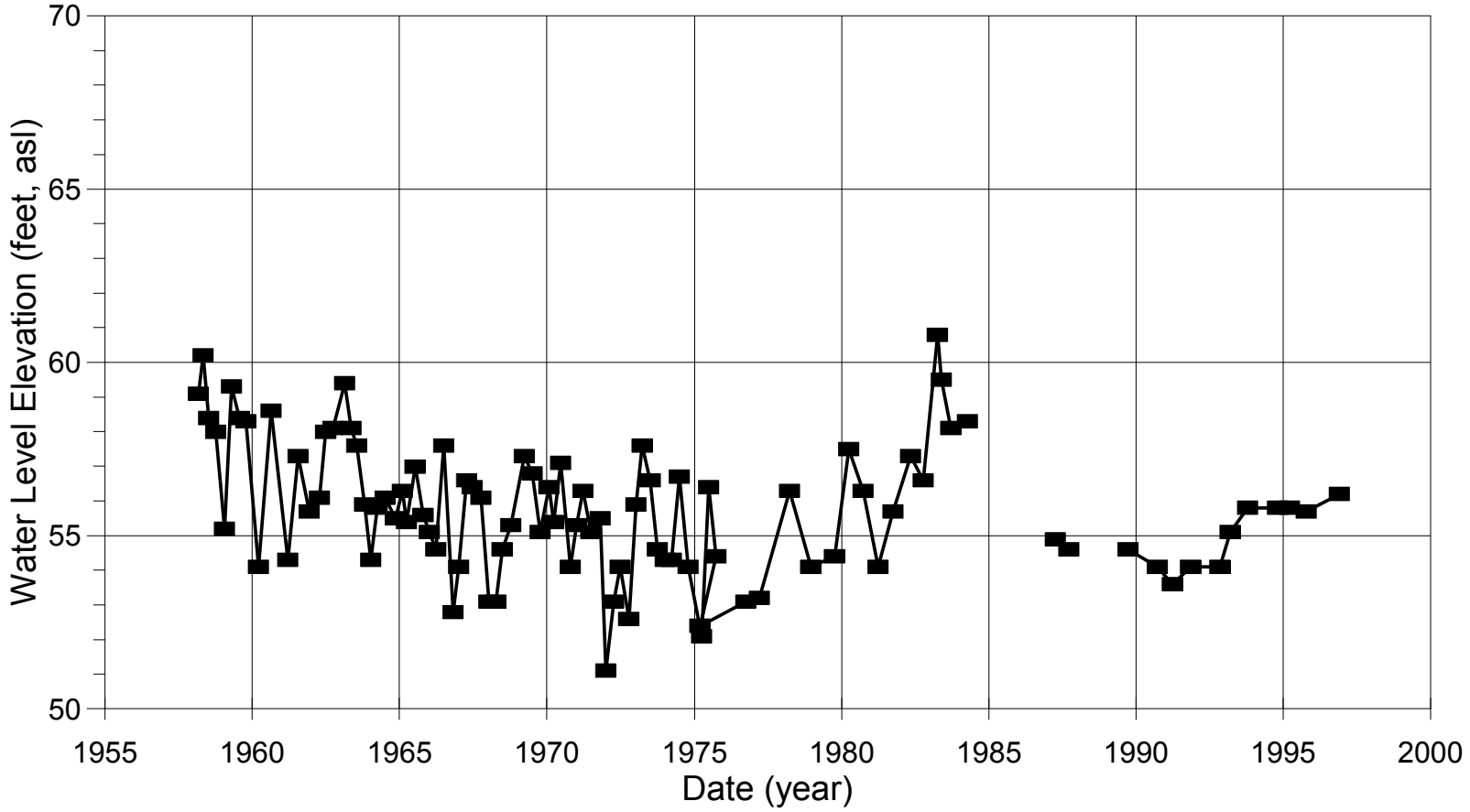
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-7M1 5-3



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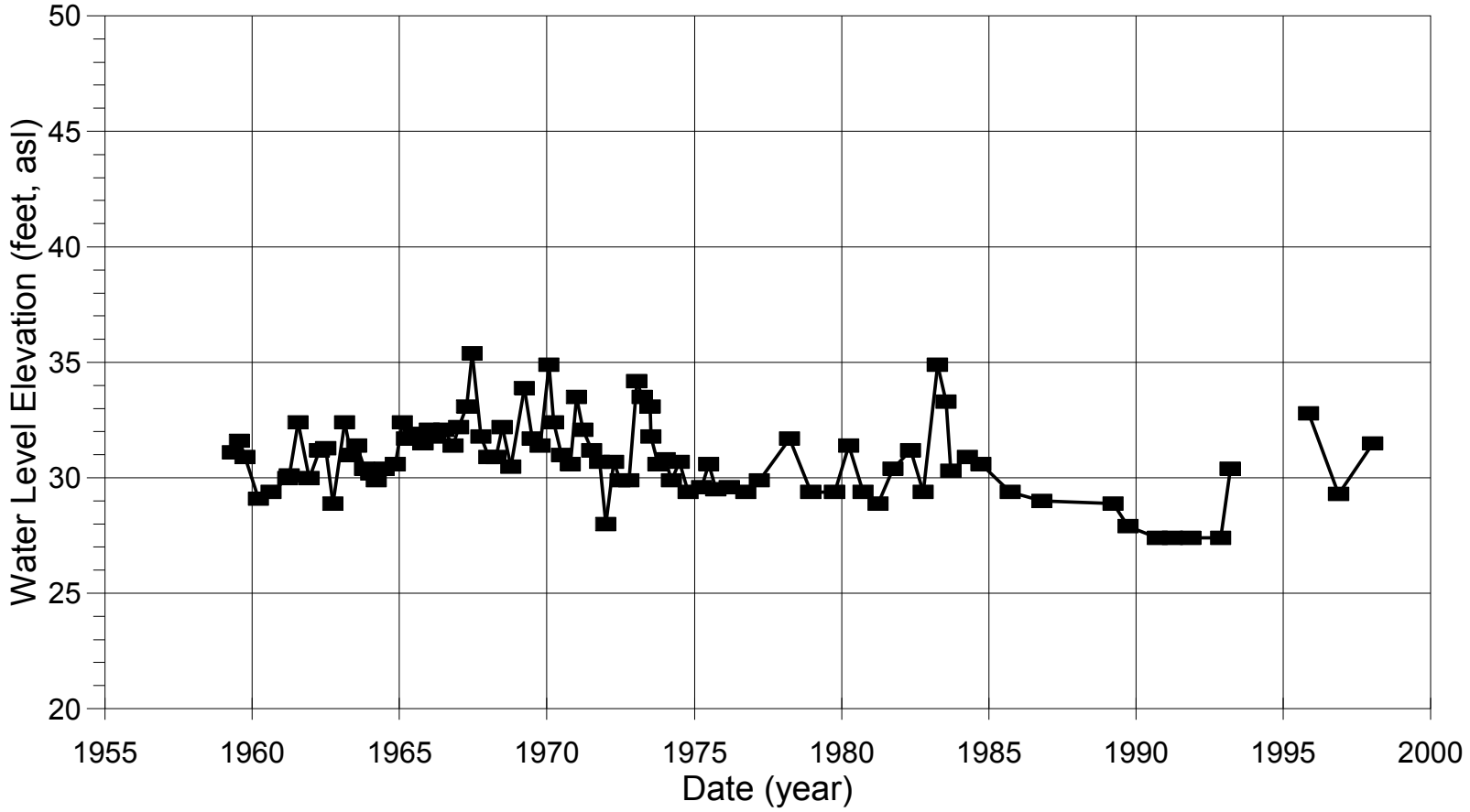
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-9N1 5-10



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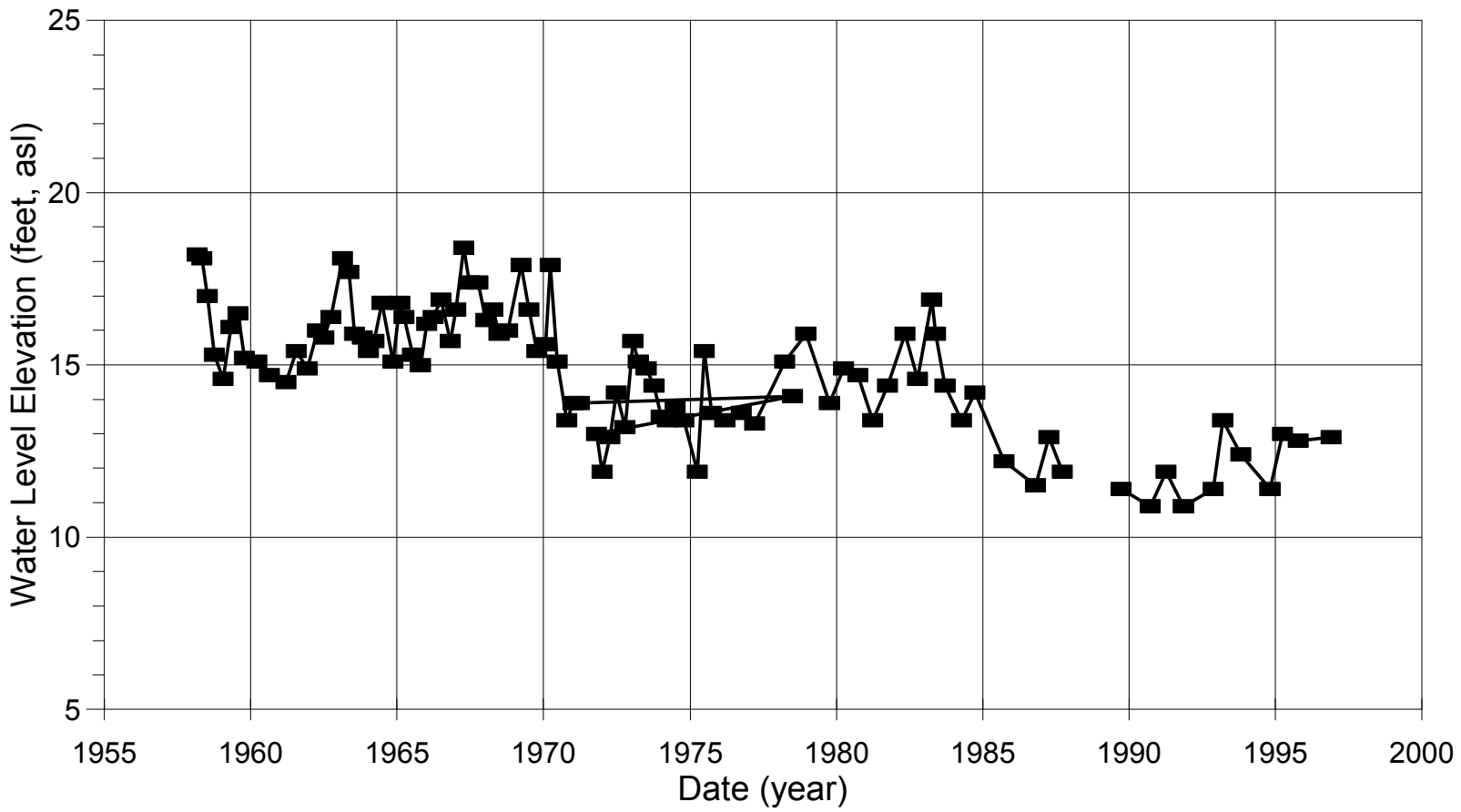
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-4L1 5-13



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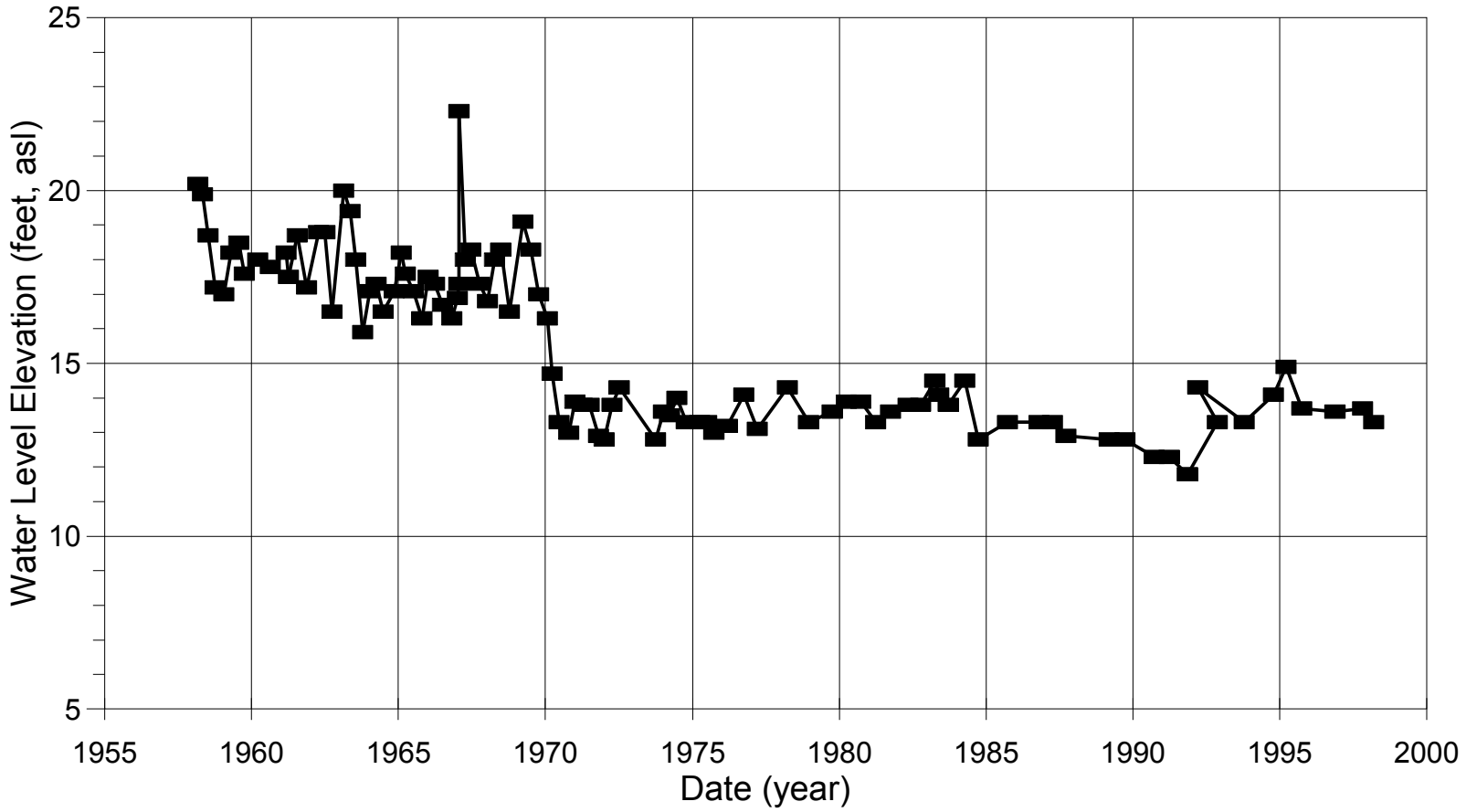
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-9H1 5-15



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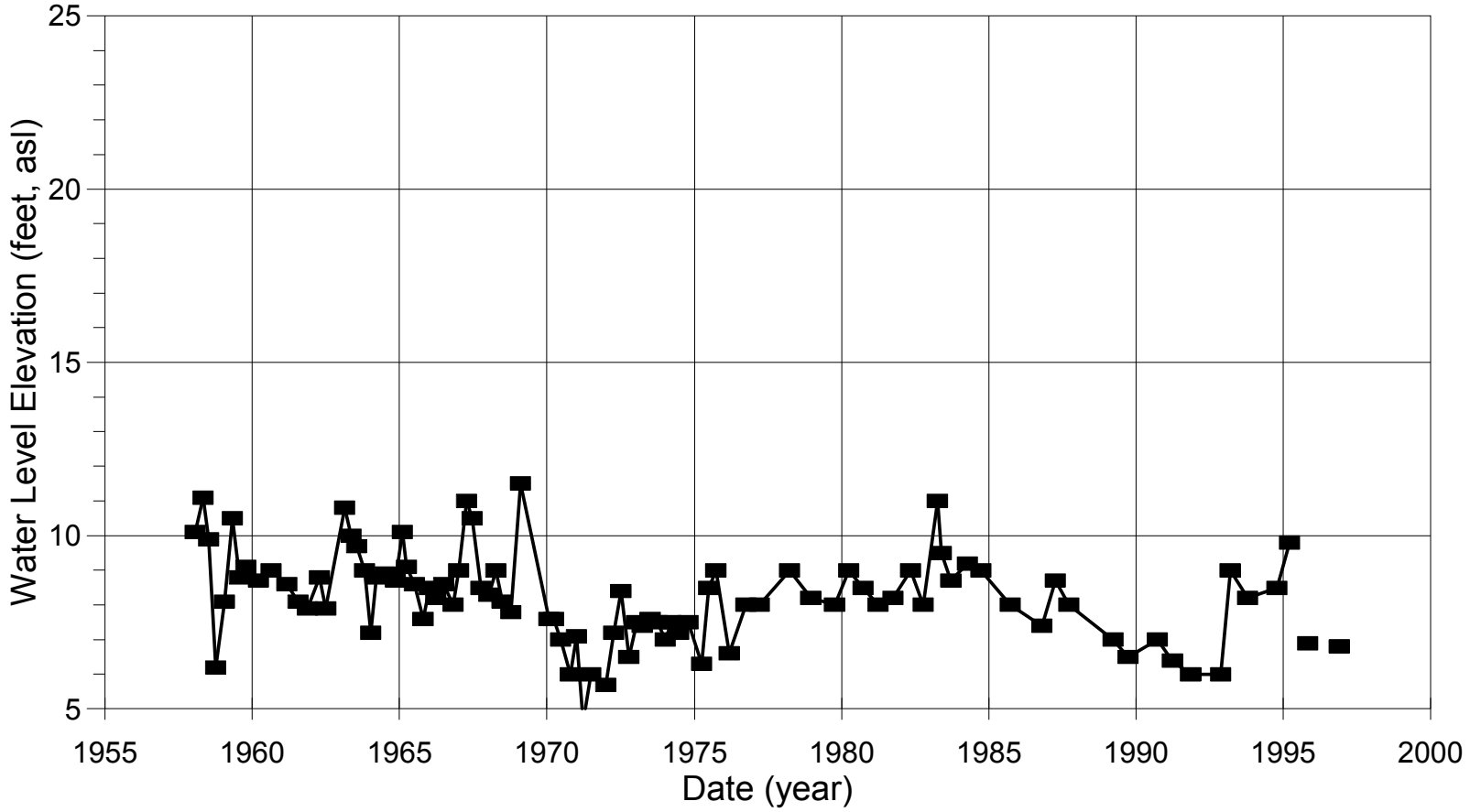
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-3N1 5-16



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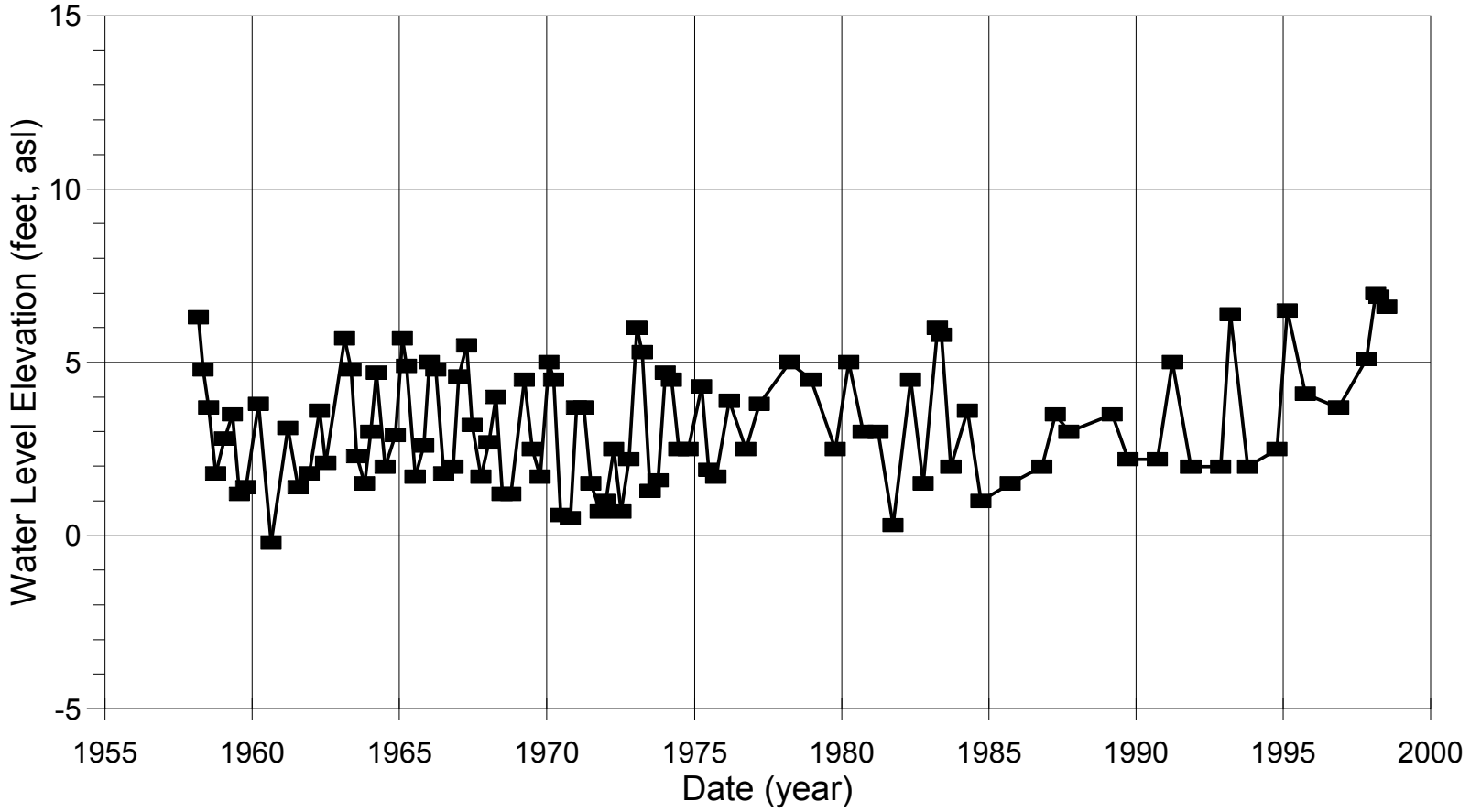
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-3D1 5-18



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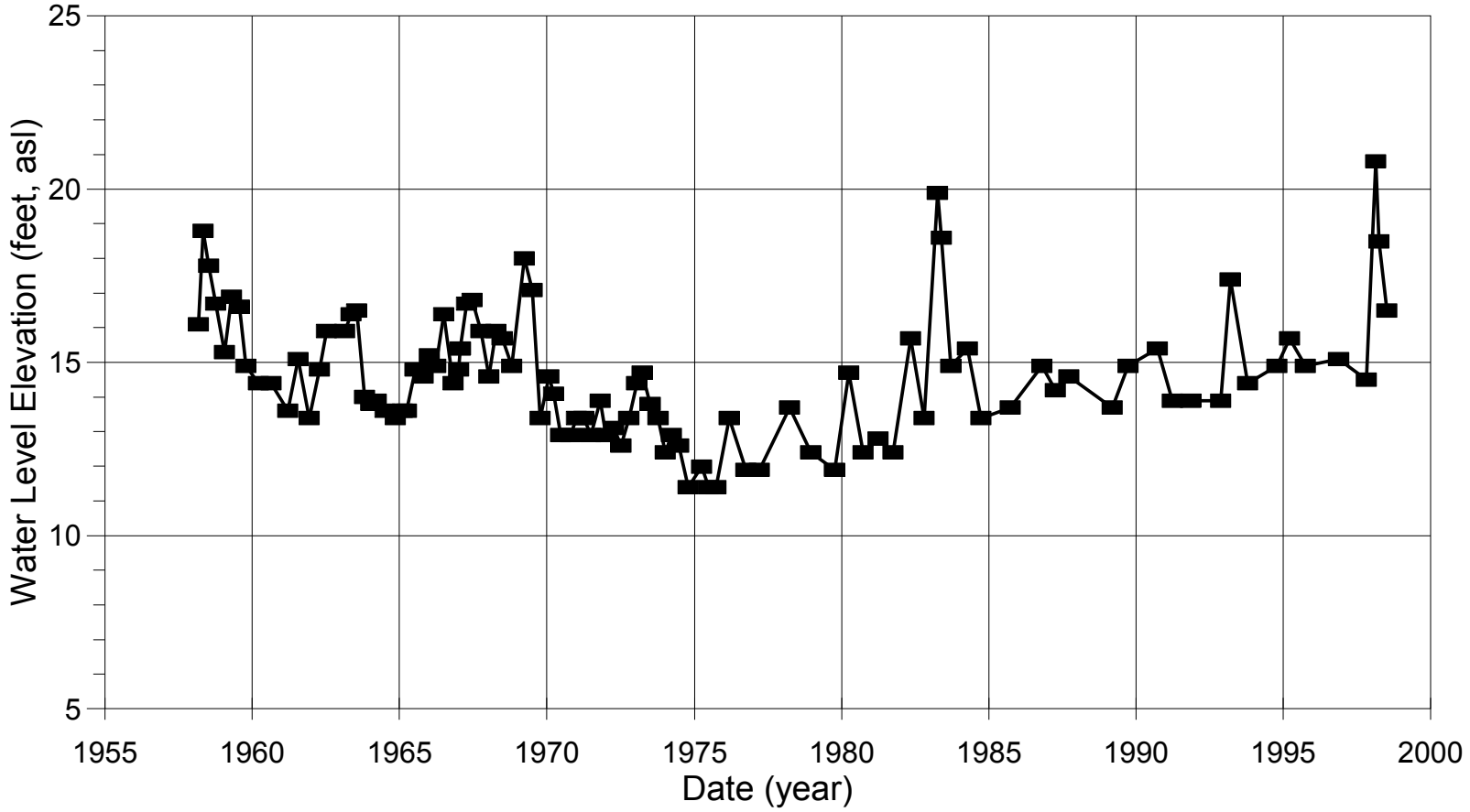
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-4D1 5-21



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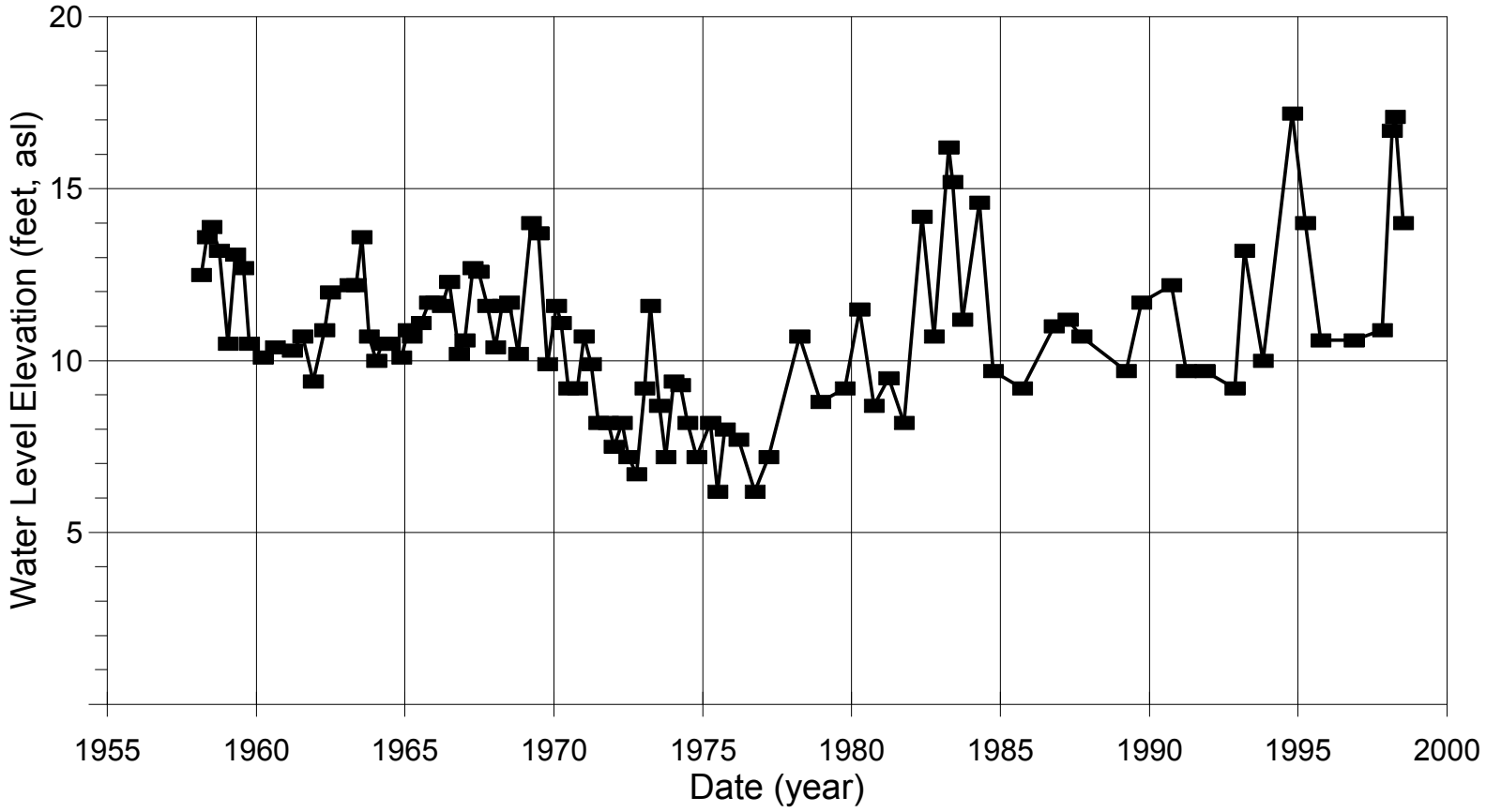
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-33m1 5-22



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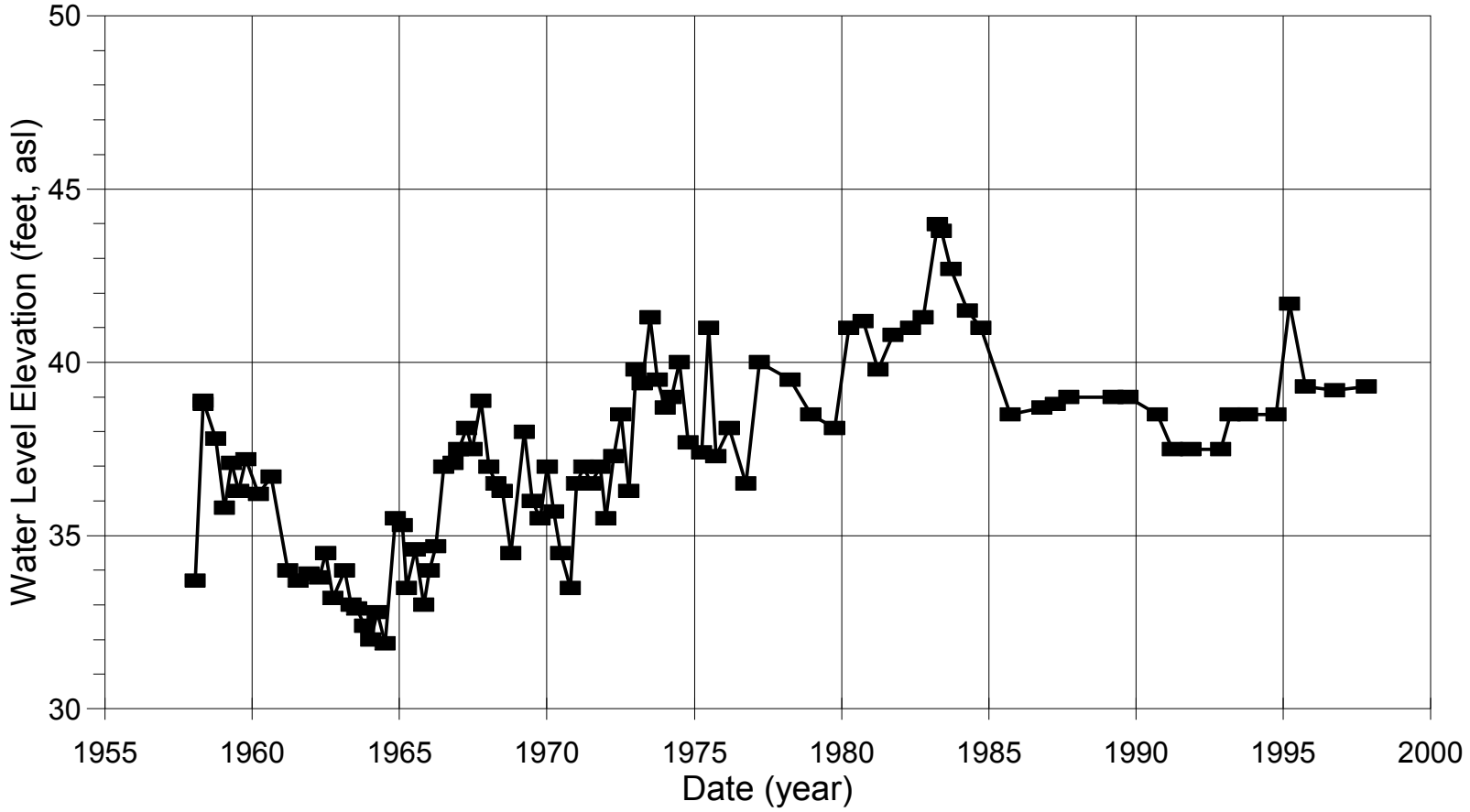
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-20J1 5-31



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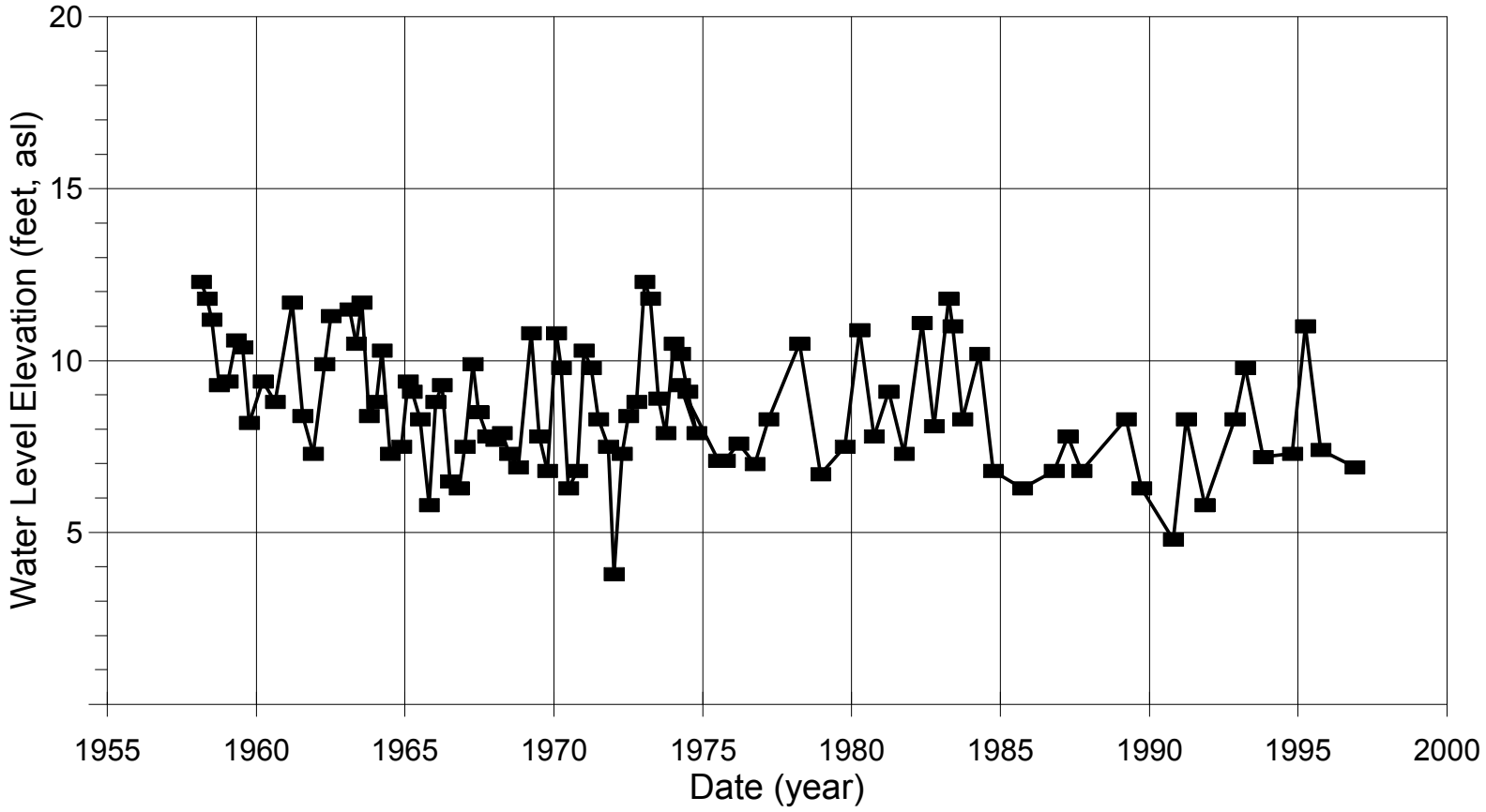
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-30J1 5-33



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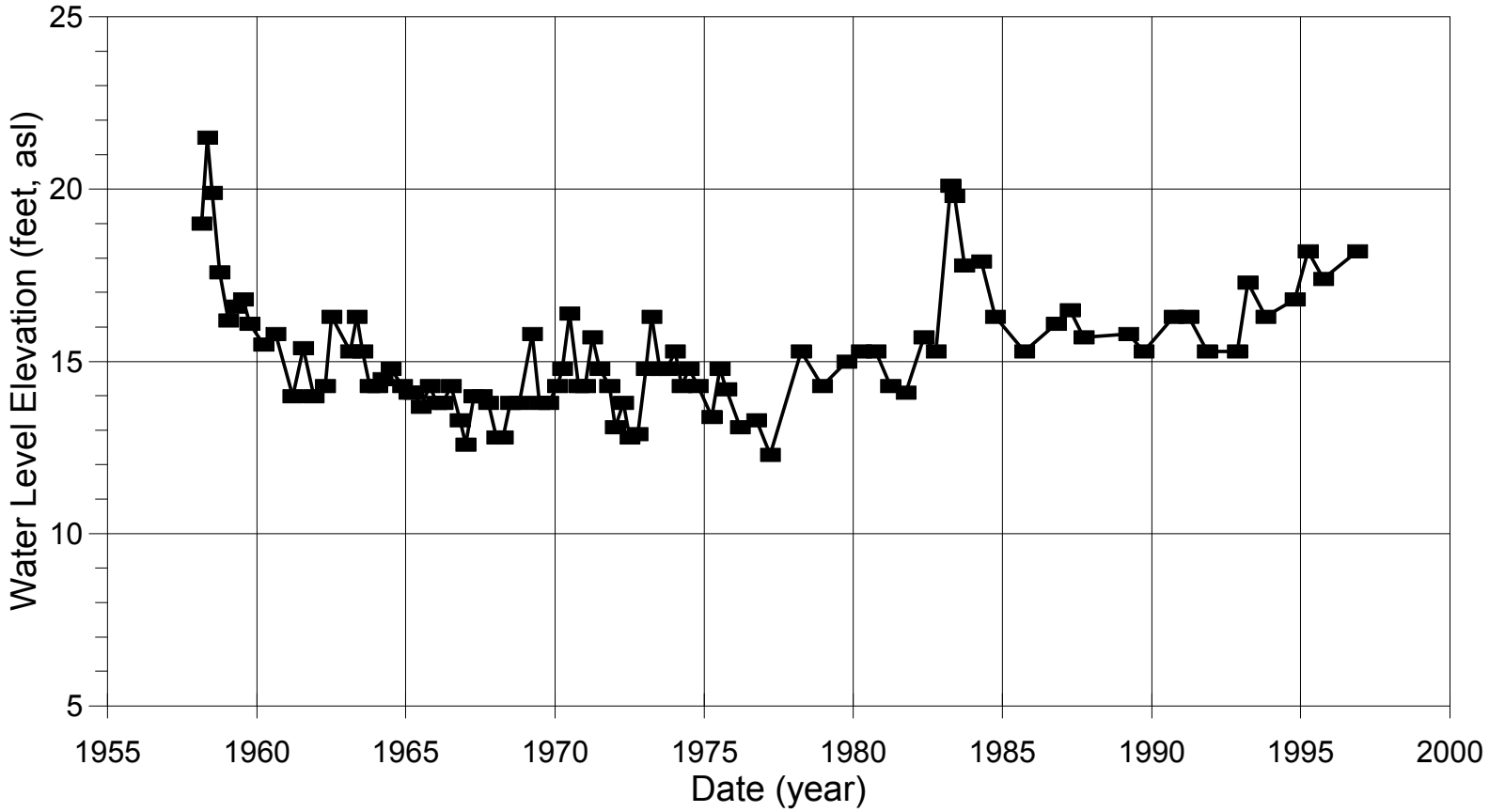
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-31H1 5-35



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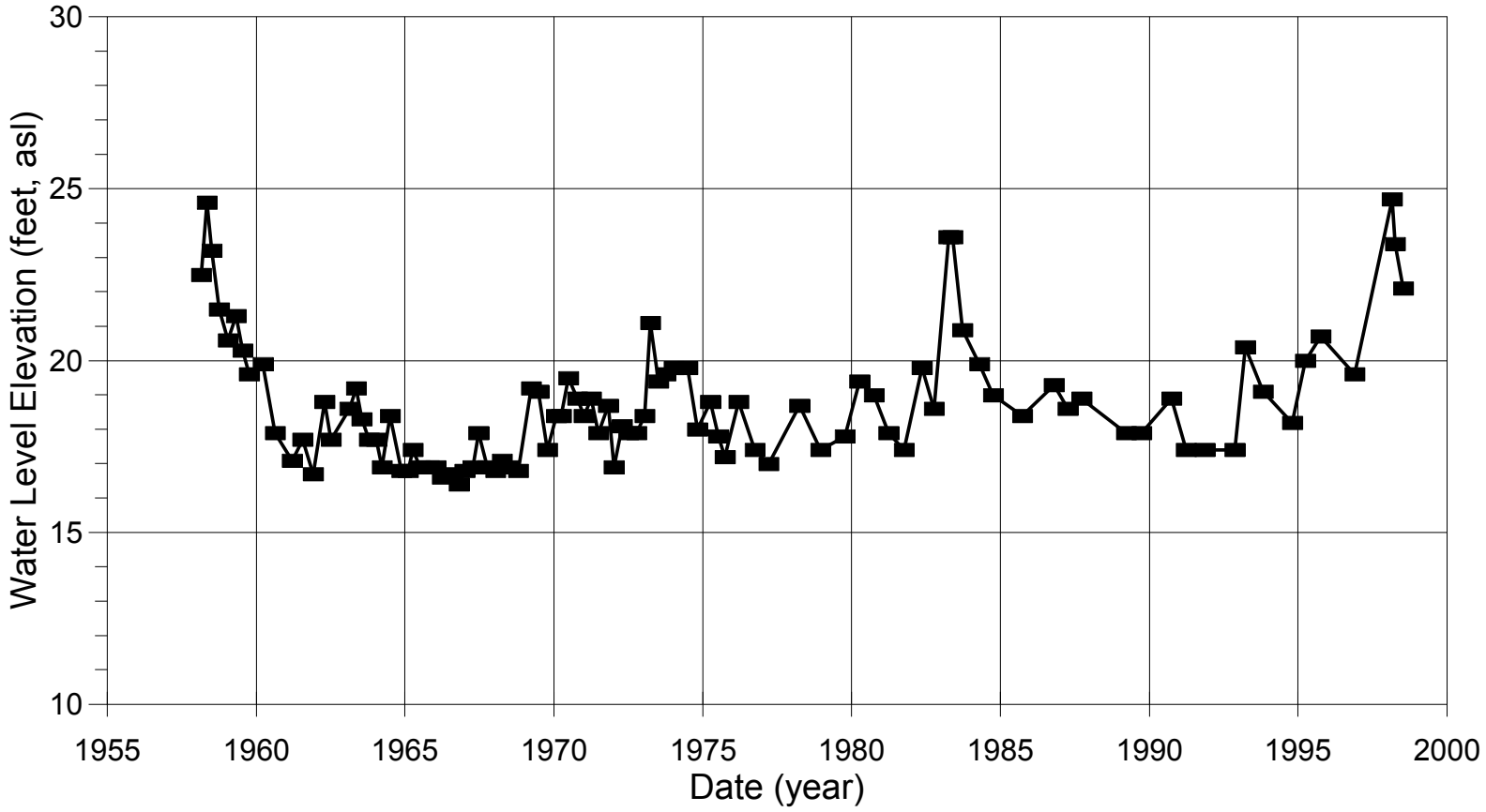
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-32m1 5-36



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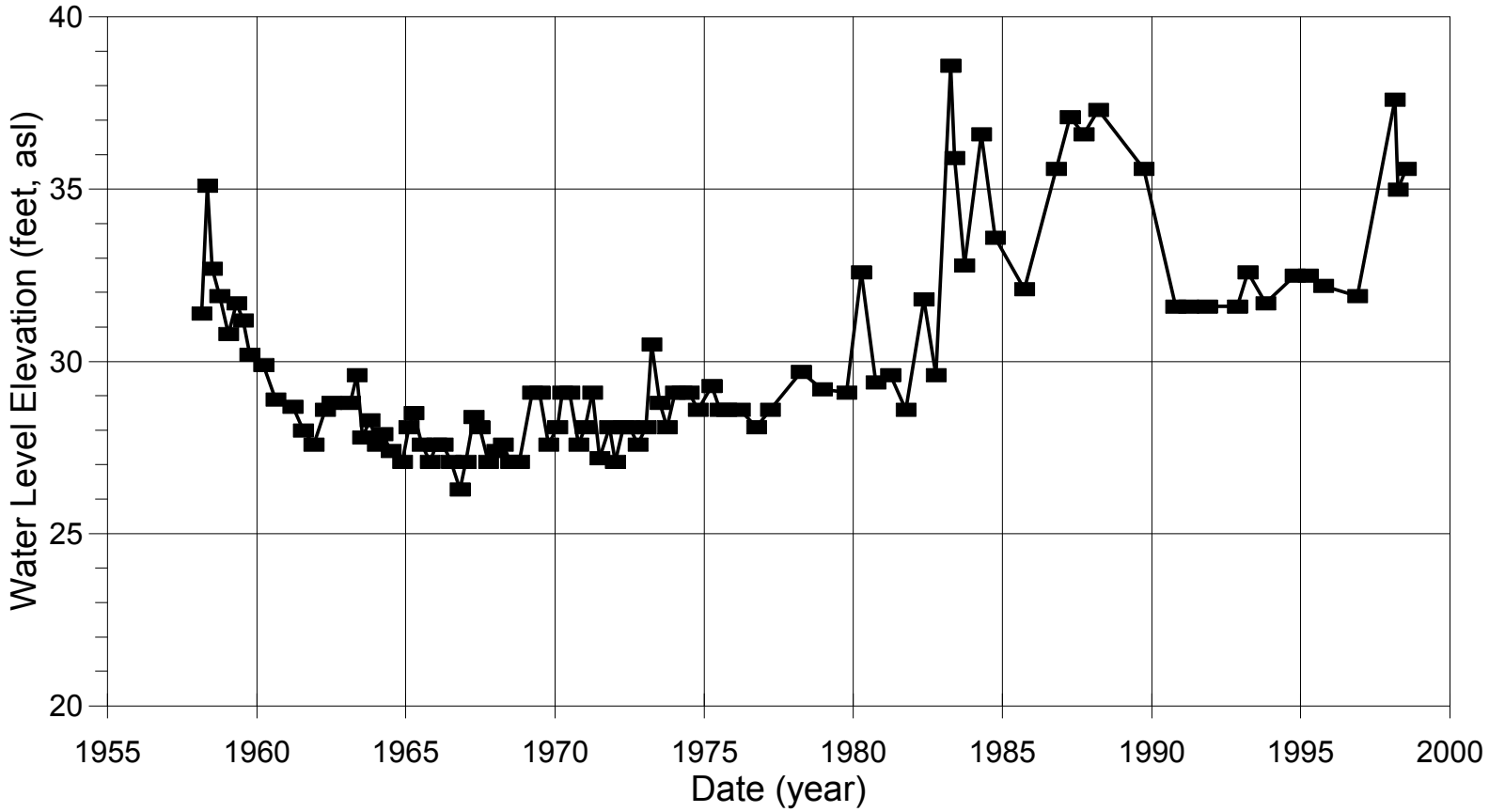
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-6H1 5-37



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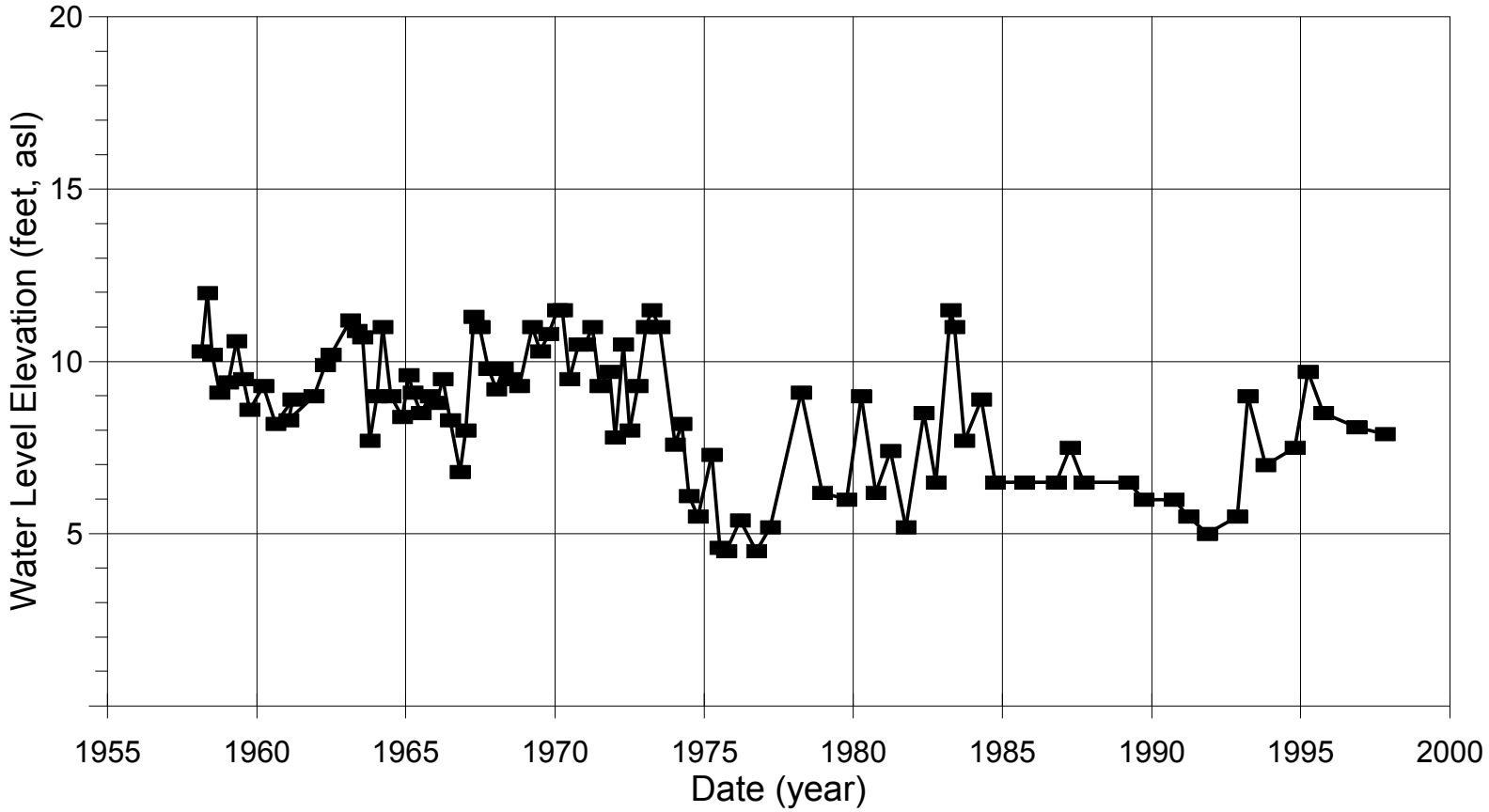
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-29Q1 5-39



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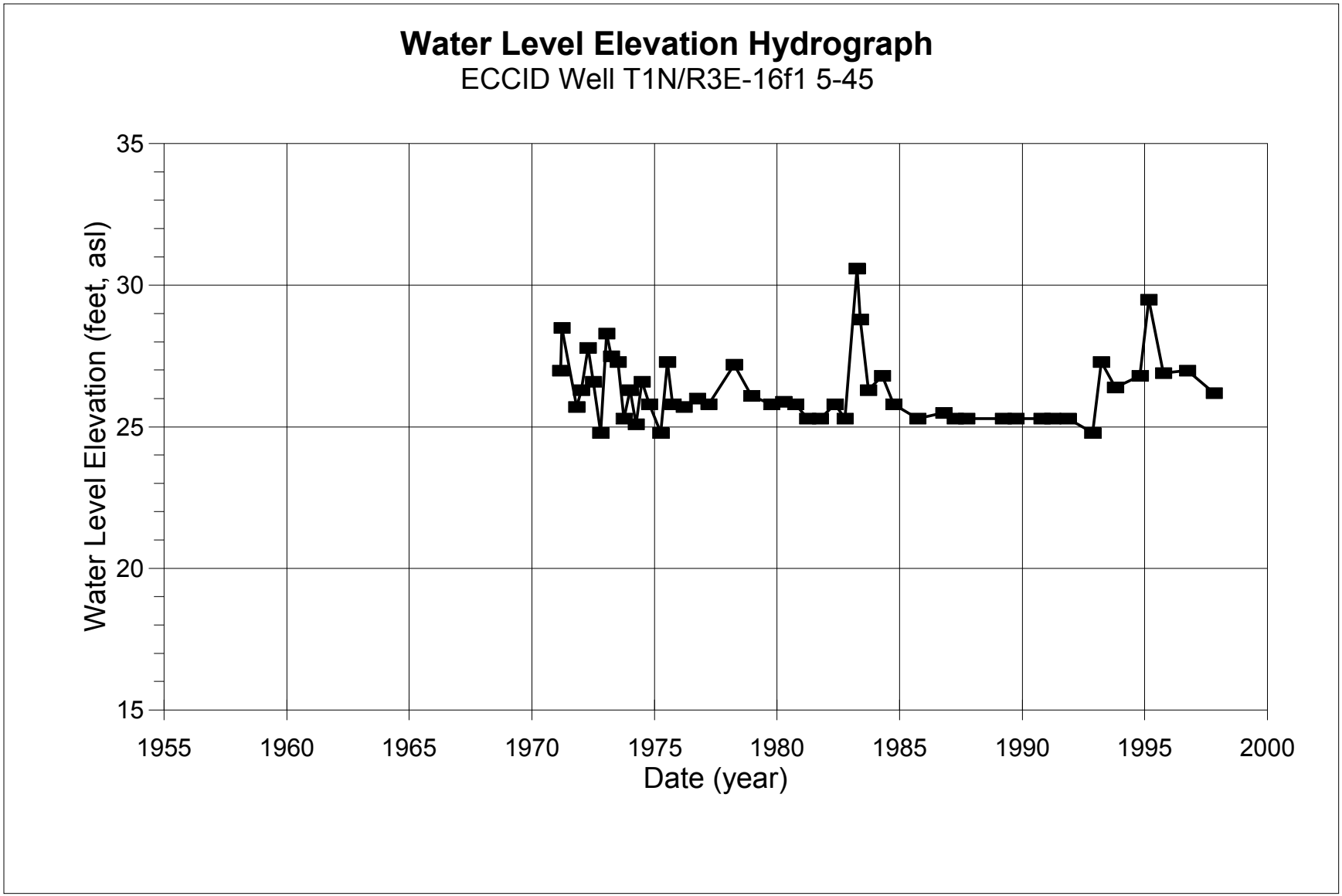

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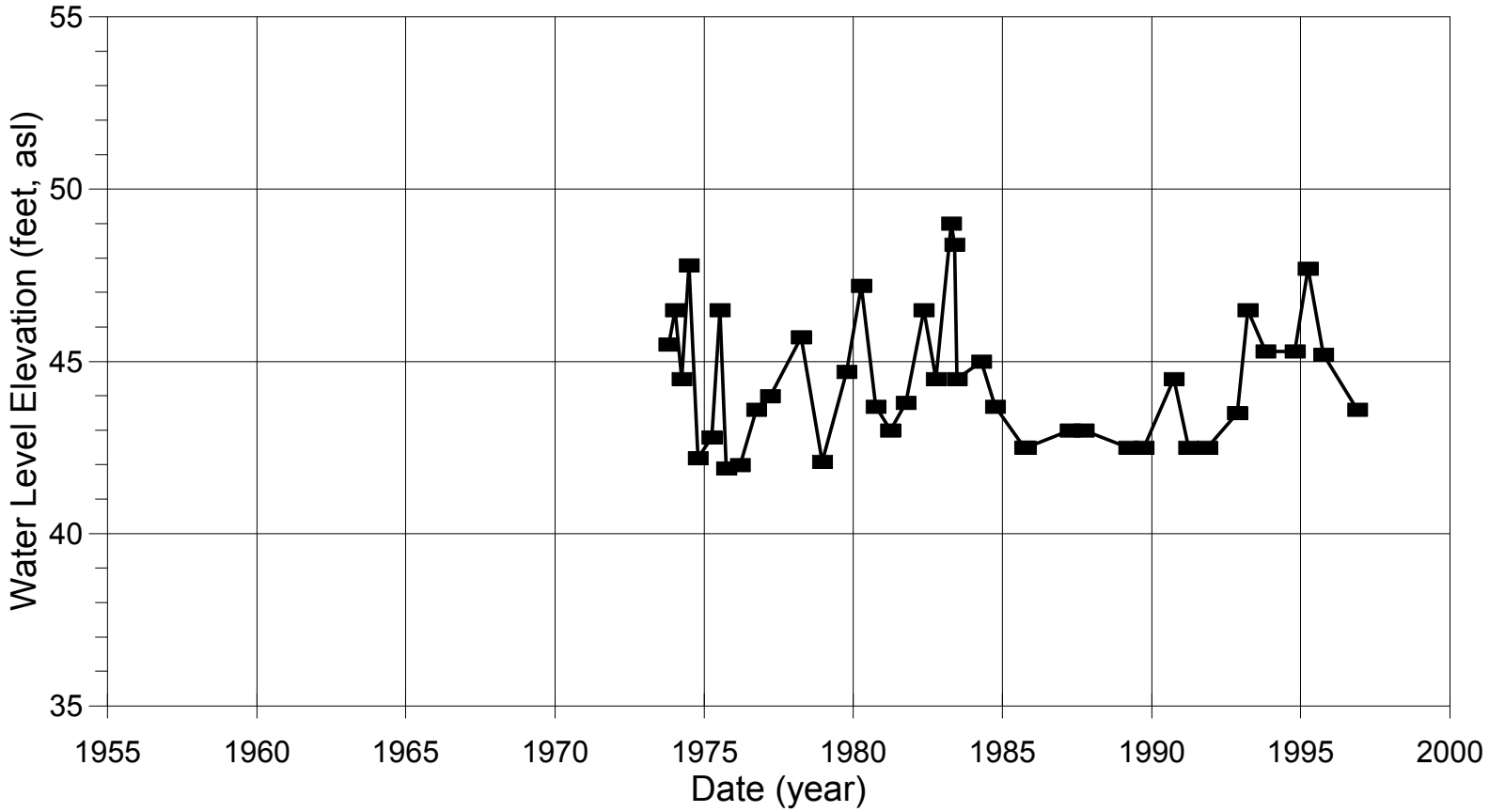
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-8e1 5-55



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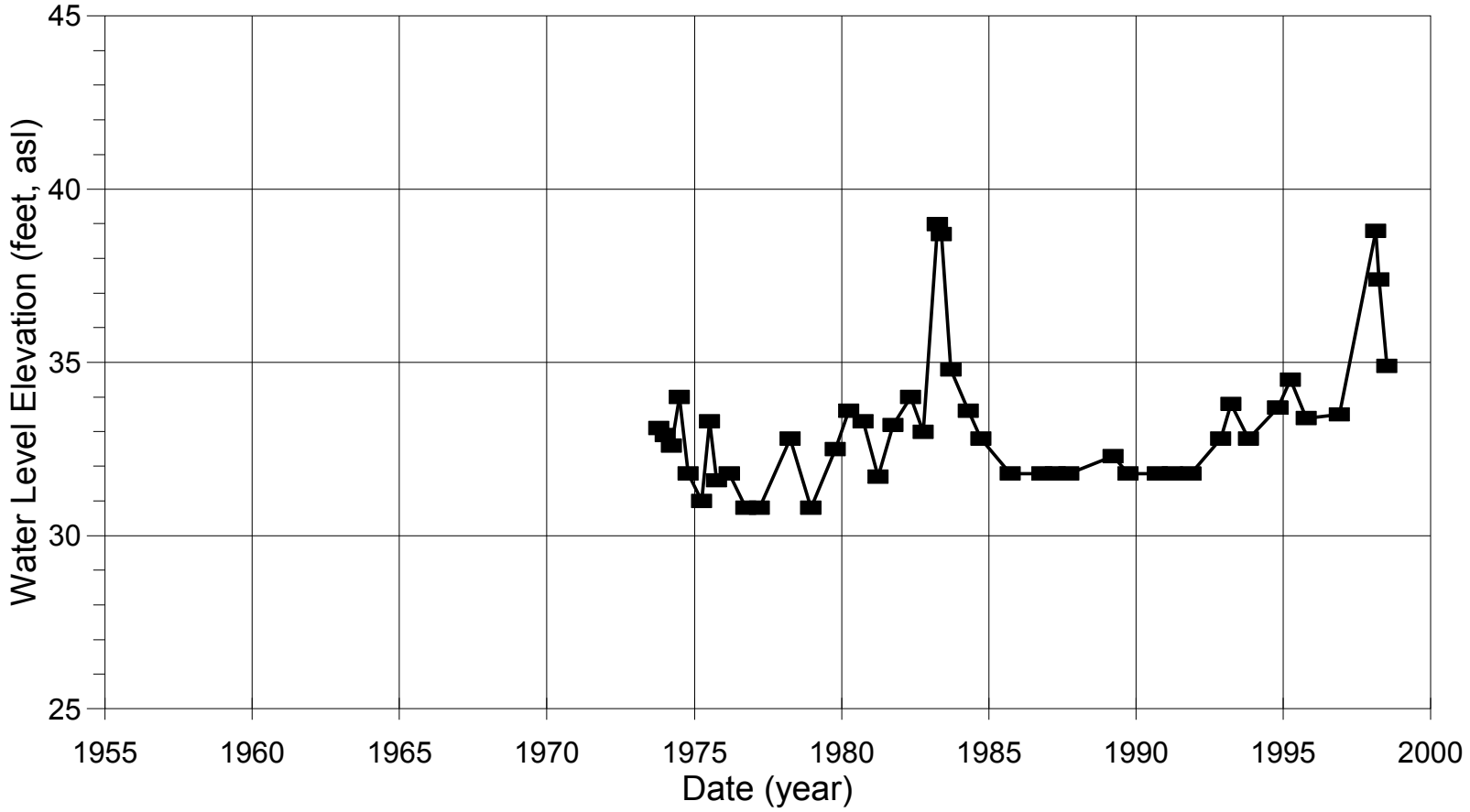
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-5P1 5-56



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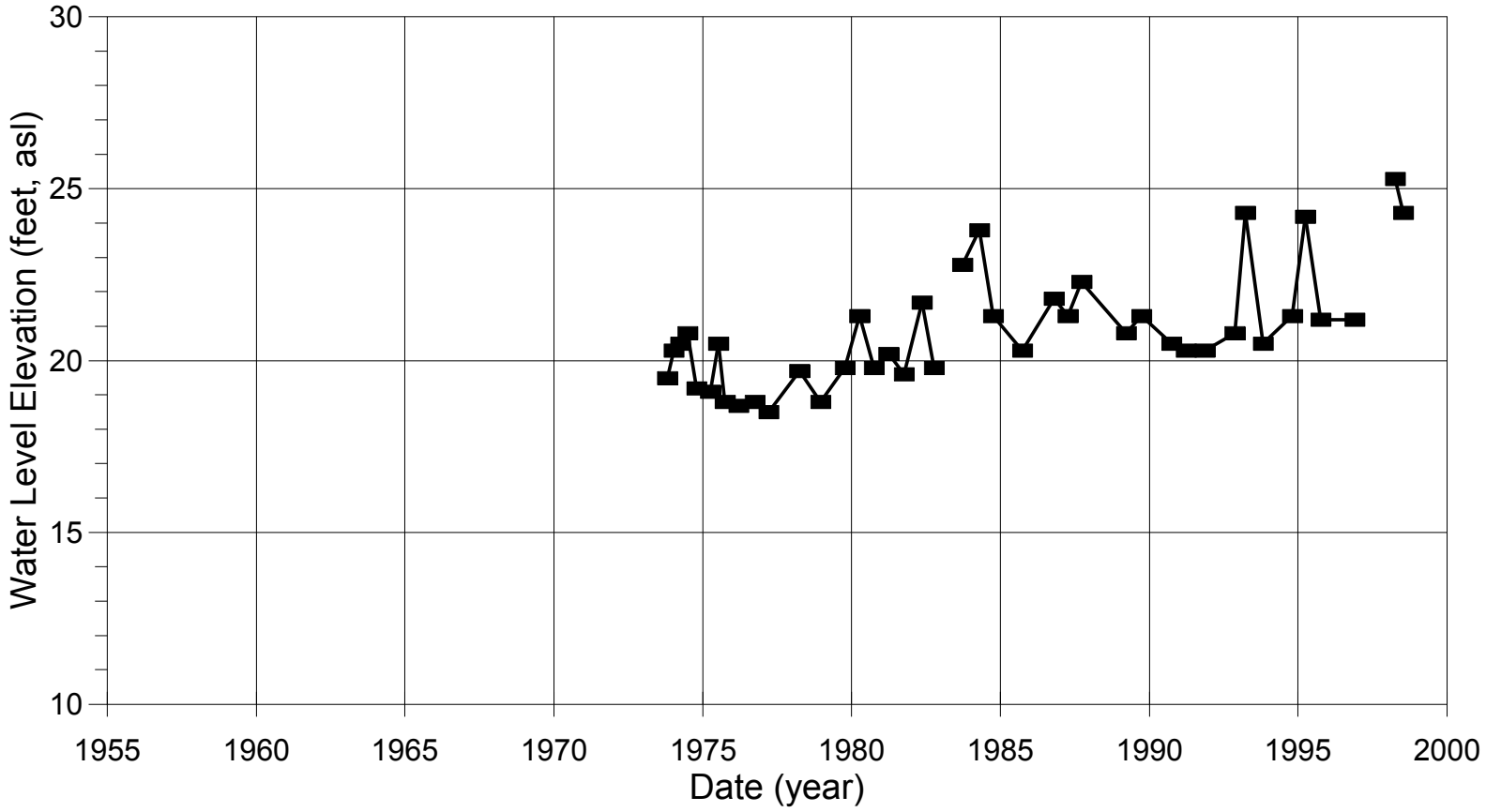
Water Level Elevation Hydrograph

ECCID Well T1N/R3E-5C1 5-57



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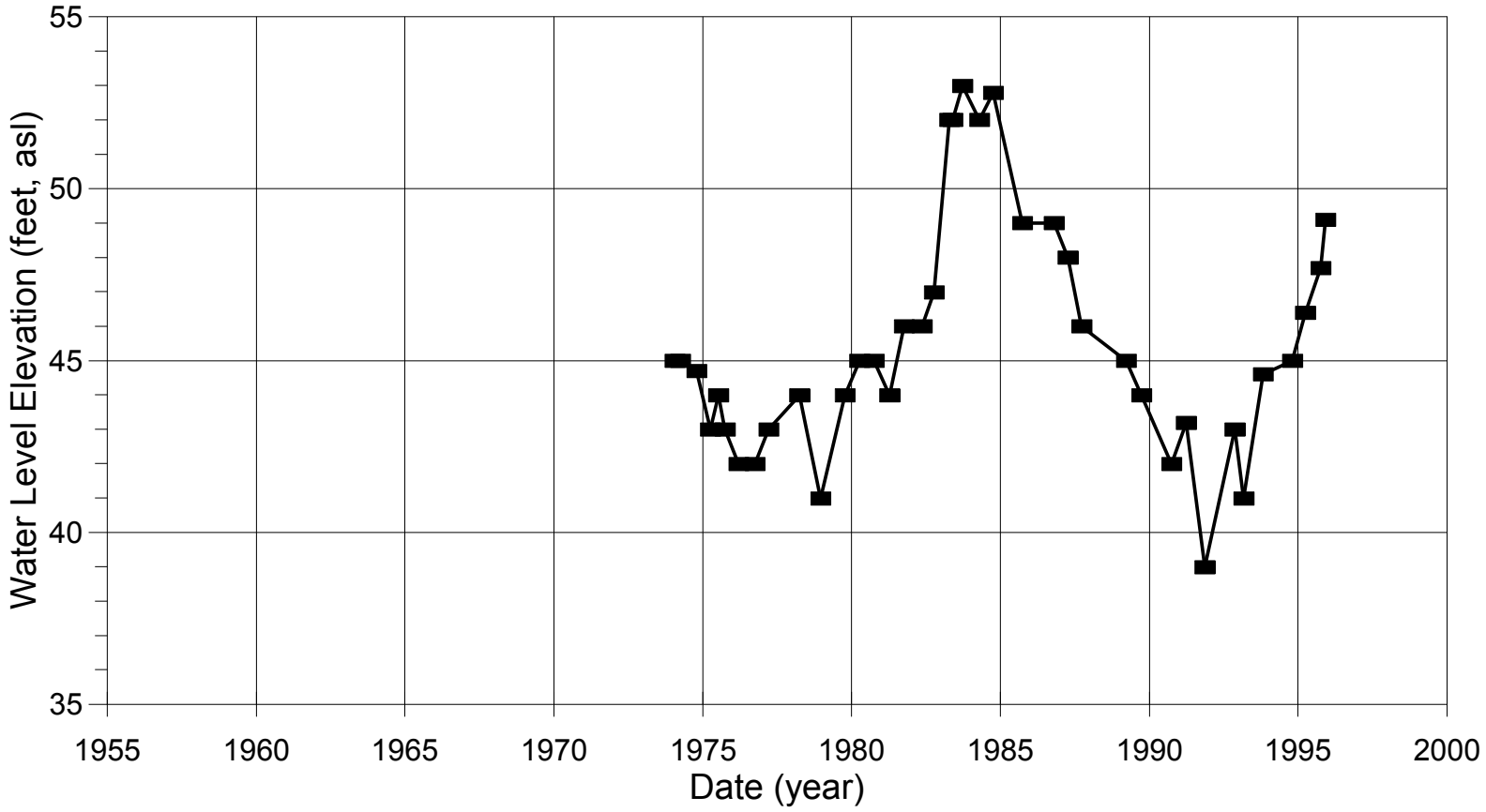
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-1E1 5-66



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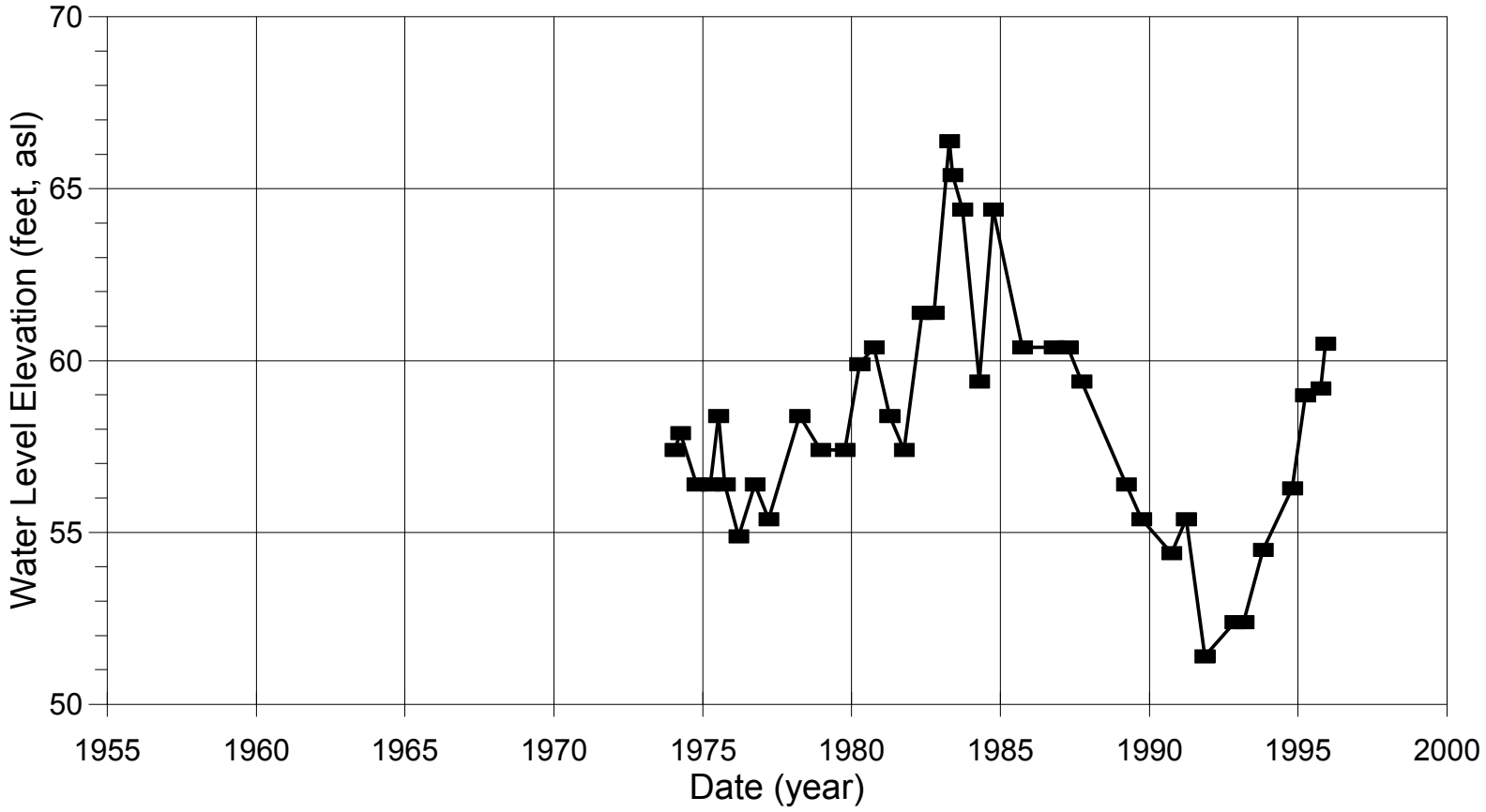
Water Level Elevation Hydrograph

ECCID Well T1N/R2E-12L1 5-72



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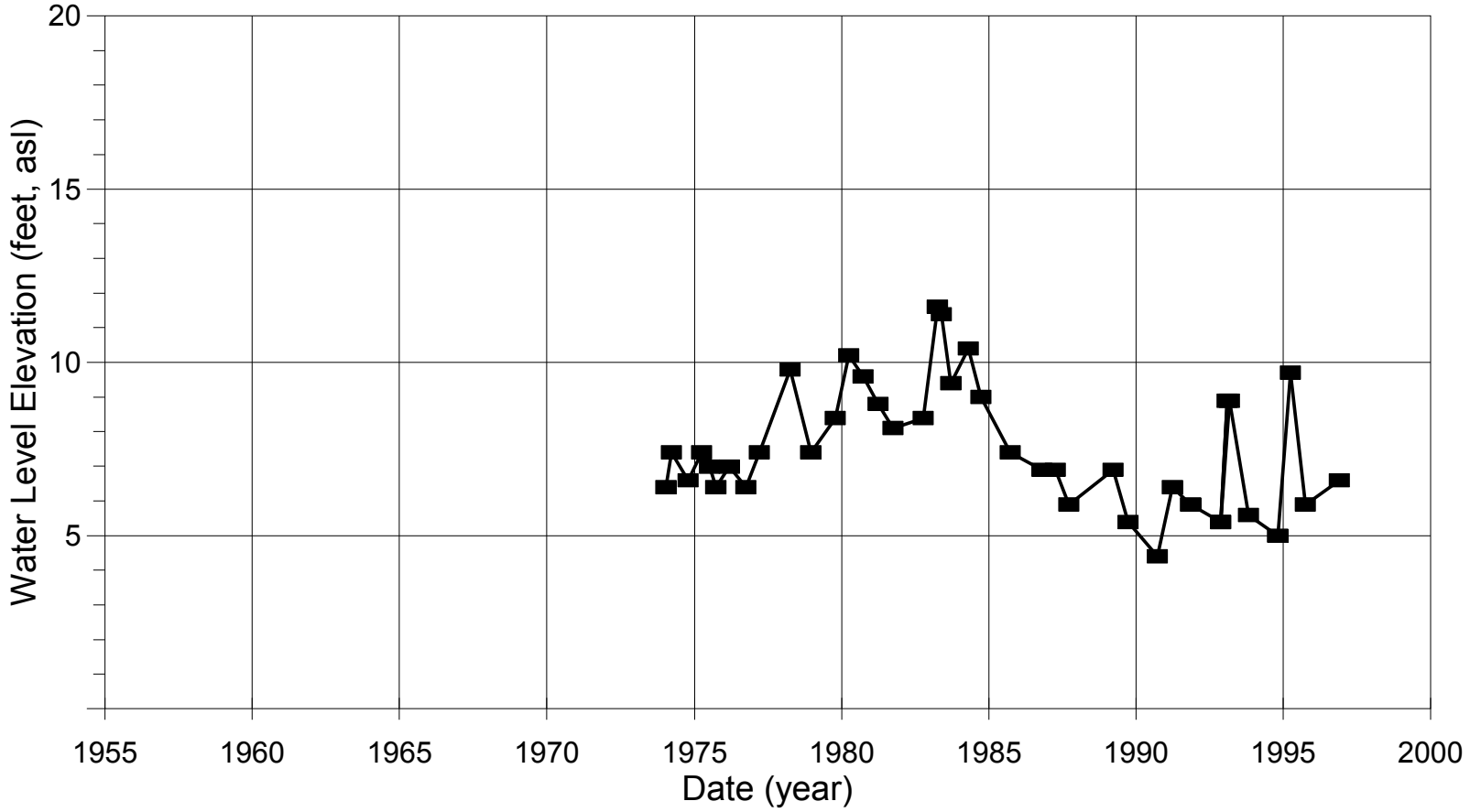
Water Level Elevation Hydrograph

ECCID Well T2N/R3E-30F1 5-73



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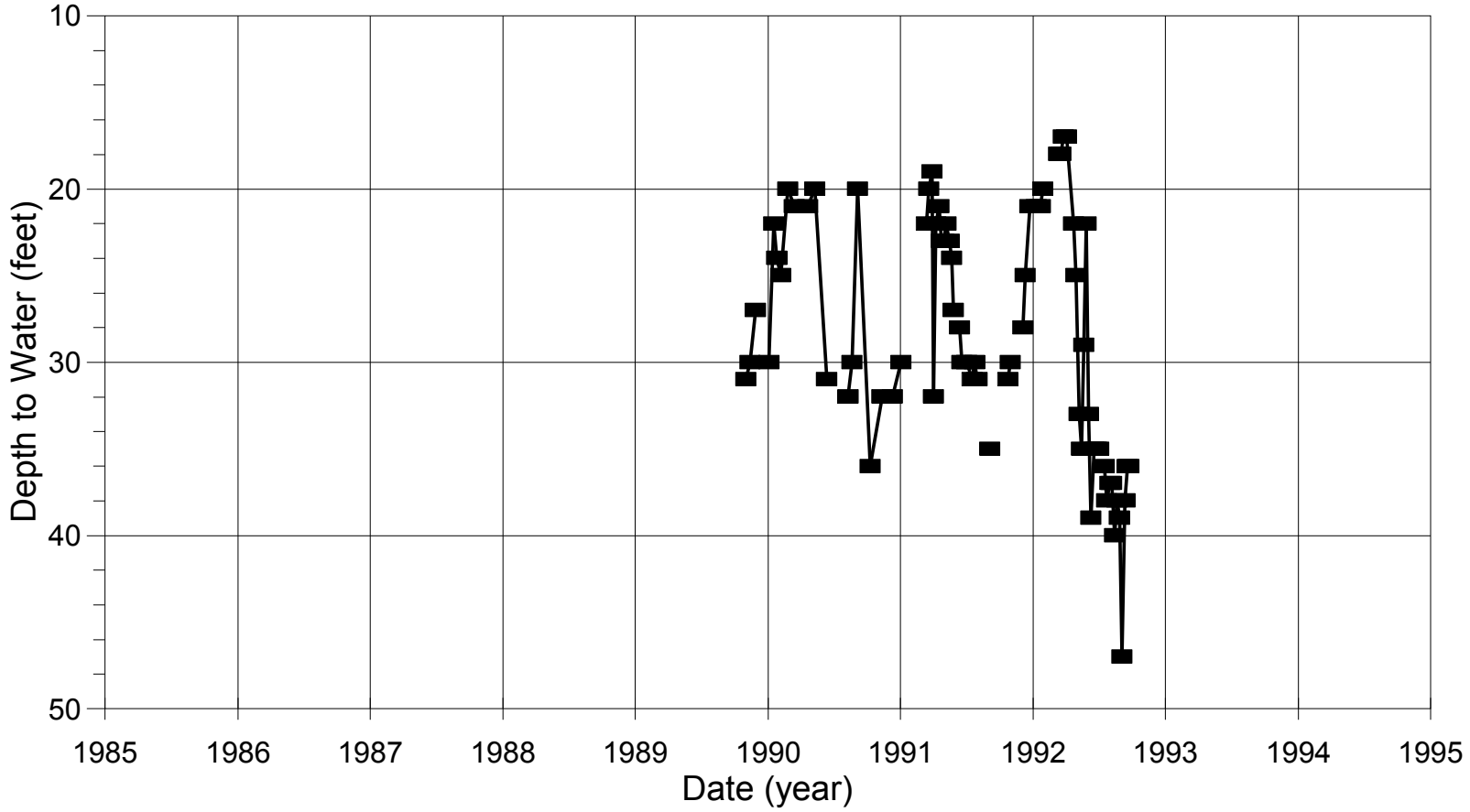
Depth to Water Hydrograph

Discovery Bay Well #4



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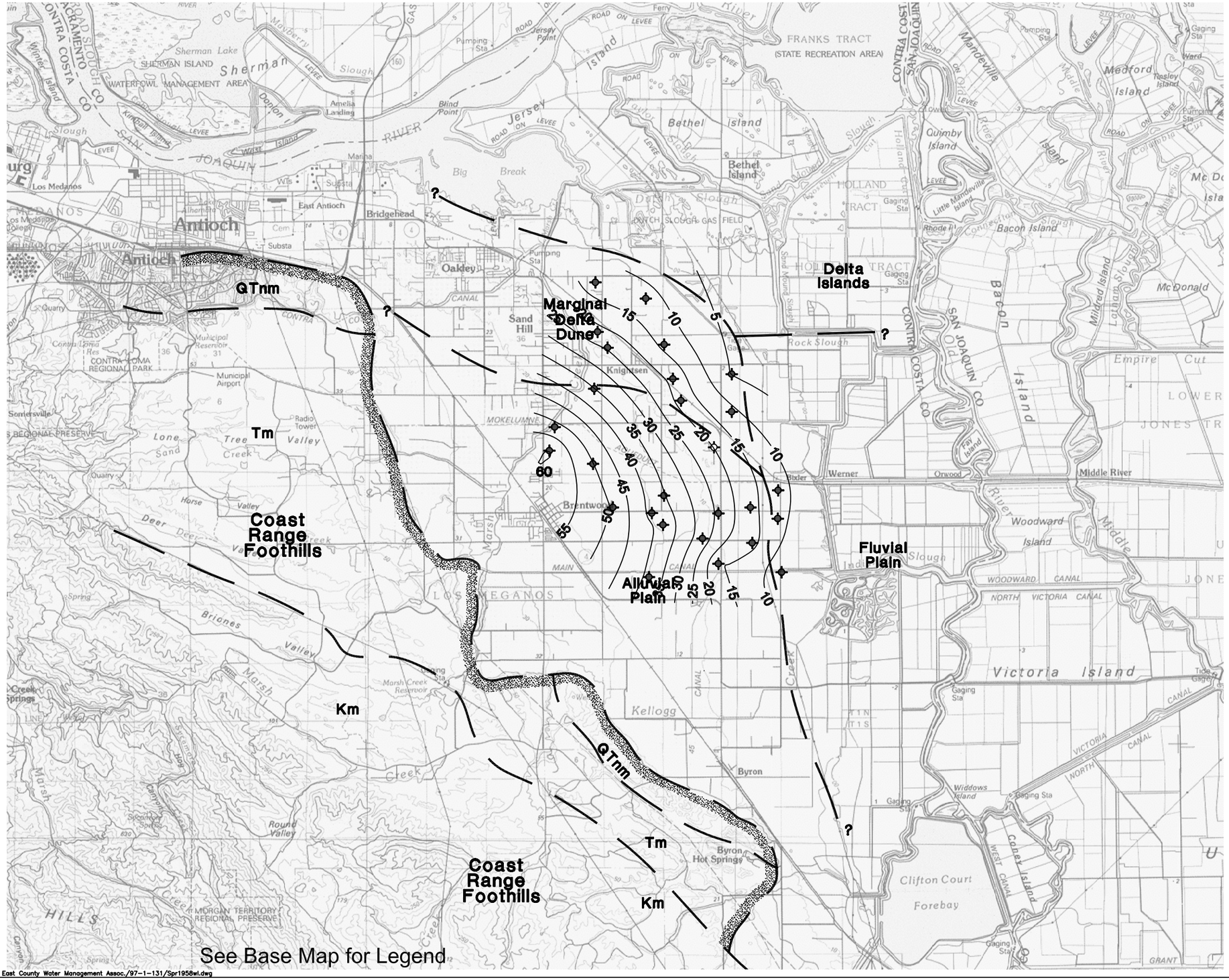


LEGEND

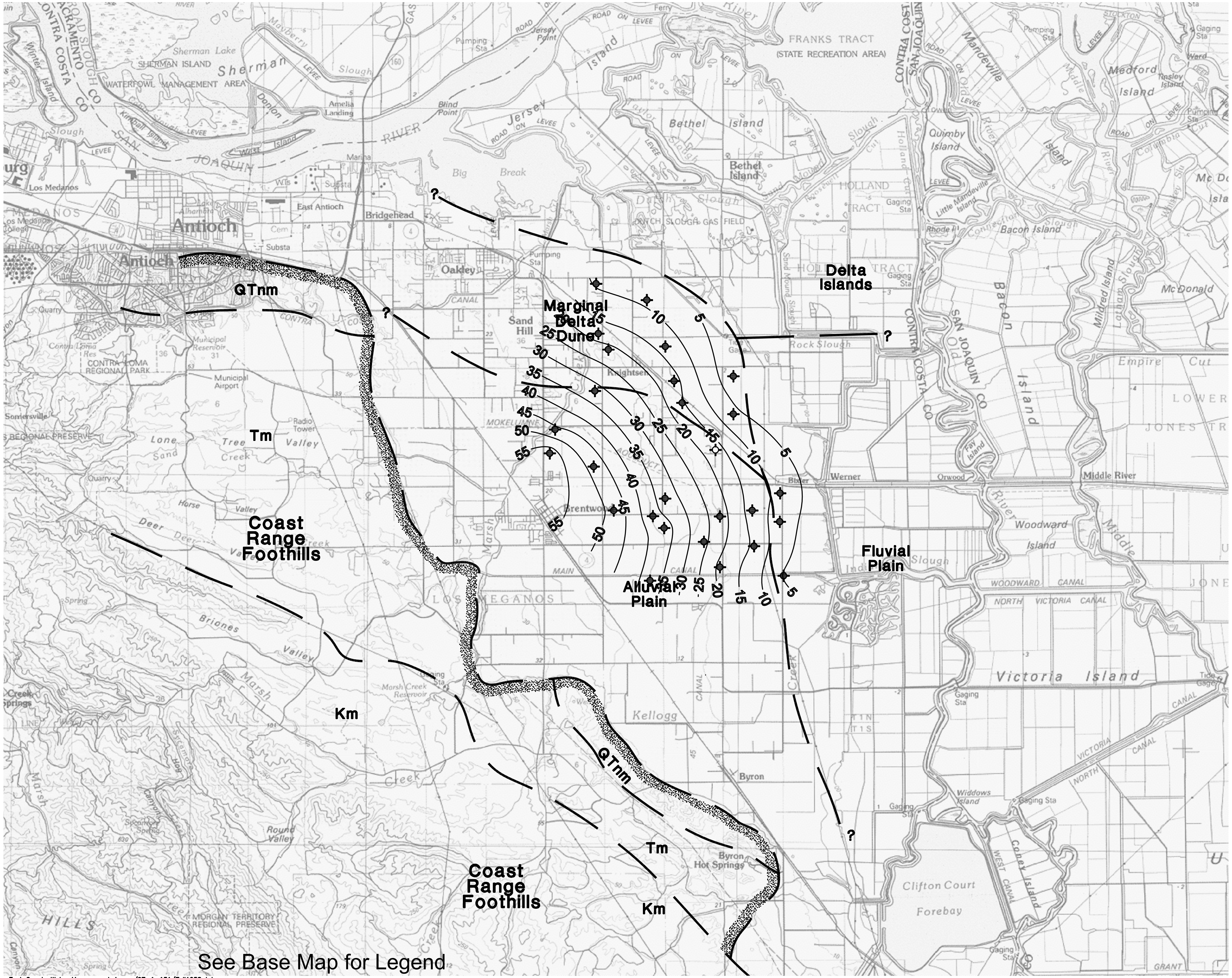
30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

Scale in Feet

0’ 4500’ 9000’ 18000’

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Spring 1958
East County Water Management Association
Ground-Water Resources Assessment



East County Water Management Assoc./97-1-131/Fall1958wl.dwg

LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

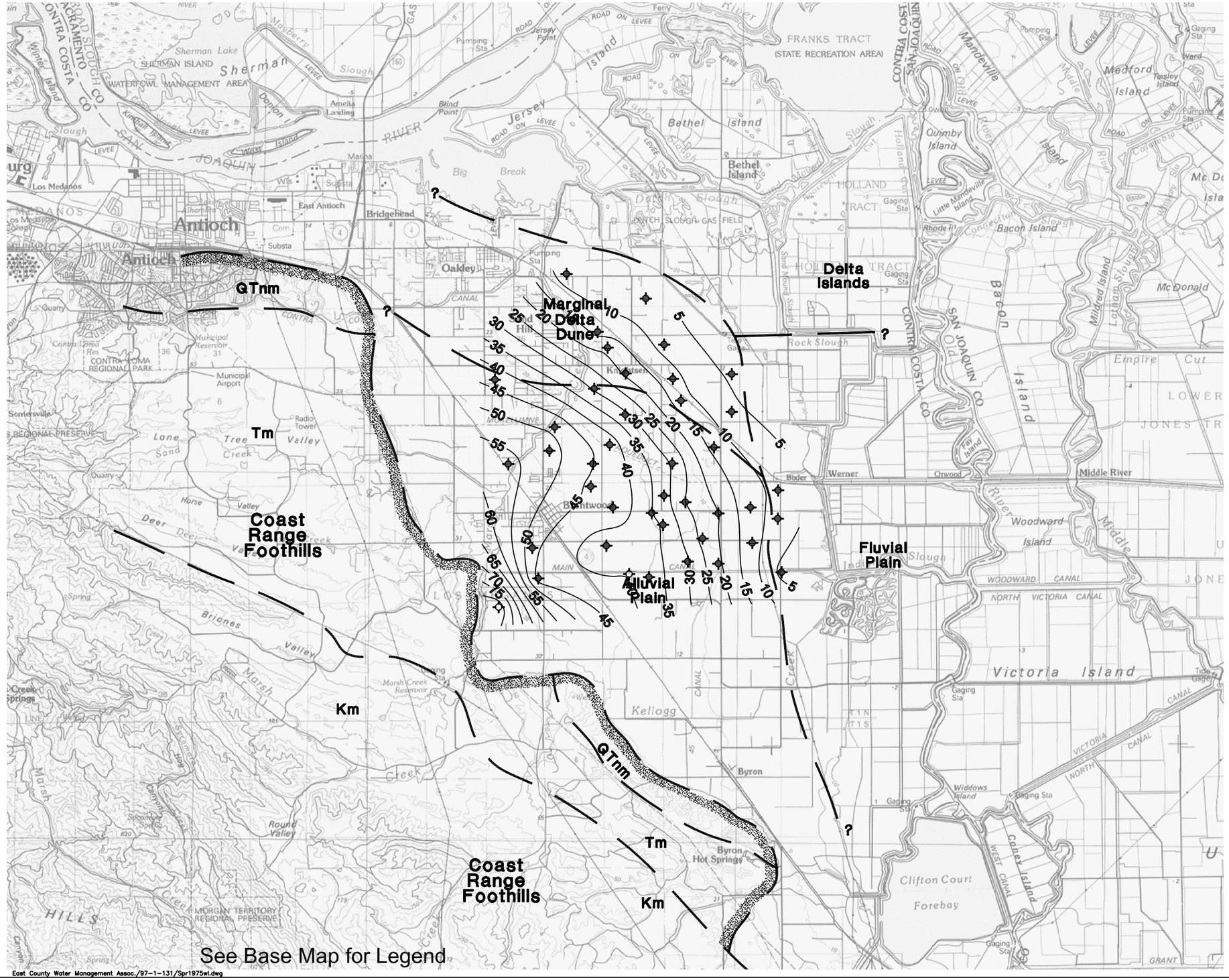
N

Scale in Feet

0' 4500' 9000' 18000'

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1958
East County Water Management Association
Ground-Water Resources Assessment

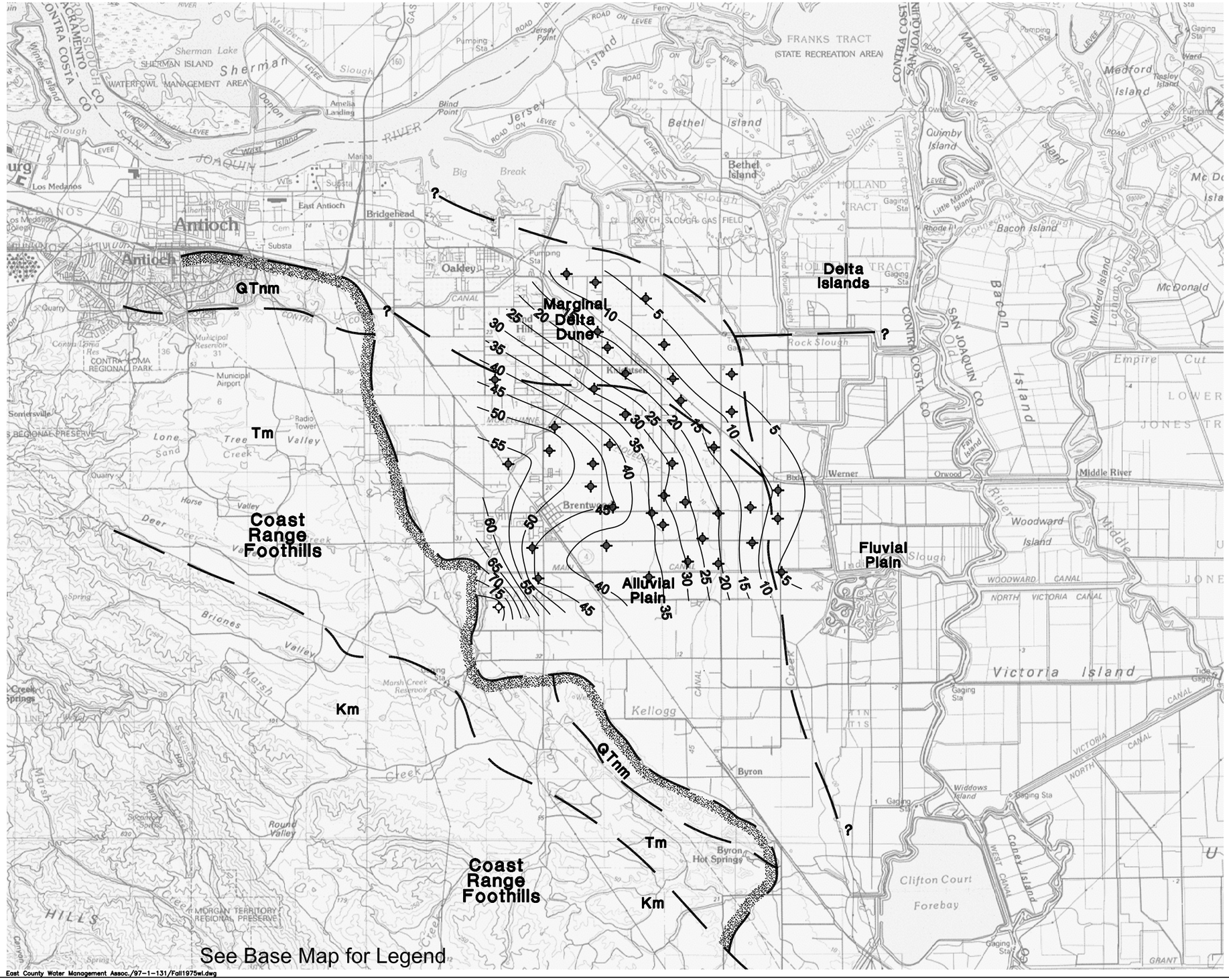


LEGEND

East County Water Management Assoc./97-1-131/Spr1975wl.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Spring 1975
East County Water Management Association
Ground-Water Resources Assessment



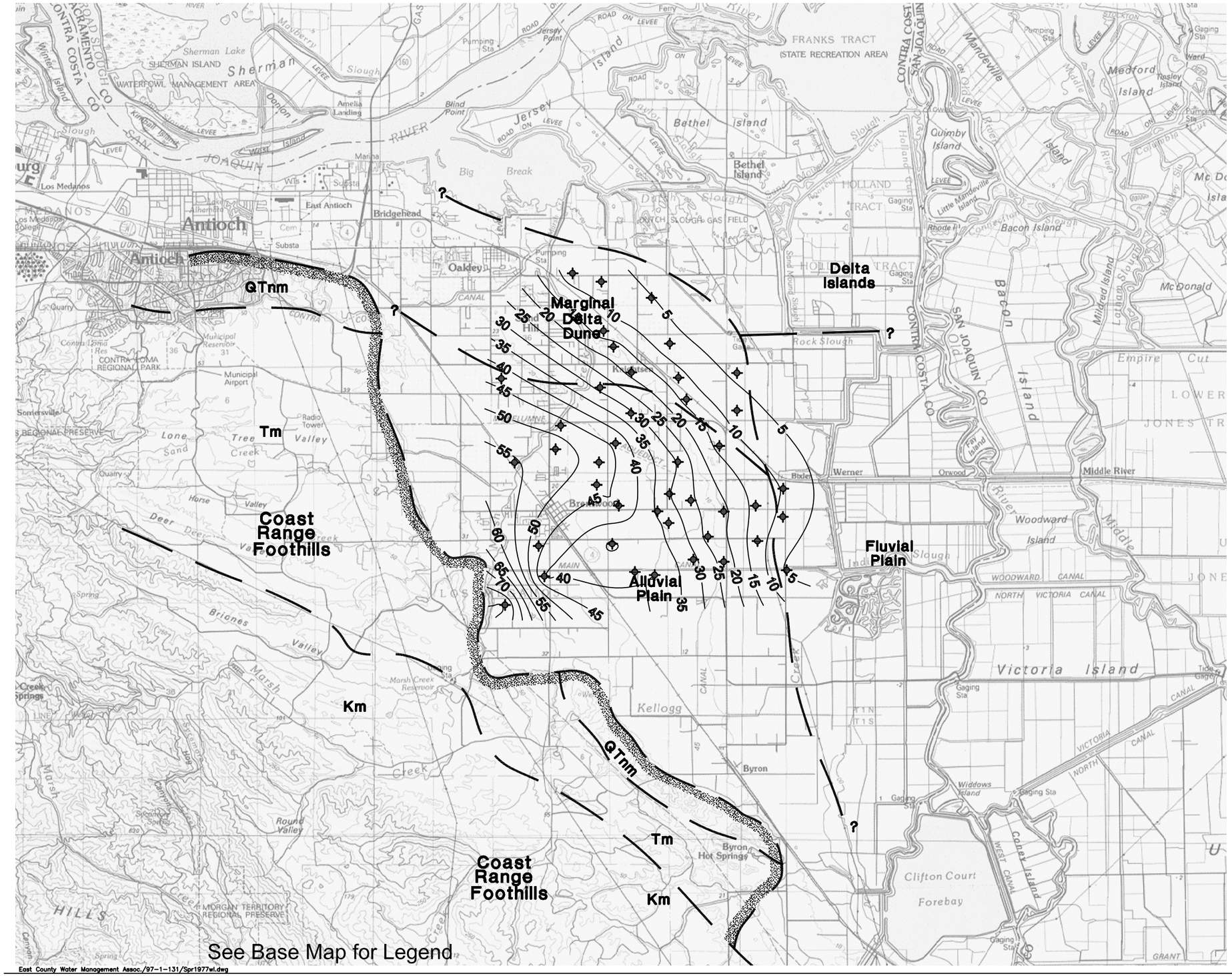
LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

East County Water Management Assoc./97-1-131/Fall1975wl.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1975
East County Water Management Association
Ground-Water Resources Assessment



See Base Map for Legend

East County Water Management Assoc./97-1-131/Spr1977wl.dwg

LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

N

Scale in Feet

0’ 4500’ 9000’ 18000’

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Spring 1977
East County Water Management Association
Ground-Water Resources Assessment

Unlined Canal

Delta Islands

Marginal Delta Dune

GTnm

Tm

Km

Coast Range Foothills

Alluvial Plain

Fluvial Plain

See Base Map for Legend

LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

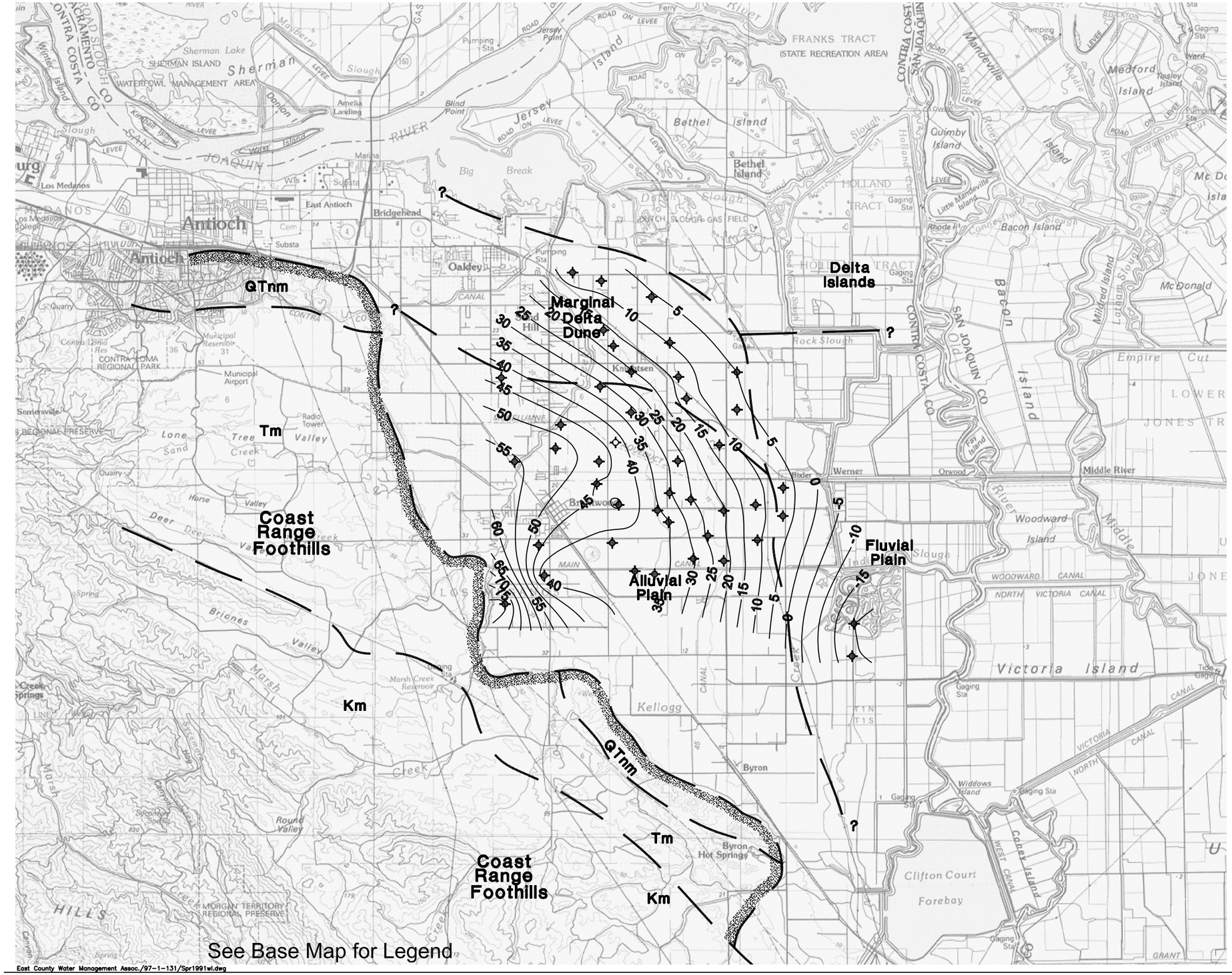
Scale in Feet

0’ 4500’ 9000’ 18000’

East County Water Management Assoc./97-1-131/Fall1986wl.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1986
East County Water Management Association
Ground-Water Resources Assessment



See Base Map for Legend

East County Water Management Assoc./97-1-131/Spr1991wl.dwg

LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

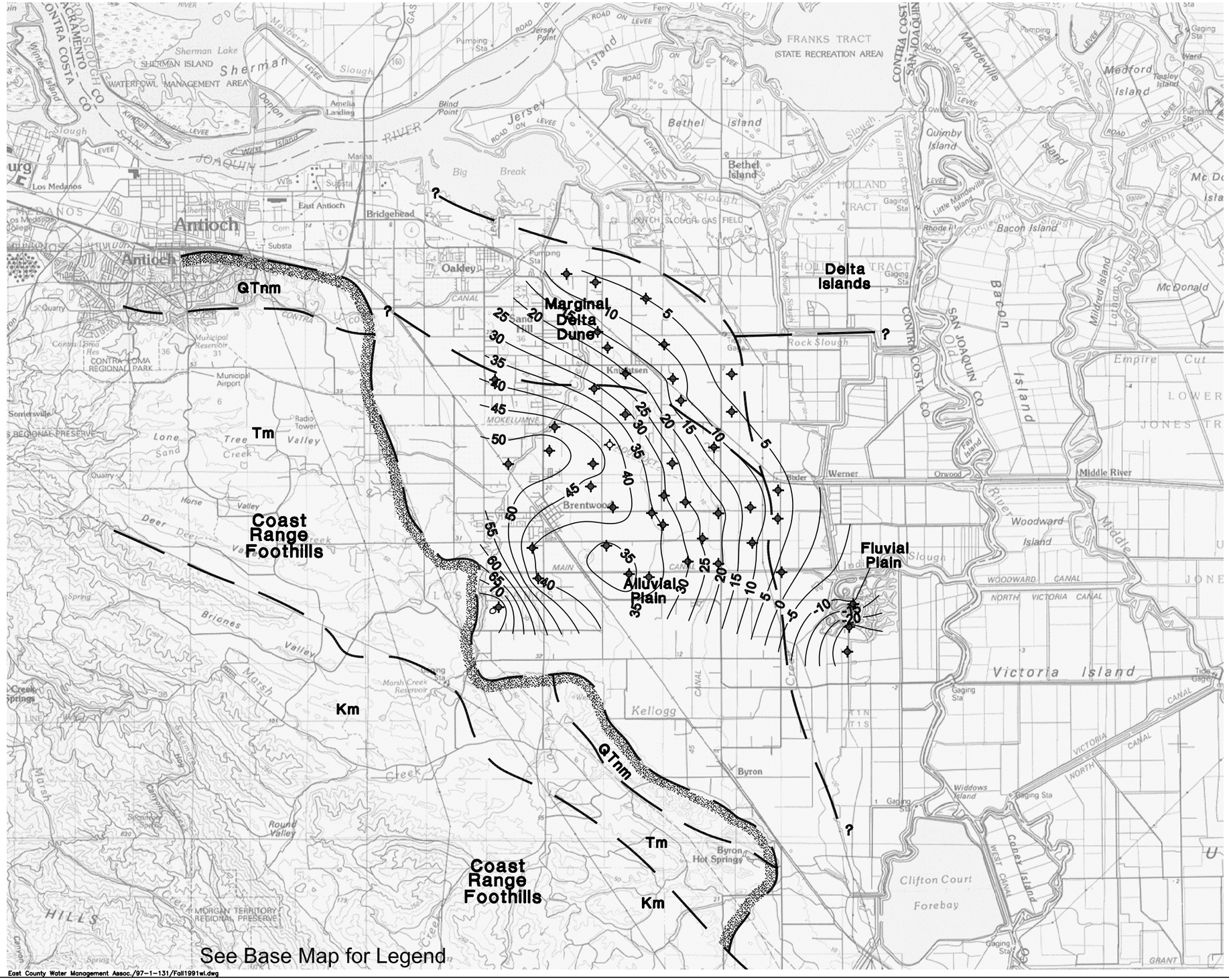
N

Scale in Feet

0’ 4500’ 9000’ 18000’

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Spring 1991
East County Water Management Association
Ground-Water Resources Assessment



See Base Map for Legend

East County Water Management Assoc./97-1-131/Fall1991wl.dwg

LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

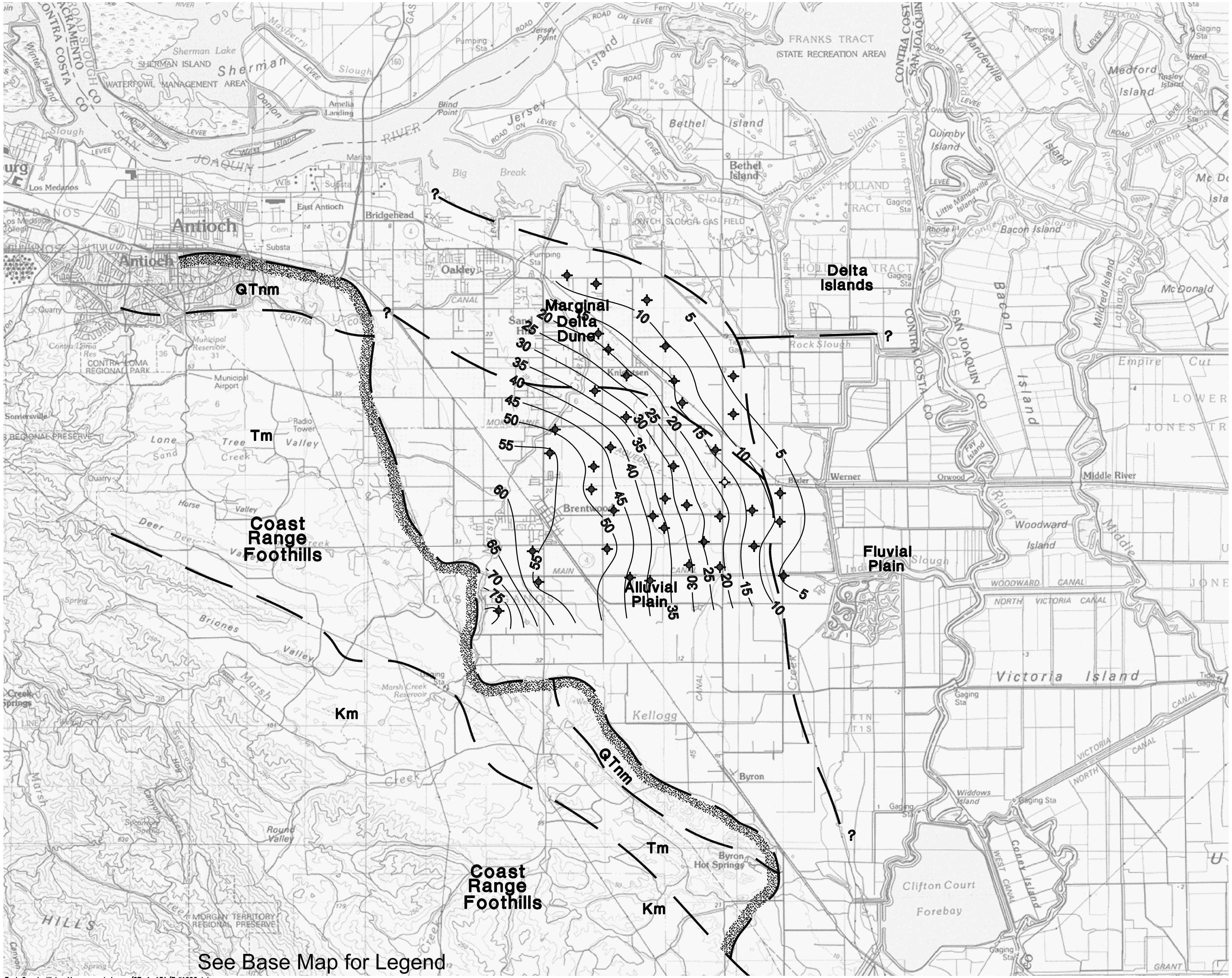
N

Scale in Feet

0’ 4500’ 9000’ 18000’

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1991
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

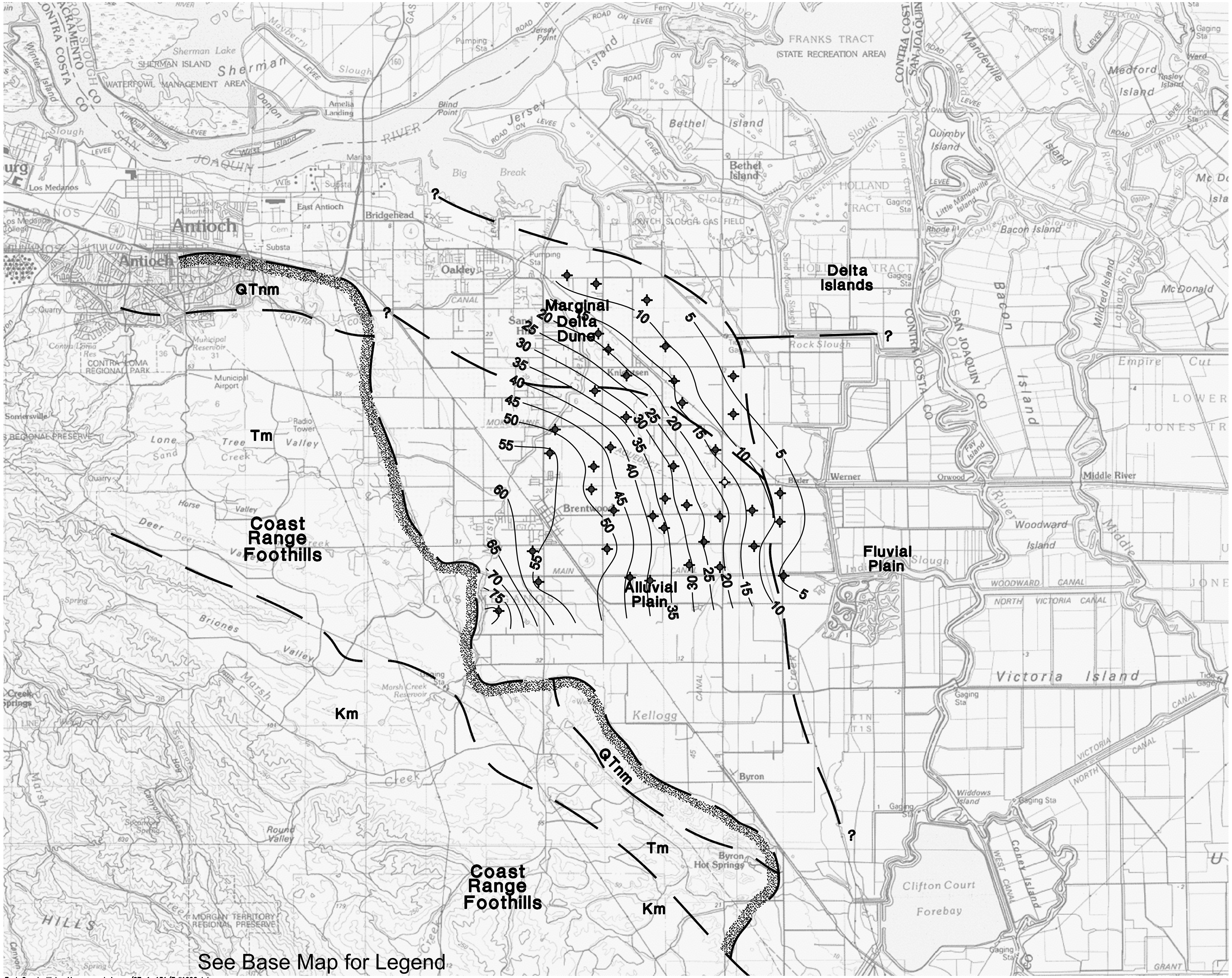
N

Scale in Feet

0' 4500' 9000' 18000'

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1996
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

30 — Contours of Equal Water Surface Elevation (feet, mean sea level).

Scale in Feet
0' 4500' 9000' 18000'

East County Water Management Assoc./97-1-131/Fall1996wl.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Equal Ground-Water Elevation - Fall 1996
East County Water Management Association
Ground-Water Resources Assessment

Delta Islands

Marginal Delta Dune

GTnm

Tm

Km

Coast Range Foothills

Fluvial Plain

Alluvial Plain

Coast Range Foothills

GTnm

Tm

Km

See Base Map for Legend

LEGEND

10 — Contours of Depth to Water (feet).

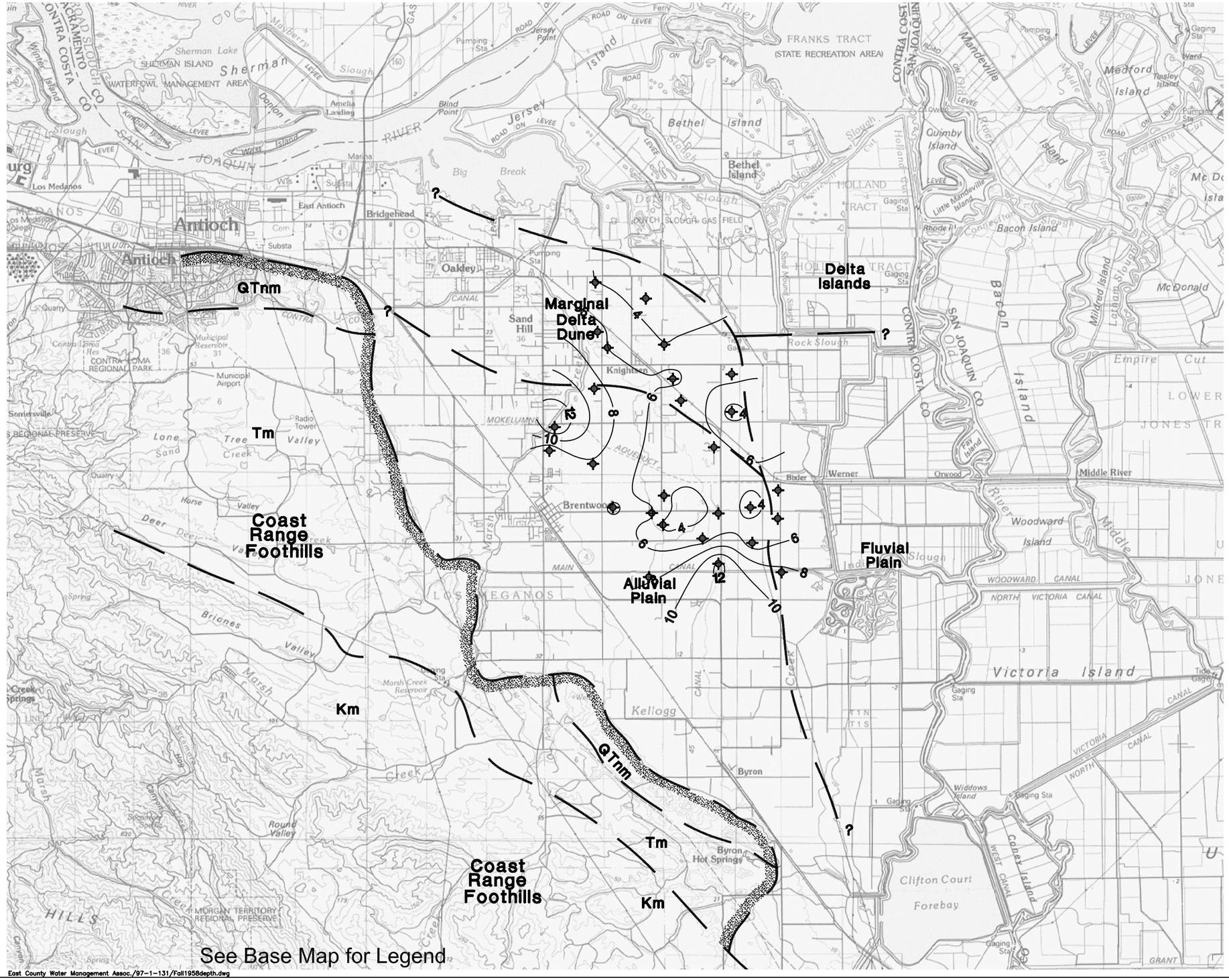
Scale in Feet

0’ 4500’ 9000’ 18000’

East County Water Management Assoc./97-1-131/Spr1958depth.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Depth to Water - Spring 1958
East County Water Management Association
Ground-Water Resources Assessment



East County Water Management Assoc./97-1-131/Fall1958depth.dwg

LEGEND

10 — Contours of Depth to Water (feet).

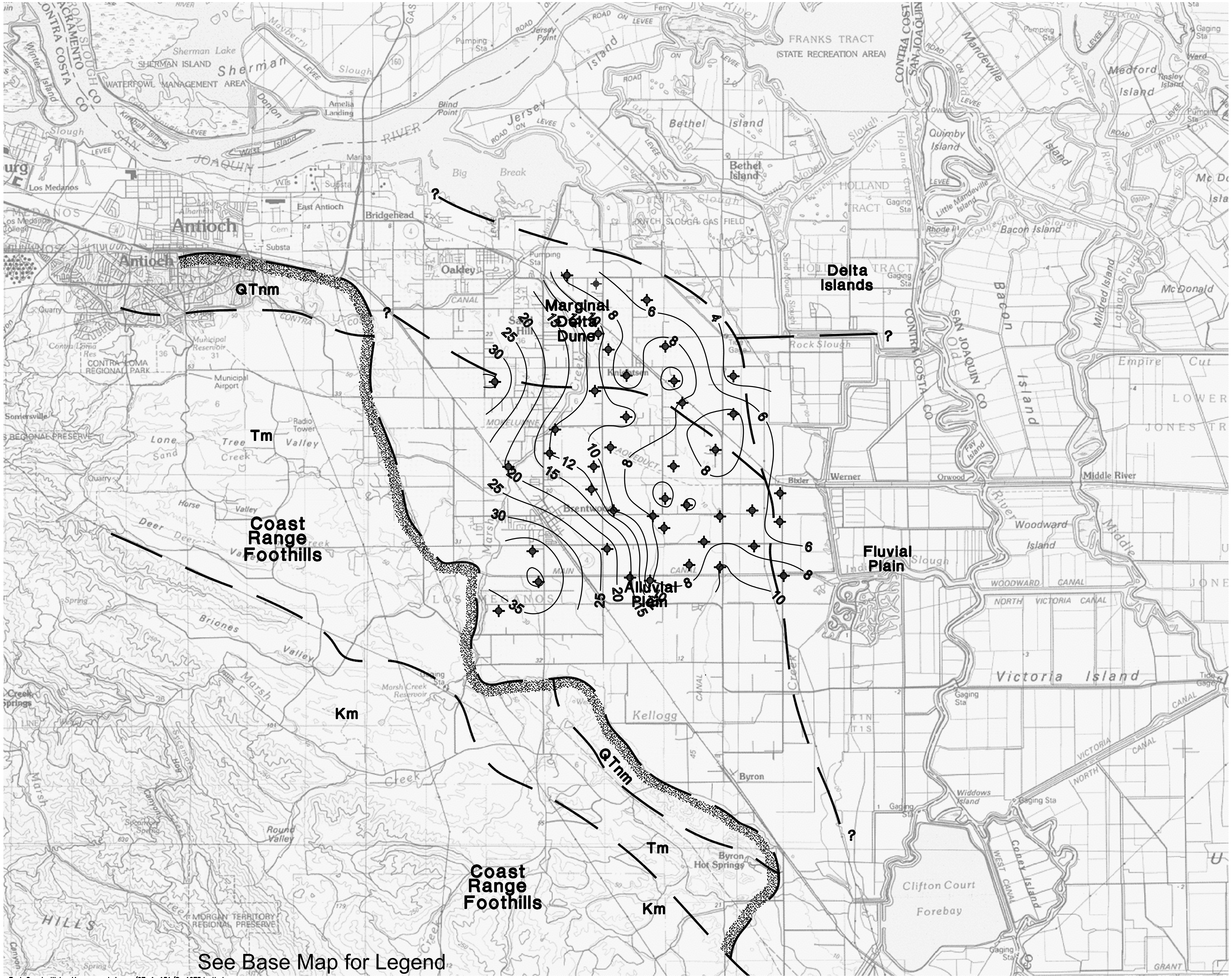
N

Scale in Feet

0’ 4500’ 9000’ 18000’

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Depth to Water - Fall 1958
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

Contours of Depth to Water (feet).

Scale in Feet

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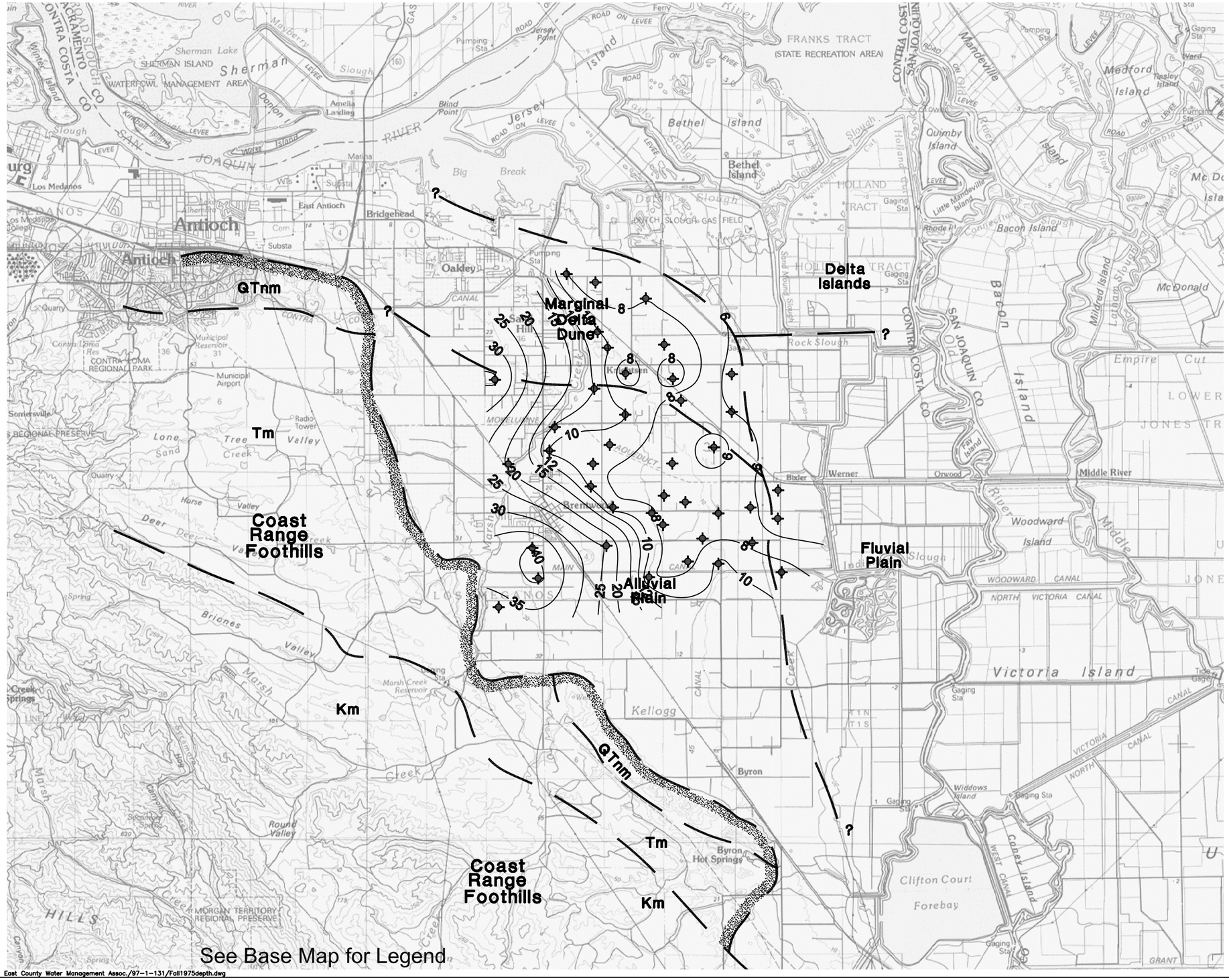
East County Water Management Assoc./97-1-131/Spr1975depth.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Depth to Water - Spring 1975
East County Water Management Association
Ground-Water Resources Assessment



See Base Map for Legend

East County Water Management Assoc./97-1-131/Fall1975depth.dwg

LEGEND

10 — Contours of Depth to Water (feet).

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Depth to Water - Fall 1975
East County Water Management Association
Ground-Water Resources Assessment

Marginal Delta Dune

Delta Islands

Fluvial Plain

Alluvial Plain

Coast Range Foothills

QTnm

Tm

Km

?

LEGEND

10 — Contours of Depth to Water (feet).

N

Scale in Feet

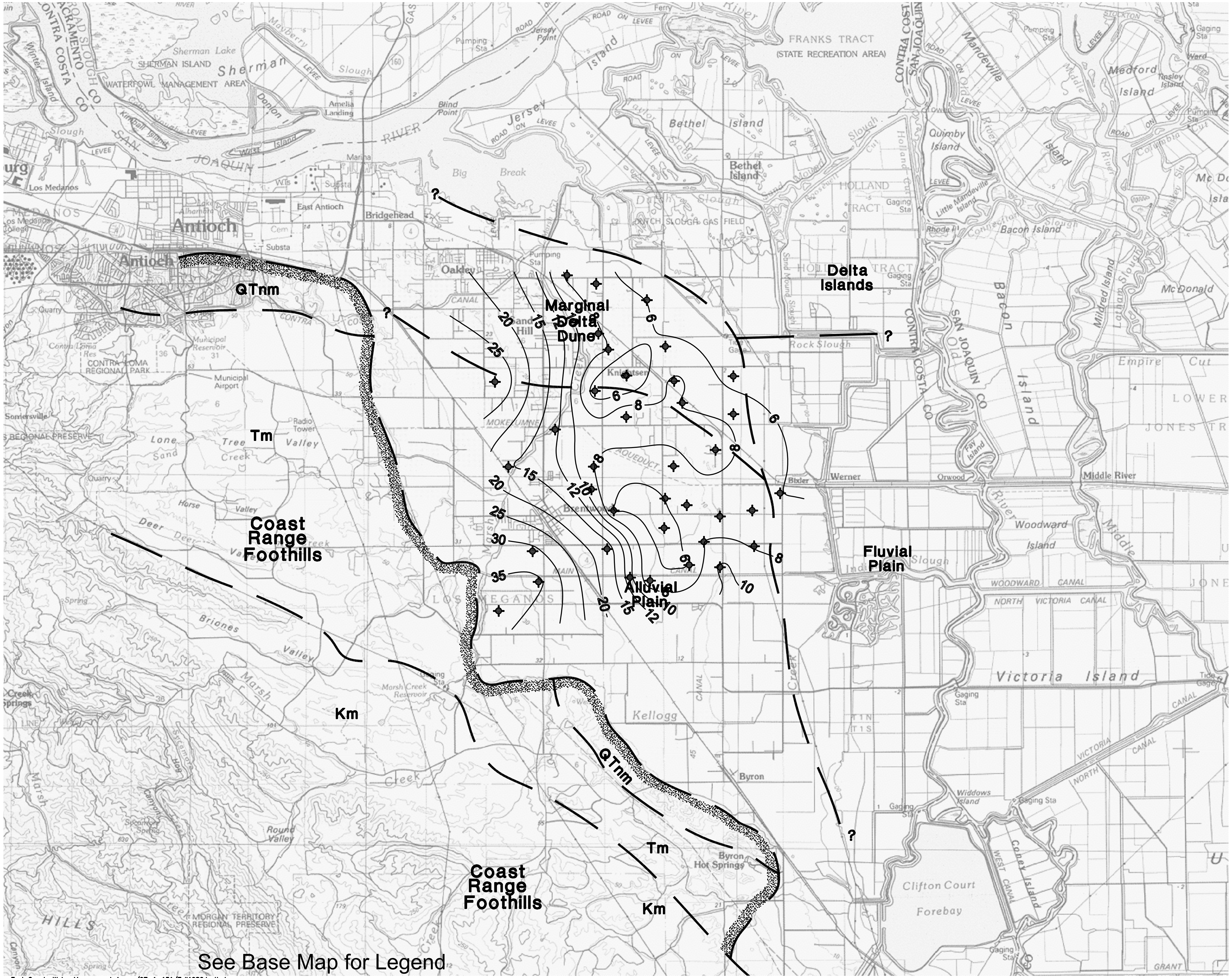
0’ 4500’ 9000’ 18000’

See Base Map for Legend

East County Water Management Assoc./97-1-131/Spr1977depth.dwg

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Depth to Water - Spring 1977
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

10 — Contours of Depth to Water (feet).

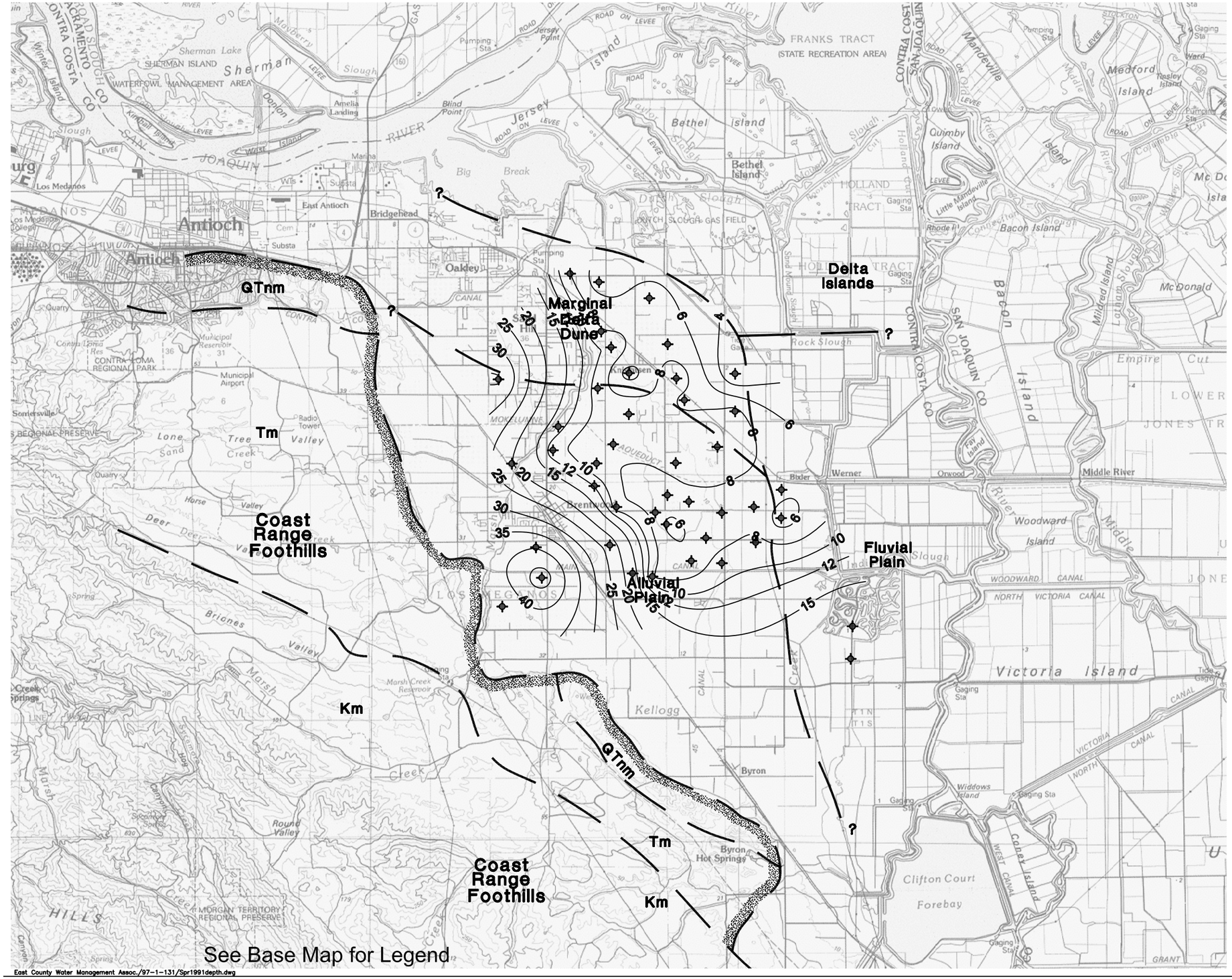
N

Scale in Feet

0' 4500' 9000' 18000'

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Depth to Water - Fall 1986
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

10 — Contours of Depth to Water (feet).

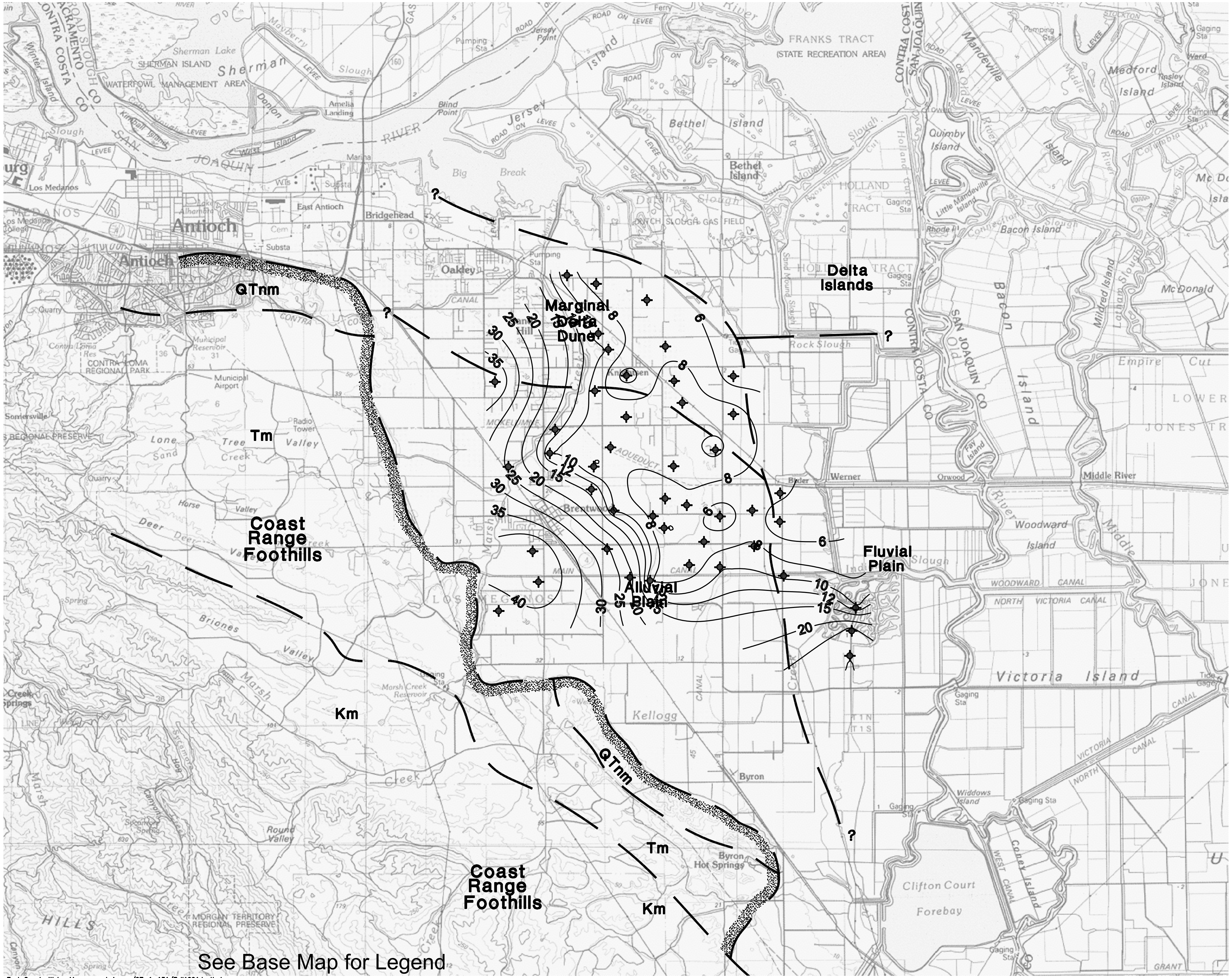
Scale in Feet

0’ 4500’ 9000’ 18000’

East County Water Management Assoc./97-1-131/Spr1991depth.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Depth to Water - Spring 1991
East County Water Management Association
Ground-Water Resources Assessment



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LEGEND

10 Contours of Depth to Water (feet).

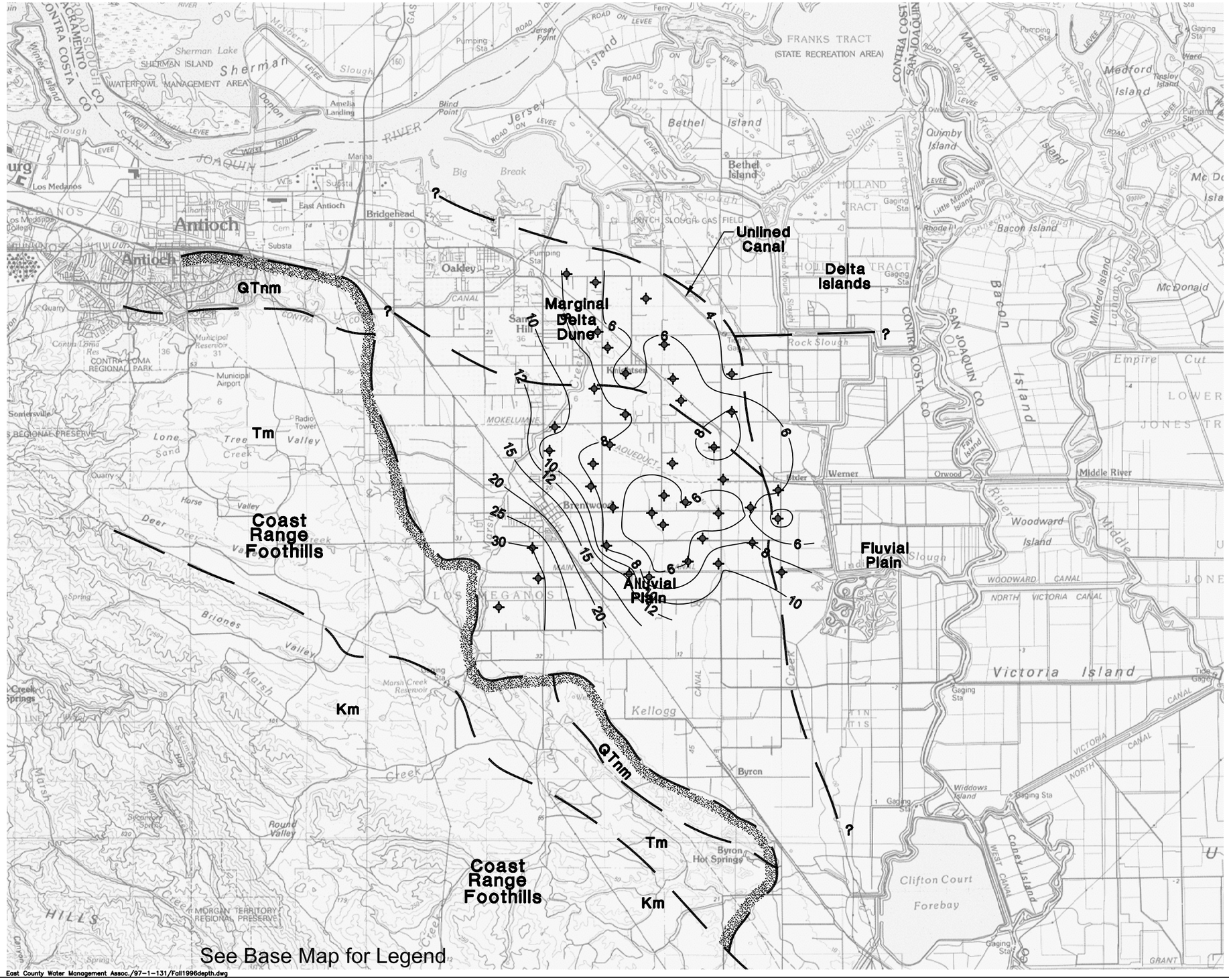
N

Scale in Feet

0' 4500' 9000' 18000'

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Contours of Depth to Water - Fall 1991
East County Water Management Association
Ground-Water Resources Assessment



LEGEND

10 — Contours of Depth to Water (feet).

N

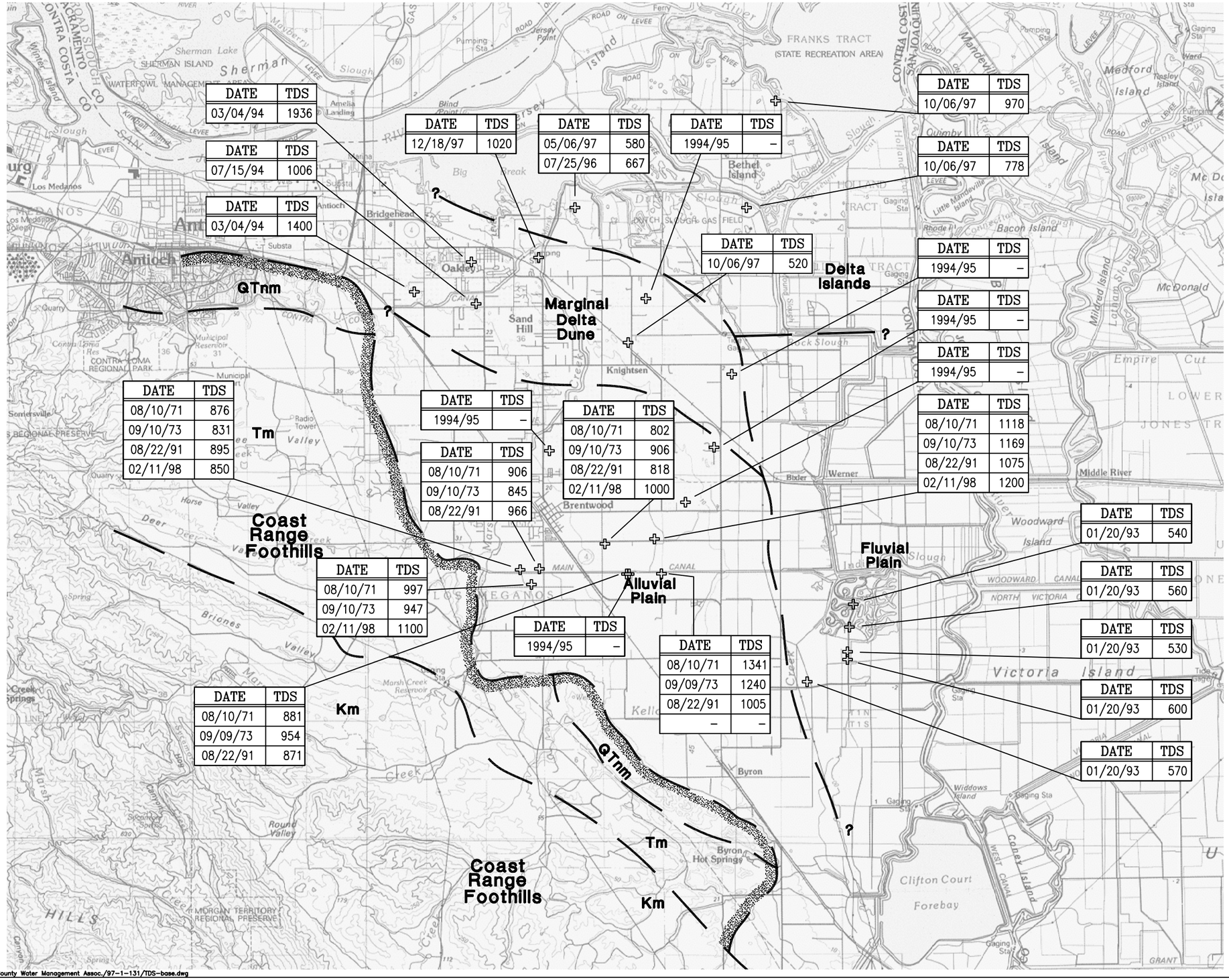
Scale in Feet

0’ 4500’ 9000’ 18000’

East County Water Management Assoc./97-1-131/Fall1996depth.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Contours of Depth to Water - Fall 1996
East County Water Management Association
Ground-Water Resources Assessment



East County Water Management Assoc./97-1-131/TDS-base.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Water Quality Data for TDS
East County Water Management Association
Ground-Water Resources Assessment

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07/15/94	25

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03/04/94	33

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08/22/91	–

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09/09/73	24
08/22/91	–

Marginal Delta Dune

Delta Islands

Fluvial Plain

Alluvial Plain

Coast Range Foothills

Coast Range Foothills

QTnm

QTnm

Tm

Tm

Km

Km

?

?

?

?

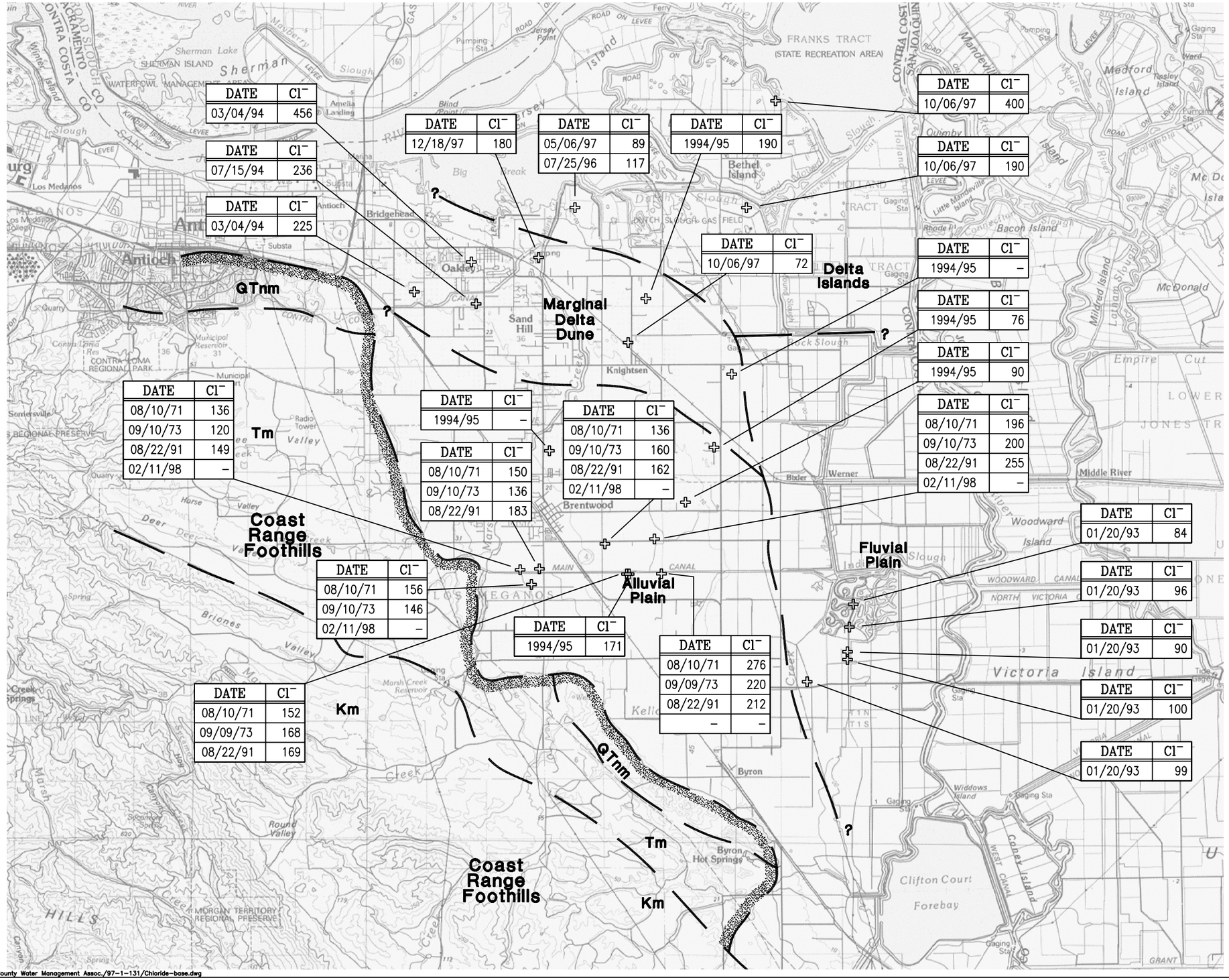
Scale in Feet

0’ 4500’ 9000’ 18000’

East County Water Management Assoc./97-1-131/Nitrate-base.dwg

LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Water Quality Data for Nitrate
East County Water Management Association
Ground-Water Resources Assessment

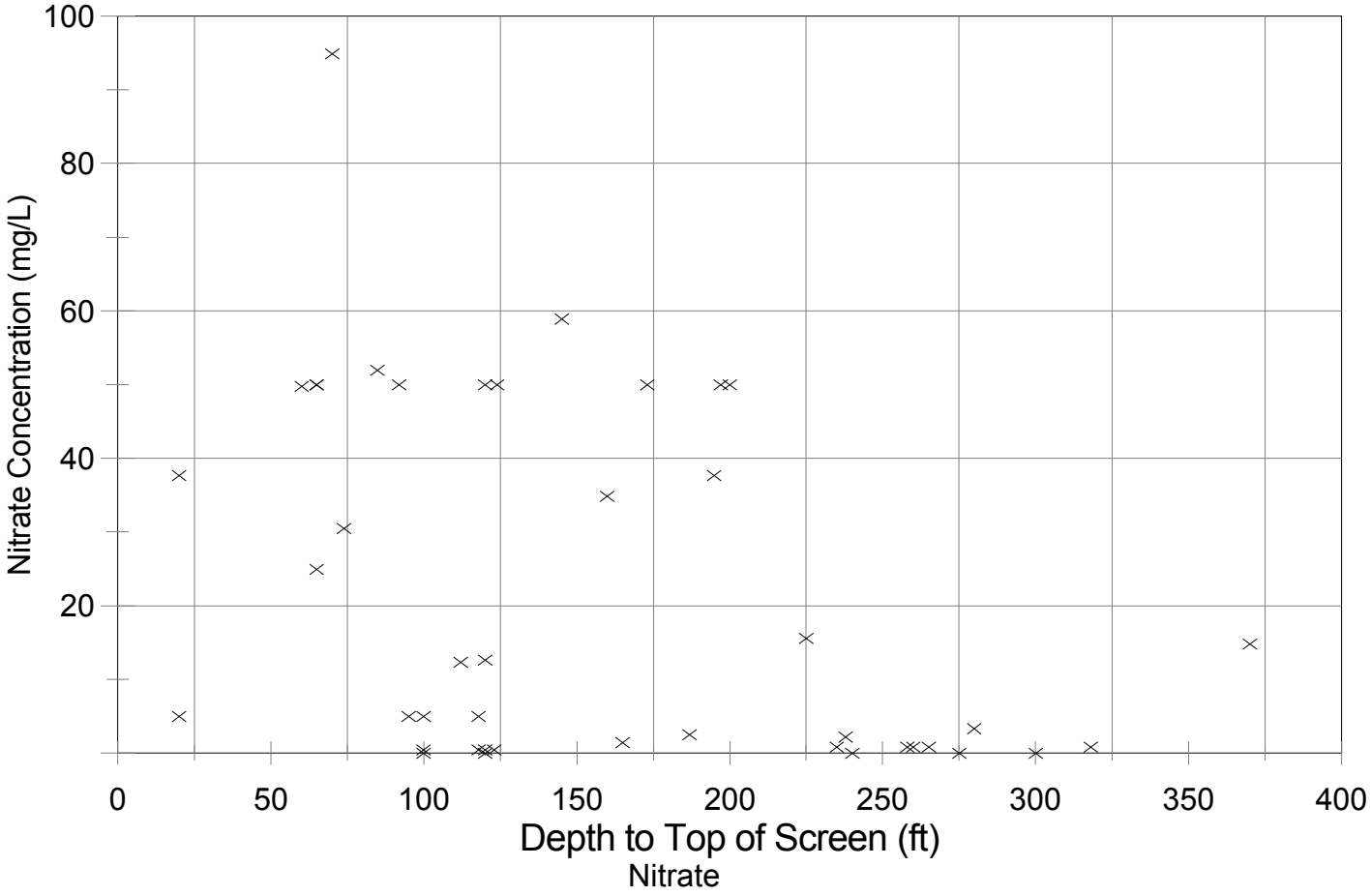


East County Water Management Assoc./97-1-131/Chloride-base.dwg

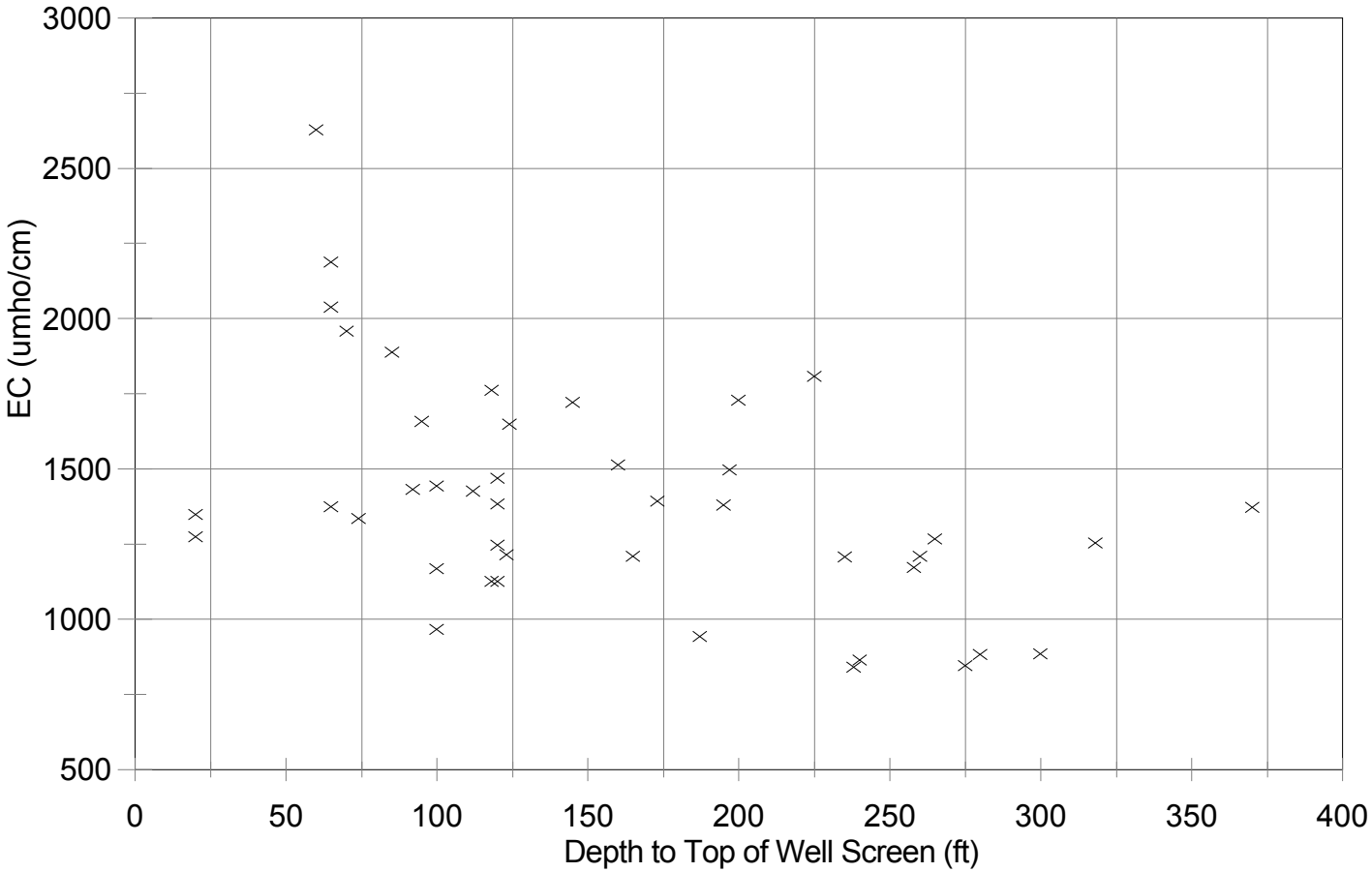
LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Water Quality Data for Chloride
East County Water Management Association
Ground-Water Resources Assessment

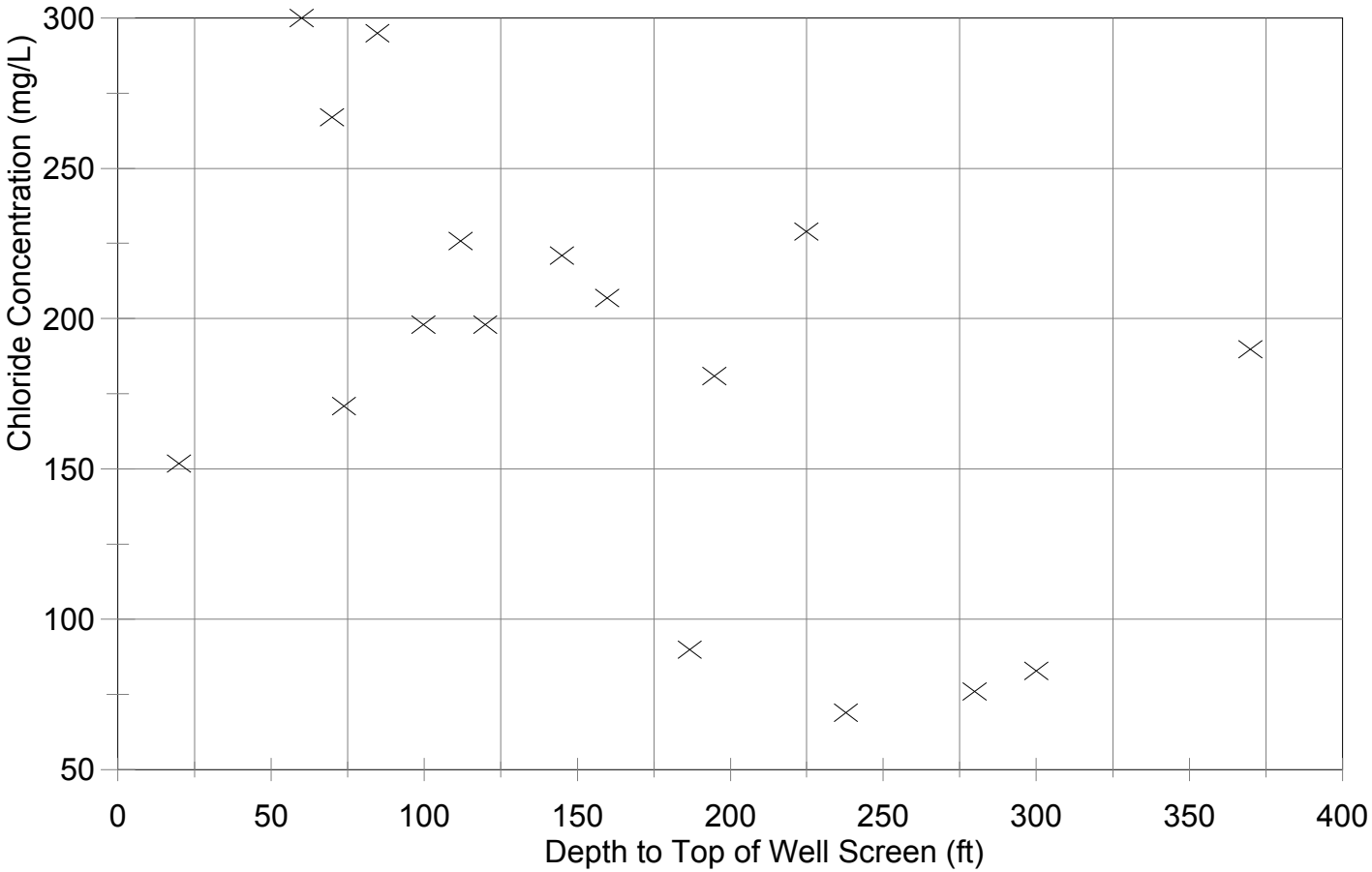
Nitrate Concentration
Relation to Well Completion



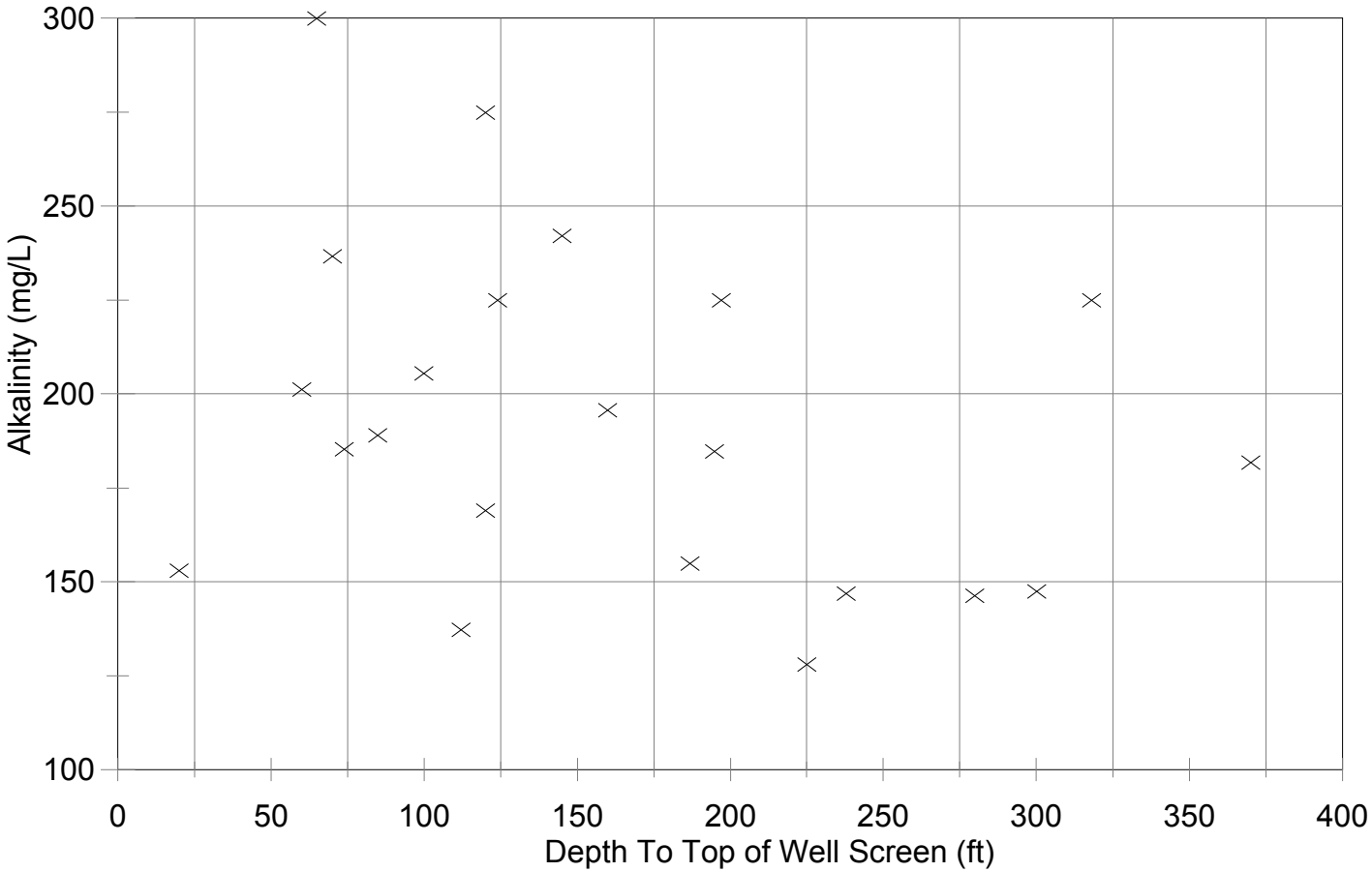
Ground-Water EC
Relation to Well Completion



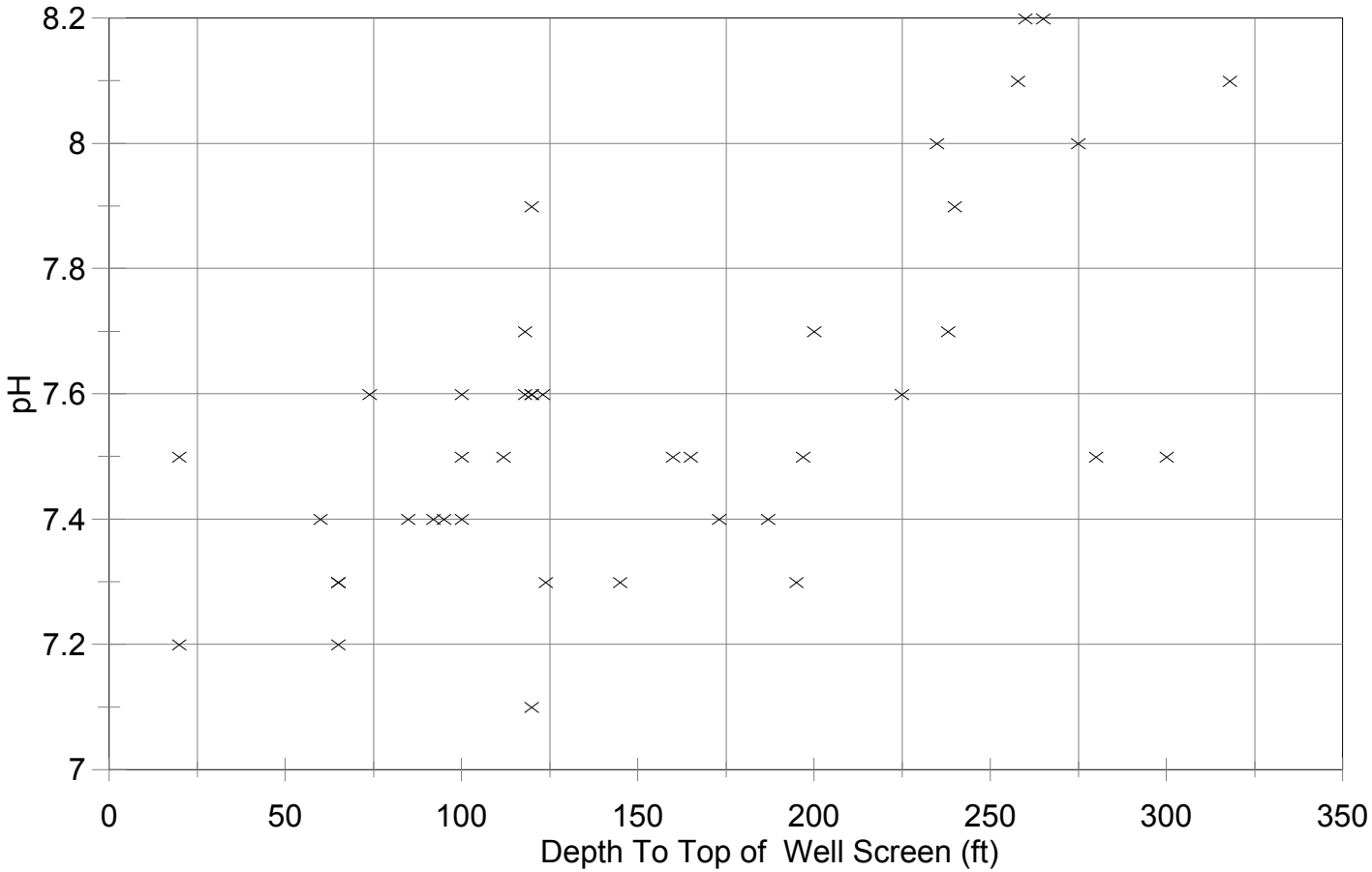
Chloride Ion Concentration
Relation to Well Completion



Ground-Water Alkalinity
Relation to Well Completion

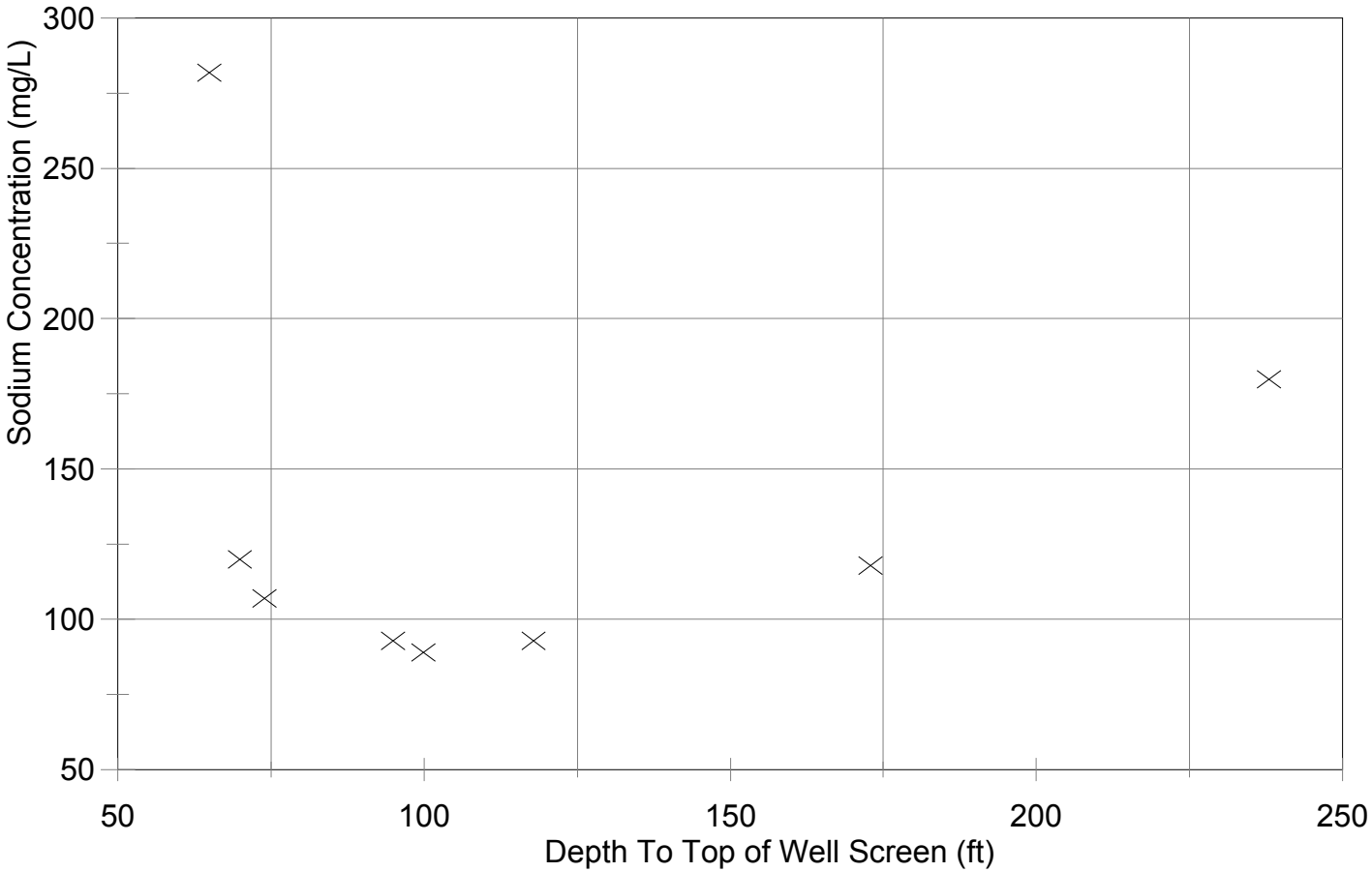


Ground-Water pH
Relation to Well Completion



Sodium Ion Concentration

Relation to Well Completion



APPENDIX 3b

An Evaluation of Geological Conditions, East Contra Costa County, 2016

AN EVALUATION OF GEOLOGIC CONDITIONS

EAST CONTRA COSTA COUNTY

Prepared for:

East Contra Costa County Agencies

Prepared by:

Luhdorff & Scalmanini, Consulting Engineers, Inc.

March 29, 2016

AN EVALUATION OF GEOLOGIC CONDITIONS

EAST CONTRA COSTA COUNTY

Prepared by:

Luhdorff & Scalmanini, Consulting Engineers, Inc.

March 28, 2016

Kenneth W. Utley

TABLE OF CONTENTS

1. INTRODUCTION

This report was prepared for the following local agencies located within the eastern portion of Contra Costa County:

- Byron-Bethany Irrigation District
- City of Brentwood
- Contra Costa County
- Diablo Water District
- East Contra Costa Irrigation District
- Town of Discovery Bay

These agencies authorized and funded the work to develop a fuller understanding of the geologic setting underlying the Contra Costa County portion of the Tracy Groundwater Subbasin (DWR 5-22.15). Other cooperating agenicies included Contra Costa Water District and City of Antioch. The location of the Tracy Subbasin is shown on **Figure 1**.

The work described in this report was also undertaken to better understand differences among three subareas within the Tracy Subbasin, which are shown on **Figure 2**. The subareas are as follows:

1. The portion of the subbasin that occurs within Contra Costa County.
2. The portion of the subbasin that occurs within San Joaquin County north of Old River.
3. The portion of the subbasin that occurs within San Joaquin and Alameda counties south of Old River.

Local agencies in the Tracy Subbasin have engaged in efforts to comply with the 2014 Sustainable Groundwater Management Act (SGMA). The above subareas have been discussed among local agencies as potential boundaries for formation of Groundwater Sustainability Agencies and Groundwater Sustainability Plans. They also represent divisions in previous general water resource planning, including AB3030 Groundwater Management Plans, reflective of variations in groundwater occurrence and availability, and jurisdictional considerations. This report focuses on the geologic history of freshwater sediments from which groundwater is extracted for beneficial uses as defined and regulated under SGMA. The work is intended to provide a basis for hydrogeologic conceptualization of the subbasin and, through its design and approach, to identify connections or distinctions that will aid in the development of Groundwater Sustainability Plans. In accordance with the objectives of the funding agencies, the work was also undertaken to assess any basis for modifying the Tracy Subbasin boundaries to enable more local control over groundwater resources.

2. GEOLOGY

The study area for this report is the northwestern portion of the San Joaquin Valley where it merges in the Delta area with the Sacramento Valley of the larger geologic province of the Great Valley (see **Figure 3**). The study area encompasses the eastern portion of the Contra Costa County and western San Joaquin County to south of the City of Tracy. Fresh groundwater is produced for municipal, domestic, and irrigation from underlying unconsolidated alluvial fan and fluvial sedimentary deposits. Much irrigation water is also supplied by surface water from various sloughs and ditches, particularly in the eastern portion of the study area.

2.1 Coast Ranges Geology

West of the San Joaquin Valley lies the Coast Ranges geologic province of uplifted, older, highly deformed, and well-consolidated geologic units. The immediate range is termed the Diablo Mountains, but is subdivided here as the Mt. Diablo area north of Livermore Valley, and the southern Diablo range to the south. These areas have had a long history of sedimentary deposition, deformation, and uplift. The geologic units are a record of the plate tectonic evolution of California. The units exposed in the Mt. Diablo Mountains extend eastward below the San Joaquin valley at great depths. These units are divided into three broad categories: the Mesozoic Great Valley Sequence, the Tertiary (Paleogene) sedimentary rocks, and the late Tertiary (Neogene) sedimentary rocks. These exposures in the Diablo Mountains are shown on **Plate 1**.

Regional geologic relationships are best seen on the San Francisco-San Jose Quadrangle map (Wagner and others, 1990). Numerous more detailed geologic maps and reports cover the area. The most accessible detailed maps are by T.W. Dibble, Jr. from the Dibblee Foundation series and which were used in preparing this report. Reports summarizing the geologic history include the classic Hackel (1966), and the more recent Bartow (1991), which is the main source for this report.

2.2 Mesozoic Great Valley Sequence

The Mesozoic (pre-65 million years (m.y.)) Great Valley Sequence consists of deep water marine sedimentary deposits grading eastward into shallow marine and deltaic deposits. These units were deposited in the forearc basin in the convergent plate tectonic setting of the subduction of the Pacific Plate below the North American Plate. The Andes-like volcanics to the east in the Sierra Nevada area was the source of the sediment carried into the forearc basin. The Great Valley Sequence occurs in the Mt. Diablo area and the southern Diablo range, and underlies younger deposits below the San Joaquin Valley.

In the Mesozoic of the northwestern San Joaquin Valley area, a structural element formed that influenced depositional patterns for a long period of geologic time. The Stockton Fault appears to be initially a down-thrown to the south normal fault with greater thickness of the Great Valley Sequence to the south. The cause of the Stockton Fault is not clear from a tectonic framework, and different theories have been

proposed (Bartow, 1991). Subsequent activity on the fault shows opposite movement as a reverse fault with down to the north relative motions.

2.3 Tertiary-Paleogene Sedimentary Rocks

Beginning in the early Tertiary, the plate tectonic configuration began to change as plate subduction angles altered, and the change to a transform boundary of the ultimate San Andreas Fault system began to evolve. During much of the Paleogene (about 59 to 23 m.y.), the San Joaquin Valley and Coast Ranges were dominated by alternating sequences of marine inundations of shallow marine deposits and periods of non-marine sequences (Bartow, 1991). Even during deposition of non-marine sequences, marine deposition continued north of the Stockton Fault and in the southern San Joaquin Valley.

The Paleogene sedimentary rocks are exposed on the northern edge of the Mt. Diablo area, west of the City of Brentwood (see **Plate 1**). These deposits are largely marine sandstones and shales, and their exposure pattern may reflect the Sherman Island and Midlands Faults. The units extend below the Valley floor north of the Stockton Fault.

During the Tertiary Period, the Stockton Fault assumed a down to the north reverse fault movement. On the uplifted southern side of the fault, the Paleogene sedimentary units are absent for 20 miles or more to the south (Bartow, 1985; 1991). This area is identified as the Stockton Arch where the Paleogene rocks were never deposited or removed by erosion. South of the Stockton Arch, marine conditions also continued interrupted by non-marine periods. By the end of the Paleogene, the marine conditions persisted in the south valley. Drainage from the Sierra region appears to be to the south (Bartow, 1991). Exposures of the Paleogene rocks are not present to south of the southern Diablo range, along the western San Joaquin Valley, but are present below the valley south of the Stockton Arch.

2.4 Late Tertiary-Neogene Units

In the Neogene, plate tectonics evolution was dominated by the northward migration of the triple junction plate boundary as the strike-slip fault system of San Andreas Fault zone formed. East of the fault zone, elements of the Coast Range were deformed and uplifted to positive elements. At times, these deformations yielded sediment into the San Joaquin Valley. The Stockton Fault movement appears to have ended in the early Neogene with total reverse offset of about 10,000 feet. The Stockton Arch may have acted as a positive element as Bartow (1991) shows the area as a divide between drainage to the Sacramento Valley to the north and to the south to the marine embayment in the San Joaquin Valley. North of the Stockton Arch, shallow marine conditions also persisted, including at times, across the Mt. Diablo area, until at least 9 m.y.

The earliest Neogene (Miocene 23 to 5.3 m.y.) units exposed along the northern edge of Mt. Diablo area are shallow marine transitioning to non-marine. Further south, exposures are more limited until a larger area wraps around south of Mt. Diablo area towards the Livermore valley (see **Plate 1**). The units tend to be predominated by sandstone to pebbly sandstones.

In the younger Neogene (Pliocene 5.3 to 2.5 m.y.), the San Andreas Fault system was well established and deformation and uplift of the Coast Range to the east was occurring. Sierra Nevada drainages appear to continue to the remaining southern San Joaquin Valley marine embayment (Bartow, 1991). The exposures of these younger Neogene units overlie the older Neogene units around the Mt. Diablo area and southern Diablo range. Where exposed, the unit is dominated by pebbly sandstone to the north and conglomerate/sandstones to the south. These appear to be sourced from the uplifted Coast Range elements and deposited by alluvial fans.

Both the older and younger Neogene units extend eastward beneath the northern San Joaquin Valley, but are poorly understood even from deep oil and gas well logs. Part of the cause of this is that the state Division of Oil and Gas field classification designates post-Paleogene units as undifferentiated non-marine units. Gas fields in western San Joaquin County indicate 3,000 to 4,000 feet of post-Paleogene units, but includes younger Quaternary units. Electric logs tend to show the Neogene units are dominated by monotonous sequence of fine-grained sediment of sandy claystones and mudstones with few sand beds. The units also appear to contain at best brackish to saline water, although it is difficult to define base of fresh water without interbedded sand beds.

By the end of the Neogene, movement along the San Andreas Fault system had isolated the southern San Joaquin marine embayment from the ocean (Bartow, 1991). The impounded water probably transformed into brackish- to fresh-water lakes. Drainage in the San Joaquin Valley continued to flow southward towards the subsiding lake basin area. Drainage from the lakes appears to have flowed from the basin across the San Andreas Fault to the Salinas Valley and Monterey Bay area. To the north of the Stockton Arch, area drainage in the Sacramento Valley appears to continue to drainage westward north of the Mt. Diablo area.

3. QUATERNARY GEOLOGIC HISTORY

The youngest geologic unit in the San Joaquin Valley area is the Quaternary (2.5 m.y. to present) unconsolidated sedimentary units of sand, gravel, silt and clay that cover the valley floor. Most of these deposits are probably of the longer, older Pleistocene Epoch (2.5 to 0.01 m.y.), the Great ice Age when alpine ice fields and glaciers occurred along the summit of the Sierra Nevada. High runoff and sediment yield from the Sierra Nevada appears to continue to largely drain to the lakes in southern San Joaquin Valley. Drainage out of the lakes may have persisted across the San Andreas Fault system to the Salinas valley for at least the older Pleistocene.

The plate tectonic configuration of the San Andreas Fault was well formed in the Pleistocene. The Diablo ranges continued to be uplifted as shown by the deformed Neogene units around the Mt. Diablo area (see **Plate 1**). The westward tilting of the Sierra Nevada block begun in the Pliocene also continued in the Quaternary. From these uplifted areas, smaller stream drainages formed alluvial fans off the Diablo Mountains into the valley. Larger drainages from the Sierra Nevada formed broad alluvial-fluvial plains

from the east. In the center of the valley, low gradient stream channels and flood plains were formed, flowing southward to the southern lakes.

Just prior to about 600,000 years before present, a large lake termed the Corcoran Lake flooded nearly all the San Joaquin Valley northward to the Tracy area. A widespread blue lake clay was deposited across the San Joaquin Valley known as the Corcoran Clay, or E-clay. This clay has not been identified further north into the Delta area of Contra Costa County, or in the Sacramento Valley. The cause of the formation of the Corcoran Lake, and smaller subsequent lakes, is not clear. Possibilities include that the San Andreas Fault system blocked the western drainage outlet of the lakes in the south, at least for brief periods. Alternatively, higher runoff due to climatic conditions may have been the principal cause that formed the lakes.

The northern extent of the Corcoran Lake, including the deposition of the E-Clay, appears to have been in the Stockton-Tracy area. The cause of this is not clear. An alluvial fan dam across the valley (Atwater, 1986) or a structural-caused drainage divide by differential subsidence between the north and south across the Stockton Arch may explain the northernmost extent. Other possible causes could be structural blockage of the drainage out of the Sacramento Valley or regional tilting of the northern San Joaquin Valley.

It is tempting to suggest that the high base-level of the Corcoran Lake disrupted drainage patterns in the San Joaquin Valley. Possible subsequent opening of a shorter drainage pattern of the Sacramento River across the San Francisco Bay area, caused San Joaquin drainage to be diverted to the Delta area, until the drainage pattern of northward flowing San Joaquin River developed through the remainder of the Pleistocene.

4. GROUNDWATER HYDROLOGY

The groundwater hydrology of the northwestern San Joaquin Valley area that is the focus of this report is relatively poorly known. The reasons of this are multifold. Groundwater usage is limited to eastern Contra Costa County and the Tracy area to the south. Under most of western San Joaquin County in the Delta, few groundwater wells exist as surface water is the source for irrigation use within delta islands. Fresh groundwater aquifers are limited to relatively shallow depths of 500 to 700 feet in the Contra Costa County area, and to 1,600 feet in the Tracy area. Oil and gas electric logs indicate that at greater depths fine-grained clays and mudstones with very few sand beds occur, and contain saline to brackish water. Some saline waters at shallow depths above the fresh water bearing sands have been found along the trend of the Old River channel.

Hydrogeologic studies have tended to cover areas in the Sacramento Valley north or east of the Delta area. In the San Joaquin Valley, studies have covered areas on the west side of the valley studies have covered areas from Tracy south (Hotchkiss and Balding, 1971) and on the east side of the valley south of

the Stanislaus River (Page and Balding, 1973). Even regional studies tend to have little information for the northwestern San Joaquin Valley area (Page, 1986).

Luhdorff & Scalmanini (1999) performed a study of eastern Contra Costa County groundwater for five local water agencies. The focus of the study was the uppermost 500 feet in which most water wells were completed. A depositional facies model was developed from examination of over 500 well logs that were used to assess sand bed characteristics and their extent. The facies consisted of a fluvial plain grading into a delta island area in the north. This was bound to the west by a marginal delta dunes area. An alluvial plain area extends and thins westward to the older geologic units exposed in the Mt. Diablo area. This depositional model was incorporated into an AB3030 Groundwater Management Plan covering the sphere of influence for Diablo Water District, an Environmental Impact Report for conjunctive use wells by Diablo Water District, and a water master plan for Town of Discovery Bay.

Electric logs from Oil and Gas were also examined for the nature of geologic units at greater depths. The top of the electric logs tend to be at 800 feet or greater depths. These logs generally show fine-grained geologic units with few sand beds. The depth to base of fresh water is difficult to discern in available electric logs because of the lack of sand beds. In the 1999 study of groundwater hydrology in eastern Contra Costa County, the base of fresh water was not systematically mapped. The base of freshwater has been mapped previously in the general area by Page (1971) and Berkstresser (1973).

Most groundwater studies in the westerns San Joaquin County have been centered on the Tracy area. The Tracy Regional Groundwater Management Plan (GEI, 2007) and a related hydrogeologic assessment (GEI, 2007) were reviewed for the geologic cross-sections and interpretations. These reports characterized groundwater wells in the immediate Tracy area, and additional review of these wells was not attempted for the present study.

For the present study, a systematic map of the base fresh water aquifers in the area using electric logs for oil and gas wells obtained through the state Division of Oil, Gas & Geothermal Resources website was developed (see **Plate 1**). As mentioned previously, depths to the top of most logs and the fine-grained character of the sedimentary units below 700 feet were limitations in the north. Selection of logs to review was based on the top of the log being less than 1,000 feet in depth. Base of fresh water aquifers was based on thick sand beds with high resistivity values and the character of the self-potential response on the electric logs. Deeper sandy units, probably sandy clays or mudstones, with low resistivity values and indeterminable self-potential characteristics were considered to be non-viable as aquifers.

The elevation of the base of freshwater aquifers determined from oil and gas logs were plotted on a base map (see **Plate 1**) and manually contoured. Contour lines of one hundred feet were drawn, but is variable based on well control. The resulting map is a hydrostratigraphic map based on the nature of the bed (sand and/or gravel) and containing fresh water. The determined beds at each location should not be considered, in general, as lithostratigraphic equivalent (i.e., connected to other beds in different wells

across the map), or necessarily time-stratigraphic equivalent (i.e., of the same geologic age). For example, the beds defining the deepest areas on the map are probably not connected or time equivalent to beds at much shallower depths to the east or west. The resultant map represents the most detailed examination of base of fresh water in the north San Joaquin Valley study area.

4.1 Brentwood Area

In the Brentwood area, the depth of freshwater aquifer descends eastward from the edge of the valley. The deepest area occurs near the Contra Costa County line to -1,200 feet. Further east the depth of freshwater aquifer rises to -600 feet. Several gas fields are shown further east (see **Plate 1**) which show base of fresh water as 100 feet depth or less (California Division of Oil & Gas, April 1983). However it is not known exactly how these values were determined.

4.2 Tracy Area

In the Tracy area, the depth of freshwater aquifer descends eastward from the edge of the valley. A larger, deeper depression occurs beneath the City of Tracy to depths of -1,600 feet. This depression appears to bend and extend eastward roughly along the trend of the Stockton Fault (see **Plate 1**). Further east the depth of freshwater aquifer rises to -500 to -600 feet elevation. The Lathrop Gas field lists the base of freshwater at a depth of 300 feet, though the method of determination is not evident.

4.3 Clifton Court Area

The base of freshwater determined for the Brentwood and Tracy areas are generally are similar to published base of fresh water by Page (1971) and Berkstresser (1973). Between these two areas, is termed the Clifton Court area. Although well control is relatively sparse in this area, anomalously shallow elevations of base of freshwater occur further east. Contouring of the area shows a possible ridge-like extension eastward from the edge of the valley. Further eastward, depths of the base of freshwater decline to -800 feet to -900 feet elevation and extend eastward, then rises to the east to -600 feet elevation. The maximum low across the Clifton Court area appears to be 300 feet shallower in the Brentwood area (-1,200 feet elevation), and possibly 700 feet shallower than in the Tracy area (-1,600 feet elevation). If this interpretation of a ridge-like feature is correct, the cause is not clear. It may be a possible fault uplift or deformation on the south side of the Vernalis fault. The age of the Vernalis Fault is not well known (Bartow, 1991), but it is at least Neogene (Miocene to Pliocene?) and may be younger (Quaternary?). No surface expression has been noted to the fault and if this configuration exists, it may influence groundwater flow around the ridge, or at least impede any northwest flow from the south at depths below -400 feet elevation.

5. CONCLUSIONS

The geologic history of the northwestern San Joaquin Valley as described in this report provides a framework for hydrogeologic conceptualization of the Tracy Groundwater Subbasin. Key features of the

geologic history are reflected in exposures of Mesozoic Great Valley Sequence, and Tertiary and late Tertiary sedimentary rocks in the Diablo Mountains. These rocks represent the western boundary of the Tracy Subbasin.

While the interpreted geologic history consists of multiple possible explanations for certain features, the rocks in the Mt. Diablo range north of Livermore Valley and the southern Diablo range reflect distinctions between the northern and southern portions of the groundwater subbasin including variations in the base of fresh water. Additionally, the apparent northern extent of the Quaternary Corcoran Lake has implications in groundwater hydrology, particularly through the occurrence of the Corcoran Clay. The Corcoran Clay is prominent as a demarcation between the primary upper and lower freshwater aquifer sequences of the San Joaquin Valley and affects vertical groundwater moment including recharge, demarcates water quality boundaries, and it is an important factor in well construction standards throughout the San Joaquin Valley. The absence of the Corcoran Clay in the Contra Costa County subarea reflects a distinction in the hydrogeology across the Tracy Subbasin that is recognized locally and should be reflected in the development of groundwater conceptualizations for the subbasin.

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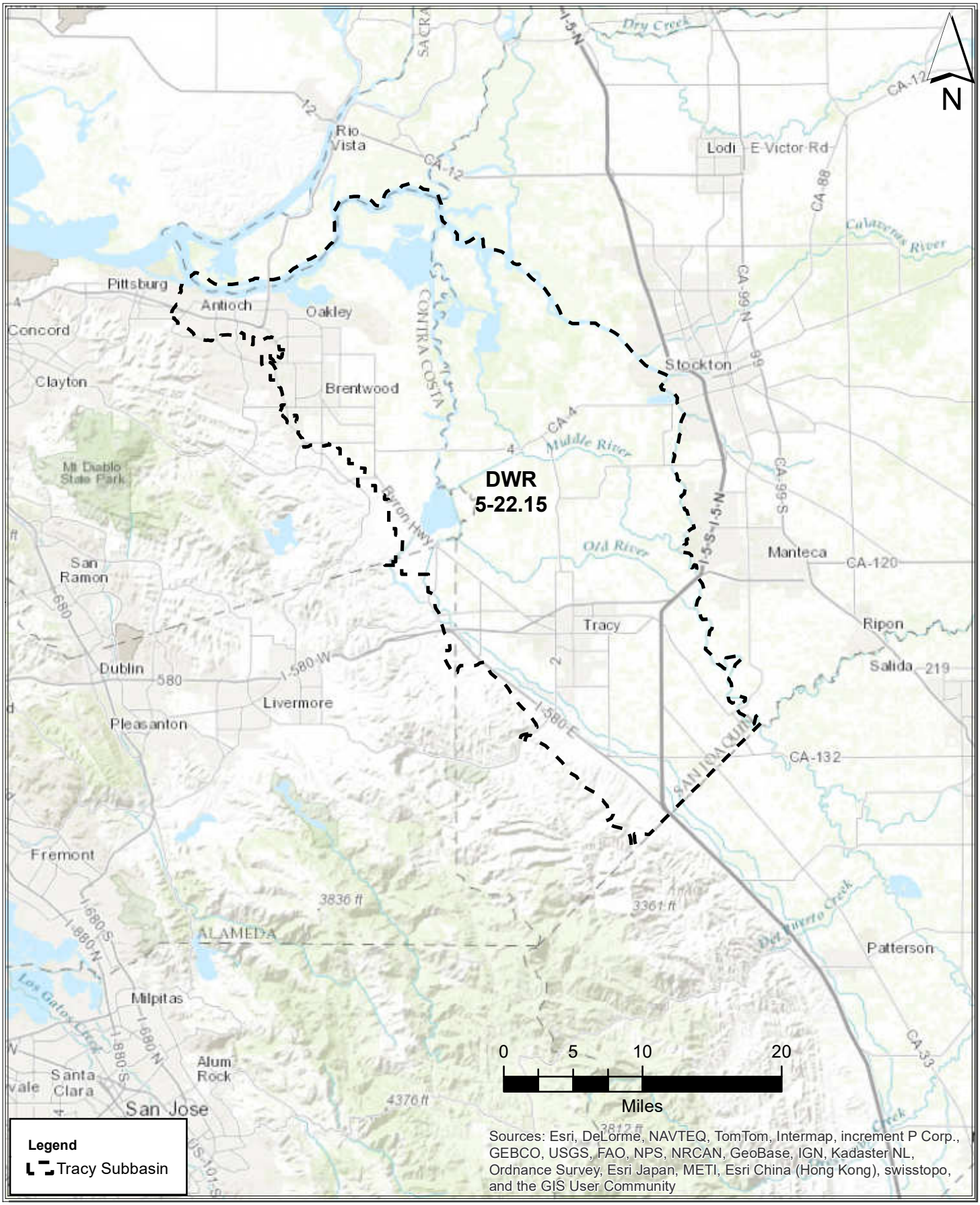
Figures



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LUHDORFF & SCALMANINI
CONSULTING ENGINEERS

Figure 1
Location Map
Tracy Subbasin

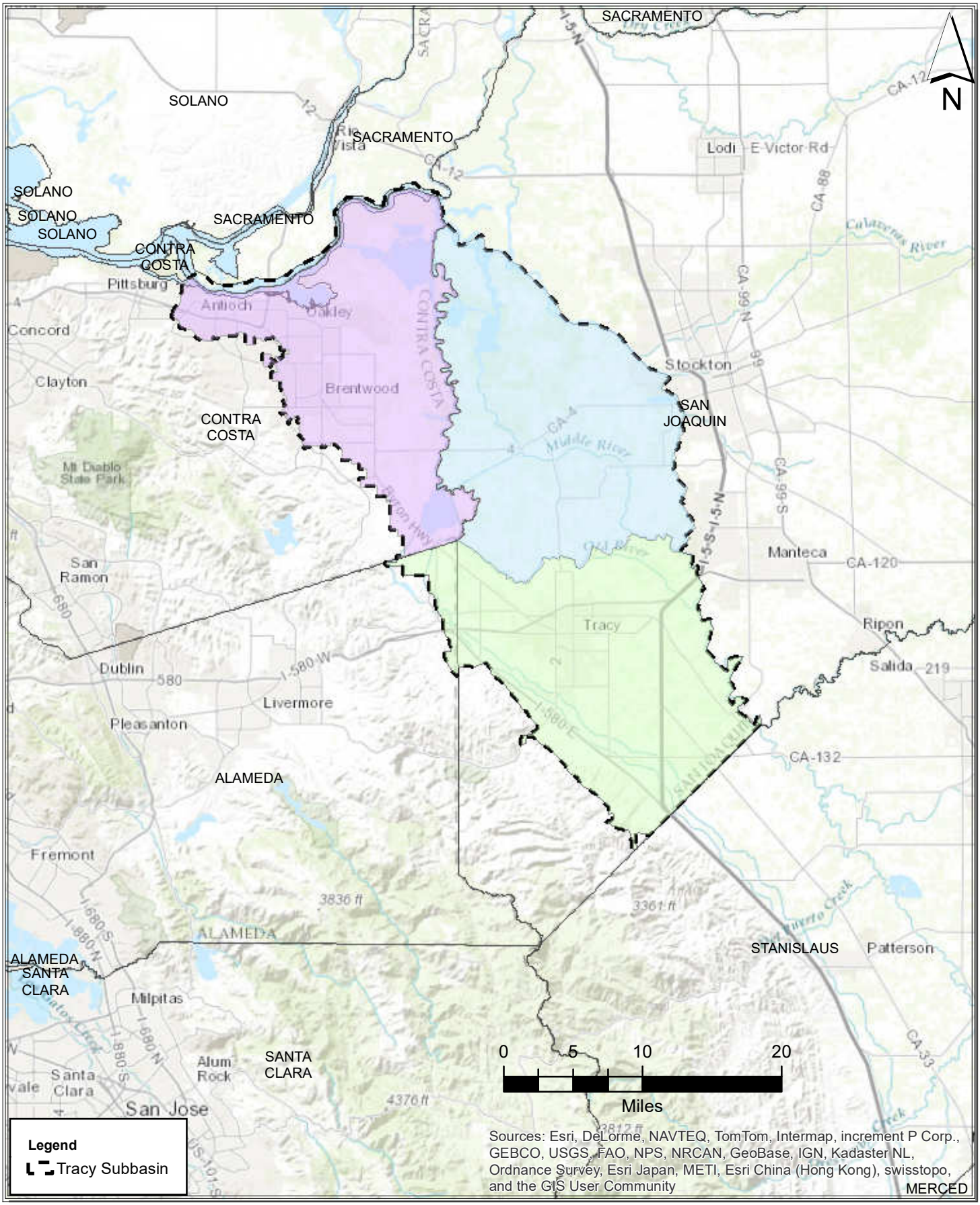

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Figure 2
Location Map
Tracy Subbasin Subareas

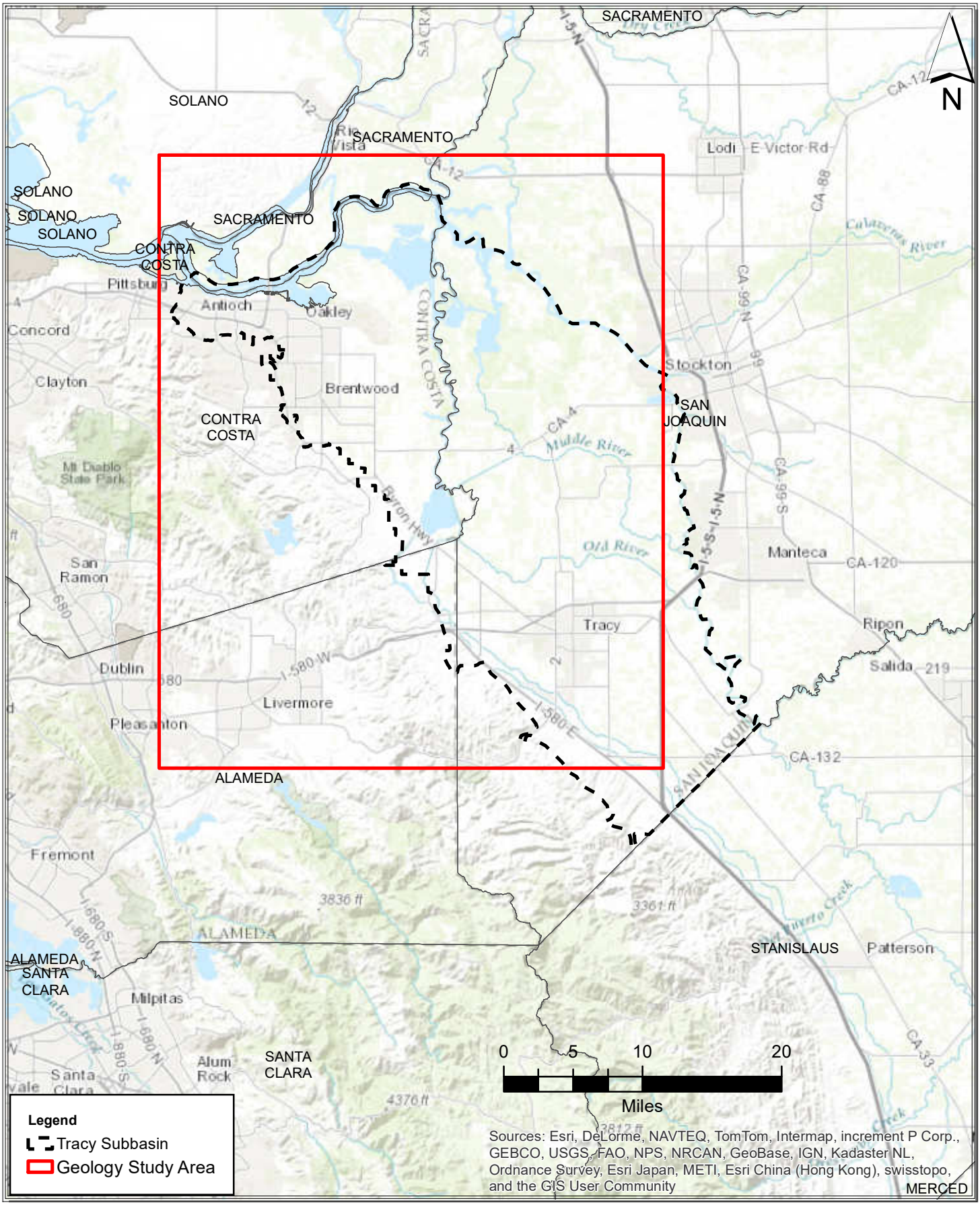

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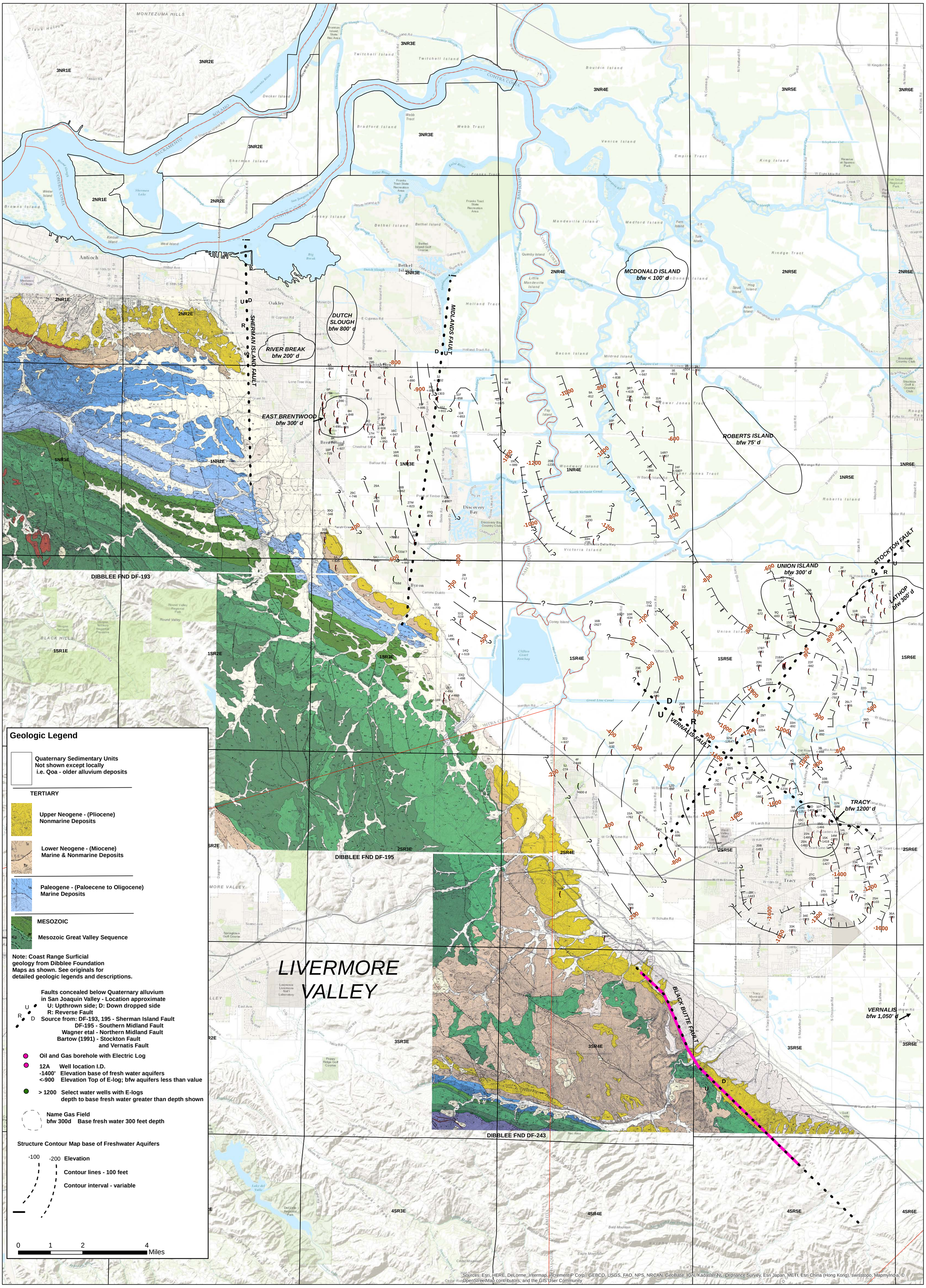
Figure 3
Geology Study Area

Plate



Geologic Legend

Quaternary Sedimentary Units
Not shown except locally
i.e. Qoa - older alluvium deposits

TERTIARY

Upper Neogene - (Pliocene)
Nonmarine Deposits

Lower Neogene - (Miocene)
Marine & Nonmarine Deposits

Paleogene - (Paloecene to Oligocene)
Marine Deposits

MESOZOIC

Mesozoic Great Valley Sequence

Note: Coast Range Surficial geology from Dibblee Foundation Maps as shown. See originals for detailed geologic legends and descriptions.

Faults concealed below Quaternary alluvium in San Joaquin Valley - Location approximate
U: Upthrown side; D: Down dropped side
R: Reverse Fault
Source from: DF-193, 195 - Sherman Island Fault
DF-195 - Southern Midland Fault
Wagner etal - Northern Midland Fault
Bartow (1991) - Stockton Fault
and Vernatis Fault

Oil and Gas borehole with Electric Log

12A Well location I.D.
-1400' Elevation base of fresh water aquifers
<-900 Elevation Top of E-log; bfw aquifers less than value

> 1200 Select water wells with E-logs
depth to base fresh water greater than depth shown

Name Gas Field
bfw 300d Base fresh water 300 feet depth

Structure Contour Map base of Freshwater Aquifers

-100 -200 Elevation

Contour lines - 100 feet

Contour interval - variable

0 1 2 4 Miles

X:\2014 Job Files\14-126 East Contra Costa County GSP\430 Basin Boundaries - Geology\East County Oil and Gas Logs\Wells with O&G logs pulled_24x36.mxd

LUHDORFF & SCALMANINI CONSULTING ENGINEERS

Well Location Map, Geologic Map and Base of Freshwater Aquifers Map

APPENDIX 3c

Well Construction Table

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Antioch	--	Shallow	Blossom Well	38.0021007	-121.7883016	61.00	44.11	60-88	1.00	-27.00	88
Antioch	Monitoring	Shallow	Wilbur Deep	38.0128991	-121.7670016	61.00	21.86	101-106	-40.00	-45.00	106
Antioch	Monitoring	Shallow	Wilbur Shallow	38.0128991	-121.7670016	61.00	21.86	53-81	8.00	-20.00	81
BBID	Private	Shallow	1 JNJ	37.906128	-121.6419204	26.63	24.96	105-120	-78.37	-93.37	120
BBID	--	Shallow	3 Byron	37.8684118	-121.6412186	32.28	31.25	50-70	-17.72	-37.72	70
BBID	Private	Shallow	4 Bruns	37.8168913	-121.5991577	35.87	34.43	45-65	-9.13	-29.13	65
BBID	--	Shallow	5 Binn	37.8506993	-121.6238007	24.42	23.46	--	--	--	45
BBID	Private	Composite	2 Casing	37.8691565	-121.6544579	45.43	44.88	71-163	-25.57	-117.57	163
BBID	--	Composite	6 Byer	37.8742	-121.6398	31.63	31.23	--	--	--	185
BBID	Private	Unknown	10 SM2	37.888253	-121.650808	40.46	38.46	--	--	--	--
BBID	--	Unknown	10A Taylor	37.888769	-121.6518	41.66	41.23	--	--	--	--
BBID	--	Unknown	10C Marsh	37.8898	-121.648728	37.42	36.04	--	--	--	--
BBID	Private	Unknown	11 TN1	37.884492	-121.650344	40.95	39.16	--	--	--	--
BBID	Private	Unknown	12 TN2	37.881764	-121.671483	59.91	59.14	--	--	--	--
BBID	Private	Unknown	13 M	37.87395	-121.652722	41.07	40.10	--	--	--	--
BBID	Private	Deep	14 GNO	37.889861	-121.642331	30.32	29.22	207-212, 229-238, 244-253, 273-279, 349-356	--	--	--
BBID	Private	Unknown	7 Hoffman 1	37.889672	-121.6787208	74.43	71.01	--	--	--	--
BBID	Private	Unknown	8 Casing 2	37.869144	-121.659658	51.00	49.82	--	--	--	--
BBID	Private	Unknown	9 SM1	37.900664	-121.649669	37.85	35.38	--	--	--	--
BBID	--	Unknown	9d Abreu	37.868411	-121.641219	33.38	32.53	--	--	--	--
BBID	--	Unknown	9e Hagen	37.896042	-121.651319	37.86	36.16	--	--	--	--
Brentwood	Monitoring	Shallow	BG-1	37.9638969	-121.6933943	71.22	71.60	40-55	31.22	16.22	55
Brentwood	Monitoring	Shallow	BG-2	37.9589412	-121.6917498	62.09	62.50	22.5-37.5	39.59	24.59	38
Brentwood	Monitoring	Shallow	BG-3	37.9546062	-121.6824842	55.60	56.20	20-35	35.60	20.60	35
Brentwood	Abandoned	Shallow	WELL 01	37.93	-121.682	--	61.46	100-132	-99.00	-131.00	132
Brentwood	Monitoring	Deep	MW-14 Deep	37.9620001	-121.6957004	72.76	71.20	284-315	-211.24	-242.24	324
Brentwood	Monitoring	Deep	MW-14 Int.	37.9620001	-121.6957004	72.76	71.20	200-210, 220-230	-127.24	-157.24	240
Brentwood	Production	Deep	Well 06	37.9547875	-121.6940894	58.47	58.51	250-300	-241.53	-291.53	305
Brentwood	Production	Deep	Well 07	37.9563571	-121.692278	--	57.66	265-295	-207.34	-237.34	300
Brentwood	Production	Deep	Well 08	37.957838	-121.69167	--	60.21	225-315	-164.79	-254.79	325
Brentwood	Production	Deep	Well 09	37.954972	-121.6853986	--	54.58	210-230	-155.42	-175.42	230
Brentwood	Production	Deep	Well 11	37.9297678	-121.6849955	--	63.74	255-365	-191.26	-301.26	--
Brentwood	Production	Deep	Well 12	37.9247368	-121.6839359	--	66.86	350-380, 430-450	-283.14	-383.14	610
Brentwood	Production	Deep	Well 13	37.9221317	-121.6826703	--	68.35	350-380, 430-480	-281.65	-411.65	510
Brentwood	Production	Deep	Well 14	37.95803502	-121.6954421	--	68.00	285-315	-285.00	-315.00	340
Brentwood	Production	Deep	Well 15	37.9583661	-121.6853304	--	56.41	239-259,289-324	-182.59	-267.59	345
Brentwood	Monitoring	Composite	MW-14 Shallow	37.9620001	-121.6957004	72.76	71.20	114-144	-41.24	-71.24	154
Brentwood	Abandoned Production	Composite	WELL 02	37.93	-121.682	--	61.46	80-208	-79.00	-207.00	208
Brentwood	Abandoned Production	Composite	WELL 04	37.93	-121.682	--	61.46	126-165	-125.00	-164.00	165
Brentwood	Production	Composite	Well 10A	37.92166667	-121.7008333	--	91.85	52-72, 135-182	39.85	-90.15	210

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Brentwood	Production	Unknown	WELL 03	--	--	--	--	112-142	--	--	146
Brentwood	Abandoned Production	Unknown	WELL 05	--	--	--	--	60-120	--	--	135
Brentwood	Production	Unknown	Well 08A	--	--	--	--	225-315	--	--	325
DWD	Monitoring	Shallow	Stonecreek MW-160	37.978122	-121.683968	30.76	28.99	100-110, 140-150	-69.24	-119.24	160
DWD	Private	Deep	Bethel Island (Sugar Barge Marina-Well Head)	38.027155	-121.613661	-6.00	-3.01	317-333	-323.00	-339.00	333
DWD	Monitoring	Deep	Creekside MW	37.9812138	-121.6911215	29.54	29.60	230-240	-200.46	-210.46	380
DWD	Monitoring	Deep	Glen Park MW	37.9740743	-121.6866247	35.54	34.71	220-230, 260-290	-184.46	-254.46	300
DWD	Monitoring	Deep	Stonecreek MW-300	37.978122	-121.683968	30.47	28.99	230-240, 280-290	-199.53	-259.53	300
DWD	Monitoring	Deep	Stonecreek MW-360	37.978122	-121.683968	30.70	28.99	340-350	-309.30	-319.30	360
DWD	Production	Deep	Glen Park Well	37.973909	-121.6850365	38.32	38.80	230-245, 260-300	-191.68	-261.68	315
DWD	Production	Deep	South Park	37.9860934	-121.6330831	-3.50	-1.64	204-264, 284-299	-207.50	-302.50	323
DWD	Production	Deep	Stonecreek PW	37.9781927	-121.6840086	24.00	28.97	220-295	-196.00	-271.00	305
DWD	Production	Deep	KNIGHTSEN COMMUNITY WATER SYSTEM-Well Head	37.9709328	-121.6667157	29.91	27.36	235-275	-205.09	-245.09	305
DWD	Production	Deep	KNIGHTSEN ELEMENTARY SCHOOL-WELL 3	37.9679868	-121.6613267	29.59	27.60	395-415	-365.41	-385.41	415
DWD	Production	Deep	Rock Island (Westside pump #2)	37.9817757	-121.6239122	-5.00	2.90	240-270, 284-292	-245.00	-297.00	320
DWD	Production	Composite	WELL 01 - STANDBY	37.988	-121.682	--	16.85	100-170	-99.00	-169.00	170
DWD	Irrigation	Composite	Knightsen School Irrigation (#2)	37.9678611	-121.6612623	29.43	27.62	167-191, 210-230	-137.58	-200.58	230
DWD	Production	Unknown	Delta Mutual (east side pump)	--	--	--	--	--	--	--	--
DWD	Production	Unknown	Willow Park Marina	38.0080033	-121.6313385	--	5.85	--	--	--	--
Discovery Bay	Monitoring	Shallow	1BMW-140	37.9102996	-121.5993985	4.31	2.71	100-130	-95.69	-125.69	140
Discovery Bay	Monitoring	Shallow	4AMW-152	37.9009991	-121.6187989	11.67	4.01	122-142	-110.33	-130.33	152
Discovery Bay	Monitoring	Shallow	7MW-115	37.8941889	-121.6183417	11.86	4.71	95-105	-83.14	-93.14	115
Discovery Bay	Monitoring	Deep	1BMW-343	37.9102996	-121.5993985	4.38	2.71	270-289, 309-338	-265.62	-333.62	343
Discovery Bay	Monitoring	Deep	4AMW-357	37.9009991	-121.6187989	11.54	4.01	307-347	-295.46	-335.46	357
Discovery Bay	Monitoring	Deep	6MW-250	37.9028008	-121.5994988	6.60	3.89	200-210, 230-240	-193.40	-233.40	250

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Discovery Bay	Monitoring	Deep	6MW-350	37.9028008	-121.5994988	6.60	3.89	280-290, 330-340	-273.40	-333.40	350
Discovery Bay	Monitoring	Deep	6MW-410	37.9028008	-121.5994988	6.54	3.89	390-400	-383.46	-393.46	410
Discovery Bay	Monitoring	Deep	7MW-330	37.8941889	-121.6183417	11.94	4.71	310-320	-298.06	-308.06	330
Discovery Bay	Production	Deep	WELL 01B	37.9102795	-121.5994883	6.13	2.71	271-289, 308-340	-264.87	-333.87	350
Discovery Bay	Production	Deep	WELL 02	37.9038164	-121.6019194	9.29	2.62	245-335	-235.71	-325.71	348
Discovery Bay	Production	Deep	WELL 04A	37.9009652	-121.6187989	14.82	108.72	307-347	-292.18	-332.18	357
Discovery Bay	Emergency Backup	Deep	WELL 05A	37.8904152	-121.6155029	16.29	4.91	251-281, 307-347	-234.71	-330.71	357
Discovery Bay	Production	Deep	WELL 06	37.9023176	-121.5997724	8.47	--	270-295, 305-350	-261.53	-341.53	360
Discovery Bay	Production	Deep	WELL 07	37.8941889	-121.6183417	7.00	4.71	282-292	-275.00	-285.00	346
Discovery Bay	Inactive Production	Unknown	WELL 01	37.901	-121.603	--	2.41	--	--	--	--
Discovery Bay	Inactive Production	Unknown	WELL 03	37.901	-121.603	--	2.41	--	--	--	--
Discovery Bay	Inactive Production	Unknown	WELL 04	37.901	-121.603	--	2.41	307-347	--	--	357
Discovery Bay	Abandoned Production	Unknown	WELL 05	--	--	--	--	--	--	--	--
ECCID	Monitoring	Shallow	4-1	37.92487399	-121.6367714	--	28.32	--	-9.13	-29.13	10
ECCID	Monitoring	Shallow	4-6	37.92581823	-121.665247	--	53.87	--	-9.13	-29.13	10
ECCID	Monitoring	Shallow	4-18	37.93988606	-121.6398046	--	24.60	--	-9.13	-29.13	10
ECCID	Monitoring	Shallow	4-57	37.9260609	-121.6785219	--	60.90	--	-9.13	-29.13	10
ECCID	Monitoring	Shallow	5-2	37.95444444	-121.6941667	73.00	58.14	--	--	--	20
ECCID	Monitoring	Shallow	5-3	37.91710984	-121.6580936	--	42.11	--	--	--	10
ECCID	Monitoring	Shallow	5-14	37.95644057	-121.642851	--	18.70	--	--	--	10
ECCID	Monitoring	Shallow	5-22	37.974141	-121.657877	--	17.20	--	--	--	11
ECCID	Monitoring	Shallow	5-33	37.98935	-121.679441	13.30	13.30	--	--	--	11
ECCID	Monitoring	Shallow	5-34	37.98194444	-121.6777778	14.00	18.50	--	--	--	11
ECCID	Monitoring	Shallow	5-35	37.977313	-121.678539	24.30	27.34	--	--	--	11
ECCID	Monitoring	Shallow	5-36	37.973701	-121.675596	27.40	27.40	--	--	--	11
ECCID	Monitoring	Shallow	5-37	37.963534	-121.679699	40.60	40.60	--	--	--	11
ECCID	Monitoring	Shallow	5-38	37.95972044	-121.6780277	--	43.40	--	--	--	10
ECCID	Monitoring	Shallow	5-39	37.985299	-121.664114	12.50	12.50	--	--	--	11
ECCID	Monitoring	Shallow	5-51	37.94391393	-121.6771962	--	54.10	--	--	--	10
ECCID	Monitoring	Shallow	5-73	--	--	--	--	--	--	--	11
ECCID	Ag. Irrigation	Shallow	Well #1 (4-54)	37.91819	-121.69843	85.90	85.90	85-165	0.90	-79.10	165
ECCID	Ag. Irrigation	Shallow	Well #6 (4-60)	37.92567	-121.66253	49.50	50.30	30-50	19.50	-0.50	50
ECCID	Ag. Irrigation	Shallow	Well #11 (4-61-A)	37.9178003	-121.6700016	55.00	55.50	50-100	5.00	-45.00	100
ECCID	Ag. Irrigation	Shallow	Well #13	37.91787	-121.68204	64.00	65.72	145-185	-81.00	-121.00	185
ECCID	Ag. Irrigation	Composite	Well #3 (4-55)	37.91817	-121.70336	95.00	96.20	113-197, 281-365	-16.80	-268.80	365
ECCID	Ag. Irrigation	Composite	Well #4 (5-62)	37.91818	-121.70114	--	83.12	68-125, 175-195	15.12	-111.88	200
ECCID	Ag. Irrigation	Composite	Well #4 Old (4-56)	37.9177987	-121.6972999	87.00	83.80	68-125, 175-195	18.80	-111.20	203

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
ECCID	Ag. Irrigation	Composite	Well #5 (4-57)	37.92526	-121.67739	--	60.90	115-125, 170-175, 195-200, 220-245, 270-290	-54.10	-229.10	290
ECCID	Ag. Irrigation	Composite	Well #9 (4-58)	37.91444444	-121.7002778	--	97.00	90-106, 118-126, 180-194	7.00	-97.00	210
ECCID	Ag. Irrigation	Composite	Well #14	37.91782	-121.63033	26.51	25.82	200-300	-174.18	-274.18	330
ECCID	Ag. Irrigation	Unknown	Well #2 (5-30)	37.91774	-121.65954	40.30	40.30	--	--	--	--
ECCID	Monitoring	Unknown	Anderson (4.66)	37.92416667	-121.7	89.00	86.00	--	--	--	--
DDW	Small Community System	Shallow	BALDOCCHI WATER SYSTEM-Well Head	37.868416	-121.641222	--	--	100-110	-100.00	-110.00	--
DDW	Small Community System	Deep	BEACON WEST-Well 1	38.046	-121.642	--	8.54	230-260	-229.00	-259.00	260
DDW	Small Community System	Deep	KNIGHTSEN COMMUNITY WATER SYSTEM-Well Head	37.9709328	-121.6667157	29.91	27.36	235-255, 275-295	-234.00	-294.00	305
DDW	Small Community System	Deep	WILLOW MOBILE HOME PARK-Well Head	38.046	-121.642	--	8.54	292-332	-283.46	-323.46	410
DDW	Small Community System	Deep	WILLOW PARK MARINA-East Well	38.017	-121.642	--	7.62	250-310	-242.38	-302.38	400
DDW	Small Community System	Deep	WILLOW PARK MARINA-West Well	38.017	-121.642	--	7.62	250-310	-242.38	-302.38	340
DDW	Small Community System	Composite	KNIGHTSEN ELEMENTARY SCHOOL-NORTH WELL	37.959	-121.642	--	16.19	167-191, 210-230	-166.00	-229.00	230
DDW	Small Community System	Composite	KNIGHTSEN ELEMENTARY SCHOOL-SOUTH WELL	37.959	-121.642	--	16.19	167-191, 210-230	-166.00	-229.00	230
DDW	Small Community System	Unknown	ANCHOR MARINA-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	ANGLER S RANCH #3-WELL 02	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	ANGLERS SUBDIVISION 4-WELL 1 - 1696 Taylor	38.017	-121.642	--	7.62	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	ANGLERS SUBDIVISION 4-WELL 2 - 1398 Taylor	38.046	-121.682	--	--	--	--	--	--
DDW	Small Community System	Unknown	ANGLERS SUBDIVISION 4-WELL 3 - 1698 Taylor	38.017	-121.682	--	--	--	--	--	--
DDW	Small Community System	Unknown	BAY STANDARDS-Well Head	37.901	-121.682	--	78.76	--	--	--	--
DDW	Small Community System	Unknown	BETHEL BAPTIST CHURCH-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	BETHEL HARBOR-WELL	38.046	-121.642	--	8.54	--	--	--	--
DDW	Small Community System	Unknown	BETHEL ISLAND GOLF & RESORT-WELLHEAD	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	BETHEL ISLAND LODGE-WELL 01	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	BETHEL ISLAND MUTUAL WATER CO-WELL 1	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	BETHEL ISLAND MUTUAL WATER CO-WELL 2	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	BETHEL MARKET-WELLHEAD	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	BETHEL MISSIONARY BAPTIST-Well Head	37.959	-121.682	--	49.94	--	--	--	--
DDW	Small Community System	Unknown	BIG OAK MOBILE HOME PARK WATER-Well Head - West well	37.988	-121.682	--	16.85	--	--	--	--
DDW	Small Community System	Unknown	BIG OAK MOBILE HOME PARK WATER-Wellhead-East well	37.988	-121.682	--	16.85	--	--	--	--
DDW	Small Community System	Unknown	BLAZING SADDLE BAR & GRILL-WELL 01	--	--	--	--	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	BLUE TIP TRAILER PARK WATER-WELL HEAD	37.959	-121.682	--	49.94	--	--	--	--
DDW	Small Community System	Unknown	BON GUSTOS-Bathroom Sink	37.889643	-121.640885	--	--	--	--	--	--
DDW	Small Community System	Unknown	BON GUSTOS-Well Head	37.901	-121.642	--	28.30	--	--	--	--
DDW	Small Community System	Unknown	BONNIE & CLYDES SALOON-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	BRENTWOOD CREEK FARM-WELL 1 - OFFICE	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	BRENTWOOD CREEK FARM-WELL 2 - CAMP 1	37.93	-121.603	--	3.31	--	--	--	--
DDW	Small Community System	Unknown	BRENTWOOD CREEK FARM-WELL 3 - CAMP 2	37.93	-121.563	--	3.71	--	--	--	--
DDW	Small Community System	Unknown	BRENTWOOD MISSIONARY BAPTIST-Well Head	37.93	-121.682	--	61.46	--	--	--	--
DDW	Small Community System	Unknown	BRIDGEHEAD CAFE-Well Head	38.017	-121.761	--	10.04	--	--	--	--
DDW	Small Community System	Unknown	BRIDGEHEAD RENTALS SWS-WELL 01	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	BYRON AIRPORT-Well Head	37.843	-121.642	--	66.57	--	--	--	--
DDW	Small Community System	Unknown	BYRON CORNERS INC-Well Head	37.872	-121.642	--	32.03	--	--	--	--
DDW	Small Community System	Unknown	BYRON INN-Well Head	37.85032	-121.622765	--	--	--	--	--	--
DDW	Small Community System	Unknown	BYRON UNITED METHODIST-WELL HEAD	37.959	-121.721	--	95.77	--	--	--	--
DDW	Small Community System	Unknown	CALIENTE ISLE WATER SYSTEM-WELLHEAD	38.017	-121.682	--	--	--	--	--	--
DDW	Small Community System	Unknown	CAMINO MOBILEHOME-WELL	37.872	-121.642	--	32.03	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	CARSON SWIM SCHOOL-WELL HEAD	37.959	-121.721	--	95.77	--	--	--	--
DDW	Small Community System	Unknown	CASA DEL RIO WATER SYSTEM-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	CECCHINI WATER-WELL	37.901	-121.563	--	4.11	--	--	--	--
DDW	Small Community System	Unknown	CECCHINI WATER-WELL 2	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	CHURCH OF JESUS CHRIST-Well Head	37.959	-121.721	--	95.77	--	--	--	--
DDW	Small Community System	Unknown	COLONIA SANTA MARIA-Well Head	37.901	-121.682	--	78.76	--	--	--	--
DDW	Small Community System	Unknown	CRUISER HAVEN MARINA-Well Head	37.93	-121.563	--	3.71	--	--	--	--
DDW	Small Community System	Unknown	D ANNA YACHT CENTER-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	DAVIS CAMP *CL 10/08-east well (south)	37.959	-121.682	--	49.94	--	--	--	--
DDW	Small Community System	Unknown	DAVIS CAMP *CL 10/08-WELL 3	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	DAVIS CAMP *CL 10/08-west well (north)	37.959	-121.682	--	49.94	--	--	--	--
DDW	Small Community System	Unknown	DELTA KIDS CENTER *CL 2/07-Well Head	37.959	-121.682	--	49.94	--	--	--	--
DDW	Small Community System	Unknown	DELTA MUTUAL WATER COMPANY-East Well	37.988	-121.642	--	-0.47	--	--	--	--
DDW	Small Community System	Unknown	DELTA MUTUAL WATER COMPANY-West Well	37.988	-121.642	--	-0.47	--	--	--	--
DDW	Small Community System	Unknown	DELTA SPORTSMAN-Well Head	38.017	-121.642	--	7.62	--	--	--	--

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	DNA PLANT WATER SYSTEM *CL04/02-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	DUTCH SLOUGH WATER WORKS-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	EBRPD BLACK DIAMOND MINES-WELL01	37.959	-121.88	--	856.26	--	--	--	--
DDW	Small Community System	Unknown	EBRPD ROUND VALLEY WATER SYSTEM-Well Head	37.872	-121.761	--	287.99	--	--	--	--
DDW	Small Community System	Unknown	EXCELSIOR MIDDLE SCHOOL-Well Head	37.872	-121.642	--	32.03	--	--	--	--
DDW	Small Community System	Unknown	FARMERS DAUGHTER WATER SYS *CLOSED*-Well Head	37.901	-121.682	--	78.76	--	--	--	--
DDW	Small Community System	Unknown	FARRAR PARK PROPERTY OWNERS-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	FLAMINGO MOBILE MANOR-Well Head	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	FRANKS MARINA-New Well	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	FRANKS MARINA-Well Head	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	GAS N SAVE-Well Head	37.988	-121.682	--	16.85	--	--	--	--
DDW	Small Community System	Unknown	GAYLORD CONTAINER COMPANY-WELL 03	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	GENOS DELI STATION-Well Head	37.901	-121.642	--	28.30	--	--	--	--
DDW	Small Community System	Unknown	GOLDEN HILLS CHURCH-WELL 01	--	--	--	--	--	--	--	--

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	GOLF CLUB AT RODDY RANCH-WELLHEAD	37.93	-121.801	--	475.46	--	--	--	--
DDW	Small Community System	Unknown	HOLLAND RIVERSIDE MARINA-well 2 - East Well	37.959	-121.563	--	4.77	--	--	--	--
DDW	Small Community System	Unknown	HOLLAND RIVERSIDE MARINA-Well Head - West Well	37.959	-121.603	--	2.91	--	--	--	--
DDW	Small Community System	Unknown	HOLY CROSS CEMETERY-Well Head	38.017	-121.761	--	10.04	--	--	--	--
DDW	Small Community System	Unknown	HONOLULU GRILL *CL 10/07-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	JEHOVAHS WITNESSE CHURCH *CL 2/13-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	JOES ISLAND RESTAURANT-WELLHEAD	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	KNIGHTSEN COMMUNITY WATER SYSTEM-Well 3	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	LA PALOMA HIGH SCHOOL-WELL 01	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	LAST RESORT & MARINA LLC-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	LIGHTHOUSE BAPTIST CHURCH-Well Head	37.959	-121.721	--	95.77	--	--	--	--
DDW	Small Community System	Unknown	LINDQUIST LANDING MARINA-Well Head	37.988	-121.603	--	3.42	--	--	--	--
DDW	Small Community System	Unknown	LITTORNO & PANFILI WATER SYSTEM-WELL HEAD	38.017	-121.761	--	10.04	--	--	--	--
DDW	Small Community System	Unknown	LONE TREE MEDICAL & DENTAL-Well Head	--	--	--	--	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	LOS VAQUEROS INTERPRETIVE CENTER-SOURCE	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	LOS VAQUEROS MARINA BLDG-SOURCE	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	LUNDBORG LANDING *CL 2/09-well	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	MACS OLD HOUSE-Well Head	38.017	-121.761	--	10.04	--	--	--	--
DDW	Small Community System	Unknown	MARIN FOOD SPECIALTIES-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	MARINA MOBILE MANOR-NEW WELL	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	MARINA MOBILE MANOR-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	MARINE EMPORIUM RICHARDS YACHT-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	MARINER COVE MARINA-Well Head	38.046	-121.682	--	--	--	--	--	--
DDW	Small Community System	Unknown	MARS HARBOR-WELL 01	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	NEIGHBORHOOD CHURCH-Well Head	37.93	-121.682	--	61.46	--	--	--	--
DDW	Small Community System	Unknown	NEW DOCS MARINA-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	OAKLEY MUTUAL WATER COMPANY-NORTH WELL - 4384 SANDMOUND	37.988	-121.642	--	-0.47	--	--	--	--
DDW	Small Community System	Unknown	OAKLEY MUTUAL WATER COMPANY-SOUTH WELL - 4508 SANDMOUND	37.988	-121.642	--	-0.47	--	--	--	--

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	OAKLEY MUTUAL WATER COMPANY-WELL 3	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	ORIN ALLEN YOUTH REHAB FACILITY-WELL	37.872	-121.642	--	32.03	--	--	--	--
DDW	Small Community System	Unknown	ORIN ALLEN YOUTH REHAB FACILITY-Well 2	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	ORWOOD RESORT-WELL 2 - WEST WELL	37.93	-121.603	--	3.31	--	--	--	--
DDW	Small Community System	Unknown	ORWOOD RESORT-WELL 3 - PICNIC AREA	37.93	-121.603	--	3.31	--	--	--	--
DDW	Small Community System	Unknown	PARK MARINA-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	PG & E WATER SYSTEM-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	PLEASANTIMES MUTUAL WATER CO-WELL 2 - 4520 STONE	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	PLEASANTIMES MUTUAL WATER CO-Well 1 - 4282 STONE	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	PLEASANTIMES MUTUAL WATER CO-WELL 3 - 4441 WILLOW	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	RAYNERS GROCERY SWS **CLOSED**-Well Head	--	--	--	--	--	--	--	--
DDW	Small Community System	Unknown	RIVERVIEW MARINA SWS-Well Head	38.017	-121.603	--	-4.31	--	--	--	--
DDW	Small Community System	Unknown	RIVERVIEW MOTEL-Well Head	38.017	-121.761	--	10.04	--	--	--	--
DDW	Small Community System	Unknown	RIVERVIEW WATER ASSOCIATION-WELL 1 BEACON HARBOR	38.046	-121.642	--	8.54	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DDW	Small Community System	Unknown	RIVERVIEW WATER ASSOCIATION-WELL 2 END OF WILLOW RD	38.046	-121.642	--	8.54	--	--	--	--
DDW	Small Community System	Unknown	RUSSOS MOBILE PARK-Well Head	38.046	-121.603	--	--	--	--	--	--
DDW	Small Community System	Unknown	SANDMOUND MUTUAL-3160 STONE ROAD WELL	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	SANDMOUND MUTUAL-3810 STONE ROAD WELL	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	SANDY POINT MOBILE HOME PARK-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	SANTIAGO ISLAND VILLAGE-WELL 01	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	SUNSET HARBOR-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	TONYS FAMILY RESTAURANT-WELL HEAD	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	TUGS-Well Head	38.017	-121.642	--	7.62	--	--	--	--
DDW	Small Community System	Unknown	VILLA DE GUADALUPE-WELL	37.901	-121.682	--	78.76	--	--	--	--
DDW	Small Community System	Unknown	WILLOWEST MARINA WS-WELLHEAD	--	--	--	--	--	--	--	--
DWR	--	Shallow	01N03E17E001M	37.9335	-121.6747	55.90	54.87	113-123	-57.10	-67.10	123
DWR	Observation	Shallow	01N04E20L001M	37.9146	-121.5631	-2.88	-5.66	--	--	--	20
DWR	Observation	Shallow	01N04E20P001M	37.9122	-121.5611	-2.88	-5.68	--	--	--	20
DWR	Observation	Shallow	01N04E20P002M	37.9143	-121.5624	-4.28	-7.67	--	--	--	20
DWR	Observation	Shallow	01N04E29C002M	37.9092	-121.5619	-3.98	-6.68	--	--	--	20
DWR	Monitoring	Shallow	01N04E29D001M	37.9125	0	-6.20	--	--	--	--	20
DWR	Observation	Shallow	01N04E29P001M	37.899	-121.5639	-7.28	-7.68	--	--	--	20
DWR	Observation	Shallow	01N04E30G001M	37.905	-121.573	4.07	-7.67	--	--	--	20
DWR	Observation	Shallow	01N04E30H001M	37.904	-121.5715	-2.17	-4.67	--	--	--	20
DWR	Observation	Shallow	01N04E30J001M	37.9016	-121.5683	-1.97	-4.67	--	--	--	20
DWR	Observation	Shallow	01N04E31H001M	37.8957	-121.5652	-4.27	-6.67	--	--	--	20
DWR	Observation	Shallow	01N04E31H002M	37.8896	-121.5705	-5.17	-7.67	--	--	--	20

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DWR	Observation	Shallow	01N04E31K001M	37.8871	-121.5744	-3.37	-5.66	--	--	--	20
DWR	Observation	Shallow	01N04E31Q001M	37.8826	-121.5755	-3.86	-6.66	--	--	--	20
DWR	Observation	Shallow	01N04E32D002M	37.8957	-121.5652	-5.27	-7.67	--	--	--	20
DWR	Observation	Shallow	01N04E32E001M	37.8916	-121.5669	-5.17	-7.67	--	--	--	20
DWR	Observation	Shallow	01S04E06B001M	37.88	-121.57	--	-237.68	--	--	--	20
DWR	Observation	Shallow	01S04E06C001M	37.88	-121.574	--	-236.74	--	--	--	20
DWR	Observation	Shallow	01S04E06L001M	37.8435	-121.5801	-3.86	-4.66	--	--	--	20
DWR	Observation	Shallow	01S04E06L002M	37.8743	-121.5771	-3.46	-6.66	--	--	--	20
DWR	Observation	Shallow	01S04E06P002M	37.85	-121.58	-4.20	-7.00	--	--	--	20
DWR	Observation	Shallow	01S04E06Q001M	37.8686	-121.5751	-3.86	-6.66	--	--	--	20
DWR	Observation	Shallow	01S04E06R001M	37.86	-121.575	--	-207.07	--	--	--	20
DWR	Observation	Shallow	01S04E07A001M	37.8644	-121.571	-1.76	-4.67	--	--	--	20
DWR	Observation	Shallow	01S04E07B001M	37.852	-121.57	5.50	3.00	--	--	--	20
DWR	Observation	Shallow	01S04E07C001M	37.8621	-121.5796	-4.55	-7.65	--	--	--	20
DWR	Observation	Shallow	01S04E08A001M	37.8641	-121.5504	-3.57	-5.66	--	--	--	20
DWR	Observation	Shallow	01S04E08H001M	37.8626	-121.5535	-2.97	-5.66	--	--	--	20
DWR	Observation	Shallow	01S04E08H002M	37.8615	-121.5511	--	-198.86	--	--	--	20
DWR	Observation	Shallow	01S04E08J001M	37.8579	-121.5495	--	-195.07	--	--	--	20
DWR	Observation	Shallow	01S04E08K001M	37.8591	-121.5552	1.43	-0.67	--	--	--	20
DWR	Observation	Shallow	01S04E08L001M	37.8598	-121.5584	-2.96	-6.66	--	--	--	20
DWR	Observation	Shallow	01S04E08M001M	37.8581	-121.5651	-2.96	-5.66	--	--	--	20
DWR	Observation	Shallow	01S04E09N001M	37.8558	-121.5476	--	-195.07	--	--	--	20
DWR	Observation	Shallow	1S/4E 31P 5	37.797914	-121.580028	60.00	60.00	8-23	52.00	37.00	24
DWR	Observation	Shallow	378435N1215801 W001	37.8435	-121.5801	-3.86	-4.66	--	--	--	20
DWR	Observation	Shallow	378500N1215800 W001	37.85	-121.58	-4.20	-7.00	--	--	--	20
DWR	Observation	Shallow	378621N1215796 W001	37.8621	-121.5796	-4.55	-7.65	--	--	--	20
DWR	Observation	Shallow	378826N1215755 W001	37.8826	-121.5755	-3.86	-6.66	--	--	--	20
DWR	Observation	Shallow	378957N1215652 W001	37.8957	-121.5652	-4.27	-6.67	--	--	--	20
DWR	Observation	Shallow	379050N1215730 W001	37.905	-121.573	4.07	-7.67	--	--	--	20
DWR	--	Shallow	BD-1	37.9035	-121.5752	-6.37	3.11	90-100	-96.37	-106.37	100
DWR	--	Shallow	BD-2	37.8836	-121.5791	-6.46	2.83	90-100	-96.46	-106.46	100
DWR	--	Shallow	BD-3	37.864705	-121.579748	-7.00	-1.45	90-100	-97.00	-107.00	100
DWR	Observation	Shallow	BS-4	37.901133	-121.571309	-2.99	-5.69	--	--	--	20
DWR	Observation	Shallow	BS-5	37.899263	-121.568292	-5.80	-8.00	--	--	--	20
DWR	Observation	Shallow	BS-6	37.896564	-121.567668	-5.80	-8.00	--	--	--	20
DWR	Observation	Shallow	VD-2	37.887444	-121.570556	-6.97	-7.67	--	--	--	20
DWR	Observation	Shallow	VS-10	37.882414	-121.572674	-3.76	-6.66	--	--	--	20
DWR	Observation	Shallow	VS-3	37.905944	-121.568194	-4.18	-6.69	--	--	--	20
DWR	--	Unknown	01N02E01F001M	37.9627	-121.7081	--	73.74	--	--	--	--
DWR	--	Unknown	01N02E03K001M	37.9591	-121.7401	--	117.98	--	--	--	--
DWR	--	Unknown	01N02E13H001M	37.9338	-121.6989	--	77.86	--	--	--	--
DWR	--	Unknown	01N02E24M001M	37.9157	-121.7127	--	97.47	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DWR	--	Unknown	01N02E24R002M	37.9121	-121.6989	--	94.16	--	--	--	--
DWR	--	Unknown	01N02E25F001M	37.9049	-121.7081	--	114.03	--	--	--	--
DWR	--	Unknown	01N02E25G001M	37.9049	-121.7035	--	105.75	--	--	--	--
DWR	--	Unknown	01N02E26H001M	37.9049	-121.7172	--	115.03	--	--	--	--
DWR	--	Unknown	01N03E06N001M	37.9555	-121.6944	--	60.05	--	--	--	--
DWR	--	Unknown	01N03E06N002M	37.9555	-121.6944	--	60.05	--	--	--	--
DWR	--	Unknown	01N03E09E001M	37.9482	-121.6578	--	37.18	--	--	--	--
DWR	--	Unknown	01N03E13C001M	37.9374	-121.5983	--	3.31	--	--	--	--
DWR	--	Unknown	01N03E18D001M	37.9374	-121.6944	--	70.64	--	--	--	--
DWR	--	Unknown	01N03E18G001M	37.9338	-121.6852	--	64.29	--	--	--	--
DWR	--	Unknown	01N03E25C001M	37.9085	-121.5983	--	2.71	--	--	--	--
DWR	--	Unknown	01N03E26C002M	37.9085	-121.6166	--	4.75	--	--	--	--
DWR	--	Unknown	01N03E27Q003M	37.8977	-121.6303	--	16.18	--	--	--	--
DWR	--	Unknown	01N03E27R001M	37.8977	-121.6257	--	7.85	--	--	--	--
DWR	--	Unknown	01N03E28Q001M	37.8977	-121.6486	--	35.07	--	--	--	--
DWR	--	Unknown	01N03E29Q001M	37.8977	-121.6669	--	57.11	--	--	--	--
DWR	--	Unknown	01N03E30L001M	37.9013	-121.6898	--	94.15	--	--	--	--
DWR	--	Unknown	01N03E30L002M	37.9013	-121.6898	--	94.15	--	--	--	--
DWR	--	Unknown	01N03E30M001M	37.9013	-121.6944	--	99.54	--	--	--	--
DWR	--	Unknown	01N03E31C001M	37.894	-121.6898	--	90.14	--	--	--	--
DWR	--	Unknown	01N03E32C001M	37.894	-121.6715	--	60.46	--	--	--	--
DWR	--	Unknown	01N03E33J001M	37.8868	-121.644	--	30.94	--	--	--	--
DWR	--	Unknown	01N03E34A001M	37.894	-121.6257	--	8.12	--	--	--	--
DWR	--	Unknown	01N03E35N001M	37.8832	-121.6212	--	6.15	--	--	--	--
DWR	--	Unknown	01S03E02N001M	37.8688	-121.6212	--	12.97	--	--	--	--
DWR	--	Unknown	01S03E02P001M	37.8688	-121.6166	--	8.64	--	--	--	--
DWR	--	Unknown	01S03E03H001M	37.876	-121.6257	--	10.84	--	--	--	--
DWR	--	Unknown	01S03E03M001M	37.8741	-121.64	--	31.58	--	--	--	--
DWR	--	Unknown	01S03E03M002M	37.8741	-121.64	--	31.58	--	--	--	--
DWR	--	Unknown	01S03E03N002M	37.8688	-121.6395	--	32.42	--	--	--	--
DWR	--	Unknown	01S03E03N003M	37.8688	-121.6395	--	32.42	--	--	--	--
DWR	--	Unknown	01S03E03P001M	37.8688	-121.6349	--	26.75	--	--	--	--
DWR	--	Unknown	01S03E03Q001M	37.8688	-121.6303	--	22.89	--	--	--	--
DWR	--	Unknown	01S03E03Q002M	37.8688	-121.6303	--	22.89	--	--	--	--
DWR	--	Unknown	01S03E04Q001M	37.8688	-121.6486	--	39.30	--	--	--	--
DWR	--	Unknown	01S03E09A001M	37.8651	-121.644	--	38.67	--	--	--	--
DWR	--	Unknown	01S03E09A002M	37.8651	-121.644	--	38.67	--	--	--	--
DWR	--	Unknown	01S03E10C001M	37.8651	-121.6349	--	29.29	--	--	--	--
DWR	--	Unknown	01S03E10C002M	37.8651	-121.6349	--	29.29	--	--	--	--
DWR	--	Unknown	01S03E10G001M	37.8615	-121.6303	--	26.34	--	--	--	--
DWR	--	Unknown	01S03E10K001M	37.8579	-121.6303	--	32.41	--	--	--	--
DWR	--	Unknown	01S03E14D001M	37.8507	-121.6212	--	28.62	--	--	--	--
DWR	--	Unknown	01S03E14N001M	37.8399	-121.6212	--	35.30	--	--	--	--
DWR	--	Unknown	01S03E15A001M	37.8508	-121.6238	--	32.03	--	--	--	--
DWR	--	Unknown	01S03E22H001M	37.8326	-121.6257	--	48.56	--	--	--	--
DWR	--	Unknown	01S03E22H002M	37.8326	-121.6257	--	48.56	--	--	--	--
DWR	--	Unknown	01S03E23E001M	37.8326	-121.6212	--	38.77	--	--	--	--
DWR	--	Unknown	01S03E23J001M	37.829	-121.6074	--	20.65	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Public Supply, Agricultural Irrigation, and DWR Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
DWR	--	Unknown	01S03E26A001M	37.8218	-121.6074	--	59.52	--	--	--	--
DWR	--	Unknown	01S04E09N002M	37.8543	-121.548	--	-5.14	--	--	--	--
DWR	--	Unknown	01S04E17A001M	37.8507	-121.5525	--	-4.33	--	--	--	--
DWR	--	Unknown	01S04E17A002M	37.8507	-121.5525	--	-4.33	--	--	--	--
DWR	--	Unknown	01S04E17C001M	37.8507	-121.5617	--	-1.91	--	--	--	--
DWR	--	Unknown	01S04E20K001M	37.829	-121.5571	--	2.37	--	--	--	--
DWR	--	Unknown	02N02E20A001M	38.0096	-121.7721	--	40.19	--	--	--	--
DWR	--	Unknown	02N02E36M001M	37.9735	-121.7127	--	77.65	--	--	--	--
DWR	--	Unknown	02N03E10D001M	38.0385	-121.6395	--	6.65	--	--	--	--
DWR	--	Unknown	02N03E15Q001M	38.0133	-121.6303	--	5.17	--	--	--	--
DWR	--	Unknown	02N03E29M001M	37.988	-121.6761	--	14.23	--	--	--	--

Abbreviations:

DWR- Department of Water Resources
ECCID- East Contra Costa Irrigation District
ft- feet
GSA- Groundwater Sustainability Agency
BBID- Byron Bethany Irrigation Dist
bgs- below ground surface
DDW- Division of Drinking Water
DWD- Diablo Water District
msl- mean sea level
TOC- Top of Casing

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Shallow	T0601300803-STMW-3	38.0113647	-121.8164043	18.19	-77.29	--	--	--	20
Geotracker	--	Unknown	SL0601327206-EW-1	38.0124906	-121.8262758	17.09	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601327206-MW-1	38.0124851	-121.8262136	16.99	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601327206-MW-2	38.0124981	-121.826324	17.45	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-1	37.99763297	-121.7598206	70.63	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-12	37.997267	-121.7601833	53.87	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-14	37.9973253	-121.7587909	53.71	-97.70	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-18	37.9973406	-121.7591286	56.44	-97.70	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-19	37.9970033	-121.7591763	54.70	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-2	37.99742985	-121.7595953	70.30	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-22	37.9977806	-121.7590815	81.87	-97.70	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-23	37.9977759	-121.7597224	72.46	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-25	37.99752224	-121.7596478	70.36	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-3	37.99737148	-121.7598189	70.24	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-4	37.9976908	-121.760264	67.39	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-5	37.9983647	-121.7599193	74.00	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-6	37.99771421	-121.7591362	80.62	-97.70	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-7	37.9977122	-121.7590266	82.47	-97.70	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-8	37.9974352	-121.7595547	71.06	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94MW-9	37.9981846	-121.7605201	73.52	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94SP-2	37.99748208	-121.7596956	70.35	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601346154-94SP-4	37.99748348	-121.7596706	70.68	-100.38	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601394831-MW-1	38.00979466	-121.7501967	21.78	-103.29	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601394831-MW-2	38.00966682	-121.7500914	22.58	-103.29	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601394831-MW-3	38.00952959	-121.7502572	23.00	-103.29	--	--	--	--
Geotracker	Monitoring	Unknown	SL0601394831-MW-4	38.0097062	-121.750356	22.59	-103.29	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-1	37.99799564	-121.7092015	20.39	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-2	37.99800735	-121.7093709	20.34	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-3	37.9980815	-121.7093025	22.68	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-4	37.99807566	-121.7094744	20.19	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-5	37.99806122	-121.7091587	22.51	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-6	37.99806424	-121.7093743	22.44	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7EW-7	37.99802921	-121.7090872	22.59	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-1	37.9981523	-121.7092386	21.51	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-10	37.9978009	-121.7091346	24.04	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-11	37.9978089	-121.709496	26.48	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-12	37.9979889	-121.7098298	19.03	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-13	37.9981346	-121.709828	17.62	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-14	37.9980541	-121.7095267	20.31	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-2	37.998027	-121.7090709	22.36	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-3	37.9979121	-121.7091968	23.17	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-4	37.9979891	-121.7091461	22.94	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-5	37.9980537	-121.7092528	22.55	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-6	37.9981087	-121.7093618	21.97	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-7	37.9982924	-121.7092256	22.98	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-8	37.9981008	-121.70883	23.79	-98.45	--	--	--	--
Geotracker	Monitoring	Unknown	SL186102968-7MW-9	37.9977945	-121.7088098	22.99	-98.45	--	--	--	--
Geotracker	--	Unknown	SL20210828-903B1	38.02213191	-121.8415902	12.56	-59.40	--	--	--	--
Geotracker	Monitoring	Unknown	SL205032990-GCC-1	38.0154259	-121.7733017	27.74	-111.04	--	--	--	--
Geotracker	Monitoring	Unknown	SL205032990-GCC-2	38.0154017	-121.7733006	27.80	-111.04	--	--	--	--
Geotracker	Monitoring	Unknown	SL205032990-GCC-3	38.0153842	-121.7732943	27.98	-111.04	--	--	--	--
Geotracker	Monitoring	Unknown	SL205032990-GCC-4	38.0153836	-121.773275	28.14	-111.04	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	--	Unknown	SL205032990-GPG-1	38.0151254	-121.7857635	26.28	-106.31	--	--	--	--
Geotracker	--	Unknown	SL205032990-GPG-2	38.0151314	-121.7857251	26.44	-106.31	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-01	38.0124701	-121.7782997	33.80	-108.58	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-02	38.0137724	-121.7800415	29.37	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-03	38.0143072	-121.7798501	19.98	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-04	38.0131714	-121.7791378	35.07	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-05	38.0135223	-121.7795815	36.84	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-06	38.0136725	-121.7797346	33.46	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-07	38.0135821	-121.7803374	29.88	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-08	38.0135895	-121.7802884	32.84	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-09	38.0141134	-121.7801852	16.84	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-10	38.0136944	-121.7796301	35.70	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-11	38.0141616	-121.7801488	16.56	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-12	38.0148054	-121.7804337	21.19	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-13	38.0140557	-121.7806932	19.99	-106.31	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-14	38.0148174	-121.7778223	11.16	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-15	38.013924	-121.7782276	17.78	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-16	38.0145546	-121.7796335	21.32	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-17	38.0147691	-121.7803996	20.48	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-18	38.0147754	-121.7804429	21.36	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-19	38.0141354	-121.7802108	15.83	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-20	38.0148596	-121.7778279	11.96	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-21	38.0140728	-121.7806637	18.96	-106.31	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-22	38.0125118	-121.7783151	34.52	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-23	38.0139487	-121.7782341	17.52	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-24	38.014529	-121.7796147	21.60	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-25	38.0125359	-121.7783366	35.16	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-26	38.0125417	-121.7797532	39.17	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-27	38.0146731	-121.7787581	10.21	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-28	38.0147021	-121.7787535	9.53	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-29	38.0148319	-121.7778483	11.28	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-30	38.012557	-121.7797589	38.45	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-31	38.0139152	-121.780437	19.42	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-32	38.0141668	-121.780072	18.22	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-33	38.0142447	-121.7799241	19.05	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-34	38.0138037	-121.7796211	22.05	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-35	38.0141958	-121.7793729	22.25	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-36	38.0141791	-121.7793647	22.45	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-37	38.0144931	-121.7786015	11.08	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-38	38.0145226	-121.7786021	11.42	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-39	38.0144936	-121.7782188	13.40	-109.18	--	--	--	--
Geotracker	--	Unknown	SL205032990-W-40	38.0145758	-121.7780404	13.86	-109.18	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-11A	37.9978322	-121.843182	110.37	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-12A	37.9978602	-121.8425416	108.65	-33.13	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-14A	37.9983182	-121.843986	107.54	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-17A	37.9975032	-121.8416801	109.02	-33.13	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-18A	37.9980477	-121.8451401	110.59	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-19A	37.9976307	-121.8442498	111.13	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-20B	37.9977877	-121.8437805	110.28	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-21A	37.9977883	-121.8437416	110.13	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-3A	37.9977693	-121.8437697	111.75	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-5A	37.9978408	-121.8435181	109.98	-25.74	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	SL205092993-MW-5B	37.9977964	-121.843548	109.90	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-6A	37.9979223	-121.8433416	109.56	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205092993-MW-8A	37.9982209	-121.843463	108.88	-25.74	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-ORC-7	37.9251716	-121.7233168	103.65	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-ORC-8	37.9250927	-121.7232733	102.80	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-ORC-9A	37.9250193	-121.7232463	102.75	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-56	37.9250435	-121.7235089	102.06	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-57	37.925157	-121.7228611	103.32	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-58	37.9251558	-121.7228858	103.32	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-77	37.9245299	-121.7227896	100.59	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-78	37.9251789	-121.7223146	101.37	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-79	37.9255381	-121.7220427	102.01	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-81A	37.9249892	-121.7234247	103.41	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-82A	37.9247969	-121.7231043	102.26	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	SL205383009-SB-83A	37.9250297	-121.7228089	102.34	-128.93	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-11	38.0059117	-121.8337381	49.45	51.86	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-16A	38.006066	-121.8341603	55.09	53.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-16B	38.0060518	-121.8341719	55.31	53.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-16C	38.0060439	-121.8341918	55.19	53.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-17	38.0061868	-121.8343704	54.94	52.82	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-22	38.0068195	-121.8341197	50.29	49.89	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-22C	38.0068368	-121.8340992	50.32	48.79	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-23	38.0063707	-121.8349983	55.21	51.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-24	38.0066495	-121.8346758	51.88	50.51	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-25	38.0064355	-121.8340507	51.54	51.85	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-25B	38.0064183	-121.8340456	51.63	51.85	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-26	38.0061679	-121.8343722	54.95	53.13	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-26B	38.0061656	-121.8343524	55.05	53.13	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-28	38.006751	-121.8338309	49.92	49.60	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-28C	38.0067594	-121.8338183	49.81	49.60	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-29	38.0058874	-121.8334668	50.35	50.93	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-30A	38.0063123	-121.833775	50.73	51.45	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-31A	38.0061084	-121.8338525	52.54	52.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-32D	38.006267	-121.8341172	52.78	52.47	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-5A	38.0062378	-121.8342137	54.85	52.64	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-5B	38.0062447	-121.8341948	54.51	52.64	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-5C	38.0062516	-121.8341759	54.18	52.64	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300676-MW-6	38.0058298	-121.8342566	52.64	53.40	--	--	--	--
Geotracker	--	Unknown	T0601300676-SW-1	38.0061866	-121.8339985	53.15	-46.47	--	--	--	--
Geotracker	--	Unknown	T0601300676-SW-2	38.0060755	-121.8338679	52.98	-46.47	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-1	37.9368842	-121.6951473	67.54	71.30	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-2	37.9366645	-121.6952831	67.95	71.37	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-3	37.9364996	-121.6949322	68.34	71.63	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-4	37.9365669	-121.6946313	67.96	71.63	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-5B	37.9369442	-121.6949261	68.95	71.08	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-6	37.9371071	-121.6952278	67.49	71.04	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-7B	37.9366314	-121.6955414	69.06	71.63	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-8	37.9363032	-121.6950244	68.67	71.96	--	--	--	--
Geotracker	--	Unknown	T0601300744-W-9	37.9365957	-121.6948036	67.70	71.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-1	38.0152337	-121.8135181	28.00	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-2	38.0153519	-121.8136577	22.92	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-3	38.0153621	-121.8135367	28.05	-79.94	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300747-MW-4	38.015518	-121.8135464	27.45	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-5	38.0149805	-121.8137153	27.41	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-6	38.0153595	-121.8139196	26.55	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-7	38.0157416	-121.8131942	28.26	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-8	38.0157168	-121.8138179	28.16	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-MW-9	38.0153718	-121.8132026	26.88	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-PZ-01	38.0153102	-121.8135375	28.35	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-PZ-02	38.0153363	-121.8135592	28.26	-79.94	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300747-PZ-03	38.015332	-121.8135202	28.05	-79.94	--	--	--	--
Geotracker	--	Unknown	T0601300756-EW100	37.9985656	-121.822348	34.72	-53.26	--	--	--	--
Geotracker	--	Unknown	T0601300756-EW101	37.9988293	-121.8222826	36.08	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-1	37.9983089	-121.822326	34.49	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-10L	37.99910075	-121.8221644	41.26	-60.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-10U	37.99911189	-121.822006	35.89	-60.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-11L	37.99889936	-121.822009	39.63	-60.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-12L	37.99861509	-121.8222438	36.83	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-2	37.99856964	-121.8222751	37.06	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-3	37.9987792	-121.8223128	37.10	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-4	37.998635	-121.822323	34.96	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-5	37.9984517	-121.8223656	35.01	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-6A	37.99900008	-121.8220995	39.89	-60.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-7A	37.99911244	-121.8222631	41.29	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-8U	37.99833577	-121.8224897	38.16	-53.26	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300756-MW-9U	37.99908525	-121.8221338	40.57	-60.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-1	38.0156887	-121.8194631	15.09	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-10	38.0156602	-121.8196409	14.65	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-11	38.0156238	-121.819455	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-12	38.0155174	-121.8192871	15.09	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-13S	38.0158126	-121.8196397	14.94	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-14D	38.0158058	-121.8196407	14.73	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-15	38.0154191	-121.8199898	15.03	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-16	38.0157683	-121.8194752	14.96	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-17	38.0157633	-121.8195667	14.77	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-2	38.0157465	-121.8194856	14.94	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-3	38.0157422	-121.819522	14.73	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-4	38.0156534	-121.8194282	15.03	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-5	38.0155878	-121.8194967	15.53	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-6	38.0159386	-121.8195728	13.36	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-7	38.016145	-121.8195537	12.31	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-8	38.015973	-121.8198354	12.83	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-MW-9	38.0154291	-121.8195113	15.27	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-1	38.0157792	-121.8195718	15.26	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-10	38.0157557	-121.8194742	15.44	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-2	38.0157798	-121.8195533	15.37	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-3	38.0157789	-121.8195263	15.38	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-4	38.0157789	-121.8194934	15.40	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-5	38.0157796	-121.8194702	15.38	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-6	38.0157589	-121.8195716	15.26	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-7	38.0157542	-121.8195417	15.32	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-8	38.0157552	-121.8195261	15.39	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300764-SP-9	38.0157567	-121.8194951	15.42	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-IW10	37.9329167	-121.6936652	76.77	-104.59	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300766-IW9	37.9329025	-121.6936893	77.31	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW1	37.9327737	-121.6939078	78.01	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW2	37.9328761	-121.6939949	78.00	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW3	37.9330462	-121.6937609	77.07	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW4	37.9329572	-121.6936399	76.75	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW5	37.932885	-121.6936264	76.80	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW6A	37.9330193	-121.6939911	76.97	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW6B	37.9330156	-121.6939972	77.01	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW7A	37.9329946	-121.693405	76.29	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW7B	37.933	-121.6934076	76.27	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW8A	37.9327127	-121.6932717	75.64	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW8B	37.9327176	-121.6932757	75.48	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300766-MW8C	37.9327231	-121.6932819	75.69	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-1	38.0027038	-121.8391442	77.59	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-1R	38.0026908	-121.8391612	77.71	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-2	38.0025267	-121.8394175	79.40	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-3	38.0028146	-121.8392837	78.17	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-3R	38.0028246	-121.8393014	78.05	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-4	38.0027292	-121.8394187	78.98	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-6	38.002802	-121.8390101	77.05	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-MW-7	38.0026041	-121.8390904	78.27	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-SVE-1	38.0026568	-121.8391433	77.82	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-SVE-2	38.002691	-121.8391301	77.28	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-SVE-3	38.0026878	-121.8391135	77.20	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-SVE-4	38.0025936	-121.8391033	78.40	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300768-SVE-5	38.0025832	-121.8391162	78.31	-35.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-MW-1	38.0115649	-121.8239635	16.06	-63.74	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-MW-2	38.0115564	-121.8238235	16.09	-63.74	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-MW-3	38.011849	-121.8239908	15.90	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-P-1	38.0115751	-121.8239662	16.29	-63.74	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-P-2	38.0115773	-121.8239467	16.12	-63.74	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300769-P-3	38.0116095	-121.8239794	16.78	-63.74	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-10	38.0062277	-121.8054718	37.82	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-11	38.0062759	-121.8054357	37.14	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-12	38.0062651	-121.8054954	37.60	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-2	38.0061569	-121.8058571	38.32	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-3	38.0060913	-121.8058056	38.55	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-4	38.0061433	-121.8057191	39.23	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-5	38.0061009	-121.8056617	39.15	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-6	38.0061827	-121.8056382	38.78	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-7	38.0060826	-121.8054862	38.12	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-8	38.0060316	-121.8054712	38.28	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-AS-9	38.0061043	-121.8054369	38.34	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-1	38.00625498	-121.8058466	35.39	38.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-10	38.00620952	-121.8061775	36.00	38.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-11	38.0056385	-121.8053273	39.18	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-12	38.00596199	-121.8050542	36.76	38.65	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-13	38.00625922	-121.8050555	35.58	37.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-14	38.00643977	-121.8053422	33.68	37.78	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-15	38.00641723	-121.805002	33.33	37.42	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-16	38.00717471	-121.8047707	32.15	36.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-17	38.00716902	-121.8047858	32.33	36.37	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300772-MW-2	38.006287	-121.8056117	35.67	38.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-3	38.00613724	-121.8056524	36.94	38.85	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-4	38.00612698	-121.8058486	35.85	38.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-5	38.00647037	-121.805826	35.23	37.90	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-6	38.00645471	-121.8055512	34.69	37.92	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-7	38.00624756	-121.8054469	35.75	38.48	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-8	38.00606136	-121.8054427	35.98	38.90	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-MW-9	38.00585883	-121.8057234	36.80	39.43	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-RW-1	38.00628235	-121.8054523	--	38.16	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-10	38.0061222	-121.8057912	38.37	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-2	38.0061409	-121.8056135	38.75	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-3	38.0062802	-121.805406	37.71	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-4	38.0062428	-121.8054153	38.19	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-5	38.0062057	-121.8054183	38.30	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-6	38.0061408	-121.8054135	38.24	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-7	38.0060834	-121.8054199	38.22	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-8	38.0060305	-121.8054248	38.25	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-SVE-9	38.0061543	-121.8058248	38.04	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-VE-1	38.0061417	-121.8056109	--	38.80	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300772-VE-2	38.00625686	-121.8056127	--	38.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-B-53	37.9399721	-121.6224433	--	6.85	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-B-54	37.9399412	-121.6221982	--	6.85	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-B-55	37.9399259	-121.6220835	--	6.82	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-B-56	37.9399323	-121.6219097	--	6.82	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-B-57	37.9399159	-121.6217167	--	6.86	--	--	--	--
Geotracker	--	Unknown	T0601300775-EW-1	37.93957	-121.6230904	15.91	-170.96	--	--	--	--
Geotracker	--	Unknown	T0601300775-EW-2	37.9395742	-121.6228656	16.48	-170.96	--	--	--	--
Geotracker	--	Unknown	T0601300775-EW-3	37.9396656	-121.6229469	16.26	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-1	37.9395163	-121.6233194	16.74	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-2	37.93943	-121.6231362	16.35	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-3	37.939209	-121.6231662	15.11	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-4	37.9394298	-121.6228674	15.75	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-5	37.9397156	-121.6223688	15.24	-170.96	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300775-MW-6	37.9399769	-121.6232528	15.96	-170.96	--	--	--	--
Geotracker	--	Unknown	T0601300776-CES-15	38.0153331	-121.80578	9.54	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-CES-16	38.0154219	-121.8056033	7.63	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-CES-17	38.0153086	-121.8055106	6.68	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-CES-18	38.0152066	-121.8056389	10.29	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-CES-4	38.0153155	-121.8056438	10.24	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-KMW-10	38.0143818	-121.803181	9.72	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-KMW-11	38.0151455	-121.8055429	9.92	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-KMW-8	38.0159326	-121.8057552	12.38	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-KMW-9	38.0149425	-121.803307	7.49	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-KSG-7	38.0147418	-121.8044234	9.72	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-KSG-8	38.0154645	-121.8042903	9.13	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-12	38.0154589	-121.8038753	7.07	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-2	38.015543	-121.8047278	9.13	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-3	38.0154062	-121.8055011	10.15	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-4	38.0146512	-121.8057372	19.08	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-5	38.0156693	-121.8054338	10.50	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-6	38.0151593	-121.8041467	9.13	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300776-MW-7A	38.0162706	-121.8048532	9.51	-92.58	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	--	Unknown	T0601300776-SG-1	38.0149875	-121.8054495	11.85	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-SG-10	38.0151492	-121.8030763	7.13	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-SG-2	38.0155612	-121.8047643	9.82	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-SG-3	38.0149324	-121.8041339	9.18	-91.08	--	--	--	--
Geotracker	--	Unknown	T0601300776-SG-6A	38.0162318	-121.8044948	10.09	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-1	38.0089854	-121.8315545	41.48	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-10	38.0092285	-121.8313757	40.58	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-11	38.0090482	-121.8312883	38.36	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-12	38.0096328	-121.8321013	38.63	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-2	38.0089225	-121.8315566	41.23	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-3	38.0089878	-121.8316272	41.68	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-4	38.0089695	-121.8317001	41.73	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-5	38.0089797	-121.8313929	39.68	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-6	38.0088569	-121.8314387	40.99	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-8	38.0091061	-121.8316479	42.31	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300780-MW-9	38.0091814	-121.8315869	41.85	-57.25	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-DW-1A	38.0117949	-121.8058731	17.85	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-DW-1B	38.0117959	-121.8058574	17.66	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-DW-2A	38.0119113	-121.8058574	17.56	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-DW-2B	38.011911	-121.8058501	17.50	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-1	38.0118321	-121.8058495	17.67	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-2	38.011746	-121.8059614	17.57	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-3	38.0119104	-121.8057926	17.81	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-4	38.0120298	-121.8058484	16.26	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-5	38.0119314	-121.8055469	17.76	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-6	38.0120741	-121.8053981	17.15	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-7	38.0121171	-121.8056318	16.90	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-8	38.0118236	-121.8059642	17.33	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300781-MW-9	38.0117861	-121.805894	17.89	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-EW-1	37.9995969	-121.8055167	46.68	47.17	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-EW-2	37.9995983	-121.8053608	45.97	46.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-EW-3	37.9995676	-121.8054139	45.84	46.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-1	37.9996307	-121.8057245	46.85	48.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-10	37.9996463	-121.8058044	47.54	48.76	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-11	37.9999907	-121.8050581	48.80	46.67	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-12	37.9994011	-121.8057835	45.11	48.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-13	38.000166	-121.8054461	51.26	49.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-14	38.0002065	-121.8050629	51.23	48.04	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-15	38.0002315	-121.8046597	45.57	47.86	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-2	37.9995903	-121.8054568	46.87	46.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-3	37.999989	-121.8056984	49.20	49.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-4	37.9997408	-121.80519	45.74	46.04	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-5	37.9995248	-121.8050439	40.91	45.10	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-6	37.9993948	-121.8053151	43.01	45.89	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-7	37.9996347	-121.8055954	46.58	48.16	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-8	37.9999792	-121.8050587	48.75	46.67	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300782-MW-9	37.9997318	-121.8051919	45.54	46.04	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-DW-1	37.9338985	-121.6947746	74.84	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-DW-2	37.9338623	-121.6946215	75.24	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-DW-3	37.9337577	-121.6947067	75.87	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-1	37.9339431	-121.6945458	73.19	76.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-10	37.933722	-121.6948574	75.58	-115.71	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300783-MW-11	37.9338062	-121.6950794	74.22	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-12	37.9339449	-121.6952019	73.83	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-13	37.9341922	-121.694762	73.44	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-2	37.9339136	-121.6947852	73.57	76.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-3	37.9337748	-121.6947274	73.85	76.69	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-4	37.9338912	-121.6946925	73.44	76.38	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-5	37.9338637	-121.6943877	73.11	76.52	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-6	37.933667	-121.694518	74.91	77.00	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-7	37.9340007	-121.6946443	72.92	76.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-MW-9	37.9336898	-121.6946859	76.32	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-SVE-1	37.9338808	-121.6946499	73.26	76.52	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300783-SVE-2	37.9338698	-121.6946129	73.66	76.52	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300784-MW-1	38.00462582	-121.7968979	17.20	-90.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300784-MW-2	38.00462382	-121.7970015	18.36	-90.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300784-MW-3	38.00462582	-121.7968979	18.05	-90.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-1	38.017041	-121.8176197	7.60	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-2	38.0175466	-121.8177886	8.10	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-3	38.0175677	-121.8174347	7.94	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-4	38.0168336	-121.8177861	8.59	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-5	38.0172165	-121.8179011	6.66	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-MW-6	38.016827	-121.8174841	8.50	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-TW-1	38.0168371	-121.8174983	8.67	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-TW-2	38.0169581	-121.817657	8.21	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-TW-3	38.0169435	-121.8174682	8.81	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300788-TW-4	38.0169572	-121.8180571	9.00	-76.63	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-1	38.01081896	-121.8193194	18.67	21.47	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-2	38.01108911	-121.8193669	17.03	20.93	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-3	38.01104125	-121.81954	17.70	21.37	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-4	38.01124995	-121.8194669	16.79	20.51	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-5	38.01126429	-121.8192493	16.35	20.18	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300790-MW-6	38.01109116	-121.8189549	16.02	20.48	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-BW-1	38.0046866	-121.8057268	42.82	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-2	38.0046401	-121.8054315	41.73	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-3	38.0043868	-121.8055792	42.44	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-4A	38.003852	-121.8054135	41.41	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-4B	38.0038556	-121.8053971	41.36	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-5B	38.004459	-121.8052784	42.48	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-6A	38.0047369	-121.8048701	39.05	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-6B	38.0047369	-121.8048853	39.07	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-7B	38.0046698	-121.8057534	41.82	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-7BL	38.0046456	-121.8057491	41.51	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-8A	38.0041158	-121.8051278	40.99	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300800-MW-8BL	38.0041314	-121.8051336	41.08	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-1	37.941038	-121.6959902	67.30	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-10	37.9411273	-121.6964507	67.59	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-11	37.9414786	-121.6963074	66.51	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-12	37.9414863	-121.6951664	63.75	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-13	37.9412149	-121.6953829	64.73	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-14	37.9408431	-121.6960057	65.83	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-15D	37.9412418	-121.695776	67.45	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-16D	37.9415004	-121.695639	64.97	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-17D	37.9408886	-121.6960089	65.49	-81.20	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300802-MW-2	37.9411159	-121.6958018	68.28	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-3	37.9413126	-121.6959225	66.48	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-4	37.9415101	-121.6958174	65.60	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-5	37.9415103	-121.695651	65.13	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-6	37.9414869	-121.6954125	64.16	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-7	37.9418024	-121.6955387	65.08	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-8	37.9410984	-121.6963133	66.86	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-MW-9D	37.9410475	-121.6957993	68.30	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-OS-1	37.9410457	-121.6960267	67.24	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-OS-2	37.9410882	-121.6958212	68.30	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300802-OS-3	37.941276	-121.6958569	67.04	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STAS-1	38.011774	-121.8058837	17.98	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STEVE-13	38.0118588	-121.8058973	17.25	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STEW-23	38.0116088	-121.8061896	18.49	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STEW-24	38.0114365	-121.8061786	18.68	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STEW-25	38.0112772	-121.806245	17.86	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STEW-26	38.0113862	-121.8064065	17.91	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-1	38.0115736	-121.8061876	18.59	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-17	38.0110702	-121.8059374	20.92	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-18	38.0118899	-121.8059672	17.48	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-19	38.011466	-121.8059537	19.05	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-2	38.0113018	-121.8061832	18.66	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-20	38.0110872	-121.806167	18.79	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-21	38.0117921	-121.8063265	17.64	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-22	38.0115068	-121.806571	17.99	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-27	38.0110924	-121.8058268	23.13	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-28	38.0110321	-121.8056538	24.83	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-29	38.0120502	-121.806349	17.07	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-30	38.0123365	-121.8060766	17.83	-91.08	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-31	38.0111335	-121.8065357	16.61	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-32	38.0112789	-121.8066071	17.03	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-33	38.0108919	-121.8057424	22.79	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-34	38.0112001	-121.8050437	35.00	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-35	38.0116127	-121.8050609	30.25	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-36	38.011544	-121.8053608	37.73	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-4	38.0115614	-121.8064594	18.35	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-5	38.011647	-121.8062696	18.87	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-6	38.0114208	-121.8064288	18.14	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-7	38.0115972	-121.8063492	18.83	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMW-8	38.0117668	-121.806259	17.61	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-10	38.0112875	-121.8064219	17.22	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-11	38.0110778	-121.8059378	20.82	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-12	38.011473	-121.8059533	19.21	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-14	38.0117338	-121.8061973	18.37	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-15	38.0113013	-121.8062104	18.44	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-16	38.0110793	-121.8061552	18.99	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300803-STMWD-9	38.0115802	-121.8064446	18.62	-88.75	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-EW-1	37.933947	-121.6983042	78.06	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-EW-2	37.9340563	-121.6980679	77.09	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-EW-3	37.9342196	-121.698215	75.88	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-EW-4	37.9341331	-121.6983485	77.15	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-EW-5	37.9343278	-121.6983093	75.97	-115.71	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300804-EW-6	37.934265	-121.6984956	77.13	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-1	37.9339856	-121.6983873	78.55	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-10	37.9334922	-121.6986553	76.39	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-11	37.9344076	-121.6987493	77.64	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-12	37.9332716	-121.6985076	76.61	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-12A	37.9332601	-121.6984381	76.85	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-13	37.9334587	-121.6975276	77.36	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-14	37.933498	-121.6964006	75.37	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-15B	37.9340422	-121.6991599	75.91	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-16B	37.9343563	-121.698675	77.21	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-17B	37.9340314	-121.6984518	78.07	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-2A	37.9337241	-121.698056	78.11	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-3	37.9341415	-121.6981199	76.90	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-4	37.9344467	-121.6984594	76.44	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-5	37.9342927	-121.6986578	77.71	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-6	37.9339419	-121.6990277	76.80	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-6D	37.933941	-121.6990473	76.16	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-7	37.9344388	-121.6974999	76.07	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-7D	37.9344507	-121.6974775	76.00	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-8	37.9345152	-121.6966418	74.10	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300804-MW-9	37.9346687	-121.6975854	76.47	-115.71	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-IP-1	38.0048006	-121.806461	40.81	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-IP-2	38.0047763	-121.8064748	41.25	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-1	38.0047156	-121.806184	41.33	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-2	38.0047769	-121.806228	41.18	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-3	38.0046278	-121.8063643	42.35	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-4	38.0050061	-121.8061174	40.18	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-5	38.004464	-121.8063128	42.36	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-5B	38.0044643	-121.8063393	41.86	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-5C	38.0044652	-121.8063584	41.93	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-MW-6	38.004798	-121.8064968	41.16	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-OW-1	38.0047842	-121.8064498	41.14	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-OW-2	38.0047805	-121.8064347	41.28	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-11	38.0047895	-121.8063677	41.05	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-12	38.0049592	-121.8057025	39.23	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-13	38.004603	-121.8060185	41.46	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-14	38.0047989	-121.8069236	40.38	-79.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-15	38.0050037	-121.8067263	39.72	-79.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-17	38.0052567	-121.8059382	39.66	-85.29	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-7	38.0045469	-121.8067045	41.73	-79.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300807-S-8	38.0047989	-121.8066962	40.40	-79.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-1	38.0112956	-121.8184385	13.27	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-10	38.0116934	-121.8183619	13.71	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-102	38.0115302	-121.8181231	14.30	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-103	38.0115097	-121.8180083	14.28	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-104	38.0118684	-121.8180428	13.24	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-11	38.0110934	-121.8184786	13.93	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-12	38.0118666	-121.8182772	13.86	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-13	38.011868	-121.8181249	13.64	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-14	38.0118708	-121.817868	12.78	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-2	38.0111612	-121.8181371	12.58	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-3	38.0113382	-121.8180056	13.33	-70.53	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601300809-MW-4	38.0113958	-121.8183385	13.77	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-5	38.0114142	-121.8181693	14.36	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-6	38.0114107	-121.818011	14.00	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-7	38.0115183	-121.8183359	14.00	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-8	38.0115242	-121.8181439	14.53	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300809-MW-9	38.0114921	-121.8180102	14.42	-70.53	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-1	38.017207	-121.752913	9.47	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-2	38.0171331	-121.7529023	8.54	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-3	38.017163	-121.7530978	8.72	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-4	38.0174218	-121.7529407	9.59	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-5	38.0174601	-121.7532544	8.74	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-6	38.0172799	-121.7529025	9.65	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601300810-MW-7	38.0172388	-121.7532734	9.18	-104.84	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-1	37.9941196	-121.8082977	86.87	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-2	37.9939988	-121.8082726	87.00	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-3	37.9941265	-121.8081169	85.45	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-4	37.9938456	-121.8080293	86.58	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-5	37.993993	-121.8081341	86.29	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-6	37.994052	-121.8080616	85.36	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601306725-MW-8	37.9944661	-121.8088979	90.60	-70.22	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MPE-1	38.00379078	-121.787085	37.99	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MPE-2	38.0037754	-121.787005	37.92	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MPE-3	38.00378277	-121.7869815	37.79	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-1	38.0037825	-121.7872783	38.24	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-1D	38.00376017	-121.7869873	37.89	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-2	38.003891	-121.7870598	37.19	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-2D	38.00391916	-121.7870492	36.75	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-3	38.0037733	-121.7870175	37.98	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-3D	38.00417987	-121.7867559	31.20	-99.23	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-4	38.0037847	-121.7870444	37.84	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-4R	38.00375461	-121.7870441	37.76	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-5	38.00376206	-121.7869392	37.83	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-6	38.00364211	-121.7869787	38.55	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-7	38.00510029	-121.7870266	38.20	-99.23	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-8	38.00390386	-121.7869723	37.11	-96.14	--	--	--	--
Geotracker	Monitoring	Unknown	T0601325015-MW-9	38.00418017	-121.7868248	31.71	-99.23	--	--	--	--
Geotracker	Monitoring	Unknown	T0601330032-MW1	37.8672165	-121.637895	27.35	-132.11	--	--	--	--
Geotracker	Monitoring	Unknown	T0601330032-MW2	37.8673126	-121.6380089	28.14	-132.11	--	--	--	--
Geotracker	Monitoring	Unknown	T0601330032-MW3	37.867352	-121.6378623	26.48	-132.11	--	--	--	--
Geotracker	Monitoring	Unknown	T0601330032-MW4	37.8672745	-121.6377914	26.34	-132.11	--	--	--	--
Geotracker	Monitoring	Unknown	T0601341681-MW-1	38.0155474	-121.8077961	16.40	-85.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601341681-MW-2	38.0157695	-121.8078475	12.24	-85.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601341681-MW-3	38.0157133	-121.8076686	12.85	-85.68	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-EW1	37.9406647	-121.6966186	66.67	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-EW2	37.9408713	-121.6964843	68.96	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-EW3	37.9408789	-121.6963383	68.04	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW1	37.9409865	-121.6963442	67.73	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-10	37.9413084	-121.6965237	67.93	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-11	37.9408574	-121.6954799	66.75	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-12	37.940741	-121.6960109	66.80	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-13	37.9415908	-121.6946485	64.64	-73.34	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-14	37.9399551	-121.694452	65.46	-73.34	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601343310-MW-15	37.940808	-121.693002	63.13	-73.34	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-16	37.9426677	-121.6946332	64.38	-73.34	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-17	37.9426195	-121.6936784	62.45	-73.34	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-18	37.9418714	-121.6932068	61.90	-73.34	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW2	37.9408115	-121.6965066	69.34	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW3	37.9408318	-121.696335	67.90	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW4	37.9409874	-121.6963695	66.94	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-5	37.9407746	-121.6965089	68.89	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-6	37.9407223	-121.6965102	68.02	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-7	37.9409531	-121.6963744	68.02	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-8	37.940761	-121.6963398	67.30	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601343310-MW-9	37.9411349	-121.6965732	68.58	-81.20	--	--	--	--
Geotracker	Monitoring	Unknown	T0601358660-MW1	38.00225	-121.74275	38.15	-94.65	--	--	--	--
Geotracker	Monitoring	Unknown	T0601358660-MW2	38.00162918	-121.7418966	37.28	-94.65	--	--	--	--
Geotracker	Monitoring	Unknown	T0601358660-MW3	38.00141	-121.74316	35.85	-94.65	--	--	--	--
Geotracker	Monitoring	Unknown	T0601358660-MW4	38.00136	-121.74373	35.99	-96.28	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359254-MW-1	37.9345134	-121.6920427	70.06	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359254-MW-2	37.934424	-121.6920187	70.67	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359254-MW-3	37.9343979	-121.6920626	70.89	-104.59	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-1	38.0004624	-121.8063424	53.28	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-2	38.0003826	-121.8063497	52.74	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-3	38.0004393	-121.8062461	52.86	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-4	38.00051	-121.8062117	52.95	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-5	38.0004667	-121.8061782	52.33	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-AS-6	38.0005619	-121.8061785	52.51	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-10	38.00034	-121.8061452	52.47	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW11	38.0002488	-121.8066484	53.42	-76.07	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW12	37.9999553	-121.806154	52.28	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-13	38.0006519	-121.8039583	44.81	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW14	38.0006719	-121.8049529	47.89	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-15	38.0011521	-121.8049933	48.98	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-16	38.001097	-121.8042347	46.91	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-4	38.0004963	-121.8064013	53.69	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-5	38.0008867	-121.8063317	51.12	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-6	38.0006217	-121.8055473	50.11	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-7	38.0004348	-121.8058214	52.47	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-8	38.0002484	-121.805824	52.79	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-MW-9	38.0002058	-121.8063305	52.47	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-RW-1	38.0005311	-121.8063645	53.27	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-RW-2	38.0004512	-121.8063673	53.44	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-RW-3	38.0003611	-121.8063564	53.03	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-RW-4	38.0004463	-121.8062016	52.49	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601359797-RW-5	38.0005447	-121.8062075	52.73	-81.54	--	--	--	--
Geotracker	Monitoring	Unknown	T0601376629-MW1	37.9015462	-121.6027962	5.67	-188.27	--	--	--	--
Geotracker	Monitoring	Unknown	T0601376629-MW2	37.9013569	-121.6026365	5.02	-188.27	--	--	--	--
Geotracker	Monitoring	Unknown	T0601376629-MW3	37.9017111	-121.6025489	4.87	-188.27	--	--	--	--
Geotracker	Monitoring	Unknown	T0601376629-MW4	37.9016078	-121.6023867	4.12	-188.27	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-1	38.022473	-121.6351696	-4.91	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-10	38.0225654	-121.6354574	-5.78	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-2	38.0225757	-121.6352857	-5.48	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-3	38.0225125	-121.6354305	-5.70	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-4	38.0224013	-121.6354456	-5.23	-157.83	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601378938-MW-5	38.0223448	-121.6355005	-5.41	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-6	38.0224618	-121.6355097	-5.57	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-7	38.0224048	-121.6355837	-5.42	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-8	38.0224904	-121.6355946	-5.11	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601378938-MW-9	38.0225315	-121.6355573	-5.61	-157.83	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-1	38.0143284	-121.8223385	14.81	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-10	38.0144288	-121.8229225	14.20	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-11	38.0146595	-121.8227285	14.10	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-12	38.0148006	-121.8232961	14.15	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-13	38.0148774	-121.822838	15.63	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-14	38.0149575	-121.8222889	16.38	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-15	38.0147289	-121.8217368	15.57	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-16	38.0143977	-121.8221377	14.60	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-17	38.0144926	-121.8223497	15.25	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-18	38.0144113	-121.8223691	14.95	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-19	38.0143675	-121.8223227	15.47	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-2	38.0144601	-121.8223304	15.06	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-20	38.0144731	-121.8222703	15.63	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-21	38.0144038	-121.8222156	15.54	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-3	38.0144906	-121.8222021	14.93	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-4	38.0143271	-121.8222114	14.66	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-5	38.0140936	-121.8223943	13.34	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-6	38.0145447	-121.8224989	14.99	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-7	38.0147467	-121.8221309	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-8	38.0142517	-121.8219895	14.20	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-B-9	38.0140827	-121.8228979	14.27	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-10	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-15	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-20	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-25	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-30	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-35	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-40	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-BC-1-5	38.0144622	-121.8223235	15.28	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-MW-1	38.0143185	-121.8222422	14.91	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-MW-2	38.0145542	-121.8221808	14.95	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389036-MW-3	38.0144717	-121.8223222	15.32	-73.77	--	--	--	--
Geotracker	Monitoring	Unknown	T0601389417-MW-1	37.9901263	-121.6677145	9.00	-182.30	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391419-MW-1	38.016101	-121.7494516	9.31	-104.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391419-MW-2	38.0160282	-121.749727	8.90	-104.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391419-MW-3	38.016271	-121.7497524	9.65	-104.41	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-EX-1	38.01268769	-121.8292119	29.52	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-EX-2	38.01269103	-121.8292322	29.31	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-1	38.01280491	-121.8291715	29.08	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-1-I	38.01267281	-121.8292351	29.38	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-2	38.01265159	-121.8294185	29.06	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-2-I	38.01236483	-121.8295102	29.93	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-3	38.01279778	-121.8293977	29.14	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-3-I	38.01278438	-121.829472	29.43	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-4	38.01273845	-121.8295932	29.22	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-4-I	38.01274235	-121.8292256	29.56	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-5	38.01310269	-121.8296761	28.52	-61.35	--	--	--	--

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
Geotracker	Monitoring	Unknown	T0601391420-MW-5-I	38.01249205	-121.8293584	30.07	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-6	38.01267481	-121.8292231	29.32	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-7	38.01260006	-121.828653	29.01	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-8	38.01236228	-121.8287389	29.33	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T0601391420-MW-9	38.01266	-121.82954	29.55	-61.35	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.01	38.0153839	-121.8248692	15.32	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.02	38.0153843	-121.8247034	15.60	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.03	38.0153848	-121.824538	15.64	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.04	38.0153139	-121.8248692	14.76	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.05	38.0152891	-121.8247623	14.97	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.06	38.0152439	-121.8248197	14.90	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.07	38.0152455	-121.8247024	14.86	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.08	38.0151986	-121.824761	14.89	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.09	38.0152438	-121.824763	14.91	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.10	38.0151097	-121.8249689	14.86	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.11	38.0153347	-121.8249879	14.87	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.12	38.0152557	-121.8249579	15.05	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.13	38.0151759	-121.8248509	14.98	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000000655-MW.14	38.0151362	-121.8246593	15.04	-67.49	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-B-1	37.925711	-121.733845	123.81	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-B-2	37.925701	-121.733699	123.24	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-B-3	37.925658	-121.733912	123.88	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-B-4	37.925591	-121.733775	123.89	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-MW-1	37.925573	-121.733774	123.61	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-MW-2	37.92568	-121.733619	126.41	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-MW-3	37.925613	-121.733985	124.29	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-MW-4	37.925805	-121.733792	125.46	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000002015-MW-5	37.925501	-121.733773	124.55	-121.19	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-1	37.939064	-121.5784564	-7.20	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-2	37.9390629	-121.5778783	-7.30	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-3	37.9391663	-121.5781884	-11.94	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-4	37.9391678	-121.5779586	-11.68	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-5	37.9394031	-121.5782836	-8.66	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-6	37.939404	-121.5778654	-9.82	-183.53	--	--	--	--
Geotracker	Monitoring	Unknown	T10000003258-MW-7	37.9390637	-121.5781095	-7.33	-183.53	--	--	--	--
USGS	--	Shallow	USGS-375106121372201	37.8515927	-121.6238399	--	25.20	--	--	--	45
USGS	--	Shallow	USGS-375202121383101	37.8671477	-121.643007	34.00	34.48	--	--	--	135
USGS	--	Shallow	USGS-375347121372201	37.8963137	-121.6238404	8.00	5.25	--	--	--	110
USGS	--	Shallow	USGS-375410121412401	37.9027022	-121.6910637	89.00	92.56	--	--	--	85
USGS	--	Shallow	USGS-375427121422601	37.9074242	-121.7082863	107.00	109.99	--	--	--	98
USGS	--	Shallow	USGS-375449121435301	37.9135351	-121.7324534	--	136.44	--	--	--	60
USGS	--	Shallow	USGS-375600121402601	37.933257	-121.6749527	55.00	55.34	--	--	--	123
USGS	--	Shallow	USGS-375601121415201	37.9335347	-121.6988419	75.00	78.06	--	--	--	145
USGS	--	Shallow	USGS-375701121392901	37.9502011	-121.6591193	--	36.17	--	--	--	60
USGS	--	Shallow	USGS-375738121441501	37.9604783	-121.7385648	124.00	114.99	--	--	--	80
USGS	--	Shallow	USGS-375753121422801	37.9646449	-121.7088422	70.00	72.39	--	--	--	133
USGS	--	Shallow	USGS-375831121424001	37.9752002	-121.7121757	75.00	77.41	--	--	--	130
USGS	--	Shallow	USGS-375916121403401	37.9877	-121.6771754	6.00	15.45	--	--	--	88
USGS	--	Shallow	USGS-380012121461101	38.0032549	-121.770788	44.00	51.43	--	--	--	95
USGS	--	Shallow	USGS-380016121454501	38.004366	-121.7635656	60.00	53.51	--	--	--	140
USGS	--	Shallow	USGS-380017121443201	38.0047222	-121.7416667	29.00	29.68	--	--	--	82
USGS	--	Shallow	USGS-380017121455901	38.0046437	-121.7674546	51.00	47.33	--	--	--	120

Well Construction Table-East Contra Costa Subbasin, Geotracker and USGS Wells

Owner/GSA/ Monitoring Agency	Well Type	Zone Desgination	Well Name	Latitude	Longitude	TOC Elev. (ft msl)	Ground Surface Elevation	Screen Interval (ft bgs)	Top of Screen Interval (ft msl)	Bottom of Screen Interval (ft msl)	Well Depth (ft bgs)
USGS	--	Shallow	USGS-380019121464601	38.0051992	-121.7805105	--	49.28	--	--	--	93
USGS	--	Shallow	USGS-380020121443901	38.0054771	-121.7452318	26.00	25.82	--	--	--	66
USGS	--	Shallow	USGS-380025121471101	38.0118657	-121.7710659	--	32.36	--	--	--	78
USGS	--	Shallow	USGS-380043121461201	38.0132546	-121.7702326	28.00	27.96	--	--	--	67
USGS	--	Shallow	USGS-380048121470701	38.0151994	-121.6288418	5.00	8.03	--	--	--	165
USGS	--	Deep	USGS-375437121355601	37.9102023	-121.5999513	--	3.00	--	--	--	355
USGS	--	Deep	USGS-375600121410901	37.933257	-121.6868973	--	66.06	--	--	--	230
USGS	--	Deep	USGS-380019121473401	38.0051992	-121.7938443	--	18.95	--	--	--	190
USGS	--	Deep	USGS-380024121490801	38.006588	-121.8199562	27.00	24.59	--	--	--	124
USGS	--	Deep	USGS-380024121490803	38.0068659	-121.7874552	17.00	15.95	--	--	--	140
USGS	--	Deep	USGS-380048121460901	38.0132545	-121.7863441	--	31.63	--	--	--	500
USGS	--	Deep	USGS-380055121374001	38.0171433	-121.8032891	--	5.14	--	--	--	176
USGS	--	Deep	USGS-380102121480801	38.0382542	-121.6368976	--	2.59	--	--	--	258
USGS	--	Deep	USGS-380218121380901	38.006588	-121.8199562	26.00	24.59	--	--	--	130
USGS	--	Composite	USGS-375228121382001	37.8743698	-121.6399515	--	32.22	--	--	--	185
USGS	--	Composite	USGS-375619121353001	37.9385349	-121.5927293	-13.00	3.71	--	--	--	176
USGS	--	Unknown	USGS-380024121471501	38.0065881	-121.7885663	--	8.96	--	--	--	--

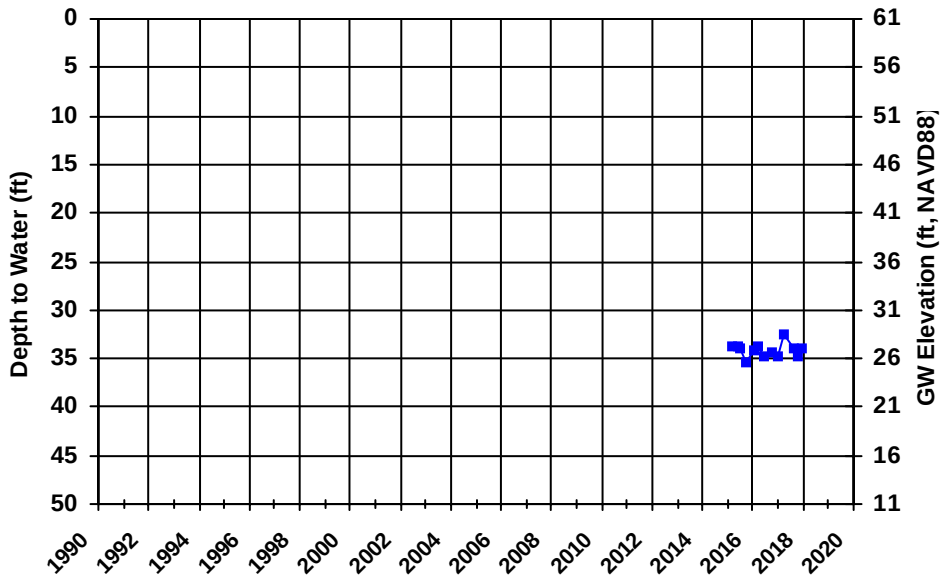
Abbreviations:

ft- feet
bgs- below ground surface
TOC- Top of Casing
GSA- Groundwater Sustainability Agency
msl- mean sea level
USGS-United States Geological Survey

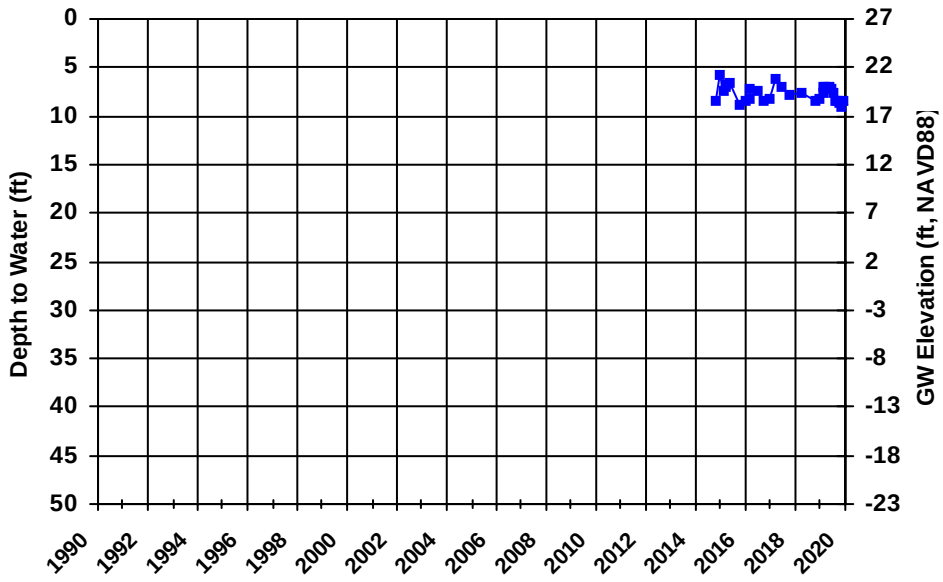
APPENDIX 3d

Groundwater Level Hydrographs

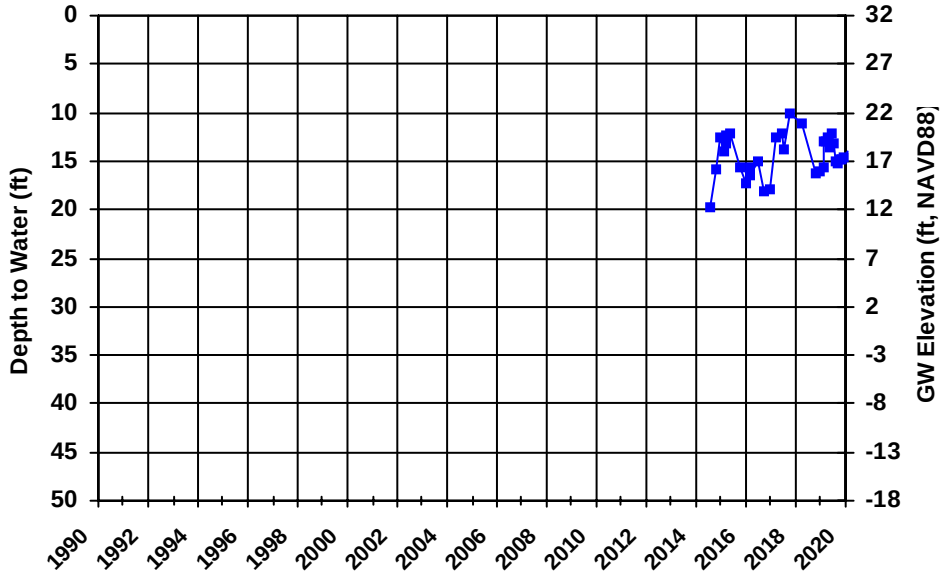
WellID: Blossom Well
Zone: Shallow
Owner: Antioch Perf Int (ft): 60-88 Well Depth (ft): 88



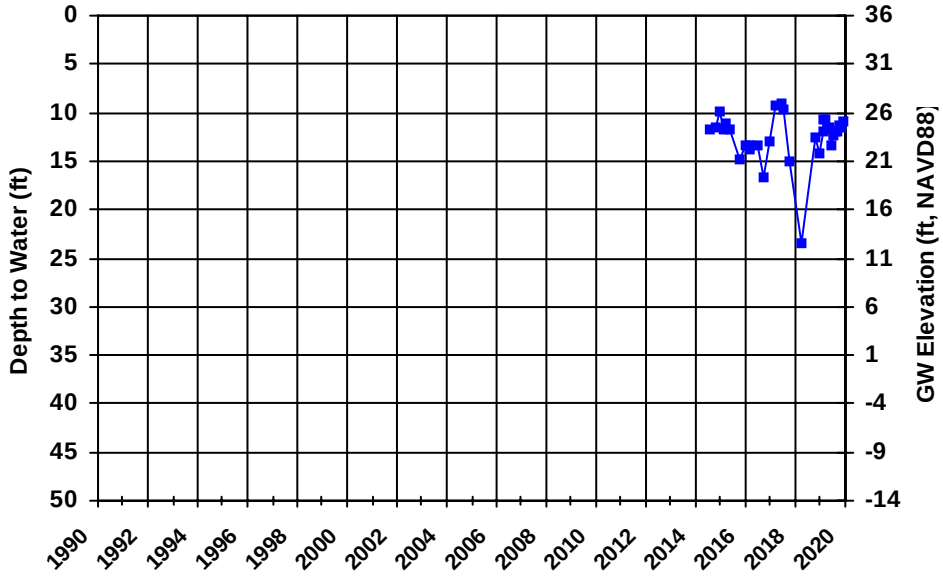
WellID: 1 JNJ
Zone: Shallow
Owner: BBID Perf Int (ft): 105-120 Well Depth (ft): 120



WellID: 3 Byron
Zone: Shallow
Owner: BBID Perf Int (ft): 50-70 Well Depth (ft): 70

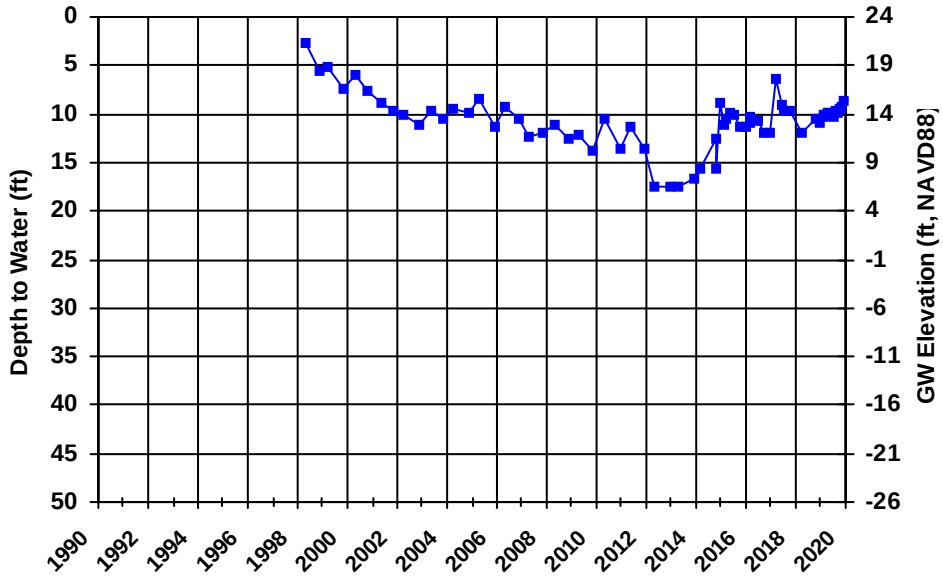


WellID: 4 Bruns
Zone: Shallow
Owner: BBID Perf Int (ft): 45-65 Well Depth (ft): 65

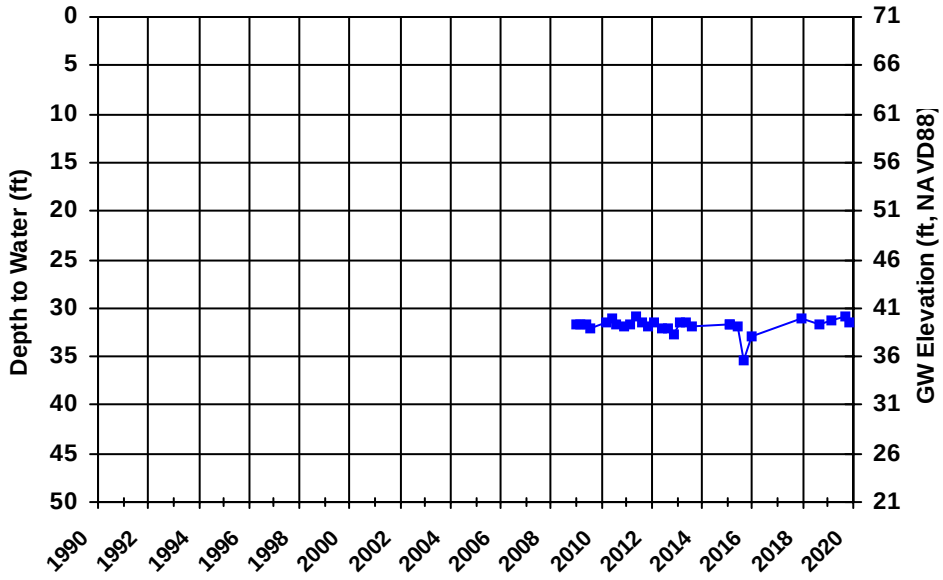


Manual Water Level Measurement Transducer Water Level Measurement

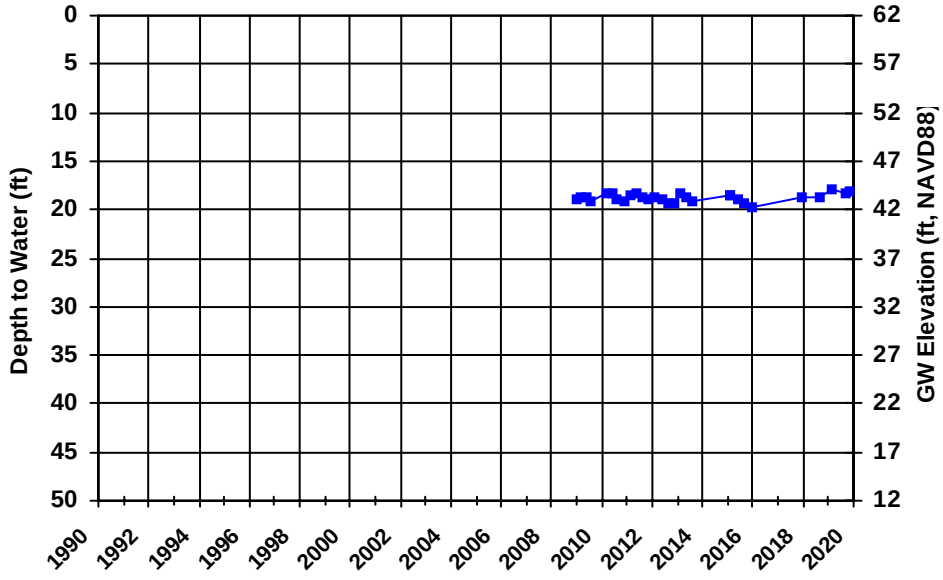
WellID: 5 Binn
Zone: Shallow
Owner: BBID Perf Int (ft): N/A Well Depth (ft): 45



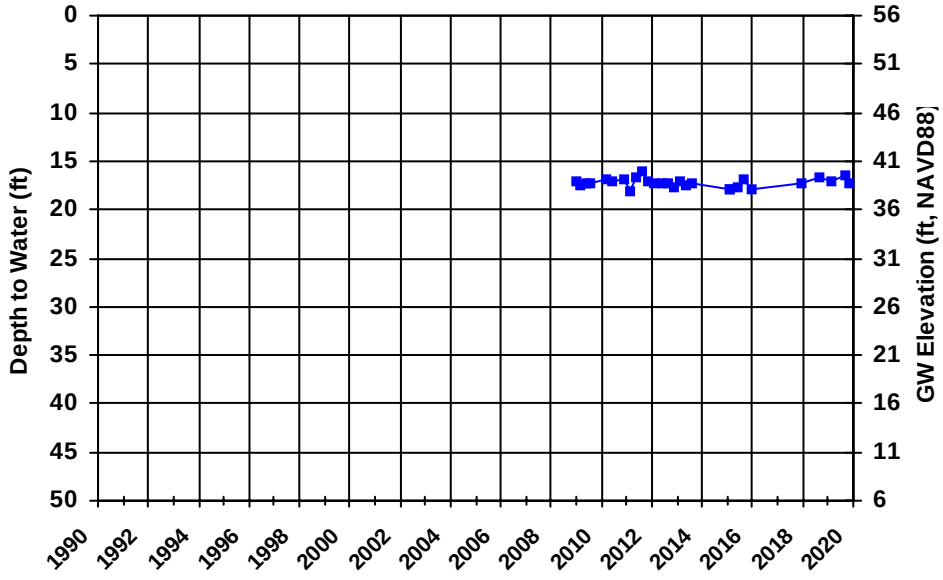
WellID: BG-1
Zone: Shallow
Owner: CofB Perf Int (ft): 40-55 Well Depth (ft): 55



WellID: BG-2
Zone: Shallow
Owner: CofB Perf Int (ft): 22.5-37.5 Well Depth (ft): 37.5

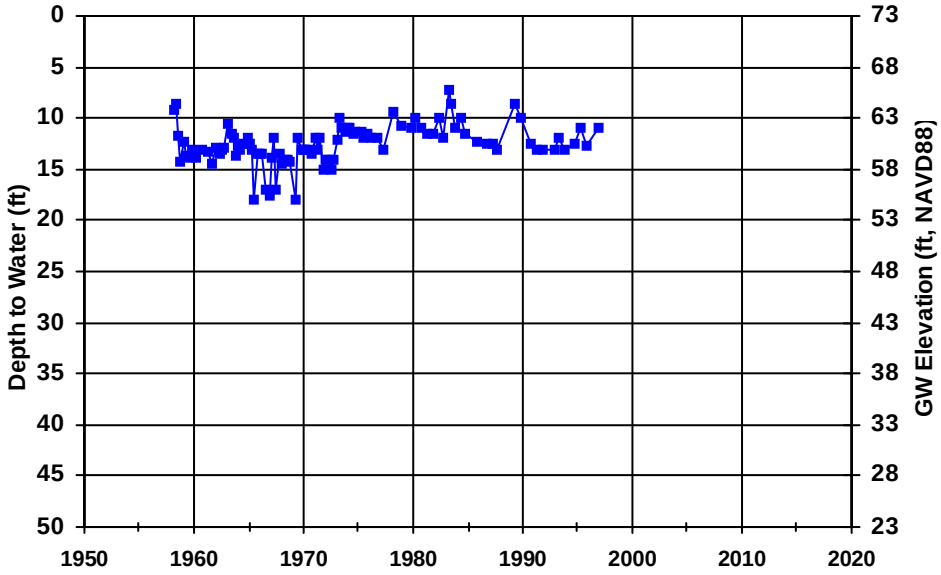


WellID: BG-3
Zone: Shallow
Owner: CofB Perf Int (ft): 20-35 Well Depth (ft): 35

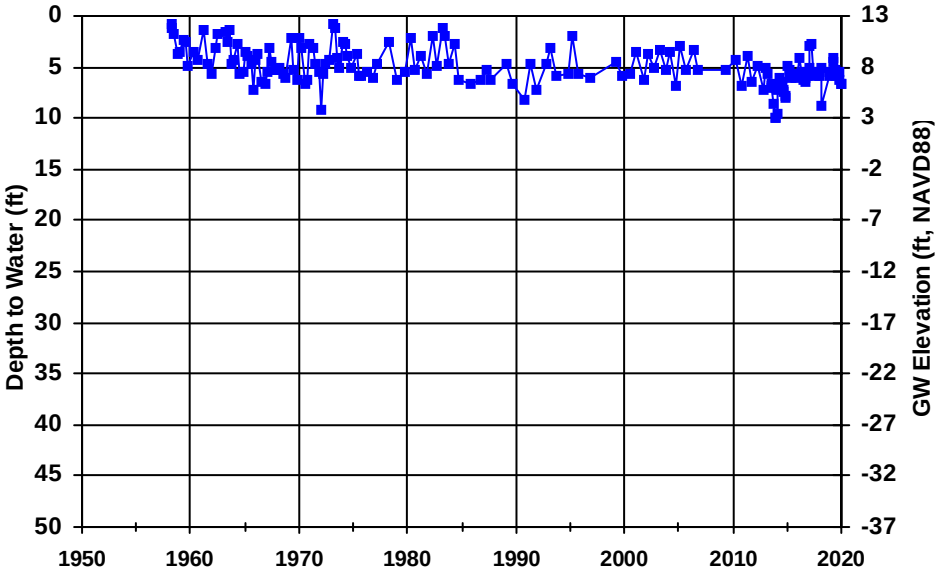


Manual Water Level Measurement Transducer Water Level Measurement

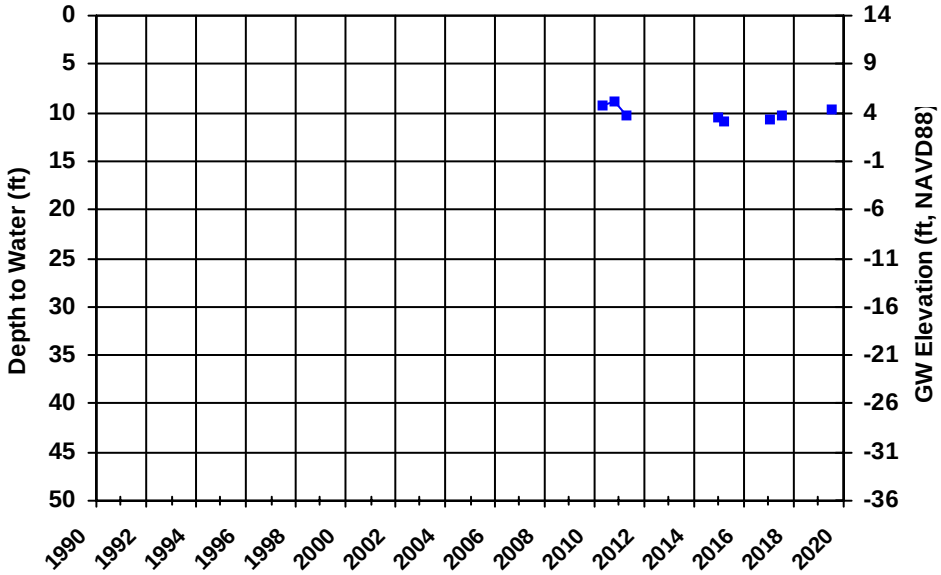
WellID: 5-2
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): <20



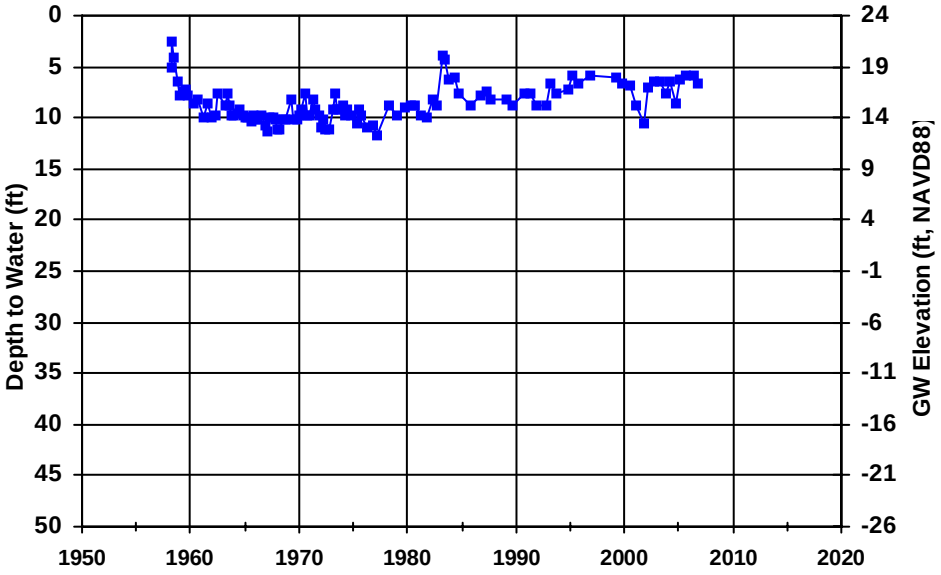
WellID: 5-33
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): 11



WellID: 5-34
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): 11

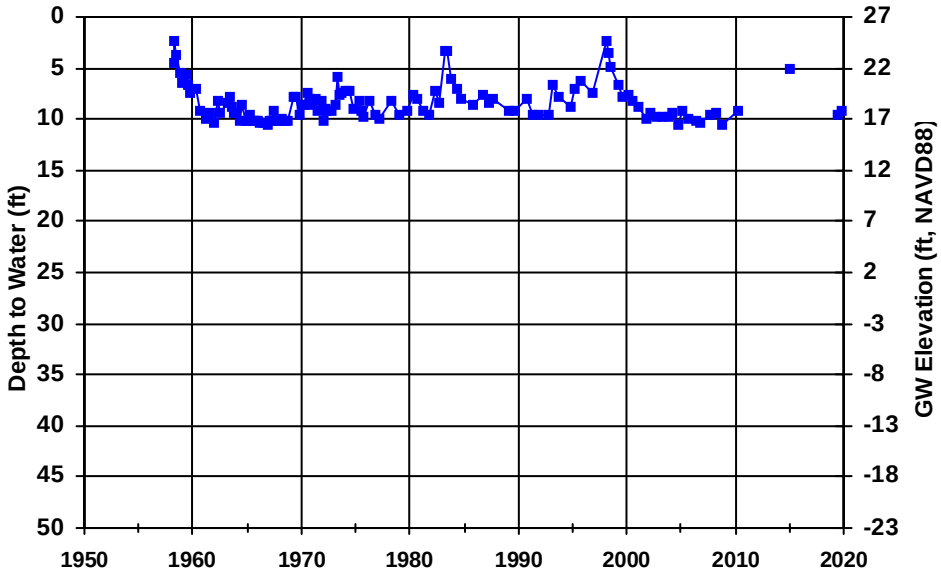


WellID: 5-35
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): 11

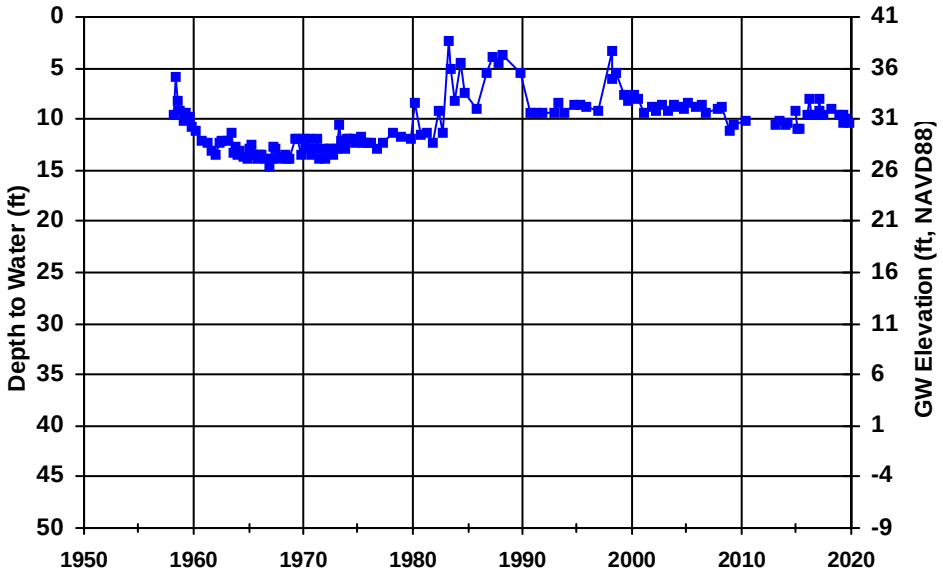


Manual Water Level Measurement Transducer Water Level Measurement

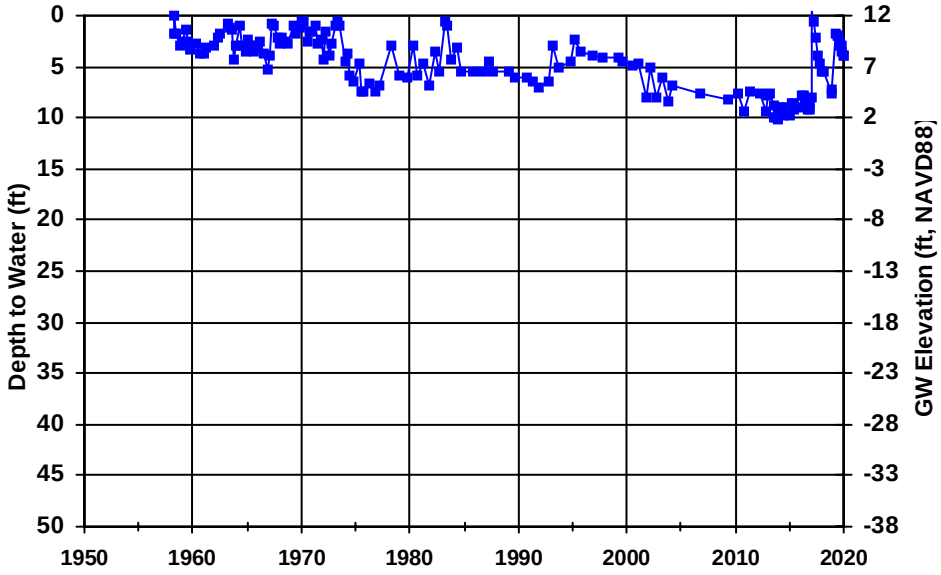
WellID: 5-36
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): 11



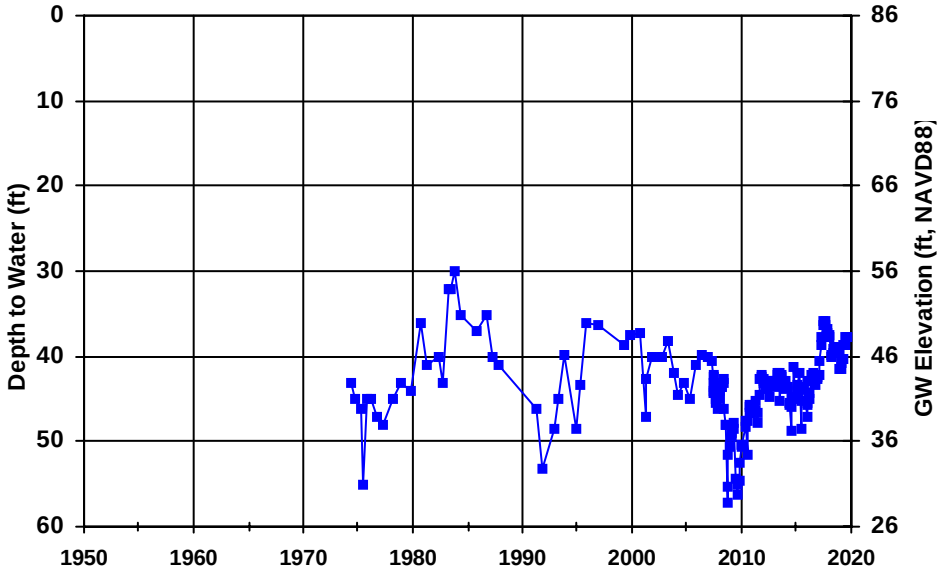
WellID: 5-37
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): >15



WellID: 5-39
Zone: Shallow
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): 11

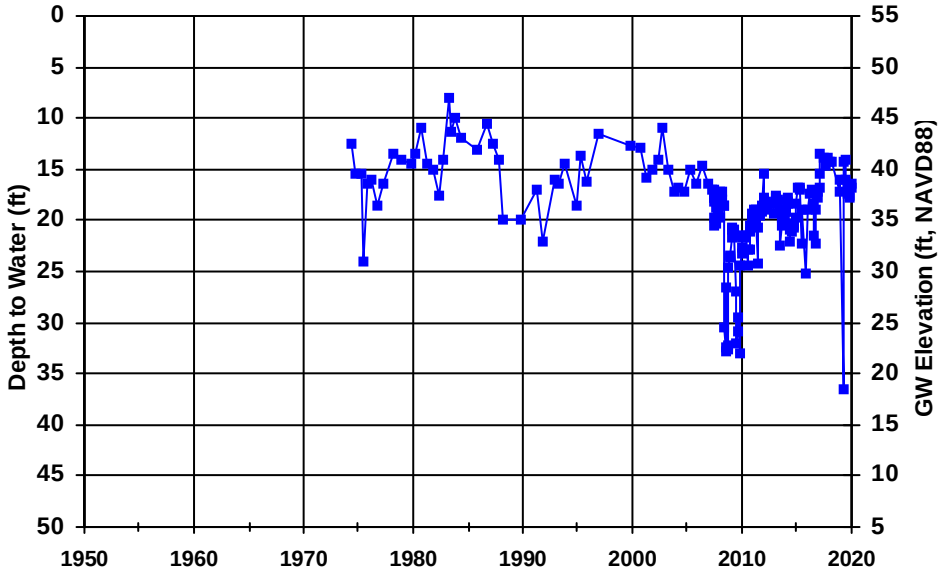


WellID: Well #1 (4-54)
Zone: Shallow
Owner: ECCID Perf Int (ft): 85-165 Well Depth (ft): 165

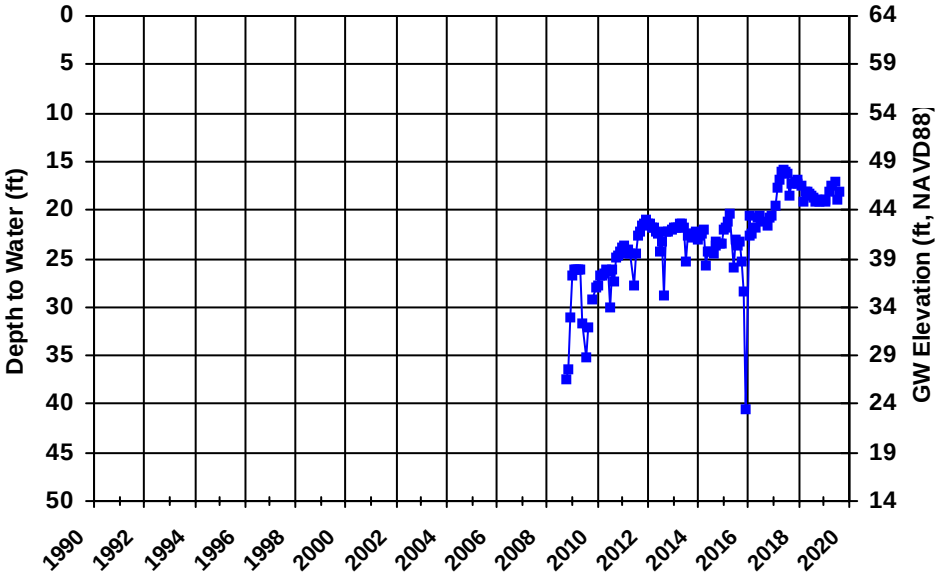


Manual Water Level Measurement Transducer Water Level Measurement

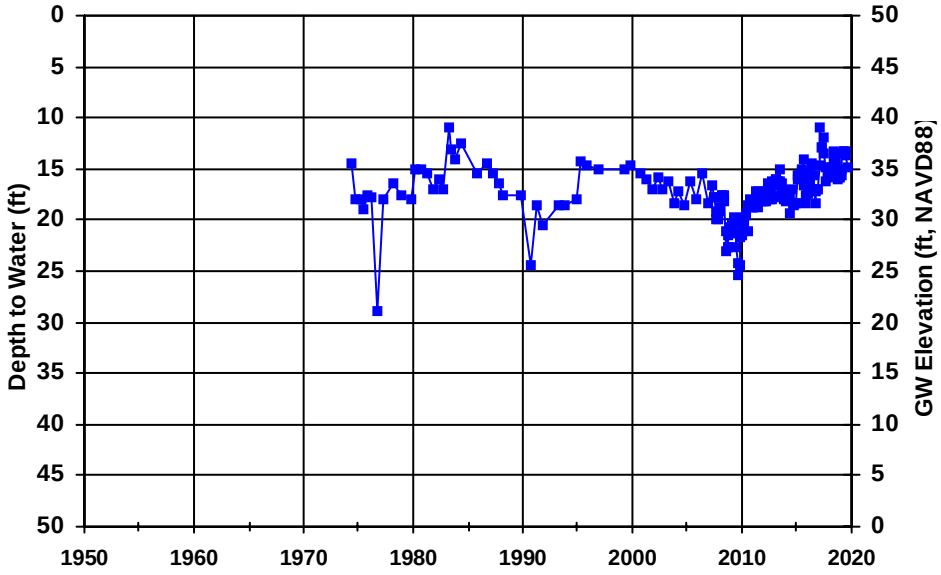
WellID: Well #11 (4-61-A)
Zone: Shallow
Owner: ECCID Perf Int (ft): 50-100 Well Depth (ft): 100



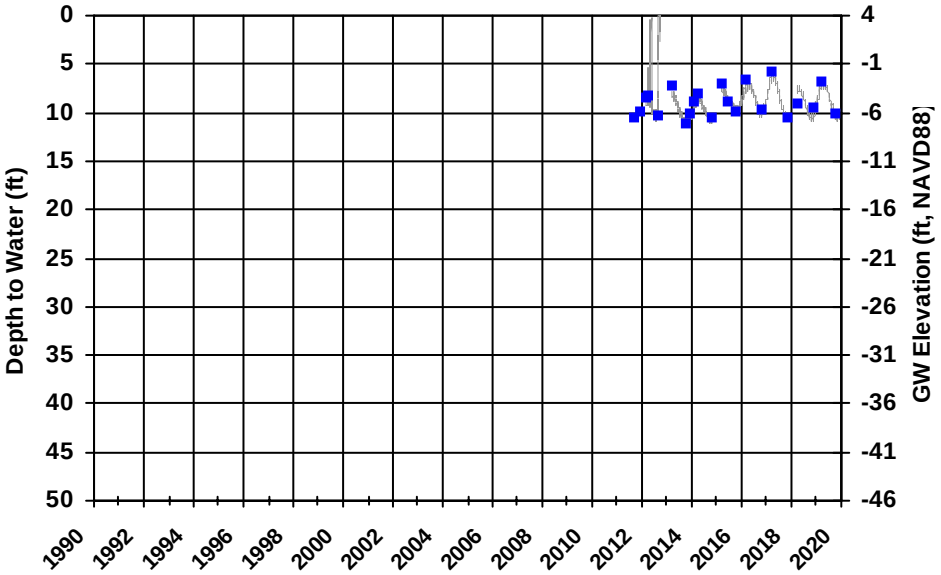
WellID: Well #13
Zone: Shallow
Owner: ECCID Perf Int (ft): 145-185 Well Depth (ft): 185



WellID: Well #6 (4-60)
Zone: Shallow
Owner: ECCID Perf Int (ft): 30-50 Well Depth (ft): 50

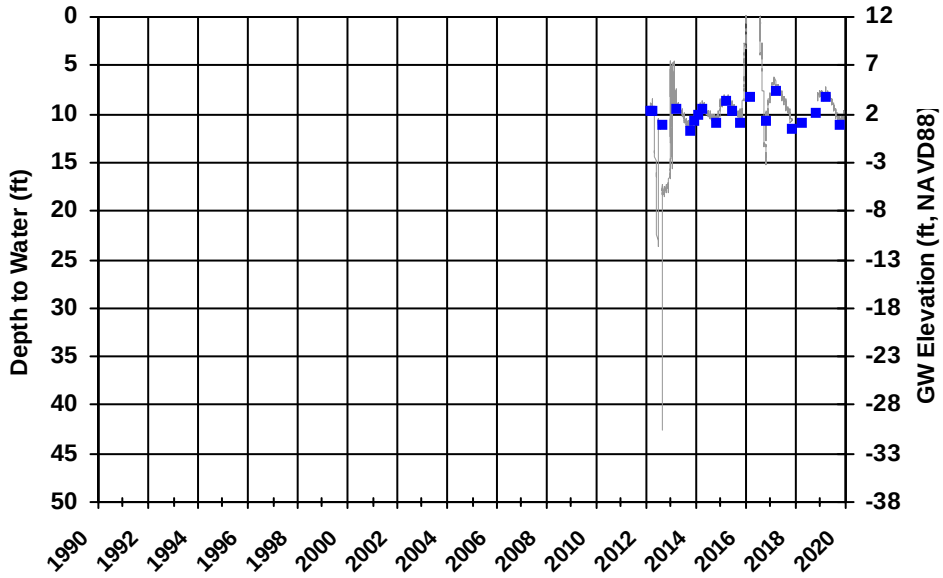


WellID: 1BMW-140
Zone: Shallow
Owner: TODB Perf Int (ft): 100-130 Well Depth (ft): 140

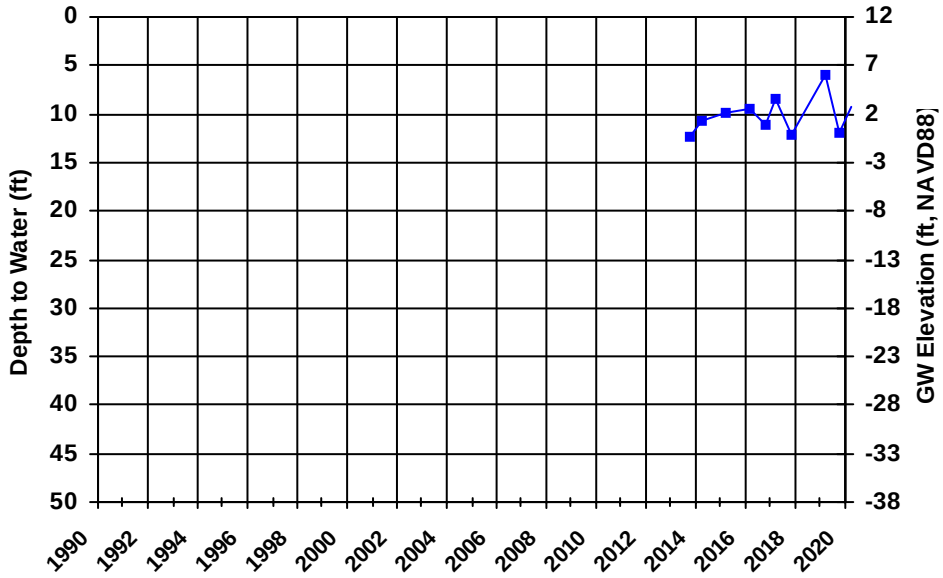


Manual Water Level Measurement Transducer Water Level Measurement

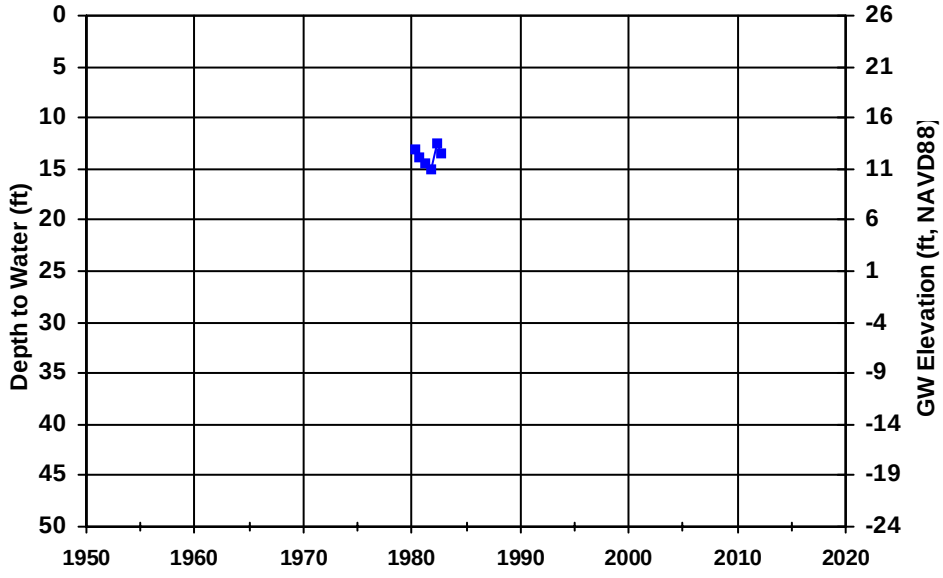
WellID: 4AMW-152
Zone: Shallow
Owner: TODB Perf Int (ft): 122-142 Well Depth (ft): 152



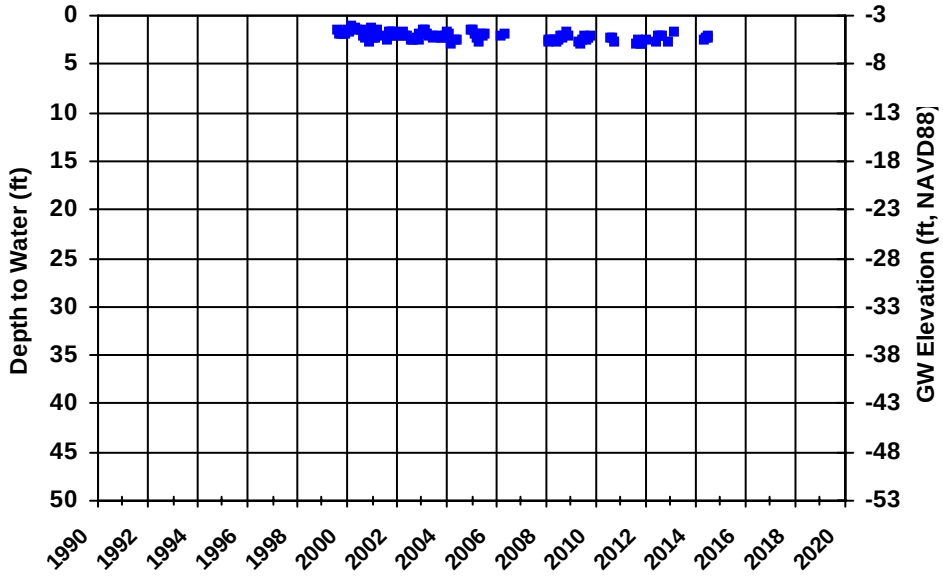
WellID: 7MW-115
Zone: Shallow
Owner: TODB Perf Int (ft): 95-105 Well Depth (ft): 115



WellID: USGS-380020121443901
Zone: Shallow
Owner: USGS Perf Int (ft): N/A Well Depth (ft): 66

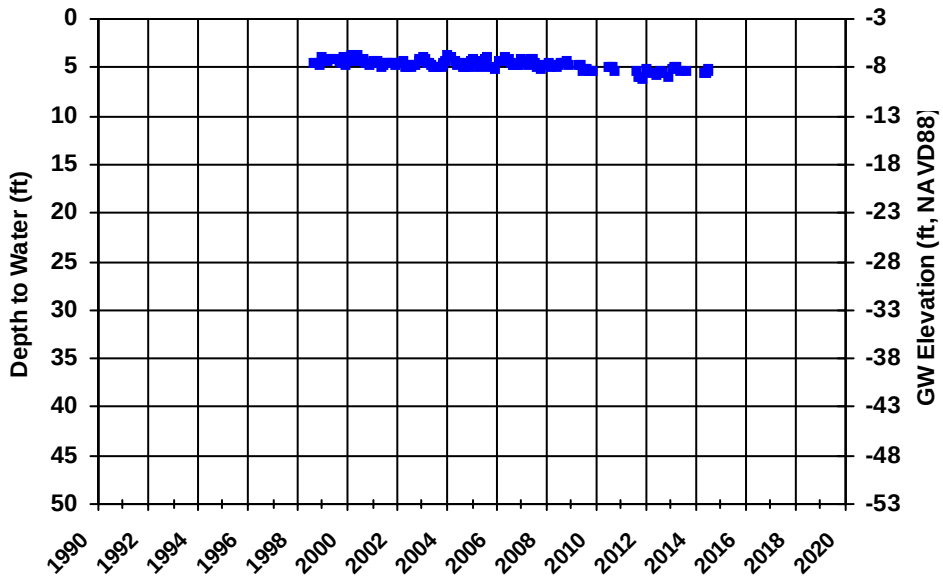


WellID: 01N04E20L001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

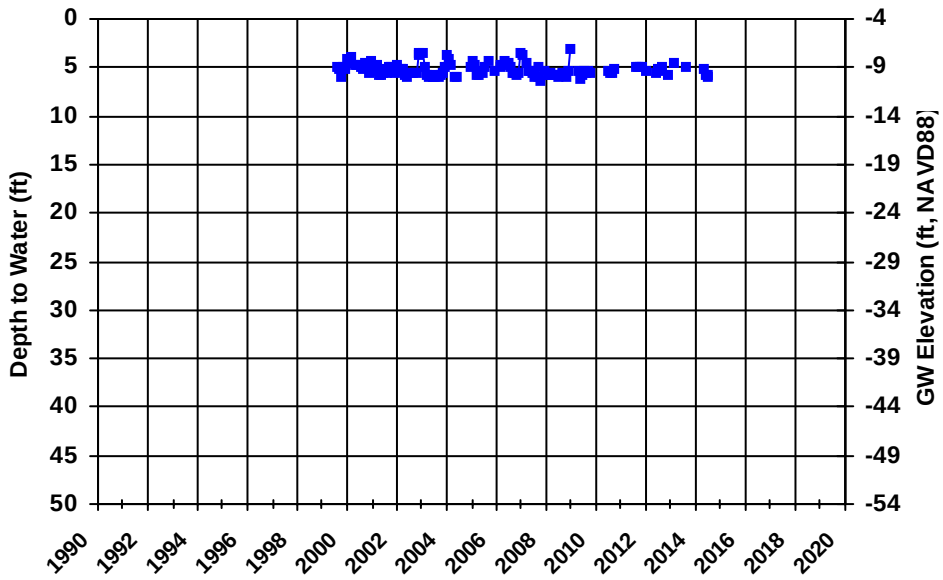


Manual Water Level Measurement Transducer Water Level Measurement

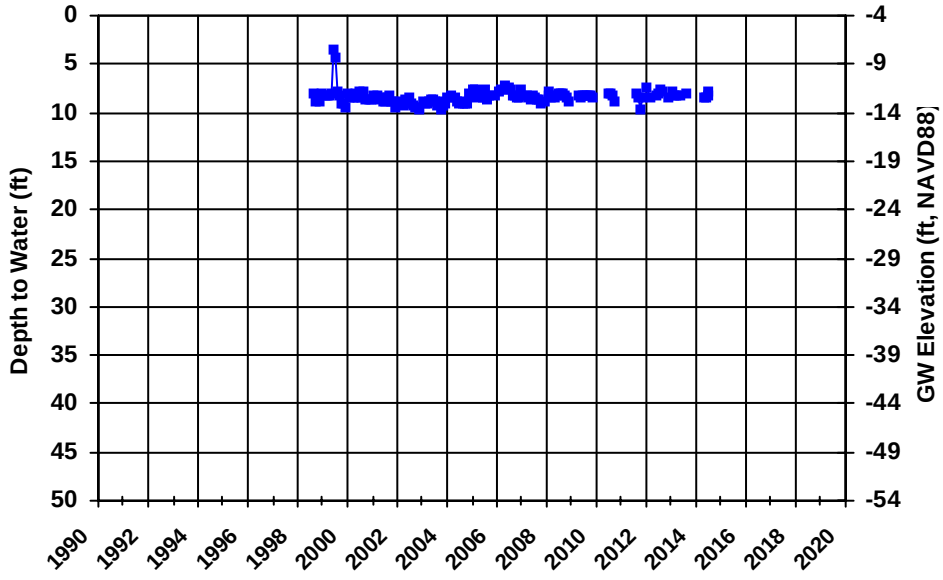
WellID: 01N04E20P001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



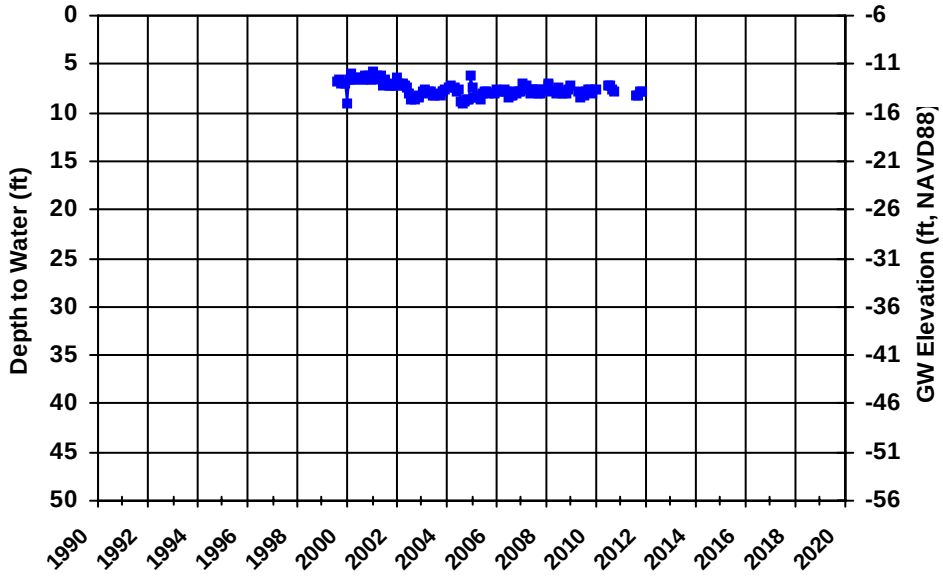
WellID: 01N04E20P002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01N04E29C002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

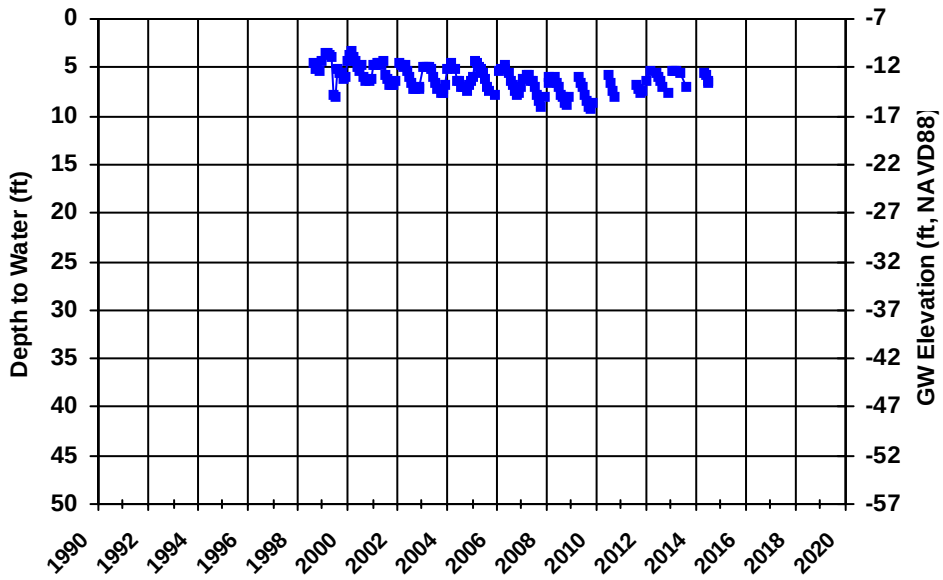


WellID: 01N04E29D001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

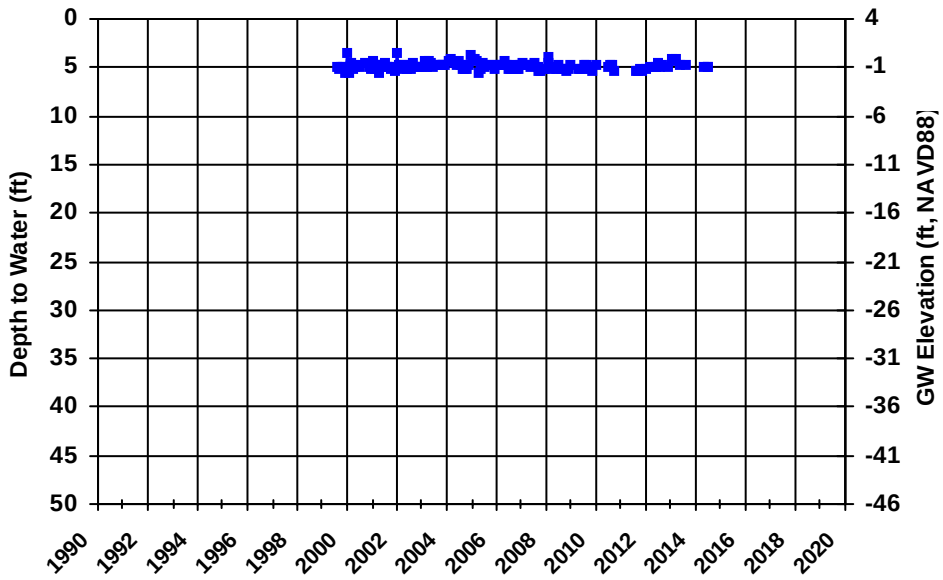


Manual Water Level Measurement Transducer Water Level Measurement

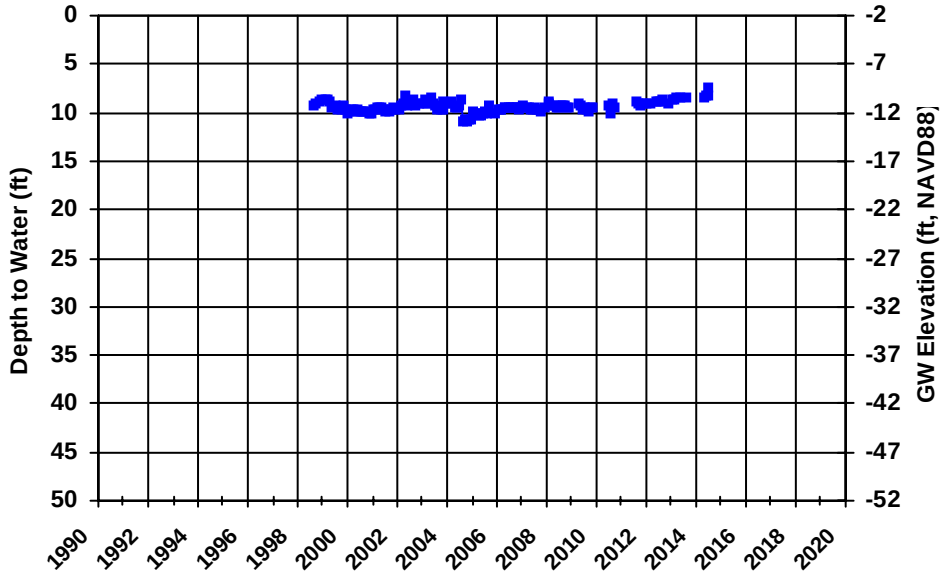
WellID: 01N04E29P001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



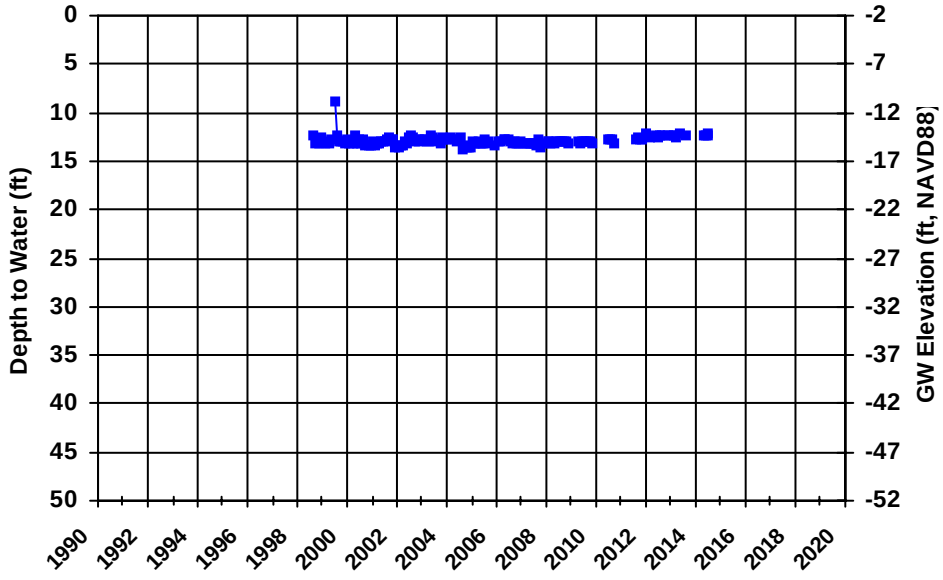
WellID: 01N04E30G001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01N04E30H001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

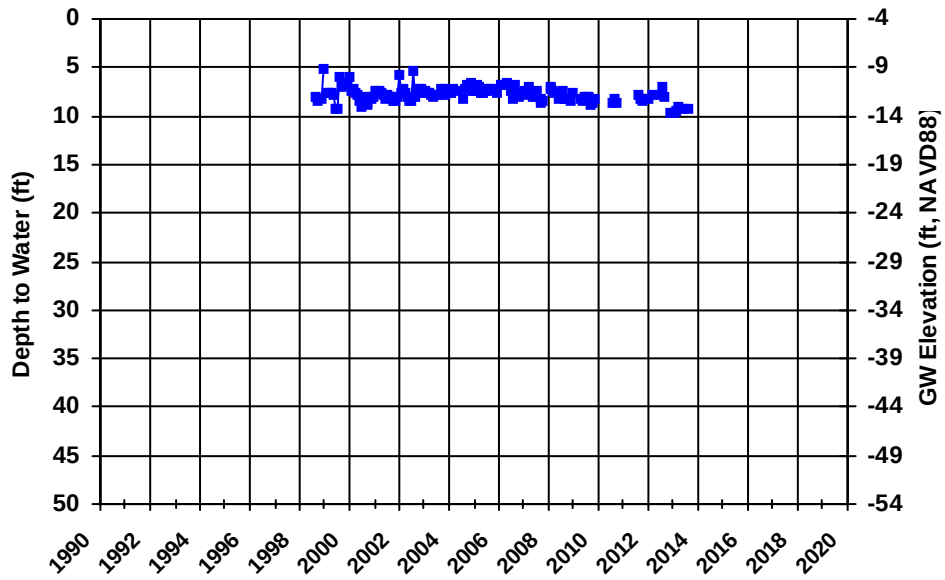


WellID: 01N04E30J001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

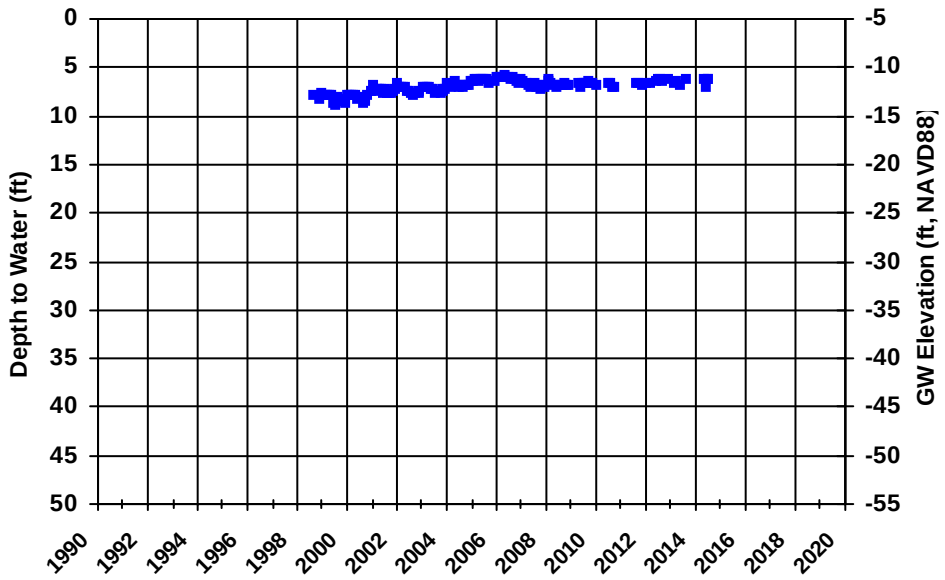


Manual Water Level Measurement Transducer Water Level Measurement

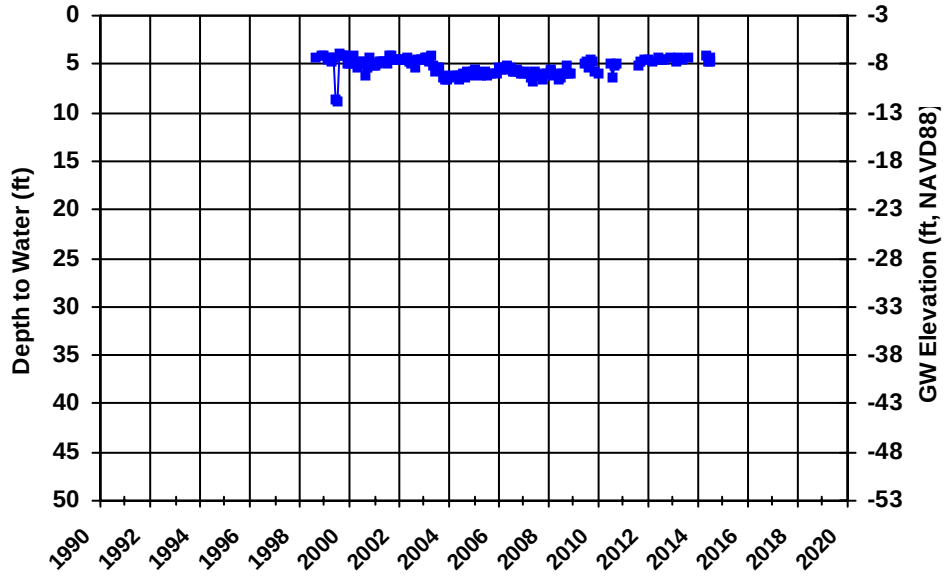
WellID: 01N04E31H001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



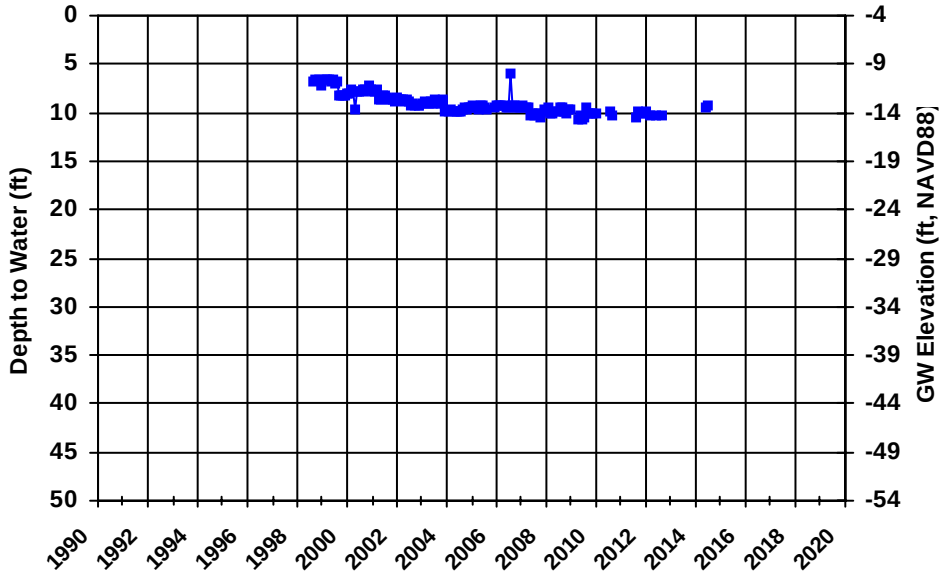
WellID: 01N04E31H002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01N04E31K001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

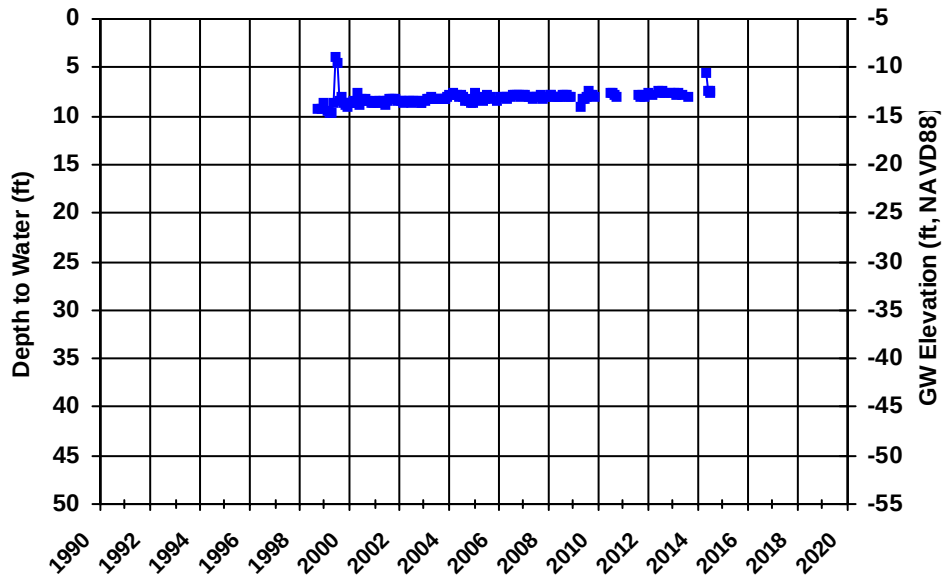


WellID: 01N04E31Q001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

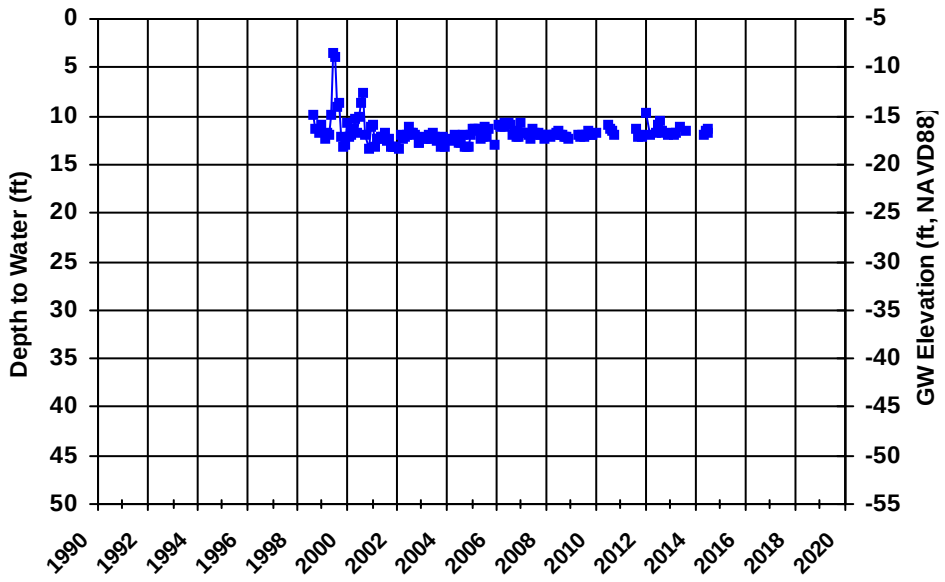


Manual Water Level Measurement Transducer Water Level Measurement

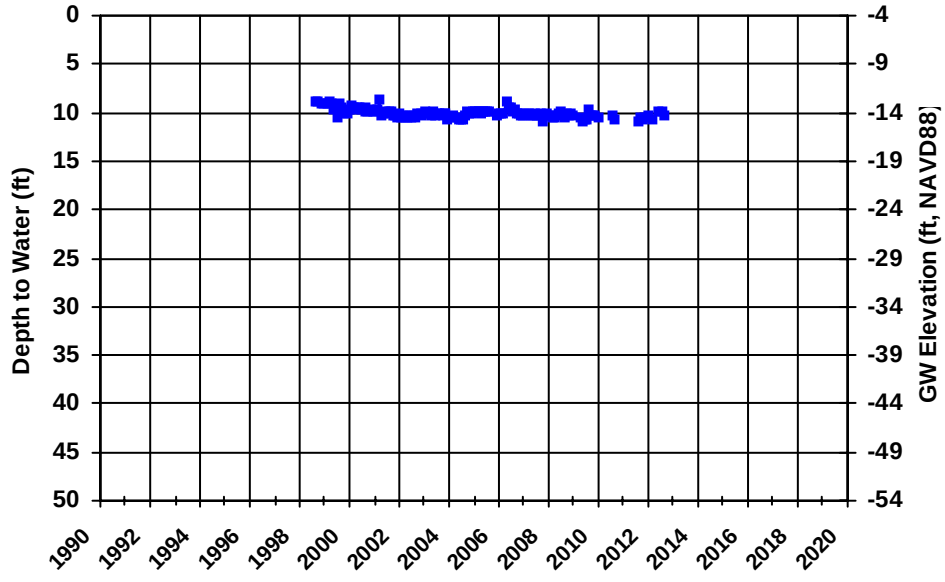
WellID: 01N04E32D002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



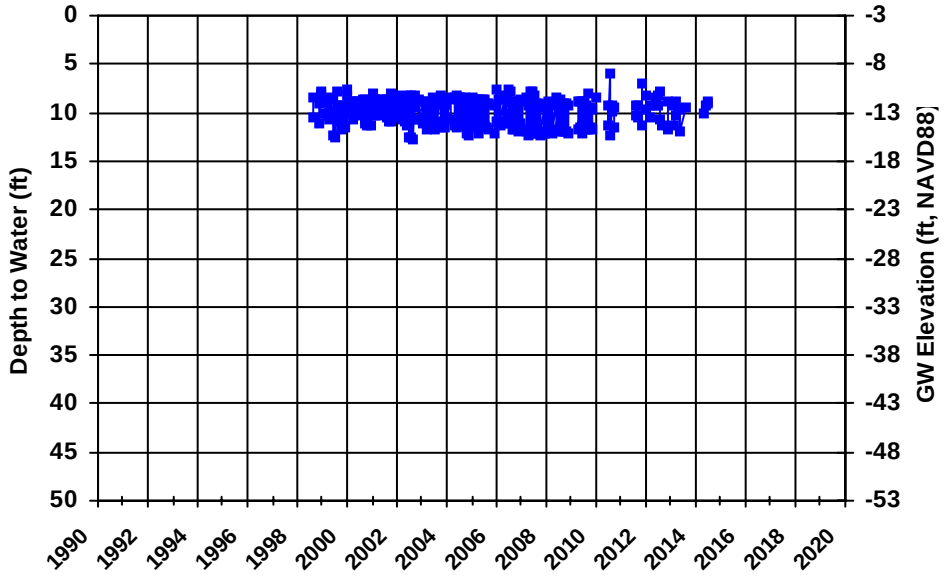
WellID: 01N04E32E001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01S04E06L001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

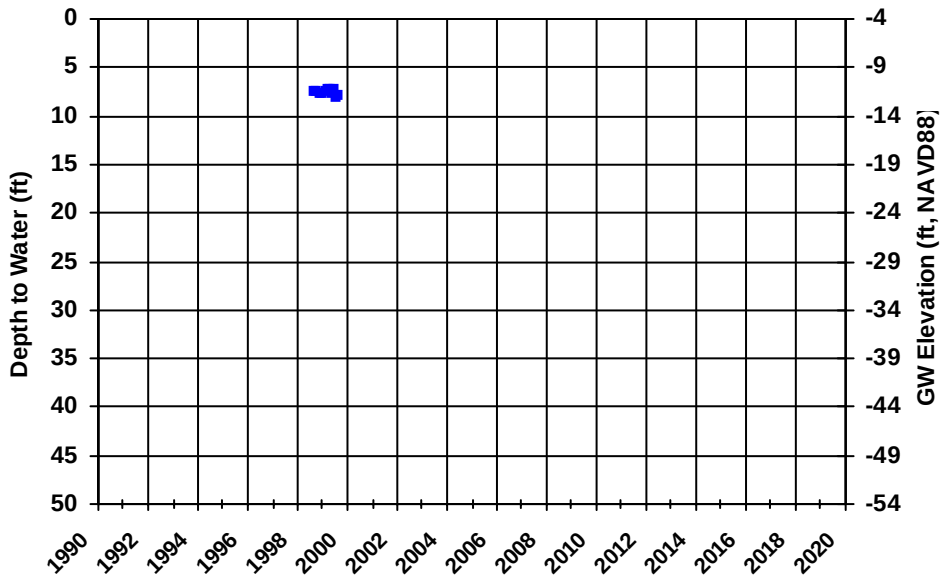


WellID: 01S04E06L002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

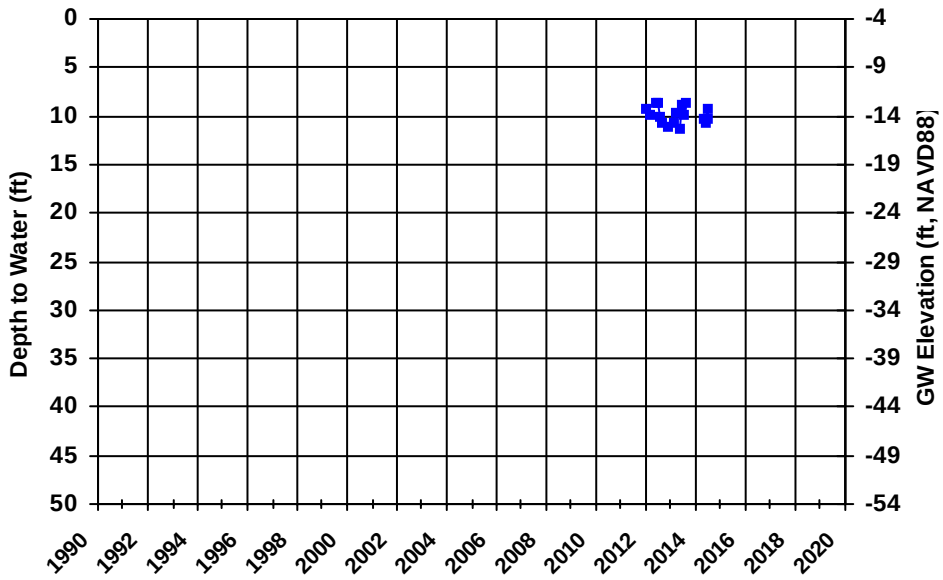


Manual Water Level Measurement Transducer Water Level Measurement

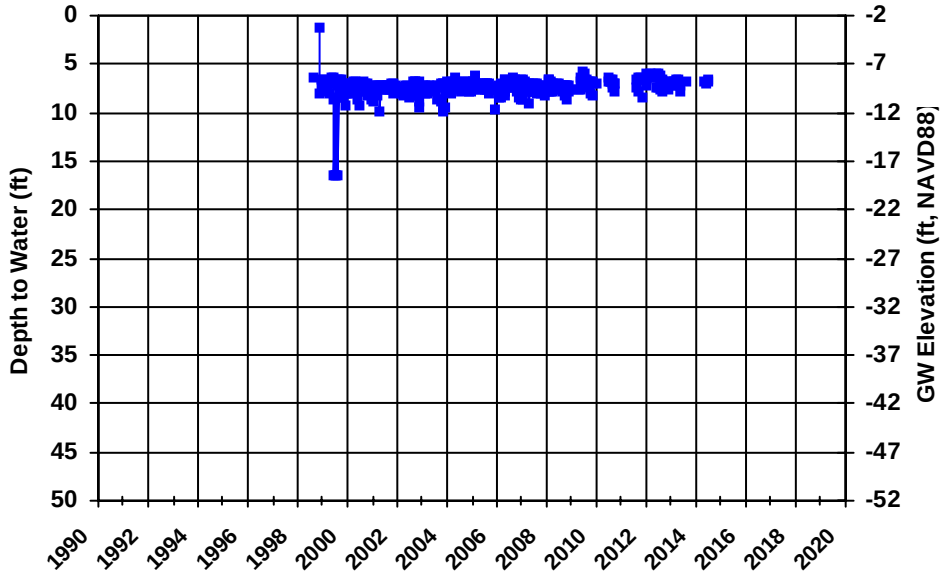
WellID: 01S04E06P002M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



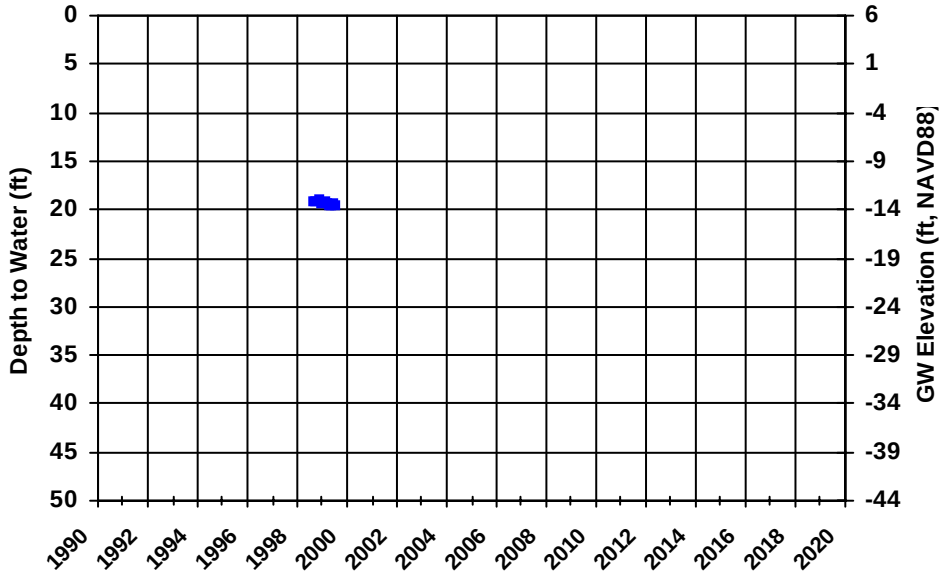
WellID: 01S04E06Q001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01S04E07A001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

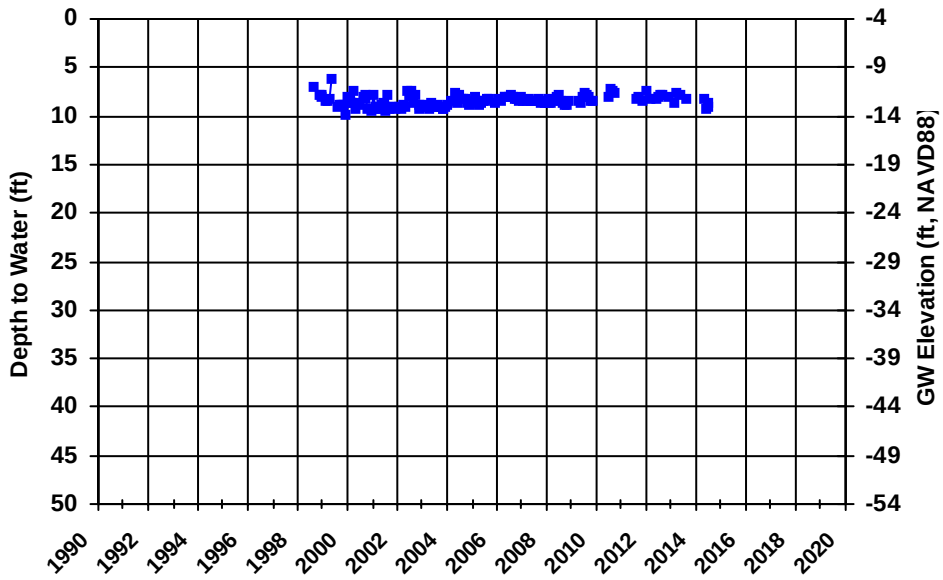


WellID: 01S04E07B001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

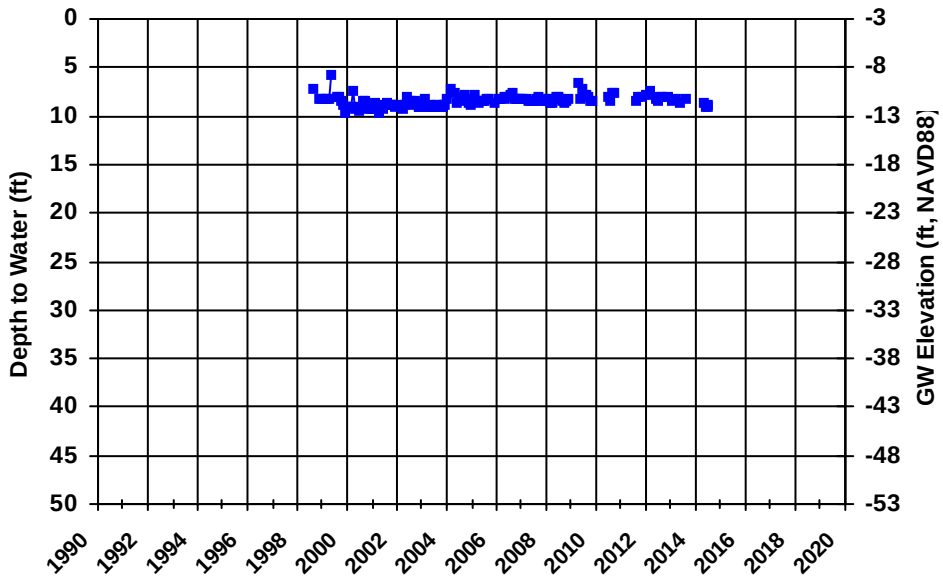


Manual Water Level Measurement Transducer Water Level Measurement

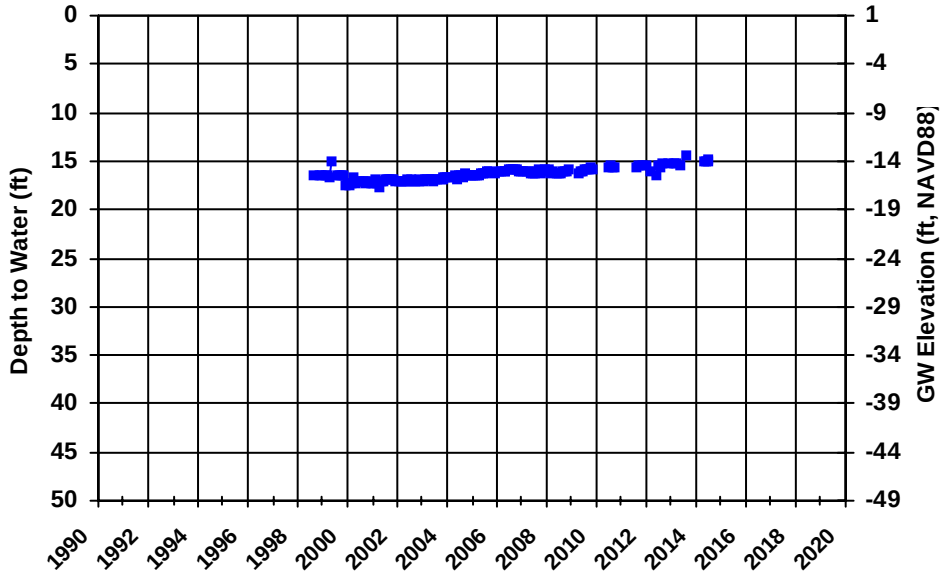
WellID: 01S04E08A001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



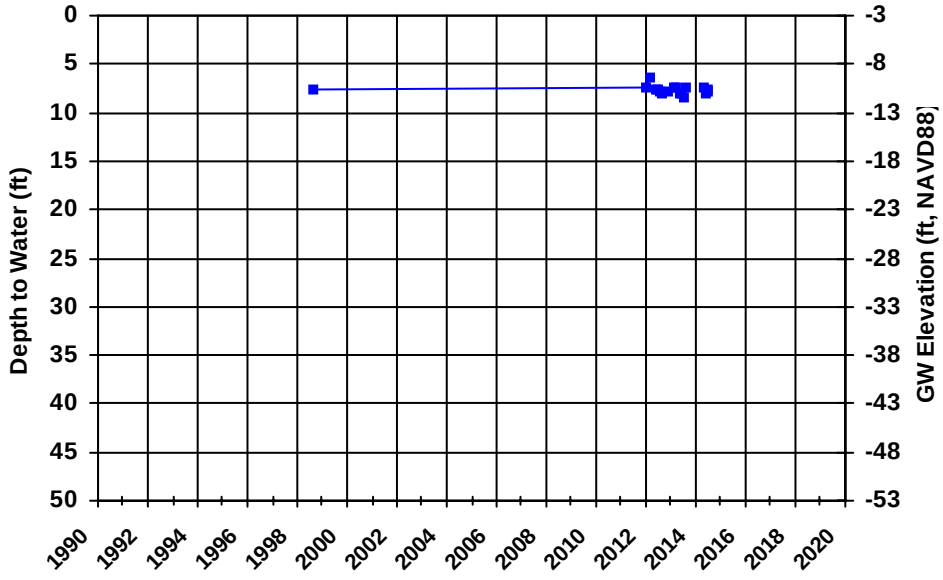
WellID: 01S04E08H001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: 01S04E08K001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

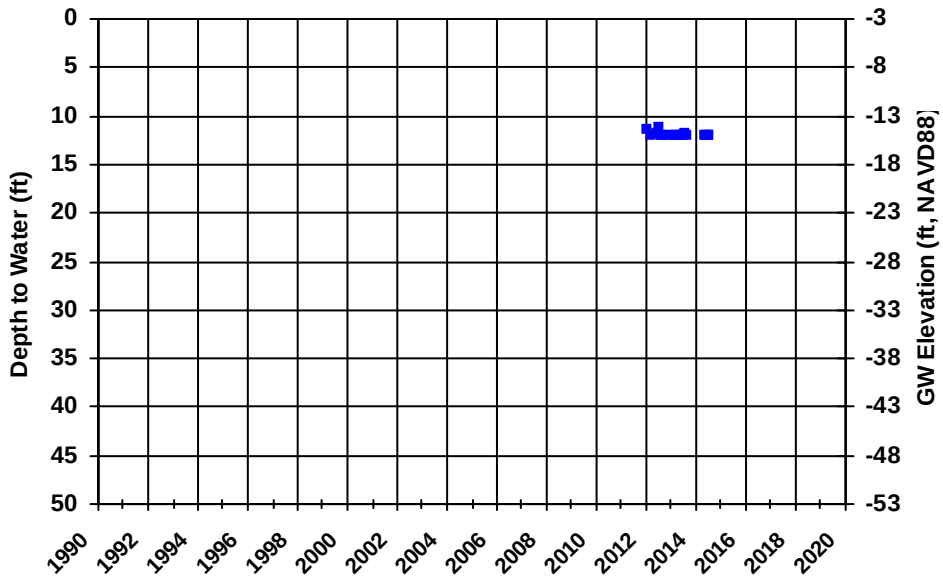


WellID: 01S04E08L001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

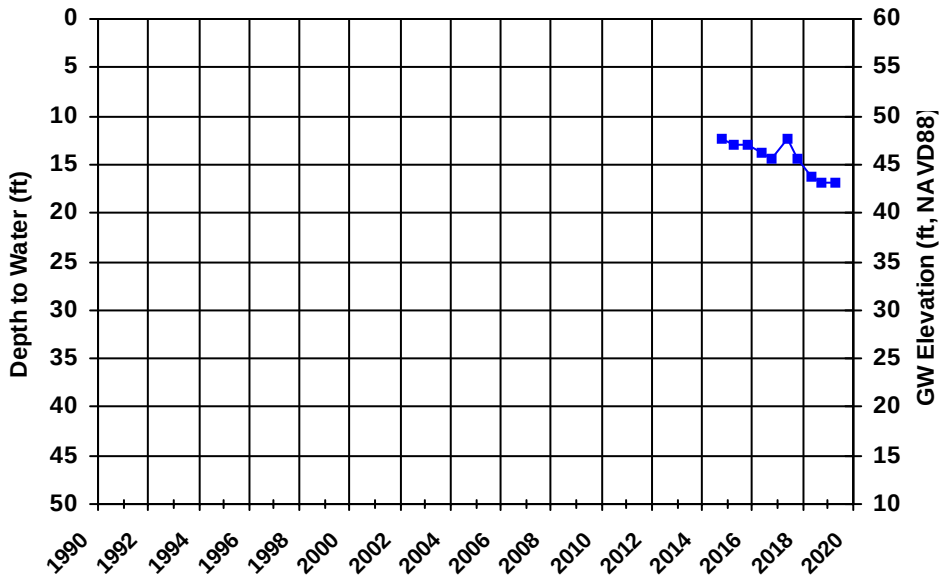


Manual Water Level Measurement Transducer Water Level Measurement

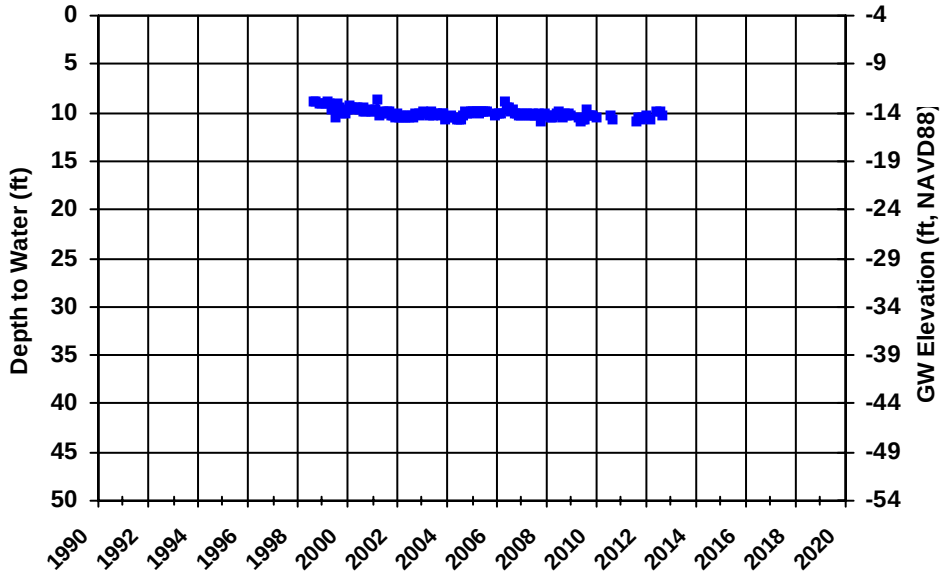
WellID: 01S04E08M001M
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



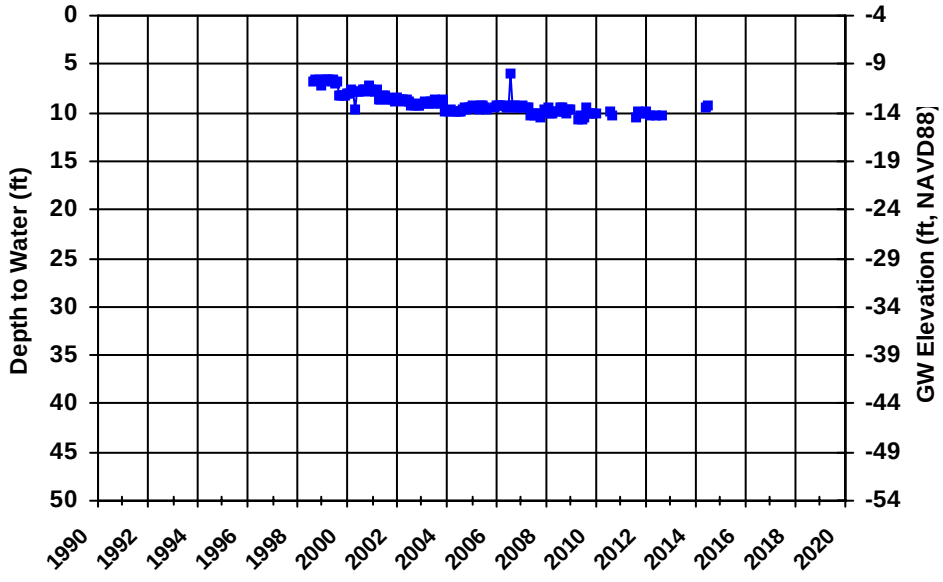
WellID: 1S/4E 31P 5
Zone: Shallow
Owner: N/A Perf Int (ft): 8-23 Well Depth (ft): 24



WellID: 378435N1215801W001
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

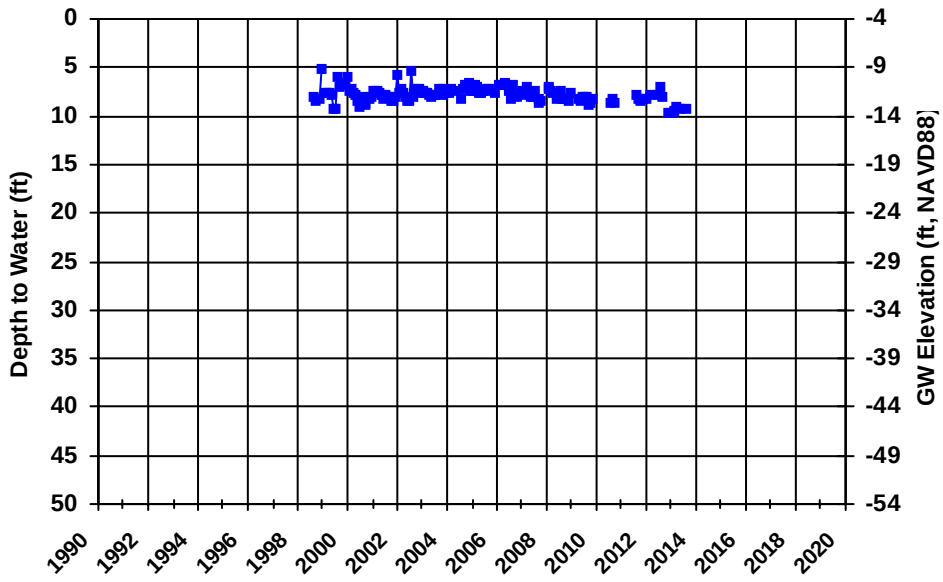


WellID: 378826N1215755W001
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

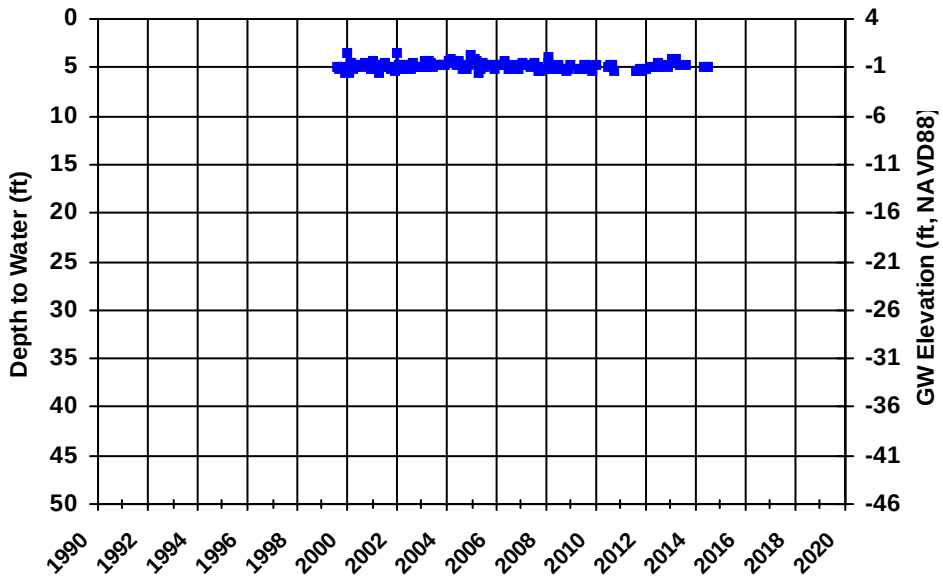


Manual Water Level Measurement Transducer Water Level Measurement

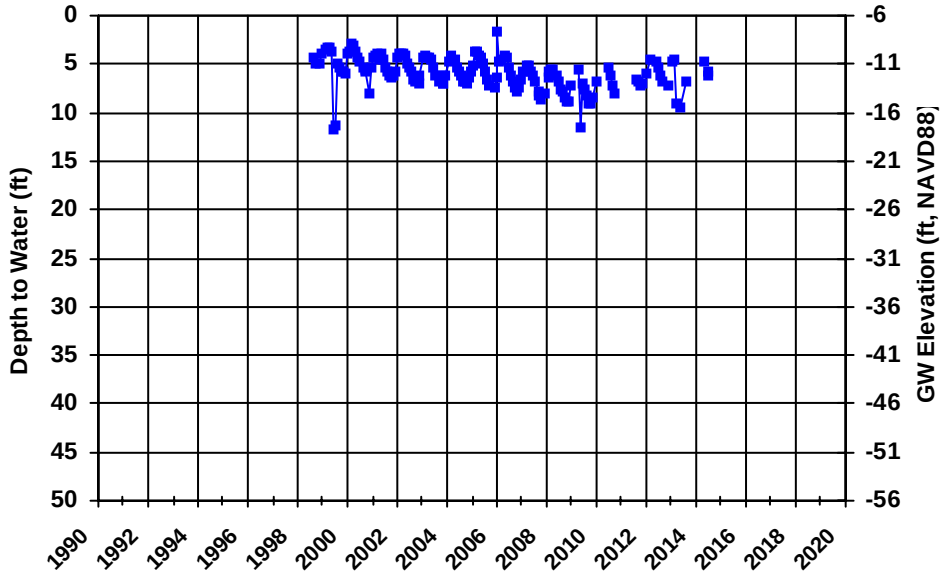
WellID: 378957N1215652W001
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



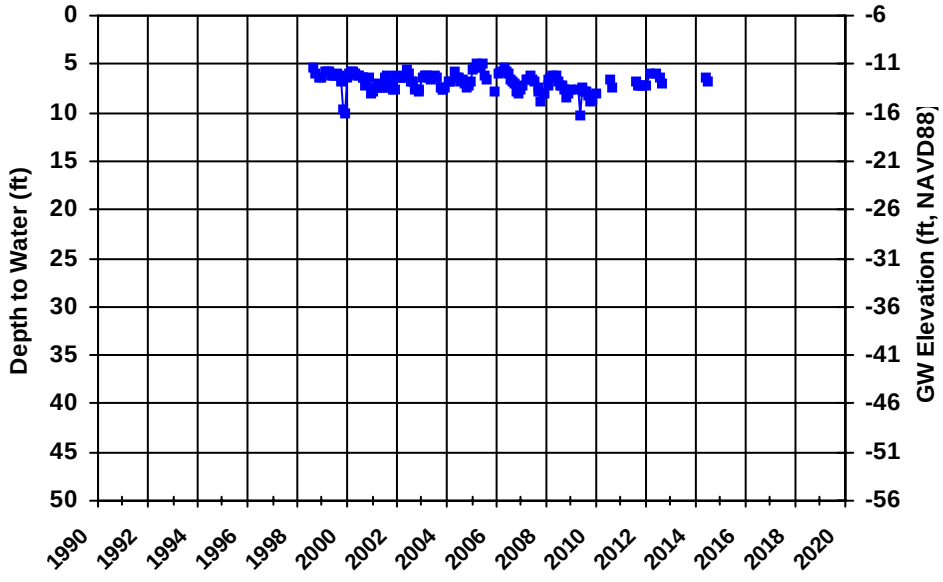
WellID: 379050N1215730W001
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: BD-1
Zone: Shallow
Owner: N/A Perf Int (ft): 90-100 Well Depth (ft): 100

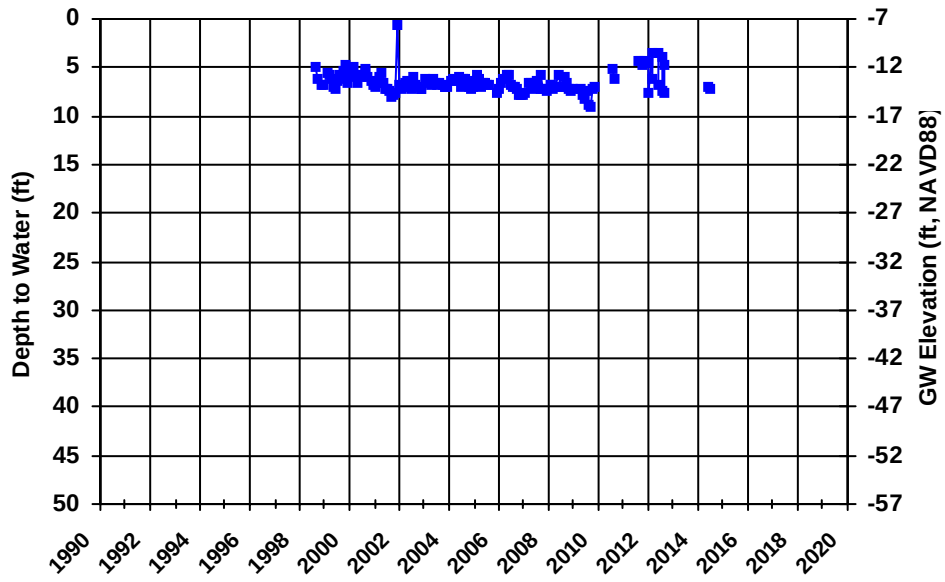


WellID: BD-2
Zone: Shallow
Owner: N/A Perf Int (ft): 90-100 Well Depth (ft): 100

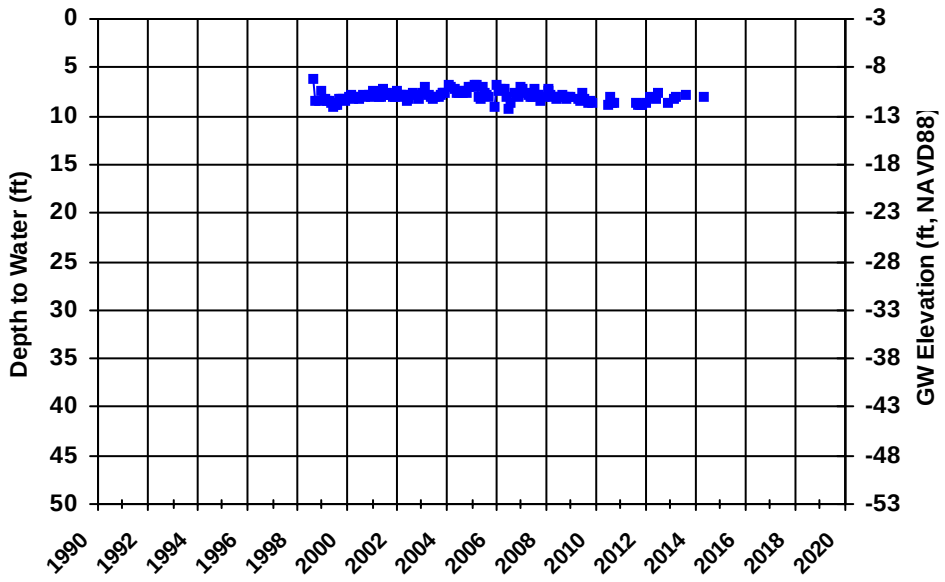


Manual Water Level Measurement Transducer Water Level Measurement

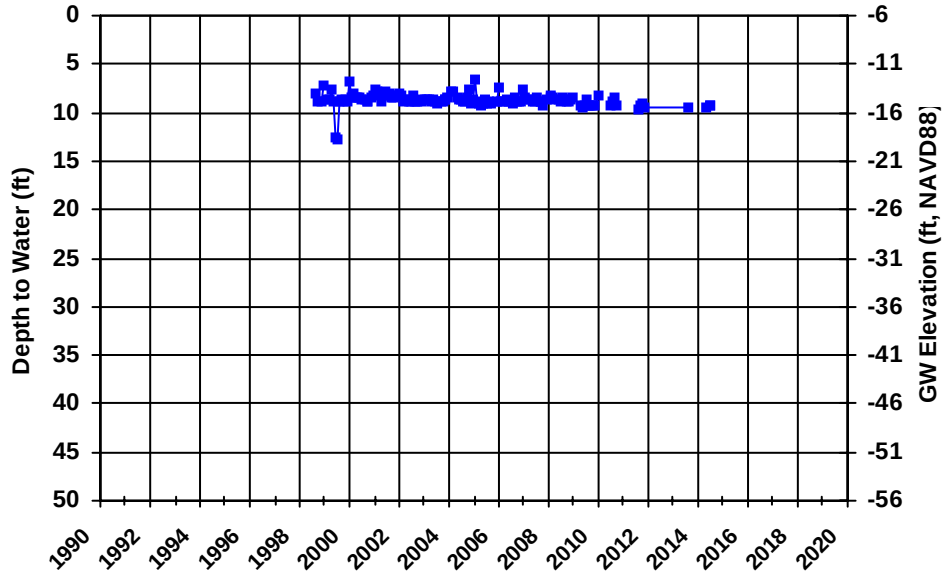
WellID: BD-3
Zone: Shallow
Owner: N/A Perf Int (ft): 90-100 Well Depth (ft): 100



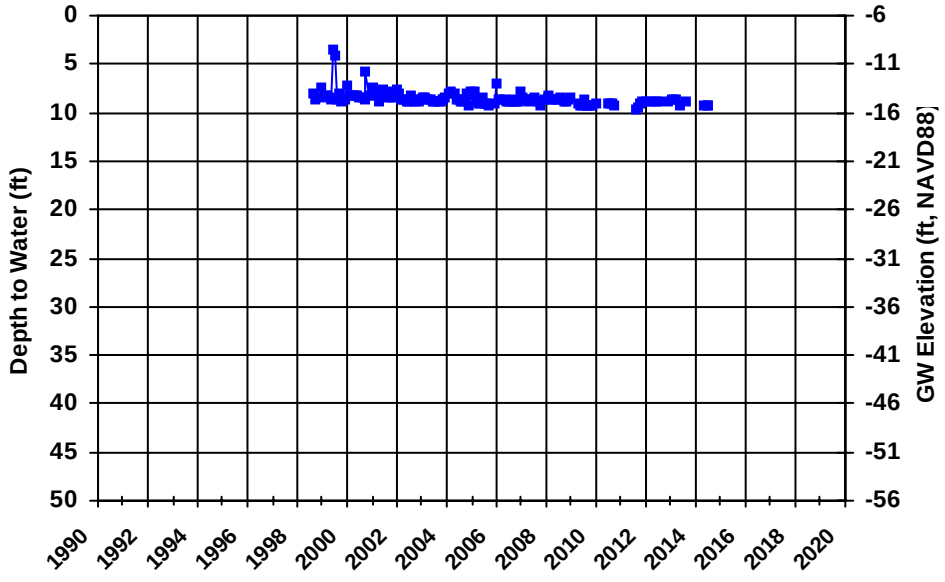
WellID: BS-4
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: BS-5
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

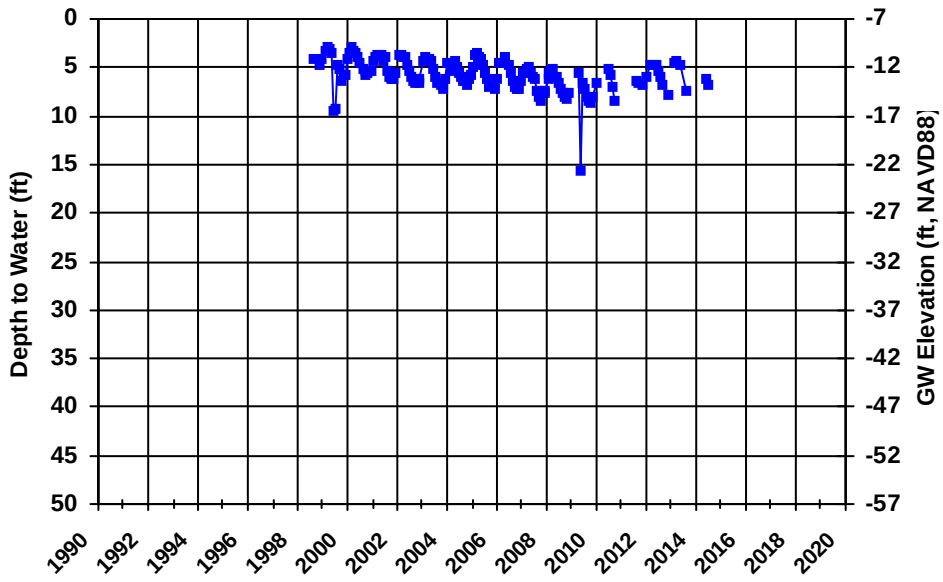


WellID: BS-6
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

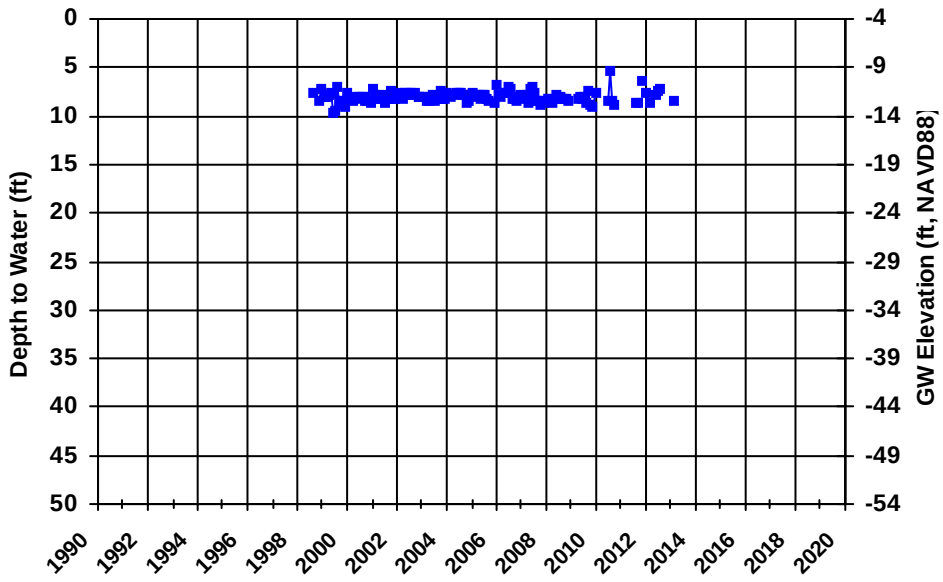


Manual Water Level Measurement Transducer Water Level Measurement

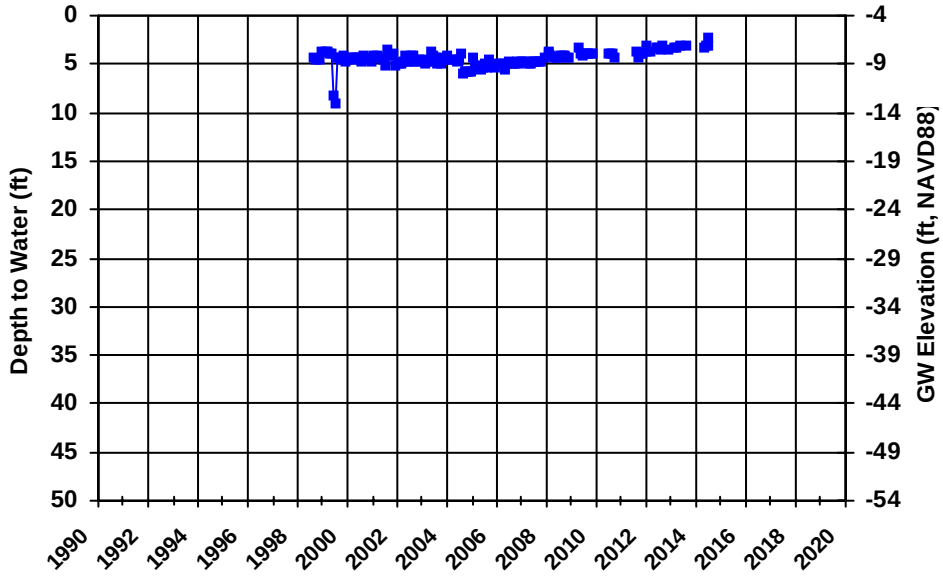
WellID: VD-2
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



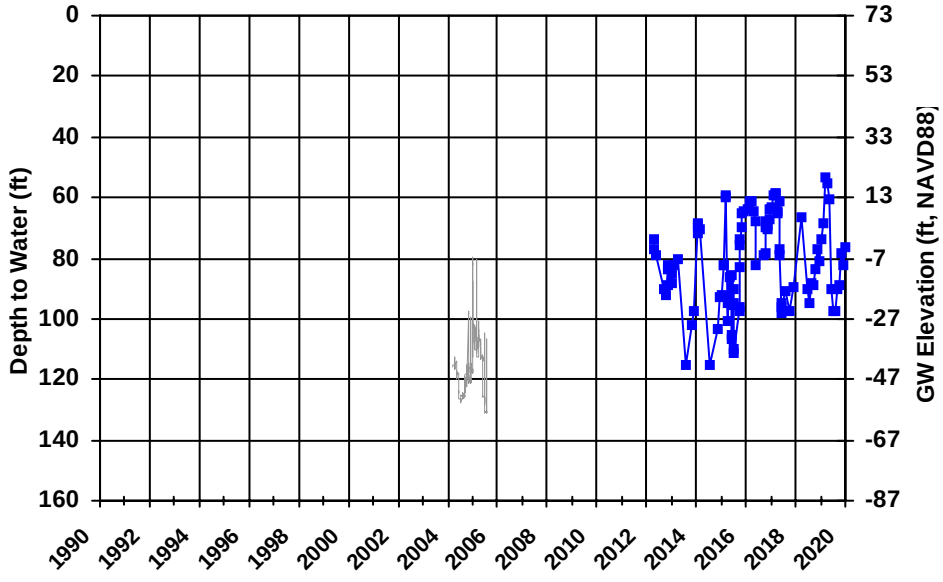
WellID: VS-10
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20



WellID: VS-3
Zone: Shallow
Owner: N/A Perf Int (ft): N/A Well Depth (ft): 20

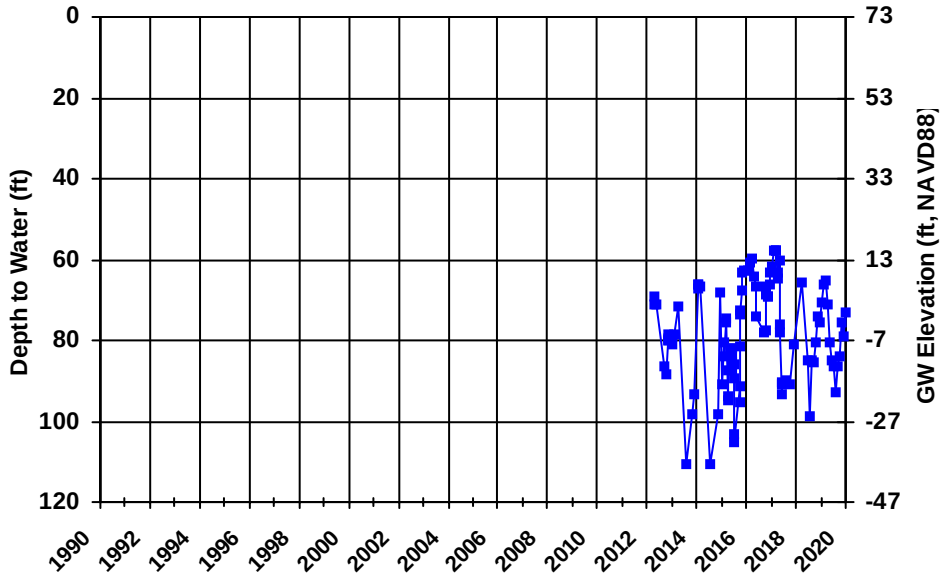


WellID: Brentwood MW-14 Deep
Zone: Deep
Owner: CofB Perf Int (ft): 284-315 Well Depth (ft): 324

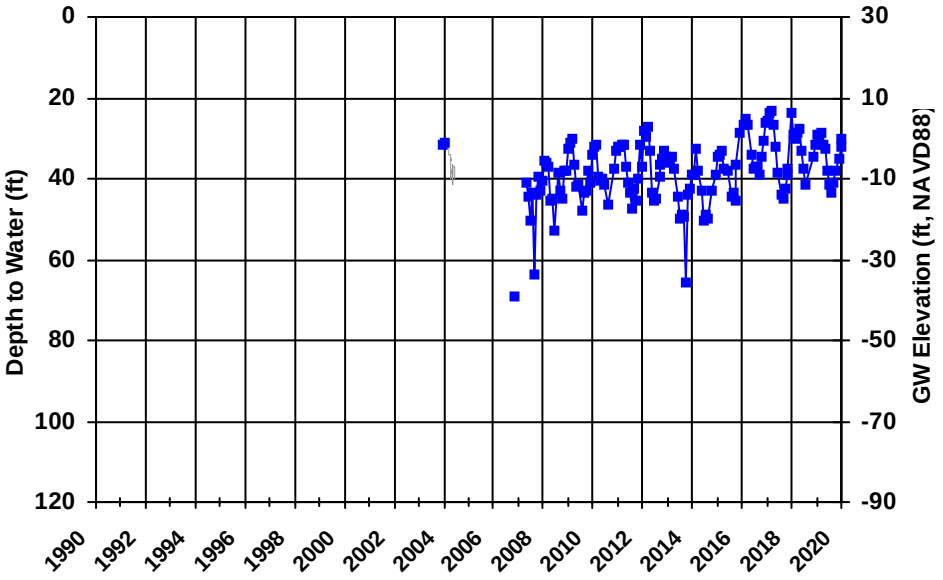


Manual Water Level Measurement Transducer Water Level Measurement

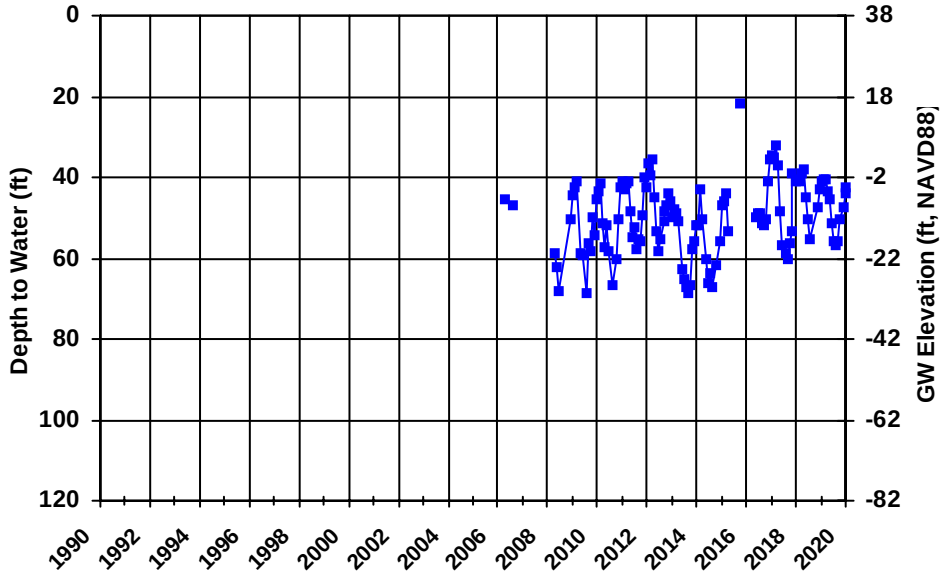
WellID: Brentwood MW-14 Int.
Zone: Deep
Owner: CofB Perf Int (ft): 200-210, 220-230 Well Depth (ft): 240



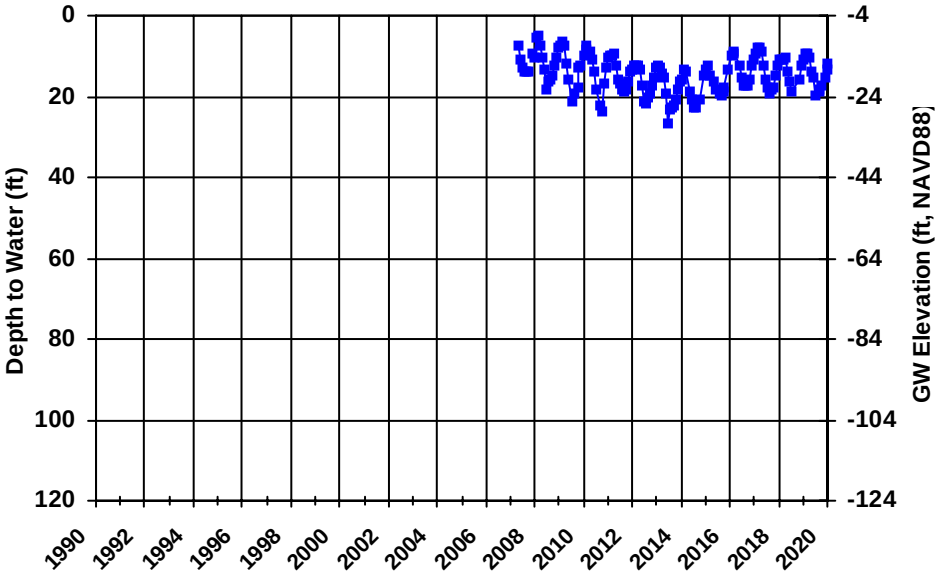
WellID: Creekside MW
Zone: Deep
Owner: DWD Perf Int (ft): 230-240 Well Depth (ft): 380



WellID: DIABLO WATER DISTRICT-Glen Park Well
Zone: Deep
Owner: DWD Perf Int (ft): 230-245, 260-300 Well Depth (ft): 315

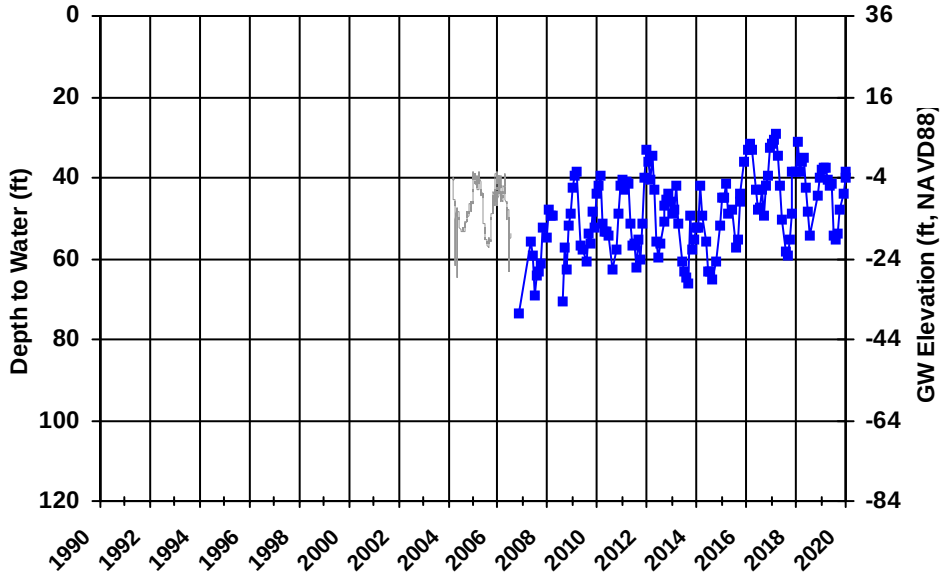


WellID: DIABLO WATER DISTRICT-South Park
Zone: Deep
Owner: DWD Perf Int (ft): 204-264, 284-299 Well Depth (ft): 323

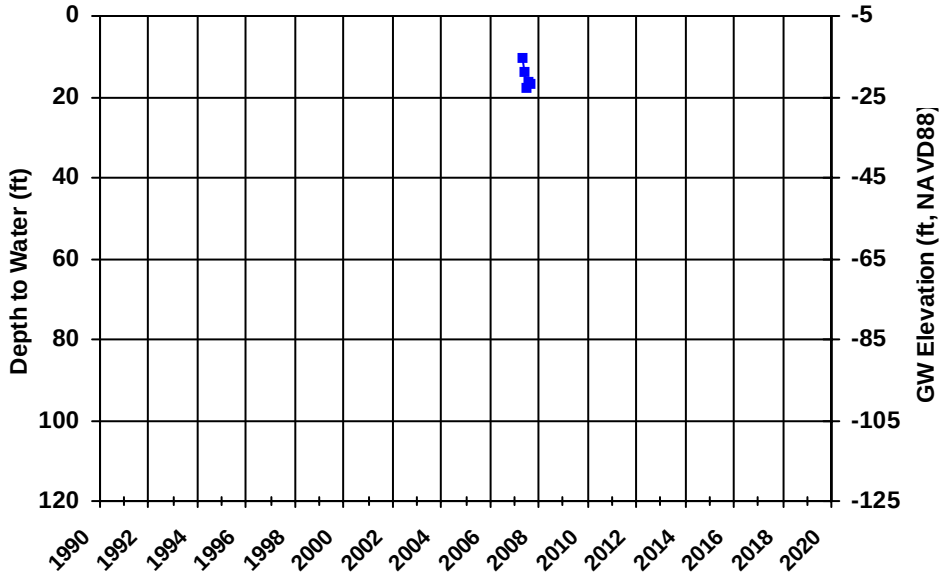


Manual Water Level Measurement Transducer Water Level Measurement

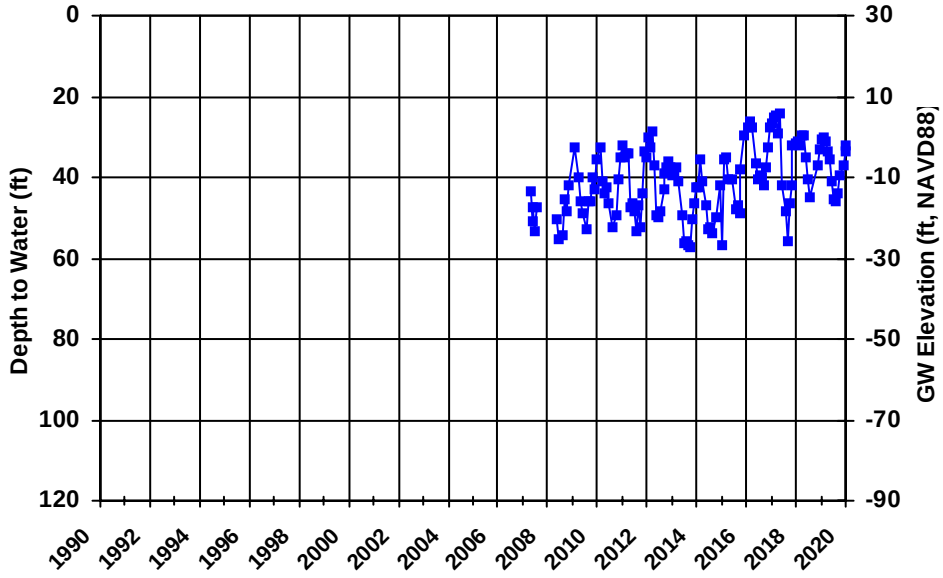
WellID: Glen Park MW
Zone: Deep
Owner: DWD Perf Int (ft): 220-230, 260-290 Well Depth (ft): 300



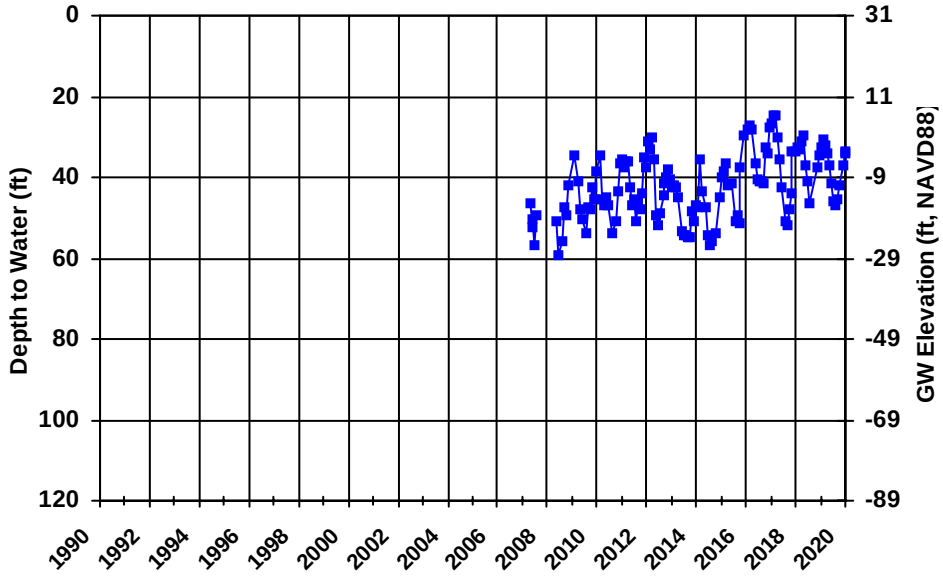
WellID: Rock Island (Westside pump #2)
Zone: Deep
Owner: DWD Perf Int (ft): 240-270, 284-292 Well Depth (ft): 320



WellID: Stonecreek MW-300
Zone: Deep
Owner: DWD Perf Int (ft): 230-240, 280-290 Well Depth (ft): 300

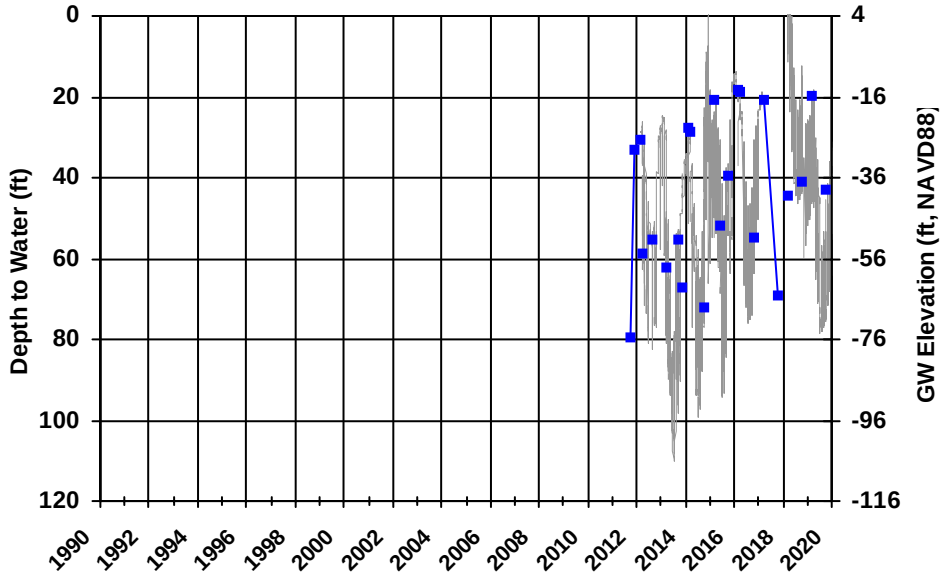


WellID: Stonecreek MW-360
Zone: Deep
Owner: DWD Perf Int (ft): 340-350 Well Depth (ft): 360

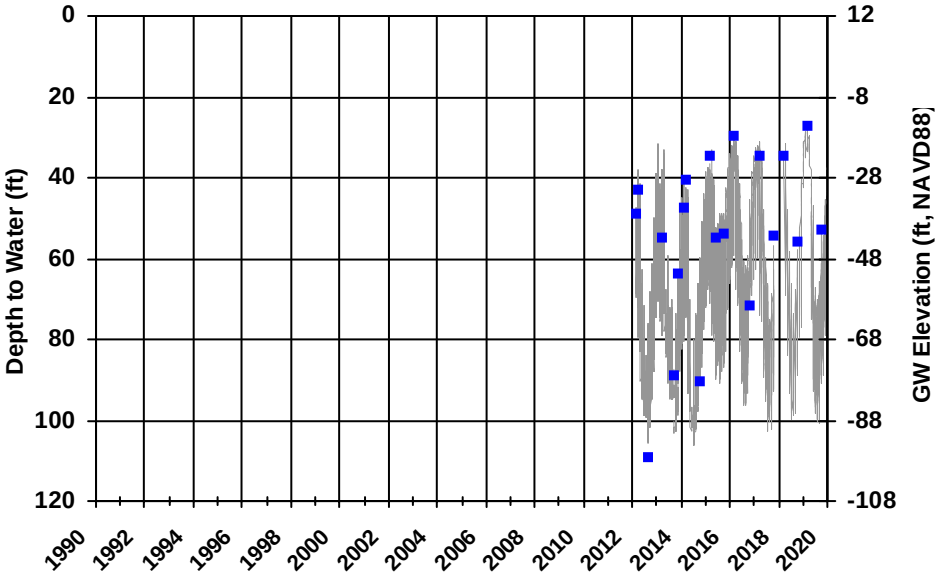


Manual Water Level Measurement Transducer Water Level Measurement

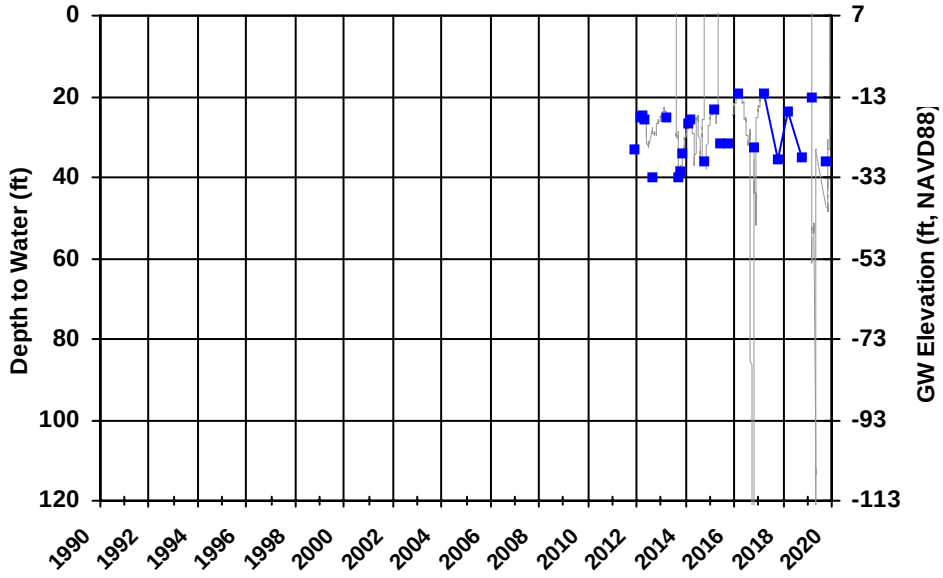
WellID: 1BMW-343
Zone: Deep
Owner: TODB Perf Int (ft): 270-289, 309-338 Well Depth (ft): 343



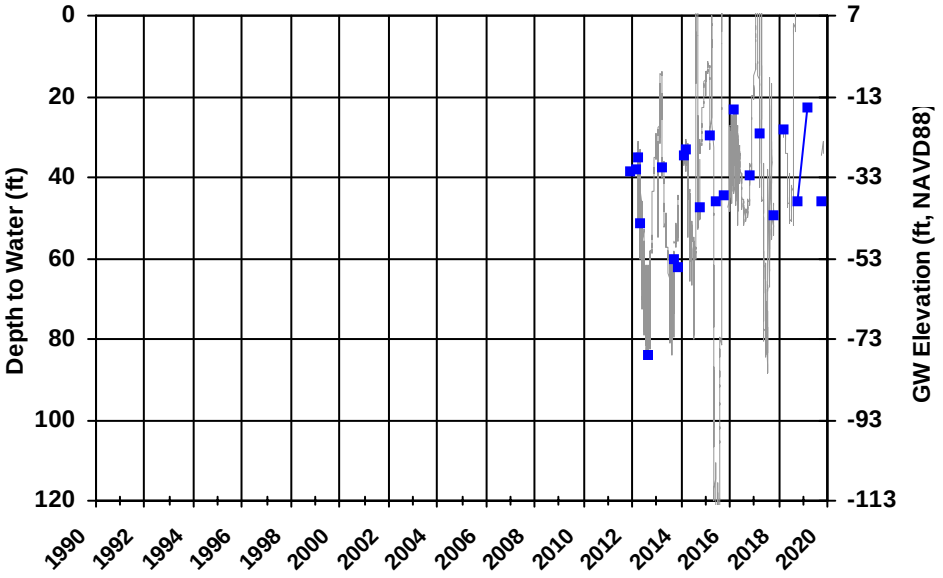
WellID: 4AMW-357
Zone: Deep
Owner: TODB Perf Int (ft): 307-347 Well Depth (ft): 357



WellID: 6MW-250
Zone: Deep
Owner: TODB Perf Int (ft): 200-210, 230-240 Well Depth (ft): 250

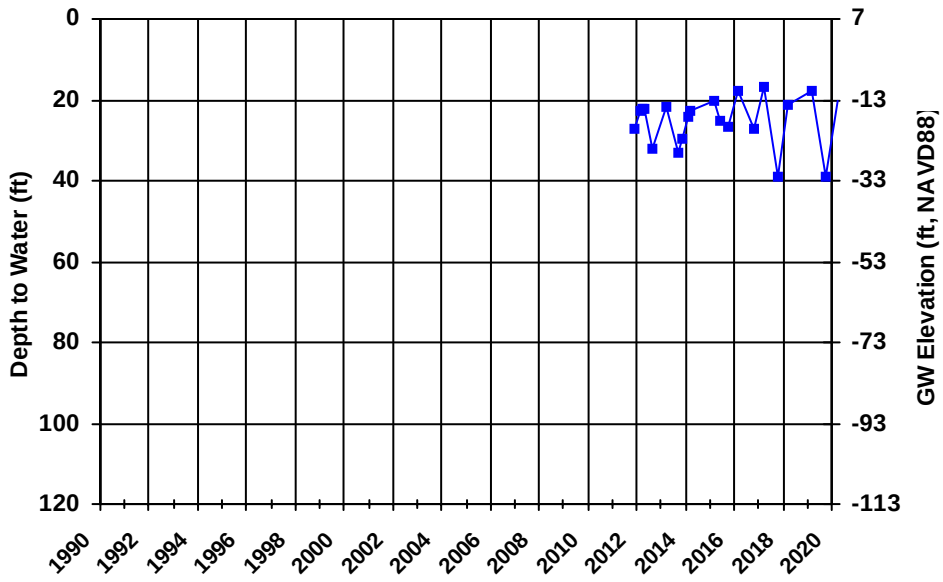


WellID: 6MW-350
Zone: Deep
Owner: TODB Perf Int (ft): 280-290, 330-340 Well Depth (ft): 350

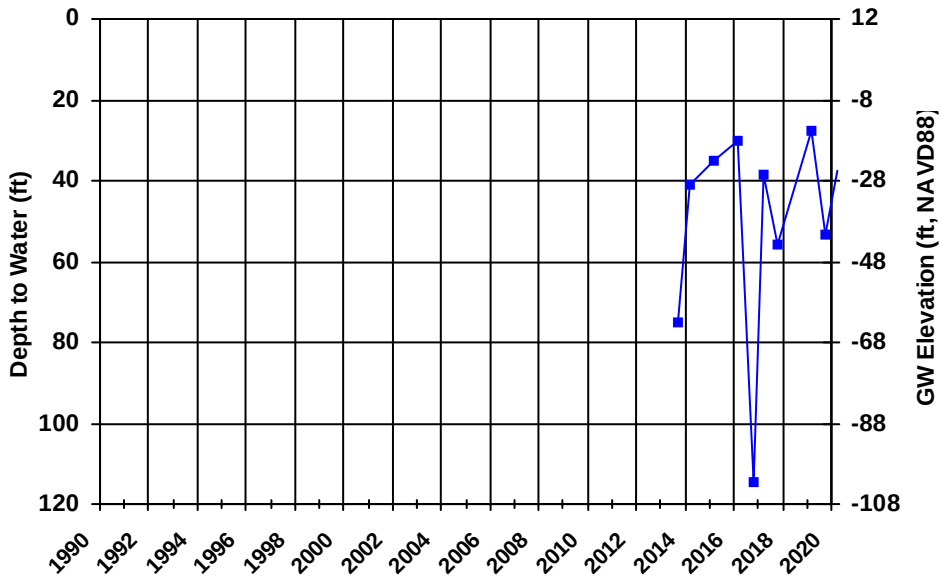


Manual Water Level Measurement Transducer Water Level Measurement

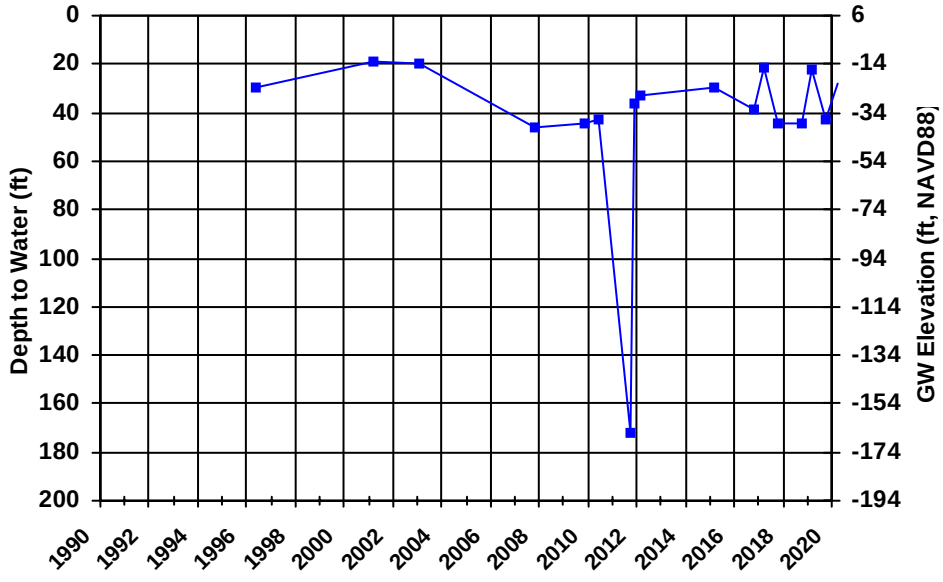
WellID: 6MW-410
Zone: Deep
Owner: TODB Perf Int (ft): 390-400 Well Depth (ft): 410



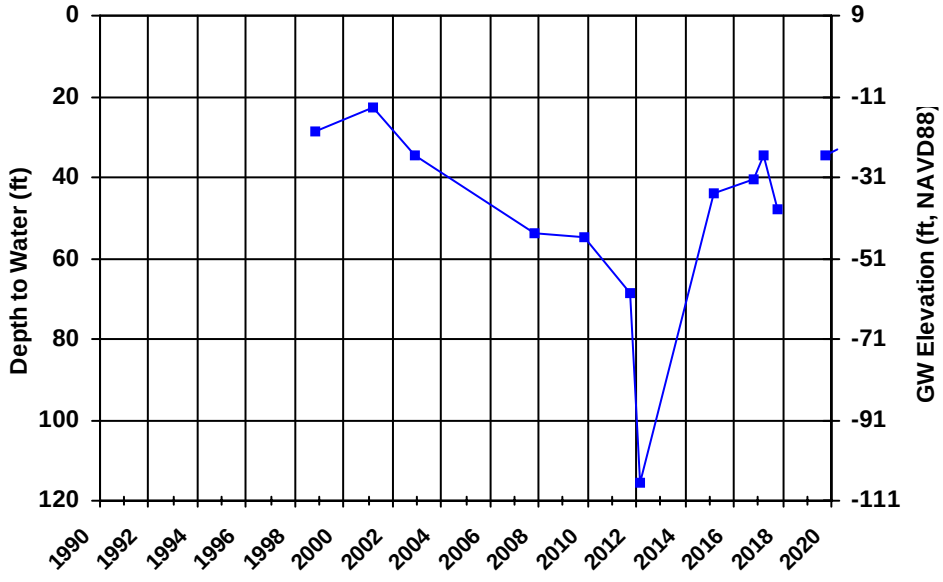
WellID: 7MW-330
Zone: Deep
Owner: TODB Perf Int (ft): 310-320 Well Depth (ft): 330



WellID: TOWN OF DISCOVERY BAY-WELL 01B
Zone: Deep
Owner: TODB Perf Int (ft): 271-289, 308-340 Well Depth (ft): 350

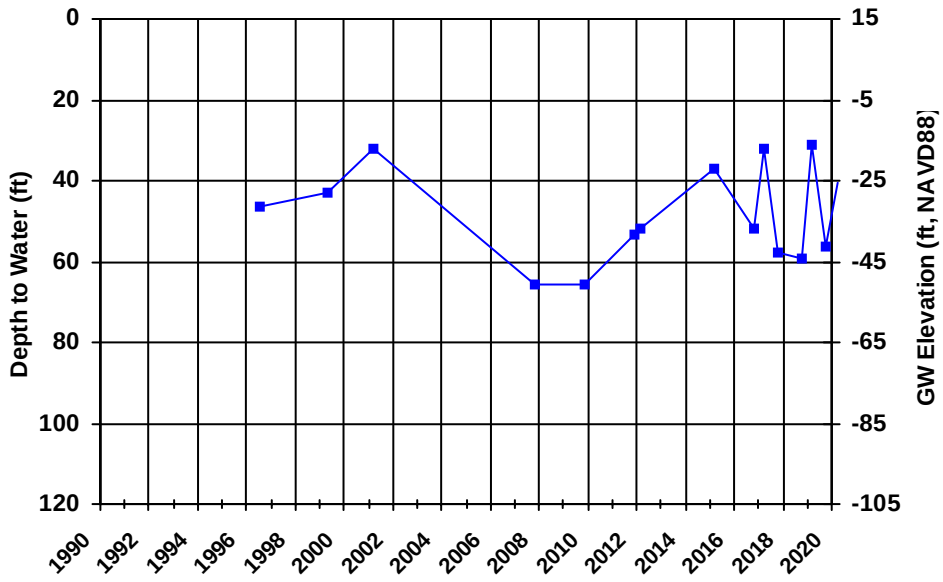


WellID: TOWN OF DISCOVERY BAY-WELL 02
Zone: Deep
Owner: TODB Perf Int (ft): 245-335 Well Depth (ft): 348

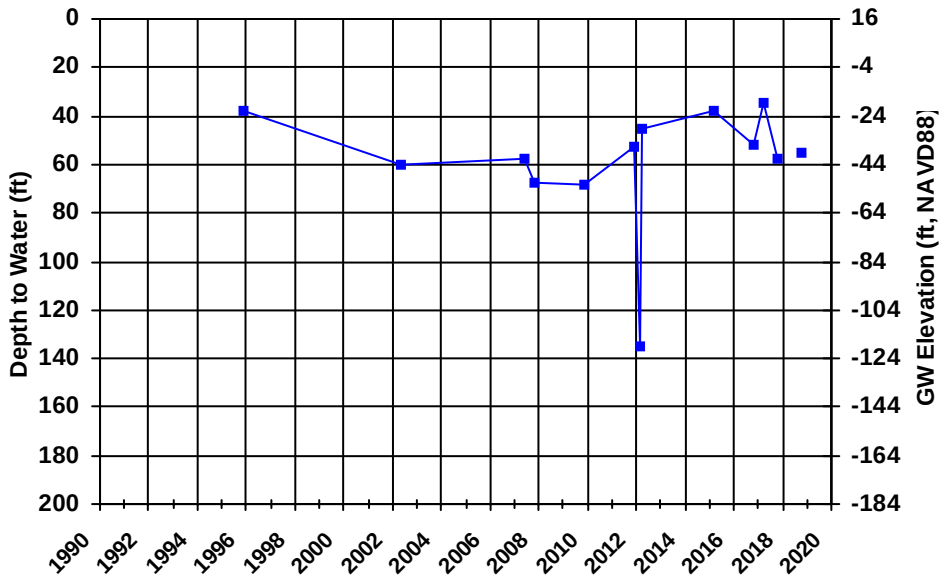


Manual Water Level Measurement Transducer Water Level Measurement

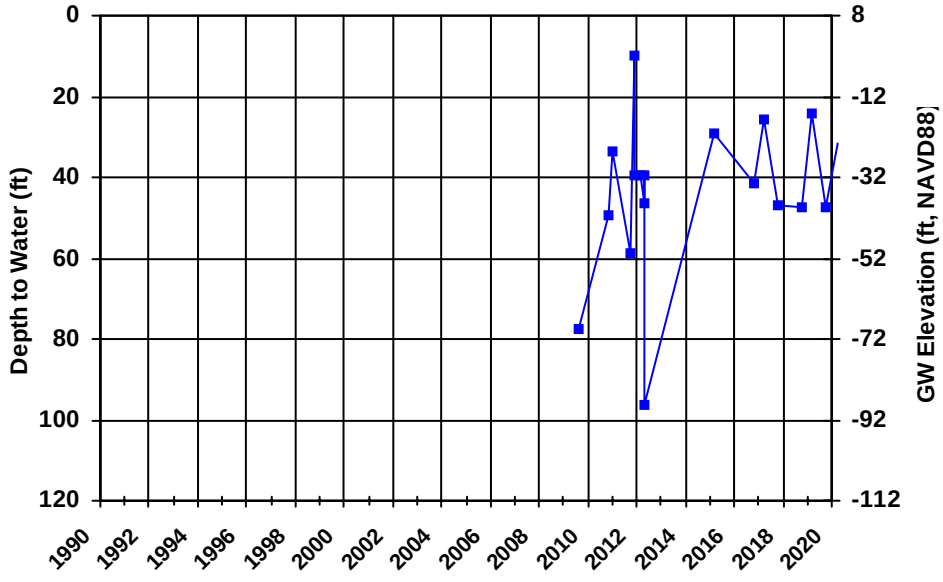
WellID: TOWN OF DISCOVERY BAY-WELL 04A
Zone: Deep
Owner: TODB Perf Int (ft): 307-347 Well Depth (ft): 357



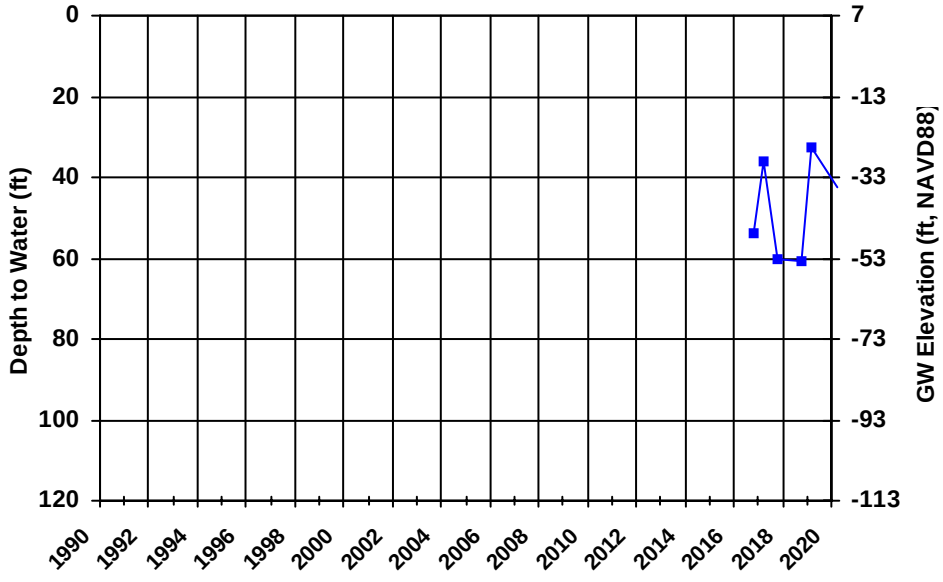
WellID: TOWN OF DISCOVERY BAY-WELL 05A
Zone: Deep
Owner: TODB Perf Int (ft): 251-281, 307-347 Well Depth (ft): 357



WellID: TOWN OF DISCOVERY BAY-WELL 06
Zone: Deep
Owner: TODB Perf Int (ft): 270-295, 305-350 Well Depth (ft): 360

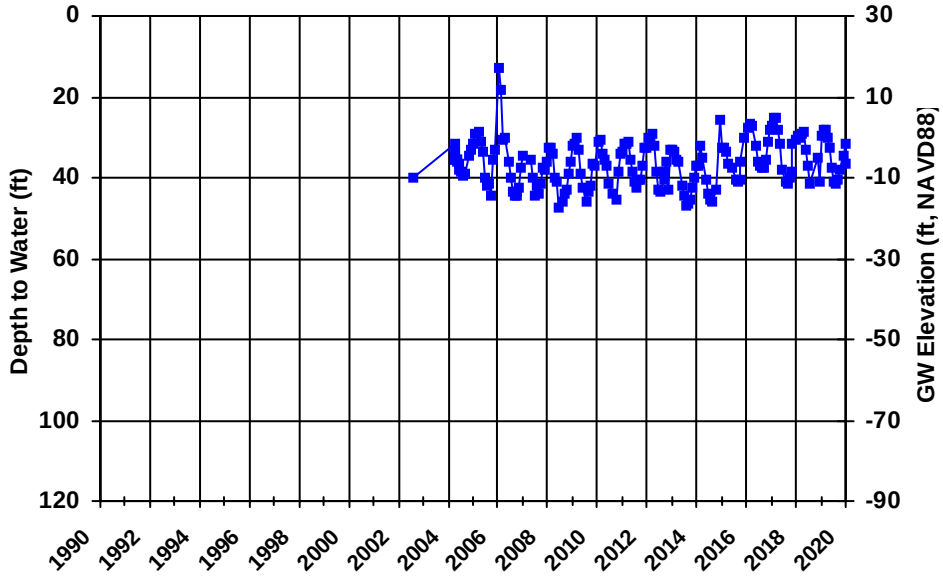


WellID: TOWN OF DISCOVERY BAY-WELL 07
Zone: Deep
Owner: TODB Perf Int (ft): 282-292 Well Depth (ft): 346

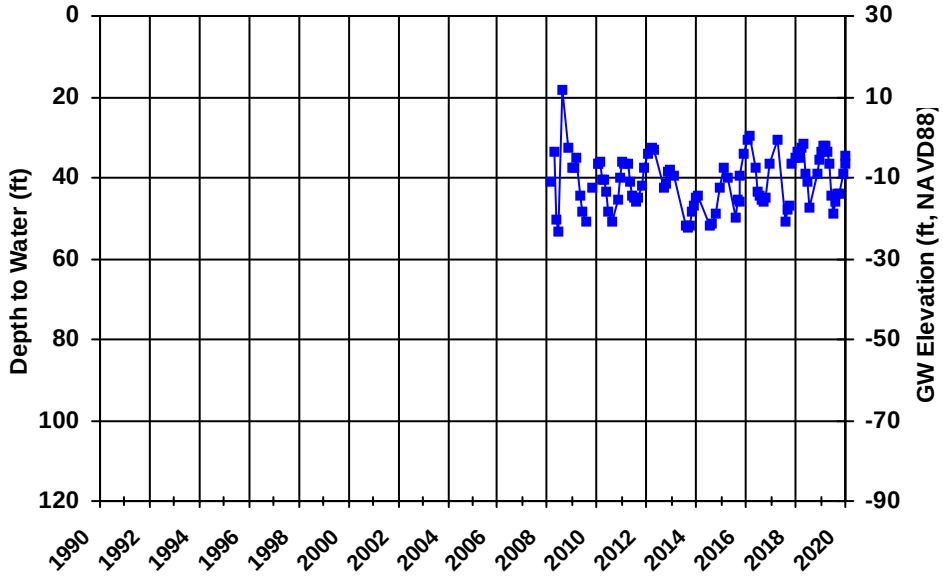


Manual Water Level Measurement Transducer Water Level Measurement

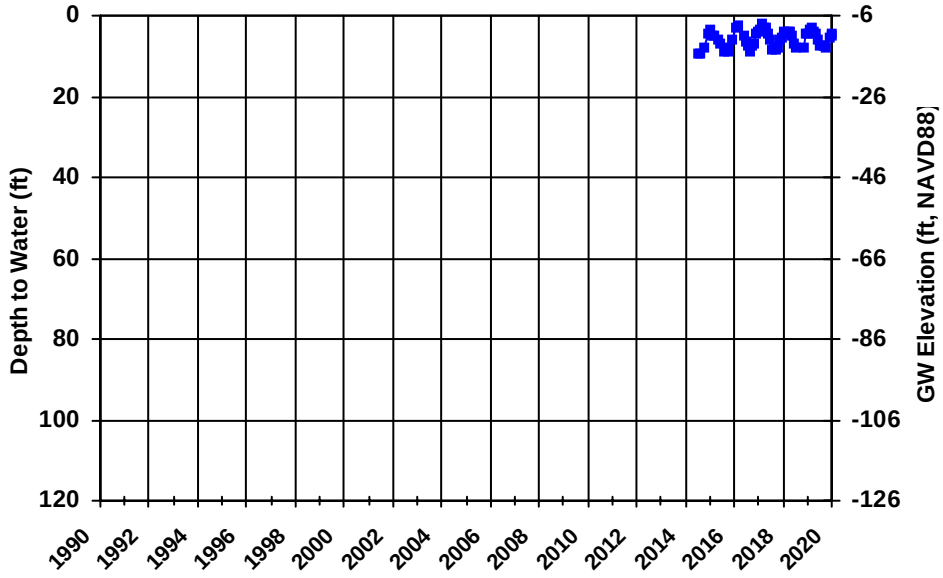
WellID: KNIGHTSEN COMMUNITY WATER SYSTEM-Well Head
Zone: Deep
Owner: KNIGHTSEN COMMUNITY Perf Int (ft): 235-255, 275-295 Well Depth (ft): 305



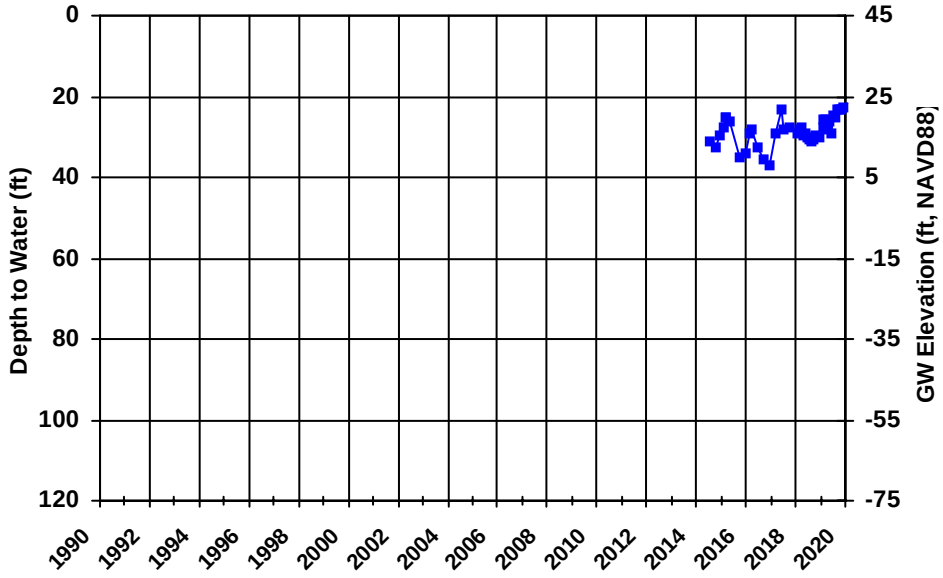
WellID: KNIGHTSEN ELEMENTARY SCHOOL-WELL 3
Zone: Deep
Owner: KNIGHTSEN ELEMENTAR Perf Int (ft): 395-415 Well Depth (ft): 415



WellID: Bethel Island (Sugar Barge Marina-Well Head)
Zone: Deep
Owner: SUGAR BARGE MARINA Perf Int (ft): 317-333 Well Depth (ft): 333

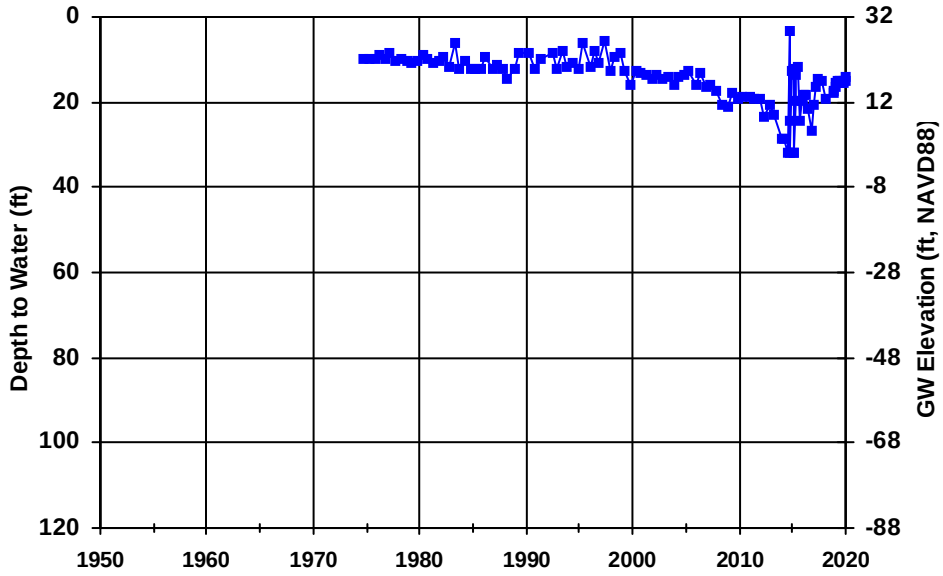


WellID: 2 Casing
Zone: Composite
Owner: BBID Perf Int (ft): 71-163 Well Depth (ft): 163

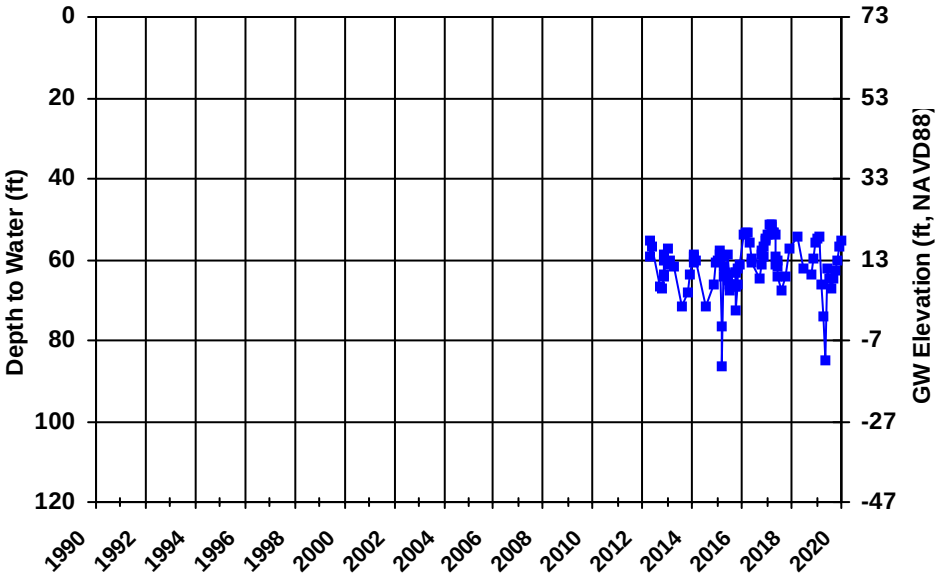


Manual Water Level Measurement Transducer Water Level Measurement

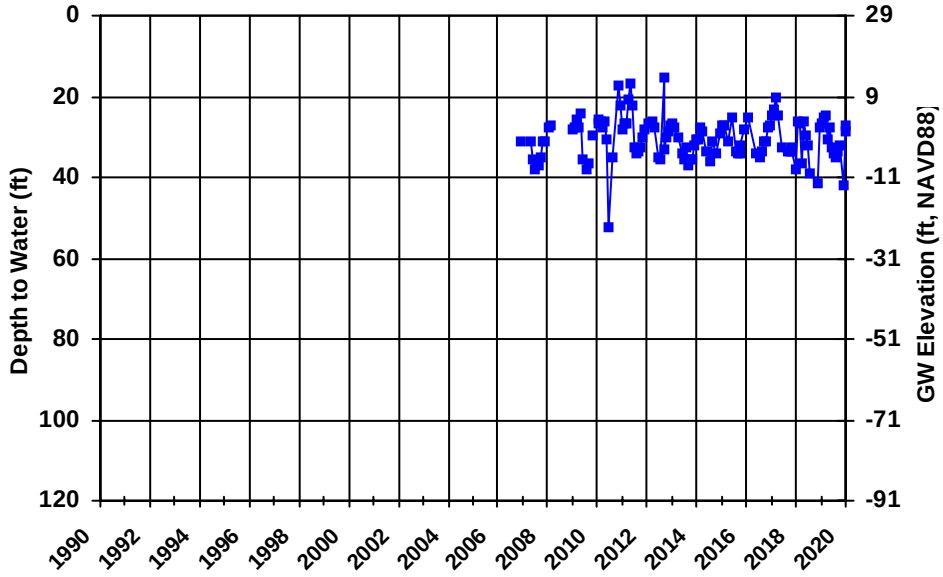
WellID: 6 Byer
Zone: Composite
Owner: BBID Perf Int (ft): N/A Well Depth (ft): 185



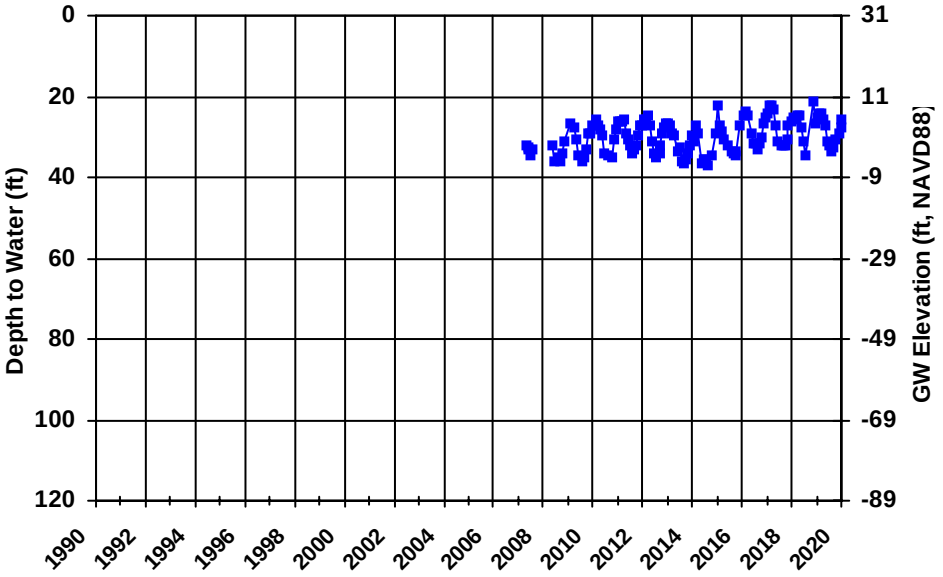
WellID: Brentwood MW-14 Shallow
Zone: Composite
Owner: CofB Perf Int (ft): 114-144 Well Depth (ft): 154



WellID: Knightsen School Irrigation (#2)
Zone: Composite
Owner: DWD Perf Int (ft): 167-191, 210-230 Well Depth (ft): 230

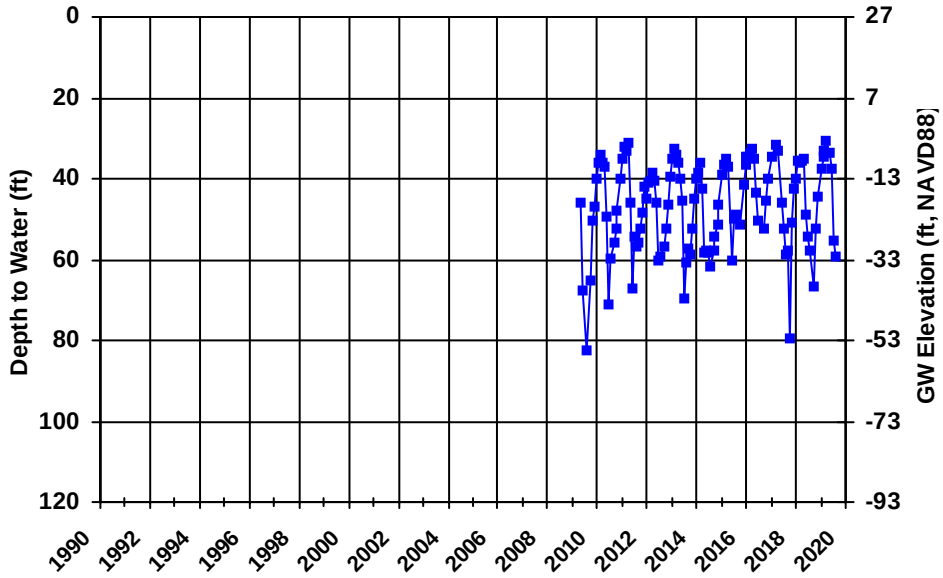


WellID: Stonecreek MW-160
Zone: Composite
Owner: DWD Perf Int (ft): 100-110, 140-150 Well Depth (ft): 160

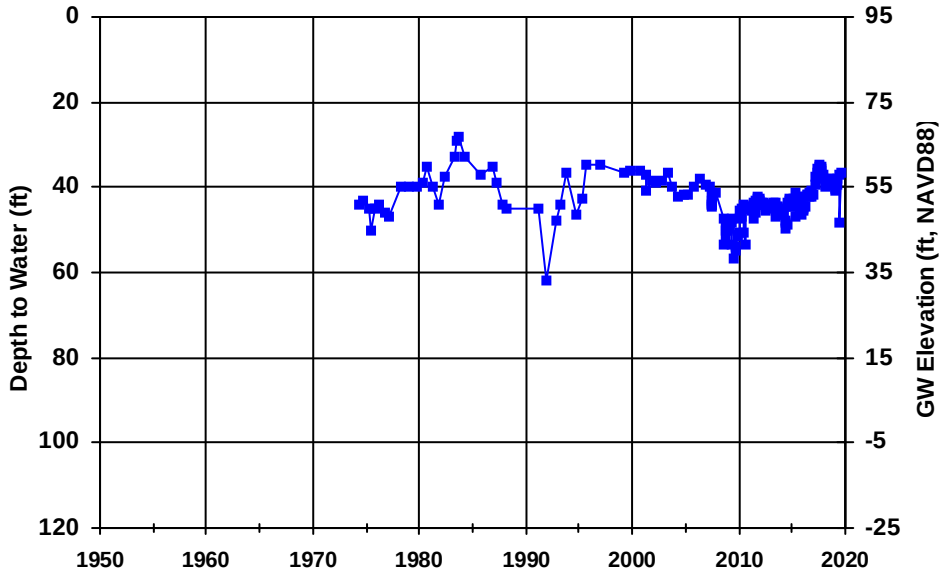


Manual Water Level Measurement Transducer Water Level Measurement

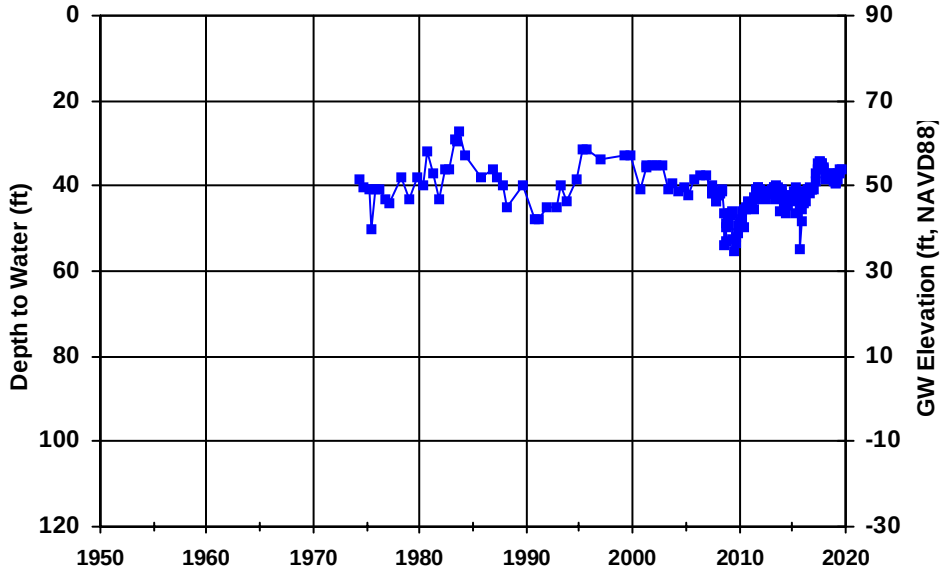
WellID: Well #14
Zone: Composite
Owner: ECCID Perf Int (ft): 200-300 Well Depth (ft): 330



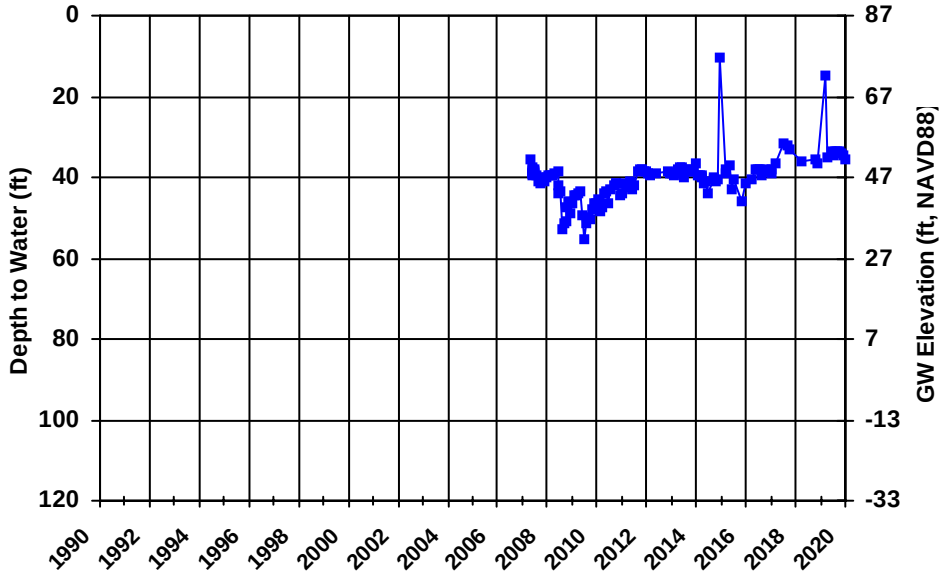
WellID: Well #3 (4-55)
Zone: Composite
Owner: ECCID Perf Int (ft): 113-197, 281-365 Well Depth (ft): 365



WellID: Well #4 (5-62)
Zone: Composite
Owner: ECCID Perf Int (ft): 68-125, 175-195 Well Depth (ft): 200

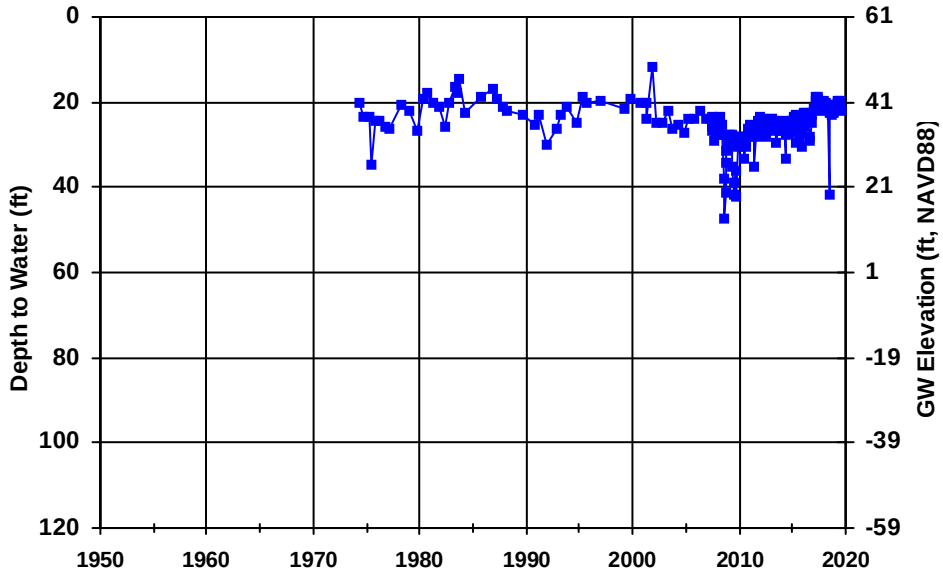


WellID: Well #4 Old (4-56)
Zone: Composite
Owner: ECCID Perf Int (ft): 68-125, 175-195 Well Depth (ft): 203

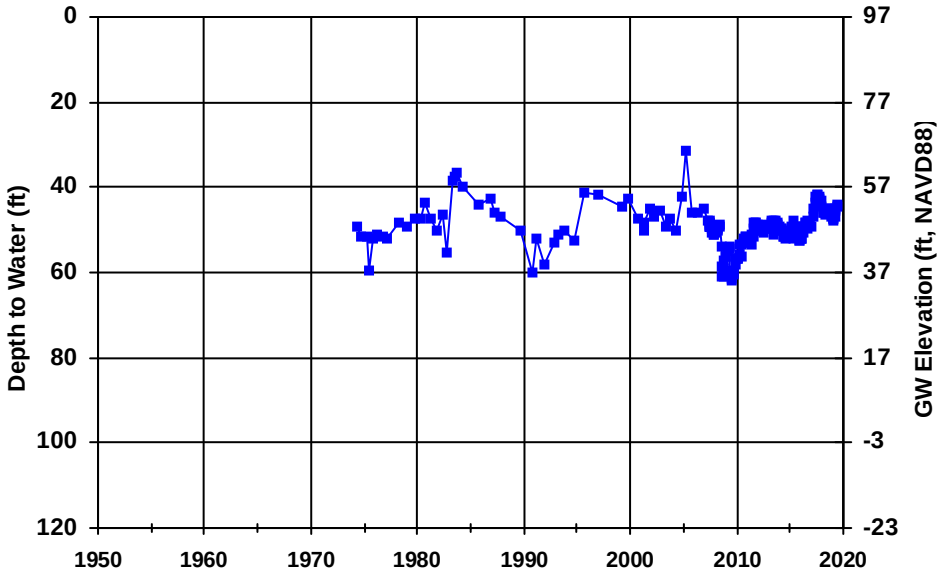


Manual Water Level Measurement Transducer Water Level Measurement

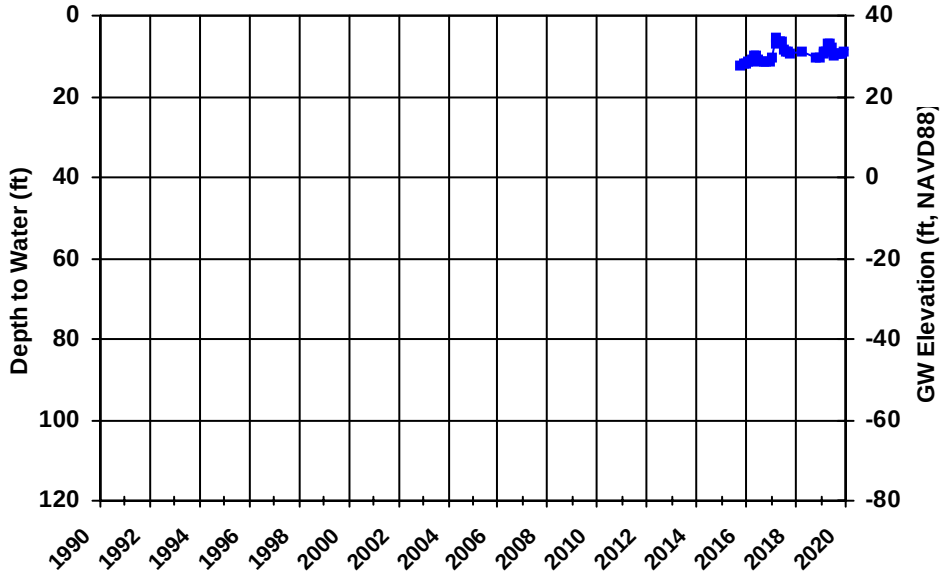
WellID: Well #5 (4-57)
Zone: Composite
Owner: ECCID Perf Int (ft): 115-125, 170-175 Well Depth (ft): 290



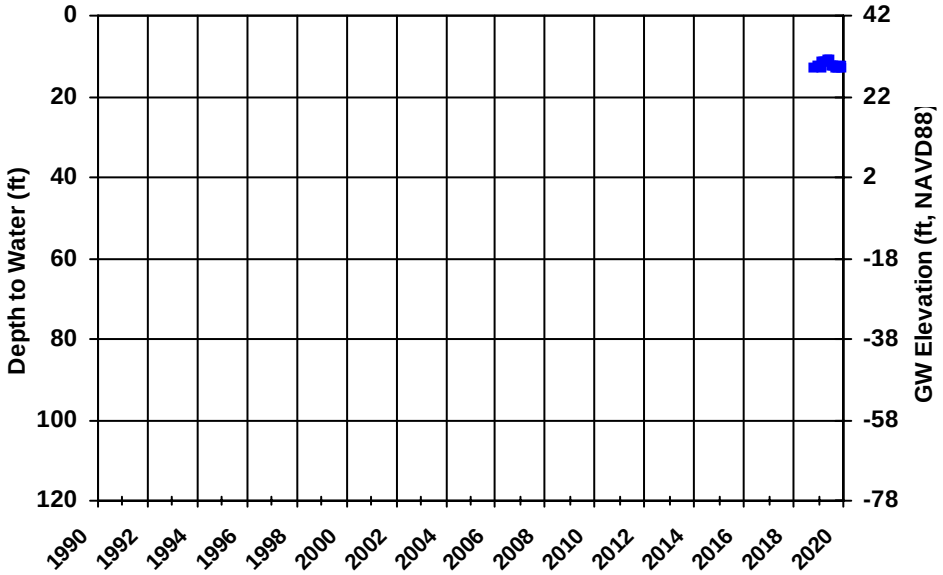
WellID: Well #9 (4-58)
Zone: Composite
Owner: ECCID Perf Int (ft): 90-106, 118-126, Well Depth (ft): 210



WellID: 10 SM2
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

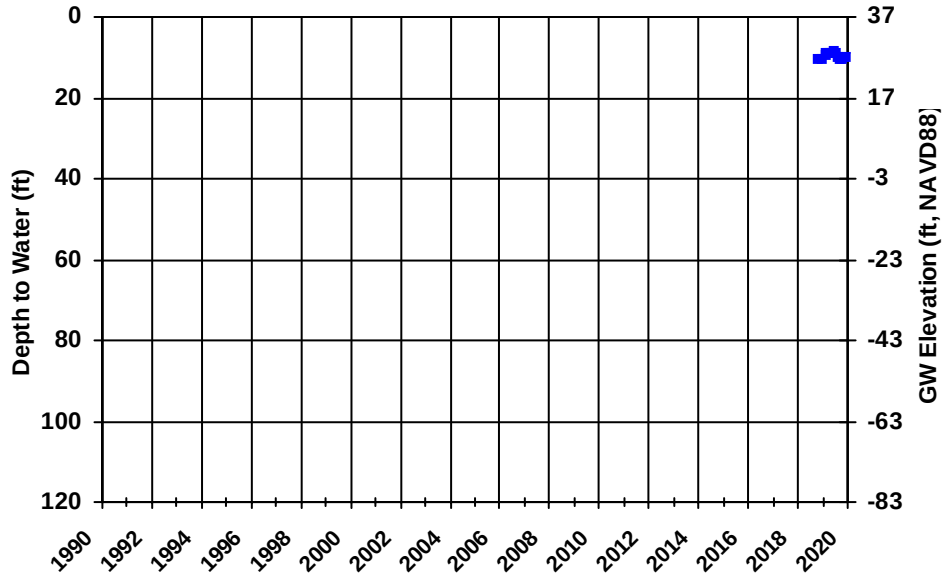


WellID: 10A Taylor
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

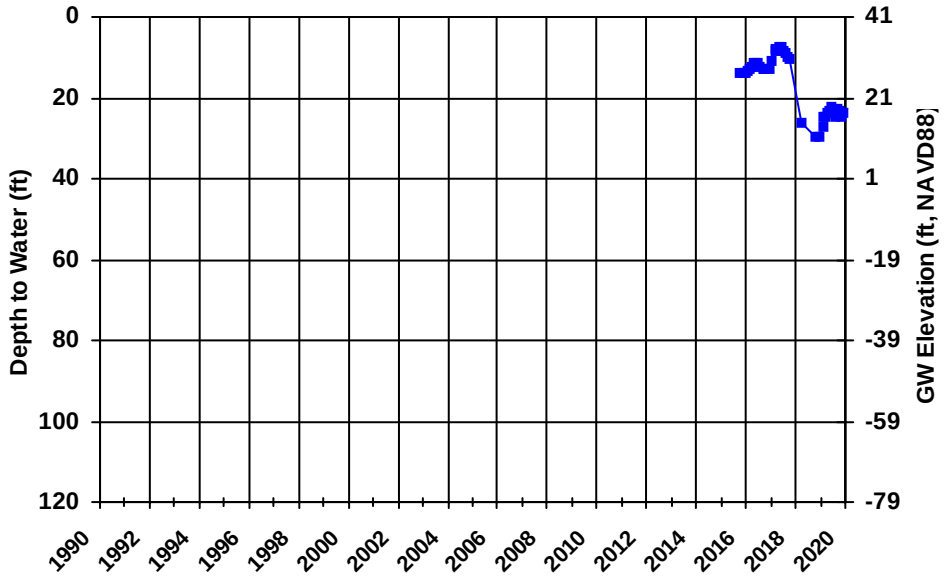


Manual Water Level Measurement Transducer Water Level Measurement

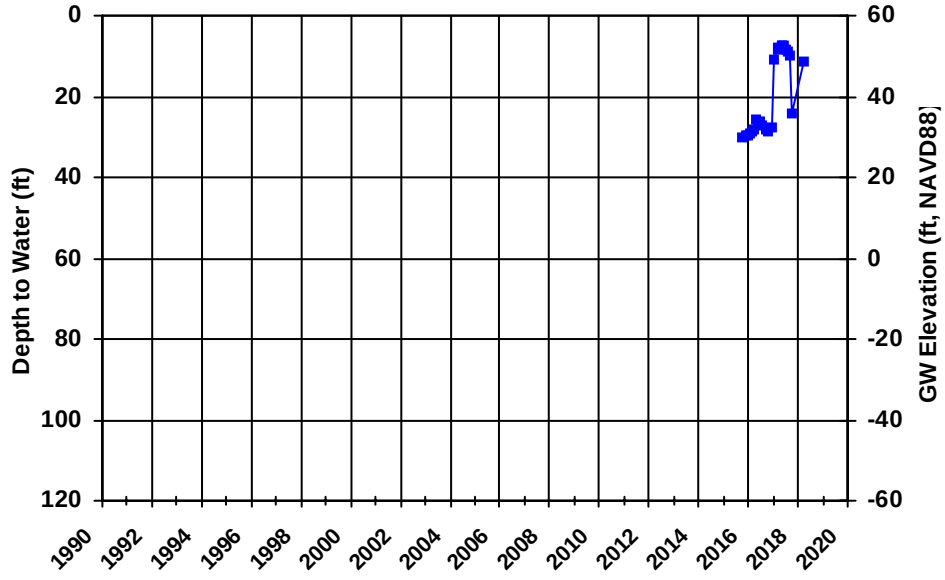
WellID: 10C Marsh
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



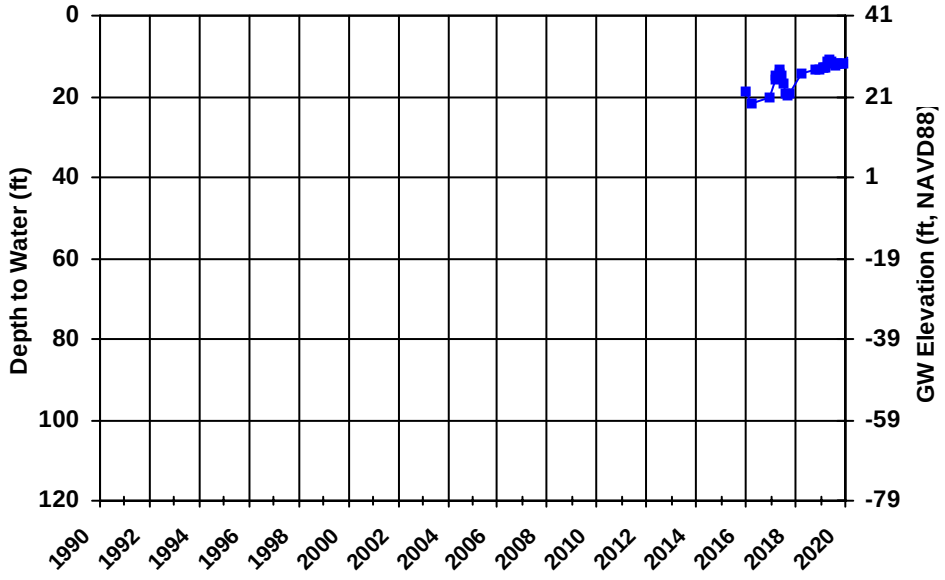
WellID: 11 TN1
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



WellID: 12 TN2
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

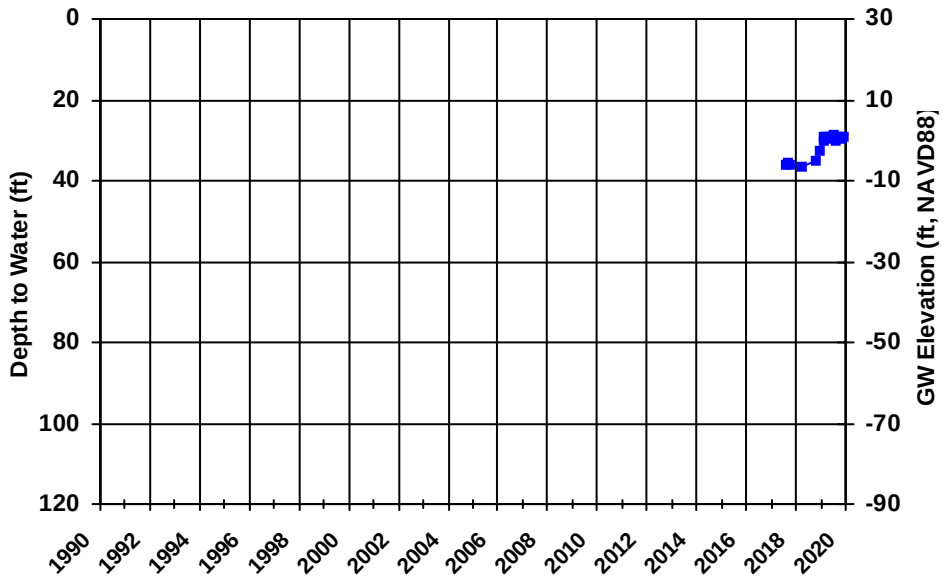


WellID: 13 M
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

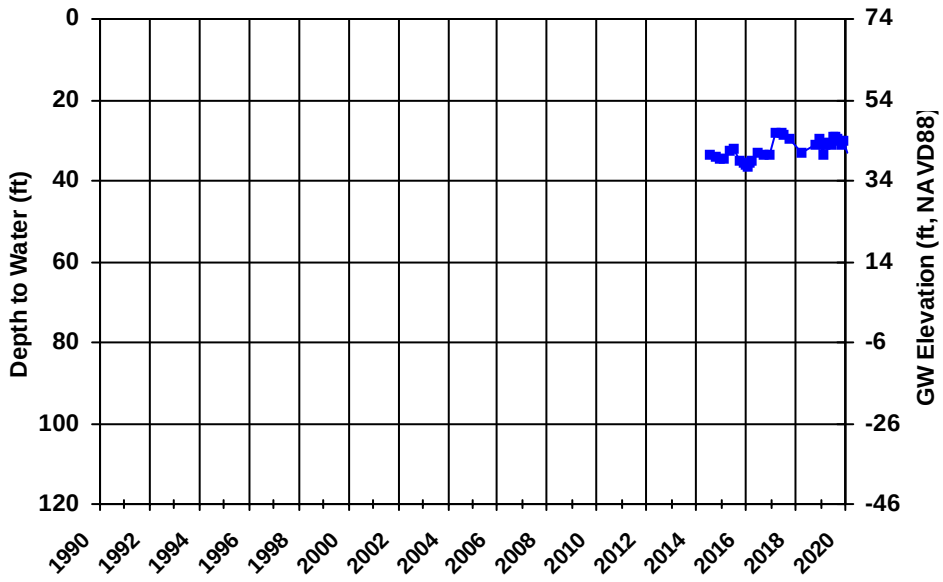


Manual Water Level Measurement Transducer Water Level Measurement

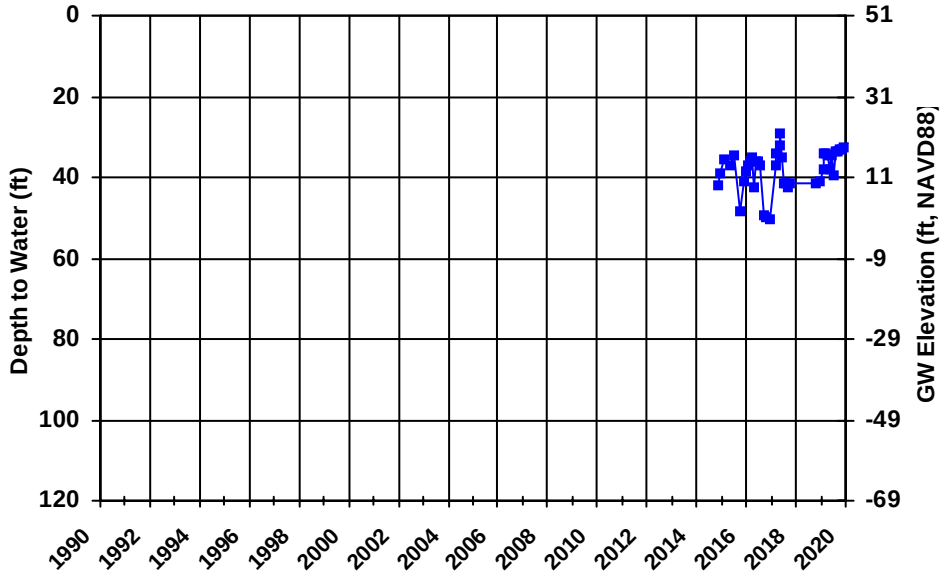
WellID: 14 GNO
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



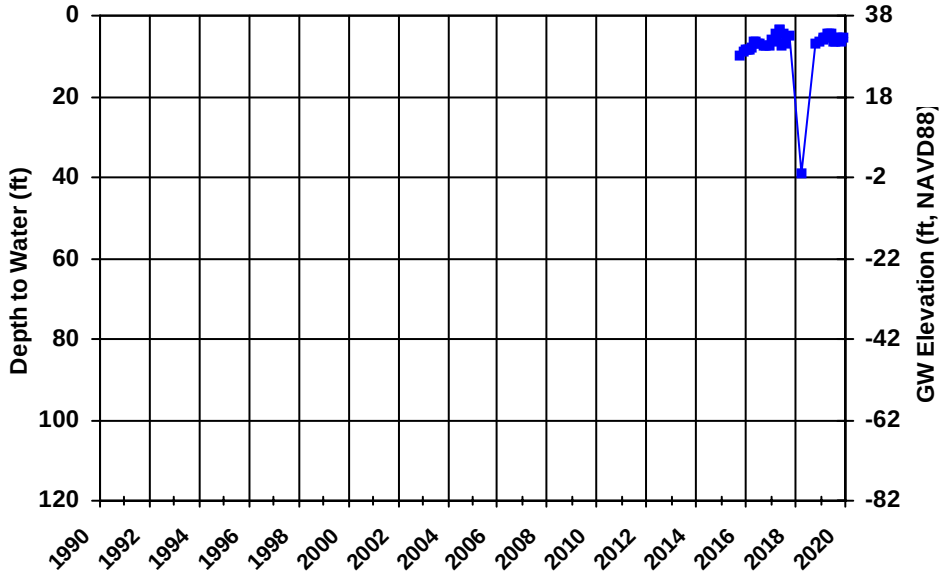
WellID: 7 Hoffman 1
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



WellID: 8 Casing 2
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

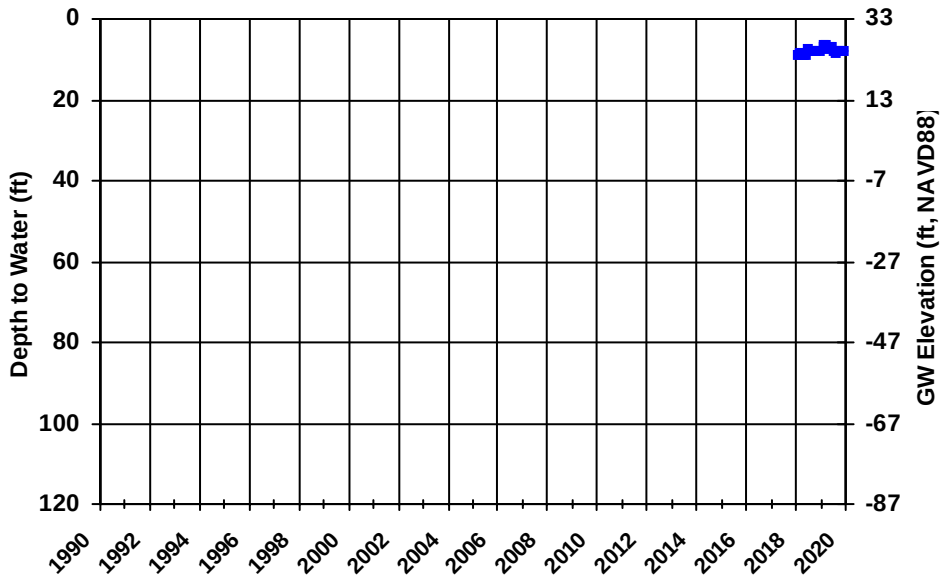


WellID: 9 SM1
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A

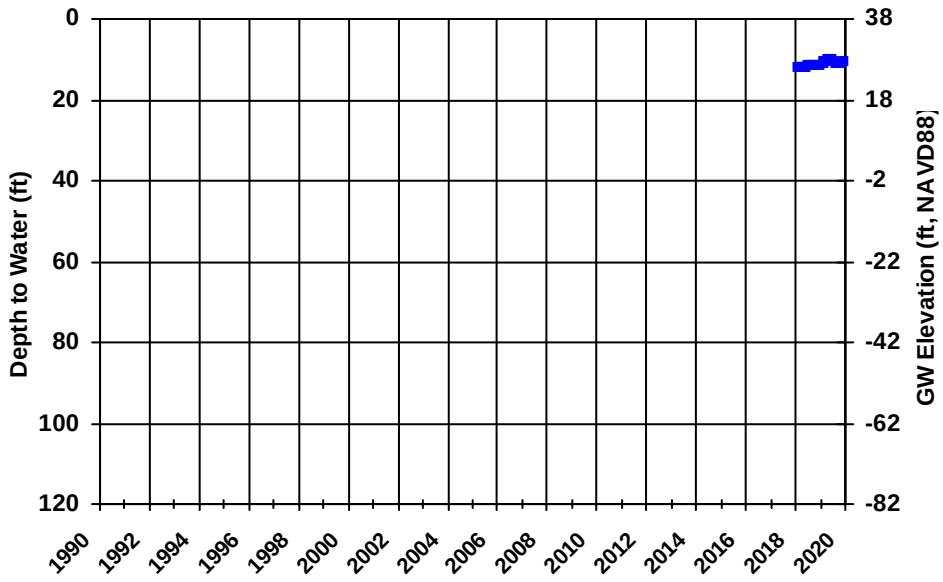


Manual Water Level Measurement Transducer Water Level Measurement

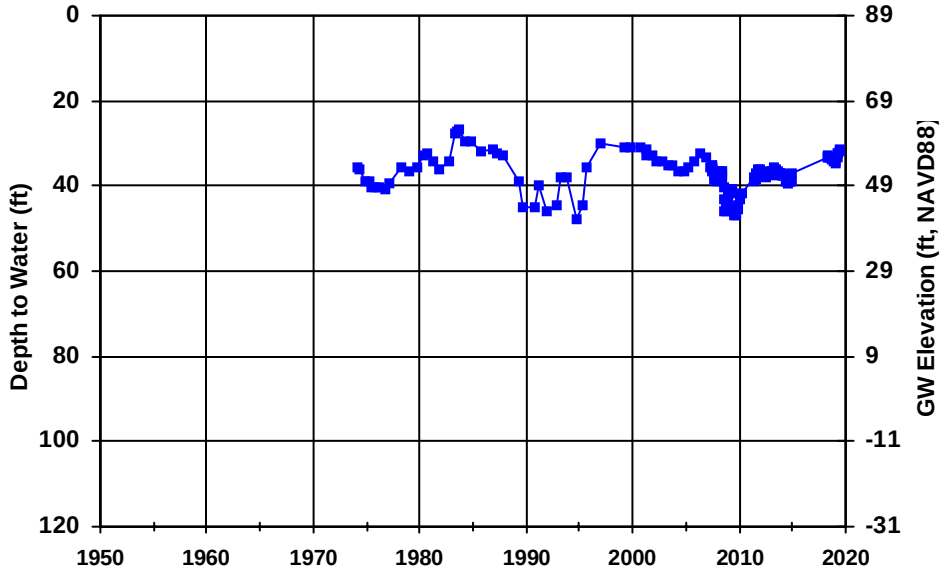
WellID: 9d Abreu
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



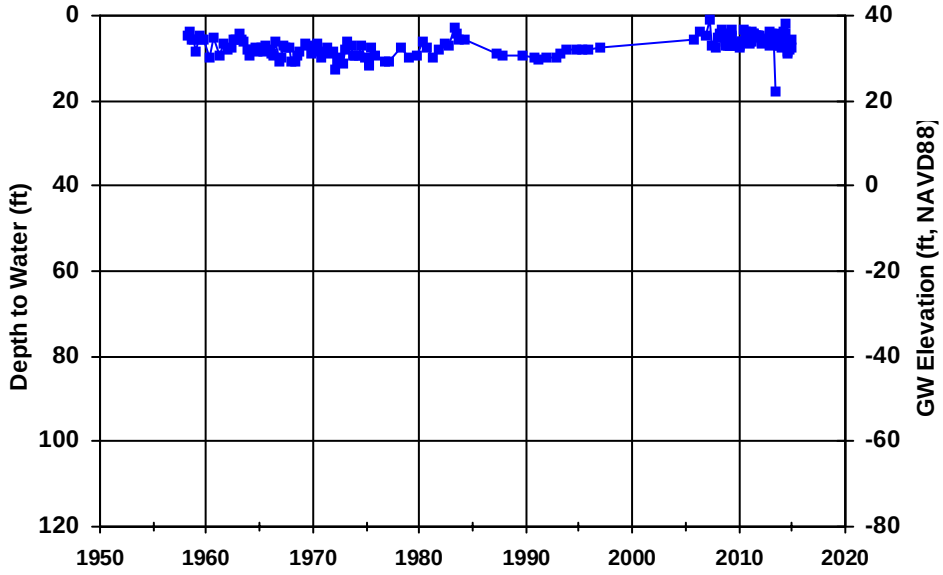
WellID: 9e Hagen
Zone: Unknown
Owner: BBID Perf Int (ft): N/A Well Depth (ft): N/A



WellID: Anderson (4.66)
Zone: Unknown
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): N/A

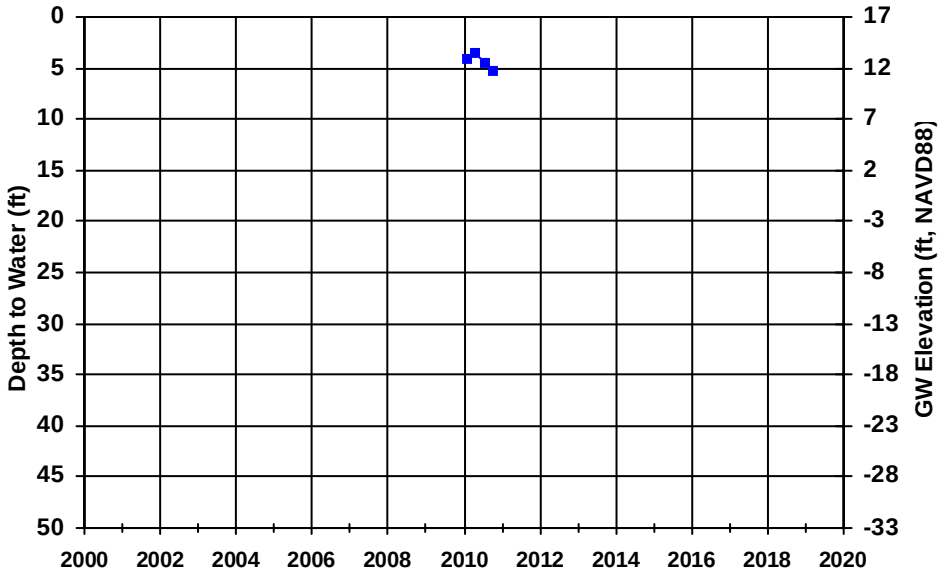


WellID: Well #2 (5-30)
Zone: Unknown
Owner: ECCID Perf Int (ft): N/A Well Depth (ft): N/A

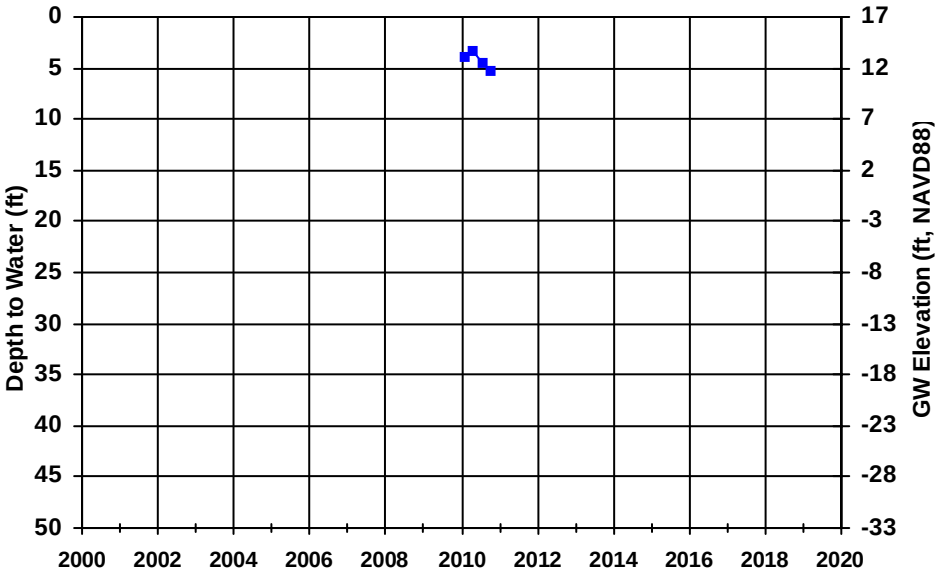


Manual Water Level Measurement Transducer Water Level Measurement

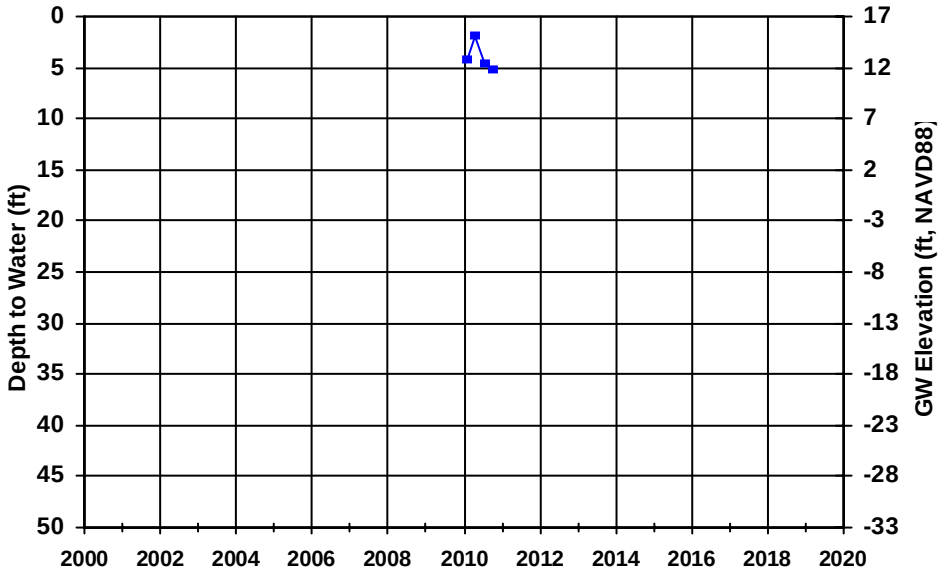
WellID: SL0601327206-EW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



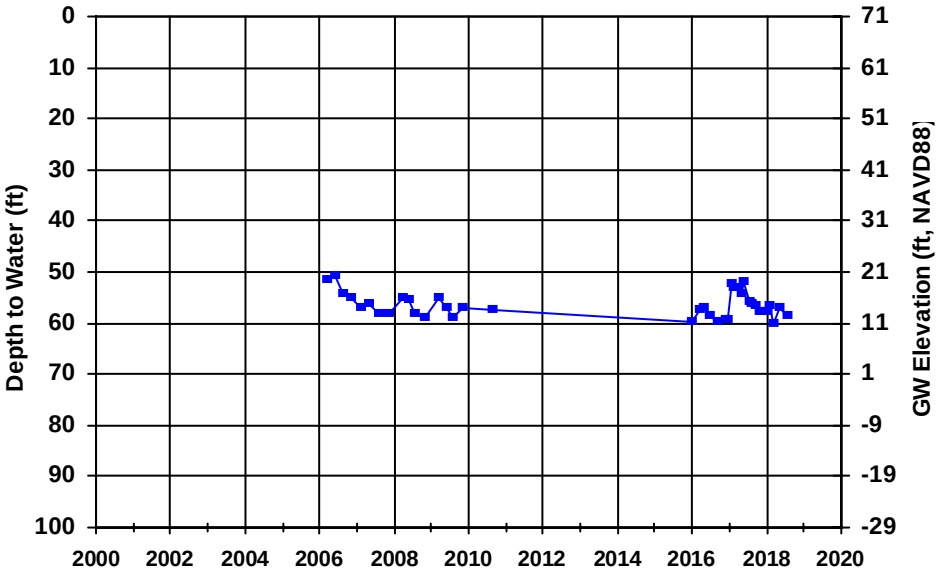
WellID: SL0601327206-MW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601327206-MW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

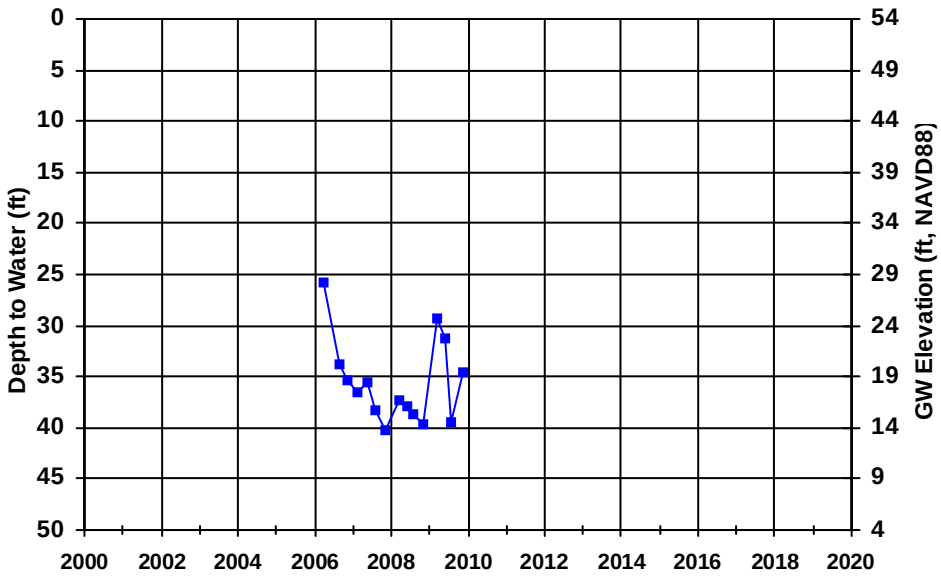


WellID: SL0601346154-94MW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

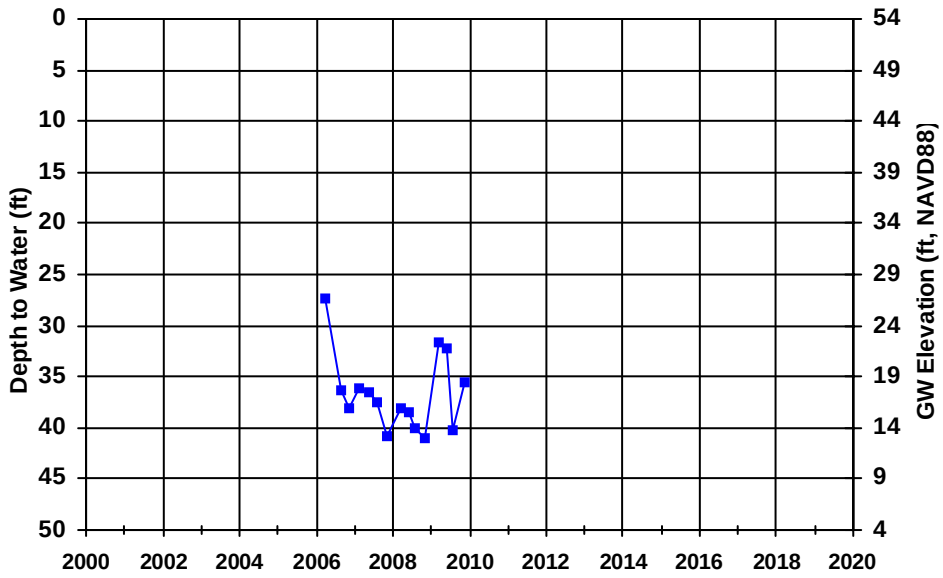


{R_WLhyd88}

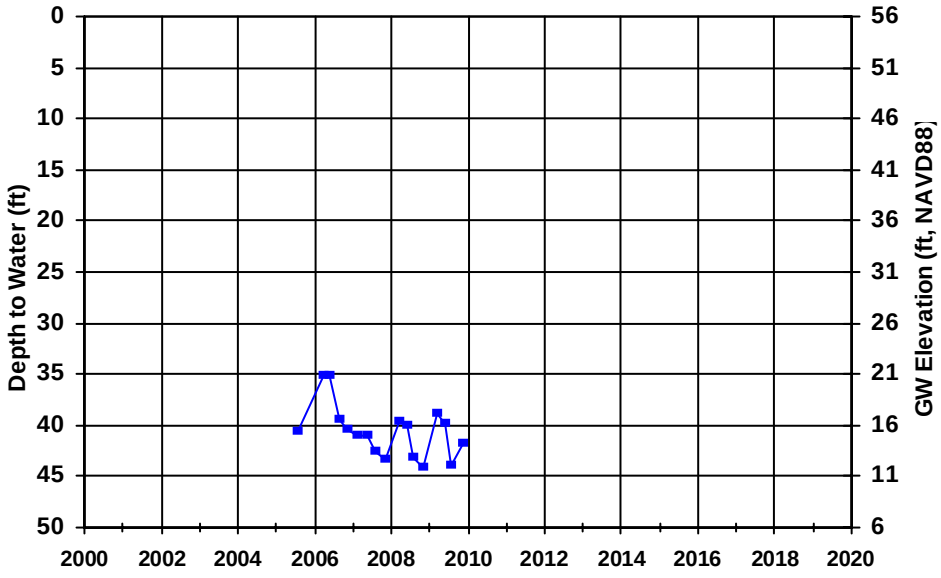
WellID: SL0601346154-94MW-12
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



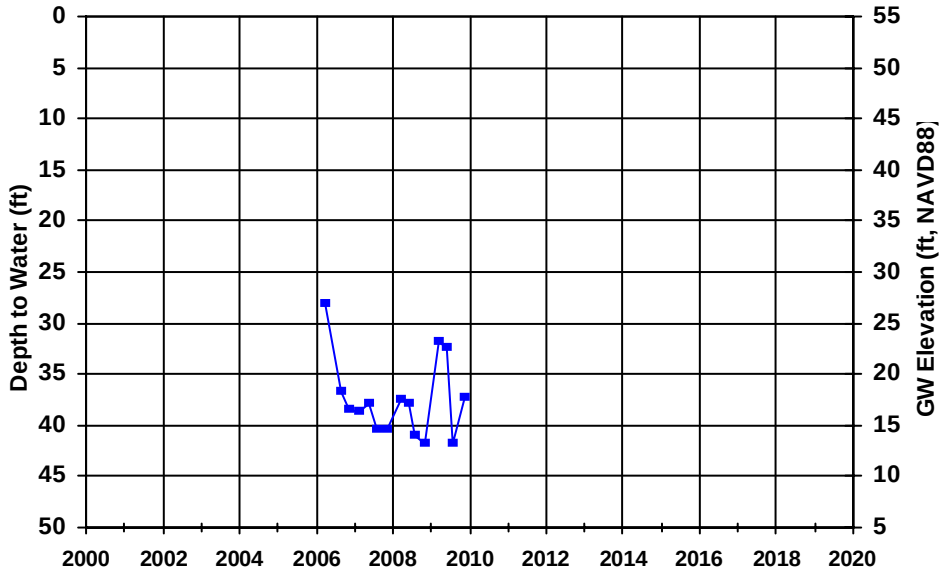
WellID: SL0601346154-94MW-14
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601346154-94MW-18
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

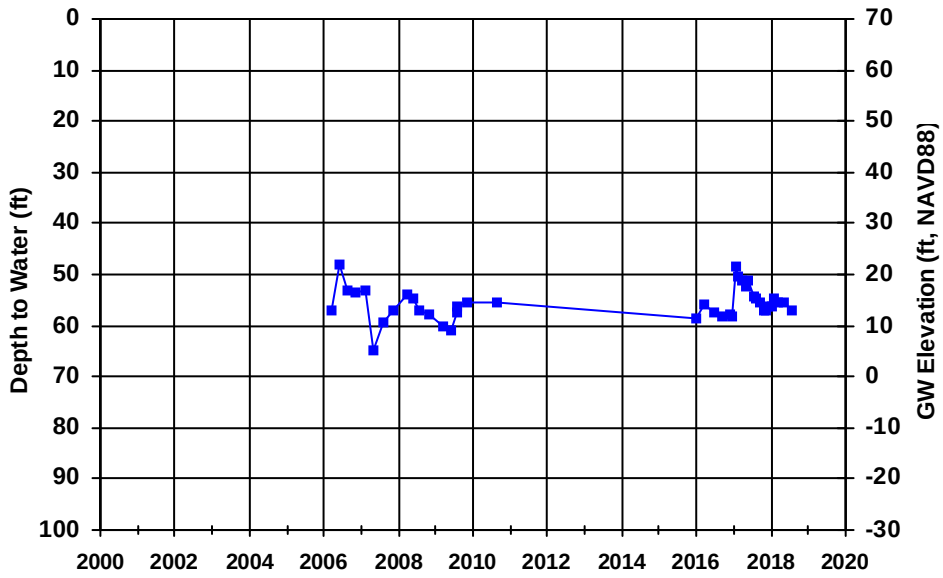


WellID: SL0601346154-94MW-19
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

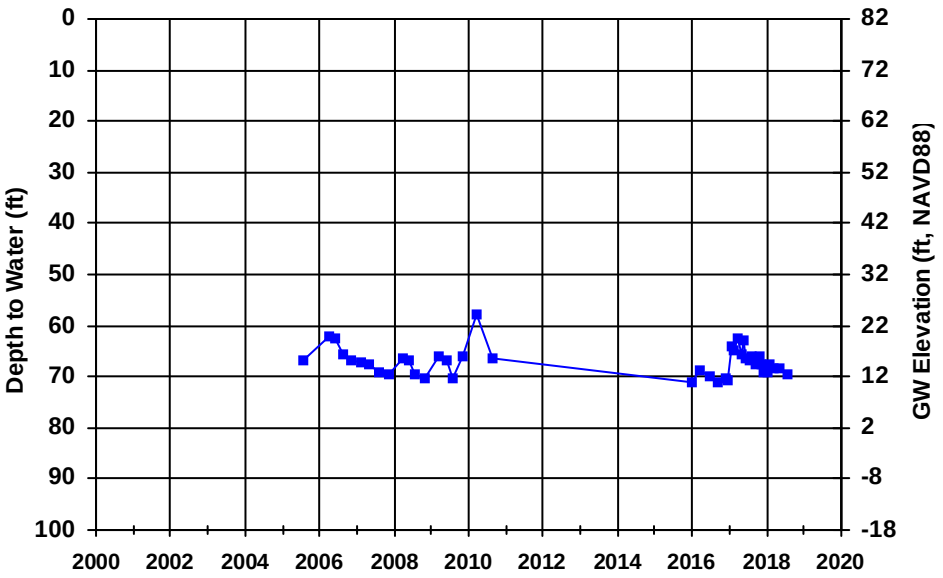


{R_WLhyd88}

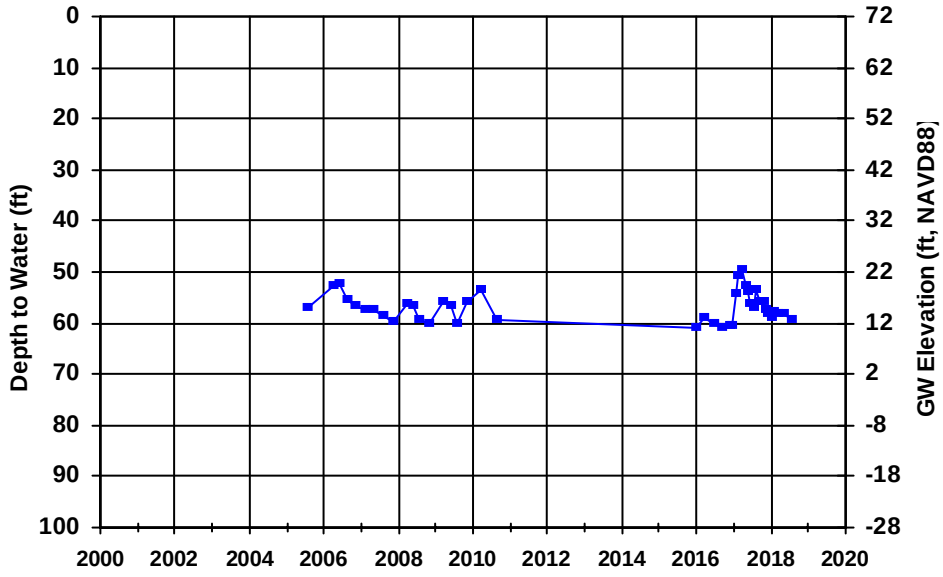
WellID: SL0601346154-94MW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



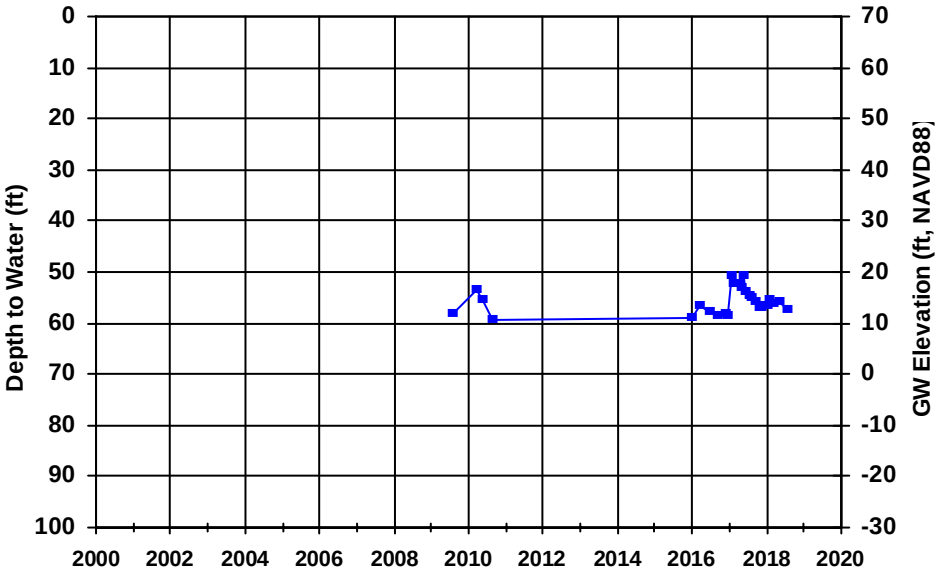
WellID: SL0601346154-94MW-22
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601346154-94MW-23
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

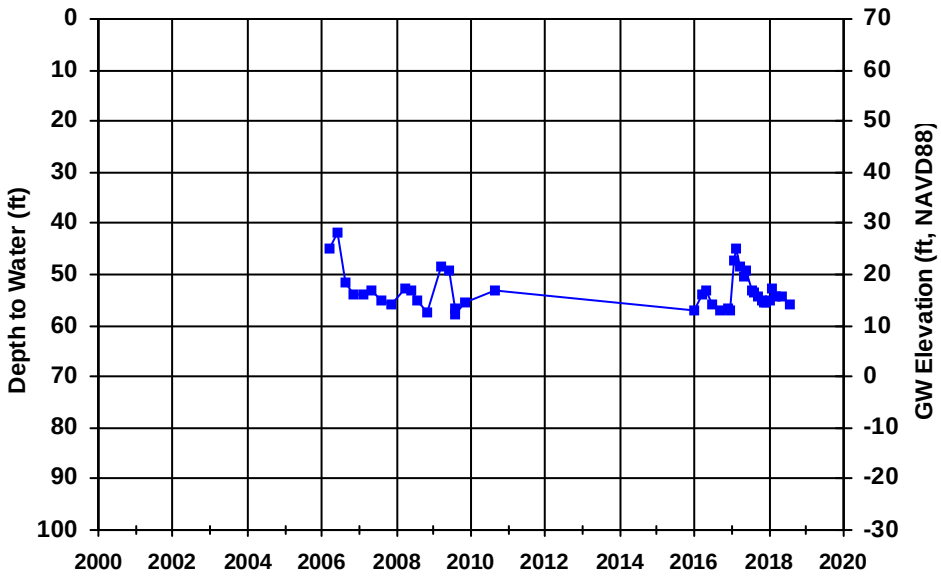


WellID: SL0601346154-94MW-25
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

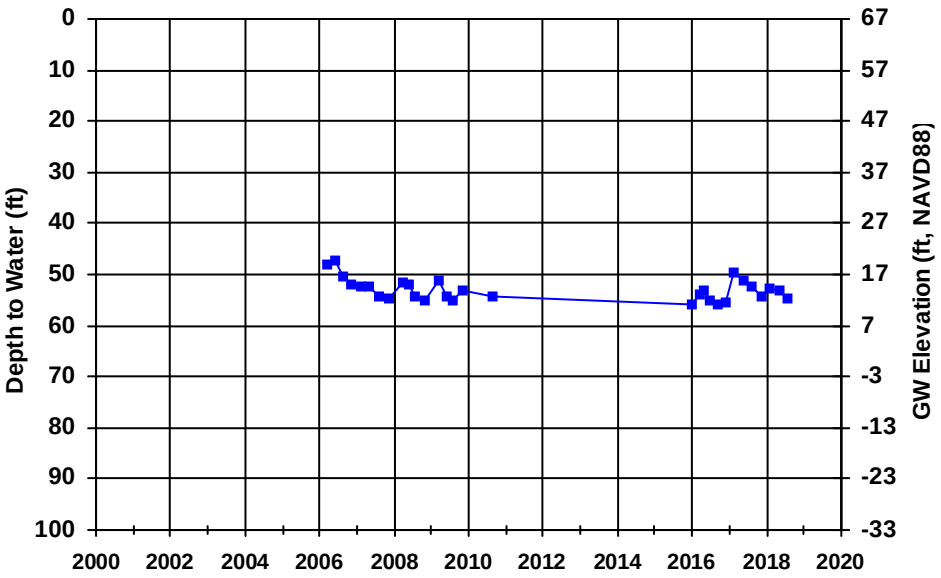


{R_WLhyd88}

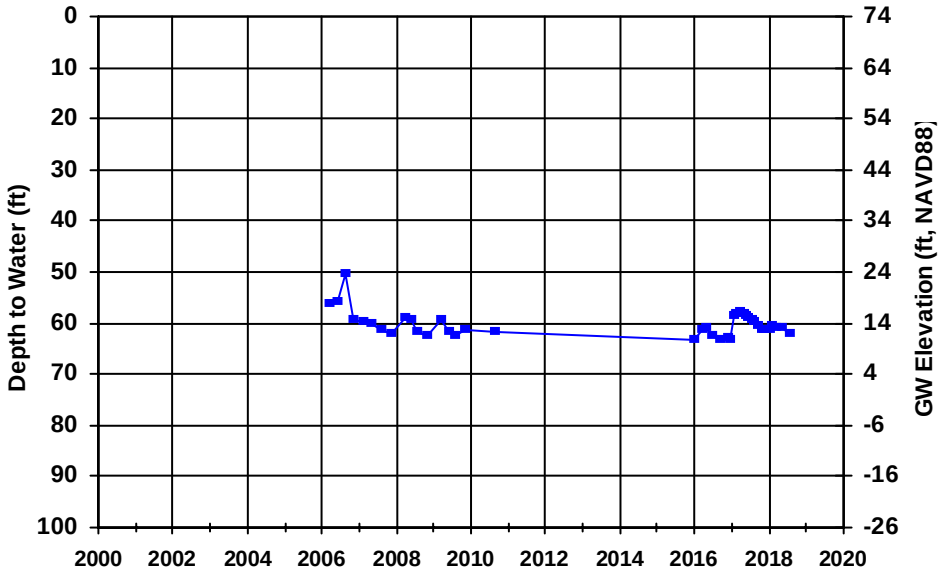
WellID: SL0601346154-94MW-3
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



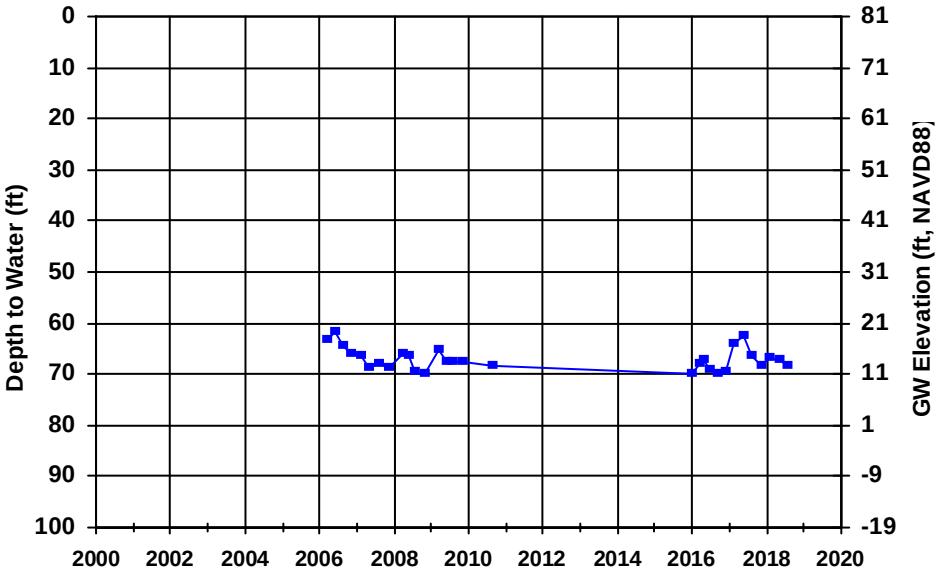
WellID: SL0601346154-94MW-4
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601346154-94MW-5
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

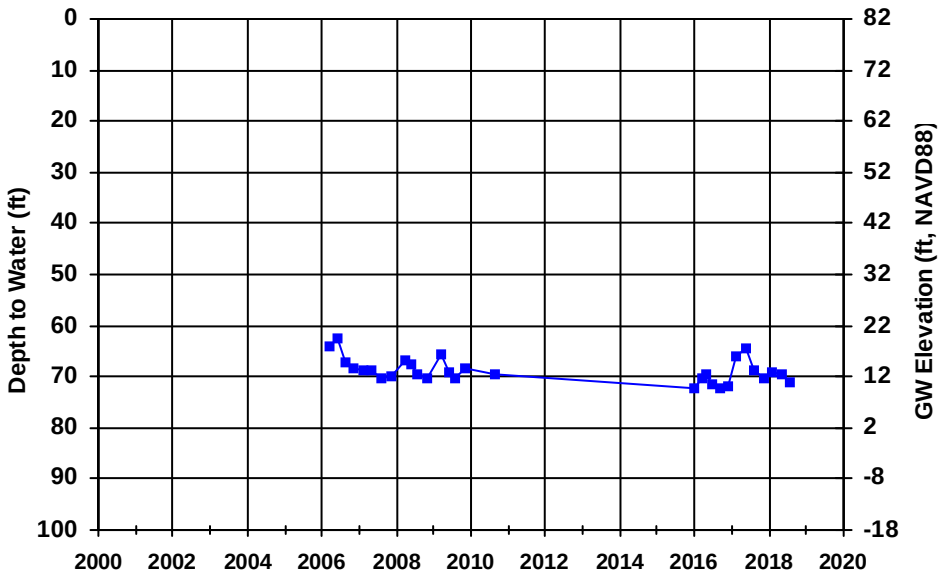


WellID: SL0601346154-94MW-6
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

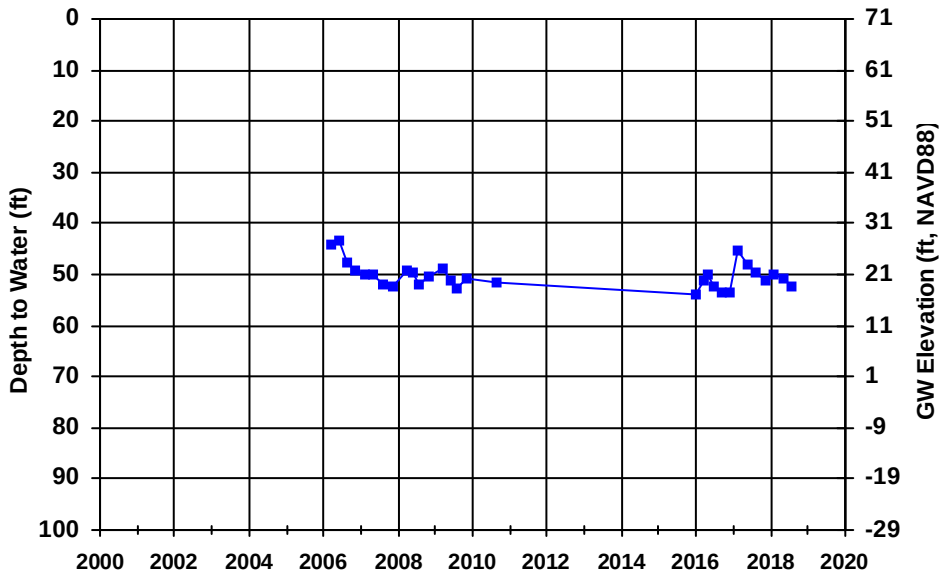


{R_WLhyd88}

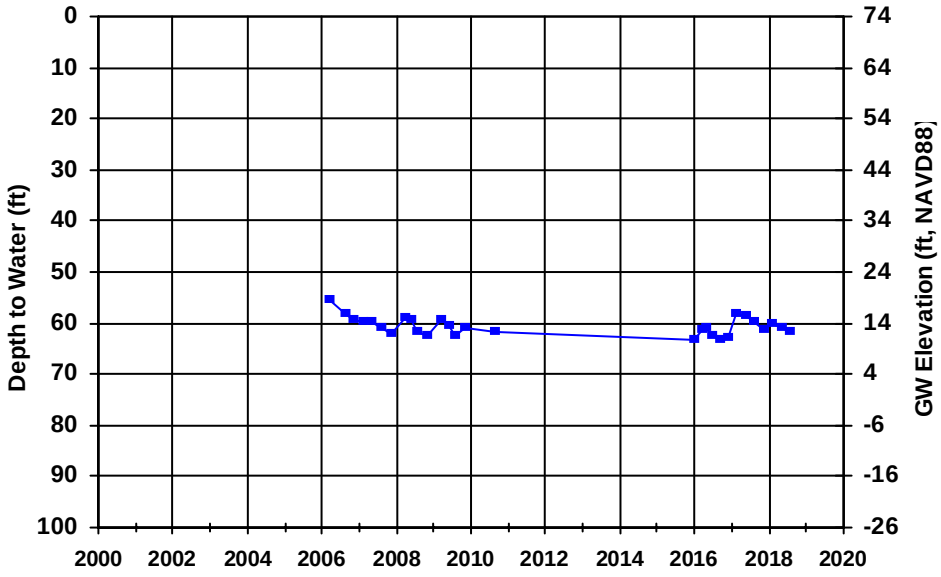
WellID: SL0601346154-94MW-7
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



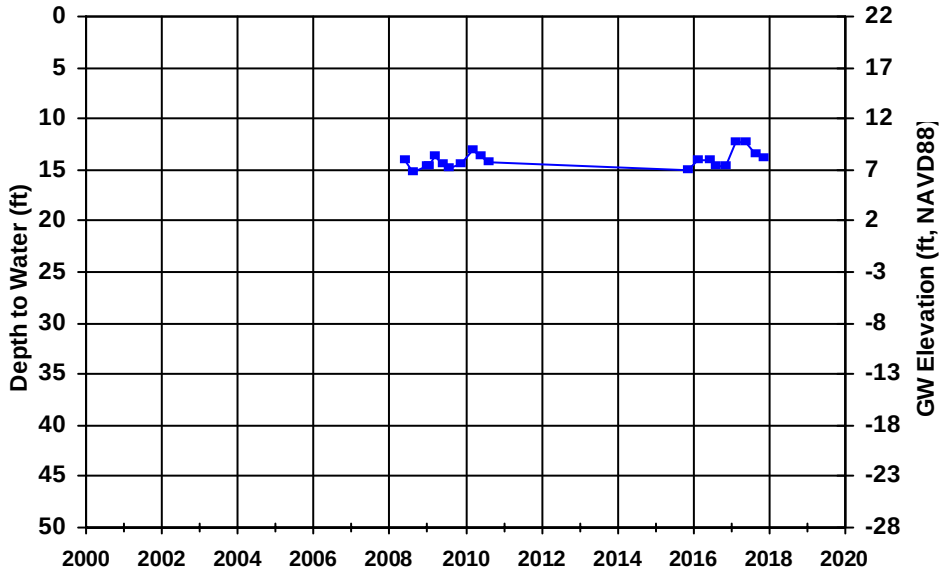
WellID: SL0601346154-94MW-8
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601346154-94MW-9
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

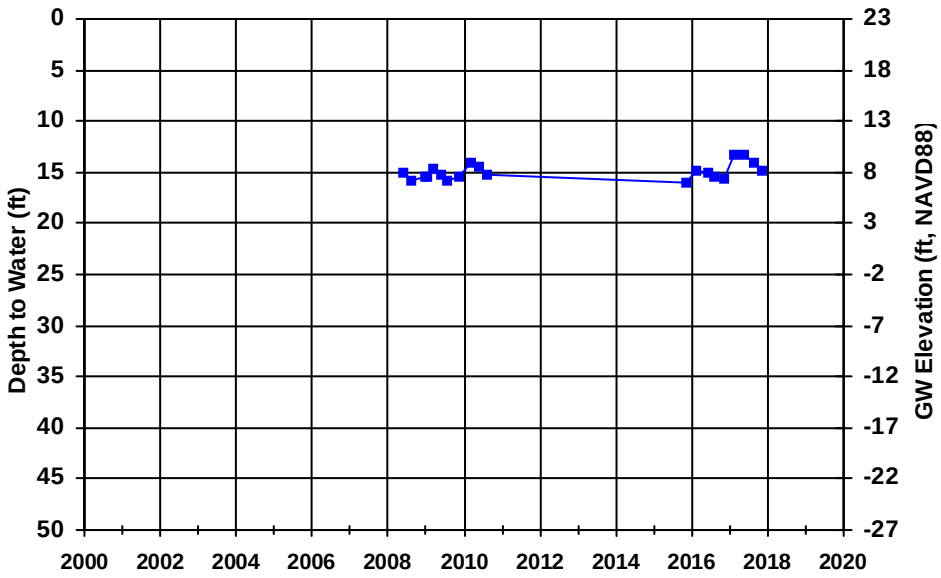


WellID: SL0601394831-MW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

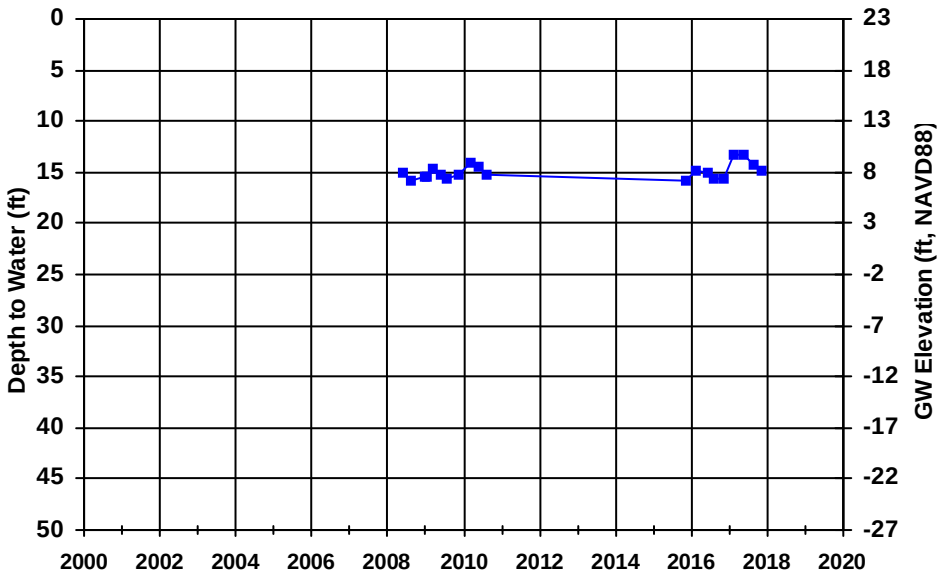


{R_WLhyd88}

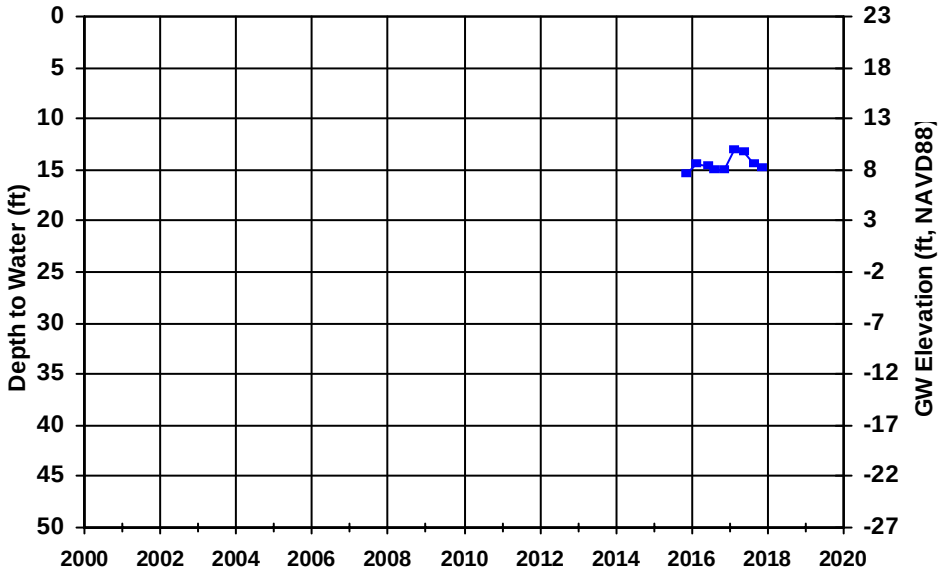
WellID: SL0601394831-MW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



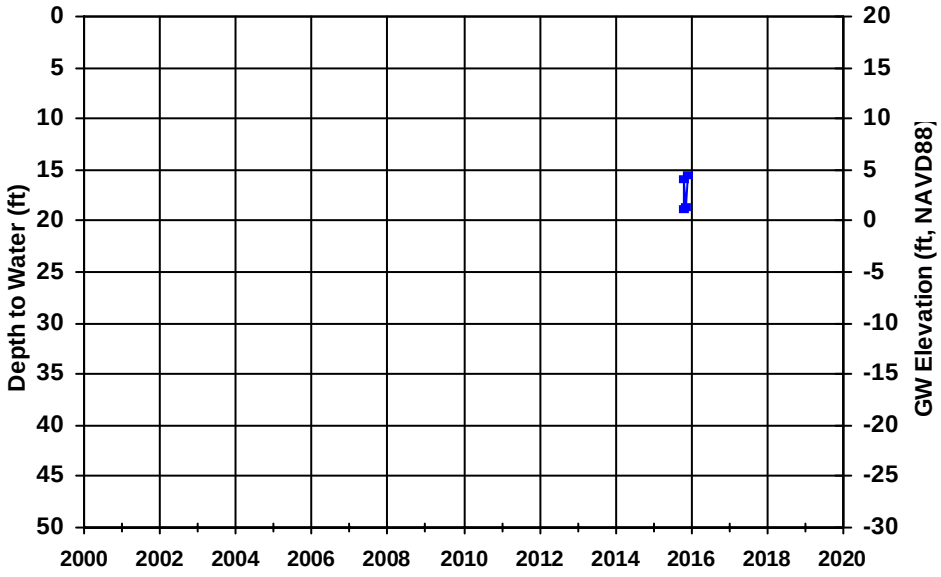
WellID: SL0601394831-MW-3
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL0601394831-MW-4
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

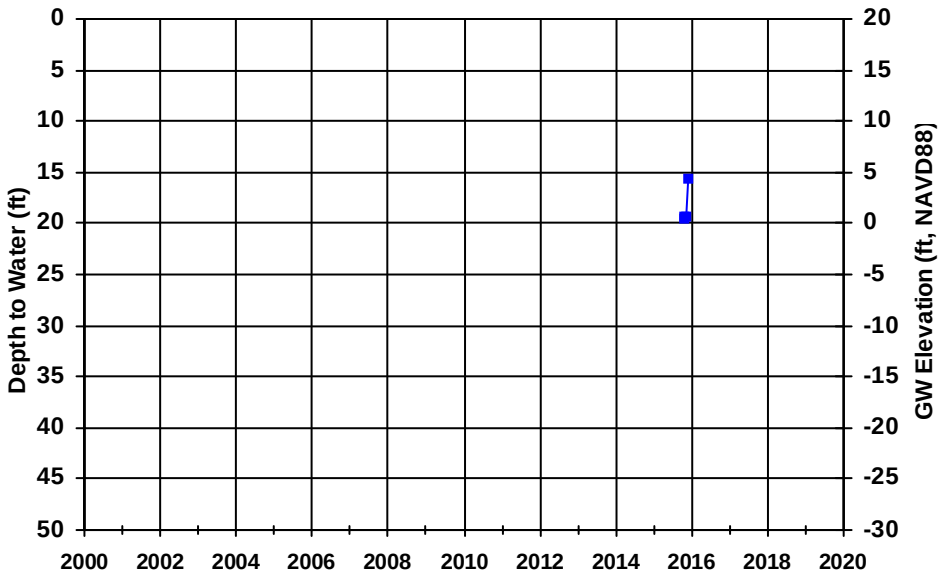


WellID: SL186102968-7EW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

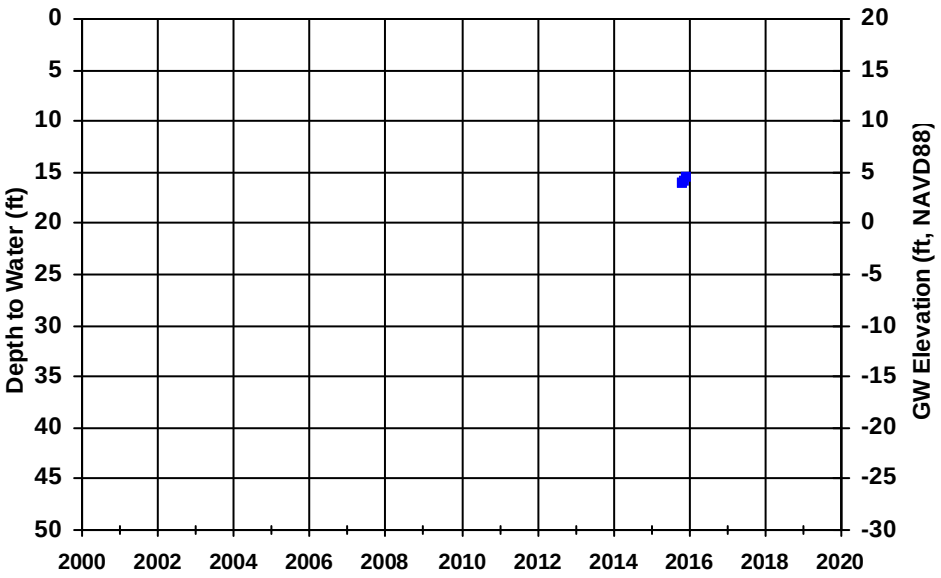


{R_WLhyd88}

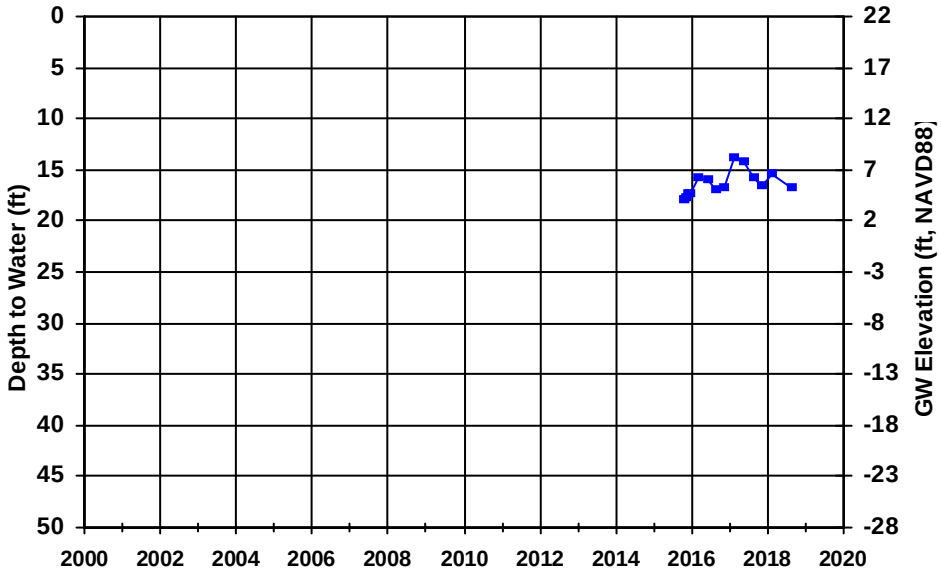
WellID: SL186102968-7EW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



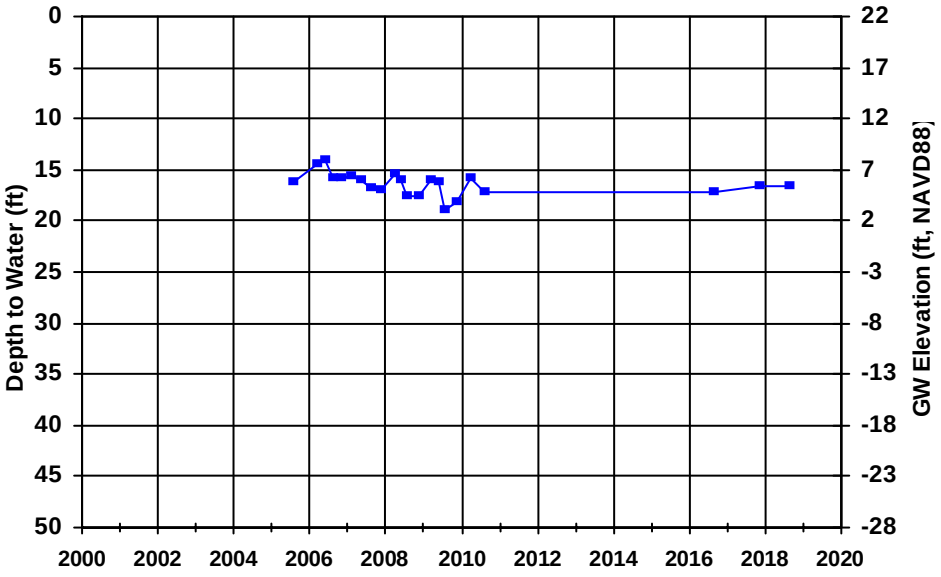
WellID: SL186102968-7EW-4
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL186102968-7EW-6
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

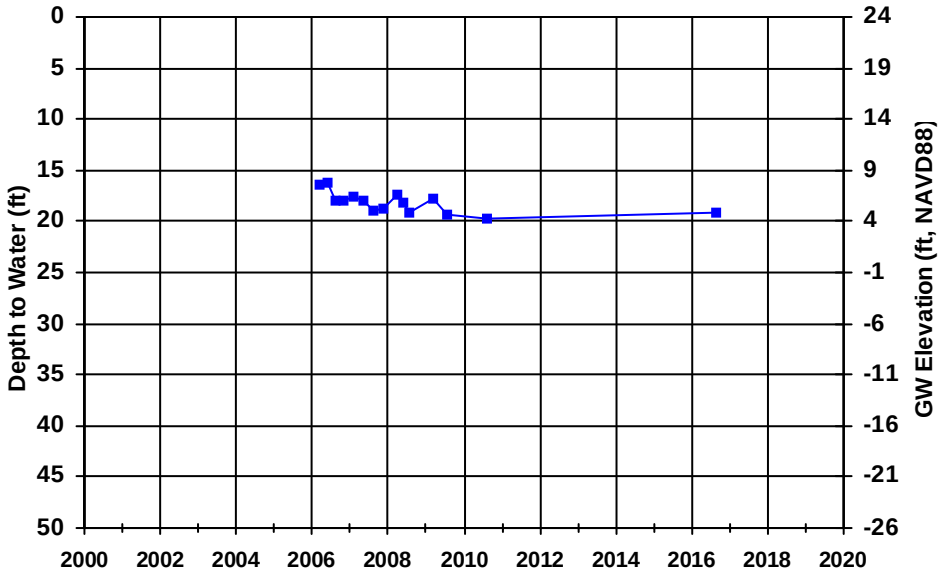


WellID: SL186102968-7MW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

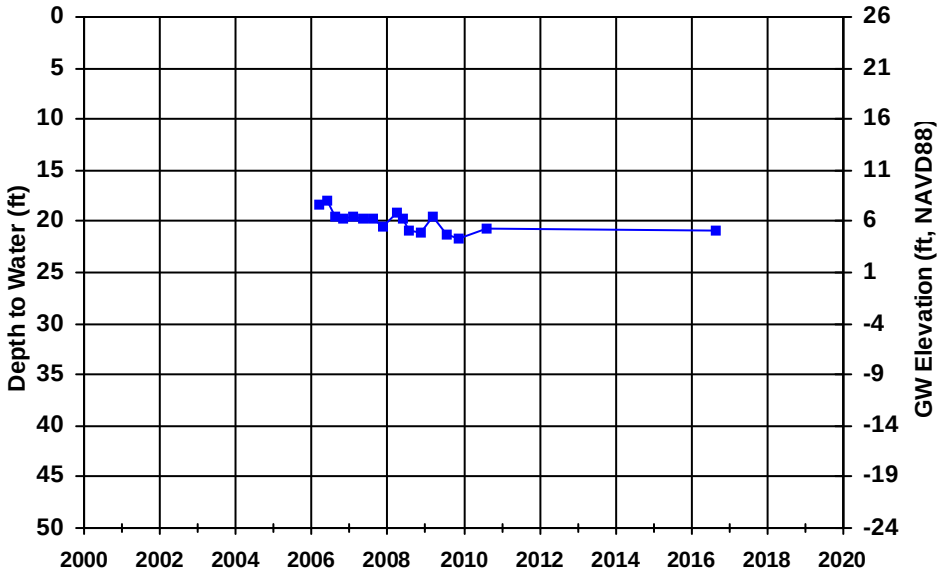


{R_WLhyd88}

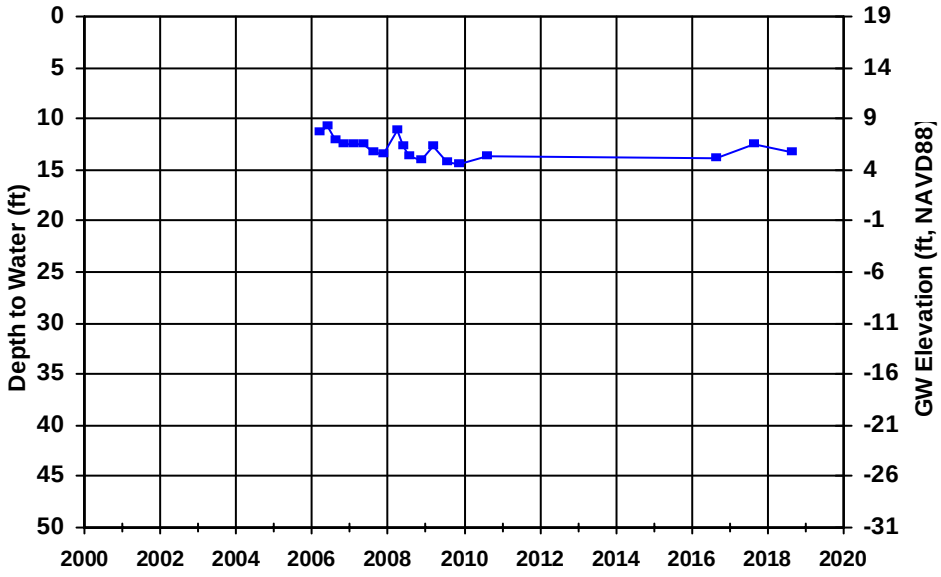
WellID: SL186102968-7MW-10
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



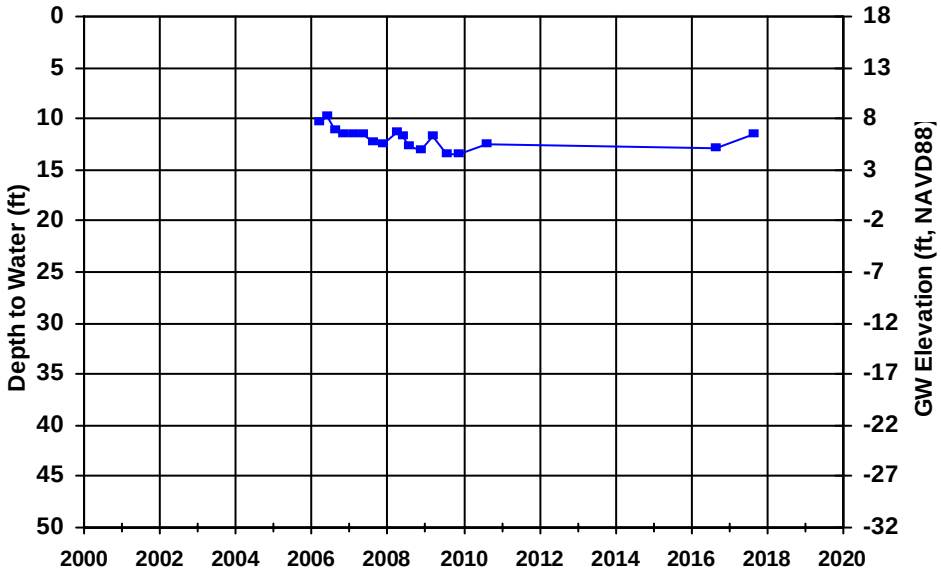
WellID: SL186102968-7MW-11
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL186102968-7MW-12
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

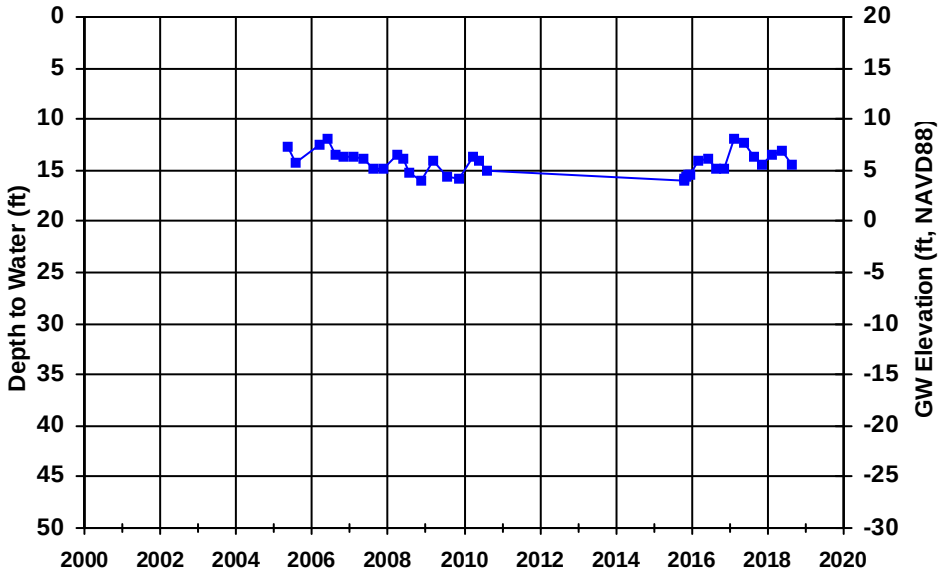


WellID: SL186102968-7MW-13
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

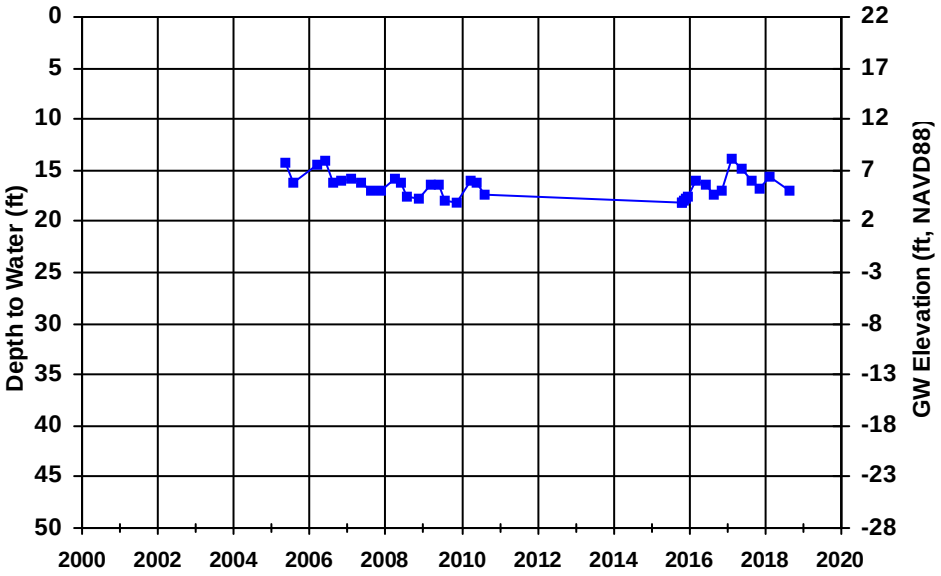


{R_WLhyd88}

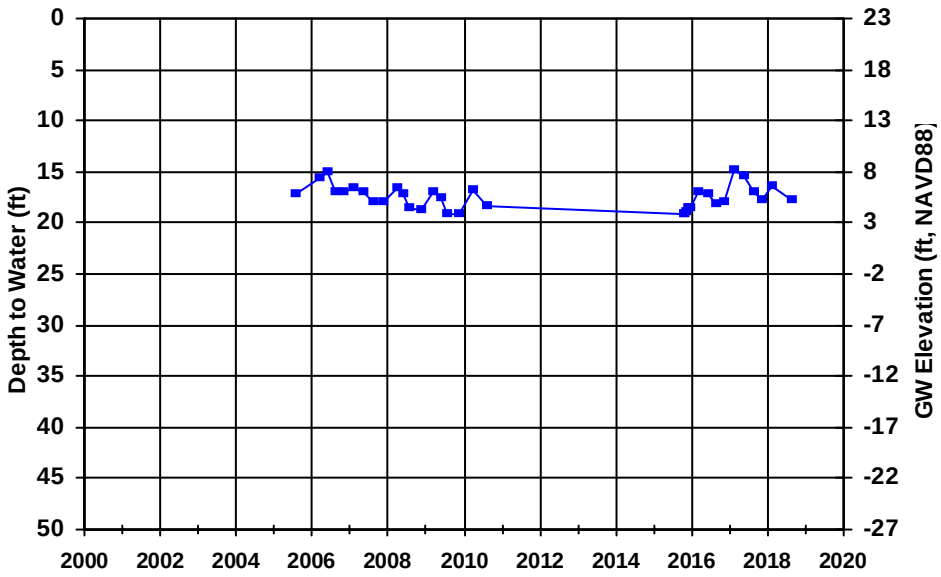
WellID: SL186102968-7MW-14
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



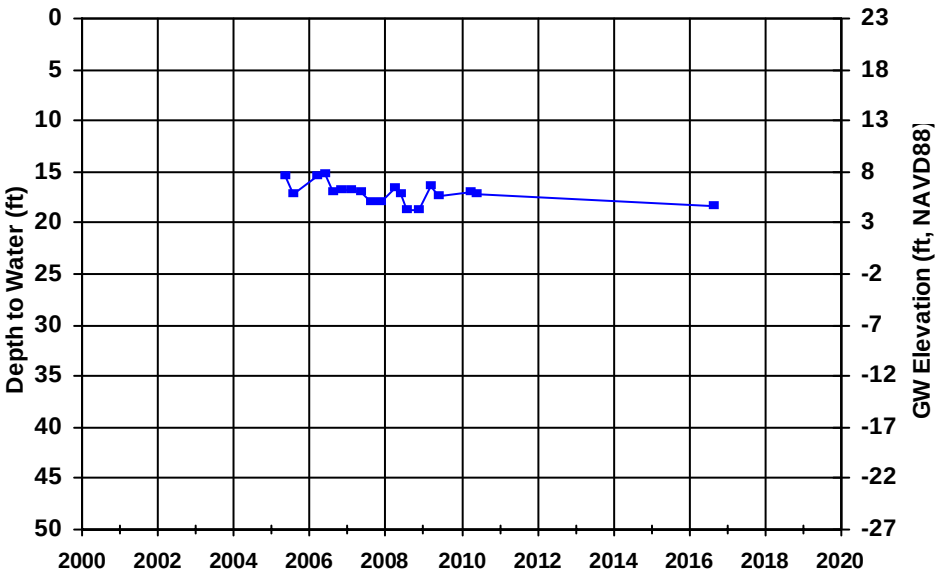
WellID: SL186102968-7MW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL186102968-7MW-3
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

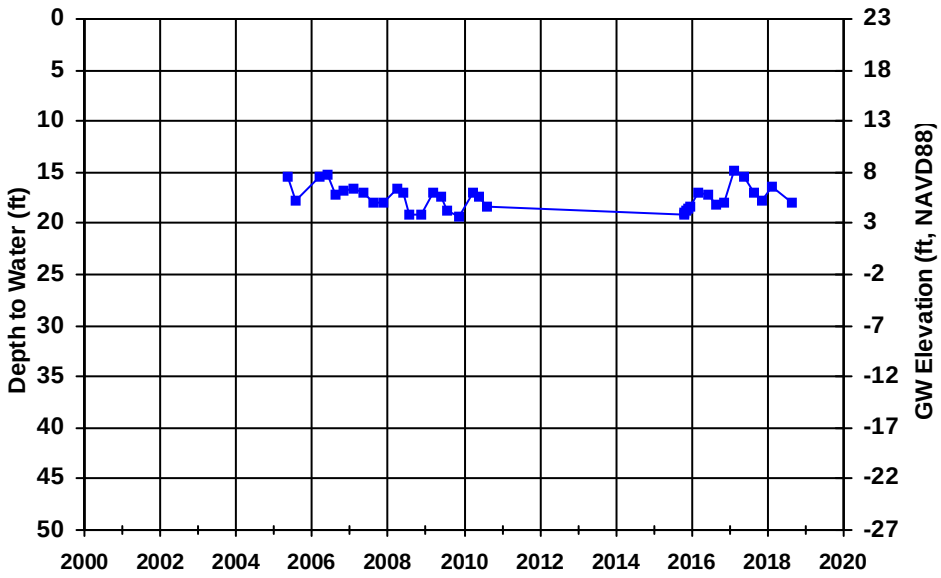


WellID: SL186102968-7MW-4
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

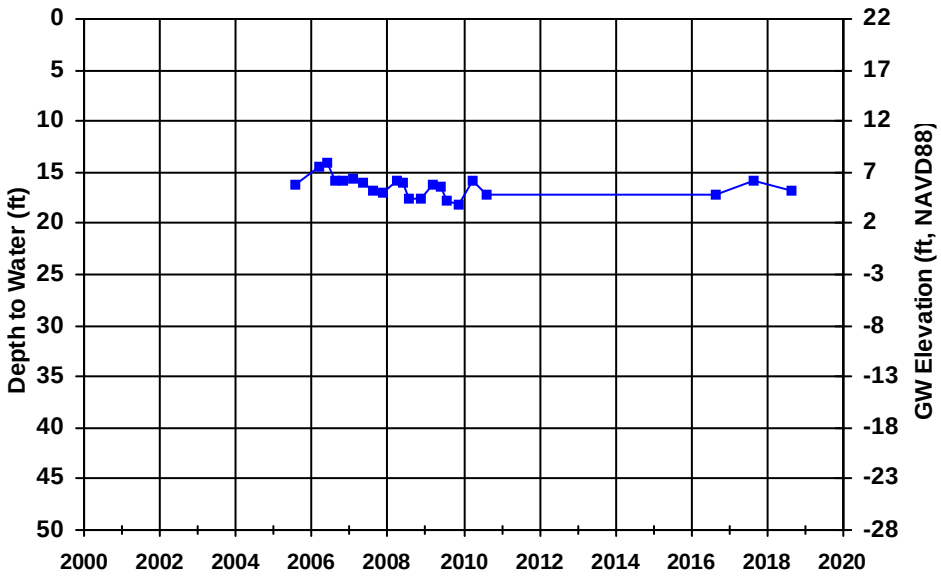


{R_WLhyd88}

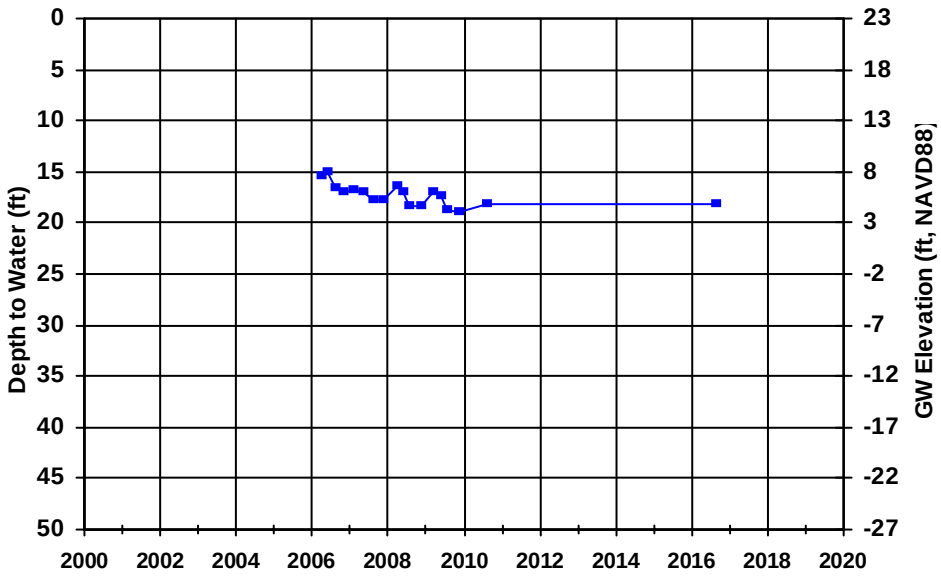
WellID: SL186102968-7MW-5
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



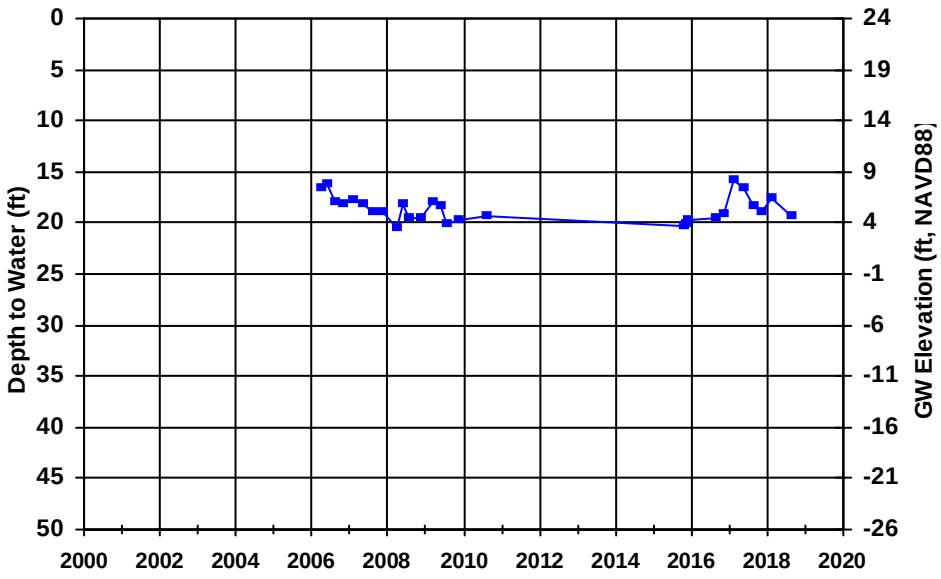
WellID: SL186102968-7MW-6
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL186102968-7MW-7
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

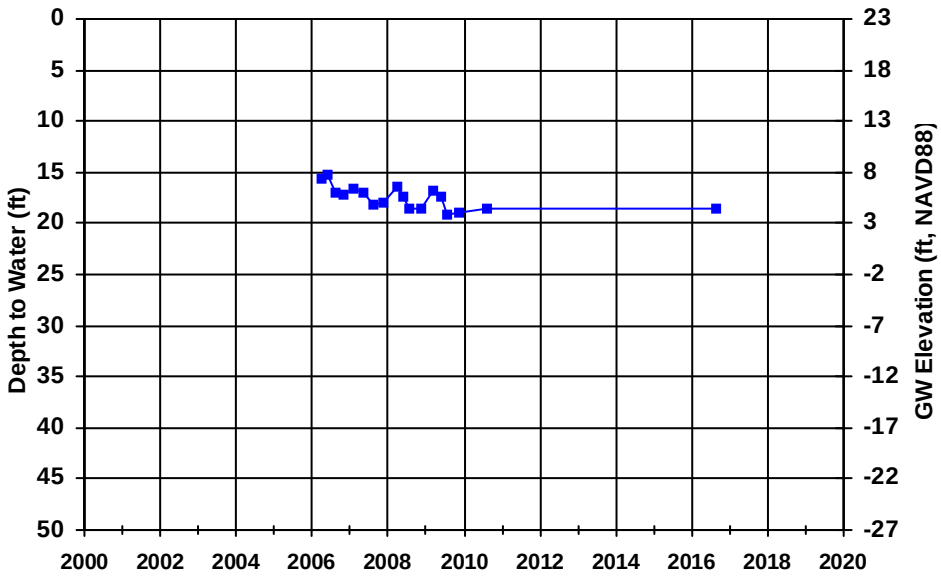


WellID: SL186102968-7MW-8
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

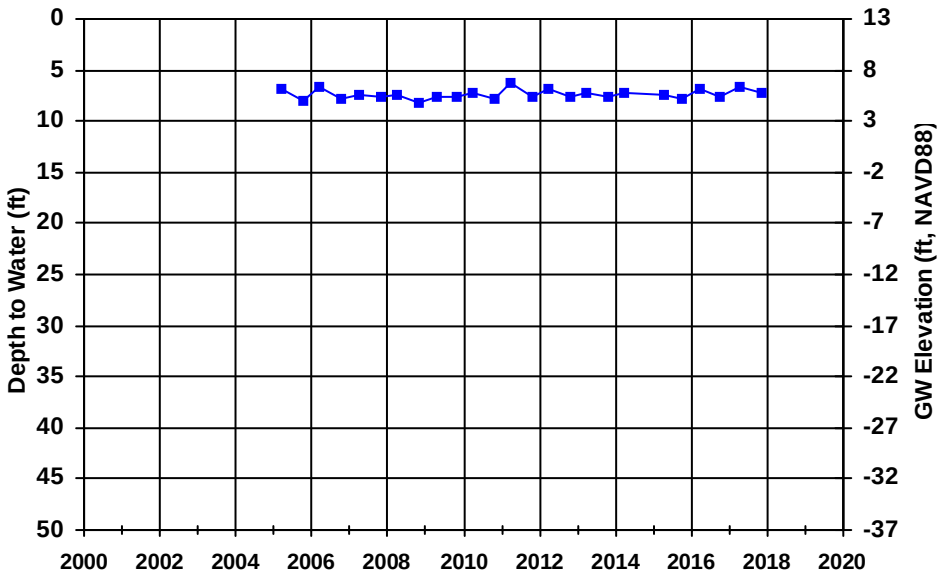


{R_WLhyd88}

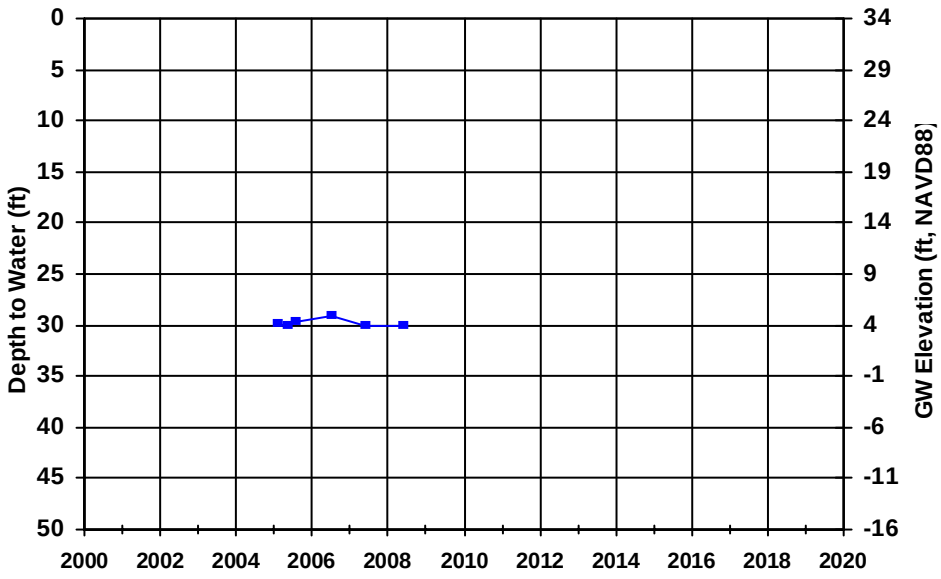
WellID: SL186102968-7MW-9
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



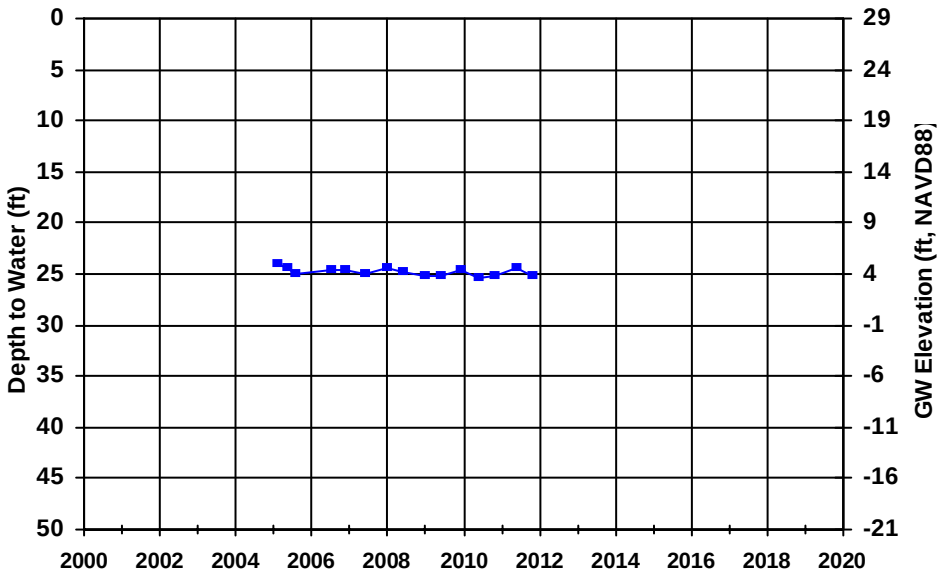
WellID: SL20210828-903B1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-01
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

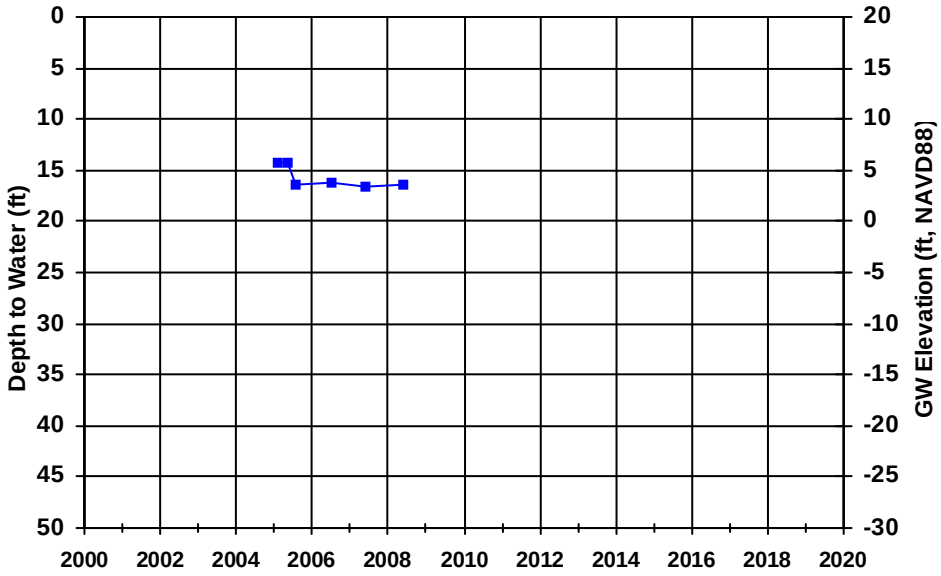


WellID: SL205032990-W-02
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

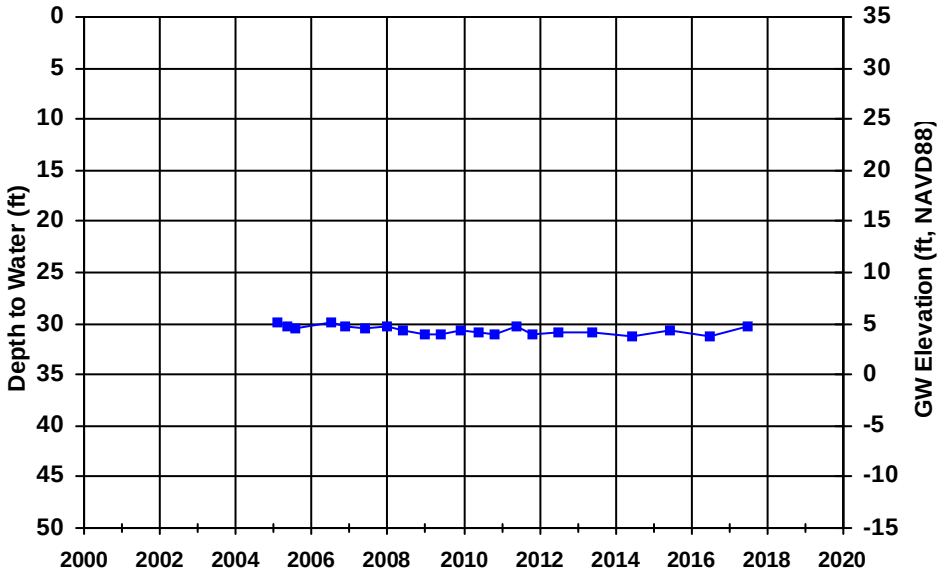


{R_WLhyd88}

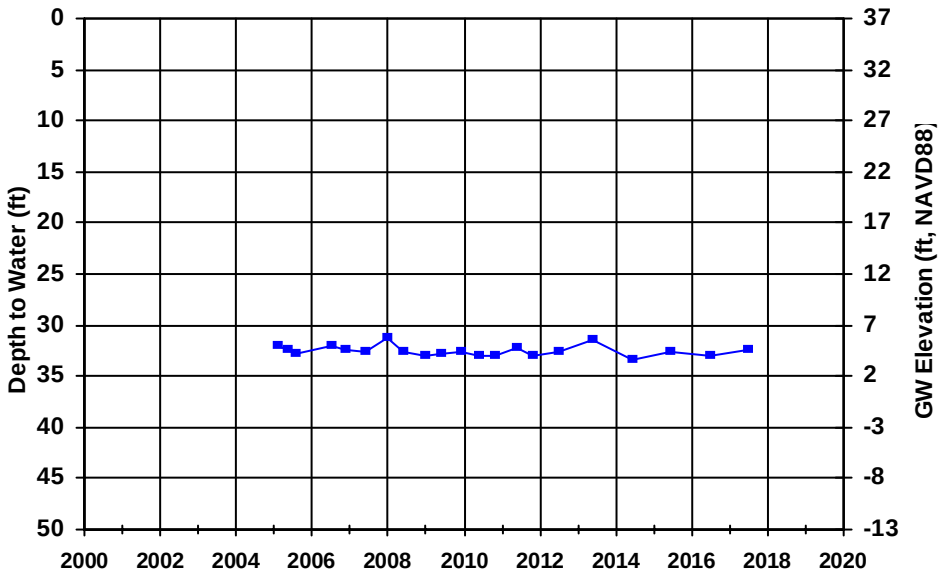
WellID: SL205032990-W-03
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



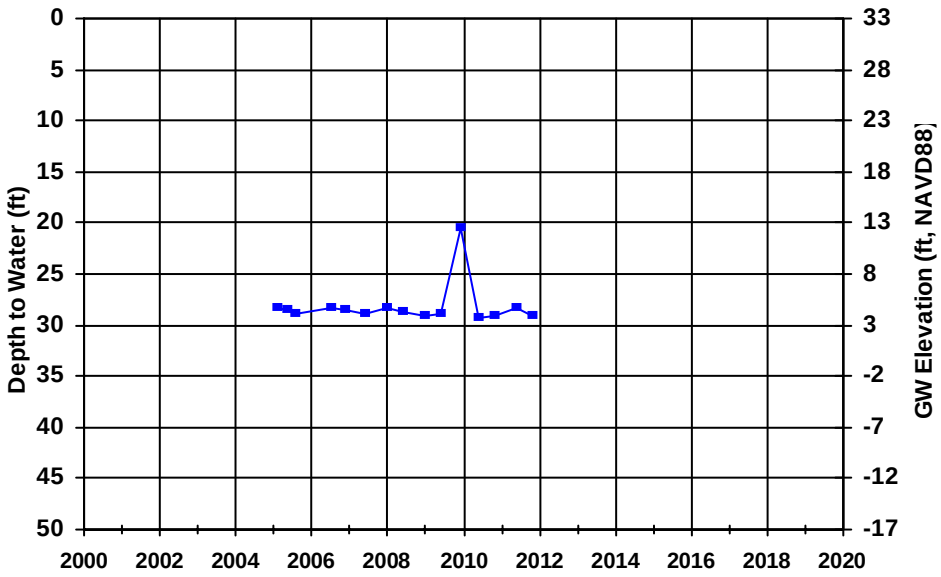
WellID: SL205032990-W-04
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-05
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

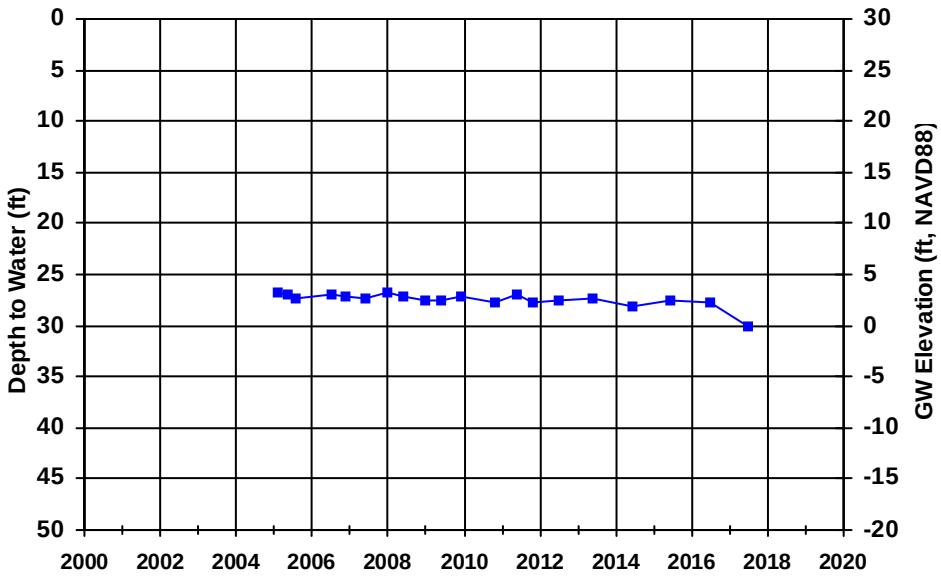


WellID: SL205032990-W-06
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

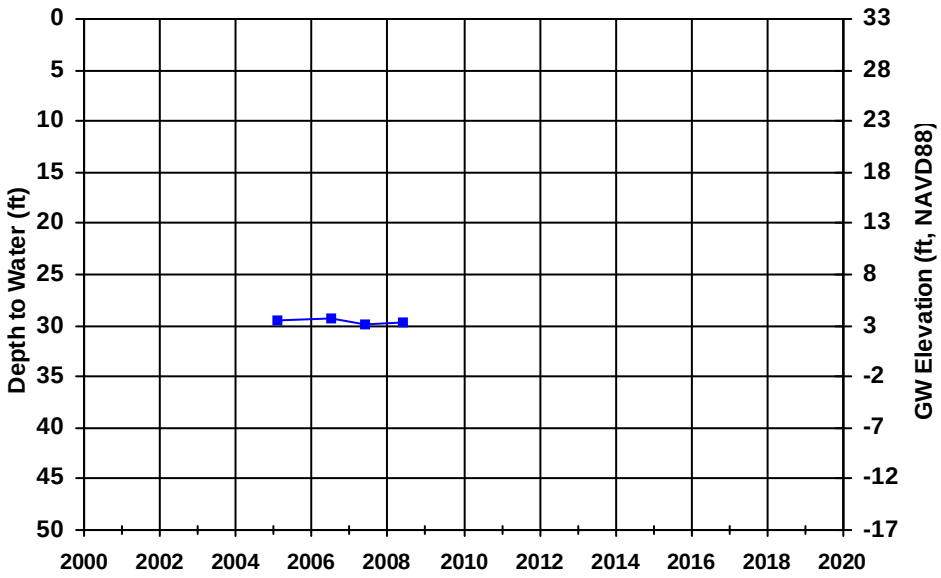


{R_WLhyd88}

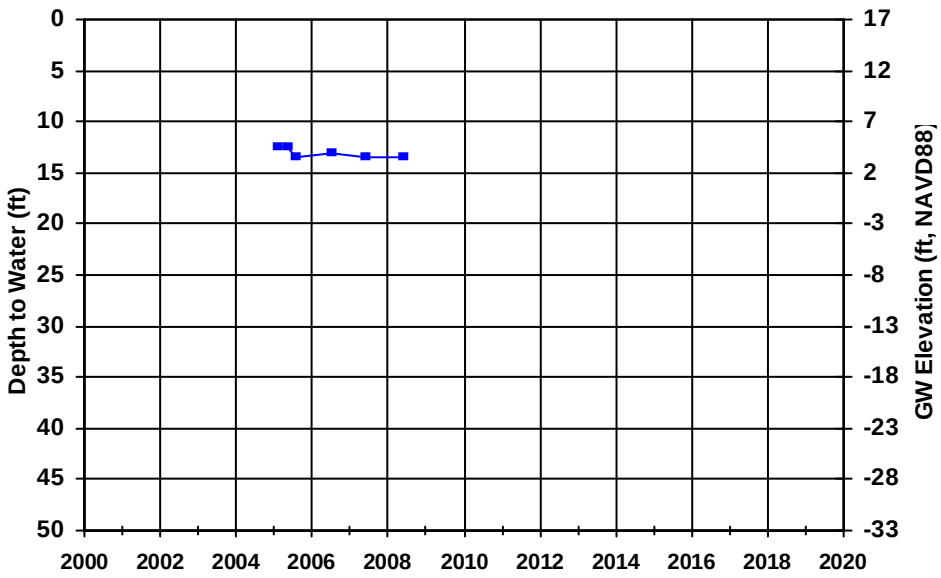
WellID: SL205032990-W-07
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



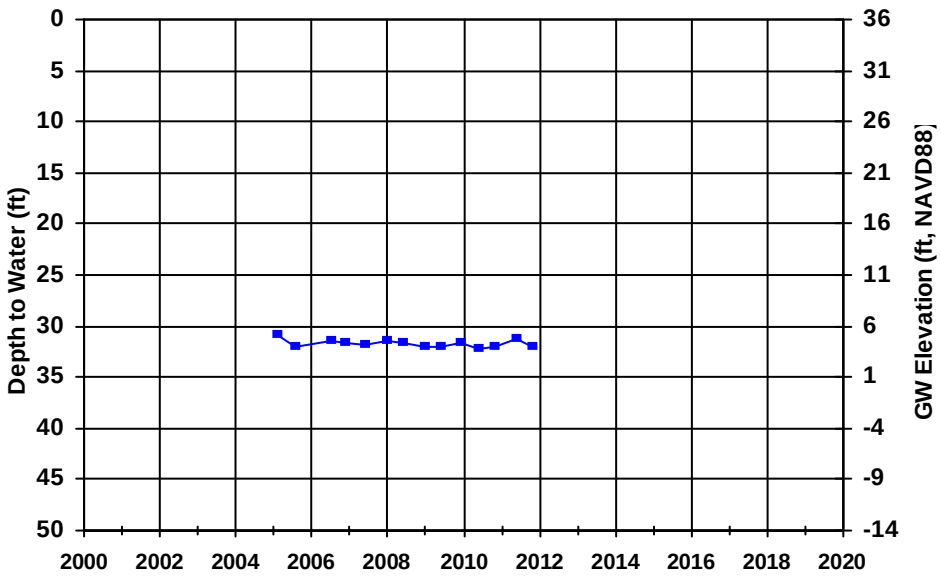
WellID: SL205032990-W-08
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-09
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

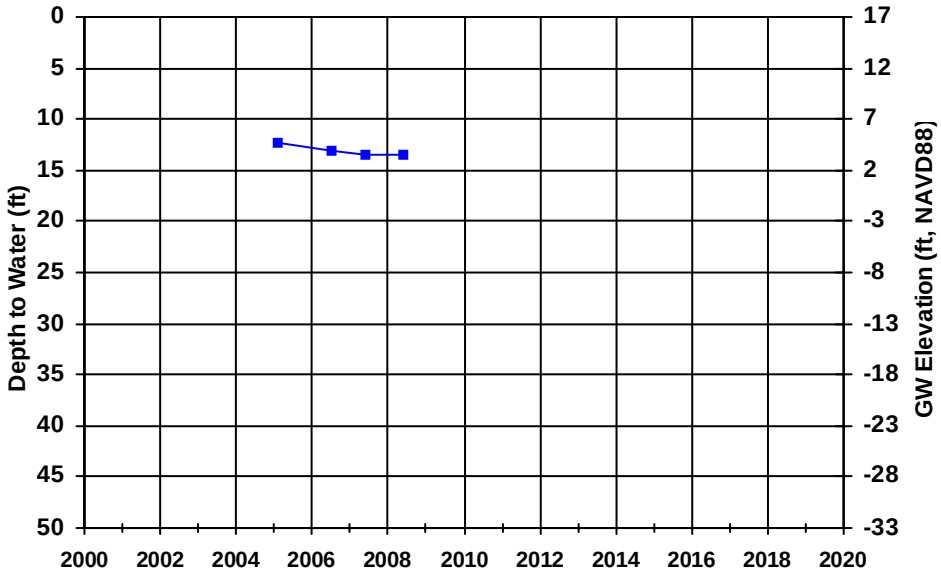


WellID: SL205032990-W-10
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

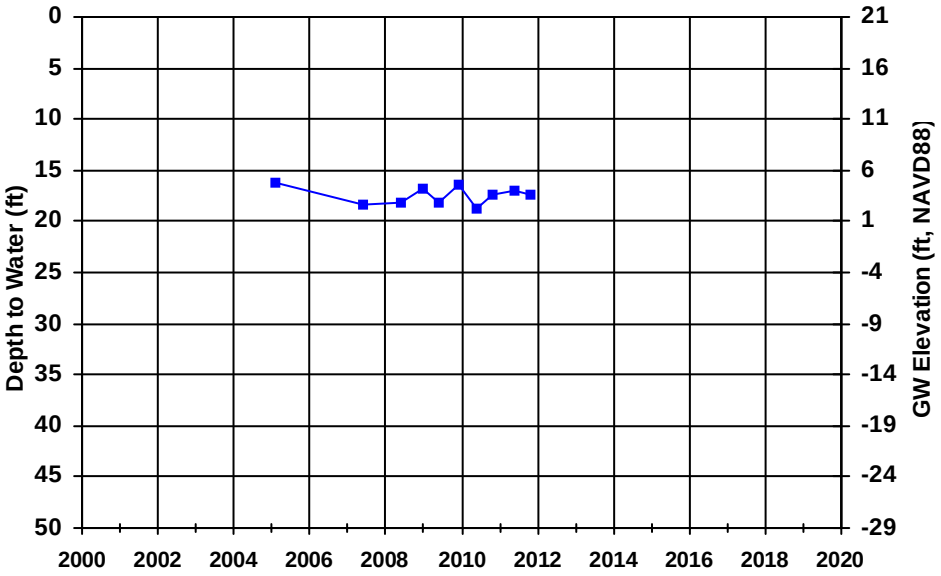


{R_WLhyd88}

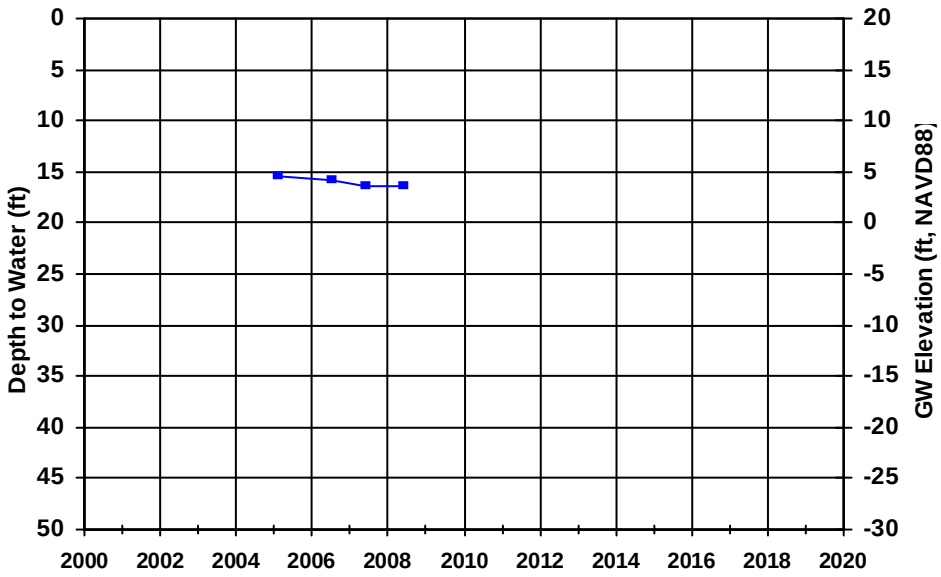
WellID: SL205032990-W-11
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



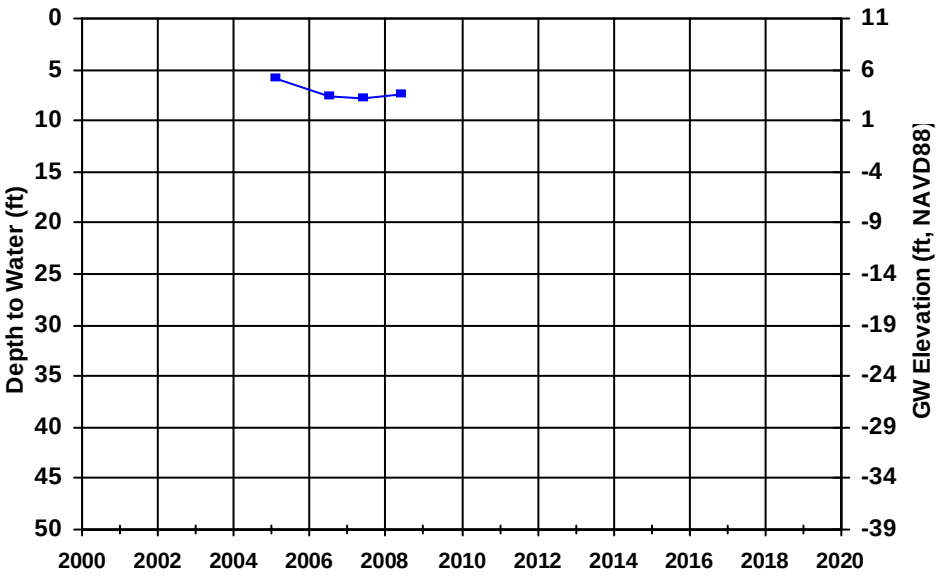
WellID: SL205032990-W-12
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-13
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

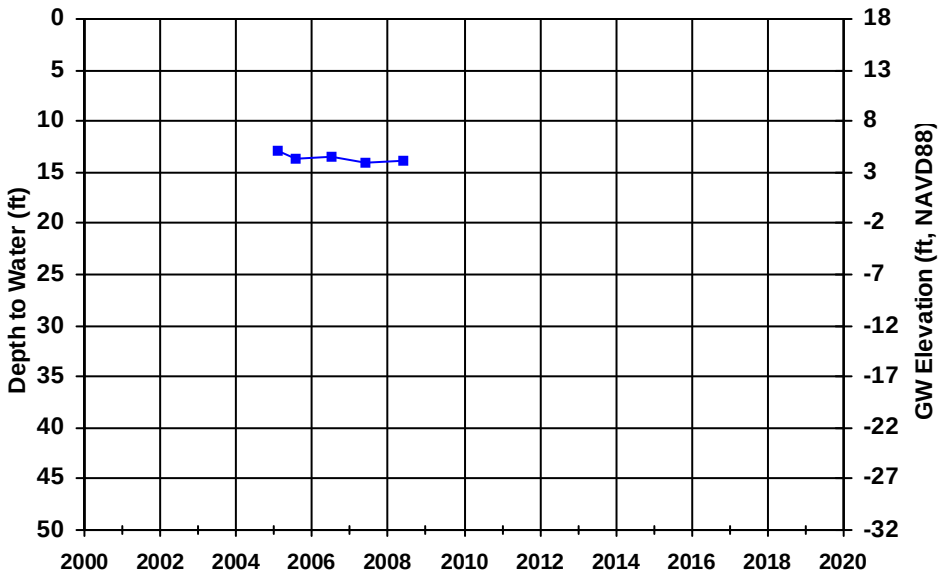


WellID: SL205032990-W-14
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

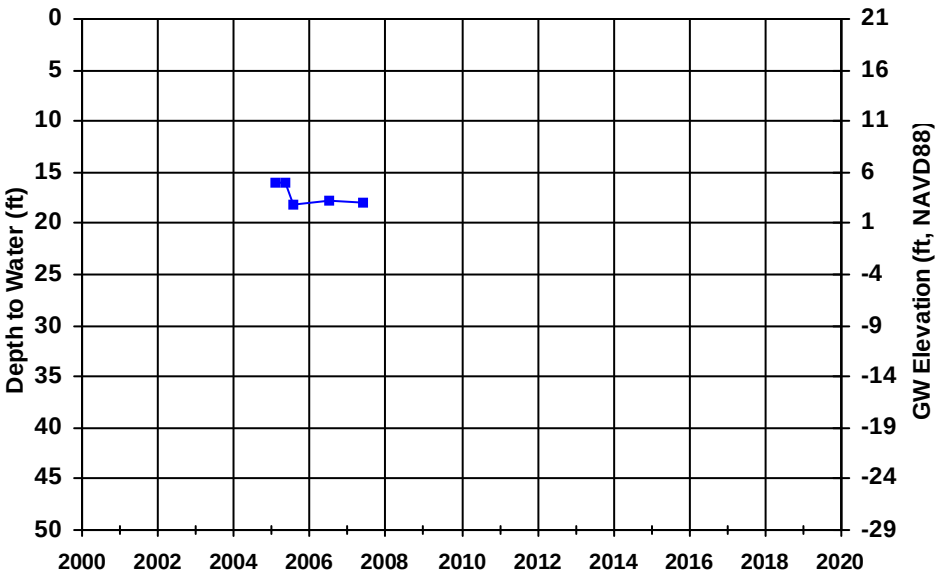


{R_WLhyd88}

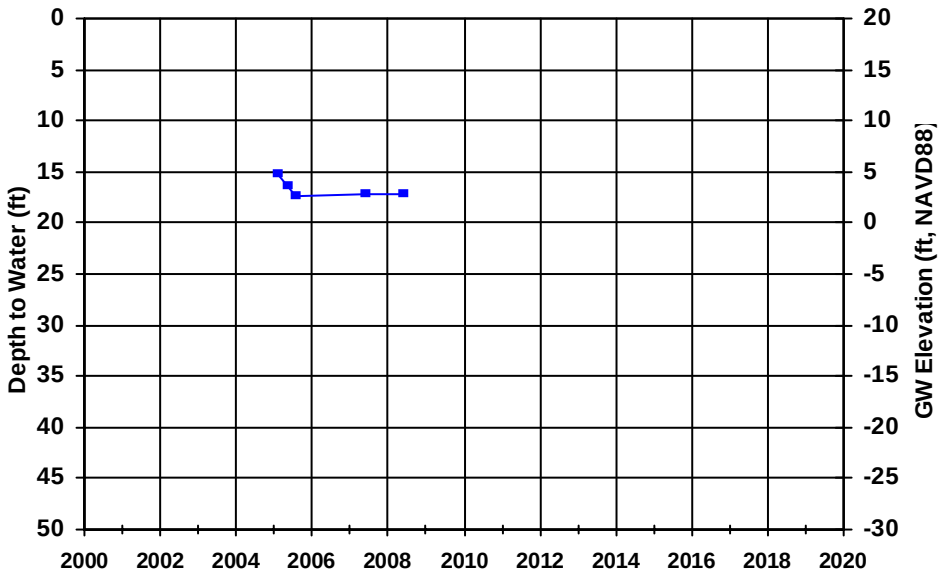
WellID: SL205032990-W-15
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



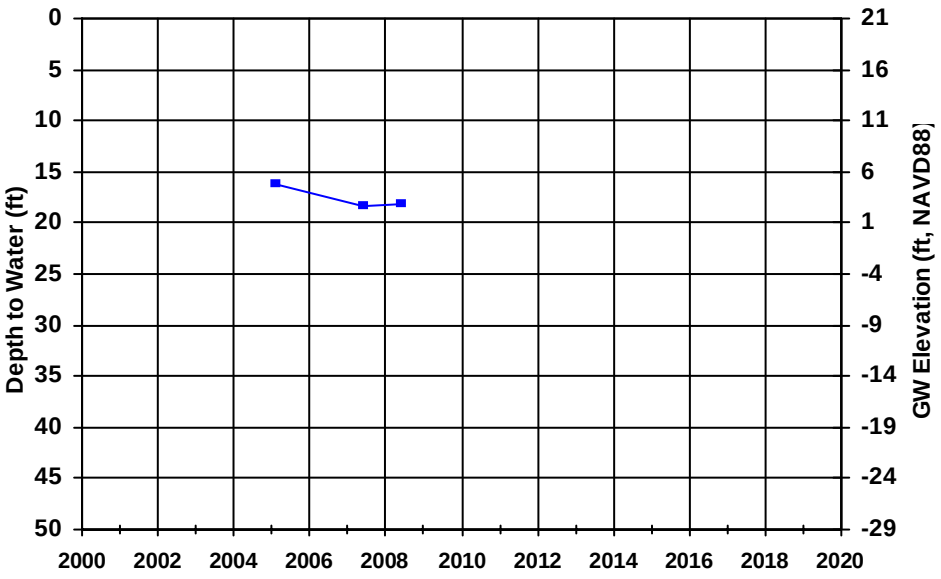
WellID: SL205032990-W-16
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-17
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

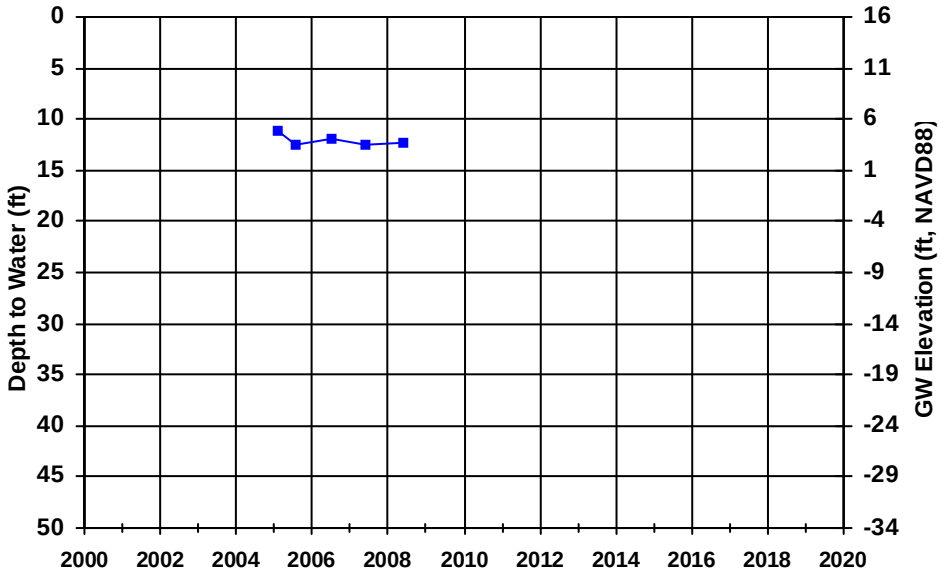


WellID: SL205032990-W-18
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

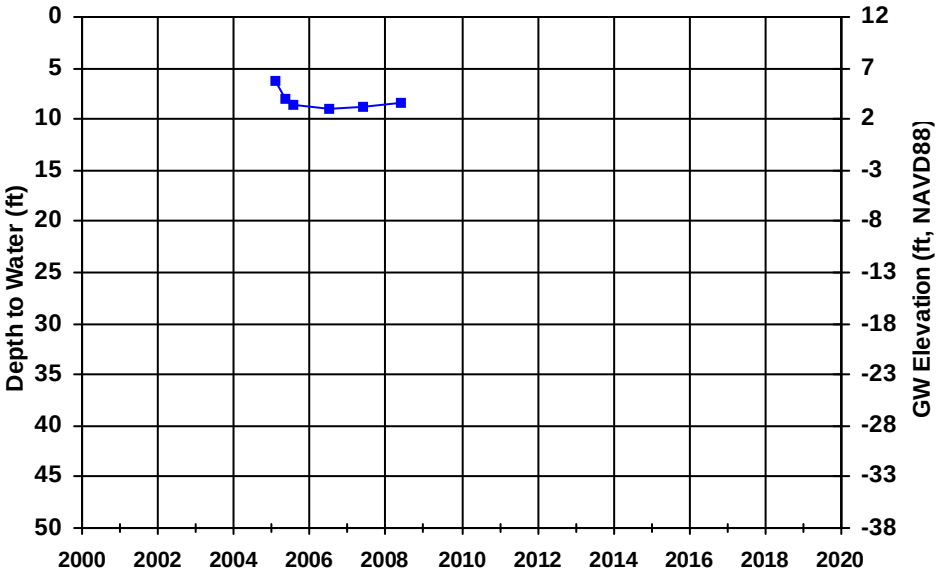


{R_WLhyd88}

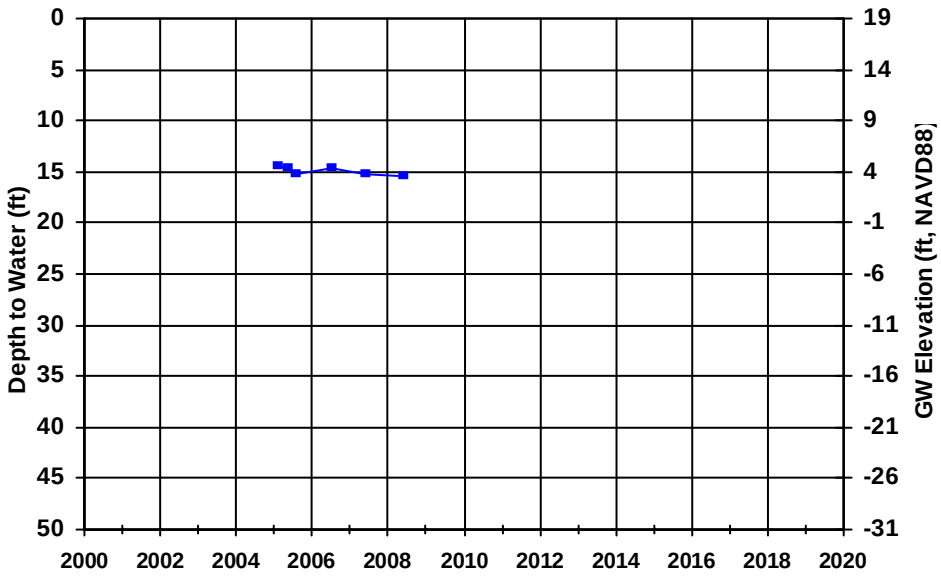
WellID: SL205032990-W-19
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



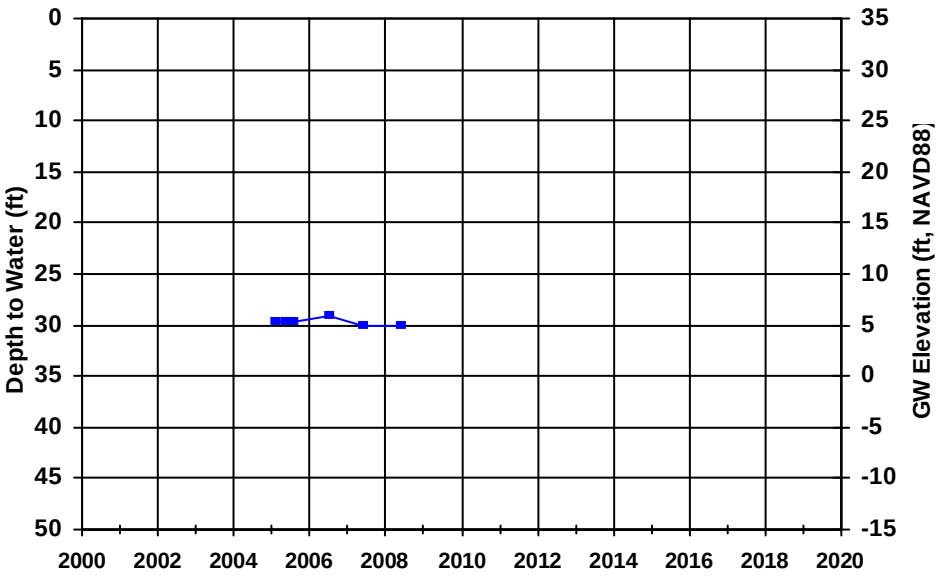
WellID: SL205032990-W-20
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-21
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

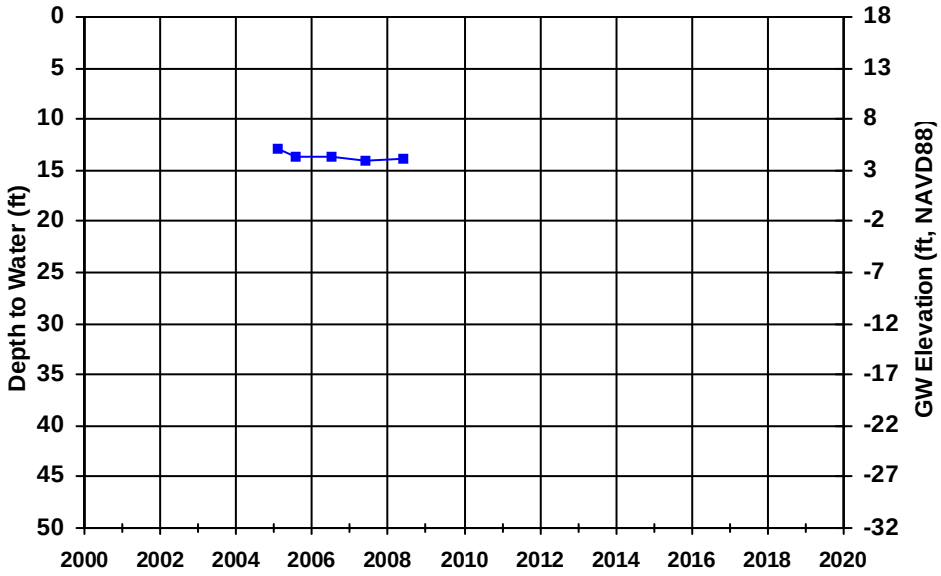


WellID: SL205032990-W-22
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

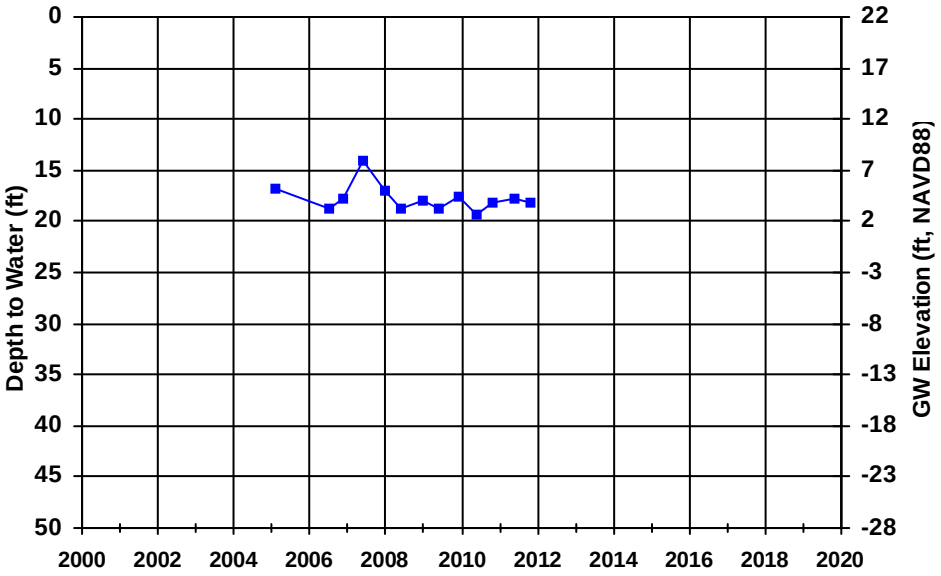


{R_WLhyd88}

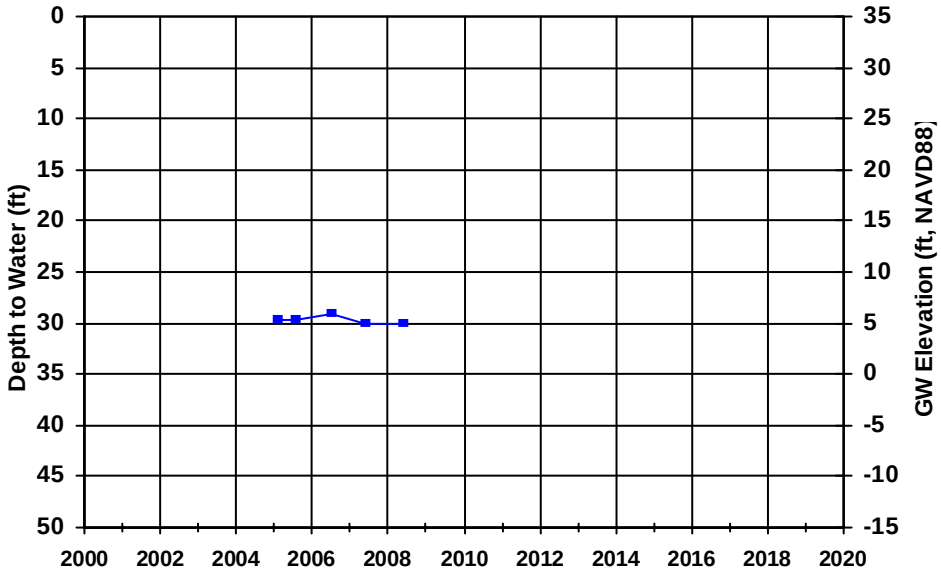
WellID: SL205032990-W-23
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



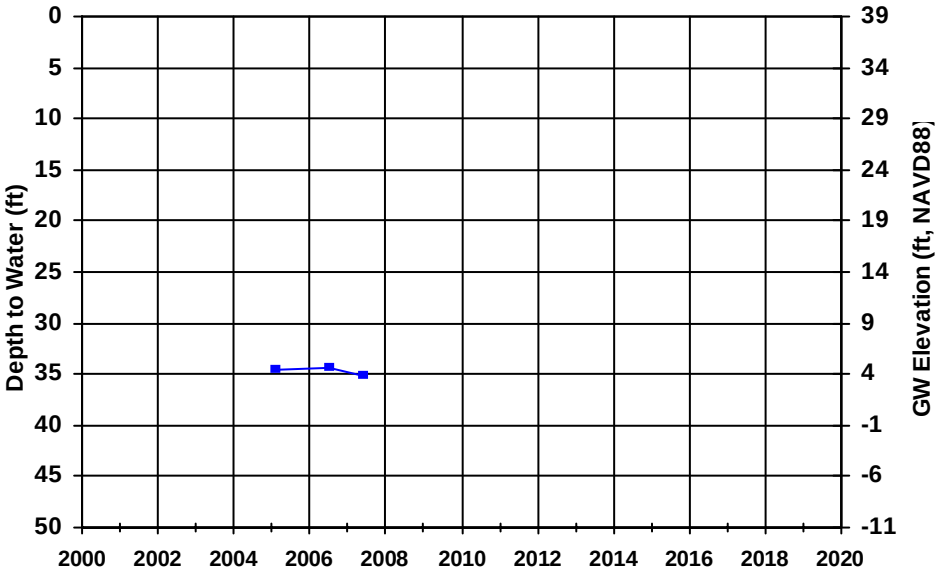
WellID: SL205032990-W-24
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-25
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

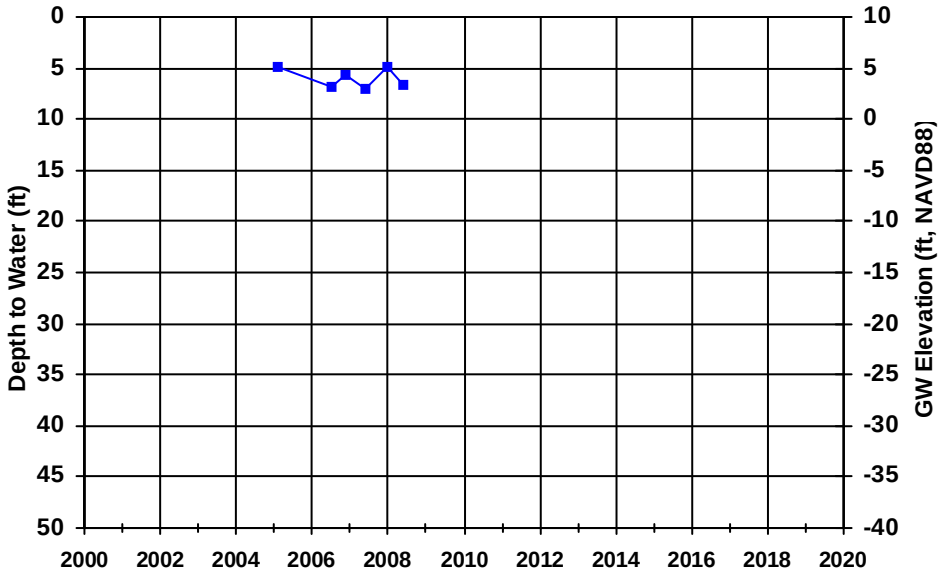


WellID: SL205032990-W-26
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

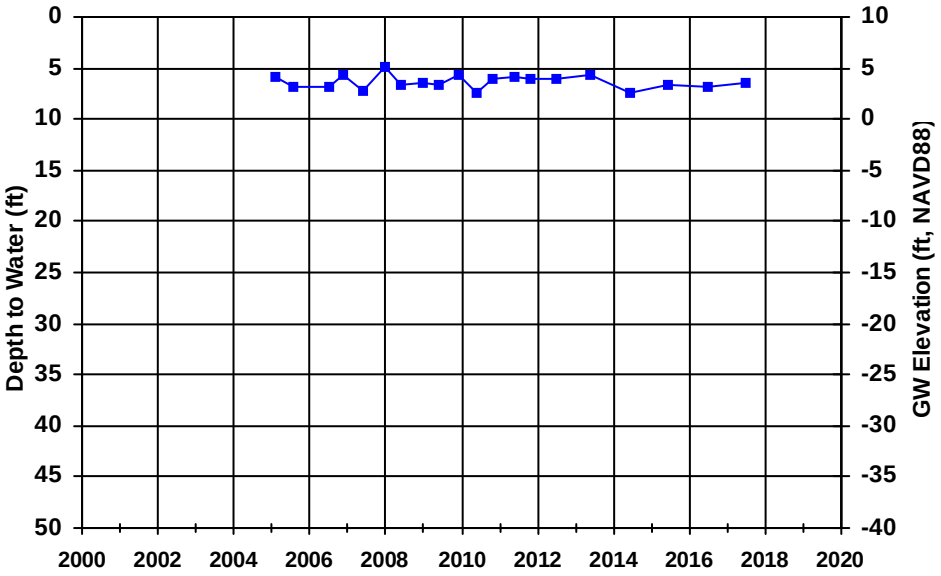


{R_WLhyd88}

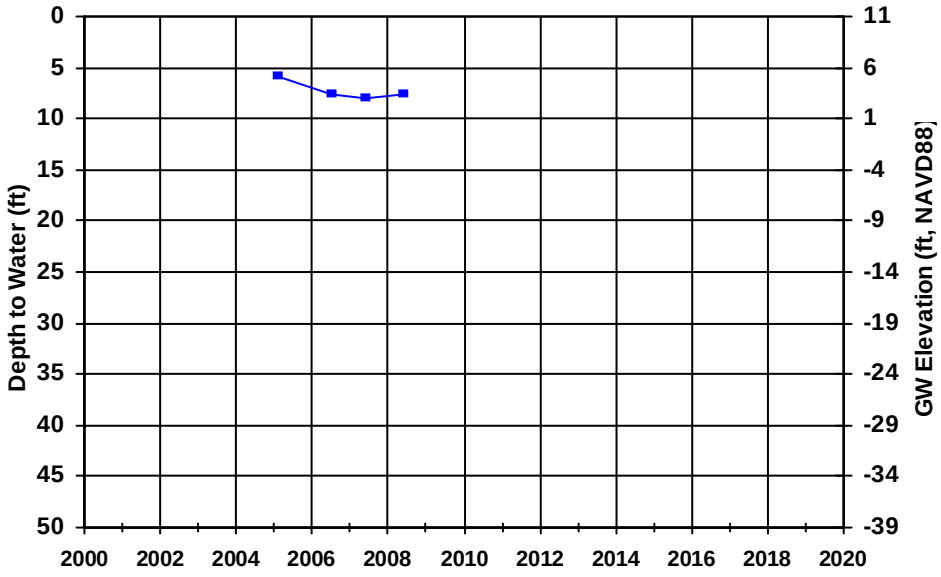
WellID: SL205032990-W-27
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



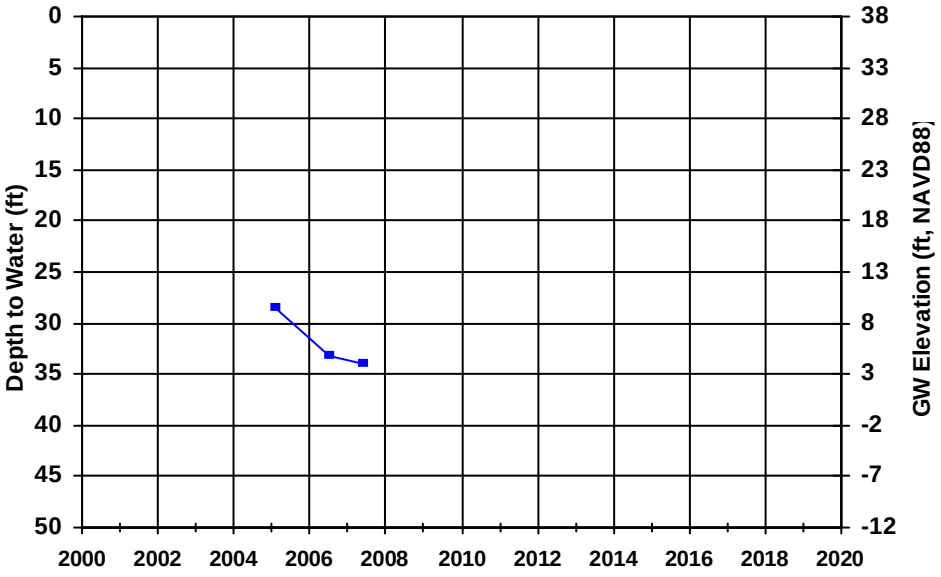
WellID: SL205032990-W-28
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-29
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

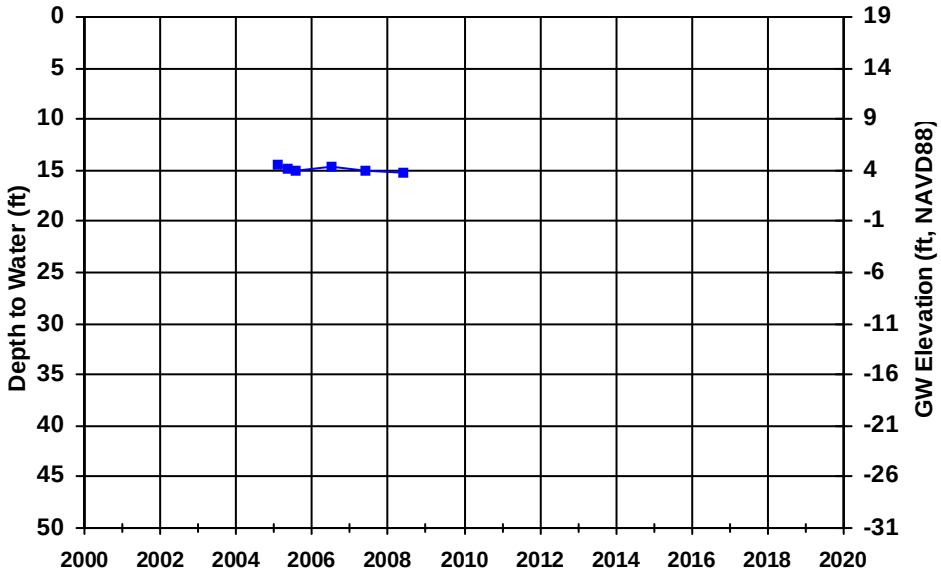


WellID: SL205032990-W-30
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

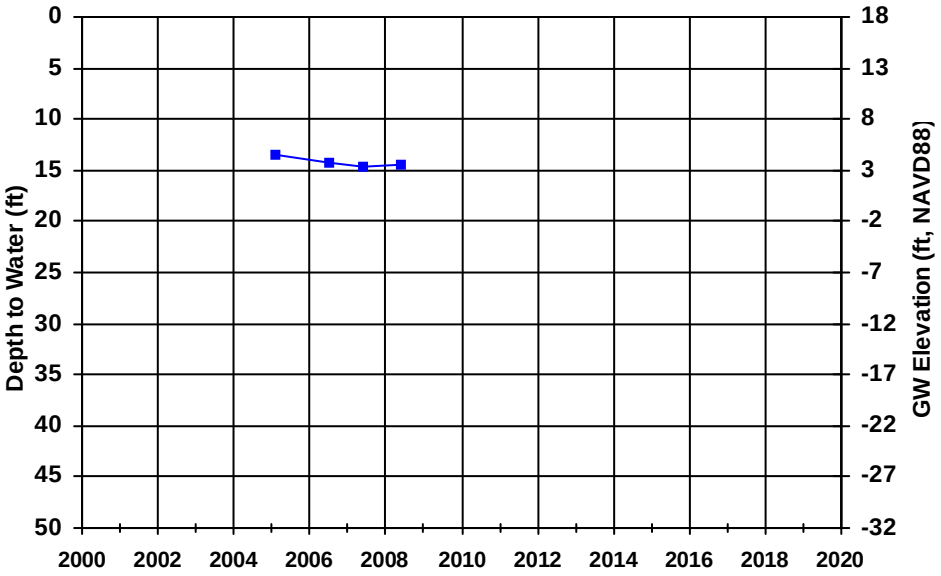


{R_WLhyd88}

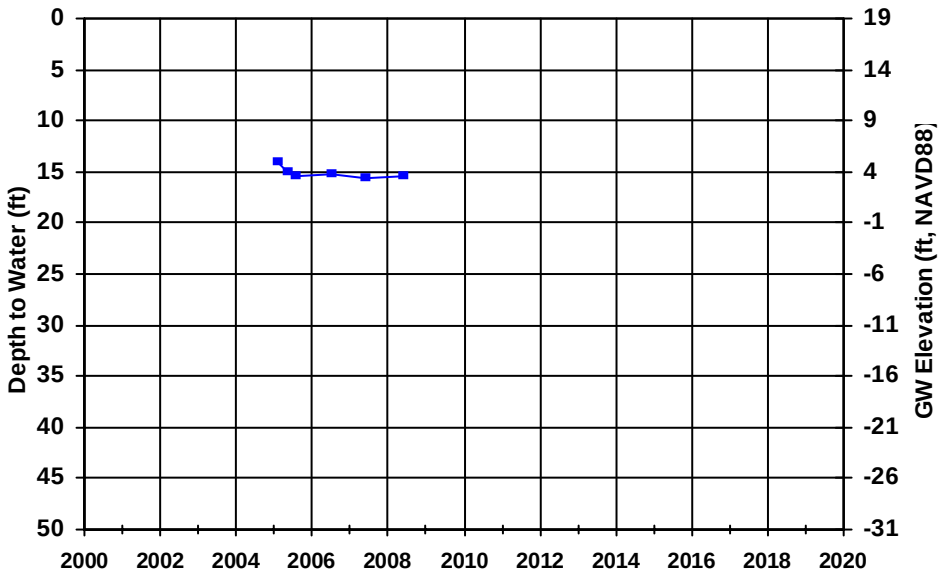
WellID: SL205032990-W-31
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



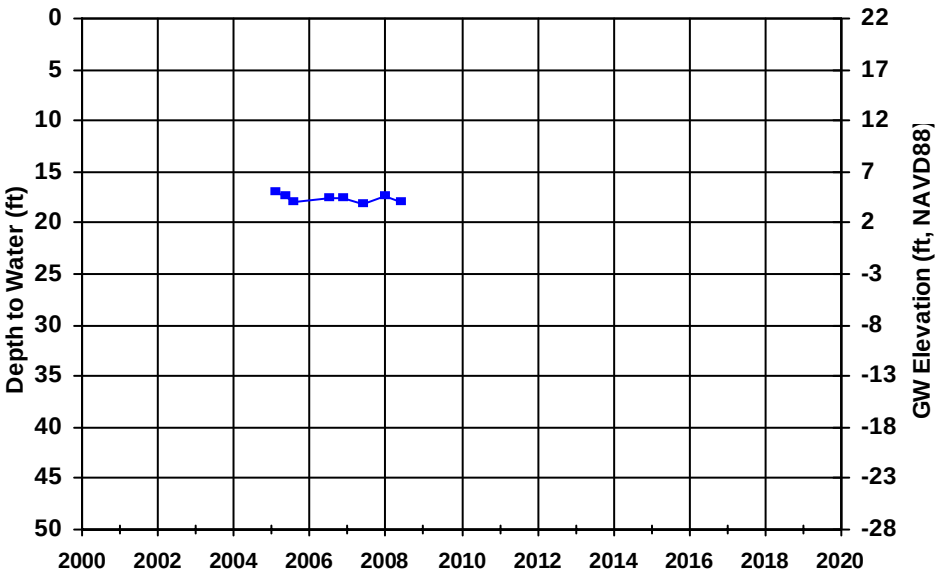
WellID: SL205032990-W-32
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-33
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

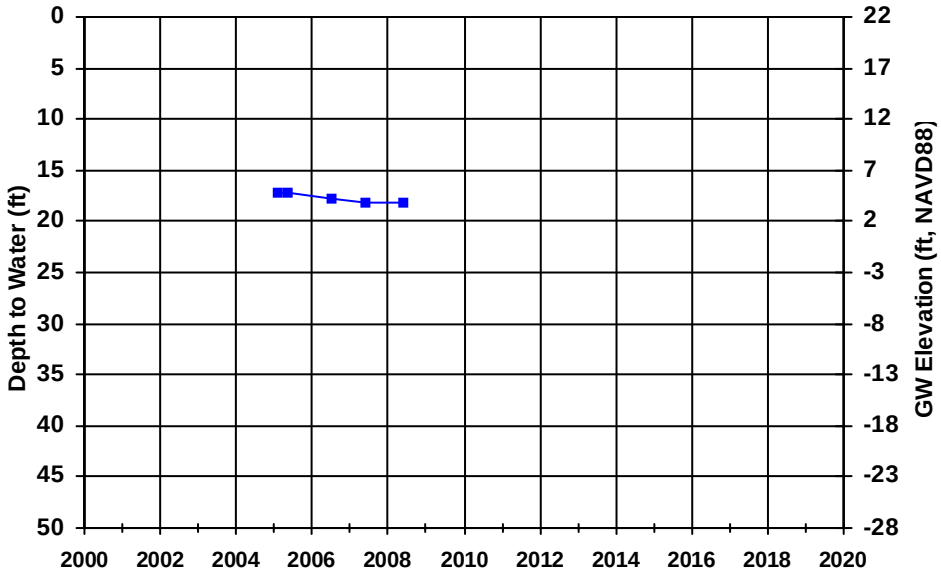


WellID: SL205032990-W-34
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

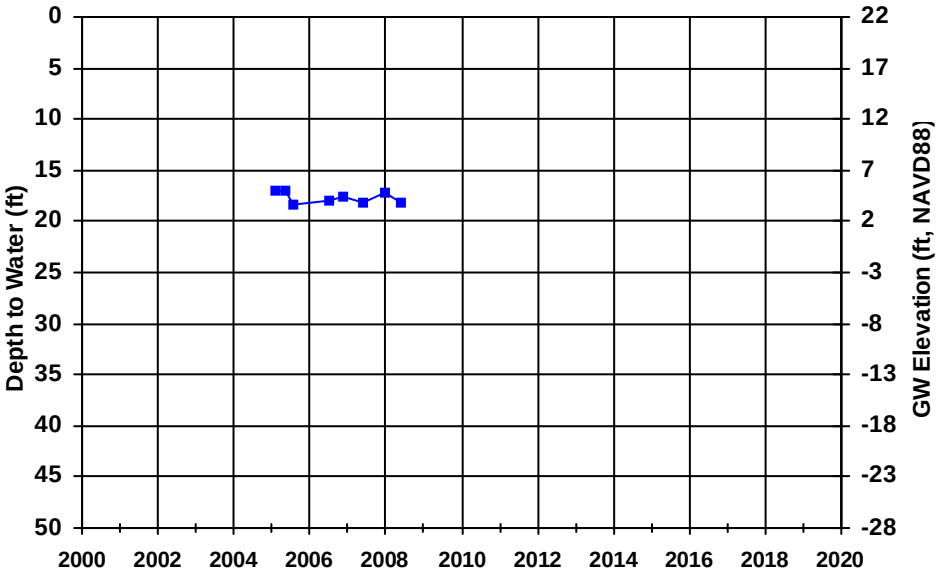


{R_WLhyd88}

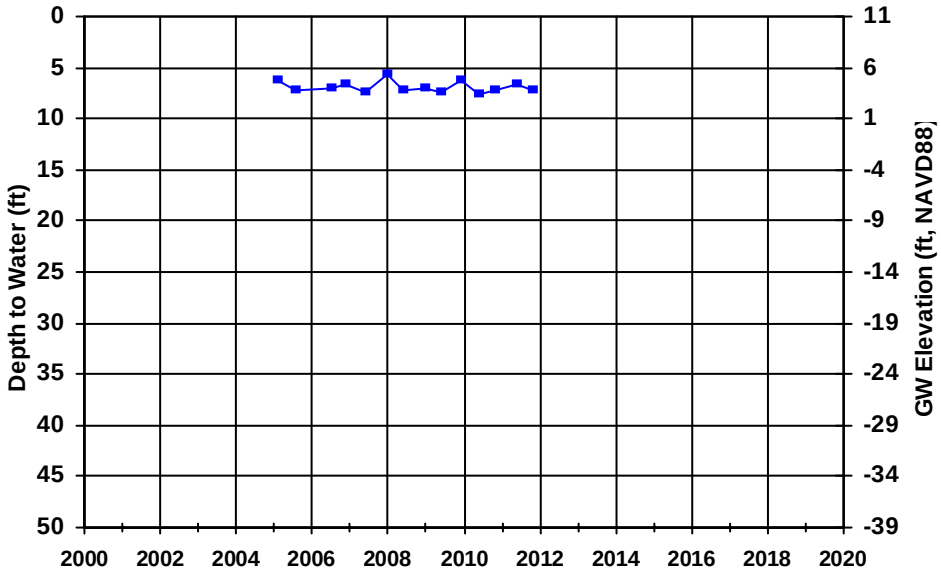
WellID: SL205032990-W-35
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



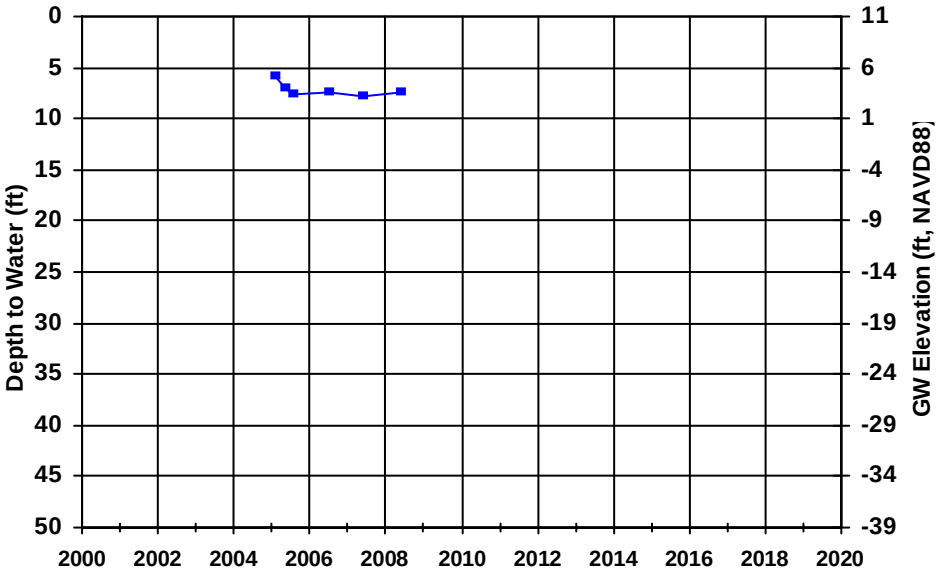
WellID: SL205032990-W-36
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205032990-W-37
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

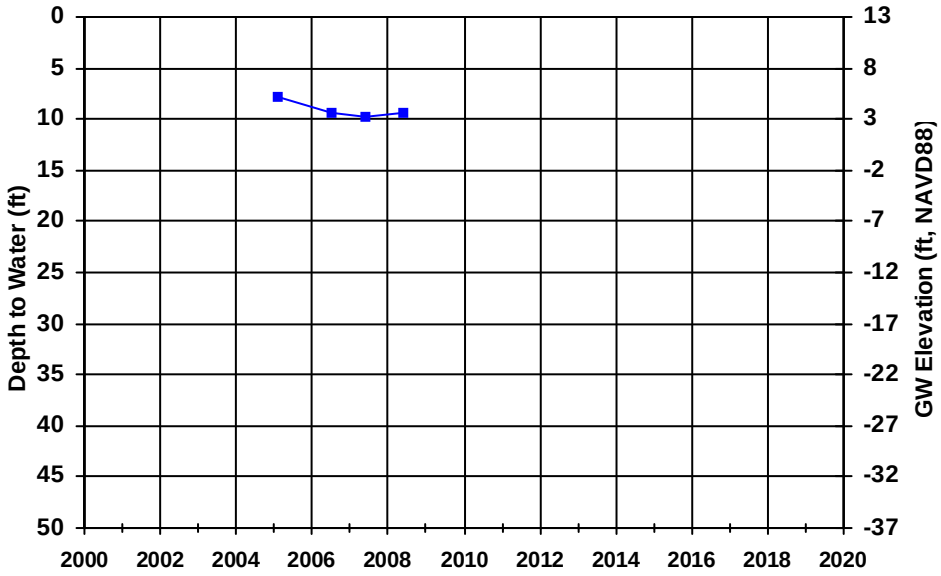


WellID: SL205032990-W-38
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

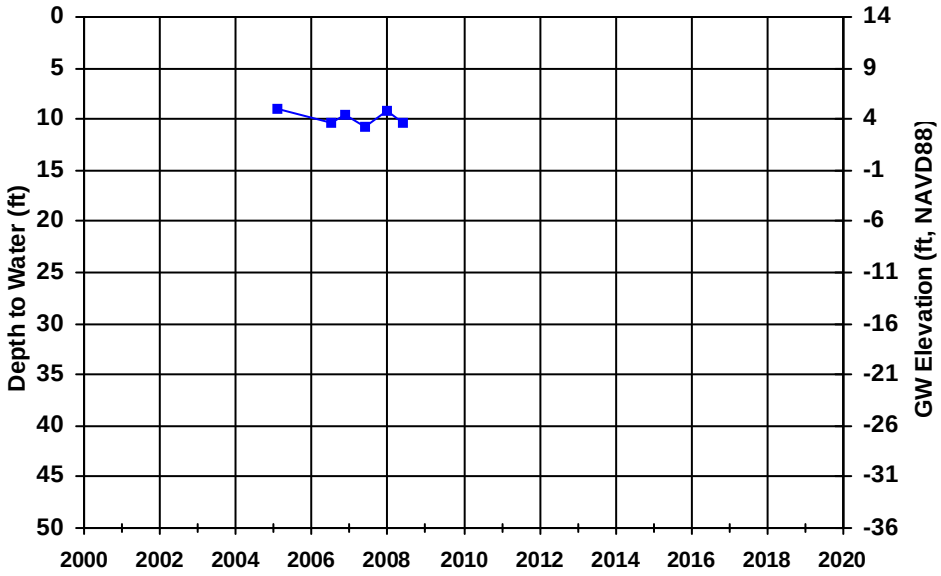


{R_WLhyd88}

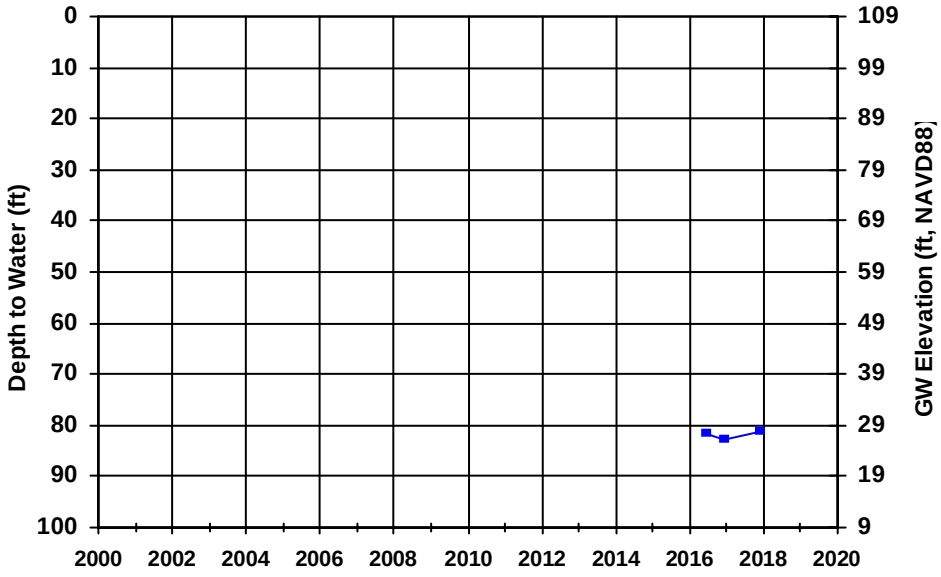
WellID: SL205032990-W-39
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



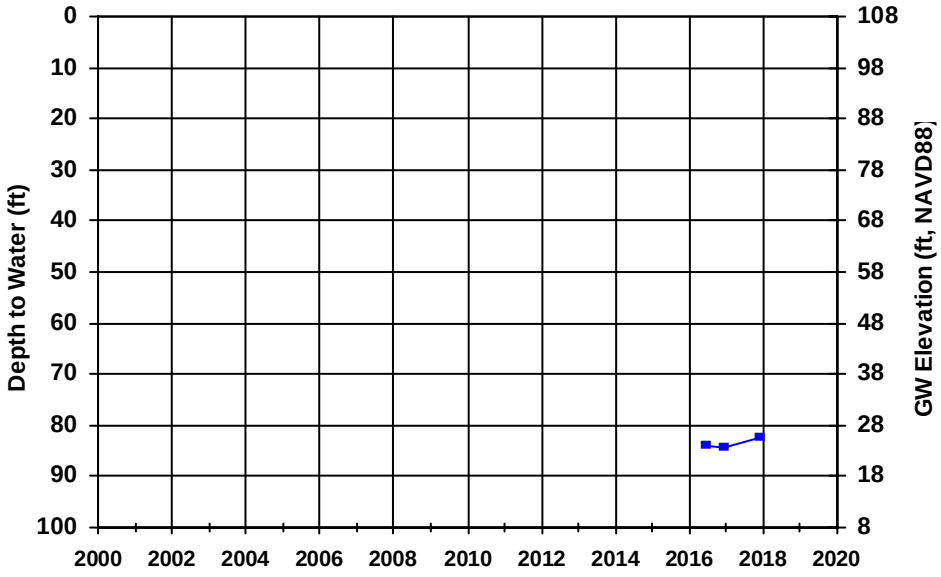
WellID: SL205032990-W-40
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: SL205092993-MW-12A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

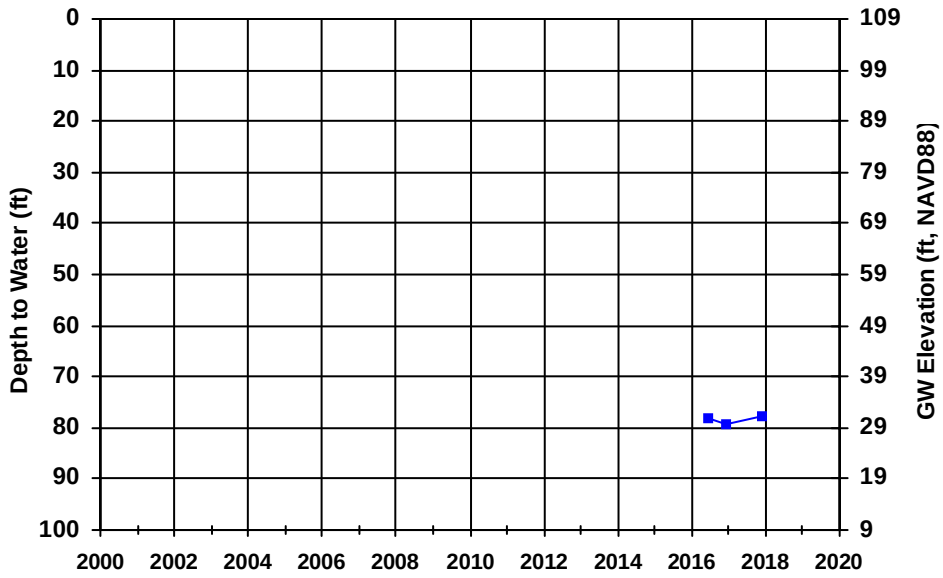


WellID: SL205092993-MW-14A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

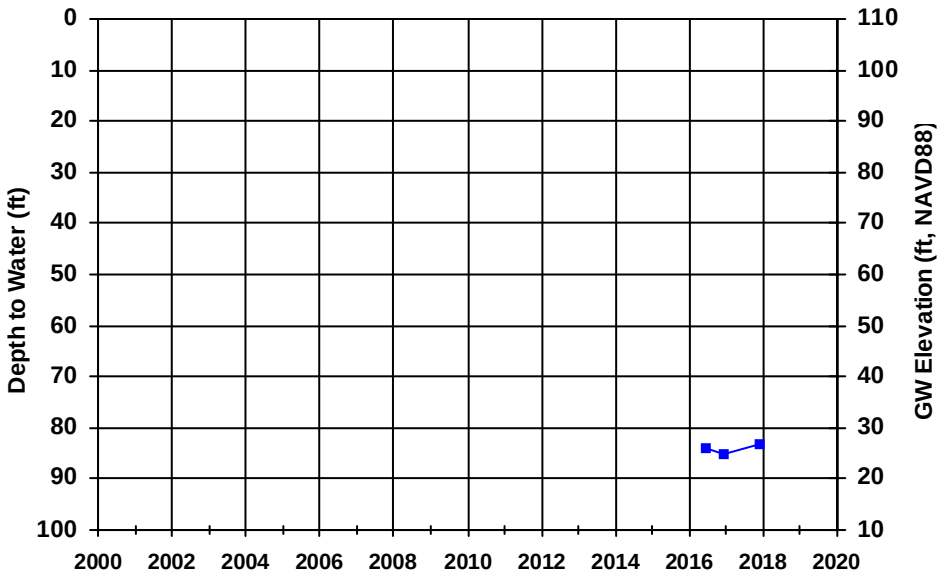


{R_WLhyd88}

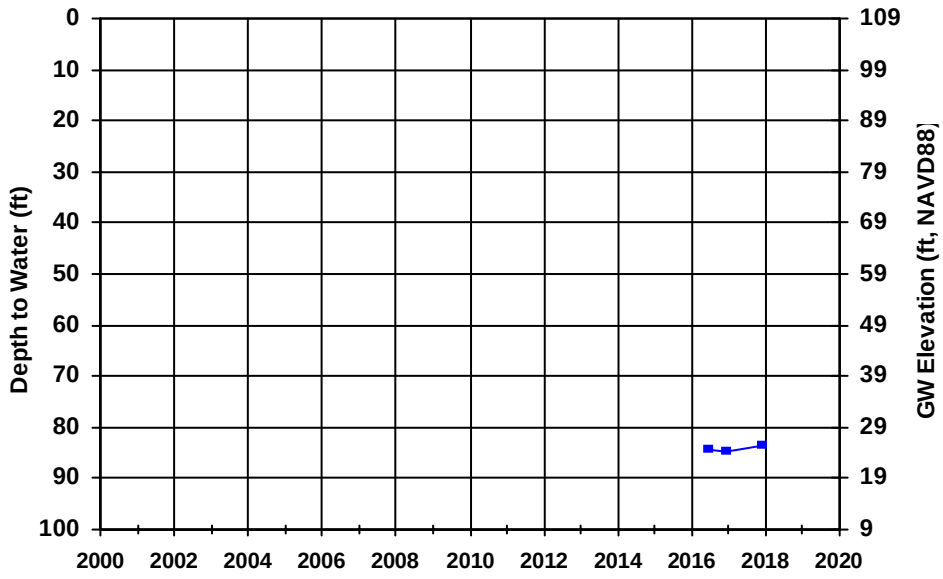
WellID: SL205092993-MW-17A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



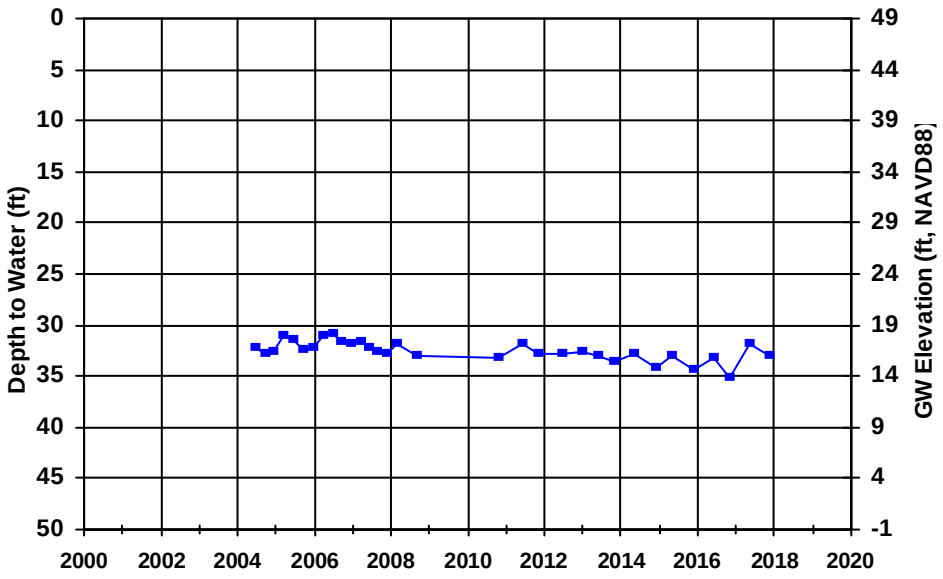
WellID: SL205092993-MW-6A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



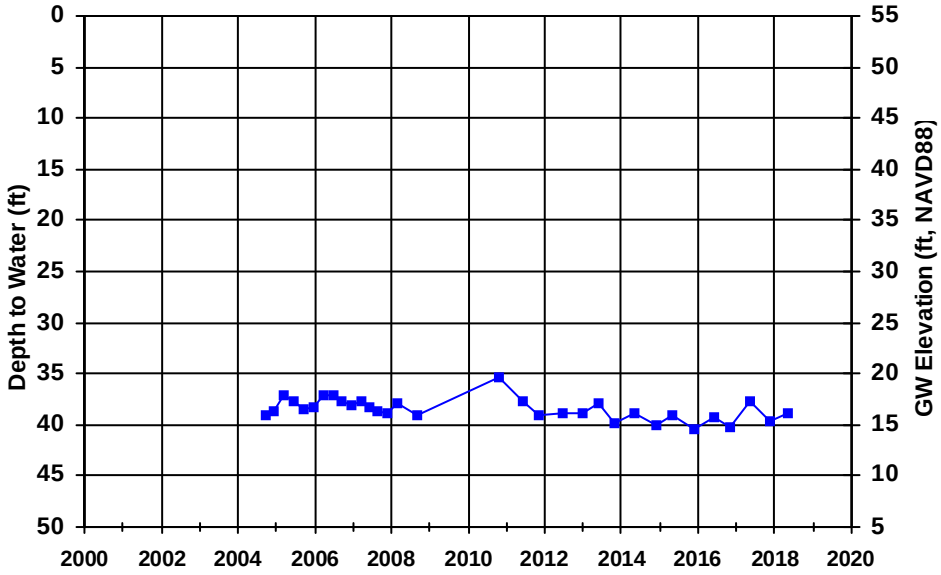
WellID: SL205092993-MW-8A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



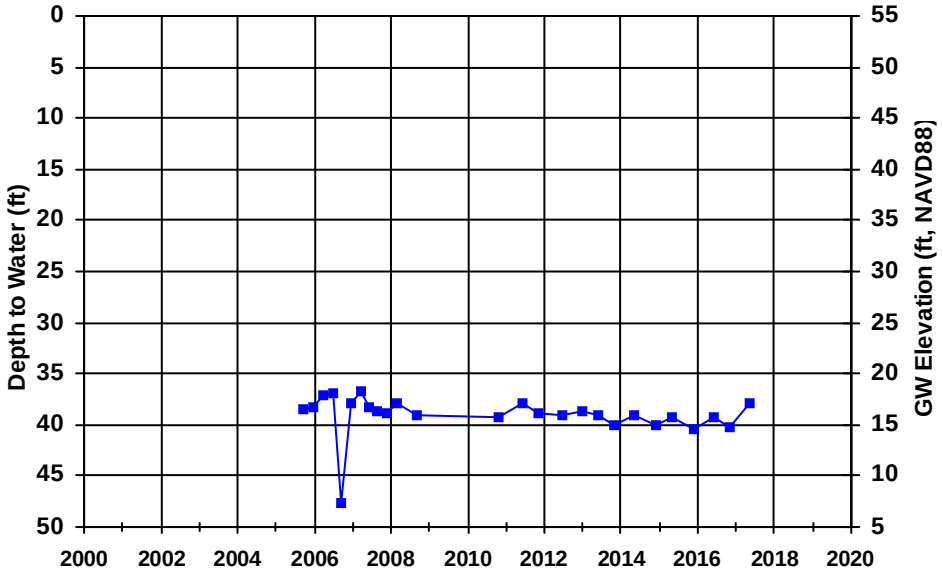
WellID: T0601300676-MW-11
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



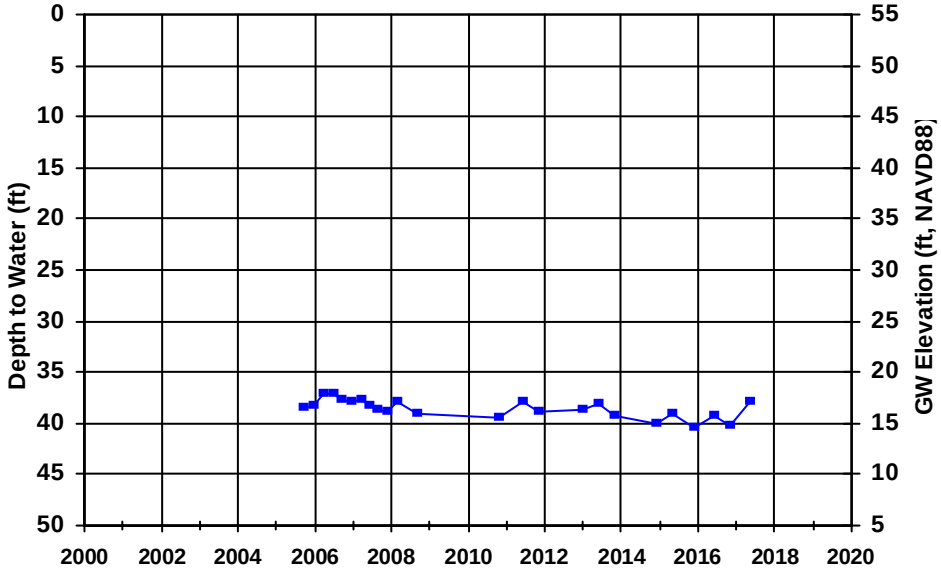
WellID: T0601300676-MW-16A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



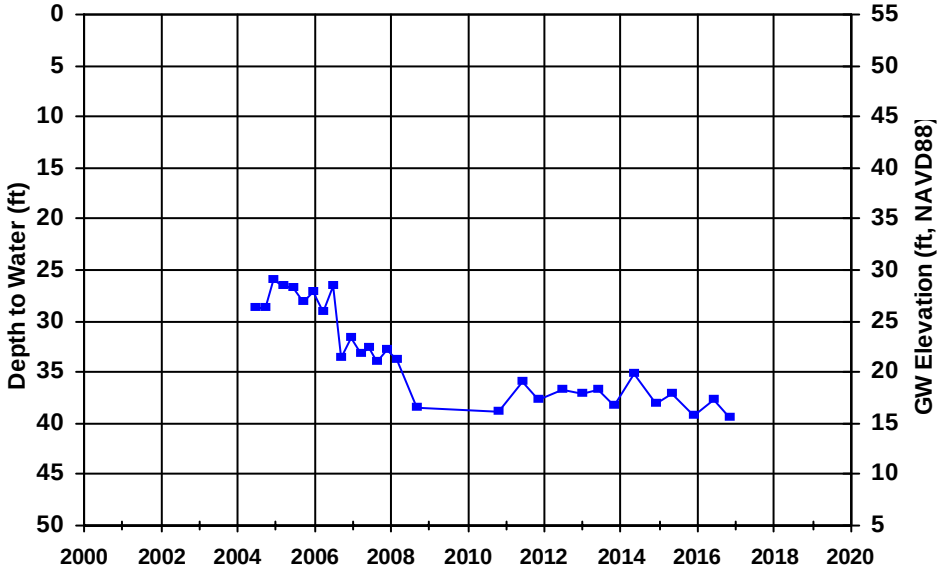
WellID: T0601300676-MW-16B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-16C
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

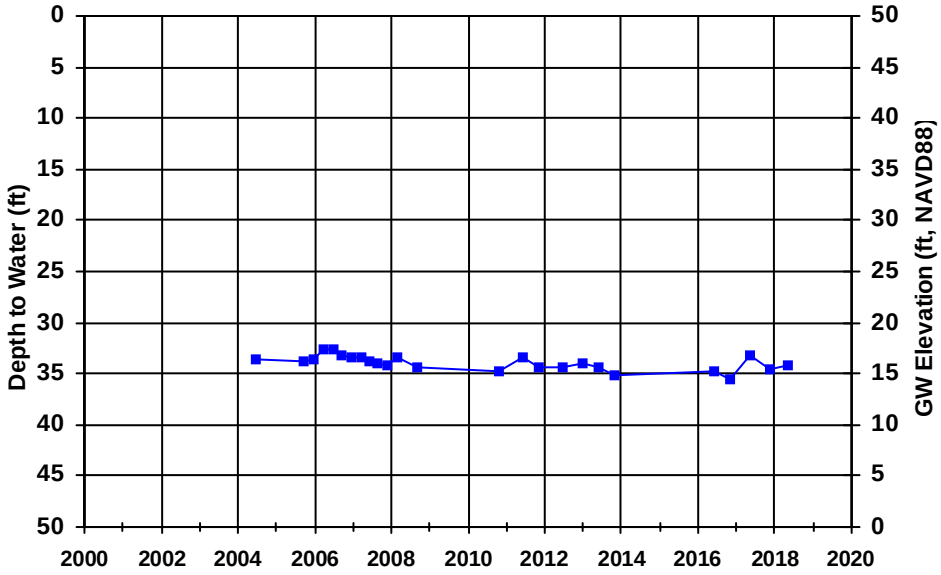


WellID: T0601300676-MW-17
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

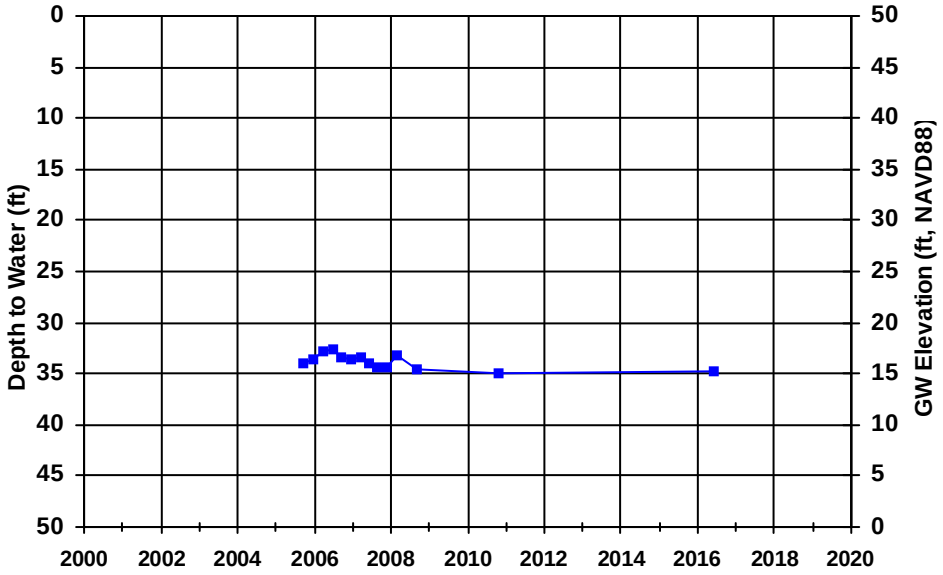


{R_WLhyd88}

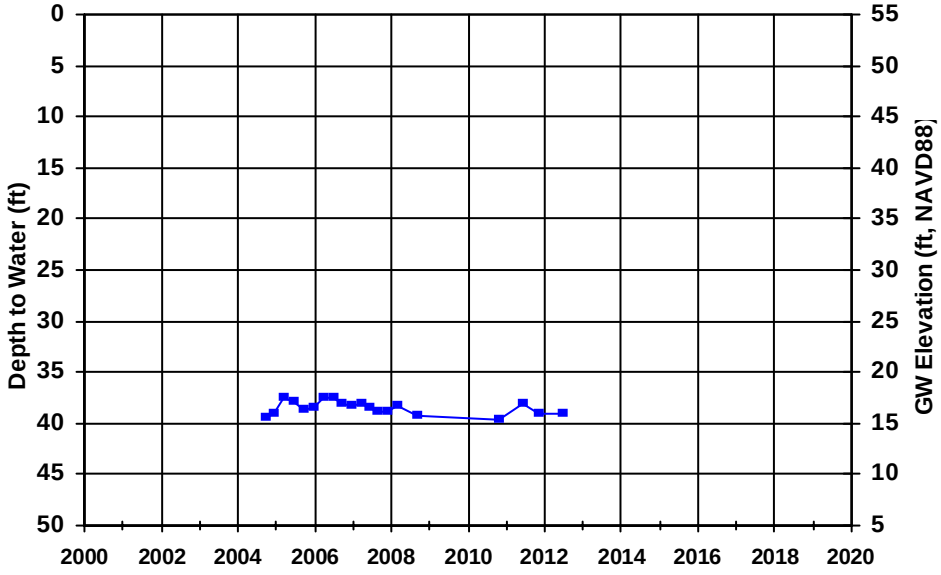
WellID: T0601300676-MW-22
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



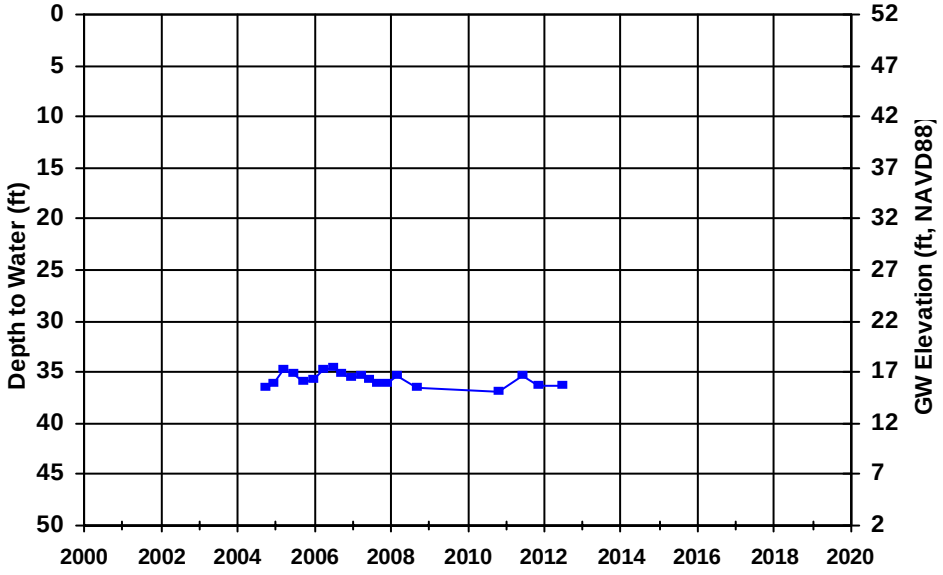
WellID: T0601300676-MW-22C
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-23
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

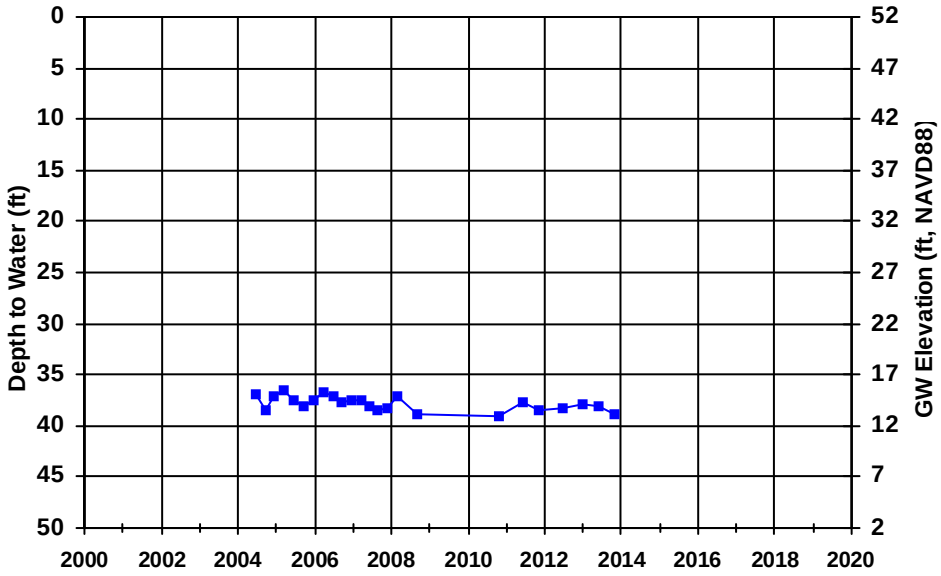


WellID: T0601300676-MW-24
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

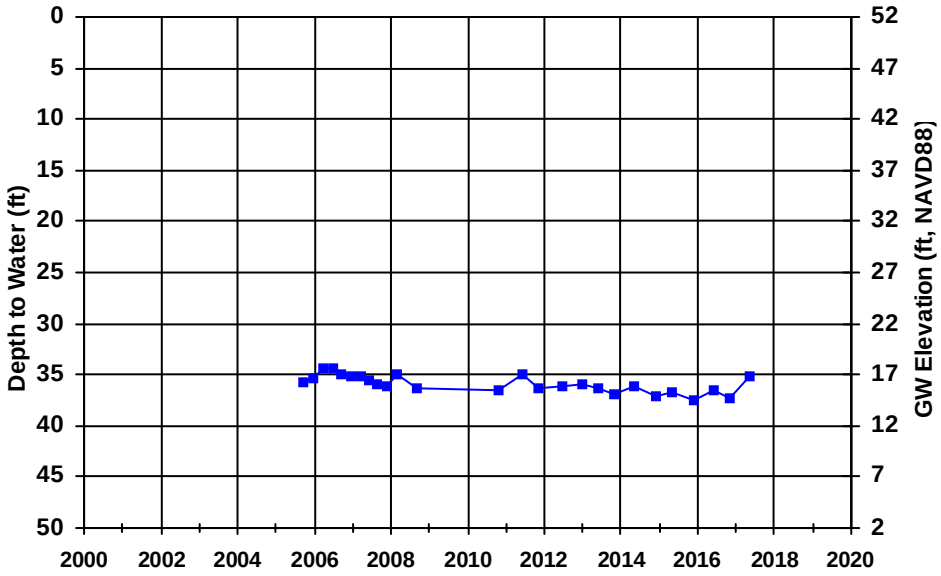


{R_WLhyd88}

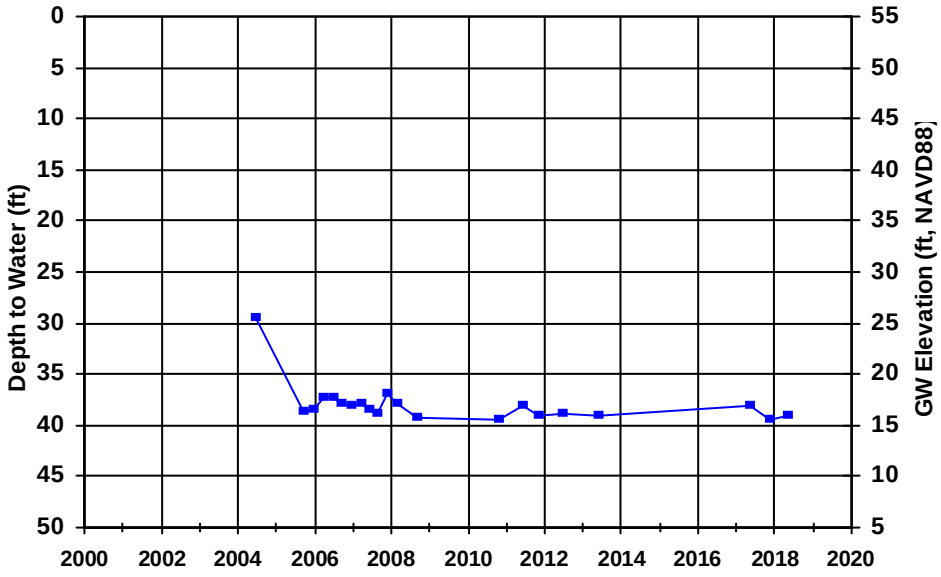
WellID: T0601300676-MW-25
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



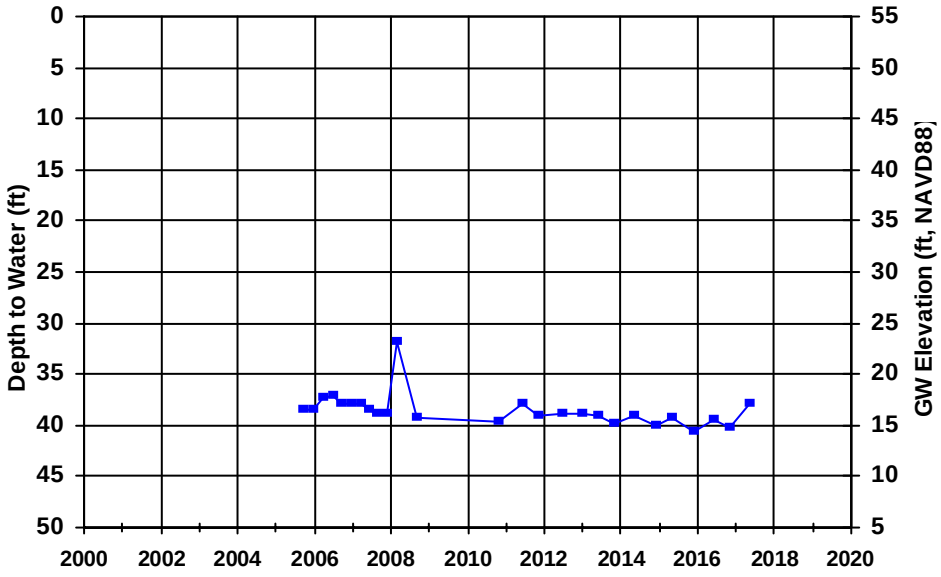
WellID: T0601300676-MW-25B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-26
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

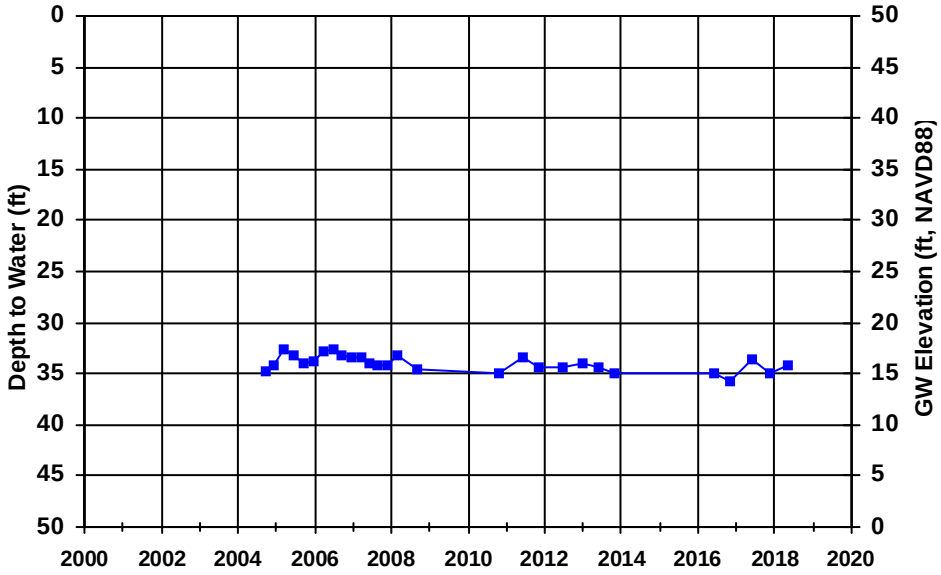


WellID: T0601300676-MW-26B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A

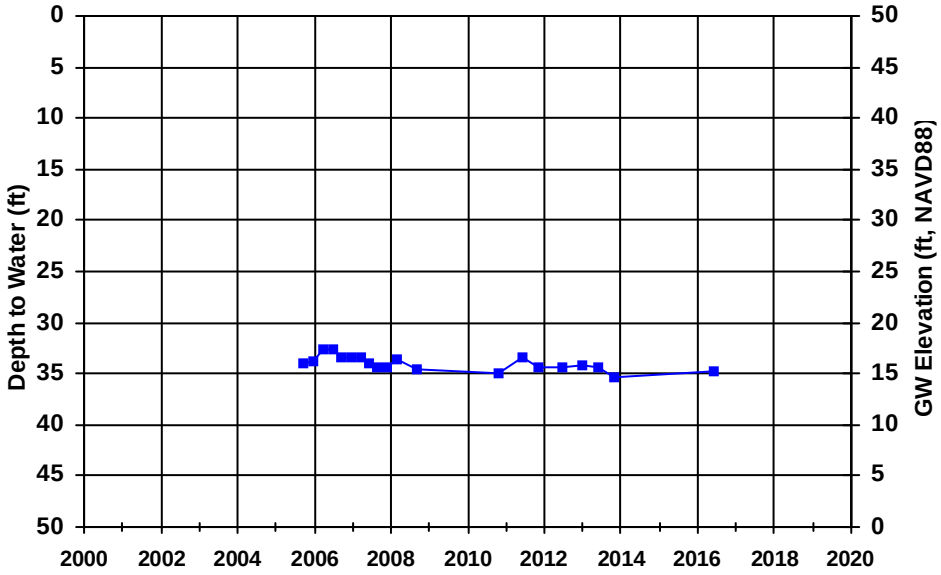


{R_WLhyd88}

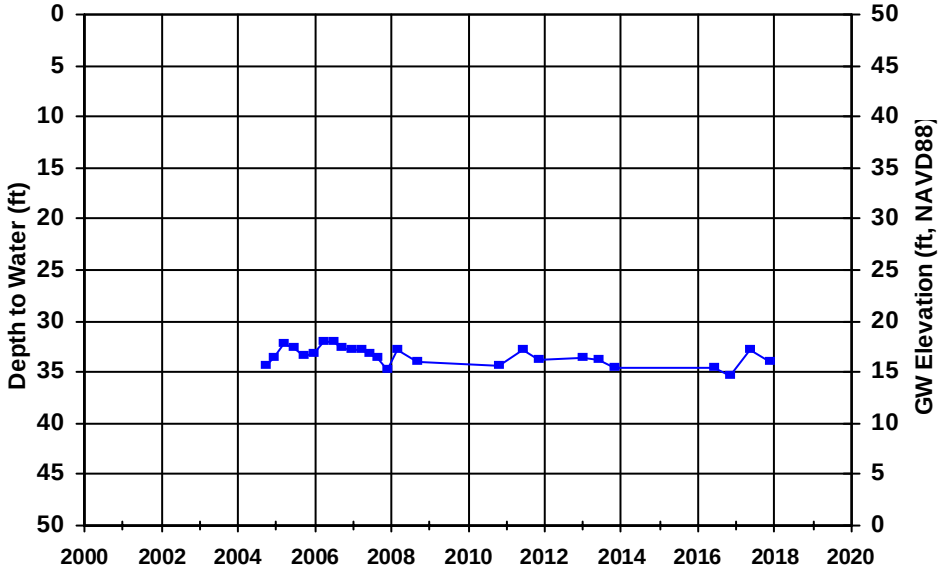
WellID: T0601300676-MW-28
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



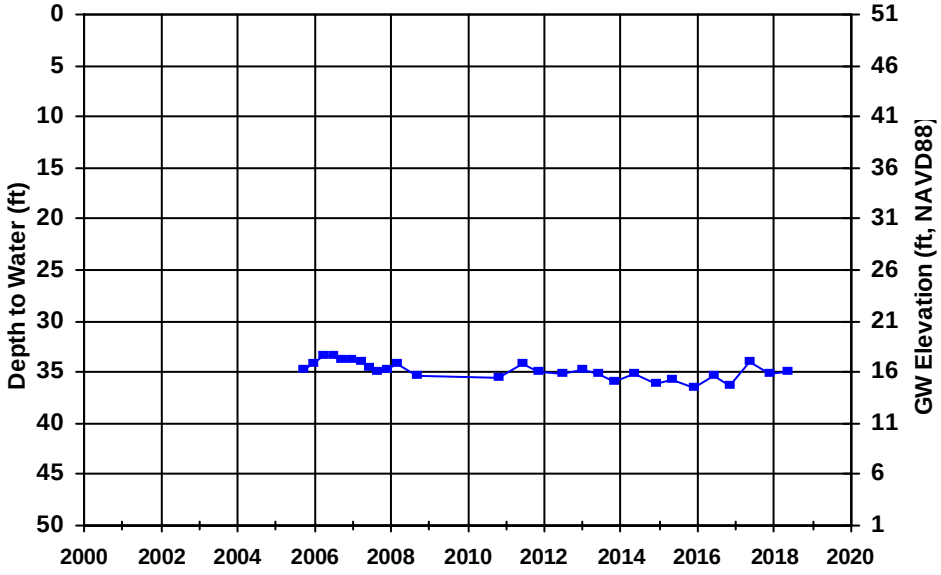
WellID: T0601300676-MW-28C
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-29
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-30A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



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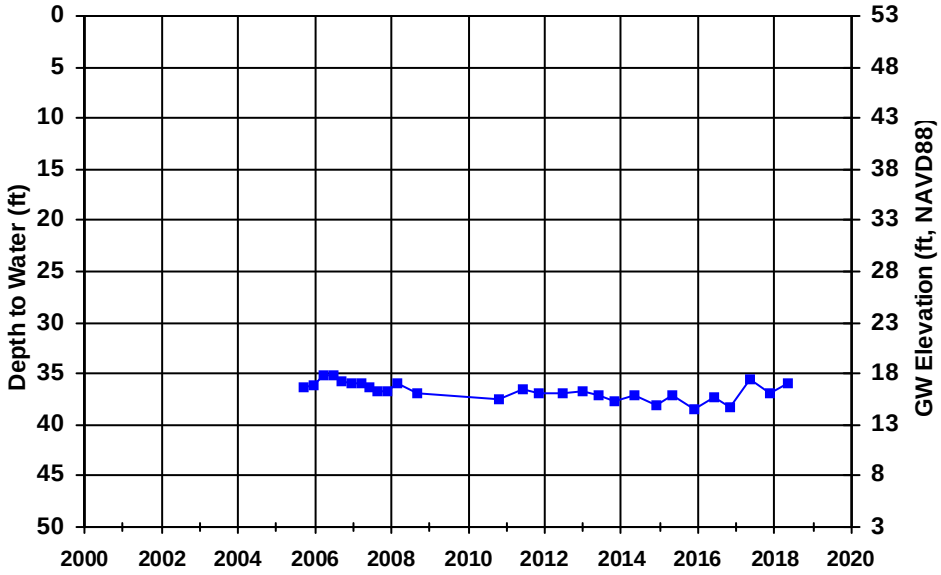
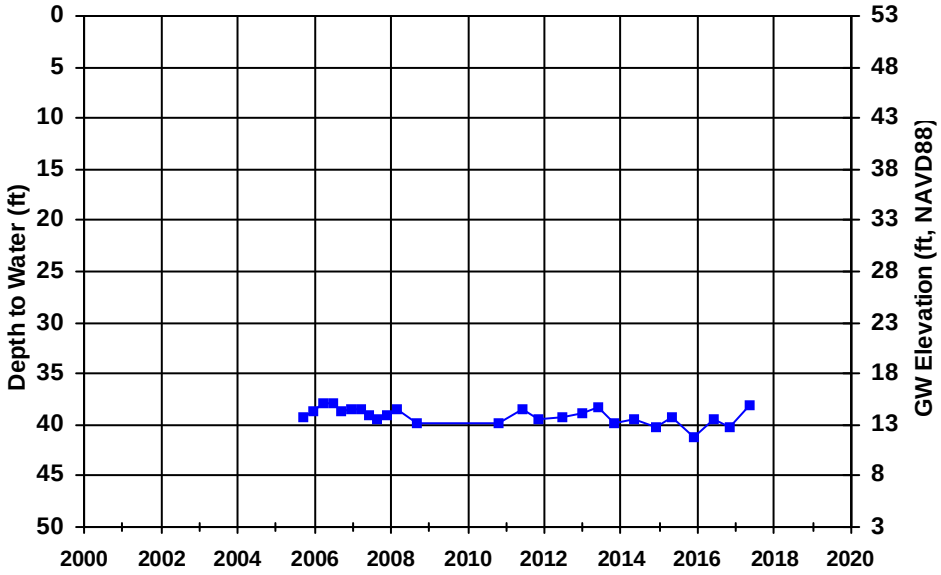
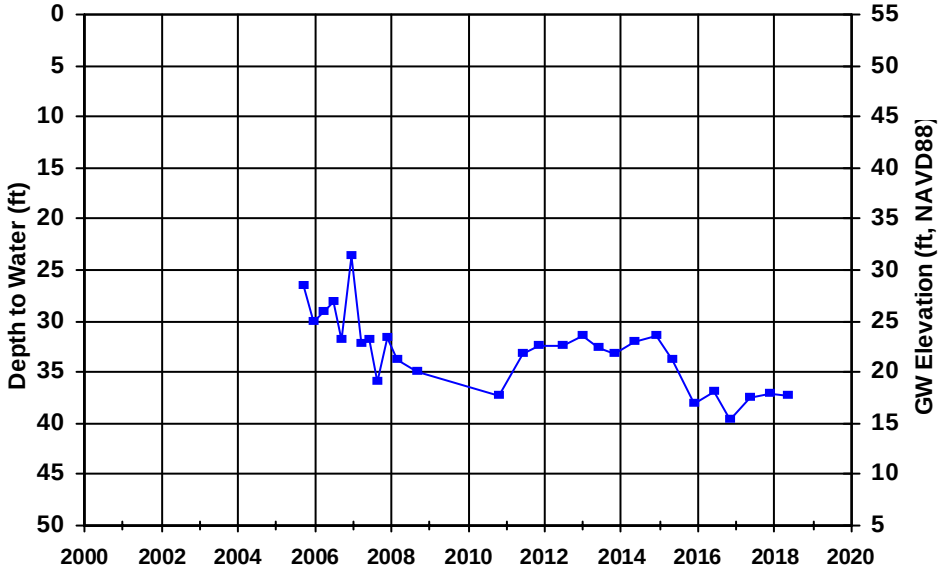
WellID: T0601300676-MW-31A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



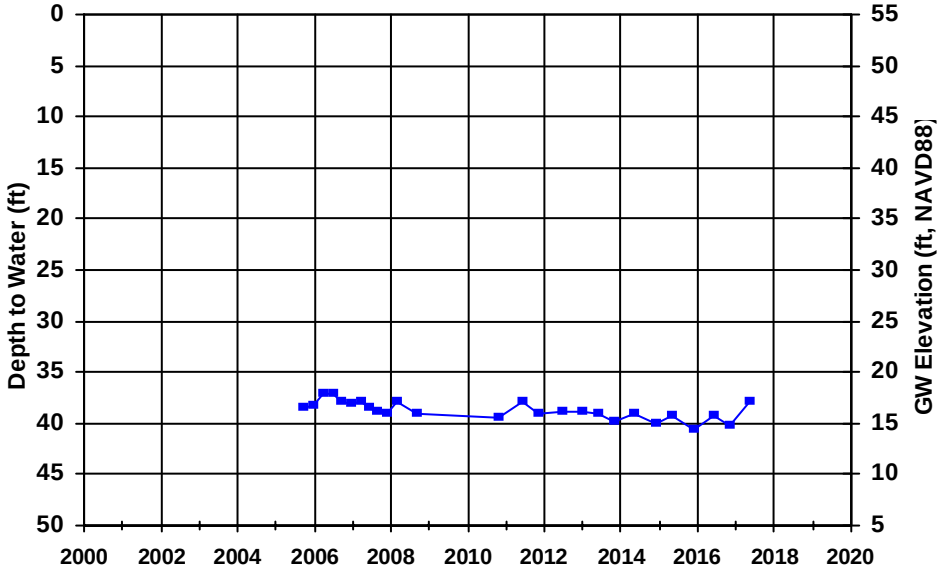
WellID: T0601300676-MW-32D
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-5A
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300676-MW-5B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



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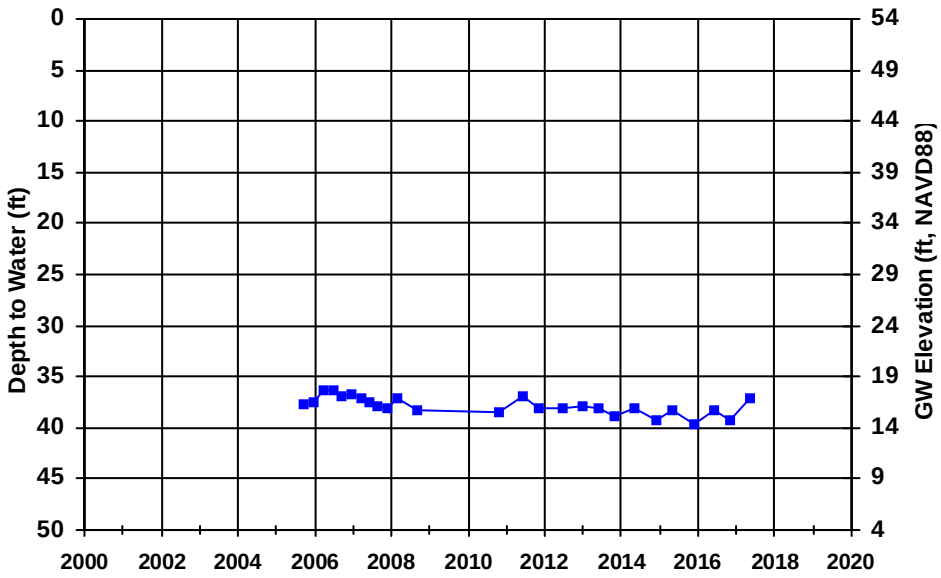
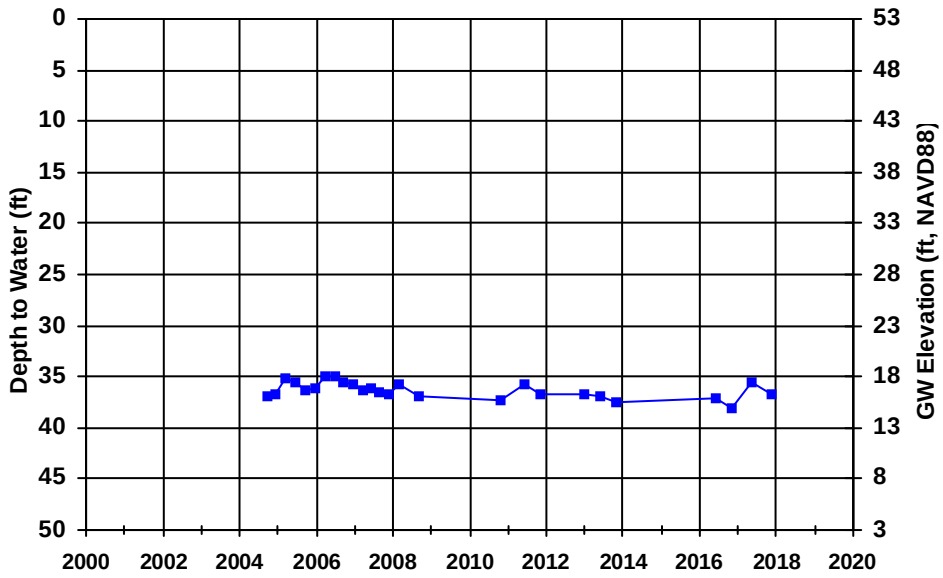
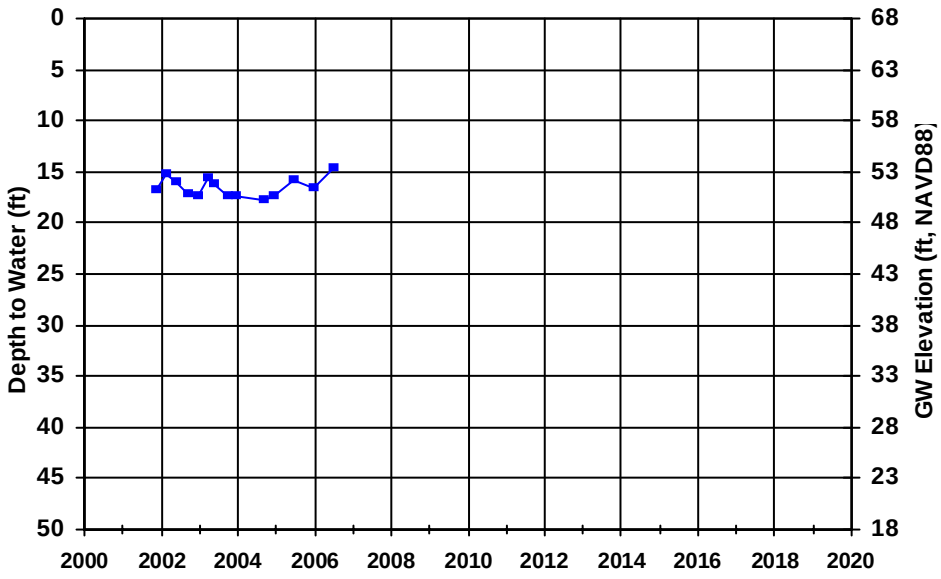
WellID: T0601300676-MW-5C
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



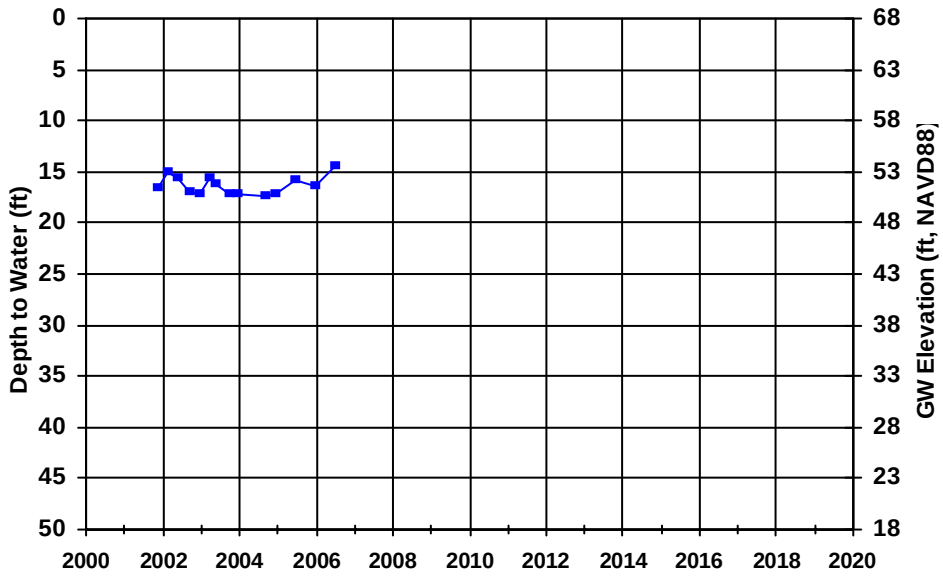
WellID: T0601300676-MW-6
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300744-W-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300744-W-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



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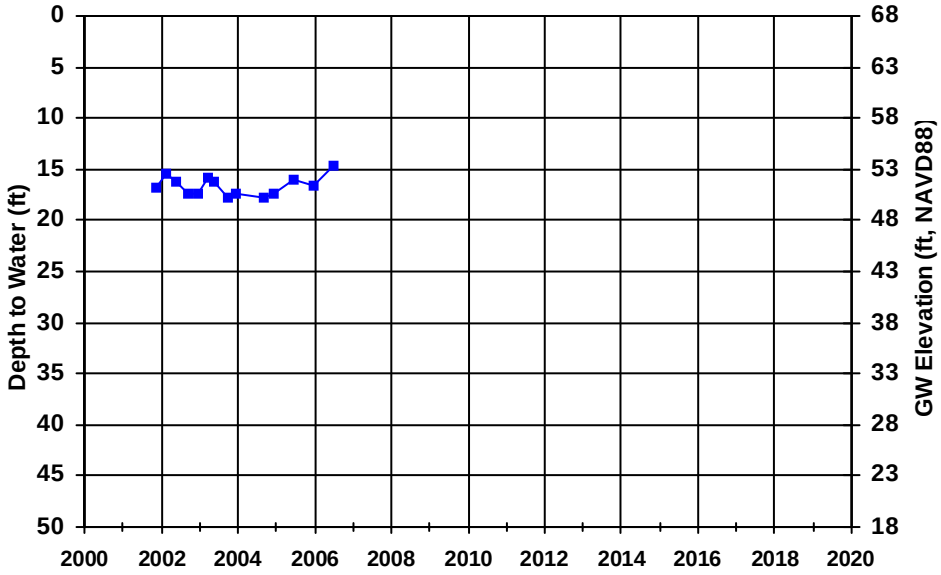
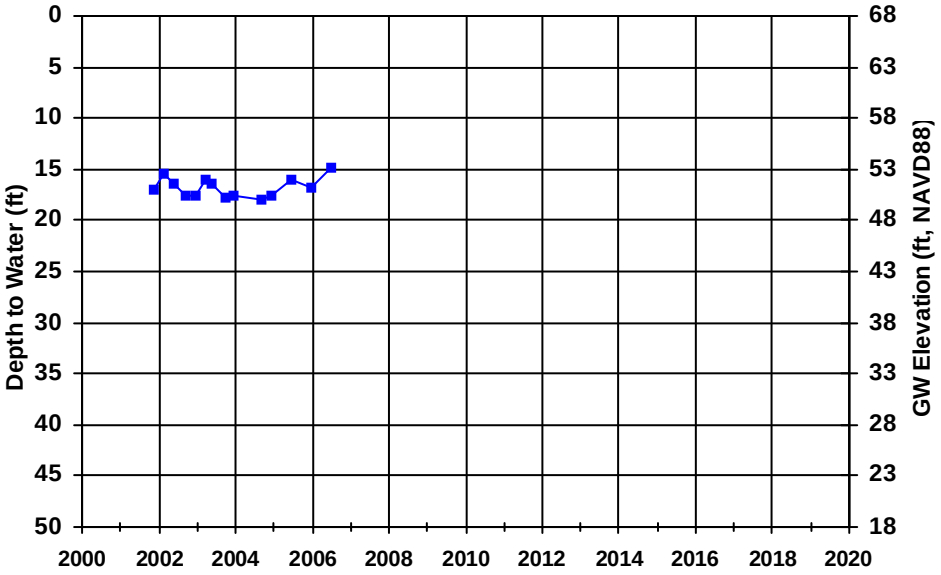
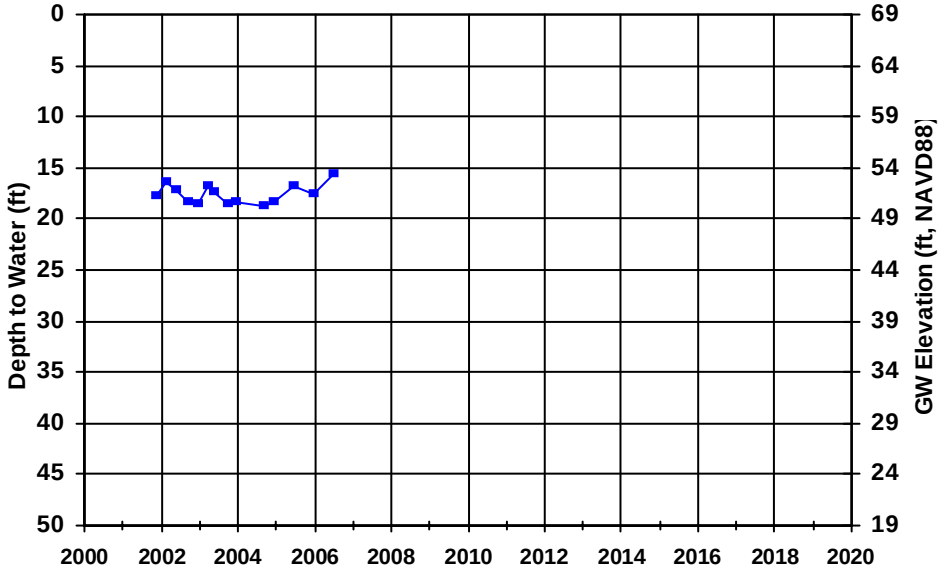
WellID: T0601300744-W-3
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



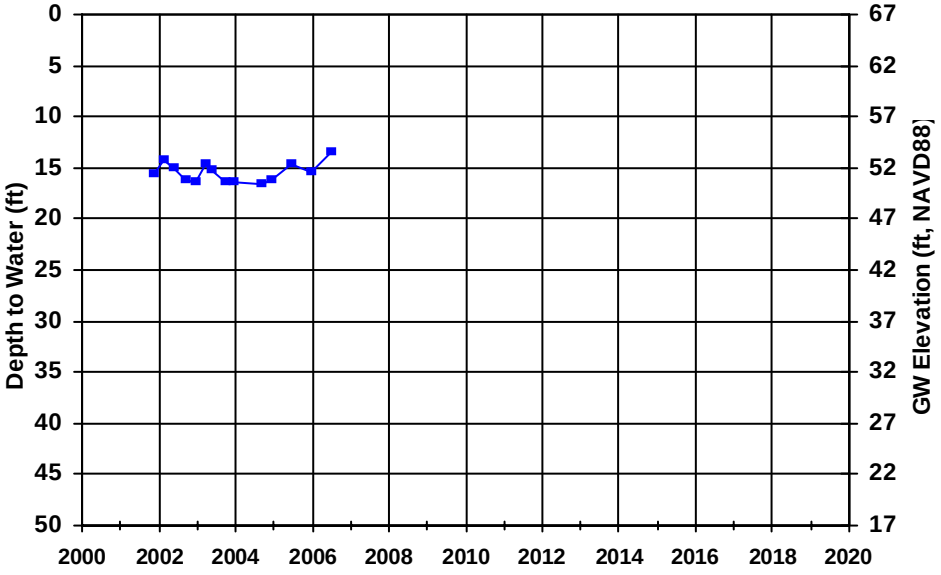
WellID: T0601300744-W-4
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300744-W-5B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300744-W-6
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



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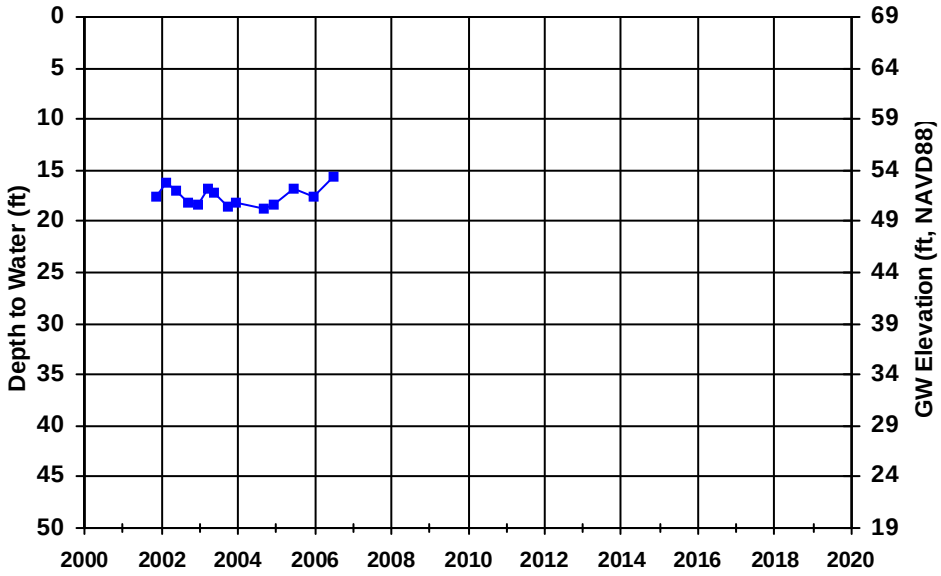
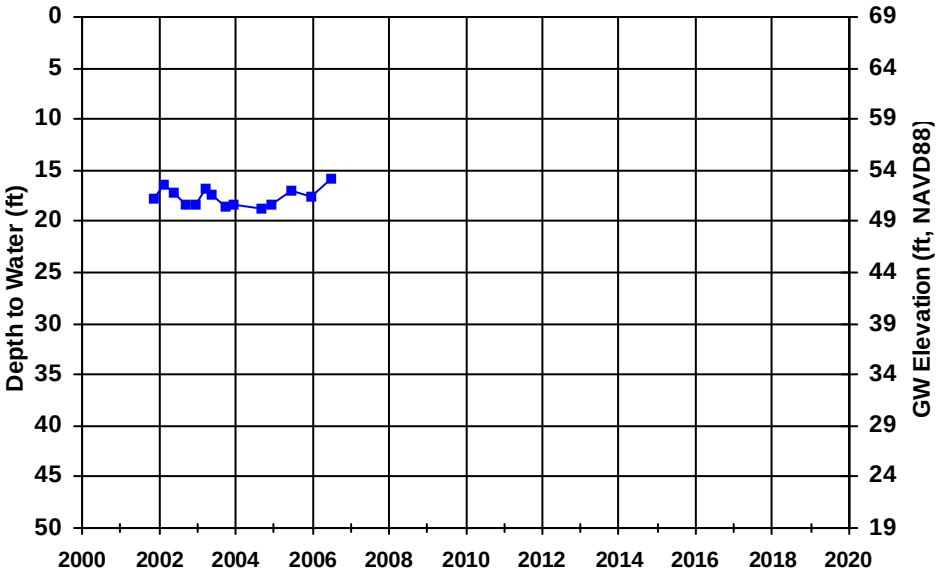
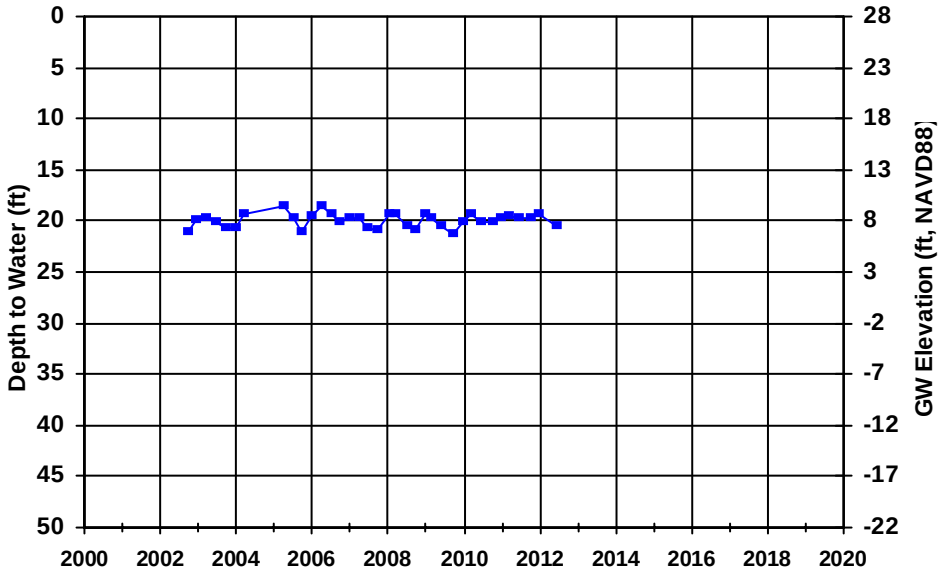
WellID: T0601300744-W-7B
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



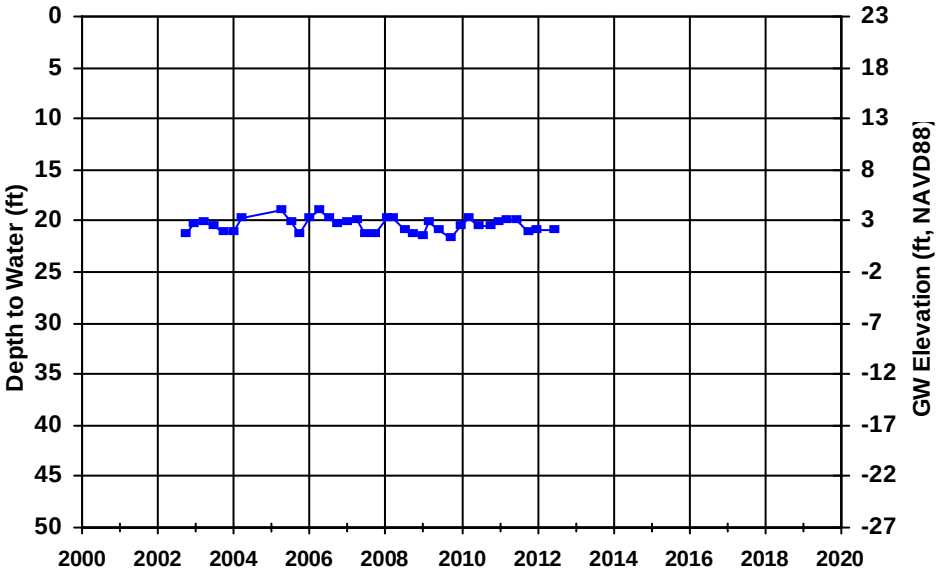
WellID: T0601300744-W-8
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300747-MW-1
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



WellID: T0601300747-MW-2
Zone: Shallow
Source: Geotracker Perf Int (ft): N/A Well Depth (ft): N/A



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